

| NOZZLE | CONNECTION                | DESCRIPTION            | DOWNCOMER SEE NOTE 3 | DIAMETER | ORIENTATION | CENTERLINE HIGHT | TYPE |
|--------|---------------------------|------------------------|----------------------|----------|-------------|------------------|------|
| A      | 1"-H2SO4-002-TF           | FROM CF-1301           | Y                    | 1"       | TOP         | T.O.T.           | FL   |
| B      | 1"-NaOH-001-PE-HCET       | FROM CF-1201           | Y                    | 1"       | TOP         | T.O.T.           | FL   |
| C      | SPARE                     | SPARE                  | N                    | 4"       | TOP         | T.O.T.           | FL   |
| D      | SPARE                     | SPARE                  | N                    | 6"       | TOP         | T.O.T            | FL   |
| E      | 4"-LSHH                   | HIGH LEVEL             | N                    | 4"       | TOP         | T.O.T.           | FL   |
| F      | 24"-VENT                  | TO VENT HEADER         | N                    | 24"      | TOP         | T.O.T.           | FL   |
| G      | MANWAY/OVERFLOW           | MANWAY                 | N                    | 24"      | TOP         | T.O.T.           | FL   |
| H      | 24"-WW-007-HDPE           | TO pH ADJUST TANK #2   | N                    | 24"      | SOUTH END   | TBD              | FL   |
| I      | 3" pH METER               | pH METER               | N                    | 3"       | SOUTH END   | TBD              | FL   |
| J      | 4"-LSLL                   | LOW LEVEL              | N                    | 4"       | SOUTH END   | TBD              | FL   |
| K      | 4"-DRAIN                  | DRAIN                  | N                    | 4"       | SOUTH END   | NOTE 1           | FL   |
| L      | MANWAY                    | MANWAY                 | N                    | 20"      | WEST SIDE   | TBD              | FL   |
| M      | 24"-WW-005-HDPE           | FROM SCA               | N                    | 24"      | NORTH END   | TBD              | FL   |
| N      | 24" (SEE NOTE 9)          | SIDE INFLUENT (OPTION) | N                    | 24"      | EAST SIDE   | TBD              | FL   |
| O      | 24" (SEE NOTE 9)          | SIDE EFFLUENT (OPTION) | N                    | 24"      | WEST SIDE   | TBD              | FL   |
| P      | 6"-LIT                    | LEVEL INDICATOR        | N                    | 6"       | TOP         | T.O.T.           | FL   |
| Q      | 6"-WW-XXX-PVC80 (NOTE 10) | TO FLASH MIX TANK #2   | N                    | 6"       | SOUTH END   | TBD              | FL   |
| R      | 4" pH METER               | pH METER               | N                    | 4"       | SIDE        | TBD              | FL   |

- NOTES:
- TANK MANUFACTURER TO INSTALL NOZZLE AS LOW AS POSSIBLE ON TANK SIDEWALL LEAVING ADEQUATE CLEARANCE FOR NOZZLE FLANGE.
  - ALL NOZZLES TO EXTEND 6" FROM TANK TOP/WALL TO FACE OF FLANGE.
  - REFER TO "DOWNCOMER DETAIL" SHEET M-19.
  - DOWNCOMERS SHALL EXTEND DOWN TO 2'-0" ABOVE TANK FLOOR. TANK MANUFACTURER TO SUPPORT DOWNCOMER FROM TANK WALL AND/OR FLOOR TO ENSURE STRUCTURAL INTEGRITY OF DOWNCOMER IN AGITATED TANK.
  - NOZZLES "C","D","G", AND "L" SHALL BE PROVIDED WITH GASKETS AND BLIND FLANGES PROVIDED BY TANK MANUFACTURER.
  - ALL NOZZLE ELEVATIONS ARE FROM TANK BOTTOM TO CENTERLINE OF NOZZLE, UNLESS OTHERWISE NOTED.
  - TANK TOP HANDRAIL AND TIE-OFF POINTS NOT SHOWN FOR CLARITY.
  - BOLT HOLES FOR EACH NOZZLE FLANGE SHALL STRADDLE THE NOZZLE CENTERLINE.
  - 24" SIDE NOZZLES ARE AN OPTION (NOZZLES N & O), AND MAY OR MAY NOT BE INSTALLED. PRICING FOR NOZZLES N & O SHALL BE PROVIDED AS A SEPARATE LINE ITEM (SEE BID TABS).
  - NOZZLE "Q" AND "R" SHALL BE PROVIDED ON pH ADJUSTMENT TANK #2 TANK ONLY.

TOT = TOP OF TANK  
 FL = EXTERIOR FLANGE PROVIDED  
 FLxFL = EXTERIOR FLANGE AND INTERIOR FLANGE PROVIDED

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**PRELIMINARY  
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 DATE: 5/12/10

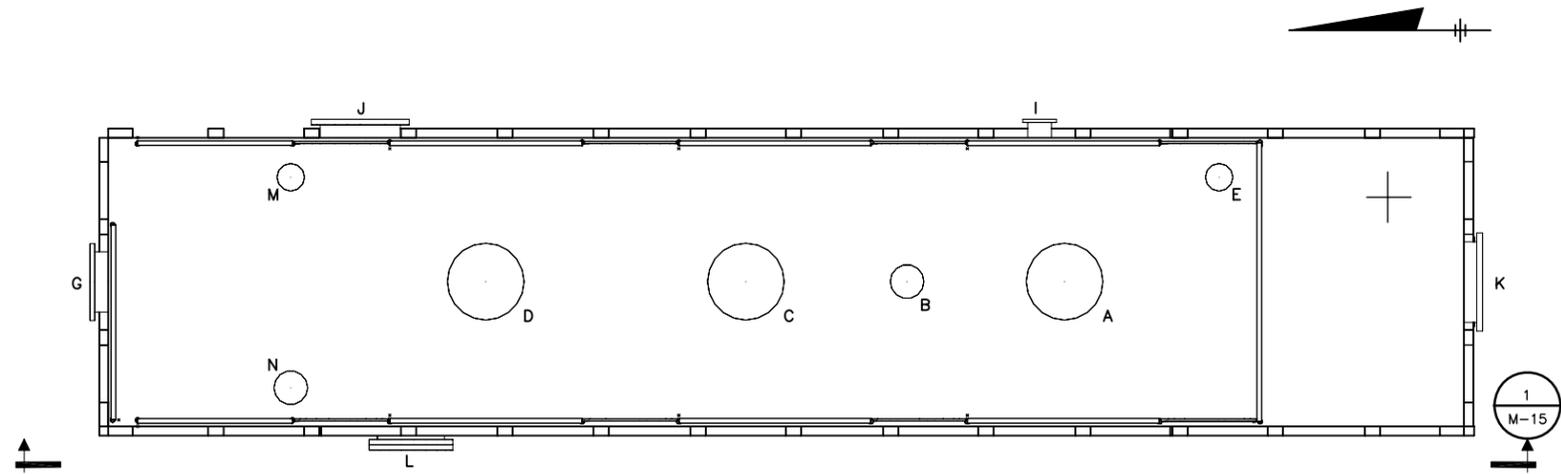
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|-----|---------|------------------------------------|-------|
| NO. | DATE    | REVISION                           | INIT. |
| A   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |



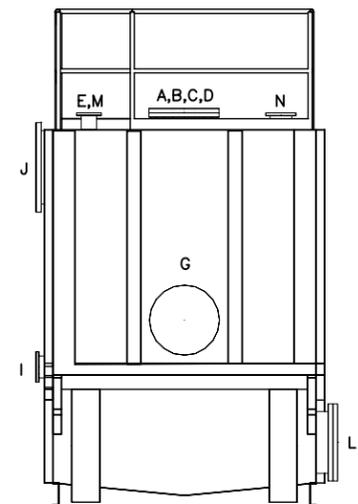
**HONEYWELL INTERNATIONAL, INC.**  
**DP #2**  
**WATER TREATMENT PLANT**  
**TOWN OF CAMILLUS, NEW YORK**

MECHANICAL  
**pH ADJUST TANK #1**  
**NOZZLE SCHEDULE**

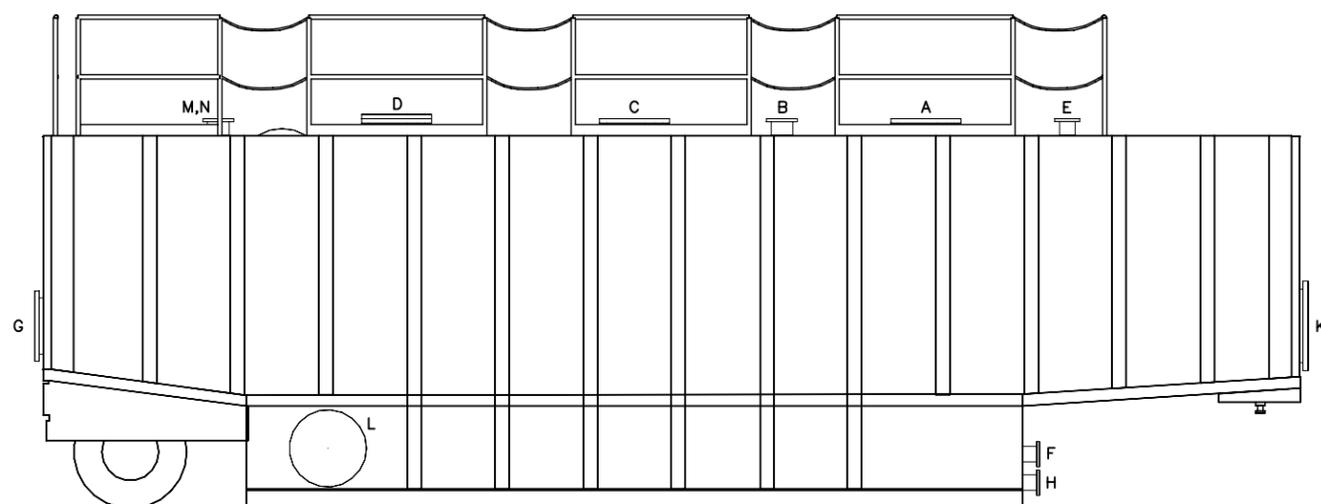
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|--------------|-----|------------|----------------|-------------|
| IN CHARGE OF | JSR | FILE NO.   | 1163.45613-M14 | <b>M-14</b> |
| DESIGNED BY  | NTZ | CHECKED BY | PDS            |             |
| DRAWN BY     | JAS | DATE       | APRIL 2010     |             |



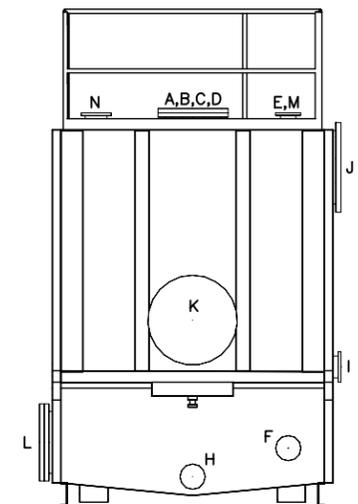
**PLAN**  
NOT TO SCALE



**NORTH END**  
NOT TO SCALE



**SECTION**  
NOT TO SCALE



**SOUTH END**  
NOT TO SCALE

**NOTES:**

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5. NOZZLE "D" SHALL BE PROVIDED WITH GASKETS AND BLIND FLANGES PROVIDED BY TANK MANUFACTURER.
6. ALL NOZZLE ELEVATIONS ARE FROM TANK BOTTOM TO CENTERLINE OF NOZZLE, UNLESS OTHERWISE NOTED.
7. TANK TOP HANDRAIL AND TIE-OFF POINTS NOT SHOWN FOR CLARITY.
8. BOLT HOLES FOR EACH NOZZLE FLANGE SHALL STRADDLE THE NOZZLE CENTERLINE.

| NOZZLE | CONNECTION      | DESCRIPTION                  | DOWNCOMER SEE NOTE 3 | DIAMETER | ORIENTATION | CENTERLINE HIGHT | TYPE |
|--------|-----------------|------------------------------|----------------------|----------|-------------|------------------|------|
| A      | 18"-VENT        | TO VENT HEADER               | N                    | 18"      | TOP         | T.O.T.           | FL   |
| B      | 6"-LIT          | LEVEL INDICATOR              | N                    | 6"       | TOP         | T.O.T.           | FL   |
| C      | 18"             | FROM PSV'S                   | N                    | 18"      | TOP         | T.O.T.           | FL   |
| D      | 20" MANWAY      | MANWAY                       | N                    | 20"      | TOP         | T.O.T            | FL   |
| E      | 4"-LSHH         | HIGH LEVEL                   | N                    | 4"       | TOP         | T.O.T.           | FL   |
| F      | 4"-LSLL         | LOW LEVEL                    | N                    | 4"       | SOUTH END   | TBD              | FL   |
| G      | 18"-WW-052-HDPE | TO MMF FEED PUMPS            | N                    | 18"      | NORTH END   | TBD              | FL   |
| H      | 4"-DRAIN        | DRAIN                        | N                    | 4"       | SOUTH END   | NOTE 1           | FL   |
| I      | 6"-LIT          | LEVEL INDICATING TRANSMITTER | N                    | 6"       | EAST SIDE   | TBD              | FL   |
| J      | 24"-OVERFLOW    | OVERFLOW                     | N                    | 24"      | EAST SIDE   | TBD              | FL   |
| K      | 24"-WW-049-HDPE | FROM IPC'S                   | N                    | 24"      | SOUTH END   | TBD              | FL   |
| L      | MANWAY          | SIDE MANWAY                  | N                    | 20"      | SIDE        | TBD              | FL   |
| M      | SPARE           | SPARE                        | N                    | 4"       | TOP         | TBD              | FL   |
| N      | SPARE           | SPARE                        | N                    | 6"       | TOP         | TBD              | FL   |

TOT = TOP OF TANK  
 FL = EXTERIOR FLANGE PROVIDED  
 FLxFL = EXTERIOR FLANGE AND INTERIOR FLANGE PROVIDED

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 DATE: 5/12/10

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| NO. | DATE    | REVISION                           | INIT. |
| A   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |



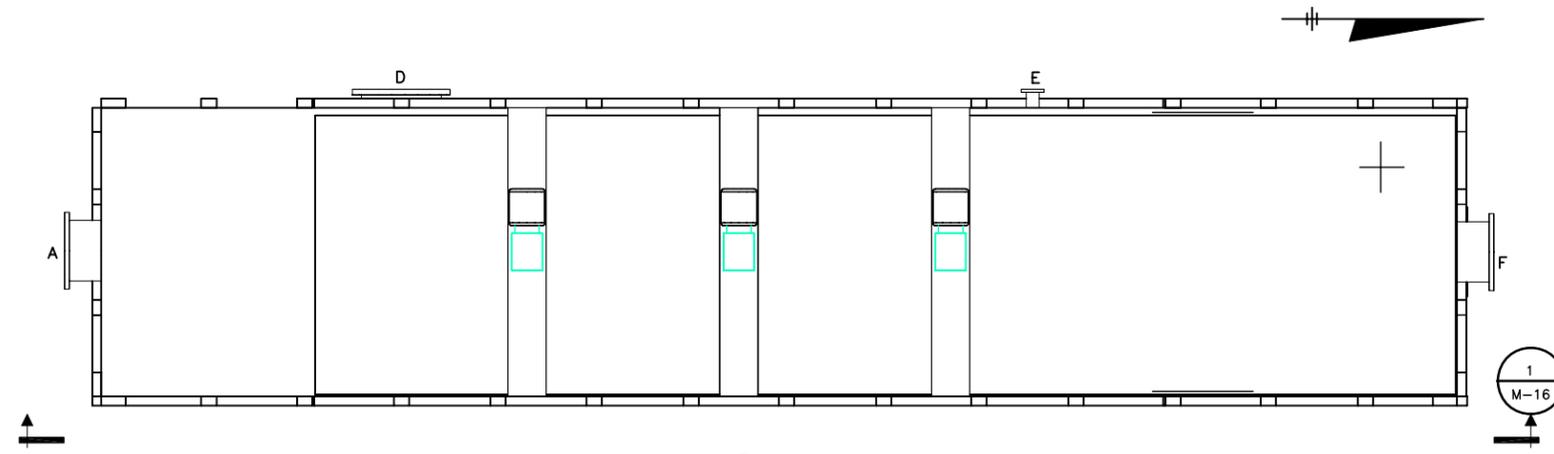
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**DP #2**  
**WATER TREATMENT PLANT**  
**TOWN OF CAMILLUS, NEW YORK**

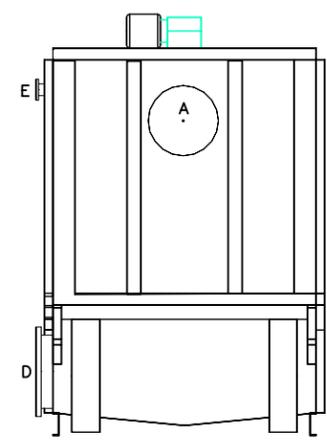
MECHANICAL  
**FILTER FEED TANK  
 NOZZLE SCHEDULE**

|              |     |            |                |
|--------------|-----|------------|----------------|
| IN CHARGE OF | JSR | FILE NO.   | 1163.45613-M15 |
| DESIGNED BY  | NTZ | CHECKED BY | PDS            |
| DRAWN BY     | JAS | DATE       | APRIL 2010     |

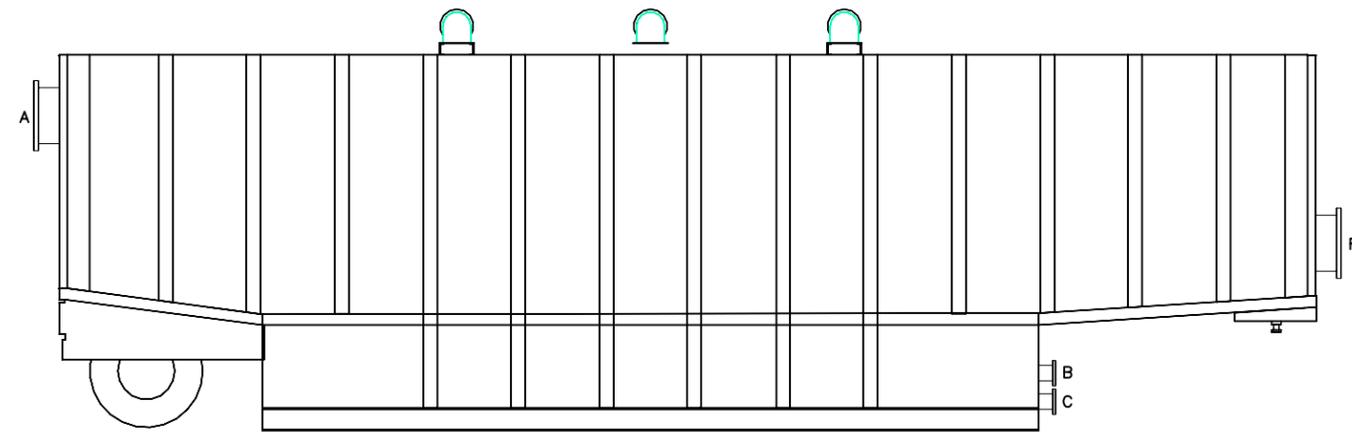
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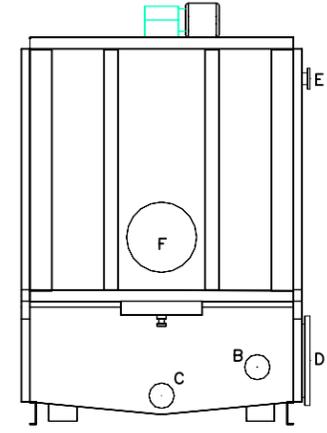
**PLAN**  
NOT TO SCALE



**SOUTH END**  
NOT TO SCALE



**SECTION**  
NOT TO SCALE



**NORTH END**  
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**NOTES:**

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- BOLT HOLES FOR EACH NOZZLE FLANGE SHALL STRADDLE THE NOZZLE CENTERLINE.

| NOZZLE | CONNECTION | DESCRIPTION                    | DOWNCOMER SEE NOTE 3 | DIAMETER | ORIENTATION | CENTERLINE HIGHT | TYPE |
|--------|------------|--------------------------------|----------------------|----------|-------------|------------------|------|
| A      | 18"-       | TO EFFLUENT MONITORING TANK #2 | N                    | 18"      | SOUTH END   | TBD              | FL   |
| B      | 4"-LSL     | LOW LEVEL                      | N                    | 4"       | NORTH END   | TBD.             | FL   |
| C      | 4"-DRAIN   | DRAIN                          | N                    | 4"       | NORTH END   | TBD              | FL   |
| D      | 20" MANWAY | MANWAY                         | N                    | 20"      | WEST END    | TBD              | FL   |
| E      | 3"-AE      | pH PROBE                       | N                    | 3"       | WEST END    | TBD              | FL   |
| F      | 18"-       | TO EFFLUENT/BACKWASH PUMPS     | N                    | 18"      | NORTH END   | TBD              | FL   |

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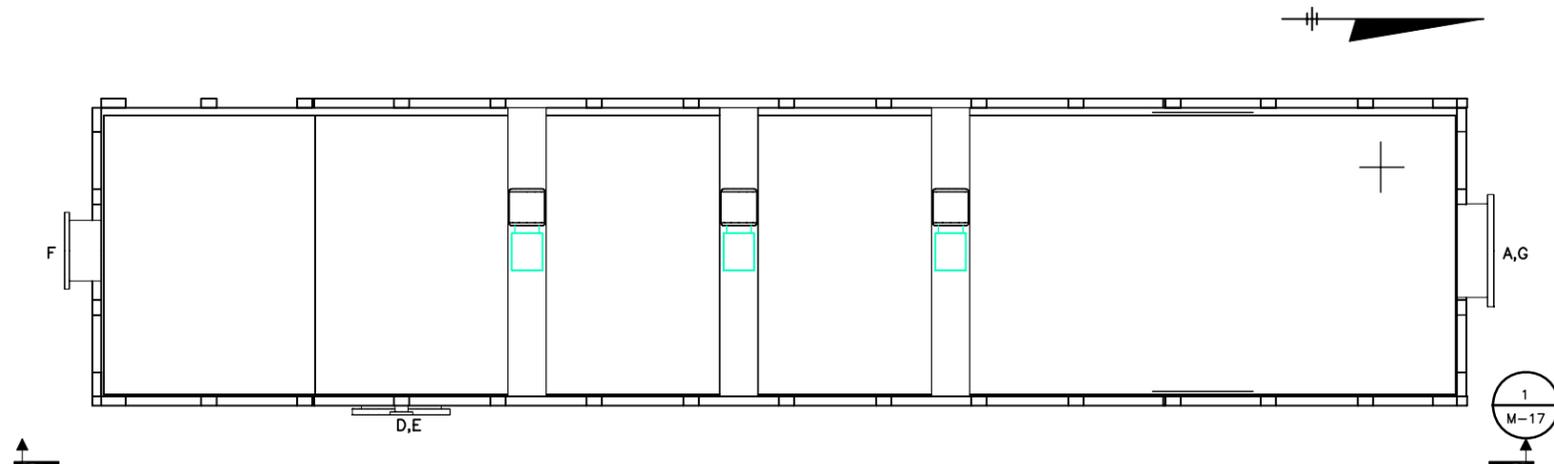
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**DP #2**  
**WATER TREATMENT PLANT**  
**TOWN OF CAMILLUS, NEW YORK**

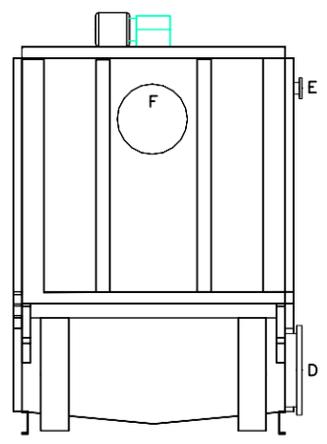
MECHANICAL  
**EFFLUENT MONITORING TANK #1**  
**NOZZLE SCHEDULE**

|              |     |            |                |
|--------------|-----|------------|----------------|
| IN CHARGE OF | JSR | FILE NO.   | 1163.45613-M16 |
| DESIGNED BY  | NTZ | CHECKED BY | PDS            |
| DRAWN BY     | JAS | DATE       | APRIL 2010     |

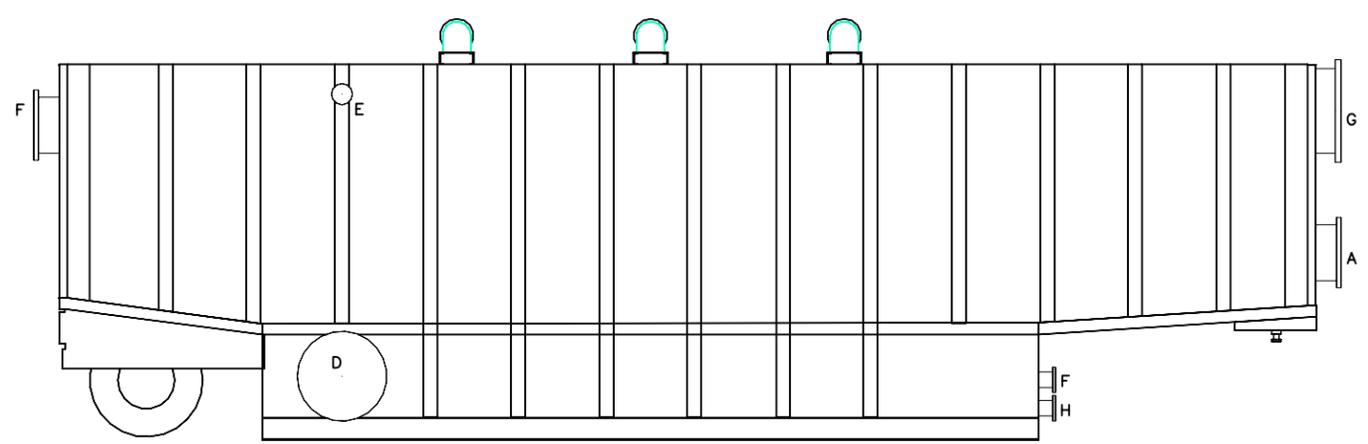
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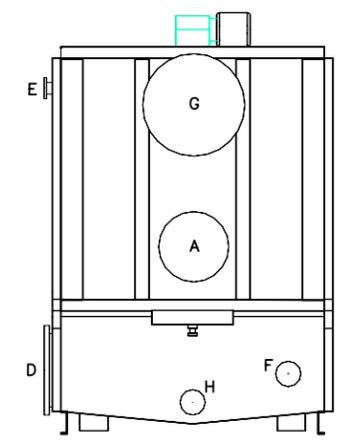
**PLAN**  
NOT TO SCALE



**NORTH END**  
NOT TO SCALE



**SECTION**  
NOT TO SCALE



**SOUTH END**  
NOT TO SCALE

**NOTES:**

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| NOZZLE | CONNECTION        | DESCRIPTION                      | DOWNCOMER SEE NOTE 3 | DIAMETER | ORIENTATION | CENTERLINE HIGHT | TYPE |
|--------|-------------------|----------------------------------|----------------------|----------|-------------|------------------|------|
| A      | 18"-              | TO EFFLUENT/BACKWASH PUMPS       | N                    | 18"      | NORTH END   | TBD              | FL   |
| B      | 4"-LSL            | LOW LEVEL                        | N                    | 4"       | NORTH END   | TBD.             | FL   |
| C      | 4"-DRAIN          | DRAIN                            | N                    | 4"       | NORTH END   | TBD              | FL   |
| D      | 20" MANWAY        | MANWAY                           | N                    | 20"      | EAST END    | TBD              | FL   |
| E      | 3"-AE             | pH PROBE                         | N                    | 3"       | EAST END    | TBD              | FL   |
| F      | 18"-              | FROM EFFLUENT MONITORING TANK #1 | N                    | 18"      | SOUTH END   | TBD              | FL   |
| G      | 28"-TRWW-078-HDPE | EFFLUENT TO METRO                | N                    | 28"      | NORTH END   | TBD              | FL   |

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| A   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |

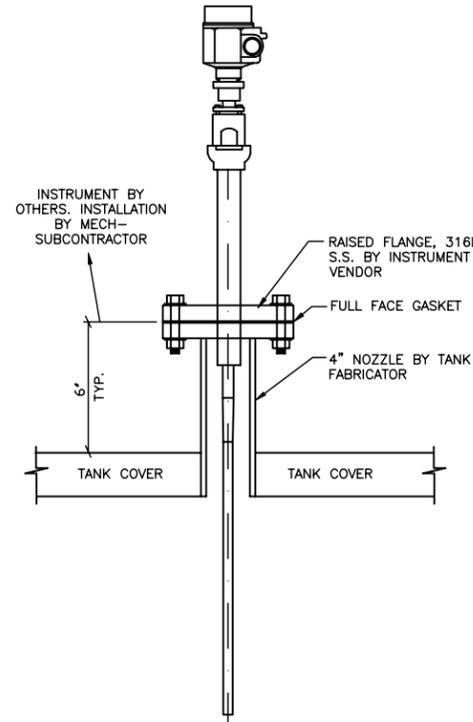


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**DP #2**  
**WATER TREATMENT PLANT**  
**TOWN OF CAMILLUS, NEW YORK**

MECHANICAL  
**EFFLUENT MONITORING TANK #2**  
**NOZZLE SCHEDULE**

|  |                            |             |
|--|----------------------------|-------------|
| IN CHARGE OF <u>JSR</u>                      | FILE NO.<br>1163.45613-M16 | <b>M-17</b> |
| DESIGNED BY <u>NTZ</u> CHECKED BY <u>PDS</u> | DATE<br>APRIL 2010         |             |
| DRAWN BY <u>JAS</u>                          |                            |             |



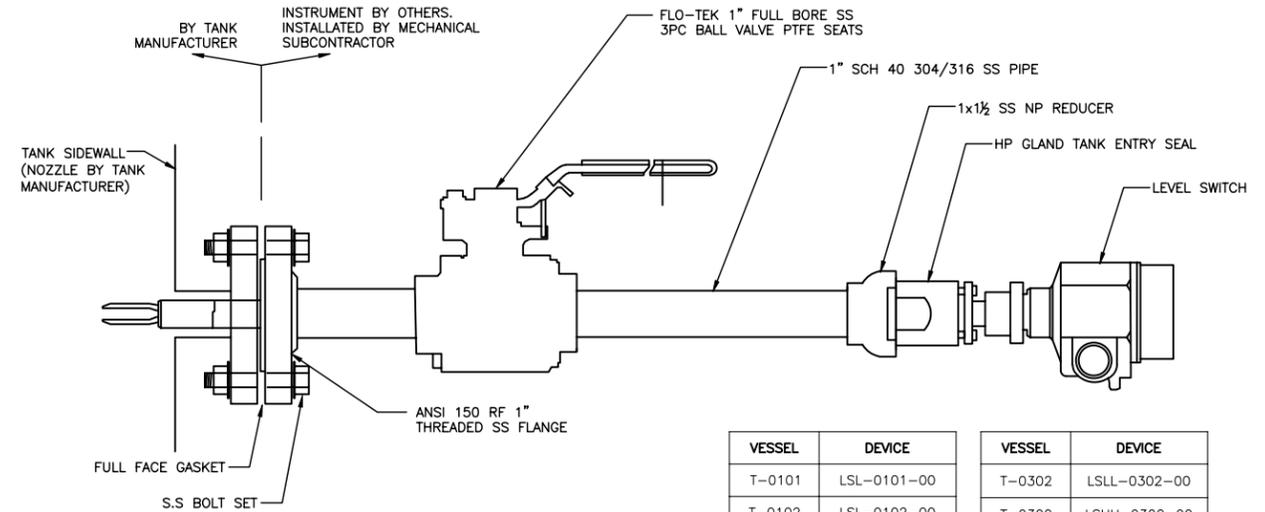
**TOP-MOUNTED LEVEL SWITCH**

NOT TO SCALE

**NOTE:**

1. DETAIL PROVIDED FOR REFERENCE ONLY. INSTALL PER MANUFACTURERS INSTRUCTIONS.

| VESSEL               | DEVICE                     |
|----------------------|----------------------------|
| T-0101               | LSH-0101-00                |
| T-0102               | LSH-0102-00                |
| T-0103               | LSH-0103-00                |
| T-0104               | LSH-0104-00                |
| T-0105               | LSH-0105-00                |
| T-0106               | LSH-0106-00                |
| T-0107               | LSH-0107-00                |
| T-0108               | LSH-0108-00                |
| T-0301               | LSH-0301-00                |
| IPC-0601 TO IPC-0616 | LSH-0601-00 TO LSH-0616-00 |
| T-0701               | LSH-0701-00                |
| T-1001               | LSHH-1001-00               |
| T-1002               | LSHH-1002-00               |
| T-1101               | LSHH-1101-00               |
| T-1101               | LSLL-1101-00               |
| T-1301               | LSHH-1301-01               |
| T-1201               | LSHH-1201-01               |
| T-1401               | LSHH-1401-02               |



**SIDE-MOUNTED  
RETRACTABLE EXTENDED LEVEL SWITCH**

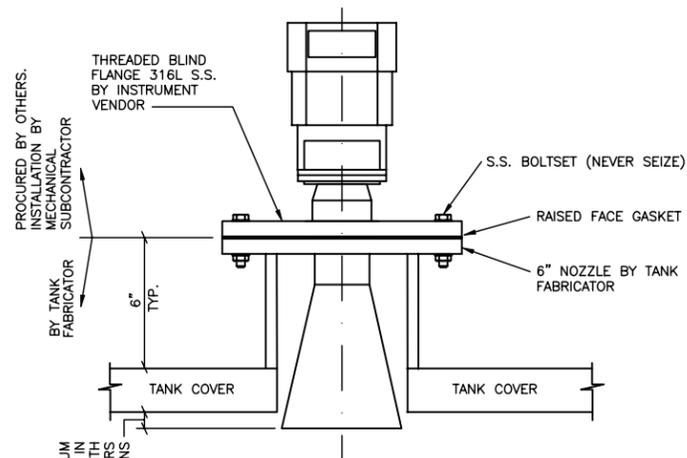
N.T.S.

