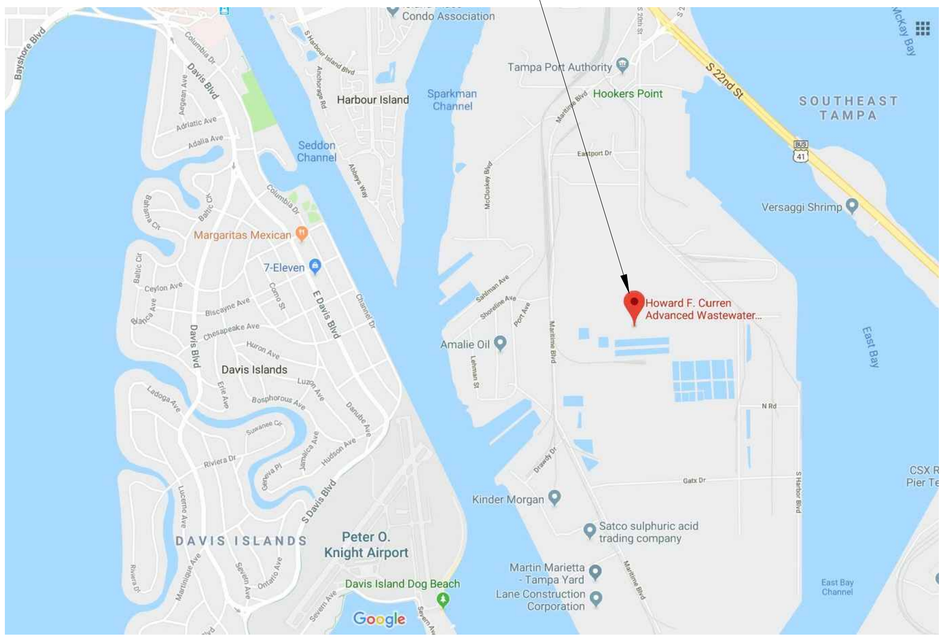
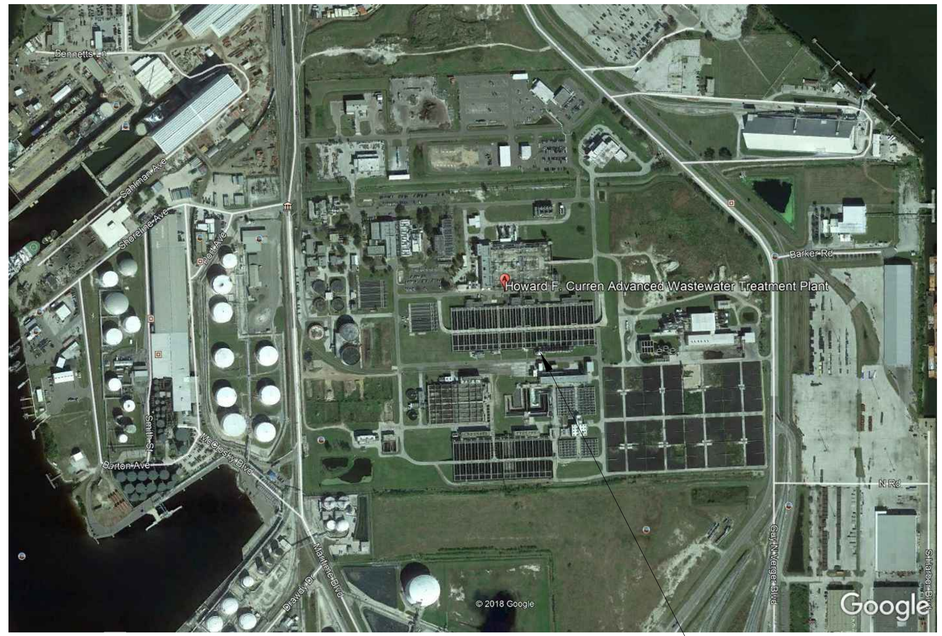
# CITY OF TAMPA
# HOWARD F. CURREN AWTP
# METHANOL STORAGE TANK REPLACEMENT

*PROJECT LOCATION*
*2700 MARITIME BLVD*
*TAMPA, FL 33605*
*CHEMICAL STORAGE TANKS (043)*




*LOCATION MAP*

*CONTRACT No. 19-C-00051*




*VICINITY MAP*

*PROJECT LOCATION*

*DRAWING INDEX:*

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*100% SUBMITTAL*
*NOVEMBER 2019*
*B&V PROJECT NUMBER 401265*


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**Black & Veatch Corporation**
**3405 W. Dr. M. L. King Jr. Blvd, Suite 125**
**Tampa, Florida Certificate No. 8132**


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## GENERAL

1. THESE GENERAL NOTES SHALL APPLY TO ALL DRAWINGS INCLUDED IN THE CONTRACT.
2. ELEVATIONS INDICATED ON THE DRAWINGS ARE BASED ON A CITY OF TAMPA SPECIFIC DATUM AS PER THE JULY 1975 RECORD DRAWINGS.
3. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN PERFORMING DEMOLITION AND CONSTRUCTION ACTIVITIES. METHANOL SERVICE SHALL REMAIN UNDISTURBED DURING THE PROJECT. CONTRACTOR SHALL ENSURE SAFETY OF THE SITE AND CONTRACTOR STAFF WHEN WORKING NEAR THE METHANOL SYSTEM.
4. CONTRACTOR SHALL SUBMIT A DETAILED PLAN AND CONSTRUCTION SEQUENCE TO PROVIDE UNINTERRUPTED METHANOL SERVICE FOR REVIEW AND APPROVAL BY OWNER AND ENGINEER.
5. PIPING AND UTILITY LOCATIONS SHOWN ON PLANS ARE NOT EXACT OR GUARANTEED. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING UTILITY LOCATIONS.
6. "SCREENED" (LIGHT) DELINEATION INDICATED ON THE DRAWINGS DENOTES EXISTING FACILITIES. "SCREENED" INFORMATION WAS TAKEN FROM EXISTING CONSTRUCTION DRAWINGS AND DATA, AND IS FOR REFERENCE ONLY, AND EXISTING FACILITIES THAT IMPACT OR ARE IN THE VICINITY OF NEW WORK SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE ORDERING OF MATERIALS AND BEGINNING OF CONSTRUCTION. CONTRACTOR SHALL FIELD VERIFY PRECISE LOCATION, ELEVATION AND ARRANGEMENT OF CONNECTIONS OF NEW PIPELINES WITH EXISTING PIPELINES AND STRUCTURES BASED ON FIELD CONDITIONS, "BOLD" DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.
7. THE TERM "NEW" OR "PROPOSED" AS INDICATED ON THE DRAWINGS MEANS THE ITEM IS DESIGNED OR PLANNED TO BE PROVIDED BY THE CONTRACTOR. THE TERM "FUTURE" AS INDICATED ON THE DRAWINGS REFERS TO THE ENGINEER'S INTERPRETATION OF THE ITEM FOR THE FUTURE, BASED ON AVAILABLE INFORMATION.
8. OWNER SHALL OPERATE WATER, WASTEWATER, AND RECLAIMED WATER VALVES. COORDINATE VALVE OPERATION WITH OWNER.
9. CONTRACTOR SHALL PROTECT EXISTING INFRASTRUCTURE / EQUIPMENT FROM DAMAGE DURING THE DURATION OF CONSTRUCTION. THE CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, SHALL IMMEDIATELY REPAIR ALL DAMAGES TO UTILITIES, MAINS AND FACILITIES. IF THE REPAIR IS NOT MADE IN A TIMELY MANNER, AS DETERMINED BY OWNER, OWNER MAY PERFORM REQUIRED REPAIRS AND CLEANUP. THE CONTRACTOR WILL BE CHARGED FOR ALL EXPENSES ASSOCIATED WITH THE REPAIR.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL SURVEY BENCHMARKS. SURVEY BENCHMARKS DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REESTABLISHED BY A LAND SURVEYOR LICENSED IN THE STATE OF FLORIDA.
11. CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING TREES, SHRUBS, AND PLANTS, UNLESS OTHERWISE NOTED.
12. CONTRACTOR SHALL NOT ADVERSELY IMPACT DRAINAGE SYSTEMS DURING CONSTRUCTION. TEMPORARILY RECONFIGURE THE DRAINAGE SYSTEM, AS NEEDED AS THE CONSTRUCTION WORK PROGRESSES, TO NOT CAUSE ADVERSE IMPACTS TO SURFACE WATER DRAINAGE EFFICIENCY. DO NOT IMPAIR SURFACE WATER DRAINAGE CAPACITY.
13. CONTRACTOR SHALL RETURN THE ENTIRE AREA DISTURBED BY CONSTRUCTION ACTIVITIES TO THE ORIGINAL CONDITION OR BETTER UPON COMPLETION OF THE WORK, IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. UNLESS OTHERWISE SPECIFIED OR REQUIRED TO MEET THE DESIGN INTENT GRADE SHALL BE RETURNED TO ORIGINAL ELEVATION. ANY DISTURBANCE TO ANY LAND OR OTHER APPURTENANCES, OUTSIDE THE LIMITS OF CONSTRUCTION, CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE OWNER OF THE LAND OR APPURTENANCE. NO PAYMENT SHALL BE MADE FOR SUCH WORK. REFER TO SPECIFICATION 02930 FOR SEEDING AND SODDING REQUIREMENTS.
14. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES ADJACENT TO THE WORK THROUGHOUT THE PERIOD OF CONSTRUCTION, AND AT NO TIME SHALL HIS OPERATIONS BLOCK OR RESTRICT ACCESS TO PLANT STAFF WITHOUT ADVANCED NOTIFICATION AND APPROVAL.
15. THE CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO CONNECTING TO OR DISRUPTING ANY EXISTING SERVICES (PIPING, CHEMICAL, ELECTRICAL, ETC). AT A MINIMUM, CONTRACTOR SHALL NOTIFY OWNER TWENTY-ONE (21) DAYS IN ADVANCE OF TIE-ING INTO EXISTING FACILITIES / PIPING.
16. CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED AND SEQUENCED TO ENSURE CONTINUOUS OPERATION OF EXISTING FACILITIES, UNLESS OTHERWISE SPECIFICALLY ALLOWED BY THE CONTRACT DOCUMENTS AND WITH WRITTEN AUTHORIZATION FROM THE OWNER. REFER TO SPECIFICATIONS FOR SPECIFIC CONSTRUCTION CONSTRAINTS.
17. RESTRAINED JOINTS SHALL BE PROVIDED FOR ALL PIPING.
18. CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED AND SEQUENCED TO ENSURE CONTINUOUS OPERATION OF EXISTING FACILITIES, UNLESS OTHERWISE SPECIFICALLY ALLOWED FOR IN THE CONTRACT DOCUMENT AND WITH WRITTEN AUTHORIZATION FROM OWNER. REFER TO SPECIAL CONDITIONS FOR ADDITIONAL CONSTRUCTION CONSTRAINTS.
19. THE CONTRACTOR SHALL REMOVE AND LEGALLY DISPOSE OF ALL SURPLUS MATERIALS AND DEBRIS FROM THE SITE AND SHALL MAINTAIN THE SITE IN A NEAT AND ORDERLY CONDITION.
20. THE DRAWINGS INDICATE TYPES OF PIPE SUPPORT SYSTEMS AT VARIOUS LOCATIONS. HOWEVER, ALL PIPE SUPPORTS, HANGERS, BRACKETS, INSERTS OR BRACES ARE NOT SHOWN. CONTRACTOR SHALL REFER TO SPECIFICATION 15140 REQUIREMENTS AND PROVIDE A COMPLETE SUPPORT SYSTEM AS REQUIRED.
21. UNLESS ADDITIONAL SPACE IS APPROVED BY OWNER, CONTRACTOR'S STAGING, PARKING AND MATERIAL STORAGE SHALL BE LIMITED TO THE LOCATION(S) INDICATED ON THE DRAWING (D-01). PROVIDING ADDITIONAL STORAGE AREAS OR PARKING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
22. CONSTRUCTION AREA WILL BE CLEANED UP DAILY. CONTRACTOR SHALL HANDLE ALL SPILLS, DRAINING PIPES OR TIE-IN CONNECTIONS. CONTRACTOR WILL HAVE TANKER TRUCKS AND LINE EXCAVATION WITH POLY LINER IN ORDER TO HANDLE SPILLS AND TO CAPTURE AND DISPOSE OF FLUIDS ENCOUNTERED.
23. THE CITY OF TAMPA STANDARD FOR DESIGN AND CONSTRUCTION OF WATER, WASTEWATER, AND RECLAIMED WATER FACILITIES (LATEST EDITION) SHALL BE USED FOR DETAILS AND INFORMATION NOT SHOWN HEREIN.
24. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH FLORIDA BUILDING CODE 6TH EDITION 2017, CHAPTER 5 OF THE CITY OF TAMPA CODE AND NATIONAL ELECTRICAL CODE 2014 EDITION.

## ABBREVIATIONS

| | |
|---|---|
| ALT | ALTERNATE, (IVE) |
| APPROX | APPROXIMATE, (LY) |
| AWG | AMERICAN WIRE GAGE |
| BF | BLIND FLANGE |
| BFV | BUTTERFLY VALVE |
| BLDG | BUILDING |
| BM | BENCHMARK |
| BSP | BLACK STEEL PIPE |
| BV | BALL VALVE |
| BWH | BACKWASH WASTE |
| CFM | CUBIC FEET PER MINUTE |
| C&G | CURB AND GUTTER |
| CI | CAST IRON |
| CIP | CAST IRON PIPE |
| CJ | CONTRACTION JOINT |
| C/L | CENTERLINE |
| CONT | CONTINUOUS, CONTINUATION |
| CPLG | COUPLING |
| CTR(S) | CENTER(S) |
| CV | CHECK VALVE |
| CW | COLD WATER |
| DI | DUCTILE IRON |
| DIA | DIAMETER |
| DIP | DUCTILE IRON PIPE |
| DMJ | DISMANTLING JOINT |
| DN | DOWN |
| DRN, D | DRAIN |
| DWG(S) | DRAWING(S) |
| E | EAST |
| EA | EACH |
| ECC | ECCENTRIC |
| EFF | EFFLUENT |
| EL | ELEVATION |
| EQ | EQUAL |
| EQUIP | EQUIPMENT |
| EXIST | EXISTING |
| FCA | FLANGED COUPLING ADAPTER |
| FE | FINAL EFFLUENT / FILTER EFFLUENT |
| FH | FIRE HYDRANT |
| FIN | FINISHED |
| FL | FLOOR |
| FLEX | FLEXIBLE |
| FLG | FLANGE |
| FM | FORCE MAIN |
| FRP | FIBERGLASS REINFORCED PLASTIC |
| FT | FOOT |
| FWD | FORWARD |
| G | GAS |
| GA | GAUGE |
| GAL | GALLON |
| GALV | GALVANIZED |
| GPM | GALLONS PER MINUTE |
| GR | GRADE |
| GV | GATE VALVE |
| HB | HOSE BIBB |
| HF | HOSE FAUCET |
| HMC | HARNESSED MECHANICAL COUPLING |
| HORIZ | HORIZONTAL |
| HP | HORSEPOWER |
| HW | HOT WATER |
| HWY | HIGHWAY |
| ID | INSIDE DIAMETER |
| IN | INCHES |
| INC | INCORPORATED |
| INV | INVERT |
| LAT | LATERAL |
| LBR | LIMEROCK BEARING RATIO |
| LB(S) | POUNDS |
| LPSA | LOW PRESSURE SERVICE AIR |
| LOC | LIMITS OF CONSTRUCTION |
| LT | LEFT |
| MAX | MAXIMUM |
| MFM | MAGNETIC FLOWMETER |
| MFR(S) | MANUFACTURER(S) |
| MGD | MILLION GALLONS PER DAY |
| MH | MANHOLE |
| MIN | MINIMUM |
| MISC | MISCELLANEOUS |
| MJ | MECHANICAL JOINT |
| ML, MXL | MIXED LIQUOR |
| MTH | METHANOL |
| N | NORTH |
| N/A | NOT APPLICABLE |
| NC | NORMALLY CLOSED |
| N.O. | NORMALLY OPEN |
| NO.(S) | NUMBER(S) |
| NPT | NATIONAL PIPE THREAD |
| NPW | NONPOTABLE WATER |
| NTS | NOT TO SCALE |
| OC | ON CENTER |
| OD | OUTSIDE DIAMETER |
| OF | OVERFLOW |
| OH | OVERHEAD |
| OZ | OUNCE |
| PE | PLAIN END |
| POLY | POLYMER |
| PP | POWER POLE |
| PRV | PRESSURE REDUCING VALVE |
| PS | PIPE SUPPORT |
| PSF | POUNDS PER SQUARE FOOT |
| PSI | POUNDS PER SQUARE INCH |
| PT | POINT |
| PV | PLUG VALVE |
| PVC | POLYVINYL CHLORIDE |
| PVCP | POLYVINYL CHLORIDE PIPE |
| PVMT | PAVEMENT |
| PW | POTABLE WATER |
| R | RADIUS |
| RCP | REINFORCED CONCRETE PIPE |
| RD | ROAD |
| RED | REDUCER, REDUCING |
| REQD | REQUIRED |
| RPM | REVOLUTIONS PER MINUTE |
| RT | RIGHT |
| R/W | RIGHT OF WAY |
| S | SOUTH |
| SCH | SCHEDULE |
| SE | SECONDARY EFFLUENT |
| SIM | SIMILAR |
| SPEC(S) | SPECIFICATION(S) |
| SQ | SQUARE |
| SS | SANITARY SEWER / STAINLESS STEEL |
| ST SWR | STORM SEWER |
| STA | STATION |
| STD | STANDARD |
| SYM | SYMMETRICAL |
| SYS | SYSTEM |
| RAS | RETURN ACTIVATED SLUDGE |
| WAS | WASTE ACTIVATED SLUDGE |
| T | TOP |
| TBM | TEMPORARY BENCHMARK |
| TH | TEST HOLE |
| TV | TELEVISION |
| TYP | TYPICAL |
| UDM | ULTRASONIC DENSITY METER |
| UGND | UNDERGROUND |
| UNO | UNLESS NOTED OTHERWISE |
| USGS | UNITED STATES GEOLOGICAL SURVEY |
| V | VALVE, VENT |
| VCP/VC | VITRIFIED CLAY PIPE |
| VERT | VERTICAL |
| VR | AIR/VACUUM RELEASE VALVE |
| VV | VENT VALVE |
| W | WEST, WATER |
| W/ | WITH |
| WL | WATER LEVEL |
| WM | WATER METER |
| W/O | WITHOUT |
| WT | WEIGHT |
| WW | WET WELL |
| x | BY,TIMES |
| YH | YARD HYDRANT |
| & | AND |
| @ | AT |
| ° | DEGREE |
| < | DEFLECTION ANGLE |
| # | NUMBER |
| % | PERCENT |

## GENERAL LEGEND

- NEW PIPING
- UNDERGROUND PIPING
- EXISTING PIPING
- SMALLER THAN 24" / 24" AND LARGER — EXISTING
- GENERAL LAYOUT YARD PIPING
- SMALLER THAN 24" / 24" AND LARGER — NEW
- PROPERTY LINE
- EASEMENT LINE
- FENCE
- CENTERLINE
- SILT FENCE
- (G) (W) — WATER OR GAS VALVE
- (WM) (GM) — WATER OR GAS METER
- TELEPHONE OR POWER POLE WITH GUY ANCHOR
- MANHOLE (MH)
- FH — FIRE HYDRANT (FH)
- Y — YARD, POST HYDRANT (YH)
- STREET LIGHT POLE
- HEDGE, BRUSH, SHRUBS, WOODS
- 10" — DECIDUOUS TREE AND TRUNK DIAMETER
- 4" — CONIFEROUS TREE AND TRUNK DIAMETER
- SWAMP
- A / AC45 — SECTION NUMBER OR DETAIL LETTER; DRAWING NUMBER ON WHICH SECTION OR DETAIL APPEARS; OR WHERE SECTION IS CUT OR DETAIL IS NOTED
- DEMOLISH AND DISPOSE
- 326 — EXISTING GROUND CONTOUR
- 326 — FINISH GRADE CONTOUR
- DRAINAGE ARROW (FLOW DIRECTION)
- X 57.50 — EXISTING SPOT ELEVATION
- XX.X — PROPOSED SPOT ELEVATION

## MATERIALS LEGEND

- EARTH OR GRADE
- GRANULAR FILL (CRUSHED STONE OR GRAVEL)
- ROCK
- CONCRETE
- ASPHALT
- GRANITE ROCK

| NO. | BY | CK APP | DATE | REVISIONS AND RECORD OF ISSUE |
|---|---|---|---|---|
| D | AD | BV DH | NOV 2019 | 100% SUBMITTAL |
| C | AD | BV NE | AUG 2019 | 90% SUBMITTAL |
| B | AD | DL DH | JUNE 2019 | 60% SUBMITTAL |
| A | AD | DL DH | APR 2019 | PRELIMINARY SUBMISSION |

50.3040 - General Drawings
G-02.dwg

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XREF4:

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CITY OF TAMPA
HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

GENERAL
NOTES, LEGENDS, SYMBOLS AND ABBREVIATIONS

DESIGNED: EB
DETAILED: AD
CHECKED: BV
APPROVED: DH
DATE: NOVEMBER 2019

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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
401265

G-02
SHEET
2 OF 22

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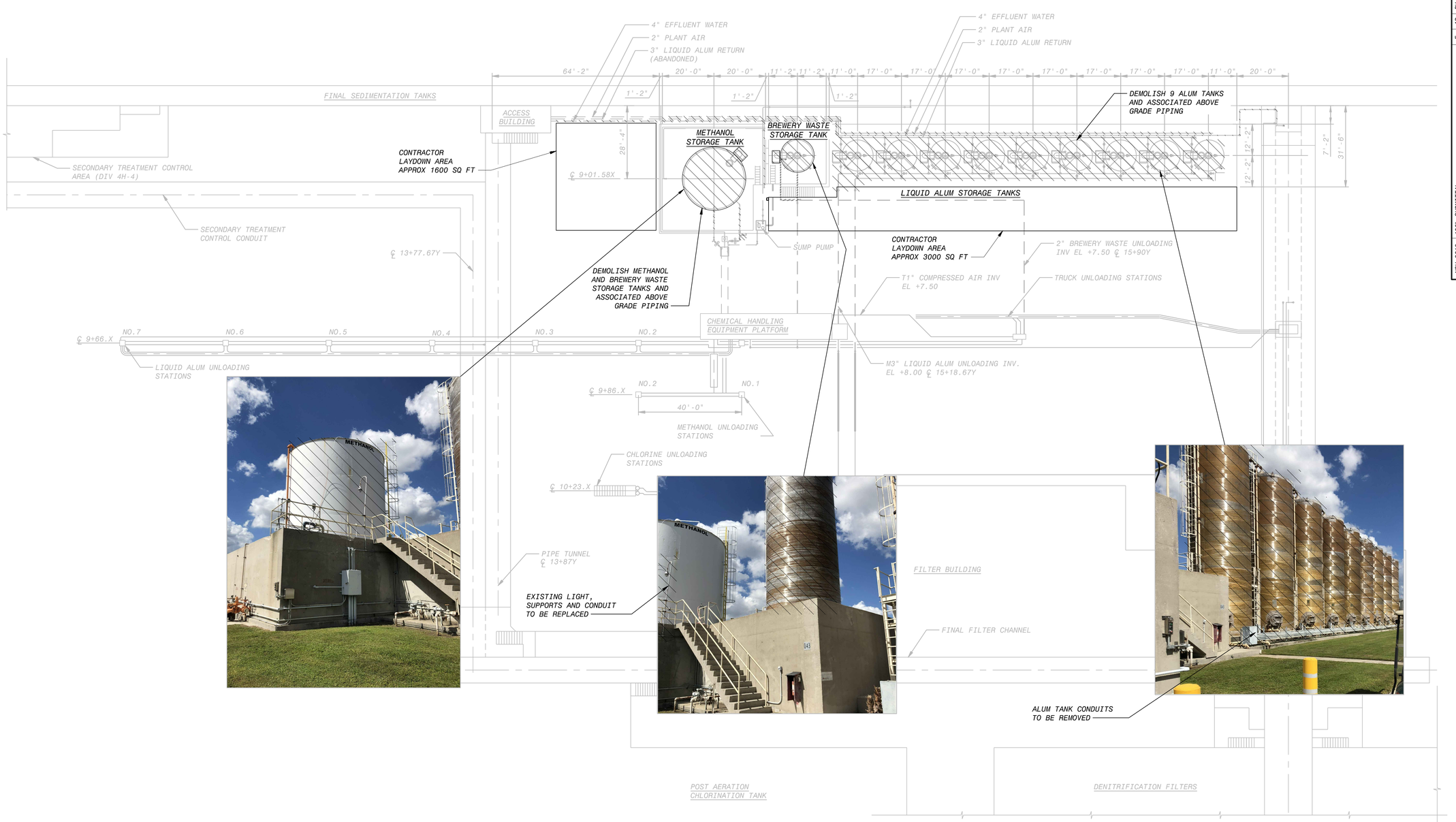


LEGEND:

DEMOLITION

NOTES:

1. DRAWING IN ACCORDANCE WITH AVAILABLE RECORD DRAWINGS.
2. DEMOLITION SHALL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION 02050 ALL UNDERGROUND PIPING TO BE PLUGGED AND ABANDONED IN PLACE. ALL PIPING TO ALUM STORAGE TANKS TO BE REMOVED.
3. DEMOLITION ACTIVITIES SHOULD BE DONE IN SUCH A MANNER AS TO AVOID INTERRUPTION IN METHANOL SERVICE TO THE FACILITY.
4. ALL CONCRETE STRUCTURES ARE TO REMAIN INTACT THROUGHOUT AND AFTER COMPLETION OF DEMOLITION ACTIVITIES,UNLESS OTHERWISE NOTED.
5. SUMP PUMP AND ASSOCIATED DRAIN AND DISCHARGE LINES TO REMAIN IN SERVICE.

