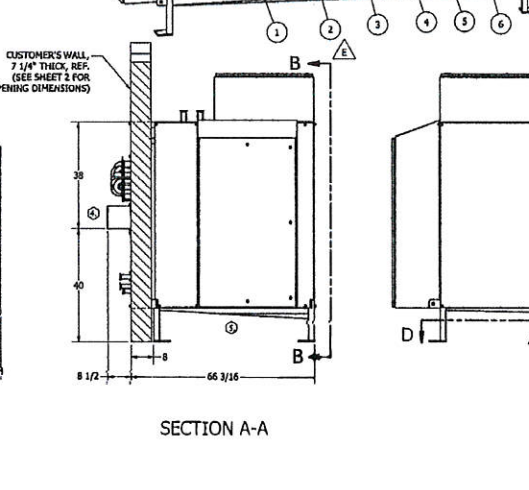
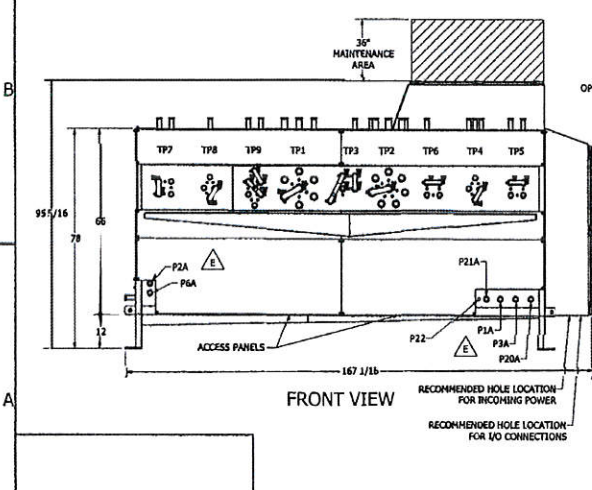
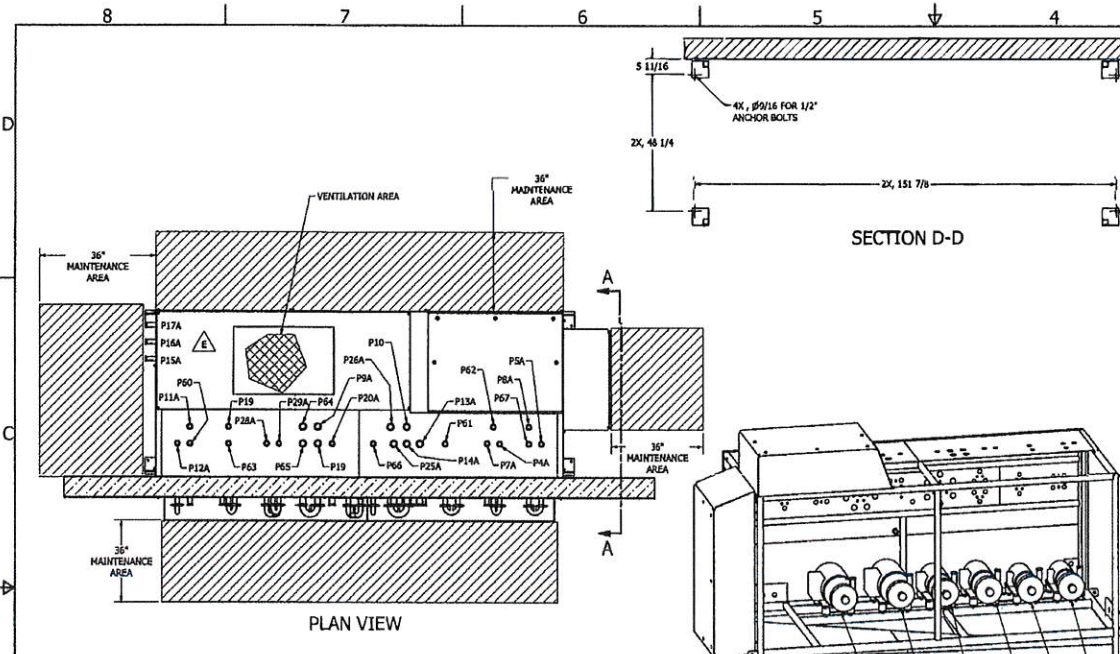


