

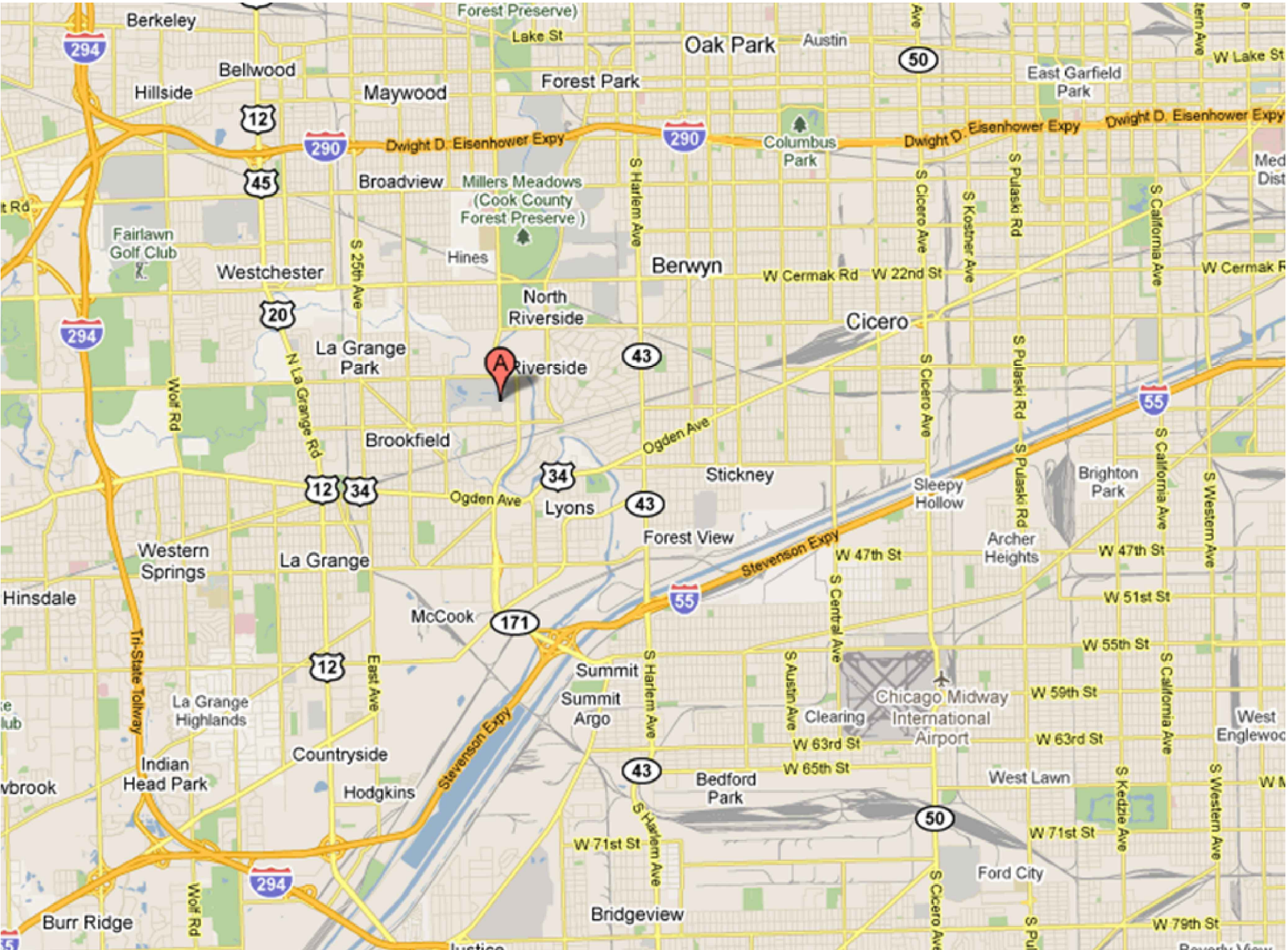


Chicago Zoological Society
BROOKFIELD ZOO
Site Ligthing Expansion
Project

3300 Golf Road
Brookfield, Illinois 60513

GENERAL NOTES:

1. VERIFY LOCATION OF UNDERGROUND UTILITIES AND OBSTRUCTIONS BEFORE EXCAVATION.
2. PATH LIGHT LOCATIONS MAY BE ADJUSTED IN THE FIELD A MAXIMUM OF 10 FEET TO AVOID EXISTING OBSTRUCTIONS. ANY RELOCATIONS BEYOND 10 FEET REQUIRE THE APPROVAL OF THE OWNER, CHICAGO ZOOLOGICAL SOCIETY (CZS).
3. ALL WORK AREAS WHERE MEDIUM-LARGE EQUIPMENT IS BEING USED, THERE ARE OPEN TRENCHES, OR LIVE CIRCUITS ARE EXPOSED MUST BE COMPLETELY ENCLOSED WITHIN A MINIMUM 4' FENCE.
4. PATH LIGHT POLE CONCRETE BASE EDGE SHALL BE LOCATED 12" FROM THE PATH EDGE.
5. PATH LIGHT POLES SHALL BE ORIENTED WITH THE SERVICE COVER FACING AWAY FROM THE PATH.
6. PATH LIGHT RECEPTACLES SHALL BE ORIENTED TO FACE AWAY FROM THE PATH.
7. WIRES SHALL BE STRANDED COPPER WET LOCATION THWN MINIMUM, SIZE AS INDICATED ON THE DRAWINGS. VOLTAGE DROP TO THE LAST FIXTURE ON EACH CIRCUIT SHALL NOT EXCEED 3%.
8. ALL SPLICES SHALL BE MADE WITHIN THE PATH LIGHT POLE HANDHOLE OR IN A PULL BOX.
9. MINIMUM BURIAL DEPTH SHALL BE 24" BELOW GRADE.
10. INLINE FUSES SHALL BE INSTALLED IN THE BASE OF THE POLE AND BE ACCESSIBLE BY THE POLE ACCESS COVER.
11. CONTRACTOR SHALL REPAIR AT HIS COST; DAMAGE CAUSED TO EXISTING UNDERGROUND UTILITIES AND ABOVE GROUND EQUIPMENT. REPAIRS SHALL BE MADE WITHIN FIVE DAYS AFTER DAMAGE OCCURS.
12. ALL REVISIONS TO THE PLANS AND SUBSTITUTION REQUESTS PROPOSED DURING CONSTRUCTION SHALL BE SUBMITTED IN WRITING TO THE CZS FOR APPROVAL.
13. ALL AREAS OF EXCAVATION, INCLUDING PATHWAYS AND ROADWAYS SHALL BE REPAIRED TO MATCH THE EXISTING CONDITION.
14. COORDINATE ANY POWER OUTAGES WITH THE OWNER. POWER OUTAGES, IF REQUIRED, SHALL BE PLANNED TO OCCUR DURING HOURS WHEN THE ZOO IS CLOSED.
15. PROVIDE HIGH POWER TRANSMITTERS BETWEEN THE EAST AND WEST POLE CIRCUITS AS INDICATED ON THE PLANS.
16. LIGHTING EQUIPMENT PROVIDER/MANUFACTURER SHALL PROVIDE COMMISSIONING SERVICES FOR THE LIGHTING CONTROL SYSTEM.
17. ALL LIGHT FIXTURES, POLES, AND CONTROLLERS SHALL BE FURNISHED BY CZS AND INSTALLED BY CONTRACTOR.
18. CONTRACTOR SHALL INSPECT, INSTALL, AND TEST ALL MATERIALS FURNISHED BY CZS.
19. ALL OWLET CONTROLLERS, DRIVERS, ANTENNAS, ETC. SHALL BE INSTALLED BY FIXTURE MANUFACTURER.
20. OBTAIN LIGHTING CONTROL SCHEDULES FROM CZS.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL THE ABOVE AND BELOW GROUND UTILITIES, EVEN THOUGH THEY MAY NOT APPEAR ON THE PLANS. ANY DAMAGE DONE TO THE EXISTING UTILITIES BY THE CONTRACTOR SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
22. CONSULT AND COORDINATE WITH ALL TRADES AND AUTHORITIES INVOLVED TO AVOID INTERFERENCE WITH EXISTING AND NEW UNDERGROUND UTILITIES.
23. ALL CONDUIT, EQUIPMENT AND APPURTENANCES ARE ILLUSTRATED DIAGRAMMATICALLY. THE ACTUAL LOCATIONS IN THE FIELD SHALL MEET THE APPROVAL OF THE ENGINEER.
24. WHERE THE CONTRACTOR'S EXCAVATION MEETS AN OBSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE OWNER FOR DIRECTIONS IN WRITING PRIOR TO FURTHER EXCAVATION. THE CONTRACTOR SHALL RESTORE ANY DAMAGE TO EXISTING SYSTEMS OR UTILITIES TO THE SATISFACTION OF THE OWNER. THIS WORK WILL BE CONSIDERED INCIDENTAL TO THIS CONTRACT.



ENERGY CODE COMPLIANCE:
LIGHTING DESIGN IN COMPLIANCE WITH IECC 2015. ALL SITE LIGHTING TO BE CONTROLLED VIA TIME ASTRONOMICAL TIME CLOCK PER SECTIONS 405.2.5.1 & 2. ALL SITE LIGHTING POWER IS INDEPENDENT OF ANY ENERGY SERVICES THRU A BUILDING AND IS CONSIDERED STREET LIGHTING; THEREFORE IT IS EXEMPT FROM REQUIREMENTS OF SECTION 405.5 EXTERIOR LIGHTING POWER DENSITIES. LIGHTING CONTROLLERS SHALL BE PROGRAMMED TO TURN PATHWAY LIGHTING OFF AT SUNRISE AND ON AT SUNSET WITH A 30% REDUCTION IN LIGHT OUTPUT BETWEEN MIDNIGHT AND 6AM.

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Drawing List

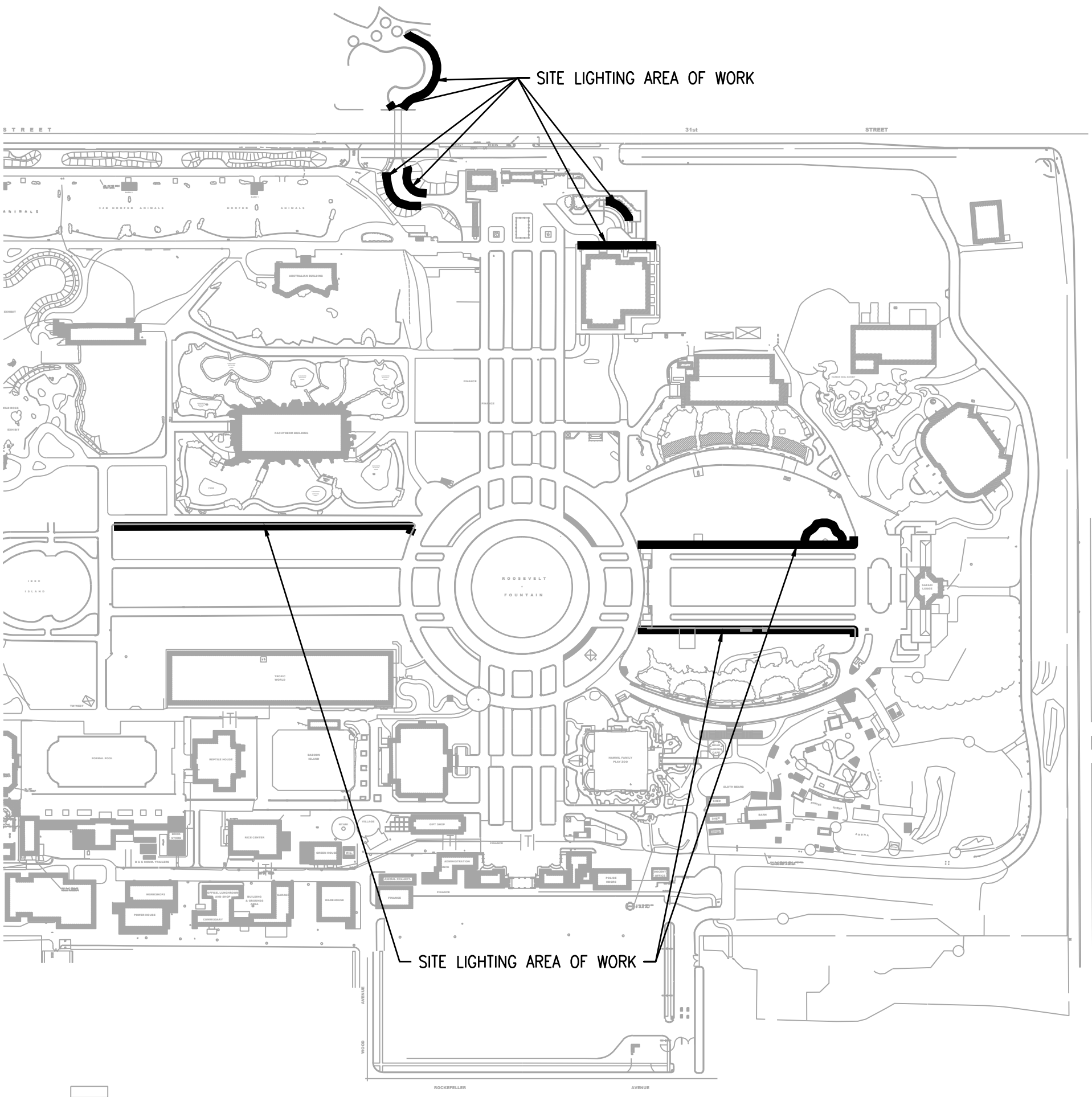
Client Company	Chicago Zoological Society	ESD Project #	52640
Client Contact	STEVE RAASCH	Lost Updated	8/24/2017
Project Name	Brookfield Zoo Site Lighting Expansion II		

Index Number	Drawing Number	Scale	Sheet Name	CAD File Name:	Issued For: Owner Review	Date: 08/04/17	Issued For: Bid & Permit	Date: 08/24/17	Issued For:	Date:	Issued For:	Date:	Issued For:	Date:
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Electrical														
	E0.0	NTS	DRAWING LIST GENERAL NOTES	EG_01	X	X								
	E0.1	NTS	SYMBOL LIST AND SPECIFICATIONS	EG_01	X	X								
	E0.2	NTS	WIRING DIAGRAM	EG_01	X	X								
	E0.3	NTS	VOLTAGE DROP DIAGRAM	EG_01	X	X								
	E0.4	NTS	PANEL SCHEDULES	EG_01	X	X								
	E0.5	NTS	DETAILS SHEET 1	EG_01	X	X								
	E0.6	NTS	DETAILS SHEET 2	EG_02	X	X								
	E1.0	1/16"=1'-0"	SITE LIGHTING NORTH ENTRANCE NORTH OF 31ST ST. RUN	EL_Site	X	X								
	E1.1	1/16"=1'-0"	SITE LIGHTING NORTH ENTRANCE SOUTH OF 31ST ST. RUN	EL_Site	X	X								
	E1.2	1/16"=1'-0"	SITE LIGHTING PACHYDERM BLDG SOUTH RUN 1/3	EL_Site	X	X								
	E1.3	1/16"=1'-0"	SITE LIGHTING PACHYDERM BLDG SOUTH RUN 2/3	EL_Site	X	X								
	E1.4	1/16"=1'-0"	SITE LIGHTING PACHYDERM BLDG SOUTH RUN 3/3	EL_Site	X	X								
	E1.5	1/16"=1'-0"	SITE LIGHTING EAST MALL NORTH AND SOUTH RUNS	EL_Site	X	X								
	E1.6	1/16"=1'-0"	SITE LIGHTING DISCOVERY CENTER RUNS	EL_Site	X	X								
Total Number of Drawings					14	14	0	0	0	0				

DRAWING LIST

NTS



Chicago Zoological Society

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BROOKFIELD, IL 60513



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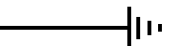

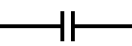
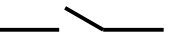

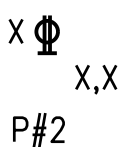
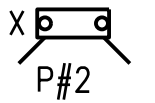
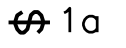
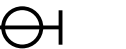
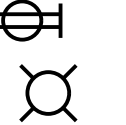
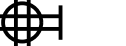


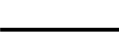



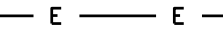

2	ISSUED FOR BID & PERMIT	08/24/17
1	ISSUED FOR OWNER REVIEW	08/04/17
NO.	RECORD	DATE

**Brookfield Zoo
Site Lighting
Expansion II**

**COVER SHEET
DRAWING LIST
GENERAL NOTES**

PRINCIPAL IN CHARGE KAL	PROJECT NUMBER 52640
PROJECT MANAGER SE	DATE 08/04/17
PROJECT ENGINEER TV	SHEET NUMBER
SCALE NTS	E0.0

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ABBREVIATIONS	ONE-LINE ELECTRICAL DIAGRAM SYMBOL	
CB CIRCUIT BREAKER		GROUND
CCT CIRCUIT		CIRCUIT BREAKER—(3—POLE, UNO)
CO CONDUIT ONLY		CONTACTOR
CZS CHICAGO ZOOLOGICAL SOCIETY		SINGLE THROW SWITCH
DISC DISCONNECT		FUSE
DN DOWN	LIGHTING	
EM EMERGENCY		STREET LIGHT W/ DUPLEX RECEPTACLE P#— INDICATES POLE NUMBER X — INDICATES CKT NUMBERS
GEC GROUNDING ELECTRODE COND		STREET FLOOD LIGHT P#— INDICATES POLE NUMBER X — INDICATES CKT NUMBERS
GFI GROUND FAULT INTERRUPTER	SWITCHES	
GRD GROUND		SINGLE POLE SWITCH. THE NUMBER DENOTES CIRCUIT NUMBER AND THE LETTER "a" SWITCH CONTROL
JB JUNCTION BOX	RECEPTACLES	
KVA KILOVOLT AMP		SINGLE RECEPTACLE
KW KILOWATT		DUPLEX RECEPTACLE: "GFI" INDICATES GROUND FAULT INTERRUPTER, "W.P." INDICATES "WHILE IN USE" WEATHER PROOF COVER
MCB MAIN CIRCUIT BREAKER		DOUBLE DUPLEX RECEPTACLE
LTG LIGHTING	RACEWAYS AND WIREWAYS	
MLO MAIN LUGS ONLY		PULL BOX OR TAP JUNCTION BOX FOR POWER FEEDERS
NIC NOT IN CONTRACT		JUNCTION BOX
NTS NOT TO SCALE	CONDUIT	
PNL PANEL		CONDUIT RUN CONCEALED IN SLAB OR BELOW GRADE.
PRI PRIMARY		CONDUIT SEAL
SEC SECONDARY		GROUND WIRE
SPDT SINGLE POLE DOUBLE THROW		CONDUIT TERMINATION, STUB OUT
SW SWITCH		UNDERGROUND ELECTRICAL RACEWAY
T TIMER CONTROLLED RECP	PANELBOARDS	
UG UNDERGROUND		SURFACE MOUNTED PANEL.
UNO UNLESS NOTED OTHERWISE		
WAP WIRELESS ACCESS POINT		
WP WEATHERPROOF (NEMA 4X)		

PART 1 - ELECTRICAL WORK

- 1.1

GENERAL CONDITIONS
- A.

