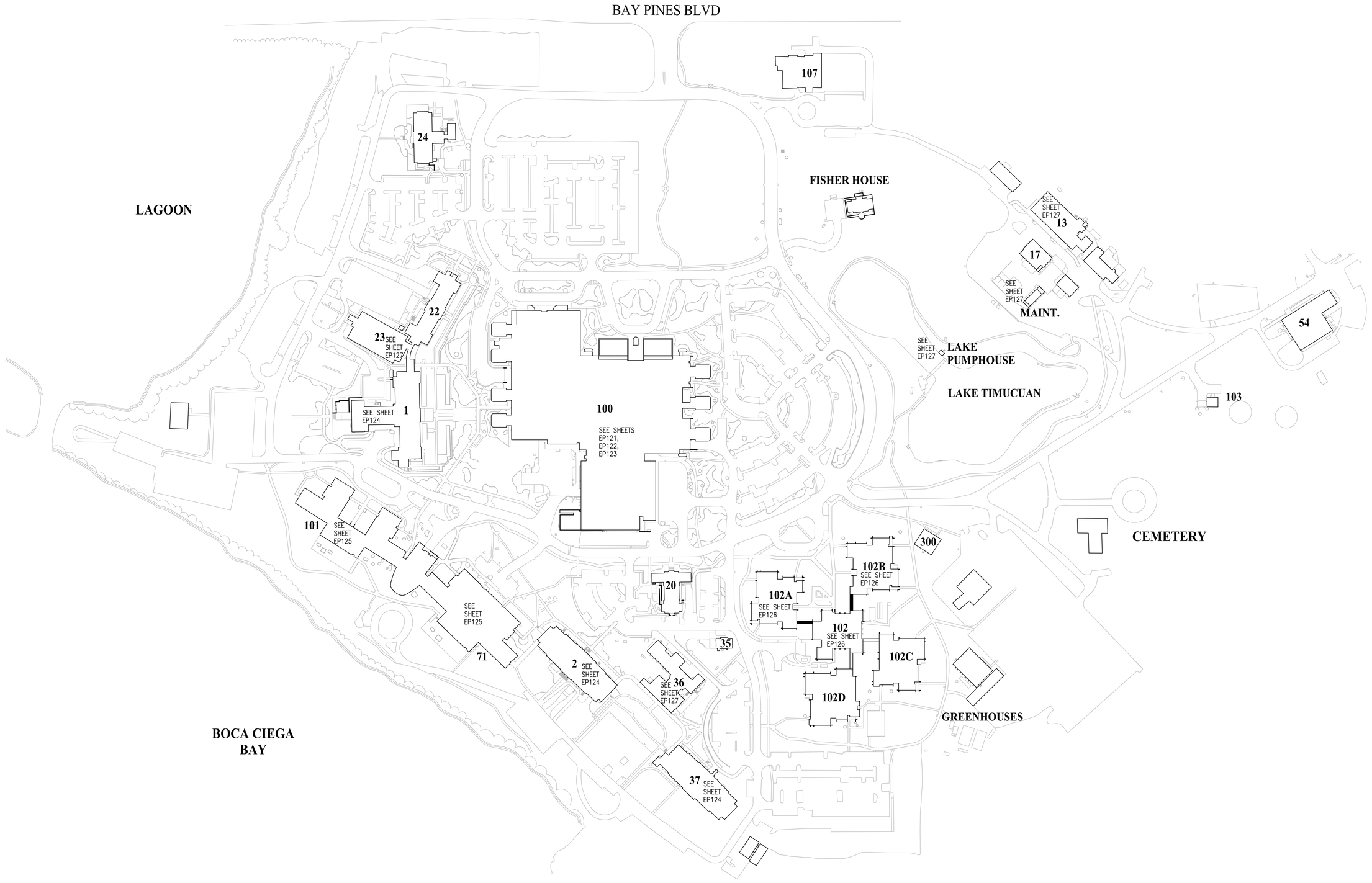


CAMPUS SITE PLAN

SCALE: NTS

N

100% DESIGN
APPROVED FOR CONSTRUCTION

| Revisions: | Date |
|---|---|
| | |

CONSULTANTS:

ENGINEER-OF-RECORD CHAD J. FRALICK FL. P.E. NO. 73811

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COA: FL #29578
AKEA Project No. 128-16

Drawing Title: CAMPUS SITE PLAN - TRAP MONITOR POWER

Approved: Project Director

Project Title: DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER

Location: BAY PINES, FLORIDA

Date: MAY 15, 2017 | Checked: CJF | Drawn: CJF

Project Number: 516-15-107

Building Number: MULT.

Drawing Number: EP120

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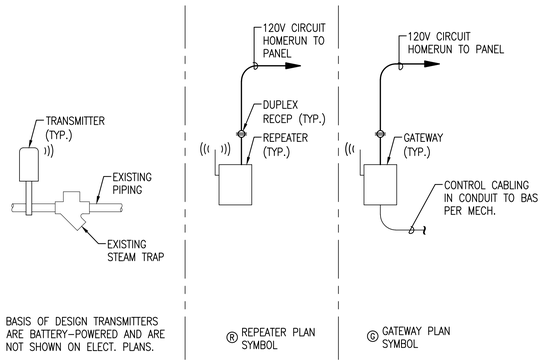
Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

## SHEET NOTES

A. WORK DEPICTED ON THIS SHEET SHALL NOT BE INCLUDED UNDER DEDUCTIVE ALTERNATE #1.




BASIS OF DESIGN TRANSMITTERS ARE BATTERY-POWERED AND ARE NOT SHOWN ON ELECT. PLANS.

Ⓡ REPEATER PLAN SYMBOL

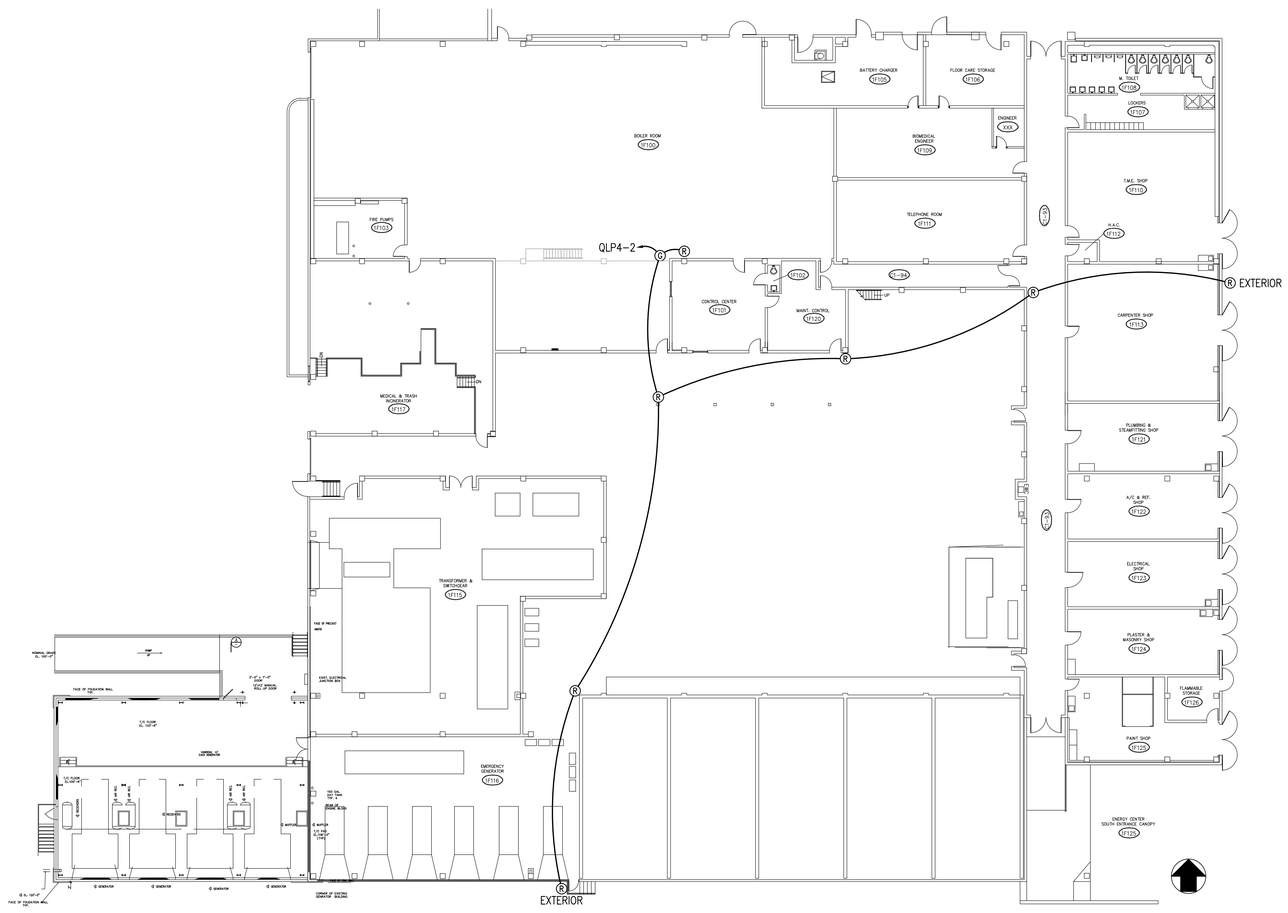
Ⓖ GATEWAY PLAN SYMBOL

THIS DETAIL AND THE ACCOMPANYING NOTES PERTAIN TO THE EP120 SERIES OF SHEETS IN THIS PROJECT.

1. TRANSMITTERS, REPEATERS, AND GATEWAYS PER MECHANICAL. REPEATER AND GATEWAY ENCLOSURES WITH POWER SUPPLY, RF COMPONENTS, AND COMMUNICATION HARDWARE PER MECH. FINAL LOCATIONS SHALL AS PER APPROVED SYSTEM PROVIDER SHOP DRAWINGS.
2. PROVIDE ONE NORMAL BRANCH 20A 120V DEDICATED CIRCUIT, U.N.O. FOR EACH HOMERUN INDICATED ON PLANS.
3. EACH CIRCUIT SHALL CONSIST OF 2#12, 1#12G, IN 3/4" CONDUIT MINIMUM (CONDUIT MATERIAL SHALL BE APPROPRIATE FOR LOCATION INSTALLED PER SPECS). IN THE ABSENCE OF AN EXISTING PANEL INDICATED ON THE PLANS, CONTRACTOR SHALL ASSUME A HOMERUN CIRCUIT LENGTH OF 300FT.
4. CONTRACTOR SHALL NOT PENETRATE THE TOP OF EXTERIOR REPEATER ENCLOSURES.
5. ALL CONDUIT PENETRATIONS THROUGH WALLS AND ROOFS SHALL BE SEALED AND WEATHERPROOFED.
6. PROVIDE DUPLEX RECEPTACLE AT EACH REPEATER LOCATION AND GATEWAY. EXTERIOR LOCATIONS SHALL BE PROVIDED WITH WP-WHILE-IN-USE RECEPTACLE.
7. CONTRACTOR SHALL ACCOMMODATE THE FOLLOWING IN THE BID COST:
   - 7.1. PROVIDE ONE DEDICATED CIRCUIT FOR EACH HOMERUN INDICATED ON ELECTRICAL TRAP MONITORING PLANS, PLUS ONE ADDITIONAL DEDICATED CIRCUIT OF 300FT.
   - 7.2. PROVIDE ONE NEW 20A/1P 42KAIC BREAKER (TO MATCH EXISTING) IN AN EXISTING PANEL, FOR EACH CIRCUIT.
   - 7.3. BID SHALL ASSUME EACH CIRCUIT WILL REQUIRE PENETRATIONS THROUGH EXTERIOR CONCRETE BLOCK WALLS AND INTERIOR 2HR FIRE WALLS.
   - 7.4. LOCATIONS INDICATED FOR REPEATERS AND GATEWAYS ON PLANS ARE APPROXIMATE. BIDS SHALL INCLUDE COSTS ASSOCIATED WITH PROVIDING CIRCUITS TO ITEMS AS LOCATED ON PLANS; HOWEVER, CONTRACTOR SHALL NOTE THAT ACTUAL FINAL LOCATIONS AND CIRCUIT LENGTHS MAY VARY SLIGHTLY RESULTING IN LONGER (OR SHORTER) INDIVIDUAL CIRCUIT LENGTHS.

