

ELECTRICAL SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED.

V3.00

STANDARD MOUNTING HEIGHTS

| | |
|---|--------------------------------------|
| AUDIBLE APPLIANCES (CENTERLINE) | 84" |
| ALARMS | 48" |
| ANNUNCIATOR PANELS (DISPLAY) | 60" |
| CONTROLS (TOP OF DEVICE) | 48" |
| EXIT SIGNS (WALL MOUNTED) | 80" |
| FIRE ALARM ANNUNCIATOR PANEL (DISPLAY) | 60" |
| FIRE ALARM BELL (EXTERIOR) (CENTERLINE) | 120" |
| FIRE ALARM CONTROL PANEL/UNIT (DISPLAY) | 60" |
| INTERCOM (AREA ONLY) | 36" |
| INTERCOMS (TOP OF DEVICE) | 48" |
| PULL STATIONS (TOP OF DEVICE) | 48" |
| PHOTOCELLS | 144" |
| RECEPTACLES | 16" |
| RECEPTACLES (EXTERIOR) | 24" |
| RECEPTACLES (GARAGES) | 24" |
| RECEPTACLES (POOLS) | 27" |
| RECEPTACLES (ABOVE COUNTER) | +6" ABOVE BACKSPASH/COUNTER, 40" MAX |
| RECEPTACLES IN EQUIPMENT ROOMS | 44" |
| REMOTE INDICATING LIGHT (EQUIPMENT ROOMS) | 48" |
| REMOTE INDICATING LIGHT (FINISHED AREAS) | CEILING |
| SAFETY SWITCHES (TOP OF DEVICE) | 48" |
| STARTERS (TOP OF DEVICE) | 48" |
| SWITCHES (TOP OF DEVICE) | 44" |
| TELEPHONE, DATA OUTLETS | SAME AS ADJACENT DEVICE, UNO |
| TELEPHONE TERMINAL BOARD (BOTTOM) | 0" |
| TELEVISION OUTLETS | REFER TO ARCH DRAWINGS |
| VISIBLE APPLIANCES (CENTERLINE) | 84" |

INSTALL OUTLET BOXES AT THE MOUNTING HEIGHTS SHOWN ABOVE UNO IN THE CONSTRUCTION DOCUMENTS. MOUNTING HEIGHTS LISTED ABOVE, OR ELSEWHERE IN THE CONSTRUCTION DOCUMENTS, ARE AFF OR AFG TO BOTTOM OF OUTLET BOX, UNO. ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

ANNOTATION

| | |
|--|--|
| | MECHANICAL OR FIRE PROTECTION PLAN NOTE CALLOUT |
| | PLUMBING PLAN NOTE CALLOUT |
| | ELECTRICAL OR FIRE ALARM PLAN NOTE CALLOUT |
| | TECHNOLOGY PLAN CALLOUT |
| | PLUMBING EQUIPMENT DESIGNATION. (CONTRACTOR FURNISHED AND INSTALLED). REFER TO PLUMBING FIXTURE OR EQUIPMENT SCHEDULES |
| | EQUIPMENT DESIGNATION (OWNER FURNISHED, CONTRACTOR INSTALLED) |
| | MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE) |
| | CONNECTION POINT OF NEW WORK TO EXISTING |
| | DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER |
| | SECTION CUT DESIGNATION |

ELECTRICAL ONE-LINE & RISER DIAGRAM

| | |
|--|---|
| | SWITCH (RATINGS AS INDICATED) |
| | DRAWOUT CIRCUIT BREAKER (RATINGS AS INDICATED) |
| | FUSED SWITCH (RATING, POLES AND FUSE TYPE AS INDICATED) |
| | COMBINATION FUSED SWITCH/STARTER AND STARTER SIZE |
| | CIRCUIT BREAKER (RATINGS AS INDICATED) |
| | COMBINATION CIRCUIT BREAKER/STARTER AND STARTER SIZE |
| | PANELBOARD, SINGLE OR MULTI-SECTION (REFER TO SCHEDULES) |
| | ISOLATED POWER PANELBOARD W/ INTEGRAL TRANSFORMER (REFER TO SCHEDULES) |
| | TRANSFORMER (TYPE AND RATINGS AS INDICATED) |
| | SHIELDED TRANSFORMER (TYPE AND RATINGS AS INDICATED) |
| | AUTOMATIC TRANSFER SWITCH (RATINGS AS INDICATED) |
| | AUTOMATIC TRANSFER SWITCH WITH BYPASS (RATINGS AS INDICATED) |
| | GENERATOR (RATINGS AS INDICATED) |
| | NON-SEPARATELY DERIVED SOURCE |
| | SEPARATELY DERIVED SOURCE |
| | SWITCHGEAR, SWITCHBOARD AND/OR DISTRIBUTION PANELBOARD (TYPE, RATING, DEVICES AND ACCESSORIES AS INDICATED) |
| | COMBINATION DIGITAL VOLT METER/AMMETER |
| | CIRCUIT IDENTIFICATION (REFER TO CIRCUIT SCHEDULE) |
| | GROUND FAULT RELAY |
| | PHASE FAILURE RELAY |
| | KIRK-KEY INTERLOCK (# INDICATES KEY PAIR) |
| | SHUNT TRIP |
| | AMMETER (RANGE AS SPECIFIED OR REQUIRED) |
| | VOLTMETER (RANGE AS SPECIFIED OR REQUIRED) |
| | UTILITY METER (AS REQUIRED BY UTILITY) |
| | AMMETER SWITCH |
| | VOLTMETER SWITCH |
| | WATT-HOUR METER, "D" DENOTES DEMAND REGISTER, "15" DENOTES MINUTES OF DEMAND INTERVAL |
| | CURRENT TRANSFORMER RATING AS SPECIFIED OR REQUIRED |
| | POTENTIAL TRANSFORMER RATING AS SPECIFIED OR REQUIRED |
| | SURGE-PROTECTIVE DEVICE |
| | GROUND CONNECTION |
| | GROUND CONNECTION WITH TEST WELL |
| | GROUND ROD |
| | LIGHTNING ARRESTER |
| | CAPACITOR |
| | HEATER |
| | MOTOR |
| | BLOCK LOAD KW OR KVA |
| | FAULT POINT REFERENCED IN SHORT CIRCUIT CURRENT AND VOLTAGE DROP SPREADSHEET |

