# CITY OF SANTA ROSA

IMPROVEMENT PLANS FOR

# Alpha Farm Biosolids Storage Facility Fire Sprinkler System Freeze Protection

JANUARY 2018

CONTRACT No. C02012

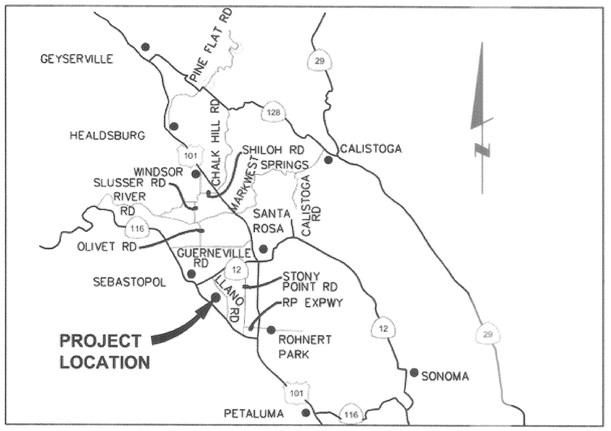
| RECORD PLAN DATA |
|---|
| PROJECT START: |
| PROJECT END: |
| GEN. CONTRACTOR: |
| FOREMAN: |
| CONDUIT TYPE: |
| MANUFACTURER: |
| HEAT CONTROLLER |
| MANUFACTURER: |
| INSPECTOR: |
| CONSTRUCTION MANAGER |
| RECORD PLANS BY: |
| ADDITIONAL INFO: |

REGISTERED PROFESSIONAL ENGINEER SANDY SCHUER No. E15453 Exp. 6/30/19 ELECTRICAL STATE OF CALIFORNIA

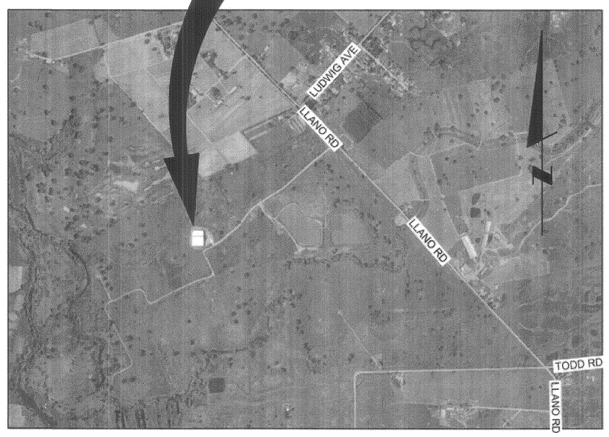
| DRAWING INDEX | | |
|---|---|---|
| SHEET NO. | DRAWING NO. | SHEET TITLE |
| 1. | G1 | COVER SHEET |
| 2. | E1 | ELECTRICAL SYMBOLS & ABBREVIATIONS |
| 3. | E2 | ELECTRICAL SITE PLAN |
| 4. | E4 | ELECTRICAL DETAILS |
| 5. | E3 | MCC, SINGLE LINE DIAGRAM & PANEL SCHEDULE |

NOTE:
FACILITY WILL BE EMPTY DURING OCTOBER ONLY. IT WILL BE GRADUALLY REFILLED WITH BIOSOLIDS UP TO 5' DEEP BEGINNING NOVEMBER 1ST. CONTRACTOR TO ADJUST HIS WORK ACCORDINGLY.

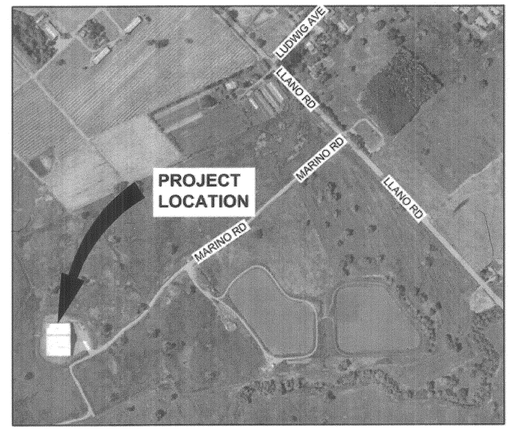
PROJECT
ALPHA FARM BIOSOLIDS STORAGE FACILITY




**VICINITY MAP**
NOT TO SCALE




**LOCATION MAP**
NOT TO SCALE




**SITE MAP**
NOT TO SCALE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1668022*00


| No. | Date | Revision | By | Dept. | Signature | Date |
|---|---|---|---|---|---|---|
| | | | | Design/Construction | | 2/7/18 |
| | | | | Survey | | 2/7/18 |
| | | | | Materials Lab | | |
| | | | | Subregional Operations | | |

SCALE: AS SHOWN
DATE: JANUARY 2018
DWN BY: RAJ
CHK BY: SLS
APPROVED: Deputy Director - Engineering
By _____ Date 3/6/18

