

UNLV

ACADEMIC MALL

ELECTRICAL UPGRADE

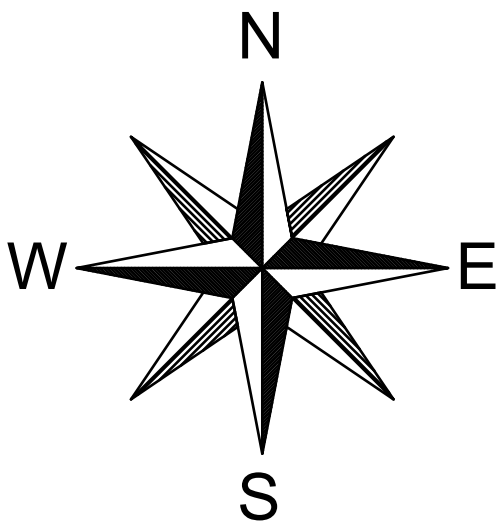
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CONSTRUCTION DOCUMENTS  
NOVEMBER 1, 2016

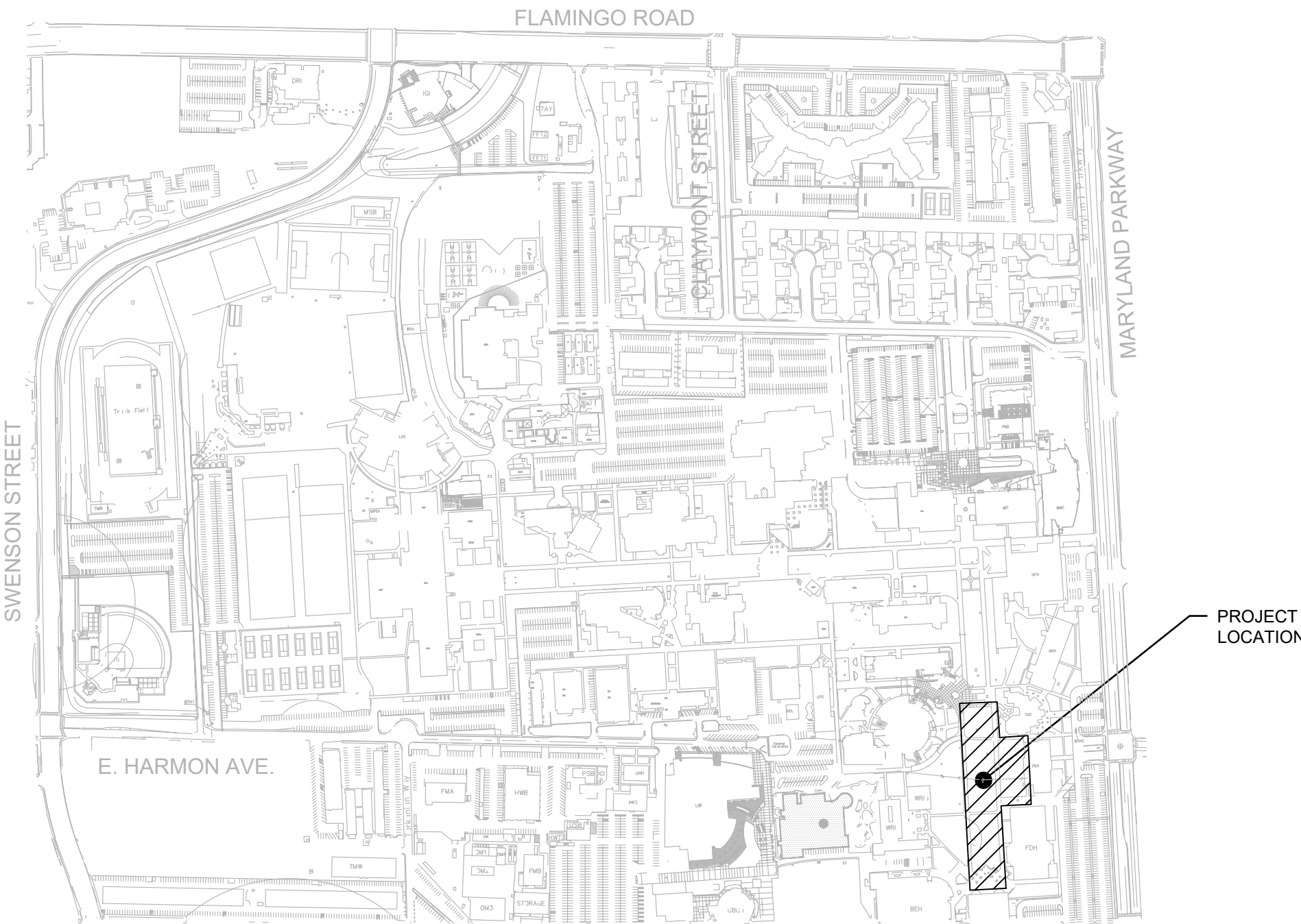
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VICINITY MAP



DRAWING INDEX

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G1.01 PROJECT COVER SHEET

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E0.02 ELECTRICAL DIAGRAMS, SCHEDULES AND DETAILS.  
E1.01 ELECTRICAL SITE PLAN.

DESIGN TEAM

OWNER'S  
REPRESENTATIVE:

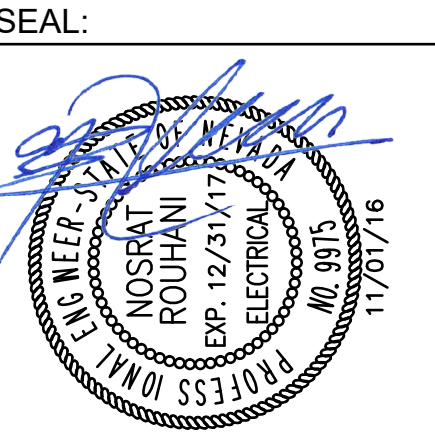
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PROJECT : UNLV - ACADEMIC MALL ELECTRICAL UPGRADE

REVISIONS :		
NO.	DATE	ISSUE

DRAWING TITLE :

PROJECT  
COVER SHEET

All dimensions, levels, heights and field conditions shall be verified at the site by the contractor before proceeding with the work.

NRC's Project No.		unlv1601
Consultant Project No.		--
Issue Date:		11/01/2016
Drawn By	Checked By	Approved By
H.GH	NR	NR
File Name:		

G1.01

CONSTRUCTION DOCUMENTS



SPECIFICATIONS

SCOPE OF WORK

FURNISH AND INSTALL A COMPLETELY WIRED AND OPERATIONAL ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO, THESE MAJOR ITEMS:

- 1. ELECTRICAL CONDUIT, WIRING, ETC., FOR ALL OUTLETS AND EQUIPMENT AS INDICATED.

RELATED WORK BY OTHERS

THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE ELECTRIC SERVICE METER, MEET ALL POWER COMPANY REQUIREMENTS AND SHALL PAY ALL UTILITY COMPANY CHARGES. OBTAIN APPROVED UTILITY CO. DRAWINGS AND PROVIDE ALL CONDUIT WIRE, EXCAVATION AND BACKFILL AS REQUIRED.

CODES, REGULATIONS, AND STANDARDS

THE INSTALLATION SHALL COMPLY WITH APPLICABLE LOCAL AND STATE CODES AND ORDINANCES, WITH THE REGULATIONS OF THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRIC CODE AND WITH THE REQUIREMENTS OF THE POWER AND TELEPHONE COMPANIES FURNISHING SERVICES TO THIS INSTALLATION.

THE FOLLOWING INDUSTRY STANDARDS, SPECIFICATIONS AND CODES ARE MINIMUM REQUIREMENTS:

- 1. THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION STANDARDS.
- 2. THE NATIONAL ELECTRICAL CODE 2011.
- 3. UNDERWRITER LABORATORIES INCORPORATED STANDARDS.
- 4. AMERICAN NATIONAL STANDARDS INSTITUTE.
- 5. THE INTERNATIONAL BUILDING CODE 2012.

INSPECTION OF SITE

PRIOR TO SUBMITTING A BID FOR ELECTRICAL WORK THE CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED CONSTRUCTION AND SHALL THOROUGHLY ACQUAINT HIMSELF WITH EXISTING UTILITIES AND WORKING CONDITIONS, ETC. TO BE ENCOUNTERED. ALLOWANCE WILL NOT BE MADE FOR NONCOMPLIANCE WITH THIS CONDITION AFTER BIDDING.

STORAGE AND HANDLING OF MATERIAL

DELIVER MATERIALS AND EQUIPMENT TO THE PROJECT IN THE MANUFACTURER'S ORIGINAL, UNOPENED, LABELED CONTAINERS. PROTECT AGAINST MOISTURE, TAMPERING, OR DAMAGE FROM IMPROPER HANDLING OR STORAGE. CONTRACTOR SHALL PROTECT AND BE RESPONSIBLE FOR ANY DAMAGE TO WORK OR MATERIALS UNTIL FINAL ACCEPTANCE BY THE OWNER AND SHALL MAKE GOOD WITHOUT COST TO THE OWNER ANY DAMAGE OR LOSS THAT MAY OCCUR DURING THIS PERIOD.

