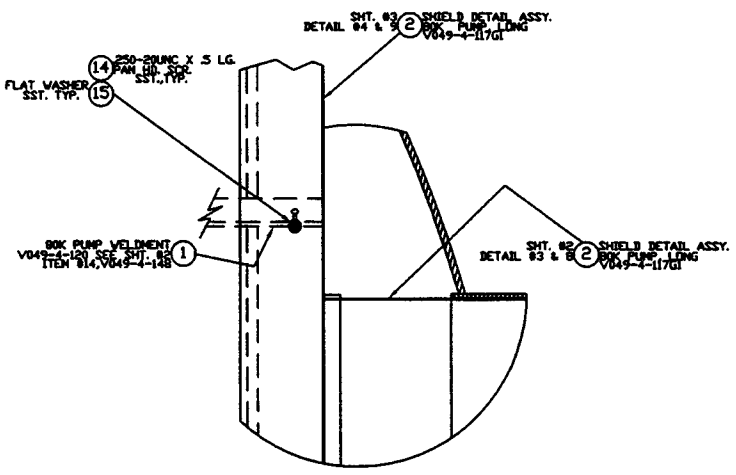
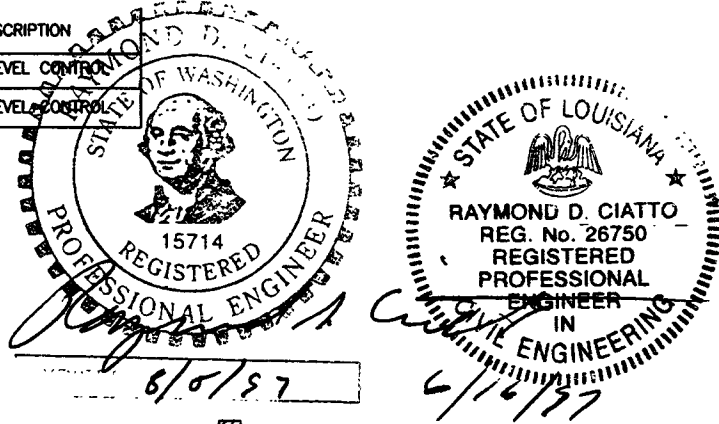
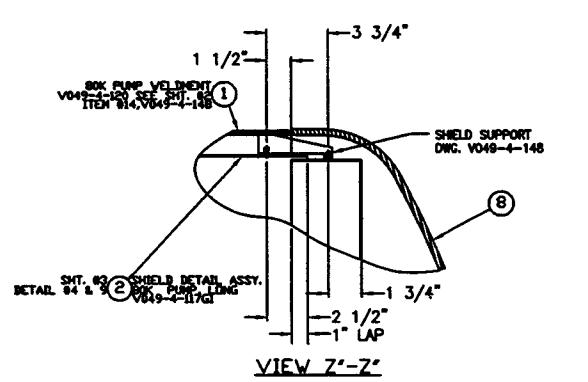