## 2 POWER FOR TRAP MONITORING DETAIL

SCALE: NTS




## 1 BUILDING 100 - ENERGY CENTER

SCALE: 1/16" = 1'

GRAPHIC SCALE

16 0 8 16 32 64

SCALE: 1 INCH = 16 FT.

SCALE IS AS STATED FOR A 30x42 TO SCALE DRAWING. FOR OTHER PRINT SIZES, REFER TO GRAPHIC SCALE.

100% DESIGN
APPROVED FOR CONSTRUCTION

| Revisions: | Date |
|---|---|
| | |

CONSULTANTS:

ENGINEER-OF-RECORD: CHAD J. FRALICK, FL. P.E. NO. 73811

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COA: FL #29578
AKEA Project No. 128-16

Drawing Title: BUILDING 100 - ENERGY CENTER - TRAP MONITORING

Approved: Project Director

Project Title: DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER

Location: BAY PINES, FLORIDA

Date: MAY 15, 2017 | Checked: CJF | Drawn: CJF

Project Number: 516-15-107

Building Number: 100

Drawing Number: EP121

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Office of Construction and Facilities Management

Department of Veterans Affairs

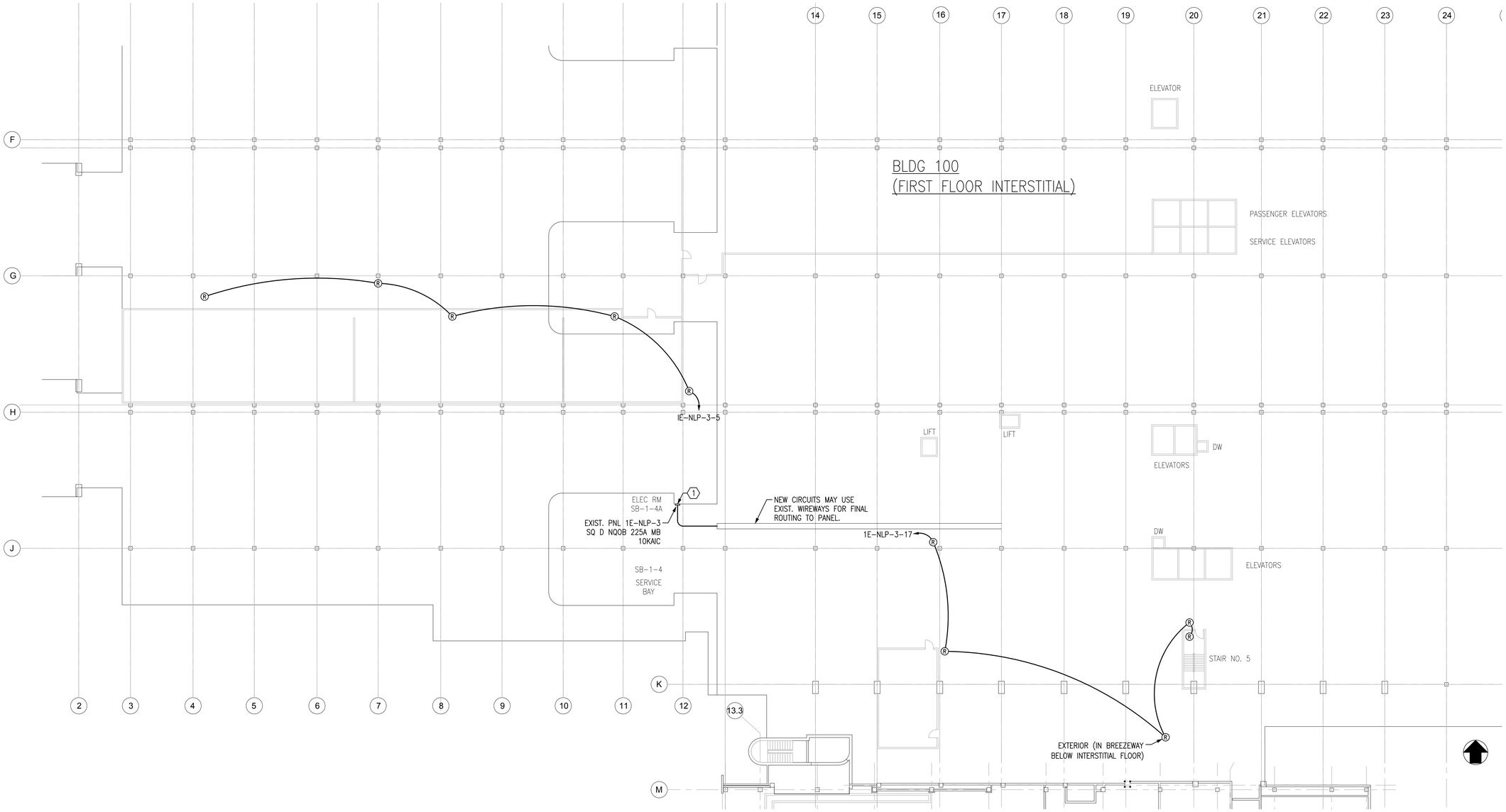
VA FORM 08-6231

## SHEET NOTES

A. WORK DEPICTED ON THIS SHEET SHALL NOT BE INCLUDED UNDER DEDUCTIVE ALTERNATE #1.

## SHEET KEYNOTES

1. PROVIDE NEW 20A/1P BREAKERS IN EXISTING PANEL 1E-NLP-3, FOR NEW CIRCUITS.




GRAPHIC SCALE

16 0 8 16 32 64

SCALE: 1 INCH = 16 FT.

SCALE IS AS STATED FOR A 30x42 TO SCALE DRAWING. FOR OTHER PRINT SIZES, REFER TO GRAPHIC SCALE.

1 BUILDING 100 - FIRST FLOOR INTERSTITIAL

SCALE: 1/16" = 1'

100% DESIGN
APPROVED FOR CONSTRUCTION

| Revisions: | Date |
|---|---|
| | |

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COA: FL #29578
AKEA Project No. 128-16


Drawing Title: BUILDING 100 - FIRST FLOOR INTERSTITIAL - TRAP MONITORING

Approved: Project Director

Project Title: DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER

Location: BAY PINES, FLORIDA

Date: MAY 15, 2017 | Checked: CJF | Drawn: CJF

Project Number: 516-15-107

Building Number: 100

Drawing Number: EP122

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Office of Construction and Facilities Management

Department of Veterans Affairs

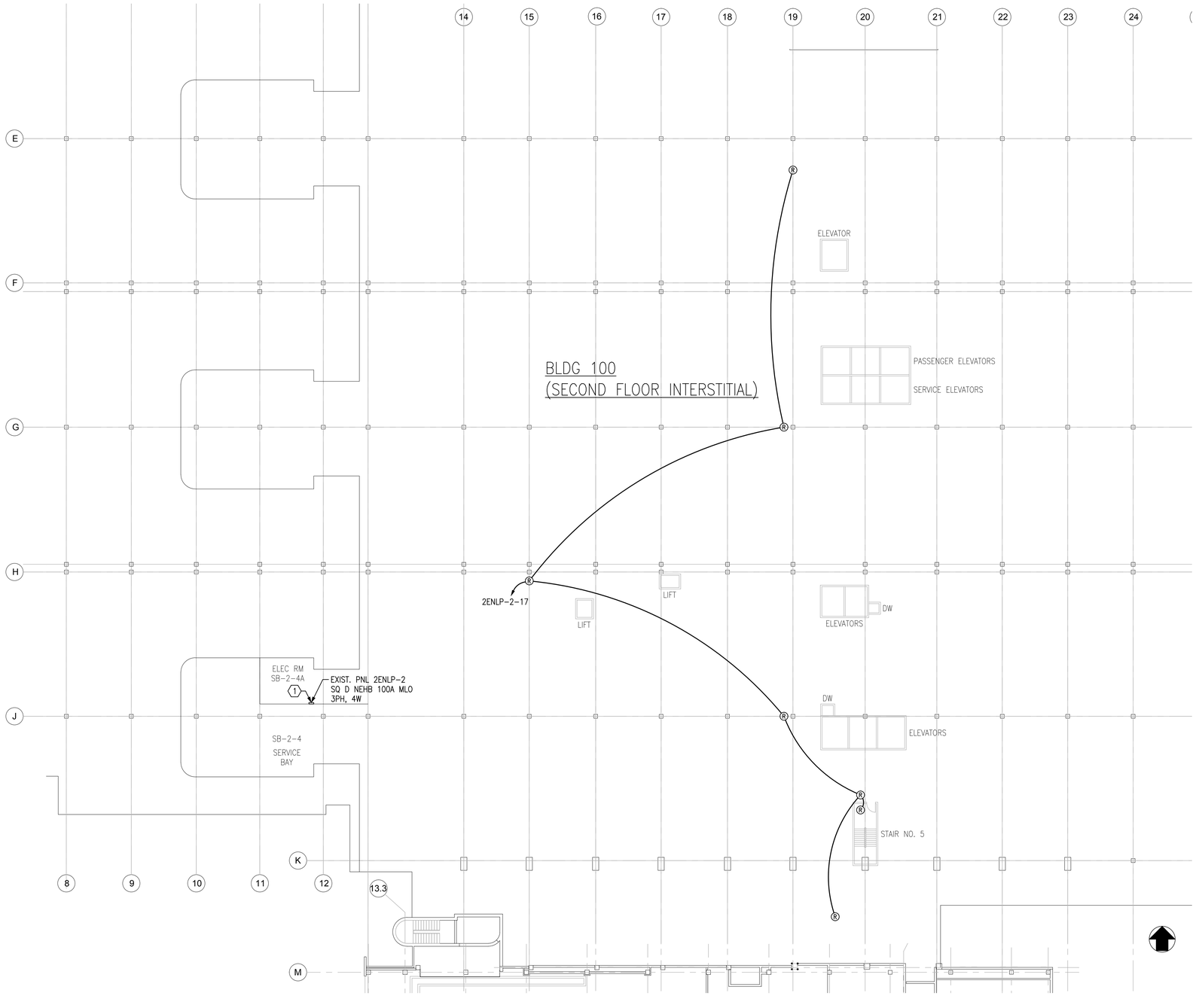
VA FORM 08-6231

## SHEET NOTES

A. WORK DEPICTED ON THIS SHEET SHALL NOT BE INCLUDED UNDER DEDUCTIVE ALTERNATE #1.

## SHEET KEYNOTES

1. PROVIDE NEW 20A/1P BREAKER IN EXISTING PANEL 2ENLP-2, FOR NEW CIRCUIT 17.




GRAPHIC SCALE

16 0 8 16 32 64

SCALE: 1 INCH = 16 FT.

SCALE IS AS STATED FOR A 30x42 TO SCALE DRAWING. FOR OTHER PRINT SIZES, REFER TO GRAPHIC SCALE.

