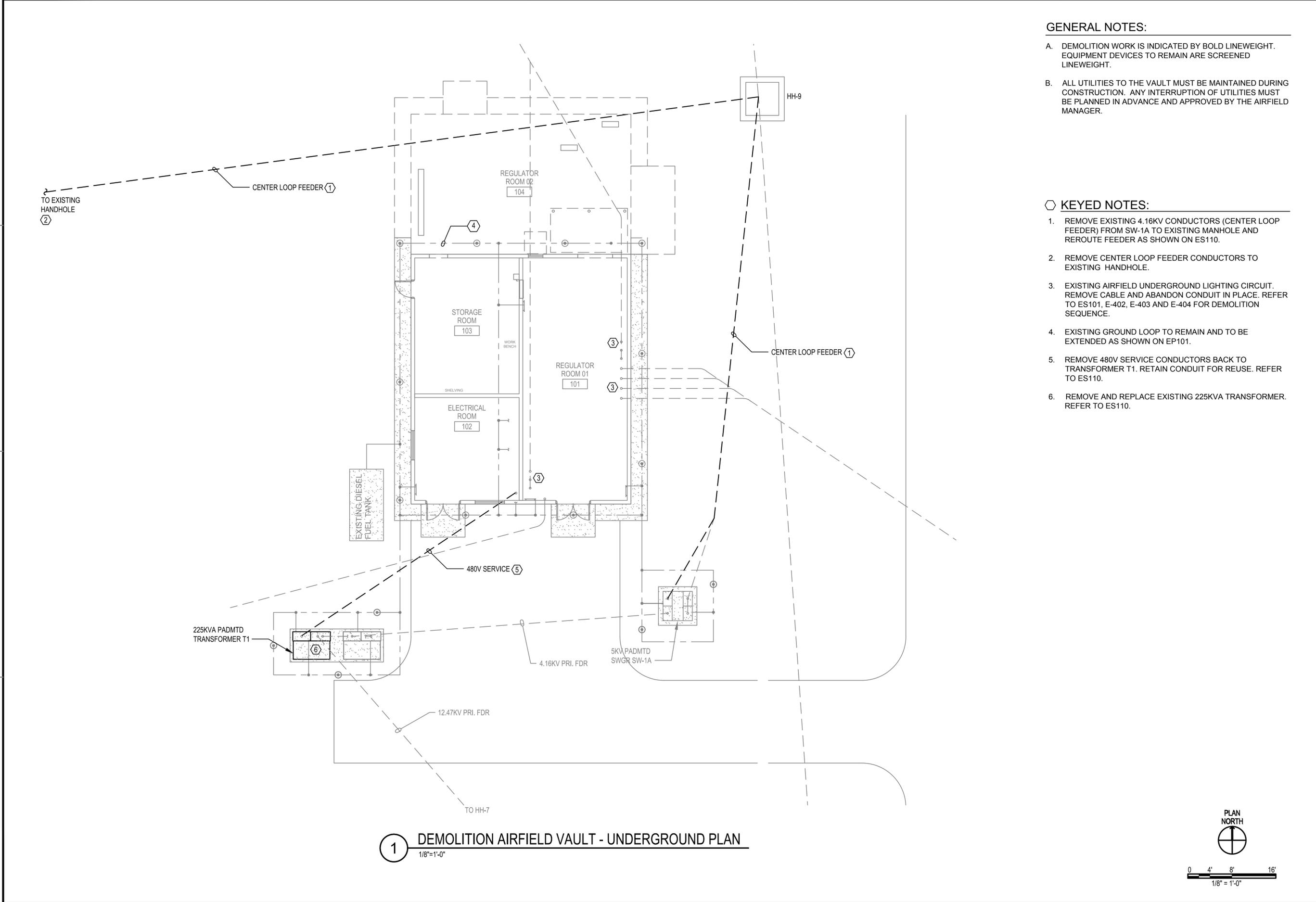


FILE NAME: P:\FB\1641-9K\NAE\2051134800_NAS_Corpus_Christi_Airfield_Repairs\20_DESIGN\40_GAD\134800-ED111.dwg LAYOUT NAME: ED111 PLOTTED: Thursday, November 05, 2015 - 11:33am USER: tabern



1 DEMOLITION AIRFIELD VAULT - UNDERGROUND PLAN
1/8" = 1'-0"

GENERAL NOTES:

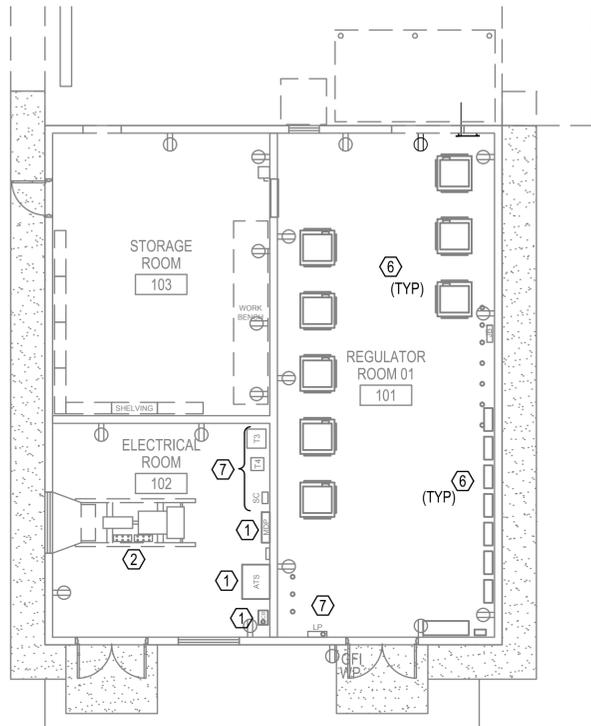
- A. DEMOLITION WORK IS INDICATED BY BOLD LINEWEIGHT. EQUIPMENT DEVICES TO REMAIN ARE SCREENED LINEWEIGHT.
- B. ALL UTILITIES TO THE VAULT MUST BE MAINTAINED DURING CONSTRUCTION. ANY INTERRUPTION OF UTILITIES MUST BE PLANNED IN ADVANCE AND APPROVED BY THE AIRFIELD MANAGER.

KEYED NOTES:

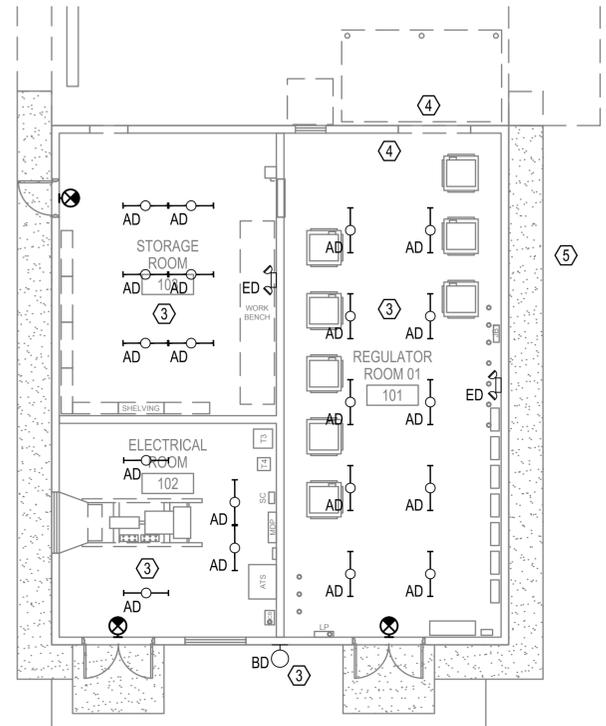
- 1. REMOVE EXISTING 4.16KV CONDUCTORS (CENTER LOOP FEEDER) FROM SW-1A TO EXISTING MANHOLE AND REROUTE FEEDER AS SHOWN ON ES110.
- 2. REMOVE CENTER LOOP FEEDER CONDUCTORS TO EXISTING HANDHOLE.
- 3. EXISTING AIRFIELD UNDERGROUND LIGHTING CIRCUIT. REMOVE CABLE AND ABANDON CONDUIT IN PLACE. REFER TO ES101, E-402, E-403 AND E-404 FOR DEMOLITION SEQUENCE.
- 4. EXISTING GROUND LOOP TO REMAIN AND TO BE EXTENDED AS SHOWN ON EP101.
- 5. REMOVE 480V SERVICE CONDUCTORS BACK TO TRANSFORMER T1. RETAIN CONDUIT FOR REUSE. REFER TO ES110.
- 6. REMOVE AND REPLACE EXISTING 225KVA TRANSFORMER. REFER TO ES110.

	DATE: 6 NOV 2015
	ISSUED FOR BID
	DESCRIPTION
	0
	DATE
	
	
	
	
APPROVED FOR COMMANDER NAVFAC	
ACTIVITY	
SATISFACTORY TO DATE DES DS DRW NJS CHK DWM	
PM / DM BRANCH MANAGER CHIEF ENG / ARCH FIRE PROTECTION	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVAL AIR STATION JACKSONVILLE CIBL CORE	NAVAL FACILITIES ENGINEERING COMMAND SOUTHEAST NAVAL AIR STATION JACKSONVILLE CORPUS CHRISTI, TEXAS NAS CORPUS CHRISTI AIRFIELD LIGHTING VAULT DEMOLITION AIRFIELD VAULT - UNDERGROUND PLAN
SCALE: AS NOTED PROJECT NO.: CONSTR. CONTR. NO.:	
NAVFAC DRAWING NO.: 15095097 SHEET 27 OF 54	
ED111 <small>DRAWFORM REVISION: 5 APRIL 2012</small>	

FILE NAME: P:\FB\1641-9K\A\20151134800_NAS_Corpus_Christi_Airfield_Repairs\20_DESIGN\10_GAD\134800-ED112.dwg LAYOUT NAME: ED112 PLOTTED: Thursday, November 05, 2015 - 11:33am USER: tabern



1 DEMOLITION AIRFIELD VAULT - POWER PLAN
1/8"=1'-0"



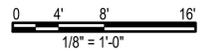
2 DEMOLITION AIRFIELD VAULT - LIGHTING PLAN
1/8"=1'-0"

GENERAL NOTES:

- A. DEMOLITION WORK IS INDICATED BY BOLD LINEWEIGHT. EQUIPMENT AND DEVICES TO REMAIN ARE SCREENED LINEWEIGHT.
- B. ALL UTILITIES TO THE VAULT MUST BE MAINTAINED DURING CONSTRUCTION. ANY INTERRUPTION OF UTILITIES MUST BE PLANNED IN ADVANCE AND APPROVED BY THE AIRFIELD MANAGER.

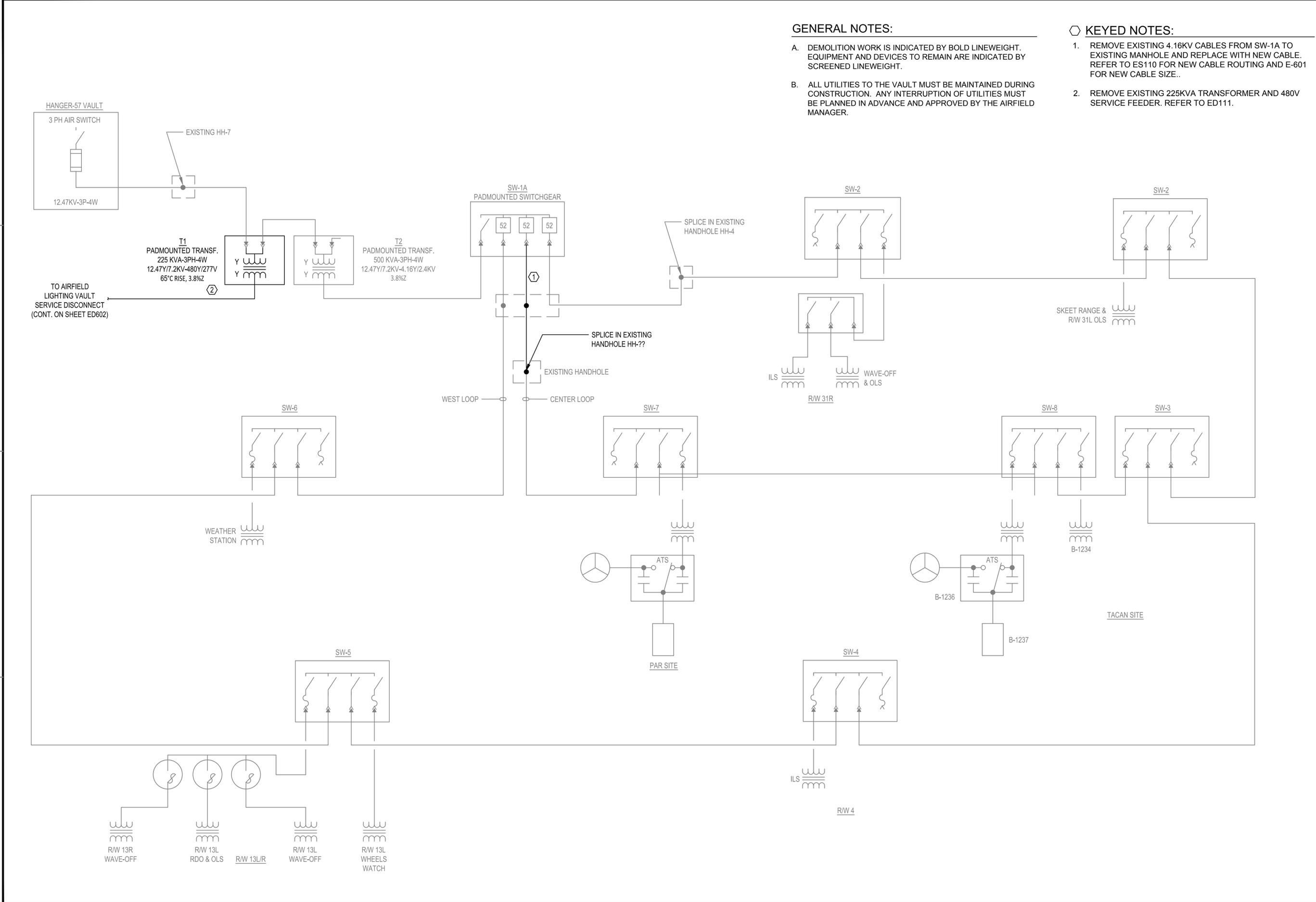
KEYED NOTES:

- 1. REMOVE MAIN CIRCUIT BREAKER, ATS AND MDP AND ALL FEEDER CIRCUIT WIRING AND CONDUIT. REWIRE CIRCUITS TO REMAIN TO NEW MDP. COORDINATE WITH INSTALLATION OF NEW ATS AND MDP.
- 2. PROVIDE NEW MUFFLER SYSTEM AND INSULATION TO 250KW EXISTING DIESEL GENERATOR.
- 3. REMOVE EXISTING LIGHT FIXTURES AND REUSE EXISTING WIRING FOR NEW FIXTURES. REFER TO EL101.
- 4. REMOVE ELECTRICAL CIRCUIT TO HVAC EQUIPMENT AND RECONNECT TO TEMPORARY LOCATION OF EQUIPMENT. REMOVE AFTER NEW EQUIPMENT HAS BEEN INSTALLED. REFER TO M-101.
- 5. TEMPORARY LOCATION OF EXISTING HVAC EQUIPMENT. REFER TO M-101.
- 6. AIRFIELD LIGHTING CONTROL EQUIPMENT TO BE DISCONNECTED AND REMOVED. REFER TO E-402, E-403 AND 404 FOR EQUIPMENT DEMOLITION SEQUENCE AND DETAILS.
- 7. MAIN CIRCUIT BREAKER, PANEL LP, STROBE LIGHTS SWITCH AND TRANSFORMER T3 & T4 TO REMAIN.



	DATE: 6 NOV 2015 APP'R:
	ISSUED FOR BID: 0 DATE: 6 NOV 2015 APP'R:
 	
 <small>LEIDOS ENGINEERING, LLC ONE WEST 3RD ST. TULSA, OK 74103</small>	
 <small>DELTA AIRPORT CONSULTANTS, INC. 8711 Faber Court, Suite 100 Richmond, Virginia 23238 Phone: (804) 275-8301 • Fax: (804) 275-8371 www.deltairport.com</small>	
Delta Project No. 14072_AE-INFO	
APPROVED	
FOR COMMANDER NAVFAC	
ACTIVITY	
SATISFACTORY TO DATE	
DES	DS DRW NJS CHK DWM
PM / DM	
BRANCH MANAGER	
CHIEF ENG / ARCH	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVAL FACILITIES ENGINEERING COMMAND SOUTHEAST NAVAL AIR STATION JACKSONVILLE CIBL CORE NAS CORPUS CHRISTI NAS CORPUS CHRISTI AIRFIELD REPAIRS AIRFIELD LIGHTING VAULT DEMOLITION AIRFIELD VAULT - ELECTRICAL PLAN	PROJECT NO.: CONSTR. CONTR. NO.: NAVFAC DRAWING NO.: 15095098 SHEET 28 OF 54 ED112 <small>DRAWFORM REVISION: 5 APRIL 2012</small>

FILE NAME: P:\FB\1641-9K\134800-ANS_Corpus_Chris_Airfield_Repair\20_DESIGN\40_CAD\134800-ED601.dwg LAYOUT NAME: ED601 PLOTTED: Thursday, November 05, 2015 - 11:33am USER: tabern



GENERAL NOTES:

- A. DEMOLITION WORK IS INDICATED BY BOLD LINEWEIGHT. EQUIPMENT AND DEVICES TO REMAIN ARE INDICATED BY SCREENED LINEWEIGHT.
- B. ALL UTILITIES TO THE VAULT MUST BE MAINTAINED DURING CONSTRUCTION. ANY INTERRUPTION OF UTILITIES MUST BE PLANNED IN ADVANCE AND APPROVED BY THE AIRFIELD MANAGER.

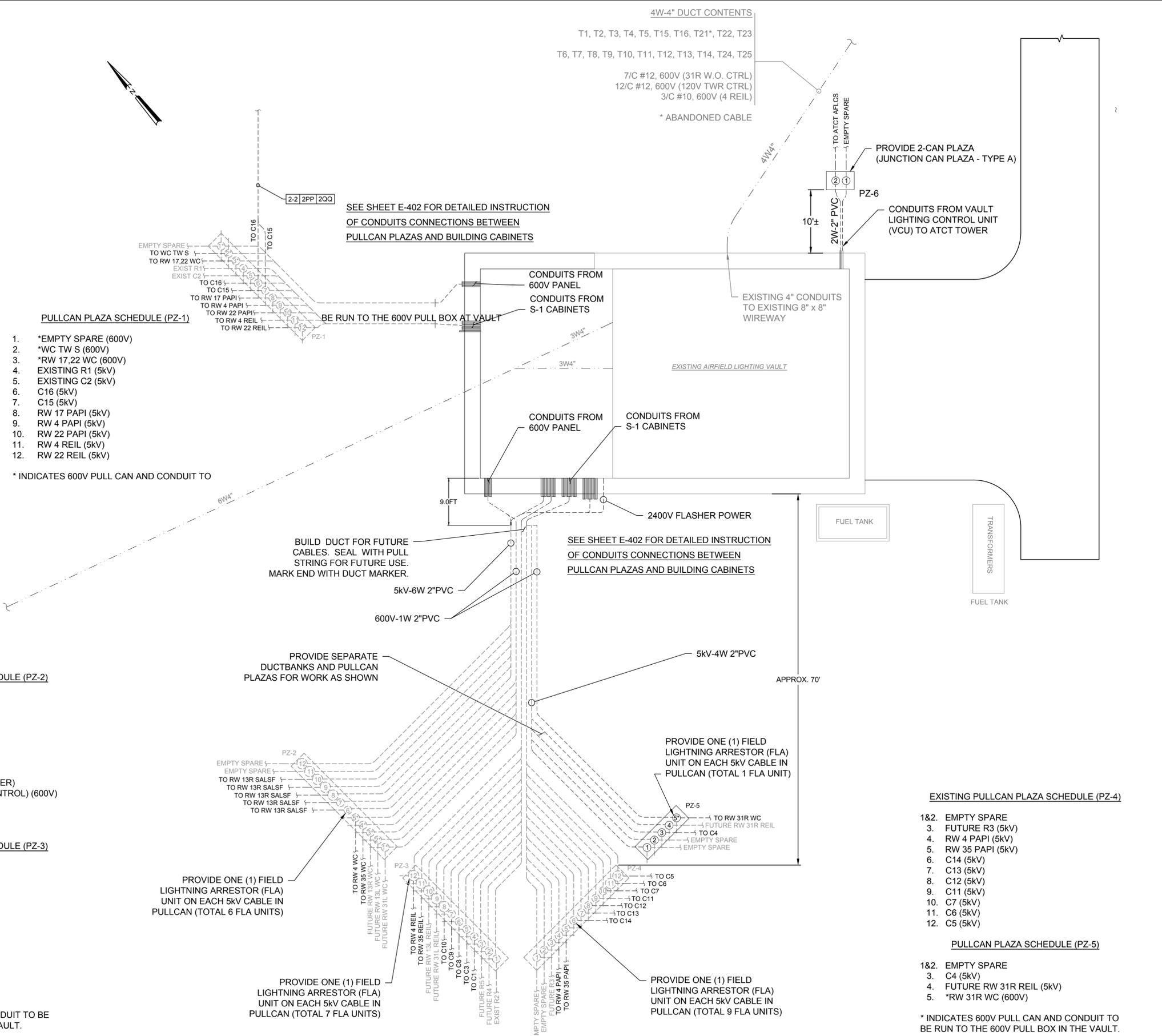
KEYED NOTES:

- 1. REMOVE EXISTING 4.16KV CABLES FROM SW-1A TO EXISTING MANHOLE AND REPLACE WITH NEW CABLE. REFER TO ES110 FOR NEW CABLE ROUTING AND E-601 FOR NEW CABLE SIZE..
- 2. REMOVE EXISTING 225KVA TRANSFORMER AND 480V SERVICE FEEDER. REFER TO ED111.

