TYPICAL PANEL DIAGRAM

BRANCH CIRCUIT WIRE COLOR

277/480	120/208 OR 120/240	POLE NUMBER	120/208 OR 120/240	277/480
BROWN	BLACK	1 — 2	BLACK	BROWN
ORANGE	RED	3 — 4	RED	ORANGE
YELLOW	BLUE	5 — 6	BLUE	YELLOW
BROWN	BLACK	7 — 8	BLACK	BROWN
ORANGE	RED	9 — 10	RED	ORANGE
YELLOW	BLUE	11 — 12	BLUE	YELLOW
		ETC. — ETC.		

NEUTRAL

120/240 OR 120/208 VOLTS – WHITE

277/480 VOLTS – WHITE WITH IDENTIFIABLE COLOR STRIPE (NOT GREEN). IF NOT AVAILABLE AT TIME OF INSTALLATION, CLEAR USE OF GRAY WITH ELECTRICAL INSPECTOR.

GROUND WIRE SHALL BE GREEN FOR ALL VOLTAGES. POST COLORS ON PANELBOARD

ELECTRICAL LEGEND

A	AMPERE
AFF	ABOVE FINISHED FLOOR – MEASURED FROM FLOOR TO CENTER OF DEVICE, EXCEPT AS OTHERWISE SPECIFICALLY NOTED.
ADA	AMERICANS WITH DISABILITIES ACT OF 1990
AFG	ABOVE FINAL GRADE
AR	AS REQUIRED
C	CONDUIT
DE	DUKE ENERGY
EC	EMPTY CONDUIT
G	GROUND
HH	OUTDOOR, FLUSH IN GRADE OR PAVEMENT HANDHOLE BOX REFER TO SECTION 260543.
HPS	HIGH PRESSURE SODIUM
GR	GROUND ROD
LED	LIGHT EMITTING DIOLE
LTG	LIGHTING
MCM	Kcmil (THOUSAND CIRCULAR MILS)
N	NEUTRAL
NCSBC	NC STATE BUILDING CODE
NE	NEW ELECTRICAL CABLE
NEC	NATIONAL ELECTRICAL CODE
NEL	NEW ELECTRICAL LIGHTING CIRCUIT EXTENSION (277V)
NT	NEW TELECOM CABLE
P	POLE
PED	PEDESTRIAN
PH	PHASE
PR	PAIR
RM	EXISTING ITEM TO REMAIN. PROVIDE NEW POWER AND TELECOMMUNICATIONS AS APPLICABLE PER NEW WORK PLAN.
RL	EXISTING ITEM – RELOCATE
RV	EXISTING ITEM – REMOVE
SCIR	SHORT CIRCUIT INTERRUPTING RATING
SO	SPACE ONLY (WITH PROVISIONS FOR FUTURE OVERCURRENT PROTECTIVE DEVICE)
T	TELECOM/TELEPHONE CABLE
TV	TV/TIME WARMER CABLE
WP	INDICATES DEVICE TO HAVE WEATHERPROOF COVER

GENERAL DEMOLITION NOTES

DA. THE ELECTRICAL BIDDER SHALL VERIFY CIRCUIT CONFIGURATION, ROUTING AND CONDITIONS PRIOR TO BIDDING PROJECT. NO CLAIMS FOR EXTRA WORK SHALL BE ACCEPTED AFTER THE AWARDING OF BIDS FROM DISCREPANCIES BETWEEN VERIFIABLE FIELD CONDITIONS AND ITEMS SHOWN HERE.

DB. ELECTRICAL DEMOLITION WORK SHALL BE COORDINATED WITH OTHER TRADES AND AS SCHEDULED BY THE CONTRACT DOCUMENTS. UTILITY OUTAGES FOR FEEDER AND BRANCH CIRCUITS SHALL BE KEPT TO A MINIMUM. TEMPORARILY RECONNECT UTILITIES TO AN ALTERNATE SOURCE UNTIL A PERMANENT SOURCE CAN BE PROVIDED.

