



1. MINIMUM SIZE FOR BRANCH CIRCUIT CONDUITS SHALL BE 3/4". MINIMUM DATA/COMMUNICATIONS CONDUIT SIZE SHALL BE 1". SEE DRAWINGS FOR AREAS WHERE LARGER CONDUITS ARE REQUIRED.
2. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH SINGLE POLE BRANCH CIRCUIT.
3. PROVIDE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR WITH ALL NEW FEEDER AND BRANCH CONDUCTORS.
4. SUBCONTRACT VA CONTROLS CONTRACTOR TO CONNECT NEW VFDs TO EXISTING CONTROLS SYSTEM. PROVIDE ALL ASSOCIATED EQUIPMENT REQUIRED TO CONNECT FIRE ALARM, UNIT SHUT DOWN, AND ANY OTHER SYSTEMS CURRENTLY IN PLACE.
5. REPLACE EXISTING GENERAL DUTY MOTORS WITH INVERTER DUTY MOTORS FOR ALL MOTORS REQUIRED TO BE REPLACED. REFER TO ONE-LINE AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

A. THE INTENT OF THE DEMOLITION DRAWINGS IS TO DEFINE THE SCOPE OF ELECTRICAL DEMOLITION WORK. PROVIDE DEMOLITION FOR ITEMS AS SHOWN.

B. ITEMS INDICATED WITH A SUBSCRIPT "E" SHALL BE EXISTING TO REMAIN (E-EXISTING). ITEMS INDICATED WITH A SUBSCRIPT "D" OR SHOWN HATCHED SHALL BE REMOVED (D-DEMOLITION).

C. THESE DRAWINGS DO NOT IDENTIFY EACH INDIVIDUAL ITEM TO BE REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING ITEMS WHICH MUST BE REMOVED TO FACILITATE NEW CONSTRUCTION. SEE ARCHITECTURAL PLANS FOR EXACT LIMITS OF DEMOLITION AND CONSTRUCTION. THESE PLANS ARE PART OF THE PROJECT AND SHALL BE PROVIDED TO THE CONTRACTOR. THESE DRAWINGS ARE PROVIDED TO THE CONTRACTOR AS AN AID IN DETERMINING THE EXTENT OF WORK REQUIRED FOR DEMOLITION AND TO PROVIDE GENERAL INFORMATION ABOUT EXISTING SYSTEMS. THESE DRAWINGS MAY NOT BE ACCURATE. ALL WORK SHALL BE VERIFIED BY VISUALLY INSPECTING THE SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS AND IS ENCOURAGED TO REVIEW FACILITY DRAWINGS PRIOR TO THE BID DATE.