	DATE 6 NOV 2015
	ISSUED FOR BID
	0
	DESCRIPTION
APPROVED FOR COMMANDER NAVFAC	
ACTIVITY	
SATISFACTORY TO DATE	
DES DS	DRW NJS
PM / DM	CHK DWM
BRANCH MANAGER	
CHIEF ENG / ARCH	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVAL AIR STATION JACKSONVILLE NAS CORPUS CHRISTI, TEXAS CORPUS CHRISTI AIRFIELD REPAIRS AIRFIELD LIGHTING VAULT DEMOLITION AIRFIELD PRIMARY DIST. SINGLE-LINE	
SCALE: AS NOTED	
EPROJCT NO.:	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 15095101	
SHEET 31 OF 54	
ED601	
DRAWFORM REVISION: 5 APRIL 2012	

N:\1407204 CAD\03a-vaan\135163-E-ES101.dwg, ES101, 11/6/2015 1:53:39 PM, mrm
 FILE NAME: N:\1407204 CAD\03a-vaan\135163-E-ES101.dwg LAYOUT NAME: ES101 PLOTTED: Friday, November 06, 2015 1:54pm USER: mrm

- DUCTBANK NOTES**
- SEPARATE LOW VOLTAGE ($\leq 600V$) FROM HIGHER VOLTAGE CABLES ($> 600V - 5,000V$). SEPARATE POWER CABLES FROM CONTROL, TELEPHONE, AND COAXIAL TYPE CABLES.
 - 600V AND 5,000V POWER CABLES SHOULD BE PLACED IN SEPARATE DUCT, OR SEPARATED MINIMUM 4" IF DIRECT BURIED IN TRENCH.
 - POWER CABLES OF MORE THAN 5,000V MUST BE SEPARATED FROM THE OTHER CABLES BY MINIMUM 12".
 - POWER CABLES SHOULD BE IN SEPARATE DUCT BANK FROM THE CONTROL, TELEPHONE AND COAXIAL TYPE CABLES, OR SEPARATED MINIMUM 6" IF EITHER IS DIRECT BURIED.
 - IF CABLES ARE PLACED AT MORE THAN ONE LEVEL, THE MINIMUM VERTICAL SEPARATION SHOULD BE THE SAME AS THE MINIMUM HORIZONTAL SEPARATION. DO NOT DIRECTLY OVERLAP CABLES, IN ORDER TO AVOID DAMAGE DURING COMPACTION.
 - WHERE ROCK EXCAVATION IS ENCOUNTERED, PROVIDE CABLE IN DUCT. REMOVE ROCK TO DEPTH OF AT LEAST 3" BELOW REQUIRED DEPTH OF DUCT, AND USE ADEQUATE BEDDING MATERIAL TO PROVIDE UNIFORM SUPPORT ALONG ENTIRE LENGTH.
 - FOR DUCT BANKS, USE INTERLOCKING DUCT SPACERS AT NOT MORE THAN 5' TO ENSURE UNIFORM SPACING BETWEEN DUCTS AND TO HOLD DUCT IN PLACE WHEN CONCRETE ENCASING. STAGGER JOINTS IN ADJACENT DUCT AT LEAST 2'.
 - SLOPE DUCT LINES WHERE PRACTICAL FOR DRAINAGE TOWARD MANHOLES/HANDHOLES, OR DUCT ENDS.
 - PROVIDE GROUND BUSHINGS WHERE RIGID CONDUITS ENTER OR LEAVE A MANHOLE.
 - USE 36" RADIUS SWEEPS FOR 2" AIRFIELD LIGHTING CABLE DUCTS BETWEEN VAULT AND PULLCAN PLAZAS.
 - FIELD LOCATE PULL CAN PLAZAS PZ-2, PZ-3 AND PZ-4.



- PULLCAN PLAZA SCHEDULE (PZ-1)**
- *EMPTY SPARE (600V)
 - *WC TW S (600V)
 - *RW 17.22 WC (600V)
 - EXISTING R1 (5kV)
 - EXISTING C2 (5kV)
 - C16 (5kV)
 - C15 (5kV)
 - RW 17 PAPI (5kV)
 - RW 4 PAPI (5kV)
 - RW 22 PAPI (5kV)
 - RW 4 REIL (5kV)
 - RW 22 REIL (5kV)
- * INDICATES 600V PULL CAN AND CONDUIT TO BE RUN TO THE 600V PULL BOX AT VAULT

- EXISTING PULLCAN PLAZA SCHEDULE (PZ-2)**
- *FUTURE RW 31L WC (600V)
 - *FUTURE RW 13L WC (600V)
 - *FUTURE RW 13R WC (600V)
 - *RW 35 WC (600V)
 - *RW 4 WC (600V)
 - RW 13R SALSF (CIRCUIT A)
 - RW 13R SALSF (CIRCUIT B)
 - RW 13R SALSF (CIRCUIT C)
 - RW 13R SALSF (FLASHER POWER)
 - *RW 13R SALSF (FLASHER CONTROL) (600V)
 - EMPTY SPARE
 - EMPTY SPARE

- EXISTING PULLCAN PLAZA SCHEDULE (PZ-3)**
- EXISTING R2 (5kV)
 - FUTURE R4 (5kV)
 - FUTURE R5 (5kV)
 - C1 (5kV)
 - C3 (5kV)
 - C8 (5kV)
 - C9 (5kV)
 - C10 (5kV)
 - FUTURE RW 31L REIL (5kV)
 - FUTURE RW 13L REIL (5kV)
 - RW 35 REIL (5kV)
 - RW 4 REIL (5kV)
- * INDICATES 600V PULL CAN AND CONDUIT TO BE RUN TO THE 600V PULL BOX IN THE VAULT.

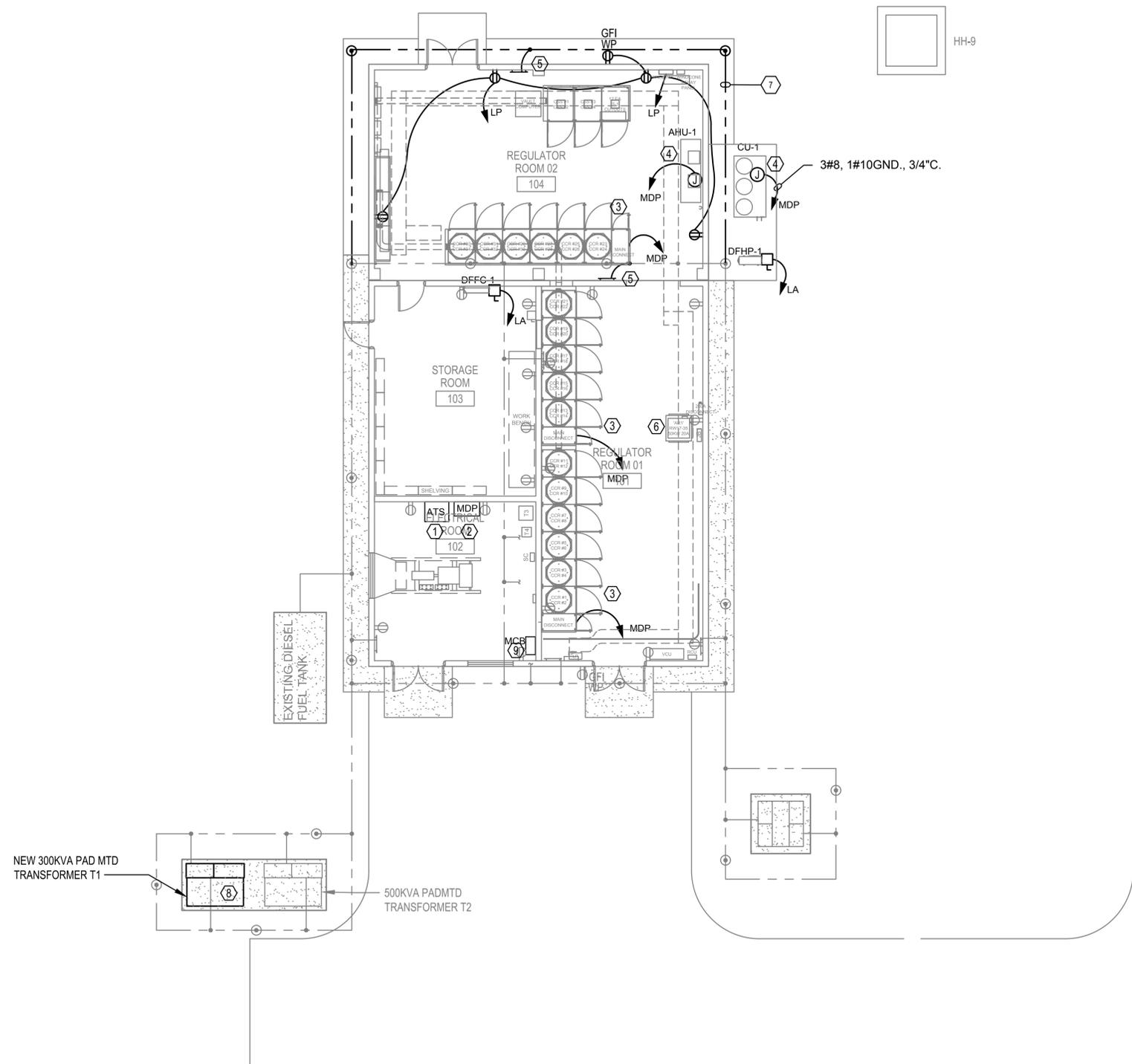
- EXISTING PULLCAN PLAZA SCHEDULE (PZ-4)**
- EMPTY SPARE
 - FUTURE R3 (5kV)
 - RW 4 PAPI (5kV)
 - RW 35 PAPI (5kV)
 - C14 (5kV)
 - C13 (5kV)
 - C12 (5kV)
 - C11 (5kV)
 - C7 (5kV)
 - C6 (5kV)
 - C5 (5kV)

- PULLCAN PLAZA SCHEDULE (PZ-5)**
- EMPTY SPARE
 - C4 (5kV)
 - FUTURE RW 31R REIL (5kV)
 - *RW 31R WC (600V)
- * INDICATES 600V PULL CAN AND CONDUIT TO BE RUN TO THE 600V PULL BOX IN THE VAULT.

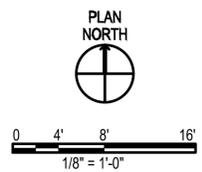
1 AIRFIELD VAULT DUCTBANK PLAN
 SCALE: NTS

DATE	6 NOV 15
ISSUED FOR BID	0
DESCRIPTION	
<small>LEIDOS ENGINEERING, LLC ONE WEST 3RD ST. TULSA, OK 74103</small>	
<small>9711 Foster Court, Suite 100 Richmond, Virginia 23234 phone: (804) 275-8301 • fax: (804) 275-8371 www.deltairport.com</small>	
<small>Delta Project No. 14072 A&B&C</small>	
APPROVED	
FOR COMMANDER NAVFAC	
ACTIVITY	
SATISFACTORY TO DATE	
DES	DAB DRW DAB CHK JMM
PROJECT MANAGER	
IP/T TECH. BRANCH HEAD	
CHIEF ENGINEER (CORE)	
NAVAL FACILITIES ENGINEERING COMMAND NAVAL FACILITIES ENGINEERING COMMAND SOUTHEAST <small>NAVAL AIR STATION JACKSONVILLE</small> CORPUS CHRISTI, TEXAS NAS CORPUS CHRISTI AIRFIELD LIGHTING VAULT AIRFIELD VAULT DUCTBANK PLAN	
SCALE:	NTS
PROJECT NO.:	15095103
CONSTR. CONTR. NO.:	
NAVFAC DRAWING NO.:	15095103
SHEET	33 of 54
ES101	
<small>DRAWING REVISION: 5 APRIL 2012</small>	

FILE NAME: P:\FBY\1641-9KVA-2051134800-NAS_Corpus_Chrsti_Airfield_Repairs\20_DESIGN\0_CAD\134800-EP101.dwg LAYOUT NAME: EP101 PLOTTED: Thursday, November 05, 2015 - 11:34am USER: tabern



1 VAULT POWER PLAN
1/8"=1'-0"



GENERAL NOTES:

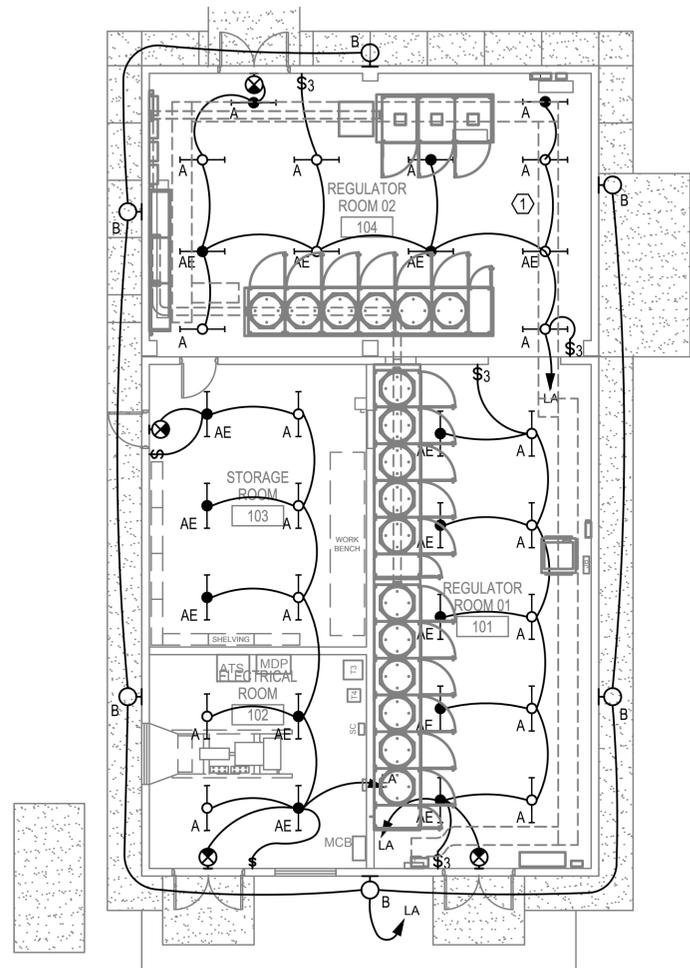
- ALL ELECTRICAL WORK SHALL BE PER NEC AND ALL LOCAL APPLICABLE CODES AND ORDINANCES.
- NEW WORK IS INDICATED BY BOLD LINEWEIGHT. EXISTING WORK TO REMAIN IS INDICATED BY SCREENED LINEWEIGHT.
- ALL CIRCUITS SHALL HAVE NEUTRAL (EXCEPT 3W, 3PH.), AND GROUND CONDUCTORS AND THESE SHALL NOT BE SHARED WITH OTHER CIRCUITS. ALL SINGLE PHASE BRANCH (LINE TO NEUTRAL LOADS) CIRCUITS SHALL HAVE SEPARATE NEUTRAL. NEUTRALS SHALL NOT BE SHARED AS IN MULTI-WIRE CIRCUITS. ALL GROUND CONDUCTORS SHALL BE INSULATED AND COLOR CODED GREEN.
- OPENINGS AROUND ELECTRICAL PENETRATIONS THROUGH FIRE RESISTANT RATED WALLS, PARTITIONS, FLOOR OR CEILINGS SHALL BE FIRE STOPPED TO MAINTAIN THE FIRE RESISTANT RATING.
- CIRCUIT DIRECTORY: ALL CIRCUITS AND CIRCUIT MODIFICATIONS SHALL BE LEGIBLY IDENTIFIED AS TO PURPOSE OR USE ON A NEW CIRCUIT DIRECTORY LOCATED ON THE INSIDE OF THE PANEL DOOR. AT THIS FACILITY LABELING COMPLYING WITH NEC 2011 SHALL BE STRICTLY ADHERED TO.
- FIELD VERIFY ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS BEFORE STARTING WORK.
- PROTECT ALL FINISHED FLOORS, WALLS, CEILINGS AND EQUIPMENT SCHEDULED TO REMAIN. PATCH AND REPAIR ALL ELEMENTS THAT ARE DAMAGED FROM CONSTRUCTION ACTIVITIES.
- NOTIFY THE CONTRACTING OFFICER OF ANY VARIANCE BETWEEN THE DRAWINGS AND EXISTING FIELD CONDITIONS.
- ALL UTILITIES TO THE VAULT MUST BE MAINTAINED DURING CONSTRUCTION. ANY INTERRUPTION OF UTILITIES MUST BE PLANNED IN ADVANCE AND APPROVED BY THE AIRFIELD MANAGER..

KEYED NOTES:

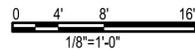
- NEW AUTOMATIC TRANSFER SWITCH (ATS) WITH BYPASS
- NEW MAIN DISTRIBUTION PANEL (MDP).
- LIGHTING CONTROL EQUIPMENT. REFER TO E-601 FOR POWER SOURCE OF THIS EQUIPMENT AND E-402, 403, E-404 FOR SEQUENCE OF INSTALLATION AND ADDITIONAL INFORMATION.
- NEW HVAC EQUIPMENT.
- NEW GROUNDING BUS BAR CONNECT TO GROUNDING GRID.
- EXISTING REGULATOR "AR1" TO REMAIN. RECONNECT TO NEW MDP.
- NEW GROUNDING LOOP EXTENSION CONSISTING OF #4/0 BARE CONDUCTORS AND 3/4"x10' GROUND RODS.
- NEW PADMOUNTED TRANSFORMER.
- NEW MAIN CIRCUIT BREAKER MCP.

