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 2011 WITH LATEST REVISIONS AND THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 2012, AND ITS LATEST REVISIONS.

MATERIAL SPECIFICATIONS

1) UNLESS OTHERWISE NOTED, ALL STEEL TO BE UNPAINTED AASHTO M270 (ASTM A709) GRADE 50W.

2) MATERIAL NOTED "CVN" OR "T2" ON DETAIL DRAWINGS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF VERMONT STANDARD SPECIFICATIONS SECTION 714.01.

3) HIGH STRENGTH BOLTS:
-ASTM A325 (AASHTO M164) TYPE 3 W/ A563 GRADE C3 NUTS & F436-3 WASHERS.

BOLTS & NUTS SHALL BE ROTATIONAL CAPACITY TESTED.
DO NOT MIX NUTS & BOLTS FROM DIFFERENT CONTAINERS UNLESS ALL BOLTS & NUTS HAVE THE SAME LOT NUMBER.

4) DIRECT TENSION INDICATOR WASHERS CONFORMING TO ASTM F959 SHALL BE INSTALLED WITH ALL HIGH STRENGTH BOLTS.

FABRICATION

1) ALL HOLES SHALL BE PUNCHED OR DRILLED FULL SIZE (UN).

WELDING

1) THE CONFIGURATION OF THE WELD JOINTS AND ALL WELDING PROCEDURES SHALL BE IN ACCORDANCE WITH AASHTO/AWS D1.5-10 BRIDGE WELDING CODE AND IN ADDITION TO SPECIFICATIONS SHOWN ABOVE. ALL WELDING WILL BE DETAILED TO PRE-QUALIFIED JOINTS, UNLESS PROHIBITED BY THE DESIGNER.

2) WELDING OF MAIN LOAD CARRYING MEMBERS AND ATTACHMENTS SHALL BE PERFORMED USING THE AUTOMATIC SUBMERGED ARC & SHIELDED METAL ARC PROCESSES. ALL WELDS ARE CONTINUOUS U.N.

3) NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH THE REFERENCED SPECIFICATION.

4) SEE DETAIL "WS1" ON THIS DRAWING FOR WELD TERMINATION DETAIL.

FIELD CONNECTIONS

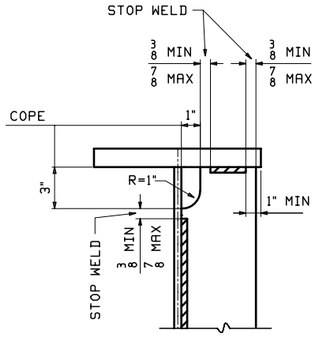
1) ALL FIELD CONNECTIONS SHALL BE MADE WITH A-325 HS BOLTS, INSTALLED PER SECTION 506.19(c). BOLTED CONNECTIONS SHALL BE INSTALLED USING DIRECT TENSION INDICATORS. REFER TO SECTION 506.19 OF THE GENERAL SPECIAL PROVISIONS. (SEE TYPICAL BOLT DETAIL").

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.

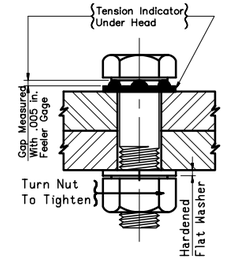
CLEANING:

1). UNPAINTED STEEL SHALL BE BLAST CLEANED TO SSPC SP-6 TO ACHIEVE A UNIFORM WEATHERED APPEARANCE.



DETAIL "WS1"

STIFFENER WELD TERMINATION



TYPICAL BOLT DETAIL

THE FOLLOWING CASCO WELDING PROCEDURES SHALL BE USED:

WELD DESCRIPTION	MAT'L GRADE	WP	CASCO WELD PROCEDURE
WEB TO FLG FILLET	M270-50W	WP1	201
STIFF TO WEB FILLET	M270-50W	WP4	250
STIFF TO FLG FILLET	M270-50W	WP5	470 OR 480
ALL OTHER FILLET WELDS	M270-50W	WP8	470 OR 610

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
0						

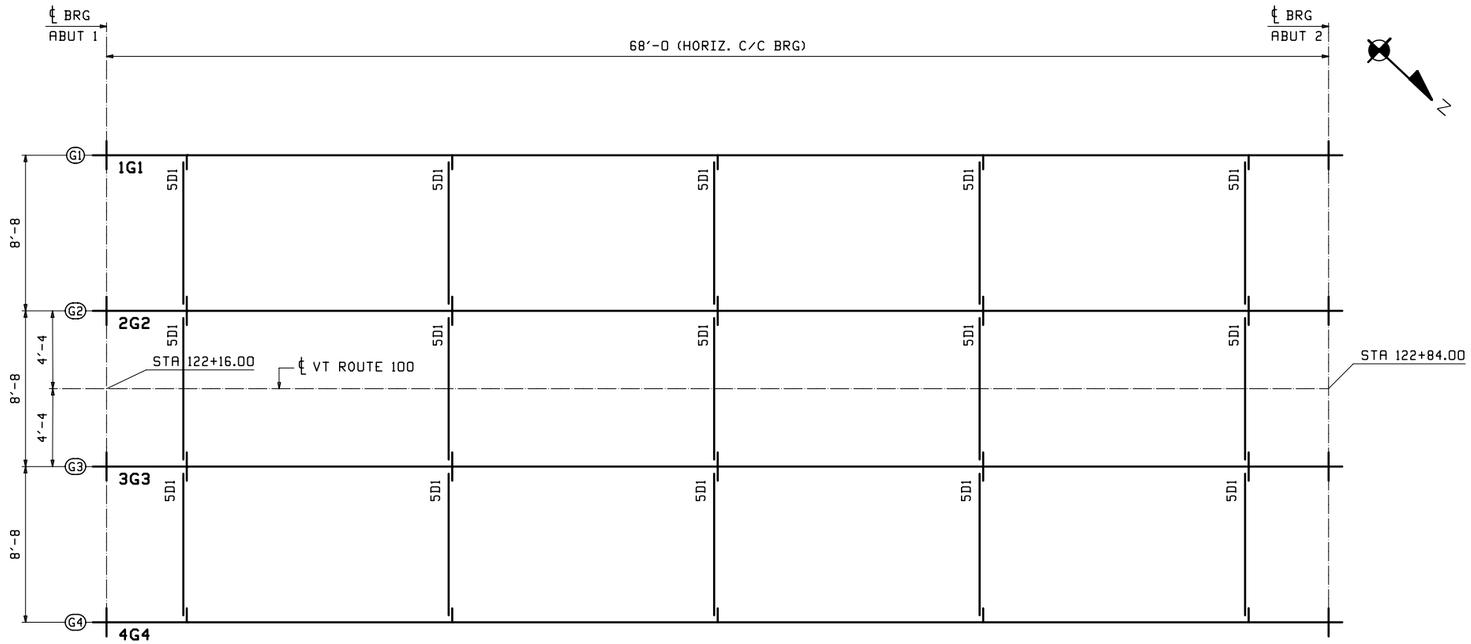
MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:

DESCRIPTION: GENERAL NOTES

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. SOUTH PORTLAND, ME 04106
PHONE (207) 780-6722 FAX. (207) 780-6726
TENSOR 3375

STRUCTURE: VT ROUTE 100 OVER WARDSBORO BROOK BRIDGE NO. 68 WINDHAM COUNTY, VT	DRAWN: JAS	DATE: 01/14	
	CHKD: RW	DATE: 02/01	
LOCATION: TOWN OF WARDSBORO	JOB NO.	DWG NO.	
PROJ NO. STATE PROJ. BRF 013-1 (15)	648-01	GN1	
CUSTOMER: RENAUD BROS., INC.		REV. △	

JAS Thu Feb 4, 2016 12:03:32 PM J:\users\jas\3375\GN1 Rev0



FRAMING PLAN

FIELD BOLT LIST							A325 Type 3 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															INT DIAPHRAGMS
2	180	7/8	2 1/2	6	30	7/8	3/8	1/2						L1	DIAPH WEB ~ CONN STIFF
3															
WASHER CODES															
L1: 1 Flat, 1 Load Ind. LIW @ head,hard wa. @ nut															

FIELD BOLT SUMMARY			2%+2 ADDED, MIN 2 EXTRA			
LINE	NO. OF BOLTS	BOLT DIAM.	TYPE	BOLT LEN	ACTUAL COUNT	REMARKS
1	186	7/8	A325 Type 3	2 1/2	180	
2						
3	186	Hard Flat Washers	for 7/8 ø	BOLT		(ACTUAL 180) (F436-3)
4	186	Load Ind. Washers	for 7/8 ø	BOLT		(ACTUAL 180) (F959-3)
5						
6						
7						

NOTE:

-ALL STEEL SHALL BE ERECTED WITH THE "SHIPPING MARK" IN THE SAME RELATIVE POSITION AS SHOWN ON THE ERECTION PLAN.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE SHT GN1		