1 BUILDING 100 - SECOND FLOOR INTERSTITIAL

SCALE: 1/16" = 1'

100% DESIGN
APPROVED FOR CONSTRUCTION

| Revisions: | Date |
|---|---|
| | |

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AKEA Project No. 128-16


Drawing Title: BUILDING 100 - SECOND FLOOR INTERSTITIAL - TRAP MONITORING

Approved: Project Director

Project Title: DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER

Location: BAY PINES, FLORIDA

Date: MAY 15, 2017 | Checked: CJF | Drawn: CJF

Project Number: 516-15-107

Building Number: 100

Drawing Number: EP123



Office of Construction and Facilities Management

Department of Veterans Affairs

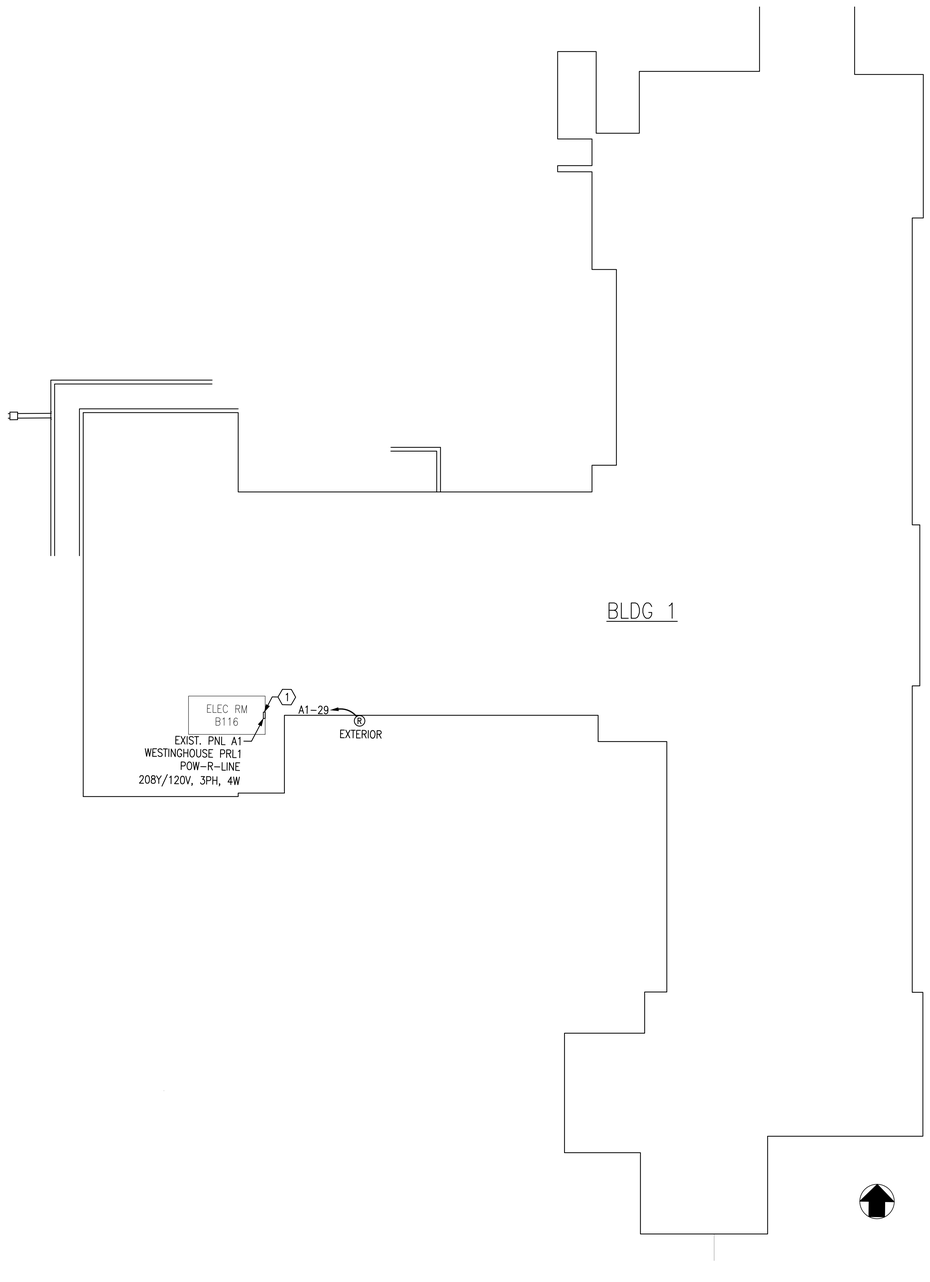
VA FORM 08-6231

## SHEET NOTES

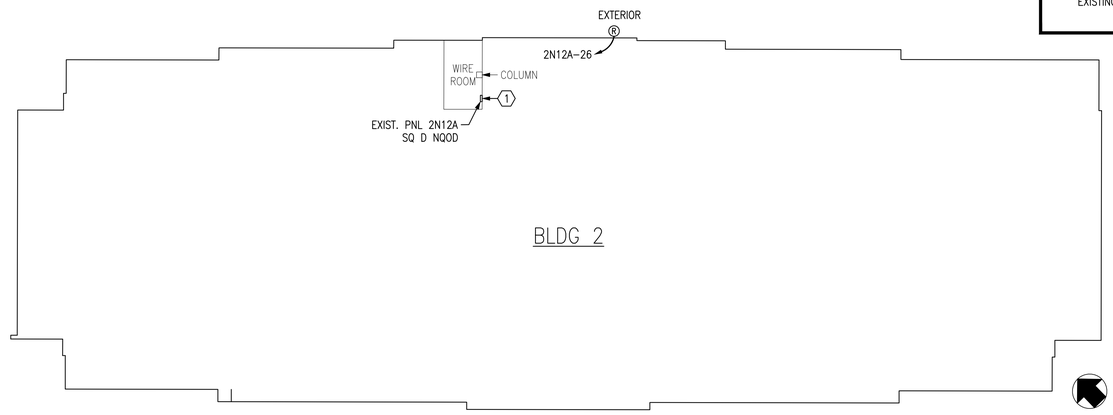
A. WORK DEPICTED ON THIS SHEET SHALL NOT BE INCLUDED UNDER DEDUCTIVE ALTERNATE #1.

## SHEET KEYNOTES

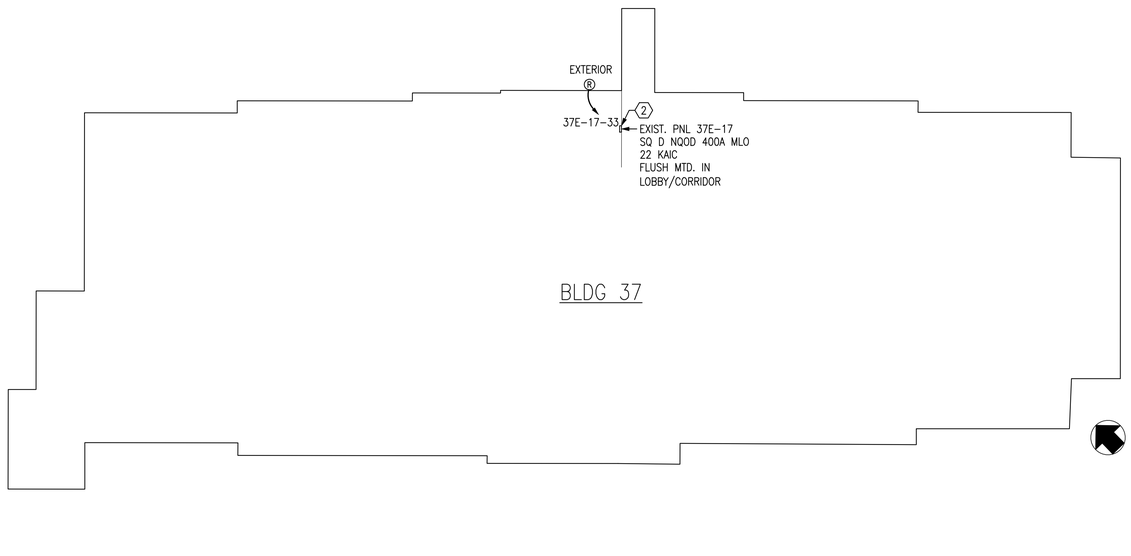
1. USE EXISTING 20A/1P SPARE BREAKER IN EXISTING PANEL FOR NEW CIRCUIT.
2. PROVIDE NEW 20A/1P BREAKER IN EXISTING PANEL FOR NEW CIRCUIT.




1 BUILDING 1
SCALE: 1/16" = 1'




2 BUILDING 2
SCALE: 1/16" = 1'




3 BUILDING 37
SCALE: 1/16" = 1'

GRAPHIC SCALE
16 0 8 16 32 64
SCALE: 1 INCH = 16 FT.
SCALE IS AS STATED FOR A 30x42 TO SCALE DRAWING. FOR OTHER PRINT SIZES, REFER TO GRAPHIC SCALE.

100% DESIGN
APPROVED FOR CONSTRUCTION

| Revisions: | Date |
|---|---|
| | |

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COA: FL #29578
AKEA Project No. 128-16


Drawing Title: BUILDINGS 1, 2, & 37 - TRAP MONITORING
Approved: Project Director
Project Title: DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER
Location: BAY PINES, FLORIDA
Date: MAY 15, 2017
Checked: CJF
Drawn: CJF
Project Number: 516-15-107
Building Number: 1, 2, 37
Drawing Number: EP124
70 OF 78

