# SYMBOL LEGEND AND ABBREVIATIONS

| SYMBOL | DESCRIPTION |
|---|---|
| | RECEPTACLE, DUPLEX, NEMA 5–20R, CENTER LINE AT 18" AFF UNLESS OTHERWISE NOTED |
| $ | DISCONNECTING MEANS, WHEN USED WITH MOTOR SYMBOL |
| | MOTOR |
| $ | SINGLE–POLE TOGGLE SWITCH, MOUNTED WITH TOP OF BOX AT 48" AFF |
| | PENDANT MOUNTED FLUORESCENT FIXTURE, CROSSHATCH INDICATES EMERGENCY BATTERY LIGHTING SYSTEM |
| | HEAT DETECTOR |
| | AUDIBLE–VISIBLE NOTIFICATION APPLIANCE |
| X | KEYED NOTE IDENTIFIER |
| X | RACEWAY IDENTIFIER |

SECTION NUMBER, DETAIL, OR ENLARGED PLAN — 1 / E-120 — No. OF DRAWING WHERE DETAIL IS DRAWN

| SYMBOL | DESCRIPTION |
|---|---|
| | SEPARABLE CONNECTOR |
| | EQUIPMENT ENCLOSURE |
| | SWITCH |
| | TRANSFORMER, POWER, KVA RATING, WINDING VOLTAGES, AND CONNECTIONS SHOWN NEXT TO SYMBOL |
| | CONDUCTOR CONNECTION |
| | FUSE |

## ABBREVIATIONS

| ABBREV. | DESCRIPTION |
|---|---|
| A | AMPERES |
| AF | AMP FUSE |
| AFF | ABOVE FINISHED FLOOR |
| AIC | SYMMETRICAL AMPS INTERRUPTING CAPACITY |
| AS | AMP SWITCH |
| B.C. | BARE COPPER |
| C | CONDUIT OR CONDUCTOR |
| CU | COPPER |
| EF | EXHAUST FAN |
| FLA | FULL LOAD AMPS |
| GA | GAUGE |
| GND | GROUND |
| HP | HORSEPOWER |
| kVA | KILOVOLT–AMPERES |
| kV | KILOVOLTS |
| MIN. | MINIMUM |
| N | NEUTRAL |
| NEC | NATIONAL ELECTRICAL CODE |
| NEMA | NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION |
| NL | NIGHT LIGHT |
| P | POLES |
| PH | PHASE |
| QTY | QUANTITY |
| REF. | REFERENCE |
| TYP. | TYPICAL |
| V | VOLTS |
| VA | VOLT AMPERES |
| W | WIRE OR WATTS |
| ø | PHASE |

## GENERAL NOTES (APPLICABLE TO ALL ELECTRICAL SHEETS)

1. LAYOUTS SHOWN ON ELECTRICAL SHEETS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO DEPICT EXACT FIELD CONDITIONS. VERIFY ALL ASPECTS OF FIELD CONDITIONS BEFORE BEGINNING WORK.
2. FIRE STOPS SHALL BE PROVIDED AT ALL LOCATIONS WHERE ELECTRICAL EQUIPMENT OR SYSTEMS PENETRATE FIRE RATED WALLS.
3. CONTROL WIRING TO MECHANICAL EQUIPMENT IS NOT SHOWN ON THESE SHEETS.
4. SINGLE–LINE DIAGRAMS ARE MEANT TO SHOW ONLY VERTICAL AND ELECTRICAL RELATIONSHIPS AND THEREFORE MAY NOT INCLUDE ALL REQUIRED EQUIPMENT, DEVICES, AND ACCESSORIES.
5. ALL CONDUITS SHALL BE 1/2" MINIMUM.
6. SYMBOL SIZES SHOWN ON THESE SHEETS DO NOT IMPLY EQUIPMENT SIZES, UNLESS OTHERWISE NOTED.
7. CONDUCTORS SHALL BE COPPER, #12 AWG MINIMUM UNLESS INDICATED OR SPECIFIED OTHERWISE. USE MINIMUM #10 AWG CONDUCTORS FOR 120V CIRCUITS IN EXCESS OF 75' AND FOR 277V CIRCUITS IN EXCESS OF 200'
8. DRAWINGS INDICATE THE GENERAL ROUTES OF BRANCH CIRCUITS. HOME–RUNS ARE INDICATED AS STARTING FROM THE NEAREST OUTLET AND POINTING IN THE DIRECTION OF THE PANEL AS THOUGH THEIR ROUTES WERE SHOWN IN THEIR ENTIRETY. HOME–RUNS SHALL BE RUN CONTINUOUS TO THE BRANCH CIRCUIT PANELBOARD WITH PULL BOXES PROVIDED AS REQUIRED FOR INSTALLATION.
9. PHASING OF ELECTRICAL WORK SHALL BE CAREFULLY COORDINATED WITH BASE CIVIL ENGINEERING THROUGH THE CONTRACTING OFFICER. DO NOT PROCEED WITH DEMOLITION OR NEW WORK WITHOUT WRITTEN APPROVAL OF THE PHASING PLAN, INCLUDED IN THE PROJECT DESIGN ANALYSIS.

AS–BUILT DRAWINGS


Arnold Electric, Inc.
A certified SDB Company

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Electrical Engineers and Consultants
2510 N.W. 31st Street
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405-830-4788



PAULSGROVE ENGINEERING, P.L.L.C.
Certificate of Authorization: CA5464
Expiration Date: June 30, 2013


AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE
TINKER AFB, OK

PROJECT INFORMATION
W912BV-11-R-0024
REPLACE 12.5 KV SWITCHGEAR
BUILDING 1
TINKER AIR FORCE BASE, OKLAHOMA

MANAGEMENT INFORMATION
ISSUE DATE: 3-27-12
DESIGN GROUP: PAULSGROVE ENGR
DESIGNED BY: CSP
DRAWN BY: CSP
CHECKED BY: CSP

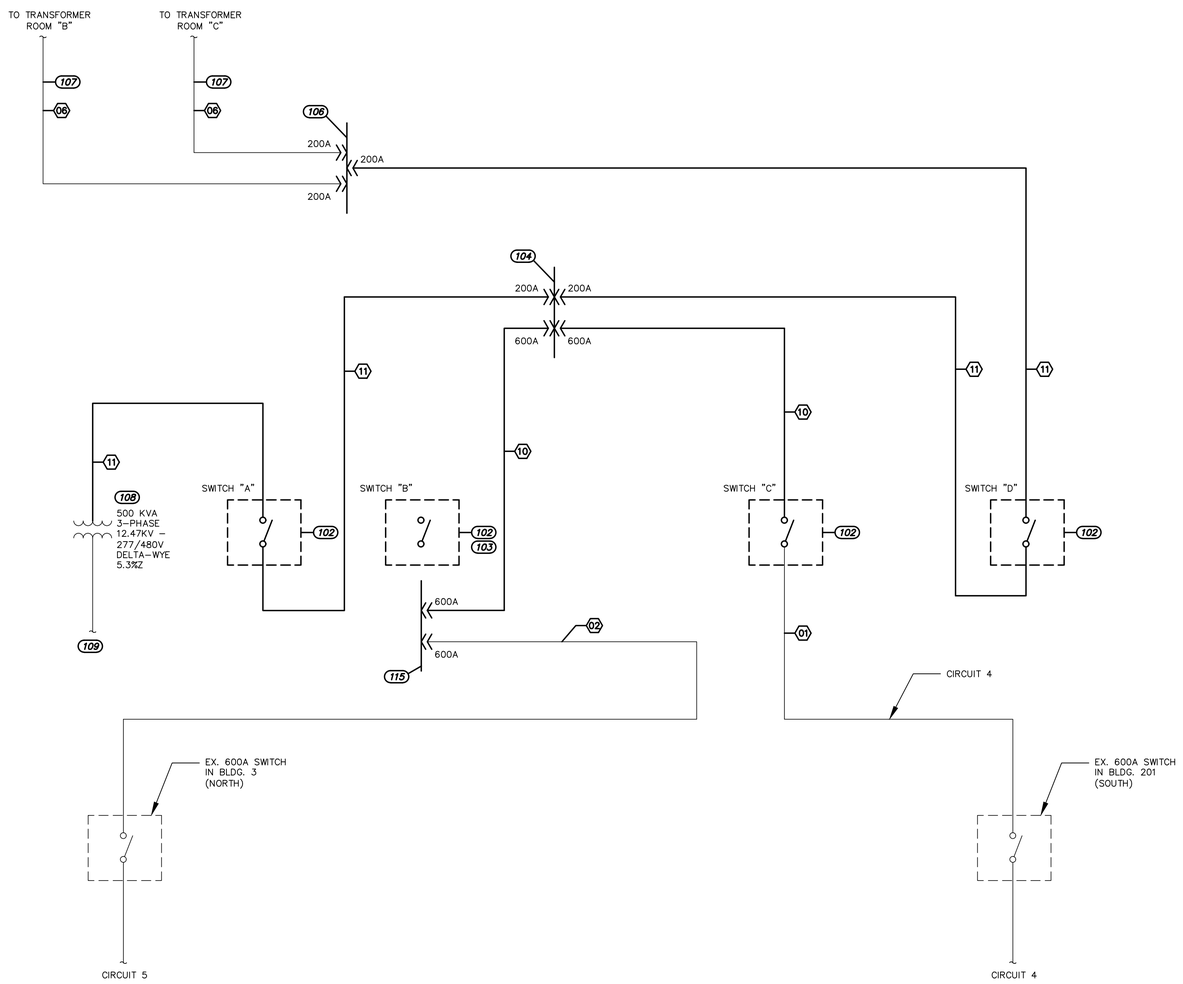
REVISIONS

| MARK | DATE | DESCRIPTION |
|---|---|---|
| | | |

SHEET TITLE
LEGEND, ABBREVIATIONS AND GENERAL REQUIREMENTS

SHEET NUMBER
E001

SHEET 6 OF 11




1 E100 15KV SINGLE-LINE DIAGRAM – DEMOLITION
SCALE: NONE

## GENERAL NOTES

1. REF. SHEET E001 FOR LEGEND, ABBREVIATIONS AND GENERAL REQUIREMENTS APPLICABLE TO WORK SHOWN ON THIS SHEET.
2. DEVICE QUANTITIES AND LOCATIONS INDICATED ON THESE PLANS ARE BASED ON AVAILABLE AS–BUILT DOCUMENTATION AND LIMITED FIELD OBSERVATION. CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS.
3. EXISTING ELECTRICAL SYSTEM IS TO REMAIN IN SERVICE UNLESS OTHERWISE NOTED. ALL CIRCUITS WHICH ARE DISTURBED BY DEMOLITION OR NEW CONSTRUCTION ARE TO BE RECONNECTED AT NO ADDITIONAL COST TO THE OWNER.
4. REMOVE ALL DEVICES INDICATED BY DARKENED LINES AND ASSOCIATED KEYED NOTES. REMOVE ALL DEVICES IN WALLS AND CEILINGS WHICH ARE SHOWN TO BE DEMOLISHED ON ARCHITECTURAL PLANS, WHETHER OR NOT SUCH DEVICES ARE SHOWN ON THESE PLANS.
5. REMOVE ALL BRANCH CIRCUIT CONDUIT AND CONDUCTORS SERVICE EQUIPMENT AND DEVICES WHICH WILL NOT LONGER BE USED UNLESS OTHERWISE NOTED.
6. PORTIONS OF CONDUIT LOCATED WITHIN WALLS OR FLOORS WHICH ARE NOT TO BE REMOVED MAY REMAIN IN PLACE AT THE CONTRACTOR'S OPTION. REMOVE ALL CONDUCTORS COMPLETE.
7. PHASING OF ELECTRICAL WORK SHALL BE CAREFULLY COORDINATED WITH BASE CIVIL ENGINEERING THROUGH THE CONTRACTING OFFICER. DO NOT PROCEED WITH DEMOLITION OR NEW WORK WITHOUT WRITTEN APPROVAL OF THE PHASING PLAN, INCLUDED IN THE PROJECT DESIGN ANALYSIS.