City of Santa Rosa

ALPHA FARM BIOSOLIDS STORAGE FACILITY FIRE SPRINKLER SYSTEM FREEZE PROTECTION

COVER SHEET

CONTRACT NO. C02012
DRAWING NO. G1
SHEET 1 OF 5
FILE NO. 2016-0038

ALPHA FARM BIOSOLIDS STORAGE FACILITY FIRE SPRINKLER SYSTEM FREEZE PROTECTION

## ABBREVIATIONS

| | |
|---|---|
| a | CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS CLOSED |
| A | AMMETER, AMPERES |
| AC | ALTERNATING CURRENT |
| A/D | ANALOG TO DIGITAL |
| ADJ | ADJUSTABLE |
| AF | AMPERE FRAME |
| AFD | ADJUSTABLE FREQUENCY DRIVE |
| AFF | ABOVE FINISHED FLOOR |
| AIC | AMPERES INTERRUPTING CAPACITY |
| AL | ALUMINUM |
| ALT | ALTERNATOR |
| A/M | AUTO/MANUAL CONTROLLER |
| ANN | ANNUNCIATOR |
| APPROX | APPROXIMATE |
| AS | AMMETER SWITCH |
| AT | AMMETER TRIP |
| ATS | AUTOMATIC TRANSFER SWITCH |
| AUTO | AUTOMATIC |
| AUX | AUXILIARY |
| AWG | AMERICAN WIRE GAGE |
| b | CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS OPEN |
| BCG | BARE COPPER GROUND |
| BLDG | BUILDING |
| C | CONDUIT, CONTACTOR |
| CAB | CABINET |
| CAP | CAPACITOR |
| CB | CIRCUIT BREAKER |
| CC | CONTROL CABLE, CLOSING COIL |
| CDF | CONTROLLED DENSITY FILL |
| CL | CHLORINE |
| CKT | CIRCUIT |
| CMH | COMMUNICATION MANHOLE |
| CO | CONDUIT ONLY |
| COMM | COMMUNICATION |
| COND | CONDUCTOR |
| CONT | CONTINUED, CONTINUATION |
| CPT | CONTROL POWER TRANSFORMER |
| CP | CONTROL PANEL |
| CR | CONTROL RELAY |
| CS | CONTROL SWITCH |
| CT | CURRENT TRANSFORMER |
| CWP | COLD WATER PIPE |
| DC | DIRECT CURRENT |
| DIA | DIAMETER |
| DIAG | DIAGRAM |
| DISC | DISCONNECT |
| DISTR | DISTRIBUTION |
| DN | DOWN |
| DP | DISTRIBUTION PANEL |
| DPDT | DOUBLE POLE, DOUBLE THROW |
| DPST | DOUBLE POLE, SINGLE THROW |
| DWG | DRAWING |
| (E) | EXISTING |
| EA | EACH |
| EF | EXHAUST FAN |
| EHH | ELECTRICAL HANDHOLE |
| EL, ELEV | ELEVATION |
| ELEC | ELECTRIC, ELECTRICAL |
| ELEM | ELEMENTARY |
| EMERG | EMERGENCY |
| ENCL | ENCLOSURE |
| EFFL | EFFLUENT |
| EQ | EQUAL |
| EQPT | EQUIPMENT |
| ETM | ELAPSED TIME METER |
| FACP | FIRE ALARM CONTROL PANEL |
| FDR | FEEDER |
| FF | FINISHED FLOOR |
| FLEX | FLEXIBLE |
| FLUOR | FLUORESCENT |
| FO | FIBER OPTIC |
| FREQ | FREQUENCY |
| FT | FEET, FOOT |
| FU | FUSE |
| (F) | FUTURE |
| FVNR | FULL VOLTAGE, NON REVERSING |
| FVR | FULL VOLTAGE, REVERSING |
| FWD | FORWARD |
| GA | GAUGE |
| GALV | GALVANIZED |
| GEN | GENERATOR |
| GFEP | GROUND FAULT EQUIPMENT PROTECTOR |
| GFI | GROUND FAULT INTERRUPTER |
| GND | GROUND |
| GRS | GALVANIZED RIGID STEEL |
| HH | HANDHOLE |
| HOA | HAND-OFF-AUTOMATIC |
| HOR | HAND-OFF-REMOTE |
| HORIZ | HORIZONTAL |
| HP | HORSEPOWER |
| HPS | HIGH PRESSURE SODIUM |
| HTR | HEATER |
| HV | HIGH VOLTAGE |
| HZ | HERTZ (CYCLES PER SECOND) |
| IND LT | INDICATING LIGHT |
| INCAND | INCANDESCENT |
| INSTR | INSTRUMENT, INSTRUMENTATION |
| I/O | INPUT/OUTPUT |
| JB | JUNCTION BOX |
| KA | KILOAMPERES |
| KCMIL | THOUSANDS OF CIRCULAR MILS |
| KV | KILOVOLTS |
| KVA | KILOVOLT AMPERES |
| KVAR | KILOVOLT AMPERES REACTIVE |
| KVARH | KILOVOLT AMPERES REACTIVE HOURS |
| KW | KILOWATTS |
| KWH | KILOWATT HOURS |
| LCP | LIGHTING CONTROL PANEL |
| LP | LIGHTING PANEL |
| LPS | LOW PRESSURE SODIUM |
| LTG | LIGHTING |
| LT(S) | LIGHT(S) |
| (M) | MODIFIED |
| mA | MILLIAMPERES |
| MAX | MAXIMUM |
| MCC | MOTOR CONTROL CENTER |
| MCP | MOTOR CIRCUIT PROTECTOR |
| MFR | MANUFACTURER |
| MH | MANHOLE |
| MIN | MINIMUM |
| MISC | MISCELLANEOUS |
| MOV | MOTOR OPERATED VALVE |
| MS | MOTOR STARTER |
| MTD | MOUNTED |
| MTG | MOUNTING |
| MTS | MANUAL TRANSFER SWITCH |
| (N) | NEW |
| NC | NORMALLY CLOSED |
| NEC | NATIONAL ELECTRICAL CODE |
| NEMA | NATIONAL ELECTRICAL MANUFACTURER'S ASSOC. |
| NEUT | NEUTRAL |
| NIC | NOT IN CONTRACT |
| NO | NORMALLY OPEN, NUMBER |
| NTS | NOT TO SCALE |
| OH | OVERHEAD |
| OT | OVER TEMPERATURE |
| OL | THERMAL OVERLOAD RELAY |
| PB | PULLBOX, PUSHBUTTON |
| PD | POSITIVE DISPLACEMENT |
| PE | PHOTOELECTRIC |
| PEC | PHOTOELECTRIC CELL |
| PF | POWER FACTOR |
| pH | MEASURE OF ACIDITY OR ALKALINITY |
| PH | PHASE |
| PLC | PROGRAMMABLE LOGIC CONTROLLER |
| PNL | PANEL |
| PNLBD | PANELBOARD |
| PRI | PRIMARY |
| PS | PRESSURE SWITCH |
| PSI | POUNDS PER SQUARE INCH |
| PVC | POLYVINYL CHLORIDE |
| PWR | POWER |
| RAC | RIGID ALUMINUM CONDUIT |
| (RL) | RELOCATE |
| (RLD) | RELOCATED |
| RCPT | RECEPTACLE |
| RCT | REPEAT CYCLE TIMER |
| REF | REFERENCE |
| REQD | REQUIRED |
| RM | ROOM |
| RPM | REVOLUTIONS PER MINUTE |
| RT | RESET TIMER |
| RTD | RESISTANCE TEMPERATURE DETECTOR |
| SEC | SECONDS, SECONDARY |
| SECT | SECTION |
| SF | SUPPLY FAN |
| SHH | SIGNAL HANDHOLE |
| SHT | SHEET |
| SIG | SIGNAL |
| SN | SOLID NEUTRAL |
| SPECS | SPECIFICATIONS |
| SPDT | SINGLE POLE, DOUBLE THROW |
| SS | STAINLESS STEEL, SOLID STATE |
| SW | SWITCH |
| SWBD | SWITCHBOARD |
| SWGR | SWITCHGEAR |
| SYNC | SYNCHRONIZING |
| TB | TERMINAL BOX, TERMINAL BOARD |
| TC | TELEPHONE CABINET |
| TEL | TELEPHONE |
| TEMP | TEMPERATURE |
| TSP | TWISTED SHIELDED PAIR |
| TYP | TYPICAL |
| UG | UNDERGROUND |
| UH | UNIT HEATER |
| UV | ULTRA VIOLET |
| V | VOLTS |
| VA | VOLT-AMPERES |
| VFD | VARIABLE FREQUENCY DRIVE |
| VAR | VOLT AMPERES REACTIVE |
| VERT | VERTICAL |
| VH | VAR-HOUR |
| VS | VOLTMETER SWITCH |
| W | WIRE, WATTS |
| WHM | WATTHOUR METER |
| WHDM | WATTHOUR DEMAND METER |
| WR | WEATHER RESISTANT |
| WT | WATERTIGHT |
| WTP | WATER TREATMENT PLANT |
| XFMR | TRANSFORMER |

### GENERAL NOTES:

G1. THESE DRAWINGS ARE DIAGRAMMATIC ONLY; EXACT LOCATIONS OF ELECTRICAL EQUIPMENT SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

G2. THIS IS A GENERALIZED LEGEND SHEET. THIS CONTRACT MAY NOT USE ALL INFORMATION SHOWN.