THE WORD "PROVIDE" MEANS "THE CONTRACTOR SHALL FURNISH AND INSTALL."
- B.

PROVIDE ALL LABOR AND MATERIALS NECESSARY FOR A COMPLETE AND FULLY OPERATIONAL ELECTRICAL SYSTEM AND INSTALLATION.
- C.

MATERIALS AND INSTALLATION SHALL COMPLY WITH OWNER STANDARDS AND ALL CODES, LAWS, AND ORDINANCES OF FEDERAL, STATE, AND LOCAL GOVERNING BODIES HAVING JURISDICTION.
- D.

ALL MATERIALS AND EQUIPMENT SHALL BE LISTED AND/OR LABELED BY UL, ETL, CSA, OR ANOTHER CITY CODE RECOGNIZED TESTING LABORATORY.
- E.

SECURE AND PAY FOR ALL PERMITS, GOVERNMENTAL FEES TAXES AND LICENSES NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF ALL ELECTRICAL WORK.
- F.

PREPARE AND SUBMIT TO OWNER, GOVERNMENTAL AGENCIES, AND LOCAL CODE OFFICIALS, SHOP DRAWINGS AND/OR INSTALLATION DETAILS WHICH ARE REQUIRED BY THESE AGENCIES FOR THEIR REVIEW AND APPROVAL.
- G.

NOTIFY THE OWNER IN WRITING OF ANY MATERIALS, INSTALLATIONS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF LAWS, ORDINANCES, RULES, OR REGULATIONS OF THE AUTHORITIES HAVING JURISDICTION PRIOR TO PURCHASE AND INSTALLATION.
- H.

CAREFULLY EXAMINE THE CONTRACT DOCUMENTS AND MAKE A SCHEDULED ARRANGEMENT WITH THE OWNER TO VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH EXISTING CONDITIONS RELATING TO THE WORK. FAILURE TO DO SO WILL NOT RELIEVE THE CONTRACTOR OF THE OBLIGATIONS OF THE CONTRACT AND REFERENCES NOTED ABOVE.
- I.

NUMBERED CIRCUITS SHOWN ON PLAN ARE FOR THE CONVEYANCE OF DESIGN INTENT ONLY. ACTUAL FIELD CONDITIONS MAY AFFECT CIRCUITRY. INDICATE THE ACTUAL (AS-BUILT) CIRCUIT NUMBERS INSTALLED AND PANELBOARD ORIGATION ON THE "AS-BUILT" DRAWINGS.
- J.

WHERE CONDUIT RACEWAY SYSTEMS ARE SHOWN ON THE DRAWINGS, IT IS SHOWN DIAGRAMMATICALLY. THE EXACT ROUTING OF THE EXISTING CONDUIT RACEWAY SYSTEMS SHALL BE DETERMINED ON THE JOB SITE BY THE CONTRACTOR.
- K.

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS. IN THE EVENT THAT MORE STRINGENT REQUIREMENTS THAN THOSE DESCRIBED HEREIN ARE SET FORTH UNDER EFFECTIVE UPDATED CODES, LAWS, AND ORDINANCES OF FEDERAL, STATE, AND LOCAL GOVERNING BODIES HAVING JURISDICTION, THE GREATER REQUIREMENTS SHALL BE COMPLIED WITH. SUBMIT WRITTEN STATEMENT OF COMPLIANCE, EXCLUSIONS AND EXEMPTIONS IF ANY, TO ARCHITECT/ENGINEER AND BUILDING OWNER PRIOR TO FINAL BID ACCEPTANCE.
- L.

EXISTING CONDITIONS OF ALL EXISTING EQUIPMENT, DEVICES, FIXTURES, AND SYSTEMS THAT REQUIRE REWIRING, REUSE, RELOCATION, OR REFURBISHING AS PER DRAWINGS AND SPECIFICATIONS SHALL BE FIELD VERIFIED PRIOR TO COMMENCEMENT OF ANY WORK TO BE COMPLETELY OPERATIONAL. CONTRACTOR SHALL SUBMIT A WRITTEN STATEMENT AND ITEMIZED LISTING OF ALL EXISTING UNSUITABLE CONDITIONS.
- M.

SUBMIT THE WRITTEN STATEMENT TO THE OWNER PRIOR TO WORK. IN THE EVENT THAT THE CONTRACTOR COMMENCES WORK WITHOUT SUBMITTAL, ASSUME ALL RESPONSIBILITY AND COST TO MAINTAIN THE ABOVE IN GOOD WORKING ORDER AND CONDITION.
- N.

WHERE THE INSTALLATION OF NEW CONSTRUCTION SURFACES OR MATERIALS RENDERS AN EXISTING JUNCTION BOX, PULL BOX OR OTHER ELECTRICAL EQUIPMENT INACCESSIBLE, RELOCATE THESE ITEMS TO MAINTAIN THE REQUIRED ACCESSABILITY.
- O.

VERIFY CLEARANCES FOR ALL ELECTRICAL WORK BEFORE PROCEEDING WITH CONSTRUCTION. COORDINATE USAGE OF AVAILABLE SPACE WITH THE OWNER. IN THE EVENT OF CONFLICTS, NOTIFY THE OWNER BEFORE PROCEEDING WITH THE WORK.
- P.

ALL CONDUITS SHALL RUN CONTINUOUS WITHOUT ANY UNDERGROUND SPLICES. SPLICING OF CONDUCTORS WILL BE PERMITTED ONLY IN THE BASE OF THE LIGHTING UNITS AND IN PULL BOXES.
- Q.

LANDSCAPING FLOODLIGHT LUMINAIRES SHALL BE ORIENTED WITH THE OPTICS PERPENDICULAR TO THE LANDSCAPING UNLESS OTHERWISE INDICATED OR DIRECTED BY THE OWNER. THE LUMINAIRES MAY REQUIRE NIGHT-TIME OPTICAL ADJUSTMENT UPON INSPECTION BY THE OWNER.

- 1.2

ELECTRICAL INSTALLATION
- A.

PROVIDE TEMPORARY POWER AND WIRING FOR THE ENTIRE PERIOD OF DEMOLITION AND CONSTRUCTION AND REMOVE ALL TEMPORARY WIRING AT THE COMPLETION OF CONSTRUCTION.
- B.

ALL MATERIALS AND EQUIPMENT SHALL BE ERECTED, INSTALLED, TOOLED, CONNECTED, CLEANED, ADJUSTED, TESTED, CONDITIONED, AND PLACED IN SERVICE IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND RECOMMENDATIONS, INCLUDING UL REQUIREMENTS.
- C.

PERFORM ALL CUTTING, DRILLING, EXCAVATION AND PATCHING OF EXISTING PATHWAYS OR OTHER EQUIPMENT IN ORDER THAT WORK MAY BE PROPERLY INSTALLED. VERIFY LOCATION OF UNDERGROUND UTILITIES BEFORE EXCAVATION. UNDER NO CONDITIONS MAY STRUCTURAL WORK BE MODIFIED OR CUT, EXCEPT AT THE DIRECTION OF THE OWNER.
- D.

ALL MATERIAL, EQUIPMENT, WIRING DEVICES, ETC. SHALL BE NEW AND OF COMMERCIAL GRADE, UNO.
- E.

ALL WORK REQUIRED FOR THE ELECTRICAL INSTALLATION AS SHOWN ON CONSTRUCTION DOCUMENTS SHALL INCLUDE ALL LABOR, INSTALLATION METHODS, EQUIPMENT, AND MATERIALS.
- F.

PROVIDE A COMPLETE RACEWAY SYSTEM, FITTINGS AND ENCLOSURES FOR ALL ELECTRICAL WIRING SYSTEMS TO BE INSTALLED FOR THE PROJECT.
- G.

CONDUITS ROUTED BELOW GRADE SHALL BE SCHEDULE 40 PVC
- H.

PROVIDE 3" CONCRETE ENCASEMENT FOR CONDUIT INSTALLED UNDER ROADWAYS.
- 1.3

FIRE SEAL SYSTEMS
- A.

PROVIDE 3M FIRESEAL SYSTEMS FOR ALL CORES AND RACEWAY PENETRATIONS IN FIRE RATED WALLS AND FLOORS. FIRESEAL ALL WALL AND FLOOR PENETRATIONS, ETC. UTILIZING UL LISTED 3M PRODUCTS INSTALLED AS PER MANUFACTURER'S INSTRUCTIONS TO MAINTAIN EXISTING AND NEW FIRE RATINGS. VERIFY EXACT FIRE RATING CONDITIONS AND LOCATIONS PRIOR TO FINAL BIDS. ALL OPEN CONDUIT SLEEVE PENETRATIONS SHALL BE FIRE SEALED INSIDE AND OUTSIDE AFTER ALL CABLING IS COMPLETELY INSTALLED. FIRE SEAL METHODS AT SLEEVES SHALL BE SUBJECT TO THE APPROVAL OF THE CABLING CONTRACTOR. PROVIDE CAPS FOR UNUSED CONDUIT SLEEVES AND FIRE SEAL TO MAINTAIN THE ORIGINAL FIRE RATING OF THE FLOOR SLAB INCLUDING EXISTING CORES THAT ARE NOT TO RE-USED. VERIFY EXACT QUANTITIES OF PENETRATIONS IN THE FIELD.

PART 2 - BASIC MATERIALS AND METHODS

- 2.1

SERVICE AND DISTRIBUTION
- A.

ALL NEW ELECTRICAL WORK SHALL BE INSTALLED AS INDICATED ON THE ELECTRICAL DISTRIBUTION DIAGRAM. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL EQUIPMENT TO BE INSTALLED INDICATING ELECTRICAL AREA FLOOR PLAN LAYOUT, ELEVATIONS, AND ALL DIMENSIONS FOR APPROVAL OF OWNER PRIOR TO INSTALLATION. CODE REQUIRED CLEARANCES IN FRONT OF ALL ELECTRICAL EQUIPMENT SHALL BE MAINTAINED AT ALL TIMES FOR EXISTING AND NEW EQUIPMENT.
- B.

ALL CIRCUIT BREAKERS SHALL BE BOLT ON TYPE. AIC RATING OF NEW CIRCUIT BREAKER SHALL MATCH AIC RATING OF PANELBOARD IN WHICH IT IS INSTALLED.
- C.

PROVIDE A TYPE WRITTEN PANEL DIRECTORY AT THE COMPLETION OF THE PROJECT FOR EACH PANEL. EACH CIRCUIT BREAKER SHALL BE LABELED TO IDENTIFY LOAD. PROVIDE COPIES OF ALL PANELBOARD DIRECTORIES TO THE OWNER UPON COMPLETION.

PART 3 - EXECUTION

- 3.1

SUBMITTALS/AS-BUILTS
- A.

PROVIDE A WRITTEN GUARANTEE THAT THE ELECTRICAL INSTALLATION IS FREE FROM MECHANICAL AND ELECTRICAL DEFECTS. CONTRACTOR SHALL AT THEIR SOLE COST, REPLACE AND/OR REPAIR, TO THE SATISFACTION OF THE OWNER AND TO COMPLY WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, ANY PARTS OF THE INSTALLATION WHICH MAY FAIL WITHIN A PERIOD OF 12 MONTHS FROM CONSTRUCTION WRITTEN ACCEPTANCE, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, PROVIDED THAT SUCH FAILURE IS DUE TO DEFECTS IN MATERIAL, WORKMANSHIP, OR FAILURE TO FOLLOW THE SPECIFICATIONS, MANUFACTURER'S INSTALLATION INSTRUCTIONS AND/OR DRAWINGS. PROVIDE WARRANTIES FOR ALL EQUIPMENT EXPRESSED BY THE MANUFACTURER BEYOND 12 MONTHS.
- B.

SHOP DRAWINGS SHALL INCLUDE MANUFACTURER'S NAMES, CATALOG NUMBERS, PRODUCT LITERATURE, DIAGRAMS, AND OTHER SUCH DESCRIPTIVE DATA AS MAY BE REQUIRED TO IDENTIFY AND REVIEW THE EQUIPMENT. SUBMITTALS SHALL BE IN LOGICAL GROUPS (FOR EXAMPLE ALL LIGHTING FIXTURES). PARTIAL SUBMITTALS WILL NOT BE REVIEWED. SUBSTITUTION OF MATERIALS SUBMITTED IN SHOP DRAWINGS SHALL BE APPROVED BY BUILDING OWNER AND ENGINEER/ARCHITECT IN WRITING PRIOR TO SUBMITTAL. DETERMINATION OF EQUALITY TO BE MADE BY ENGINEER PRIOR TO APPROVAL.
- C.

SUBMIT TWO COPIES OF THE FOLLOWING SHOP DRAWINGS FOR REVIEW:

DISTRIBUTION EQUIPMENT AND PANELBOARDS

WIRING DEVICES

OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY. SUBMITTALS SHALL BE IN DIGITAL AND WRITTEN FORM. SUBMITTALS SHALL INCLUDE:

FAULT CURRENT STUDY REPORT PER IEEE 141 AND 242

COORDINATION STUDY INPUT DATA

ARC FLASH STUDY REPORT PER NFPA-70E

D.

PROVIDE AS-BUILT CAD FILES AND TWO HARD COPY AS-BUILT DRAWING SETS AT THE COMPLETION OF THE PROJECT. SUBMIT AS-BUILTS TO THE OWNER. AS-BUILT DRAWINGS SHALL INDICATE EXACT CIRCUIT NUMBERS, LOCATIONS OF ALL EQUIPMENT AND RACEWAY FOR POWER DISTRIBUTION SYSTEMS AS INSTALLED. DRAWING FORMAT FOR AS-BUILTS SHALL BE AUTOCAD DWG FORMAT VERSION 2017 OR HIGHER OR DXF.

E.

PROVIDE AS-BUILT SINGLE LINE DIAGRAMS.

F.

PROVIDE OPERATING AND MAINTENANCE MANUALS INCLUDING THE FOLLOWING:

EQUIPMENT RATINGS AND SELECTED OPTIONS.

REQUIRED ROUTINE MAINTENANCE PROCEDURES.

IDENTIFICATION OF QUALIFIED SERVICE AGENCY.

COMPLETE OPERATIONAL NARRATIVE.

G.

AS-BUILT DOCUMENTS SHALL INCLUDE UPDATE TO SITE ELECTRICAL ONE LINE DIAGRAMS. CONTRACTOR SHALL CONTACT OWNER TO OBTAIN DRAWINGS OF ELECTRICAL DIAGRAMS. UPDATE APPLICABLE SECTIONS OF DIAGRAM AFFECTED BY THIS PROJECT AND INDICATE ON AS-BUILT SUBMITTALS.
-
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| 1 | ISSUED FOR OWNER REVIEW | 08/04/17 |
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Site Lighting
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AND SPECIFICATIONS
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| PRINCIPAL IN CHARGE
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KEYNOTES

- 1 20A, GFCI RECEPTACLE WITH WP WHILE IN USE COVER.
ALTERNATE RECEPTACLE HOT CONNECTION BETWEEN PHASES FROM
POLE TO POLE AS INDICATED ON THE PLANS.