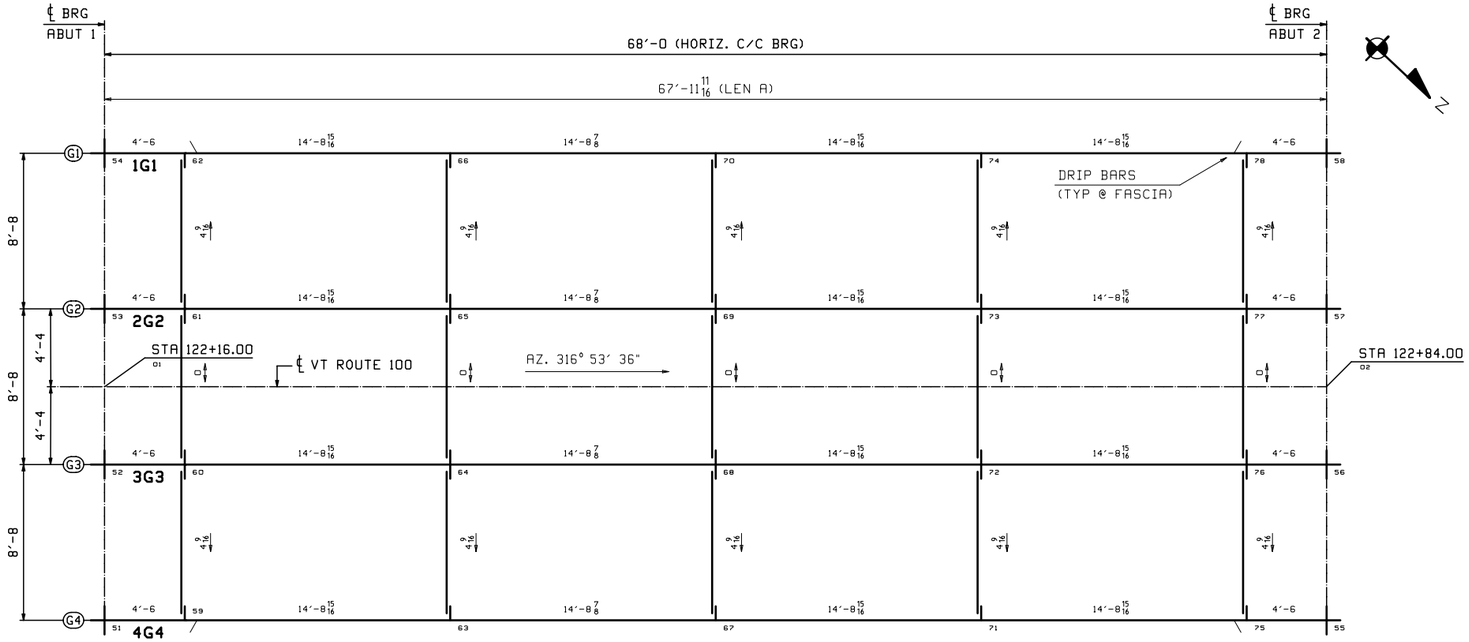
DESCRIPTION: FRAMING PLAN

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726

TENSOR 3375

STRUCTURE: VT ROUTE 100 OVER WARDSBORO BROOK BRIDGE NO. 68 WINDHAM COUNTY, VT		DRAWN: JAS	DATE: 01/14
		CHKD: RW	DATE: 02/01
LOCATION: TOWN OF WARDSBORO		JOB NO.	DWG NO.
PROJ NO. STATE PROJ. BRF 013-1 (15)		648-01	E1
CUSTOMER: RENAUD BROS., INC.			REV. △

JAS Thu, Feb 4, 2016 12:03:51 PM /users/jas/3375/CL1.RevD



CALCULATION PLAN

** 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. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BTM OF WEB WITH CORRECTIONS MADE FOR DL CAMBER & GRADE (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZONTAL PLANE (UN).
3. ARROW POINTS TOWARD LOW END OF MEMBER.
4. ENDS OF GIRDERS & BRG STIFF'S ARE VERTICAL AFTER DL ROTATION.
5. DIAPH STIFFENERS ARE NORMAL TO GRADE.
6. BOTTOM POINT NUMBERS = TOP POINT NUMBERS + 200
7. DIAPH DROPS ARE CALCULATED IN THEIR FINAL POSITION.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

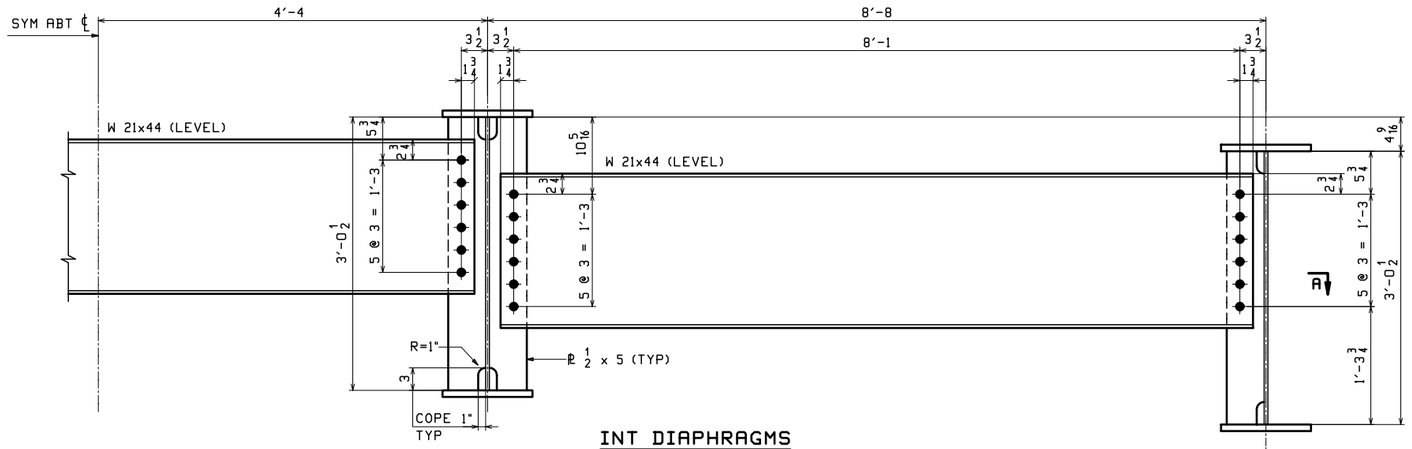
MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE SHT GN1		

DESCRIPTION: CALCULATION PLAN

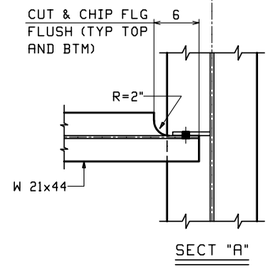
CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726
TENSOR 3375

STRUCTURE: VT ROUTE 100 OVER WARDSBORO BROOK BRIDGE NO. 68 WINDHAM COUNTY, VT	DRAWN: JAS	DATE: 01/08	
	CHKD: RW	DATE: 02/01	
LOCATION: TOWN OF WARDSBORO	JOB NO.	DWG NO.	
PROJ NO. STATE PROJ. BRF 013-1 (15)	648-01	WS1	
CUSTOMER: RENAUD BROS., INC.		REV. △	

JRS Thu, Feb 4, 2016 12:04:00 PM J:\work\jobs\3375\WS1 s Rev0



INT DIAPHRAGMS
(LOOKING UPSTATION)



SECT "A"

NOTES:
1. BOLTS SHALL BE 7/8"Ø A325-3 WITH ONE F436-3 WASHER AND ONE F959-3 DTI WASHER.

**** 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
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE SHT GN1	15/16"Ø	NONE

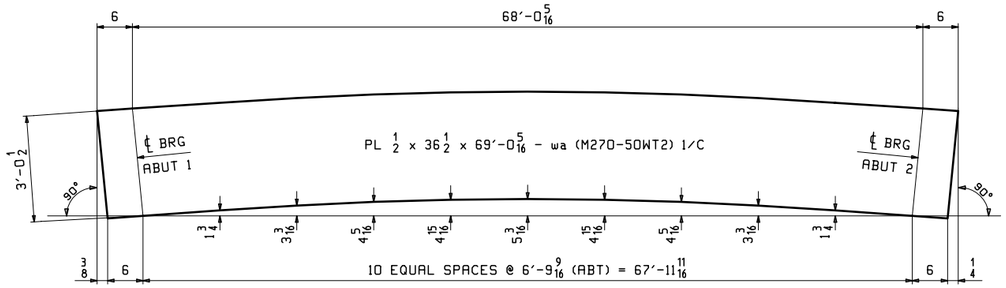
DESCRIPTION: TYPICAL LAYOUTS

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726

TENSOR 3375

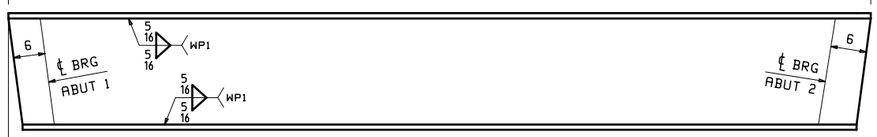
STRUCTURE: VT ROUTE 100 OVER WARDSBORO BROOK BRIDGE NO. 68 WINDHAM COUNTY, VT	DRAWN: JAS	DATE: 01/14
	CHKD: RW	DATE: 02/01
LOCATION: TOWN OF WARDSBORO	JOB NO. 648-01	DWG NO. TD1
PROJ NO. STATE PROJ. BRF 013-1 (15)		
CUSTOMER: RENAUD BROS., INC.		REV. △

