SEE SHEET 2 FOR INDEX OF SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

RECORD PLANS

CONTRACTOR: MILLER CONSTRUCTION, INC – WINDSOR, VT

RESIDENT ENGINEER: CHRIS BARKER

CONSTRUCTION BEGAN: JUNE 25, 2010

CONSTRUCTION COMPLETE: JULY 6, 2012

RECORD PLANS BY: CHRIS BARKER & STEVE KENT

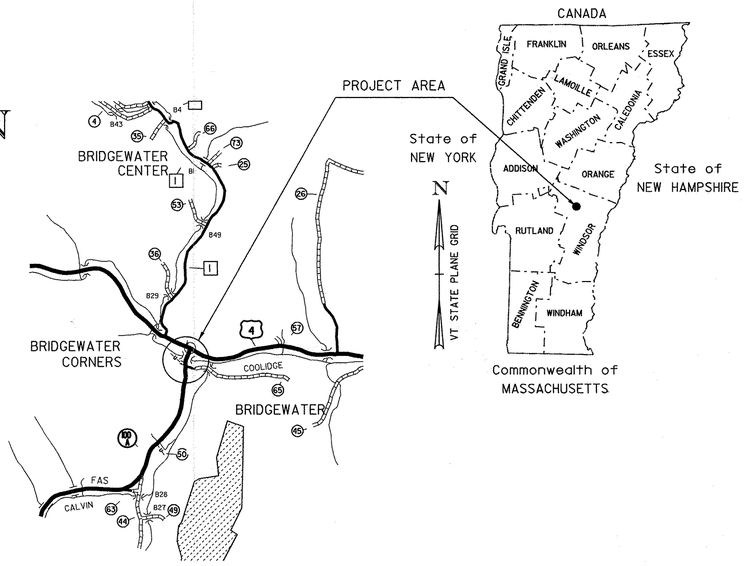
I HEREBY CERTIFY THAT ALL THE CONSTUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY _____ RESIDENT ENGINEER

DATE 09/09/13

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

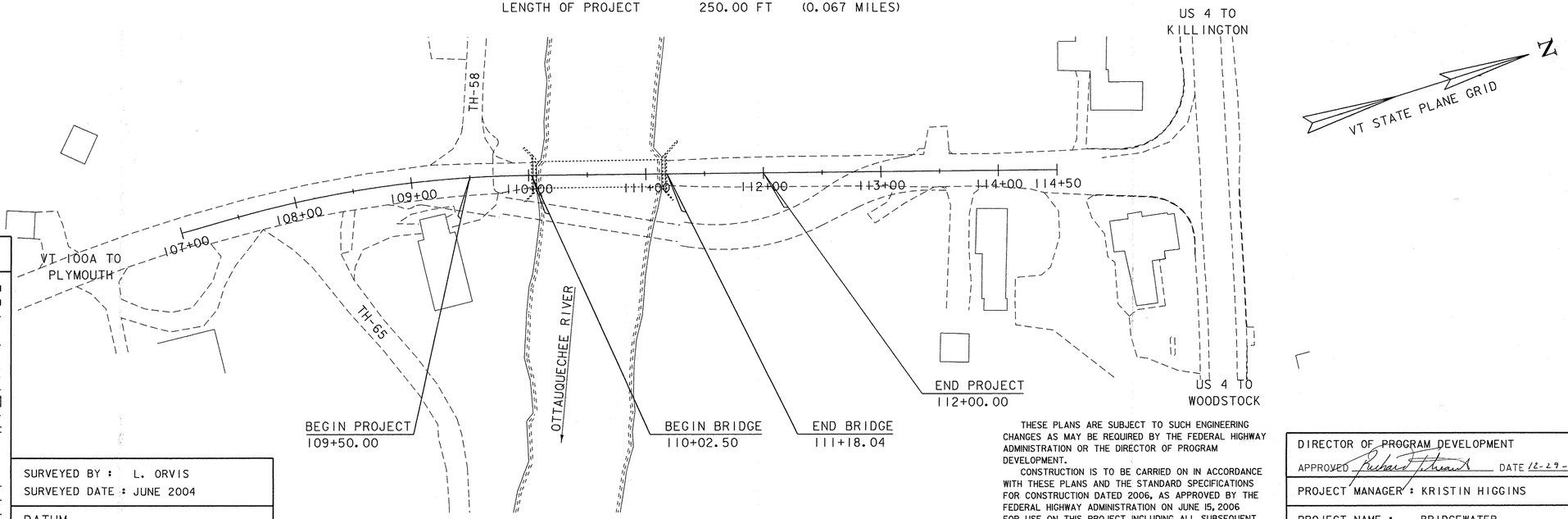
PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF BRIDGEWATER
COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 - MAJOR COLLECTOR



Project Location: Beginning at a point on Vt. Route 100A, approximately 650 feet south of the intersection of Vt. Route 100A and US Route 4, and extending northerly along Vt. Route 100A for approximately 250 ft.

Project Description: Work to be done under this project includes rehabilitation of the existing steel truss bridge, necessary roadway, channel and guardrail approach work and removal of existing temporary bridge, detour pavement and regrading area.

LENGTH OF STRUCTURE	115.54 FT	(0.022 MILES)
LENGTH OF ROADWAY	134.46 FT	(0.045 MILES)
LENGTH OF PROJECT	250.00 FT	(0.067 MILES)



CONVENTIONAL SYMBOLS

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

SURVEYED BY : L. ORVIS
SURVEYED DATE : JUNE 2004

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (86)

SCALE 1" = 50'-0
50 0 50

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

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

86e062/se062title.dgn se062title.i

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED Richard Fitzwater DATE 12-29-09

PROJECT MANAGER : KRISTIN HIGGINS

PROJECT NAME : BRIDGEWATER
PROJECT NUMBER : BRS 0149(4)

SHEET 1 OF 58 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 08.02.00

LRFD

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E-101	CONSTRUCTION SIGN DETAILS	30-May-03
E-102	CONSTRUCTION SIGN DETAILS	30-Jun-03
E-102A	CONSTRUCTION SIGN DETAILS	1-May-04
E-106	TRAFFIC CONTROL - MISCELLANEOUS DETAILS	1-Mar-04
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	30-Jun-03
E-107A	BREAKAWAY BARRICADE DETAILS	8-Jun-09
E-108	CONSTRUCTION ZONE LONGITUDINAL DROP OFFS	8-Jun-09
E-120	STANDARD SIGN PLACEMENT - EXPRESSWAY & FREEWAY	8-Aug-95
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	8-Aug-95
E-138	MILE MARKER DETAILS - STATE & TOWN HIGHWAYS	30-May-03
E-150	WARNING SIGN DETAILS	1-May-04
E-151	WARNING SIGN DETAILS	1-May-04
E-160	FLANGED CHANNEL STEEL SIGN POST	20-May-99
E-161	W-SHAPED STEEL SIGN POST	18-Aug-95
E-162	TUBULAR ALUMINUM SIGN POST	20-May-99
E-163	TUBULAR STEEL SIGN POST	20-May-99
E-164	SQUARE STEEL SIGN POST	8-Jun-09
E-197	DELINEATOR PLACEMENT TYPICAL	1-Apr-05
E-198	DELINEATORS AND MILE POSTS	1-Apr-05
E-199	DELINEATOR AND MILE POST MOUNTING ON BRIDGE RAIL	1-Apr-05
G-1	STEEL BEAM GUARDRAIL WITH STEEL POSTS STEEL BEAM GUARDRAIL WITH WOOD POSTS	3-Jan-00
G-1D	STEEL BEAM GUARDRAIL (40MPH & LESS) HEAVY DUTY STEEL BEAM GUARDRAIL STEEL BEAM MEDIAN BARRIER ANCHOR FOR STEEL BEAM RAIL	3-Jan-00

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2012	1300	190	58	10.3	190
2032	1700	240	58	15.2	370

20 year ESAL for flexible pavement from 2012 to 2032 : 1251000

40 year ESAL for flexible pavement from 2012 to 2052 : 3325000

Design Speed : 50 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: June 2008

DRAINAGE AREA : 72.4 sq. mi.
CHARACTER OF TERRAIN : Rolling to mountainous
STREAM CHARACTERISTICS : Sinuous
NATURE OF STREAMBED : Cobbles, gravel, sand and silt

PEAK FLOW DATA

Q 2.33 =	3000 cfs	Q 50 =	10,800 cfs
Q 10 =	6100 cfs	Q 100 =	13,000 cfs
Q 25 =	8800 cfs	Q 500 =	20,000 cfs

DATE OF FLOOD OF RECORD: Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY: @ Q50 = 10.5 fps
ICE CONDITIONS : Moderate
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
IS ORDINARY RISE RAPID? No
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
IF YES, DESCRIBE:

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Single Span Steel Truss
YEAR BUILT: 1928
CLEAR SPAN(NORMAL TO STREAM): 108'
VERTICAL CLEARANCE ABOVE STREAMBED: 15'
WATERWAY OF FULL OPENING: 1550 sq. ft.
DISPOSITION OF STRUCTURE: Rehabilitate
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	844.1'	VELOCITY =	7.2 fps
Q10 =	846.4'	"	9.4 fps
Q25 =	848.3'	"	10.9 fps
Q50 =	849.8'	"	12.4 fps
Q100 =	851.3'	"	14.2 fps

LONG TERM STREAMBED CHANGES: None

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 851.2'
DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: Bridgewater
HIGHWAY# : VT4
CLEAR SPAN: 172'
YEAR BUILT: 1962
STRUCTURE TYPE: Three Span Steel Beam
DISTANCE:
STRUCTURE #: B-45
CLEAR HEIGHT: 15'
FULL WATERWAY: 1554 s.f.

DOWNSTREAM STRUCTURE

TOWN: Bridgewater
HIGHWAY# : TH 46
CLEAR SPAN: 134'
YEAR BUILT: 1978
STRUCTURE TYPE: Two Span Steel Beam
DISTANCE:
STRUCTURE #: B-51
CLEAR HEIGHT: 16'
FULL WATERWAY: 1965 s.f.

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR	4A STR	5A SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	1.5	1.05					
POSTING							
OPERATING	1.95	1.37	2.11	1.22	1.72	1.64	1.87
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Single Span Steel Truss

CLEAR SPAN(NORMAL TO STREAM): 108'
VERTICAL CLEARANCE ABOVE STREAMBED: 15'
WATERWAY OF FULL OPENING: 1550 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	844.1'	VELOCITY=	7.5 fps
Q10 =	846.4'	"	9.7 fps
Q25 =	848.3'	"	10.9 fps
Q50 =	849.8'	"	12.4 fps
Q100 =	851.3'	"	14.3 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: N/A
RELIEF ELEVATION: 851.2'
DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 852.9'
VERTICAL CLEARANCE: @ Q50 = 3.1'

SCOUR: 4' at Q500

REQUIRED CHANNEL PROTECTION: Stone fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW:	150 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	70 cfs	Depth = 1'
ORDINARY HIGH WATER:	1300 cfs	Depth = 3'

TEMPORARY BRIDGE REQUIREMENTS

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

ADDITIONAL INFORMATION

Temporary bridge installed in 2005 and will be removed after rehabilitation of existing bridge.

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	1.5 INCH
3. DESIGN SPAN	L:	110.54 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ	---
5. PRESTRESSING STRAND	f_{pu}:	---
6. PRESTRESSED CONCRETE STRENGTH	f'_{ci}:	---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	---
8. CONCRETE, CLASS LW	f'_c:	4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. CONCRETE, CLASS C	f'_c:	3.0 KSI
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	50 KSI
14. SOIL UNIT WEIGHT	γ:	0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	15.3 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	0.45
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	---
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	---
20. PILE YIELD STRENGTH ASTM A572	f_y:	---
21. PILE SIZE		---
22. EST. PILE LENGTH	L_p:	
23. PILE RESISTANCE FACTOR	ϕ:	---
24. LATERAL PILE DEFLECTION	Δ:	---
25. BASIC WIND SPEED	V_{3s}:	---
26. MINIMUM GROUND SNOW LOAD	P_g:	---
27. SEISMIC DATA PGA ---	S_s:	---
	S_1:	---

PROJECT NAME: **BRIDGEWATER**
PROJECT NUMBER: **BRS 0149(4)**

FILE NAME: s86e062pi.xls
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
PRELIMINARY INFORMATION SHEET 1

PLOT DATE: 12/2/2009
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 2 OF 58

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION, DATED 2008 AND ITS LATEST REVISIONS.

2. THE BRIDGE IS DESIGNED FOR HL-93 LIVE LOAD WITH AN ALLOWANCE FOR 1 1/2" OF FUTURE PAVEMENT.

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

4. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SUBSECTION 301.06 REGARDING THE COMPACTION OF SUBBASE MATERIAL.

5. ITEM 529.20 PARTIAL REMOVAL OF STRUCTURE SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ANY COMPONENTS ASSOCIATED WITH THE EXISTING BRIDGE NECESSARY TO PERFORM THE REQUIRED WORK.

6. THE TEMPORARY BRIDGE CONTRACT PLANS AND ANY KNOWN AVAILABLE HISTORIC TRUSS PLAN SHEETS ARE INCLUDED IN THIS PLAN SET. THE INFORMATION CONTAINED IN THESE REFERENCE SHEETS HAS NOT BEEN VERIFIED AND ARE INCLUDED FOR INFORMATIONAL PURPOSES ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE ACCURACY OF ANY INFORMATION CONTAINED IN THE PLANS. THE STATE SHALL NOT BE LIABLE FOR ANY OMISSIONS OR INCORRECT INFORMATION SHOWN IN THE REFERENCE PLANS.

EXISTING AND CONSTRUCTION TRAFFIC CONTROL

7. AS PART OF 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE), THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC TRAFFIC CONTROL PLAN TO THE ROADWAY, TRAFFIC, AND SAFETY ENGINEER FOR APPROVAL PER SUBSECTION 105.03. SEE SPECIAL PROVISIONS.

8. THE CONTRACTOR SHALL MAINTAIN TEMPORARY DETOURS IN ACCORDANCE WITH SUBSECTION 104.04 MAINTENANCE OF TRAFFIC. THE WORK REQUIRED UNDER SUBPART (E), IF NECESSARY, WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE INCLUDED IN THE BID PRICE FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

9. FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED INCLUDED IN THE BID PRICE FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

10. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE TRAFFIC CONTROL NEEDS PERTAINING TO THE CONSTRUCTION OF WINGWALL #2.

11. ANY TEMPORARY EXCAVATION AND FILL NECESSARY TO MAINTAIN TRAFFIC SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

12. ANY TEMPORARY MEANS OF SUPPORTING EXCAVATION NECESSARY TO MAINTAIN TRAFFIC SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) AND SHALL MEET THE REQUIREMENTS OF SECTION 204.

13. ANY TEMPORARY MEANS OF SUPPORTING FILL NECESSARY TO MAINTAIN TRAFFIC SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) AND ASSOCIATED CONSTRUCTION DRAWINGS SHALL BE SUBMITTIED IN ACCORDANCE WITH SUBSECTION 105.03.

14. ANY TEMPORARY MEANS OF SUPPORTING EXCAVATION OR FILL SHALL NOT DAMAGE STRUCTURES THAT ARE TO BE LEFT IN PLACE. IF STRUCTURES THAT ARE TO BE LEFT IN PLACE ARE DAMAGED, THEY SHALL BE REPLACED, OR REPAIRED TO THE RESIDENT ENGINEER'S SATISFACTION, AT THE CONTRACTOR'S EXPENSE.

15. ALL TEMPORARY MEANS OF SUPPORTING EXCAVATION AND FILL SHALL BE ADEQUATELY SEPARATED FROM THE TRAVELING PUBLIC PER THE AASHTO ROADSIDE DESIGN GUIDE.

16. ANY TEMPORARY MEANS OF SUPPORTING EXCAVATION OR FILL SHALL BE PLACED TO AVOID OBSCURING SIGHT DISTANCE OF TRAFFIC ON VT RTE 100A AND TRAFFIC ENTERING OR EXITING VT RTE 100A.

17. THE CONTRACTOR SHALL COORDINATE ANY USE OR CHANGE OF THE TEMPORARY TRAFFIC SIGNALS AND THE REMOVAL OF THE TEMPORARY TRAFFIC SIGNALS, TEMPORARY UTILITY POLES AND TEMPORARY SIGNS WITH THE TRAFFIC SHOP. THE SIGNALS, SIGNS AND SIGN POSTS ARE THE PROPERTY OF THE TRAFFIC SHOP AND SHALL BE REMOVED BY THEIR DESIGNATED REPRESENTATIVE. THIS WORK SHALL BE INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE AND APPROACHES).

18. THE AREA DISTURBED BY THE EXISTING TEMPORARY DETOUR SHALL BE RESTORED TO ITS ORIGINAL CONDITION. THE COST OF THE SEED, FERTILIZER AND MULCH WILL BE PAID UNDER THEIR RESPECTIVE ITEMS.

CONCRETE

19. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" BY 1".

20. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

21. REINFORCING PLACEMENT TOLERANCES SHALL BE:
    SPACING ± 1"
    CLEARANCE ± ¼"

22. THE CONCRETE IN THE DECK AND CURBS SHALL BE SPECIFIED BY THE HALF-FILLED GRID DECK MANUFACTURER AND MEET THE REQUIREMENTS OF HIGH PERFORMANCE CONCRETE, LIGHTWEIGHT OF SECTION 900. THE COST FOR THIS CONCRETE SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 900.670 SPECIAL PROVISION (HALF-FILLED GRID DECK) (FPQ).

23. UNLESS OTHERWISE NOTED, ALL OTHER CONCRETE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS B.

24. THE DECK IS TO BE POURED IN ONE CONTINUOUS POUR WITH A MAXIMUM DURATION OF EIGHT HOURS. IF CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL PREVENT THIS FROM BEING ACCOMPLISHED, A TRANSVERSE CONSTRUCTION JOINT SHALL BE USED BETWEEN ADJACENT POURS. A MINIMUM 96 HOUR DELAY BETWEEN ADJACENT POURS SHALL BE OBSERVED.

25. NO CONCRETE IN THE ABUTMENTS OR WINGWALLS SHALL BE PLACED ABOVE THE BRIDGE SEAT ELEVATIONS UNTIL THE STRINGERS HAVE BEEN PROFILED AND THE FINISHED GRADE OF THE DECK HAS BEEN DETERMINED.

26. SURFACES OF BRIDGE SEATS UNDER BEARING DEVICES SHALL BE LEVEL. THE ENTIRE BRIDGE SEAT SURFACE SHALL BE SMOOTHED WITH A MAGNESIUM FLOAT.

27. THE DECK PANELS SHALL BE ADJUSTABLE TO ACCOMMODATE THE FINISH GRADE ELEVATIONS DUE TO THE VERTICAL CURVE AND CROSS-SLOPE WITHOUT EXCEEDING THE WEIGHT LIMITATIONS AND WITHOUT VIOLATING THE MANUFACTURER'S APPROVED INSTALLATION PROCEDURES.

28. SHEAR CONNECTORS SHALL BE PROVIDED ON ALL STRINGERS AND FLOORBEAMS. THE HALF-FILLED GRID DECK MANUFACTURER SHALL BE RESPONSIBLE FOR DETERMING THE TYPE, SIZE AND SPACING. THE COST FOR THE SHEAR CONNECTORS SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 900.670 SPECIAL PROVISION (HALF-FILLED GRID DECK) (FPQ).

29. ANY FALSEWORK REQUIRED TO CONSTRUCT THE INTERIOR OR EXTERIOR DECK SECTIONS SHALL BE DESIGNED AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE DESIGN AND WORKING DRAWINGS SHALL BE SUBMITTED PER SECTION 105 OF THE STANDARD SPECIFICATIONS.

30. LOADING ALLOWANCE ON THE NEW DECK SHALL BE IN ACCORDANCE WITH SUBSECTION 501.18(B) OF THE STANDARD SPECIFICATIONS.

31. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF THE DECK BETWEEN THE DRIP BEADS.

32. NO BAR LISTS OR BENDING SCHEDULES ARE SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE VENDOR'S BAR LISTS AND SCHEDULES FOR QUANTITY, SIZE, AND SHAPE OF BAR REINFORCEMENT FOR CONSTRUCTING THE STRUCTURAL COMPONENTS SHOWN IN THE CONTRACT DOCUMENTS OR MADE A PART THEREOF.

33. TEST BARS SHALL BE PROVIDED PER THE MATERIALS SAMPLING MANUAL PROVIDED BY THE MATERIALS AND RESEARCH SECTION OF THE AGENCY OF TRANSPORTATION.

34. LAP AND MECHANICAL SPLICES THAT MEET THE REQUIREMENTS OF AASHTO AND SECTION 507 WILL BE PERMITTED TO ACCOMMODATE FABRICATION, TRANSPORTATION AND CONSTRUCTION REQUIREMENTS. THE COST ASSOCIATED WITH LAP AND MECHANICAL SPLICES WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE BID PRICE FOR THE CORRESPONDING REINFORCING STEEL ITEM.

STONE FILL

35. THE STONE FILL, TYPE IV SHALL BE PLACED IN FRONT OF THE ABUTMENTS AFTER THE ABUTMENTS HAVE CURED AND BEFORE THE NEW FLOOR SYSTEM IS PUT IN PLACE.

STRUCTURAL STEEL

36. THE DIMENSIONS OF EXISTING MATERIALS GIVEN IN THE PLANS HAVE BEEN ASSUMED. THE ACTUAL DIMENSIONS OF EXISTING MATERIALS MAY DIFFER FROM THOSE GIVEN IN THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING DIMENSIONS.

37. THE TRUSS MAY BE SHORED AND REHABILITATED IN PLACE AND PAID FOR UNDER ITEM 502.10 SHORING SUPERSTRUCTURE AND ITEM 900.645 SPECIAL PROVISION (REHABILITATING TRUSS BRIDGE SUPERSTRUCTURE) OR THE TRUSS MAY BE MOVED AND REHABILITATED IN A DIFFERENT LOCATION AND REINSTALLED IN ITS FINAL LOCATION AND PAID FOR UNDER ITEM 900.645 SPECIAL PROVISION (HANDLING, TRANSPORT AND RE-ERECTION OF TRUSS BRIDGE SUPERSTRUCTURE) AND ITEM 900.645 SPECIAL PROVISION (REHABILITATING TRUSS BRIDGE SUPERSTRUCTURE).

38. BEFORE THE TRUSS IS SHORED OR REMOVED, THE OVERALL DIMENSIONS OF THE TRUSS ELEMENTS AND CORRESPONDING TEMPERATURE READINGS SHALL BE RECORDED AND GIVEN TO THE STRUCTURES ENGINEER. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 506.60 STRUCTURAL STEEL.

39. UNLESS OTHERWISE NOTED, ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270M/M270 GRADE 50 AND SHALL BE GALVANIZED PER SUBSECTION 506.15.

40. THE BOTTOM CHORD IS DETAILED AS A SINGLE CONTINUOUS CAMBERED MEMBER. SPLICES TO FACILITATE FABRICATION AND ERECTION WILL BE CONSIDERED, BUT MUST BE DESIGNED AND DETAILED BY THE CONTRACTOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR ACCEPTANCE.

41. STRUCTURAL STEEL MEMBERS DESIGNATED AS "FCM" (FRACTURE CRITICAL MEMBERS) IN THE PLANS SHALL MEET THE FOLLOWING CONSTRUCTION AND TESTING REQUIREMENTS LISTED BELOW.

    A. ALL FRACTURE CRITICAL MEMBERS SHALL BE FABRICATED ACCORDING TO SECTION 12 OF THE AASHTO/AWS D1.5M/D1.5 BRIDGE WELDING CODE.

    B. ALL FRACTURE CRITICAL MEMBERS SHALL FABRICATED IN A PLANT HAVING AN AISC FRACTURE CRITICAL ENDORSEMENT OR THE FABRICATOR SHALL PROVIDE TO THE STRUCTURES ENGINEER AN ACCEPTABLE FRACTURE CONTROL PLAN MEETING THE REQUIREMENTS OF AASHTO/AWS D1.5, PRIOR TO FABRICATION.

    C. ALL FRACTURE CRITICAL MEMBERS SHALL BE IMPACT TESTED TO THE FRACTURE CRITICAL REQUIREMENTS AS SPECIFIED IN AASHTO M 270M/M 270.

42. STRUCTURAL STEEL MEMBERS DESIGNATED AS "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.

43. ALL BOLT OR RIVET HOLES IN THE STRUCTURAL STEEL THAT ARE NOT OTHERWISE FILLED, SHALL BE FILLED WITH BUTTON HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19.

44. UNLESS OTHERWISE NOTED, ALL FIELD CONNECTIONS SHALL BE MADE WITH HIGH-STRENGTH TYPE 1 GALVANIZED BOLTS PER SECTION 506. UNLESS OTHERWISE NOTED, THE BOLTS SHALL BE 7/8" DIAMETER PLACED IN 15/16" DIAMETER HOLES.

45. WHEN CONNECTIONS ARE TO BE MADE WITH EXISTING MATERIAL, THE DIMENSION AND SPACING OF HOLES SHOULD BE VERIFIED BEFORE FABRICATING AND CONNECTING NEW MEMBERS, ANY DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND THE PLANS SHOULD BE BROUGHT TO THE STRUCTURES ENGINEER FOR CONCURRENCE BEFORE MATERIAL IS FABRICATED AND CONNECTIONS ARE MADE.

46. ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.

47. ALL STRUCTURAL CONNECTIONS INCORPORATING THE BEVELED SIDE OF A STANDARD BEAM, CHANNEL OR ANGLE SHALL USE THE CORRESPONDING GALVANIZED ASTM F436 BEVELED WASHERS.

48. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.

49. UNLESS OTHERWISE SPECIFIED IN THE CONTRACT, ALL FAYING SURFACES SHALL EITHER BE GALVANIZED TO MEET THE CLASS C SLIP COEFFICIENT VALUE OF NOT LESS THAN 0.33 AS SPECIFIED BY AASHTO OR COATED WITH AN INORGANIC ZINC RICH PRIMER TO MEET THE CLASS B SLIP COEFFICIENT VALUE OF NOT LESS THAN 0.50 AS SPECIFIED BY AASHTO.

PROTECTIVE COATINGS

50. THE EXISTING STRUCTURAL STEEL MAY BE PAINTED WITH A LEAD-BASED PAINT. THE COSTS ASSOCIATED WITH SAFELY REMOVING THIS PAINT ARE INCLUDED THE BID PRICE FOR ITEM 900.645 SPECIAL PROVISION (CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES).

51. ALL OF THE EXISTING STEEL TO REMAIN IN THE FINAL STRUCTURE SHALL BE PREPARED TO A "100% BARE EXISTING" CONDITION PER ITEM 900.645 SPECIAL PROVISION (QC/QA CLEANING AND PAINTING STRUCTURAL COMPONENTS).

52. THE FINAL COLOR OF ALL STRUCTURAL STEEL INCLUDING THE CONNECTION PLATES AND ANGLES SHALL BE GREEN COLOR CHIP 14062 PER SUBSECTION 708.03 OF THE STANDARD SPECIFICATIONS. THE FLOOR SYSTEM, INCLUDING THE FLOORBEAMS, STRINGERS AND DIAGONALS NEED NOT BE PAINTED.

53. THE AREA OF CONTACT BETWEEN ALL EXISTING CONNECTIONS, EXCEPT CONNECTIONS WHICH ARE NOT DISASSEMBLED, SHALL BE FREE OF EXISTING PAINT, CLEANED AND PRIMED TO MEET THE CONDITIONS OF A CLASS B SLIP COEFFICIENT PER THE "TESTING METHOD TO DETERMINE THE SLIP COEFFICIENT FOR COATINGS USED IN BOLTED JOINTS" AS ADOPTED BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS.

54. WHEN A CONNECTION IS FIELD DRILLED, THE CONTRACTOR SHALL CLEAN ALL SURFACES PRIOR TO BOLTING THE CONNECTION. ALL MEMBERS AND CONNECTION PLATES MUST BE INDIVIDUALLY CLEANED PRIOR TO BOLTING. THIS MAY REQUIRE THE REMOVAL OF CLAMPS OR OTHER DEVICES THAT ARE HOLDING MEMBERS IN PLACE. THE CLEANING SHALL INCLUDE THE REMOVAL OF ALL OIL AND OTHER RESIDUE RESULTING FROM FIELD DRILLING.

55. THE TOP COAT OF THE PAINT SYSTEM SHALL BE APPLIED AFTER ALL OF THE STRUCTURAL STEEL HAS BEEN ASSEMBLED. THE CONCRETE DECK NEED NOT BE PLACED PRIOR TO THE APPLICATION OF THE TOP COAT.

56. ANY DAMAGE CAUSED TO THE PAINT SYSTEM, INCLUDING THAT CAUSED BY THE CONCRETE OPERATIONS, SHALL BE REPAIRED PER, AND INCLUDED IN THE BID PRICE FOR, ITEM 900.645 SPECIAL PROVISION (QC/QA CLEANING AND PAINTING STRUCTURAL COMPONENTS).

57. ALL CONTRACTORS PERFORMING CONTAINMENT, CLEANING AND PAINTING FOR THE PROJECT SHALL POSSESS AND MAINTAIN THE APPROPRIATE SOCIETY FOR PROTECTIVE COATINGS (SSPC) CERTIFICATIONS.

58. ALL MATERIAL TO BE GALVANIZED SHALL BE CLEANED AND PICKLED PER THE SSPC-SP8, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

FILE NAME: s86e062gen.dgn	PLOT DATE: 15-MAR-2010
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
GENERAL NOTES #2	SHEET 4 OF 58

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
					ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
					1					1	1	LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
					840					840		CY	COMMON EXCAVATION	203.15				
					310					310		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
								850		850		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
								1000		1000		CY	COFFERDAM EXCAVATION, EARTH	208.30				
								400		400		CY	COFFERDAM EXCAVATION, ROCK	208.35				
								1		1		LS	COFFERDAM (ABUTMENT NO. 1)	208.40				
								1		1		LS	COFFERDAM (ABUTMENT NO. 2)	208.40				
					290					290	436.7	SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
					830					830		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
					3					3	3	CWT	EMULSIFIED ASPHALT	404.65				
					1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
					305					305	321.4	TON	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT	490.30				
								430		430		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
													BEGIN OPTION AA					
								1		1		LS	SHORING SUPERSTRUCTURE	502.10				
								1		1		LS	SPECIAL PROVISION (HANDLING, TRANSPORT AND RE-ERECTION OF TRUSS BRIDGE SUPERSTRUCTURE)	900.645				
													END OPTION AA					
								122700		122700		LB	STRUCTURAL STEEL	506.60				
								75		75		GAL	WATER REPELLENT, SILANE	514.10				
								60		60		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
								1		1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20				
								4		4		EACH	BEARING DEVICE ASSEMBLY, POT	531.12				
								400		400		CY	STONE FILL, TYPE IV	613.13				
					233					233	233	LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21				
					4					4	4	EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				
					270					270	256	LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
									1	1		LS	FIELD OFFICE, ENGINEERS	631.10				
									1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
									1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
									1	1		LS	TESTING EQUIPMENT, PROTECTIVE COATINGS	631.18				
						520				520	443.5	HR	EMPLOYEE TRAINEESHIP	634.10				
					1					1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
					900					900	1466	LF	DURABLE 4 INCH WHITE LINE, THERMOPLASTIC	646.402				
					900					900	1374	LF	DURABLE 4 INCH YELLOW LINE, THERMOPLASTIC	646.412				
								270		270		SY	GEOTEXTILE UNDER STONE FILL	649.31				
				50						50		SY	GEOTEXTILE FOR SILT FENCE	649.51				
				65						65		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515				
				120						120		SY	GEOTEXTILE FOR FILTER CURTAIN.	649.61				
				25						25	28	LB	SEED	651.15				

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062qs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
QUANTITY SHEET #1

PLOT DATE: 12-MAR-2010
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 5 OF 58

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
					ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							25			25	0	LB	SEED, WINTER RYE	651.17				
							200			200	177	LB	FERTILIZER	651.18				
							1			1	0.45	TON	AGRICULTURAL LIMESTONE	651.20				
							1			1	58.25	TON	HAY MULCH	651.25				
							85			85		CY	TOPSOIL	651.35				
							80			80		SY	GRUBBING MATERIAL	651.40				
							1			1		LS	EPSC PLAN	652.10				
							100			100		HR	MONITORING EPSC PLAN	652.20				
							1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I)	652.30				
							400			400		SY	TEMPORARY EROSION MATTING	653.20				
							20			20		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
							40			40		CY	VEHICLE TRACKING PAD	653.35				
							420			420		LF	PROJECT DEMARCATION FENCE	653.55				
					9					9	58.25	SF	TRAFFIC SIGNS, TYPE A	675.20				
					22					22	116.5	LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
									5000	5000		DL	SPECIAL PROVISION (FIELD OFFICE TELEPHONE) (N.A.B.I)	900.615				
					4					4	4	EACH	SPECIAL PROVISION (GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM)	900.620				
								5650		5650		LB	SPECIAL PROVISION (EPOXY COATED REINFORCING STEEL)(FPQ)	900.635				
								47160		47160		LB	SPECIAL PROVISION (REINFORCING STEEL)(FPQ)	900.635				
								267		267		LF	SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM/CURB MOUNTED)	900.640				
								1		1		LS	SPECIAL PROVISION (CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES)	900.645				
								1		1		LS	SPECIAL PROVISION (QC/QA CLEANING AND PAINTING STRUCTURAL COMPONENTS)	900.645				
								1		1		LS	SPECIAL PROVISION (REHABILITATING TRUSS BRIDGE SUPERSTRUCTURE)	900.645				
					1					1	1	LS	SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE AND APPROACHES)	900.645				
					1					1	1	LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
								3370		3370		SF	SPECIAL PROVISION (HALF-FILLED GRID DECK) (FPQ)	900.670				
											7	EACH	REMOVING SIGNS SA/CO 005 DATED 6/27/12					
											9	EACH	DURABLE LETTER OR SYMBOL SA/CO 005 DATED 6/27/12					
												EACH	REHAB DI CATCH, MANHOLES, CLASS I SA/CO 005 6/27/12					

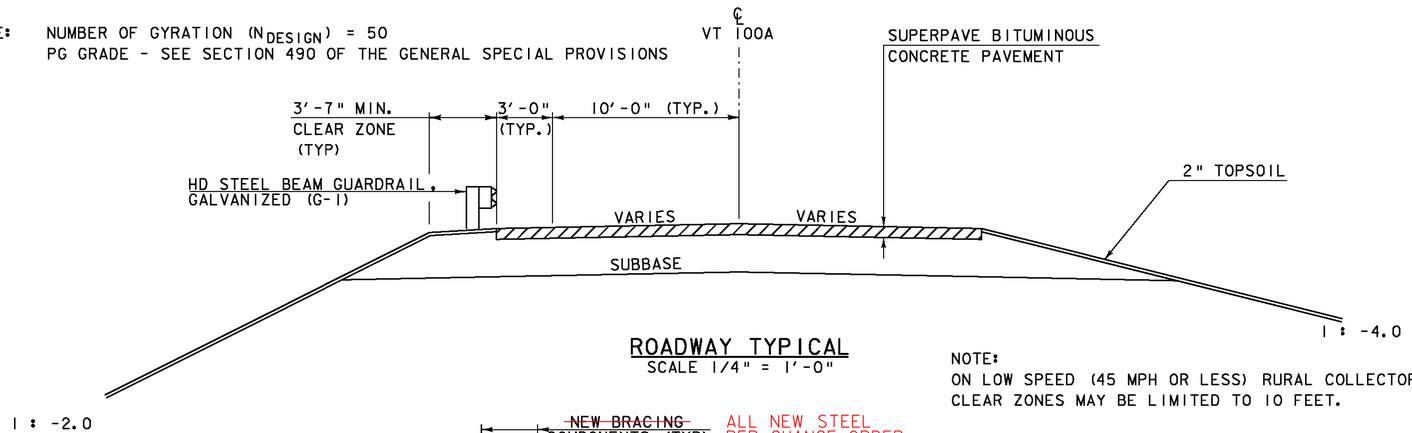
PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062qs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
QUANTITY SHEET #2

PLOT DATE: 12-MAR-2010
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 6 OF 58

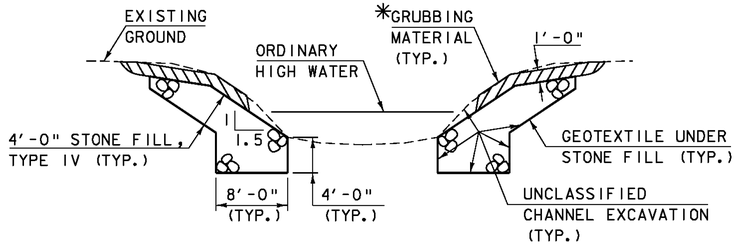
3" SUPERPAVE BITUMINOUS CONCRETE PAVEMENT (1 ½" TYPE IVS OVER 1 ½" TYPE IVS)
2 ½" BASE COURSE OF SUPERPAVE BITUMINOUS CONCRETE PAVEMENT (TYPE IIS)
24" SUBBASE OF DENSE GRADED CRUSHED STONE (VARIES)

NOTE: NUMBER OF GYRATION (N_{DESIGN}) = 50
PG GRADE - SEE SECTION 490 OF THE GENERAL SPECIAL PROVISIONS



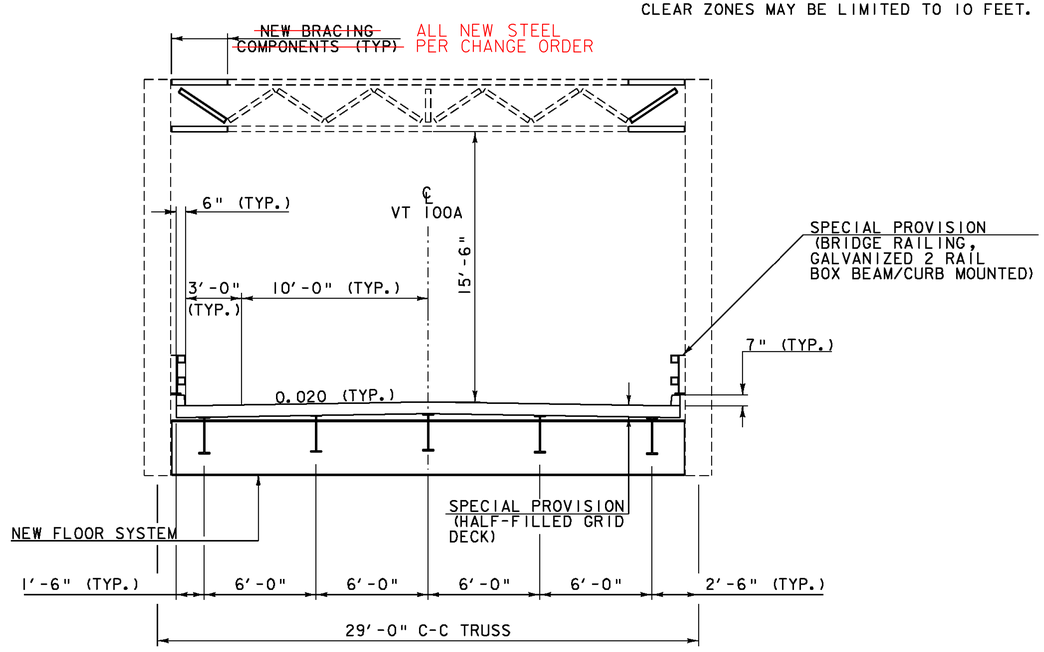
ROADWAY TYPICAL
SCALE 1/4" = 1'-0"

NOTE:
ON LOW SPEED (45 MPH OR LESS) RURAL COLLECTORS, CLEAR ZONES MAY BE LIMITED TO 10 FEET.

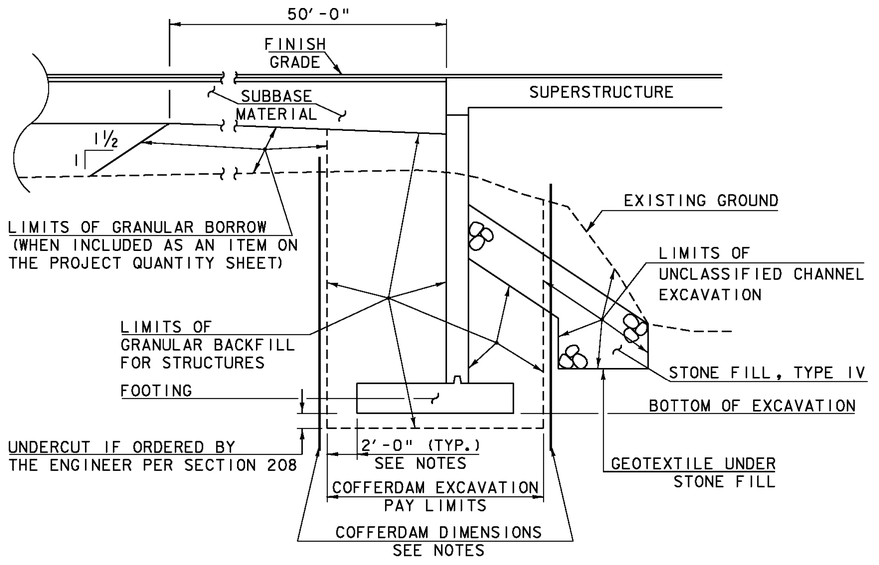


TYPICAL CHANNEL SECTION
(NOT TO SCALE)

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



BRIDGE TYPICAL
SCALE 1/4" = 1'-0"



COFFERDAM AND EARTHWORK SECTION
(NOT TO SCALE)

MATERIAL TOLERANCES

SURFACE	
- PAVEMENT	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
BASE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"
GRANULAR BORROW	+/- 1"

COFFERDAM NOTES

1. COFFERDAM DIMENSIONS TO BE DETERMINED BY THE CONTRACTOR.
2. THE PAY LIMITS OF "COFFERDAM EXCAVATION, EARTH" AND "COFFERDAM EXCAVATION, ROCK" SHALL BE 2'-0" OUTSIDE THE PERIMETER OF THE FOOTING AND FROM BOTTOM OF EXCAVATION UP TO THE EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
3. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION. NO MEASUREMENT AND PAYMENT WILL BE MADE FOR COFFERDAM EXCAVATION AND GRANULAR BACKFILL FOR STRUCTURES OUTSIDE THE PAY LIMITS DEFINED IN NOTE 2.

SCALE ¼" = 1'-0"
1 0 2 4 6

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062typ.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
TYPICAL SECTIONS	SHEET 7 OF 58

GPS CONTROL POINTS

HVCTRL #1

BRIDGEWATER CORNER

NORTH = 397008.317
EAST = 1598023.065
ELEV. = 865.63

GENERAL LOCATION, BRIDGEWATER CORNERS, ABOUT 15.5 MI (24.9 KM) EAST OF RUTLAND, ABOUT 7.5 MI (12.1 KM) WEST OF WOODSTOCK. TO REACH FROM THE INTERSECTION OF U.S. ROUTE 4 AND VT ROUTE 100A IN BRIDGEWATER CORNERS GO WEST ALONG U.S. ROUTE 4 FOR 0.2 MI (0.3 KM) TO THE MARK ON THE LEFT, OPPOSITE THE CENTER ROAD. THE MARK IS 1.7 M (5.6 FT) SOUTHWEST OF AND ABOUT LEVEL WITH THE SOUTHWEST EDGE OF PAVEMENT OF U.S. ROUTE 4, 23.5 M (77.1 FT) NORTHWEST OF AN INFORMATIONAL SIGN, AND 0.6 M (2.0 FT) NORTHEAST OF A FIBERGLASS WITNESS POST. IT IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A 30-CM DIAMETER CONCRETE MONUMENT. NOTE--STAMPING B94039 ADDED ON 10081994.

HVCTRL #2

BRIDGEWATER CORNER AZ

NORTH = 396232.940
EAST = 1600185.429
ELEV. = 862.92

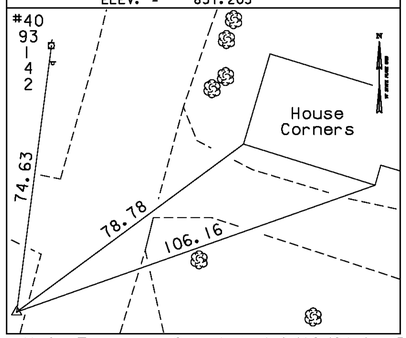
GENERAL LOCATION, BRIDGEWATER CORNERS, ABOUT 15.5 MI (24.9 KM) EAST OF RUTLAND, ABOUT 7.5 MI (12.1 KM) WEST OF WOODSTOCK. TO REACH FROM THE INTERSECTION OF U.S. ROUTE 4 AND VT ROUTE 100A IN BRIDGEWATER CORNERS GO EAST ALONG U.S. ROUTE 4 FOR 0.25 MI (0.40 KM) TO THE MARK ON THE RIGHT, ABOUT 40 M (131.2 FT) WEST OF THE INTERSECTION OF THE CORNERS INN ROAD. THE MARK IS 1.0 M (3.3 FT) SOUTH OF AND ABOUT LEVEL WITH THE SOUTH EDGE OF PAVEMENT OF U.S. ROUTE 4, 57.2 M (187.7 FT) EAST OF THE CENTERLINE OF A FIELD DRIVE ENTRANCE, AND 0.4 M (1.3 FT) NORTH OF A FIBERGLASS WITNESS POST. IT IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A 30-CM DIAMETER CONCRETE MONUMENT.

**To bring this project to Vermont State Plane coordinates add 300,000 to the northings and add 1,600,000 to the eastings

TRAVERSE TIES

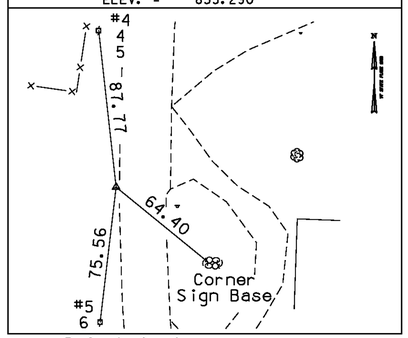
HVCTRL #3

NORTH = 96411.988
EAST = 98928.159
ELEV. = 851.203



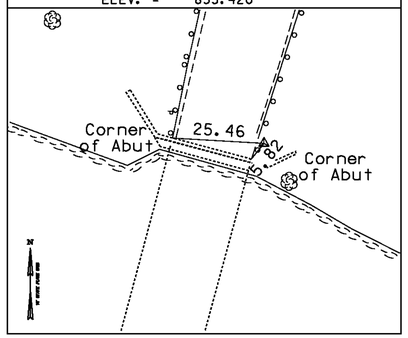
HVCTRL #4

NORTH = 95824.954
EAST = 98811.286
ELEV. = 855.290



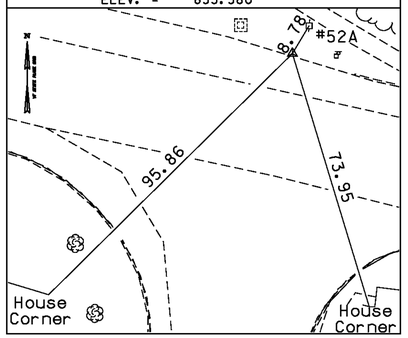
HVCTRL #5

NORTH = 96214.872
EAST = 98904.759
ELEV. = 855.420



HVCTRL #6

NORTH = 96684.995
EAST = 99018.383
ELEV. = 853.380



HVCTRL #7

NOT TIED

* Main Traverse Completed 8/12/91 by R. Moreau P.C. L. Orvis

ALIGNMENT TIES

Mainline

	STATION	NORTHING	EASTING
POB	107+00.00	95802.7508	98826.4403
Tangent Direction:		N 0°00'00.97" E	
Tangent Length:		46.52	
PC	107+46.52	95849.2708	98826.4406
PI	108+74.02	95976.7677	98826.4412
PT	110+00.00	96099.7529	98860.0583
Radius:		950.0	
Design Speed (mph):		50.00	
Delta:		15°17'15.63" Right	
Degree of Curve (Arc):		6°01'52.08"	
Length:		253.48	
Tangent:		127.50	
Chord:		252.73	
Middle Ordinate:		8.44	
External:		8.52	
POE	114+50.00	96533.8287	98978.7098
Tangent Direction:		N 15°17'16.60" E	
Tangent Length:		450.00	

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

* Alignment Data as of 18 May 2009

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83(86)
ADJUSTMENT Least Sq

PROJECT NAME: Bridgewater

PROJECT NUMBER: BRS 0149(4)

FILE NAME: 86e062\survey\x86e062tl.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: SURVEY
TIE

PLOT DATE: 31-DEC-2009
DRAWN BY: R.Bullock
CHECKED BY: SURVEY
SHEET 8 OF 58

VT 100A CURVE DATA
DELTA = 15° 17' 16" RT
D = 6° 01' 52"
R = 950.00'
T = 127.50'
L = 253.48'
E = 8.52'

REMOVAL AND DISPOSAL OF GUARD RAIL
STA 109+76 LT - 110+03 LT
STA 109+77 RT - 110+03 RT
STA 111+18 LT - 112+26 LT
STA 111+18 RT - 112+27 RT

SPECIAL PROVISION (BRIDGE RAILING,GALVANIZED 2 RAIL BOX BEAM/CURB MOUNTED)
STA 109+93.7 - 111+26.9 LT
STA 109+93.6 - 111+26.9 RT

SPECIAL PROVISION (GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX)
STA 109+72.0 - 109+93.7 LT
STA 109+68.3 - 109.93.6 RT
STA 111+26.9 - 111+51.9 LT & RT

REMOVAL OF STRUCTURE
STA 110+50 RT

VT STATE PLANE GRID

NOTE:
ADJUST NEW EDGE LINE TO MATCH EXISTING EDGE LINE AT BEGIN/END APPROACH

EXISTING BRIDGE DATA
STEEL THROUGH TRUSS
LENGTH = 113 FT
WIDTH = 21.3 FT CURB TO CURB
BUILT IN 1928
TEMPORARY INSTALLED DECEMBER, 2005

BEGIN PROJECT
STA. 109+50.00

PI VT 100A
108+74.02

BEGIN APPROACH
STA. 108+50.00

℄ BEARING
STA. 110+05.00
F.G. 856.45

℄ BEARING
STA. 111+15.54
F.G. 856.04

BEGIN BRIDGE
STA. 110+02.50
F.G. 856.44

END BRIDGE
STA. 111+18.04
F.G. 856.02

END PROJECT
STA. 112+00.00

END APPROACH
STA. ~~113+00.00~~ 115+05.00

BM#2
USGS STAND. STAMP 9 WHC 1963 854
ELEV.854.041

BM#1
CH.SQ.N.W.COR. GRANGE HALL STEPS
ELEV.858.166

VT 100A STA. 110+60.00 =
CHANNEL STA. 4+00.00
Δ = 85°-00'-00" LT

N 69° 42' 43.40" W

N 0° 00' 00.97"E

N 15° 17' 16.60"E

STONE FILL TYPE IV

EXISTING TEMPORARY BRIDGE CONSTRUCTION LIMITS
STA 112+41

HD STEEL BEAM GUARD RAIL, GALVANIZED
STA 109+69.2 - 109+72.0 LT
STA 109+56.9 - 109+68.3 RT
STA 111+51.9 - 112+52.5 LT & RT

ANCHOR FOR STEEL BEAM RAIL
STA 109+69.2 LT
STA 109+56.9 RT
STA 112+52.5 LT & RT

DURABLE 4 INCH WHITE LINE, THERMOPLASTIC
STA 108+50 - 109+39 & 109+68 - 113+00 LT
STA 108+50 - 113+00 RT
(TAPER APPROACH TO MATCH EXISTING)

DURABLE 4 INCH YELLOW LINE, THERMOPLASTIC
STA 108+50 - 109+25 & 109+75 - 113+00

SCALE 1" = 20'-0
20 0 20

TRAFFIC SIGN SUMMARY SHEET

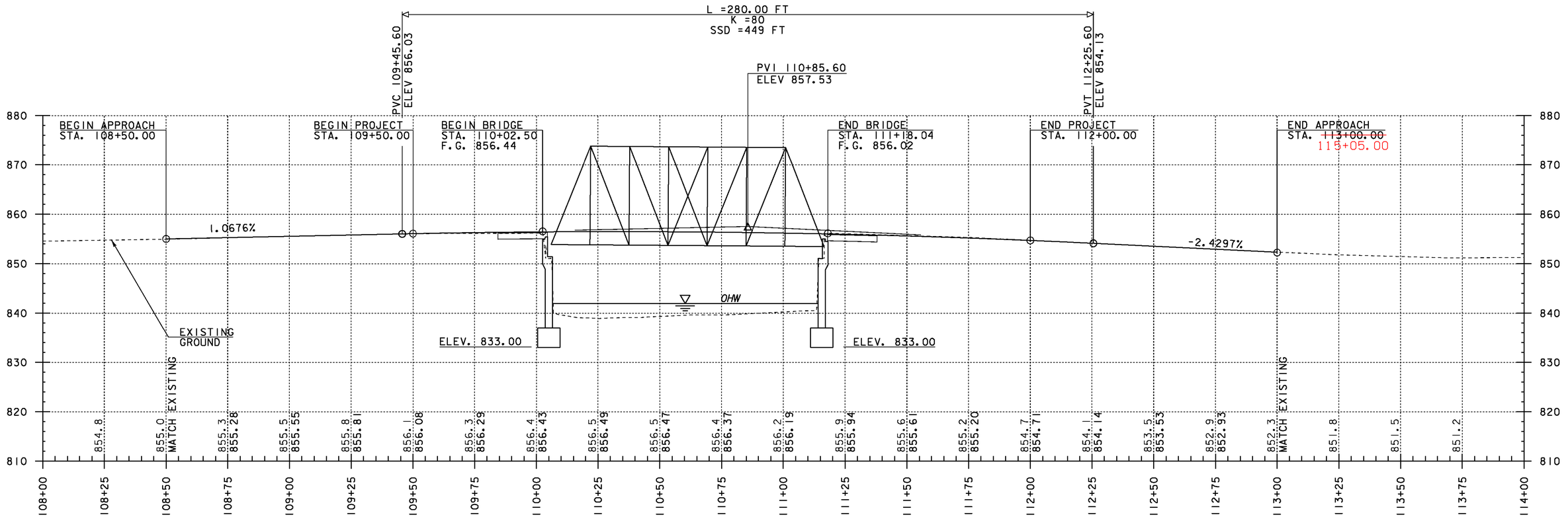
STA.	SIGN LEGEND	SIGN DIMENSIONS	NEW SIGNS	NO. OF POST	NEW SIGN POSTS	REMARKS	SIGN DETAIL STD. SHEET NO.
		WIDTH (in)	"A"		SQUARE STEEL	W3-1A	E-150
112+41 RT		36.0	9.0SF	2.0	(in) 2.00		
		HEIGHT (in)			(lb/ft) 2.42		
		36.0			22 FT		

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062bdr.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
LAYOUT
PLOT DATE: 25-JAN-2010
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 9 OF 58

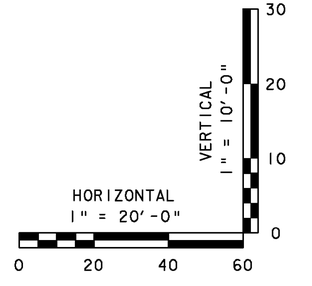
THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

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

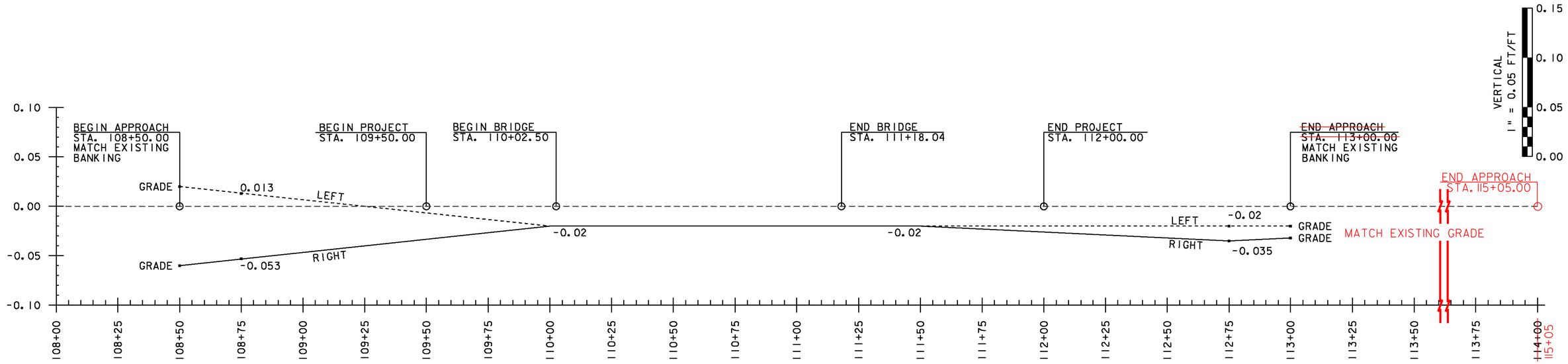


MAINLINE PROFILE

HOR. SCALE 1" = 20'
VER. SCALE 1" = 10'

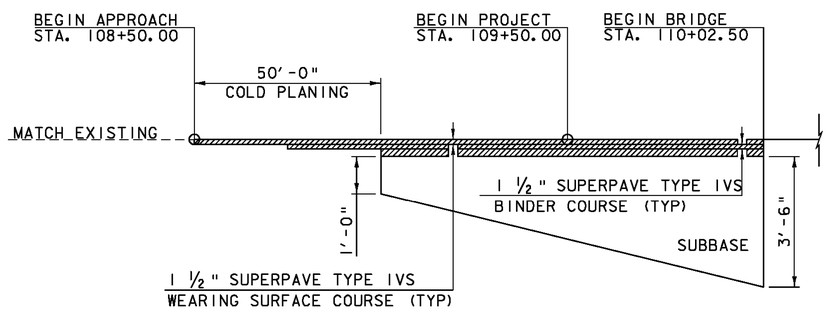


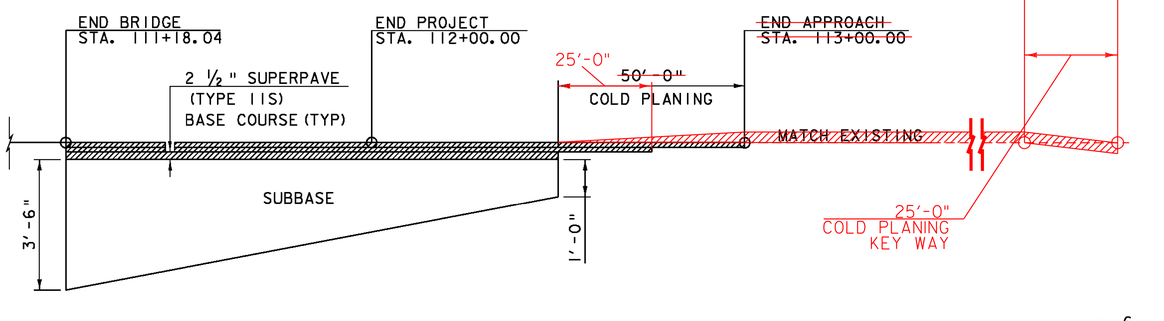
PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062xs.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
PROFILE	SHEET 10 OF 58



BANKING DIAGRAM

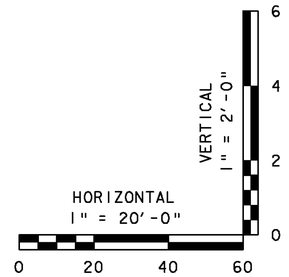
HOR. SCALE 1" = 20'
VER. SCALE 1" = 0.05 FT/FT





MATERIAL TRANSITION

HOR. SCALE 1" = 20'
VER. SCALE 1" = 2'



PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

FILE NAME: s86e062xs.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
BANKING DIAGRAM & MATERIAL TRANSITION	SHEET 11 OF 58

SOIL CLASSIFICATION (ASSHTO)

A1 Gravel and Sand
A3 Fine Sand
A2 Silty or Clayey Gravel and Sand
A4 Silty Soil - Low Compressibility
A5 Silty Soil - Highly Compressible
A6 Clayey Soil - Low Compressibility
A7 Clayey Soil - Highly Compressible

ROCK QUALITY DESIGNATION

R.Q.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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

COMMONLY USED SYMBOLS

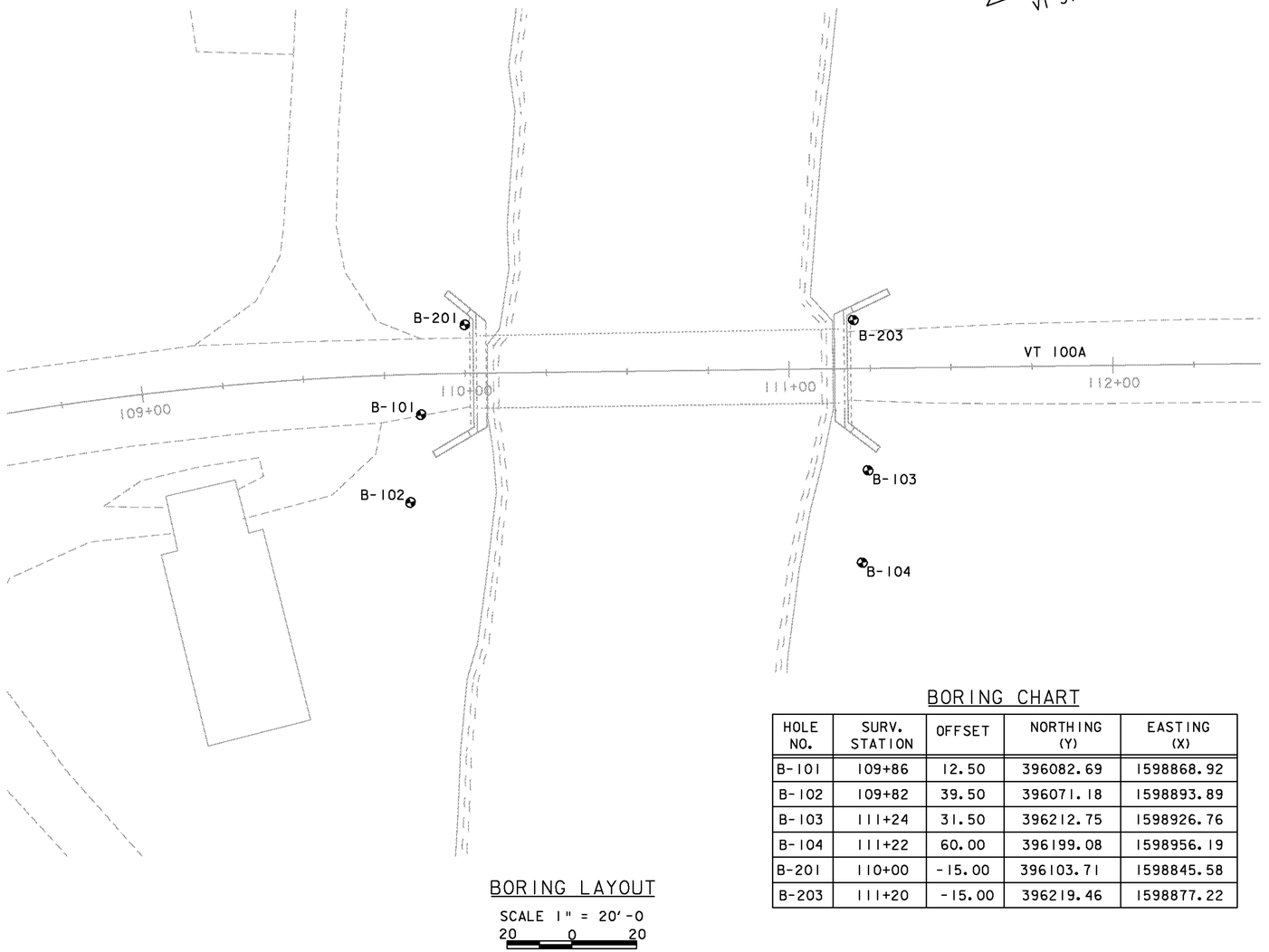
▼	Water Elevation
⊕	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per Foot For: 2" O. D. Sampler 1 3/8" I. D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BX	Core Size 1 5/8"
NX	Core Size 2 1/8"
NX	Double Tube Core Barrel Used
M	Liquid Limit
LL	Plastic Limit
PL	Plasticity Index
PI	Non Plastic
MP	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	To Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal> (N 100)

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.
BOULDER - A rock fragment with an average dimension > 12 inches.
COBBLE - Rock fragments with an average dimension between 3 and 12 inches.
GRAVEL - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).
SAND - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).
SILT - Soil< 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.
CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.
VARVED - Alternate layers of silt and clay.
HARDPAN - Extremely dense soil, cemented layer, not softened when wet.
MUCK - Soft organic soil (containing > 10% organic material.
MOISTURE CONTENT - Weight of water divided by dry weight of soil.
FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.
STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.
DIP - Inclination of bed with a horizontal plane.

COLOR

blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		



BORING LAYOUT

SCALE 1" = 20'-0
20 0 20

BORING CHART

HOLE NO.	SURV. STATION	OFFSET	NORTHING (Y)	EASTING (X)
B-101	109+86	12.50	396082.69	1598868.92
B-102	109+82	39.50	396071.18	1598893.89
B-103	111+24	31.50	396212.75	1598926.76
B-104	111+22	60.00	396199.08	1598956.19
B-201	110+00	-15.00	396103.71	1598845.58
B-203	111+20	-15.00	396219.46	1598877.22

GENERAL NOTES

1. The subsurface explorations shown herein were made between 08/03/99 and 09/03/99 by the Agency.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
3. Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
4. Engineering Judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
6. Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062bor.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
BORING LAYOUT

PLOT DATE: 31-DEC-2009
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 12 OF 58

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

BORING NUMBER: B-101
SHEET 1 of 1
DATE STARTED: 9/09/05
DATE COMPLETED: 9/09/05

PROJECT NAME: BRIDGEWATER
SITE NAME: RT. 100-A
STATION: 109+86
OFFSET: 12.50
VTSPG: N 396082.69 ft E 1598868.92 ft

PROJECT NUMBER: BRS 0149(4)
SITE NUMBER: BRIDGE #14 & TEMP. BRIDGE
GROUND ELEVATION: 855.92 ft
GROUNDWATER DEPTH: Hole caved in at 8.0'
PROJECT PIN NUMBER: 86E062

BORING CREW
CREW CHIEF: RUSSELL
DRILLER: RUSSELL
LOGGER: WERNER

BORING RIG: TRUCK
BORING TYPE: HOLLOW STEM AUGER
SAMPLE TYPE:
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
		Gravel material, 0.0 ft – 3.0 ft					
		Boulders and gravel material, 3.0 ft – 7.0 ft					
		Cobbles, gravel and small boulders, 7.0 ft – 17.0 ft					
		Sandy gravel material, 17.0 ft – 24.0 ft					
BOTTOM OF FOOTING 833.00		Boulders, cobbles, and gravel material, 24.0 ft – 30.0 ft					
		Hole stopped @ 30.0 ft					

DRILLER'S NOTES:
1. No water, hole caved in at 8.0 ft.
2. Very slow and hard drilling.
3. Broke bottom auger off and lost bit.
4. All soil classifications were done in the field.
5. Station & Offset revised for new alignment.

LOG OF BORING BRIDGEWATER BRS0149(4).GPJ VT AOT.GDT 9/4/08

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

BORING NUMBER: B-102
SHEET 1 of 1
DATE STARTED: 9/07/05
DATE COMPLETED: 9/08/05

PROJECT NAME: BRIDGEWATER
SITE NAME: RT. 100-A
STATION: 109+82
OFFSET: 39.50
VTSPG: N 396071.18 ft E 1598893.89 ft

PROJECT NUMBER: BRS 0149(4)
SITE NUMBER: BRIDGE #14 & TEMP. BRIDGE
GROUND ELEVATION: 853.78 ft
GROUNDWATER DEPTH: Hole caved in at 11.0'
PROJECT PIN NUMBER: 86E062

BORING CREW
CREW CHIEF: RUSSELL
DRILLER: RUSSELL
LOGGER: WERNER

BORING RIG: TRUCK
BORING TYPE: HOLLOW STEM AUGER
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
5		A-1-b, GrSa, brn, Moist, Rec. = 0.4 ft	7	6.3	31.0	55.4	13.6
		Cobbles, 7.0 ft – 8.0 ft					
10		A-2-4, SiGrSa, brn, Moist, Rec. = 1.4 ft	20	14.2	34.9	41.0	24.1
		Cobbles, 12.0 ft – 13.0 ft					
15		A-1-b, GrSa, brn, Moist, Rec. = 0.8 ft	24	12.6	35.3	45.3	19.4
20		A-1-b, GrSa, brn, Moist, Rec. = 0.8 ft	18	12.9	38.7	48.0	13.3
25		A-1-b, Sa, brn, Moist, Rec. = 1.0 ft	20	14.6	16.4	66.9	16.7
		Boulders and Cobbles, 28.0 ft – 30.0 ft					
30		A-1-b, SiGrSa, brn-gry, Moist, Rec. = 0.4 ft	R	11.9	24.8	52.3	22.9
		Hole stopped @ 31.0 ft					

DRILLER'S NOTES:
1. No water, hole caved in at 11.0 ft.
2. Could not penetrate further than 31.0 ft.
3. No bedrock to depth.
4. Station & Offset revised for new alignment.

LOG OF BORING BRIDGEWATER BRS0149(4).GPJ VT AOT.GDT 9/4/08

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062bor.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
BORING LOGS #1

PLOT DATE: 31-DEC-2009
DRAWN BY: J. SALVATORI
CHECKED BY: T.FILLBACH
SHEET 13 OF 58

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

BORING NUMBER: B-103
SHEET 1 of 1
DATE STARTED: 8/30/05
DATE COMPLETED: 9/01/05

PROJECT NAME: BRIDGEWATER
SITE NAME: RT. 100-A
STATION: 111+24
OFFSET: 31.50
VTSPG: N 396212.75 ft E 1598926.76 ft

PROJECT NUMBER: BRS 0149(4)
SITE NUMBER: BRIDGE #14 & TEMP. BRIDGE
GROUND ELEVATION: 846.75 ft
GROUNDWATER DEPTH: 5.9 ft 9/01/05
PROJECT PIN NUMBER: 86E062

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: RUSSELL

BORING RIG: TRUCK
BORING TYPE: HOLLOW STEM AUGER
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
5		Visual Class: A-2-4, Si Sa Gr with roots and wood material, brn, Moist, Rec. = 0.8 ft, 5.0 ft - 7.0 ft	47	8.3			
		Coarse gravel material, 8.0 ft - 9.5 ft					
10		A-1-b, SaGr, brn, MTW, Rec. = 0.9 ft	25	11.5	45.8	37.9	16.3
BOTTOM OF FOOTING 833.00							
15		A-3, Sa, brn, MTW, Rec. = 1.5 ft	6	24.2	6.0	84.9	9.1
20		A-2-4, SiSa, brn, Moist, Rec. = 1.8 ft	8	20.7	2.5	74.7	22.8
25		A-2-4, Sa, brn, Moist, Rec. = 1.4 ft	10	20.3	1.0	86.1	12.9
		A-2-4, SlGrSa, brn, Moist, Rec. = 0.4 ft		15.6	28.0	51.7	20.3
30		A-2-4, Sa, gry-brn, Moist, Rec. = 2.0 ft	49	14.2	5.0	81.4	13.6
35		No Recovery, Trace of brown sand in sampler, 35.0 ft - 36.0 ft	R				
		No Recovery, Very hard drilling, Could not penetrate further, 36.0 ft - 39.0 ft					
40		Hole stopped @ 39.0 ft					
45		DRILLER'S NOTES: 1. Could not penetrate further than 39.0 ft. 2. Very hard drilling from 36.0 ft. to 39.0 ft. 3. No bedrock to depth. 4. Station & Offset revised for new alignment.					

LOG OF BORING BRIDGEWATER BRS0149(4).GPJ VT AOT.GDT 9/4/08

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

BORING NUMBER: B-104
SHEET 1 of 1
DATE STARTED: 9/01/05
DATE COMPLETED: 9/07/05

PROJECT NAME: BRIDGEWATER
SITE NAME: RT. 100-A
STATION: 111+22
OFFSET: 60.00
VTSPG: N 396199.08 ft E 1598956.19 ft

PROJECT NUMBER: BRS 0149(4)
SITE NUMBER: BRIDGE #14 & TEMP. BRIDGE
GROUND ELEVATION: 846.31 ft
GROUNDWATER DEPTH:
PROJECT PIN NUMBER: 86E062

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: RUSSELL

BORING RIG: TRUCK
BORING TYPE: HOLLOW STEM AUGER
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
5		A-1-a, SaGr, brn, Moist, Rec. = 1.4 ft	20	6.2	49.8	41.5	8.7
10		A-1-b, GrSa, brn, MTW, Rec. = 1.5 ft	22	15.4	37.1	50.5	12.4
15		A-3, Sa, brn, Moist, Rec. = 1.0 ft	11	22.7	2.7	89.5	7.8
20		A-2-4, GrSiSa, gry-brn, Moist, Rec. = 1.1 ft	32	14.9	22.6	52.8	24.6
25		A-2-4, GrSa, brn, Moist, Rec. = 1.7 ft	24	14.8	28.5	54.3	17.2
30		A-4, SaSi, brn, Moist, Rec. = 1.0 ft	8	24.3	14.1	30.2	55.7
35		A-4, SaSi, brn, Moist, Rec. = 0.2 ft	10	24.6	8.7	26.3	65.0
40		A-1-b, GrSa, brn, MTW, Rec. = 1.1 ft	18	15.2	36.1	44.1	19.8
		Hole stopped @ 42.0 ft					
45		DRILLER'S NOTES: 1. No water found. 2. No bedrock to depth. 3. Station & Offset revised for new alignment.					

LOG OF BORING BRIDGEWATER BRS0149(4).GPJ VT AOT.GDT 9/4/08

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062bor.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
BORING LOGS #2

PLOT DATE: 31-DEC-2009
DRAWN BY: J. SALVATORI
CHECKED BY: T.FILLBACH
SHEET 14 OF 58

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

BORING NUMBER: B-201
SHEET 1 of 2
DATE STARTED: 6/05/08
DATE COMPLETED: 6/13/08

PROJECT NAME: BRIDGEWATER
SITE NAME: RT. 100-A
STATION: 110+00
OFFSET: -15.00
VTSPG: N 396103.71 ft E 1598845.58 ft

PROJECT NUMBER: BRS 0149(4)
SITE NUMBER: BRIDGE #14 & TEMP. BRIDGE
GROUND ELEVATION: 856.05 ft
GROUNDWATER DEPTH: 15.4 ft 6/12/08
PROJECT PIN NUMBER: 86E062

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LAG TRACK RIG #08 w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
		Asphalt Pavement, 0.0 ft – 0.5 ft					
		A-1-a, SaGr, gry, Moist, Rec. = 0.5 ft	13	3.8	51.5	39.8	8.7
5		A-1-a, SaGr, gry-brn, MTW, Rec. = 0.7 ft	7	12.0	64.5	27.5	8.0
		NXDC, Cleaned out casing., 9.3 ft – 10.0 ft					
10		Visual Classification, A-1-a, Gr, Rec. = 0.3 ft, Insufficient sample for testing.	29				
		Field Note, Cobbles, Cored ahead, Cleaned out casing.					
15							
		Field Note, NXDC, Cored ahead, Cleaned out casing.					
		Field Note, Concrete footing, 18.5'-21.5'					
20							
		Field Note, Cored ahead.					
BOTTOM OF FOOTING 833.00		Field Note, Sleaved down to 3.5" casing, Advanced casing.					
25		Field Note, No Recovery.	31				
		Field Note, NXDC, Cleaned out casing.					
30		A-1-a, SaGr, gry, MTW, Rec. = 0.6 ft	32	14.6	55.2	32.2	12.6

LOG OF BORING BRIDGEWATER BRS0149(4).GPJ VT_AOT.GDT 9/4/08

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

BORING NUMBER: B-201
SHEET 2 of 2
DATE STARTED: 6/05/08
DATE COMPLETED: 6/13/08

PROJECT NAME: BRIDGEWATER
SITE NAME: RT. 100-A
STATION: 110+00
OFFSET: -15.00
VTSPG: N 396103.71 ft E 1598845.58 ft

PROJECT NUMBER: BRS 0149(4)
SITE NUMBER: BRIDGE #14 & TEMP. BRIDGE
GROUND ELEVATION: 856.05 ft
GROUNDWATER DEPTH: 15.4 ft 6/12/08
PROJECT PIN NUMBER: 86E062

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LAG TRACK RIG #08 w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
		A-1-a, SaGr, gry, MTW, Rec. = 0.9 ft	26	14.9	55.2	29.4	15.4
40		Field Note, No Recovery.	24				
45		Visual Classification, A-1-b, Gr Sa, gry, Moist, Rec. = 0.2 ft, Insufficient sample for testing.	39				
		Field Note, Cleaned out casing.					
50		A-2-4, Sa, brn-gry, Moist, Rec. = 1.9 ft	79	15.2	15.2	66.6	18.2
		Field Note, 52.0'-55.0', Flowing sand, Started mud drilling.					
55		A-1-b, SaGr, brn-gry, Moist, Rec. = 1.5 ft	67	10.4	45.1	35.8	19.1
		Field Note, BXMDC, Cobbles					
60							
		A-2-4, GrSiSa, gry, Moist, Rec. = 1.5 ft	52	14.9	30.0	39.4	30.6
65		Hole stopped @ 65.0 ft					

LOG OF BORING BRIDGEWATER BRS0149(4).GPJ VT_AOT.GDT 9/4/08

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062bor.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
BORING LOGS #3

PLOT DATE: 31-DEC-2009
DRAWN BY: J. SALVATORI
CHECKED BY: T.FILLBACH
SHEET 15 OF 58

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

BORING NUMBER: B-203
SHEET 1 of 2
DATE STARTED: 6/16/08
DATE COMPLETED: 7/03/08

PROJECT NAME: BRIDGEWATER
SITE NAME: RT. 100-A
STATION: 111+20
OFFSET: -15.00
VTSPG: N 396219.46 ft E 1598877.22 ft

PROJECT NUMBER: BRS 0149(4)
SITE NUMBER: BRIDGE #14 & TEMP. BRIDGE
GROUND ELEVATION: 856.06 ft
GROUNDWATER DEPTH: 16.1 ft 6/24/08
PROJECT PIN NUMBER: 86E062

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LAG TRACK RIG #08 w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
		Asphalt Pavement, 0.0 ft - 0.3 ft					
		A-1-a, SaGr, gry, Moist, Rec. = 1.1 ft	12	5.5	54.2	38.8	7.0
5		A-1-b, SaGr, gry, MTW, Rec. = 0.9 ft	12	10.8	54.6	36.4	9.0
		Field Note, NXDC, Cobbles, Cored ahead.					
10							
15		Field Note, NXDC, Cobbles, Cored ahead.					
		Field Note, Concrete Footing, 18.0'-21.0'					
20							
BOTTOM OF FOOTING 833.00							
25		Field Note, NXDC, Cobbles, Cored ahead.					
30		A-1-b, Sa, gry, Moist, Rec. = 0.8 ft	4	24.0	7.9	87.0	5.1
		Field Note, Sleaved casing to 3.5", Statrted mud drilling.					
35		A-2-4, SiSaGr, gry, Moist, Rec. = 1.9 ft	56	15.0	37.5	37.5	25.0
40		A-1-b, GrSa, brn-gry, MTW, Rec. = 1.6 ft	23	14.3	29.4	52.9	17.7
45		A-2-4, Sa, brn-gry, MTW, Rec. = 1.5 ft	13	23.9	0.3	88.1	11.6

LOG OF BORING BRIDGEWATER BRS0149(4).GPJ VT AOT.GDT 9/4/08

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

BORING NUMBER: B-203
SHEET 2 of 2
DATE STARTED: 6/16/08
DATE COMPLETED: 7/03/08

PROJECT NAME: BRIDGEWATER
SITE NAME: RT. 100-A
STATION: 111+20
OFFSET: -15.00
VTSPG: N 396219.46 ft E 1598877.22 ft

PROJECT NUMBER: BRS 0149(4)
SITE NUMBER: BRIDGE #14 & TEMP. BRIDGE
GROUND ELEVATION: 856.06 ft
GROUNDWATER DEPTH: 16.1 ft 6/24/08
PROJECT PIN NUMBER: 86E062

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LAG TRACK RIG #08 w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

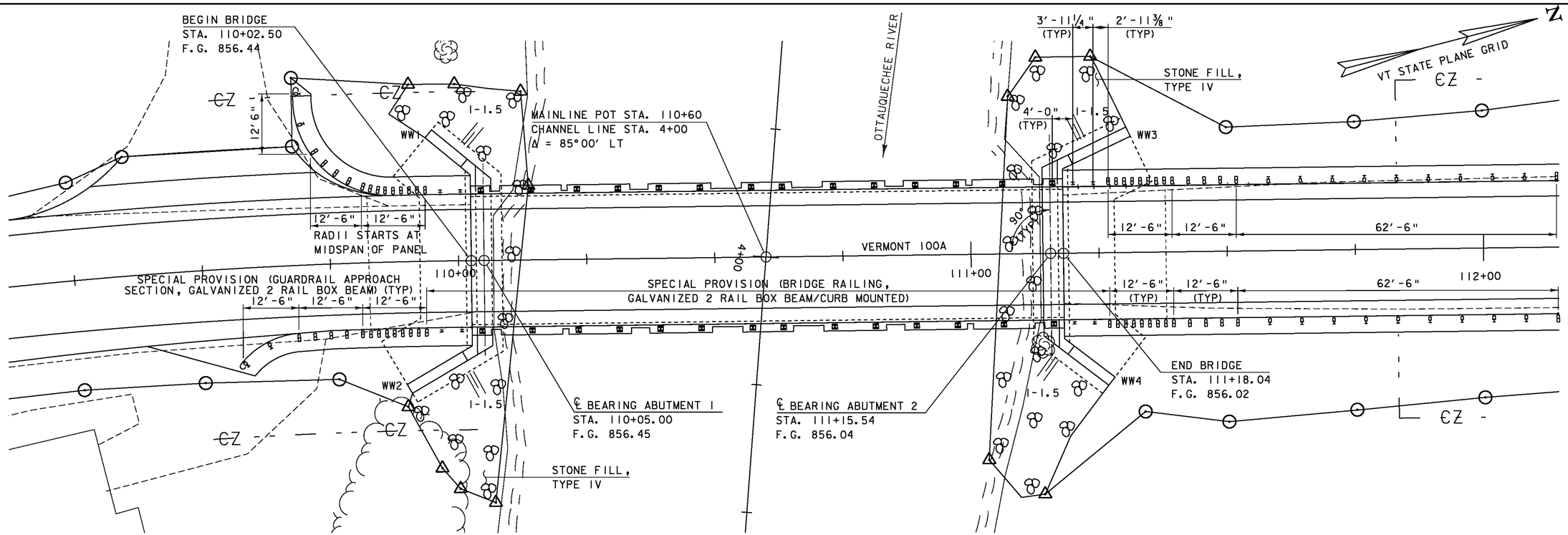
DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT / RUN	M.C. (%) / REC (%)	GRAVEL (%) / RQD (%)	SAND (%) / Dip (deg)	FINES (%) / Drill Rate (min/ft)
		A-4, SiSa, brn-gry, MTW, Rec. = 1.7 ft	16	27.1	0.0	55.9	44.1
55		A-4, SiSa, brn-gry, MTW, Rec. = 1.9 ft	17	25.1	13.0	44.6	42.4
60		A-2-4, SaSiGr, gry, Moist, Rec. = 0.3 ft	R	11.2	43.6	27.2	29.2
65		Field Note, BXDC, Cobbles, Cored ahead.					
70		A-1-b, SaGr, gry, MTW, Rec. = 0.5 ft	R	11.1	46.9	34.6	18.5
		Field Note, BXDC, Cored ahead.					
75		Visual Classification, A-2-4, GrSiSa, gry, MTW, Rec. = 0.2 ft, Insufficient sample for testing.	R				
				Top of Bedrock @ 77.5 ft			
80		Pink, Quartzite and quartz-plagioclase Granulite, Very closely spaced, unstained fresh horizontal jointing., Hard, Unweathered, BXDC, 77.5 ft - 78.8 ft, Rec. = 1.3 ft	1	100	0	60	8
		Pink, Quartzite and quartz-plagioclase Granulite, Very closely spaced, horizontal jointing., Hard, Unweathered to slightly weathered, BXMDC, 78.8 ft - 83.8 ft, Rec. = 5.0 ft	2	100	24	60	10 12 16 13 11
85		Same as Run #2., BXMDC, 83.8 ft - 84.8 ft, Rec. = 0.8 ft	3	80	0	60	14
		Pink, Quartzite and quartz-plagioclase Granulite, Very closely spaced, horizontal jointing in upper 1.5 ft. of core run., Hard, Moderately weathered at 86.3 ft., BXMDC, 84.8 ft - 88.8 ft, Rec. = 4.0 ft	4	100	63	0	12 4 10 10
90		Hole stopped @ 88.8 ft					
95							

LOG OF BORING BRIDGEWATER BRS0149(4).GPJ VT AOT.GDT 9/4/08

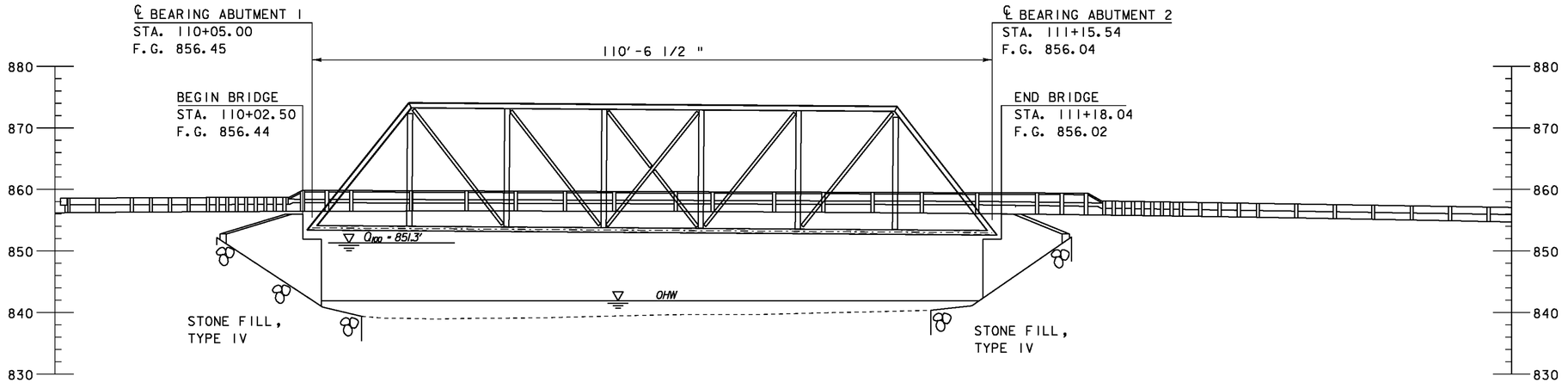
PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062bor.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
BORING LOGS #4

PLOT DATE: 31-DEC-2009
DRAWN BY: J. SALVATORI
CHECKED BY: T.FILLBACH
SHEET 16 OF 58



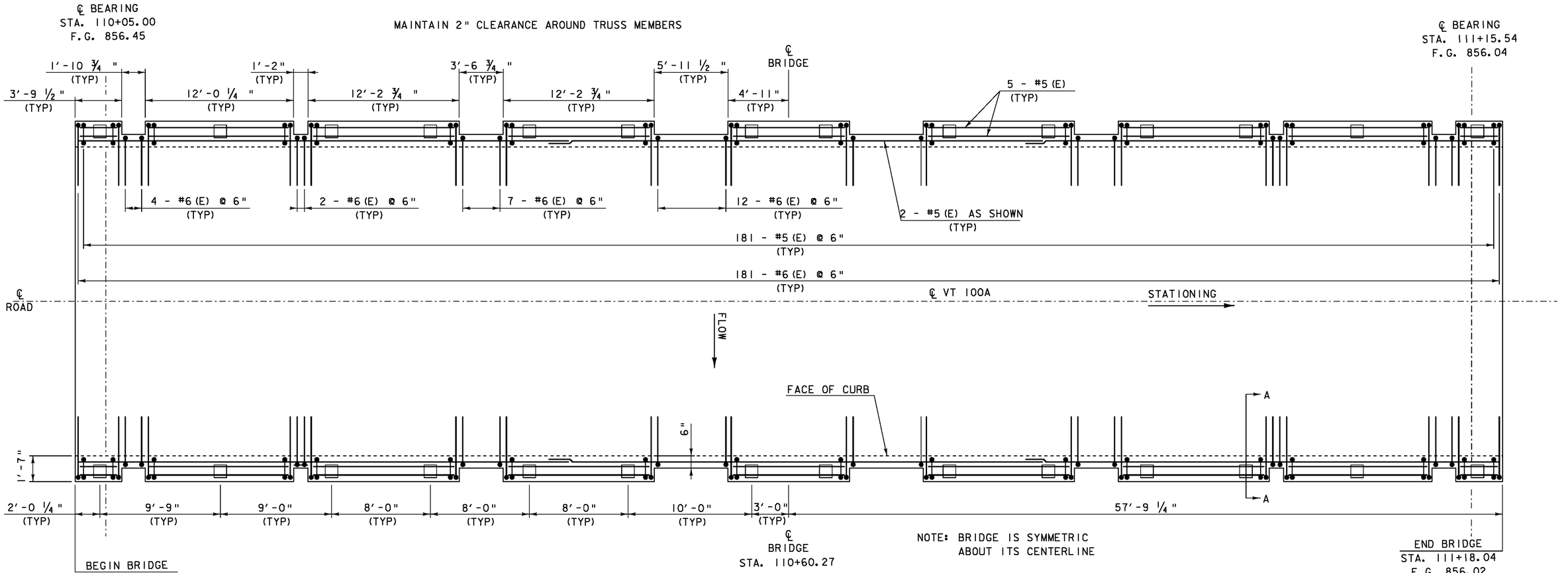
PLAN



ELEVATION DOWNSTREAM FACIA

SCALE 1" = 10'-0
10 0 10

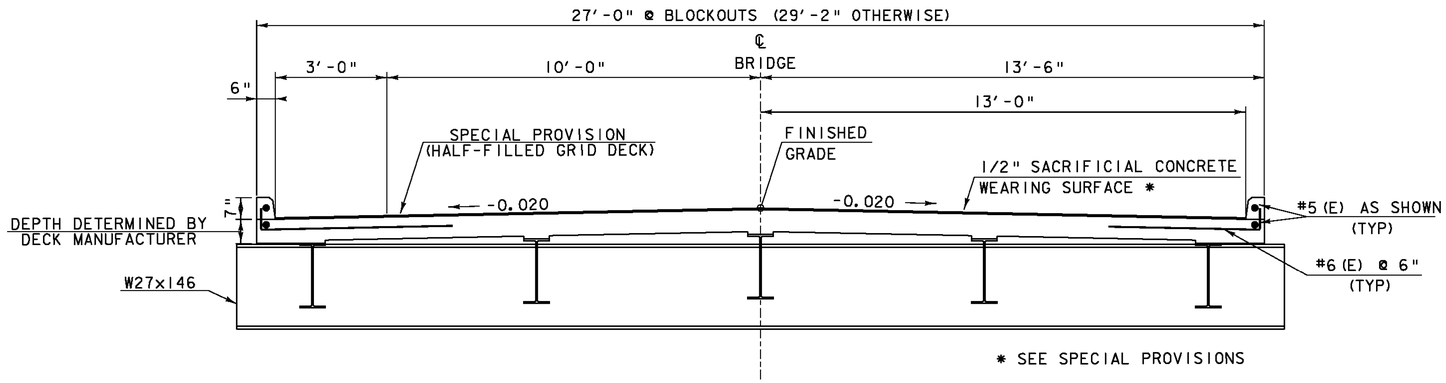
PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062pe.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
PLAN & ELEVATION	SHEET 17 OF 58



NOTE: BRIDGE IS SYMMETRIC ABOUT ITS CENTERLINE

DECK GEOMETRY & REINFORCING PLAN

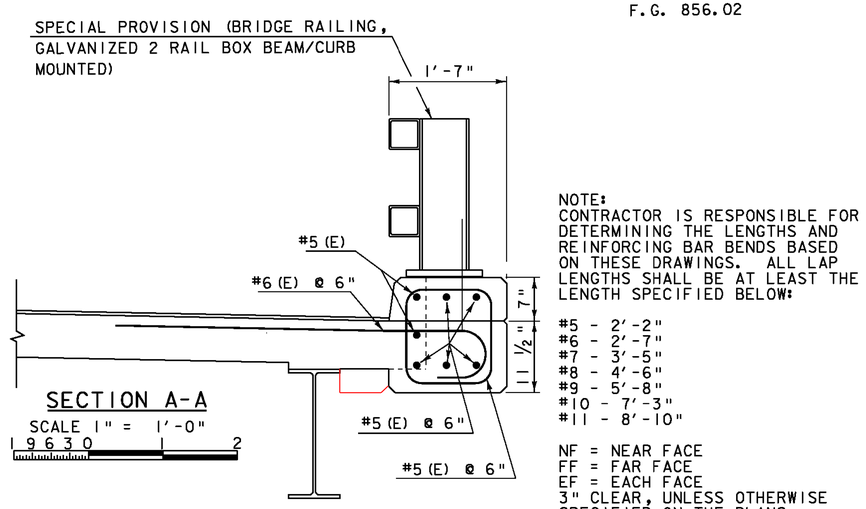
SCALE 1/4" = 1'-0"



* SEE SPECIAL PROVISIONS

DECK REINFORCING SECTION

SCALE 1/2" = 1'-0"



SECTION A-A

SCALE 1" = 1'-0"

NOTE:
CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LENGTHS AND REINFORCING BAR BENDS BASED ON THESE DRAWINGS. ALL LAP LENGTHS SHALL BE AT LEAST THE LENGTH SPECIFIED BELOW:

#5 - 2'-2"
#6 - 2'-7"
#7 - 3'-5"
#8 - 4'-6"
#9 - 5'-8"
#10 - 7'-3"
#11 - 8'-10"

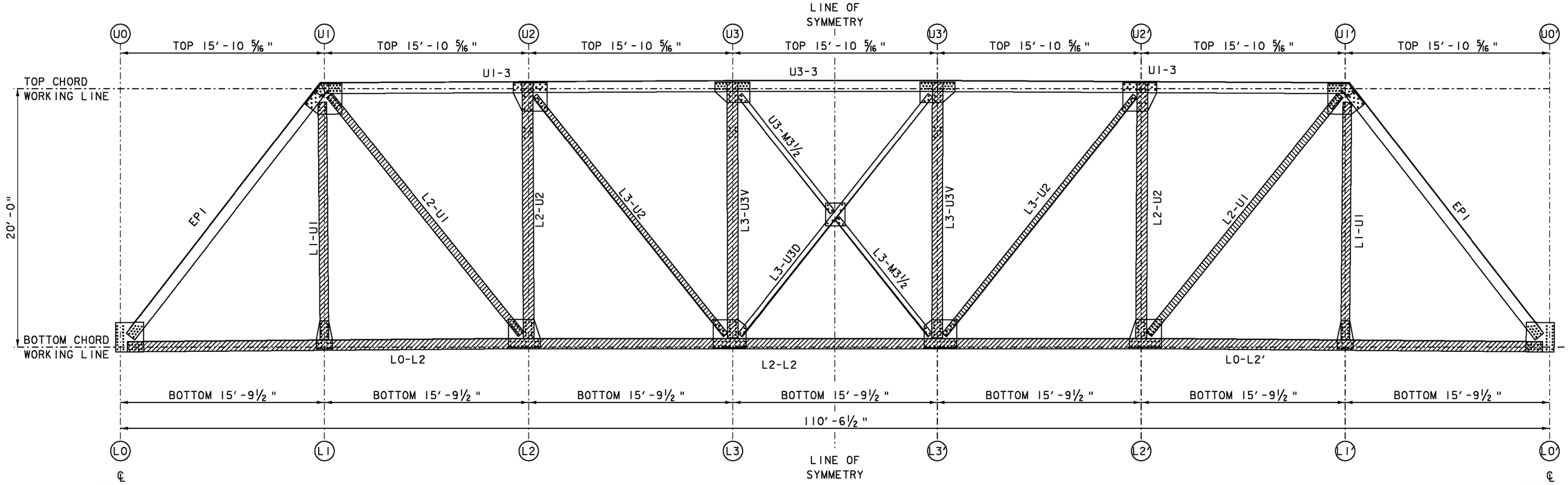
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
T.O.S. = TOP OF SURFACE
E = EPOXY COATED REBAR

NOTE:

THE GRID FOR THE DECK SHALL EXTEND THE FULL WIDTH OF THE BRIDGE TO REINFORCE THE BLOCKOUTS.

AN ALTERNATIVE MEANS OF REINFORCING THE BLOCKOUTS MAY BE ACCEPTED BY THE ENGINEER.

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062deck.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: G. LAROCHE
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
BRIDGE DECK	SHEET 18 OF 58



TYPICAL TRUSS ELEVATION

(UP STREAM TRUSS LOOKING EAST
DOWNSTREAM TRUSS SIMILAR)

SCALE 1/8" = 1'-0"

0 1 2 4 6 8

THE MEMBERS SHOWN TO BE REPLACED ABOVE ARE THE MINIMUM REQUIREMENT. FIELD INSPECTION MAY REQUIRE THAT ADDITIONAL MEMBERS BE REPLACED. ALL REPLACEMENT MEMBERS SHALL BE OF EQUAL GEOMETRY AND SECTION PROPERTIES AS THOSE BEING REPLACED (UNLESS OTHERWISE NOTED).

TRUSS MEMBER SUMMARY

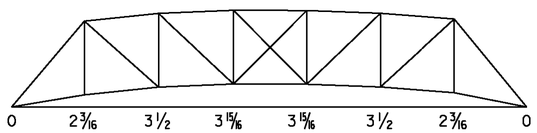
BOTTOM CHORD (SEE SHEETS 21 & 22)	
L0-L2-L0	2-C9x20
	PL 5/16 x 10
END PORTAL (SEE SHEET 26)	
EP1	2-C10x20x24'-6 1/4"
	PL 5/8 x 17x24'-6 5/8"
VERTICALS (SEE SHEET 24)	
L0	W10x49x2'-4 1/2"
L1-U1	W10x49x18'-4"
L2-U2	W10x49x19'-9"
L3-U3V	W10x49x19'-9"
TOP CHORD (SEE SHEETS 27 & 28)	
U1-3	2-C10x20x31'-10 5/16"
	PL 5/8 x 17x31'-10 5/16"
U3-3	2-C10x20x15'-10 5/16"
	PL 5/8 x 17x15'-10 5/16"
DIAGONALS (SEE SHEET 25)	
L2-U1	2-WT 4x14 23'-8 1/4"
L3-U2	2-L5x3x3/8 23'-8 1/4"

ALL NEW STEEL TRUSS

REHABILITATION OF TRUSS BRIDGE

A. REPLACE ALL FLOOR BEAMS WITH NEW FLOOR BEAMS WITH SHEAR CONNECTORS.
B. REPLACE ALL STRINGERS WITH NEW STRINGERS WITH SHEAR CONNECTORS.
C. REPLACE BOTTOM LATERAL BRACING WITH NEW ANGLES AND PLATES.
D. REPLACE ALL CONNECTIONS BETWEEN STRINGERS AND FLOOR BEAMS, AND FLOOR BEAMS TO TRUSS MEMBERS.
E. REPLACE TRUSS MEMBERS AS SHOWN.
F. REPLACE BEARINGS.
G. REPLACE BRIDGE RAILING.
H. REPLACE CONCRETE DECK WITH HALF-FILLED GRID DECK.
I. CLEAN AND PAINT EXISTING MEMBERS.

ALL NEW STEEL TRUSS



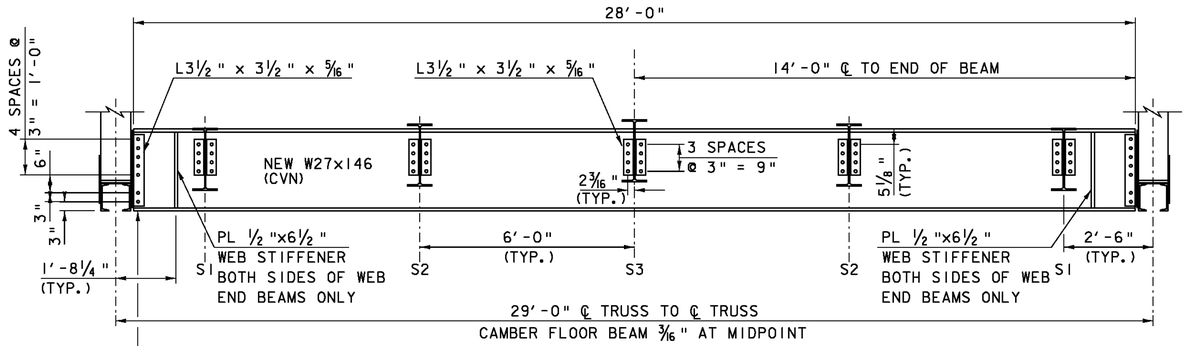
CAMBER DIAGRAM

NOT TO SCALE

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062truss.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
TRUSS REPAIRS

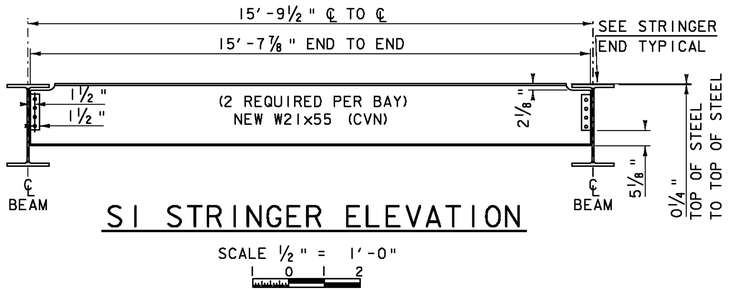
PLOT DATE: 25-JAN-2010
DRAWN BY: C. MOONEY
CHECKED BY: T. FILLBACH
SHEET 19 OF 58



SEE FLOOR TYPICAL PLATE AND FLOOR END PLATES (SHEET 23) FOR HOLE LOCATION IN BOTTOM FLANGE

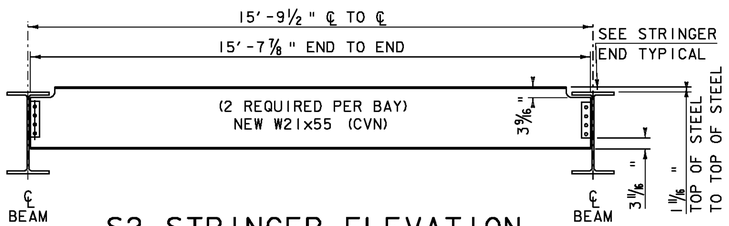
FLOOR BEAM ELEVATION

SCALE ½" = 1'-0"



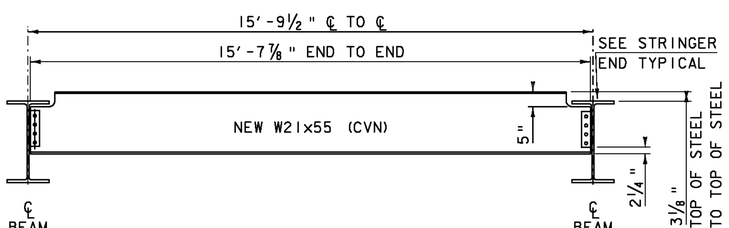
S1 STRINGER ELEVATION

SCALE ½" = 1'-0"



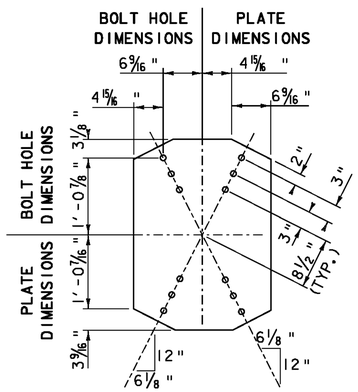
S2 STRINGER ELEVATION

SCALE ½" = 1'-0"



S3 STRINGER ELEVATION

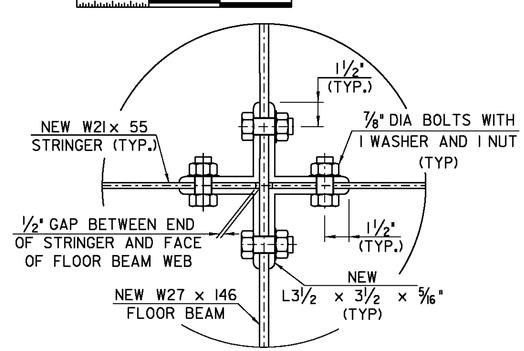
SCALE ½" = 1'-0"



SWAY BRACE PLATE

PL 5/16 x 23 x 2'-8"

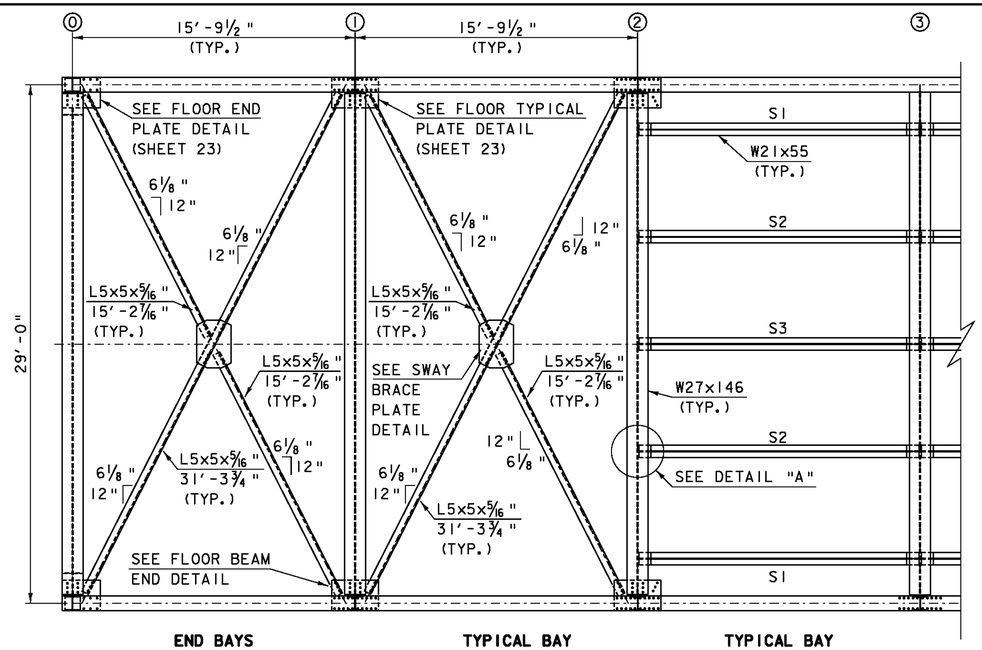
SCALE 1" = 1'-0"



DETAIL "A" SHOWING CONNECTION BETWEEN NEW FLOOR BEAMS AND STRINGERS

N.T.S.

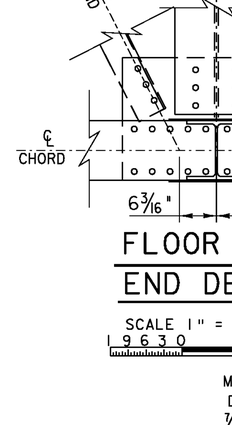
NOTE: FLANGES OF FLOOR BEAMS AND STRINGERS NOT SHOWN FOR PURPOSES OF CLARITY.



NOTE:
FOR DIMENSIONS OF THE GUSSET PLATES ALONG THE BOTTOM CHORD SEE SHEET 21

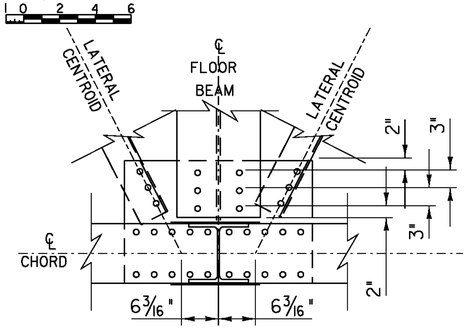
FLOOR SYSTEM FRAMING PLAN

SCALE ¼" = 1'-0"



STRINGER END TYPICAL

SCALE 1½" = 1'-0"

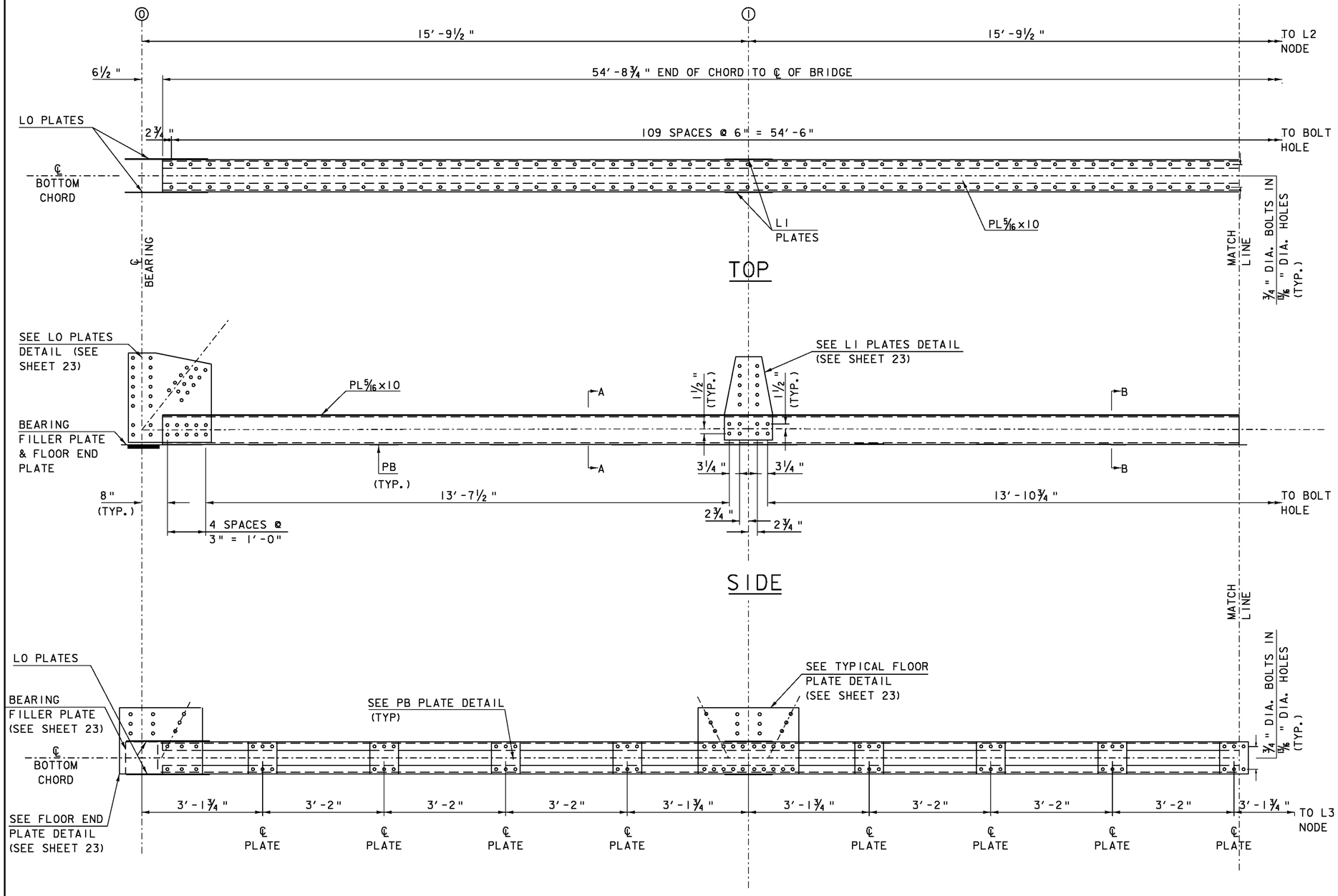


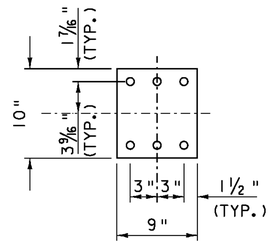
FLOOR BEAM END DETAIL

SCALE 1" = 1'-0"

MIN. BOLT HOLE END AND EDGE DISTANCE 1½" UNLESS NOTED
⅞" DIA. BOLTS UNLESS NOTED
15/16" DIA. HOLES UNLESS NOTED

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062floor.dgn	PLOT DATE: 11-MAR-2010
PROJECT LEADER: K. HIGGINS	DRAWN BY: C. MOONEY
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
FLOOR FRAMING SYSTEM	SHEET 20 OF 58



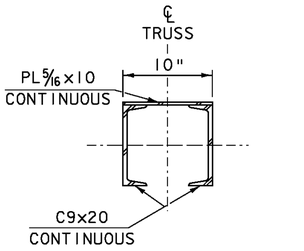


PB PLATE DETAIL

PL 5/16×9×10

SCALE 1½" = 1′-0"

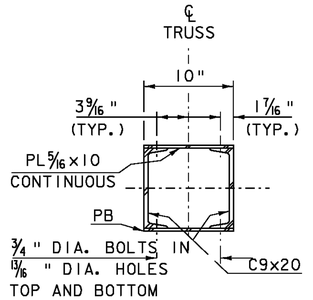
9 6 3 0



SECTION A-A

SCALE 1½" = 1′-0"

9 6 3 0



SECTION B-B

SCALE 1½" = 1′-0"

9 6 3 0

BOTTOM

BOTTOM CHORD "L0-L2"

2C9×20 (FCM)

PL 5/16×10 (FCM)

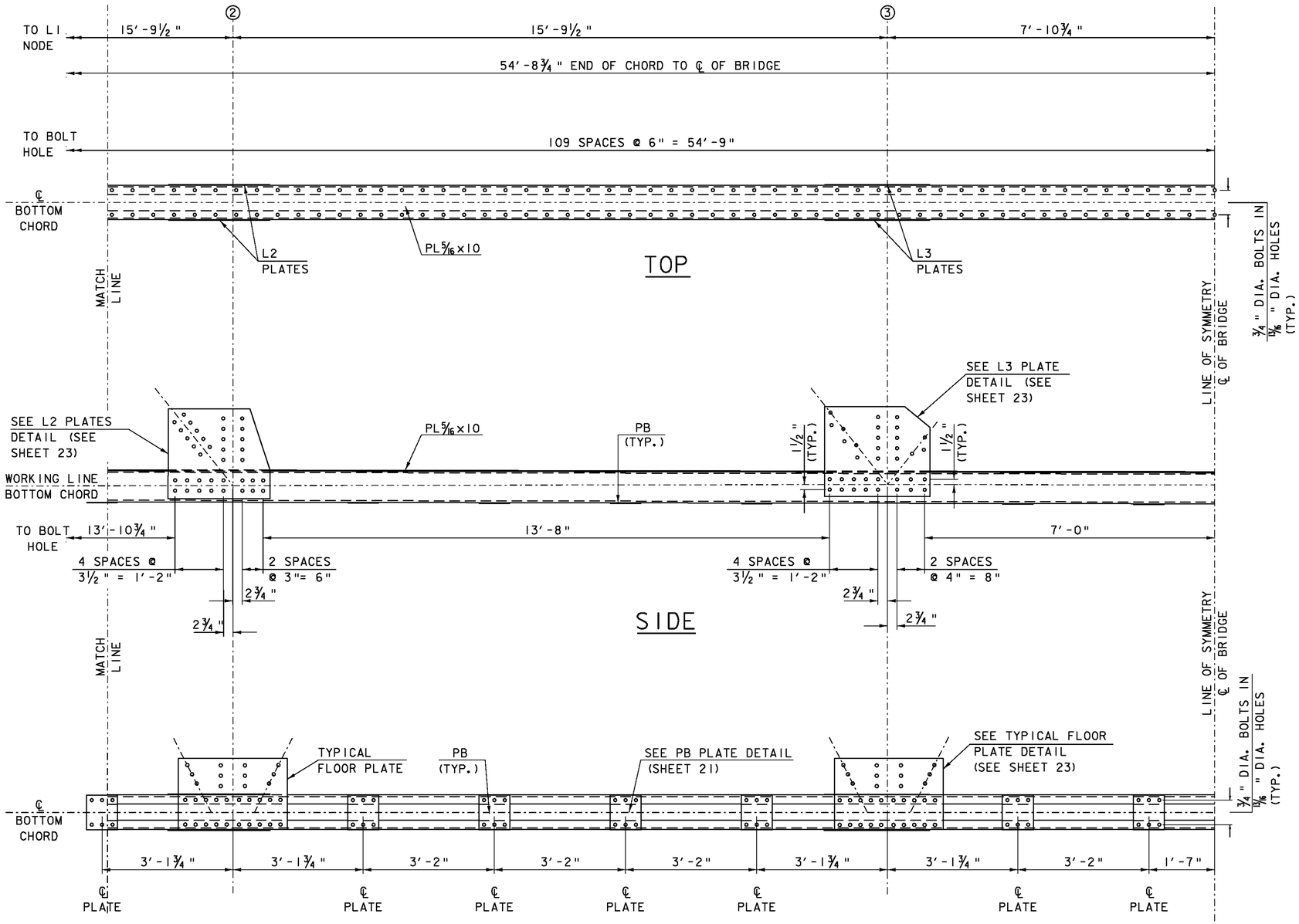
SCALE ¾" = 1′-0"

0 2

NOTES:

1. SEE PLATE DETAILS FOR BOLT HOLE SPACING
2. MIN. BOLT HOLE TO AND EDGE DISTANCE 1½" UNLESS NOTED
3. ⅞" DIA. BOLTS UNLESS NOTED
4. 15/16" DIA. HOLES UNLESS NOTED

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062truss.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: C. MOONEY
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
BOTTOM CHORD LO-L2	SHEET 21 OF 58



BOTTOM

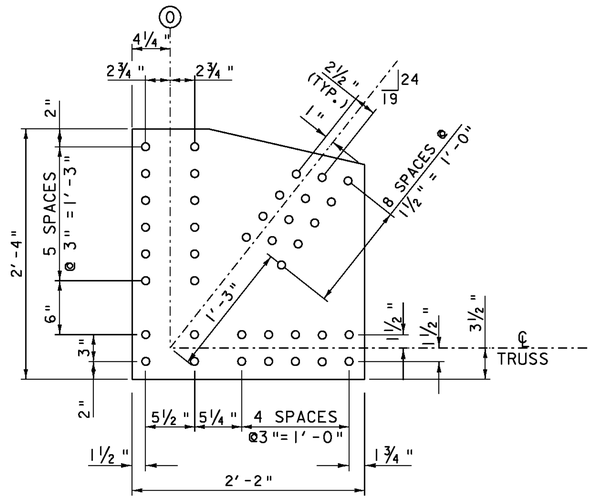
BOTTOM CHORD "L2-L2"

2 C9x20 (FCM)
PL5/16x10 (FCM)

SCALE ¾" = 1′-0"
0 1 2

NOTES:
1. SEE PLATE DETAILS FOR BOLT HOLE SPACING
2. MIN. BOLT HOLE TO AND EDGE DISTANCE 1½" UNLESS NOTED
3. ⅞" DIA. BOLTS UNLESS NOTED
4. 15/16" DIA. HOLES UNLESS NOTED

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062truss.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: C. MOONEY
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
BOTTOM CHORD L2-L2	SHEET 22 OF 58

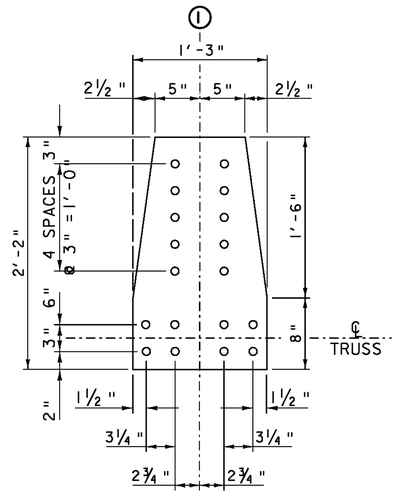


L0 PLATES DETAIL

PL½x26x2'-4"

SCALE 1½" = 1'-0"

9 6 3 0

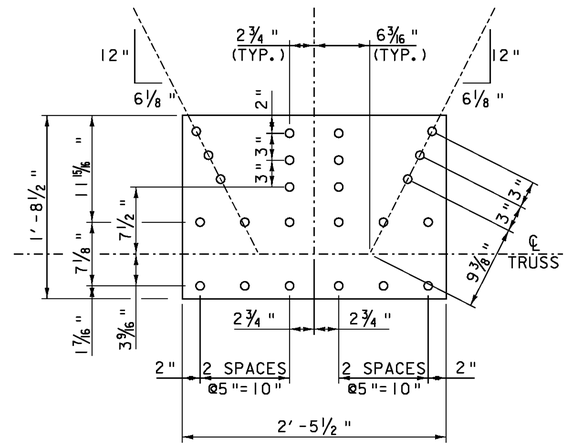


L1 PLATES DETAIL

PL½x15x2'-2"

SCALE 1½" = 1'-0"

9 6 3 0

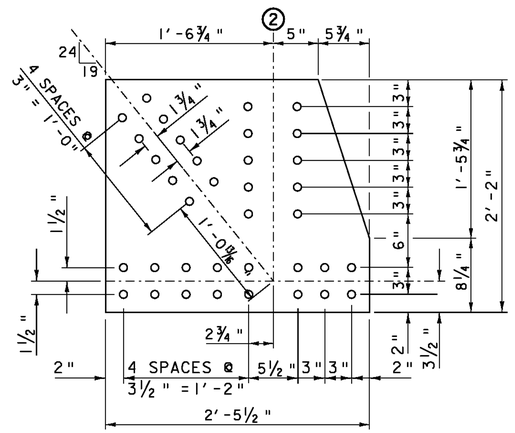


TYPICAL FLOOR PLATE

PL5⁄16x20½x2'-5½"

SCALE 1½" = 1'-0"

9 6 3 0



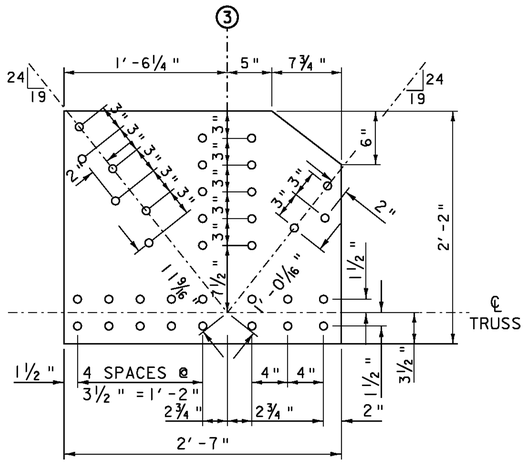
L2 PLATE DETAIL

PL½x26x2'-5½"

SCALE 1½" = 1'-0"

9 6 3 0

℄ TRUSS

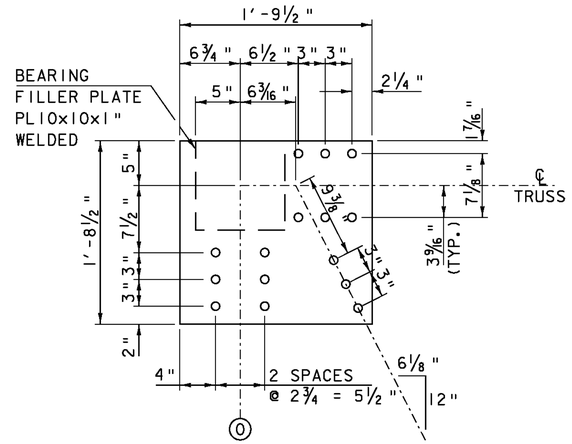


L3 PLATE DETAIL

PL½x26x2'-7"

SCALE 1½" = 1'-0"

9 6 3 0



FLOOR END PLATE

PL5⁄16x20½x1'-9½"

SCALE 1½" = 1'-0"

9 6 3 0

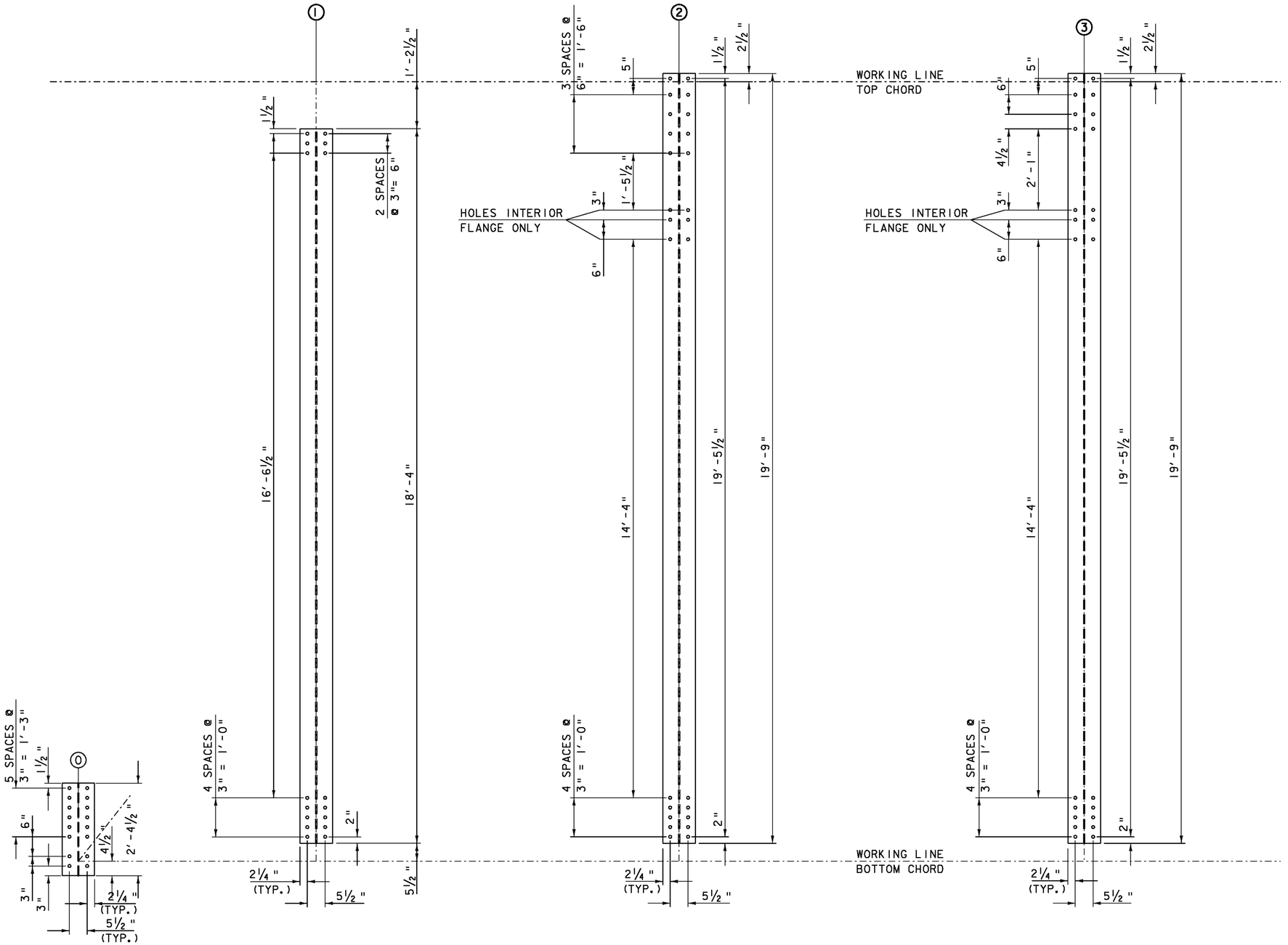
ALL PLATES ON THIS SHEET SHALL BE CHARPY V-NOTCH (CVN) TESTED.