G3. INFORMATION SHOWN MAY NOT BE ALL INCLUSIVE. SEE ALSO ANSI C37.2, Y1.1, Y32.2, AND Y32.9.

G4. VERIFY ALL COLOR REQUIREMENTS BEFORE ORDERING MATERIALS.

### PLAN NOTES:

P1. CONDUIT SIZE AND FILL SHALL BE AS INDICATED. WHERE NO SIZE IS SHOWN, THE CONDUIT SHALL BE SIZED IN ACCORDANCE WITH THE EDITION OF THE NATIONAL ELECTRICAL CODE ADOPTED BY THE AUTHORITY HAVING CODE ENFORCEMENT JURISDICTION. WHERE NO FILL IS INDICATED, THE FILL SHALL BE 2#12. PROVIDE 3/16 INCH NYLON PULL ROPE IN EACH EMPTY CONDUIT.

P2. LOWER CASE LETTERS ADJACENT TO A SWITCH OR LIGHT FIXTURE INDICATE A SWITCHED CIRCUIT. FOR FOUR LAMP FLUORESCENT FIXTURES WIRED IN PAIRS WITHIN EACH FIXTURE, THE "a" SWITCH CONTROLS THE OUTER LAMPS AND THE "b" SWITCH CONTROLS THE INNER LAMPS; WIRE 3 LAMP FIXTURES SIMILARLY.

P3. CONDUIT AND WIRE LAYOUT FOR LIGHTING AND RECEPTACLES NOT SHOWN. PROVIDE PER NEC.

P4. NUMBER OF CIRCLES DOES NOT REPRESENT THE NUMBER OF CONDUITS IN THE ENCASEMENT.

## PLAN SYMBOLS

- OH — OVERHEAD POWER LINE
- UNDERGROUND CONDUIT
- UNDERGROUND DUCT LINE (CONCRETE ENCASEMENT) NOTE P4
- UNDERGROUND DIRECT BURIAL CONDUITS NOTE P4
- MULTIPLE CONDUIT RUN
- HEAT TRACE WIRE WITH INSULATION
- CONDUIT CONCEALED IN WALL OR CEILING
- CONDUIT EXPOSED
- 3/4"C-3#12 — CALLOUT INDICATING CONDUIT SIZE, NUMBER OF WIRES AND WIRE SIZE
- 1&3D — CALLOUT INDICATING CONDUIT PER SCHEDULE
- CONDUIT RUN, HATCH MARKS INDICATE NO. OF #12 CONDUCTORS NO HATCH MARKS IS 2#12 UNLESS OTHERWISE NOTED
- HOME RUN TO PANELBOARD OR AS INDICATED
- FLEXIBLE CONDUIT
- CONDUIT RUN, BROKEN AND CONTINUED ON SAME SHEET OR AS NOTED
- CONDUIT WITH SEAL FITTING
- CAP ON CONDUIT STUB
- OPEN CIRCLE DENOTES UPWARD CONDUIT RISER
- SEMI CIRCLE DENOTES DOWNWARD CONDUIT RISER
- INDICATES REMOVAL
- FA — FIRE ALARM CONDUIT
- T — TELEPHONE CONDUIT
- S — SECURITY SYSTEM CONDUIT
- 120V SURFACE MOUNTED PANELBOARD
- 120V FLUSH MOUNTED PANELBOARD
- 480V SURFACE MOUNTED PANELBOARD
- 480V FLUSH MOUNTED PANELBOARD
- M — MOTOR
- DISCONNECT SAFETY SWITCH
- COMBINATION MOTOR STARTER
- $S_{MS}$ — MANUAL MOTOR STARTER
- CONTROL STATION
- EQUIPMENT MOUNTING STAND
- GROUND ROD AND BOX
- INSTRUMENT
- $S_*$ — SINGLE POLE SWITCH
  2 = 2 POLE, 3 = 3 WAY, 4 = 4 WAY,
  K = KEY OPERATED
  WR = WEATHER RESISTANT
  D = DIMMER
  P = SWITCH WITH PILOT LIGHT
- $S^{ab}$ — SINGLE POLE SWITCH (NOTE P2)
- FLUORESCENT FIXTURE (NOTE P2)
- FLUORESCENT FIXTURE WITH NIGHT LIGHTING (UNSWITCHED) OR FLUORESCENT FIXTURE WITH SELF-CONTAINED EMERGENCY BALLAST/BATTERY
- WALL/CEILING MOUNTED FIXTURE
- WALL/CEILING MOUNTED FIXTURE NIGHT LIGHTING (UNSWITCHED)
- POLE MOUNTED FIXTURE
- WALL/CEILING MOUNTED EXIT LIGHT - DIRECTIONAL ARROW WHERE INDICATED, SHADED AREA INDICATES ILLUMINATED FACE
- EMERGENCY LIGHT WITH SELF CONTAINED BATTERY
- A — LIGHT FIXTURE IDENTIFICATION
- SINGLE RECEPTACLE, 120V
- SINGLE RECEPTACLE, 240V
- DUPLEX WALL RECEPTACLE, 120V
  WR = WEATHER RESISTANT
  G = GROUNDED
  IG = ISOLATED GROUND
  GF = GROUND FAULT INTERRUPTER
- DOUBLE DUPLEX WALL RECEPTACLE, 120V
- DUPLEX FLOOR RECEPTACLE, 120V
- X* — MULTI-OUTLET ASSEMBLY WITH SINGLE RECEPTACLE, 120V SPACING (X INCHES) AS NOTED, MOUNTING HEIGHT AS NOTED
- RECEPTACLE, 480V
- J — WALL/CEILING MOUNTED JUNCTION BOX
- J — FLOOR RECESS MOUNTED JUNCTION BOX
- T — THERMOSTAT, WALL MOUNTED
- WALL TELEPHONE OUTLET (+12")
- DATA WALL OUTLET
- TELE-DATA WALL OUTLET
- FLOOR OUTLETS
- F — FIRE ALARM PULL STATION
- F — FIRE ALARM FLASHING LIGHT
- F — FIRE ALARM HORN
- B — BELL
- BUZZER
- H — HEAT DETECTOR
- S — SMOKE DETECTOR

