

CITY OF PHOENIX STREET LIGHTING PROJECT NAME

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.			
DR:		DES:	CK:	DATE:

STREET LIGHTING GENERAL NOTES

THE FOLLOWING INFORMATION IS PROVIDED TO EMPHASIZE CRITICAL WORK AND IS INTENDED TO SUPPLEMENT THE SPECIFICATIONS.

- THE CONTRACTOR SHALL COMPLY WITH STATE AND CITY STATUTES AND ORDINANCES.
- PRIOR TO SUBMITTAL, THE STREET LIGHT DESIGNER SHALL EXAMINE ALL GENERAL CONSTRUCTION DRAWINGS AND VISIT THE CONSTRUCTION SITE TO BECOME FAMILIAR WITH EXISTING CONDITIONS UNDER WHICH HE WILL OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THE CONTRACT.
- THE STREET LIGHT DESIGNER SHOULD VERIFY DIMENSIONS AT THE SITE AND IMMEDIATELY REPORT DIFFERENCES TO THE DEVELOPER'S CONSTRUCTION MANAGER AND NOT PROCEED WITH WORK UNTIL THE CONSTRUCTION MANAGER RENDERS A DECISION.
- THE ELECTRICAL CONTRACTOR SHALL COMPLY WITH ALL LICENSING REQUIREMENTS SET FORTH BY THE STATE REGISTRAR OF CONTRACTORS OFFICE TO PERFORM WORK RELATING TO STREET LIGHT INSTALLATION IN CITY OF PHOENIX RIGHT-OF-WAY.
- ONE DRY UTILITY PERMIT FOR EACH CITY OF PHOENIX STREET LIGHT PROJECT SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- LIGHT POLES SHALL BE INSTALLED PLUMB, BE ADJUSTED TO PROVIDE PROPER ALIGNMENT TO THE ROADWAY BEING LIGHTED AND BE PROPERLY GROUNDED WHEN THE INSTALLATION IS COMPLETED.
- STREET LIGHTS ARE INSPECTED BY THE CITY OF PHOENIX STREETLIGHTING INSPECTOR. UTILITY COMPANY TO PROVIDE POLE NUMBER. THE CONTRACTOR SHALL INSTALL THE NUMBER 7'-0" A.F.G. AND STACK NUMBERS VERTICAL GOING UP. POLE NUMBER TO FACE THE STREETSIDE. THIS MUST BE DONE PRIOR TO ACCEPTANCE AND ENERGIZATION.
- LUMINAIRES SHALL BE INSTALLED LEVEL AND INCLUDE A LAMP AND PHOTOCCELL. THE LUMINAIRES SHALL BE FREE OF DUST, DIRT OR ANYTHING THAT WOULD IMPAIR THE OUTPUT OF THE LIGHT.
- LUMINAIRES FURNISHED WITH MULTI-TAP DRIVERS SHALL BE REWIRED OR RECONNECTED TO MATCH THE VOLTAGE SUPPLIED BY THE ELECTRIC UTILITY COMPANY.
- POLE SHALL BE SET PLUMB IN TWO DIRECTIONS, NINETY (90) DEGREES APART.
- SURPLUS EXCAVATION SHALL BE DISPOSED OF BY THE CONTRACTOR.

STREET LIGHTING GENERAL NOTES (CONTNUED)

- WIRING SHALL BE INSTALLED PER SERVING UTILITY COMPANY STANDARDS. CONDUIT SHALL BE INSTALLED AT THE DEPTH SPECIFIED ON THEIR PLANS.
- CONDUIT MUST BE LISTED AND LABELED AND SUITABLE FOR UNDERGROUND USE.
- CONNECTIONS SHALL BE PER SERVING UTILITY COMPANY STANDARDS. EACH POLE SHALL HAVE A 8" X 5/8" COPPER CLAD GROUND ROD DRIVEN BENEATH PULL BOX. A #6 BARE COPPER LEAD FROM THE GROUND ROD IN PULL BOX TO LANDING LUG IN STREET LIGHT POLE HAND HOLE IS REQUIRED.
- EXCAVATION FOR PULL BOXES AND MATERIAL SPECIFICATIONS SHALL BE PER SERVING UTILITY COMPANY STANDARDS.
- TRENCH SHALL BE INSTALLED PER SERVING UTILITY COMPANY STANDARDS. THE USE OF A COMMON ELECTRIC UTILITY COMPANY TRENCH IS PERMITTED.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE UTILITY COMPANY FOR COORDINATION OF THE TRENCHING AND THE INSTALLATION OF CONDUIT.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO RESTORE ALL PROPERTY, LANDSCAPING, PAVING AND DRIVEWAYS THAT ARE DISTURBED DURING STREET LIGHT CONSTRUCTION TO THEIR ORIGINAL CONDITION IN CONFORMANCE WITH MAG SPECIFICATION SECTION 107.9.
- IF A FIXTURE SHOULD FAIL, IT SHALL BE IMMEDIATELY REPLACED. THE DEVELOPER SHALL BE RESPONSIBLE FOR FURNISHING ALL PERSONNEL AND EQUIPMENT NECESSARY TO SUCCESSFULLY REPAIR THE FIXTURE.
- THE CONTRACTOR SHALL GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE ENGINEERING MANAGER, AGAINST IMPERFECT WORKMANSHIP, FAILURE, MALFUNCTION OF MATERIALS AND/OR EQUIPMENT DUE TO FAULTY OR IMPERFECT WORKMANSHIP.
- THIS GUARANTEE IS TO BE IN WRITING TO THE CITY AT THE TIME OF ISSUING FINAL ACCEPTANCE. MATERIALS AND WORKMANSHIP FOUND TO BE DEFECTIVE WITHIN THE WARRANTY PERIOD SHALL BE REPLACED WITHOUT COST TO THE CITY.

LED STREETLIGHT NOTES

SPECIAL PEDESTRIAN

- INSTALL ONE 29W LED (3,800 LUMEN) FIXTURE WITH PHOTOELECTRIC CONTROL ON A 30'-6" POLE WITH A 2' MAST ARM PER APS DETAIL AND SPECIFICATIONS. FOUNDATION AND GROUNDING PER STANDARDS AND SPECIFICATIONS. POLE SHALL BE CENTERED 1'-0" BEHIND BACK OF SIDEWALK OR 4'-0" BEHIND BACK OF CURB. INSTALL LUMINAIRE CONDUCTORS (2) #12 AWG (STRAINED) THIN/THIN WITH FUSE HOLDER ON HOT LEG 120/240 CIRCUIT. INSTALL PULL BOX ADJACENT POLE WITH 1" FLEX CONDUIT TO POLE PER APS SPECIFICATIONS AND REQUIREMENTS. ALL WIRING, FUSING, AND GROUNDING PER APS DETAILS AND SPECIFICATIONS.

LOCAL

- INSTALL ONE 37W LED (4,700 LUMEN) FIXTURE WITH PHOTOELECTRIC CONTROL ON A 30'-6" POLE WITH A 6' MAST ARM PER APS DETAIL AND SPECIFICATIONS. FOUNDATION AND GROUNDING PER APS STANDARDS AND SPECIFICATIONS. POLE SHALL BE CENTERED 1'-0" BEHIND BACK OF SIDEWALK OR 4'-0" BEHIND BACK OF CURB. INSTALL LUMINAIRE CONDUCTORS (2) #12 AWG (STRAINED) THIN/THIN WITH FUSE HOLDER ON HOT LEG 120/240 CIRCUIT. INSTALL PULL BOX ADJACENT POLE WITH 1" FLEX CONDUIT TO POLE PER APS SPECIFICATIONS AND REQUIREMENTS. ALL WIRING, FUSING, AND GROUNDING PER APS DETAILS AND SPECIFICATIONS.

COLLECTOR

- INSTALL ONE 68W LED (8,000 LUMEN) FIXTURE WITH PHOTOELECTRIC CONTROL ON A 38'-6" POLE WITH A 6' MAST ARM PER APS DETAIL AND SPECIFICATIONS. FOUNDATION AND GROUNDING PER APS STANDARDS AND SPECIFICATIONS. POLE SHALL BE CENTERED 1'-0" BEHIND BACK OF SIDEWALK OR 4'-0" BEHIND BACK OF CURB. INSTALL LUMINAIRE CONDUCTORS (2) #12 AWG (STRAINED) THIN/THIN WITH FUSE HOLDER ON HOT LEG 120/240 CIRCUIT. INSTALL PULL BOX ADJACENT POLE WITH 1" FLEX CONDUIT TO POLE PER APS SPECIFICATIONS AND REQUIREMENTS. ALL WIRING, FUSING, AND GROUNDING PER DETAILS AND SPECIFICATIONS.

MAJOR

- INSTALL ONE 87W LED (9,700 LUMEN) FIXTURE WITH PHOTOELECTRIC CONTROL ON A 38'-6" POLE WITH A 6' MAST ARM PER APS DETAIL AND SPECIFICATIONS. FOUNDATION AND GROUNDING PER APS STANDARDS AND SPECIFICATIONS. POLE SHALL BE CENTERED 1'-0" BEHIND BACK OF SIDEWALK OR 4'-0" BEHIND BACK OF CURB. INSTALL LUMINAIRE CONDUCTORS (2) #12 AWG (STRAINED) THIN/THIN WITH FUSE HOLDER ON HOT LEG 120/240 CIRCUIT. INSTALL PULL BOX ADJACENT POLE WITH 1" FLEX CONDUIT TO POLE PER APS SPECIFICATIONS AND REQUIREMENTS. ALL WIRING, FUSING, AND GROUNDING PER APS DETAILS AND SPECIFICATIONS.

SPECIAL MAJOR

- INSTALL ONE 140W LED (16,900 LUMEN) FIXTURE WITH PHOTOELECTRIC CONTROL ON A 38'-6" POLE WITH A 6' MAST ARM PER APS DETAIL AND SPECIFICATIONS. FOUNDATION AND GROUNDING PER APS STANDARDS AND SPECIFICATIONS. POLE SHALL BE CENTERED 1'-0" BEHIND BACK OF SIDEWALK OR 4'-0" BEHIND BACK OF CURB. INSTALL LUMINAIRE CONDUCTORS (2) #12 AWG (STRAINED) THIN/THIN WITH FUSE HOLDER ON HOT LEG 120/240 CIRCUIT. INSTALL PULL BOX ADJACENT POLE WITH 1" FLEX CONDUIT TO POLE PER APS SPECIFICATIONS AND REQUIREMENTS. ALL WIRING, FUSING, AND GROUNDING PER APS DETAILS AND SPECIFICATIONS.

ARIZONA PUBLIC SERVICE (APS) NOTES

- CONTRACTOR SHALL CONTACT APS INSPECTOR IDENTIFIED ON THE APS CONSTRUCTION DRAWING FOR PRE-CONSTRUCTION MEETING PRIOR TO ANY EXCAVATION.
- CONTRACTOR TO SUPPLY ALL TRENCH AND CONDUIT, PER APS REQUIREMENTS, UNLESS OTHERWISE NOTED.
- GRADE STAKE WILL BE SET WITHIN 2' OF J-BOX LOCATION.
- CONTRACTOR WILL COORDINATE WITH APS AND CITY OF PHOENIX FOR DE-ENERGIZING OF STREETLIGHT CONDUCTOR.
- GROUND ROD TO BE PROVIDED AND INSTALLED BY CONTRACTOR OUTSIDE OF APS J-BOX AT EACH STREETLIGHT LOCATION.
- IF THE CONTRACTOR INSTALLS THE POLE, THE BARE #6 COPPER GROUND WIRE SHALL BE CONNECTED FROM THE GROUND ROD IN THE APS J-BOX TO THE GROUND CONNECTION IN THE HAND-HOLE..
- ALL TRENCH AND CONDUIT TO BE INSPECTED BY APS. DO NOT BACKFILL UNTIL INSPECTED.
- APS CONSTRUCTION PRINT MUST BE USED AS A TRENCHING REFERENCE. TRENCHING VARIATIONS MUST HAVE WRITTEN APS CSR APPROVAL. FOLLOW DETAILS FOR CONSTRUCTION. VARIATIONS IN TRENCH ROUTE MAY RESULT IN A REDESIGN FEE.
- CONTACT APS FOR ALL TRENCH AND CONDUIT SPECIFICATIONS AND REQUIREMENTS.
- CONTRACTOR IS RESPONSIBLE FOR INTEGRITY OF ALL CONDUITS UNTIL APS HAS INSTALLED CONDUCTORS.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING REQUIRED VARIANCES PRIOR TO SUBMITTING CIP DRAWINGS TO THE UTILITIES.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING VERTICAL AND HORIZONTAL CLEARANCES TO EXISTING OVERHEAD LINES AND POLES WHEN PLACING NEW STREETLIGHTS.

GRAY ROADWAY LED STREETLIGHT POLE AND LUMINAIRE SPECIFICATIONS

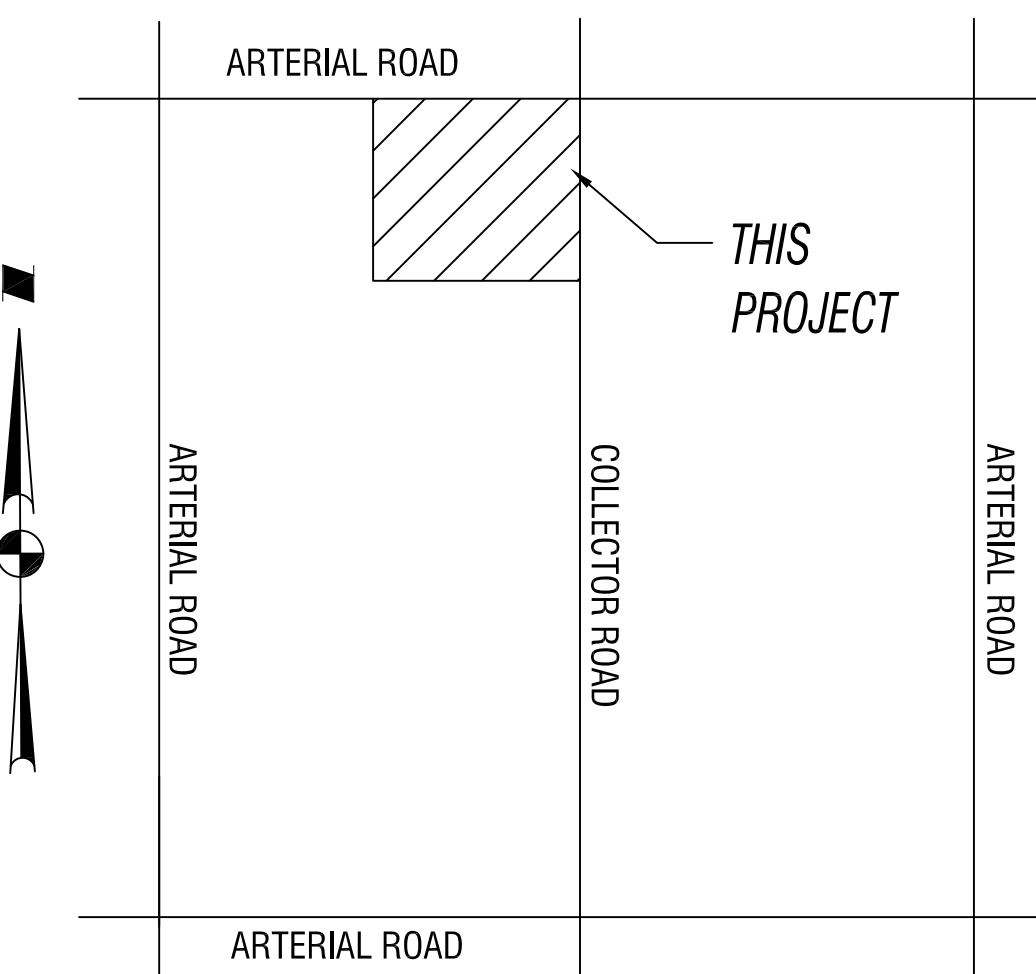
ITEM NUMBER	TYPE OF STREET	QUANTITY	MOUNTING HEIGHT	POLE LENGTH	MAST ARM	APPROVED POLE & ARM MANUFACTURERS	LUMEN	TYPE	WATTAGE	VOLTAGE	LUMINAIRE STYLE	APPROVED LUMINAIRE MANUFACTURERS
1	LOCAL	0	25'-11"	30'-6"	6'	CEM-TEC MS-1936 VALMONT CB09158 SOUTHWEST FABRICATION, LLC 306RDB	4,700	LED	37 W	120/208/240/277 AS POWER CO. REQUIRES	COBRAHEAD	GENERAL ELECTRIC ERL1005A527AGRAY
2	COLLECTOR	0	32'-11"	38'-6"	6'	CEM-TEC MS-1944 VALMONT CB09159 SOUTHWEST FABRICATION, LLC 386RDB	8,000	LED	68 W	120/208/240/277 AS POWER CO. REQUIRES	COBRAHEAD	GENERAL ELECTRIC ERL1009C527AGRAY
3	ARTERIAL	0	34'-3"	38'-6"	6'	CEM-TEC MS-1944 VALMONT CB09159 SOUTHWEST FABRICATION, LLC 386RDB	9,700	LED	87 W	120/208/240/277 AS POWER CO. REQUIRES	COBRAHEAD	GENERAL ELECTRIC ERL1010C527AGRAY

ALL CATALOG NUMBERS SHALL BE CONFIRMED WITH POWER COMPANY PRIOR TO ORDERING

DARK BRONZE LED STREETLIGHT POLE AND LUMINAIRE SPECIFICATIONS

ITEM NUMBER	TYPE OF STREET	QUANTITY	MOUNTING HEIGHT	POLE LENGTH	MAST ARM	APPROVED POLE & ARM MANUFACTURERS	LUMEN	TYPE	WATTAGE	VOLTAGE	LUMINAIRE STYLE	APPROVED LUMINAIRE MANUFACTURERS
1	LOCAL	0	25'-11"	30'-6"	2'	CEM-TEC MS-1936 VALMONT CB09158 SOUTHWEST FABRICATION, LLC 306RDB	4,700	LED	37 W	120/208/240/277 AS POWER CO. REQUIRES	DKBZ LED	GENERAL ELECTRIC ERL1005A527ADKBZ
2	COLLECTOR	0	32'-11"	38'-6"	2'	CEM-TEC MS-1944 VALMONT CB09159 SOUTHWEST FABRICATION, LLC 386RDB	8,000	LED	68 W	120/208/240/277 AS POWER CO. REQUIRES	DKBZ LED	GENERAL ELECTRIC ERL1009C527ADKBZ
3	ARTERIAL	0	34'-3"	38'-6"	2'	CEM-TEC MS-1944 VALMONT CB09159 SOUTHWEST FABRICATION, LLC 386RDB	9,700	LED	87 W	120/208/240/277 AS POWER CO. REQUIRES	DKBZ LED	GENERAL ELECTRIC ERL1010C527ADKBZ

ALL CATALOG NUMBERS SHALL BE CONFIRMED WITH POWER COMPANY PRIOR TO ORDERING



VICINITY MAP
N.T.S.