DC. WHEN A FEEDER OR BRANCH CIRCUIT IS SHOWN TO BE REMOVED, THE ASSOCIATED WIRING SHALL BE REMOVED BACK TO ITS ORIGIN. CONDUIT MAY BE ABANDONED UNDERGROUND AT THE OWNERS DISCRETION.

DD. EQUIPMENT, CIRCUITS AND UTILITIES WHICH REMAIN BUT ARE SERVED BY FEEDERS OR CIRCUITS BEING REMOVED OR ALTERED SHALL BE RECONNECTED ACCORDING TO THE METHODS REQUIRED BY THIS SPECIFICATION AND THE NEC WITHOUT EXTRA COST TO THE OWNER.

DE. TURN OVER TO THE OWNER, LIGHTING FIXTURES AND OTHER EQUIPMENT SHOWN TO BE REMOVED, EXCEPT THAT THE OWNER RESERVES THE RIGHT TO REJECT WHATEVER EQUIPMENT HE DOES NOT FIND FIT, IN WHICH CASE THE CONTRACTOR SHALL REMOVE IT FROM THE PREMISES.

GENERAL NOTES

A. ELECTRICAL DEVICES AND EQUIPMENT SHALL BE LISTED AND LABELED FOR USE WITH CONDUCTORS WHICH HAVE INSULATION RATED FOR 75°C OR HIGHER BY ONE OF THE THIRD PARTY AGENCIES WHICH HAVE BEEN APPROVED BY THE NCSBCC TO SAFETY TEST AND LABEL ELECTRICAL AND MECHANICAL EQUIPMENT. DERATING OF CONDUCTORS IS NOT ALLOWED.
B. ALL ELECTRICAL CONDUCTORS SHALL BE COPPER, THWN/THHN
C. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE #12 AWG. MINIMUM ACCEPTABLE CONDUIT SIZE SHALL BE 3/4" TRADE SIZE. PROVIDE LARGER CONDUCTORS AND CONDUIT AS NOTED.
D. AN INDIVIDUAL GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED WITH EACH 120–VOLT OR HIGHER VOLTAGE CIRCUIT. SIZE CONDUCTOR AS SHOWN, OR PER TABLE 250.122 OF NEC IF SIZE IS NOT GIVEN.
E. PROVIDE CONDUITS AS SPECIFIED FOR ALL POWER CIRCUITS, SIZED PER NEC, NOT TO EXCEED 40% FILL.
F. COORDINATE ROUTING OF CONDUITS WITH OTHER UTILITIES TO AVOID CONFLICTS.
G. CONTRACTOR SHALL COORDINATE PHASING WITH THE UNIVERSITY AND OTHER TRADES.
H. CONDUCTOR SPLICES WITHIN HANDHOLE BOXES SHALL BE MADE WATERTIGHT UTILIZING LISTED COMPRESSION MECHANICAL CONNECTORS AND LISTED HEAT–SHRINK SPLICE KITS.