Office of Construction and Facilities Management
Department of Veterans Affairs

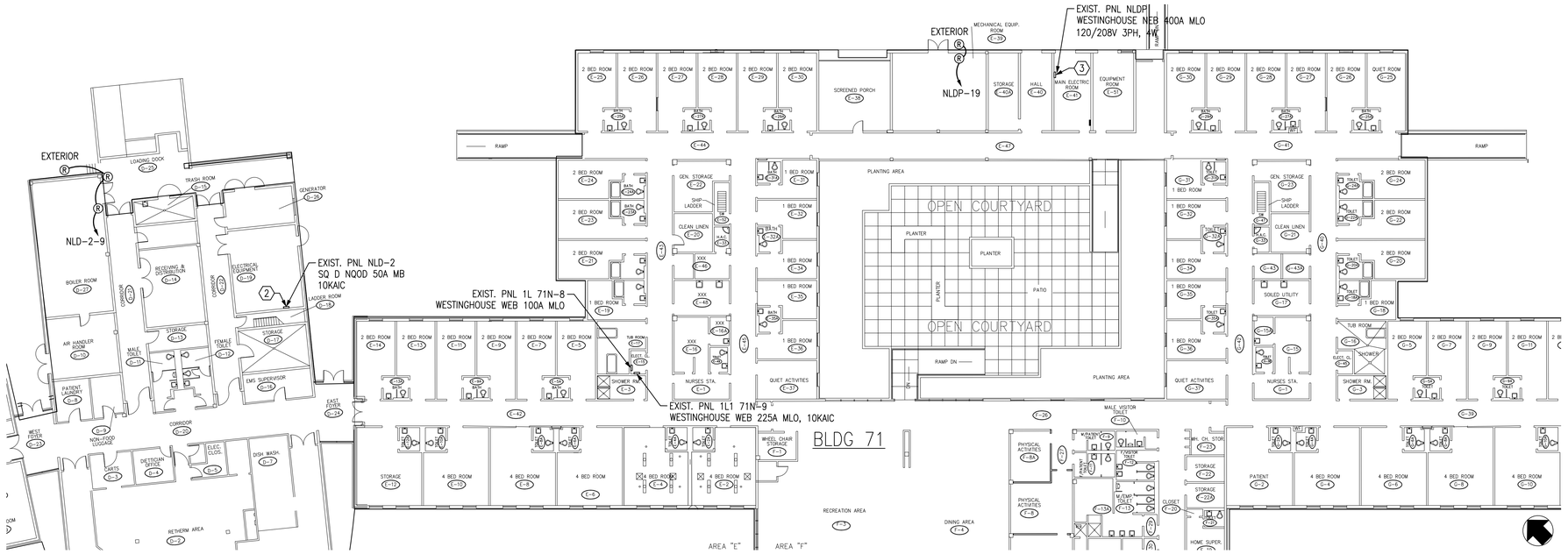
VA FORM 08-6231

## SHEET NOTES

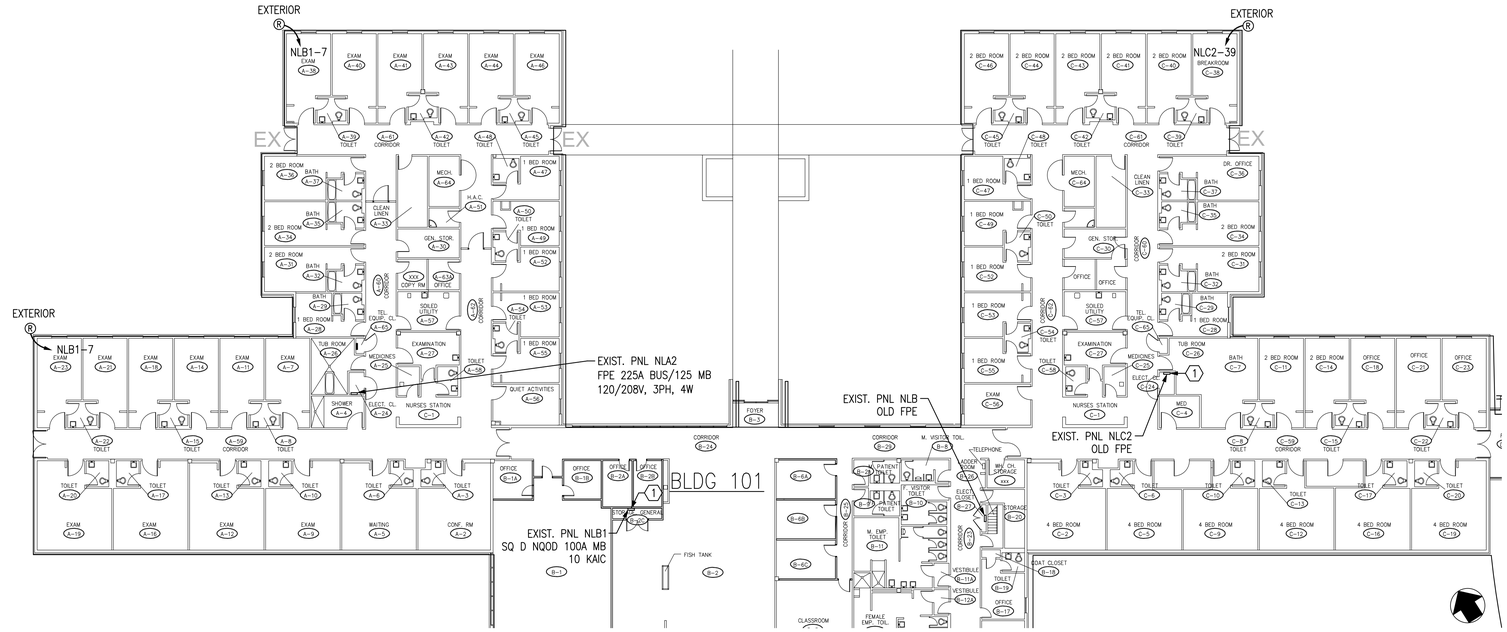
A. WORK DEPICTED ON THIS SHEET SHALL NOT BE INCLUDED UNDER DEDUCTIVE ALTERNATE #1.

## SHEET KEYNOTES

1. USE EXISTING 20A/1P SPARE BREAKER IN EXISTING PANEL FOR NEW CIRCUIT.
2. PROVIDE NEW 20A/1P BREAKER IN EXISTING PANEL FOR NEW CIRCUIT.
3. REMOVE EXISTING 100A/3P SPARE BREAKER, PROVIDE (3) NEW 20A/1P BREAKERS.




1 BUILDING 71
SCALE: 1/16" = 1'




2 BUILDING 101
SCALE: 1/16" = 1'

GRAPHIC SCALE
16 0 8 16 32 64
SCALE: 1 INCH = 16 FT.
SCALE IS AS STATED FOR A 30x42 TO SCALE DRAWING. FOR OTHER PRINT SIZES, REFER TO GRAPHIC SCALE.

100% DESIGN
APPROVED FOR CONSTRUCTION

| Revisions: | Date |
|---|---|
| | |

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AKEA Project No. 128-16


Drawing Title: BUILDINGS 71 & 101 - TRAP MONITORING

Approved: Project Director

Project Title: DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER

Location: BAY PINES, FLORIDA

Date: MAY 15, 2017 | Checked: CJF | Drawn: CJF

Project Number: 516-15-107

Building Number: 71, 101

Drawing Number: EP125
71 OF 78

Office of Construction and Facilities Management
Department of Veterans Affairs

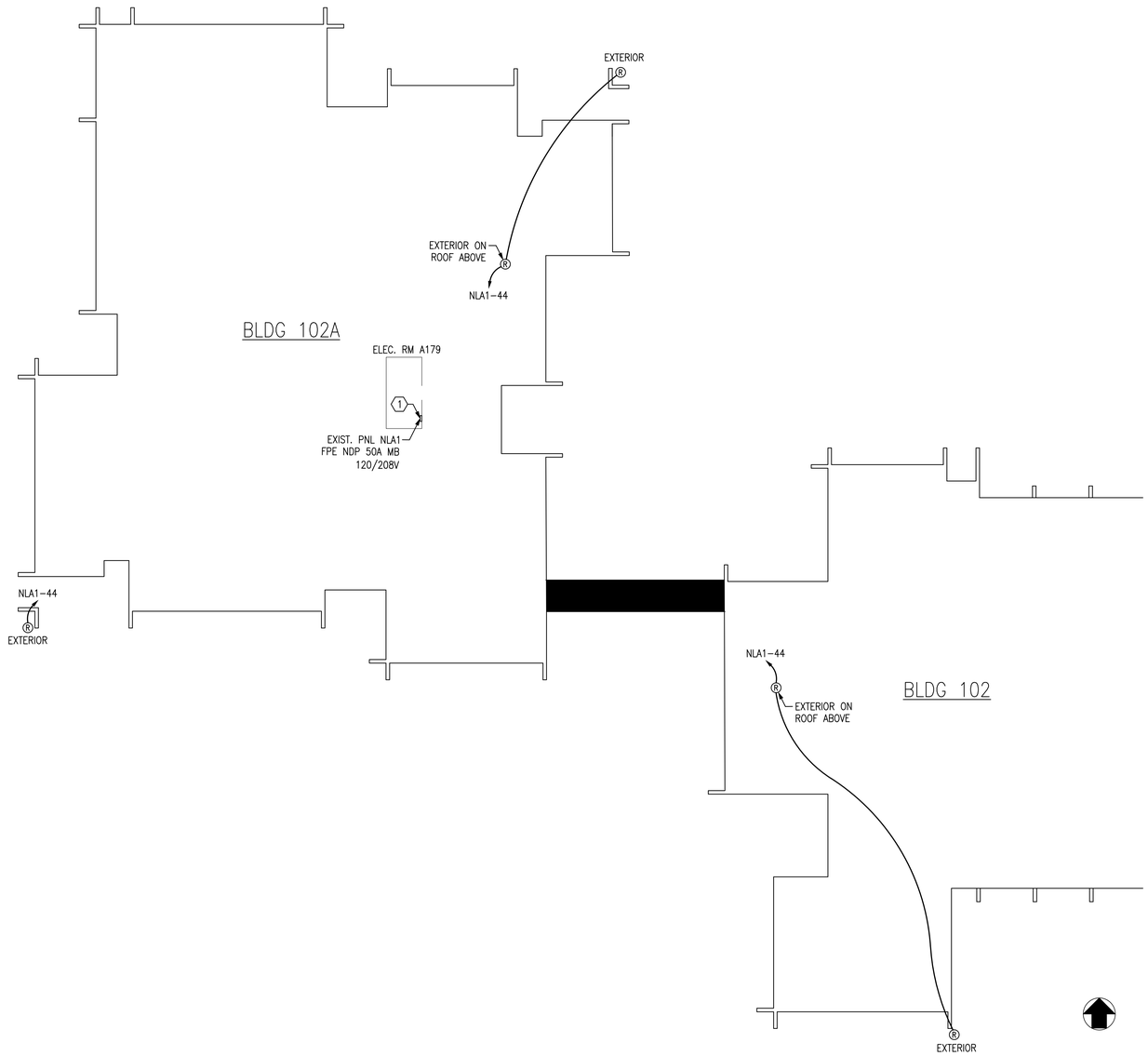
VA FORM 08-6231

## SHEET NOTES

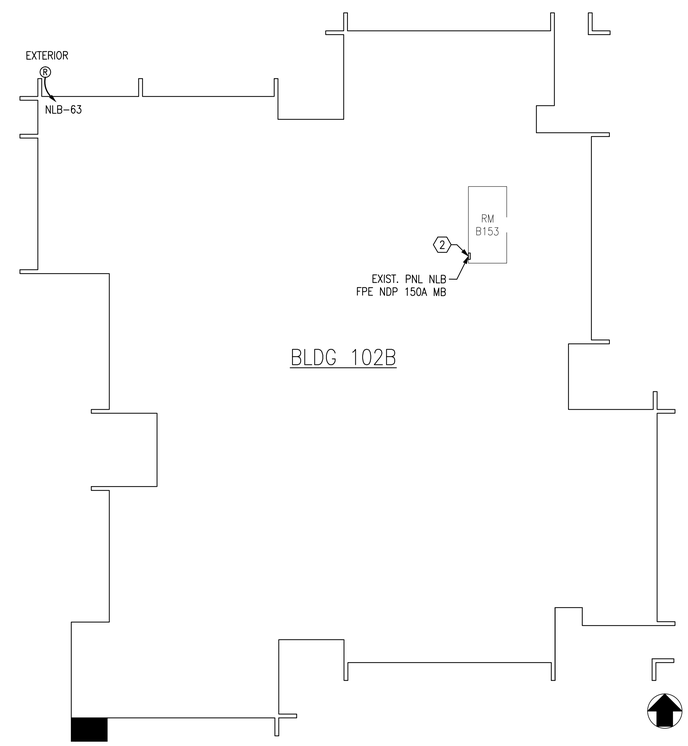
A. WORK DEPICTED ON THIS SHEET SHALL NOT BE INCLUDED UNDER DEDUCTIVE ALTERNATE #1.

## SHEET KEYNOTES

1. USE EXISTING 20A/1P SPARE BREAKER IN EXISTING PANEL FOR NEW CIRCUIT.
2. USE EXISTING 20A/1P SPARE BREAKER IN EXISTING PANEL FOR NEW CIRCUIT.




1 BUILDINGS 102 AND 120A
SCALE: 1/16" = 1'




2 BUILDING 102B
SCALE: 1/16" = 1'

GRAPHIC SCALE
16 0 8 16 32 64
SCALE: 1 INCH = 16 FT.
SCALE IS AS STATED FOR A 30x42 TO SCALE DRAWING. FOR OTHER PRINT SIZES, REFER TO GRAPHIC SCALE.