ABBREVIATIONS

| | | | |
|----------|---|---------|---|
| AF | AMPERE FUSE SIZE | MFR | MANUFACTURER |
| AFD | ABOVE FINISHED CEILING | MIN | MINIMUM |
| AFB | ABOVE FINISHED FLOOR | MLO | MAIN LUGS ONLY |
| AFG | ABOVE FINISHED GRADE | MLV | MAGNETIC LOW-VOLTAGE |
| AHJ | AUTHORITY HAVING JURISDICTION | MOCP | MAXIMUM OVERCURRENT PROTECTION |
| AHU | AIR HANDLING UNIT | MTD | MOUNTED |
| AIC | AMPERE INTERRUPTING CAPACITY | N/A | NOT APPLICABLE |
| AS | AMPERE SWITCH SIZE | NF | NOT USED |
| AT | AMPERE TRIP SETTING | NL | NIGHT LIGHT (24HR ON) |
| ATS | AUTOMATIC TRANSFER SWITCH | NRTL | NATIONALLY RECOGNIZED TESTING LABORATORY (CSA ETL, NSF, UL) |
| AV | AUDIO VISUAL | NTS | NOT TO SCALE |
| BAS | BUILDING AUTOMATION SYSTEM | OS | OCCUPANCY SENSOR |
| BKR | BREAKER | P | POLE |
| CONDUIT | CONDUIT | PART | PARTIAL CIRCUIT |
| CAT | CATEGORY | PHW | PHASE |
| CATV | CABLE TELEVISION SYSTEM | PNL | PANEL |
| CCTV | CLOSED CIRCUIT TELEVISION | PNLBD | PANELBOARD |
| CD | CANDELA | PROVIDE | FURNISH AND INSTALL |
| CKT | CIRCUIT | PT | POTENTIAL TRANSFORMER |
| CODE | APPLICABLE CODE ADOPTED BY JURISDICTION | QTY | QUANTITY |
| CT | CURRENT TRANSFORMER | RREL | RELOCATE |
| CTR | CENTER | RCP | RECEPTACLE |
| CVD | CUMULATIVE VOLTAGE DROP | RLA | RUNNING LOAD AMPS |
| DEMOL | DEMOLITION | RTU | ROOFTOP UNIT |
| DPDT | DOUBLE-POLE, DOUBLE-THROW | SCCR | SHORT-CIRCUIT CURRENT RATING |
| DPST | DOUBLE-THROW, SINGLE-POLE, SINGLE-THROW | SD | SMOKE DUCT DETECTOR |
| E/ET/EX | EXISTING TO REMAIN | SF | SQUARE FEET |
| EC | ELECTRICAL CONTRACTOR | SPDT | SINGLE-POLE, SINGLE-THROW |
| EF | EXHAUST FAN | SPST | SINGLE-POLE, SINGLE-THROW |
| EM | EMERGENCY | SSBJ | SUPPLY-SIDE BONDING JUMPER |
| EMS | ENERGY MANAGEMENT SYSTEM | ST | SHUNT TRIP |
| ELV | ELECTRONIC LOW-VOLTAGE | SWBD | SWITCHBOARD |
| EWC | ELECTRIC WATER COOLER | SWGR | SWITCHGEAR |
| FAAP | FIRE ALARM ANNUNCIATOR PANEL | TBB | TELECOMMUNICATIONS BONDING BACKBONE |
| FACP | FIRE ALARM CONTROL PANEL | TBD | TO BE DETERMINED |
| FCA | FAULT CURRENT AMPS AVAILABLE | TGB | TELECOMMUNICATIONS GROUND BUS BAR |
| FCU | FAN COIL UNIT | TL | TWISTLOCK |
| FF | FINISHED FLOOR | TMGB | TELECOMMUNICATIONS MAIN GROUND BUS BAR |
| FLA | FULL LOAD AMPS | TX/FMR | TRANSFORMER |
| FLR | FLOOR | TYP | TYPICAL |
| GEC | GENERAL CONTRACTOR | UF | UNDER FLOOR |
| GECD | GROUNDING ELECTRODE CONDUCTOR | UG | UNDERGROUND |
| GES | GROUNDING ELECTRODE SYSTEM | UIS | UNDERSLAB |
| GFR | GROUND FAULT RELAY | UH | UNIT HEATER |
| G | GROUND | UNO | UNLESS NOTED OTHERWISE |
| IG | ISOLATED GROUND | UNINT | UNINTERRUPTIBLE POWER SUPPLY |
| ISC | SHORT CIRCUIT CURRENT | VD | VOLTAGE DROP |
| JB/J-BOX | JUNCTION BOX | VFD | VARIABLE FREQUENCY DRIVE |
| LF | LINEAR FEET | VS | VACUANCY SENSOR |
| LRA | LOOKED ROTOR AMPS | W | WIRE |
| LTGLTS | LIGHTING/LIGHTS | W/ | WITH |
| MAU | MAKE-UP AIR UNIT | WP | WEATHER PROOF |
| MAX | MAXIMUM | WR | WEATHER RESISTANT |
| MCA | MINIMUM CIRCUIT AMPACITY | WT | WATERTIGHT |
| MCB | MAIN CIRCUIT BREAKER | XP | EXPLOSION-PROOF |
| MCC | MOTOR CONTROL CENTER | | |

CIRCUITING & WIRING

| | |
|--|--|
| | HOMERUN TO PANELBOARD. INFORMATION AT ARROWS ARE CIRCUIT NUMBERS AND PANELBOARD FOR TERMINATION. REFER TO PANELBOARD SCHEDULES FOR BRANCH CIRCUIT CONDUCTOR SIZES. |
| | INDICATES RELAY NUMBER |
| | CIRCUIT CONTINUATION OR PARTIAL CIRCUIT |
| | CONDUIT CONCEALED |
| | CONDUIT CONCEALED (EMERGENCY) |
| | CONDUIT IN FLOOR/GROUND CONSTRUCTION |
| | EXPOSED CONDUIT |
| | EXPOSED CONDUIT (EMERGENCY) |
| | FLEXIBLE CONDUIT |
| | LOW VOLTAGE CABLE (NOT ROUTED IN CONDUIT) |
| | CONDUIT TURNING DOWN |
| | CONDUIT TURNING UP |
| | CONNECTION POINT OR EQUIPMENT TERMINATION |
| | EQUIPMENT TERMINATION |

CONDUCTOR TICK MARK LEGEND

WHERE TICK MARKS ARE SHOWN, THE FOLLOWING SHALL GOVERN:

| | |
|--|---|
| | SWITCHED HOT (PHASE) CONDUCTORS (SHOWN TRAILING NEUTRAL) |
| | NEUTRAL (GROUNDED) CONDUCTOR |
| | UNSWITCHED HOT (PHASE) CONDUCTORS (SHOWN LEADING NEUTRAL) |
| | NOTE: HASH MARKS INDICATE QUANTITY OF CONDUCTORS |
| | EQUIPMENT GROUNDING CONDUCTOR IN CONDUIT (GREEN INSULATION OR BARE) |
| | ISOLATED GROUNDING CONDUCTOR IN CONDUIT (GREEN INSULATION WITH YELLOW TRACER) |

BRANCH CIRCUIT CONDUCTOR TABLE

WHERE TICK MARKS ARE NOT SHOWN, THE FOLLOWING SHALL GOVERN:

| # OF POLES | HOT (PHASE)* | NEUTRAL (GROUNDED)** | GROUNDING*** |
|------------|--------------|----------------------|--------------|
| 1P | (1) | (1) UNO | (1) |
| 2P | (2) | (1) UNO | (1) |
| 3P | (3) | (1) UNO | (1) |

* PROVIDE ADDITIONAL CONDUCTORS THROUGH ENTIRE CIRCUIT (SWITCHED, UNSWITCHED/EM, ETC.) AS INDICATED THROUGHOUT CONSTRUCTION DOCUMENTS AND AS REQUIRED FOR A COMPLETE AND WORKING SYSTEM.