## REFERENCE SYMBOLS

DETAIL 1 / E3 — DETAIL DESIGNATION

SHEET DRAWN ON OR REFERENCED FROM

ARROW INDICATES POINT OF VIEW — 1 / E3

SECTION A / E3 — DETAIL DESIGNATION

SHEET DRAWN ON OR REFERENCED FROM

ARROW INDICATES POINT OF VIEW — A / E3

## SINGLE LINE SYMBOLS

- GROUND CONNECTION
- SWITCH, 3 POLE EXCEPT WHERE NOTED. RATING IN AMPERES AS NOTED
- TB-# / #A / 1 — FUSE
- FUSE CUTOUT
- MCP 100AT — 100AT 100AF — CIRCUIT BREAKER, 3 POLE EXCEPT WHERE NOTED. RATING IN AMPERES AS NOTED. IF TWO RATINGS APPEAR (EG. 100/625) THEN DEVICE IS MCP; NUMERATOR IS CONTINUOUS CURRENT RATING & DENOMINATOR IS INSTANTANEOUS TRIP SETTING.
- POWER CIRCUIT BREAKER DRAWOUT ABOVE 1500V RATING AS NOTED
- CURRENT TRANSFORMER
- VOLTAGE TRANSFORMER
- POWER OR DISTRIBUTION TRANSFORMER RATING AS NOTED
- 100 — MOTOR. NUMBER INDICATES HORSEPOWER
- GEN — GENERATOR
- CONTROL PACKAGE PROVIDED WITH THE DRIVEN EQUIPMENT
- BUS STAB ON MCC OR SWITCHGEAR, CORD & PLUG CONNECTION FOR MOTORS
- OL — THERMAL OVERLOAD
- * — A - AMMETER
  V - VOLTMETER
  WH - WATTHOUR METER
  GS - GROUND FAULT SENSOR
- 2 — ELEMENTARY DIAGRAM REFERENCE NUMBER
- K — KIRK KEY INTERLOCK
- POWER RECEPTACLE FOR PORTABLE EQUIPMENT
- # — RELAY DEVICE FUNCTION, # PER ANSI NUMBER C37.2
- TERMINATOR / POTHEAD
- SPLICE, TERMINATION
- 1 — MOTOR STARTER NUMBER INDICATES NEMA SIZE
- 5 — CAPACITOR - KVAR INDICATED
- AFD — AFD - ADJUSTABLE FREQUENCY DRIVE SS - SOLID STATE STARTER
- AFD 5 / 5 — AFD WITH BYPASS CONTACTOR, CONTACTOR NEMA SIZE AS INDICATED
- SS — SS STARTER WITH BUILT-IN FULL SPEED CONTACTOR
- SPD — SURGE PROTECTIVE DEVICE
- MOTOR HEATER — MOTOR HEATER

## ELEMENTARY DIAGRAM SYMBOLS

- FUSE. RATING IN AMPERES
- M — MOTOR
- ETM — ELAPSED TIME METER
- ** — CONTROL DEVICE COIL. PREFIX NUMBER, WHEN USED, DISTINGUISHES BETWEEN DEVICES OF THE SAME TYPE.

** ALT - ALTERNATOR
CR - CONTROL RELAY
GR - GENERAL RELAY
ISR - INTRINSICALLY SAFE RELAY
LR - LATCH RELAY
PR - PROBE RELAY
SV - SOLENOID VALVE
TD - TIME DELAY RELAY
TR - TIMING RELAY

- 1 CR 2-2, 3, 0, 0
  - CROSS REFERENCE TO ANOTHER DIAGRAM
  - NORMALLY OPEN CONTACT ON THE OTHER DIAGRAM
  - SPARE CONTACTS ON RELAY. IF OMITTED, THEN THE SPEC. REQUIREMENTS REGARDING SPARE CONTACTS APPLY.
  - NORMALLY CLOSED CONTACT ON THIS DIAGRAM
- INDICATING LIGHT
- PUSH-TO-TEST INDICATING LIGHT COLORS:
  A - AMBER, B - BLUE, C - CLEAR, G - GREEN, R - RED, N - NEON, W - WHITE, Y - YELLOW
- ON OFF — SINGLE POLE SWITCH NORMALLY OPEN / CLOSED
- START STOP — EMERGENCY PUSHBUTTON NORMALLY OPEN / CLOSED
- START STOP — PUSHBUTTON NORMALLY OPEN / CLOSED
- SWITCH 1-POLE / 3-POLE
- H O A — MULTI-POSITION SELECTOR SWITCH
- H O A — HAND-OFF-AUTOMATIC SWITCH X-INDICATES CONTACTS CLOSED
- H O R — HAND-OFF-REMOTE SWITCH X-INDICATES CONTACTS CLOSED
- TERMINAL
- H1 H3 H2 H4 X1 X2 — CONTROL POWER TRANSFORMER
- AMP/FRAME — AMPS POLES — CIRCUIT BREAKER, MCP 1-POLE / 3-POLE
- GROUND CONNECTION
- INSTRUMENT
- NO CR NC CR — CONTACT NORMALLY OPEN / CLOSED
- BUS STAB ON MCC; CORD & PLUG CONNECTION FOR MOTORS
- P-#### — CONDUIT IDENTIFICATION (SEE SCHEDULE)
  - CONDUIT SEQUENCE NUMBER
  - AREA OF PLANT
  - P - POWER; C - CONTROL; S-SIGNAL; F - FIBER; D - ETHERNET
- CTP - P18001 — CABLE TRAY SECTION ID (SAME ID SEQUENCE AS CONDUIT)
  10'-6" AFF — CABLE TRAY ELEVATION (BOTTOM OF TRAY)
- MCC1 / AAABBBCCCDDD — EQUIPMENT ID TAG

| SENSING SWITCHES | | |
|---|---|---|
| CLOSE ON | | SENSED VARIABLE |
| RISING | FALLING | |
| FS | FS | FLOW |
| LS | LS | LEVEL |
| PS | PS | PRESSURE |
| TS | TS | TEMPERATURE |

| LIMIT SWITCHES | |
|---|---|
| ZS | CLOSE ON REACHING LIMIT |
| ZS | CLOSE ON LEAVING LIMIT |

| TIMED CONTACTS | | | |
|---|---|---|---|
| SYMBOL | NORMAL | OPEN TO CLOSED | CLOSED TO OPEN |
| TR | OPEN | DELAYED | INSTANTANEOUS |
| TR | CLOSED | INSTANTANEOUS | DELAYED |
| TR | OPEN | INSTANTANEOUS | DELAYED |
| TR | CLOSED | DELAYED | INSTANTANEOUS |

BUZZER — BELL — HORN

OL — THERMAL OVERLOAD

ELEMENTARY DIAGRAMS

E1 UNDERLINED WORDS SHOWN AT A PUSHBUTTON, LIGHT, SELECTOR SWITCH, ETC. INDICATE THE LEGEND PLATE REQUIREMENT FOR THAT PARTICULAR DEVICE. ANY ADDITIONAL NAMEPLATES ARE INDICATED ON ELEVATIONS WITH THE REQUIRED NAMEPLATE INSCRIPTIONS.