ARRANGE FOR TIMELY DELIVERY OF MATERIALS AND EQUIPMENT TO THE JOB SITE IN ORDER TO MINIMIZE THE LENGTH OF TIME BETWEEN DELIVERY AND INSTALLATION.

COVER AND PROTECT ANY MATERIAL WHICH MAY BE AFFECTED BY THE WEATHER WHILE IN TRANSIT OR STORED AT THE PROJECT SITE. ANY MATERIAL FOUND DEFECTIVE OR NOT INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS MAY BE REJECTED BY THE ENGINEER.

CLEAN-UP

KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS, OR RUBBISH CAUSED BY EMPLOYEES OR WORK UNDER THIS DIVISION OF THE SPECIFICATIONS. AT THE COMPLETION OF THE WORK, REMOVE ALL SURPLUS MATERIALS, TOOLS, ETC., AND LEAVE THE PREMISES "BROOM-CLEAN".

EXCAVATION AND BACKFILL

PERFORM ALL EXCAVATION AND BACKFILLING REQUIRED FOR WORK PERFORMED UNDER THIS DIVISION OF THE SPECIFICATIONS. TRENCH BOTTOMS SHALL BE GRADED TRUE AND FREE FROM STONES OR SOFT SPOTS. USE EXCAVATED MATERIALS FOR BACKFILL UNLESS OFF-SITE MATERIALS ARE DEEMED NECESSARY BY THE ARCHITECT. TRENCHING AND BACKFILLING FOR ELECTRICAL AND TELEPHONE UTILITY SERVICES TO BUILDING SHALL BE PROVIDED BY THIS CONTRACTOR.

DRAWINGS

THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT AND LOCATIONS OF THE ELECTRICAL WORK. DATA PRESENTED ON THESE DRAWINGS ARE AS ACCURATE AS PLANNING CAN DETERMINE, BUT FIELD VERIFICATION OF ALL DIMENSIONS, LOCATIONS, LEVELS, ETC. TO SUIT FIELD CONDITIONS IS REQUIRED. REVIEW ALL ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND ADJUST ALL WORK TO MEET THE REQUIREMENTS OF CONDITIONS SHOWN. THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS. DISCREPANCIES BETWEEN DIFFERENT PLANS, OR BETWEEN DRAWINGS AND SPECIFICATION, OR REGULATIONS AND CODES GOVERNING THE INSTALLATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING BEFORE THE DATE OF BID OPENING. IF DISCREPANCIES ARE NOT REPORTED, THE CONTRACTOR SHALL BID THE GREATER QUANTITY OR BETTER QUALITY, AND APPROPRIATE ADJUSTMENTS WILL BE MADE AFTER CONTRACT AWARD. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD MEASURE AND CONFIRM MOUNTING HEIGHTS AND LOCATION OF ELECTRICAL EQUIPMENT WITH RESPECT TO COUNTERS, RADIATION, ETC. DO NOT SCALE DISTANCES OFF THE ELECTRICAL DRAWINGS. USE ACTUAL BUILDING DIMENSIONS.

IN ALL CASES SWITCHES CONTROLLING LIGHTING ARE TO BE LOCATED ON THE STRIKE SIDE OF DOORS. LOCATION INDICATED FOR SWITCHES AND OUTLETS ARE APPROXIMATE. OWNER MAY MAKE MINOR RELOCATIONS AT NO ADDITIONAL CHARGE.

CUTTING AND FITTING

PERFORM THE CUTTING, FITTING, REPAIRING AND FINISHING OF THE WORK NECESSARY FOR THE INSTALLATION OF THE EQUIPMENT OF THIS SECTION. HOWEVER, NO CUTTING OF THE WORK OF OTHER TRADES OR OF ANY STRUCTURAL MEMBER SHALL BE DONE WITHOUT THE CONSENT OF THE ARCHITECT.

COOPERATION WITH OTHER CONTRACTORS

COOPERATE WITH THE OTHER TRADES SO THAT THE INSTALLATION OF THE ELECTRICAL OUTLETS AND EQUIPMENT WILL BE PROPERLY COORDINATED. CONDUIT, FIXTURES, AND OTHER EQUIPMENT LOCATIONS SHALL BE CHECKED WITH THE OTHER TRADES TO AVOID CONFLICT WITH THE PIPING, DUCTWORK, STEEL, BEAMS, OR OTHER OBSTRUCTIONS.

CAREFULLY CHECK THE LOCATIONS OF THE OUTLET BOXES AND DETERMINE THAT THEY HAVE NOT BEEN DISTURBED DURING THE INSTALLATION OF MATERIALS OF OTHER TRADES.

COORDINATE THE LOCATION OF TRENCHES AND CONDUITS FOR ELECTRIC AND TELEPHONE UTILITY SERVICES WITH THE GENERAL CONTRACTOR.

MATERIALS

ALL MATERIALS SHALL BE NEW AND OF QUALITY AS SPECIFIED ON THE PLANS OR SPECIFICATIONS AND MUST CARRY THE UNDERWRITER'S LABORATORIES APPROVAL COVERING THE PURPOSE FOR WHICH THEY ARE USED, IN ADDITION TO MEETING ALL REQUIREMENTS OF THE CURRENT APPLICABLE CODES AND REGULATIONS.

CONDUIT

RGS AND IMC MAY BE USED IN ALL AREAS. EMT MAY BE USED IN INDOOR LOCATIONS NOT IN CONTACT WITH EARTH, NOT IN CONCRETE SLAB OR WALLS AND NOT SUBJECT TO DAMAGE. UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC WITH PROPERLY CEMENTED JOINTS. FMC SHALL BE USED FOR FINAL CONNECTION TO MECHANICAL EQUIPMENT NOT TO EXCEED 36" AND TO RECESSED REMOVABLE LIGHTING FIXTURES NOT TO EXCEED 72". FMC SHALL NOT BE USED EXCEPT AS NOTED HERE WITHOUT PRIOR APPROVAL FROM THE ENGINEER. LIQUIDTITE FMC SHALL BE USED FOR FINAL CONNECTION TO MOTORS IN OUTDOOR LOCATIONS. NO CABLE MAY NOT BE USED ON THIS PROJECT. CONDUIT FITTINGS SHALL BE OF THE COMPRESSION TYPE. ALL EMPTY CONDUIT SYSTEMS SHALL HAVE 200 LB. TEST PULL CORD TO FACILITATE INSTALLATION OF WIRE IN FUTURE. CONDUITS AND OUTLETS SHALL BE CONCEALED WITHIN THE BUILDING STRUCTURE, EXCEPT THAT CERTAIN MOTOR AND LIGHTING FEEDER CONDUITS MAY BE RUN EXPOSED IN CERTAIN AREAS AS INDICATED ON THE DRAWINGS. CONDUIT SHOWN TO BE INSTALLED IN CABINETS, COUNTERS, AND CASEWORK SHALL BE INSTALLED AS DIRECTED BY THE ARCHITECT.

OUTLET, PULL AND JUNCTION BOXES

EACH SWITCH, LIGHT, RECEPTACLE OR OTHER OUTLET SHALL BE PROVIDED WITH A CODE GAUGE. GALVANIZED STEEL OUTLET BOX, JUNCTION BOXES SHALL BE CODE GAUGE. GALVANIZED STEEL OUTLET BOXES SHALL BE OF THE ONE PIECE, KNOCKOUT TYPE, IN GENERAL 4" SQUARE WITH PLASTER RING. PLASTER RINGS SHALL BE SET TO PROVIDE NOT MORE THAN 1/8" FROM WALL SURFACE TO RING. IN NO CASE SHALL PLASTER RING PROJECT BEYOND SURFACE OF WALL. SINGLE GANG RINGS SIMILAR TO STEEL CITY 52050 SHALL BE USED FOR 4" BOXES IN UNFINISHED BRICK. #100 BOXES MAY BE USED FOR UNFINISHED MASONRY FLUSH WALL OUTLETS. CENTER ALL OUTLET BOXES IN BLOCK COURSE. ALL BOXES SHALL BE IDENTIFIED BY A PERMANENT MEANS, APPROVED BY THE JURISDICTION, SPECIFY SOURCE PANEL, BREAKER, AND SYSTEM VOLTAGE.