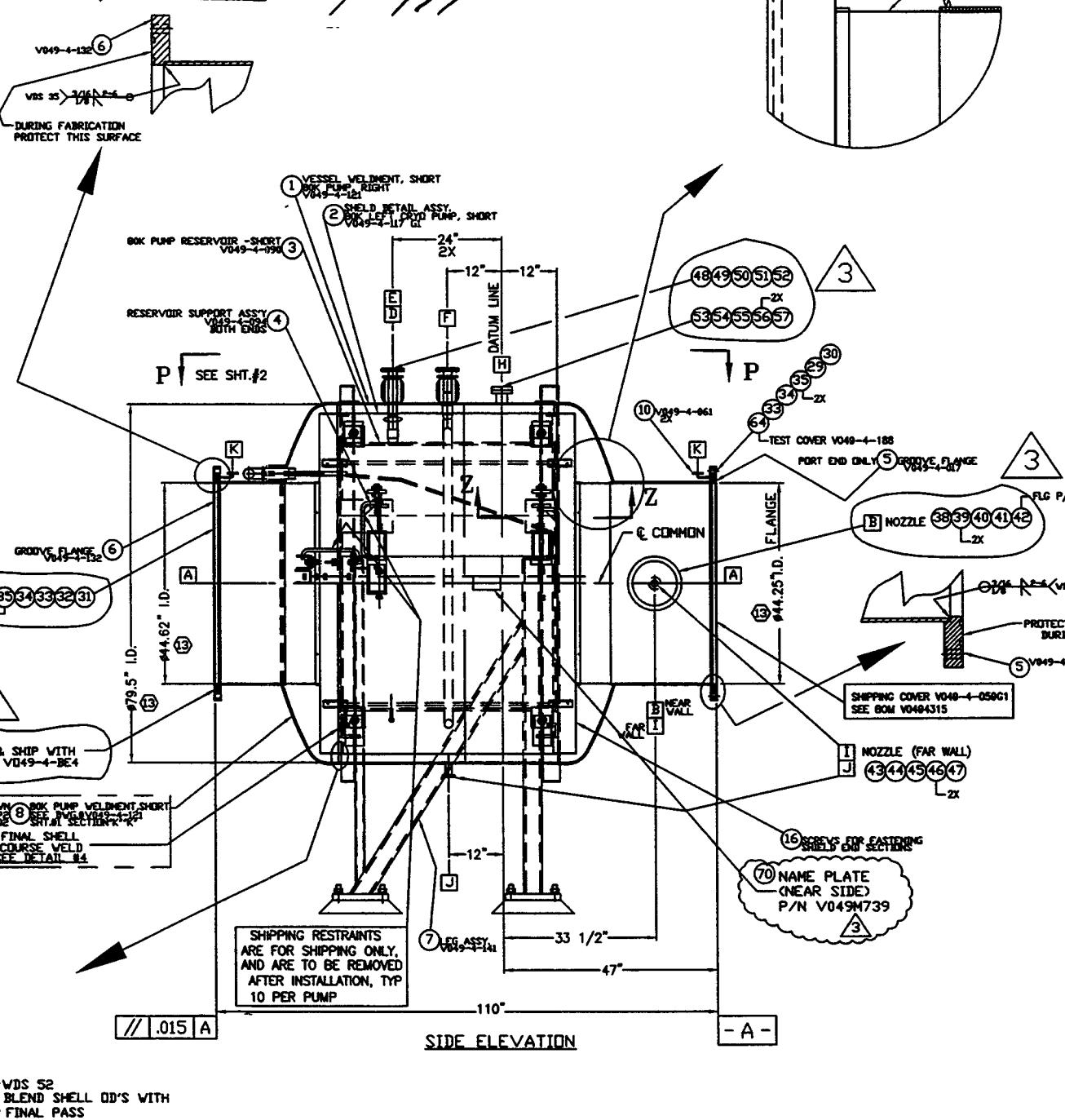
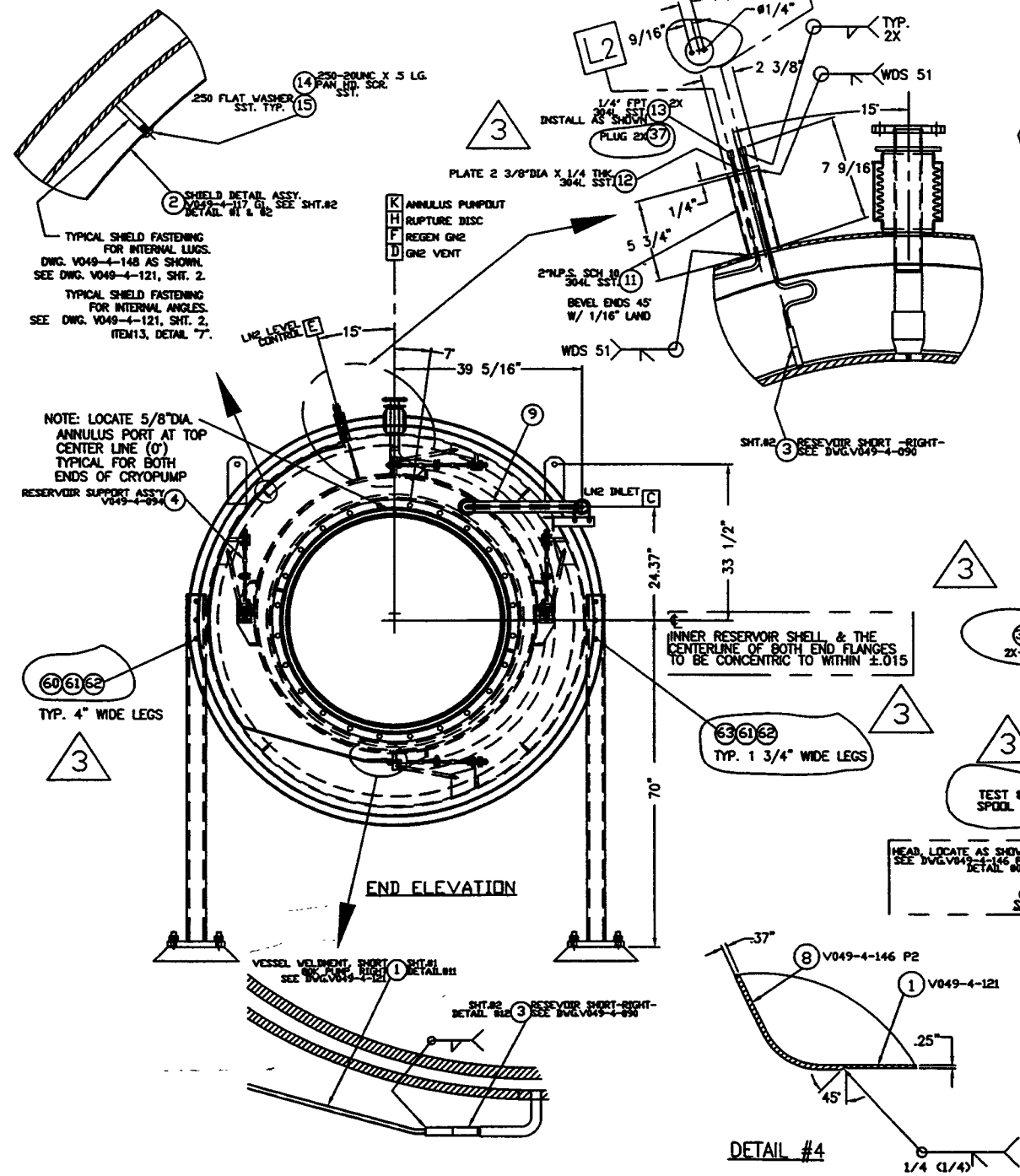