E2 "NORMAL" STATUS OF SWITCHES OR CONTACTS IS THE SHELF POSITION.

E3 NUMBERS AND LETTERS IDENTIFY DEVICE.

REGISTERED PROFESSIONAL ENGINEER — SANDY SCHUBERT — No. E15453 Exp. 6/30/19 — ELECTRICAL — STATE OF CALIFORNIA


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| No. | Date | Revision | By |
|---|---|---|---|
| | | | |

DATE: JANUARY 2018 | CHK BY: SLS | SCALE: AS SHOWN | DWN BY: RAJ

APPROVED: Deputy Director - Engineering — By: _____ Date 3/6/18

City of Santa Rosa

ALPHA FARM BIOSOLIDS STORAGE FACILITY FIRE SPRINKLER SYSTEM FREEZE PROTECTION

ELECTRICAL SYMBOLS & ABBREVIATIONS

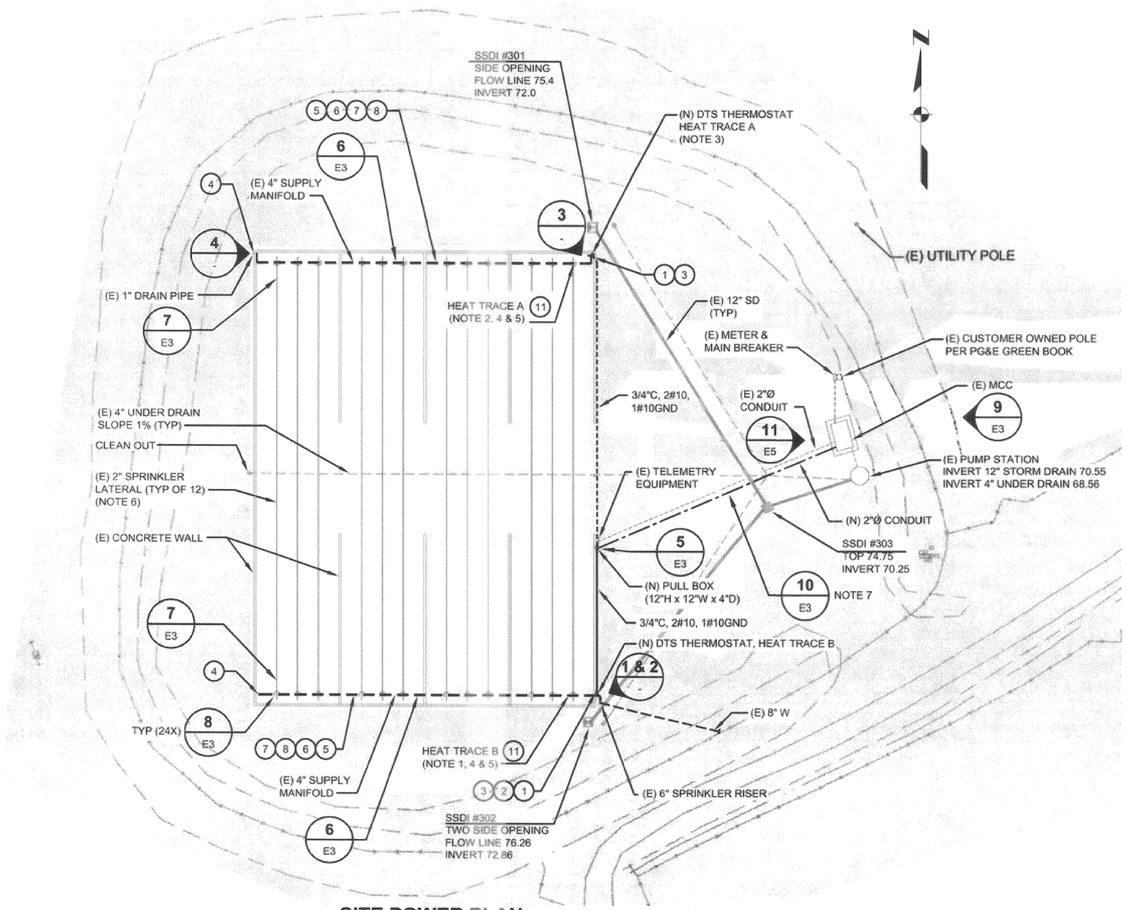
CONTRACT NO. C02012

DRAWING NO. E1

SHEET 2 OF 5

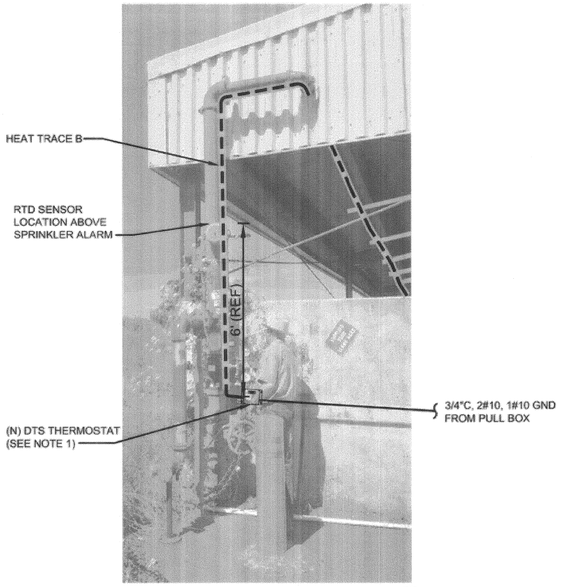
FILE NO. 2016-0038

ALPHA FARM BIOSOLIDS STORAGE FACILITY FIRE SPRINKLER SYSTEM FREEZE PROTECTION




## SITE POWER PLAN

0 20 40 60
1"=40'