**NOTES:**

1. REFER TO P&ID'S FOR NOZZLES WITH LEVEL SWITCHES.
2. DETAIL PROVIDED FOR REFERENCE ONLY. INSTALL PER MANUFACTURERS INSTRUCTIONS.

| VESSEL | DEVICE      |
|--------|-------------|
| T-0101 | LSL-0101-00 |
| T-0102 | LSL-0102-00 |
| T-0103 | LSL-0103-00 |
| T-0104 | LSL-0104-00 |
| T-0105 | LSL-0105-00 |
| T-0106 | LSL-0106-00 |
| T-0107 | LSL-0107-00 |
| T-0108 | LSL-0108-00 |
| T-0301 | LSL-0301-00 |

| VESSEL               | DEVICE                     |
|----------------------|----------------------------|
| T-0302               | LSLL-0302-00               |
| T-0302               | LSHH-0302-00               |
| IPC-0601 TO IPC-0616 | LSL-0601-00 TO LSL-0616-00 |
| T-0701               | LSLL-0701-00               |
| T-1001               | LSLL-1001-00               |
| T-1002               | LSLL-1002-00               |
| T-1301               | LSLL-1301-01               |
| T-1201               | LSLL-1201.01               |
| T-1401               | LSLL-1401-02               |



**RADAR LEVEL TRANSMITTER**

NOT TO SCALE

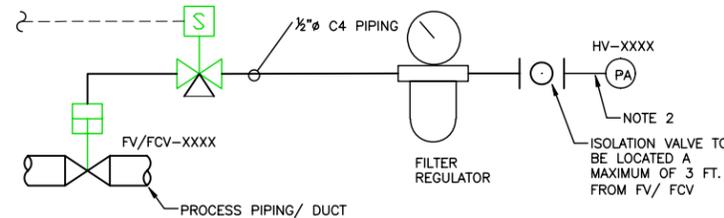
PROVIDE MINIMUM DISTANCE IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS

| VESSEL | DEVICE      |
|--------|-------------|
| T-0302 | LIT-0302-00 |
| T-0701 | LIT-0701-00 |
| T-1002 | LIT-1002-00 |
| T-1101 | LIT-1101-00 |

| VESSEL | DEVICE      |
|--------|-------------|
| T-1301 | LIT-1301-01 |
| T-1201 | LIT-1201-01 |
| T-1401 | LIT-1401-02 |

**NOTE:**

1. DETAIL PROVIDED FOR REFERENCE ONLY. INSTALL PER MANUFACTURERS INSTRUCTIONS.



**PLANT AIR DETAIL FOR PNEUMATICALLY ACTUATED FV/FCV**

NOT TO SCALE

**NOTES:**

1. APPLY THIS DETAIL TO EACH PNEUMATICALLY OPERATED FV AND FCV IN THE CONTRACT.
2. PROVIDE 1/2 inch BLOW-OFF VALVES AT ALL COMPRESSED AIR LOW POINTS.
3. DETAIL PROVIDED FOR REFERENCE ONLY. INSTALL PER MANUFACTURERS INSTRUCTIONS.

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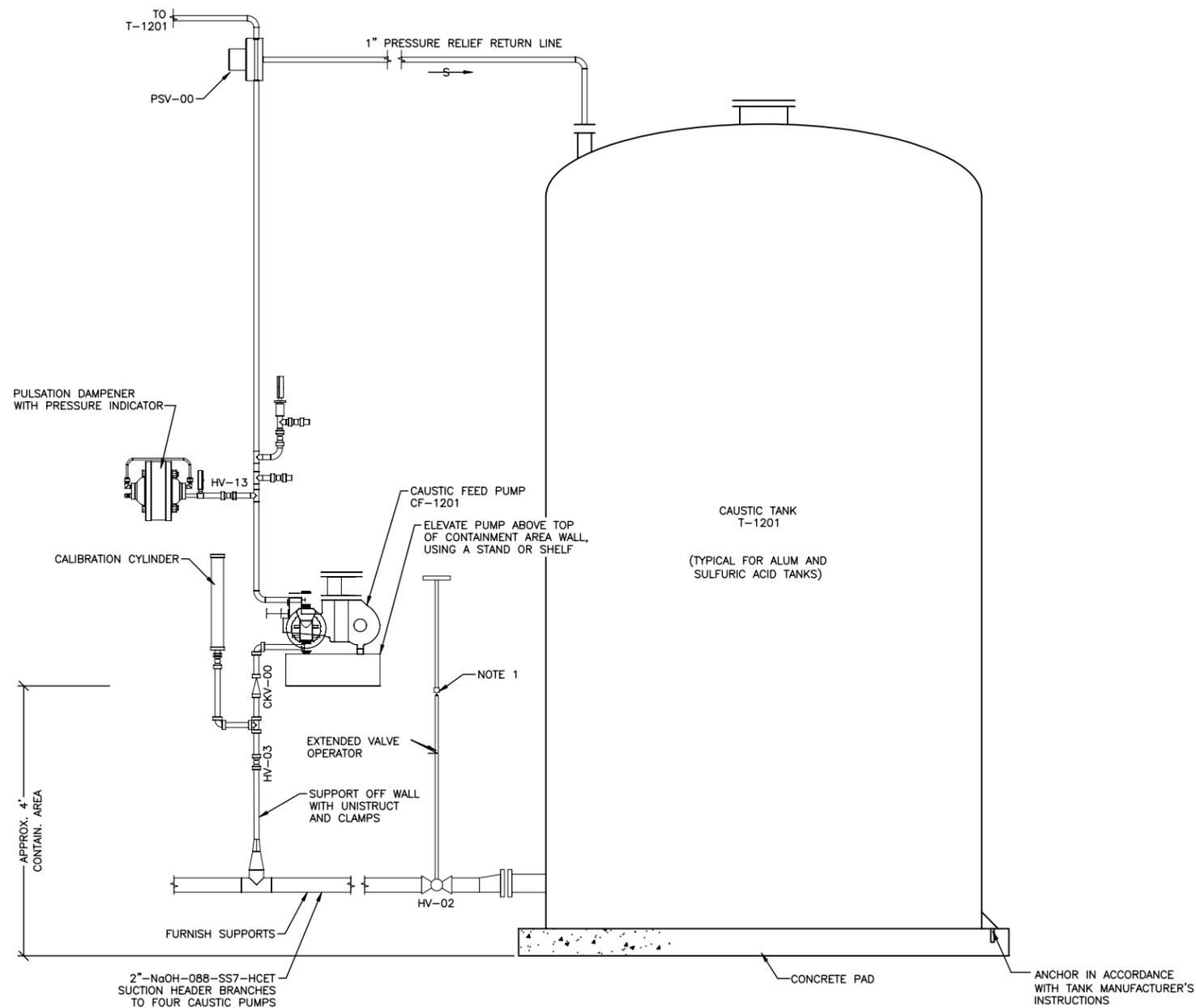
**HONEYWELL INTERNATIONAL, INC.**  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

MECHANICAL

**DETAILS**

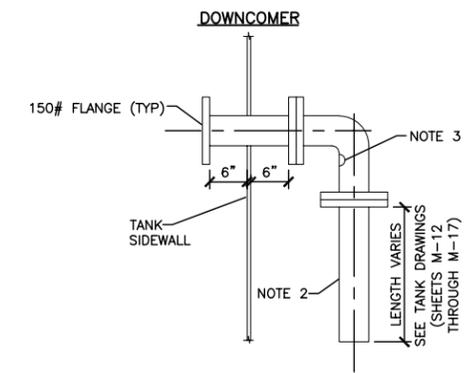
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| IN CHARGE OF <u>JSR</u>                      | FILE NO.<br>1163.45613-M18 | <b>M-18</b> |
| DESIGNED BY <u>GBE</u> CHECKED BY <u>PDS</u> | DATE<br>MAY 2010           |             |
| DRAWN BY <u>JAS</u>                          |                            |             |

I:\Honeywell\1163\45613\Sco-Wip-Detail\Docs\DWG\DP-2\Sheets\M-19\_Details.dwg May 11, 2010 - 7:12pm



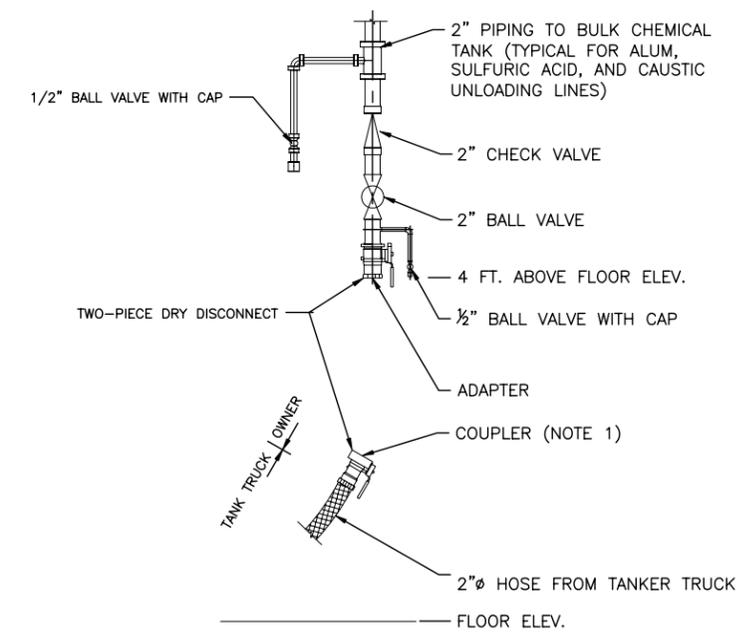
**BULK CHEMICAL STORAGE**  
NOT TO SCALE

- NOTES:
1. MANUAL VALVE OPERATOR THAT CONNECTS TO KEY. IN THE EVENT OF A SPILL, OPERATOR TO BE CAPABLE OF OPENING/CLOSING VALVE WITHOUT ENTERING CONTAINMENT.



- DETAIL NOTES:**
1. SEE NOZZLE SCHEDULES FOR LENGTHS OF DOWNCOMERS AND STILLING WELLS.
  2. FOR DOWNCOMERS PIPES:
    - a. FOR TANK INFLUENT PIPES THAT ARE LESS THAN OR EQUAL TO 2", DOWNCOMER PIPES ARE TO BE 2" DIAMETER.
    - b. FOR TANK INFLUENT PIPES THAT ARE GREATER THAN 2", DOWNCOMER PIPES ARE TO MATCH THE INFLUENT PIPES DIAMETERS.
  3. ALL DOWNCOMER PIPES TO HAVE 1/2" DIAMETER HOLE AT HIGH POINT INSIDE THE TANK.
  4. MATCH DOWNCOMER PIPES MATERIALS OF CONSTRUCTION WITH TANKS MATERIAL OF CONSTRUCTION.

**DOWNCOMER DETAIL**  
NOT TO SCALE



**BULK UNLOADING PIPING CONNECTION DETAIL**  
NOT TO SCALE

- NOTES:
1. OPERATING PROCEDURE WILL REQUIRE MANUAL THREADING OF COUPLER TO 2" HOSE FROM TANKER TRUCK.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

**PRELIMINARY  
NOT FOR  
CONSTRUCTION**  
DATE: 5/12/10

|     |         |                                    |       |
|-----|---------|------------------------------------|-------|
| NO. | DATE    | REVISION                           | INIT. |
| A   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |



**HONEYWELL INTERNATIONAL, INC.**  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

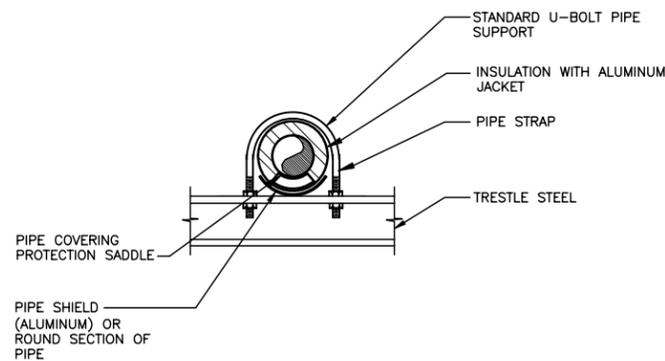
MECHANICAL

**DETAILS**

|              |     |            |                |
|--------------|-----|------------|----------------|
| IN CHARGE OF | JSR | FILE NO.   | 1163.45613-M19 |
| DESIGNED BY  | GBE | CHECKED BY | PDS            |
| DRAWN BY     | JAS | DATE       | MAY 2010       |

**M-19**

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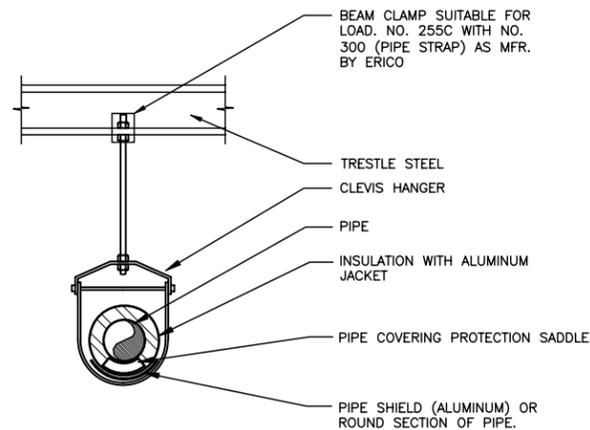


**SUPPORT DETAIL 1**

SCALE: NTS

**NOTES:**

1. TYPICAL SUPPORT DETAIL FOR INSULATED OUTDOOR PIPING.
2. FOR NON-METALLIC PIPING COORDINATE INSTALLATION AND SUPPORTS WITH MANUFACTURER'S INSTRUCTIONS.

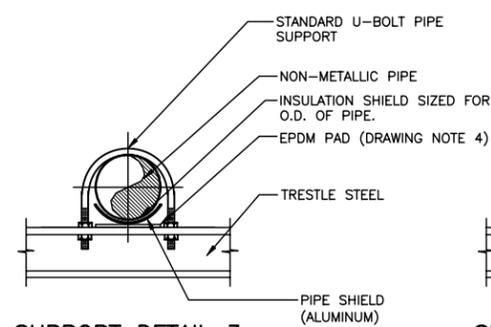


**SUPPORT DETAIL 2**

SCALE: NTS

**NOTES:**

1. TYPICAL SUPPORT DETAIL FOR OUTDOOR PIPING SUPPORTED BELOW TRESTLE STEEL.
2. FOR NON-METALLIC PIPING COORDINATE INSTALLATION AND SUPPORTS WITH MANUFACTURER'S INSTRUCTIONS.

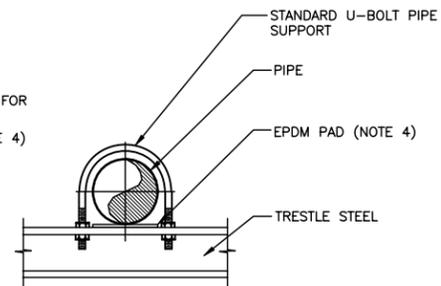


**SUPPORT DETAIL 3**

SCALE: NTS

**NOTES:**

1. TYPICAL SUPPORT DETAIL FOR INDOOR NON-METALLIC PIPING SUPPORTED ABOVE TRESTLE STEEL



**SUPPORT DETAIL 4**

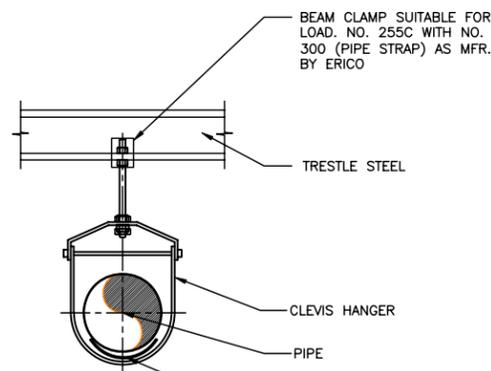
SCALE: NTS

**NOTES:**

1. TYPICAL SUPPORT DETAIL FOR INDOOR PIPING (EXCEPT NON-METALLIC) ABOVE TRESTLE STEEL

**NOTES:**

1. HANGERS AND SUPPORTS SHALL BE SPACED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND AS SHOWN ON THE CONTRACT DRAWINGS AND IN THE SPECIFICATIONS.
2. PROVIDE MANUAL AIR RELIEF AT ALL HIGH POINTS.
3. PROVIDE MANUAL DRAIN AT ALL LOW POINTS.
4. PROVIDE 1/8"x4"x6" EPDM PADS BETWEEN SUPPORTS FOR FRP AND STEEL AND BETWEEN DISSIMILAR METALS.
5. U-BOLTS SHALL BE 1/4" FOR 4"Ø PIPING AND LESS.
6. U-BOLTS SHALL BE 1/2" FOR PIPING AND DUCT GREATER THAN 4"Ø.
7. PROVIDE INSULATION SHIELDS FOR FRP AND PLASTIC PIPES AT EACH SUPPORT POINT.
8. ALTERNATIVE METHODS OF SUPPORTING THE PIPE AND DUCT SHALL BE REVIEWED AND APPROVED BY ENGINEER PRIOR TO FABRICATION OR PURCHASE OF SUPPORTS.
9. PROTECTION SADDLE TO BE USED TO SUPPORT FRP PIPING AND SHALL HAVE A FULL CONTACT ANGLE WITH THE PIPE AS RECOMMENDED IN THE FRP MANUFACTURER DESIGN GUIDES.

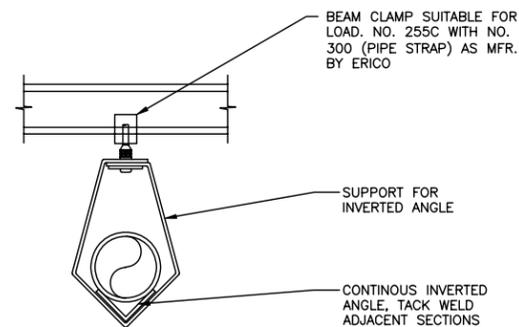


**SUPPORT DETAIL 5**

SCALE: NTS

**NOTES:**

1. TYPICAL SUPPORT DETAIL FOR INDOOR PIPING SUPPORTED BELOW TRESTLE STEEL.

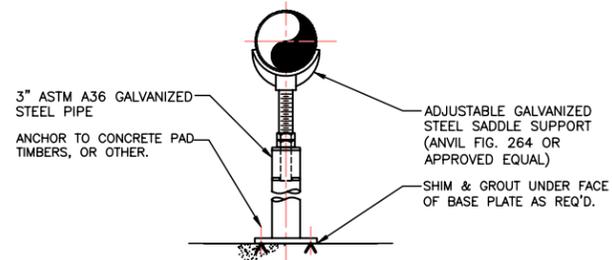


**SUPPORT DETAIL 6**

SCALE: NTS

**NOTES:**

1. TYPICAL FOR INDOOR CONTINUOUS SUPPORT. MODEL NO. 104V AS MANUFACTURED BY ERICO (OR EQUAL). ANGLE TO BE SIZED APPROPRIATELY FOR SUPPORT SPACING AND PIPE WEIGHTS.



**FLOOR SUPPORT DETAIL**

SCALE: NTS

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**HONEYWELL INTERNATIONAL, INC.**  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

MECHANICAL

**DETAILS**

|              |     |            |                |             |
|--------------|-----|------------|----------------|-------------|
| IN CHARGE OF | JSR | FILE NO.   | 1163.45613-M20 | <b>M-20</b> |
| DESIGNED BY  | GBE | CHECKED BY | PDS            |             |
| DRAWN BY     | JAS | DATE       | MAY 2010       |             |