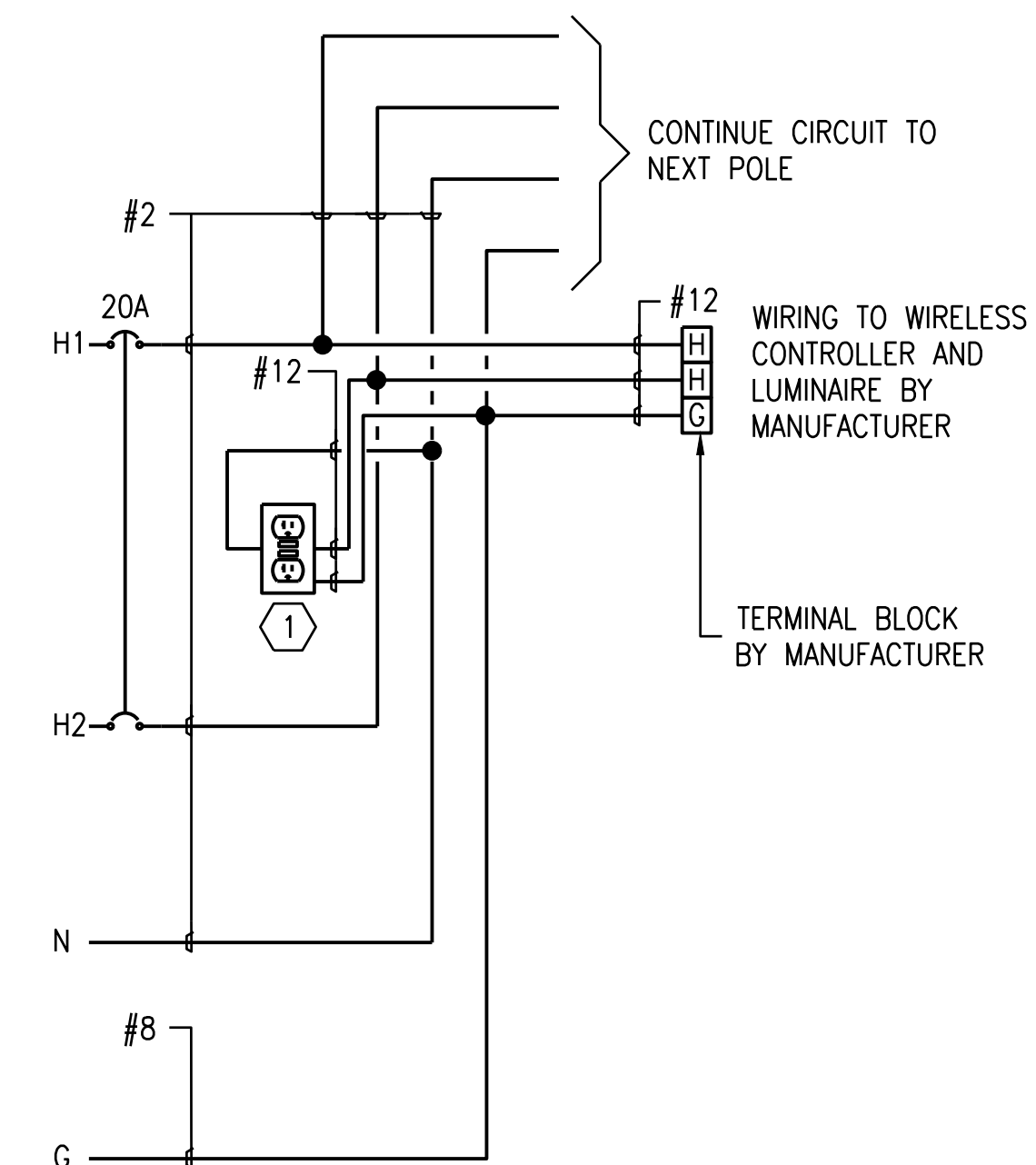


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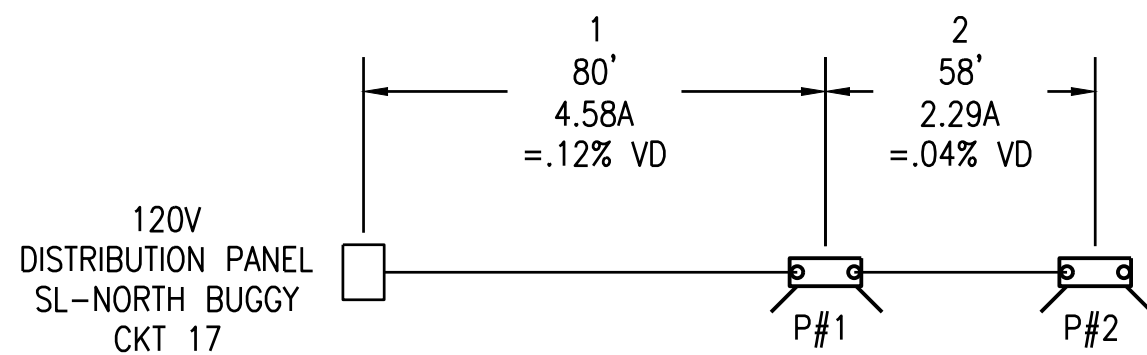
1 LIGHT POLE WIRING DIAGRAM

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Brookfield Zoo Site Lighting Expansion II

WIRING DIAGRAM

PRINCIPAL IN CHARGE KAL	PROJECT NUMBER 52640
PROJECT MANAGER SE	DATE 08/04/17
PROJECT ENGINEER TV	SHEET NUMBER E0.2
SCALE NTS	

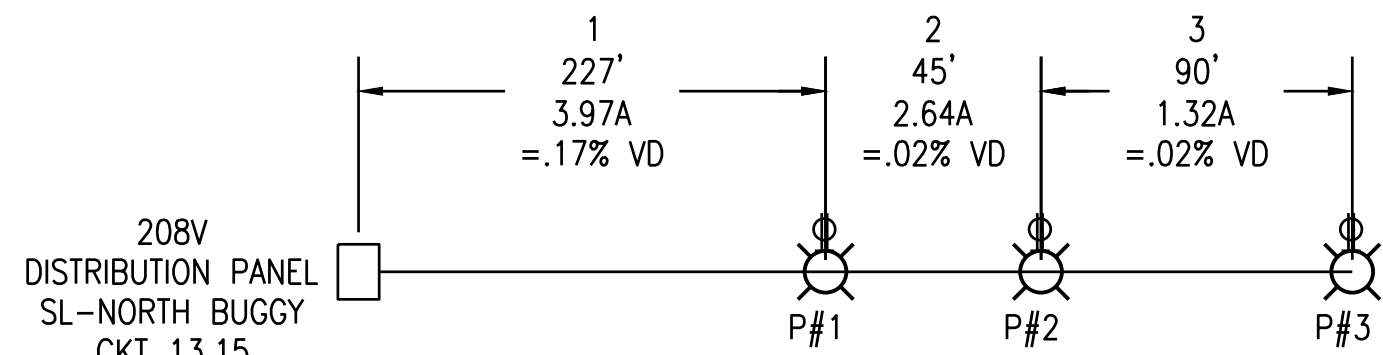


VOLTAGE DROP CKT 17
1 -.12%VD
2 -.04%VD

TOTAL= .16% VD

7 DISCOVERY CENTER PLANTERS RUN VOLTAGE DROP DIAGRAM

NOT TO SCALE



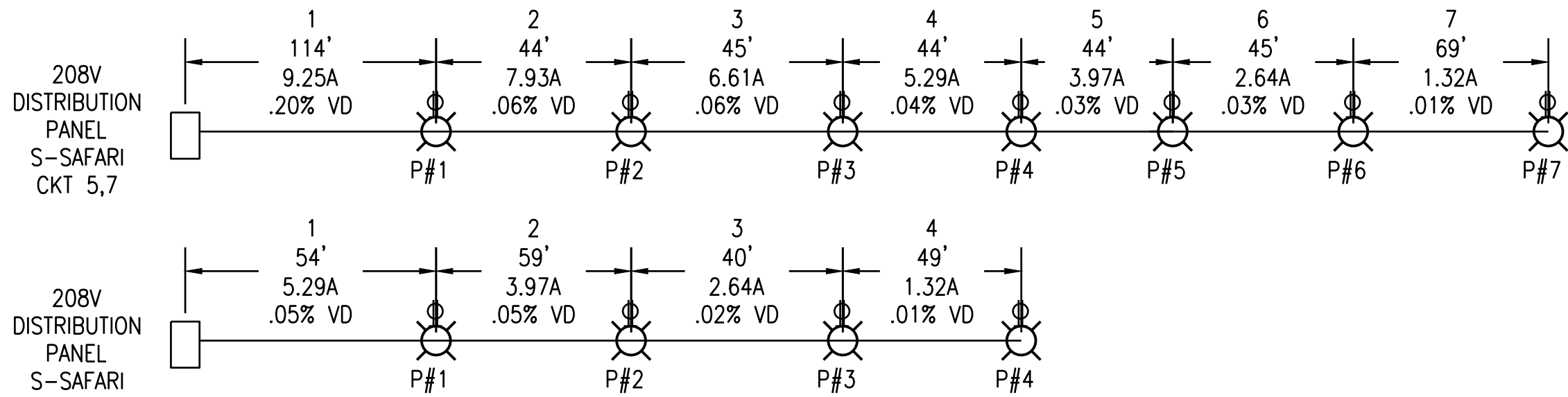
VOLTAGE DROP CKT 13,15

1 -.17%VD
2 -.02%VD
3 -.02%VD

TOTAL= .21% VD

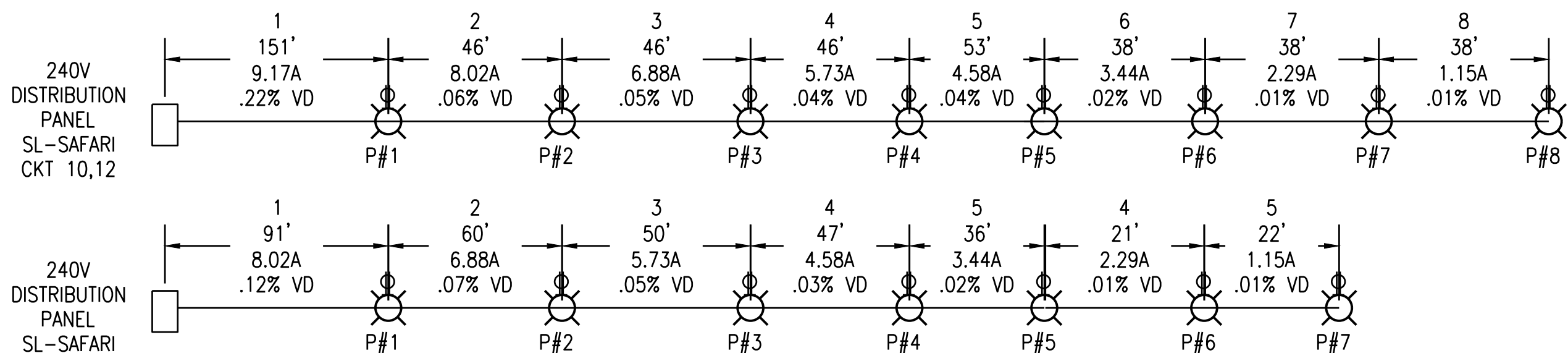
6 DISCOVERY CENTER NORTH RUN VOLTAGE DROP DIAGRAM

NOT TO SCALE



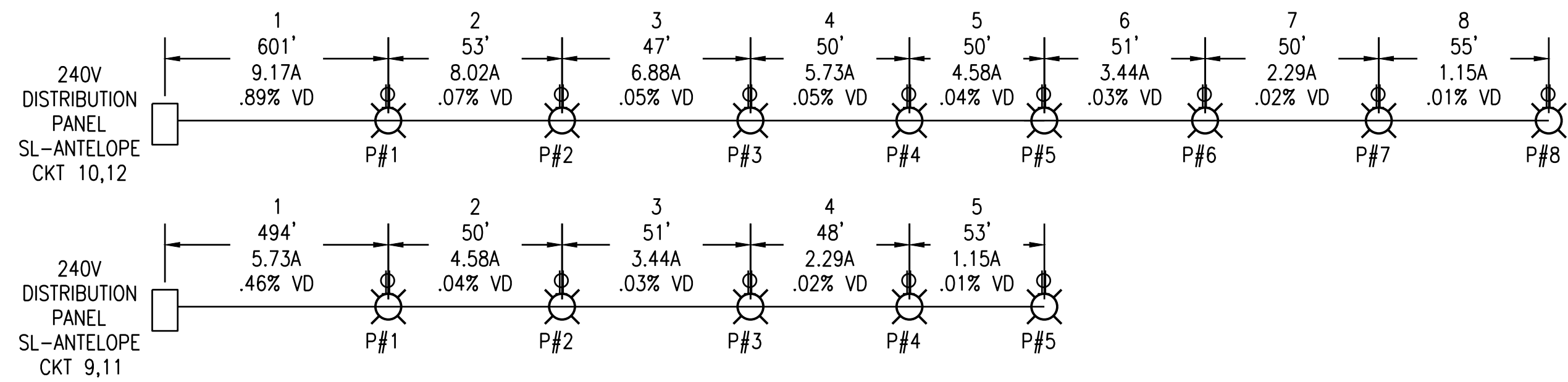
5 EAST MALL SOUTH RUN VOLTAGE DROP DIAGRAM

NOT TO SCALE



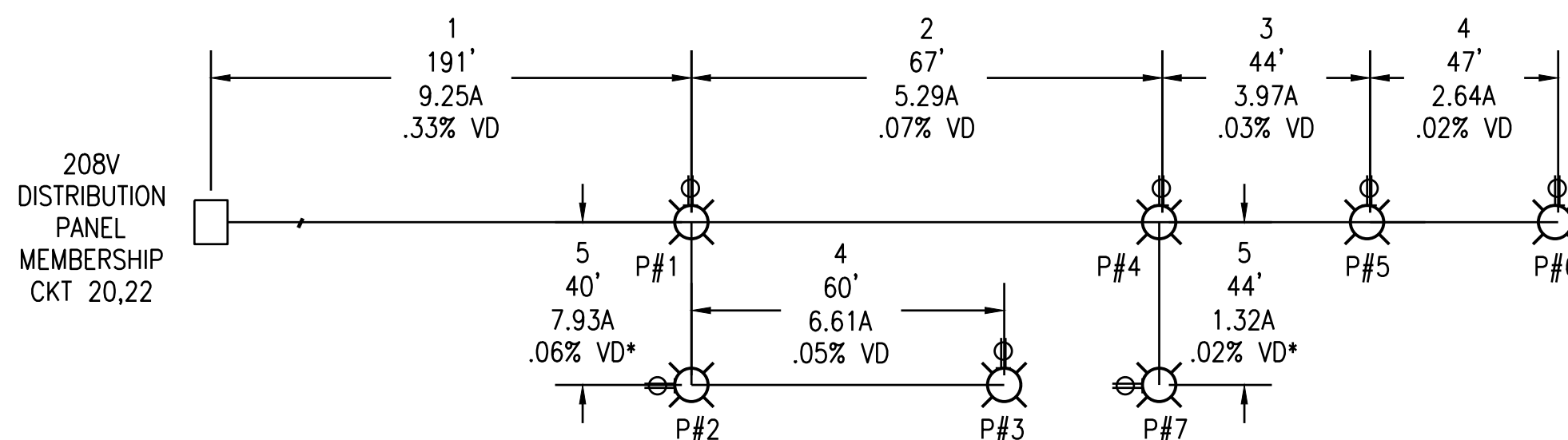
4 EAST MALL NORTH RUN VOLTAGE DROP DIAGRAM

NOT TO SCALE



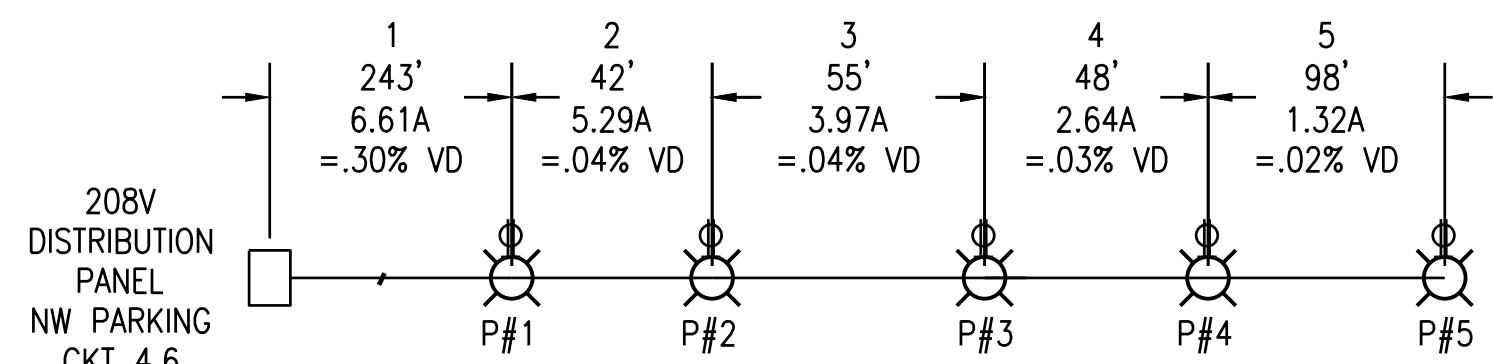
3 PACHYDERM BLDG SOUTH RUN VOLTAGE DROP DIAGRAM

NOT TO SCALE



2 NORTH ENTRANCE SOUTH OF 31ST ST. RUN VOLTAGE DROP DIAGRAM

NOT TO SCALE



1 NORTH ENTRANCE NORTH OF 31ST ST. RUN VOLTAGE DROP DIAGRAM

NOT TO SCALE



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**Brookfield Zoo
Site Lighting
Expansion II**

**VOLTAGE
DROP
DIAGRAMS**

PRINCIPAL IN CHARGE KAL	PROJECT NUMBER 52640
PROJECT MANAGER SE	DATE 08/04/17
PROJECT ENGINEER TV	SHEET NUMBER
SCALE NTS	E0.3

PANELBOARD SCHEDULE									
Designation: NW PARKING		MAIN TYPE: MB		MOUNTING: SURFACE		OCP TYPE: MOLDED CASE C/B			
Voltage: 208/120V		BUS AMPS: 225A		ENCLOSURE: NEMA 4X		FAULT DUTY: 10KAIC			
1PH 3W		GROUND BUS: YES		NEUTRAL BUS: 100% RATED		SPD: NO			
No.	Description	A	B	Size	Size	A	B	Description	No.
1	EXISTING LOAD			20A	20A			EXISTING LOAD	2
3	SPARE			20A					4
5	EXISTING LOAD			20A	20A*	688		PATH LTG: NORTH ENTRY NORTH OF 31ST ST	6
7	EXISTING LOAD			20A	20A			SPARE	8
9	EXISTING LOAD			20A	20A			SPARE	10
11	EXISTING LOAD			20A	20A			EXISTING LOAD	12
13	EXISTING LOAD			20A	20A			EXISTING LOAD	14
15	EXISTING LOAD			20A	20A			EXISTING LOAD	16
17	EXISTING LOAD			20A	20A			EXISTING LOAD	18
19	EXISTING LOAD			20A	20A			EXISTING LOAD	20
21	EXISTING LOAD			20A	20A			EXISTING LOAD	22
23	EXISTING LOAD			20A	20A			EXISTING LOAD	24
25	EXISTING LOAD			20A	20A			EXISTING LOAD	26
27	EXISTING LOAD			20A	20A			EXISTING LOAD	28
15	EXISTING LOAD			20A	20A			EXISTING LOAD	16
17	EXISTING LOAD			20A	20A			EXISTING LOAD	18
19	EXISTING LOAD			20A	20A			EXISTING LOAD	20
21	EXISTING LOAD			20A	20A			EXISTING LOAD	22
23	EXISTING LOAD			20A	20A			EXISTING LOAD	24
25	EXISTING LOAD			20A	20A			EXISTING LOAD	26
27	EXISTING LOAD			20A	20A			EXISTING LOAD	28
29	EXISTING LOAD			20A	20A			EXISTING LOAD	30
Total		0	0			688	688	Total	
Total Phase A:		688 VA		Total Connected Load:		1.38 kVA			
Total Phase B:		688 VA				6.62 Amps			