## HEAT TRACING B, DETAIL 2

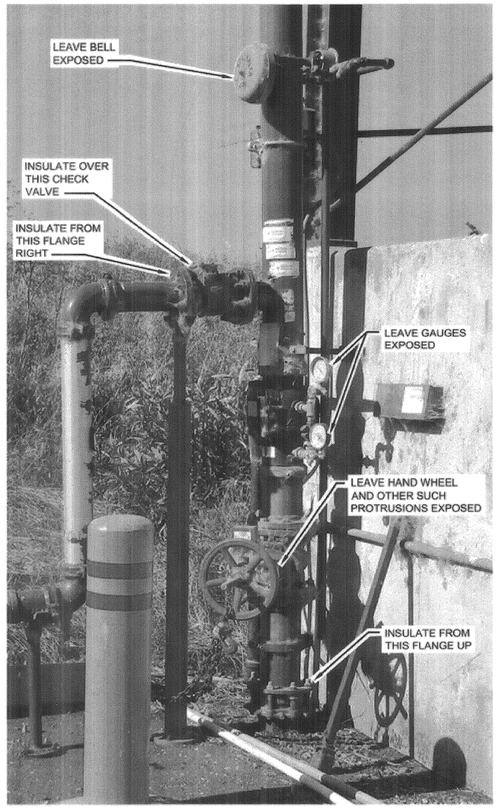
NOT TO SCALE

| BILL OF MATERIAL | | | |
|---|---|---|---|
| ITEM | QTY. | PART NUMBER | DESCRIPTION |
| 1 | 2 | 387364 | FREEZE PROTECTION THERMOSTAT, DTS-HAZ |
| 2 | 1 | 318043 | DTS WALL-MOUNT KIT |
| 3 | 2 | 385650 | CONDUIT HUB WITH GROUNDING LUG, CCH-2 |
| 4 | 2 | 383574 | END SEAL KIT, RT-RES |
| 5 | AS NEEDED | 382424 | CAUTION LABELS, CL-1 |
| 6 | AS NEEDED | 383355 | ALUMINUM TAPE, AT-1 |
| 7 | AS NEEDED | 382360 | METAL PIPE STRAP, PS-3 |
| 8 | AS NEEDED | 382379 | METAL PIPE STRAP, PS-10 |
| 9 | 1 | 393510 | CABLE STRIPPING TOOL, ST-1 |
| 10 | AS NEEDED | 393537 | REPLACEMENT BLADES 16 AWG, BL-2 |
| 11 | 2 | 382758 | HEAT TRACE CABLE, SRL5-1CR |
| 12 | 1 | 308144 | RTD EXTENSION WIRE |

## NOTES:

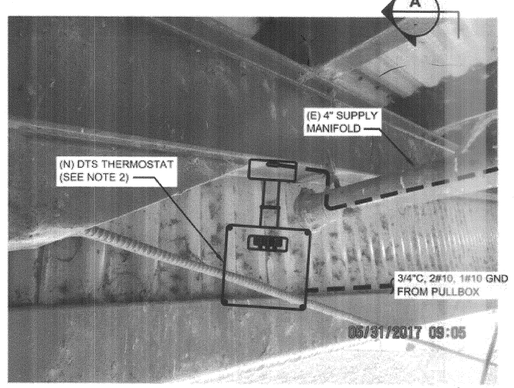
1. HEAT TRACE B ORIGINATES FROM HEAT TRACE B THERMOSTAT, GOES VERTICALLY UP ON 6" RISER AND CONTINUES WESTWARD ALONG 4" SUPPLY MANIFOLD (SEE DETAIL 2).
2. HEAT TRACE A ORIGINATES FROM HEAT TRACE A THERMOSTAT, CONTINUES WESTWARD ALONG THE 4" SUPPLY MANIFOLD AND DOWN THE 1" DRAIN PIPE TO VALVE (SEE DETAIL 4).
3. THERMOSTAT FOR HEAT TRACE A, TO BE MOUNTED OFF THE I-BEAM NEAR THE START OF THE 4" MANIFOLD BEHIND THE VERTICAL BUILDING BEAM (SEE DETAIL 3).
4. FIBERGLASS INSULATION WITH A MINIMUM OF 1 1/2" THICKNESS TO BE WRAPPED ALONG THE TOTAL LENGTH OF TRACED PIPE COVERED WITH ALUMINUM JACKET.
5. HEAT TRACE AND THERMOSTAT SENSOR SHALL BE PLACED BETWEEN INSULATION AND METAL PIPE.
6. DO NOT INSTALL HEAT TRACING ON SPRINKLER LATERALS, EXCEPT AS SHOWN.
7. PAVING AND CDF BACKFILL PER DETAIL 10/E3.

| ESTIMATED QUANTITIES | |
|---|---|
| HEAT TRACE A | 170 LF |
| HEAT TRACE B | 175 LF |
| 3/4" C, 2#10, 1#10 GND | 300 LF |
| 2" C, 4#10, 2#10 GND | 160 LF |



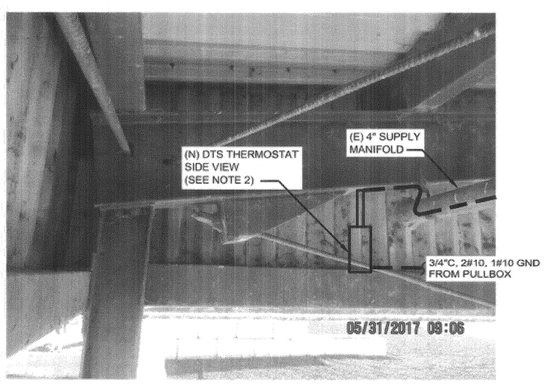

## INSULATION LIMITS HEAT TRACING B, DETAIL 1

NOT TO SCALE



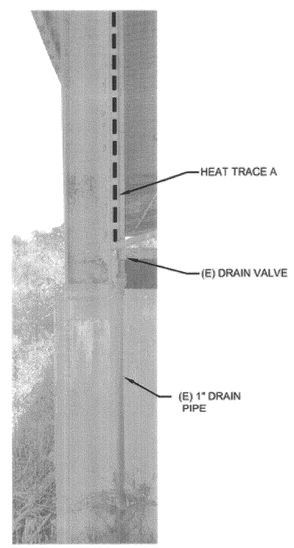

## HEAT TRACING A DETAIL 3

NOT TO SCALE




## HEAT TRACING A SECTION A A

NOT TO SCALE




## HEAT TRACING A DETAIL 4

NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
SANDY SCHLEE
No. E15453
Exp. 6/30/19
ELECTRICAL
STATE OF CALIFORNIA


Kennedy/Jenks Consultants
200 FOURTH STREET, SUITE 210
SANTA ROSA, CALIFORNIA 95401
OFFICE: 707-293-1173 / FAX: 707-526-1261
1668022*00


| No. | Date | Revision | By |
|---|---|---|---|

SCALE: AS SHOWN
DATE: JANUARY 2018
DWN BY: RAJ
CHK BY: SLS
APPROVED: Deputy Director - Engineering
By Date 3/6/18

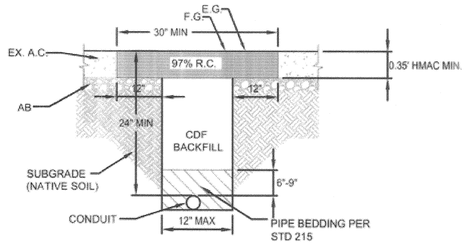
City of Santa Rosa

ALPHA FARM BIOSOLIDS STORAGE FACILITY FIRE SPRINKLER SYSTEM FREEZE PROTECTION

ELECTRICAL SITE PLAN

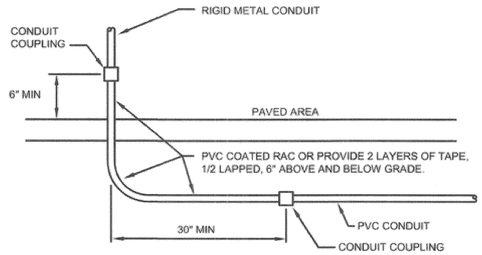
CONTRACT NO. C02012
DRAWING NO. E2
SHEET 3 OF 5
FILE NO. 2016-0038