### PIPING SYMBOLS

| PIPE LINES   | PIPING SEGMENT LABELS   | PIPING FLUID CODE DESIGNATIONS       | FITTINGS    | EQUIPMENT SYMBOL | PIPING SEGMENT LABELS | LETTER DESIGNATION OF EQUIPMENT |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
|--|---|--------------------------------------|-------------|------------------|-----------------------|---------------------------------|-----|------------------------|----|---------------|-----------|----|--------------|----|-----|-----------------|----|-----|-----------------|----|-----|---------------|----|-----|----------|----|-----|---------------|----|-----|----------|----|-----|----------|------------|------|---------------|--------------|----|---------------|----------|-----|---------------|-------------------|------|----------|------------------|----|--|------------------------|----|-------------|------------|------|-----|-----------|-----|---------------|-----------------|-----|----------------|---------|-----|---------------|---------|-----|--------------------------------------|-----------------|-----|---------------|-----------------|-----|---------------|----------|-----|------------------|---------|-----|-------------------------------------|--|-----|------------------|------------|-----|--------------------|---------------|----|-------------|--------------|-------|--|--------------|------|--|--|--|--|--|---|
| <p>NEW PIPING</p> <p>EXISTING PIPING</p> <p>SECONDARY HOSE</p> <p>FLUID DESTINATION CONN. PAID NO. (COL., ROW ON CONN. P&amp;ID)</p> <p>FL CODE OFF-DRAWING UTILITY CONNECTOR</p> <p>TIE-IN POINT</p> <p>PIPING AND/OR EQUIPMENT TO BE REMOVED</p> <p>INDICATES SCOPE BREAK FOR MECHANICAL SUB-CONTRACTOR</p> <p>M.S.</p> <p>FL CODE OFF-DRAWING DRAIN CONNECTOR</p> | <p>2-XXX-0000-XXX-XX-XX</p> <p>HEAT TRACING</p> <p>INSULATION PURPOSE</p> <p>MATERIAL SPECIFICATION</p> <p>LINE NUMBER</p> <p>FLUID CODE</p> <p>LINE SIZE (IN INCHES)</p> <p>BOUNDARY LINES</p> <p>PACKAGE</p> <p>SYSTEM BOUNDARY</p> <p>VENDOR</p> <p>PIPING</p> <table border="1"> <tr> <th>MATERIAL</th> <th>DESIGNATION</th> <th>PRESSURE RANGE</th> </tr> <tr> <td>ALLOY</td> <td>AL6XN</td> <td>TBD</td> </tr> <tr> <td>COPPER TUBING (TYPE K)</td> <td>C4</td> <td>420# AT 250°F</td> </tr> <tr> <td>CAST IRON</td> <td>CI</td> <td>ATMOS AT AMB</td> </tr> <tr> <td>CS</td> <td>CS1</td> <td>150# ANSI B16.5</td> </tr> <tr> <td>CS</td> <td>CS2</td> <td>125# ANSI B16.1</td> </tr> <tr> <td>CS</td> <td>CS3</td> <td>300# AT 550°F</td> </tr> <tr> <td>CS</td> <td>CS4</td> <td>AT 350°F</td> </tr> <tr> <td>CS</td> <td>CS5</td> <td>300# AT 550°F</td> </tr> <tr> <td>CS</td> <td>CS6</td> <td>SCHED 20</td> </tr> <tr> <td>CS</td> <td>CS7</td> <td>SCHED 10</td> </tr> <tr> <td>SCH80 CPVC</td> <td>CPVC</td> <td>100# AT 100°F</td> </tr> <tr> <td>DUCTILE IRON</td> <td>DI</td> <td>ATMOS AT 75°F</td> </tr> <tr> <td>FRP PIPE</td> <td>FRP</td> <td>150# AT 100°F</td> </tr> <tr> <td>FRP DUCT W/ LINER</td> <td>FRP2</td> <td>± TBD WC</td> </tr> <tr> <td>GALVANIZED STEEL</td> <td>GS</td> <td></td> </tr> <tr> <td>POLYETHYLENE PE TUBING</td> <td>PE</td> <td>90# AT 73°F</td> </tr> <tr> <td>PTFE LINED</td> <td>PTFE</td> <td>TBD</td> </tr> <tr> <td>SCH80 PVC</td> <td>PVC</td> <td>100# AT 100°F</td> </tr> <tr> <td>304L S/S TUBING</td> <td>SS2</td> <td>1000# AT 150°F</td> </tr> <tr> <td>304 S/S</td> <td>SS1</td> <td>150# AT 300°F</td> </tr> <tr> <td>304 S/S</td> <td>SS3</td> <td>150# ANSI B16.5 AT -320°F THRU 120°F</td> </tr> <tr> <td>316L S/S TUBING</td> <td>SS4</td> <td>125# AT 250°F</td> </tr> <tr> <td>316L S/S TUBING</td> <td>SS5</td> <td>150# AT 350°F</td> </tr> <tr> <td>316L S/S</td> <td>SS6</td> <td>150# AT (-)100°F</td> </tr> <tr> <td>316 S/S</td> <td>SS7</td> <td>150# ANSI B16.5 AT -20°F THRU 100°F</td> </tr> <tr> <td>316L S/S CORE W/VAC INSULATION &amp; 304 SS JACKET</td> <td>SS8</td> <td>150# AT (-)300°F</td> </tr> <tr> <td>316 S/S CS</td> <td>SS9</td> <td>SHEETMETAL DUCTING</td> </tr> <tr> <td>TEFLON TUBING</td> <td>TF</td> <td>75# AT 73°F</td> </tr> <tr> <td>SCHED 80 PVC</td> <td>PVC80</td> <td></td> </tr> <tr> <td>HDPE DR 32.5</td> <td>HDPE</td> <td></td> </tr> </table> | MATERIAL                             | DESIGNATION | PRESSURE RANGE   | ALLOY                 | AL6XN                           | TBD | COPPER TUBING (TYPE K) | C4 | 420# AT 250°F | CAST IRON | CI | ATMOS AT AMB | CS | CS1 | 150# ANSI B16.5 | CS | CS2 | 125# ANSI B16.1 | CS | CS3 | 300# AT 550°F | CS | CS4 | AT 350°F | CS | CS5 | 300# AT 550°F | CS | CS6 | SCHED 20 | CS | CS7 | SCHED 10 | SCH80 CPVC | CPVC | 100# AT 100°F | DUCTILE IRON | DI | ATMOS AT 75°F | FRP PIPE | FRP | 150# AT 100°F | FRP DUCT W/ LINER | FRP2 | ± TBD WC | GALVANIZED STEEL | GS |  | POLYETHYLENE PE TUBING | PE | 90# AT 73°F | PTFE LINED | PTFE | TBD | SCH80 PVC | PVC | 100# AT 100°F | 304L S/S TUBING | SS2 | 1000# AT 150°F | 304 S/S | SS1 | 150# AT 300°F | 304 S/S | SS3 | 150# ANSI B16.5 AT -320°F THRU 120°F | 316L S/S TUBING | SS4 | 125# AT 250°F | 316L S/S TUBING | SS5 | 150# AT 350°F | 316L S/S | SS6 | 150# AT (-)100°F | 316 S/S | SS7 | 150# ANSI B16.5 AT -20°F THRU 100°F | 316L S/S CORE W/VAC INSULATION & 304 SS JACKET | SS8 | 150# AT (-)300°F | 316 S/S CS | SS9 | SHEETMETAL DUCTING | TEFLON TUBING | TF | 75# AT 73°F | SCHED 80 PVC | PVC80 |  | HDPE DR 32.5 | HDPE |  | <p>AIR - ATMOSPHERIC AIR</p> <p>AF - ANTIFOAM</p> <p>BA - AERATION AIR</p> <p>BW - BACKWASH WASTE</p> <p>C125 - CONDENSATE, 125 PSIG</p> <p>C50 - CONDENSATE, 50 PSIG</p> <p>CH4 - NATURAL GAS</p> <p>CHS,-R- HVAC CHILLED WATER SUPPLY, RETURN, 42°F</p> <p>CNTC - CONTAMINATED CONDENSATE</p> <p>COAG - COAGULANT</p> <p>CS - CLEAN STEAM</p> <p>DE - DIATOMACEOUS EARTH</p> <p>DIW - DEIONIZED WATER</p> <p>DNAPL - DENSE NON-AQUEOUS PHASE LIQUID</p> <p>DR - DRAIN</p> <p>FA - FERMENTATION AIR</p> <p>FILTR - BFP FILTRATE/FLOOR SUMP</p> <p>FW - FIRE WATER</p> <p>GW - GROUND WATER</p> <p>H2O2 - HYDROGEN PEROXIDE</p> <p>H2SO4 - SULFURIC ACID</p> <p>HYD - HYDRAULIC FLUID</p> <p>IA - INSTRUMENT AIR</p> <p>LNAPL - LIGHT NON-AQUEOUS PHASE LIQUID</p> <p>MACT - MACT REGULATED WW</p> <p>MICRO - MICRONUTRIENT</p> <p>N2G,-L- NITROGEN GAS, LIQUID</p> <p>NaOCL - SODIUM HYPOCHLORITE</p> <p>NAOH - SODIUM HYDROXIDE SOL'N</p> <p>P - PROCESS</p> <p>PA - PLANT AIR</p> <p>PC - PROCESS CHEMICAL</p> <p>PHOS - PHOSPHORIC ACID</p> <p>POLY - POLYMER</p> <p>POLY A - POLYMER (ANIONIC)</p> <p>POLY C - POLYMER (CATIONIC)</p> <p>PS - PROCESS SEWER</p> <p>PV - PROCESS VACUUM</p> <p>PW - PLANT WATER</p> <p>RF - REFRIGERENT</p> <p>S125 - STEAM, 125 PSIG</p> <p>S40 - STEAM, 40 PSIG</p> <p>SA - STERILE AIR</p> <p>SAN - SANITARY SEWER</p> <p>SEQ - SEQUESTERING AGENT</p> <p>SF - SEAL FLUID</p> <p>SL - SCRUBBER LIQUOR</p> <p>SLUDGE - SLUDGE</p> <p>SOL - SOLVENT</p> <p>SW - STORM WATER</p> <p>THIO - SODIUM THIOSULFATE</p> <p>TRWW - TREATED WASTEWATER</p> <p>TWS,-R- TOWER WATER SUPPLY,-RETURN</p> <p>UR - UREA</p> <p>VOC - VAPOR ORGANIC COMPOUNDS</p> <p>VT - VENT</p> <p>WAS - WASTE ACTIVATED SLUDGE DOMESTIC WATER</p> <p>WD,-CW- SUPPLY,-RETURN</p> <p>WDH - HOT DOMESTIC WATER</p> <p>WFI - WATER FOR INJECTION</p> <p>WFIS - PURE STEAM</p> <p>WP - PROCESS WATER</p> <p>WPH - HOT PROCESS WATER</p> <p>WPUR - PURIFIED WATER</p> <p>WW - WASTE WATER</p> | <p>FLANGE</p> <p>ORIFICE FLANGE</p> <p>FIX UNION</p> <p>BLIND FLANGE</p> <p>OPEN SPECTACLE BLANK</p> <p>CLOSE SPECTACLE BLANK</p> <p>SPACER</p> <p>PADDLE BLANK</p> <p>PLUG</p> <p>CAP</p> <p>CONCENTRIC REDUCER</p> <p>ECCENTRIC REDUCER (FLAT ON TOP)</p> <p>HOSE CONNECTION</p> <p>TRICLAMP STERILE CONNECTION</p> <p>INGOLD CONNECTION W/TRICLAMP</p> <p>SLIP ON HOSE CONNECTION</p> <p>BAYONET CONNECTION FOR TUBING</p> <p>FLEX CONNECTOR</p> <p>QUICK CONNECTION</p> <p>CLEANOUT</p> <p>HARNESSED COUPLING</p> <p>SPECIALTY</p> <p>WEATHER CAP</p> <p>EXPANSION JOINT</p> <p>Y STRAINER</p> <p>STEAM TRAP</p> <p>PULSATION DAMPENERS</p> <p>CALIBRATION TUBE</p> <p>SNUBBER</p> <p>FILTER</p> <p>FILTER/REGULATOR/GAUGE</p> <p>EJECTOR</p> <p>CHEMICAL SEAL</p> <p>DRAIN</p> <p>MUFFLER</p> <p>PUMP SEAL TYPES</p> <p>SEAL TYPE 1 SINGLE MECHANICAL SEAL, NO FLUID FLUSH</p> <p>SEAL TYPE 2 SINGLE SEAL OR PACKING, FLUSH LIQUID FROM PUMP DISCHARGE</p> <p>SEAL TYPE 3 SINGLE SEAL OR PACKING, EXTERNAL FLUSH LIQUID</p> <p>SEAL TYPE 4 DOUBLE MECHANICAL SEAL, FLUSH EXTERNAL FLUSH LIQUID</p> <p>SEAL TYPE 5 DOUBLE MECHANICAL SEAL, FLUSH LIQUID FROM PUMP DISCHARGE</p> <p>SEAL TYPE 6 SEAL-LESS PUMP</p> <p>SEAL TYPE 7 DOUBLE SEAL, FLUSH LIQUID FROM LOCAL CONTAINER</p> <p>SEAL TYPE 8 DOUBLE SEAL FOR AGITATOR WITH PRESSURE CONVECTION COOLER</p> <p>SEAL TYPE 9 DRY SEAL</p> <p>EQUIPMENT SYMBOL</p> <p>CENTRIFUGAL FAN</p> <p>CENTRIFUGAL PUMP</p> <p>DIAPHRAGM OR TUBULAR METERING PUMP</p> <p>MIXER OR FLOCCULATOR WITH ELECTRIC MOTOR</p> | <p>PROCESS VESSEL (NON-PRESSURIZED)</p> <p>PROCESS VESSEL (PRESSURIZED)</p> <p>AIR OPERATED DIAPHRAM (AOD) PUMP</p> <p>ROTARY LOBE PUMP</p> <p>ROTARY POSITIVE DISPLACEMENT BLOWER</p> <p>EJECTOR/EDUCTOR</p> <p>PERISTALTIC PUMP</p> <p>SPILL TRAY</p> <p>SIGNAL LINES</p> <p>CONNECTION TO PROCESS LINE</p> <p>CAPILLARY TUBE</p> <p>ELECTRIC</p> <p>PNEUMATIC</p> <p>HYDRAULIC</p> <p>SOFTWARE OR DATA LINK</p> <p>MECHANICAL LINK</p> <p>CONTROL VALVES AND REGULATORS</p> <p>SELF CONTAINED PRESSURE REDUCING REGULATOR</p> <p>PRESSURE REDUCING REGULATOR WITH EXTERNAL TAP</p> <p>PRESSURE REDUCING REGULATOR WITH INTEGRAL OUTLET PRESSURE RELIEF VALVE</p> <p>SELF CONTAINED BACKPRESSURE REGULATOR</p> <p>BACKPRESSURE REGULATOR WITH EXTERNAL TAP</p> <p>DIFFERENTIAL PRESSURE REDUCING REGULATOR WITH INTERNAL AND EXTERNAL TAPS</p> <p>FILLED SYSTEM TEMPERATURE REGULATOR</p> <p>LEVEL REGULATOR WITH MECHANICAL LINKAGE</p> <p>INSTRUMENT AIR SUPPLY WITH REGULATOR</p> <p>ON/OFF FLOW CONTROL VALVE (PNEUMATIC ACT. W/ SPRING RETURN)</p> <p>ON/OFF FLOW CONTROL VALVE (ELECTRIC ACT. W/ SPRING RETURN)</p> <p>RELIEF DEVICES</p> <p>ANGLE PRESSURE RELIEF VALVE</p> <p>STRAIGHT-THRU PRESSURE RELIEF VALVE OR CONSERVATION VENT</p> <p>VACUUM RELIEF VALVE OR CONSERVATION VENT</p> <p>PRESSURE AND VACUUM RELIEF VALVE</p> <p>PRESSURE AND VACUUM RELIEF MANHOLE COVER</p> <p>PRESSURE RELIEF RUPTURE DISK</p> <p>VACUUM RELIEF RUPTURE DISK</p> <p>TEMPERATURE FUSIBLE PLUG OR DISK</p> | <p>FLAME ARRESTOR</p> <p>DETONATION FLAME ARRESTER</p> <p>HAMMER ARRESTOR</p> <p>EXHAUST HEAD</p> <p>BREATHER CAP</p> <p>WEATHER CAP</p> <p>WEATHER CAP</p> <p>MIXING TEE</p> <p>SPRAY NOZZLE</p> <p>REMOVABLE SPOOL</p> <p>SWING ELBOW</p> <p>EXPANSION JOINT</p> <p>MOTOR</p> <p>DRESSER COUPLING</p> <p>FLEXIBLE HOSE</p> <p>SAMPLE COOLER</p> <p>CARTRIDGE FILTER</p> <p>TWIN BASKET STRAINER</p> <p>T STRAINER</p> <p>Y STRAINER</p> <p>BASKET STRAINER</p> <p>CONE STRAINER</p> <p>FLAT PLATE STRAINER</p> <p>SUMP STRAINER</p> <p>FILTER</p> <p>STILLING WELL WITH PROBE INSERT</p> <p>VACUUM BREAKER</p> <p>STEAM TRAP</p> <p>INVERTED BUCKET STEAM TRAP</p> <p>THERMOSTATIC STEAM TRAP</p> <p>THERMODYNAMIC STEAM TRAP</p> <p>IMPULSE STEAM TRAP</p> <p>GENERIC COMPONENT</p> <p>STEAM TRAP ASSEMBLY INCLUDING STRAINER, BLOCK VALVES AND BYPASS WITH VALVE CARBON STEEL</p> <p>STEAM TRAP ASSEMBLY STAINLESS STEEL</p> <p>SAMPLE PROBE</p> <p>SECONDARY CONTAINMENT</p> <p>INSULATED, HEAT TRACED</p> <p>INSULATED</p> <p>STATIC MIXER</p> | <p>AG - AGITATOR</p> <p>BL - BLOWER / FAN</p> <p>CE - CENTRIFUGE</p> <p>CF - CHEMICAL FEED UNIT</p> <p>CMP - COMPRESSOR</p> <p>CV - CHEMICAL VESSEL</p> <p>D - SCRUBBER</p> <p>DE - DECANTER</p> <p>FP - FILTER PRESS</p> <p>GAC - GRANULAR ACTIVATED CARBON VESSEL</p> <p>GR - GRINDER</p> <p>HP - HYDRAULIC PUMP</p> <p>IE - ION EXCHANGE</p> <p>IPC - INCLINED PLATE CLARIFIER</p> <p>LGAC - LIQ. PHASE GRANULAR ACTIVATED CARBON UNITS</p> <p>MH - MAINTENANCE SHOP HAND HOIST</p> <p>MIX - MIXER</p> <p>MMF - MULTIMEDIA FILTER VESSEL</p> <p>PB - POLYMER BLENDING</p> <p>PLF - PRESSURE LEAF FILTER</p> <p>PM - PIPING MANIFOLD</p> <p>PU - PUMP</p> <p>R - REACTOR</p> <p>RTO - REGENERATIVE THERMAL OXIDIZER</p> <p>SK - SPRAY COOLER</p> <p>SI - SILENCER</p> <p>SM - STATIC MIXER</p> <p>SP - COMPOSITE SAMPLER</p> <p>ST - AIR STRIPPER</p> <p>STI - STEAM INJECTOR</p> <p>T - TANK</p> <p>TB - TOTE</p> <p>TD - ELECTRIC HOIST</p> <p>TK - PROCESS VESSEL</p> <p>TZ - DIESEL GENERATOR</p> <p>VGAC - VAPOR PHASE CARBON UNIT</p> <p>W - ROLLOFF WINCH</p> <p>X - FUME HOOD</p> <p>ZZ - LAB INSTRUMENTS</p> |
| MATERIAL   | DESIGNATION   | PRESSURE RANGE                       |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| ALLOY  | AL6XN   | TBD                                  |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| COPPER TUBING (TYPE K)   | C4  | 420# AT 250°F                        |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| CAST IRON  | CI  | ATMOS AT AMB                         |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| CS   | CS1   | 150# ANSI B16.5                      |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| CS   | CS2   | 125# ANSI B16.1                      |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| CS   | CS3   | 300# AT 550°F                        |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| CS   | CS4   | AT 350°F                             |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| CS   | CS5   | 300# AT 550°F                        |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| CS   | CS6   | SCHED 20                             |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| CS   | CS7   | SCHED 10                             |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| SCH80 CPVC   | CPVC  | 100# AT 100°F                        |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| DUCTILE IRON   | DI  | ATMOS AT 75°F                        |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| FRP PIPE   | FRP   | 150# AT 100°F                        |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| FRP DUCT W/ LINER  | FRP2  | ± TBD WC                             |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| GALVANIZED STEEL   | GS  |                                      |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| POLYETHYLENE PE TUBING   | PE  | 90# AT 73°F                          |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| PTFE LINED   | PTFE  | TBD                                  |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| SCH80 PVC  | PVC   | 100# AT 100°F                        |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| 304L S/S TUBING  | SS2   | 1000# AT 150°F                       |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| 304 S/S  | SS1   | 150# AT 300°F                        |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| 304 S/S  | SS3   | 150# ANSI B16.5 AT -320°F THRU 120°F |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| 316L S/S TUBING  | SS4   | 125# AT 250°F                        |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| 316L S/S TUBING  | SS5   | 150# AT 350°F                        |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| 316L S/S   | SS6   | 150# AT (-)100°F                     |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| 316 S/S  | SS7   | 150# ANSI B16.5 AT -20°F THRU 100°F  |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| 316L S/S CORE W/VAC INSULATION & 304 SS JACKET   | SS8   | 150# AT (-)300°F                     |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| 316 S/S CS   | SS9   | SHEETMETAL DUCTING                   |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| TEFLON TUBING  | TF  | 75# AT 73°F                          |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| SCHED 80 PVC   | PVC80   |                                      |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |
| HDPE DR 32.5   | HDPE  |                                      |             |                  |                       |                                 |     |                        |    |               |           |    |              |    |     |                 |    |     |                 |    |     |               |    |     |          |    |     |               |    |     |          |    |     |          |            |      |               |              |    |               |          |     |               |                   |      |          |                  |    |  |                        |    |             |            |      |     |           |     |               |                 |     |                |         |     |               |         |     |                                      |                 |     |               |                 |     |               |          |     |                  |         |     |                                     |  |     |                  |            |     |                    |               |    |             |              |       |  |              |      |  |  |  |  |  |   |

Equipment Tag Numbering: \*\*\*-XXYYA, where:

|                     |  |
|---------------------|--|
| ***                 | Letter designation of equipment, may be fewer or more than 3 letters (e.g., T indicates tank). Refer to the Lead Sheets for list of letter designations for equipment.   |
| XX                  | Subsystem number, two digits (e.g., 03 indicates Flash Mixing). Refer to the Lead Sheets for list of numerical designations for subsystems.  |
| YY                  | Sequential numbering for identical equipment items, two digits (e.g., 01 indicates the equipment or tank is the first of one or more identical units).   |
| A, B, C, or D, etc. | Additional categorization, where required, for duplicate items (e.g., MIX-0301C would indicate the mixer is the third identical unit within the first Flash Mixing Tank). This letter will be left blank if there is only one mixer in the tank. |

| Subsystem Number | Subsystem                        |
|------------------|----------------------------------|
| 01               | pH Adjustment (Rough)            |
| 02               | pH Adjustment (Fine)             |
| 03               | Flash Mix                        |
| 04               | Flocculation                     |
| 05               | Distribution Box                 |
| 06               | Clarification                    |
| 07               | Filter Feed                      |
| 08               | Multimedia Filtration            |
| 09               | GAC Adsorption                   |
| 10               | Effluent Monitoring              |
| 11               | Sludge Holding and Transfer      |
| 12               | Sodium Hydroxide (Caustic)       |
| 13               | Sulfuric Acid and Bulk Unloading |
| 14               | Aluminum Sulfate (Alum)          |
| 15               | Plant Water                      |
| 16               | Compressed Air                   |
| 17               | Miscellaneous                    |

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| E   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| D   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |
| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |

NOT TO SCALE



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HONEYWELL INTERNATIONAL, INC.  
 DP #2  
 WATER TREATMENT PLANT  
 TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION

### LEGEND & SYMBOLS

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**PRELIMINARY  
NOT FOR  
CONSTRUCTION**

DATE: 5/12/10

|              |     |            |               |
|--------------|-----|------------|---------------|
| IN CHARGE OF | JSR | FILE NO.   | 1163.45613-IA |
| DESIGNED BY  | GBE | CHECKED BY | PDS           |
| DRAWN BY     | JAS | DATE       | APRIL 2010    |

I-A

| SYMBOLS   |  |  |  |
|---|--|--|--|
| IN-LINE INSTRUMENTS   | INSTRUMENT COMPONENT LABELS  | INSTRUMENT COMPONENT LABELS  | INSTRUMENT IDENTIFICATION  |
| ORIFICE PLATE<br>ORIFICE PLATE IN QUICK CHANGE FITTING<br>FLOW NOZZLE<br>VENTURI TUBE<br>SINGLE PORT PITOT TUBE<br>PITOT-VENTURI TUBE<br>AVERAGING PITOT TUBE<br>VALVE WITH RESTRICTION ORIFICE | BALLOON WITH TAG NUMBER<br>EXISTING<br>TOP MOUNTED ACCESSORY<br>SIDE MOUNTED ACCESSORY<br>DIAPHRAGM ACTUATOR<br>PRESSURE-BALANCED DIAPHRAGM ACTUATOR<br>2-WAY SOLENOID VALVE<br>ANGLE SOLENOID VALVE<br>3-WAY SOLENOID VALVE<br>POSITIONER ACCESSORY<br>INTERLOCK WITH IDENTIFICATION NUMBER<br>CAPACITANCE SENSOR ACCESSORY<br>BALL FLOAT ACCESSORY<br>DISPLACEMENT FLOAT ACCESSORY<br>DUAL-FLOAT ACCESSORY<br>DIAPHRAGM SEAL ACCESSORY<br>PADDLE WHEEL ACTUATOR<br>SHEET NUMBER<br>SIGNAL CONTINUATION<br>CORRESPONDING INSTRUMENT<br>OPERATOR STATION INDICATOR/CONTROL<br>AI PLC ANALOG INPUT<br>DI PLC DIGITAL INPUT<br>AO PLC ANALOG OUTPUT<br>DO PLC DIGITAL OUTPUT | CONVERTS ELECTRICAL INPUT TO PNEUMATIC<br>LEVEL SWITCH (FLOAT TYPE)<br>POSITION SWITCH<br>POSITION SWITCH CLOSED<br>POSITION SWITCH OPEN<br>POSITION INDICATOR<br><br><b>ELECTRIC SWITCH DESIGNATION</b><br>HS - HAND SWITCH<br>HPS - HAND PNEUMATIC SWITCH<br>HOA - HAND OFF AUTOMATIC SWITCH<br>PB - PUSH BUTTON<br>PBL - PUSH BUTTON W/LIGHT<br>PB2 - TWO PUSH BUTTONS<br>PB2L - TWO PUSH BUTTONS W/LIGHT<br>SS - SELECTOR SWITCH<br>OCA - OPEN CLOSED AUTO<br><br><b>OFF-LINE INSTRUMENTS</b><br>FIELD MOUNTED INSTRUMENT<br>DISCRETE INSTRUMENT PRIMARY LOCATION ACCESSIBLE TO OPERATOR<br>DISCRETE INSTRUMENT AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR<br>SINGLE FUNCTION INSTRUMENT LOCATED IN LOCAL CONTROL ROOM OR BACKUP PANEL (NOT NORMALLY ACCESSIBLE) REAR OF PANEL<br>SHARED DISPLAY/CONTROL FUNCTION, PRIMARY LOCATION ACCESSIBLE TO OPERATOR<br>SHARED DISPLAY/CONTROL FUNCTION, AUXILIARY LOCATION ACCESSIBLE TO OPERATOR<br>PROGRAMMABLE LOGIC CONTROL FUNCTION, PRIMARY LOCATION ACCESSIBLE TO OPERATOR<br>PROGRAMMABLE LOGIC CONTROL FUNCTION, AUXILIARY LOCATION ACCESSIBLE TO OPERATOR<br>PROGRAMMABLE LOGIC CONTROL FUNCTION, FIELD MOUNTED<br>FIELD INDICATION LIGHT<br>PANEL MOUNTED INDICATION LIGHT | <p>PIC - XXX YY A</p> <ul style="list-style-type: none"> <li>XXX - SUFFIX IF REQUIRED</li> <li>YY - SEQUENTIAL No. ON P&amp;ID</li> <li>A - No. OF P&amp;ID ON WHICH INSTRUMENT APPEARS</li> </ul> <p>MEASURED VARIABLE AND INSTRUMENT FUNCTION</p><br><b>PANEL IDENTIFICATION</b><br><p>XXX A B</p> <ul style="list-style-type: none"> <li>XXX - ALPHA SUFFIX</li> <li>A - ASSOCIATED LOCAL CONTROL ROOM</li> <li>B - PANEL TYPE</li> </ul> <p>PANEL TYPES :</p> <ul style="list-style-type: none"> <li>MBP - MANUAL BACKUP PANEL (HPS &amp; HIC)</li> <li>DIP - DIGITAL INDICATOR PANEL (LCD'S)</li> <li>CVIB - CONTROL VALVE INTERFACE BOX (EV'S &amp; I/P)</li> <li>MP - MARSHALLING PANEL</li> <li>TTP - TEMPERATURE TRANSMITTER PANEL</li> </ul> |

| LETTER IDENTIFICATION OF INSTRUMENTS |                                 |                     |                             |  |                      |
|--------------------------------------|---------------------------------|---------------------|-----------------------------|--|----------------------|
|                                      | FIRST LETTER                    |                     | SUCCEEDING LETTERS          |  |                      |
|                                      | MEASURED OR INITIATING VARIABLE | MODIFIER            | READOUT OR PASSIVE FUNCTION | OUTPUT FUNCTION                                      | MODIFIER             |
| A                                    | ANALYSIS                        |                     | ALARM                       |  |                      |
| B                                    | BURNER, COMBUSTION              |                     | USER'S CHOICE               | USER'S CHOICE  | USER'S CHOICE        |
| C                                    | USER'S CHOICE                   |                     |                             | CONTROL  |                      |
| D                                    | USER'S CHOICE                   | DIFFERENTIAL        |                             |  |                      |
| E                                    | VOLTAGE                         |                     | SENSOR (PRIMARY ELEMENT)    |  |                      |
| F                                    | FLOW RATE                       | RATIO (FRACTION)    |                             |  |                      |
| G                                    | USER'S CHOICE                   |                     | GLASS, VIEWING DEVICE       |  |                      |
| H                                    | HAND                            |                     |                             |  | HIGH                 |
| I                                    | CURRENT (ELECTRICAL)            |                     | INDICATE                    |  |                      |
| J                                    | POWER                           | SCAN                |                             |  |                      |
| K                                    | TIME, TIME SCHEDULE             | TIME RATE OF CHANGE |                             | CONTROL STATION                                      |                      |
| L                                    | LEVEL                           |                     | LIGHT                       |  | LOW                  |
| M                                    | USER'S CHOICE                   | MOMENTARY           |                             |  | MIDDLE, INTERMEDIATE |
| N                                    | USER'S CHOICE                   |                     | USER'S CHOICE               | USER'S CHOICE  | USER'S CHOICE        |
| O                                    | USER'S CHOICE                   |                     | ORIFICE, RESTRICTION        |  | OPEN                 |
| P                                    | PRESSURE, VACUUM                |                     | POINT (TEST) CONNECTION     |  |                      |
| Q                                    | QUANTITY                        | INTEGRATE, TOTALIZE |                             |  |                      |
| R                                    | RADIATION                       |                     | RECORD                      |  |                      |
| S                                    | SPEED, FREQUENCY                | SAFETY              |                             | SWITCH   |                      |
| T                                    | TEMPERATURE                     |                     |                             | TRANSMIT   |                      |
| U                                    | MULTIVARIABLE                   |                     | MULTIFUNCTION               | MULTIFUNCTION  | MULTIFUNCTION        |
| V                                    | VIBRATION, MECHANICAL ANALYSIS  |                     |                             | VALVE, DAMPER, LOUVER                                |                      |
| W                                    | WEIGHT, FORCE                   |                     | WELL                        |  |                      |
| X                                    | UNCLASSIFIED                    | X AXIS              | UNCLASSIFIED                | UNCLASSIFIED   | UNCLASSIFIED         |
| Y                                    | EVENT, STATE OR PRESENCE        | Y AXIS              |                             | RELAY, COMPUTE, CONVERT                              |                      |
| Z                                    | POSITION, DIMENSION             | Z AXIS              |                             | DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT |                      |

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**PRELIMINARY  
NOT FOR  
CONSTRUCTION**  
DATE: 5/12/10

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| D   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| C   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |
| B   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| A   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |

NOT TO SCALE



HONEYWELL INTERNATIONAL, INC.  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION

**LEGEND & SYMBOLS**

|                                |                        |     |
|--------------------------------|------------------------|-----|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-IB | I-B |
| DESIGNED BY GBE CHECKED BY PDS | DATE                   |     |
| DRAWN BY JAS                   | FEBRUARY 2010          |     |

| Honeywell<br>SCA WTP<br>Draft Interlock List<br>10-May-10 |  |  |
|---|--|--|
| Interlock No.   | P&ID(s)  | Description  |
| 1   | I-01   | At a high-high-high (HHH) influent turbidity, as indicated by AE/AIT-00 for one minute or more, WTP influent valve FV-02 will automatically close. Coordinate with the SCA project, to determine if a valve position signal can be used to shut down the SCA d |
| 2   | I-01, I-14, I-15                                     | At a low (L) liquid level in pH Adjust Tank #1 (T-0101), as indicated by LSL/LAL-0101-00, Mixers MIX-0101A, 0101B, 0101C, and 0101D will automatically shut down. Stop the addition of sodium hydroxide or sulfuric acid by shutting down CF-1201 and CF-1301. |
| 3   | I-01, I-14, I-15                                     | At a high (H) liquid level in pH Adjust Tank #1 (T-0101), as indicated by LSH/LAH-0101-00, tank influent valve FCV-00 will automatically close. Stop the addition of sodium hydroxide or sulfuric acid by shutting down CF-1201 and CF-1301, respectively. Co  |
| 4   | NA (Pertains to pH Adjust Tank #5), I-14, I-15       | At a low (L) liquid level in pH Adjust Tank #5 (T-0105), as indicated by LSL/LAL-0105-00, Mixers MIX-0105A, 0105B, 0105C, and 0105D will automatically shut down. Stop the addition of sodium hydroxide or sulfuric acid by shutting down CF-1203 and CF-1303. |
| 5   | NA (Pertains to pH Adjust Tank #5), I-01, I-14, I-15 | At a high (H) liquid level in pH Adjust Tank #5 (T-0105), as indicated by LSH/LAH-0105-00, tank influent valve FCV-01 will automatically close. Stop the addition of sodium hydroxide or sulfuric acid by shutting down CF-1203 and CF-1303, respectively. Co  |
| 6   | I-01, I-02   | At a low (L) liquid level in pH Adjust Tank #2 (T-0102), as indicated by LSL/LAL-0102-00, Mixers MIX-0102A, 0102B, 0102C, and 0102D will automatically shut down. Also shut FCV-00 on I-01 to prevent additional leakage.                                      |
| 7   | NA (Pertains to pH Adjust Tank #3), I-14, I-15       | At a low (L) liquid level in pH Adjust Tank #3 (T-0103), as indicated by LSL/LAL-0103-00, Mixers MIX-0103A, 0103B, 0103C, and 0103D will automatically shut down. Stop the addition of sodium hydroxide or sulfuric acid by shutting down CF-1202 and CF-1302. |
| 8   | NA (Pertains to pH Adjust Tank #4)                   | At a low (L) liquid level in pH Adjust Tank #4 (T-0104), as indicated by LSL/LAL-0104-00, Mixers MIX-0104A, 0104B, 0104C, and 0104D will automatically shut down.  |
| 9   | NA (Pertains to pH Adjust Tank #6)                   | At a low (L) liquid level in pH Adjust Tank #6 (T-0106), as indicated by LSL/LAL-0106-00, Mixers MIX-0106A, 0106B, 0106C, and 0106D will automatically shut down.  |
| 10  | NA (Pertains to pH Adjust Tank #7), I-14, I-15       | At a low (L) liquid level in pH Adjust Tank #7 (T-0107), as indicated by LSL/LAL-0107-00, Mixers MIX-0107A, 0107B, 0107C, and 0107D will automatically shut down. Stop the addition of sodium hydroxide or sulfuric acid by shutting down CF-1204 and CF-1304. |
| 11  | NA (Pertains to pH Adjust Tank #8)                   | At a low (L) liquid level in pH Adjust Tank #8 (T-0108), as indicated by LSL/LAL-0108-00, Mixers MIX-0108A, 0108B, 0108C, and 0108D will automatically shut down.  |
| 12  | I-01, and NA (Pertains to pH Adjust Tank #4)         | At a high-high (HH) or low-low (LL) pH in pH Adjust Tank #4 (T-0104), as indicated by AE/AIT/AIC-0104-00, pH Adjust Tank #1 influent valve FCV-00 will close   |
| 13  | I-01, and NA (Pertains to pH Adjust Tank #8)         | At a high-high (HH) or low-low (LL) pH in pH Adjust Tank #8 (T-0108), as indicated by AE/AIT/AIC-0108-00, pH Adjust Tank #5 influent valve FCV-01 will close   |
| 14  | I-01, I-16   | At a low alum flow from CF-1401, as indicated by FSL/FAL-00, WTP influent valve FV-02 will close   |
| 15  |  | Deleted  |
| 16  | I-01, I-06   | At a low liquid level in Inclined Plate Clarifier #1, as indicated by LSL/LAL-0601-00, Clarifier Sludge Valve #1 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.  |
| 17  | NA (Pertains to Inclined Plate Clarifier #2)         | At a low liquid level in Inclined Plate Clarifier #2, as indicated by LSL/LAL-0602-00, Clarifier Sludge Valve #2 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.  |
| 18  | NA (Pertains to Inclined Plate Clarifier #3)         | At a low liquid level in Inclined Plate Clarifier #3, as indicated by LSL/LAL-0603-00, Clarifier Sludge Valve #3 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.  |
| 19  | NA (Pertains to Inclined Plate Clarifier #4)         | At a low liquid level in Inclined Plate Clarifier #4, as indicated by LSL/LAL-0604-00, Clarifier Sludge Valve #4 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.  |
| 20  | NA (Pertains to Inclined Plate Clarifier #5)         | At a low liquid level in Inclined Plate Clarifier #5, as indicated by LSL/LAL-0605-00, Clarifier Sludge Valve #5 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.  |
| 21  | NA (Pertains to Inclined Plate Clarifier #6)         | At a low liquid level in Inclined Plate Clarifier #6, as indicated by LSL/LAL-0606-00, Clarifier Sludge Valve #6 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.  |
| 22  | NA (Pertains to Inclined Plate Clarifier #7)         | At a low liquid level in Inclined Plate Clarifier #7, as indicated by LSL/LAL-0607-00, Clarifier Sludge Valve #7 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.  |
| 23  | NA (Pertains to Inclined Plate Clarifier #8)         | At a low liquid level in Inclined Plate Clarifier #8, as indicated by LSL/LAL-0608-00, Clarifier Sludge Valve #8 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.  |
| 24  | NA (Pertains to Inclined Plate Clarifier #9)         | At a low liquid level in Inclined Plate Clarifier #9, as indicated by LSL/LAL-0609-00, Clarifier Sludge Valve #9 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.  |
| 25  | NA (Pertains to Inclined Plate Clarifier #10)        | At a low liquid level in Inclined Plate Clarifier #10, as indicated by LSL/LAL-0610-00, Clarifier Sludge Valve #10 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.  |
| 26  | NA (Pertains to Inclined Plate Clarifier #11)        | At a low liquid level in Inclined Plate Clarifier #11, as indicated by LSL/LAL-0611-00, Clarifier Sludge Valve #11 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.  |
| 27  | NA (Pertains to Inclined Plate Clarifier #12)        | At a low liquid level in Inclined Plate Clarifier #12, as indicated by LSL/LAL-0612-00, Clarifier Sludge Valve #12 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.  |
| 28  | NA (Pertains to Inclined Plate Clarifier #13)        | At a low liquid level in Inclined Plate Clarifier #13, as indicated by LSL/LAL-0613-00, Clarifier Sludge Valve #13 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.  |
| 29  | NA (Pertains to Inclined Plate Clarifier #14)        | At a low liquid level in Inclined Plate Clarifier #14, as indicated by LSL/LAL-0614-00, Clarifier Sludge Valve #14 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.  |

