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LIST OF STANDARDS

E-100	01-06-97
E-101	03-10-97
E-102	08-08-95
E-102A	08-08-95
E-103	08-08-95
E-104	12-31-96
E-104A	12-27-96
E-107	08-08-95
G-18	06-01-94
T-1	06-01-94
T-2	06-01-94

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT

TOWN OF HARTLAND

COUNTY OF WINDSOR

ROUTE NO : I-91

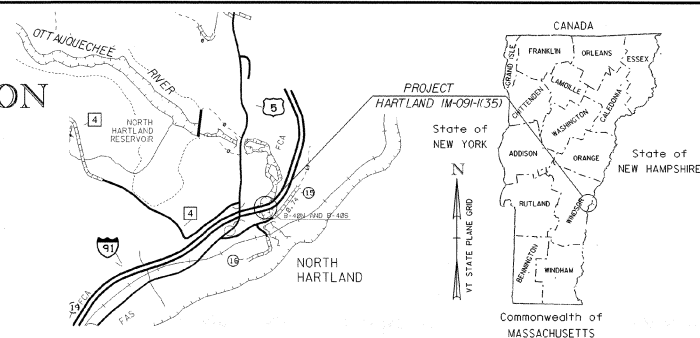
BRIDGE NOS : 40N & 40S

PROJECT LOCATION : ON I-91 OVER THE OTTAUQUECHEE RIVER APPROXIMATELY 3.5 MILES SOUTH OF THE INTERSECTION OF I-89 AND I-91.

PROJECT DESCRIPTION : RETROFIT OF THE EXISTING DECK AND SUPERSTRUCTURE.

LENGTH OF STRUCTURES : BR 40N 316.00 FEET
BR 40S 316.00 FEET

TOTAL LENGTH OF STRUCTURES : 632.00 FEET



LOCATION MAP
(NOT TO SCALE)

CONVENTIONAL SIGNS

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

DATUM	
VERTICAL	N/A
HORIZONTAL	N/A

RECORD PLANS

CONTRACTOR: James A. McDonald Inc., Lyndon Center, VT
RESIDENT ENGINEER: Leon Tessier - Willis Stoddard
CONSTRUCTION BEGAN: July 7, 1997
CONSTRUCTION COMPLETED: Oct 17, 1997
RECORD PLANS BY: J. Cota - CADD

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

BY: [Signature] RESIDENT ENGINEER
DATE: 12-30-97

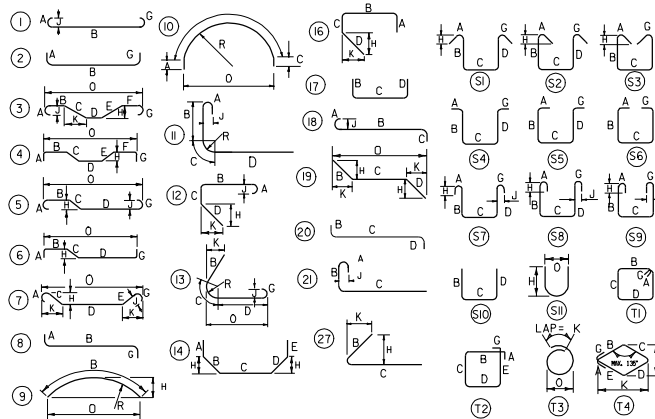
NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found on microfiche in Central Files.

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE CHIEF ENGINEER. CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1990, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON MARCH 15, 1990 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

APPROVED: [Signature] DATE: 9/9/97
DIRECTOR OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED: [Signature] DATE: 6-9-97
DIVISION ADMINISTRATOR
PROJECT: HARTLAND 1M-09H(35)

BRIDGE QUANTITY SHEET

NO.	ITEM	UNIT	BR 40N	BR 40S	TOTAL	GRAND
210.10	COLD PLANING - BITUMINOUS PAVEMENT	SY	1780	2755	4535	4535
404.65	EMULSIFIED ASPHALT	CWT	3	3	6	6
406.25	BITUMINOUS CONCRETE PAVEMENT (PG 58-28)	TON	541	541	1082	1082
501.22	CONCRETE, CLASS A (MODIFIED)	CY	26	26	52	52
502.11	SHORING SUPERSTRUCTURE BEARINGS	EA	2	2	4	4
506.50	STRUCTURAL STEEL (ROLLED BEAM)	LB	7126	7126	14252	14252
507.15	REINFORCING STEEL	LB	6800	6800	13600	13600
513.25	STRUCTURAL PAINTING, SHOP APPLIED (7.13 TONS)	LS	0.5	0.5	1	1
513.30	STRUCTURAL PAINTING, FIELD APPLIED (2 TONS - ESTIMATED)	LS	0.5	0.5	1	1
513.36	CONTAINMENT & ENVIRONMENTAL PROTECTION	LS	0.5	0.5	1	1
513.40	SURFACE PREPARATION, SHOP (7.13 TONS)	LS	0.5	0.5	1	1
513.41	SURFACE PREPARATION, FIELD (2 TONS - EST)	LS	0.5	0.5	1	1
514.10	WATER REPELLENT	GAL	3	3	6	6
516.10	BRIDGE EXPANSION JOINT (MODIFIED)	LF	32	32	64	64
519.20	SHEET MEMBRANE WATERPROOFING	SY	1055	94	1149	1149
525.10	REMOVAL OF EXISTING RAILING (ESTIMATED)	LF	160	160	320	320
525.11	RESETTING RAILING (ESTIMATED QUANTITY)	LF	160	160	320	320
529.10	REMOVAL OF BRIDGE PAVEMENT	SY	1055	94	1149	1149
529.20	PARTIAL REMOVAL OF STRUCTURE	EA	1	1	2	2
529.26	REMOVAL OF CONCRETE AND MASONRY	SY	95	95	190	190
555.20	ACCESS TO BRIDGE	EA		2	2	2
616.41	REMOVAL OF EXISTING CURB	LF	48	48	96	96
621.90	TEMPORARY TRAFFIC BARRIER (ESTIMATED)	LF	1190	4830	6020	6020
630.10	UNIFORMED TRAFFIC OFFICERS (ESTIMATED)	HRS	100	100	200	200
630.15	FLAGGERS (ESTIMATED)	HRS	200	200	400	400
631.10	FIELD OFFICE - ENGINEERS (MODIFIED)	LS	0.5	0.5	1	1
631.16	TESTING EQUIPMENT - CONCRETE	LS	0.5	0.5	1	1
631.17	TESTING EQUIPMENT - BITUMINOUS	LS	0.5	0.5	1	1
631.18	TESTING EQUIPMENT - PROTECTIVE COATING	LS	0.5	0.5	1	1
635.10	MOBILIZATION	LS	0.5	0.5	1	1
641.10	TRAFFIC CONTROL	LS	0.5	0.5	1	1
646.20	4" WHITE LINE (ESTIMATED)	LF	2450	2450	4900	4900
646.21	4" YELLOW LINE (ESTIMATED)	LF	1750	1750	3500	3500
646.40	DURABLE 4" WHITE LINE	LF	535	535	1070	1070
646.41	DURABLE 4" YELLOW LINE	LF	428	428	856	856
646.60	TEMPORARY 4" WHITE LINE	LF	535	535	1070	1070
646.61	TEMPORARY 4" YELLOW LINE	LF	428	428	856	856
646.86	BLACK PAVEMENT MARKING MASKING TAPE (EST)	SF	500	500	1000	1000
675.21	TRAFFIC SIGNS, TYPE B (MOD) (ESTIMATED)	SF	150	150	300	300