| NOZZLE SCHEDULE | | | | DESCRIPTION | | | | | |
|-----------------|-----|------------------|--------|------------------------------------|------|-----|------|------|-------------------------------|
| MARK | QTY | SIZE | RATING | TYPE | MARK | QTY | SIZE | TYPE | DESCRIPTION |
| A | 2 | 44.63" I.D. | | SEE NOTE #1 & #2 | L1 | 1 | 1/4" | FPT | LN ₂ LEVEL CONTROL |
| B | 1 | 10" O.D. TUBE | | 1/2" O.D. CONFLAT W/BLIND FLANGE | L2 | 1 | 1/4" | FPT | LN ₂ LEVEL CONTROL |
| C | 1 | 1/2" X 2" | | VAC. JACKET W/ BAYONET BLIND | | | | | |
| D | 1 | 1 1/2" PIPE | | 5" O.D. | | | | | |
| E | 1 | 2" O.D. PIPE | | PANT LEG | | | | | |
| F | 1 | 1 1/2" PIPE | | 1 1/2" ASA FLG. 5" O.D. | | | | | |
| I | 1 | 1 1/2" O.D. TUBE | | 2 3/4" O.D. CONFLAT W/BLIND FLANGE | | | | | |
| J | 1 | 1 1/2" O.D. TUBE | | 2 3/4" O.D. CONFLAT W/BLIND FLANGE | | | | | |
| H | 1 | 2 1/2" O.D. TUBE | | 4 1/2" O.D. CONFLAT W/BLIND FLANGE | | | | | |
| K | 2 | 3/4" O.D. TUBE | | 2 3/4" O.D. CONFLAT | | | | | |