## KEYED NOTES THIS SHEET

(102) REMOVE EXISTING 15KV SWITCH COMPLETE.
(103) SWITCH HAS BEEN BYPASSED AND IS NOT IN USE.
(104) REMOVE LOAD BREAK ELBOW RACK LOCATED ON EAST WALL COMPLETE.
(106) REMOVE LOAD BREAK ELBOW RACK LOCATED ON CEILING COMPLETE.
(107) EXISTING 15KV CABLES SERVING TRANSFORMER ROOMS "B" AND "C", TO REMAIN.
(108) EXISTING 500 KVA 3– PHASE TRANSFORMER, 12.47 KV 480Y/277V, TO REMAIN.
(109) TO EXISTING SUBSTATION 277/480V SWITCHGEAR (TO REMAIN).
(115) REMOVE LOAD BREAK ELBOWS LOCATED ON FLOOR BELOW SWITCH "B".

## RACEWAY/CONDUCTOR SCHEDULE

(01) 3#500–1/C–15kV (133% INSUL) WITH GND (EXISTING) 4" C FROM BELOW GRADE, EXPOSED IN ROOM
(02) 3#500–1/C–15kV WITH GND (EXISTING) 4" C FROM BELOW GRADE, EXPOSED IN ROOM
(06) 3#2–1/C–15kV WITH GND (EXISTING)
(10) 3#500–1/C–15kV, EXPOSED (REMOVE)
(11) 3#2–1/C–15kV, EXPOSED (REMOVE)

AS–BUILT DRAWINGS

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AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE
TINKER AFB, OK

PROJECT INFORMATION
W912BV-11-R-0024
REPLACE 12.5 KV SWITCHGEAR
BUILDING 1
TINKER AIR FORCE BASE, OKLAHOMA

REVISIONS

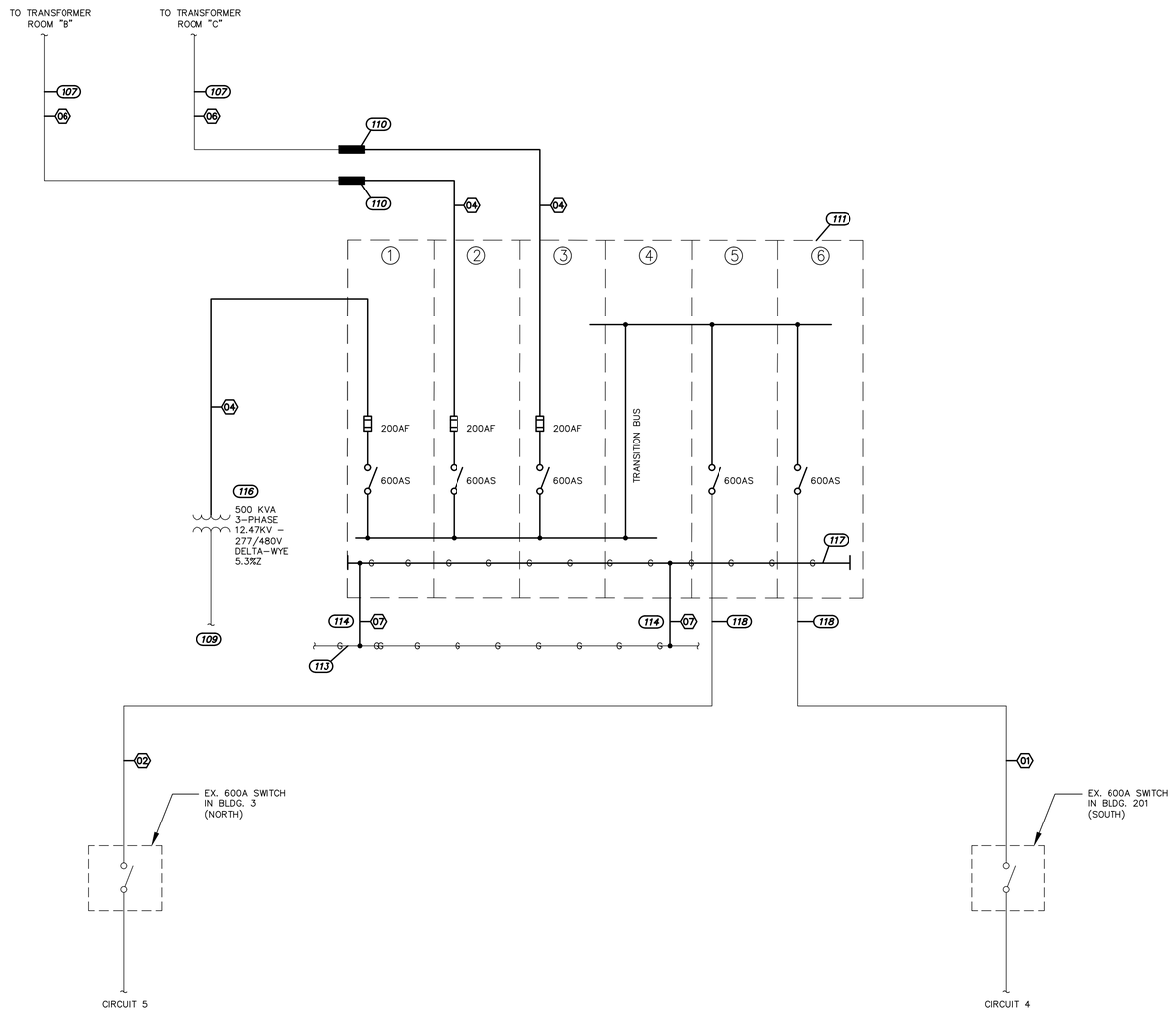
| MARK | DATE | DESCRIPTION |
|---|---|---|
| | | |