ALPHA FARM BIOSOLIDS STORAGE FACILITY FIRE SPRINKLER SYSTEM FREEZE PROTECTION

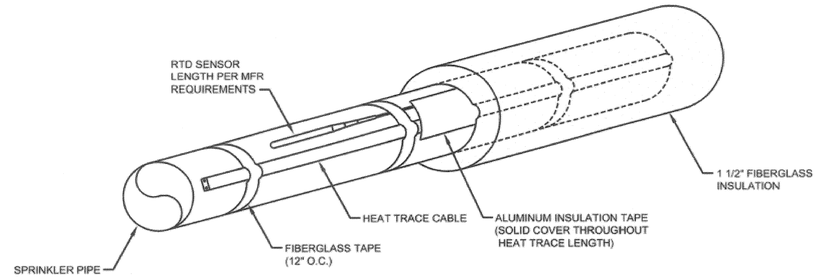



NOTES:
1. CDF SHALL CONFORM TO THE REQUIREMENTS OF CITY STD. 215.
2. TRENCH EXCAVATION AND BACKFILL SHALL CONFORM TO THE REQUIREMENTS OF CITY STD. 215 IN ALL OTHER WAYS.

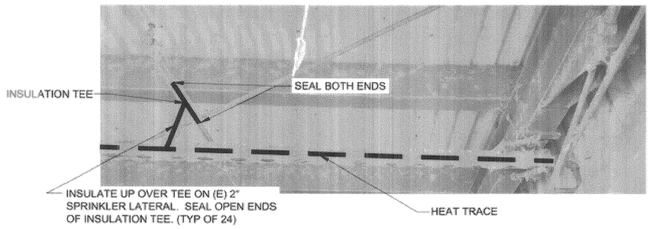
## TYPICAL TRENCH SECTION (10 / E2)
NOT TO SCALE



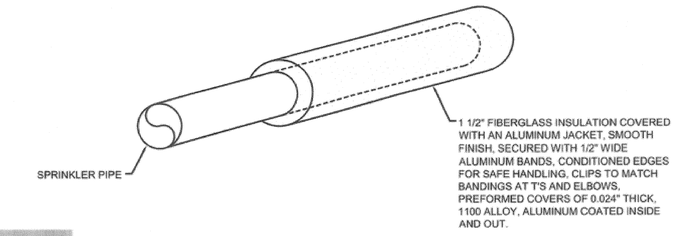

## TYPICAL CONDUIT STUB UP (5 / E2)
NOT TO SCALE



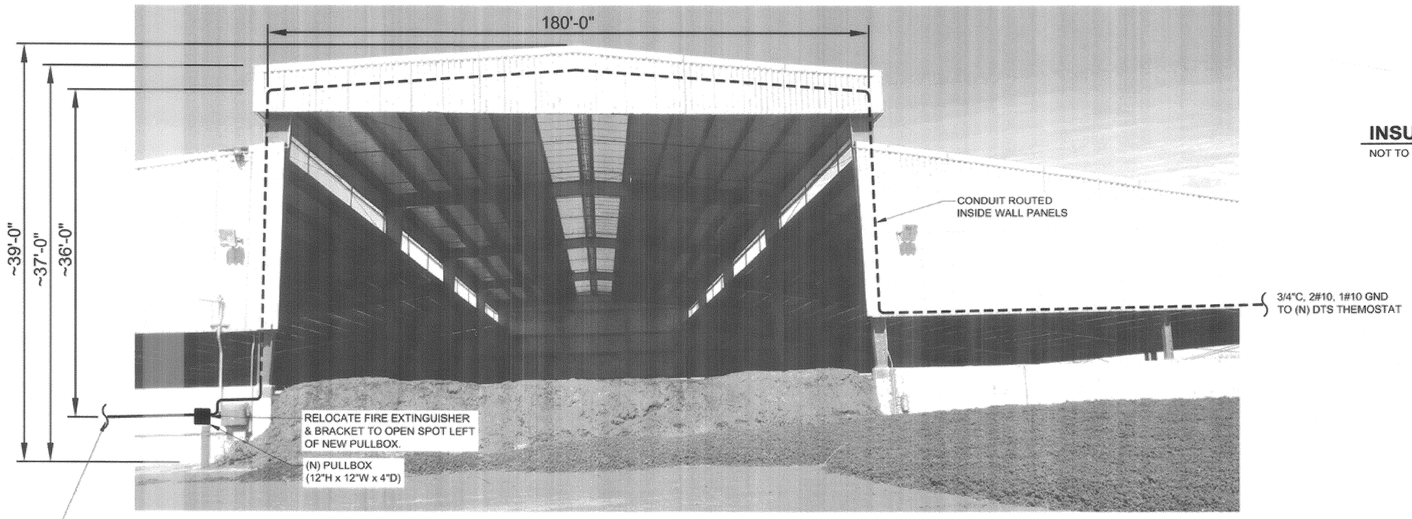

## HEAT TRACE INSTALLATION (6 / E2)
NOT TO SCALE




## PIPE INSULATION UP LATERAL (8 / E2)
NOT TO SCALE




## INSULATION INSTALLATION (7 / E2)
NOT TO SCALE




## BUILDING SECTION (9 / E2)
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
SADIT SCHUER
No. E15453
Exp. 6/30/19
ELECTRICAL
STATE OF CALIFORNIA


Kennedy/Jenks Consultants
200 FOURTH STREET, SUITE 210
SANTA ROSA, CALIFORNIA 95401
OFFICE: 707-293-1173 / FAX: 707-526-1261
1668022*00


| No. | Date | Revision | By |
|---|---|---|---|
| | | | |

DATE: JANUARY 2018
SCALE: AS SHOWN
CHK BY: SLS
DWN BY: RAJ
APPROVED: Deputy Director – Engineering
By _____ Date 3/6/18