PANELBOARD SCHEDULE									
Designation: MEMBERSHIP		MAIN TYPE: MB		MOUNTING: SURFACE		OCP TYPE: MOLDED CASE C/B			
Voltage: 240/120V		BUS AMPS: 225A		ENCLOSURE: NEMA 4X		FAULT DUTY: 10KAIC			
1PH 3W		GROUND BUS: YES		NEUTRAL BUS: 100% RATED		SPD: NO			
No.	Description	A	B	Size	Size	A	B	Description	No.
1	SPARE			20A	20A			SPARE	2
3	SPARE			20A	20A			EXISTING LOAD	4
5	EXISTING LOAD			20A	20A			EXISTING LOAD	6
7	EXISTING LOAD			20A	20A			EXISTING LOAD	8
9	EXISTING LOAD			20A	20A			EXISTING LOAD	10
11	EXISTING LOAD			20A	20A			EXISTING LOAD	12
13	EXISTING LOAD			20A	20A			EXISTING LOAD	14
15	EXISTING LOAD			20A	20A			EXISTING LOAD	16
17	EXISTING LOAD			20A	20A			EXISTING LOAD	18
19	EXISTING LOAD			20A	20A*	688		PATH LTG: NORTH ENTRY SOUTH OF 31ST ST	20
21	EXISTING LOAD			20A			688		22
23	EXISTING LOAD			20A	20A			SPARE	24
25	SPARE			20A	20A			SPARE	26
27	SPARE			20A	20A			EXISTING LOAD	28
29	EXISTING LOAD			20A	20A			EXISTING LOAD	30
31	EXISTING LOAD			20A	20A			EXISTING LOAD	32
33	SPARE			20A	20A			EXISTING LOAD	34
35	SPARE			20A	20A			EXISTING LOAD	36
37	SPARE			20A					38
39	SPARE			20A	60A			EXISTING LOAD	40
41	SPARE			20A					42
Total		0	0			688	688	Total	
Total Phase A:		688 VA		Total Connected Load:		1.38 kVA			
Total Phase B:		688 VA				5.73 Amps			

PANELBOARD SCHEDULE									
Designation: SL-ANTELOPE		MAIN TYPE: MB		MOUNTING: SURFACE		OCP TYPE: MOLDED CASE C/B			
Voltage: 240/120V		BUS AMPS: 225A		ENCLOSURE: NEMA 4X		FAULT DUTY: 10KAIC			
1PH 3W		GROUND BUS: YES		NEUTRAL BUS: 100% RATED		SPD: NO			
No.	Description	A	B	Size	Size	A	B	Description	No.
1	EXISTING ANTELOPE BLDG SL			80A	80A			EXISTING AUSTRALIAN BLDG SL	2
3									4
5	EXISTING HABITAT AFRICA SL			80A	80A			EXISTING LOAD	6
7									8
9	PATH LTG: PACHYDERM BLDG SOUTHWEST	688		20A*	20A*	1100		PATH LTG: PACHYDERM BLDG SOUTHEAST	10
11			688				1100		12
13	SPACE							SPACE	14
15	SPACE							SPACE	16
17	SPACE							SPACE	18
Total		688	688			1100	1100	Total	
Total Phase A:		1788 VA		Total Connected Load:		3.58 kVA			
Total Phase B:		1788 VA				14.90 Amps			

PANELBOARD SCHEDULE									
Designation: SL-SAFARI		MAIN TYPE: MB		MOUNTING: SURFACE		OCP TYPE: MOLDED CASE C/B			
Voltage: 240/120V		BUS AMPS: 225A		ENCLOSURE: NEMA 4X		FAULT DUTY: 10KAIC			
1PH 3W		GROUND BUS: YES		NEUTRAL BUS: 100% RATED		SPD: NO			
No.	Description	A	B	Size	Size	A	B	Description	No.
1	EXISTING LION HOUSE RD SL			80A	80A			EXISTING FRAGILE KINGDOM SL	2
3									4
5	EXISTING DOLPHIN BLDG SL			80A	80A			SPARE	6
7									8
9	PATH LTG: SAFARI NORTH PLAYGROUND	963		20A*	20A*	1100		PATH LTG: SAFARI NORTHWEST	10
11			963				1100		12
13	SPACE							SPACE	14
15	SPACE							SPACE	16
Total		963	963			1100	1100	Total	
Total Phase A:		2063 VA		Total Connected Load:		4.13 kVA			
Total Phase B:		2063 VA				17.19 Amps			

PANELBOARD SCHEDULE									
Designation: S SAFARI		MAIN TYPE: MB		MOUNTING: SURFACE		OCP TYPE: MOLDED CASE C/B			
Voltage: 208/120V		BUS AMPS: 400A		ENCLOSURE: NEMA 4X		FAULT DUTY: 10KAIC			
1PH 3W		GROUND BUS: YES		NEUTRAL BUS: 100% RATED		SPD: NO			
No.	Description	A	B	Size	Size	A	B	Description	No.
1	PATH LTG: SAFARI SOUTHWEST	550		20A*	90A			SPARE	2
3			550						4
5	PATH LTG: SAFARI SOUTHEAST	963		20A*					6
7			963						8
9	SPARE			20A	60A			SPARE	10
11									12
13	SPARE			20A	20A			EXISTING LOAD	14
15					20A			EXISTING LOAD	16
17	SPARE			20A	20A			EXISTING LOAD	18
19					20A			EXISTING LOAD	20
21	SPARE			20A	20A			EXISTING LOAD	22
23					20A			EXISTING LOAD	24
25	SPARE			20A	20A			EXISTING LOAD	26
27	EXISTING LOAD			20A	20A			EXISTING LOAD	28
29	SPARE			20A	20A			EXISTING LOAD	30
31	SPARE			20A					32
33	SPARE			20A	150A			EXISTING STING RAY MERCH FEEDERS	34
35									36
37	SPARE			20A					38
39									40
41	SPARE			20A					42
Total		1513	1513			0	0	Total	
Total Phase A:		1513 VA		Total Connected Load:		3.03 kVA			
Total Phase B:		1513 VA				14.55 Amps			

PANELBOARD SCHEDULE									
Designation: NORTH BUGGY		MAIN TYPE: MB		MOUNTING: SURFACE		OCP TYPE: MOLDED CASE C/B			
Voltage: 240/120V		BUS AMPS: 225A		ENCLOSURE: NEMA 4X		FAULT DUTY: 10KAIC			
1PH 3W		GROUND BUS: YES		NEUTRAL BUS: 100% RATED		SPD: NO			
No.	Description	A	B	Size	Size	A	B	Description	No.
1	EXISTING LOAD			20A	20A			EXISTING LOAD	2
3	EXISTING LOAD			20A	20A			EXISTING LOAD	4
5	EXISTING LOAD			20A	20A			EXISTING LOAD	6
7	EXISTING LOAD			20A	20A			EXISTING LOAD	8
9	EXISTING LOAD			20A	20A			EXISTING LOAD	10
11	EXISTING LOAD			20A	20A			EXISTING LOAD	12
13	PATH LTG: DISCOVERY CENTER NORTH	413		20A*	20A			EXISTING LOAD	14
15			413		20A			EXISTING LOAD	16
17	PATH LTG: DISCOVERY CENTER PLANTERS	126		20A*	20A			EXISTING LOAD	18
19	PATH REC: DISCOVERY CENTER PLANTERS		360	20A*	20A			SPARE	20
21	SPARE			20A	20A			SPARE	22
23	SPARE			20A	20A			SPARE	24
25	SPARE			20A	20A			SPARE	26
27	SPARE			20A	20A			SPARE	28
29	SPARE			20A	20A			SPARE	30
Total		539	773			0	0	Total	
Total Phase A:		539 VA		Total Connected Load:		1.31 kVA			
Total Phase B:		773 VA				5.47 Amps			

NOTE: * INDICATES NEW CIRCUIT BREAKER



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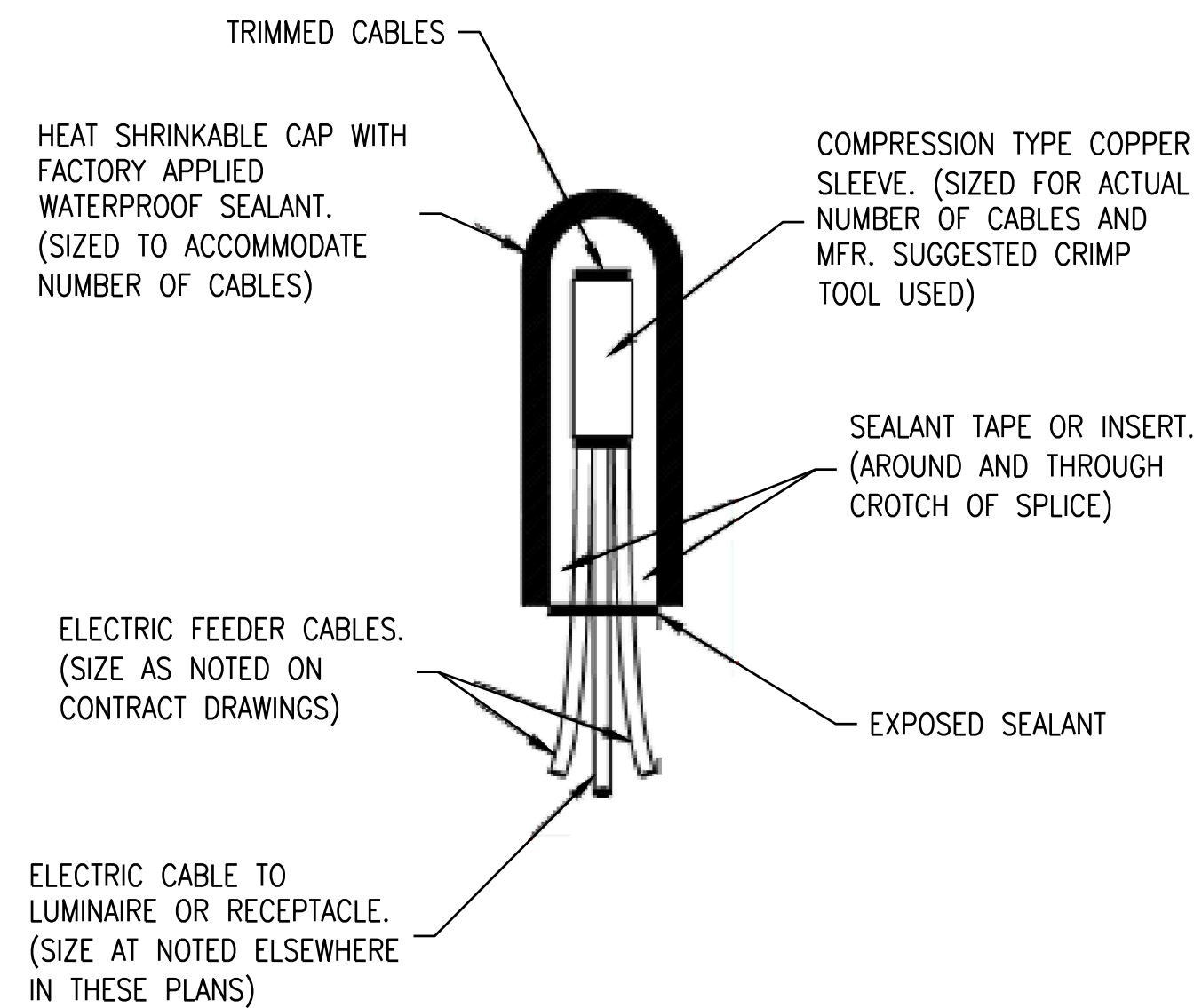
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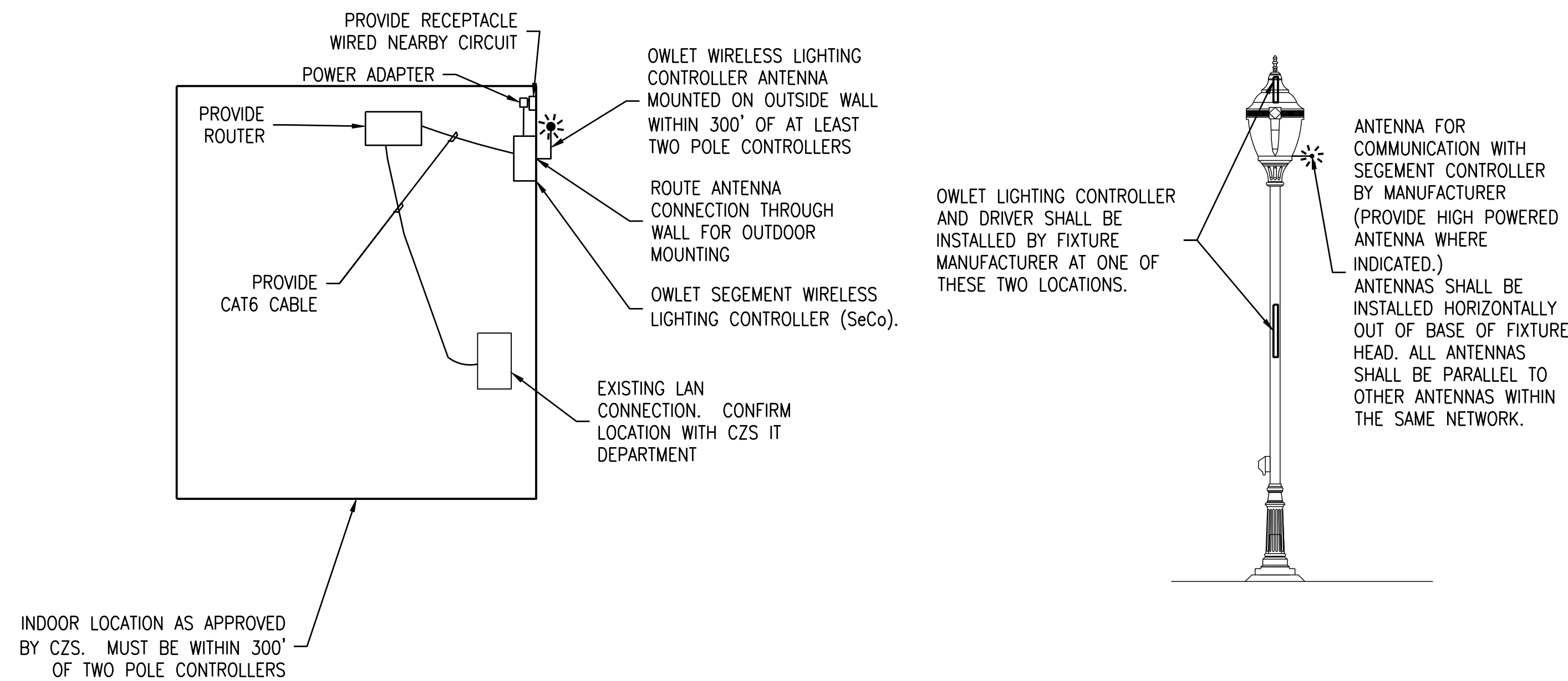
**Brookfield Zoo
Site Lighting
Expansion II**