MANAGEMENT INFORMATION
ISSUE DATE: 3-27-12
DESIGN GROUP: PAULSGROVE ENGR
DESIGNED BY: CSP
DRAWN BY: CSP
CHECKED BY: CSP

SHEET TITLE
15 KV SINGLE-LINE DIAGRAM, DEMOLITION

SHEET NUMBER
E100

SHEET 7 OF 11




1 E101 15KV SINGLE-LINE DIAGRAM - NEW CONSTRUCTION
SCALE: NONE

## GENERAL NOTES

1. REF. SHEET E001 FOR LEGEND, ABBREVIATIONS, AND GENERAL REQUIREMENTS APPLICABLE TO WORK SHOWN ON THIS SHEET.
2. SINGLE-LINE DIAGRAMS ARE INTENDED TO SHOW ONLY ELECTRICAL RELATIONSHIPS AND THEREFORE MAY NOT INCLUDE ALL REQUIRED EQUIPMENT, DEVICES AND ACCESSORIES.
3. ALL EQUIPMENT SHALL BE FULLY RATED.
4. PHASING OF ELECTRICAL WORK SHALL BE CAREFULLY COORDINATED WITH BASE CIVIL ENGINEERING THROUGH THE CONTRACTING OFFICER. DO NOT PROCEED WITH DEMOLITION OR NEW WORK WITHOUT WRITTEN APPROVAL OF THE PHASING PLAN, INCLUDED IN THE PROJECT DESIGN ANALYSIS.

## KEYED NOTES THIS SHEET

(107) EXISTING 15KV CABLES SERVING TRANSFORMER ROOMS "B" AND "C", TO REMAIN.

(109) TO EXISTING SUBSTATION 277/480V SWITCHGEAR (TO REMAIN).

(110) SPLICE NEW 15KV CABLES TO EXISTING, IN CABLE TRAY.

(111) PROVIDE NEW 15KV COMPACT SWITCHGEAR, (2) 600A NON-FUSED AND (3) 600A FUSED SWITCHES. PROVIDE FAULT INDICATORS.

(113) EXISTING TRANSFORMER ROOM GROUND BUS.

(114) BOND NEW SWITCHGEAR GROUND BUS TO EXISTING ROOM GROUND BUS.

(116) RECONNECT NEW 15KV FEEDER TO EXISTING SUBSTATION TRANSFORMER.

(117) GROUND BUS IN SWITCHGEAR.

(118) REROUTE EXISTING 15KV CABLES INTO NEW SWITCHGEAR.

## RACEWAY/CONDUCTOR SCHEDULE

(01) 3#500-1/C-15kV (133% INSUL) WITH GND (EXISTING) 4"C FROM BELOW GRADE, EXPOSED IN ROOM

(02) 3#500-1/C-15kV WITH GND (EXISTING) 4" C FROM BELOW GRADE, EXPOSED IN ROOM

(04) 3#2-1/C-15kV WITH GND (IN 4" CONDUIT AND CABLE TRAY)

(06) 3#2-1/C-15kV WITH GND (EXISTING)

(07) #4/0-600V COPPER GROUND

AS-BUILT DRAWINGS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MANAGEMENT INFORMATION
ISSUE DATE: 3-27-12
DESIGN GROUP: PAULSGROVE ENGR
DESIGNED BY: CSP
DRAWN BY: CSP
CHECKED BY: CSP

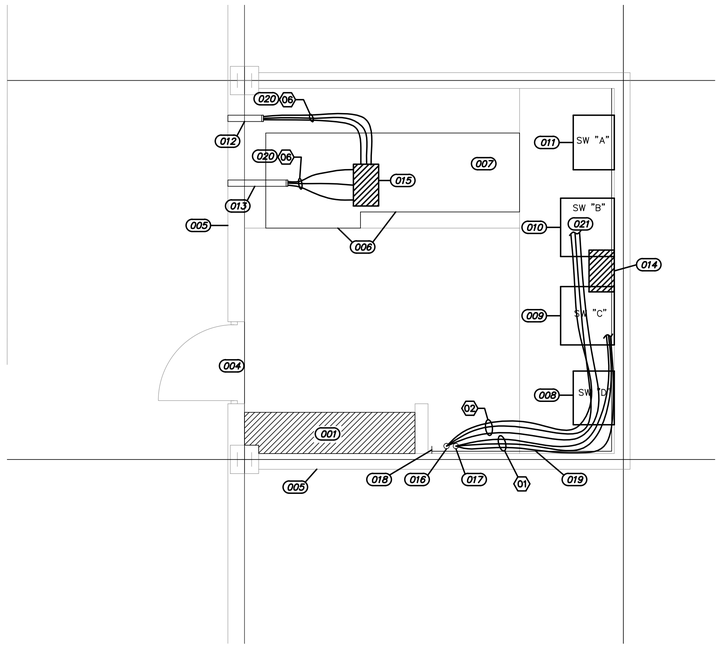
REVISIONS

| MARK | DATE | DESCRIPTION |
|---|---|---|

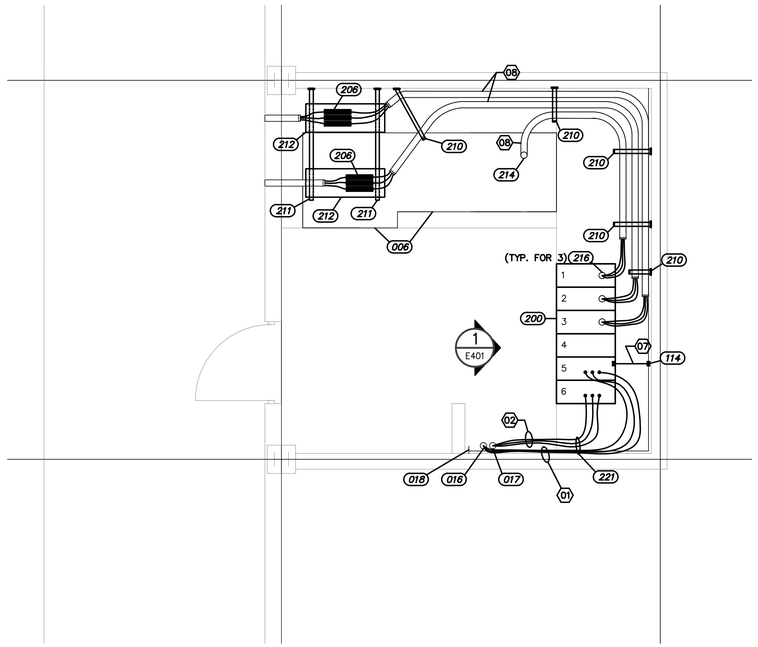
SHEET TITLE
15 KV SINGLE-LINE DIAGRAM - NEW CONSTRUCTION

SHEET NUMBER
E101

SHEET 8 OF 11




1 E201 ELECTRICAL PLAN – DEMOLITION
SCALE: 1/4" = 1'–0"
NORTH




2 E201 ELECTRICAL PLAN – NEW CONSTRUCTION
SCALE: 1/4" = 1'–0"
NORTH

## KEYED NOTES THIS SHEET

(001) ABANDONED TRANSFORMER VAULT AREA, INCLUDES NUMEROUS CONDUIT EXTENDING BELOW THE FLOOR. CUT ALL CONDUIT FLUSH WITH FLOOR AND GROUT.