LEGEND

- NEW LED COBRAHEAD LUMINAIRE STAND ALONE STREET LIGHT POLE
- EXISTING STREET LIGHT MOUNTED ON POWER POLE
- EXISTING STREET LIGHT POLE

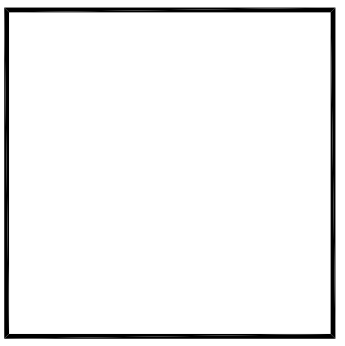


PER CITY OF PHOENIX ORDINANCE G-4396, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.

DARK BRONZE STREET LIGHTS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

PROJECT #:	FILE NO:
DR:	SHEET NO:
DES:	DATE:
CK:	TOTAL SHEETS
DATE:	OS. #:
SCALE: NTS	--

	F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
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DR: _____ DES: _____ CK: _____ DATE: _____					

STREETLIGHT PLAN SHEET LOCATION

1"=40'-0"

PER CITY OF PHOENIX ORDINANCE G-4396, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.

DARK BRONZE STREET LIGHTS

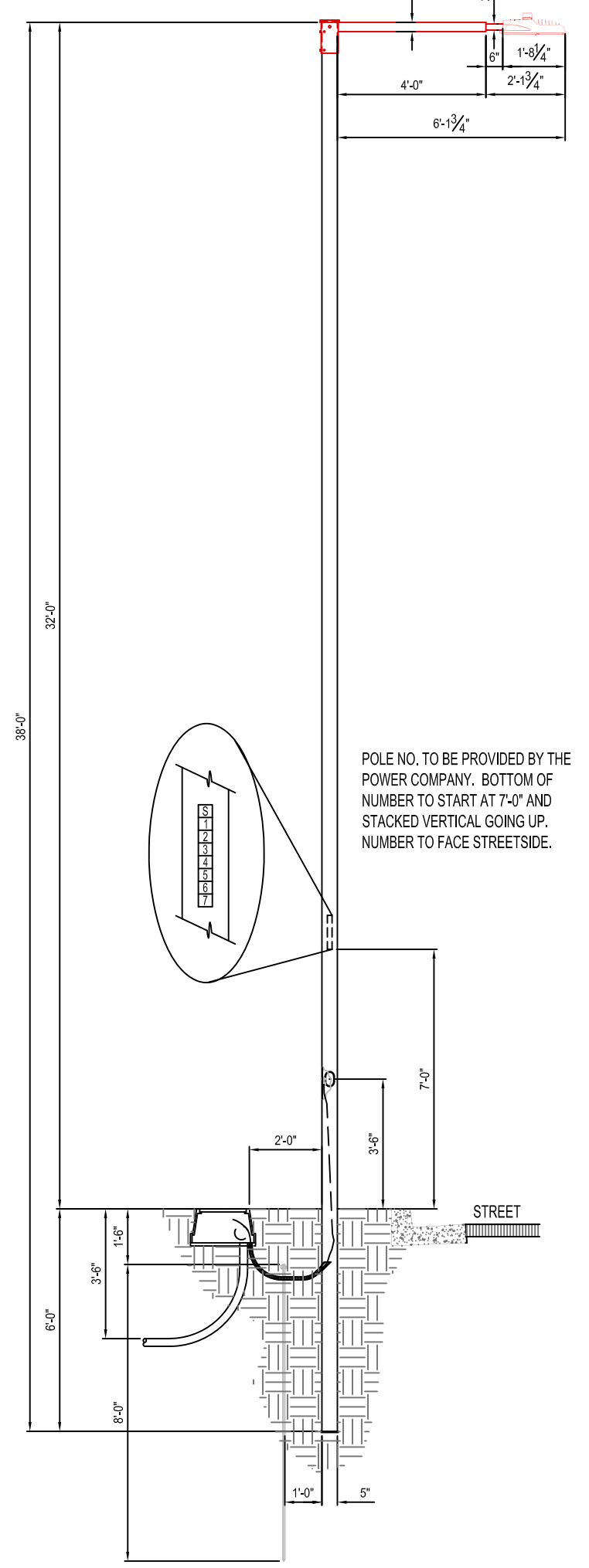
 **CITY OF PHOENIX, ARIZONA**
STREET TRANSPORTATION DEPARTMENT



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*** DOWNTOWN STANDARD, NORTH OF THE C.A.P., LIGHT RAIL OR AS SPECIAL REQUEST.**



1944.---

19 = 19" - 0" POLE SNG SIMPLEX
 30 = 30" - 0" POLE SNG SIMPLEX
 38 = 38" - 0" POLE SNG SIMPLEX
 38X = 38" - 0" POLE DBL SIMPLEX
 ** SEE SPEC. NOTE

- CONSTRUCTION NOTES:**
- ADJUST PHOTO EYE TO FACE NORTH
 - A GROUND ROD IS PROVIDED WITH THE JUNCTION BOX. WHERE A GROUND ROD CANNOT BE DRIVEN ALTERNATE GROUND SHALL BE USED. SEE 2449 THRU 2460 FOR APPROVED ALTERNATES.
 - THE 40'-6" SELF-SUPPORTING STEEL POLE AND ONE OF THE 38'-0", HAVE TWO, MANUFACTURED INSTALLED SIMPLEX FITTINGS 180 APART FOR DOUBLE ARMS. SEE CHART.
 - APN 33701054 IS A POLE BAND ADAPTOR WITH A SIMPLEX FITTING. ADAPTOR IS REQUIRED FOR THE SECOND ARM IN DOUBLE ARM APPLICATIONS ON EXISTING PLES IN THE FIELD WITHOUT TWO SIMPLEX FITTINGS. SEE 8198 FOR AVAILABLE SIZES.
 - POLES THAT HAVE MORE THAN ONE LUMINAIRE REQUIRE A SEPARATE CIRCUIT WITH FUSING FROM THE J-BOX TO EACH LUMINAIRE.
- ENGINEERING NOTES:**
- THE LIGHT CODE PROVIDES TWO SAME WATTAGE LUMINAIRES WHEN DOUBLE ARM ARE SPECIFIED.
 - SEE SPEC 8130 - 8131 FOR IN-LINE FUSE FOR UNDERGROUND FEEDS.
 - SEE 8100 THRU 8107 FOR OVERHEAD ATTACHMENTS.

LIGHT CODE	COLOR	APN	TYPE	WATTS	MULTIVOLT	INITIAL LUMENS	PHOTOMETRIC CURVE
RL50		00128251		31	120/208/240/277 DRIVER	3,800	454669
RL52	DARK BRONZE	00126804	LED	39	120/208/240/277 DRIVER	4,700	454659
RL53		00126805		71	120/208/240/277 DRIVER	7,600	454677
RL54		00126806		97	120/208/240/277 DRIVER	9,250	454688
RL56		00128365		149	120/208/240/277 DRIVER	19,000	454942

POLE TYPE	POLE CODE	POLE LENGTH	POLE BURY DEPTH	POLE ABOVE GROUND	POLE BUTT DIAMETER		LUMINAIRE HEIGHT ABOVE GROUND ON ARM			
					STEP	TAPER	20" X 8"	3" X 8"	8" X 8"	
LOCAL	1944.30	30' - 6"	5' - 6"	25' - 0"	5-9/16"	7-5/16"	460	25' - 11"	27' - 3"	-
COLLECTOR	1944.38	38' - 6"	6' - 6"	32' - 0"	6-5/8"	9-3/4"	640	32' - 11"	34' - 3"	39' - 3"
ARTERIAL	1944.38X	38' - 6"	6' - 6"	32' - 0"	6-5/8"	9-3/4"	640	32' - 11"	34' - 3"	39' - 3"

**FOR NON-STANDARD POLES, CONTACT THE STREET TRANSPORTATION STREETLIGHTING SECTION FOR INFORMATION.

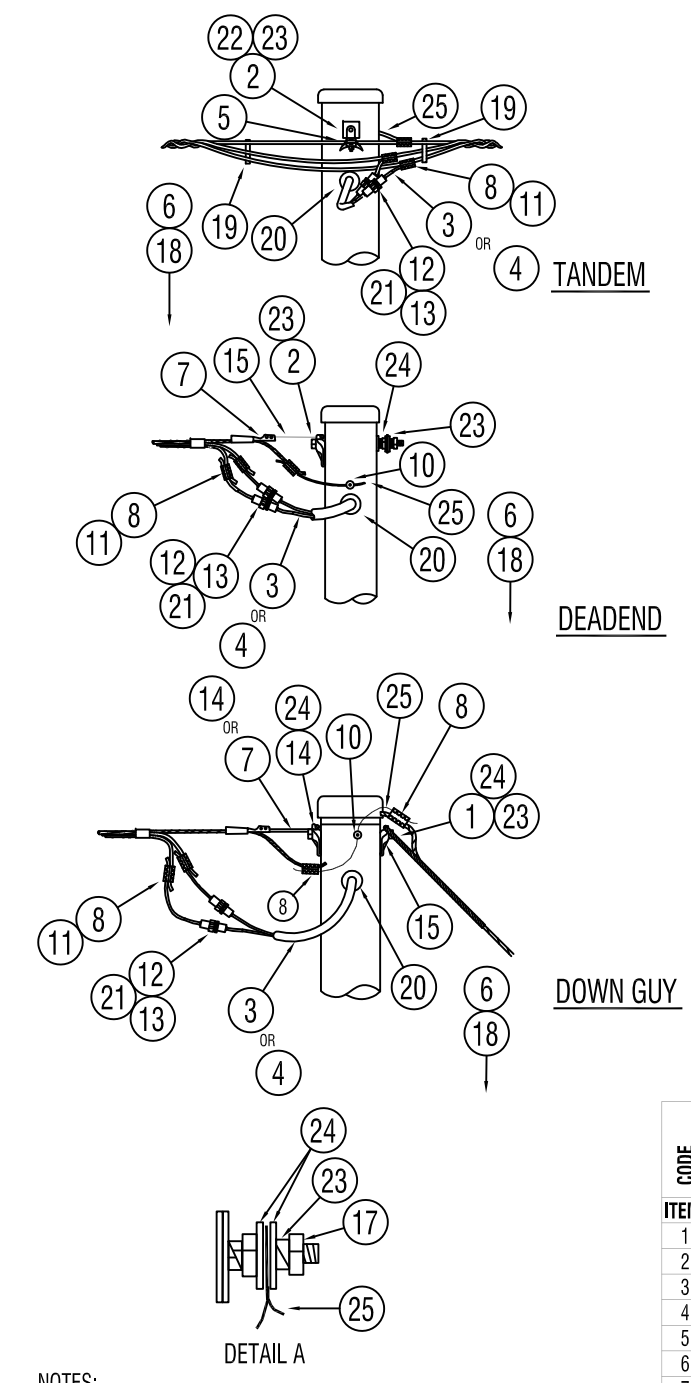
- ELECTRICAL REQUIREMENTS FOR NEW POLE INSTALLATION**
- JUNCTION BOXES SHALL MEET UTILITY COMPANY STANDARDS.
 - CONDUIT, CONDUCTORS, AND FUSE HOLDERS SHALL BE LISTED AND LABELED FOR USE IN A WET LOCATION WHEN USED IN A JUNCTION BOX. NEC300.5(B), 310.8(C)
 - IN-LINE FUSE HOLDER USED IN HAND HOLE OR SERVICE DROP SHALL BE CONSIDERED AS DISCONNECTING MEANS. FUSE HOLDERS TO BE RATED AT 22,000 AIC MINIMUM. NEC 240.40
 - ELECTRICAL CONNECTIONS-CONDUCTORS OF DISSIMILAR METALS SHALL NOT BE INTERMIXED IN A TERMINAL OR SPlicing CONNECTOR WHERE PHYSICAL CONTACT OCCURS BETWEEN DISSIMILAR CONDUCTORS. (COPPER, ALUMINUM) UNLESS THE DEVICE IS IDENTIFIED FOR THE PURPOSE AND CONDITIONS OF USE. NEC 110.14
 - ELECTRICAL CONNECTIONS OR SPLICES IN AN UNDERGROUND INSTALLATION SHALL BE APPROVED FOR WET LOCATIONS. (NEC 300.5)
 - NON-CURRENT CARRYING CONDUCTIVE MATERIALS ENCLOSING ELECTRICAL CONDUCTORS OR EQUIPMENT, OR FORMING PART OF SUCH EQUIPMENT, SHALL BE CONNECTED TO EARTH IN A MANNER THAT WILL LIMIT THE VOLTAGE IMPOSED BY LIGHTNING OR UNINTENTIONAL VOLTAGE DUE TO SHORT CIRCUITS AND LIMIT THE VOLTAGE TO GROUND ON THESE MATERIALS. NEC 250.4(B) (GROUND RODS)
 - AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED FROM THE GROUND LUG IN THE HAND-HOLE TO THE LUMINAIRE WITH THE CURRENT CARRYING CONDUCTORS. NEC 410.30(B)(3).
 - CONNECTION TO THE GROUND ROD AND THE GROUNDING ELECTRODE SHALL BE LISTED AND LABELED FOR USE. NEC 250.8
 - CONNECT #6 BARE COPPER WIRE FROM THE GROUND ROD ADJACENT TO THE POLE OR IN JUNCTION BOX TO THE GROUND LUG IN THE POLE.

- CONSTRUCTION NOTES:**
- ADJUST PHOTO EYE TO FACE NORTH
 - A GROUND ROD IS PROVIDED WITH THE JUNCTION BOX. WHERE A GROUND ROD CANNOT BE DRIVEN ALTERNATE GROUND SHALL BE USED. SEE 2449THRU 2460 FOR APPROVED ALTERNATES.
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 - SEE SPEC 8130 - 8131 FOR IN-LINE FUSE FOR UNDERGROUND FEEDS.
 - SEE 8100 THRU 8107 FOR OVERHEAD ATTACHMENTS.