PANEL SCHEDULES

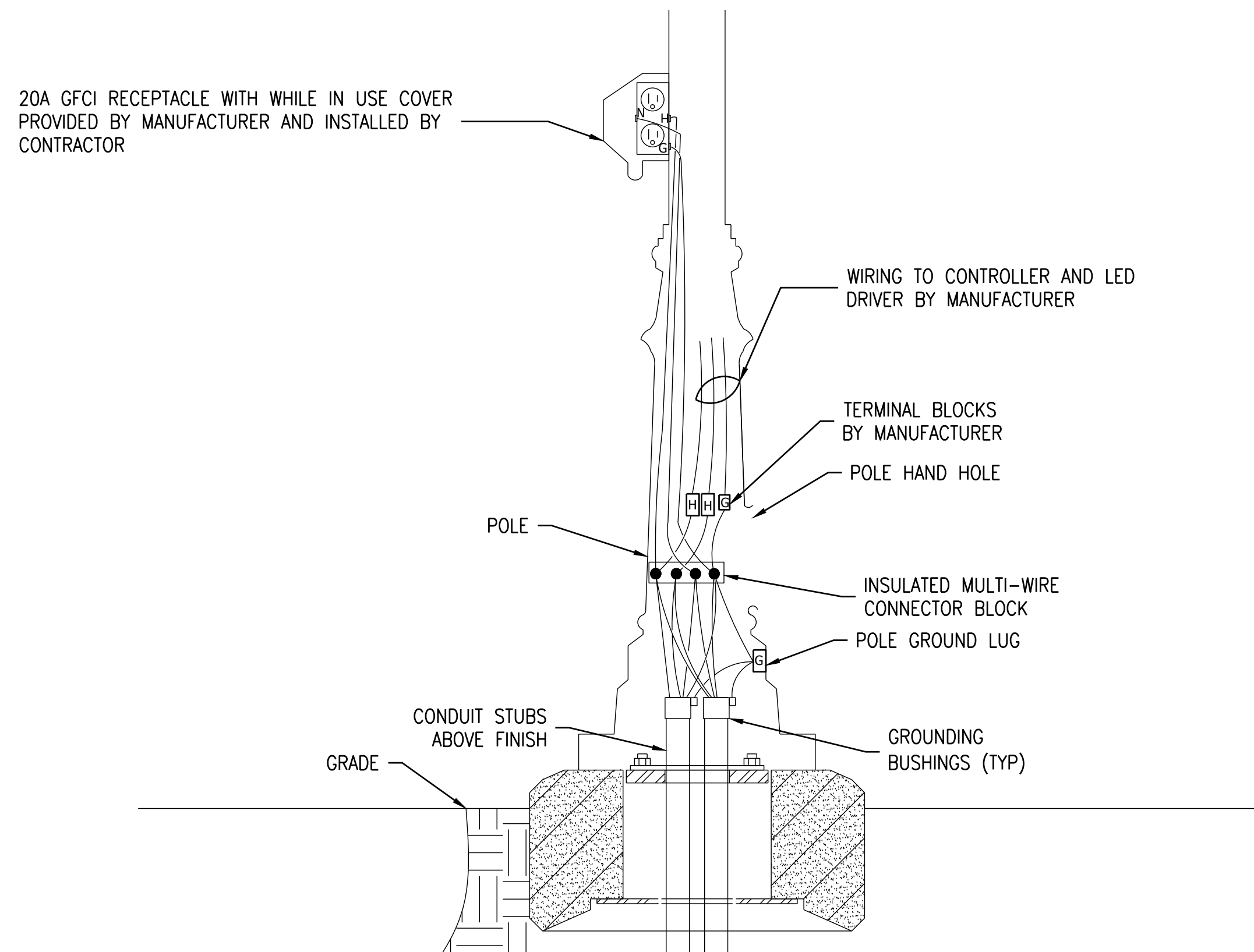
PRINCIPAL IN CHARGE KAL	PROJECT NUMBER 62640
PROJECT MANAGER SE	DATE 08/04/17
PROJECT ENGINEER TV	SHEET NUMBER
SCALE NTS	E0



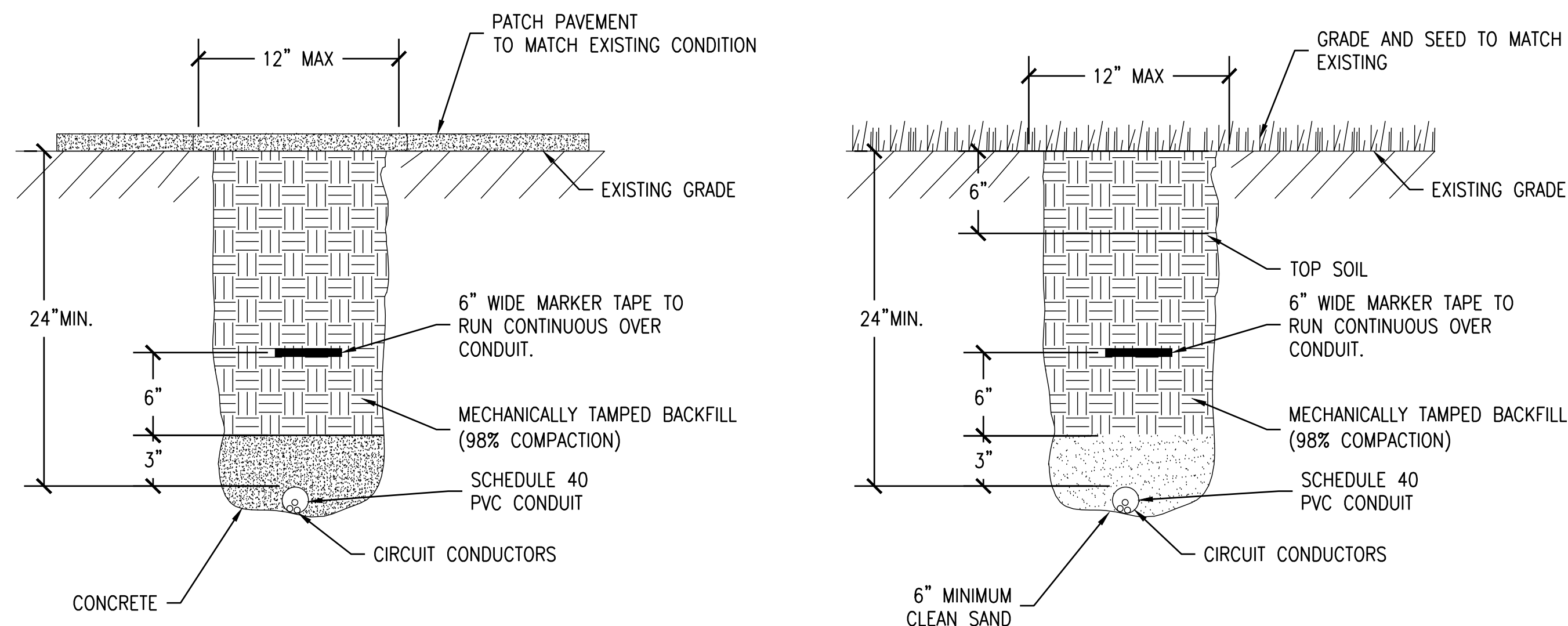
4 TYPICAL SPLICE DETAIL
NTS



3 SECO LIGHTING CONTROL CONNECTION DETAIL
NTS



2 LIGHT POLE ELECTRICAL WIRING DETAIL
NTS



1 TRENCH DETAILS
NTS

NOTE:
WHERE MORE THAN ONE CONDUIT
IS INSTALLED IN THE TRENCH,
PROVIDE THE PROPER MARKER TAPE
OVER EACH CONDUIT.



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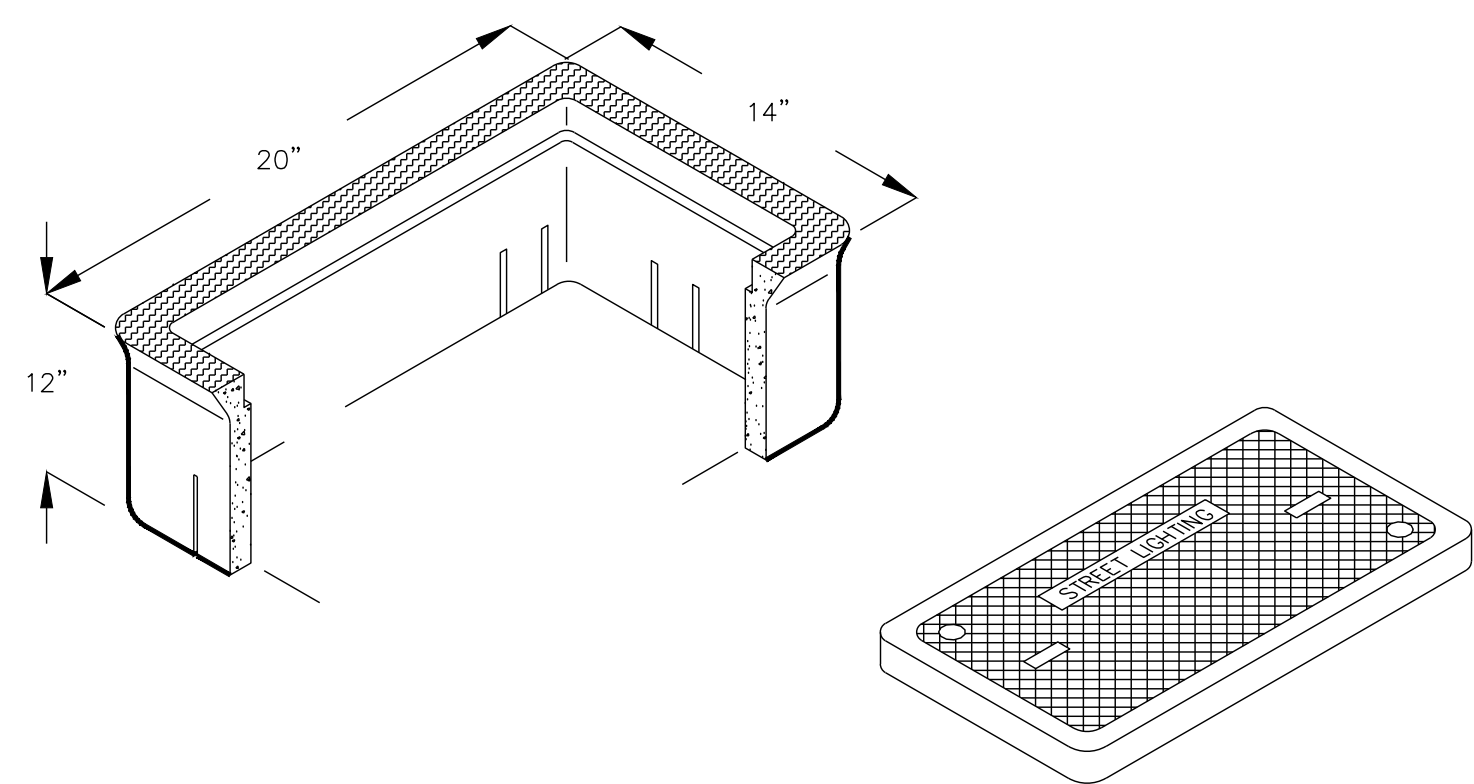
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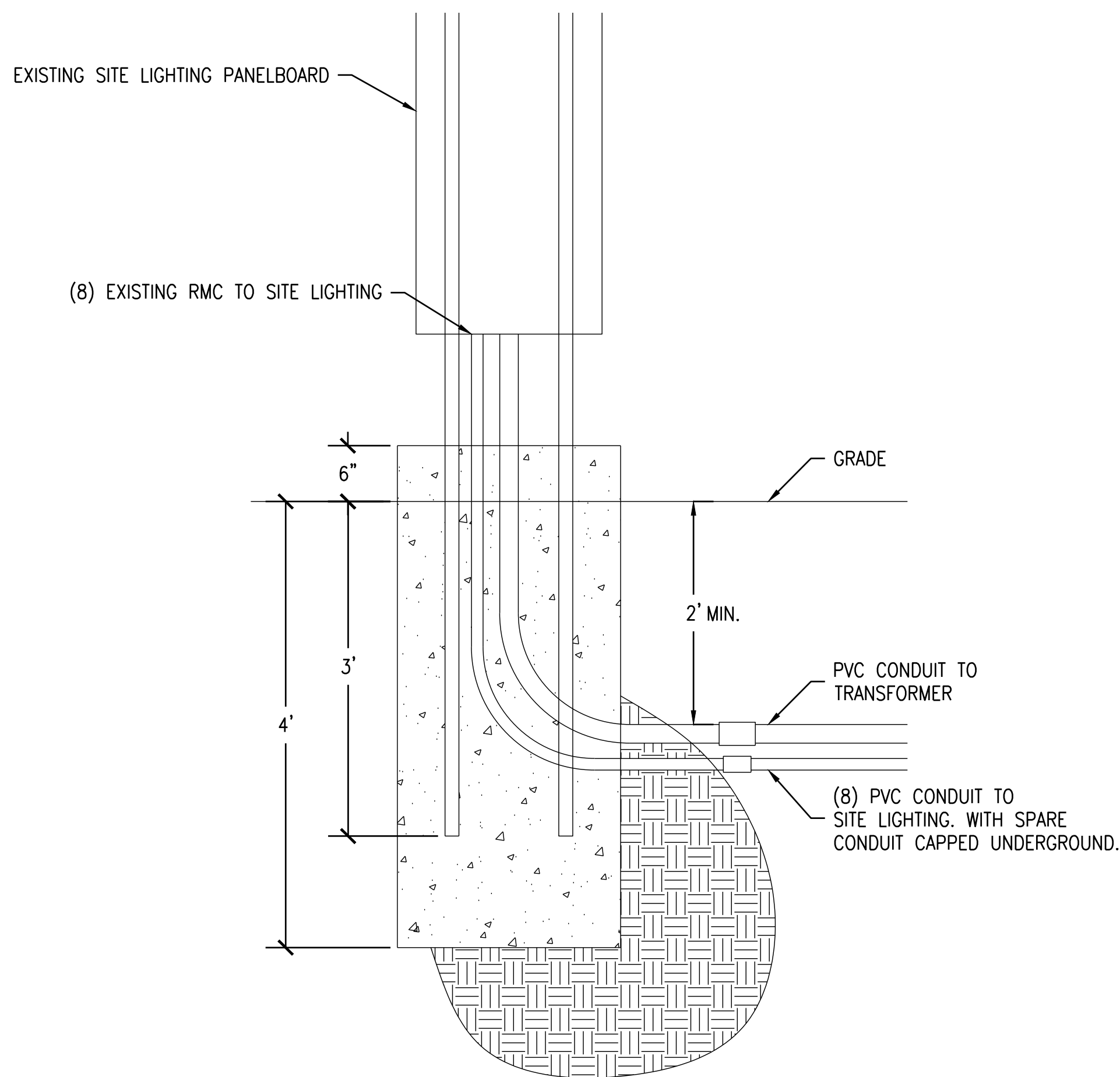
DETAILS SHEET 1

PRINCIPAL IN CHARGE KAL	PROJECT NUMBER 52640
PROJECT MANAGER SE	DATE 08/04/17
PROJECT ENGINEER TV	SHEET NUMBER
SCALE NTS	E0.5



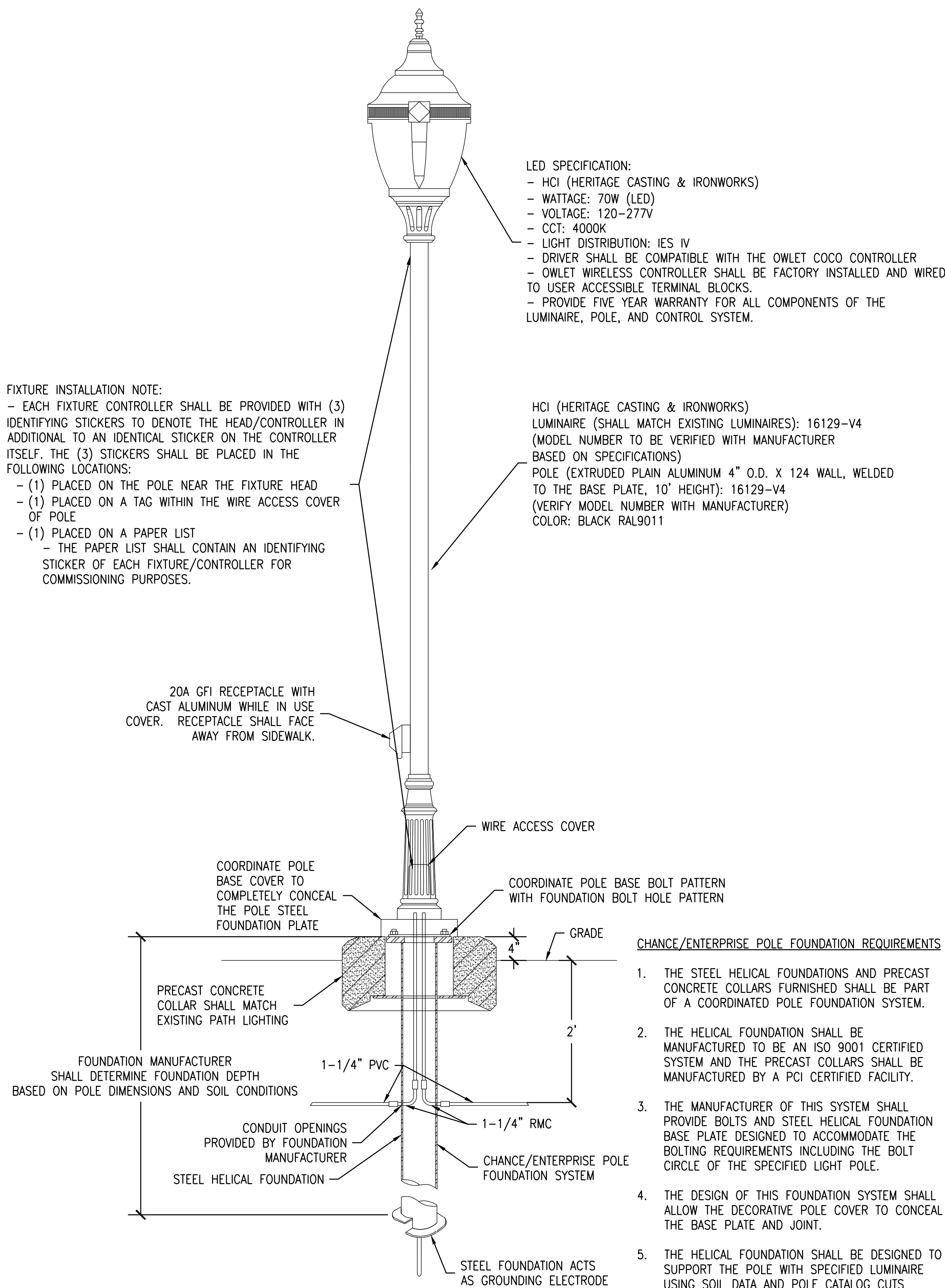
- HIGH DENSITY REINFORCED CONCRETE
- NON-METALIC COVER
- PULL AND JUNCTION BOX
- PROVIDE 6 INCHES OF CRUSHED ROCK UNDER JUNCTION BOX FOR DRAINAGE
- DESIGN LOAD: PEDESTRIAN TRAFFIC

3 **PULL BOX DETAIL**
NTS



2 **EXISTING PANELBOARD FOUNDATION DETAIL**
NTS

- FIXTURE INSTALLATION NOTE:
- EACH FIXTURE CONTROLLER SHALL BE PROVIDED WITH (3) IDENTIFYING STICKERS TO DENOTE THE HEAD/CONTROLLER IN ADDITIONAL TO AN IDENTICAL STICKER ON THE CONTROLLER ITSELF. THE (3) STICKERS SHALL BE PLACED IN THE FOLLOWING LOCATIONS:
 - (1) PLACED ON THE POLE NEAR THE FIXTURE HEAD
 - (1) PLACED ON A TAG WITHIN THE WIRE ACCESS COVER OF POLE
 - (1) PLACED ON A PAPER LIST
 - THE PAPER LIST SHALL CONTAIN AN IDENTIFYING STICKER OF EACH FIXTURE/CONTROLLER FOR COMMISSIONING PURPOSES.



