

MILLER CONSTRUCTION, INC.

P.O. BOX 86 ASCUTNEY BLVD WINDSOR, VERMONT 05089-0086
 TELEPHONE (802) 674-5525 / FAX (802) 674-5245

TRANSMITTAL

| | | |
|---|-----------|----------------------------|
| TO: Jennifer Fitch, PE Project Manager Vermont Agency of Transportation | DATE | PROJECT NO. |
| | 8/21/2014 | Brookfield BRF FLBR (2) |
| | | |

XX WE ENCLOSE THE FOLLOWING: _____ UNDER SEPARATE COVER WE ARE SENDING THE FOLLOWING

| COPIES | NUMBER | DESCRIPTION | CODE |
|--------|--------|------------------------------|------|
| 1 | | S.S. Shelf Drawing - Rev 1-1 | H |
| 1 | | Splice WPS | H |
| | | | |
| | | | |
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| | | | |

- CODE:
- A FOR INITIAL APPROVAL
 - H FOR APPROVAL
 - B FOR FINAL APPROVAL
 - I AS REQUESTED OR REQUIRED
 - C APPROVED AS NOTED-RESUBMISSION REQUIRED
 - J FOR USE IN ERECTION
 - D APPROVED AS NOTED-RESUBMISSION NOT REQUIRED
 - K LETTER FOLLOWS
 - E DISAPPROVED-RESUBMIT
 - L FOR FIELD CHECK
 - F QUOTATION REQUESTED
 - M FOR YOUR USE
 - G APPROVED

BY: 



| DATE | DESCRIPTION | REV |
|---------|--|-----|
| 6/26/14 | ADDED TO MATERIAL NOTES AND ADDED ROLL DIRECTION | 1 |
| 6/26/14 | ADDED MISSING DIMENSIONS AND FRP SHIM PLATE | 1 |

SEAL

DIMENSIONS ARE IN INCHES
 TOLERANCES: +0, -1/16"
 FRACTIONAL: MACH.
 ANGULAR: MACH.
 TWO PLACE DECIMAL
 THREE PLACE DECIMAL

