

***AS BUILT***

***DRAWINGS***

***s/n: 30138***

***A#: 671298***

***CRN: Y1927.213***

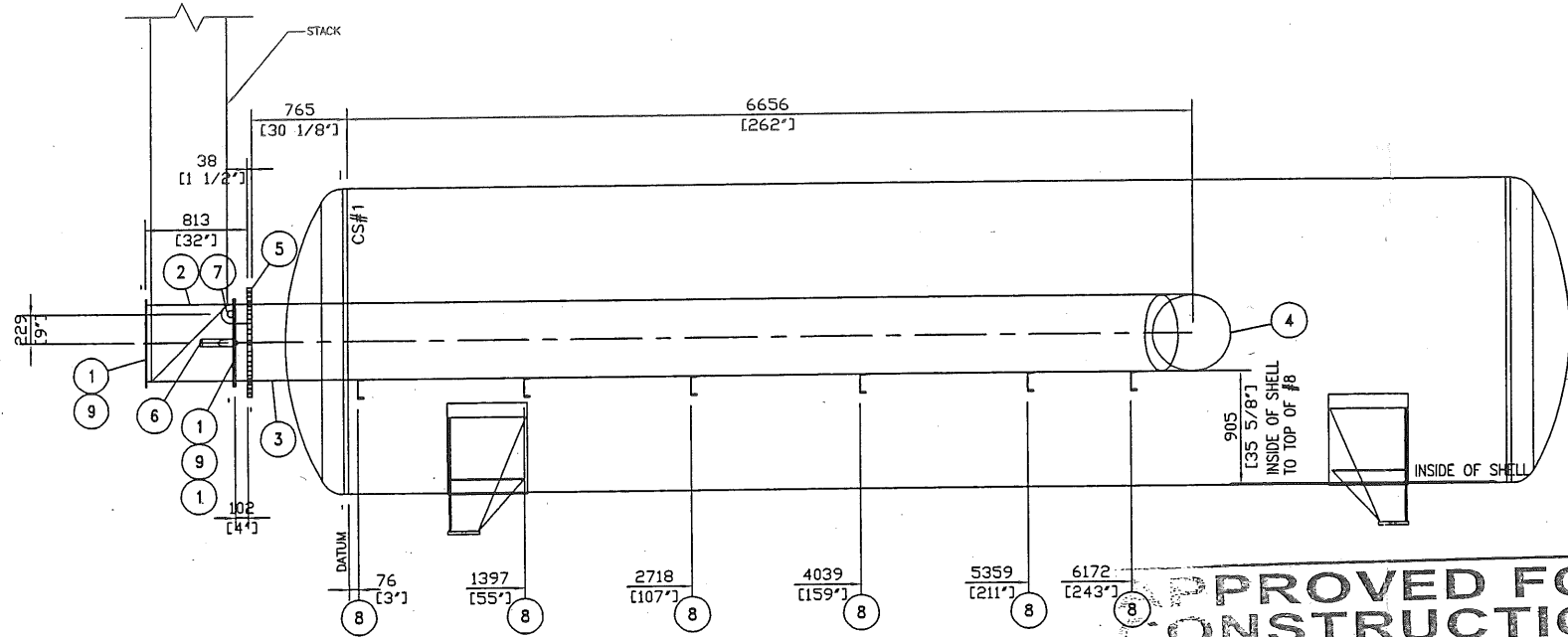
***96" od. x 30' s/s***

***Free Water Knockout***



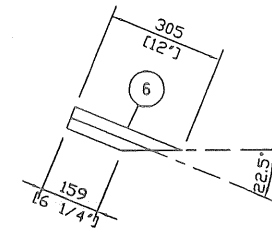


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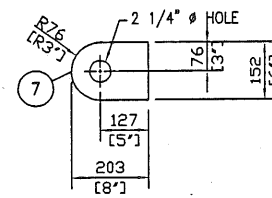


FIRETUBE ASSY. ELEVATION VIEW

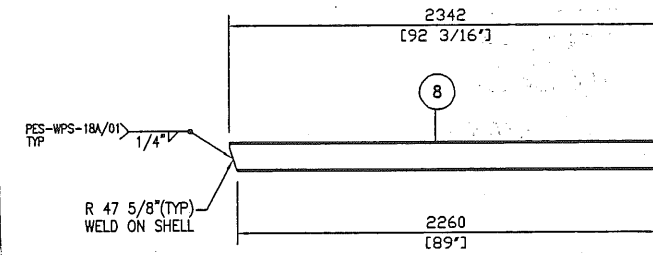
APPROVED FOR  
CONSTRUCTION  
OCT 31 2017  
SIGNED: *[Signature]*  
REVISED  
DESTROY ALL PREVIOUS COPIES