(004) DOOR TO BE REPLACED, REF. ARCHITECTURAL.

(005) EXTERIOR WALL TO BE REVISED, REF. ARCHITECTURAL.

(006) EXISTING SUBSTATION (12.47KV – 277/480V TRANSFORMER AND DISTRIBUTION SWITCHBOARD), TO REMAIN.

(007) REMOVE EXISTING PRIMARY FEEDER COMPLETE FROM NORTHERNMOST 15KV SWITCH AND RECONNECT TO COMPACT SWITCH, REF. SINGLE–LINE DIAGRAM.

(008) 15KV SWITCH SERVING "SOUTH TRANSFORMER ROOM, WELD SHOP", TO BE REMOVED COMPLETE, REF. SINGLE–LINE DIAGRAM.

(009) 15KV SWITCH, INCOMING FROM BUILDING 201, TO BE REMOVED COMPLETE, REF. SINGLE–LINE DIAGRAM.

(010) 15KV SWITCH, INCOMING FROM BUILDING 3, TO BE REMOVED COMPLETE, REF. SINGLE–LINE DIAGRAM.

(011) 15KV SWITCH SERVING "CENTER TRANSFORMER ROOM" TRANSFORMER (THIS ROOM – KEYED NOTE 007), TO BE REMOVED COMPLETE, REF. SINGLE–LINE DIAGRAM.

(012) 4" CONDUIT WITH 15KV FEEDER TO "NORTH TRANSFORMER ROOM". CONDUIT AND CABLES ARE TO REMAIN AND TO BE RECONNECTED TO NEW COMPACT SWITCH, REF. REVISED PLAN, THIS SHEET, AND SINGLE–LINE DIAGRAM.

(013) 4" CONDUIT WITH 15KV FEEDER TO "SOUTH TRANSFORMER ROOM". CONDUIT AND CABLES ARE TO REMAIN AND TO BE RECONNECTED TO NEW COMPACT SWITCH, REF. REVISED PLAN, THIS SHEET, AND SINGLE–LINE DIAGRAM.

(014) LOAD BREAK ELBOW RACK, WALL MOUNTED, TO BE REMOVED COMPLETE, REF. SINGLE–LINE DIAGRAM.

(015) LOAD BREAK ELBOW RACK, CEILING MOUNTED, TO BE REMOVED COMPLETE, REF. SINGLE–LINE DIAGRAM.

(016) 4" CONDUIT WITH 15KV CABLES FROM BUILDING 3 (UNDERGROUND), TO REMAIN. CABLES ARE TO BE RECONNECTED TO NEW COMPACT SWITCH.

(017) 4" CONDUIT WITH 15KV CABLES FROM BUILDING 201 (UNDERGROUND), TO REMAIN. CABLES ARE TO BE RECONNECTED TO NEW COMPACT SWITCH.

(018) EXISTING GROUNDING CONNECTION POINT, TO REMAIN.

(019) GROUND BUS, TO REMAIN. EXTENDS AROUND SOUTH AND EAST WALLS OF ROOM AS WELL AS ACROSS CEILING SOUTH TO NORTH.

(020) EXISTING CABLES ARE TO BE SPLICE TO NEW, REF. DETAIL 2, THIS SHEET.

(021) INCOMING CABLES CONNECT TO LOAD BREAK ELBOWS LOCATED ON FLOOR BELOW SWITCH B. SWITCH B HAS BEEN BYPASSED AND IS NO LONGER IN USE. REF. SINGLE–LINE DIAGRAM.

(114) BOND NEW SWITCHGEAR GROUND BUS TO EXISTING ROOM GROUND BUS.

(200) NEW 15KV COMPACT SWITCHGEAR WITH, (2) 600A NON–FUSED AND (3) 600A FUSED SWITCHES, REF. SINGLE–LINE DIAGRAM.

(206) SPLICE NEW 3–1/C, #2, 15KV CABLES TO EXISTING IN NEW CABLE TRAY.

(210) CONDUIT SUPPORT RACKS, WALL MOUNTED NEAR CEILING.

(211) WALL–MOUNTED CABLE TRAY SUPPORTS.

(212) PROVIDE NEW CABLE TRAY, SUPPORTED FROM WALL, 18" WIDE X 4" DEEP X 60" LONG.

(214) DOWN TO TRANSFORMER.

(216) PROVIDE INSULATED BUSHINGS FOR CABLE ENTRANCE INTO TOP–HAT.

(221) EXTEND INCOMING 15KV FEEDER CABLES VIA WALL MOUNTED CABLE RACKS FOR BOTTOM ENTRANCE INTO NEW SWITCHGEAR.