|    |   |   |
|----|---|---|
| 30 | NA (Pertains to Inclined Plate Clarifier #15) | At a low liquid level in Inclined Plate Clarifier #15, as indicated by LSL/LAL-0615-00, Clarifier Sludge Valve #15 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.   |
| 31 | NA (Pertains to Inclined Plate Clarifier #16) | At a low liquid level in Inclined Plate Clarifier #16, as indicated by LSL/LAL-0616-00, Clarifier Sludge Valve #16 (FV) will close. Close FV-02 on I-01. Shut off Floc Mixer.   |
| 32 |   | Deleted   |
| 33 | I-01, I-06                                    | At a high (H) level in any two Inclined Plate Clarifiers simultaneously, influent valve FV-02 (on I-01) will close. Typical of the other Clarifiers. Provide interlock numbers for each Clarifier.  |
| 34 | I-07  | A low-low (LL) liquid level in the Filter Feed Tank, as indicated by LIT-0701-00, LIT-0701-01, or LSL-0701-00, will shut down Multimedia Feed Pumps PU-0701, PU-0702, PU-0703, and PU-0704.   |
| 35 | I-07  | A low flow rate, as indicated by FSL/FAL-01, will shut down Multimedia Feed Pump #1 (PU-0701)   |
| 36 | I-07  | A low flow rate, as indicated by FSL/FAL-02, will shut down Multimedia Feed Pump #2 (PU-0702)   |
| 37 | I-07  | A low flow rate, as indicated by FSL/FAL-03, will shut down Multimedia Feed Pump #3 (PU-0703)   |
| 38 | I-07  | A low flow rate, as indicated by FSL/FAL-04, will shut down Multimedia Feed Pump #4 (PU-0704)   |
| 39 | I-08  | A high-high (HH) differential pressure across Multimedia Filter #1 (MMF-0801), as indicated by PDIT-0801-00, will start the idled spare Multimedia Filter and corresponding Multimedia Feed Pump, and shut the valve(s) feeding Multimedia Filter #1.           |
| 40 | NA (Pertains to Multimedia Filter #2)         | A high-high (HH) differential pressure across Multimedia Filter #2 (MMF-0802), as indicated by PDIT-0802-00, will start the idled spare Multimedia Filter and corresponding Multimedia Feed Pump, and shut the valve(s) feeding Multimedia Filter #2.           |
| 41 | NA (Pertains to Multimedia Filter #3)         | A high-high (HH) differential pressure across Multimedia Filter #3 (MMF-0803), as indicated by PDIT-0803-00, will start the idled spare Multimedia Filter and corresponding Multimedia Feed Pump, and shut the valve(s) feeding Multimedia Filter #3.           |
| 42 | NA (Pertains to Multimedia Filter #4)         | A high-high (HH) differential pressure across Multimedia Filter #4 (MMF-0804), as indicated by PDIT-0804-00, will start the idled spare Multimedia Filter and corresponding Multimedia Feed Pump, and shut the valve(s) feeding Multimedia Filter #4.           |
| 43 | I-01, I-08                                    | A high-high (HH) turbidity at the combined Multimedia Filter outlet, as indicated by AE/AIT-0801-00, will shut the influent feed valve FV-02.   |
| 44 | I-08, I-09                                    | A high-high differential pressure across LGAC-0901A/B, as indicated by PDIT-0901-00, will shut down the corresponding LGAC feed valve (FCV-0901-00 on P&ID I-08). Provide interlock numbers for each LGAC pair.   |
| 45 | I-10, I-15                                    | At a low liquid level in Effluent Monitoring Tank #1 or #2 (T-1001 or T-1002), as indicated by LSL/LAL-00 or LIT-00, Mixers MIX-1001A, MIX-1001B, and MIX-1001C (and the corresponding mixers in Tank #2) will shut down. Also shut down pumps PU-1001, PU-100  |
| 46 | I-01, I-10                                    | A high-high (HH) or low-low (LL) pH in Effluent Monitoring Tank #1 or #2 or the discharge line, as indicated by AE/AIC-1001-00, AE/AIC-1002-00 or AE/AIT-1001-01 will close effluent discharge valve FV-1001-00, and shut down pumps PU-1001, PU-1002, PU-1003, |
| 47 | I-10  | Coordinate signal(s) back from SCA, including HH level in the destination basin/tank, to shut off the Effluent Recycle Pump(s) (PU-1003).   |
| 48 | I-10  | Coordinate signal(s) back from SCA, including "fault" or similar at the Polymer System, to shut off the Polymer Makedown Pump (PU-1001).  |
| 49 | I-10  | Coordinate signal(s) from the existing Leachate Overflow P.S. to shut the gravity effluent FV-1001-00. And/or would the WTP get a verbal notice from that facility.   |
| 50 | I-11  | A low-low (LL) liquid level in the Backwash/Sludge Pumping Station (T-1101), as indicated by LIT-1101-00 or LSL/LALL-1101-00, will shut down Sludge Return Pumps PU-1101, PU-1102, and PU-1103.   |
| 51 | I-11  | Coordinate signal(s) from SCA, including HH level in the destination basin/tank, to shut off the Sludge Return Pumps PU-1101, PU-1102, and PU-1103.   |
| 52 | I-6, I-10, I-11, I-103, I-107                 | A high-high liquid level in the Backwash/Sludge Pumping Station (T-1101), as indicated by LIT-1101-00 or LSHH/LAHH-1101-00, will shut the Inclined Plate Clarifier Sludge Valves (1 through 16), the MMF Backwash Pump (PU-1004), and the GAC Backwash Pump (PU |
| 53 |   | Deleted   |
| 54 | I-08  | Shut GAC-0901A/B feed valve FCV-00 (on I-08) at high-high flow (as indicated by FE/FIQ/FIC-00 on I-08) to prevent inadequate contact time in GACs.  |
| 55 | I-01, I-10                                    | Shut influent feed valve FV-02 (on I-01) at a high-high liquid level in Effluent Monitoring Tank T-1001, as indicated by LIC-1001-00 or LSHH-1001-00.   |
| 56 |   | Deleted   |
| 57 | I-01, I-03                                    | At low-low (LL) liquid level in Flash Mix Tank, shut down Mixers. Also shut influent valve FV-02 on I-01.   |
| 58 | I-01, I-14, I-15                              | At a no (i.e., low-low (LL)) flow to pH Adjustment Train 1 (as indicated by FE/FIC-00 on I-01), shut off sulfuric acid pumps CF-1201 and CF-1202 and caustic feed pumps CF-1301 and CF-1302.  |
| 59 | I-01, I-14, I-15                              | At a no (i.e., low-low (LL)) flow to pH Adjustment Train 2 (as indicated by FE/FIC-01 on I-01), shut off sulfuric acid pumps CF-1203 and CF-1204 and caustic feed pumps CF-1303 and CF-1304.  |
| 60 | I-12, I-15                                    | At a low-low (LL) level in H2SO4 Storage Tank T-1301, shut down Acid Feed Pumps CF-1301 through CF-1305.  |
| 61 | I-13, I-14                                    | At a low-low (LL) level in NaOH Storage Tank T-1201, shut down NaOH Feed Pumps CF-1201 through CF-1204.   |
| 62 | I-13, I-16                                    | At a low-low (LL) level in Alum Storage Tank T-1401, shut down Alum Feed Pump CF-1401.  |
| 63 | I-14, I-15                                    | Only acid or caustic can be fed to any one tank at any time. CF-1201 cannot run at the same time as CF-1301   |
| 64 | I-14, I-15                                    | Only acid or caustic can be fed to any one tank at any time. CF-1202 cannot run at the same time as CF-1302   |
| 65 | I-14, I-15                                    | Only acid or caustic can be fed to any one tank at any time. CF-1203 cannot run at the same time as CF-1303   |
| 66 | I-14, I-15                                    | Only acid or caustic can be fed to any one tank at any time. CF-1204 cannot run at the same time as CF-1304   |

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN THE TITLE BLOCK. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

**PRELIMINARY  
NOT FOR  
CONSTRUCTION**  
DATE: 5/12/10

| NO. | DATE    | REVISION                                  | INIT. |
|-----|---------|---|-------|
| C   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW        |       |
| B   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW          |       |
| A   | 3/10/10 | DP #1 ISSUED FOR NYSDEC AND COUNTY REVIEW |       |

NOT TO SCALE



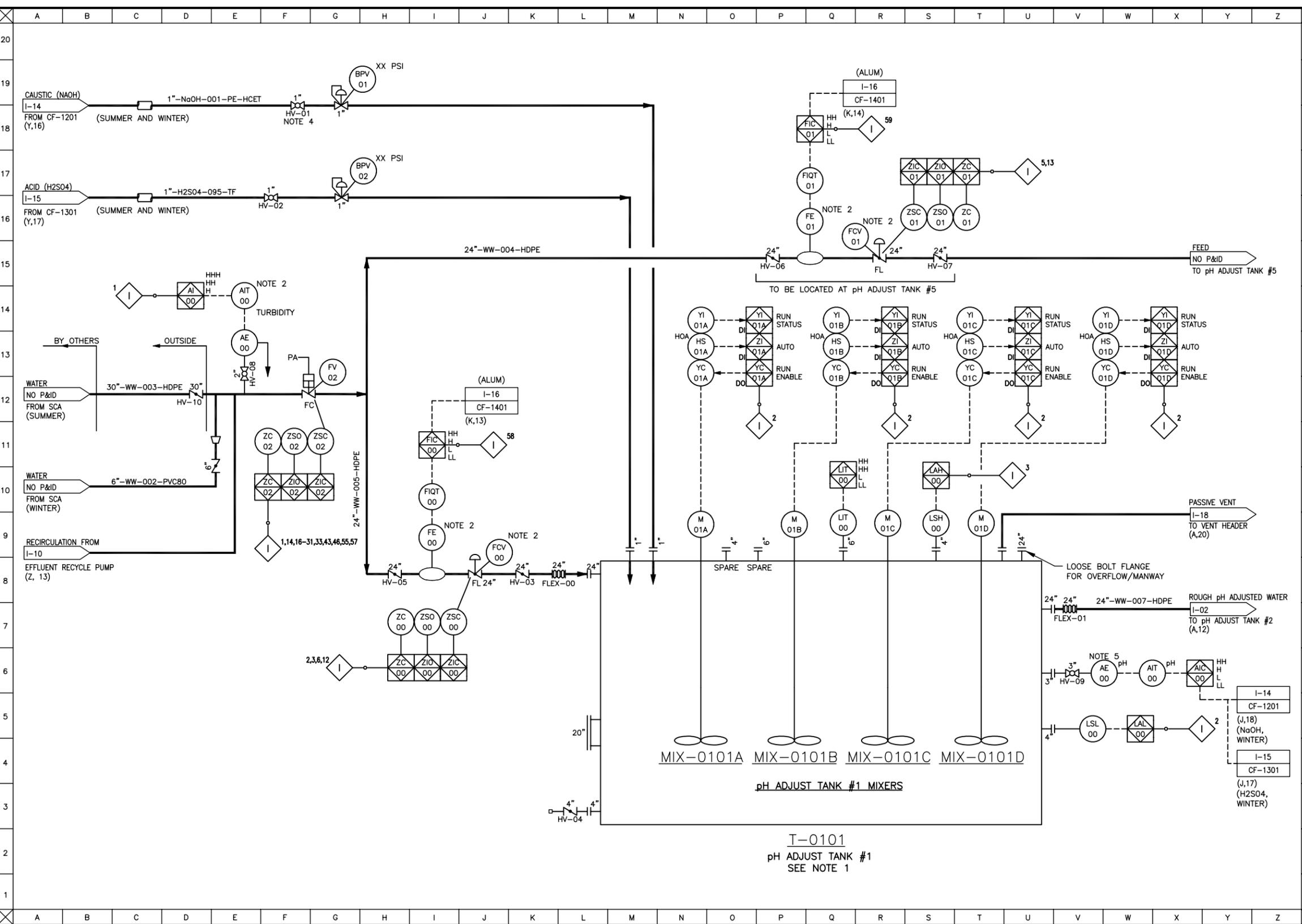
HONEYWELL INTERNATIONAL, INC.  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

MECHANICAL

INTERLOCKS

|                                |                        |     |
|--------------------------------|------------------------|-----|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-IC | I-C |
| DESIGNED BY GBE CHECKED BY PDS | DATE                   |     |
| DRAWN BY LMW                   | FEBRUARY 2010          |     |

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- NOTES:**
- REFER TO THE PROCESS FLOW DIAGRAM (PFD). THIS P&ID IS TYPICAL FOR:
    - pH ADJUSTMENT TANK #1 ( FILLED FROM SCA, DISCHARGING TO pH ADJUSTMENT TANK #2),
    - pH ADJUSTMENT TANK #3 ( FILLED FROM pH ADJUSTMENT TANK #2, DISCHARGING TO pH ADJUSTMENT TANK #4),
    - pH ADJUSTMENT TANK #5 ( FILLED FROM SCA, DISCHARGING TO pH ADJUSTMENT TANK #6),
    - pH ADJUSTMENT TANK #7 ( FILLED FROM pH ADJUSTMENT TANK #6, DISCHARGING TO pH ADJUSTMENT TANK #8).
  - FLOW METER AND FLOW CONTROL VALVES TYPICAL FOR pH ADJUST TANKS #1 AND #5 ONLY. TURBIDITY METER ON WTP INFLUENT LINE ONLY.
  - REFER TO THE PROJECT EQUIPMENT LIST FOR TANK, PUMP, MIXER, AND EQUIPMENT TAG NUMBERS OF IDENTICAL SYSTEMS.
  - LOCATE CHEMICAL FEED ISOLATION VALVES AND BPVS AT TOP OF TANK.
  - DURING DREDGE/SUMMER SEASON THIS pH DEVICE IS FOR MONITORING ONLY, NO CONTROL. DURING WINTER SEASON THIS DEVICE WILL CONTROL THE ADDITION OF H2SO4 OR NaOH.

**INTERLOCKS:**  
REFER TO SHEET I-C

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| E   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| D   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |
| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |



HONEYWELL INTERNATIONAL, INC.  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
pH ADJUSTMENT TANK #1  
P&ID

**T-0101**  
pH ADJUSTMENT TANK #1  
SIZE: APPROX. 46'L x 8.5'W x 10'H  
VOLUME: MINIMUM 18,275 GAL.  
MOC: EPOXY COATED STEEL  
DESIGN: PRE FABRICATED, TRAILER TANK W/ROOF

**MIX-0101A**  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR: 10HP / 480V / 3PH  
AGITATOR RPM: TBD  
IMPELLER: TBD

**MIX-0101B**  
pH ADJUSTMENT TANK #1 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR: 10HP / 480V / 3PH  
AGITATOR RPM: TBD  
IMPELLER: TBD

**MIX-0101C**  
pH ADJUSTMENT TANK #1 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR: 10HP / 480V / 3PH  
AGITATOR RPM: TBD  
IMPELLER: TBD

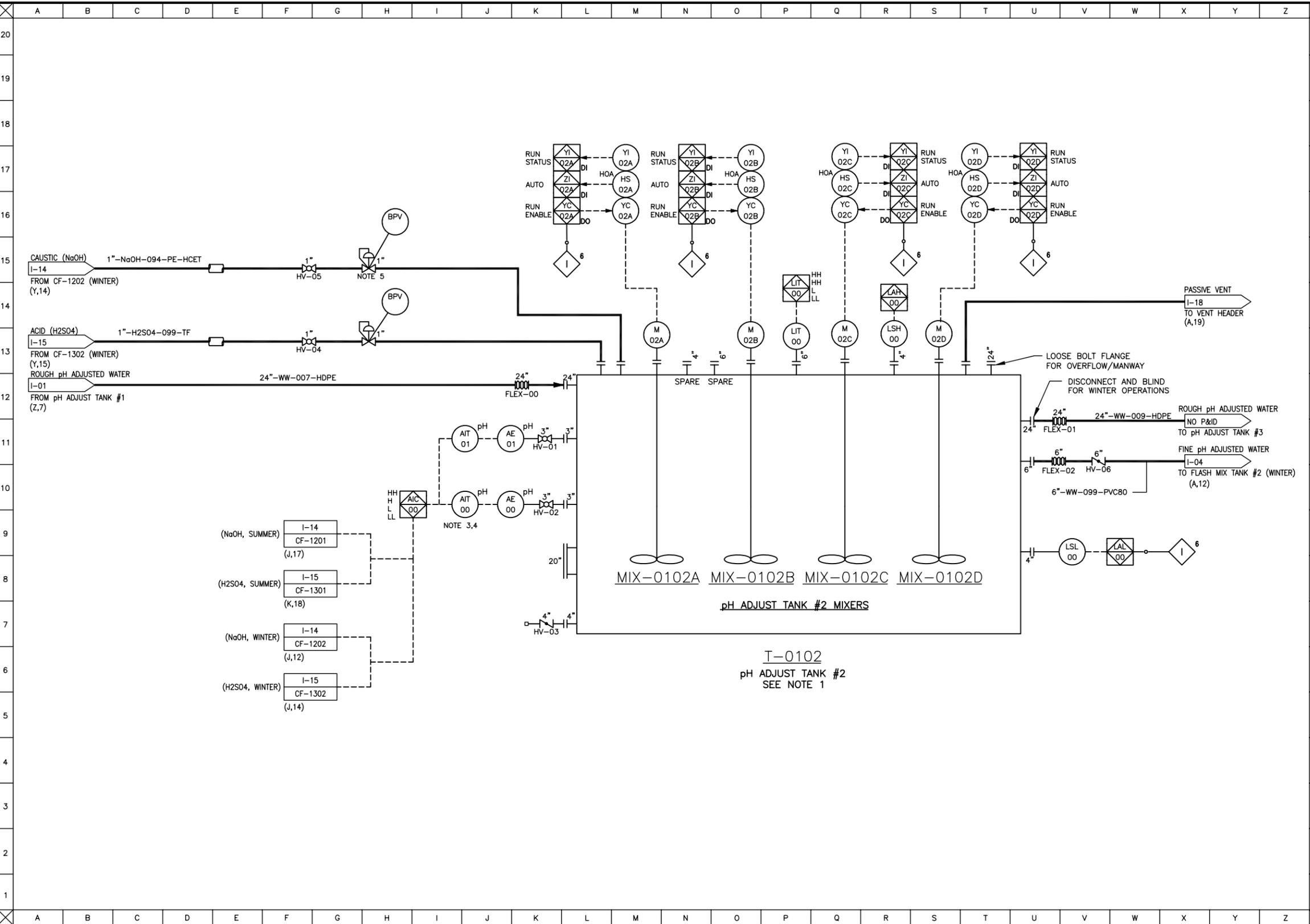
**MIX-0101D**  
pH ADJUSTMENT TANK #1 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR: 10HP / 480V / 3PH  
AGITATOR RPM: TBD  
IMPELLER: TBD

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**PRELIMINARY  
NOT FOR  
CONSTRUCTION**  
DATE: 5/12/10

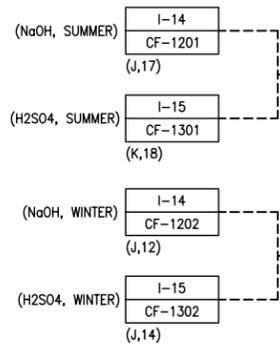
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|--------------------------------|------------------------|-------------|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-01 | <b>I-01</b> |
| DESIGNED BY GBE CHECKED BY PDS | DATE                   |             |
| DRAWN BY LMW                   | FEBRUARY 2010          |             |

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- NOTES:**
- REFER TO THE PROCESS FLOW DIAGRAM (PFD). THIS P&ID IS TYPICAL FOR:
    - pH ADJUSTMENT TANK #2 ( FILLED FROM pH ADJUSTMENT TANK #1, DISCHARGING TO pH ADJUSTMENT TANK #3),
    - pH ADJUSTMENT TANK #4 ( FILLED FROM pH ADJUSTMENT TANK #3, DISCHARGING TO FLASH MIX TANK),
    - pH ADJUSTMENT TANK #6 ( FILLED FROM pH ADJUSTMENT TANK #5, DISCHARGING TO pH ADJUSTMENT TANK #7),
    - pH ADJUSTMENT TANK #8 ( FILLED FROM pH ADJUSTMENT TANK #7, DISCHARGING TO FLASH MIX TANK).
  - REFER TO THE PROJECT EQUIPMENT LIST FOR TANK, PUMP, MIXER, AND EQUIPMENT TAG NUMBERS OF IDENTICAL SYSTEMS.
  - pH ADJUSTMENT TANKS #2, #4 AND #8 TO HAVE REDUNDANT pH PROBES (I.E., 2 PER TANK). OPERATOR TO SELECT THE DEVICE CONTROLLING THE CHEMICAL FEED PUMPS. PROVIDE DEVIATION ALARMS COMPARING THE READINGS OF THE REDUNDANT DEVICES.
  - DURING THE DREDGE/SUMMER SEASON THIS pH DEVICE WILL CONTROL THE ADDITION OF H2SO4 OR NaOH TO pH ADJUST TANK #1. DURING WINTER THIS pH DEVICE WILL CONTROL THE ADDITION OF H2SO4 OR NaOH TO pH ADJUST TANK #2.
  - LOCATE CHEMICAL FEED ISOLATION VALVES AND BPVS AT THE TOP OF TANK.

**INTERLOCKS:**  
REFER TO SHEET I-C



**T-0102**  
pH ADJUSTMENT TANK #2  
SIZE: APPROX. 46'L x 8.5'W x 10'H  
VOLUME: MINIMUM 18,275 GAL  
MOC: EPOXY COATED STEEL  
DESIGN: PRE FABRICATED, TRAILER TANK W/ROOF

**MIX-0102A**  
pH ADJUSTMENT TANK #2 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR: 10HP / 480V / 3PH  
AGITATOR RPM: TBD  
IMPELLER: TBD

**MIX-0102B**  
pH ADJUSTMENT TANK #2 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR: 10HP / 480V / 3PH  
AGITATOR RPM: TBD  
IMPELLER: TBD

**MIX-0102C**  
pH ADJUSTMENT TANK #2 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR: 10HP / 480V / 3PH  
AGITATOR RPM: TBD  
IMPELLER: TBD

**MIX-0102D**  
pH ADJUSTMENT TANK #2 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR: 10HP / 480V / 3PH  
AGITATOR RPM: TBD  
IMPELLER: TBD

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**PRELIMINARY NOT FOR CONSTRUCTION**  
DATE: 5/12/10

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| E   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| D   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |
| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |

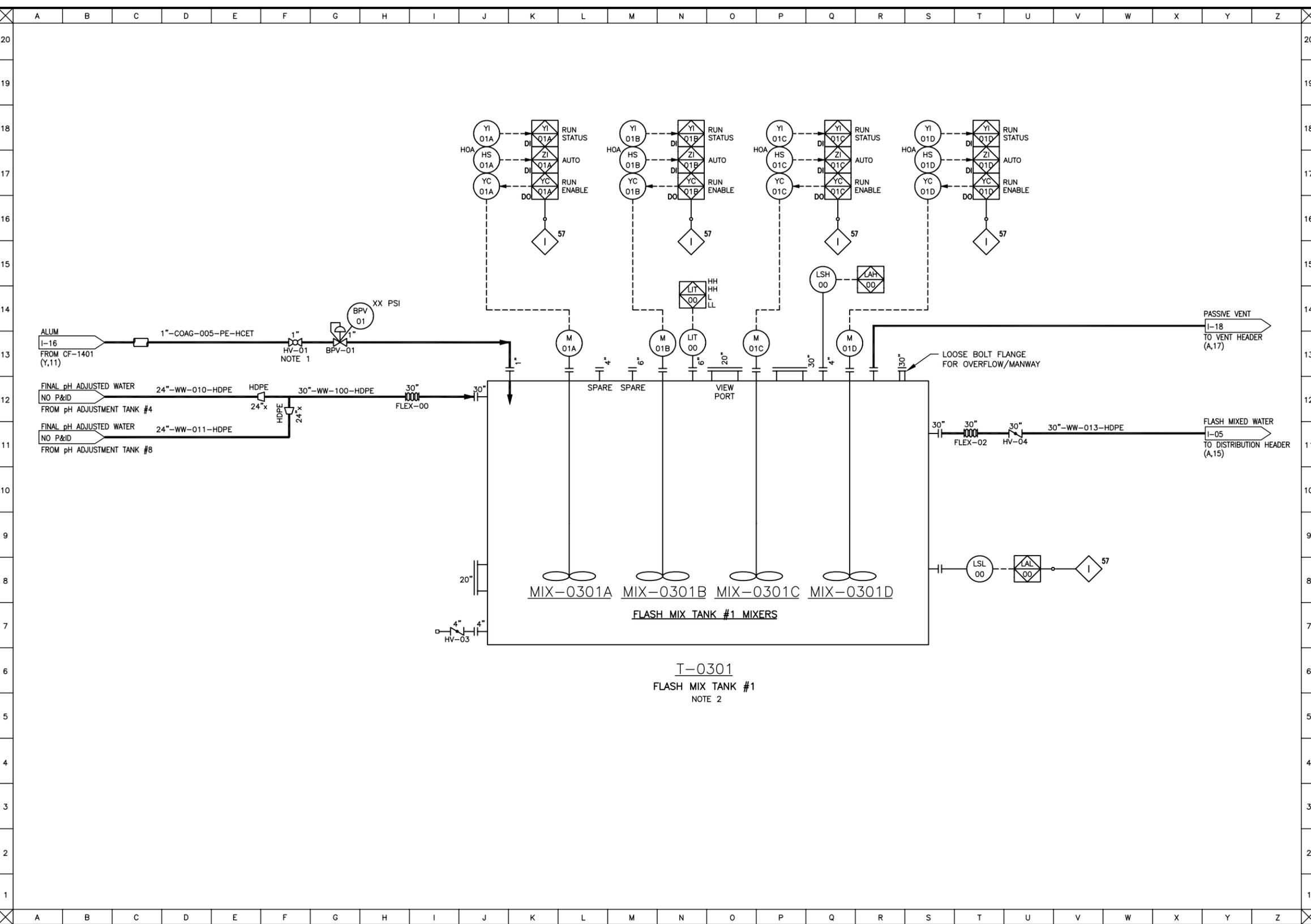


HONEYWELL INTERNATIONAL, INC.  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
pH ADJUSTMENT TANK #2  
P&ID

|                                |                         |      |
|--------------------------------|-------------------------|------|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-102 | I-02 |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |      |
| DRAWN BY LMW                   | FEBRUARY 2010           |      |

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- NOTES:**
1. LOCATE CHEMICAL FEED ISOLATION VALVE AND BPV AT TOP OF TANK.
  2. THIS TANK TO BE DRAINED AND NOT USED DURING WINTER OPERATIONS.

**INTERLOCKS:**  
REFER TO SHEET I-C

T-0301  
FLASH MIX TANK #1  
NOTE 2

**T-0301**  
FLASH MIX TANK #1  
SIZE: APPROX. 46'L x 8.5'W x 10'H  
VOLUME: MINIMUM 18,275 GAL  
MOC: EPOXY COATED STEEL  
DESIGN: PRE FABRICATED, TRAILER TANK W/ROOF

**MIX-0301A**  
FLASH MIX TANK #1 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR: 10HP / 480V / 3PH  
AGITATOR RPM: TBD  
IMPELLER: TBD

**MIX-0301B**  
FLASH MIX TANK #1 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR: 10HP / 480V / 3PH  
AGITATOR RPM: TBD  
IMPELLER: TBD

**MIX-0301C**  
FLASH MIX TANK #1 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR: 10HP / 480V / 3PH  
AGITATOR RPM: TBD  
IMPELLER: TBD

**MIX-0301D**  
FLASH MIX TANK #1 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR: 10HP / 480V / 3PH  
AGITATOR RPM: TBD  
IMPELLER: TBD

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**PRELIMINARY  
NOT FOR  
CONSTRUCTION**  
DATE: 5/12/10

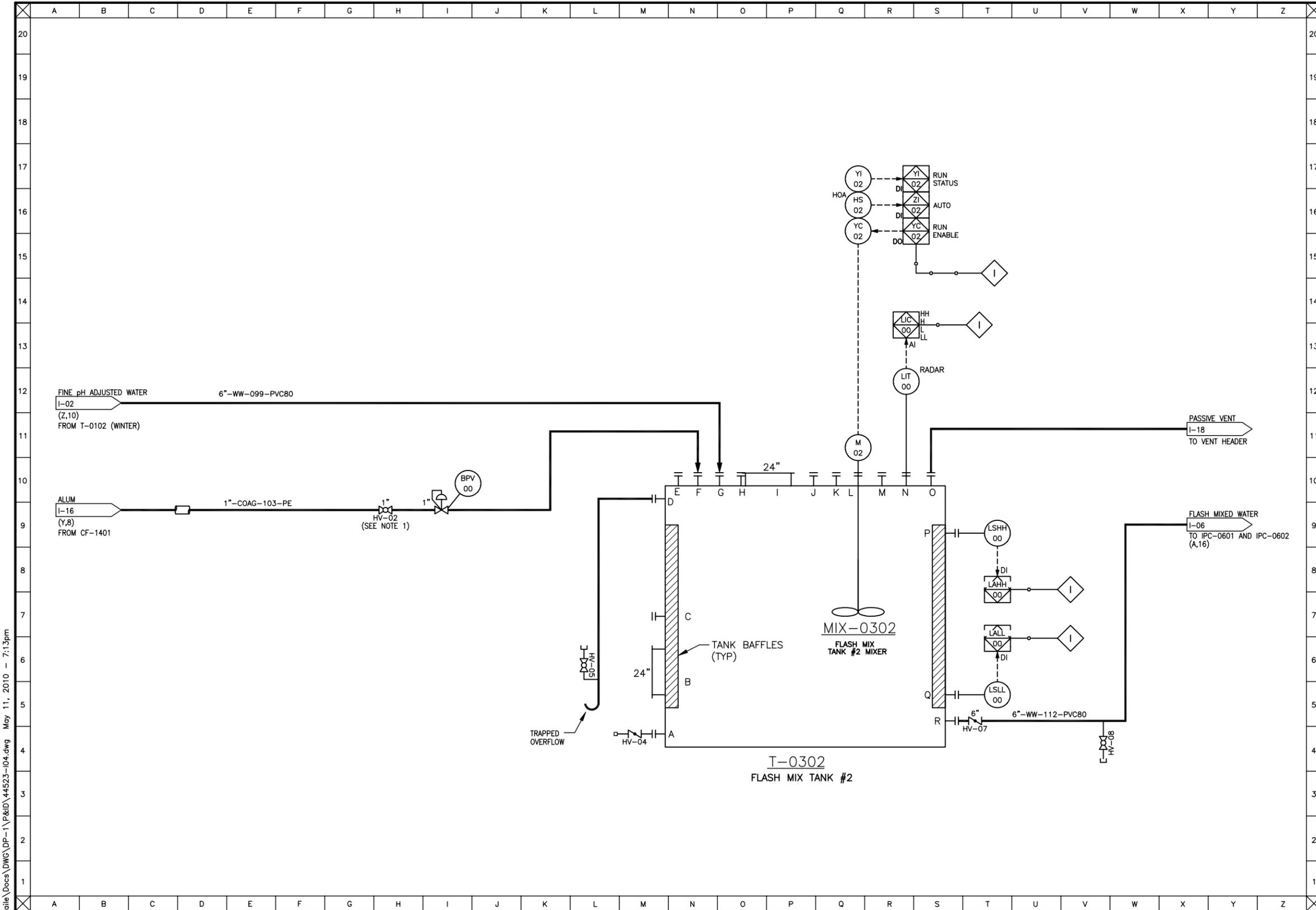
| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| E   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| D   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |
| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |



HONEYWELL INTERNATIONAL, INC.  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
FLASH MIX TANK #1  
P&ID

|                                |                         |      |
|--------------------------------|-------------------------|------|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-103 | I-03 |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |      |
| DRAWN BY LMW                   | FEBRUARY 2010           |      |



- NOTES:**
1. LOCATE CHEMICAL FEED ISOLATION VALVES AND BPV AT TOP OF TANK.
  2. THIS TANK TO BE DRAINED AND NOT USED DURING SUMMER/DREDGE OPERATIONS.