DATE	6 NOV 2015
ISSUED FOR BID	0
DESCRIPTION	
DATE	
DESCRIPTION	
APPROVED FOR COMMANDER NAVFAC ACTIVITY SATISFACTORY TO DATE DES DS DRW NJS CHK DWM PM / DM BRANCH MANAGER CHIEF ENG / ARCH FIRE PROTECTION	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND SOUTHEAST NAVAL AIR STATION JACKSONVILLE CBL CORE NAS CORPUS CHRISTI, TEXAS NAS CORPUS CHRISTI AIRFIELD REPAIRS AIRFIELD LIGHTING VAULT ELECTRICAL POWER VAULT PLANS	
SCALE:	AS NOTED
PROJECT NO.:	15095105
CONSTR. CONTR. NO.:	
NAVFAC DRAWING NO.:	15095105
SHEET	35 OF 54
EP101 <small>DRAWFORM REVISION: 5 APRIL 2012</small>	

FILE NAME: P:\FBI\1641-9K\AE\2051\34800_NAS_Corpus_Christi_Airfield_Repair\20_DESIGN\40_GAD\1\34800-EL101.dwg LAYOUT NAME: EL101 PLOTTED: Thursday, November 05, 2015 11:34am USER: tabern



1 NEW VAULT LIGHTING PLAN
1/8"=1'-0"



GENERAL NOTES:

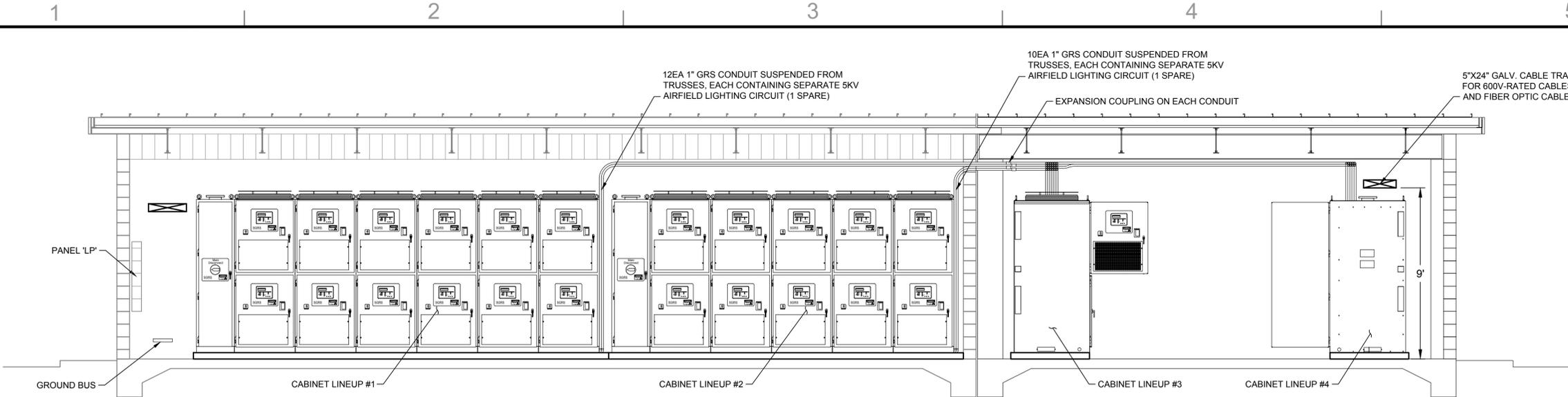
- A. ALL ELECTRICAL WORK SHALL BE PER NEC AND ALL LOCAL APPLICABLE CODES AND ORDINANCES.
- B. NEW WORK IS INDICATED BY BOLD LINEWEIGHT. EXISTING WORK TO REMAIN IS INDICATED BY SCREENED LINEWEIGHT.
- C. ALL CIRCUITS SHALL HAVE NEUTRAL (EXCEPT 3W, 3PH.), AND GROUND CONDUCTORS AND THESE SHALL NOT BE SHARED WITH OTHER CIRCUITS. ALL SINGLE PHASE BRANCH (LINE TO NEUTRAL LOADS) CIRCUITS SHALL HAVE SEPARATE NEUTRAL. NEUTRALS SHALL NOT BE SHARED AS IN MULTI-WIRE CIRCUITS. ALL GROUND CONDUCTORS SHALL BE INSULATED AND COLOR CODED GREEN.
- D. OPENINGS AROUND ELECTRICAL PENETRATIONS THROUGH FIRE RESISTANT RATED WALLS, PARTITIONS, FLOOR OR CEILINGS SHALL BE FIRE STOPPED TO MAINTAIN THE FIRE RESISTANT RATING.
- E. THE EMERGENCY FIXTURE BATTERY PACKS ARE TO BE UN-SWITCHED. AN UN-SWITCHED LIGHTING CIRCUIT PHASE CONDUCTOR SHALL BE PROVIDED AND INSTALLED TO SERVE SELF-CONTAINED EMERGENCY BATTERY PACKS IN NEW FIXTURES. THIS UN-SWITCHED PHASE CONDUCTOR SHALL BE ON THE SAME LIGHTING BRANCH CIRCUIT SERVING SWITCHED LAMPS. THE EMERGENCY BATTERY PACKS SHALL ONLY ENERGIZE DESIGNATED FIXTURE LAMPS WHEN THE LIGHTING BRANCH CIRCUIT IS DE-ENERGIZED. THE EXIT LIGHTS SHALL BE PERMANENTLY ENERGIZED, WITH THEIR INTEGRAL EMERGENCY BATTERY PACK ONLY ON ENERGIZING THE EXIT LIGHT WHEN THE LIGHTING BRANCH CIRCUIT TO WHICH IT IS CONNECTED IS DE-ENERGIZED.
- F. CIRCUIT DIRECTORY: ALL CIRCUITS AND CIRCUIT MODIFICATIONS SHALL BE LEGIBLY IDENTIFIED AS TO PURPOSE OR USE ON A NEW CIRCUIT DIRECTORY LOCATED ON THE INSIDE OF THE PANEL DOOR. AT THIS FACILITY LABELING COMPLYING WITH NEC SHALL BE STRICTLY ADHERED TO.
- G. FIELD VERIFY ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS BEFORE STARTING WORK.
- H. PROTECT ALL FINISHED FLOORS, WALLS, CEILINGS AND EQUIPMENT SCHEDULED TO REMAIN. PATCH AND REPAIR ALL ELEMENTS THAT ARE DAMAGED FROM CONSTRUCTION ACTIVITIES.
- I. NOTIFY THE CONTRACTING OFFICER OF ANY VARIANCE BETWEEN THE DRAWINGS AND EXISTING FIELD CONDITIONS.
- J. ALL UTILITIES TO THE VAULT MUST BE MAINTAINED DURING CONSTRUCTION. ANY INTERRUPTION OF UTILITIES MUST BE PLANNED IN ADVANCE AND APPROVED BY THE AIRFIELD MANAGER.

KEYED NOTES:

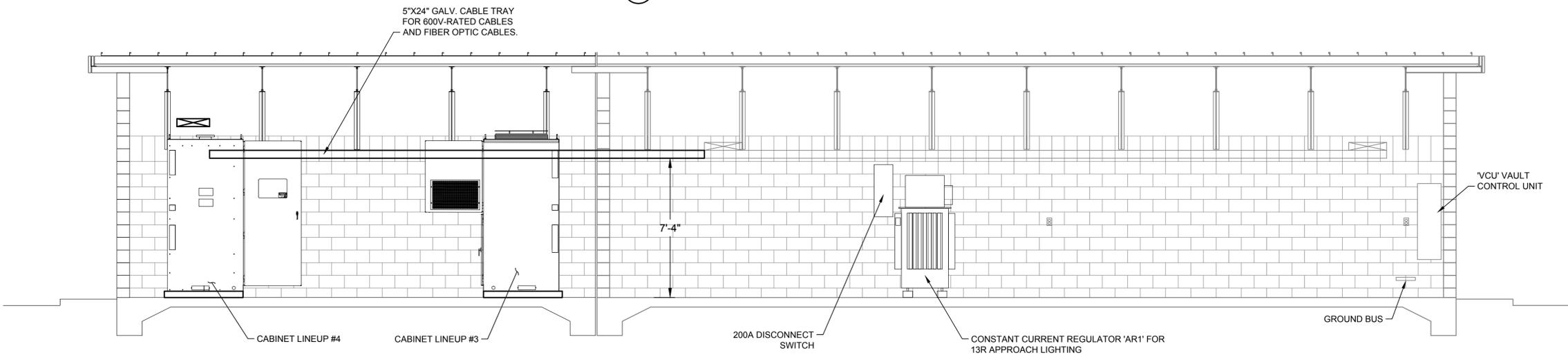
- 1. COORDINATE MOUTING OF FIXTURES WITH LOCATION OF CABLES TRAYS.

	DATE 6 NOV 2015
	ISSUED FOR BID
   	
APPROVED FOR COMMANDER NAVFAC ACTIVITY	
SATISFACTORY TO DATE DES DS DRW NJS CHK DMW	
BRANCH MANAGER CHIEF ENG / ARCH FIRE PROTECTION	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND SOUTHEAST NAVAL AIR STATION JACKSONVILLE CIBL CORE NAS CORPUS CHRISTI, TEXAS NAS CORPUS CHRISTI AIRFIELD REPAIRS AIRFIELD LIGHTING VAULT ELECTRICAL LIGHTING VAULT PLANS	
SCALE: AS NOTED PROJECT NO.: CONSTR. CONTR. NO.:	
NAVFAC DRAWING NO. 15095106 SHEET 36 OF 54 EL101 <small>DRAWFORM REVISION: 5 APRIL 2012</small>	

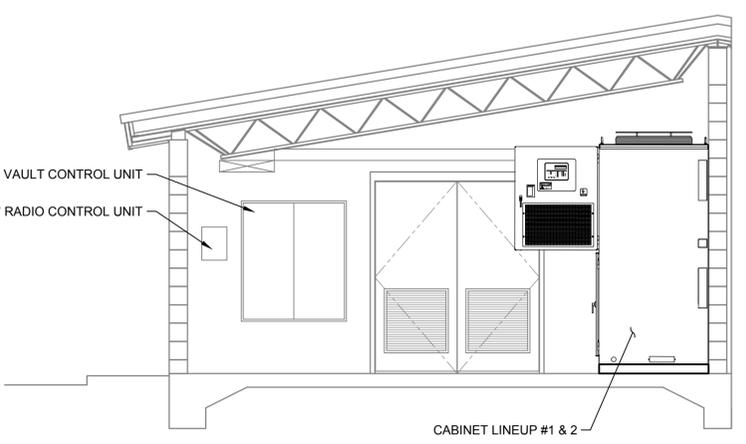
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1 WEST WALL, REGULATOR ROOM #1
 SCALE: NTS

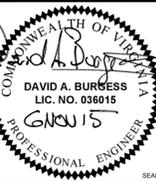


2 EAST WALL, REGULATOR ROOMS 1 & 2
 SCALE: NTS



3 SOUTHWALL, REGULATOR ROOM #1
 SCALE: NTS

DATE	6 NOV 15	APPR.
DESCRIPTION	ISSUED FOR BID	DATE
DESCRIPTION	0	DATE

leidos
 LEIDOS ENGINEERING, LLC
 ONE WEST 3RD ST.
 TULSA, OK 74103

DELTA AIRPORT CONSULTANTS, INC.
 9711 Foster Court, Suite 100
 Richmond, Virginia 23234
 phone: (804) 275-8301 • fax: (804) 275-8371
 www.deltairport.com
 Delta Project No. 14072 A-E-NP

APPROVED FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES DAB | DRW DAB | CHK JMM

PROJECT MANAGER

IPT TECH BRANCH HEAD

CHIEF ENGINEER (CORE)

DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND
 NAVAL FACILITIES ENGINEERING COMMAND SOUTHEAST
 NAVAL AIR STATION JACKSONVILLE
 CIBL CORE
 NAS CORPUS CHRISTI
 NAS CORPUS CHRISTI AIRFIELD REPAIRS
 AIRFIELD LIGHTING VAULT
 INTERIOR ELEVATIONS

SCALE: NTS

PROJECT NO:

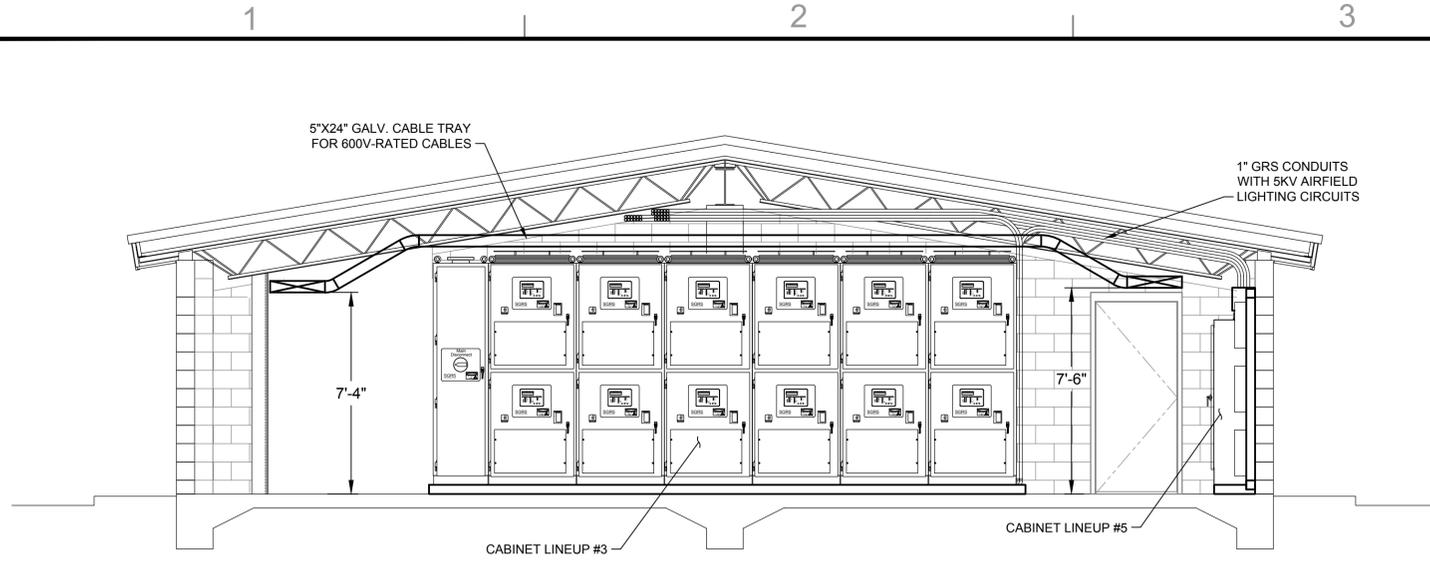
CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 15095108

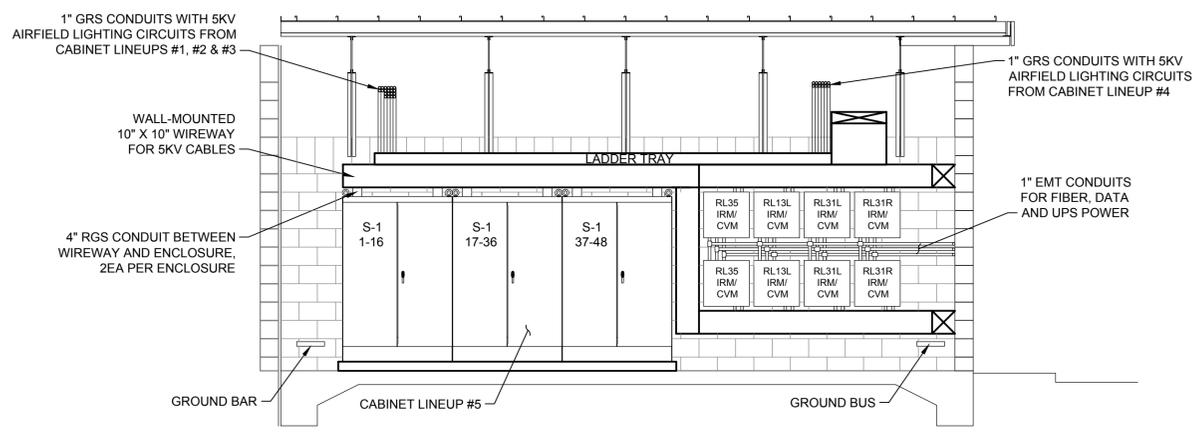
SHEET 38 OF 54

E-200

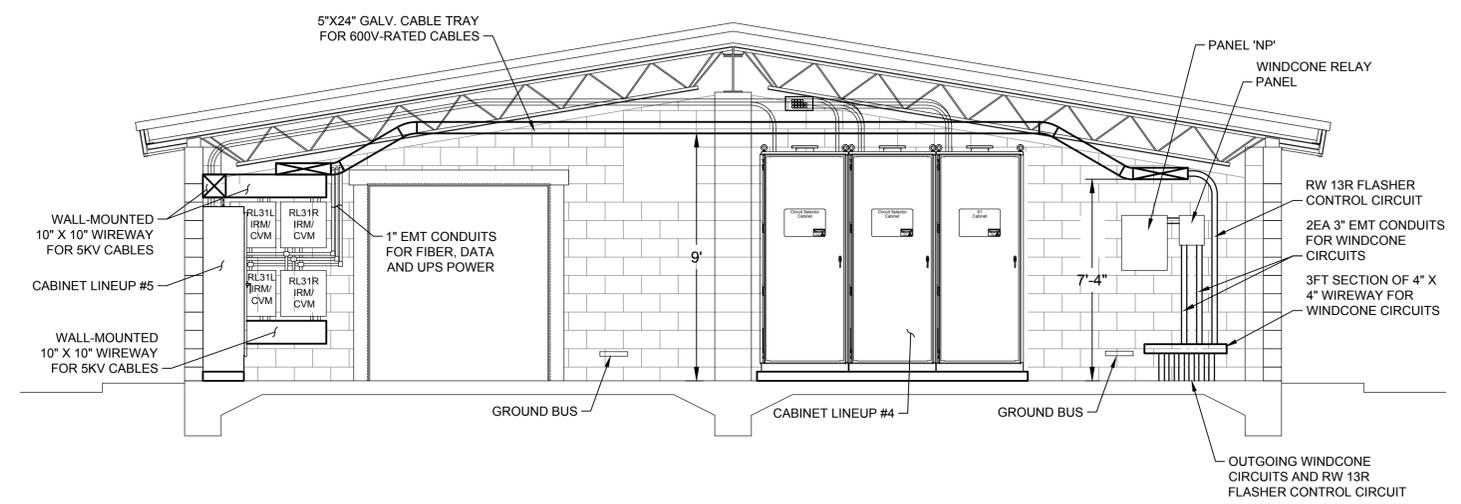
DRAWFORM REVISION: 5 APRIL 2012



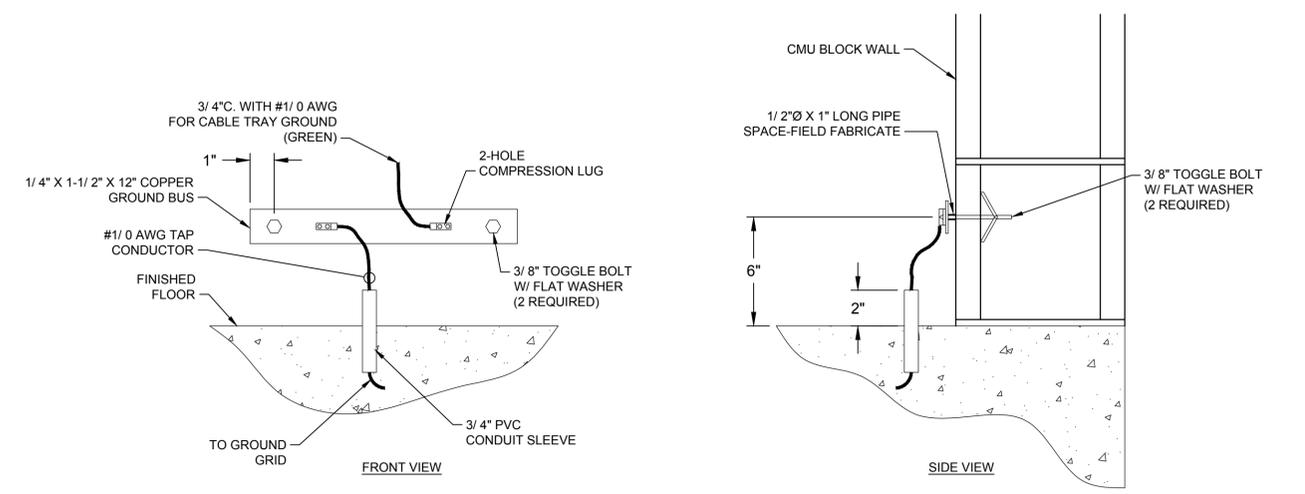
1 SOUTH WALL, REGULATOR ROOM #2
SCALE: NTS



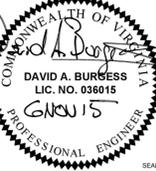
2 WEST WALL, REGULATOR ROOM #2
SCALE: NTS



3 NORTH WALL, REGULATOR ROOM #2
SCALE: NTS



4 GROUND BUS DETAIL
SCALE: NTS

DATE	6 NOV 15	APPR.
ISSUED FOR BID	0	DESCRIPTION
    Delta Project No. 14072 A&S&P		
APPROVED		
FOR COMMANDER NAVFAC		
ACTIVITY		
SATISFACTORY TO DATE		
DES	DAB	DRW DAB CHK JMM
PROJECT MANAGER		
IP/T TECH BRANCH HEAD		
CHIEF ENGINEER (CORE)		
DEPARTMENT OF THE NAVY	NAVAL FACILITIES ENGINEERING COMMAND	
NAVAL FACILITIES ENGINEERING COMMAND SOUTHEAST	NAVAL AIR STATION JACKSONVILLE	
CIBL CORE	CORPUS CHRISTI, TEXAS	
NAS CORPUS CHRISTI	AIRFIELD LIGHTING VAULT	
	INTERIOR ELEVATIONS	
SCALE:	NTS	
PROJECT NO.:	15095109	
CONSTR. CONTR. NO.		
NAVFAC DRAWING NO.	15095109	
SHEET	39	OF 54
E-201		
DRAWFORM REVISION: 5 APRIL 2012		