100% DESIGN
APPROVED FOR CONSTRUCTION

| Revisions: | Date |
|---|---|
| | |

CONSULTANTS:

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AKEA Project No. 128-16

Drawing Title: BUILDING 102 - TRAP MONITORING

Approved: Project Director

Project Title: DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER

Location: BAY PINES, FLORIDA

Date: MAY 15, 2017 | Checked: CJF | Drawn: CJF

Project Number: 516-15-107

Building Number: 102

Drawing Number: EP126
72 OF 78

Office of Construction and Facilities Management
Department of Veterans Affairs

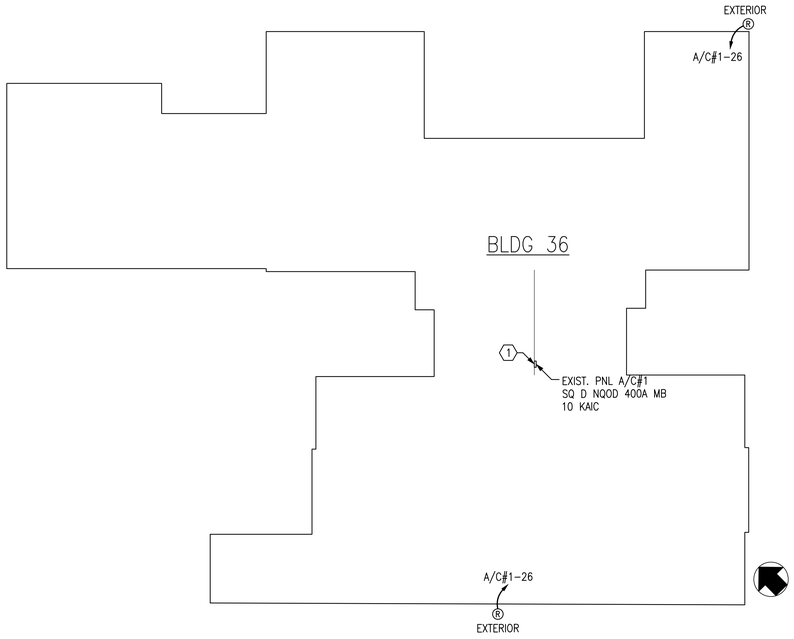
VA FORM 08-6231

## SHEET NOTES

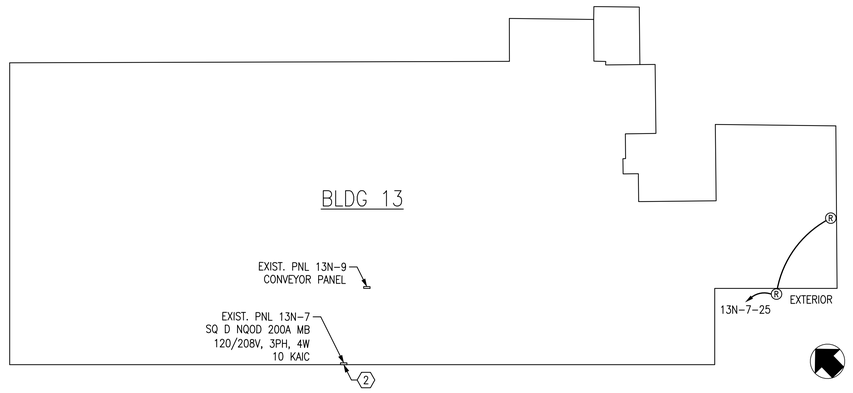
A. WORK DEPICTED ON THIS SHEET SHALL NOT BE INCLUDED UNDER DEDUCTIVE ALTERNATE #1.

## SHEET KEYNOTES

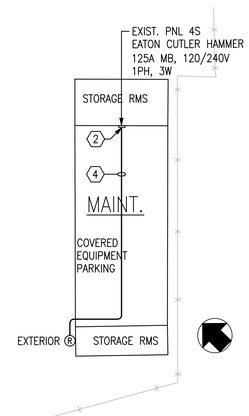
1. PROVIDE NEW 20A BREAKER IN EXISTING PANEL FOR NEW CIRCUITS. RUN CONDUITS IN CRAWL SPACE BELOW.
2. NOT USED.
3. PROVIDE NEW 20A/1P BREAKER IN EXISTING PANEL FOR NEW CIRCUIT.
4. ENTIRE RUN IS EXTERIOR. PROVIDE CIRCUIT IN RMC.



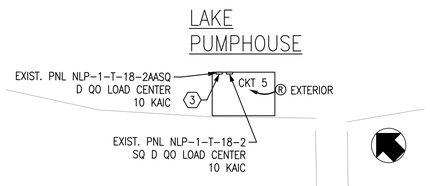

3 BUILDING 36
SCALE: 1/16" = 1'



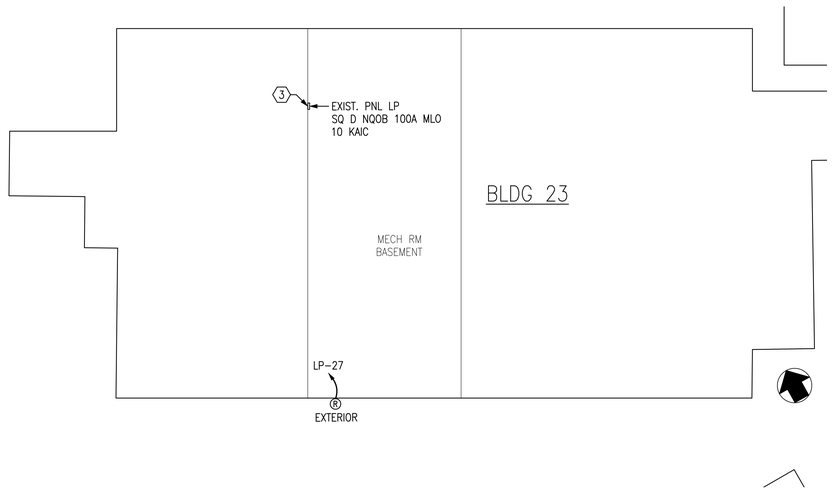

1 BUILDING 13
SCALE: 1/16" = 1'




5 MAINT. BUILDING
SCALE: 1/16" = 1'




4 LAKE PUMPHOUSE
SCALE: 1/16" = 1'




2 BUILDING 23
SCALE: 1/16" = 1'

GRAPHIC SCALE

16 0 8 16 32 64

SCALE: 1 INCH = 16 FT.

SCALE IS AS STATED FOR A 30x42 TO SCALE DRAWING. FOR OTHER PRINT SIZES, REFER TO GRAPHIC SCALE.

100% DESIGN
APPROVED FOR CONSTRUCTION

| Revisions: | Date |
|---|---|
| | |

CONSULTANTS:

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AKEA Project No. 128-16

Drawing Title: BUILDINGS 13, 23, AND 36, MAINT. BUILDING, AND LAKE PUMPHOUSE - TRAP MONITORING

Approved: Project Director

Project Title: DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER

Location: BAY PINES, FLORIDA

Date: MAY 15, 2017 | Checked: CJF | Drawn: CJF

Project Number: 516-15-107

Building Number: MULT.

Drawing Number: EP127

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Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

NAMEPLATES FOR ESSENTIAL EQUIPMENT SHALL BE LAMINATED RED PHENOLIC RESIN WITH SOLID WHITE CORE WITH ENGRAVED LETTERING MINIMUM OF ¼ INCH HEIGHT. NAMEPLATES FOR NORMAL BRANCH EQUIPMENT SHALL BE BLACK WITH WHITE CORE.

ENGRAVE THE FOLLOWING INFORMATION ON EACH EQUIPMENT IDENTIFICATION NAMEPLATE, SIMILAR TO THAT SHOWN IN THE EXAMPLES, EXCEPT APPROPRIATE FOR THE SPECIFIC EQUIPMENT BEING IDENTIFIED:

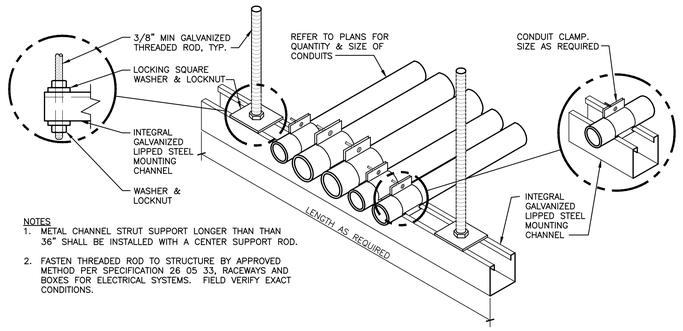
1. IN THE FIRST LINE, INDICATE THE EQUIPMENT TYPE AND NAME (FOLLOWED BY THE ESSENTIAL BRANCH, IF APPLICABLE).
2. IN THE SECOND LINE, INDICATE THE EQUIPMENT VOLTAGE, PHASE, AND NUMBER OF WIRES.
3. IN THE SUBSEQUENT LINES, INDICATE THE WORDS "SERVED FROM" FOLLOWED BY THE NAME AND LOCATION OF THE SOURCE EQUIPMENT. IF THE EQUIPMENT IS SUPPLIED THROUGH AN ATS OR OTHER ITEM WITHOUT DISCONNECTS, INCLUDE DATA ON ALL UPSTREAM DISCONNECTS; AND BENEATH THE SOURCES ADD THE WORD "THROUGH" FOLLOWED BY THE NAME OF THE EQUIPMENT THAT THE SOURCES ARE CONNECTED THROUGH.

PANEL FPE5 (LIFE SAFETY)
480Y/277 VOLTS, 3-PHASE, 4-WIRE
SERVED FROM
EMDP-5 (RM. EB65-1) AND SWBD-3 (RM. EB66-1)
THROUGH ATS-E2 (RM. EB65-1)

TRANSFER SWITCH ATS-E2 (LIFE SAFETY)
480Y/277 VOLTS, 3-PHASE, 4-WIRE
SERVED FROM
EMDP-5 (RM. EB65-1) AND SWBD-3 (RM. EB66-1)

## 1 EQUIPMENT NAMEPLATE DETAIL

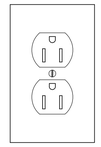
SCALE: N.T.S.




NOTES
1. METAL CHANNEL STRUT SUPPORT LONGER THAN THAN 36" SHALL BE INSTALLED WITH A CENTER SUPPORT ROD.
2. FASTEN THREADED ROD TO STRUCTURE BY APPROVED METHOD PER SPECIFICATION 26 05 33, RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS. FIELD VERIFY EXACT CONDITIONS.

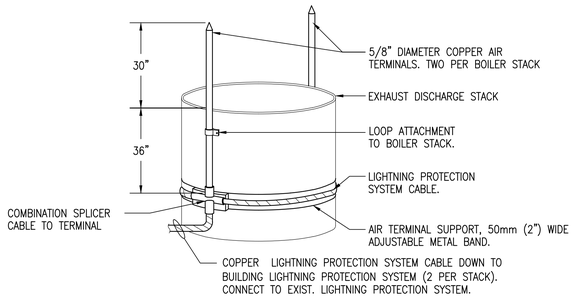
## 2 CONDUIT TRAPEZE MOUNTING DETAIL

SCALE: N.T.S.



## 3 TYPICAL GROUND PIN ORIENTATION

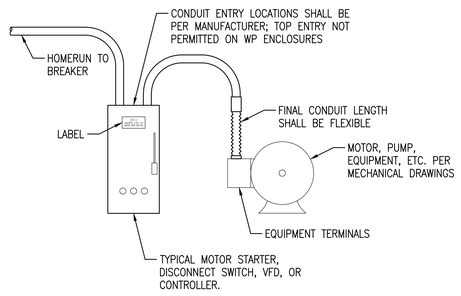
SCALE: N.T.S.




NOTES:
1. PROVIDE NFPA 780 CLASS II MATERIALS.
2. STAIR TOWER ROOFTOP LIGHTING PROTECTION COMPONENTS WITHIN 25' OF DISCHARGE SHALL BE LEAD COATED PER NFPA 780 FOR CORROSION PROTECTION.

## 4 BOILER STACK LIGHTNING PROTECTION

SCALE: N.T.S.

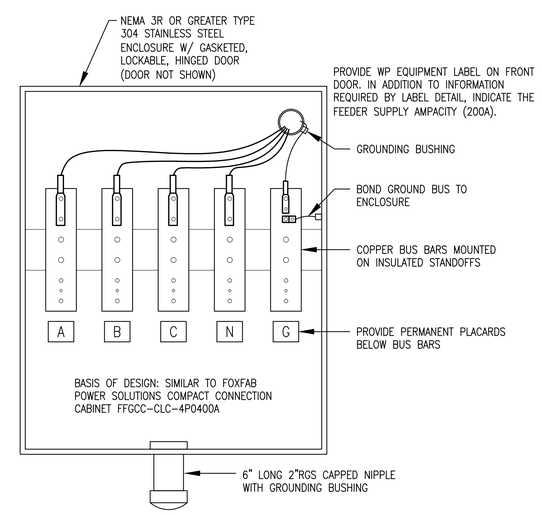



ALTHOUGH NOT EXPLICITLY DEPICTED ON ALL FLOOR PLANS, CONTRACTOR SHALL PROVIDE FINAL CONNECTIONS TO EQUIPMENT (CONDUIT, CONDUCTORS, AND TERMINATIONS) FOR A COMPLETE, FUNCTIONAL ELECTRICAL INSTALLATION.