DRAWN BY: JIM
 DATE: 5/29/14
 CHKD BY: XX
 DATE: XX/XX/XX

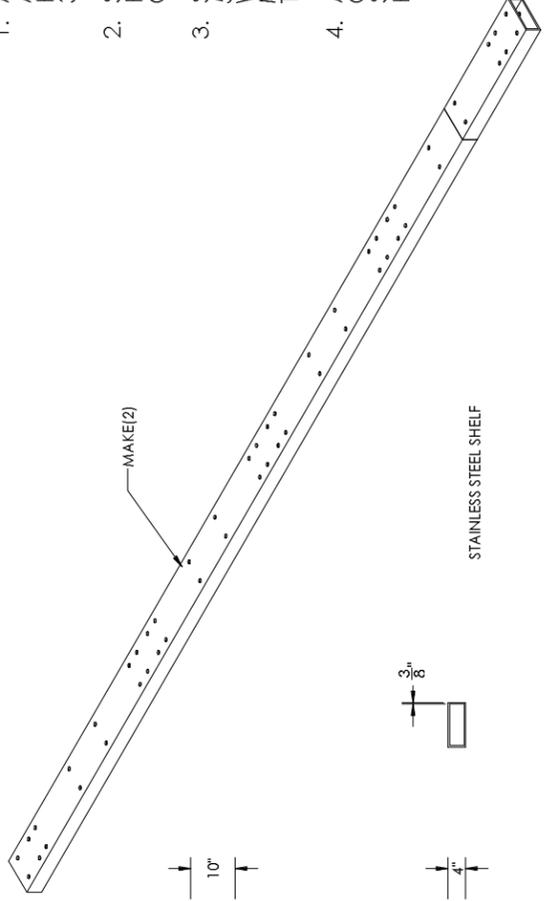
PROJECT: BROOKFIELD FRP PONTOONS

CUSTOMER: MILLER CONST. / VTRANS
 SHEET: N/A
 WEIGHT: N/A

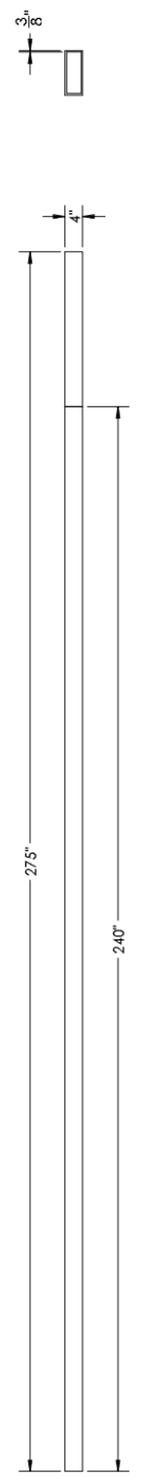
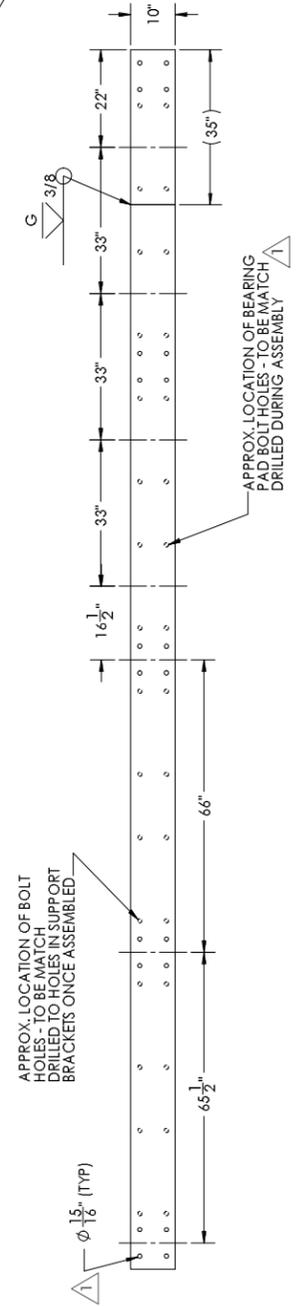
DESCRIPTION: FABRICATION
 SCALE: 1 : 6
 W/O NO.: 8420
 CONTRACT NO.: 9185
 DWG NO.: 8420-9
 SHEET 1 OF 1
 PONTOON PART NO.: N/A

NOTES:

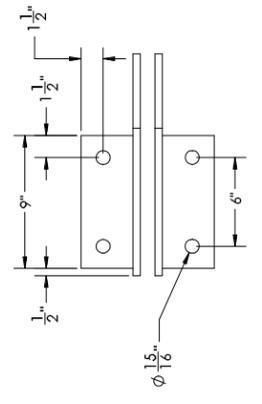
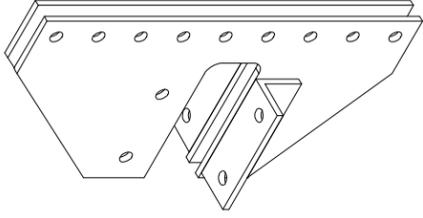
1. AUSTENITIC STAINLESS STEEL CONFORMING TO ASTM A 240/A 240M (PLATE) OR ASTM A 276 (SHAPES) - HOT-FINISHED WITH A MINIMUM YIELD STRENGTH OF 30 KSI AND A MINIMUM TENSILE STRENGTH OF 70 KSI
2. STAINLESS STEEL SHALL BE CHARPY V-NOTCH TESTED PER AASHTO T 243 - MINIMUM AVERAGE ENERGY OF 23 FT-LB AT 40F
3. STAINLESS HARDWARE SHALL CONFORM TO ASTM F 593 - ALLOY GROUP 1, 2, OR 3, CONDITION CW, WITH A MINIMUM YIELD STRENGTH OF 43 KSI AND A MINIMUM TENSILE STRENGTH OF 75 KSI (7/8" Ø BOLTS THROUGHOUT)
4. ALL WELDING SHALL CONFORM TO REQUIREMENTS OF AWS D1.6 STRUCTURAL WELDING CODE - STAINLESS STEEL - FABRICATION OF THE HSS TUBE HAS BEEN APPROVED TO FOLLOW ASTM A 554