- THE OWNER SHALL HAVE FIRST SALVAGE RIGHTS TO ALL ITEMS REMOVED. OWNER REFUSES SALVAGE, CONTRACTOR IS RESPONSIBLE FOR DISPOSAL.
- E. WHERE EXISTING WALLS ARE TO BE REMOVED, ALL ASSOCIATED ELECTRICAL EQUIPMENT SHALL BE REMOVED. DISCONNECT POWER SO THAT DEVICES AND WIRING ARE NOT RE-ENERGIZED. REMOVE ALL ELECTRICAL DEVICES AND WIRING FROM WALLS TO BE REMOVED. ABANDON CONCEALED CONDUITS WHERE WALLS ARE NOT REMOVED. CONCEALED CONDUITS MAY BE REUSED WHERE AVAILABLE. WHERE EXISTING CIRCUITING/CABLING IS TO BE DEMOLISHED AND REPLACED, REMOVE ALL ELECTRICAL DEVICES AND WIRING FROM WALLS, RACEWAYS/CONDUIT BACK TO THE SOURCE. WHERE EXISTING ELECTRICAL CONDUITS SERVING CIRCUITS TO BE DEMOLISHED ARE EMBEDDED IN CONCRETE FLOORS OR WALLS, CONDUITS MAY BE ABANDONED IN PLACE. EXISTING ELECTRICAL DEVICES AND WIRING TO BE REMOVED SHALL BE CUT AT SURFACE OF CONCRETE AND FILLED. EXISTING BACK BOXES AND CONDUITS REMAINING FROM DEVICES BEING REMOVED MAY BE UTILIZED FOR NEW ELECTRICAL WIRING PROVIDED THEY REMAIN IN GOOD CONDITION AND ARE NOT REUSED. REMOVE CONCRETE EQUIPMENT PADS THAT REMAIN, TO BE FLUSH WITH FLOOR/GRADE.
- F. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL ELECTRICAL EQUIPMENT, DISCONNECT AND REMOVE ELECTRICAL DEVICES, EQUIPMENT AND ACCESSORIES AS REQUIRED. REMOVE AND ABANDON NEW WORKS THAT THE CONTRACTOR IS UNCLEAR REGARDING A SPECIFIC ITEM TO REMAIN OR BE REMOVED, THE CONTRACTOR SHALL SEEK CLARIFICATION FROM THE ARCHITECT.
- G. SYSTEMS SERVING ADJACENT AREAS AND ITEMS THAT REQUIRE SHALL BE MAINTAINED AT ALL TIMES. MODIFY SYSTEMS AS REQUIRED THROUGHOUT CONSTRUCTION TO MAINTAIN CONTINUITY OF SERVICE. DO NOT INTERRUPT SERVICE WITHOUT OWNER'S PRIOR WRITTEN APPROVAL. LIMIT DURATION OF ANY INTERRUPTION TO 15 MINUTES. IF INTERRUPTIONS EXCEED 15 MINUTES, IMMEDIATE RECONNECTION. INTERRUPTION TO SERVICE DEMAND BY OWNER IS ESSENTIAL MAY REQUIRE PREMIUM TIME AND SHALL BE INCLUDED WITH THE PRICE. EXTEND THE PRICE TO BE TAKEN BY THE CONTRACTOR TO IDENTIFY THE EXISTING SYSTEM COMPONENTS ASSOCIATED WITH THE SYSTEMS TO BE REMOVED. APPROPRIATE METHODS OF REMOVAL SHALL OBTAIN TO ELIMINATE THE POSSIBILITY OF ACCIDENTAL INTERRUPTION. SEE OTHER NOTES FOR ANY SPECIFIC REQUIREMENTS ON SEQUENCING.
- H. COORDINATE WORK WITH THE WORK OF OTHER TRADES. PROVIDE TEMPORARY POWER AND LIGHTING AS REQUIRED TO ALLOW THE WORK OF OTHER TRADES TO PROCEED.
- I. PROTECT EXISTING ELECTRICAL EQUIPMENT. IF DAMAGED OR CORRODED, THE WORK SHALL BE REPAIRED OR REPLACED AND INSTALL NEW PRODUCTS OF EQUAL CAPACITY, QUALITY, AND FUNCTIONALITY.
- J. PATCH AND REPAIR OPENINGS IN EXISTING WALLS AND FLOORS RESULTANT FROM SPECTERED ELECTRICAL DEMOLITION. PATCH SHALL MATCH EXISTING WALLS AND FLOORS. SEE ARCHITECTURAL SPECIFICATIONS FOR MEANS AND METHODS.

PHASING SEQUENCE LISTED BELOW IS FOR INFORMATION ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING PROJECT SCHEDULE AND PHASING AND SHALL INCLUDE WORK REQUIRED TO ACCOMMODATE PHASING. SUBMIT PHASING PLAN TO OWNER FOR REVIEW AND APPROVAL AND COORDINATE WITH OWNER PRIOR TO BEGINNING CONSTRUCTION.