NOTE: INPUT AND OUTPUT CONDUCTORS CONNECTED TO VFD'S SHALL NOT BE INSTALLED IN THE SAME RACEWAY AT ANY LOCATION OUTSIDE OF THE VFD ENCLOSURE.

## 5 FINAL CONNECTIONS TO EQUIPMENT

SCALE: N.T.S.




## 6 PROVISIONS FOR TEMPORARY BOILER

SCALE: N.T.S.

100% DESIGN
APPROVED FOR CONSTRUCTION

| Revisions: | Date |
|---|---|
| | |

CONSULTANTS:

ENGINEER-OF-RECORD
CHAD J. FRALICK
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ARCHITECT/ENGINEERS:
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COA: FL #29578
AKEA Project No. 128-16


Drawing Title: ELECTRICAL DETAILS

Approved: Project Director

Project Title: DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER

Location: BAY PINES, FLORIDA

Date: MAY 15, 2017 | Checked: CJF | Drawn: CJF

Project Number: 516-15-107

Building Number: MULT.

Drawing Number: EP501

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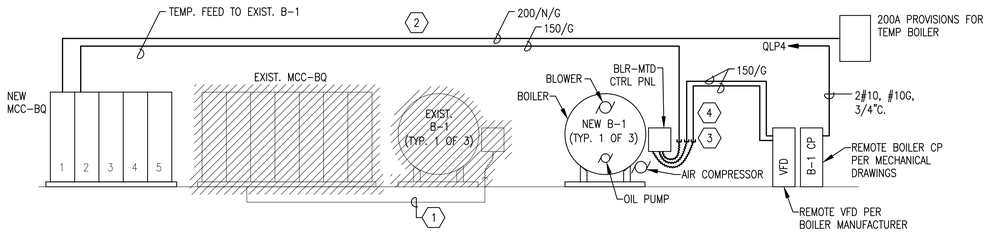
Office of Construction and Facilities Management

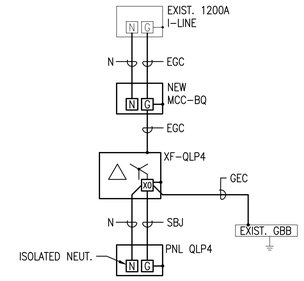
Department of Veterans Affairs

VA FORM 08-6231



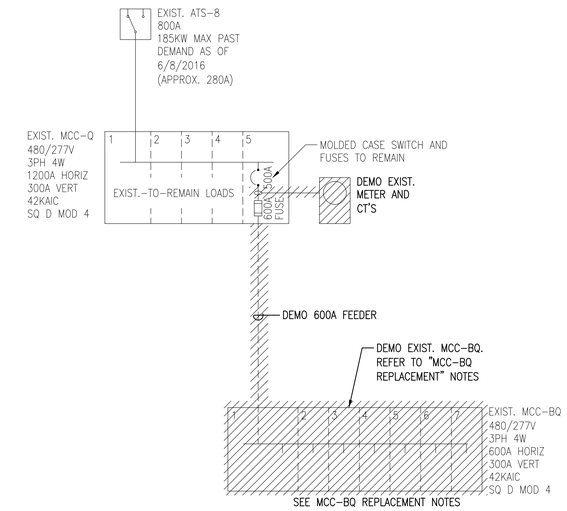

## 1 POWER RISER DIAGRAM

SCALE: N.T.S.
NOTE: NOT ALL LOADS ARE DEPICTED IN THIS DIAGRAM.



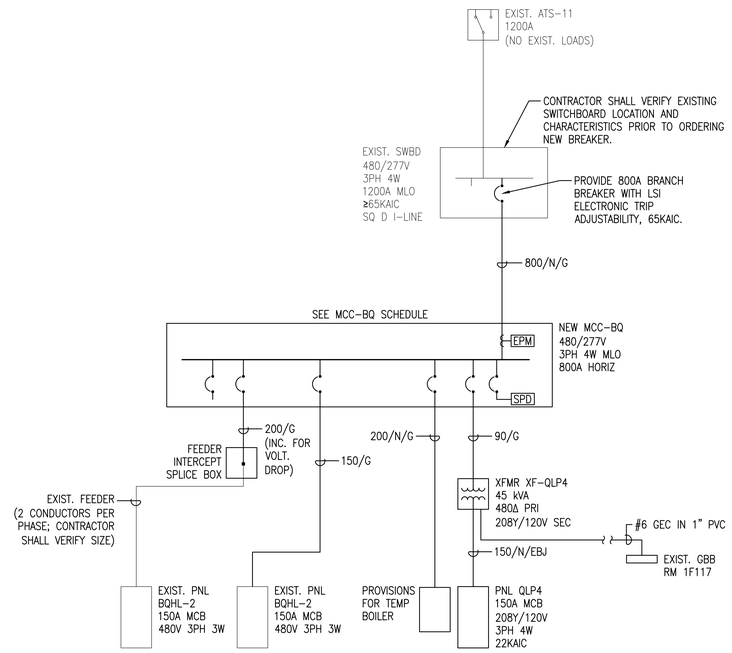

## 4 GROUNDING DIAGRAM

SCALE: N.T.S.
NOTE: REFER TO RISERS FOR CONDUCTOR SIZES.




## 2 EXISTING ONE-LINE DIAGRAM

SCALE: N.T.S.
NOTE: NOT ALL LOADS ARE DEPICTED IN THIS DIAGRAM.




## 3 NEW ONE-LINE DIAGRAM

SCALE: N.T.S.
NOTE: NOT ALL LOADS ARE DEPICTED IN THIS DIAGRAM.

**ELECTRICAL LOAD ESTIMATION**
REPLACE BOILERS
100% SUBMITTAL — 5/15/2017

**LOADS REMOVED:**

| GENERAL ITEMS | QTY. | HP | PH | V | A | VA EA. | VA |
|---|---|---|---|---|---|---|---|
| INTERIOR LIGHTING | 22 | | | | | 128 | 2,816 |
| GENERAL RECEPTACLES | 4 | | | | | 180 | 720 |
| **LARGE MOTOR ITEMS** | **QTY.** | **HP** | **PH** | **V** | **A** | **VA EA.** | **VA** |
| FEED WATER PUMPS | 0 | 15 | 3 | 480 | 21 | 17,459 | 0 |
| CONDENSATE PUMPS | 2 | 5 | 3 | 480 | 7.6 | 6,319 | 12,637 |
| AIR COMPRESSORS | 3 | 5 | 3 | 480 | 7.6 | 6,319 | 18,956 |
| BOILER COMBUSTION FANS | 3 | 15 | 3 | 480 | 21 | 17,459 | 52,377 |
| VENTILATION FANS | 3 | 2 | 1 | 480 | 3.4 | 1,632 | 4,896 |
| BLOWDOWN SUMP PUMPS | 0 | 3 | 3 | 480 | 4.8 | 3,991 | 0 |
| BOILER CONTROLS | 3 | | | | | 1,200 | 3,600 |
| **TOTAL CONNECTED LOAD REMOVED:** | | | | | | VA | 96,002 |
| | | | | | | AMPS | 115 |

**NEW LOADS:**

| GENERAL ITEMS | QTY. | | | | | VA EA. | VA |
|---|---|---|---|---|---|---|---|
| INTERIOR LIGHTING | 15 | | | | | 100 | 1,500 |
| GENERAL RECEPTACLES | 15 | | | | | 180 | 2,700 |
| **LARGE MOTOR ITEMS** | **QTY.** | **HP** | **PH** | **V** | **A** | **VA EA.** | **VA** |
| MAKEUP AIR FAN | 8 | 5 | 3 | 480 | 7.6 | 6,319 | 50,548 |
| FEED WATER PUMPS | 0 | 10 | 3 | 480 | 14 | 11,639 | 0 |
| FUEL PUMPS | 0 | 0.75 | 3 | 480 | 1.6 | 1,330 | 0 |
| CONDENSATE PUMPS | 2 | 5 | 3 | 480 | 7.6 | 6,319 | 12,637 |
| AIR COMPRESSORS | 3 | 7.5 | 3 | 480 | 11 | 9,145 | 27,436 |
| BOILER COMBUSTION FANS | 3 | 50 | 3 | 480 | 65 | 54,040 | 162,120 |
| BLOWDOWN SUMP PUMPS | 0 | 3 | 3 | 480 | 4.8 | 3,991 | 0 |
| BOILER OIL PUMPS | 3 | 1 | 3 | 480 | 2.1 | 1,746 | 5,238 |
| BRINE PUMP SKID | 1 | 2 | 3 | 480 | 3.4 | 2,827 | 2,827 |
| **MISC. ITEMS** | **QTY.** | | **PH** | **V** | **A** | **VA EA.** | **VA** |
| WATER TREATMENT ITEMS | 3 | | | | | 1,000 | 3,000 |
| MASTER CONTROL PANEL | 1 | | | | | 1,200 | 1,200 |
| BOILER DDC CONTROLS | 3 | | | | | 1,200 | 3,600 |
| DRAFT CONTROL DAMPERS | 3 | | 1 | 120 | | 100 | 300 |
| CONTROL ROOM EQUIPMENT | 1 | | | | | 2,400 | 2,400 |
| WORKSTATIONS | 2 | | 1 | 120 | | 600 | 1,200 |
| ***TOTAL NEW LOADS VA*** | | | | | | | 273,879 |
| ***AMPS AT 480V, 3PH*** | | | | | | | 329 |
| ***NET LOAD INCREASE VA*** | | | | | | | 177,877 |
| | | | | | | | 214 |
| ***AMPACITY OF NEW MCC-BQ*** | | | | | | | 800 |

## SHEET NOTES

A. ITEMS SHOWN WITH LIGHT LINEWEIGHT ARE EXISTING TO REMAIN, ITEMS SHOWN WITH BOLD LINEWEIGHTS ARE NEW.

B. BREAKERS ON THIS SHEET ARE 3P UNLESS NOTED OTHERWISE.

C. HOUSEKEEPING PADS FOR NEW ELECTRICAL TRANSFORMER AND MCC SHALL BE PAINTED YELLOW.

## SHEET KEYNOTES

1. REMOVE CONDUCTORS AND EXPOSED RACEWAY, CUT CONDUIT FLUSH WITH SLAB AND FILL WITH GROUT (TYP. FOR ALL UNDERSLAB CONDUITS ORIGINATING AT EXIST. MCC-BQ)
2. NEW RACEWAY AND CONDUCTORS OVERHEAD (TYP.)
3. SINGLE POINT CONNECTION TO BOILER. CONNECTIONS FROM BOILER CONTROL PANEL TO BOILER-MOUNTED ITEMS SHALL BE BY BOILER INSTALLER. PENETRATIONS SHALL NOT BE MADE IN TOP OF CONTROL PANEL.
4. CONTRACTOR SHALL PROVIDE POWER FOR BOILER AND FOR CONTROLS PER FINAL APPROVED BOILER SHOP DRAWINGS. CONTRACTOR SHALL PROVIDE CONDUIT AND CONDUCTORS TO REMOTE VFD (IF NOT PROVIDED MOUNTED TO BOILER).