TYPICAL FLOOR PLATE AND FLOOR END PLATE SHALL USE 3/4" DIA. BOLTS IN 13/16" DIA. BOLT HOLES. MIN. BOLT HOLE END AND EDGE DISTANCE 1½" UNLESS NOTED
⅞" DIA. BOLTS UNLESS NOTED
15⁄16" DIA. HOLES UNLESS NOTED

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062truss.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
BOTTOM CHORD GUSSET PLATES

PLOT DATE: 31-DEC-2009
DRAWN BY: C. MOONEY
CHECKED BY: T. FILLBACH
SHEET 23 OF 58



MIN. BOLT HOLE END AND EDGE DISTANCE 1½" UNLESS NOTED
⅞" DIA. BOLTS UNLESS NOTED
15/16" DIA. HOLES UNLESS NOTED

VERTICAL "L0"
W10x49x2'-4½"
SCALE ¾" = 1'-0"

VERTICAL "L1-U1"
W10x49x18'-4" (CVN)
SCALE ¾" = 1'-0"

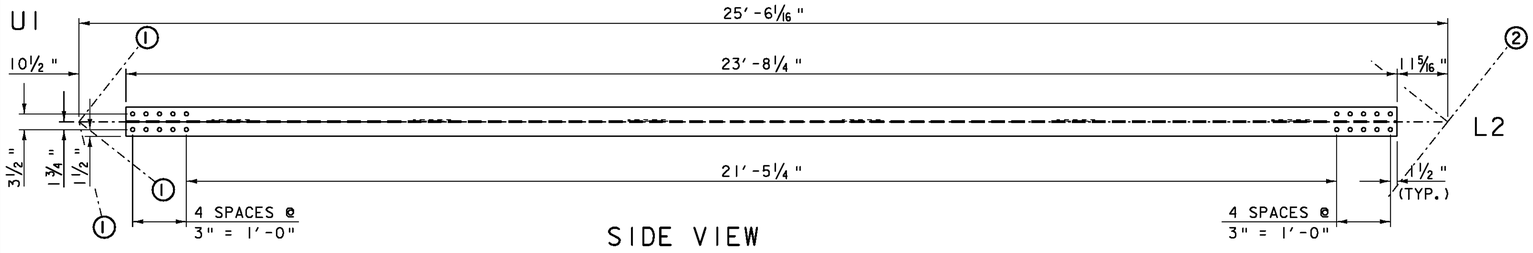
VERTICAL "L2-U2"
W10x49x19'-9"
SCALE ¾" = 1'-0"

VERTICAL "L3-U3V"
W10x49x19'-9"
SCALE ¾" = 1'-0"

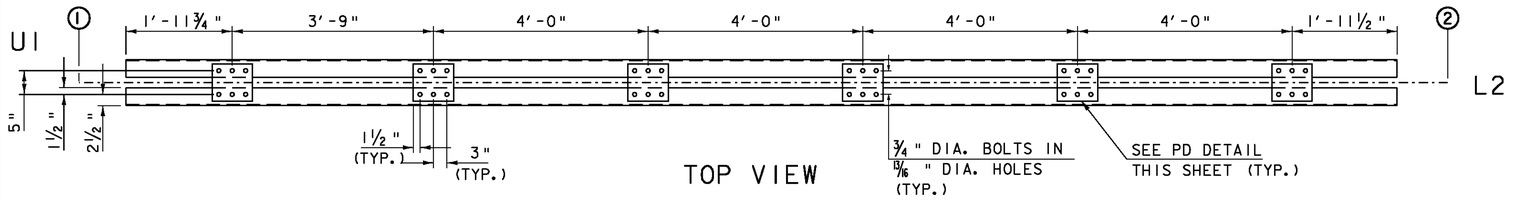
PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062truss.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
VERTICAL TRUSS MEMBERS

PLOT DATE: 31-DEC-2009
DRAWN BY: C. MOONEY
CHECKED BY: T. FILLBACH
SHEET 24 OF 58



SIDE VIEW

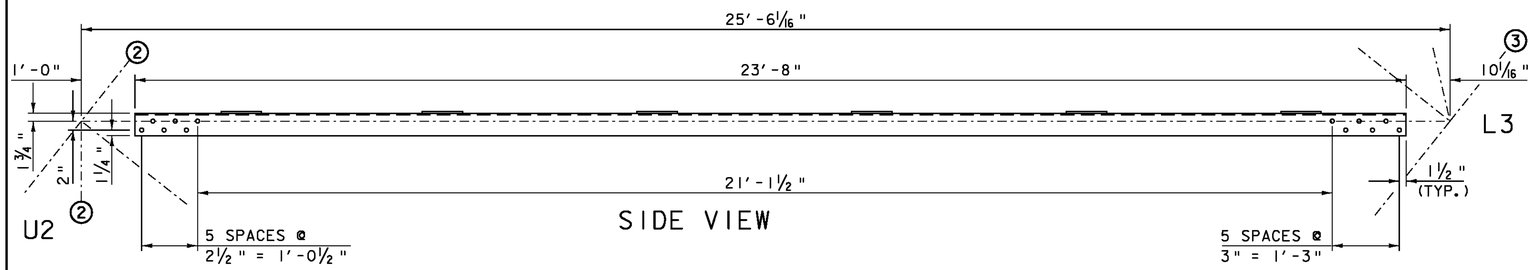


TOP VIEW

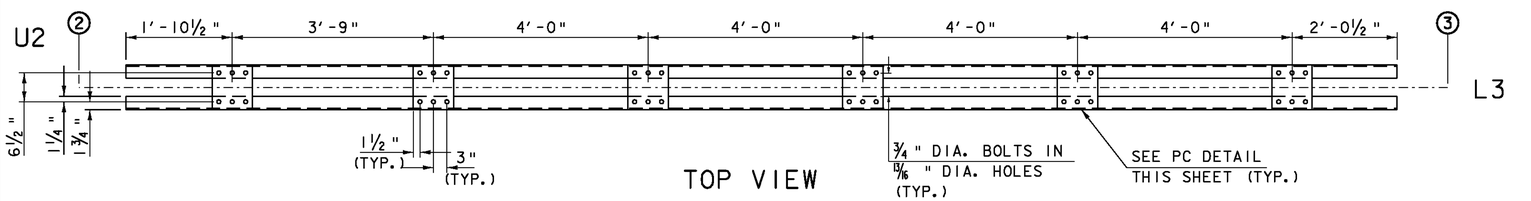
DIAGONAL "L2-U1"

2 - WT4x14x23′-8 1/4 " (CVN)

SCALE 3/4 " = 1′-0"



SIDE VIEW

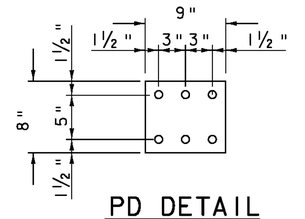


TOP VIEW

DIAGONAL "L3-U2"

2 - L5x3x3/8 x23′-8 1/4 " (CVN)

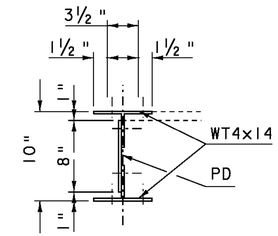
SCALE 3/4 " = 1′-0"



PD DETAIL

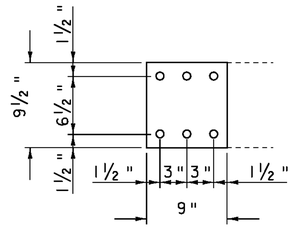
PL 5/16 x8x9 "

SCALE 1 1/2 " = 1′-0"



"L2-U1" SECTION

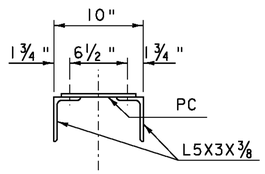
SCALE 1 1/2 " = 1′-0"



PC DETAIL

PL 5/16 x9x9 1/2 "

SCALE 1 1/2 " = 1′-0"



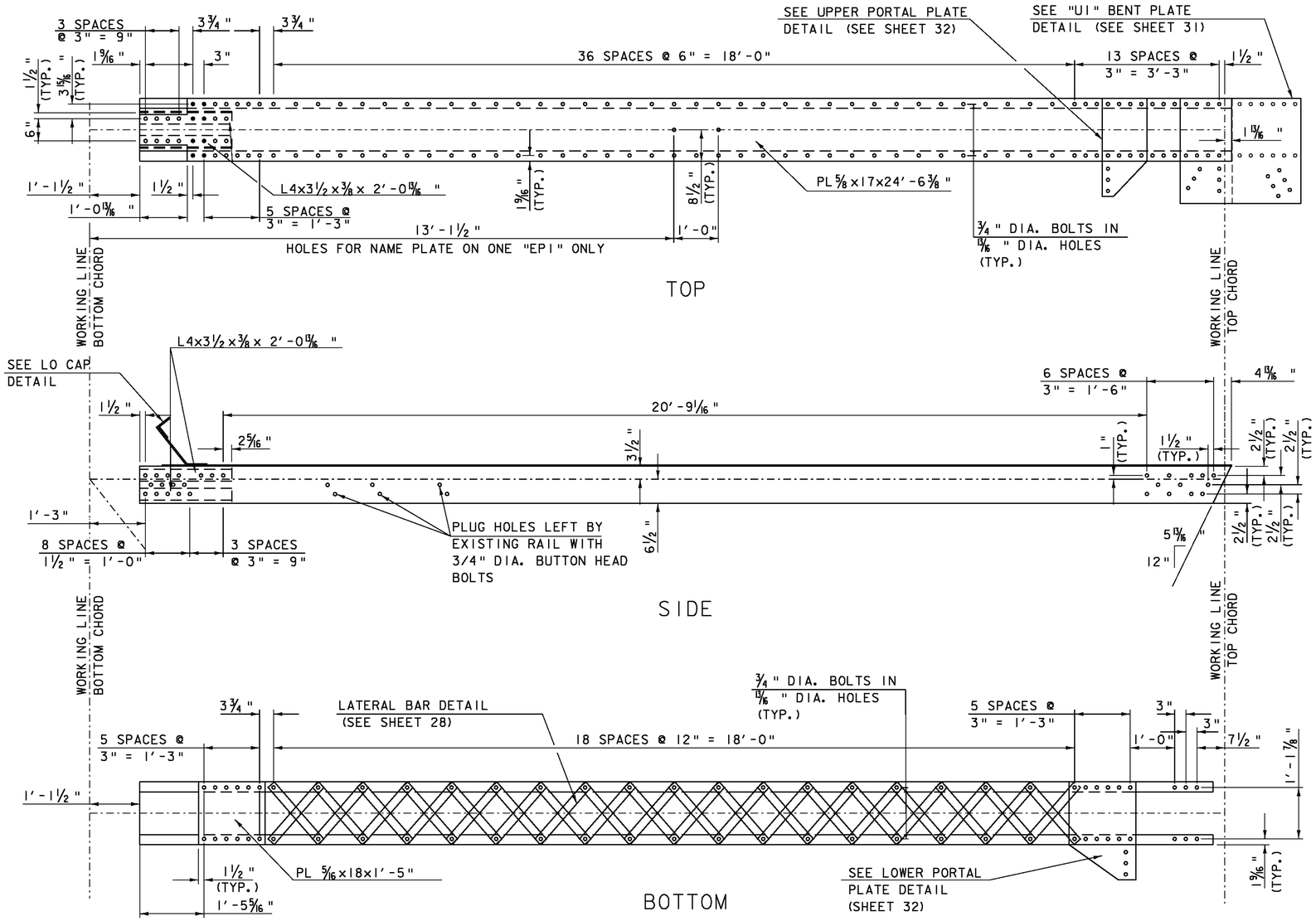
"L3-U2" SECTION

SCALE 1 1/2 " = 1′-0"

MIN. BOLT HOLE END AND EDGE DISTANCE 1 1/2 " UNLESS NOTED
7/8 " DIA. BOLTS UNLESS NOTED
15/16 " DIA. HOLES UNLESS NOTED

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

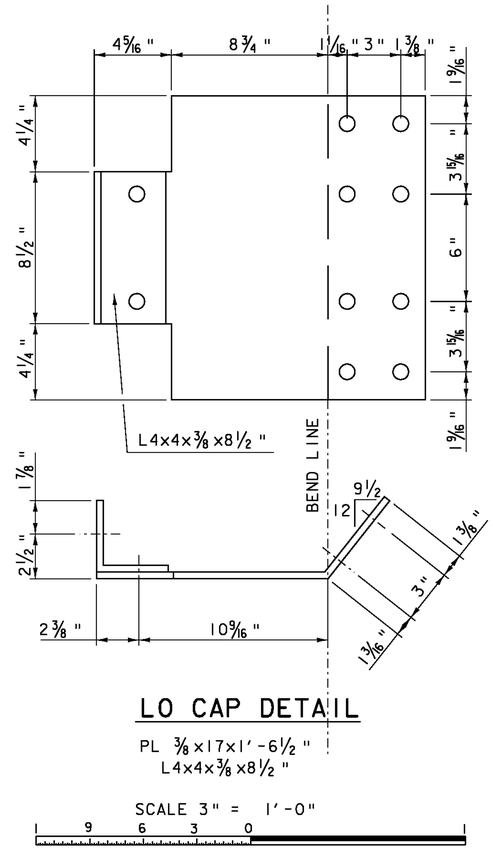
FILE NAME: s86e062truss.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: C. MOONEY
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
DIAGONAL MEMBERS SHEET	SHEET 25 OF 58



PORTAL TOP CHORD "EP1"

2-C10x20x24'-6¼" (EXISTING)
PL ⅝x17x24'-6⅝" (NEW)

SCALE ¾" = 1'-0"
0 1 2



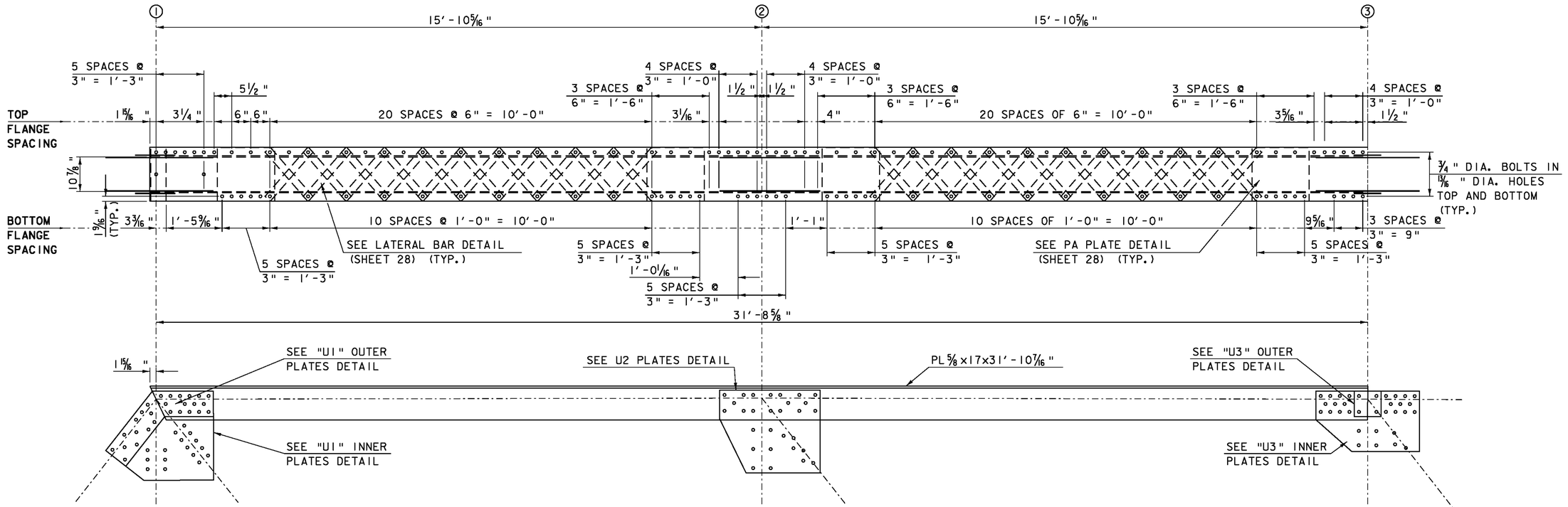
LO CAP DETAIL

PL ⅜x17x1'-6½"
L4x4x⅜x8½"

SCALE 3" = 1'-0"
9 6 3 0

MIN. BOLT HOLE END AND EDGE DISTANCE 1½" UNLESS NOTED
⅞" DIA. BOLTS UNLESS NOTED
¹⁵⁄₁₆" DIA. HOLES UNLESS NOTED

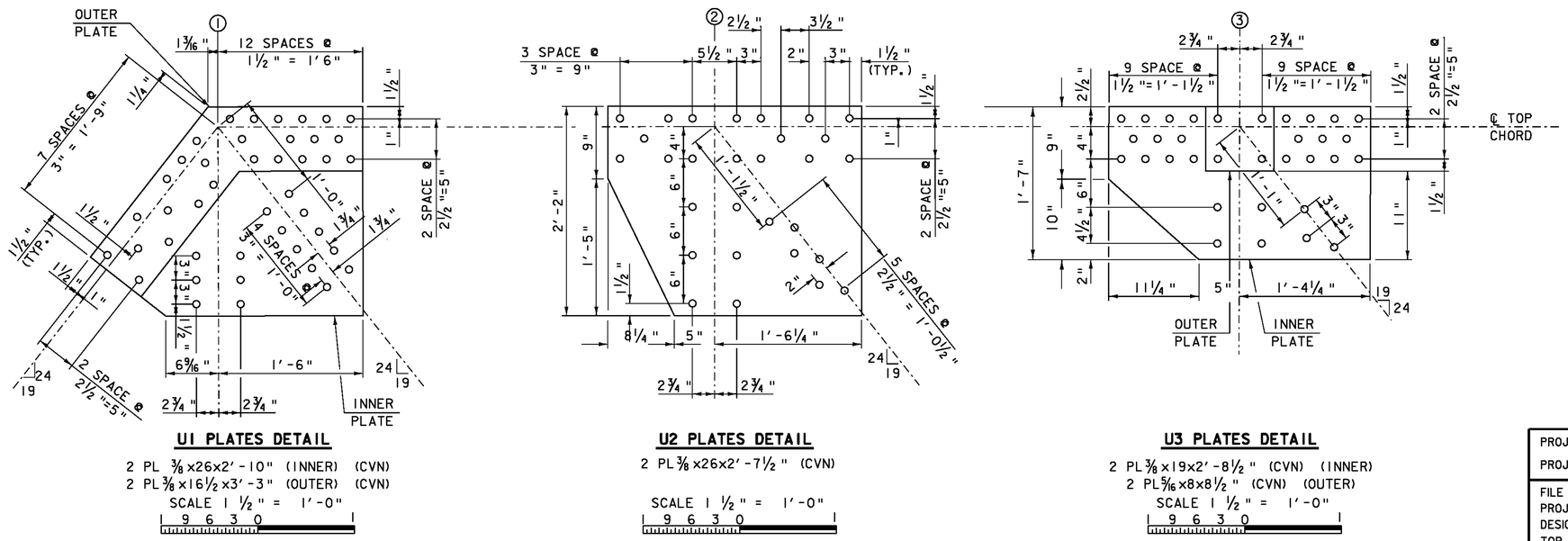
PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062truss.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: C. MOONEY
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
PORTAL TOP CHORD "EP1"	SHEET 26 OF 58



TOP CHORD "U1-3"

C10x20x31'-10 5/16" (EXISTING)
C10x20x31'-10 5/16" (EXISTING)
PL 5/8 x 17 x 31'-10 5/16" (NEW)

SCALE 3/4" = 1'-0"
0 2



U1 PLATES DETAIL

2 PL 3/8 x 26 x 2'-10" (INNER) (CVN)
2 PL 3/8 x 16 1/2 x 3'-3" (OUTER) (CVN)

SCALE 1 1/2" = 1'-0"
9 6 3 0

U2 PLATES DETAIL

2 PL 3/8 x 26 x 2'-7 1/2" (CVN)

SCALE 1 1/2" = 1'-0"
9 6 3 0

U3 PLATES DETAIL

2 PL 3/8 x 19 x 2'-8 1/2" (CVN) (INNER)
2 PL 5/16 x 8 x 8 1/2" (CVN) (OUTER)

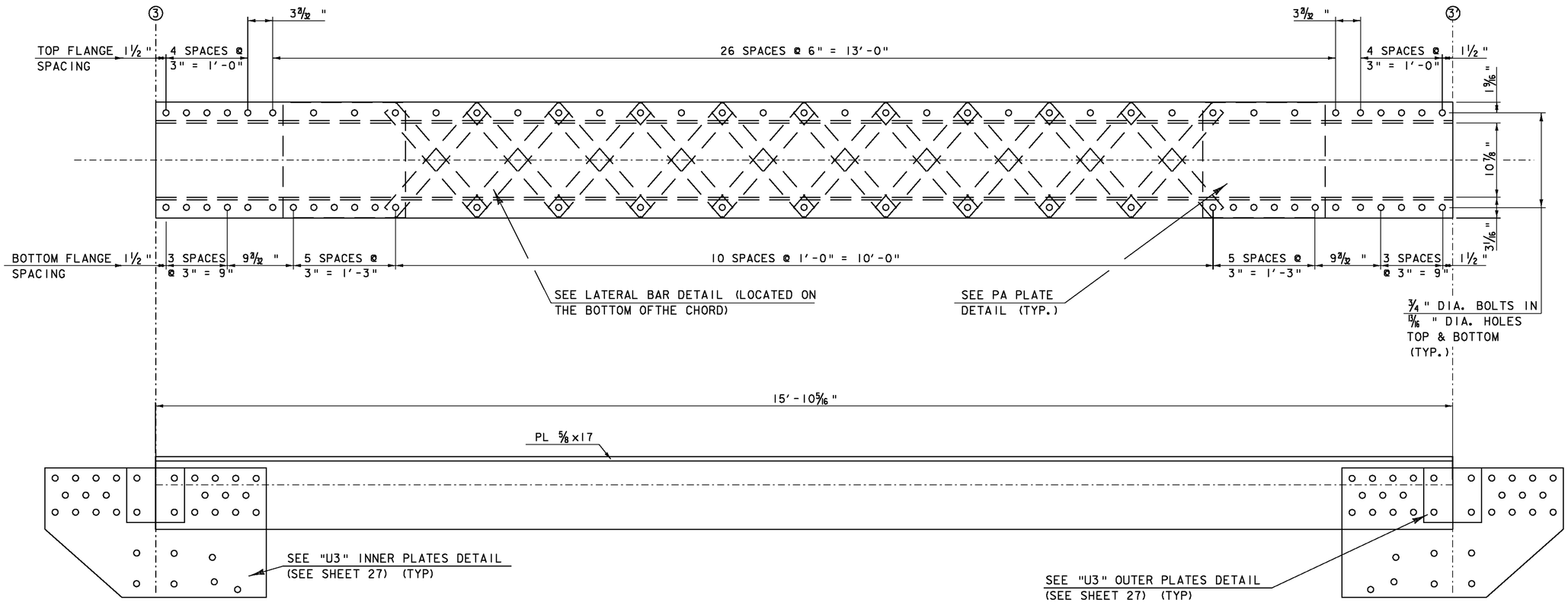
SCALE 1 1/2" = 1'-0"
9 6 3 0

MIN. BOLT HOLE END AND EDGE DISTANCE 1 1/2" UNLESS NOTED
7/8" DIA. BOLTS UNLESS NOTED
15/16" DIA. HOLES UNLESS NOTED

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

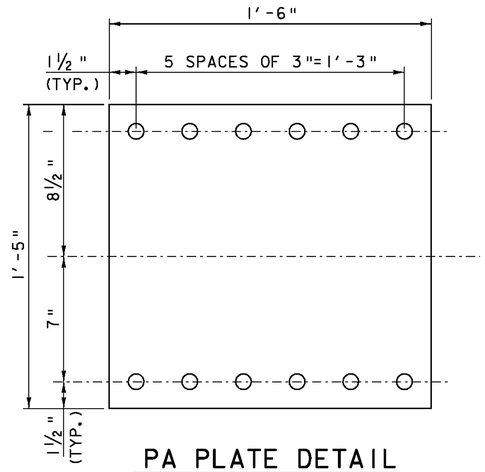
FILE NAME: s86e062truss.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
TOP CHORD "U1-3"

PLOT DATE: 25-JAN-2010
DRAWN BY: C. MOONEY
CHECKED BY: T. FILLBACH
SHEET 27 OF 58



TOP CHORD "U3-3"

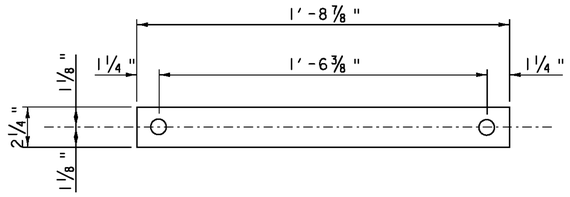
2C10x20x15'-10 5/16 " (EXISTING)
PL 5/8 x 17 x 15'-10 5/16 " (NEW)
SCALE 1 1/2 " = 1'-0"



PA PLATE DETAIL

PL 5/16 x 17 x 1'-6"

SCALE 3" = 1'-0"



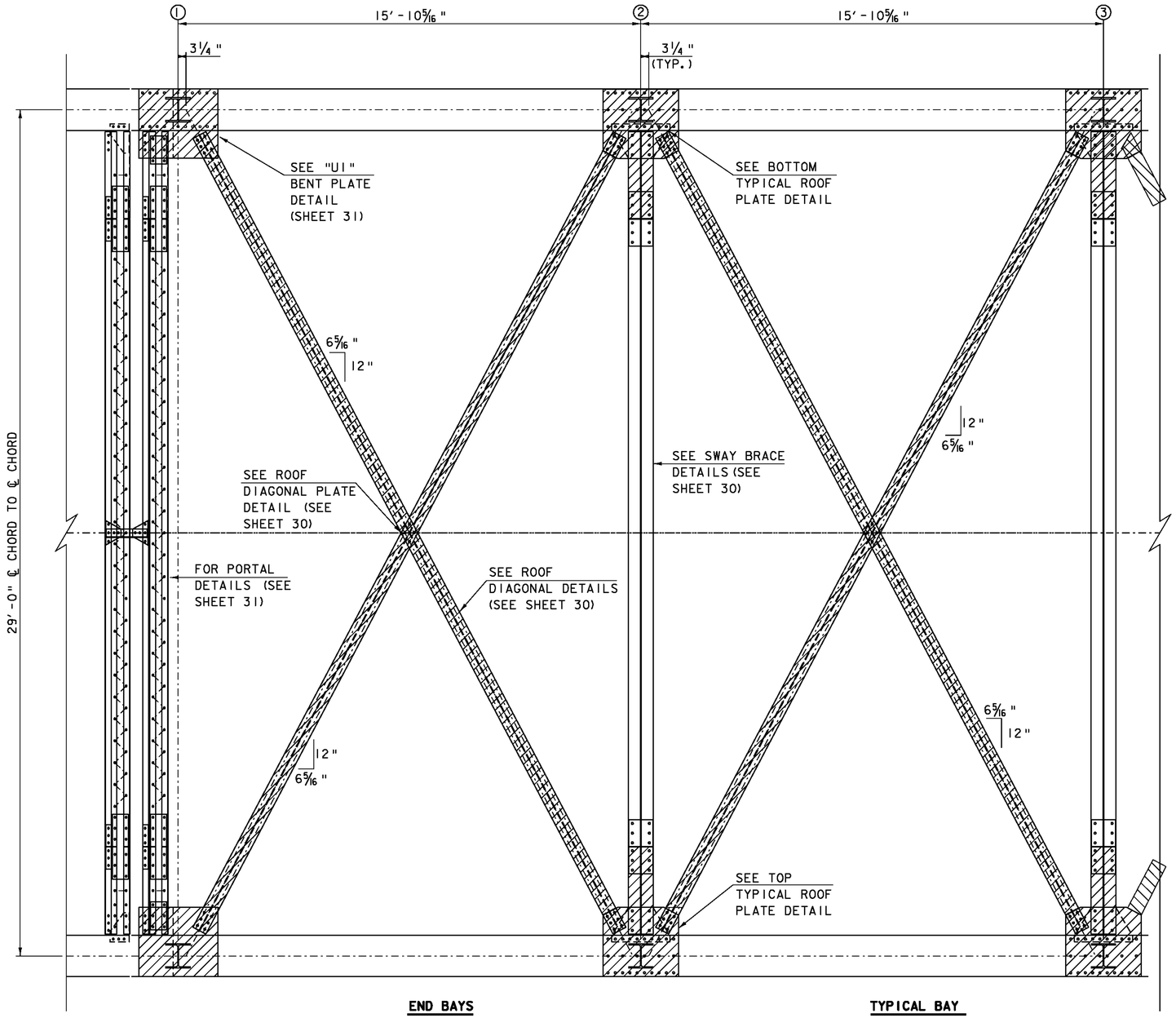
LATERAL BAR DETAIL

PL 5/16 x 2 1/4 x 1'-8 7/8 "

SCALE 3" = 1'-0"

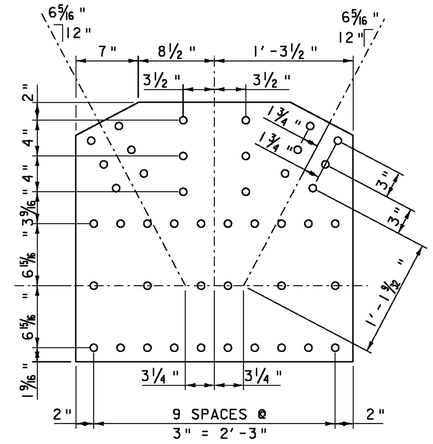
MIN. BOLT HOLE END AND EDGE DISTANCE 1 1/2 " UNLESS NOTED
7/8 " DIA. BOLTS UNLESS NOTED
15/16 " DIA. HOLES UNLESS NOTED

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062truss.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: C. MOONEY
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
TOP CHORD "U3-3"	SHEET 28 OF 58



ROOF SYSTEM FRAMING PLAN

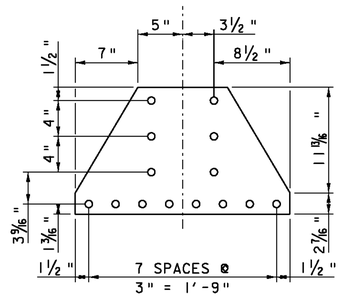
SCALE 1/2" = 1′-0"



TOP TYPICAL ROOF PLATE

PL 5/16 x 29 x 2′-7"

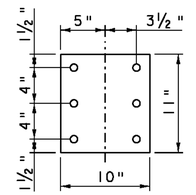
SCALE 1 1/2" = 1′-0"



BOTTOM TYPICAL ROOF PLATE

PL 5/16 x 14 1/4 x 2′-0"

SCALE 1 1/2" = 1′-0"



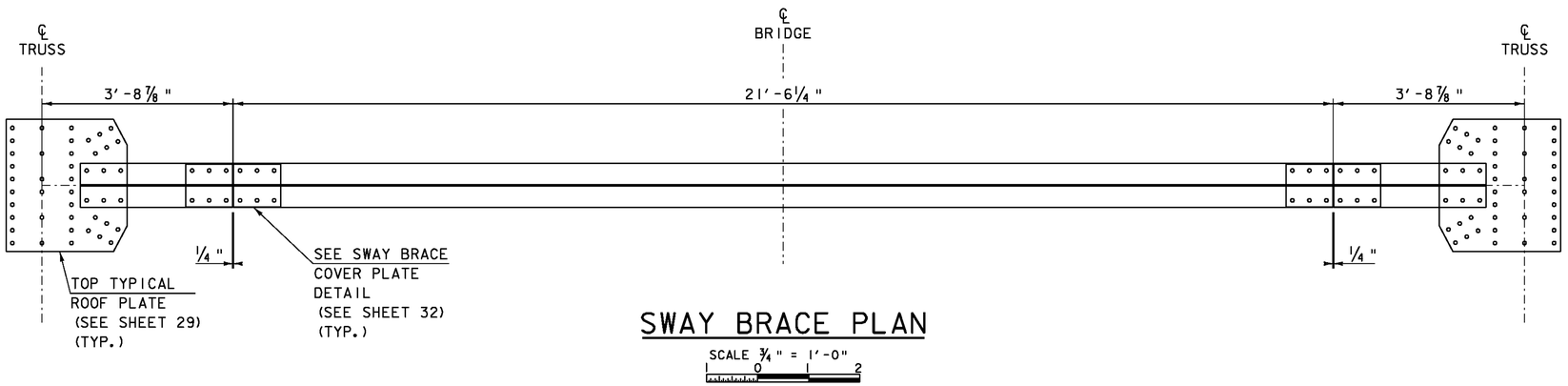
ROOF FILLER PLATE

PL 5/16 x 10 x 11"

SCALE 1 1/2" = 1′-0"

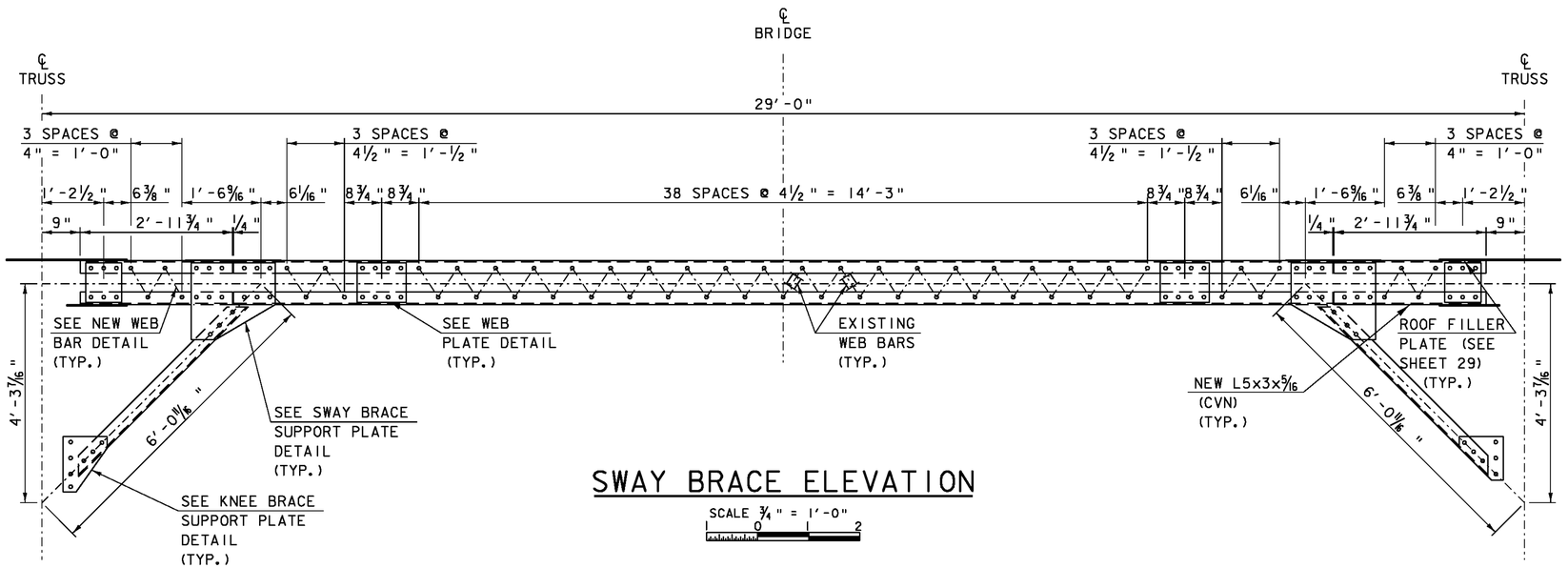
NOTE:
1. HATCHED COMPONENTS ARE NEW
2. 3/4" DIAMETER BOLTS IN 15/16" HOLE, UNLESS OTHERWISE NOTED.
3. MINIMUM BOLT EDGE AND DISTANCE = 1 1/2", UNLESS OTHERWISE NOTED.

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062roof.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: C. MOONEY
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
ROOF FRAMING PLAN	SHEET 29 OF 58



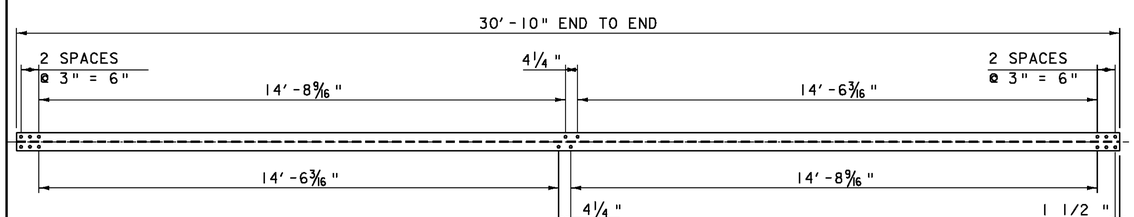
SWAY BRACE PLAN

SCALE 3/4" = 1'-0"



SWAY BRACE ELEVATION

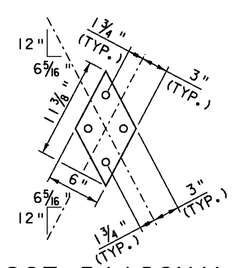
SCALE 3/4" = 1'-0"



ROOF DIAGONAL PLAN

WT 7x17

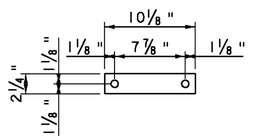
SCALE 1/2" = 1'-0"



ROOF DIAGONAL PLATE DETAIL

PL 5/16x6x1 13/16"

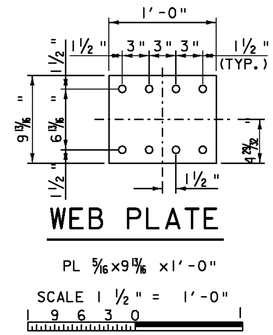
SCALE 1 1/2" = 1'-0"



NEW WEB BAR DETAIL

PL 5/16x2 1/4x10 1/8"

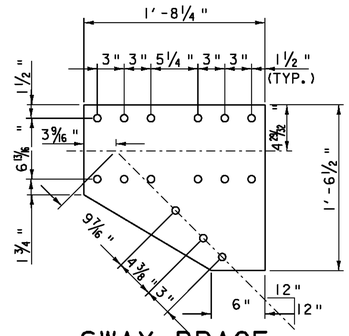
SCALE 1 1/2" = 1'-0"



WEB PLATE

PL 5/16x9 13/16 x1'-0"

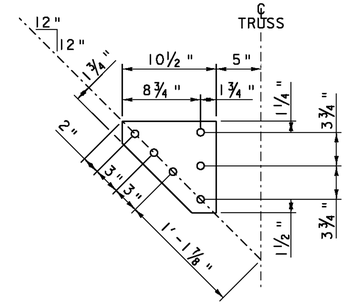
SCALE 1 1/2" = 1'-0"



SWAY BRACE SUPPORT PLATE

PL 5/16x18 1/2x1'-8 1/4"

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



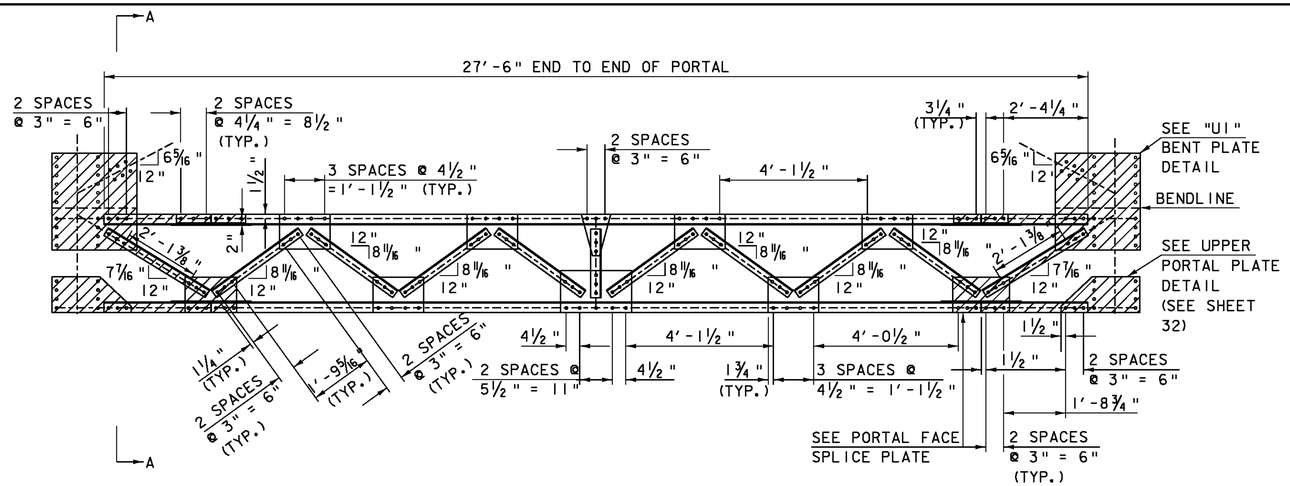
KNEE BRACE SUPPORT PLATE

PL 5/16x10 1/4x10 1/2"

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

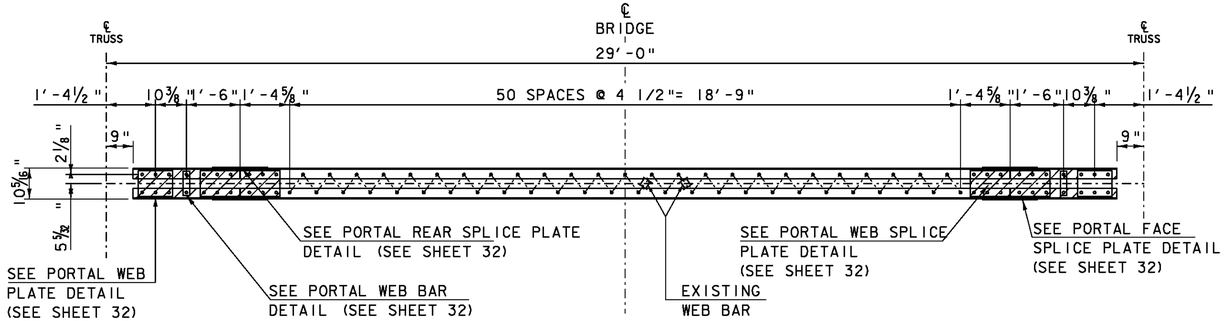
3/4" DIAMETER BOLTS IN 13/16" HOLE, UNLESS OTHERWISE NOTED.
MINIMUM BOLT EDGE AND DISTANCE = 1 1/2", UNLESS OTHERWISE NOTED.

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062roof.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: C. MOONEY
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
ROOF DETAILS	SHEET 30 OF 58



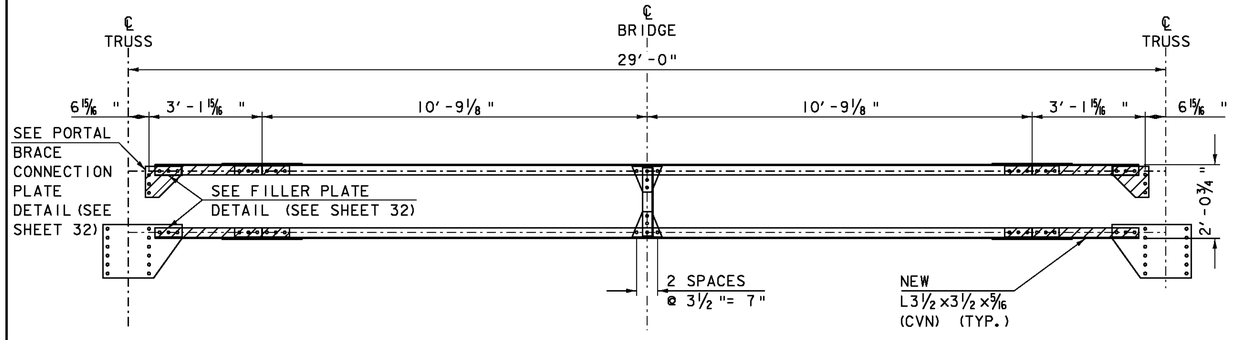
PROFILE VIEW OF PORTAL (FRONT)

SCALE 1/2" = 1'-0"



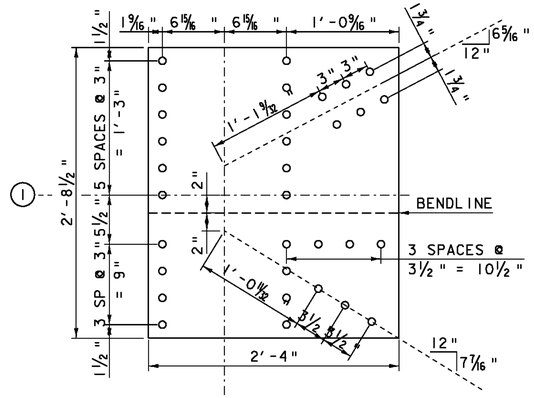
TYPICAL PLAN VIEW OF PORTAL

SCALE 1/2" = 1'-0"



PROFILE VIEW OF PORTAL (REAR)

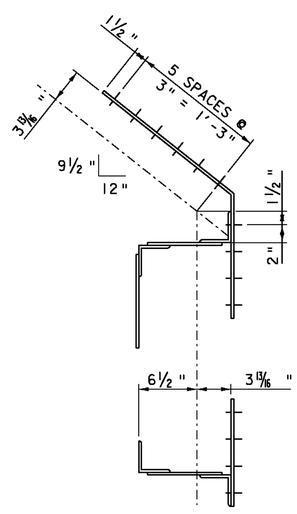
SCALE 1/2" = 1'-0"



"U1" BENT PLATE DETAIL

PL 3/8 x 28 x 2'-8 1/2"

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

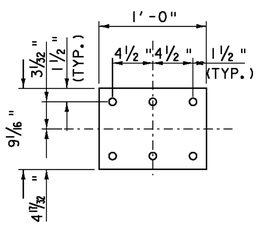


SECTION A-A

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

NOTE:
1. HATCHED COMPONENTS ARE NEW
2. 3/4" DIAMETER BOLTS IN 15/16" HOLE, UNLESS OTHERWISE NOTED.
3. MINIMUM BOLT EDGE AND DISTANCE = 1 1/2", UNLESS OTHERWISE NOTED.

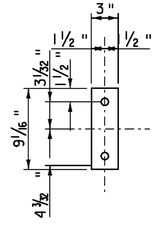
PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062roof.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: C. MOONEY
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
PORTAL FRAME	SHEET 31 OF 58



PORTAL WEB PLATE

PL ⅝×9⅛"×1'-0"

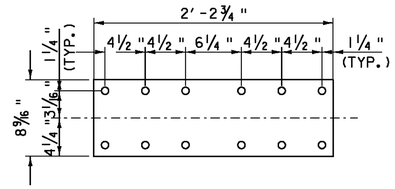
SCALE 1½" = 1'-0"



PORTAL WEB BAR

PL ⅝×3×9⅛"

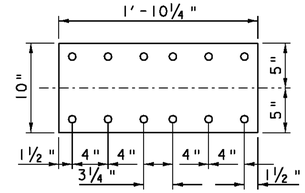
SCALE 1½" = 1'-0"



PORTAL WEB SPLICE PLATE

PL ⅝×8⅜"×2'-2¾"

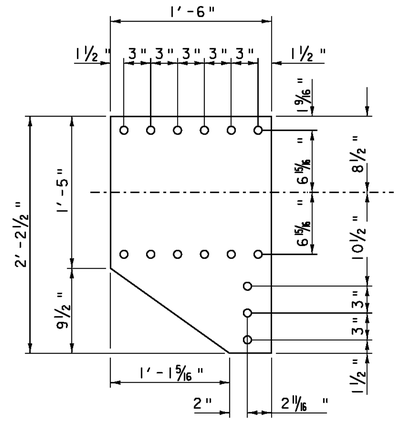
SCALE 1½" = 1'-0"



SWAY BRACE COVER PLATE

PL ⅝×10×1'-10¼"

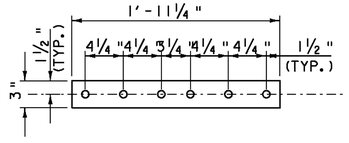
SCALE 1½" = 1'-0"



LOWER PORTAL PLATE

PL ⅜×18×2'-2½"

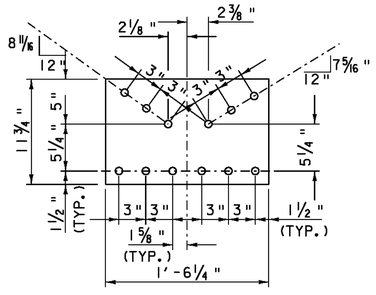
SCALE 1½" = 1'-0"



PORTAL REAR SPLICE PLATE

PL ⅝×3×1'-11¼"

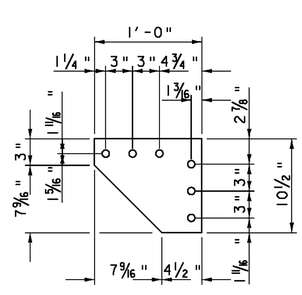
SCALE 1½" = 1'-0"



PORTAL FACE SPLICE PLATE

PL ⅝"×11¾×1'-6¼"

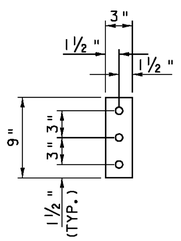
SCALE 1½" = 1'-0"



PORTAL BRACE CONNECTION PLATE

PL ⅝×10½×1'-0"

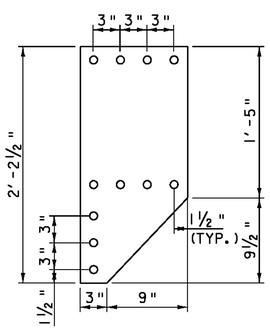
SCALE 1½" = 1'-0"



FILLER PLATE

PL ⅝×3×9"

SCALE 1½" = 1'-0"



UPPER PORTAL PLATE

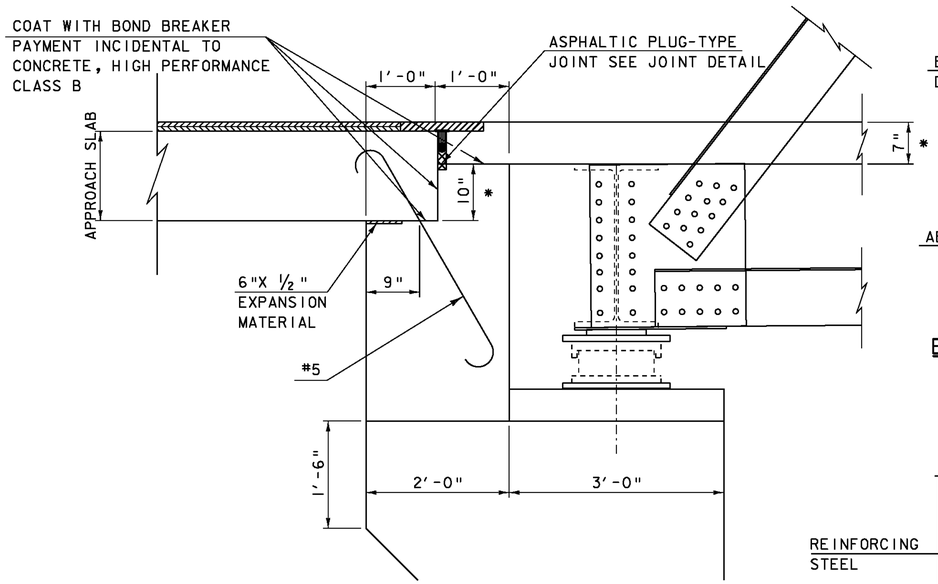
PL ⅝×12×2'-2½"

SCALE 1½" = 1'-0"

NOTE:
1. HATCHED COMPONENTS ARE NEW
2. ¾" DIAMETER BOLTS IN ¹³⁄₁₆" HOLE, UNLESS OTHERWISE NOTED.
3. MINIMUM BOLT EDGE AND DISTANCE = 1½", UNLESS OTHERWISE NOTED.

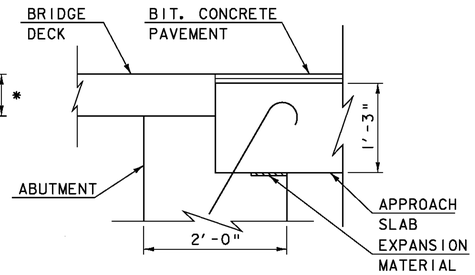
PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

FILE NAME: s86e062roof.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: C. MOONEY
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
PORTAL DETAILS	SHEET 32 OF 58

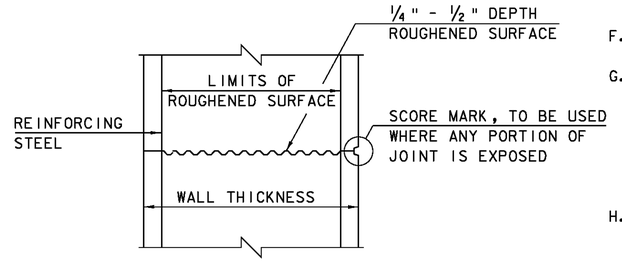


END DETAIL AT ABUT. 1 EXPANSION NORMAL TO ℄ BEARING

* DIMENSIONS MAY VARY BASED ON DECK SYSTEM CHOSEN



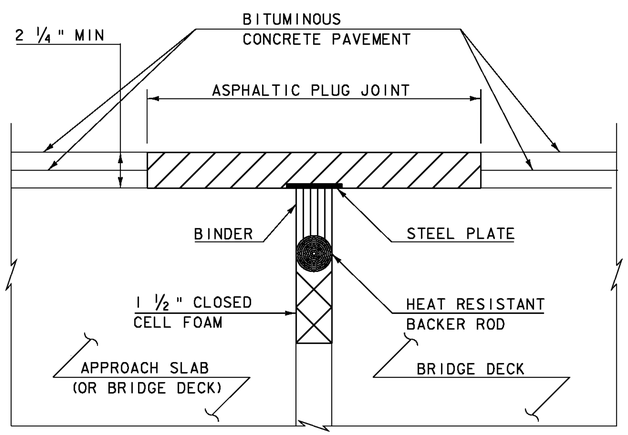
END DETAIL AT ABUT. 2 FIXED NORMAL TO ℄ BEARING



TYPICAL HORIZONTAL CONSTRUCTION JOINT

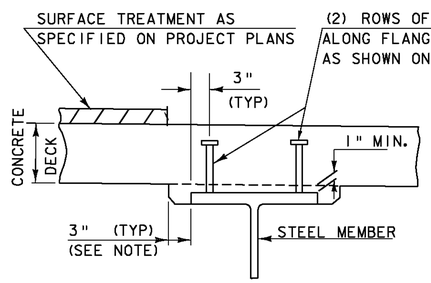
(NOT TO SCALE)

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



ASPHALTIC PLUG-TYPE JOINT DETAIL

(NOT TO SCALE)



NOTE: THE 3" HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. ANY VOIDS RESULTING FROM FORMING SYSTEM ELEMENTS SHALL BE FILLED WITH JOINT SEALER, POLYURETHANE MEETING THE REQUIREMENTS OF SECTION 524. THE COST OF THE JOINT SEALER, POLYURETHANE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

HAUNCH AND SHEAR CONNECTOR DETAIL

(NOT TO SCALE)

ASPHALTIC PLUG JOINT NOTES

1. INSTALLATION

A. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.

B. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.

C. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.

D. REPAIR SPALLED AND DEFECTIVE CONCRETE WITH AN APPROVED MATERIAL AS AGREED UPON BY THE ENGINEER.

E. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.

F. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.

G. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.

H. HEAT AND MIX THE BINDER MATERIAL AND AGGREGATE AS RECOMMENDED BY THE MANUFACTURER.

I. INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.

J. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.

K. ONCE THE JOINT REACHES 82 DEG C (180 DEG F) +/-, WATER MAY BE USED TO EXPEDITE THE COOLING PROCESS.

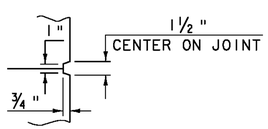
L. PROTECT THE JOINT FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 51 DEG C (125 DEG F) +/-.

2. WEATHER LIMITATIONS. (APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER):

A. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.

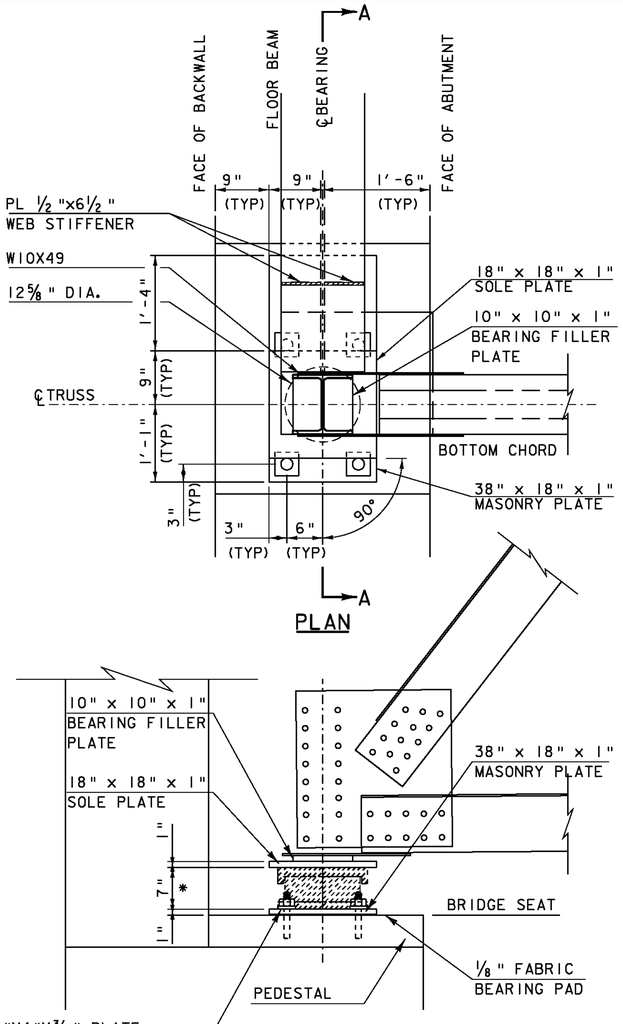
B. THE ROAD SURFACE IS DRY.

C. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.

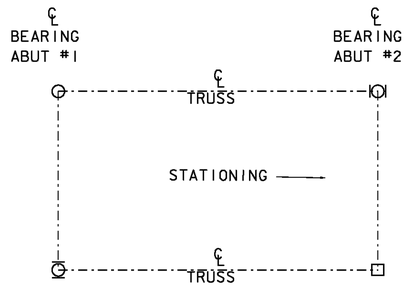


SCORE MARK DETAIL

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062bridgeend.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
ASPHALTIC PLUG JOINT & MISC DETAILS	SHEET 33 OF 58

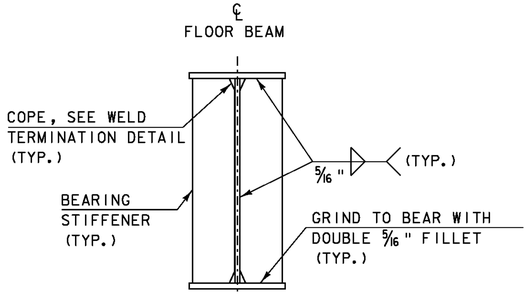


Design Load (kip)	Service Limit State	Vertical	Max	290
			Min	115
			Permanent	120
			Transverse	15
			Longitudinal	40
	Strength Limit State		Vertical	435
			Transverse	60
			Longitudinal	175
Translation (in)	Service Limit State	Irreversible	Transverse	0
			Longitudinal	5/16
		Reversible	Transverse	1/8
			Longitudinal	5/8
Rotation (rad)	Service Limit State	Irreversible	Transverse	0.005
			Longitudinal	0.007
		Reversible	Transverse	0.003
			Longitudinal	0.005

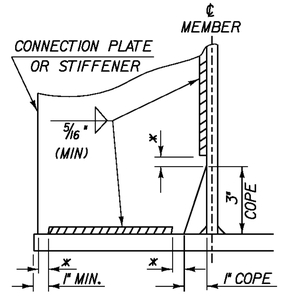


BEARING LAYOUT

LEGEND	
□	FIXED POT BEARING
⊙	GUIDED POT BEARING
○	UNRESTRAINED POT BEARING



FLOOR BEAM WEB STIFFENERS
(NOT TO SCALE)



WELD TERMINATION AND COPING DETAILS FOR STEEL MEMBERS

*NO WELD FOR ⅜" MIN. ⅞" MAX. (EXCEPT MUST MAINTAIN 1" MINIMUM FROM EDGE OF FLANGE)

BEARING NOTES

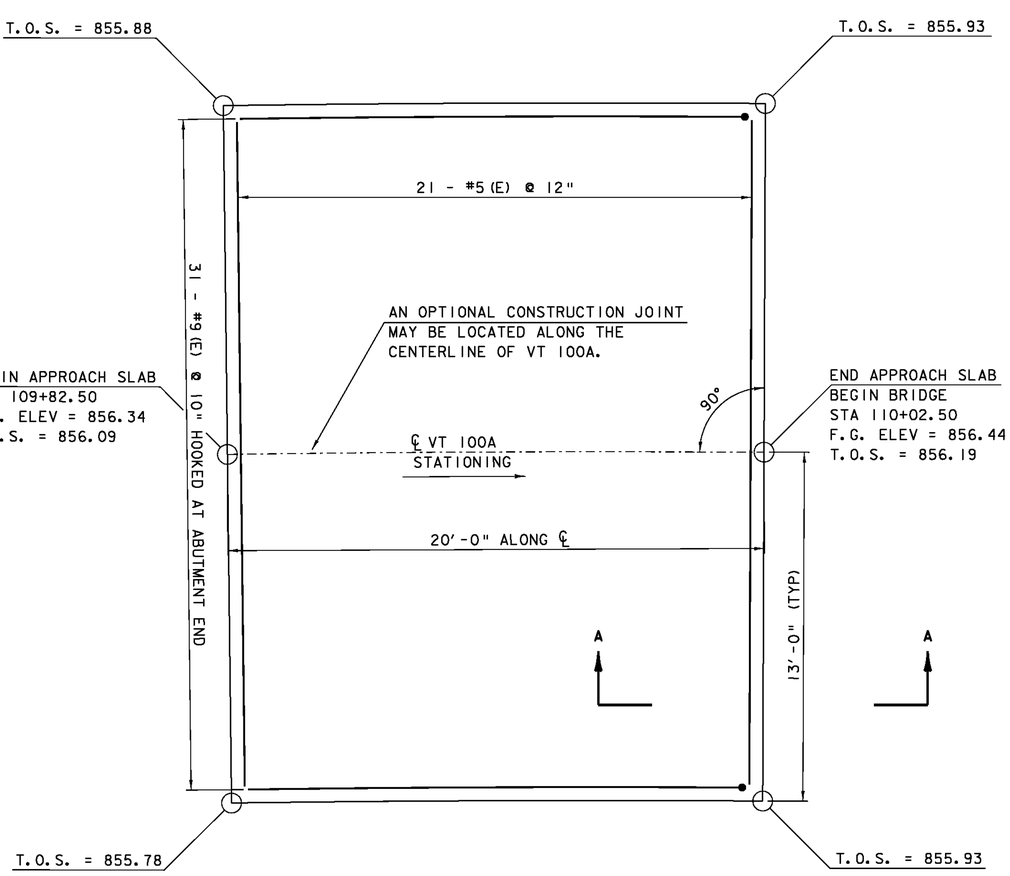
1. BEARINGS SHALL CONFORM TO APPLICABLE SUBSECTIONS OF STANDARD SPECIFICATIONS SECTIONS 513 AND 731.
2. BEARINGS SHALL BE PAID FOR UNDER ITEM 531.12 "BEARING DEVICE ASSEMBLY, POT."
3. ANCHOR BOLTS, INCLUDING DRILLING AND GROUTING, WASHERS AND NUTS SHALL BE PAID FOR UNDER ITEM 531.12 "BEARING DEVICE ASSEMBLY, POT."
4. ALL WASHERS SHALL BE ⅜" PLATE (MINIMUM).
5. ALL POTS, PLATES, NUTS, WASHERS AND ANCHOR BOLTS, UNLESS NOTED OTHERWISE, SHALL BE GALVANIZED OR METALIZED AS PER SUBSECTIONS 531.04(B) AND 506.15 OF THE STANDARD SPECIFICATIONS. IF THE BEARINGS ARE METALIZED, THEY SHALL BE SEALED WITH AN APPROVED SEALER AS SPECIFIED IN SUBSECTION 506.15(B) OF THE STANDARD SPECIFICATIONS. AREAS OF GALVANIZING OR METALIZING DAMAGED BY FIELD WELDING OR HANDLING SHALL BE REPAIRED IN CONFORMANCE WITH STANDARD SPECIFICATION SECTION 513. THE INSIDE OF THE POTS SHALL NOT BE GALVANIZED OR METALIZED.
6. ALL STEEL IN BEARING DEVICES SHALL BE AASHTO M270M/M270 GRADE 50, UNLESS NOTED OTHERWISE.
7. ANCHOR BOLTS SHALL BE ASTM A307 GRADE C WITH A MINIMUM YIELD STRENGTH OF 58 KSI AND HAVE A MINIMUM EMBEDMENT OF 15" INTO THE CONCRETE AND SHALL CONFORM TO SUBSECTION 714.08.
8. THE CONCRETE UNDER THE BEARING DEVICE SHALL BE LEVEL.
9. THE CONNECTION BETWEEN THE POT BEARING AND SOLE PLATE AND THE POT BEARING AND THE MASONRY PLATE SHALL BE DESIGNED AND DETAILED BY THE BEARING SUPPLIER.
10. ALL DESIGNS DONE FOR THE BEARINGS SHALL BE PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 4TH EDITION AND ITS LATEST REVISIONS.
11. ALTERNATE CONFIGURATIONS FOR BEARINGS MAY BE SUBMITTED FOR APPROVAL. ANY ALTERNATE SUBMITTED SHALL BE DESIGNED AND CERTIFIED TO MEET THE DESIGN LOADS AND CRITERIA SHOWN ON THE PLANS.
12. BRIDGE SEAT ELEVATIONS MAY BE REVISED TO ACCOMMODATE AN ALTERNATIVE CONFIGURATION.
13. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE AND A DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER THE BEARING IS INSTALLED.

* THE CROSS HATCHED COMPONENTS OF THE POT BEARINGS ARE SHOWN FOR REPRESENTATIVE PURPOSES ONLY. THE ACTUAL CONFIGURATION OF THE COMPONENTS WILL BE DEPENDENT UPON THE BEARING FABRICATOR.

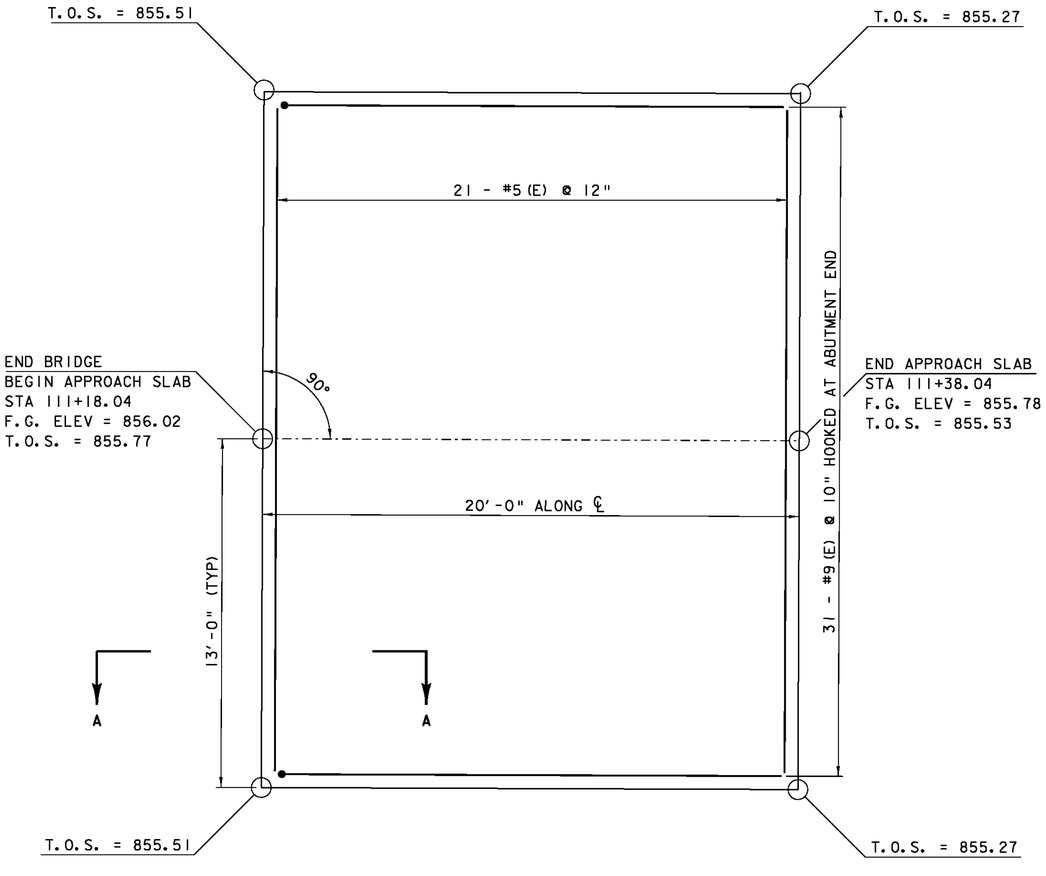
PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062bridgeend.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
BEARING DETAILS

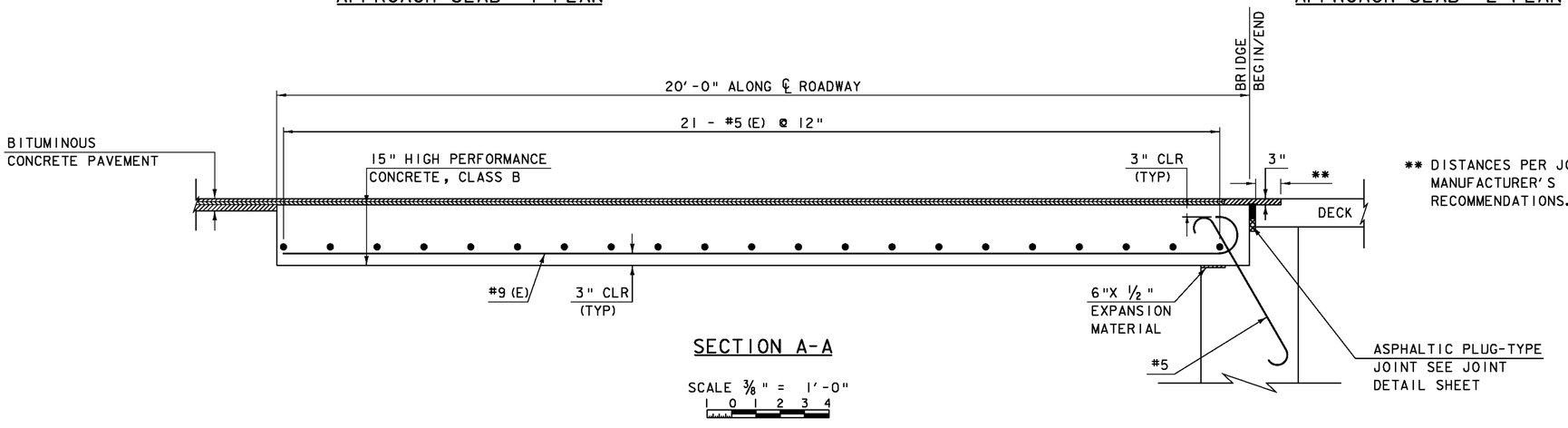
PLOT DATE: 31-DEC-2009
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 34 OF 58



APPROACH SLAB #1 PLAN



APPROACH SLAB #2 PLAN



SECTION A-A

SCALE 3/8" = 1'-0"

** DISTANCES PER JOINT MANUFACTURER'S RECOMMENDATIONS.

NOTE:
CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LENGTHS AND REINFORCING BAR BENDS BASED ON THESE DRAWINGS. ALL LAP LENGTHS SHALL BE AT LEAST THE LENGTH SPECIFIED BELOW:

#5 - 2'-0"
#6 - 2'-0"
#7 - 2'-8"
#8 - 3'-6"
#9 - 4'-5"
#10 - 5'-7"
#11 - 6'-11"

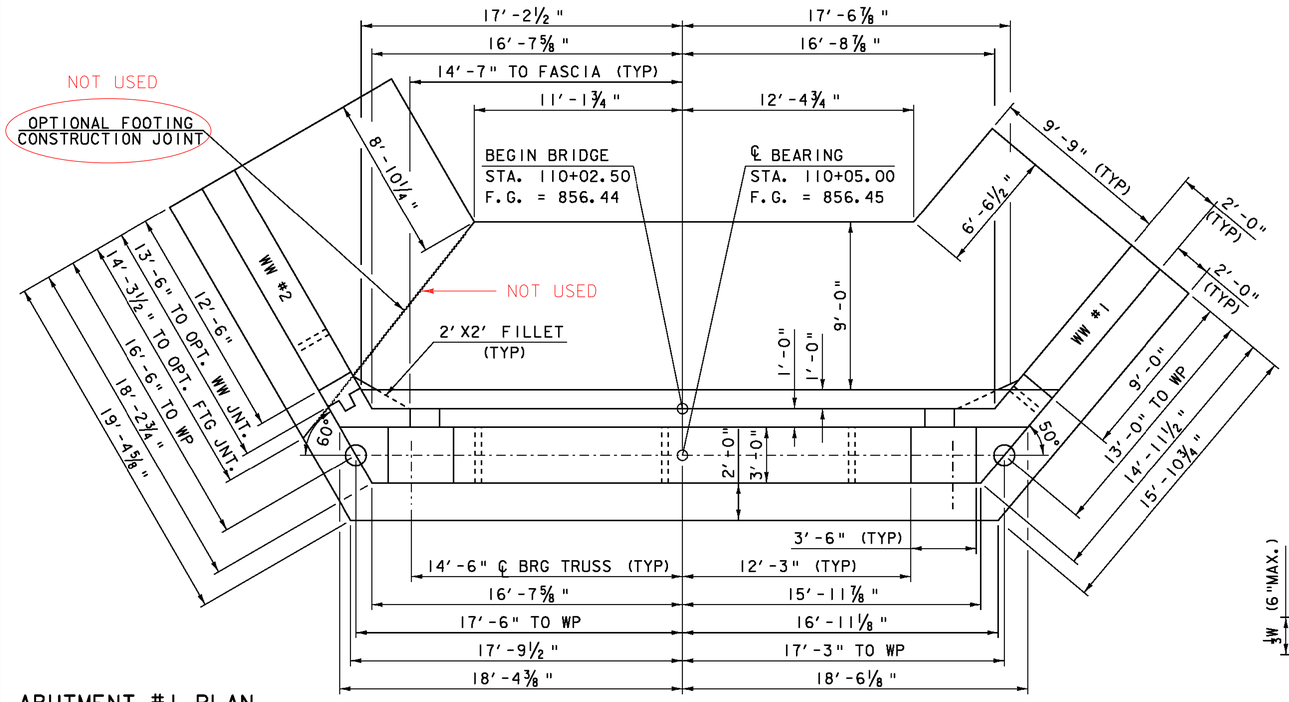
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE

3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

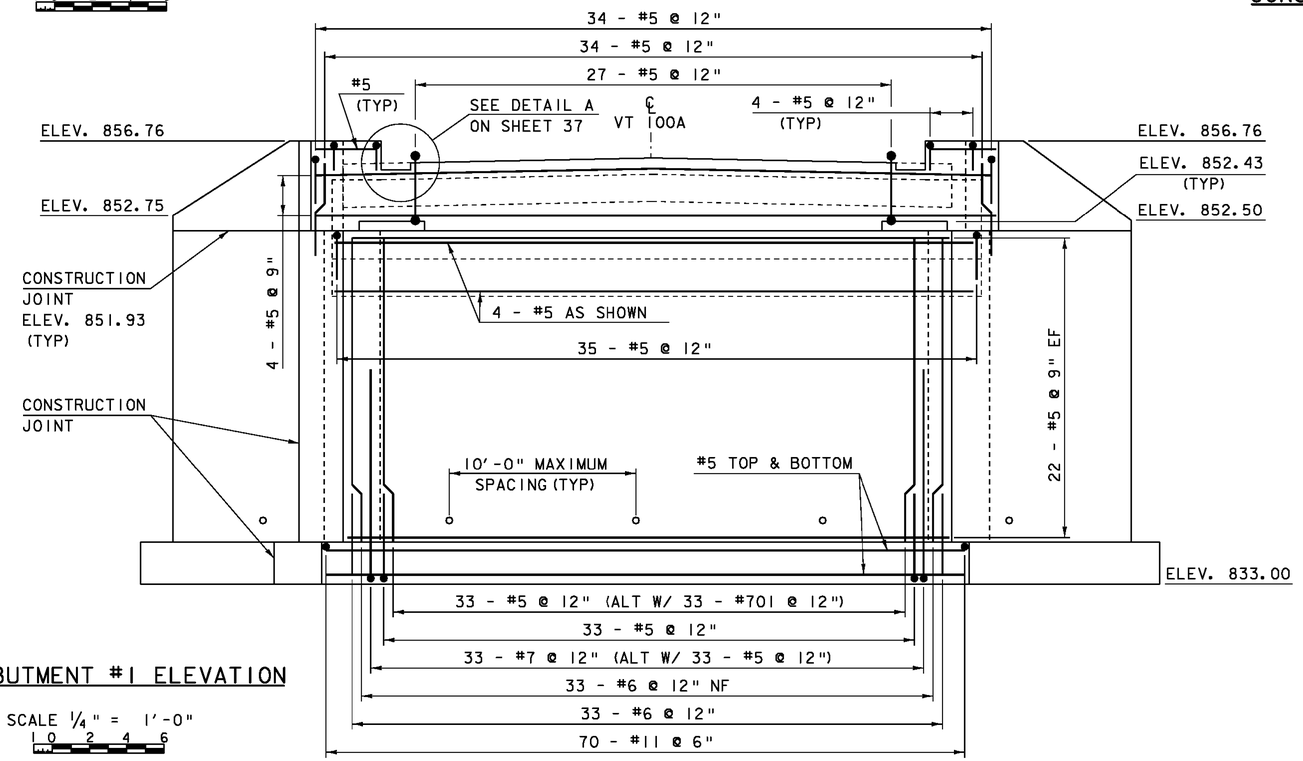
T.O.S. = TOP OF SURFACE
E = EPOXY COATED REINFORCING STEEL

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062apsl.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: R. PELLETT	CHECKED BY: T. FILLBACH
APPROACH SLABS	SHEET 35 OF 58



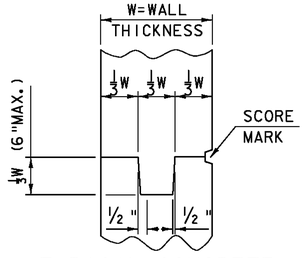
ABUTMENT #1 PLAN

SCALE ¼" = 1'-0"
1 0 2 4 6

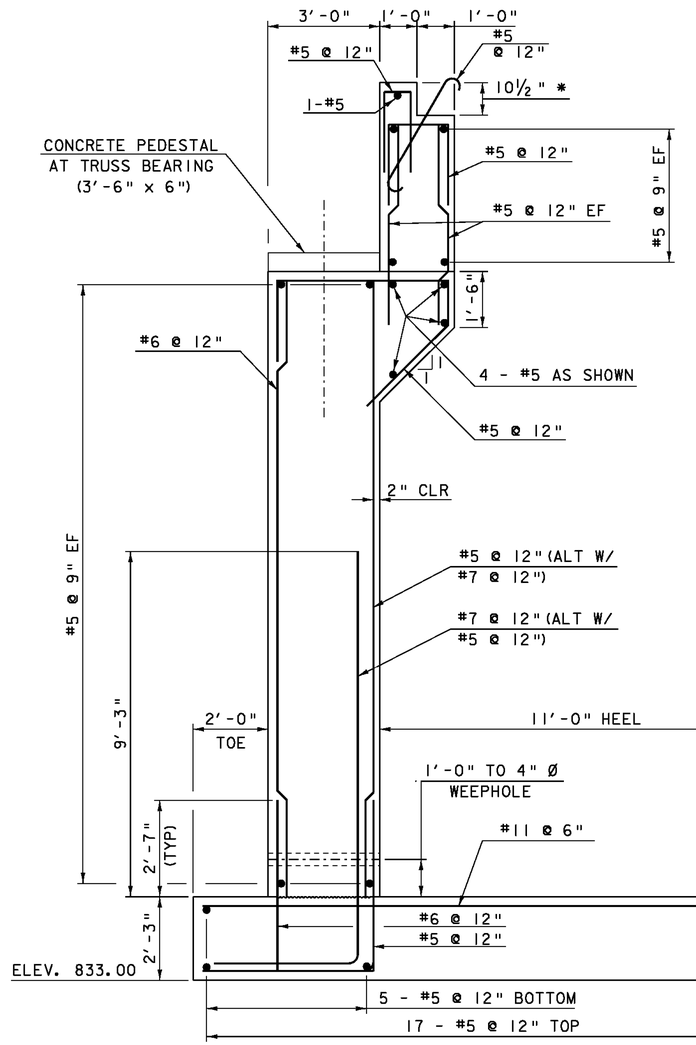


ABUTMENT #1 ELEVATION

SCALE ¼" = 1'-0"
1 0 2 4 6



TYPICAL CONCRETE CONSTRUCTION JOINT



* DEPENDING ON DECK SYSTEM CHOSEN

ABUTMENT TYPICAL SECTION

SCALE ½" = 1'-0"
1 0 1 2

NOTE:
CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LENGTHS AND REINFORCING BAR BENDS BASED ON THESE DRAWINGS. ALL LAP LENGTHS SHALL BE AT LEAST THE LENGTH SPECIFIED BELOW:

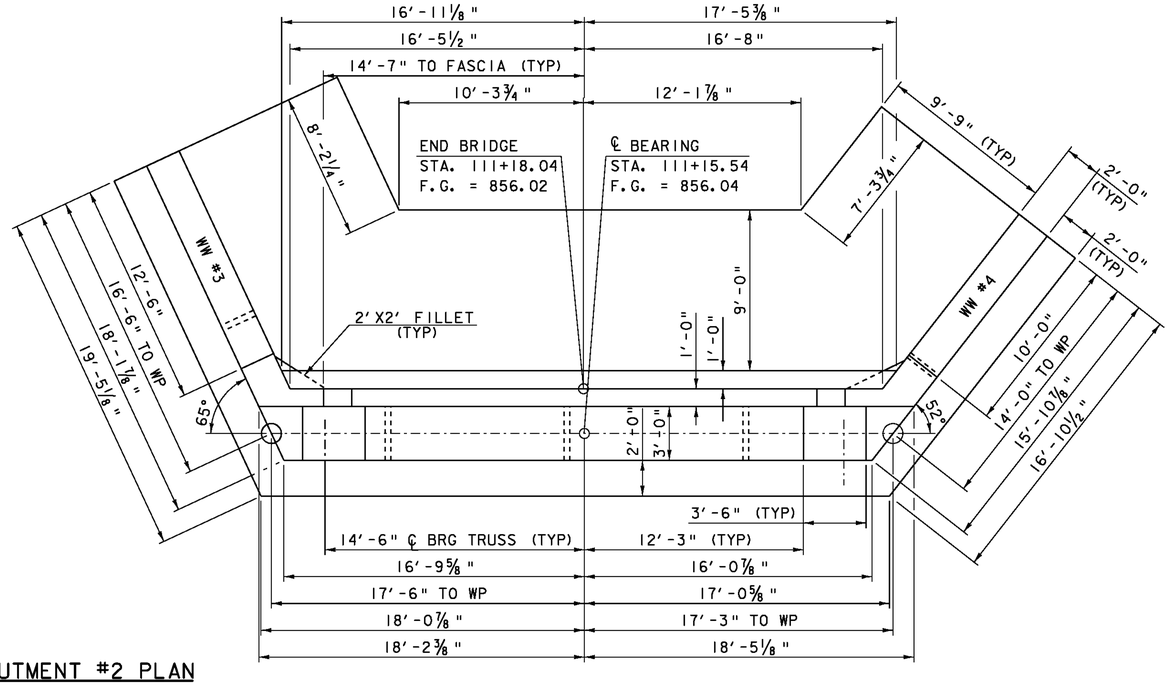
#5 - 2'-2"
#6 - 2'-7"
#7 - 3'-5"
#8 - 4'-6"
#9 - 5'-8"
#10 - 7'-3"
#11 - 8'-10"

NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062sub.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
ABUTMENT #1

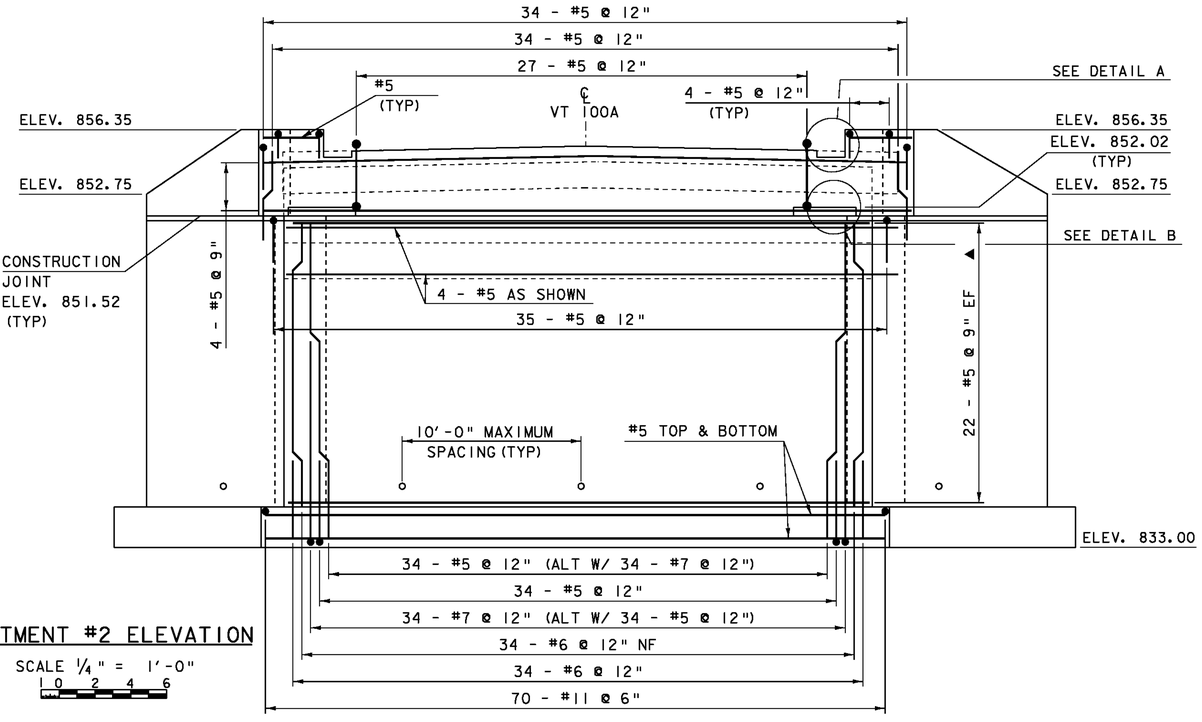
PLOT DATE: 31-DEC-2009
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 36 OF 58



ABUTMENT #2 PLAN

SCALE ¼" = 1′-0"

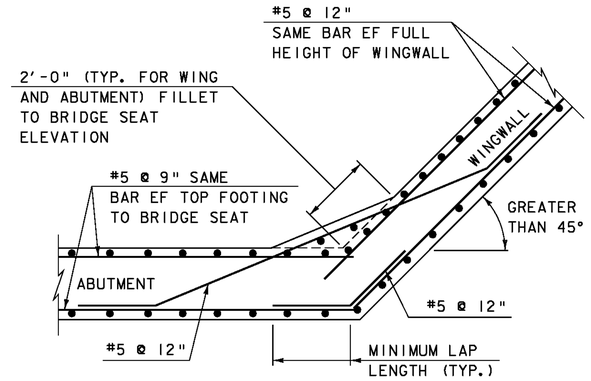
0 2 4 6



ABUTMENT #2 ELEVATION

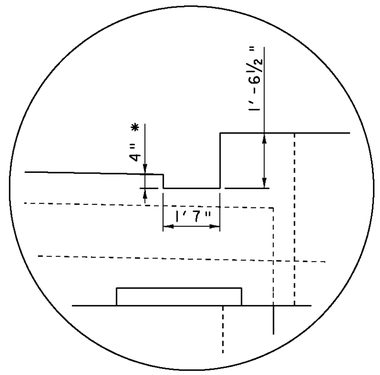
SCALE ¼" = 1′-0"

0 2 4 6

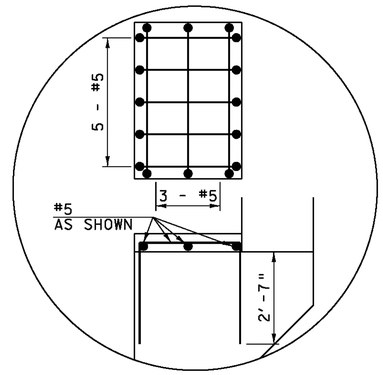


WINGWALL CORNER DETAIL FOR GREATER THAN 45°

NOT TO SCALE



DETAIL A



DETAIL B

* DEPTH DEPENDS ON DECK SYSTEM CHOSEN

NOTE:
CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LENGTHS AND REINFORCING BAR BENDS BASED ON THESE DRAWINGS. ALL LAP LENGTHS SHALL BE AT LEAST THE LENGTH SPECIFIED BELOW:

#5 - 2′-2"
#6 - 2′-7"
#7 - 3′-5"
#8 - 4′-6"
#9 - 5′-8"
#10 - 7′-3"
#11 - 8′-10"

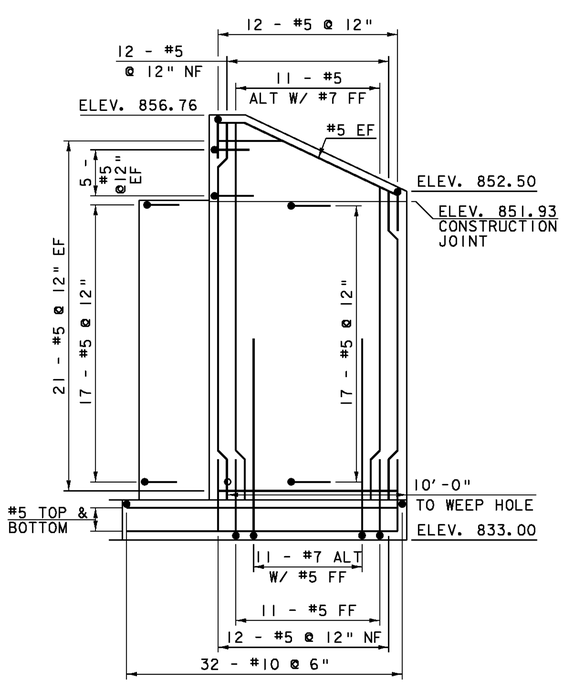
NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

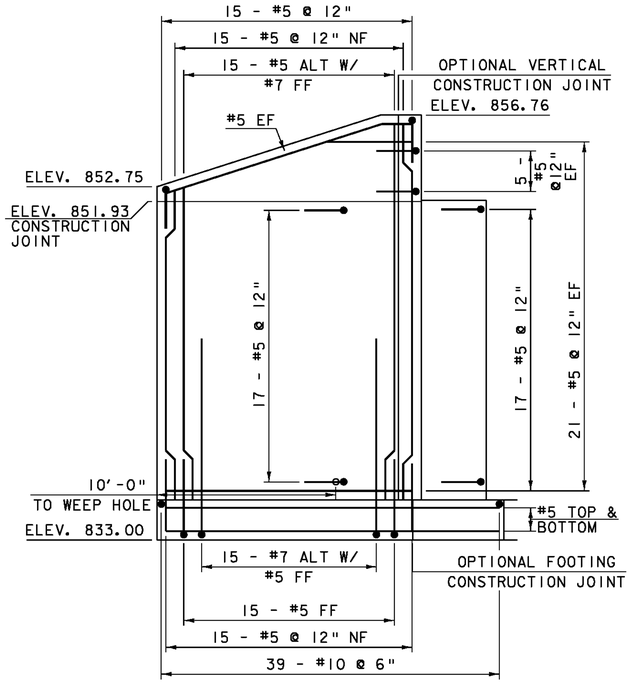
PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062sub.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
ABUTMENT #2

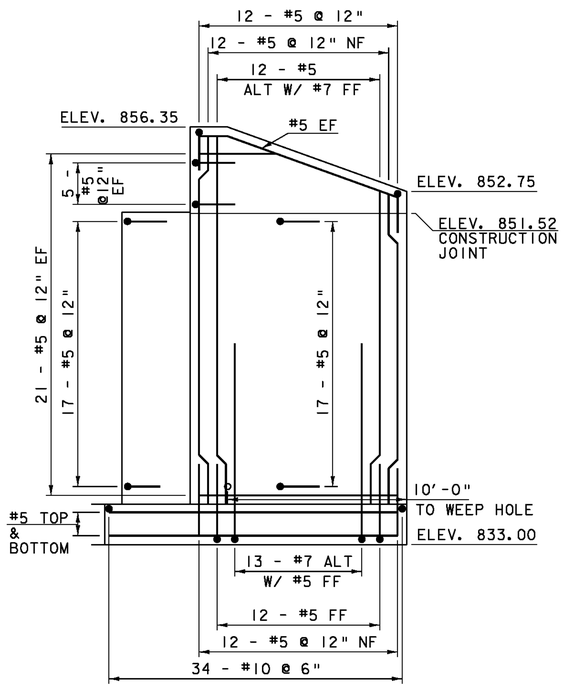
PLOT DATE: 31-DEC-2009
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 37 OF 58



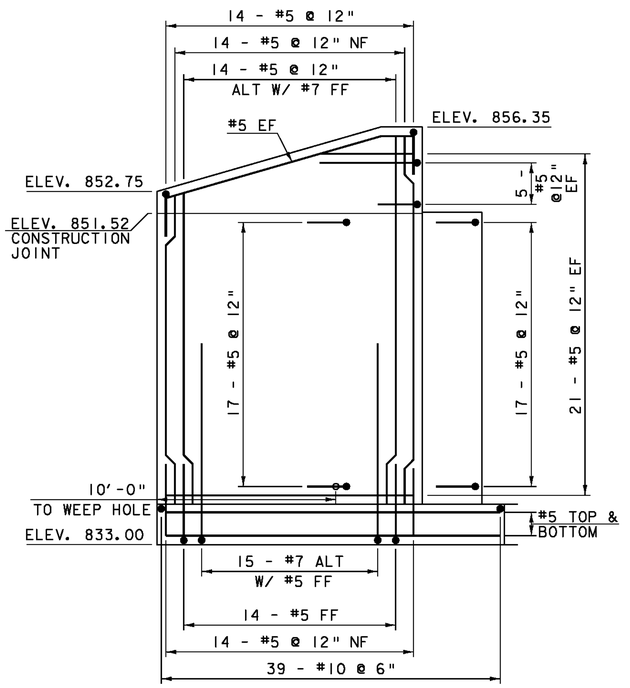
WINGWALL #1 ELEVATION



WINGWALL #2 ELEVATION

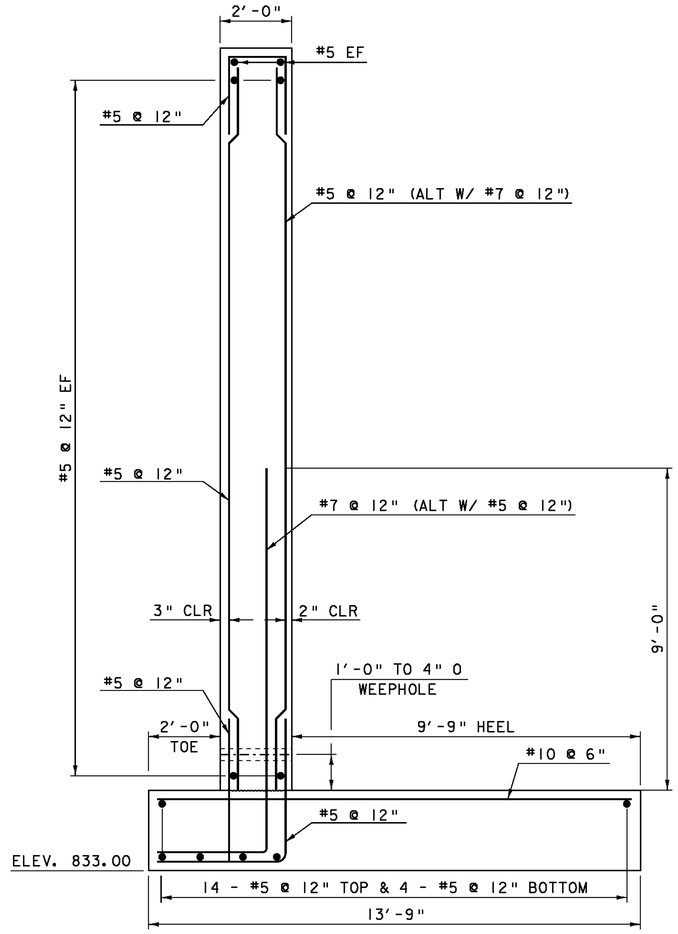


WINGWALL #4 ELEVATION



WINGWALL #3 ELEVATION

SCALE 1/4" = 1'-0"
0 2 4 6



TYPICAL WINGWALL SECTION

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

NOTE:
CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LENGTHS AND REINFORCING BAR BENDS BASED ON THESE DRAWINGS. ALL LAP LENGTHS SHALL BE AT LEAST THE LENGTH SPECIFIED BELOW:

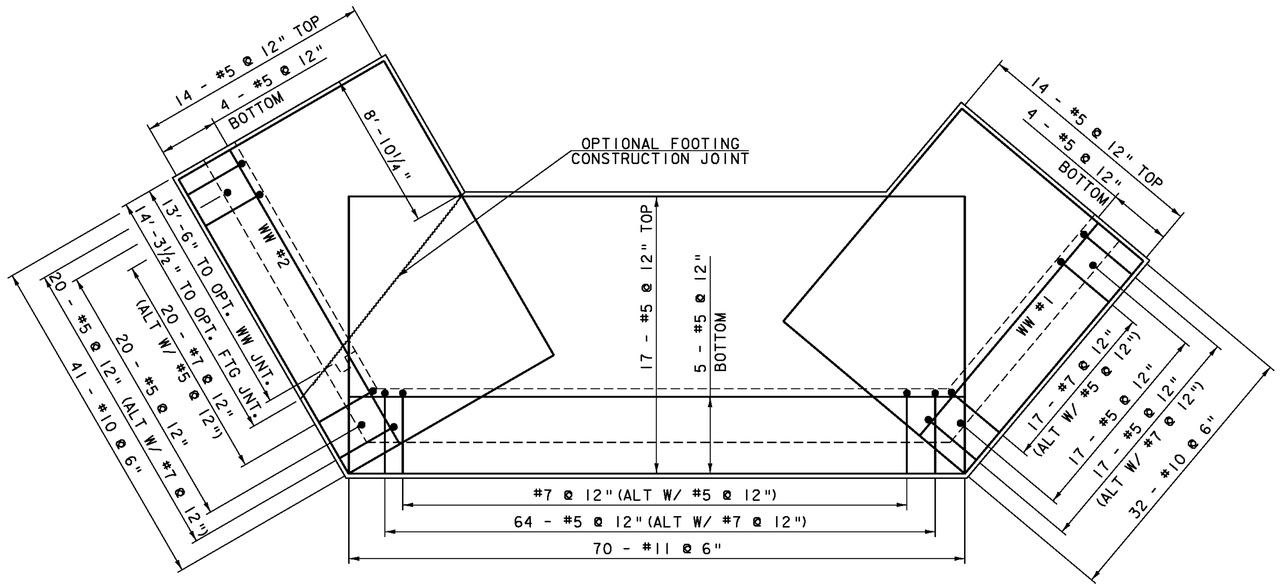
#5 - 2'-2"
#6 - 2'-7"
#7 - 3'-5"
#8 - 4'-6"
#9 - 5'-8"
#10 - 7'-3"
#11 - 8'-10"

NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062sub.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
WINGWALLS

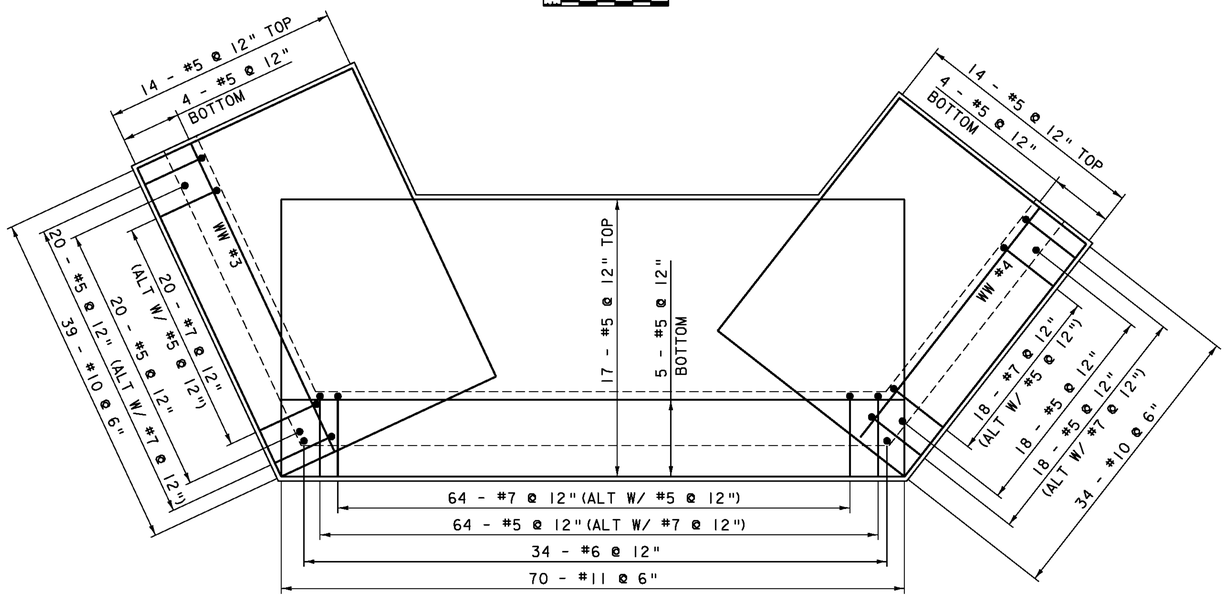
PLOT DATE: 31-DEC-2009
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 38 OF 58



ABUTMENT #1 FOOTING REINFORCING PLAN

SCALE ¼" = 1'-0"

0 2 4 6



ABUTMENT #2 FOOTING REINFORCING PLAN

SCALE ¼" = 1'-0"

0 2 4 6

NOTE:
CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LENGTHS AND REINFORCING BAR BENDS BASED ON THESE DRAWINGS. ALL LAP LENGTHS SHALL BE AT LEAST THE LENGTH SPECIFIED BELOW:

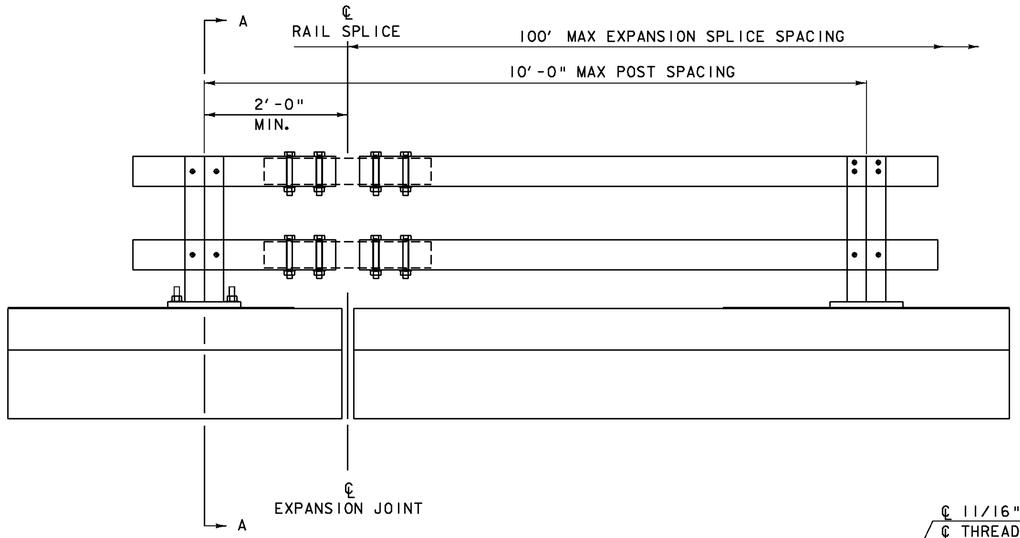
#5 - 2'-2"
#6 - 2'-7"
#7 - 3'-5"
#8 - 4'-6"
#9 - 5'-8"
#10 - 7'-3"
#11 - 8'-10"

NOTE:

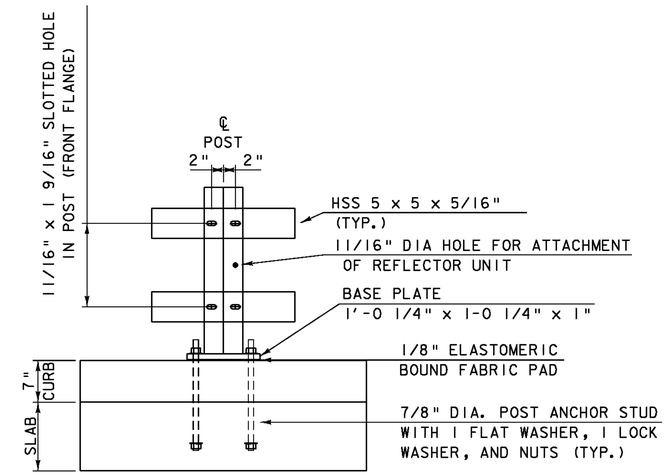
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

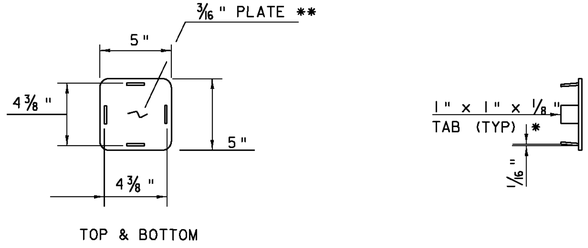
FILE NAME: s86e062sub.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
FOOTINGS	SHEET 39 OF 58



RAILING ELEVATION



POST ELEVATION

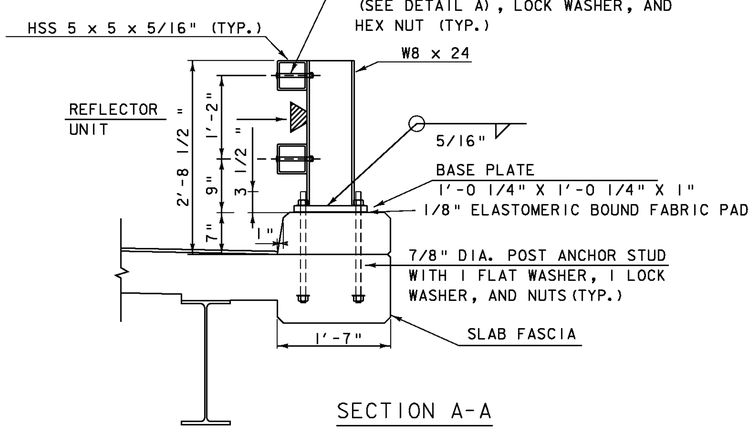


TOP & BOTTOM

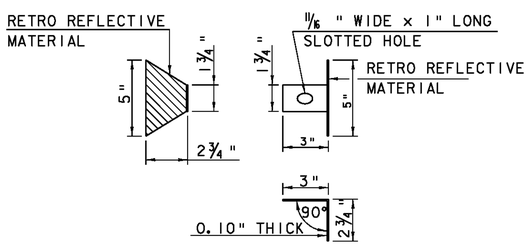
END CAP DETAIL

* WELD TABS TO END CAP PLATE IN TAPERED POSITION SO CAP CAN BE JAMMED INTO END OF RAIL TUBE.

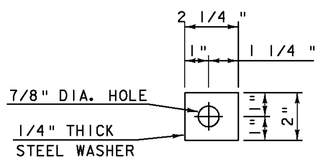
** ROUND CORNERS 1/2" RADIUS (TYP)



SECTION A-A



DELINEATION
DEVICE DETAILS



DETAIL A

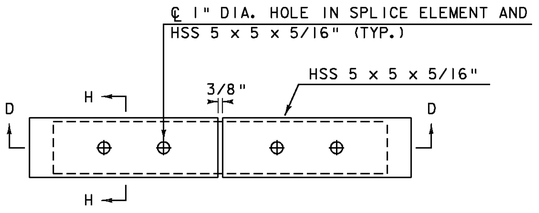
NOTES:

1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. RAILING MATERIAL SHALL MEET THE REQUIREMENTS OF SECTION 732.
3. ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 1/16" RADIUS AND BE FREE OF BURRS.
4. RAIL POSTS SHALL BE SET NORMAL TO GRADE.
5. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE RAIL POSTS AND PREFERABLY TO AT LEAST FOUR POSTS.
6. RAIL POSTS ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
7. RAIL TUBES SHALL BE ATTACHED USING ASTM A 449 (TYPE 1) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE,
8. HOLES IN RAILS FOR RAIL TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO ERECTION.
9. ANY BENDING OF RAIL SHALL BE DONE AT A FABRICATION PLANT, ACCORDING TO A PROCEDURE PROVIDED BY THE FABRICATOR.
10. THE FABRICATOR SHALL SUBMIT FABRICATION DRAWINGS INCLUDING WELDING PROCEDURES IN ACCORDANCE WITH SECTION 105.
11. 1/8" PAD SHALL COMPLY WITH STANDARD SPECIFICATION SUBSECTION 731.01 OR 731.02.

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

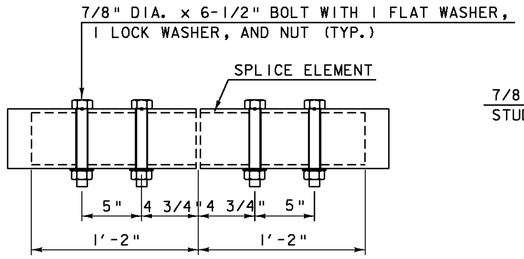
FILE NAME: s86e062raildet.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: G. LAROCHE
RAIL DETAIL #1

PLOT DATE: 31-DEC-2009
DRAWN BY: G. LAROCHE
CHECKED BY: T. FILLBACH



PLAN

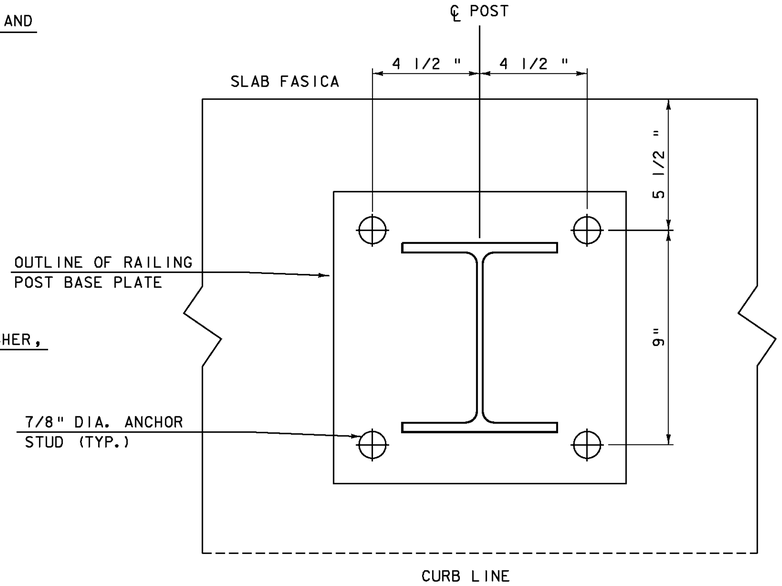
HSS 5 x 5 x 5/16"



SECTION D-D

HSS 5 x 5 x 5/16"

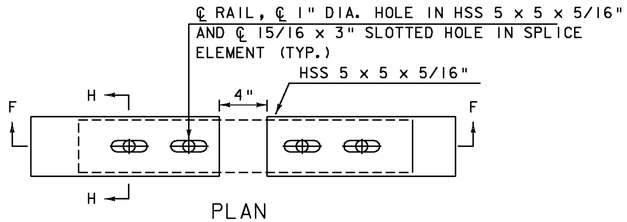
FIXED SPLICE DETAILS



ANCHOR STUD LAYOUT

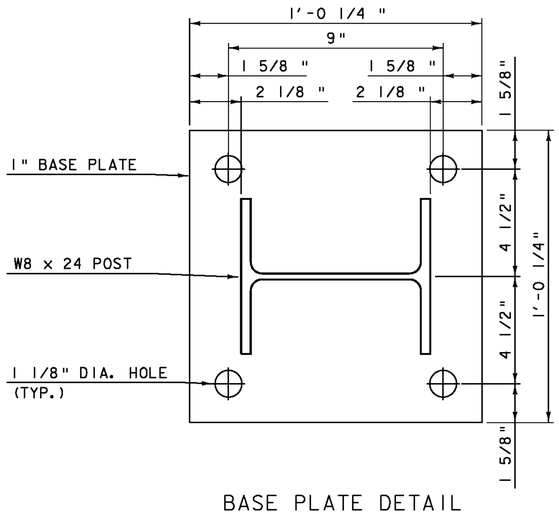
NOTE: SURFACE UNDER POST IS TO BE FINISHED LEVEL

ANCHOR STUD DETAIL

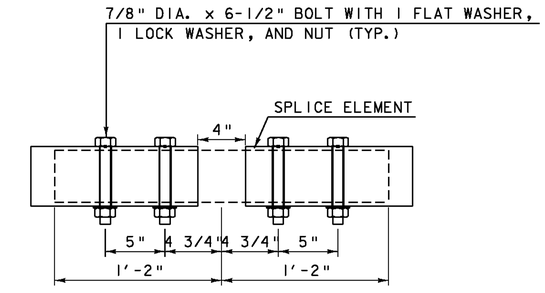


PLAN

HSS 5 x 5 x 5/16"



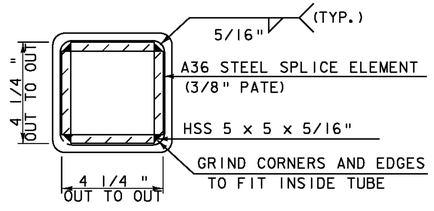
BASE PLATE DETAIL



SECTION F-F

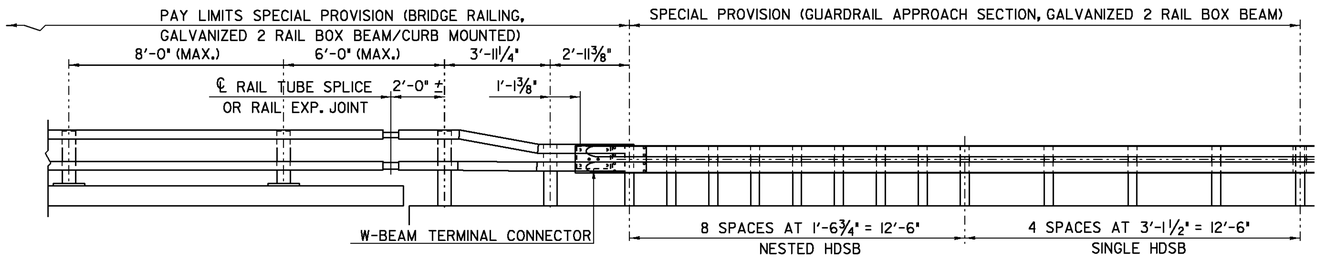
HSS 5 x 5 x 5/16"

EXPANSION SPLICE DETAILS

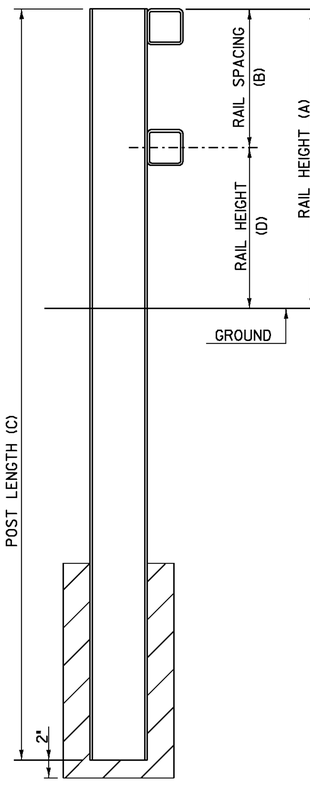


SECTION H-H

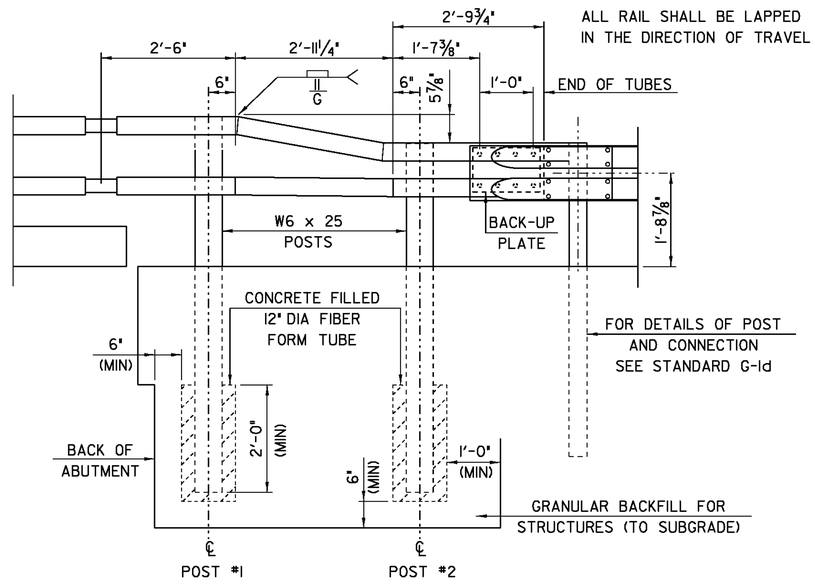
PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062raildet.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: G. LAROCHE
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
RAIL DETAIL *2	SHEET 41 OF 58



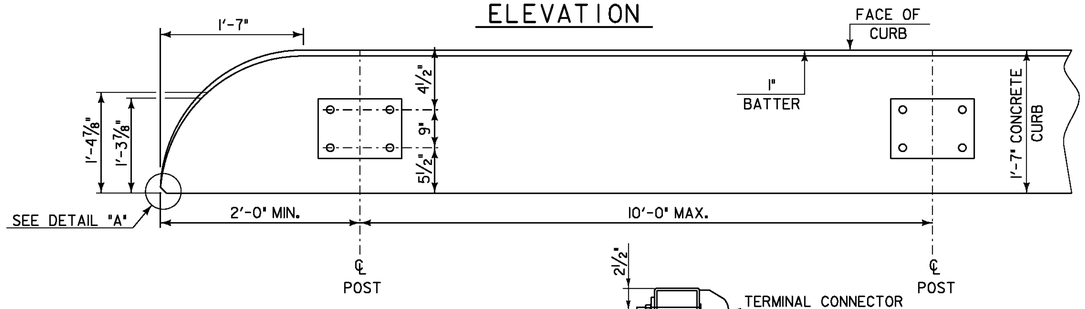
RAILING TRANSITION ELEVATION

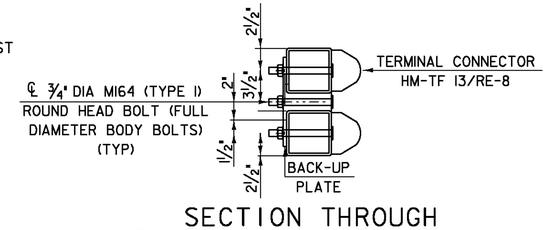


TYPICAL SECTION

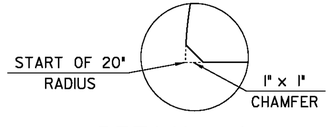


ELEVATION

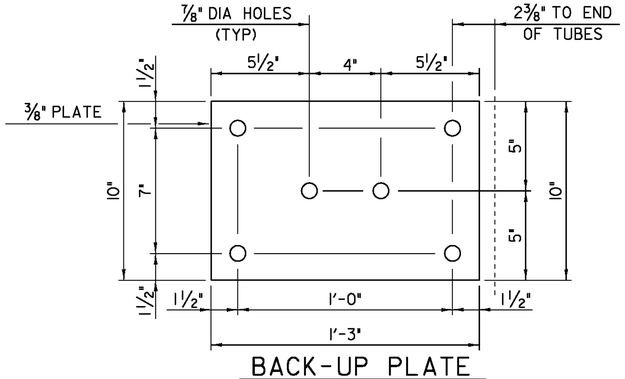




SECTION THROUGH GUARD RAIL CONNECTION AT TERMINAL CONNECTOR



DETAIL "A"



BACK-UP PLATE

POST NUMBER	RAIL HEIGHT (A)	RAIL SPACING (B)	POST LENGTH (C)	RAIL HEIGHT (D)
1	2'-10"	1'-4 1/2"	7'-0"	1'-4"
2	2'-2⅛"	8.5"	6'-5"	1'-5⅝"

Notes:

1. PAYMENT FOR GUARDRAIL APPROACH SECTION, SHALL INCLUDE THE TERMINAL CONNECTOR, THE CONNECTION PLATE, THE DEFLECTOR PLATE, RAIL, POSTS, BLOCKS AND ATTACHMENT HARDWARE.
2. TO FACILITATE FIELD FIT - UP OF THE TRANSITION RAILING, POSTS SHALL BE SET LOOSELY INTO FIBER FORM TUBES WHILE TRANSITION PARTS ARE BEING ASSEMBLED. POST HOLES SHALL BE BACKFILLED WITH A CONCRETE MIX APPROVED BY THE ENGINEER. PAYMENT FOR COMPONENTS, INCLUDING BACKUP PLATE AND END TERMINAL CONNECTOR FOR GUARD RAIL, AUGERING, FIBER FORM TUBES AND CONCRETE, AND INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM, CURB MOUNTED.
3. THE RETROREFLECTIVE MATERIAL IS TO BE ERECTED EVERY 30' (OR CLOSEST POST) WITH A ⅝" DIAMETER BOLT AND SHALL MEET REQUIREMENTS OF SUBSECTION 750.08 AND SHALL BE A 0.063" ALUMINUM BACKING WHITE REFLECTOR.
4. ALL APPROACH RAIL SPLICES SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW.
5. TUBE AND STEEL POST MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED.
6. APPROACH RAIL BOLTS SHALL BE ASTM A307 GRADE A AND NUTS SHALL BE AASHTO M291 (ASTM A563 GRADE A OR BETTER) (GALVANIZED). WASHERS SHALL BE ASTM F844.
7. WELD TOP SPLICE BAR TO FIT BEND. USE COMPLETE PENETRATION WELD (B-U2).
8. SEE STANDARD G-1 AND G-1d FOR ADDITIONAL INFORMATION.

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86E062ral.dgn	PLOT DATE: 26-JAN-2010
PROJECT LEADER: K. HIGGINS	DRAWN BY: G. LAROCHE
DESIGNED BY: STR 5	CHECKED BY: T. FILLBACH
RAIL DETAIL #3	SHEET 42 OF 58

EROSION CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REHABILATATION AND WIDENING OF BRIDGE 14, LOCATED IN THE TOWN OF BRIDGEWATER, ALONG VT ROUTE 100A. THE EXISTING STEEL TRUSS BRIDGE SPANS 114 FEET OVER THE OTTAUQUECHEE RIVER. IT WILL BE REHABILITATED, WIDENED AND PLACED ON NEW ABUTMENTS ALONG THE SAME ALIGNMENT. THE PROJECT ALSO ENTAILS NECESSARY ROADWAY, CHANNEL AND GUARDRAIL APPROACH WORK AND REMOVAL OF TEMPORARY BRIDGE. THE BRIDGE IS APPROXIMATELY 650 SOUTH OF THE INTERSECTIONS OF VT ROUTE 100A AND US ROUTE 4.

NOTE: AREA OF DISTURBANCE SHALL INCLUDE LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, INCLUDING ANY WASTE, STAGING AND BORROW AREAS WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS.

TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 0.75 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST TWO CONSTRUCTION SEASONS.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS RELATIVELY FLAT, WITH STEEP SLOPES OCCURING ONLY AT STREAM BANKS AND SIDE SLOPES OF EXISTING ROAD BED.

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

THE OTTAUQUECHEE RIVER IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE RIVER IS CLASSIFIED AS STEEP, SINUOUS, NARROW, WITH A CONFINED AND ARMORED CHANNEL AT THE SITE. THE STREAM BED CONSISTS OF COBBLES, GRAVEL, SAND AND SILT.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF MOSTLY OPEN FIELDS WITH PATCHES OF WOODS ALONG THE RIVER. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REHABILITATION OF THE EXISTING BRIDGE. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE IV AS SPECIFIED ON THE PLANS.DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF WINDSOR, VERMONT. SOILS IN THE PROJECT SITE ARE AS FOLLOWS:

8A AGAWAM, FINE SANDY LOAM, 0 - 3% SLOPES, VERY DEEP, WELL DRAINED SOILS FORMED IN SANDY WATER DEPOSITED MATERIALS, "K FACTOR" = 0.28

23 ONDAWA, FINE SANDY LOAM, 0 - 3% SLOPES, VERY DEEP, WELL DRAINED SOILS FORMED IN RECENT ALLUVIUM OF FLOODPLAINS, OCCASIONALLY FLOODED, "K FACTOR" = 0.24

29A GRANGE, VERY FINE SANDY LOAM, 0 - 3% SLOPES, CONSISTS OF VERY DEEP, POORLY AND SOMEWHAT POORLY DRAINED SOILS, "K FACTOR" = 0.49

64B COLTAN, FINE SANDY LOAM, 3 - 8% SLOPES, EXCESSIVELY DRAINED SOILS FORMED IN GLACIO-FLUVIAL DEPOSITS, "K FACTOR" = 0.24

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:
0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: OUTSIDE PROJECT LIMITS
PRIME AGRICULTURAL LAND: UNDER TEMPORARY DETOUR
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: OTTAUQUECHEE RIVER
WETLANDS: NO

1.3 RISK EVALUATION

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

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE WORK OUTLINED IN THIS NARRATIVE CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES.

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

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

REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

1.4.1 MARK SITE BOUNDARIES

DELINEATE THE LIMITS CONSTRUCTION EQUIPMENT CAN ACCESS. PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO MARK SITE BOUNDARIES.

1.4.2 LIMIT DISTURBANCE AREA

EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

1.4.3 STABILIZE CONSTRUCTION ENTRANCE

STABILIZED CONSTRUCTION ENTRANCES SHALL BE UTILIZED TO MINIMIZE TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS AND REDUCE THE POTENTIAL FOR RUNOFF INTO RECEIVING WATERS. THEY SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK AND AS NECESSARY. PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT SHALL USE SILT FENCE WOVEN WIRE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

1.4.5 SLOW DOWN CHANNELIZED RUNOFF

CHECK DAMS SHALL BE UTILIZED TO CONTROL CONCENTRATED FLOW OF STORMWATER WITHIN THE PROJECT LIMITS.

1.4.6 CONSTRUCT PERMANENT CONTROLS

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

1.4.7 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST AT A MINIMUM HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

TRACKING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.8 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER OCTOBER 15 THROUGH APRIL 15. REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.9 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE. SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

1.4.10 INSPECT YOUR SITE

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

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

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

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

FILE NAME: s86e062epsc_nar.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: T. FILLBACH
EPSC NARRATIVE	SHEET 43 OF 58

29A
GRANGE VERY FINE SANDY LOAM
0 - 3% SLOPES
K = 0.49

64B
COLTAN FINE SANDY LOAM
3 - 8% SLOPES
K = 0.24

8A
AGAWAM FINE SANDY LOAM
0 - 3% SLOPES
K = 0.28

23
ONDAWA FINE SANDY LOAM
0 - 3% SLOPES
K = 0.24

N

VT STATE PLANE GRID

HISTORIC DIST

ARCH

TOWN CLAIMED
3 RODS ROW

BM#2
USGS STAMP 9 WHC
1963 854
ELEV.854.041

BM#1
CH.SQ.IN.W.COR.
GRANGE HALL
STEPS
ELEV.858.166

AER E&T

AER E&T FOR TEMPORARY SIGNAL

WOVEN WIRE FENCE

RAIL FENCE

KNEE-HIGH SCHOOL

GRAVEL DRIVE

WELL

PROPANE TANK

GRANGE HALL

SEPTIC TANK

PAVED ROAD

TH65

IH88 (GRAVEL)

WOODS

OTTAUQUECHEE RIVER

FIELD DRIVE

SHRUB

LILAC

HEDGE - LILACS - 4' WIDE

2 STORY HOUSE

12" CHERRY

12" BIRCH

12" MAPLE

18" M

12" CHY

12" SPR

18" WILLOW

6" ELM

3" APP

6" MAPLE

COMB POLE #4/475

COMB POLE #2/3

COMB POLE #3

COMB POLE #40/93/1/4/2

SIGN STOP

SIGN KNEE-HIGH SCHOOL

SIGN

GUY

HYD CTRL #5

EXIST. 15" RCP

DITCH

108+00
109+00
110+00
111+00
112+00
113+00
114+00

SCALE 1" = 20'-0
20 0 20

LEGEND

ARCH	ARCHEOLOGICALLY SIGNIFICANT AREA
CUT/FILL LIMITS	CUT/FILL LIMITS
FLOOD PLAIN	FLOOD PLAIN
HISTORIC DIST	HISTORICAL DISTRICT
P/L	PROPERTY LINE
	RIPARIAN BUFFER
	SOIL GROUP LINE
	WETLAND DELINIATION

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062epsc_bdr.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: R. PELLETT
EPSC EXISTING CONDITIONS

PLOT DATE: 31-DEC-2009
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 44 OF 58

29A
GRANGE VERY FINE SANDY LOAM
0 - 3% SLOPES
K = 0.49

64B
COLTAN FINE SANDY LOAM
3 - 8% SLOPES
K = 0.24

8A
AGAWAM FINE SANDY LOAM
0 - 3% SLOPES
K = 0.28

23
ONDAWA FINE SANDY LOAM
0 - 3% SLOPES
K = 0.24

N

VT STATE PLANE GRID

VT 100A

108+00 109+00 110+00 111+00 112+00 113+00 114+00

840

KNEE-HIGH SCHOOL

IH88 (GRAVEL)

HISTORIC DIST

GRAVEL DRIVE

WOODS

ARCH

WOVEN WIRE FENCE

RAIL FENCE

TOWN CLAIMED 3 ROD ROW

WELL

BM#2
USGS STAMP 9 WHC
1963 854
ELEV.854.041

COMB POLE #4/475

COMB POLE #2/3

12" CHERRY

18" M

12" CHY

12" SPR

12" BIRCH

12" MAPLE

AER E&T

PDF

CZ

STONE FILL TYPE IV

FOR TEMPORARY SIGNAL

SIGN STOP

SIGN KNEE-HIGH SCHOOL

DITCH

EXIST. 15" RCP

FIELD DRIVE

HEDGE - LILACS - 4' WIDE

LILAC

SHRUB

PROPANE TANK

GRANGE HALL

SEPTIC TANK

PAVED ROAD TH65

EXISTING 16" ACP/AP

BM#1
CHISEL N.W.COR. GRANGE HALL STEPS
ELEV.858.166

OTTAUQUECHEE RIVER

18" WILLOW

12" W. BIRCH

3" APP

6" ELM

EXISTING TEMPORARY BRIDGE CONSTRUCTION LIMITS

LEGEND

	CHECK DAM
	CUT/FILL LIMITS
PDF	PROJECT DEMARCATION FENCE
	ROLLED EROSION CONTROL PRODUCT (RECP)
	SILT FENCE
	SILT FENCE, WIRE WOVEN REINFORCED
	STONE FILL
	FILTER CURTAIN
	STABILIZED CONSTRUCTION ENTRANCE

SCALE 1" = 20'-0
20 0 20

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062epsc_bdr.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: R. PELLETT
EPSC CONSTRUCTION CONDITIONS

PLOT DATE: 31-DEC-2009
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 45 OF 58

29A
GRANGE VERY FINE SANDY LOAM
0 - 3% SLOPES
K = 0.49

64B
COLTAN FINE SANDY LOAM
3 - 8% SLOPES
K = 0.24

8A
AGAWAM FINE SANDY LOAM
0 - 3% SLOPES
K = 0.28

23
ONDAWA FINE SANDY LOAM
0 - 3% SLOPES
K = 0.24

N

VT STATE PLANE GRID

VT 100A

108+00 109+00 110+00 111+00 112+00 113+00 114+00

840 840 840 840

KNEE-HIGH SCHOOL

TH88 (GRAVEL)

HISTORIC DIST

GRAVEL DRIVE

WOODS

ARCH

TOWN CLAIMED
3 ROD ROW

WOVEN WIRE FENCE

RAIL FENCE

SIGN STOP

SIGN KNEE-HIGH SCHOOL

WELL

12" CHERRY

COMB POLE #4/47/5

COMB POLE #2/3

COMB POLE #40/93/1/A/2

BM#2
USGS STAMP 9 WHC
1963 854
ELEV.854.041

12" Y. BIRCH

12" MAPLE

AER E&T

STONE FILL
TYPE IV

FOR TEMPORARY SIGNAL

DITCH

EXIST. 15" RCP

SIGN

FIELD DRIVE

12" SPR

GUY

HEDGE

LILACS 4' WIDE

GRAVEL PARKING LOT

PROPANE TANK

GRANGE HALL

EXISTING 18" ACCAMP

SIGN STOP

SIGN

SEPTIC TANK

PAVED ROAD

TH65

BM#1
CH.SG.N.W.COR.
GRANGE HALL
STEPS
ELEV.858.166

OTTAUQUECHEE RIVER

18" M

12" CHY

12" W. BIRCH

3" APP

18" WILLOW

6" ELM

LILAC

SHRUB

6" MAPLE

2 STORY HOUSE

POST OFFICE

4-S. CEDARS

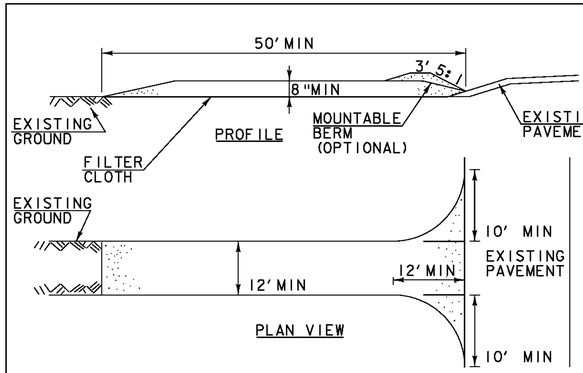
M. MAPLE

CROSS HATCED AREA ARE ADDITIONAL DISTURBED AREASTHAT REQUIRED REVEGETATION

GRAY SHADED SHAPES ARE DISTURBED AREAS THAT WILL REQUIRE REVEGETATION.