## DEMOLITION - SITE PLAN

1" = 20'-0"

20' 10' 0 20' 40'

1"=20'

| NO. | DATE | REVISIONS AND RECORD OF ISSUE | BY | CK | APP |
|---|---|---|---|---|---|
| E | NOV 2019 | 100% SUBMITTAL | AD | BV | DH |
| D | AUG 2019 | 90% SUBMITTAL | AD | BV | NE |
| C | JUNE 2019 | 60% SUBMITTAL | AD | DL | DH |
| B | MAY 2019 | RESPONSE TO CITY COMMENTS | AD | EB | DH |
| A | APR 2019 | PRELIMINARY SUBMISSION | AD | EB | DH |

50.3040 - General Drawings

D-01.dwg

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PLOTTED:RANG4017, 18-12-2019 12:34:22

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CITY OF TAMPA
HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

DEMOLITION SITE PLAN

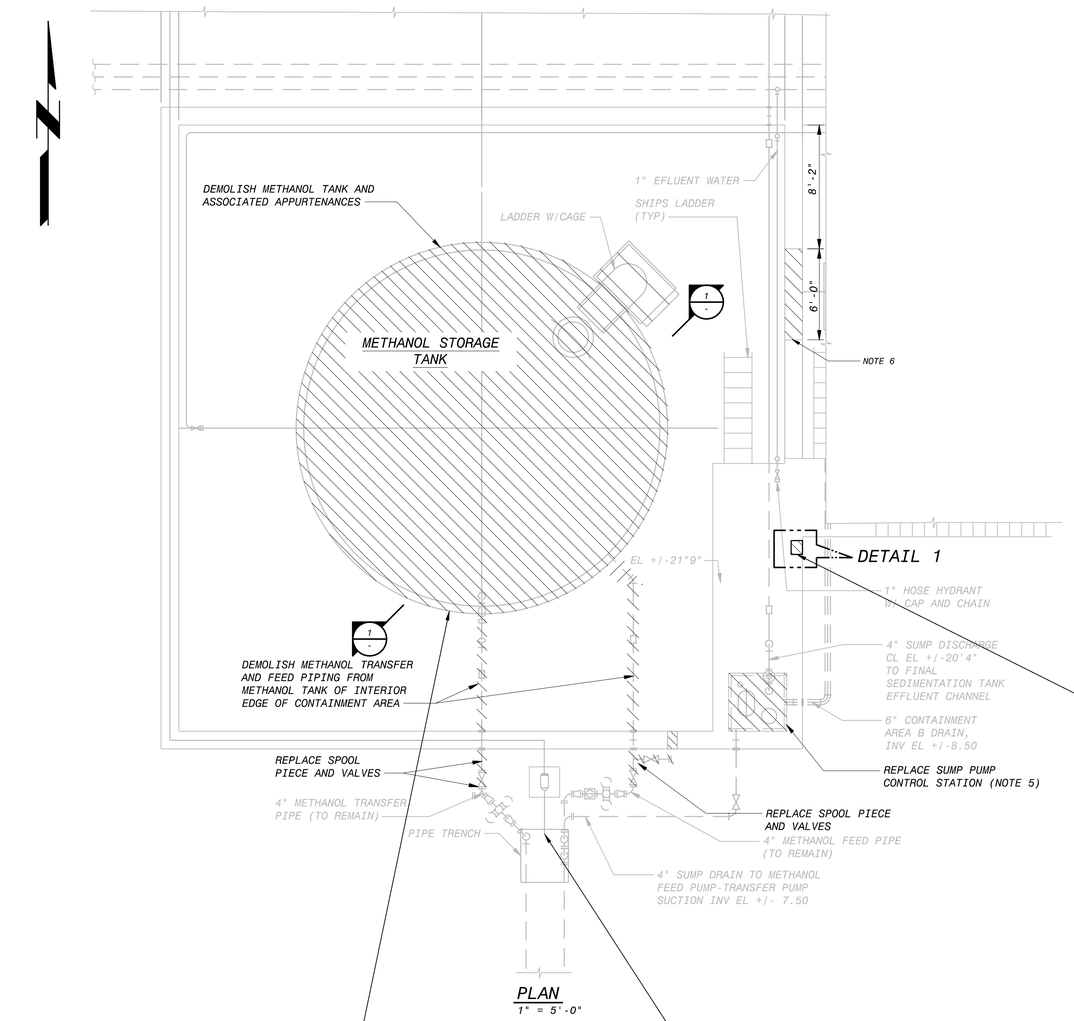
DESIGNED: EB
DETAILED: HT
CHECKED: BV
APPROVED: DH
DATE: NOVEMBER 2019

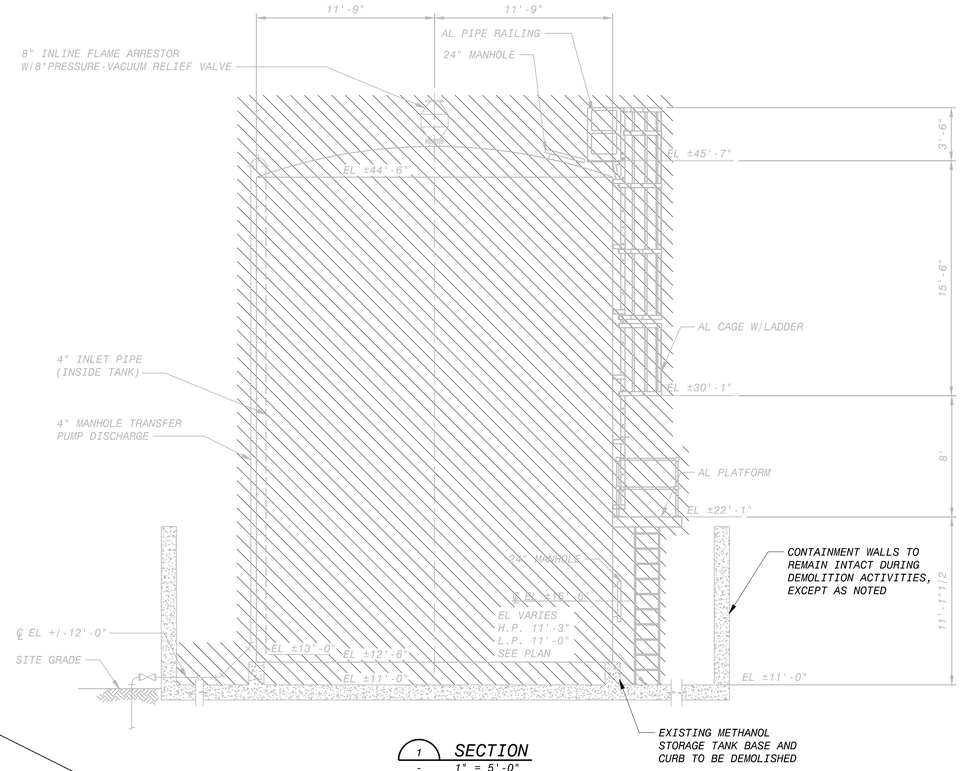
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

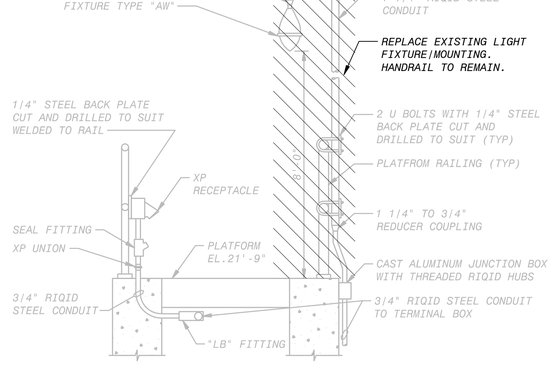
PROJECT NO.
401265

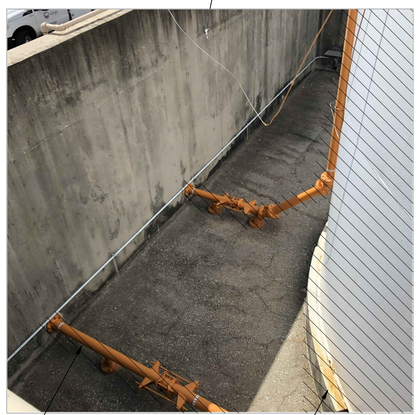
D-01
SHEET
3 OF 22

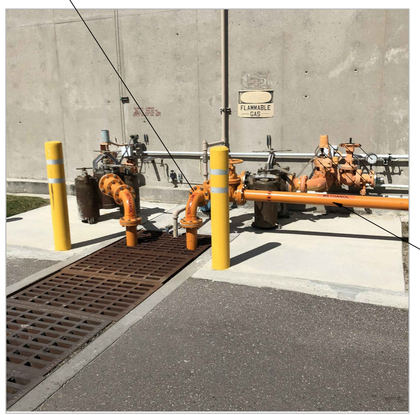
FD7000
198898






DEMOLISH PIPING WITHIN CONTAINMENT AREA

DEMOLISH EXISTING TANK BASE

EXISTING METHANOL PUMPING AND PIPING SYSTEM TO REMAIN AS-IS

**LEGEND:**

DEMOLITION

**NOTES:**

1. DRAWING IN ACCORDANCE WITH AVAILABLE RECORD DRAWINGS.
2. DEMOLITION SHALL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION 02050 ALL UNDERGROUND PIPING TO BE PLUGGED AND ABANDONED IN PLACE.
3. DEMOLITION ACTIVITIES SHOULD BE DONE IN SUCH A MANNER AS TO AVOID INTERUPTION IN METHANOL SERVICE TO THE FACILITY.
4. ALL CONCRETE STRUCTURES ARE TO REMAIN INTACT THROUGHOUT AND AFTER COMPLETION OF DEMOLITION ACTIVITIES, UNLESS OTHERWISE NOTED.
5. SUMP PUMP AND ASSOCIATED DRAIN AND DISCHARGE LINES TO REMAIN IN SERVICE. EXISTING SUMP PUMP CONTROL TO BE REPLACED, INCLUDING CONTROL STATION, CONDUITS & SEAL-OFFs, FLEXIBLE CONDUIT, PUMP LEVEL CONTROL FLOAT SWITCH, SUMP HIGH LEVEL FLOAT SWITCH, REMOVE PUMP LUBE WATER SOLENOID & LOW WATER PRESSURE SWITCH. SEE E-02 FOR DETAILS.
6. DEMOLISH PORTION OF CONTAINMENT AREA WALL AS INDICATED TO COMBINE CONTAINMENT AREAS A AND B. SEE MECHANICAL AND STRUCTURAL DRAWINGS FOR DETAILS.

5' 0 5' 10'
1"=5'

| | | | |
|---|---|---|---|
| C | AD | BV | DH |
| B | AD | BV | NE |
| A | AD | DL | DH |
| NO. | BY | CK | APP |

REVISIONS AND RECORD OF ISSUE

| DATE | |
|---|---|
| NOV 2019 | 100% SUBMITTAL |
| AUG 2019 | 90% SUBMITTAL |
| JUNE 2019 | 60% SUBMITTAL |

50.3040 - General Drawings
D-02.dwg

XREF1:
XREF2:
XREF3:
XREF4:

SAVED:RANG4017, 18-12-2019 12:35:01
PLOTED:RANG4017, 18-12-2019 12:35:06
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CITY OF TAMPA
HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

DEMOLITION
PLAN, SECTION AND DETAILS
METHANOL TANK

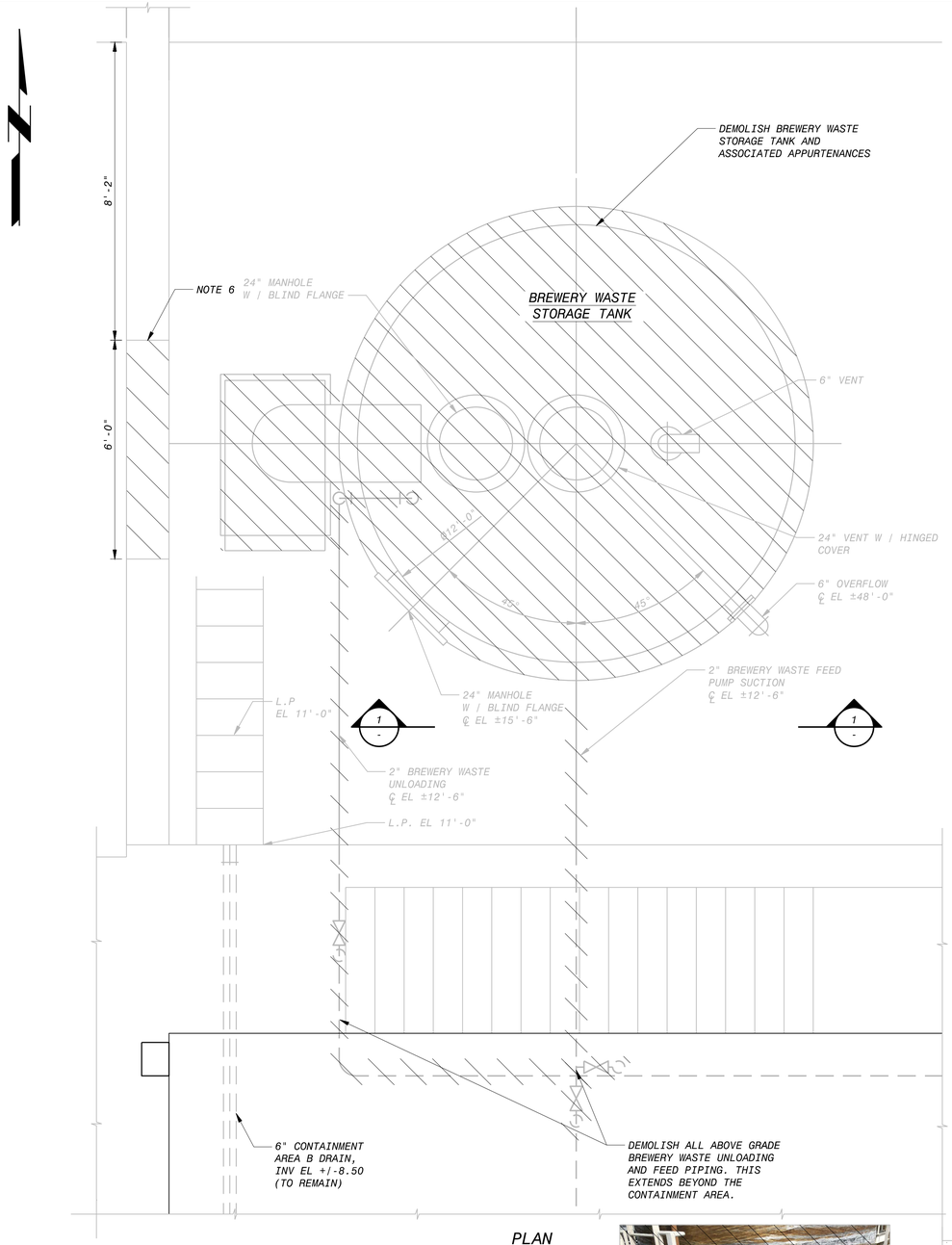
DESIGNED: EB
DETAILED: HT
CHECKED: BV
APPROVED: DH
DATE: NOVEMBER 2019

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

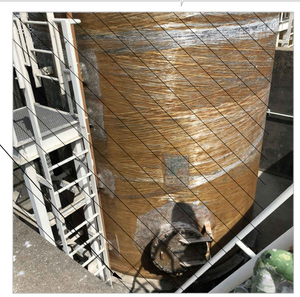
PROJECT NO.
401265

D-02
SHEET
4 OF 22

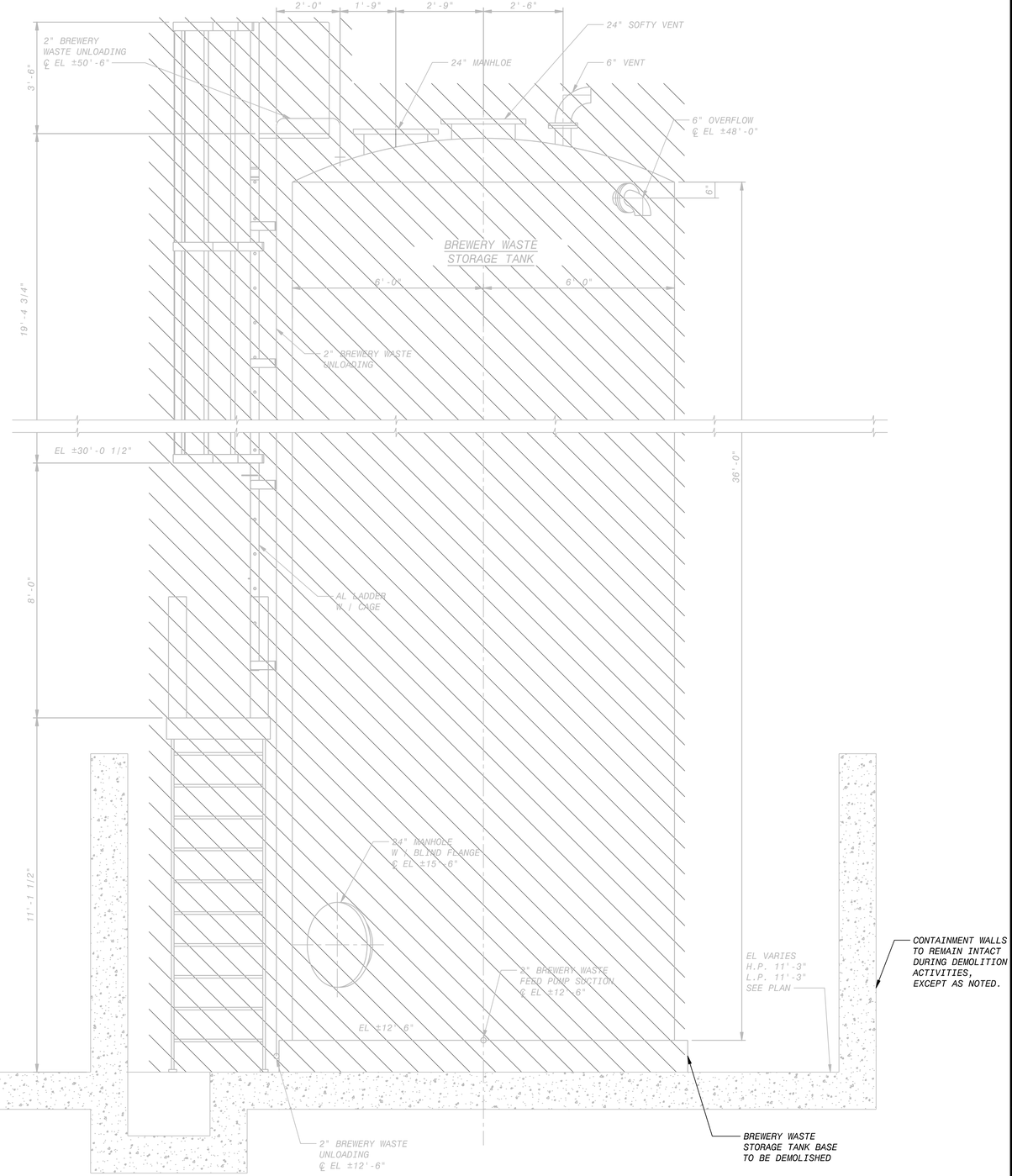
FD7000
196898




PLAN
1" = 2'-0"



DEMOLISH EXISTING TANK BASE




1 - SECTION
1" = 2'-0"

LEGEND:

DEMOLITION

NOTES:

1. DRAWING IN ACCORDANCE WITH AVAILABLE RECORD DRAWINGS.
2. DEMOLITION SHALL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION 02050.
3. DEMOLITION ACTIVITIES SHOULD BE DONE IN SUCH A MANNER AS TO AVOID INTERUPTION IN METHANOL SERVICE TO THE FACILITY.
4. ALL CONCRETE STRUCTURES ARE TO REMAIN INTACT THROUGHOUT AND AFTER COMPLETION OF DEMOLITION ACTIVITIES, UNLESS OTHERWISE NOTED.
5. SUMP PUMP AND ASSOCIATED DRAIN AND DISCHARGE LINES TO REMAIN IN SERVICE.
6. DEMOLISH PORTION OF CONTAINMENT AREA WALL AS INDICATED TO COMBINE CONTAINMENT AREAS A AND B. SEE MECHANICAL AND STRUCTURAL DRAWINGS FOR DETAILS.