** REFER TO SPECIFICATIONS FOR LIMITATIONS ON SHARING NEUTRAL (GROUNDED) CONDUCTORS. DO NOT CIRCUIT AS A MULTI-WIRE BRANCH CIRCUIT, UNO.

*** PROVIDE ADDITIONAL ISOLATED GROUNDING CONDUCTORS WHERE INDICATED.

REFER TO SPECIFICATIONS, PLANS, NOTES, WIRING AND CONTROL DIAGRAMS FOR ADDITIONAL CIRCUITING REQUIREMENTS.

LINETYPE LEGEND

THROUGHOUT THE DRAWINGS DIFFERENT LINETYPES ARE USED IN COMBINATION WITH THE SYMBOLS TO INDICATE THE STATUS OF ITEMS AS EXISTING, TO BE DEMOLISHED, TO BE INCLUDED AS PART OF NEW WORK AND/OR ITEMS WHICH ARE ANTICIPATED TO BE PROVIDED IN THE FUTURE. THE STATUS OF ITEMS USING THESE LINETYPES ARE RELATIVE TO THE VIEW IN WHICH THEY APPEAR. PHASING SHOWN IN DRAWINGS IS NOT INTENDED TO FULLY DESCRIBE ALL NECESSARY CONSTRUCTION PHASING, WHICH IS DETERMINED BY THE CONTRACTOR AS PART OF THEIR RESPONSIBILITIES. ANY SUCH PHASES DESCRIBED IN THE CONSTRUCTION DOCUMENTS ARE GENERAL AND ONLY INTENDED TO INDICATE A BROAD ORDER FOR THE SAKE OF DESCRIBING THE PROJECT. THE FOLLOWING LINETYPES MAY BE USED ON ANY DEVICE, EQUIPMENT, NOTE, LINE, SHAPE, ETC.

| EXISTING | NEW |
|----------|--------|
| DEMOLISH | FUTURE |

SIGNALING

| | |
|--|------------------|
| | SIGNALING BELL |
| | SIGNALING BUZZER |
| | LV TRANSFORMER |

GENERAL NOTES

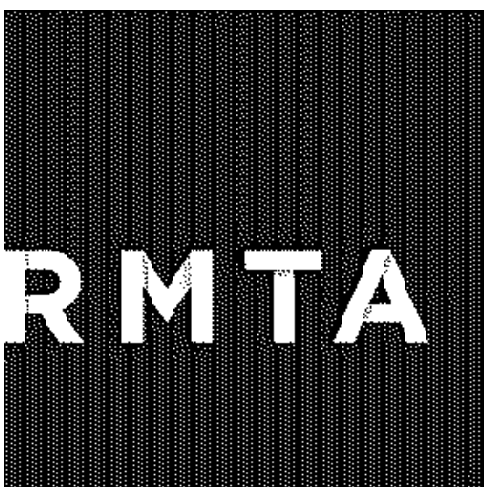
1. READ THE SPECIFICATIONS AND REVIEW DRAWINGS OF ALL DIVISIONS OF WORK. COORDINATE THIS WORK WITH ALL OTHER DIVISIONS OF WORK AND ALL SUBCONTRACTORS. PROVIDE ALL SUBCONTRACTORS WITH A COMPLETE SET OF BID DOCUMENTS.
2. COORDINATE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
3. ALL EXPOSED CONDUIT SHALL BE PAINTED TO MATCH ADJACENT SURFACE. COORDINATE WITH ARCHITECT.
4. ALL CIRCUITS SHALL HAVE A SEPARATE GREEN GROUND CONDUCTOR.
5. PROVIDE NEUTRAL CONDUCTOR FOR ALL 120V CIRCUITS OR AS OTHERWISE INDICATED.
6. REFER TO PANEL SCHEDULES FOR SPECIFIED CONDUCTOR SIZES PER BRANCH CIRCUIT. UNLESS OTHERWISE NOTED, ALL CIRCUITRY SHALL BE #12 AWG IN 3/4" CONDUIT.
7. PRIOR TO SUBMITTING BID, CONTRACTOR SHALL VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE FACILITY. REVIEW THE GENERAL NOTES AND ALL OTHER TRADE DRAWINGS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER OR OWNER, AS SPECIFIED, OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMITTING BID.
8. ALL WORK IS TO BE COORDINATED WITH THE REPRESENTATIVE
9. FOR ELECTRICAL DETAILS REFER TO MANUFACTURER DRAWINGS AND SPECIFICATIONS.
10. THE INFORMATION SHOWN IN THE SHORT-CIRCUIT AND VOLTAGE DROP CALCULATIONS SCHEDULE IS SHOWN FOR CALCULATION PURPOSES ONLY. CONTRACTOR SHALL NOT USE THE CONDUIT TYPES, CONDUCTOR TYPES, SIZES, QUANTITIES OR LENGTHS FOR TAKEOFFS OR BIDDING PURPOSES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN THIS SCHEDULE AND OTHER PORTIONS OF THE CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL NOTIFY ENGINEER OF AS-BUILT CONDITIONS THAT CONSTITUTE A CHANGE FROM WHAT IS SHOWN ON THE SCHEDULE. THIS INCLUDES CONDUCTOR LENGTHS DIFFERING BY MORE THAN 10%.
11. FEEDER SIZES ARE BASED ON COPPER (CU) THHN/THWN-2 INSULATION, UNLESS NOTED OTHERWISE. AL WIRE MAY BE SUBSTITUTED FOR CU FEEDERS AS ALLOWED BY CODE. SPECIFICATIONS, AND OWNER, UNLESS NOTED OTHERWISE, ALL CONDUCTOR SIZES ARE BASED ON 75 DEG C RATED TERMINATIONS. UNLESS NOTED OTHERWISE, CONDUIT SIZES SHOWN ARE APPROPRIATE FOR SCHEDULE 40 PVC, EMT, GRS, IMC AND RMC; ADJUST SIZE AS NEEDED FOR OTHER RACEWAY TYPES. FOR ANY OTHER CONDITIONS MODIFY SIZES PER CODE. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
12. PROVIDE A PERMANENT LABEL ON FRONT OF EQUIPMENT ENCLOSURE; REFER TO SPECIFICATIONS FOR LABEL REQUIREMENTS. LABEL SHALL READ AS FOLLOWS (INCLUDE RESPECTIVE NAMES IN BLANKS):
SERVICE EQUIPMENT LABEL:
LINE 1: NOMINAL VOLTAGE AND FREQUENCY IN HERTZ
LINE 2: SERVICE EQUIPMENT BUS RATING IN AMPS
LINE 3: SCCR OF SERVICE EQUIPMENT IN AMPS
LINE 4: MAXIMUM AVAILABLE FAULT CURRENT IN AMPS
LINE 5: DATE CALCULATED