| NOZZLE SCHEDULE | | | | DESCRIPTION | | | | | |
|-----------------|-----|------|--------|-------------|------|-----|------|------|-------------------------------|
| MARK | QTY | SIZE | RATING | TYPE | MARK | QTY | SIZE | TYPE | DESCRIPTION |
| L1 | 1 | 1/4" | | FPT | L1 | 1 | 1/4" | FPT | LN ₂ LEVEL CONTROL |
| L2 | 1 | 1/4" | | FPT | L2 | 1 | 1/4" | FPT | LN ₂ LEVEL CONTROL |



| DESIGN DATA | |
|--------------------------|-------------------------|
| CORROSION ALLOWANCE: | 0 |
| POSTWELD HEAT TREATMENT: | MBS |
| FIREPROOFING: | NA |
| RADIOGRAPHING: | NONE |
| MATERIALS | |
| HEADS: | SA 240-304L |
| SHELLS: | SA 240-304, 304L |
| FLANGES: | SA 182 GRADE F, 304L |
| PIPE NECKS: | SA 312-304L SA 240-304L |
| REINFORCING: | SA 240-304L |
| WEIGHTS: | |
| ASSEMBLED WT: | 5500# |



1. WBS NO'S REFER TO WELD DATA SPEC. V049-2-084
2. THESE FLANGES EACH INCLUDE AN ANNULAR CHANNEL BETWEEN O-RINGS, MANIFOLD TO A SINGLE PUMP-OUT PORT ON EACH CHAMBER.
3. FOR FLANGE DETAILS SEE DWG. V049-4-017 & V049-4-132
4. CHAMBER FABRICATION TO BE IN ACCORDANCE WITH SPEC. V049-2-096
5. HEADS ARE ASME FAB.
6. DIMENSIONS SHOWN IN PARENTHESES ARE IN MILLIMETERS.
7. DO NOT USE CARBON STEEL BRUSHES OR BRUSHES CONTAMINATED WITH CARBON STEEL ON STAINLESS OR ALUMINUM MATERIAL. GRINDING TO INTERNAL VACUUM BOUNDARY SURFACES IS NOT ALLOWED.
8. ALL NOZZLES TO BE CONTOURED TO INSIDE DIAMETER OF SHELL OR TO CURVATURE OF HEAD, UNLESS OTHERWISE NOTED.
9. CLEAN PER SPEC. V049-2-015
10. FLANGE BOLT HOLES TO STRADDLE NATURAL CENTERLINES OF VESSEL UNLESS NOTED.
11. CERTIFIED MANUFACTURER'S MATERIAL TEST REPORTS REQUIRED, AS NOTED ON BOM.
12. LEAK TEST & METHOD PER PSI SPEC V049-2-014, BY PSI.
13. I.D.'S ARE TO BE ALIGNED ALONG THEIR COMMON CENTER LINE.
14. ALL NOZZLE NUMBERS TO BE METAL STAMPED ON SHELL OR PENTLEG.

| DWG. NO. | DESCRIPTION | DWG. NO. | DESCRIPTION |
|------------|----------------------------|---------------|--------------------|
| V049-0-100 | DRAWING TREE/BOM STRUCTURE | V049-4-141 | SUPPORT LEG ASSY. |
| V049-4-141 | SUPPORT LEG ASSY. | V049-4-117 G1 | SHIELD ASSY. |
| V049-4-094 | RESERVOIR SUPPORTS | V049-4-121 | VESSEL WELDMENT |
| V049-4-121 | VESSEL WELDMENT | V049-4-090 | 80K PUMP RESERVOIR |