2" 0 2' 4'
1"=2'

| NO. | BY | CK | APP |
|---|---|---|---|
| A | AD | DL | DH |
| B | AD | BV | NE |
| C | AD | BV | DH |

| DATE | REVISIONS AND RECORD OF ISSUE |
|---|---|
| NOV 2019 | 100% SUBMITTAL |
| AUG 2019 | 90% SUBMITTAL |
| JUNE 2019 | 60% SUBMITTAL |

50.3040 - General Drawings
D-03.dwg
SAVED:RANK4017, 18-12-2019 12:35:29
PLOTTED:RANK4017, 18-12-2019 12:35:32
USER:RANK4017
DWG VER:1004
XREF1:
XREF2:
XREF3:
XREF4:

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CITY OF TAMPA
HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

DEMOLITION
PLAN, SECTION AND DETAILS
BREWERY WASTE STORAGE TANK

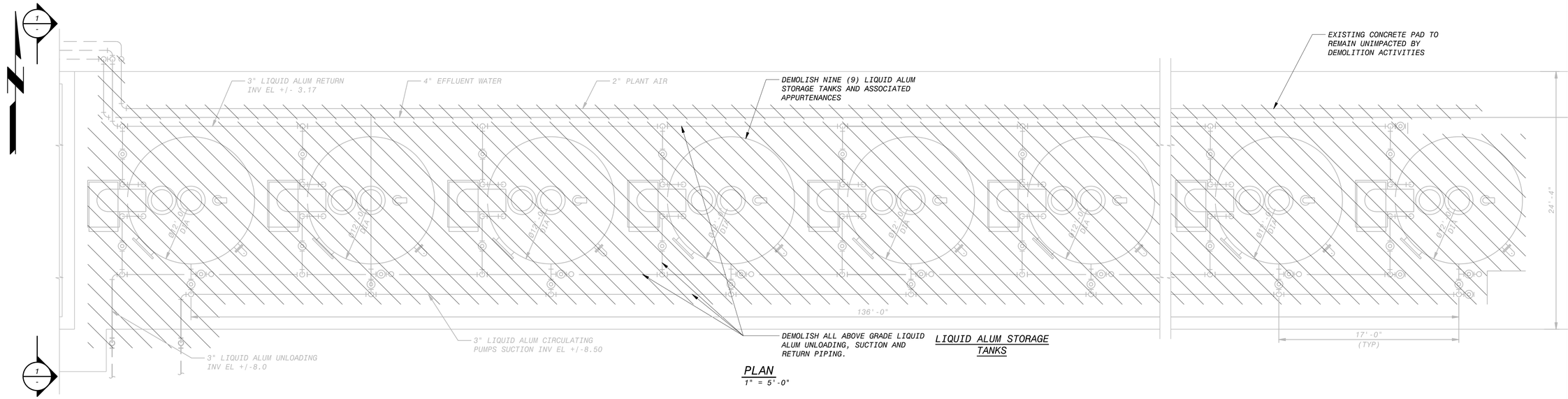
DESIGNED: EB
DETAILED: HT
CHECKED: BV
APPROVED: DH
DATE: NOVEMBER 2019

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
401265

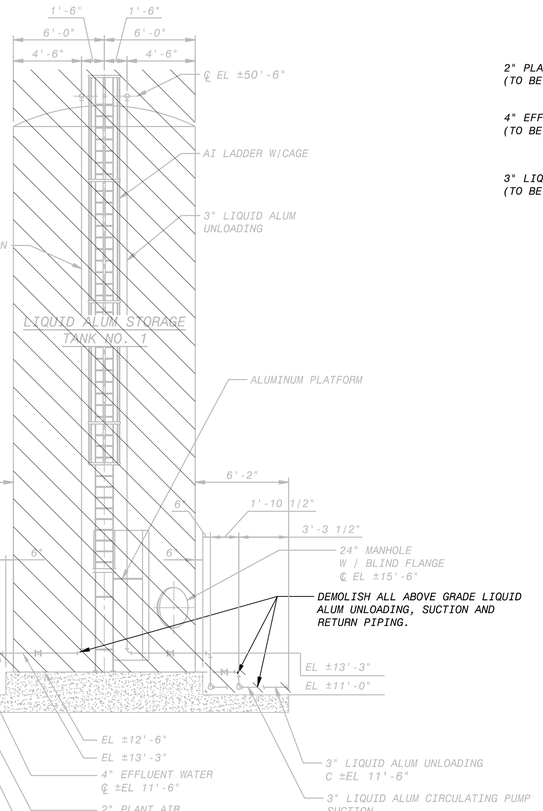
D-03
SHEET
5 OF 22

FD7000
198888

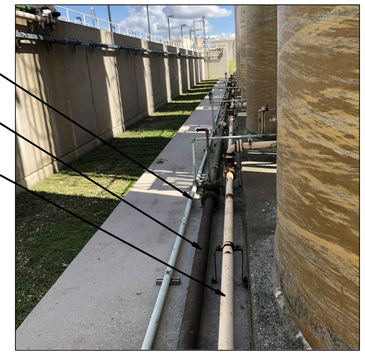



PLAN
1" = 5'-0"

DEMOLISH ALL ABOVE GRADE LIQUID
ALUM UNLOADING, SUCTION AND
RETURN PIPING.




1 - SECTION
1" = 5'-0"




LEGEND:

DEMOLITION

NOTES:

1. DRAWING IN ACCORDANCE WITH AVAILABLE RECORD DRAWINGS.
2. DEMOLITION SHALL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION 02050.
3. DEMOLITION ACTIVITIES SHOULD BE DONE IN SUCH A MANNER AS TO AVOID INTERUPTION IN METHANOL SERVICE TO THE FACILITY.
4. ALL CONCRETE STRUCTURES ARE TO REMAIN INTACT THROUGHOUT AND AFTER COMPLETION OF DEMOLITION ACTIVITIES.

5' 0 5' 10'
1"=5'

| NO. | BY | CK | APP | DATE | REVISIONS AND RECORD OF ISSUE |
|---|---|---|---|---|---|
| C | AD | BV | DH | NOV 2019 | 100% SUBMITTAL |
| B | AD | BV | NE | AUG 2019 | 90% SUBMITTAL |
| A | AD | DL | DH | JUNE 2019 | 60% SUBMITTAL |

50.3040 - General Drawings
D-04.dwg
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PLOTTED:RANG4017, 18-12-2019 12:35:54
USER:RANG4017 DWG VER:1001
XREF1:
XREF2:
XREF3:
XREF4:

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CITY OF TAMPA
HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

DEMOLITION
PLAN, SECTION AND DETAILS
ALUM TANK(S)

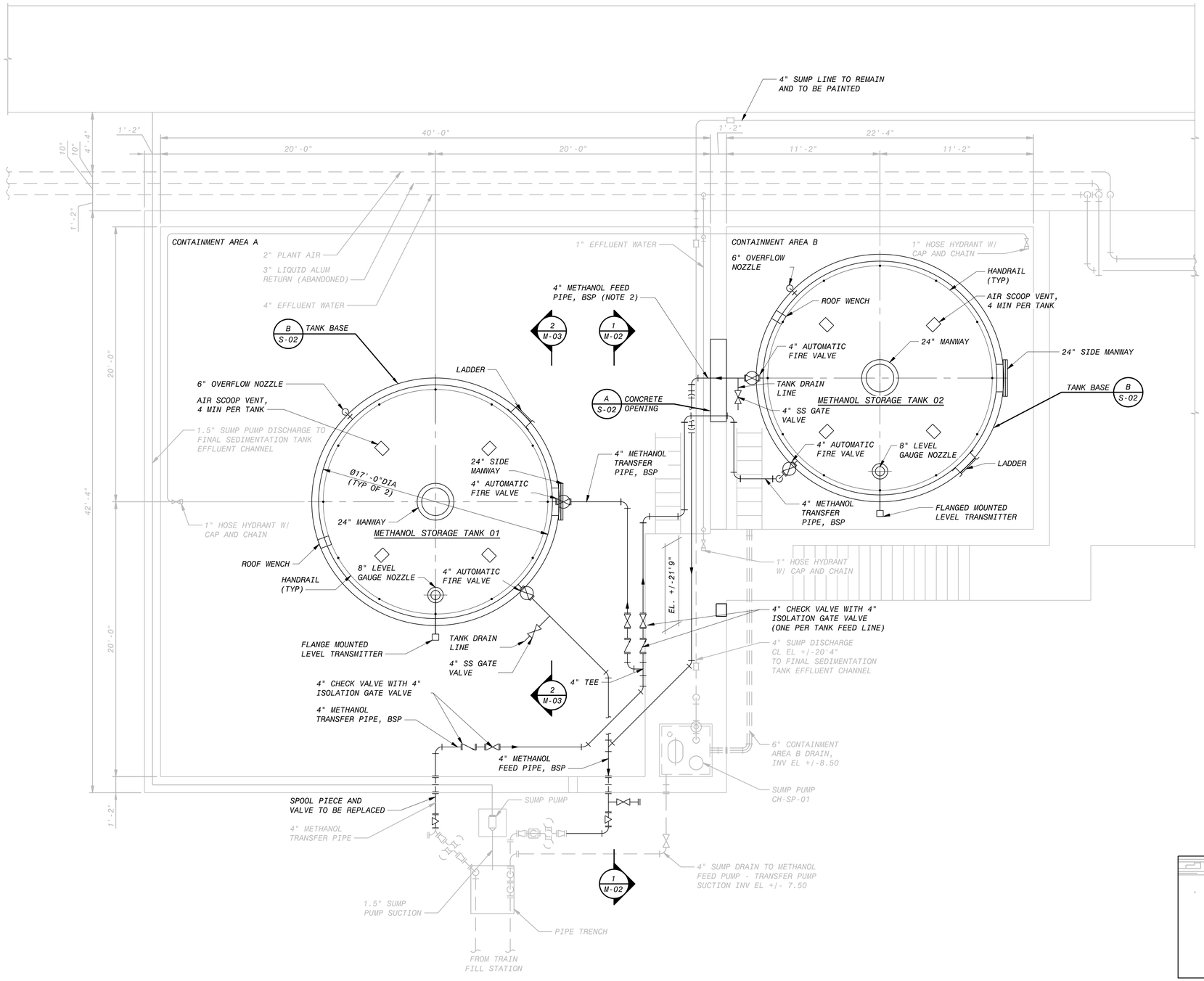
DESIGNED: EB
DETAILED: HT
CHECKED: BV
APPROVED: DH
DATE: NOVEMBER 2019

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

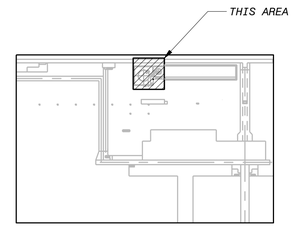
PROJECT NO.
401265

D-04
SHEET
6 OF 22

F07000
198898




## SITE PLAN
1" = 4'-0"




## KEY PLAN

4' 0 4' 8'
1"=4'-0"

NOTES:

1. NEW METHANOL TANKS SHALL BE CONSTRUCTED OF 316L STAINLESS STEEL.
2. 4" METHANOL FEED PIPE SHALL BE ROUTED THROUGH THE OPENING CREATED TO COMBINE CONTAINMENT AREAS A AND B. REFER TO DEMOLITION AND STRUCTURAL DRAWINGS FOR DETAILS.
3. METHANOL TANKS TO BE INSTALLED IN A MANNER THAT WILL NOT INTERRUPT METHANOL SERVICE TO THE FACILITY.
4. 4" METHANOL TRANSFER PIPE TO BE INSTALLED 6" ABOVE TANK BOTTOM AT POINT OF ENTRY INTO THE TANK.
5. METHANOL PIPING ROUTING LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY ALL CHEMICAL TRANSFER AND FEED PIPING LOCATIONS. REFERENCE P&IDS (SHEET I-2) FOR METHANOL PIPING REQUIREMENTS..
6. TANK AND ANCILLARY EQUIPMENT SHOWING GENERAL LOCATION AND OVERALL TANK SIZE.

| NO. | DATE | REVISIONS AND RECORD OF ISSUE | BY | CK | APP |
|---|---|---|---|---|---|
| E | NOV 2019 | 100% SUBMITTAL | AD | BV | DH |
| D | AUG 2019 | 90% SUBMITTAL | AD | EB | NE |
| C | JUNE 2019 | 60% SUBMISSION | AD | EB | DH |
| B | MAY 2019 | RESPONSE TO CITY COMMENTS | AD | EB | DH |
| A | APRIL 2019 | PRELIMINARY SUBMISSION | AD | EB | DH |

50.3090 - Mechanical Drawings\M-01.dwg
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USER:RANB4017 DWG VER:1005
XREF1:
XREF2:
XREF3:
XREF4:

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CITY OF TAMPA
HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

MECHANICAL
PLAN - METHANOL STORAGE TANKS

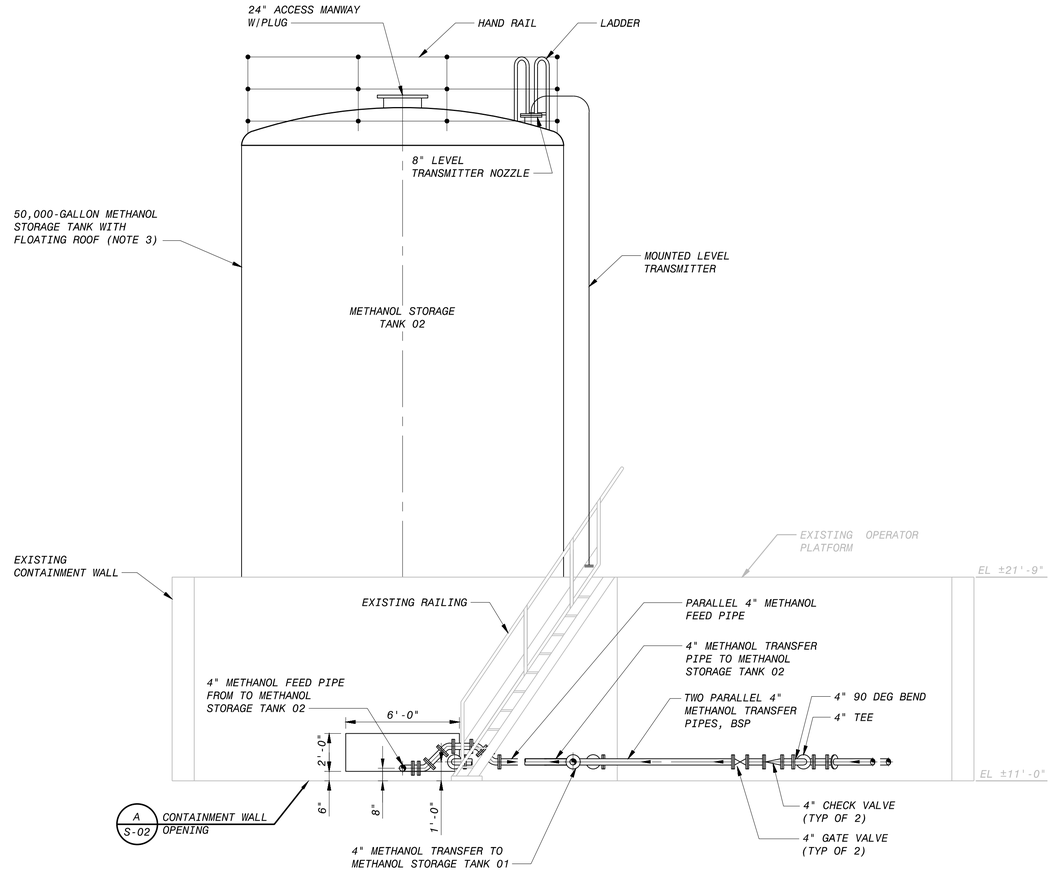
DESIGNED: NE
DETAILED: HT
CHECKED: BV
APPROVED: DH
DATE: NOVEMBER 2019

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
401265

M-01
SHEET
7 OF 22

FD7000
1998898




1 M-01 SECTION
1" = 4'-0"

NOTES:

1. METHANOL PIPING ROUTING LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY ALL CHEMICAL FEED AND TRANSFER PIPING LOCATIONS. REFERENCE P&IDS (SHEET I-2) FOR METHANOL PIPING REQUIREMENTS.
2. PIPE SUPPORTS ARE NOT SHOWN. REFER TO SPECIFICATION 15140 FOR PIPE SUPPORT REQUIREMENTS.
3. METHANOL TANK HAS AN INTERNAL FLOATING ROOF WITH AT LEAST 4 VERTICAL ANTI-ROTATION CABLES AND A WRENCH SYSTEM.

4' 0 4' 8'
1"=4'-0"

| NO. | BY | CK | APP | DATE | REVISIONS AND RECORD OF ISSUE |
|---|---|---|---|---|---|
| C | AD | BV | DH | NOV 2019 | 100% SUBMITTAL |
| B | AD | EB | NE | AUG 2019 | 90% SUBMITTAL |
| A | AD | EB | DH | JUNE 2019 | 60% SUBMITTAL |

50.3090 - Mechanical Drawings
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USER:RANE4017, DWG VER:1000
XREF1:
XREF2:
XREF3:
XREF4:

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CITY OF TAMPA
HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

MECHANICAL PIPING
SECTION - METHANOL PIPING

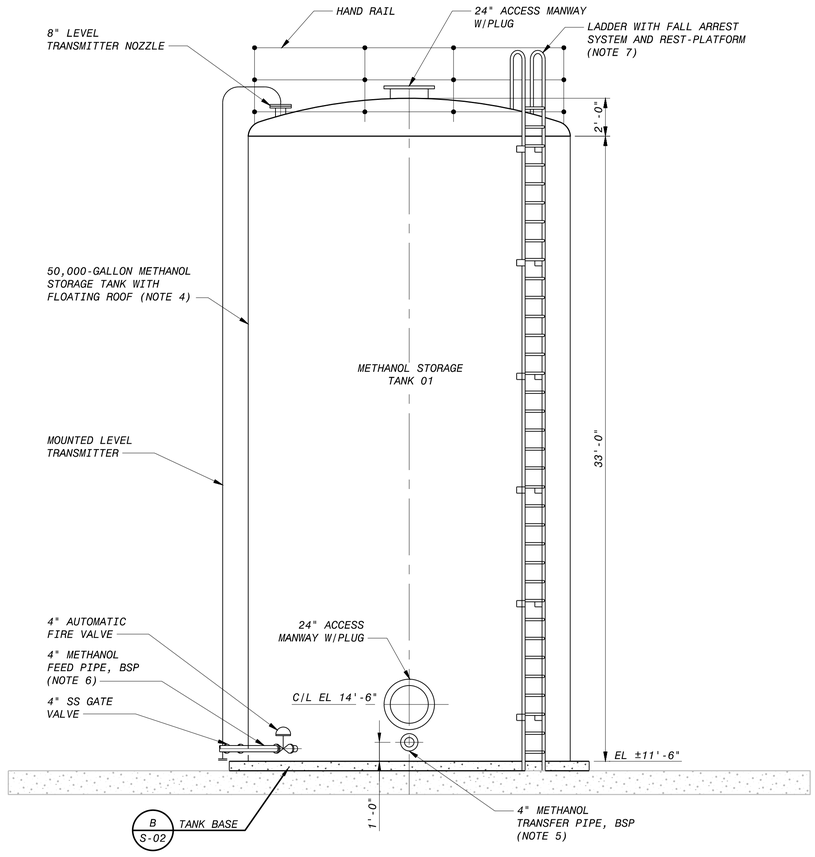
DESIGNED: NE
DETAILED: HT
CHECKED: BV
APPROVED: DH
DATE: NOVEMBER 2019

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
401265

M-02
SHEET
8 OF 22

FD7000
198898




2 SECTION
M-01 1"=4'-0"

NOTES:

1. NOT ALL PIPE SUPPORTS HAVE BEEN SHOWN.
2. NOVOLAC VINYL ESTER WITH GRAPHITE FILLER PROTECTION SYSTEM TO COAT CONCRETE FLOOR SURFACE OF CONTAINMENT AREA INCLUDING CONCRETE TANK BASE, CONCRETE STEPS, EQUIPMENT BASES, INSIDE SUMPS AND INSIDE CONTAINMENT WALLS TO THE TOP, INCLUDING HORIZONTAL SURFACES. THE COATING SHALL EXTEND TO 6" BELOW THE OUTSIDE TOP OF CONTAINMENT WALL. REFER TO SPECIFICATION 09940.
3. REFER TO P&ID (SHEET I-2) DRAWINGS FOR ADDITIONAL REQUIREMENTS.
4. METHANOL TANK HAS AN INTERNAL FLOATING ROOF WITH AT LEAST 4 VERTICAL ANTI-ROTATION CABLES AND A WRENCH SYSTEM.
5. 4" METHANOL TRANSFER PIPE TO BE INSTALLED 6" ABOVE TANK BOTTOM AT POINT OF ENTRY INTO THE TANK.
6. 4" METHANOL FEED PIPE TO BE INSTALLED FLUSH WITH TANK BOTTOM. REFER TO SPECIFICATION 13215 FOR ADDITIONAL REQUIREMENTS.
7. A FALL ARREST SYSTEM AND REST-PLATFORM(S) AT OSHA RECOMMENDED INTERVALS ARE REQUIRED.

4' 0 4' 8'
1"=4'-0"

| NO. | BY | CK | APP | DATE | REVISIONS AND RECORD OF ISSUE |
|---|---|---|---|---|---|
| C | AD | BV | DH | NOV 2019 | 100% SUBMITTAL |
| B | AD | EB | NE | AUG 2019 | 90% SUBMISSION |
| A | AD | EB | DH | JUNE 2019 | 60% SUBMISSION |

50.3090 - Mechanical Drawings
M-03.dwg
XREF1:
XREF2:
XREF3:
XREF4:
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CITY OF TAMPA
HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

MECHANICAL
SECTION METHANOL STORAGE TANK (TYPICAL)

DESIGNED: NE
DETAILED: MD
CHECKED: BV
APPROVED: DH
DATE: NOVEMBER 2019

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
401265

M-03
SHEET
9 OF 22

FD7000
198898

# STRUCTURAL NOTES

## GENERAL

1. THE APPLICABLE BUILDING CODE IS THE 2015 INTERNATIONAL BUILDING CODE (IBC) AND 2017 FLORIDA BUILDING CODE (FBC), 6TH EDITION.
2. THE REQUIREMENTS INDICATED ON THIS SHEET ARE INTENDED AS A BASIC SUMMARY OF THE MATERIAL AND CONSTRUCTION REQUIREMENTS FOR THE PROJECT. ADDITIONAL, MORE STRINGENT REQUIREMENTS ARE GIVEN IN THE PROJECT DETAIL DRAWINGS AND SPECIFICATIONS.
3. ALL STRUCTURAL RELATED SHOP DRAWINGS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO CONSTRUCTION.

## CAST-IN-PLACE CONCRETE

1. A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c) OF 4,000 PSI WAS UTILIZED IN THE DESIGN OF STRUCTURAL REINFORCED CONCRETE. SEE SPECIFICATION 03301 FOR CONSTRUCTION STRENGTH REQUIREMENTS.
2. THE LOCATION OF ALL CONSTRUCTION JOINTS AND OTHER TYPES OF JOINTS, OTHER THAN THOSE SPECIFIED OR SHOWN ON THE PLANS, SHALL BE ACCEPTABLE TO THE ENGINEER PRIOR TO PLACING CONCRETE.

## REINFORCING STEEL

1. ALL REINFORCING BAR SHALL BE GRADE 60, DEFORMED, ASTM A615, UNLESS NOTED OTHERWISE.
2. DIMENSIONS TO REINFORCING BARS ARE TO BAR CENTERLINES, UNLESS NOTED OTHERWISE. BAR COVER IS THE CLEAR DISTANCE BETWEEN THE BAR AND THE CONCRETE SURFACE.
3. NO WELDING OF REINFORCING BARS SHALL BE PERMITTED UNLESS APPROVAL IS OBTAINED FROM THE ENGINEER PRIOR TO CONSTRUCTION.

## POST-INSTALLED ANCHORS

1. POST-INSTALLED ANCHORS SHALL INCLUDE ADHESIVE ANCHORS (THREADED RODS, BOLTS OR REINFORCING BARS), EXPANSION ANCHORS, AND UNDERCUT ANCHORS INSTALLED INTO HARDENED CONCRETE OR MASONRY. SEE THE ANCHORAGE IN CONCRETE AND MASONRY SPECIFICATION INDICATE SPEC NUMBER SECTION FOR ADDITIONAL REQUIREMENTS.
2. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE INDICATED ON THE DRAWINGS. CONTRACTOR SHALL OBTAIN APPROVAL FROM ENGINEER PRIOR TO USING POST-INSTALLED ANCHORS FOR MISSING OR MISPLACED CAST-IN-PLACE ANCHORS.
3. CARE SHALL BE TAKEN TO AVOID CONFLICTS WITH EXISTING REINFORCING STEEL AND OTHER EMBEDDED ITEMS WHEN DRILLING HOLES. REINFORCING BARS SHALL NOT BE DAMAGED DURING DRILLING OR ANCHOR INSTALLATION. HOLES SHALL BE DRILLED AND CLEANED PER THE PRODUCT MANUFACTURER'S INSTRUCTIONS. ANCHORS SHALL BE INSTALLED PER THE PRODUCT MANUFACTURER'S INSTRUCTIONS AT NOT LESS THAN MINIMUM EDGE DISTANCES AND/OR SPACINGS INDICATED IN THE MANUFACTURER'S LITERATURE.
4. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE LISTED IN THE SPECIFICATION OR INDICATED ON THE DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL. PRODUCT ICC-ESR EVALUATION REPORTS SHALL BE INCLUDED WITH THE SUBMITTAL PACKAGE. IF REQUESTED, CALCULATIONS PREPARED BY A REGISTERED PROFESSIONAL ENGINEER USING METHODS AND PROCEDURES REQUIRED BY THE BUILDING CODE MAY BE REQUIRED AS PART OF THE SUBMITTAL PACKAGE.
5. UNLESS NOTED OTHERWISE, THE MINIMUM EMBEDMENT PROVIDED FOR ADHESIVE ANCHORED REINFORCING BARS SHALL DEVELOP THE FULL TENSILE STRENGTH OF THE BAR.
6. SPECIAL INSPECTION WILL BE PROVIDED FOR ALL POST-INSTALLED ANCHORS.