20 YEAR PHOTOCELL REQUIREMENTS

APN# 00073241 CONTROL PHOTO MULTI BR-20 CONTROL, PHOTO-ELECTRIC, BROWN, 20YEAR FAIL OFF, 120/208/240/277 MULTI-VOLT, SILICON, SOLID STATE, 2.40 TO 3.60 FC ON 1.2 TO 2.4 FC OFF, 60 HERTZ, 320 JOULE MOV, INVERSE ON/OFF RATIO .6:1 +/- .1, FAIL OFF, THREE PIN NEMA TWISTLOCK, 20 YEAR LIFE, 8483-SIDE SELC, MODEL #8483F2MABR

WATT	LUMEN	DESCRIPTION	APN	MODEL#
31W	3,800	SCALABLE ROADWAY DE LED DK82 Pedestrian LUMINAIRE 31WATT, 2700K, 3,800 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, DARK BRONZE, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.41 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	128251	ERL1004A527ADKBZ
39W	4,700	SCALABLE ROADWAY DE LED DK82 Local Street LUMINAIRE 39WATT, 2700K, 4,700 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, DARK BRONZE, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.41 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	126804	ERL1005A527ADKBZ
71W	7,600	SCALABLE ROADWAY DE LED DK82 Collector Street LUMINAIRE 71WATT, 2700K, 7,600 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, DARK BRONZE, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.41 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	126805	ERL1009C527ADKBZ
97W	9,250	SCALABLE ROADWAY DE LED DK82 Major Roadway LUMINAIRE 97WATT, 2700K, 9,250 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, DARK BRONZE, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.41 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	126806	ERL1010C527ADKBZ
149W	19,000	SCALABLE ROADWAY DE LED DK82 Special Major Roadway LUMINAIRE 149WATT, 2700K, 19,000 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, DARK BRONZE, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.41 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	128365	ERL2019C52DK8Z

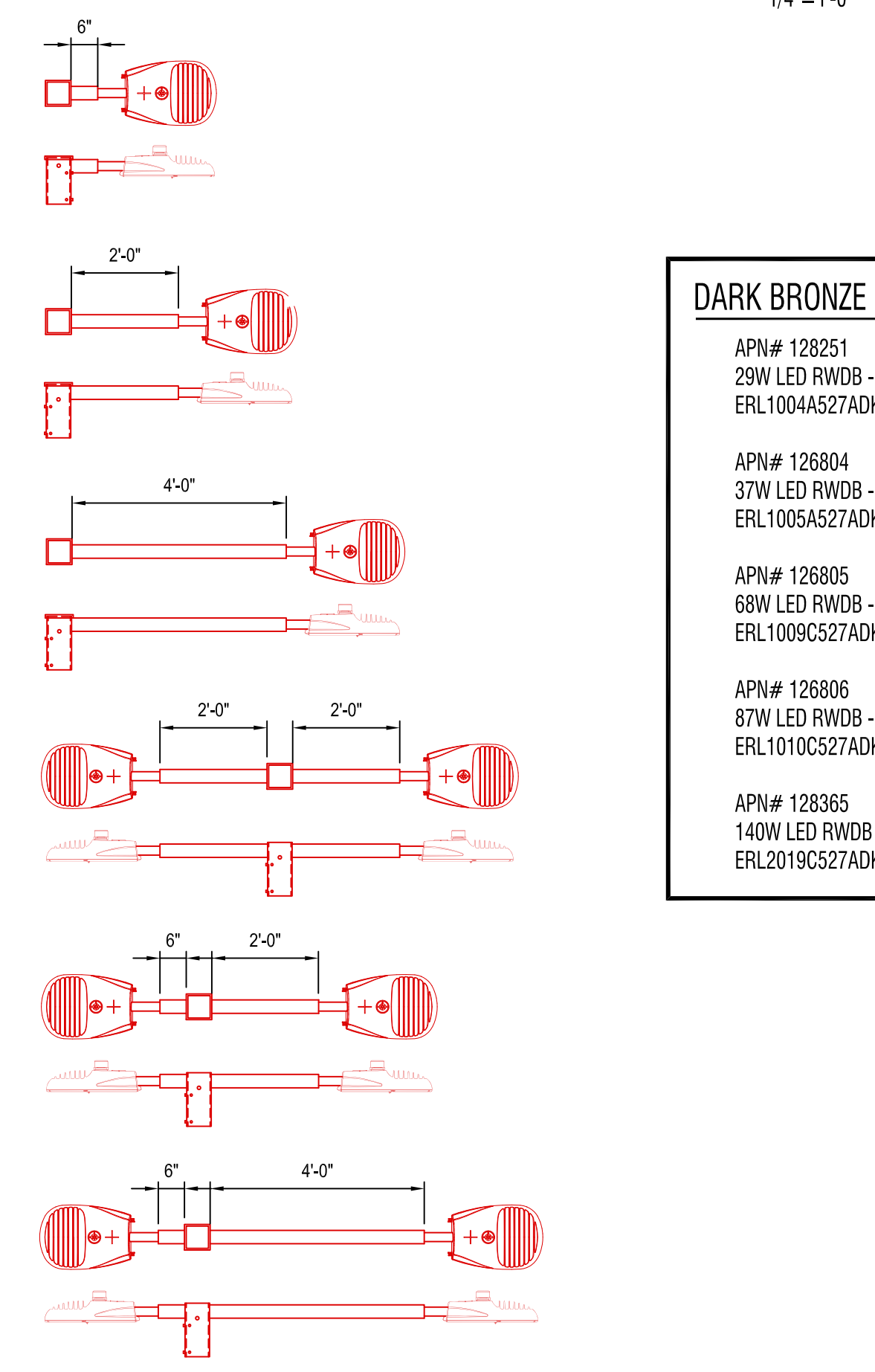


- 8100.--- TWO WIRE 120V, 277V TANGENT
- 8101.--- THREE WIRE 208V, 240V TANGENT
- IF APPLICABLE:
DE = DUSK-TO-DAWN
WIRE CODE
- 8102.--- TWO WIRE 120V, 277V DEADEND
- 8103.--- THREE WIRE 208V, 240V DEADEND
- 8106.--- TWO WIRE 120V, 277V DEADEND WITH GUY HOOK
- 8107.--- THREE WIRE 208V, 240V DEADEND WITH GUY HOOK

ITEM	QTY	DESCRIPTION	APN
1	-	BOLT GALV MACH 5/8" X 10"	33001549
2	1	BOLT GALV MACH 5/8" X 8"	33001547
3	10	CABLE 2/C #14CU UF	31102132
4	10	CABLE 3/C #14CU UF	31102135
5	1	COVER D DIE INSULATING	33002502
6	1	CLAMP ANGLE 1/2 TO 3/4	33002506
7	1	CLAMP GROUND ROD 5/8"	33002508
8	2	CLAMP WEDGE FELX 4-DAL	33002772
9	-	CONN CU *C - SEE 2555	
10	1	CONN AL PG - SEE 2250	
11	1	CONN POST 1/2" SS #6-1/0	00095704
12	1	COVER D DIE INSULATING	33001192
13	2	FUSE CARTRIDGE 15A	72602410
14	2	FUSE HOLDERS INLINE 600V	00097502
15	-	GRIP DE PREF - SEE2135	
16	1	HOOK GUY - MED DUTY 5/8"	33003831
17	1	NUT INSERT RINWUT	00055552
18	1	NUT SO GALV 5/8"	33004176
19	1	ROD COPPER/CLAD GRD 5/8" X 8"	33004805
20	1	SPACER MULTIPLE CABLE	33006510
21	1	STOPPER BUS AND DUST	33008665
22	1	TUBING SHRINKABLE 1/4"	71662000
23	1	WASHER GALV CU 3/32X1/4"	33007126
24	1	WASHER GALV CU 3/8 X 5/8"	33007154
25	2	WASHER GALV RD 5/8"	33007165
26	2	WIRE BARE #6 SOLID CU	33007580

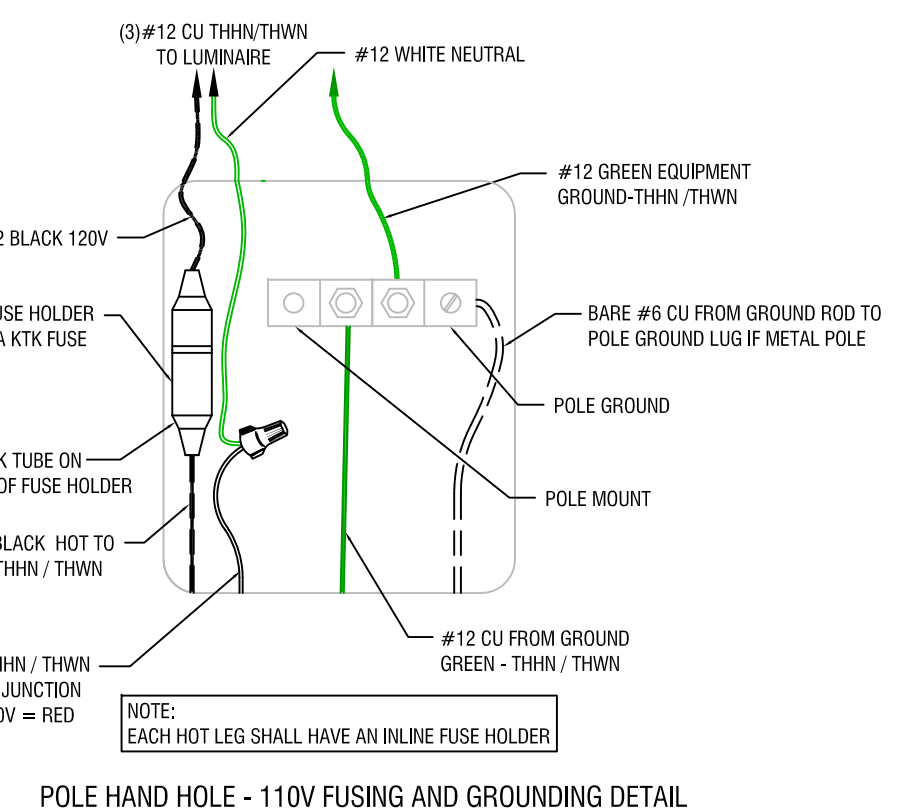
- NOTES:**
- STEEL POLES AND ALL MAST ARMS MUST BE GROUNDED.
 - OVERHEAD ATTACHMENTS MUST BE GROUNDED TO THE STREET LIGHT POLE. A 1/4" HOLE HAS BEEN ADDED 6" BELOW TOP OF STREET LIGHT POLE TO INSTALL A GROUNDING INSERT APN 00055552. TOOL TO INSTALL RINWUT IS APH 00032379. SEE STANDARD 2408. WHERE RINWUTS ARE NOT AVAILABLE GROUND PER DETAIL A.
 - ALL OVERHEAD FED STREET LIGHT POLES SHALL HAVE A GROUND ROD INSTALLED AND A #6 GROUND WIRE BONDED TO THE GROUNDING LUG AT THE BACK OF THE HAND HOLE.
 - THESE CODES PROVIDE THE #14 CU FOR THE MAST ARMS. HARDWARE FOR ATTACHING TANGENT OR DEADEND SECONDARY, AND THE CONNECTORS.

DARK BRONZE SQUARE POLE STANDARDS

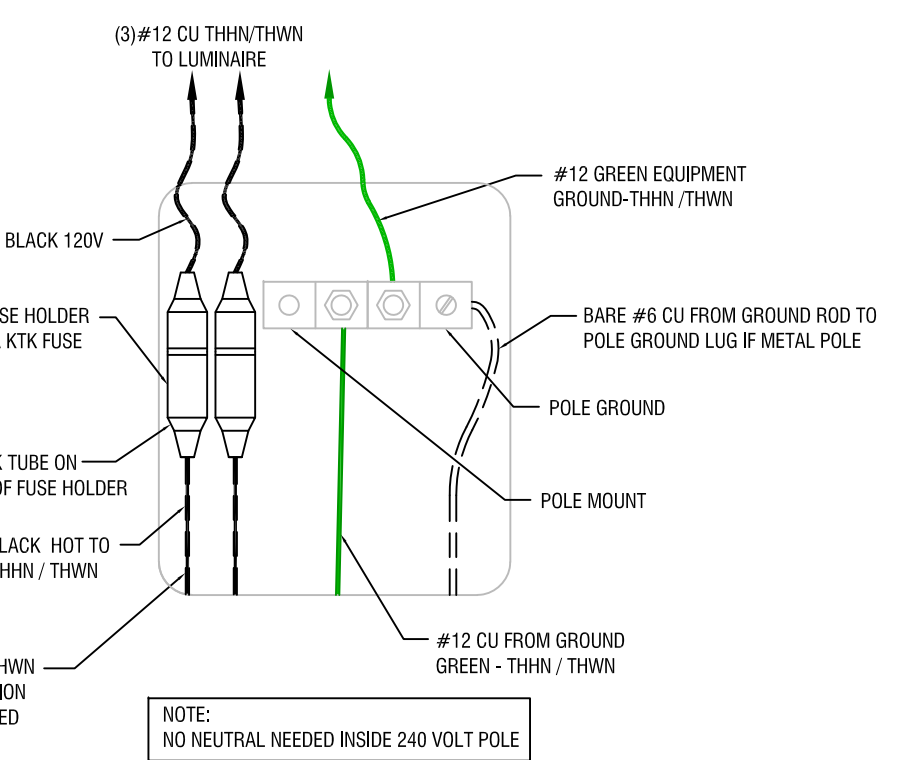


DARK BRONZE LUMINAIRE DESCRIPTIONS

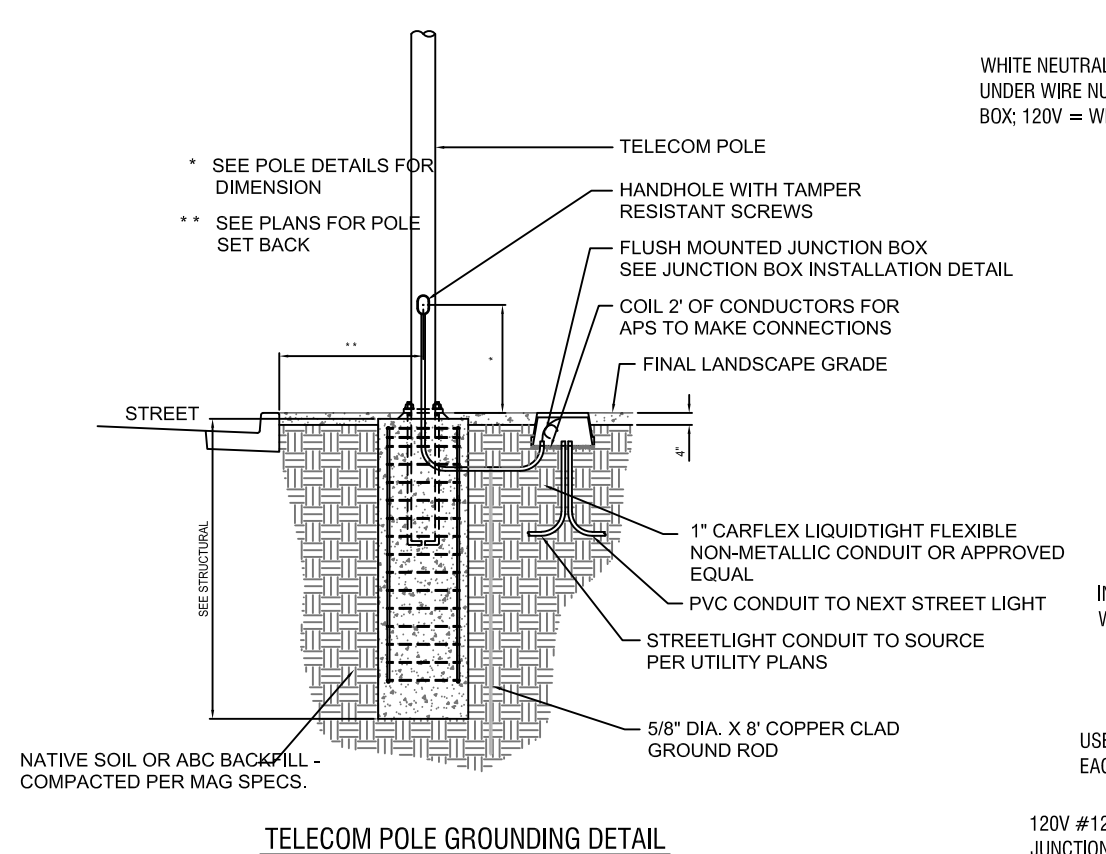
- APN# 128251
29W LED RWDB - PEDESTRIAN
ERL1004A527ADKBZ
- APN# 126804
37W LED RWDB - LOCAL
ERL1005A527ADKBZ
- APN# 126805
68W LED RWDB - COLLECTOR
ERL1009C527ADKBZ
- APN# 126806
87W LED RWDB - MAJOR
ERL1010C527ADKBZ
- APN# 128365
140W LED RWDB - SPECIAL MAJOR
ERL2019C527ADKBZ



POLE HAND HOLE - 110V FUSING AND GROUNDING DETAIL



POLE HAND HOLE - 240V FUSING AND GROUNDING DETAIL



TELECOM POLE GROUNDING DETAIL

POLE GROUNDING DETAIL



POLE GROUNDING DETAIL 3/16" x 1'-0"

CODE	JUNCTION BARS
A	THREE-POSITION MOLDS
B	FIVE-POSITION MOLDS
C	EIGHT-POSITION MOLDS
D	TWO-POSITION SEE PACKS
N	NO CONNECTORS

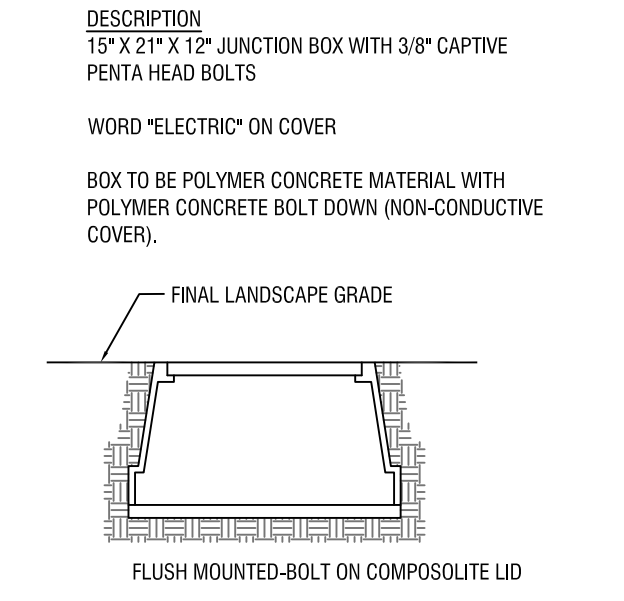
- 8655.--- SEE NOTE 10 AND 11 SMALL BOX
- 8656.--- SEE NOTE 10 AND 12 MEDIUM BOX
- 8657.--- SEE NOTE 13 LARGE BOX
- IF APPLICABLE
G = APS GROUT PROVIDED
- IF APPLICABLE
L = LIGHTS
D = DUSK-TO-DAWN
- SECONDARY WIRE CODES
JUNCTION BARS

- NOTES:**
- CONCRETE GROUT SHALL BE PREMKX APN 71301280 OR EQUIVALENT.
 - PENTA-HEAD BOLTS SHALL BE INSTALLED PRIOR TO ENERGIZING NEW UNDERGROUND SYSTEMS. LOST OR MISPLACED PENTA-HEAD BOLTS SHALL BE REPLACED WITH APN 71402608.
 - BRINGING ALL CABLE/CONDUITS AND GROUND ROD INTO THE SAME END OF THE BOX TO ENABLE CABLES TO BE RAISED AND LOWERED EASILY. CONDUIT SWEEPS SHALL BE POSITIONED AND ALIGNED SO THAT WHEN TWO AND FOUR POSITION JUNCTION BARS ARE SPECIFIED, THE ST. LT., SECONDARY AND SERVICE CONDUITS SHALL BE INSTALLED AS SHOWN IN DETAIL "A". WHEN SIX POSITION JUNCTION BARS ARE SPECIFIED, THE ST. LT., SECONDARY AND SERVICE CONDUITS SHALL BE INSTALLED AS SHOWN IN DETAIL "B".
 - COMPACTION BENEATH AND AROUND JUNCTION BOX SHALL BE A MINIMUM OF 85 PERCENT.
 - REPLACEMENT LID FOR MEDIUM PLASTIC JUNCTION BOX IS 33100981. PENTAHEAD BOLTS AND EMS MARKER MUST BE REUSED FROM OLD LID.
 - ADDITIONAL TRENCH DEPTH IS USUALLY REQUIRED AT ALL EQUIPMENT LOCATIONS. SEE 8648 FOR THE MINIMUM TRENCH DEPTHS AND THE DEGREE OF SLOPE ALLOWED AS THE TRENCH DEPTH CHANGES.
 - ON 277 VOLT STREET LIGHT CIRCUITS, INSTALL *277 VOLT* RED MICARTA TAG (APN 0080780) PROVIDED BY SPEC 8129.
 - TORQUE BOLTS TO 5 FT - LBS (60 IN - LBS).