BRIDGE REINFORCING STEEL SCHEDULE											
ITEM	NO.	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F
1					BRIDGE 40N						
2	96	5	34'-10"	S501	STR						
3	193	5	12'-00"	S502	STR						
4	36	5	7'-10"	S503	S5	1-6	1-4	2-2	1-4		1-6
5	33	6	12'-00"	S605	STR						
6											
7											
8											
9											
10					BRIDGE 40N						
11											
12	96	5	34'-10"	S501	STR						
13	193	5	12'-00"	S502	STR						
14	36	5	7'-10"	S503	S5	1-6	1-4	2-2	1-4		1-6
15	33	6	12'-00"	S605	STR						

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REVISD JUNE 13, 1997

NOTES

- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE 'SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT', AASHTO M 31 (ASTM A 615-S1). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER 'D' OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE 'MANUAL OF STANDARD PRACTICE'.
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT 'A' AND 'G' ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- 'J' DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- 'H' DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS 'H' AND 'K' MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- 'E' IN PREFIX DENOTES EPOXY COATED REINFORCING STEEL.

ASTM STANDARD REINFORCING BARS				
BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIAMETER INCHES	CROSS SECTIONAL AREA SQ. INCHES	PERMETER 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

STATE OF VERMONT AGENCY OF TRANSPORTATION	
Town Of <u>HARTLAND</u>	Bridge No. <u>40N/40S</u>
Highway No. <u>1-91</u>	Log Sta. <u>MM 66.350</u>
<u>1-91 OVER THE OTTAWAQUECHEE RIVER</u>	
QUANTITIES & REINFORCING STEEL SCHEDULE	
Designed By <u>P.M. THURBER</u>	Drawn By <u>K.M. HIGGINS</u>
Checked By <u>P.M. THURBER</u>	Bridge Design Supervisor <u>J.B. MCCARTHY</u>
Date <u>5/97</u>	Date <u>5/97</u>
PROJECT <u>HARTLAND</u>	PROJECT NO. <u>(M-091-1135)</u>
L.G.C. Info. <u>IP_PWPdms05240.cad056002.dgn</u>	sd056002.dgn
Bridge Sheet No. <u>2</u>	Sheet <u>2</u> of <u>7</u>

General Notes:

1. All materials and construction shall conform to State of Vermont, Agency of Transportation's standard specifications for construction, dated 1990, and its latest revisions, and the AASHTO standard specifications for highway bridges, sixteenth edition dated 1996, and its latest revisions.
2. These plans were prepared based on original plans. The resident engineer may be required to make minor changes to the dimension and / or quantities shown on the plans to fit actual field conditions.
3. The contractor shall contact George Spiliak, DTA District 4 (White River 802-295-8888) immediately upon notice of contract award to set a date when the District should remove the existing State traffic control signs and concrete barrier. The District will need a five day notice of when the contractor wants the State material removed and a two day time frame for removal. The District will remove all existing materials. The contractor shall have the cross over fully operational before the District removes the existing materials.
4. Bridge 40N shall be done first. A crossover will be used to move all northbound traffic onto the southbound bridge during construction. A similar traffic control sequence will be used for the repair of bridge 40S. The bridge under repair shall remain closed to through traffic during construction.
5. Prior to crossing over any traffic, the Contractor shall have in place, on the southbound structure, temporary accesses to allow for under deck beam inspection. The contractor shall submit details to provide the under deck beam inspection to the Structure Engineer for review and approval. To ensure that these accesses meet the necessary requirements, it is strongly recommended that the contractor have direct communication with the bridge inspection team prior to and during construction of these units. Only once the bridge inspection team is satisfied with the accesses will traffic be allowed to be crossed over. These accesses shall be located at each deflection joint on the southbound bridge. See reference sheet 9 for location. Payment shall be made under item 555.20 "Access to Bridge".
6. Extreme precautions shall be taken by the contractor to prevent any material and pollutants of any kind from falling into the Ottauquechee River and causing subsequent damage to the hydro-electric plant located downstream. The contractor is warned that the water level may change quickly as flow is dam controlled.
7. Any falsework or temporary shoring details shall be submitted to the engineer for review and approval prior to use on the project.
8. The following table of allowable stresses and weights apply to these plans for retrofit purposes:

structural steel, AASHTO M270 Grade 36	Fy = 36 ksi
concrete, class A: f'c = 4,000 psi	Fc = 1,600 psi
reinforcing steel: ft = 24,000 psi	grade 60
9. The existing bridge pavement and concrete deck shall initially be saw cut 1" deep along the cut lines shown on these plans.
10. The contractor shall exercise caution during removal and resetting of the bridge rail in order to prevent any damage. Any damage shall be repaired by the contractor at no cost to the State.
11. Item 525.11 "Resetting Railing" shall include a new post anchor assembly, 1/4" pad and new splice bars, if necessary, as shown on sheet 7.
12. Payment for the removal of the existing bituminous concrete pavement on the bridge shall be made under the item 529.10 "Removal of Bridge Pavement". The material shall become the property of the contractor and shall be disposed of properly at an offsite location.
13. Item 529.20 "Partial Removal of Structure" shall consist of cutting the stringers four feet (4') on either side of the deflection joint, supporting that portion of stringer and deck remaining and removal of the detached piece of the stringer.
14. Item 529.26 "Removal of Concrete or Masonry" shall consist of the removal of the existing concrete deck along with cutting and cleaning of the existing reinforcing steel as detailed on sheet 5.
15. The existing granite curb to be removed shall become the property of the contractor and properly disposed of at an off-site location. Granite curb, where removed, shall be replaced with Concrete, Class A.

16. The abutment expansion bearings on both bridges shall be reset to their vertical position as detailed on reference sheets 13 & 14. Payment for this work shall be made under item 502.11 "Shoring Superstructure Bearings" and shall include the jacking of the superstructure, resetting the abutment bearings and drilling of new holes in the bottom flange of the main girder for the 1" high strength bolts. The jacks shall be distributed in such a manner that the superstructure shall be lifted, one end at a time, as a unit. All jacks shall work in unison. Each bearing supports approximately 260 Kips of dead load weight. All portions of the bearings to remain in place shall be cleaned, inspected, painted and greased. Any further work to the bearings as deemed necessary by the engineer shall be paid for as extra work.

17. All deck and bridge curb concrete shall be "Concrete, Class A".
18. A thin coating of neat cement or mortar shall be placed on the edge surface of the existing concrete immediately prior to the placement of the abutting fresh concrete as detailed per section 501.13 (b). Payment shall be considered subsidiary to item 501.22 "Concrete, Class A".
19. All reinforcing shall be detailed and fabricated using procedures and tolerances in accordance with applicable publications of the Concrete Reinforcing Steel Institute (CRSI).
20. Reinforcing placement tolerances shall be: spacing +/- 1" clearance +/- 1/4"
21. No traffic shall be allowed on the deck until the cure period is up and the 28 day design strength is attained as evidenced by test cylinders cured under field conditions.
22. All exposed edges of concrete shall be chamfered 1" by 1".
23. Joints and score marks in concrete shall be constructed as indicated on the plans or as directed by the engineer in the field.
24. Water repellent shall be applied to all exposed concrete surfaces except the underside of the deck between drip beads.
25. All structural steel shall be detailed and fabricated using procedures and tolerances in accordance with applicable publications of the American Institute of Steel Construction (AISC).
26. All new structural steel elements subject to tension shall be Charpy V-notch tested. These members are designated by (CVN) in the applicable details. See section 714 of the standard specifications.
27. The existing stringers must be cut in such a manner that a gap of 1/8" maximum exists between the new steel and the old steel on either spliced end. Mechanical or flame cutting of the existing stringers is allowed. All cut edges shall be ground flush, cleaned and painted prior to splicing on the new portion of stringer. Areas of steel to be painted shall not receive paint until after installation. Refer to standard specification 506.19(b), METAL SURFACES IN CONTACT WILL NOT BE PAINTED.
28. Any damage to the existing structural steel that is to remain in place or to the existing paint system shall be repaired to the satisfaction of the engineer at no cost to the State.
29. The existing steel that is to be replaced is painted with a material that may contain lead. As instructed by the resident engineer, a four foot section of each stringer size per structure shall be saved and delivered to the District 4 office for possible future testing. All remaining steel shall become the property of the contractor and the contractor may dispose of it or retain it for future use. The contractor shall inform the engineer of his or her plans for the disposal or retaining of the steel prior to its removal.
30. The work performed and paid for under item 513.36 "Containment & Environmental Protection, Field" shall consist of containing all loose paint for the cutting and splicing of the existing stringers, any required bearing work and any additional work that may loosen or damage the existing paint system.
31. All structural steel shall be painted as described under item 513.25 "Structural Painting - Shop Applied". The final coat color shall be green (color chip #14062). See supplemental specification 513 for details. If the shop applied paint system is damaged during the shipment and/or placement of the beams, the damaged areas shall be properly repaired and painted. This work shall be considered subsidiary to item 513.25.
32. The paint system used in the field and the shop applied paint system shall be compatible and provided from the same manufacturer.
33. All field connections shall be made with 7/8" diameter type I bolts meeting AASHTO M164 (ASTM designation A-325) coated in accordance with AASHTO M298, type I, class 50. Holes shall be 15/16" diameter unless otherwise noted. After installation, bolts shall be field painted to include intermediate and final coating systems.
34. Bolts shall not be paid for separately but shall be considered subsidiary to item 506.50 "Structural Steel (Rolled Beam)".
35. Any connections that are not detailed on the plans shall be detailed by the fabricator and submitted to the Structures Engineer for approval.
36. Connections at the new stringer field splices shall have all holes filled with high strength bolts and fully tightened prior to removal of external support system.
37. Any bolt holes in the web of the fascia stringers not otherwise filled shall be filled with button head or hex head bolts. The bolts shall be tightened in accordance with subsection 506.19.
38. All structural steel paid for under the item 506.50 "Structural Steel (Rolled Beam)" shall conform to AASHTO M-270 grade 36 steel.