## STRUCTURAL STEEL

1. ROLLED WIDE FLANGE SHAPES SHALL HAVE A MINIMUM YIELD STRENGTH OF 50 KSI; CHANNELS, PLATES, AND ANGLES A MINIMUM OF 36 KSI; STRUCTURAL PIPES A MINIMUM OF 35 KSI; ROUND STRUCTURAL TUBES A MINIMUM OF 46 KSI, AND RECTANGULAR STRUCTURAL TUBES A MINIMUM OF 50 KSI.
2. WELDING SHALL BE DONE WITH A FILLER MATERIAL HAVING A MINIMUM TENSILE STRENGTH OF 70 KSI.
3. BOLTED CONNECTIONS SHALL USE 3/4" DIA ASTM A325 BOLTS WITH THE THREADS EXCLUDED FROM THE SHEAR PLANE, UNLESS NOTED OTHERWISE.
4. CARBON STEEL OR GALVANIZED STEEL ANCHOR RODS AND ANCHOR BOLTS SHALL CONFORM TO ASTM F1554 GRADE 36.
5. HOLES FOR ANCHOR RODS AND ANCHOR BOLTS IN COLUMN BASE PLATES SHALL BE AS FOLLOWS:

   BOLT/ROD 3/4" TO 1" - 5/16" OVERSIZE
   BOLT/ROD 1" TO 2" - 1/2" OVERSIZE
   BOLTS/RODS OVER 2" - 1" OVERSIZE

   AT THE CONTRACTOR'S OPTION, OVERSIZE HOLES LARGER THAN THOSE LISTED ABOVE MAY BE USED, PROVIDED THAT 3/8" PLATE WASHERS ARE ALSO USED AND FIELD WELDED WITH A 5/16" FILLET TO THE BASE PLATE ALONG A MIN OF 3 SIDES.

## EXISTING STRUCTURES

1. THE DRAWINGS DEPICT WORK AT EXISTING STRUCTURES. ALL DIMENSIONS AND ALL DEPICTIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS, STARTING FABRICATION, OR STARTING CONSTRUCTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE, REPAIRS OR STRUCTURAL MODIFICATIONS THAT ARE REQUIRED DUE TO DEMOLITION BEYOND THE LIMITS IDENTIFIED ON THE DRAWINGS.
3. REINFORCEMENT FOR ANY EXISTING CONCRETE OR MASONRY ELEMENT SHALL NOT BE DAMAGED UNLESS THE ELEMENT IS TO BE DEMOLISHED. WHEN LOCATING EXISTING REINFORCEMENT IS REQUIRED, IT SHALL BE LOCATED USING NON-DESTRUCTIVE METHODS. REINFORCING STRANDS IN EXISTING PRESTRESSED CONCRETE SHALL NOT BE CUT, UNLESS INDICATED ON THE DRAWINGS OR OTHERWISE AUTHORIZED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE, REPAIRS OR STRUCTURAL MODIFICATIONS THAT ARE REQUIRED DUE TO DAMAGE OF CONCRETE, MASONRY OR REINFORCEMENT THAT HAS BEEN IDENTIFIED ON THE DRAWINGS TO REQUIRE FIELD VERIFICATION.
4. CORE DRILLING AND SAW CUTTING SHALL NOT BE PERFORMED UNLESS INDICATED ON THE DRAWINGS OR APPROVED BY ENGINEER.
5. EXPOSED CONCRETE SURFACES THAT REMAIN AFTER DEMOLITION SHALL BE REPAIRED TO MATCH ADJACENT CONCRETE SURFACES.
6. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, EXPOSED CONCRETE SURFACES WITH REINFORCEMENT, ANCHOR BOLTS, HANGER RODS, OR OTHER EXPOSED METAL EMBEDMENTS SHALL BE REPAIRED BY CUTTING OFF THE METAL AT THE FACE OF THE CONCRETE, GRINDING SMOOTH, AND COATING. COATING SHALL EXTEND A MINIMUM OF 1" BEYOND THE EDGE OF ANY EXPOSED METAL.

## LOADING CRITERIA

1. DEAD LOAD ..... CALCULATED PER SECTION 01611
2. LIVE LOADS:
   WATER-FILLED PIPE.....CALCULATED PER SECTION 01611
3. WIND LOAD:
   ULTIMATE DESIGN WIND SPEED..... 150 MPH
   NOMINAL DESIGN WIND SPEED..... 90 MPH
   EXPOSURE..... C
4. SEISMIC LOAD:
   MAPPED MCE SHORT PERIOD SPECTRAL RESPONSE ACCELERATION ($S_S$)..... 0.061g
   MAPPED MCE ONE SECOND PERIOD SPECTRAL RESPONSE ACCELERATION ($S_1$)..... 0.032g
   DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS ($S_{DS}$)..... 0.065g
   DESIGN SPECTRAL RESPONSE ACCELERATION AT ONE SECOND PERIOD ($S_{D1}$)..... 0.051g
   SITE CLASS..... D
   SEISMIC DESIGN CATEGORY..... A
5. SNOW LOAD:
   GROUND SNOW LOAD ($P_g$)..... ZERO PSF
6. DESIGN FLOOD ELEVATION (DFE)..... EL +10.00' USGS

| NO. | BY | DATE | REVISIONS AND RECORD OF ISSUE |
|---|---|---|---|
| C | AD | NOV 2019 | 100% SUBMITTAL |
| B | AD | AUG 2019 | 90% SUBMITTAL |
| A | AD | JUNE 2019 | 60% SUBMITTAL |

| CK | APP |
|---|---|
| EP | DH |
| AD | NE |
| BY | DH |
| EB | DH |

50.3890 - Reclaimed Drawings
S-01.dwg

XREF1:
XREF2:
XREF3:
XREF4:

SAVED:RANG4017, 18-12-2019 12:53:16
PLOTTED:RANG4017, 18-12-2019 12:53:28
USER:RANG4017, DWG VER:1009

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Certificate No. 8132

CITY OF TAMPA
HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

STRUCTURAL
GENERAL NOTES

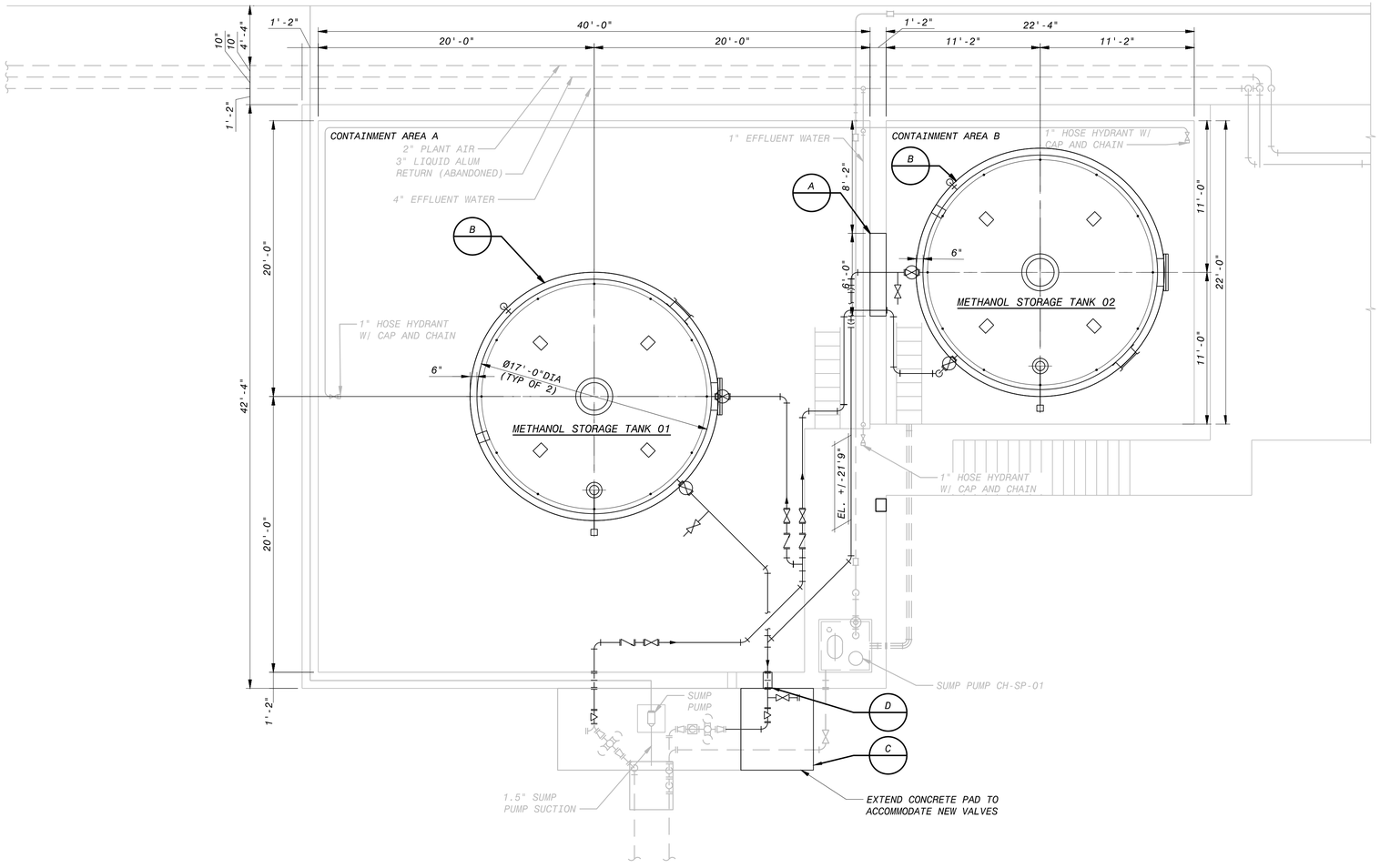
DESIGNED: EAP
DETAILED: MD
CHECKED: EP
APPROVED: DH
DATE: NOVEMBER 2019

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

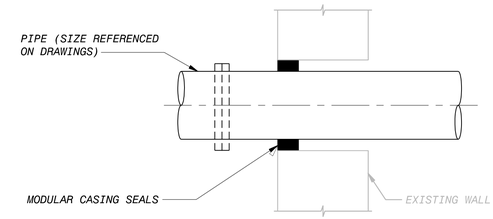
PROJECT NO.
401265

S-01
SHEET
10 OF 22

FD7000
191888



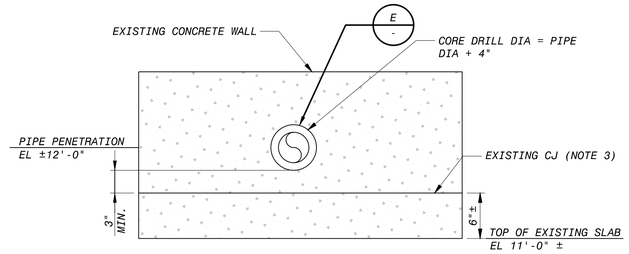

PLAN
1" = 5'-0"




NOTE:

1. CORE DRILL SMOOTH WALL OPENING, DIAMETER AS REQUIRED FOR MODULAR CASING SEALS.

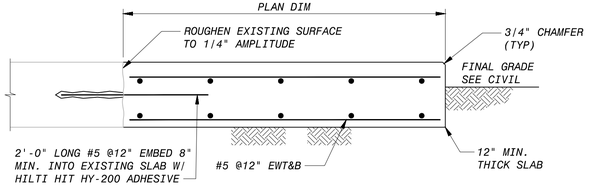
E CORE DRILLED WALL OPENING
NOT TO SCALE




NOTES:

1. SIZE AND LOCATIONS OF ALL OPENING MUST BE APPROVED BY ENGINEER PRIOR TO BEGINNING CUTTING OPERATION
2. APPLY EPOXY ENAMEL COATING TO THE SURFACE OF THE CUT PER MANUFACTURER'S RECOMMENDATIONS.
3. CONTRACTOR TO DEMOLISH ABOVE EXISTING CONSTRUCTION JOINT.
4. PENETRATION TO BE FIRE RATED.

D PIPE PENETRATION DETAIL
NOT TO SCALE




C CONCRETE PAD DETAIL
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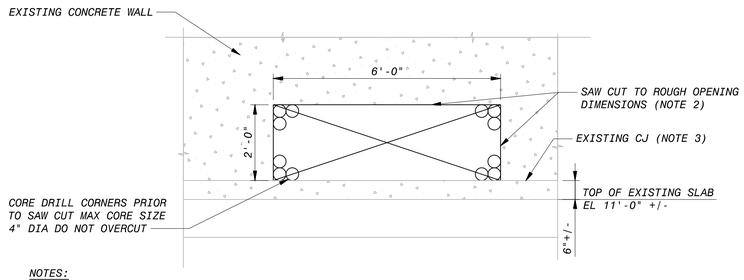
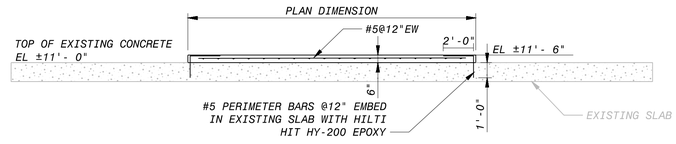



NOTES:

1. SIZE AND LOCATIONS OF ALL OPENING MUST BE APPROVED BY ENGINEER PRIOR TO BEGINNING CUTTING OPERATION.
2. APPLY EPOXY ENAMEL COATING TO THE SURFACE OF THE CUT PER MANUFACTURER'S RECOMMENDATIONS.
3. CONTRACTOR TO DEMOLISH ABOVE EXISTING CONSTRUCTION JOINT.

A CONCRETE WALL DEMO DETAIL
1" = 2'-0"




B TANK PAD DETAIL
NOT TO SCALE

5' 0 5' 10'
1"=5'

2' 0 2' 4'
1"=2'

| NO. | BY | CK | APP |
|---|---|---|---|
| A | AD | EB | DH |
| B | AD | BY | NE |
| C | AD | EP | DH |

| DATE | REVISIONS AND RECORD OF ISSUE |
|---|---|
| JUNE 2019 | 60% SUBMITTAL |
| AUG 2019 | 90% SUBMITTAL |
| NOV 2019 | 100% SUBMITTAL |

50.3110 - Structural Drawings
S-02.dwg

XREF1:
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CITY OF TAMPA
HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

STRUCTURAL
METHANOL STORAGE TANK
PLANS, SECTIONS & DETAILS

DESIGNED: EP
DETAILED: HT
CHECKED: EP
APPROVED: DH
DATE: NOVEMBER 2019

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

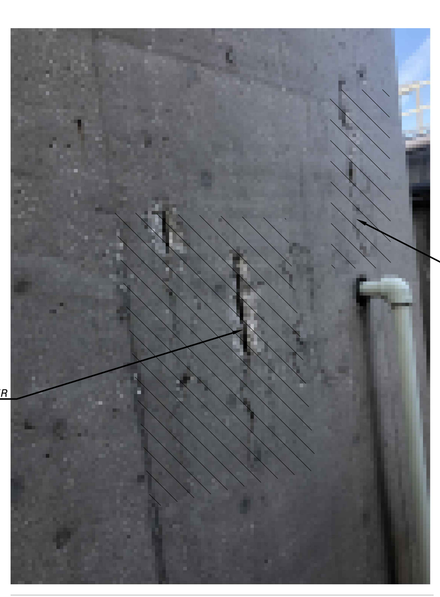
PROJECT NO.
401265

S-02
SHEET
11 OF 22

FD7000
198898


A PHOTO
NTS


B PHOTO
NTS

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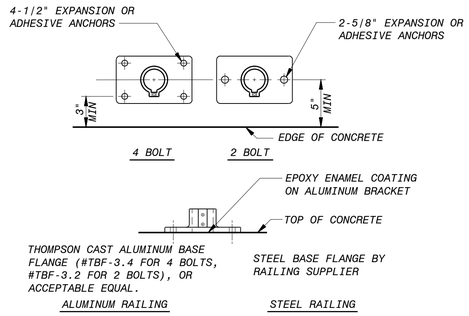
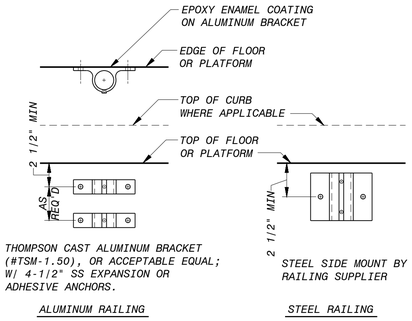
NTS

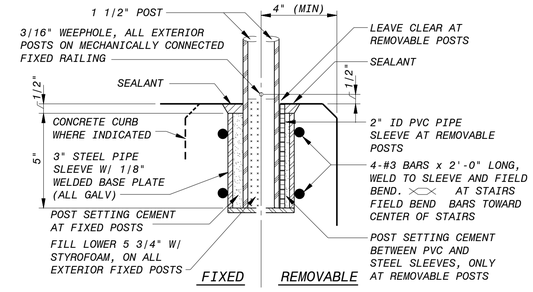



BASE FLANGE MOUNT
1" = 1'-0"




SIDE MOUNT
1" = 1'-0"

## POST MOUNTED TO CONCRETE




NOTES: 1. FIXED AND REMOVABLE DETAILS SIMILAR EXCEPT AS NOTED.

2. THE REMOVABLE SLEEVE MOUNT DETAIL SHALL NOT BE USED IN WET LOCATIONS SUBJECT TO FREEZING. SUBSTITUTE A REMOVABLE BASE FLANGE OR SIDE MOUNT DETAIL.

## POST EMBED IN CONCRETE

D GUARDRAIL POST DETAIL
NTS

NOTES:

1. REFER TO SPECIFICATIONS 03920 AND 03930 FOR CONCRETE REPAIR SECTIONS.
2. CONTRACTOR TO VERIFY EXTENTS OF THE REPAIR PRIOR TO STARTING WORK.
3. AT OWNER'S APPROVAL, A BASE FLANGE MOUNT MAY BE USED TO RE-INSTALL GUARDRAIL POST. CONCRETE REPAIR WORK SHALL BE FULLY CURED PRIOR TO INSTALLATION OF BASE FLANGE MOUNT.

| NO. | BY | CK | APP | DATE | REVISIONS AND RECORD OF ISSUE |
|---|---|---|---|---|---|
| A | AD | EP | DH | NOV 2019 | 100% SUBMITTAL |

50.3110 - Structural Drawings
S-03.dwg
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XREF4:

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CITY OF TAMPA
HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

STRUCTURAL
METHANOL STORAGE TANK
CONCRETE REPAIR PHOTOS

DESIGNED: EP
DETAILED: HT
CHECKED: EP
APPROVED: DH
DATE: NOVEMBER 2019

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
401265

S-03
SHEET
12 OF 22

FD7000
198898

## GENERAL REPAIR NOTES

1. PRIOR TO STARTING WORK, A PRE-CONSTRUCTION SURVEY SHALL BE CONDUCTED TO MARK THE ACTUAL REPAIRED BOUNDARIES. THE SURVEY SHALL BE CONDUCTED BY OWNER'S FIELD REPRESENTATIVE AND CONTRACTOR TOGETHER. QUANTITIES OF WORK INDICATED IN THE SPECIFICATION OR BID SCHEDULE ARE APPROXIMATE AND A NOTED TYPE OF REPAIR MAY REQUIRE MORE EXTENSIVE WORK UPON FIELD VERIFICATION OR DURING THE PROGRESSION OF THE REPAIR WORK. CONTRACTOR AND OWNER'S FIELD REPRESENTATIVE SHALL LOG ALL REPAIRS MADE AND ADJUST QUANTITIES AS AGREED TO BY BOTH PARTIES.

2. A SQUARE OR RECTANGULAR BOUNDARY OF THE AREA TO BE REPAIRED/REMOVED SHALL BE USED INSTEAD OF IRREGULAR SHAPE TO AVOID CRACKS TO DEVELOP WITHIN IN THE PATCH. AREA LESS THAN 2 FT APART SHALL BE COMBINED INTO ONE REPAIR AREA. SEE FIGURE 1.

3. UNSOUND CONCRETE SHALL BE REMOVED WITH PROPER TOOL AS DEPTH AND AREA REQUIRE TO EXPOSE SURFACE OF SOUND CONCRETE. A PNEUMATIC HAMMER HEAVIER THAN 30 LBS SHALL NOT BE PERMITTED. CONTRACTOR SHALL USE 15 LBS JACKHAMMER OR MECHANICAL CHIPPING TOOLS TO REMOVE UNSOUND CONCRETE IN THE CENTER OF THE REPAIR BOUNDARIES. FOR REMOVAL NEAR THE REPAIR BOUNDARIES, JACKHAMMER OR MECHANICAL CHIPPING TOOLS SHALL BE COMPLETED WITH 10 LBS JACKHAMMER OR CHIPPING TOOLS.

4. SPADE BITS SHALL BE USED INSTEAD OF GOUGE BITS FOR CONTROLLING OF CHIPPING.

5. THE WORK SHOULD PROGRESS FROM THE CENTER OF THE REPAIR AREA TOWARD THE EDGES AND CHISEL POINT OF THE JACKHAMMER OR MECHANICAL CHIPPING TOOLS SHOULD BE DIRECTED TOWARD THE CENTER OF THE REPAIR AREA WHEN WORKING AROUND THE PERIMETER OF THE REPAIR AREA.

6. THE EXPOSED FACES OF CONCRETE SHALL BE THOROUGHLY CLEANED BY ABRASIVE BLASTING, SUCH AS SAND/HIGH PRESSURE WATER BLASTING (IF APPROVED BY REPAIR PRODUCT MANUFACTURERE)TO REMOVE LOOSE PARTICLES, OIL, DUST, AND JOINT-SEALANT MATERIALS. HIGH PRESSURE WATER BLASTING CAN BE USED AS AN ALTERNATIVE TO ABRASIVE BLASTING WHERE CONTROLLING DUST IS CRITICAL TO THE SURROUNDING ENVIRONMENTS.WATER BLASTING EQUIPMENT SHALL BE CAPABLE OF PRODUCING A MINIMUM BLAST PRESSURE BETWEEN 3000 AND 6000 PSI. HOWEVER, TO AVOID DAMAGE, THE EQUIPMENT MUST BE CAPABLE OF ADJUSTMENTS THAT WILL ALLOW REMOVAL OF ONLY WEAKENED CONCRETE.

7. ALL RESIDUE FROM ABRASIVE BLASTING SHALL BE REMOVED BY AIR BLASTING JUST PRIOR TO PLACEMENT OF BONDING AGENT. THE AIR COMPRESSOR SHOULD DELIVER AIR AT MINIMUM OF 120 CU.FT/MM AND DEVELOP 90 PSI NOZZLE PRESSURE. AIR COMPRESSOR EQUIPMENT SHALL OCCASIONALLY BE CHECKED FOR OIL AND MOISTURE CONTAMINATION.