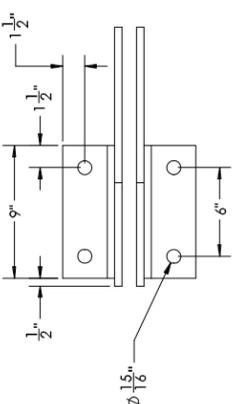
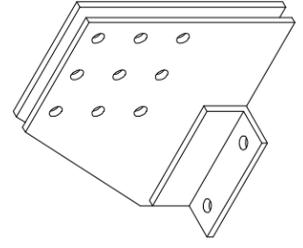
STAINLESS STEEL SHELF



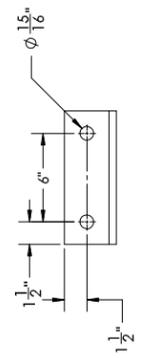
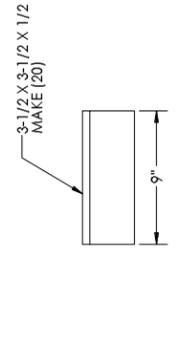
STAINLESS INTERIOR WEB PLATE



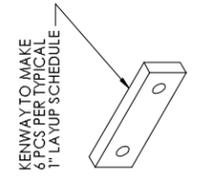
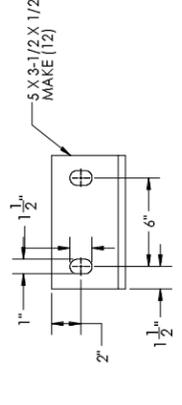
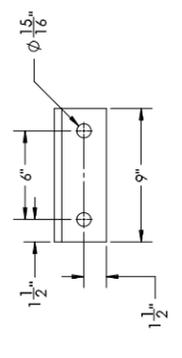
STAINLESS EXTERIOR WEB PLATE



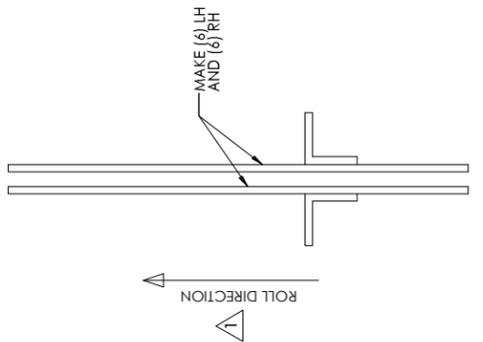
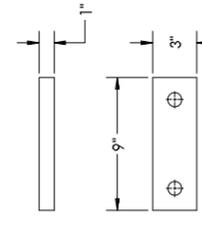
STAINLESS UNEQUAL ANGLE



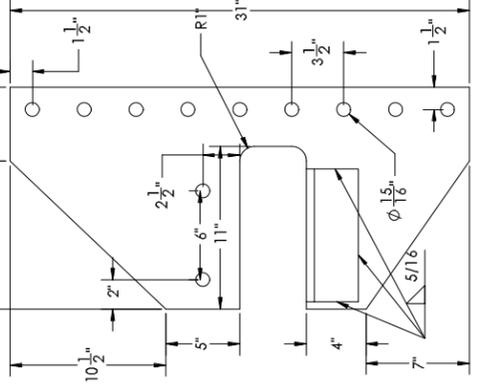
STAINLESS EQUAL ANGLE



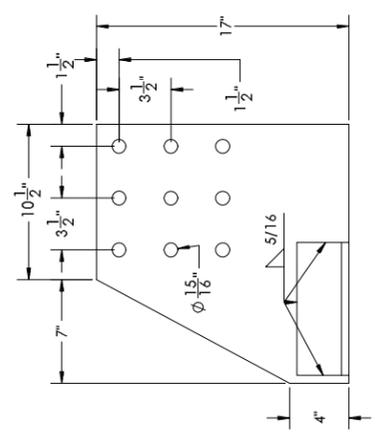
FRP SHIM PLATE



ROLL DIRECTION



ROLL DIRECTION



Bancroft Contracting
Welding Procedure Specification (WPS)