- LED SPECIFICATION:
- HCI (HERITAGE CASTING & IRONWORKS)
 - WATTAGE: 70W (LED)
 - VOLTAGE: 120-277V
 - CCT: 4000K
 - LIGHT DISTRIBUTION: IES IV
 - DRIVER SHALL BE COMPATIBLE WITH THE OWLET COCO CONTROLLER
 - OWLET WIRELESS CONTROLLER SHALL BE FACTORY INSTALLED AND WIRED TO USER ACCESSIBLE TERMINAL BLOCKS.
 - PROVIDE FIVE YEAR WARRANTY FOR ALL COMPONENTS OF THE LUMINAIRE, POLE, AND CONTROL SYSTEM.

- HCI (HERITAGE CASTING & IRONWORKS)
LUMINAIRE (SHALL MATCH EXISTING LUMINAIRES): 16129-V4
(MODEL NUMBER TO BE VERIFIED WITH MANUFACTURER
BASED ON SPECIFICATIONS)
POLE (EXTRUDED PLAIN ALUMINUM 4" O.D. X 124 WALL, WELDED
TO THE BASE PLATE, 10' HEIGHT): 16129-V4
(VERIFY MODEL NUMBER WITH MANUFACTURER)
COLOR: BLACK RAL9011

CHANCE/ENTERPRISE POLE FOUNDATION REQUIREMENTS

1. THE STEEL HELICAL FOUNDATIONS AND PRECAST CONCRETE COLLARS FURNISHED SHALL BE PART OF A COORDINATED POLE FOUNDATION SYSTEM.
2. THE HELICAL FOUNDATION SHALL BE MANUFACTURED TO BE AN ISO 9001 CERTIFIED SYSTEM AND THE PRECAST COLLARS SHALL BE MANUFACTURED BY A PCI CERTIFIED FACILITY.
3. THE MANUFACTURER OF THIS SYSTEM SHALL PROVIDE BOLTS AND STEEL HELICAL FOUNDATION BASE PLATE DESIGNED TO ACCOMMODATE THE BOLTING REQUIREMENTS INCLUDING THE BOLT CIRCLE OF THE SPECIFIED LIGHT POLE.
4. THE DESIGN OF THIS FOUNDATION SYSTEM SHALL ALLOW THE DECORATIVE POLE COVER TO CONCEAL THE BASE PLATE AND JOINT.
5. THE HELICAL FOUNDATION SHALL BE DESIGNED TO SUPPORT THE POLE WITH SPECIFIED LUMINAIRE USING SOIL DATA AND POLE CATALOG CUTS PROVIDED BY THE POLE MANUFACTURER. DESIGN CALCULATIONS AND SHOP DRAWINGS SHALL BE PROVIDED TO CONFIRM COMPLIANCE TO ALL REQUIREMENTS.
6. PRIOR TO THE INSTALATION OF THE CONCRETE COLLAR, ENSURE THAT THE SOIL DISRUPTED DURING CONDUIT INSTALLATION HAS BEEN COMPACTED.
7. COLLAR DIAMETER, COLOR, FINISH: MATCH EXISTING

1 **LIGHT POLE FOUNDATION DETAIL**
NTS



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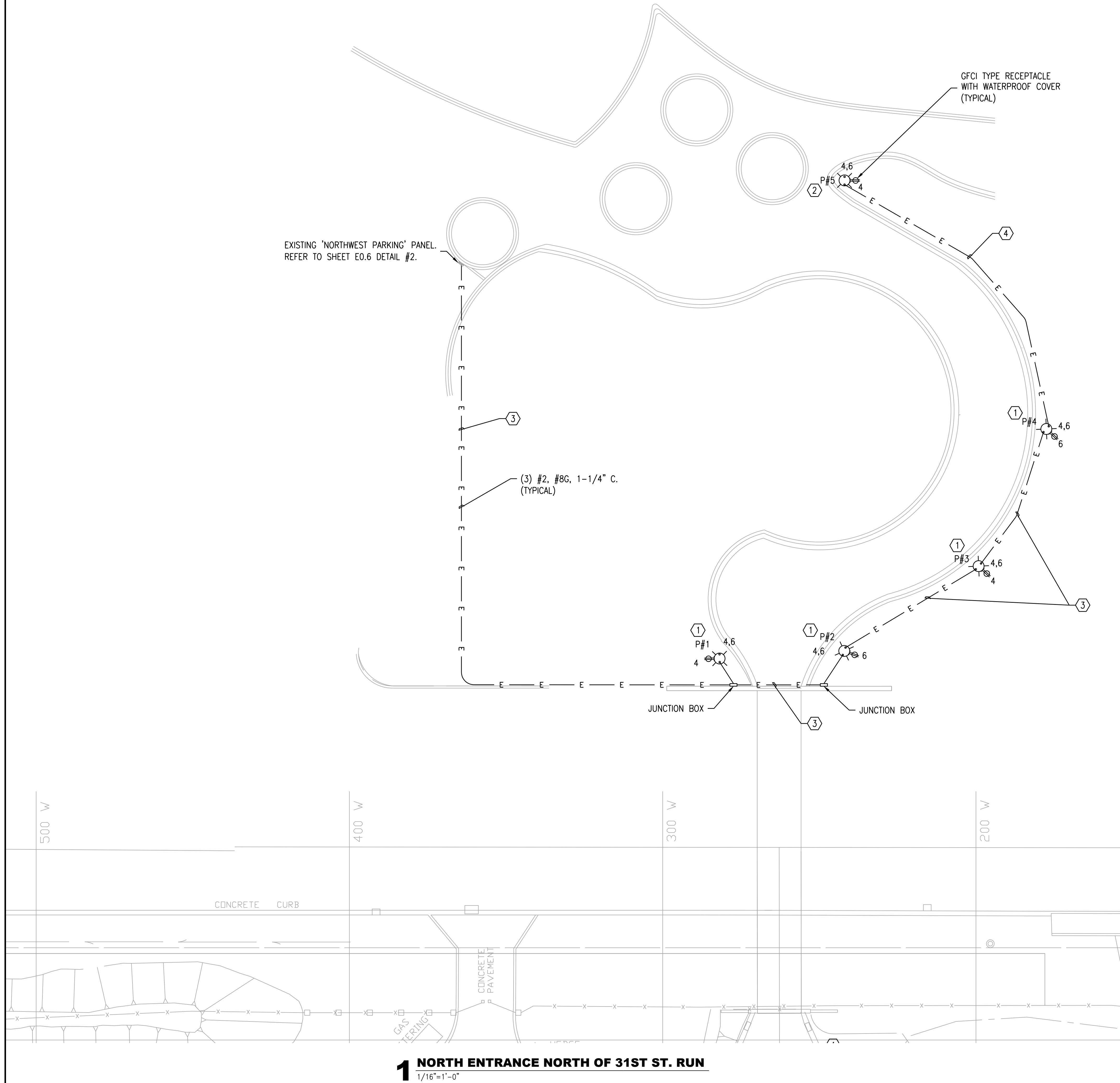
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**Brookfield Zoo
Site Lighting
Expansion II**

**DETAILS
SHEET 2**

PRINCIPAL IN CHARGE KAL	PROJECT NUMBER 52640
PROJECT MANAGER SE	DATE 08/04/17
PROJECT ENGINEER TV	SHEET NUMBER
SCALE NTS	E0.6



KEYNOTES:

- ① EXISTING LIGHT FIXTURE AND FOUNDATION TO BE REPLACED. REFER TO SHEET E0.6 DETAIL #1.
- ② NEW LIGHT FIXTURE. REFER TO SHEET E0.6 DETAIL #1.
- ③ EXISTING CONDUIT TO REMAIN. EXISTING WIRING TO BE REPLACED. PROVIDE ALTERNATE PRICING TO REPLACE EXISTING CONDUIT IN THE EVENT THE CONDUIT IS INADEQUATE FOR REUSE. TO TEST EXISTING CONDUIT, PULL A MANDREL (1/2" SMALLER IN DIAMETER THAN THE CONDUIT AND 6" LONG) THROUGH EACH CONDUIT PRIOR TO UNDERGROUND CABLE INSTALLATION, FOLLOWED BY A PULLING LINE (1800 LB. MINIMUM TENSILE STRENGTH MULE LINE PREFERRED) WHICH SHALL REMAIN IN EACH DUCT.
- ④ NEW CONDUIT AND WIRING. REFER TO NOTES ON PLAN FOR SIZING.

SHEET NOTES:

1. ALL LIGHT FIXTURES ON THIS PLAN SHALL JOIN THE THE EXISTING SECO NETWORK #991.
2. ALL LUCO ANTENNAS SHALL BE INSTALLED HORIZONTALLY OUT OF THE BASE OF EACH FIXTURE HEAD. ALL ANTENNAS SHALL BE PARALLEL TO EACH OTHER AS WELL AS TO EXISTING ANTENNAS WITHIN SECO NETWORK #991.



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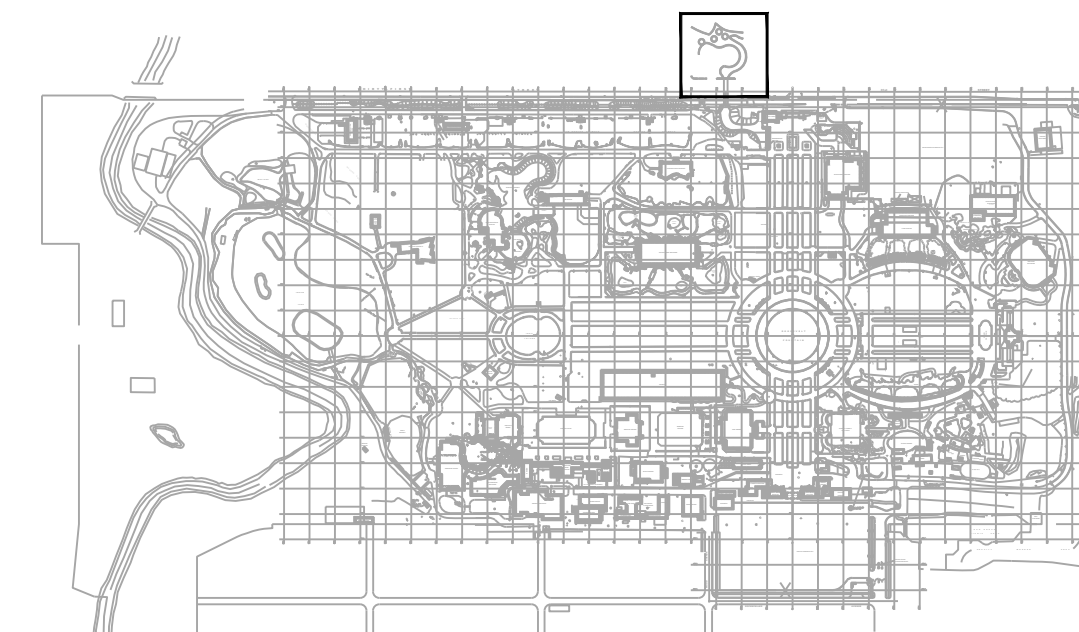
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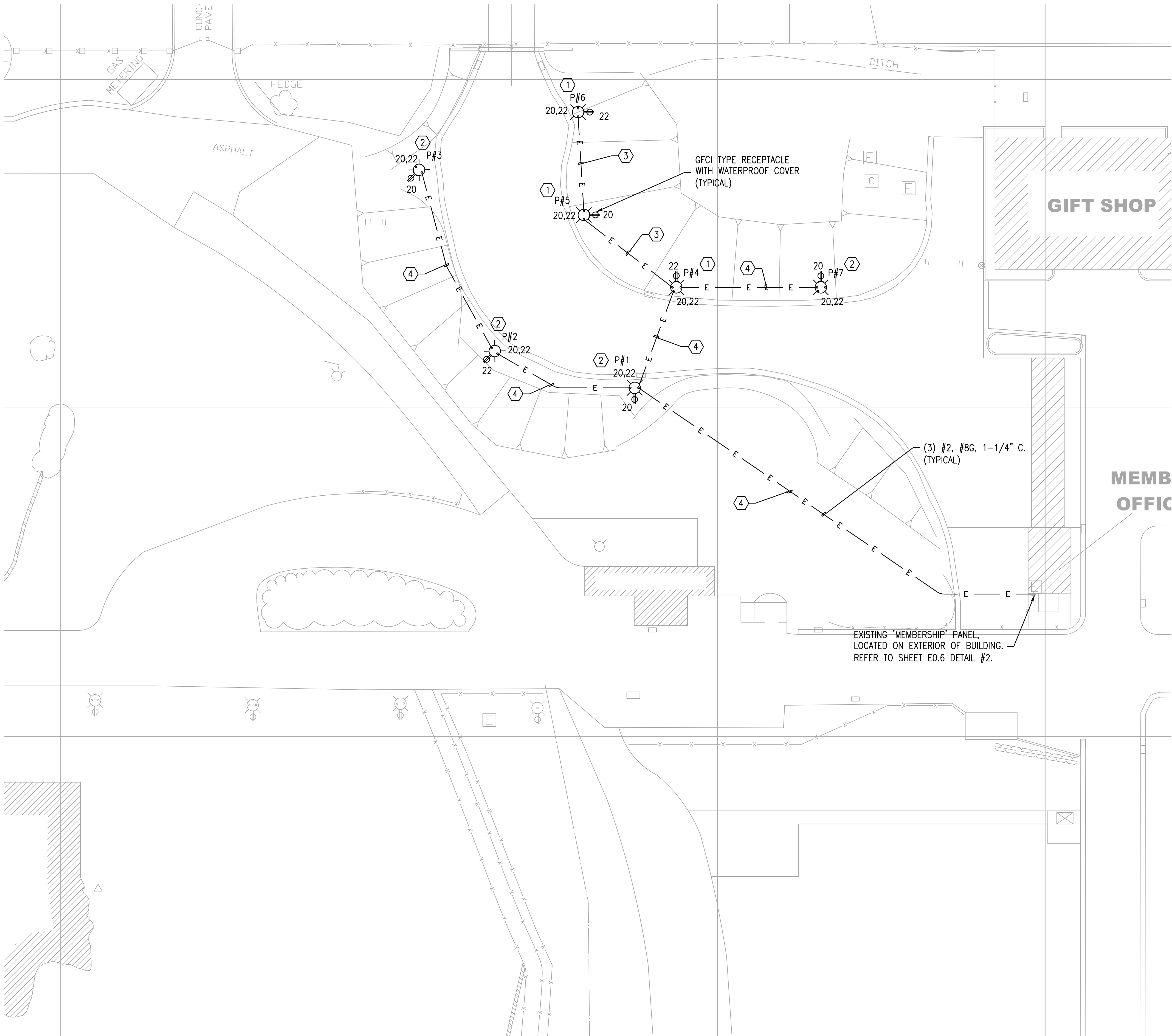
**Brookfield Zoo
Site Lighting
Expansion II**

**SITE LIGHTING
NORTH ENTRANCE NORTH
OF 31ST ST. RUN**

PRINCIPAL IN CHARGE KAL	PROJECT NUMBER 52640
PROJECT MANAGER SE	DATE 08/04/17
PROJECT ENGINEER TV	SHEET NUMBER E1.0
SCALE 1/16"=1'-0"	



KEYPLAN



KEYNOTES:

- 1 EXISTING LIGHT FIXTURE AND FOUNDATION TO BE REPLACED. REFER TO SHEET E0.6 DETAIL #1.
- 2 NEW LIGHT FIXTURE. REFER TO SHEET E0.6 DETAIL #1.
- 3 EXISTING CONDUIT TO REMAIN. EXISTING WIRING TO BE REPLACED. PROVIDE ALTERNATE PRICING TO REPLACE EXISTING CONDUIT IN THE EVENT THE CONDUIT IS INADEQUATE FOR REUSE. TO TEST EXISTING CONDUIT, PULL A MANDREL (1/2" SMALLER IN DIAMETER THAN THE CONDUIT AND 6" LONG) THROUGH EACH CONDUIT PRIOR TO UNDERGROUND CABLE INSTALLATION, FOLLOWED BY A PULLING LINE (1800 LB. MINIMUM TENSILE STRENGTH MULE LINE PREFERRED) WHICH SHALL REMAIN IN EACH DUCT.
- 4 NEW CONDUIT AND WIRING. REFER TO NOTES ON PLAN FOR SIZING.

SHEET NOTES:

- 1. ALL LIGHT FIXTURES ON THIS PLAN SHALL JOIN THE THE EXISTING SECO NETWORK #991.
- 2. ALL LUCO ANTENNAS SHALL BE INSTALLED HORIZONTALLY OUT OF THE BASE OF EACH FIXTURE HEAD. ALL ANTENNAS SHALL BE PARALLEL TO EACH OTHER AS WELL AS TO EXISTING ANTENNAS WITHIN SECO NETWORK #991.