8. EPOXY OR PROPRIETARY BONDING AGENTS SHALL BE APPLIED BY SCRUBBING INTO THE SURFACE WITH A STIFF BRISTLE BRUSH OR ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS. EPOXY OR PROPRIETARY BONDING AGENTS SHALL CAREFULLY BE MIXED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS AND SMALL QUANTITIES TO ALLOW FINISHING THE WORK WITHIN THE SET TIME OF THE PRODUCT.

9. THE REPAIR MATERIAL SHALL BE PLACED AS QUICKLY AS PRACTICAL AFTER THE PREPARING THE REPAIR AREA WHILE THE EXPOSED CONCRETE SURFACE IS CLEAN.

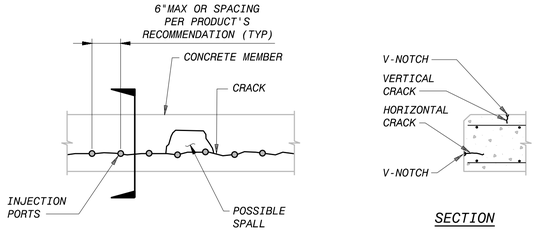
10. REPAIRED SURFACE SHALL BE TEXTURED OR REQUIRED BY PERMANENT COATING SYSTEM'S RECOMMENDATIONS (IF APPLICABLE) IN A MANNER SIMILAR TO THAT OF SURROUNDING SURFACE. THE SURFACE TEXTURE SHALL NOT HAVE ANY SIGNIFICANT EFFECT ON THE OVERALL FRICTION CHARACTERISTICS OF THE CONCRETE SURFACE. BURLAP DRAG, BROOM, FLOAT, AND TRANSVERSE LINE SURFACE CAN BE CONSIDERED AND AGREED BY THE OWNER OR ENGINEER.

11. CURING SHALL BE DONE IMMEDIATELY FOLLOWING PLACEMENT AND FINISHING PROCEDURES AND IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

12. IF MORE THAN HALF THE CIRCUMFERENCE OF THE REINFORCEMENT IS EXPOSED, REMOVE THE REMAINING CONCRETE FROM BEHIND THE BAR SO THAT THE REINFORCEMENT SHALL BE COMPLETELY SURROUNDED BY NEW MATERIAL.

13. USE APPROVED MATERIALS ONLY FOR ALL HORIZONTAL, VERTICAL AND OVERHEAD APPLICATIONS AS OUTLINED IN SECTION 03920 AND SECTION 03930 OF SPECIFICATION.

14. HORIZONTAL APPLICATION SHOWN VERTICAL AND OVERHEAD APPLICATIONS ARE SIMILAR BUT REQUIRE SPECIFIC REPAIR PRODUCTS.





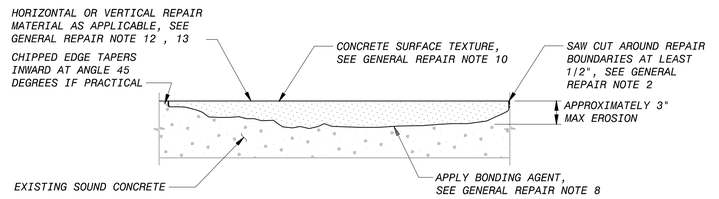


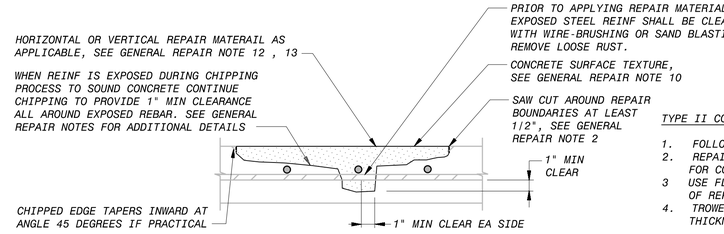
SECTION

### TYPE I - HORIZONTAL, VERTICAL, OR OVERHEAD CONCRETE CRACK REPAIR
NO SCALE

### TYPE I CONCRETE REPAIR NOTES

1. CLEAN THE CRACK. USING CHIPPING HAMMER, REMOVE LOOSE MATERIAL AND SPALLS ALONG THE CRACK. V-GROOVE THE CRACK APPROXIMATELY 1/2" DEEP BY 3/4" WIDE.
2. WITH A COMPRESSED AIR FINE POINT NOZZLE BLOW ANY LOOSE OR FINE MATERIAL. IF POSSIBLE FLUSH WITH WATER.
3. IF RUST STAINING IS VISIBLE AND IT APPEARS THAT REINFORCING STEEL HAS MINOR DAMAGE, DISCONTINUE CRACK REPAIR AND USE TYPE II OR III REPAIR PROCEDURE. IF REINFORCING IS DAMAGED AND REQUIRES REPLACEMENT CONTINUE WITH TYPE IV REPAIR.
4. DEPENDING ON LOCATION AND SIZE OF CRACK IT MAY BE NECESSARY TO SEAL THE CRACK SURFACE TO KEEP THE EPOXY FROM LEAKING OUT BEFORE IT HAS GELLED. SURFACE CAN BE SEALED, SEE MANUFACTURER'S INSTRUCTIONS, IF SURFACE SEALANT BETWEEN INJECTION PORTS IS REQUIRED OR RECOMMENDED FOR SPECIFIC APPLICATION.
5. INSTALL INJECTION PORT ENTRY POINTS PER MANUFACTURERS RECOMMENDATION AND AS FOLLOWS:
   A. DRILL MAXIMUM 1" DIA. HOLES INTO THE CRACK APPROXIMATELY ⅜" BELOW APEX OF V-GROOVE. USE A VACUUM CHUCK AND BIT TO PREVENT THE CRACK FROM PLUGGING WITH DUST.
   B. INSERT A PIPE NIPPLE OR TIRE VALVE STEM INTO CRACK AND BOND WITH EPOXY ADHESIVE.
   C. THE LOCATION AND SPACING OF THE INJECTION PORTS WILL DEPEND ON THE WIDTH OF CRACK, CRACK DIRECTION (HORIZONTAL, VERTICAL, OR INCLINED), AND VISCOSITY OF SELECTED EPOXY. CONSULT WITH MANUFACTURER.
6. INJECT EPOXY RESIN FOLLOW MANUFACTURER'S RECOMMENDATIONS ON INJECTION PRESSURES RECOGNIZING THAT INCREASED PRESSURE OFTEN DOES LITTLE TO ACCELERATE RATE OR INJECTION DISTANCE. SEE SPECIFICATIONS REGARDING INITIAL PRESSURIZATION AND BE CAREFUL TO MAINTAIN PRESSURE BELOW THAT MIGHT PROPAGATE OR EXPAND CRACK.
7. REMOVE THE SURFACE SEAL BY GRINDING OR PER MANUFACTURER'S RECOMMENDATIONS AND COVER THE INJECTION PORTS WITH AN EPOXY PATCHING COMPOUND.
8. AS DIRECTED BY ENGINEER, USE CRACK SEALANT TO PROVIDE A FINAL SURFACE COVER FOR THE CRACK.
9. WHERE MAP CRACKING IS INDICATED PERFORM TYPE II OR III REPAIRS AS NEEDED PRIOR TO TYPE I.

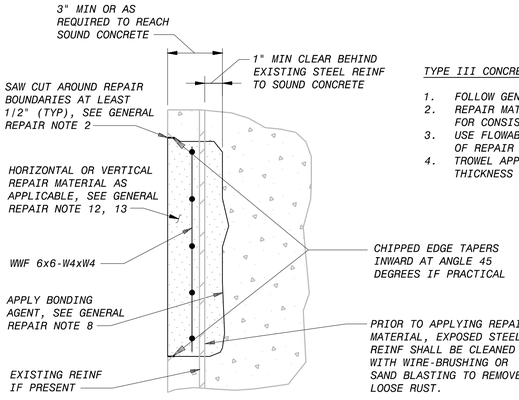



### TYPE II CONCRETE REPAIR NOTES

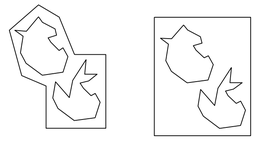
1. FOLLOW GENERAL REPAIR NOTES AND PROCEDURES AS APPLICABLE.
2. REPAIR MATERIAL SHALL BE PLACED IN A MANNER THAT ALLOWS FOR CONSISTENT AND UNIFORM REPLACEMENT OF REMOVED CONCRETE.
3. USE FLOWABLE REPAIR MATERIAL WITH FORMWORK WHERE THICKNESS OF REPAIR MATERIAL EXCEEDS 4".
4. TROWEL APPLIED REPAIR MATERIAL CAN BE USED ON AREAS WHERE THICKNESS DOES NOT EXCEED 4"

### TYPE II- HORIZONTAL, VERTICAL, OR OVERHEAD CONCRETE SURFACE REPAIR
NO SCALE



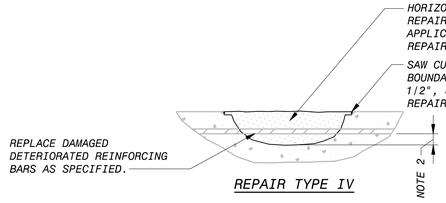

### TYPE III CONCRETE REPAIR NOTES

1. FOLLOW GENERAL REPAIR NOTES AND PROCEDURES AS APPLICABLE.
2. REPAIR MATERIAL SHALL BE PLACED IN A MANNER THAT ALLOWS FOR CONSISTENT AND UNIFORM REPLACEMENT OF REMOVED CONCRETE.
3. USE FLOWABLE REPAIR MATERIAL WITH FORMWORK WHERE THICKNESS OF REPAIR MATERIAL EXCEEDS 4".
4. TROWEL APPLIED REPAIR MATERIAL CAN BE USED ON AREAS WHERE THICKNESS DOES NOT EXCEED 4"

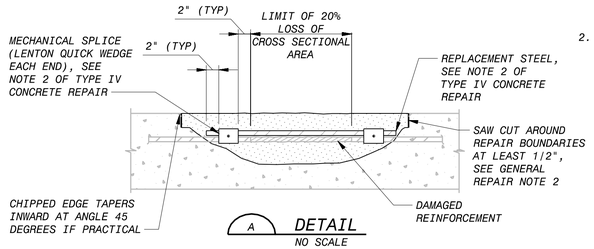



### TYPE III - HORIZONTAL, VERTICAL, OR OVERHEAD CONCRETE SURFACE REPAIR WITH NO DAMAGE TO EXISTING REINFORCING STEEL
NO SCALE

FIGURE 1
NO SCALE




REPAIR TYPE IV




A DETAIL
NO SCALE

### TYPE IV CONCRETE REPAIR NOTES

1. IF MORE THAN HALF THE CIRCUMFERENCE OF THE REINFORCEMENT IS EXPOSED, REMOVE THE REMAINING CONCRETE FROM BEHIND THE BAR SO THAT THE REINFORCEMENT SHALL BE COMPLETELY SURROUNDED BY NEW MATERIAL. WHERE REINFORCEMENT IS EXPOSED, REMOVE CONCRETE AT LEAST ONE INCH BEYOND EXTENT OF REINFORCEMENT. WIRE BRUSH THE REINFORCEMENT TO REMOVE THE LOOSE RUST. REMOVE EXISTING CONCRETE A MINIMUM OF 1" ALL AROUND EXISTING REINFORCING STEEL.
2. IF THE EXPOSED REINFORCEMENT HAS LOST MORE THAN 20 PERCENT OF ITS CROSS SECTIONAL AREA, ADDITIONAL CONCRETE SHALL BE REMOVED SO THAT THE NEW REINFORCEMENT CAN BE SPLICED TO THE EXISTING REINFORCEMENT. USE CONTACT LAP SPLICES WITH NOT LESS THAN 48 BAR DIAMETER LAP SPLICE AT EACH END. MECHANICAL SPLICES MAY BE USED IN LIEU OF LAP SPLICES WHERE APPROVED BY THE ENGINEER.

### TYPE IV - HORIZONTAL, VERTICAL , OR OVERHEAD CONCRETE SURFACE REPAIR WITH DAMAGE TO EXISTING REINFORCING STEEL
NO SCALE

| NO. | BY | CK | APP |
|---|---|---|---|
| A | AD | EP | DH |

REVISIONS AND RECORD OF ISSUE

| DATE | |
|---|---|
| NOV 2019 | 100% SUBMITTAL |

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CONCRETE REPAIR DETAILS

DESIGNED: EP
DETAILED: HT
CHECKED: EP
APPROVED: DH
DATE: NOVEMBER 2019

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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
401265

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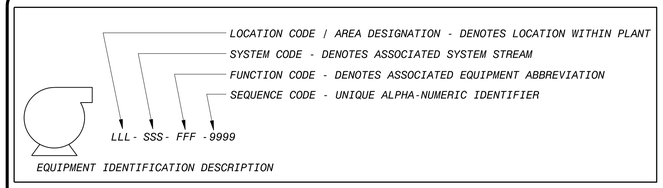
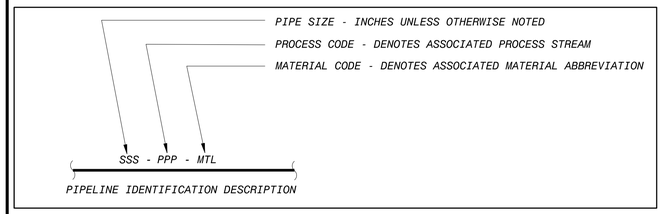
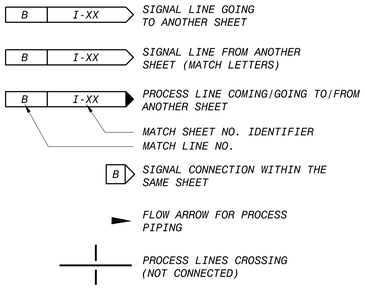



## LINE SYMBOLS

- MAJOR PROCESS PIPING OR FLOW CHANNEL
- SECONDARY PROCESS PIPING
- MISCELLANEOUS PIPING
- SCREENED LINE DENOTES EXISTING PIPE OR EQUIPMENT
- DASHED LINE DENOTES FUTURE PIPE AND EQUIPMENT
- ELECTRIC SIGNAL
- HYDRAULIC SIGNAL
- PNEUMATIC SIGNAL
- SIGNAL CONNECTION POINT
- CONTROL SYSTEM BACKBONE NETWORK SIGNAL (ETHERNET)
- FIELD DEVICE NETWORK SIGNAL (ETHERNET)
- NON-STANDARD OR INDEPENDENT CONTROL SYSTEM NETWORK SIGNAL (AS NOTED ON DRAWINGS)




## PRIMARY ELEMENT & FITTING SYMBOLS

- PILOT LIGHT
- REDUCER - CONCENTRIC
- REDUCER - ECCENTRIC
- FLANGE
- DRAIN - BELL-UP
- DRAIN - FUNNEL
- FLEXIBLE CONNECTION
- CAP
- PLUG
- TRAP
- FLAME CHECK
- ANNULAR TYPE DIAPHRAGM SEAL
- PRESSURE SENSING LEVEL SENSOR
- VALVE: GATE
- VALVE: AUTOMATIC FIRE
- VALVE: BALL
- INSTRUMENT PURGE OR FLUSHING DEVICE
- UNION
- HOSE CONNECTION
- STRAINER - Y TYPE
- STRAINER - BASKET
- QUICK CONNECT
- VENT
- VENT - SCREENED
- COUPLING
- SIGHTGLASS
- MOISTURE SEPARATOR
- EXPANSION LOOP
- SUCTION DIFFUSER
- VALVE: CHECK

## INSTRUMENT AND I/O ABBREVIATIONS
## MEANINGS OF IDENTIFICATION LETTERS

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

### PIPELINE MATERIAL CODE ABBREVIATIONS

SS-XX1 SECTION 15065, MISCELLANEOUS STEEL PIPE, TUBING AND ACCESSORIES

1. XX= numbers 01-20

### INSTRUMENT AND I/O ABBREVIATION DEFINITIONS

LE PRIMARY LEVEL ELEMENT/SENSOR
LG LEVEL SIGHT GAUGE
LI LEVEL INDICATOR (LED OR SCREEN)
LIT LEVEL INDICATING TRANSMITTER

### FUNCTION DESIGNATIONS AND ABBREVIATIONS

#### HAND SWITCH DESIGNATIONS

| | |
|---|---|
| BN | BYPASS-NORMAL |
| ES | EMERGENCY STOP |
| FR | FORWARD-REVERSE |
| HOA | HAND-OFF-AUTO |
| HOR | HAND-OFF-REMOTE |
| LOA | LOCAL-OFF-AUTO |
| LOR | LOCAL-OFF-REMOTE |
| LOS | LOCK-OUT-STOP |
| MA | MANUAL-AUTO |
| LR | LOCAL REMOTE |
| OCA | OPEN-CLOSE-AUTO |
| OOA | ON-OFF-AUTO |
| OC | OPEN-CLOSE |
| OO | ON-OFF |
| OOR | ON-OFF-REMOTE |
| OSC | OPEN-STOP-CLOSE |
| OO/R | ON-OFF/RESET |
| RST | RESET |
| STRT | START |
| STP | STOP |
| VR | VFD-RVSS |

#### POWER SUPPLY ABBREVIATIONS

| | |
|---|---|
| AS | AIR SUPPLY |
| ES | ELECTRIC SUPPLY |
| GS | GAS SUPPLY |
| HS | HYDRAULIC SUPPLY |
| NS | NITROGEN SUPPLY |
| SS | STEAM SUPPLY |
| WS | WATER SUPPLY |
| 120V | 120VAC |

120V> POWER SUPPLY SOURCE LABEL. USED ONLY WHERE NECESSARY TO HELP CLARIFY AN INSTRUMENT OR SYSTEM FUNCTION.

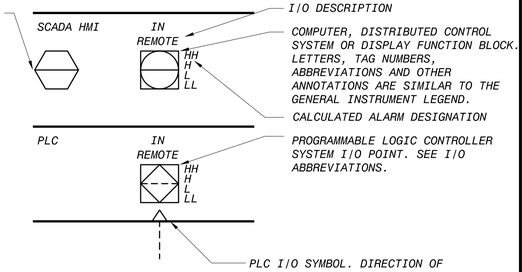
## GENERAL INSTRUMENT SYMBOLS

- FIELD MOUNTED DISCRETE INSTRUMENT
- PILOT LIGHT
- DISCRETE INSTRUMENT MOUNTED ON FACE PRIMARY OF PANEL
- DISCRETE INSTRUMENT MOUNTED BEHIND OR INSIDE OF PRIMARY PANEL
- DISCRETE INSTRUMENT MOUNTED ON FACE OF LOCAL PANEL
- DISCRETE INSTRUMENT MOUNTED BEHIND OR INSIDE OF LOCAL PANEL
- SINGLE INSTRUMENT HOUSING CONTAINING TWO (OR MORE) INSTRUMENTATION FUNCTIONS
- I — GENERAL CONTROL INTERLOCK FUNCTION, SEE SCHEMATICS AND SYSTEM SPECIFICATIONS FOR SPECIFIC FUNCTION

CONTROL BLOCK DESCRIPTION REFERENCE SEE SPECIFICATION 13550

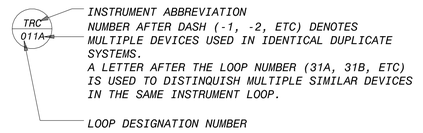
## DIGITAL SYSTEMS INTERFACE SYMBOLS

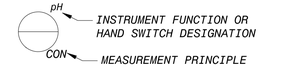
NOTE: REFER TO DETAILED SYSTEM SPECIFICATIONS FOR FUNCTIONAL DESCRIPTION. ALSO SEE I/O SCHEDULES FOR COMPLETE INPUT AND OUTPUT LISTINGS.




- DISCRETE INPUT
- DISCRETE OUTPUT
- ANALOG INPUT
- ANALOG OUTPUT
- PULSE INPUT

## INSTRUMENTATION SYMBOLOGY AND DESIGNATIONS




### SYSTEM CODE ABBREVIATIONS

MTH METHANOL

### PROCESS CODE ABBREVIATIONS

MTH_X METHANOL

X = PROCESS CODE SUFFIX USED TO FURTHER SPECIFY A PROCESS STREAM (I.E. CL2_G FOR CHLORINE GAS OR CL2_S FOR CHLORINE SOLUTION)

### FUNCTION CODE ABBREVIATIONS

| | |
|---|---|
| TNK | TANK, FRP CHEMICAL STORAGE |
| TNK | TANK, GENERAL OR UNSPECIFIED |
| VBM | VALVE, BALL MISCELLANEOUS |
| VCK | VALVE, CHECK |
| VG | VALVE, GATE |
| VGL | VALVE, GLOBE |

### GENERAL NOTES

1. IN GENERAL, THE P&ID SYMBOLS AND DEVICE IDENTIFICATIONS ARE BASED ON INTERNATIONAL SOCIETY OF AUTOMATION, STANDARD PRACTICE ANSI/ISA-5.1 (2009). SOME MODIFICATIONS, ADDITIONS, AND ALTERATIONS HAVE BEEN MADE AS NEEDED TO ACCOMMODATE THE PROJECT REQUIREMENTS.
2. SOME CONTROL AND INTERLOCK REQUIREMENTS WHICH CAN BE MORE CLEARLY ILLUSTRATED ON SCHEMATIC DRAWINGS HAVE BEEN OMITTED FROM THE P&ID DRAWINGS.
3. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
4. PIPING AND EQUIPMENT LEGEND APPLIES TO P&ID SHEETS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.

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| B | AD | BV | NE |
| A | AD | DL | DH |

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| NOV 2019 | 100% SUBMITTAL |
| AUG 2019 | 90% SUBMITTAL |
| JUNE 2019 | 60% SUBMITTAL |

50.3050 - Process-Instrumentation Diagrams Drawings

I-01.dwg

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HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

INSTRUMENTATION
METHANOL STORAGE TANK
LEGEND AND ABBREVIATIONS

DESIGNED: AB
DETAILED: AD
CHECKED: RT
APPROVED: DH
DATE: NOVEMBER 2019

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PROJECT NO.
401265

I-01
SHEET
14 OF 22

FD7000
190898

SCADA HMI

PLC

LEVEL LI 101

LEVEL LI 102

EXISTING MPCP PANEL

HMS 100

LAH 101

LAH 102

I

LSH 101

PI 101

LAX 100

PI 102

LSH 102

NOTE 3

METHANE ANALYZER 1 AI 101

METHANE ANALYZER 1 AI 102

METHANE ANALYZER 2 AI 103

METHANE ANALYZER 1 AI 104

METHANE ANALYZER 2 AI 105

METHANE ANALYZER 1 AI 106

METHANE ANALYZER 2 AI 107

AIT 101

AIT 102

AIT 103

AIT 104

AIT 105

AIT 106

AIT 107

AE 101

AE 102

AE 103

AE 104

AE 105

AE 106 CH4

AE 107 CH4

METHANOL STORAGE TANK 01

METHANOL STORAGE TANK 02

4"-MTH-BSP-2

AIR SCOOP VENT(TYP)

VACUUM BREAKER

FLOATING ROOF

ELEVATION C

NOTE 7 (TYP)

LI 103

LI 104

METHANOL STORAGE TANK 01

METHANOL STORAGE TANK 02

6"-MTH-BSP-2 (OVERFLOW LINE)

MANWAY WITH PLUG

PIT 101

PIT 102

WALL PENETRATION

FROM TRAIN FILL STATION

4"-MTH-BSP-2

VG-001

NOTE 6 (TYP)

4" -MTH-BSP-2

4" SS CHECK VALVE WITH EXTERNAL POSITION INDICATOR (TYP OF 3)

4" SS GATE VALVE FOR CHECK VALVE ISOLATION (TYP OF 3)

AUTOMATIC FIRE VALVE (TYP)

VG-002

VG-003

VG-004

VG-005

VG-006

VG-007

VG-008

(TANK DRAIN)

TO CONTAINMENT AREA

NOTE 8 (TYP)

4"-MTH-SS-8

TO EXISTING PUMP STATION

NOTES:

1. SEE LEGEND ON DRAWINGS I-01.
2. SYSTEM CODE IS MTH, UNLESS OTHERWISE NOTED.
3. CONTRACTOR TO CONFIRM EXISTING MPCP PANEL IS LOCATED, SUCH THAT THE LEVEL IS VIEWABLE WHEN UNLOADING.
4. LOCAL CONTROL DEVICES, SUCH AS INDICATING LIGHTS AND SWITCHES, LOCATED ON MCCs OR AT EQUIPMENT, MAY NOT BE INDICATED ON THIS P&ID.
5. STORAGE TANK FILL LINE SHALL BE INSTALLED 6" ABOVE TANK BOTTOM, AS INDICATED ON THE MECHANICAL PLANS.
6. AUTOMATIC FIRE VALVE IS MECHANICAL.
7. TANK FILL PIPING INDICATED AS TRANSFER PIPING ON THE MECHANICAL PLANS.
8. TANK DISCHARGE PIPING INDICATED AS FEED PIPING ON THE MECHANICAL PLANS.