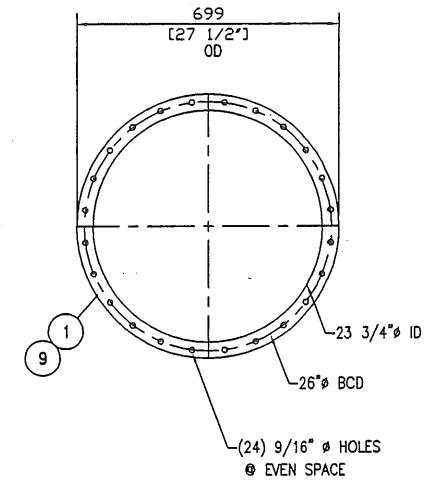
ITEM #6 DETAIL



ITEM #7 DETAIL

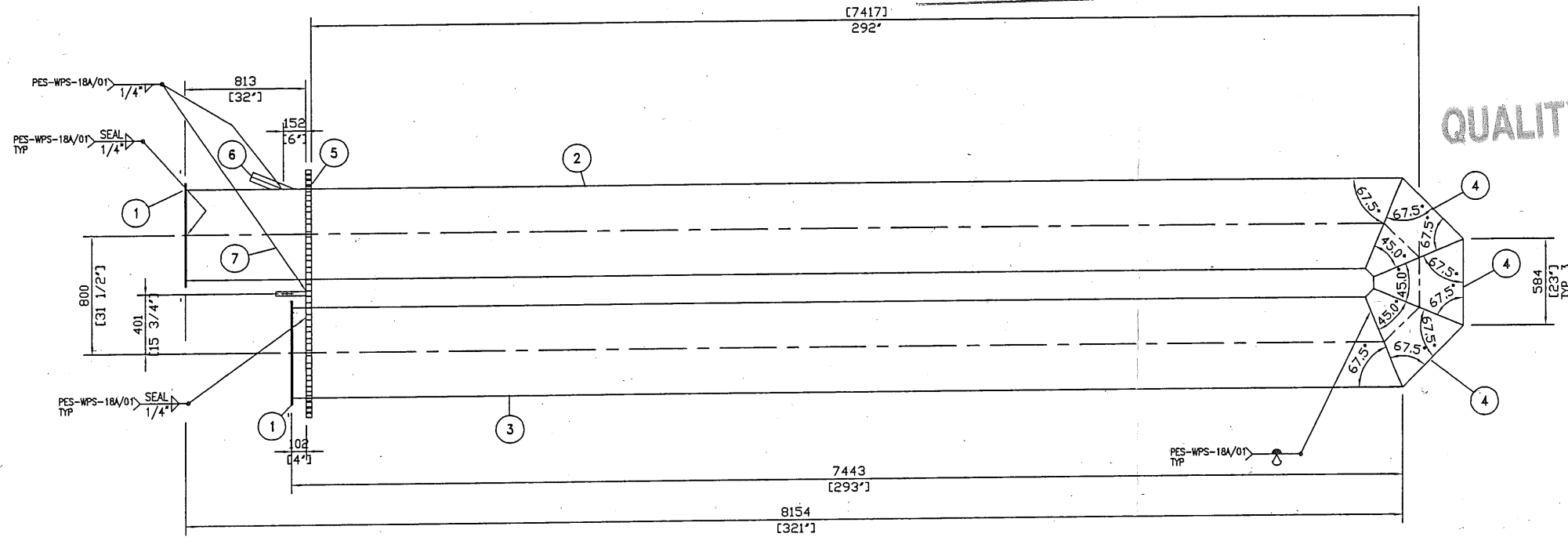


ITEM #8 DETAIL

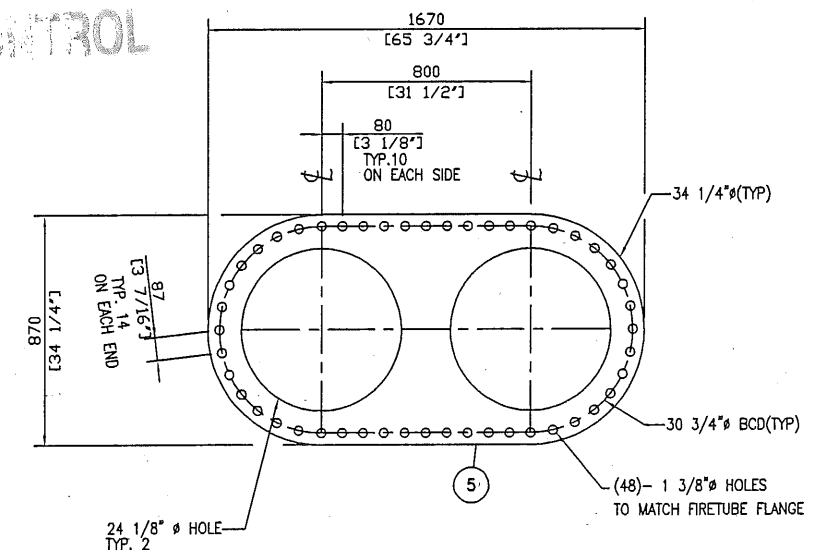


BURNER FLANGE & GASKET

QUALITY CONTROL



FIRETUBE TOP VIEW DETAIL



FIRETUBE COVER DETAIL

| BILL OF MATERIAL |       |                                                                                       |            |         |
|------------------|-------|---------------------------------------------------------------------------------------|------------|---------|
| ITEM             | REQ'D | DESCRIPTION                                                                           | QTY        | REMARKS |
| 1                | 3     | BURNER/STACK FLANGE, 3/8" THK PLATE X 23 3/4" ID X 27 1/2" OD                         | SA-36      |         |
| 2                | 1     | FIRETUBE PIPE, 24" SCH XH (0.5" THK) X 321 3/4" LG                                    | SA-106-B   |         |
| 3                | 1     | FIRETUBE PIPE, 24" SCH XH (0.5" THK) X 293 3/4" LG                                    | SA-106-B   |         |
| 4                | 3     | FIRETUBE PIPE, 24" SCH XH (0.5" THK) ERW X 23" LG                                     | SA-106-B   |         |
| 5                | 1     | FIRETUBE COVER, 1 1/2" THK X 34 1/4" W X 65 1/4" LG                                   | SA-516-70W |         |
| 6                | 1     | IGNITER ACCESS PIPE, 2" SCH XH SMLS X 12" LG (MOE X TOE)                              | SA-106-B   |         |
| 7                | 1     | FIRETUBE LIFT LUG, 1 1/8" THK PLATE X 6" W X 8" LG                                    | SA-36      |         |
| 8                | 6     | FIRETUBE SUPPORT, C6 X 8.2 X 92 3/16" LG (CTS)                                        | SA-36      |         |
| 9                | 2     | STACK/ARRESTOR GASKETS, 1/8" THK NON-ASBESTOS CUT GASKET, DURLON 8500 OR CARLOCK 3200 | -          |         |
| 10               | 24    | MACHINE BOLT FOR STACKS, 1/2" X 1 1/2" LG C/W 1 HEX HD NUT                            | GR 5       |         |
| 11               | 24    | MACHINE BOLT FOR ARRESTORS, 1/2" X 2 1/2" LG C/W 1 HEX HD NUT                         | GR 5       |         |

NOTES:

| REV    | DESCRIPTION                                       | BY | DATE     | CHK'D | APP'D |
|--------|---------------------------------------------------|----|----------|-------|-------|
| 3      | REVISED AS NOTED                                  | LL | 17-10-31 | BX    | DG    |
| 2      | REMOVED "HOLD" STATUS & REVISED AS NOTED          | LL | 17-08-15 | BX    | DG    |
| 1      | ADDED BOLTS FOR STACK/ARRESTOR                    | LL | 16-05-04 | BX    | DG    |
| 0      | ISSUED FOR CONSTRUCTION                           | LL | 16-02-24 | BX    | DG    |
| VES-01 | 96" OD X 30'-0" S/S 75PSI MAMP SWEET SERVICE FWKO | LL | 16-01-22 | BX    | BD    |

ENGINEER'S STAMP

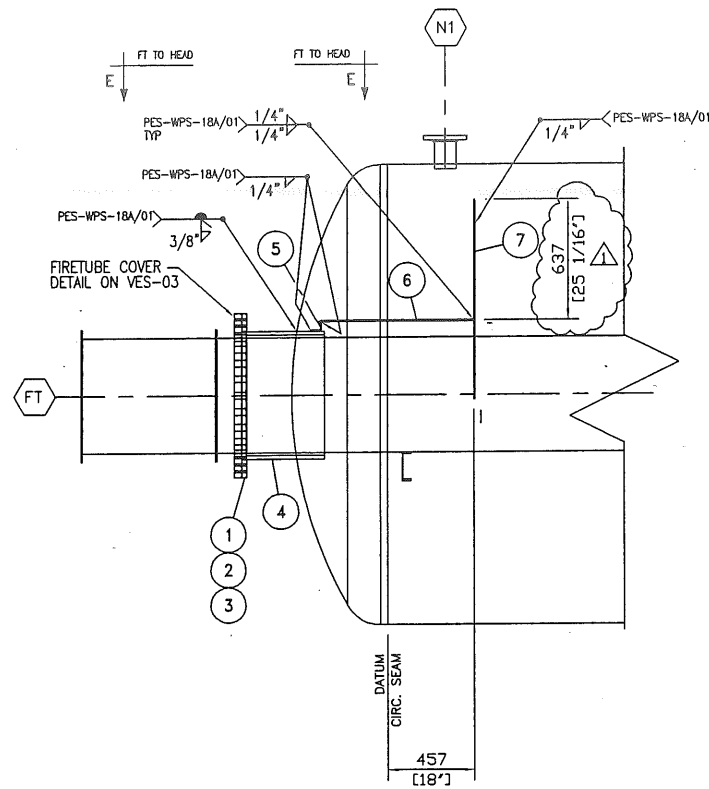
|          |                  |                |
|----------|------------------|----------------|
| DRAWN BY | LL               | 16-01-22       |
| CHK'D BY | BX               | 16-01-22       |
| APP'D BY | DG               | 16-01-22       |
| CAD REF  | 30138-VES-03.DWG | SCALE AS SHOWN |

**PLATINUM**  
ENERGY SERVICES ULC  
A Trillium Industries Canada Company  
CALGARY, ALBERTA

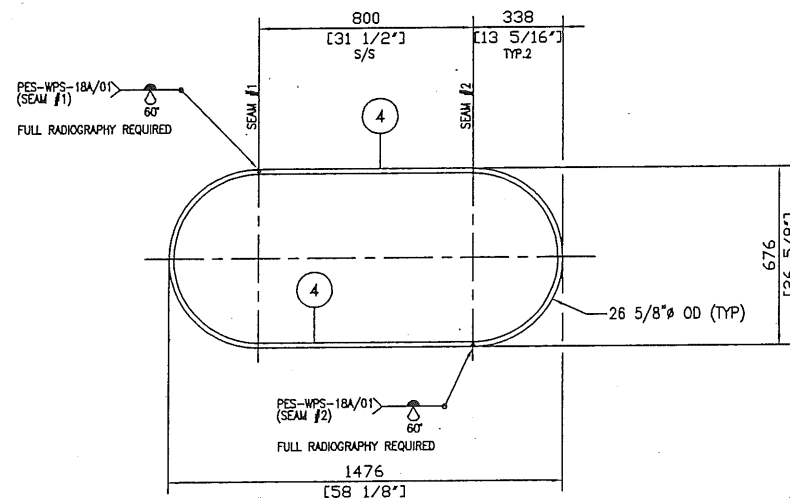
|             |                                                                      |
|-------------|----------------------------------------------------------------------|
| CLIENT      | STOCK                                                                |
| TITLE       | 96" OD X 30'-0" S/S 75PSI MAMP SWEET SERVICE FWKO<br>FIRETUBE DETAIL |
| JOB NO.     | 30138                                                                |
| DRAWING NO. | 30138-VES-03                                                         |
| REV         | 3                                                                    |