100% DESIGN
APPROVED FOR CONSTRUCTION

| Revisions: | Date |
|---|---|
| | |

CONSULTANTS:

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COA: FL #29578
AKEA Project No. 128-16


Drawing Title: ELECTRICAL ONE-LINE DIAGRAM AND LOAD ESTIMATION
Approved: Project Director
Project Title: DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER
Location: BAY PINES, FLORIDA
Date: MAY 15, 2017 | Checked: CJF | Drawn: CJF
Project Number: 516-15-107
Building Number: 100
Drawing Number: EP601
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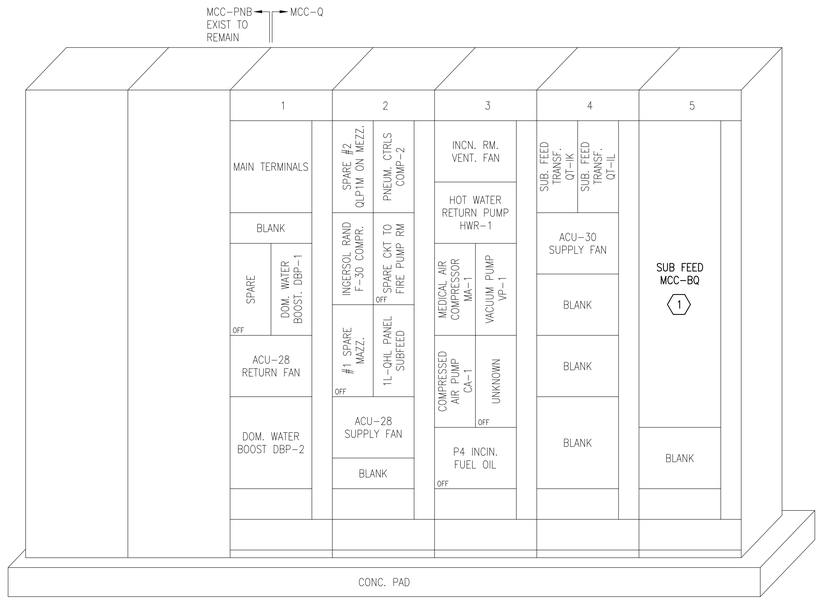
Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231




## 1 EXIST. MCC-Q ELEVATION

SCALE: N.T.S.

### MCC-Q MODIFICATIONS:

WORK IN MCC-Q SHALL BE CAREFULLY PLANNED AND THOROUGHLY STAGED TO ACCOMPLISH CIRCUIT REMOVAL WITHOUT DE-ENERGIZING MCC-Q. PROVIDE APPROPRIATE PPE AS NECESSARY TO DISCONNECT FEEDER AND REMOVE CT'S.

### MCC-BQ REPLACEMENT:

MCC-BQ REPLACEMENT SHALL INCLUDE THE FOLLOWING SCOPE. THE ORDER BELOW IS A PROPOSED CONSTRUCTION SEQUENCE FOR THIS WORK, BUT SHALL BE COORDINATED WITH THE VA AND OTHER DISCIPLINES TO ENSURE A MUTUALLY AGREEABLE SEQUENCE. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO MINIMIZE DOWNTIME FOR ALL LOADS FED FROM MCC-Q AND MCC-BQ.

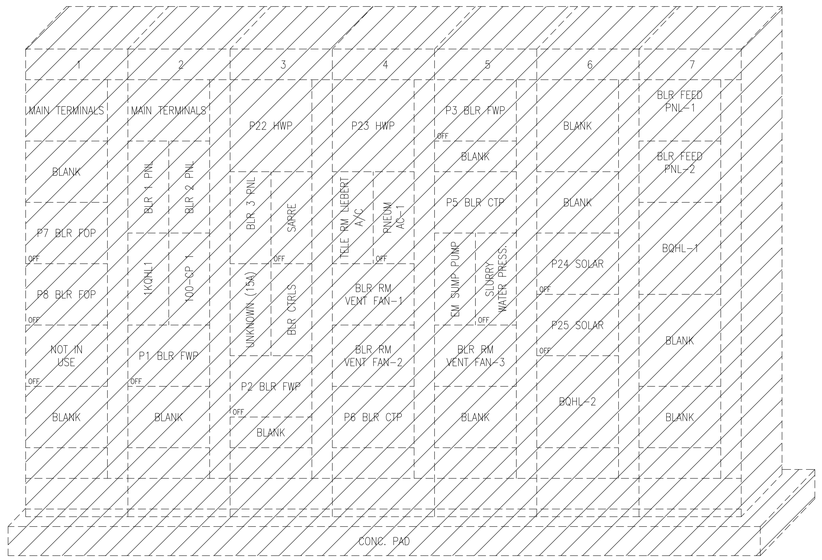
1. VACATE NEW AREA FOR NEW MCC; TEMPORARILY RELOCATE LOCKER AND SHELVES TO AN ACCESSIBLE LOCATION IN THE BOILER PLANT.
2. MODIFY HOUSEKEEPING PAD, PAINT, AND INSTALL NEW MCC EQUIPMENT, NEW TRANSFORMER, NEW SUPPORT RACK AND NEW PANEL.
3. INSTALL RACEWAY BETWEEN NEW MCC AND ALL EXISTING-TO-REMAIN LOADS CURRENTLY FED FROM MCC-BQ - THIS INCLUDES ALL LOADS THAT ARE NOT BEING REPLACED UNDER THIS PROJECT.
4. INSTALL FEEDER TO NEW MCC FROM 1200A I-LINE SWBD, PERFORM TESTS ON NEW MCC, AND ENERGIZE.
5. COORDINATE DOWNTIMES FOR EACH INDIVIDUAL EXISTING-TO-REMAIN LOAD CURRENTLY FED FROM MCC-BQ. DURING DOWNTIMES, DISCONNECT LOADS FROM MCC-BQ AND RE-FEED THEM FROM NEW MCC. LOADS SHALL BE TRANFERRED ONE-AT-A-TIME, UNLESS COORDINATED OTHERWISE IN ADVANCE WITH VA.
6. PROVIDE NEW CIRCUITS TO NEW BOILER LOADS IN COORDINATION WITH MECHANICAL PHASING.
7. AFTER THE LAST LOAD HAS BEEN REMOVED FROM MCC-BQ, DE-ENERGIZE MCC-BQ AND DISCONNECT FROM MCC-Q. DEMOLISH MCC-BQ AND REMAINING EXPOSED CONDUITS ALL THE WAY TO THE LOADS (ANY CONDUITS GOING UNDER THE FLOOR SHALL BE CUT, GROUND FLUSH WITH FLOOR, AND FILLED WITH GROUT).
8. REMOVE AND REPLACE MCC-BQ HOUSEKEEPING PAD TO ACCOMMODATE LOCKERS AND SHELVES.
9. RELOCATE LOCKERS AND SHELVES TO HOUSEKEEPING PAD AND SECURE TO WALL.

## SHEET NOTES

A. ITEMS SHOWN WITH LIGHT LINEWEIGHT ARE EXISTING TO REMAIN, ITEMS SHOWN WITH BOLD LINEWEIGHTS ARE NEW.

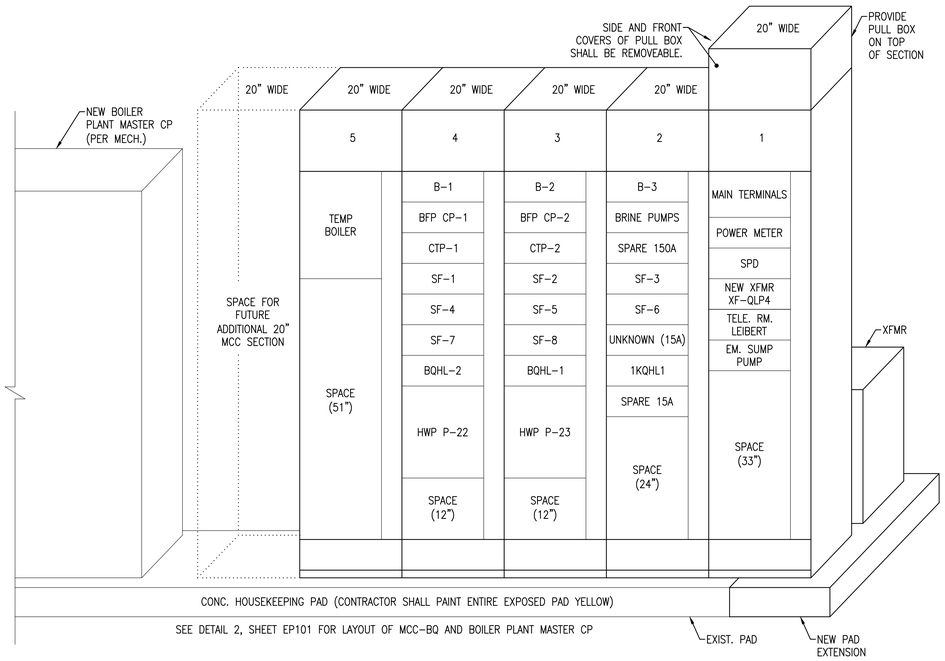
## ⬡ SHEET KEYNOTES

1. REFER TO ONE-LINE DIAGRAM.




## 3 EXIST. MCC-BQ DETAIL (TO BE DEMOLISHED)

SCALE: N.T.S.




## 2 NEW MCC-BQ DETAIL

SCALE: N.T.S.

100% DESIGN
APPROVED FOR CONSTRUCTION

| Revisions: | Date |
|---|---|
| | |

CONSULTANTS:

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ARCHITECT/ENGINEERS:

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COA: FL #29578
AKEA Project No. 128-16


Drawing Title: MCC-BQ REPLACEMENT AND MCC-Q MODIFICATIONS

Approved: Project Director

Project Title: DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER

Location: BAY PINES, FLORIDA

Date: MAY 15, 2017 | Checked: CJF | Drawn: CJF

Project Number: 516-15-107

Building Number: 100

Drawing Number: EP602

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Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

## MCC-BQ SCHEDULE

| LOAD | DESCRIPTION | SPACE | FLA | TRIP | NEMA SIZE |
|---|---|---|---|---|---|
| 100-CP-1 | BREAKER | 6" | | 15 | - |
| 1KQHL-1 | BREAKER | 6" | | 100 | - |
| B-1 | BREAKER | 6" | 83 | 150 | - |
| B-2 | BREAKER | 6" | 83 | 150 | - |
| B-3 | BREAKER | 6" | 83 | 150 | - |
| BFP CP-1 | BREAKER | 6" | 42 | 60 | - |
| BFP CP-2 | BREAKER | 6" | 42 | 60 | - |
| BRINE PUMPS | BREAKER (PROVIDE REGARDLESS OF BID DED. ALT) | 6" | 3.4 | 15 | - |
| BQHL-1 | BREAKER | 6" | | 150 | - |
| BQHL-2 | BREAKER | 6" | | 150 | - |
| CTP-1 | FVNR, H-O-A SWITCH, GREEN AND RED PILOT LIGHTS, START-STOP PUSH BUTTON, CONNECT AUTO TO B.A.S. | 6" | 7.6 | 15 | 1 |
| CTP-2 | FVNR, H-O-A SWITCH, GREEN AND RED PILOT LIGHTS, START-STOP PUSH BUTTON, CONNECT AUTO TO B.A.S. | 6" | 7.6 | 15 | 1 |
| EM. SUMP PUMP | BREAKER | 6" | | 30 | - |
| HWP P-22 | FVNR, H-O-A SWITCH, GREEN AND RED PILOT LIGHTS, START-STOP PUSH BUTTON, TO CONFIRM EXIST. SPECS | 18" | 65 | 100 | 3 |
| HWP P-23 | FVNR, H-O-A SWITCH, GREEN AND RED PILOT LIGHTS, START-STOP PUSH BUTTON, TO CONFIRM EXIST. SPECS | 18" | 65 | 100 | 3 |
| MAIN TERMINALS | MLO, TOP ENTRY, PROVIDE NEUTRAL KIT FOR 3PH 4W | 9" | | | |
| POWER METER | DOOR MTD. DISPLAY; SIMULTANEOUS A, V, POWER, AND ENERGY MONITORING; THD MEASUREMENT; FUSING | 6" | - | - | - |
| SF-1 | FVNR, H-O-A SWITCH, GREEN AND RED PILOT LIGHTS, START-STOP PUSH BUTTON , CONTROLLED VIA BAS | 6" | 7.6 | 15 | 1 |
| SF-2 | FVNR, H-O-A SWITCH, GREEN AND RED PILOT LIGHTS, START-STOP PUSH BUTTON , CONTROLLED VIA BAS | 6" | 7.6 | 15 | 1 |
| SF-3 | FVNR, H-O-A SWITCH, GREEN AND RED PILOT LIGHTS, START-STOP PUSH BUTTON , CONTROLLED VIA BAS | 6" | 7.6 | 15 | 1 |
| SF-4 | FVNR, H-O-A SWITCH, GREEN AND RED PILOT LIGHTS, START-STOP PUSH BUTTON , CONTROLLED VIA BAS | 6" | 7.6 | 15 | 1 |
| SF-5 | FVNR, H-O-A SWITCH, GREEN AND RED PILOT LIGHTS, START-STOP PUSH BUTTON , CONTROLLED VIA BAS | 6" | 7.6 | 15 | 1 |
| SF-6 | FVNR, H-O-A SWITCH, GREEN AND RED PILOT LIGHTS, START-STOP PUSH BUTTON , CONTROLLED VIA BAS | 6" | 7.6 | 15 | 1 |
| SF-7 | FVNR, H-O-A SWITCH, GREEN AND RED PILOT LIGHTS, START-STOP PUSH BUTTON , CONTROLLED VIA BAS | 6" | 7.6 | 15 | 1 |
| SF-8 | FVNR, H-O-A SWITCH, GREEN AND RED PILOT LIGHTS, START-STOP PUSH BUTTON , CONTROLLED VIA BAS | 6" | 7.6 | 15 | 1 |
| SPACE | USEABLE SPACE FOR FUTURE BUCKETS | SEE DETAIL | 0 | - | - |
| SPARE 15A | SPARE BREAKER | 6" | 0 | 15 | - |
| SPARE 150A | SPARE BREAKER | 6" | 0 | 150 | - |
| SPD | SPD WITH 240KA SURGE RATING, DOOR-MTD SURGE COUNTER, AND INTEGRAL DISCONNECTING MEANS | 6" | 0 | PER MANUF. | |
| TELE RM LEIBERT | BREAKER | 6" | | 100 | - |
| TEMP BOILER | BREAKER WITH LSI ADJUSTABILITY (AVAILABLE "L" SETTINGS SHALL AT A MINIMUM INCLUDE: 100A, 150A, 175A, 200A) | 18" | | 200 | - |
| UNKNOWN (15A) | BREAKER | 6" | | 15 | - |
| XF-QLP4 | BREAKER | 6" | 54 | 90 | - |