City of Santa Rosa

ALPHA FARM BIOSOLIDS STORAGE
FACILITY FIRE SPRINKLER SYSTEM
FREEZE PROTECTION

ELECTRICAL DETAILS

CONTRACT NO. C02012
DRAWING NO. E3
SHEET 4 OF 5
FILE NO. 2016-0038

ALPHA FARM BIOSOLIDS STORAGE FACILITY FIRE SPRINKLER SYSTEM FREEZE PROTECTION

EATON CUTLER-HAMMER
POW-R-LINE C
PRL1a
Panelboard
208Y/120V

THE FOLLOWING BRANCH BREAKERS MAY BE INSTALLED ON THIS PANELBOARD:
PRL1a AND PRL2a

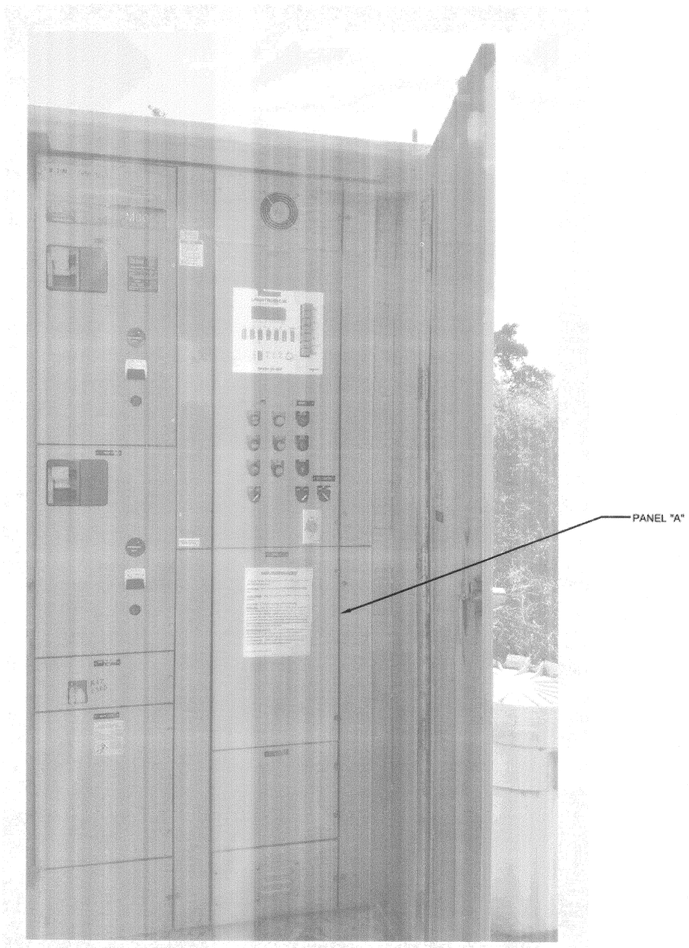
(E) PANELBOARD "A" SCHEDULE

120/208VOLTS, 3 PHASE, 4 WIRE | 100 AMP BUS | 100 AMP MAIN | AIC RATING: 10,000 | MOUNTING: MCC

| CKT No. | DESCRIPTION | VOLT-AMPS A | VOLT-AMPS B | AMPS/ POLES | CKT No. | DESCRIPTION | VOLT-AMPS A | VOLT-AMPS B | AMPS/ POLES |
|---|---|---|---|---|---|---|---|---|---|
| 1 | SPACE | - | | 20/1 | 2 | SITE LIGHTING | 360 | | 30/2 |
| 3 | MCC RECEPTACLE | | 120 | 20/1 | 4 | | | 360 | |
| 5 | SPARE | - | | 20/1 | 6 | SPARE | - | | 20/1 |
| 7 | SPARE | | - | 20/1 | 8 | MCC LIGHT & HEAT | | 100 | 20/1 |
| 9 | SPARE | - | | 20/1 | 10 | PUMP CONTROLS | 100 | | 20/1 |
| **11** | **HEAT TRACE B SOUTH LEFT** | | **1200** | *** 20/1** | 12 | SPARE | | - | 20/1 |
| **13** | **HEAT TRACE A NORTH RIGHT** | **1200** | | *** 20/1** | 14 | MAIN DISCONNECT | - | | 100/3 |
| 15 | SPARE | | - | 20/1 | 16 | | | - | |
| 17 | SPARE | - | | 20/1 | 18 | | - | | |
| SUBTOTALS | | **1200** | **1320** | | | | 460 | 460 | |
| PHASE TOTALS | | | | | | | **1660** | **1780** | |
| TOTAL VOLT-AMPS | | | | | | | **3440** | | |

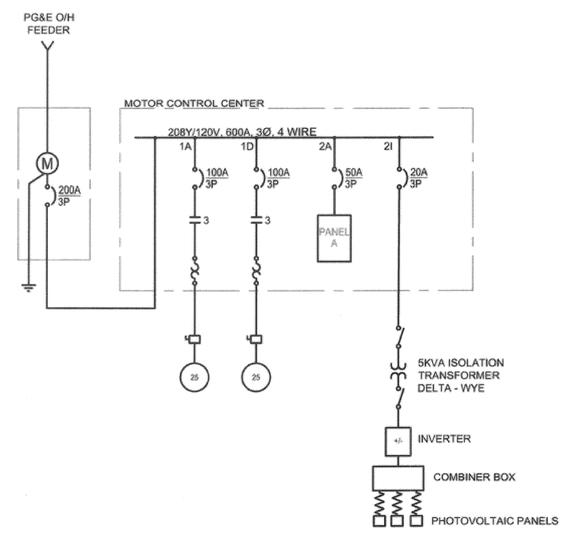
*** 30mA GFEP BREAKER**

**NOTE:**
**(N) CIRCUIT BREAKERS TO MATCH MFR OF (E) REAKERS.**




## (E) MOTOR CONTROL CENTER ELEVATION (11 / E2)

NOT TO SCALE




## (E) SINGLE LINE DIAGRAM

NOT TO SCALE

## (E) MOTOR CONTROL CENTER SPECIFICATION

EATON - CUTLER-HAMMER
FREEDOM SERIES 2100
240V, 3PH, 4W, 60 HZ
SEC 1 - 600A
SECT 2 - 300A
NEUTRAL - 300A
PHASE C - STINGER LEG

TESCO CONTROL PANEL
120/240V, 3 PH, 4 W, 200A

CONTROLS
TESCO
LIQUITRONIC III

REGISTERED PROFESSIONAL ENGINEER SANDY SCHULER No. E15453 Exp. 6/30/19 ELECTRICAL STATE OF CALIFORNIA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SANTA ROSA, CALIFORNIA 95401
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SCALE: AS SHOWN | DATE: JANUARY 2018
DWN BY: RAJ | CHK BY: SLS
APPROVED: Deputy Director – Engineering
By _____ Date 3/6/18

City of Santa Rosa

ALPHA FARM BIOSOLIDS STORAGE FACILITY FIRE SPRINKLER SYSTEM FREEZE PROTECTION

MCC, SINGLE LINE DIAGRAM & PANEL SCHEDULE

CONTRACT NO. C02012
DRAWING NO. E4
SHEET 5 OF 5
FILE NO. 2016-0038

ALPHA FARM BIOSOLIDS STORAGE FACILITY FIRE SPRINKLER SYSTEM FREEZE PROTECTION