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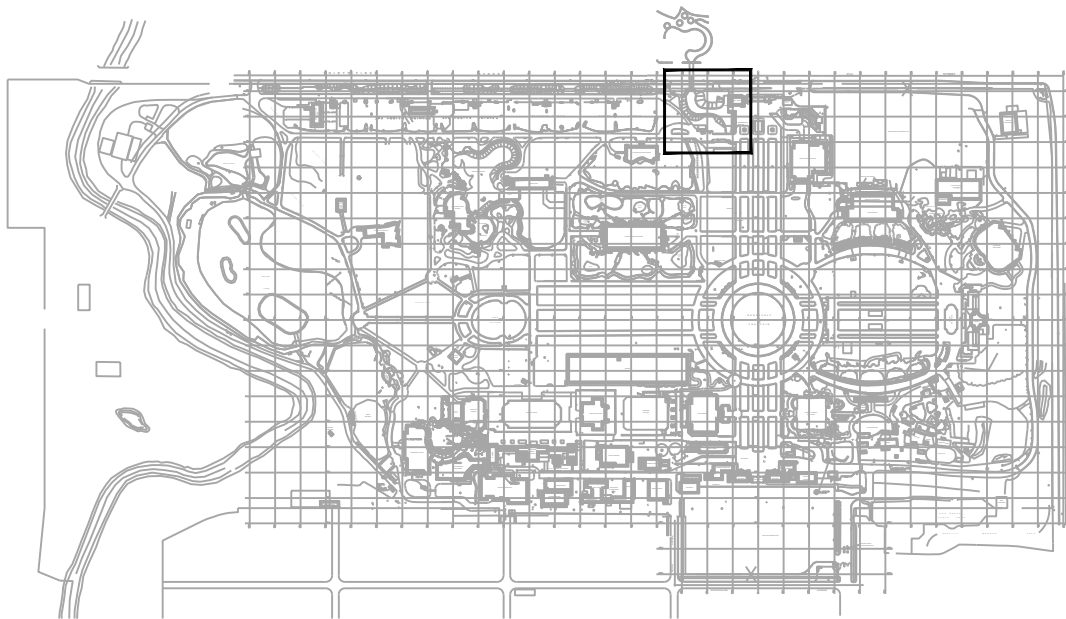
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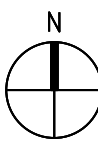
Brookfield Zoo
Site Lighting
Expansion II

SITE LIGHTING
NORTH ENTRANCE SOUTH
OF 31ST ST. RUN

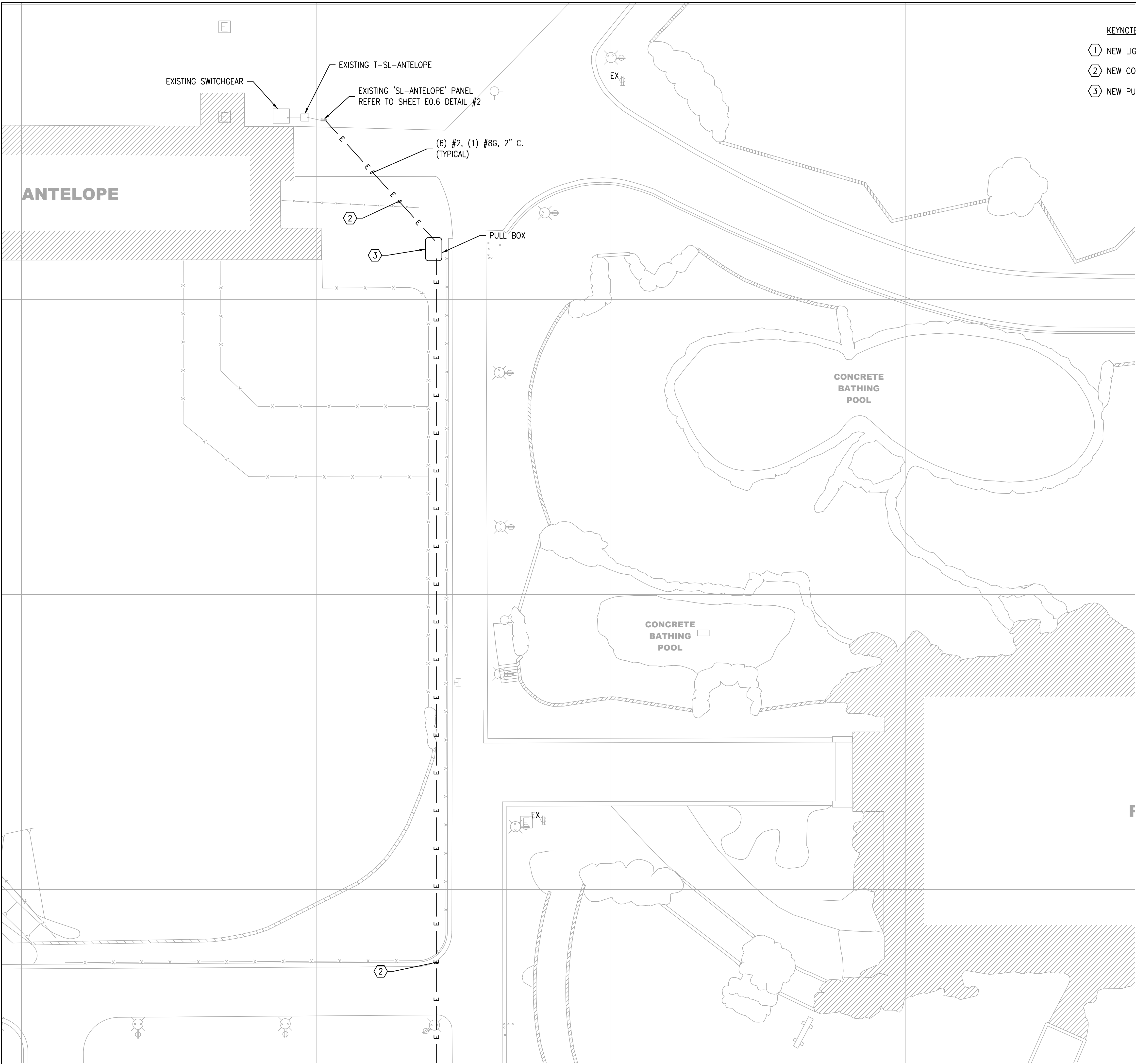
PRINCIPAL IN CHARGE KAL	PROJECT NUMBER 52640
PROJECT MANAGER SE	DATE 08/04/17
PROJECT ENGINEER TV	SHEET NUMBER
SCALE 1/16"=1'-0"	E1.1



KEYPLAN



1 NORTH ENTRANCE SOUTH OF 31ST ST. RUN
1/16"=1'-0"



- KEYNOTES:
- 1 NEW LIGHT FIXTURE. REFER TO SHEET E0.6 DETAIL #1.
 - 2 NEW CONDUIT AND WIRING. REFER TO NOTES ON PLAN FOR SIZING.
 - 3 NEW PULL BOX. REFER TO SHEET E0.6 DETAIL #3.



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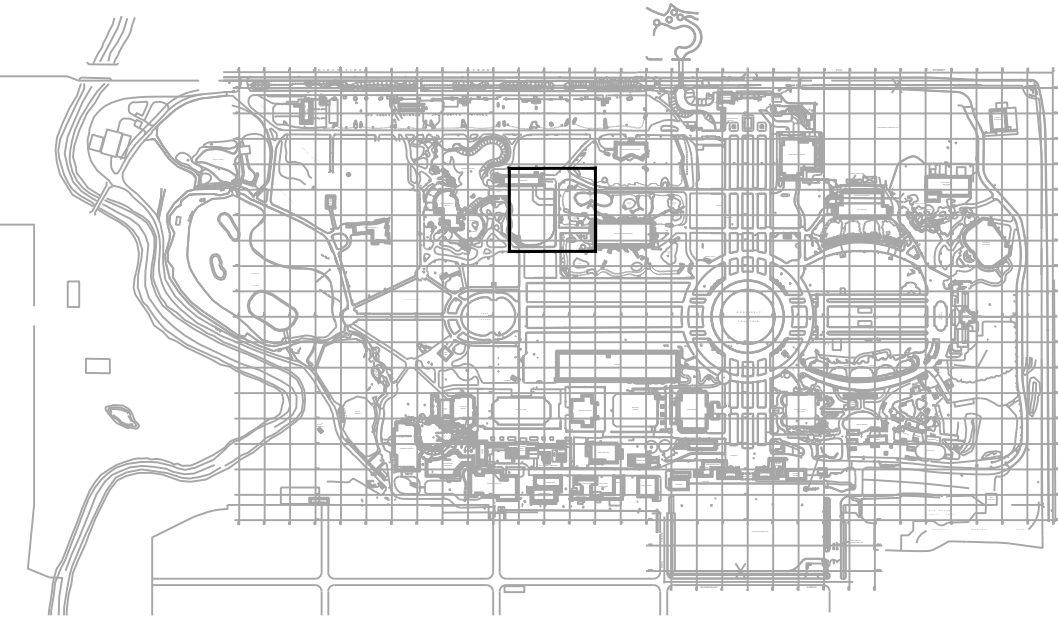
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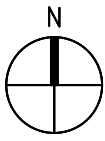
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Site Lighting
Expansion II**

**SITE LIGHTING
PACHYDERM BLDG SOUTH
RUN 1/3**

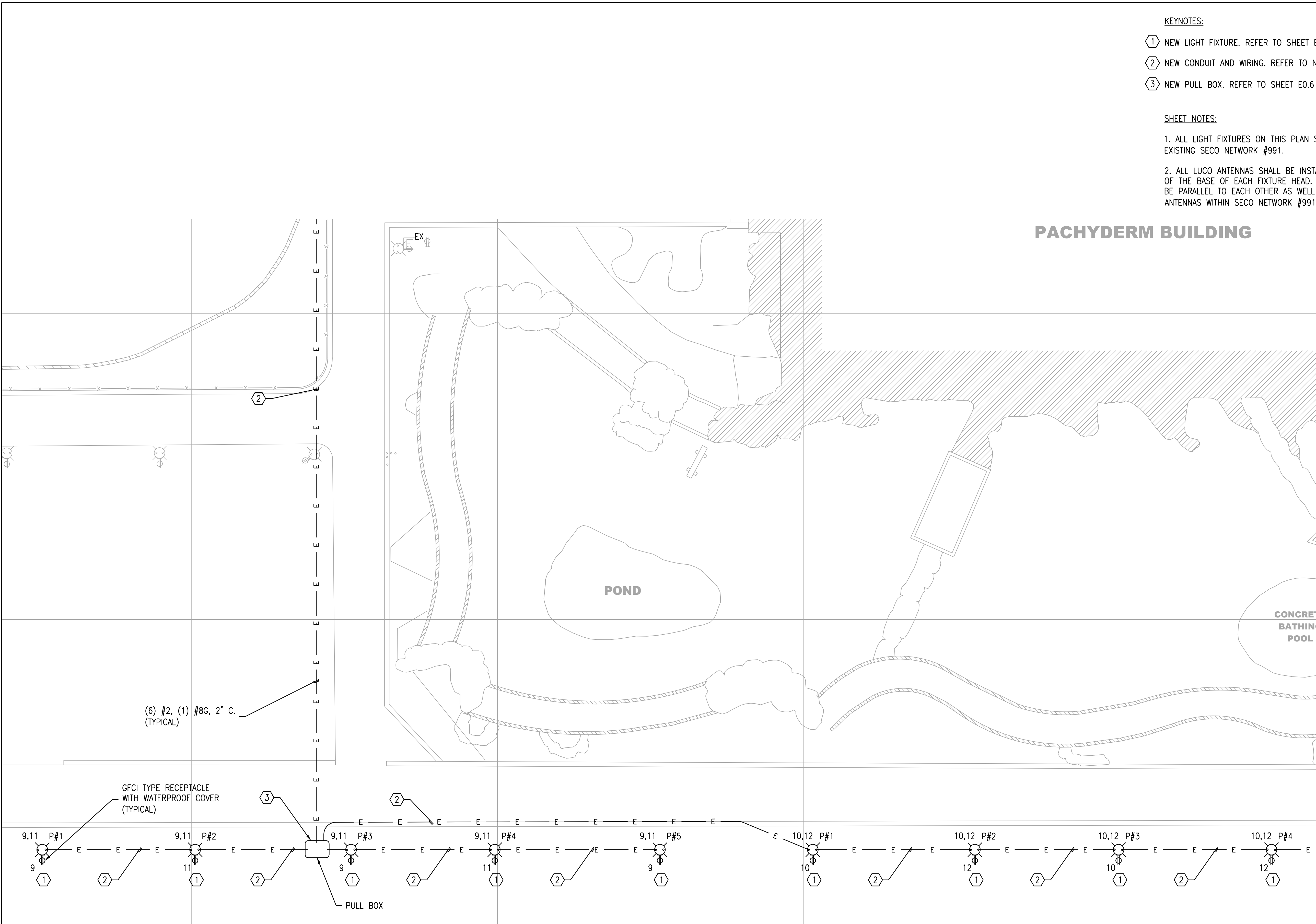
PRINCIPAL IN CHARGE KAL	PROJECT NUMBER 52640
PROJECT MANAGER SE	DATE 08/04/17
PROJECT ENGINEER TV	SHEET NUMBER
SCALE 1/16"=1'-0"	E1.2



KEYPLAN



1 PACHYDERM BLDG SOUTH RUN
1/16"=1'-0"



KEYNOTES:

- 1 NEW LIGHT FIXTURE. REFER TO SHEET E0.6 DETAIL #1.
- 2 NEW CONDUIT AND WIRING. REFER TO NOTES ON PLAN FOR SIZING.
- 3 NEW PULL BOX. REFER TO SHEET E0.6 DETAIL #3.

SHEET NOTES:

- ALL LIGHT FIXTURES ON THIS PLAN SHALL JOIN THE THE EXISTING SECO NETWORK #991.
- ALL LUCO ANTENNAS SHALL BE INSTALLED HORIZONTALLY OUT OF THE BASE OF EACH FIXTURE HEAD. ALL ANTENNAS SHALL BE PARALLEL TO EACH OTHER AS WELL AS TO EXISTING ANTENNAS WITHIN SECO NETWORK #991.



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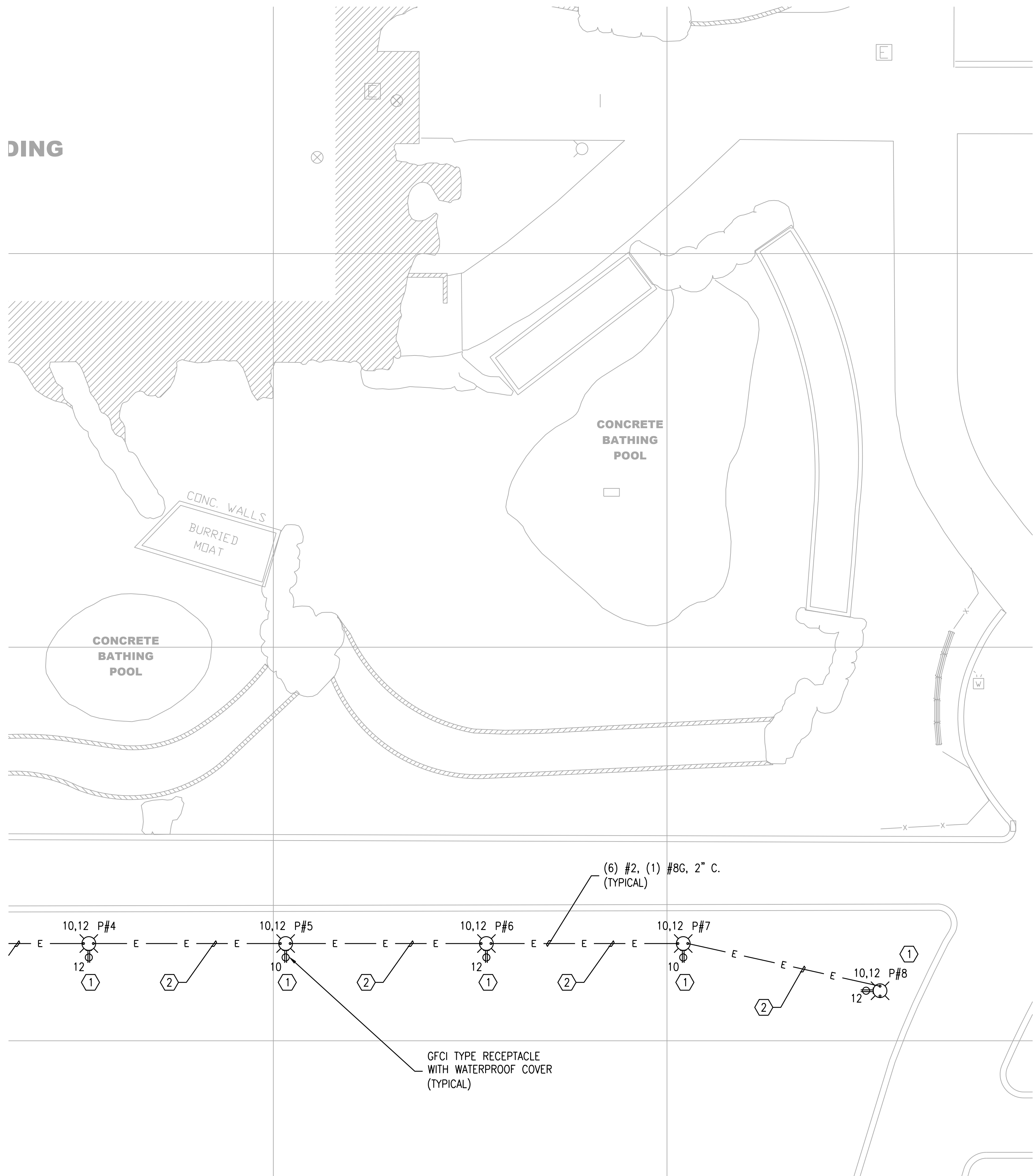
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Brookfield Zoo
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Expansion II

SITE LIGHTING
PACHYDERM BLDG SOUTH
RUN 2/3

PRINCIPAL IN CHARGE KAL	PROJECT NUMBER 52640
PROJECT MANAGER SE	DATE 08/04/17
PROJECT ENGINEER TV	SHEET NUMBER E1.3
SCALE 1/16"=1'-0"	

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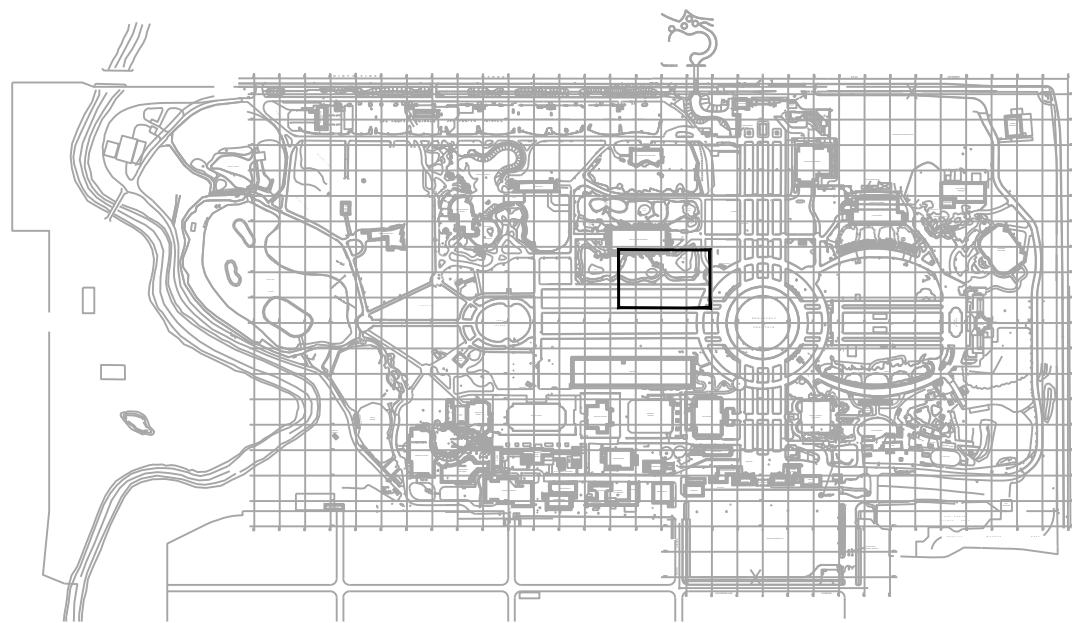
1 PACHYDERM BLDG SOUTH RUN
1/16"=1'-0"

KEYNOTES:

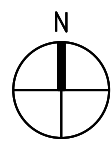
- 1 NEW LIGHT FIXTURE. REFER TO SHEET E0.6 DETAIL #1.
- 2 NEW CONDUIT AND WIRING. REFER TO NOTES ON PLAN FOR SIZING.
- 3 NEW PULL BOX. REFER TO SHEET E0.6 DETAIL #3.