LIGHTING FIXTURE SCHEDULE

FIXTURE DESIGNATION	DESCRIPTION	LAMPS QTY	LAMPS TYPE	LAMPS WATTS	BALLAST OR DRIVER QTY	BALLAST OR DRIVER TYPE	BALLAST OR DRIVER WATTS	TOTAL WATTS
SA	NEW UNC CHARLOTTE CAMPUS "STANDARD" PEDESTRIAN LED POLE LIGHT CONSISTING OF 12'–0" TAPERED ALUMINUM "ARCHITECTURAL" POLE WITH HEXAGONAL BASE, ACCESS PLATE AND 3–INCH I.D. SLIP FITTER. LUMINAIRE SHALL BE HEXAGONAL WITH CAST ALUMINUM "ROOF" AND FINIAL, AND UV STABILIZED ACRYLIC REFRACTIVE REMOVABLE PANELS. BOTH LUMINAIRE AND POLE SHALL BE FINISHED IN "MALAGA GREEN" – RAL 6012. TYPICAL. MULTI–TAP DRIVER. PROVIDE CONCRETE BASE FUSE PROTECTION AND BUILT–IN SURGE PROTECTION DEVICE AS SPECIFIED IN SECTION 265600 FOR ADDITIONAL REQUIREMENTS. HADCO "CITADEL V25" SERIES OR MATCHING PRODUCT FROM ANP, STEINBERG OR SPRING CITY. SEE DETAIL 1/E–3.	2	LED ARRAYS	40	2	ELECTRONIC MULTI–TAP 120/208/1 240/277V	42.5	85
SB	NEW LED STREET LIGHTING SINGLE LUMINAIRE ON 30'–0" ALUMINUM POLE WITH CONCRETE BASE. GE EVOLVE SERIES EASC OWNER PREFERRED TO MATCH EXISTING CAMPUS STANDARD OR EQUIVALENT.	1		82	1	ELECTRONIC MULTI–TAP 120/208/ 240/277V	82	82
SB2	SIMILAR TO "SB", EXCEPT TWO–LUMINAIRE FIXTURE.	2		82	2	ELECTRONIC MULTI–TAP 120/208/ 240/277V	82	164
SC	EXISTING STREET LIGHTING SINGLE ROUND LUMINAIRE ON 30–FOOT (NOMINAL) POLE ON RECESSED CONCRETE BASE FINISHED IN "MALAGA GREEN".	1	LED		1			
SCR	EXISTING TYPE "SC" LIGHTING FIXTURE RELOCATE TO NEW LOCATION TO AVOID INTERFERENCE WITH NEW ROAD IMPROVEMENTS. PROVIDE NEW CONCRETE BASE PER DETAIL 4/E–3 AND RE–LAMP WITH NEW LED LAMP.	1	LED		1			
SD	EXISTING CAMPUS "STANDARD" CITADEL PEDESTRIAN POLE LIGHT, SIMILAR TO TYPE "SA" ABOVE, EXCEPT WITH 150 WATT HPS LAMP/BALLAST INSTEAD OF LED.	1	HPS	150	1	HX–HPF	188	188
SE	EXISTING POST–TOP OLD HID PEDESTRIAN POLE FIXTURE WITH NATURAL ALUMINUM FINISH. ±12' POLE AND LUMINAIRE	1	HPS	150	1	HX–HPF	188	188
SF	EXISTING 30' HID PARKING LOT LIGHT POLE.	1	HPS	400	1	HX–HPF	465	465
SG	EXISTING 30' LED PARKING LOT LIGHT POLE. SINGLE HEAD.	1	LED		1			
SG2	EXISTING 30' LED PARKING LOT LIGHT POLE. DOUBLE HEAD.	2	LED		2			
SGR	EXISTING 30' LED PARKING LOT LIGHT POLE. RELOCATED TO NEW LOCATION.	1	LED		1			

PARTIAL SYMBOL SCHEDULE

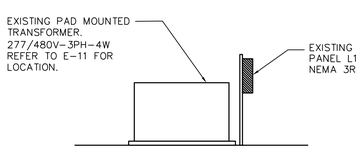
SYMBOL	DESCRIPTION
	INDICATES HOME RUN TO PANEL WITH PANEL AND CIRCUIT DESIGNATION.
	ELECTRICAL PANELBOARD
SPD	SURGE PROTECTION DEVICE
	ELECTRICAL HANDHOLE
E	HIGH VOLTAGE HANDHOLE
	GROUNDING ELECTRODE
	BLUE LIGHT PHONE
	NEW OR RELOCATED PEDESTRIAN POLE LIGHTING FIXTURE.
	NEW OR RELOCATED SINGLE–HEAD, 30–FOOT POLE STREET LIGHT FIXTURE
	NEW OR RELOCATED TWO–HEAD, 30–FOOT POLE STREET LIGHT FIXTURE