39. The traffic control crossovers shall be constructed in accordance with standard E-104 beginning at the point of curvature of the roadway at milemarker 65.90 and extend for 1.56 miles to milemarker 67.46. The crossovers shall be located in such a manner to ensure that all approach work on the bridge be done without traffic interference. The enforceable speed limit for this traffic control shall be 55 mph.
40. Two (2) portable, changeable message boards and two (2) arrow boards will be required. Payment for these items shall be considered subsidiary to item 641.10 "Traffic Control".
41. Upon removal of the temporary detour, all vegetated areas disrupted shall be mulched and seeded to the satisfaction of the resident engineer. Payment for this work shall be considered subsidiary to item 641.10 "Traffic Control".
42. The bridge rail may be removed in one of two methods. The first being cutting the existing splice bars at first splice location outside the work area and removing that section in its entirety. This method will require the contractor to install new barrier and hand rail splice bars. The second method consists of removing only the posts and leaving the rails in place during construction. The contractor shall be careful not to damage or dirty (ie: concrete splash) the existing rail.
43. The granite curbing shall be cut and removed as detailed on sheet 5. Should that cut fall in close proximity to an existing curb joint, that remaining portion of curb length may require some mortar and/or epoxy to secure it in place. Payment for this shall be considered subsidiary to item 529.26 "Removal of Concrete or Masonry".
44. The contractor shall carefully remove the existing concrete so as to retain a 2'-9" length of existing reinforcing as shown on sheet 5. The retained reinforcing shall not be bent or damaged during the installation of the new stringers and splices.



45. Use of stay in-place forms is prohibited.
46. Use of mechanical connectors or a similar Hilti product will not be allowed.
47. The pavement and insulation board on bridge 40N shall be removed in its entirety and paid for under item 529.10 "Removal of Bridge Pavement". Bridge 40N shall be fully membraned and paved. Bridge 40S shall be cold planed and repaved. Sheet membrane will be required on the new sections of concrete only as this structure should have an existing membrane in place.
48. The scope of this retrofit project shall include the construction of the temporary crossover detours, removal of the existing deflections (2 joints per bridge) making the deck and all stringers continuous, retrofit of the abutment expansion bearings and membraning and paving as detailed in general note 47.
49. Field fabrication of the structural steel will not be allowed. Shop drawings shall be submitted to the Structure Section for approval prior to any fabrication.

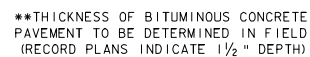
STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of HARTLAND Bridge No. 40N/40S
Highway No. 1-91 Eng. Sta. NW 66.350
Surv. Sta. ---
1-91 OVER THE OTTAUQUECHEE RIVER

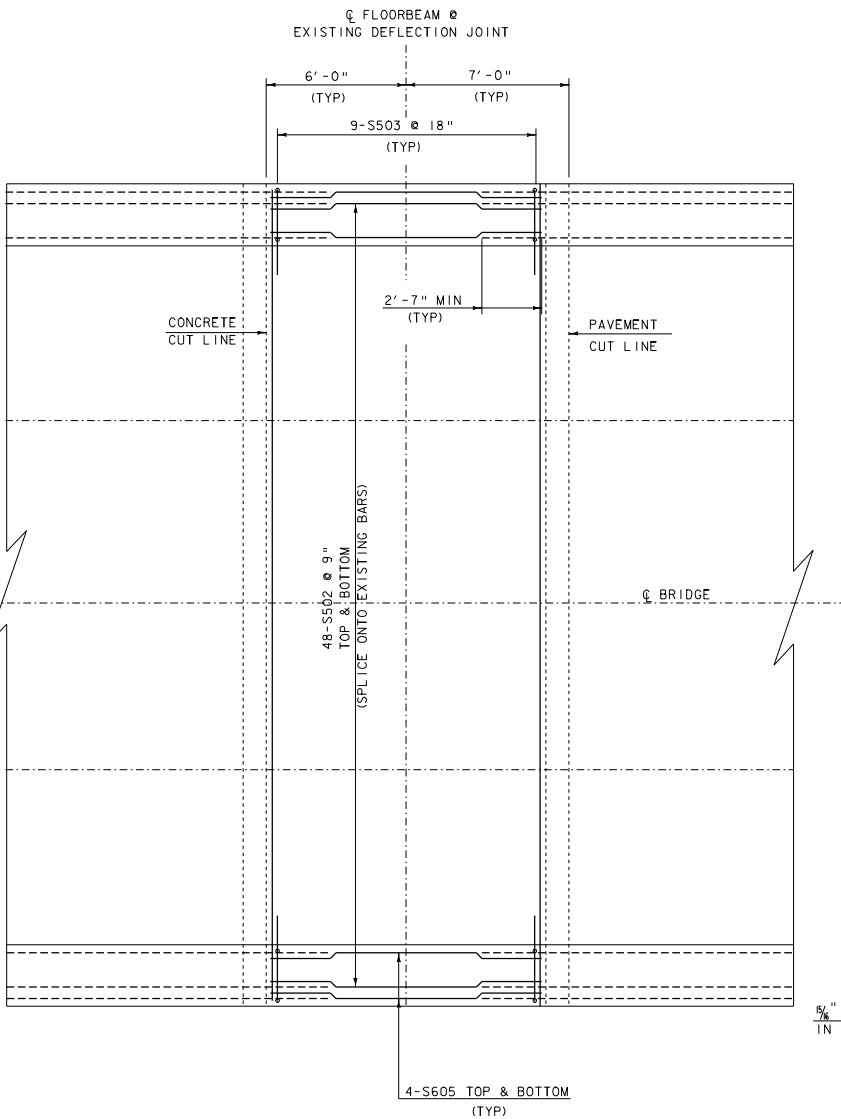
GENERAL NOTES

Designed By P.M. THURBER Drawn By K.M. HIGGINS
Checked By P.M. THURBER Date 5/97 Bridge Design Supervisor J.B. MCCARTHY Date 5/97
PROJECT HARTLAND PROJECT NO. 1M-0911(35)
I.G.C. Info. IP_PWPdms05240cd056003.dgn ed056ndt1
Bridge Sheet No. --- Sheet 3 of 17