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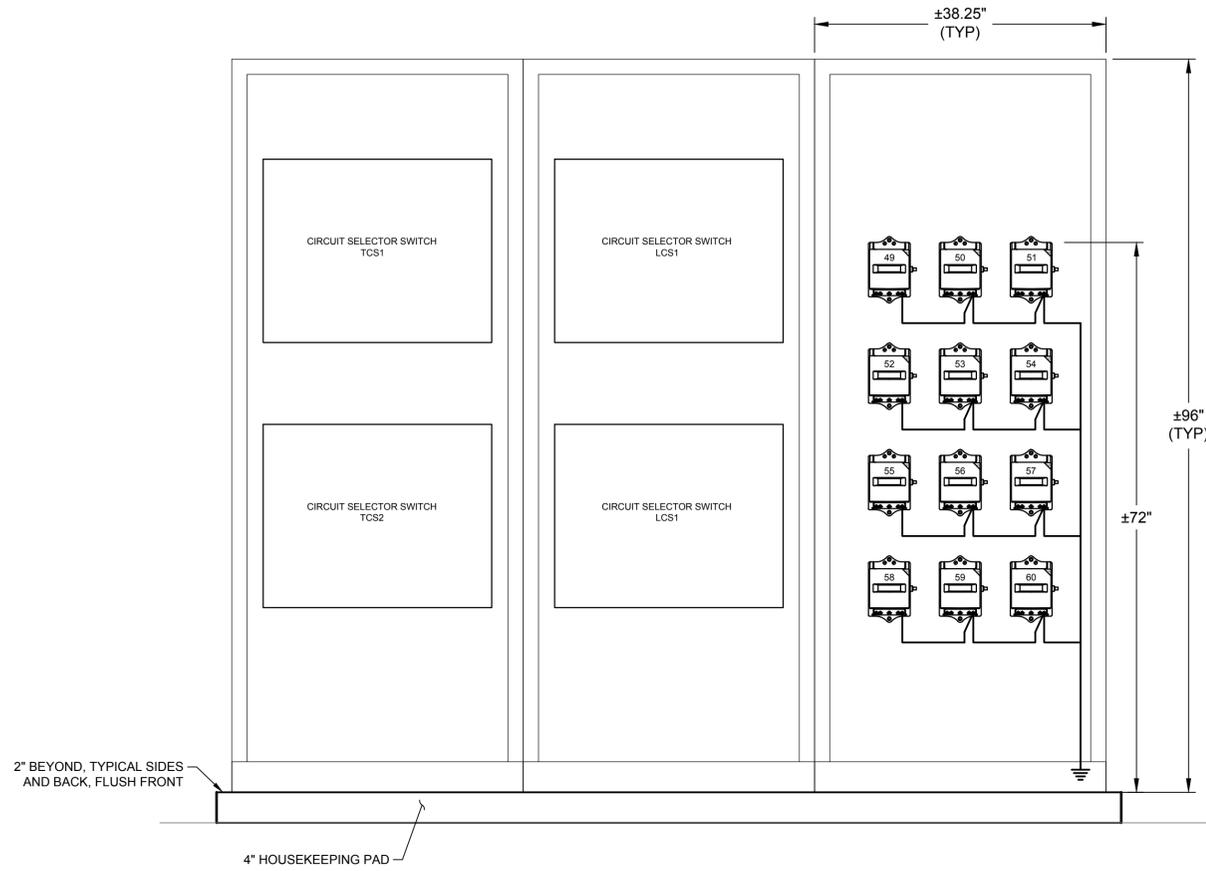
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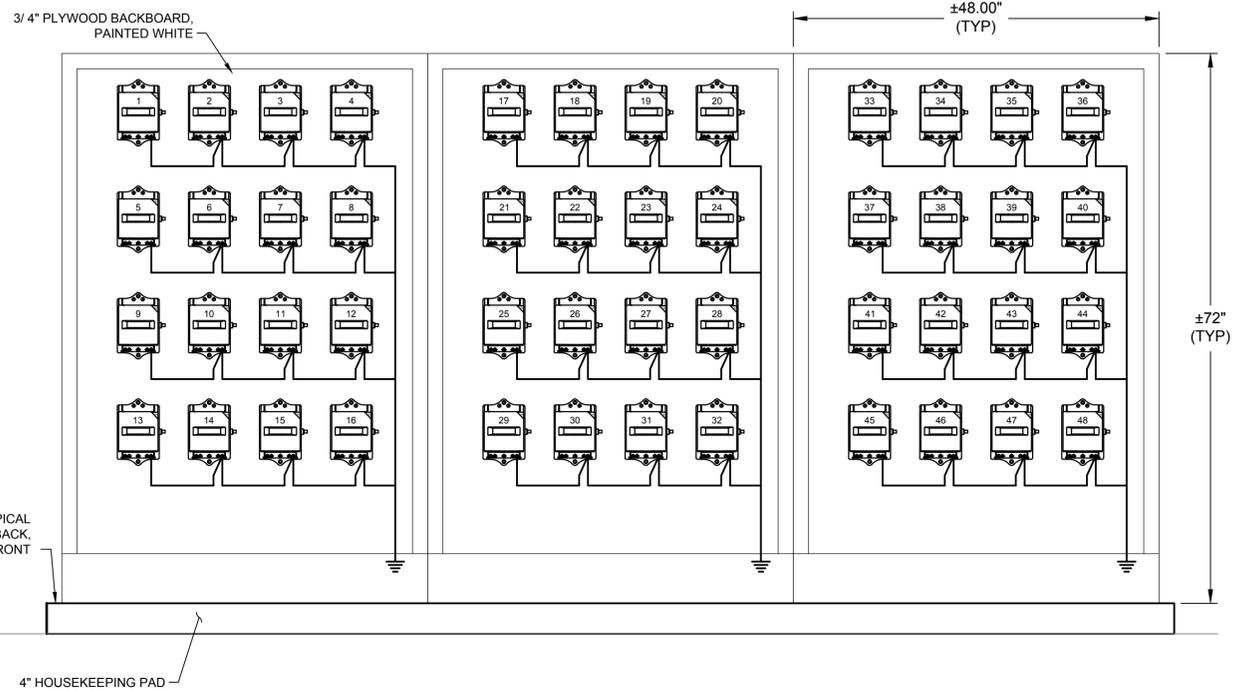
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1 CABINET LINEUP #4
SCALE: NTS

CABINET #4 NOTES:

1. SAFETY CUTOUT ENCLOSURE CABINETS MUST COMPLY WITH THE FOLLOWING SPECIFICATIONS:
 - 1.1. ±48\" DEEP.
 - 1.2. INDUSTRIAL TYPE ENCLOSURE SIMILAR TO CABINET REGULATOR ENCLOSURE.
 - 1.3. PROTECTED AGAINST DUST, DIRT, DRIPPING WATER, AND EXTERNAL CONDENSATION OF NON-CORROSIVE LIQUIDS.
 - 1.4. MUST INCLUDE AN EXHAUST FAN AND VENTILATION KIT FOR PROPER CONVECTION COOLING.
 - 1.5. ENCLOSURE DOORS MUST HAVE KEYED LOCKS.
 - 1.6. DOORS NOT SHOWN FOR CLARITY. THE DOORS MUST HAVE A THREE-POINT LATCHING SYSTEM.
2. APPLY ADHESIVE REFERENCE LABELS TO S-1 CUTOUTS AS SHOWN.
3. BOND GROUND CUTOUT GROUNDS AND ENCLOSURE TO COMMON GROUND. BOND EQUIPMENT GROUND TO FACILITY GROUND WITH #6 AWG EQUIPMENT GROUND CONDUCTOR.

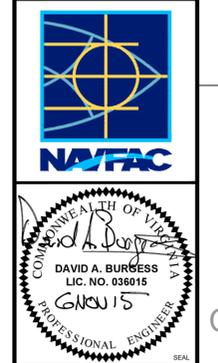


2 CABINET LINEUP #5
SCALE: NTS

CABINET #5 NOTES:

1. SAFETY CUTOUT ENCLOSURE CABINETS MUST COMPLY WITH THE FOLLOWING SPECIFICATIONS:
 - 1.1. 18\" DEEP.
 - 1.2. NEMA TYPE 12 ENCLOSURE.
 - 1.3. 12 GAUGE STEEL.
 - 1.4. SEAMS CONTINUOUSLY WELDED AND GROUND SMOOTH, NO HOLES OR KNOCKOUTS.
 - 1.5. STIFFENERS ON BACK OF MAINTAIN FLATNESS AND INCREASE RIGIDITY.
 - 1.6. LIFTING EYES.
 - 1.7. 3-POINT LATCHES OPERATED BY OIL-TIGHT KEY-LOCKING HANDLE.
 - 1.8. LATCH ROD ROLLERS FOR EASY DOOR OPENING.
 - 1.9. CONCEALED, EASY-TO-REMOVE HINGES.
 - 1.10. INTERNAL MOUNTING CHANNELS WELDED HORIZONTALLY AT SIDES, AT TOP, BOTTOM, AND CENTER.
 - 1.11. MOUNT ANGLES TO TO SUPPORT PLYWOOD BACKBOARD.
 - 1.12. OIL-RESISTANT DOOR GASKET.
 - 1.13. BONDING PROVISION ON DOOR.
2. APPLY ADHESIVE REFERENCE LABELS TO S-1 CUTOUTS AS SHOWN.
3. PROVIDE 3/4\" PLYWOOD BACKBOARD FOR MOUNTING OF S-1 CUTOUTS AND CABLES. PROVIDE ON ANGLES PROVIDED WITH ENCLOSURE. PROVIDE CABLES IN A NEAT AND ORDERLY APPEARANCE USING CABLE TIES FASTENED TO THE BACKBOARD.
4. BOND GROUND CUTOUT GROUNDS AND ENCLOSURE TO COMMON GROUND. BOND EQUIPMENT GROUND TO FACILITY GROUND WITH #6 AWG EQUIPMENT GROUND CONDUCTOR.

DATE	6 NOV 15
ISSUED FOR BID	0
DESCRIPTION	



APPROVED	
FOR COMMANDER NAVFAC	
ACTIVITY	
SATISFACTORY TO DATE	
DES	DAB DRW DAB CHK JMM
PROJECT MANAGER	
IP/T TECH BRANCH HEAD	
CHIEF ENGINEER (CORE)	

DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND
 NAVAL AIR STATION JACKSONVILLE
 CIBL CORE
 NAS CORPUS CHRISTI
 NAS CORPUS CHRISTI, TEXAS
 CORPUS CHRISTI, TEXAS
 AIRFIELD LIGHTING VAULT
 S-1 CUTOUT CABINET DETAILS

SCALE: NTS
 PROJECT NO:
 CONSTR. CONTR. NO.
 NAVFAC DRAWING NO. 15095110
 SHEET 40 OF 54
E-202
 DRAWFORM REVISION: 5 APRIL 2012

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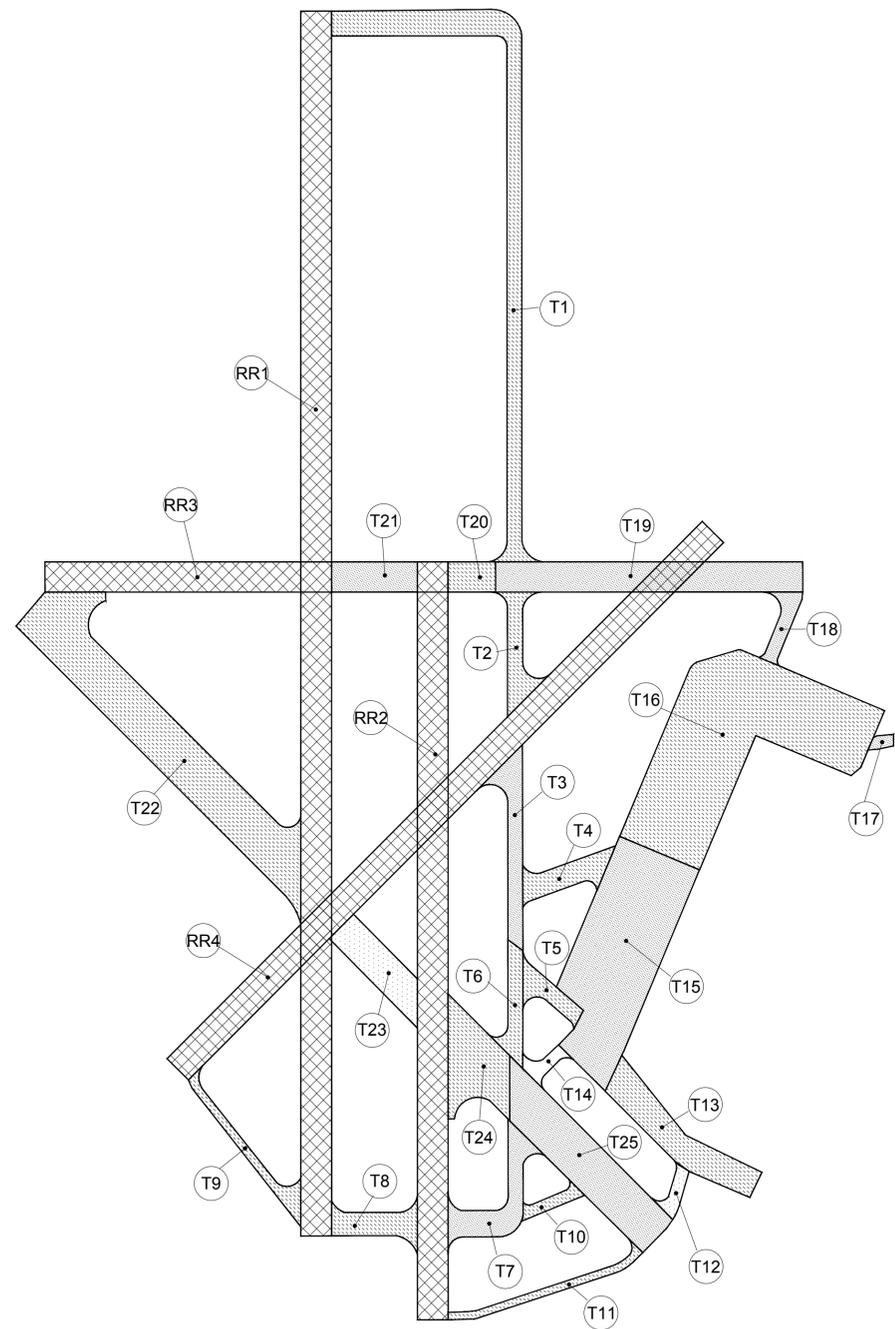
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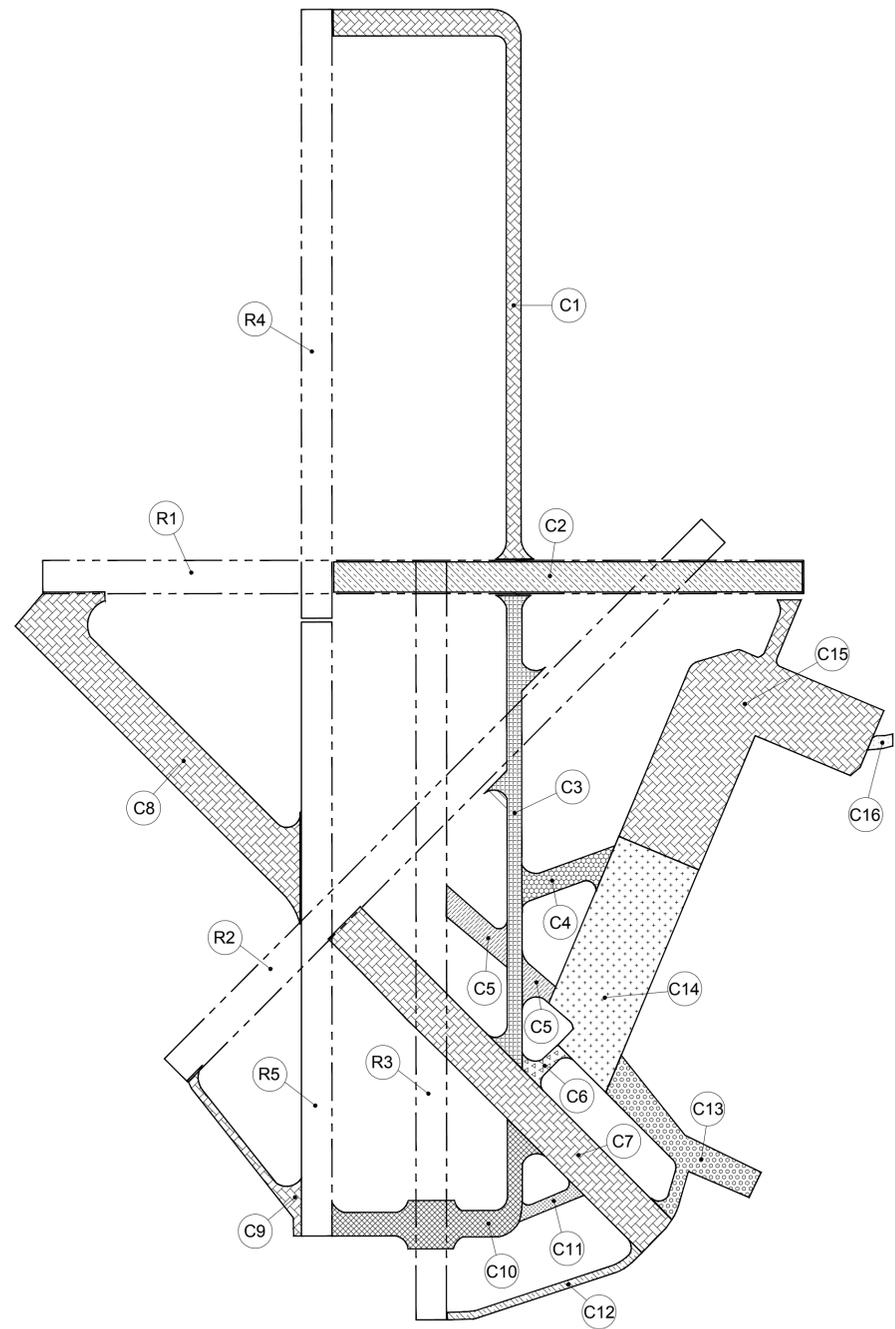
B

A



RR - 4 RUNWAY CIRCUITS ON 4 CONSTANT CURRENT REGULATORS (CCRs)
 T - 25 TAXIWAY CIRCUITS ON 3 CCRs & 7 CIRCUIT SELECTOR SWITCHES (CCSs)

1 EXISTING LIGHTING CONTROL ZONES
 SCALE: NTS



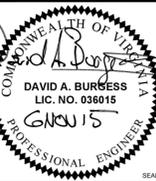
R - 5 RUNWAY CIRCUITS ON 5 CONSTANT CURRENT REGULATORS (CCRs)
 C - 16 TAXIWAY CIRCUITS ON 13 CCRs & 2 CIRCUIT SELECTOR SWITCHES (CCSs)

2 LIGHTING CONTROL ZONES
 SCALE: NTS

DATE

6 NOV 15

ISSUED FOR BID



APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES DAB | DRW DAB | CHK JMM

PROJECT MANAGER

IP/T TECH. BRANCH HEAD

CHIEF ENGINEER (CORE)

DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND
 NAVAL FACILITIES ENGINEERING SOUTHEAST
 NAVAL AIR STATION JACKSONVILLE
 CHIEF CORE
 NAS CORPUS CHRISTI
 NAS CORPUS CHRISTI, TEXAS
NAS CORPUS CHRISTI AIRFIELD REPAIRS
AIRFIELD LIGHTING VAULT
 LIGHTING CONTROL ZONES

SCALE: NTS

PROJECT NO:

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 15095111

SHEET 41 OF 54

E-400

DRAWFORM REVISION: 5 APRIL 2012

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EQUIPMENT SCHEDULE			
LABEL	DESCRIPTION	RATINGS	NOTES
1	CCR 'AR1', RW 13R APPROACH LIGHTS	50 KW, 20A, 480V INPUT, OIL-FILLED	
2	CCR 'RR-B', RW 17-35 EDGE LIGHTS	15 KW, 6.6A, 480V INPUT, DRY-TYPE	
3	CCR 'RR-A', RW 4-22 EDGE LIGHTS	15 KW, 6.6A, 480V INPUT, DRY-TYPE	
4	CCR 'RR2', RW 13L-31R EDGE LIGHTS	50 KW, 20A, 480V INPUT, OIL-FILLED	
5	CCR 'RR1', RW 13R-31L EDGE LIGHTS	70 KW, 20A, 480V INPUT, OIL-FILLED	
6	PULLBOX		
7	'LP', LIGHTING PANEL	120/240V, 225A, 1PH, 3W, MCB, NEMA 1	
8	CCR 'TR3', TW EDGE LIGHTS	20 KW, 20A, 480V INPUT, DRY-TYPE	
9	CCR 'TR2', TW EDGE LIGHTS	50 KW, 20A, 480V INPUT, OIL-FILLED	
10	CCR 'TR1', TW EDGE LIGHTS	50 KW, 20A, 480V INPUT, OIL-FILLED	
11	CCR 'TR5', SPARE	50 KW, 20A, 480V INPUT, OIL-FILLED	
12	CCR 'TR4', SPARE	20 KW, 20A, 480V INPUT, DRY-TYPE	
13	'JB1', JUNCTION BOX	WAVE-OFF CONTROL POWER	
14	'TCS-7', TW CIRCUIT SELECTOR SWITCH	4 CKT, 20A	
15	'TCS-6', TW CIRCUIT SELECTOR SWITCH	4 CKT, 20A	
16	'TCS-5', TW CIRCUIT SELECTOR SWITCH	4 CKT, 20A	
17	'TCS-4', TW CIRCUIT SELECTOR SWITCH	4 CKT, 20A	
18	'TCS-3', TW CIRCUIT SELECTOR SWITCH	4 CKT, 20A	
19	'TCS-2', TW CIRCUIT SELECTOR SWITCH	4 CKT, 20A	
20	'TCS-1', TW CIRCUIT SELECTOR SWITCH	4 CKT, 20A	
21	'VCU', VAULT CONTROL UNIT		
22	'RCU', RADIO CONTROLLER UNIT		
23	'MCB', MAIN CIRCUIT BREAKER		INCOMING POWER SHUTOFF
24	'MDP', MAIN DISTRIBUTION PANEL		
25	'LC', LIGHTING CONTACTOR		13R APPROACH STROBE LIGHT CONTACTOR
26	'T4', STEP-UP TRANSFORMER	25 KVA, 1 PH, 480 - 2.4KV	TRANSFORMER FOR 13R APPROACH STROBE LIGHTS

1 EQUIPMENT SCHEDULE
 SCALE: NTS

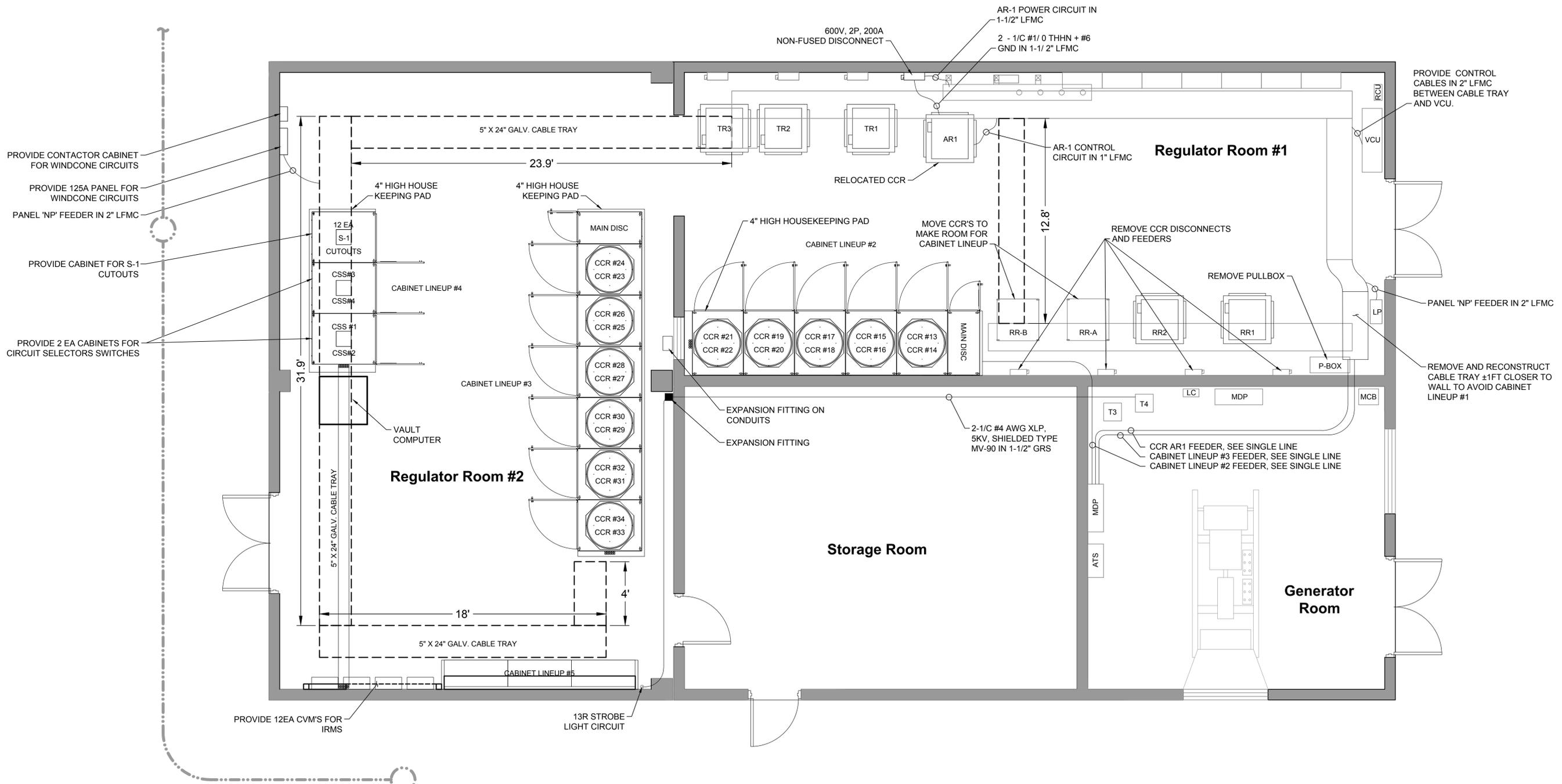


2 EXISTING VAULT EQUIPMENT LAYOUT
 SCALE: NTS

DATE	6 NOV 15	APPR.
ISSUED FOR BID	0	DESCRIPTION
APPROVED		
FOR COMMANDER NAVFAC		
ACTIVITY		
SATISFACTORY TO DATE		
DES	DAB	DRW DAB
CHK	JMM	
PROJECT MANAGER		
IP/T TECH. BRANCH HEAD		
CHIEF ENGINEER (CORE)		
DEPARTMENT OF THE NAVY	NAVAL FACILITIES ENGINEERING COMMAND	
NAVAL FACILITIES ENGINEERING COMMAND SOUTHEAST	NAVAL AIR STATION JACKSONVILLE	
CIBL CORE	CORPUS CHRISTI, TEXAS	
NAS CORPUS CHRISTI	AIRFIELD LIGHTING VAULT	
EXISTING EQUIPMENT LAYOUT		
SCALE:	NTS	
EPROJECT NO.:		
CONSTR. CONTR. NO.		
NAVFAC DRAWING NO.	15095112	
SHEET	42	OF 54
E-401		
DRAWFORM REVISION: 5 APRIL 2012		

Vault Construction Notes:

- STEP 2**
- 1. EQUIPMENT**
 - 1.1. RELOCATE CONSTANT CURRENT REGULATOR AR-1 TO OPPOSITE WALL.
 - 1.2. MOVE CCRs RR1, RR2, RR-A, AND RR-B CLOSER TOGETHER TO MAKE ROOM FOR HOUSEKEEPING PAD.
 - 1.3. REMOVE TWO WALL-MOUNT DISCONNECTS IN THE WAY OF CABINET LINEUP #2.
 - 1.4. PROVIDE HOUSEKEEPING PAD FOR CABINET LINEUP #2, #3 AND #4.
 - 1.5. PROVIDE S-1 CUTOUT CABINETS.
 - 1.6. PROVIDE WINDCONE POWER AND CONTACTOR PANELS.
 - 1.7. PROVIDE CABINET LINEUPS #2, #3, AND #4.
 - 2. POWER**
 - 2.1. REMOVE AND REPLACE CABLE TRAY OVER ENTRY DOOR CLOSER TO WALL.
 - 2.2. PROVIDE 5" X 24" GALVANIZED STEEL CABLE TRAY FOR 600V AND BELOW CABLES AND FIBER OPTIC CABLES
 - 3. CONTROL**
 - 3.1. REMOVE EXISTING AR-1 CONTROL CIRCUIT AND PROVIDE AR-1 CONTROL CIRCUIT TO LOCATION.
 - 3.2. PROVIDE VAULT COMPUTER.
 - 3.3. RUN CONTROL WIREWAY AND CABLES FROM VAULT COMPUTER TO CABINET LINEUPS #2, #3 #4, AND WALL-MOUNT IRMS DEVICES.
 - 3.4. RUN CONTROL WIREWAY AND CABLES FROM EXISTING 'VCU' TO CABINET LINEUPS #2, #3 AND #4.
 - 3.5. PROVIDE FIBER OPTIC CABLING FROM LINEUP #2 AND LINEUP #3 TO IRM/CVMs USING CABLE TRAY.
 - 3.6. PROVIDE DATA CABLING AND UPS POWER CABLING FROM VAULT COMPUTER CABINET TO IRM CVMs USING CABLE TRAY.
 - 4. AIRFIELD LIGHTING CABLE**
 - 4.1. DISCONNECT 2400V STROBE LIGHTING CABLE FROM TRANSFORMER 'T4' AND REMOVE CABLE FROM PULLBOX IN REGULATOR ROOM #1. PULL 2400V STROBE LIGHTING CABLE THROUGH CONDUIT AS SHOWN AND SPLICE TO EXISTING STROBE LIGHTING CIRCUIT OUTSIDE VAULT.
 - 4.2. PROVIDE 5KV CABLES IN 1" GRS CONDUITS FROM CABINET LINEUPS #2 & #3 TO THE CIRCUIT SELECTOR SWITCHES IN CABINET LINEUP #4 AND S-1 CUTOUTS IN CABINET LINEUP #5 AS REQUIRED. PROVIDE 5KV CABLES IN 1" GRS FROM CABINET LINEUP #4 (CIRCUIT SELECTOR SWITCHES) TO DCME/IRMS MODULES, AND FROM THE MODULES TO THE S-1 CUTOUTS.
 - 4.3. PROVIDE EXPANSION COUPLING ON CONDUIT WHERE CROSSING BUILDING CONSTRUCTION JOINT.
 - 5. TESTING**
 - 5.1. PREPARE TEST PLAN AND SUBMIT FOR APPROVAL NOT LESS THAN TWO WEEKS IN ADVANCE OF TESTING. TEST PLAN MUST INCLUDE: TYPE OF TEST, DATE & TIME OF TEST, LOCATION OF TEST, TEST STANDARDS & REFERENCES, TEST PROCEDURES, DIAGRAMS IF NECESSARY, NAME OF TESTER(S), TEST EQUIPMENT USED, REQUIRED PASSING RESULTS, AND SAFETY REQUIREMENTS.
 - 6. TEST CONTROL & POWER CABLES PER SPECIFICATION.**
 - 7. TEST CCRs AND MAIN DISCONNECT. TEST CCRs. TEST S-1 CUTOUTS. TEST RELAY PANEL.**
 - 8. TEST MONITORING OF CCRs.**
 - 9. TEST VCU OPERATION, TOWER AND PILOT CONTROL. PERFORM OPERATIONS TEST OF POSSIBLE FUNCTIONS.**
 - 10. TEST IRMS FUNCTIONS.**
 - 11. TEST 13R APPROACH LIGHTING. TEST 13R STROBE LIGHTING.**
 - 12. MEGGER AIRFIELD CIRCUITS WORKED ON, RECORD RESULTS FOR RECORD.**
 - 13. TEST RESULTS MUST BE PROVIDED WITHIN THREE (3) WORKING DAYS AFTER TEST COMPLETION.**

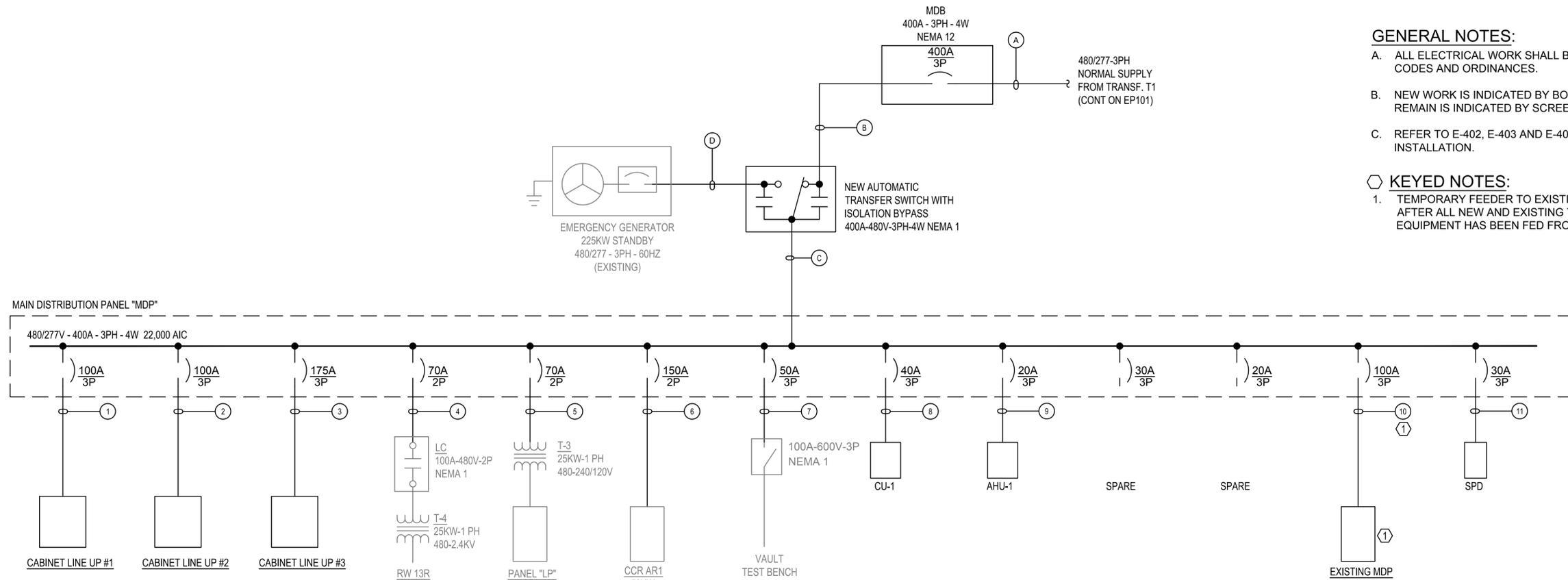


1 EQUIPMENT LAYOUT, STEP 2
SCALE: NTS

DATE	6 NOV 15
ISSUED FOR BID	0
DESCRIPTION	
APPROVED: _____ FOR COMMANDER NAVFAC	
ACTIVITY: _____	
SATISFACTORY TO DATE: _____ DES: DAB DRW: DAB CHK: JMM	
PROJECT MANAGER: _____ IPT TECH. BRANCH HEAD: _____ CHIEF ENGINEER (CORE): _____	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND SOUTHEAST NAVAL AIR STATION JACKSONVILLE CIBL CORE NAS CORPUS CHRISTI NAS CORPUS CHRISTI AIRFIELD REPAIRS AIRFIELD LIGHTING VAULT PROPOSED EQUIPMENT LAYOUT, STEP 2	
SCALE: NTS	
PROJECT NO.: 15095114	
CONSTR. CONTR. NO.:	
NAVFAC DRAWING NO.: 15095114	
SHEET 44 OF 54	
E-403	
DRAWING REVISION: 5 APRIL 2012	

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- GENERAL NOTES:**
- ALL ELECTRICAL WORK SHALL BE PER NEC AND ALL LOCAL APPLICABLE CODES AND ORDINANCES.
 - NEW WORK IS INDICATED BY BOLD LINEWEIGHT. EXISTING WORK TO REMAIN IS INDICATED BY SCREENED LINEWEIGHT.
 - REFER TO E-402, E-403 AND E-404 FOR EQUIPMENT SEQUENCE OF INSTALLATION.
- KEYED NOTES:**
- TEMPORARY FEEDER TO EXISTING MDP. REMOVE AFTER ALL NEW AND EXISTING TO REMAIN EQUIPMENT HAS BEEN FED FROM THE NEW MDP.

CABLE AND CONDUIT SCHEDULE								
CABLE AND CONDUIT DATA			SERVICE		DESTINATION		REMARKS	
ID	CONDUIT	WIRE SIZE	GROUND	VOLTAGE	FUNCTION	FROM		TO
A	2-4"	2 SETS EACH WITH 3-250kcmil, THWN, 600V	1-#1/0 NEUT.	480Y/277V - 3PH	480V BUILDING SERVICE	300KVA PAD MTD TRANSFORMER "T1"	AIRFIELD VAULT SERVICE DISCONNECT "MCB"	INSTALL A SET ONE CABLES IN EACH CONDUIT
B	2-3"	2 SETS EACH WITH 3-#4/0 AWG CU	1-#3 NEUT.	480Y/277V - 3PH	ATS FEEDER	AIRFIELD VAULT SERVICE DISCONNECT "MCB"	AIRFIELD VAULT ATS	
C	2-3"	2 SETS EACH WITH 3-#4/0 AWG CU	1-#3 NEUT.	480Y/277V - 3PH	MDP FEEDER	AIRFIELD VAULT ATS	AIRFIELD VAULT MDP	
D	3"	3-#500kcmil, THWN, 600V	(1) #1/0 NEUT.	480Y/277V - 3PH	480V EMERG. SERVICE	DIESEL GENERATOR "GEN"	AIRFIELD VAULT ATS	
E	2-4"	3-1/C #4 AWG CU, XLP, 15KV, SHIELDED TYPE MV-90	1-#4 NEUT.	4.16Y/2.4 KV - 3PH	4.16KV DISTR. FEEDER (CENTER LOOP)	PAD MTD SWGR "SW-1A"	ELEC. HANDHOLE "HH-??"	SPLICE TO EXST CABLES IN HANDHOLE
1	2"/TRAY	3-#2, THWN, 600V	1-#8 AWG	480V - 3PH	CABINET LINE UP #1 FEEDER	AIRFIELD VAULT MDP	CABINET LINE UP #1	
2	2"/TRAY	3-#2, THWN, 600V	1-#8 AWG	480V - 3PH	CABINET LINE UP #2 FEEDER	AIRFIELD VAULT MDP	CABINET LINE UP #2	
3	3"/TRAY	3-#3/0, THWN, 600V	1-#6 AWG	480V - 3PH	CABINET LINE UP #3 FEEDER	AIRFIELD VAULT MDP	CABINET LINE UP #3	
4	1 1/2"/ TRAY	2- #4, THWN, 600V	1#6 AWG	480V - 1PH	TRANSFORMER T4 FEEDER	AIRFIELD VAULT MDP	13R APP. STROBE LIGHTING CONTACTOR	
5	1 1/2"	2- #4, THWN, 600V	1#6 AWG	480V - 1PH	TRANSFORMER T3 FEEDER	AIRFIELD VAULT MDP	LIGHTING TRANSFORMER "T3"	
6	2"/ TRAY	2- #1/0, THWN, 600V	1-#6 AWG	480V - 1PH	CCR "AR1" FEEDER	AIRFIELD VAULT MDP	REGULATOR "AR1"	
7	1"/ TRAY	3#6, THWN, 600V	1#10 AWG	480V - 3PH	TEST BENCH FEEDER	AIRFIELD VAULT MDP	TEST BENCH 480V DISC. SW.	
8	3/4"	3#8, THWN, 600V	1#10 AWG	480V - 3PH	CU-1 FEEDER	AIRFIELD VAULT MDP	CU-1	
9	3/4"	3#12, THWN, 600V	1#12 AWG	480V - 3PH	AHU-1 FEEDER	AIRFIELD VAULT MDP	AHU-1	
10	2"	3-#2, THWN, 600V	1-#8 AWG	480V - 3PH	TEMPORARY OLD MDP FEEDER	AIRFIELD VAULT MDP	OLD MDP	
11	3/4"	3-#10, THWN, 600V	1-#10 AWG	480V - 3PH	SURGE PROTECTION DEVICE	AIRFIELD VAULT MDP	SPD	

APPROVED: _____

FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES DS | DRW NJS | CHK DWM

PM / DM

BRANCH MANAGER

CHIEF ENG / ARCH

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL AIR STATION JACKSONVILLE
CORPUS CHRISTI, TEXAS
NAS CORPUS CHRISTI
AIRFIELD LIGHTING VAULT
NEW MDP AIRFIELD VAULT SINGLE-LINE DIAGRAM

SCALE: AS NOTED

PROJECT NO.:

CONSTR. CONTR. NO.:

NAVFAC DRAWING NO. 15095116

SHEET 46 OF 54

E-601

DATE: 6 NOV 2015

ISSUED FOR BID

DESCRIPTION

DATE

APPROVED

STATE OF TEXAS
JOSE G. SPOSITO
110732
LICENSED PROFESSIONAL ENGINEER
11/6/2015

leidos
LEIDOS ENGINEERING, LLC
ONE WEST 3RD ST
TULSA, OK 74103

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Richmond, Virginia 23238
Phone: (804) 275-8301 • Fax: (804) 275-8371
www.deltaair.com
Delta Project No. 14072_AE-INFO

NAVAC

CCR POS #	CCR NAME	KW	OUTPUT CURRENT	STEPS	MONITORING	CCS POS #	CIRCUIT SELECTOR NAME	LOOP 1	LOOP 2	LOOP 3	LOOP 4
1	TW1	10	6.6A	5	TYPE C* W/ IRMS						
2	TW2	10	6.6A	5	TYPE C* W/ IRMS						
3	TW3	10	6.6A	5	TYPE C* W/ IRMS						
4	TW4	10	6.6A	5	TYPE C* W/ IRMS						
5	TW5	10	6.6A	5	TYPE C*	1	TCS1	C5	C6		
6	TW6	10	6.6A	5	TYPE C* W/ IRMS						
7	TW7	10	6.6A	5	TYPE C* W/ IRMS						
8	TW8	10	6.6A	5	TYPE C*	2	TCS2	C9	C10	C11	
9	TW9	10	6.6A	5	TYPE C* W/ IRMS						
10	TW10	10	6.6A	5	TYPE C* W/ IRMS						
11	TW11	10	6.6A	5	TYPE C* W/ IRMS						
12	SPARE	10	6.6A	5	TYPE C* W/ IRMS						

CABINET LINEUP #1 (CONSTANT CURRENT REGULATORS)

CCR #	CCR NAME	KW	OUTPUT CURRENT	STEPS	MONITORING
13	TW12	10	6.6A	5	TYPE C* W/ IRMS
14	TW13	15	6.6A	5	TYPE C* W/ IRMS
15	P4	4	6.6A	5	TYPE C* W/ IRMS
16	P22	4	6.6A	5	TYPE C* W/ IRMS
17	P17	4	6.6A	5	TYPE C* W/ IRMS
18	P35	4	6.6A	5	TYPE C* W/ IRMS
19	P13L	4	6.6A	5	TYPE C* W/ IRMS
20	P31R	4	6.6A	5	TYPE C* W/ IRMS
21	P13R	4	6.6A	5	TYPE C* W/ IRMS
22	SPARE	15	6.6A	5	TYPE C* W/ IRMS

CABINET LINEUP #2 (CONSTANT CURRENT REGULATORS)

CCR POS #	CCR NAME	KW	OUTPUT CURRENT	STEPS	MONITORING	CCS POS #	CIRCUIT SELECTOR NAME	LOOP 1	LOOP 2	LOOP 3	LOOP 4
23	P31L	4	6.6A	5	TYPE C* W/ IRMS						
24	L1	7.5	6.6A	5	TYPE C*	3	LCS1	C3	C4	C5	C6
25	L2	4	6.6A	5	TYPE C*	4	LCS2	C7	C8	C9	C10
26	R1	20	6.6A	5	TYPE C* W/ IRMS						
27	R2	30	6.6A	5	TYPE C* W/ IRMS						
28	R3	30	6.6A	5	TYPE C* W/ IRMS						
29	R4	20	6.6A	5	TYPE C* W/ IRMS						
30	R5	20	6.6A	5	TYPE C* W/ IRMS						
31	SPARE	30	6.6A	5	TYPE C* W/ IRMS						
32	FUTURE										
33	FUTURE										
34	FUTURE										

CABINET LINEUP #3 (CONSTANT CURRENT REGULATORS)

1 CONSTANT CURRENT REGULATOR (CCR) INDEX
SCALE: NTS

MAIN DISC	CCR POSITION #1	CCR POSITION #3	CCR POSITION #5	CCR POSITION #7	CCR POSITION #9	CCR POSITION #11
		CCR POSITION #2	CCR POSITION #4	CCR POSITION #6	CCR POSITION #8	CCR POSITION #10

CABINET LINEUP #1 (CONSTANT CURRENT REGULATORS)

MAIN DISC	CCR POSITION #13	CCR POSITION #15	CCR POSITION #17	CCR POSITION #19	CCR POSITION #21
		CCR POSITION #14	CCR POSITION #16	CCR POSITION #18	CCR POSITION #20

CABINET LINEUP #2 (CONSTANT CURRENT REGULATORS)

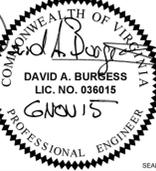
MAIN DISC	CCR POSITION #23	CCR POSITION #25	CCR POSITION #27	CCR POSITION #29	CCR POSITION #31	CCR POSITION #33
		CCR POSITION #24	CCR POSITION #26	CCR POSITION #28	CCR POSITION #30	CCR POSITION #32

CABINET LINEUP #3 (CONSTANT CURRENT REGULATORS)

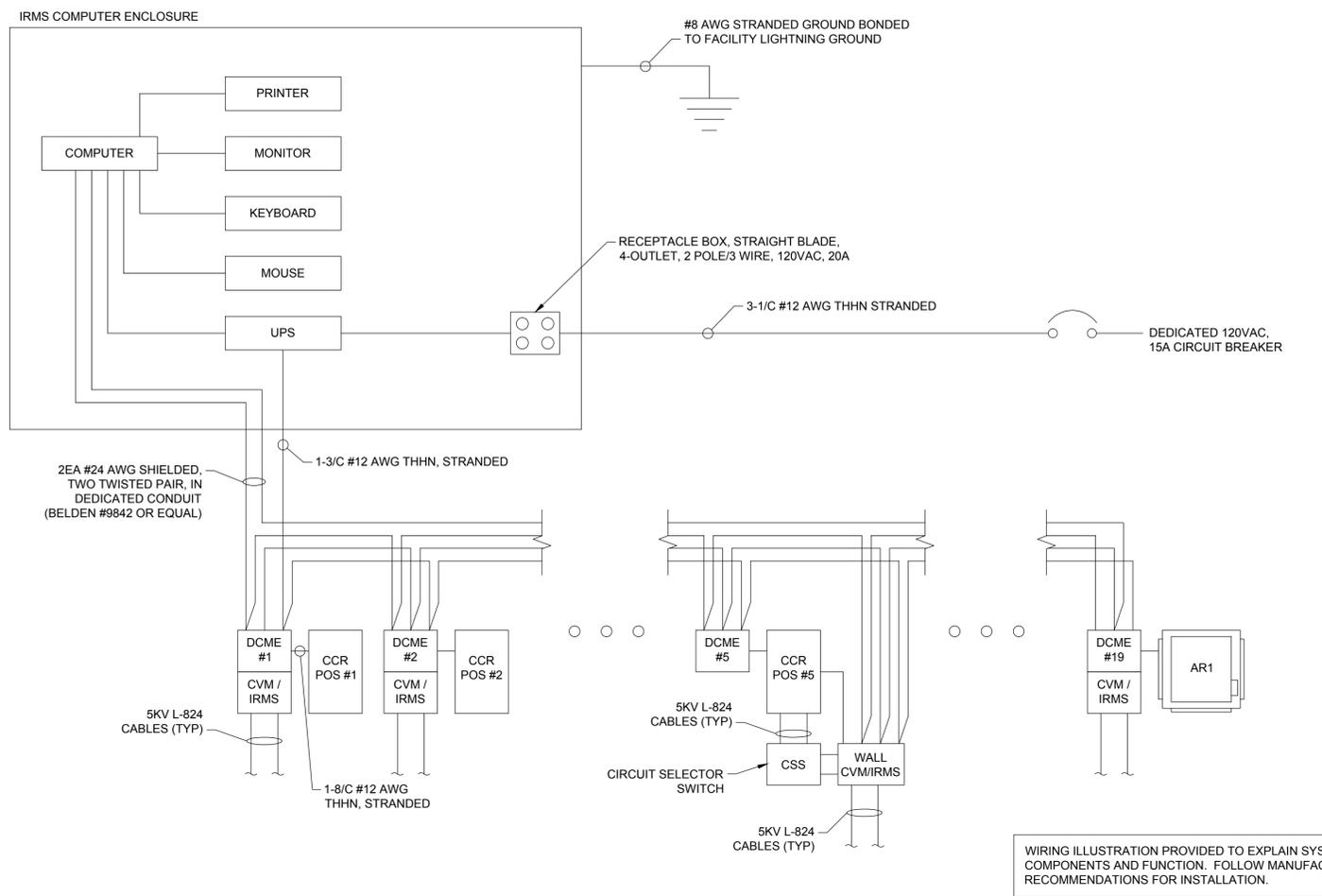
2 REGULATOR CABINETS ELEVATION VIEW
SCALE: NTS

CABINET-STYLE REGULATOR SYSTEM REQUIREMENTS

- CABINET-STYLE REGULATOR SYSTEM (CSRS)
 - CONTRACTOR MUST PROVIDE A CABINET-STYLE CONSTANT CURRENT REGULATOR SYSTEM WITH REGULATORS COMPLYING WITH FAA ADVISORY CIRCULAR 14-5345-10G, AS SPECIFIED BELOW:
 - TYPE: L-829 REGULATORS WITH MONITORING.
 - CLASS: 6.6A OR 20A REGULATORS AS SHOWN.
 - STYLES: 3 OR 5 STEP REGULATORS AS SHOWN.
 - RATINGS: KW RATINGS AS SHOWN.
 - OPTIONS
 - INDIVIDUALLY REMOVABLE AND INTERCHANGEABLE CONSTANT CURRENT REGULATORS.
 - FERRORSONANT TYPE CONSTANT CURRENT REGULATORS.
 - INTEGRAL DIGITAL VOLTAGE AND CURRENT METER TO MEASURE INCOMING POWER TO CSRS LINEUP.
 - INTEGRAL DIGITAL MONITORING & CONTROL EQUIPMENT (DCME) IN REGULATOR CABINET WITH A FRONT-MOUNTED DIGITAL DISPLAY CAPABLE OF DISPLAYING REQUIRED OUTPUT.
 - FUSED DISCONNECT INTEGRAL WITH SINGLE BUS FEEDING REGULATORS.
 - CABLE PULL-BOX CABINET IN THE CENTER OF THE SWITCHGEAR LINE UP AS SHOWN IN THE PROJECT DRAWINGS.
 - FORCED AIR COOLING SYSTEM.
 - ENCLOSURE DOORS MUST HAVE KEYED LOCKS.
 - A MOTORIZED REGULATOR LIFTING DEVICE. THE LIFT MUST BE ON WHEELS OR CASTORS SUCH THAT IT CAN BE ROLLED AND ALIGNED WITH EACH REGULATOR.
 - A CURRENT SENSING RELAY (CSR) MUST BE PROVIDED ON EACH REGULATOR OUTPUT. THE CSR MUST PROVIDE A CONTACT CLOSURE FOR FEEDBACK. THE CONTACT CLOSURE MUST BE WIRED TO A TERMINAL STRIP AT THE BOTTOM OF THE SGRS ENCLOSURE FOR CONNECTION TO EXTERNAL MONITORING EQUIPMENT.
- PRODUCTION TESTING
 - BEFORE SHIPMENT, THE CSRS SYSTEM MUST BE ASSEMBLED AS AN OPERATING SYSTEM AT THE CSRS MANUFACTURER'S TEST FACILITIES.
 - THE CSRS MANUFACTURER MUST MAKE THE PRODUCTION TESTING AVAILABLE FOR REPRESENTATIVE(S) OF THE GOVERNMENT TO WITNESS TESTING OF THE SYSTEM IF REQUESTED.
 - THE CSRS MANUFACTURER MUST COMPLETE PRODUCTION AND OPERATIONAL TESTING PRIOR TO SHIPMENT OF EQUIPMENT TO THE PROJECT SITE.
 - TWO (2) HARD COPY, AND ONE DIGITAL (PDF) COPY, OF THE PRODUCTION TEST REPORTS MUST BE PROVIDED TO THE C.O.R. NO LATER THAN DELIVERY OF THE EQUIPMENT TO THE PROJECT SITE.
- CONTRACTOR INSTALLATION REQUIREMENTS. THE EQUIPMENT INSTALLATION AND MOUNTING MUST COMPLY WITH THE REQUIREMENT OF THE NATIONAL ELECTRIC CODE AND THE LOCAL CODE AGENCY HAVING JURISDICTION.
 - WIRING AND CONNECTIONS
 - WIRES CALLED OUT IN THE DRAWINGS ASSOCIATED WITH EQUIPMENT THAT IS TO BE CONTROLLED OR MONITORED SHOULD BE PULLED, TERMINATED AND DRESSED AT THE APPROPRIATE TERMINAL BLOCKS AND AT THE ASSOCIATED EQUIPMENT.
 - IN WIRING TO THE TERMINAL BLOCKS, THE CONTRACTOR MUST LEAVE SUFFICIENT EXTRA LENGTH ON EACH CONTROL LEAD TO MAKE FUTURE CHANGES IN CONNECTIONS AT THE TERMINAL BLOCK.
 - MARKING AND LABELING
 - EQUIPMENT, CONTROL WIRES, TERMINAL BLOCKS, ETC., MUST BE TAGGED, MARKED OR LABELED AS SPECIFIED BELOW:
 - WIRE IDENTIFICATION: THE CONTRACTOR MUST PROVIDE SELF-STICKING WIRE LABELS OR IDENTIFYING TAGS ON CONTROL WIRES AT THE POINT WHERE THEY CONNECT TO THE CONTROL EQUIPMENT OR TO THE TERMINAL BLOCKS.
 - WIRE LABELS, IF USED, MUST BE OF THE SELF-STICKING, PRE-PRINTED TYPE AND OF THE MANUFACTURER'S RECOMMENDED SIZE FOR THE WIRE INVOLVED. IDENTIFICATION MARKING DESIGNATED IN THE PLANS MUST BE FOLLOWED.
- SPARE PARTS
 - DISTRIBUTED CONTROL AND MONITORING EQUIPMENT (DCME) ASSEMBLY
 - CURRENT/VOLTAGE MODULE (CVM)
 - INSULATION RESISTANCE MODULE (IRM)
 - FUSES (5) OF EACH TYPE
- SYSTEM SERVICE AND SUPPORT
 - CSRS MANUFACTURER MUST PROVIDE TECHNICAL ASSISTANCE AND SUPPORT DURING THE WARRANTY PERIOD.
 - CSRS MANUFACTURER MUST PROVIDE 7 DAYS A WEEK / 24 HOURS A DAY SUPPORT PHONE LINE.
 - CSRS MANUFACTURER MUST PROVIDE TECHNICAL SUPPORT WITHIN FOUR (4) HOURS OF THE INITIAL CALL.
 - CSRS MANUFACTURER MUST PROVIDE FREE PHONE CONSULTATION AND TECHNICAL SUPPORT AS REQUIRED DURING THE WARRANTY PERIOD AND IF NECESSARY BE ON-SITE WITHIN 24 HOURS.
- ON-SITE TRAINING
 - THE CSRS MANUFACTURER MUST PROVIDE TRAINING DURING THE COMMISSIONING TRIP.
 - THE CONTRACTOR MUST PROVIDE DIGITAL AUDIO & VIDEO RECORDINGS OF THE TRAINING CLASSES. VIDEO RECORDING MUST BE COORDINATED IN ADVANCE WITH THE C.O.R. TO SECURE NECESSARY APPROVALS.
 - TRAINING SESSIONS MUST BE HELD IN A FACILITY AT THE AIR STATION.
 - THE CONTRACTOR AND/OR CSRS MANUFACTURER MUST PROVIDE REQUIRED VISUAL AIDS AND PROJECTORS.
 - MAINTENANCE TRAINING
 - THE CSRS MANUFACTURER MUST PROVIDE ONE (1), 8 HOUR (ONE DAY) TRAINING CLASS FOR MAINTENANCE PERSONNEL. THIS TRAINING MUST INCLUDE DISCUSSION AND REVIEW OF THE FOLLOWING:
 - SYSTEM BLOCK DIAGRAM
 - SYSTEM ASSEMBLIES AND WIRING DIAGRAMS
 - CSRS OPERATION
 - MAINTENANCE AND TROUBLESHOOTING
 - TRAINING CLASSES MAY HAVE UP TO 6 PEOPLE PER CLASS.
- TAGS, IF USED, MUST BE NONFERROUS METAL OR PLASTIC. EACH TAG MUST BE SECURELY TIED TO THE PROPER WIRE BY A NONMETALLIC CORD OR PLASTIC WIRE TIE.
- POWER, SERIES CIRCUIT AND COMMUNICATIONS CABLES
 - THE CONTRACTOR MUST PROVIDE, TERMINATE AND TEST POWER, SERIES CIRCUIT AND COMMUNICATIONS CABLES REQUIRED FOR THE PROJECT.
 - CIRCUIT WIRING MUST BE COMPLETED AND TESTED.
 - TESTS MUST INCLUDE RESISTANCE TESTING TO VERIFY PROPER FIELD CABLING INSTALLATION.
 - TEST DATA MUST BE RECORDED AND COMPOSED INTO A TEST REPORT AND MUST BE SUBMITTED TO THE C.O.R. FOR APPROVAL.
 - COMMISSIONING OF THE SYSTEM MUST NOT BEGIN UNTIL TEST REPORTS ARE SUBMITTED AND APPROVED AND A COPY PROVIDED TO THE CSRS MANUFACTURER.

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PROJECT MANAGER	
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CHIEF ENGINEER (CORE)	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND SOUTHEAST NAVAL AIR STATION JACKSONVILLE NAS CORPUS CHRISTI, TEXAS NAS CORPUS CHRISTI AIRFIELD REPAIRS AIRFIELD LIGHTING VAULT CABINET-STYLE REGULATOR SCHEDULE	
SCALE:	NTS
EPROJECT NO.:	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	15095119
SHEET	49 of 54
E-611	
DRAWFORM REVISION: 5 APRIL 2012	

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1 INSULATION RESISTANCE MONITORING SYSTEM (IRMS) WIRING ILLUSTRATION
SCALE: NTS

1. L-827/9 MONITORING
 - 1.1. THE DCME UNIT SHALL PROVIDE FULL FAA L-827/9 MONITORING PER FAA AC 150/5345-10 (CURRENT EDITION).
 - 1.2. THE DCME SHALL INCLUDE THE MONITORING BOARD AND PROVIDE THE FOLLOWING INFORMATION FOR EACH CCR:
 - 1.2.1. LOSS OF INPUT POWER TO THE CCR.
 - 1.2.2. CCR SHUTDOWN BY OPEN CIRCUIT / OVER-CURRENT PROTECTIVE DEVICES.
 - 1.2.3. DROP OF MORE THAN 10% IN THE CCR VA LOAD.
 - 1.2.4. FAILURE OF THE CCR TO DELIVER THE SELECTED OUTPUT CURRENT.
 - 1.2.5. THE NUMBER OF BURNT-OUT LAMPS (L-850, L-852, L-861, L-861 SERIES) IN EACH SERIES CIRCUIT. FOR BEST ACCURACY, ALL LAMPS/TRANSFORMERS ARE THE SAME WATTAGE AND NO FILM DISC CUTOUTS ARE USED.
 - 1.2.6. REMOTE / LOCAL STATUS OF CCR.
 - 1.2.7. ACTUAL CCR OUTPUT CURRENT.
 - 1.2.8. ACTUAL CCR OUTPUT VOLTAGE.
 - 1.2.9. ACTUAL CCR OUTPUT LOAD WATTAGE (W).
 - 1.2.10. ACTUAL CCR OUTPUT LOAD VOLTS-AMPS (VA)
 - 1.3. THE DCME DIGITAL DISPLAY SHALL PROVIDE LOCAL INDICATION OF THE CCR STATUS INCLUDING:
 - 1.3.1. REMOTE/LOCAL: DISPLAY INDICATING THE STATUS OF THE REMOTE LOCAL SWITCH OF THE CCR.
 - 1.3.2. PRIMARY POWER: DISPLAY INDICATING THE STATUS OF THE INPUT POWER TO THE CCR.
 - 1.3.3. OVER CURRENT: DISPLAY INDICATING OVER CURRENT, PROTECTIVE SHUTDOWN.
 - 1.3.4. OPEN CIRCUIT: DISPLAY INDICATING OPEN CIRCUIT STATUS.
 - 1.4. THE DCME SHALL INTERFACE TO AN EXTERNAL CURRENT AND VOLTAGE MODULE (CVM) USED TO COLLECT CURRENT AND VOLTAGE INFORMATION. THE CVM SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:
 - 1.4.1. COLLECTS ANALOG CURRENT AND VOLTAGE SAMPLES AT A HIGH SAMPLE RATE OF 50,000 SAMPLES / SECOND.
 - 1.4.2. TRANSMITS CURRENT AND VOLTAGE SAMPLES TO THE DCME.
 - 1.4.3. PROVIDE DIGITAL FIBER OPTICAL ISOLATIONS BETWEEN THE DCME AND THE OUTPUT OF THE CCR.
 - 1.4.4. QUICK DISCONNECT FIBER OPTIC CONNECTIONS FOR INTERFACING TO THE DCME.