S:\TRANSFERS\UNIT NUMBERS\30000\30138\30138-VES-01.DWG

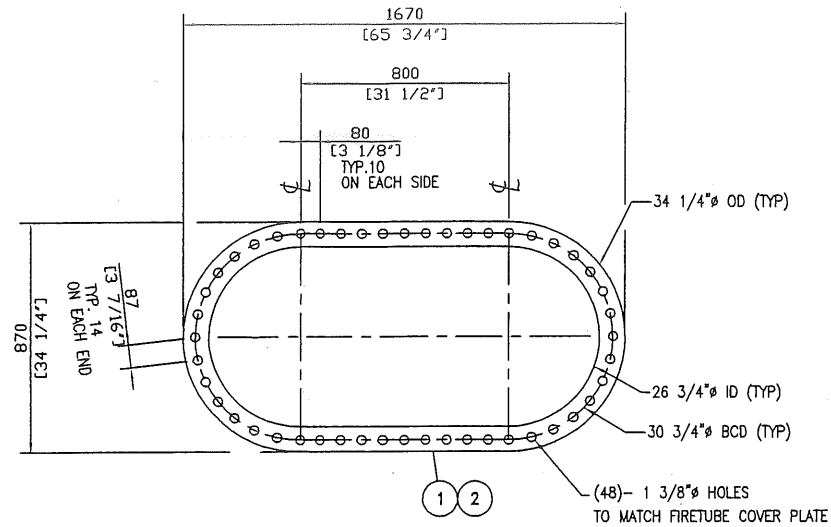
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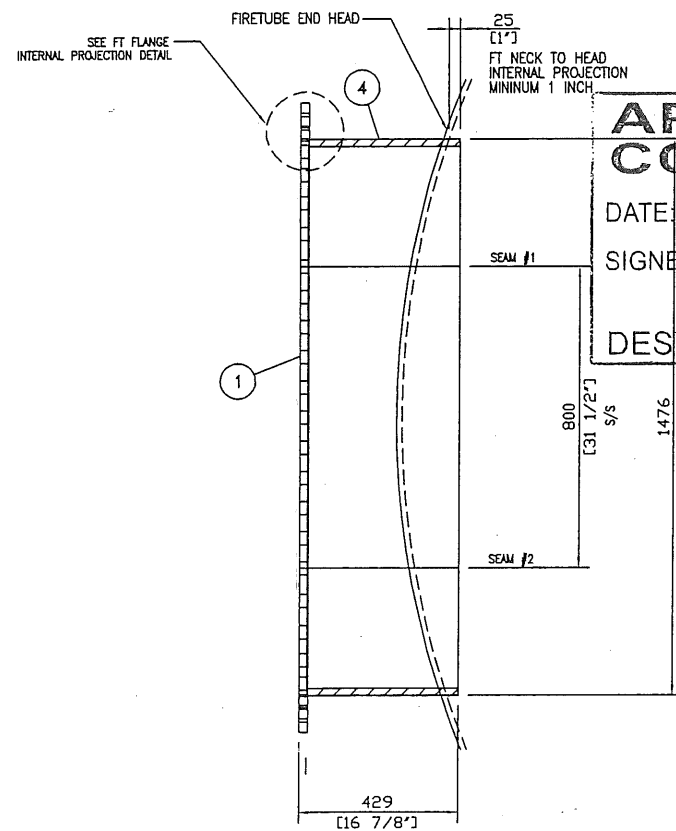
FIRETUBE NECK & INLET DEFLECTOR ASSY. ELEVATION VIEW



FIRETUBE NECK DETAIL

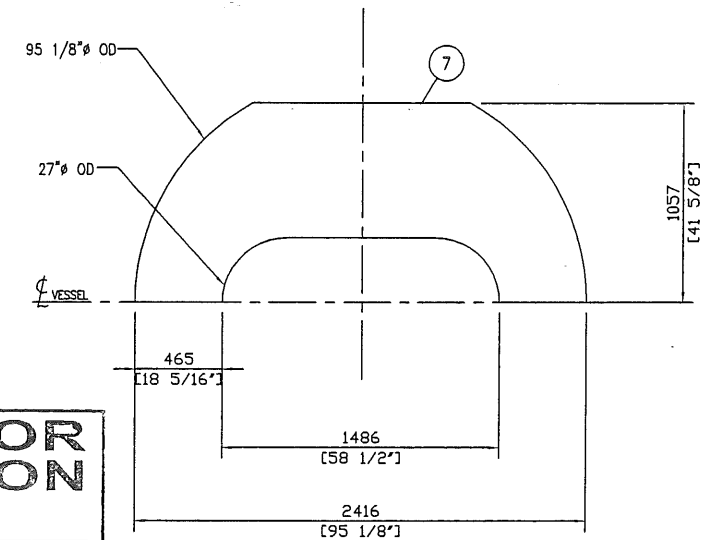


FIRETUBE FLANGE & GASKET DETAIL

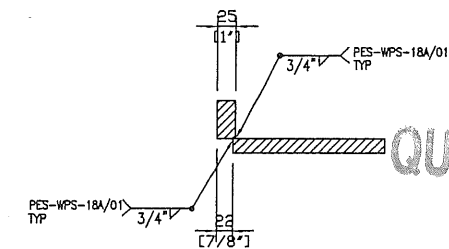


ITEM #1 & #4 ASSY. DETAIL TOP VIEW 'E-E'

| BILL OF MATERIAL |       |                                                                                       |               |
|------------------|-------|---------------------------------------------------------------------------------------|---------------|
| ITEM             | REQ'D |                                                                                       |               |
| 1                | 2     | FIRETUBE FLANGE, 1" THK PLATE X 34 1/4" W X 65 3/4" LG                                | SA-516-70N    |
| 2                | 1     | 1/8" THK NON-ASBESTOS CUT GASKET, DURLON 8500 OR CARLOCK 3200, AGS PART #JWFTGSKT8-10 |               |
| 3                | 48    | STUDS, 1 1/4" Ø X 8" LG, C/W 2 NUTS EA                                                | 193-B7/194-2H |
| 4                | 2     | FIRETUBE NECK, 3/4" THK PLATE X 16" W X 44 13/16" LG( SEE DETAIL)                     | SA-516-70N    |
| 5                | 1     | L2 X 2 X 1/4 X 28" LG                                                                 | SA-36         |
| 6                | 1     | INLET DEFLECTOR PLATE, 1/4" THK X 32" W X 58" LG                                      | SA-36         |
| 7                | 1     | BAFFLE PLATE, 1/4" THK X 95 1/8" OD CUT PER DETAIL                                    | SA-36         |



BAFFLE PLATE DETAIL



FT FLANGE INTERNAL PROJECTION DETAIL

**APPROVED FOR CONSTRUCTION**  
DATE: AUG 15 2017  
SIGNED:   
**REVISED**  
DESTROY ALL PREVIOUS COPIES

**QUALITY CONTROL**

NOTES:

| REV | DESCRIPTION             | BY | DATE     | CHK'D | APP'D |
|-----|-------------------------|----|----------|-------|-------|
| 1   | REVISED AS NOTED        | LL | 17-08-15 | BX    | DG    |
| 0   | ISSUED FOR CONSTRUCTION | LL | 16-02-24 | BX    | DG    |
| 0   | ISSUED FOR APPROVAL     | LL | 16-01-29 | BX    | BD    |

ENGINEER'S STAMP

|          |                  |                |
|----------|------------------|----------------|
| DRAWN BY | LL               | 16-01-29       |
| CHK'D BY | BX               | 16-01-29       |
| APP'D BY | DG               | 16-01-29       |
| CAD REF  | 30138-VES-04.DWG | SCALE AS SHOWN |

CLIENT

STOCK

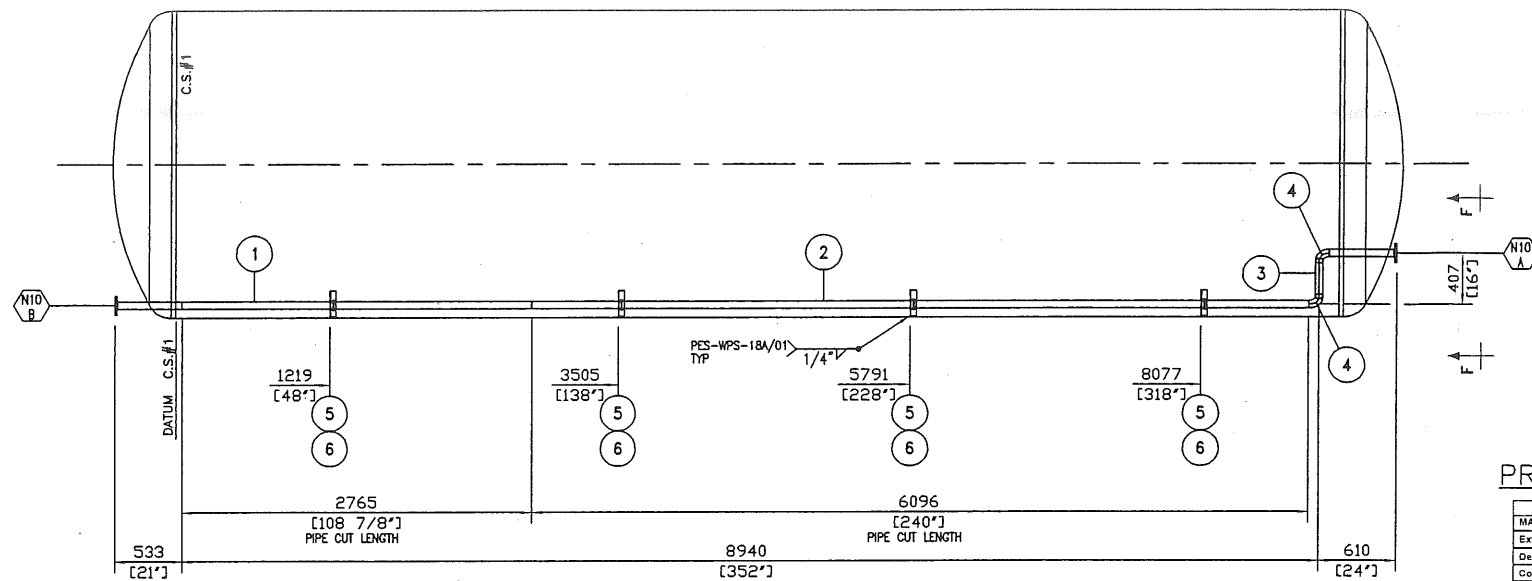
TITLE  
96" OD X 30'-0" S/S 75PSI MAWP SWEET SERVICE EMULSION TREATER  
FIRETUBE NECK & INLET DEFLECTOR AND BAFFLE PLATE DETAIL