APS J-BOX DETAIL

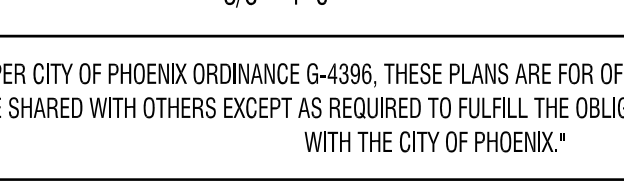


STREET LIGHT POLE CABLE ATTACHMENTS AND GROUNDING DETAIL



SRP APPROVED SUPPLIERS	PART NUMBER
STRONGWELL	PC1118B513 BOX PC1118C504-17/UH0390AA COVER WITH ELECTRIC
ARMORCAST PRODUCTS	A6001429A
CDR SYSTEMS	PA40-1015-12
CARSON & ASSOCIATES	HLW1118-12 BOX HLW1118-PO LID

J-BOX SECTION



DARK BRONZE STREET LIGHTS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

DARK BRONZE SQUARE POLE LUMINAIRES

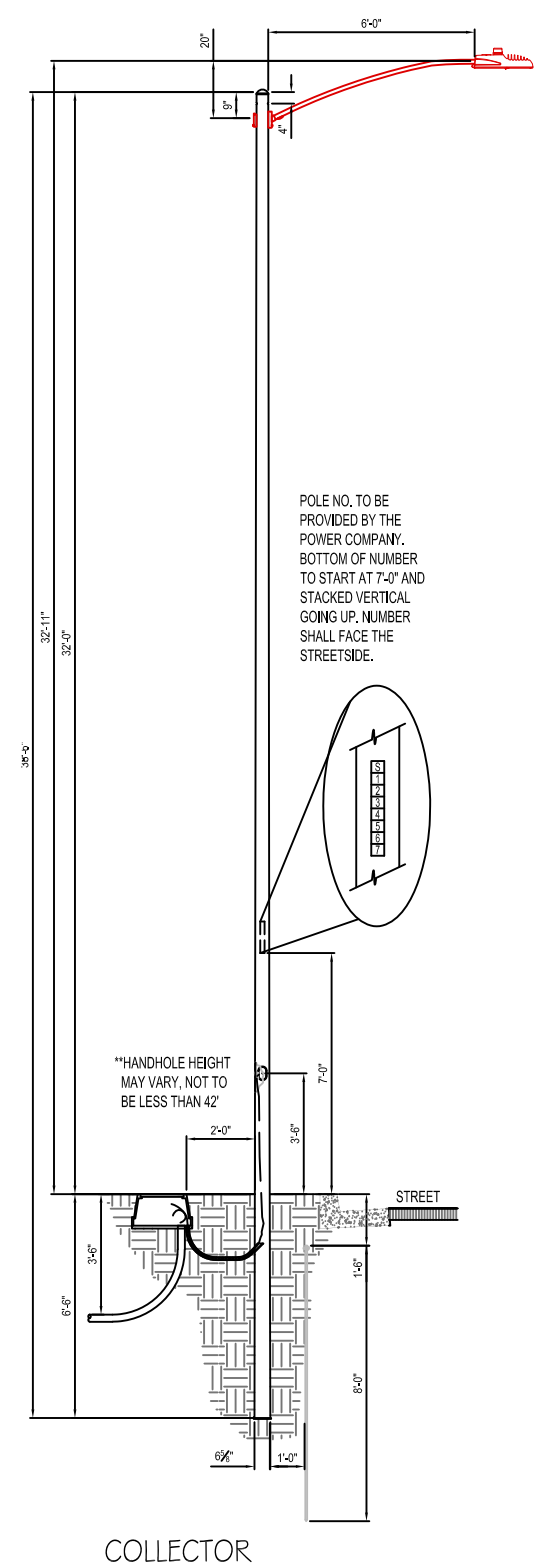


PROJECT #:	FILE NO:
DR:	SHEET NO:
DATE:	TOTAL SHEETS:
SCALE: NTS	OS. #:



F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.			
DR:	DES:	CK:	DATE:	

1944. __



- 19 = 19'-0" POLE SING SIMPLEX
- 30 = 30'-0" POLE SING SIMPLEX
- 38 = 38'-0" POLE SING SIMPLEX
- 38X = 38'-0" POLE DBL SIMPLEX
- ** SEE SPEC. NOTE

CONSTRUCTION NOTES:

- ADJUST PHOTO EYE TO FACE NORTH
- A GROUND ROD IS PROVIDED WITH THE JUNCTION BOX. WHERE A GROUND ROD CANNOT BE DRIVEN ALTERNATE GROUND SHALL BE USED. SEE 2449 THRU 2460 FOR APPROVED ALTERNATES.
- THE 40'-6" SELF-SUPPORTING STEEL POLE AND ONE OF THE 38'-0". HAVE TWO, MANUFACTURED INSTALLED SIMPLEX FITTINGS 180 APART FOR DOUBLE ARMS, SEE CHART.
- APN 33701054 IS A POLE BAND ADAPTOR WITH A SIMPLEX FITTING. ADAPTOR IS REQUIRED FOR THE SECOND ARM IN DOUBLE ARM APPLICATIONS ON EXISTING PLES IN THE FIELD WITHOUT TWO SIMPLEX FITTINGS. SEE 8198 FOR AVAILABLE SIZES.
- POLES THAT HAVE MORE THAN ONE LUMINAIRE REQUIRE A SEPARATE CIRCUIT WITH FUSING FROM THE J-BOX TO EACH LUMINAIRE.

ENGINEERING NOTES:

- THE LIGHT CODE PROVIDES TWO SAME WATTAGE LUMINAIRES WHEN DOUBLE ARM ARE SPECIFIED.
- SEE SPEC 8130 - 8131 FOR IN-LINE FUSE FOR UNDERGROUND FEEDS.
- SEE 8100 THRU 8107 FOR OVERHEAD ATTACHMENTS.

LIGHT CODE	COLOR	APN	TYPE	WATTS	MULTIVOLT	INITIAL LUMENS	PHOTOMETRIC CURVE
CL60		00128329		29	120/208/240/277 DRIVER	3,800	454669
CL61		00128330		37	120/208/240/277 DRIVER	4,700	454659
CL62	GRAY	00128331	LED	68	120/208/240/277 DRIVER	8,000	454677
CL63		00128332		87	120/208/240/277 DRIVER	9,700	454688
CL64		00128364		140	120/208/240/277 DRIVER	16,900	454942

POLE TYPE	POLE CODE	POLE LENGTH	POLE BURY DEPTH	POLE ABOVE GROUND	POLE BUTT DIAMETER	LUMINAIRE HEIGHT ABOVE GROUND ON ARM		
						STEP	TAPER	WEIGHT
LOCAL	1944.30	30'-0"	6'-0"	5'-0"	25'-0"	5-9/16"	7-5/16"	27'-3"
COLLECTOR	1944.38	38'-0"	6'-0"	6'-0"	32'-0"	6-5/8"	9-3/4"	34'-3"
ARTERIAL	1944.38X	38'-0"	6'-0"	6'-0"	32'-0"	6-5/8"	9-3/4"	39'-3"

**FOR NON-STANDARD POLES, CONTACT THE STREET TRANSPORTATION STREETLIGHTING SECTION FOR INFORMATION.

ELECTRICAL REQUIREMENTS FOR NEW POLE INSTALLATION

- JUNCTION BOXES SHALL MEET UTILITY COMPANY STANDARDS.
- CONDUIT, CONDUCTORS, AND FUSE HOLDERS SHALL BE LISTED AND LABELED FOR USE IN A WET LOCATION WHEN USED IN A JUNCTION BOX. NEC300.5(B), 310.8(C)
- IN-LINE FUSE HOLDER USED IN HAND HOLE OR SERVICE DROP SHALL BE CONSIDERED AS DISCONNECTING MEANS. FUSE HOLDERS TO BE RATED AT 22,000 AIC MINIMUM. NEC 240.40
- ELECTRICAL CONNECTIONS-CONDUCTORS OF DISSIMILAR METALS SHALL NOT BE INTERMIXED IN A TERMINAL OR SPLICING CONNECTOR WHERE PHYSICAL CONTACT OCCURS BETWEEN DISSIMILAR CONDUCTORS. (COPPER, ALUMINUM) UNLESS THE DEVICE IS IDENTIFIED FOR THE PURPOSE AND CONDITIONS OF USE. NEC 110.14
- ELECTRICAL CONNECTIONS OR SPLICES IN AN UNDERGROUND INSTALLATION SHALL BE APPROVED FOR WET LOCATIONS. (NEC 300.5)
- NON-CURRENT CARRYING CONDUCTIVE MATERIALS ENCLOSING ELECTRICAL CONDUCTORS OR EQUIPMENT, OR FORMING PART OF SUCH EQUIPMENT, SHALL BE CONNECTED TO EARTH IN A MANNER THAT WILL LIMIT THE VOLTAGE IMPOSED BY LIGHTNING OR UNINTENTIONAL VOLTAGE DUE TO SHORT CIRCUITS AND LIMIT THE VOLTAGE TO GROUND ON THESE MATERIALS. NEC 250.4(B) (GROUND RODS)
- AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED FROM THE GROUND LUG IN THE HAND-HOLE TO THE LUMINAIRE WITH THE CURRENT CARRYING CONDUCTORS. NEC 410.30(B)(3).
- CONNECTION TO THE GROUND ROD AND THE GROUNDING ELECTRODE SHALL BE LISTED AND LABELED FOR USE. NEC 250.8
- CONNECT #6 BARE COPPER WIRE FROM THE GROUND ROD ADJACENT TO THE POLE OR IN JUNCTION BOX TO THE GROUND LUG IN THE POLE.

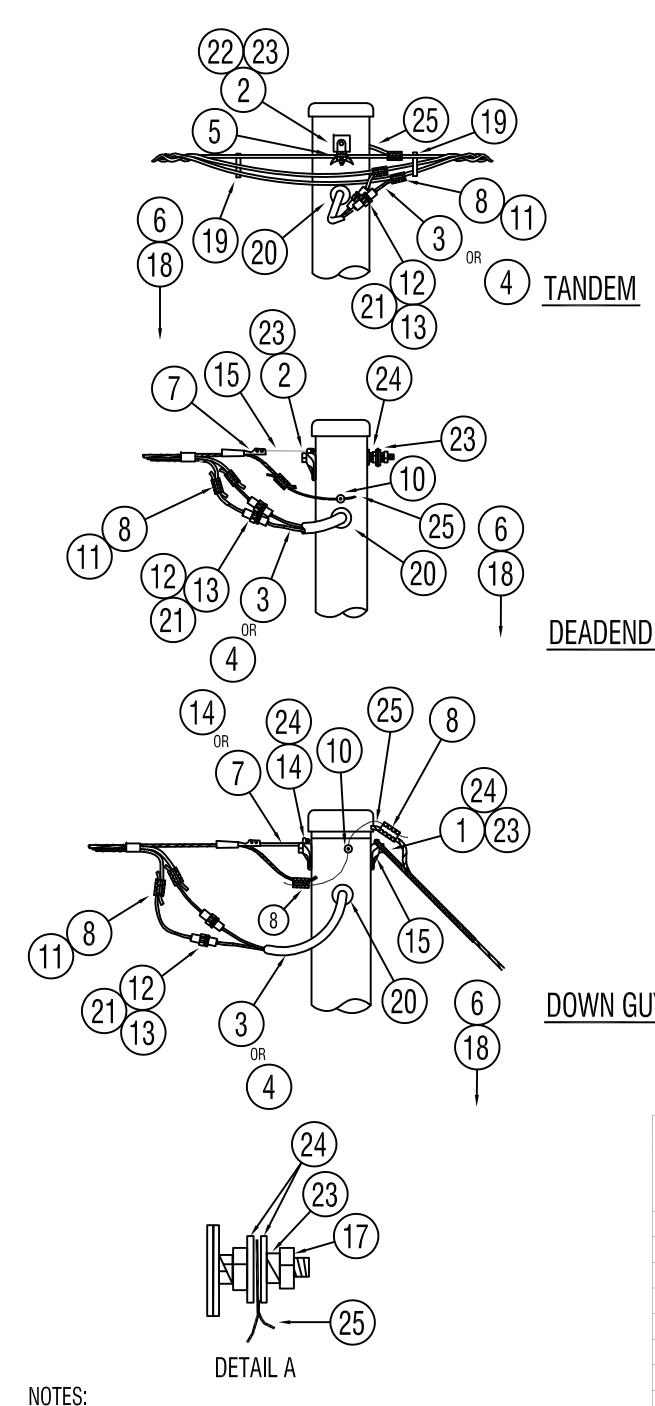
CONSTRUCTION NOTES:

- ADJUST PHOTO EYE TO FACE NORTH
 - A GROUND ROD IS PROVIDED WITH THE JUNCTION BOX. WHERE A GROUND ROD CANNOT BE DRIVEN ALTERNATE GROUND SHALL BE USED. SEE 2449THRU 2460 FOR APPROVED ALTERNATES.
 - THE 40'-6" SELF-SUPPORTING STEEL POLE AND ONE OF THE 38'-0". HAVE TWO, MANUFACTURED INSTALLED SIMPLEX FITTINGS 180 APART FOR DOUBLE ARMS,SEE CHART.
 - APN 33701054 IS A POLE BAND ADAPTOR WITH A SIMPLEX FITTING. ADAPTOR IS REQUIRED FOR THE SECOND ARM IN DOUBLE ARM APPLICATIONS ON EXISTING POLES IN THE FIELD WITHOUT TWO SIMPLEX FITTINGS. SEE 8198 FOR AVAILABLE SIZES.
 - POLES THAT HAVE MORE THAN ONE LUMINAIRE REQUIRE A SEPARATE CIRCUIT WITH FUSING FROM THE J-BOX TO EACH LUMINAIRE.
- ENGINEERING NOTES:**
- THE LIGHT CODE PROVIDES TWO SAME WATTAGE LUMINAIRES WHEN DOUBLE ARM ARE SPECIFIED.
 - SEE SPEC 8130 - 8131 FOR IN-LINE FUSE FOR UNDERGROUND FEEDS.
 - SEE 8100 THRU 8107 FOR OVERHEAD ATTACHMENTS.