SCALE 1" = 20'-0
20 0 20

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062epsc_bdr.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: R. PELLETT	CHECKED BY: T. FILLBACH
EPSC FINAL CONDITIONS	SHEET 46 OF 58



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
3. THICKNESS- NOT LESS THAN 8".
4. WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

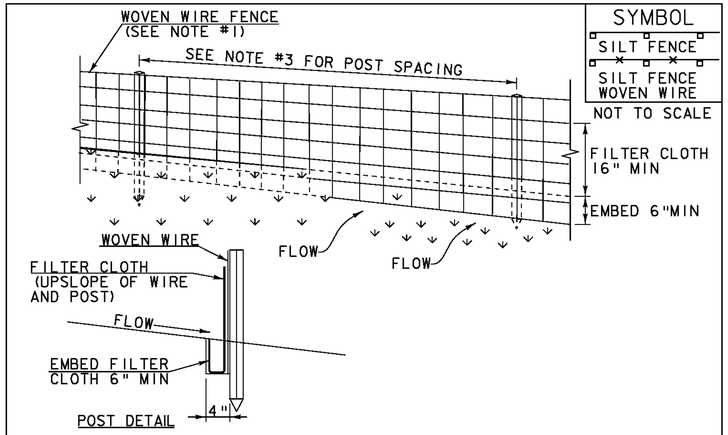
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED CONSTRUCTION ENTRANCE

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

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

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF



SYMBOL

SILT FENCE

SILT FENCE WOVEN WIRE

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

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

SILT FENCE

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

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

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

VAOT RURAL AREA MIX

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

VAOT URBAN AREA MIX

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

GENERAL GUIDANCE

FERTILIZER		LIME	
BROADCAST	HYDROSEED	BROADCAST	HYDROSEED
10/20/2010	19-19-19	PELLETIZED	LIQUID
500 LBS/AC		2 TONS/AC	4.4 GAL/AC

CONSTRUCTION GUIDANCE

1. RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
2. URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
7. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED
8. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

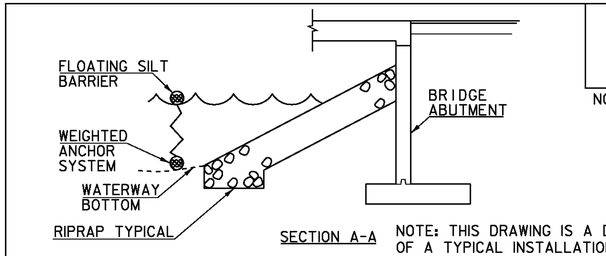
SEED

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

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062epsc_det.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
EPSC DETAILS #1

PLOT DATE: 31-DEC-2009
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 47 OF 58

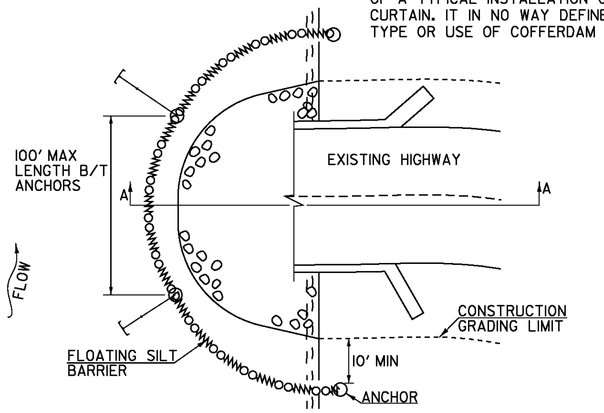


SYMBOL

NOT TO SCALE

SECTION A-A

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



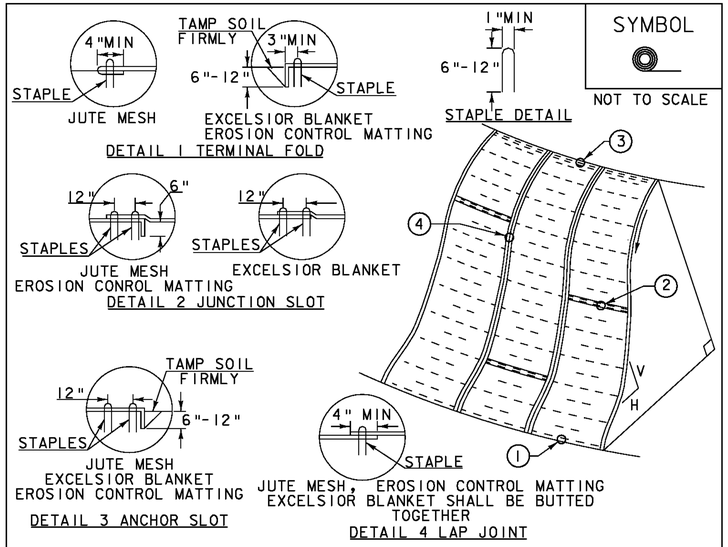
CONSTRUCTION SPECIFICATIONS

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

FILTER CURTAIN

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

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



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

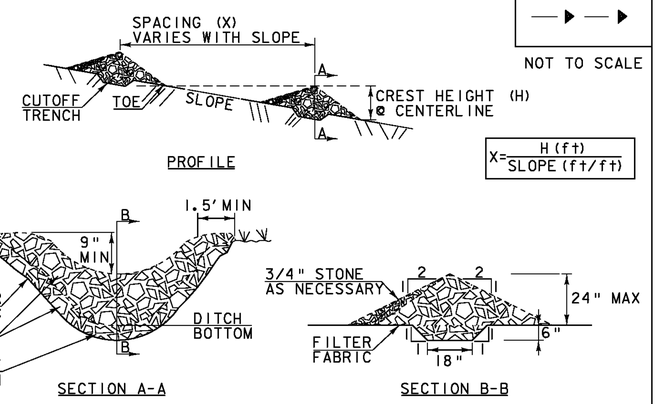
1. APPLY TO SLOPES GREATER THAN 3H: IV OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER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

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

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

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

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

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

CHECK DAM

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

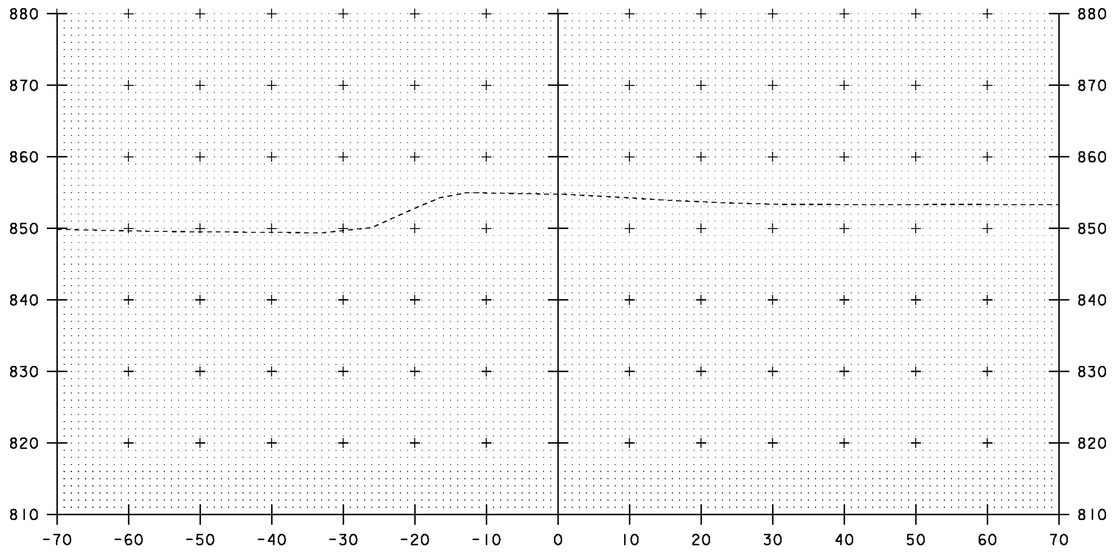
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I (PAY ITEM 653.25)

REVISIONS	
MARCH 21, 2008	WHF
JANUARY 8, 2009	WHF

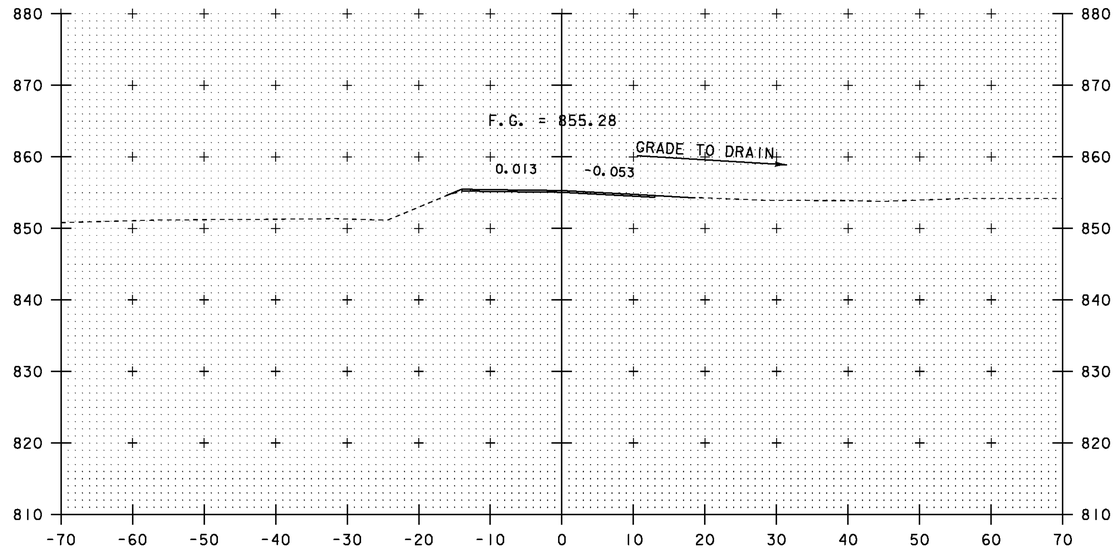
PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062epsc_det.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
EPSC DETAILS #2

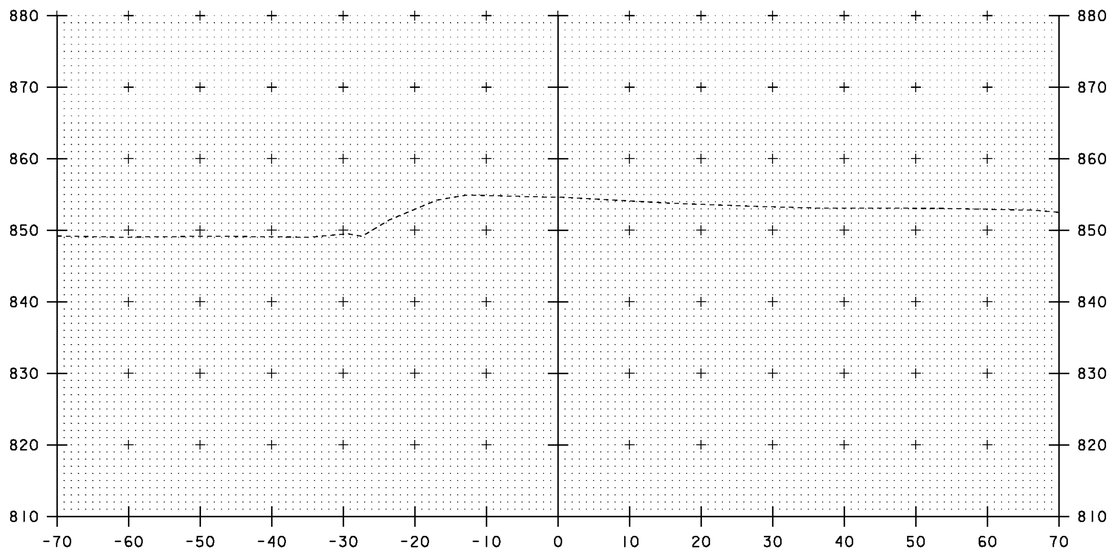
PLOT DATE: 31-DEC-2009
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 48 OF 58



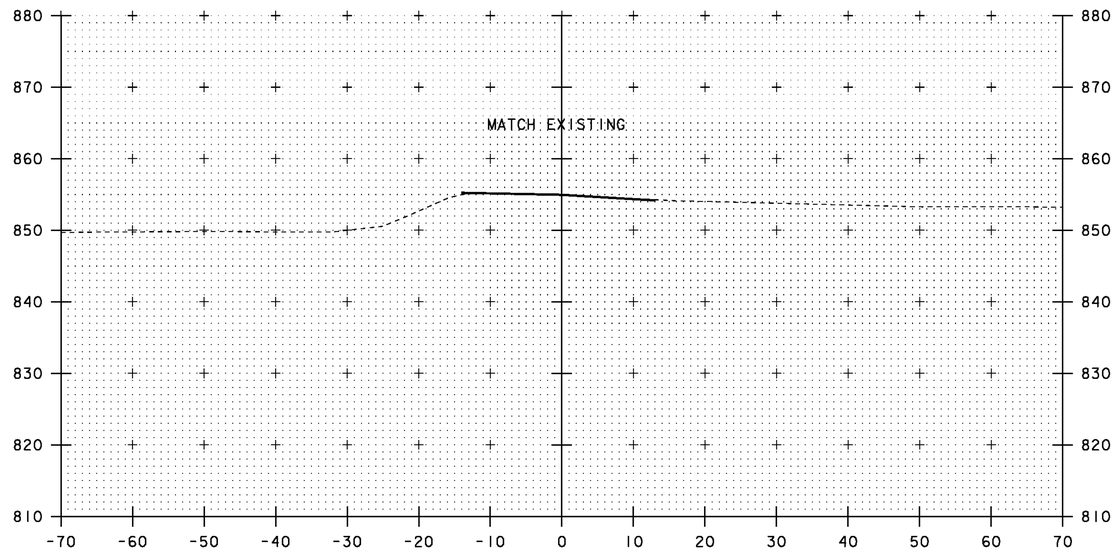
108+25



108+75



108+00

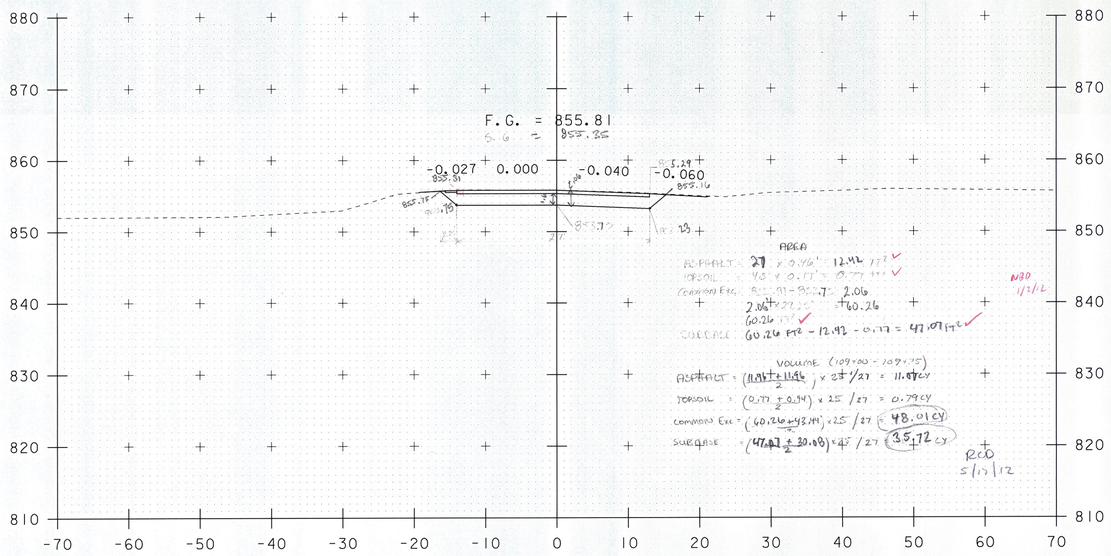


BEGIN APPROACH
108+50

SCALE 1" = 10'-0"
10 0 10

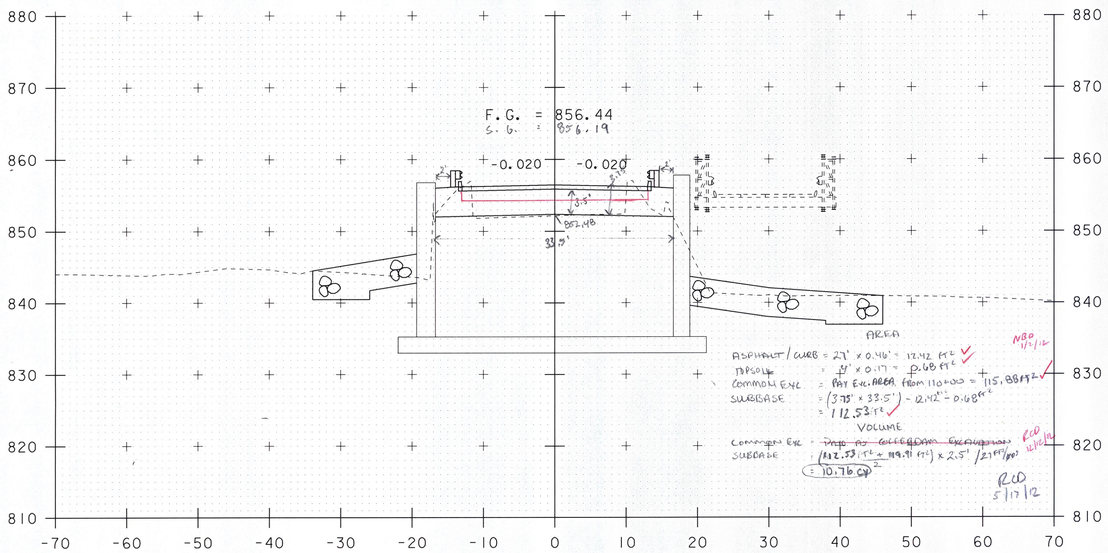
PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

FILE NAME: s86e062xs.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS #1	SHEET 49 OF 58

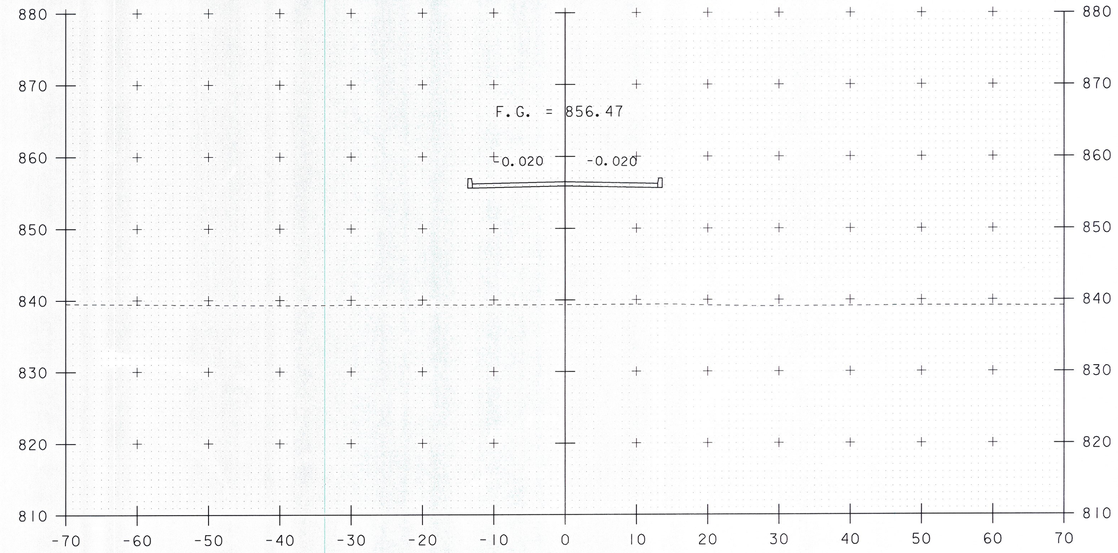


SCALE 1" = 10'-0"

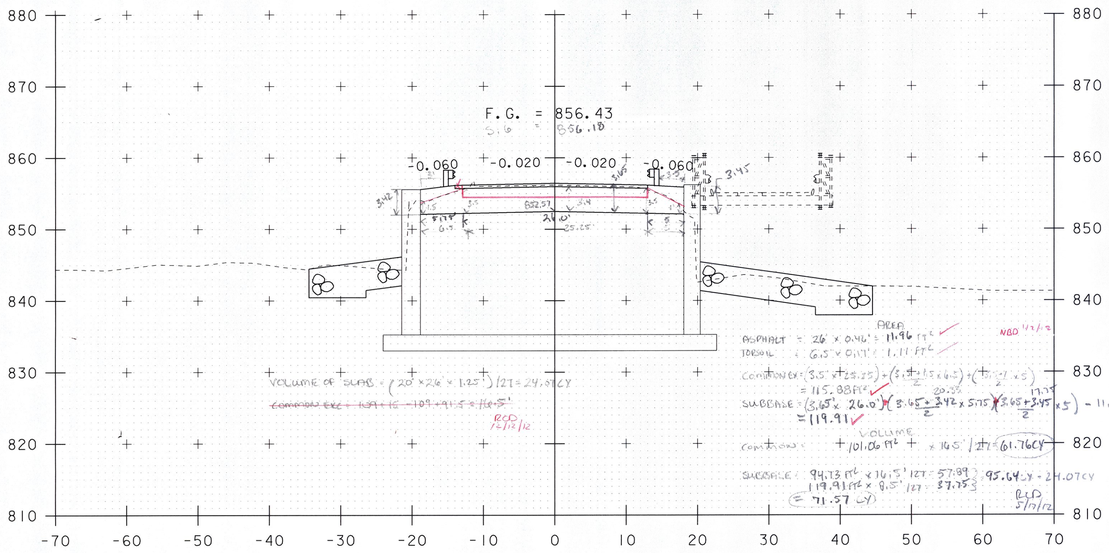
PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062xs.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS #2	SHEET 50 OF 58



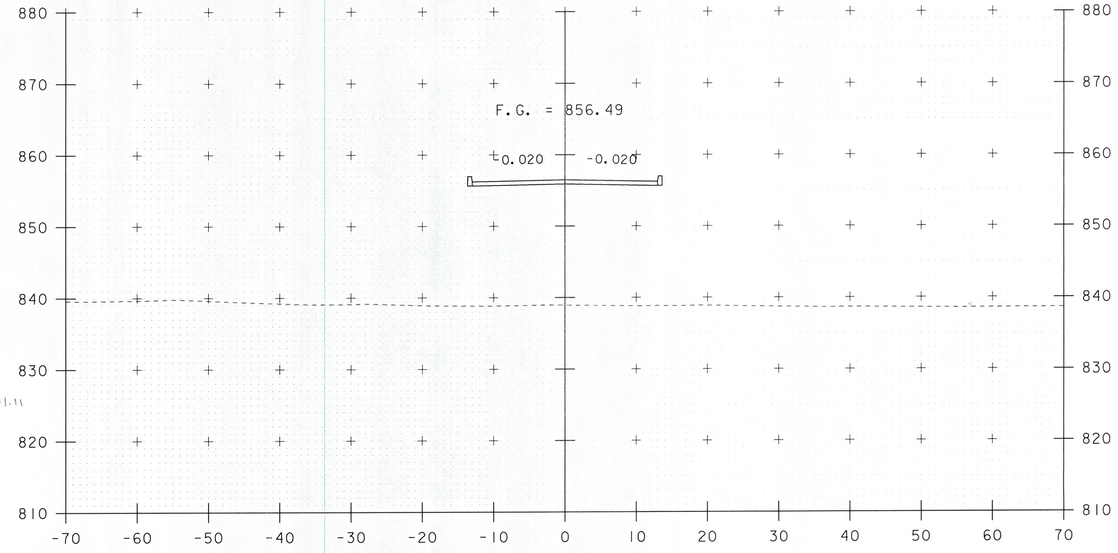
BEGIN BRIDGE
110+02.50



110+50



110+00

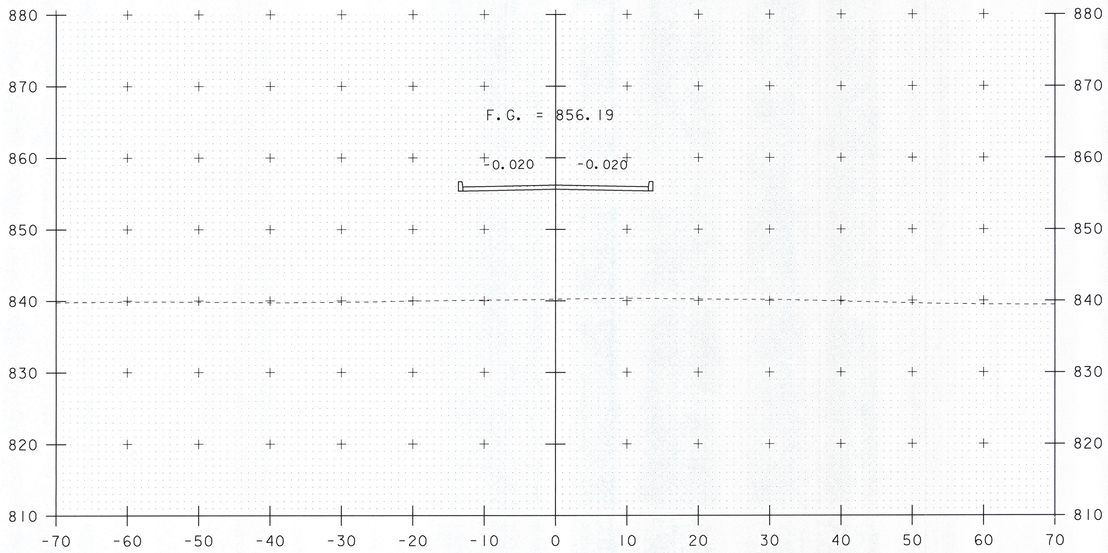


110+25

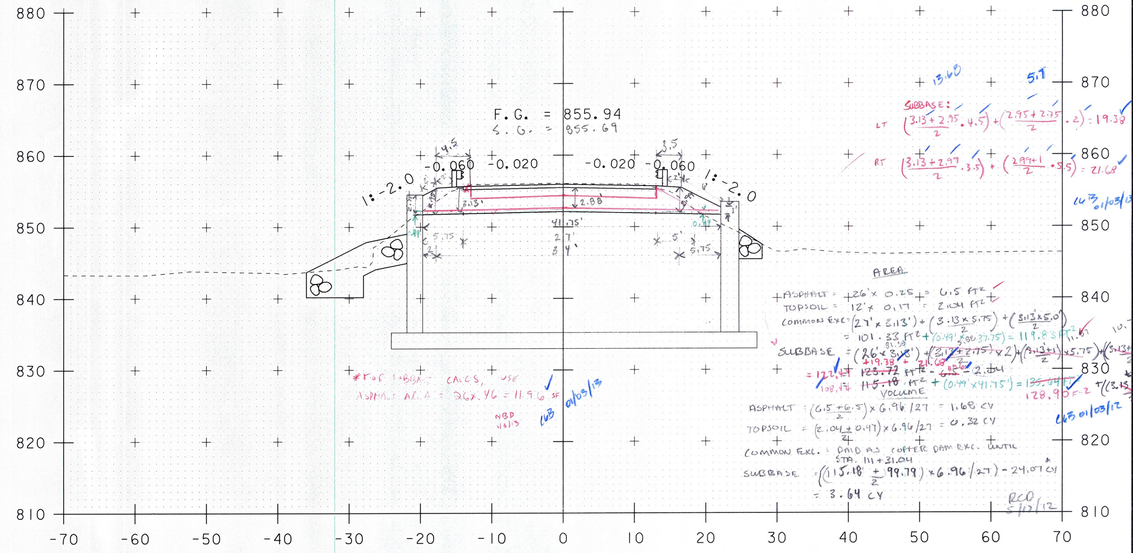
SCALE 1" = 10'-0"
10 0 10

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

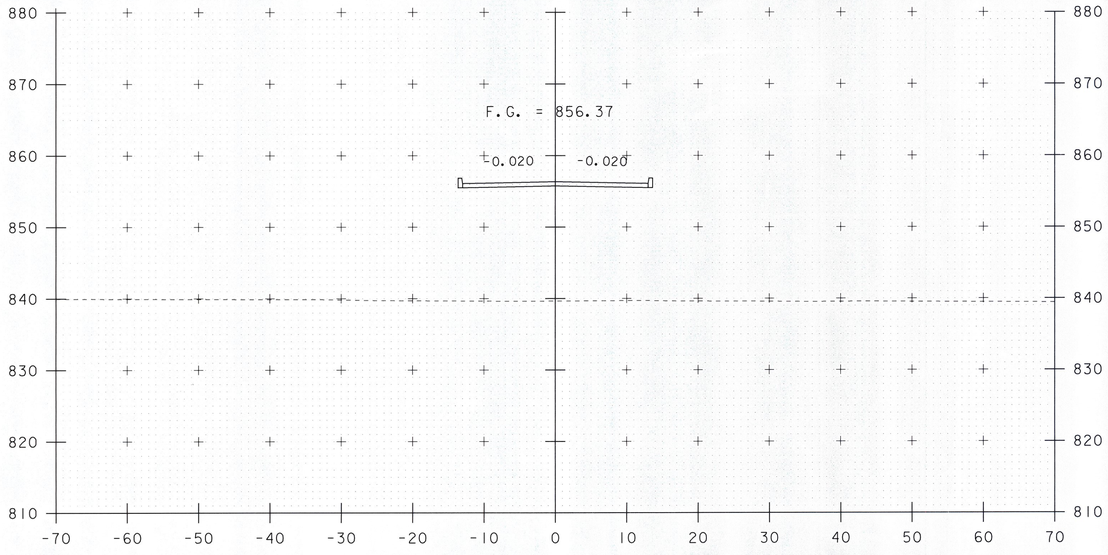
FILE NAME: s86e062xs.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS #3	SHEET 51 OF 58



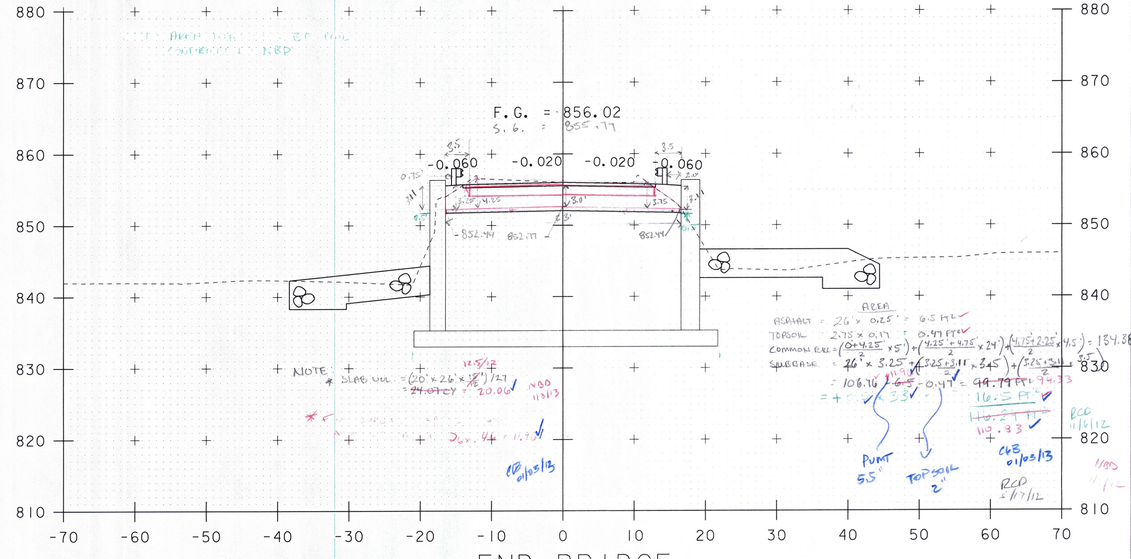
111+00



111+25



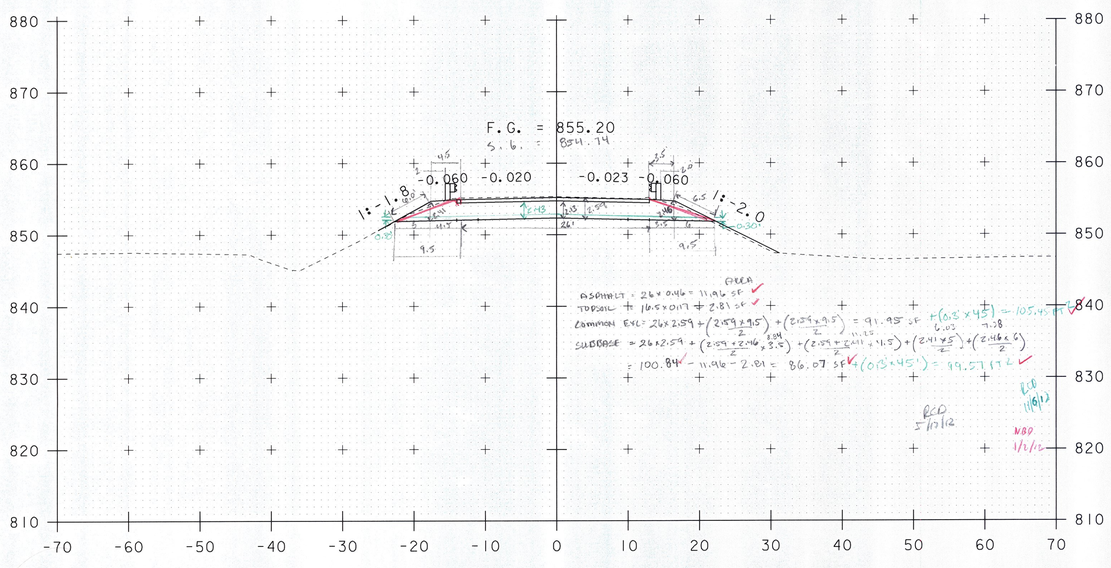
110+75



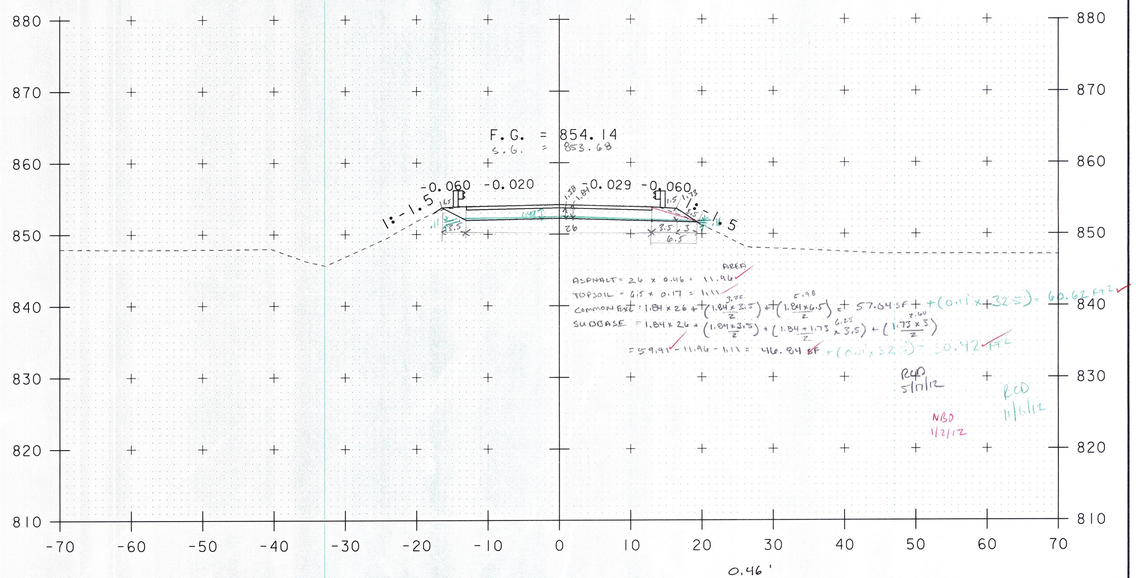
END BRIDGE
111+18.04

SCALE 1" = 10'-0"
10 0 10

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062xs.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS #4	SHEET 52 OF 58

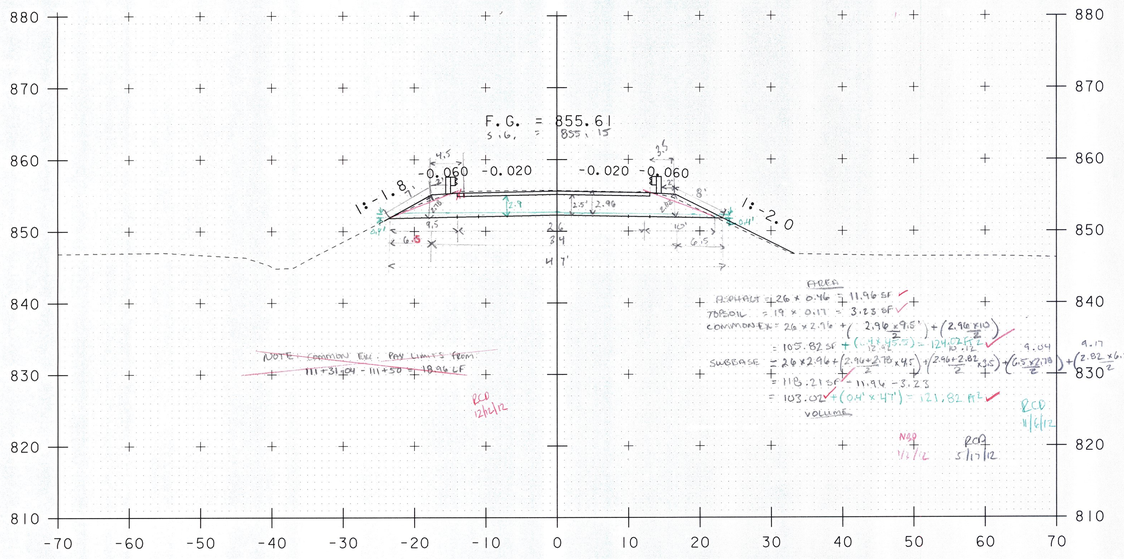


111+75



0.46 '

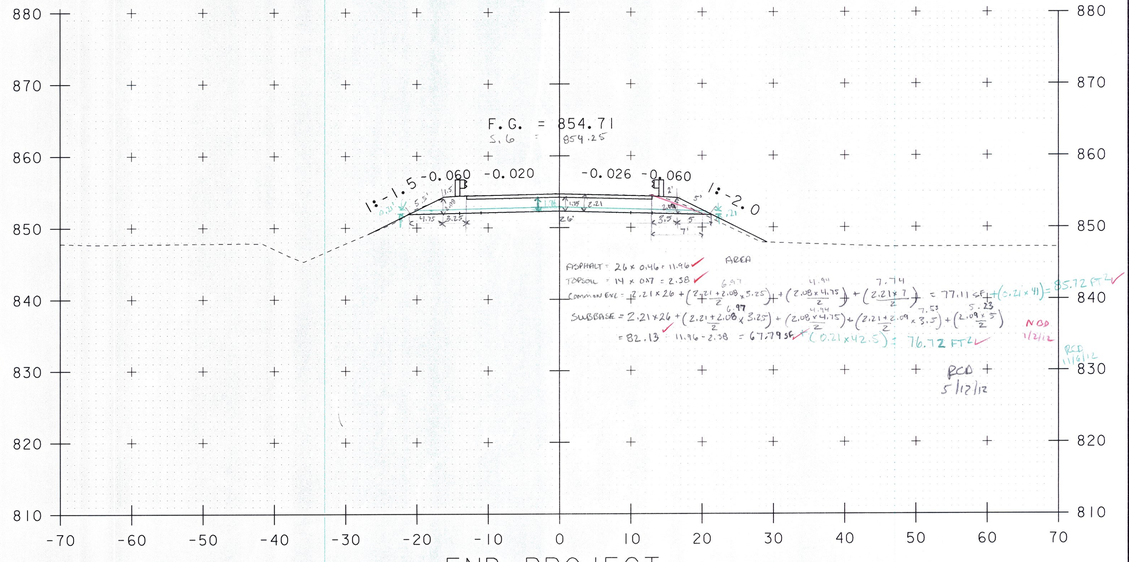
112+25



NOTE: COMMON EXC. PAY LIMITS FROM 111+31.04 - 111+50 = 18.96 LF

RCD 12/4/12

111+50

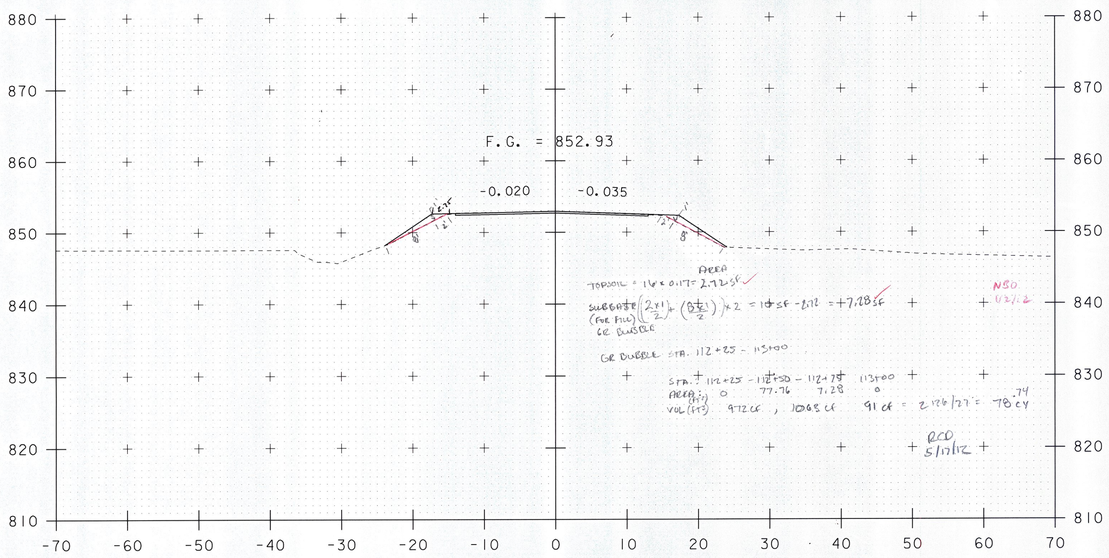


END PROJECT

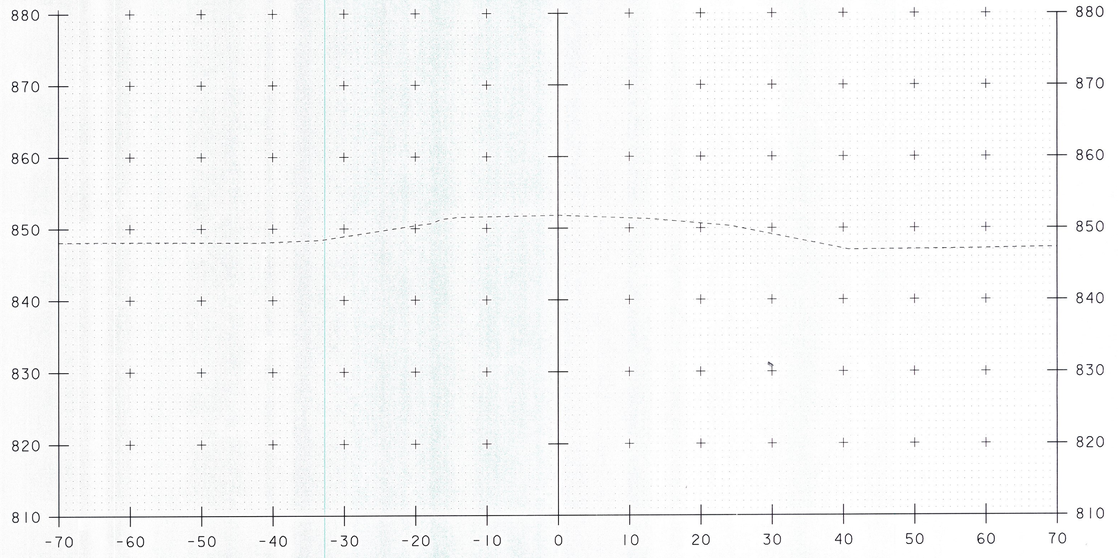
112+00

SCALE 1" = 10'-0"
10 0 10

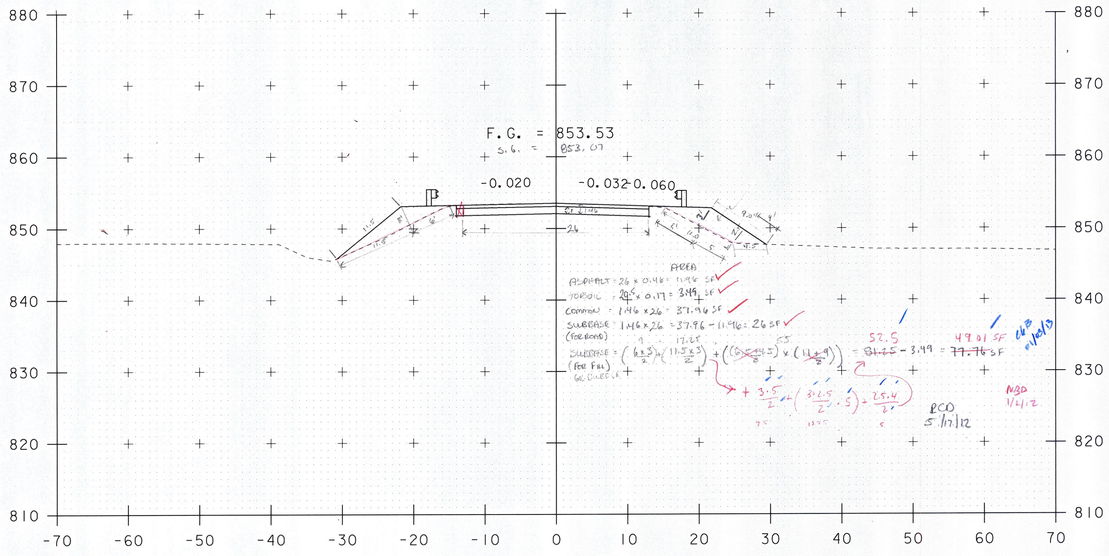
PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062xs.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS #5	SHEET 53 OF 58



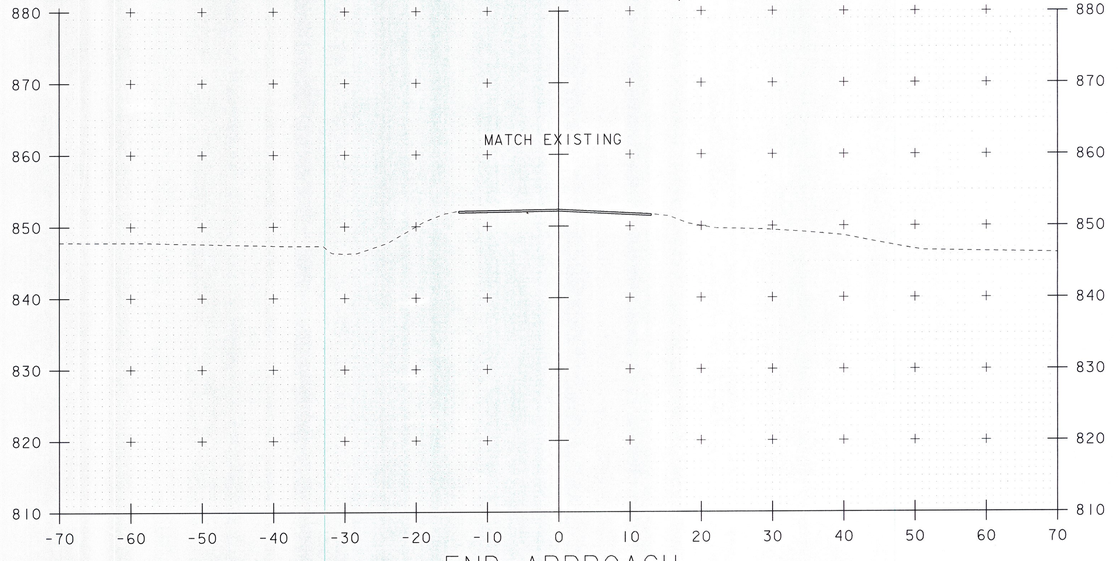
112+75



113+25



112+50

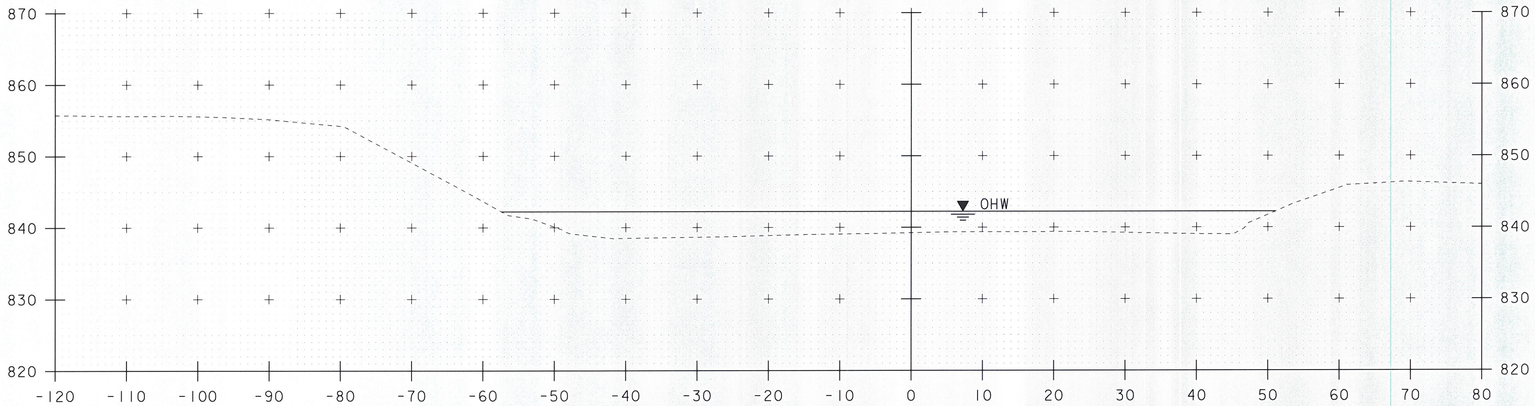


END APPROACH

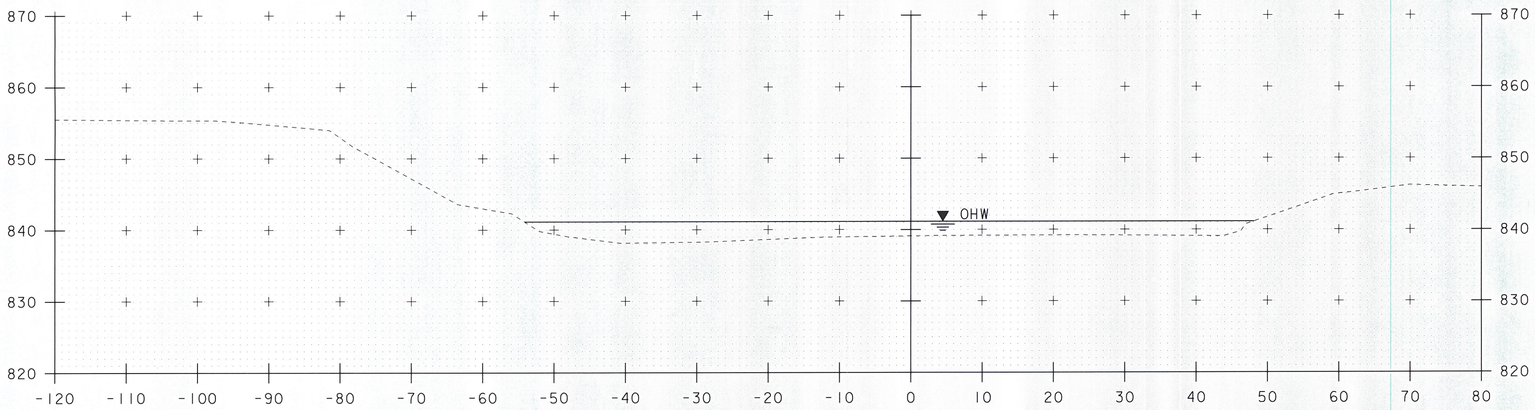
113+00

SCALE 1" = 10'-0"
10 0 10

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062xs.dgn	PLOT DATE: 31-DEC-2009
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS #6	SHEET 54 OF 58



3+25



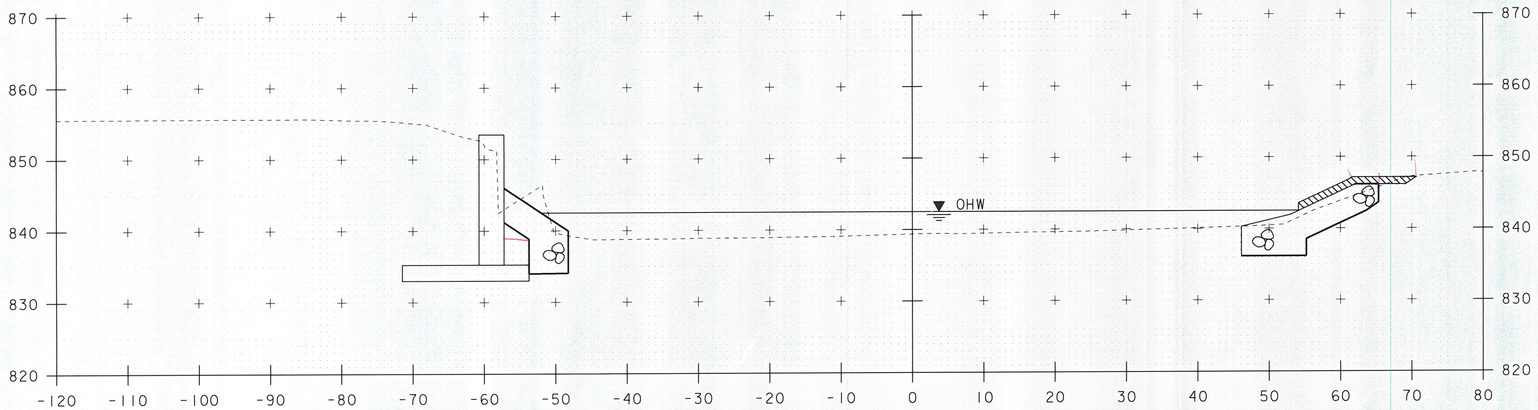
3+00

SCALE 1" = 10'-0"
10 0 10

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

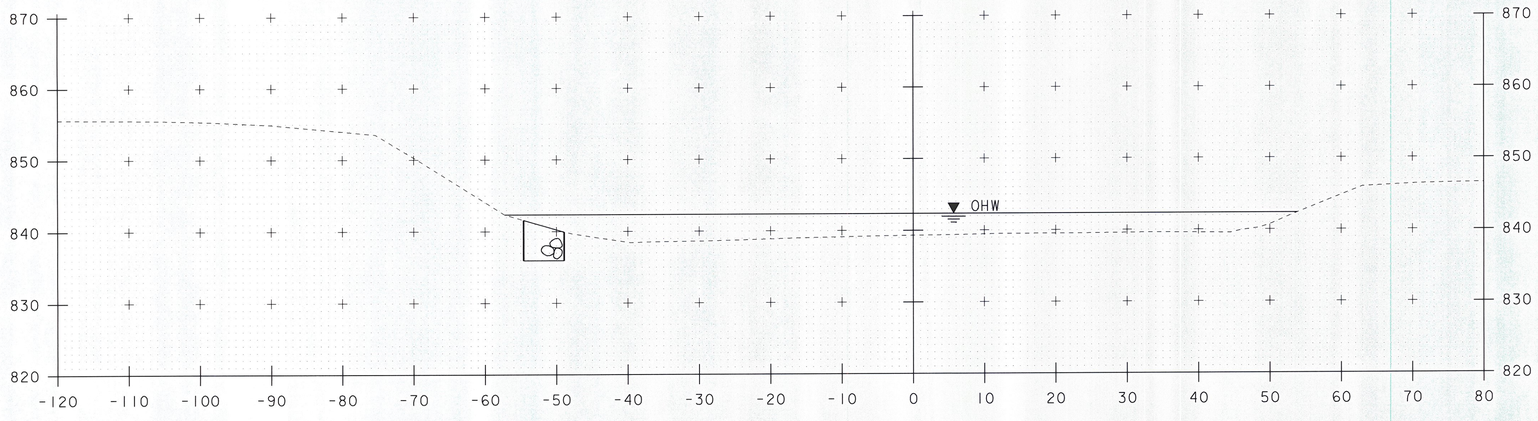
FILE NAME: s86e062xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
CHANNEL SECTIONS #1

PLOT DATE: 31-DEC-2009
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 55 OF 58



3+82 LT
STOP GRUBBING MATERIAL

3+75



3+47 LT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION,
STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

3+54 RT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION,
STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

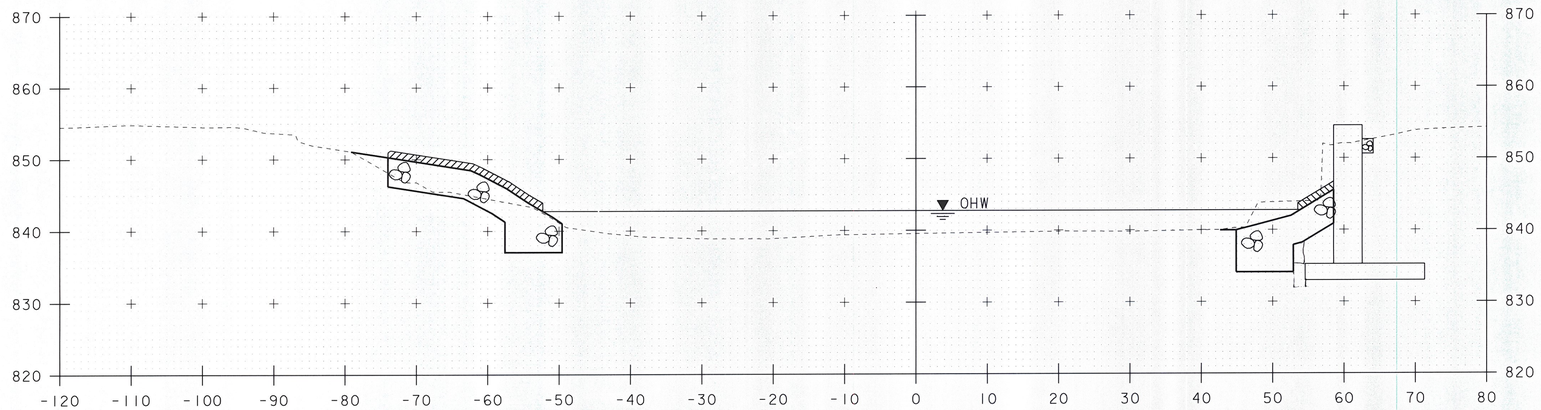
3+50

SCALE 1" = 10'-0"
10 0 10

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
CHANNEL SECTIONS #2

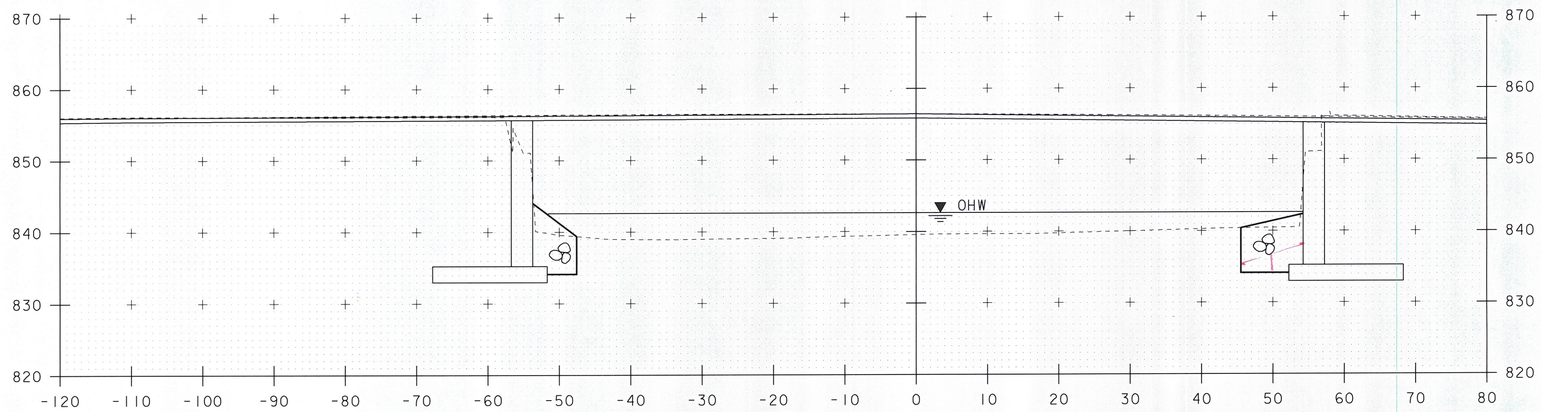
PLOT DATE: 31-DEC-2009
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 56 OF 58



4+29 RT
STOP UNCLASSIFIED CHANNEL EXCAVATION,
STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

4+40 LT
STOP UNCLASSIFIED CHANNEL EXCAVATION,
STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

4+25



3+90 RT
STOP GRUBBING MATERIAL

4+10 LT
RESUME GRUBBING MATERIAL

4+18 RT
RESUME GRUBBING MATERIAL

NO GRUBBING MATERIAL
BENEATH NEW BRIDGE

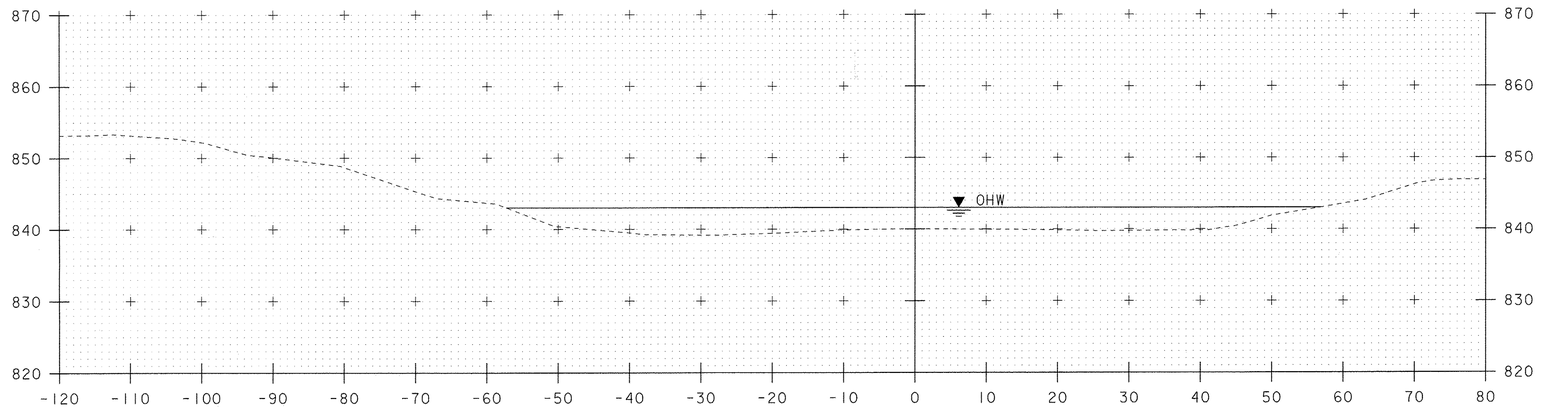
4+00

SCALE 1" = 10'-0"
10 0 10

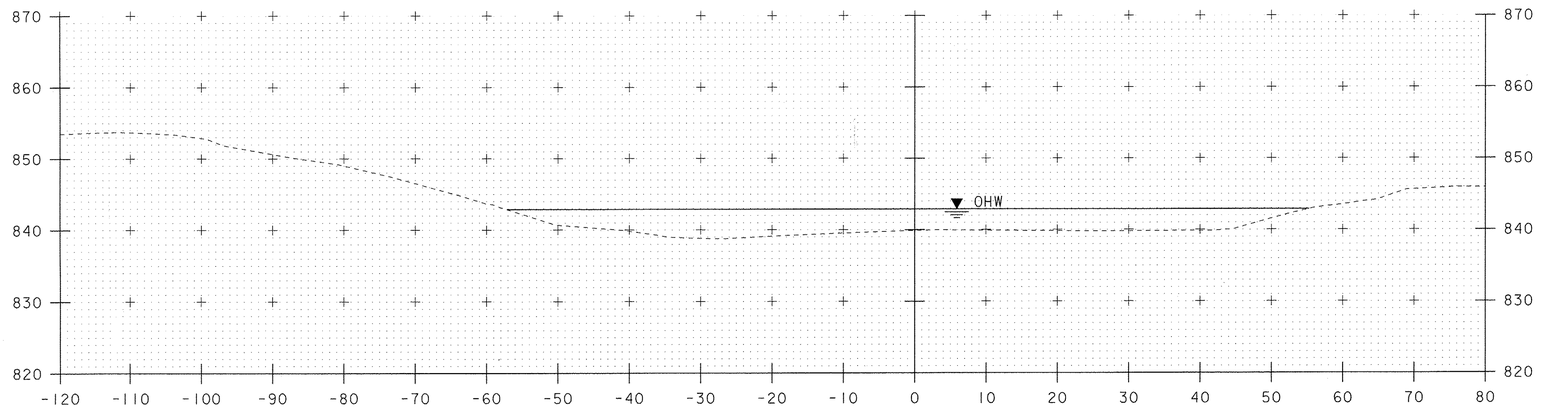
PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
CHANNEL SECTIONS #3

PLOT DATE: 31-DEC-2009
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 57 OF 58



4+75



4+50

SCALE 1" = 10'-0"
10 0 10

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
CHANNEL SECTIONS #4

PLOT DATE: 31-DEC-2009
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 58 OF 58

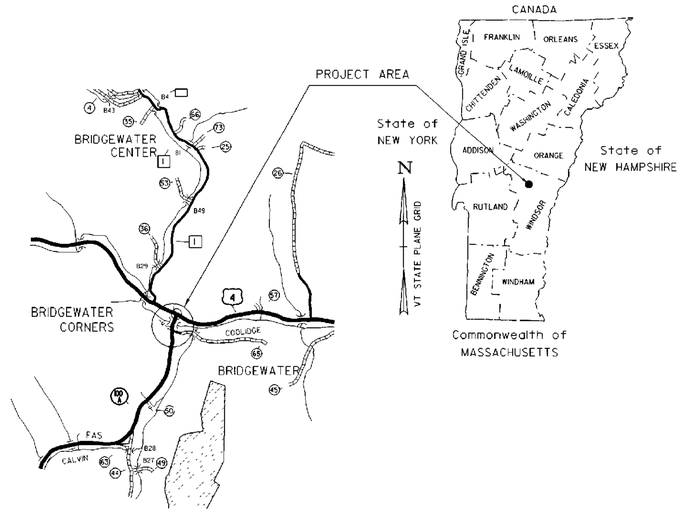
STATE OF VERMONT
AGENCY OF TRANSPORTATION

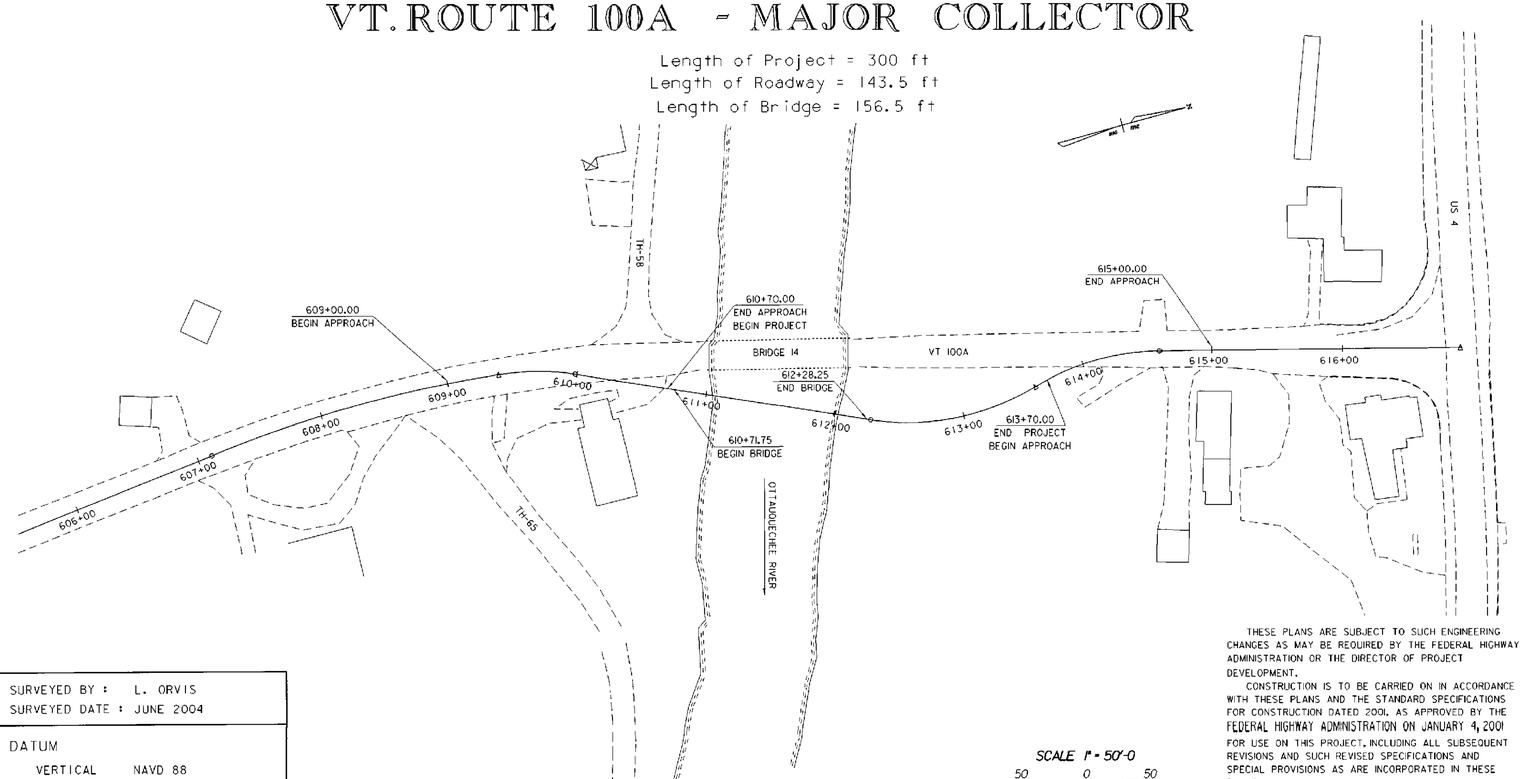
Project Location: Beginning at a point on Vt. Route 100A, approximately 630 feet south of the intersection of Vt. Route 100A and US Route 4, and extending northerly along Vt. Route 100A for approximately 300 ft.

Project Description: Work to be done under this project includes the installation of a temporary bridge along Vt. Route 100A, fill, grading, pavement, guardrails, signage, temporary traffic control, striping and approach work necessary to achieve this.

PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF BRIDGEWATER
COUNTY OF WINDSOR
VT. ROUTE 100A - MAJOR COLLECTOR

Length of Project = 300 ft
Length of Roadway = 143.5 ft
Length of Bridge = 156.5 ft





CONVENTIONAL SYMBOLS

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

SURVEYED BY : L. ORVIS
SURVEYED DATE : JUNE 2004

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 91

SCALE 1" = 50'-0
50 0 50

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 2001, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JANUARY 4, 2001 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

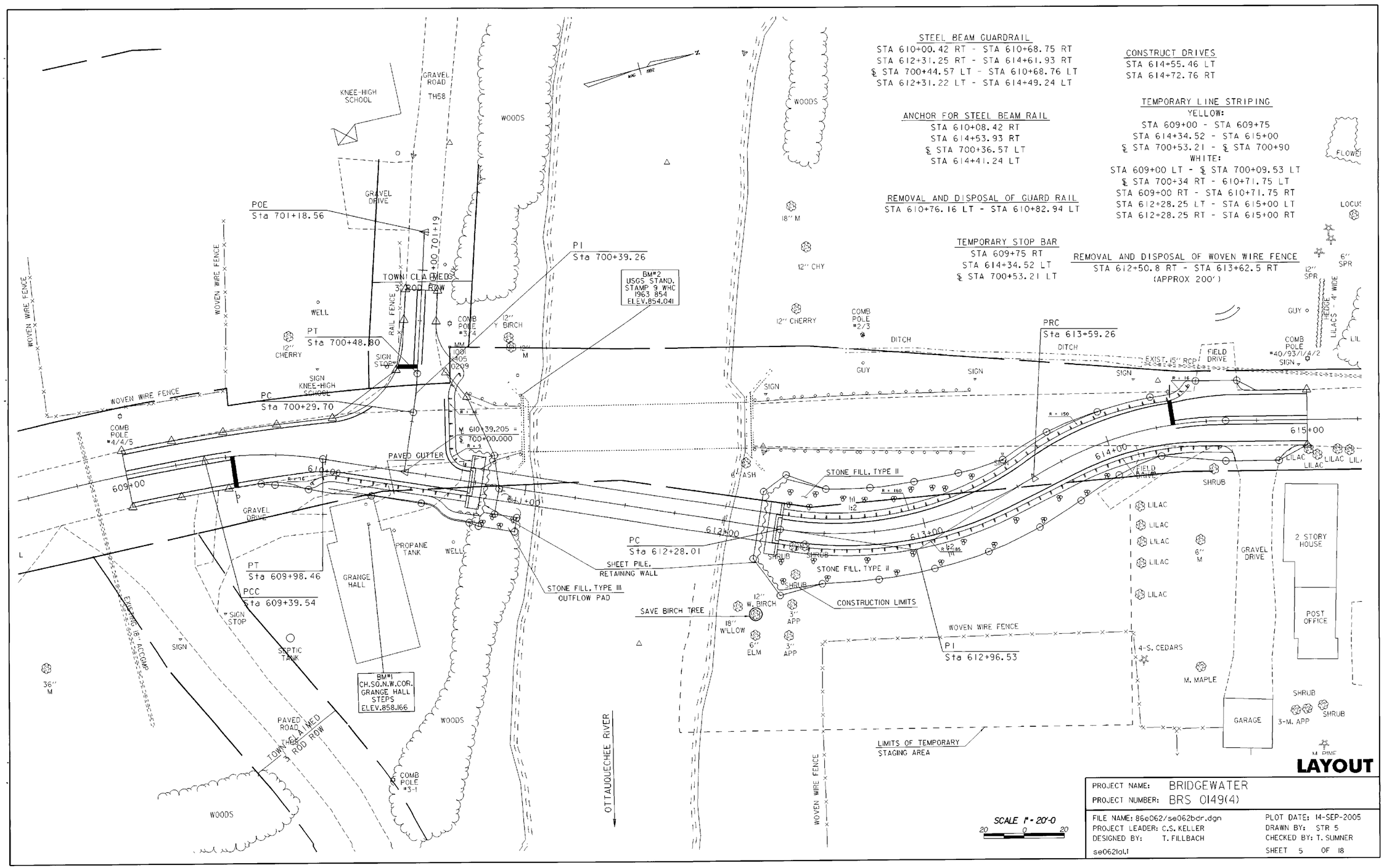
/PW/866062/se062dt1.dgn se062dt1.1

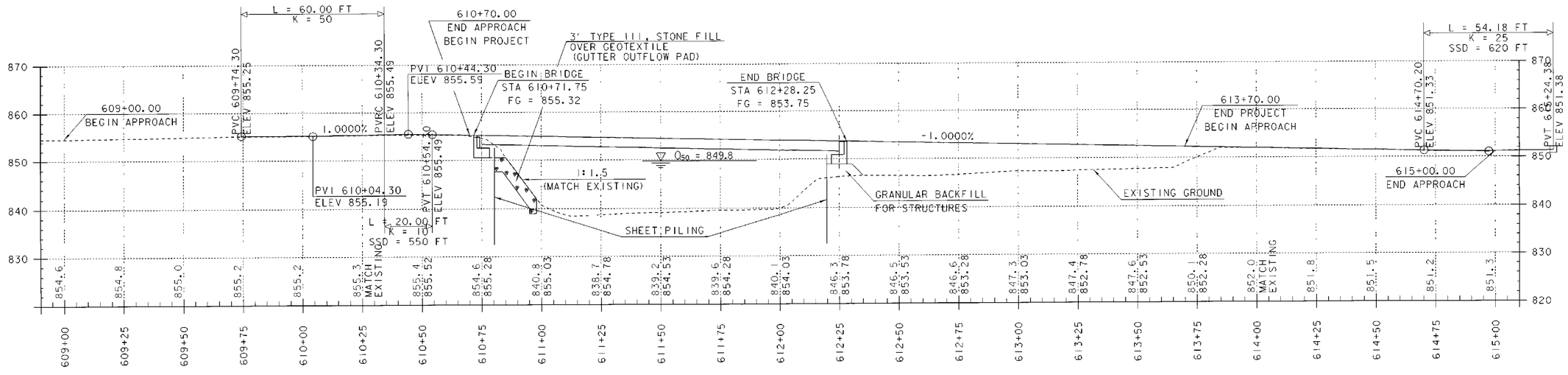
DIRECTOR OF PROJECT DEVELOPMENT
APPROVED _____ DATE _____

PROJECT MANAGER : CRAIG KELLER

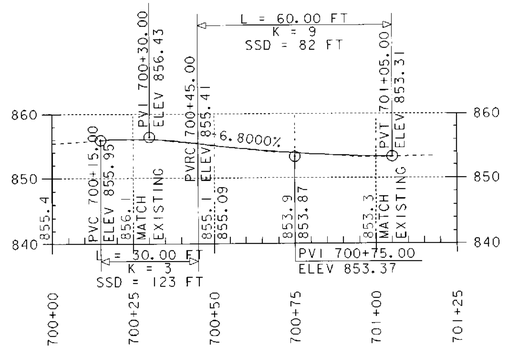
PROJECT NAME : BRIDGEWATER
PROJECT NUMBER : BRS 0149(4)

SHEET 1 OF 18 SHEETS


STEEL BEAM GUARDRAIL
STA 610+00.42 RT - STA 610+68.75 RT
STA 612+31.25 RT - STA 614+61.93 RT
℄ STA 700+44.57 LT - STA 610+68.76 LT
STA 612+31.22 LT - STA 614+49.24 LT
ANCHOR FOR STEEL BEAM RAIL
STA 610+08.42 RT
STA 614+53.93 RT
℄ STA 700+36.57 LT
STA 614+41.24 LT
REMOVAL AND DISPOSAL OF GUARD RAIL
STA 610+76.16 LT - STA 610+82.94 LT
CONSTRUCT DRIVES
STA 614+55.46 LT
STA 614+72.76 RT
TEMPORARY LINE STRIPING
YELLOW:
STA 609+00 - STA 609+75
STA 614+34.52 - STA 615+00
℄ STA 700+53.21 - ℄ STA 700+90
WHITE:
STA 609+00 LT - ℄ STA 700+09.53 LT
℄ STA 700+34 RT - 610+71.75 LT
STA 609+00 RT - STA 610+71.75 RT
STA 612+28.25 LT - STA 615+00 LT
STA 612+28.25 RT - STA 615+00 RT
TEMPORARY STOP BAR
STA 609+75 RT
STA 614+34.52 LT
℄ STA 700+53.21 LT
REMOVAL AND DISPOSAL OF WOVEN WIRE FENCE
STA 612+50.8 RT - STA 613+62.5 RT
(APPROX 200')
POE
Sta 701+18.56
PI
Sta 700+39.26
BM#2
USGS STAND.
STAMP 9 WHC
1963 854
ELEV.854.041
PT
Sta 700+48.80
PC
Sta 700+29.70
PT
Sta 609+98.46
PCC
Sta 609+39.54
PC
Sta 612+28.01
PI
Sta 612+96.53
PRC
Sta 613+59.26
BM#1
CH.SO.N.W.COR.
GRANGE HALL
STEPS
ELEV.858.166
N 610+39.205 =
℄ 700+00.000
609+00
610+00
611+00
612+00
613+00
614+00
615+00
GRAVEL ROAD
TH58
KNEE-HIGH SCHOOL
GRAVEL DRIVE
WOODS
WOVEN WIRE FENCE
RAIL FENCE
TOWN CLAIMED ROD ROW
WELL
12" CHERRY
SIGN STOP
SIGN KNEE-HIGH SCHOOL
COMB POLE #3/4
MM 1001 1005 0209
12" Y BIRCH
12" M
COMB POLE #4/4/5
PAVED GUTTER
GRAVEL DRIVE
PROPANE TANK
WELL
GRANGE HALL
SEPTIC TANK
EXISTING 18" ACCGMP
36" M
PAVED ROAD CLAIMED TOWN ROD ROW
COMB POLE #3-1
OTTAUQUECHEE RIVER
18" M
12" CHY
12" CHERRY
COMB POLE #2/3
DITCH
GUY
SIGN
EXIST. 15" RCP
FIELD DRIVE
COMB POLE #40/93/1/A/2
HEDGE - 4' WIDE
LILACS
6" SPR
12" SPR
FLOWER
LOCUS
R = 16
R = 150
ASH
STONE FILL, TYPE II
1:1
1:2
SHRUB
LILAC
6" M
2 STORY HOUSE
POST OFFICE
GARAGE
3-M. APP
M. PINE
4-S. CEDARS
M. MAPLE
SHEET PILE, RETAINING WALL
STONE FILL, TYPE III OUTFLOW PAD
CONSTRUCTION LIMITS
SAVE BIRCH TREE
12" W. BIRCH
3" APP
18" WILLOW
6" ELM
WOVEN WIRE FENCE
LIMITS OF TEMPORARY STAGING AREA
SCALE 1" = 20'-0
20 0 20
LAYOUT
PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)
FILE NAME: 86e062/se062bdr.dgn
PROJECT LEADER: C.S. KELLER
DESIGNED BY: T. FILLBACH
se062lo1.1
PLOT DATE: 14-SEP-2005
DRAWN BY: STR 5
CHECKED BY: T. SUMNER
SHEET 5 OF 18



DETOUR PROFILE



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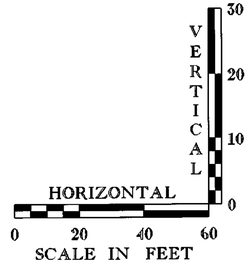


PROFILES

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: 86e062/se062xs.dgn
PROJECT LEADER: C.S. KELLER
DESIGNED BY: T. FILLBACH
se062dpr.1

PLOT DATE: 14-SEP-2005
DRAWN BY: STR 5
CHECKED BY: T. SUMNER
SHEET 6 OF 18

SEEDING FORMULA
RURAL AREAS

% WT.	LBS./A.	NAME	PUR %	GERM %
37.5	22.5	CREEPING RED FESCUE	98	85
37.5	22.5	TALL FESCUE	95	90
5.0	3.0	RED TOP	95	90
15.0	9.0	BIRDSFOOT TREFOIL	98	85
5.0	3.0	ANNUAL RYEGRASS	95	85
100.0	60.0			

GENERAL NOTES

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

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

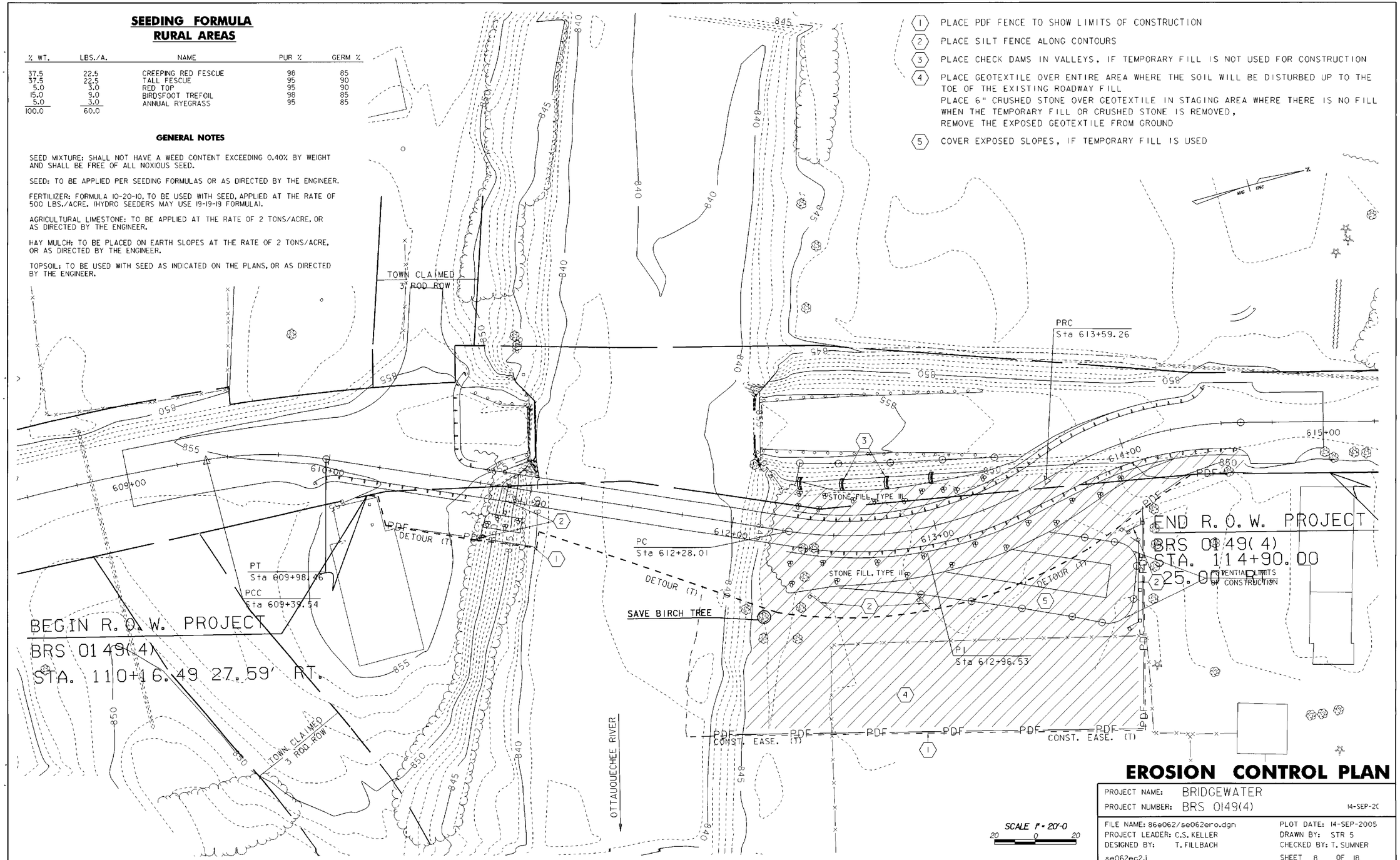
FERTILIZER: FORMULA 10-20-10. TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

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

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

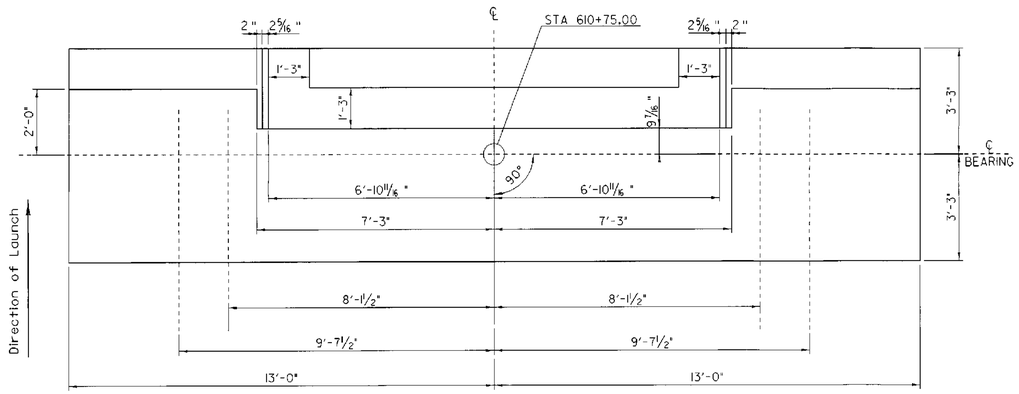
1. PLACE PDF FENCE TO SHOW LIMITS OF CONSTRUCTION
2. PLACE SILT FENCE ALONG CONTOURS
3. PLACE CHECK DAMS IN VALLEYS, IF TEMPORARY FILL IS NOT USED FOR CONSTRUCTION
4. PLACE GEOTEXTILE OVER ENTIRE AREA WHERE THE SOIL WILL BE DISTURBED UP TO THE TOE OF THE EXISTING ROADWAY FILL
   PLACE 6" CRUSHED STONE OVER GEOTEXTILE IN STAGING AREA WHERE THERE IS NO FILL WHEN THE TEMPORARY FILL OR CRUSHED STONE IS REMOVED,
   REMOVE THE EXPOSED GEOTEXTILE FROM GROUND
5. COVER EXPOSED SLOPES, IF TEMPORARY FILL IS USED

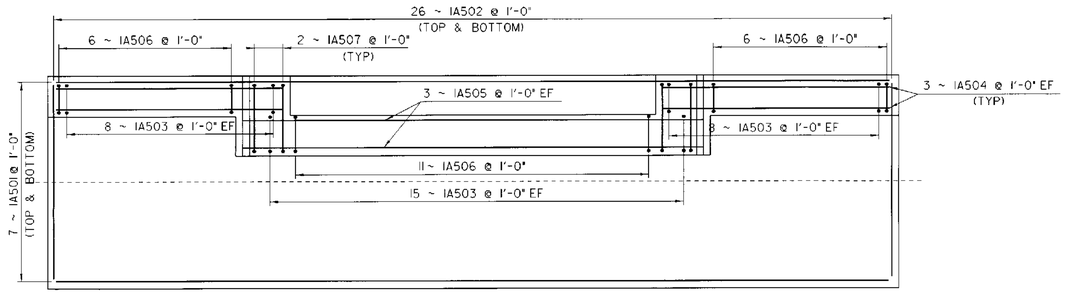


EROSION CONTROL PLAN

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: 86e062/se062ero.dgn	PLOT DATE: 14-SEP-2005
PROJECT LEADER: C.S. KELLER	DRAWN BY: STR 5
DESIGNED BY: T. FILLBACH	CHECKED BY: T. SUMNER
se062ec2.1	SHEET 8 OF 18

14-SEP-20





ABUTMENT #1

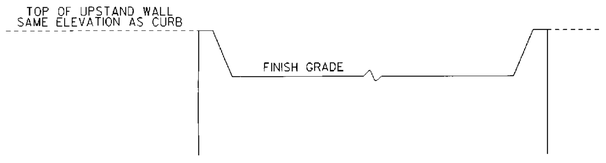
MALE END OF BRIDGE

(ABUTMENT IS SYMMETRICAL ABOUT THE CENTERLINE OF THE TRAVELED WAY.)

EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D
ABUTMENT #1								
14	5	25'- 6"	1A501	STR	25'- 6"			
52	5	6'- 0"	1A502	STR	6'- 0"			
54	5	3'- 11"	1A503	STR	3'- 11"			
12	5	7'- 0"	1A504	STR	7'- 0"			
6	5	14'- 0"	1A505	STR	14'- 0"			
23	5	4'- 3"	1A506	S10		1'- 9"	0'- 9"	1'- 9"
4	5	5'- 5"	1A507	S10		1'- 9"	1'- 11"	1'- 9"

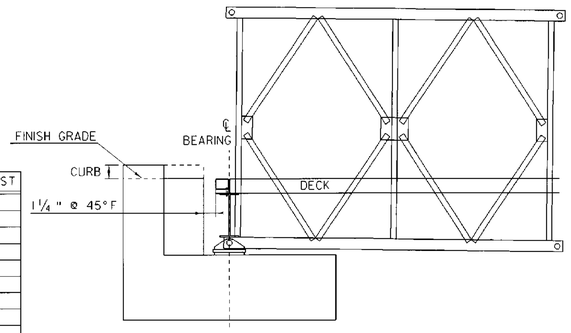
S10 B C D

APPROX 1220 LBS OF REINFORCING STEEL
APPROX 16 CUBIC YARDS OF CONCRETE



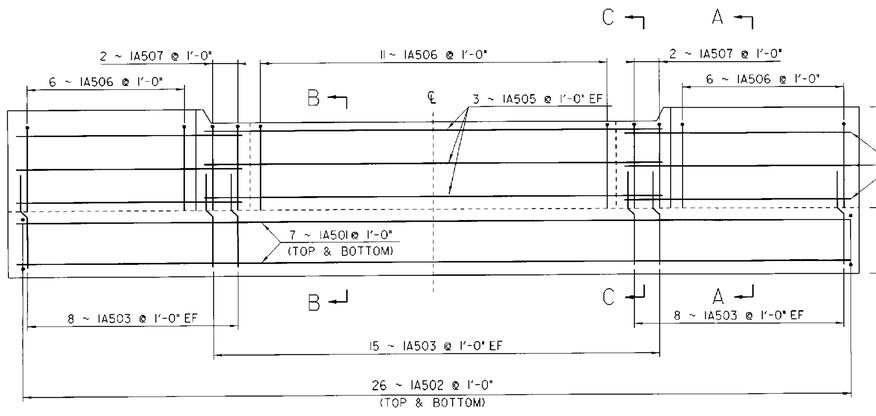
CURB DETAIL

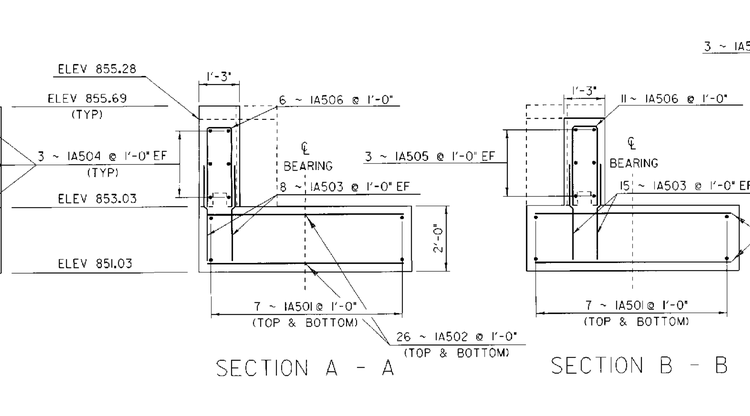
FORM TO MATCH SLOPE, ELEVATION & OFFSET OF BRIDGE CURB



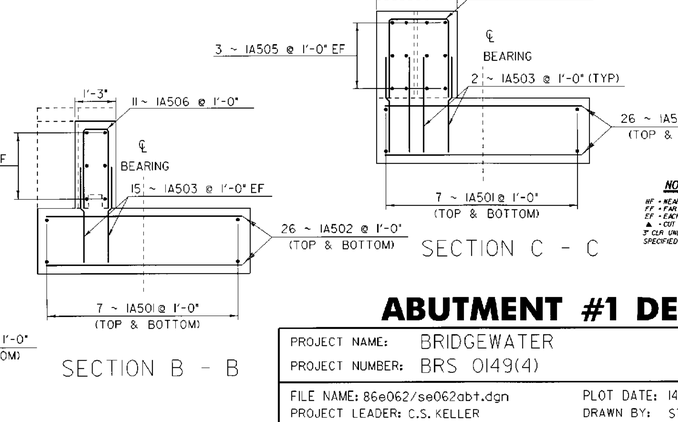
TEMP	"A" DIST
-30° F	2 1/8
-15° F	1 7/8
0° F	1 3/4
15° F	1 5/8
30° F	1 7/16
45° F	1 1/4
60° F	1 1/16
75° F	0 7/8
90° F	0 3/4
105° F	0 9/16
120° F	0 3/8

END OF BRIDGE DETAIL
(EXP.)





SECTION A - A



SECTION B - B

SECTION C - C

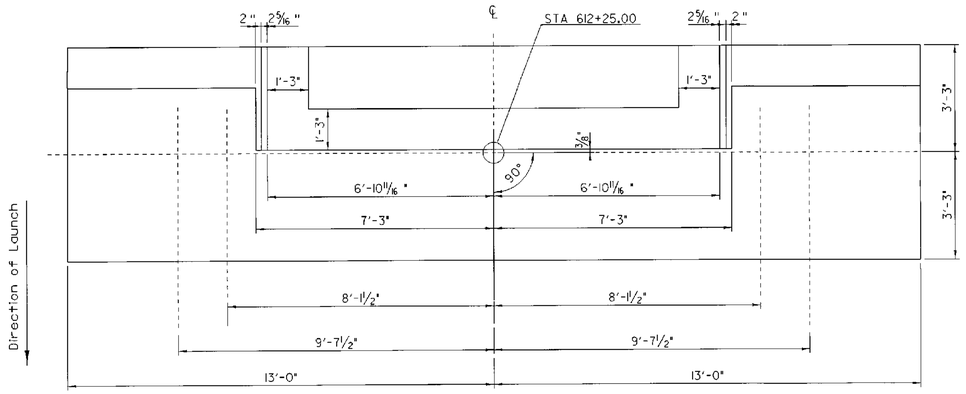
NOTE:
NF - NEAR FACE
FF - FAR FACE
EF - EACH FACE
▲ - CUT TO FIT IN FIELD
3" CLR UNLESS OTHERWISE SPECIFIED ON THE PLANS

ABUTMENT #1 DETAILS

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: 86e062/se062abt.dgn
PROJECT LEADER: C.S. KELLER
DESIGNED BY: T. FILLBACH
se062abl.i

PLOT DATE: 14-SEP-2005
DRAWN BY: STR 5
CHECKED BY: T. SUMNER
SHEET 12 OF 18



ABUTMENT #2

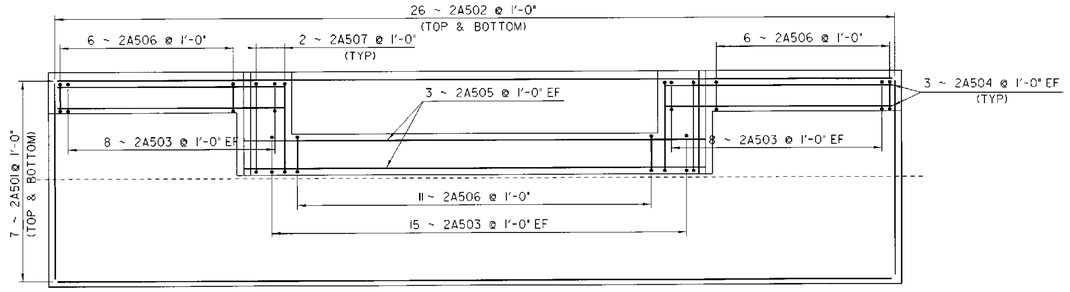
FEMALE END OF BRIDGE

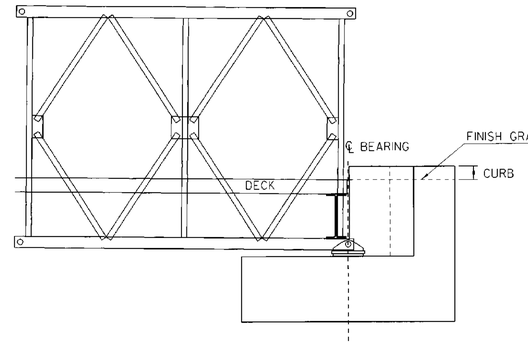
(ABUTMENT IS SYMMETRICAL ABOUT THE CENTERLINE OF THE TRAVELED WAY.)

EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D
ABUTMENT #2								
14	5	25'- 6"	2A501	STR	25'- 6"			
52	5	6'- 0"	2A502	STR	6'- 0"			
54	5	3'- 11"	2A503	STR	3'- 11"			
12	5	7'- 0"	2A504	STR	7'- 0"			
6	5	14'- 0"	2A505	STR	14'- 0"			
23	5	4'- 3"	2A506	S10		1'- 9"	0'- 9"	1'- 9"
4	5	6'- 3"	2A507	S10		1'- 9"	2'- 9"	1'- 9"

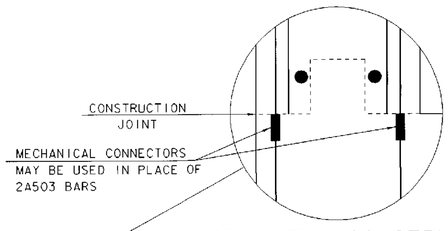
S10 B C D

APPROX 1222 LBS OF REINFORCING STEEL
APPROX 16 CUBIC YARDS OF CONCRETE

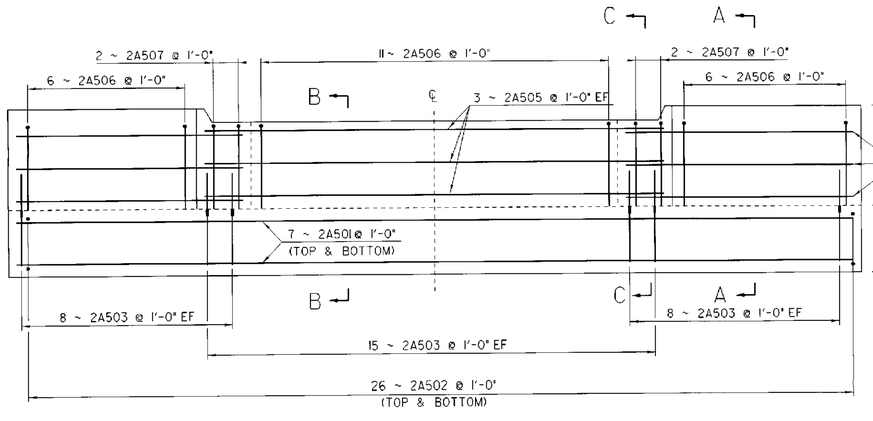




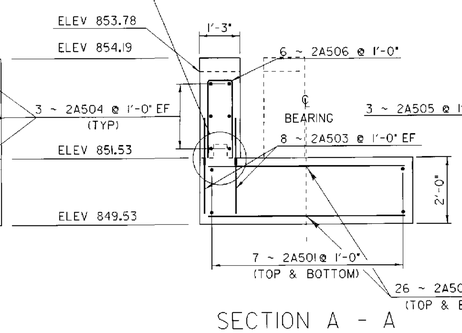
END OF BRIDGE DETAIL

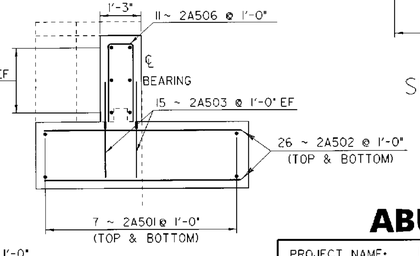


HORIZONTAL CONSTRUCTION
JOINT DETAIL



SECTION A - A





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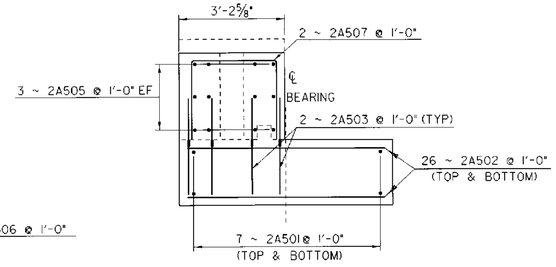


SECTION C - C

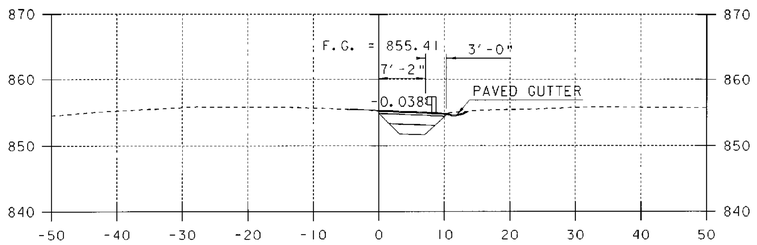
NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLR UNLESS OTHERWISE SPECIFIED ON THE PLANS.

ABUTMENT #2 DETAILS

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: 86e062/se062abt.dgn
PROJECT LEADER: C.S. KELLER
DESIGNED BY: T. FILLBACH
se062ab2.1

PLOT DATE: 14-SEP-2005
DRAWN BY: STR 5
CHECKED BY: T. SUMNER



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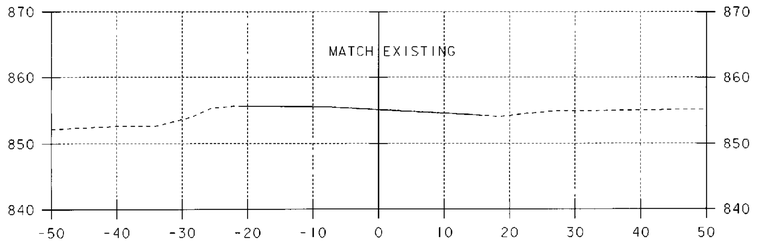

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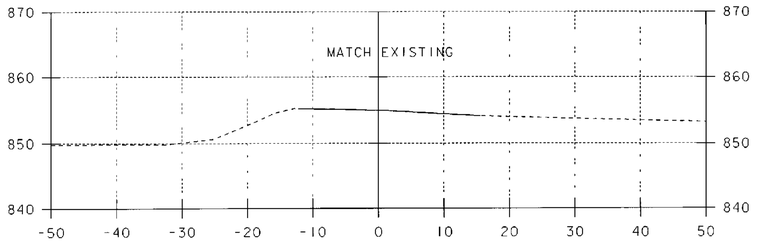

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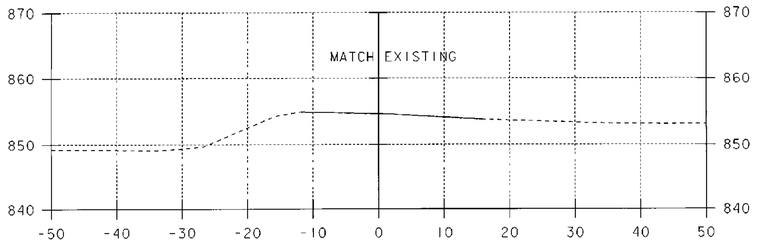

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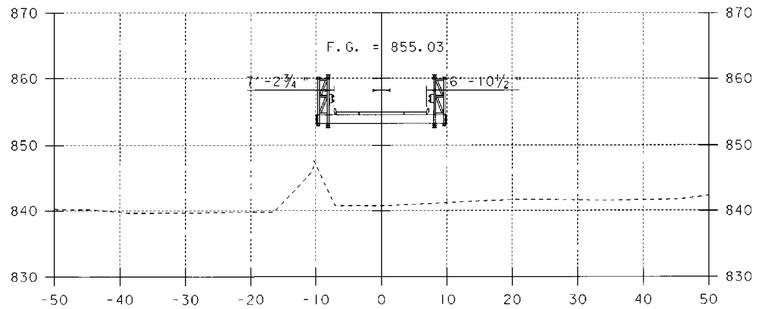

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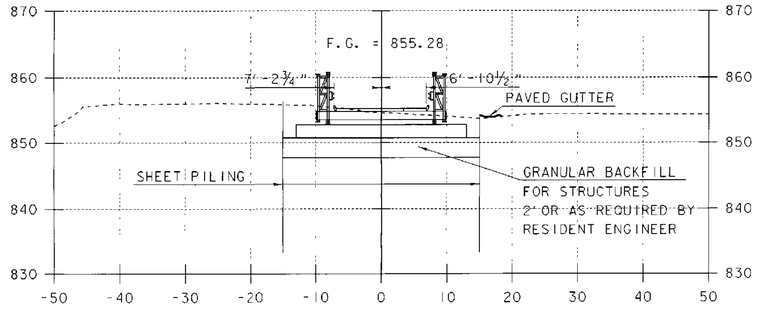

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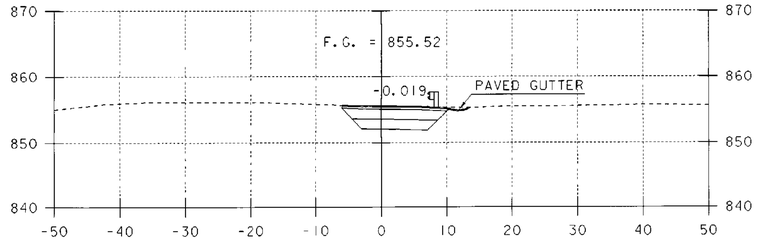

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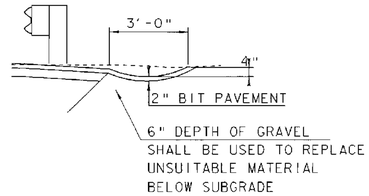


PAVED GUTTER
CROSS SECTION

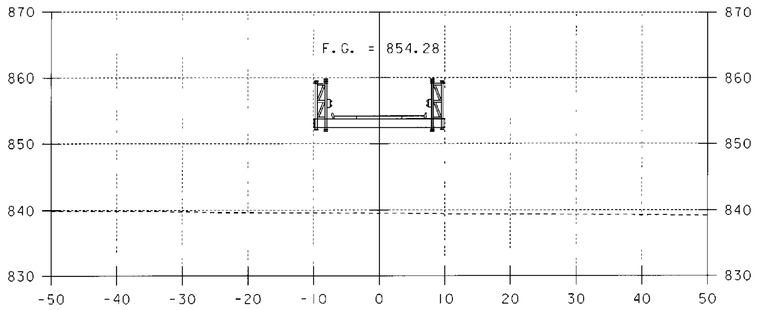
NOT TO SCALE

TEMPORARY BRIDGE CROSS SECTIONS

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

FILE NAME: /str5/86e062/se062xs.dgn
PROJECT LEADER: C. KELLER
DESIGNED BY: T. FILLBACH
se062xs1.i

PLOT DATE: 14-SEP-2005
DRAWN BY: T. FILLBACH
CHECKED BY: T. SUMNER
SHEET 15 OF 18



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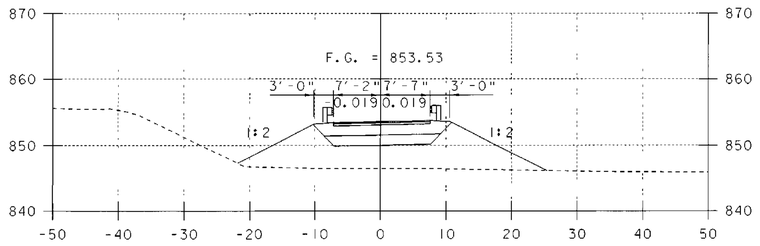

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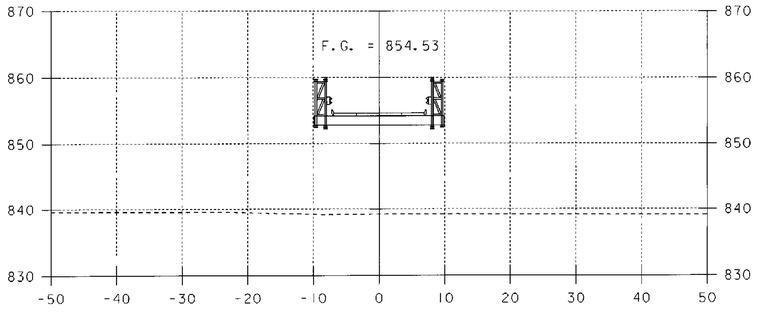

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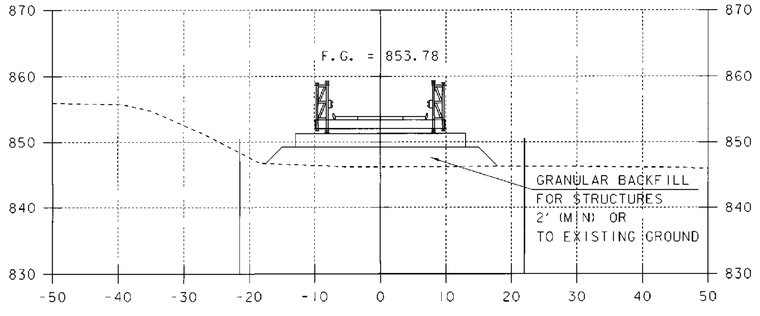

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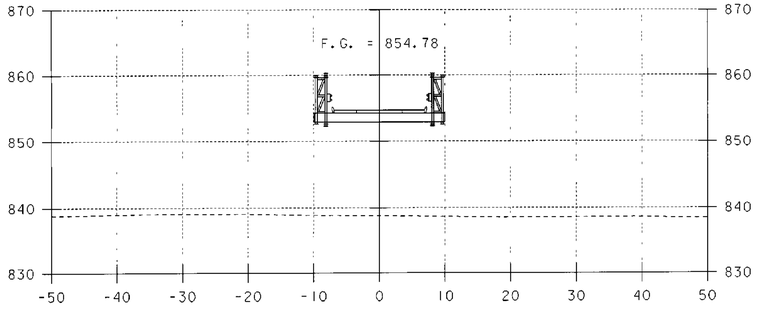

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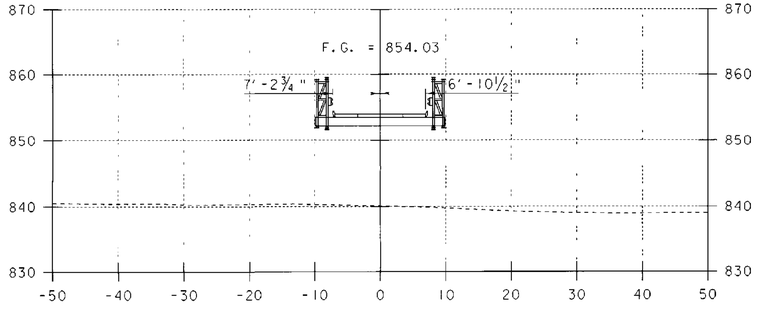

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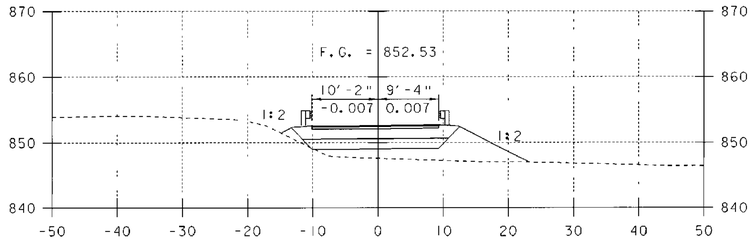
TEMPORARY BRIDGE CROSS SECTIONS

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

FILE NAME: /str5/86e062/se062xs.dgn
PROJECT LEADER: C. KELLER
DESIGNED BY: T. FILLBACH
se062xs2.i

PLOT DATE: 14-SEP-2005
DRAWN BY: T. FILLBACH
CHECKED BY: T. SUMNER
SHEET 16 OF 18



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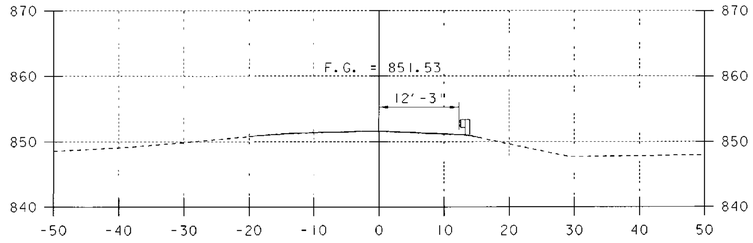

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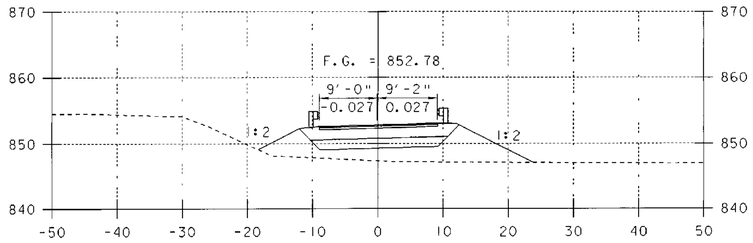

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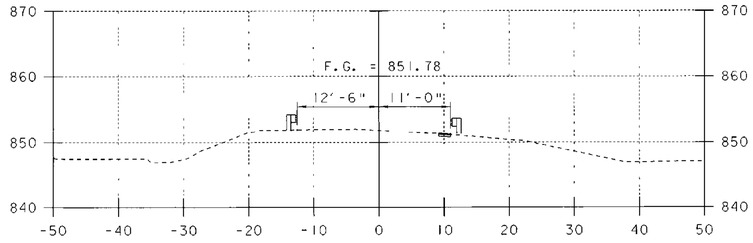

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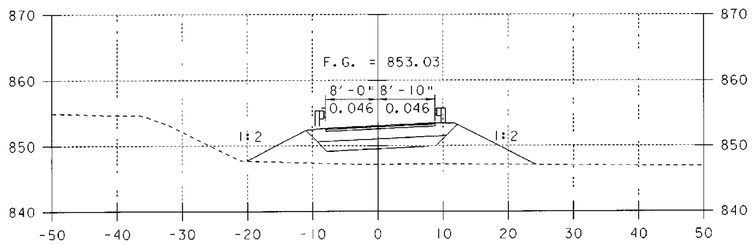

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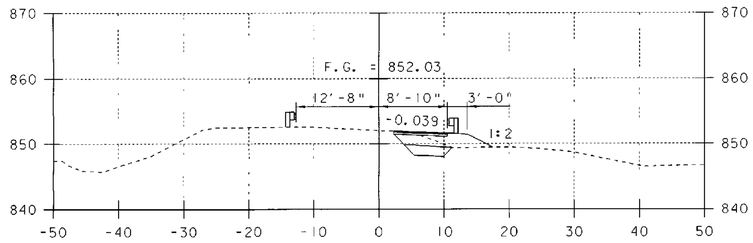

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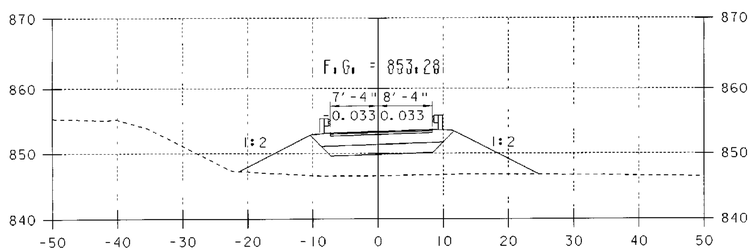

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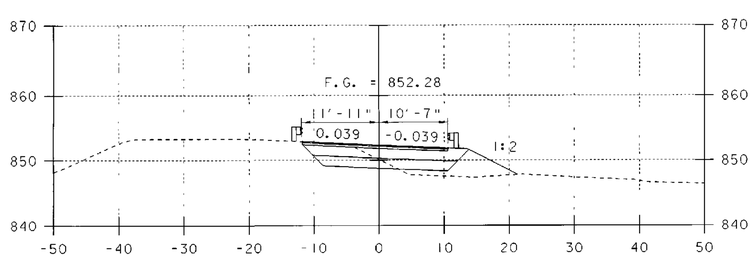
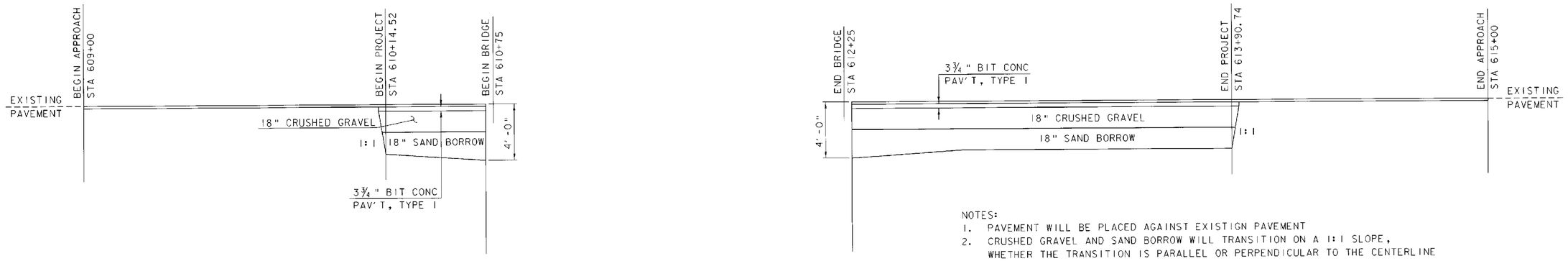


613+75

TEMPORARY BRIDGE CROSS SECTIONS

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149 (4)

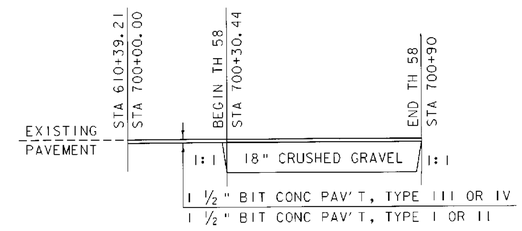
FILE NAME: /str5/86e062/se062xs.dgn		PLOT DATE:	14-SEP-2005
PROJECT LEADER:	C. KELLER	DRAWN BY:	T. FILLBACH
DESIGNED BY:	T. FILLBACH	CHECKED BY:	T. SUMNER
se062xs3.i		SHEET 17	OF 18



NOTES:
1. PAVEMENT WILL BE PLACED AGAINST EXISTIGN PAVEMENT
2. CRUSHED GRAVEL AND SAND BORROW WILL TRANSITION ON A 1:1 SLOPE, WHETHER THE TRANSITION IS PARALLEL OR PERPENDICULAR TO THE CENTERLINE

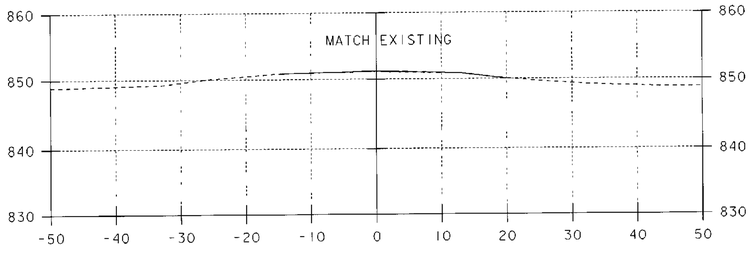
MAINLINE MATERIAL TRANSITION DIAGRAM

NOT TO SCALE



SIDELINE MATERIAL TRANSITION DIAGRAM

NOT TO SCALE



614+75

TEMPORARY BRIDGE CROSS SECTIONS

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149 (4)

FILE NAME: /str5/86e062/se062xs.dgn
PROJECT LEADER: C. KELLER
DESIGNED BY: T. FILLBACH
se062xs4.i

PLOT DATE: 14-SEP-2005
DRAWN BY: T. FILLBACH
CHECKED BY: T. SUMNER
SHEET 18 OF 18

INDEX OF SHEETS

1. Title Sheet
2. Quantity Sheet
3. Superstructure Details
4. Substructure Details
5. Reinforcing Schedule
6. SCB-01-71 28 JAN 74 R
7. E3 14 MAY 74 R
8. E6 16 MAY 74 R
9. E7 19 SEPT 73 R

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

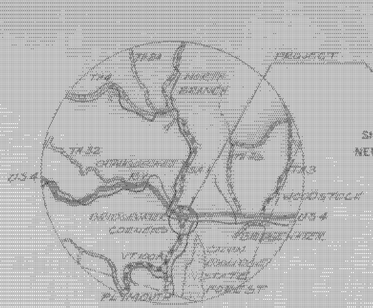
PROPOSED IMPROVEMENT

BRIDGE PROJECT
TOWN OF BRIDGEWATER
COUNTY OF WINDSOR
ROUTE NO: VT 100A BRIDGE NO: 14

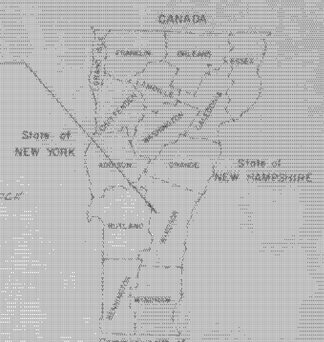
PROJECT LOCATION: BEGINNING AT A POINT 200 FT. ± SOUTH OF THE INTERSECTION OF US4 AND VT 100A AT THE BEGINNING OF THE BRIDGE AND EXTENDING THROUGH THE BRIDGE

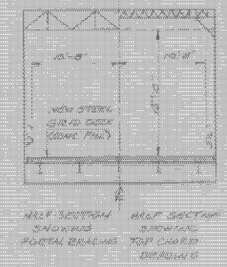
PROJECT DESCRIPTION: CLEAN AND PAINT EXISTING TRUSS; REMOVE EXISTING CONCRETE DECK AND REPLACE WITH CONC. FILLED STEEL GRID DECK; REPAIR ABUTMENTS

LENGTH OF STRUCTURE:	114	FEET
LENGTH OF PARTICIPATION ROADWAY:	0	FEET
LENGTH OF NON-PARTICIPATION ROADWAY:	0	FEET
LENGTH OF PROJECT:	114	FEET

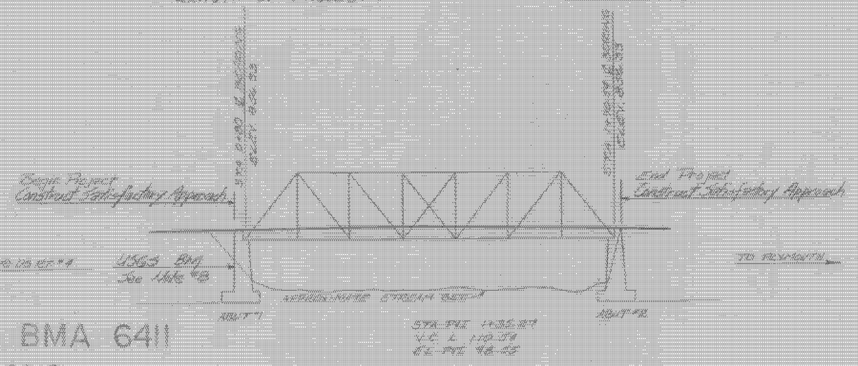


LOCATION MAP
(TRACED FROM COUNTY MAP)





TYPICAL BRIDGE SECTION
SCALE: 1" = 10'



TYPICAL ROADWAY SECTION

CONTRACT DATED - AUG. 1974
CONTRACT BEGAN - APR. 15, 1975
CONTRACT COMPLETED - JULY 22, 1975
CONTRACT ACCEPTED - JULY 25, 1975

GENERAL NOTES:

1. Existing paint, rust, or dirt, in the area of any new welding shall be removed prior to welding.
2. ALL STRUCTURAL STEEL SHALL BE CLEANED BY SAND BLASTING AND PAINTED ACCORDING TO ITEM 513.35
3. ALL LOOSE OR DETERIORATED SUBSTRUCTURE CONCRETE SHALL BE REMOVED AND REPLACED AS NOTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
4. NEW CONCRETE SHALL BE CONCRETE CLASS A (4000)
5. THE DECK SHALL BE CONCRETE FILLED, ASTM A588 STEEL GRID FLOORING MEETING THE REQUIREMENTS OF SECTION 509 OF THE STANDARD SPECIFICATIONS.
6. Approach work to be done by others.
7. Elevations are based on Benchmark #1565 9 MHL 1963 Elevation 354.00 on 2nd Norquest of Abut #1.
8. One way traffic shall be maintained under Item 617.10, Maintenance of Traffic for Bridge Projects.
9. Item 207.30, Partial Removal of Structure, shall consist of removing the existing 8" concrete deck and curbs between the backs of the abutments.

CONVENTIONAL SIGNS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARD RAIL
RAILROAD
CENTER LINE
POWER LINE
TELEPHONE LINE
TREES
F.A. CONST. IDENTIFICATION SIGNS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS
TOP OF CUT
TOE OF SLOPE

CONTRACTOR - MILLER CONST. INC.
WINDSOR, VT.
RES. ENG'R - W.R. STODDARD
RECORD PLANS - S.C. MURRAY
COMPLETED - JULY 22, 1975

BRIDGEWATER BMA 6411
RECORD PLANS
MATERIALS

GRANULAR BACKFILL FOR STRUCTURES - MILLER PIT, WINDSOR, VT.
BIT. CONC. PAVEMENT - WHITCOMB, WALLINGFORD, VT.
CONCRETE CLASS A - MILLERS READYMIX, W. LEBANON, N.H.
STRUCTURAL STEEL - VT. STRUCTURAL STEEL CORP. - BURLINGTON, VT.
REINF. STEEL - MILLERS YARD STOCKPILE
STEEL GRID FLOORING - OSAGE COMPANY INC.
STEEL MEMBRANE WATERPROOFING - PROTECTO WRAP CO., DENVER, COLO.

NOTE: ANY ERRORS OR OMISSIONS ON THESE DRAWINGS, AMOUNTS OF STEEL DETAILS RELATIVE TO THIS PROJECT MAY BE FOUND IN FUTURE FIELD WORK OR SHOP DRAWINGS

SHOWN AS BY ORDER OF THE STATE HIGHWAY BOARD
APPROVED E.H. Dickinson DATE 11-7-74
CHIEF ENGINEER

VT 11 BRIDGEWATER BMA 6411
SEP 1 9 1975

EARTHWORK

P.C.	% GRD	STATION	GRADES ELEVATION ON TAN.	GRADES ELEVATION ON P.C.	CURVE P.C.	DIFF.	AREA	CU. YDS.	AREA	CU. YDS.	AREA	CU. YDS.	AREA	CU. YDS.

BRIDGE QUANTITY SHEET

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
BRIDGE DIVISION

QUANTITY BREAKDOWN

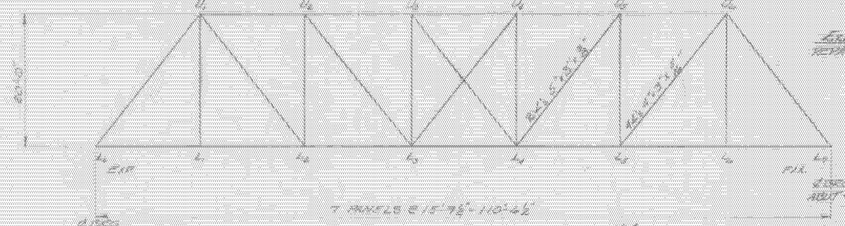
NO.	ITEM	UNIT	Super-structure	Abut #1	Abut #2	TOTAL	FINAL
203.30	PARTIAL REMOVAL OF STRUCTURE	EA	1			1	1
203.35	REMOVAL OF EXISTING CONCRETE OR MASONRY (EST)	C.Y.		2.5	2.5	5	2.85
204.75	STRUCTURE EXCAVATION	C.Y.		3	3	60	45
406.25	BITUMINOUS CONCRETE PAVEMENT	TON	30			30	30.6
601.20	CONCRETE CLASS A	C.Y.		4	3	7	5.14
602.11	SHORING SUPERSTRUCTURE BEARINGS	EA		2	2	4	4
606.98	STRUCTURAL STEEL	LB	2120			2120	2238
607.15	REINFORCING STEEL	LB	348			348	361
609.25	STEEL GRID FLOORING (4509)	SF	2336			2336	2322.6
613.35	PAINTING, BLAST CLEANING (113,300 LBS)	LS	1			1	1
614.10	Water Repellent	Gal	0.5	1.0	1.0	2.5	6
619.20	SHEET MEMBRANE WATERPROOFING	SY	263			263	263
637.10	MAINTENANCE OF TRAFFIC FOR BRIDGE PROJECTS	LS	1			1	1
304.30	GRANULAR BACKFILL FOR STRUCTURES	C.Y.		3	3	60	45
306.10	Overhaul (Rmi.-Est)	C-Rmi		30	30	60	45
515.30	Epoxy Bonding Compound C.O. #1 Suppl. Agree. 5-15-75					0	6
506.75	Structural Steel (Misc.) C.O. #2 Suppl. Agree. 7-8-76					0	1050

BRIDGE (N) AT STATION (S) 0+80
LOCATION (S) BRIDGEWATER

DESIGNED BY J.P. BURNETT | DRAWN BY P.E. ADD.
SUPERVISION R.S. RAUPP

BRIDGEWATER PROJECT NO. BMA 6411
BR. ___ OF ___ SHEET NO. 2 OF 9

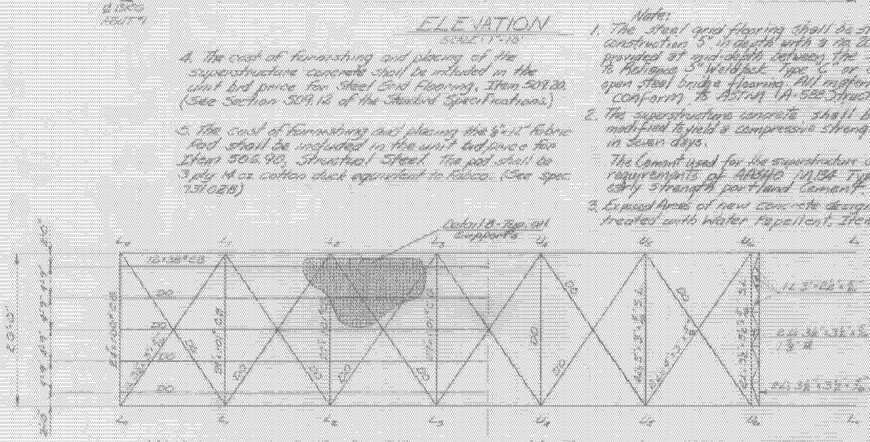
Existing Truss Members:
Bottom Chord Exterior Panels - 2 ⊏'s 9"x15"
Bottom Chord Interior Panels - 2 ⊏'s 9"x25"
Vertical Members - 10"x31# CB
Mid-Panel Diagonals - 2 ∠'s 5"x5"x 5/8"

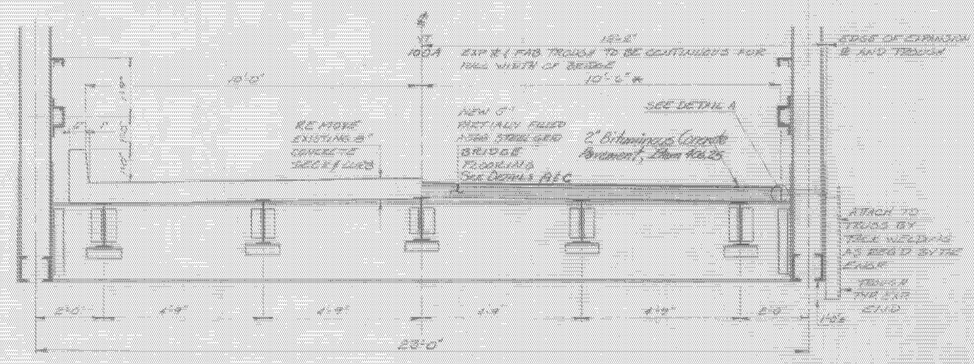


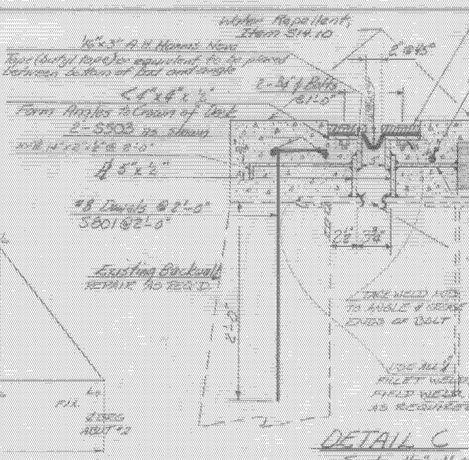
A. The cost of furnishing and placing of the superstructure concrete shall be included in the unit bid price for "Steel Grid Flooring", Item 509.20. (See Section 509.12 of the Standard Specifications.)

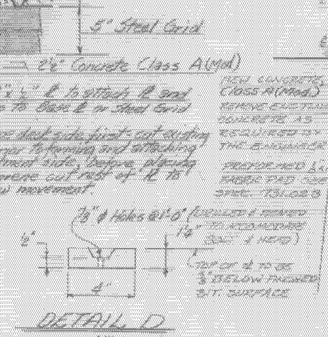
B. The cost of furnishing and placing the ¾"x12" Fabric Pad shall be included in the unit bid price for Item 506.90, "Structural Steel". The pad shall be 3 ply 14 oz cotton duck equivalent to Fabreco. (See Spec. 731.028)

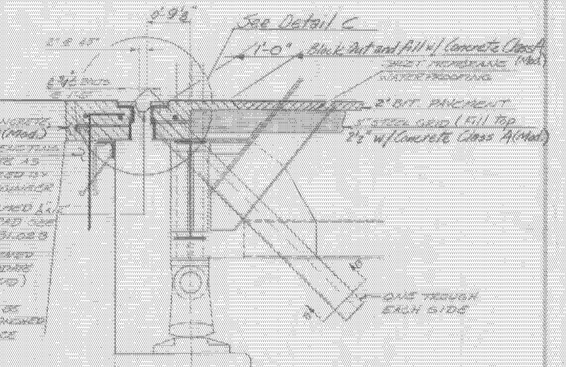
Note:
1. The steel grid flooring shall be steel T-Beam construction 5" in depth with a no. 20 gauge form pan provided at mid-depth between the T-Beams, equivalent to Material 5" Weldfast Type C" or "Greutich 5"-4 way open steel bridge flooring. All material shall conform to ASTM 1A-588 Structural Steel.
2. The superstructure concrete shall be Concrete Class A modified to yield a compressive strength of 5000 psi in seven days.
The Cement used for the superstructure concrete shall meet the requirements of AASHO M154 Type IIIA high early strength portland Cement.
3. Exposed Ends of new concrete designated shall be treated with Water Repellent, Item 514.10.

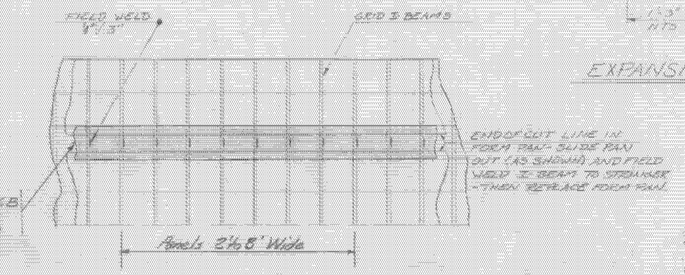




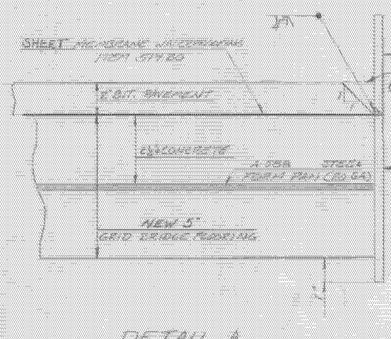


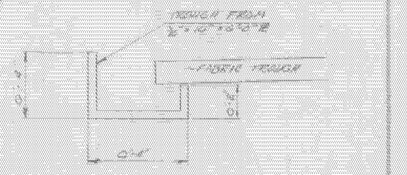


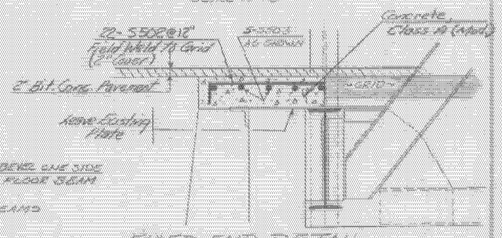




Note: 1. Steel Grid Flooring shall be furnished in panels 21'-0" long and a maximum of 8' wide.
2. ALL MISC. STEEL/MECH. STEEL SHALL BE ASTM A 588.
3. Any reinforcing steel required in the steel grid floor system shall be furnished and placed subsidiary to Item 509.20.







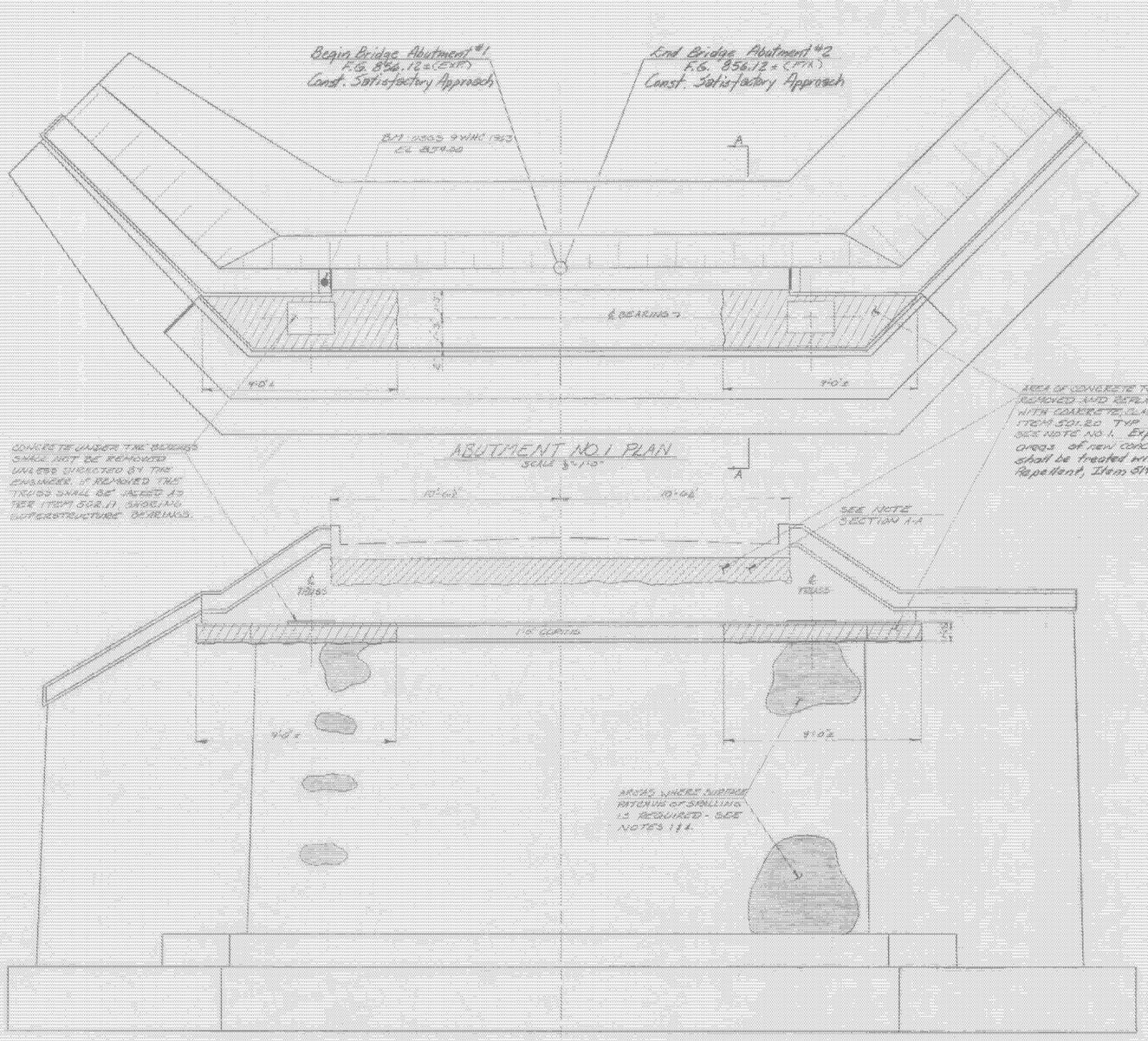
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF: BRIDGEWATER
HIGHWAY NO.: VT 100A
Bridge No. 14
Log Sta.
River Mile

VT 100A over OTTAQUECHEE RIVER
SUPERSTRUCTURE DETAILS

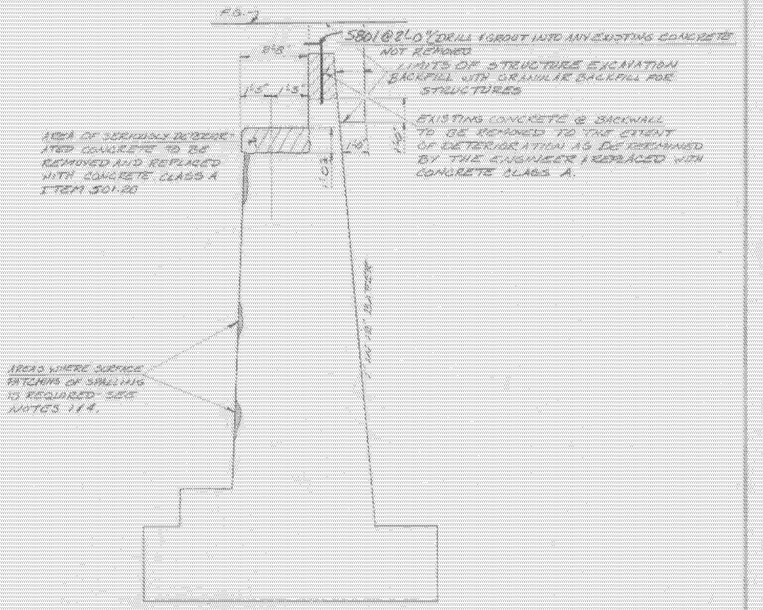
Designed by: E.P. GENDRON
Drawn by: J.R. BURNETT
Checked by: E.E. LADD Date: 5-74
Bridge Design Supervisor: R.S. HAUPT Date: 5-74

PROJECT: BRIDGEWATER
PROJECT NO.: BRA 0411
Bridge Sheet No. Sheet 3 of 9



ABUTMENT NO. 1 PLAN
SCALE: 3/16"=1'-0"

ABUTMENT NO. 1 ELEVATION
SCALE: 3/16"=1'-0"



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

NOTES:

1. THE EXTENT OF PATCHING OF DRILLED CONCRETE SHALL BE DETERMINED BY THE ENGINEER.
2. PATCHING DETAILS OF ABUTMENT NO. 2 ARE SIMILAR TO ABUTMENT NO. 1 EXCEPT NO 5801 BARS ARE REQUIRED FOR ABUT'R BACKWALL.
3. ABUTMENT DIMENSIONS SHOULD BE FIELD CHECKED BY THE ENGINEER TO DETERMINE THE AS BUILT VIETAILS AND DIMENSIONS.
4. SPALLED AREAS ARE TO BE CLEANED OF LOOSE OR DETERIORATED CONCRETE AND ARE TO BE FILLED WITH A CONCRETE MORTAR TYPE II AND PAID FOR AS CONCRETE CLASS A, (APPROXIMATE QUANTITY = 8 C.Y.)

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OR BRIDGEWATER	Bridge No. 14
HIGHWAY NO. VT 100 A	Eng. Sta.
	Sheet No.

VT 100 A over OTTAUQUECHEE RIVER
SUBSTRUCTURE DETAILS

Designed by R.P. SENDRON	Drawn by J. E. BURNETT
Checked by R.E. LADD Date 5-74	Bridge Design Supervisor R.S. HAUPT Date 6-74
Project BRIDGEWATER	Project No. BMA 6411
Bridge Sheet No.	Sheet 4 of 9

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
1				EXPANSION END													
2																	
3																	
4	6	5	18-0	S503	ST												
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7	11	8	2-10	S501	17	2-6	2-4	—									
8																	
9																	
10				FIXED END													
11																	
12	22	5	2-9	S502	17	2-6	2-3	—									
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ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
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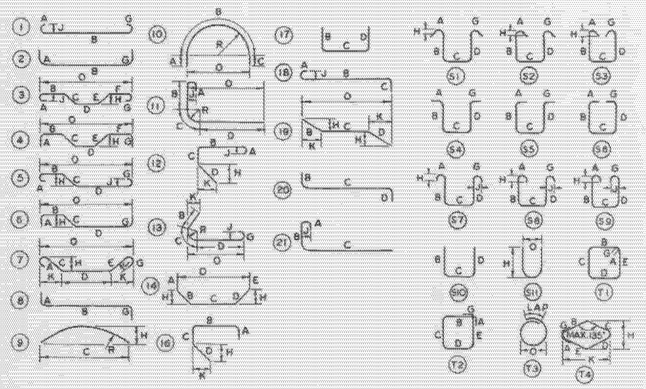
ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER INCHES	CROSS SECTIONAL AREA SQ. INCHES	PERIMETER INCHES
#3	.376	.375	.11	1.178
#4	.668	.500	.20	1.571
#5	1.043	.625	.31	1.963
#6	1.502	.750	.44	2.356
#7	2.044	.875	.60	2.749
#8	2.670	1.000	.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

TYPICAL BAR BENDS



NOTES

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT," AASHO M 31 (ASTM A 615), GRADE 40.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS AND OTHER STANDARD PRACTICE SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE."
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180° AND 135° HOOKS.
5. "J" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE, OTHERWISE STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45° DIMENSIONS "H" AND "K" MUST BE SHOWN.

* DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.

REV. NO.	MADE BY	DATE	DESCRIPTION

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

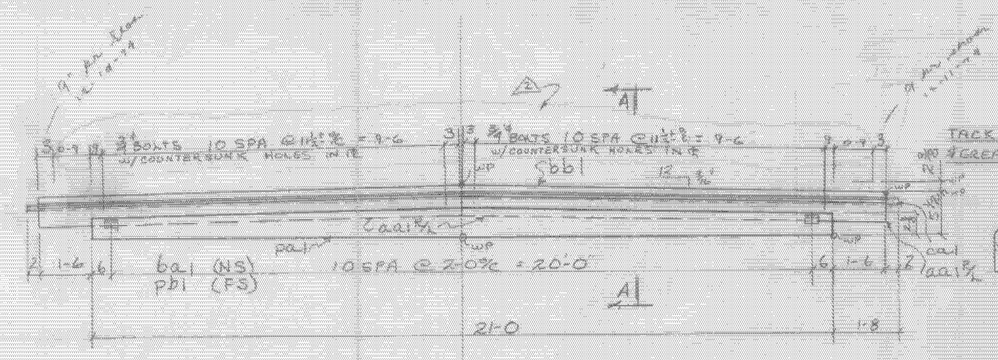
TOWN OF BRIDGEWATER	BRIDGE NO. 14
HIGHWAY NO. VT 100A	LOG STA.
	SURV STA. 0+80.0

VT 100A over OTTAUQUECHEE RIVER

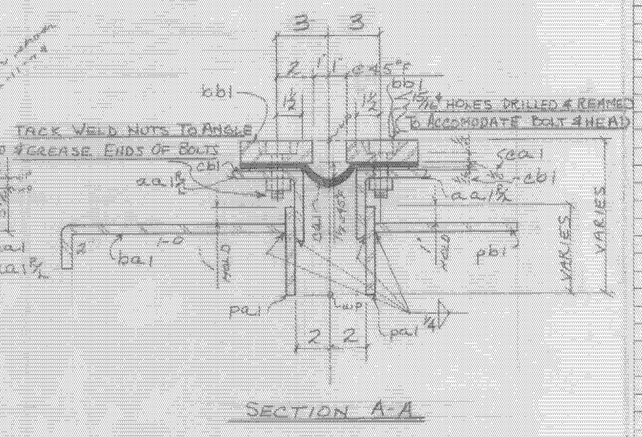
REINFORCING STEEL SCHEDULE

DESIGNED BY J.R. BURNETT	DRAWN BY J.R. BURNETT
CHECKED BY R.E. LAFOE DATE MAY '94	BRIDGE DESIGN SUPERVISOR R.S. HAUPT DATE MAY '94
PROJECT BRIDGEWATER	PROJECT NO. BRA 0411
BRIDGE SHEET NO.	SHEET 5 OF 9

BR 6



EXPANSION JOINT - EJ1



SECTION A-A

BILL OF MATERIAL

NO. PIECES	MARK	DESCRIPTION	LENGTH FT.	LENGTH IN.		WEIGHT	

JOB NO. A588 SHEET NO. 29

BILL OF MATERIAL

NO. PIECES	MARK	DESCRIPTION	LENGTH FT.	LENGTH IN.		WEIGHT	
		EXPANSION JOINT					
		EJ1			ORD		
2	pa1	BAR 6 X 1/2	21	0	USSS 40381	357	#
11	pb1	BAR 2 X 1/2	0	8	do		
11	ba1	do	1	2	do	49	#
2	bb1	BAR 4 X 1 1/2	24	0	MT. ROM 19 USSS 40385	816	#
2	aa1 1/2"	L 4 X 4 X 1/2	24	0	USSS 40381	816	#
ONE	cb1	PREFORMED 1/8 X 12" FABRIC PAD	24	4	ORD FRANKLIN 40672	11	#
2	cb1	BAR 3 X 1/16 (BUTYL TAPE)	24	0	(3) G.H. FRANKLIN 41485	2	#
46		3/4" A325 BOLTS (WASH)	0	2 1/2	FAC. BAR		
48		3/4" NUT & WASH (do)			JOB # 40218		
2	TRI	L 4 X 4 X 1/2	6	0	USSS 40381	154	#
2	pa1	BAR 2 X 1/2	6	0	do	41	#
						3035	#

VERMONT STRUCTURAL STEEL CORPORATION
BURLINGTON, VT.
PROJ # BMA6411

(2) REV 11-9-74 TP
(3) REV 10-22-74 TP PER APPROVED CONDITIONS

		DATE
DRAWN BY	CS	10-1-74
CK'D BY		

PROJECT VT. 100A over OTTAQUECHEE RIVER
LOCATION BRIDGEWATER, VT.
CUSTOMER MILLER CONST Co
ARCHITECT STATE OF VERMONT
JOB NO. 81377 SHEET NO. 1

HOLES AS NOTED
BOLTS A325 (WASH)
PAINT —

PRINT RECORD

NO.	FOR	DATE
5	ORD	10-24
50	APPR'D SHOP DWGS	10-29
5	RELEASED	10-29
2	O.K.	10-31
100	O.K. O.K. REL	10-31
100	O.K. O.K. REL	11-4
1	O.K.	11-13

PLAN VIEW

SEC. A-A

SEC. B-B

SEC. D-D

SEC. C-C

SEC. E-E

SEC. F-F

BAR MK "6"

BAR MK "C,D, E,F,J,K"

FORM PANS TACK IN SHOP

CLOSURE PANS TACK IN FIELD

TACK WELD FORM PANS IN SHOP

MK "M" PANEL A1 & A2
MK "R" PANEL B1 THRU B13

WELD 1/4 x 4" BAR FILLET WELD TOP OF MAIN BARS

2" CONCRETE WATER REPELLENT BY OTHERS

FORM PANS TACK IN SHOP

BAR MK "C,D, E,F,J,K"

BAR MK "6"

BAR MK "A"

BAR MK "B"

1/4 X6 BAR-MK "B"

1/4 X6 BAR-MK "A"

G 2 BARS REQD.

2 BARS REQD PER PANEL

1-PANEL-MK A1
(AS SHOWN)

1-PANEL-MK A2
(OPP HAND)

1-BAR "G", 2-BAR "B"
1-PAN "A", 1-PAN "M"
14-PAN "C", 32-PAN "E"
40-PAN "R"

13 PANELS IN TRUSS

1-PAN "B", 1-PAN "E"
2-PAN "C", 40-PAN "R"
40-PAN "R"

WILL THIS CONFORM TO EXISTING X SECTION

*CROSS SLOPE TO CONFORM WITH THE EXISTING TYPICAL

NOTES:
1. FIELD DIMENSIONS TO BE VERIFIED BY FIELD CREW BEFORE FABRICATION OF STEEL GRID FLOORING.
2. MARK EACH PANEL IN ACCORDANCE WITH AWS AND PAINT IN FIELD AFTER INSTALLATION.
3. SEE DSAR-1 FOR ERECTION PROCEDURE.
4. PAINT - NONE REQ'D.
5. AREA - CONCRETE FILLED - 2328 SQ. FT.
6. CLOSURE PANS TO BE TACK WELDED IN FIELD

STATE COPY

RECEIVED JAN 17 1975
CK'D BY JRS CK'D BY SBH
RECOMMEND APPROVED
BY E. PERKINS DATE 1/20/75

SHOP INSPECTION REQUIRED: YES
AGENCY: A-36
PAINT SAMPLE REQUIRED: A-36
CERTIFICATES REQUIRED: A-36
WELDING REQ.: AWS
WELDERS: A-36
MATERIAL: A-36
PAINT: SSPC-PAINT NO. 9
REFERENCE DRAWINGS:
DSAR-1 SEE SHEET NO. 2
DSAR-2 SEE SHEET NO. 3

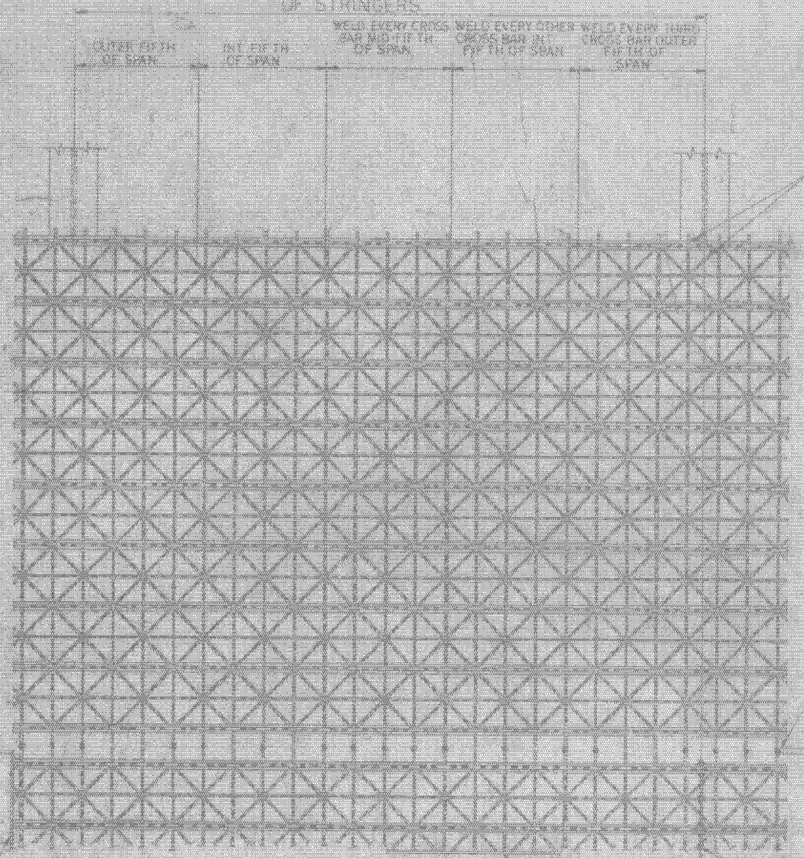
OSAGE COMPANY, INC.
233 COMMERCIAL AVE.
PITTSBURGH, PA. 15215

DESIGNED
DRAWN
TRACED
CHECKED
APPROVED

DATE
REVISIONS
DATE
BY

SCALE: AS SHOWN
DATE: 1-17-75
JOB NO. 3411
DWG. NO. 3

LOCATIONS OF FIELD WELDS ON ENDS OF CROSS BARS AT SIDE SPLICES BETWEEN GRID UNITS DISTANCE C to C OF STRINGERS



NOTE:
THIS WELDING CAN BE ELIMINATED AT THE DISCRETION OF THE ENGINEER

TWO WELDS AT EACH CROSS BAR END EXCEPT WHERE CLASS SXYNOCR.

WELDS TO BE LONGER WHEN SPECIFIED
8 FOR ALL BEAMS DEEP OR HAVE BOTTOM FLANGES

GRID UNIT SPLICE
OPEN SQUARE BUTT JOINTS WELDED WITH 5/16" FILLETS BETWEEN ENDS OF CROSS BARS

SIDE JOINT
0" TO 1/4" GAP TOLERANCE

END TRIM BAR FURNISHED SHOP WELDED WHEN SPECIFIED, AT EXTRA COST

SIDE TRIM BAR FURNISHED SHOP WELDED WHEN SPECIFIED, AT EXTRA COST

0" TO 1/4" GAP TOLERANCE IN END JOINT

FIELD WELD ON ONE SIDE OF SPLICE
WHERE UNITS MUST BE SPLICED AT ENDS IN THE FIELD A TRIM BAR IS SHOP WELDED TO THE END OF ONE UNIT ADJACENT TO THE JOINT WITH TWO 5/16" X 3A" FILLET WELDS TO BEARERS AND ONE 5/16" X 3A" FILLET WELD TO MAIN BAR END. ONE OF THE MAIN BARS ARE CUT SHORT TO PERMIT WELDING SUPPLEMENTAL BAR ENDS. ONLY THE DIAGONAL BAR ENDS ARE WELDED. THE UNTRIMMED ENDS OF THE ADJOINING UNIT ARE SIMILARLY FIELD WELDED TO THE ADJACENT TRIM BAR.

MANUFACTURING TOLERANCE WITHIN ± 1/16" SQUARE

FIELD WELDING DIAGRAM

ERECTION PROCEDURE
LAYING OUT AND MARKING THE CENTER LINES OR THE SPACING POINTS BETWEEN UNITS ON THE SUPPORTING STEEL WILL INSURE CORRECT AND ACCURATE PLACING AND WILL SHOW OR UNMASK PLACES WHERE CHANGES ARE TO BE MADE. SQUARE BY CENTER LINE OF BRIDGE AND/OR UNIT SUPPORTING STEEL PRIOR TO WELDING.