FD7000
198898

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| B | AD | BV | NE |
| A | AD | DL | DH |

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50-3050 - Process-Instrumentation Diagrams Drawings

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METHANOL STORAGE TANK REPLACEMENT

INSTRUMENTATION
P&ID - METHANOL STORAGE SYSTEM

DESIGNED: UB
DETAILED: AD
CHECKED: RT
APPROVED: DH
DATE: NOVEMBER 2019

0 1/2 1

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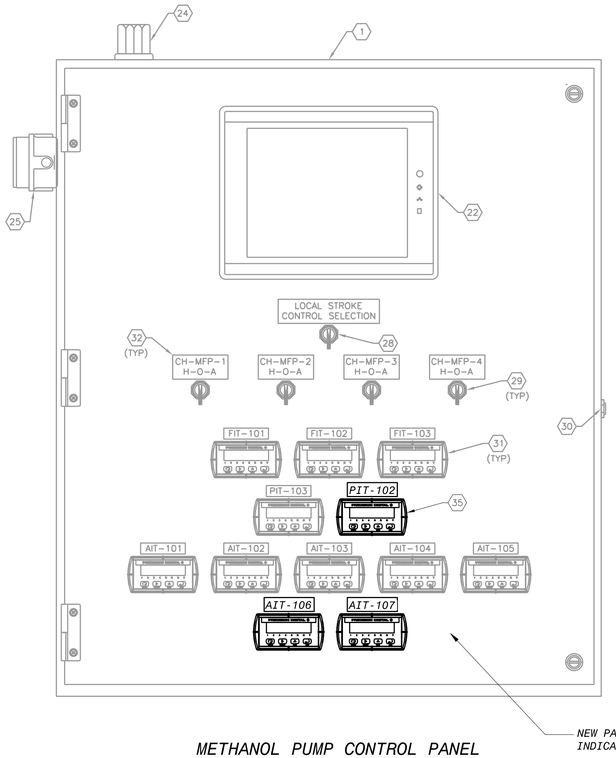
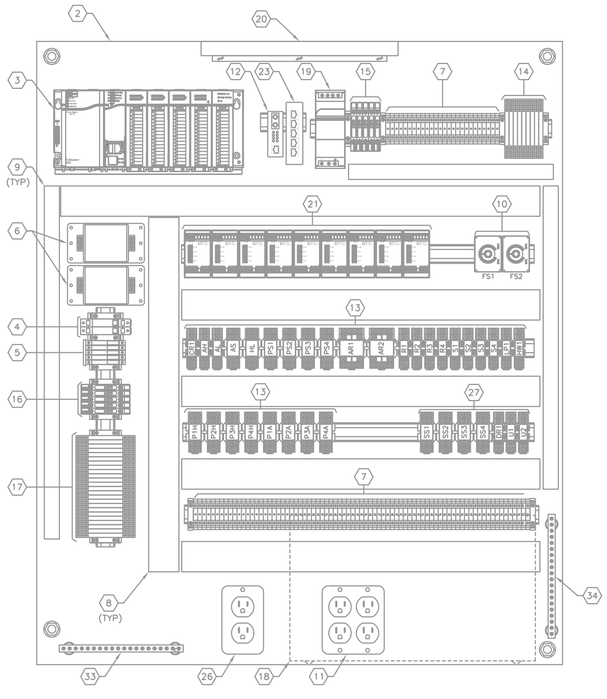
PROJECT NO.
401265

I-02
SHEET
15 OF 22




A METHANOL PUMP CONTROL PANEL ENCLOSURE DEADFRONT ELEVATION
NTS




A METHANOL PUMP CONTROL PANEL INTERIOR ELEVATION
NTS

## KEYED NOTES CONTINUED :

26. PROVIDE AND INSTALL DUPLEX GFI SERVICE RECEPTACLE, HUBBELL, GFR5352IA OR EQUAL.
27. PROVIDE AND INSTALL SQUARE-D 8501 R SERIES (OR EQUAL) RELAYS WITH 24V DC COILS. PROVIDE RELAY BASE AND HOLD DOWN SPRINGS FOR EACH RELAY PROVIDED.
28. PROVIDE AND INSTALL 5-POSITION, MAINTAINED, PUMP SELECTOR SWITCH. SQUARE-D CLASS 9001, KS88FB WITH CONTACTS AS REQUIRED.
29. PROVIDE AND INSTALL 3-POSITION, MAINTAINED, PUMP HAND/OFF/AUTO SWITCH. SQUARE-D CLASS 9001, KS43FB WITH CONTACTS AS REQUIRED.
30. PROVIDE AND INSTALL MOMENTARY PUSHBUTTON, ALARM SILENCE. SQUARE-D CLASS 9001, KR1RH13. PUSHBUTTON TO BE MOUNTED ON THE EXTERIOR OF THE METHANOL PUMP CONTROL PANEL.
31. PROVIDE AND INSTALL PRECISION DIGITAL PROCESS METER, MODEL PD765-7X2-00 OR PD765-7X3-00 AS REQUIRED.
32. PROVIDE AND INSTALL LAMACOID NAMEPLATE (TYPICAL). LETTERING SHALL BE 1/2" MINIMUM. SECURE NAMEPLATE WITH STAINLESS STEEL SCREWS.
33. PROVIDE AND INSTALL NICKEL-PLATED COPPER EQUIPMENT BUSBAR.
34. PROVIDE AND INSTALL NICKEL-PLATED COPPER BUSBAR FOR ANALOG CABLE SHIELD TERMINATIONS.
35. MODIFICATIONS SHALL BE MADE TO EXISTING METHANOL PUMP CONTROL PANEL. PROVIDE AND INSTALL THREE (3) NEW PROCESS METERS, MODEL PD765-7X2-00 OR PD765-7X3-00 AS REQUIRED.

## KEYED NOTES:

1. PROVIDE AND INSTALL 42" X 36" X 12", NEMA 4X, STAINLESS STEEL ENCLOSURE WITH STEEL BACK PANEL AND 3-POINT LATCHING DOOR. PROVIDE WITH DOOR STOP KIT. HOFFMAN CATALOG #A42H3612SSLP3PT.
2. METHANOL PUMP CONTROL PANEL STEEL BACK PANEL
3. PROVIDE AND INSTALL PLC RACK. PLC RACK TO CONSIST OF : ONE (1) - GE RX3i CPU : IC695CPE305-ABAG; THREE (3) A/C INPUT MODULES: GE IC694MDL250; ONE (1) A/C RELAY MODULE: GE IC694MDL916; ONE (1) ANALOG INPUT MODULE: GE IC694ALG616; ONE (1) 120V POWER SUPPLY: GE IC695PSA040; ONE (1) 7-SLOT BASEPLATE: GE IC695CHS007.
4. PROVIDE AND INSTALL 120V CIRCUIT BREAKERS. 15 AMPERE SQUARE-D QOU115 AND 10 AMPERE SQUARE-D QOU110 AS REQUIRED.
5. PROVIDE AND INSTALL 120V, THERMAL CIRCUIT BREAKERS. REFER TO REMOTE I/O RACK WIRING DIAGRAM FOR QUANTITY/SIZE. ALL THERMAL CIRCUIT BREAKERS SHALL BE PHOENIX CONTACT TCP TYPE.
6. PROVIDE AND INSTALL 120V SURGE PROTECTION DEVICES. EDCO HSP121BT-1RU.
7. PROVIDE AND INSTALL DIN-RAIL MOUNTED TERMINAL BLOCKS, ALLEN-BRADLEY 1492-W10. ALL DIN-RAIL SHALL BE ALUMINUM.
8. PROVIDE AND INSTALL 2"X2" PANDUIT (OR EQUAL) WIRING SYSTEM WITH COVERS (TYPICAL).
9. PROVIDE AND INSTALL 1"X2" PANDUIT (OR EQUAL) WIRING SYSTEM WITH COVERS (TYPICAL).
10. PROVIDE AND INSTALL SQUARE-D 9050 JCK SERIES (OR EQUAL) DPDT TIME DELAY RELAYS WITH 24V DC COILS. PROVIDE RELAY BASE AND HOLD DOWN SPRINGS FOR EACH RELAY PROVIDED.
11. PROVIDE AND INSTALL GFI RECEPTACLES, HUBBELL, GFR5352IA OR EQUAL FOR UPS. RECEPTACLES TO BE USED FOR CONTROL, MEDIA CONVERTER AND ETHERNET SWITCH 120V POWER IN CASE OF UPS FAILURE. (LOCATED BEHIND UPS).
12. PROVIDE AND INSTALL MULTIMODE MEDIA CONVERTER WITH ST CONNECTORS FOR COMMUNICATION TO FIBER CABINET IN FILTER BUILDING NO. 1. MEDIA CONVERTER TO BE OMNITRON FLEXPOINT 10/100 SERIES, MODEL NO. 4342-1. CONTRACTOR TO PROVIDE AND INSTALL DUPLICATE MEDIA CONVERTER IN FILTER BUILDING NO. 1 FIBER CABINET. REFER ALSO TO SHEET E-3.
13. PROVIDE AND INSTALL SQUARE-D 8501 R SERIES (OR EQUAL) RELAYS WITH 120V COILS. POLE QUANTITIES VARY. PROVIDE RELAY BASE AND HOLD DOWN SPRINGS FOR EACH TYPE OF RELAY PROVIDED.
14. PROVIDE AND INSTALL ANALOG SURGE PROTECTION DEVICES AS REQUIRED. MTL CATALOG # SD32.
15. PROVIDE AND INSTALL FUSE TERMINAL BLOCKS FOR DC POWER. PHOENIX CONTACT UK 5-HESI.
16. PROVIDE AND INSTALL FUSE TERMINAL BLOCKS FOR AC POWER. PHOENIX CONTACT UK 5-HESI.
17. PROVIDE AND INSTALL 120V DIGITAL SURGE PROTECTION DEVICES AS REQUIRED. MTL CATALOG # SD150X.
18. PROVIDE AND INSTALL 700VA UPS. POWERWARE PW9120-700 WITH AS/400 RELAY INTERFACE CARD, OR EQUAL.
19. PROVIDE AND INSTALL 120W, 24V DC POWER SUPPLY. MEAN WELL MODEL SDR-120-24 OR EQUAL.
20. PROVIDE AND INSTALL 120V, 8W, CABINET LIGHT. PRESCOLITE UCS12-1-08-PH-120-WSW WITH INTEGRAL SWITCH. PROVIDE F8T5/CW LAMP AND BRACKET TO MOUNT FIXTURE TO BACKPANEL.
21. PROVIDE AND INSTALL 4-20mA SIGNAL ISOLATOR/CONVERTER. MOORE INDUSTRIES ECT/4-20mA/2X4-20mA/117AC/DIN, OR EQUAL. IF INSTRUMENT REQUIRES LOOP POWER, CONTRACTOR SHALL INSTALL ECT/4-20mA/2X4-20mA/117AC/TX/DIN, OR EQUAL.
22. PROVIDE AND INSTALL OPERATOR INTERFACE TERMINAL (OIT). MAPLE SYSTEMS HMI5150X.
23. PROVIDE AND INSTALL 5-PORT ETHERNET SWITCH. HIRSCHMANN 5TX.
24. PROVIDE AND INSTALL RED ALARM LIGHT, 120V, FEDERAL SIGNAL MODEL #131DST. MOUNT LIGHT ON PANEL EXTERIOR.
25. PROVIDE AND INSTALL ALARM HORN, WP, FEDERAL SIGNAL MODEL #350WB IN RED WP BACK BOX. HORN TO BE ON PANEL EXTERIOR.

-- KEYED NOTES CONTINUED AT LEFT --

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50.3050 - Process-Instrumentation Diagrams Drawings
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METHANOL STORAGE TANK REPLACEMENT

INSTRUMENTATION
METHANOL STORAGE TANK
CONTROL PANEL DETAILS

DESIGNED: AB
DETAILED: AD
CHECKED: RT
APPROVED: DH
DATE: NOVEMBER 2019

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16 OF 22

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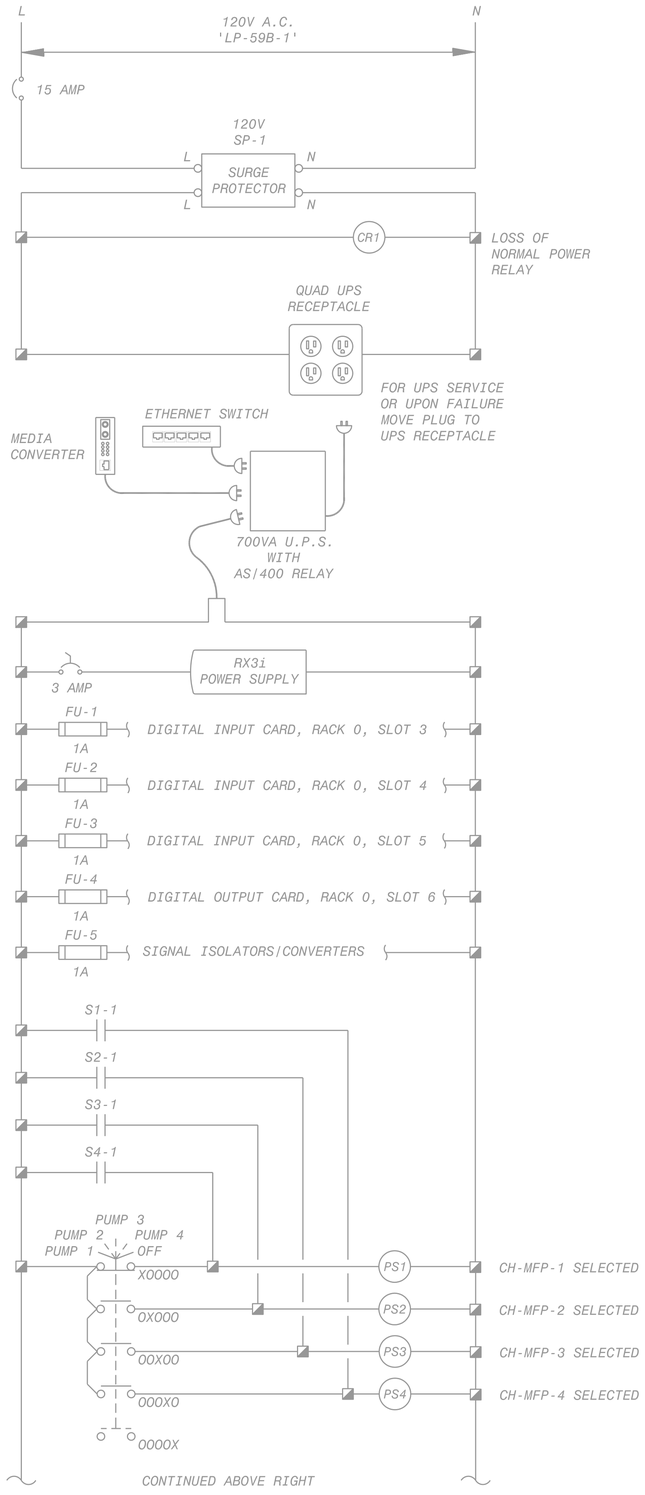


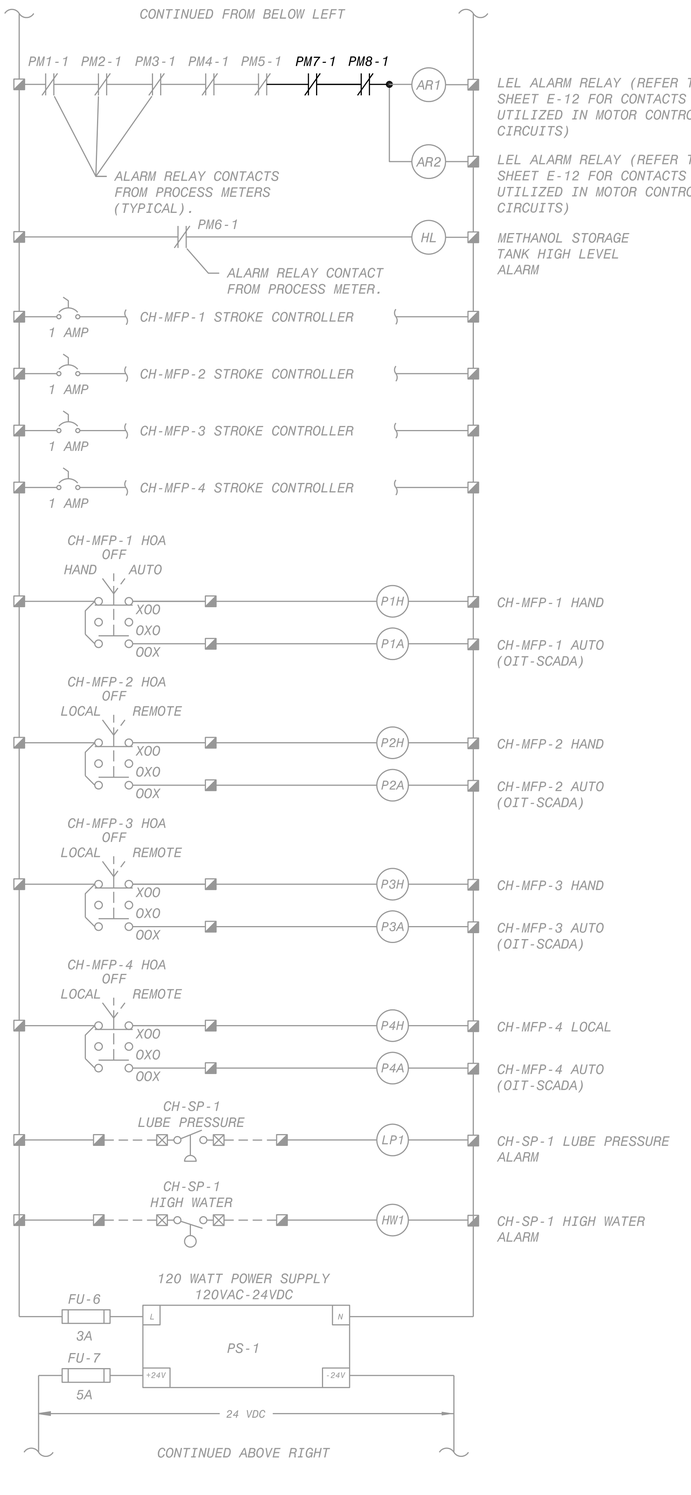


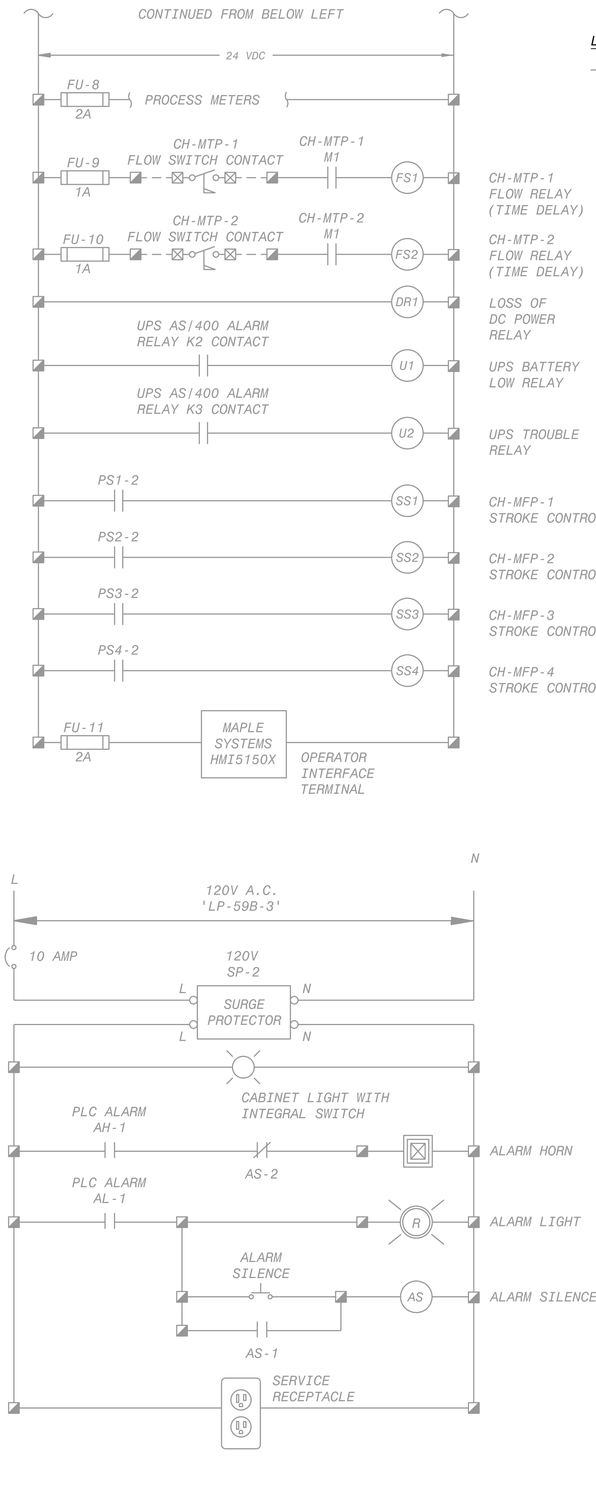





**LEGEND**

- DENOTES FIELD WIRING
- ☒ DENOTES TERMINAL ON FIELD DEVICE
- ◪ DENOTES TERMINAL IN METHANOL PUMP CONTROL PANEL

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50-3040 - General Drawings

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METHANOL STORAGE TANK REPLACEMENT