WIRE

UNLESS OTHERWISE SPECIFIED, ALL WIRE SHALL BE TYPE THWN, THHN, OR XHHW. ALL WIRING SHALL BE COPPER. THE WIRES SHALL BE MARKED WITH COLOR TO SIMPLIFY CIRCUIT IDENTIFICATION. UNLESS OTHERWISE REQUIRED BY LOCAL ORDINANCES EQUIPMENT GROUND CONDUCTORS SHALL BE GREEN. GROUNDING CONDUCTOR SHALL BE WHITE (120V) AND GREY (277V) AND UNGROUNDING CONDUCTORS SHALL BE BLACK (PHASE A), RED (PHASE B), AND BLUE (PHASE C) FOR 208Y/120V. SYSTEM; AND BROWN (PHASE A), ORANGE (PHASE B) AND YELLOW (PHASE C) FOR 480Y/277V. SYSTEM. THE WIRE SHALL BE #12 AWG UNLESS OTHERWISE INDICATED. NO WIRE SHALL BE INSTALLED IN THE CONDUIT SYSTEM UNTIL THE CONDUIT SYSTEM IS COMPLETE. USE MINERALAC #100 OR EQUIVALENT AS A LUBRICANT TO FACILITATE THE INSTALLATION OF THE CONDUCTORS IN THE CONDUIT SYSTEM.

WIRING DEVICES

SWITCHES: WALL SWITCHES SHALL BE INDUSTRIAL SPECIFICATION GRADE AC SILENT TYPE SWITCHES, 20A, 120/277 VOLTS. SINGLE POLE SWITCHES SHALL BE HUBBELL CS1221 OR APPROVED EQUAL. 3-WAY SWITCHES SHALL BE HUBBELL CS1223 OR APPROVED EQUAL. RECEPTACLES: SHALL BE INDUSTRIAL SPECIFICATION GRADE, DUPLEX TYPE, NEMA 5-20R, 20 AMPERE, 125V, GROUNDED TYPE. OUTLETS SHALL BE HUBBELL HBL5342 OR APPROVED EQUAL. SPECIAL APPLICATION RECEPTACLES SHALL BE AS INDICATED ON PLANS. GFCI RECEPTACLES: SHALL BE INDUSTRIAL SPECIFICATION GRADE, NEMA 5-20R, HUBBELL 5352A1. DEVICE PLATES SHALL BE SMOOTH IVORY NYLON. ALL WIRING DEVICES SHALL HAVE A PROVISION, BY THE MANUFACTURER, FOR AN EQUIPMENT GROUNDING CONDUCTOR SO THAT ALL NON CURRENT CARRYING METAL IS BONDED TO THE GROUND ELECTRODE SYSTEM.

SAFETY SWITCHES

SAFETY SWITCHES, UNLESS OTHERWISE INDICATED ON THE DRAWINGS, SHALL BE GENERAL DUTY TYPE, 600 OR 250 VOLT, OF THE NUMBER OF POLES REQUIRED. SAFETY SWITCHES FOR AIR CONDITIONING USE SHALL BE OF THE FUSIBLE TYPE WHERE RECOMMENDED BY EQUIPMENT MANUFACTURER. THE SWITCH SIZE SHALL BE AS REQUIRED BY CODE AND AS INDICATED ON THE DRAWINGS. WHERE OUTSIDE THE BUILDING, THE SWITCHES SHALL BE RAINIGHT TYPE NEMA 3R. ALL SWITCHES SHALL BE LOCKABLE. ALL SAFETY SWITCHES SHALL HAVE A PROVISION, BY THE MANUFACTURER, FOR AN EQUIPMENT GROUNDING CONDUCTOR SO THAT ALL NON CURRENT CARRYING METAL IS BONDED. ALL SAFETY SWITCH ENCLOSURES OR COVERS SHALL BE IDENTIFIED BY A PERMANENT MEANS, APPROVED BY THE JURISDICTION, SPECIFYING SOURCE PANEL, BREAKER, AND SYSTEM VOLTAGE.

PANELBOARDS

CIRCUIT BREAKER TYPE PANELBOARDS SHALL BE GENERAL ELECTRIC, SQUARE D, SIEMENS OR EQUAL WITH VOLTAGE, SIZES AND RATINGS AS INDICATED ON THE DRAWINGS. CIRCUIT BREAKERS SHALL BE OPERABLE IN ANY POSITION AND BE REMOVABLE FROM THE FRONT OF THE PANELBOARD WITHOUT DISTURBING THE ADJACENT UNITS. BRANCH BREAKERS SHALL BE OF SUCH DESIGN THAT ANY COMBINATION OF SINGLE-POLE, DOUBLE-POLE AND THREE-POLE BREAKERS MAY BE ASSEMBLED ON THE SAME PANEL. EACH BRANCH CIRCUIT SHALL BE CLEARLY NUMBERED. BRANCH AND MAIN TERMINALS SHALL BE OF THE SOLDERLESS TYPE. HANDLE TIES TO FORM MULTIPOLE BREAKERS ARE NOT ACCEPTABLE. CIRCUIT BREAKERS SHALL BE OF THE BOLT-ON TYPE. PROVIDE A TYPEWRITTEN CIRCUIT INDEX BEHIND CLEAR PLASTIC COVER ON INSIDE OF DOOR. INFORMATION SHALL INCLUDE ROOM AND TYPE OF LOAD SERVED. ALL CIRCUIT BREAKERS SHALL BE IDENTIFIED. INDEX CARD HOLDER SHALL BE SECURED TO DOOR. WHERE PANELBOARDS ARE INSTALLED FLUSH WITH THE WALLS, EXTEND EMPTY CONDUITS FROM THE PANELBOARD TO AN ACCESSIBLE SPACE ABOVE OR BELOW, PROVIDE 3/4" (MINIMUM SIZE) CONDUIT FOR EVERY THREE SINGLE SPARE CIRCUIT BREAKERS OR SPACE OR EQUIVALENT MULTI-POLE ARRANGEMENT, OR FRACTION THEREOF, BUT NOT LESS THAN TWO CONDUITS FOR EACH PANELBOARD. ALL PANEL BOARD ENCLOSURES OR COVERS SHALL BE IDENTIFIED BY A PERMANENT MEANS, APPROVED BY THE JURISDICTION, SPECIFYING PHASE, AMPERAGE AND SYSTEM VOLTAGE.

GUARANTEE

GUARANTEE ALL MATERIAL FURNISHED AND ALL WORKMANSHIP PERFORMED FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK. ANY DEFECTS DEVELOPING WITHIN THIS PERIOD, TRACEABLE TO MATERIAL FURNISHED AS A PART OF THIS SECTION OR WORKMANSHIP PERFORMED HEREUNDER, SHALL BE MADE GOOD AT NO EXPENSE TO THE OWNER.

SHOP DRAWINGS AND APPROVALS

THE ITEMS SPECIFIED HEREIN AND ON DRAWINGS ARE USED AS A STANDARD OF QUALITY. ANY MATERIALS OF EQUAL QUALITY AND AESTHETIC VALUE WILL BE GIVEN CONSIDERATION AS A SUBSTITUTE FOR THE MATERIALS SPECIFIED. NO APPROVAL WILL BE GIVEN TO A SPECIFIC CATALOG NUMBER, MODEL OR TYPE OF EQUIPMENT. PRIOR TO BIDDING, AFTER BIDDING, THE DECISION OF THE ARCHITECT AND/OR ENGINEER, DETERMINING EQUAL MATERIALS, WILL BE FINAL. THE CONTRACTOR SHALL SUBMIT SIX (6) IDENTICAL SHOP DRAWING SETS OF SHOP DRAWINGS ON THE FOLLOWING ITEMS:

- 1. OUTLINE DRAWINGS AND DATA SHEETS OF EACH POWER PEDESTAL.
- 2. DATA SHEETS OF ALL WIRING DEVICES, FUSES AND DISCONNECTS.
- 3. LIGHTING FIXTURES AND LAMPS

WHERE MATERIALS AND EQUIPMENT ARE SPECIFIED OR INDICATED BY THE NAME OF THE MANUFACTURER OR BY ACCEPTED TRADE DESIGNATION, SUBSTITUTION WILL BE CONSIDERED. WHERE TWO (2) OR MORE ITEMS ARE FURNISHED UNDER THE SAME SPECIFICATION, THEY SHALL BE OF THE SAME MANUFACTURER AND BE IDENTICAL AND INTERCHANGEABLE.