|         |       |             |              |     |   |
|---------|-------|-------------|--------------|-----|---|
| JOB NO. | 30138 | DRAWING NO. | 30138-VES-04 | REV | 1 |
|---------|-------|-------------|--------------|-----|---|

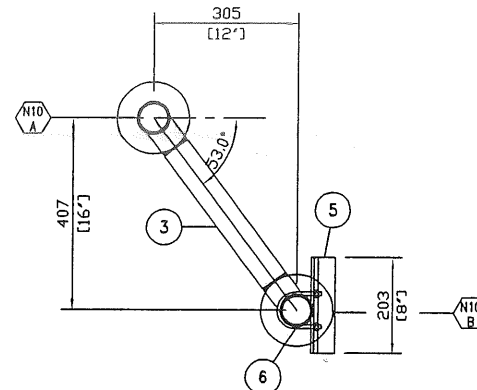
CALGARY, ALBERTA

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PREHEAT PIPE ELEVATION VIEW

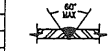


PREHEAT PIPE VIEW 'F-F'

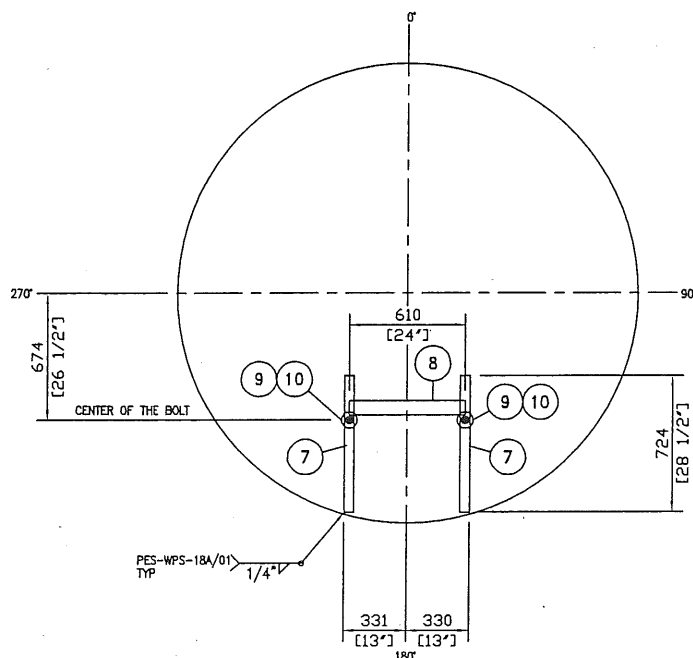
PREHEAT PIPE DESIGN DATA

| PREHEAT PIPE            |                                     |
|-------------------------|-------------------------------------|
| MAWP Press.             | 75 Psig (517 kPag)                  |
| External Press.         | 75 Psig (517 kPag)                  |
| Design Temp.            | 350°F (177°C)                       |
| Corrosion All.          | 0.0625" (1.6 mm)                    |
| Test Press.             | 98 Psig (678 kPag)                  |
| X-Ray                   | NONE                                |
| Min. Metal Design Temp. | -20°F • 75 Psig<br>-29°C • 517 kPag |

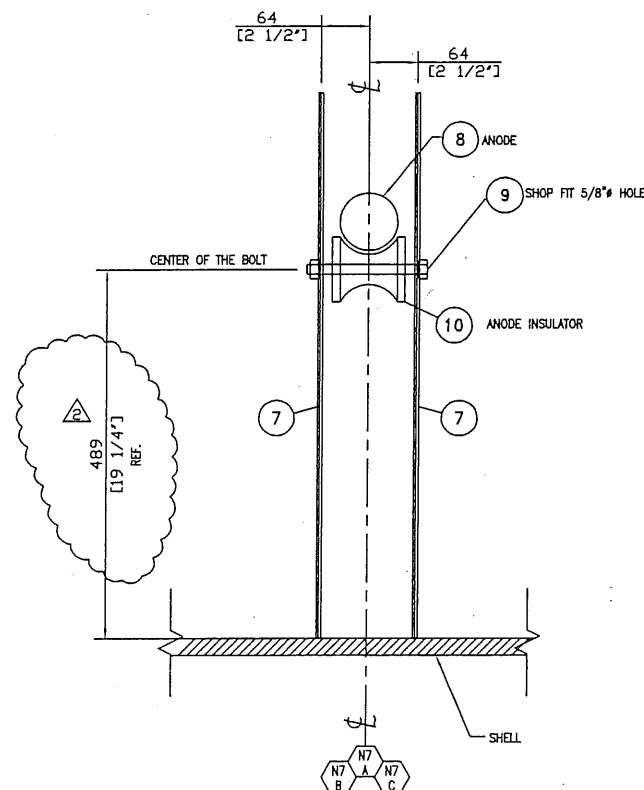
1 BUTT WELD



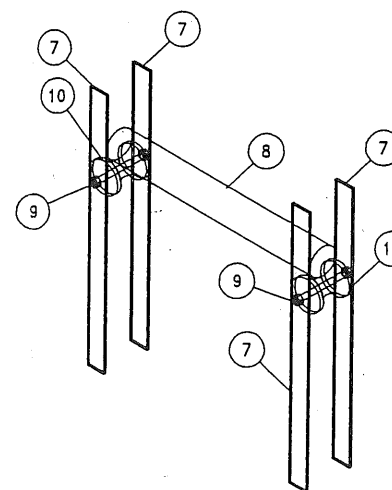
PES-WPS-01  
PES-WPS-03



ANODE SUPPORT ASSY. DETAIL



ANODE SUPPORT BRACKETS DETAIL  
(3 REQUIRED FOR NOZZLE N7A-C)



ANODE SUPPORT SW ISOMETRIC VIEW

PREHEAT PIPE ISOMETRIC VIEW

QUALITY CONTROL

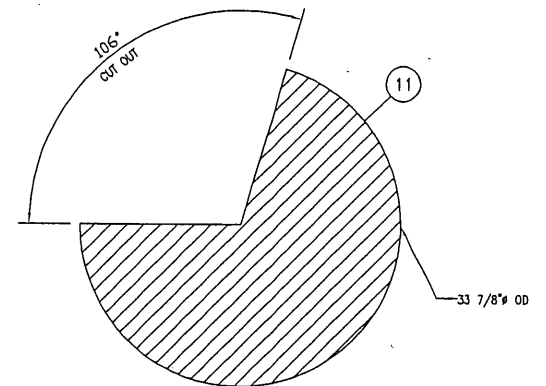
APPROVED FOR CONSTRUCTION

DATE: AUG 15 2017

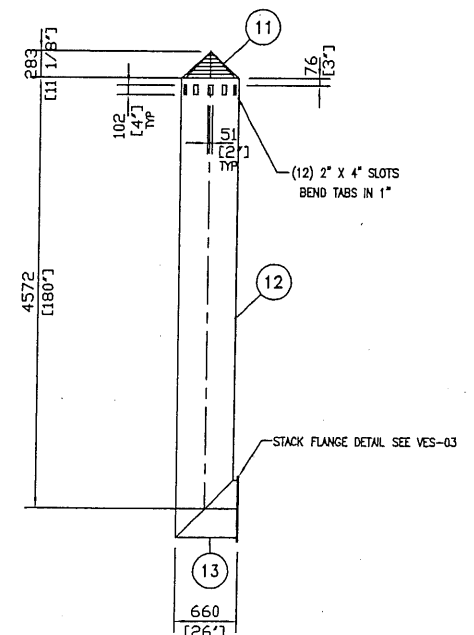
SIGNED: [Signature]