JAS Thu, Feb 4, 2016 12:03:41 PM J:\work\jobs\3375\TD1.dwg Rev0



CAMBER DIAGRAM FOR 1G1,2G2,3G3,4G4

1G1	PL 7/8 x 12 x 69′-0 5/16 - ta (M270-50WT2) 1/A
2G2	PL 7/8 x 12 x 69′-0 5/16 - ta (M270-50WT2) 1/A
3G3	PL 7/8 x 12 x 69′-0 5/16 - ta (M270-50WT2) 1/A
4G4	PL 7/8 x 12 x 69′-0 5/16 - ta (M270-50WT2) 1/A



1G1	3/8	PL 7/8 x 12 x 68′-11 11/16 - ba (M270-50WT2) 1/A
2G2	3/8	PL 7/8 x 12 x 68′-11 11/16 - ba (M270-50WT2) 1/A
3G3	3/8	PL 7/8 x 12 x 68′-11 11/16 - ba (M270-50WT2) 1/A
4G4	3/8	PL 7/8 x 12 x 68′-11 11/16 - ba (M270-50WT2) 1/A

FLANGE DIAGRAM FOR 1G1,2G2,3G3,4G4

NOTES:

1. FOR GENERAL NOTES SEE DRAWING GN1.
2. T2 - DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING FOR ZONE 2.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE SHT GN1		

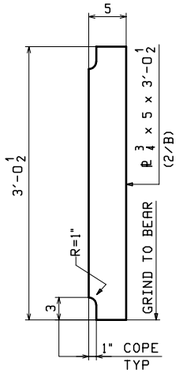
DESCRIPTION: CAMBER DIAGRAMS

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. PHONE (207) 780-6722
SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726

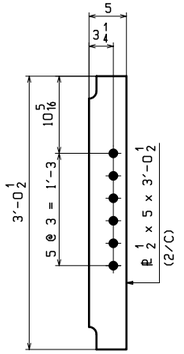
TENSOR 3375

STRUCTURE: VT ROUTE 100 OVER WARDSBORO BROOK BRIDGE NO. 68 WINDHAM COUNTY, VT		DRAWN: JAS	DATE: 01/14
		CHKD: RW	DATE: 02/01
LOCATION: TOWN OF WARDSBORO		JOB NO.	DWG NO.
PROJ NO. STATE PROJ. BRF 013-1 (15)		648-01	C1
CUSTOMER: RENAUD BROS., INC.			REV. △

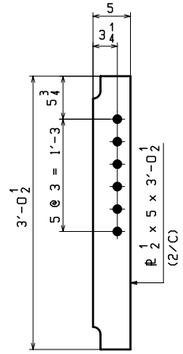
JAS Thu, Feb 4, 2016 12:03:23 PM /users/jas/3375-C1.dwg



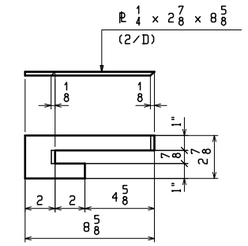
16 ~ BRG STIFF ~ x1a



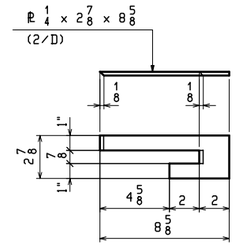
10 ~ DIAPH CONN STIFF ~ x1b
(HIGH SIDE)



20 ~ DIAPH CONN STIFF ~ x1c
(LOW SIDE & AT 0 DROP)



2 ~ DRIP BAR ~ x1d
(FS @ ABUT 1; NS @ ABUT 2)



2 ~ DRIP BAR ~ x1f
(NS @ ABUT 1; FS @ ABUT 2)

FOR GENERAL NOTES, SEE SHT GN1.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE SHT GN1	15/16"Ø	NONE

DESCRIPTION: GIRDER STANDARDS

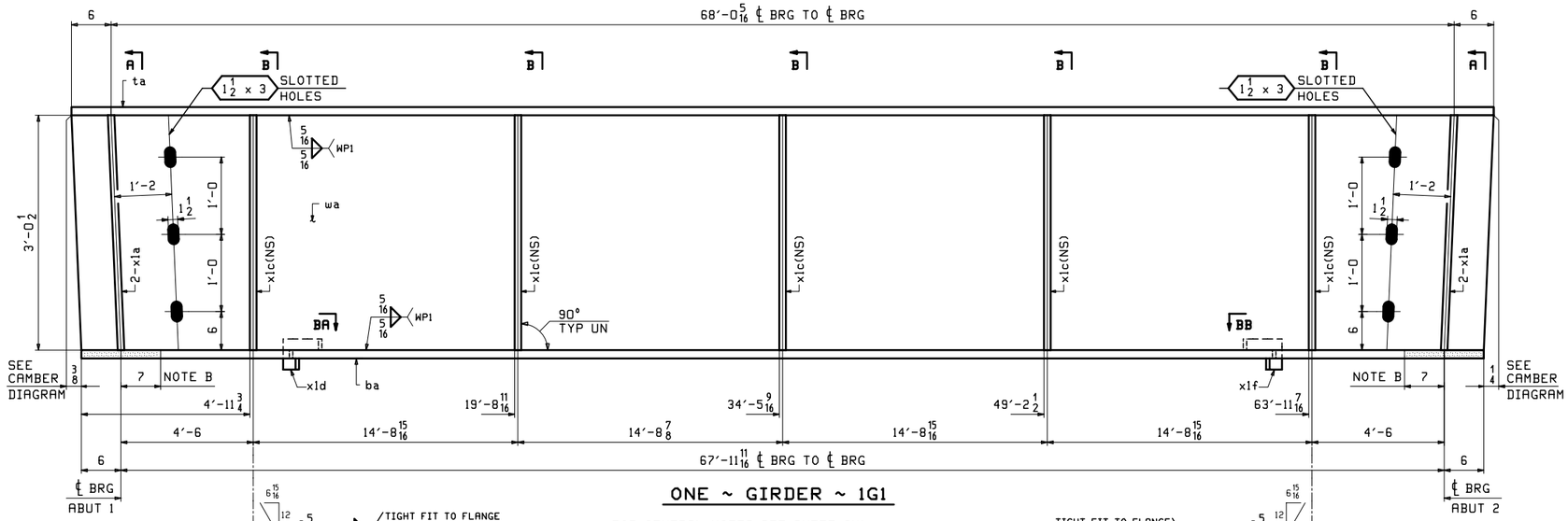
CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE.
SOUTH PORTLAND, ME 04106
PHONE (207) 780-6722
FAX. (207) 780-6726

TENSOR 3375

STRUCTURE: VT ROUTE 100 OVER WARDSBORO BROOK BRIDGE NO. 68 WINDHAM COUNTY, VT	DRAWN: JAS	DATE: 01/14	
	CHKD: RW	DATE: 02/01	
LOCATION: TOWN OF WARDSBORO	JOB NO.	DWG NO.	
PROJ NO. STATE PROJ. BRF 013-1 (15)	648-01	X1	
CUSTOMER: RENAUD BROS., INC.		REV. △	

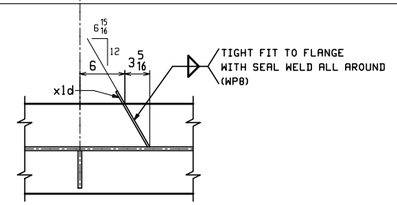
JRS Thu Feb 4, 2016 12:04:34 PM /users/jobs/3375/X1 : Rev0

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								648-01	1	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		1G1	1		GIRDER				9539	
1	C		1	wa	PL $\frac{1}{2}$x36$\frac{1}{2}$	69	0 $\frac{5}{16}$	M270-50WT2	4287	
1	A		1	ta	PL $\frac{7}{8}$x12	69	0 $\frac{5}{16}$	M270-50WT2	2466	
1	A		1	ba	PL $\frac{7}{8}$x12	68	11 $\frac{11}{16}$	M270-50WT2	2464	
2	B		4	x1a	PL $\frac{3}{4}$x6	3	1	(MIE)	47	
2	C		5	x1c	PL $\frac{1}{2}$x5	3	0 $\frac{1}{2}$		26	
2	D		1	x1d	PL $\frac{1}{4}$x2 $\frac{7}{8}$	0	8 $\frac{3}{8}$		2	
2	D		1	x1f	PL $\frac{1}{4}$x2 $\frac{7}{8}$	0	8 $\frac{5}{8}$		2	

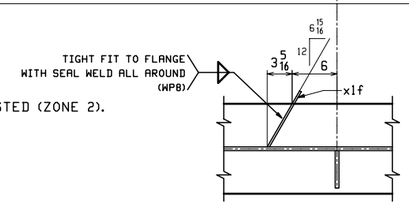


ONE ~ GIRDER ~ 1G1

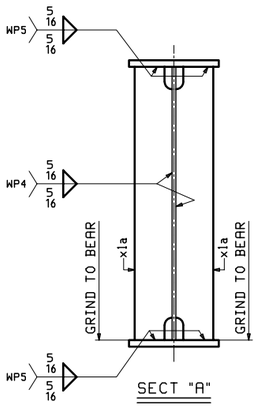
FOR GENERAL NOTES SEE SHEET GN1.
FOR CAMBER & FLANGE DIAGRAMS SEE SHEET C1.
FOR GIRDER STANDARD DETAILS SEE SHEET X1.
"T2" - DENOTES MATERIAL TO BE CHARPY V-NOTCH TESTED (ZONE 2).
NOTE B: BEARING AREA TO BE FLAT AND TRUE.