WPS No.: 021

Date: 12/15/1993

Rev.: 0

Page 2

| | | | |
|--|--------------|---|--|
| First Process: GTAW | | Type: Manual | |
| Filler Metals (QW-404) | | | |
| Weld deposit limits: 0 to 0.240 in | | | |
| AWS Classification | ER308L | | |
| Spec. No. (SFA) | 5.9 | | |
| F-No. | 6 | | |
| A-No. | 8 | | |
| Product Form | Bare (Solid) | | |
| Other | | | |
| Consumable Insert: none | | | |
| Positions (QW-405) | | Technique (QW-410) | |
| Position of Joint: All Positions | | String or Weave bead: String and weave bead | |
| Weld Progression: Any | | Nozzle/Gas cup size: #5 to #10 | |
| Gas (QW-408) | | Peening: None | |
| Shielding: 100% Argon / 23-30 CFH | | Mult./Single Pass (per side): | |
| Backing: None / - CFH | | | |
| Trailing: None / - CFH | | | |
| Electrical Characteristics (QW-409) | | | |
| Current Type/Polarity: DCEN (straight) | | | |
| Tungsten Type: EWTh-2 Size: 3/32 | | | |
| Max. Heat Input: None J/in | | | |
| Process Notes: | | | |

First Process Welding Parameters

| Layer(s) and/or Pass(es) | Filler Metal | | Current | | Wire Feed Speed (in/min) | Voltage Range | Travel Speed Range (in/min) |
|--------------------------|--------------------|-----------|-----------------|----------------|--------------------------|---------------|-----------------------------|
| | AWS Classification | Size (in) | Type / Polarity | Amperage Range | | | |
| Any | ER308L | 1/16 | DCEN (straight) | 70-150 | | n/r | Var. |
| Any | ER308L | 3/32 | DCEN (straight) | 80-180 | | n/r | Var. |
| Any | ER308L | 1/8 | DCEN (straight) | 130-275 | | n/r | Var. |
| Any | ER308L | 3/16 | DCEN (straight) | 200-375 | | n/r | Var. |

Bancroft Contracting
Welding Procedure Specification (WPS)

WPS No.: 021

Date: 12/15/1993

Rev.: 0

Page 3

| | | | |
|--|-------------|--|---------------|
| Second Process: | SMAW | Type: | Manual |
| Filler Metals (QW-404) | | | |
| Weld deposit limits: <u>0</u> to <u>0.240</u> in No Pass Greater Than 1/2" Allowed | | | |
| AWS Classification | E316L-16 | | |
| Spec. No. (SFA) | 5.4 | | |
| F-No. | 5 | | |
| A-No. | 8 | | |
| Other | | | |
| Positions (QW-405) | | Technique (QW-410) | |
| Position of Joint: <u>All Positions</u> | | String or Weave bead: <u>String and weave bead</u> | |
| Weld Progression: <u>Vertical up</u> | | Peening: <u>None</u> | |
| Electrical Characteristics (QW-409) | | | |
| Current Type/Polarity: <u>DCEP (reverse)</u> | | | |
| Max. Heat Input: <u>None</u> J/in | | | |
| Process Notes: | | | |