DIVISION 3 - CONCRETE

NORMAL WEIGHT CONCRETE  
CEMENT: ASTM C150, TYPE-I SULFATE RESISTANT, PORTLAND TYPE CONFORMING TO SECTION 1903 INTERNATIONAL BUILDING CODE.  
AGGREGATES: PER ASTM C33 FOR NORMAL WEIGHT CONCRETE, ASTM C330 FOR LIGHTWEIGHT CONCRETE.  
WATER: CLEAN AND NOT DETRIMENTAL TO CONCRETE.  
EXPANSION JOINT FILLER: ASTM D1751, CLOSED-CELL, BITUMINOUS SATURATED FIBERBOARD 1/4 INCH THICK, TWO-COMPONENT EPOXY RESIN, GREY COLOR, NON-HARDENING, SELF-LEVELING.  
CONCRETE: 6,000 PSI AT 28 DAYS, MAX SLUMP 4 INCH, MAX AGGREGATE 1 INCH.  
REINFORCING STEEL: ASTM A615, 60 YIELD GRADE DEFORMED BILLET STEEL FOR NO. 5 BARS OR LARGER; 40 YIELD GRADE, NO. 4 BARS AND SMALLER, CONFORM TO SECTION 1903 OF INTERNATIONAL BUILDING CODE.  
WELDED WIRE FABRIC: ASTM A185, MINIMUM SIZE 6X6 - W4.0X4.0.  
TIE WIRE: 16 GAUGE BLACK ANNEALED.  
INSTALLATION: PLACE CONTINUOUSLY BETWEEN PRE-DETERMINED EXPANSION, CONTRACTION AND CONSTRUCTION JOINTS. DO NOT INTERRUPT SUCCESSFUL PLACEMENT. AVOID SEGREGATION OF MATERIALS. SCREED FLOORS AND SLABS MAINTAINING FLATNESS OF MAXIMUM 1/4 INCH PER 10 FEET. PROVIDE SMOOTH RUBBED FINISH. PROTECT IMMEDIATELY AFTER PLACEMENT. MAINTAIN CONCRETE WITH MINIMAL MOISTURE LOSS ABOVE 50 DEGREES F. MAINTAIN WET VERTICAL SURFACES FOR 10 DAYS.  
CEMENT: ASTM C150  
AGGREGATE: ASTM C322 GROUP I.  
AIR ENTRAINMENT: ADDED AT MIX POINT.  
FOAMING AGENT: ASTM C796  
WATER: CLEAN, POTABLE  
COMPRESSIVE STRENGTH: 125 PSI IN 28 DAYS.  
DRY DENSITY: 22 PCF PER ASTM C486.  
INSTALLATION: PLACE CONTINUOUSLY BETWEEN PRE-DETERMINED EXPANSION, CONTRACTION AND CONSTRUCTION JOINTS. DO NOT INTERRUPT SUCCESSFUL PLACEMENT. AVOID SEGREGATION OF MATERIALS. SCREED FLOORS AND SLABS MAINTAINING EXISTING ROOF SLOPE. PROVIDE SMOOTH RUBBED FINISH. PROTECT IMMEDIATELY AFTER PLACEMENT. MAINTAIN CONCRETE WITH MINIMAL MOISTURE LOSS ABOVE 50 DEGREES F.

ELECTRICAL LEGEND

S	SINGLE POLE WALL SWITCH @ +46"		COMBINATION EXIT SIGN/EMERGENCY LIGHTING UNIT WITH TWIN HEADS
S <sub>3</sub>	THREE WAY WALL SWITCH @ +46		EMERGENCY LIGHTING UNIT WITH TWIN HEADS
S <sub>4</sub>	FOUR WAY WALL SWITCH @ +46		TELEPHONE OUTLET @ +18"
S <sub>6</sub>	SINGLE POLE LOCK TYPE SWITCH @ +46"		COMPUTER/DATA OUTLET @ +18"
S <sub>P</sub>	SINGLE POLE SWITCH WITH PILOT LIGHT @ +46"		COMBINATION VOICE/DATA OUTLET @ +18"
S <sub>D</sub>	SINGLE POLE SLIDE TYPE DIMMER, RATING AND LOAD TYPE AS REQUIRED OR INDICATED		BOX AROUND SYMBOL INDICATES FLUSH FLOOR OUTLET
S <sub>M</sub>	SINGLE POLE MANUAL MOTOR STARTER SWITCH WITH OVERLOAD ELEMENT		JUNCTION BOX WALL MOUNTED, SIZE PER NEC
S <sub>F</sub>	DUAL SLIDE TYPE FAN SPEED/LIGHT LEVEL CONTROL SWITCH		JUNCTION BOX, MOUNTING AS REQUIRED, SIZE PER NEC
S <sub>T</sub>	AUTO SHUT-OFF TIMER SWITCH, VERIFY TIME CYCLE WITH OWNER		SAFETY SWITCH, F SCRIBED INSIDE INDICATES FUSIBLE
	PUSHBUTTON SWITCH		CONTACTOR, DESCRIPTION AS NOTED ON PLANS
	DUPLEX RECEPTACLE @ +18"		COMBINATION MOTOR STARTER AS NOTED ON PLANS
	DOUBLE DUPLEX RECEPTACLE @ +18"		CIRCUIT BREAKER
	ISOLATED GROUND TYPE DUPLEX RECEPTACLE @ +18"		FUSIBLE SWITCH
	SINGLE RECEPTACLE, CLOCKHANGER TYPE @ +78"		TRANSFORMER, TYPE AND SIZE AS NOTED (DIAGRAMMATIC)
	SPLIT-WIRED DUPLEX RECEPTACLE @ +18"		PANEL BOARD OR CABINET
	HALF-SWITCHED OR TWO CIRCUIT		SWITCHBOARD OR MOTOR CONTROL CENTER
	GFCI TYPE DUPLEX RECEPTACLE		METER
	50A, 250V RANGE RECEPTACLE		SHUNT TRIP ELEMENT
	SPECIAL PURPOSE RECEPTACLE AS NOTED ON PLANS		TIME CLOCK
	BOX AROUND SYMBOL INDICATES FLUSH FLOOR OUTLET		SELF-CONTAINED SMOKE DETECTOR
	PLUGMOLD MULTIOUTLET SYSTEM, WIRING AND OUTLET CONFIGURATION AS NOTED ON PLANS.		DUCT SMOKE DETECTOR
	FLUORESCENT STRIP FIXTURE		THERMOSTAT
	FLUORESCENT LIGHT FIXTURE		PHOTOCELL
	RECESSED LIGHT FIXTURE		CHIME
	RECESSED WALL WASHER OR DIRECTIONAL LIGHT FIXTURE		TRANSFORMER (IN PLAN)
	WALL MOUNT LIGHT FIXTURE		ELECTRIC MOTOR, HP SCRIBED INSIDE
	HALF SHADED FIXTURE INDICATES EMERGENCY LIGHT FIXTURE OR UNSWITCHED NIGHT LIGHT.		MECHANICAL EQUIPMENT DESIGNATION
	UPPER CASE LETTER INDICATES FIXTURE TYPE, LOWER CASE LETTER INDICATES SWITCHING GROUP		WIRING CONCEALED IN WALL OR CEILING
	POLE MOUNTED LIGHT FIXTURE		WIRING IN FLOOR SLAB OR UNDERGROUND
	EXIT SIGN, SHADED QUADRANT INDICATES LIGHTED FACE		CIRCUIT HOMERUN

- NOTES:
1. DIMENSIONS INDICATED ARE TO CENTERLINE OF DEVICE OR OUTLET FROM FINISHED FLOOR OR FINISHED GRADE.
  2. ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT.

ABBREVIATIONS

A	AMPERE(S)	F	FUSE
ABV	ABOVE	FUT	FUTURE
A/C	AIR CONDITIONING	GFCI	GROUND FAULT CIRCUIT INTERRUPTER
AL	ALUMINUM	GRD	GROUND
AMP	AMPERE	HP	HORSEPOWER
ANN	ANNUNCIATOR	J-BOX	JUNCTION BOX
AUTO	AUTOMATIC	LTG	LIGHTING
AWG	AMERICAN WIRE GAUGE	MTR	MOTOR
BC	BARE COPPER	(N)	NEW
BKBD	BACKBOARD	NC	NORMALLY CLOSED
BLDG	BUILDING	NEC	NATIONAL ELECTRICAL CODE
CAB	CABINET	NO	NORMALLY OPEN
CKT BKR	CIRCUIT BREAKER	PNL	PANEL
CLG	CEILING	(R)	RELOCATED
C	CONDUIT	RECEPT	RECEPTACLE
CU	COPPER	RM	ROOM
CW	COLD WATER	SPDT	SINGLE POLE DOUBLE THROW
DN	DOWN	STR	STARTER
DPDT	DOUBLE POLE DOUBLE THROW	SWBD	SWITCHBOARD
(E)	EXISTING	TEL	TELEPHONE
EF	EXHAUST FAN	T-STAT	THERMOSTAT
ELEC	ELECTRIC	XFMR	TRANSFORMER
EM	EMERGENCY	V	VOLT(S)
EQUIP	EQUIPMENT	W	WATT(S)
EXIST	EXISTING	WP	WEATHERPROOF
4W	FOUR WIRE		

GENERAL NOTES:

1. CONTRACTOR SHALL VISIT THE BUILDING SITE, TAKE HIS OWN MEASUREMENTS AND OBTAIN SUCH OTHER INFORMATION AS MAY BE NECESSARY FOR HIS WORK. NO ALLOWANCES WILL SUBSEQUENTLY BE MADE FOR ANY ERROR OR OMISSION ON THE PART OF THE CONTRACTOR IN THIS REGARD.
2. FURNISH ALL MATERIALS AND TEMPORARY LIGHTS AND WIRING REQUIRED DURING CONSTRUCTION OF THE PROJECT FOR ALL TRADES THAT REQUIRE POWER. COMPLY WITH OSHA AND NEC REQUIREMENTS.
3. CONTRACTOR SHALL COORDINATE ALL UTILITY OUTAGES WITH UNLV PERSONNEL. OBTAIN PERMISSION AT LEAST 48-HOURS BEFORE PARTIAL OR COMPLETE OUTAGES.
4. DO NOT SCALE DRAWINGS. FIELD VERIFY EXACT EQUIPMENT LOCATIONS PRIOR TO BEGINNING WORK.
5. IN THE EVENT OF CONFLICTS BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, CONTRACTOR SHALL BID THE BETTER QUALITY OR GREATER QUANTITY.
6. PROVIDE NEW NAMEPLATES FOR ELECTRICAL EQUIPMENT FEEDING NEW EQUIPMENT THAT RESULTS FROM THE WORK OF THIS PROJECT. NAMEPLATES SHALL BE ENGRAVED MICARTA AND SHALL BE SECURED WITH SCREWS, NOT GLUED.
7. PAINT EXTERIOR EXPOSED CONDUITS TO MATCH SURROUNDING SURFACES.
8. CONTRACTOR SHALL PROVIDE A PEDESTRIAN BARRICADE/ SAFETY PLAN TO BE APPROVED BY OWNER PRIOR TO BEGINNING TO WORK.
9. CONTRACTOR SHALL REMOVE FROM SITE ALL EXCESS TRENCH SPOILS.
10. CONTRACTOR SHALL REPLACE ALL AFFECTED LANDSCAPE TO ORIGINAL CONDITION (TALL FESCUE SOD) PROVIDE 1 YEAR WARRANTY. REPAIR ANY DAMAGE TO IRRIGATION SYSTEM WITHIN 24 HOURS OF OCCURRENCE.
11. CONTRACTOR SHALL IDENTIFY ALL UTILITIES PRIOR TO EXCAVATION WITH UNLV FRAGILITIES LOCATOR (CALL BEFORE YOU DIG).
12. IRRIGATION SYSTEM SHALL REMAIN OPERATIONAL DURING CONSTRUCTION. COORDINATE WITH UNLV FACILITIES TO ADJUST IRRIGATION SCHEDULE FOR AREAS WHERE WORK IS BEING PERFORMED.

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4505 S. MARYLAND PKWY.  
LAS VEGAS, NEVADA 89164  
PROJECT : UNLV - ACADEMIC MALL ELECTRICAL UPGRADE

REVISIONS :

NO.	DATE	ISSUE
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DRAWING TITLE :

ELECTRICAL  
SPECIFICATION,  
LEGEND AND  
ABBREVIATIONS

All dimensions, loads, liquids and field conditions shall be verified at the site by the contractor before proceeding with the work.

NRCS Project No. unlv1601

Consultant Project No. --

Issue Date: 11/01/2016

Drawn By H.GH Checked By NR Approved By NR

File Name:

E0.01

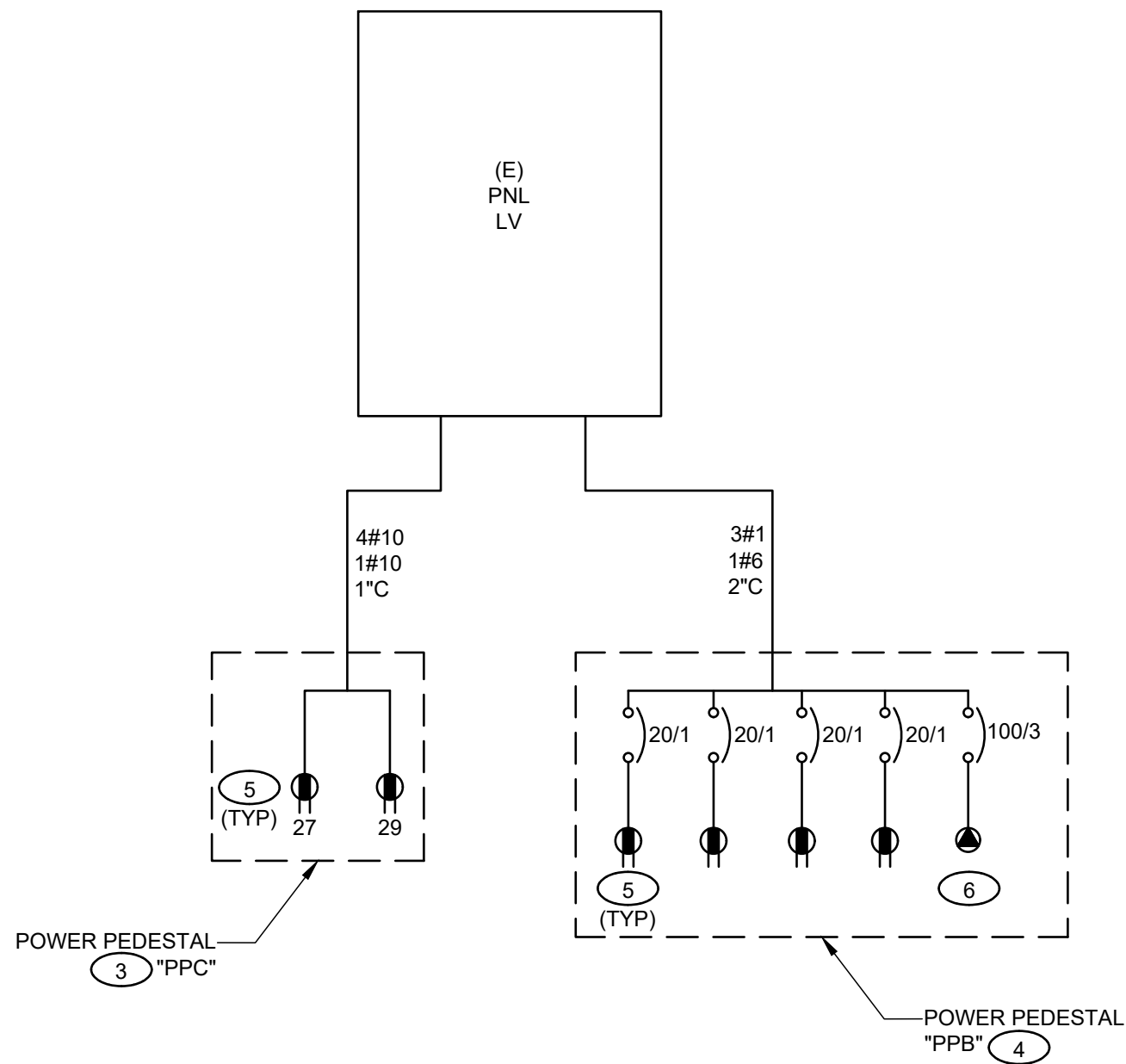
CONSTRUCTION DOCUMENTS



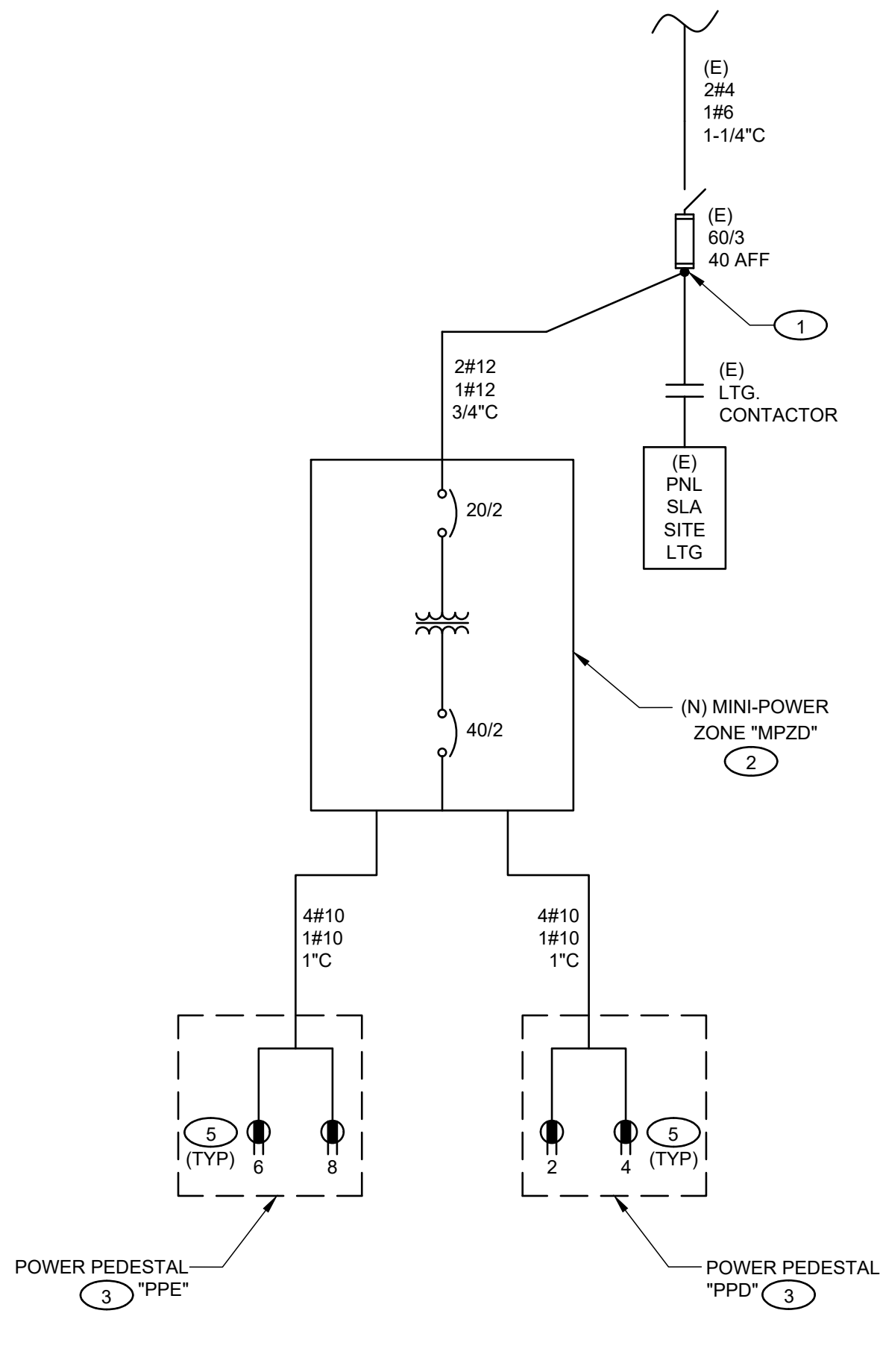
PANEL: LV (EXISTING)				208Y/120V., 3PH, 4 WIRE		400 AMP MAIN: MCB		MTG: SURFACE	
INTERRUPTING RATING: xxk RMS SYM. AMPERES				LOCATION: FRAZER BLDG., NEMA 1 ENCLOSURE					
POLE SPC. NO.	CIRCUIT DESCRIPTION	CKT. BKR. RATING	CONNECTED LOAD VA			CKT. BKR. RATING	CIRCUIT DESCRIPTION	POLE SPC. NO.	
			PH A	PH B	PH C				
1	IRRIGATION TIMER	20	500			20/2	AIR HANDLER	2	
3	SPARE	20	1200			X	X	4	
5	SPARE	20				800	20 LIGHTING COTACTOR	6	
7	SPARE	20	1200			20/2	AIR HANDLER	8	
9	SPARE	20				X	X	10	
11	SPARE	20			720	20	ELECTRIC ROOM RECEPTACLES	12	
13	SPARE	20	720			20	RECEPTACLES	14	
15	SPARE	20				20	TELEPHONE ROOM LIGHTS	16	
17	SPACE					840	20 EXHAUST FAN	18	
19	SPACE		600			20	PIONNER WALL	20	
21	SPACE						SPACE	22	
23	SPACE						SPACE	24	
25	SPACE						SPACE	26	
27	(N) RECEPTACLE.PPC	20			1000		SPACE	28	
29	(N) RECEPTACLE.PPC	20				1000		30	
31	(N) POWER PEDESTAL PPB	100/3	8000				SPACE	32	
33	X	X			8000		SPACE	34	
35	X	X				8000	SPACE	36	
37	PANEL B	150/3				150/3	PANEL A	38	
39	X	X				X	X	40	
41	X	X				X	X	42	
TOTAL VA/PHASE =			12220	12080	11360				
TOTAL KVA/PHASE =			12	12	11				
AMPERES/PHASE =			102	101	95				

PANEL: MPZD (NEW)				100 AMP, 120/240V, 1 PH, 3 WIRE MAIN: 40AMCB				MOUNTING: SURF	
INTERRUPTING RATING: 10K RMS SYM. AMPERES				LOCATION: SEE PLANS				NEMA 3R ENCLOSURE	
POLE SPC. NO.	CIRCUIT DESCRIPTION	CKT. BKR. RATING	CONNECTED LOAD VA PH A PH B PH C	CKT. BKR. RATING	CIRCUIT DESCRIPTION	POLE SPC. NO.			
1	(E) RECEPTACLE	20	180 1000	20	(N) RECEPTACLE,PPD	2			
3	(E) RECEPTACLE	20	180 1000	20	(N) RECEPTACLE,PPD	4			
5	(E) IRRIGATION	20	150 1000	20	(N) RECEPTACLE,PPE	6			
7	SPARE	20	1000	20	(N) RECEPTACLE,PPE	8			
9	SPACE				SPACE	10			
11	SPACE				SPACE	12			
TOTAL VA/PHASE =			2330	2180					
TOTAL KVA/PHASE =			2	2					
AMPERES/PHASE =			19	18					

PANEL: PPA (EXISTING)			208Y/120V., 3PH, 4 WIRE			200 AMP MAIN: MCB			MTG: SURFACE		
INTERRUPTING RATING: 10K RMS SYM. AMPERES			LOCATION: SEE PLANS, NEMA 3R ENCLOSURE								
POLE SPC. NO.	CIRCUIT DESCRIPTION	CKT. BKR. RATING	CONNECTED LOAD VA			CKT. BKR. RATING	CIRCUIT DESCRIPTION	POLE SPC. NO.			
			PH A	PH B	PH C						
1	5-PIN, 120/208V/AC-RECEPTACLE	100/3	9600 4800			50/2	SPECIAL RECEPTACLE	2			
3	X	X		9600 4800		X	X	4			
5	X	X			9600 180	20	(N) RECEPTACLE	6			
7	RECEPTACLES	20	180 180			20	(N) RECEPTACLE	8			
9	(N) POLE MOUNTED AREA/REFLECTOR LIGHTS	20		870 180		20	(N) RECEPTACLE	10			
11	SPARE	20			180	20	(N) RECEPTACLE	12			
13	SPARE						SPACE	14			
15	SPARE						SPACE	16			
17	SPACE						SPACE	18			
19	SPACE						SPACE	20			
21	SPACE						SPACE	22			
23	SPACE						SPACE	24			
25	SPACE						SPACE	26			
27	SPACE						SPACE	28			
29	SPACE						SPACE	30			
31	SPACE						SPACE	32			
33	SPACE						SPACE	34			
35	SPACE						SPACE	36			
37	SPACE						SPACE	38			
39	SPACE						SPACE	40			
41	SPACE						SPACE	42			
TOTAL VA/PHASE =			14760	15450	9860						
TOTAL KVA/PHASE =			15	15	10						
AMPERES/PHASE =			123	129	83						



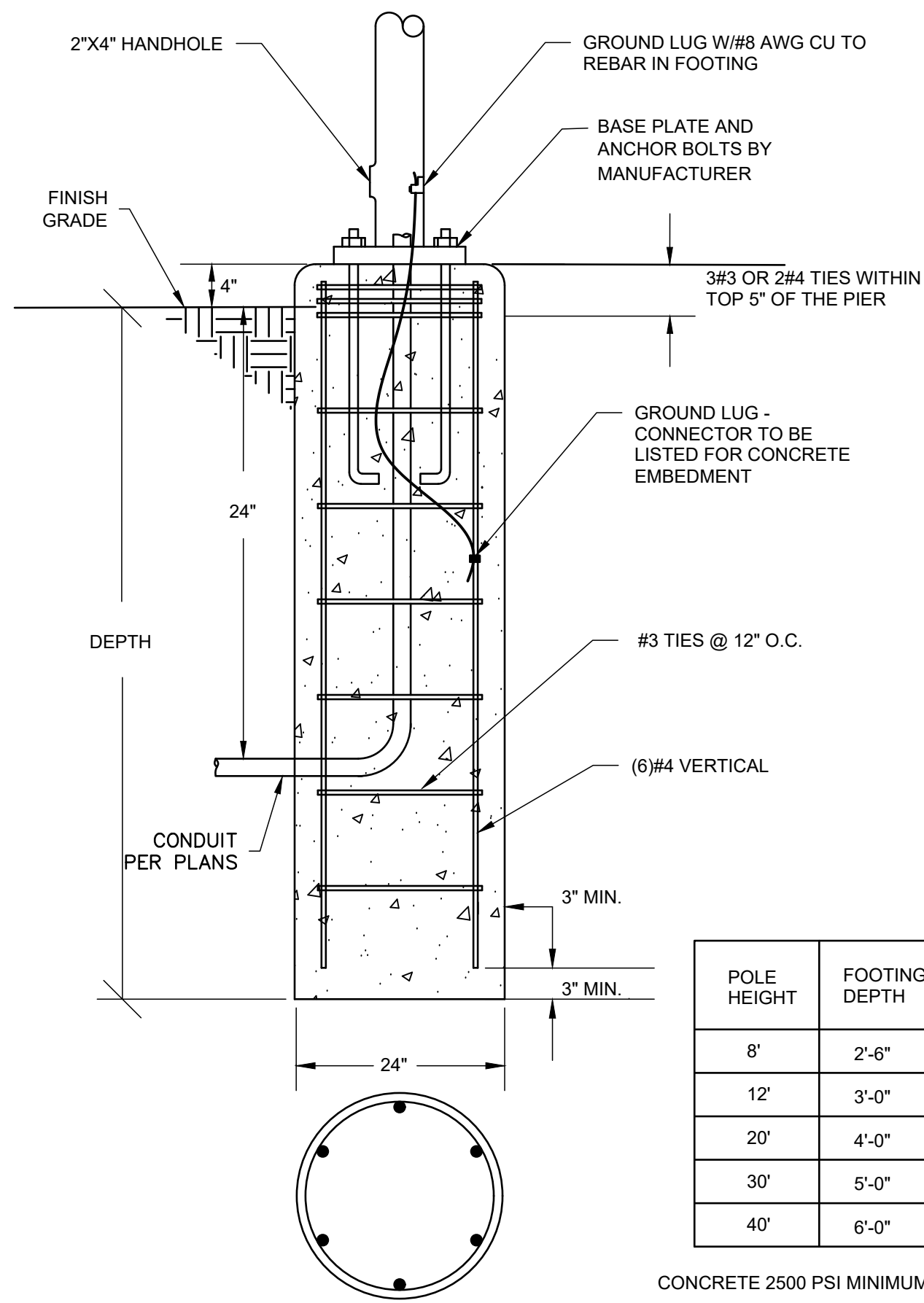
ONE-LINE DIAGRAM - AREAS B AND C  
SCALE: NONE  
NRC ENGINEERS