## RACEWAY/CONDUCTOR SCHEDULE

(01) 3#500–1/C–15kV (133% INSUL) WITH GND (EXISTING) 4"C FROM BELOW GRADE, EXPOSED IN ROOM

(02) 3#500–1/C–15kV WITH GND (EXISTING) 4" C FROM BELOW GRADE, EXPOSED IN ROOM

(06) 3#2–1/C–15kV WITH GND (EXISTING)

(07) #4/0–600V COPPER GROUND

(08) 4"C–3#2–1/C–15kV WITH GND

## GENERAL NOTES

1. REF. SHEET E001 FOR LEGEND, ABBREVIATIONS AND GENERAL REQUIREMENTS APPLICABLE TO WORK SHOWN ON THIS SHEET.
2. ELECTRICAL EQUIPMENT LAYOUTS SHOWN ARE BASED ON DIMENSIONAL INFORMATION WHICH MAY VERY DEPENDING UPON MANUFACTURER SELECTED. THE CONTRACTOR SHALL VERIFY THAT EQUIPMENT SELECTED IS SUITABLE FOR INSTALLATION IN THE SPACES INDICATED. NATIONAL ELECTRICAL CODE MANDATED WORKING CLEARANCES, CLEAR SPACES, HEADROOM, AND MOUNTING HEIGHTS SHALL BE MAINTAINED. INDICATED LAYOUTS MAY BE REVISED AT THE DISCRETION OF THE CONTRACTOR. ALL REVISIONS SHALL BE SUBMITTED IN WRITING FOR THE APPROVAL OF THE ARCHITECT/OWNER.
3. ALL PENETRATIONS SHALL BE FIRE–STOPPED.
4. PHASING OF ELECTRICAL WORK SHALL BE CAREFULLY COORDINATED WITH BASE CIVIL ENGINEERING THROUGH THE CONTRACTING OFFICER. DO NOT PROCEED WITH DEMOLITION OR NEW WORK WITHOUT WRITTEN APPROVAL OF THE PHASING PLAN, INCLUDED IN THE PROJECT DESIGN ANALYSIS.
5. DO NOT SUPPORT ANY DEVICES, CONDUIT OR CABLING FROM CEILING. DO NOT ALTER OR DISTURB CEILING IN ANY WAY.

## DEMOLITION NOTES

1. REF. SHEET E001 FOR LEGEND, ABBREVIATIONS AND GENERAL REQUIREMENTS APPLICABLE TO WORK SHOWN ON THIS SHEET.
2. DEVICE QUANTITIES AND LOCATIONS INDICATED ON THESE PLANS ARE BASED ON AVAILABLE AS–BUILT DOCUMENTATION AND LIMITED FIELD OBSERVATION. CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS.
3. EXISTING ELECTRICAL SYSTEM IS TO REMAIN IN SERVICE UNLESS OTHERWISE NOTED. ALL CIRCUITS WHICH ARE DISTURBED BY DEMOLITION OR NEW CONSTRUCTION ARE TO BE RECONNECTED AT NO ADDITIONAL COST TO THE OWNER.
4. REMOVE ALL DEVICES INDICATED BY DARKENED LINES AND ASSOCIATED KEYED NOTES. REMOVE ALL DEVICES IN WALLS AND CEILINGS WHICH ARE SHOWN TO BE DEMOLISHED ON ARCHITECTURAL PLANS, WHETHER OR NOT SUCH DEVICES ARE SHOWN ON THESE PLANS.
5. REMOVE ALL BRANCH CIRCUIT CONDUIT AND CONDUCTORS SERVICE EQUIPMENT AND DEVICES WHICH WILL NOT LONGER BE USED UNLESS OTHERWISE NOTED.
6. PORTIONS OF CONDUIT LOCATED WITHIN WALLS OR FLOORS WHICH ARE NOT TO BE REMOVED MAY REMAIN IN PLACE AT THE CONTRACTOR'S OPTION. REMOVE ALL CONDUCTORS COMPLETE.

AS–BUILT DRAWINGS

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REVISIONS

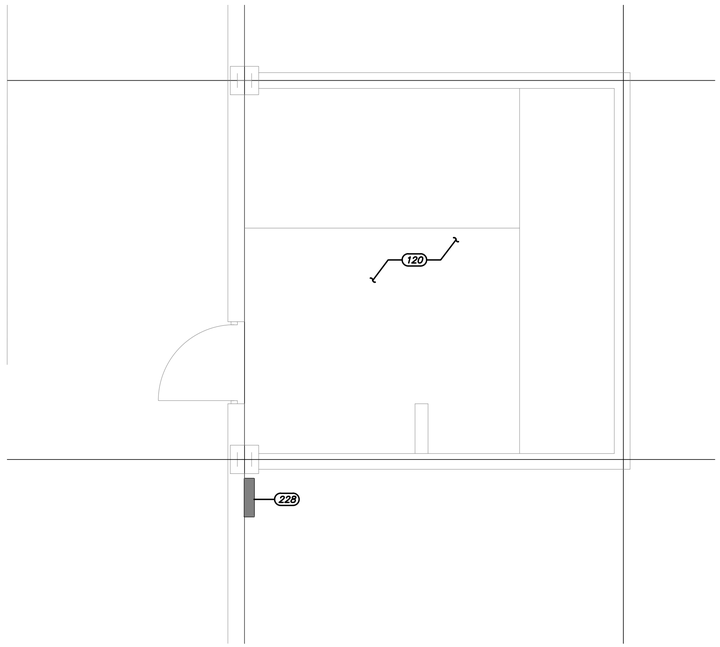
| MARK | DATE | DESCRIPTION |
|---|---|---|
| | | |

MANAGEMENT INFORMATION
ISSUE DATE: 3-27-12
DESIGN GROUP: PAULSGROVE ENGR
DESIGNED BY: CSP
DRAWN BY: CSP
CHECKED BY: CSP

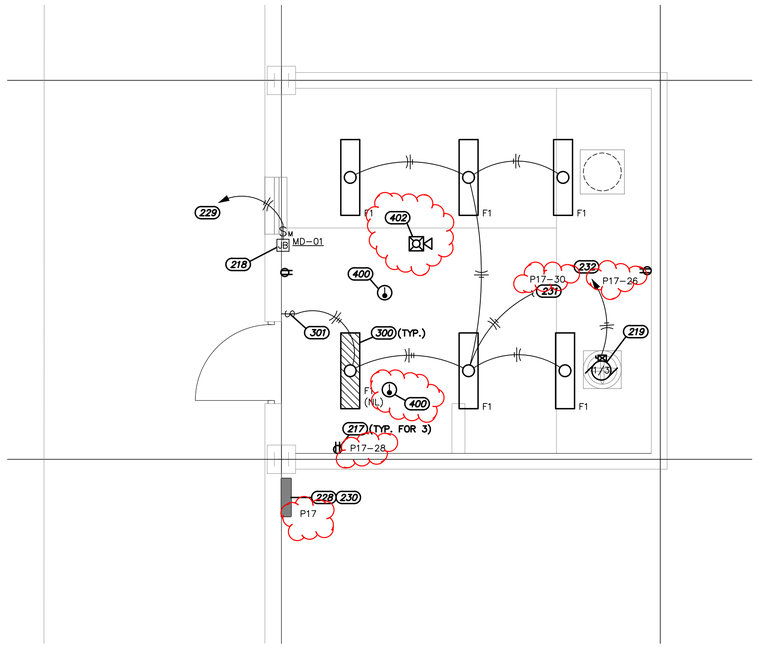
SHEET TITLE
ELECTRICAL PLANS - DEMOLITION AND NEW CONSTRUCTION (MEDIUM VOLTAGE)