EXAMPLE:
208Y/120V, 60HZ
800A
SCCR = 65,000A
MAX AVAILABLE FAULT CURRENT = 58,815A
CALCULATED: 01/01/2018
13. OBTAIN THE AVAILABLE FAULT CURRENT DELIVERED BY UTILITY COMPANY AT THE POINT OF SERVICE. REPORT FINDINGS TO THE ENGINEER FOR ANALYSIS PRIOR TO BEGINNING CONSTRUCTION.
14. CONTRACTOR'S BID SHALL INCLUDE PROVISIONS TO PROVIDE ALL SERVICES RELATED TO THE CODE REQUIRED BUILDING SYSTEMS COMMISSIONING INCLUDING A COMMISSIONING PLAN, FUNCTIONAL TESTING, AND RELATED DOCUMENTATION, REPORTS AND OWNER TRAINING. THIS INCLUDES RETAINING THE SERVICES OF A 3RD PARTY REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY. REFER TO THE LATEST ADOPTED EDITION OF THE APPLICABLE ENERGY CODE FOR MORE INFORMATION. CONTRACTOR SHALL COMPLETE ALL RELATED COMMISSIONING REQUIREMENTS PRIOR TO FINAL INSPECTIONS IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS, CODE AND MANUFACTURER'S INSTRUCTIONS.

HENDERSON ENGINEERS
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195005044
MO. CORPORATE NUMBER: E-556D
12/31/20



Jun 24 2020



2000 SHAWNEE MISSION PARKWAY
STE 100 MISSION WOODS, KS 66205
TEL 816 502 1530 FAX 816 842 1878

PROJECT
BLUE PARKWAY & JEFFERSON ST. DRIVE-UP ATM

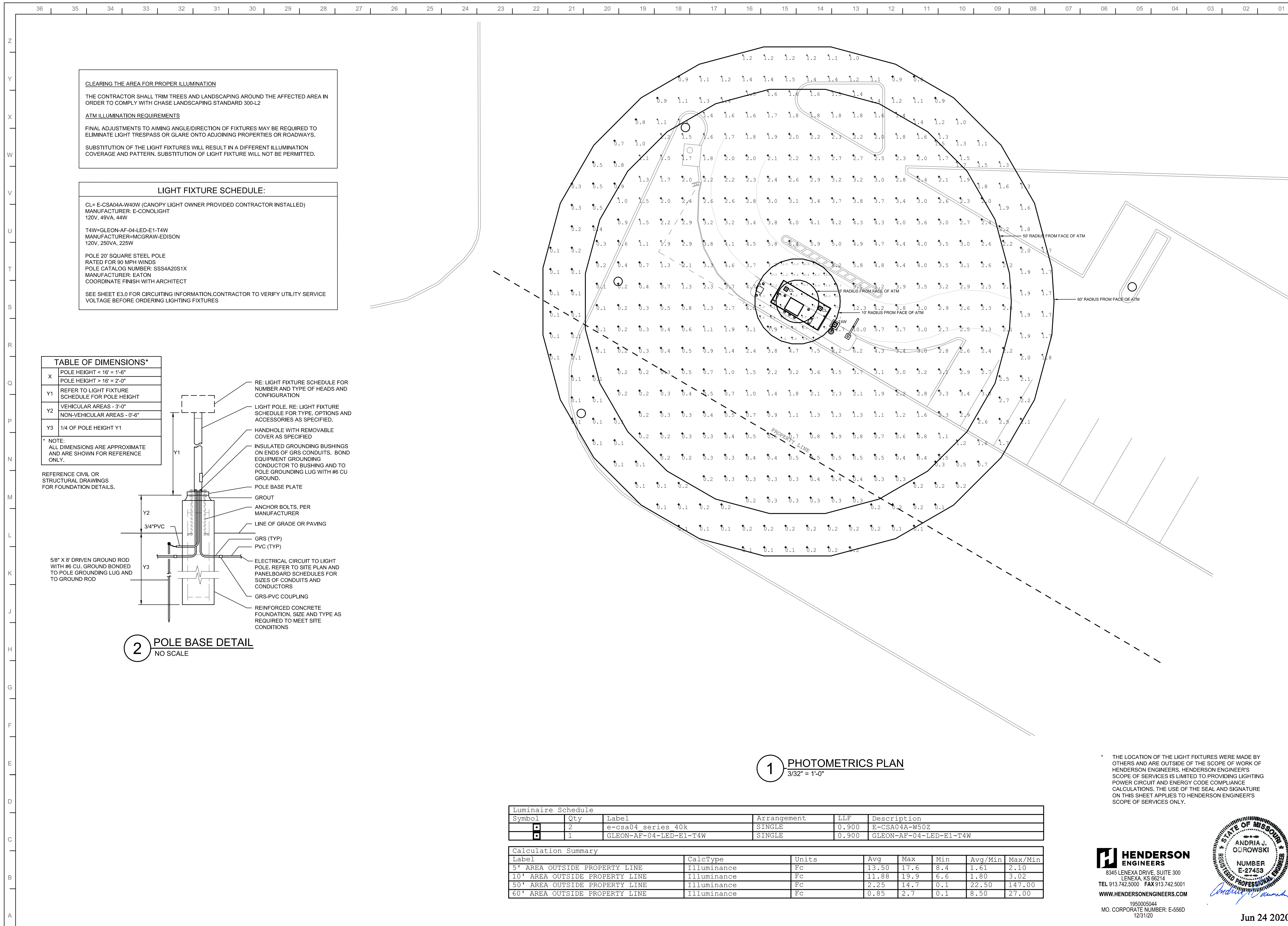
276 SW BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64063

SHEET TITLE
SYMBOLS LIST AND GENERAL NOTES

| | |
|-------------------------------|-----------------------------|
| PROJECT NUMBER 2019033.060 | SHEET NUMBER E1.0 |
| SHEET AUTHOR SGC | |
| CHECKED BY HEI QEV | |
| DATE JUNE 24, 2020 | |