Second Process Welding Parameters

| Layer(s) and/or Pass(es) | Filler Metal | | Current | | Voltage Range | Travel Speed Range (in/min) |
|--------------------------------|-----------------------|--------------|--------------------|-------------------|------------------|-----------------------------------|
| | AWS Classification | Size (in) | Type / Polarity | Amperage Range | | |
| Any | E316L-16 | 3/32 | DCEP (reverse) | 60-90 | n/r | Var. |
| Any | E316L-16 | 1/8 | DCEP (reverse) | 80-120 | n/r | Var. |
| Any | E316L-16 | 5/32 | DCEP (reverse) | 110-160 | n/r | Var. |
| Any | E316L-16 | 3/16 | DCEP (reverse) | 155-210 | n/r | Var. |

Bancroft Contracting

23 Phillips Road
South Paris, ME 04281

Procedure Qualification Record (PQR)

PQR No.: BCC-5

WPS No.: 021

Date: 2/8/1993

Page 1

| | |
|--|--|
| <p>Joint Design (QW-402)</p> <p>Weld type: <u>Groove weld</u> <u>Single-V groove</u></p> <p>Backing: <u>Open butt, no back weld</u></p> <p>Root opening: <u>1/16</u> in Root face: <u>1/8</u> in</p> <p>Groove angle: <u>30</u> °</p> <div style="text-align: center;"> <p>SINGLE VEE GROOVE</p> </div> | <p>Base Metals (QW-403)</p> <p>Specification type and grade: <u>SA-312, TP304L</u> to <u>SA-312, TP304L</u></p> <p>P-No.: <u>8</u> Group No.: <u>1</u> to P-No.: <u>8</u> Group No.: <u>1</u></p> <p>Thickness: <u>0.120</u> in</p> <p>Diameter: <u>4</u> in</p> <p>Preheat (QW-406)</p> <p>Minimum preheat temperature: <u>50</u> °F</p> <p>Preheat maintenance: <u>n/a</u></p> <p>Maximum interpass temperature: <u>n/a</u> °F</p> <p>Postweld Heat Treatment (QW-407)</p> <p>Type: <u>No PWHT performed</u></p> <p>PWHT temperature: <u>None</u> °F</p> <p>PWHT holding time: <u>None</u> hr</p> |
|--|--|

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--------------------|------|---|--------|---|----|----------------|----|---|---|---|--|---------------|---|---|---|---|--|---------------|---|---|---|---|--------|-------------|-----|--|--|--|------|
| <p>Process: <u>GTAW</u></p> <p>Filler Metals (QW-404)</p> <p>AWS classification: <u>ER308L</u></p> <p>SFA spec.: <u>5.9</u> F-No: <u>6</u></p> <p>A-No. / Chem. comp.: <u>8</u></p> <p>Filler metal product form: <u>Bare (Solid)</u></p> <p>Consumable insert: <u>none</u></p> <p>Weld deposit 't': <u>0.120</u> in</p> <p>Positions (QW-405)</p> <p>Position of joint: <u>6G - 45 degree pipe</u></p> <p>Weld progression: <u>Vertical up</u></p> <p>Gas (QW-408)</p> <p>Shielding: <u>100% Argon</u> / <u>25</u> CFH</p> <p>Backing: <u>None</u> / <u>-</u> CFH</p> <p>Trailing: <u>None</u> / <u>-</u> CFH</p> <p>Process Notes:</p> | <p>Type: <u>Manual</u></p> <p>Electrical Characteristics (QW-409)</p> <p>Current type/Polarity: <u>DCEN (straight)</u></p> <p>Tungsten type: <u>EWTh-2</u> Size: <u>3/32</u></p> <p>Welding Details</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">Elec. / Wire size:</td> <td style="width:10%; text-align: center;">3/32</td> <td style="width:10%; text-align: center;">-</td> <td style="width:10%; text-align: center;">-</td> <td style="width:10%; text-align: center;">-</td> <td style="width:10%;">in</td> </tr> <tr> <td>Amperage used:</td> <td style="text-align: center;">75</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td></td> </tr> <tr> <td>Voltage used:</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td></td> </tr> <tr> <td>Travel speed:</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td>in/min</td> </tr> <tr> <td>Heat input:</td> <td colspan="3" style="text-align: center;">N/R</td> <td></td> <td>J/in</td> </tr> </table> <p>Technique (QW-410)</p> <p>String / Weave bead: <u>String and weave bead</u></p> <p>Mult. / Single pass (per side): <u>Multipass</u></p> | Elec. / Wire size: | 3/32 | - | - | - | in | Amperage used: | 75 | - | - | - | | Voltage used: | - | - | - | - | | Travel speed: | - | - | - | - | in/min | Heat input: | N/R | | | | J/in |
| Elec. / Wire size: | 3/32 | - | - | - | in | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amperage used: | 75 | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Voltage used: | - | - | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Travel speed: | - | - | - | - | in/min | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heat input: | N/R | | | | J/in | | | | | | | | | | | | | | | | | | | | | | | | | | |