1. INSTALL NEW EXTERIOR, PAD MOUNT MEDIUM VOLTAGE SWITCH, MEDIUM VOLTAGE FEEDER FROM PADMOUNT SWITCH TO UNDER EXISTING INTERIOR UNIT SUBSTATION PRIMARY SWITCH (FOR EXISTING OR EXISTING MEDIUM VOLTAGE CIRCUIT), NEW EXTERIOR, PAD MOUNT PLANT TRANSFORMER AND ASSOCIATED MEDIUM VOLTAGE CONDUCTORS.
2. PROVIDE LOADBREAK FEEDTHROUGH BUSHING IN EXISTING CHILLER TRANSFORMER PRIMARY COMPARTMENT. CONNECT FEEDER FROM SWITCH TO CHILLER TRANSFORMER.
3. DISCONNECT MEDIUM VOLTAGE CIRCUIT TO EXISTING PRIMARY SWITCH IN UNIT SUBSTATION. SPACE CIRCUIT TO NEW MEDIUM VOLTAGE FEEDER TO PADMOUNT SWITCH. BACKFEED EXISTING UNIT SUBSTATION THROUGH EXISTING CHILLER TRANSFORMER.
4. INSTALL NEW AUTOMATIC TRANSFER SWITCH ATS-14. INSTALL FEEDER FROM ATS TO UNIT SUBSTATION ROOM. REFEED LOW VOLTAGE SECTION OF UNIT SUBSTATION FROM ATS-14. ENSURE FEEDER LONG ENOUGH TO REACH BUSSES IN UNIT-17 IN A LATER PHASE. PROVIDE TEMPORARY GENERATOR POWER TO EXISTING MCC-1 AND MCC-2 DURING POWER OUTAGE. DEMOLISH EXISTING MEDIUM VOLTAGE CONDUCTORS PREVIOUSLY USED FOR BACKING THE UNIT SUBSTATION FROM THE CHILLER TRANSFORMER.
5. DRAIN OIL FROM UNIT SUBSTATION TRANSFORMER AND ABATE PESTS. DEMOLISH PRIMARY SWITCH AND TRANSFORMER SECTIONS OF UNIT SUBSTATION. REMOVE BUSES IN UNIT-17 REQUIRED TO REMOVE THROUGH UNIT SUBSTATION INTERIOR DOME. PROVIDE SHIELDING AS NECESSARY TO ENCLOSE ALL LIFE PARTS OF UNIT SUBSTATION. PROVIDE SHIELDING FOR THE SECTION OF THE DOME.
6. INSTALL MPD-17. COORDINATE WITH OP&D TO RELOCATE METERS, DISCONNECT CONDUCTORS FEEDING UNIT SUBSTATION LOW VOLTAGE SECTION AND RE-TERMINATE IN MPD-17. REFEED UNIT SUBSTATION LOW VOLTAGE SECTION FROM MPD-17 PULL SECTION.
7. REFER TO ONE-LINE AND MCC ELEVATIONS FOR PHASING OF LOADS IN EXISTING MCC-1 AND MCC-2. PROVIDE VDS AND REPLACE MOTORS AS REQUIRED.
8. DEMOLISH MCC-1, MCC-2, AND LOW VOLTAGE SECTION OF UNIT SUBSTATION.

No.	Revisions/Submissions	Date
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Job Title
VA OMAHA - ELECTRICAL REPLACEMENT


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Drawing Title


ELECTRICAL FLOOR PLANS

	Drawn	DAM	Project No.	15006
	Designed	NMT	Scale	1/8" = 1'-0"

	Reviewed	KSB	Date	07/09/2013
	Drawing No.	E1.1		



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SEE PROJECT # 1

- ① TEMPORARILY BACKFEED UNIT SUBSTATION THROUGH CHILLER TRANSFORMER FEED. REFER TO PHASING SEQUENCE ON SHEET E1.1.
- ② RECONNECT EXISTING MEDIUM VOLTAGE CIRCUIT TO NEW CONDUCTORS FROM MEDIUM VOLTAGE SWITCH. REFER TO SHEETS E1.1 AND ES1.1.
- ③ TEMPORARILY REFEED UNIT SUBSTATION LOW VOLTAGE SECTION FROM PULL SECTION IN NEW MPD-17. DEMOLISH AT COMPLETION OF PROJECT.