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RMTA.BIZ

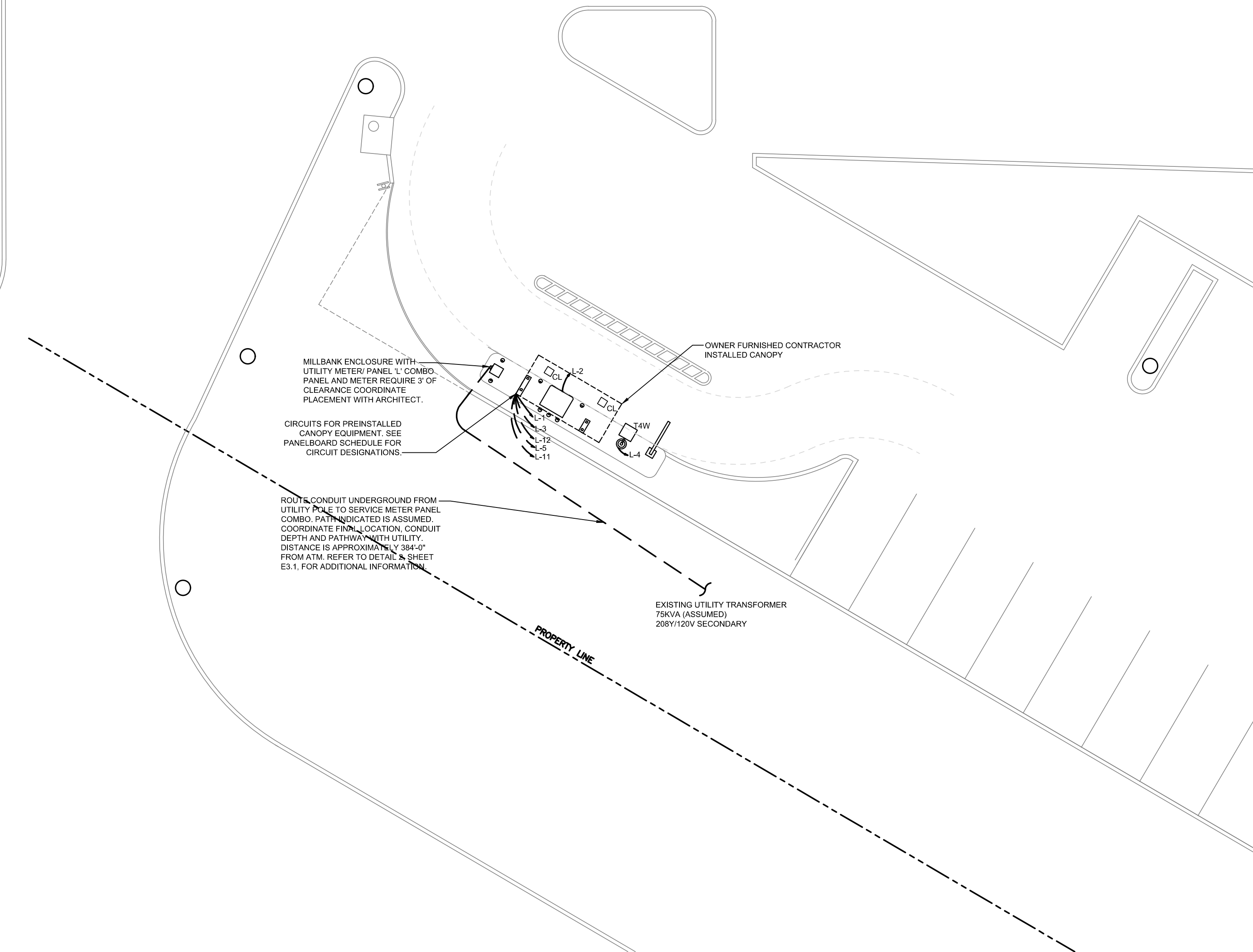


| PANELBOARD: L (NEW) | | | | | | | | | | FROM: "L" TRANSFORMER | | | | | | | | | | LINE-30 DELUGS MECHANICAL EQUIPMENT FOUND B.S. | | | | | | | | | |
|-------------------------------|----------------|------------------|------------------|------|------|------------------|---|------|------------------|------------------------------|-------------|---|-----------|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| BUS AMP 300 | | | | | | | | | | AC FACTS 23000 FULLY RATED | | | | | | | | | | | | | | | | | | | |
| MAIN DIS/OPS 1000A/63 | | | | | | | | | | SERIES 4TH | | | | | | | | | | | | | | | | | | | |
| VOL. 125/100 200V/200 3PH 1/1 | | | | | | | | | | VOLTAGE 3.000V | | | | | | | | | | | | | | | | | | | |
| SECTION 1 | | | | | | | | | | LOCATION V.L. 1/1K P.E. 500V | | | | | | | | | | SERVICE ENTRANCE RATED | | | | | | | | | |
| CAT | DESCRIPTION | VOL. AMP 3 PHASE | | | WIRE | ERR | P | ERR | TYPE | V.L. 125/100 | DESCRIPTION | | | CAT | | | | | | | | | | | | | | | |
| NO. | | A | B | C | NO. | AMP | | AMP | NO. | A | E | C | NO. | | | | | | | | | | | | | | | | |
| 1 | CAMP. 115V 100 | 64 | | | 2 | 20 | | 30 | 1C | 2 CC | | | 1 | | | | | | | | | | | | | | | | |
| 2 | EXT. 100V 300V | | 1200 | | 2 | 20 | | 12 | | 2EC | | | 2 | | | | | | | | | | | | | | | | |
| 3 | DIS. 100V 300V | | | 800 | 2 | 20 | | 20 | | | | | 3 | | | | | | | | | | | | | | | | |
| 4 | SPARE | | | | 2 | 20 | | 20 | | | | | 4 | | | | | | | | | | | | | | | | |
| 5 | SPARE | | | | 2 | 20 | | 20 | | | | | 5 | | | | | | | | | | | | | | | | |
| 6 | SPARE | | | | 2 | 20 | | 20 | | | | | 6 | | | | | | | | | | | | | | | | |
| 7 | SPARE | | | | 2 | 20 | | 20 | | | | | 7 | | | | | | | | | | | | | | | | |
| 8 | SPARE | | | | 2 | 20 | | 20 | | | | | 8 | | | | | | | | | | | | | | | | |
| 9 | SPARE | | | | 2 | 20 | | 20 | | | | | 9 | | | | | | | | | | | | | | | | |
| 10 | SPARE | | | | 2 | 20 | | 20 | | | | | 10 | | | | | | | | | | | | | | | | |
| 11 | SPARE | | | | 2 | 20 | | 20 | | | | | 11 | | | | | | | | | | | | | | | | |
| 12 | SPARE | | | | 2 | 20 | | 20 | | | | | 12 | | | | | | | | | | | | | | | | |
| 13 | SPARE | | | | 2 | 20 | | 20 | | | | | 13 | | | | | | | | | | | | | | | | |
| 14 | SPARE | | | | 2 | 20 | | 20 | | | | | 14 | | | | | | | | | | | | | | | | |
| 15 | SPARE | | | | 2 | 20 | | 20 | | | | | 15 | | | | | | | | | | | | | | | | |
| 16 | SPARE | | | | 2 | 20 | | 20 | | | | | 16 | | | | | | | | | | | | | | | | |
| SUB-TOTAL | | 64 | 1200 | 1200 | | | | | 2 CC | 2EC | 4C | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | SUB-TOTAL | 16 | | | | | | | | | | | | | | | |
| TOTAL PHASE A VA | | 2084 | TOTAL PHASE B VA | | 3F | TOTAL PHASE C VA | | 3F | TOTAL PHASE D VA | | 3F | | | | | | | | | | | | | | | | | | |
| AMPS 12 | | 2084 | AMPS 12 | | 100 | AMPS 12 | | 100 | AMPS 12 | | 100 | | | | | | | | | | | | | | | | | | |
| TOTAL PHASE A VA | | 1250 | TOTAL PHASE B VA | | 6 | TOTAL PHASE C VA | | 1250 | TOTAL PHASE D VA | | 1250 | | | | | | | | | | | | | | | | | | |
| AMPS 12 | | 1250 | AMPS 12 | | 125 | AMPS 12 | | 125 | AMPS 12 | | 125 | | | | | | | | | | | | | | | | | | |
| TOTAL PHASE A VA | | 1000 | TOTAL PHASE B VA | | 1000 | TOTAL PHASE C VA | | 1000 | TOTAL PHASE D VA | | 1000 | | | | | | | | | | | | | | | | | | |