DWG NO T3420-0101 REV 1 REV E

| REV | DESCRIPTION | DATE | REVISED BY | APPROVED BY | ENG APPROVED | QA APPROVED |
|-----|-------------------------|------------|------------|-------------|--------------|-------------|
| A | CHANGE PER ECN# 3400-01 | 11/21/2013 | TJC | GW 11/21/13 | AP 11/21/13 | MS 11/21/13 |
| B | CHANGE PER ECN# 3400-02 | 02/05/2014 | TJC | GW 02/05/14 | AP 02/05/14 | MS 02/05/14 |
| C | CHANGE PER ECN# 3400-03 | 02/05/2014 | TJC | GW 02/05/14 | AP 02/05/14 | MS 02/05/14 |
| D | CHANGE PER ECN# 3400-04 | 02/05/2014 | TJC | GW 02/05/14 | AP 02/05/14 | MS 02/05/14 |
| E | CHANGE PER ECN# 3400-05 | 11/22/2014 | CAK | GW 11/22/14 | AP 11/22/14 | MS 11/22/14 |



CUSTOMER: HERBAUFE
EW FOR NO.: T3420
DESCRIPTION: ALGAE PROCESSING SKIDS
QUANTITY: 1
PERFORMANCE: SEE TABLE 1

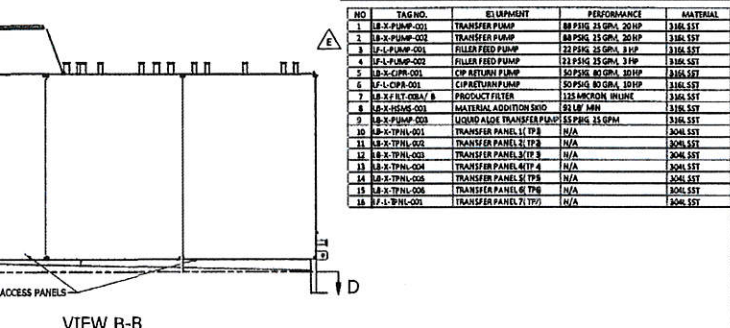
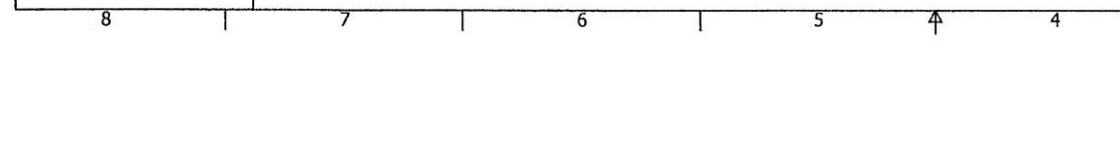
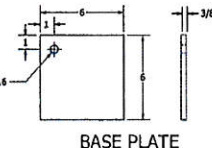
ELECTRICAL: POWER SUPPLY: 480V/3PH/60HZ
 FAL: 120A
 INSTRUMENT AIR: 50-87.8PSIG
 PRESSURE: 7500 IN³ (200 IN³ @ 87.8 FOR EACH CONTROL VALVE)
 CONSUMPTION: 35 SCFH @ 50 PSIG (FOR DIAPHRAGM PUMP)
 5.5 SCFH @ 80 PSIG (FOR HOPPER VIBRATOR)

MATERIAL: HOUSING: 304 STAINLESS STEEL
 PIPING: 316 STAINLESS STEEL
 TRANSFER PANEL: 304 STAINLESS STEEL

APPROX SHIP WEIGHT: ALGAE PROCESSING SKID: 4000 LBS
 MATERIAL ADDITION SKID: 1300 LBS
 LIQUID ALGAE PUMP STAND: 800 LBS

- NOTES:
- DIMENSIONS ARE GIVEN IN INCHES.
- SEE E/W DRAWING T3420-1301 FOR ELECTRICAL INTERFACES AND T3420-1301 FOR P&ID.
- PRESSURE REGULATORS TO BE PROVIDED BY E/W INSIDE THE UNIT.
- DRIP PAN FOR TRANSFER PANEL TO EXTEND PAST THE U-LEAK AND TO BE SLOPED TO A LOW POINT. A DRAIN VALVE IS PROVIDED INSIDE THE UNIT.
- A DRIP PAN TO BE PROVIDED UNDER THE SKID, WITH A LOW POINT DRAIN AND A DRAIN VALVE.