LIGHTING FIXTURE SCHEDULE NOTES

1. EXACT LOCATION OF LIGHTING FIXTURES SHALL BE AS SHOWN ON THE CIVIL DRAWINGS. FIXTURES NOT SHOWN ON THE CIVIL DRAWINGS SHALL BE LOCATED AS SHOWN ON THE ELECTRICAL DRAWINGS.
2. CATALOG NUMBERS SHOWN IN THE LIGHTING FIXTURE SCHEDULE DO NOT NECESSARILY INCLUDE ALL ACCESSORIES SPECIFIED IN THE FIXTURE DESCRIPTION. THE CONTRACTOR SHALL PROVIDE ALL SPECIFIED FEATURES WHETHER THEY ARE INCLUDED IN THE FIXTURE CATALOG NUMBER OR NOT. EQUIVALENT FIXTURES OF OTHER MANUFACTURERS NOT LISTED IN THE SCHEDULE MAY BE SUBMITTED, SUBJECT TO ENGINEER'S REVIEW.
3. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THAT THE LIGHTING FIXTURES FURNISHED ARE SUITABLE FOR THE PROPOSED INSTALLATION PRIOR TO SUBMITTING SHOP DRAWINGS. THE CONTRACTOR SHALL VERIFY THAT THE FIXTURES SPECIFIED ARE SUITABLE FOR THE ACTUAL MOUNTING CONDITIONS, AND THAT THE FIXTURES ARE OF THE PROPER VOLTAGE FOR THE CIRCUITING SHOWN ON THE DRAWINGS. NO EXTRA PAYMENT WILL BE PROCESSED FOR FAILURE TO COMPLY WITH THIS REQUIREMENT.
4. LIGHT POLES TO BE PROVIDED BY OWNER.

SCHEDULE OF ELECTRICAL SHEETS

E–1	SCHEDULES AND NOTES
E–2	OVERALL ELECTRICAL PLAN
E–3	ELECTRICAL DETAILS
E–4	ELECTRICAL DETAILS
E–4.1	ELECTRICAL DETAILS
E–5	ELECTRICAL PLAN
E–6	ELECTRICAL PLAN
E–7	ELECTRICAL PLAN
E–8	ELECTRICAL PLAN
E–9	ELECTRICAL PLAN
E–10	ELECTRICAL PLAN
E–11	ELECTRICAL PLAN
E–12	ELECTRICAL PLAN



POWER RISER DIAGRAM

N.T.S.

EXISTING PANEL L1

LOAD (KVA) A	LOAD (KVA) B	LOAD (KVA) C	DESCRIPTION	COND (IN.)	GRND SIZE	WIRE SIZE	BRKR RATG	CKT. NO.
1.8			LTG. - LOT 6 CAMERON	1"	8	6	20/1	1
	1.8		LTG. - LOT 6 CAMERON	1"	8	6	20/1	3
		1.5	LTG. - LOT 6A	EX	EX	EX	20/1	5
1.5			LTG. - LOT 6A	EX	EX	EX	20/1	7
	1.0		LTG. - M.V. ROADWAY	1"	8	6	20/1	9
		1.1	LTG. - M.V. ROADWAY	1"	8	6	20/1	11
2.4			LTG. - M.V. CONNECTOR	1"	8	6	20/1	13
	2.9		LTG. - M.V. CONNECTOR	1"	8	6	20/1	15
		0.0	SPARE	.	.	.	20/1	17
0.0			SPARE	.	.	.	20/1	19
	0.0		SPARE	.	.	.	20/1	21
		0.2	PHOTOCELL	EX	EX	EX	20/1	23
0.0			SPARE	.	.	.	20/1	25
	0.0		SPARE	.	.	.	20/1	27
		0.0	SPARE	.	.	.	20/1	29
0.0			.	.	.	.	.	31
	0.0		.	.	.	.	.	33
		0.0	.	.	.	.	.	35
0.0			.	.	.	.	.	37
	0.0		.	.	.	.	.	39
		0.0	.	.	.	.	.	41