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| BILL OF MATERIAL |       |                                                                          |            |
|------------------|-------|--------------------------------------------------------------------------|------------|
| ITEM             | REQ'D |                                                                          |            |
| 1                | 1     | PIPE, 2" SCH 160 SMLS X 108 7/8" LG (CTS)                                | SA-106-B   |
| 2                | 1     | PIPE, 2" SCH 160 SMLS X 240" LG (CTS)                                    | SA-106-B   |
| 3                | 1     | PIPE, 2" SCH 160 SMLS X 13 3/4" LG (CTS)                                 | SA-106-B   |
| 4                | 2     | WELD ELBOW, 2" SCH 160, 90° LR BW                                        | SA-234-WPB |
| 5                | 4     | PREHEAT SUPPORT, L2 X 2 X 1/4 X 8" LG                                    | SA-36      |
| 6                | 4     | 2" U-BOLT, C/W 2 NUTS EA                                                 | GR.5       |
| 7                | 12    | ANODE SUPPORT, FLAT BAR, 1/4" THK X 2" X 28 1/2" LG(CTS)                 | SA-36      |
| 8                | 3     | ALUMINUM SACRIFICIAL ANODE 3" X 24"                                      | SA-106-B   |
| 9                | 6     | 1/2" Ø X 5 1/2" LG SST BOLT C/W NUT, FLAT + LOCK WASHER                  | SST        |
| 10               | 6     | WOODEN ANODE INSULATOR                                                   | -          |
| 11               | 1     | BIRDS SCREEN, EXPANDED METAL, 13GA X 3/4" X 33 7/8" OD (BEND PER DETAIL) | C.S.       |
| 12               | 1     | PIPE, 24" SCH 10 (0.25" WT) ERW X 16'-0" LG                              | SA-53B     |
| 13               | 1     | PIPE, 24" SCH 10 (0.25" WT) ERW X 2'-2" LG                               | SA-53B     |



ITEM #11 DETAIL



STACK DETAIL

NOTES:  
1. APPLY HIGH TEMP. LUBRICANTS ON ALL INTERNAL STUDS/BOLTS/NUTS.  
2. FILLET WELD SIZE TO BE 1/4" UNLESS NOTED OTHERWISE.

| REV                | DESCRIPTION                                                 | BY | DATE     | CHK'D | APP'D |
|--------------------|-------------------------------------------------------------|----|----------|-------|-------|
| 2                  | REVISED AS NOTED                                            | LL | 17-08-15 | BX    | DG    |
| 1                  | ADDED PREHEAT PIPE DESIGN DATA & REVISED AS NOTED           | LL | 16-03-16 | BX    | DG    |
| 0                  | ISSUED FOR CONSTRUCTION                                     | LL | 16-02-24 | BX    | DG    |
| A                  | ISSUED FOR APPROVAL                                         | LL | 16-01-28 | BX    | BD    |
| VES-01             | 96" OD X 30'-0" S/S 75PSI MAMP SWEET SERVICE EMULSION TREAT |    |          |       |       |
| REFERENCE DRAWINGS |                                                             |    |          |       |       |

ENGINEER'S STAMP

|          |                  |                |
|----------|------------------|----------------|
| DRAWN BY | LL               | 16-01-28       |
| CHK'D BY | BX               | 16-01-28       |
| APP'D BY | DG               | 16-01-28       |
| CAD REF  | 30138-VES-05.DWG | SCALE AS SHOWN |

CLIENT

STOCK

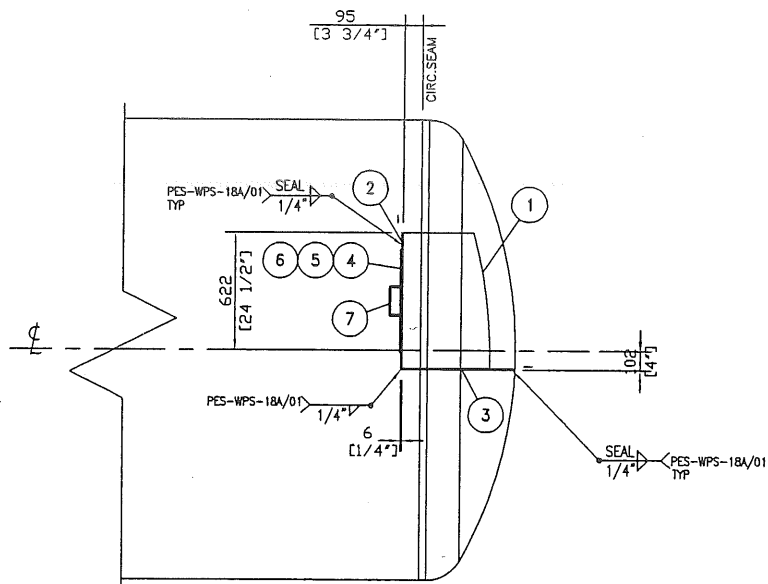
TITLE  
96" OD X 30'-0" S/S 75PSI MAMP SWEET SERVICE EMULSION TREAT  
PREHEAT PIPING, ANODE SUPPORT ASSY. & STACK DETAIL

JOB NO. 30138 DRAWING NO. 30138-VES-05 REV 2

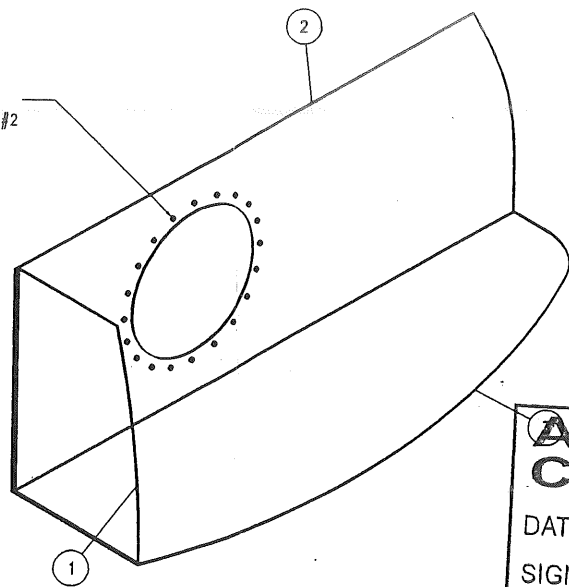
CALGARY, ALBERTA

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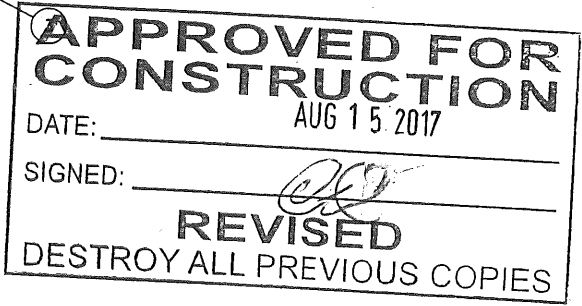
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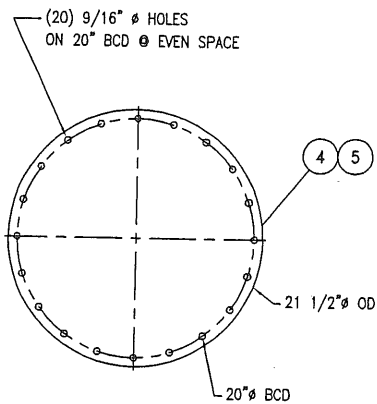
OIL BOX ELEVATION VIEW