RECEIVED JAN 17 1975
OKD BY LEO OKD BY BH
RESIDENT APPROVED
BY E. PERKINS DATE 1/20/75

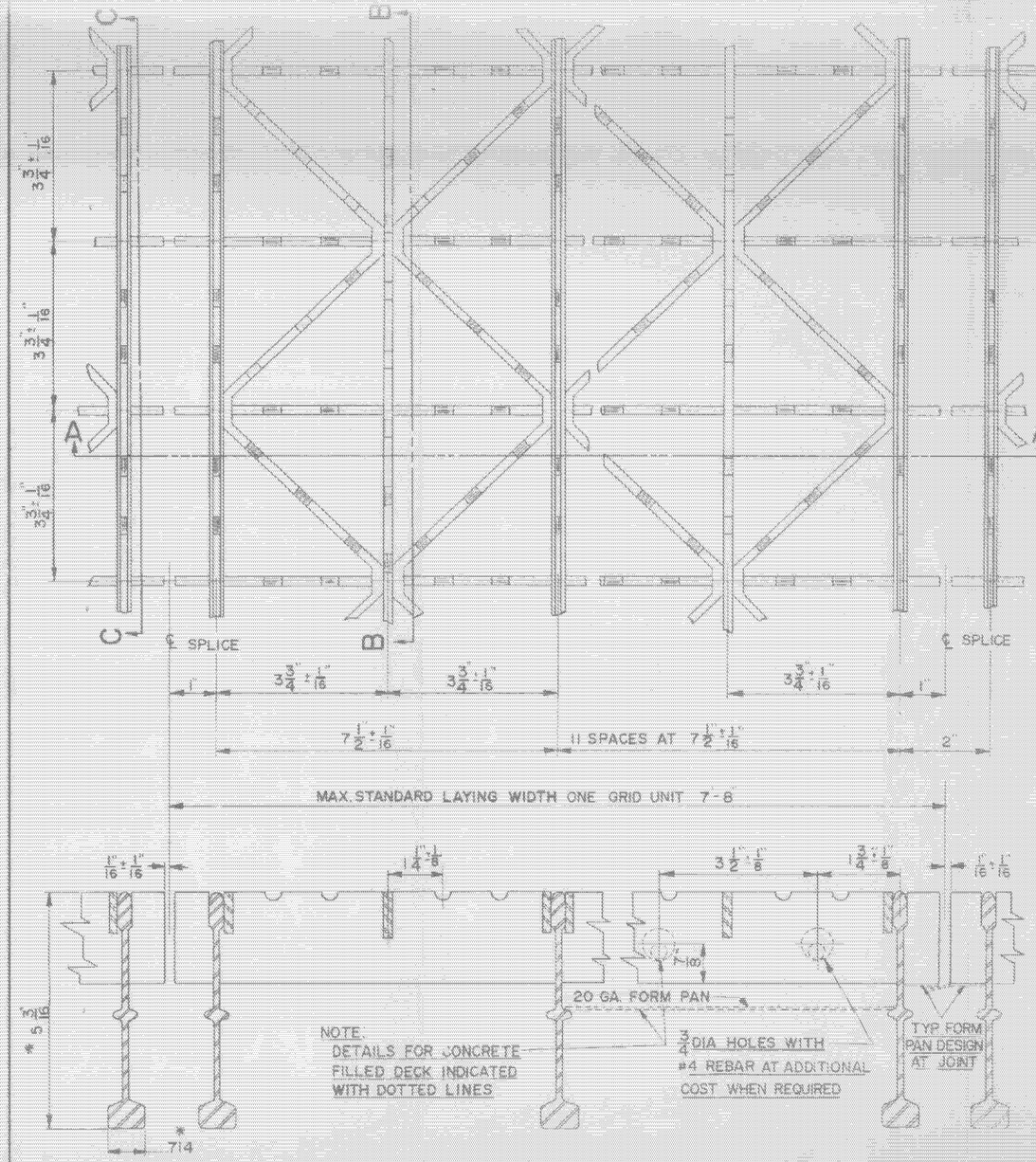
STATE COPY

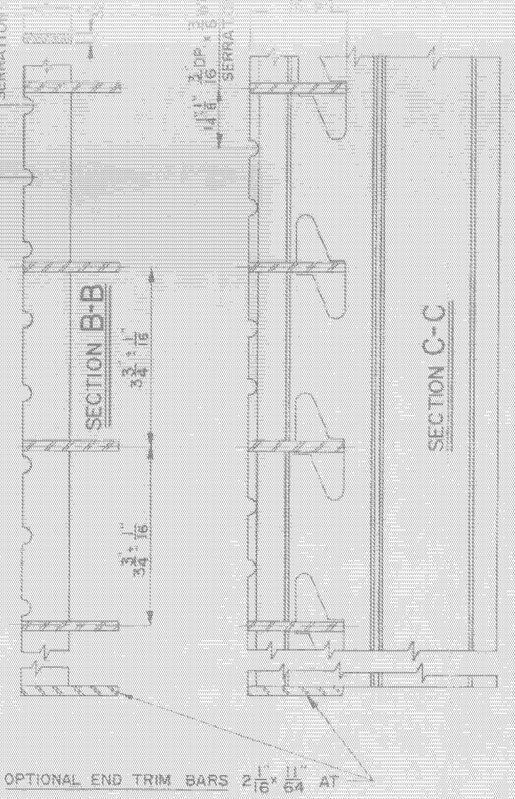
CUSTOMER'S NOTE: THIS DWG IS TO BE USED AS A REFERENCE DWG ONLY - REFER TO DETAIL DWGS FOR ACTUAL INSTALLATION.

OKD INSPECTION RECEIVED	
AGENCY	
MAT'L SAMPLE REQUIRED	
CERTIFICATES REQUIRED	
WELDING ROD	
WELDING	
MATERIAL	
PAINT	
APPROVED DRAWING	

OSAGE COMPANY, INC.
321 COMMERCIAL AVE.
PITTSBURGH, PA. 15215

JOB ROOSEVELT BLVD. BRIDGE
TITLE FIELD WELDING DIAGRAM





OPEN STEEL GRID	10.357 IN⁴	14.027 IN³	3.953 IN³
CONCRETE FILLED	11.403 IN⁴	10.050 IN³	5.420 IN³

	MAXIMUM SPAN		
	H-10	H-15	H-20
OPEN STEEL GRID	10'-6"	9'-6"	9'-0"
CONCRETE FILLED	14'-8"	13'-0"	12'-6"

WEIGHT-15.0 LBS.(APPROX.)PER SQ.FT.

16.4 LBS. WITH PROVISIONS FOR CONCRETE

MATERIAL SPECIFICATIONS

STEEL BEAMS&BARS SHALL BE A-588 STEEL CAPABLE OF DEVELOPING A TIGHTLY ADHERENT IMPERVIOUS OXIDE COATING AS THE STEEL WEATHERS.
PAINT NONE REQUIRED- THIS SPECIAL NON-CORRODING IN ATMOSPHERE STEEL GRID IS USED BARE AS FABRICATED.

ANTI-SKID PROPERTIES

THE LONG EDGES OF TRIANGULAR SHAPED OPENINGS AND GRID MEMBERS RADIATING IN FOUR DIRECTIONS INTRODUCE TWO INHERENT SKID RESISTING CHARACTERISTICS AND TEND TO CHECK SLIDING IN ANY DIRECTION.
THE RELATIVELY OPEN CENTRAL PORTIONS OF THE GRID TRIANGLES ALLOW (a) MAXIMUM DOWNWARD PROJECTION INTO THE OPENING AND (b) ALSO THE ENVELOPMENT OF THE LONG PERIMETER BAR TOP EDGES BY THE TIRE TREAD. THE FOREGOING ACTIONS INCREASE THE LATERAL FORCES REQUIRED TO LIFT PORTIONS OF THE TREAD OUT OF THE HOLES AND OVER THE TOPS OF THE LONG BAR EDGES AND CONSEQUENTLY ALSO IMPROVE ANTI SKID PROPERTIES BY INCREASING THE RESISTANCE TO SLIPPAGE.

BAR SIZES MAY CHANGE SLIGHTLY DUE TO MILL AVAILABILITY (ie. 15/16 × 7/32 TO 1 × 7/32 & 1 1/16 × 11/64 TO 2 × 3/16)

SERRATED SURFACES ARE STANDARD AS SHOWN. SERRATIONS OMITTED WHEN DECK IS TO BE CONCRETE FILLED.

WELDING PROCESS - N33M .120 CLASSIFICATION AWSE 70 T6

RECEIVED JAN 17 '75
DATE OF REQUEST 1/8 DWG BY RBH
APPROVED
BY E. PERKINS DATE 1/20/75

A-588
WEATHERING STEEL

STATE COPY

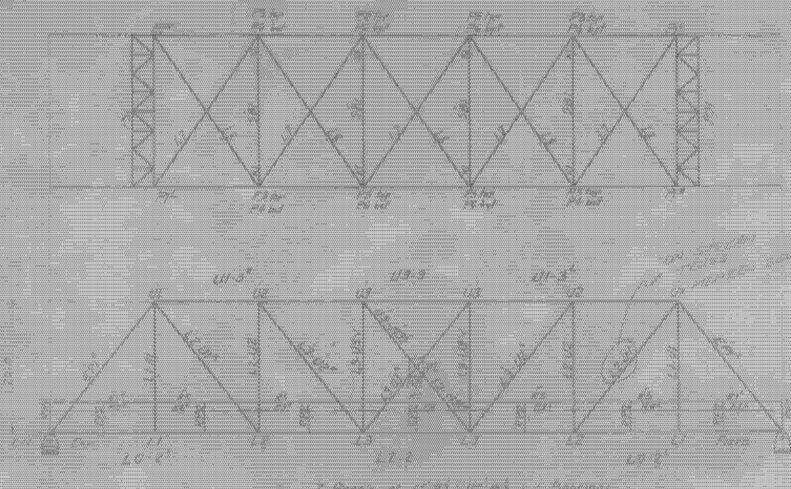
THIS INFORMATION REQUIRED BY:
AGENCY:
MUST SUBMIT BY:
CERTIFICATES REQUIRED:
WELDING FOR:
WELDERS:
MATERIAL:
PAINT:
REFERENCE DRAWINGS:

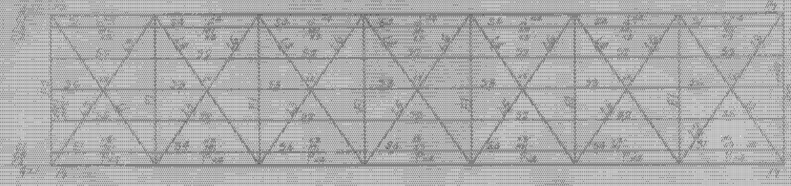
OFFICE COPY

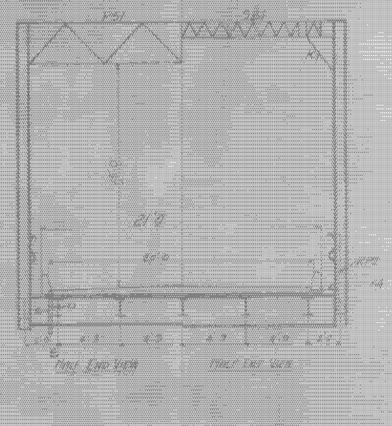
OSAGE COMPANY, INC.
P.O. DRAWER A
CATOOSA, OK 74015

DESIGNED BY BRIDGEWATER ENGINEERING
REVISIONS: REV. 5-17-74 DATE
DRAWN BY: DATE: CHECKED BY: DATE:
TITLE: 5 INCH OPEN STEEL GRID FLOOR A-588
CONTRACT NO. DWG. NO.
SHEET NO. 1 OF 2

MANUFACTURER RESERVES THE RIGHT TO MAKE MINOR CHANGES FOR PRODUCT IMPROVEMENT
SUBJECT TO MILL TOLERANCES







	LIST OF SHEETS
G	GENERAL DRAWING
1	SUPERSTRUCTURE
2	S. SIDE SPECIFICATION BILL ETC.
3	PLATES AND SHOP BILL
4	DETAILS
S.U.	OMITTED PLATE
S.D.	EAST ELEVATION
E.B.	FLOOR
P.B.	FLOOR BEAMS
L.A.	PLATES 60'x 60'--

BMAC 6411
VT 1058.614

F.A.P. No. 100 — STATE OF VERMONT
HIGHWAY BRIDGE AT
BARCLAYSVILLE, VT.
OVER
GOULD & DUNKLEE

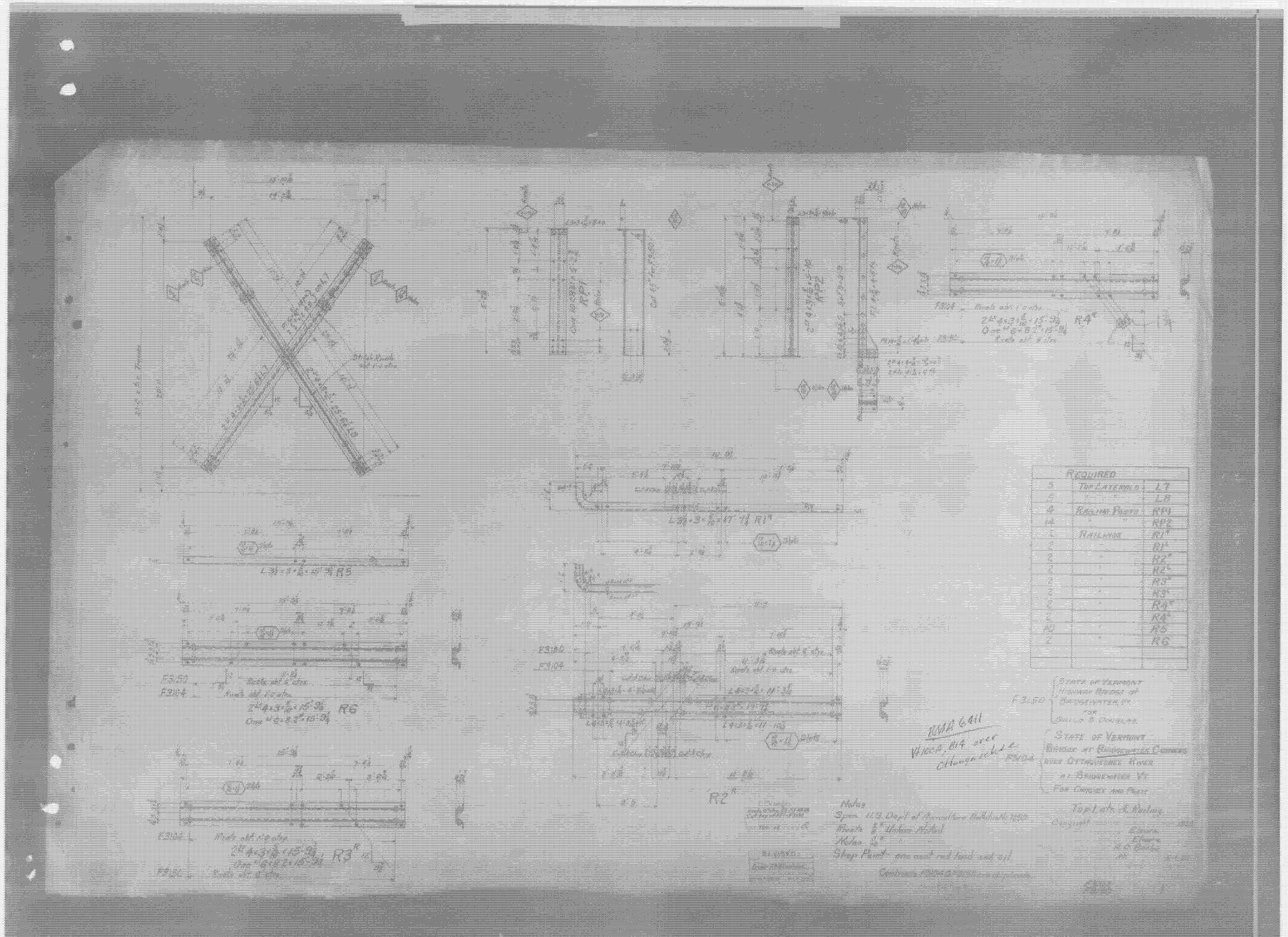
F.A.P. No. 304 — STATE OF VERMONT
DIVISION OF BRIDGE MASTER CONSTRUCTION
OVER THE CONNECTICUT RIVER
AT BARCLAYSVILLE, VT.
FOR CROSSING AND PROTECTION
OF ELECTRIC POWER
TRANSMISSION LINES

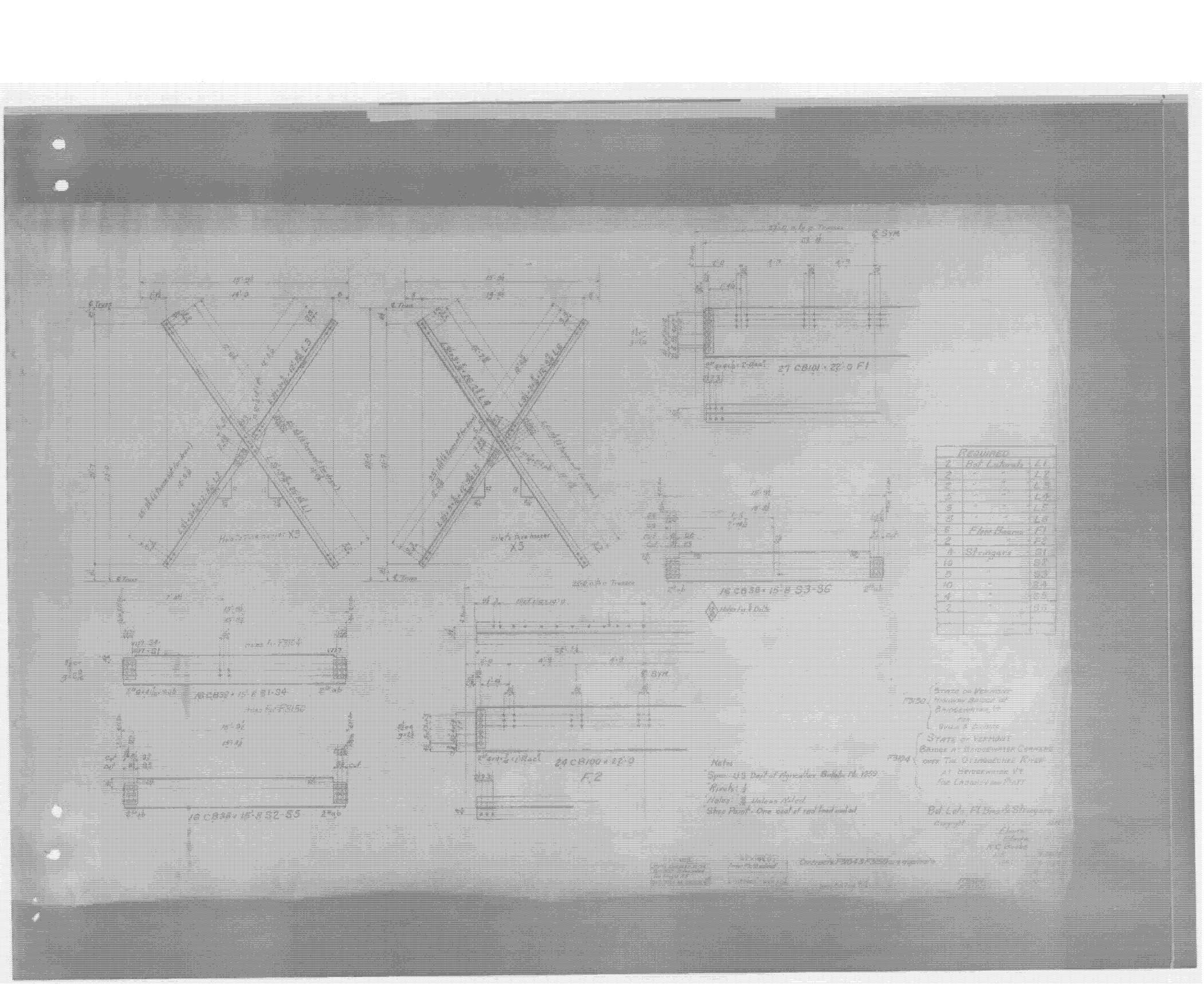
Field Proof by
Cooley & Pratt

for Contract F.A.P. No. 304

Contracts F.A.P. 304 & F.A.P. 100 are duplicate

BY


R4
R5
R6
R3
R2
R1
Notes
Spec. U.S. Dept of Agriculture Bulletin 1901
Rivets 3/4" Unless Noted
Holes 13/16
Shop Paint - one coat red lead and oil
Top Lats & Railing
Copyright
REQUIRED
Top Lats
Railing Posts
Railings
R4
R5
R6



P1

P2

P3

P4

P5

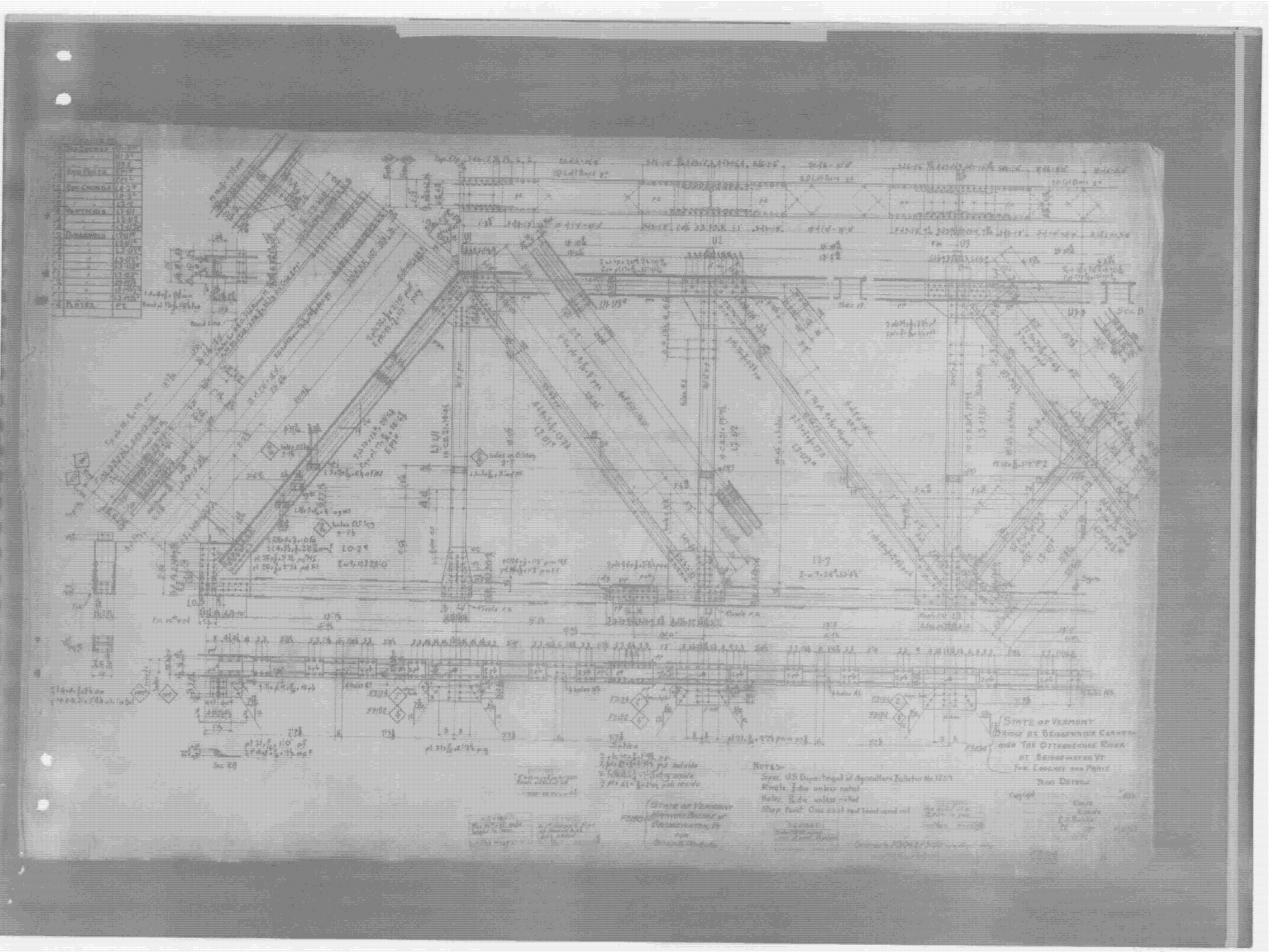
P6

SB1

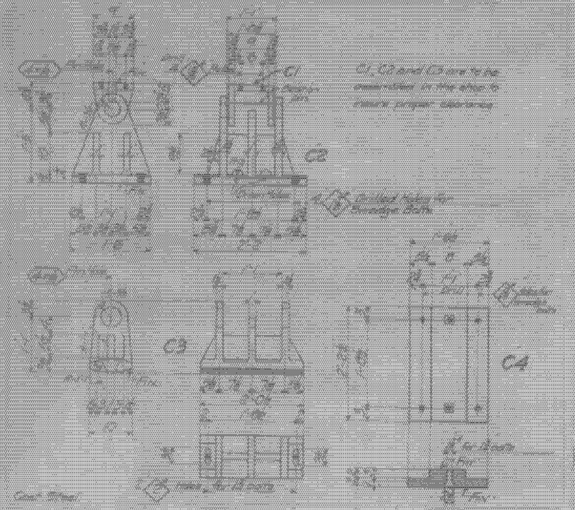
K1

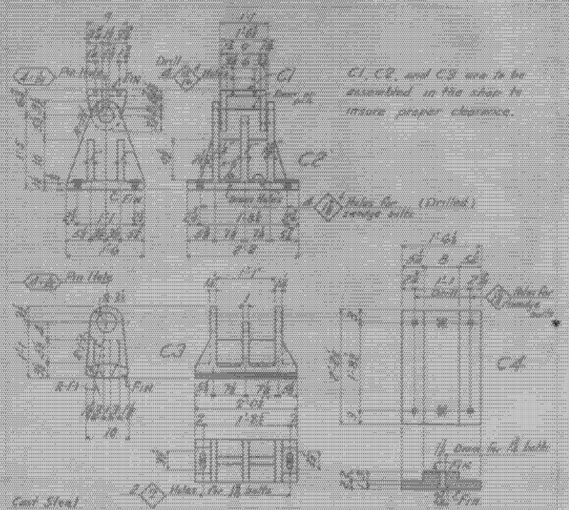
MP1

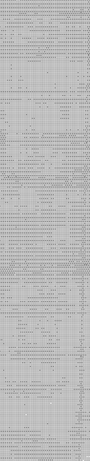
MP2

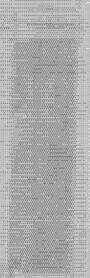

Notes:
Spec. US Department of Agriculture Bulletin No. 1124
Rivets, 3/4in unless noted
Holes, 13/16in unless noted
Shop Paint: One coat red lead mixed with oil
State of Vermont
Bridge at Brownsville Covered
over the Ottauquechee River
at Brownsville Vt
For Carriage and Foot
Road Bridge

COPYRIGHT


C1
C2
C3
C4
C1, C2 and C3 are to be assembled in the shop to insure proper clearance


C1
C2
C3
C4
C1, C2, and C3 are to be assembled in the shop to insure proper clearance.





INDEX OF SHEETS

SHEET NO. 1 PLAN & PROFILE STA 0.00 TO STA 41.84
2 TYPICAL CROSS SECTION OF IMPROVEMENT 24' GRAVEL
3 S.B. 20 NO 180' 6½ SPAN SQUARE
4-8 SUBSTRUCTURE PLANS
9 S.B. NO 1 TYPICAL DETAILS
10-11 CROSS SECTIONS
S.B. NO 19 STANDARD STRUCTURES

STATE OF VERMONT
STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY

FEDERAL AID PROJECT

BRIDGEWATER

BRIDGE OVER OTTAQUECHEE
LOCATED AT BRIDGEWATER CORNERS
LENGTH: 250 FT = 0.047 MILES

SCALES
Plan - 1" = 20'
Vertical - 1" = 20'
Horizontal - 1" = 20'
Tenfoot - 1" = 2'

This project to be constructed in accordance with Standard Specifications on file with the U.S. Bureau of Public Roads dated July 1956.
Structures on this project to be constructed in accordance with details given on Standard Structure Sheets, Series 1957.

Scale 1" = 4 Miles

PROJECT [illegible] W 1008, B 14 over Ottaquechee
NUMBER [illegible]
TYPE "Bridgeville Corners Bridge" Steel Thru Truss, One Span 20' Roby
CONSTRUCTION [illegible]
LOCATION [illegible]
CONTRACT FOR State Forces Use Bridgewater
P.S.E.

CONVENTIONAL SIGNS

GROUND ELEVATION ..... EXIST. ....
GRADE ELEVATION ..... PROP. ....

CURVE DATA

DEFLECTION ANGLE
DEGREE OF CURVE
RADIUS OF CURVE
TANGENT DISTANCE
LENGTH OF CURVE
EXTERNAL DISTANCE
POINT OF INTERSECTION
POINT OF CURVE
POINT OF TANGENT
POINT ON TANGENT

DISTRICT NO. 5
BRIDGE NO. 79
BRIDGEWATER

APPROVED
[signature]
CHIEF ENGINEER

SUBMITTED BY ORDER OF THE STATE HIGHWAY BOARD
[signature]
COMMISSIONER OF HIGHWAYS

RECOMMENDED
DISTRICT ENGINEER
BUREAU OF PUBLIC ROADS

RECOMMENDED FOR APPROVAL
CHIEF ENGINEER
BUREAU OF PUBLIC ROADS

APPROVED
DIRECTOR, BUREAU OF PUBLIC ROADS

SERIES F. F. NO. FILED
SHEET 1 OF

F.A.P. 50A
BRIDGEWATER
CORNERS
SHEET 1

Wood Guard Rail Required

Left
Sta. 0+59 to 0+79 Length 14 Lin. Ft.
Sta. 1+93 to 2+73 " 80 " "

Right
Sta. 0+54 to 0+78 Length 24 Lin. Ft.
Sta. 1+93 to 2+73 " 80 " "

Total 208 Lin. Ft.

Gravel Surface Course Required
Estimated Quantity 1850 Cu. Yds.

Temporary Bridge - 4' Above Water

Beginning of Project
Sta. 0+59

End of Project
Sta. 31+00

Detour to Plymouth

Elm Tree 2'0

Elm Tree 8'0

Elm Tree 36"

Elm Tree 30"

Elm Tree 12"

Tel. Pole

Line moved 3' upstream

To Plymouth

To Bridgewater Corners

Grange Hall

16' Road

Ottauquechee River

Sta. 1+00 & Bridge

Sta. 1+00 & Bridge

Δ = 13° 15'

R = 397.52'

T = 46.40'

L = 92.00'

E = 2.70'

For Bridge

Structure Excavation	600 Cu. Yds.	536 Cu. Yds.
1-2-4 Concrete	69 Cu. Yds.	63.5 "
1-2½-5 Concrete	356 Cu. Yds.	
Reinforcing Steel	18320 Lbs.	17404 Lbs.
Structural Steel	19300 Lbs.	19435 Lbs.
Timber Piling	208.2 Lin. Ft.	216

For Approaches

Earth Excavation including Borrow	132 Cu. Yds.	501 Cu. Yds.
Gravel Surface Course	126 "	187 "
Wood Guard Rail	208 Lin. Ft.	216 "

Sheet No. 1 Plan and Profile Sta. 0+59 to 4+64
" 2 Typical Cross Section
" 3 Steel Superstructure (S.D. 20 - 105.502)
" 4-8 Substructure
" 9 Typical Details for Steel Bridges
" Diff. Cross Sections

Correct—
A. D. Hall
Bridge Engineer

Approved—
March 28, 1928
H. E. Metcalf
Chief Engineer

Bridgewater, Vt.
Bridge at Bridgewater Corners
over
The Ottauquechee River
Bridge No. 79 District No. 5
Scales— Hor. 1"=20'
Vert. 1"=20'

Bridge No. 79

Beginning of Bridge
Sta. 0+59

End of Bridge
Sta. 3+00

Sta. 1+00 & Bridge

Sta. 1+00 & Bridge

Sta. 2+80
V.C. 0.8
Elev. 1012.8

Sta. 3+00
El. 1011.6

Sta. 0+80
V.C. 0.8
Elev. 1012.8

Sta. 0+59
El. 1011.6

Reinforcement Sta. 0+59 to Sta. 3+00

Reinforcement Sta. 0+59 to Sta. 3+00

Elevation of Low Steel Sta. 1+00 to Sta. 2+80 Elev. 1012.8

Elevation of Low Steel Sta. 0+80 to Sta. 3+00 Elev. 1012.8

Elevation of Low Steel Sta. 0+59 to Sta. 3+00 Elev. 1011.6

ABUTMENTS ACCORDING TO PLAN

ALL CONCRETE IN THIS ABUTMENT TO BE CLASS B-(1-2½-5)

ANY SUITABLE STRUCTURE EXCAVATION USED BY THE CONTRACTOR FOR ANY OTHER PURPOSE OTHER THAN FOR BACKFILL OR APPROACH FILL SHALL BE REPLACED BY AN EQUIVALENT QUANTITY OF MATERIAL BY THE CONTRACTOR AT HIS OWN EXPENSE UNLESS SAME IS ORDERED WASTED BY THE ENGINEER.

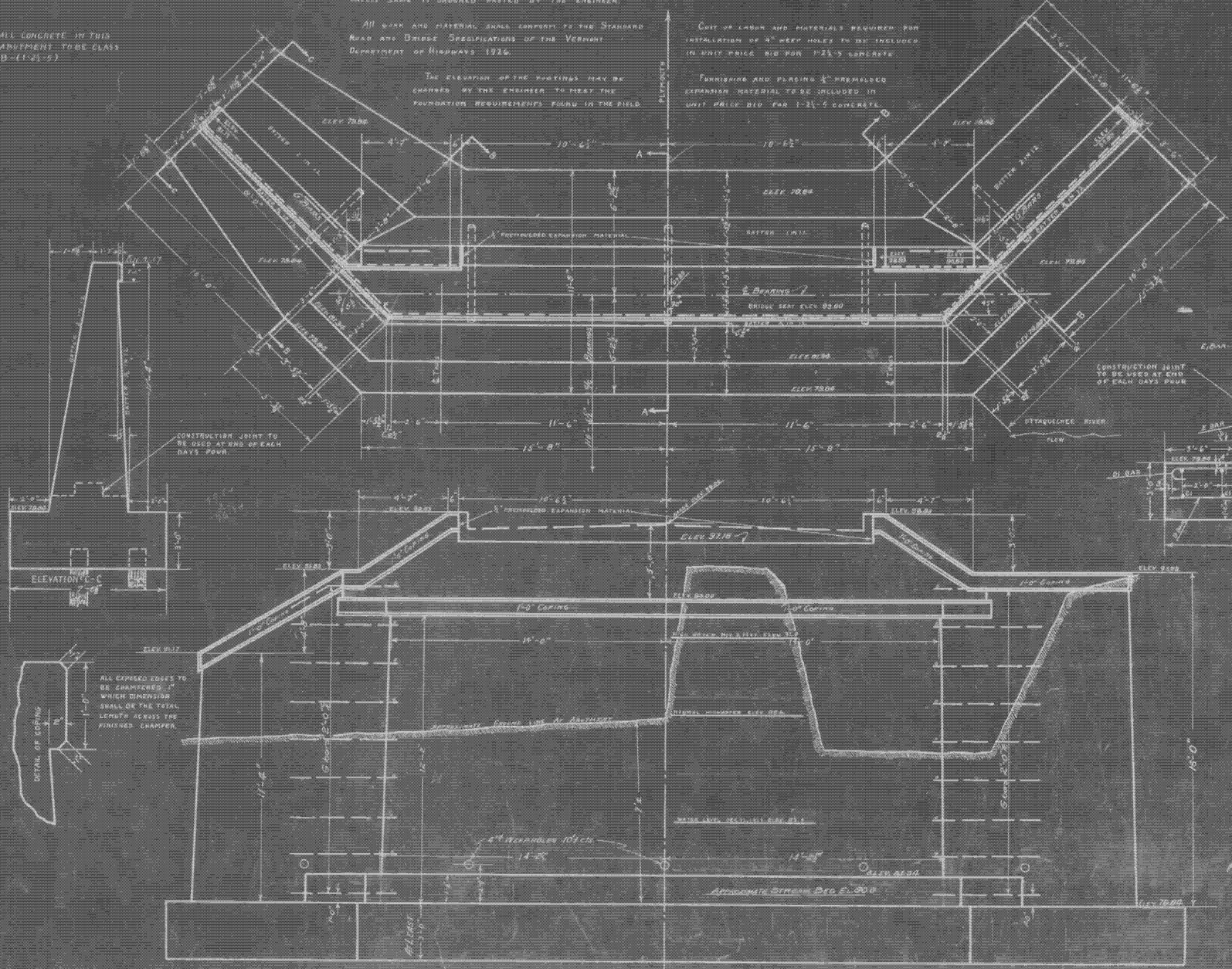
ALL WORK AND MATERIAL SHALL CONFORM TO THE STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE VERMONT DEPARTMENT OF HIGHWAYS 1926.

THE ELEVATION OF THE FOOTINGS MAY BE CHANGED BY THE ENGINEER TO MEET THE FOUNDATION REQUIREMENTS FOUND IN THE FIELD.

COST OF LABOR AND MATERIALS REQUIRED FOR INSTALLATION OF 4" WEEP HOLES TO BE INCLUDED IN UNIT PRICE BID FOR 1-2½-5 CONCRETE

FURNISHING AND PLACING ½" PREMOLDED EXPANSION MATERIAL TO BE INCLUDED IN UNIT PRICE BID FOR 1-2½-5 CONCRETE

NOTE: IF PILES ARE OMITTED, THE ELEVATIONS OF FOOTINGS SHALL BE 2 FEET BELOW ESTIMATED.



ABUTMENT NO. 1
BRIDGE NO. 79
DISTRICT NO. 5
BRIDGEWATER, VT.

Abutments built as per Plan.

ESTIMATED QUANTITIES

STRUCTURE EXCAVATION	210 / 200 / 210	CU. YDS.
1-2½-5 CONCRETE	177	CU. YDS.
REINFORCING STEEL	3950	LBS.
TIMBER PILING	1105 / 1035	LIN. FT.

Surveyed by Putnam
Designed by H.P. Radigan
Drawn by H.P. Radigan & W.G. Barrett
Traced by W.G. Barrett
Checked by [illegible]
Series F No. 29-1/89 Filed
Sheet 4 of 11 Sheets

DIRECTIONS FOR LAYING AND SPACING OF PILE SAME AS ABUTMENT No. 1

PILING PLAN
3/8" = 1'-0"

BRIDGEWATER SHORE

OTTAUQUECHEE RIVER FLOW

TO STOP OFF SCORE PIECE AS SHOWN

½" WIDTH OF WALL AT JOINT

FORMS

CONCRETE FACE

EXPOSED FACE

DETAILS ~ SCORE MARKS & CONSTRUCTION JOINTS
PIERS AND ABUTMENTS

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, SCORE PIECES SHALL BE EVENLY SPACED VERTICALLY AT ABOUT 2'-0" C. C. SHALL STOP OFF UNDERSIDE OF COPING AND SHALL BE CARRIED AROUND ENDS OF WALLS OR PIERS WHERE THEY ARE EXPOSED TO VIEW. SCORE MARKS SHALL LINE HORIZONTALLY AND SHALL BE AT SAME LEVELS IN ALL PIERS AND ABUTMENTS ON THE JOB. CONSTRUCTION JOINT MAY BE MADE AT ANY SCORE MARK.

ABUTMENT No. 2
BRIDGE No. 79
DISTRICT No. 5
BRIDGEWATER, Vt.

as per plan.

Timber piling 1200 p. l. f.
(or length 17')

Footing Plan showing Reinforcement
3/8" = 1'-0"

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Drawn by Radigan
Traced by Barrett
Checked by
Series S No. 77-109 Filed
Sheet 6 of 11 Sheets

PILING PLAN

PILES TO BE DRIVEN TO A 15 TON BEARING VALUE

PLAN

OTTAUQUECHEE RIVER FLOW

FOOTING PLAN SHOWING REINFORCEMENT

IN SECTION OF CYLINDRICAL CAST IRON SHELL

PUMP TO BE AN 8" PISTON TYPE WITH A 6" DISCHARGE INTAKE PIPE AND A 4" DISCHARGE OUTLET PIPE. THE CAST PIPE TO BE ABOUT 8" IN DIAMETER, SUCKER TO BE CYLINDER IN SECTION OF 5" TO 4" IN DIAMETER.

WHILE PRICE BID FOR WOODEN PILES SHALL INCLUDE JETTING IF NECESSARY ALSO FURNISH AND DRIVING PILE SHOES.

PILE SHOES AS PER SKETCH TO BE USED AS DIRECTED BY ENGINEER.

PILES ASSUMED AT 25'-0" LENGTH FOR ESTIMATING PURPOSES ONLY.

4 STRAPS OF WROUGHT IRON 3" x 1/2" x 1'-4" RIVETED TO 3 RIVETS & 2 BOLTS.

CAST STEEL PILE SHOE FOR 6" TO 8" TIPS.
SCALE 1/2" = 1'

ABUTMENT No 1
BRIDGE No 79
DISTRICT No 5
BRIDGEWATER, Vt.

Timber piling 1106. L.F.
(@ Length 20.5)

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Sheet 5 of 11 Sheets

FED. ROAD DIST. NO.	STATE	F.A. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	VT.	508	1948	1	11

INDEX OF SHEETS

SHEET NO. 1 PLAN & PROFILE STA. 0+00 TO STA. 4+84
" " 2 TYPICAL CROSS-SECTION OF IMPROVEMENT 24' GRAVEL
" " 3 S.B. 20 NO. 110-6½ SPAN SQUARE
4-8 SUBSTRUCTURE PLANS
9 S.B. NO. 1 TYPICAL DETAILS
10-11 CROSS SECTIONS
3 NO. 19 STANDARD STRUCTURES

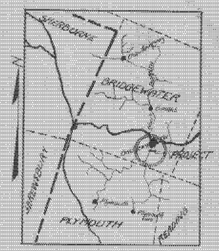
STATE OF VERMONT
STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY

FEDERAL AID PROJECT

BRIDGEWATER

BRIDGE OVER OTTAQUECHEE
LOCATED AT BRIDGEWATER CORNERS
LENGTH: 250 FT.-0.047 MILES



Scale: 1" = 4 Miles

SCALES
Plan = 1" = 20'
Vertical = 1" = 20'
Horizontal = 1" = 20'
Sections = 1" = 5'

This project to be constructed in accordance with Standard Specifications on file with the U.S. Bureau of Public Roads Approved 7/1/46.
Structures on this project to be constructed in accordance with details given on Standard Structure Sheets, Series 3/17-18-19.

DISTRICT NO. 5
BRIDGE NO. 79
BRIDGEWATER

APPROVED:

[redacted]
CHIEF ENGINEER

SUBMITTED BY ORDER OF THE STATE HIGHWAY BOARD

[redacted]
COMMISSIONER OF HIGHWAYS

RECOMMENDED [redacted]
DISTRICT ENGINEER
BUREAU OF PUBLIC ROADS

RECOMMENDED FOR APPROVAL [redacted]
CHIEF ENGINEER
BUREAU OF PUBLIC ROADS

APPROVED [redacted]
DIRECTOR - BUREAU OF PUBLIC ROADS

SERIES F. E. NO. FILED
SHEET 1 OF

CONVENTIONAL SIGNS

COUNTY LINE
TOWN LINE
FENCE LINE
STONE WALL
UNFENCED PROPERTY
GUARD RAIL
TRAVELED WAY
RAILROAD
RETAINING WALL
CENTER LINE
SURVEY LINE
CULVERT
DROP INLET
TROLLEY POLE
POWER POLE
TELEPHONE POLE
TREES
HEDGE

GROUND ELEVATION ..... DATUM ..... LINE
GRADE ELEVATION ..... DATUM ..... LINE

CURVE DATA

DEFLECTION ANGLE	Δ
DEGREE OF CURVE	D.
RADIUS OF CURVE	R.
TANGENT DISTANCE	T.
LENGTH OF CURVE	L.
EXTERNAL DISTANCE	E.
POINT OF INTERSECTION	P. I.
POINT OF CURVE	P. C.
POINT OF TANGENT	P. T.
POINT ON TANGENT	P. O. T.

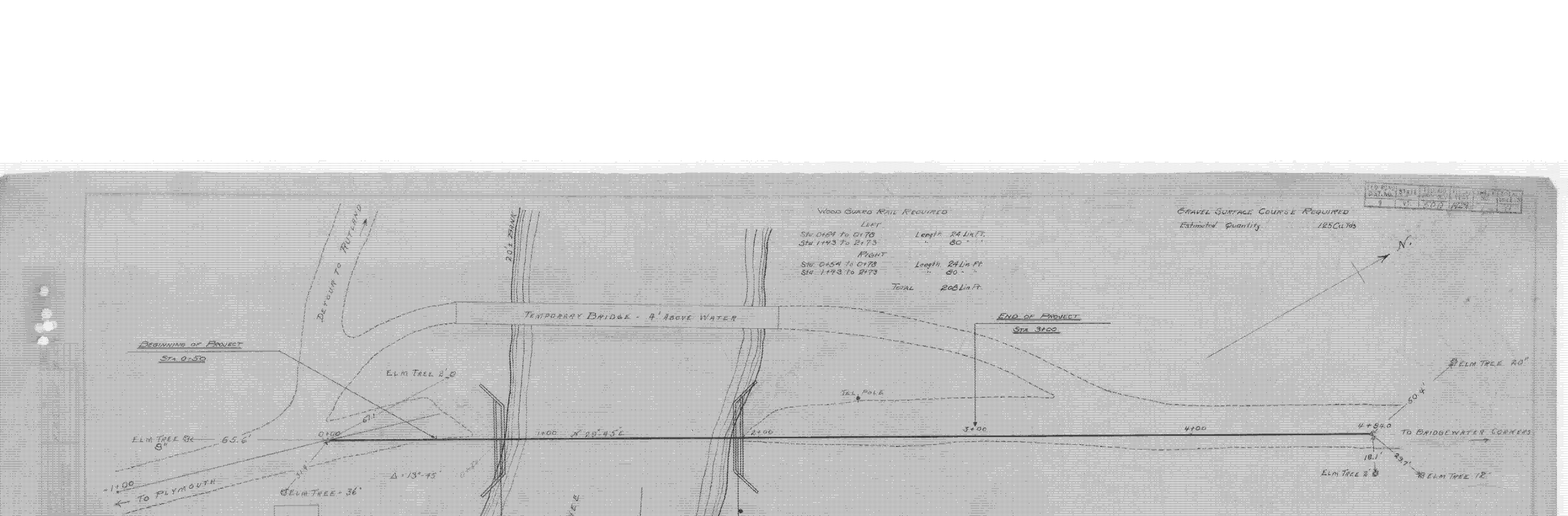
CD. No.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	VT.	207 D	1929	

WOOD GUARD RAIL REQUIRED

LEFT		
Sta. 0+69 To 0+78	Length	24 Lin. Ft.
Sta. 1+43 To 2+73	"	80 " "
RIGHT		
Sta. 0+54 To 0+78	Length	24 Lin. Ft.
Sta. 1+43 To 2+73	"	80 " "
TOTAL		208 Lin. Ft.

GRAVEL SURFACE COURSE REQUIRED

Estimated Quantity 125 Cu. Yds.



FOR BRIDGE

Structure Excavation	600 Cu. Yds.
1-2-4 Concrete	64 Cu. Yds.
1-2½-3 Concrete	356 Cu. Yds.
Reinforcing Steel	18,920 Lbs.
Structural Steel	113,500 Lbs.
Timber Piling	2875 Lin. Ft.

FOR APPROACHES

Earth Excavation including Borrow	430 Cu. Yds.
Gravel Surface Course	125 " "
Wood Guard Rail	208 Lin. Ft.

SHEET NO. 1 PLAN AND PROFILE STA. 0+00 TO 4+89
" " 2 TYPICAL CROSS SECTION ⅛" = 1'
" " 3 SUPERSTRUCTURE (S.B. 20 - 110'-6½")
" " 4-8 SUBSTRUCTURE
" " 9 TYPICAL DETAILS FOR STEEL BRIDGES.
" " 10-11 CROSS SECTIONS.

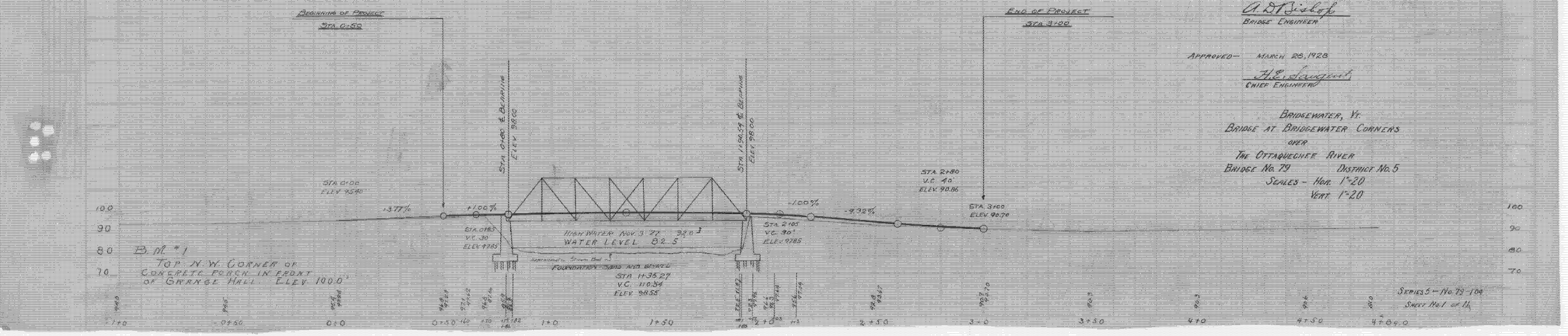
CORRECT—

A. D. Bishop
BRIDGE ENGINEER

APPROVED— MARCH 28, 1928

H. E. Laugwell
CHIEF ENGINEER

BRIDGEWATER, VT.
BRIDGE AT BRIDGEWATER CORNERS
OVER
THE OTTAQUECHEE RIVER
BRIDGE NO. 79 DISTRICT NO. 5
SCALES - HOR. 1"=20
VERT. 1"=20



Series 5 — No. 79-109
Sheet No. 1 of 11

ALL STRESSES EXPRESSED IN KIPS

CAMBER DIAGRAM
THIS CAMBER MUST BE RETAINED AFTER FULL DEAD LOAD IS APPLIED

END REACTION 170

TYPICAL PANEL DETAILS

HALF SECTION SHOWING PORTAL BRACING

HALF SECTION SHOWING TOP CHORD BRACING

CROSS SECTION OF PORTAL BRACING

HALF PLAN SHOWING UPPER LATERAL SYSTEM

HALF PLAN SHOWING FLOOR SYSTEM

STRINGERS	
PROPERTIES OF ONE STRINGER	
A =	87.6
I1 =	2676
I2 =	341
TOTAL	197.2

FLOOR BEAMS	
PROPERTIES OF THOSE AT CENTER	
A =	73.60
I1 =	2066.8
I2 =	680.4
TOTAL	8243.2

DRAINAGE DETAIL

TYPICAL FLOOR SECTION

FIXED END PEDESTAL DETAILS

EXPANSION END PEDESTAL DETAILS

DETAIL AT LOWER END OF INCLINED END POST

GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR STEEL HIGHWAY BRIDGES OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS, EXCEPT AS MODIFIED BY THE SPECIAL SPECIFICATIONS FOR THIS STRUCTURE.

STEEL SUPERSTRUCTURE

110'-8½" SPAN

20' ROADWAY

2-H 15

PROJECT NO.	SHEET	TOTAL SHEETS	SHEET NO.	DATE
5	ST.	523	1925	4	11

ANY SUITABLE STRUCTURE EXCAVATION USED BY THE CONTRACTOR FOR ANY OTHER PURPOSE OTHER THAN FOR BACKFILL OR APPROACH FILL SHALL BE REPLACED BY AN EQUIVALENT QUANTITY OF BORROW BY THE CONTRACTOR AT HIS OWN EXPENSE UNLESS SAME IS ORDERED WASTED BY THE ENGINEER.

ALL CONCRETE IN THIS ABUTMENT TO BE CLASS B-(1-2½-5)

ALL WORK AND MATERIAL SHALL CONFORM TO THE STANDARD ROAD AND BRIDGE SPECIFICATIONS OF THE VERMONT DEPARTMENT OF HIGHWAYS 1926.

THE ELEVATION OF THE FOOTINGS MAY BE CHANGED BY THE ENGINEER TO MEET THE FOUNDATION REQUIREMENTS FOUND IN THE FIELD.

COST OF LABOR AND MATERIALS REQUIRED FOR INSTALLATION OF 4" WEEP HOLES TO BE INCLUDED IN UNIT PRICE BID FOR 1-2½-5 CONCRETE.

FURNISHING AND PLACING ½" PREMOLDED EXPANSION MATERIAL TO BE INCLUDED IN UNIT PRICE BID FOR 1-2½-5 CONCRETE.

NOTE: IF PILES ARE OMITTED, THE ELEVATIONS OF TOP OF FOOTINGS SHALL BE 2 FEET BELOW STREAMBED.

PLYMOUTH

ELEV. 79.84 — ELEV. 79.82 — ELEV. 79.84 — ELEV. 79.82 — ELEV. 79.84 — ELEV. 79.84 — ELEV. 79.84

BATTER 3 IN 12 — BATTER 2 IN 12 — BATTER 4 IN 12 — BATTER 1 IN 12

½" PREMOLDED EXPANSION MATERIAL

℄ BEARING

BRIDGE SEAT ELEV. 93.00

ELEV. 93.00 — ELEV. 90.83 — ELEV. 93.00

CONSTRUCTION JOINT TO BE USED AT END OF EACH DAYS POUR

OTTAUQUECHEE RIVER — FLOW

ELEV. 91.34 — ELEV. 79.84

Thick — Abutments — Thick

11'-6" — 15'-8" — 11'-6" — 15'-8"

10'-6½" — 10'-6½" — 4'-7" — 3'-6" — 11'-6½"

2'-6" — 1'-5½" — 2'-6" — 1'-5½"

2'-8" — 1'-5" — ELEV. 93.83 — E BAR — BATTER 4 IN 12 — 16'-0" — 10'-0" — 15'-3½"

3'-6" — 3'-6" — ELEV. 78.86 — D1 BAR — 3'-6" — 2'-0" — 2'-0" — 2'-0" — 2'-0" — 2'-0" — 10" — 11'-6½"

SECTION B-B

ROAD GRADE 98.00 — ELEV. 97.16 — BALLAST WALL TO BE POURED AFTER STEEL ERECTION.

ELEV. 93.00 — 2'-6" — 1'-5" — 1'-4½" — 1'-0" — 2'-6" — F BARS ½" DIAMO 2'-0" c/c — E BAR 2-8 ½ — STA. 14+80.0 ℄ BEARING — BATTER 4 IN 12

12'-6" — 5½" — E BAR 1-4 ½ — CONSTRUCTION JOINT TO BE USED AT END OF EACH DAYS POUR.

3'-6" — 1'-6" — 3'-0" — 4" WEEP HOLE — ELEV. 91.34 — ELEV. 79.84 — 5'-6" — 2'-6" — 2'-0" — 2'-0" — 2'-0" — 2'-0" — 2'-8" — D BAR — 3'-6" — 1'-3" — 2'-9" — 3'-0" — 3'-0" — 1'-5"

SECTION A-A

ELEVATION C-C — CONSTRUCTION JOINT TO BE USED AT END OF EACH DAYS POUR — 2'-0" — ELEV. 70.00 — 3'-0" — 1'-6" — 2'-6"

DETAIL OF COPING — ALL EXPOSED EDGES TO BE CHAMFERED 1" WHICH DIMENSION SHALL BE THE TOTAL LENGTH ACROSS THE FINISHED CHAMFER.

ELEV. 96.63 — ELEV. 96.83 — ELEV. 98.00 — ELEV. 98.83 — ELEV. 97.16 — ½" PREMOLDED EXPANSION MATERIAL — GRADE ELEV. 98.00 — 10'-6½" — 4'-7" — 6" — 3'-6" — 1'-0" COPING — 2'-0" COPING — 1'-0" COPING — 3'-0" — 5'-10" — 3'-0" — ELEV. 93.00 — ELEV. 93.52 — 16'-0" — 14'-0" — 15'-0" — HIGH WATER NOV. 3, 1927 ELEV. 91.0 — 11'-4" — 12'-2" — 1'-4" — 2'-0" GRADE — APPROXIMATE GROUND LINE AT ABUTMENT — INTAKE DISCHARGE ELEV. 88.0 — WATER LEVEL, DECEMBER 1927 ELEV. 85.3 — 4" WEEP HOLES 10½ CU. FT. — 14'-8" — 14'-2½" — ELEV. 81.30 — APPROXIMATE STREAM BED EL. 80.0 — ELEV. 78.84 — 1'-0" — 3'-0" AT LEAST

ABUTMENT NO. 1
BRIDGE NO. 79
DISTRICT NO. 5
BRIDGEWATER, VT.

ESTIMATED QUANTITIES

STRUCTURE EXCAVATION	230	CU. YDS.
1-2½-5 CONCRETE	177	CU. YDS.
REINFORCING STEEL	3930	LBS.
TIMBER PILING	1425	LIN. FT.

Surveyed by PUTNAM
Designed by H.P. RADIGAN
Drawn by H.P. RADIGAN + W.G. BARRETT
Traced by W.G. BARRETT
Checked by R.I. ACLU
Series 5 No. 79-109 Filed
Sheet 4 of 11 Sheets

PILING PLAN
3/8" = 1'

PILES TO BE DRIVEN TO A 15 TON BEARING VALUE

PLYMOUTH

OTTAUQUECHEE RIVER FLOW

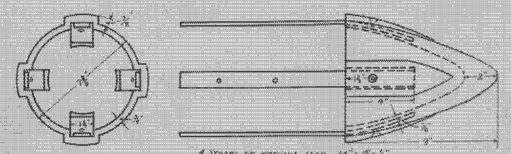
FOOTING PLAN SHOWING REINFORCEMENT
3/8" = 1'

If jetting is necessary, two water jets should be used with a water pressure of at least 150 to 200 lbs. per square inch. Pump to be of piston type with a 6" diameter intake pipe and a 4" diameter outlet pipe. The jet pipe to be about 2" in diameter, nozzle to be circular in section of 1/2" to 3/4" in diameter.

Unit price bid for wooden piles shall include jetting if necessary and furnishing and placing pile shoes.

Pile shoes as per sketch to be used as directed by Engineer.

Piles assumed at 25'-0" length for estimating purposes only.



4 Straps of wrought iron 14" x 2" x 1/4" drilled for 1 rivet & 2 spikes.

Cast Steel Pile Shoe for 6" to 8" tips.
Scale 1/4" = 1"

ABUTMENT No. 1
BRIDGE No. 79
DISTRICT No. 5
BRIDGEWATER, VT.

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Series 5	No. 79-10A Filed
	Sheet 5 of 11 Sheets

DIRECTIONS FOR SETTING AND SKETCH OF PILE SHOE SAME AS ABUTMENT No. 1

PILING PLAN
3/16"=1'-0"

BASE WATER CONTROL

STA. 1+90.54

OTTAUQUECHEE RIVER FLOW

FOOTING PLAN SHOWING REINFORCEMENT
3/8"=1'-0"

TO STOP ON SCORE PIECE AS SHOWN

EXPOSED FACE

FORM

CONCEALED FACE

DETAILS - SCORE MARKS & CONSTRUCTION JOINTS PIERS AND ABUTMENTS

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, SCORE PIECES SHALL BE EQUALLY SPACED VERTICALLY AT ABOUT 2-0" C.C. SHALL STOP AT OUTER SIDE OF CORNERS AND SHALL BE CHAMFER GROOVE 1 1/2" X 1" WALLS OR PIERS WHERE THEY MAY BE EXPOSED TO VIEW. SCORE MARKS SHALL LINE HORIZONTALLY AND SHALL BE AT SAME LEVELS IN ALL PIERS AND ABUTMENTS ON THE JOB. CONSTRUCTION JOINT MAY BE MADE AT ANY SCORE MARK.

ABUTMENT No. 2
BRIDGE No. 79
DISTRICT No. 5
BRIDGEWATER, VT.

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Traced by Barrett
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NOTES—

SECTION A-A SIMILAR SECTION A-A ABUTMENT No. 1.
SECTION B-B SIMILAR TO SECTION B-B ABUTMENT No. 1.
ELEVATION C-C SIMILAR TO ELEVATION C-C ABUTMENT No. 1.
DETAIL OF COPING SAME AS ON ABUTMENT No. 1.
CONSTRUCTION NOTES SAME AS ABUTMENT No 1.
ALL CONCRETE TO BE CLASS B-(1-2½-5)

ELEVATION D-D

ABUTMENT NO.2
BRIDGE NO.79
DISTRICT NO.5
BRIDGEWATER, VT.

ESTIMATED QUANTITIES

STRUCTURE EXCAVATION	370	CU.YDS.
1-2½-5 CONCRETE	179	CU.YDS.
REINFORCING STEEL	3870	LBS.
TIMBER PILING	1450	LIN.FT.

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Designed by H.P.RADIGAN
Drawn by H.P.RADIGAN – W.G.BARRETT
Traced by W.G.BARRETT
Checked by
Series 5 No. 79-104 Filed
Sheet 7 of 11 Sheets

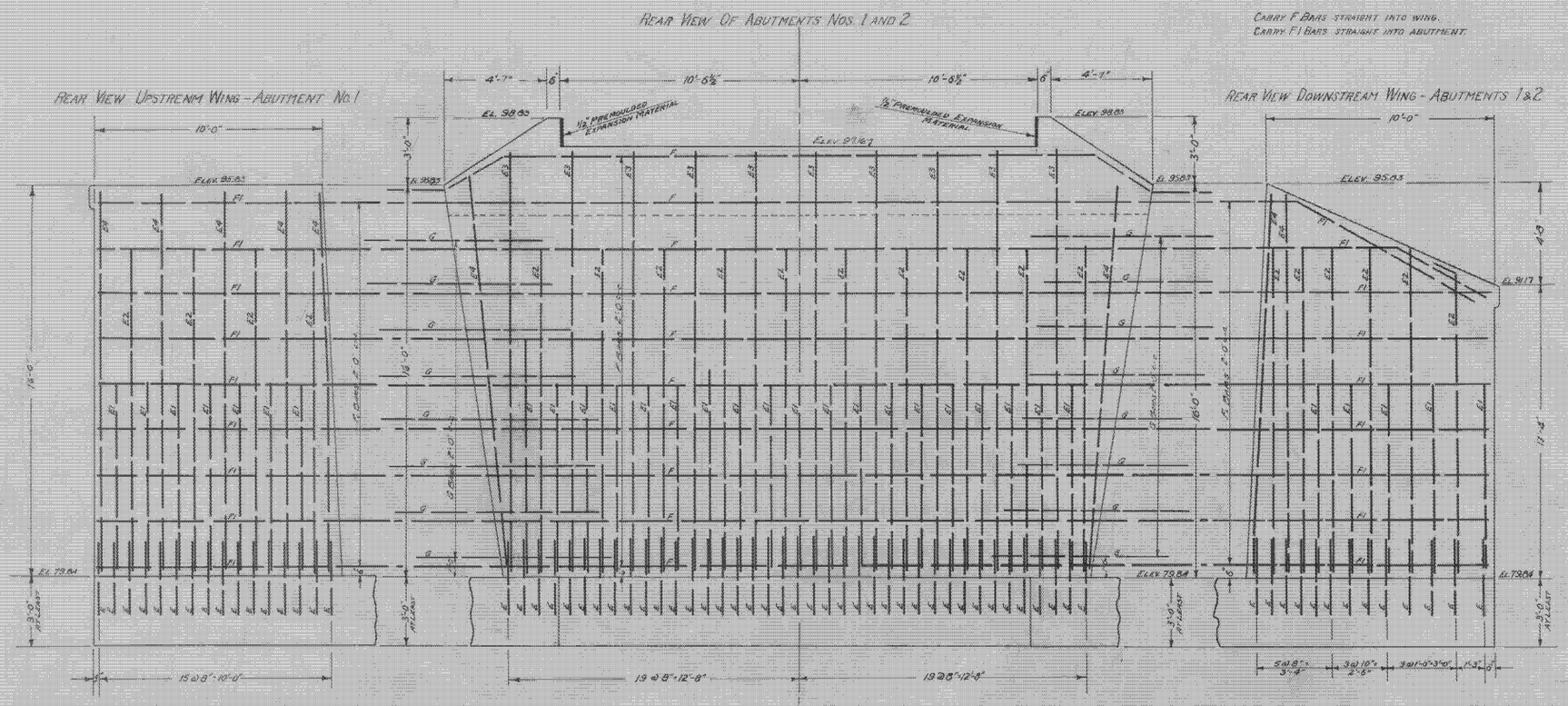
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	TOTAL SHEETS	SHEET NO.	TOTAL SHEETS
0	VT	50 A 1425(6)		8	11

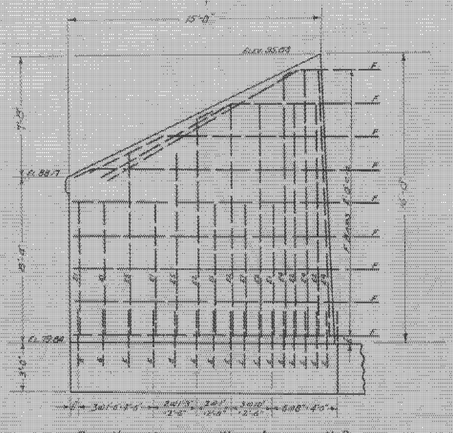
REAR VIEW OF ABUTMENTS NOS. 1 AND 2

REAR VIEW UPSTREAM WING - ABUTMENT NO. 1

REAR VIEW DOWNSTREAM WING - ABUTMENTS 1&2

CARRY F BARS STRAIGHT INTO WING.
CARRY F1 BARS STRAIGHT INTO ABUTMENT.





REAR VIEW UPSTREAM WING - ABUTMENT NO. 2.

ALL STEEL TO BE DEFORMED BARS EXCEPT AS NOTED.
REINFORCING STEEL SHALL CONFORM TO STANDARD SPECIFICATIONS FOR BILLET STEEL CONCRETE REINFORCEMENT BARS OF THE AMERICAN SOCIETY FOR TESTING MATERIALS. SERIAL DESIGNATION A15-14. STRUCTURAL OR INTERMEDIATE GRADE.

REINFORCING STEEL DETAILS - ABUTMENTS 1 & 2

A BARS ¾" ROUND — TOTAL LENGTH 7'-9"

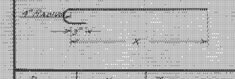
B BARS ¾" ROUND — TOTAL LENGTH 12'-6"; B1 BARS 8'-9"

½" ROUND

C BARS 16'-6" LONG
C1 BARS 15'-0" LONG
C2 BARS 26'-6" LONG

E BARS ¾" ROUND — TOTAL LENGTH 9'-9"

¾" ROUND



BAR	X	TOTAL LENGTH
D	4'-6"	5'-9"
D1	5'-6"	6'-9"
E1	8'-6"	9'-9"
E2	12'-6"	13'-9"
E3	16'-6"	17'-9"
E4	15'-3"	16'-6"
E5	9'-0"	10'-3"

½" ROUND

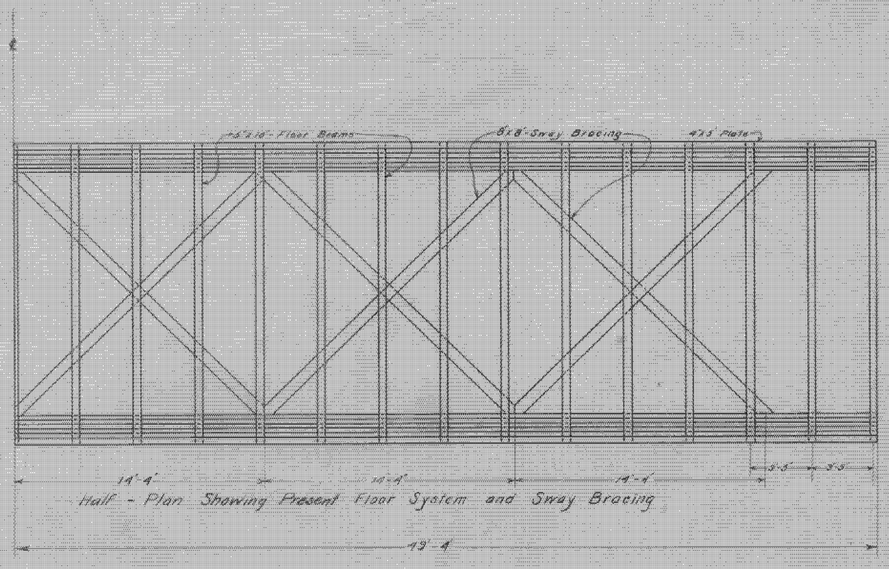
F BAR = 18'-0" LONG
F1 BAR = 12'-3" LONG

G BAR ¾" ROUND — 8'-0"

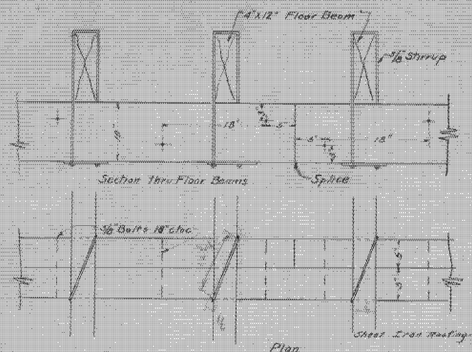
ABUTMENT DETAILS
BRIDGE No. 79
DISTRICT No. 5
BRIDGEWATER, VT.

Surveyed by PUTNAM
Designed by RADIGAN
Drawn by RADIGAN - LARSEN
Traced by BARRETTE & LARSEN
Checked by
Series S No. 79-104 Filed
Sheet 8 of 11 Sheets

Fed. Aid Highway No.	State	Fed. Aid Proj. No.	Fiscal Year	Sheet No.	Total Sheets
9	Vt	28	1942	36	44

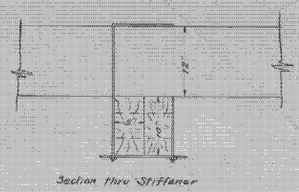


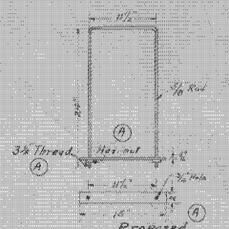
Half - Plan Showing Present Floor System and Sway Bracing



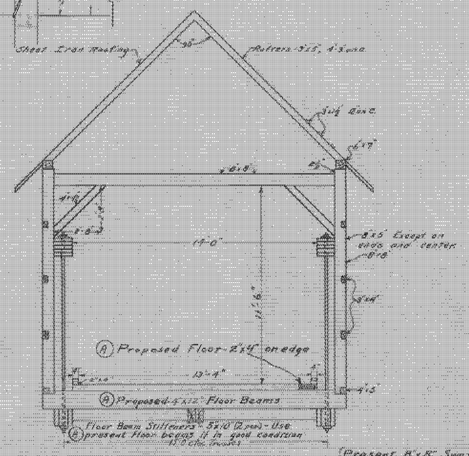
Detail of Floor Beam Stiffener
Scale 1"=1'

Note:
Floor Beam Stiffener to be made up of present 5"x16" floor beams bolted together as indicated. Splices to be Staggered.

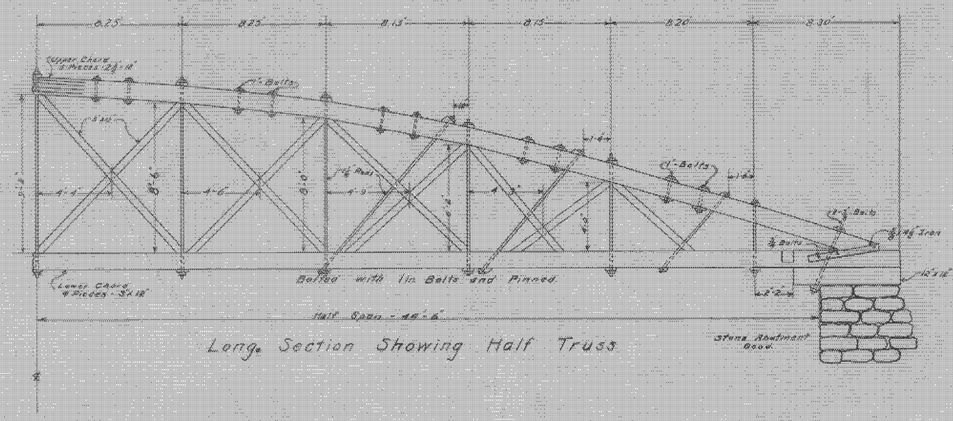




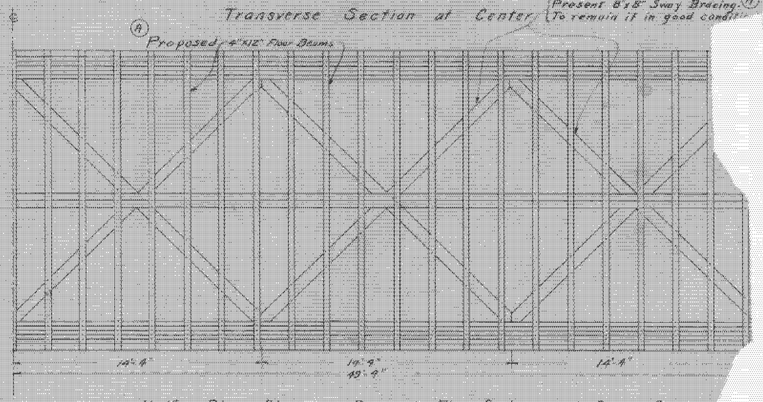
Proposed
Detail of Stirrups
Scale 1"=1'
Est. Weight 8¼ lbs. each
50 Req'd - (A)



Transverse Section at Center



Long. Section Showing Half Truss



Half - Plan Showing Proposed Floor System and Sway Bracing

Note:
(A) Trusses, roof, and siding to remain unchanged except where replacements are required on account of poor condition of present structure.

3M Plans
4"x12" FB 1/30
10 61

(A) = Revised - J.T.W. & A.R.C. 11/21/41

D
BRIDGE NO -
OTTAQUE
BRIDGE
DEC.

QUANTITY SHEET

STATE OF VERMONT
AGENCY OF TRANSPORTATION

SUMMARY OF ESTIMATED QUANTITIES

EROSION CONTROL	RAILROAD	ROADWAY	QUANTITIES GRAND TOTAL	UNIT	ITEMS	ITEM NO.	ROUNDING
		1	1	LS	CLEARING AND GRUBBING	201.10	-
		1250	1250	CY	COMMON EXCAVATION	203.15	59
		50	50	CY	SOLID ROCK EXCAVATION	203.16	EST.
		1200	1200	CY	EARTH BORROW	203.30	38
		25	25	CY	SAND BORROW	203.31	11
		3500	3500	SY	FINE GRADING-SUBGRADE	203.40	108
10		140	150	CY	TRENCH EXCAVATION OF EARTH	204.20	3
		25	25	CY	TRENCH EXCAVATION OF ROCK	204.21	EST.
		50	50	SY	DRILLING AND BLASTING OF SOLID ROCK SUBGRADE	205.20	EST.
		1100	1100	CY	SUBBASE OF CRUSHED GRAVEL (COARSE GRADED)	301.25	44
		75	75	CY	SUBBASE OF CRUSHED GRAVEL (FINE GRADED)	301.26	4
		6	6	CWT	EMULSIFIED ASPHALT	404.65	.5
		525	525	TON	BITUMINOUS CONCRETE PAVEMENT	406.25	7
		15	15	CY	CONCRETE, CLASS B	501.25	2.8
		1100	1100	LB	REINFORCING STEEL	507.15	18
					** BEGIN OPTION PIPES **		
		126	126	LF	18'' CAAP .060	601.0215	-
		126	126	LF	18'' PCCSP .064	601.0415	-
		126	126	LF	18'' RCP CL III	601.0815	-
		126	126	LF	18'' CPEP (SL)	601.2615	-
		138	138	LF	18'' CAAP .060	601.0215	-
		138	138	LF	18'' PCCSP .064	601.0415	-
		138	138	LF	18'' CPEP (SL)	601.2615	-
		96	96	LF	24'' CAAP .060	601.0225	-
		96	96	LF	24'' PCCSP .064	601.0425	-
		96	96	LF	24'' CPEP (SL)	601.2620	-
					** END OPTION PIPES **		
		50	50	LF	RELAYING PIPE CULVERTS	601.99	EST.
		5	5	EA	CAST IRON GRATE W/FRAME TYPE B	604.46	-
		175	175	LF	6'' UNDERDRAIN	605.10	14
		100	100	LF	6'' UNDERDRAIN CARRIER PIPE	605.20	18
		4	4	EA	UNDERDRAIN FLUSHING BASIN	605.95	-
		10	10	HR	ROADWAY PATROL MAINTENANCE	607.10	EST.
		1	1	HR	BULLDOZER RENTAL, TYPE I (NOT A BID ITEM)	608.10	EST.
		1	1	HR	ALL PURP. EXCAVATOR RENTAL, TYPE I (NOT A BID ITEM)	608.25	EST.

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		TEMPORARY EROSION CONTROL (INCLUDED IN EROSION CONTROL)
10	CY	TRENCH EXCAVATION OF EARTH
5	CY	STONE FILL, TYPE I
6	LB	SEED - WINTER RYE
.1	TON	HAY MULCH
20	SY	EROSION MATTING
176	SY	GEOTEXTILE FOR SILT FENCE
65	EA	HAY BALES FOR EROSION CONTROL

DETAILED SUMMARY OF QUANTITIES

QUANTITES	UNIT	ITEMS

SURVEYED BY GILMAN DATE 9/91
DRAWN BY SQUAD B DATE 6/93
SQUAD LEADER GARY DUBRAY
DESIGN FILE NO. /SQDB/90C099/DC0992D.DGN
PARM FILE DC099QSI DATE PLOTTED $$$$DATE$$$
PROJ. NAME LUDLOW
PROJ. NO. RRP 2033(15)S
SHEET 4 OF 36 SHEETS

Sheet Number 4

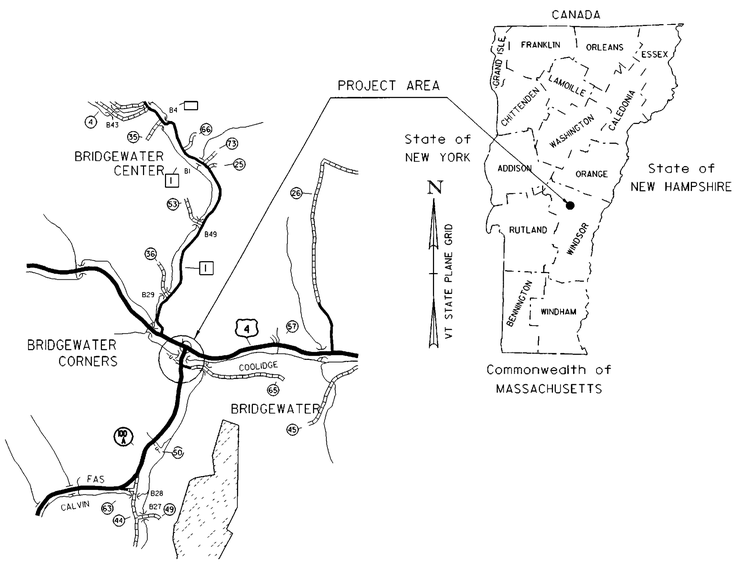
STATE OF VERMONT
AGENCY OF TRANSPORTATION

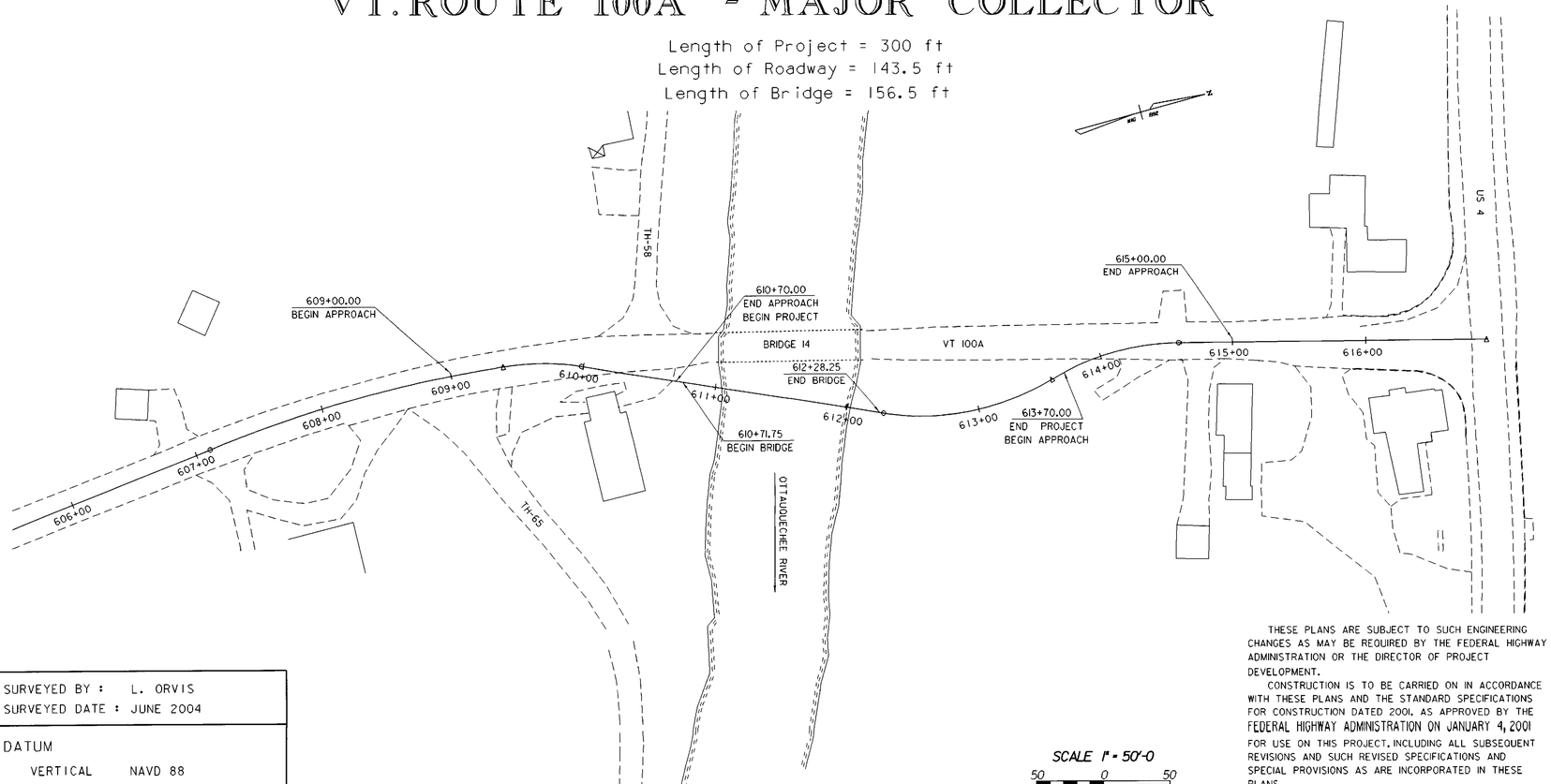
Project Location: Beginning at a point on Vt. Route 100A, approximately 630 feet south of the intersection of Vt. Route 100A and US Route 4, and extending northerly along Vt. Route 100A for approximately 300 ft.

Project Description: Work to be done under this project includes the installation of a temporary bridge along Vt. Route 100A, fill, grading, pavement, guardrails, signage, temporary traffic control, striping and approach work necessary to achieve this.

PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF BRIDGEWATER
COUNTY OF WINDSOR
VT. ROUTE 100A - MAJOR COLLECTOR

Length of Project = 300 ft
Length of Roadway = 143.5 ft
Length of Bridge = 156.5 ft





SCALE 1" = 50'-0
50 0 50

CONVENTIONAL SYMBOLS

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

SURVEYED BY : L. ORVIS
SURVEYED DATE : JUNE 2004

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 91

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 2001, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JANUARY 4, 2001 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

/PW/86e062/se062dt1.dgn se062dt1.1

DIRECTOR OF PROJECT DEVELOPMENT

APPROVED _____ DATE _____

PROJECT MANAGER : CRAIG KELLER

PROJECT NAME : BRIDGEWATER
PROJECT NUMBER : BRS 0149(4)

SHEET 1 OF 18 SHEETS

STEEL BEAM GUARDRAIL
STA 610+00.42 RT - STA 610+68.75 RT
STA 612+31.25 RT - STA 614+61.93 RT
℄ STA 700+44.57 LT - STA 610+68.76 LT
STA 612+31.22 LT - STA 614+49.24 LT

ANCHOR FOR STEEL BEAM RAIL
STA 610+08.42 RT
STA 614+53.93 RT
℄ STA 700+36.57 LT
STA 614+41.24 LT

REMOVAL AND DISPOSAL OF GUARD RAIL
STA 610+76.16 LT - STA 610+82.94 LT

CONSTRUCT DRIVES
STA 614+55.46 LT
STA 614+72.76 RT

TEMPORARY LINE STRIPING
YELLOW:
STA 609+00 - STA 609+75
STA 614+34.52 - STA 615+00
℄ STA 700+53.21 - ℄ STA 700+90
WHITE:
STA 609+00 LT - ℄ STA 700+09.53 LT
℄ STA 700+34 RT - 610+71.75 LT
STA 609+00 RT - STA 610+71.75 RT
STA 612+28.25 LT - STA 615+00 LT
STA 612+28.25 RT - STA 615+00 RT

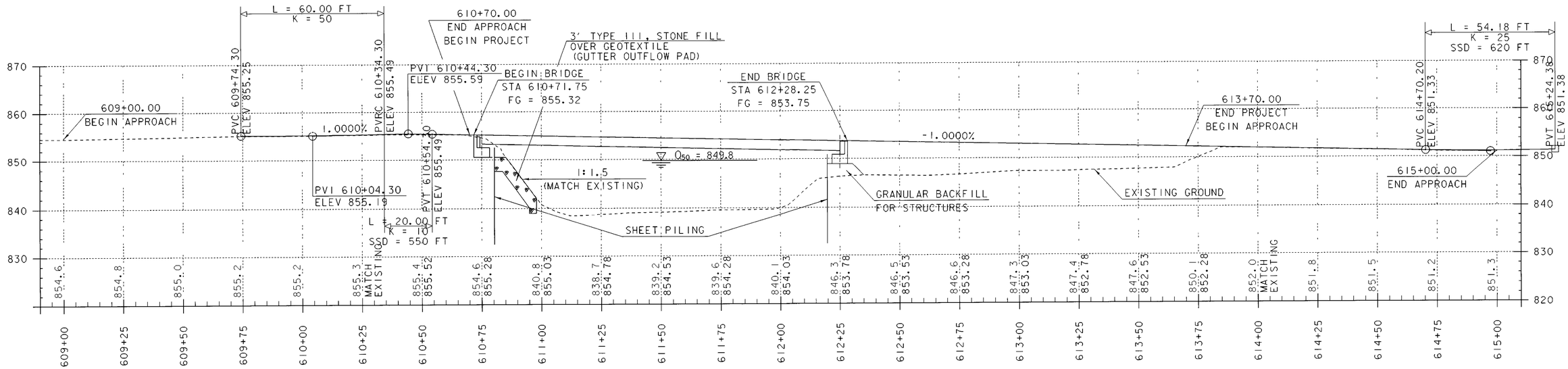
TEMPORARY STOP BAR
STA 609+75 RT
STA 614+34.52 LT
℄ STA 700+53.21 LT

REMOVAL AND DISPOSAL OF WOVEN WIRE FENCE
STA 612+50.8 RT - STA 613+62.5 RT
(APPROX 200')

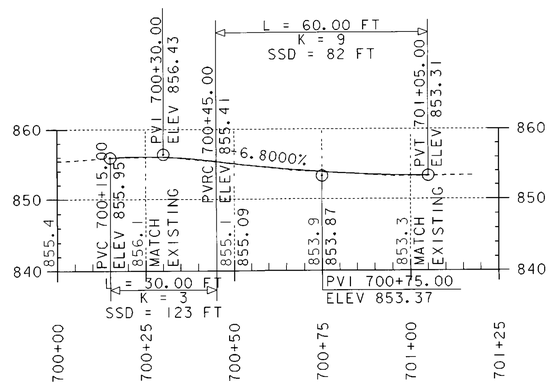
LAYOUT

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: 86e062/se062bdr.dgn	PLOT DATE: 14-SEP-2005
PROJECT LEADER: C.S. KELLER	DRAWN BY: STR 5
DESIGNED BY: T. FILLBACH	CHECKED BY: T. SUMNER
se062lal.1	SHEET 5 OF 18

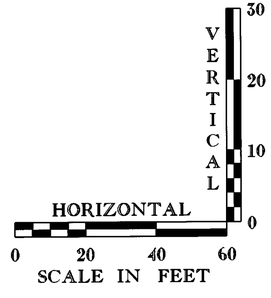
SCALE 1" = 20'-0
20 0 20



DETOUR PROFILE



TH 58 PROFILE



PROFILES

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: 86e062/se062xs.dgn
PROJECT LEADER: C.S. KELLER
DESIGNED BY: T. FILLBACH
se062dpr.i

PLOT DATE: 14-SEP-2005
DRAWN BY: STR 5
CHECKED BY: T. SUMNER
SHEET 6 OF 18

SEEDING FORMULA
RURAL AREAS

% WT.	LBS./A.	NAME	PUR %	GERM %
37.5	22.5	CREEPING RED FESCUE	98	85
37.5	22.5	TALL FESCUE	95	90
5.0	3.0	RED TOP	95	90
15.0	9.0	BIRDSFOOT TREFOIL	98	85
5.0	3.0	ANNUAL RYEGRASS	95	85
100.0	60.0			

GENERAL NOTES

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

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

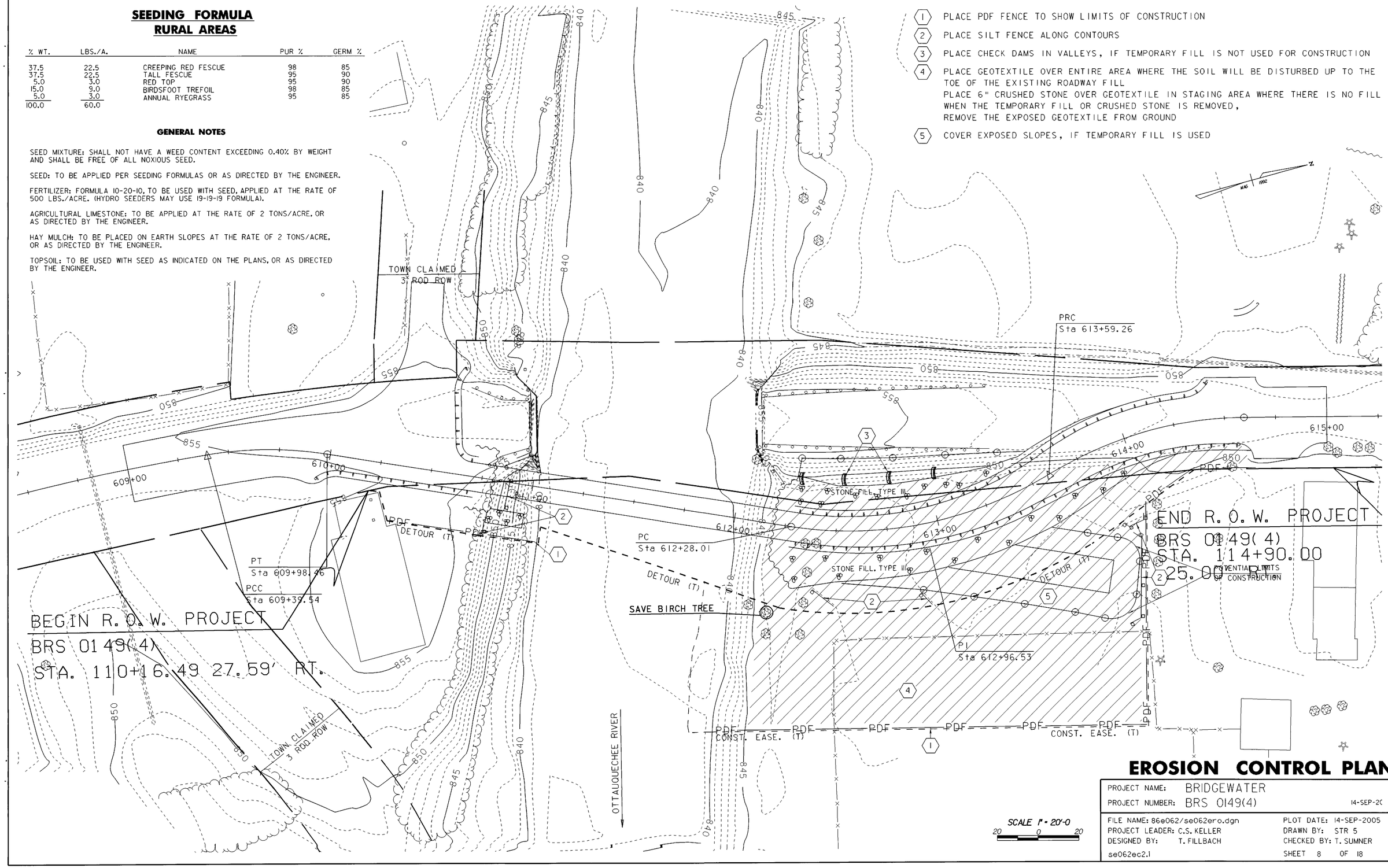
FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

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

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

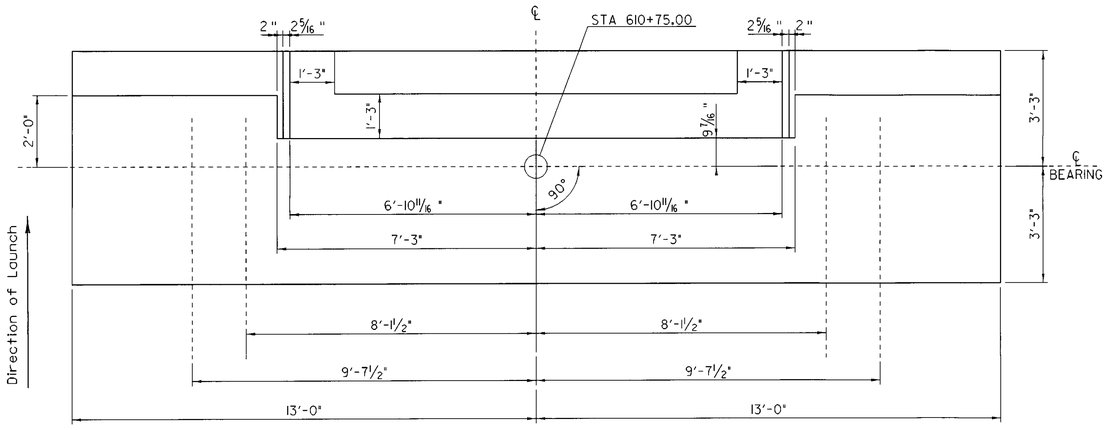
1. PLACE PDF FENCE TO SHOW LIMITS OF CONSTRUCTION
2. PLACE SILT FENCE ALONG CONTOURS
3. PLACE CHECK DAMS IN VALLEYS, IF TEMPORARY FILL IS NOT USED FOR CONSTRUCTION
4. PLACE GEOTEXTILE OVER ENTIRE AREA WHERE THE SOIL WILL BE DISTURBED UP TO THE TOE OF THE EXISTING ROADWAY FILL
   PLACE 6" CRUSHED STONE OVER GEOTEXTILE IN STAGING AREA WHERE THERE IS NO FILL WHEN THE TEMPORARY FILL OR CRUSHED STONE IS REMOVED, REMOVE THE EXPOSED GEOTEXTILE FROM GROUND
5. COVER EXPOSED SLOPES, IF TEMPORARY FILL IS USED

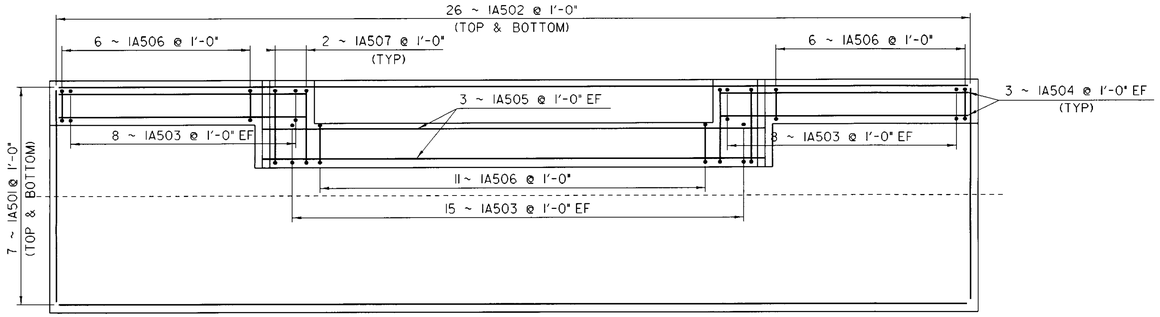


SCALE 1" = 20'-0
20 0 20

EROSION CONTROL PLAN

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
	14-SEP-20
FILE NAME: 86e062/se062ero.dgn	PLOT DATE: 14-SEP-2005
PROJECT LEADER: C.S. KELLER	DRAWN BY: STR 5
DESIGNED BY: T. FILLBACH	CHECKED BY: T. SUMNER
se062ec2.1	SHEET 8 OF 18



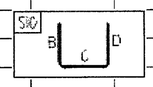


ABUTMENT #1

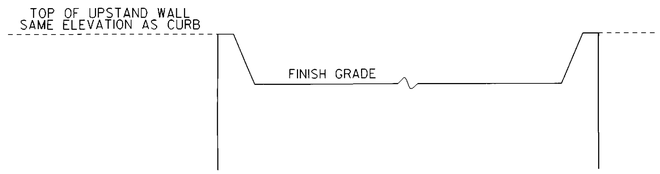
MALE END OF BRIDGE

(ABUTMENT IS SYMMETRICAL ABOUT THE CENTERLINE OF THE TRAVELED WAY.)

EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D
ABUTMENT #1								
14	5	25'- 6"	1A501	STR	25'- 6"			
52	5	6'- 0"	1A502	STR	6'- 0"			
54	5	3'- 11"	1A503	STR	3'- 11"			
12	5	7'- 0"	1A504	STR	7'- 0"			
6	5	14'- 0"	1A505	STR	14'- 0"			
23	5	4'- 3"	1A506	S10		1'- 9"	0'- 9"	1'- 9"
4	5	5'- 5"	1A507	S10		1'- 9"	1'- 11"	1'- 9"



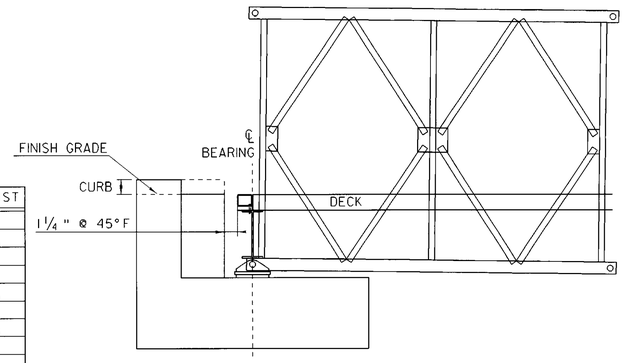
APPROX 1220 LBS OF REINFORCING STEEL
APPROX 16 CUBIC YARDS OF CONCRETE



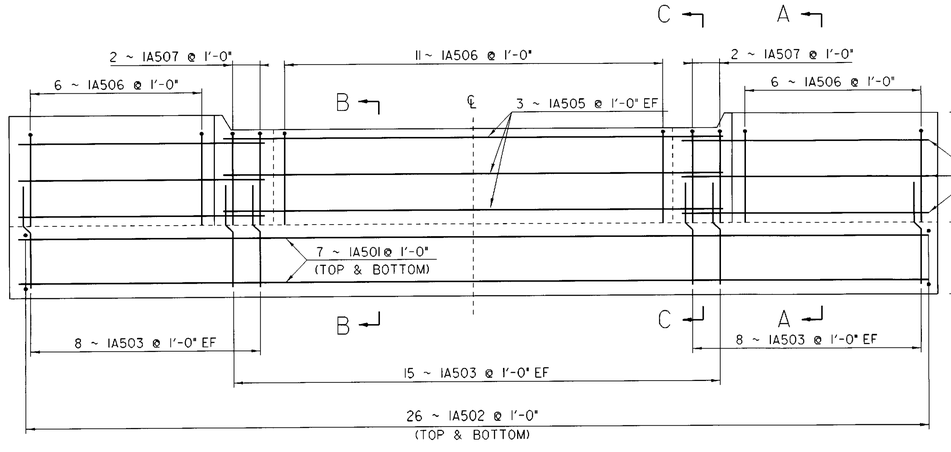
CURB DETAIL

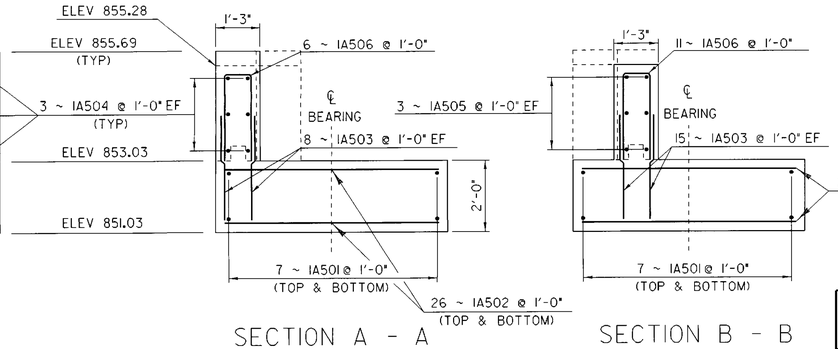
FORM TO MATCH SLOPE, ELEVATION & OFFSET OF BRIDGE CURB

TEMP	"A" DIST
-30° F	2 1/8
-15° F	1 15/16
0° F	1 3/4
15° F	1 5/8
30° F	1 7/16
45° F	1 1/4
60° F	1 1/16
75° F	0 7/8
90° F	0 3/4
105° F	0 9/16
120° F	0 3/8

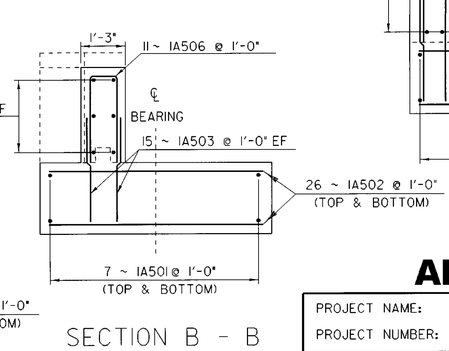


END OF BRIDGE DETAIL
(EXP.)

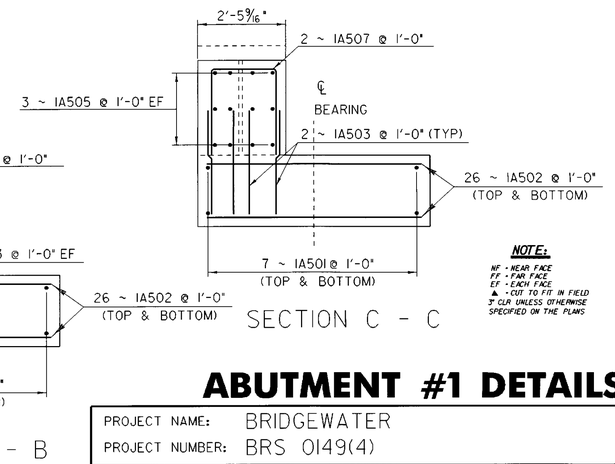




SECTION A - A



SECTION B - B



SECTION C - C

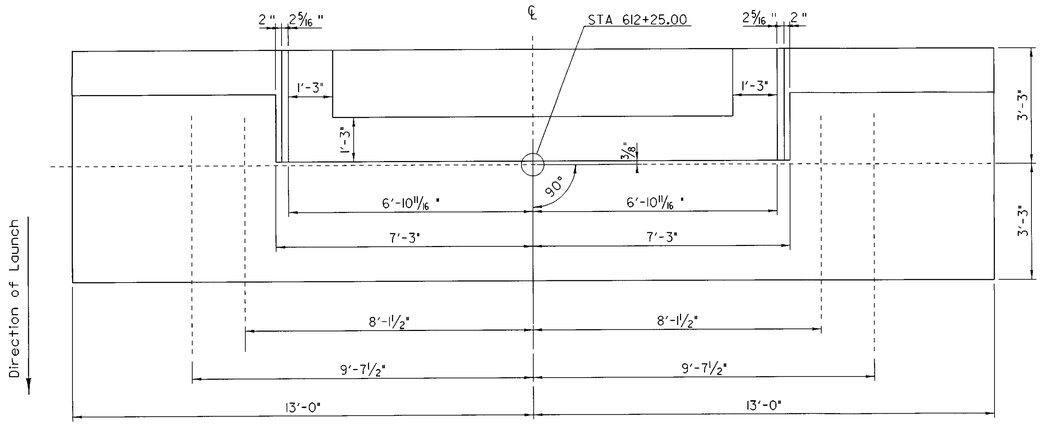
NOTE:
NF - NEAR FACE.
FF - FAR FACE.
EF - EACH FACE.
▲ - CUT TO FIT IN FIELD
3" CLR UNLESS OTHERWISE SPECIFIED ON THE PLANS

ABUTMENT #1 DETAILS

PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: 86e062/se062abt.dgn
PROJECT LEADER: C.S. KELLER
DESIGNED BY: T. FILLBACH
se062ab1.i

PLOT DATE: 14-SEP-2005
DRAWN BY: STR 5
CHECKED BY: T. SUMNER
SHEET 12 OF 18

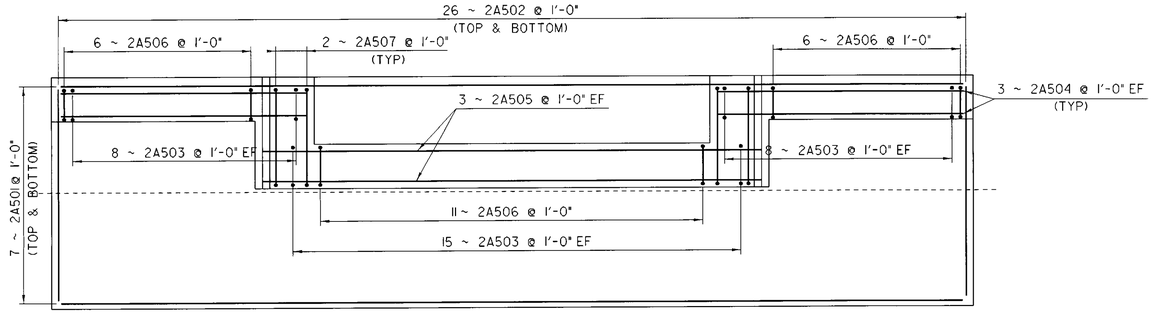


ABUTMENT #2

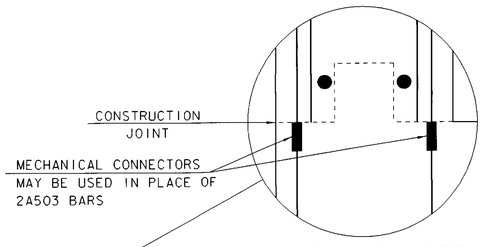
FEMALE END OF BRIDGE

(ABUTMENT IS SYMMETRICAL ABOUT THE CENTERLINE OF THE TRAVELED WAY.)

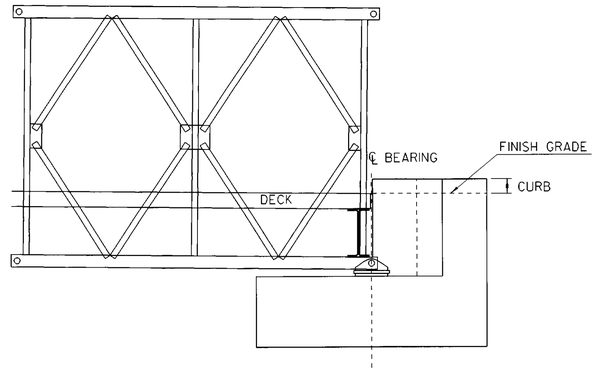
EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D
ABUTMENT #2								
14	5	25'- 6"	2A501	STR	25'- 6"			
52	5	6'- 0"	2A502	STR	6'- 0"			
54	5	3'- 11"	2A503	STR	3'- 11"			
12	5	7'- 0"	2A504	STR	7'- 0"			
6	5	14'- 0"	2A505	STR	14'- 0"			
23	5	4'- 3"	2A506	S10		1'- 9"	0'- 9"	1'- 9"
4	5	6'- 3"	2A507	S10		1'- 9"	2'- 9"	1'- 9"



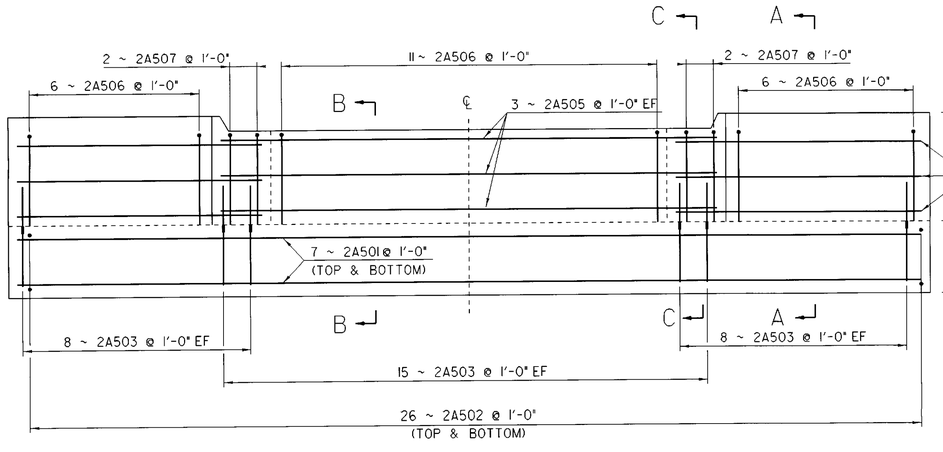
APPROX 1222 LBS OF REINFORCING STEEL
APPROX 16 CUBIC YARDS OF CONCRETE

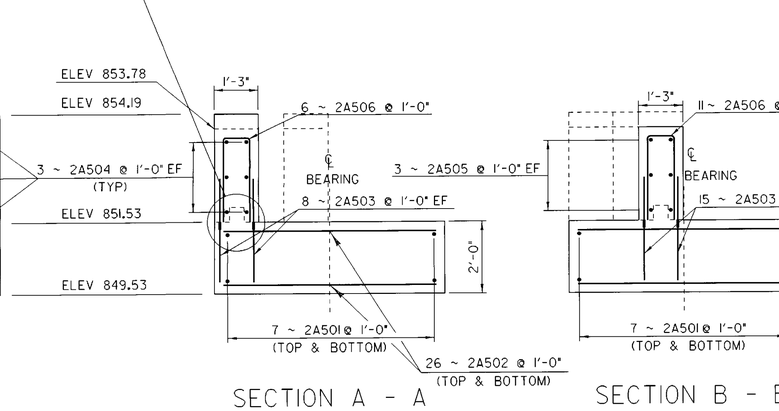


HORIZONTAL CONSTRUCTION
JOINT DETAIL



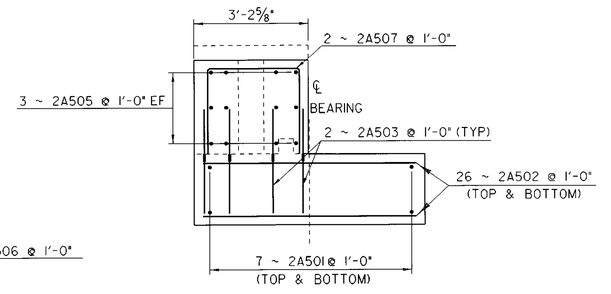
END OF BRIDGE DETAIL





SECTION A - A

SECTION B - B



SECTION C - C

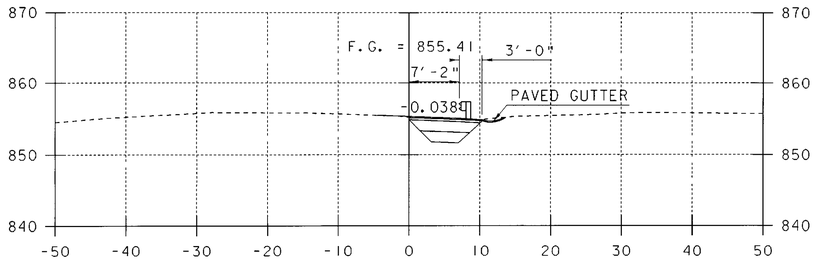
NOTE:
NF - NEAR FACE
FF - FAR FACE
EF - EACH FACE
▲ - CUT TO FIT IN FIELD
3" CLR UNLESS OTHERWISE SPECIFIED ON THE PLANS.

ABUTMENT #2 DETAILS

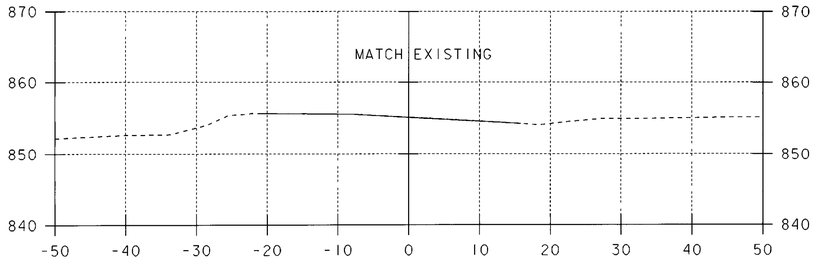
PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: 86e062/se062abt.dgn
PROJECT LEADER: C.S. KELLER
DESIGNED BY: T. FILLBACH
se062ab2.1

PLOT DATE: 14-SEP-2005
DRAWN BY: STR 5
CHECKED BY: T. SUMNER
SHEET 13 OF 18



610+25



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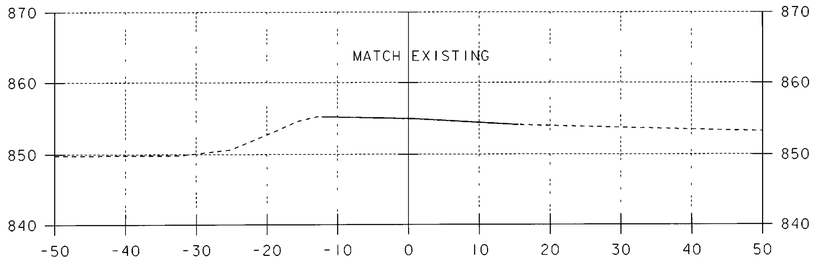

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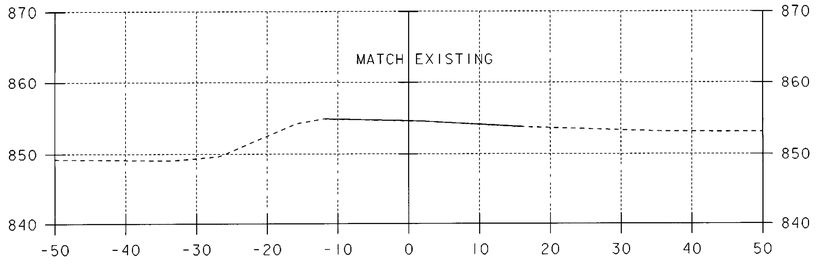

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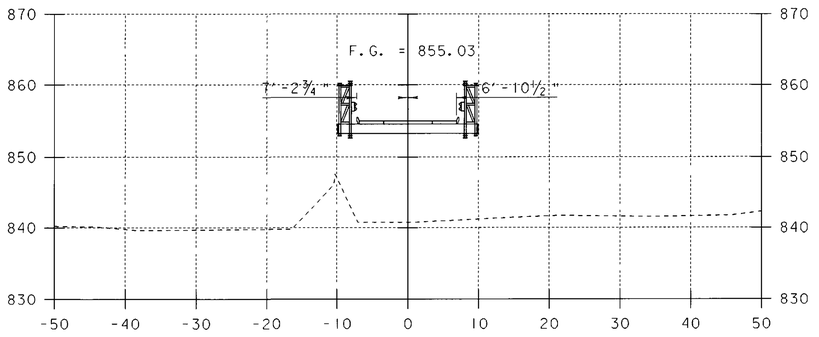

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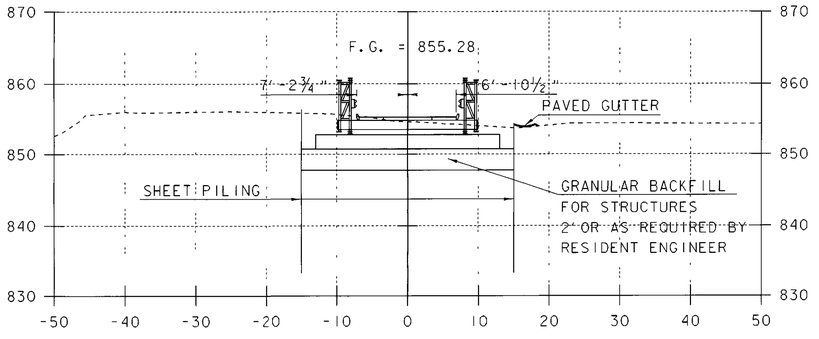

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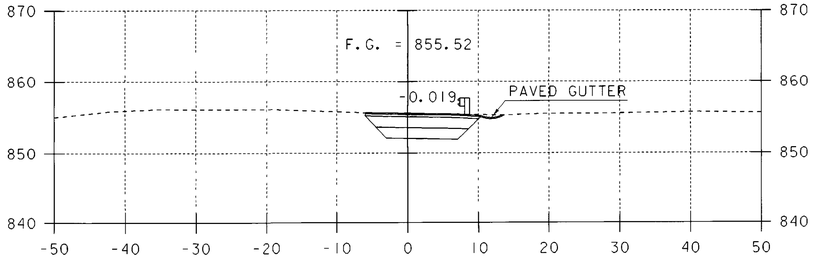

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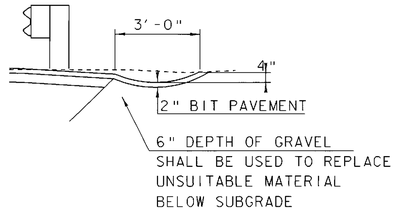


PAVED GUTTER
CROSS SECTION

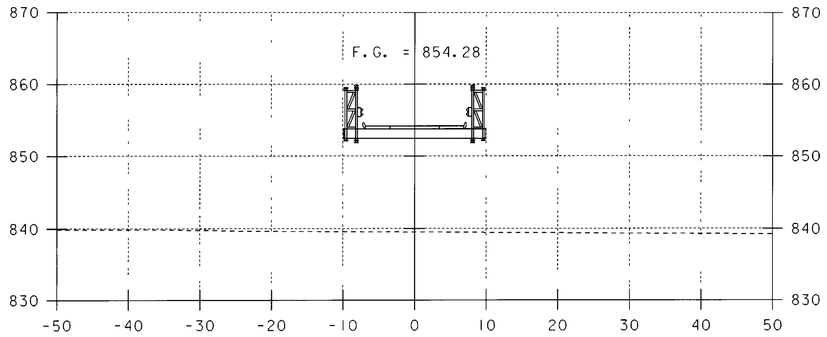
NOT TO SCALE

TEMPORARY BRIDGE CROSS SECTIONS

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

FILE NAME: /str5/86e062/se062xs.dgn
PROJECT LEADER: C. KELLER
DESIGNED BY: T. FILLBACH
se062xsl.i

PLOT DATE: 14-SEP-2005
DRAWN BY: T. FILLBACH
CHECKED BY: T. SUMNER
SHEET 15 OF 18



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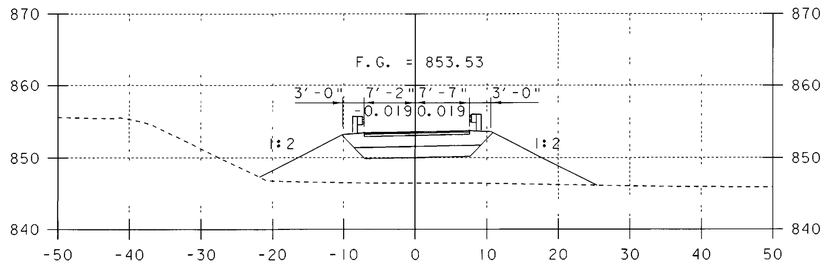

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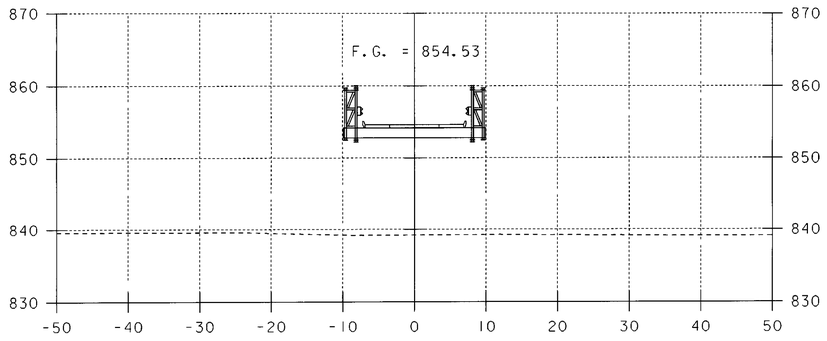

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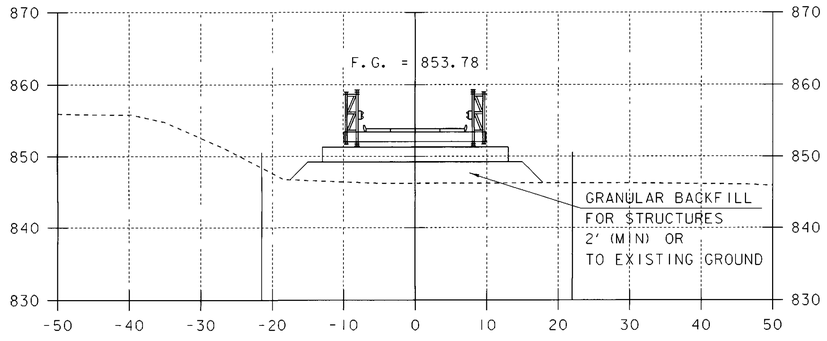

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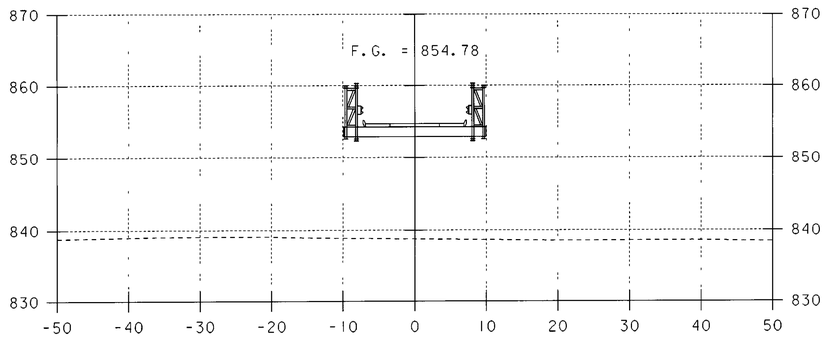

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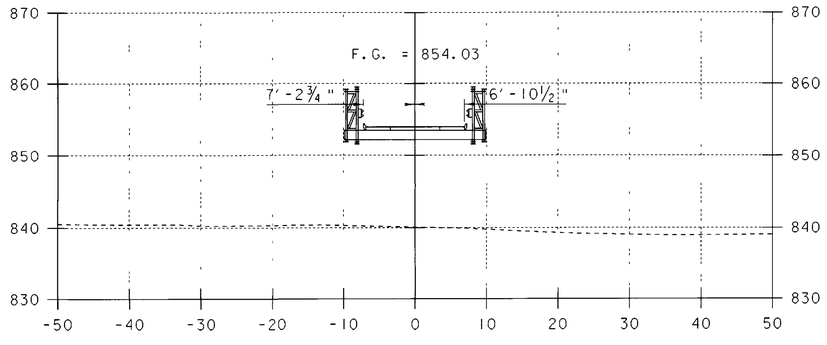


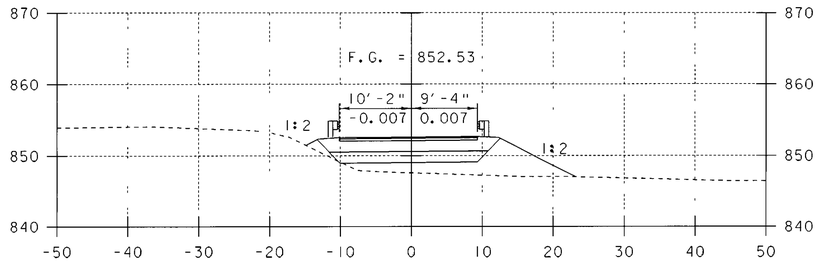
612+00

TEMPORARY BRIDGE CROSS SECTIONS

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

FILE NAME: /str5/86e062/se062xs.dgn
PROJECT LEADER: C. KELLER
DESIGNED BY: T. FILLBACH
se062xs2.i

PLOT DATE: 14-SEP-2005
DRAWN BY: T. FILLBACH
CHECKED BY: T. SUMNER
SHEET 16 OF 18



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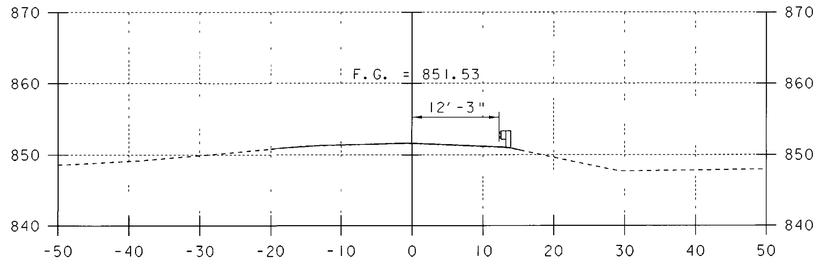

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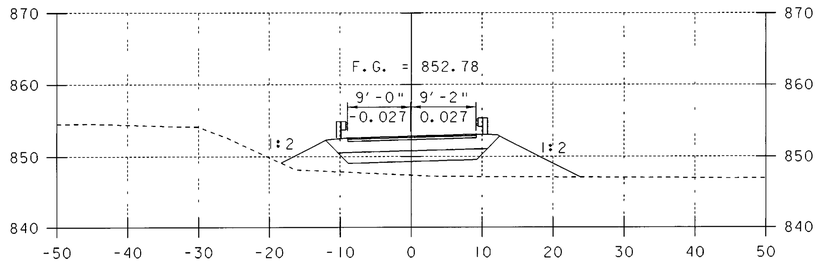

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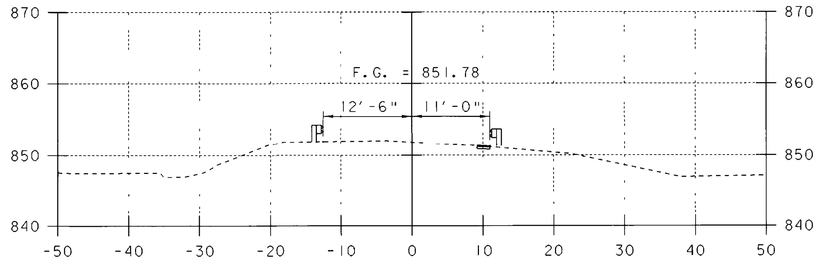

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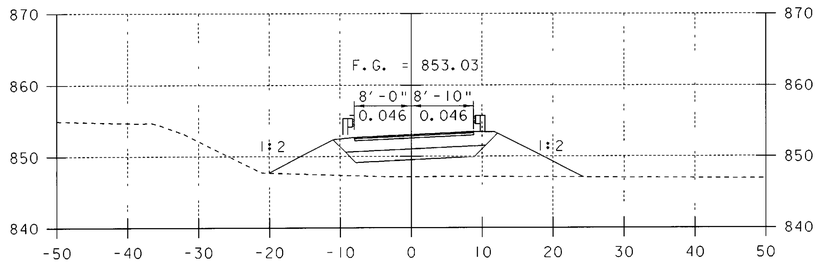

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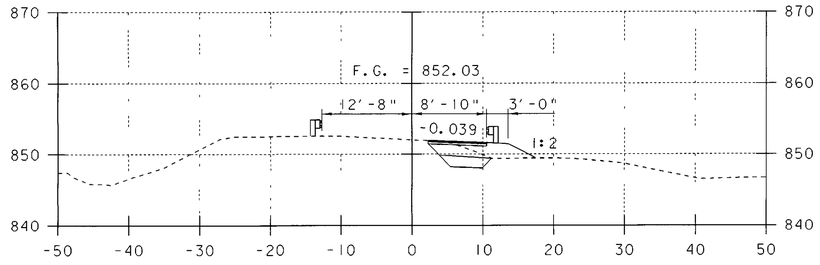

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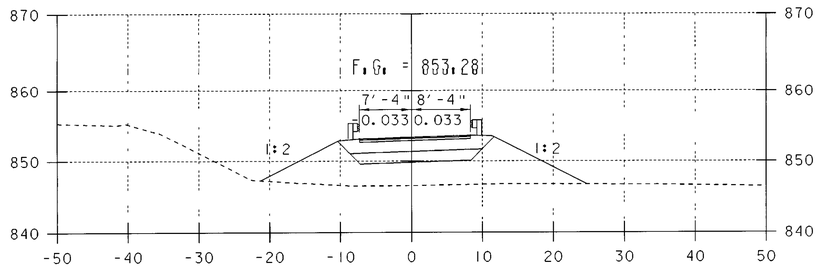

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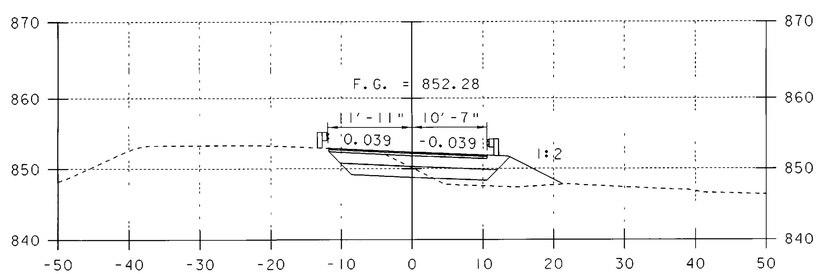

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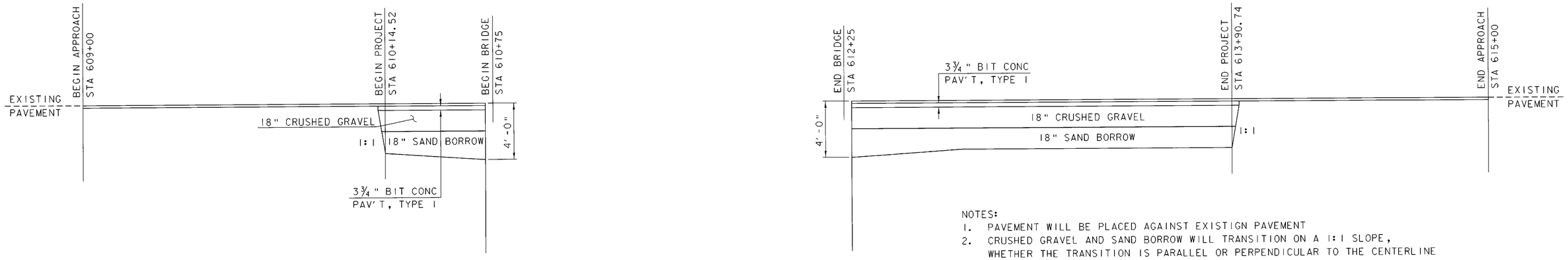
TEMPORARY BRIDGE CROSS SECTIONS

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

FILE NAME: /str5/86e062/se062xs.dgn
PROJECT LEADER: C. KELLER
DESIGNED BY: T. FILLBACH
se062xs3.i

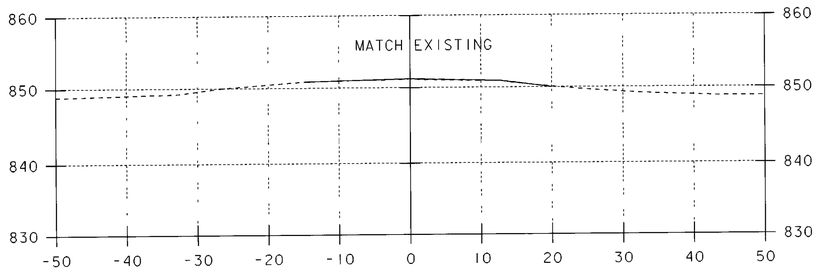
PLOT DATE: 14-SEP-2005
DRAWN BY: T. FILLBACH
CHECKED BY: T. SUMNER
SHEET 17 OF 18



NOTES:
1. PAVEMENT WILL BE PLACED AGAINST EXISTIGN PAVEMENT
2. CRUSHED GRAVEL AND SAND BORROW WILL TRANSITION ON A 1:1 SLOPE, WHETHER THE TRANSITION IS PARALLEL OR PERPENDICULAR TO THE CENTERLINE

MAINLINE MATERIAL TRANSITION DIAGRAM

NOT TO SCALE



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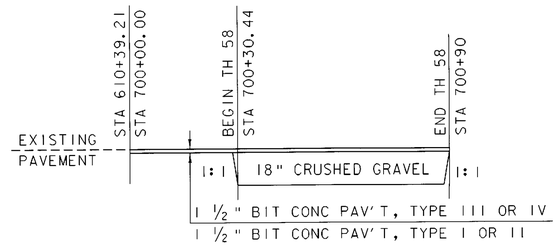


SIDELINE MATERIAL TRANSITION DIAGRAM

NOT TO SCALE

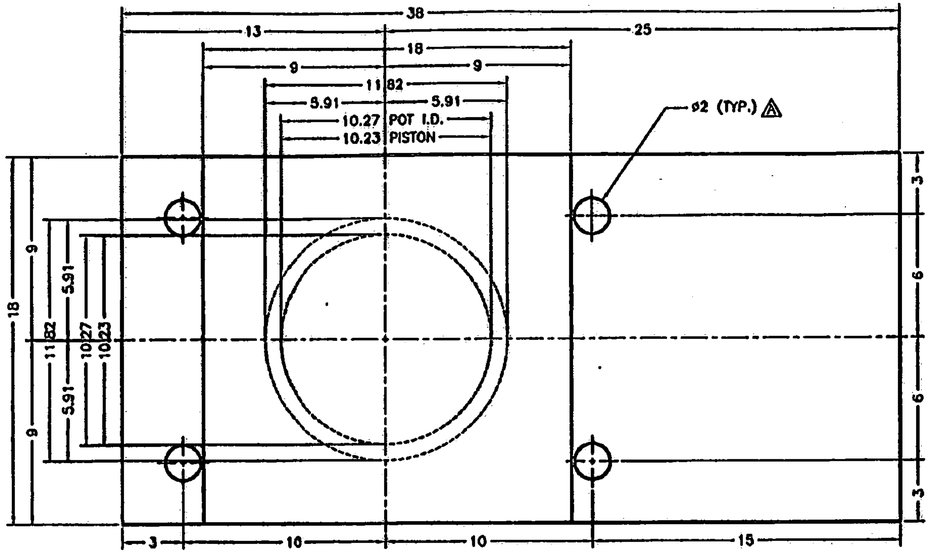
TEMPORARY BRIDGE CROSS SECTIONS

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

FILE NAME: /str5/86e062/se062xs.dgn
PROJECT LEADER: C. KELLER
DESIGNED BY: T. FILLBACH
se062xs4.i

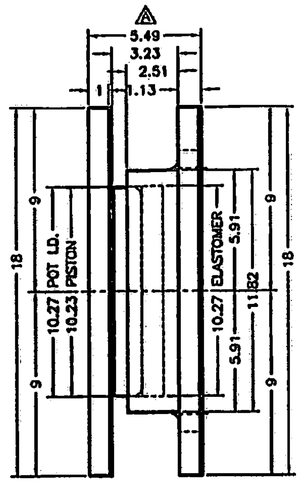
PLOT DATE: 14-SEP-2005
DRAWN BY: T. FILLBACH
CHECKED BY: T. SUMNER
SHEET 18 OF 18

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
- -	A	PER ENGINEER'S MARK	10/18/10	C.A.M.

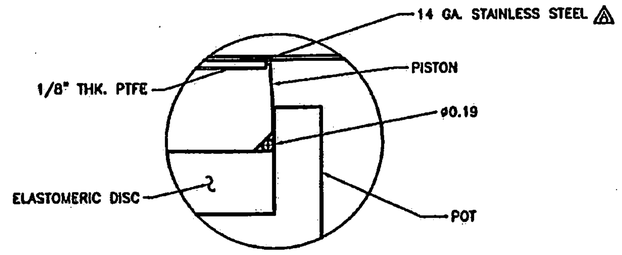


STATIONING

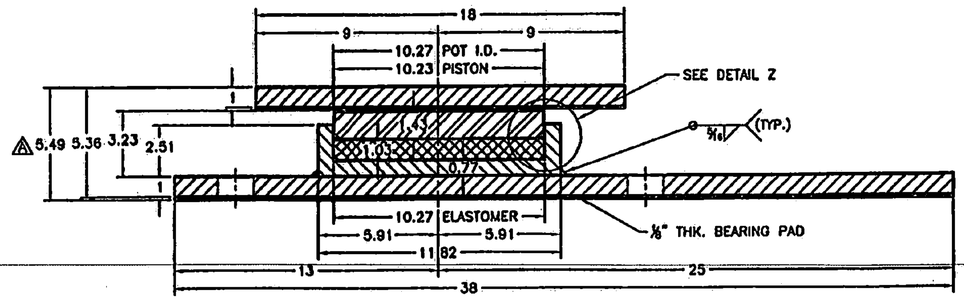
PLAN VIEW



SIDE VIEW



DETAIL Z



ELEVATION VIEW

UNGUIDED TYPE @ ABUTMENT 1
QTY. REQ'D = 1
ITEM NO. 531.12
VERTICAL CAPACITY = 435 KIPS

Vermont Agency of Transportation

RECEIVED

CK'D BY TCF OK'D BY KMH

3:01 pm, Oct 28, 2010

RESUBMIT _____ APPROVED AS NOTED

BY KMH DATE 10-28-10

VERMONT AGENCY OF TRANSPORTATION
PROPOSED IMPROVEMENT BRIDGE PROJECT
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 - MAJOR COLLECTOR

FREE TO MOVE EXPANSION POT BEARING DETAIL

AMSCOT

STRUCTURAL PRODUCTS CORP.
DOVER, NJ

JOB # 3486

SCALE: N.T.S.	CHECKED: B.F.	DRAWN BY: C.A.M.
DATE: 8/16/10		REVISION: A

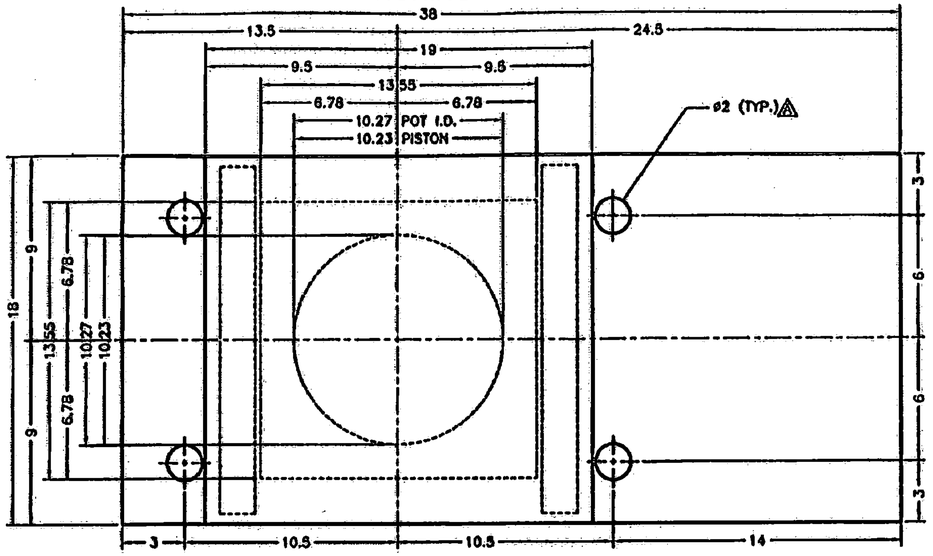
FOR: MILLER CONSTRUCTION, INC.

DWG NO: MC10A1RA | SHEET NO. 1 OF 5

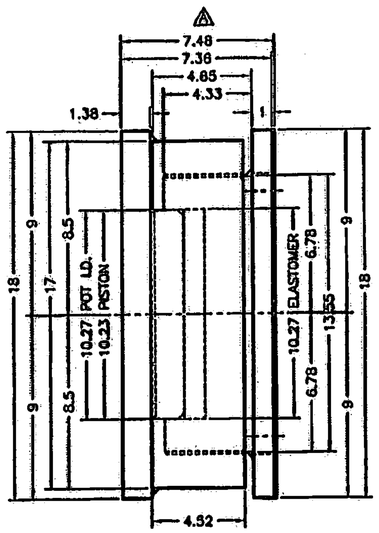
101 BEARINGS

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
--	A	PER ENGINEER'S MARK	10/18/10	C.A.M.