CKT. NO.	BRKR RATG	WIRE SIZE	GRND SIZE	COND (IN.)	DESCRIPTION	LOAD (KVA) A	LOAD (KVA) B	LOAD (KVA) C
2	20/3	EX	EX	EX	POWER LOGIC	1.0		
4	.	EX	.	.	.		1.0	
6	.	EX	.	.	.			1.0
8	20/2	EX	EX	EX	MANHOLE SUMP PUMP	1.0		
10	.	EX	.	.	.		1.0	
12	50/1	EX	EX	EX	GARDEN WORKSHOP			6.0
14	20/1	.	.	.	SPARE	0.0		
16	20/1	.	.	.	SPARE		0.0	
18	20/1	.	.	.	SPARE			0.0
20	20/1	.	.	.	SPARE	0.0		
22	20/1	.	.	.	SPARE		0.0	
24	20/1	.	.	.	SPARE			0.0
26	20/1	.	.	.	SPARE	0.0		
28	20/1	.	.	.	SPARE		0.0	
30	20/1	.	.	.	SPARE			0.0
32	.	.	.	.	.	0.0		
34	.	.	.	.	.		0.0	
36	.	.	.	.	.			0.0
38	.	.	.	.	.	0.0		
40	.	.	.	.	.		0.0	
42	.	.	.	.	.			0.0

TYPE: BRANCH CIRCUIT	GROSS PHASE TOTALS	
MOUNTING: SURFACE	A=	7.7 KVA
SUPPLY: 480/277V, 3-PH, 4W	B=	7.7 KVA
MAINS: 200 AMP MAIN CIRCUIT BREAKER	C=	9.8 KVA
SCIR: .		

NOTES:
1. G. E. "A" SERIES
2. ALL CIRCUIT BREAKERS ARE EXISTING
3. "EX" INDICATES EXISTING CONDUIT AND WIRING TO REMAIN

CONNECTED LOAD		NEC CALCULATED DEMAND LOAD	
LIGHTING	14.1 KVA	(125%)	17.7 KVA
HEATING	0.0 KVA	HEATING AND COOLING:	
A/C & HEAT PUMPS	0.0 KVA	(100% - MINUS NC LOAD)	0.0 KVA
AIR HANDLING & FANS	0.0 KVA	(100%)	0.0 KVA
RECEPTACLES	0.0 KVA	(1ST 10 KVA + 50% OF REM.)	0.0 KVA
ELECTRIC WATER HEATING	0.0 KVA	(125%)	0.0 KVA
ELEVATORS	0.0 KVA	(100%)	0.0 KVA
FOOD PROCESSING	0.0 KVA	(100%)	0.0 KVA
PROCESS	0.0 KVA	(100%)	0.0 KVA
MISCELLANEOUS	11.0 KVA	(100%)	11.0 KVA
		25% OF LARGEST MOTOR:	0.0 KVA
TOTAL CONNECTED LOAD	25.1 KVA	TOTAL NEC DEMAND LOAD:	28.7 KVA
WORST PHASE (W.O.F.):	37.8 AMPS	DEMAND LOAD CURRENT:	34.5 AMPS

Know what's below. Call before you dig.

No.	REVISIONS	DATE	BY

CMTA
8801 J.M. Keynes Dr. Suite 240 Charlotte, NC 28262
704-376-1555 cmta.com
C-1456

BID SET

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18459 GREGORY E. JOHNSON ENGINEERING 10/9/2020

MC&L PROJECT	DESIGNED BY	DRAWN BY	CHECKED BY
217.069	JRM	GEJ	GEC
DATE 10/9/2020	SCALE AS SHOWN		

UNC CHARLOTTE
9201 UNIVERSITY CITY BOULEVARD
CHARLOTTE, NC 28223

SCHEDULES & NOTES

THE UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE
EAST VILLAGE INFRASTRUCTURE
PROJECT ID #13-11004-02A

SHEET NUMBER
E-1