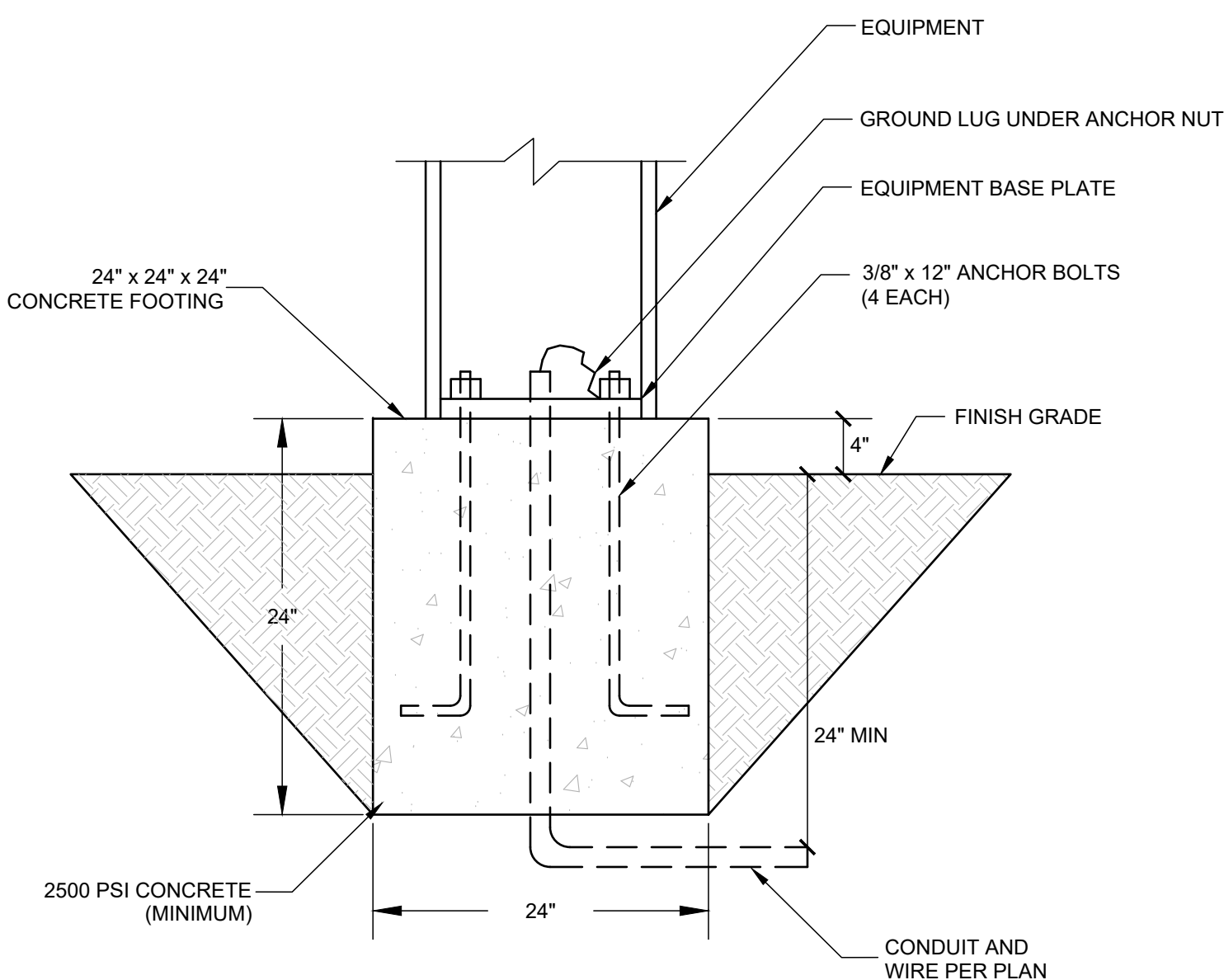
ONE-LINE DIAGRAM - AREAS D AND E  
SCALE: NONE  
NRC ENGINEERS

### KEY NOTES Ⓢ:

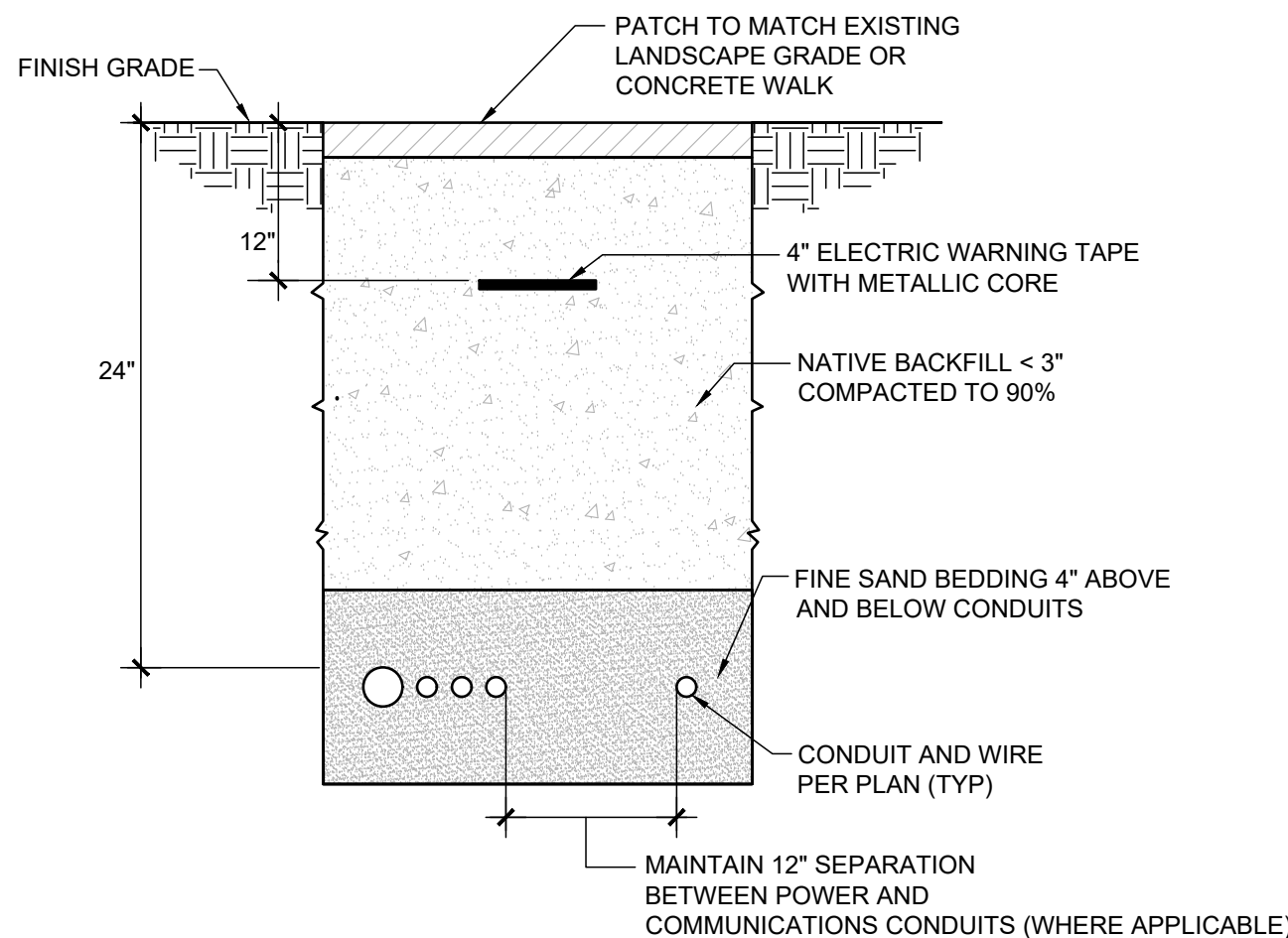
1. TAP EXISTING WIRING AND CONNECT TO NEW MINI-POWER ZONE AS SHOWN.
2. PROVIDE A 7.5 KVA, 480V-120/240V, 1PH MINI POWER ZONE. REFER TO PANEL SCHEDULE FOR ADDITIONAL INFORMATION.
3. PROVIDE A 5" x 5" x 30" STAINLESS STEEL HINGE TOP PEDESTAL WITH INTEGRAL BASE BY PEDOC POWER SOLUTIONS TEL: (888) 578-0330 MODEL #SP30-C-HT-1.
4. PROVIDE A 20"W x 10.5"D x 43"H STAINLESS STEEL PEDESTAL BY TESCO CONTROLS INC. TEL: (916) 395-8800 MODEL #22-000NR.
5. 20A GFCI RECEPTACLES, SHALL BE EXTRA HEAVY DUTY WEATHER-RESISTANT INDUSTRIAL GRADE HUBBLE GFR8300SGW OR EQUAL.
6. PROVIDE A 5-PIN, 100A, 120/208V, RECEPTACLE HUBBLE HBL5100R9W OR EQUAL.