Bancroft Contracting

Procedure Qualification Record (PQR)

PQR No.: BCC-5

WPS No.: 021

Date: 2/8/1993

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Reduced Section Tensile Test (QW-150)

| Specimen No. | Width (in) | Thickness (in) | Area (in ²) | Ultimate Total Load (lb) | Ultimate Stress (PSI) | Failure Type and Location |
|--------------|------------|----------------|-------------------------|--------------------------|-----------------------|---------------------------|
| T1 | 1.545 | 0.108 | 0.167 | 13500 | 80800 | Base metal |
| T2 | 1.542 | 0.105 | 0.162 | 13600 | 84000 | Weld metal |

Guided Bend Test (QW-160)

| Figure Number and Type | Result | Figure Number and Type | Result |
|------------------------|------------|------------------------|------------|
| QW-462.3(a) Face bend | Acceptable | QW-462.3(a) Root bend | Acceptable |
| QW-462.3(b) Face bend | Acceptable | QW-462.3(b) Root bend | Acceptable |
| None | | None | |

Welder's name: Michael Vascik ID: _____ Stamp: 8

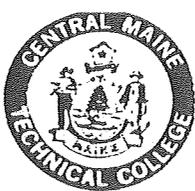
PQR was done and welding of coupon was witnessed by: Bancroft Contracting

Tests conducted by: Central Maine Technical College Test ID: _____

We certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Prepared By: _____ Jeffrey N. Carver _____ Date _____ Welding Engineer

Accepted By: *[Signature]* _____ 7/5/01 _____ Date _____ QC Manager



Central Maine Technical College

1250 Turner Street, Auburn, Maine 04210-6498 (207) 784-2385

MATERIAL TEST REPORT

Customer Bancroft Contracting Corp. Date 2/8/93
 PQR # BCC-5 PO# G 19150
 Material Type and Dimensions 4" dia. ASTM SA-240 type 304L to same
 Other Welder: Mike Vasick

Guided Bend Tests

- 1 Face Bend Fig. QW-462.3(a)
- 2 Root Bend Fig. QW-462.3(a)
- 3 Face Bend Fig. QW-462.3(a)
- 4 Root Bend Fig. QW-462.3(a)

Results

- No discontinuities
- No discontinuities
- No discontinuities
- No discontinuities

Tensile Tests

Specimen

| No. | Width | Thickness | Area | Ultimate Load Lbs. | Ultimate Tensile PSI |
|-----|--------------|-------------|-------------|--------------------|----------------------|
| T1 | <u>1.545</u> | <u>.108</u> | <u>.166</u> | <u>13,500</u> | <u>81,325</u> |
| T2 | <u>1.542</u> | <u>.105</u> | <u>.161</u> | <u>13,600</u> | <u>84,472</u> |

Test & Figure QW-462.1(a)

Location

of Fracture

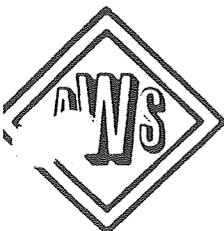
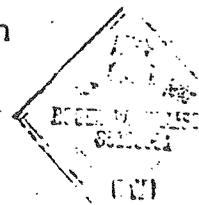
Elongation 2"

| | | |
|----|-------------------|------------|
| T1 | <u>base metal</u> | <u>43%</u> |
| T2 | <u>weld metal</u> | <u>40%</u> |

I certify that the above specimens were prepared and tested in accordance with ASME section IX-92.