- ① LOAD HANDLING VFD LOCATED IN SAME ROOM AS MOTOR CONTROL CENTERS, OR DOES NOT HAVE A MOTOR CONTROL/VFD, AND CAN BE REEFED FROM MDW-17 IN FIRST PHASE OF REFEEDING.
- ② DEMOLISH SECTION TO MAKE SPACE FOR NEW PANELS N17C1 AND N17C2. PROVIDE BARRIERS AS REQUIRED TO PREVENT EQUIPMENT COLLISION. COORDINATE OUTAGE WITH OWNER TO ENSURE THE REMAINING EQUIPMENT IN EACH SECTION CAN BE WITHOUT POWER UNTIL IT IS REEFED FROM PANELS PROVIDED FROM PANELS N17C1 AND N17C2. COORDINATE WITH OWNER. MOVE LOADS AND DEMOLISH MCC-1 AS REQUIRED TO INSTALL N17C2.
- ③ REFEED FROM NEW PANELS N17C1 AND N17C2. ADD VFD/STARTER, REPLACE MOTORS, AND REPLACE CONDUCTORS AS ILLUSTRATED IN ONE-LINE AND ON PLANS. DEMOLISH MCC SECTIONS AS REQUIRED TO COMPLETE WORK. PROVIDE BARRIERS AS REQUIRED TO PREVENT EQUIPMENT COLLISION.
- ④ REFEED LOAD FROM NEW MDW-17. ADD VFD/STARTER, REPLACE MOTORS, AND REPLACE CONDUCTORS AS ILLUSTRATED IN ONE-LINE AND ON PLANS. DEMOLISH MCC SECTIONS AS REQUIRED TO COMPLETE WORK. PROVIDE BARRIERS AS REQUIRED TO PREVENT EQUIPMENT COLLISION. LIVE BUS.
- ⑤ REFEED LOAD FROM NEW E17C1. ADD VFD/STARTER, REPLACE MOTORS, AND REPLACE CONDUCTORS AS ILLUSTRATED IN ONE-LINE AND ON PLANS. DEMOLISH MCC SECTIONS AS REQUIRED TO COMPLETE WORK. PROVIDE BARRIERS AS REQUIRED TO PREVENT EQUIPMENT COLLISION. LIVE BUS.
- ⑥ DEMOLISH SECTION TO MAKE SPACE FOR NEW PANEL E17C2, TRANSFORMER T-1E7C2, AND PRIMARY DISCONNECT SWITCH. COORDINATE OUTAGE WITH OWNER TO ENSURE THE REMAINING EQUIPMENT IN EACH SECTION CAN BE WITHOUT POWER UNTIL IT CAN BE REEFED FROM PANEL E17C1.