| SYMBOL | CHARACTERISTIC | UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES | REV | DESCRIPTION |
|--------|------------------|---|-----|--|
| □ | FLATNESS | | 3 | REVISED FOR FABRICATION AS NOTED |
| ○ | CYLINDRICITY | | 2 | REVISED FOR FABRICATION AS NOTED |
| ∥ | PARALLELISM | | 1 | ISSUED FOR FABRICATION/ FOR UPDATE - MAJOR REVISIONS |
| ⊥ | PERPENDICULARITY | | 0 | ISSUED FOR FOR |
| ∠ | ANGULARITY | | | |
| ⊕ | TRUE POSITION | | | |
| ⊙ | CONCENTRICITY | | | |

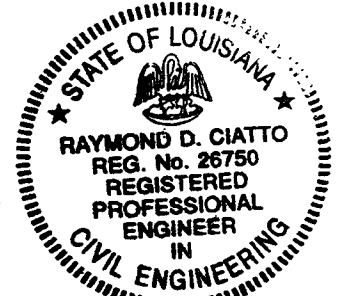
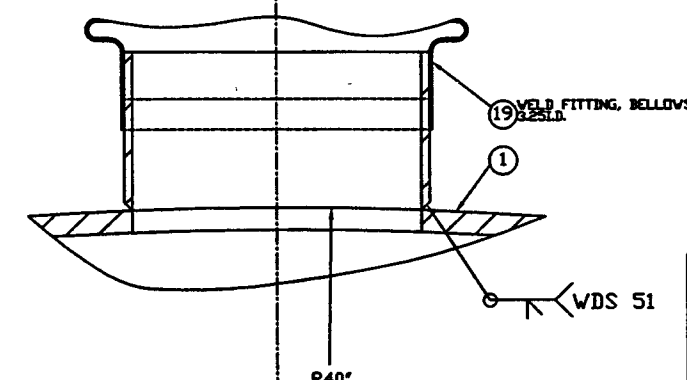
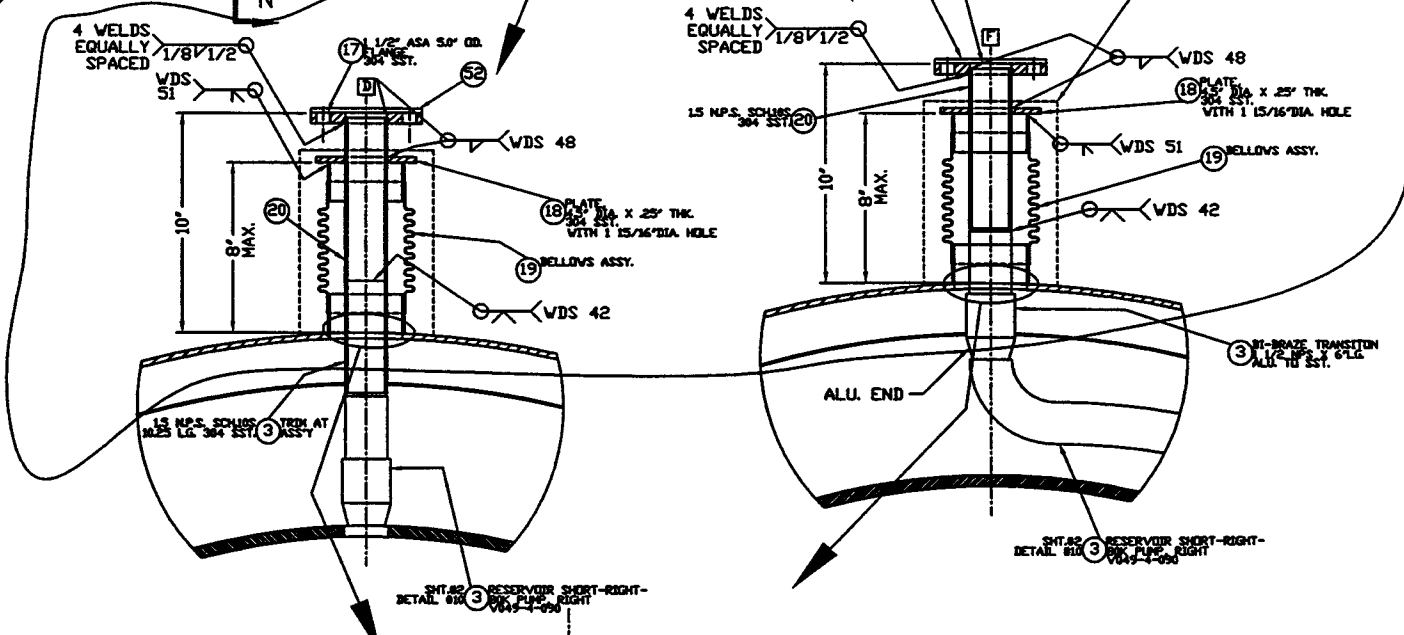
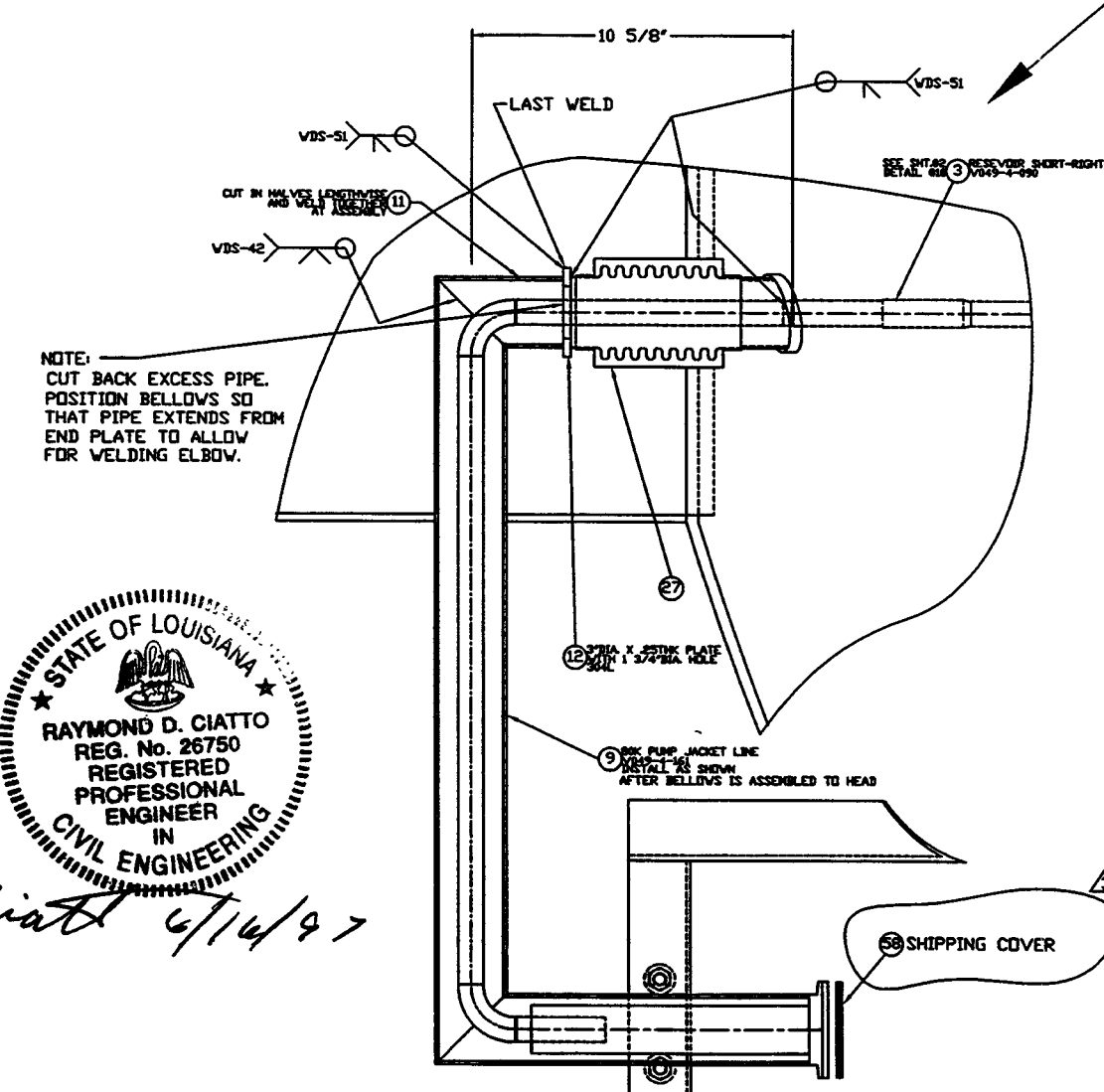
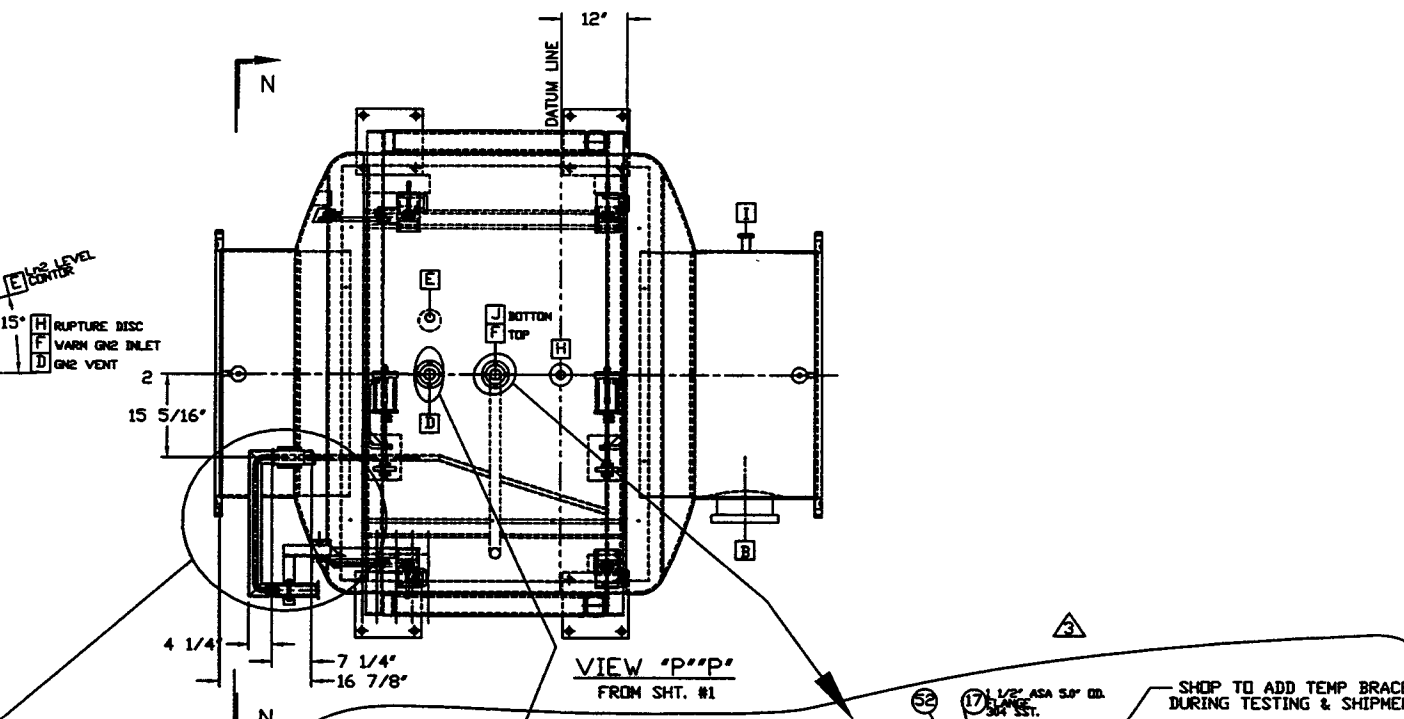