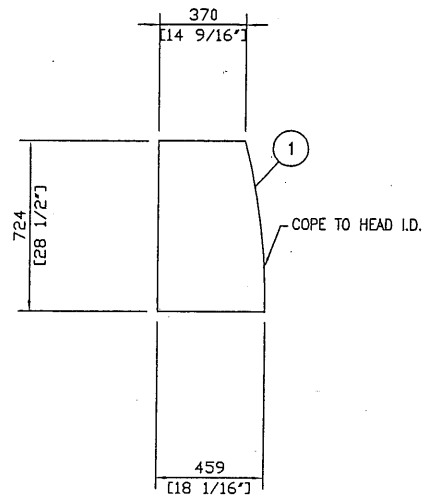
OIL BOX SE ISOMETRIC VIEW



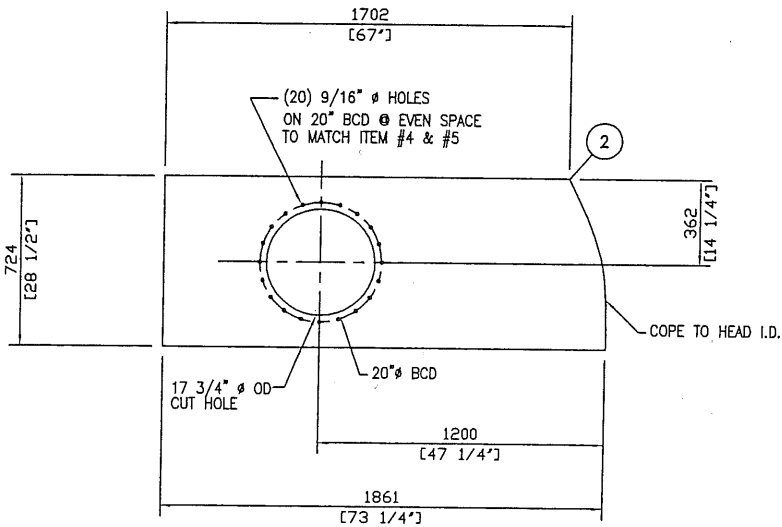
| BILL OF MATERIAL |       |                                                                                       |       |
|------------------|-------|---------------------------------------------------------------------------------------|-------|
| ITEM             | REQ'D |                                                                                       |       |
| 1                | 1     | OIL BOX SIDE PLATE, 1/4" THK X 18 1/16" W X 28 1/2" LG                                | SA-36 |
| 2                | 1     | OIL BOX BUCKET PLATE, 1/4" THK X 22 7/8" W X 73 1/4" LG                               | SA-36 |
| 1                | 1     | OIL WEIR PLATE, 1/4" THK X 28 1/2" W X 73 1/4" LG                                     | SA-36 |
| 4                | 1     | OIL BOX ACCESS PLATE, 1/4" THK X 21 1/2" OD                                           | SA-36 |
| 5                | 1     | 1/8" THK NON-ASBESTOS CUT GASKET, 21 1/2" OD X 17 3/4" ID BURLON 8500 OR GARLOCK 3200 | -     |
| 6                | 20    | BOLTS, 1/2" Ø X 1 1/2" LG, C/W 2 NUTS EA                                              | SST   |
| 7                | 1     | ACCESS HANDLES, ROUND BAR, 3/8" OD X 10" LG (BENT PER DETAIL)                         | SA-36 |
|                  |       |                                                                                       |       |
|                  |       |                                                                                       |       |
|                  |       |                                                                                       |       |
|                  |       |                                                                                       |       |
|                  |       |                                                                                       |       |
|                  |       |                                                                                       |       |



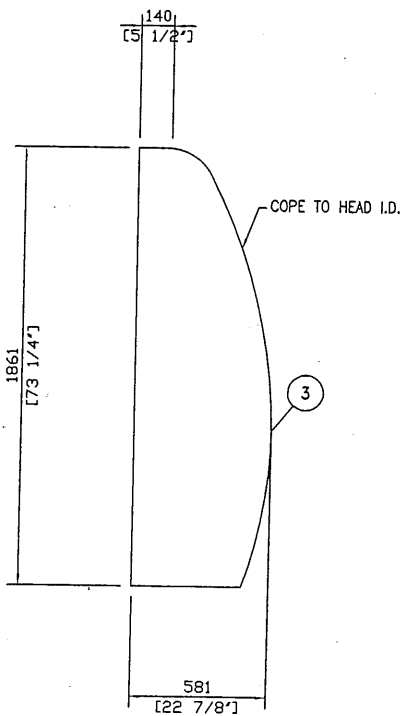
ITEM #4 & #5 DETAIL



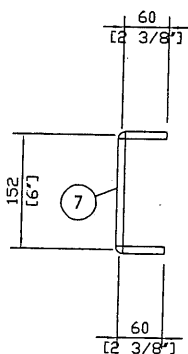
ITEM #1 DETAIL



ITEM #2 DETAIL

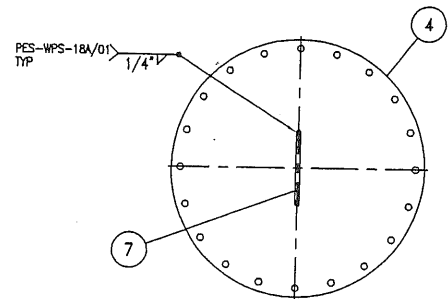


ITEM #3 DETAIL



ITEM #7 DETAIL

## QUALITY CONTROL



HANDLE ASSY. DETAIL

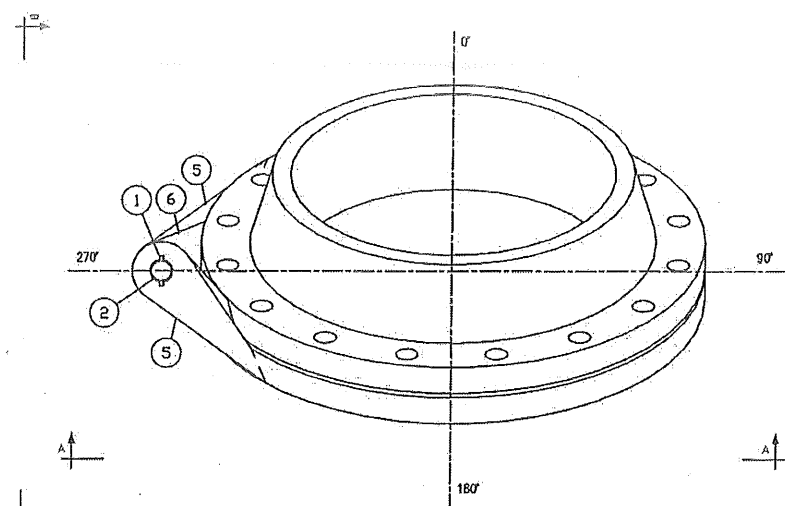
- NOTES:
1. ALL BOLTS FOR REMOVABLE PANEL TO BE TACK WELDED ON UNMOVABLE PLATES.
  2. APPLY HIGH TEMP. LUBRICANTS ON ALL INTERNAL STUDS/BOLTS/NUTS.
  3. FILLET WELD SIZE TO BE 1/4" UNLESS NOTED OTHERWISE.

| REV                | DESCRIPTION             | BY | DATE     | CHK'D | APP'D |
|--------------------|-------------------------|----|----------|-------|-------|
| 1                  | REVISED AS NOTED        | LL | 17-08-15 | BX    | DG    |
| 0                  | ISSUED FOR CONSTRUCTION | LL | 16-02-24 | BX    | DG    |
| A                  | ISSUED FOR APPROVAL     | LL | 16-01-28 | BX    | BD    |
| REFERENCE DRAWINGS |                         |    |          |       |       |

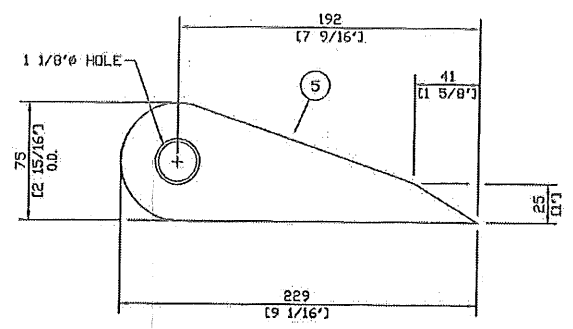
|                                                       |  |                             |  |              |                                                                                       |                               |
|-------------------------------------------------------|--|-----------------------------|--|--------------|---------------------------------------------------------------------------------------|-------------------------------|
| ENGINEER'S STAMP                                      |  | DRAWN BY<br>LL<br>16-01-22  |  | <div>△</div> | CLIENT                                                                                | <div>STOCK</div> <div>△</div> |
|                                                       |  | CHK'D BY<br>BX<br>16-01-22  |  |              |                                                                                       |                               |
|                                                       |  | APP'D BY<br>DG<br>16-01-22  |  |              |                                                                                       |                               |
|                                                       |  | CAD REF<br>30138-VES-06.DWG |  |              |                                                                                       |                               |
|                                                       |  | SCALE<br>AS SHOWN           |  |              |                                                                                       |                               |
|                                                       |  |                             |  |              | TITLE<br>96" OD X 30'-0" S/S 75PSI MAWP SWEET SERVICE EMULSION TREATER OIL BOX DETAIL |                               |
|                                                       |  |                             |  |              |                                                                                       |                               |
|                                                       |  |                             |  |              |                                                                                       |                               |
|                                                       |  |                             |  |              |                                                                                       |                               |
| S:\TRANSFERS\UNIT NUMBER\30000\30138\30138-VES-01.DWG |  | CALGARY, ALBERTA            |  |              | JOB NO.<br>30138                                                                      | DRAWING NO.<br>30138-VES-06   |
|                                                       |  |                             |  |              | REV<br>1                                                                              |                               |