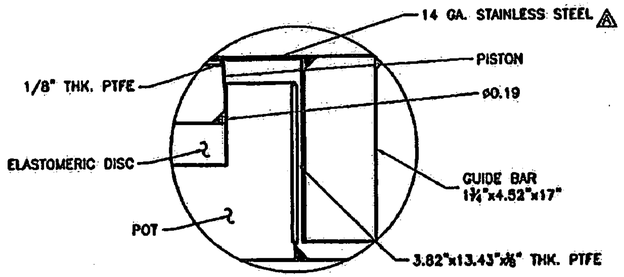
STATIONING



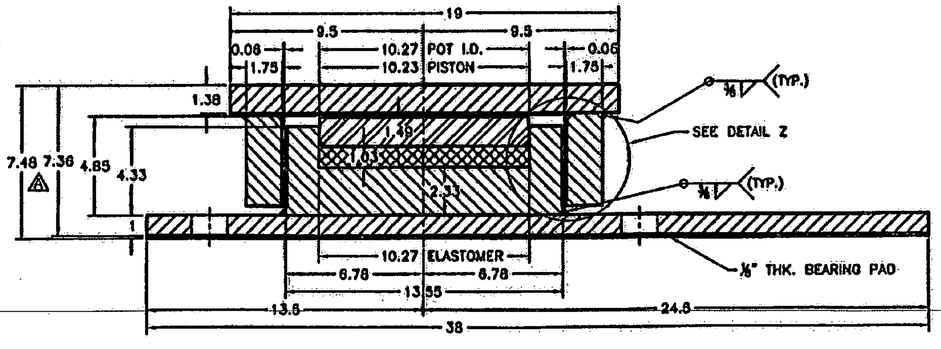
PLAN VIEW



SIDE VIEW



DETAIL Z



ELEVATION VIEW

GUIDED TYPE @ ABUTMENT 1
QTY. REQ'D = 1
ITEM NO. 531.12
VERTICAL CAPACITY = 435 KIPS
HORIZONTAL CAPACITY = 175 KIPS

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY KMH
3:01 pm, Oct 28, 2010
RESUBMIT _____ APPROVED AS NOTED
BY KMH DATE 10-28-10

VERMONT AGENCY OF TRANSPORTATION
PROPOSED IMPROVEMENT BRIDGE PROJECT
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 - MAJOR COLLECTOR

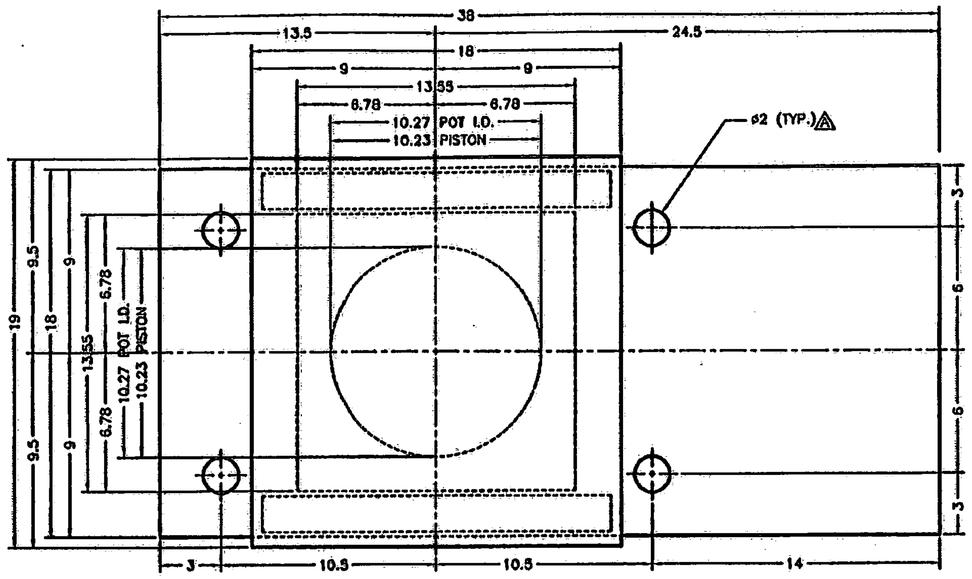
GUIDED EXPANSION POT BEARING DETAIL

AMSCOT
STRUCTURAL PRODUCTS CORP.
DOVER, NJ
JOB # 3486

SCALE: N.T.S.	CHECKED: B.F.	DRAWN BY: C.A.M.
DATE: 8/16/10		REVISION: A
FOR: MILLER CONSTRUCTION, INC.		
DWG NO: MC10A2RA	SHEET NO. 2 OF 5	

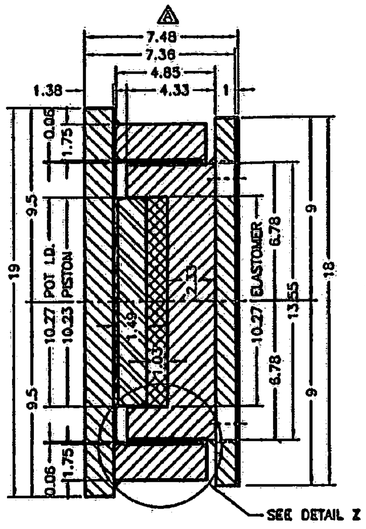
102 BEARINGS

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
- -	A	PER ENGINEER'S MARK	10/18/10	C.A.M.

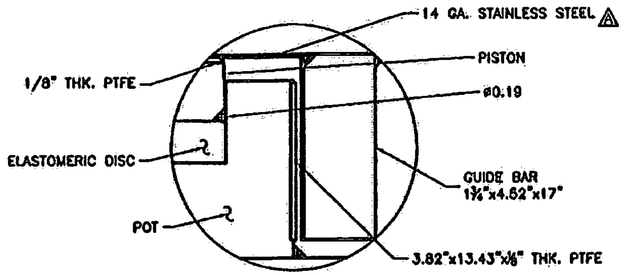


STATIONING

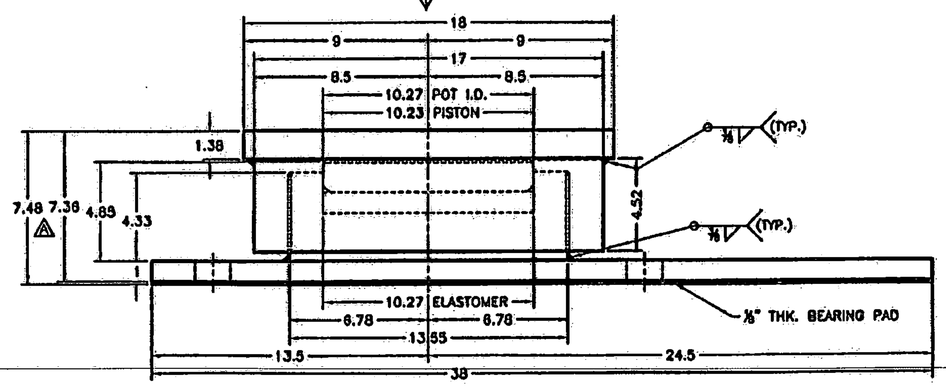
PLAN VIEW



SIDE VIEW



DETAIL Z



ELEVATION VIEW

GUIDED TYPE @ ABUTMENT 2
QTY. REQ'D = 1
ITEM NO. 531.12
VERTICAL CAPACITY = 435 KIPS
HORIZONTAL CAPACITY = 175 KIPS

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY KMH
3:01 pm, Oct 28, 2010
RESUBMIT _____ APPROVED AS NOTED
BY KMH DATE 10-28-10

VERMONT AGENCY OF TRANSPORTATION
PROPOSED IMPROVEMENT BRIDGE PROJECT
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 - MAJOR COLLECTOR

GUIDED EXPANSION POT BEARING DETAIL

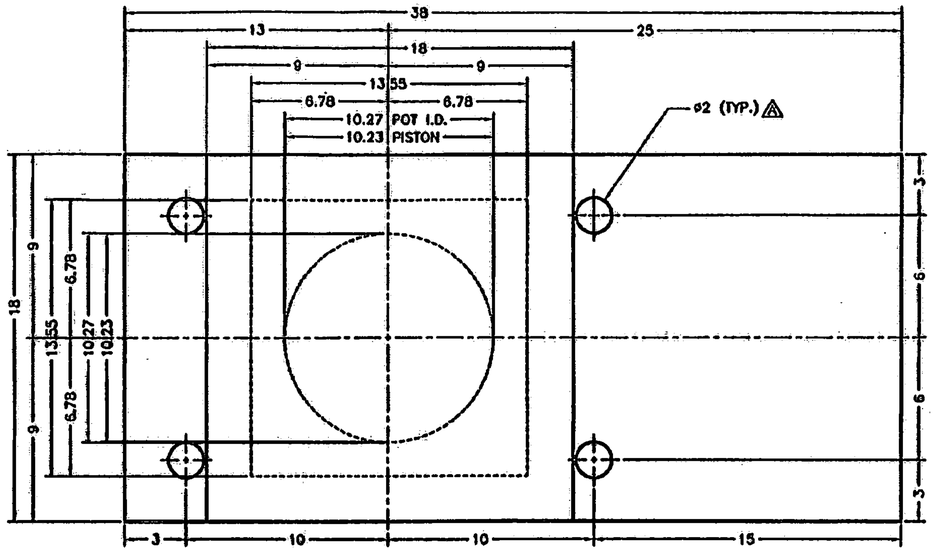
AMSCOT
STRUCTURAL PRODUCTS CORP.
DOVER, NJ JOB # 3486

SCALE: N.T.S.	CHECKED: B.F.	DRAWN BY: C.A.M.
DATE: 8/16/10		REVISION: A
FOR: MILLER CONSTRUCTION, INC.		
DWG NO: MC10A3RA		SHEET NO. 3 OF 5

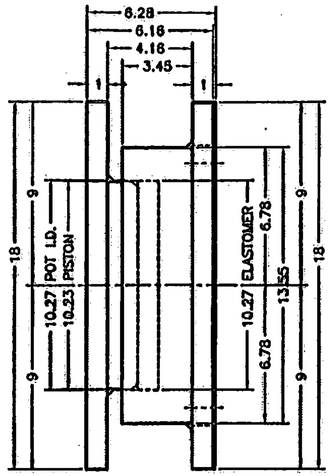
103 BEARINGS

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
-- --	A	PER ENGINEER'S MARK	10/18/10	C.A.M.

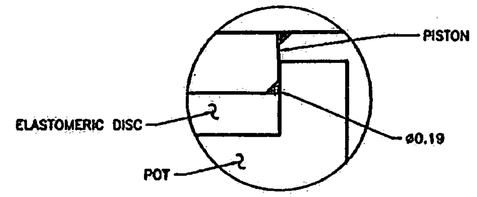
STATIONING



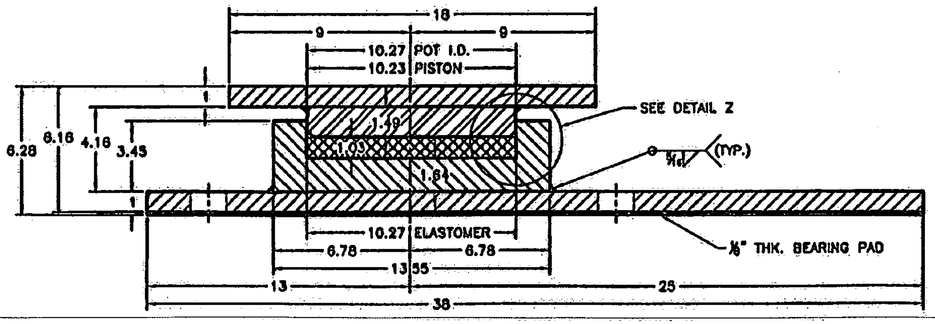
PLAN VIEW



SIDE VIEW



DETAIL Z



ELEVATION VIEW

FIXED TYPE @ ABUTMENT 2
QTY. REQ'D = 1
ITEM NO. 531.12
VERTICAL CAPACITY = 435 KIPS
HORIZONTAL CAPACITY = 175 KIPS

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY KMH
3:01 pm, Oct 28, 2010
RESUBMIT _____ APPROVED AS NOTED
BY KMH DATE 10-28-10

VERMONT AGENCY OF TRANSPORTATION
PROPOSED IMPROVEMENT BRIDGE PROJECT
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 - MAJOR COLLECTOR

FIXED EXPANSION POT BEARING DETAIL

AMSCOT
STRUCTURAL PRODUCTS CORP.
DOVER, NJ
JOB # 3468

SCALE: N.T.S.	CHECKED: B.F.	DRAWN BY: C.A.M.
DATE: 8/16/10		REVISION: A
FOR: MILLER CONSTRUCTION, INC.		
DWG NO: MC10A4RA		SHEET NO. 4 OF 5

104 BEARINGS

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
--	A	PER ENGINEER'S MARK	10/18/10	C.A.M.

1. ELASTOMERIC DISC
(A)-ELASTOMERIC DISCS SHALL HAVE THE MINIMUM THICKNESS PER AASHTO LRFD 14.7.4.3

(B)-AREAS OF ELASTOMERIC DISCS SHALL BE DESIGNED FOR A MAXIMUM AVERAGE STRESS OF 3500 PSI AT THE TOTAL DEAD AND LIVE LOADS OF THE STRUCTURE PER AASHTO LRFD 14.7.4.4

(C)-ELASTOMERIC DISC TO BE OF 50 SHORE "A" DUROMETER HARDNESS PER AASHTO LRFD 14.7.4.2.

2. POT
(A)-ALL STEEL USED IN POT BEARING TO BE AASHTO M270, GR. 50 AND SHALL BE GALVANIZED EXCEPT INSIDE POT BEARING SURFACES SHALL NOT BE GALVANIZED.

(B)-DEPTH OF THE POT CAVITY SHALL BE EQUAL TO OR GREATER THAN: (POT ID/2) X DESIGN ROTATION (03 RADIANS) +.1 + THE THICKNESS OF THE ELASTOMERIC DISC. + THE PISTON FACE WIDTH.

(C)-INSIDE DIAMETERS SHALL BE THE SAME AS THE ELASTOMERIC DISC.

3. PISTON
(A)-PISTONS SHALL BE DESIGNED AS FOLLOWS FOR THICKNESS AND CLEARANCE PER AASHTO LRFD 14.7.4.7.

(B)-PISTON FOR ROUND CROSS SECTION SEALING RINGS SHALL HAVE THE LOWER OUTSIDE EDGE BEVELED TO ACCEPT AND RETAIN THE RING AND PERMIT FULL DESIGN ROTATION.

4. ELASTOMERIC SEAL RINGS
(A)-ROUND CROSS SECTION BRASS SEALING RINGS SHALL MEET THE FOLLOWING DESIGN REQUIREMENTS PER AASHTO LRFD 14.7.4.5
(1) RINGS SHALL FIT THE POT ID SNUGLY, 5/16"ø MIN.
(2) RINGS SHALL BE ROLLED INTO A CIRCLE AND BRAZED. (TO BE MADE FROM ONE PIECE).

5. PTFE SLIDING SURFACE
(A)-THE AREA OF THE PTFE SHALL BE DESIGNED FOR A CONTACT STRESS AS PER AASHTO LRFD 14.7.2.4, AT THE FULL DEAD AND LIVE LOAD OF THE STRUCTURE.

(B)-UNFILLED PTFE SHALL MEET THE FOLLOWING REQUIREMENTS:
(1) BONDED TO THE PISTON IT SHALL HAVE A MINIMUM THICKNESS OF 1/8" AND SHALL BE RECESSED ONE-HALF OF ITS THICKNESS INTO STEEL PISTON. TO CONFORM TO AASHTO LRFD 14.7.2.6.1.

(C)-PTFE SURFACE SHALL BE ASTM D 4894 AASHTO LRFD S14.7.2.1.

6. STAINLESS STEEL SLIDING SURFACE
(A)-THE STAINLESS STEEL SLIDING SURFACE SHALL COVER THE PTFE SURFACE IN ALL OPERATING POSITIONS PLUS ONE ADDITIONAL INCH IN EVERY DIRECTION OF MOVEMENT.

(B)-STAINLESS STEEL SHALL BE 14ga. (AASHTO LRFD 14.7.2.3.2) THICKNESS AND SHALL BE CONNECTED TO THE TOP PLATE BY MEANS OF AN EPOXY BOND & SEAL WELDED AROUND THE ENTIRE PERIMETER (AS PER AASHTO SUBSECTION 14.7.2.6.2)

(C)-WELDING PROCEDURES SHALL BE CHOSEN SUCH THAT THE STAINLESS STEEL IN SERVICE IS IN CONTACT WITH THE TOP PLATE AND THE SURFACE IS SMOOTH AND FLAT.

(D)-STAINLESS STEEL SLIDING SURFACES SHALL BE PREFERABLY FACE DOWN.

7. GUIDE BARS
(A)-GUIDE BARS AND THEIR CONNECTIONS TO THE TOP PLATE SHALL BE DESIGNED FOR THE HORIZONTAL STRENGTH FORCES ON THE BEARING AND NOT LESS THAN 19% OF THE TOTAL VERTICAL LOAD CAPACITY OF THE BEARING.

(B)-UNLESS THE GUIDE BAR CLEARANCE IS SPECIFIED IT SHALL BE A TOTAL OF 1/16" (MAX.) PER 14.7.6.4.

(C)-GUIDING ARRANGEMENTS SHALL BE DESIGNED SO THAT GUIDING MEMBER IS ALWAYS WITHIN THE GUIDES AT ALL POINTS OF TRANSLATION OF THE BEARING.

(D)-GUIDE BAR MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF ASTM M270 GR. 50 AND SHALL BE GALVANIZED. SEE NOTE 9 (I).

8. MATERIALS
(A)-STRUCTURE STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M270 GR. 50 AND SHALL BE GALVANIZED.

(B)-ELASTOMERS SHALL CONFORM TO AASHTO LRFD SUBSECTION 14.7.4.2.

(C)-ELASTOMER SEALS MAY ONLY BE MADE OF METAL AS FOLLOWS:
(1)-ROUND CROSS SECTION BRASS RINGS SHALL CONFORM TO ASTM B16 STANDARD TEMPER H02

(D)-PTFE SLIDING SURFACES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO LRFD SECTION [redacted].
14.7.2

(E)-STAINLESS STEEL SLIDING SURFACES SHALL CONFORM TO ASTM A-240 TYPE 304 WITH A SURFACE FINISH OF #8 MIRROR (AASHTO LRFD 14.7.2.2)

9. MANUFACTURING REQUIREMENTS
(A)-POTS AND PISTONS SHALL BE MACHINED FROM A SOLID PIECE OF STEEL AS PER AASHTO LRFD SECTION 18.3.3.2.1 POT BEARINGS.

(B)-ELASTOMERIC DISC TOLERANCES SHALL BE PER AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS 18.1.4.2.

(C)-PTFE SLIDING SURFACE TOLERANCES SHALL BE PER AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS 18.1.4.2.

(D)-STAINLESS STEEL SLIDING SURFACES SHALL BE EPOXY BONDED & SEAL WELDED, CONFORMING TO THE AMERICAN WELDING SOCIETY REQUIREMENTS FOR STAINLESS STEEL, AROUND IT'S PERIMETER USING TECHNIQUES WHICH WILL ENSURE IT REMAINS IN CONTACT WITH THE BACKING PLATE. FINISH SHALL BE #8 MIRROR (AASHTO 14.7.2.2). FLATNESS SHALL CONFORM TO CLASS "A" OR BETTER.

(E)-SOLE PLATE TOLERANCES SHALL CONFORM TO AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS 18.1.4.2.

(F)-GUIDE BAR TOLERANCES SHALL CONFORM TO AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS 18.1.4.2.

(G)-OVERALL HEIGHT OF BEARING SHALL NOT EXCEED THE NOMINAL HEIGHT BY MORE THAN 3/16".

(H)-THE EDGES OF ALL PARTS SHALL BE BROKEN BY GRINDING SO THAT THERE ARE NO SHARP EDGES.

(I)-EXTERNAL STEEL PLATE SURFACES TO BE HOT DIP GALVANIZED AS PER SPECIFICATIONS.

10. TOLERANCES FOR FLATNESS
(A)-FLATNESS OF BEARING SURFACES SHALL BE DETERMINED BY THE FOLLOWING METHOD:
(1)-A PRECISION STRAIGHT EDGE LONGER THAN THE NOMINAL DIMENSION TO BE MEASURED SHALL BE PLACED IN CONTACT WITH THE SURFACE TO BE MEASURED AS PARALLEL TO IT AS POSSIBLE.

(2)-SELECT A FEELER GAUGE HAVING AN ACCURACY OF ±.001" EQUAL TO THE TOLERANCE ALLOWED AND ATTEMPT TO INSERT IT UNDER THE STRAIGHT EDGE.

(3)-PLATES ARE "ACCEPTABLE" IF THE FEELER GAUGE DOES NOT PASS UNDER THE STRAIGHT EDGE.

(B)-FLATNESS TOLERANCES SHALL BE AS FOLLOWS:
(1)-CLASS "A" 0.001 X NOMINAL DIMENSION PER AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATION 18.1.4.2-1.

(C)-"NOMINAL DIMENSIONS" SHALL BE INTERPRETED AS THE ACTUAL DIMENSION OF THE PLATE UNDER THE STRAIGHT EDGE WHERE THE STRAIGHT EDGE IS NOT PARALLEL TO ANY PLAN DIMENSION OF THE PLATE BEING MEASURED.

(D)-IN DETERMINING THE FLATNESS THE STRAIGHT EDGE MAY BE LOCATED IN ANY POSITION ON THE SURFACE BEING MEASURED.

11. REFERENCE
(A)-AASHTO LRFD STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 4TH. EDITION 2007 WITH CURRENT INTERIMS, AS MODIFIED BY THE 2006 [redacted] STANDARD SPECIFICATIONS FOR CONSTRUCTION, AS MODIFIED BY THE SPECIAL PROVISIONS.

12. ADDITIONAL COMMENTS
(A)-BEARINGS SHALL BE TESTED ACCORDING TO SECTION 531 OF VERMONT'S 2006 STANDARD SPECIFICATION FOR CONSTRUCTION.

(B)-ALL WELDERS SHALL BE QUALIFIED AS PER AWS D1.5.

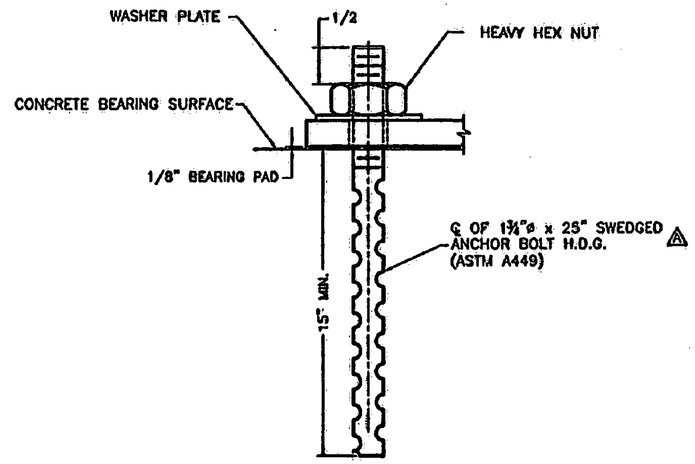
(C)-ALL BEARINGS SHALL BE PLACED ON A 1/8" THK. BEARING PAD SAME SIZE AS MASONRY PLATE.

(D) ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.

(E) SCALE = N.T.S.

(E) NEW BRIDGE SEAT ELEVATIONS SHALL BE ADJUSTED BY THE G/C BASED ON THE FINAL CONFIGURATION OF THE BEARINGS.

(F) MANUFACTURING LOCATION:
AMSCOT STRUCTURAL PRODUCTS CORP. INC.
241 EAST BLACKWELL STREET
DOVER, NJ 07801
PH: (973) 989-8800
FX: (973) 989-5651
CONTACT: PETER SOMOGYI



ANCHOR BOLT DETAIL
QTY. REQ'D = 16, 4 PER BEARING

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY KMH
3:01 pm, Oct 28, 2010
RESUBMIT _____ APPROVED AS NOTED
BY KMH DATE 10-28-10

VERMONT AGENCY OF TRANSPORTATION
PROPOSED IMPROVEMENT BRIDGE PROJECT
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 - MAJOR COLLECTOR

POT BEARING NOTES

AMSCOT
STRUCTURAL PRODUCTS CORP.
DOVER, NJ JOB # 3488

SCALE: N.T.S.	CHECKED:	DRAWN BY: C.A.M.
DATE: 8/16/10	B.F.	REVISION: A

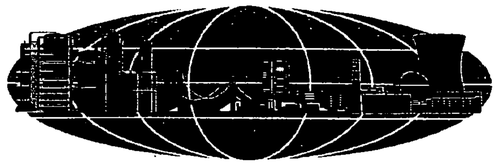
FOR: MILLER CONSTRUCTION, INC.

WG NO: MC10A5RA | SHEET NO. 5 OF 5

105 BEARINGS

106 STRUCTURAL STEEL

AMSCOT
STRUCTURAL PRODUCTS CORP.
A World of Structural Bearings and Custom Fabricated Metal Components.
241 E. Blackwell Street
Dover, NJ 07801



BRIDGE WATER
BRS 0149(4)

AMSCOT – "TEFLON - HOT BOND PROCEDURE"
Per AASHTO section 14.6.2 and 14.6.2.6.1

1. MATERIAL PREPARATION: (Steel to Teflon) PTFE (polytetrafluoroethylene) Filled Teflon sheet shall be chemically etched on one side. Etched face to be bonded to the prepared sandblasted Steel surface as per SSPC – 6 near white profile of the structural steel substrate plate.

2. ATTACHMENT PROCEDURE: The material shall be recessed into the structural steel plate 50% half of the TFE thickness required.

3. EPOXY: ARMSTRONG style no. A-271 Industrial two (2) part epoxy resin part A & B shall be mixed per manufactures recommendation and shall be applied with a trowel evenly on 100% of the intended prepared surface to be bonded together .

4. EPOXY BOND PROCEDURE: The steel substrate and PTFE shall be placed together in a hydraulic Temperature controlled heated press @ 180 degrees F. A constant pressure of 200PSI shall be maintained during the cure time of 15 minutes.

5. BONDED MATERIAL: Remove bonded items immediately after cure time indicated above and place on ambient Steel work station table and allow to cool for one (1) hour.

6. FINISHED PRODUCT: Once Teflon slide plate is cooled to ambient room temperatures remove any residue of epoxy along the perimeters. Secondly, polish the top Teflon surface to be free of any foreign particles prior to assembly to the mating Stainless steel element.

VTRANS
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CK'D BY _____ OK'D BY JWC
SEP 2 2 2010
RESUBMIT _____ APPROVED ✓
BY DATE 9/29/10

107 STRUCTURAL STEEL

WELDING PROCEDURE SPECIFICATION ☒ BRIDGEWATER BRS 0149(4)
OR
PROCEDURE QUALIFICATION RECORD ☐

Specification No.: 57948

Miller Construction, Inc.

Customer: Standard Fusion of T-304 to CS Backing Plate Customer P.O.#: P.O. No. #62810

Base Metals: _____ P-NO.: 8 Group NO.: _____ to P-NO.: 1 Group NO.: 1

Material Specification Type & Grade: T-304 S.S. to Carbon Steel Backing Plate

Welding Process: G.T.A.W. 1/2" dia. nozzle w/gas lens

Manual or Machine: Manual

Position of Welding: 1G Flat

Filler Metal Specification: N/A

Filler Metal Classification: N/A

Shielding Gas: Argon 20-30 cfh

Single or Multiple Pass: Single

Single or Multiple Arc: Single

Welding Current: Direct

Polarity: Straight

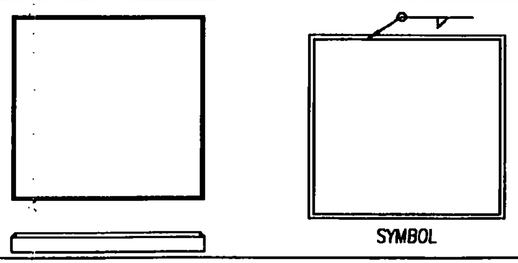
Root Treatment: Remove all oil, grease, scale etc. on weld preparation face and adjacent plate surface

Preheat and Interpass Temp: N/A

Post weld Heat Treatment: N/A

Filler Metal			Pass	Process	Welding Current		Fillet
Class	Dia.	F No.	No.		Amperes	Voltage	Size
N/A	N/A		1	G.T.A.W.	100-170	19-23	Fuse Materials

JOINT DETAIL



VTRANS RECEIVED SEP 22 2010

OK'D BY Jwc

CK'D BY _____

RESUBMIT _____ APPROVED ✓

BY _____ DATE 9/29/10

Manufacturer: Amscot Structural Products Authorized By: _____

Date: 8/19/10

108 STRUCTURAL STEEL

WELDING PROCEDURE SPECIFICATION ☒ BRIDGEWATER BRS 0149(4)
OR
PROCEDURE QUALIFICATION RECORD ☐

Specification No.: 55928

Miller Construction, Inc.

Customer: Standard Fillet Weld Customer P.O.#: P.O. No. #62810

Base Metals: A-588 P-NO.: 1 Group NO.: 1 to P-NO.: 1 Group NO.: 1

Material Specification Type & Grade: ASTM A-588 to A-588

Welding Process: F.C.A.W.

Manual or Machine: Manual

Position of Welding: Flat 1-G

Filler Metal Specification: A 5.29

Filler Metal Classificatcn: E-80T1-W, Esab Dual Shield 8100-W

Shielding Gas: CO^2 Rate: 25 CFH

VTRANS RECEIVED SEP 22 2010

Single or Multiple Pass: Single CK'D BY _____ OK'D BY JPUC

Single or Multiple Arc: Single

Welding Current: Direct RESUBMIT ____ APPROVED ✓

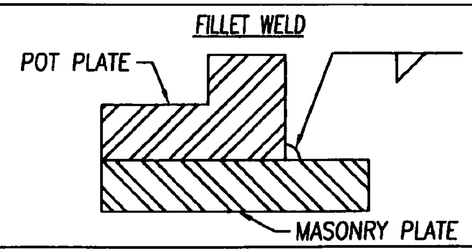
Polarity: Reverse BY _____ DATE 9/29/10

Root Treatment: Remove all scale, grease, etc. from weld preparation face

Preheat and Interpass Temp: 200 Deg F. to 250 Deg F.

Post weld Heat Treatment: N/A

Pass No.	Electrode Size	Welding Current		Weld Size	Joint Detail
		Amperes	Volts		
1	.06	300-310	30-31	5/16"	FILLET WELD



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

Manufacturer: Amscot Structural Products Authorized By: [signature]

Date: 8/19/10

WELDPRO3.DWG

Casco Bay Steel Structures, Inc.

109 STRUCTURAL STEEL

WELDING PROCEDURE SPECIFICATION

Material specification ASTM-A709- Gr 50
Welding process Flux Cored Arc welding
Manual or machine Semi AUTO
Position of welding Flat – Horizontal
Filler metal specification AWS A5-29
Filler metal classification E-81T1-Ni1MJ-H4 - DualShield II 80-Ni1-H4
Flux NA
Shielding gas 75%AR -25% CO_2 Flow rate 35CFH +8, -4
Single or multiple pass Single & MULTiple
Single or multiple arc Single
Welding current DC
Polarity DC EP
Welding progression See Detail
Root treatment Area Tobe Free oF RUST - slag - loose Scale & MoistUre
Preheat and interpass temperature See Table
Posfheat temperature NA
Heat Input Min 34 KJ/in Max 43.7KJ/in PQR-#3 - 33.6 KJ/in

Minimum Preheat and Interpass Temperature, °C [°F]

Welding Process (Base Metal)	Thickness of Thickest Part at Point of Welding, mm [in]			
	To 20 mm [3/4 in] Incl.	Over 20 mm [3/4 in] to 40 mm [1-1/2 in] Incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] Incl.	Over 65 mm [2-1/2 in]
SAW; GMAW; FCAW; SMAW (M270M [M270] 345 [50])	10 [50]	20 [70]	65 [150]	110 [225]

VTRANS RECEIVED
OK'D BY _____ OK'D BY JWC
DEC 07 2010
RESUBMIT _____ APPROVED ✓
BY _____ DATE 12/07/10

VT-A&T, Bridgewater
Proj.# BRS 0149(4)
Br# 14, CBSS 454

WELDING PROCEDURE

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed
		320	28	16
AS REQ	1/16	288 TO 340	27 TO 30	14 TO 18

Sec 5-13 and NY-SCM
AWS D1-5 Joint detail Fillet

Flat

To 1/2

Horizontal

To 3/8

INTerpass Temp MAX - 260°F

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 101 ST OF VT
Revision no. 1 - 8-3-09

PAUL E. GOODALE
CWI 83100201
OCI EXP. 10/01/10

Contractor Casco Bay STeel
Authorized By Paul E. Goodale
3-13-09

110 STRUCTURAL STEEL

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM - 709 - Gr 50
Welding process Submerged Arc welding
Manual or machine Machine
Position of welding Horizontal - 2F, Flat - 1F
Filler metal specification AWS-A5-23
Filler metal classification F8A2-EN1K-N11-H8
Flux Lincoln 960 - Elec. LA75
Shielding gas NA Flow rate NA
Single or multiple pass Single
Single or multiple arc Single
Welding current DC EN
Polarity DCEN
Welding progression See joint Detail
Root treatment Blast Clean - wire brush - Free From Loose-Scale-Slage-Moisture
Preheat and interpass temperature See Table
Posfheat temperature AS REQ
Heat Input Min 409 KJ/in Max 64.2 KJ/in POR #2 - 58.4 KJ/in

VTRANS
RECEIVED
DEC 07 2010

CK'D BY _____ OK'D BY JWC
RESUBMIT _____ APPROVED ✓
BY _____ DATE 12/07/10

Minimum Preheat and Interpass Temperature, °C [°F]

Welding Process (Base Metal)	Thickness of Thickest Part at Point of Welding, mm [in]			
	To 20 mm [3/4 in] incl.	Over 20 mm [3/4 in] to 40 mm [1-1/2 in] incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] incl.	Over 65 mm [2-1/2 in]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] . 345 [50].	10 [50]	20 [70]	65 [150]	110 [225]

VT - A&T, Bridgewater
Proj. # BRS 0149(4)
Br. # 14, CBSS 454

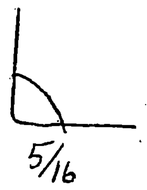
WELDING PROCEDURE

Sec 5-13
AWS D1-5 Joint detail Fillet

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed
		365	32	12
AS REQ	3/32	328 To 365	30 To 33	11 To 14

1F

2F



MAX InterPass 410°F.

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 250 ST of VT Contractor Casco Bay Steel
Revision no. 1 - 8-7-10 Authorized By Paul E. Goodale
PAUL E. GOODALE CWI 8310020 QCI EXP. 10/01/10
Date 6-21-10

III STRUCTURAL STEEL

Casco Bay Steel Structures, Inc.

5 Industry Road
South Portland, Maine 04106

hone: (207) 772-2533 Fax: (207) 772-0580

VTRANS
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DEC 07 2010

WELDING PROCEDURE SPECIFICATION

Material specification ASTM 709-Gr 36-50-50W (250-345-345W)
Welding process Shielded Metal Arc Welding (SMAW)
Manual or machine Manual
Position of welding Flat (1F), Horizontal (2F)
Filler metal specification ANSI/AWS A5.1 - A5.5
Filler metal classification E7018 - 8018 C1/C3 - 7028
Flux NA
Shielding gas NA Flow rate NA
Single or multiple pass Single and multiple
Single or multiple arc Single
Welding current AC/DC
Polarity STraight / Reverse
Welding progression
Root treatment Meet AWS SPECIFICATION
Preheat and interpass temperature To 3/4(19) 50°F(10°) 3/4(19) To 1 1/2(38) 70°F(20°) 1 1/2(38) To 2 1/2(63.5) 150°F(65°) over 2 1/2(63.5) 225°F(110°)
Postheat temperature NA
Heat Input Min NA Max NA

CKT. BY OK'D BY JWC
RESUBMIT APPROVED
BY DATE 12/07/10

VT. A.C.T. Bridgewater
Proj. # BRS 0149(41)
Br # 14, CBSS 454

(metric)

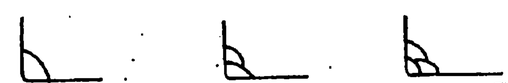
WELDING PROCEDURE

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed
	7018			
	1/8 (3.2)	70-170	22-26	
AS	5/32 (3.9)	120-225	22-26	AS
REQ.	3/16 (4.8)	170-300	24-27	REQ
	8018			
	1/8 (3.2)	90-160	22-26	
	5/32 (3.9)	120-225	22-26	
	3/16 (4.8)	180-290	24-27	
	7028			
	5/32 (3.9)	170-290	22-26	
	3/16 (4.8)	210-330	24-27	

AWS D1.1-5 Joint detail Fillet

1F

2F



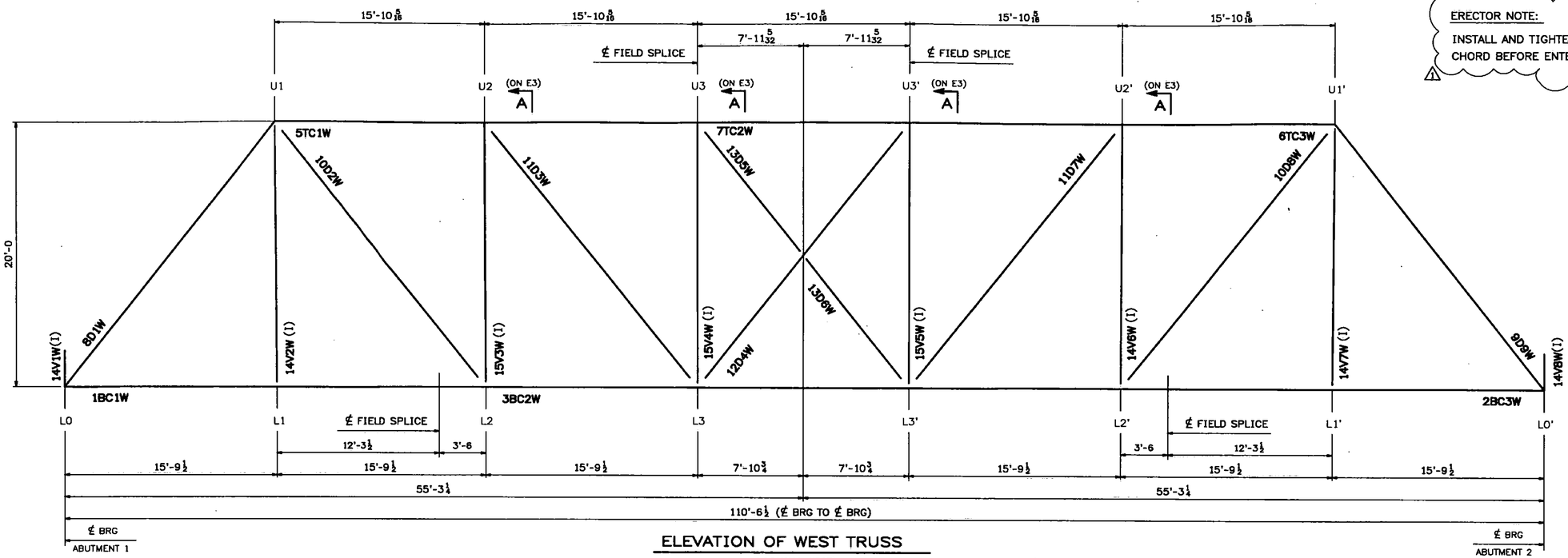
This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable AWS codes or contract specifications

AWS QC 1 PAUL E. HOODALE 03100201 CWI

Procedure no. 401
Revision no.
Form III-2

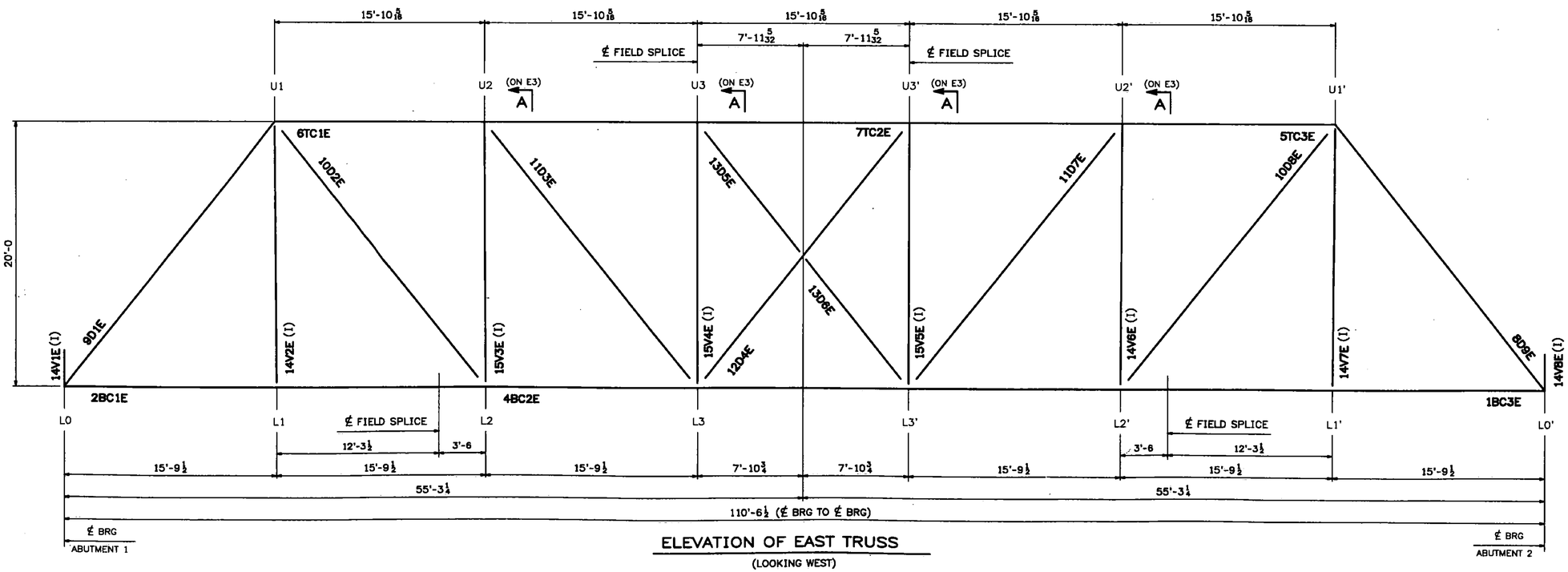
Contractor Casco Bay Steel
Authorized By Paul E. Hoodale
Date 5/28/10

1/2 STRUCTURAL STEEL



ELEVATION OF WEST TRUSS

(LOOKING WEST)



ELEVATION OF EAST TRUSS

(LOOKING WEST)

ERECTOR NOTE:

INSTALL AND TIGHTEN WEB BOLTS OF TOP CHORD BEFORE ENTERING FLANGE BOLTS

Vermont Agency of Transportation

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CK'D BY TCF OK'D BY SSS

7:43 am, Apr 12, 2011

RESUBMIT ____ APPROVED X

BY KMH DATE 4-12-11

NOTE:

(I) INDICATES THAT THE SHIPPING MARK IS ON THE MEMBERS INNER FACE (FLOOR BEAM SIDE).

NOTES:

1. ALL DIMENSIONS ARE GIVEN IN THE FINAL POSITION OF BRIDGE.
2. FOR GENERAL NOTES SEE DWG. GN1.

WORK THIS DWG. WITH DWG. E2, E3 ℄ E4

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	02/25/11	ADDED NOTE	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:

DESCRIPTION: FRAMING AT WEST ℄ EAST TRUSS ELEVATION

CASCO BAY STEEL STRUCTURES, INC.

75 SPRING HILL ROAD SACO, MAINE 04072

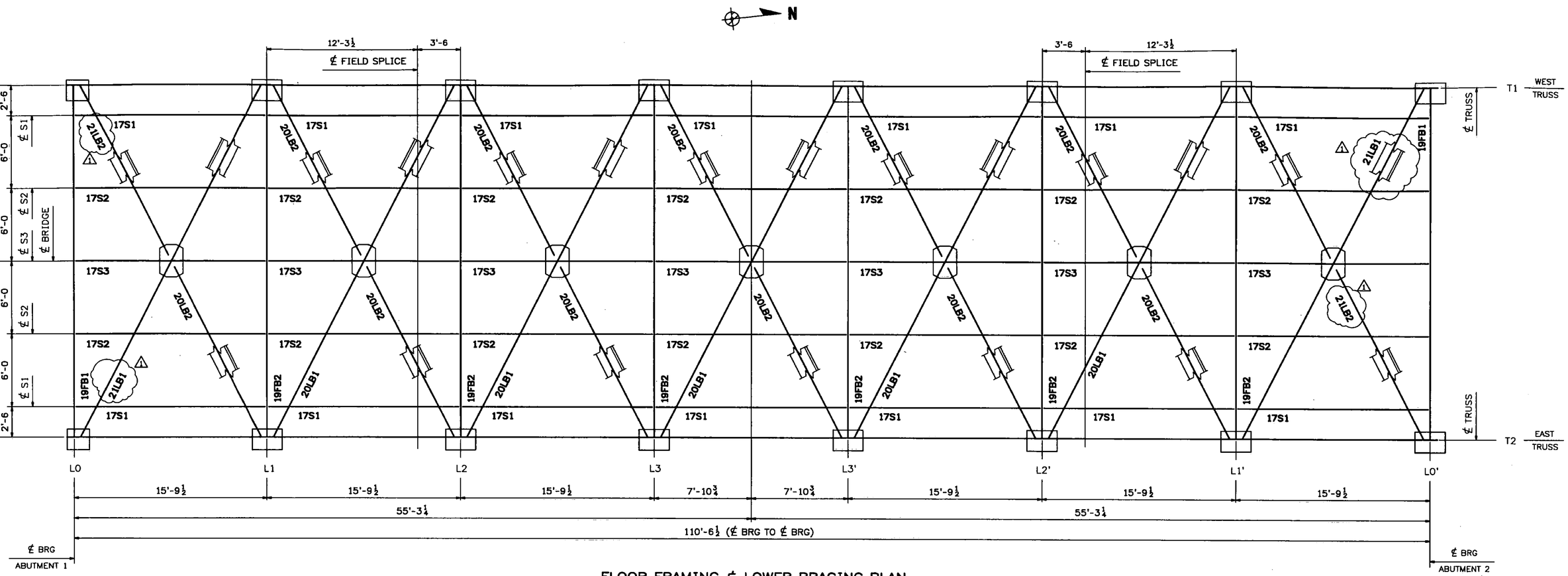
PHONE (207) 282-7360 FAX. (207) 282-1179

TENSOR 3015

STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/11/10
		CHKD: WJL	DATE: 10/19/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. E1
PROJ NO.	BRS 0149(4)		REV. 1
CUSTOMER:	VT AOT		

WJL Mon, Oct 25, 2010 01:45:08 PM J:\casco\jobs\2010\10-1.dwg

113' STRUCTURAL STEEL



FLOOR FRAMING ℄ LOWER BRACING PLAN

Vermont Agency of Transportation

RECEIVED

CK'D BY TCF OK'D BY SSS

7:43 am, Apr 12, 2011

RESUBMIT ____ APPROVED X

BY KMH DATE 4-12-11

WORK THIS DWG. WITH DWG. E1, E3 ℄ E4

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	02/25/11	REVISED MARKS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:

DESCRIPTION: FLOOR FRAMING ℄ LATERAL BRACING PLAN

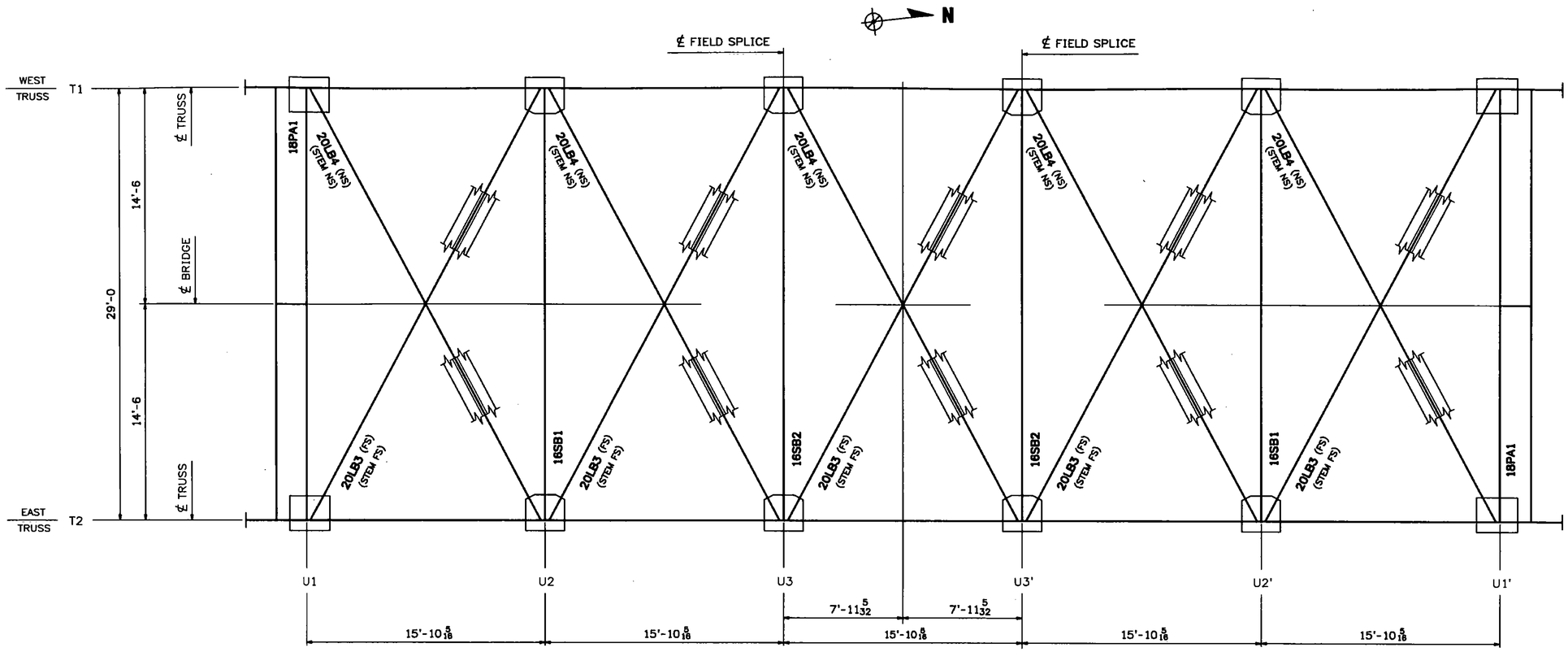
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

TENSOR 3015

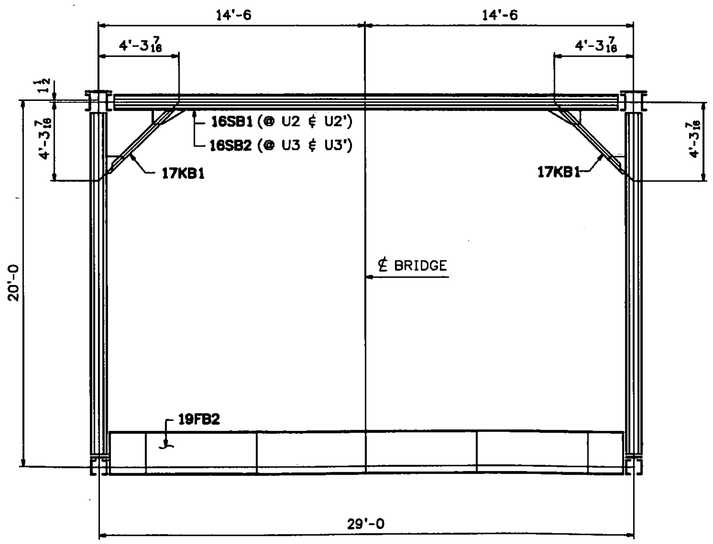
STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/11/10
		CHKD: WJL	DATE: 10/19/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO.	BRS 0149(4)	454	E2
CUSTOMER:	VT AOT		REV. 1

M:\... Mon, Oct 25, 2010 01:48:19 PM ...\Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor\E2.dwg

114 STRUCTURAL STEEL



ROOF FRAMING ℄ UPPER BRACING PLAN



SECTION -A
(ON E1)

SWAY BRACE
(STRINGERS NOT SHOWN FOR CLARITY)

Vermont Agency of Transportation

RECEIVED

CK'D BY TCF OK'D BY SSS

7:43 am, Apr 12, 2011

RESUBMIT ____ APPROVED X

BY KMH DATE 4-12-11

WORK THIS DWG. WITH DWG. E1, E2 ℄ E4

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	03/09/11	RESUBMIT FOR APPROVAL	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:

DESCRIPTION: ROOF FRAMING PLAN ℄ SWAY BRACES

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

TENSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/11/10	
	CHKD: WJL	DATE: 10/19/10	
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. E3	
PROJ NO. BRS 0149(4)		REV. 1	
CUSTOMER: VT AOT			

Mon, Oct 25, 2010 01:48:27 PM J:\comm\jobs\2010\03-1.dwg

115 STRUCTURAL STEEL

FIELD BOLT LIST						A325 Type 1 BOLTS								
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN.	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED						WASH CODE	PIECES CONNECTED AND REMARKS
1														BOTTOM CHORD FIELD SPLICE
2														NEAR L2 ℄ L2'(WEST ℄ EAST):
3	160	7/8	2 1/2	20	8	1 1/8	1/2	7/16					1	WEBS
4	80	3/4	3	20	4	1 7/16	1/2	1/2	7/16			✳	B1	TOP FLANGES
5	80	3/4	2 1/2	20	4	1 1/8	1/2	7/16				✳	B1	BTM FLANGES
6														
7														JOINT L0 ℄ L0'(WEST ℄ EAST)
8														BOTTOM CHORD
9														1BC1W,1BC3E,2BC1E,2BC3W WEB
10	80	7/8	2 1/2	10	8	1 1/8	7/16	1/2					1	TO GUSSET PLATE
11														1BC1W,1BC3E,2BC1E,2BC3W BTM
12	24	3/4	3	6	4	1 1/16	7/16	1				✳	B1	FLG TO BTM GUSSET PLATE
13														14V1W,14V1E,14V8W,14V8E FLG
14	64	7/8	2 1/2	16	4	1 1/8	9/16	1/2					1	TO GUSSET PLATE (OUTER SIDE)
15														14V1W,14V1E,14V8W,14V8E FLG
16	56	7/8	2 3/4	14	4	1 1/16	9/16	1/2	5/8				1	TO GUSSET PL ℄ FLBM ANGLES
17														8D1W,8D9E,9D1E,9D9W WEB
18	72	7/8	2 1/2	9	8	7/8	5/8	1/2					1	TO GUSSET PLATE
19														8D1W,8D9E,9D1E,9D9W WEB
20	40	7/8	2 3/4	5	8	1 1/4	3/8	1/2	3/8				1	TO GUSSET PLATE ℄ ANGLES
21														8D1W,8D9E,9D1E,9D9W WEB
22	40	7/8	2 3/4	5	8	1 1/4	3/8	1/2	3/8				1	TO INTERNAL FILLS ℄ ANGLES
23														8D1W,8D9E,9D1E,9D9W
24	80	3/4	2 1/2	10	8	1	3/8	5/8					1	COVER PL TO ANGLES
25														JOINT L1 ℄ L1'(WEST ℄ EAST)
26														BOTTOM CHORD
27														1BC1W,1BC3E,2BC1E,2BC3W WEB
28	48	7/8	2 1/2	12	4	1 1/8	7/16	1/2					1	TO GUSSET PLATE
29														1BC1W,1BC3E,2BC1E,2BC3W WEB
30	16	7/8	2 3/4	4	4	1 1/8	7/16	1/2	3/8				1	TO GUSSET PL ℄ FLBM ANGLES
31														14V2W,14V2E,14V7W,14V7E FLG
32	40	7/8	2 1/2	10	4	1 1/8	9/16	1/2					1	TO GUSSET PLATE (OUTER SIDE)
33														14V2W,14V2E,14V7W,14V7E FLG
34	40	7/8	2 3/4	10	4	1 7/16	9/16	1/2	3/8				1	TO GUSSET PL ℄ FLBM ANGLES
35														JOINT L2 ℄ L2'(WEST ℄ EAST)
36														BOTTOM CHORD
37														3BC2W ℄ 4BC2E WEB
38	112	7/8	2 1/2	28	4	1 1/8	7/16	1/2					1	TO GUSSET PLATE
39														3BC2W ℄ 4BC2E WEB
40	16	7/8	2 3/4	4	4	1 1/8	7/16	1/2	3/8				1	TO GUSSET PL ℄ FLBM ANGLES
41														15V3W,15V3E,15V6W,15V6E FLG
42	40	7/8	2 1/2	10	4	1 1/8	9/16	1/2					1	TO GUSSET PLATE (OUTER SIDE)
43														15V3W,15V3E,15V6W,15V6E FLG
44	40	7/8	2 3/4	10	4	1 7/16	9/16	1/2	3/8				1	TO GUSSET PL ℄ FLBM ANGLES
45														JOINT L3 ℄ L3'(WEST ℄ EAST)
46														BOTTOM CHORD
47														3BC2W ℄ 4BC2E WEB
48	112	7/8	2 1/2	28	4	1 1/8	7/16	1/2					1	TO GUSSET PLATE
49														3BC2W ℄ 4BC2E WEB
50	16	7/8	2 3/4	4	4	1 1/8	7/16	1/2	3/8				1	TO GUSSET PL ℄ FLBM ANGLES
51														15V4W,15V4E,15V5W,15V5E FLG
52	40	7/8	2 1/2	10	4	1 1/8	9/16	1/2					1	TO GUSSET PLATE (OUTER SIDE)
53														15V4W,15V4E,15V5W,15V5E FLG
54	40	7/8	2 3/4	10	4	1 7/16	9/16	1/2	3/8				1	TO GUSSET PL ℄ FLBM ANGLES
55														

WASHER CODES

1: 1 Hard Flat Washer
B1: 1 Beveled, 1 Flat.

FIELD BOLT LIST						A325 Type 1 BOLTS								
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN.	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED						WASH CODE	PIECES CONNECTED AND REMARKS
56														JOINT U1 ℄ U1'(WEST ℄ EAST)
57														TOP CHORD
58														5TC1W,5TC3E,6TC1E,6TC3W WEB
59	120	7/8	2 3/4	15	8	1 1/4	3/8	3/8	3/8	1/8			1	TO GUSSET PLATES
60														5TC1W,5TC3E,6TC1E,6TC3W TOP
61	48	3/4	3	12	4	1 1/16	7/16	5/8	3/8			✳	B1	FLG TO TOP GUSSET PLATE
62														5TC1W,5TC3E,6TC1E,6TC3W TOP
63	72	3/4	2 1/2	18	4	1 5/16	5/16	5/8	3/8				1	FLG TO TOP GUSSET/SPLICE PL
64														8D1W,8D9E,9D1E,9D9W WEB
65	96	7/8	2 3/4	12	8	1 1/4	3/8	3/8	3/8	1/8			1	TO GUSSET PLATES
66														8D1W,8D9E,9D1E,9D9W TOP FLG
67	32	3/4	3	8	4	1 1/16	7/16	5/8	3/8			✳	B1	TO TOP PORTAL GUSSET PLATE
68														8D1W,8D9E,9D1E,9D9W TOP FLG
69	48	3/4	2 1/2	12	4	1 5/16	5/16	5/8	3/8				1	TO TOP GUSSET/SPLICE PLATE
70														8D1W,8D9E,9D1E,9D9W BTM FLG
71	12	3/4	2 1/4	3	4	3/4	7/16	5/16				✳	B1	TO BTM GUSSET PLATE
72														14V2W,14V2E,14V7W,14V7E FLG
73	80	7/8	2 1/2	10	8	1 1/8	5/8	3/8					1	TO GUSSET PLATES
74														JOINT U2 ℄ U2'(WEST ℄ EAST)
75														TOP CHORD
76														5TC1W,5TC3E,6TC1E,6TC3W WEB
77	120	7/8	2 1/4	15	8	3/4	3/8	3/8					1	TO GUSSET PLATE
78														5TC1W,5TC3E,6TC1E,6TC3W TOP
79	80	3/4	3	20	4	1 3/8	7/16	5/8	5/16			✳	B1	FLG TO TOP GUSSET PLATE
80														5TC1W,5TC3E,6TC1E,6TC3W TOP
81	24	3/4	2 1/4	6	4	1 1/8	5/8	5/16					1	FLG TO TOP GUSSET PLATE
82														5TC1W,5TC3E,6TC1E,6TC3W BTM
83	24	3/4	2 1/4	6	4	3/4	7/16	5/16				✳	B1	FLG TO BTM GUSSET PLATE
84														15V3W,15V3E,15V6W,15V6E FLG
85	32	7/8	2 3/4	4	8	1 1/8	5/8	3/8	3/8				1	TO GUSSET PLATES ℄ TOP CHORD
86														15V3W,15V3E,15V6W,15V6E FLG
87	48	7/8	2 1/4	6	8	1 1/8	5/8	3/8					1	TO GUSSET PLATES
88														JOINT U3 ℄ U3'(WEST ℄ EAST)
89														TOP CHORD
90														5TC1W,5TC3E,6TC1E,6TC3W,
91														7TC2W,7TC2E WEB
92	176	7/8	2 1/4	11	16	3/4	3/8	3/8					1	TO GUSSET PLATES
93														5TC1W,5TC3E,6TC1E,6TC3W,
94														7TC2W,7TC2E WEB AND
95														15V4W,15V4E,15V5W,15V5E FLG
96	32	7/8	3	4	8	1 1/8	3/8	3/8	5/16	5/16			1	TO GUSSET PLATES
97														5TC1W,5TC3E,6TC1E,6TC3W
98														7TC2W,7TC2E TOP FLG
99	80	3/4	3	20	4	1 3/8	7/16	5/8	5/16			✳	B1	TOP GUSSET PLATE
100														5TC1W,5TC3E,6TC1E,6TC3W
101														7TC2W,7TC2E TOP FLG
102	120	3/4	2 1/2	30	4	1 1/4	5/8	5/16	5/16				1	TOP GUSSET/SPLICE PLATE
103														5TC1W,5TC3E,6TC1E,6TC3W
104														7TC2W,7TC2E BTM FLG
105	32	3/4	2 1/4	8	4	3/4	7/16	5/16				✳	B1	TO BTM GUSSET PLATE
106														15V4W,15V4E,15V5W,15V5E FLG
107	48	7/8	2 1/4	6	8	1 1/8	5/8	3/8					1	TO GUSSET PLATES
108														
109														TRUSS DIAGONALS:
110														10D2W,10D2E,10D8W,10D8E TO
111	80	7/8	2 1/4	10	8	1 1/8	7/16	1/2					1	BTM CHORD GUSSET PLATES
112														10D2W,10D2E,10D8W,10D8E TO
113	80	7/8	2 1/4	10	8	1 1/8	7/16	3/8					1	TOP CHORD GUSSET PLATES
114														11D3W,11D3E,11D7W,11D7E TO
115	80	7/8	2 1/4	10	8	1 1/8	7/16	1/2					1	BTM CHORD GUSSET PLATES

WASHER CODES

1: 1 Hard Flat Washer
B1: 1 Beveled, 1 Flat.

FIELD BOLT LIST						A325 Type 1 BOLTS								
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN.	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED						WASH CODE	PIECES CONNECTED AND REMARKS
116														11D3W,11D3E,11D7W,11D7E TO
117	80	7/8	2 1/4	10	8	1 1/8	7/16	3/8					1	TOP CHORD GUSSET PLATES
118														12D4W,12D4E BTM CHORD
119	20	7/8	2 1/4	5	4	7/8	3/8	1/2					1	GUSSET PLATES
120														12D4W,12D4E TO TOP CHORD
121	20	7/8	2 1/4	5	4	3/4	3/8	3/8					1	GUSSET PLATES
122														TRUSS DIAGONALS:
123														13D6W,13D6E BTM CHORD
124	20	7/8	2 1/4	5	4	7/8	3/8	1/2					1	GUSSET PLATES
125														13D5W,13D5E TO TOP CHORD
126	20	7/8	2 1/4	5	4	3/4	3/8	3/8					1	GUSSET PLATES
127														13D5W,13D5E,13D6W,13D6E TO
128	40	7/8	2 1/4	5	8	3/4	3/8	3/8					1	CENTER GUSSET PLATES
129														
130														FLOORBEAM CONNECTIONS:
131														19FB1 ℄ 19FB2 WEB TO
132	112	7/8	2 3/4	7	16	1 3/8	3/8	5/8	3/8				1	END CONNECTION ANGLES
133														19FB1 BTM FLG TO
134	24	3/4	3 1/2	6	4	2	1	1					1	BTM GUSSET PLATES
135														19FB2 BTM FLG TO
136	72	3/4	2 1/2	6	12	1 1/8	1	5/16					1	BTM GUSSET PLATES
137														STRINGER CONNECTION ANGLES
138	40	7/8	2 1/2	4	10	1	3/8	5/8					1	TO 19FB1 WEB
139	120	7/8	2 3/4	4	30	1 3/8	3/8	5/8	3/8				1	TO 19FB2 WEB
140														
141														STRINGER CONNECTIONS:
142														END CONN. ANGLES TO
143	280	7/8	2 1/2	4	70	1 1/8	3/8	3/8	3/8				1	17S1,17S2 ℄ 17S3 WEB
144														
145														SWAY BRACE STRUTS
146														16SB1 ℄ 16SB2 TOP FLG TO
147	48	3/4	2 1/4	6	8	1 1/8	5/16	5/16	5/16				1	TOP GUSSET PLATE
148														16SB1 ℄ 16SB2 BTM FLG TO
149	48	3/4	2	6	8	1	5/16	5/16					1	BTM GUSSET PLATE
150														KNEE BRACES
151														17KB1 ℄ 17KB2 TO SWAY BRACE
152	24	3/4	2 1/2	3	8	1 1/2	5/16	5/8	5/16				1	GUSSET PLATE
153														17KB1 ℄ 17KB2 TO INNER FLG
154	48	3/4	2 1/4	6	8	7/8	5/16	5/16					1	OF VERTICALS
155														
156														PORTAL CONNECTIONS
157														OUTER FACE OF 18PA1
158	24	3/4	2	6	4	1 1/8	5/16	3/8					1	TO UPPER GUSSET PLATE
159	12	3/4	2	3	4	5/8	5/16	5/16					1	TO LOWER GUSSET PLATE
160														INNER FACE OF 18PA1
161	12	3/4	2	3	4	5/8	5/16	5/16					1	TO UPPER GUSSET PLATE
162	12	3/4	2	3	4	1 1/8	5/16	3/8					1	TO LOWER GUSSET PLATE
163														FLOOR LATERAL BRACING
164														20LB1, 20LB2, 21LB1 ℄ 21LB2
165	126	3/4	2	3	42	5/8	5/16	5/16					1	TO GUSSET PLATES
166														ROOF LATERAL BRACING
167														20LB3 ℄ 20LB4 TO GUSSET PLAT
168	24	3/4	2	6	4	1 1/8	7/16	3/8					1	AT U1 ℄ U1'
169														20LB3 ℄ 20LB4 TO GUSSET PLAT
170	96	3/4	2	6	16	3/4	7/16	5/16					1	AT U2,U2',U3 ℄ U3'
171	20	3/4	2 1/2	4	5	1 1/8	7/16	5/16	7/16				1	20LB1 TO 20LB2 AT CENTER

WASHER CODES

1: 1 Hard Flat Washer

NOTES:

1. FOR GENERAL NOTES SEE DWG. GN1.

WORK THIS DWG. WITH DWG. E1, E2 ℄ E3

FIELD BOLT SUMMARY

FIELD BOLT SUMMARY				2% + 2 ADDED, MIN. 2 EXTRA		
LINE	NO. OF BOLTS	BOLT DIAM.	TYPE	BOLT LEN	ACTUAL COUNT	REMARKS
1	363	3/4	A325 Type 1	2	354	
2	275	3/4		2 1/4	252	
3	447	3/4		2 1/2	436	
4	353	3/4		3	344	
5	26	3/4	A325 Type 1	3 1/2	24	
6						
7	1464	Hard Flat Washers for 3/4 ø BOLT				
8	505	Beveled Washers for 3/4 ø BOLT				
9						
10						
11	1528	7/8	A325 Type 1	2 1/4	1496	
12	516	7/8		2 1/2	504	
13	802	7/8		2 3/4	768	
14	35	7/8	A325 Type 1	3	32	
15						
16	2881	Hard Flat Washers for 7/8 ø BOLT				
17						
18						
19						

Vermont Agency of Transportation

RECEIVED

CK'D BY TCF OK'D BY SSS

7:43 am, Apr 12, 2011

RESUBMIT APPROVED X

BY KMH DATE 4-12-11

ERECTOR NOTE:

BOLT ORIENTATION SHALL BE SUCH THAT THE BOLT HEAD SHALL BE ON THE OUTSIDE OR EXPOSED SIDE OF THE STEEL MEMBER WHENEVER POSSIBLE.

✳ - DENOTES BOLT WITH 1-BEVELED WASHER UNDER NUT ON THE BEVELED SIDE OF STANDARD CHANNELS AND 1 - HARD FLAT WASHER UNDER BOLT HEAD

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/24/11	APPROVAL COMMENTS	JM	PWR		
1	03/07/11	APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL: | SURFACE PREP. ℄ PAINT: | HOLES: | SHOP BOLTS:

DESCRIPTION: FIELD BOLTS

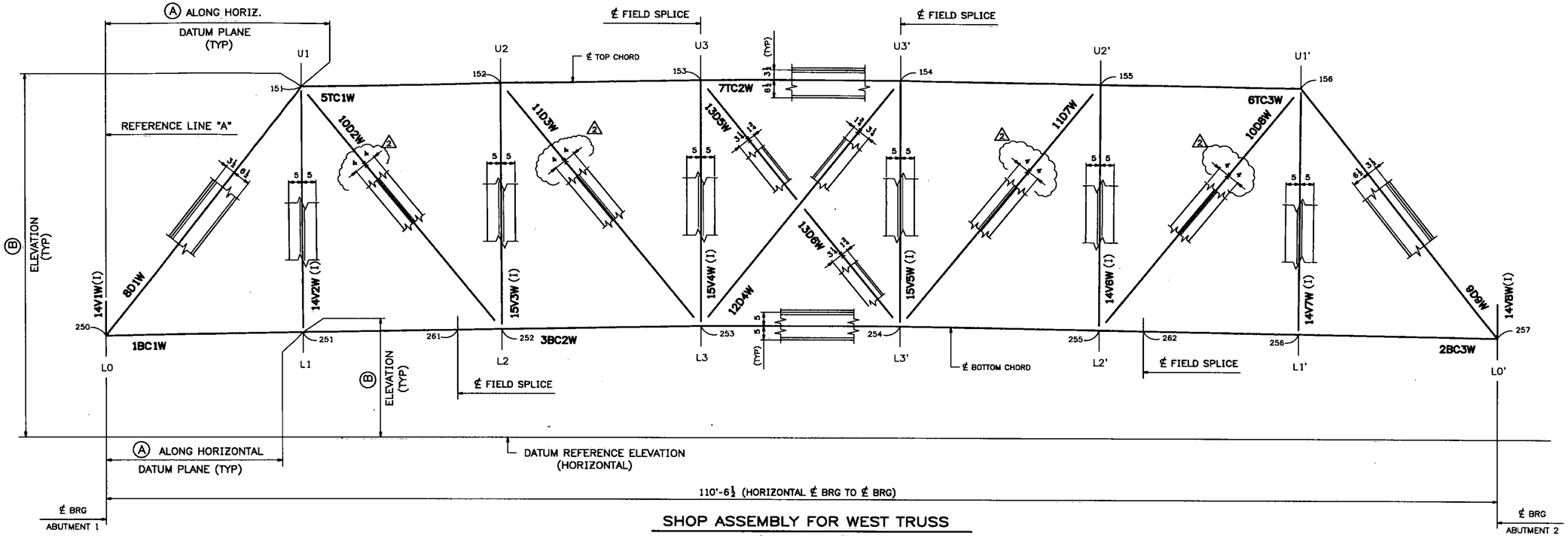
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

TENSOR 3015

STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/12/10
		CHKD: WJL	DATE: 10/20/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. E4
PROJ NO.	BRS 0149(4)		
CUSTOMER:	VT AOT		REV. 2

Mon, Oct 25, 2010 01:48:38 PM /users/pete/2010/01.1.Dwg

116 STRUCTURAL STEEL



SHOP ASSEMBLY FOR WEST TRUSS

(LOOKING WEST)

POINT NUMBER	LONGIT. EXTENSION Ⓐ	ELEVATION Ⓑ
250	0"	2'-0
251	15'-9½	2'-2 3/16
252	31'-7	2'-3½
253	47'-4½	2'-3 15/16
254	63'-2	2'-3 15/16
255	78'-11½	2'-3½
256	94'-9	2'-2 3/16
257	110'-6½	2'-0

(FOR BOTTOM CHORD)

POINT NUMBER	LONGIT. EXTENSION Ⓐ	ELEVATION Ⓑ
151	15'-7½	22'-2 3/16
152	31'-5 13/16	22'-3½
153	47'-4⅛	22'-3 15/16
154	63'-2 7/16	22'-3 15/16
155	79'-0¾	22'-3½
156	94'-11 1/16	22'-2 3/16

(FOR TOP CHORD)

POINT NUMBER	LONGIT. EXTENSION Ⓐ	ELEVATION Ⓑ
261	28'-1	2'-3 5/16
262	82'-5½	2'-3 5/16

(FOR FIELD SPLICES)

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

NOTES:
1. ALL DIMENSIONS ARE GIVEN TO THE ℄ OF WEST TRUSS.
2. ALL LONGITUDINAL EXTENSION DIMENSIONS (ALONG HORIZ. DATUM PLANE) ARE GIVEN FROM REFERENCE LINE "A".
3. ALL ELEVATIONAL OFFSETS (ELEVATIONS) ARE GIVEN VERTICALLY FROM THE HORIZONTAL DATUM PLANE.

NOTE:
(I) INDICATES THAT THE SHIPPING MARK IS ON THE MEMBERS INNER FACE (FLOOR BEAM SIDE).

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	03/09/11	RESUBMIT FOR APPROVAL	JM	PWR		
0						

MATERIAL: | SURFACE PREP. ℄ PAINT: | HOLES: | SHOP BOLTS:

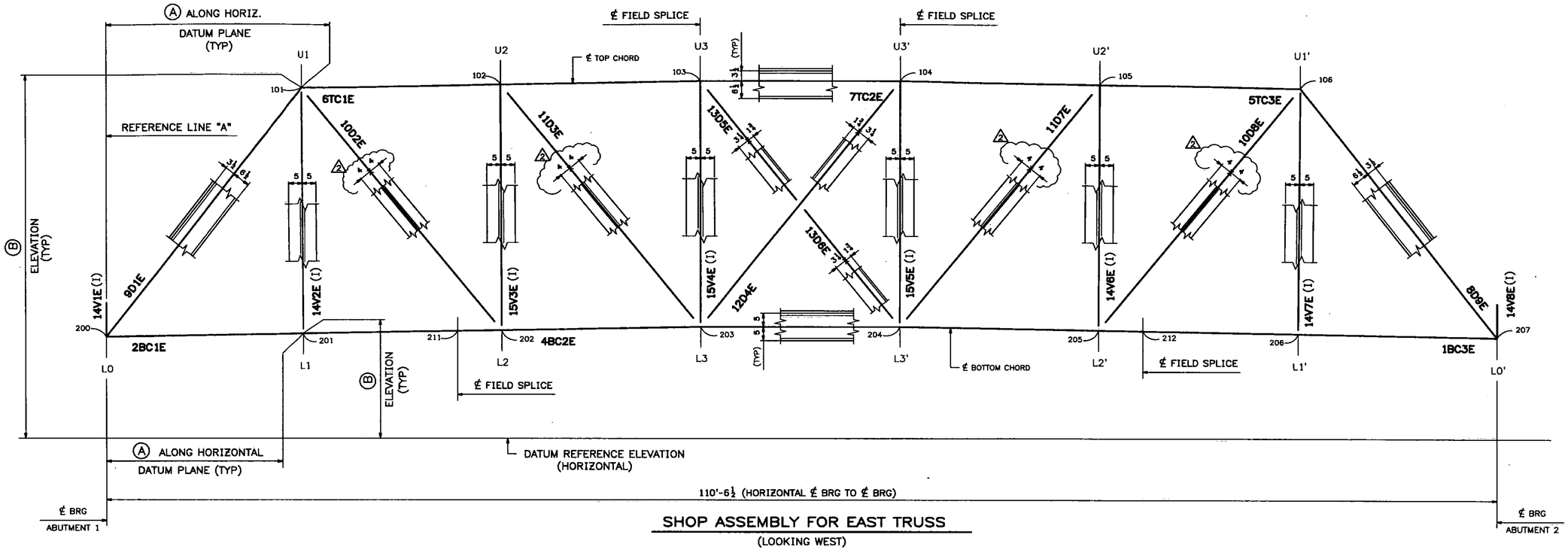
DESCRIPTION: SHOP ASSEMBLY FOR WEST TRUSS

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/12/10
	CHKD: WJL	DATE: 10/20/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. SA1
PROJ NO. BRS 0149(4)		REV. 2
CUSTOMER: VT AOT		

Mon, Oct 25, 2010 01:45:58 PM /users/jobs/2010/7A11 : Rev0

117 STRUCTURAL STEEL



SHOP ASSEMBLY FOR EAST TRUSS

(LOOKING WEST)

POINT NUMBER	LONGIT. EXTENSION Ⓐ	ELEVATION Ⓑ
200	0"	2'-0
201	15'-9½	2'-2 3/16
202	31'-7	2'-3½
203	47'-4½	2'-3 15/16
204	63'-2	2'-3 15/16
205	78'-11½	2'-3½
206	94'-9	2'-2 3/16
207	110'-6½	2'-0

(FOR BOTTOM CHORD)

POINT NUMBER	LONGIT. EXTENSION Ⓐ	ELEVATION Ⓑ
101	15'-7½	22'-2 3/16
102	31'-5 13/16	22'-3½
103	47'-4⅛	22'-3 15/16
104	63'-2 7/16	22'-3 15/16
105	79'-0¾	22'-3½
106	94'-11 1/16	22'-2 3/16

(FOR TOP CHORD)

POINT NUMBER	LONGIT. EXTENSION Ⓐ	ELEVATION Ⓑ
211	28'-1	2'-3 5/16
212	82'-5½	2'-3 5/16

(FOR FIELD SPLICES)

Vermont Agency of Transportation

RECEIVED

CK'D BY TCF OK'D BY SSS

7:43 am, Apr 12, 2011

RESUBMIT _____ APPROVED X

BY KMH DATE 4-12-11

NOTES:
1. ALL DIMENSIONS ARE GIVEN TO THE ℄ OF EAST TRUSS.
2. ALL LONGITUDINAL EXTENSION DIMENSIONS (ALONG HORIZ. DATUM PLANE) ARE GIVEN FROM REFERENCE LINE "A".
3. ALL ELEVATIONAL OFFSETS (ELEVATIONS) ARE GIVEN VERTICALLY FROM THE HORIZONTAL DATUM PLANE.

NOTE:

(I) INDICATES THAT THE SHIPPING MARK IS ON THE MEMBERS INNER FACE (FLOOR BEAM SIDE).

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	03/09/11	RESUBMIT FOR APPROVAL	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:

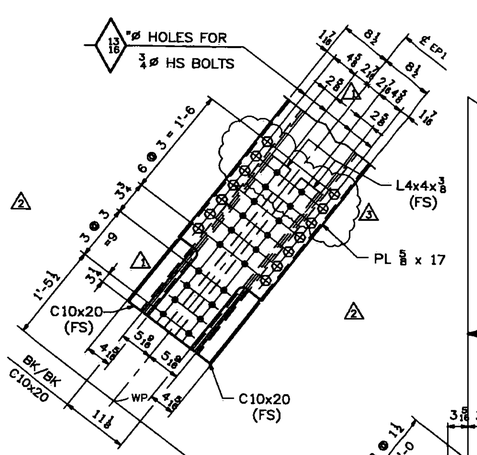
DESCRIPTION: SHOP ASSEMBLY FOR EAST TRUSS

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/12/10
		CHKD: WJL	DATE: 10/20/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO.	BRS 0149(4)	454	SA2
CUSTOMER:	VT AOT		REV. 2

Mon, Oct 25, 2010 01:47:05 PM //corey/jobs/2010/343.1/dwg

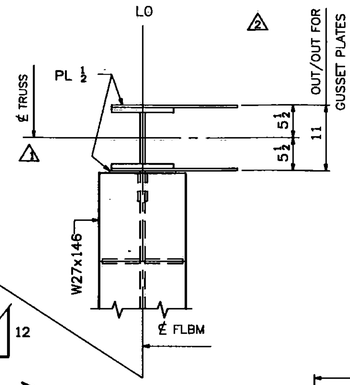
118 STRUCTURAL STEEL

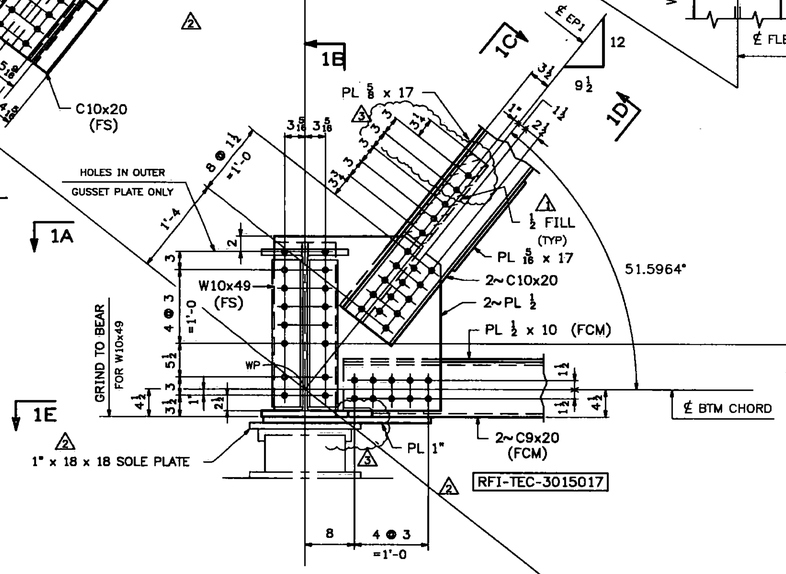


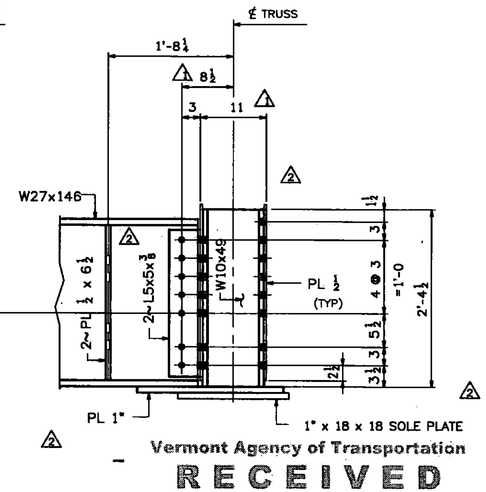
SECTION -1C

RFI-TEC-3015006

RFI-TEC-3015012







Vermont Agency of Transportation

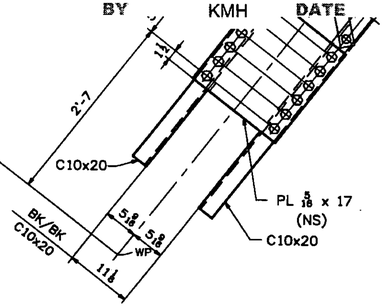
RECEIVED

CK'D BY TCF OK'D BY SSS

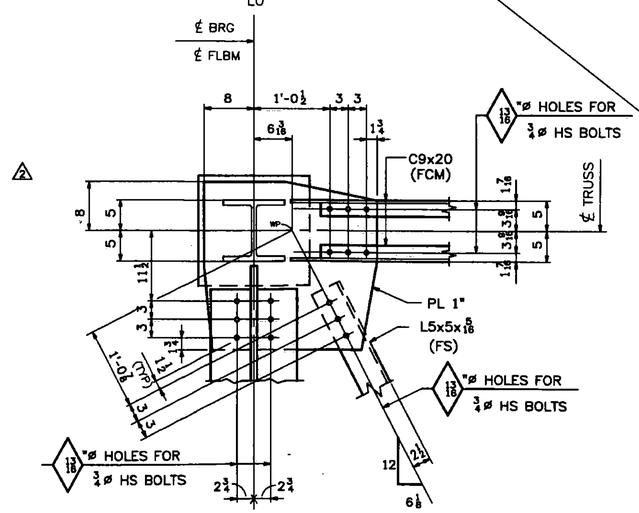
7:43 am, Apr 12, 2011

RESUBMIT ____ APPROVED ____

BY KMH DATE 4-12-11



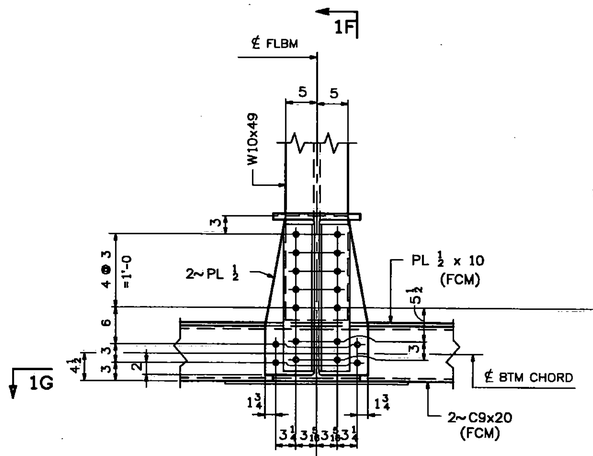
SECTION -1D



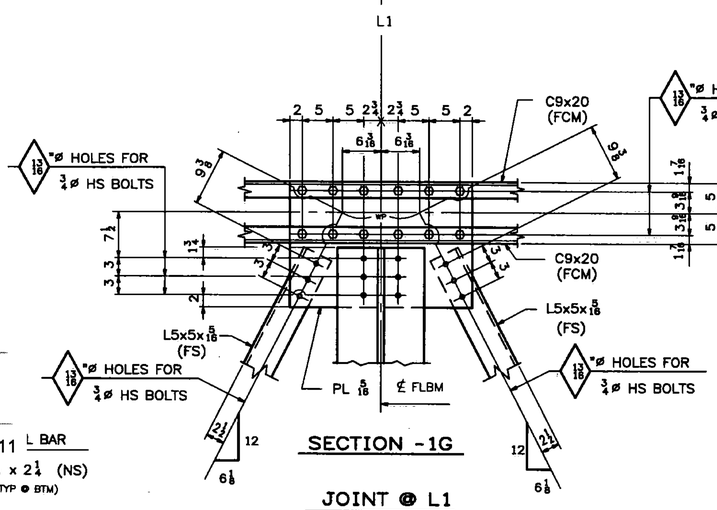
SECTION -1E

(DEVELOPED)

JOINT @ L0



SECTION -1F



SECTION -1G

JOINT @ L1

NOTES:

- MAT'L SHALL BE M270 GR50 (GALVANIZED).
- HOLES SHALL BE $\frac{13}{16}$"ø (UN).
- BOLTS SHALL BE ⅞"ø A325 TYPE 1 (GALVANIZED) (UN).
- FCM - DENOTES FRACTURE CRITICAL MATERIAL.

◆◆ NOTE ◆◆
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION AND CONNECTION SPACING. THIS DWG IS SUBMITTED FOR INFORMATION ONLY ℄ IS NOT INTENDED FOR SHOP FABRICATION. DETAIL DWGS WILL SHOW ALL WELDING AND DIMENSIONS REQ'D FOR FABRICATION.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
3	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
2	02/25/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	10/20	REVISED DIMENSIONS	RB	WJL		
0						

MATERIAL: | SURFACE PREP. ℄ PAINT: | HOLES: | SHOP BOLTS:

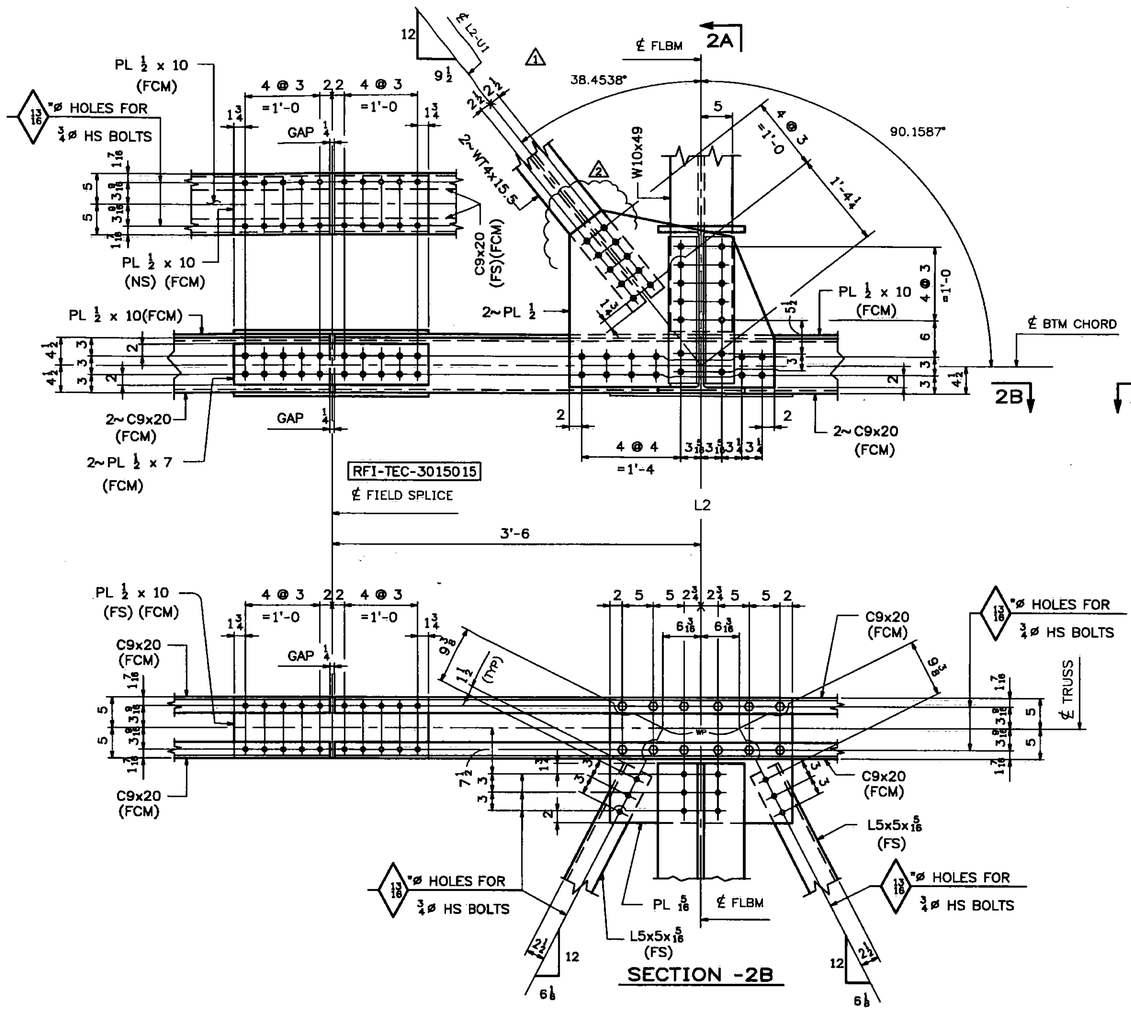
DESCRIPTION: LAYOUTS @ L0 ℄ L1

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

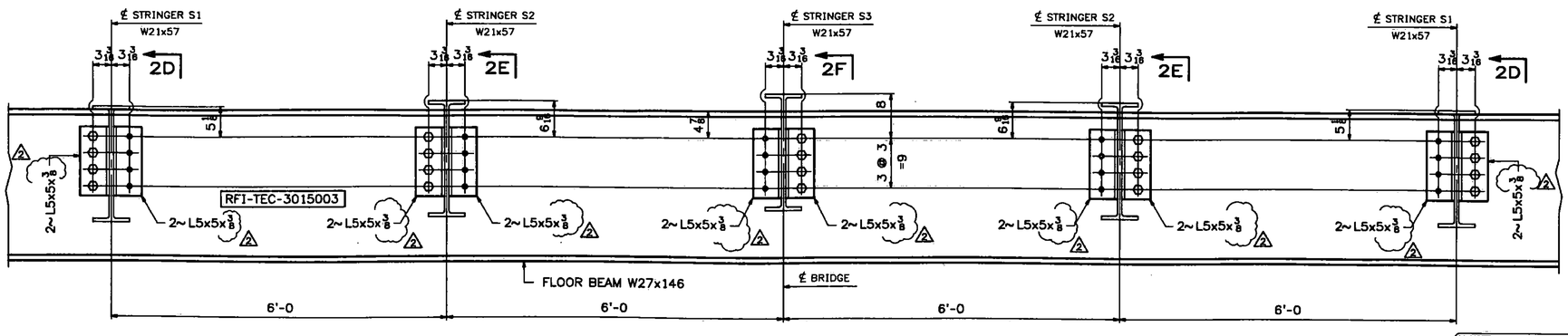
TENSOR 3015

STRUCTURE: Vermont Route 100A, Bridge No. 14, Bridgewater, County of Windsor	DRAWN: RB	DATE: 9/8/10
	CHK'D: WJL	DATE: 10/11/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. TD1
PROJ NO. BRS 0149(4)		REV. 3
CUSTOMER: VT AOT		

119 STRUCTURAL STEEL



SECTION	Ⓐ	Ⓑ	Ⓒ
(● S1) 2D	2 1/8	1/4	5 1/8
(● S2) 2E	3 3/16	1 11/16	6 3/16
(● S3) 2F	5	3 1/8	8



PARTIAL FLOOR BEAM ELEVATION

(● INTERMEDIATE FLBM - LOOKING SOUTH)

NOTES:
- MAT'L SHALL BE M270 GR50 (GALVANIZED).
- HOLES SHALL BE 13/16"ø (UN).
- BOLTS SHALL BE 7/8"ø A325 TYPE 1 (GALVANIZED) (UN).
- FCM - DENOTES FRACTURE CRITICAL MATERIAL.

** NOTE **
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION AND CONNECTION SPACING. THIS DWG IS SUBMITTED FOR INFORMATION ONLY ℄ IS NOT INTENDED FOR SHOP FABRICATION. DETAIL DWGS WILL SHOW ALL WELDING AND DIMENSIONS REQ'D FOR FABRICATION.

Vermont Agency of Transportation

RECEIVED

CK'D BY TCF OK'D BY SSS

7:43 am, Apr 12, 2011

RESUBMIT APPROVED X

BY KMH DATE 4-12-11

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	02/25/11	REVISED AS PER APPROVAL COMMENTS	JM			
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:

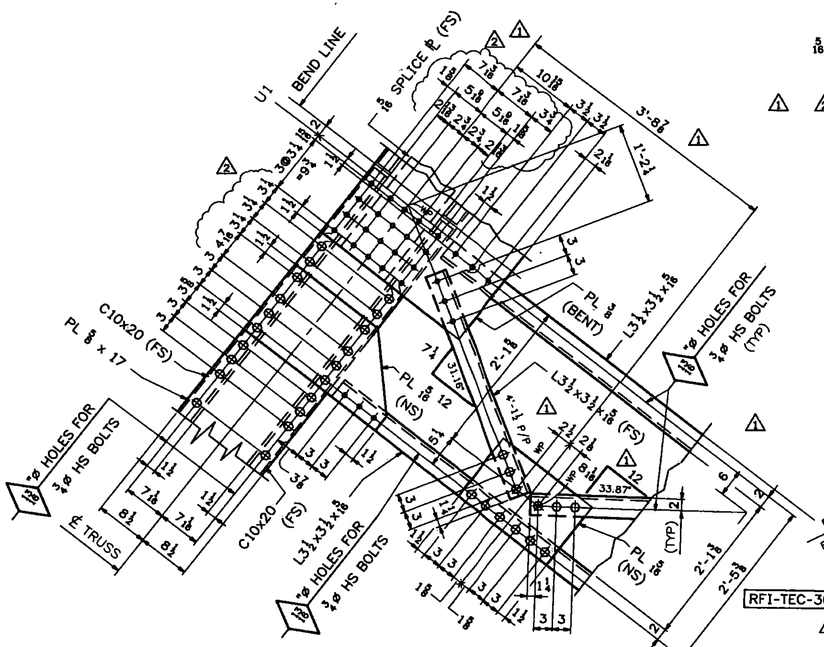
DESCRIPTION: LAYOUTS @ L2, L3 ℄ FLOOR BEAMS

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

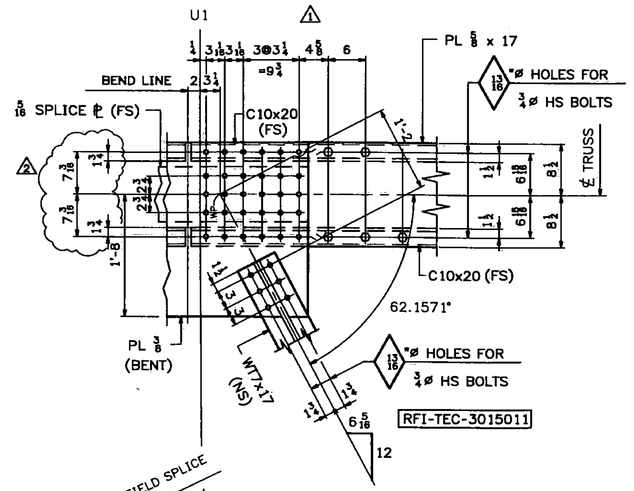
STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/14/10	
	CHK'D: WJL	DATE: 10/12/10	
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. TD2	
PROJ NO. BRS 0149(4)		REV. 2	
CUSTOMER: VT AOT			

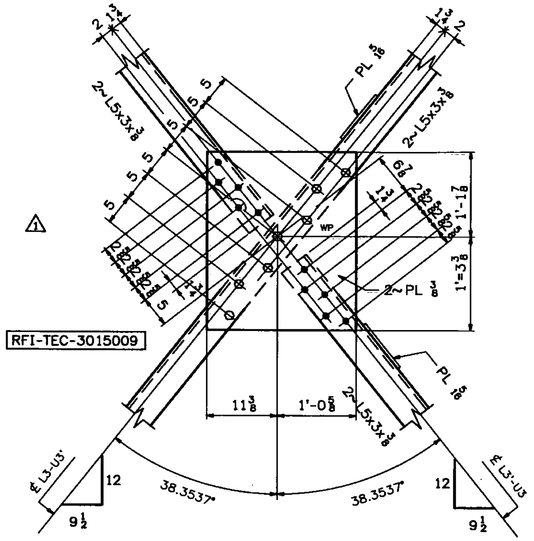
W:\... Fri, Oct 15, 2010 01:54:18 PM ...\TD2.dgn

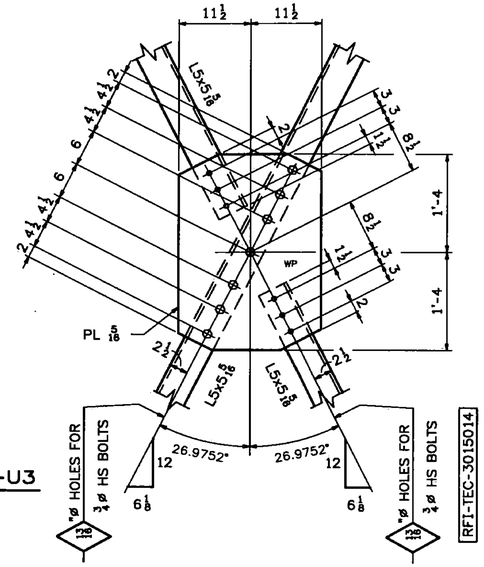
120 STRUCTURAL STEEL



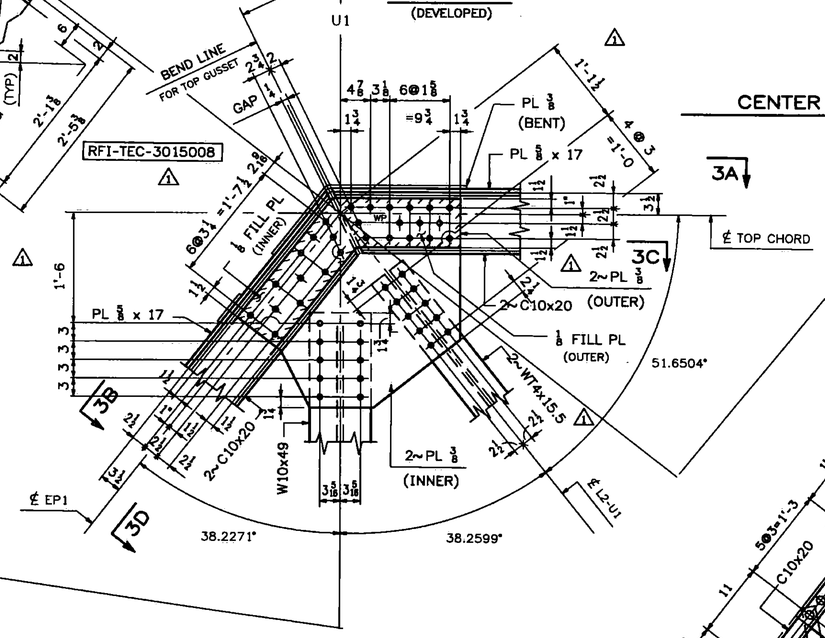
VIEW -3A
(DEVELOPED)



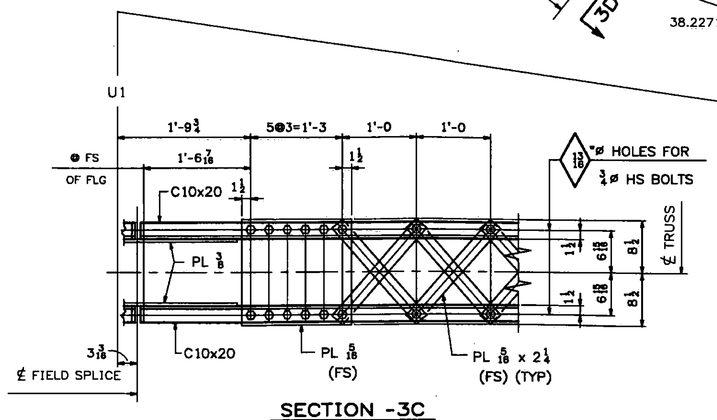




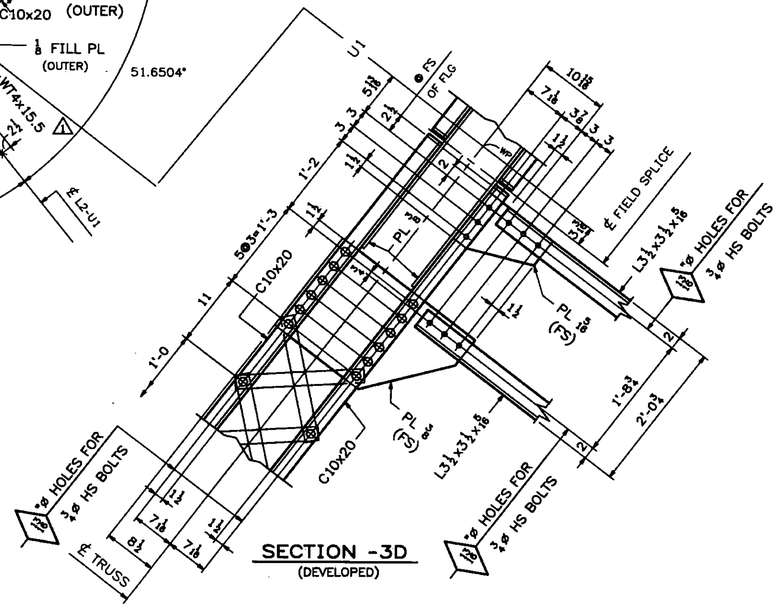
CENTER GUSSET PLATES FOR DIAGONALS L3-U3' ℄ L3'-U3



JOINT @ U1



SECTION -3C
(DEVELOPED)



SECTION -3D
(DEVELOPED)

GUSSET PLATES FOR FLOOR LATERAL BRACING

NOTES:
- MAT'L SHALL BE M270 GR50 (GALVANIZED).
- HOLES SHALL BE 15/16"ø (UN).
- BOLTS SHALL BE ⅞"ø A325 TYPE 1 (GALVANIZED) (UN).

↔ NOTE ↔
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION AND CONNECTION SPACING. THIS DWG IS SUBMITTED FOR INFORMATION ONLY ℄ IS NOT INTENDED FOR SHOP FABRICATION. DETAIL DWGS WILL SHOW ALL WELDING AND DIMENSIONS REQ'D FOR FABRICATION.

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS NOTED	JM	PWR		
1	02/28/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:

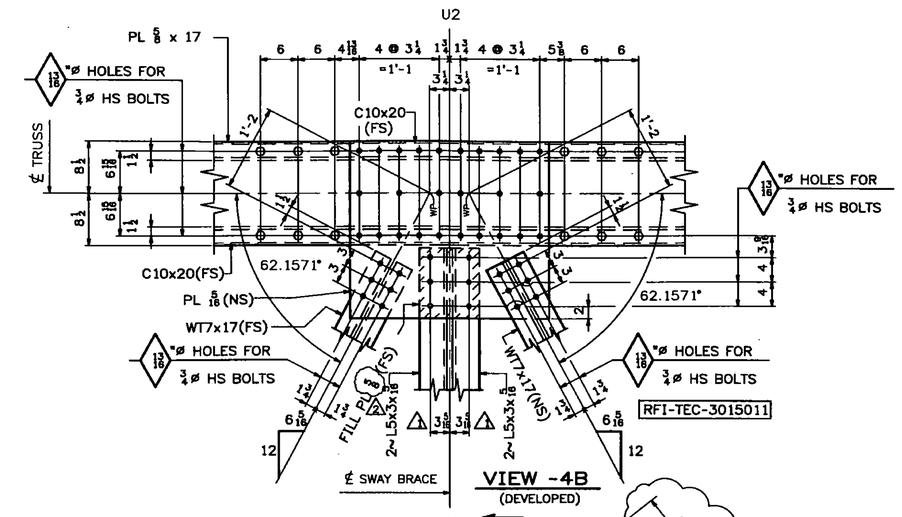
DESCRIPTION: LAYOUTS @ U1 ℄ BRACING GUSSET PLATES

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

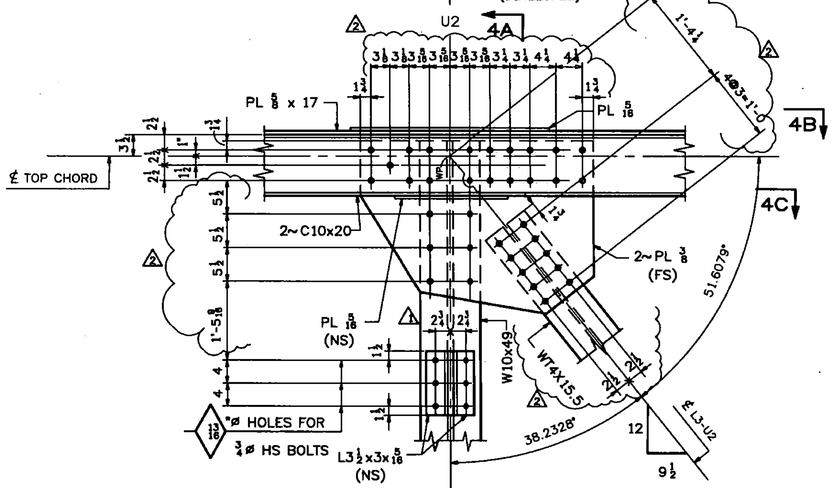
STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/14/10
		CHKD: WJL	DATE: 10/12/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO.	BRS 0149(4)	454	TD3
CUSTOMER:	VT AOT		REV. 2

Fri, Oct 15, 2010 01:04:35 PM //serv/jobs/2010/7053 - Rev0

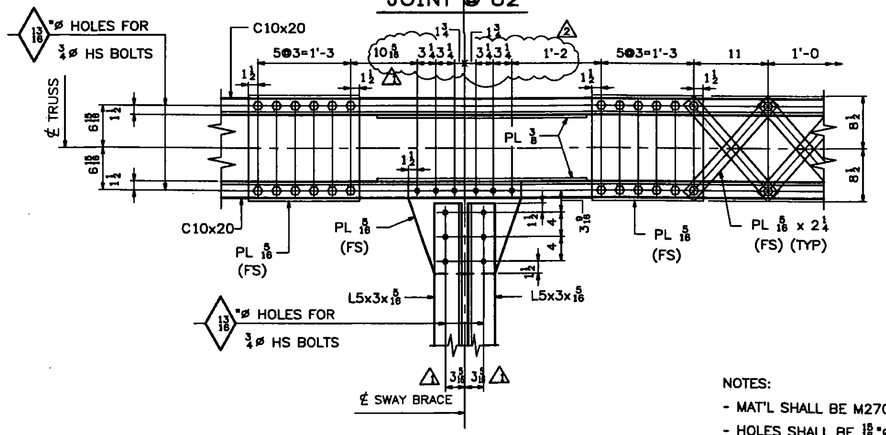
121 STRUCTURAL STEEL



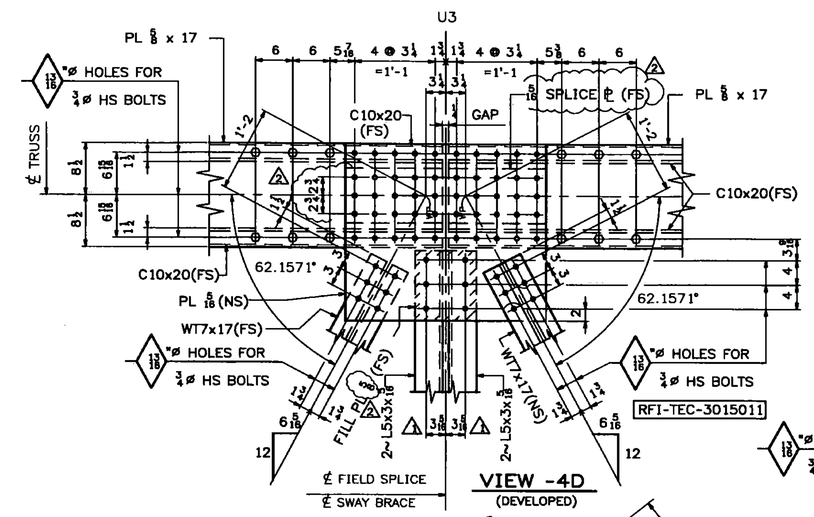
VIEW -4B
(DEVELOPED)



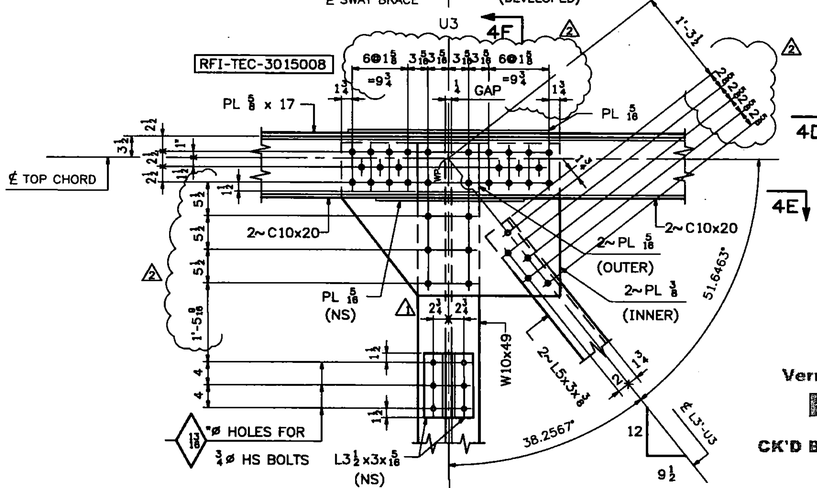
JOINT @ U2



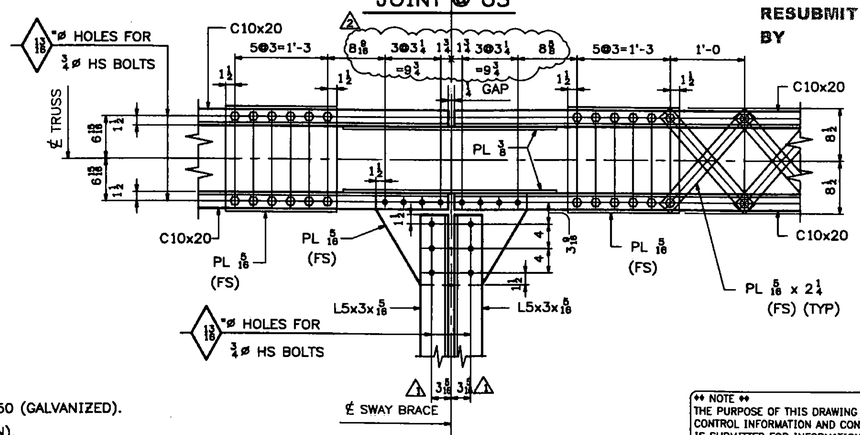
SECTION -4C
(DEVELOPED)



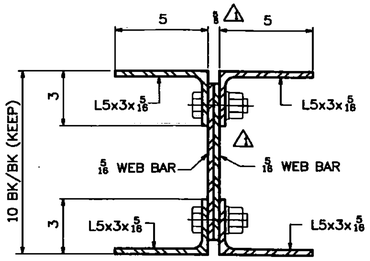
VIEW -4D
(DEVELOPED)



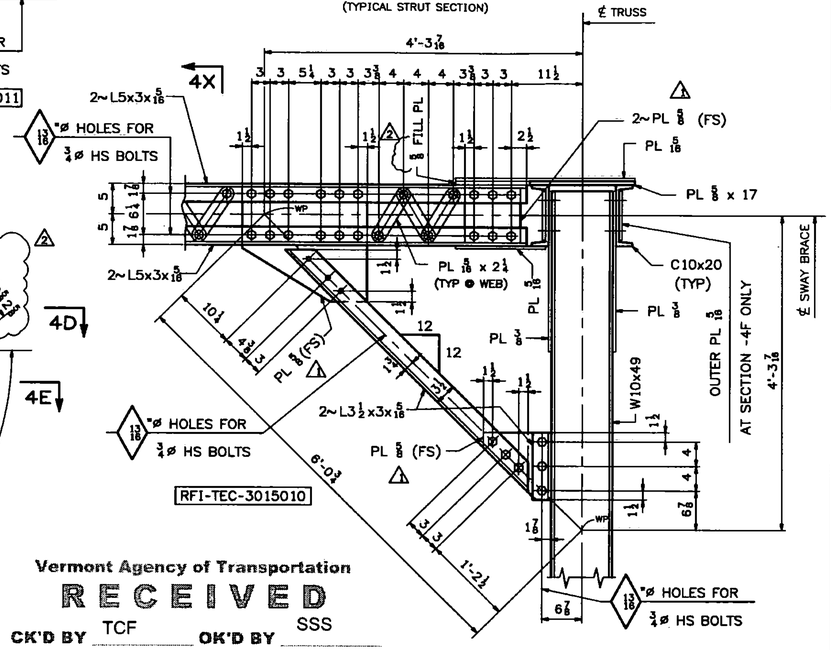
JOINT @ U3



SECTION -4E
(DEVELOPED)



SECTION -4X
(ENLARGED)
(TYPICAL STRUT SECTION)
RFI-TEC-3015016



SECTION -4A
(AT U2)

SECTION -4F
(AT U3)

NOTES:
- MAT'L SHALL BE M270 GR50 (GALVANIZED).
- HOLES SHALL BE 15/16"ø (UN).
- BOLTS SHALL BE ⅞"ø A325 TYPE 1 (GALVANIZED) (UN).

†† NOTE ††
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION AND CONNECTION SPACING. THIS DWG IS SUBMITTED FOR INFORMATION ONLY ℄ IS NOT INTENDED FOR SHOP FABRICATION. DETAIL DWGS WILL SHOW ALL WELDING AND DIMENSIONS REQ'D FOR FABRICATION.

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT APPROVED X
BY KMH DATE 4-12-11

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	02/28/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	10/20	REVISED DIMENSIONS	RB	WJL		
0						

MATERIAL: | SURFACE PREP. ℄ PAINT: | HOLES: | SHOP BOLTS:

DESCRIPTION: LAYOUTS @ U2 ℄ U3

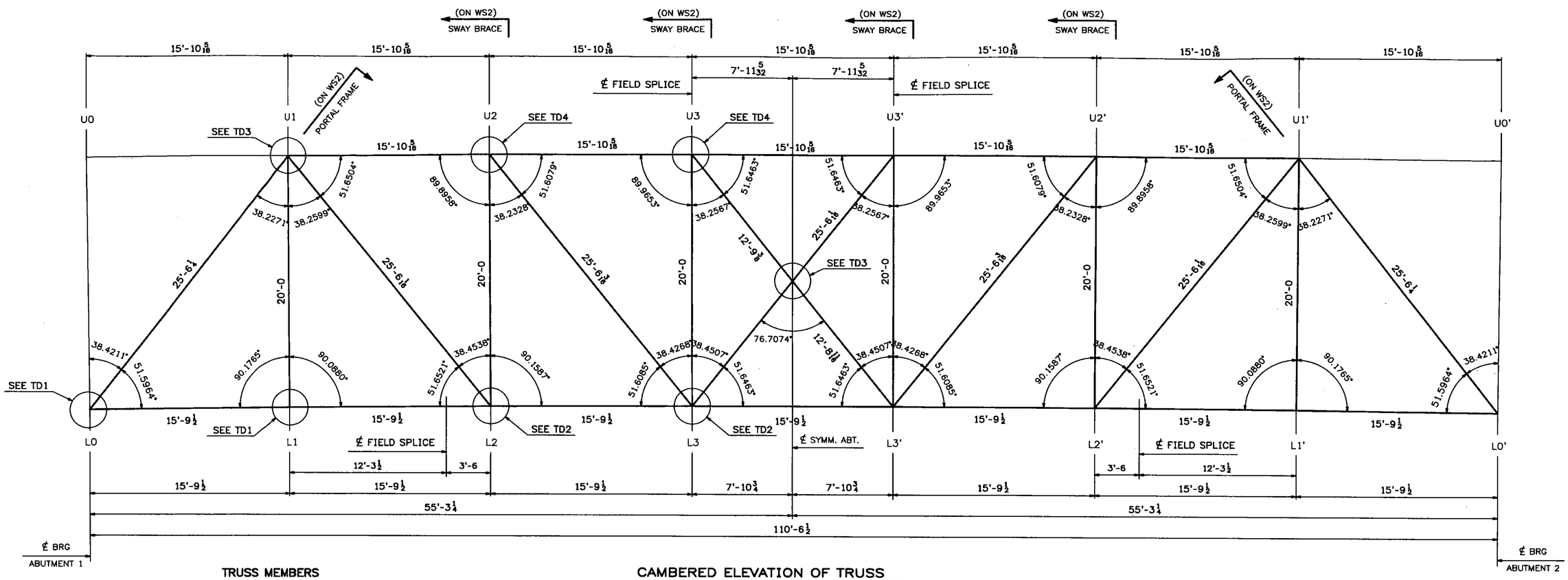
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

TENSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/16/10
	CHKD: WJL	DATE: 10/12/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. TD4
PROJ NO. BRS 0149(4)		REV. 2
CUSTOMER: VT AOT		

Tue, Jan 4, 2011 03:53:48 PM /users/jobs/2010/TD4-1.dwt

122 STRUCTURAL STEEL



TRUSS MEMBERS

BOTTOM CHORDS	L0-L2 L2-L2' L2'-L0'	2~C9x20 (FCM) 1~PL ½ x 10 (FCM)
TOP CHORDS	U1-U3 U3-U3' U3'-U1'	2~C10x20 1~PL ⅝ x 17
VERTICALS	L0 L0' L1-U1 L2-U2 L3-U3 L3'-U3' L2'-U2' L1'-U1'	⚠1 W10x49
DIAGONALS	L2-U1 L2'-U1' L3-U2 L3'-U2'	⚠2 2~WT4x15.5
	L3-U3' L3'-U3	2~L5x3x⅜
PORTAL TOP CHORD	L0-U1 L0'-U1'	2~C10x20 1~PL ⅝ x 17

CAMBERED ELEVATION OF TRUSS

(LOOKING WEST)

Vermont Agency of Transportation

RECEIVED

CK'D BY TCF OK'D BY SSS

7:43 am, Apr 12, 2011

RESUBMIT ____ APPROVED X

BY KMH DATE 4-12-11

♦♦ NOTE ♦♦
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

NOTES
1. ALL DIMENSIONS ARE TAKEN ALONG THE CENTERLINE OF MEMBER, WITH CORRECTIONS MADE FOR GRADE ℄ DL CAMBER (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZ. PLANE (UN).
3. ALL ANGLES ARE BASED ON THE CAMBERED SHAPE.
4. FOR LAYOUTS SEE "TD" DRAWINGS.
5. FCM - DENOTES FRACTURE CRITICAL MATERIAL.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠2	02/18/11	REVISED DIAGONALS AS PER APPROVAL	JM	PWR		
⚠1	10/14	REVISED VERTICALS AT L0,L0'	RB	WJL		
0						

MATERIAL: | SURFACE PREP. ℄ PAINT: | HOLES: | SHOP BOLTS:

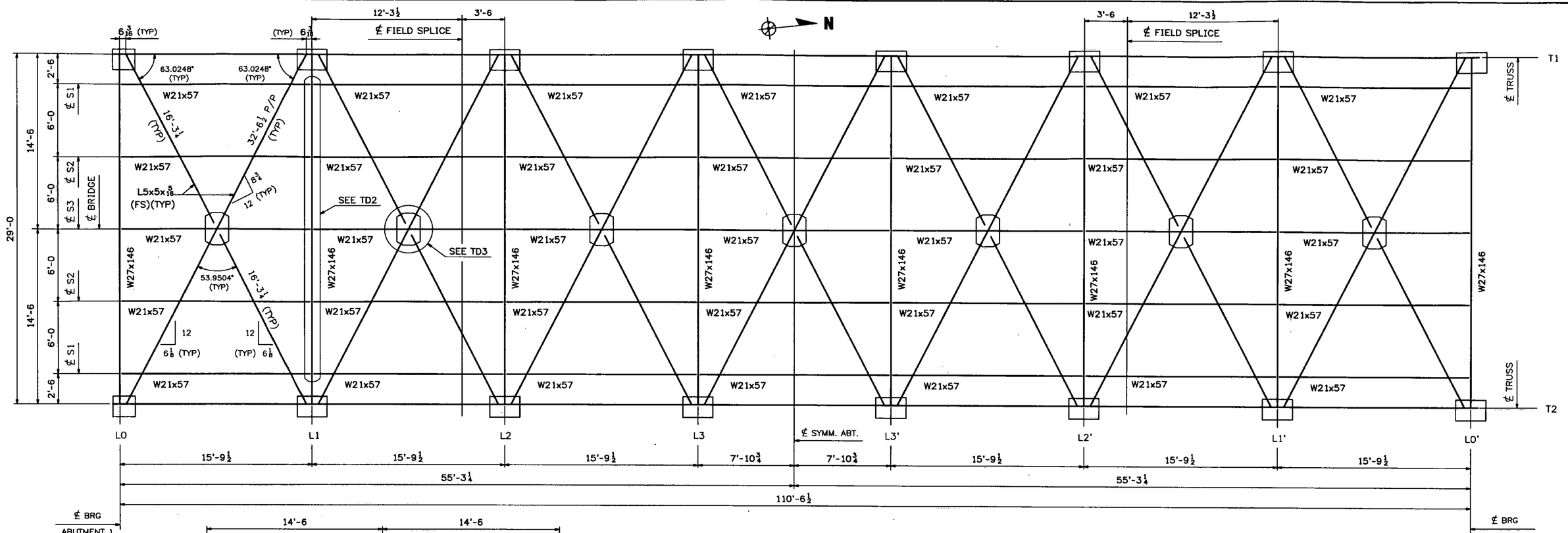
DESCRIPTION: TRUSS ELEVATION - CAMBERED

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3016

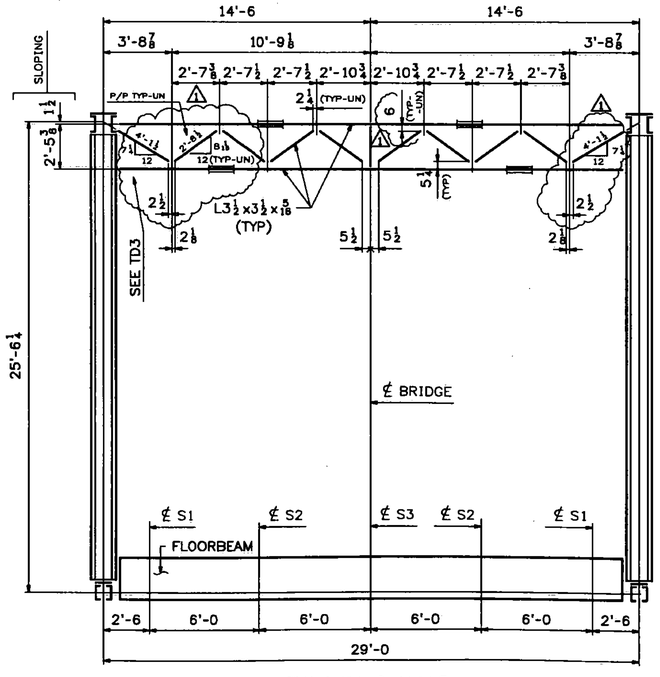
STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/7/10
		CHKD: WMJ	DATE: 9/27/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO.	BRS 0149(4)	454	WS1
CUSTOMER:	VT AOT		REV. ⚠2

WS1_ Fri, Oct 15, 2010 01:05:30 PM //corey/jobs/2010/454.1 Rev1

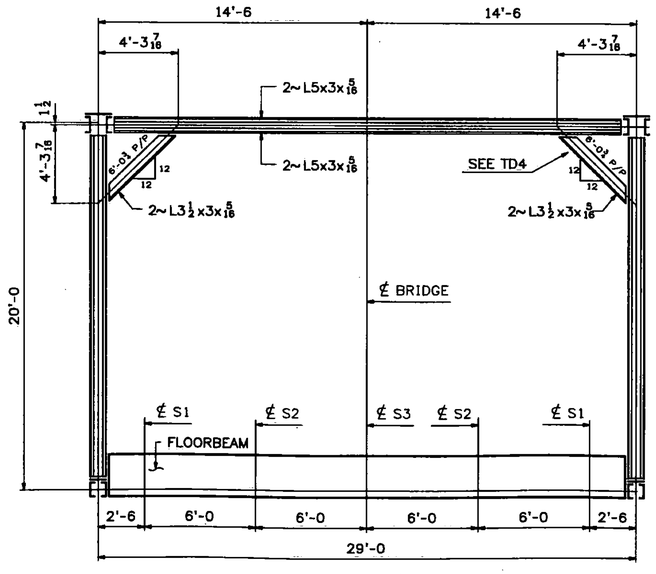
123 STRUCTURAL STEEL



FLOOR FRAMING ℄ LOWER BRACING PLAN



PORTAL FRAME
(@ L0-U1 ℄ L0'-U1')



SWAY BRACE
(@ L2-U2,L3-U3,L3'-U3' ℄ L2'-U2')

♦♦ NOTE ♦♦
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

NOTES
1. ALL DIMENSIONS ARE TAKEN ALONG THE CENTERLINE OF MEMBER, WITH CORRECTIONS MADE FOR GRADE ℄ DL CAMBER (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZ. PLANE (UN).
3. ALL BRACING LENGTHS AND ANGLES ARE BASED ON THE FINAL SHAPE.
4. FOR LAYOUTS SEE "TD" DRAWINGS.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	02/25/11	REVISED AS PER APPROVAL	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:

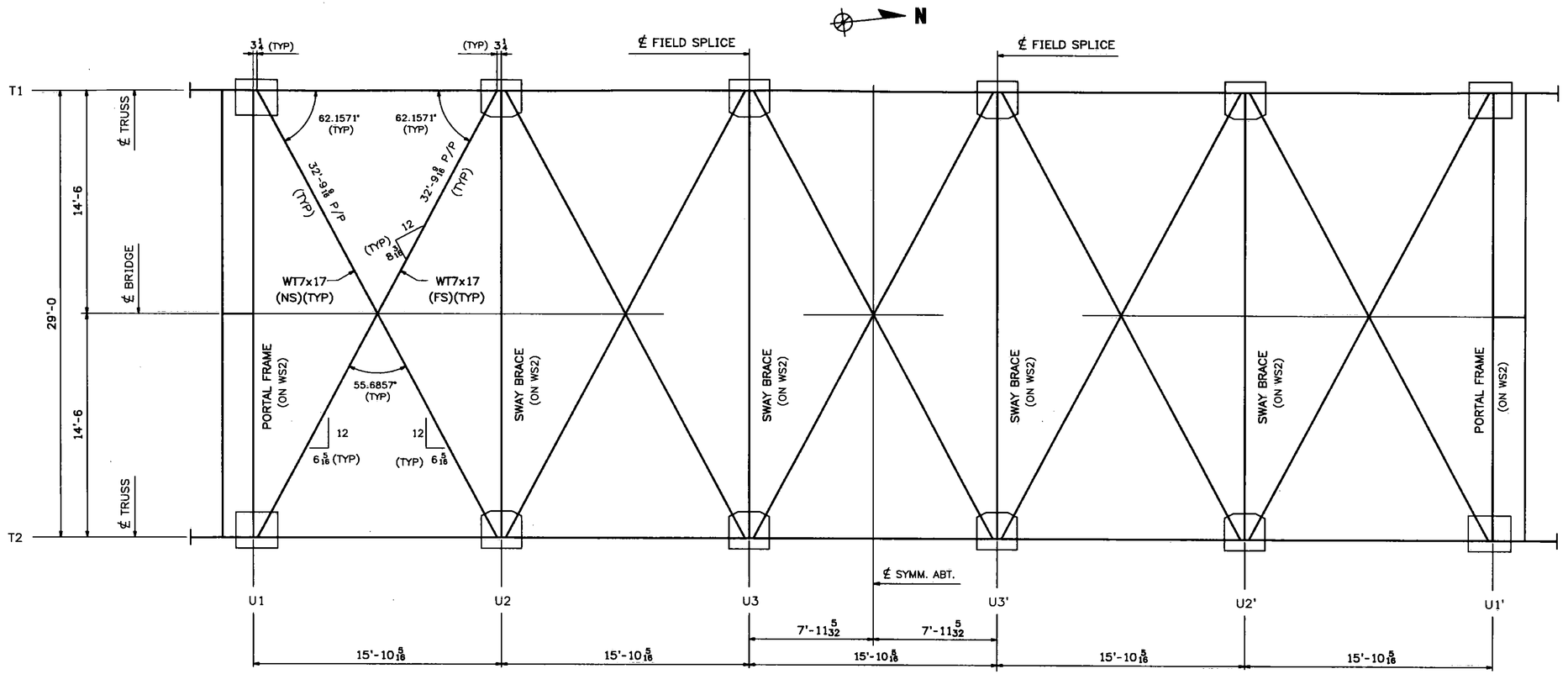
DESCRIPTION: FLOOR FRAMING ℄ LOWER BRACING PLAN

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/7/10	
	CHKD: WMJ	DATE: 9/28/10	
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. WS2	
PROJ NO. BRS 0149(4)		REV. 1	
CUSTOMER: VT AOT			

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

Wed, Sep 29, 2010 04:53:39 PM /users/jbm/2010/WS2.1.dwg



ROOF FRAMING ℄ UPPER BRACING PLAN

Vermont Agency of Transportation

RECEIVED

CK'D BY TCF OK'D BY SSS

7:43 am, Apr 12, 2011

RESUBMIT _____ APPROVED X

BY KMH DATE 4-12-11

♦♦ NOTE ♦♦
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

NOTES
1. ALL DIMENSIONS ARE TAKEN ALONG THE CENTERLINE OF MEMBER, WITH CORRECTIONS MADE FOR GRADE ℄ DL CAMBER (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZ. PLANE (UN).
3. ALL BRACING LENGTHS AND ANGLES ARE BASED ON THE FINAL SHAPE.
4. FOR LAYOUTS SEE "TD" DRAWINGS.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	03/09/11	RESUBMIT FOR APPROVAL	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:

DESCRIPTION: ROOF FRAMING ℄ UPPER BRACING PLAN

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/7/10
	CHKD: WMJ	DATE: 9/28/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. WS3
PROJ NO. BRS 0149(4)		REV. 1
CUSTOMER: VT AOT		

Wed, Sep 29, 2010 04:33:40 PM J:\casco\jobs\2010\WS3\1.dwg

125 STRUCTURAL STEEL

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS

1). ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006 WITH LATEST REVISIONS AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR HIGHWAY BRIDGES 4TH EDITION, DATED 2008 AND ITS LATEST REVISIONS.

MATERIAL SPECIFICATIONS

1). UNLESS OTHERWISE NOTED, ALL STEEL TO BE AASHTO M270 GRADE 50 AND SHALL BE GALVANIZED PER SUBSECTION 506.15.

2). MATERIAL NOTED "T2" OR CVN ON DETAIL DRAWINGS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF VERMONT STANDARD SPECIFICATIONS SECTION 714.01.

3). MATERIAL NOTED "F2" OR FCM (FRACTURE CRITICAL MEMBERS) ON DETAIL DRAWINGS SHALL MEET THE FOLLOWING CONSTRUCTION AND TESTING REQUIREMENTS:

A. ALL FRACTURE CRITICAL MEMBERS SHALL BE FABRICATED ACCORDING TO SECTION 12 OF THE AASHTO/AWS D1.5 BRIDGE WELDING CODE.

B. ALL FRACTURE CRITICAL MEMBERS SHALL BE FABRICATED IN A PLANT HAVING AN AISC FRACTURE CRITICAL ENDORSMENT OR THE FABRICATOR SHALL PROVIDE TO THE STRUCTURES ENGINEER AN ACCEPTABLE FRACTURE CONTROL PLAN MEETING THE REQUIREMENTS OF AASHTO/AWS D1.5, PRIOR TO FABRICATION.

C. ALL FRACTURE CRITICAL MEMBERS SHALL BE IMPACT TESTED TO THE FRACTURE CRITICAL REQUIREMENTS AS SPECIFIED IN AASHTO M270. ⚠1

4). HIGH STRENGTH BOLTS: ASTM A325 TYPE 1 GALVANIZED PER SECTION 506 (UN).
NUTS SHALL BE A563 GRADE DH GALVANIZED.
BOLTS & NUTS SHALL BE ROTATIONAL CAPACITY TESTED.
DO NOT MIX NUTS & BOLTS FROM DIFFERENT CONTAINERS UNLESS ALL BOLTS & NUTS HAVE THE SAME LOT NUMBER.

5). ALL STRUCTURAL CONNECTIONS INCORPORATING THE BEVELED SIDE OF A STANDARD BEAM, CHANNEL OR ANGLE SHALL USE THE CORRESPONDING GALVANIZED ASTM F436 BEVELED WASHERS.

FABRICATION ⚠1

1). ALL HOLES SHALL BE DRILLED FULL SIZE (UN).

WELDING

1). ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.

2). NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH THE REFERENCED SPECIFICATION.

3). SEE DETAIL "WS1" ON THIS DRAWING FOR WELD TERMINATION DETAIL.

CLEANING

1. ALL STEEL TO BE GALVANIZED SHALL BE CLEANED AND PICKLED IN ACCORDANCE WITH SSPC SSPC-SP8, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

PAINTING

1. ALL STEEL SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SUBSECTION 506.15.

2. ALL FAYING SURFACES SHALL BE EITHER GALVANIZED TO MEET THE CLASS C SLIP COEFFICIENT VALUE OF NOT LESS THAN 0.33 AS SPECIFIED BY AASHTO OR COATED WITH AN INORGANIC ZINC RICH PRIMER TO MEET THE CLASS B SLIP COEFFICIENT VALUE OF NOT LESS THAN 0.50 AS SPECIFIED BY AASHTO.

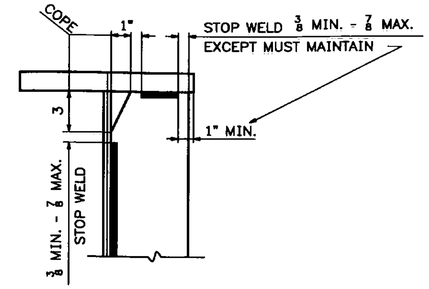
3. THE FLOOR SYSTEM, INCLUDING THE FLOORBEAMS, STRINGERS AND LATERAL BRACING DIAGONALS SHALL NOT BE PAINTED. ALL OTHER STEEL SHALL BE PAINTED AS PER DRAWING P1.

FIELD CONNECTIONS

1). ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER OR 3/4" DIAMETER HIGH STRENGTH A325 TYPE 1 GALVANIZED BOLTS (UN), INSTALLED PER SECTION 506.19(c).

2). BOLTS SHALL HAVE HEAVY HEX NUT, HEAVY HEX HEAD, AND AT LEAST ONE FLAT WASHER EACH. WASHER TO BE PLACED UNDER TURNED ELEMENT.

3). PIECE MARKS WILL BE LOCATED AS SHOWN ON ERECTION DRAWINGS.



DETAIL "WS1"

(TYPICAL FILLET WELD TERMINATION DETAIL)

Vermont Agency of Transportation

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CK'D BY TCF OK'D BY SSS

7:43 am, Apr 12, 2011

RESUBMIT _____ APPROVED X

BY KMH DATE 4-12-11

NOTE TO ENGINEER:

THESE NOTES ARE NOT INTENDED TO BE ALL INCLUSIVE AND COMPLIANCE WITH RELEVANT SPECIFICATIONS REMAIN UNCHANGED.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠2	03/25/11	REVISED & DELETED PAINT NOTES	JM	PWR		
⚠1	02/28/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:

DESCRIPTION: GENERAL NOTES

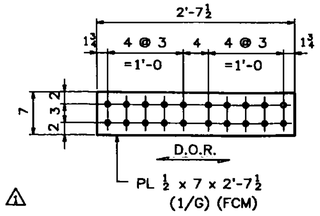
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

TENSOR 3016

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor		DRAWN: RB	DATE: 9/18/10
		CHKD: WJL	DATE: 10/20/10
LOCATION: BRIDGEWATER, VERMONT		JOB NO.	DWG NO.
PROJ NO. BRS 0149(4)		454	GN1
CUSTOMER: VT AOT			REV. ⚠2

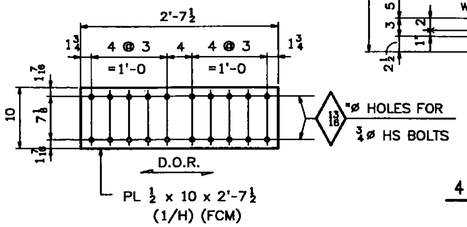
Tue, Oct 26, 2010 10:50:54 AM //www/jobs/2010/GN1.dwg

126 STRUCTURAL STEEL



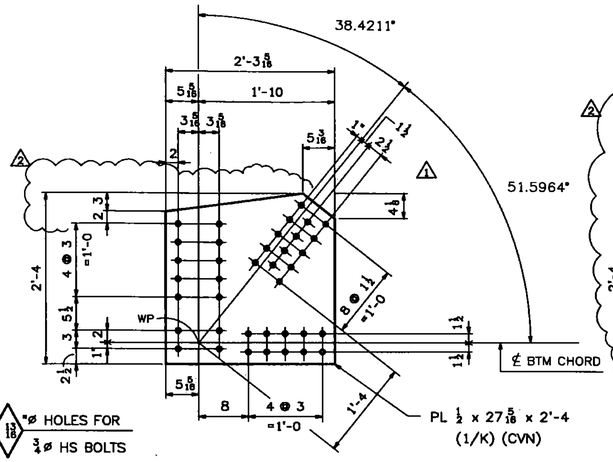
8 ~ SPLICE PLATES ~ x1a

(WEB SPLICE PLATES NEAR L2, L2')



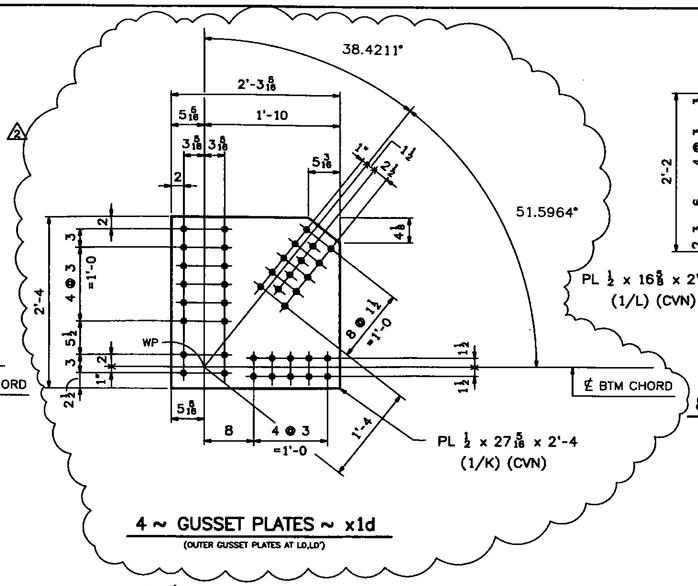
8 ~ SPLICE PLATES ~ x1b

(FLANGE SPLICE PLATES NEAR L2, L2')



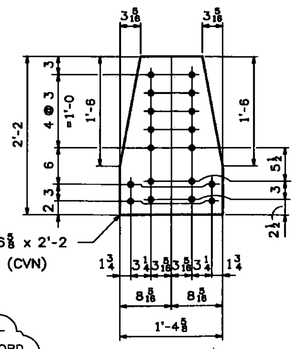
4 ~ GUSSET PLATES ~ x1c

(INNER GUSSET PLATES AT L0,L0')



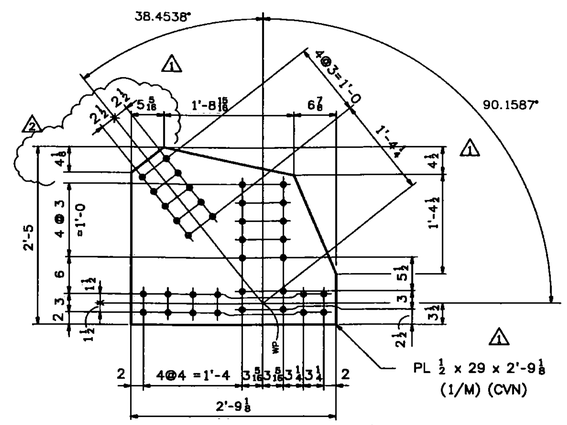
4 ~ GUSSET PLATES ~ x1d

(OUTER GUSSET PLATES AT L0,L0')



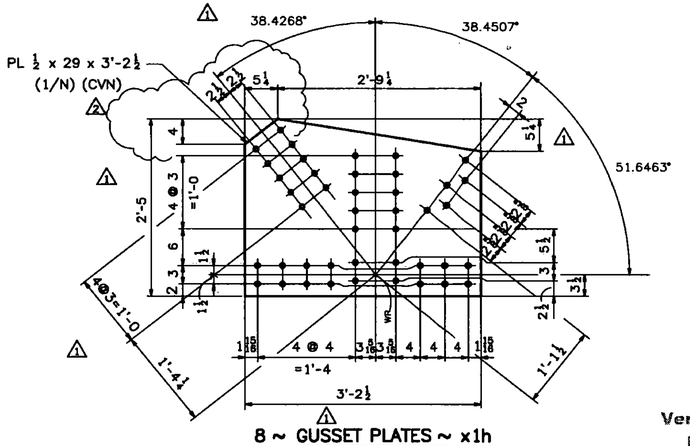
8 ~ GUSSET PLATES ~ x1f

(GUSSET PLATES AT L1,L1')



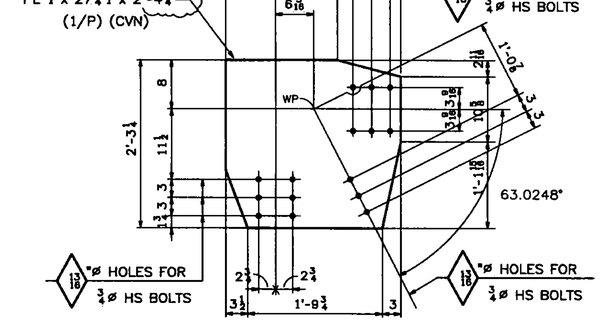
8 ~ GUSSET PLATES ~ x1g

(GUSSET PLATES AT L2,L2')



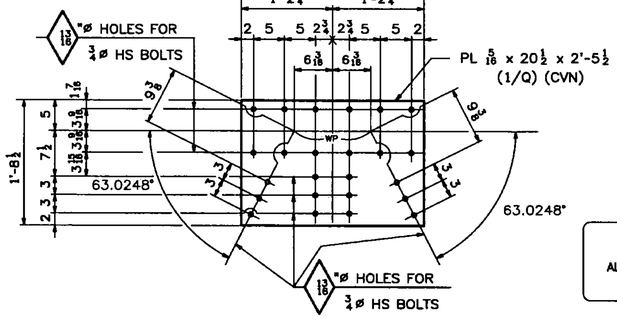
8 ~ GUSSET PLATES ~ x1h

(GUSSET PLATES AT L3,L3')



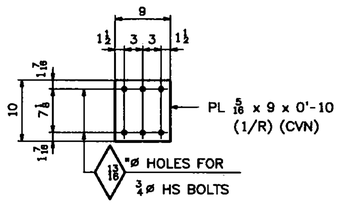
4 ~ GUSSET PLATES ~ x1k

(GUSSET PLATES AT L0,L0')
(FLOOR END PLATE)



12 ~ GUSSET PLATES ~ x1n

(GUSSET PLATES AT L1,L2,L3,L3',L2',L1')
(TYPICAL FLOOR PLATE)

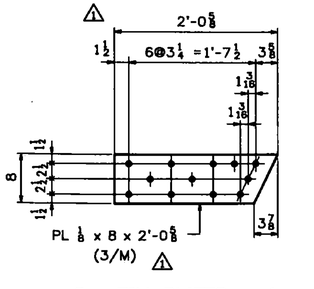


52 ~ TAB PLATES ~ x1p

(@ BOTTOM OF BOTTOM CHORDS)

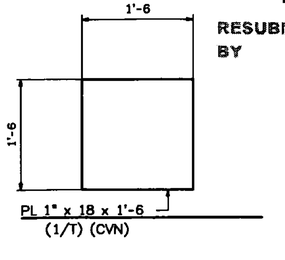
SHOP NOTE:

ALL STEEL PARTS ON THIS DRAWING SHALL BE GALVANIZED



8 ~ FILL PLATES ~ x1y

(PORTAL TOP CHORD AT U1,U1')



4 ~ SOLE PLATES ~ x1t

(@ L0,L0')

Vermont Agency of Transportation

RECEIVED

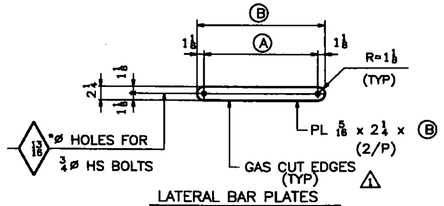
7:43 am, Apr 12, 2011

CK'D BY TCF OK'D BY SSS

RESUBMIT X

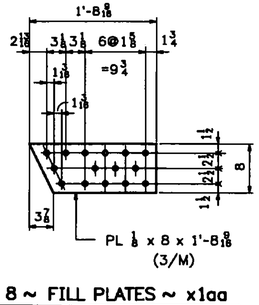
BY KMH DATE 4-12-11

APPROVED



LATERAL BAR PLATES

MARK	REQ'D	Ⓐ	Ⓑ
(@ DIAGONALS) x1v	128	1'-6⅛	1'-8⅛
(@ DIAGONALS) x1w	16	1'-5⅞	1'-8⅛



8 ~ FILL PLATES ~ x1aa

(PORTAL TOP CHORD AT U1,U1')

NOTES:

1. FOR GENERAL NOTES SEE DWG. GN1.
2. CVN - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.
3. FCM - DENOTES FRACTURE CRITICAL MATERIAL.