INSTRUMENTATION
METHANOL PUMP
CONTROL PANEL WIRNG DIAGRAM

DESIGNED: AB
DETAILED: AD
CHECKED: RT
APPROVED: DH
DATE: NOVEMBER 2019

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17 OF 22

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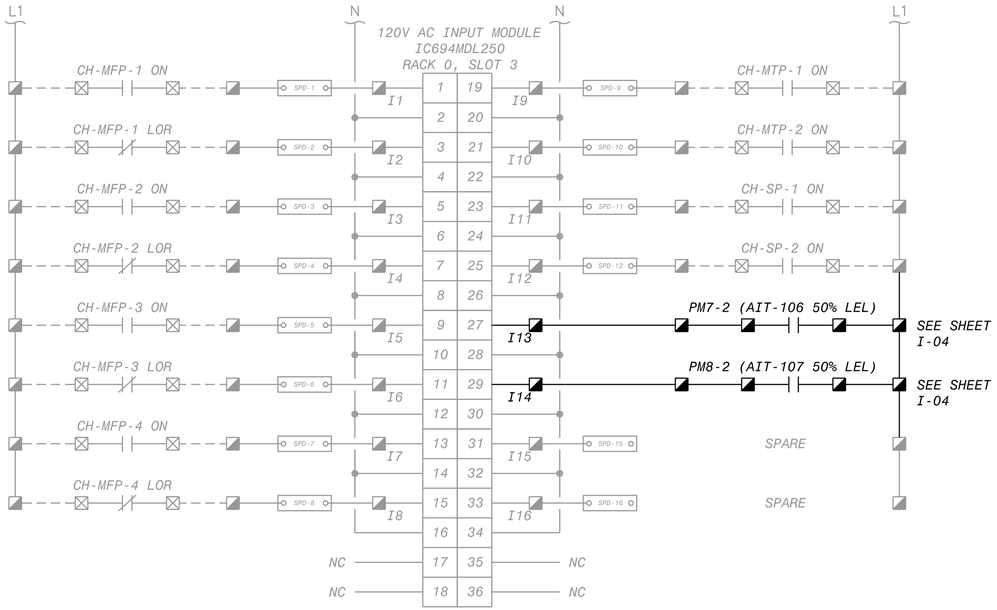
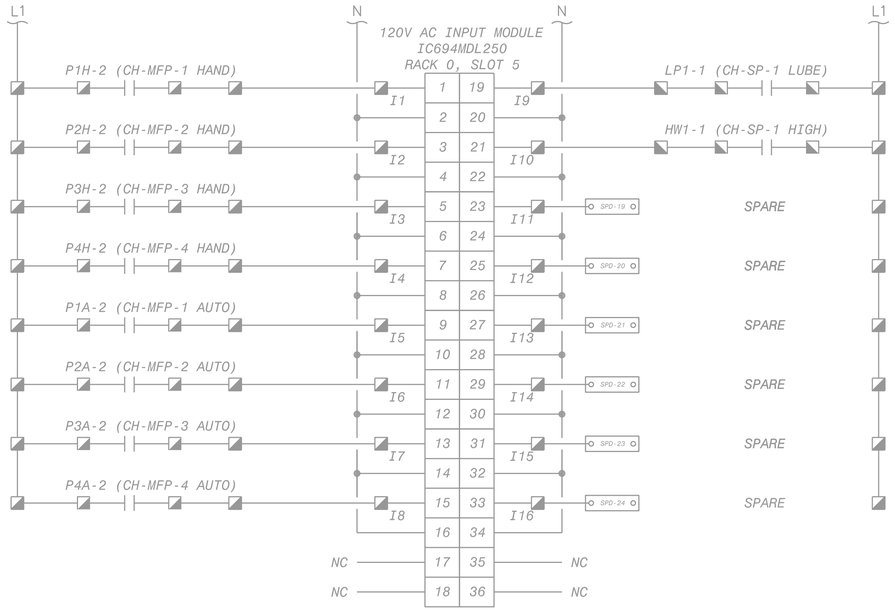
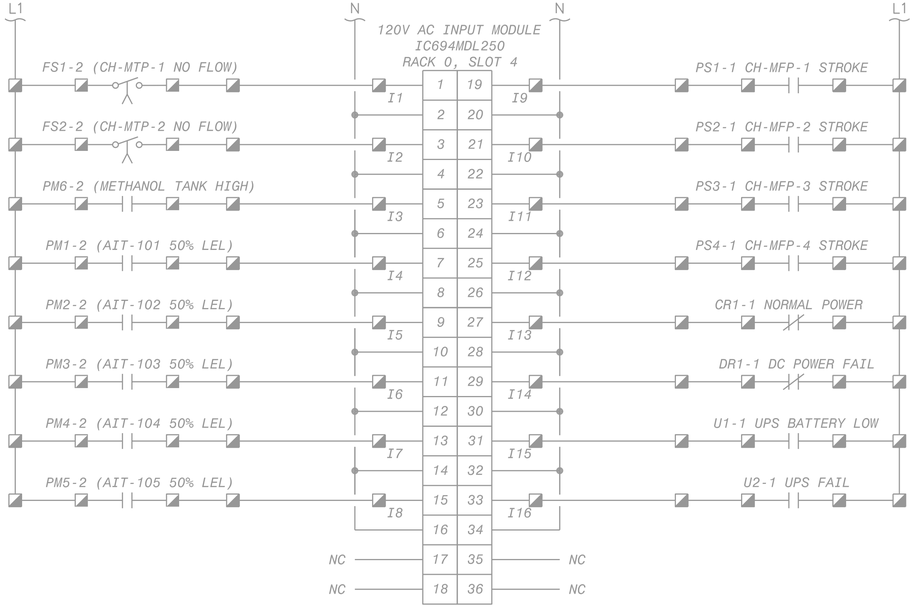


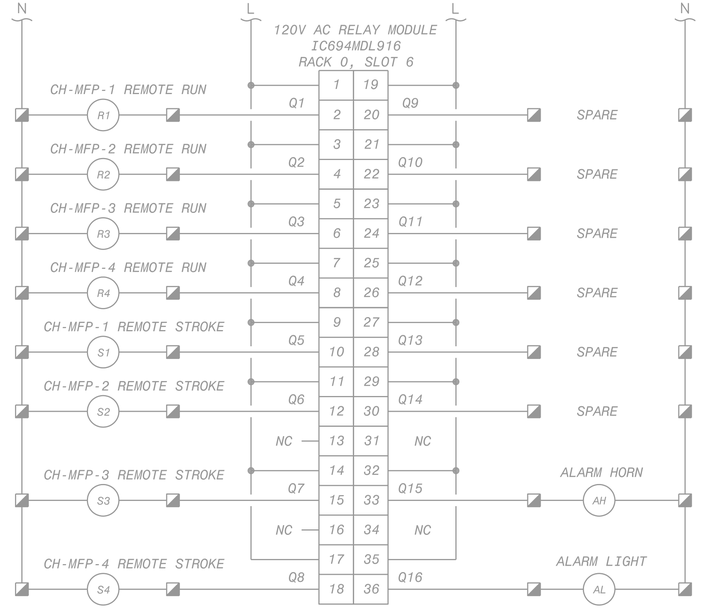

PLC DISCRETE INPUT CARD WIRING DIAGRAM - SLOT 3




PLC DISCRETE INPUT CARD WIRING DIAGRAM - SLOT 5




PLC DISCRETE INPUT CARD WIRING DIAGRAM - SLOT 4




PLC RELAY OUTPUT CARD WIRING DIAGRAM - SLOT 6

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50-3040 - General Drawings

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METHANOL STORAGE TANK REPLACEMENT

INSTRUMENTATION
METHANOL STORAGE TANK
CONTROL PANEL DISCRETE I/O WIRING DIAGAMS

DESIGNED: AB
DETAILED: AD
CHECKED: RT
APPROVED: DH
DATE: NOVEMBER 2019

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PROJECT NO.
401265

I-05
SHEET
18 OF 22

FD7000
190898

## ELECTRICAL GENERAL NOTES

1. SOLID LINES ( ———————— ) INDICATE NEW WORK OR EQUIPMENT.
2. SCREENED LINES ( ———————— ) INDICATE EXISTING WORK OR EQUIPMENT.
3. DASHED LINES ( - - - - - - - - ) INDICATE FUTURE WORK OR EQUIPMENT.
4. REFER TO INDIVIDUAL DISCIPLINE CONTRACT DRAWINGS FOR ADDITIONAL ABBREVIATIONS, DETAILS, AND GENERAL DESIGN NOTES.
5. LEGEND SHEETS ARE GENERAL. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
6. INFORMATION RELATED TO CIRCUIT IDENTIFICATION, WIRE & CONDUIT SIZES, AND ROUTING, IS ON THE FOLLOWING DRAWING TYPES.
   - A. ONE-LINE DIAGRAMS SHOW CIRCUIT IDENTIFICATION, WIRE QUANTITY AND SIZES, AND CONDUIT SIZE WITHIN STRUCTURES. ONE-LINE DIAGRAMS ALSO INDICATE ORIGIN AND DESTINATION OF CIRCUITS, AND IDENTIFY CIRCUITS ROUTED UNDERGROUND.
   - B. FOR CIRCUITS WITHOUT UNDERGROUND PORTIONS, BUILDING FLOOR PLANS SHOW LOCATION OF EQUIPMENT FOR DETERMINING CIRCUIT LENGTH WITHIN THE STRUCTURE. FOR CIRCUITS WITH UNDERGROUND PORTIONS, ANTICIPATED PENETRATION OF UNDERGROUND CONDUITS ARE SHOWN ON STRUCTURE PLANS FOR DETERMINING THE LENGTH OF THE IN-STRUCTURE PORTIONS OF CIRCUITS. BUILDING FLOOR PLANS MAY ALSO SHOW HOME RUNS FOR LIGHTING, RECEPTACLE, AND OTHER MISCELLANEOUS EQUIPMENT CIRCUITS.
   - C. SITE PLANS INDICATE THE GENERAL ROUTING OF UNDERGROUND CONDUITS AND DUCT BANKS. CIRCUITS ROUTED IN UNDERGROUND CONDUITS OR DUCT BANKS ARE INDICATED IN DUCT BANK SECTIONS REFERENCED ON THE SITE PLAN.
   - D. DUCT BANK SECTIONS AND SCHEDULES IDENTIFY CONDUIT SIZE, CONDUIT MATERIAL, ARRANGEMENT OF THE UNDERGROUND CONDUITS, AND CIRCUITS ROUTED IN EACH UNDERGROUND CONDUIT.

## AREA DESIGNATIONS

THE SPECIAL AREA DESIGNATION BOXES, AS DEFINED BELOW, ARE LOCATED ON THE PLAN DRAWINGS TO DEFINE ELECTRICAL INSTALLATION REQUIREMENTS. DESIGNATION BOXES ARE LOCATED WITHIN ROOM OR BELOW ROOM NUMBER. ALL INDOOR AREAS NOT INDICATED OTHERWISE ARE AREA TYPE 1 AND MINIMUM NEMA TYPE 1 ENCLOSURES.

| | |
|---|---|
| AREA TYPE 1A | CORROSIVE CHEMICAL FEED AND STORAGE ROOMS. CONDUIT SYSTEM SHALL BE EXPOSED PVC COATED ALUMINUM RIGID CONDUIT WITH PVC COATED ALUMINUM FITTINGS, BOXES AND ACCESSORIES. |
| AREA TYPE 4 | INDOOR WET LOCATIONS SUCH AS VAULTS, HOSEDOWN AREAS, BASEMENTS, ETC. MINIMUM NEMA TYPE 4X STAINLESS STEEL ENCLOSURE FOR EQUIPMENT AND GASKETED FITTINGS IN A CONDUIT SYSTEM. |
| AREA TYPE 7A | CLASS I, DIVISION 1 AREA AS DEFINED BY NEC. ALL EQUIPMENT AND CONDUIT SYSTEMS SHALL BE RATED FOR USE IN THIS AREA. |
| AREA TYPE 7B | CLASS I, DIVISION 2, GROUP C AND D (METHANE, GASOLINE) AS DEFINED BY NEC. EQUIPMENT AND CONDUITS SYSTEMS SHALL BE RATED FOR USE IN THIS AREA. |
| AREA TYPE 12 | INDOOR, DRY, DIRTY AREA. REQUIRES MINIMUM NEMA TYPE 12 GASKETED ENCLOSURES FOR ALL EQUIPMENT AND GASKETED FITTINGS IN CONDUIT SYSTEMS. |

## GENERAL REQUIREMENTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL NECESSARY CONDUITS, WHETHER SHOWN ON THE PLANS OR NOT. THIS SHALL INCLUDE ALL CONDUITS SHOWN ON THE ONE-LINES AND HOME-RUNS SHOWN ON THE PLAN DRAWINGS. CONDUITS SHALL BE ROUTED AS DEFINED IN THE SPECIFICATION.
2. SPARE WIRES SHALL BE TAPED AND COILED AND LABELED TO INDICATE WHERE OTHER END OF SPARE WIRE IS LOCATED.
3. IF EQUIPMENT SUPPLIED BY MANUFACTURER HAS A LARGER LOAD THAN VALUE SHOWN, THE CABLE CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE ENLARGED, AS REQUIRED, TO ACCOMMODATE THE HIGHER VALUE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING PROPERLY SIZED STARTER OVERLOADS FOR EQUIPMENT FURNISHED.
5. LIGHTING AND RECEPTACLE CIRCUITS DESIGNATED ON THE FLOOR PLANS ARE NOT SHOWN ON THE ONE-LINES. CONDUCTORS FOR LIGHTING, RECEPTACLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM NO. 12AWG. CONDUIT FOR LIGHTING, RECEPTACLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM 3/4".
6. IN AREAS WHERE THERE ARE OVERHEAD BRIDGE CRANES, HOISTS, ROOF HATCHES, ELEVATED PLATFORMS, ETC. NO CONDUITS SHALL BE RUN OVERHEAD THAT WILL INTERFERE WITH THE OPERATION OF THE EQUIPMENT.

## ELECTRICAL ABBREVIATIONS

### A

| | |
|---|---|
| A | AMBER, AMPERE, ALARM |
| AC | ALTERNATING CURRENT |
| ACB | AIR CIRCUIT BREAKER |
| ACR | ACCESS CARD READER |
| AF | AMPERE FRAME |
| AFD | ADJUSTABLE FREQUENCY DRIVE |
| AFRD | ARC-FLASH REDUCTION DEVICE |
| AM | AMMETER |
| ANN | ANNUNCIATOR |
| AR | ALARM RELAY |
| AS | AMMETER SWITCH, AMPERE SENSOR |
| AT | AMPERE TRIP |
| ATS | AUTOMATIC TRANSFER SWITCH |
| AUX | AUXILIARY |
| AWG | AMERICAN WIRE GAUGE |

### B

| | |
|---|---|
| B | BUS |
| BC | BATTERY CHARGER |
| BKR | BREAKER |
| BR | BRAKE |
| BT | BEARING TEMPERATURE |

### C

| | |
|---|---|
| C | CLOSE, COUNTER, CONTACTOR, CONTROL, CCTV CAMERA |
| CAP | CAPACITOR |
| CB | CIRCUIT BREAKER |
| CB"A" | CIRCUIT BREAKER AUXILIARY CONTACT (OPEN WHEN BREAKER IS OPEN) |
| CB"B" | CIRCUIT BREAKER AUXILIARY CONTACT (CLOSED WHEN BREAKER IS OPEN) |
| CD | CONTROL DAMPER |
| CI | CELL INTERLOCK |
| CKT | CIRCUIT |
| CL2 | CHLORINE |
| COS | CABLE OPERATED SWITCH |
| CP | CONTROL PANEL |
| CPT | CONTROL POWER TRANSFORMER |
| CR | CURRENT OF CONTROL RELAY, CARD READER |
| CS | CONTROL STATION |
| CT | CYCLE TIMER OR CURRENT TRANSFORMER |
| CTC | CYCLE TIMER CLUTCH |
| CTM | CYCLE TIMER MONITOR |
| 2/C | 2 CONDUCTOR |
| 4"C | 4" CONDUIT |

### D

| | |
|---|---|
| DC | DIRECT CURRENT, DOOR CONTACT |
| DI | DOOR INTERLOCK |
| DM | DAMPER MOTOR, DEMAND METER, DIMMER SWITCH |
| DPDT | DOUBLE POLE DOUBLE THROW |
| DPST | DOUBLE POLE SINGLE THROW |
| DPR | DIFFERENTIAL PRESSURE REGULATOR |
| DPS | DIFFERENTIAL PRESSURE SWITCH |
| DS | DISCONNECT SWITCH, DOOR SWITCH, DESKTOP STATION |
| DVLS | DISCHARGE VALVE LIMIT SWITCH |

### E

| | |
|---|---|
| E | ELECTRIC OPERATOR FOR CONTROL DAMPER OR VALVE |
| EC | EMPTY CONDUIT |
| EDS | ELECTRICAL DOOR STRIKE |
| EL | ELEVATION, EMERGENCY LIGHT |
| EMH | ELECTRICAL MANHOLE |
| ER | ELECTRODE RELAY |
| ES | END SWITCH, REQUEST TO EXIT SENSOR |
| E-STOP | EMERGENCY STOP |
| ETM | ELAPSED TIME METER |
| EX | EXISTING |
| EXP | EXPLOSION PROOF |

### F

| | |
|---|---|
| F | FORWARD, FIELD |
| FO | FIBER OPTIC |
| FPR | FEEDER PROTECTION RELAY |
| FS | FLOW SWITCH |

### G

| | |
|---|---|
| G | GREEN, GROUND, GENERATOR, GROUND FAULT |
| GD | GROUND DETECTOR |
| GEN | GENERATOR |
| GFCI,GFI | GROUND FAULT CURRENT INTERRUPTOR, GROUND FAULT INTERRUPTOR |
| GLS | GEARED LIMIT SWITCH |
| GPR | GENERATOR PROTECTION RELAY |
| GND | GROUND |
| #8G | #8 GROUND WIRE |

### H

| | |
|---|---|
| H | HIGH, HUMIDISTAT |
| HH | HANDHOLE |
| HMT | HIGH MOTOR TEMPERATURE |
| HOA | HAND-OFF-AUTO |
| HOR | HAND-OFF-REMOTE |
| HP | HORSEPOWER |
| HS | HAND STATION |
| HWCO | HIGH WATER CUTOFF |
| HZ | HERTZ (CYCLE) |

### I

| | |
|---|---|
| I/O | INPUT/OUTPUT |
| I | INSTANTANEOUS |
| IJB | INTERCOM JUNCTION BOX |

### J

| | |
|---|---|
| J,JB | JUNCTION BOX |

### K

| | |
|---|---|
| K | KEY INTERLOCK |
| KAIC | THOUSAND AMPERES INTERRUPTING CURRENT |
| KCMIL | THOUSAND CIRCULAR MIL |
| KO | KEY OPERATED |
| KV | KILOVOLT |
| KVA | KILOVOLT AMPERE |
| KVAR | KILOVAR |
| KW | KILOWATT |
| KWH | KILOWATT HOUR |

### L

| | |
|---|---|
| L | LOW, LEVEL, LONG-TIME |
| LA | LIGHTNING ARRESTER |
| LAN | LOCAL AREA NETWORK |
| LC | LIGHTING CONTRACTOR |
| LCE | LIGHTING CONTACTOR ENCLOSURE |
| | LIGHTING CONTROL ENCLOSURE |
| LCP | LOCAL CONTROL PANEL |
| LCS | LOCAL CONTROL STATION |
| LOA | LOCAL-OFF-AUTO |
| LOR | LOCAL-OFF-REMOTE |
| LOS | LOCK OUT STOP |
| LP | LIGHTING PANEL |
| LS | LIMIT OR LEVEL SWITCH |
| LTG | LIGHTING |
| LWCO | LOW WATER CUTOFF |

### M

| | |
|---|---|
| M | MAGNETIC MOTOR STARTER |
| MA | MILLIAMPERE |
| MCB | MAIN CIRCUIT BREAKER |
| MCC | MOTOR CONTROL CENTER |
| MCLU | MOTOR CONTROL LINEUP |
| MD | MOISTURE DETECTOR, MOTION DETECTOR |
| MDL | MAGNETIC DOOR LOCK |
| MFR | MANUFACTURER |
| MH | MANHOLE, MOUNTING HEIGHT |
| MOV | MOTOR OPERATED VALVE |
| MPR | MOTOR PROTECTION RELAY |
| MS | MANUAL MOTOR STARTER |
| MSH | MOTOR SPACE HEATER |
| MTS | MANUAL TRANSFER SWITCH |
| MV | MILLIVOLT, MEDIUM VOLTAGE |
| MVA | MEGAVOLT AMPERE |

### N

| | |
|---|---|
| N | NEUTRAL |
| NGR | NEUTRAL GROUNDING RESISTOR |
| NGT | NEUTRAL GROUNDING TRANSFORMER |
| NC | NORMALLY CLOSED |
| NO | NORMALLY OPEN, NUMBER |

### O

| | |
|---|---|
| O | OPEN |
| OL | OVERLOAD |
| OOA | ON-OFF-AUTO |
| OOR | ON-OFF-REMOTE |
| OS | OCCUPANCY SENSOR |
| O/U | OVER/UNDER |

### P

| | |
|---|---|
| P | PRIMARY, POWER, POLE |
| PCS | PLANT CONTROL SYSTEM |
| PB | PUSH BUTTON, PULL BOX |
| PE | PHOTOELECTRIC SENSOR, PHOTOCELL |
| PF | POWER FACTOR |
| PFCC | POWER FACTOR CORRECTION CAPACITOR |
| PH | PHASE |
| PL | PILOT LIGHT |
| PLC | PROGRAMMABLE LOGIC CONTROLLER |
| PP | POWER PANEL |
| PR | PAIR |
| PRS | PROXIMITY SWITCH |
| PS | PRESSURE SWITCH |
| PT | POTENTIAL TRANSFORMER, PROGRAM TIMER |

### Q

NOT USED

### R

| | |
|---|---|
| R | RED, RAISE, RELAY, REVERSE |
| RECP | RECEPTACLE |
| RES | RESISTOR |
| RH | REMOTE HANDSET |
| RT | REPEATING TIMER |
| RTD | RESISTANCE TEMPERATURE DETECTOR |
| RTU | REMOTE TERMINAL UNIT |
| RVSS | REDUCED VOLTAGE SOLID STATE STARTER |

### S

| | |
|---|---|
| S | SHORT-TIME, SHIELDED, STARTER |
| SA | SURGE ARRESTER, SPEAKER AMPLIFIER |
| SCADA | SUPERVISORY CONTROL AND DATA ACQUISITION |
| SF6 | SULFUR HEXAFLOURIDE |
| SH | SPACE HEATER |
| SN | SOLID NEUTRAL |
| SO | SOLENOID OILER |
| SP | SINGLE POLE |
| SPD | SURGE PROTECTION DEVICE |
| SPDT | SINGLE POLE DOUBLE THROW |
| SPST | SINGLE POLE SINGLE THROW |
| SS | SELECTOR SWITCH, START/STOP, STAINLESS STEEL |
| SSM | SOLID-STATE METERING |
| SSS | SOLID STATE STARTER |
| SST | SOLID-STATE TRIP |
| SUPV | SUPERVISORY CONTROL |
| SV | SOLENOID VALVE |
| SWB,SWBD | SWITCHBOARD |
| SWG,SWGR | SWITCHGEAR |

### T

| | |
|---|---|
| T | THERMOSTAT, TIMER, TOTALIZER, TRANSFORMER |
| TACH | TACHOMETER |
| TB | TERMINAL BLOCK |
| TC | TIMER CLUTCH |
| TD | TIME DELAY RELAY |
| TEMP | TEMPERATURE |
| TM | TIMER MOTOR |
| TQ | TORQUE |
| TR | TIMER RELAY, TRIAD |
| TS | TEMPERATURE SWITCH |
| TTB | TELEPHONE TERMINAL BOARD |

### U

| | |
|---|---|
| UG | UNDERGROUND |
| UPS | UNINTERRUPTIBLE POWER SUPPLY |

### V

| | |
|---|---|
| V | VOLTS, VOLTAGE RESTRAINED |
| VA | VOLT AMPERE |
| VAR | VARMETER |
| VFD | VARIABLE FREQUENCY DRIVE |
| VI | VACUUM INTERRUPTER |
| VLS | VALVE LIMIT SWITCH |
| VM | VOLTMETER |
| VPI | VALVE POSITION INDICATOR |
| VS | VOLTMETER SWITCH |

### W

| | |
|---|---|
| W | WHITE, WATTS |
| WH | WATTHOUR METER |
| WM | WATT METER |
| WP | WEATHERPROOF |
| WPI | WEATHERPROOF IN-USE |
| WS | WALL STATION |