| DESIGNATION | NOZZLE TABLE | NOZZLE TABLE | NOMINAL SIZE | CONNECTION |
|-------------|--|--------------|--------------|---------------------|
| P1A | MATERIAL ADDITION SKID- DRAIN | | 1/2" | HOUSING CLAMP |
| P2A | MATERIAL ADDITION SKID- DISCHARGE | | 1/2" | HOUSING CLAMP |
| P3A | MATERIAL ADDITION SKID- BENCHING | | 1/2" | HOUSING CLAMP |
| P4A | MATERIAL ADDITION SKID- FILLING | | 1/2" | HOUSING CLAMP |
| P5A | MATERIAL ADDITION SKID- COP RETURN | | 1/2" | HOUSING CLAMP |
| P6A | MATERIAL ADDITION SKID- DISCHARGE | | 1-1/2" | HOUSING CLAMP |
| P7A | MATERIAL ADDITION SKID- FILLING | | 1/2" | HOUSING CLAMP |
| P8A | MATERIAL ADDITION SKID- COP RETURN | | 1/2" | HOUSING CLAMP |
| P9A | CIP RETURN | | 2" | HOUSING CLAMP |
| P10A | CIP SUPPLY | | 2" | HOUSING CLAMP |
| P11A | IF-L-TPH-001 (TP7) TO HOLD TANK #1 | | 1-1/2" | HOUSING CLAMP |
| P12A | IF-L-TPH-002 (TP8) TO HOLD TANK #1 | | 1-1/2" | HOUSING CLAMP |
| P13A | CIP SUPPLY TO HOLD TANK #1 | | 2" | HOUSING CLAMP |
| P14A | CIP SUPPLY TO HOLD TANK #2 | | 2" | HOUSING CLAMP |
| P15A | MTST #1 TO IF-L-TPH-001 (TP7) | | 1-1/2" | HOUSING CLAMP |
| P16A | MTST #1 TO IF-L-TPH-002 (TP8) | | 1-1/2" | HOUSING CLAMP |
| P17A | MTST #1 TO MFT TANK #1 | | 1-1/2" | HOUSING CLAMP |
| P18A | CIP RETURN FROM MFT TO CHARGING #1 | | 2" | HOUSING CLAMP |
| P19A | IF-L-TPH-001 (TP7) TO HOLD TANK #2 | | 1-1/2" | HOUSING CLAMP |
| P20A | CIP SUPPLY TO LIQUID ALGAE PUMP | | 1-1/2" | HOUSING CLAMP |
| P21A | LIQUID ALGAE SUPPLY | | 1-1/2" | HOUSING CLAMP |
| P22A | PLANT AIR SUPPLY | | 1/2" | CONNECTION WITHTING |
| P23A | SKID INTERNAL PIPING | | N/A | N/A |
| P24A | SKID INTERNAL PIPING | | N/A | N/A |
| P25A | CIP SUPPLY TO MFT TANK #1 | | 2" | HOUSING CLAMP |
| P26A | CIP SUPPLY TO MFT TANK #2 | | 2" | HOUSING CLAMP |
| P27A | CIP SUPPLY- SPARE | | 2" | HOUSING CLAMP |
| P28A | HOLD TANK #1- DISCHARGE | | 1-1/2" | HOUSING CLAMP |
| P29A | HOLD TANK #1- DISCHARGE | | 1-1/2" | HOUSING CLAMP |
| P30A | MTST #1 FUTURE TO IF-L-TPH-001 (TP7) | | 1-1/2" | HOUSING CLAMP |
| P31A | INLET TO FILTRATION UNIT #1 (FUTURE) | | 1-1/2" | HOUSING CLAMP |
| P32A | OUTLET FROM MATERIAL ADDITION SKID #1 (FUTURE) | | 1-1/2" | HOUSING CLAMP |
| P33A | CIP RETURN FROM MATERIAL #1 (FUTURE) | | 2" | HOUSING CLAMP |
| P34A | CIP RETURN FROM MATERIAL #2 (FUTURE) | | 2" | HOUSING CLAMP |
| P35A | INLET TO MATERIAL ADDITION SKID #2 (FUTURE) | | 1-1/2" | HOUSING CLAMP |
| P36A | OUTLET FROM MFT #1 (FUTURE) | | 1-1/2" | HOUSING CLAMP |
| P37A | OUTLET FROM MFT #2 (FUTURE) | | 1-1/2" | HOUSING CLAMP |
| P38A | MATERIAL ADDITION SKID | | 1-1/2" | HOUSING CLAMP |
| P39A | MATERIAL ADDITION SKID- DISCHARGE | | 1-1/2" | HOUSING CLAMP |
| P40A | LIQUID ALGAE SUPPLY | | 1-1/2" | HOUSING CLAMP |
| P41A | PLANT AIR INLET | | 1/2" | HOUSING CLAMP |
| P42A | LIQUID ALGAE DRAIN/UNLOAD | | 1-1/2" | HOUSING CLAMP |