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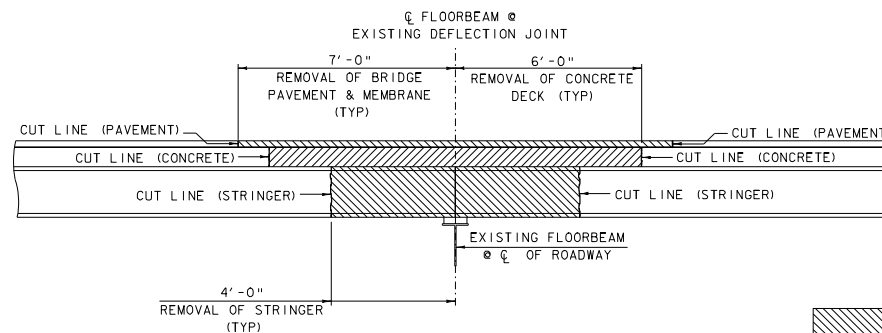
STATE OF VERMONT AGENCY OF TRANSPORTATION	
Town Of <u>HARTLAND</u>	Bridge No. <u>40N/40S</u>
Highway No. <u>1-91</u>	Top Sta. <u>MM 66.350</u>
<u>1-91 OVER THE OTTAUQUECHEE RIVER</u>	
TYPICAL SECTION & REINFORCING DETAIL	
Designed by <u>P.M. THURBER</u>	Drawn by <u>K.W. HIGGINS</u>
Checked by <u>Date</u>	Bridge Design Supervisor
<u>P.M. THURBER</u> <u>5/97</u>	<u>J.B. MCCARTHY</u> <u>Date 5/97</u>
PROJECT <u>HARTLAND</u>	PROJECT NO. <u>IM-09-(H35)</u>
I.C.S. Info. <u>IP-PW/PM/CS05240/CS06004/DA</u>	SO/26661/1
Bridge Sheet No. <u>Sheet</u>	<u>4</u> of <u>1</u>



DECK REINFORCING PLAN

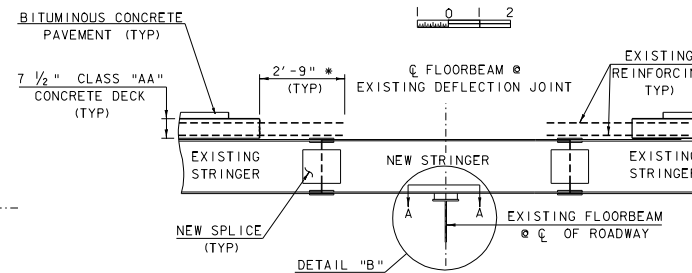
SCALE $\frac{3}{8}" = 1'-0"$

0 1 2 3 4



DETAIL FOR MATERIAL REMOVAL

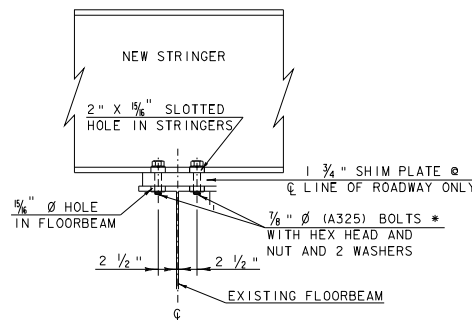
SCALE $\frac{1}{2}" = 1'-0"$



* RETAIN EXISTING REINFORCING STEEL 2'-9" BEYOND CONCRETE CUT LINE.

EXISTING REINFORCING STEEL DETAIL

SCALE $\frac{1}{2}" = 1'-0"$



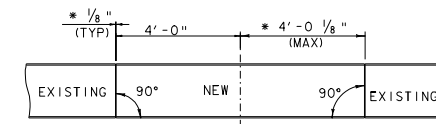
DETAIL "B"

* LENGTH OF BOLTS UNDER HEAD SHALL BE 5" WITH 3 1/2" OF THREAD. PAYMENT FOR THESE BOLTS SHALL BE SUBSIDIARY TO ITEM 506.50 "STRUCTURAL STEEL (ROLLED BEAM)"

SCALE $1 \frac{1}{2}" = 1'-0"$

9 6 3 0

= AREA TO BE REMOVED

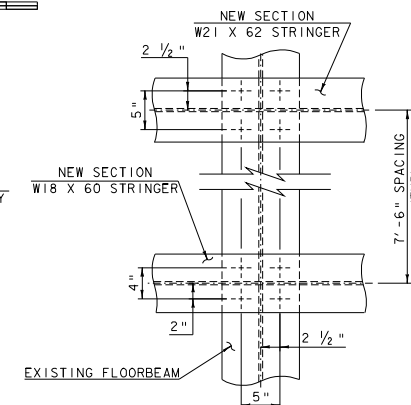


NOTE: NO CAMBER IN STRINGERS
* REFER TO GENERAL NOTE #27

STRINGER CUT DETAIL

SCALE $\frac{1}{2}" = 1'-0"$

1 0 2



SECTION A-A

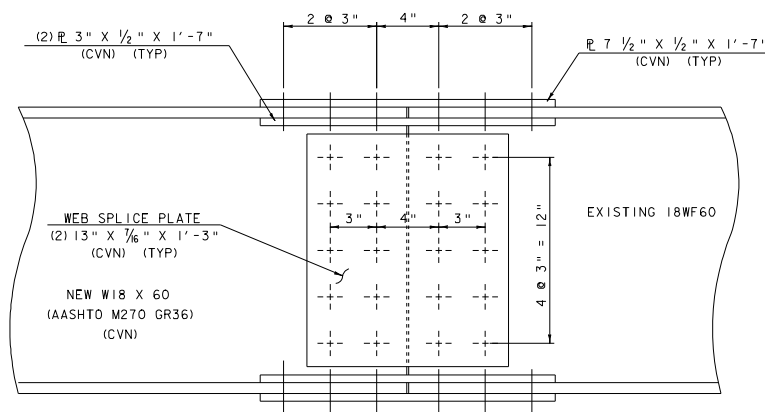
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AGENCY OF TRANSPORTATION