### X

| | |
|---|---|
| X | AUXILIARY RELAY |
| XFMR | TRANSFORMER |
| XP | EXPLOSION PROOF |

### Y

| | |
|---|---|
| Y | YELLOW |

### Z

| | |
|---|---|
| Z | AUXILIARY RELAY, IMPEDANCE |
| ZS | POSITION SWITCH |
| ZSS | ZERO SPEED SWITCH |

| | |
|---|---|
| 1-1PR#16S | ONE, SINGLE PAIR, TWISTED SHIELDED #16 CABLE |
| 3-7/C#14 | THREE, SINGLE, SEVEN CONDUCTOR #14 MULTICONDUCTOR CONTROL CABLES |

| NO. | BY | CK | APP |
|---|---|---|---|
| C | AD | RT | DH |
| B | AD | DL | DH |
| A | AD | DL | DH |

REVISIONS AND RECORD OF ISSUE

| DATE | |
|---|---|
| NOV 2019 | 100% SUBMITTAL |
| AUG 2019 | 90% SUBMITTAL |
| JUN 2019 | 60% SUBMITTAL |

50.3060 - Electrical Diagrams Drawings

E-01.dwg

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CITY OF TAMPA
HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

ELECTRICAL
LEGEND AND ABBREVIATIONS

DESIGNED: RT
DETAILED: AD
CHECKED: RT
APPROVED: DH
DATE: NOVEMBER 2019

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
401265

E-01
SHEET
19 OF 22

FD7000
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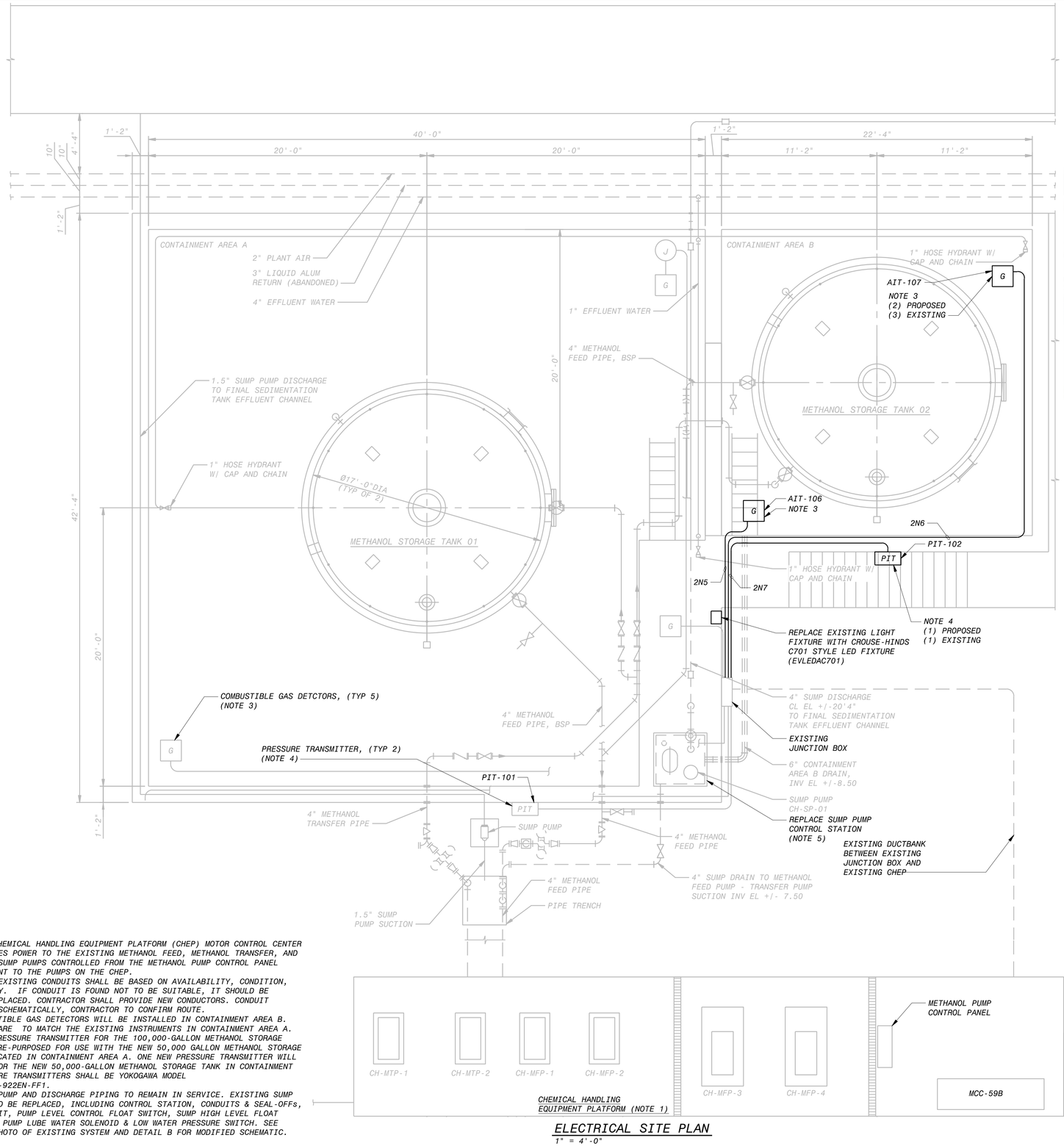
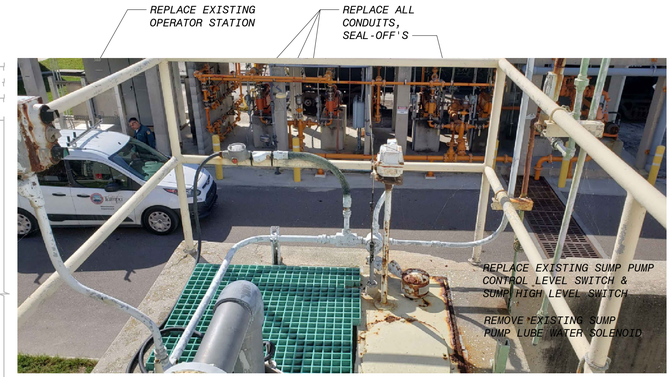
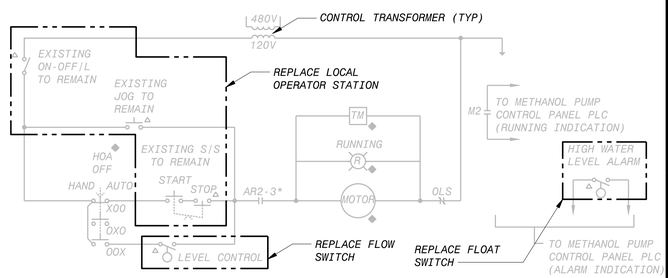


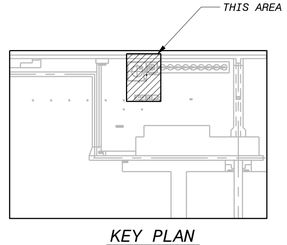

## ELECTRICAL SITE PLAN
1" = 4'-0"




## A EXISTING SUMP PUMP CONDUIT & CONTROL STATION PHOTO
NTS




## B MODIFIED SUMP PUMP CONTROL SCHEMATIC
NTS




## KEY PLAN

4' 0 4' 8'
1"=4'-0"

**NOTES:**

1. THE EXISTING CHEMICAL HANDLING EQUIPMENT PLATFORM (CHEP) MOTOR CONTROL CENTER MCC-59B PROVIDES POWER TO THE EXISTING METHANOL FEED, METHANOL TRANSFER, AND METHANOL TANK SUMP PUMPS CONTROLLED FROM THE METHANOL PUMP CONTROL PANEL LOCATED ADJACENT TO THE PUMPS ON THE CHEP.
2. RE-USE OF ANY EXISTING CONDUITS SHALL BE BASED ON AVAILABILITY, CONDITION, AND SUITABILITY. IF CONDUIT IS FOUND NOT TO BE SUITABLE, IT SHOULD BE REMOVED AND REPLACED. CONTRACTOR SHALL PROVIDE NEW CONDUCTORS. CONDUIT ROUTING SHOWN SCHEMATICALLY, CONTRACTOR TO CONFIRM ROUTE.
3. TWO NEW COMBUSTIBLE GAS DETECTORS WILL BE INSTALLED IN CONTAINMENT AREA B. GAS DETECTORS ARE TO MATCH THE EXISTING INSTRUMENTS IN CONTAINMENT AREA A.
4. THE EXISTING PRESSURE TRANSMITTER FOR THE 100,000-GALLON METHANOL STORAGE TANK SHALL BE RE-PURPOSED FOR USE WITH THE NEW 50,000 GALLON METHANOL STORAGE TANK, TO BE LOCATED IN CONTAINMENT AREA A. ONE NEW PRESSURE TRANSMITTER WILL BE INSTALLED FOR THE NEW 50,000-GALLON METHANOL STORAGE TANK IN CONTAINMENT AREA B. PRESSURE TRANSMITTERS SHALL BE YOKOGAWA MODEL #EJA210E-JHS5G-922EN-FF1.
5. EXISTING SUMP PUMP AND DISCHARGE PIPING TO REMAIN IN SERVICE. EXISTING SUMP PUMP CONTROL TO BE REPLACED, INCLUDING CONTROL STATION, CONDUITS & SEAL-OFFs, FLEXIBLE CONDUIT, PUMP LEVEL CONTROL FLOAT SWITCH, SUMP HIGH LEVEL FLOAT SWITCH, REMOVE PUMP LUBE WATER SOLENOID & LOW WATER PRESSURE SWITCH. SEE DETAIL A FOR PHOTO OF EXISTING SYSTEM AND DETAIL B FOR MODIFIED SCHEMATIC.

| | | | |
|---|---|---|---|
| D | AD | RT | DH |

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|---|---|---|---|---|
| | NOV 2019 | 100% SUBMITTAL | | |
| D | AUG 2019 | 90% SUBMITTAL | DL | NE |
| C | JUNE 2019 | 60% SUBMISSION | EB | DH |
| B | MAY 2019 | RESPONSE TO CITY COMMENTS | AD | DH |
| A | APRIL 2019 | PRELIMINARY SUBMISSION | EB | DH |

REVISIONS AND RECORD OF ISSUE

50.3060 - Electrical Diagrams Drawings

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CITY OF TAMPA
HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

ELECTRICAL
PLAN - METHANOL STORAGE TANK SYSTEM

DESIGNED: RT
DETAILED: HT
CHECKED: RT
APPROVED: DH
DATE: NOVEMBER 2019

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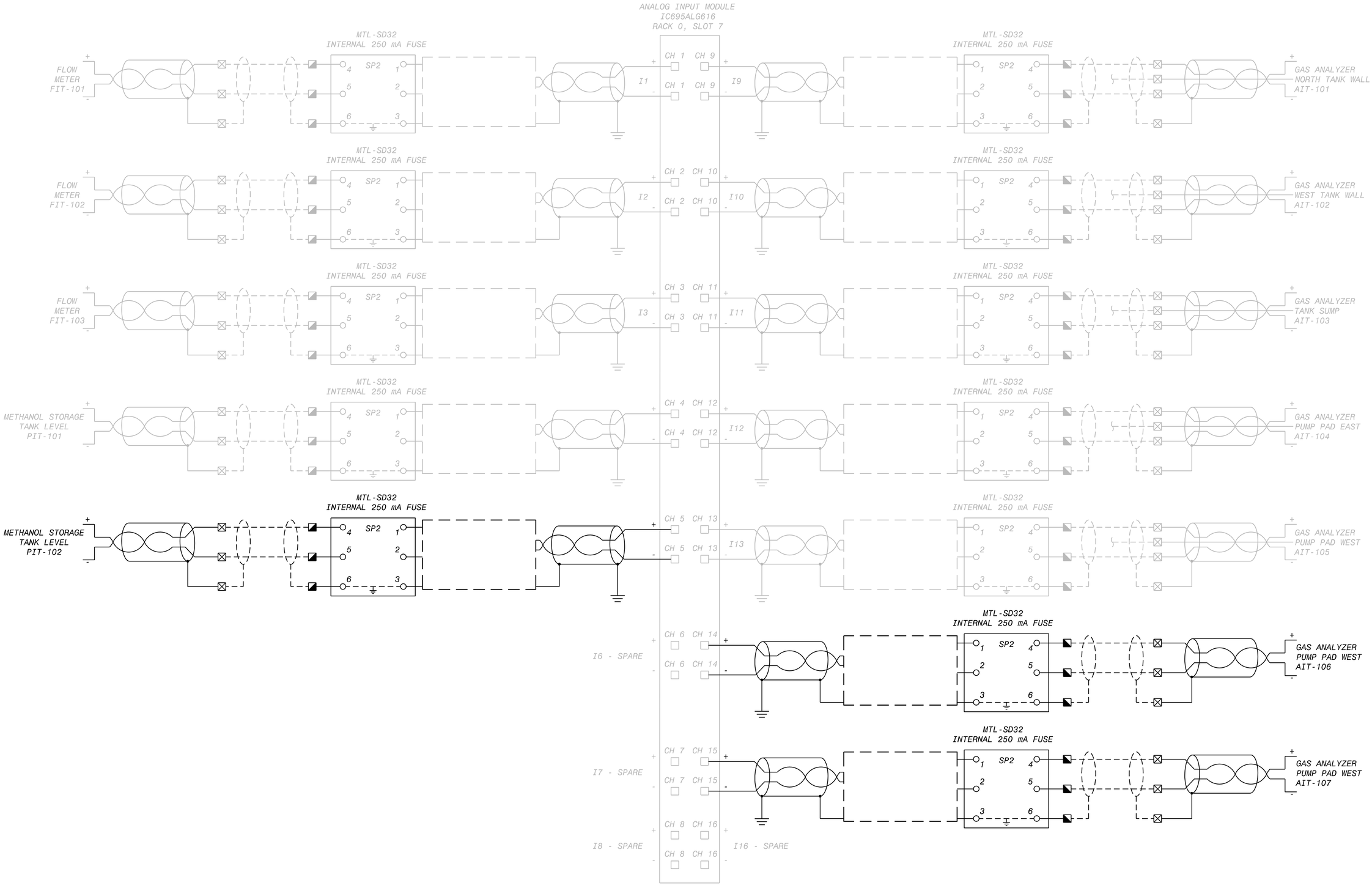


PLC - ANALOG INPUT CARD WIRING DIAGRAM - SLOT 7

| NO. | BY | CK | APP |
|---|---|---|---|
| A | AD | RT | DH |

NOV 2019 | 100% SUBMITTAL

DATE | REVISIONS AND RECORD OF ISSUE

50.3060 - Electrical Diagrams Drawings

E-03.dwg

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CITY OF TAMPA
HOWARD F. CURREN AWTP
METHANOL STORAGE TANK REPLACEMENT

ELECTRICAL
METHANOL STORAGE TANK
CONTROL PANEL ANALOG INPUTS

DESIGNED: RT
DETAILED: HT
CHECKED: RT
APPROVED: DH
DATE: NOVEMBER 2019

0 1/2 1
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E-03
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21 OF 22

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## CONDUIT AND CABLE SCHEDULE (CONTINUED)

| CONDUIT No. | SIZE | NUMER OF CONDUCTORS/SIZE | FROM | TO | REMARKS |
|---|---|---|---|---|---|
| 59BM9 | 1-1/4" | 20-#14, #14 GND | MCC-59B | METHANOL PUMP CONTROL PANEL | NEW CONDUIT/CONDUCTORS. CONDUCTORS FOR CH-MFP-1 AND CH-MFP-2 M1 CONTACTS, LOR'S, AR1'S, P1H, RUN CONTACTS . |
| 59BM10 | 1-1/4" | 20-#14, #14 GND | MCC-59B | METHANOL PUMP CONTROL PANEL | NEW CONDUIT/CONDUCTORS. CONDUCTORS FOR CH-MFP-3 AND CH-MFP-4 M1 CONTACTS, LOR'S, AR1'S, P1H, RUN CONTACTS . |
| 59BM11 | 1" | 12-#14, #14 GND | MCC-59B | METHANOL PUMP CONTROL PANEL | NEW CONDUIT/CONDUCTORS. CONDUCTORS FOR CH-MTP-1 AND CH-MTP-2 M1 CONTACTS, AR2'S CONTACTS. |
| 59BM12 | 1" | 12-#14, #14 GND | MCC-59B | METHANOL PUMP CONTROL PANEL | NEW CONDUIT/CONDUCTORS. CONDUCTORS FOR CH-SP-1 AND CH-SP-2 M1 CONTACTS, AR2'S, LUBE, HIGH WATER CONTACTS . |
| 59BM13 | 1" | 8-#12, #12 GND | MCC-59B | JB AT METHANOL STORAGE TANK | 120V CIRCUITS FOR METHANOL STORAGE AREA, BREWERY STORAGE AREA AND ALUM STORAGE AREA. CONTRACTOR TO FIELD VERIFY. |
| 1M1 | 3/4" | 2-#12, #12 GND | CH-MFP-1 | METHANOL PUMP CONTROL PANEL | MODIFY CONDUIT AND PROVIDE NEW CONDUCTORS. CH-MFP-1 PULSAMATIC 120V AC FEED. |
| 1M2 | 3/4" | 2-#12, #12 GND | CH-MFP-2 | METHANOL PUMP CONTROL PANEL | MODIFY CONDUIT AND PROVIDE NEW CONDUCTORS. CH-MFP-2 PULSAMATIC 120V AC FEED. |
| 1M3 | 3/4" | 2-#12, #12 GND | CH-MFP-3 | METHANOL PUMP CONTROL PANEL | MODIFY CONDUIT AND PROVIDE NEW CONDUCTORS. CH-MFP-3 PULSAMATIC 120V AC FEED. |
| 1M4 | 3/4" | 2-#12, #12 GND | CH-MFP-4 | METHANOL PUMP CONTROL PANEL | MODIFY CONDUIT AND PROVIDE NEW CONDUCTORS. CH-MFP-4 PULSAMATIC 120V AC FEED. |
| 1N1 | 3/4" | 2/C-#18, TWISTED SHIELDED | FIT-101 | METHANOL PUMP CONTROL PANEL | EXISTING CONDUIT TO BE MODIFIED. PROVIDE NEW CONDUCTORS. FIT-101 4-20mA SIGNAL. |
| 1N2 | 3/4" | 2/C-#18, TWISTED SHIELDED | FIT-102 | METHANOL PUMP CONTROL PANEL | NEW CONDUIT AND CONDUCTORS TO BE PROVIDED. FIT-102 4-20mA SIGNAL. |
| 1N3 | 3/4" | 2/C-#18, TWISTED SHIELDED | FIT-103 | METHANOL PUMP CONTROL PANEL | NEW CONDUIT AND CONDUCTORS TO BE PROVIDED. FIT-103 4-20mA SIGNAL. |
| 1N4 | 3/4" | 3/C-#18, TWISTED SHIELDED | AIT-104 | METHANOL PUMP CONTROL PANEL | EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. AIT-104 4-20mA SIGNAL AND 24V DC POWER. |
| 1N5 | 3/4" | 3/C-#8, TWISTED SHIELDED | AIT-105 | METHANOL PUMP CONTROL PANEL | EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. AIT-105 4-20mA SIGNAL AND 24V DC POWER. |
| 1N6 | 3/4" | 2/C-#18, TWISTED SHIELDED | CH-MFP-1 | METHANOL PUMP CONTROL PANEL | EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. CH-MFP-1 4-20mA STROKE CONTROL SIGNAL. |
| 1N7 | 3/4" | 2/C-#18, TWISTED SHIELDED | CH-MFP-2 | METHANOL PUMP CONTROL PANEL | EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. CH-MFP-2 4-20mA STROKE CONTROL SIGNAL. |
| 1N8 | 3/4" | 2/C-#18, TWISTED SHIELDED | CH-MFP-3 | METHANOL PUMP CONTROL PANEL | EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. CH-MFP-3 4-20mA STROKE CONTROL SIGNAL. |
| 1N9 | 3/4" | 2/C-#18, TWISTED SHIELDED | CH-MFP-4 | METHANOL PUMP CONTROL PANEL | EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. CH-MFP-4 4-20mA STROKE CONTROL SIGNAL. |
| 1N10 | 3/4" | 4-#14, #14 GND | FLOW SWITCHES | METHANOL PUMP CONTROL PANEL | EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. |
| 1N11 | 1" | 2/C-#18, TWISTED SHIELDED | METHANOL PUMP CONTROL PANEL | FILTER BUILDING CONTROL CONSOLE | 4-20mA STROKE CONTROL SIGNAL FROM FILTER BUILDING CONTROL CONSOLE. NEW CONDUIT AND CONDCUTORS FROM METHANOL PUMP CONTROL PANEL TO MCC - EXISTING TO REMAIN TO FILTER BUILDING CONTROL CONSOLE (VIA EXISTING MULTICONDUCTOR CABLE, IF POSSIBLE). |
| 1N12 | 1-1/4" | THREE (3) : 2/C-#18, TW SH | METHANOL PUMP CONTROL PANEL | FILTER BUILDING CONTROL CONSOLE | 4-20mA FLOW METER SIGNALS TO FILTER BUILDING CONTROL CONSOLE. NEW CONDUIT AND CONDCUTORS FROM METHANOL PUMP CONTROL PANEL TO MCC - EXISTING TO REMAIN TO FILTER BUILDING CONTROL CONSOLE (VIA EXISTING MULTICONDUCTOR CABLE, IF POSSIBLE). |
| 1N13 | 3/4" | 8-#12, #12 GND | METHANOL PUMP CONTROL PANEL | FILTER BUILDING CONTROL CONSOLE | LOR INDICATION FOR CH-MFP-1, CH-MFP-2, CH-MFP-3 AND CH- MFP-4 FROM MCC-59B TO FILTER BUILDING CONTROL CONSOLE. - EXISTING CONDUIT AND CONDUCTORS TO REMAIN (VIA EXISTING MULTICONDUCTOR CABLE, IF POSSIBLE). |
| 1N14 | 1" | 6C MM FIBER | FILTER BUILDING FIBER CABINET | METHANOL PUMP CONTROL PANEL | CONDUIT AND FIBER CABLE TO BE PROVIDED. |
| | | | | | |
| 2N1 | 3/4" | 3/C-#16, TWISTED SHIELDED | AIT-101 | METHANOL PUMP CONTROL PANEL | EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. |
| 2N2 | 3/4" | 3/C-#16, TWISTED SHIELDED | AIT-102 | METHANOL PUMP CONTROL PANEL | EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. |
| 2N3 | 3/4" | 3/C-#16, TWISTED SHIELDED | AIT-103 | METHANOL PUMP CONTROL PANEL | EXISTING CONDUIT TO BE MODIFIED/EXTENDED. PROVIDE NEW CONDUCTORS. |
| 2N4 | 3/4" | 2/C-#18, TWISTED SHIELDED | PIT-101 | METHANOL PUMP CONTROL PANEL | PROVIDE NEW CONDUIT/CONDUCTORS. |
| 2N5 | 3/4" | 3/C-#16, TWISTED SHIELDED | AIT-106 | METHANOL PUMP CONTROL PANEL | NEW CONDUIT/CONDUCTORS FROM EXISTING JUCTION BOX. |
| 2N6 | 3/4" | 3/C-#16, TWISTED SHIELDED | AIT-107 | METHANOL PUMP CONTROL PANEL | NEW CONDUIT/CONDUCTORS FROM EXISTING JUCTION BOX. |
| 2N7 | 3/4" | 2/C-#18, TWISTED SHIELDED | PIT-102 | METHANOL PUMP CONTROL PANEL | NEW CONDUIT/CONDUCTORS FROM EXISTING JUCTION BOX. |

| NO. | BY | CK | APP | DATE | REVISIONS AND RECORD OF ISSUE |
|---|---|---|---|---|---|
| A | AD | RT | DH | NOV 2019 | 100% SUBMITTAL |

50.3060 - Electrical Diagrams Drawings
E-04.dwg
SAVED: RANK4017, 18-12-2019 12:58:39
PLOTTED: RANK4017, 18-12-2019 12:58:46
USER: RANK4017
DWG VER: 1009
XREF1:
XREF2:
XREF3:
XREF4:

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METHANOL STORAGE TANK REPLACEMENT

ELECTRICAL
CABLE SHEDULE

DESIGNED: RT
DETAILED: MD
CHECKED: RT
APPROVED: DH
DATE: NOVEMBER 2019

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
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E-04
SHEET
22 OF 22

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