20 YEAR PHOTOCELL REQUIREMENTS

APN# 00073241 CONTROL PHOTO MULTI BR-20 CONTROL, PHOTO-ELECTRIC, BROWN, 20YEAR FAIL OFF, 120/208/240/277 MULTI-VOLT, SILICON, SOLID STATE, 2.40 TO 3.60 FC ON 1.2 TO 2.4 FC OFF, 60 HERTZ, 320 JOULE MOV, INVERSE ON/OFF RATIO 6:1 +/- .1, FAIL OFF, THREE PIN NEMA TWISTLOCK, 20 YEAR LIFE, 8483-SIDE SELC, MODEL #848327MABR

WATT	LUMEN	DESCRIPTION	APN	MODEL#
29W	3,800	SCALABLE ROADWAY GE LED GRAY Pedestrian LUMINAIRE 31WATT, 2700K, 3,800 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.17 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	128329	ERL1004A527AGRAY
37W	4,700	SCALABLE ROADWAY GE LED GRAY Local Street LUMINAIRE 39WATT, 2700K, 4,700 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.17 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	128330	ERL1005A527AGRAY
68W	8,000	SCALABLE ROADWAY GE LED GRAY Collector Street LUMINAIRE 71WATT, 2700K, 7,600 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.17 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	128331	ERL1009C527AGRAY
87W	9,700	SCALABLE ROADWAY GE LED GRAY Major Roadway LUMINAIRE 97WATT, 2700K, 9,250 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.17 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	128332	ERL1010C527AGRAY
140W	16,900	SCALABLE ROADWAY GE LED GRAY Special Major Roadway LUMINAIRE 149WATT, 2700K, 19,000 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.17 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	128364	ERL2019C527AGRAY



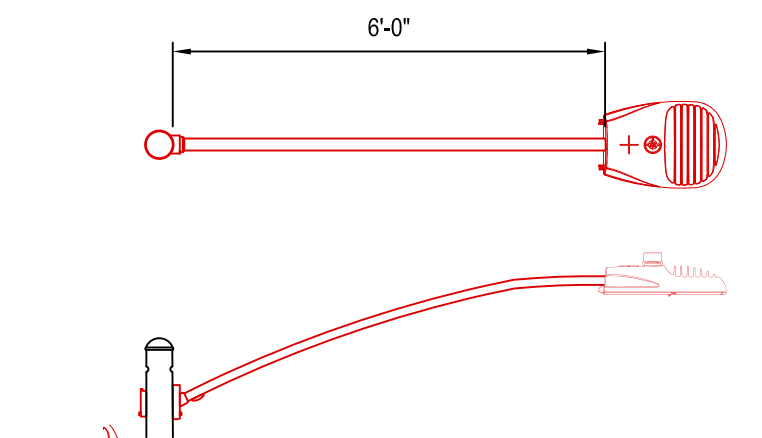
- 8100. __ TWO WIRE 120V, 277V TANGENT
- 8101. __ THREE WIRE 208V, 240V TANGENT
IF APPLICABLE:
DE = DUSK-TO-DAWN
WIRE CODE
- 8102. __ TWO WIRE 120V, 277V DEADEND
- 8103. __ THREE WIRE 208V, 240V
- 8106. __ TWO WIRE 120V, 277V DEADEND WITH GUY HOOK
- 8107. __ THREE WIRE 208V, 240V DEADEND WITH GUY HOOK

ITEM	QTY	DESCRIPTION	APN
1	1	BOLT GALV MACH 5/8" X 10"	33001549
2	1	BOLT GALV MACH 5/8" X 8"	33001547
3	10	CABLE 2/C #14CULIF	31102132
4	10	CABLE 2/C #14CULIF	31102135
5	1	CLAMP ANGLE .162 TO .60	33002502
6	1	CLAMP GROUND ROD 5/8"	33002500
7	1	CLAMP WEDGE FELX 4.0AL	33002772
8	2	CONN AL PG - SEE 2250	
9	1	CONN CU *M - SEE 2255	
10	1	CONN POST 1/2" SS #6-10	00055704
11	2	COVER 0 DIE INSULATING	33003192
12	2	FUSE CARTRIDGE 15A	72602410
13	2	FUSEHOLDER IN-LINE 600V	00067502
14	1	GRP DE PRES - SEE 2135	
15	1	HOOK GUY - MED DUTY 5/8"	33003831
16	1	NUT INSERT RIVNUT	00055552
17	1	NUT SD GALV 5/8"	33004176
18	1	ROD COPPER/CLAD GRD 5/8" X 8"	33004805
19	2	SPACER MULTIPLEX CABLE	33006510
20	1	STOPPER BUSH AND DUST	33006955
21	1	TUBING SHRINKABLE 1/4"	71169200
22	2	WASHER GALV CU 3/32X1/4"	33007126
23	1	WASHER GALV DBL COIL 5/8"	33007154
24	1	WASHER GALV 5/8"	33007165
25	2	WIRE BARE #6 SOLID CU	33007580

- NOTES:**
- STEEL POLES AND ALL MAST ARMS MUST BE GROUNDED.
 - OVERHEAD ATTACHMENTS MUST BE GROUNDED TO THE STREET LIGHT POLE. A 1/2" HOLE HAS BEEN ADDED TO BELOW TOP OF STREET LIGHT POLE TO INSTALL A GROUNDING INSERT APN 00055552. TOOL TO INSTALL RIVNUT IS APH 00053279. SEE STANDARD 2408. WHERE RIVNUTS ARE NOT AVAILABLE, GROUND PER DETAIL A.
 - ALL OVERHEAD RED STREET LIGHT POLES SHALL HAVE A GROUND ROD INSTALLED AND A #6 GROUND WIRE BONDED TO THE GROUNDING LUG AT THE BACK OF THE HAND HOLE.
 - THESE CODES PROVIDE THE #14 CU FOR THE MAST ARMS, HARDWARE FOR ATTACHING TANGENT OR DEADEND SECONDARY, AND THE CONNECTORS.

GRAY ROADWAY POLE STANDARDS

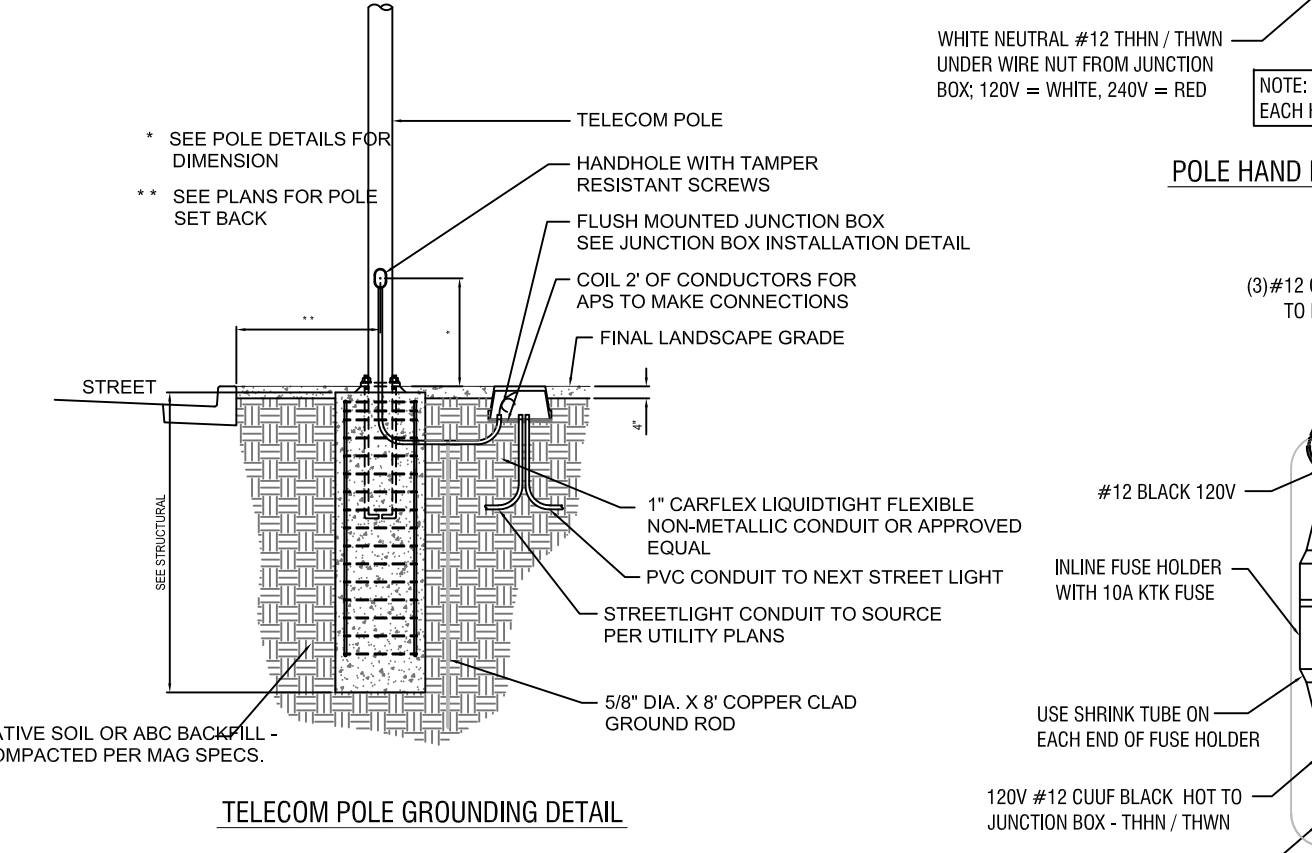
1/4" = 1'-0"



GRAY ROADWAY POLE LUMINAIRES

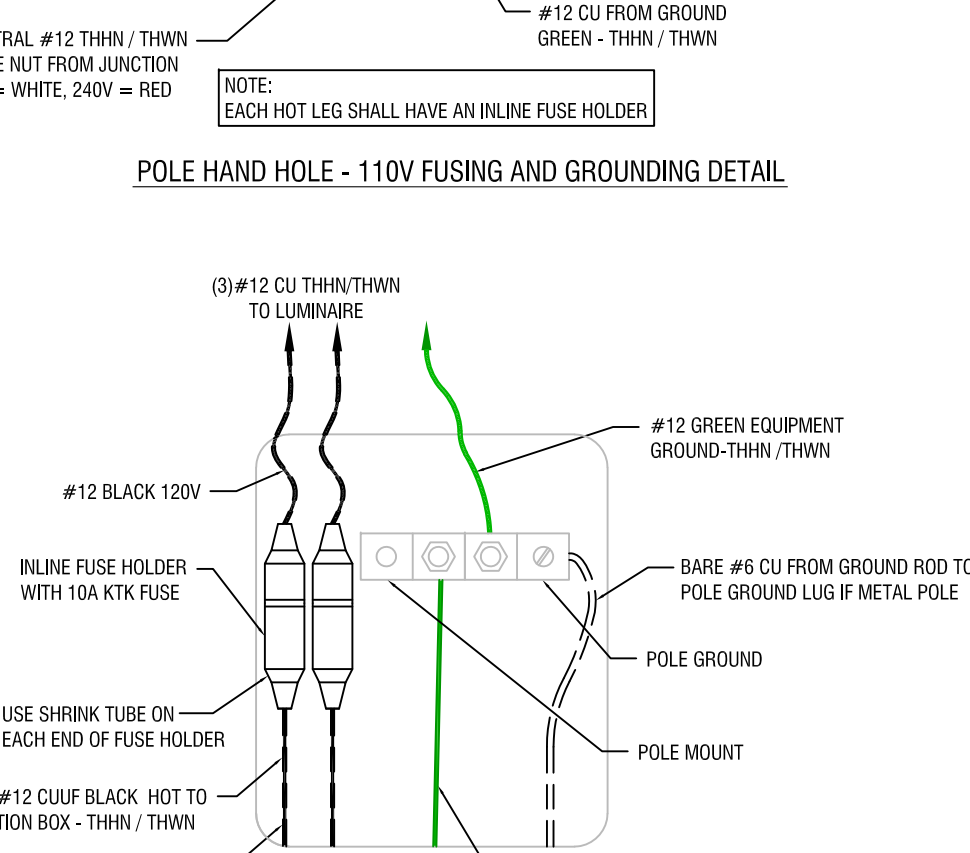
GRAY ROADWAY LUMINAIRE DESCRIPTIONS

- APN# 128329
29W LED RWGR - PEDESTRIAN
ERL1004A527A GRAY
- APN# 128330
37W LED RWGR - LOCAL
ERL1005A527A GRAY
- APN# 128331
68W LED RWGR - COLLECTOR
ERL1009C527A GRAY
- APN# 128332
87W LED RWGR - MAJOR
ERL1010C527A GRAY
- APN# 128364
140W LED RWGR - SPECIAL MAJOR
ERL2019C527A GRAY



POLE GROUNDING DETAIL

3/16" = 1'-0"



POLE HAND HOLE - 240V FUSING AND GROUNDING DETAIL

3/16" = 1'-0"

CODE	JUNCTION BARS
A	THREE-POSITION MOLDS
B	FIVE-POSITION MOLDS
C	EIGHT-POSITION MOLDS
D	TWO-POSITION GEL PACKS
N	NO CONNECTORS

- 8655. __ SEE NOTE 10 AND 11 SMALL BOX
 - 8656. __ SEE NOTE 10 AND 12 MEDIUM BOX
 - 8657. __ SEE NOTE 13 LARGE BOX
- IF APPLICABLE
G = APS GROUT PROVIDED
- IF APPLICABLE
L = LIGHTS
D = DUSK-TO-DAWN
- SECONDARY WIRE CODES
JUNCTION BARS

- NOTES:**
- CONCRETE GROUT SHALL BE PREMIX, APN 71301280 OR EQUIVALENT.
 - PENTA-HEAD BOLTS SHALL BE INSTALLED PRIOR TO ENERGIZING NEW UNDERGROUND SYSTEMS. LOST OR MISPLACED PENTA-HEAD BOLTS SHALL BE REPLACED WITH APN 71402608.
 - BRINGING ALL CABLE/CONDUITS AND GROUND ROD INTO THE SAME END OF THE BOX TO ENABLE CABLES TO BE RAISED AND LOWERED EASILY. CONDUIT SWEEPS SHALL BE POSITIONED AND ALIGNED SO THAT WHEN TWO AND FOUR POSITION JUNCTION BARS ARE SPECIFIED, THE ST. LT., SECONDARY AND SERVICE CONDUITS SHALL BE INSTALLED AS SHOWN IN DETAIL "A". WHEN SIX POSITION JUNCTION BARS ARE SPECIFIED, THE ST. LT., SECONDARY AND SERVICE CONDUITS SHALL BE INSTALLED AS SHOWN IN DETAIL "B".
 - COMPACTION BENEATH AND AROUND JUNCTION BOX SHALL BE A MINIMUM OF 85 PERCENT.
 - REPLACEMENT LID FOR MEDIUM PLASTIC JUNCTION BOX IS 33100981. PENTA-HEAD BOLTS AND EMS MARKER MUST BE REUSED FROM OLD LID.
 - ADDITIONAL TRENCH DEPTH IS USUALLY REQUIRED AT ALL EQUIPMENT LOCATIONS. SEE 8648 FOR THE MINIMUM TRENCH DEPTHS AND THE DEGREE OF SLOPE ALLOWED AS THE TRENCH DEPTH CHANGES.
 - ON 277 VOLT STREET LIGHT CIRCUITS, INSTALL "277 VOLT" RED MICARTA TAG (APN 00080796) PROVIDED BY SPEC 8129.
 - TORQUE BOLTS TO 5 FT - LBS (60 IN - LBS).

APS J-BOX DETAIL

1/4" = 1'-0"

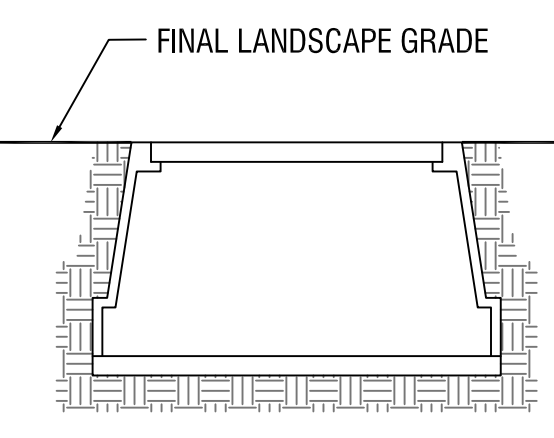
STREET LIGHT POLE CABLE ATTACHMENTS AND GROUNDING DETAIL

1/2" = 1'-0"

DESCRIPTION
15" X 21" X 12" JUNCTION BOX WITH 3/8" CAPTIVE PENTA HEAD BOLTS

WORD "ELECTRIC" ON COVER

BOX TO BE POLYMER CONCRETE MATERIAL WITH POLYMER CONCRETE BOLT DOWN (NON-CONDUCTIVE COVER).



SRP APPROVED SUPPLIERS

- STRONGWELL
PC1118B513 BOX
PC1118C504-17/UH0390AA
COVER WITH ELECTRIC
- ARMORCAST PRODUCTS
A6001429A
- CDR SYSTEMS
PA40-1015-12
- CARSON & ASSOCIATES
HLW1111B-12 BOX
HLW1111B-PO LID

J-BOX SECTION

3/8" = 1'-0"

PER CITY OF PHOENIX ORDINANCE G-4396, THESE PLANS ARE FOR OFFICIAL USE ONLY & MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF YOUR CONTRACT WITH THE CITY OF PHOENIX.

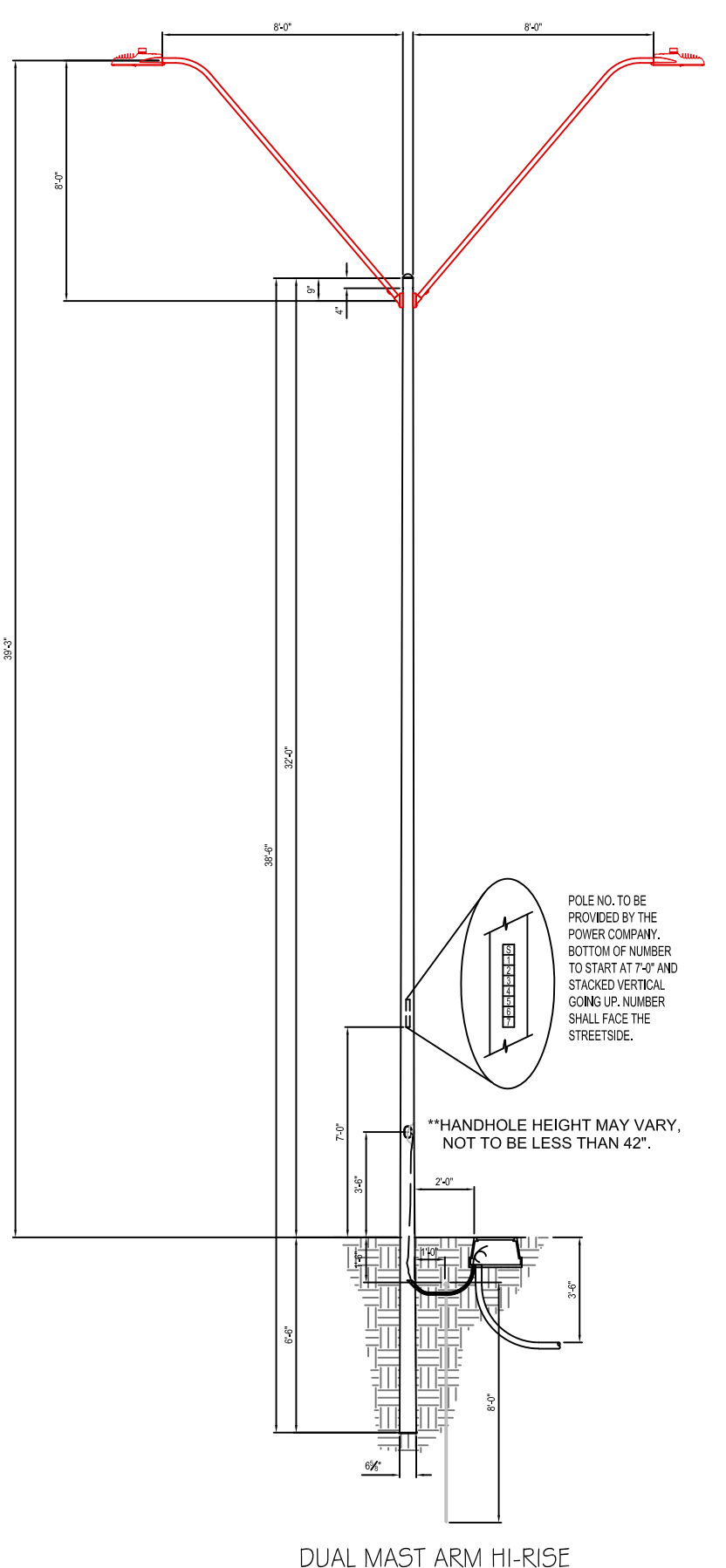
GRAY ROADWAY STREET LIGHTS

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

PROJECT #:	FILE NO:
DR:	SHEET NO:
DATE:	TOTAL SHEETS
SCALE: NTS	OS. #:



F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.			
DR:	DES:	CK:	DATE:	



1944. --

- 19 = 19'-0" POLE SNG SIMPLEX
- 30 = 30'-0" POLE SNG SIMPLEX
- 38 = 38'-0" POLE SNG SIMPLEX
- 38X = 38'-0" POLE DBL SIMPLEX
- ** SEE SPEC. NOTE

- CONSTRUCTION NOTES:**
- ADJUST PHOTO EYE TO FACE NORTH
 - A GROUND ROD IS PROVIDED WITH THE JUNCTION BOX. WHERE A GROUND ROD CANNOT BE DRIVEN ALTERNATE GROUND SHALL BE USED. SEE 2449 THRU 2460 FOR APPROVED ALTERNATES.
 - THE 40'-6" SELF-SUPPORTING STEEL POLE AND ONE OF THE 38'-0" HAVE TWO, MANUFACTURED INSTALLED SIMPLEX FITTINGS 180 APART FOR DOUBLE ARMS. SEE CHART.
 - APN 33701054 IS A POLE BAND ADAPTOR WITH A SIMPLEX FITTING. ADAPTOR IS REQUIRED FOR THE SECOND ARM IN DOUBLE ARM APPLICATIONS ON EXISTING PLES IN THE FIELD WITHOUT TWO SIMPLEX FITTINGS. SEE 8198 FOR AVAILABLE SIZES.
 - POLES THAT HAVE MORE THAN ONE LUMINAIRE REQUIRE A SEPARATE CIRCUIT WITH FUSING FROM THE J-BOX TO EACH LUMINAIRE.
- ENGINEERING NOTES:**
- THE LIGHT CODE PROVIDES TWO SAME WATTAGE LUMINAIRES WHEN DOUBLE ARM ARE SPECIFIED.
 - SEE SPEC 8130 - 8131 FOR IN-LINE FUSE FOR UNDERGROUND FEEDS.
 - SEE 8100 THRU 8107 FOR OVERHEAD ATTACHMENTS.

LIGHT CODE	COLOR	APN	TYPE	WATTS	MULTIVOLT	INITIAL LUMENS	PHOTOMETRIC CURVE
CL60		00128329		29	120/208/240/277 DRIVER	3,800	454669
CL61		00128330		37	120/208/240/277 DRIVER	4,700	454659
CL62	GRAY	00128331	LED	68	120/208/240/277 DRIVER	8,000	454577
CL63		00128332		87	120/208/240/277 DRIVER	9,700	454688
CL64		00128364		140	120/208/240/277 DRIVER	16,900	454942

POLE TYPE	POLE CODE	POLE LENGTH	BURY DEPTH	POLE ABOVE GROUND	POLE BUTT DIAMETER	STEP	TAPER	WEIGHT	20" X 6"	3" X 6"	8" X 8"	LUMINAIRE HEIGHT ABOVE GROUND ON ARM
LOCAL	1944.30	30'-6"	5'-6"	25'-0"	5-9/16"	7-5/16"		460	25'-11"	27'-3"	-	
COLLECTOR	1944.38	38'-6"	6'-6"	32'-0"	6-5/8"	9-3/4"		640	32'-11"	34'-3"	39'-3"	
ARTERIAL	1944.38X	38'-6"	6'-6"	32'-0"	6-5/8"	9-3/4"		640	32'-11"	34'-3"	39'-3"	

**FOR NON-STANDARD POLES, CONTACT THE STREET TRANSPORTATION STREETLIGHTING SECTION FOR INFORMATION.

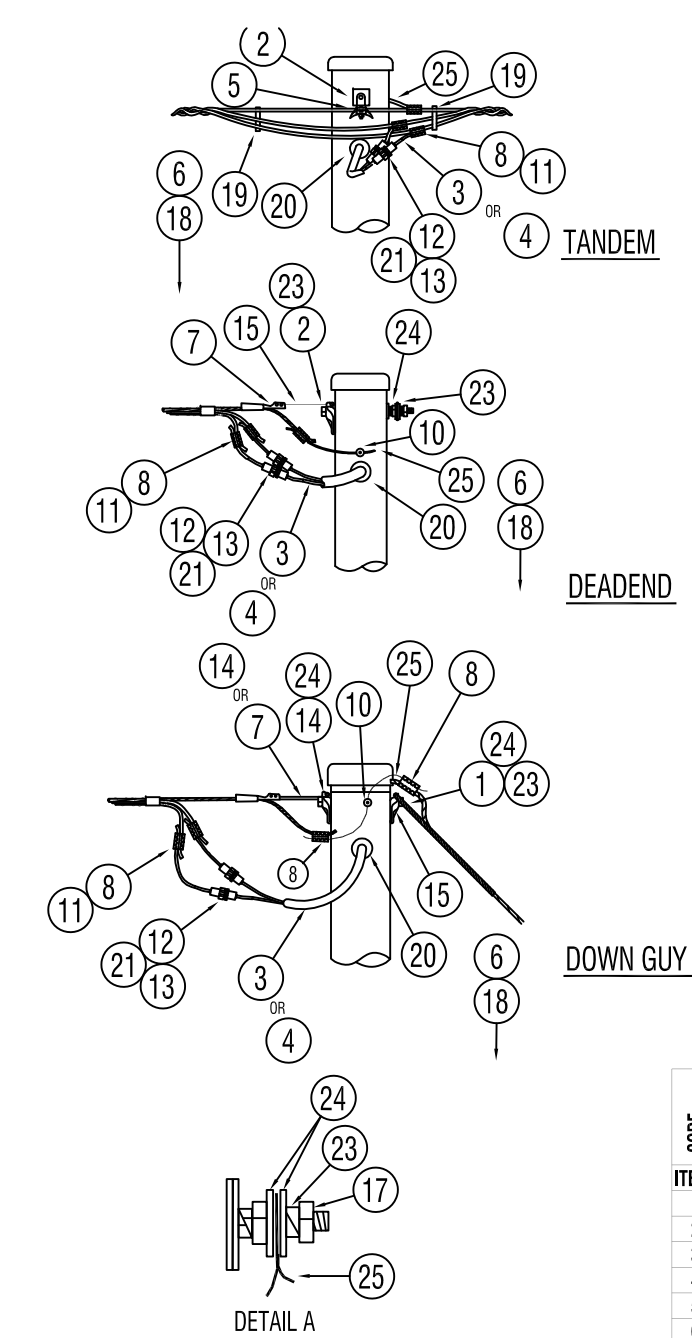
- ELECTRICAL REQUIREMENTS FOR NEW POLE INSTALLATION**
- JUNCTION BOXES SHALL MEET UTILITY COMPANY STANDARDS.
 - CONDUIT, CONDUCTORS, AND FUSE HOLDERS SHALL BE LISTED AND LABELED FOR USE IN A WET LOCATION WHEN USED IN A JUNCTION BOX. (NEC300.5(B), 310.8(C))
 - IN-LINE FUSE HOLDER USED IN HAND HOLE OR SERVICE DROP SHALL BE CONSIDERED AS DISCONNECTING MEANS. FUSE HOLDERS TO BE RATED AT 22,000 AIC MINIMUM. NEC 240.40
 - ELECTRICAL CONNECTIONS-CONDUCTORS OF DISSIMILAR METALS SHALL NOT BE INTERMIXED IN A TERMINAL OR SPLICING CONNECTOR WHERE PHYSICAL CONTACT OCCURS BETWEEN DISSIMILAR CONDUCTORS. (COPPER, ALUMINUM) UNLESS THE DEVICE IS IDENTIFIED FOR THE PURPOSE AND CONDITIONS OF USE. NEC 110.14
 - ELECTRICAL CONNECTIONS OR SPLICES IN AN UNDERGROUND INSTALLATION SHALL BE APPROVED FOR WET LOCATIONS. (NEC 300.5)
 - NON-CURRENT CARRYING CONDUCTIVE MATERIALS ENCLOSING ELECTRICAL CONDUCTORS OR EQUIPMENT, OR FORMING PART OF SUCH EQUIPMENT, SHALL BE CONNECTED TO EARTH IN A MANNER THAT WILL LIMIT THE VOLTAGE IMPOSED BY LIGHTNING OR UNINTENTIONAL VOLTAGE DUE TO SHORT CIRCUITS AND LIMIT THE VOLTAGE TO GROUND ON THESE MATERIALS. NEC 250.4(B) (GROUND RODS)
 - AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED FROM THE GROUND LUG IN THE HAND-HOLE TO THE LUMINAIRE WITH THE CURRENT CARRYING CONDUCTORS. NEC 410.30(B)(3).
 - CONNECTION TO THE GROUND ROD AND THE GROUNDING ELECTRODE SHALL BE LISTED AND LABELED FOR USE. NEC 250.8
 - CONNECT #6 BARE COPPER WIRE FROM THE GROUND ROD ADJACENT TO THE POLE OR IN JUNCTION BOX TO THE GROUND LUG IN THE POLE.

- CONSTRUCTION NOTES:**
- ADJUST PHOTO EYE TO FACE NORTH
 - A GROUND ROD IS PROVIDED WITH THE JUNCTION BOX. WHERE A GROUND ROD CANNOT BE DRIVEN ALTERNATE GROUND SHALL BE USED. SEE 2449THRU 2460 FOR APPROVED ALTERNATES.
 - THE 40'-6" SELF-SUPPORTING STEEL POLE AND ONE OF THE 38'-0". HAVE TWO, MANUFACTURED INSTALLED SIMPLEX FITTINGS 180 APART FOR DOUBLE ARMS. SEE CHART.
 - APN 33701054 IS A POLE BAND ADAPTOR WITH A SIMPLEX FITTING. ADAPTOR IS REQUIRED FOR THE SECOND ARM IN DOUBLE ARM APPLICATIONS ON EXISTING POLES IN THE FIELD WITHOUT TWO SIMPLEX FITTINGS. SEE 8198 FOR AVAILABLE SIZES.
 - POLES THAT HAVE MORE THAN ONE LUMINAIRE REQUIRE A SEPARATE CIRCUIT WITH FUSING FROM THE J-BOX TO EACH LUMINAIRE.
- ENGINEERING NOTES:**
- THE LIGHT CODE PROVIDES TWO SAME WATTAGE LUMINAIRES WHEN DOUBLE ARM ARE SPECIFIED.
 - SEE SPEC 8130 - 8131 FOR IN-LINE FUSE FOR UNDERGROUND FEEDS.
 - SEE 8100 THRU 8107 FOR OVERHEAD ATTACHMENTS.

20 YEAR PHOTOCCELL REQUIREMENTS

APN# 00073241 CONTROL PHOTO MULTI BR-20 CONTROL, PHOTO-ELECTRIC, BROWN, 20YEAR FAIL OFF, 120/208/240/277 MULTI-VOLT, SILICON, SOLID STATE, 2.40 TO 3.60 FC ON 1.2 TO 2.4 FC OFF, 60 HERTZ, 320 JOULE MOV, INVERSE ON/OFF RATIO .6:1 +/- .1, FAIL OFF, THREE PIN NEMA TWISTLOCK, 20 YEAR LIFE, 8493-SIDE SELC, MODEL #8493ZTM8R

WATT	LUMEN	DESCRIPTION	APN	MODEL#
29W	3,800	SCALABLE ROADWAY GE LED GRAY Pedestrian LUMINAIRE 31WATT, 2700K, 3,800 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.41 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	128329	ERL10044527AGRAY
37W	4,700	SCALABLE ROADWAY GE LED GRAY Local Street LUMINAIRE 39WATT, 2700K, 4,700 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.41 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	128330	ERL10054527AGRAY
68W	8,000	SCALABLE ROADWAY GE LED GRAY Collector Street LUMINAIRE 71WATT, 2700K, 7,600 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.41 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	128331	ERL1009327AGRAY
87W	9,700	SCALABLE ROADWAY GE LED GRAY Major Roadway LUMINAIRE 97WATT, 2700K, 9,250 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.41 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	128332	ERL10100527AGRAY
140W	16,900	SCALABLE ROADWAY GE LED GRAY Special Major Roadway LUMINAIRE 149WATT, 2700K, 19,000 LUMEN, ROADWAY, LED, TERMINAL BOARD, 10KV SURGE PROTECTION, 90 DEGREE CUTOFF, GRAY, MULTIVOLT 120/208/240/277 DRIVER, IES NARROW ASYMMETRIC MEDIUM, ANSI C136.41 7 PIN TWISTLOCK PHOTO CONTROL RECEPTACLE, CSA OR UL CERTIFIED, ANSI C136.15 WATTAGE LABEL.	128364	ERL20190527AGRAY



- 8100. -- TWO WIRE 120V, 277V TANGENT
- 8101. -- THREE WIRE 208V, 240V TANGENT
- IF APPLICABLE: DE = DUSK-TO-DAWN WIRE CODE
- 8102. -- TWO WIRE 120V, 277V DEADEND
- 8103. -- THREE WIRE 208V, 240V
- 8106. -- TWO WIRE 120V, 277V DEADEND WITH GUY HOOK
- 8107. -- THREE WIRE 208V, 240V DEADEND WITH GUY HOOK