| AMPS 10 | | 1000 | AMPS 10 | | 1000 | AMPS 10 | | 1000 | AMPS 10 | | 1000 | | | | | | | | | | | | | | | | | | |
| TOTAL PHASE A VA | | 3000 | TOTAL PHASE B VA | | 3000 | TOTAL PHASE C VA | | 3000 | TOTAL PHASE D VA | | 3000 | | | | | | | | | | | | | | | | | | |
| AMPS 30 | | 3000 | AMPS 30 | | 3000 | AMPS 30 | | 3000 | AMPS 30 | | 3000 | | | | | | | | | | | | | | | | | | |
| TOTAL PHASE A VA | | 1000 | TOTAL PHASE B VA | | 1000 | TOTAL PHASE C VA | | 1000 | TOTAL PHASE D VA | | 1000 | | | | | | | | | | | | | | | | | | |
| AMPS 10 | | 1000 | AMPS 10 | | 1000 | AMPS 10 | | 1000 | AMPS 10 | | 1000 | | | | | | | | | | | | | | | | | | |

PANELBOARD NOTES

RE-ROUTE CIRCUITRY TO CLO. 11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/2

SEND DISPLAY - \$ 0.00 & DISPLAY CASH



UTILITY COMPANY: EVERGY (KCP&L)
UTILITY CONTACT: CONSTRUCTION HOTLINE
UTILITY PHONE NUMBER: 888-471-5275

FAULT CURRENT INFORMATION HAS NOT BEEN MADE AVAILABLE TO HENDERSON ENGINEERS, INC AT THIS TIME, FAULT CURRENT CALCULATIONS ARE AT THE SECONDARY OF AN ASSUMED 75KVA UTILITY TRANSFORMER, AN ASSUMED 1.5% IMPEDANCE, 208Y/120V, 3 PHASE, 13,879A FAULT CURRENT, CONTRACTOR TO VERIFY AVAILABLE FAULT CURRENT WITH UTILITY COMPANY AT THE SECONDARY SIDE OF THE TRANSFORMER AND REPORT FINDINGS TO ENGINEER IF FAULT CURRENT IS MORE THAN 13,879A.

Short-Circuit and Voltage Drop Calculations

Distances are for calculation purposes only; no steel will be used for portability; no lifting or jacking. Contractor shall notify Engineer of any self condition that results in a change of 10% or greater in haul distance.

The following equations are based on the Pontby-Pindt method where

$$ISC_{(2)} = ISC_{(1)} \times M_{(1)} \quad \text{for } 1/(1+f)$$

$ISC_{(1)}$ = short-circuit current at out point 1

$ISC_{(2)}$ = short-circuit current at out point 2

Freder $f(10) = \frac{732 \text{ €} \cdot \text{L} \cdot \text{X} \cdot \text{h} \cdot \text{a} \cdot \text{d}}{\text{€} \cdot \text{L} \cdot \text{X} \cdot \text{h} \cdot \text{a} \cdot \text{d}}$

Freder: $f(x) = \frac{2x - x^2}{e}$

$$K_{FMR} \quad f_{321} = \frac{P(sca) \times V_p \times 1.73 \times \%}{\dots}$$
$$I_{f, (0)} = \frac{P(sca) \times V_p \times \%Z}{100.000 \times FVA}$$
$$S_{\text{total}} = \frac{V_p \times M \times IP_{\text{SCR}}}{100}$$
 V_s

```
VOLTAGE DROP (3E).
%VD=(R*x*cos(pi)+X*xi*(arccos(pi)))/(L#-1)*3.14/
VOLTAGE DROP (1E).
%VD=(R*x*cos(pi)+X*xi*(arccos(pi)))/(L#-1)*E
```

R = reichsarmein zinsper LF
 <= reichsarmein info per LF

THE INFORMATION SHOWN IN THE SHORT CIRCUIT AND VOLTAGE DROP CALCULATIONS SCHEDULE IS SHOWN FOR CALCULATION PURPOSES ONLY. CONTRACTOR SHALL NOT USE THE CONDUIT TYPES, CONDUCTOR TYPES, SIZES, QUANTITIES OR LENGTHS FOR TAKEOFFS OR BIDDING PURPOSES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN THIS SCHEDULE AND OTHER PORTIONS OF THE CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL NOTIFY ENGINEER OF AS-BUILT CONDITIONS THAT CONSTITUTE A CHANGE FROM WHAT IS SHOWN BELOW. THIS INCLUDES CONDUCTOR LENGTHS DIFFERING BY MORE THAN 10%

[illegible]

HENDERSON
ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 FAX 913.742.5001
WWW.HENDERSONENGINEERS.COM
1950005044
MO. CORPORATE NUMBER: E-556D
12/31/20