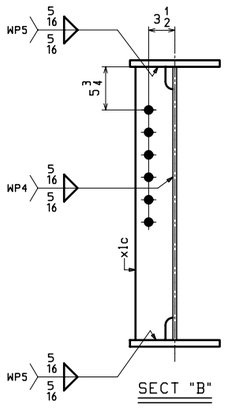
SECT "BA"



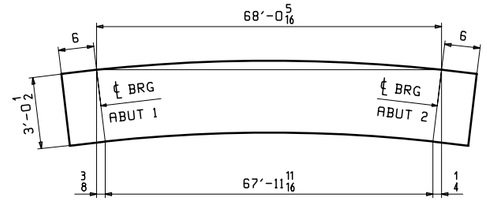
SECT "BB"



SECT "A"



SECT "B"



ORIENTATION DIAGRAM

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE SHT GN1	15/16"Ø UN	NONE

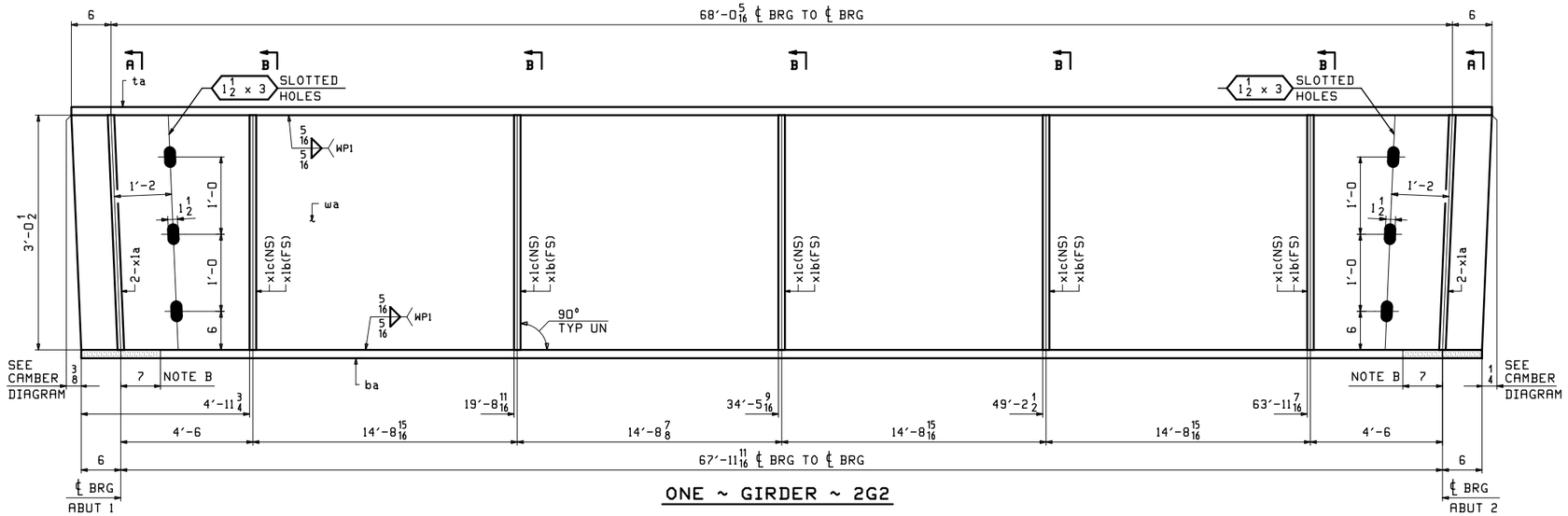
DESCRIPTION: GIRDER ~ 1G1

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. SOUTH PORTLAND, ME 04106
PHONE (207) 780-6722 FAX. (207) 780-6726
TENSOR 3375

STRUCTURE: VT ROUTE 100 OVER WARDSBORO BROOK BRIDGE NO. 68 WINDHAM COUNTY, VT		DRAWN: JAS	DATE: 01/14
		CHKD: RW	DATE: 02/01
LOCATION: TOWN OF WARDSBORO		JOB NO.	DWG NO.
PROJ NO.	STATE PROJ. BRF 013-1 (15)	648-01	1
CUSTOMER:	RENAUD BROS., INC.		REV. △

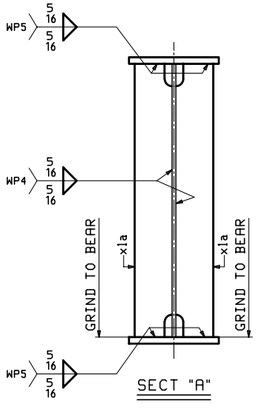
JRS Thu, Feb 4, 2016 12:03:15 PM c:\work\jobs\3375\1.1 Rev:0

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								648-01	2	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		2G2	1		GIRDER				9665	
1	C		1	wa	PL $\frac{1}{2}$x36$\frac{1}{2}$	69	0$\frac{5}{16}$	M270-50WT2	4287	
1	A		1	ta	PL $\frac{7}{8}$x12	69	0$\frac{5}{16}$	M270-50WT2	2466	
1	A		1	ba	PL $\frac{7}{8}$x12	68	11$\frac{11}{16}$	M270-50WT2	2464	
2	B		4	x1a	PL $\frac{3}{4}$x6	3	1	(M1E)	47	
2	C		5	x1b	PL $\frac{1}{2}$x5	3	0$\frac{1}{2}$		26	
2	C		5	x1c	PL $\frac{1}{2}$x5	3	0$\frac{1}{2}$		26	

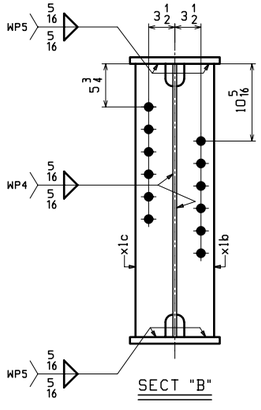


ONE ~ GIRDER ~ 2G2

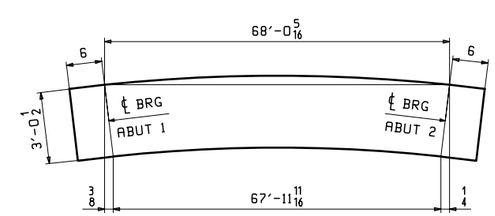
FOR GENERAL NOTES SEE SHEET GN1.
FOR CAMBER & FLANGE DIAGRAMS SEE SHEET C1.
FOR GIRDER STANDARD DETAILS SEE SHEET X1.
"T2" - DENOTES MATERIAL TO BE CHARPY V-NOTCH TESTED (ZONE 2).
NOTE B: BEARING AREA TO BE FLAT AND TRUE.



SECT "A"



SECT "B"



ORIENTATION DIAGRAM

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE SHT GN1	$\frac{15}{16}$"ø UN	NONE

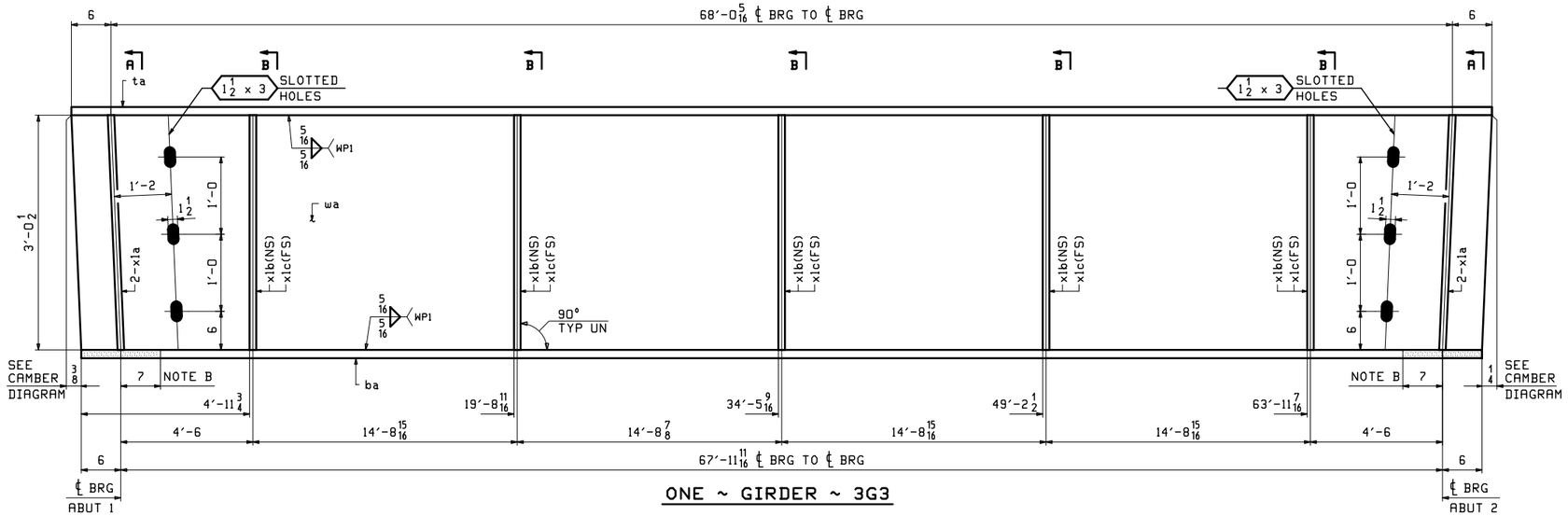
DESCRIPTION: GIRDER ~ 2G2

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. SOUTH PORTLAND, ME 04106
PHONE (207) 780-6722 FAX. (207) 780-6726
TENSOR 3375