**INTERLOCKS:**

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| E   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| D   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |
| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |



HONEYWELL INTERNATIONAL, INC.  
 DP #2  
 WATER TREATMENT PLANT  
 TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
 FLASH MIX TANK #2  
 P&ID

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**PRELIMINARY NOT FOR CONSTRUCTION**  
 DATE: 5/12/10

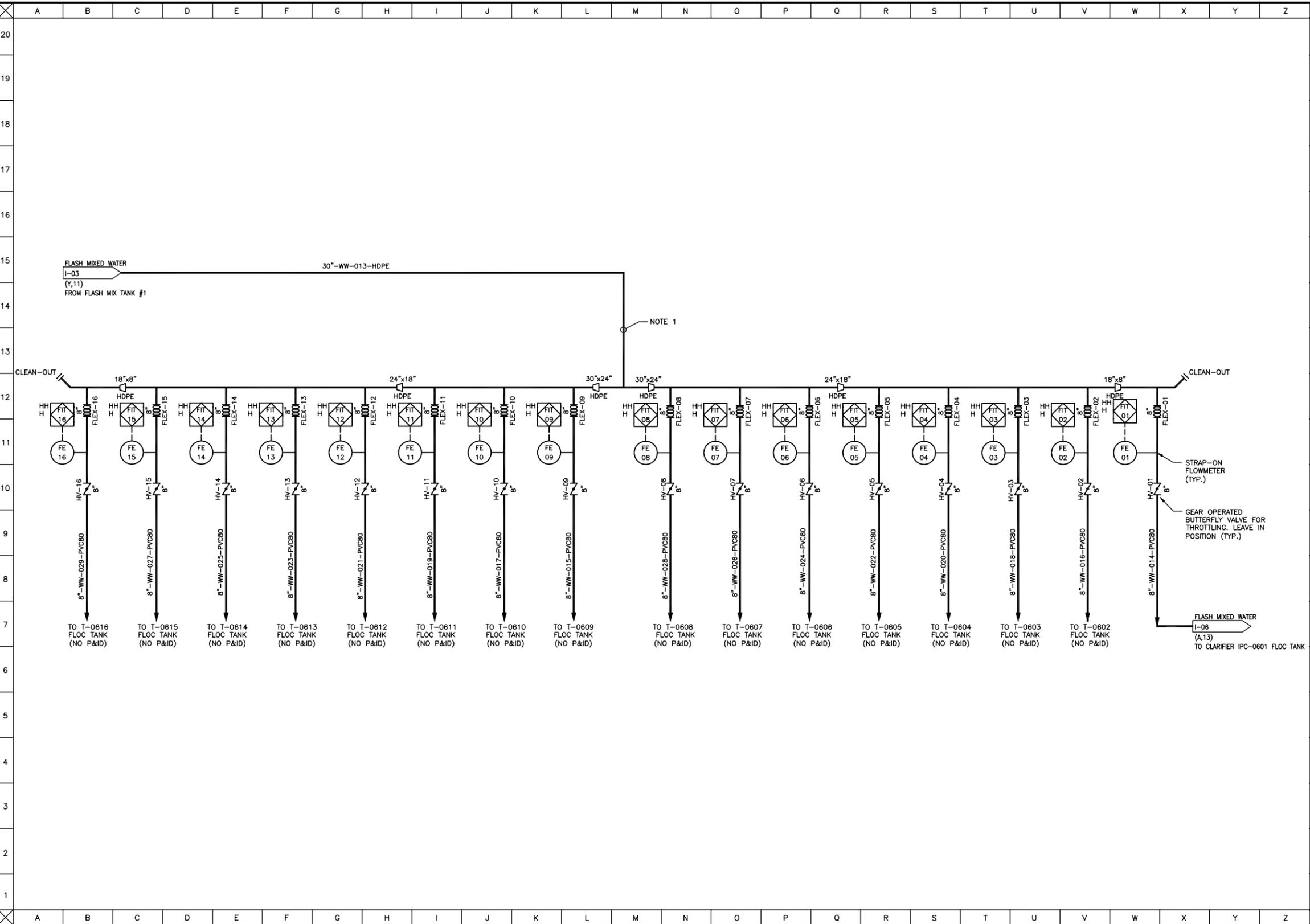
**T-0302**  
 FLASH MIX TANK #2  
 SIZE: TBD  
 VOLUME: APPROXIMATELY 4,000 GALLONS  
 MOC: FRP  
 DESIGN: ATMOSPHERIC  
 TYPE: VERTICAL CYLINDRICAL

**MIX-0302**  
 FLASH MIX TANK #2 MIXER  
 TYPE: TOP ENTRY  
 MOC: 316SS  
 MOTOR HP: 480V / 3HP  
 AGITATOR RPM: TBD  
 IMPELLER: TBD

|                                |                         |      |
|--------------------------------|-------------------------|------|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-104 | I-04 |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |      |
| DRAWN BY LMW                   | FEBRUARY 2010           |      |

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**NOTES:**  
 1. THIS HEADER SYSTEM TO BE DRAINED AND NOT USED DURING WINTER OPERATIONS.

**INTERLOCKS:**  
 REFER TO SHEET I-C

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 DATE: 5/12/10

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| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |

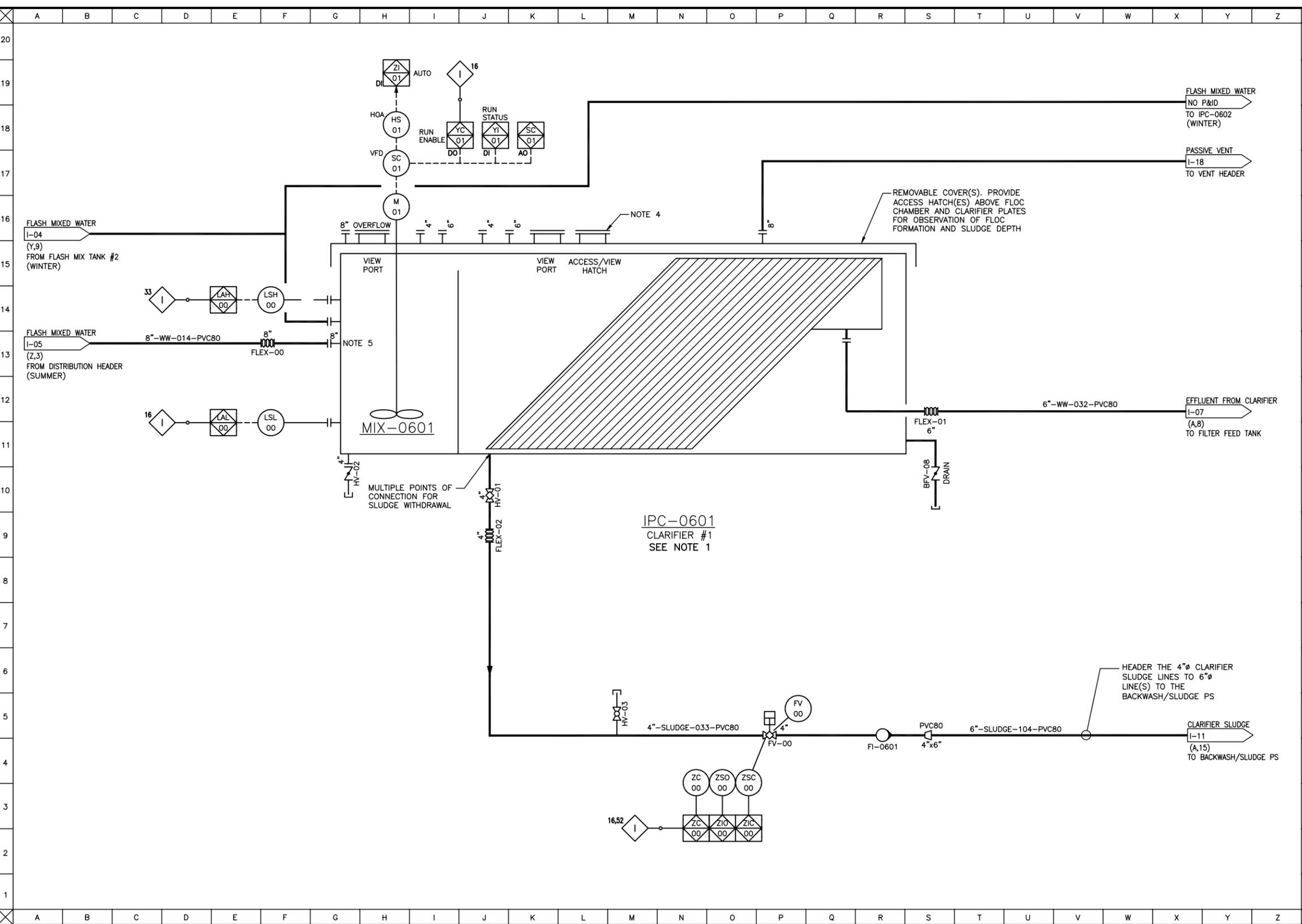


HONEYWELL INTERNATIONAL, INC.  
 DP #2  
 WATER TREATMENT PLANT  
 TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
 DISTRIBUTION HEADER  
 P&ID

|                                |                         |      |
|--------------------------------|-------------------------|------|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-105 | I-05 |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |      |
| DRAWN BY LMW                   | FEBRUARY 2010           |      |

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**MIX-0601**  
 CLARIFIER #1 FLOCCULATION MIXER  
 TYPE: TOP ENTRY  
 MOC: 316SS  
 MOTOR: TBD / VAR. SPEED  
 AGITATOR RPM: TBD  
 IMPELLER: TBD

**IPC-0601**  
 CLARIFIER #1  
 SIZE: 40'L x 8'6"W x 11'2"H TANK  
 MOC: EPOXY LINED STEEL WITH FRP PLATES  
 ACCESSORIES: TBD  
 DESIGN FLOW (SUMMER): 370 GPM AVERAGE  
 DESIGN FLOW (WINTER): 250 GPM AVERAGE

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**PRELIMINARY  
 NOT FOR  
 CONSTRUCTION**  
 DATE: 5/12/10

- NOTES:**
- REFER TO THE PROCESS FLOW DIAGRAM (PFD). THIS P&ID IS TYPICAL FOR 16 CLARIFIER SYSTEMS.
  - VENDOR SUPPLIED CLARIFIER SYSTEM TO BE INSTALLED PER VENDORS APPROVED SHOP DRAWINGS AND INSTRUCTIONS.
  - REFER TO THE PROJECT EQUIPMENT LIST FOR TANK, PUMP, MIXER, AND EQUIPMENT TAG NUMBERS OF IDENTICAL SYSTEMS.
  - PROVIDE MEANS FOR LNAPL REMOVAL (FLOATING BOOMS OR EQUIVALENT).
  - DISCONNECT AND INSTALL BLIND AS REQUIRED FOR WINTER OPERATION.
  - IPC-0601 AND IPC-0602 TO BE IN HEATED PORTION OF BUILDING FOR SUMMER AND WINTER OPERATION.

**INTERLOCKS:**  
 REFER TO SHEET I-C

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| E   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| D   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |
| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |

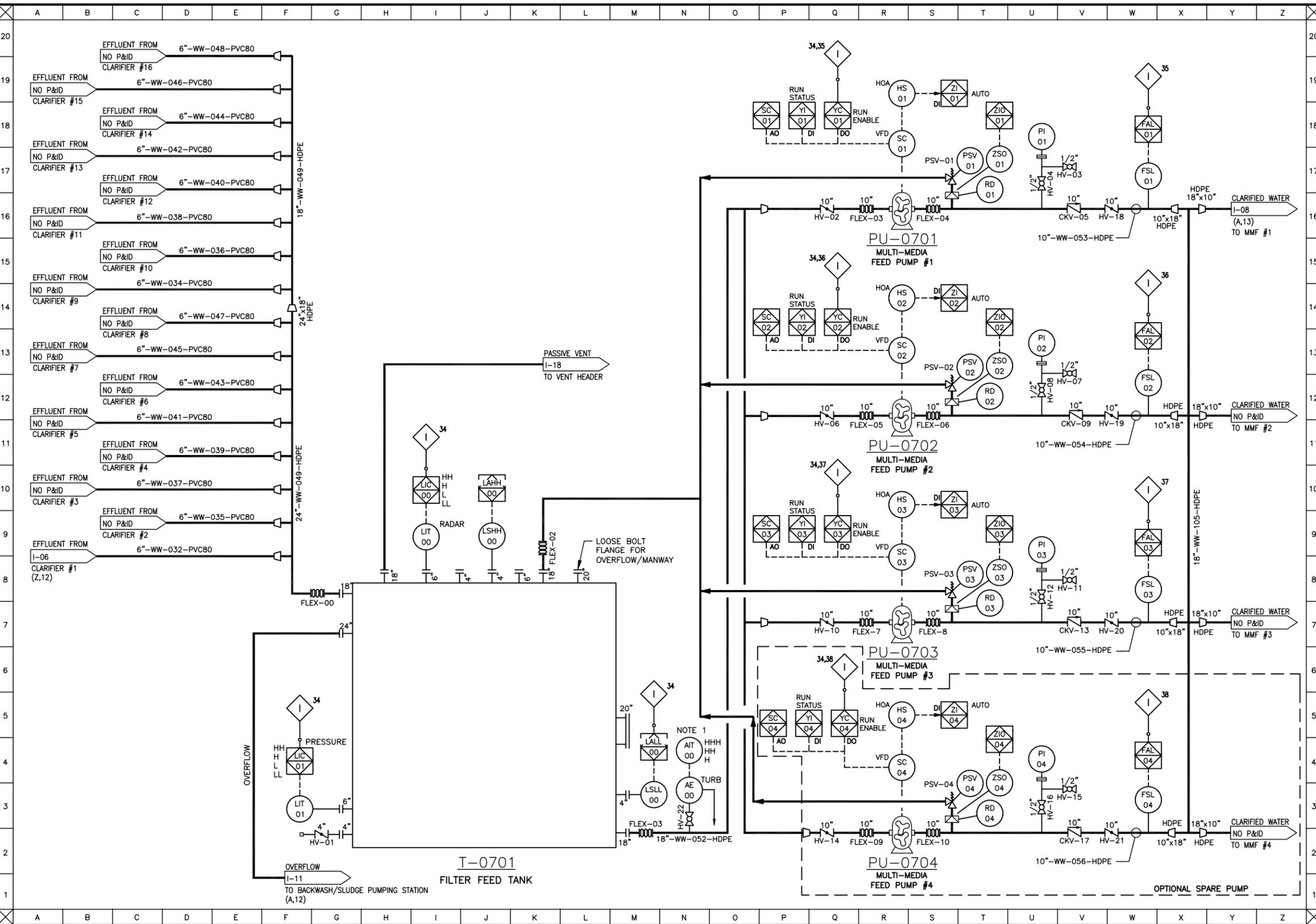


**HONEYWELL INTERNATIONAL, INC.**  
 DP #2  
 WATER TREATMENT PLANT  
 TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
**INCLINED PLATE CLARIFIER  
 P&ID**

|                                |                         |             |
|--------------------------------|-------------------------|-------------|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-106 | <b>I-06</b> |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |             |
| DRAWN BY LMW                   | FEBRUARY 2010           |             |

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- NOTES:**
- PROVIDE SAMPLING TUBING AND MANUAL VALVES TO ASSESS PERFORMANCE OF INDIVIDUAL CLARIFIERS.
  - FILTER FEED TANK AND PUMPS TO BE IN HEATED PORTION OF BUILDING FOR SUMMER AND WINTER OPERATION.

**INTERLOCKS:**  
REFER TO SHEET I-C

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
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| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |



**HONEYWELL INTERNATIONAL, INC.**  
**DP #2**  
**WATER TREATMENT PLANT**  
**TOWN OF CAMILLUS, NEW YORK**

PROCESS AND INSTRUMENTATION  
**FILTER FEED TANK**  
**P&ID**

**T-0701**  
FILTER FEED TANK  
SIZE: 46'L x 8.5'W x 10'H  
VOLUME: MINIMUM 18,275 GAL.  
MOC: EPOXY COATED STEEL  
DESIGN: PRE FABRICATED, TRAILER TANK W/ROOF

**PU-0701**  
MULTIMEDIA FEED PUMP  
TYPE: PROGRESSING CAVITY  
CAPACITY: 1655 GPM  
HP: APPROX. 150  
MOC: CI, ALLOY STEEL

**PU-0702**  
MULTIMEDIA FEED PUMP  
TYPE: PROGRESSING CAVITY  
CAPACITY: 1655 GPM  
HP: APPROX. 150  
MOC: CI, ALLOY STEEL

**PU-0703**  
MULTIMEDIA FEED PUMP  
TYPE: PROGRESSING CAVITY  
CAPACITY: 1655 GPM  
HP: APPROX. 150  
MOC: CI, ALLOY STEEL

**PU-0704**  
MULTIMEDIA FEED PUMP  
TYPE: PROGRESSING CAVITY  
CAPACITY: 1655 GPM  
HP: APPROX. 150  
MOC: CI, ALLOY STEEL  
OPTIONAL SPARE PUMP

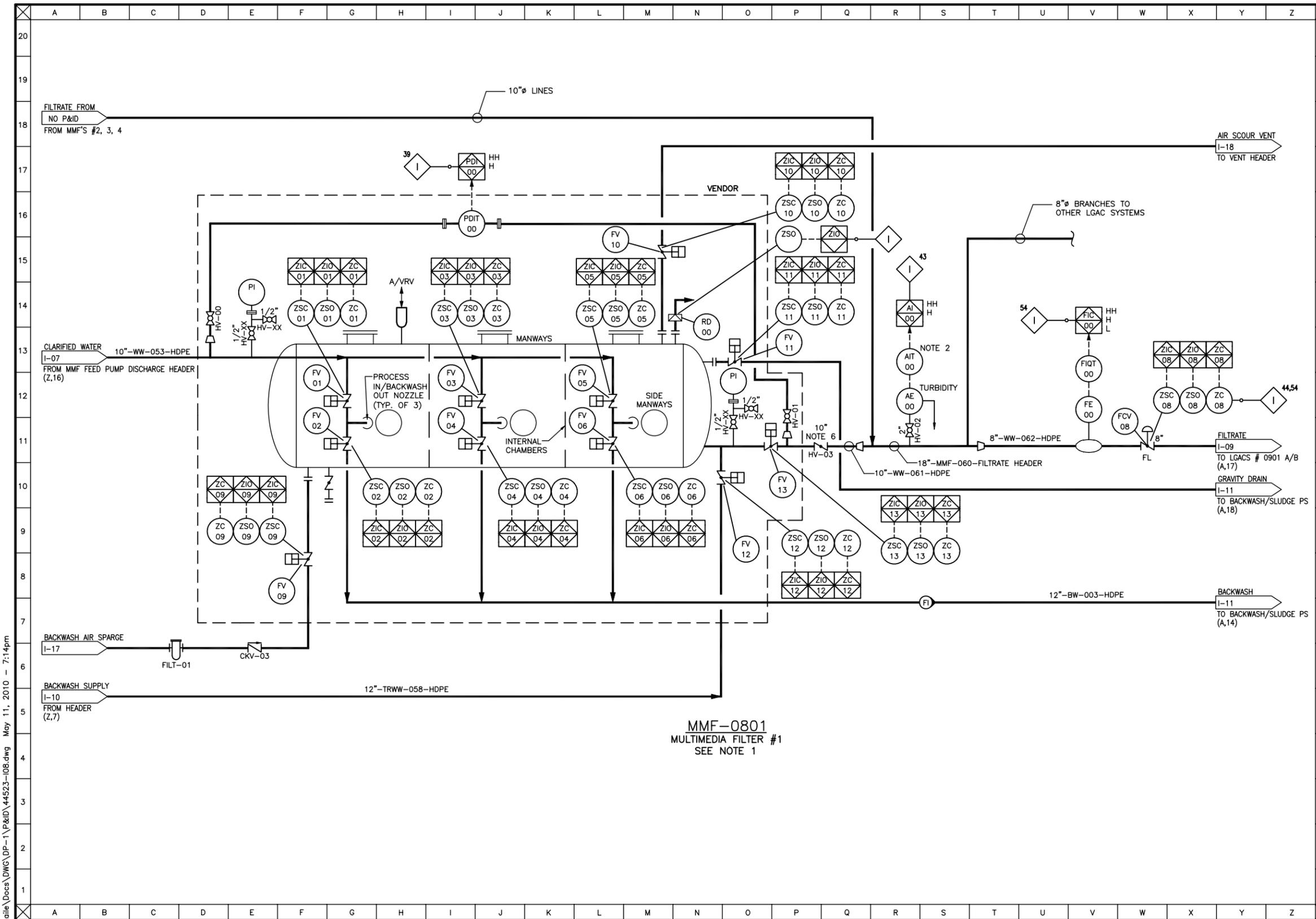
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**PRELIMINARY**  
**NOT FOR**  
**CONSTRUCTION**

DATE: 5/12/10

|              |     |            |                |
|--------------|-----|------------|----------------|
| IN CHARGE OF | JSR | FILE NO.   | 1163.45613-107 |
| DESIGNED BY  | GBE | CHECKED BY | PDS            |
| DRAWN BY     | LMW | DATE       | FEBRUARY 2010  |

**I-07**



**MMF-0801**  
MULTIMEDIA FILTER #1  
SEE NOTE 1

**MMF-0801**  
MULTIMEDIA FILTER  
QTY: 1  
SIZE: APPROX. 36'L x 10' DIA. x 11'4"H  
MOC: COATED CARBON STEEL  
TYPE: HORIZONTAL, MULTIPLE CHAMBERS  
DESIGN FLOW (SUMMER): 1715 GPM  
DESIGN FLOW (WINTER): 500 GPM  
BACKWASH: 1715 GPM (ONE CHAMBER)

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

**PRELIMINARY  
NOT FOR  
CONSTRUCTION**  
DATE: 5/12/10

**NOTES:**

- REFER TO THE PROCESS FLOW DIAGRAM (PFD). THIS P&ID IS TYPICAL FOR FOUR MULTIMEDIA FILTER SYSTEMS.
- ONE TURBIDITY METER ON THE MMF EFFLUENT HEADER TO THE LGAC'S. PROVIDE SAMPLING TUBING AND MANUAL VALVES TO ASSESS PERFORMANCE OF INDIVIDUAL CLARIFIERS.
- VENDOR SUPPLIED MULTIMEDIA FILTER SYSTEM TO BE INSTALLED PER VENDOR'S APPROVAL SHOP DRAWINGS AND INSTRUCTIONS.
- REFER TO THE PROJECT EQUIPMENT LIST FOR TANK, PUMP, MIXER, AND EQUIPMENT TAG NUMBERS OF IDENTICAL SYSTEMS.
- FLEXIBLE CONNECTORS TO BE PROVIDED AT CONNECTIONS TO EQUIPMENT AND AT MANIFOLD PIPING WHERE REQUIRED.
- INSTALL PORTABLE STRAP-ON FLOW METERS AT DISCHARGE FROM EACH MMF. MODULATE THE INDIVIDUAL MANUAL GEAR OPERATED BUTTERFLY VALVES AND LEAVE AT MAXIMUM ALLOWABLE FLOW WITH CLEAN BEDS.
- MMF-0801 TO BE IN HEATED PORTION OF BUILDING FOR SUMMER AND WINTER OPERATION.

**INTERLOCKS:**

REFER TO SHEET I-C

| E   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
|-----|---------|------------------------------------|-------|
| D   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |
| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |
| NO. | DATE    | REVISION                           | INIT. |



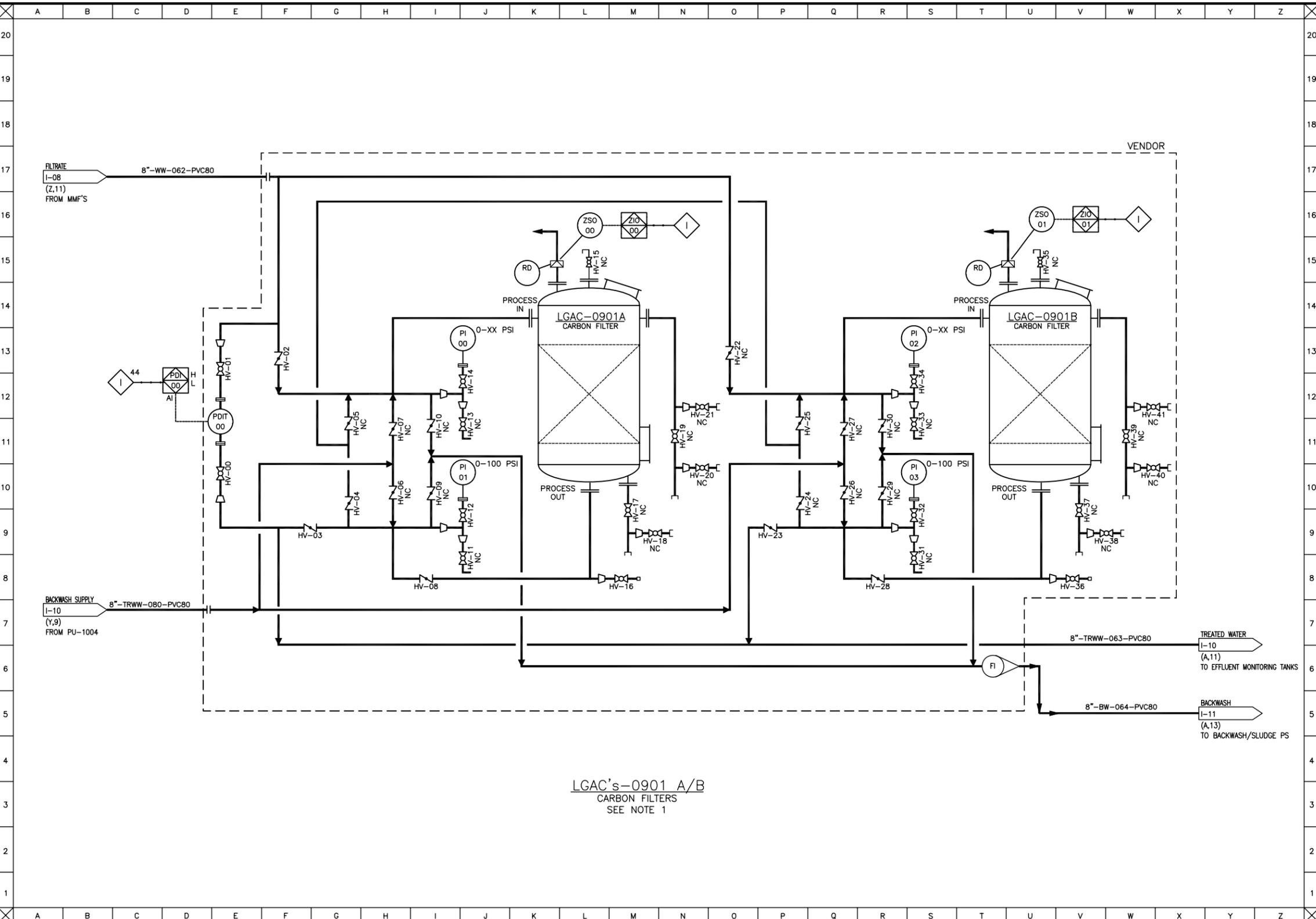
**HONEYWELL INTERNATIONAL, INC.**  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
MULTIMEDIA FILTER  
P&ID

|                                |                         |             |
|--------------------------------|-------------------------|-------------|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-I08 | <b>I-08</b> |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |             |
| DRAWN BY LMW                   | FEBRUARY 2010           |             |

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LGAC's-0901 A/B  
CARBON FILTERS  
SEE NOTE 1

**LGAC-0901A, 0901B**  
CARBON FILTERS  
DESIGN FLOW (SUMMER): APPROX. 640 GPM AVERAGE  
DESIGN FLOW (WINTER): 500 GPM AVERAGE  
BACKWASH FLOW: APPROX. 1700 GPM  
P/T RATING: 125 PSI @ 150 DEG. F  
VESSEL DIMENSIONS: 12' DIA. x 15'4"H  
MOC: LINED STEEL  
MASS OF CARBON: 20,000 LBS PER VESSEL

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**PRELIMINARY  
NOT FOR  
CONSTRUCTION**  
DATE: 5/12/10

- NOTES:**
- REFER TO THE PROCESS FLOW DIAGRAM (PFD). THIS P&ID IS TYPICAL FOR EIGHT LGAC PAIRS.
  - NORMAL VALVE POSITIONS ARE SHOWN ASSUMING LGAC-0901A IS THE LEAD VESSEL.
  - VENDOR SUPPLIED GAC SYSTEM TO BE INSTALLED PER VENDOR'S APPROVED SHOP DRAWINGS AND INSTRUCTIONS.
  - ONE LGAC PAIR (LGAC-0901 A/B) WILL BE LOCATED IN HEATED PORTION OF BUILDING FOR SUMMER (DREDGE SEASON) AND WINTER OPERATIONS.
  - REFER TO THE PROJECT EQUIPMENT LIST FOR TANK, PUMP, MIXER, AND EQUIPMENT TAG NUMBERS OF IDENTICAL SYSTEMS.
  - FLEXIBLE CONNECTORS TO BE PROVIDED AT CONNECTIONS TO EQUIPMENT AND AT MANIFOLD PIPING WHERE REQUIRED.