Roger W. Jellison

Roger W. Jellison, Test Supervisor



Educational Institution Member

Bancroft Contracting

23 Phillips Road
South Paris, ME 04281

Procedure Qualification Record (PQR)

PQR No.: BCC- 6

WPS No.: 020

Date: 12/7/1993

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|--|--|--------------------|-------------|--------|---|----|----------------|-----------|---|---|--|---------------|----------|---|---|--|---------------|------------|---|---|--------|-------------|------------|--|--|------|
| <p>Joint Design (QW-402)</p> <p>Weld type: <u>Groove weld</u> <u>Single-V groove</u></p> <p>Backing: <u>Back-gouged and back welded</u></p> <p>Root opening: <u>3/32</u> in Root face: <u>1/16</u> in</p> <p>Groove angle: <u>55</u> °</p> <div style="text-align: center; margin-top: 20px;"> <p>SINGLE VEE GROOVE</p> </div> | <p>Base Metals (QW-403)</p> <p>Specification type and grade: <u>SA-240, Type 316L</u> to <u>SA-240, Type 316L</u></p> <p>P-No.: <u>8</u> Group No.: <u>1</u> to P-No.: <u>8</u> Group No.: <u>1</u></p> <p>Thickness: <u>0.375</u> in</p> <hr/> <p>Preheat (QW-406)</p> <p>Minimum preheat temperature: <u>50</u> °F</p> <p>Preheat maintenance: <u>n/a</u></p> <p>Maximum interpass temperature: <u>n/a</u> °F</p> <hr/> <p>Postweld Heat Treatment (QW-407)</p> <p>Type: <u>No PWHT performed</u></p> <p>PWHT temperature: <u>None</u> °F</p> <p>PWHT holding time: <u>None</u> hr</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Process: <u>SMAW</u></p> <p>Filler Metals (QW-404)</p> <p>AWS classification: <u>E316L-16</u></p> <p>SFA spec.: <u>5.4</u> F-No: <u>5</u></p> <p>A-No. / Chem. comp.: <u>8</u></p> <p>Weld deposit 't': <u>0.375</u> in</p> <p>Pass greater than 1/2": <u>No</u></p> <p>Positions (QW-405)</p> <p>Position of joint: <u>1G - Flat</u></p> <p>Weld progression: <u>N/A</u></p> <p>Process Notes:</p> | <p>Type: <u>Manual</u></p> <p>Electrical Characteristics (QW-409)</p> <p>Current type/Polarity: <u>DCEP (reverse)</u></p> <p>Welding Details</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">Elec. / Wire size:</td> <td style="width:10%;"><u>3/32</u></td> <td style="width:10%; border-left: 1px solid black; border-right: 1px solid black;">-</td> <td style="width:10%; border-left: 1px solid black; border-right: 1px solid black;">-</td> <td style="width:10%;">in</td> </tr> <tr> <td>Amperage used:</td> <td><u>95</u></td> <td style="border-left: 1px solid black; border-right: 1px solid black;">-</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">-</td> <td></td> </tr> <tr> <td>Voltage used:</td> <td><u>-</u></td> <td style="border-left: 1px solid black; border-right: 1px solid black;">-</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">-</td> <td></td> </tr> <tr> <td>Travel speed:</td> <td><u>3-8</u></td> <td style="border-left: 1px solid black; border-right: 1px solid black;">-</td> <td style="border-left: 1px solid black; border-right: 1px solid black;">-</td> <td>in/min</td> </tr> <tr> <td>Heat input:</td> <td><u>N/R</u></td> <td colspan="2"></td> <td>J/in</td> </tr> </table> <p>Technique (QW-410)</p> <p>String / Weave bead: <u>String and weave bead</u></p> | Elec. / Wire size: | <u>3/32</u> | - | - | in | Amperage used: | <u>95</u> | - | - | | Voltage used: | <u>-</u> | - | - | | Travel speed: | <u>3-8</u> | - | - | in/min | Heat input: | <u>N/R</u> | | | J/in |
| Elec. / Wire size: | <u>3/32</u> | - | - | in | | | | | | | | | | | | | | | | | | | | | | |
| Amperage used: | <u>95</u> | - | - | | | | | | | | | | | | | | | | | | | | | | | |
| Voltage used: | <u>-</u> | - | - | | | | | | | | | | | | | | | | | | | | | | | |
| Travel speed: | <u>3-8</u> | - | - | in/min | | | | | | | | | | | | | | | | | | | | | | |
| Heat input: | <u>N/R</u> | | | J/in | | | | | | | | | | | | | | | | | | | | | | |