SHEET NUMBER
E201

SHEET 9 OF 11




1 E202 ELECTRICAL PLAN – DEMOLITION
SCALE: 1/4" = 1'-0"
NORTH




2 E202 ELECTRICAL PLAN – NEW CONSTRUCTION
SCALE: 1/4" = 1'-0"
NORTH

## GENERAL NOTES

1. REF. SHEET E001 FOR LEGEND, ABBREVIATIONS AND GENERAL REQUIREMENTS APPLICABLE TO WORK SHOWN ON THIS SHEET.
2. ELECTRICAL EQUIPMENT LAYOUTS SHOWN ARE BASED ON DIMENSIONAL INFORMATION WHICH MAY VERY DEPENDING UPON MANUFACTURER SELECTED. THE CONTRACTOR SHALL VERIFY THAT EQUIPMENT SELECTED IS SUITABLE FOR INSTALLATION IN THE SPACES INDICATED. NATIONAL ELECTRICAL CODE MANDATED WORKING CLEARANCES, CLEAR SPACES, HEADROOM, AND MOUNTING HEIGHTS SHALL BE MAINTAINED. INDICATED LAYOUTS MAY BE REVISED AT THE DISCRETION OF THE CONTRACTOR. ALL REVISIONS SHALL BE SUBMITTED IN WRITING FOR THE APPROVAL OF THE ARCHITECT/OWNER.
3. DO NOT SUPPORT ANY DEVICES, CONDUIT OR CABLING FROM CEILING. DO NOT ALTER OR DISTURB CEILING IN ANY WAY.

## DEMOLITION NOTES

1. REF. SHEET E001 FOR LEGEND, ABBREVIATIONS AND GENERAL REQUIREMENTS APPLICABLE TO WORK SHOWN ON THIS SHEET.
2. DEVICE QUANTITIES AND LOCATIONS INDICATED ON THESE PLANS ARE BASED ON AVAILABLE AS–BUILT DOCUMENTATION AND LIMITED FIELD OBSERVATION. CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS.
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4. REMOVE ALL DEVICES INDICATED BY DARKENED LINES AND ASSOCIATED KEYED NOTES. REMOVE ALL DEVICES IN WALLS AND CEILINGS WHICH ARE SHOWN TO BE DEMOLISHED ON ARCHITECTURAL PLANS, WHETHER OR NOT SUCH DEVICES ARE SHOWN ON THESE PLANS.
5. REMOVE ALL BRANCH CIRCUIT CONDUIT AND CONDUCTORS SERVICE EQUIPMENT AND DEVICES WHICH WILL NOT LONGER BE USED UNLESS OTHERWISE NOTED.
6. PORTIONS OF CONDUIT LOCATED WITHIN WALLS OR FLOORS WHICH ARE NOT TO BE REMOVED MAY REMAIN IN PLACE AT THE CONTRACTOR'S OPTION. REMOVE ALL CONDUCTORS COMPLETE.

## KEYED NOTES THIS SHEET

(120) REMOVE EXISTING LIGHTING, RECEPTACLES, AND FIRE ALARM DEVICES FROM TRANSFORMER ROOM. VERIFY AND REMOVE ALL ELECTRICAL CONDUIT, WIRING AND DEVICES FROM PORTIONS OF WALLS WHICH ARE BEING DEMOLISHED.

(217) PROVIDE (3) NEW DUPLEX RECEPTACLES IN TRANSFORMER ROOM, SURFACE MOUNTED. CONNECT TO EXISTING RECEPTACLE CIRCUIT. PROVIDE BLACK DEVICES WITH GALVANIZED STEEL COVERPLATES.

(218) PROVIDE 120V POWER AND ALL CONNECTIONS AS REQUIRED FOR MOTORIZED DAMPER, FLA = 9. COORDINATE REQUIREMENTS WITH MECHANICAL. PROVIDE MOTOR–RATED TOGGLE SWITCH FOR DISCONNECTION.

(219) PROVIDE 120V POWER AND ALL CONNECTIONS AS REQUIRED FOR NEW 1/3 HP EXHAUST FAN. COORDINATE REQUIREMENTS WITH MECHANICAL. FAN IS TO BE LOCATED BETWEEN SUBSTATION ROOM ROOF AND BUILDING ROOF, SUPPORTED FROM BUILDING ROOF. FAN IS TO BE PROVIDED WITH DISCONNECTING MEANS AND STARTER, REF. MECHANICAL.

(228) EXISTING PANELBOARD TO REMAIN. PROTECT AS REQUIRED DURING WORK ASSOCIATED WITH ADJACENT WALL.

(229) EXTEND CIRCUIT FOR MOTORIZED DAMPER FROM PANELBOARD LOCATED SOUTH OF SUBSTATION ROOM.

(230) PROVIDE (1) 20A/1P CIRCUIT BREAKER FOR MOTORIZED DAMPER AND (1) 20A/1P CIRCUIT BREAKER FOR EXHAUST FAN IN EXISTING PANELBOARD.

(231) RECONNECT TO EXISTING LIGHTING CIRCUIT.

(232) EXTEND CIRCUIT FOR NEW EXHAUST FAN FROM PANELBOARD LOCATED SOUTH OF SUBSTATION ROOM.