| NO | TAG NO. | DESCRIPTION | PERFORMANCE | MATERIAL |
|----|-------------------|----------------------------|------------------------|----------|
| 1 | 18-X-PUMP-001 | TRANSFER PUMP | 88 PSIG, 25 GPM, 20 HP | 316L SST |
| 2 | 18-X-PUMP-002 | TRANSFER PUMP | 88 PSIG, 25 GPM, 20 HP | 316L SST |
| 3 | 18-X-PUMP-003 | FILLER PUMP | 22 PSIG, 25 GPM, 3 HP | 316L SST |
| 4 | 18-X-PUMP-004 | FILLER PUMP | 22 PSIG, 25 GPM, 3 HP | 316L SST |
| 5 | 18-X-CIP-001 | CIP RETURN PUMP | 50 PSIG, 80 GPM, 10 HP | 316L SST |
| 6 | 18-X-CIP-002 | CIP RETURN PUMP | 50 PSIG, 80 GPM, 10 HP | 316L SST |
| 7 | 18-X-FILTER-001/B | PRODUCT FILTER | 125 MICRON, 100 LPM | 316L SST |
| 8 | 18-X-MSD-001 | MATERIAL ADDITION SKID | 85 LPM, 400 PSI | 316L SST |
| 9 | 18-X-PUMP-005 | LIQUID ALGAE TRANSFER PUMP | 55 PSIG, 15 GPM | 316L SST |
| 10 | 18-X-TPH-001 | TRANSFER PANEL 1 (TP8) | N/A | 304L SST |
| 11 | 18-X-TPH-002 | TRANSFER PANEL 2 (TP8) | N/A | 304L SST |
| 12 | 18-X-TPH-003 | TRANSFER PANEL 3 (TP8) | N/A | 304L SST |
| 13 | 18-X-TPH-004 | TRANSFER PANEL 4 (TP8) | N/A | 304L SST |
| 14 | 18-X-TPH-005 | TRANSFER PANEL 5 (TP8) | N/A | 304L SST |
| 15 | 18-X-TPH-006 | TRANSFER PANEL 6 (TP8) | N/A | 304L SST |
| 16 | 18-X-TPH-007 | TRANSFER PANEL 7 (TP8) | N/A | 304L SST |

| TRC | CONTRACT DEFINITION | REVISED | DATE | BY | DATE | BY |
|-----|---|----------------------------|------------|-----|------------|-----|
| | UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE: | DESIGNED | 10/22/2013 | TJC | 10/22/2013 | TJC |
| | | APPROVED | 10/22/2013 | AP | 10/22/2013 | AP |
| | | PROJECT MANAGER | 10/22/2013 | JCS | 10/22/2013 | JCS |
| | | DO NOT SCALE DRAWING | | | | |
| | | QUALITY ASSURANCE APPROVED | 10/22/2013 | PC | 10/22/2013 | PC |
| | | INTERPRET FOR AND TO: AREA | | | | |
| | | APPLICATION | | | | |

SCALE: NONE UNIT: WT. SHEET 1 OF 2