EXISTING MCC-1 ELEVATION

EXISTING MCC-2 ELEVATION

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E-41315
07/09/15

STATE OF NEBRASKA

L2.0

SHEET NOTES

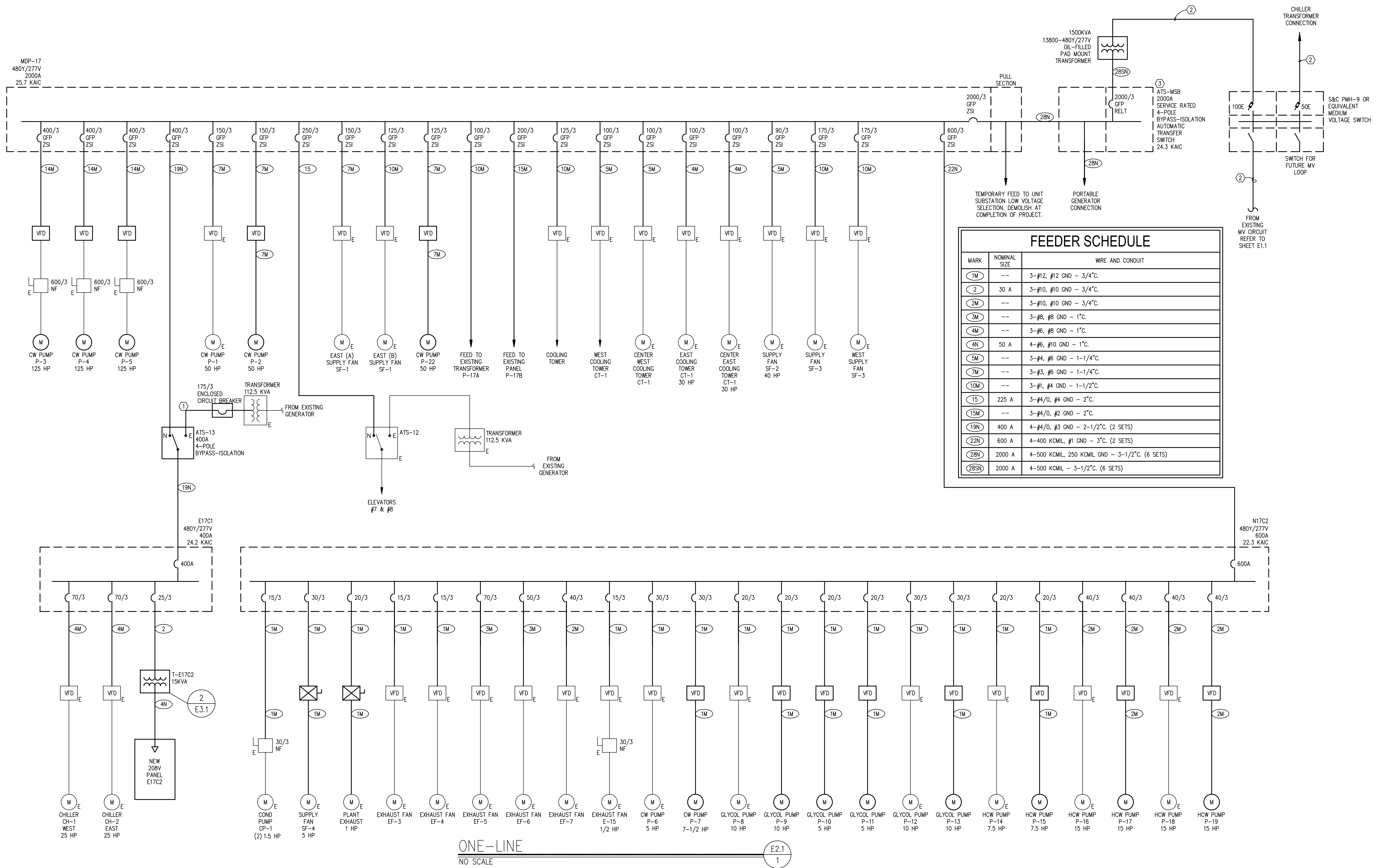
- EXISTING 100A FEEDER FROM GENERATOR DISTRIBUTION SYSTEM. SPlice AND EXTEND CONDUCTORS AS NECESSARY TO FEED NEW ATS. MATCH EXISTING CONDUCTOR SIZE.
- #2/0 COPPER 15 KV CABLE WITH 133% EPR OR TL-XLPE INSULATION IN 4" CONDUIT. ENCASE IN CONCRETE WHERE OUTSIDE BUILDING. CONDUCTOR SIZE BASED ON INFORMATION FROM FAULT CURRENT CALCULATION BY LEO A DATED 06/12/09. FIELD VERIFY SIZE OF EXISTING MEDIUM VOLTAGE CONDUCTORS PRIOR TO PURCHASE.
- AUTOMATIC TRANSFER SWITCH SHALL BE CONFIGURED FOR MANUAL USE ONLY IN THIS PROJECT. AUTOMATIC FUNCTION IS FOR A FUTURE PROJECT THAT ADDS A GENERATOR TO BUILDING 17.

PHASING LIMITATIONS

- SF-1, SF-2, AND SF-3 CAN ONLY BE SHUT DOWN DURING THE NIGHT.
- P-8, P-9, P-10, P-11, P-12, AND P-13 AS WELL AS P-14, P-15, P-16, P-17, P-18, AND P-19 CAN ONLY BE SHUT DOWN ONE AT A TIME. ONE OF EACH PAIR OF PUMPS PER SYSTEM MUST BE OPERATIONAL.
- COORDINATE ALL SHUT-DOWNS WITH VA A/C SHOP. PROVIDE TWO WEEKS NOTICE AS WELL AS SAME DAY NOTICE OF ANY SHUTDOWNS.