S:\TRANSFERS\UNIT NUMBERS\30000\30138\30138-VES-01.DWG

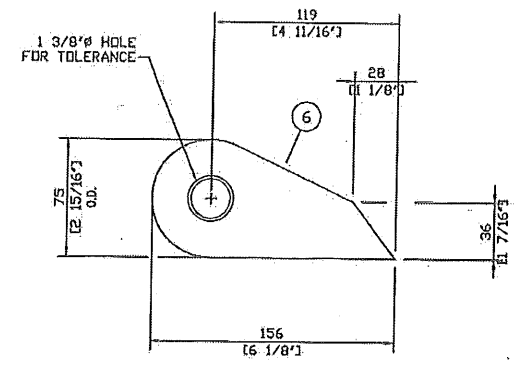




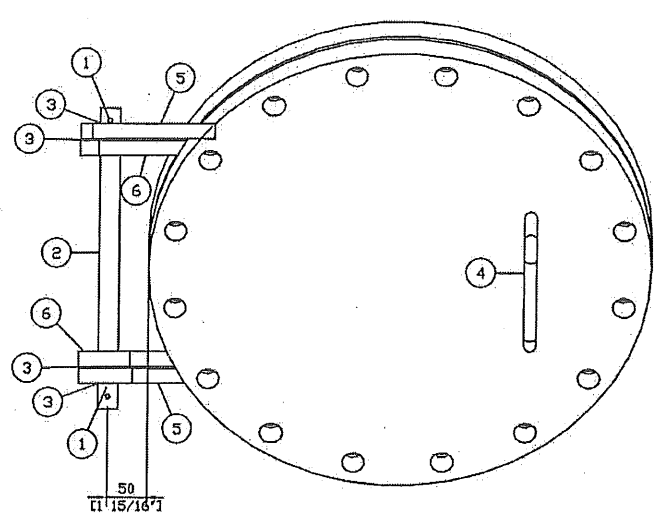
MANWAY ATTACHMENTS TOP VIEW  
SCALE: 1:4



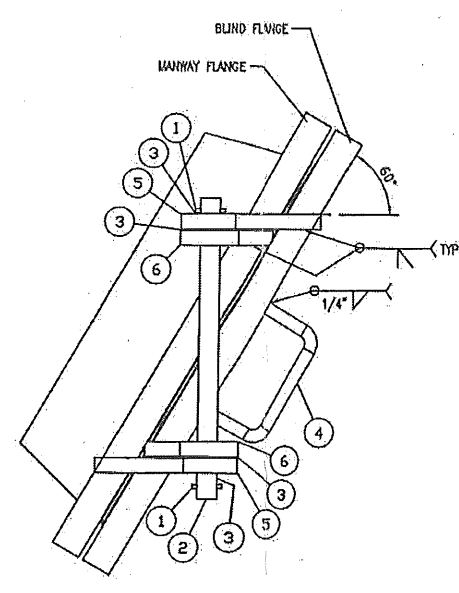
HINGE ITEM #5 DETAIL  
SCALE: 1:2



HINGE ITEM #6 DETAIL  
SCALE: 1:2

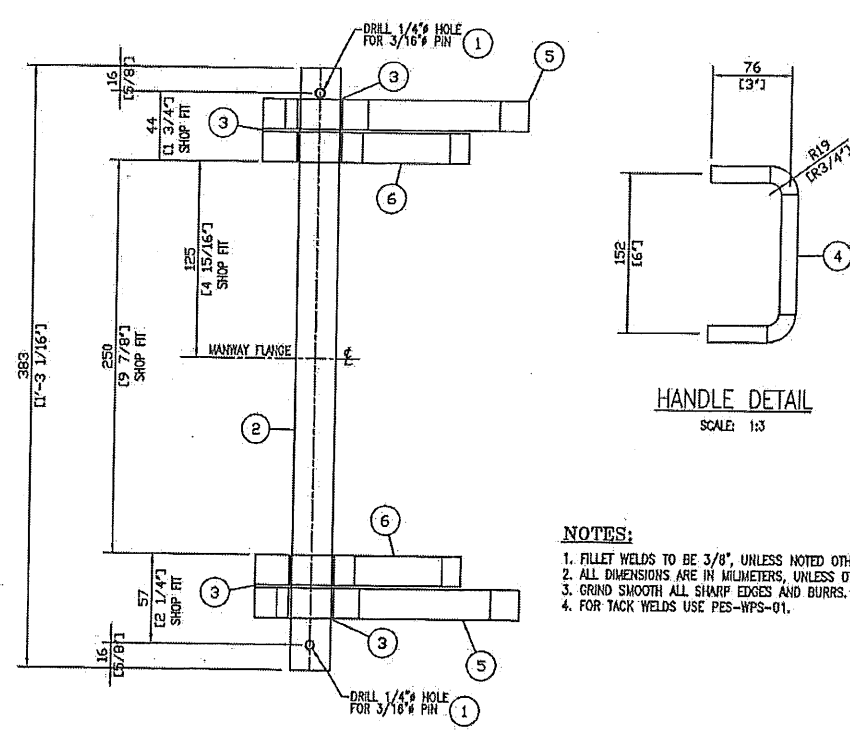


'A-A' VIEW  
SCALE: 1:4



'B-B' VIEW  
SCALE: 1:4

QUALITY CONTROL



MANWAY ATTACHMENTS DETAIL  
SCALE: 1:2

- NOTES:
1. FILLET WELDS TO BE 3/8", UNLESS NOTED OTHERWISE.
  2. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE NOTED.
  3. GRIND SMOOTH ALL SHARP EDGES AND BURRS.
  4. FOR TACK WELDS USE PES-WPS-01.

| BILL OF MATERIAL |       |                                                     |            |
|------------------|-------|-----------------------------------------------------|------------|
| ITEM             | REQ'D | DESCRIPTION                                         | MAT'L      |
| 1                | 2     | COTTER PIN, 3/16" x 1 1/2" LG                       | 304L SS    |
| 2                | 1     | ROUND BAR, 1" x 1'-3 1/16" LG                       | SA-36/44W  |
| 3                | 4     | FLAT WASHER 1"                                      | STEEL      |
| 4                | 1     | HANDLE, 3/4" ROUND BAR x 12" LG CTS/BEND PER DETAIL | SA-36/44W  |
| 5                | 2     | PLATE, 3/4" x 9 1/16" x 2 15/16" CTS                | SA-516-70N |
| 6                | 2     | PLATE, 3/4" x 8 1/8" x 2 15/16" CTS                 | SA-516-70N |

**APPROVED FOR CONSTRUCTION**

DATE: FEB 24 2016

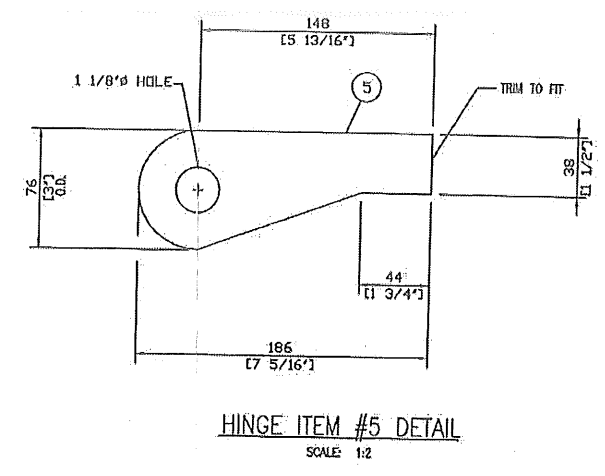
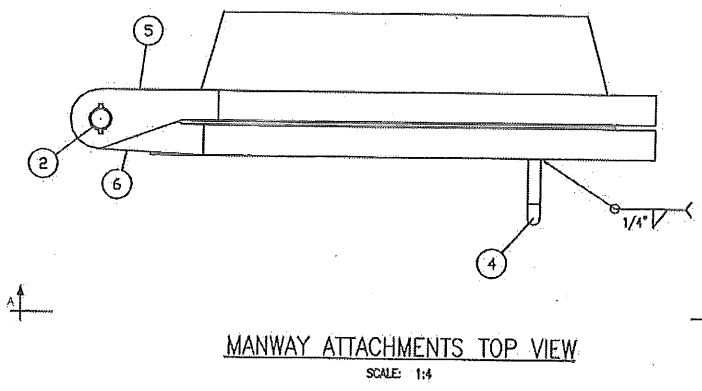
SIGNED:

| REFERENCE DRAWINGS | REV | DESCRIPTION             | BY | DATE     | CHK'D | APP'D |
|--------------------|-----|-------------------------|----|----------|-------|-------|
|                    | 0   | ISSUED FOR CONSTRUCTION | LL | 18-02-12 | DX    | DG    |