STRUCTURE:	VT ROUTE 100 OVER WARDSBORO BROOK BRIDGE NO. 68 WINDHAM COUNTY, VT	DRAWN: JAS	DATE: 01/14
		CHKD: RW	DATE: 02/01
LOCATION:	TOWN OF WARDSBORO	JOB NO.	DWG NO.
PROJ NO.	STATE PROJ. BRF 013-1 (15)	648-01	2
CUSTOMER:	RENAUD BROS., INC.		REV. △

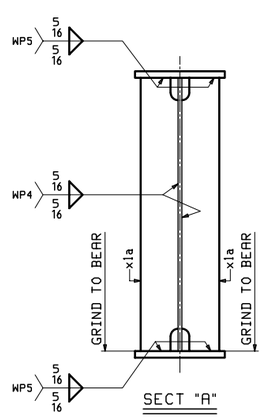
JAS Thu, Feb 4, 2016 12:03:08 PM /users/jobs/3375/2 : Rev0

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								648-01	3	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		3G3	1		GIRDER				9665	
1	C		1	wa	PL $\frac{1}{2}$x36$\frac{1}{2}$	69	0$\frac{5}{16}$	M270-50WT2	4287	
1	A		1	ta	PL $\frac{7}{8}$x12	69	0$\frac{5}{16}$	M270-50WT2	2466	
1	A		1	ba	PL $\frac{7}{8}$x12	68	11$\frac{11}{16}$	M270-50WT2	2464	
2	B		4	x1a	PL $\frac{3}{4}$x6	3	1	(M1E)	47	
2	C		5	x1b	PL $\frac{1}{2}$x5	3	0$\frac{1}{2}$		26	
2	C		5	x1c	PL $\frac{1}{2}$x5	3	0$\frac{1}{2}$		26	

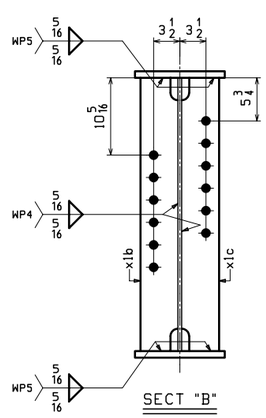


ONE ~ GIRDER ~ 3G3

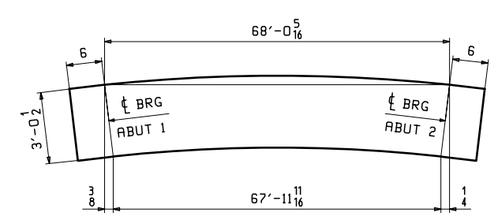
FOR GENERAL NOTES SEE SHEET GN1.
FOR CAMBER & FLANGE DIAGRAMS SEE SHEET C1.
FOR GIRDER STANDARD DETAILS SEE SHEET X1.
"T2" - DENOTES MATERIAL TO BE CHARPY V-NOTCH TESTED (ZONE 2).
NOTE B: BEARING AREA TO BE FLAT AND TRUE.



SECT "A"



SECT "B"



ORIENTATION DIAGRAM

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE SHT GN1	$\frac{15}{16}$"ø UN	NONE

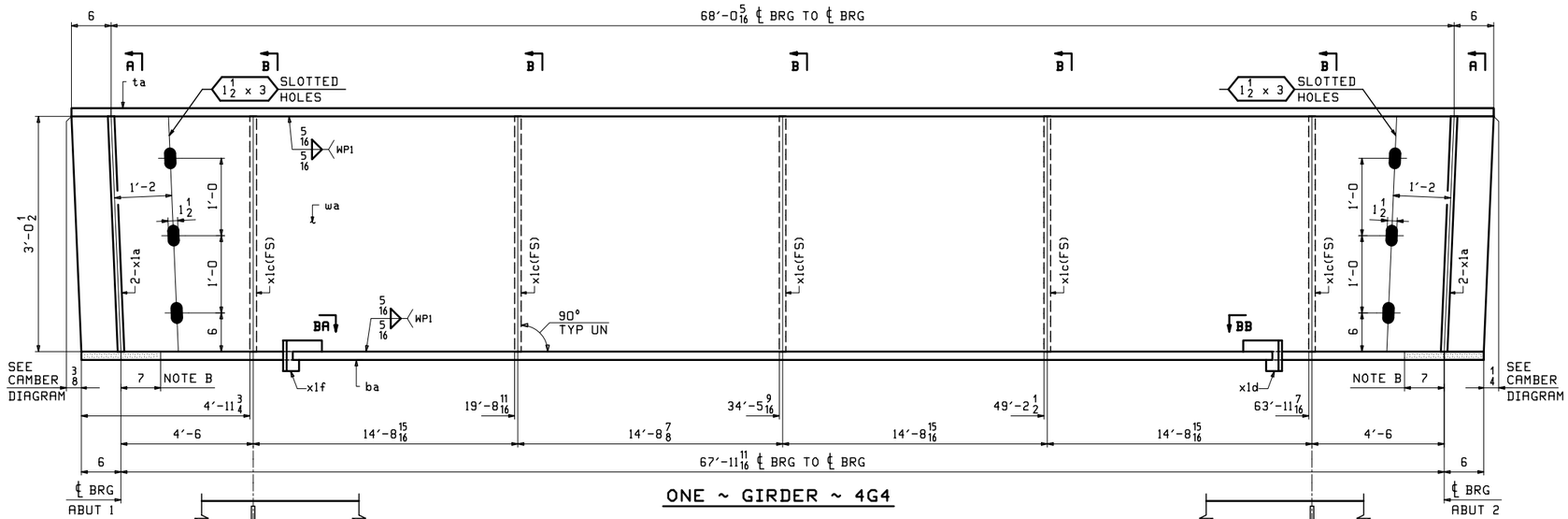
DESCRIPTION: GIRDER ~ 3G3

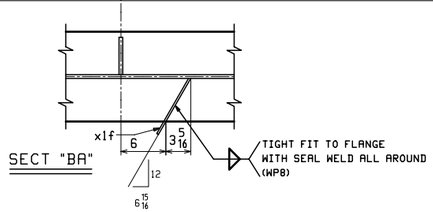
CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. SOUTH PORTLAND, ME 04106
PHONE (207) 780-6722 FAX. (207) 780-6726
TENSOR 3375

STRUCTURE:	VT ROUTE 100 OVER WARDSBORO BROOK BRIDGE NO. 68 WINDHAM COUNTY, VT	DRAWN: JAS	DATE: 01/14
		CHKD: RW	DATE: 02/01
LOCATION:	TOWN OF WARDSBORO	JOB NO.	DWG NO.
PROJ NO.	STATE PROJ. BRF 013-1 (15)	648-01	3
CUSTOMER:	RENAUD BROS., INC.		REV. △

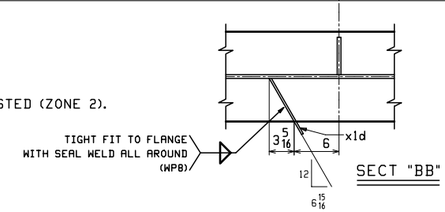
JAS Thu, Feb 4, 2016 12:03:00 PM /users/jobs/3375/3 : Rev0

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								648-01	4	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		4G4	1		GIRDER				9539	
1	C		1	wa	PL $\frac{1}{2}$x36$\frac{1}{2}$	69	0 $\frac{5}{16}$	M270-50WT2	4287	
1	A		1	ta	PL $\frac{7}{8}$x12	69	0 $\frac{5}{16}$	M270-50WT2	2466	
1	A		1	ba	PL $\frac{7}{8}$x12	68	11 $\frac{11}{16}$	M270-50WT2	2464	
2	B		4	x1a	PL $\frac{3}{4}$x6	3	1	(MIE)	47	
2	C		5	x1c	PL $\frac{1}{2}$x5	3	0 $\frac{1}{2}$		26	
2	D		1	x1d	PL $\frac{1}{4}$x2 $\frac{7}{8}$	0	8 $\frac{3}{8}$		2	
2	D		1	x1f	PL $\frac{1}{4}$x2 $\frac{7}{8}$	0	8 $\frac{5}{8}$		2	





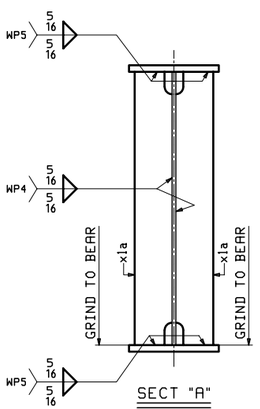
SECT "BA"



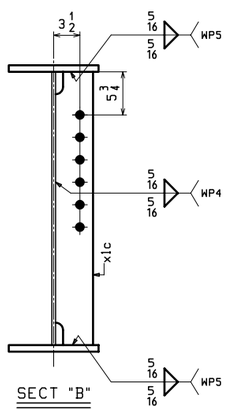
SECT "BB"

ONE ~ GIRDER ~ 4G4

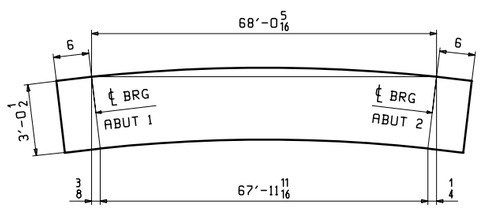
FOR GENERAL NOTES SEE SHEET GN1.
FOR CAMBER & FLANGE DIAGRAMS SEE SHEET C1.
FOR GIRDER STANDARD DETAILS SEE SHEET X1.
"T2" - DENOTES MATERIAL TO BE CHARPY V-NOTCH TESTED (ZONE 2).
NOTE B: BEARING AREA TO BE FLAT AND TRUE.