1 CONCRETE POLE BASE DETAIL  
E0.02 SCALE: NONE  
NRC ENGINEERS  
(SOUTHERN NEVADA REGIONAL STANDARDS)



2 POWER PEDESTAL BASE DETAIL  
E0.02 SCALE: NONE  
NRC ENGINEERS



3 TYPICAL TRENCH DETAIL  
E0.02 SCALE: NONE  
NRC ENGINEERS

NRC  
engineers, inc.  
Electrical Engineering  
3373 Wynn Road, Suite A  
Las Vegas, Nevada 89102  
(702)46-1592 Fax: (702)46-1593

SEAL:



CONSULTANT:

UNLV  
UNIVERSITY OF NEVADA LAS VEGAS  
4505 S. MARYLAND PKWY.  
LAS VEGAS, NEVADA 89154  
PROJECT: UNLV - ACADEMIC MALL ELECTRICAL UPGRADE

REVISIONS:

NO. DATE ISSUE

DRAWING TITLE:

ELECTRICAL  
DIAGRAMS,  
SCHEDULES AND  
DETAILS

All dimensions, levels, heights and field conditions shall be verified at the site by the contractor before proceeding with the work.

NRC's Project No. unlv1601

Consultant Project No. --

Issue Date: 11/01/2016

Drawn By: H.G.H. Checked By: NR Approved By: NR

File Name:

E0.02

CONSTRUCTION DOCUMENTS





CONTRACTOR SHALL PROVIDE A SEPARATE BID PRICE AS FOLLOWS:

1. BID PRICE #1: ALL WORK IN AREA 'A'.
2. BID PRICE #2: ALL WORK IN AREAS 'B' & 'C'.
3. BID PRICE #3: ALL WORK IN AREAS 'D' & 'E'.

1. EXISTING 200A, 120/208V, 3PH, 4W POWER PEDESTAL TO REMAIN.
2. REMOVE (4) GFCI RECEPTACLE INSTALLED IN (2) 3-GANG DEVICE BOXES. INSTALL NEW GFCI RECEPTABLES AND WEATHER PROOF IN-USE DIE CAST METALLIC COVERS, INTERMATIC WQ1300MXD OR EQUAL. RECEPTACLES SHALL BE HEAVY DUTY WEATHER RESISTANT HUBBELL GFR8300SGW OR EQUAL.
3. REMOVE WIRING FROM EXISTING STEP LIGHTS BACK TO SOURCE. PROVIDE STAINLESS STEEL WP BLANK COVER.
4. REMOVE WIRING FROM PULL BOX BACK TO POWER PEDESTAL. INSTALL NEW WIRING FOR POLE MOUNTED LIGHTS.
5. REMOVE WIRING FROM UNDERNEATH STAGE BACK TO SOURCE. PROVIDE STAINLESS STEEL WP BLANK COVER.
6. EXISTING 400A, 120/208V, 3PH, 4W PANEL TO BE USED FOR POWER TO AREAS B AND C.
7. PROPOSED LOCATION OF TRENCHING AND UNDERGROUND CONDUIT AND WIRING. COORDINATE FINAL LOCATION WITH UNLV FACILITIES PRIOR TO TRENCHING. SEE DETAIL 3/E0.02 FOR TRENCH REQUIREMENTS.
8. PROVIDE POWER PEDESTAL . SEE DETAIL 2/E0.02 FOR INSTALLATION REQUIREMENTS. LOCATE PEDESTAL CENTERED BETWEEN ADJACENT SPRINKLER HEADS. OBTAIN APPROVAL OF FINAL LOCATIONS FROM UNLV FACILITIES PRIOR TO INSTALLATION.
9. EXISTING PATHWAY LIGHTING PANEL. REMOVE (E) 5KVA MINI POWER ZONE AND INSTALL NEW MINI POWER ZONE.
10. REFER TO ONE-LINE DIAGRAM AND PANEL SCHEDULE FOR ADDITIONAL INFORMATION.
11. 20-FT LIGHTING POLE ASSEMBLY WITH TWO SPOT LIGHTS FOR STAGE AND ONE DOWN LIGHT FOR SEATING AREA LIGHTING. PROVIDE (3) DIMMER SWITCHES ON POLE ONE FOR EACH LIGHT. PROVIDE CONCRETE BASE PER DETAIL 1/ E0.02. THE COMPLETE ASSEMBLY SHALL CONSIST OF THE FOLLOWING:
  - 11.1: AREA LIGHT: (1) EACH MCGRAW-EDISON GLEON-AF-06 E1-5WQ-BK DIM.
  - 11.2: SPOT LIGHTS: (2) EACH SPECPGRADE PRO 240W-100EG-WBL-DIM-CTMX MOUNTED ON BULL HORN ATOP POLE. ADJUST AIMING AT DANCE IN COORDINATION WITH UNLV STUDENT UNION AND EVENT SERVICES DEPARTMENT.
  - 11.3: POLE: 5" SQUARE STEEL POLE: S55SA2025, PER DRILL #1 HOLE AT 48" ABOVE BOTTOM OF POLE OPPOSITE SIDE FROM AREA LIGHT FOR INSTALLATION OF DIMMER BOX.
  - 11.4: DIMMERS: (3) EACH 0-10V ON/OFF WITH SLIDE DIMMER EQUAL TO ULTRON DVSTV. INSTALL IN A 3-GANG DIE CAST DEVICE BOX WITHIN A 12"x12"x6" N-3R HINGE COVER PAD LOCKABLE ENCLOSURE WITH MOUNTING PLATE. HUFFMAN A12R12HRCR-A12N1A122P. PAINT TO MATCH POLE COLOR.
12. REMOVE & REPLACE SECTION OF CONCRETE RAIL BACK TO NEAREST CONJOINT. MATCH ADJACENT THICKNESS AND REINFORCING (MIN 4" OVER 8X8X8GA WFF), PROVIDE 6000PSI CONCRETE AND DOWEL TO ADJACENT PANEL.

## SAFETY ALERT



AVOID HITTING  
UNDERGROUND TRAFFIC  
SIGNAL AND STREET  
LIGHT SYSTEM CONDUITS  
IT'S COSTLY

## Call before you dig

Avoid cutting underground  
utility lines. It's costly.



# Call

**Before You  
Overhead**

Call  
before you  
UnderGround

# Call



OR

1-702-227-2929

1-702-432-5300

FREEWAY AND ARTERIAL SYSTEM OF OPERATIONS 1-800-227-2600

SEAL:



CONSULTANT:

**UNLV**  
UNIVERSITY OF NEVADA LAS VEGAS  
4505 S. MARYLAND PKWY.  
LAS VEGAS, NEVADA 89154

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PROJECT: UNLV - ACADEMIC MALL ELECTRICAL  
UPGRADE

## REVISIONS :

[illegible]

DRAWING TITLE :

# ELECTRICAL SITE PLAN

All dimensions, levels, layouts and field conditions shall be verified at the site by the contractor before proceeding with the work.

NRC'S Project No. unlv1601

Consultant Project No. \_\_\_\_\_

Issue Date: 11/01/2016

Drawn By JLOH	Checked By NR	Approved By NR
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H <sub>2</sub> CH	NH	NH
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## E1.01

CONSTRUCTION DOCUMENTS