D.O.R. - DENOTES DIRECTION OF MILL ROLLING.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	02/28/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	⅞ ø (U.N.)	NONE

DESCRIPTION: LOWER CHORD & DIAGONAL STANDARDS

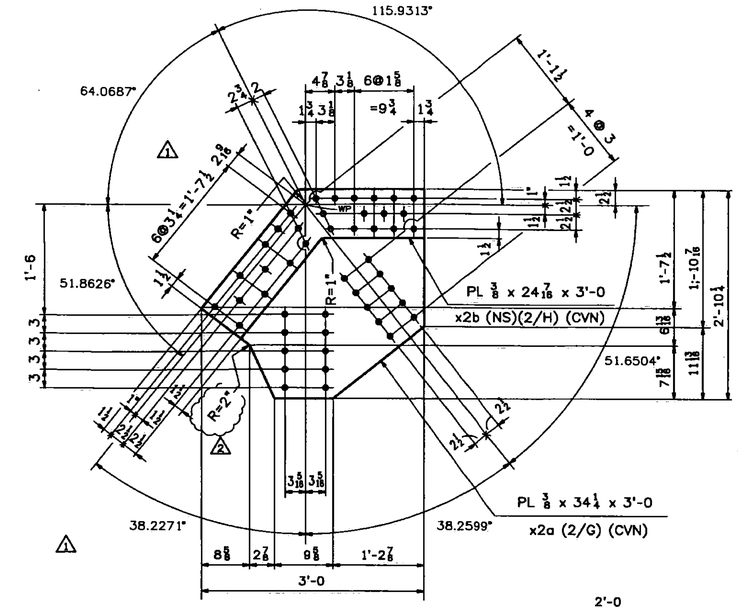
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

TENSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/20/10	
	CHKD: WJL	DATE: 10/14/10	
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. X1	
PROJ NO. BRS 0149(4)		REV. 2	
CUSTOMER: VT AOT			

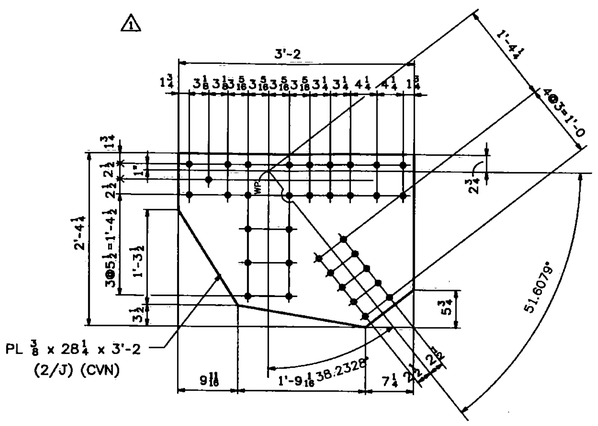
M:\... Mon, Oct 25, 2010 01:48:40 PM ... /users/jhite/2010/211.dwg

127 STRUCTURAL STEEL

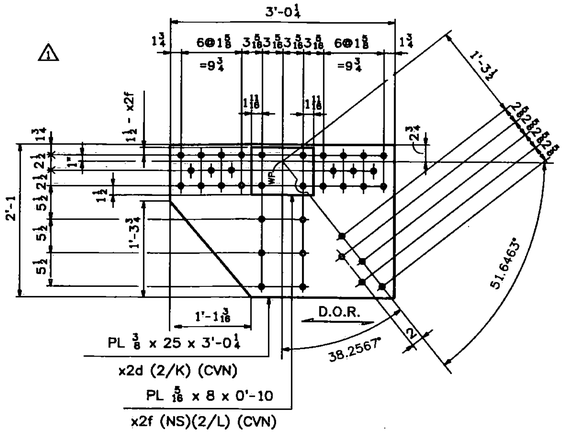


8 ~ GUSSET PLATES ~ x2a
(INNER GUSSET PLATES AT U1,U1')

8 ~ GUSSET PLATES ~ x2b
(OUTER GUSSET PLATES AT U1,U1')

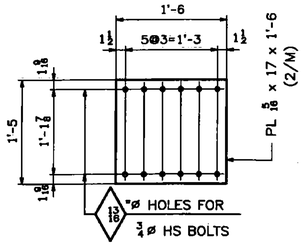


8 ~ GUSSET PLATES ~ x2c
(GUSSET PLATES AT U2,U2')

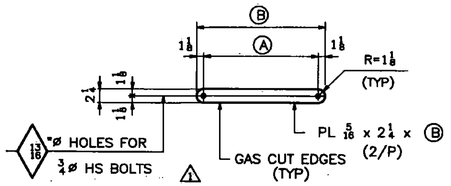


8 ~ GUSSET PLATES ~ x2d
(INNER GUSSET PLATES AT U3,U3')

8 ~ GUSSET PLATES ~ x2f
(OUTER GUSSET PLATES AT U3,U3')

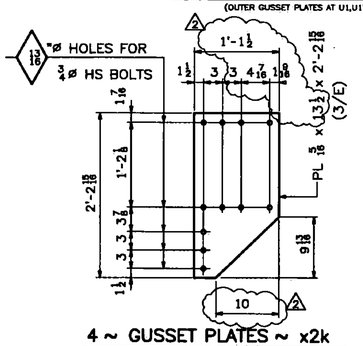


20 ~ TAB PLATES ~ x2g
(@ BOTTOM OF TOP CHORDS)

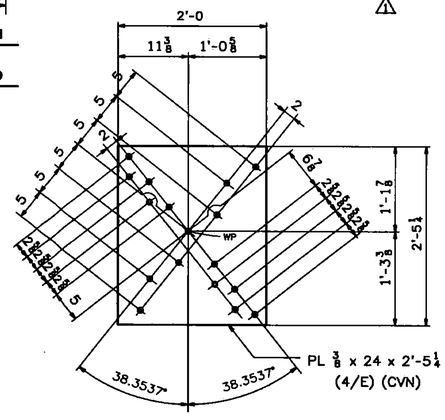


LATERAL BAR PLATES
(@ TOP CHORDS)

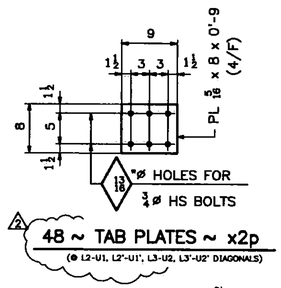
MARK	REQ'D	Ⓐ	Ⓑ
x2h	184	1'-6⅜	1'-8⅝
x2ha	16	1'-5 11/16	1'-7 15/16



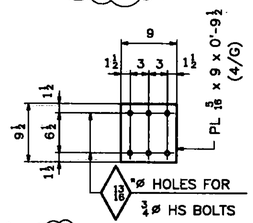
4 ~ GUSSET PLATES ~ x2k
(UPPER GUSSET PLATES AT L0-U1,L0'-U1' DIAGONALS)



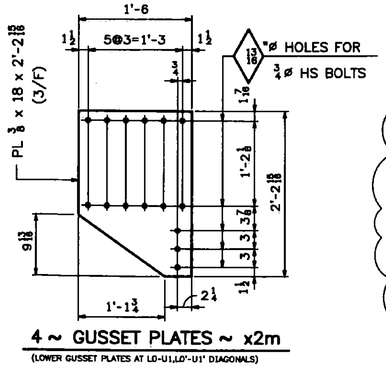
4 ~ GUSSET PLATES ~ x2n
(CENTER GUSSET PLATES AT L3-U3',L3'-U3 DIAGONALS)



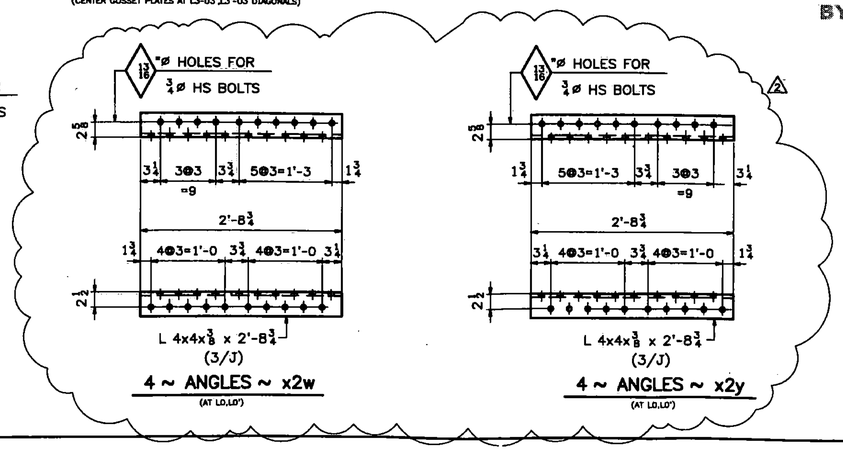
48 ~ TAB PLATES ~ x2p
(@ L2-U1, L2'-U1', L3-U2, L3'-U2' DIAGONALS)



24 ~ TAB PLATES ~ x2s
(@ L3-U3, L3'-U3 DIAGONALS)

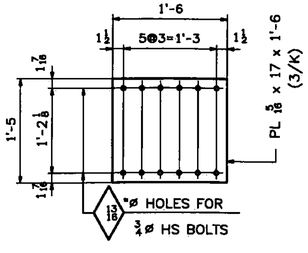


4 ~ GUSSET PLATES ~ x2m
(LOWER GUSSET PLATES AT L0-U1,L0'-U1' DIAGONALS)

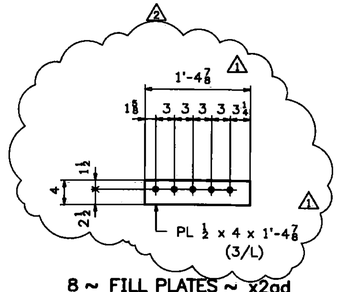


4 ~ ANGLES ~ x2w
(AT L0,L0')

4 ~ ANGLES ~ x2y
(AT L0,L0')



4 ~ TAB PLATES ~ x2ac
(@ L0,L0' END DIAGONALS)



8 ~ FILL PLATES ~ x2ad
(@ L0,L0' END DIAGONALS)

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

SHOP NOTE:
ALL STEEL PARTS ON THIS DRAWING SHALL BE GALVANIZED

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.
2. CVN - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.
D.O.R. - DENOTES DIRECTION OF MILL ROLLING.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	02/28/11	REVISED AS PER APPROVAL COMMENTS	JM			
0						

MATERIAL: M270-50 (U.N.) | SURFACE PREP. & PAINT: SEE DWG GN1 | HOLES: 13/16 ø(U.N.) | SHOP BOLTS: NONE

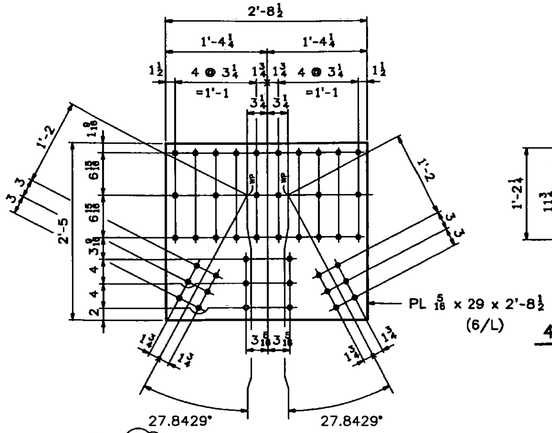
DESCRIPTION: UPPER CHORD & DIAGONAL STANDARDS

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3018

STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/20/10
		CHKD: WJL	DATE: 10/15/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO.	BRS 0149(4)	454	X2
CUSTOMER:	VT AOT		REV. 2

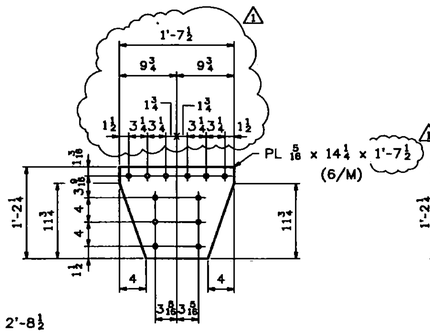
Mon, Oct 25, 2010 03:48:51 PM //corp/jobs/2010/X2.1 Rev0

128 STRUCTURAL STEEL



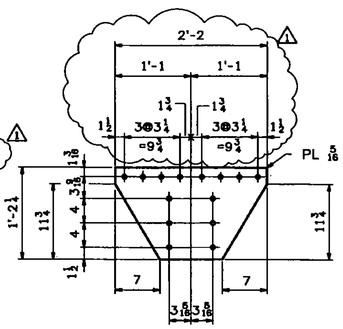
4 ~ GUSSET PLATES ~ x3a

(TOP ROOF PLATES AT U2,U2')



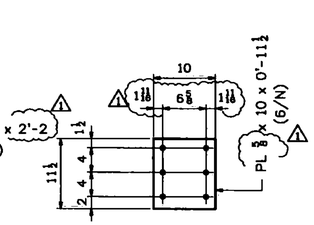
4 ~ GUSSET PLATES ~ x3b

(BTM ROOF PLATES AT U2,U2')



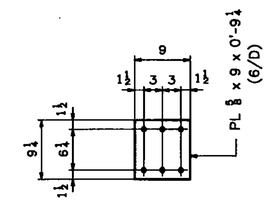
4 ~ GUSSET PLATES ~ x3c

(BTM ROOF PLATES AT U3,U3')



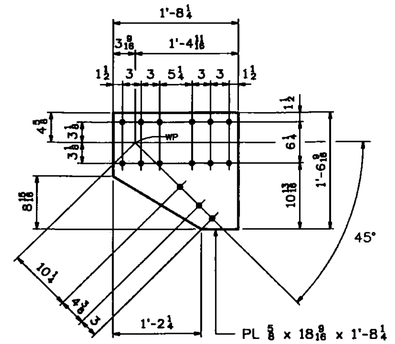
8 ~ FILL PLATES ~ x3d

(@ ROOF FILL PLATES)



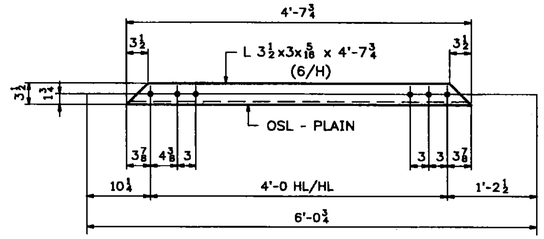
8 ~ END WEB PLATES ~ x3f

(@ SWAY BRACE WEB)



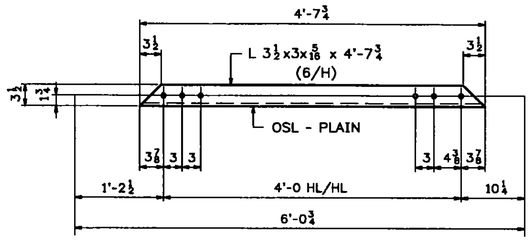
8 ~ SUPPORT PLATES ~ x3h

(@ KNEE BRACE)



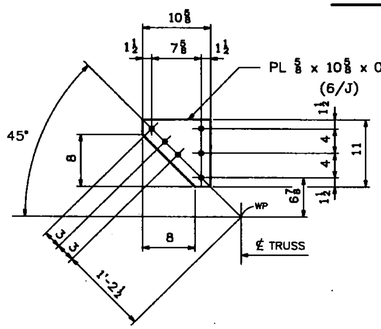
8 ~ ANGLES ~ x3m

(KNEE BRACE)



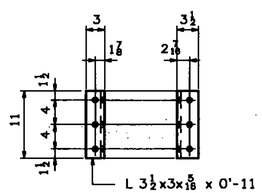
8 ~ ANGLES ~ x3n

(KNEE BRACE)



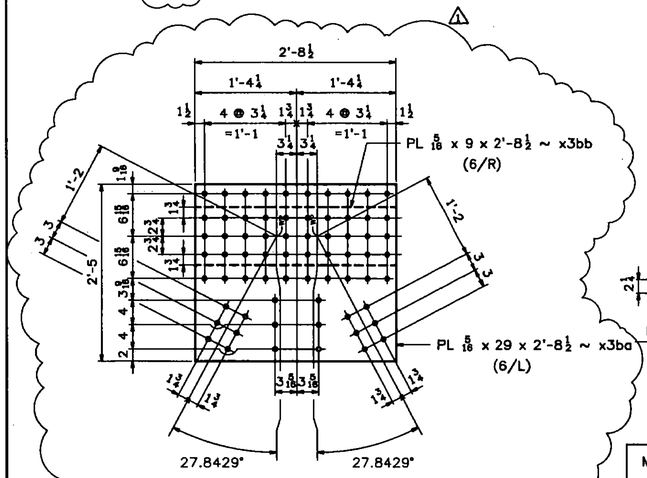
8 ~ SUPPORT PLATES ~ x3p

(@ KNEE BRACE)



16 ~ ANGLES ~ x3s

(KNEE BRACE CONN. @ VERTICAL)

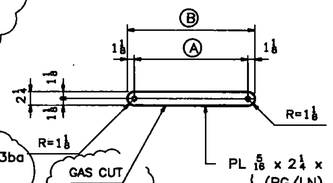


4 ~ GUSSET PLATES ~ x3ba

(TOP ROOF PLATES AT U3,U3')

4 ~ SPLICE PLATES ~ x3bb

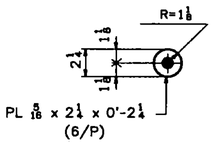
(TOP ROOF PLATES AT U3,U3')



WEB BAR PLATES

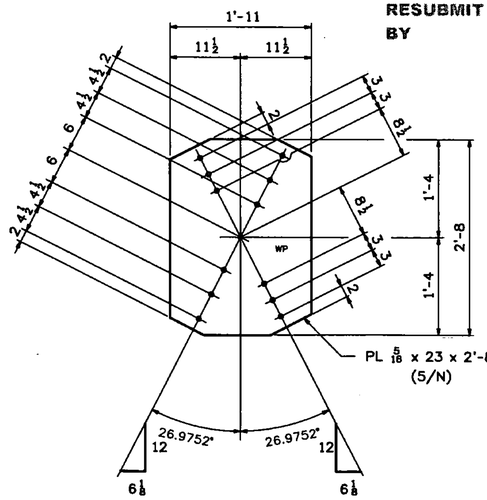
(@ SWAY BRACE WEBS)

MARK	REQ'D	Ⓐ	Ⓑ	PG/LN
x3t	24	7 7/16	9 11/16	6/P
x3v	208	7 7/16	9 15/16	6/P
x3bc	8	7¾	10	7/L



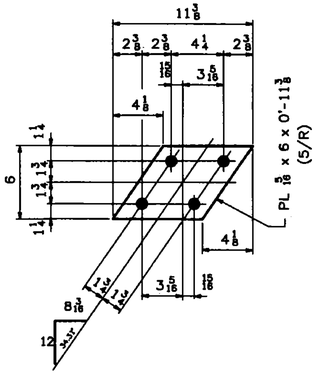
24 ~ FILL PLATES ~ x3w

(FILLS @ SWAY BRACE WEB BARS)



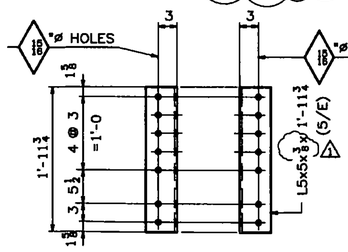
7 ~ GUSSET PLATES ~ x3ad

(CTR GUSSETS @ FLOOR DIAGONALS)



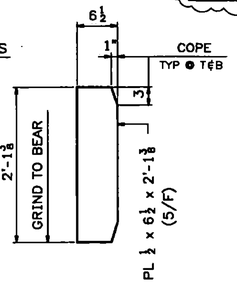
5 ~ GUSSET PLATES ~ x3af

(CTR GUSSETS @ ROOF DIAGONALS)



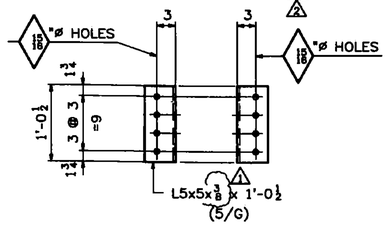
32 ~ ANGLES ~ x3aa

(FLBM CONN. AT TRUSS)



8 ~ STIFFENERS ~ x3ab

(BEARING STIFFENERS @ LO ℄ LO')



140 ~ ANGLES ~ x3ac

(STRINGER CONN. AT FLBMS)

Vermont Agency of Transportation

RECEIVED

CK'D BY TCF OK'D BY SSS

7:43 am, Apr 12, 2011

RESUBMIT ____ APPROVED X

BY KMH DATE 4-12-11

SHOP NOTE:

ALL STEEL PARTS ON THIS DRAWING SHALL BE GALVANIZED

NOTES:

1. FOR GENERAL NOTES SEE DWG. GN1.
2. OSL - DENOTES OUTSTANDING LEG OF ANGLE.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS NOTED	JM	PWR		
1	02/28/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:
M270-50	SEE DWG GN1	13/16 ø (U.N.)	NONE

DESCRIPTION: SWAY BRACE, FLOOR BEAM ℄ LATERAL BRACING STANDARDS

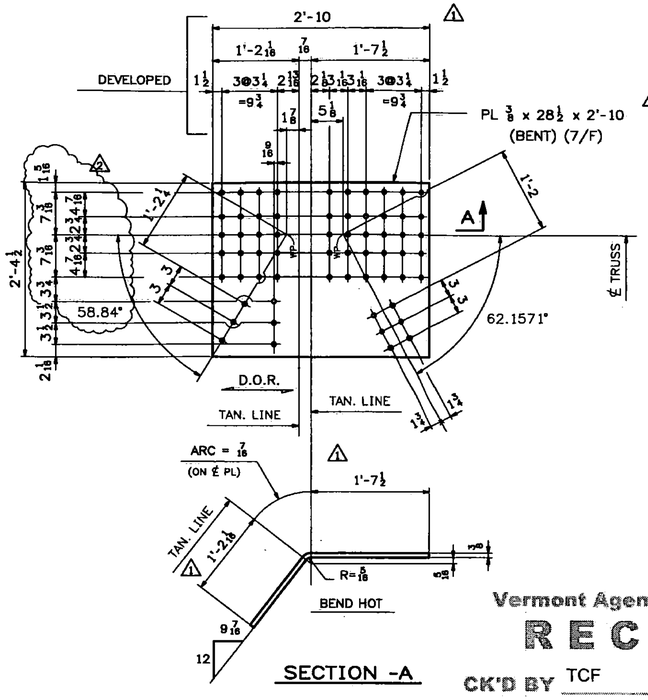
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

TENSOR 3015

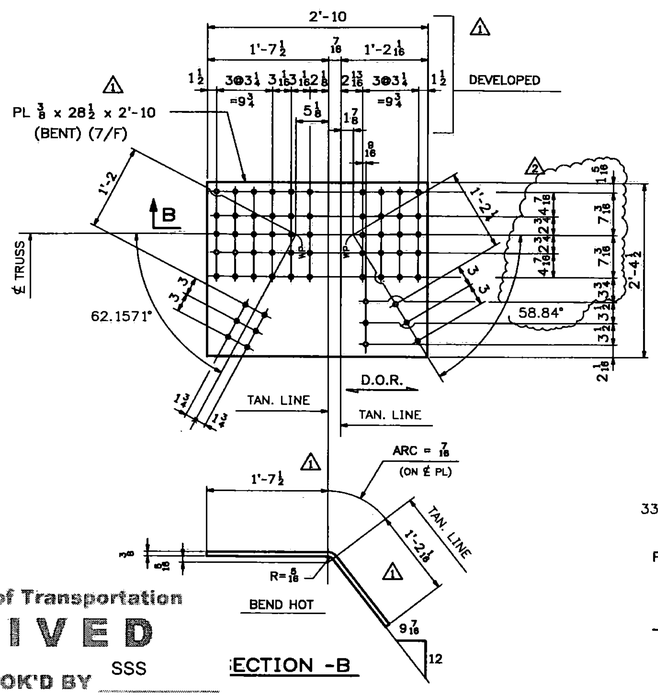
STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/4/10
		CHKD: WJL	DATE: 10/15/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO.	BRS 0149(4)	454	X3
CUSTOMER:	VT AOT		REV. 2

Mon, Oct 25, 2010 01:48:04 PM /users/jbm/2010/X3.dwg

129 STRUCTURAL STEEL



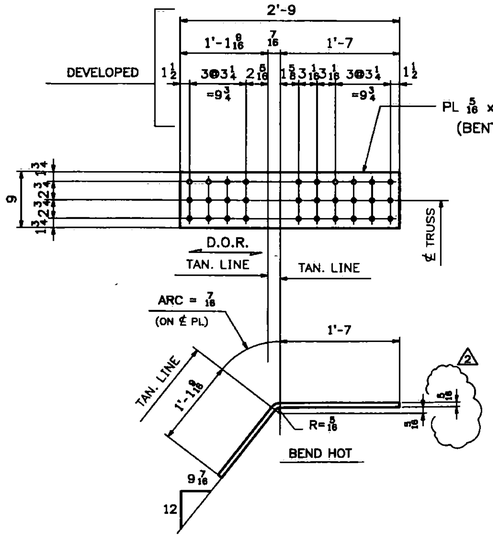
SECTION -A



SECTION -B

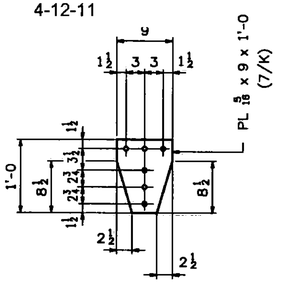
Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT APPROVED X
BY KMH DATE 4-12-11

2 ~ GUSSET PLATES ~ x4a
(TOP PLATES AT U1,U1')

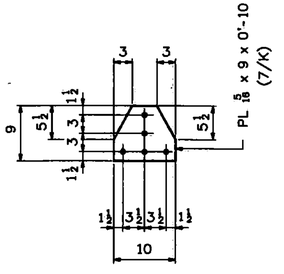


4 ~ SPLICE PLATES ~ x4ba
(TOP PLATES AT U1,U1')

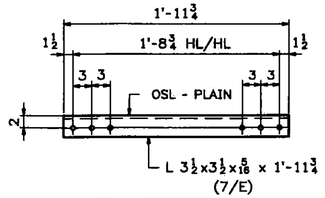
GUSSET PLATES ~ x4b
(TOP PLATES AT U1,U1')



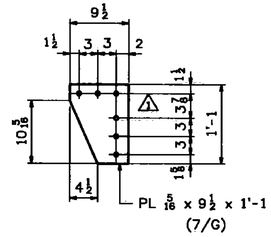
2 ~ GUSSET PLATES ~ x4n
(PORTAL GUSSETS)



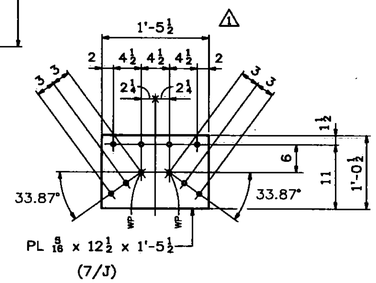
4 ~ GUSSET PLATES ~ x4p
(PORTAL GUSSETS)



2 ~ ANGLES ~ x4y
(PORTAL CTR BRACE)

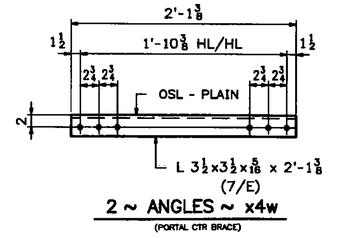


4 ~ GUSSET PLATES ~ x4c
(PORTAL PLATES AT U1,U1')



8 ~ GUSSET PLATES ~ x4h
(PORTAL GUSSETS)

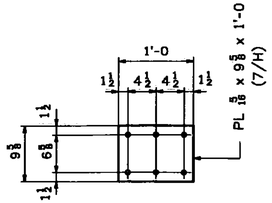
4 ~ ANGLES ~ x4s
(PORTAL DIAGONAL)

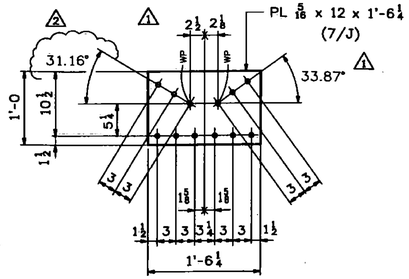


2 ~ ANGLES ~ x4w
(PORTAL CTR BRACE)

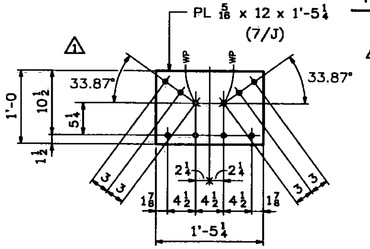
SHOP NOTE:
ALL STEEL PARTS ON THIS DRAWING SHALL BE GALVANIZED

8 ~ WEB PLATES ~ x4d
(@ PORTAL)

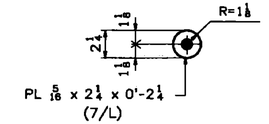




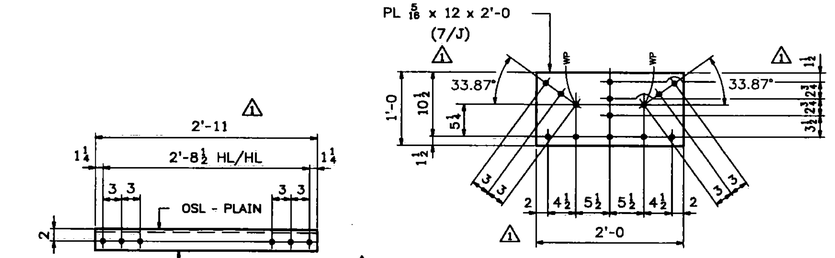
4 ~ GUSSET PLATES ~ x4g
(PORTAL GUSSETS)



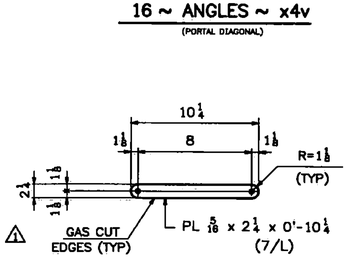
4 ~ GUSSET PLATES ~ x4k
(PORTAL GUSSETS)



132 ~ FILL PLATES ~ x4ab
(FILLS @ PORTAL WEB BARS)



2 ~ GUSSET PLATES ~ x4m
(PORTAL GUSSETS)



16 ~ ANGLES ~ x4v
(PORTAL DIAGONAL)

256 ~ WEB BARS ~ x4aa
(@ PORTAL)

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.
2. OSL - DENOTES OUTSTANDING LEG OF ANGLE.
D.O.R. - DENOTES DIRECTION OF MILL ROLLING.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED ANGLE AS NOTED	JM	PWR		
1	02/28/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50	SEE DWG GN1	13/16 ø	NONE

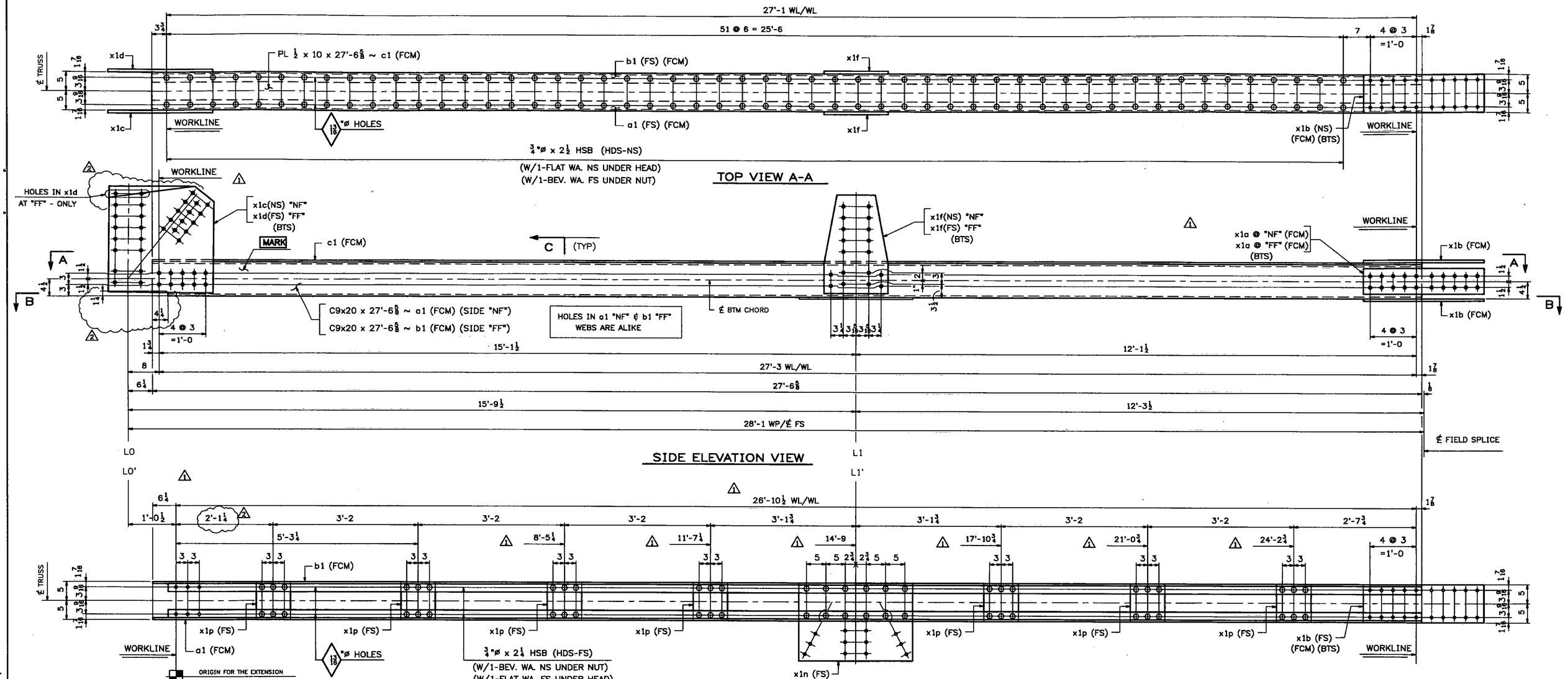
DESCRIPTION: PORTAL STANDARDS

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

STRUCTURE:	DRAWN:	DATE:
Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	RB	10/6/10
	CHKD: WJL	DATE: 10/15/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO. BRS 0149(4)	454	X4
CUSTOMER: VT AOT		REV. 2

Wed, Feb 23, 2011 08:08:06 AM J:\comp\jobs\2010\X4.1.files\0

130 STRUCTURAL STEEL



BOTTOM SECTION B-B

ONE - BOTTOM CHORD - 1BC1W (LO-L2 WEST)

ONE - BOTTOM CHORD - 1BC3E (LO'-L2' EAST)

ALIKE EXCEPT FOR MARK

SHOP NOTE: ALL STEEL FOR BOTTOM CHORD ASSEMBLIES SHALL BE GALVANIZED

NOTES:

1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X1.
3. "NF" - DENOTES NEAR FACE OF ASS'Y.
4. "FF" - DENOTES FAR FACE OF ASS'Y.
5. "BF" - DENOTES BOTH FACES OF ASSEMBLY.
6. FCM - DENOTES FRACTURE CRITICAL MATERIAL.
7. ALL BOLTS SHALL BE FULLY TORQUED (UN).
8. BTS - DENOTES BOLT TO SHIP OR SECURE FOR SHIPMENT.
9. HDS - DENOTES BOLT HEADS.

Vermont Agency of Transportation

RECEIVED

CK'D BY TCF OK'D BY SSS

7:43 am, Apr 12, 2011

RESUBMIT ____ APPROVED X

BY KMH DATE WORK 4-12-11

DWG. 1B.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	02/28/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL: M270-50 (U.N.)	SURFACE PREP. ℄ PAINT: SEE DWG GN1	HOLES: ⅞ ø(U.N.)	SHOP BOLTS: AS NOTED

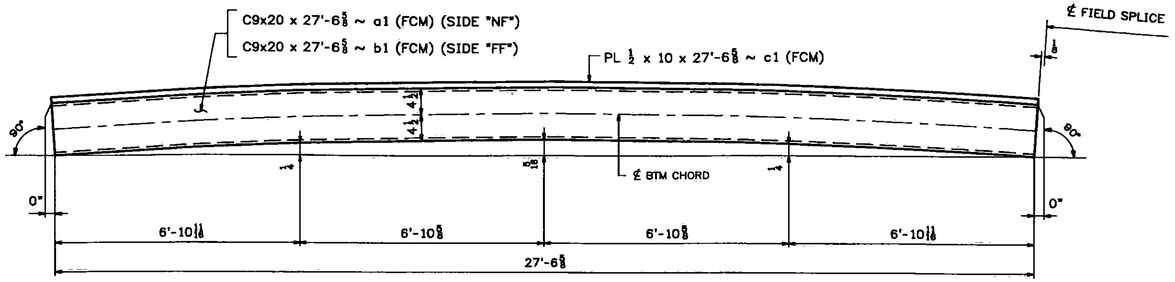
DESCRIPTION: BOTTOM CHORD 1BC1W ℄ 1BC3E

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

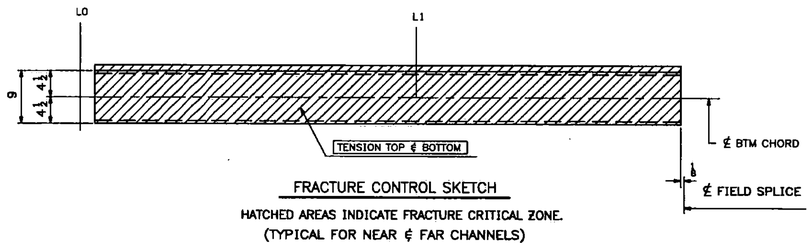
STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/21/10	
	CHKD: WJL	DATE: 10/15/10	
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 1AB	
PROJ NO. BRS 0149(4)		REV. 2	
CUSTOMER: VT AOT			

Mon, Oct 25, 2010 01:48:30 PM /users/jtate/2010/1AB - Rev2

131 STRUCTURAL STEEL



CAMBER DIAGRAM FOR 1BC1W ℄ 1BC3E



FRACTURE CONTROL SKETCH

HATCHED AREAS INDICATE FRACTURE CRITICAL ZONE.
(TYPICAL FOR NEAR ℄ FAR CHANNELS)

BILL OF MATERIAL

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		1BC1W	1		BOTTOM CHORD			ALIKE EXCEPT	2295	
		1BC3E	1		BOTTOM CHORD			FOR MARK	2295	
1	B		2	a1	C 9x20	27	6⅝	(GALVANIZED) M270-50F2 (FCM)		
1	B		2	b1	C 9x20	27	6⅝	(GALVANIZED) M270-50F2 (FCM)		
1	D		2	c1	PL ½x10	27	6⅝	(GALVANIZED) M270-50F2 (FCM)		
1	G		4	x1a	PL ½x7	2	7½	(GALVANIZED) M270-50F2 (FCM)		
1	H		4	x1b	PL ½x10	2	7½	(GALVANIZED) M270-50F2 (FCM)		
1	K		2	x1c	PL ½x27⅝	2	4	(GALVANIZED) M270-50T2		
1	K		2	x1d	PL ½x27⅝	2	4	(GALVANIZED) M270-50T2		
1	L		4	x1f	PL ½x16⅝	2	2	(GALVANIZED) M270-50T2		
1	Q		2	x1n	PL ⅝x20½	2	5½	(GALVANIZED) M270-50T2		
1	R		14	x1p	PL ⅝x9	0	10	(GALVANIZED) M270-50T2		
10	D		108		⅞ ø HSB	0	2½	(GALVANIZED) A325-1		
10	E		208		⅞ ø HSB	0	2½	(GALVANIZED) A325-1		
10	P		316		⅞ ø HSW			(GALVANIZED) F436		
10	Q		316		BEVEL WASH FOR ⅞ ø HSB			(GALVANIZED) F436		

JOB NO. 454 | DRAWING NO. 1B | REV.

F2 DENOTES FRACTURE CRITICAL MATERIAL
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

WORK THIS DWG. WITH DWG. 1AB.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	02/28/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	15/16 ø(U.N.)	AS NOTED

DESCRIPTION: BOTTOM CHORD 1BC1W ℄ 1BC3E

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3018

STRUCTURE: Vermont Route 100A
Bridge No. 14
Bridgewater
County of Windsor

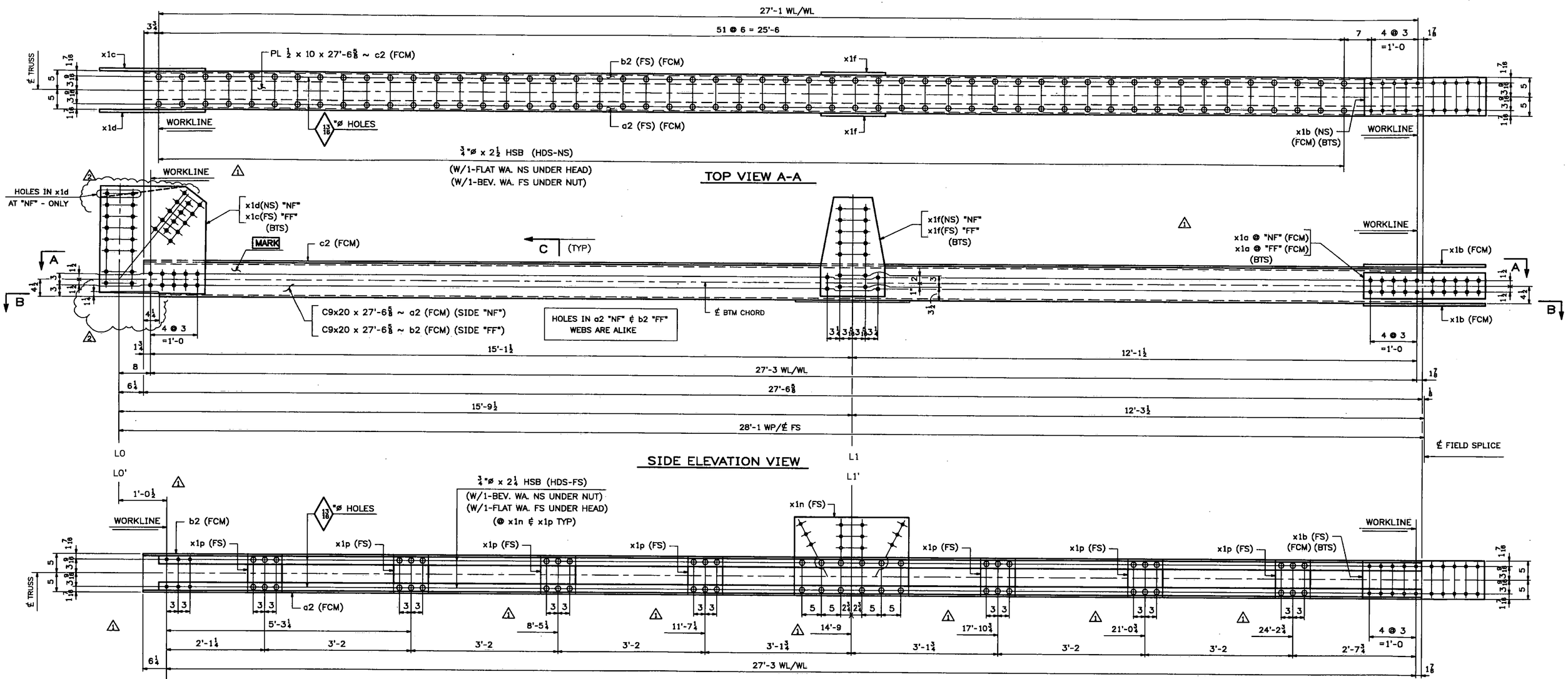
DRAWN: RB DATE: 9/21/10
CHKD: WJL DATE: 10/15/10

LOCATION: BRIDGEWATER, VERMONT
PROJ NO. BRS 0149(4)
CUSTOMER: VT AOT

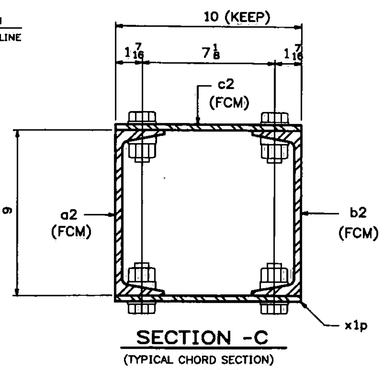
JOB NO. 454 | DWG NO. 1B | REV. 1

BL Mon Oct 25, 2010 01:08:42 PM /users/jobs/2010/10.1.dwg

132 STRUCTURAL STEEL



ORIGIN FOR THE EXTENSION DIMENSIONS IS AT THE WORKLINE (FOR BTM FLANGE)



SECTION -C
(TYPICAL CHORD SECTION)
(ENLARGED)

BOTTOM SECTION B-B

ONE - BOTTOM CHORD - 2BC1E (L0-L2 EAST)

ONE - BOTTOM CHORD - 2BC3W (L0'-L2' WEST)

ALIKE EXCEPT FOR MARK

SHOP NOTE:
ALL STEEL FOR BOTTOM CHORD ASSEMBLIES SHALL BE GALVANIZED

NOTES:

1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X1.
3. "NF" - DENOTES NEAR FACE OF ASS'Y.
4. "FF" - DENOTES FAR FACE OF ASS'Y.
5. "BF" - DENOTES BOTH FACES OF ASSEMBLY.
6. FCM - DENOTES FRACTURE CRITICAL MATERIAL.
7. ALL BOLTS SHALL BE FULLY TORQUED (UN).
8. BTS - DENOTES BOLT TO SHIP OR SECURE FOR SHIPMENT.
9. HDS - DENOTES BOLT HEADS.

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

G. 2B.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	02/28/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

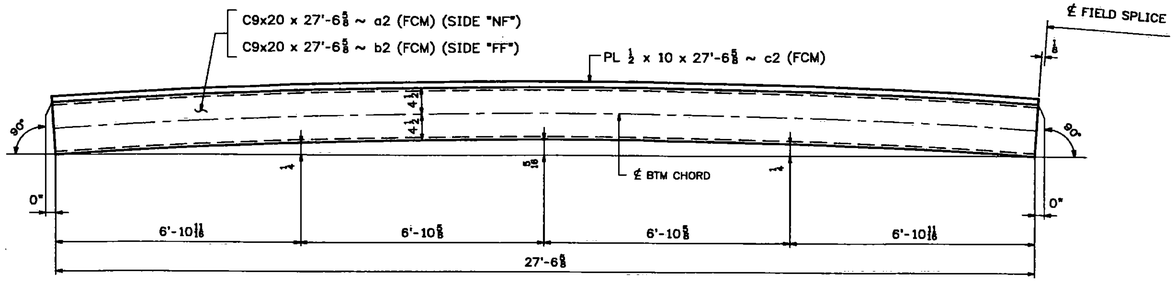
MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø (U.N.)	AS NOTED

DESCRIPTION: BOTTOM CHORD 2BC1E ℄ 2BC3W

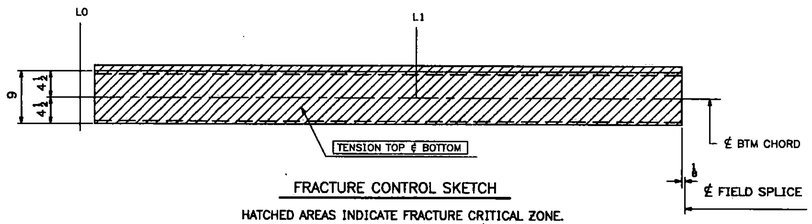
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/21/10	
	CHKD: WJL	DATE: 10/18/10	
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 2AB	
PROJ NO. BRS 0149(4)		REV. 2	
CUSTOMER: VT AOT			

133 STRUCTURAL STEEL



CAMBER DIAGRAM FOR 2BC1E ℄ 2BC3W



FRACTURE CONTROL SKETCH

HATCHED AREAS INDICATE FRACTURE CRITICAL ZONE.
(TYPICAL FOR NEAR ℄ FAR CHANNELS)

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO. 454	DRAWING NO. 2B	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		2BC1E	1		BOTTOM CHORD			ALIKE EXCEPT	2295	
		2BC3W	1		BOTTOM CHORD			FOR MARK	2295	
1	B		2	a2	C 9x20	27	6 5/8	(GALVANIZED) M270-50F2 (FCM)		
1	B		2	b2	C 9x20	27	6 5/8	(GALVANIZED) M270-50F2 (FCM)		
1	D		2	c2	PL 1/2x10	27	6 5/8	(GALVANIZED) M270-50F2 (FCM)		
1	G		4	x1a	PL 1/2x7	2	7 1/2	(GALVANIZED) M270-50F2 (FCM)		
1	H		4	x1b	PL 1/2x10	2	7 1/2	(GALVANIZED) M270-50F2 (FCM)		
1	K		2	x1c	PL 1/2x27 5/16	2	4	(GALVANIZED) M270-50T2		
1	K		2	x1d	PL 1/2x27 5/16	2	4	(GALVANIZED) M270-50T2		
1	L		4	x1f	PL 1/2x16 5/8	2	2	(GALVANIZED) M270-50T2		
1	Q		2	x1n	PL 5/16x20 1/2	2	5 1/2	(GALVANIZED) M270-50T2		
1	R		14	x1p	PL 5/16x9	0	10	(GALVANIZED) M270-50T2		
10	D		108		3/4 ø HSB	0	2 1/2	(GALVANIZED) A325-1		
10	E		208		3/4 ø HSB	0	2 1/2	(GALVANIZED) A325-1		
10	P		316		1/4 ø HSW			(GALVANIZED) F436		
10	Q		316		BEVEL WASH FOR 3/4 ø HSB			(GALVANIZED) F436		

F2 DENOTES FRACTURE CRITICAL MATERIAL
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

WORK THIS DWG. WITH DWG. 2AB.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	02/28/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	15/16 ø(U.N.)	AS NOTED

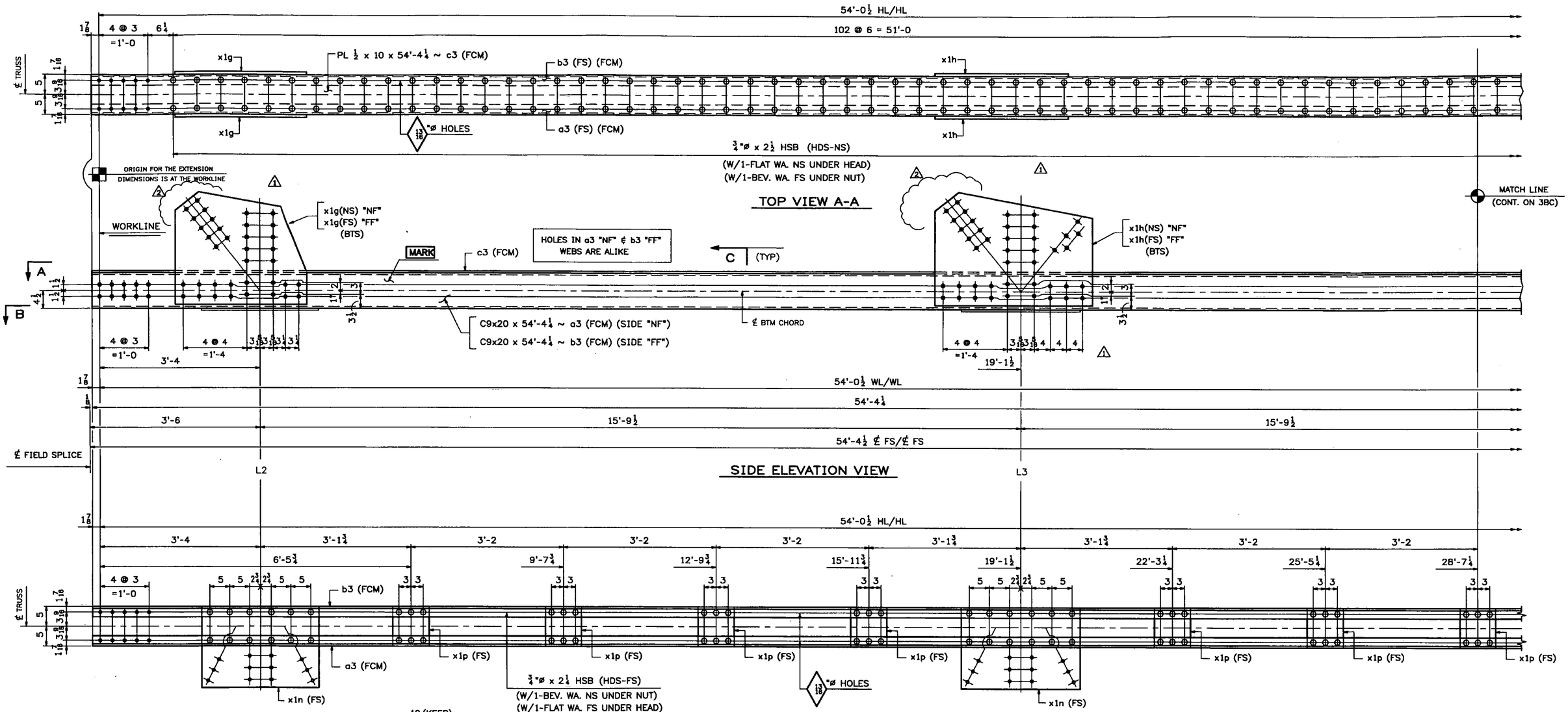
DESCRIPTION: BOTTOM CHORD 2BC1E ℄ 2BC3W

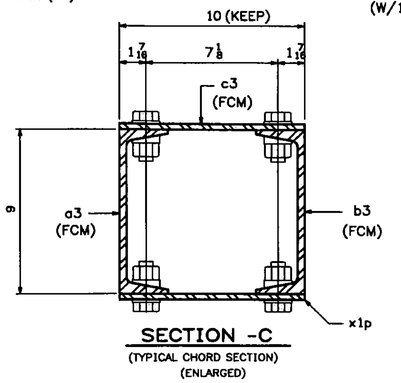
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE:	DRAWN:	DATE:
Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	RB	9/21/10
	CHKD: WJL	DATE: 10/18/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO. BRS 0149(4)	454	2B
CUSTOMER: VT AOT		REV. 1

Mon, Oct 25, 2010 01:03:29 PM //tensor/data/2010/2B.Tmp

134 STRUCTURAL STEEL





SECTION -C
(TYPICAL CHORD SECTION)
(ENLARGED)

ONE - BOTTOM CHORD - 3BC2W
(L2-L2' WEST)

SHOP NOTE:
ALL STEEL FOR BOTTOM CHORD ASSEMBLY SHALL BE GALVANIZED

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X1.
3. "NF" - DENOTES NEAR FACE OF ASS'Y.
4. "FF" - DENOTES FAR FACE OF ASS'Y.
5. "BF" - DENOTES BOTH FACES OF ASSEMBLY.
6. FCM - DENOTES FRACTURE CRITICAL MATERIAL.
7. ALL BOLTS SHALL BE FULLY TORQUED (UN).
8. BTS - DENOTES BOLT TO SHIP OR SECURE FOR SHIPMENT.
9. HDS - DENOTES BOLT HEADS.

WORK THIS DWG. WITH DWG. 3BC ¢ 3C.

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	02/28/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ¢ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø(U.N.)	AS NOTED

DESCRIPTION: BOTTOM CHORD 3BC2W

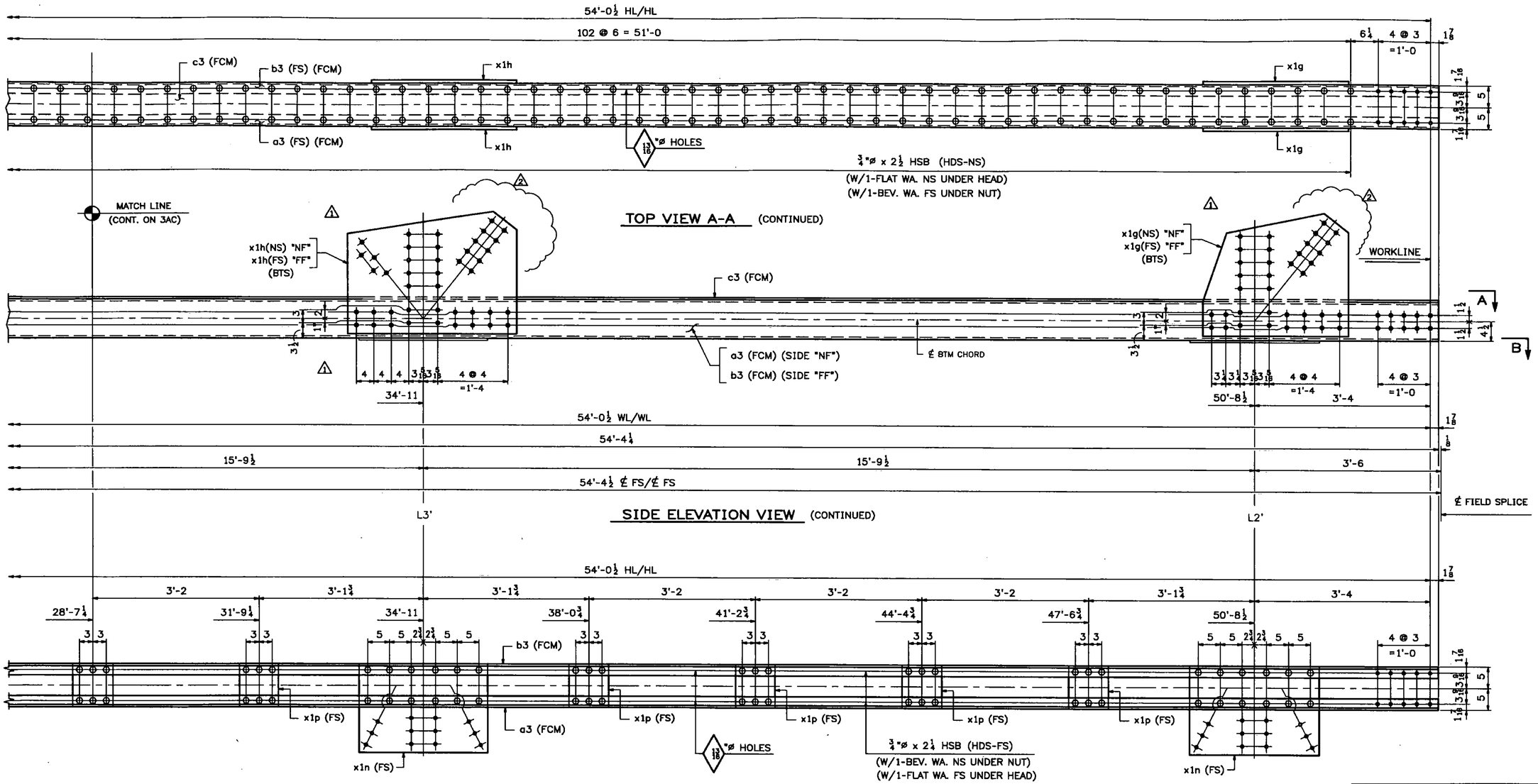
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

TENSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/27/10
	CHKD: WJL	DATE: 10/18/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 3AC
PROJ NO. BRS 0149(4)		REV. 2
CUSTOMER: VT AOT		

Mon, Oct 25, 2010 01:50:03 PM //www/jobs/2010/454/3AC.1.dwg

135 STRUCTURAL STEEL



ONE - BOTTOM CHORD - 3BC2W (CONTINUED)

(L2-L2' WEST)

SHOP NOTE:
ALL STEEL FOR BOTTOM CHORD ASSEMBLY SHALL BE GALVANIZED

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

WORK THIS DWG. WITH DWG. 3AC ℄ 3C.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	02/28/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

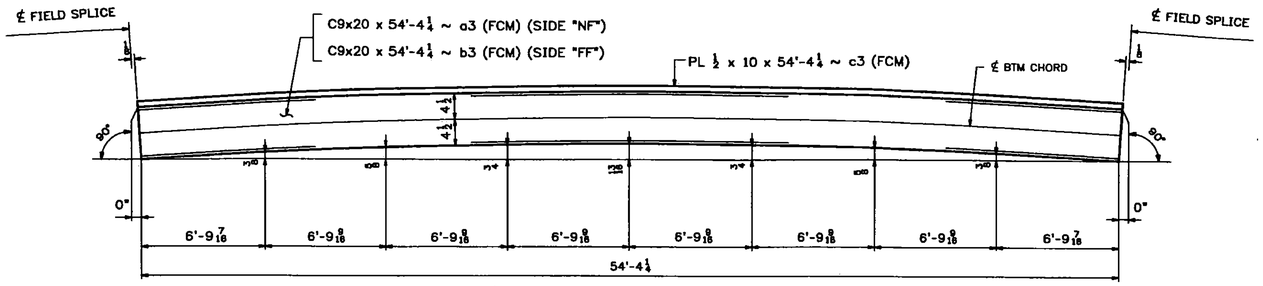
MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø(U.N.)	AS NOTED

DESCRIPTION: BOTTOM CHORD 3BC2W

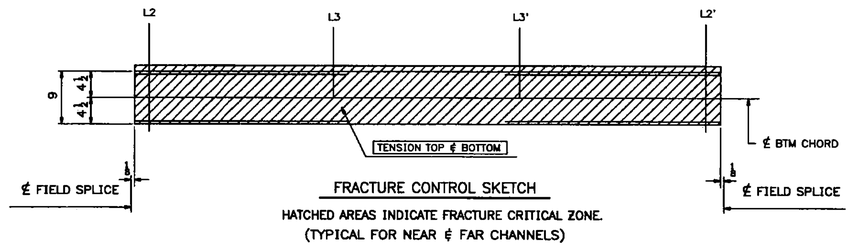
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

STRUCTURE: Vermont Route 100A, Bridge No. 14, Bridgewater, County of Windsor	DRAWN: RB	DATE: 9/27/10
	CHKD: WJL	DATE: 10/18/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 3BC
PROJ NO. BRS 0149(4)		REV. 2
CUSTOMER: VT AOT		

136 STRUCTURAL STEEL



CAMBER DIAGRAM FOR 3BC2W



FRACTURE CONTROL SKETCH

HATCHED AREAS INDICATE FRACTURE CRITICAL ZONE.
(TYPICAL FOR NEAR ℄ FAR CHANNELS)

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								454	3C	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		3BC2W	1		BOTTOM CHORD				4842	
1	C		1	a3	C 9x20	54	4¼	(GALVANIZED) M270-50F2 (FCM)		
1	C		1	b3	C 9x20	54	4¼	(GALVANIZED) M270-50F2 (FCM)		
1	E		1	c3	PL ½x10	54	4¼	(GALVANIZED) M270-50F2 (FCM)		
1	M		4	x1g	PL ½x29	2	9⅛	(GALVANIZED) M270-50T2		
1	N		4	x1h	PL ½x29 ⚠1	3	2½	(GALVANIZED) M270-50T2		
1	Q		4	x1n	PL ⅜x20½	2	5½	(GALVANIZED) M270-50T2		
1	R		12	x1p	PL ⅝x9	0	10	(GALVANIZED) M270-50T2		
10	D		120		¾ ø HSB	0	2½	(GALVANIZED) A325-1		
10	E		206		¾ ø HSB	0	2½	(GALVANIZED) A325-1		
10	P		326		¾ ø HSW			(GALVANIZED) F436		
10	Q		326		BEVEL WASH FOR ¾ø HSB			(GALVANIZED) F436		

F2 DENOTES FRACTURE CRITICAL MATERIAL
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT _____ APPROVED X
BY KMH DATE 4-12-11

WORK THIS DWG. WITH DWG. 3AC ℄ 3BC.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠1	02/28/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	1⅛ ø(U.N.)	AS NOTED

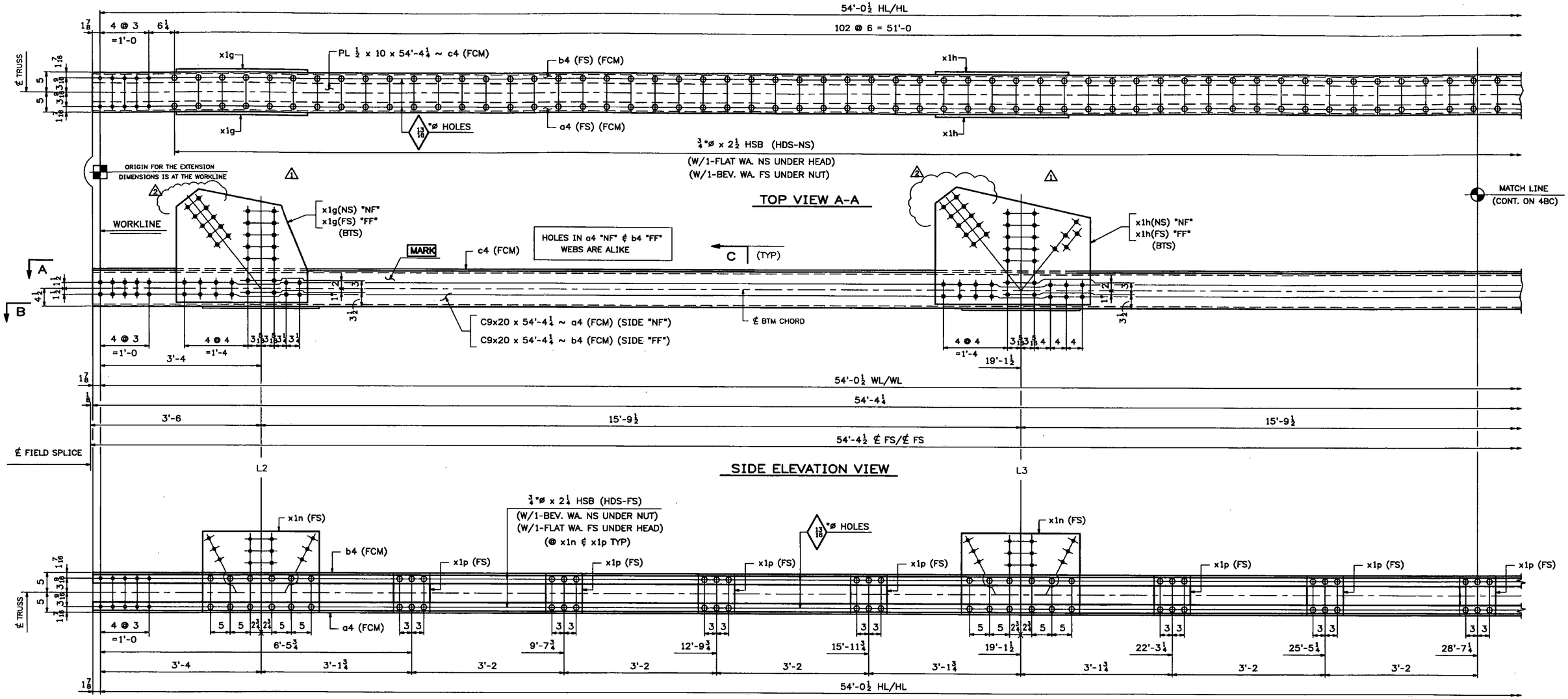
DESCRIPTION: BOTTOM CHORD 3BC2W

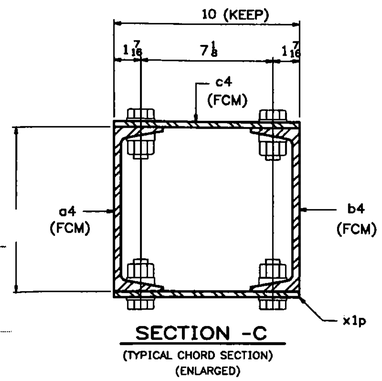
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/27/10	
	CHKD: WJL	DATE: 10/18/10	
LOCATION: BRIDGEWATER, VERMONT	JOB NO.	DWG NO.	
PROJ NO. BRS 0149(4)	454	3C	
CUSTOMER: VT AOT		REV. ⚠1	

Mon, Oct 25, 2010 11:05:22 PM J:\data\jobs\2010\3C.dwg

137 STRUCTURAL STEEL





SECTION -C
(TYPICAL CHORD SECTION)
(ENLARGED)

BOTTOM SECTION B-B

ONE - BOTTOM CHORD - 4BC2E
(L2-L2' EAST)

SHOP NOTE:
ALL STEEL FOR BOTTOM CHORD ASSEMBLY SHALL BE GALVANIZED

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X1.
3. "NF" - DENOTES NEAR FACE OF ASS'Y.
4. "FF" - DENOTES FAR FACE OF ASS'Y.
5. "BF" - DENOTES BOTH FACES OF ASSEMBLY.
6. FCM - DENOTES FRACTURE CRITICAL MATERIAL.
7. ALL BOLTS SHALL BE FULLY TORQUED (UN).
8. BTS - DENOTES BOLT TO SHIP OR SECURE FOR SHIPMENT.
9. HDS - DENOTES BOLT HEADS.

WORK THIS DWG. WITH DWG. 4BC ℄ 4C.

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT APPROVED X
BY KMH DATE 4-12-11

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	03/01/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

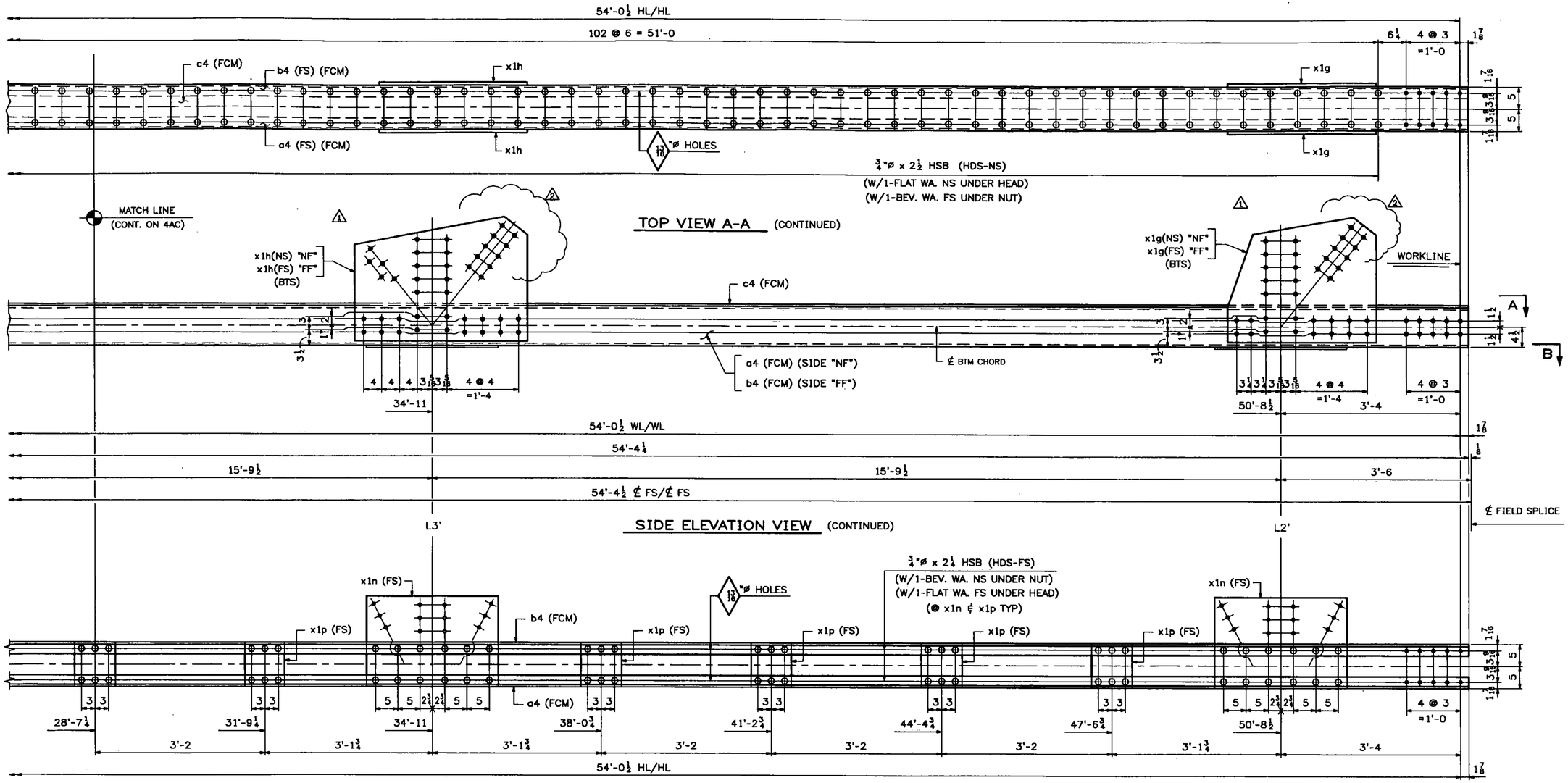
MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø(U.N.)	AS NOTED

DESCRIPTION: BOTTOM CHORD 4BC2E

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/27/10
	CHKD: WJL	DATE: 10/18/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 4AC
PROJ NO. BRS 0149(4)		REV. 2
CUSTOMER: VT AOT		

138 STRUCTURAL STEEL



BOTTOM SECTION B-B (CONTINUED)

ONE - BOTTOM CHORD - 4BC2E (CONTINUED)
(L2-L2' EAST)

SHOP NOTE:
ALL STEEL FOR BOTTOM CHORD ASSEMBLY SHALL BE GALVANIZED

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

WORK THIS DWG. WITH DWG. 4AC ℄ 4C.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	03/01/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø(U.N.)	AS NOTED

DESCRIPTION: BOTTOM CHORD 4BC2E

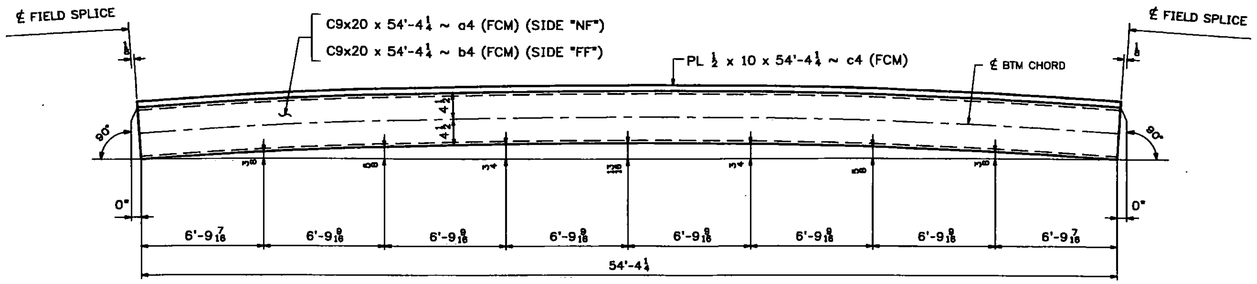
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

TENSOR 3015

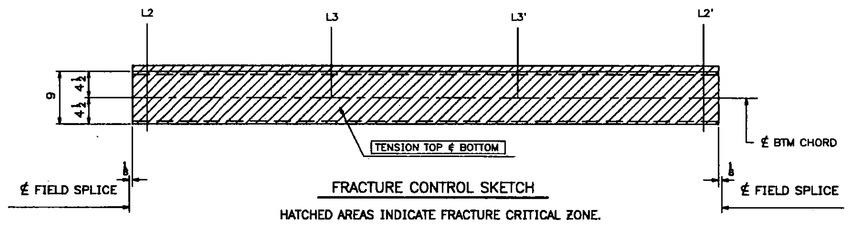
STRUCTURE:	DRAWN:	DATE:
Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	RB	9/27/10
	CHKD: WJL	DATE: 10/18/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO. BRS 0149(4)	454	4BC
CUSTOMER: VT AOT		REV. 2

Mon, Oct 25, 2010 01:05:57 PM /users/jobs/2010/454/ | Revit

139 STRUCTURAL STEEL



CAMBER DIAGRAM FOR 3BC2W



FRACTURE CONTROL SKETCH

HATCHED AREAS INDICATE FRACTURE CRITICAL ZONE.
(TYPICAL FOR NEAR ℄ FAR CHANNELS)

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO. 454	DRAWING NO. 4C	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		4BC2E	1		BOTTOM CHORD				4842	
1	C		1	a4	C 9x20	54	4¼	(GALVANIZED) M270-50F2 (FCM)		
1	C		1	b4	C 9x20	54	4¼	(GALVANIZED) M270-50F2 (FCM)		
1	E		1	c4	PL ½x10	54	4¼	(GALVANIZED) M270-50F2 (FCM)		
1	M		4	x1g	PL ½x29	2	9½	(GALVANIZED) M270-50T2		
1	N		4	x1h	PL ½x29	3	2½	(GALVANIZED) M270-50T2		
1	Q		4	x1n	PL ⅜x20½	2	5½	(GALVANIZED) M270-50T2		
1	R		12	x1p	PL ⅜x9	0	10	(GALVANIZED) M270-50T2		
10	D		120		¾ ø HSB	0	2½	(GALVANIZED) A325-1		
10	E		206		¾ ø HSB	0	2½	(GALVANIZED) A325-1		
10	P		326		¾ ø HSW			(GALVANIZED) F436		
10	Q		326		BEVEL WASH FOR ¾ ø HSB			(GALVANIZED) F436		

F2 DENOTES FRACTURE CRITICAL MATERIAL
T2 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

WORK THIS DWG. WITH DWG. 4AC ℄ 4BC.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	03/01/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	15/16 ø (U.N.)	AS NOTED

DESCRIPTION: BOTTOM CHORD 4BC2E

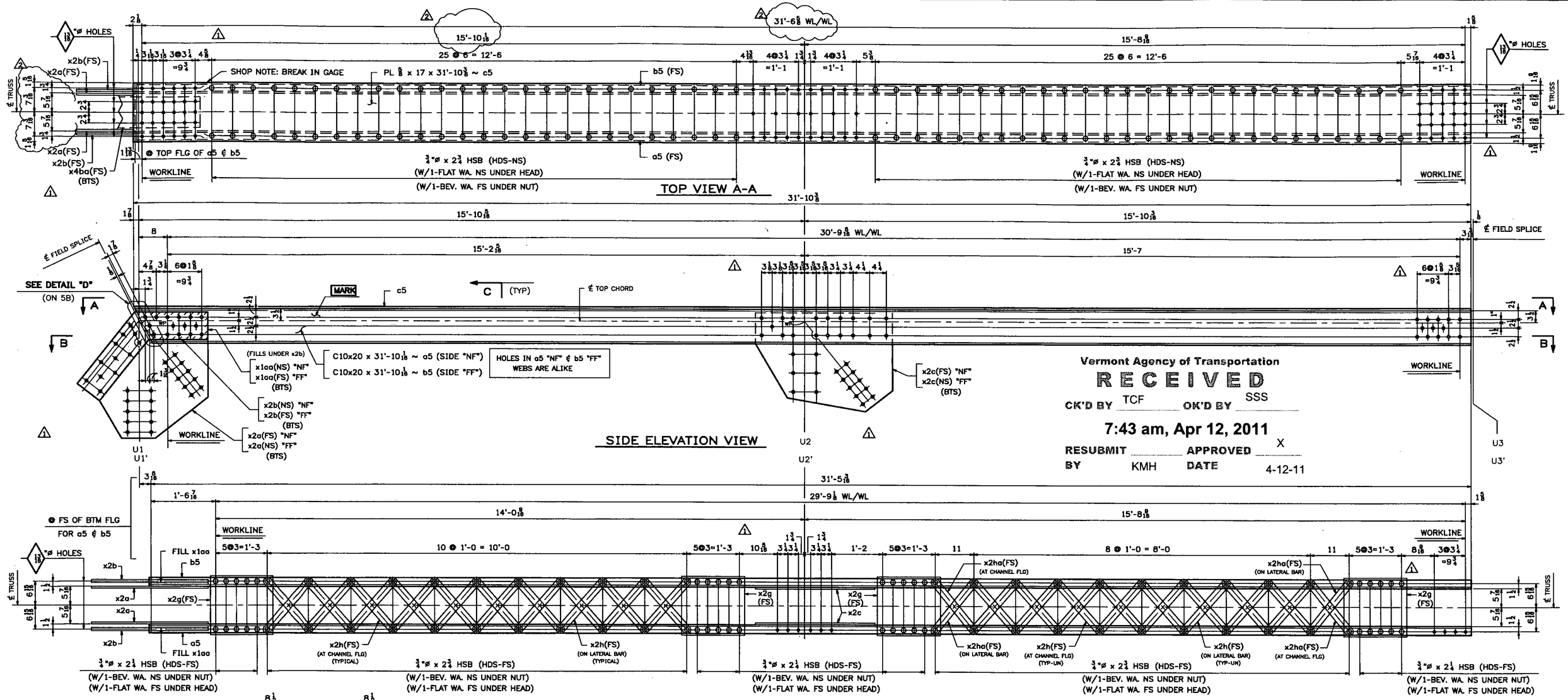
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

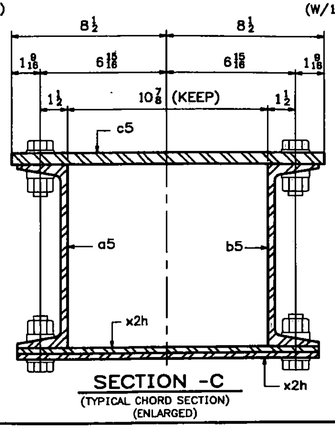
TENSOR 3015

STRUCTURE:	DRAWN:	DATE:
Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	RB	9/27/10
	CHKD: WJL	DATE: 10/18/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 4C
PROJ NO. BRS 0149(4)		REV. ⚠
CUSTOMER: VT AOT		

Mon, Oct 25, 2010 01:01:04 PM /users/jake/2010/4C1.dwg

140 STRUCTURAL STEEL





BOTTOM SECTION B-B

ONE - TOP CHORD - 5TC1W
(U1-U3 WEST)

ONE - TOP CHORD - 5TC3E
(U1'-U3' EAST)

ALIKE EXCEPT FOR MARK

SHOP NOTE:
ALL STEEL FOR TOP CHORD ASSEMBLIES SHALL BE GALVANIZED

WORK THIS DWG. WITH DWG. 5B.

NOTES:

1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X1 ¢ X2.
3. "NF" - DENOTES NEAR FACE OF ASS'Y.
4. "FF" - DENOTES FAR FACE OF ASS'Y.
5. "BF" - DENOTES BOTH FACES OF ASSEMBLY.
6. ALL BOLTS SHALL BE FULLY TORQUED (UN).
7. BTS - DENOTES BOLT TO SHIP OR SECURE FOR SHIPMENT.
8. HDS - DENOTES BOLT HEADS.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS NOTED	JM	PWR		
1	03/01/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

MATERIAL:	SURFACE PREP. ¢ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	15/16 ø(U.N.)	AS NOTED

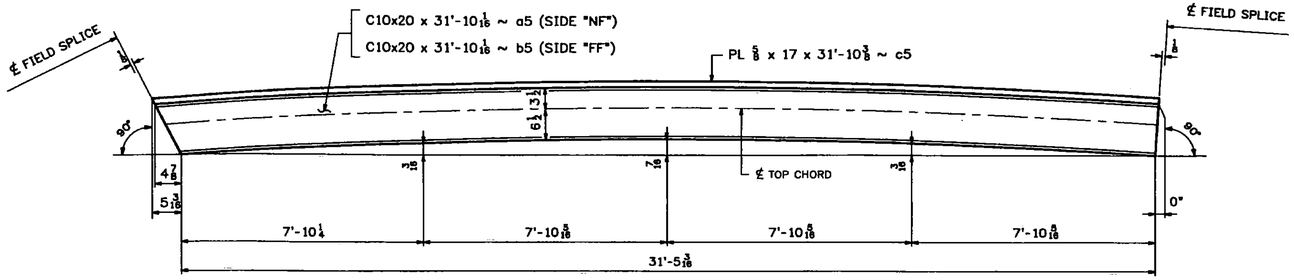
DESCRIPTION: TOP CHORD 5TC1W ¢ 5TC3E

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

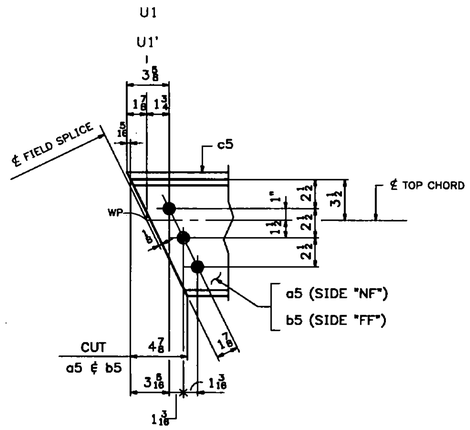
STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/28/10
	CHKD: WJL	DATE: 10/18/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 5AB
PROJ NO. BRS 0149(4)		REV. 2
CUSTOMER: VT AOT		

Mon, Oct 25, 2010 03:51:14 PM //users/jobs/2010/5048 - New

1411 STRUCTURAL STEEL



CAMBER DIAGRAM FOR 5TC1W ℄ 5TC3E



DETAIL "D"
(ENLARGED) (ON 5AB)
(WEB FILL PLATES NOT SHOWN FOR CLARITY)

ABM INFO		SHIP	BILL OF MATERIAL			LENGTH		JOB NO. 454	DRAWING NO. 5B	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	FT	INCHES	REMARKS	WT	PROCUREMENT NOTES
		5TC1W	1		TOP CHORD			ALIKE EXCEPT	3561	
		5TC3E	1		TOP CHORD			FOR MARK	3561	
2	B		2	a5	C 10x20	31	10 1/16	(GALVANIZED) M270-50T2		
2	B		2	b5	C 10x20	31	10 1/16	(GALVANIZED) M270-50T2		
2	D		2	c5	PL 5/8x17	31	10 3/8	(GALVANIZED) M270-50T2		
3	M		4	x1aa	PL 1/2x8	1	8 1/16	(GALVANIZED)		
2	G		4	x2a	PL 3/8x34 1/2	3	0	(GALVANIZED) M270-50T2		
2	H		4	x2b	PL 3/8x24 7/16	3	0	(GALVANIZED) M270-50T2		
2	J		4	x2c	PL 3/8x28 1/4	3	2	(GALVANIZED) M270-50T2		
2	M		8	x2g	PL 5/16x17	1	5	(GALVANIZED)		
2	P		72	x2h	PL 5/8x2 1/4	1	8 5/8	(GALVANIZED)		
2	P		8	x2ha	PL 5/8x2 1/4	1	7 15/16	(GALVANIZED)		
7	N		2	x4ba	PL 5/16x9	2	9	(GALVANIZED)		
10	D		80		3/4 ø HSB	0	2 1/4	(GALVANIZED) A325-1		
10	F		296		3/4 ø HSB	0	2 3/4	(GALVANIZED) A325-1		
10	P		376		3/4 ø HSW			(GALVANIZED) F436		
10	Q		376		BEVEL WASH FOR 3/4" HSB			(GALVANIZED) F436		

T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

WORK THIS DWG. WITH DWG. 5AB.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø(U.N.)	AS NOTED

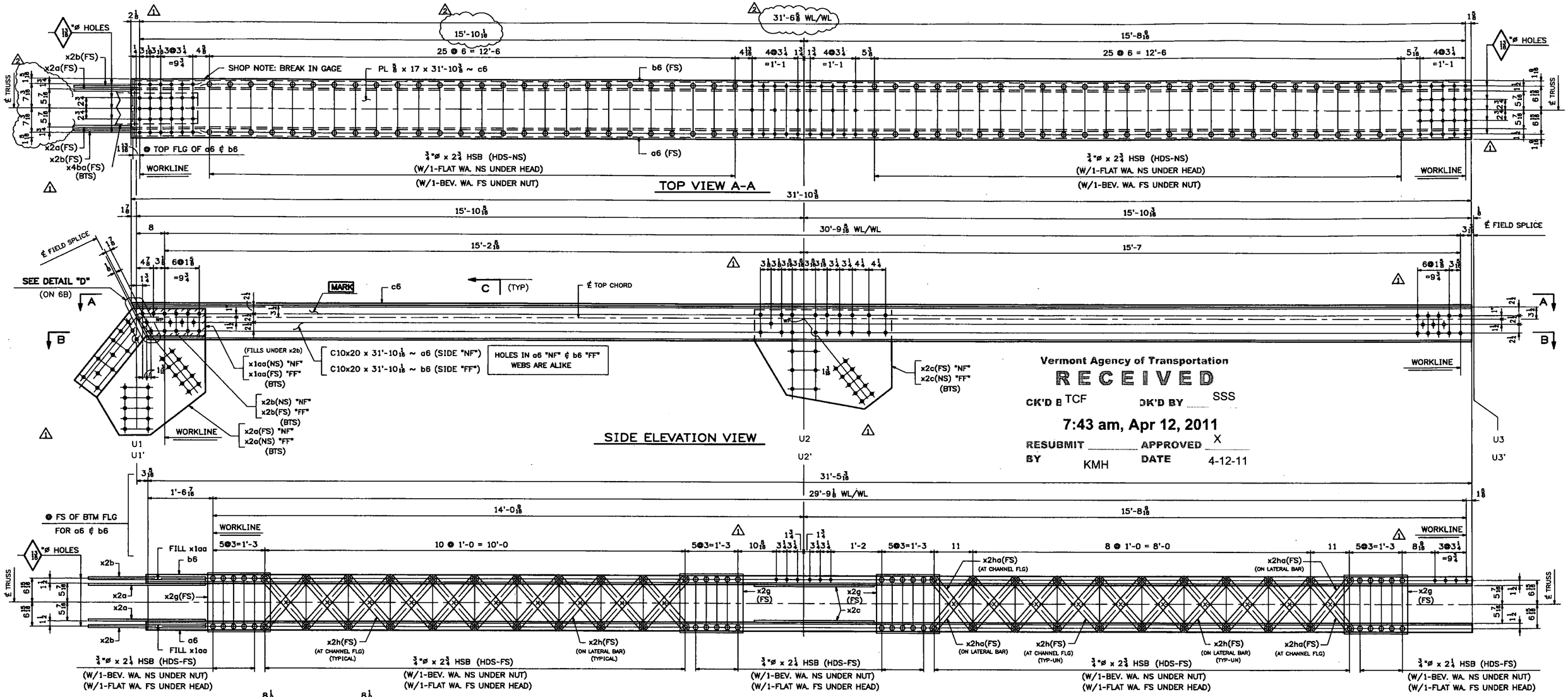
DESCRIPTION: TOP CHORD 5TC1W ℄ 5TC3E

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

STRUCTURE:	DRAWN:	DATE:
Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	RB	9/28/10
	CHKD: WJL	DATE: 10/18/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 5B
PROJ NO. BRS 0149(4)		REV. 1
CUSTOMER: VT AOT		

M:\5... Mon, Oct 25, 2010 01:01:27 PM /users/jobs/2010/28 | BluO

142 STRUCTURAL STEEL



ONE - TOP CHORD - 6TC1E
(U1-U3 EAST)

ONE - TOP CHORD - 6TC3W
(U1'-U3' WEST)

ALIKE EXCEPT FOR MARK

SHOP NOTE:
ALL STEEL FOR TOP CHORD ASSEMBLIES SHALL BE GALVANIZED

NOTES:

1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X1 ℄ X2.
3. "NF" - DENOTES NEAR FACE OF ASS'Y.
4. "FF" - DENOTES FAR FACE OF ASS'Y.
5. "BF" - DENOTES BOTH FACES OF ASSEMBLY.
6. ALL BOLTS SHALL BE FULLY TORQUED (UN).
7. BTS - DENOTES BOLT TO SHIP OR SECURE FOR SHIPMENT.
8. HDS - DENOTES BOLT HEADS.

WORK THIS DWG. WITH DWG. 6B.

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF DK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS NOTED	JM	PWR		
1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

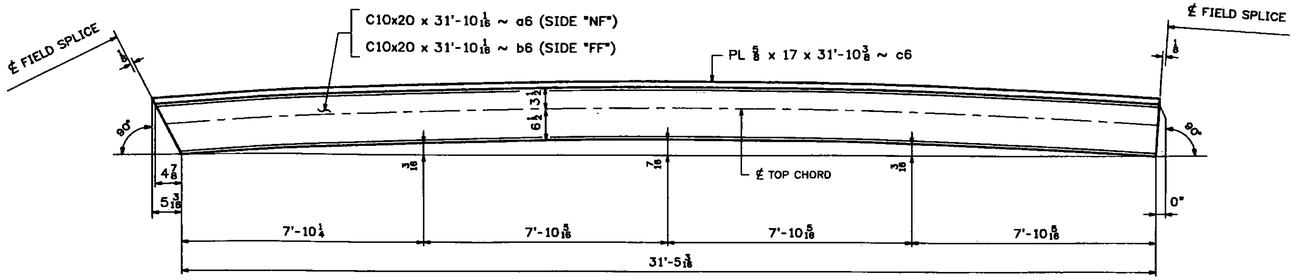
MATERIAL: M270-50 (U.N.)	SURFACE PREP. ℄ PAINT: SEE DWG GN1	HOLES: 13/16 ø(U.N.)	SHOP BOLTS: AS NOTED
DESCRIPTION:	TOP CHORD 6TC1E ℄ 6TC3W		

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

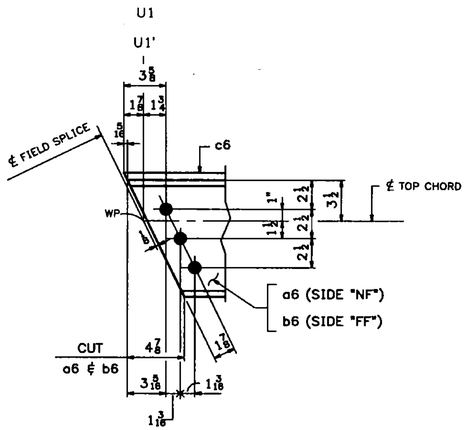
STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor		DRAWN: RB	DATE: 9/29/10
		CHKD: WJL	DATE: 10/18/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO.	BRS 0149(4)	454	6AB
CUSTOMER:	VT AOT		REV. 2

Mon, Oct 25, 2010 01:51:45 PM J:\acad\jobs\2010\6ab.dwg

STRUCTURAL
143 STEEL



CAMBER DIAGRAM FOR 6TC1E ℄ 6TC3W



DETAIL "D"
(ENLARGED) (ON 6AB)
(WEB FILL PLATES NOT SHOWN FOR CLARITY)

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO. 454	DRAWING NO. 6B	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		6TC1E	1		TOP CHORD			ALIKE EXCEPT	3561	
		6TC3W	1		TOP CHORD			FOR MARK	3561	
2	B		2	a6	C 10x20	31	10 1/16	(GALVANIZED) M270-50T2		
2	B		2	b6	C 10x20	31	10 1/16	(GALVANIZED) M270-50T2		
2	D		2	c6	PL 5/8x17	31	10 3/8	(GALVANIZED) M270-50T2		
3	M		4	x1aa	PL 1/2x8 ⚠1	1	8 5/8	(GALVANIZED)		
2	G		4	x2a	PL 3/8x34 1/4	3	0	(GALVANIZED) M270-50T2		
2	H		4	x2b	PL 3/8x24 1/16	3	0	(GALVANIZED) M270-50T2		
2	J		4	x2c	PL 3/8x28 1/4	3	2	(GALVANIZED) M270-50T2		
2	M		8	x2g	PL 5/8x17	1	6	(GALVANIZED)		
2	P		72	x2h	PL 5/16x2 1/4	1	8 5/8	(GALVANIZED)		
2	P		8	x2ha	PL 5/16x2 1/2	1	7 13/16	(GALVANIZED)		
7	N		2	x4ba	PL 1/4x9	2	9	(GALVANIZED)		
10	D		80		1 ø HSB	0	2 1/2	(GALVANIZED) A325-1		
10	F		296		1 ø HSB	0	2 1/2	(GALVANIZED) A325-1		
10	P		376		1 ø HSW			(GALVANIZED) F436		
10	Q		376		BEVEL WASH FOR 3/4ø HSB			(GALVANIZED) F436		

⚠1 T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT BY KMH APPROVED X DATE 4-12-11

WORK THIS DWG. WITH DWG. 6AB.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	15/16 ø(U.N.)	AS NOTED

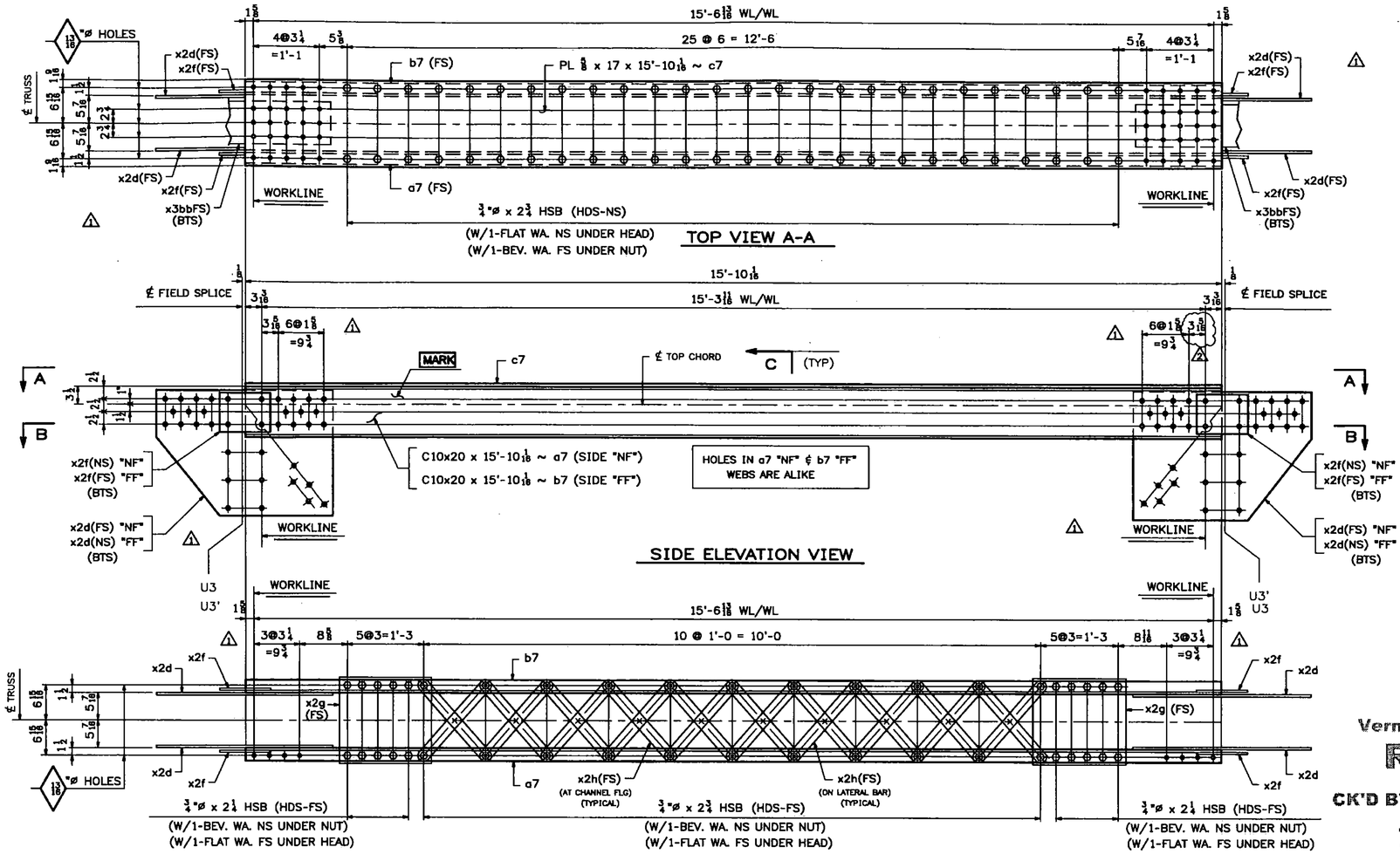
DESCRIPTION: TOP CHORD 6TC1E ℄ 6TC3W

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE:	DRAWN:	DATE:
Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	RB	9/29/10
	CHKD: WJL	DATE: 10/18/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO. BRS 0149(4)	454	6B
CUSTOMER: VT AOT		REV. ⚠1

Mon, Oct 25, 2010 01:01:49 PM J:\work\jobs\454\dwg\6B.dwg

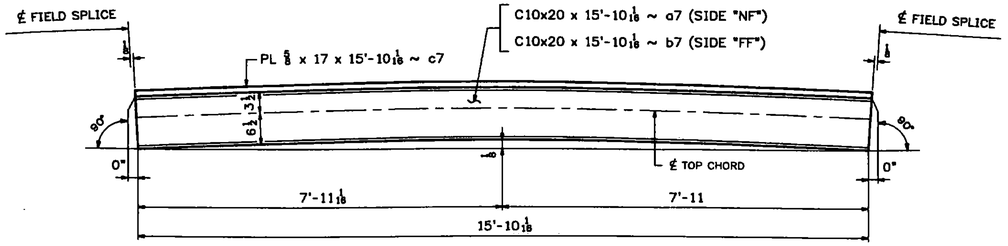
144 STRUCTURAL STEEL



ONE - TOP CHORD - 7TC2W
(U3-U3' WEST)

ONE - TOP CHORD - 7TC2E
(U3'-U3 EAST)

ALIKE EXCEPT FOR MARK

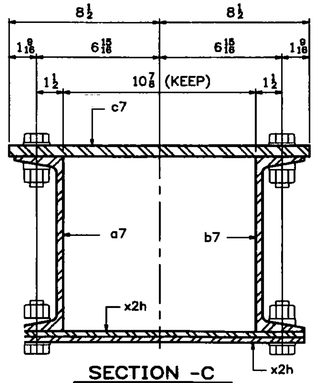


CAMBER DIAGRAM FOR 7TC2W ℄ 7TC2E

SHOP NOTE:
ALL STEEL FOR TOP CHORD ASSEMBLIES SHALL BE GALVANIZED

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO. 454	DRAWING NO. 7	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		7TC2W	1		TOP CHORD			ALIKE EXCEPT	1882	
		7TC2E	1		TOP CHORD			FOR MARK	1882	
2	C		2	a7	C 10x20	15	10 1/16	(GALVANIZED) M270-50T2		
2	C		2	b7	C 10x20	15	10 1/16	(GALVANIZED) M270-50T2		
2	E		2	c7	PL 5/8x17	15	10 1/16	(GALVANIZED) M270-50T2		
2	K		8	x2d	PL 3/8x25	3	0 1/4	(GALVANIZED) M270-50T2		
2	L		8	x2f	PL 5/16x8	0	10	(GALVANIZED) M270-50T2		
2	M		4	x2g	PL 5/16x17	1	6	(GALVANIZED)		
2	P		40	x2h	PL 5/16x2 1/4	1	8 5/8	(GALVANIZED)		
6	R		4	x3bb	PL 3/8x9	2	8 1/2	(GALVANIZED)		
10	D		40		3/4 ø HSB	0	2 1/2	(GALVANIZED) A325-1		
10	F		148		3/4 ø HSB	0	2 3/4	(GALVANIZED) A325-1		
10	P		188		3/4 ø HSW			(GALVANIZED) F436		
10	Q		188		BEVEL WASH FOR 3/4ø HSB			(GALVANIZED) F436		

T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING



SECTION -C
(TYPICAL CHORD SECTION)
(ENLARGED)

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X2.
3. "NF" - DENOTES NEAR FACE OF ASS'Y.
4. "FF" - DENOTES FAR FACE OF ASS'Y.
5. "BF" - DENOTES BOTH FACES OF ASSEMBLY.
6. ALL BOLTS SHALL BE FULLY TORQUED (UN).
7. BTS - DENOTES BOLT TO SHIP OR SECURE FOR SHIPMENT.
8. HDS - DENOTES BOLT HEADS.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS NOTED	JM	PWR		
1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

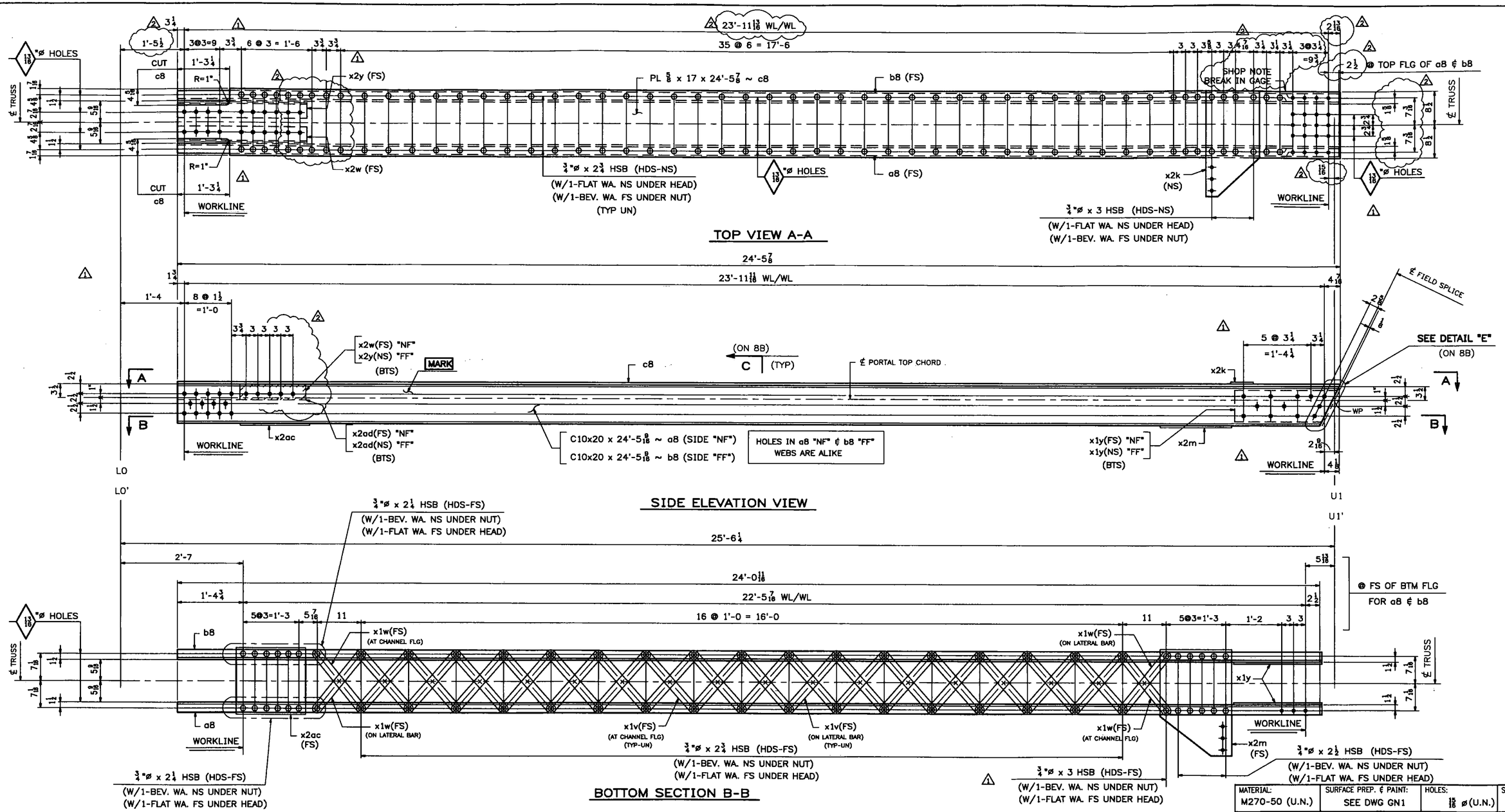
MATERIAL: M270-50 (U.N.)	SURFACE PREP. ℄ PAINT: SEE DWG GN1	HOLES: 13/16 ø(U.N.)	SHOP BOLTS: AS NOTED
DESCRIPTION: TOP CHORD 7TC2W ℄ 7TC2E			

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/29/10
		CHKD: WJL	DATE: 10/18/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 7
PROJ NO.	BRS 0149(4)		REV. 2
CUSTOMER:	VT AOT		

Mon, Oct 25, 2010 01:02:00 PM J:\comm\Projects\2010\27 - Bwd\

145 STRUCTURAL STEEL



Vermont Agency of Transportation

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7:43 am, Apr 12, 2011

RESUBMIT _____ APPROVED X

BY KMH DATE 4-12-11

ONE - PORTAL TOP CHORD - 8D1W (LO-U1 WEST)

ONE - PORTAL TOP CHORD - 8D9E (LO'-U1' EAST)

ALIKE EXCEPT FOR MARK

SHOP NOTE:
ALL STEEL FOR PORTAL TOP CHORD ASSEMBLIES SHALL BE GALVANIZED

WORK THIS DWG. WITH DWG. 8B.

NOTES:

1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X1 ∉ X2.
3. "NF" - DENOTES NEAR FACE OF ASS'Y.
4. "FF" - DENOTES FAR FACE OF ASS'Y.
5. "BF" - DENOTES BOTH FACES OF ASSEMBLY.
6. ALL BOLTS SHALL BE FULLY TORQUED (UN).
7. BTS - DENOTES BOLT TO SHIP OR SECURE FOR SHIPMENT.
8. HDS - DENOTES BOLT HEADS.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ∉ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø(U.N.)	AS NOTED

DESCRIPTION: PORTAL TOP CHORD 8D1W ∉ 8D9E

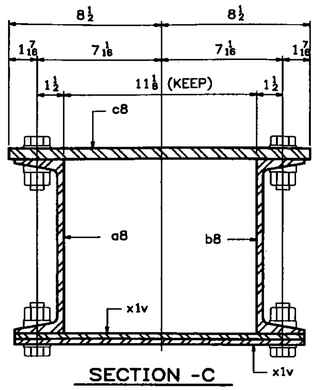
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

TENSOR 3018

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor		DRAWN: RB	DATE: 9/30/10
		CHKD: WJL	DATE: 10/19/10
LOCATION: BRIDGEWATER, VERMONT		JOB NO.	DWG NO.
PROJ NO. BRS 0149(4)		454	8AB
CUSTOMER: VT AOT			REV. 2

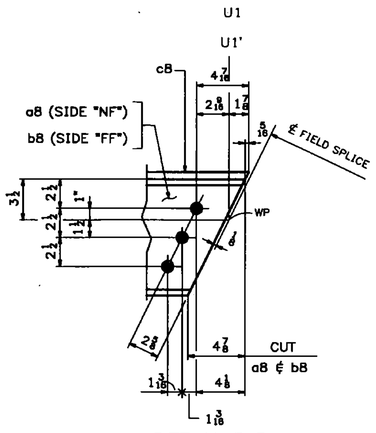
Mon, Oct 25, 2010 01:15:11 PM J:\comm\fabd\25015\DWG\ | Rev0

STRUCTURAL
146 STEEL



SECTION -C

(TYPICAL PORTAL TOP CHORD SECTION)
(ENLARGED)
(ON 8AB)



DETAIL "E"

(ENLARGED) (ON 8AB)
(WEB FILL PLATES NOT SHOWN FOR CLARITY)

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO. 454	DRAWING NO. 8B	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		8D1W	1		PORTAL TOP CHORD			ALIKE EXCEPT	2318	
		8D9E	1		PORTAL TOP CHORD			FOR MARK	2318	
3	B		2	a8	C 10x20	24	5 5/16	(GALVANIZED) M270-50T2		
3	B		2	b8	C 10x20	24	5 5/16	(GALVANIZED) M270-50T2		
3	C		2	c8	PL 5/8x17	24	5 7/8	(GALVANIZED) M270-50T2		
2	P		64	x1v	PL 5/16x2¼	1	8 13/16	(GALVANIZED)		
2	P		8	x1w	PL 5/16x2¼	1	8½	(GALVANIZED)		
3	M		4	x1y	PL ½x8 △1	2	0 5/8	(GALVANIZED)		
3	E		2	x2k	PL 5/16x13½ △2	2	2 13/16	(GALVANIZED)		
3	F		2	x2m	PL ⅜x18	2	2 13/16	(GALVANIZED)		
3	J		2	x2w	L 4x4x⅜	2	8¾	(GALVANIZED)		
3	J		2	x2y	L 4x4x⅜ △2	2	8¾	(GALVANIZED)		
3	K		2	x2ac	PL ⅜x17	1	6	(GALVANIZED)		
3	L		4	x2ad	PL ½x4 △2	1	4 7/8	(GALVANIZED)		
10	D		28		¾ ø HSB	0	2½	(GALVANIZED) A325-1		
10	E		20		¾ ø HSB	0	2½	(GALVANIZED) A325-1		
10	F	△1	264		¾ ø HSB	0	2½	(GALVANIZED) A325-1		
10	G		20		¾ ø HSB	0	3	(GALVANIZED) A325-1		
10	P		332		1 ø HSW			(GALVANIZED) F436		
10	Q		332		BEVEL WASH FOR ¾ø HSB			(GALVANIZED) F436		

T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING

Vermont Agency of Transportation
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7:43 am, Apr 12, 2011
RESUBMIT APPROVED X
BY KMH DATE 4-12-11

WORK THIS DWG. WITH DWG. 8AB.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
△2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
△1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø(U.N.)	AS NOTED

DESCRIPTION: PORTAL TOP CHORD 8D1W & 8D9E

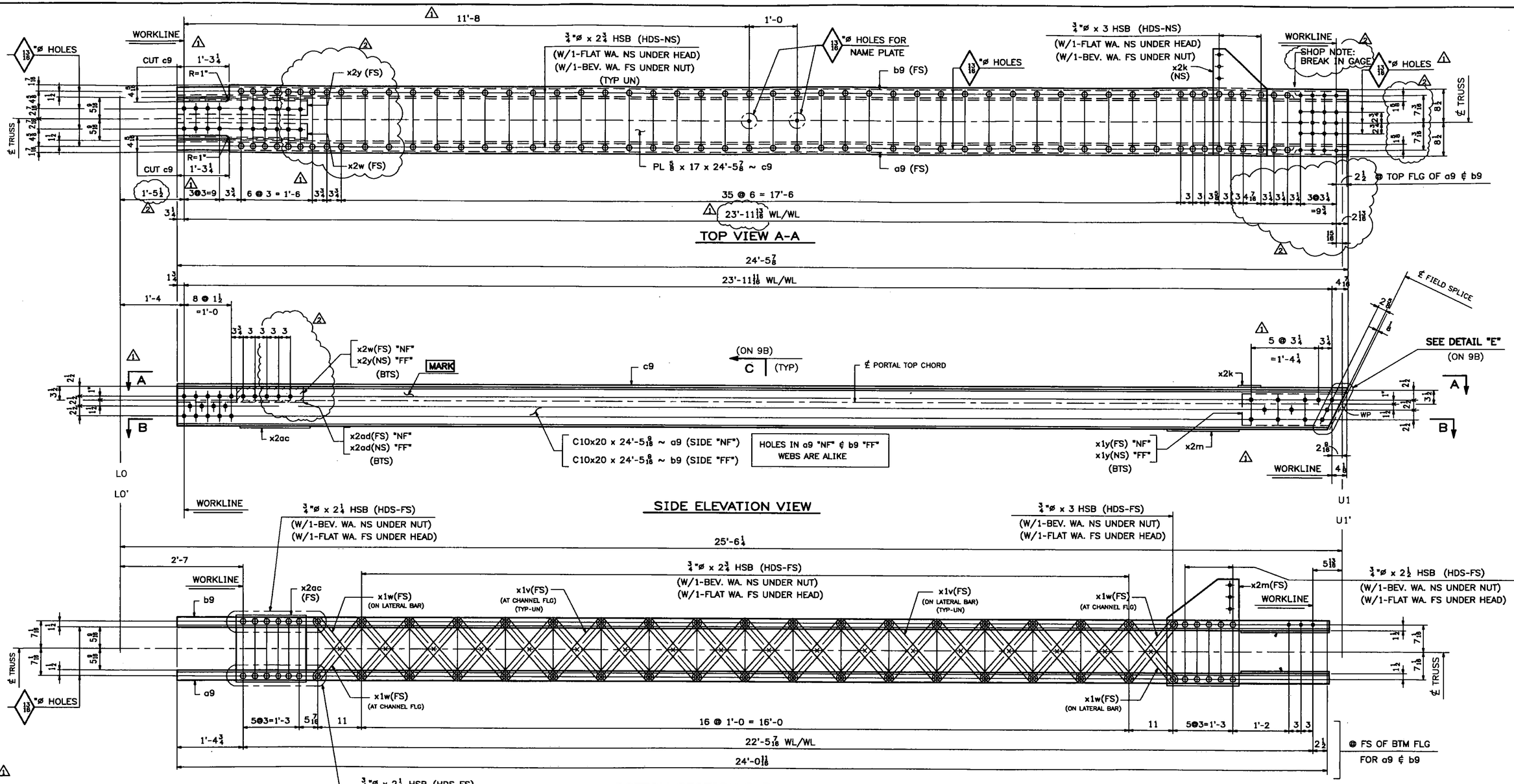
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

TENSOR 3015

STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/30/10
		CHKD: WJL	DATE: 10/19/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 8B
PROJ NO.	BRS 0149(4)		REV. △2
CUSTOMER:	VT AOT		

WL Mon, Oct 25, 2010 01:03:37 PM /users/jobs/2010/454 | 8ab

STRUCTURAL
147-STEEL



ONE - PORTAL TOP CHORD - 9D1E
(LO-U1 EAST)

ONE - PORTAL TOP CHORD - 9D9W
(LO'-U1' WEST)

ALIKE EXCEPT FOR MARK

SHOP NOTE:
ALL STEEL FOR PORTAL TOP CHORD ASSEMBLIES SHALL BE GALVANIZED

WORK THIS DWG. WITH DWG. 9B.

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X1 ∉ X2.
3. "NF" - DENOTES NEAR FACE OF ASS'Y.
4. "FF" - DENOTES FAR FACE OF ASS'Y.
5. "BF" - DENOTES BOTH FACES OF ASSEMBLY.
6. ALL BOLTS SHALL BE FULLY TORQUED (UN).
7. BTS - DENOTES BOLT TO SHIP OR SECURE FOR SHIPMENT.
8. HDS - DENOTES BOLT HEADS.

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ∉ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	15/16 ø(U.N.)	AS NOTED

DESCRIPTION: PORTAL TOP CHORD 9D1E ∉ 9D9W

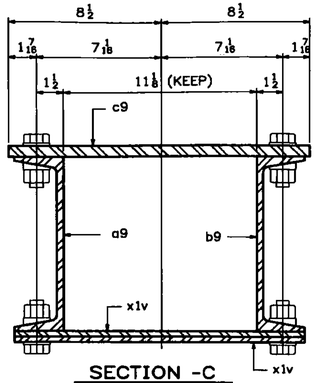
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3018

STRUCTURE: Vermont Route 100A
Bridge No. 14
Bridgewater
County of Windsor

LOCATION: BRIDGEWATER, VERMONT
PROJ NO. BRS 0149(4)
CUSTOMER: VT AOT

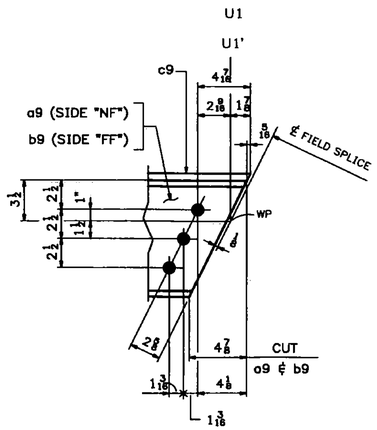
DRAWN:	DATE:
RB	9/30/10
CHKD:	DATE:
WJL	10/19/10
JOB NO.	DWG NO.
454	9AB
	REV. 2

148 STRUCTURAL STEEL



SECTION -C

(TYPICAL PORTAL TOP CHORD SECTION)
(ENLARGED)
(ON 9AB)



DETAIL "E"

(ENLARGED) (ON 9AB)
(WEB FILL PLATES NOT SHOWN FOR CLARITY)

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO. 454	DRAWING NO. 9B	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		9D1E	1		PORTAL TOP CHORD			ALIKE EXCEPT	2318	
		9D9W	1		PORTAL TOP CHORD			FOR MARK	2318	
3	B		2	a9	C 10x20	24	5 5/16	(GALVANIZED) M270-50T2		
3	B		2	b9	C 10x20	24	5 5/16	(GALVANIZED) M270-50T2		
3	C		2	c9	PL 5/8x17	24	5 5/8	(GALVANIZED) M270-50T2		
2	P		64	x1v	PL 5/16x2 1/2	1	8 13/16	(GALVANIZED)		
2	P		8	x1w	PL 5/16x2 1/2	1	8 1/2	(GALVANIZED)		
3	M		4	x1y	PL 1/2x8 △1	2	0 5/8	(GALVANIZED)		
3	E		2	x2k	PL 5/16x13 1/2 △1 △2	2	2 13/16	(GALVANIZED)		
3	F		2	x2m	PL 3/8x18	2	2 13/16	(GALVANIZED)		
3	J		2	x2w	L 4x4x3/8 △2	2	8 3/4	(GALVANIZED)		
3	J		2	x2y	L 4x4x3/8	2	8 3/4	(GALVANIZED)		
3	K		2	x2oc	PL 5/16x17	1	6	(GALVANIZED)		
3	L		4	x2od	PL 1/2x4 △2	1	4 5/8	(GALVANIZED)		
10	D		28		1 ø HSB	0	2 1/4	(GALVANIZED) A325-1		
10	E		20		1 ø HSB	0	2 1/2	(GALVANIZED) A325-1		
10	F		264		1 ø HSB	0	2 3/4	(GALVANIZED) A325-1		
10	G	△1	20		1 ø HSB	0	3	(GALVANIZED) A325-1		
10	P		332		1 ø HSW			(GALVANIZED) F436		
10	Q		332		BEVEL WASH FOR 3/4ø HSB			(GALVANIZED) F436		

T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING

Vermont Agency of Transportation

RECEIVED

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7:43 am, Apr 12, 2011

RESUBMIT ____ APPROVED X

BY KMH DATE 4-12-11

WORK THIS DWG. WITH DWG. 9AB.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
△2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
△1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø(U.N.)	AS NOTED

DESCRIPTION: PORTAL TOP CHORD 9D1E ℄ 9D9W

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 9/30/10	
	CHKD: WJL	DATE: 10/19/10	
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 9B	
PROJ NO. BRS 0149(4)		REV. △2	
CUSTOMER: VT AOT			

dgn: Dec 29, 2010 9:08:39 PM /users/jfisher/2010/09 - Rev2

149 STRUCTURAL STEEL

Vermont Agency of Transportation

RECEIVED

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7:43 am, Apr 12, 2011

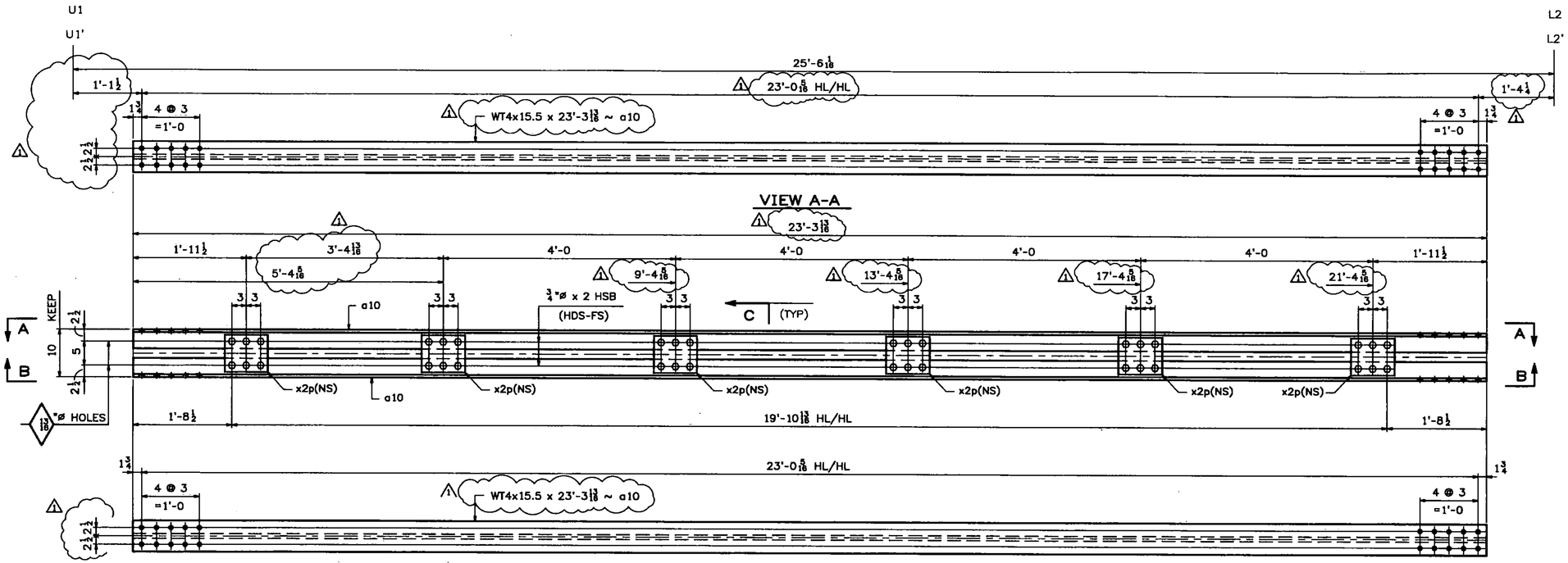
RESUBMIT ____ APPROVED X

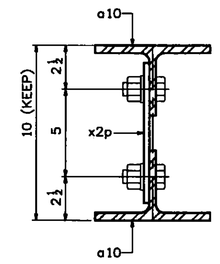
BY KMH DATE 4-12-11

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	BILL OF MATERIAL QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		10D2W	1		DIAGONAL			ALIKE EXCEPT FOR MARK	782	
		10D2E	1		DIAGONAL				782	
		10D8W	1		DIAGONAL				782	
		10D8E	1		DIAGONAL				782	
4	B		8	a10	WT 4x15.5	23	3 13/16	(GALVANIZED) M270-50T2		
4	F		24	x2p	PL 5/16 x 8	0	9	(GALVANIZED)		
10	C		144		3/4 ø HSB	0	2	(GALVANIZED) A325-1		
10	P		144		3/4 ø HSW			(GALVANIZED) A436		

JOB NO. 454 | DRAWING NO. 10 | REV.

T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING





SECTION -C
(TYPICAL SECTION)
(ENLARGED)

ONE - DIAGONAL - 10D2W (L2-U1 WEST)
ONE - DIAGONAL - 10D2E (L2-U1 EAST)
ONE - DIAGONAL - 10D8W (L2'-U1' WEST)
ONE - DIAGONAL - 10D8E (L2'-U1' EAST)

} ALIKE EXCEPT FOR MARK

SHOP NOTE:
ALL STEEL FOR DIAGONAL ASSEMBLIES SHALL BE GALVANIZED

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X2.
3. ALL BOLTS SHALL BE FULLY TORQUED.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø (U.N.)	AS NOTED

DESCRIPTION: DIAGONALS 10D2W, 10D2E, 10D8W & 10D8E

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/1/10
		CHKD: WJL	DATE: 10/19/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 10
PROJ NO.	BRS 0149(4)		REV. 1
CUSTOMER:	VT AOT		

Mon, Oct 25, 2010 01:28:43 PM /Users/Jim/2010/10 | Base

150 STRUCTURAL STEEL

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO. 454	DRAWING NO. 11	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		11D3W	1		DIAGONAL			ALIKE EXCEPT FOR MARK	775	
		11D3E	1		DIAGONAL				775	
		11D7W	1		DIAGONAL				775	
		11D7E	1		DIAGONAL				775	
4	B		8	a11	WT 4x15.5	23	1 1/16	(GALVANIZED) M270-50T2		
4	F		24	x2p	PL 5/16 x 8	0	9	(GALVANIZED)		
10	C		144		3/4 ø HSB	0	2	(GALVANIZED) A325-1		
10	P		144		3/4 ø HSW			(GALVANIZED) F436		

T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING

Vermont Agency of Transportation

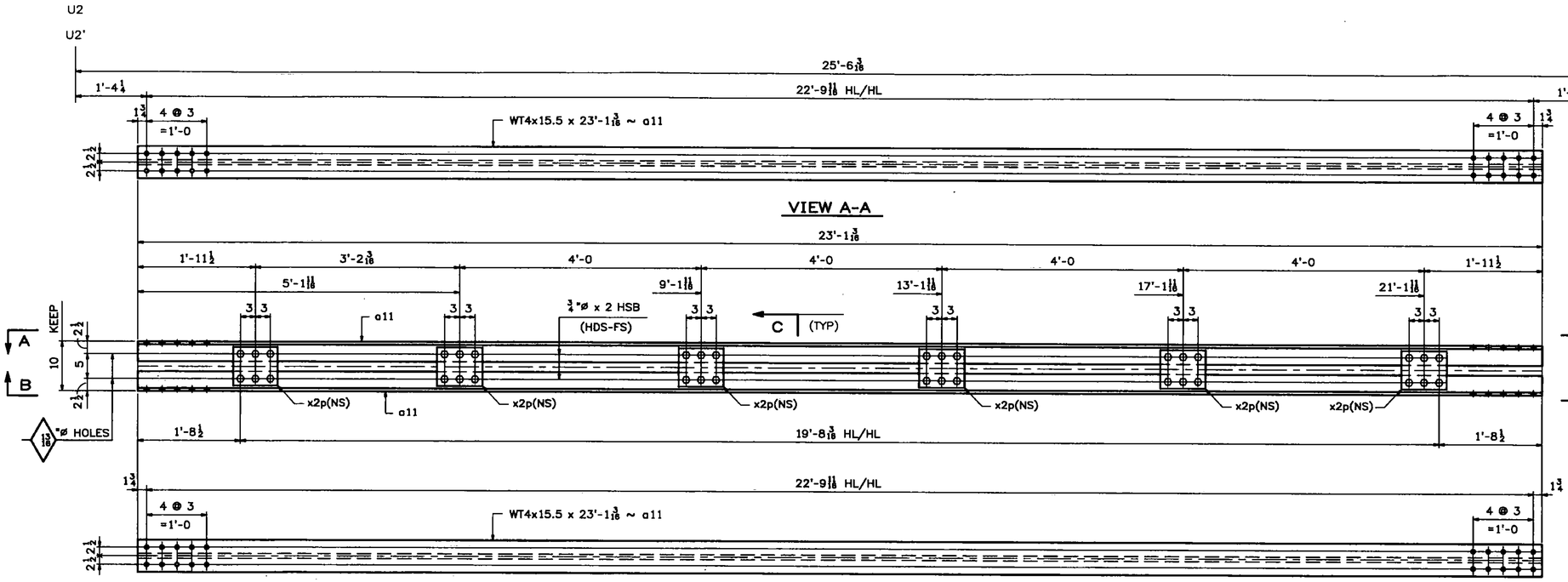
RECEIVED

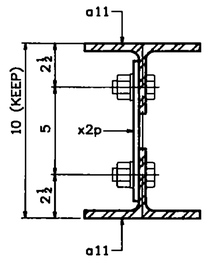
CK'D BY TCF OK'D BY SSS

7:43 am, Apr 12, 2011

RESUBMIT ____ APPROVED X

BY KMH DATE 4-12-11





ONE - DIAGONAL - 11D3W (L3-U2 WEST)

ONE - DIAGONAL - 11D3E (L3-U2 EAST)

ONE - DIAGONAL - 11D7W (L3'-U2' WEST)

ONE - DIAGONAL - 11D7E (L3'-U2' EAST)

ALIKE EXCEPT FOR MARK

SHOP NOTE:
ALL STEEL FOR DIAGONAL ASSEMBLIES SHALL BE GALVANIZED

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X2.
3. ALL BOLTS SHALL BE FULLY TORQUED.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø(U.N.)	AS NOTED

DESCRIPTION: DIAGONALS 11D2W, 11D2E, 11D8W & 11D8E

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/1/10
		CHKD: WJL	DATE: 10/19/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO.	BRS 0149(4)	454	11
CUSTOMER:	VT AOT		REV. 1

Mon, Oct 25, 2010 01:02:43 PM //casco/jobs/2010/10_Revit

151 STRUCTURAL STEEL

Vermont Agency of Transportation

RECEIVED

CK'D BY TCF OK'D BY SSS

7:43 am, Apr 12, 2011

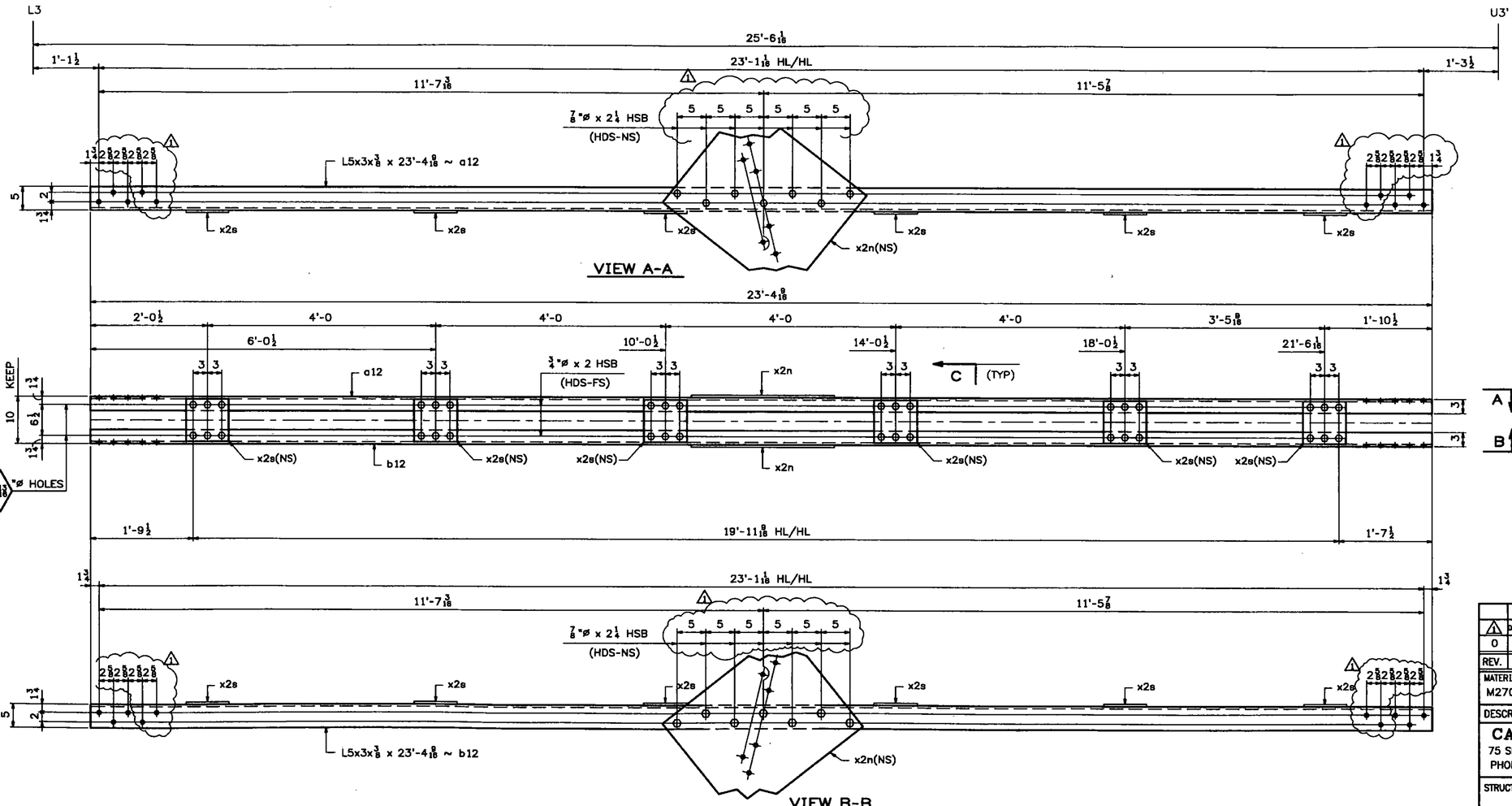
RESUBMIT ____ APPROVED X

BY KMH DATE 4-12-11

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		12D4W	1		DIAGONAL			ALIKE EXCEPT FOR MARK	683	
		12D4E	1		DIAGONAL				683	
4	C		2	a12	L 5x3x⅜	23	4⅛	(GALVANIZED) M270-50T2		
4	C		2	b12	L 5x3x⅜	23	4⅛	(GALVANIZED) M270-50T2		
4	E		4	x2n	PL ⅜x24	2	5½	(GALVANIZED) M270-50T2		
4	G		12	x2s	PL ½x9 ⚠	0	9½	(GALVANIZED)		
10	C		72		⅞ ø HSB	0	2	(GALVANIZED) A325-1		
10	P		72		⅞ ø HSW			(GALVANIZED) F436		
11	C	⚠	28		⅞ ø HSB	0	2¼	(GALVANIZED) A325-1		
11	P		28		⅞ ø HSW			(GALVANIZED) F436		

JOB NO. 454 | DRAWING NO. 12 | REV.