SHEET NOTES:

- 1. ALL LIGHT FIXTURES ON THIS PLAN SHALL JOIN THE THE EXISTING SECO NETWORK #991.
- 2. ALL LUCO ANTENNAS SHALL BE INSTALLED HORIZONTALLY OUT OF THE BASE OF EACH FIXTURE HEAD. ALL ANTENNAS SHALL BE PARALLEL TO EACH OTHER AS WELL AS TO EXISTING ANTENNAS WITHIN SECO NETWORK #991.



KEYPLAN



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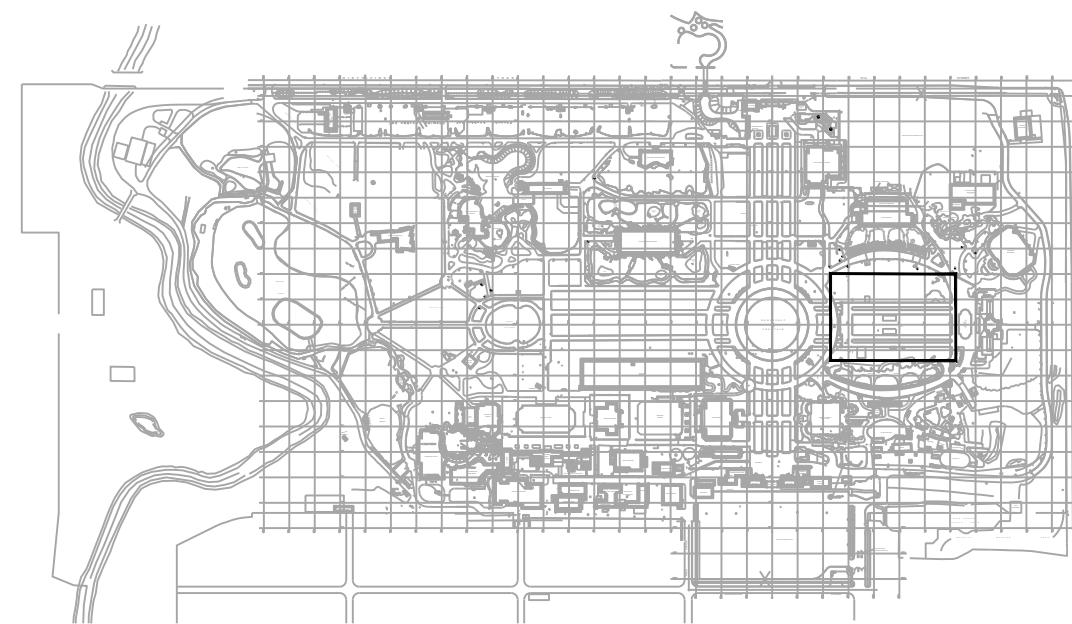
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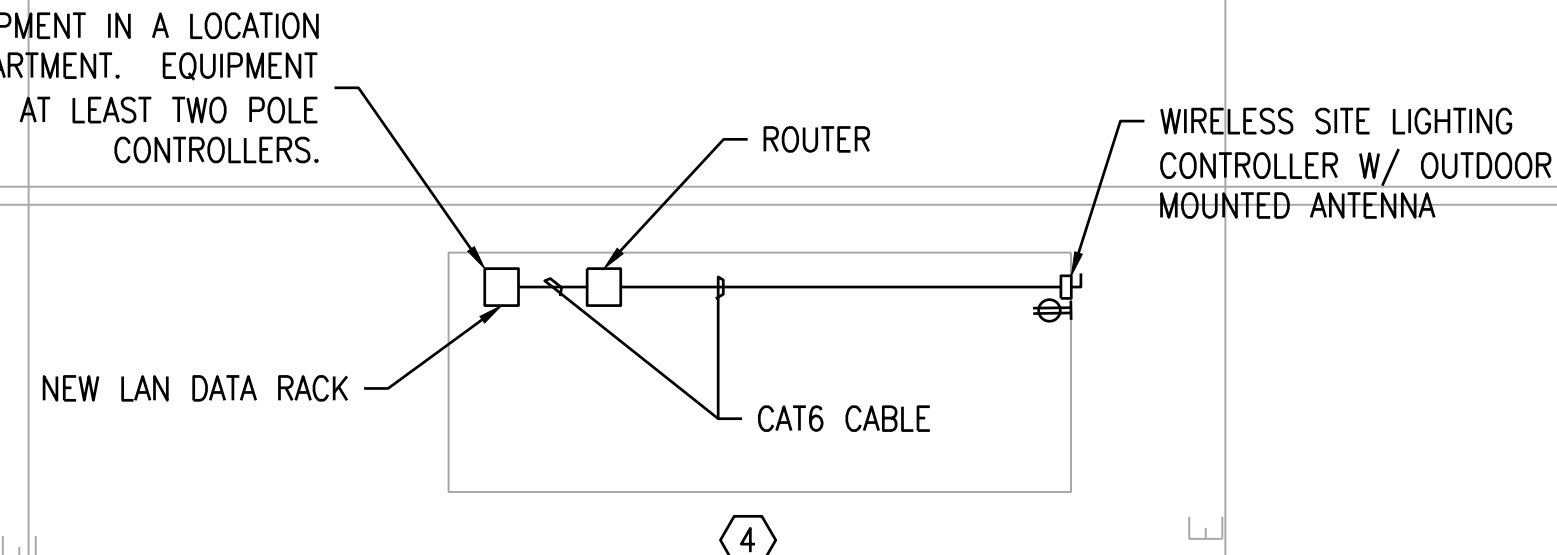
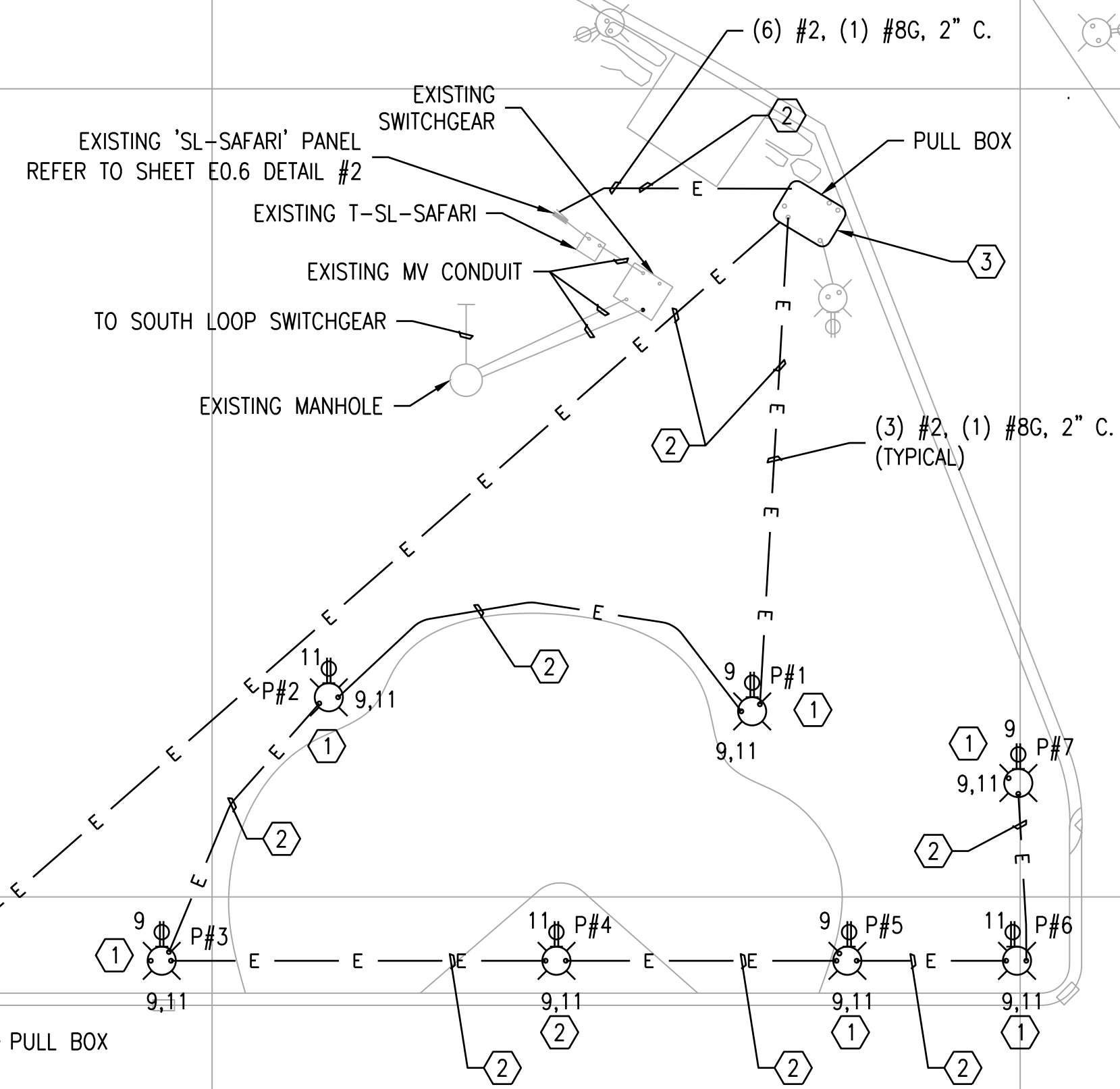
Brookfield Zoo
Site Lighting
Expansion II

SITE LIGHTING
PACHYDERM BLDG SOUTH
RUN 3/3

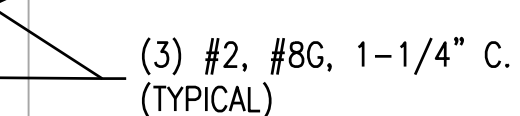
PRINCIPAL IN CHARGE KAL	PROJECT NUMBER 52640
PROJECT MANAGER SE	DATE 08/04/17
PROJECT ENGINEER TV	SHEET NUMBER
SCALE 1/16"=1'-0"	E1.4



KEYPLAN



MALL



1 EAST MALL NORTH AND SOUTH RUNS



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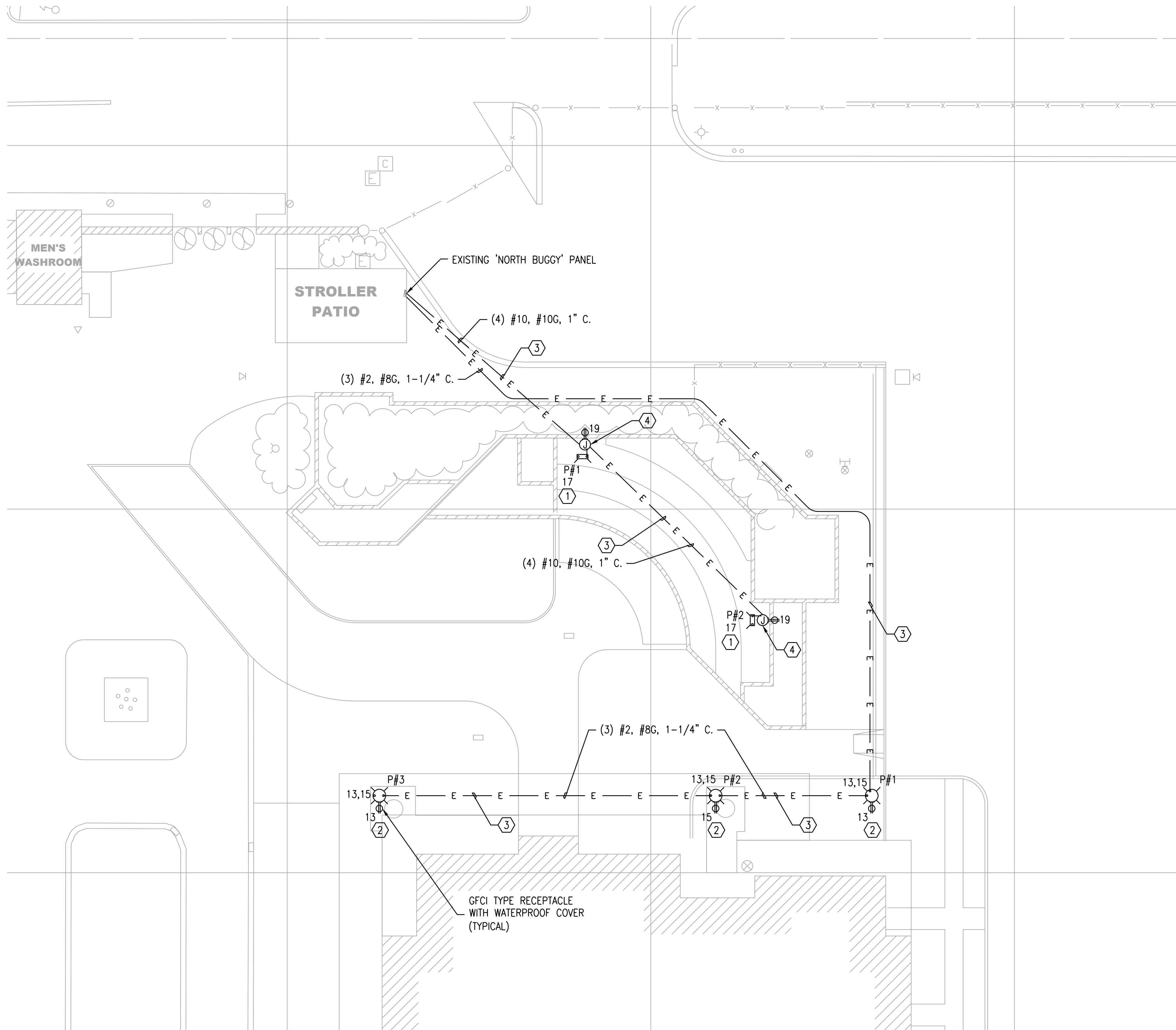
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Brookfield Zoo Site Lighting Expansion II

SITE LIGHTING EAST MALL NORTH AND SOUTH RUNS

PRINCIPAL IN CHARGE KAL	PROJECT NUMBER 52640
PROJECT MANAGER SE	DATE 08/04/17
PROJECT ENGINEER TV	SHEET NUMBER
SCALE $1/16" = 1' - 0"$	E1.5



1 DISCOVERY CENTER RUNS
1/16"=1'-0"

KEYNOTES:

- (1) LIGHTING CIRCUIT SHALL BE CONTROLLED WITH INTERMATIC T7402B 7-DAY TIME CLOCK.
- (2) NEW LIGHT FIXTURE. REFER TO SHEET EO.6 DETAIL #1.
- (3) NEW CONDUIT AND WIRING. REFER TO NOTES ON PLAN FOR SIZING.
- (4) NEW JUNCTION BOX

SHEET NOTES:

- 1. ALL LIGHT FIXTURES ON THIS PLAN SHALL JOIN THE THE EXISTING SECO NETWORK #991.
- 2. ALL LUCO ANTENNAS SHALL BE INSTALLED HORIZONTALLY OUT OF THE BASE OF EACH FIXTURE HEAD. ALL ANTENNAS SHALL BE PARALLEL TO EACH OTHER AS WELL AS TO EXISTING ANTENNAS WITHIN SECO NETWORK #991.



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**Brookfield Zoo
Site Lighting
Expansion II**

**SITE LIGHTING
DISCOVERY CENTER
RUNS**

PRINCIPAL IN CHARGE KAL	PROJECT NUMBER 52640
PROJECT MANAGER SE	DATE 08/04/17
PROJECT ENGINEER TV	SHEET NUMBER
SCALE 1/16"=1'-0"	E1.6

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