**INTERLOCKS:**  
REFER TO SHEET I-C

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| F   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| E   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |
| D   | 3/25/10 | DP #1 FOR GAC BIDDING              |       |
| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |



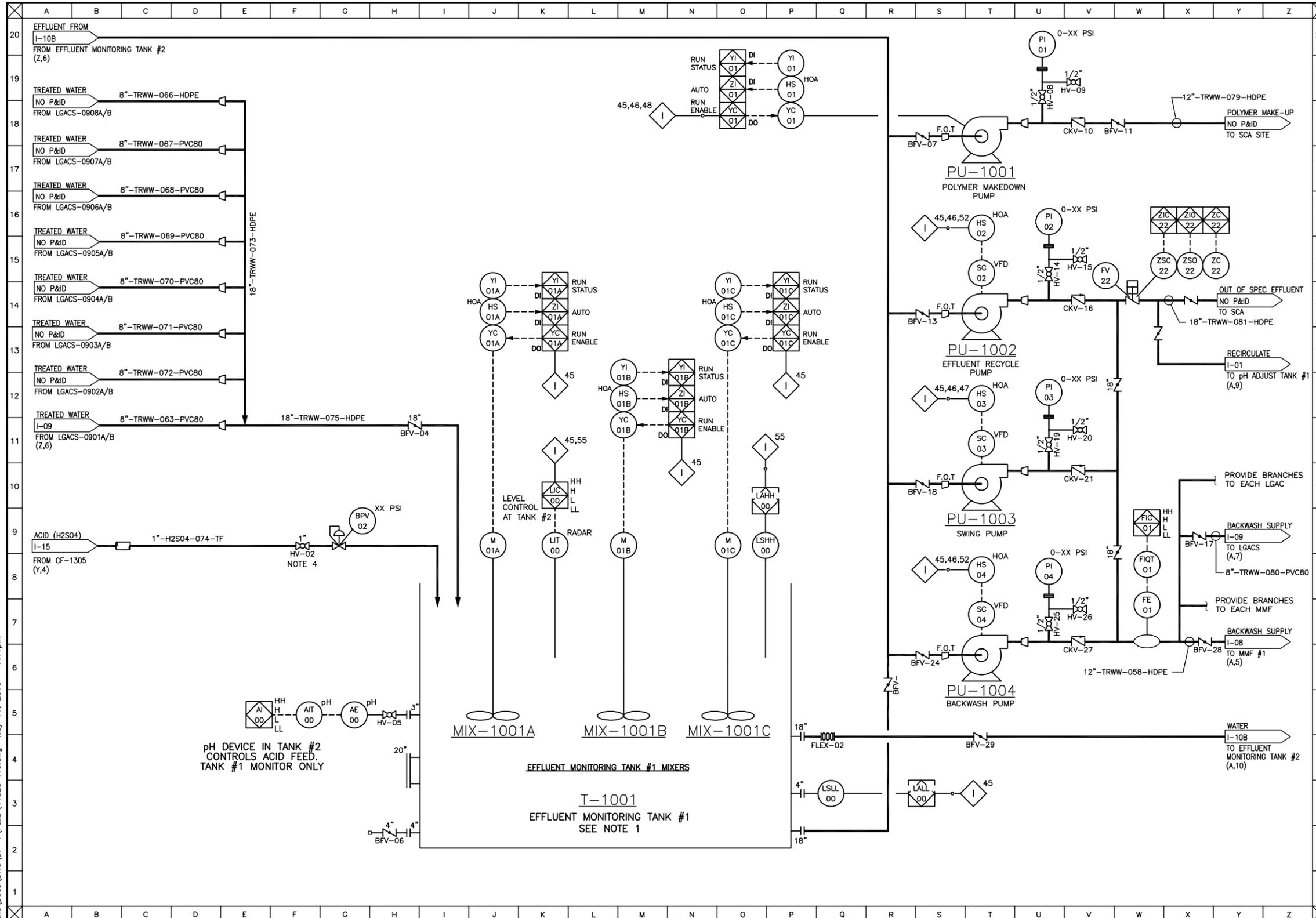
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HONEYWELL INTERNATIONAL, INC.  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
CARBON FILTERS  
P&ID

|                                |                         |             |
|--------------------------------|-------------------------|-------------|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-109 | <b>I-09</b> |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |             |
| DRAWN BY LMW                   | FEBRUARY 2010           |             |

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- NOTES:**
- REFER TO THE PROCESS FLOW DIAGRAM (PFD). THIS P&ID IS TYPICAL FOR TWO EFFLUENT MONITORING TANKS. HOWEVER, PUMPS PU-1001 THROUGH PU-1004 ARE SHARED BY THE PAIR OF TANKS.
  - REFER TO THE PROJECT EQUIPMENT LIST FOR TANK, PUMP, MIXER, AND EQUIPMENT TAG NUMBERS OF IDENTICAL SYSTEMS.
  - EFFLUENT MONITORING TANKS AND ASSOCIATED PUMPS TO BE IN HEATED PORTION OF BUILDING FOR SUMMER AND WINTER OPERATION.
  - LOCATE CHEMICAL FEED ISOLATION VALVE AND BPV ON TOP OF TANK.

**INTERLOCKS:**  
REFER TO SHEET I-C

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| E   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| D   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |
| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |



HONEYWELL INTERNATIONAL, INC.  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
EFFLUENT MONITORING TANK #1  
P&ID

- T-1001**  
EFFLUENT MONITORING TANK #1  
SIZE: APPROX. 46'L x 8.5'W x 10'H  
VOLUME: MINIMUM 18,275 GAL  
MOC: COATED STEEL  
DESIGN: PRE FABRICATED, OPEN TOP TRAILER TANK
- MIX-1001A**  
EFFLUENT MONITORING TANK #1 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR HP: 10 HP  
AGITATOR RPM: TBD  
IMPELLER: TBD
- MIX-1001B**  
EFFLUENT MONITORING TANK #1 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR HP: 10 HP  
AGITATOR RPM: TBD  
IMPELLER: TBD
- MIX-1001C**  
EFFLUENT MONITORING TANK #1 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR HP: 10 HP  
AGITATOR RPM: TBD  
IMPELLER: TBD
- PU-1001**  
POLYMER MAKEDOWN PUMP  
TYPE: HORZ. CENTRIFUGAL  
CAPACITY: 600 GPM  
HP: 20  
MOC: 316SS
- PU-1002**  
EFFLUENT RECYCLE PUMP  
TYPE: HORZ. CENTRIFUGAL  
CAPACITY: 2500 GPM  
HP: 75  
MOC: 316SS
- PU-1003**  
SWING PUMP  
TYPE: HORZ. CENTRIFUGAL  
CAPACITY: 2500 GPM  
HP: 75  
MOC: 316SS
- PU-1004**  
BACKWASH PUMP  
TYPE: HORZ. CENTRIFUGAL  
CAPACITY: 1700 GPM  
HP: 75  
MOC: 316SS

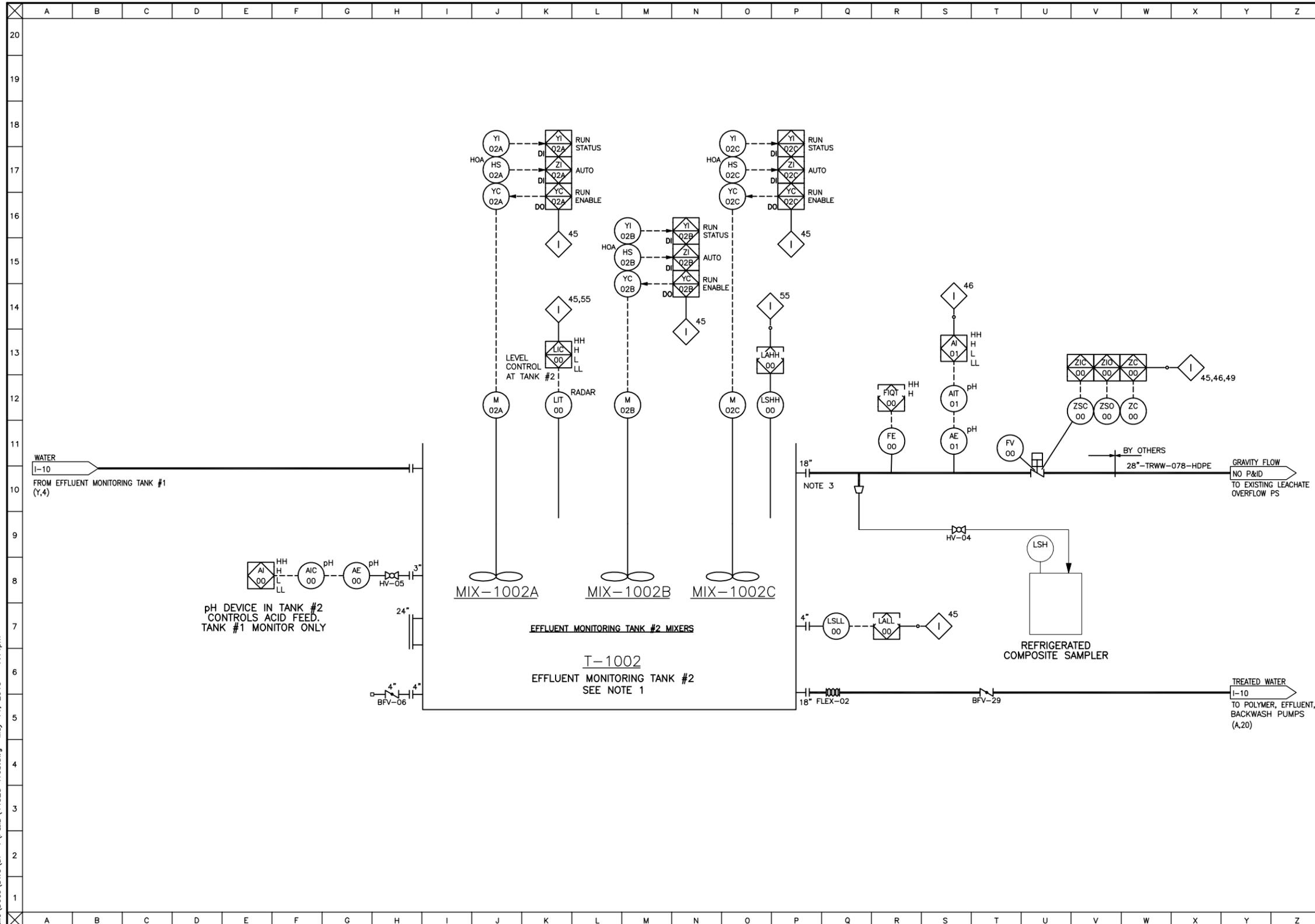
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**PRELIMINARY  
NOT FOR  
CONSTRUCTION**

DATE: 5/12/10

|                                |                         |      |
|--------------------------------|-------------------------|------|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-110 | I-10 |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |      |
| DRAWN BY LMW                   | FEBRUARY 2010           |      |

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- NOTES:**
- REFER TO THE PROCESS FLOW DIAGRAM (PFD).
  - REFER TO THE PROJECT EQUIPMENT LIST FOR TANK, PUMP, MIXER, AND EQUIPMENT TAG NUMBERS OF IDENTICAL SYSTEMS.
  - DISCHARGE FROM HIGH ON EFFLUENT MONITORING TANK #2 SIDEWALL.

**INTERLOCKS:**  
REFER TO SHEET I-C

**T-1002**  
EFFLUENT MONITORING TANK #2  
SIZE: APPROX. 46'L x 8.5'W x 10'H  
VOLUME: MINIMUM 18,275 GAL  
MOC: COATED STEEL  
DESIGN: PRE FABRICATED, OPEN TOP TRAILER TANK

**MIX-1002A**  
EFFLUENT MONITORING TANK #2 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR HP: 10 HP  
AGITATOR RPM: TBD  
IMPELLER: TBD

**MIX-1002B**  
EFFLUENT MONITORING TANK #2 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR HP: 10 HP  
AGITATOR RPM: TBD  
IMPELLER: TBD

**MIX-1002C**  
EFFLUENT MONITORING TANK #2 MIXER  
TYPE: TOP ENTRY  
MOC: 316SS  
MOTOR HP: 10 HP  
AGITATOR RPM: TBD  
IMPELLER: TBD

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**PRELIMINARY  
NOT FOR  
CONSTRUCTION**  
DATE: 5/12/10

|     |         |                                    |       |
|-----|---------|------------------------------------|-------|
| NO. | DATE    | REVISION                           | INIT. |
| A   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |

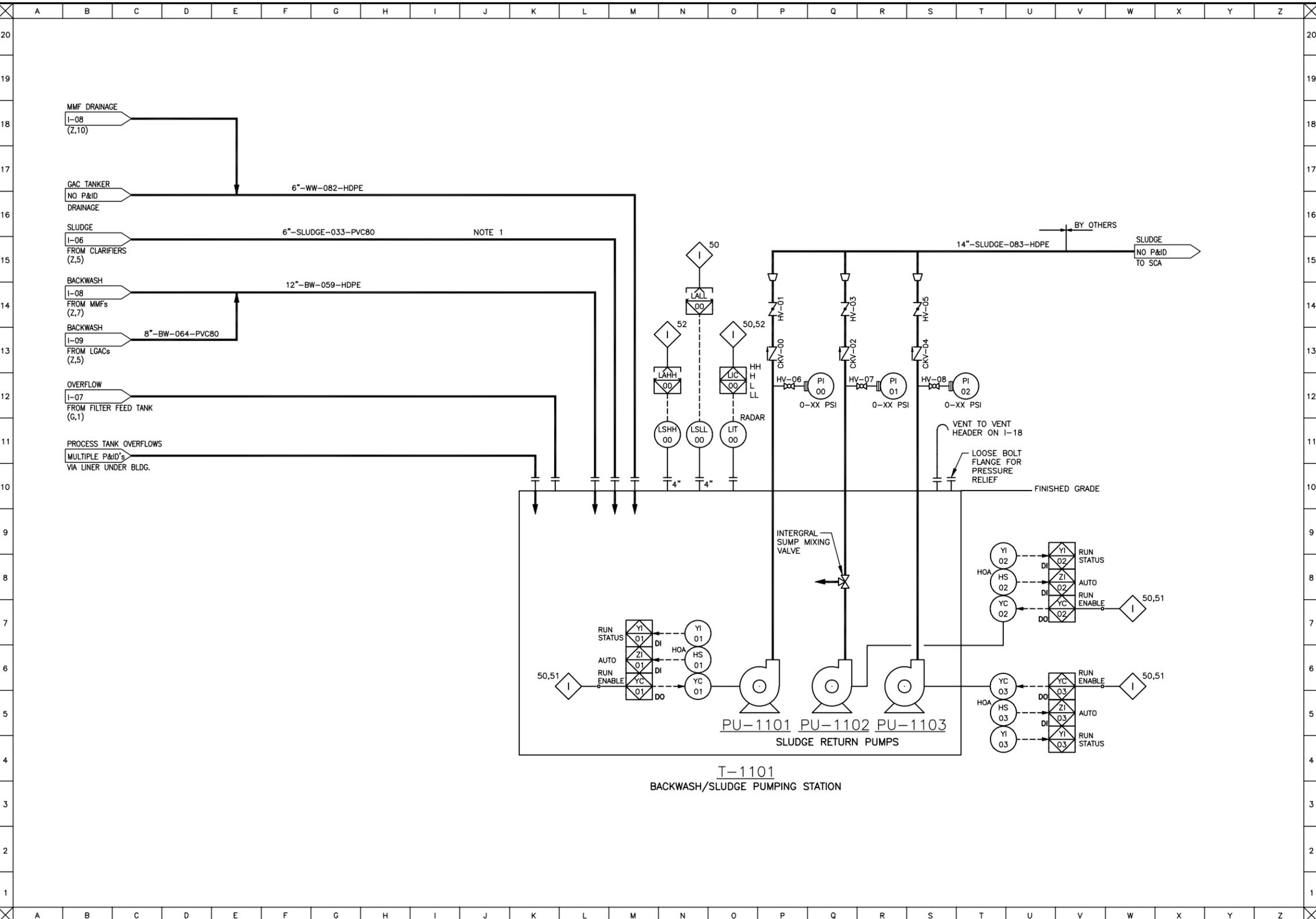


HONEYWELL INTERNATIONAL, INC.  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
EFFLUENT MONITORING TANK #2  
P&ID

|              |                |              |
|--------------|----------------|--------------|
| IN CHARGE OF | FILE NO.       | <b>I-10B</b> |
| DESIGNED BY  | DATE           |              |
| DRAWN BY     | DATE           |              |
| JSR          | 1163.45613-110 |              |
| GBE          | FEBRUARY 2010  |              |
| LMW          |                |              |

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**NOTES:**  
 1. HEADER TOGETHER SLUDGE DISCHARGE LINES (4"Ø) FROM INCLINED PLATE CLARIFIERS TO A 6"Ø LINE TO THE SLUDGE PUMPING STATION.

**INTERLOCKS:**  
 REFER TO SHEET I-C

|   |         |                                    |  |
|---|---------|------------------------------------|--|
| E | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |  |
| D | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |  |
| C | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |  |
| B | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |  |
| A | 2/4/10  | DP #1 INTERNAL REVIEW              |  |



HONEYWELL INTERNATIONAL, INC.  
 DP #2  
 WATER TREATMENT PLANT  
 TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
 BACKWASH/SLUDGE PUMPING STATION  
 P&ID

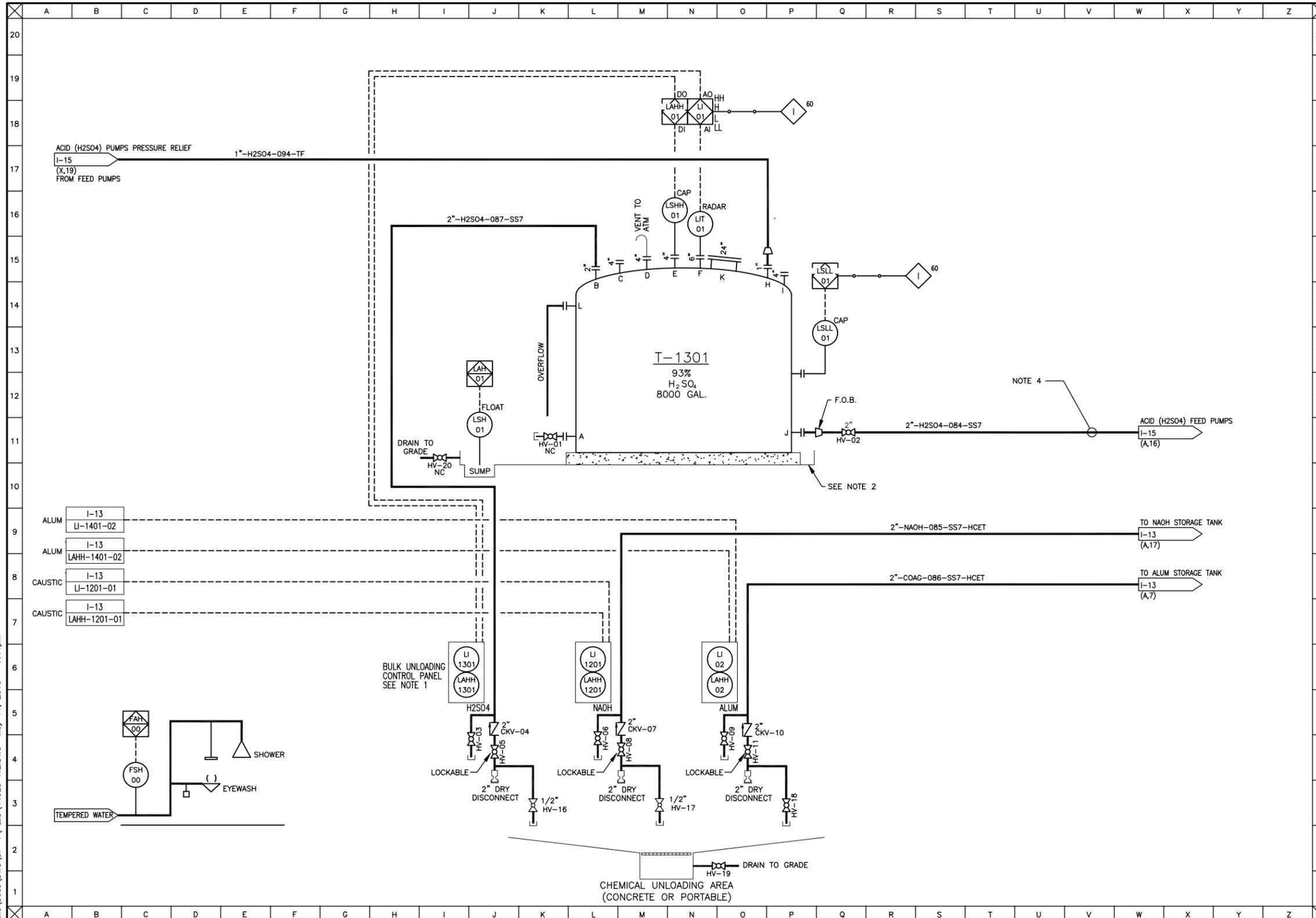
- T-1101**  
 BACKWASH/SLUDGE PUMPING STATION  
 SIZE: APPROX. 12' x 12' x 12'  
 VOLUME: TBD GAL.  
 MOC: CONCRETE  
 DESIGN: IN-GROUND
- PU-1101**  
 SLUDGE RETURN PUMP  
 TYPE: SUBMERSIBLE  
 CAPACITY: 1600 GPM  
 HP: APPROX. 20  
 MOC: CAST IRON, VITON
- PU-1102**  
 SLUDGE RETURN PUMP  
 TYPE: SUBMERSIBLE  
 CAPACITY: 1600 GPM  
 HP: APPROX. 20  
 MOC: CAST IRON, VITON
- PU-1103**  
 SLUDGE RETURN PUMP  
 TYPE: SUBMERSIBLE  
 CAPACITY: 1600 GPM  
 HP: APPROX. 20  
 MOC: CAST IRON, VITON

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**PRELIMINARY  
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 DATE: 5/12/10

|                                |                         |             |
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| IN CHARGE OF JSR               | FILE NO. 1163.45613-111 | <b>I-11</b> |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |             |
| DRAWN BY LMW                   | FEBRUARY 2010           |             |

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T-1301  
 H2SO4 STORAGE TANK  
 SIZE: 10' DIA. x 14'-10" H  
 VOLUME: 8000 GAL  
 MOC: TBD  
 DESIGN: VERTICAL, CYLINDRICAL

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**PRELIMINARY  
 NOT FOR  
 CONSTRUCTION**  
 DATE: 5/12/10

- NOTES:**
- AWNING OVER UNLOADING PANEL.
  - SAWCUT/GROOVE CONCRETE PAD TO SHOW LEAKAGE AT TANK BOTTOM.
  - 93% SULFURIC ACID PROPOSED FOR FREEZE PREVENTION. ALTERNATE CONCENTRATIONS MAY REQUIRE HEAT-TRACING AND INSULATION.
  - PROVIDE FLANGE GUARDS ON ALL SULFURIC ACID AND SODIUM HYDROXIDE PIPELINES.

**INTERLOCKS:**  
 REFER TO SHEET I-C

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| E   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| D   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |
| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |

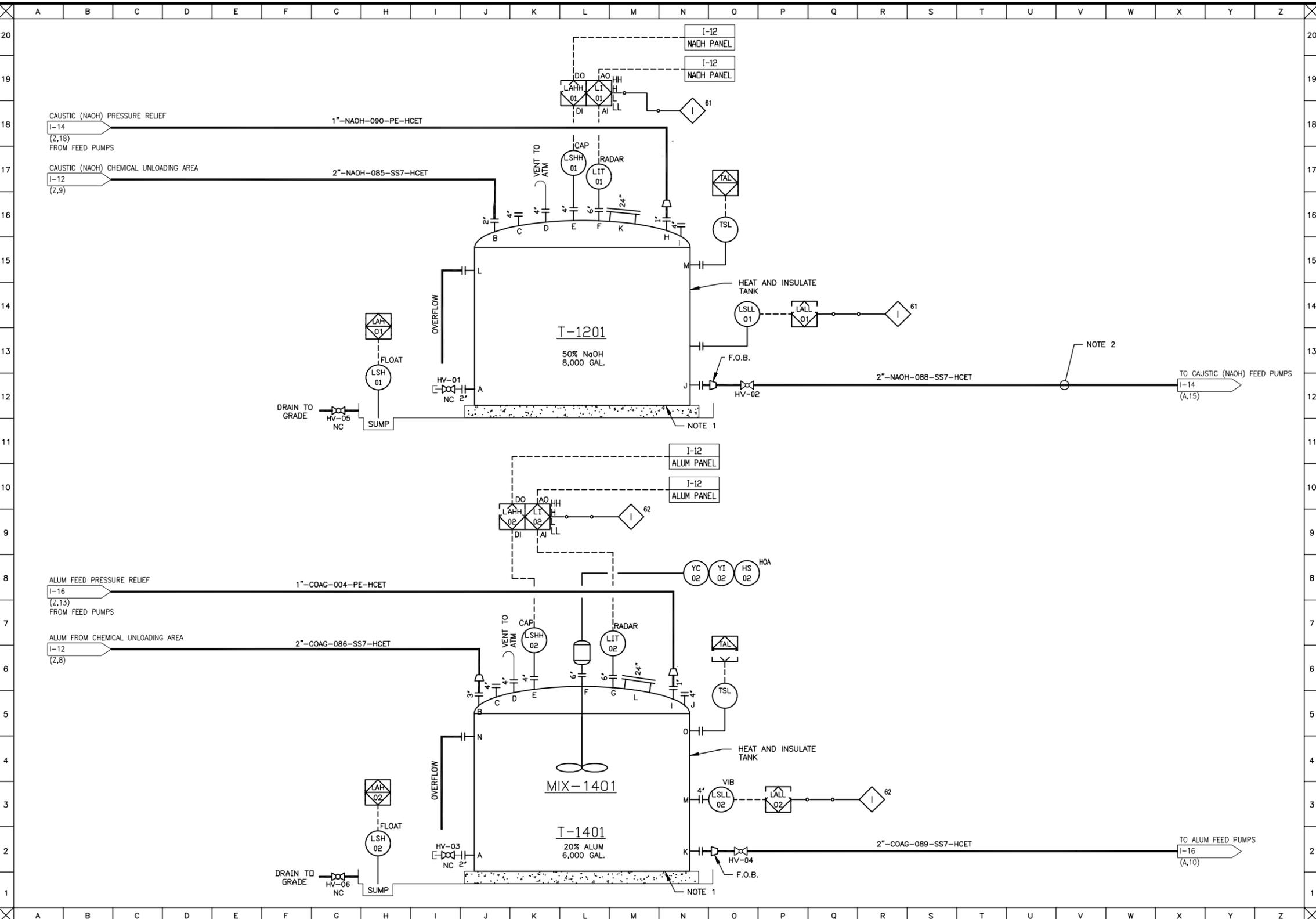


HONEYWELL INTERNATIONAL, INC.  
 DP #2  
 WATER TREATMENT PLANT  
 TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
 CHEMICAL STORAGE - H2SO4/UNLOADING  
 P&ID

|                                |                         |      |
|--------------------------------|-------------------------|------|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-112 | I-12 |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |      |
| DRAWN BY LMW                   | FEBRUARY 2010           |      |

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**T-1201**  
 NaOH STORAGE TANK  
 SIZE: APPROX. 10' DIA. x 14'-10" H  
 VOLUME: 8000 GAL.  
 MOC: FRP  
 DESIGN: VERTICAL CYLINDRICAL

**T-1401**  
 ALUM STORAGE TANK  
 SIZE: APPROX. 8' DIA. x 16'-11" H  
 VOLUME: 6000 GAL.  
 MOC: FRP  
 DESIGN: VERTICAL, CYLINDRICAL

**MIX-0401**  
 ALUM STORAGE TANK MIXER  
 MIXER TYPE: TOP ENTRY  
 MOC: 316SS  
 MOTOR: TBD  
 AGITATOR RPM: TBD  
 IMPELLER: TBD

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**PRELIMINARY  
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 CONSTRUCTION**  
 DATE: 5/12/10

- NOTES:**
- SAWCUT/GROOVE CONCRETE PADS TO SHOW LEAKAGE AT TANK BOTTOM.
  - PROVIDE FLANGE GUARDS ON ALL SULFURIC ACID AND SODIUM HYDROXIDE PIPELINES.

**INTERLOCKS:**  
 REFER TO SHEET I-C

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| E   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| D   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |
| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |



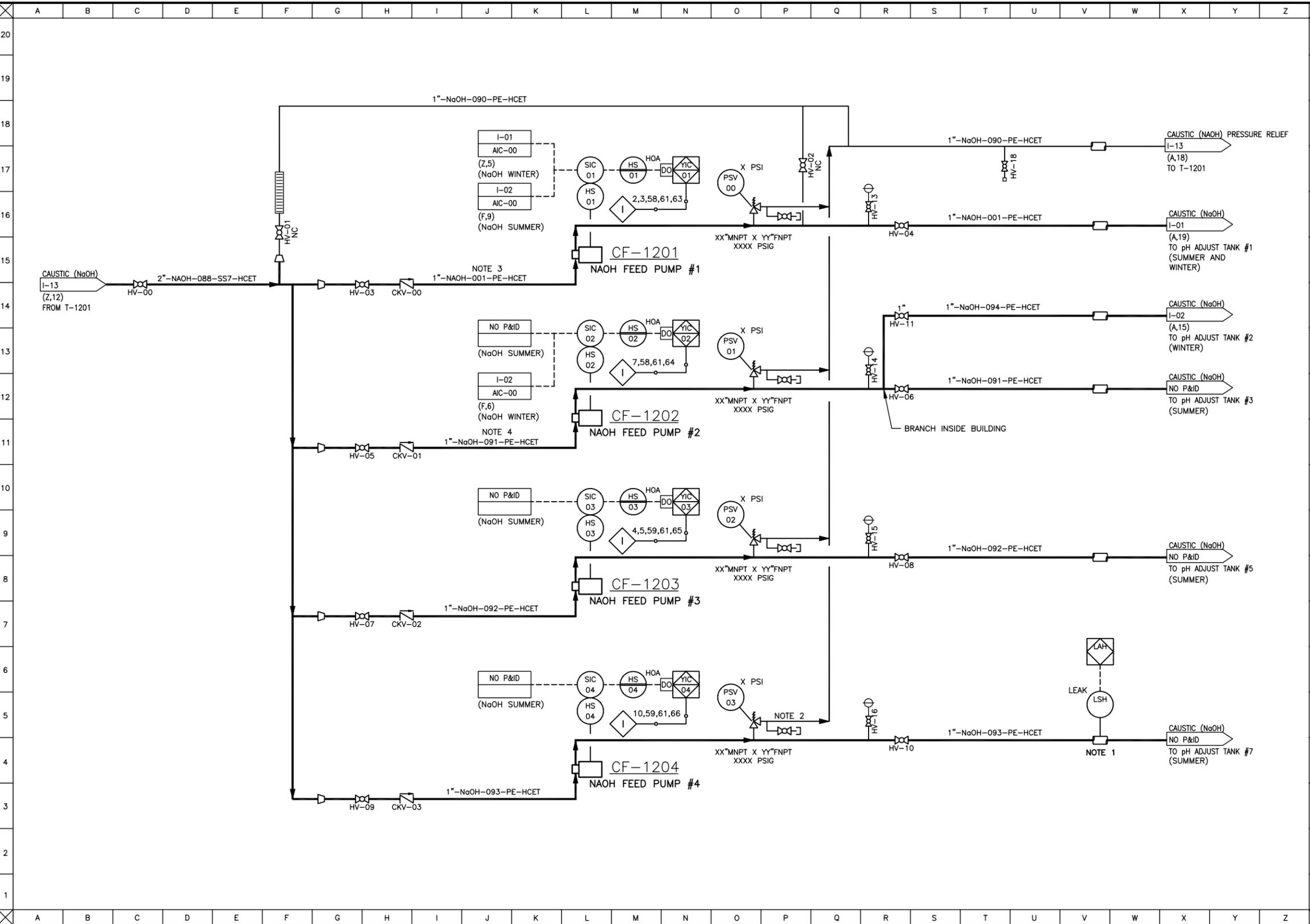
**HONEYWELL INTERNATIONAL, INC.**  
 DP #2  
 WATER TREATMENT PLANT  
 TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
**CHEMICAL STORAGE - NaOH/ALUM  
 P&ID**

|                                  |                          |
|----------------------------------|--------------------------|
| IN CHARGE OF: JSR                | FILE NO.: 1163.45613-113 |
| DESIGNED BY: GBE CHECKED BY: PDS | DATE: FEBRUARY 2010      |
| DRAWN BY: LMW                    |                          |

**I-13**

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- NOTES:**
- INSTALL NaOH DISCHARGE LINE WITHIN BURIED COMMON SECONDARY PIPE(S) BETWEEN THE BULK CHEMICAL AREA AND TREATMENT BUILDING. PROVIDE LEAK DETECTION INSIDE EACH SECONDARY CONTAINMENT PIPE.
  - PROVIDE DRAIN VALVE AND CAP/PLUG AT EACH PSV OUTLET. DRAIN VALVES NOT REQUIRED IF THE DISCHARGES FROM THE PSVs CAN BE CONTINUOUSLY SLOPED TO DRAIN TO THE NaOH TANK.
  - DURING SUMMER/DREDGE SEASON OPERATIONS AIC-0102-00 AT pH ADJUST TANK #2 WILL CONTROL CF-1201 OPERATION. DURING WINTER/OFF-SEASON OPERATIONS, AIC-0101-00 AT pH ADJUST TANK #1 WILL CONTROL CF-1201 OPERATION.
  - DURING SUMMER/DREDGE SEASON OPERATIONS FEED CAUSTIC TO pH ADJUST TANK #3 VIA THE OPENING OF HV-06. CONTROL OF CF-1202 WILL BE BY pH CONTROLLER IN pH ADJUST TANK #4. DURING WINTER/OFF-SEASON OPERATIONS, FEED CAUSTIC TO pH ADJUST TANK #2 VIA THE OPENING OF HV-11. CONTROL OF CF-1202 WILL BE BY pH CONTROLLER IN pH ADJUST TANK #2.