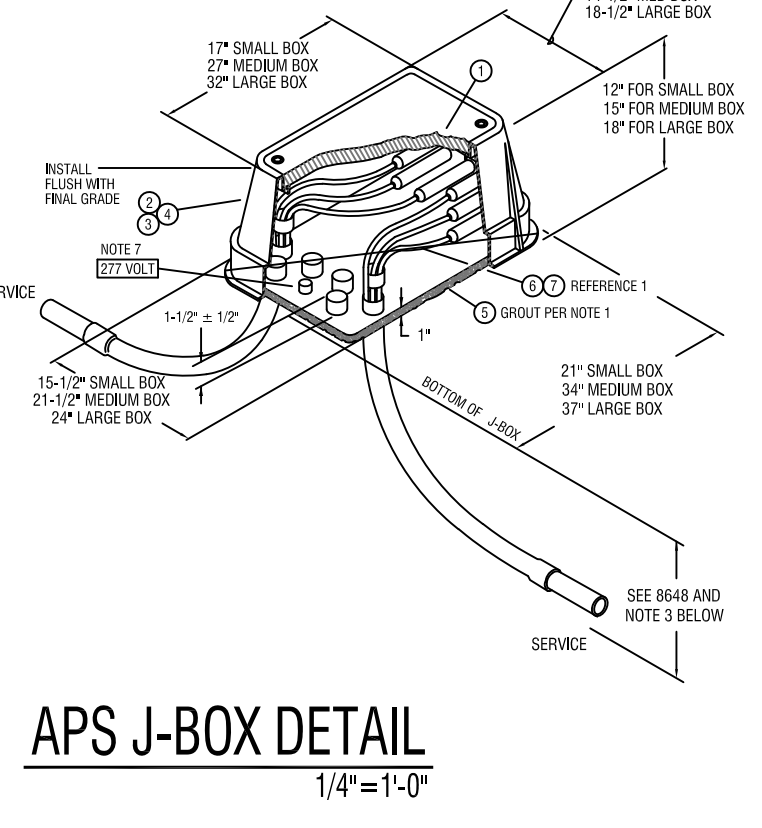
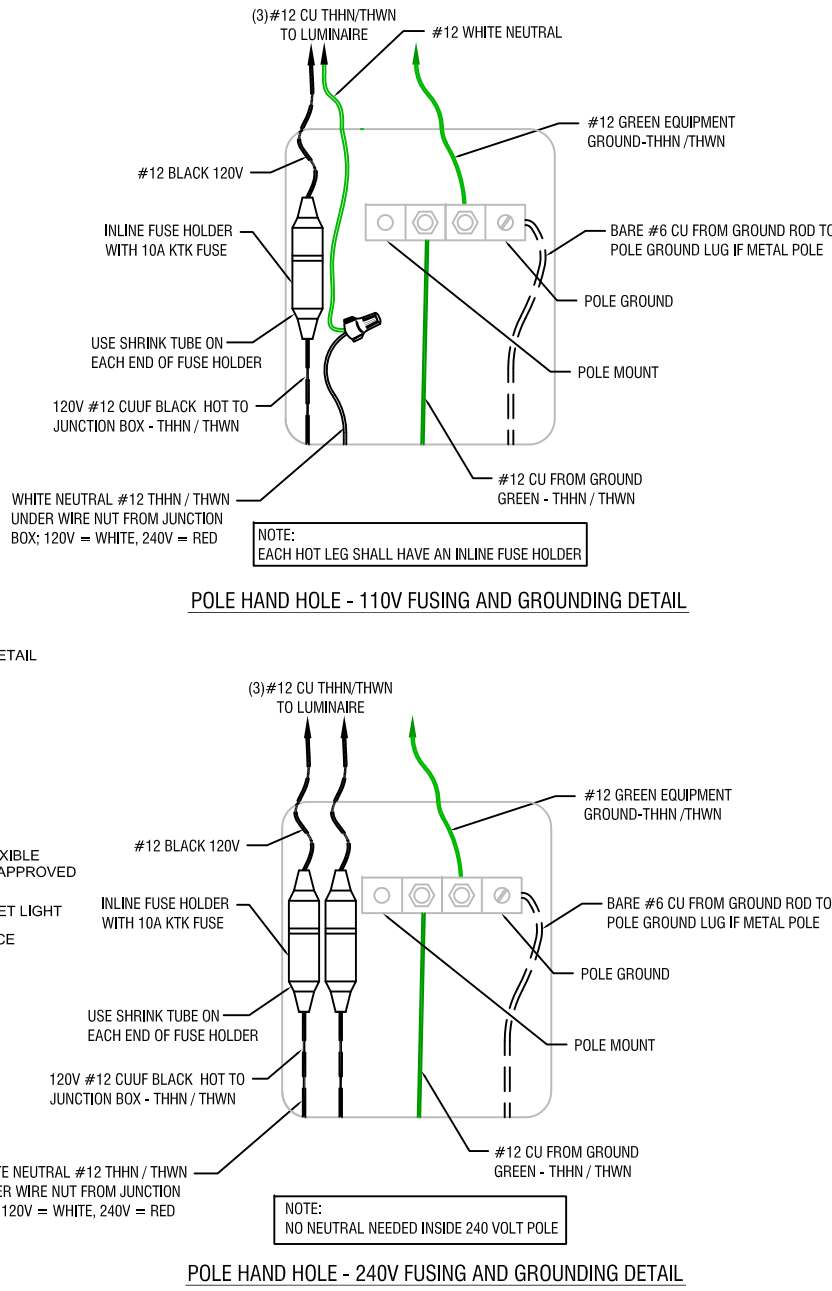
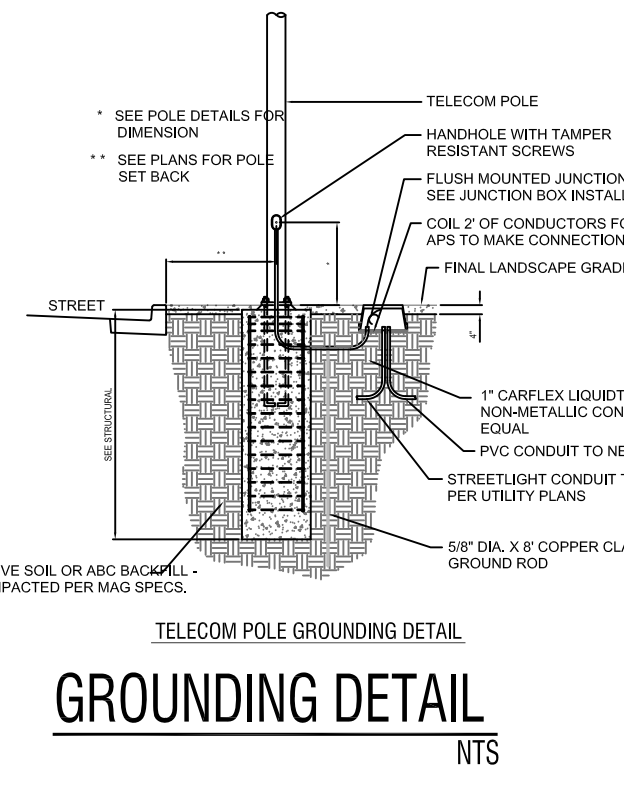
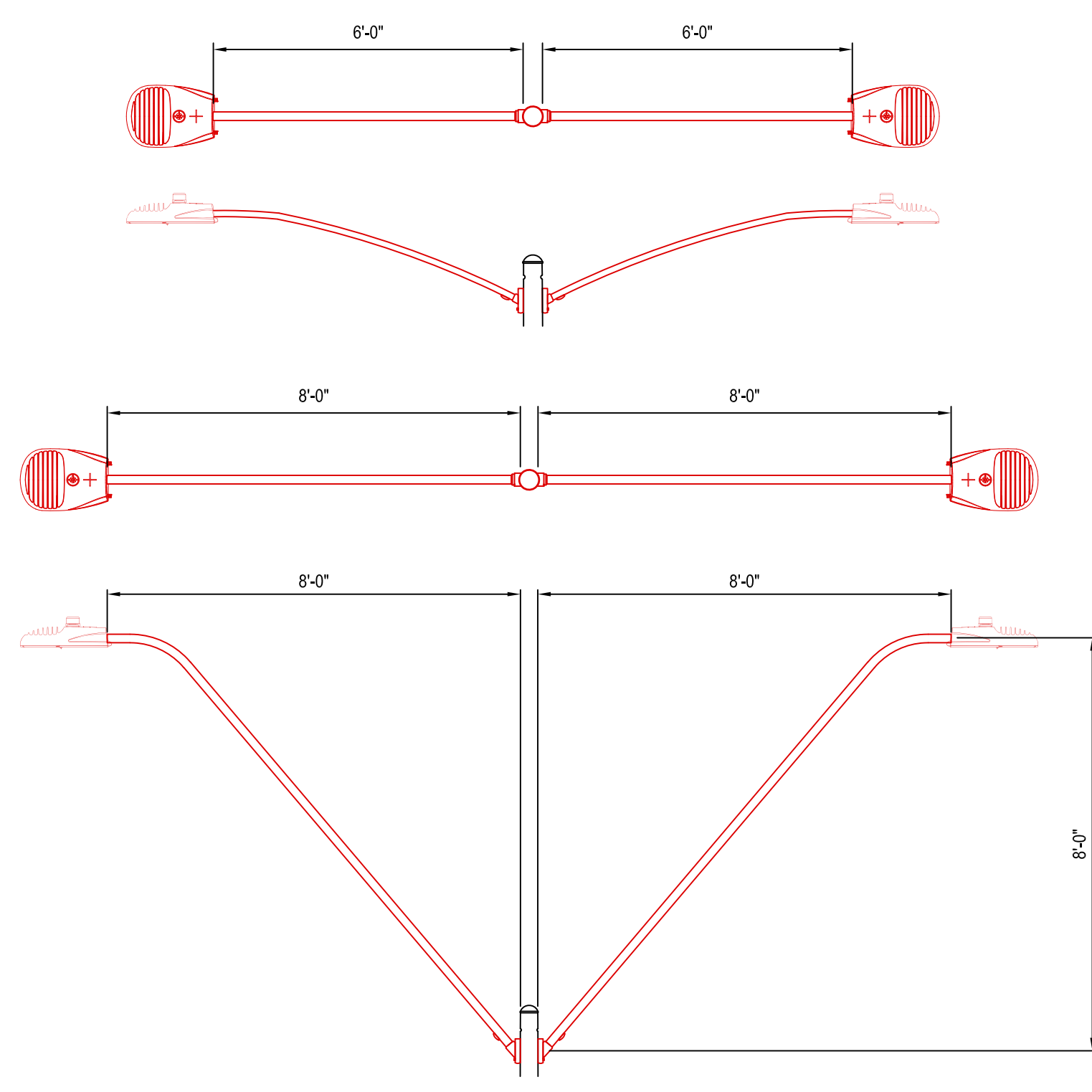
ITEM	QTY	UNIT	DESCRIPTION	APN
1	-	-	BOLT GALV MACH 5/8" X 10"	33001549
2	1	1	BOLT GALV MACH 5/8" X 8"	33001547
3	10	-	CABLE 2" #4 CU LF	31102130
4	10	-	CABLE 3/4" #4 CU LF	31102135
5	1	-	CLAMP ANGLE 162 TO 60	33002502
6	1	1	CLAMP GROUND ROD 3/8"	33002580
7	-	-	CLAMP WIRE FLEX 4-24L	33002772
8	2	3	CONN AL PG - SEE 2250	
9	-	-	DOWN CU "C" - SEE 2255	
10	1	1	DOWN POST 1/2" S.S. #6-10	00005704
11	2	1	COVER D DIE INSULATING	33001952
12	2	1	FUSE CARTRIDGE 15A	72602410
13	1	2	FUSEHOLDER IN-LINE 600V	00097502
14	-	-	GRIP DE PREF - SEE 155	
15	-	-	HOOK GUY - MED DUTY 5/8"	33003831
16	1	1	INSERT RWINT	00055552
17	-	-	NOT SO GALV 5/8"	33004176
18	1	1	ROD COPPER/ALD GRD 5/8" X 8"	33004805
19	2	-	SPACER MULTIPLEX CABLE	33006510
20	1	1	STOPPER RIG AND DUST	33006655
21	1	1	TUBING SHRINKABLE 1/4"	71602200
22	2	2	WASHER GALV CU 3/32" X 1/4"	33007126
23	1	1	WASHER GALV DBL COIL 5/8"	33007154
24	-	-	WASHER GALV DR 5/8"	33007155

STREET LIGHT POLE CABLE ATTACHMENTS AND GROUNDING DETAIL
1/2"=1'-0"

GRAY ROADWAY LUMINAIRE DESCRIPTIONS

APN# 128332
113W LED RWGR - MAJOR
ERS2003E1740A GRAY R

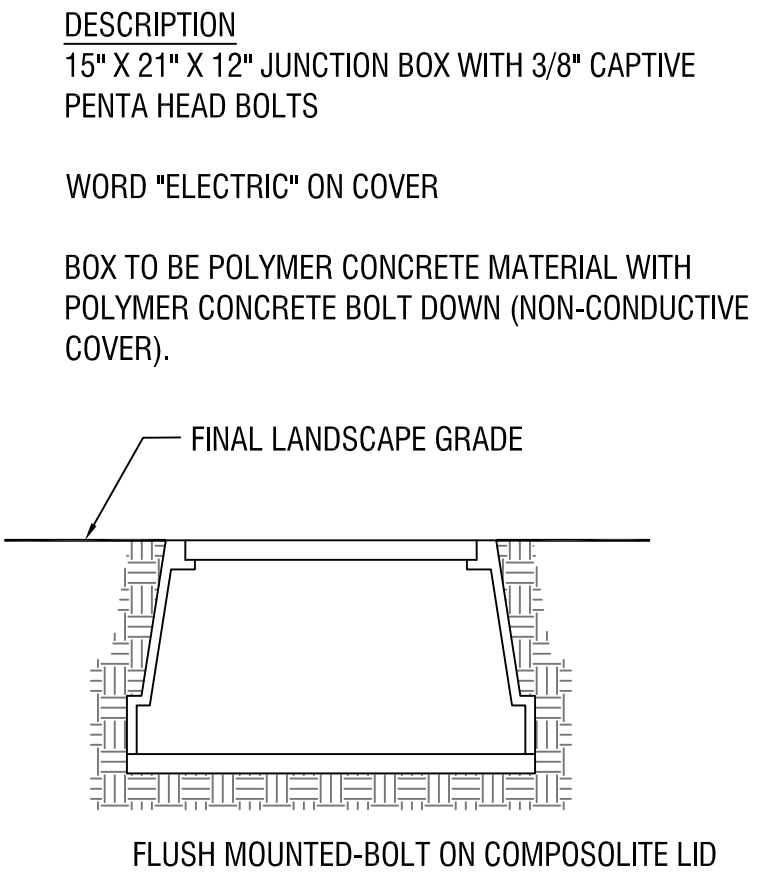
APN# 128364
257W LED RWGR - SPECIAL MAJOR
ERS20G3C1140A GRAY R



CODE	JUNCTION BARS
A	THREE-POSITION MOLDS
B	FIVE-POSITION MOLDS
C	EIGHT-POSITION MOLDS
D	TWO-POSITION GEL PACKS
N	NO CONNECTORS

- 8655. -- SEE NOTE 10 AND 11 SMALL BOX
- 8656. -- SEE NOTE 10 AND 12 MEDIUM BOX
- 8657. -- SEE NOTE 13 LARGE BOX
- IF APPLICABLE G = APS GROUT PROVIDED
- IF APPLICABLE L = LIGHTS
- D = DUSK-TO-DAWN
- SECONDARY WIRE CODES - JUNCTION BARS

- NOTES:**
- CONCRETE GROUT SHALL BE PREMX, APN 71301280 OR EQUIVALENT.
 - PENTA-HEAD BOLTS SHALL BE INSTALLED PRIOR TO ENERGIZING NEW UNDERGROUND SYSTEMS. LOST OR MISPLACED PENTA-HEAD BOLTS SHALL BE REPLACED WITH APN 71402808.
 - BRINGING ALL CABLE/CONDUITS AND GROUND ROD INTO THE SAME END OF THE BOX TO ENABLE CABLES TO BE RAISED AND LOWERED EASILY. CONDUIT SWEEPS SHALL BE POSITIONED AND ALIGNED SO THAT WHEN TWO AND FOUR POSITION JUNCTION BARS ARE SPECIFIED, THE ST. LT., SECONDARY AND SERVICE CONDUITS SHALL BE INSTALLED AS SHOWN IN DETAIL "A". WHEN SIX POSITION JUNCTION BARS ARE SPECIFIED, THE ST. LT., SECONDARY AND SERVICE CONDUITS SHALL BE INSTALLED AS SHOWN IN DETAIL "B".
 - COMPACTION BENEATH AND AROUND JUNCTION BOX SHALL BE A MINIMUM OF 85 PERCENT.
 - REPLACEMENT LID FOR ARMED PLASTIC JUNCTION BOX IS 33100981. PENTAHEAD BOLTS AND EMI MARKER MUST BE REUSED FROM OLD LID.
 - ADDITIONAL TRENCH DEPTH IS USUALLY REQUIRED AT ALL EQUIPMENT LOCATIONS. SEE 8648 FOR THE MINIMUM TRENCH DEPTHS AND THE DEGREE OF SLOPE ALLOWED AS THE TRENCH DEPTH CHANGES.
 - ON 277 VOLT STREET LIGHT CIRCUITS, INSTALL "277 VOLT" RED MICRARTA TAG (APN 00080796) PROVIDED BY SPEC 8129.
 - TORQUE BOLTS TO 5 FT - LBS (60 IN - LBS).



SRP APPROVED SUPPLIERS	PART NUMBER
STRONGWELL	PC1118B513 BOX PC1118C504-17/UH0390AA COVER WITH ELECTRIC
ARMORCAST PRODUCTS	A6001429A
CDR SYSTEMS	PA40-1015-12
CARSON & ASSOCIATES	HLW1118-12 BOX HLW1118-PO LID

J-BOX SECTION
3/8"=1'-0"

DUAL MAST ARM POLE LUMINAIRES
3/8"=1'-0"

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DUAL MAST ARM STREET LIGHTS

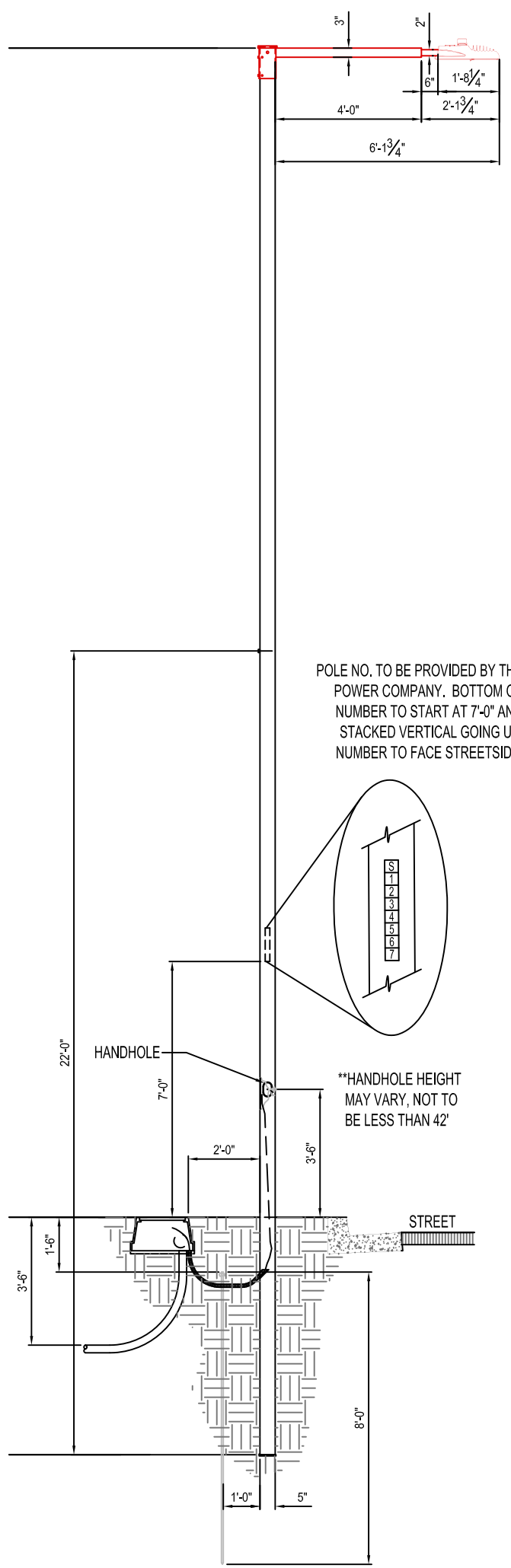
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT



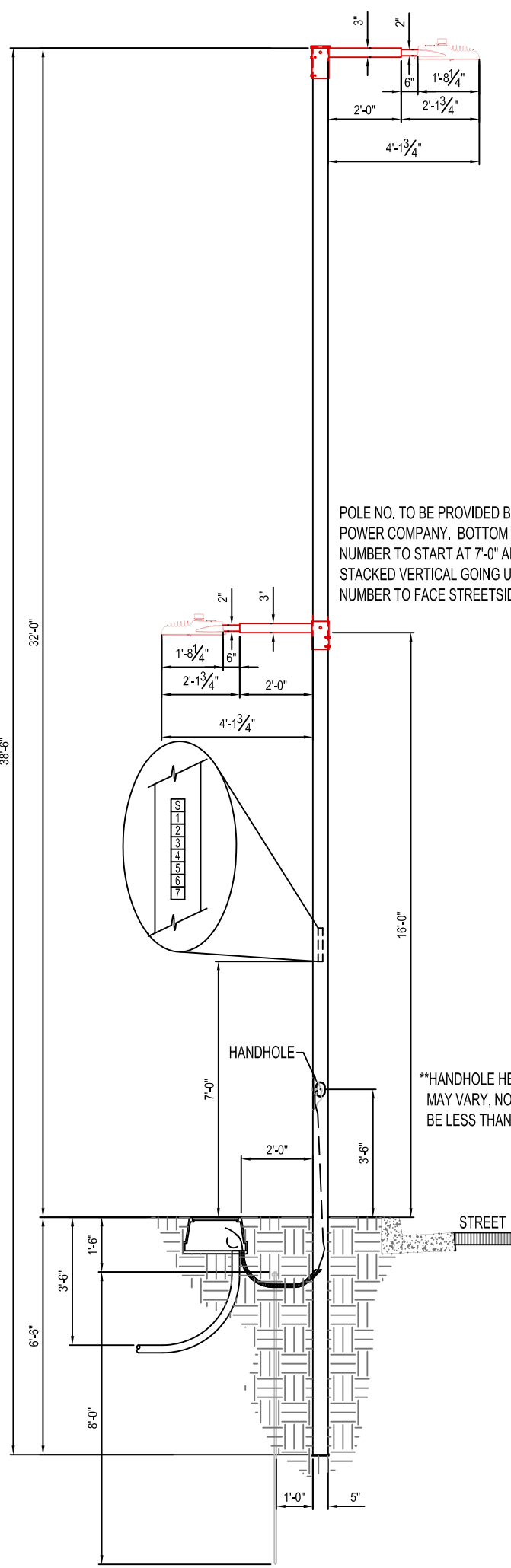
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DR:	SHEET NO:
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CK:	TOTAL SHEETS:
DATE:	OS #:
SCALE: NTS	--

THIS SHEET FOR INFORMATIONAL PURPOSES ONLY.