2. CURRENT SENSING MONITORING (FOR EXISTING NAVY LIGHTING CONTROL SYSTEM)
 - 2.1. THE DCME UNIT SHALL PROVIDE SIMPLE ON AND OFF MONITORING OF THE CCR OUTPUT AND OTHER CONTROLLABLE ELEMENTS.

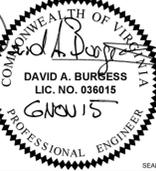
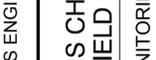
- 2.2. THE DCME SHALL INCLUDE THE REQUIRED INPUTS TO MONITOR ON / OFF STATUS.
 - 2.3. A CURRENT SENSING RELAY (CSR) SHALL BE PROVIDED FOR EACH CCR AND CONTROLLABLE ELEMENT TO DETECT CURRENT IN THE CCR OUTPUT CIRCUIT.
 - 2.4. THE CSR SHALL EITHER BE PROVIDED INSIDE OR ADJACENT TO THE EQUIPMENT BY THE ELECTRICAL CONTRACTOR.
 - 2.5. THE CONTRACTOR SHALL PROVIDE ANY ADDITIONAL ENCLOSURES/ELECTRICAL BOXES REQUIRED TO INTERFACE THE CSR TO THE CONTROLLED ELEMENT.
3. INSULATION RESISTANCE MONITORING SYSTEM (IRMS)
 - 3.1. THE IRMS SHALL BE INTEGRAL TO THE DIGITAL MONITORING & CONTROL EQUIPMENT OF EACH CONSTANT CURRENT REGULATOR.
 - 3.2. THE IRMS SHALL BE CAPABLE OF AUTOMATICALLY OR MANUALLY MONITORING AND REPORTING THE INSULATION RESISTANCE VALUE OF THE SERIES CIRCUIT CABLING.
 - 3.3. MEASURED RESISTANCE SHALL BE DISPLAYED AT THE DCME DIGITAL DISPLAY.
 - 3.4. THE DCME/IRMS UNIT SHALL BE CAPABLE OF READING AND RECORDING RESISTANCE VALUES FROM LESS THAN 20K OHMS TO 2G OHMS.
 - 3.5. THE IRMS SHALL BE CAPABLE OF TAKING RESISTANCE READINGS ON CIRCUITS THAT ARE ENERGIZED OR DE-ENERGIZED.
 - 3.6. THE IRMS SHALL PROVIDE CONFIGURABLE INSULATION RESISTANCE WARNING AND ALARM LIMIT NOTIFICATION.
 - 3.7. THE IRMS SHALL BE ABLE TO BE CONFIGURED FOR A MINIMUM OF TWO (2) READING TIMES PER DAY.
 4. POWER, SERIES CIRCUIT AND COMMUNICATIONS CABLES
 - 4.1. THE CONTRACTOR SHALL PROVIDE, TERMINATE AND TEST ALL POWER, SERIES CIRCUIT AND COMMUNICATIONS CABLES REQUIRED FOR THE PROJECT.
 - 4.2. ALL CIRCUIT WIRING SHALL BE COMPLETED AND TESTED.
 - 4.3. TESTS SHALL INCLUDE RESISTANCE TESTING TO VERIFY PROPER FIELD CABLING INSTALLATION.
 - 4.4. ALL TEST DATA SHALL BE RECORDED AND COMPOSED INTO A TEST REPORT AND SHALL BE SUBMITTED TO THE C.O.R. FOR APPROVAL.
 - 4.5. COMMISSIONING OF THE SYSTEM SHALL NOT BEGIN UNTIL ALL TEST REPORTS ARE SUBMITTED AND APPROVED AND A COPY PROVIDED TO THE CSRS MANUFACTURER.

2 INSULATION RESISTANCE MONITORING SYSTEM SPECIFICATIONS
SCALE: NTS

- VAULT COMPUTER SPECIFICATIONS:**
1. INDUSTRIAL COMPUTER
 - 1.1. THE COMPUTER SHALL HAVE THE FOLLOWING SPECIFICATIONS:
 - 1.1.1. TYPE: INDUSTRIAL GRADE COMPUTER. ADVANTECH OR APPROVED EQUAL.
 - 1.1.2. PROCESSOR TYPE: INTEL PENTIUM 4
 - 1.1.3. PROCESSOR CLOCK RATE 2.5 GHZ OR BETTER
 - 1.1.4. MEMORY CAPACITY: 512 MB RAM
 - 1.1.5. HARD DISK: 64 GB SOLID STATE FLASH DRIVE (ROTATING DRIVES ARE NOT ACCEPTABLE)
 - 1.1.6. HARD DRIVE BAY: FLASH DRIVE INSTALLED IN A REMOVABLE, FRONT ACCESSIBLE DRIVE BAY WITH LOCKING MECHANISM
 - 1.1.7. COMPACT FLASH CARD: 2GB COMPACT FLASH CARD
 - 1.1.8. CF CARD READER: FRONT ACCESSIBLE CF CARD READER PROVIDED IN A 5.25" DRIVE BAY
 - 1.1.9. FLOPPY DISKETTE DRIVE: 1.44, 3.5"
 - 1.1.10. 2 X USB PORTS: 2 FRONT ACCESSIBLE USB PORTS
 - 1.1.11. CACHE MEMORY: L2 512 KB
 - 1.1.12. CD-ROM: 52X
 - 1.1.13. VIDEO (INTEGRATED): SVGA, 8MB VRAM, MINIMUM SUPPORT 1280 X 1024
 - 1.1.14. OPERATING SYSTEM: WINDOWS 8
 - 1.1.15. LOCKABLE DRIVE BAY: FRONT ACCESSIBLE AND LOCKABLE DRIVE BAY DOOR THAT PROTECTS ALL DRIVE BAYS
 - 1.1.16. REDUNDANT HOT SWAPPABLE FANS: FRONT ACCESSIBLE AND HOT SWAPPABLE CPU FANS THAT CAN BE REMOVED AND REPLACED WHILE THE COMPUTER IS RUNNING
 - 1.1.17. REDUNDANT POWER SUPPLIES: REAR ACCESSIBLE AND HOT SWAPPABLE CPU POWER SUPPLIES THAT CAN BE REMOVED AND REPLACED WHILE THE COMPUTER IS RUNNING
 - 1.1.18. FRONT LED DIAGNOSTICS: FRONT VIEWABLE LED DIAGNOSTIC LEDS SHOWING STATUS OF HARD DRIVE, TEMPERATURE, FANS AND ALL POWER SUPPLY VOLTAGES (+3.3V, 5V, +12V, -12V)
 - 1.2. ALL INDUSTRIAL GRADE COMPUTERS SHALL BE DESIGNED USING A SLOT BOARD COMPUTER
 - 1.2.1. THE COMPUTER BACK PLANE SHALL BE PASSIVE, MEANING A MOTHERBOARD AND DAUGHTER-BOARD DESIGN IS NOT ACCEPTABLE.
 - 1.2.2. THE CENTRAL PROCESSING UNIT (CPU) SHALL NOT BE ON A SLOT BOARD TYPE CARD THAT IS PROVIDED ON THE BACK PLANE OF THE COMPUTER CHASSIS
 - 1.2.3. CPU UPGRADES SHALL BE AS SIMPLE AS REPLACING THE CPU OF THE SLOT BOARD OR REMOVING THE SLOT BOARD CARD AND PLUGGING IN A REPLACEMENT ONE
 - 1.2.4. TO ENSURE STABILITY, THE SLOT BOARD COMPUTERS SHALL HAVE UNDERGONE A 140°F (60°C) DYNAMIC BURN-IN TEST.
 - 1.2.5. THE SLOT BOARD COMPUTER SHALL BE DESIGNED TO WITHSTAND HARSH ENVIRONMENTAL CONDITIONS LIKE SHOCK, VIBRATION, POWER SURGES AND FLUCTUATIONS, HEAVY DUST, AND EXTREME TEMPERATURES.
 2. FLASH DRIVE
 - 2.1. THE COMPUTER SHALL USE A SOLID STATE FLASH DRIVE (NO MOVING PARTS) AND IT SHALL BE A SAMSUNG OR APPROVED EQUAL.
 - 2.2. THE FLASH DRIVE SHALL HAVE A MINIMUM OF STORAGE CAPACITY OF 64 GB SSD.
 - 2.3. THE FLASH DRIVE SHALL OPERATE AT TEMPERATURES FROM 0 DEGREES C TO +70 DEGREES C
 - 2.4. THE FLASH DRIVE SHALL HAVE 1000G OPERATING SHOCK AND 15G OPERATING VIBRATION RATING.
 - 2.5. THE DRIVE SHALL HAVE A MTBF OF GREATER THAN 1,000,000 HOURS.
 - 2.6. THE FLASH DRIVE SHALL HAVE A MANUFACTURER WARRANTY OF NOT LESS THAN 3 YEARS.
 - 2.7. THE FLASH DRIVE SHALL STORE THE OPERATING SYSTEM AND ANY PROGRAMS THAT REQUIRE ERASE/READ/WRITE CYCLES.
 - 2.8. FLASH DRIVE SPECIFICATION SHEETS SHALL BE PROVIDED WITH SUBMITTAL SHOWING REPLACEMENT FLASH DRIVE MEETS SPECIFICATION REQUIREMENTS.
 3. COMPACT FLASH CARD
 - 3.1. THE COMPUTER SHALL USE AN EXTERNAL COMPACT FLASH (CF) CARD WHICH CAN BE PROVIDED USING EITHER A PCMCIA COMPACT FLASH CARD READER OR AN EXTERNAL 5 1/4" BAY WITH A COMPACT FLASH CARD READER.
 - 3.2. THE CF CARD SHALL BE A MINIMUM OF 2 GB.
 - 3.3. NO ERASE AND/OR WRITE CYCLES SHALL OCCUR TO THE COMPACT FLASH CARD.
 - 3.4. THE CF CARD SHALL STORE PROGRAMS AND CONFIGURATION FILES THAT ARE ONLY READ DURING POWER-UP. THESE FILES SHOULD BE THE AIRPORT SPECIFIC PROGRAMS AND CONFIGURATIONS.
 - 3.5. THE CF CARD SHALL CONTAIN "GHOST" IMAGE (EXACT IMAGE OF ORIGINAL DRIVE) OF THE FLASH DRIVE WHICH ALLOWS FOR EASY FLASH DRIVE REPLACEMENT AND REPAIR.
 4. FLASH DRIVE SERVICE / REPAIR
 - 4.1. THE TOUCHSCREEN COMPUTER SHALL BE ABLE TO BE REBUILT USING A BLANK FLASH DRIVE OR BLANK STANDARD HARD DRIVE.
 - 4.2. THE COMPUTER SHALL BE ABLE TO BOOT FROM THE CF CARD AND EXECUTE A "GHOST" IMAGE REBUILD PROGRAM.
 - 4.3. THE REBUILD PROGRAM SHALL EXTRACT AND COPY THE "GHOST" IMAGE, ALL CONFIGURATIONS AND AIRPORT SPECIFIC PROGRAMS FROM THE CF CARD TO THE BLANK FLASH DRIVE.
 - 4.4. UPON COMPLETION OF THE REBUILD PROGRAM, THE TOUCHSCREEN COMPUTER SHALL BE ABLE TO BE REBOOTED AND BE COMPLETELY OPERATIONAL.
 5. COMPUTER CAPABILITIES. THE VAULT COMPUTER SHALL BE CAPABLE OF INDEPENDENTLY CARRYING OUT THE FOLLOWING FUNCTIONS:
 - 5.1. DECODE ALL COMMANDS RECEIVED AND TRANSFER THEM TO THE CORRESPONDING DISTRIBUTED CONTROL AND MONITORING EQUIPMENT (DCME) UNIT FOR EXECUTION.
 - 5.2. INTERROGATE ALL THE DCME UNITS TO DETERMINE THE STATUS OF THE CONSTANT CURRENT REGULATORS (CCRS) AND OTHER CONTROLLABLE ITEMS.
 - 5.3. CONTINUOUSLY CHECK FOR PROPER OPERATION OF ALL THE COMMUNICATION LINKS CONNECTED TO THE COMPUTER.
 - 5.4. CONTINUOUSLY CHECK FOR PROPER OPERATION OF THE VAULT DISTRIBUTED CONTROL AND MONITORING NETWORK.
 - 5.5. PROVIDE HARD COPIES OF REAL-TIME AND HISTORICAL INFORMATION ON THE STATUS OF THE AIRFIELD LIGHTING SYSTEMS AND OTHER CONTROLLED AND MONITORED ITEMS.
 - 5.6. THE VAULT COMPUTER APPLICATION SHALL NOT BE ABLE TO INITIATE LIGHTING COMMANDS UNLESS THE CONTROL TOWER AUTHORIZES CONTROL TO THE VAULT.

- VAULT EQUIPMENT SPECIFICATIONS:**
1. COMPUTER
 - 1.1. THE VAULT COMPUTER SHALL BE 19" INDUSTRIAL RACK-MOUNT TYPE.
 - 1.2. THE COMPUTERS SHALL MEET PREVIOUSLY SPECIFIED TECHNICAL REQUIREMENTS.
 - 1.3. 120 VAC, UNINTERRUPTIBLE POWER SHALL BE SUPPLIED TO THE COMPUTER.
 2. MONITOR (CRT)
 - 2.1. THE SERVICE DISPLAY SHALL USE A 15" CRT MONITOR
 - 2.2. THE MONITOR SHALL BE LOCATED ON A SHELF WITHIN THE VAULT EQUIPMENT ENCLOSURE
 - 2.3. 120 VAC, UNINTERRUPTIBLE POWER SHALL BE SUPPLIED TO THE MONITOR.
 3. UNINTERRUPTIBLE POWER SYSTEM: VAULT COMPUTER EQUIPMENT
 - 3.1. AN UNINTERRUPTIBLE POWER SYSTEM (UPS) SHALL BE PROVIDED TO THE VAULT EQUIPMENT.
 - 3.2. THE UPS SHALL BE CAPABLE OF SUPPLYING FULL LOAD POWER FOR 10 MINUTES AFTER LOSS OF MAIN INPUT POWER.
 - 3.3. THE UPS SHALL BE A 19" RACK-MOUNT UNIT PROVIDED IN THE VAULT COMPUTER EQUIPMENT ENCLOSURE.
 4. UNINTERRUPTIBLE POWER SYSTEM: DCME CONTROL AND MONITORING EQUIPMENT
 - 4.1. AN UNINTERRUPTIBLE POWER SYSTEM (UPS) SHALL BE PROVIDED FOR SUPPORTING POWER TO THE DCME EQUIPMENT.
 - 4.2. THE UPS SHALL BE CAPABLE OF SUPPLYING FULL LOAD POWER FOR 10 MINUTES AFTER LOSS OF MAIN INPUT POWER.
 - 4.3. THE UPS SHALL BE 19" RACK-MOUNT UNIT PROVIDED IN THE VAULT COMPUTER EQUIPMENT ENCLOSURE.
 5. INDUSTRIAL ENCLOSURES
 - 5.1. A NEMA 12 INDUSTRIAL ENCLOSURE SHALL BE PROVIDED FOR HOUSING ASSOCIATED VAULT COMPUTER EQUIPMENT.
 - 5.2. THE ENCLOSURE SHALL BE DESIGNED FOR INDOOR USE TO PROVIDE PROTECTION AGAINST DUST, DIRT, DRIPPING WATER, AND EXTERNAL CONDENSATION OF NON-CORROSIVE LIQUIDS.
 - 5.3. THE ENCLOSURE SHALL BE AN INDUSTRY STANDARD 19" RACK-MOUNT TYPE ENCLOSURE.
 - 5.4. THE ENCLOSURE SHALL INCLUDE A PAGODA TOP WITH EXHAUST FAN AND VENTILATION KIT FOR PROPER CONVECTION COOLING.
 - 5.5. THE ENVIRONMENTAL CONDITIONS WITHIN THE AREA OF THE ENCLOSURE INSTALLATION SHALL NOT EXCEED 122°F (50°C) OR FALL BELOW 32°F (0° C).
 6. PRINTER
 - 6.1. THE PRINTER SHALL BE A BLACK AND WHITE LASER PRINTER

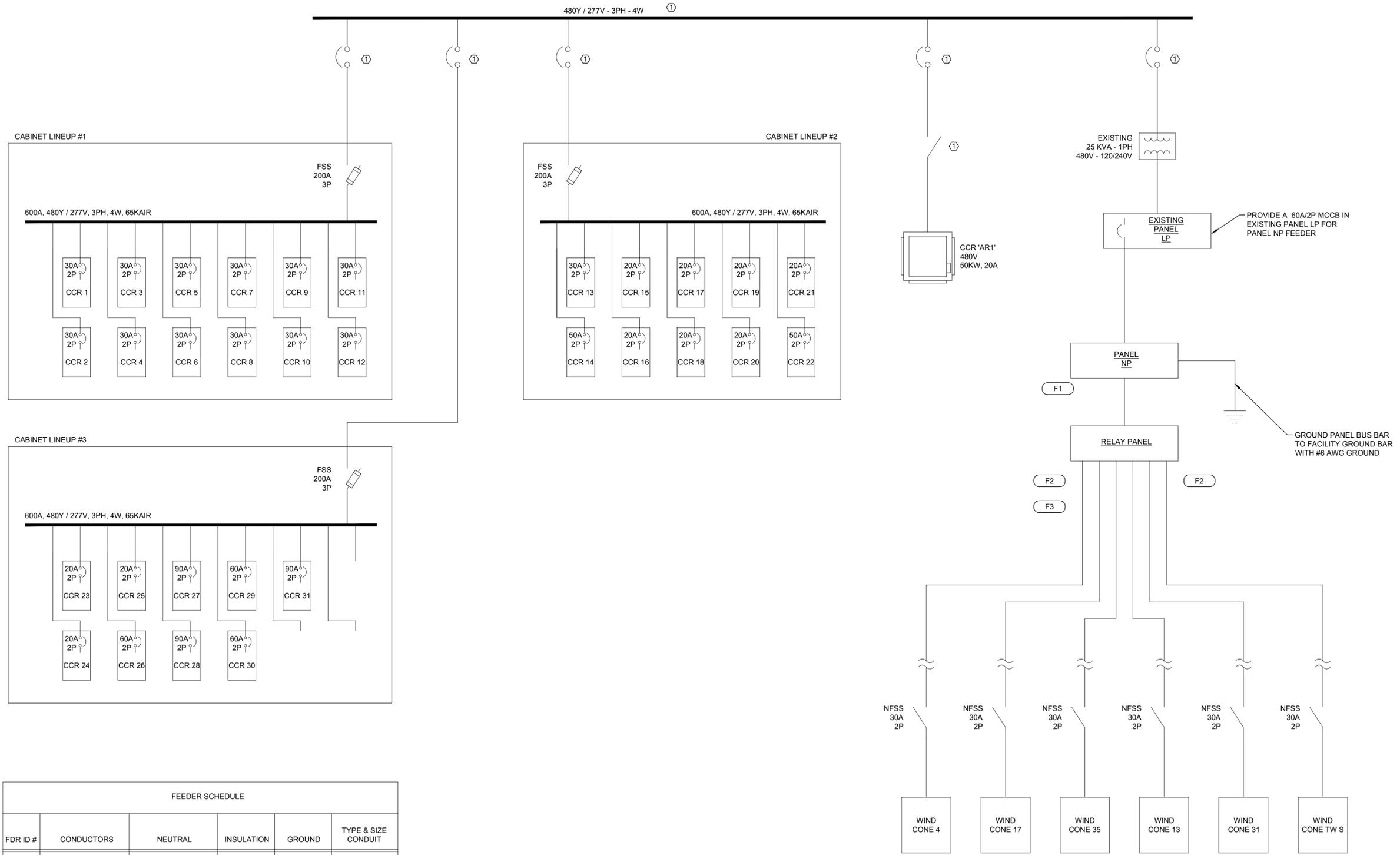
3 VAULT COMPUTER & EQUIPMENT SPECIFICATIONS
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CHIEF ENGINEER (CORE)	
	
	
	
	
	
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<small>DRAWFORM REVISION: 5 APRIL 2012</small>	

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KEYNOTES:
 1. REFER TO E-601 FOR COMPLETE SINGLE-LINE DIAGRAM.