DO NOT INCLUDE THESE COMPONENTS FOR DEDUCTIVE ALTERNATE #3; PROVIDE SPACE INSTEAD

NOTES:
1. BREAKER AND STARTER SIZES INDICATED IN SCHEDULE ABOVE ARE BASIS OF DESIGN VALUES. EXACT ELECTRICAL EQUIPMENT SIZES AND RATINGS SHALL BE PROVIDED BASED ON THE APPROVED SHOP DRAWINGS AND THE EQUIPMENT MANUFACTURER'S NAMEPLATE M.O.C.P. (MAXIMUM OVERCURRENT PROTECTION) VALUE.

2. DESIGN INTENT INCLUDES 6" TALL COMPACT MOTOR STARTER CUBICLES.

3. NEMA 1 ENCLOSURE, COPPER BUSSING, 65KAIC.

4. BASIS OF DESIGN: SQUARE D MODEL 6 WITH POWER LOGIC PM820 POWER METER. (OR EQUAL).

## EQUIPMENT SCHEDULE

| MARK | DESCRIPTION | HP | FLA | KW | BKR | FEEDER | V/PH | DISCONNECT | STARTER |
|---|---|---|---|---|---|---|---|---|---|
| 100-CP-1 | EXIST. CONDENSATE PUMP | | | | 15 | 30/G | 480/3 | EXIST. | EXIST. |
| 1KQHL1 | EXIST. PANEL | N/A | 100 | - | 100 | 100/N/G | 480/3 | EXIST. PANEL | N/A |
| B-1 | EXIST. B-1 - TEMP OVERHEAD FEED | MULT. | 30 | 22 | 80 | 80/G | 480/3 | EXISTING CONTROL PANEL WITH INTEGRAL DISCONNECT AND STARTERS | |
| B-1 | BOILER PACKAGE (BLOWER 50HP, OIL PUMP 1PH, AIR COMPRESSOR 7.5HP, CONTROLS) | MULT. | 83 | 44 | 150 | 150/G | 480/3 | LOCAL VFD AND DISCONNECT BY MANUFACTURER - INTEGRAL TO CONTROL PANEL | |
| B-1 DCD | DRAFT CONTROL DAMPER CONTROLLER | | 2 | | 20 | 2#12, #12G, 3/4"C. | 120/1 | N/A | N/A |
| B-2 | BOILER PACKAGE (BLOWER 50HP, OIL PUMP 1PH, AIR COMPRESSOR 7.5HP, CONTROLS) | MULT. | 83 | 44 | 150 | 150/G | 480/3 | LOCAL VFD AND DISCONNECT BY MANUFACTURER - INTEGRAL TO CONTROL PANEL | |
| B-2 DCD | DRAFT CONTROL DAMPER CONTROLLER | | 2 | | 20 | 2#12, #12G, 3/4"C. | 120/1 | N/A | N/A |
| B-3 | BOILER PACKAGE (BLOWER 50HP, OIL PUMP 1PH, AIR COMPRESSOR 7.5HP, CONTROLS) | MULT. | 83 | 44 | 150 | 150/G | 480/3 | LOCAL VFD AND DISCONNECT BY MANUFACTURER - INTEGRAL TO CONTROL PANEL | |
| B-3 DCD | DRAFT CONTROL DAMPER CONTROLLER | | 2 | | 20 | 2#12, #12G, 3/4"C. | 120/1 | N/A | N/A |
| BFP CP-1 | EXIST. BFP CONTROL PANEL | (2) 15 | 42 | 22 | 60 | 60/G | 480/3 | EXISTING CONTROL PANEL WITH INTEGRAL DISCONNECT AND STARTERS | |
| BFP CP-2 | EXIST. BFP CONTROL PANEL | (2) 15 | 42 | 22 | 60 | 60/G | 480/3 | EXISTING CONTROL PANEL WITH INTEGRAL DISCONNECT AND STARTERS | |
| BQHL-1 | EXIST. PANEL, 3PH 3W | - | 150 | - | 150 | 150/G | 480/3 | EXIST. PANEL | N/A |
| BQHL-2 | EXIST. PANEL, 3PH 3W | - | 150 | - | 150 | 200/G | 480/3 | EXIST. PANEL | N/A |
| CTP-1 | CONDENSATE PUMP | 5 | 7.6 | | 15 | 30/G | 480/3 | 30A 3P NF HD NEMA 1 | SEE MCC-BQ SCHEDULE |
| CTP-2 | CONDENSATE PUMP | 5 | 7.6 | | 15 | 30/G | 480/3 | 30A 3P NF HD NEMA 1 | SEE MCC-BQ SCHEDULE |
| EM. SUMP PUMP | EXIST. LOAD | | | | 30 | 30/G | 480/3 | EXIST. | EXIST. |
| HWP P-22 | EXIST. HEATING WATER PUMP | 50 | 65 | 37 | 100 | 100/G | 480/3 | EXIST. | SEE MCC-BQ SCHEDULE |
| HWP P-23 | EXIST. HEATING WATER PUMP | 50 | 65 | 37 | 100 | 100/G | 480/3 | EXIST. | SEE MCC-BQ SCHEDULE |
| SF-1 | BOILER PLANT SUPPLY FAN | 5 | 7.6 | 3.7 | 15 | 30/G | 480/3 | 30A 3P NF HD NEMA 3R | SEE MCC-BQ SCHEDULE |
| SF-2 | BOILER PLANT SUPPLY FAN | 5 | 7.6 | 3.7 | 15 | 30/G | 480/3 | 30A 3P NF HD NEMA 3R | SEE MCC-BQ SCHEDULE |
| SF-3 | BOILER PLANT SUPPLY FAN | 5 | 7.6 | 3.7 | 15 | 30/G | 480/3 | 30A 3P NF HD NEMA 3R | SEE MCC-BQ SCHEDULE |
| SF-4 | BOILER PLANT SUPPLY FAN | 5 | 7.6 | 3.7 | 15 | 30/G | 480/3 | 30A 3P NF HD NEMA 3R | SEE MCC-BQ SCHEDULE |
| SF-5 | BOILER PLANT SUPPLY FAN | 5 | 7.6 | 3.7 | 15 | 30/G | 480/3 | 30A 3P NF HD NEMA 3R | SEE MCC-BQ SCHEDULE |
| SF-6 | BOILER PLANT SUPPLY FAN | 5 | 7.6 | 3.7 | 15 | 30/G | 480/3 | 30A 3P NF HD NEMA 3R | SEE MCC-BQ SCHEDULE |
| SF-7 | BOILER PLANT SUPPLY FAN | 5 | 7.6 | 3.7 | 15 | 30/G | 480/3 | 30A 3P NF HD NEMA 3R | SEE MCC-BQ SCHEDULE |
| SF-8 | BOILER PLANT SUPPLY FAN | 5 | 7.6 | 3.7 | 15 | 30/G | 480/3 | 30A 3P NF HD NEMA 3R | SEE MCC-BQ SCHEDULE |
| TELE RM LEIBERT | EXIST. A/C UNIT | | | | 100 | 100/G | 480/3 | EXIST. | EXIST. |
| UNKNOWN (15A) | EXIST. UNKNOWN LOAD **(CONTRACTOR SHALL CONFIRM)** | | | | 15 | 30/G | 480/3 | EXIST. | EXIST. |
| BRINE PUMPS | BRINE PUMPS SKID - MOTOR POWER | 2 | 3.4 | 1.5 | 15 | 30/G | 480/3 | BY MANUFACTURER - INTEGRAL TO CONTROL PANEL | |
| BRINE PUMPS | BRINE PUMPS SKID - CONTROL POWER | - | | | 20 | 2#12, #12G, 3/4"C. | 120/1 | N/A | N/A |
| DE-ALK | DEALK. SYSTEM | - | | | 20 | 2#12, #12G, 3/4"C. | 120/1 | N/A | BY MANUFACTURER - INTEGRAL TO UNIT |
| WSF-1 | WATER SOFTENER | N/A | < 1 | < 0.2 | 20 | 2#12, #12G, 3/4"C. | 120/1 | PROVIDE CORD AND PLUG | BY MANUFACTURER - INTEGRAL TO UNIT |

DO NOT INCLUDE THESE COMPONENTS UNDER DEDUCTIVE ALTERNATE #3

DO NOT INCLUDE THESE COMPONENTS UNDER DEDUCTIVE ALTERNATE #4

NOTE:

BREAKER, RACEWAY, CONDUCTOR, AND DISCONNECT SWITCH SIZES INDICATED IN SCHEDULE ABOVE ARE BASIS OF DESIGN VALUES. EXACT ELECTRICAL EQUIPMENT SIZES AND RATINGS SHALL BE PROVIDED BASED ON THE APPROVED SHOP DRAWINGS AND THE EQUIPMENT MANUFACTURER'S NAMEPLATE M.O.C.P. (MAXIMUM OVERCURRENT PROTECTION) VALUE. TERMINATION LOCATION ON EQUIPMENT SHALL BE BASED ON APPROVED SHOP DRAWINGS.

100% DESIGN
APPROVED FOR CONSTRUCTION

| Revisions: | Date |
|---|---|
| | |

CONSULTANTS:

ENGINEER-OF-RECORD CHAD J. FRALICK FL. P.E. NO. 73811


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COA: FL #29578
AKEA Project No. 128-16


Drawing Title: ELECTRICAL SCHEDULES

Approved: Project Director

Project Title: DESIGN TO REPLACE BOILERS, BLDG 100 ENERGY CENTER

Location: BAY PINES, FLORIDA

Date: MAY 15, 2017 | Checked: CJF | Drawn: CJF

Project Number: 516-15-107

Building Number: 100

Drawing Number: EP701

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Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231