Jun 24 2020



GOLDEN SANDS
GENERAL CONTRACTORS

RMTA

2000 SHAWNEE MISSION PARKWAY
 STE 100 MISSION WOODS, KS 66202
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PROJECT

**BLUE PARKWAY
& JEFFERSON ST.
DRIVE-UP ATM**

276 SW BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64086

SHEET TITLE
SITE PLAN

PROJECT NUMBER
2019033.060

SHEET AUTHOR
SCC

CHECKED BY
HEI QEV

DATE
JUNE 24, 2020

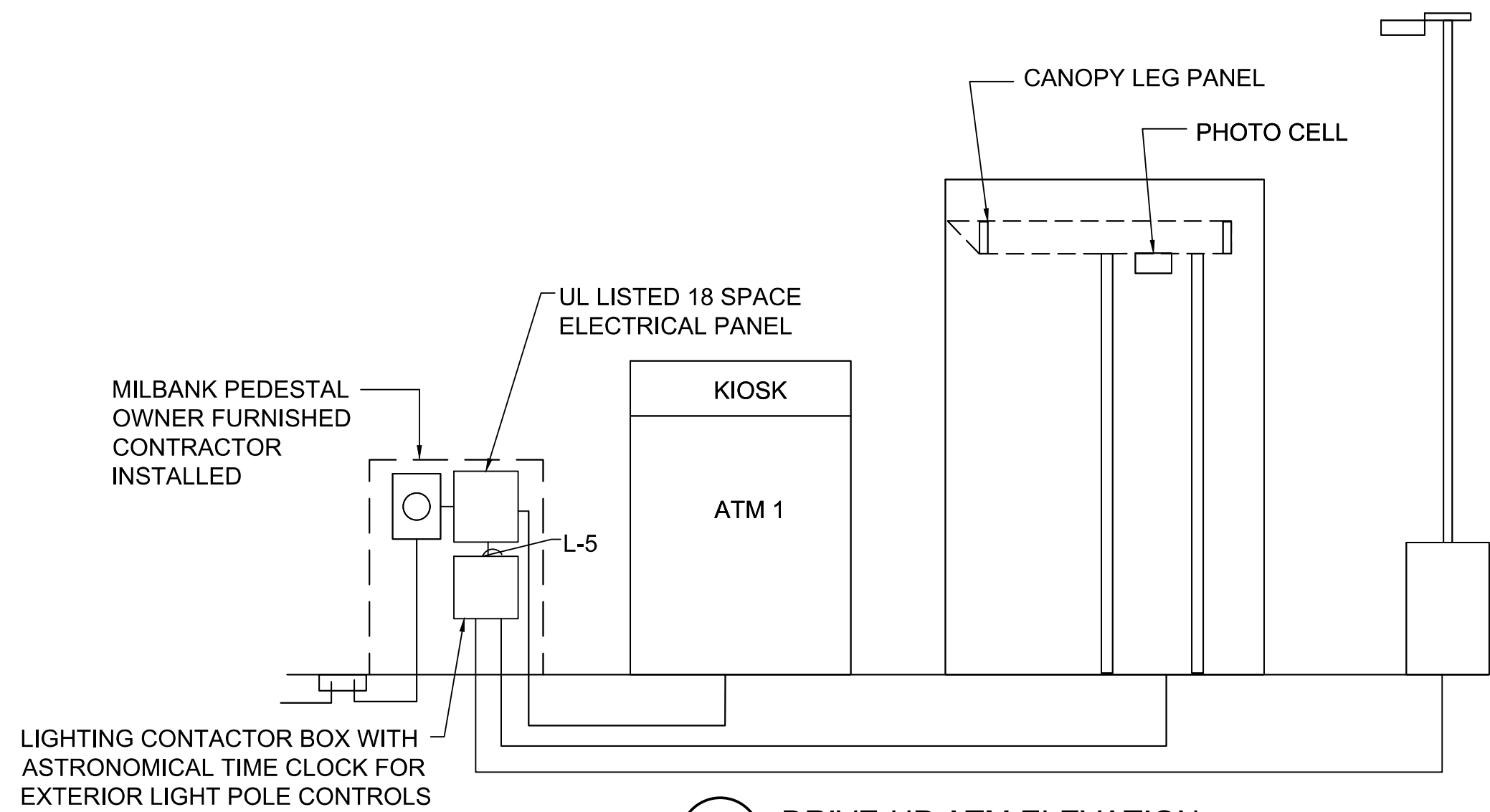
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SHEET NUMBER

E3.C

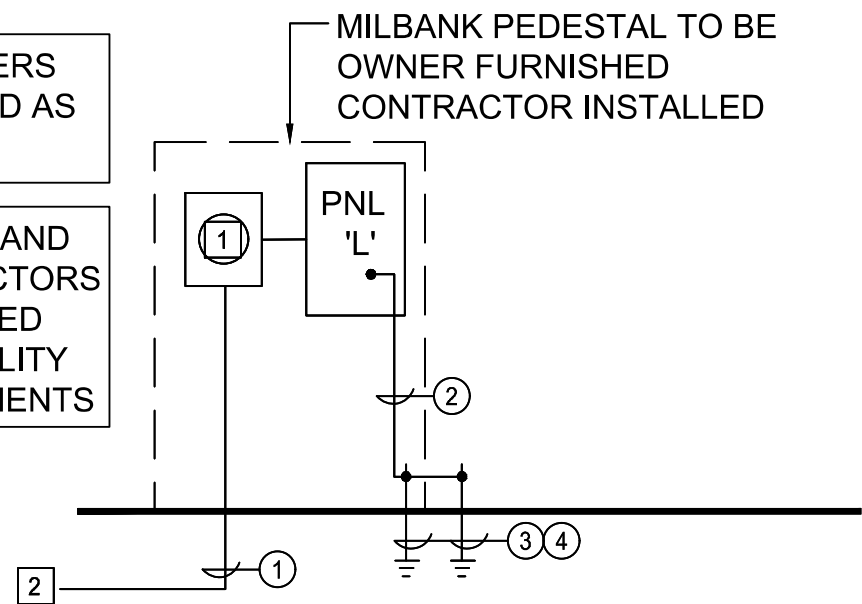
RM TA. Et Z.