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	DESCRIPTION

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 LEIDOS ENGINEERING, LLC
 ONE WEST 3RD ST.
 TULSA, OK 74103

DELTA AIRPORT CONSULTANTS, INC.
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 Richmond, Virginia 23234
 phone: (804) 275-8301 • fax: (804) 275-8371
 www.deltairport.com

Delta Project No. 14072 A&E-001

APPROVED FOR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO DATE

DES: DAB | DRW: DAB | CHK: JMM

PROJECT MANAGER

IP/T TECH. BRANCH HEAD

CHIEF ENGINEER (CORE)

DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND
 NAVAL FACILITIES ENGINEERING COMMAND SOUTHEAST
 NAVAL AIR STATION JACKSONVILLE
 CIBL CORE
 NAS CORPUS CHRISTI
 CORPUS CHRISTI, TEXAS
NAS CORPUS CHRISTI AIRFIELD REPAIRS
AIRFIELD LIGHTING VAULT
 SINGLE LINE DIAGRAM

SCALE: NTS

PROJECT NO:

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 15095121

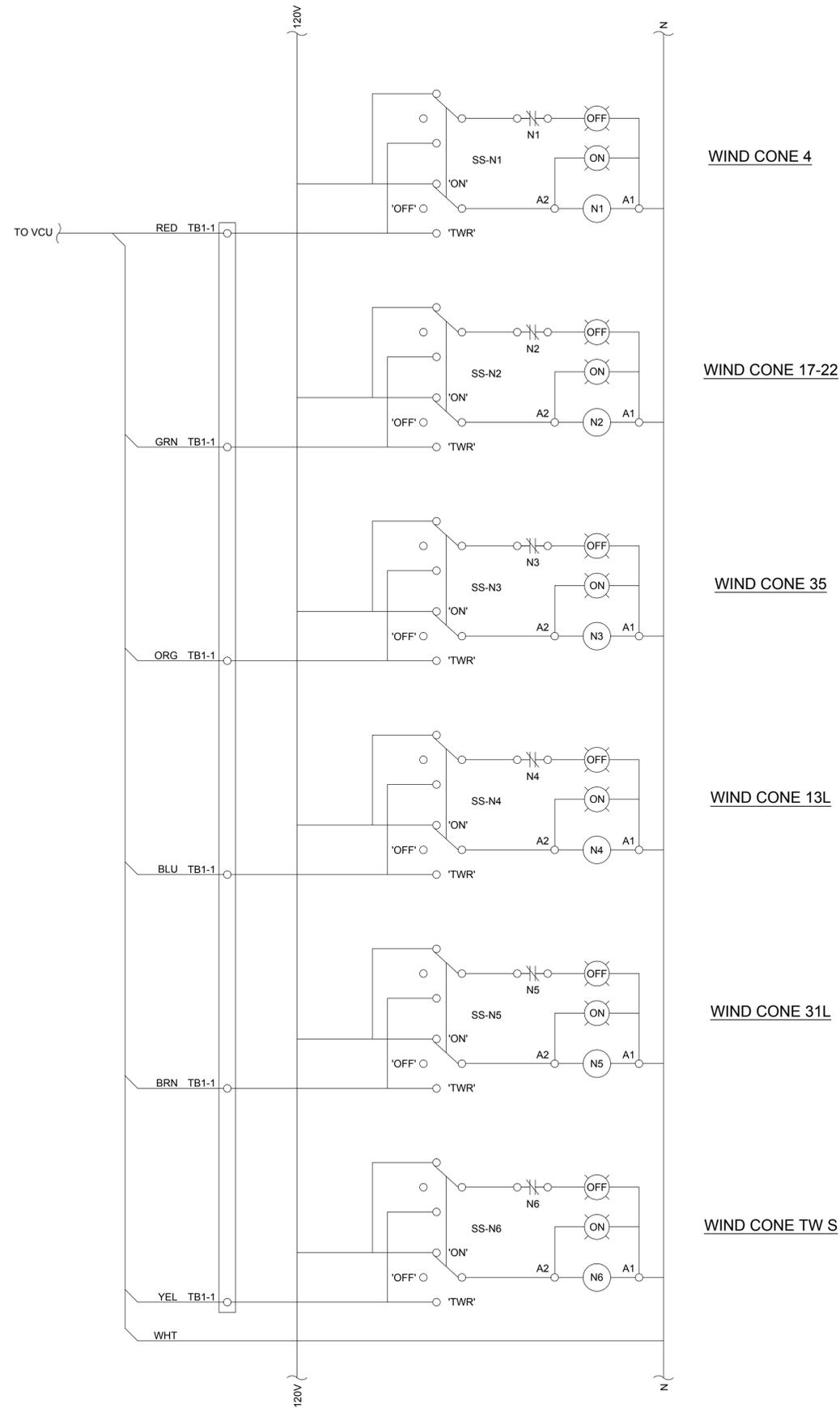
SHEET 51 of 54

E-613

DRAWING REVISION: 5 APRIL 2012

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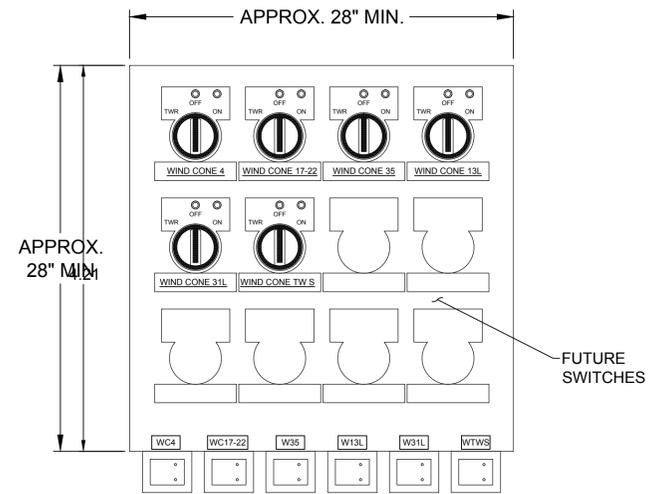
PANEL NAME: NP
 FED FROM: LP
 MOUNTING: SURFACE
 ENCLOSURE: NEMA 1

VOLTS: 120/240V
 PHASES: 1
 WIRES: 3

A.I.C. RATING: 10kAIC
 MAINS TYPE: MLO
 BUS RATING: 100A

CIRC. NO.	LOAD	TRIP (A)	FRAME (A)	LOAD (VA)	A	B	LOAD (VA)	FRAME (A)	TRIP (A)	LOAD	CIRC. NO.
1	WIND CONE 17	15	15	109	218		109	15	15	WIND CONE 4	2
3	WIND CONE 13	15	15	109		218	109	15	15	WIND CONE 35	4
5	WIND CONE TW S	15	15	109	218		109	15	15	WIND CONE 31	6
7	RELAY PANEL	15	15	125		125		15	15	SPARE	8
9	SPARE	15	15		0			15	15	SPARE	10
11	SPARE	15	15		0			15	15	SPARE	12
13	SPARE	15	15		0			15	15	SPARE	14
15	SPARE	15	15		0			15	15	SPARE	16

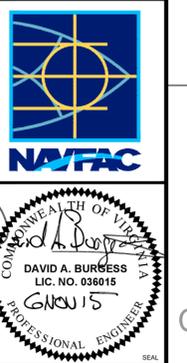
TOTAL VA: 779
 VOLTAGE (V): 240
 CONNECTED AMPS (A): 3.3



RELAY PANEL NOTES:

- THE CONTRACTOR MUST CUSTOM FABRICATE AND PROVIDE THE CONTROL PANEL DESCRIBED HERE FOR THE WIND CONES. MODIFICATIONS TO THE LAYOUT SHOWN ABOVE TO IMPROVE PERFORMANCE OR EFFICIENCY ARE ACCEPTABLE. PROVIDE CAPACITY FOR FUTURE INSTALLATION OF AT LEAST SIX (6) MORE SIMILAR SWITCHES AND ASSOCIATED RELAYS DIMENSIONS MAY BE MODIFIED AND ARE PROVIDED FOR ESTIMATING PURPOSES ONLY. SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION.
- RELAYS: 20A @240V, 3-POLE, 3 N.O. CONTACTS, 120V COIL VOLTAGE, 1 N.C. AUXILIARY CONTACT. NEMA ICS 2 ELECTRICALLY-HELD MAGNETIC LIGHTING CONTACTOR WITH CONTINUOUSLY-RATED COILS. CONTACTORS MUST BE STANDARD-TYPE BALLASTS AND TUNGSTEN LIGHTING AS WELL AS GENERAL-USE AND RESISTIVE HEATING LOADS.
- PILOT DEVICES: NEMA ICS 5, COVER-MOUNTED TYPE OR FLANGE-MOUNTED 30MM TYPE BASED ON ENCLOSURE SELECTION. CONTACTS MUST BE RATED NEMA B600 FOR COVER-MOUNTED DEVICES AND NEMA A600 FOR FLANGE-MOUNTED 30MM DEVICES.
 - SELECTOR SWITCH MUST BE REMOTE/ON/OFF, TWO POLE, TRIPLE THROW.
 - INDICATING LIGHTS MUST BE LED-TYPE, RED FOR 'OFF' AND GREEN FOR 'ON'.
- SURGE PROTECTION: SURGE LOGIC TVS120XR50S OR APPROVED EQUAL. PROVIDE A SEPARATE SURGE PROTECTION DEVICE (SPD) FOR EACH WIND CONE CIRCUIT. PROVIDE A LABEL ADJACENT TO EACH SPD INDICATING THE CIRCUIT.
- ENCLOSURE: NEMA ICS 6, TYPE 1, HINGED, LATCHABLE COVER. PURPOSES.

DATE	DESCRIPTION
6 NOV 15	ISSUED FOR BID



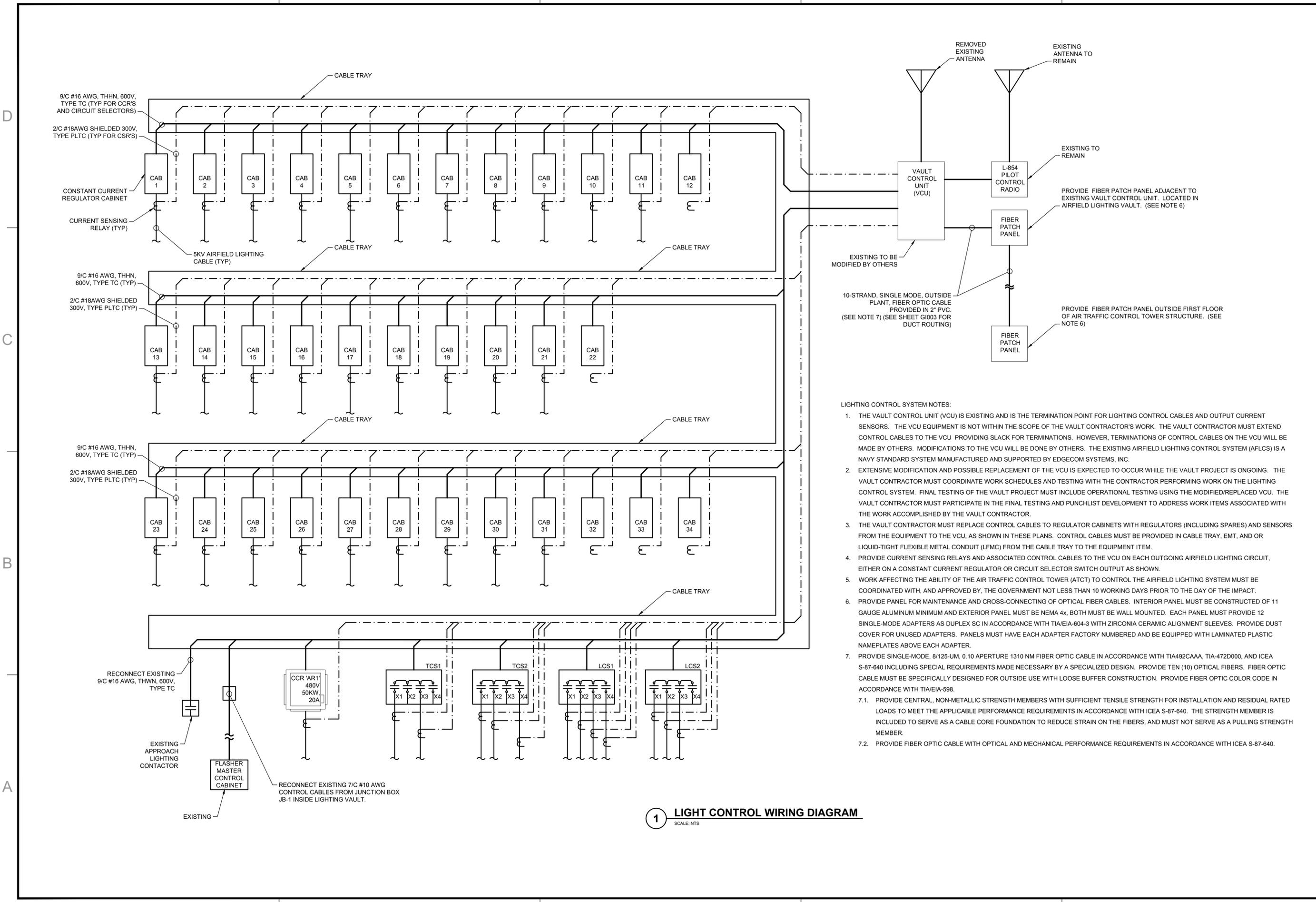
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 NAS CORPUS CHRISTI
 CORPUS CHRISTI, TEXAS
 NAS CORPUS CHRISTI AIRFIELD REPAIRS
 AIRFIELD LIGHTING VAULT
 RELAY PANEL DIAGRAM

SCALE: NTS
 EPROJECT NO:
 CONSTR. CONTR. NO.
 NAVFAC DRAWING NO: 15095122
 SHEET 52 OF 54
 E-614
 DRAWFORM REVISION: 5 APRIL 2012

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LIGHTING CONTROL SYSTEM NOTES:

1. THE VAULT CONTROL UNIT (VCU) IS EXISTING AND IS THE TERMINATION POINT FOR LIGHTING CONTROL CABLES AND OUTPUT CURRENT SENSORS. THE VCU EQUIPMENT IS NOT WITHIN THE SCOPE OF THE VAULT CONTRACTOR'S WORK. THE VAULT CONTRACTOR MUST EXTEND CONTROL CABLES TO THE VCU PROVIDING SLACK FOR TERMINATIONS. HOWEVER, TERMINATIONS OF CONTROL CABLES ON THE VCU WILL BE MADE BY OTHERS. MODIFICATIONS TO THE VCU WILL BE DONE BY OTHERS. THE EXISTING AIRFIELD LIGHTING CONTROL SYSTEM (AFLCS) IS A NAVY STANDARD SYSTEM MANUFACTURED AND SUPPORTED BY EDGECON SYSTEMS, INC.
2. EXTENSIVE MODIFICATION AND POSSIBLE REPLACEMENT OF THE VCU IS EXPECTED TO OCCUR WHILE THE VAULT PROJECT IS ONGOING. THE VAULT CONTRACTOR MUST COORDINATE WORK SCHEDULES AND TESTING WITH THE CONTRACTOR PERFORMING WORK ON THE LIGHTING CONTROL SYSTEM. FINAL TESTING OF THE VAULT PROJECT MUST INCLUDE OPERATIONAL TESTING USING THE MODIFIED/REPLACED VCU. THE VAULT CONTRACTOR MUST PARTICIPATE IN THE FINAL TESTING AND PUNCHLIST DEVELOPMENT TO ADDRESS WORK ITEMS ASSOCIATED WITH THE WORK ACCOMPLISHED BY THE VAULT CONTRACTOR.
3. THE VAULT CONTRACTOR MUST REPLACE CONTROL CABLES TO REGULATOR CABINETS WITH REGULATORS (INCLUDING SPARES) AND SENSORS FROM THE EQUIPMENT TO THE VCU, AS SHOWN IN THESE PLANS. CONTROL CABLES MUST BE PROVIDED IN CABLE TRAY, EMT, AND/OR LIQUID-TIGHT FLEXIBLE METAL CONDUIT (LFMC) FROM THE CABLE TRAY TO THE EQUIPMENT ITEM.
4. PROVIDE CURRENT SENSING RELAYS AND ASSOCIATED CONTROL CABLES TO THE VCU ON EACH OUTGOING AIRFIELD LIGHTING CIRCUIT, EITHER ON A CONSTANT CURRENT REGULATOR OR CIRCUIT SELECTOR SWITCH OUTPUT AS SHOWN.
5. WORK AFFECTING THE ABILITY OF THE AIR TRAFFIC CONTROL TOWER (ATCT) TO CONTROL THE AIRFIELD LIGHTING SYSTEM MUST BE COORDINATED WITH, AND APPROVED BY, THE GOVERNMENT NOT LESS THAN 10 WORKING DAYS PRIOR TO THE DAY OF THE IMPACT.
6. PROVIDE PANEL FOR MAINTENANCE AND CROSS-CONNECTING OF OPTICAL FIBER CABLES. INTERIOR PANEL MUST BE CONSTRUCTED OF 11 GAUGE ALUMINUM MINIMUM AND EXTERIOR PANEL MUST BE NEMA 4x, BOTH MUST BE WALL MOUNTED. EACH PANEL MUST PROVIDE 12 SINGLE-MODE ADAPTERS AS DUPLEX SC IN ACCORDANCE WITH TIA/EIA-604-3 WITH ZIRCONIA CERAMIC ALIGNMENT SLEEVES. PROVIDE DUST COVER FOR UNUSED ADAPTERS. PANELS MUST HAVE EACH ADAPTER FACTORY NUMBERED AND BE EQUIPPED WITH LAMINATED PLASTIC NAMEPLATES ABOVE EACH ADAPTER.
7. PROVIDE SINGLE-MODE, 8/125-UM, 0.10 APERTURE 1310 NM FIBER OPTIC CABLE IN ACCORDANCE WITH TIA492CAA, TIA-472D000, AND ICEA S-87-640 INCLUDING SPECIAL REQUIREMENTS MADE NECESSARY BY A SPECIALIZED DESIGN. PROVIDE TEN (10) OPTICAL FIBERS. FIBER OPTIC CABLE MUST BE SPECIFICALLY DESIGNED FOR OUTSIDE USE WITH LOOSE BUFFER CONSTRUCTION. PROVIDE FIBER OPTIC COLOR CODE IN ACCORDANCE WITH TIA/EIA-598.
 - 7.1. PROVIDE CENTRAL, NON-METALLIC STRENGTH MEMBERS WITH SUFFICIENT TENSILE STRENGTH FOR INSTALLATION AND RESIDUAL RATED LOADS TO MEET THE APPLICABLE PERFORMANCE REQUIREMENTS IN ACCORDANCE WITH ICEA S-87-640. THE STRENGTH MEMBER IS INCLUDED TO SERVE AS A CABLE CORE FOUNDATION TO REDUCE STRAIN ON THE FIBERS, AND MUST NOT SERVE AS A PULLING STRENGTH MEMBER.
 - 7.2. PROVIDE FIBER OPTIC CABLE WITH OPTICAL AND MECHANICAL PERFORMANCE REQUIREMENTS IN ACCORDANCE WITH ICEA S-87-640.

1 LIGHT CONTROL WIRING DIAGRAM
 SCALE: NTS

DATE	6 NOV 15
ISSUED FOR BID	0
DESCRIPTION	
<p>9711 Foster Court, Suite 100 Richmond, Virginia 23234 Phone: (804) 275-8301 • Fax: (804) 275-8371 www.deltairport.com Delta Project No. 14072 A&M</p>	
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FOR COMMANDER NAVFAC	
ACTIVITY	
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DES	DAB DRW DAB CHK JMM
PROJECT MANAGER	
PT TECH BRANCH HEAD	
CHIEF ENGINEER (CORE)	
<p>NAVAL FACILITIES ENGINEERING COMMAND NAVAL FACILITIES ENGINEERING COMMAND SOUTHEAST NAVAL AIR STATION JACKSONVILLE NAS CORPUS CHRISTI, TEXAS NAS CORPUS CHRISTI AIRFIELD REPAIRS AIRFIELD LIGHTING VAULT</p>	
<p>LIGHTING CONTROL WIRING DIAGRAM</p>	
SCALE:	NTS
PROJECT NO.:	15095124
CONSTR. CONTR. NO.:	
NAVFAC DRAWING NO.:	15095124
SHEET	54 of 54
<p>E-616</p>	
<p>DRAWFORM REVISION: 5 APRIL 2012</p>	