**INTERLOCKS:**  
REFER TO SHEET I-C

**CF-1201**  
NAOH FEED PUMP #1  
TYPE: METERING PUMP  
CAPACITY: 5 TO 50 GPH  
HP: 0.5 HP  
MOC: TBD

**CF-1202**  
NAOH FEED PUMP #2  
TYPE: METERING PUMP  
CAPACITY: 5 TO 50 GPH  
HP: 0.5 HP  
MOC: TBD

**CF-1203**  
NAOH FEED PUMP #3  
TYPE: METERING PUMP  
CAPACITY: 5 TO 50 GPH  
HP: 0.5 HP  
MOC: TBD

**CF-1204**  
NAOH FEED PUMP #4  
TYPE: METERING PUMP  
CAPACITY: 5 TO 50 GPH  
HP: 0.5 HP  
MOC: TBD

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DATE: 5/12/10

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|-----|---------|------------------------------------|-------|
| E   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| D   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |
| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |

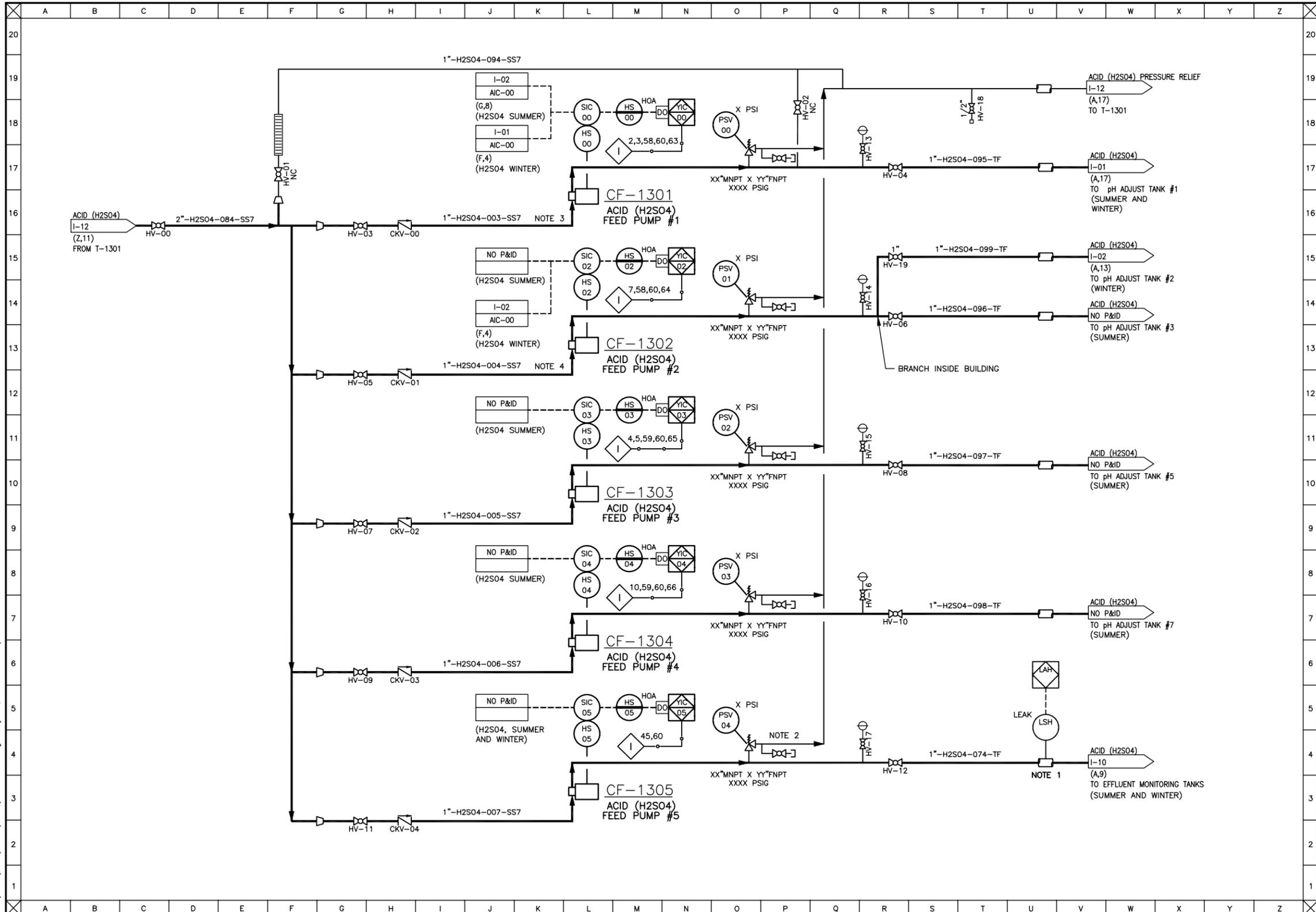


**HONEYWELL INTERNATIONAL, INC.**  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
**CHEMICAL FEED SYSTEMS - NaOH  
P&ID**

|                                |                         |      |
|--------------------------------|-------------------------|------|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-114 | I-14 |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |      |
| DRAWN BY LMW                   | APRIL 2010              |      |

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- NOTES:**
- INSTALL H2SO4 DISCHARGE LINE WITHIN BURIED COMMON SECONDARY PIPE(S) BETWEEN THE BULK CHEMICAL AREA AND TREATMENT BUILDING. PROVIDE LEAK DETECTION INSIDE EACH SECONDARY CONTAINMENT PIPE.
  - PROVIDE DRAIN VALVE AND CAP/PLUG AT EACH PSV OUTLET. DRAIN VALVES NOT REQUIRED IF THE DISCHARGES FROM THE PSVs CAN BE CONTINUOUSLY SLOPED TO DRAIN TO THE H2SO4 TANK.
  - DURING SUMMER/DREDGE SEASON OPERATIONS AIC-0102-00 AT pH ADJUST TANK #2 WILL CONTROL CF-1301 OPERATION. DURING WINTER/OFF-SEASON OPERATIONS, AIC-0101-00 AT pH ADJUST TANK #1 WILL CONTROL CF-1301 OPERATION.
  - DURING SUMMER/DREDGE SEASON OPERATIONS FEED H2SO4 TO pH ADJUST TANK #3 VIA THE OPENING OF HV-06. CONTROL OF CF-1302 WILL BE BY pH CONTROLLER IN pH ADJUST TANK #4. DURING WINTER/OFF-SEASON OPERATIONS, FEED H2SO4 TO pH ADJUST TANK #2 VIA THE OPENING OF HV-11. CONTROL OF CF-1302 WILL BE BY pH CONTROLLER IN pH ADJUST TANK #2.

**INTERLOCKS:**  
REFER TO SHEET I-C

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| E   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
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| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |



HONEYWELL INTERNATIONAL, INC.  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
CHEMICAL FEED SYSTEMS - H2SO4  
P&ID

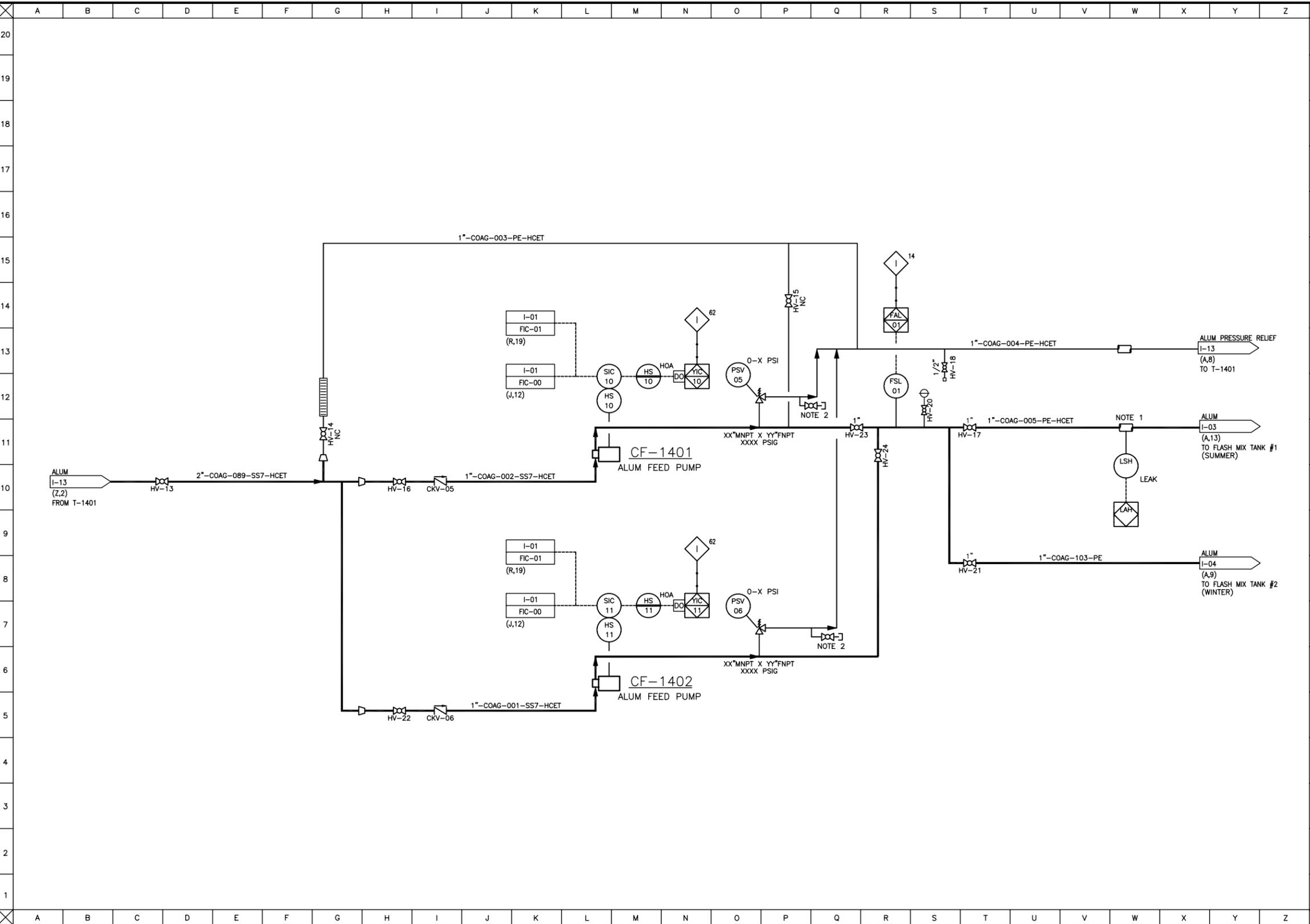
- CF-1301**  
ACID FEED PUMP #1  
TYPE: 93% SULFURIC ACID  
CAPACITY: 5 TO 50 GPH  
HP: 0.5 HP  
MOC: TBD
- CF-1302**  
ACID FEED PUMP #2  
TYPE: 93% SULFURIC ACID  
CAPACITY: 5 TO 50 GPH  
HP: 0.5 HP  
MOC: TBD
- CF-1303**  
ACID FEED PUMP #3  
TYPE: 93% SULFURIC ACID  
CAPACITY: 5 TO 50 GPH  
HP: 0.5 HP  
MOC: TBD
- CF-1304**  
ACID FEED PUMP #4  
TYPE: 93% SULFURIC ACID  
CAPACITY: 5 TO 50 GPH  
HP: 0.5 HP  
MOC: TBD
- CF-1305**  
ACID FEED PUMP #5  
TYPE: 93% SULFURIC ACID  
CAPACITY: 5 TO 50 GPH  
HP: 0.5 HP  
MOC: TBD

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NOT FOR  
CONSTRUCTION**  
5/12/10

|                                |                         |      |
|--------------------------------|-------------------------|------|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-115 | I-15 |
| DESIGNED BY GBE CHECKED BY PDS | DATE FEBRUARY 2010      |      |
| DRAWN BY LMW                   |                         |      |

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**NOTES:**

1. INSTALL ALUM DISCHARGE LINE(S) WITHIN BURIED COMMON SECONDARY CONTAINMENT PIPE BETWEEN THE BULK CHEMICAL AREA AND TREATMENT BUILDING. PROVIDE LEAK DETECTION INSIDE SECONDARY CONTAINMENT PIPE.
2. PROVIDE DRAIN VALVE WITH CAP/PLUG AT PSV OUTLET. DRAIN VALVE NOT REQUIRED IF THE DISCHARGE FROM PSV CAN BE CONTINUOUSLY SLOPED TO DRAIN TO THE ALUM TANK.
3. ONE PUMP WILL OPERATE WITH OTHER BEING INSTALLED SPARE.

**INTERLOCKS:**

REFER TO SHEET I-C

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| E   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| D   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |
| C   | 3/10/10 | DP #1 FOR NYSDEC AND COUNTY REVIEW |       |
| B   | 2/12/10 | DP #1 DRAFT FOR HONEYWELL REVIEW   |       |
| A   | 2/4/10  | DP #1 INTERNAL REVIEW              |       |



HONEYWELL INTERNATIONAL, INC.  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
CHEMICAL FEED - ALUM  
P&ID

**CF-1401**  
ALUM FEED PUMP  
TYPE: 20% ALUM  
CAPACITY: 0-72 GPH  
HP: 0.5 HP  
MOC: TBD

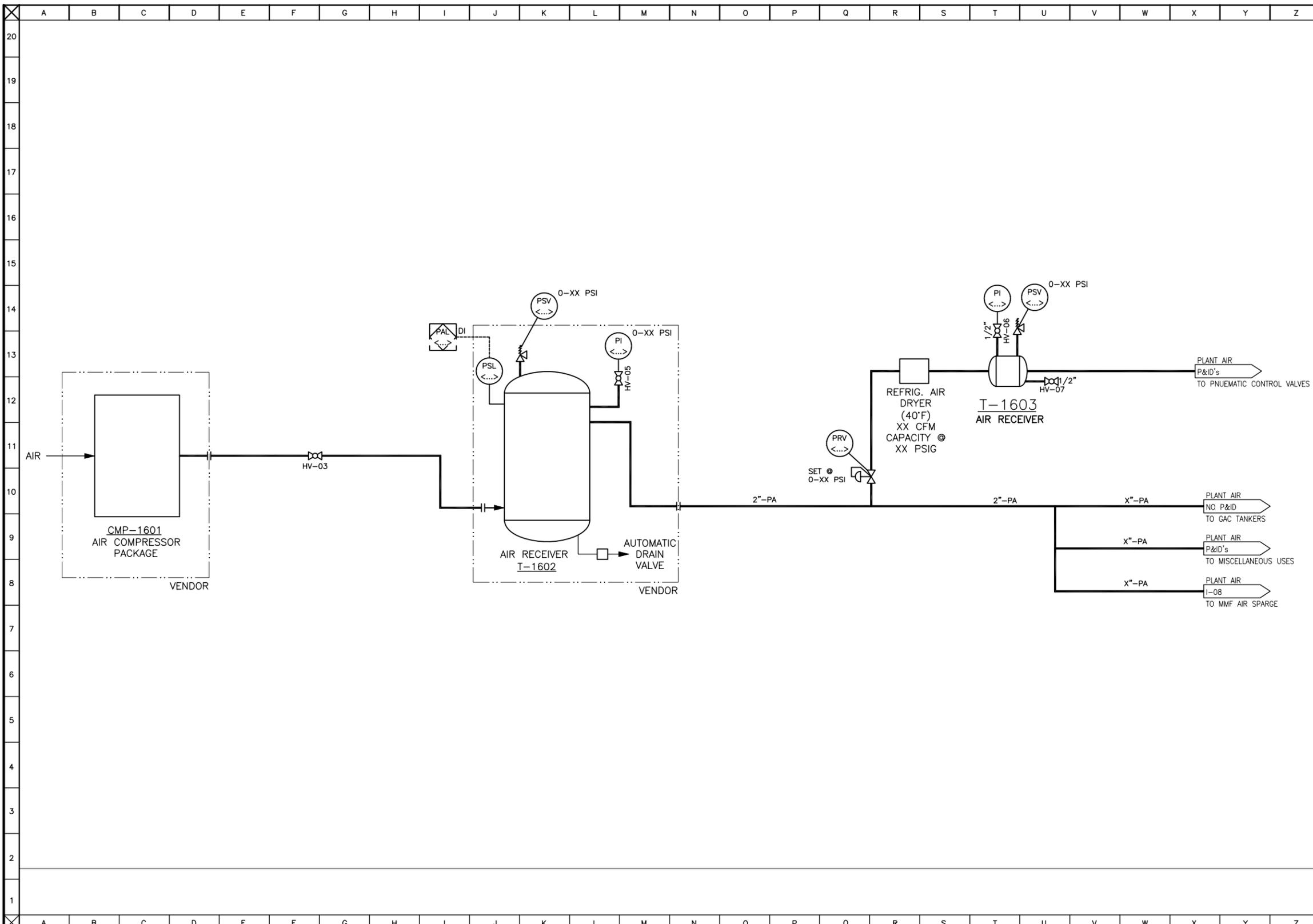
**CF-1402**  
ALUM FEED PUMP  
TYPE: 20% ALUM  
CAPACITY: 0-72 GPH  
HP: 0.5 HP  
MOC: TBD

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CONSTRUCTION**  
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|--------------------------------|-------------------------|-------------|
| IN CHARGE OF JSR               | FILE NO. 1163.45613-116 | <b>I-16</b> |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |             |
| DRAWN BY LMW                   | FEBRUARY 2010           |             |

I:\Honeywell\1163\45613\3-00-Wp-Detail\Docs\DWG\DP-1\&ID\I-17 AIR COMPRESSOR.dwg May 11, 2010 - 7:14pm



**NOTES:**

1.

**INTERLOCKS:**

PENDING

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| B   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| A   | 4/9/10  | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |



HONEYWELL INTERNATIONAL, INC.  
 DP#2  
 WATER TREATMENT PLANT  
 TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
 AIR COMPRESSOR  
 P&ID

**CMP-1601**  
 AIR COMPRESSOR  
 TYPE: ROTARY SCREW  
 CAPACITY: 305 CFM  
 138 PSIG  
 HP: APPROX. 75  
 ACCESSORIES: AFTERCOOLER  
 DIM: APPROX. 40"L x 22"W x 35"H

**I-1602**  
 AIR RECEIVER  
 CAPACITY: 400 GAL.  
 TYPE: VERTICAL  
 SIZE: 3' DIA. x 7'-10"H  
 MOC: CARBON STEEL  
 ACCESSORIES: SAFETY RELIEF VALVE  
 PRESSURE GAUGE  
 ELECTRONIC DRAIN VALVE  
 PRESSURE RATING: 165 PSIG

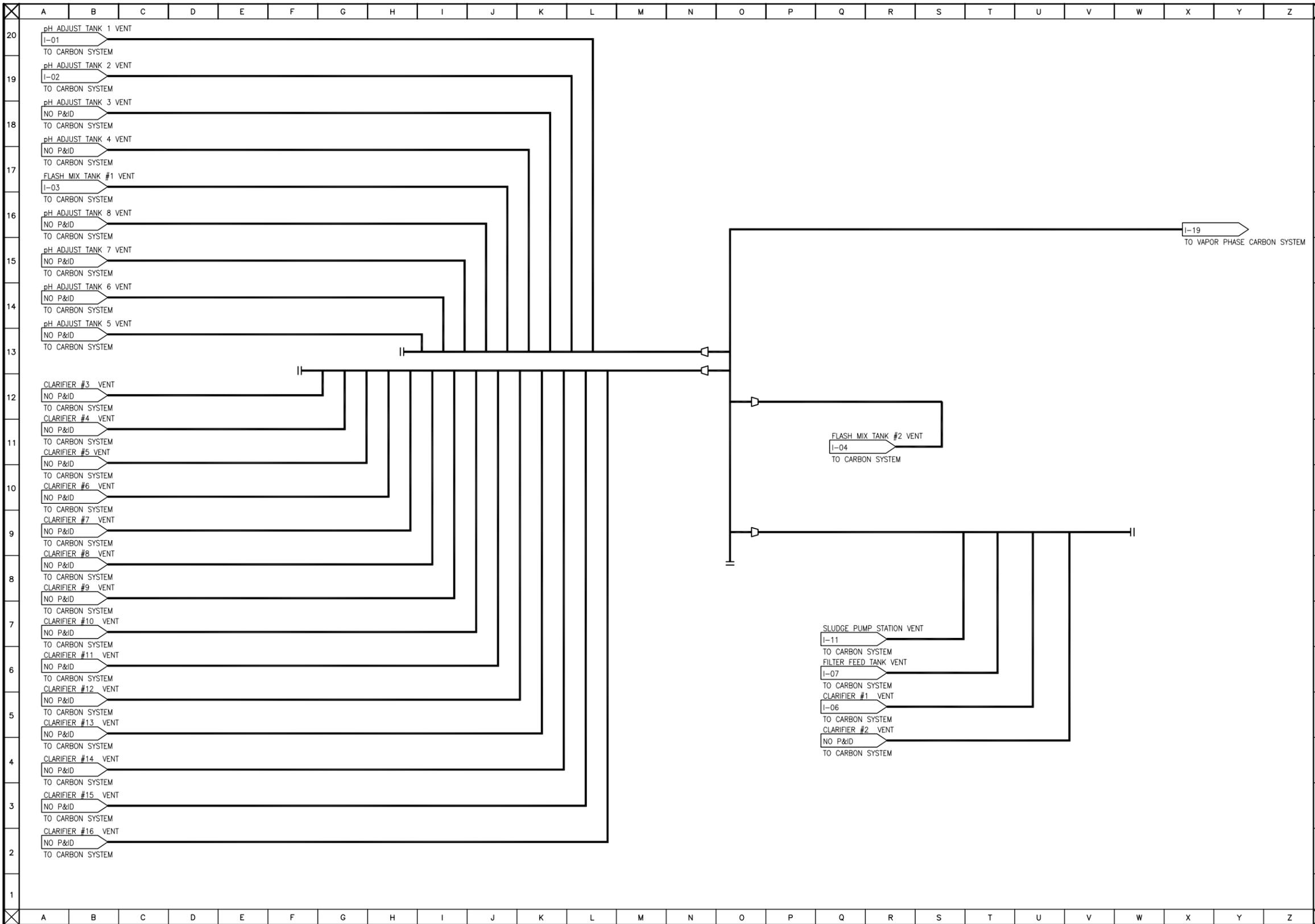
**I-1603**  
 AIR RECEIVER  
 CAPACITY: 52 GAL.  
 TYPE: HORIZONTAL  
 SIZE: APPROX. 17"DIA. x 53"L  
 MOC: CARBON STEEL  
 ACCESSORIES: SAFETY RELIEF VALVE  
 ELECTRONIC DRAIN VALVE  
 PRESSURE RATING: 160 PSIG

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| IN CHARGE OF JSR               | FILE NO. 1163.45613-117 | I-17 |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |      |
| DRAWN BY LMW                   | APRIL 2010              |      |

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**NOTES:**

1.

**INTERLOCKS:**

PENDING

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| A   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |



HONEYWELL INTERNATIONAL, INC.  
 DP#2  
 WATER TREATMENT PLANT  
 TOWN OF CAMILLUS, NEW YORK

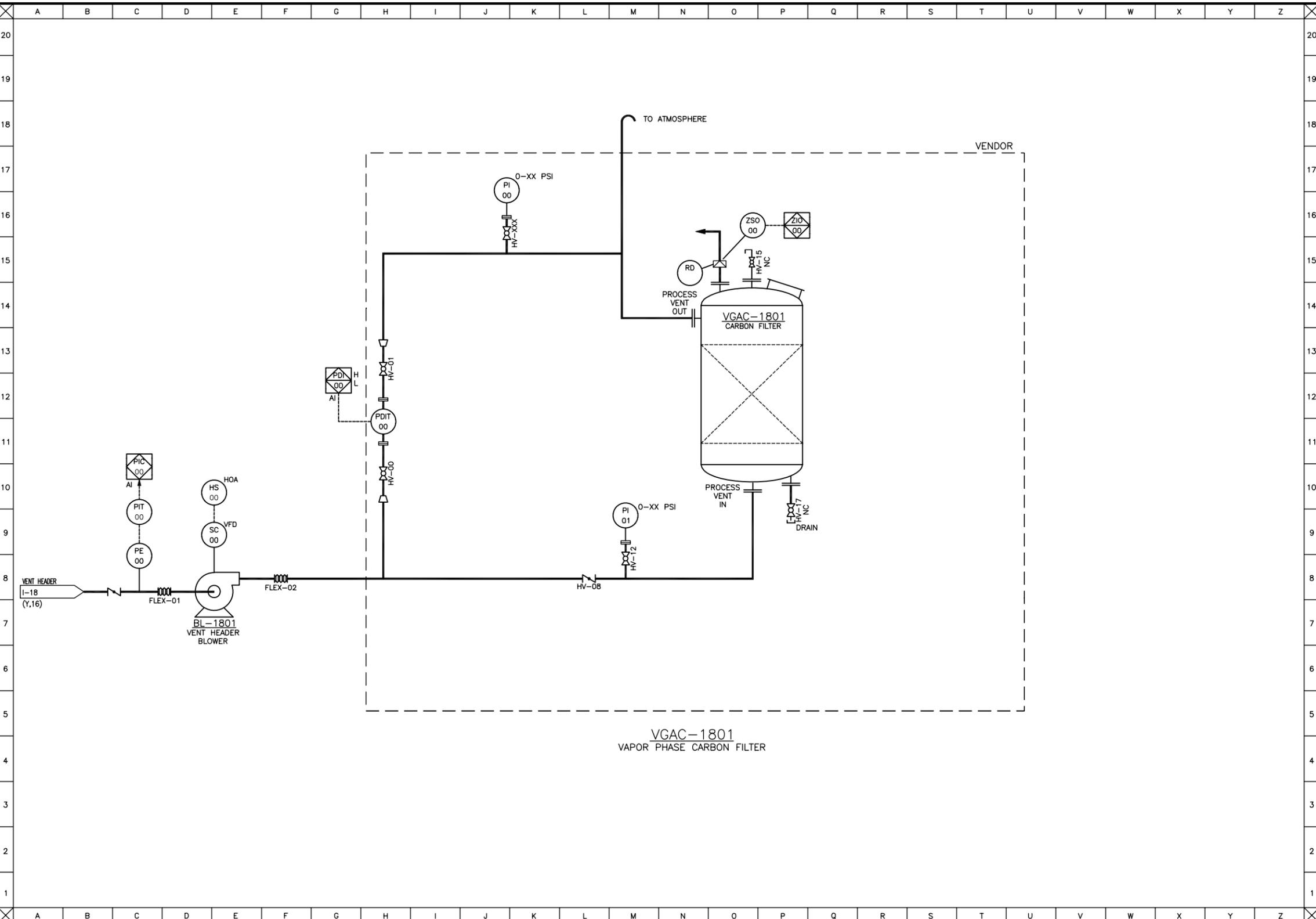
PROCESS AND INSTRUMENTATION  
 VENT HEADER  
 P&ID

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 CONSTRUCTION**  
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| IN CHARGE OF JSR               | FILE NO. 1163.45613-117 | I-18 |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |      |
| DRAWN BY JAS                   | MAY 2010                |      |

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**NOTES:**  
 1. VENDOR SUPPLIED VAPOR PHASE GAC SYSTEM TO BE INSTALLED PER VENDOR'S APPROVED SHOP DRAWINGS AND INSTRUCTIONS.