ANDRIA J. ODROWSKI



ALL BONDING JUMPERS SHALL BE CONNECTED AS PER NEC 250-7

ACTUAL METERING AND SECONDARY CONDUCTORS SHALL BY PROVIDED ACCORDING TO UTILITY COMPANY REQUIREMENTS



RISER LEGEND

- NEW THWN CU WIRE IN NEW PVC SCH. 40 UNDERGROUND CONDUIT. SEE CHART BELOW.
- PROVIDE # 8 GROUND TO GROUND ROD IN MILBANK PEDESTAL.
- PROVIDE GROUND ROD PER MILBANK DRAWINGS.
- PROVIDE A CONCRETE-ENCASED ELECTRODE OF AT LEAST 20' FT OF #4 BARE COPPER CONDUCTOR AS PER NEC 250.52(3)(2).

| HOT | NEUTRAL | GND. | CONDUIT |
|------|---------|------|---------|
| 3-#3 | 1-#3 | - | 1-1/4" |

DETAIL NOTES

- NEW ELECTRICAL METER TO BE INSTALLED UNDER THIS CONTRACT.
- TO POWER UTILITY COMPANY POINT OF CONNECTION. FIELD COORDINATION REQUIRED.

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12/31/20



Jun 24 2020

CHASE



GOLDEN SANDS
GENERAL CONTRACTORS

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PROJECT
**BLUE PARKWAY
& JEFFERSON ST.
DRIVE-UP ATM**

276 SW BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64063

SHEET TITLE
RISER DIAGRAMS

PROJECT NUMBER
2019033.060
SHEET AUTHOR
SGC
CHECKED BY
HEI QEV

DATE
JUNE 24, 2020

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SHEET NUMBER

E3.1

RMTA.BIZ

COMcheck Software Version 4.1.1.0
Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2012 IECC
Project Title: CHASE ATM
Project Type: New Construction
Exterior Lighting Zone: 2 (Neighborhood/business district)

Construction By: 276 SW Blue Parkway
Lee's Summit MO 64083
Owner/Agent: RMTA
2000 SHAWNEE MISSION PKWY
#150
MISSION WOODS, KS 66205
816-502-1504
Designer/Contractor: SHAWN CARNEVALE
HENDERSON ENGINEERS
8311 WEST SUNSET ROAD
SUITE 240
LAS VEGAS, NV 89113

Allowed Exterior Lighting Power

| Area/Surface Category | Quantity | Allowed Watts / Unit | Tradeable Wattage | Allowed Watts (S X C) |
|--|-----------|-----------------------------|-------------------|-----------------------|
| Exterior Lighting (ATM/Night depository location, 1 machine) | 1 machine | 30 | 30 | 30 |
| Parking Area (freeing area) | 2466 sq | 0.08 | 197 | 197 |
| | | Total Tradeable Watts (S) = | | 197 |
| | | Total Allowed Watts (S) = | | 227 |

(a) Wattage tradeoffs are only allowed between tradeable and non-tradeable
(b) A supplemental allowance up to 500 watts may be added toward compliance obtain non-tradeable and tradeable areas/surfaces.
(c) ATM/Night depository sites have a base allowance of 150 W per site.

Proposed Exterior Lighting Power

| Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C Type of Fixtures | D Fixture Wattage | E (C X D) |
|--|------------------------|--------------------------|-------------------------|--------------|
| Exterior Lighting (ATM/Night depository location, 1 machine): Non-tradeable Wattage | | | | |
| LED 1: CL Canopy lighting: Other | 1 | 2 | 44 | 44 |
| Parking Area/Parking area 2466 sq: Tradeable Wattage | | | | |
| LED 2: T4W Light pole: Other | 5 | 5 | 225 | 225 |
| Total Tradeable/Proposed Watts = | | | | 225 |

Exterior Lighting Power: 225Watts (100% better than code)

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2012 IECC requirements in COMcheck Version 4.1.1.0 in order to comply with any applicable mandatory requirements listed in the Inspector Checklist.

SHAWN CARNEVALE - ELECTRICAL DESIGNER
Signature: [Signature] Date: 12/4/2019

Project Title: CHASE ATM
Data Filename: J:\Las Vegas\Programs\Chase Bank\1950005044 Blue Parkway and Jefferson ATM - Lees Summit
Report date: 12/04/19
Page: 1 of 5
MO-001Energy\1950005044 Elec Compliance.cck

| Section # & Req ID | Final Inspection | Complies? | Comments/Assumptions |
|--------------------|--|---|--|
| C405.3.2 (F153) | Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts. | <input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | See the interior lighting fixture schedule for values. |
| C405.3.3 (F148) | Lighting systems have been tested to ensure proper calibration, adjustment, programming and operation. | <input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | See the interior lighting fixture schedule for values. |

Additional Comments/Assumptions:

Project Title: CHASE ATM
Data Filename: J:\Las Vegas\Programs\Chase Bank\1950005044 Blue Parkway and Jefferson ATM - Lees Summit
Report date: 12/04/19
Page: 2 of 5
MO-001Energy\1950005044 Elec Compliance.cck

COMcheck Software Version 4.1.1.0
Inspection Checklist
Energy Code: 2012 IECC

Requirements: 600% were addressed directly in the COMcheck software
Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

| Section # & Req ID | Plan Review | Complies? | Comments/Assumptions |
|--------------------|--|---|--|
| C405.3.2 (F153) | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of the lighting fixture, transformer, and control device. | <input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | See the interior lighting fixture schedule for values. |
| C405.3.3 (F148) | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options. | <input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | See the interior lighting fixture schedule for values. |

Additional Comments/Assumptions

Project Title: CHASE ATM
Data Filename: J:\Las Vegas\Programs\Chase Bank\1950005044 Blue Parkway and Jefferson ATM - Lees Summit
Report date: 12/04/19
Page: 2 of 5
MO-001Energy\1950005044 Elec Compliance.cck

| Section # & Req ID | Rough-In Electrical Inspection | Complies? | Comments/Assumptions |
|--------------------|--|---|--------------------------|
| C405.2.4 (EL23) | Automatic lighting controls for exterior lighting installed. | <input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |
| C405.6 (EL24) | Exterior grounds lighting over 100 W provides >60 lm/W unless on motion sensor or fixture is exempt from scope of code or from external LFD. | <input checked="" type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | Requirement will be met. |

Additional Comments/Assumptions:

Project Title: CHASE ATM
Data Filename: J:\Las Vegas\Programs\Chase Bank\1950005044 Blue Parkway and Jefferson ATM - Lees Summit
Report date: 12/04/19
Page: 3 of 5
MO-001Energy\1950005044 Elec Compliance.cck

CHASE



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GENERAL CONTRACTORS

RMTA

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PROJECT
BLUE PARKWAY
& JEFFERSON ST.
DRIVE-UP ATM

276 SW BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64083

SHEET TITLE
ENERGY
COMPLIANCE

PROJECT NUMBER
201901250

SHEET NUMBER
800

DESIGNED BY
JHR

CHECKED BY
JHR

DATE
12/04/2019

0-100% power. Not part of this document may be
used in any form without the prior written
consent of the designer.

SHEET NUMBER

E4.0

RMTA.BIZ

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12/3/20



ANDRIA J. ODROWSKI