**Bancroft Contracting
Procedure Qualification Record (PQR)**

PQR No.: BCC- 6

WPS No.: 020

Date: 12/7/1993

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Reduced Section Tensile Test (QW-150)

| Specimen No. | Width (in) | Thickness (in) | Area (in ²) | Ultimate Total Load (lb) | Ultimate Stress (PSI) | Failure Type and Location |
|--------------|------------|----------------|-------------------------|--------------------------|-----------------------|---------------------------|
| T1 | 1.496 | 0.378 | 0.565 | 51000 | 90300 | Base metal |
| T2 | 1.496 | 0.363 | 0.543 | 50000 | 92100 | Base metal |

Guided Bend Test (QW-160)

| Figure Number and Type | Result | Figure Number and Type | Result |
|------------------------|------------|------------------------|------------|
| QW-462.3(a) Face bend | Acceptable | QW-462.3(a) Root bend | Acceptable |
| QW-462.3(b) Face bend | Acceptable | QW-462.3(b) Root bend | Acceptable |
| None | | None | |

Welder's name: Michael Vascik ID: _____ Stamp: 8

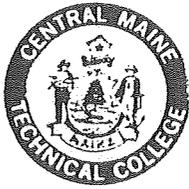
PQR was done and welding of coupon was witnessed by: Bancroft Contracting

Tests conducted by: Central Maine Technical College Test ID: _____

We certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Prepared By: _____ Jeffrey N. Carver _____ Date _____ Welding Engineer

Accepted By: *Jeffrey M. Carver* _____ 7/5/01 _____ Date _____ QC Manager



Central Maine Technical College

1250 Turner Street, Auburn, Maine 04210-6498 (207) 784-2385

MATERIAL TEST REPORT

Customer Bancroft Contracting Corp. Date 12/9/93
 PQR # BCC-6 PO# F 6547
 Material Type and Dimensions ASTM SA-240 type 316 to same
 Other _____

Guided Bend Tests

- 1 Face Bend Fig. QW-462.2
- 2 Root Bend Fig. QW-462.2
- 3 Face Bend Fig. QW-462.2
- 4 Root Bend Fig. QW-462.2

Results

- No discontinuities
- No discontinuities
- No discontinuities
- No discontinuities

Tensile Tests

Test & Figure QW-462.1(a)

| Specimen No. | Width | Thickness | Area | Ultimate Load Lbs. | Ultimate Tensile PSI |
|--------------|--------------|-------------|-------------|--------------------|----------------------|
| T1 | <u>1.496</u> | <u>.378</u> | <u>.565</u> | <u>51,000</u> | <u>90,265</u> |
| T2 | <u>1.496</u> | <u>.363</u> | <u>.543</u> | <u>50,000</u> | <u>92,081</u> |

| | Location of Fracture | Elongation 2" |
|----|----------------------|---------------|
| T1 | <u>base metal</u> | <u>45%</u> |
| T2 | <u>base metal</u> | <u>41%</u> |

I certify that the above specimens were prepared and tested in accordance with ASME section IX-92.

Roger W. Jellison
 Roger W. Jellison, Test Supervisor