SECT "A"



SECT "B"



ORIENTATION DIAGRAM

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

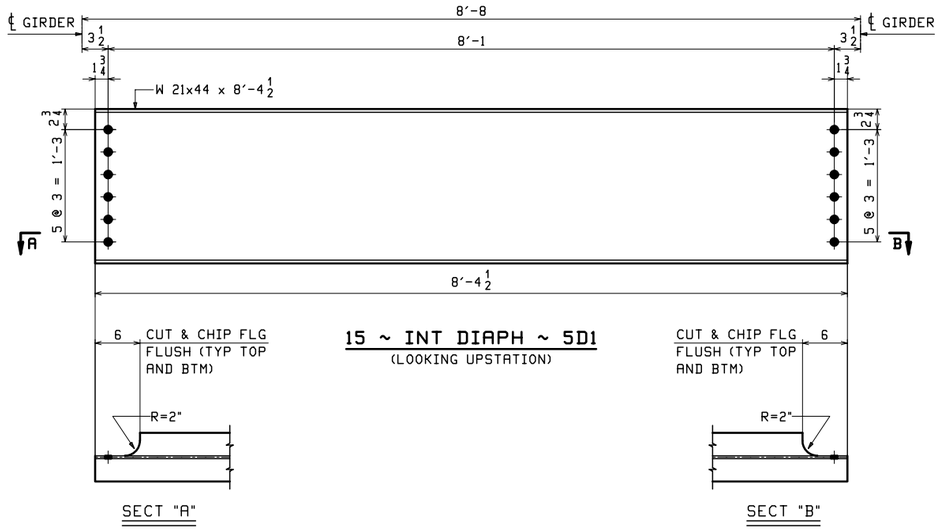
MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE SHT GN1	15/16"ø UN	NONE

DESCRIPTION: GIRDER ~ 4G4

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE. SOUTH PORTLAND, ME 04106
PHONE (207) 780-6722 FAX. (207) 780-6726
TENSOR 3375

STRUCTURE: VT ROUTE 100 OVER WARDSBORO BROOK BRIDGE NO. 68 WINDHAM COUNTY, VT		DRAWN: JAS	DATE: 01/14
		CHKD: RW	DATE: 02/01
LOCATION: TOWN OF WARDSBORO		JOB NO.	DWG NO.
PROJ NO. STATE PROJ. BRF 013-1 (15)		648-01	4
CUSTOMER: RENAUD BROS., INC.			REV. △

JAS Thu, Feb 4, 2016 12:02:35 PM J:\work\jobs\3375\4 - Rev0



15 ~ INT DIAPH ~ 5D1

(LOOKING UPSTATION)

SECT "A"

SECT "B"

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
								648-01	5	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
2	G	5D1	15		W 21x44	8	4 1/2		369	

FOR GENERAL NOTES, SEE SHT GN1.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						

MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:
M270-50W (UN)	SEE SHT GN1	15/16"Ø	NONE

DESCRIPTION: DIAPHRAGMS

CASCO BAY STEEL STRUCTURES, INC.
1 WALLACE AVE.
SOUTH PORTLAND, ME 04106
PHONE (207) 780-6722
FAX. (207) 780-6726
TENSOR 3375

STRUCTURE: VT ROUTE 100 OVER WARDSBORO BROOK BRIDGE NO. 68 WINDHAM COUNTY, VT	DRAWN: JAS	DATE: 01/14	
	CHKD: RW	DATE: 02/01	
LOCATION: TOWN OF WARDSBORO	JOB NO.	DWG NO.	
PROJ NO. STATE PROJ. BRF 013-1 (15)	648-01	5	
CUSTOMER: RENAUD BROS., INC.		REV. △	

JRS Thu, Feb 4, 2016 12:02:48 PM /users/jobs/3375/5.RevD

Casco Bay Steel Structures

One Wallace Avenue, South Portland ME 04106

AWS - Welding Procedure Specification (WPS)

WeldOffice WPS

WPS record number	201 Revision 1	Qualified to	AWS D1.5
Date	4/24/2014	Company name	Casco Bay Steel Structures
Supporting PQR(s) Reference docs.	SAW DC + FCM 2-21-14 - Rev 1		

Scope	Fillet, no PWHT (As-welded)
Joint	Joint details for this welding procedure specification in: JOINTS section of this WPS

BASE METALS

Type	Gr50/Gr50W	P-no.	Grp-no. -
Welded to	Gr50/Gr50W	P-no.	Grp-no. -
Backing:	None	P-no.	Grp-no. -
Retainers			
Notes	All A709 steels with 50 ksi or less are also qualified		

THICKNESS RANGE QUALIFIED (in.)

	As-welded Min.	As-welded Max.	With PWHT Min.	With PWHT Max.
Complete pen.	-	-	-	-
Impact tested	-	-	-	-
Partial pen.	-	-	-	-
Fillet welds	1/8	All	-	-

DIAMETER RANGE QUALIFIED (in.)

	As-welded Min.	As-welded Max.	With PWHT Min.	With PWHT Max.
			-	-

FILLER METALS

	SFA	Classification	F-no.	A-no.	Chemical analysis or Trade name	THICKNESS RANGE QUALIFIED (in.) As-welded Min.	As-welded Max.	With PWHT Min.	With PWHT Max.
SAW	5.23	ENi1K	6		Lincolnweld LA-75	1/8	All	-	-
Flux	-	-	-	-	- Lincolnweld 960	- None -			
Sup. filler	-	-	-	-	-	- None -			

WELDING PROCEDURE

Welding process		SAW
Type		Machine
Minimum preheat/interpass temperature	(°F)	See Backpage
Maximum interpass temperature	(°F)	490
Filler metal size	(in.)	5/32
Layer number		
Position		F,H
Current/polarity		DCEP
Amperes		604
Volts		29.5
Travel speed	(in./min)	17.1
Maximum heat input	(kJ/in.)	62.5193
Wire feed type		Hot wire
Wire feed speed	(in./min)	N/A
String or weave		Stringer
C.T.W.D	(in.)	
Multi/Single pass per side		Single or Multiple passes
Multiple or single layer		Single or Multiple layer
Oscillation		None
Multi/single electrode		Single electrode
Electrode angle	(deg.)	As needed
Maximum pass thickness	(in.)	See Backpage
Weld deposit chemistry		F8A2-ENi1K-Ni1-H8
Notes		

(c) Copyright 2014 C-spec Software. All rights reserved worldwide.

Casco Bay Steel Structures

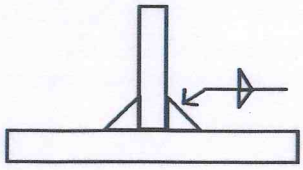
One Wallace Avenue, South Portland ME 04106

AWS - Welding Procedure Specification (WPS)

WeldOffice WPS

WPS record number	201	Revision 1	Qualified to	AWS D1.5
Date	4/24/2014		Company name	Casco Bay Steel Structures

JOINTS: Typical joint(s). See actual production drawings and engineering specifications for details.



3/8 single pass flat
5/16 single pass Horizontal

	Amps	Volts	Travel Speed
AVG	604 /	29.5 /	17.1 IPM
MIN	544 /	27.4 /	14.5 IPM
MAX	644 /	31.6 /	19.7 IPM

*** Multiple passes may be used if drawing details call for a larger size fillet weld than noted above in the position welding is being performed**

Type of groove	Fillet weld	Minimum groove angle	(deg.)	N/A
		Minimum root opening	(in.)	N/A
		Maximum root face	(in.)	N/A

PREHEAT TABLE

Applicable standard	
AWS D1.5 Bridge Welding Code	For thickness 1/8 to 3/4(in.): 50(°F). Preheat to 70(°F) if the base metal temperature is below 32(°F). Over 3/4 thru 1-1/2(in.): 70(°F). Over 1-1/2 thru 2-1/2(in.): 150(°F). Over 2-1/2(in.): 225(°F). Refer to AWS D1.5 2010 Table 4.3 (pg 85)
AWS D1.5 2010 FCM	For thickness 1/8 to 3/4(in.): 100°F). Over 3/4 thru 1-1/2(in.): 200(°F). Over 1-1/2 thru 2-1/2(in.): 300(°F). Over 2-1/2(in.): 350(°F). No welding to be done if ambient temperature in immediate area is below 0(°F)
New York SCM	Up to 3/4 ----------100 (F) Over 3/4 to 1-1/2 ----------200 (F) Over 1-1/2 to 2-1/2 --------300 (F) Over 2-1/2 ----------350 (F)

TECHNIQUE

Supplementary MF control	
Peening	
Surface preparation	Grind/Blast/chemical/wirebrush clean to be free of moisture, slag, millscale, oils, dust
Initial/interpass cleaning	Brushing and Grinding
Back gouging method	None

NOTES

AWS FCM preheats are taken from AWS D1.5 2010 Clause 12 Table 12.4 and are based upon calculated heat input calculated in accordance with section 5.12 with an as welded H8 designation for the electrode combination we are using. This higher preheat will be used on non weathering steels also.