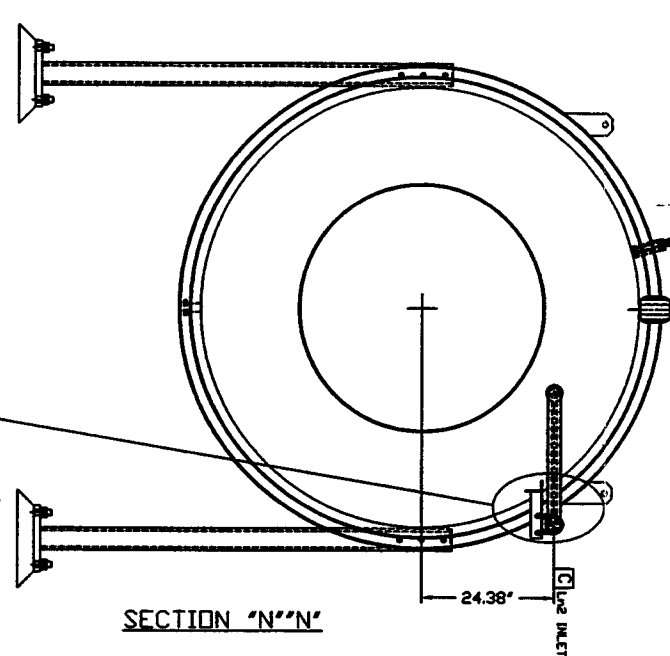
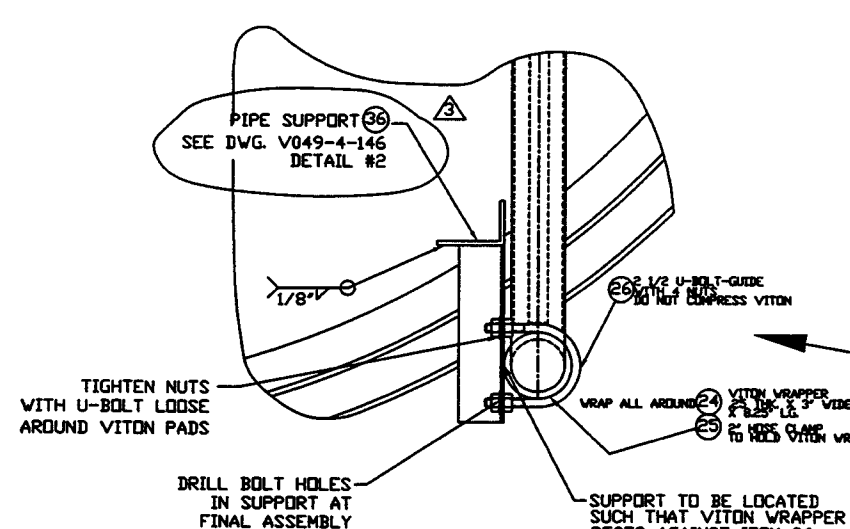
PROCESS SYSTEMS INTERNATIONAL INC.
 20 WALCUP DR. WESTBOROUGH, MASSACHUSETTS 01581 USA

80K PUMP GENERAL ARR'G'-SHORT-RIGHT

LIGO VACUUM EQUIPMENT

CAD FILE: 494005S1
 Dwg. No.: V049-4-005
 Rev: 3

SCALE: NONE
 SHEET: 1 OF 2



Raymond D. Ciatto 6/14/97

SEE SHEET 1 FOR REVISIONS

PROCESS SYSTEMS INTERNATIONAL INC.
20 WALDEN DR. WESTBOROUGH, MASSACHUSETTS 01581 USA

BOK PUMP GENERAL ARR'G-SHORT-RIGHT

LIGD VACUUM EQUIPMENT

| | | | |
|----------------------|------------|-----------------------|---|
| CAD FILE 49400SS2 | REV D | DWG NO. V049-4-005 | 3 |
| SCALE NONE | SHEET 2 | OF 2 | |

REV. 01, 1997 - 1105957