T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING



SHOP NOTE:
ALL STEEL FOR DIAGONAL ASSEMBLIES SHALL BE GALVANIZED

ONE - DIAGONAL - 12D4W (L3-U3' WEST)

ONE - DIAGONAL - 12D4E (L3-U3' EAST)

ALIKE EXCEPT FOR MARK

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X2.
3. ALL BOLTS SHALL BE FULLY TORQUED.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø (U.N.)	AS NOTED

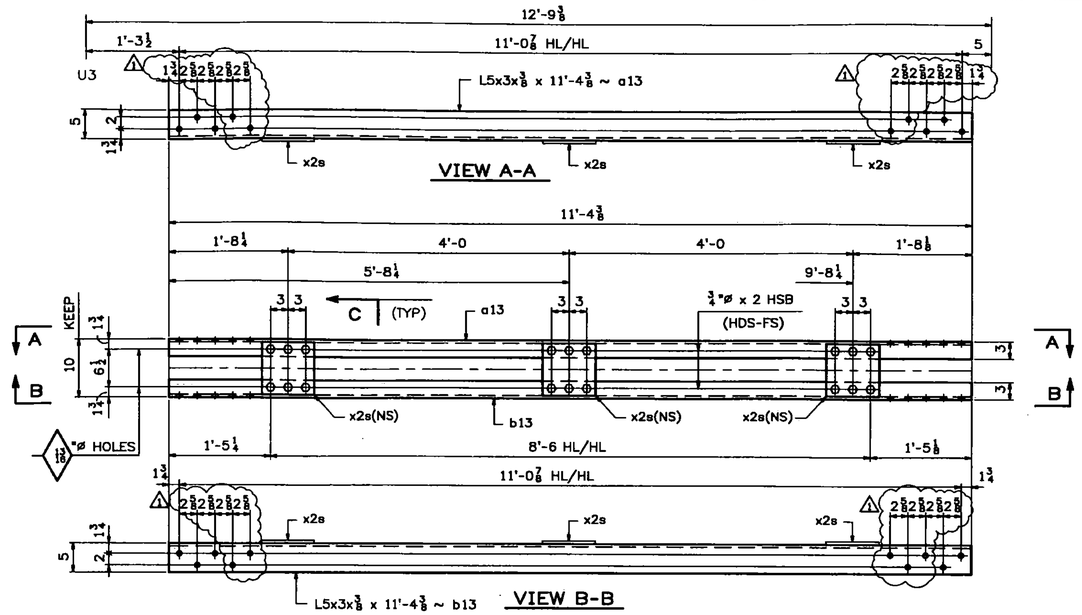
DESCRIPTION: DIAGONALS 12D4W & 12D4E

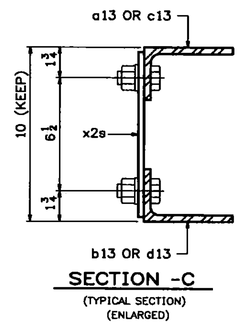
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/4/10	
	CHKD: WJL	DATE: 10/19/10	
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 12	
PROJ NO. BRS 0149(4)		REV. ⚠	
CUSTOMER: VT AOT			

Mon, Oct 25, 2010 01:53:39 PM //users/jobs/2010/10-1.dwg

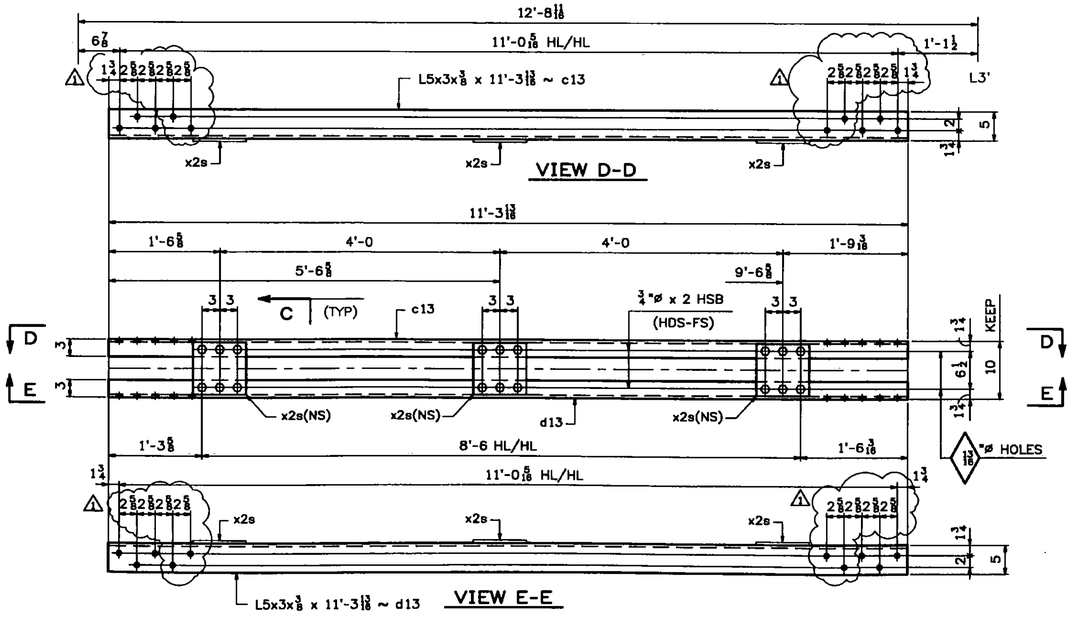
152 STRUCTURAL STEEL





SECTION -C
(TYPICAL SECTION)
(ENLARGED)

ONE - DIAGONAL - 13D5W
(U3-CTR WEST)
ONE - DIAGONAL - 13D5E
(U3-CTR EAST)
ALIKE EXCEPT FOR MARK



ONE - DIAGONAL - 13D6W
(CTR-L3' WEST)
ONE - DIAGONAL - 13D6E
(CTR-L3' EAST)
ALIKE EXCEPT FOR MARK

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	BILL OF MATERIAL QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		13D5W	1		DIAGONAL			ALIKE EXCEPT FOR MARK	254	
		13D5E	1		DIAGONAL			↓	254	
4	C		2	a13	L 5x3x⅜	11	4⅜	(GALVANIZED) M270-50T2		
4	C		2	b13	L 5x3x⅜	11	4⅜	(GALVANIZED) M270-50T2		
4	G		6	x2s	PL ⅝x9	0	9½	(GALVANIZED)		
10	C		36		¾ ø HSB	0	2	(GALVANIZED) A325-1		
10	P		36		¾ ø HSW			(GALVANIZED) F436		
		13D6W	1		DIAGONAL			ALIKE EXCEPT FOR MARK	253	
		13D6E	1		DIAGONAL			↓	253	
4	C		2	c13	L 5x3x⅜	11	3¹³⁄₁₆	(GALVANIZED) M270-50T2		
4	C		2	d13	L 5x3x⅜	11	3¹³⁄₁₆	(GALVANIZED) M270-50T2		
4	G		6	x2s	PL ⅝x9	0	9½	(GALVANIZED)		
10	C		36		¾ ø HSB	0	2	(GALVANIZED) A325-1		
10	P		36		¾ ø HSW			(GALVANIZED) F436		

JOB NO. 454 | DRAWING NO. 13 | REV.

T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING

SHOP NOTE:
ALL STEEL FOR DIAGONAL ASSEMBLIES SHALL BE GALVANIZED

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X2.
3. ALL BOLTS SHALL BE FULLY TORQUED.

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL: M270-50 (U.N.) | SURFACE PREP. & PAINT: SEE DWG GN1 | HOLES: ⅞ ø (U.N.) | SHOP BOLTS: AS NOTED

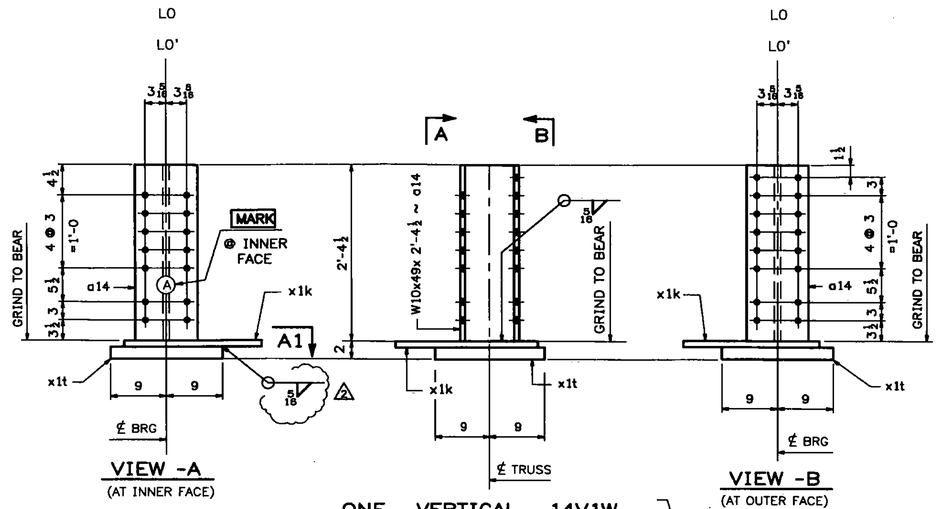
DESCRIPTION: DIAGONALS 13D5W, 13D5E, 13D6W & 13D6E

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE: Vermont Route 100A, Bridge No. 14, Bridgewater, County of Windsor	DRAWN: RB	DATE: 10/4/10
	CHKD: WJL	DATE: 10/19/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 13
PROJ NO. BRS 0149(4)		REV. 1
CUSTOMER: VT AOT		

Mon, Oct 25, 2010 01:53:08 PM J:\work\Jobs\2010\13\13 Rev0

153 STRUCTURAL STEEL



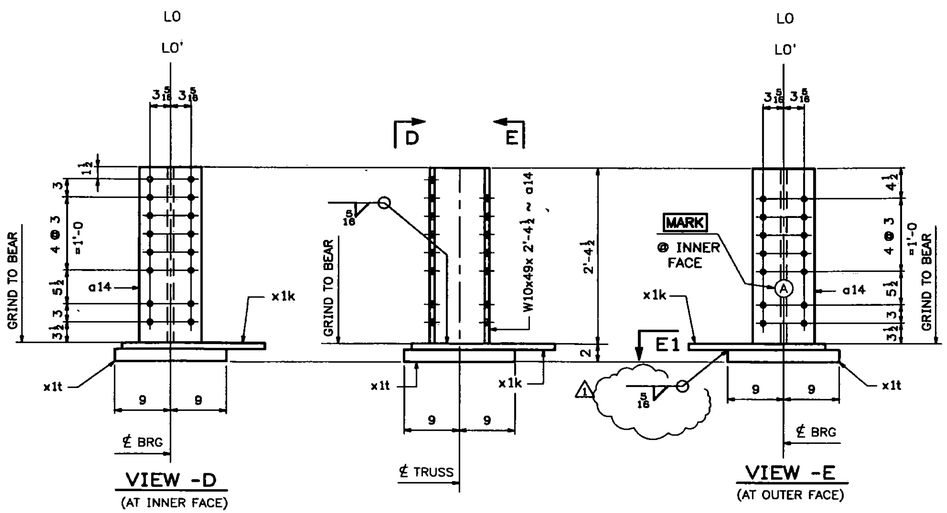
VIEW -A
(AT INNER FACE)

VIEW -B
(AT OUTER FACE)

ONE - VERTICAL - 14V1W
(LO WEST)

ONE - VERTICAL - 14V8E
(LO' EAST)

ALIKE EXCEPT FOR MARK



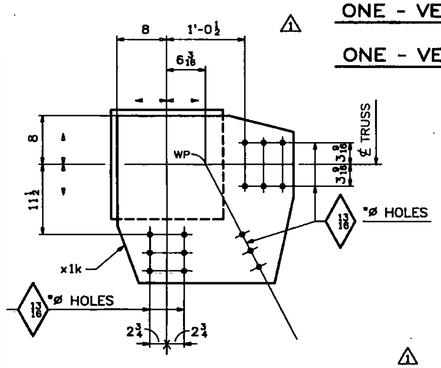
VIEW -D
(AT INNER FACE)

VIEW -E
(AT OUTER FACE)

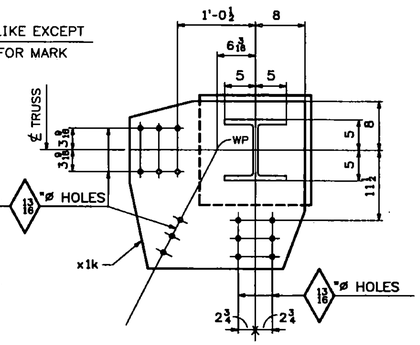
ONE - VERTICAL - 14V1E
(LO EAST)

ONE - VERTICAL - 14V8W
(LO' WEST)

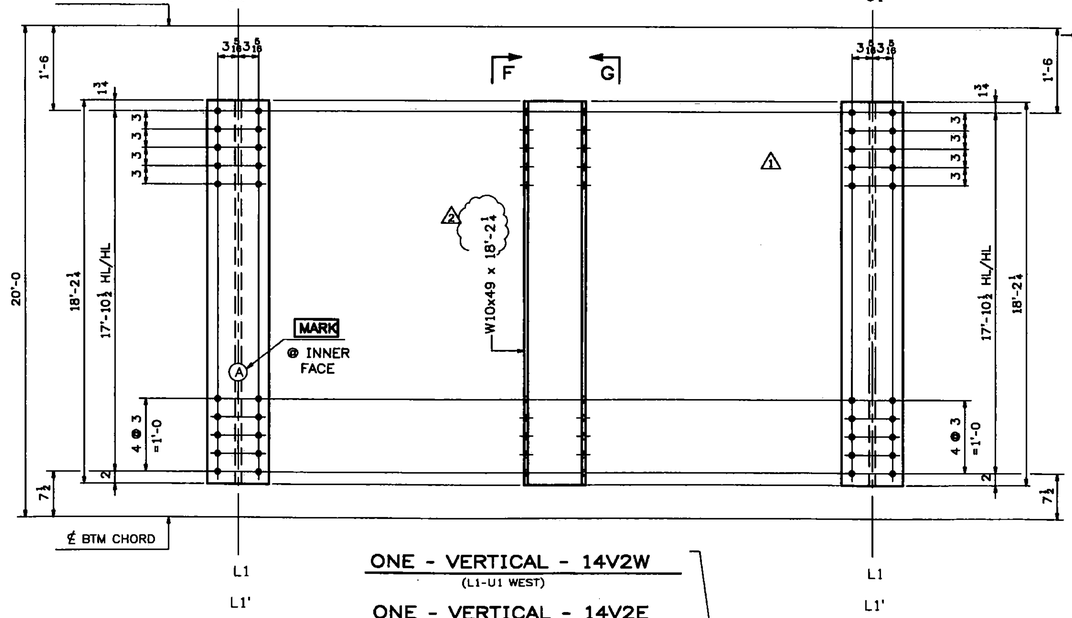
ALIKE EXCEPT FOR MARK



SECTION -A1



SECTION -E1



VIEW -F
(AT INNER FACE)

VIEW -G
(AT OUTER FACE)

ONE - VERTICAL - 14V2W
(L1-U1 WEST)

ONE - VERTICAL - 14V2E
(L1-U1 EAST)

ONE - VERTICAL - 14V7W
(L1'-U1' WEST)

ONE - VERTICAL - 14V7E
(L1'-U1' EAST)

ALIKE EXCEPT FOR MARK

SHOP NOTE:
ALL STEEL FOR VERTICALS SHALL BE GALVANIZED

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X1.

ABM INFO		SHIP	BILL OF MATERIAL						JOB NO. 454	DRAWING NO. 14	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		14V1W	1		VERTICAL			ALIKE EXCEPT FOR MARK ↓	427		
		14V8E	1		VERTICAL			↓	427		
4	P		2	a14	W 10x49	2	4½	(GALVANIZED) G1E M270-50T2			
1	P		2	x1k⚠1	PL 1x27½	2	4½	(GALVANIZED) M270-50T2			
1	T		2	x1t	PL 1x18	1	6	(GALVANIZED) M270-50T2			
		14V1E	1		VERTICAL			ALIKE EXCEPT FOR MARK	427		
		14V8W	1		VERTICAL			↓	427		
4	P		2	a14	W 10x49	2	4½	(GALVANIZED) G1E M270-50T2			
1	P		2	x1k⚠1	PL 1x27½	2	4½	(GALVANIZED) M270-50T2			
1	T		2	x1t	PL 1x18	1	6	(GALVANIZED) M270-50T2			
					VERTICALS			ALIKE EXCEPT FOR MARK			
4	N	14V2W	1		W 10x49 ⚠1	18	2½	(GALVANIZED) M270-50T2	891		
4	N	14V2E	1		W 10x49	18	2½	(GALVANIZED) M270-50T2	891		
4	N	14V7W	1		W 10x49	18	2½	(GALVANIZED) M270-50T2	891		
4	N	14V7E	1		W 10x49	18	2½	(GALVANIZED) M270-50T2 ↓	891		

T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING
G1E - DENOTES GRINDING AT ONE END

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠2	03/24/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
⚠1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50	SEE DWG GN1	13/16 ø(U.N.)	NONE

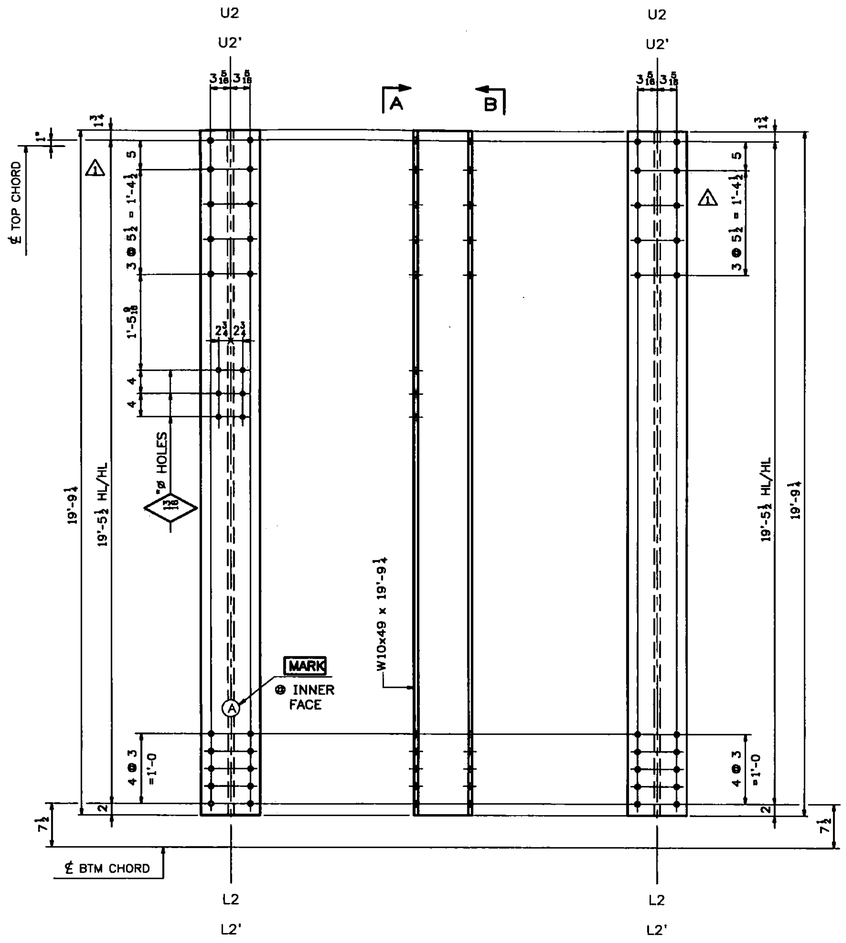
DESCRIPTION: VERTICALS 14V1W,14V1E,14V2W,14V2E,14V7W,14V7E,14V8W & 14V8E

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/4/10
		CHKD: WJL	DATE: 10/19/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO.	BRS 0149(4)	454	14
CUSTOMER:	VT AOT		REV. ⚠2

Mon, Oct 25, 2010 01:53:19 PM /users/bbw/2010/14 - Rev0

154 STRUCTURAL STEEL



VIEW -A
(AT INNER FACE)

VIEW -B
(AT OUTER FACE)

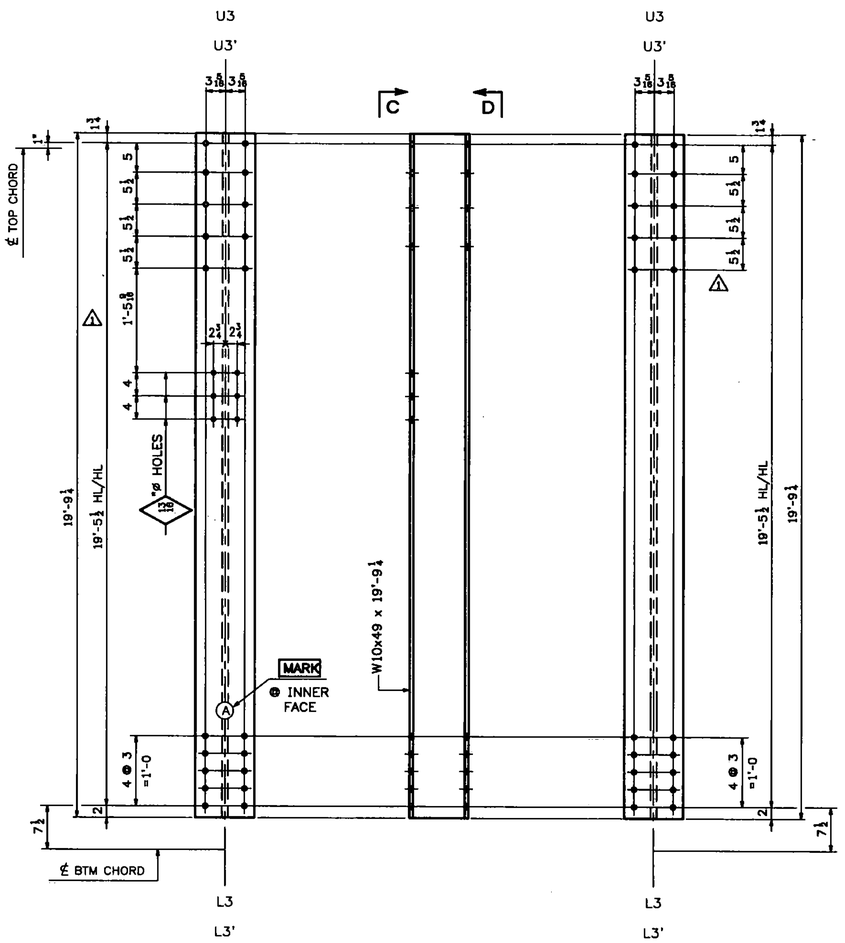
ONE - VERTICAL - 15V3W
(L2-U2 WEST)

ONE - VERTICAL - 15V3E
(L2-U2 EAST)

ONE - VERTICAL - 15V6W
(L2'-U2' WEST)

ONE - VERTICAL - 15V6E
(L2'-U2' EAST)

ALIKE EXCEPT FOR MARK



VIEW -C
(AT INNER FACE)

VIEW -D
(AT OUTER FACE)

ONE - VERTICAL - 15V4W
(L3-U3 WEST)

ONE - VERTICAL - 15V4E
(L3-U3 EAST)

ONE - VERTICAL - 15V5W
(L3'-U3' WEST)

ONE - VERTICAL - 15V5E
(L3'-U3' EAST)

ALIKE EXCEPT FOR MARK

SHOP NOTE:
ALL STEEL FOR VERTICALS SHALL BE GALVANIZED

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.

ABM INFO		SHIP	BILL OF MATERIAL			LENGTH		JOB NO. 454 / REMARKS	WT	PROCUREMENT NOTES
PAGE	LINE	MARK	QTY	MARK	MATERIAL	FT	INCHES			
					VERTICALS			ALIKE EXCEPT FOR MARK		
4	M	15V3W	1		W 10x49	19	9¼	(GALVANIZED) M270-50T2	969	
4	M	15V3E	1		W 10x49	19	9¼	(GALVANIZED) M270-50T2	969	
4	M	15V6W	1		W 10x49	19	9¼	(GALVANIZED) M270-50T2	969	
4	M	15V6E	1		W 10x49	19	9¼	(GALVANIZED) M270-50T2	969	
					VERTICALS			ALIKE EXCEPT FOR MARK		
4	M	15V4W	1		W 10x49	19	9¼	(GALVANIZED) M270-50T2	969	
4	M	15V4E	1		W 10x49	19	9¼	(GALVANIZED) M270-50T2	969	
4	M	15V5W	1		W 10x49	19	9¼	(GALVANIZED) M270-50T2	969	
4	M	15V5E	1		W 10x49	19	9¼	(GALVANIZED) M270-50T2	969	

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/25/11	REVISED MATERIAL TYPE	JM	PWR		
1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50	SEE DWG GN1	13/16 ø(U.N.)	NONE

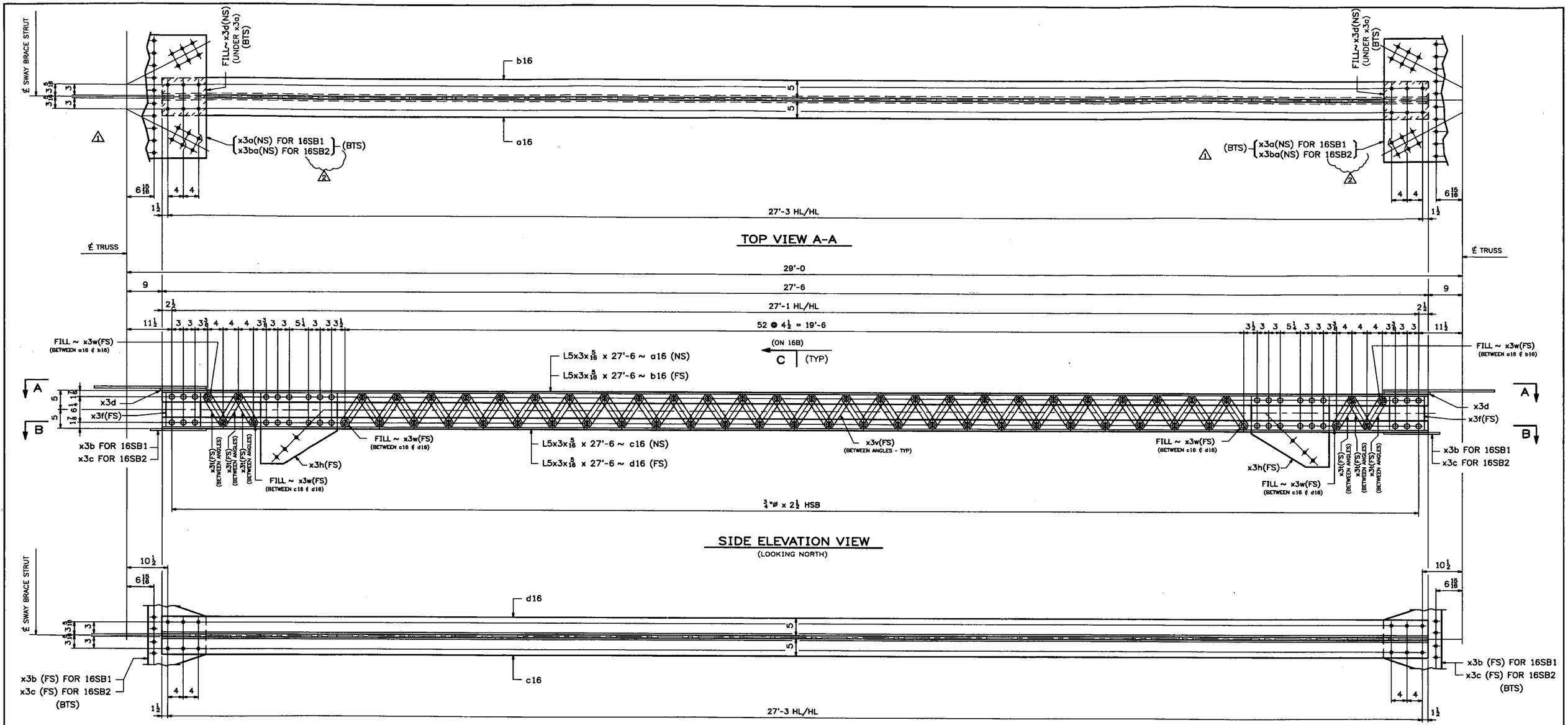
DESCRIPTION: VERTICALS 15V3W, 15V3E, 15V4W, 15V4E, 15V5W, 15V5E, 15V6W & 15V6E

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/4/10
		CHKD: WJL	DATE: 10/19/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO.	BRS 0149(4)	454	15
CUSTOMER:	VT AOT		REV. 2

ALL MATERIAL TO BE M270-50 U.N.

156 STRUCTURAL STEEL



BOTTOM SECTION B-B

2 - SWAY STRUTS - 16SB1
(SWAY BRACE TOP STRUTS @ U2 ℄ U2')

2 - SWAY STRUTS - 16SB2
(SWAY BRACE TOP STRUTS @ U3 ℄ U3')

SHOP NOTE:
ALL STEEL FOR SWAY BRACE ASSEMBLIES SHALL BE GALVANIZED

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X3.
3. ALL BOLTS SHALL BE FULLY TORQUED (UN).
4. BTS - DENOTES BOLT TO SHIP OR SECURE FOR SHIPMENT.
5. HDS - DENOTES BOLT HEADS.

WORK THIS DWG. WITH DWG. 16B.

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT APPROVED X
BY KMH DATE 4-12-11

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø	AS NOTED

DESCRIPTION: SWAY BRACE TOP STRUTS

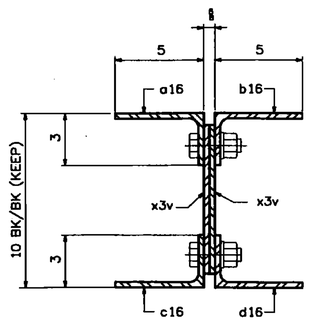
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

TEKSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/5/10
	CHKD: WJL	DATE: 10/19/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 16AB
PROJ NO. BRS 0149(4)		REV. 2
CUSTOMER: VT AOT		

Mon, Oct 25, 2010 03:32:08 PM /users/pwa/29115/16ab1.dgn

157 STRUCTURAL STEEL



SECTION -C
(ON 16AB) (ENLARGED)
(TYPICAL STRUT SECTION SHOWN AT CENTER SPAN OF STRUT)

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO. 454	DRAWING NO. 16B	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		16SB1	2		SWAY STRUTS				1492	
6	B		2	a16	L 5x3x$\frac{5}{16}$	27	6	(GALVANIZED) M270-50T2		
6	B		2	b16	L 5x3x$\frac{5}{16}$	27	6	(GALVANIZED) M270-50T2		
6	B		2	c16	L 5x3x$\frac{5}{16}$	27	6	(GALVANIZED) M270-50T2		
6	B		2	d16	L 5x3x$\frac{5}{16}$	27	6	(GALVANIZED) M270-50T2		
6	L		4	x3a	PL $\frac{5}{16}$x29	2	8$\frac{1}{2}$	(GALVANIZED)		
6	M		4	x3b	PL $\frac{5}{16}$x14$\frac{1}{2}$	1	7$\frac{1}{2}$	(GALVANIZED)		
6	N		4	x3d	PL $\frac{5}{16}$x10	0	11$\frac{1}{2}$	(GALVANIZED)		
6	D		4	x3f	PL $\frac{5}{16}$x9	0	9$\frac{1}{4}$	(GALVANIZED)		
6	F		4	x3h	PL $\frac{5}{16}$x18$\frac{5}{16}$	1	8$\frac{1}{4}$	(GALVANIZED)		
6	P		12	x3t	PL $\frac{5}{16}$x2$\frac{1}{4}$	0	9$\frac{13}{16}$	(GALVANIZED)		
6	P		104	x3v	PL $\frac{5}{16}$x2$\frac{1}{4}$	0	9$\frac{13}{16}$	(GALVANIZED)		
6	P		12	x3w	PL $\frac{5}{16}$x2$\frac{1}{4}$	0	2$\frac{1}{4}$	(GALVANIZED)		
10	E		194		$\frac{3}{4}$ ø HSB	0	2$\frac{1}{2}$	(GALVANIZED) A325-1		
10	P		194		$\frac{3}{4}$ ø HSW			(GALVANIZED) F436		
		16SB2	2		SWAY STRUTS				1508	
6	B		2	a16	L 5x3x$\frac{5}{16}$	27	6	(GALVANIZED) M270-50T2		
6	B		2	b16	L 5x3x$\frac{5}{16}$	27	6	(GALVANIZED) M270-50T2		
6	B		2	c16	L 5x3x$\frac{5}{16}$	27	6	(GALVANIZED) M270-50T2		
6	B		2	d16	L 5x3x$\frac{5}{16}$	27	6	(GALVANIZED) M270-50T2		
6	L		4	x3ba	PL $\frac{5}{16}$x29	2	8$\frac{1}{2}$	(GALVANIZED)		
6	M		4	x3c	PL $\frac{5}{16}$x14$\frac{1}{2}$	2	2	(GALVANIZED)		
6	N		4	x3d	PL $\frac{5}{16}$x10	0	11$\frac{1}{2}$	(GALVANIZED)		
6	D		4	x3f	PL $\frac{5}{16}$x9	0	9$\frac{1}{4}$	(GALVANIZED)		
6	F		4	x3h	PL $\frac{5}{16}$x18$\frac{5}{16}$	1	8$\frac{1}{4}$	(GALVANIZED)		
6	P		12	x3t	PL $\frac{5}{16}$x2$\frac{1}{4}$	0	9$\frac{13}{16}$	(GALVANIZED)		
6	P		104	x3v	PL $\frac{5}{16}$x2$\frac{1}{4}$	0	9$\frac{13}{16}$	(GALVANIZED)		
6	P		12	x3w	PL $\frac{5}{16}$x2$\frac{1}{4}$	0	2$\frac{1}{4}$	(GALVANIZED)		
10	E		194		$\frac{3}{4}$ ø HSB	0	2$\frac{1}{2}$	(GALVANIZED) A325-1		
10	P		194		$\frac{3}{4}$ ø HSW			(GALVANIZED) F436		

T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT APPROVED X
BY KMH DATE 4-12-11

WORK THIS DWG. WITH DWG. 16AB.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	$\frac{13}{16}$ ø	AS NOTED

DESCRIPTION: SWAY BRACE TOP STRUTS

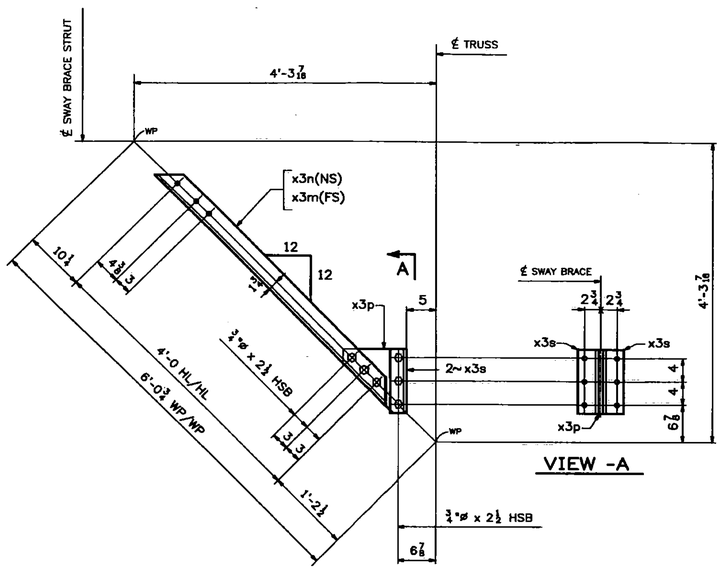
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

TENSOR 3018

STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/5/10
		CHKD: WJL	DATE: 10/19/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 16B
PROJ NO.	BRS 0149(4)		REV. 1
CUSTOMER:	VT AOT		

Mon, Oct 25, 2010 01:53:51 PM /users/jobs/2010/454 | 16B

158 STRUCTURAL STEEL



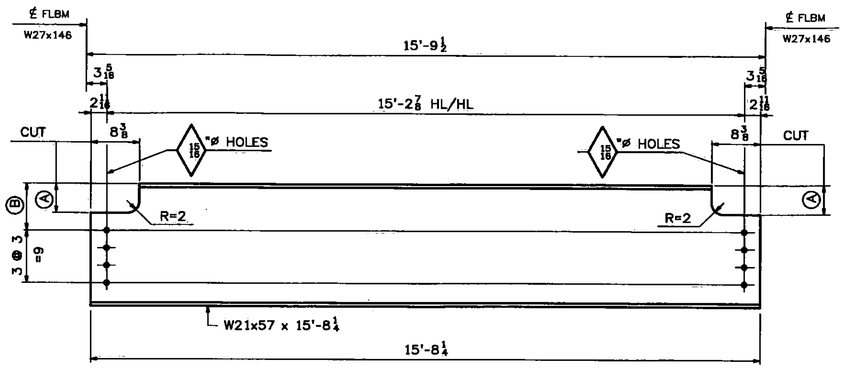
VIEW -A

8 - KNEE BRACES - 17KB1

(BELOW SWAY BRACE STRUTS @ U2,U3,U3' ℄ U2')

SHOP NOTE:

ALL STEEL FOR KNEE BRACE ASSEMBLIES SHALL BE GALVANIZED



STRINGERS

	MARK	REQ'D	Ⓐ	Ⓑ
(@ LINE S1)	17S1	14	2 1/8	5 1/8
(@ LINE S2)	17S2	14	3 9/16	6 9/16
(@ LINE S3)	17S3	7	5	8

SHOP NOTE:

STRINGERS SHALL BE FABRICATED WITH NATURAL MILL CAMBER UP.

SHOP NOTE:

ALL STEEL FOR STRINGERS SHALL BE GALVANIZED

SHEAR STUDS SHALL BE WELDED TO TOP FLANGE AS PER LB FOSTERS APPROVED PLANS BEFORE GALVANIZING

△2

BILL OF MATERIAL

JOB NO. 454 | DRAWING NO. 17 | REV.

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		17KB1	8		KNEE BRACES				97	
6	H		8	x3m	L 3½ x3x 5/16	4	7¾	(GALVANIZED)		
6	H		8	x3n	L 3½ x3x 5/16	4	7¾	(GALVANIZED)		
6	J		8	x3p	PL 3/8x10 3/8	0	11	(GALVANIZED)		
6	K		16	x3s	L 3½ x3x 5/16	0	11	(GALVANIZED)		
10	E		48		¾ ø HSB	0	2½	(GALVANIZED) A325-1		
10	P		48		¾ ø HSW			(GALVANIZED) F436		
					STRINGERS					
5	C	17S1	14		W 21x57	15	8¼	(GALVANIZED) M270-50T2	894	
5	C	17S2	14		W 21x57	15	8¼	(GALVANIZED) M270-50T2	894	
5	C	17S3	7		W 21x57	15	8¼	(GALVANIZED) M270-50T2	894	

T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT APPROVED X
BY KMH DATE 4-12-11

NOTES:

1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X3.
3. ALL BOLTS SHALL BE FULLY TORQUED.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
△2	03/23/11	RESUBMIT FOR APPROVAL	JM	PWR		
△1	03/09/11	RESUBMIT FOR APPROVAL	JM	PWR		
0						

MATERIAL: M270-50 (U.N.)	SURFACE PREP. ℄ PAINT: SEE DWG GN1	HOLES: 13/16 ø(U.N.)	SHOP BOLTS: AS NOTED
DESCRIPTION: KNEE BRACES ℄ STRINGERS			

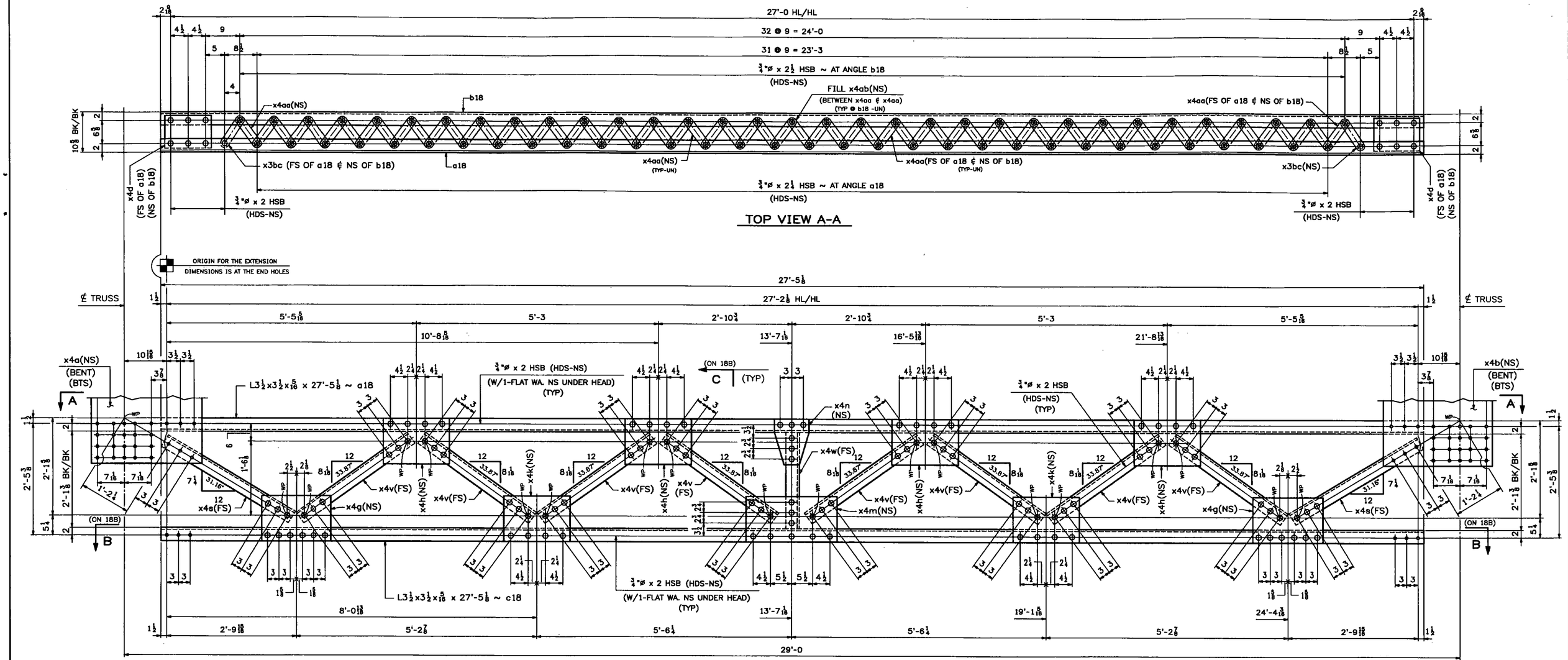
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor		DRAWN: RB	DATE: 10/6/10
		CHK'D: WJL	DATE: 10/19/10
LOCATION: BRIDGEWATER, VERMONT		JOB NO. 454	DWG NO. 17
PROJ NO. BRS 0149(4)			REV. △2
CUSTOMER: VT AOT			

ALL MATERIAL TO BE M270-50 U.N.

WS_ Mon, Oct 25, 2010 03:08:03 PM /users/pbm/2010/17-Rev0

159 STRUCTURAL STEEL



FRONT VIEW OF PORTAL
(LOOKING TOWARDS THE CENTER OF SPAN)

2 - PORTALS - 18PA1
(END PORTALS @ U1 ∉ U1')

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

WORK THIS DWG. WITH DWG. 18B.

SHOP NOTE:
ALL STEEL FOR PORTAL ASSEMBLIES SHALL BE GALVANIZED

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X4.
3. ALL BOLTS SHALL BE FULLY TORQUED (UN).
4. BTS - DENOTES BOLT TO SHIP OR SECURE FOR SHIPMENT.
5. HDS - DENOTES BOLT HEADS.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
2	03/24/11	REVISED BEVELS ℄ ANGLES	JM	PWR		
1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

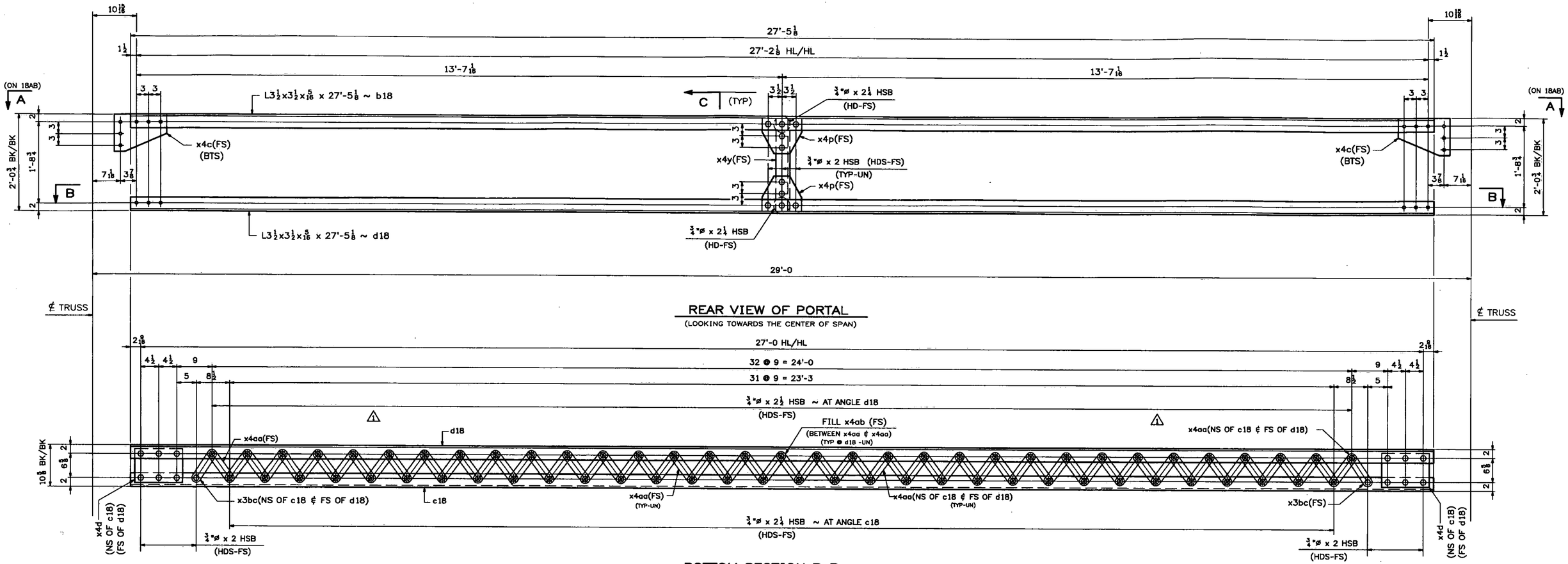
MATERIAL: M270-50 (U.N.)	SURFACE PREP. ℄ PAINT: SEE DWG GN1	HOLES: 13/16 ø	SHOP BOLTS: AS NOTED
DESCRIPTION: PORTALS			

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/7/10
		CHKD: WJL	DATE: 10/19/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO.	BRS 0149(4)	454	18AB
CUSTOMER:	VT AOT		REV. 2

Mon, Oct 25, 2010 01:54:05 PM //corey/jobs/2010/0454 1.dwg

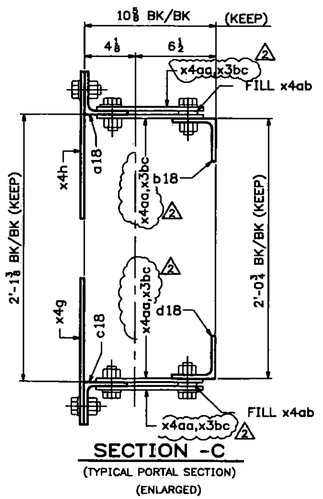
160 STRUCTURAL STEEL



REAR VIEW OF PORTAL

(LOOKING TOWARDS THE CENTER OF SPAN)

BOTTOM SECTION B-B



SECTION -C

(TYPICAL PORTAL SECTION)

(ENLARGED)

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	BILL OF MATERIAL QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS
7	D		16	x4v	L 3 1/2 x 3 1/2 x 5/16	2	11	(GALVANIZED) M270-50T2
7	E		2	x4w	L 3 1/2 x 3 1/2 x 5/16	2	1 1/8	(GALVANIZED) M270-50T2
7	E		2	x4y	L 3 1/2 x 3 1/2 x 5/16	1	11 3/4	(GALVANIZED) M270-50T2
7	L		256	x4aa	PL 5/16x2 1/4	0	10 1/2	(GALVANIZED)
7	L		132	x4ab	PL 5/16x2 1/4	0	2 1/4	(GALVANIZED)
10	C	⚠1	280		3/4 ø HSB	0	2	(GALVANIZED) A325-1
10	D		132		3/4 ø HSB	0	2 1/4	(GALVANIZED) A325-1
10	E		132		3/4 ø HSB	0	2 1/2	(GALVANIZED) A325-1
10	P	⚠1	544		3/4 ø HSW			(GALVANIZED) F436

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	BILL OF MATERIAL QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS
		18PA1	2		PORTALS			
7	B		2	a18	L 3 1/2 x 3 1/2 x 5/16	27	5 5/8	(GALVANIZED) M270-50T2
7	B		2	b18	L 3 1/2 x 3 1/2 x 5/16	27	5 5/8	(GALVANIZED) M270-50T2
7	B		2	c18	L 3 1/2 x 3 1/2 x 5/16	27	5 5/8	(GALVANIZED) M270-50T2
7	B	⚠1	2	d18	L 3 1/2 x 3 1/2 x 5/16	27	5 5/8	(GALVANIZED) M270-50T2
7	L		8	x3bc	PL 5/16x2 1/2	0	10	(GALVANIZED) M270-50T2
7	F		2	x4a	PL 3/8x28 1/2	2	9 11/16	(GALVANIZED) BENT
7	F		2	x4b	PL 3/8x28 1/2	2	9 11/16	(GALVANIZED) BENT
7	G		4	x4c	PL 5/16x9 1/2	1	1	(GALVANIZED)
7	H		8	x4d	PL 5/16x9 5/8	1	0	(GALVANIZED)
7	J		4	x4g	PL 5/16x12 ⚠1	1	6 1/2	(GALVANIZED)
7	J		8	x4h	PL 5/16x12 1/2	1	5 1/2	(GALVANIZED)
7	J		4	x4k	PL 5/16x12	1	5 1/4	(GALVANIZED)
7	J		2	x4m	PL 5/16x12 ⚠1	2	0	(GALVANIZED)
7	K		2	x4n	PL 5/16x9	1	0	(GALVANIZED)
7	K		4	x4p	PL 5/16x9	0	10	(GALVANIZED)
7	C	⚠1	4	x4s	L 3 1/2 x 3 1/2 x 5/16 ⚠2	3	1 3/4	(GALVANIZED) M270-50T2

JOB NO.	DRAWING NO.	REV.	WT	PROCUREMENT NOTES
454	18B			

JOB NO.	DRAWING NO.	REV.	WT	PROCUREMENT NOTES
454	18B			
			1954	

T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING

WORK THIS DWG. WITH DWG. 18AB.

Vermont Agency of Transportation

RECEIVED

CK'D BY TCF OK'D BY SSS

7:43 am, Apr 12, 2011

RESUBMIT ____ APPROVED X

BY KMH DATE 4-12-11

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠2	03/24/11	REVISED AS NOTED	JM	PWR		
⚠1	03/02/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø	AS NOTED

DESCRIPTION: PORTALS

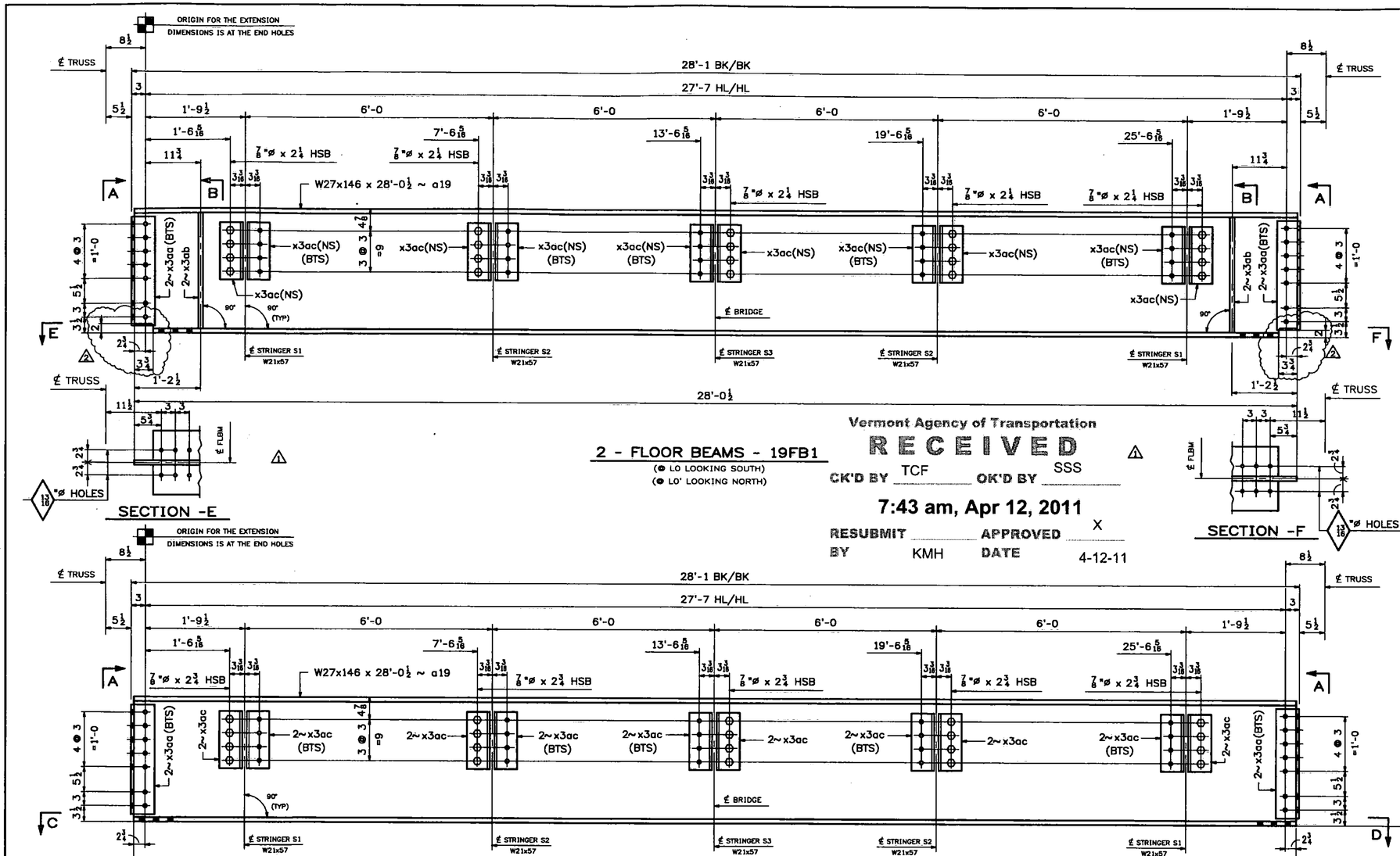
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

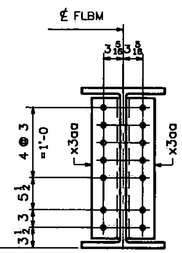
TENSOR 3015

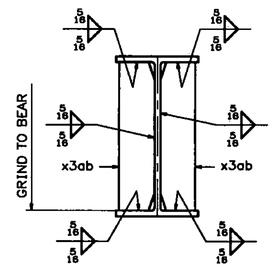
STRUCTURE:	DRAWN:	DATE:
Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	RB	10/7/10
	CHKD: WJL	DATE: 10/19/10
LOCATION: BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 18B
PROJ NO. BRS 0149(4)		REV. ⚠2
CUSTOMER: VT AOT		

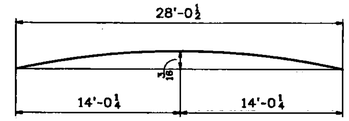
M:\...\Mon, Oct 25, 2010 01:45:17 PM /Users/Date/2010/18B.i18B

161 STRUCTURAL STEEL









ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								454	19	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		19FB1	2		FLOOR BEAMS				4430	
5	B		2	a19	W 27x146	28	0½	(GALVANIZED) M270-50T2		
5	E		8	x3aa	L 5x5x⅜ ⚠1	1	11¾	(GALVANIZED)		
5	F		8	x3ab	PL ½x6½	2	1⅞	(GALVANIZED) G1E		
5	G		20	x3ac	L 5x5x⅜ ⚠1	1	0½	(GALVANIZED)		
11	C		40		¾ ø HSB	0	2¼	(GALVANIZED) A325-1		
11	P		40		¾ ø HSW			(GALVANIZED) F436		
		19FB2	6		FLOOR BEAMS				4465	
5	B		6	a19	W 27x146	28	0½	(GALVANIZED) M270-50T2		
5	E		24	x3aa	L 5x5x⅜ ⚠1	1	11¾	(GALVANIZED)		
5	G		120	x3ac	L 5x5x⅜	1	0½	(GALVANIZED)		
11	E		120		¾ ø HSB	0	2¾	(GALVANIZED) A325-1		
11	P		120		¾ ø HSW			(GALVANIZED) F436		

T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING
G1E - DENOTES GRINDING AT ONE END OF STIFFENER

Vermont Agency of Transportation
RECEIVED ⚠1
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

2 - FLOOR BEAMS - 19FB1
(℄ LO LOOKING SOUTH)
(℄ LO' LOOKING NORTH)

6 - FLOOR BEAMS - 19FB2
(℄ L1,L2,L3,L3',L2',L1' LOOKING SOUTH)

SHOP NOTE:
ALL STEEL FOR FLOOR BEAM ASSEMBLIES SHALL BE GALVANIZED
SHEAR STUDS SHALL BE WELDED TO TOP FLANGE AS PER LB FOSTERS APPROVED PLANS BEFORE GALVANIZING ⚠2

NOTES:
1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X3.
3. ALL BOLTS SHALL BE FULLY TORQUED (UN).
4. BTS - DENOTES BOLT TO SHIP OR SECURE FOR SHIPMENT.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠2	03/23/11	REVISED AS PER APPROVAL COMMENTS	JM			
⚠1	03/03/11	REVISED AS PER APPROVAL COMMENTS	JM			
0						

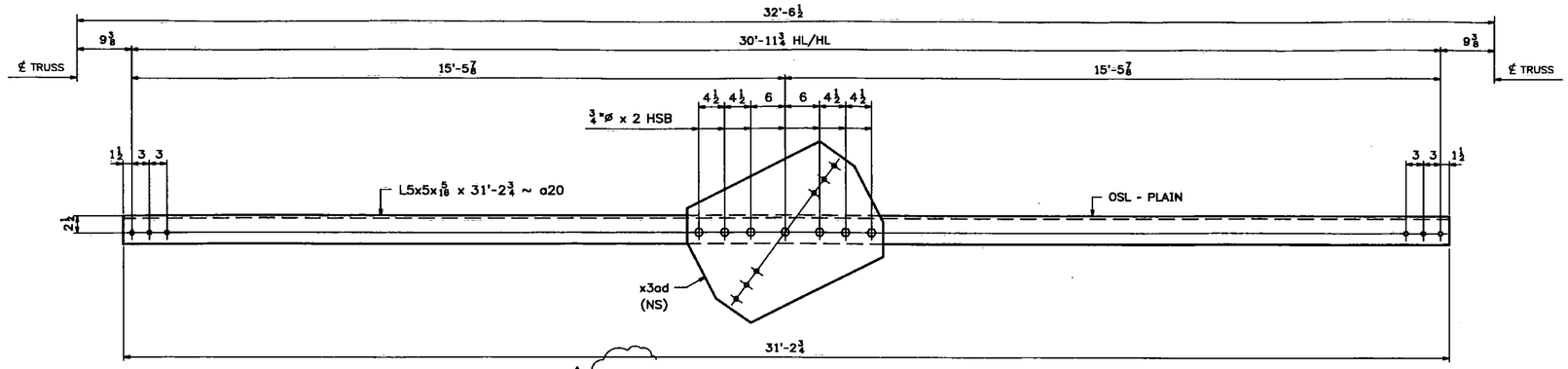
MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	15/16 ø(U.N.)	AS NOTED

DESCRIPTION: FLOOR BEAMS

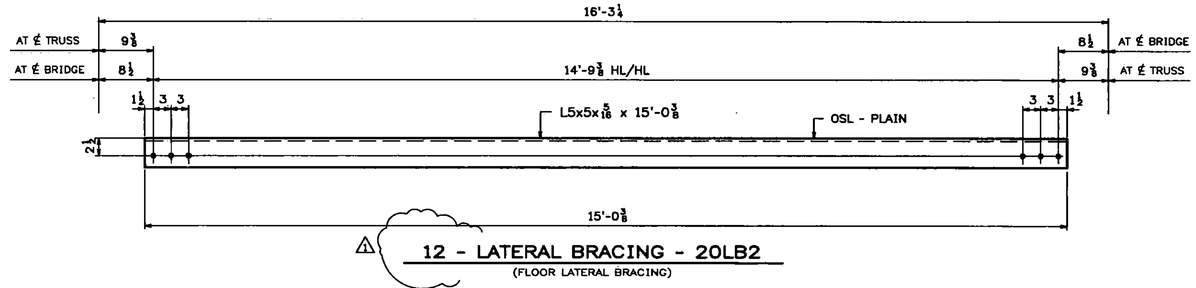
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/8/10
		CHKD: WJL	DATE: 10/19/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO.	DWG NO.
PROJ NO.	BRS 0148(4)	454	19
CUSTOMER:	VT AOT		REV. ⚠2

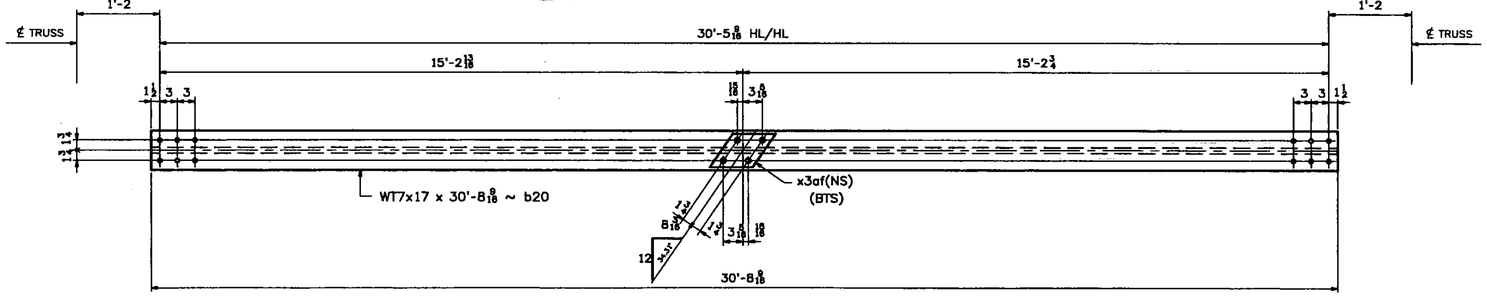
162 STRUCTURAL STEEL



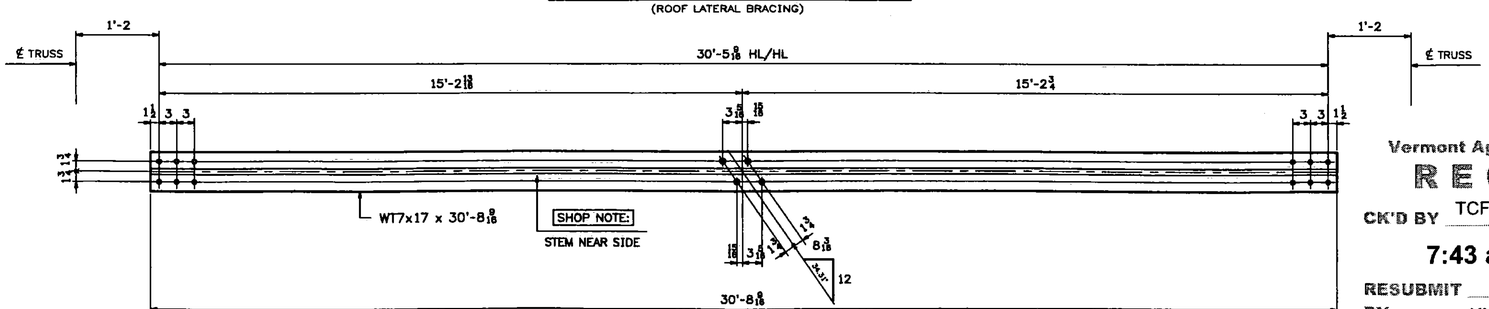
⚠1 5 - LATERAL BRACING - 20LB1
(FLOOR LATERAL BRACING)



⚠1 12 - LATERAL BRACING - 20LB2
(FLOOR LATERAL BRACING)



5 - LATERAL BRACING - 20LB3
(ROOF LATERAL BRACING)



5 - LATERAL BRACING - 20LB4
(ROOF LATERAL BRACING)

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								454	20	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		20LB1	5		LATERAL BRACING				391	
5	M		5	a20	L 5x5x⅝	31	2¾	(GALVANIZED)		
5	N	⚠1	5	x3ad	PL ⅜x23	2	8	(GALVANIZED)		
10	C		35		¾ ø HSB	0	2	(GALVANIZED) A325-1		
10	P		35		¾ ø HSW			(GALVANIZED) F436		
			⚠1		LATERAL BRACING					
5	M	20LB2	12		L 5x5x⅝	15	0⅜	(GALVANIZED)	155	
		20LB3	5		LATERAL BRACING				528	
5	Q		5	b20	WT 7x17	30	8⅛	(GALVANIZED)		
5	R		5	x3af	PL ⅜x6	0	11⅜	(GALVANIZED)		
					LATERAL BRACING					
5	Q	20LB4	5		WT 7x17	30	8⅛	(GALVANIZED)	522	

SHOP NOTE:
ALL STEEL FOR LATERAL BRACING SHALL BE GALVANIZED

NOTES:

1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X3.
3. ALL BOLTS SHALL BE FULLY TORQUED (UN).
4. BTS - DENOTES BOLT TO SHIP OR SECURE FOR SHIPMENT.
5. OSL - DENOTES OUTSTANDING LEG OF ANGLE.

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT APPROVED X
BY KMH DATE 4-12-11

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
⚠1	03/03/11	REVISED AS PER APPROVAL COMMENTS	JM	PWR		
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø	AS NOTED

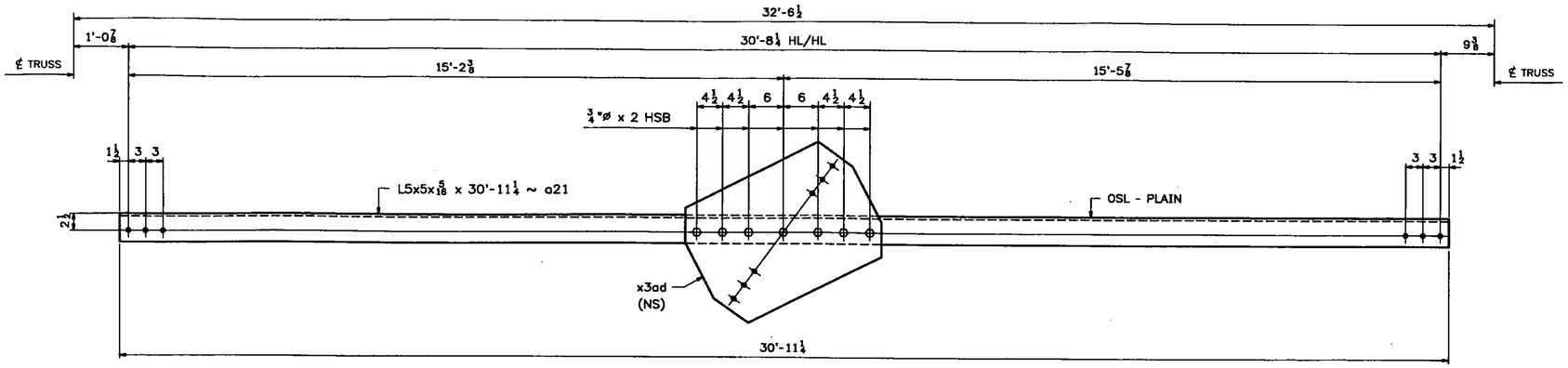
DESCRIPTION: FLOOR & ROOF LATERAL BRACING

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE:	Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor	DRAWN: RB	DATE: 10/9/10
		CHKD: WJL	DATE: 10/19/10
LOCATION:	BRIDGEWATER, VERMONT	JOB NO. 454	DWG NO. 20
PROJ NO.	BRS 0149(4)		REV. ⚠1
CUSTOMER:	VT AOT		

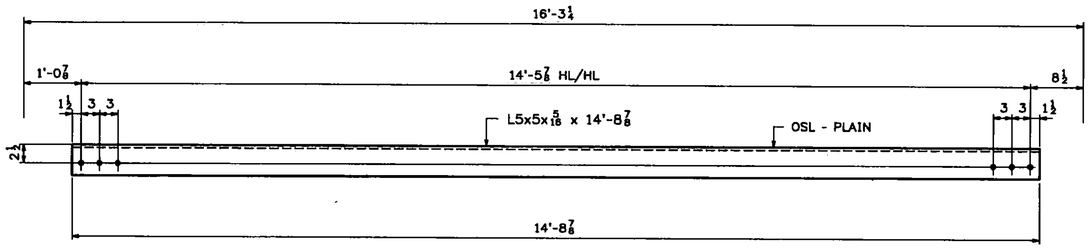
Mon, Oct 25, 2010 03:03:08 PM /users/jwc/2010/20-1.dwg

163 STRUCTURAL STEEL



2 - LATERAL BRACING - 21LB1

(FLOOR LATERAL BRACING)



2 - LATERAL BRACING - 21LB2

(FLOOR LATERAL BRACING)

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		21LB1	2		LATERAL BRACING				388	
5	M		2	a21	L 5x5x⅝	30	11¼	(GALVANIZED)		
5	N		2	x3ad	PL ⅜x23	2	8	(GALVANIZED)		
10	C		14		¾ ø HSB	0	2	(GALVANIZED) A325-1		
10	P		14		¾ ø HSW			(GALVANIZED) F436		
					LATERAL BRACING					
5	M	21LB2	2		L 5x5x⅝	14	8⅞	(GALVANIZED)	152	

SHOP NOTE:

ALL STEEL FOR LATERAL BRACING SHALL BE GALVANIZED

NOTES:

1. FOR GENERAL NOTES SEE DWG. GN1.
2. FOR STANDARD DETAILS SEE DWG. X3.
3. ALL BOLTS SHALL BE FULLY TORQUED (UN).
4. BTS - DENOTES BOLT TO SHIP OR SECURE FOR SHIPMENT.
5. OSL - DENOTES OUTSTANDING LEG OF ANGLE.

Vermont Agency of Transportation
RECEIVED
CK'D BY TCF OK'D BY SSS
7:43 am, Apr 12, 2011
RESUBMIT ____ APPROVED X
BY KMH DATE 4-12-11

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

MATERIAL:	SURFACE PREP. ℄ PAINT:	HOLES:	SHOP BOLTS:
M270-50 (U.N.)	SEE DWG GN1	13/16 ø	AS NOTED

DESCRIPTION: FLOOR LATERAL BRACING

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179
TENSOR 3015

STRUCTURE: Vermont Route 100A Bridge No. 14 Bridgewater County of Windsor		DRAWN: JM	DATE: 03/03/11
		CHKD: PWR	DATE: 03/07/11
LOCATION: BRIDGEWATER, VERMONT		JOB NO.	DWG NO.
PROJ NO. BRS 0149(4)		454	21
CUSTOMER: VT AOT			REV. △

Mon, Oct 25, 2010 03:05:58 PM /users/jma/2010/20 : Rev0

L.B. Foster Co.

Welding Procedure Specification

1F (AWS)

Material Spec. ASTM A709Gr.36, 50 & 50W, A588, A572, A992 Gr. 36, A36, A615M Gr.420

Welding Process(es) GMAW

Position of Welding Flat

Manual ☐ Machine ☐ Semi-Automatic ☒ Automatic ☐

Filler Metal Specification AWS A5.18

Filler Metal Classification ER70S-3 (Lincoln L-50 Superarc)

Flux N/A

Shielding Gas 80% Argon 20% CarbonDioxide Gas Flow Rate 30 CFH

Single or Multiple Pass Single

Single or Multiple Arc Single

Welding Current Direct Current

Polarity: AC ☐ DCEP ☒ DCEN ☐ Pulsed ☐

Welding Progression Up ☐ Down ☐

Root Treatment Wire Brush

Preheat Temperature See Notes Interpass Temperature

Postheat Treatment N/A

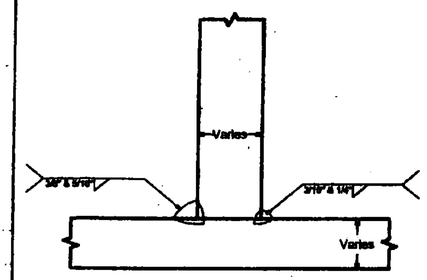
Heat Input Min Max

VTRANS
RECEIVED
JAN 26 2011
RESUBMIT APPROVED ✓
BY DATE 01/31/11
OK'D BY JWC

WELDING PROCEDURE

Pass No.	Electrode Size	Amperes	Volts	Travel Speed	Other
3/16"	0.045"	270	26	9 IPM	
1/4"	0.045"	270	26	9 IPM	
5/16"	0.045"	270	26	9 IPM	
3/8"	0.045"	270	26	9 IPM	
	Min.	243	24	8 IPM	
	Max.	297	28	10 IPM	

Joint Detail



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

Procedure No. 1F (AWS) Contractor L. B. Foster Co.

Revision No. Authorized By Julian M. Pedrazzani Date 4/15/2009

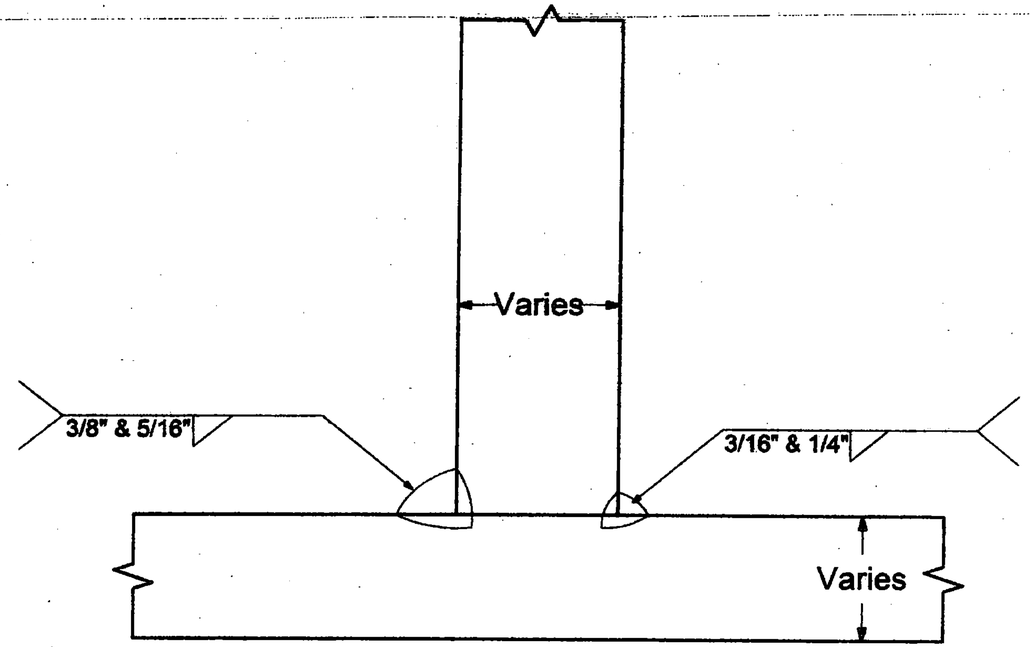
164 PRE FAB. DECK PANELS

L.B. Foster Co.

Welding Procedure Specification

1F (AWS)

Joint Detail



MEMO

Preheat Treatment:
50 Deg. F up to 3/4";
over 3/4" to 1 1/2" 70 Deg. F;
over 1 1/2" to 2 1/2" 150 Deg. F

Supporting LBF PQR 2009 A Expire March 2014

For Bridge Flooring

165 PRE FAB
DECK PANELS

RECEIVED
CK'D BY _____ OK'D BY _____
JAN 17 2011
RESUBMIT _____ APPROVED ✓ Accepted
BY KMH DATE 1/20/11

Leveling Devices
Bridgewater, VT Route 100A, BR14

Assume:

Grid weight of	65.1	lbs / sf incl steel and concrete
Additional	50	lbs / sf dead load for workers, tools, etc
Leveling Devices @	3	foot c/c +/-
	1/2	inch Dia bolts
	6	Unbraced length of bolt
	6	Support spacing c/c in feet

Strength of bolt under compression

r = (0.5inch) / 4 — 0.12500

$F_a = 23580 - 1.03 (k l / r)^2$

Fa= 23580 - 1.03 (0.65 * 6 / 0.125)^2 — 22,577

22,577 x 0.1963 (area of bolt) = 4.4331 kips / bolt capacity

Load

6' length of panel x 0.1151kips / sf design load = 0.6906 kips / ft / stringer

Determine size of leveling plate

Plate support interval	4	inches	Cross Bar Spacing
Plate width	3	inches	
Plate Thickness	1/2	inches	
Grade of steel	50	Grade	
Effective plate width	2 3/8		Plate width - support bolt hole

Section Modulus of leveling plate	0.0990	$inches^3$		
Moment Capacity	2.721354167	in-kips		
Maximum spacing of leveling plates	3.940564968	feet or	47.29 Use	36 inches
Check max spacing based on stud	6.419133567	feet or	77.03 Use	36 inches
Check max spacing based on CB				

Uniform load on cross bars (2) 0.028775 kips/in

Since load is short term us operating limit for stress and shear 0.75*fy for cross bar

Effective depth of cross bar	2	inch
Effective thickness of CB	0.25	inch

Effective section property of CB	0.166666667	in^3		
Moment at 2" from centerline of plate	2.12935			
Cross Bar Stress	12.7761	ksi vs allow	37.5 ksi	
Cross Bar Shear	0.51795	kips		
Operating shear capacity	11.25	kips		

STATE OF NEW HAMPSHIRE
MICHAEL P. REINA
No. 10369
LICENSED PROFESSIONAL ENGINEER

1/14/10

166 PREFAB DECK PANELS

L. B. Foster Company Fabricated Products Division
Weight of Grid Deck

Grid

		Depth	Width	Gross Weight / FT	Net Weight / FT
Main Bar	5" Deep Ribbed Main Bar	5 3/16	N/A	5.58	5.34
Cross Bar 1	2" x 1/4" CB	2	1/4	1.70	1.63
Cross Bar 2	None	0	0	0.00	0.00
Bottom Round	None	0	0	0.00	0.00
Supplemental Bar 1	#4 Rebar	1/2	rebar	0.67	0.67
Supplemental Bar 2	None	0	0	0.00	0.00
Form Pan	20 Gauge	20 Gauge	N/A	1.5	1.50

	Inches	# / SF
Main Bars Spacing	12	5.34
Cross Bar 1 Spacing	4	4.88
Cross Bar 2 Spacing	10	0.00
Bottom Round Spacing	8	0.00
Supplemental Bar 1 Spacing	6	1.34
Supplemental Bar 2 Spacing	3	0.00
Form Pans	12	1.50
Sub Total		13.05
Add for Finish		6%
Approximate Total Steel Weight per Square Foot Excluding Attachements		13.8

Subject to Mill Tolerances

Concrete

			Gross Weight / SF	Deduct for Concrete Displaced by Grid	Net Weight of Concrete per Foot
Weight of Concrete	115	# / ft^3			
f'c	4000	psi			
Depth of Concrete Infill	2.5	Inches	52.7	1.5	**51.2**
Depth of Concrete Overfill	3	Inches			
Total Depth of Concrete	5.5	Inches			

E_c =	2,573,894	
E_s =	29,000,000	
n =	11	Only for Calculations of Deflection (AASHTO 8.15.3.4 & 8.7.1)
n =	8	For all Calculations other than Deflection (AASHTO 8.15.3.4 & 10.38.1.3)

Weight is approximate

Does not Include Concrete Haunch

Superimposed Dead Load LB / SF	0
Approximate Total Weight of Base Product	65.1

STATE OF NEW HAMPSHIRE
MICHAEL P. REINA
No. 10369
LICENSED PROFESSIONAL ENGINEER
11/4/10

167 PRE-FAB DECK PANELS

For Strength Design Only

Calculate Composite Centroid - Positive Bending

Element	Actual Height of Element	Effective Height of Element *,**	Width of Element	Spacing of Elements IN C/C	Number of Elements per Foot	Actual Area	Transformed Area	Distance from Bottom of Grid to Centroid of Element	
						A	A_t	d	A_t x d
Main Bar	5.187	5.187	N/A	12	1	1.63925700	1.63925700	2.18002363	3.57361899
Supplemental Bar 1	0.500	0.500	rebar	6	2	0.39269908	0.39269908	4.93700000	1.93875537
Supplemental Bar 2	0.000	0.000	0.000	3	4	0.00000000	0.00000000	5.18700000	0.00000000
Concrete**	5.500	2.677	12.000	12	1	32.12400000	4.01550000	6.84850000	27.50015175
Top Punchout*	1.063	1.063	-0.187	12	1	-0.19868750	-0.19868750	3.71825000	-0.73876980
Bottom Punchout*	0.000	0.000	-0.187	12	1	0.00000000	0.00000000	1.54740000	0.00000000
Σ							5.84877		32.27375631

Centroid of Composite Section = y (measured from bottom of grid) = $\Sigma (A_t * d) / \Sigma (A_t)$ = 5.518042962 Taken as 5.51

Note : Effective Height of Concrete is found by iterating until no effective concrete is below the centroid.

Calculate Composite Moment of Inertia - Positive Bending

Element	Distance from Centroid of Element to Composite Centroid (y)		Moment of Inertia of Element taken by Itself	Transformed Moment of Inertia	Times Number of Elements (per ft.)	Transformed Moment of Inertia (per ft.)
	d'	$A_t * (d')^2$	I	I / n		I_t
Main Bars	-3.33801934	18.26521308	5.12489527	5.12489527	1	5.12489527
Supplemental Bar 1.	-0.58104296	0.13257950	0.00306796	0.00306796	2	0.00613592
Supplemental Bar 2	-0.33104296	0.00000000	0	0.00000000	4	0.00000000
Concrete**	1.33045704	7.10790052	19.18426273	2.39803284	1	2.39803284
Top Punchout*	-1.79979296	-0.64359942	-0.01869163	-0.01869163	1	-0.01869163
Bottom Punchout*	-3.97064296	0.00000000	0.00000000	0.00000000	1	0.00000000
Σ		24.86209367				7.51037240

I_g = Moment of Inertia for Composite Section = $\Sigma (A_T * (d')^2) + \Sigma (I_t)$ = 32.37246607

Computation of Section Properties

Point of Interest	Location Relative to Bottom of Grid	Distance from Centroid to Point of Interest	Effective Section Modulus
Top of Concrete	8.187	2.66895704	97.03405672
Bottom of Grid	0	-5.51804296	-5.86665713
Top of Grid	5.187	-0.33104296	-97.78931974
Form Pan	2.687	-2.83104296	-11.43481978
Bottom of CB Weld	3.1875	-2.33054296	-13.89052534

*Punchout is Ignored in Compression Areas and Subtracted When in Tension

**Concrete is Transformed to Steel in Compression Areas and Ignored When in Tension

STATE OF NEW HAMPSHIRE
MICHAEL P. REINA
No. 10366
LICENSED PROFESSIONAL ENGINEER
11/4/10

168 PRE FAB DECK PANELS

For Strength Design Only

Calculate Composite Centroid - Negative Bending

Element	Actual Height of Element	Effective Height of Element *,**	Width of Element	Spacing of Elements IN C/C	Number of Elements per Foot	Actual Area	Transformed Area	Distance from Bottom of Grid to Centroid of Element	
						A	A_t	d	A_t x d
Main Bar	5.187	5.187	N/A	12	1	1.63925700	1.63925700	2.18002363	3.57361899
Supplemental Bar 1	0.500	0.500	rebar	6	2	0.39269908	0.39269908	4.93700000	1.93875537
Supplemental Bar 2	0.000	0.000	0.000	3	4	0.00000000	0.00000000	5.18700000	0.00000000
Concrete**	5.500	0.000	12.000	12	1	0.00000000	0.00000000	2.68700000	0.00000000
Top Punchout*	1.063	1.063	-0.187	12	1	-0.19868750	-0.19868750	3.71825000	-0.73876980
Bottom Punchout*	0.000	0.000	-0.187	12	1	0.00000000	0.00000000	1.54740000	0.00000000
Σ							1.83327		4.77360456

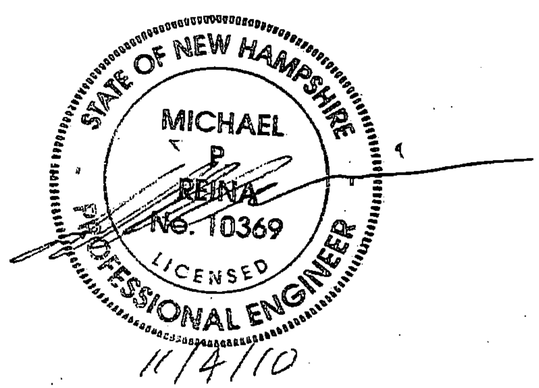
Centroid of Composite Section = y (measured from bottom of grid) = $\Sigma (A_t * d) / \Sigma (A_t)$ = 2.603876272 Taken as 2.6

Note : Effective Height of Concrete is found by iterating until no effective concrete is below the centroid.

Calculate Composite Moment of Inertia - Negative Bending

Element	Distance from Centroid of Element to Composite Centroid (y)		Moment of Inertia of Element taken by Itself	Transformed Moment of Inertia	Times Number of Elements (per ft.)	Transformed Moment of Inertia (per ft.)
	d'	$A_t * (d')^2$	I	I / n		I_t
Main Bars	-0.42385265	0.29449427	5.12489527	5.12489527	1	5.12489527
Supplemental Bar 1	2.33312373	2.13764423	0.00306796	0.00306796	2	0.00613592
Supplemental Bar 2	2.58312373	0.00000000	0	0.00000000	4	0.00000000
Concrete**	0.08312373	0.00000000	0.00000000	0.00000000	1	0.00000000
Top Punchout*	1.11437373	-0.24673586	-0.01869163	-0.01869163	1	-0.01869163
Bottom Punchout*	-1.05647627	0.00000000	0.00000000	0.00000000	1	0.00000000
Σ		2.185402634				5.11233956

I_g = Moment of Inertia for Composite Section = $\Sigma (A_T * (d')^2) + \Sigma (I_t)$ = 7.297742195



Computation of Section Properties

Point of Interest	Location Relative to Bottom of Grid	Distance from Centroid to Point of Interest	Effective Section Modulus
Bottom of Concrete	2.687	0.08312373	0.00000000
Bottom of Grid	0	-2.60387627	2.80264553
Top of Grid	5.187	2.58312373	-2.82516169
Form Pan	2.687	0.08312373	-87.79373039
Top of CB Weld	4.1875	1.58362373	-4.60825515

*Punchout is Ignored in Compression Areas and Subtracted When in Tension

**Concrete is Transformed to Steel in Compression Areas and Ignored When in Tension

169 PRE-FAB DECK PANELS

For Strength Design Only

Calculate Centroid - Grid Only - Positive Bending

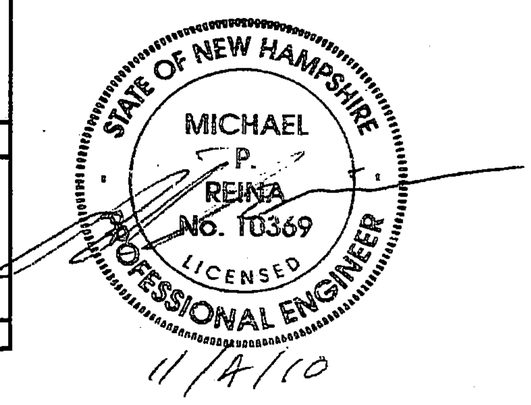
Element	Actual Height of Element	Effective Height of Element *,**	Width of Element	Spacing of Elements IN C/C	Number of Elements per Foot	Actual Area	Transformed Area	Distance from Bottom of Grid to Centroid of Element	
						A	A_t	d	A_t x d
Main Bar	5.187	5.187	N/A	12	1	1.63925700	1.63925700	2.18002363	3.57361899
Supplemental Bar 1	0.500	0.500	rebar	6	2	0.39269908	0.39269908	4.93700000	1.93875537
Supplemental Bar 2	0.000	0.000	0.000	3	4	0.00000000	0.00000000	5.18700000	0.00000000
						0.00000000	0.00000000	8.18700000	0.00000000
Top Punchout*	1.063	0.000	-0.187	12	1	0.00000000	0.00000000	3.18700000	0.00000000
Bottom Punchout*	0.000	0.000	-0.187	12	1	0.00000000	0.00000000	1.54740000	0.00000000
Σ							2.03196		5.51237436

Centroid of Section = y (measured from bottom of grid) = $\Sigma (A_t * d) / \Sigma (A_t)$ = 2.712841289 Taken as 2.71

Calculate Moment of Inertia - Positive Bending

Element	Distance from Centroid of Element to Composite Centroid (y)		Moment of Inertia of Element taken by Itself	Transformed Moment of Inertia	Times Number of Elements (per ft.)	Transformed Moment of Inertia (per ft.)
	d'	$A_t * (d')^2$	I	I / n		I_t
Main Bars	-0.53281766	0.46537631	5.12489527	5.12489527	1	5.12489527
Supplemental Bar 1	2.22415871	1.94263601	0.00306796	0.00306796	2	0.00613592
Supplemental Bar 2	2.47415871	0.00000000	0	0.00000000	4	0.00000000
		0.00000000	0.00000000	0.00000000	0	0.00000000
Top Punchout*	0.47415871	0.00000000	0.00000000	0.00000000	1	0.00000000
Bottom Punchout*	-1:16544129	0.00000000	0.00000000	0.00000000	1	0.00000000
Σ		2.408012319				5.13103119

I_g = Moment of Inertia for Composite Section = $\Sigma (A_T * (d')^2) + \Sigma (I_t)$ = 7.53904351



11/4/10

Computation of Section Properties

Point of Interest	Location Relative to Bottom of Grid	Distance from Centroid to Point of Interest	Effective Section Modulus
Bottom of Grid	0	-2.71284129	-2.77902122
Top of Grid	5.187	2.47415871	3.04711394
Form Pan	2.687	-0.02584129	-291.74409384
CB Weld	3.1875	0.47465871	15.88308260

*Punchout is Ignored in Compression Areas and Subtracted When in Tension

**Concrete is Transformed to Steel in Compression Areas and Ignored When in Tension

170 PSF FOR DECK PANELS

For Strength Design Only

Calculate Centroid - Grid Only - Negative Bending

Element	Actual Height of Element	Effective Height of Element *,**	Width of Element	Spacing of Elements IN C/C	Number of Elements per Foot	Actual Area	Transformed Area	Distance from Bottom of Grid to Centroid of Element	
						A	A_t	d	A_t x d
Main Bar	5.187	5.187	N/A	12	1	1.63925700	1.63925700	2.18002363	3.57361899
Supplemental Bar 1	0.500	0.500	rebar	6	2	0.39269908	0.39269908	4.93700000	1.93875537
Supplemental Bar 2	0.000	0.000	0.000	3	4	0.00000000	0.00000000	5.18700000	0.00000000
						0.00000000	0.00000000	0.00000000	0.00000000
Top Punchout*	1.063	1.063	-0.187	12	1	-0.19868750	-0.19868750	3.71825000	-0.73876980
Bottom Punchout*	0.000	0.000	-0.187	12	1	0.00000000	0.00000000	1.54740000	0.00000000
Σ							1.83327		4.77360456

Centroid of Section = y (measured from bottom of grid) = $\Sigma (A_t * d) / \Sigma (A_t)$ = 2.603876272 Taken As 2.6

Calculate Moment of Inertia - Negative Bending

Element	Distance from Centroid of Element to Composite Centroid (y)		Moment of Inertia of Element taken by Itself	Transformed Moment of Inertia	Times Number of Elements (per ft.)	Transformed Moment of Inertia (per ft.)
	d'	$A_t * (d')^2$	I	I / n		I_t
Main Bars	-0.42385265	0.29449427	5.12489527	5.12489527	1	5.12489527
Supplemental Bar 1	2.33312373	2.13764423	0.00306796	0.00306796	2	0.00613592
Supplemental Bar 2	2.58312373	0.00000000	0	0.00000000	4	0.00000000
Top Punchout*	1.11437373	-0.24673586	-0.01869163	-0.01869163	1	-0.01869163
Bottom Punchout*	-1.05647627	0.00000000	0.00000000	0.00000000	1	0.00000000
Σ		2.185402634				5.11233956

I_g = Moment of Inertia for Composite Section = $\Sigma (A_T * (d')^2) + \Sigma (I_t)$ = 7.297742195

Computation of Section Properties

Point of Interest	Location Relative to Bottom of Grid	Distance from Centroid to Point of Interest	Effective Section Modulus
Bottom of Grid	0	-2.60387627	2.80264553
Top of Grid	5.187	2.58312373	-2.82516169
Form Pan	2.687	0.08312373	-87.79373039
CB Weld	4.1875	1.58362373	-4.60825515

*Punchout is Ignored in Compression Areas and Subtracted When in Tension

**Concrete is Transformed to Steel in Compression Areas and Ignored When in Tension

STATE OF NEW HAMPSHIRE
MICHAEL P. REINA
No. 10369
LICENSED PROFESSIONAL ENGINEER
11/4/10

1/7 PRE-FAB DECK PANELS

Fatigue and Deflection only

Calculate Composite Centroid

Element	Actual Height of Element	Effective Height of Element *,**	Width of Element	Spacing of Elements IN C/C	Number of Elements per Foot	Actual Area	Transformed Area	Distance from Bottom of Grid to Centroid of Element	
						A	A_1	d	$A_1 \times d$
Main Bar	5.187	5.187	N/A	12	1	1.63925700	1.63925700	2.18002363	3.57361899
Supplemental Bar 1	0.500	0.500	rebar	6	2	0.39269908	0.39269908	4.93700000	1.93875537
Supplemental Bar 2	0.000	0.000	0.000	3	4	0.00000000	0.00000000	5.18700000	0.00000000
Concrete**	5.500	5.500	12.000	12	1	66.00000000	8.25000000	5.43700000	44.85525000
Top Punchout*	1.063	1.063	-0.187	12	1	-0.19868750	-0.19868750	3.71825000	-0.73876980
Bottom Punchout*	0.000	0.000	-0.187	12	1	0.00000000	0.00000000	1.87500000	0.00000000
Σ							10.08327		49.62885456

Centroid of Composite Section = y (measured from bottom of grid) = $\Sigma (A_1 * d) / \Sigma (A_1)$ = 4.92190148 4.92

**Note : Effective Height of Concrete for fatigue and deflection per AASHTO 10.38.1.6

Calculate Composite Moment of Inertia

Element	Distance from Centroid of Element to Composite Centroid (y)		Moment of Inertia of Element taken by Itself	Transformed Moment of Inertia	Times Number of Elements (per ft.)	Transformed Moment of Inertia (per ft.)
	d'	$A_1 * (d')^2$	I	I / n		I_t
Main Bars	-2.74187785	12.32376064	5.12489527	5.12489527	1	5.12489527
Supplemental Bar 1	0.01509852	0.00008952	0.00306796	0.00306796	2	0.00613592
Supplemental Bar 2	0.26509852	0.00000000	0	0.00000000	4	0.00000000
Concrete**	0.51509852	2.18894350	166.37500000	20.79687500	1	20.79687500
Top Punchout*	-1.20365148	-0.28785386	-0.01869163	-0.01869163	1	-0.01869163
Bottom Punchout*	-3.04690148	0.00000000	0.00000000	0.00000000	1	0.00000000
Σ		14.2249398				25.90921456

I_g = Moment of Inertia for Composite Section = $\Sigma (A_T * (d')^2) + \Sigma (I_t)$ = 40.13415436

Computation of Section Properties

Point of Interest	Location Relative to Bottom of Grid	Distance from Centroid to Point of Interest	Effective Section Modulus
Top of Concrete	8.187	3.26509852	98.33493016
Bottom of Grid	0	-4.92190148	-8.15419702
Top of Grid	5.187	0.26509852	151.39335527
Form Pan	2.687	-2.23490148	-17.95790764
Bottom of CB Weld / MB Punchout	3.1875	-1.73440148	-23.14006002
Top of CB Weld / MB Punchout	4.1875	-0.73440148	-54.64879284

*Punchout is Ignored in Compression Areas and Subtracted When in Tension

STATE OF NEW HAMPSHIRE
MICHAEL P. REIN
No. 12469
LICENSED PROFESSIONAL ENGINEER
11/4/10

117 PRESTRESS DECK PANELS

Deck Design Main Bars Transverse

AASHTO 17th Edition - 2002

C/C Spacing of Supports = 6 FT

Support Top Flange Width = 6.5 IN

Effective Span Length for Design = 5.73 FT

Effective Span Length (S) shall be the distance between edges of top flange plus one-half of stringer top flange width. (AASHTO 3.24.1.2)

Design Wheel Load 16 kips

Impact 30%

Continuity Factor 0.8

Allowable Steel Stress 27 ksi

Allowable Concrete Stress 1.6 ksi

Dead Load Moment = 0.21363 Kip-Foot / Foot

$W * S^2 / 8 * 0.8$ (IF Continuous Span)

Live Load Plus Impact Moment = 4.0196 Kip-Foot / Foot

(AASHTO 3.24.3.1)

((S + 2) / 32) * P * (Impact) * 0.8 (IF Continuous Span)

Maximum Stress Negative Moment

@ Bottom of Concrete =	N/A* Ksi	N/A*	Design Stress Okay AASHTO 8.15.2.1.1
@ Bottom of Grid =	-18.12529 Ksi	OK	Design Stress Okay AASHTO 10.32.1
@Top of Grid =	-17.9808 Ksi	OK	Negative Number Indicates Tension
@ Form Pan =	-0.57861 Ksi	OK	*N/A means no concrete figured in design

$M_{DL} * 12 /$ (Grid Only Section Modulus for Negative Moment) + $M_{LL+I} * 12 /$ (Composite Section Modulus for Negative Moment)

Maximum Stress Positive Moment

Top of Concrete =	0.523515 Ksi	OK	Design Stress Okay AASHTO 8.15.2.1.1
Bottom of Grid =	-9.14439 Ksi	OK	Design Stress Okay AASHTO 10.32.1
Top of Grid =	0.348048 Ksi	OK	Negative Number Indicates Tension
Form Pan =	-4.22706 Ksi	OK	*N/A means no concrete figured in design

$M_{DL} * 12 /$ (Grid Only Section Modulus for Positive Moment) + $M_{LL+I} * 12 /$ (Composite Section Modulus for Positive Moment)

Deflection

Effective Width of Deck - E = 4.36 Feet

E = (4 + 0.06S) but not over 7' (AASHTO 3.24.3.2)

Deflection of Grid under Load of Wet Concrete = $(5 * W * S^4) / 384 * E_s * I$	0.00867810 Inches	= L / 8,297	Simple Span
Deflection of Composite Grid Section under Live Load and Impact = $(P_{+I} * S^3) / 48 * E_S * (I * E)$	0.02776074 Inches	= L / 2594	Simple Span
Deflection of Composite Grid Section under Live Load and Impact = $0.015 * (P_{+I} * S^3) / E_S * (I * E)$	0.01998774 Inches	= L / 3602	**Continuous Span**

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MICHAEL B. REINA No. 10369 LICENSED PROFESSIONAL ENGINEER
11/4/10

173 PRE FAB DECK PANELS.

Calculate Composite Centroid In Weak Direction - Positive Bending

Element	Actual Height of Element	Effective Height of Element *,**	Width of Element	Spacing of Elements IN C/C	Number of Elements per Foot	Actual Area	Transformed Area	Distance from Top of Section to Centroid of Element	
						A	A_t	d	A_t x d
Cross Bar 1	2.00	2.00	1/4	4	3	1.50000000	1.50000000	4.00000000	6.00000000
Cross Bar 2	0.00	0.00	0	10	1.2	0.00000000	0.00000000	3.00000000	0.00000000
Concrete**	5.50	2.000	12	12	1	24.00000000	3.00000000	1.00000000	3.00000000
Bottom Round	0.00	0.00	0	8	1.5	0.00000000	0.00000000	6.63960000	0.00000000
						0.00000000	0.00000000		
Σ							4.50000		9

Centroid of Composite Section = y (measured from Top of Section) = $\Sigma (A_t * d) / \Sigma (A_t)$ = 2 Taken as 2

Note : Effective Height of Concrete is found by iterating until no effective concrete is below the centroid.

Calculate Composite Moment of Inertia - Positive Bending

Element	Distance from Centroid of Element to Composite Centroid (y)		Moment of Inertia of Element taken by Itself	Transformed Moment of Inertia	Times Number of Elements (per ft.)	Transformed Moment of Inertia (per ft.)
	d'	$A_t * (d')^2$	I	I / n		I_t
Cross Bar 1	2.00000000	6.00000000	0.16666667	0.16666667	3	0.50000000
Cross Bar 2	1.00000000	0.00000000	0.00000000	0.00000000	1.2	0.00000000
Concrete	-1.00000000	3.00000000	8.00000000	1.00000000	1	1.00000000
Bottom Round	4.63960000	0.00000000	0.00000000	0.00000000	1.5	0.00000000
Σ		9				1.50000000

I_0 = Moment of Inertia for Composite Section = $\Sigma (A_T * (d')^2) + \Sigma (I_t)$ = 10.5

Computation of Section Properties

Point of Interest	Location Relative to Top of Grid	Distance from Centroid to Point of Interest	Effective Section Modulus
Top of Concrete	0	2.00000000	42.00000000
Bottom of Grid	-8 3/16	-6.18700000	-1.69710684
Top of Grid	-3	-1.00000000	-10.50000000

**Concrete is Transformed to Steel in Compression Areas and Ignored When in Tension

STATE OF NEW HAMPSHIRE
MICHAEL P. REINA
No. 10369
LICENSED
PROFESSIONAL ENGINEER
11/4/10

174 PRETAB DECK PANELS

Fatigue and Deflection only

Calculate Composite Centroid In Weak Direction - Positive Bending

Element	Actual Height of Element	Effective Height of Element *,**	Width of Element	Spacing of Elements IN C/C	Number of Elements per Foot	Actual Area	Transformed Area	Distance from Top of Section to Centroid of Element	
						A	A_t	d	A_t x d
Cross Bar 1	2.00	2.00	1/4	4	3	1.50000000	1.50000000	4.00000000	6.00000000
Cross Bar 2	0.00	0.00	0	10	1.2	0.00000000	0.00000000	3.00000000	0.00000000
Concrete**	5.50	5.500	12	12	1	66.00000000	8.25000000	2.75000000	22.68750000
Bottom Round	0.00	0.00	0	8	1.5	0.00000000	0.00000000	6.63960000	0.00000000
						0.00000000	0.00000000		
Σ							9.75000		28.6875

Centroid of Composite Section = y (measured from Top of Section) = $\Sigma (A_t * d) / \Sigma (A_t)$ = 2.942307692 Taken as 2.94

**Note : Effective Height of Concrete for fatigue and deflection per AASHTO 10.38.1.6

Calculate Composite Moment of Inertia - Positive Bending

Element	Distance from Centroid of Element to Composite Centroid (y)		Moment of Inertia of Element taken by Itself	Transformed Moment of Inertia	Times Number of Elements (per ft.)	Transformed Moment of Inertia (per ft.)
	d'	$A_t * (d')^2$	I.	I / n		I_t
Cross Bar 1	1.05769231	1.67806953	0.16666667	0.16666667	3	0.50000000
Cross Bar 2	0.05769231	0.00000000	0.00000000	0.00000000	1.2	0.00000000
Concrete	-0.19230769	0.30510355	166.37500000	20.79687500	1	20.79687500
Bottom Round	3.69729231	0.00000000	0.00000000	0.00000000	1.5	0.00000000
Σ		1.983173077				21.29687500

I_g = Moment of Inertia for Composite Section = $\Sigma (A_T * (d')^2) + \Sigma (I_t)$ = 23.28004808

Computation of Section Properties

Point of Interest	Location Relative to Top of Grid	Distance from Centroid to Point of Interest	Effective Section Modulus
Top of Concrete	0	2.94230769	63.29738562
Bottom of Grid	-8 3/16	-5.24469231	-4.43878243
Top of Grid	-3	-0.05769231	###########

**Concrete is Transformed to Steel in Compression Areas and Ignored When in Tension

STATE OF NEW HAMPSHIRE
MICHAEL P. REINA
No. 10369
LICENSED
PROFESSIONAL ENGINEER
11/4/10

175 PRE FAB DECK PANELS

Cracked Section

D_x= 78,233 kips-in^2 / in

D_y= 25,375 kips-in^2 / in

D= 3.08309201

LRFD Design

Steel Grade: 50 KSI

Span Length L= 72 **Inches**

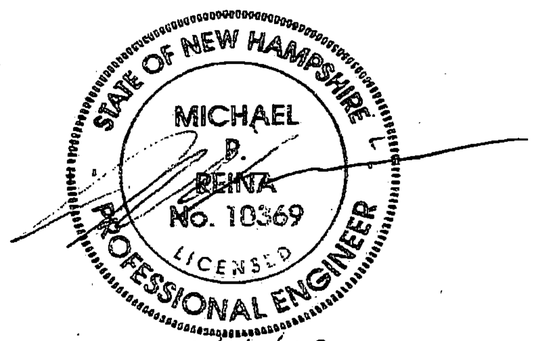
Main Bars P=Parallel; T=Transverse: T

Continuity Factor C = 0.8

☒ Transverse Design

☐ Parallel Design

Live Load Moments



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Main Bars Transverse to Traffic

For Span Lengths < = 120 Inches

LRFD 4.6.2.1.8 - 1 Moment = $C * 1.28 * D^{0.197} * L^{0.459}$ = 9.10219 kip-in./in.

For Span Lengths > 120 Inches

LRFD 4.6.2.1.8 - 2 Moment = $C * (D^{0.188} * (3.7 * L^{1.35} - 956.3) / L)$ = 3.21084 kip-in./in.

Main Bars Parallel to Traffic

For Span Lengths < = 120 Inches

LRFD 4.6.2.1.8 - 3 Moment = $C * 0.73 * D^{0.123} * L^{0.64}$ = 10.35741 kip-in./in.

For Span Lengths > 120 Inches

LRFD 4.6.2.1.8 - 4 Moment = $C * (D^{0.138} * (3.1 * L^{1.429} - 1088.5) / L)$ = 4.016243 kip-in./in.

176 PRE FAB DECK PANELS

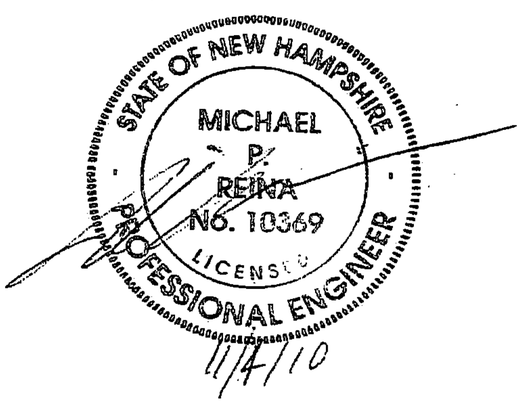
Dead Load Moment

Dead Load Factor 1.25 AASHTO LRFD TABLE 3.4.1-2

Dead Load Moment 0.29279521 ft-kip/ft $(1.25wL^2/8)*C$

Total Moment

LL Moment	9.10219
DL Moment	0.292795
Total Moment	9.394985



Check for Decking Moment Capacity

First check concrete in Positive Bending

$M_{N\text{-}Concrete}$= 32.3446856

Then check Top and Bottom Steel Properties

$M_{N\text{-}Top\ Steel}$= 11.771507

$M_{N\text{-}Bot\ Steel}$= 11.6776897

Use Minimum 11.6776897

Check against design Moment **OK**

127 PRE FAB DECK PANELS

Deflection

Main Bars Transverse to Traffic

LRFD 4.6.2.1.8 - 5	$\Delta_{transverse} = (0.0052 * D^{0.19} * L^{3}) / D_x =$	0.022193 Inches	Simple Span	L / 3244.281
		0.017754 Inches	Continuous Span	L / 4055.351

Main Bars Parallel to Traffic

LRFD 4.6.2.1.8 - 6	$\Delta_{parallel} = (0.0072 * D^{0.11} * L^{3}) / D_x =$	0.029419 Inches	Simple Span	L / 2447.437
		0.023535 Inches	Continuous Span	L / 3059.296

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MICHAEL P. REINA
No. 10369
LICENSED
PROFESSIONAL ENGINEER
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178 PRECAST DECK PANELS

Fatigue

Check Fatigue and Deflection due to Live Load

M_{LL} = 9.10219028

Fatigue In Negative Bending:

SM top of welds/punchout in negative bending = 54.64879 in^3

$M_F = M_{strength}$ / 3 = 3.034063

Check liveload stress = 3.034063 x 12 / SM = 0.666232 ksi
at top of welds/punchout in negative bending

check against 1/2 cat C= 5 ksi: OK

Fatigue In Positive Bending:

SM bottom of punchout/weld in positive bending = 23.14 in^3

$M_F = M_{strength}$ / 3 = 3.034063

Check liveload stress = 3.034063 x 12 / SM = 1.573408 ksi
at bottom of welds in positive bending

check against 1/2 cat C= 5 ksi: OK

STATE OF NEW HAMPSHIRE
MICHAEL P. REILLY
No. 10369
LICENSED PROFESSIONAL ENGINEER
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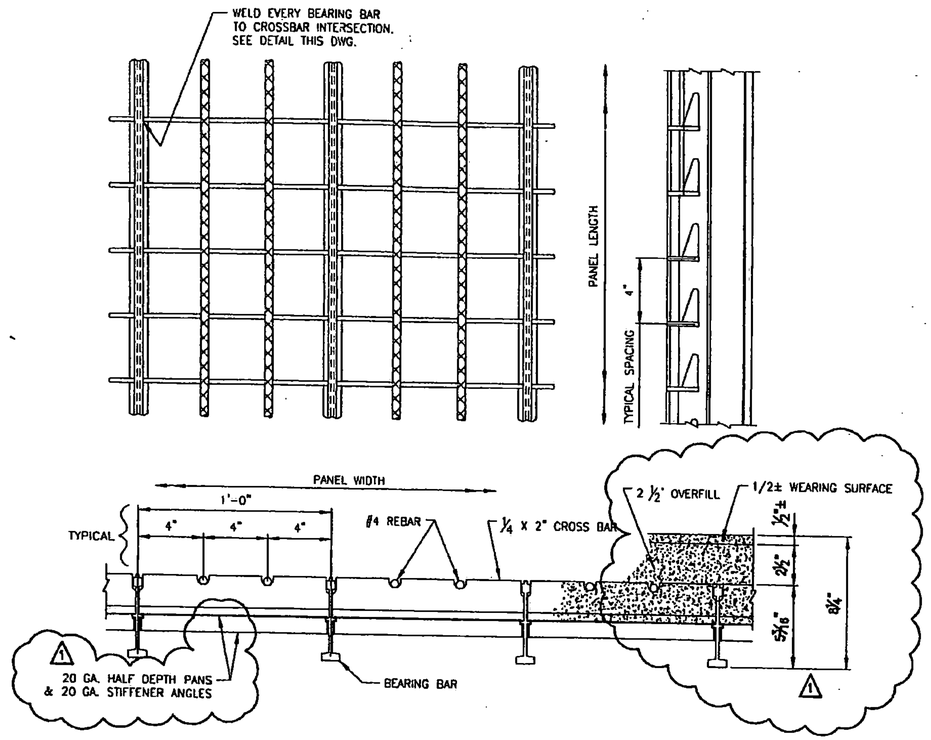
179 RE-FAB DECK PANELS

180



PROPOSED TYPICAL FLOORING DETAILS
(FORM PANS NOT SHOWN IN PLAN VIEW)

STANDARD PANEL TOLERANCES	
PANEL WIDTH	+0 −1/8
PANEL LENGTH	±1/4
SQUARENESS	±1/2
TRANSVERSE CAMBER (WIDTH)	.004 x WIDTH
LONGITUDINAL CAMBER (LENGTH)	.003 x LENGTH
SIDE BOW (SWEEP)	.025 X LENGTH
MAIN BAR VERTICALITY	.04 X HEIGHT
CROSS BAR VERTICALITY	.04 X HEIGHT

MATERIAL SPECIFICATIONS

DESCRIPTION	ASTM	ALLOY / GR.	REMARKS
BEARING BARS, CROSS BARS, & TRIM PL'S	A 709	GRADE 50	GALVANIZED
1 REBAR	A 615	GR. 60	HOT DIPPED GALV'D
1 16 GA. FORM PANS 20 GA. FLAT PANS 20 GA. HAUNCH PANS 20 GA. STIFFENER ANGLES 20 GA. HAUNCH STRAPS	A 653	GR. 90 OR BETTER	GALV'D-FIELD INSTALLED OR PANS INSTALLED AFTER GALV
5/8" FULLY THREADED ROD	A 449		HOT DIPPED GALV'D
5/8" HVY HEX NUTS	A 563	GR. DH	HOT DIPPED TAPPED GALV'D OVERSIZE
1 TEK SCREWS			S-MD 8-18X1/2HWH #2 ZINC PLATED

GENERAL NOTES:

1 MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE VERMONT AGENCY OF TRANSPORTATION 2006 STANDARD SPECIFICATIONS FOR CONSTRUCTION INCLUDING ALL ADDITIONS AND REVISIONS AND THE CONTRACT DOCUMENTS.

SHOP WELDING SHALL BE PERFORMED BY THE GAS METAL ARC PROCESS (MIG) USING ER70S-3 FILLER METAL PER AWS D1.5 OF THE BRIDGE WELDING CODE.

AFTER FABRICATION, GRID PANELS SHALL BE HOT DIPPED GALVANIZED PER ASTM A123. DUE TO THE GALVANIZING PROCESS, PANELS MAY HAVE SOME DISTORTION AND SIDE SWEEP WHICH WILL REQUIRE ADJUSTMENT BY THE CONTRACTOR PRIOR TO INSTALLATION.

1 CUT ENDS OF REBAR TO BE TOUCHED UP AT THE GALVANIZER WITH COLD GALV. SPRAY, PER ASTM A 780.

PAY ITEM: 900.670 HALF-FILEED GRID DECK
PAY AREA: 3,347 SQ. FT.

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OK'D BY 107 OK'D BY
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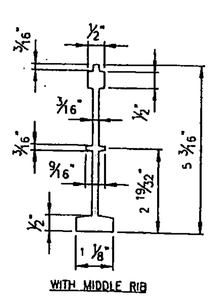
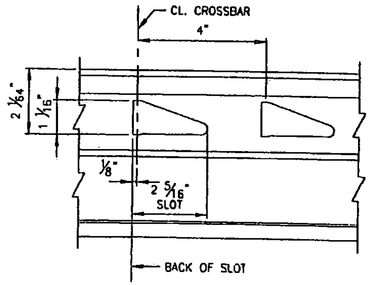
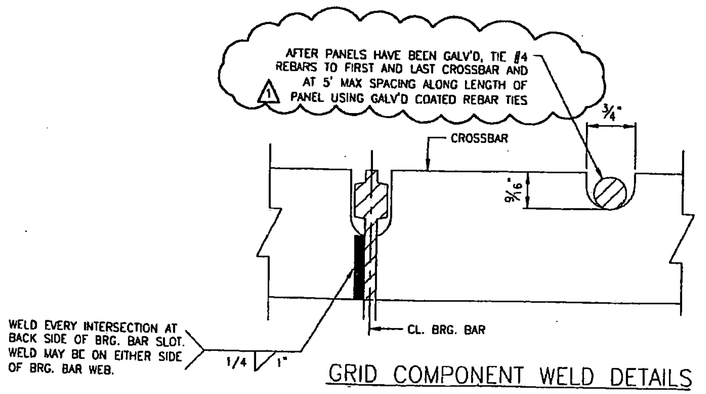
BY KMH DATE 1/20/11



BEARING BAR PROFILES



BEARING BAR SLOT DETAIL



GRID COMPONENT WELD DETAILS

STATE OF NEW HAMPSHIRE
MICHAEL P. REINA
No. 10369
LICENSED PROFESSIONAL ENGINEER
11/3/10

1	APPROVAL COMMENTS	BLJ	10/25 10		
REV	DESCRIPTION	BY	DATE	CHK'D	

APPROVED: _____ RECD APPL. _____ DRAWING _____

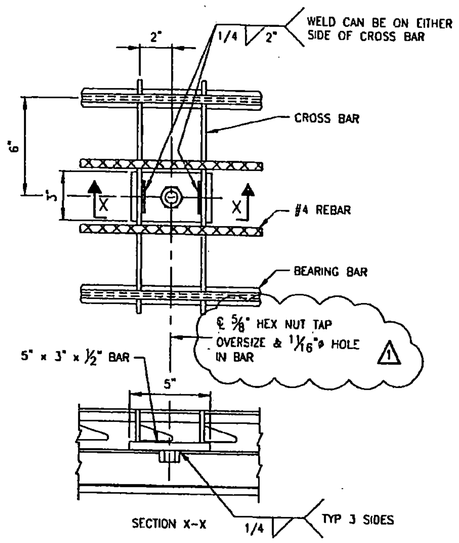
L. B. FOSTER CO.
GENERAL OFFICES
PITTSBURGH, PENNSYLVANIA 15220

FOR: MILLER CONSTRUCTION
STATE OF VERMONT AGENCY OF TRANSPORTATION
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 PROJ. NO. BRS 0149 (4)
GENERAL NOTES AND TYPICAL DETAILS

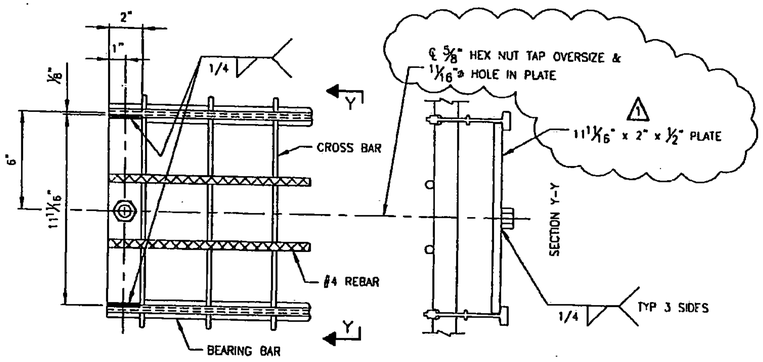
MADE WPO DATE 8/18/10 JOB NO. SD0339 CUST. NO.
CHK'D RLP DATE 9/11/10 DRAWING LB1 REV. NO. 1

180 PRE FAB DECK PANELS

181

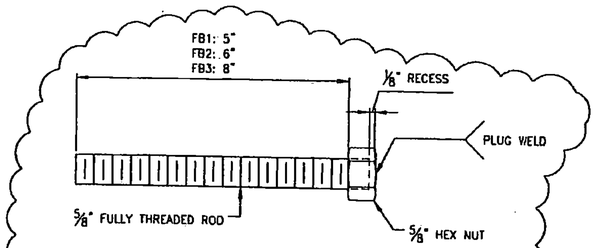


LEVELING PLATE "lp1" WELD DETAILS



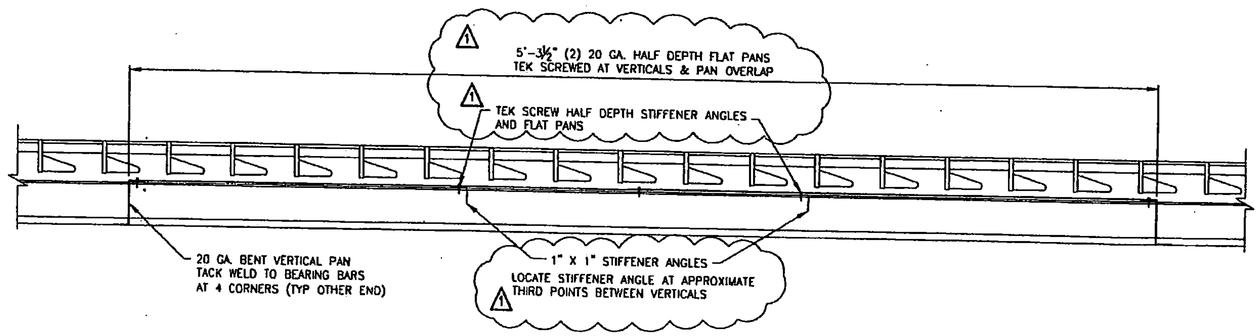
LEVELING PLATE "lp2" WELD DETAILS

1 REMOVED TRIM DETAIL PER APPROVER'S COMMENTS ON SHEET LBE2 SECTIONS A-A & B-B.



LEVELING BOLT DETAIL FB1, FB2 AND FB3

1 FB1 @ S1, S2, S3 OVER STRINGER
FB2 @ S1 OVER FLOOR BEAM
FB3 @ S2, S3 OVER FLOOR BEAM .



FORM PAN WELD DETAIL

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MICHAEL P. REINA
No. 10369
LICENSED PROFESSIONAL ENGINEER
11/3/10

APPROVED:

REV	DESCRIPTION	BY	DATE	CHKD
1	REVISED PER APPROVER'S COMMENTS	BLJ	10/25/10	

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PITTSBURGH, PENNSYLVANIA 15220

FOR: MILLER CONSTRUCTION
STATE OF VERMONT AGENCY OF TRANSPORTATION
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 PROJ. NO. BRS 0149 (4)
SHOP WELDS

DESIGN WPO DATE 8/18/10 JOB NO. SD0339 DWG. NO.
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181 PRE FAB DECK PANELS

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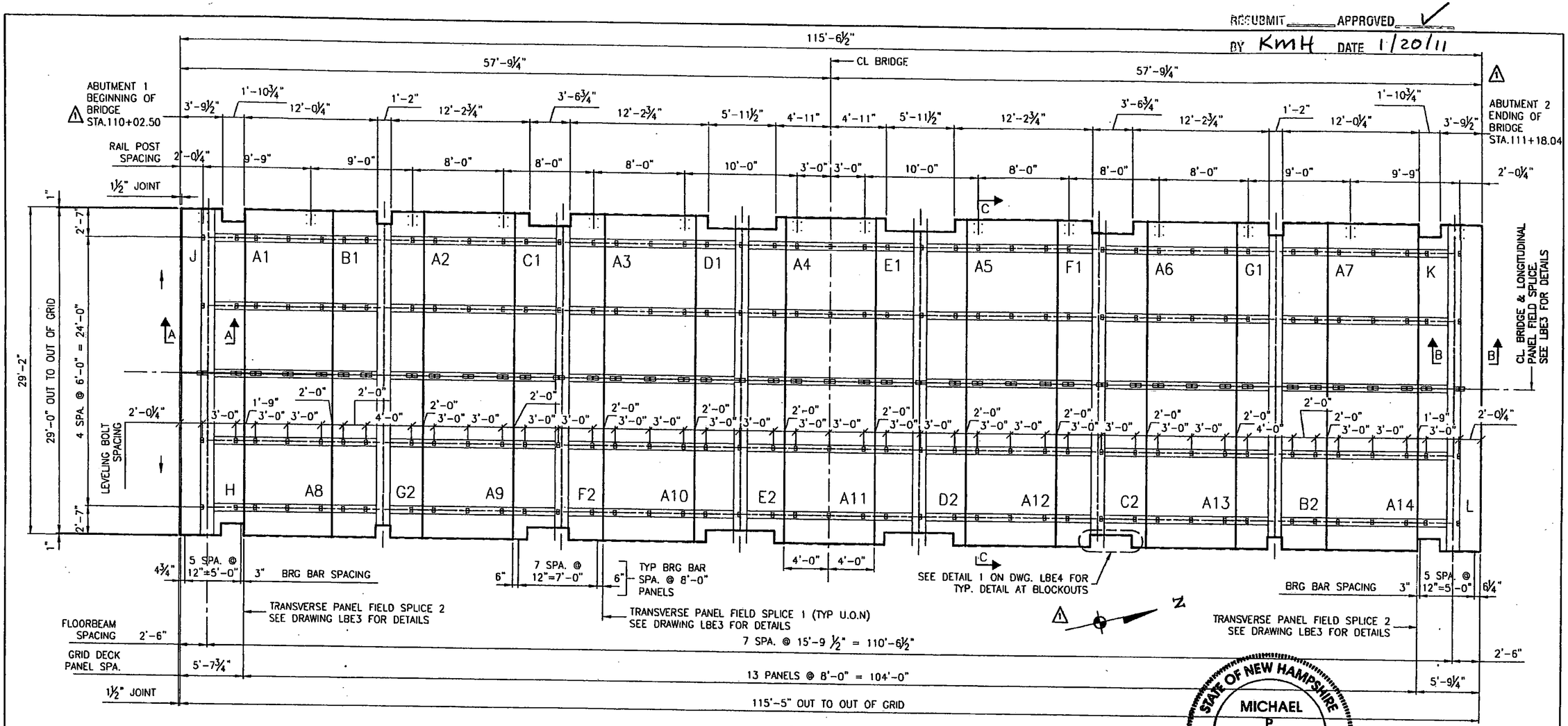


NOTES:

DURING ERECTION OF GRID FLOOR UNITS, CARE MUST BE EXERCISED, TO PLACE EACH UNIT IN ITS PROPER LOCATION, MEASURING IN ALL CASES FROM SOME FIXED POINT AS OTHERWISE A CUMULATIVE ERROR IN SPACING WILL APPEAR CAUSING THE SPACE FOR THE FINAL UNITS TO BE MORE OR LESS THAN THE ACTUAL WIDTH OF UNITS.

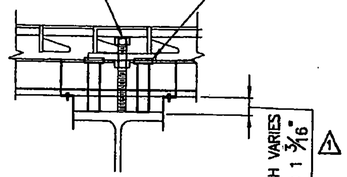
PANELS WITH LIKE MARKS SUCH AS A1, A2, A3, ETC. ARE ALIKE AND INTERCHANGEABLE.

SEE SHEET LB1 FOR GENERAL NOTES AND TYPICAL DETAILS. ⚠

↓ INDICATES DIRECTION OF SLOT IN BEARING BAR

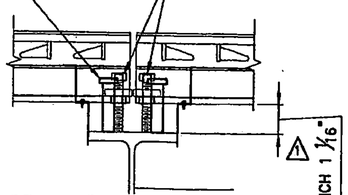
⅝ DIA. LEVELING BOLT MK. FB1 AT ABOUT THE CL OF STRINGER SEE DWG LB2 FOR DETAIL (FB1) ⚠

⅞"ø SHEAR STUD AT STRINGER TO BE LOCATED TO MISS GRID DECK COMPONENTS ⚠



GRID LEVELING DETAIL AT STRINGERS S1 & S2

PLAN VIEW



GRID LEVELING DETAIL AT STRINGER S3

FOR SECTIONS AA, BB & CC SEE DWG LBE2

FOR PANEL SPLICE DETAILS SEE DWG LBE3.

COORDINATE PANEL SPACING, BEARING BAR SPACING HSI SPACING AND LEVELING PLATE SPACING WITH STRINGER AND FLOORBEAM SHOP DRAWINGS IN ORDER TO AVOID CONFLICT WITH SHEAR STUDS.

⚠ SEE DWG. LBE2 FOR HAUNCH FORMING DETAILS

U.O.N.: UNLESS OTHERWISE NOTED.