PHASING NOTES

- LOAD HAS EXISTING VFD LOCATED IN SAME ROOM AS MOTOR. CONTROL CENTERS OR DOES NOT REQUIRE A NEW STARTER/VFD, AND CAN BE REFEED FROM MDP-17 IN FIRST PHASE OF REFEEDING.
- DEMOLISH SECTION TO MAKE SPACE FOR NEW PANELS N17C1 AND N17C2. PROVIDE BARRIER TO COVER LIVE BUS AT END OF MCC-2. COORDINATE OUTAGE WITH OWNER TO ENSURE THE REMAINING EQUIPMENT IN EACH SECTION CAN BE WITHOUT POWER UNTIL IT CAN BE REFEED FROM PANELS N17C1 AND N17C2. INSTALL PANEL N17C1 AND WIREWAY FIRST. MOVE LOADS AND DEMOLISH MCC-1 AS REQUIRED TO INSTALL N17C2.
- REFEED LOAD FROM NEW PANELS N17C1 AND N17C2. ADD VFD/STARTER, REPLACE MOTORS, AND REPLACE CONDUCTORS AS ILLUSTRATED IN ONE-LINE AND ON PLANS. DEMOLISH MCC SECTIONS AS REQUIRED TO PREVENT EXPOSED, LIVE BUS.
- REFEED LOAD FROM NEW MDP-17. ADD VFD/STARTER, REPLACE MOTORS, AND REPLACE CONDUCTORS AS ILLUSTRATED IN ONE-LINE AND ON PLANS. DEMOLISH MCC SECTIONS AS REQUIRED TO PREVENT EXPOSED, LIVE BUS. PROVIDE BARRIERS AS REQUIRED TO PREVENT EXPOSED, LIVE BUS.
- REFEED LOAD FROM NEW E17C1. ADD VFD/STARTER, REPLACE MOTORS, AND REPLACE CONDUCTORS AS ILLUSTRATED IN ONE-LINE AND ON PLANS. DEMOLISH MCC SECTIONS AS REQUIRED TO PREVENT EXPOSED, LIVE BUS. PROVIDE BARRIERS AS REQUIRED TO PREVENT EXPOSED, LIVE BUS.
- DEMOLISH SECTION TO MAKE SPACE FOR NEW PANEL E17C2, TRANSFORMER T-E17C2, AND PRIMARY DISCONNECT SWITCH. COORDINATE OUTAGE WITH OWNER TO ENSURE THE REMAINING EQUIPMENT IN EACH SECTION CAN BE WITHOUT POWER UNTIL IT CAN BE REFEED FROM PANEL E17C1.



MCC-1 SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5	SECTION 6	SECTION 7	SECTION 8	SECTION 9 ②	SECTION 10 ②
INCOMING LINES	INCOMING LINES	FEED FOR TRANSFORMER 480-208V P-17A ④	WEST CTOR PUMP P-3	CENTER CT PUMP P-4	EAST CT PUMP P-5	NORMAL POWER ELEVATORS #7-#8 250A	SPACE	GLYCOL PUMP P-8 ③	SPACE
CW PUMP P-6	CW PUMP P-7	EXHAUST FAN E-15 ③					SPACE	GLYCOL PUMP P-9 ③	SPACE
③	③	③				①		GLYCOL PUMP P-10 ③	
CW PUMP P-1	CW PUMP P-2	FEED FOR P-17B 200A ①				EAST SUPPLY FAN SF-1	WEST SUPPLY FAN SF-1	GLYCOL PUMP P-11 ③	CW PUMP P-22
③	③	SPACE						GLYCOL PUMP P-12 ③	
		SPACE						GLYCOL PUMP P-13	③