Signature 1

Name	Signature
Matthew Cote	Matthew J Cote CWI 08051341 QC1 EXP. 5/1/2017
Date	
6/2/2014	

Signature 2

Name	Signature
Date	

Signature 3

Name	Signature
Date	

Signature 4

Name	Signature
Date	

(c) Copyright 2014 C-spec Software. All rights reserved worldwide.

Casco Bay Steel Structures

One Wallace Avenue, South Portland ME 04106

AWS - Welding Procedure Specification (WPS)

WeldOffice WPS

WPS record number	250	Revision		Qualified to	AWS D1.5
Date	6/10/2014			Company name	Casco Bay Steel Structures
Supporting PQR(s) Reference docs.	SAW FCM 3/32 DC- 5/7/14				

Scope	Fillet, no PWHT (As-welded), impact testing
Joint	Joint details for this welding procedure specification in: JOINTS section of this WPS

BASE METALS

Type	Gr50/Gr50W	P-no.	Grp-no. -
Welded to	Gr50/Gr50W	P-no.	Grp-no. -
Backing:	Yes	P-no.	Grp-no.
Retainers			
Notes	All A709 with 50 ksi or less are also qualified		

THICKNESS RANGE QUALIFIED (in.)

	As-welded Min.	As-welded Max.	With PWHT Min.	With PWHT Max.
Complete pen.	-	-	-	-
Impact tested	0.625	no max.	-	-
Partial pen.	-	-	-	-
Fillet welds	no min.	no max.	-	-

DIAMETER RANGE QUALIFIED (in.)

	As-welded Min.	As-welded Max.	With PWHT Min.	With PWHT Max.
	N/A	N/A	-	-

FILLER METALS

THICKNESS RANGE QUALIFIED (in.)

	SFA	Classification	F-no.	A-no.	Chemical analysis or Trade name	As-welded Min.	As-welded Max.	With PWHT Min.	With PWHT Max.
SAW	5.23	ENi1K	6		LincolnElectric LA-75	0.125	no max.	-	-
Flux	5.23	F8A2			LincolnElectric Lincolnweld960	- Required -			
Sup. filler						- Required -			

Flux type	
Flux from recrush. slag	No
Suppl. filler metal vol. (ft³)	N/A

WELDING PROCEDURE

Welding process		SAW
Type		Machine
Minimum preheat/interpass temperature	(°F)	See Back Page
Maximum interpass temperature	(°F)	400
Filler metal size	(in.)	3/32
Layer number		
Position		F,H
Current/polarity		DCEN (straight polarity)
Amperes		363.3
Volts		31.6
Travel speed	(in./min)	12.8
Maximum heat input	(kJ/in.)	53.8138
Wire feed type		Cold wire
Wire feed speed	(in./min)	N/A
String or weave		Stringer
C.T.W.D	(in.)	
Multi/Single pass per side		Single or Multiple passes
Multiple or single layer		Single or Multiple layer
Oscillation		None
Multi/single electrode		Single electrode
Electrode angle	(deg.)	Varies
Maximum pass thickness	(in.)	See Back Page
Weld deposit chemistry		F8A2-ENi1K-Ni1-H8
Notes		

(c) Copyright 2014 C-spec Software. All rights reserved worldwide.

Casco Bay Steel Structures

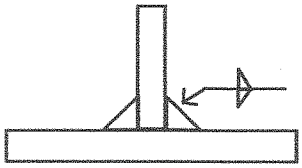
One Wallace Avenue, South Portland ME 04106

AWS - Welding Procedure Specification (WPS)

WeldOffice WPS

WPS record number	250	Revision		Qualified to	AWS D1.5
Date	6/10/2014			Company name	Casco Bay Steel Structures

JOINTS: Typical joint(s). See actual production drawings and engineering specifications for details.



3/8 single pass flat
5/16 single pass Horizontal

	Amps		Volts		Travel Speed
AVG	363.3	/	31.6	/	12.8
MIN	326.9	/	29.4	/	10.8
MAX	399.6	/	33.8	/	14.7

*** Multiple passes may be used if drawing details call for a larger size fillet weld than noted above in the position welding is being performed**

Type of groove	Fillet weld	Minimum groove angle	(deg.)	N/A
		Minimum root opening	(in.)	N/A
		Maximum root face	(in.)	N/A

PREHEAT TABLE

Applicable standard	
AWS D1.5 Bridge Welding Code	For thickness 1/8 to 3/4(in.): 50(°F). Preheat to 70(°F) if the base metal temperature is below 32(°F). Over 3/4 thru 1-1/2(in.): 70(°F). Over 1-1/2 thru 2-1/2(in.): 150(°F). Over 2-1/2(in.): 225(°F). Refer to AWS D1.5 2010 Table 4.3 (pg 85)
AWS D1.5 2010 FCM	For thickness 1/8 to 3/4(in.): 100°F). Over 3/4 thru 1-1/2(in.): 200(°F). Over 1-1/2 thru 2-1/2(in.): 300(°F). Over 2-1/2(in.): 350(°F). No welding to be done if ambient temperature in immediate area is below 0(°F)
New York SCM	Up to 3/4 ----------100 (F) Over 3/4 to 1-1/2 ----------200 (F) Over 1-1/2 to 2-1/2 --------300 (F) Over 2-1/2 ----------350 (F)

TECHNIQUE

Supplementary MF control	
Peening	Not used
Surface preparation	Grind/Blast/chemical/wirebrush clean to be free of moisture, slag, millscale, oils, dust
Initial/interpass cleaning	Brushing and Grinding
Back gouging method	None

NOTES

AWS FCM preheats are taken from AWS D1.5 2010 Clause 12 Table 12.4 and are based upon calculated heat input calculated in accordance with section 5.12 with an as welded H8 designation for the electrode combination we are using. This higher preheat will be used on non weathering steels also.

Signature 1

Name	Signature
Matthew Cote	Matthew J Cote CWI 08051341 QC1 EXP. 5/1/2017
Date	
6/10/14	

Signature 2

Name	Signature
Date	

Signature 3

Name	Signature
Date	

Signature 4

Name	Signature
Date	

(c) Copyright 2014 C-spec Software. All rights reserved worldwide.

Casco Bay Steel Structures

One Wallace Ave, South Portland ME 04106

AWS - Prequalified Welding Procedure Specification (pWPS)

WeldOffice WPS

Company name	Casco Bay Steel Structures
Welding process	SMAW
Process type	Manual

Identification #	470	Rev.
Originated by	Matthew Cote	
Date	7/21/2014	
Authorized by	Matthew J Cote	
Date	7/21/2014	

Joint design used

Joint type		T - T joint
Joint design		Fillet Weld
Backing		No
Backing material		Not Applicable
Root opening (R)*	(in.)	
Root face (f)*	(in.)	
Groove angle (a)*	(deg.)	
Radius (J - U)*	(deg.)	
Back gouging		No
Back gouging method		None

Position

Welding position:	Groove	
	Fillet	All
Vertical progression		Up

Electrical characteristics

Transfer mode (GMAW)	N/A
Current type	Other
Other	DC+ and AC

Base metals

* Datum, As Detailed (As Fit-Up)

Spec., type or grade			Gr 50
Thickness:	Groove	(in.)	
	Fillet	(in.)	1/8" and above
Diameter (Pipe)		(in.)	Unlimited

Technique

Stringer or weave bead			Stringer or Weave
Multi/single pass (per side)			Single or Multiple
Number of electrodes			Varies
Spacing:	Longitudinal	(in.)	-
	Lateral	(in.)	-
	Angle	(deg.)	-
Contact tube to work		(in.)	-
Peening			Not permitted
Interpass cleaning			Brushing or grinding

Filler metals

AWS Specification	A5.1
AWS Classification	E-7018 H4R

Preheat

Preheat temp.:	Min.	(°F)	See notes
Interpass temp.:	Min.	(°F)	See notes
	Max.	(°F)	450

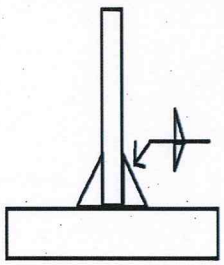
Shielding

Flux		-
Electrode-flux (class)		-
Gas composition		-
Gas flow rate	(cfh)	-
Gas cup size	(in.)	-

Post weld heat treatment

Temperature	(°F)	None
Time	(hrs)	-

Welding procedure

Layer	Pass	Process	Filler metal class	Filler metal diameter (in.)	Current type / polarity	Amps	Wire feed speed (in./min)	Volts	Travel speed (in./min)	Joint details
1	All	SMAW	E-7018 H4R	1/8	DCEP	90-160	-	n/a	varies	
1	All	SMAW	E-7018 H4R	1/8	AC	100-160	-	n/a	varies	
1	All	SMAW	E-7018 H4R	5/32	DCEP	130-210	-	n/a	varies	
1	All	SMAW	E-7018 H4R	5/32	AC	140-210	-	n/a	varies	
1	All	SMAW	E-7018 H4R	3/16	DCEP	180-300	-	n/a	varies	
1	All	SMAW	E-7018 H4R	3/16	AC	200-300	-	n/a	varies	
								Designation		

Notes

LINCOLN ELECTRIC EXCALIBUR 7018 MR

TACKING ONLY ON GR50W MATERIAL

Signature 1

Name	Signature
Mathew J Cote	Matthew J Cote CWI 08051341 QC1 EXP. 5/1/2017
Date	
7/21/14	

Signature 2

Name	Signature
Date	

Signature 3

Name	Signature
Date	

Signature 4

Name	Signature
Date	

(c) Copyright 2014 C-spec Software. All rights reserved worldwide.