STATE OF NEW HAMPSHIRE
MICHAEL P. REINA
No. 10369
LICENSED PROFESSIONAL ENGINEER
11/3/10

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PITTSBURGH, PENNSYLVANIA 15220

FOR: MILLER CONSTRUCTION
STATE OF VERMONT AGENCY OF TRANSPORTATION
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 PROJ. NO. BRS 0148 (4)
GENERAL NOTES AND TYPICAL DETAILS

REV	DESCRIPTION	BY	DATE	CHK'D
⚠1	REVISED PER APPROVER'S COMMENTS	BLJ	10/25/10	

DRAWN WPO DATE 8/18/10 JOB NO. SD0339 SHEET NO.
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182 PREFAB DECK PANELS

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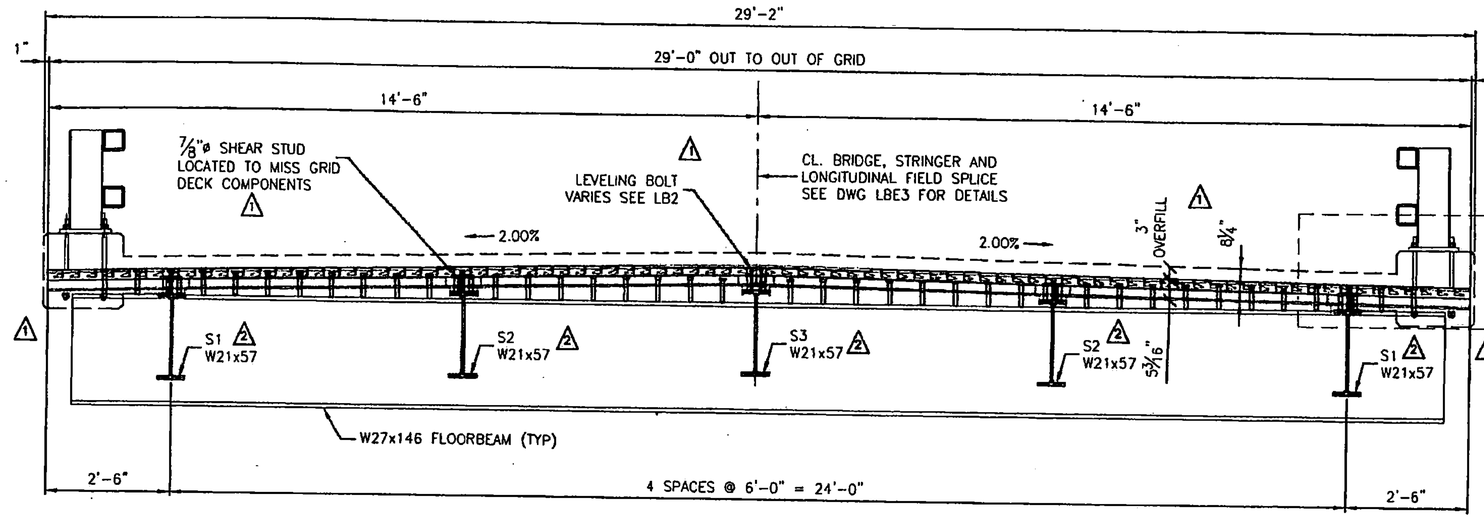
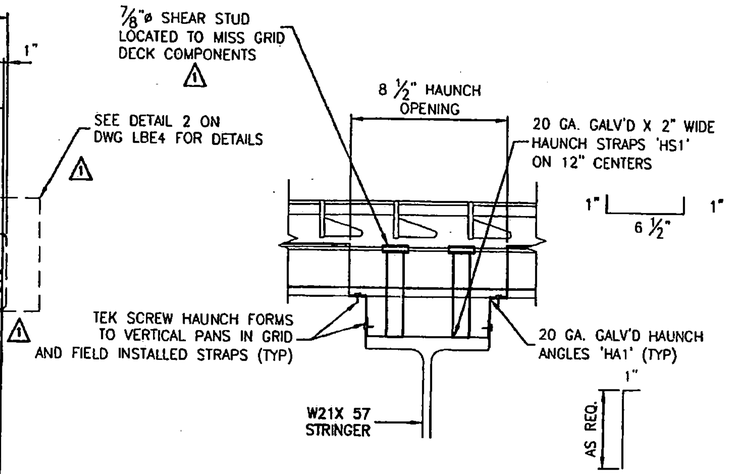
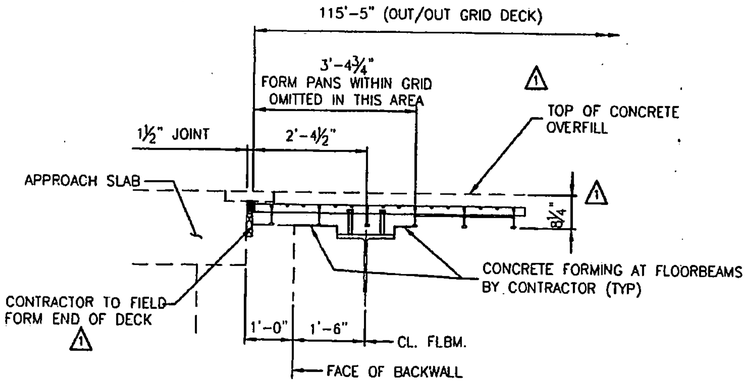
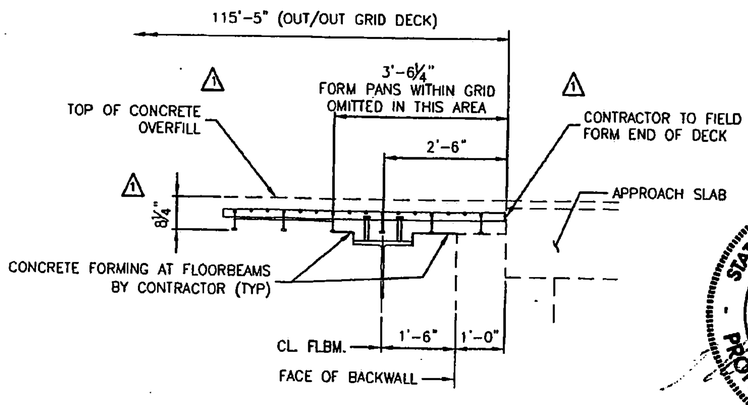




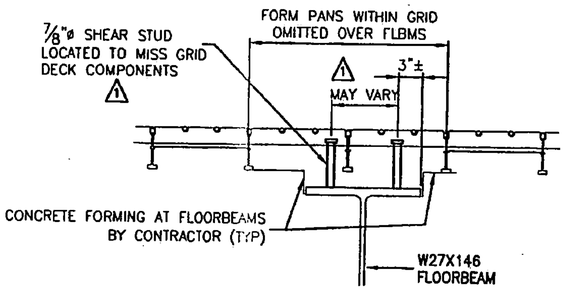
HAUNCH FORMING DETAIL
AT STRINGERS
SHEAR STUDS NOT SHOWN



ABUTMENT SECTION A-A
@ ABUT. 1



ABUTMENT SECTION B-B
@ ABUT. 2



HAUNCH FORMING DETAIL
AT FLOORBEAMS
SHEAR STUDS NOT SHOWN

STATE OF NEW HAMPSHIRE
MICHAEL P. REINA
No. 10369
LICENSED PROFESSIONAL ENGINEER
1/18/11

REV	DESCRIPTION	BY	DATE
2	REVISED PER STRINGER AVAILABILITY	BLJ	12/16/10
1	REVISED PER APPROVER'S COMMENTS	BLJ	10/28/10

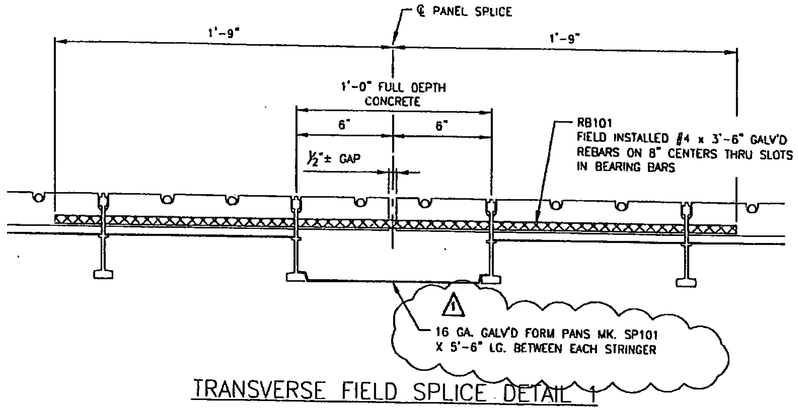
APPROVED: _____ DATE APPD. _____

L. B. FOSTER CO.
GENERAL OFFICES
PITTSBURGH, PENNSYLVANIA 15220

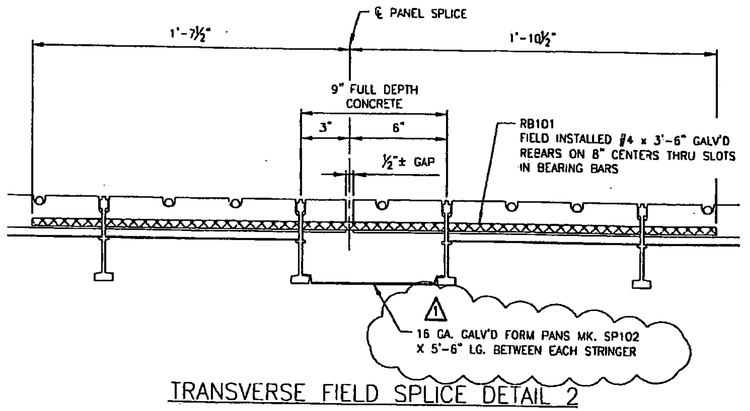
FOR: MILLER CONSTRUCTION
STATE OF VERMONT AGENCY OF TRANSPORTATION
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 PROJ. NO. BRS 0149 (4)
SECTIONS

DRWN WPO DATE 8/18/10 JOB NO. SD0339 DWG. NO. _____
CHKD RLP DATE 9/11/10 DRAWING LBE2 REV. NO. 2

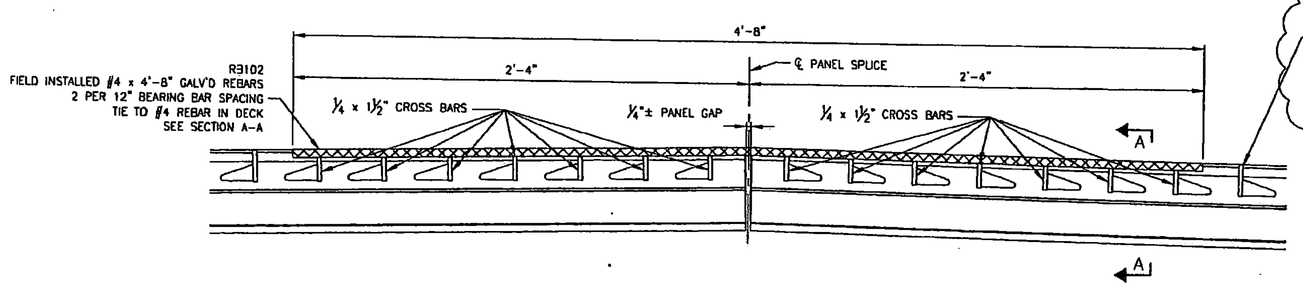
183 PRE FAB
DECK PANELS



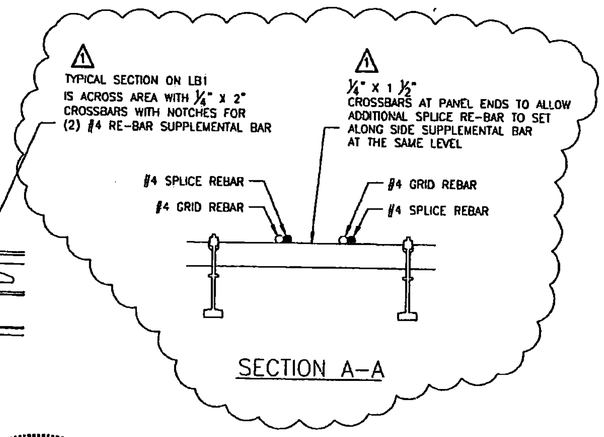
TRANSVERSE FIELD SPLICE DETAIL 1



TRANSVERSE FIELD SPLICE DETAIL 2



TYPICAL LONGITUDINAL FIELD SPLICE DETAIL @ C.L. BRIDGE



SECTION A-A

RECEIVED
CK'D BY JLJ CK'D BY
JAN 17 2011
RESUBMIT APPROVED ✓
BY KMH DATE 1/20/11

STATE OF NEW HAMPSHIRE
MICHAEL P. REINZ
No. 10369
LICENSED PROFESSIONAL ENGINEER
11/3/10

1	REVISED PER APPROVER'S COMMENTS	BLJ	10/28/10
REV	DESCRIPTION	BY	DATE

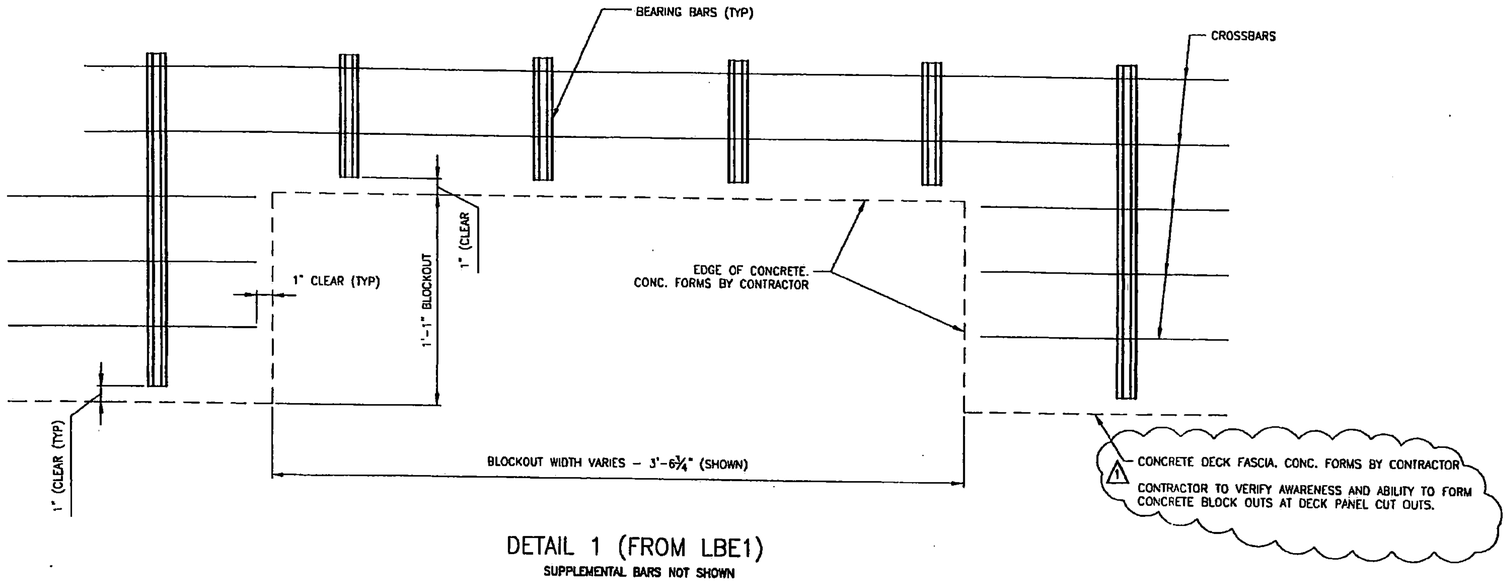
APPROVED: _____ DATE APP. _____ DRAWING _____

L. B. FOSTER CO.
GENERAL OFFICES
PITTSBURGH, PENNSYLVANIA 15220

FOR: MILLER CONSTRUCTION
STATE OF VERMONT AGENCY OF TRANSPORTATION
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 PROJ. NO. BRS 0149 (4)
FIELD SPLICE DETAILS

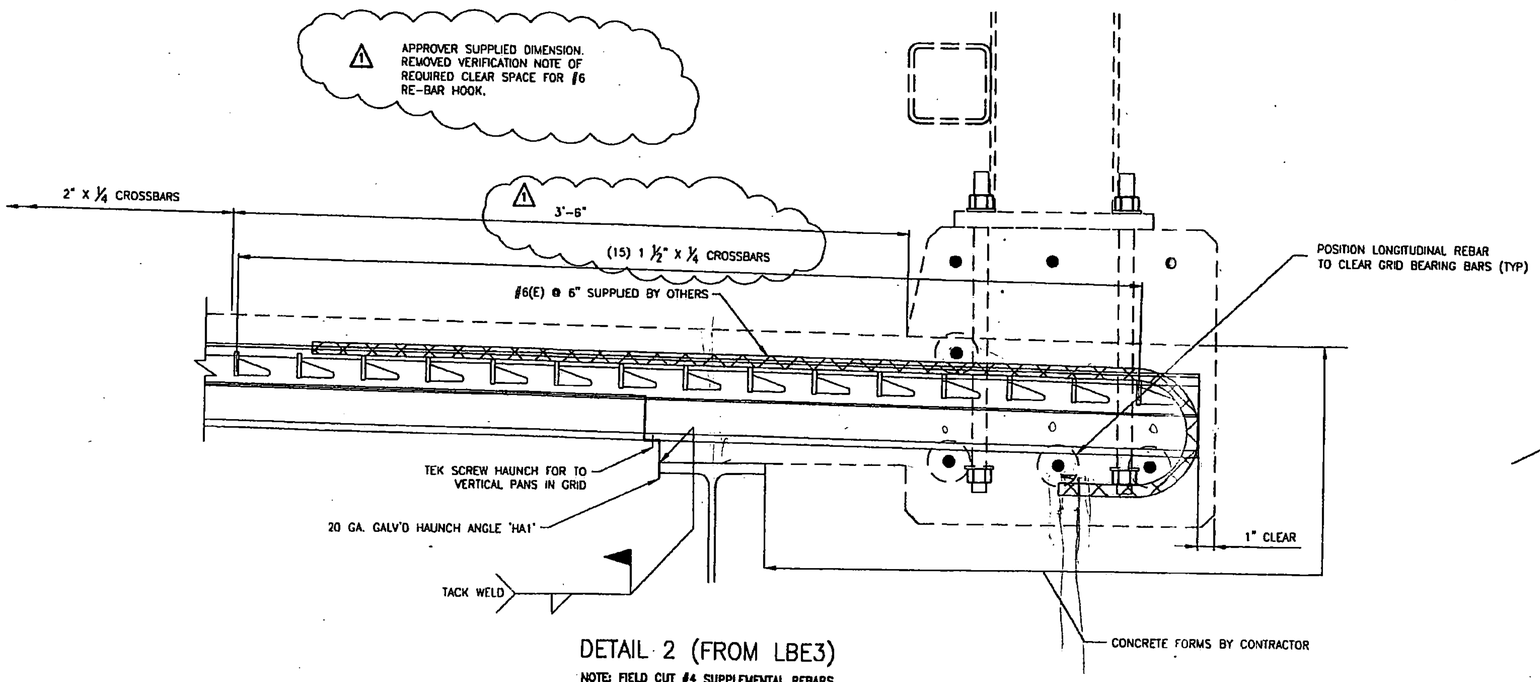
DESIGN WPO DATE 8/18/10 JOB NO. SD0339 DWG. NO.
CHECKED RLP DATE 9/11/10 DRAWN LBEJ REV. NO. 1

184 PREFAB DECK PANELS



DETAIL 1 (FROM LBE1)

SUPPLEMENTAL BARS NOT SHOWN



DETAIL 2 (FROM LBE3)

NOTE: FIELD CUT #4 SUPPLEMENTAL REBARS IN GRID IF REQ'D TO CLEAR RAIL POST ANCHORS

RECEIVED
BSD AT 17 AM/PM
JAN 17 2011
RESUBMIT ____ APPROVED ✓
BY KMH DATE 1/20/11

STATE OF NEW HAMPSHIRE
MICHAEL P REINA
No. 10369
LICENSED
PROFESSIONAL ENGINEER
11/3/10

APPROVED: ____ BSD APPR. ____ DATE ____

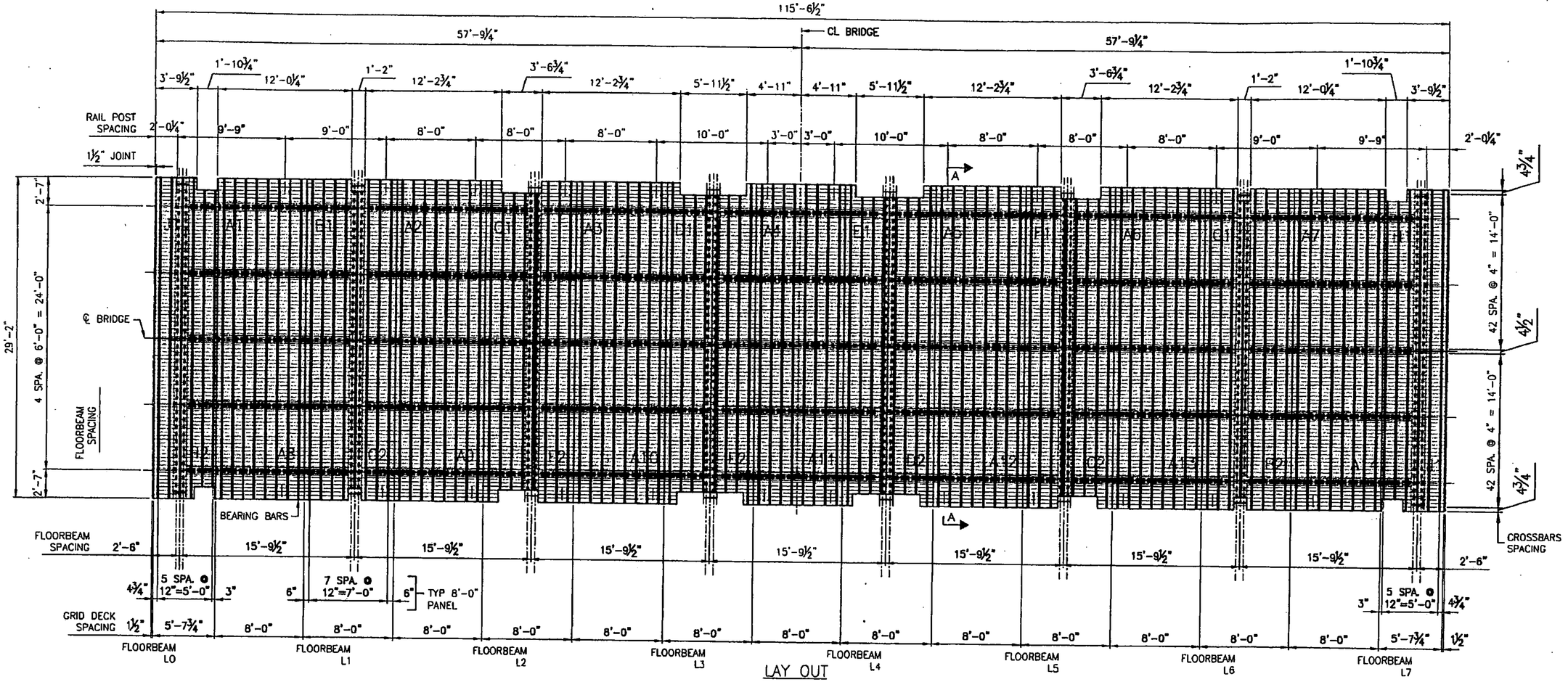
L. B. FOSTER CO.
GENERAL OFFICES
PITTSBURGH, PENNSYLVANIA 15220

FOR: MILLER CONSTRUCTION
STATE OF VERMONT AGENCY OF TRANSPORTATION
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 PROJ. NO. BRS 0149 (4)
MISC. DETAILS

REV	DESCRIPTION	BY	DATE	CHK'D
1	REVISED PER APPROVER'S COMMENTS	BLJ	10/27 10	

DWG WPO DATE 8/18/10 JOB NO. S00339 CONTR. NO.
CHECK RLP DATE 9/11/10 DRAWING LBE4 REV. NO. 1

185 PREFAB DECK PANELS



LAY OUT

RECEIVED
JAN 17 2011

CK'D BY 11 CK'D BY _____
RESUBMIT _____ APPROVED _____
BY KmH DATE 1/20/11

STATE OF NEW HAMPSHIRE
MICHAEL P. REINA
No. 10369
LICENSED
PROFESSIONAL ENGINEER
1/8/11

APPROVED: _____

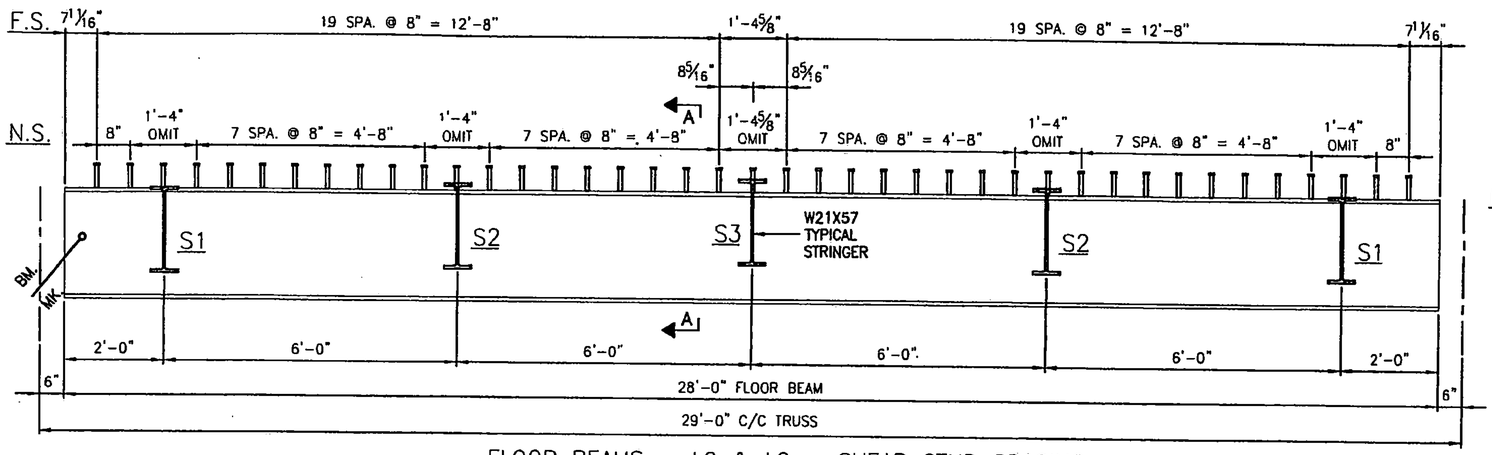
L. B. FOSTER CO.
PITTSBURGH, PENNSYLVANIA 15220

FOR: MILLER CONSTRUCTION
STATE OF VERMONT AGENCY OF TRANSPORTATION
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 PROJ. NO. BRS 0149 (4)
PLAN LAY OUT FOR SHEAR STUD PLACEMENT

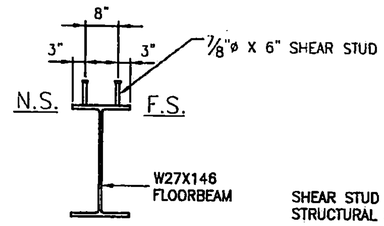
DESIGN BLJ DATE 12/10/10 JOB NO. SD0339 CHKD. BY. _____
CHECK _____ DATE _____ DRAWING LBE9 REV. NO. _____

REV	DESCRIPTION	BY	CHKD	CHK'D

186 PREFAB DECK PANELS



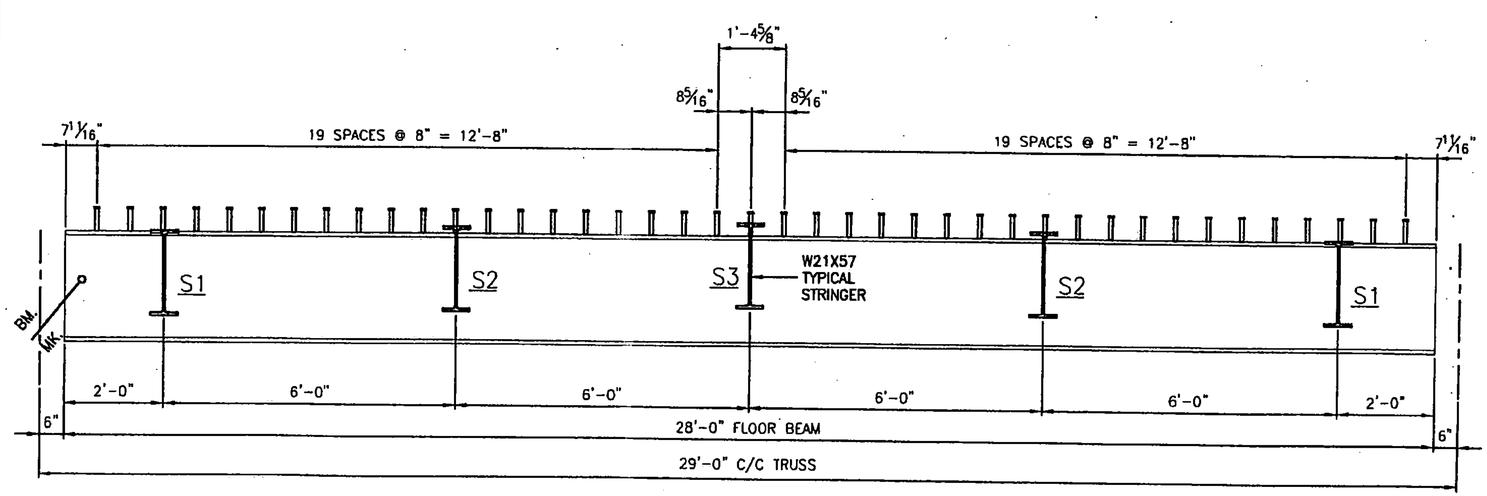
FLOOR BEAMS ~ L0 & L2 ~ SHEAR STUD SPACING



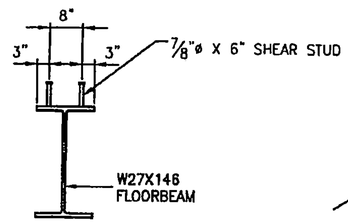
SECTION A-A

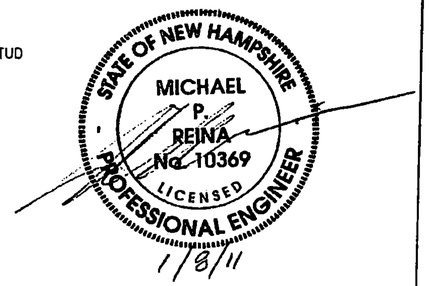
SHEAR STUD SPACING SHOULD BE VERIFIED BY STRUCTURAL STEEL SUPPLIER FOR COORDINATION.

[N.S. NEAR SIDE] [F.S. FAR SIDE]



FLOOR BEAMS ~ L1 & L6 ~ SHEAR STUD SPACING





RECEIVED
JAN 17 2011
RESUBMIT ____ APPROVED ✓
BY KMH DATE 1/20/11

APPROVED: _____

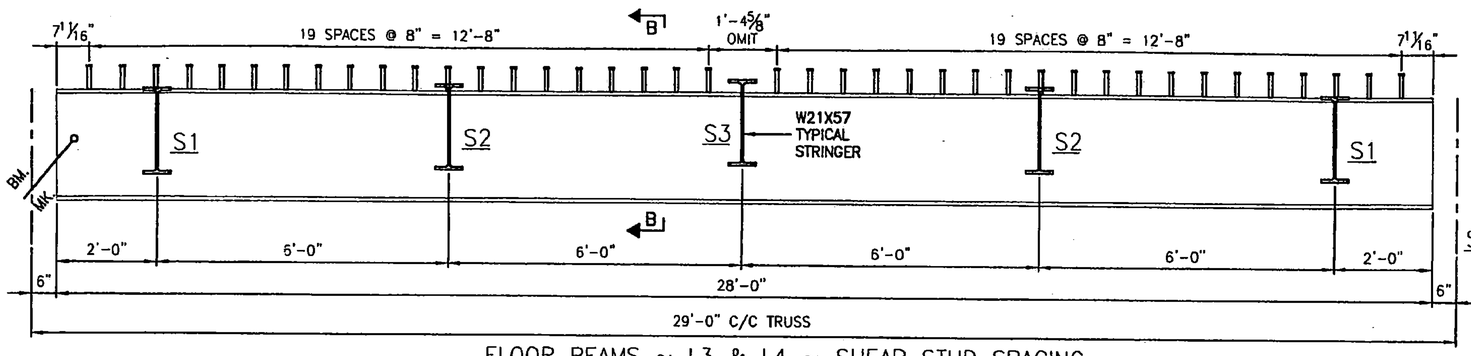
L. B. FOSTER CO.

PITTSBURGH, PENNSYLVANIA 15220

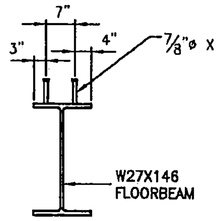
FOR: MILLER CONSTRUCTION
STATE OF VERMONT AGENCY OF TRANSPORTATION
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 PROJ. NO. BRS 0149 (4)
SHEAR STUD LAY OUT FOR FLOOR BEAMS

MADE BLJ DATE 12/09/10 JOB NO. SD0339 DWG. NO.
CHECK ____ DATE ____ DRAWING LBE10 REV. NO.

~~LBE~~ 187 PRE FAB DECK PANELS



FLOOR BEAMS ~ L3 & L4 ~ SHEAR STUD SPACING

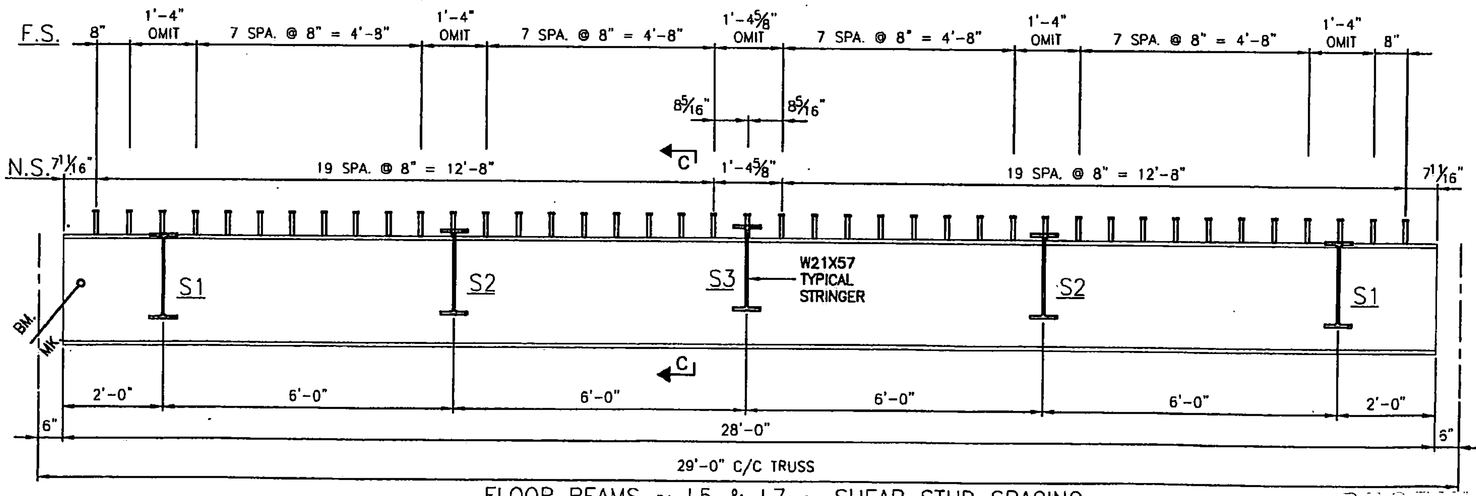


SECTION B–B

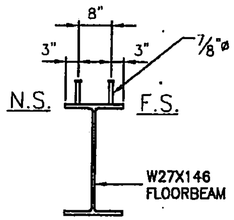
L3 SHOWN
L4 OPPOSITE HAND

SHEAR STUD SPACING SHOULD BE VERIFIED BY STRUCTURAL STEEL SUPPLIER FOR COORDINATION.

[N.S. NEAR SIDE] [F.S. FAR SIDE]



FLOOR BEAMS ~ L5 & L7 ~ SHEAR STUD SPACING



SECTION C–C

STATE OF NEW HAMPSHIRE
MICHAEL P. REINA
No. 10369
LICENSED PROFESSIONAL ENGINEER
1/18/11

APPROVED: _____

L. B. FOSTER CO.
GENERAL OFFICES
PITTSBURGH, PENNSYLVANIA 15220

FOR: MILLER CONSTRUCTION
STATE OF VERMONT AGENCY OF TRANSPORTATION
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 PROJ. NO. BRS 0149 (4)
SHEAR STUD LAY OUT FOR FLOOR BEAMS

SHOP BLJ DATE 12/09/10 JOB NO. SD0339 DWG. NO.
CHECK ___ DATE ___ DRAWING LBE11 REV. NO.

REV	DESCRIPTION	BY	DATE	CHK'D

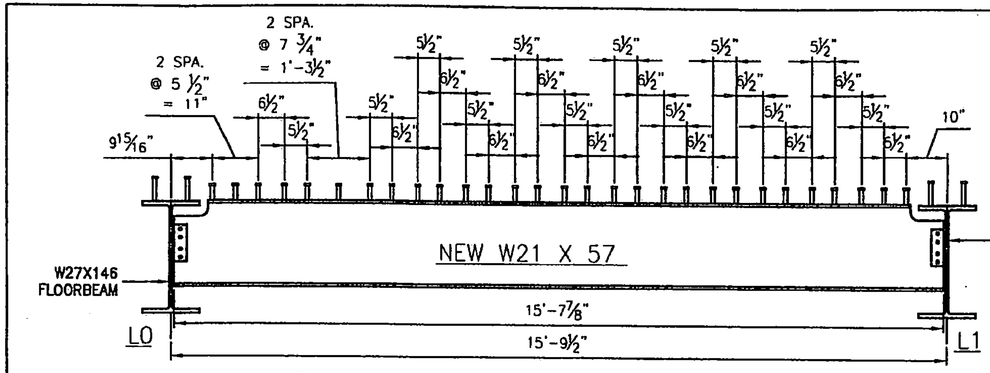
APPD AS NOTED

JAN 17 2011

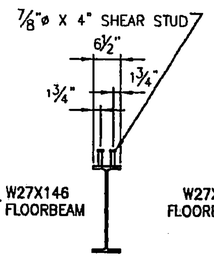
RESUBMIT _____ APPROVED ✓

BY KMH DATE 1/20/11

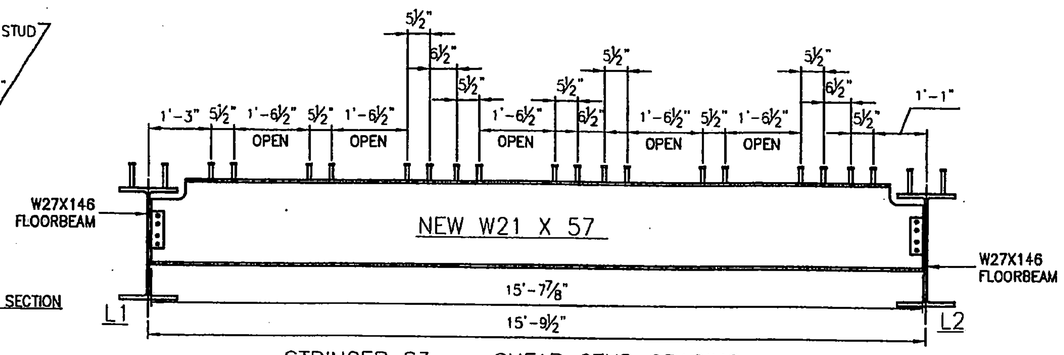
~~187~~ 188 PREFAB DECK PANELS



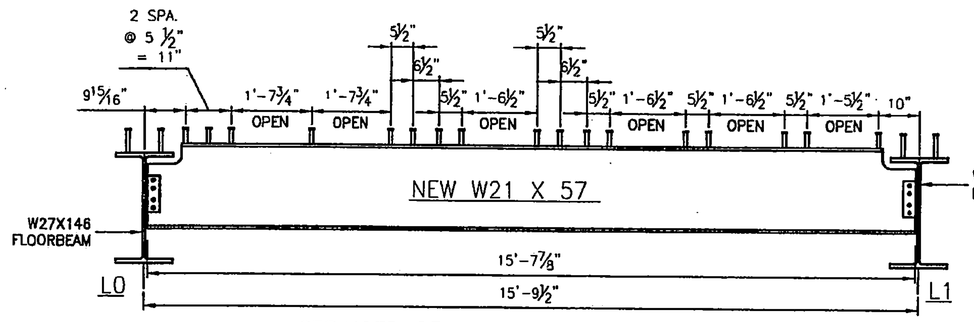
STRINGERS S1 & S2 ~ SHEAR STUD SPACING



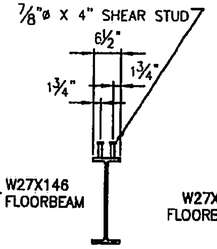
TYPICAL STRINGER SECTION



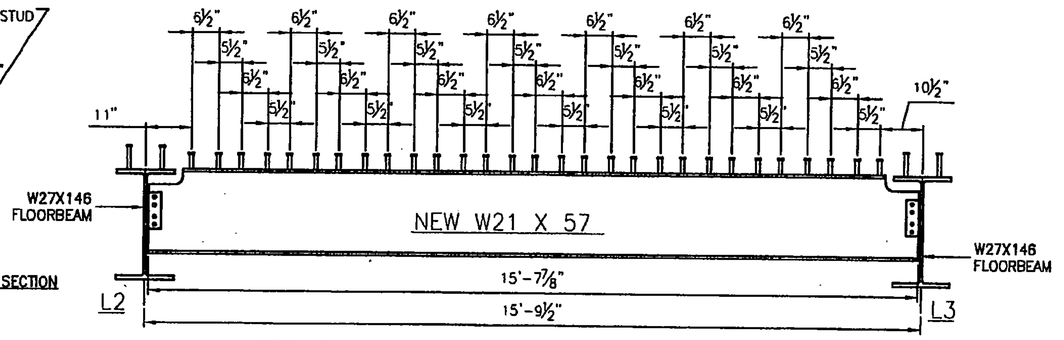
STRINGER S3 ~ SHEAR STUD SPACING



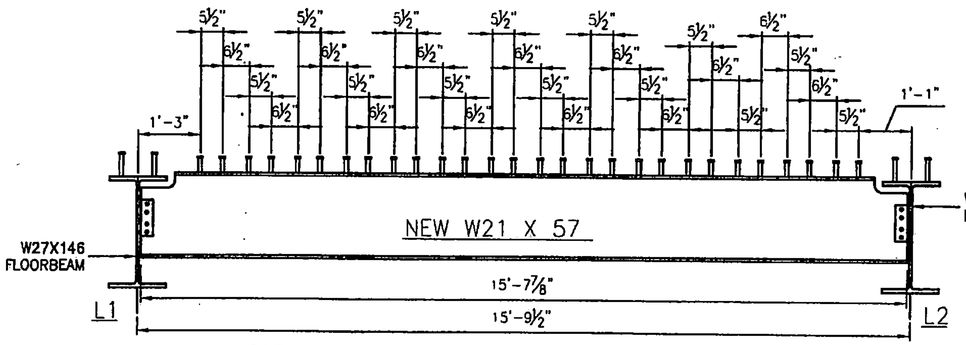
STRINGER S3 ~ SHEAR STUD SPACING



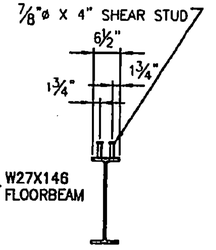
TYPICAL STRINGER SECTION



STRINGERS S1 & S2 ~ SHEAR STUD SPACING



STRINGERS S1 & S2 ~ SHEAR STUD SPACING



TYPICAL STRINGER SECTION

SHEAR STUD SPACING SHOULD BE VERIFIED BY STRUCTURAL STEEL SUPPLIER FOR COORDINATION.

OPEN AREAS ALONG STRINGER S3 ARE TO AVOIDED LEVELING PLATES WITHIN PANELS.

[N.S. NEAR SIDE] [F.S. FAR SIDE]

STATE OF NEW HAMPSHIRE
MICHAEL P. REINA
No. 10369
LICENSED PROFESSIONAL ENGINEER
1/10/11

RECEIVED
JAN 17 2011
RESUBMIT ____ APPROVED ✓
BY KMH DATE 1/20/11

APPROVED: ____

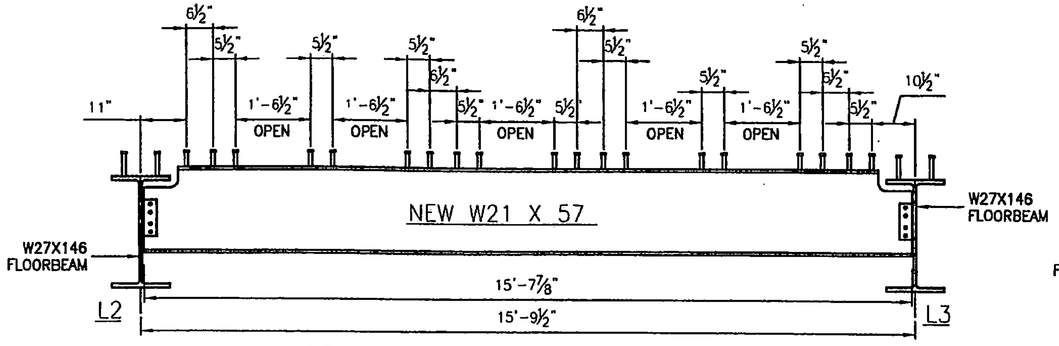
L. B. FOSTER CO.
PITTSBURGH, PENNSYLVANIA 15220

FOR: MILLER CONSTRUCTION
STATE OF VERMONT AGENCY OF TRANSPORTATION
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 PROJ. NO. BRS 0149 (4)
SHEAR STUD LAY OUT FOR STRINGERS BEAMS

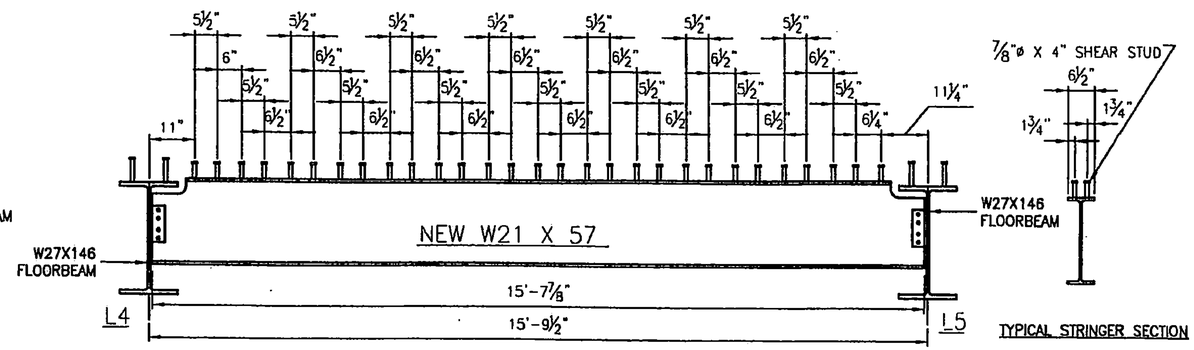
MADE BIJ DATE 12/09/10 JOB NO. SD0339 DWG. NO.
CHECK ____ DATE ____ DRAWING LBE12 REV. NO.

REV	DESCRIPTION	BY	DATE	CHK'D

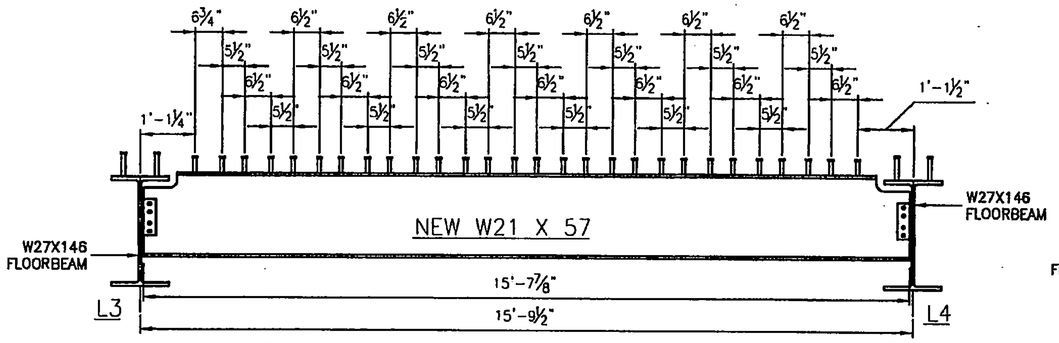
~~188~~ 189 PRE FAB DECK PANELS



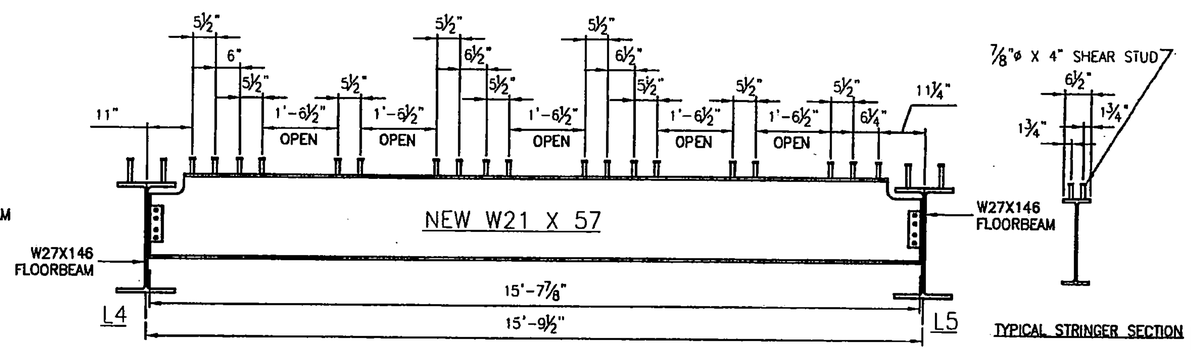
STRINGER S3 ~ SHEAR STUD SPACING



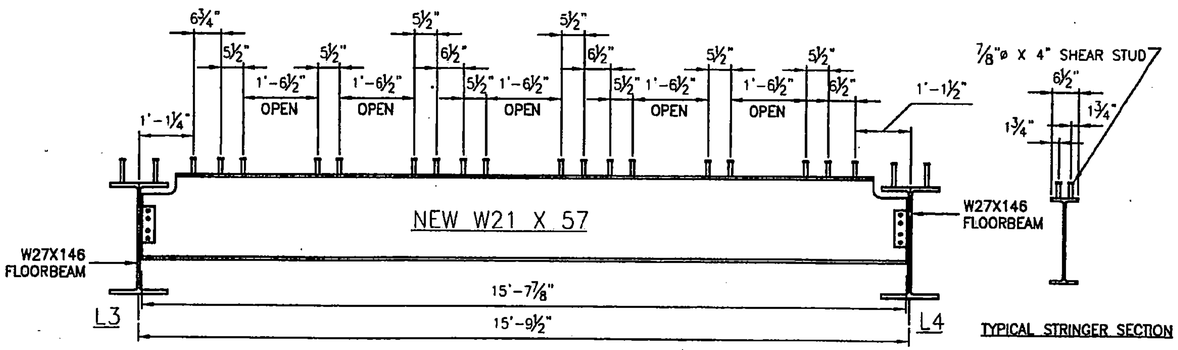
STRINGERS S1 & S2 ~ SHEAR STUD SPACING



STRINGERS S1 & S2 ~ SHEAR STUD SPACING



STRINGER S3 ~ SHEAR STUD SPACING



STRINGER S3 ~ SHEAR STUD SPACING

SHEAR STUD SPACING SHOULD BE VERIFIED BY STRUCTURAL STEEL SUPPLIER FOR COORDINATION.

OPEN AREAS ALONG STRINGER S3 ARE TO AVOIDED LEVELING PLATES WITHIN PANELS.

[N.S. NEAR SIDE] [F.S. FAR SIDE]

STATE OF NEW HAMPSHIRE
MICHAEL P. REINA
No. 10369
LICENSED PROFESSIONAL ENGINEER
1/18/11

JAN 17 2011

RESUBMIT ____ APPROVED ✓

BY KmH DATE 1/20/11

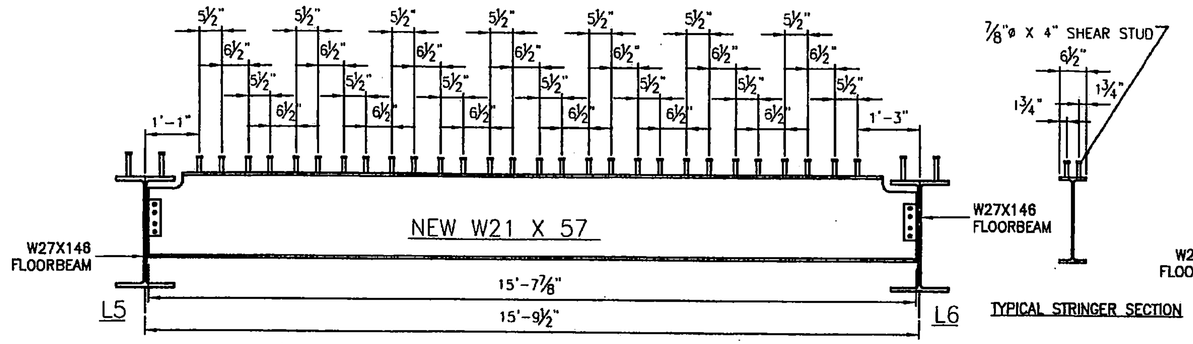
APPROVED: _____ DATE APP. _____

L. B. FOSTER CO.
GENERAL OFFICES
PITTSBURGH, PENNSYLVANIA 15220

FOR: MILLER CONSTRUCTION
STATE OF VERMONT AGENCY OF TRANSPORTATION
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 PROJ. NO. BRS 0149 (4)
SHEAR STUD LAY OUT FOR STRINGERS BEAMS

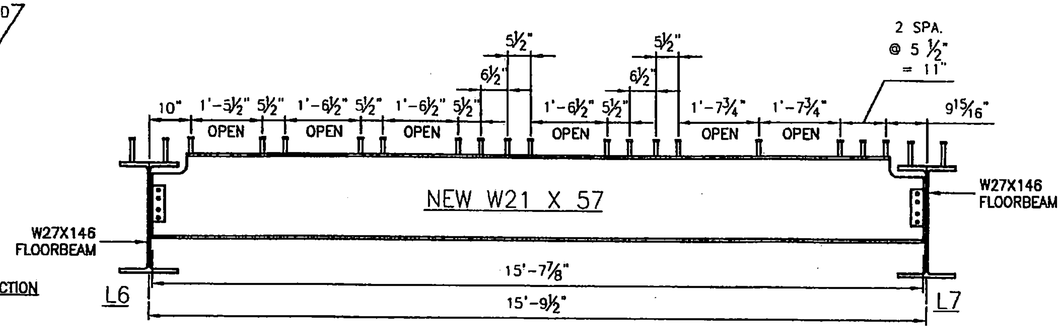
DRAWN BTJ DATE 12/09/10 JOB NO. SD0339 DWG. NO. _____
CHECK ____ DATE ____ DRAWING LBE13 REV. NO. _____

~~FBT~~ 190 PRE-FAB DECK PANELS

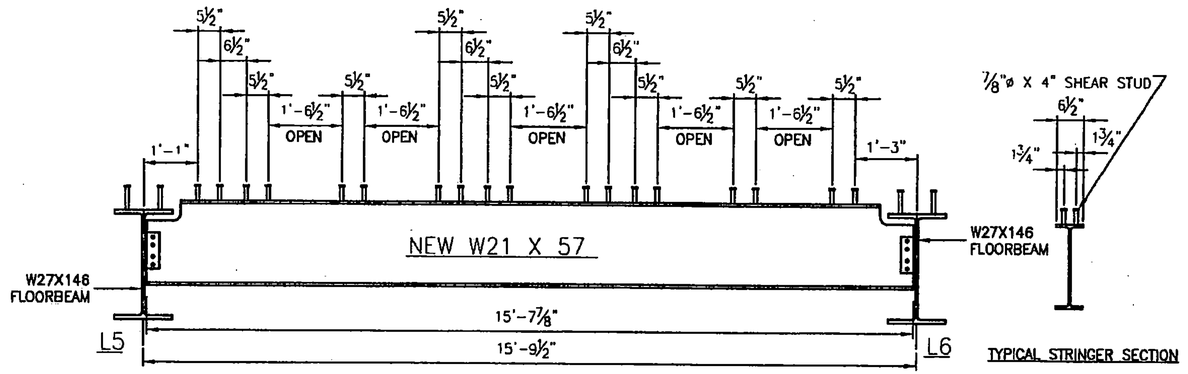


STRINGERS S1 & S2 ~ SHEAR STUD SPACING

TYPICAL STRINGER SECTION

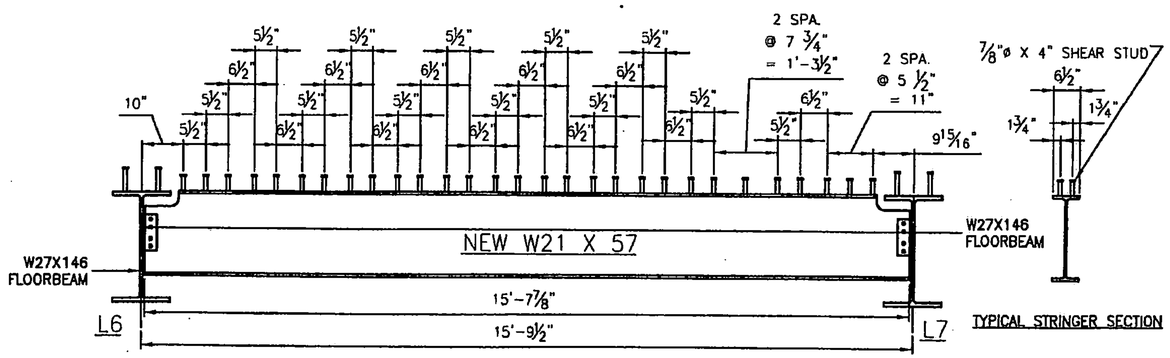


STRINGER S3 ~ SHEAR STUD SPACING



STRINGER S3 ~ SHEAR STUD SPACING

TYPICAL STRINGER SECTION



STRINGERS S1 & S2 ~ SHEAR STUD SPACING

TYPICAL STRINGER SECTION

SHEAR STUD SPACING SHOULD BE VERIFIED BY STRUCTURAL STEEL SUPPLIER FOR COORDINATION.

OPEN AREAS ALONG STRINGER S3 ARE TO AVOIDED LEVELING PLATES WITHIN PANELS.

[N.S. NEAR SIDE] [F.S. FAR SIDE]

STATE OF NEW HAMPSHIRE
MICHAEL P. REINA
No. 10369
LICENSED
PROFESSIONAL ENGINEER
1/18/11

RECEIVED
CK'D BY JW CK'D BY
JAN 17 2011
RESUBMIT ____ APPROVED ✓
BY KMH DATE 1/20/11

APPROVED: ____ DATE APP. ____ DRAWING ____

L. B. FOSTER CO.
GENERAL OFFICES
PITTSBURGH, PENNSYLVANIA 15220

FOR: MILLER CONSTRUCTION
STATE OF VERMONT AGENCY OF TRANSPORTATION
TOWN OF BRIDGEWATER, COUNTY OF WINDSOR
VT. ROUTE 100A, BR14 PROJ. NO. BRS 0149 (4)
SHEAR STUD LAY OUT FOR STRINGERS BEAMS

DRAWN BLJ DATE 12/10/10 JOB NO. SD0339 SHEET NO. ____
CHECK ____ DATE ____ DRAWING LBE14 REV. NO. ____

REV	DESCRIPTION	BY	DATE	CHK'D

~~190~~ 191 PRE-FAB DECK PANELS

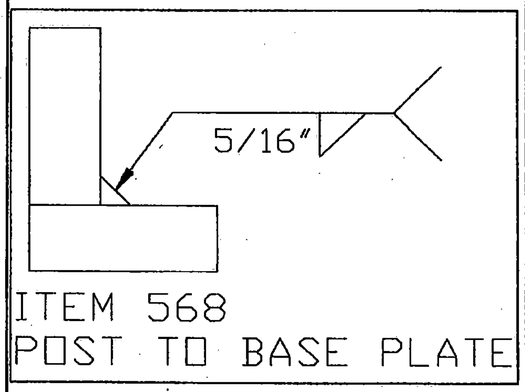
192 BRIDGE RAILING

WELDING PROCEDURE SPECIFICATION

Material Specification	A572 TO A572
Welding Process	FCAW
Manual or Machine	SEMAUTOMATIC
~~Position of Welding~~	~~FLAT~~
Filler Metal Specification	A5.20 - 95
Filler Metal Classification	E71T-1H8 E71T-9H8 LINCOLN ULTRACORE
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC ELECTRODE POSITIVE
Polarity	REVERSE
Welding Progression	STRINGER
Root Treatment	CLEAN AS PER SECTION 603 OF THE NYSSCM
Preheat and Interpass Temperature	PREHEAT AS PER TABLEL 708 OF THE NYSSCM
Postheat Temperature	NONE
Heat Input	Min _____ Max _____

WELDING PROCEDURE

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



Vermont Agency of Transportation
RECEIVED
CK'D BY JWC OK'D BY TCF
8:12am, Jun 29, 2010 X
RESUBMIT BY KMH APPROVED DATE 7-22-10

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

Procedure No. 3002
Revision No. _____

Contractor Elderlee, Inc.
Authorized By RANDY SCOTT
Date 4/5/2010

Form III-2

Form III-2-Sample Welding Procedure Specification

193 BRIDGE RAILING

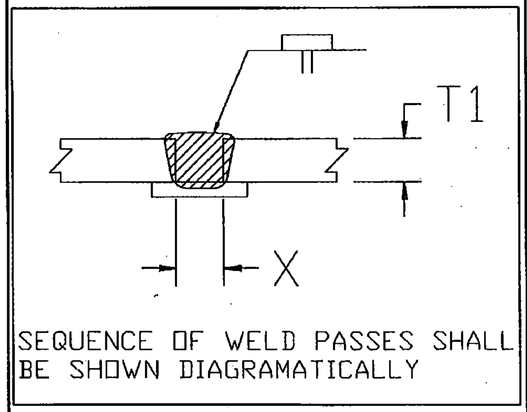
WELDING PROCEDURE SPECIFICATION

PQR# ELDERLEE#3

Material Specification	A500 GR B
Welding Process	FCAW
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT
Filler Metal Specification	A5.20 - 95
Filler Metal Classification	E71T-1H8 E71T-9H8 LINCOLN ULTRACORE
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC
Polarity	(REVERSE) ELECTRODE POSITIVE
Welding Progression	STRINGER
Root Treatment	CLEAN AS PER SECTION 603 OF THE NYSSCM
Preheat and Interpass Temperature	PREHEAT AS PER TABLEL 708 OF THE NYSSCM
Postheat Temperature	NONE
Heat Input	Min _____ Max _____

WELDING PROCEDURE

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



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

Procedure No. 3004
Revision No. _____

Contractor Elderlee, Inc.
Authorized By RANDY SCOTT
Date 6/21/2010

Form III-2

Form III-2-Sample Welding Procedure Specification

194 BRIDGE RAILING

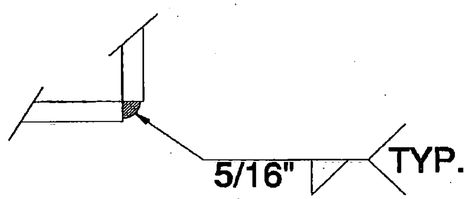
WELDING PROCEDURE SPECIFICATION

PQR# ELDERLEE #1

Material Specification	ASTM A572 GR. 50 CVN
Welding Process	FCAW
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT
Filler Metal Specification	A5.20 - 95
Filler Metal Classification	E71T-1H8 E71T-9H8 LINCOLN ULTRACORE
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC
Polarity	REVERSE ELECTRODE POSITIVE
Welding Progression	STRINGER
Root Treatment	CLEAN AS PER SECTION 603 OF THE NYSSCM
Preheat and Interpass Temperature	PREHEAT AS PER TABLEL 708 OF THE NYSSCM
Postheat Temperature	NONE
Heat Input	Min _____ Max _____

WELDING PROCEDURE

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



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

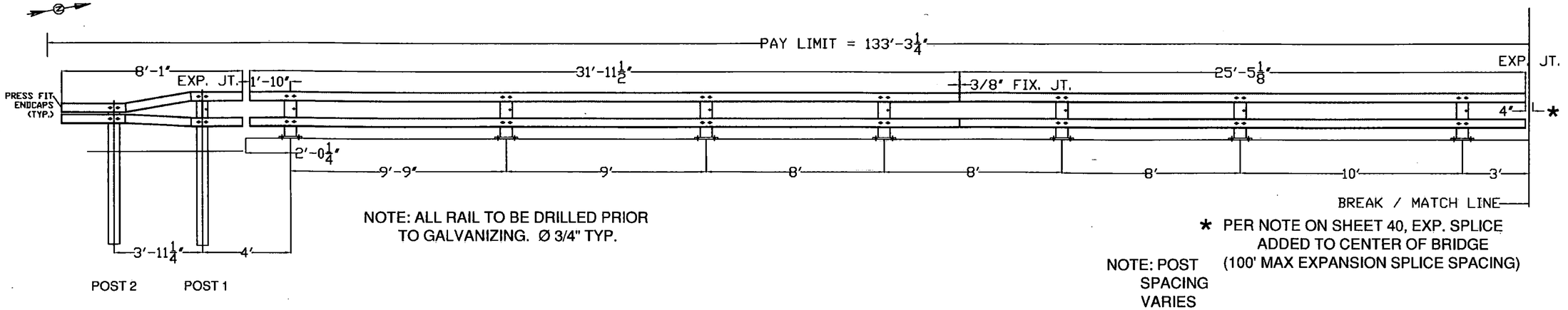
Procedure No. 3005
Revision No. _____

Contractor Elderlee, Inc.
Authorized By RANDY SCOTT
Date 6/21/2010

Form III-2

Form III-2-Sample Welding Procedure Specification

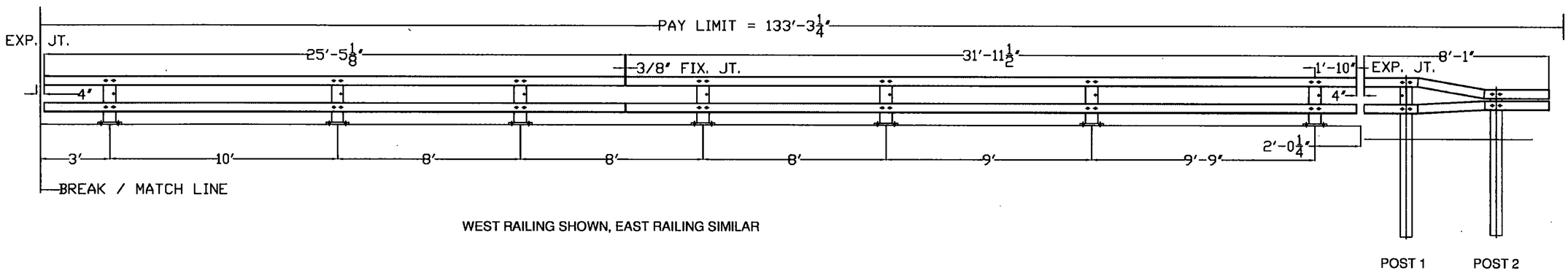
195 BRIDGE RAILING



NOTE: ALL RAIL TO BE DRILLED PRIOR TO GALVANIZING. Ø 3/4" TYP.

* PER NOTE ON SHEET 40, EXP. SPLICE ADDED TO CENTER OF BRIDGE (100' MAX EXPANSION SPLICE SPACING)

NOTE: POST SPACING VARIES



WEST RAILING SHOWN, EAST RAILING SIMILAR

BILL OF MATERIALS

LINE #	QTY	DESCRIPTION	ASTM DESIGNATION
1	28	TWO RAIL POST W8x24	A709 Gr.36 CVN
2	4	W6X25 POST @ 7' 0"	A709 Gr.36 CVN
3	4	W6X25 POST @ 6' 5"	A709 Gr.36 CVN
4	4	5x5x5/16" TOP RAIL @ 8' 1" W/ BENDS	A500 GRADE B DROP WT TEAR TESTED
5	4	5x5x5/16" BOTTOM RAIL @ 8' 1" W/ BENDS	A500 GRADE B DROP WT TEAR TESTED
6	8	5x5x5/16" RAIL @ 31' 11 1/2"	A500 GRADE B DROP WT TEAR TESTED
7	8	5x5x5/16" RAIL @ 33' 5 1/8"	A500 GRADE B DROP WT TEAR TESTED
8	12	4 1/4 x 4 1/4" EXP. SPLICE BAR @ 2' 4"	A36
9	8	4 1/4 x 4 1/4" FIX. SPLICE BAR @ 2' 4"	A36
10	112	ø7/8"x20" ANCHOR STUD -SPECIAL-	A449
11	112	ø7/8" FLAT WASHER, LOCK WASHERS & (2) NUTS	F436 TYPE 1, ASME B18.21.1, & A563 DH
12	144	ø5/8 X 7" ROUND HEAD BOLT, NUT, SQ. W. & L.W.	A449, A563, & ASME B18.21.1
13	8	5"X5"X3/16" PRESS FIT, END CAPS	A36
14	12	ø5/8"X1 1/2" HEX BOLT, F.W., L.W., & NUT	A325, F436 TYPE 1, ASME B18.21.1, & A563 DH
15	12	DELINEATOR / REFLECTOR (SEE NOTE 10)	ALUM.
16	80	7/8"x6 1/2" BOLT W/ F.W., L.W., & NUT	A325, F436 TYPE 1, ASME B18.21.1, & A563 DH
17	28	1/8" x 12" X 12" FIBER PAD	

NOTES:
1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. RAILING MATERIAL SHALL MEET THE REQUIREMENTS OF SECTION 732.
3. ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 1/16" RADIUS AND BE FREE OF BURRS.
4. RAIL POST SHALL BE SET NORMAL TO GRADE.
5. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE RAIL POST AND PREFERABLY TO AT LEAST FOUR POST.
6. RAIL POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
7. RAIL TUBES SHALL BE ATTACHED USING A 449 (TYPE 1) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE.
8. THE FABRICATOR SHALL SUBMIT FABRICATION DRAWINGS INCLUDING WELDING PROCEDURES IN ACCORDANCE WITH SECTION 105.
9. ⅛" PAD SHALL COMPLY WITH STANDARD SPECIFICATION SUBSECTION 731.01
10. THE REFLECTIVE MATERIAL IS TO BE ERECTED EVERY 30' (OR CLOSEST POST) WITH A 5/8" DIAMETER BOLT AND SHALL MEET REQUIREMENTS OF SUBSECTION 750.08 AND SHALL BE A .063 ALUMINUM BACKING WHITE REFLECTOR.

Vermont Agency of Transportation

RECEIVED

CK'D BY Timothy Fillbach OK'D BY GML

12:17 pm, Jul 21, 2010

RESUBMIT _____ APPROVED _____

BY KMH DATE 07-21-2010

ITEM #: 900.640 GEN CONTR: F. R. LAFAYETTE SHEET 1 OF 3

APPROVED BY:

BRIDGE RAIL DETAILS SHEET

BRIDGEWATER, PROJECT #: BRS 0149 (4)
VT ROUTE 100A, BR14-MAJOR COLLECTOR
TOWN OF BRIDGEWATER, WINDSOR COUNTY, STATE OF VERMONT

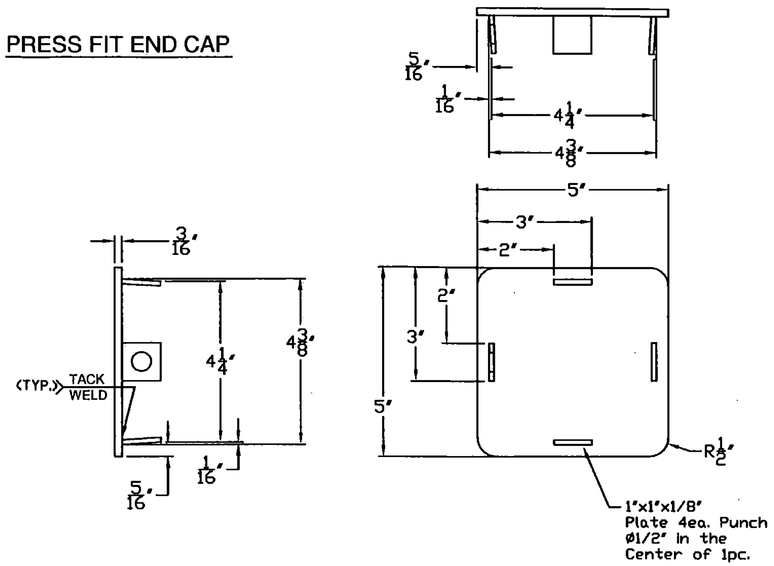
REV	NO.	DATE	DESCRIPTION	BY
	A	7/16/10	REVISED PER 7/14/10 MEMO FROM KRISTEN M. BIGGINS, P.E.	EP

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

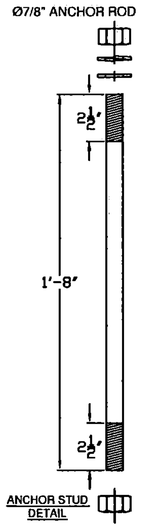
DRAWN	E.P.	6/14/10
CHECKED	D.L.	6/16/10
APPROVED	.	.
SCALE	SCHEMATIC	
DRAWING NO.	EM10-066	

196 BRIDGE RAILING.

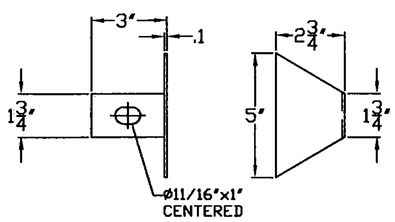
PRESS FIT END CAP

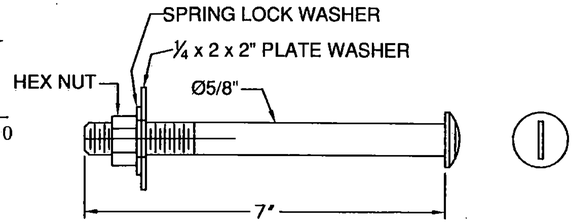


TACK WELD TABS TO END CAP PLATE IN TAPERED POSITION SO CAP CAN BE JAMMED INTO END OF RAIL TUBE

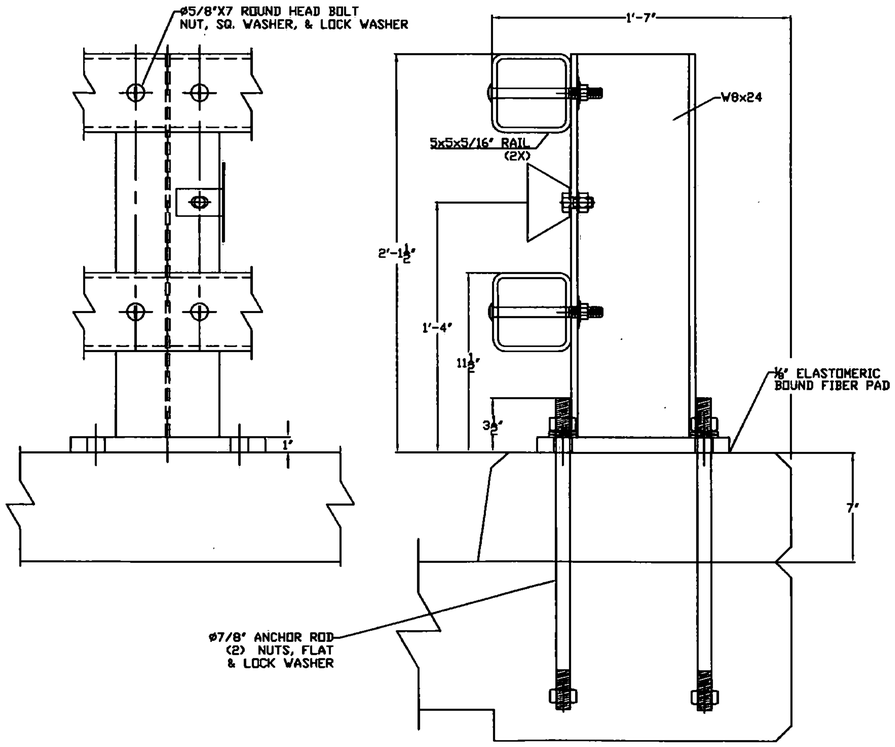


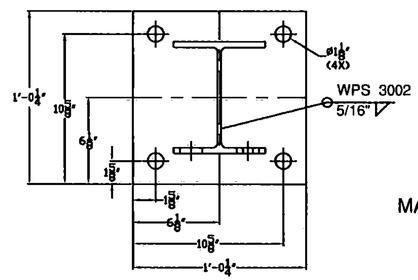
Vermont Agency of Transportation
RECEIVED
CK'D BY Timothy Fillbach OK'D BY GML
12:17 pm, Jul 21, 2010
RESUBMIT ____ APPROVED X
BY KMH DATE 7-21-2010





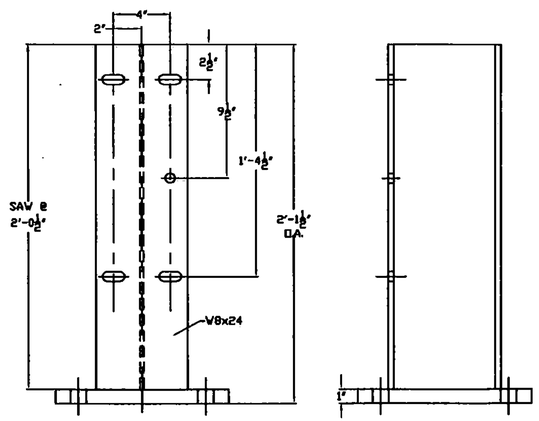
ROUND HEAD BOLT

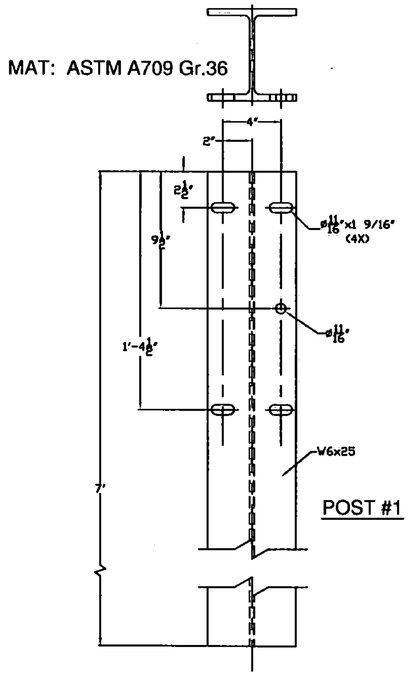




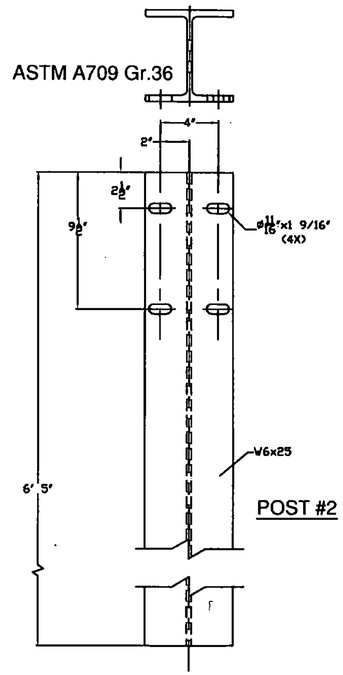
BRIDGE RAIL POST ON BASE

MAT: ASTM A709 Gr.36





POST #1



POST #2

ITEM #: 900.640

GEN CONTR: F. R. LAFAYETTE

SHEET 2 OF 3

APPROVED BY:

BRIDGE RAIL DETAILS SHEET

BRIDGEWATER, PROJECT #: BRS 0149 (4)
VT ROUTE 100A, BR14-MAJOR COLLECTOR
TOWN OF BRIDGEWATER, WINDSOR COUNTY, STATE OF VERMONT

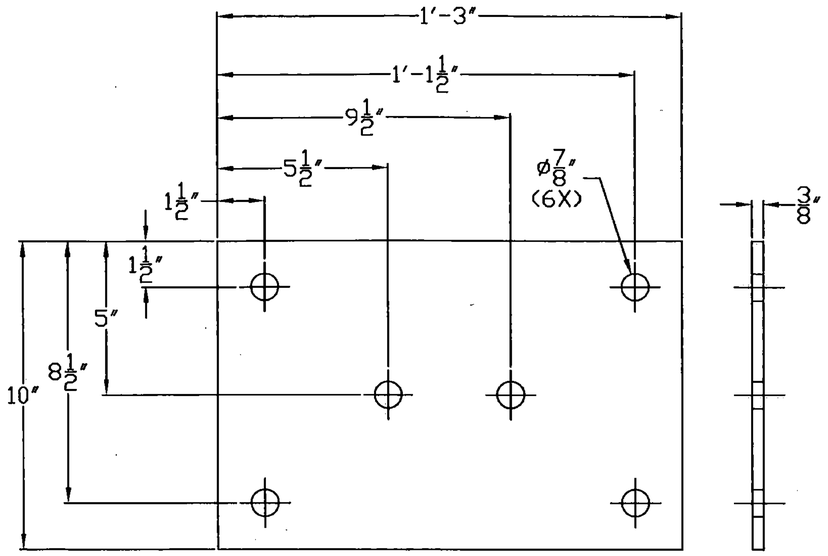
R E V	NO.	DATE	DESCRIPTION	BY
	A	7/16/10	REVISED PER 7/14/10 MEMO FROM KRISTEN M. HIGGINS, P.E.	EP

R E V	NO.	DATE	DESCRIPTION	BY

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

DRAWN	E.P.	6/14/10
CHECKED	D.L.	6/16/10
APPROVED	.	.
SCALE	SCHEMATIC	
DRAWING NO.	EM10-066	

197 BRIDGE RAILING



BACK UP PLATE
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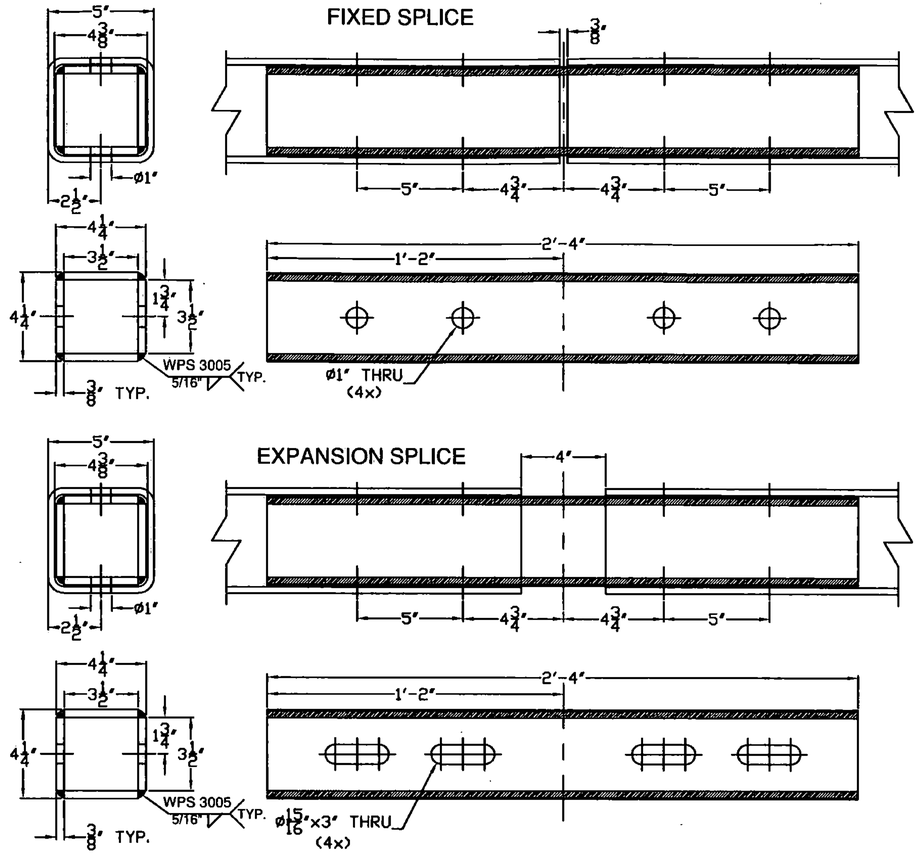

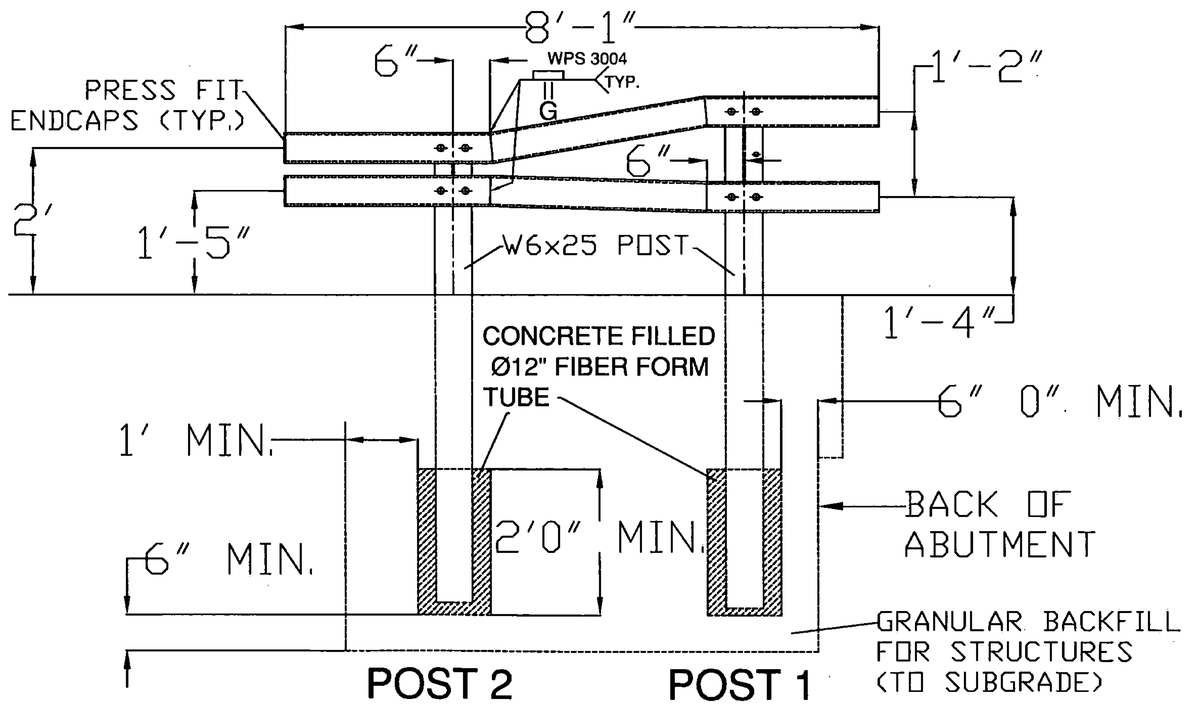

Vermont Agency of Transportation
RECEIVED
CK'D BY Timothy Fillbach OK'D BY GML
12:17 pm, Jul 21, 2010
RESUBMIT _____ APPROVED X
BY KMH DATE 7-21-2010

ITEM #: 900.640 GEN CONTR: F. R. LAFAYETTE SHEET 3 OF 3

APPROVED BY:

BRIDGE RAIL DETAILS SHEET

BRIDGEWATER, PROJECT #: BRS 0149 (4)
VT ROUTE 100A, BR14-MAJOR COLLECTOR
TOWN OF BRIDGEWATER, WINDSOR COUNTY, STATE OF VERMONT

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

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com
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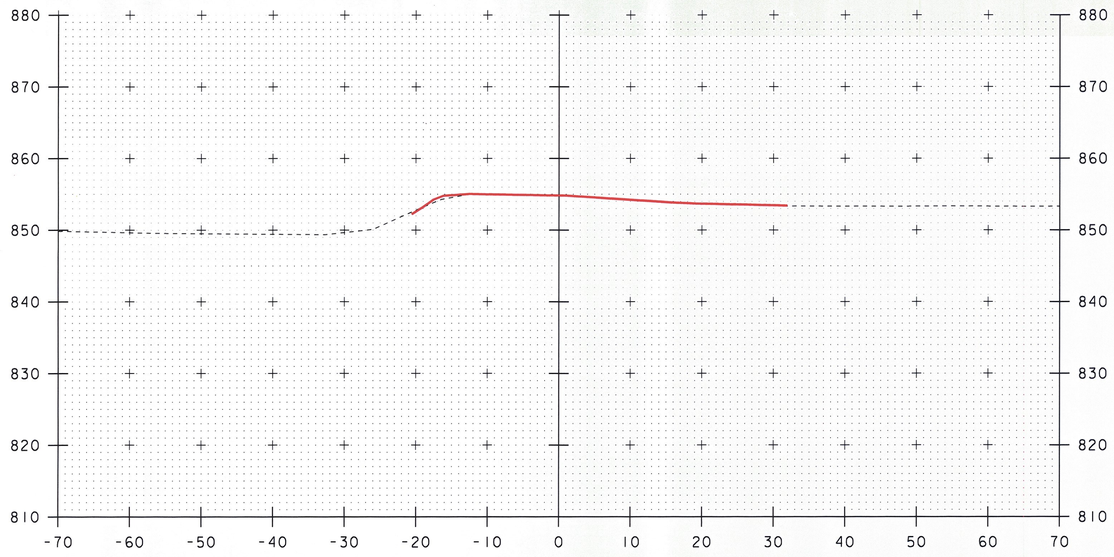
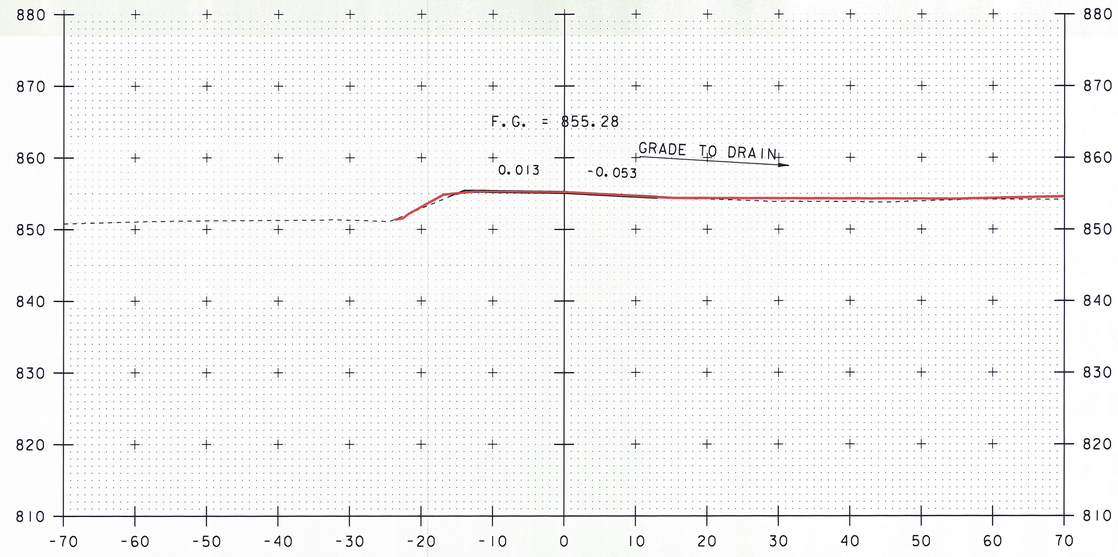
CHECKED	D.L.	6/16/10
APPROVED	.	.
SCALE	SCHEMATIC	
DRAWING NO.	EM10-066	



108+25



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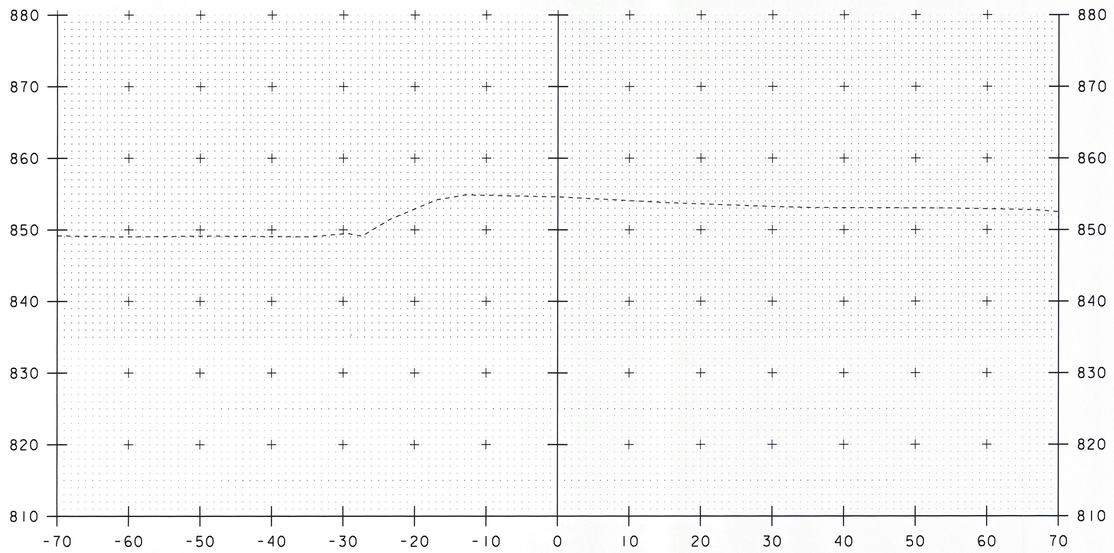
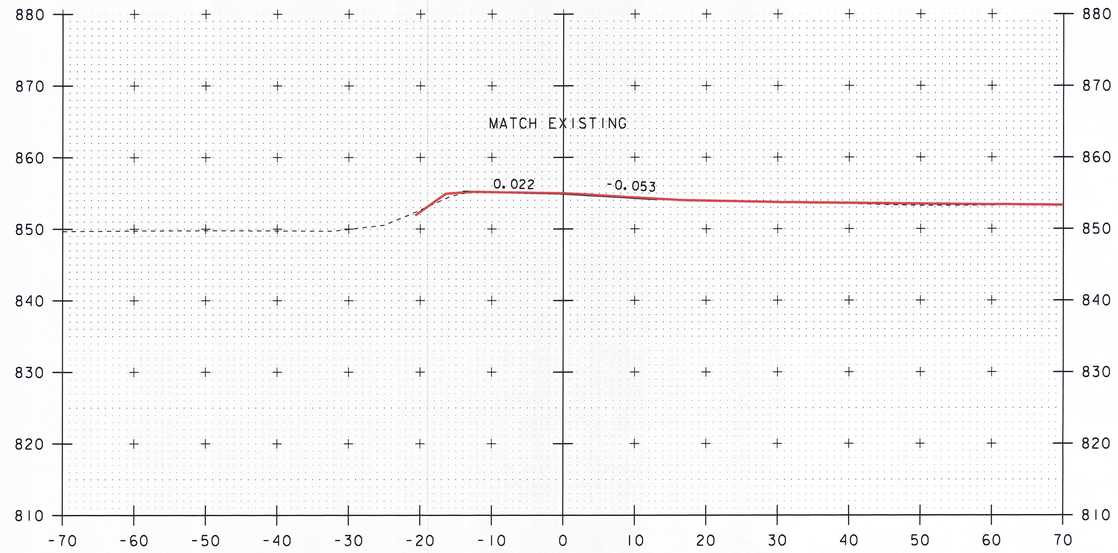


108+00



BEGIN APPROACH

108+50

SCALE 1" = 10'-0"

10 0 10

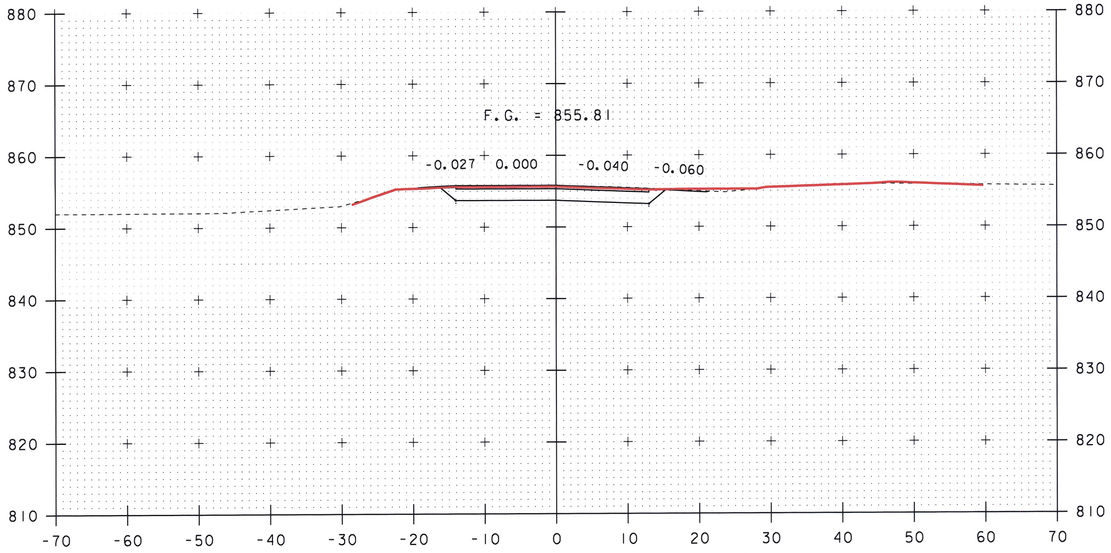
STA. 108+00 TO STA. 108+75

PROJECT NAME: BRIDGEWATER

PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
MAINLINE SECTIONS #1

PLOT DATE: 08-NOV-2012 05:
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 1 OF 10



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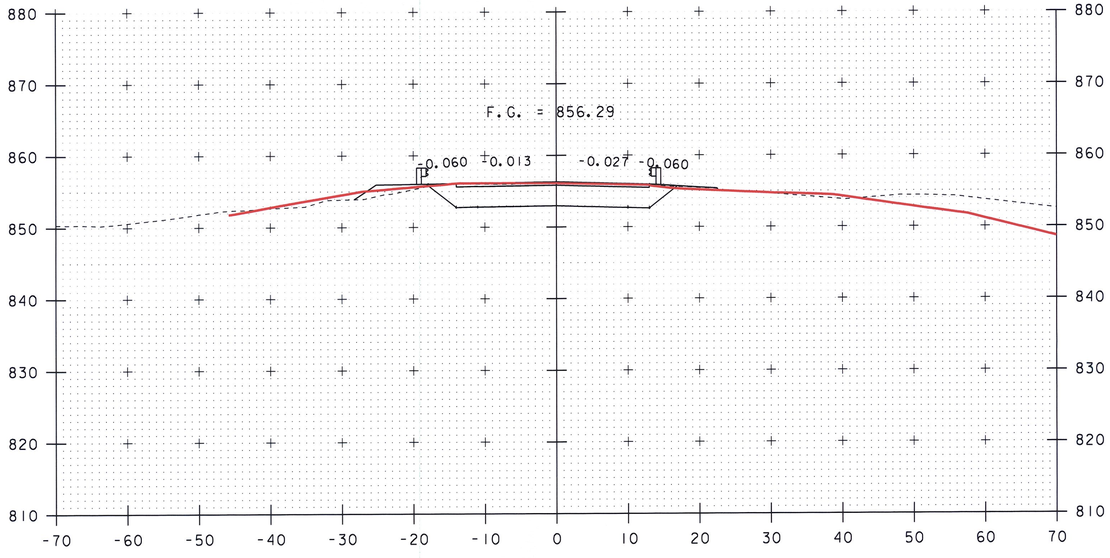

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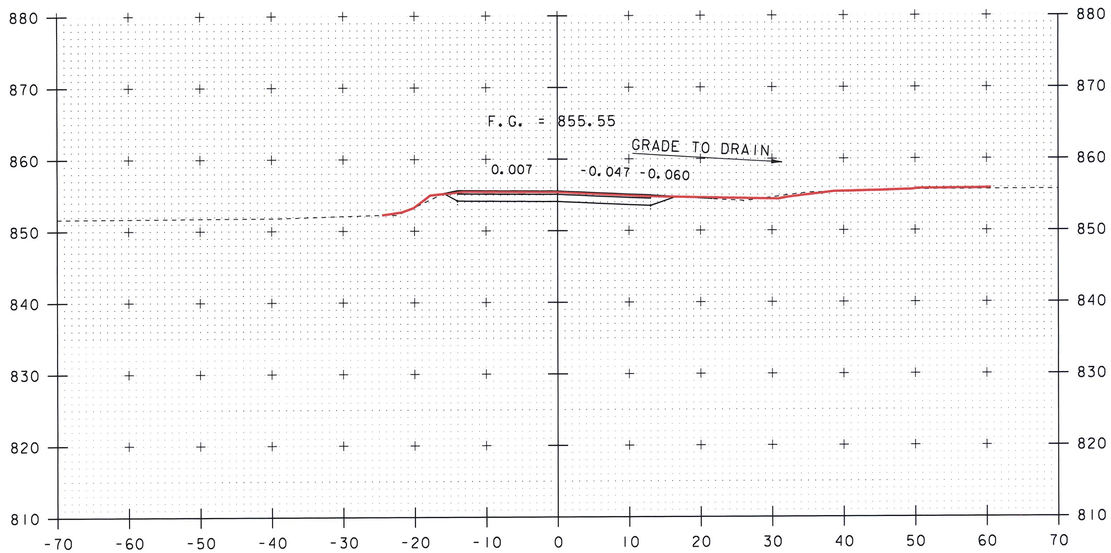

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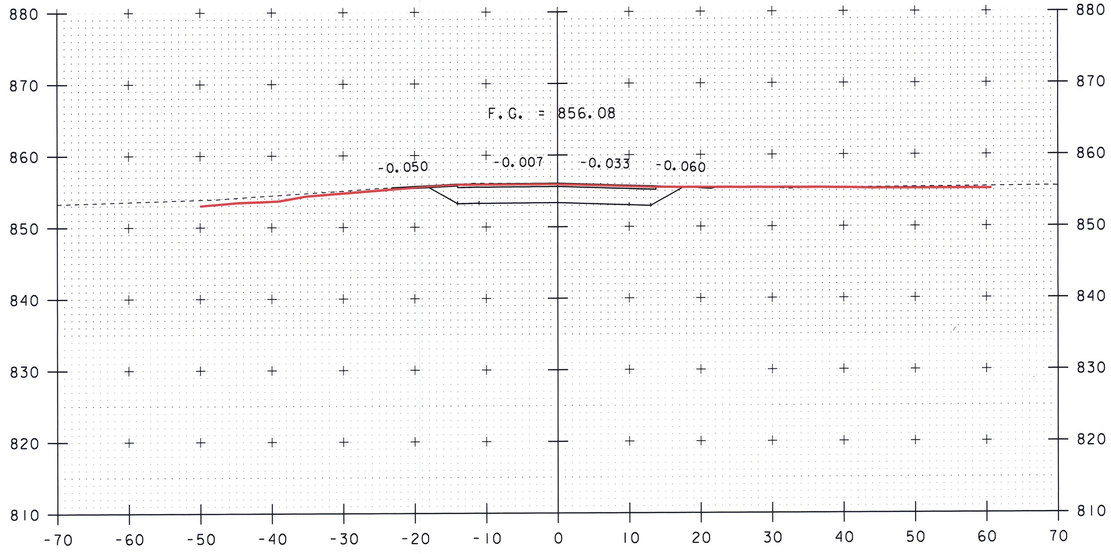


BEGIN PROJECT
109+50

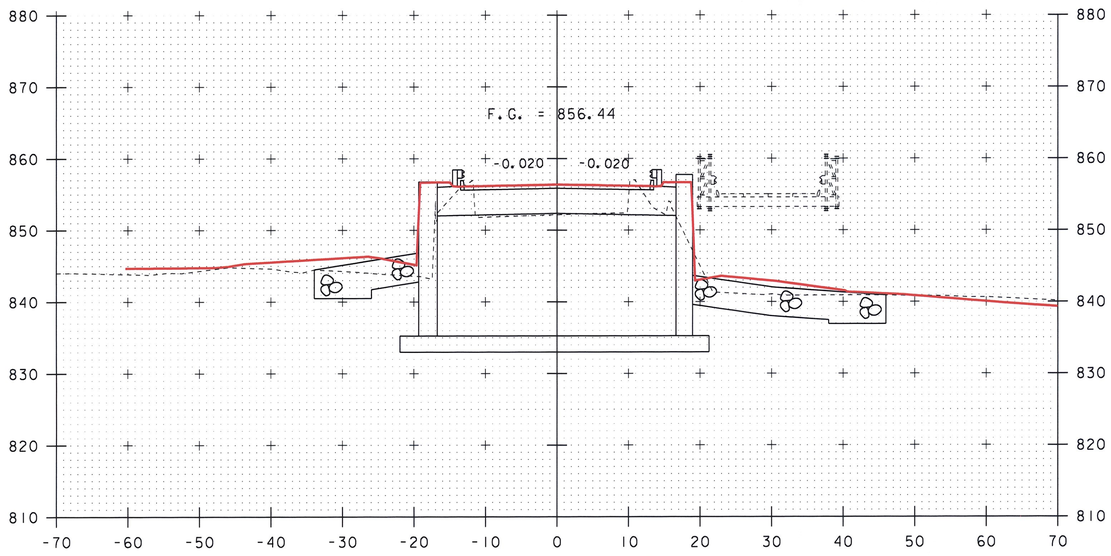
SCALE 1" = 10'-0"
10 0 10

STA. 109+00 TO STA. 109+75

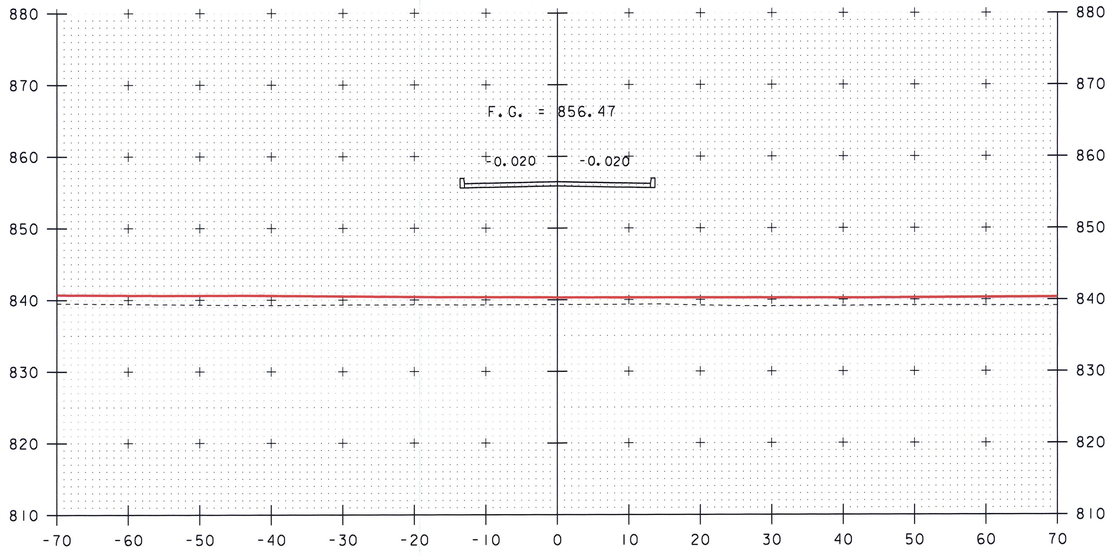
PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
MAINLINE SECTIONS #2

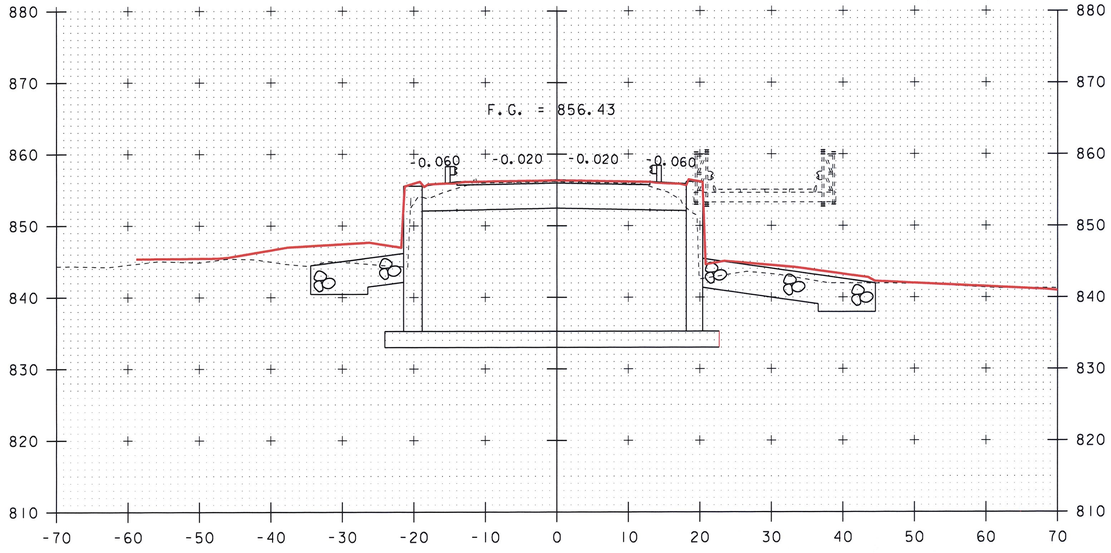
PLOT DATE: 08-NOV-2012 07:
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 2 OF 10



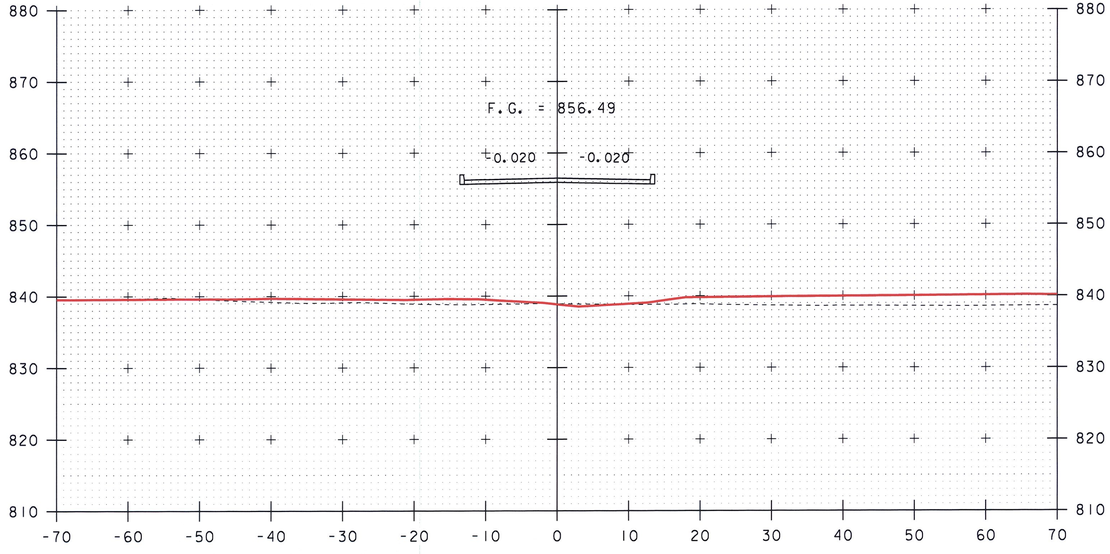
BEGIN BRIDGE
110+02.50



110+50



110+00



110+25

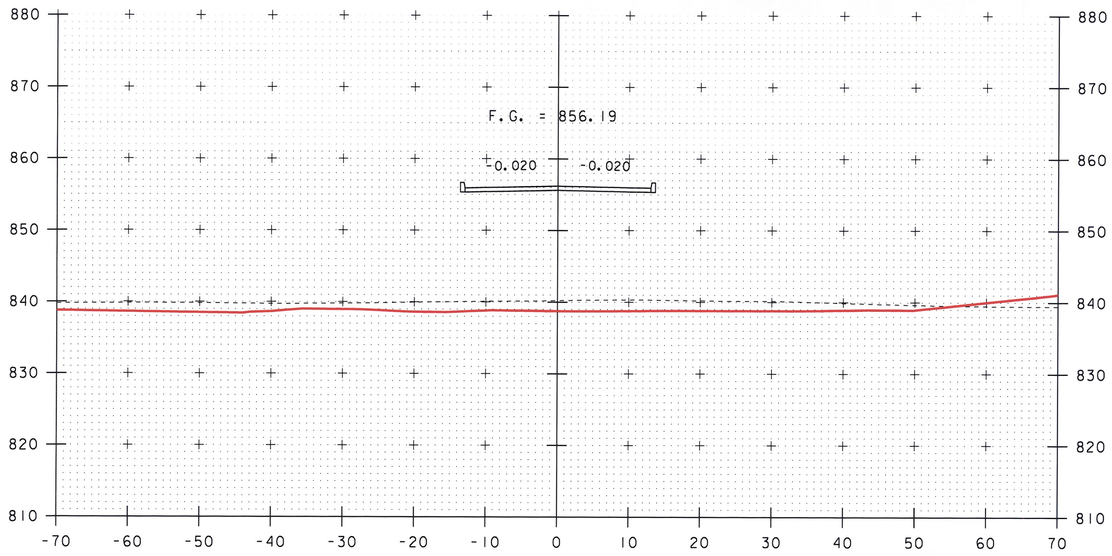
SCALE 1" = 10'-0"
10 0 10

STA. 110+00 TO STA. 110+50

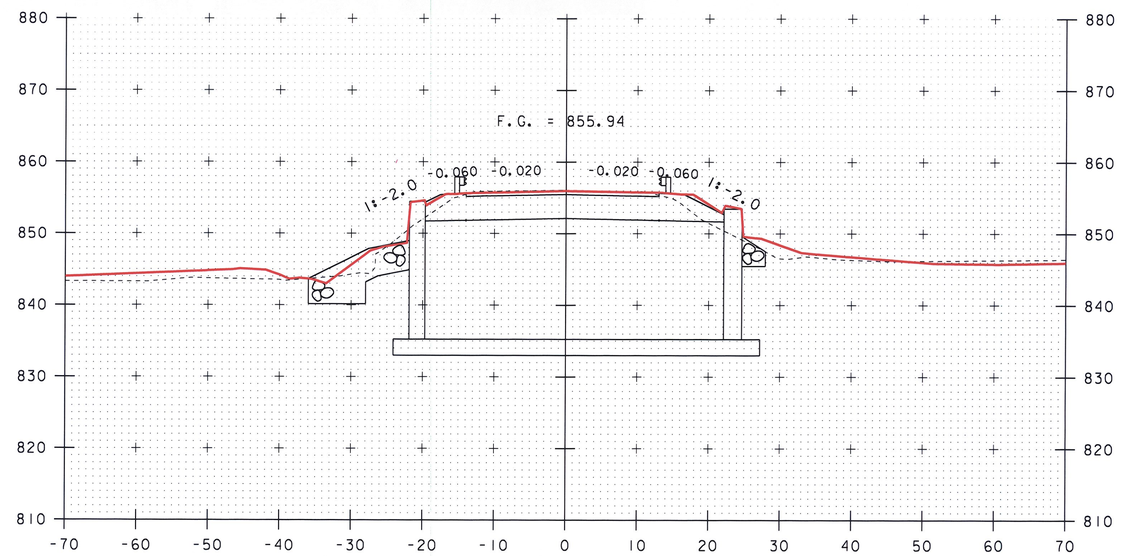
PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
MAINLINE SECTIONS #3

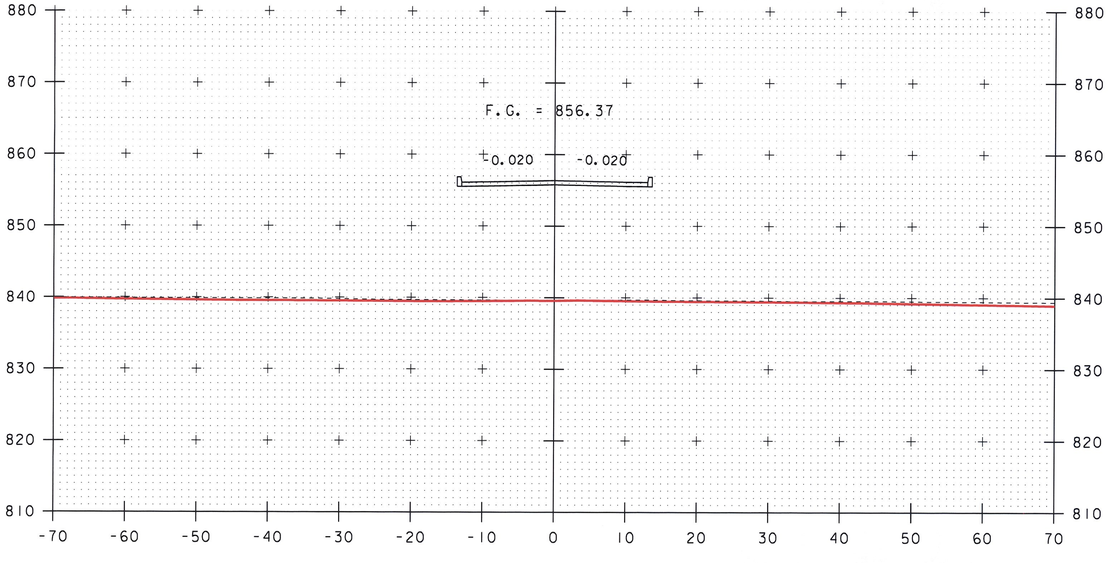
PLOT DATE: 08-NOV-2012 07:
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 3 OF 10



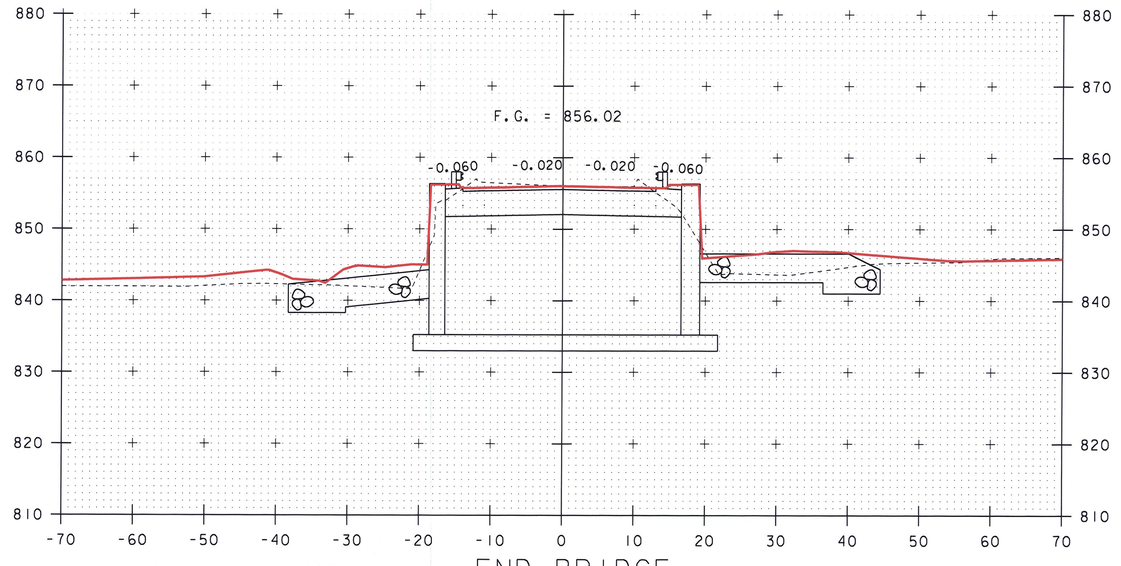
111+00



111+25



110+75



END BRIDGE
111+18.04

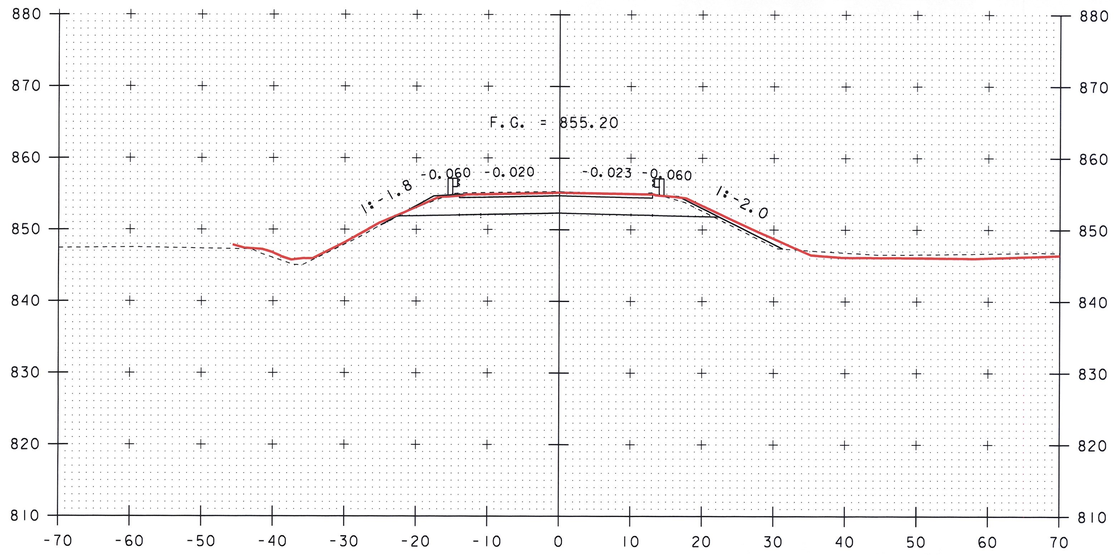
SCALE 1" = 10'-0"
10 0 10

STA. 110+75 TO STA. 111+25

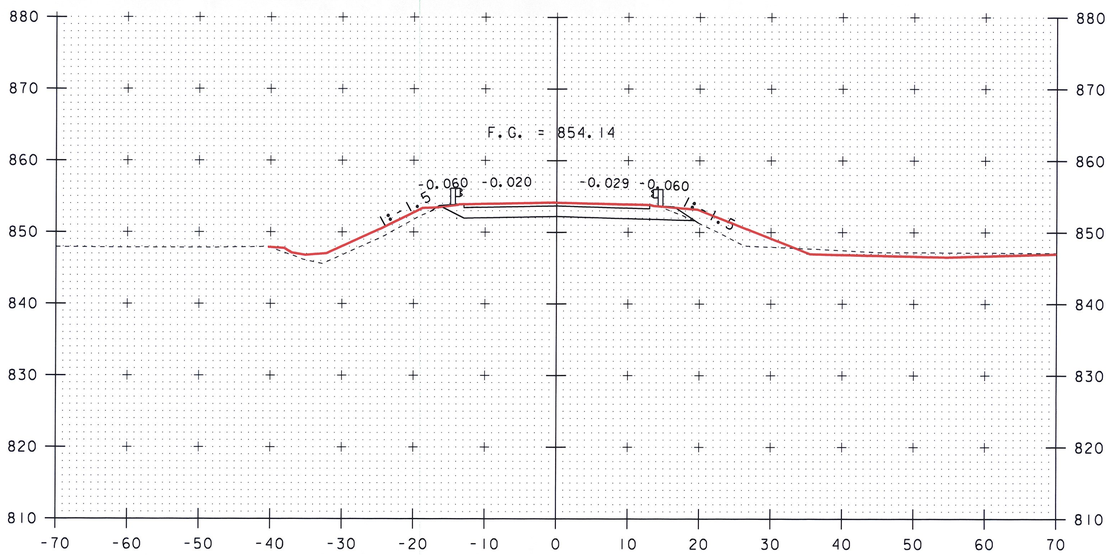
PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
MAINLINE SECTIONS #4

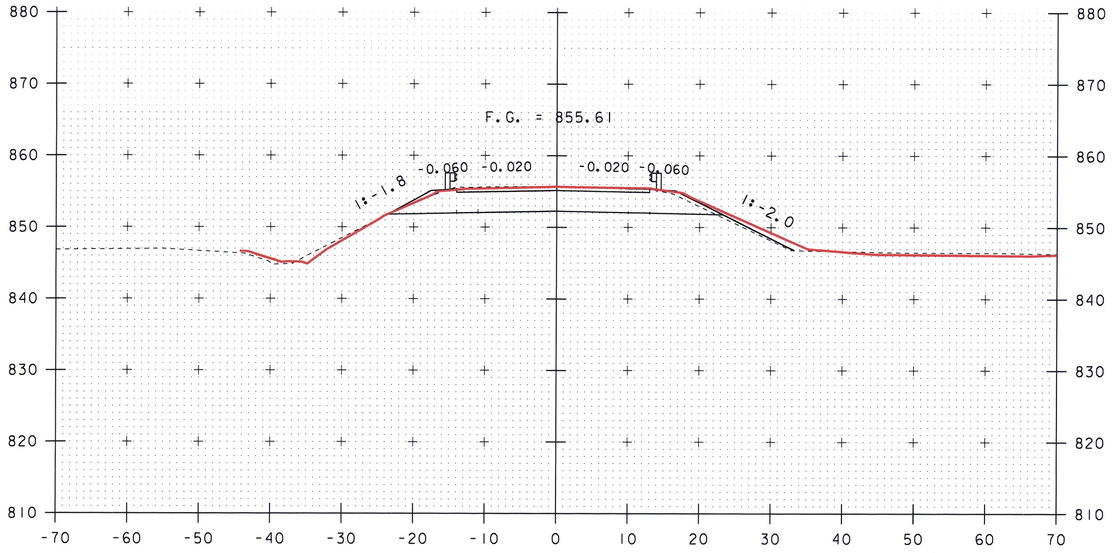
PLOT DATE: 08-NOV-2012 07:
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 4 OF 10



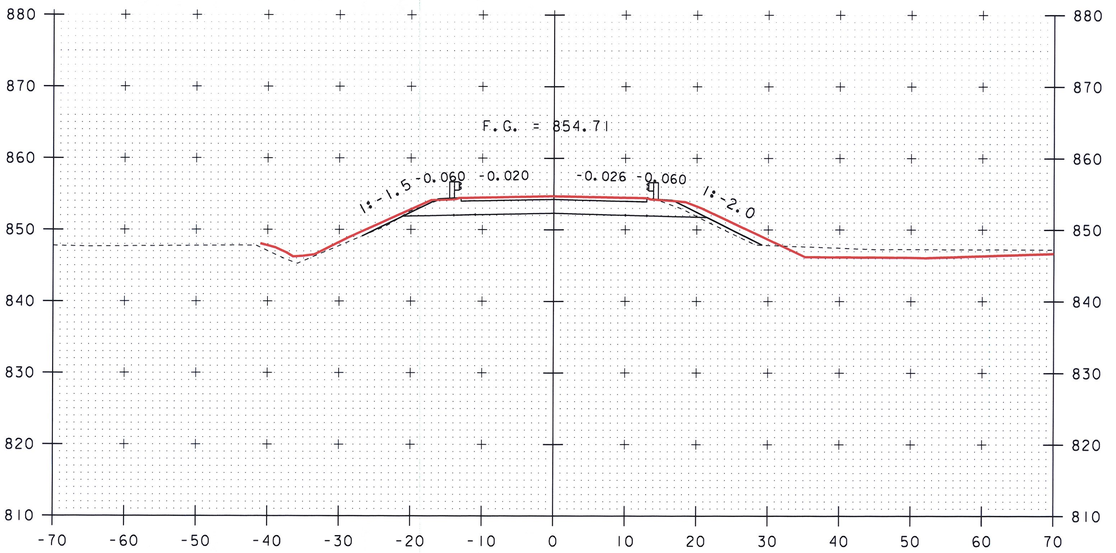
111+75



112+25



111+50

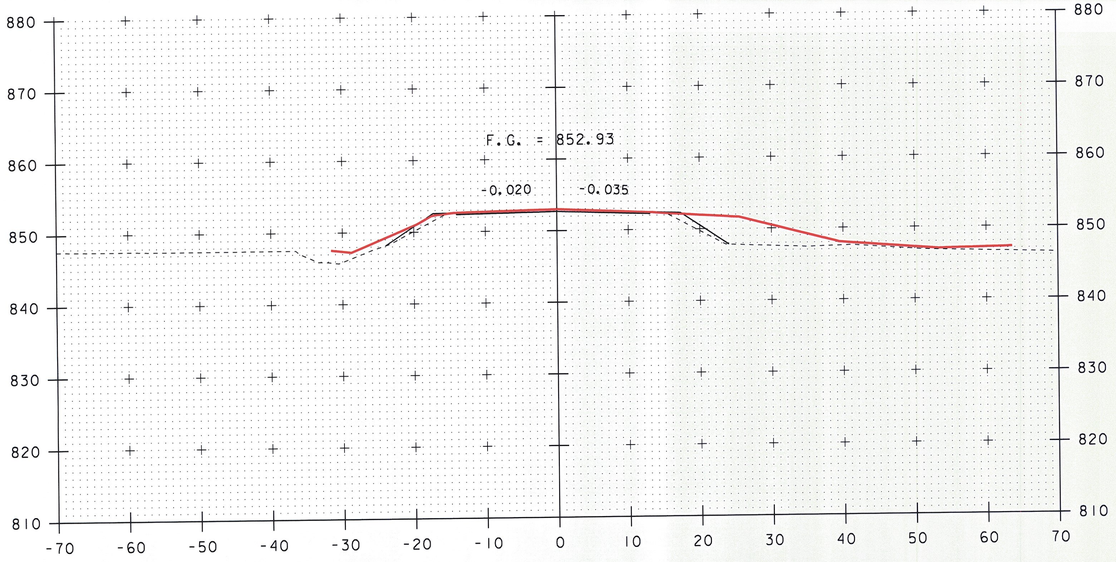


END PROJECT
112+00

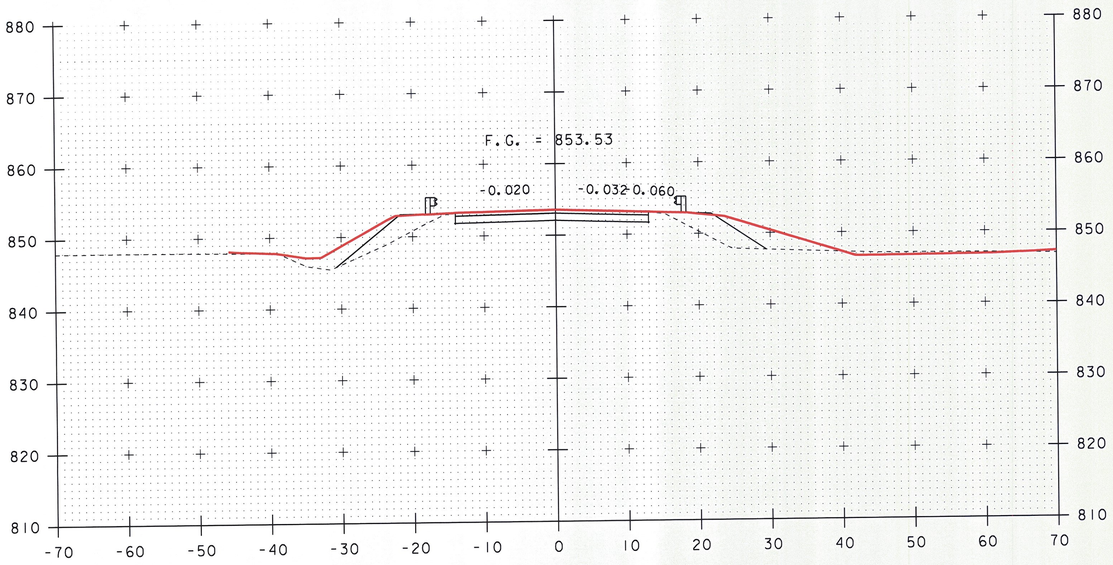
SCALE 1" = 10'-0"
10 0 10

STA. 111+50 TO STA. 112+25

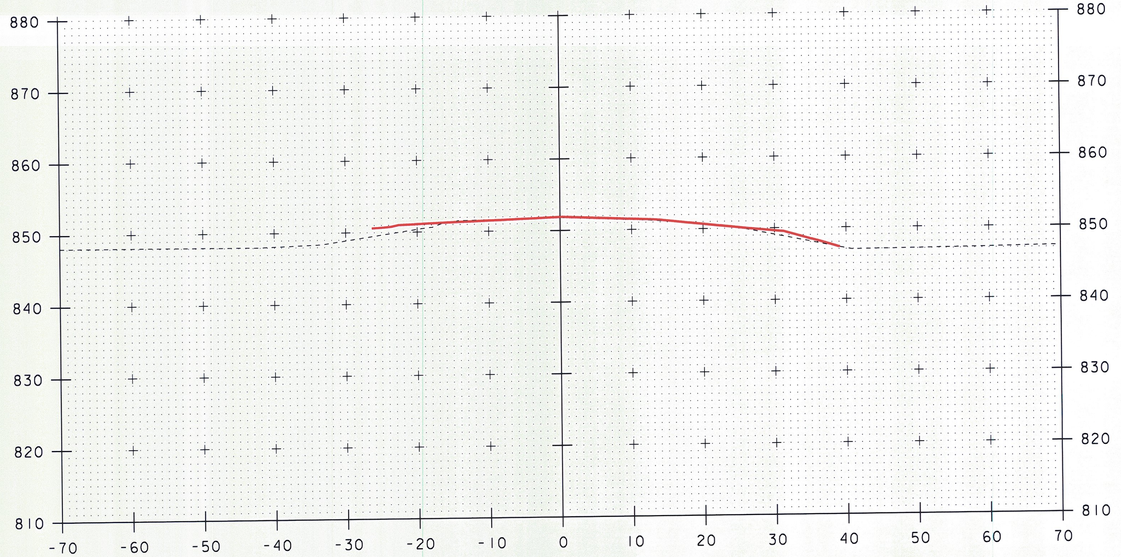
PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062xs.dgn	PLOT DATE: 08-NOV-2012 07:
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS #5	SHEET 5 OF 10



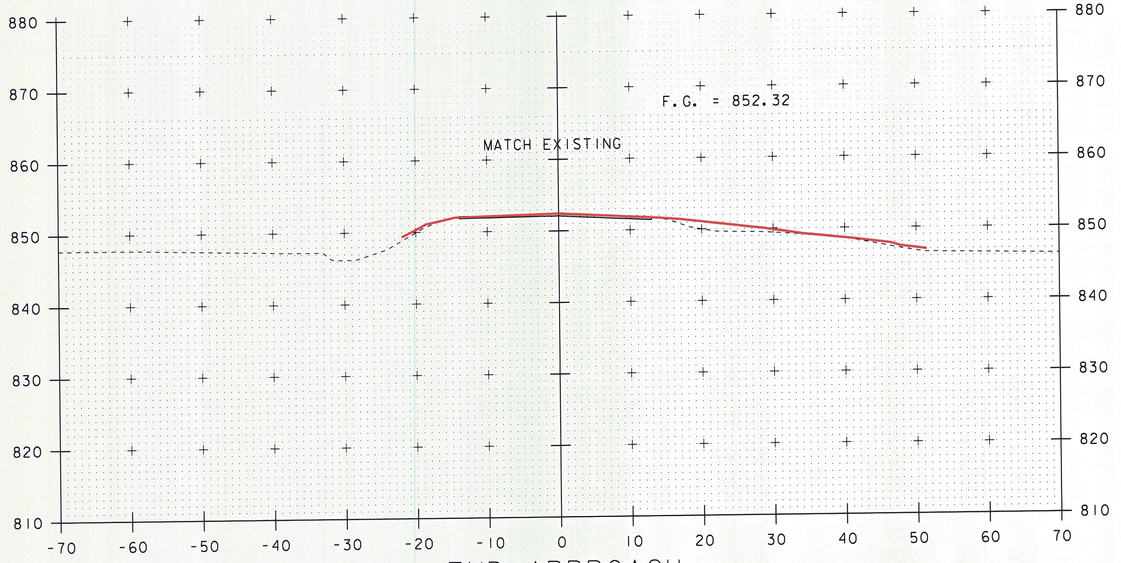
112+75



112+50



113+25



END APPROACH

113+00

SCALE 1" = 10'-0"

10 0 10

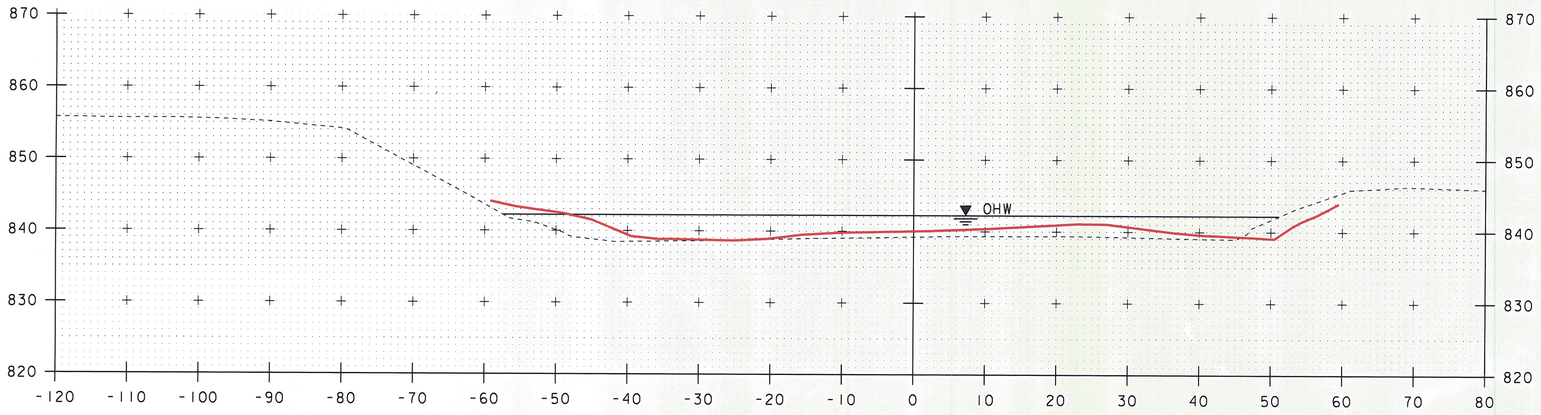
STA. 112+50 TO STA. 113+25

PROJECT NAME: BRIDGEWATER

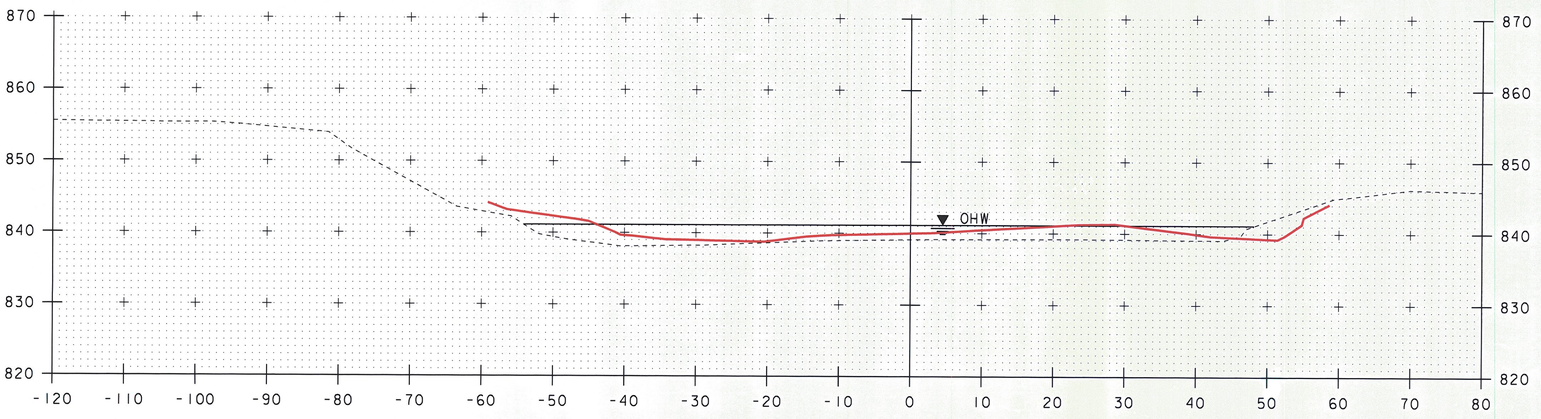
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
MAINLINE SECTIONS #6

PLOT DATE: 08-NOV-2012 07:
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 6 OF 10



3+25



3+00

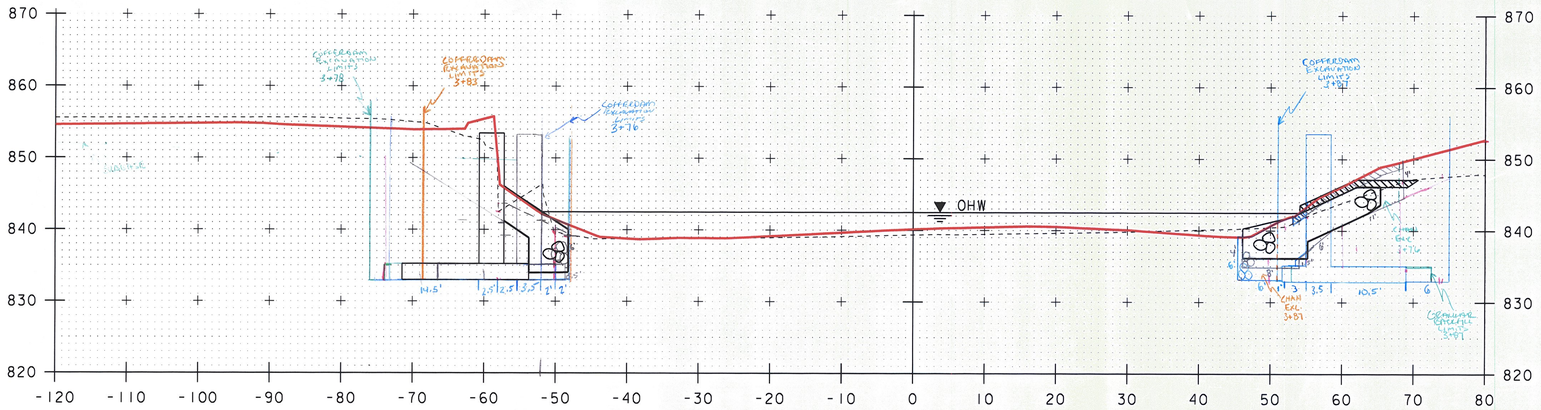
SCALE 1" = 10'-0"
10 0 10

STA. 3+00 TO STA. 3+25

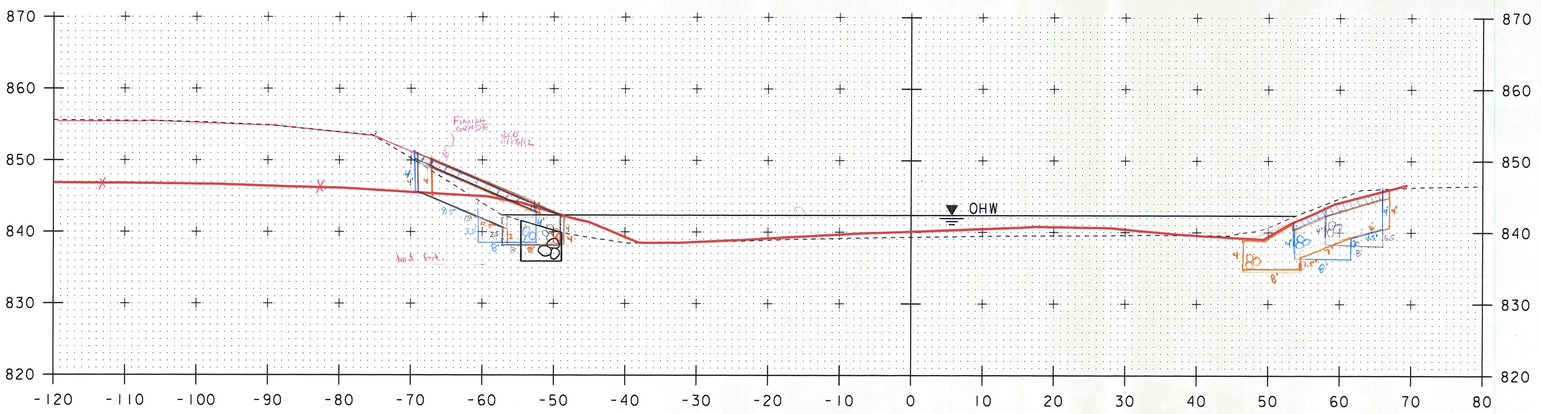
PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
CHANNEL SECTIONS #1

PLOT DATE: 08-NOV-2012 07:5
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 7 OF 10



3+75



3+50

78.5
3+82 LT
STOP GRUBBING MATERIAL
3+78.5 LT
3+80 RT
3+89 RT
3+90 RT
STOP GRUBBING MATERIAL
3+76 RT COFFERDAM EXC. LIMITS
3+76 RT COFFERDAM EXC. LIMITS

RCD
12/12/12

NDD
1/1/13

3+47 LT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION,
STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL
45'
3+54 RT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION,
STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL
3+58 RT
3+53 RT
3+64 RT & LT
3+68 LT
3+48 LT
3+47 LT

RCD
12/12/12

NDD
1/1/13

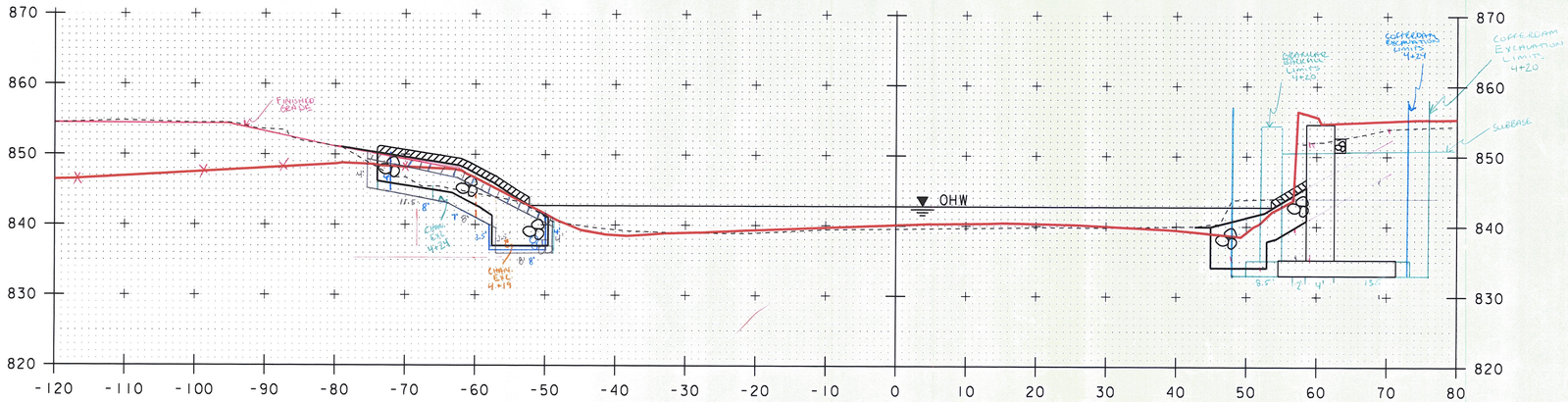
SCALE 1" = 10'-0"
10 0 10

STA. 3+50 TO STA. 3+75

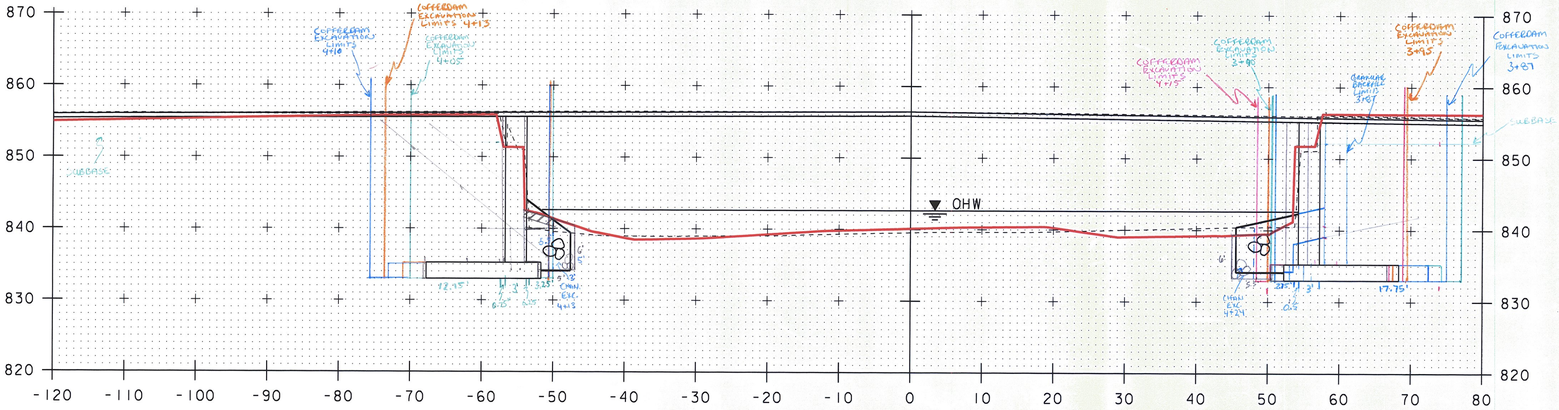
PROJECT NAME: BRIDGEWATER
PROJECT NUMBER: BRS 0149(4)

FILE NAME: s86e062xs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: T. FILLBACH
CHANNEL SECTIONS #2

PLOT DATE: 08-NOV-2012 08:2
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 8 OF 10



4+25



4+00

43
4+~~29~~ RT
STOP UNCLASSIFIED CHANNEL EXCAVATION,
STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

29
4+~~40~~ LT
STOP UNCLASSIFIED CHANNEL EXCAVATION,
STONE FILL, TYPE IV
GEOTEXTILE UNDER STONE FILL
GRUBBING MATERIAL

4+22 LT

4+29 LT

RCD 12/13/12 ✓NBD 1/3/13

3+90 RT
STOP GRUBBING MATERIAL

11.5
4+~~10~~ LT
RESUME GRUBBING MATERIAL

21
4+~~18~~ RT
RESUME GRUBBING MATERIAL

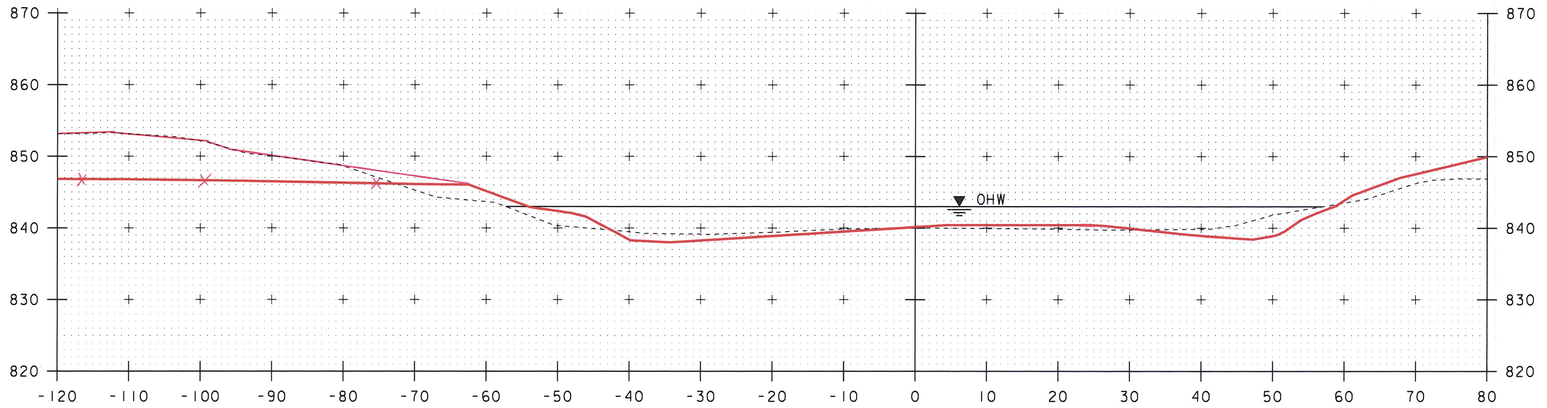
NO GRUBBING MATERIAL
BENEATH NEW BRIDGE
4+11.5 LT
4+21 RT

RCD 12/13/12 ✓NBD 1/3/13

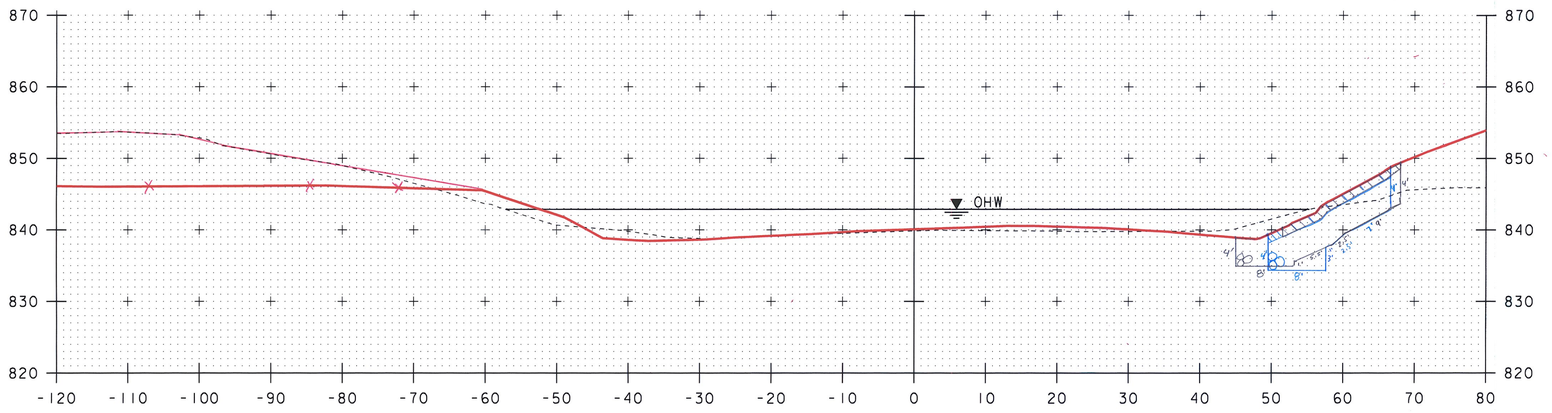
SCALE 1" = 10'-0"
10 0 10

STA. 4+00 TO STA. 4+25

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)
FILE NAME: s86e062xs.dgn	PLOT DATE: 08-NOV-2012 08:1
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
CHANNEL SECTIONS #3	SHEET 9 OF 10



4+75



4+50

4+30 RT } MATCH
4+35 RT
4+43 RT

RCP 12/17/12
NBD 1/3/13

SCALE 1" = 10'-0"
10 0 10

STA. 4+50 TO STA. 4+75

PROJECT NAME:	BRIDGEWATER
PROJECT NUMBER:	BRS 0149(4)

FILE NAME: s86e062xs.dgn	PLOT DATE: 08-NOV-2012 08:5
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: T. FILLBACH	CHECKED BY: T. FILLBACH
CHANNEL SECTIONS #4	SHEET 10 OF 10