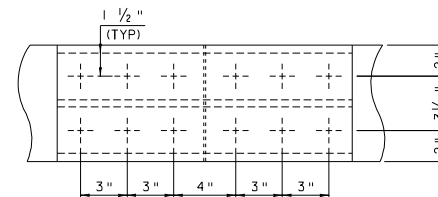
Town Of HARTLAND Bridge No. 40N/40S
Highway No. 1-91 Eng. Sta. MM 66.350
Surv. Sta. 1-91 OVER THE OTTAUQUECHEE RIVER
Designed By P.M. THURBER Drawn By K.M. HIGGINS
Checked By P.M. THURBER Date 5/97 Bridge Design Supervisor J.B. MCCARTHY Date 5/97
PROJECT HARTLAND PROJECT NO. IM-09-H(35)
I.G.C. Info. IP_PWPdms05240cd056005.dgn Sheet 5 of 17
Bridge Sheet No. 5 of 17



INTERIOR STRINGER SPLICE
(W21 X 62 TO 21WF55)



ELEVATION



PLAN

EXTERIOR STRINGER SPLICE
(W18 X 60)



NOTE : ALL BOLTS IN SPLICE CONNECTION SHALL BE $\frac{7}{8}$ " DIAMETER A-325,
TYPE I BOLTS IN $\frac{5}{8}$ " DIAMETER HOLES . SEE GENERAL NOTE 33.

NOTE: ALL MEMBERS AND PLATES (AND ONLY THOSE MEMBERS AND PLATES) IDENTIFIED WITH THE NOTATION (CVN) MUST MEET THE REQUIREMENTS FOR MAIN MEMBERS AS INDICATED IN SECTION 714 OF THE VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	<u>HARTLAND</u>	Bridge No.	<u>40N/40S</u>
Highway No.	<u>1-91</u>	Mag. Station	<u>WM 66.350</u>
<u>1-91 OVER THE OTTAQUECHEE RIVER</u>		Survey Sta.	
<u>SPLICE DETAIL</u>			
Designed By	<u>P.M. THURBER</u>	Drawn By	<u>G.M. HISSING</u>
Checked By	<u>Date</u>	Bridge	<u>Super</u>
<u>P.M. THURBER</u>	<u>5/97</u>	<u>J.B. MCARTHY</u>	<u>Date</u> <u>5/97</u>
PROJECT	<u>HARTLAND</u>	PROJECT NO.	<u>IM-09-(35)</u>
I.G.C. Info.	<u>IP_PWPrime052402005006020</u>		<u>en056a31</u>
Bridge Sheet No.		Sheet	<u>6</u> of <u>12</u>



ANCHOR PLATE

RAIL POSTS ANCHORAGE DETAIL

Technical drawing of a metal plate with the following specifications:

- Overall Dimensions:** 15' - 8" (Length) x 3" (Thickness).
- Internal Features:** 15 SPACES @ 1'-0" = 15'-0" (Spacing between holes).
- Hole Specifications:** 9/16" DIAMETER HOLES (TYP).
- End Details:**
 - End view shows a 3" thick plate with a 10/16" x 7/16" hole.
 - Side view shows a 1' - 9 1/4" length with a 3/4" x 1/16" hole.

FABRIC DRAIN TROUGH

SCALE 1 = 100

1 9 6 3 0 1 2

COLD PLANE EXISTING PAVEMENT 1 1/2"

WEARING SURFACE - 1 1/2" THICK

SHIM LAYER TO ACCOUNT FOR SETTLEMENT

△

COLD PLANING @ APPROACHES

POLYURETHANE JOINT SEALER

$\frac{3}{4}"$

$\frac{1}{4}"$

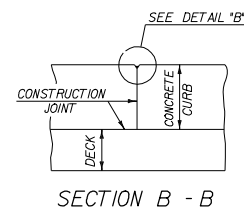
ALL AROUND

CONCRETE CURB

DECK

BITUMINOUS CONCRETE OR AS DETAILED

TYPICAL SECTION THROUGH
CONCRETE CURB CONSTRUCTION JOINT



1 1/2"

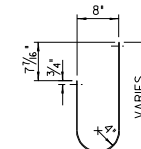
3/4"

ADHERE TO THESE SURFACES

DETAIL "B"

NOTES:

1. CONSTRUCTION JOINTS THROUGH CONCRETE CURBS SHALL BE SPACED MAXIMUM 15'-0" CENTER TO CENTER AND SHALL BE 1'-6" MINIMUM FROM THE CENTER OF THE NEAREST BRIDGE RAIL POST. CONCRETE SHALL BE PLACED IN ALTERNATING SECTIONS WITH A MINIMUM OF 48 HOURS DELAY BETWEEN ADJACENT POURS.
2. LONGITUDINAL REINFORCING SHALL PASS THROUGH CONCRETE CURB CONSTRUCTION.
3. CONSTRUCTION JOINTS THROUGH SIDEWALKS SHALL BE SIMILAR TO CONCRETE CURB CONSTRUCTION JOINTS.



SECTION A - A

SCALE 1" = 1'-0"

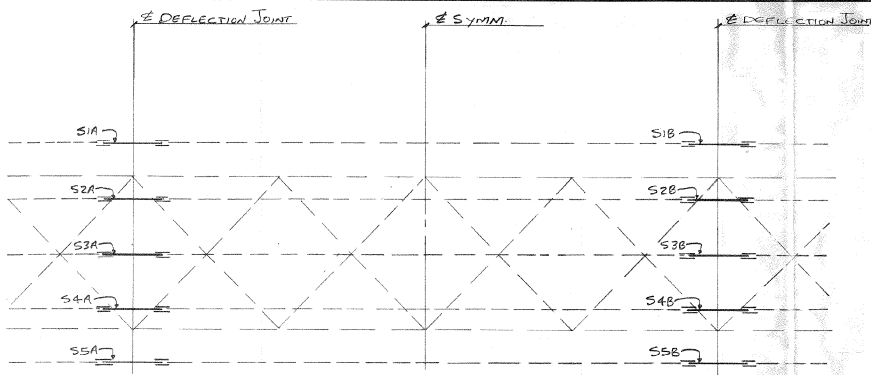
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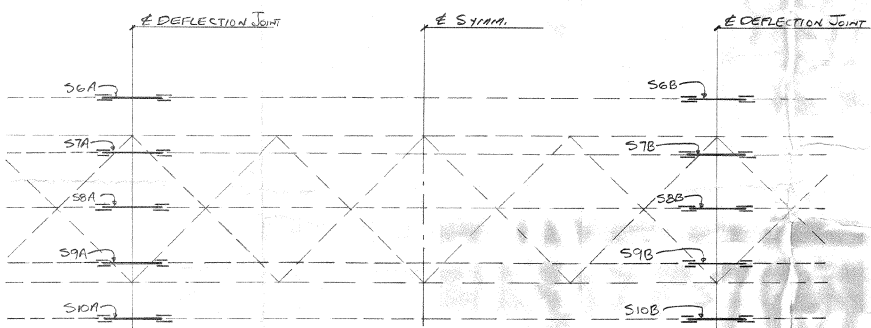
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REVISÉ JUNE 13, 1997