**INTERLOCKS:**  
 REFER TO SHEET I-C

| NO. | DATE    | REVISION                           | INIT. |
|-----|---------|------------------------------------|-------|
| A   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |



HONEYWELL INTERNATIONAL, INC.  
 DP #2  
 WATER TREATMENT PLANT  
 TOWN OF CAMILLUS, NEW YORK

PROCESS AND INSTRUMENTATION  
 VAPOR PHASE CARBON FILTER  
 P&ID

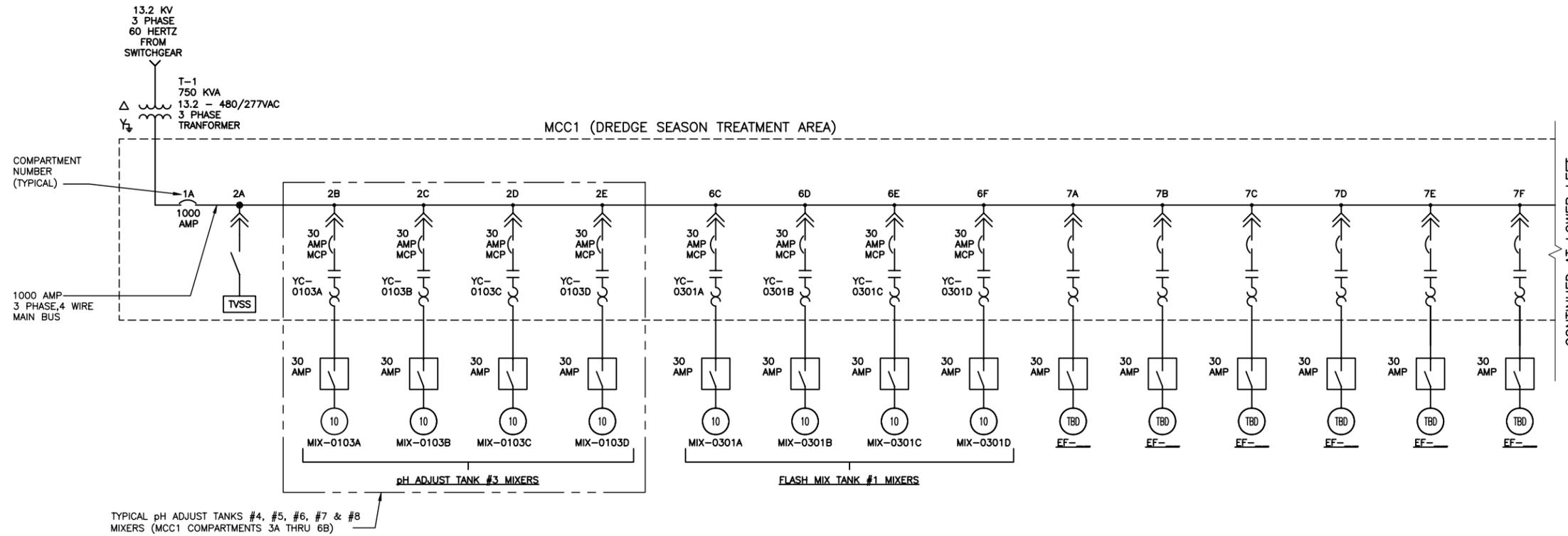
**BL-1801**  
 VENT HEADER BLOWER  
 TYPE: INDUCED DRAFT RADIAL  
 DESIGN FLOW: TBD CFM  
 DESIGN PRESSURE: TBD  
 MOC: TBD  
 HP: TBD

**VGAC-1801**  
 VAPOR PHASE CARBON FILTER  
 DESIGN FLOW (SUMMER): TBD CFM  
 DESIGN FLOW (WINTER): TBD CFM  
 P/T RATING: 15 PSI @ 180 DEG. F  
 VESSEL DIMENSIONS: APPROX. 46" DIA. x 89"H  
 MOC: LINED STEEL  
 MASS OF CARBON: 1,000 LBS

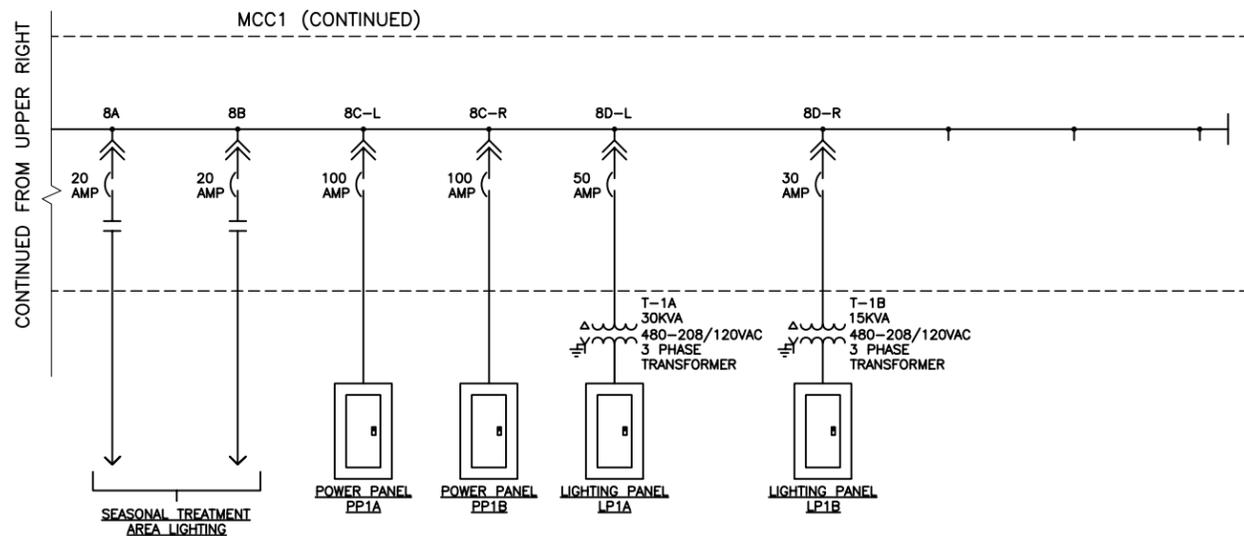
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| IN CHARGE OF JSR               | FILE NO. 1163.45613-119 |
| DESIGNED BY GBE CHECKED BY PDS | DATE                    |
| DRAWN BY LMW                   | FEBRUARY 2010           |

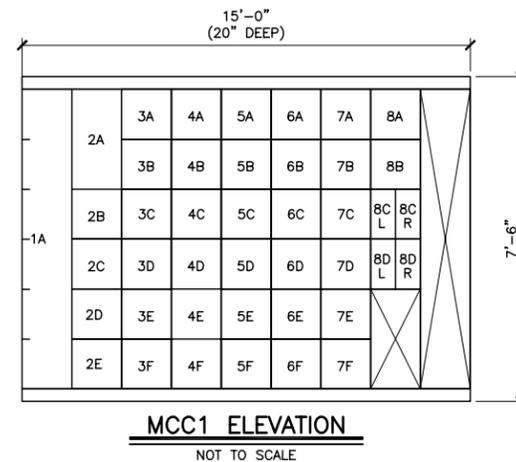


CONTINUED AT LOWER LEFT



CONTINUED FROM UPPER RIGHT

**MCC1 ONE-LINE**  
NOT TO SCALE



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DATE: 5/12/10

**NOTES:**

- THE FOLLOWING EQUIPMENT SHALL BE POWERED FROM POWER PANELS PP1A AND PP1B:
  - CLARIFIER FLOCCULATION MIXERS
  - MOTOR OPERATED VALVES
  - OVERHEAD DOOR OPERATORS
  - WELDED RECEPTACLES

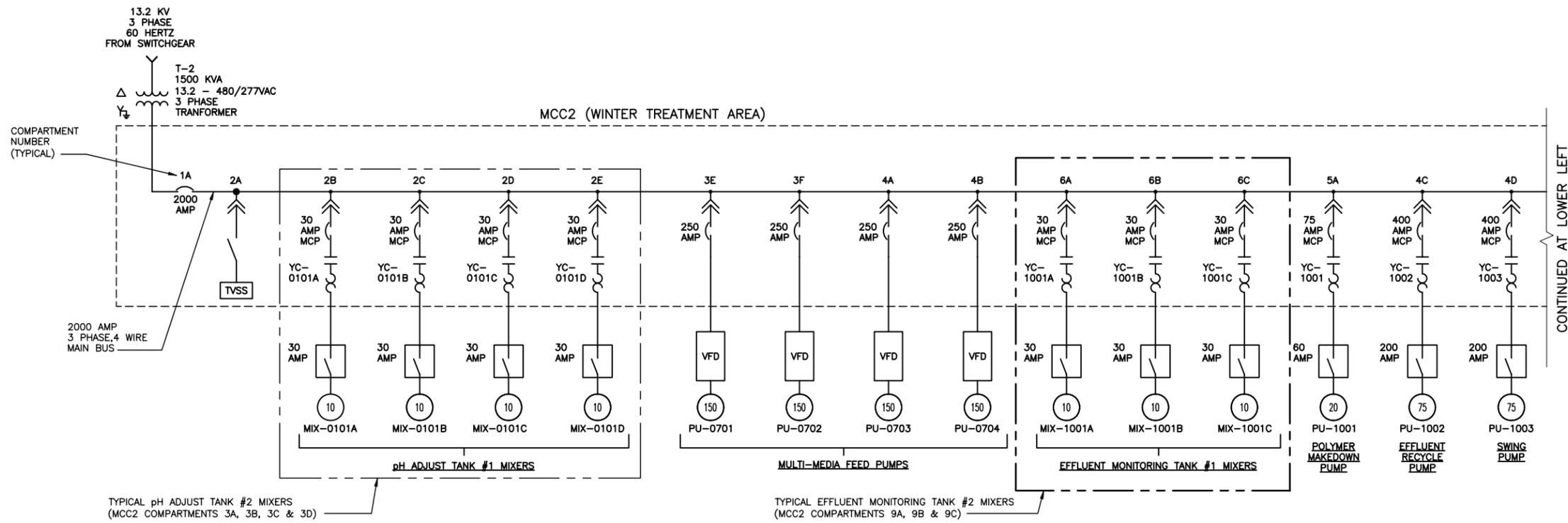
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| B   | 5/12/10 | DP#2 FOR NYSDEC AND COUNTY REVIEW |       |
| A   | 4/9/10  | DP#2 DRAFT FOR HONEYWELL REVIEW   |       |
| NO. | DATE    | REVISION                          | INIT. |



HONEYWELL INTERNATIONAL, INC.  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

**MCC ONE-LINE**

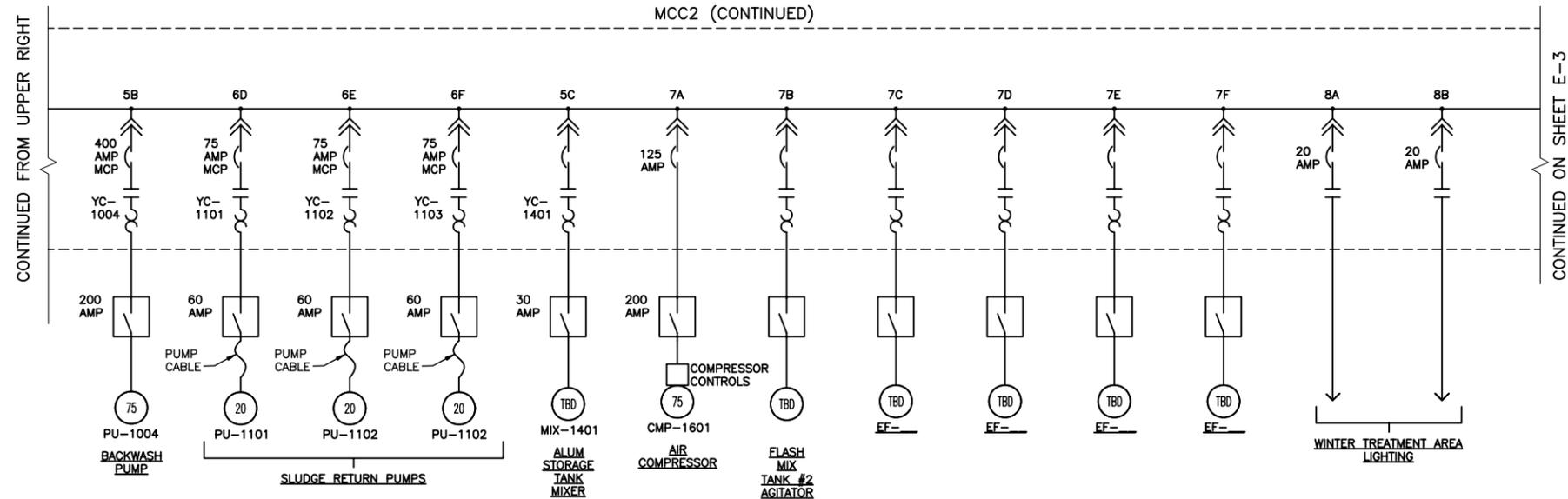
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| IN CHARGE OF _____                 | FILE NO.<br>1163.45613-E1 |
| DESIGNED BY _____ CHECKED BY _____ | DATE<br>APRIL 2010        |
| DRAWN BY _____                     |                           |



TYPICAL pH ADJUST TANK #2 MIXERS  
(MCC2 COMPARTMENTS 3A, 3B, 3C & 3D)

TYPICAL EFFLUENT MONITORING TANK #2 MIXERS  
(MCC2 COMPARTMENTS 9A, 9B & 9C)

CONTINUED AT LOWER LEFT



**MCC2 ONE-LINE**  
NOT TO SCALE

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**PRELIMINARY NOT FOR CONSTRUCTION**  
DATE: 5/12/10

- NOTES:**
- THE FOLLOWING EQUIPMENT SHALL BE POWERED FROM POWER PANELS PP2A AND PP2B:
    - CLARIFIER FLOCCULATION MIXERS
    - CHEMICAL FEED PUMPS
    - MOTOR OPERATED VALVES
    - DOOR OPERATORS
    - WATER HEATERS
    - WELDED RECEPTACLES
  - THE FOLLOWING EQUIPMENT SHALL BE POWERED FROM POWER PANELS PP2C AND LIGHTING PANEL LP2C:
    - CHEMICAL TANK HEATERS
    - SELECTED HVAC EQUIPMENT IN THE WINTER TREATMENT AREA
    - SELECTED INTERIOR LIGHTING

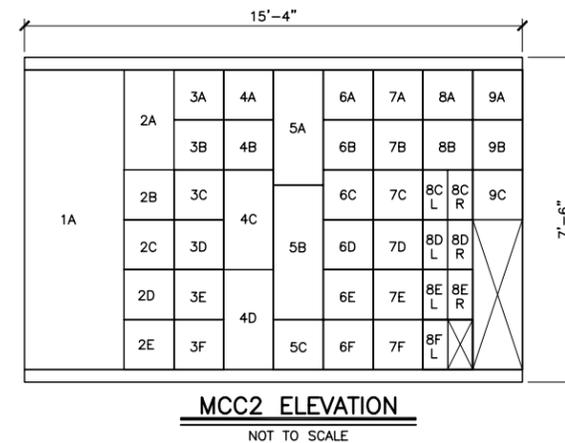
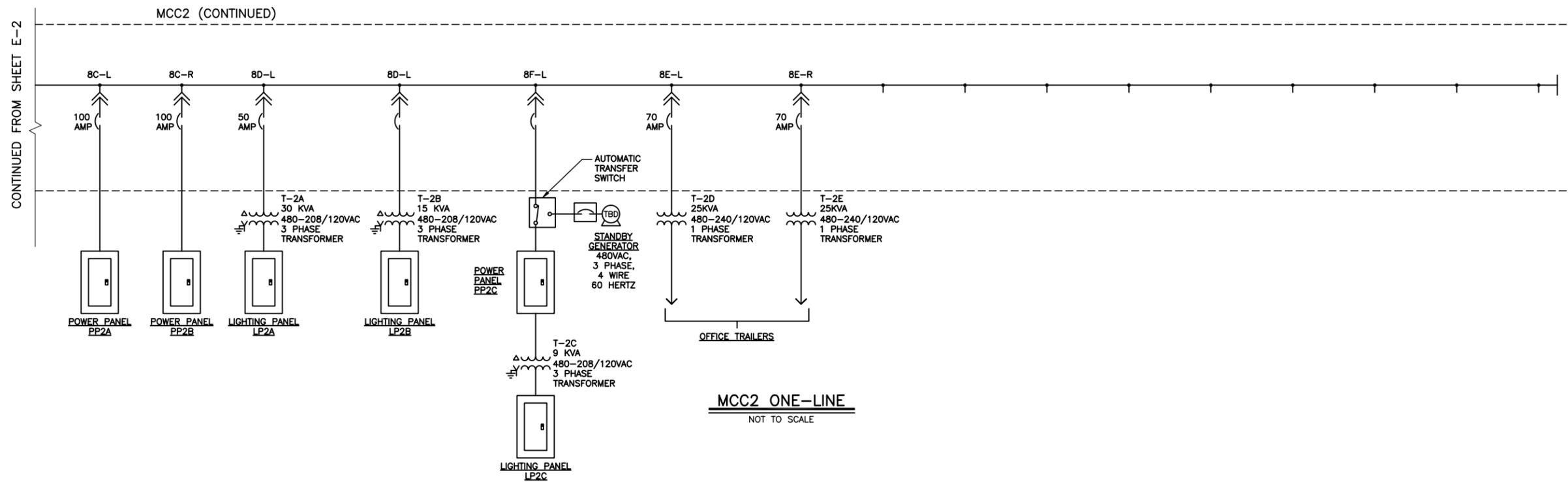
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| NO. | DATE    | REVISION                          | INIT. |
| B   | 5/12/10 | DP#2 FOR NYSDEC AND COUNTY REVIEW |       |
| A   | 4/9/10  | DP#2 DRAFT FOR HONEYWELL REVIEW   |       |



HONEYWELL INTERNATIONAL, INC.  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

MCC ONE-LINE

|                                    |                           |            |
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| IN CHARGE OF _____                 | FILE NO.<br>1163.45613-E2 | <b>E-2</b> |
| DESIGNED BY _____ CHECKED BY _____ | DATE<br>APRIL 2010        |            |
| DRAWN BY _____                     |                           |            |



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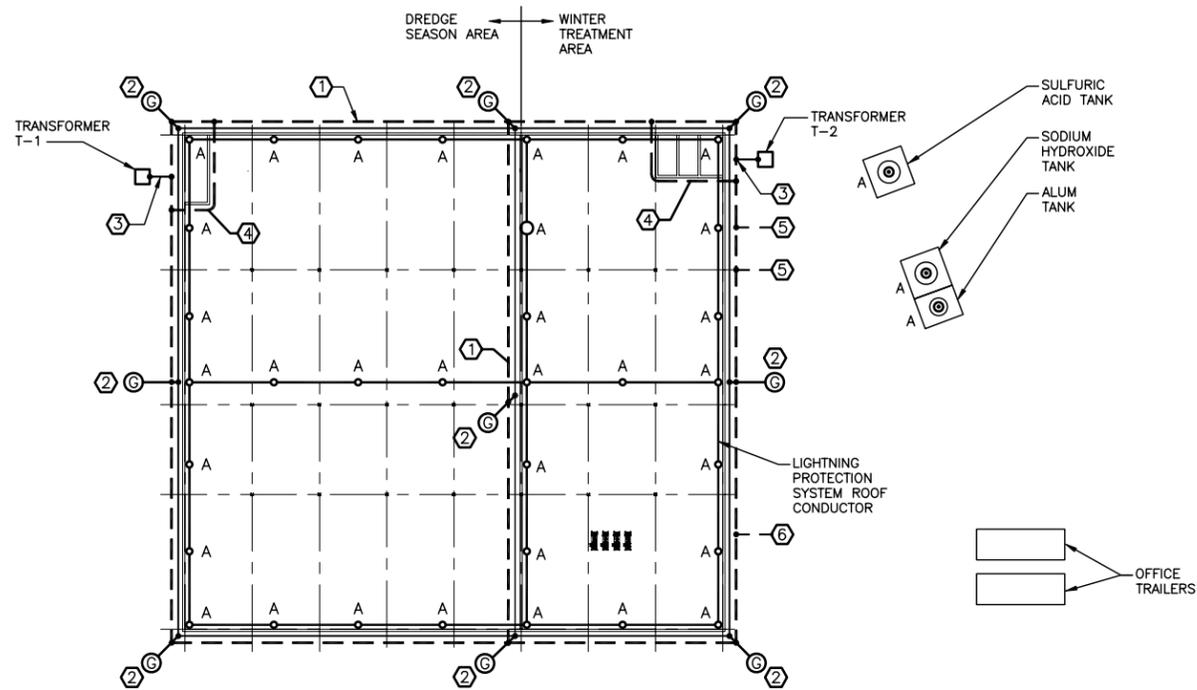
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|     |         |                                   |       |
| B   | 5/12/10 | DP#2 FOR NYSDEC AND COUNTY REVIEW |       |
| A   | 4/9/10  | DP#2 DRAFT FOR HONEYWELL REVIEW   |       |
| NO. | DATE    | REVISION                          | INIT. |



HONEYWELL INTERNATIONAL, INC.  
DP #2  
WATER TREATMENT PLANT  
TOWN OF CAMILLUS, NEW YORK

MCC ONE-LINE

|                                    |                           |
|------------------------------------|---------------------------|
| IN CHARGE OF _____                 | FILE NO.<br>1163.45613-E3 |
| DESIGNED BY _____ CHECKED BY _____ | DATE<br>APRIL 2010        |
| DRAWN BY _____                     |                           |



**SCA WATER TREATMENT PLANT**  
**SITE PLAN**  
SCALE: 1" = 40'

**DRAWING NOTES:**

- IN ADDITION TO THE GROUNDING SYSTEM CONNECTIONS SHOWN, PROVIDE A 4/0 BARE COPPER GROUND CONDUCTOR FROM THE FOLLOWING TO THE NEAREST BUILDING STRUCTURAL STEEL:
  - UNDERGROUND METALLIC PIPING ENTERING/EXITING THE TREATMENT BUILDING.
  - FRAMES OF MOTORS 10HP AND LARGER
  - LGAC UNIT FRAMES
  - POWER PANELS, LIGHTING PANELS AND TRANSFORMERS LOCATED REMOTE FROM ELECTRICAL AREAS

GROUND CONDUCTORS SHALL BE ROUTED UNDERGROUND TO THE EXTENT PRACTICAL. PROVIDE COMPRESSION CONNECTORS ON PIPING/EQUIPMENT AND ON BUILDING STRUCTURAL STEEL.
- PROVIDE GROUNDING REELS (FOR GROUNDING GAC SLURRY TRUCKS) LOCATED ON TREATMENT BUILDING COLUMNS B3, E3 AND G3. GROUNDING REELS SHALL HAVE 50' NYLON COVERED CABLE WITH GROUND CLAMP, AUTOMATIC REWINDING, LOCK ON/LOCK OFF SWITCH AND STEEL HOUSING. STEEL HOUSING SHALL PROVIDE A MECHANICAL GROUNDING CONNECTION TO THE STRUCTURAL STEEL COLUMNS. MANUFACTURER SHALL BE CROUSE-HINDS CATALOG NO. SDR-50N OR EQUAL. MOUNT GROUNDING REELS 3'-0" ABOVE FLOOR.

**SYMBOLS**

- SURFACE MOUNTED CONDUCTOR
- CONCEALED CONDUCTOR
- GROUND ROD
- LIGHTNING PROTECTION SYSTEM AIR TERMINAL

**KEY NOTES:**

- 4/0 BARE COPPER GROUND GRID, INSTALL 36" FROM FOOTINGS, 36" BELOW GRADE.
- GROUND RODS SHALL BE 5/8" DIAMETER, 10'-0" LONG, COPPER CLAD STEEL. PROVIDE EXOTHERMIC WELD CONNECTION TO GROUND GRID. PROVIDE 4/0 BARE COPPER GROUND CONDUCTOR FROM GROUND GRID TO BUILDING STRUCTURAL COLUMN WITH EXOTHERMIC WELD CONNECTION ON GROUND ROD AND COMPRESSION CONNECTOR ON COLUMN.
- 4/0 BARE COPPER GROUND CONDUCTOR FROM GROUND GRID TO PAD MOUNTED TRANSFORMER WITH EXOTHERMIC WELD CONNECTION TO GROUND GRID AND COMPRESSION CONNECTOR ON TRANSFORMER.
- 4/0 BARE COPPER GROUND CONDUCTOR FROM GROUND GRID TO ELECTRICAL AREA WITH EXOTHERMIC WELD CONNECTIONS TO GROUND GRID. PROVIDE CONNECTION FROM GROUND CONDUCTOR TO ELECTRICAL EQUIPMENT (MOTOR CONTROL CENTERS, DRY TYPE TRANSFORMERS, POWER PANELS AND LIGHTING PANELS) IN THE ELECTRICAL AREA. PROVIDE EXOTHERMIC WELD CONNECTIONS TO GROUND GRID AND COMPRESSION CONNECTORS ON ELECTRICAL EQUIPMENT.
- 4/0 BARE COPPER GROUND CONDUCTOR FROM GROUND GRID TO CHEMICAL TANK LIGHTNING PROTECTION SYSTEM GROUND RODS. PROVIDE EXOTHERMIC WELD CONNECTION ON GROUND GRID AND GROUND RODS.
- 4/0 BARE COPPER GROUND CONDUCTOR FROM GROUND GRID TO OFFICE TRAILER SERVICE DISCONNECTS. PROVIDE EXOTHERMIC WELD CONNECTION ON GROUND GRID AND COMPRESSION CONNECTORS ON DISCONNECTS.

**LIGHTNING PROTECTION SYSTEM NOTES:**

- PROVIDE A LIGHTNING PROTECTION SYSTEM ON THE (SCA WATER TREATMENT PLANT) AND CHEMICAL TANKS. SYSTEM SHALL BE IN ACCORDANCE WITH LIGHTNING PROTECTION INSTITUTE (L.P.I.) CODE 175 WITH REGARD TO DESIGN, MATERIALS AND INSTALLATION. INSTALLATION SHALL BE MADE BY OR UNDER THE SUPERVISION OF AN L.P.I. CERTIFIED MASTER INSTALLER. COMPLETED INSTALLATION SHALL RECEIVE SYSTEM CERTIFICATION INCLUDING A U.L. MASTER LABEL AND SUBMITTAL OF FORM LPI-1-R91. SYSTEM SHALL BE BY THOMPSON LIGHTNING PROTECTION INC.
- LIGHTNING PROTECTION SYSTEM FEATURES SHOWN ARE MINIMUM. PROVIDE AIR TERMINALS, AIR TERMINAL SPACINGS AND LIGHTNING PROTECTION SYSTEM CONNECTIONS TO ROOF MOUNTED FEATURES IN ACCORDANCE WITH L.P.I. REQUIREMENTS.
- PROVIDE LIGHTNING PROTECTION SYSTEM DOWN CONDUCTORS IN ACCORDANCE WITH L.P.I. REQUIREMENTS INCLUDING DEDICATED GROUND RODS AT EACH DOWN CONDUCTOR. PROVIDE CONNECTION OF GROUND RODS TO THE BUILDING GROUND GRID.
- MATERIAL SIZES, MATERIALS OF CONSTRUCTION AND INSTALLATION DETAILS OF LIGHTNING PROTECTION SYSTEM COMPONENTS SHALL BE IN ACCORDANCE WITH L.P.I. REQUIREMENTS.
- THE LIGHTNING PROTECTION SYSTEM SHALL BE DESIGNED AND INSTALLED TO ALLOW FUTURE REMOVAL OF THE DREDGE SEASON AREA PORTION OF THE (SCA WATER TREATMENT PLANT). PROVIDE AIR TERMINALS, DOWN CONDUCTORS AND OTHER FEATURES AS NECESSARY TO MAINTAIN SYSTEM CERTIFICATION OF THE REMAINING WINTER TREATMENT AREA AFTER DREDGE SEASON AREA REMOVAL.

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NOT FOR  
CONSTRUCTION**  
DATE: 5/12/10

|     |         |                                   |       |
|-----|---------|-----------------------------------|-------|
| B   | 5/12/10 | DP#2 FOR NYSDEC AND COUNTY REVIEW |       |
| A   | 4/9/10  | DP#2 DRAFT FOR HONEYWELL REVIEW   |       |
| NO. | DATE    | REVISION                          | INIT. |

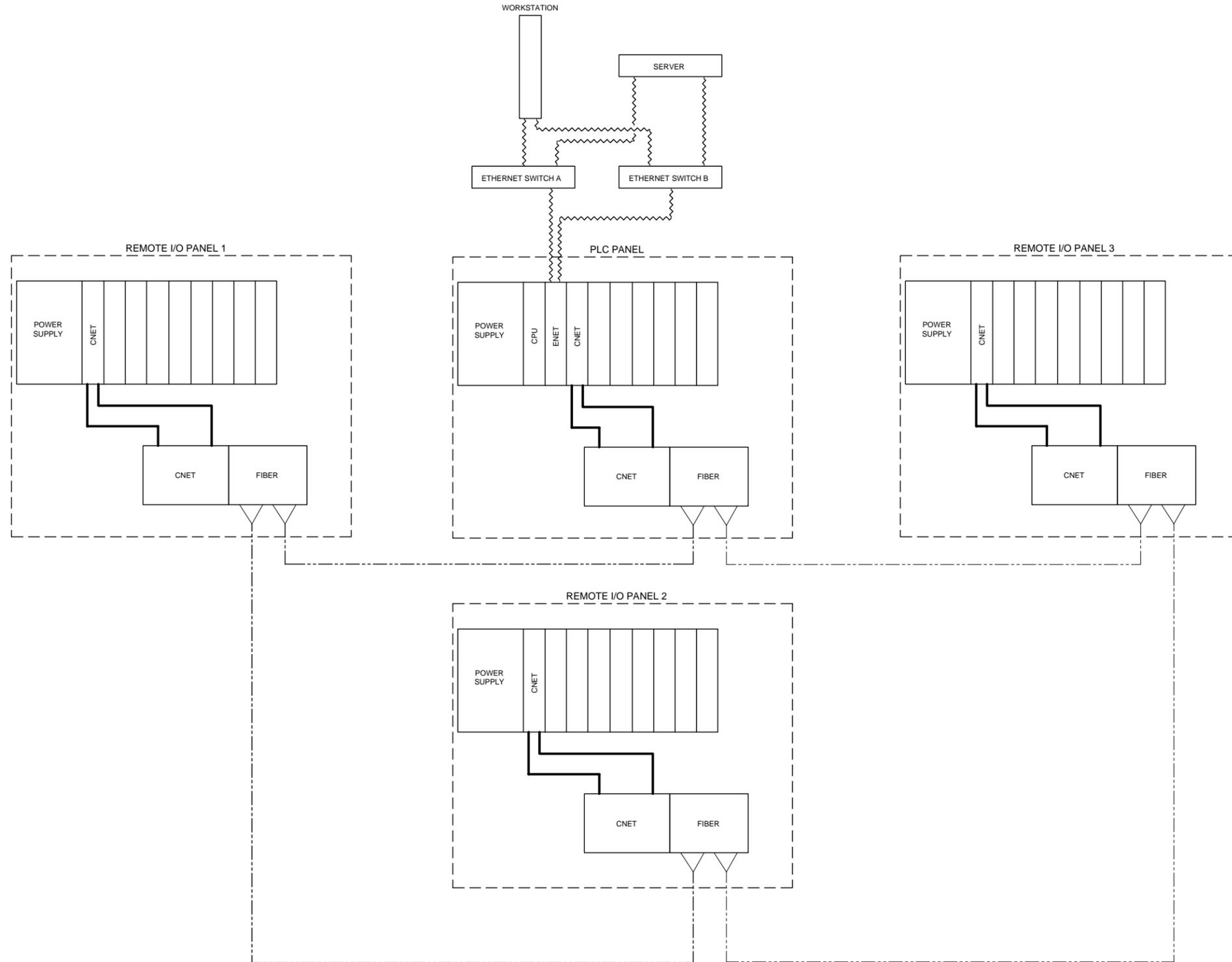


**HONEYWELL INTERNATIONAL, INC.**  
**DP #2**  
**WATER TREATMENT PLANT**  
**TOWN OF CAMILLUS, NEW YORK**

**GROUNDING PLAN**

|                                    |                           |
|------------------------------------|---------------------------|
| IN CHARGE OF _____                 | FILE NO.<br>1163.45613-E4 |
| DESIGNED BY _____ CHECKED BY _____ | DATE<br>APRIL 2010        |
| DRAWN BY _____                     |                           |

NOTES:



**LEGEND:**  
 ——— CONTROLNET  
 - - - FIBER  
 ~~~~~ ETHERNET CAT 5

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|-----|---------|------------------------------------|-------|
| B   | 5/12/10 | DP #2 FOR NYSDEC AND COUNTY REVIEW |       |
| A   | 4/09/10 | DP #2 DRAFT FOR HONEYWELL REVIEW   |       |



HONEYWELL INTERNATIONAL, INC.  
 DP #2  
 WATER TREATMENT PLANT  
 TOWN OF CAMILLUS, NEW YORK

ELECTRICAL  
**CONTROL SYSTEM OVERVIEW**

|                                    |                            |             |
|------------------------------------|----------------------------|-------------|
| IN CHARGE OF _____                 | FILE NO.<br>1163.45613-CS1 | <b>CS-1</b> |
| DESIGNED BY _____ CHECKED BY _____ | DATE<br>APRIL 2010         |             |
| DRAWN BY _____                     |                            |             |

# **Technical Specifications – Major Equipment**