Identification #	470	Rev.

AWS D1.5 2010

Single Pass Fillet weld in 1F position, No bigger than 3/8 in a single pass
Single Pass Fillet weld in 2F, 4F position, No bigger than 5/16 in a single pass
Single Pass Fillet weld in 3F position, No biger than 1/2 in a single pass

For thickness 1/8 to 3/4(in.): 50°F). Preheat to 70(°F) if the base metal temperature is below 32(°F).
Over 3/4 thru 1-1/2(in.): 70(°F).
Over 1-1/2 thru 2-1/2(in.): 150(°F).
Over 2-1/2(in.): 225(°F). Refer to AWS D1.5 2010 Table 4.3 (pg85)

FOR FRACTURE CRITICAL WELDS

For thickness 1/8 to 3/4(in.): 125°F).
Over 3/4 thru 1-1/2(in.): 200(°F).
Over 1-1/2 thru 2-1/2(in.): 300(°F).
Over 2-1/2(in.): 350(°F). No welding to be done if ambient temperature in immediate area is below 0(°F)

ALL VERTICAL WELDING SHALL BE DONE UPWARD

IF A GAP FROM 1/16 TO 3/16 IS EVIDENT, INCREASE WELD SIZE 1/16 FOR EACH 1/16 GAP

EX 1/16 GAP IS +1/16 FROM DETAILED SIZE
1/8 GAP IS +1/8 FROM DETAILED SIZE
3/16 GAP IS +3/16 FROM DETAILED SIZE

TACKING ONLY ON GR50W MATERIAL

Preheats to the NYSSCM

	Gr 50	Gr 50W
to 3/4	50F	100F
over 3/4 to 1-1/2	70F	200F
over 1-1/2 to 2-1/2	150F	300F
over 2-1/2	225	350F

(c) Copyright 2014 C-spec Software. All rights reserved worldwide.

Casco Bay Steel Structures

One Wallace Ave, South Portland ME 04106

AWS - Prequalified Welding Procedure Specification (pWPS)

WeldOffice WPS

Company name	Casco Bay Steel Structures
Welding process	SMAW
Process type	Manual

Identification #	480	Rev.
Originated by	Matthew Cote	
Date	7/22/2014	
Authorized by	Matthew J Cote	
Date	7/22/2014	

Joint design used

Joint type		T - T joint
Joint design		Fillet Weld
Backing		No
Backing material		Not Applicable
Root opening (R)*	(in.)	
Root face (f)*	(in.)	
Groove angle (a)*	(deg.)	
Radius (J - U)*	(deg.)	
Back gouging		No
Back gouging method		None

Position

Welding position:	Groove	
	Fillet	All
Vertical progression		Up

Electrical characteristics

Transfer mode (GMAW)	N/A
Current type	Other
Other	DC+ and AC

Base metals

* Datum, As Detailed (As Fit-Up)

Spec., type or grade		Gr 50/ Gr50W
Thickness:	Groove (in.)	
	Fillet (in.)	1/8" and above
Diameter (Pipe)	(in.)	

Technique

Stringer or weave bead		Stringer or Weave
Multi/single pass (per side)		Single or Multiple
Number of electrodes		Varies
Spacing:	Longitudinal (in.)	-
	Lateral (in.)	-
	Angle (deg.)	-
Contact tube to work	(in.)	-
Peening		Not permitted
Interpass cleaning		Brushing or grinding

Filler metals

AWS Specification	A5.5
AWS Classification	E-8018 H4R

Preheat

Preheat temp.:	Min.	(°F)	See notes
Interpass temp.:	Min.	(°F)	See notes
	Max.	(°F)	450

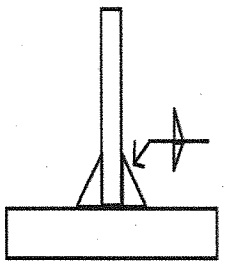
Shielding

Flux		-
Electrode-flux (class)		-
Gas composition		-
Gas flow rate	(cfh)	-
Gas cup size	(in.)	-

Post weld heat treatment

Temperature	(°F)	None
Time	(hrs)	-

Welding procedure

Layer	Pass	Process	Filler metal class	Filler metal diameter (in.)	Current type / polarity	Amps	Wire feed speed (in./min)	Volts	Travel speed (in./min)	Joint details
1	All	SMAW	E-8018 H4R	1/8	DCEP	100-160	-	n/a	varies	
1	All	SMAW	E-8018 H4R	1/8	AC	90-160	-	n/a	varies	
1	All	SMAW	E-8018 H4R	5/32	DCEP	140-210	-	n/a	varies	
1	All	SMAW	E-8018 H4R	5/32	AC	130-210	-	n/a	varies	
1	All	SMAW	E-8018 H4R	3/16	DCEP	200-300	-	n/a	varies	
1	All	SMAW	E-8018 H4R	3/16	AC	180-300	-	n/a	varies	
								Designation		FILLET

Notes

LINCOLN ELECTRIC EXCALIBUR 8018-C3 MR

SEE BACKSIDE FOR MORE DETAILS

Signature 1

Name	Signature
Matthew J Cote	
Date	
7/22/2014	

Matthew J Cote
CWI 08051341
QC1 EXP 5/1/2017

Signature 2

Name	Signature
Date	

Signature 3

Name	Signature
Date	

Signature 4

Name	Signature
Date	

(c) Copyright 2014 C-spec Software. All rights reserved worldwide.

Identification #	480	Rev.

AWS D1.5 2010

Single Pass Fillet weld in 1F position, No bigger than 3/8 in a single pass
Single Pass Fillet weld in 2F, 4F position, No bigger than 5/16 in a single pass
Single Pass Fillet weld in 3F position, No biger than 1/2 in a single pass

For thickness 1/8 to 3/4(in.): 50°F). Preheat to 70(°F) if the base metal temperature is below 32(°F).
Over 3/4 thru 1-1/2(in.): 70(°F).
Over 1-1/2 thru 2-1/2(in.): 150(°F).
Over 2-1/2(in.): 225(°F). Refer to AWS D1.5 2010 Table 4.3 (pg85)

FOR FRACTURE CRITICAL WELDS

For thickness 1/8 to 3/4(in.): 125°F).
Over 3/4 thru 1-1/2(in.): 200(°F).
Over 1-1/2 thru 2-1/2(in.): 300(°F).
Over 2-1/2(in.): 350(°F). No welding to be done if ambient temperature in immediate area is below 0(°F)

ALL VERTICAL WELDING SHALL BE DONE UPWARD

IF A GAP FROM 1/16 TO 3/16 IS EVIDENT, INCREASE WELD SIZE 1/16 FOR EACH 1/16 GAP

EX 1/16 GAP IS +1/16 FROM DETAILED SIZE
1/8 GAP IS +1/8 FROM DETAILED SIZE
3/16 GAP IS +3/16 FROM DETAILED SIZE

Preheats to the NYSSCM

	Gr 50	Gr 50W
to 3/4	50F	100F
over 3/4 to 1-1/2	70F	200F
over 1-1/2 to 2-1/2	150F	300F
over 2-1/2	225	350F

(c) Copyright 2014 C-spec Software. All rights reserved worldwide.

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM Gr. 50 + G-50W
Welding process Gas Metal ARC Welding (GMAW)
Manual or machine Semi Auto
Position of welding Flat + Horizontal
Filler metal specification AWS-A5.28 ESAB
Filler metal classification E80C-Ni1
Flux N A
Shielding gas 90%AR/10%CO2 Flow rate 35CFH +0/-4, Elec. Stickout 5/8
Single or multiple pass Single & multiple
Single or multiple arc Single
Welding current DC
Polarity DCEP
Welding progression See Detail
Root treatment Blast Clean-wire Brush-Area To be Free of slag-RUST-Moisture
Preheat and interpass temperature See Table and as Required
Posfheat temperature As Required
Heat Input Min 24.4 KJ/in Max 38.3 KJ/in P.Q.R. 418-FCM=34.8 KJ/IN
* 35.0 KJ/in Min for single pass

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]
FCM Gr50	150°F	200°F	225°F	325°F
FCM Gr50W	150°F	250°F	325°F	350°F

Preheats to the NYSSCM

	Gr 50	Gr 50W
to 3/4	50F	100F
over 3/4 to 1-1/2	70F	200F
over 1-1/2 to 2-1/2	150F	300F
over 2-1/2	225	350F

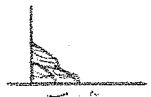
Max Interpass 440°F

WELDING PROCEDURE

Sec. 5.12.4.2
AWS D1.5 Joint detail Fillet

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed
		307	29.2	15.5
		338.7	31	17.5
AS		To	To	To
REQ	.052	276.3	27	13.5
* 1 Pass	.052	338.7 to 281.3	31 to 28.0	17.5 to 13.5

2F



1F

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. FCM 610
Revision no. _____

Contractor Casco Bay Steel
Authorized By Paul L. Goodale
Date 8-1-2013