STATE OF VERMONT AGENCY OF TRANSPORTATION	
Town Of <u>HARTLAND</u>	Bridge No. <u>40N/40S</u>
Highway No. <u>1-91</u>	Reg. Sta. <u>MM 66.350</u> Surv. Sta. _____
<u>1-91 OVER THE OTTAWAQUECHEE RIVER</u>	
APPROACH & RAIL ANCHORAGE DETAILS	
Designed by <u>P.M. THURBER</u>	Drawn by <u>G.M. HIGGINS</u>
Checked by _____ Date _____	Bridge Design Supervisor <u>P.M. THURBER</u> <u>5/97</u> <u>J.B. MCGRATH</u> Date <u>5/97</u>
PROJECT <u>HARTLAND</u>	PROJECT NO. <u>IM-09/H(35)</u>
I.G.C. Info. <u>IP_PWPdms052400.ccd56007.dgn</u> <u>05605864.1</u>	
Bridge Sheet No. _____	Sheet <u>7</u> of <u>7</u>



ERECTION PLAN BRIDGE 40N



ERECTION PLAN 40S

ERECTOR NOTE: ALL BOLTS MUST BE LOCATED IN ACCORDANCE WITH THE LIST OF FIELD CONNECTIONS. HIGH STEEL STRUCTURES WILL NOT BE RESPONSIBLE FOR FURNISHING ADDITIONAL BOLTS OR FOR ANY OTHER RELATED COSTS OR DAMAGES RESULTING FROM IMPROPER LOCATION OF BOLTS.

LIST OF FIELD CONNECTIONS

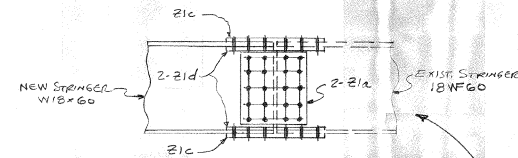
ONE WASHER PER BOLT UNLESS NOTED OTHERWISE

LINE	ACTUAL BOLT NO.	BOLT DIA.	BOLT LENGTH	* OF CONN.	GRP	THICKNESS OF PLATE CONNECTED	PIECES CONNECTED AND REMARKS
1	320	1/2"	24	16	15	7/16"	WEB SPlice @ W18x60
2	480	3/4"	20	24	18	3/8"	WEB SPlice @ W21x62
3							
4	384	3/4"	12	32	11 1/2"	1/2"	TOP & BOT. FLG. SPlice @ W18x60
5	288	3/4"	12	24	14	3/8"	TOP FLG. SPlice @ W21x62
6	288	3/4"	12	24	13	3/8"	BOT. FLG. SPlice @ W21x62
7							
8							
9							
10							
11							
12							
13							
14							
15							

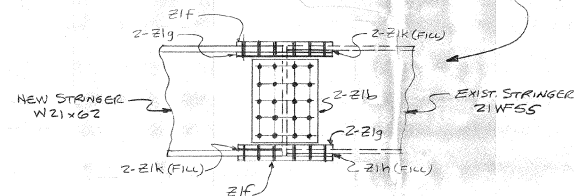
SUMMARY OF FIELD BOLTS

4% ADDITIONAL ADDED
ASTM A325 TYPE 1 1/4" HX 1 1/2" HEAD AND
ASTM A563 GR. D11 HX 1 1/2" NUT
399 - 3/8" HIGH STRENGTH BOLTS X 0-3
632 - 3/4" X 0-2 1/2" RCT
799 - 3/4" X 0-2 1/2" RCT
1830 - HARD R.D. FLAT WASHER F436 F4 3/8" BOLTS RCT

RCT Indicates Rotational Capacity Tested Bolts. Do Not Mix Nuts And Bolts From Different Containers Unless All Bolts And Nuts Have The Same Lot Number.



FIELD SPlice DETAIL @ STRINGERS
S1A, S5A, S6A, S10A, S1B, S5B, S6B, S10B



FIELD SPlice DETAIL @ STRINGERS
S2A, S3A, S4A, S7A, S8A, S9A, S2B, S3B, S4B, S7B, S8B, S9B

ERECTOR NOTE:
FIELD DRILL 1/8" HOLES IN WEB & FLANGES OF EXIST. STRINGERS USING NEW SPlice PLATES AS TEMPLATE

NOTES:

NO CREDIT WILL BE ALLOWED FOR WORK PERFORMED BY OTHERS IN REPLACING OR CORRECTING MATERIALS OR WORKMANSHIP COVERED BY THIS DRAWING UNLESS EXPRESSLY AUTHORIZED BY HIGH STEEL STRUCTURES, INC. ALL FIELD CONNECTIONS TO BE MADE WITH 3/4" HIGH STRENGTH A325, TYPE BOLTS.

NOTES: WEIGHTS OF MEMBERS LISTED ON THESE DRAWINGS ARE ESTIMATED WEIGHTS AND ACTUAL WEIGHTS WILL VARY. HIGH STEEL STRUCTURES, INC. WILL NOT BE RESPONSIBLE FOR ANY ERECTION PROCEDURES, SHIPPING PROCEDURES, ETC. DEVELOPED USING ESTIMATED WEIGHTS AS SHOWN.