EXISTING MCC-1 ELEVATION
NO SCALE

E2.0
2

MCC-2 SECTION 10 ②	SECTION 9 ②	SECTION 8	SECTION 7	SECTION 6	SECTION 5	SECTION 4	SECTION 3	SECTION 2 ⑥	SECTION 1 ⑥
SPACE	INCOMING	PLANT EX	EXHAUST FAN EF-3	EXHAUST FAN EF-6	CHILLER CH-1 WEST (GEN) ③	125A COOLING TOWER	HCW PUMP P-14 ③	PANEL LP (GEN)	INCOMING LINES
COND. PUMP CP-1 ③	SUPPLY FAN SF-4 ③	SPACE	EXHAUST FAN EF-4	EXHAUST FAN EF-7	CHILLER CH-2 EAST (GEN) ③	SPARE	HCU PUMP P-15 ③	⑥	
NORMAL FEED FOR A/C PLANT ATS ①③	WEST SUPPLY FAN SF-3	SUPPLY FAN SF-3	EXHAUST FAN EF-5	SPARE	SPARE	SPARE	HCW PUMP P-16 ③	TRANSFORMER FEEDER BREAKER (GEN)	
SUPPLY FAN SF-2			EAST COOLING TOWER CT-1	CENTER WEST COOLING TOWER CT-1	CENTER WEST COOLING TOWER CT-1	WEST COOLING TOWER CT-1	HCW PUMP P-17 ③	480 TO 208V TRANSFORMER (GEN)	
①	①	①	①	①	①	①	HCW PUMP P-18 ③		
							HCW PUMP P-19 ③		

EXISTING MCC-2 ELEVATION
NO SCALE

E2.0
3

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Drawing Title NEW ONE-LINE & DEMO MCC ELEVATIONS		
Sec	Drawn DAM	Project No. 15006
	Designed NMT	Scale 1/8" = 1'-0"
	Reviewed KSB	Date 07/09/2015
Drawing No.		E2.1

- ① NEW SAC PMH-12 OR EQUIVALENT MEDIUM VOLTAGE SWITCH PROVIDE CONCRETE PAD PER MANUFACTURER'S RECOMMENDATIONS.
- ② NEW PAD MOUNT TRANSFORMER. PROVIDE CONCRETE PAD PER MANUFACTURER'S RECOMMENDATIONS.
- ③ EXISTING CHILLER PAD MOUNT TRANSFORMER.
- ④ CONTRACTOR LAYDOWN AREA.
- ⑤ TEMPORARY GENERATOR ACCESS.
- ⑥ PROVIDE NEW MOTORS AND VFDs AS SHOWN ON ONE-LINE ON SHEET E2.1.
- ⑦ SERVICE ENTRANCE CONDUCTORS FROM NEW TRANSFORMER MAY ROUTE ALONG OUTSIDE OF BUILDING. COORDINATE EXACT ROUTE WITH OWNER.


1. ALL UNDERGROUND DUCTS SHALL BE CONCRETE ENCASED. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. LOCATE ALL UTILITIES IN SCOPE OF WORK BEFORE BEGINNING EXCAVATION. THESE DRAWINGS ARE BASED ON EXISTING PLANS AND MAY NOT SHOW ALL SYSTEMS PRESENT.



Jul 09, 2015 - 9:14am
 ...\\2015\\15006 -- VA Omaha Replace Main Elec Equip\\Dmg\\EST1.dwg

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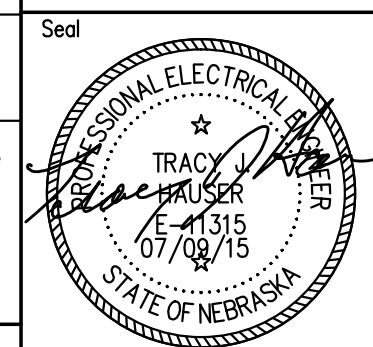
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Drawn	DAM	Project No.	15006
Designed	NMT	Scale	1" = 20'-0"
Reviewed	KSB	Date	07/09/2015
Drawing No.			

ES1.1