(300) PROVIDE (6) NEW CHAIN–HUNG INDUSTRIAL FLUORESCENT LIGHT FIXTURES, 277V, (2) 32WT8 LAMPS, WIRE GUARD, 20% UPLIGHT, INSTANT START ELECTRONIC BALLASTS, <10% THD, EQUIVALENT TO LITHONIA AF 2 32 MVOLT. RECONNECT TO EXISTING CIRCUIT. PROVIDE EMERGENCY BATTERY PACK, 1100 LUMEN MINIM, FOR CROSSHATCHED FIXTURE.

(301) PROVIDE NEW LIGHT SWITCH FOR TRANSFORMER ROOM LIGHTING, SURFACE MOUNTED. PROVIDE BLACK DEVICE WITH GALVANIZED STEEL COVERPLATE.

(400) PROVIDE (2) NEW HEAT DETECTORS. CONNECT TO EXISTING FIRE ALARM SYSTEM.

(402) PROVIDE NEW HORN/STROBE. CONNECT TO EXISTING FIRE ALARM SYSTEM.

AS–BUILT DRAWINGS

Arnold Electric, Inc.
A certified SDB Company

PAULSGROVE ENGINEERING, P.L.L.C.
Electrical Engineers and Consultants
2510 N.W. 31st Street
Newcastle, OK 73065
405-830-4788

PAULSGROVE ENGINEERING, P.L.L.C.
Certificate of Authorization: CA5464
Expiration Date: June 30, 2013

AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE
TINKER AFB, OK

PROJECT INFORMATION
W912BV-11-R-0024
REPLACE 12.5 KV SWITCHGEAR
BUILDING 1
TINKER AIR FORCE BASE, OKLAHOMA

REVISIONS

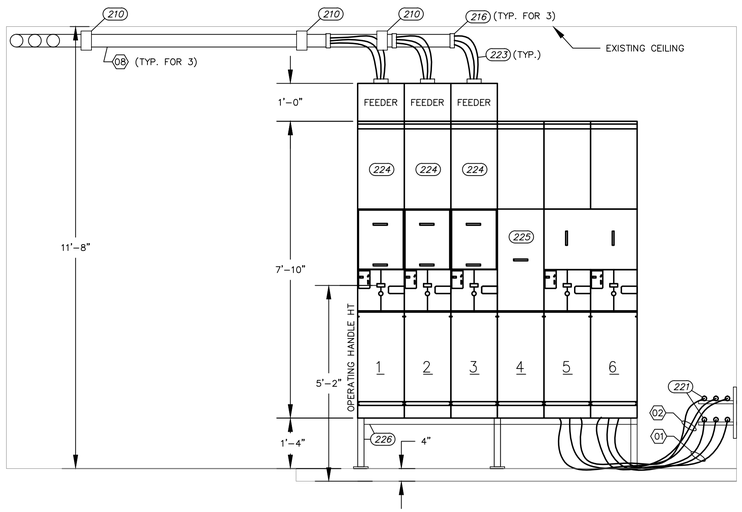
| MARK | DATE | DESCRIPTION |
|---|---|---|
| | | |

MANAGEMENT INFORMATION
ISSUE DATE: 3-27-12
DESIGN GROUP: PAULSGROVE ENGR
DESIGNED BY: CSP
DRAWN BY: CSP
CHECKED BY: CSP

SHEET TITLE
ELECTRICAL PLANS - DEMOLITION AND NEW CONSTRUCTION (LOW VOLTAGE)

SHEET NUMBER
E202

SHEET 10 OF 11




1 E401 ELEVATION – EAST WALL
SCALE: 1/2" = 1'-0"

## GENERAL NOTES

1. REF. SHEET E000 FOR LEGEND, ABBREVIATIONS AND GENERAL REQUIREMENTS APPLICABLE TO WORK SHOWN ON THIS SHEET.
2. ELECTRICAL EQUIPMENT LAYOUTS SHOWN ARE BASED ON DIMENSIONAL INFORMATION WHICH MAY VERY DEPENDING UPON MANUFACTURER SELECTED. THE CONTRACTOR SHALL VERIFY THAT EQUIPMENT SELECTED IS SUITABLE FOR INSTALLATION IN THE SPACES INDICATED. NATIONAL ELECTRICAL CODE MANDATED WORKING CLEARANCES, CLEAR SPACES, HEADROOM, AND MOUNTING HEIGHTS SHALL BE MAINTAINED. INDICATED LAYOUTS MAY BE REVISED AT THE DISCRETION OF THE CONTRACTOR. ALL REVISIONS SHALL BE SUBMITTED IN WRITING FOR THE APPROVAL OF THE ARCHITECT/OWNER.
3. PHASING OF ELECTRICAL WORK SHALL BE CAREFULLY COORDINATED WITH BASE CIVIL ENGINEERING THROUGH THE CONTRACTING OFFICER. DO NOT PROCEED WITH DEMOLITION OR NEW WORK WITHOUT WRITTEN APPROVAL OF THE PHASING PLAN, INCLUDED IN THE PROJECT DESIGN ANALYSIS.

## KEYED NOTES THIS SHEET

(210) CONDUIT SUPPORT RACKS, WALL MOUNTED NEAR CEILING.

(216) PROVIDE INSULATED BUSHINGS FOR CABLE ENTRANCE INTO TOP-HAT.

(221) EXTEND INCOMING 15KV FEEDER CABLES VIA WALL MOUNTED CABLE RACKS FOR BOTTOM ENTRANCE INTO NEW SWITCHGEAR.

(223) OPEN CABLING INTO TOP HAT.

(224) FUSE COMPARTMENT (3-200AF).

(225) TRANSITION SECTION.

(226) PROVIDE 1'-4" HIGH PEDESTAL FOR MOUNTING OF 15KV SWITCHES. PROVIDE SHOP DRAWINGS FOR REVIEW.

## RACEWAY/CONDUCTOR SCHEDULE

(01) 3#500-1/C-15kV (133% INSUL) WITH GND (EXISTING) 4"C FROM BELOW GRADE, EXPOSED IN ROOM

(02) 3#500-1/C-15kV WITH GND (EXISTING) 4" C FROM BELOW GRADE, EXPOSED IN ROOM

(08) 4"C-3#2-1/C-15kV WITH GND

AS-BUILT DRAWINGS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SHEET TITLE
15KV
SWITCHGEAR
ELEVATION

SHEET NUMBER
E401

SHEET 11 OF 11