NOTICE TO ERECTOR & CONTRACTOR: THIS STRUCTURAL STEEL IS BEING DELIVERED WITH THE FINAL FINISH COAT APPLIED. YOUR SPECIAL ATTENTION REQUIRES EXTREME CARE AND APPROPRIATE EQUIPMENT FOR HANDLING DURING ERECTION AND SUBSEQUENT FIELD OPERATIONS. HIGH STEEL STRUCTURES, INC. WILL NOT BE RESPONSIBLE FOR ANY TOUCH-UP REQUIRED DUE TO YOUR FAILURE TO PROPERLY PROTECT FINISH PAINT.

ALL FIELD BOLTS THRU BOTTOM FLANGE ARE TO HAVE HEADS UP. ALL FIELD BOLTS THRU WEB OF FASCIA GIRDERS ARE TO HAVE HEADS ON OUTSIDE OF WEB.

RECEIVED
BY: PMT. DCD BY: KCMH

JUN 30 1997

RECEIVED
BY: J. Mc DONALD
DATE: 7/1/97

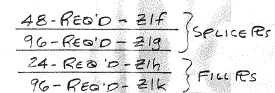
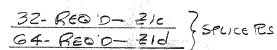
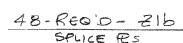
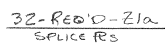
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1776 Montpelier Road
Montpelier, VT 05602-0006
Phone 774-229-5000

HIGH STEEL STRUCTURES, INC.

ERECTOR PLAN
REHAB. BRIDGE 40N & 40S ON I-91
OVER OTTAWA/QUEEN RIVER
HARTLAND, VERMONT
STATE OF VERMONT, AGENCY OF TRANSPORTATION
MONTPELIER, VERMONT

STATE CONTRACT NO. 1M-091-1(35)
CONTRACTOR J.A. Mc DONALD
IN CHARGE LANCOWS, INC. DATE 6-21-97
CONTRACT NUMBER VT-97764-1 DRAWING NUMBER E1 OF E1



019 JUN 26 1997

ENGLISH

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68

GENERAL SHOP NOTES

FEDERAL DISTRICT	STATE	FEDERAL PROJECT
1	VT	

SPECIFICATIONS:

ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT,
AGENCY OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1988,
WITH CURRENT MODIFICATIONS AND ADDITIONS.

MATERIAL:

UNLESS NOTED OTHERWISE, ALL STEEL TO BE AASHTO M270 GRADE 36.
(T) INDICATES CHARPY V-NOTCH TESTING REQUIRED.

CLEANING:

BLAST CLEAN ALL STEEL TO SSPC-SP10 (NEAR WHITE).
BLAST CLEANING ANCHOR PROFILE TO BE FROM 1.5 TO 2.5 MILS DEEP.

SHOP PROCEDURE:

CAMBER TOLERANCE: N/A

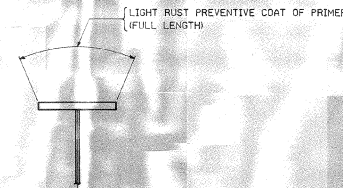
PAINTING:

ALL STEEL, EXCEPT SPLICE PLATES, TO BE PAINTED (UNLESS NOTED) WITH A 3 COAT
SYSTEM AS FOLLOWS:
PRIME COAT: CARBO ZINC 11 HS (INORGANIC ZINC) WITH 2.0 TO 6.0 MILS D.F.T.
INTER. COAT: CARBOLINE 833 (EPOXY) WITH 3.0 TO 7.0 MILS D.F.T.
FINISH COAT: CARBOLINE 133 HB (POLYURETHANE) WITH 3.0 TO 7.0 MILS D.F.T.
FINISH COAT COLOR TO BE GREEN, FEDERAL STANDARD 595, COLOR #14062.
SPLICE PLATES TO BE PAINTED WITH ONE COAT OF CARBO ZINC 11 HS (INORGANIC ZINC)
WITH 2.0 TO 6.0 MILS D.F.T.

PRIME COAT TO BE APPLIED WITHIN 8 HOURS AFTER BLAST CLEANING.
STRIPE COAT ALL EDGES OF STRINGERS PRIOR TO THE APPLICATION OF THE FULL PRIME
COAT.
TOP FLANGE OF STRINGERS, AS SHOWN IN SECTION "A", SHALL RECEIVE A LIGHT RUST
PREVENTIVE COAT OF PRIMER, NOT TO EXCEED 1.5 MILS D.F.T.

DRAWING REFERENCES:

STRINGER JOB STANDARDS - PREFIXED "Z"

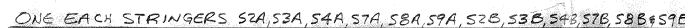
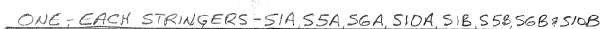


INSPECTION:

SHOP INSPECTION BY E.L. CONWELL

RECEIVED
CHK BY: PMT, GAY R. K. CO. II
JUN 30 1997
RESUBMIT: APPROVED: AS NOTED
7/6/97

△		
△		
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NO.	REVISION	DATE
STD Inspection Sheet Laboratory, PA 1800-0008 Phone 717/299-0101 HIGH STEEL STRUCTURES, INC. A Division of High Steel Structures		
GENERAL SHOP NOTES		
REHAB. BRIDGE 40N & 40S ON I-91		
OVER OTTAUQUECHEE RIVER		
WARTLAND, VERMONT		
STATE OF VERMONT, AGENCY OF TRANSPORTATION		
MONTPELIER, VERMONT		
STATE CONTRACT		
OR REF. NO. (M-091-1038)		
CONTRACTOR J. A. Mc DONALD		
IN CHARGE	DESIGN	DATE
(LAWSON) (MC)	ADD	CHK'D BY RF
CONTRACT NUMBER VT-97764-1	DRAWING NUMBER	NI OF NI



RECEIVED
CND BY PMT OK'D BY KMH
JUN 30 1997
RESUBMIT _____ APPROVED AS NOTED
BY [Signature] DATE 7/2/97

SHOP NOTE

HOLES: 15" 0
16
BOLTS: NONE
PAINT: SEE D
CAMBER: NONE

FOR GENERAL SHOP NOTES SEE DWG. N1

CODE: 50

021 JUN 26 1997