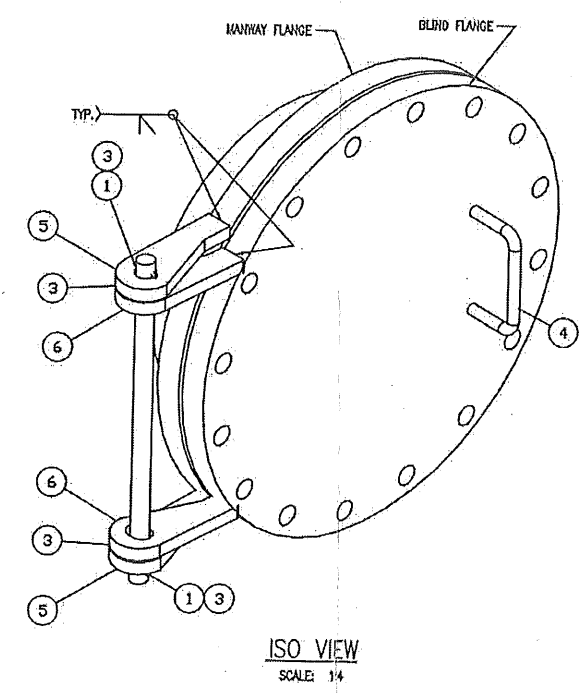
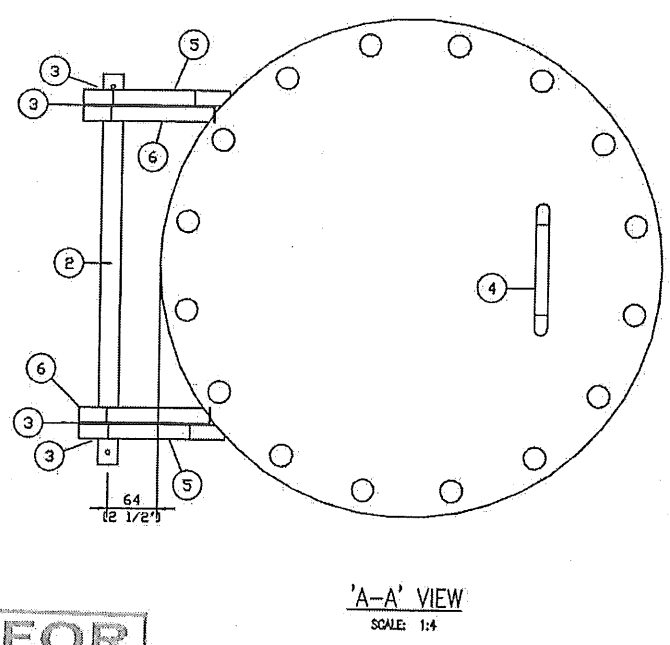
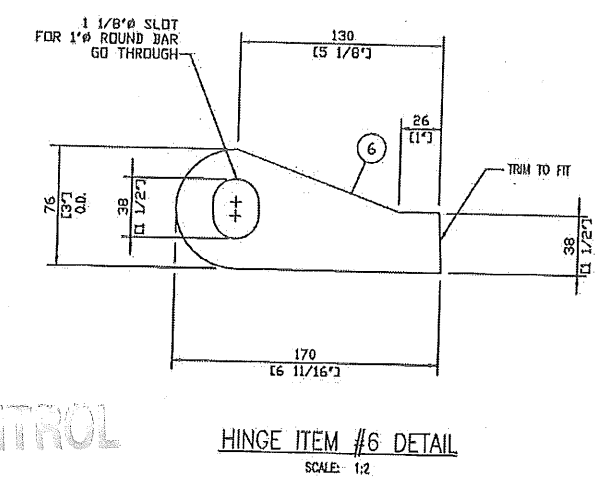
|                  |  |                               |                 |                                                                       |
|------------------|--|-------------------------------|-----------------|-----------------------------------------------------------------------|
| ENGINEER'S STAMP |  | DRAWN BY: LL                  | 18-01-28        | CLIENT: STANDARDS                                                     |
|                  |  | CHK'D BY: BX                  | 18-01-28        |                                                                       |
|                  |  | APP'D BY: DG                  | 18-01-28        |                                                                       |
|                  |  | CAD REF: 18-150-30 DEGREE.DWG | SCALE: AS SHOWN |                                                                       |
|                  |  |                               |                 | TITLE: 18" 150# MANWAY 30 DEGREE ATTACHMENTS RIGHT HAND OPEN (FOR M2) |
|                  |  | CALGARY, ALBERTA              |                 | JOB NO: 30138<br>DRAWING NO: 18-150-30 DEGREE<br>REV: 0               |

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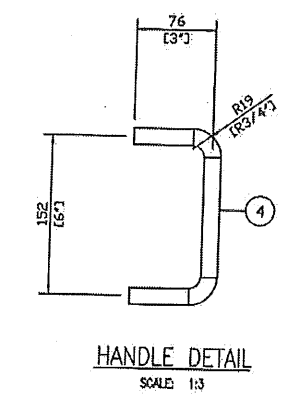
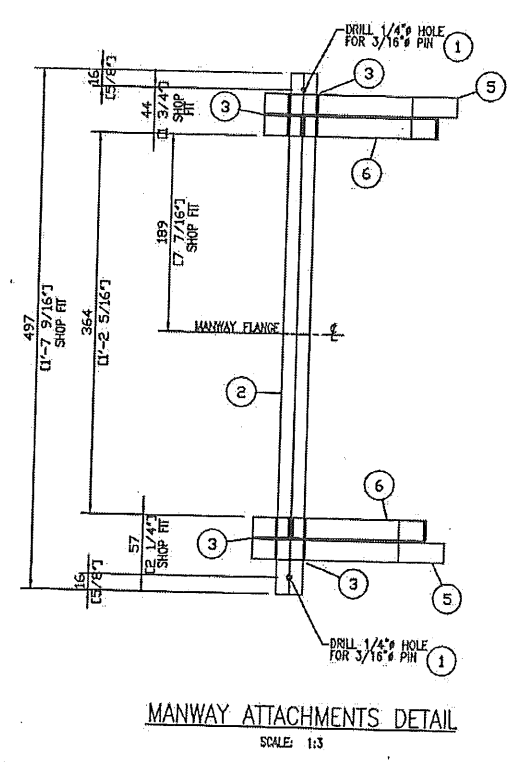
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| BILL OF MATERIAL |       |                                           |            |
|------------------|-------|-------------------------------------------|------------|
| ITEM             | REQ'D | DESCRIPTION                               | MAT'L      |
| 1                | 2     | COTTER PIN, 3/16" x 1 1/2" LG             | 304L SS    |
| 2                | 1     | ROUND BAR, 1" x 1'-7 9/16" LG             | SA-36/44W  |
| 3                | 4     | FLAT WASHER 1"                            | STEEL      |
| 4                | 1     | HANDLE, 3/4" x 12" LG CTS/BEND PER DETAIL | SA-36/44W  |
| 5                | 2     | PLATE, 3/4" x 7 5/16" x 3" CTS            | SA-516-70N |
| 6                | 2     | PLATE, 3/4" x 6 11/16" x 3" CTS           | SA-516-70N |



QUALITY CONTROL



- NOTES:
1. FILLET WELDS TO BE 3/8", UNLESS NOTED OTHERWISE.
  2. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE NOTED.
  3. GRIND SMOOTH ALL SHARP EDGES AND BURRS.
  4. FOR TACK WELDS USE PES-WPS-01.

APPROVED FOR  
CONSTRUCTION

DATE: FEB 24 2016

SIGNED: [Signature]

| REV | DESCRIPTION             | BY | DATE     | CHK'D | APP'D |
|-----|-------------------------|----|----------|-------|-------|
| 0   | ISSUED FOR CONSTRUCTION | LL | 16-02-16 | DX    | DG    |

|                               |  |                                       |  |                              |  |
|-------------------------------|--|---------------------------------------|--|------------------------------|--|
| ENGINEER'S STAMP              |  | DRAWN BY LL 16-02-16                  |  | CLIENT                       |  |
| CHK'D BY DX 16-02-16          |  | APP'D BY DO 16-02-16                  |  | STANDARDS                    |  |
| CAD REF 16-150-90 DEGREE DWG  |  | SCALE AS SHOWN                        |  | TITLE                        |  |
| PLATINUM ENERGY SERVICES LTD. |  | 18" 150# MANWAY 90 DEGREE ATTACHMENTS |  | RIGHT HAND OPEN (FOR M1)     |  |
| CALGARY, ALBERTA              |  | JOB NO. 30138                         |  | DRAWING NO. 18-150-90 DEGREE |  |
|                               |  |                                       |  | REV 0                        |  |