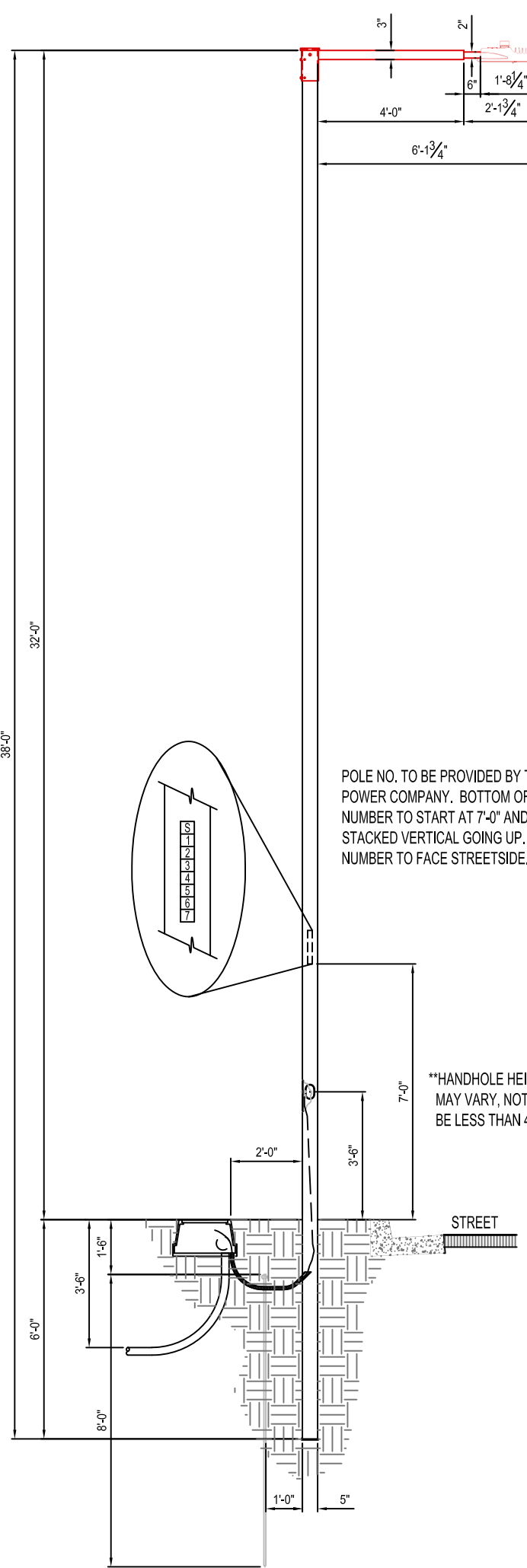
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
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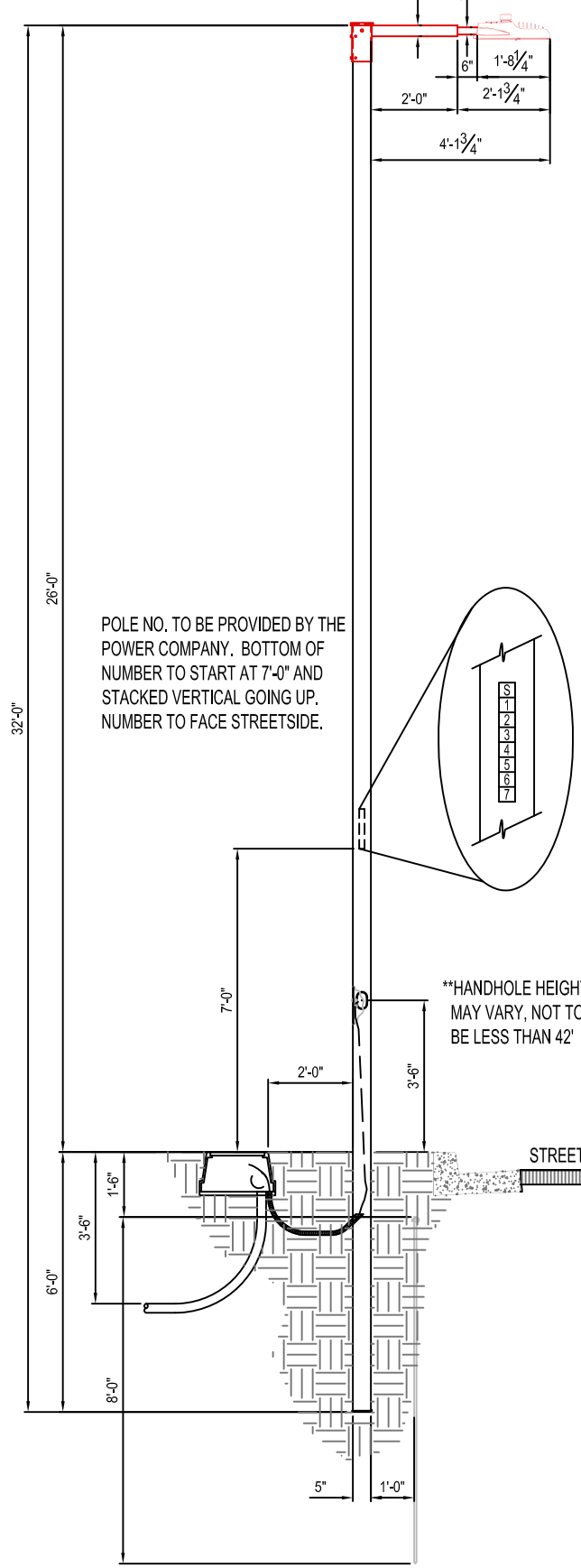
MAJOR - 4' M/A
1940.38



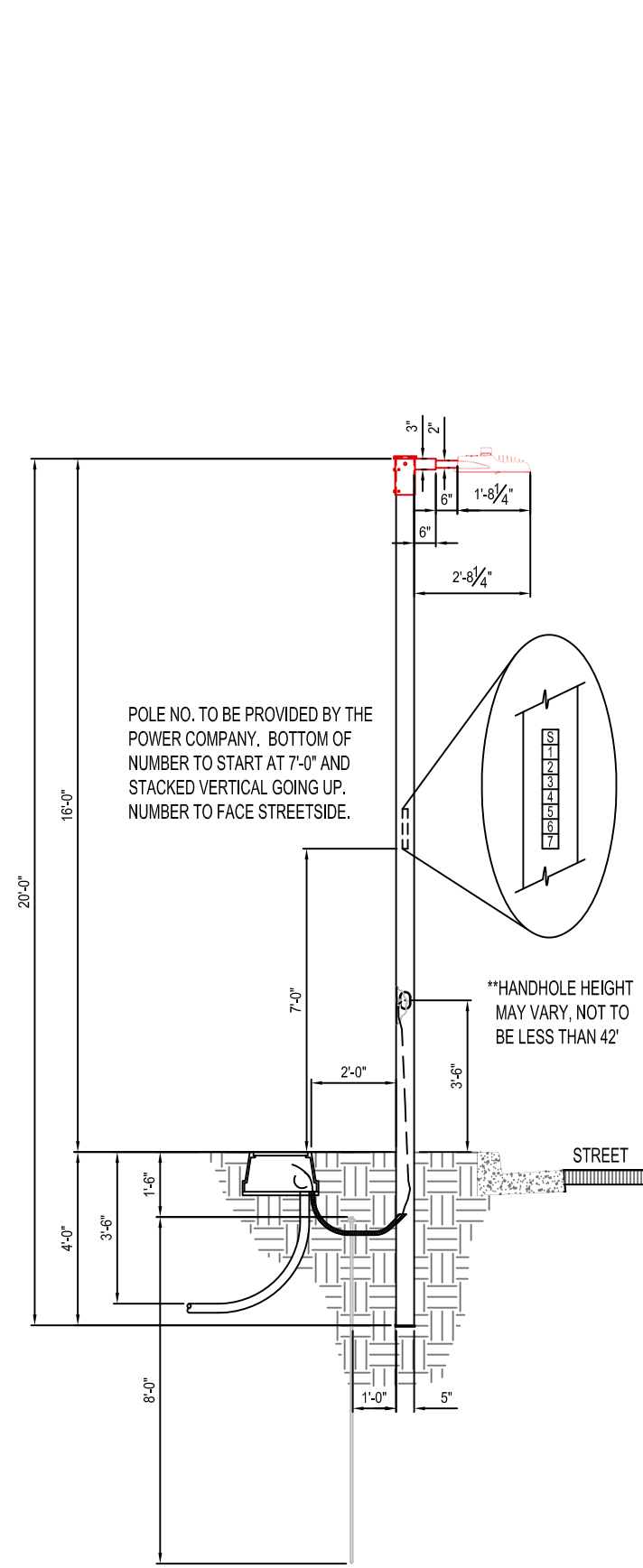
COMBO-2' M/A
1940.38



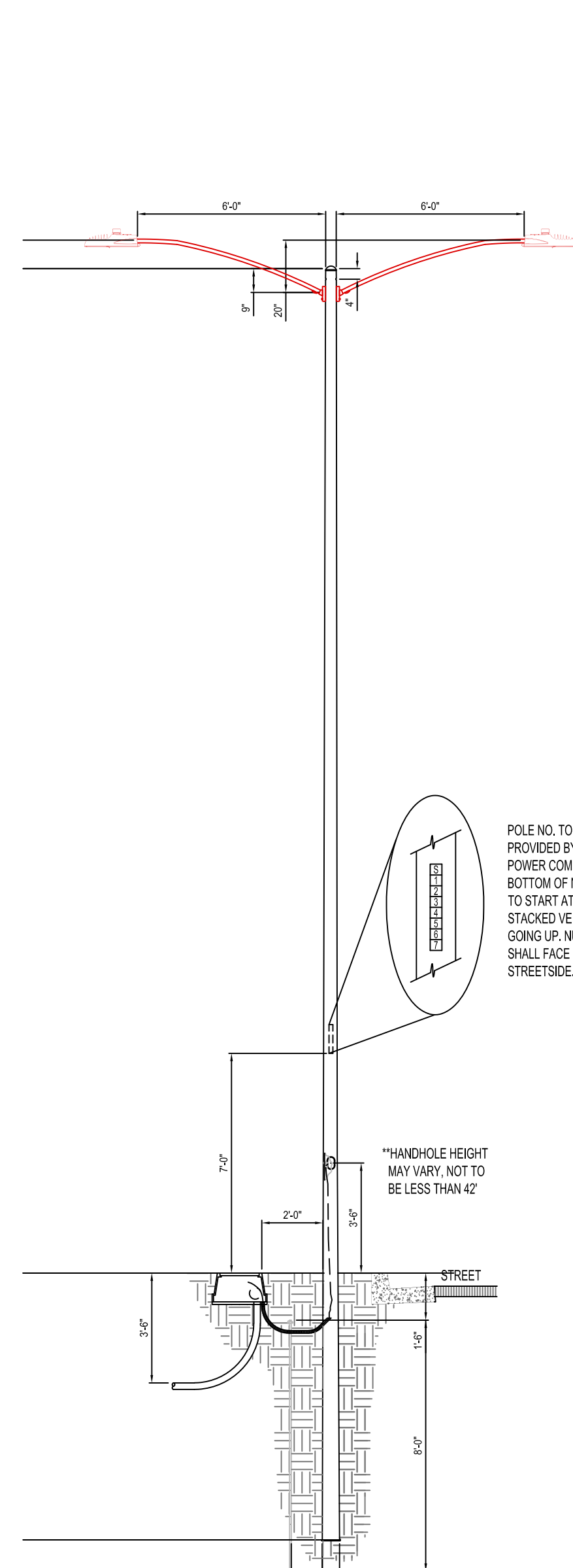
COLLECTOR-4' M/A
1938.34



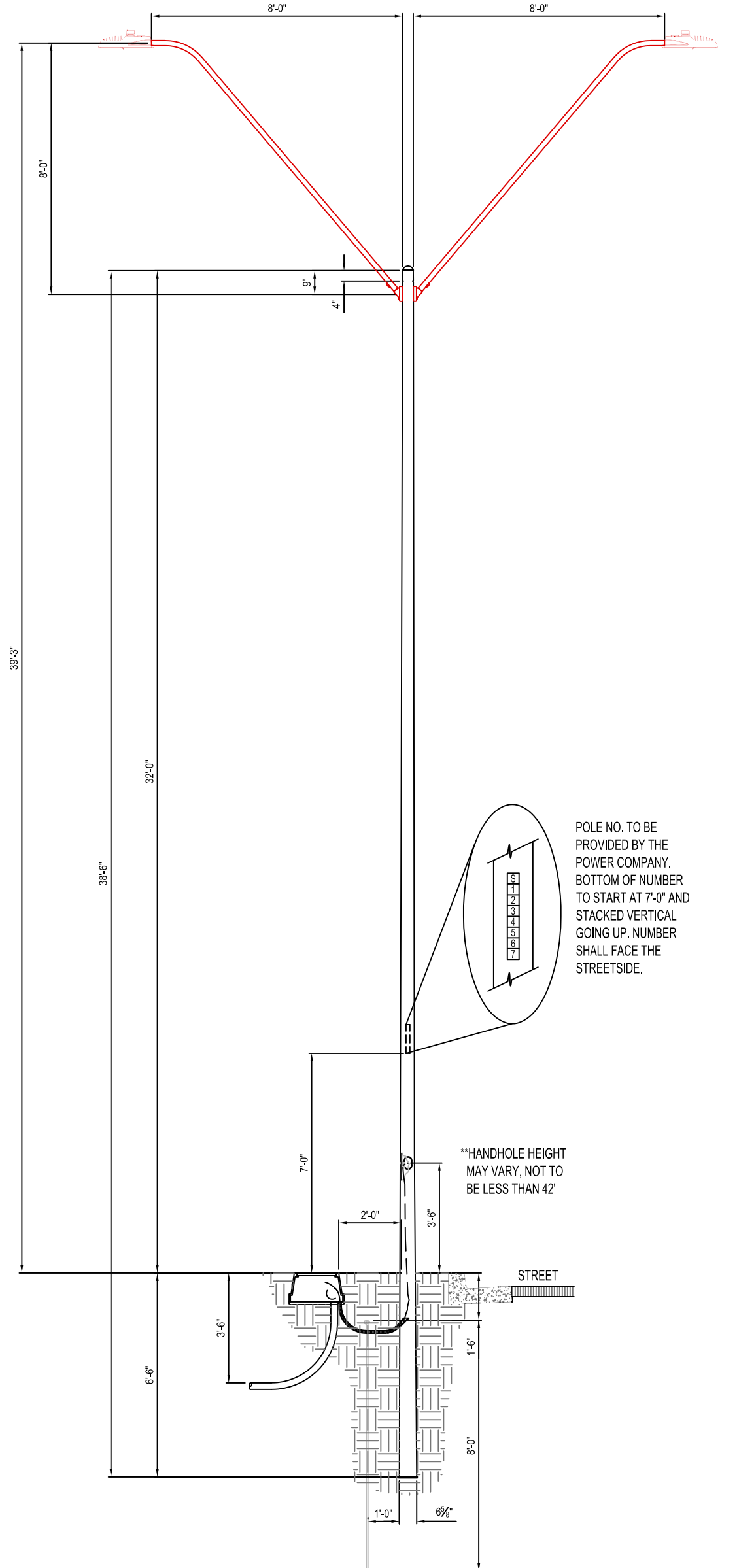
LOCAL-2' M/A
1940.30



PEDESTRIAN-6' M/A
1940.20

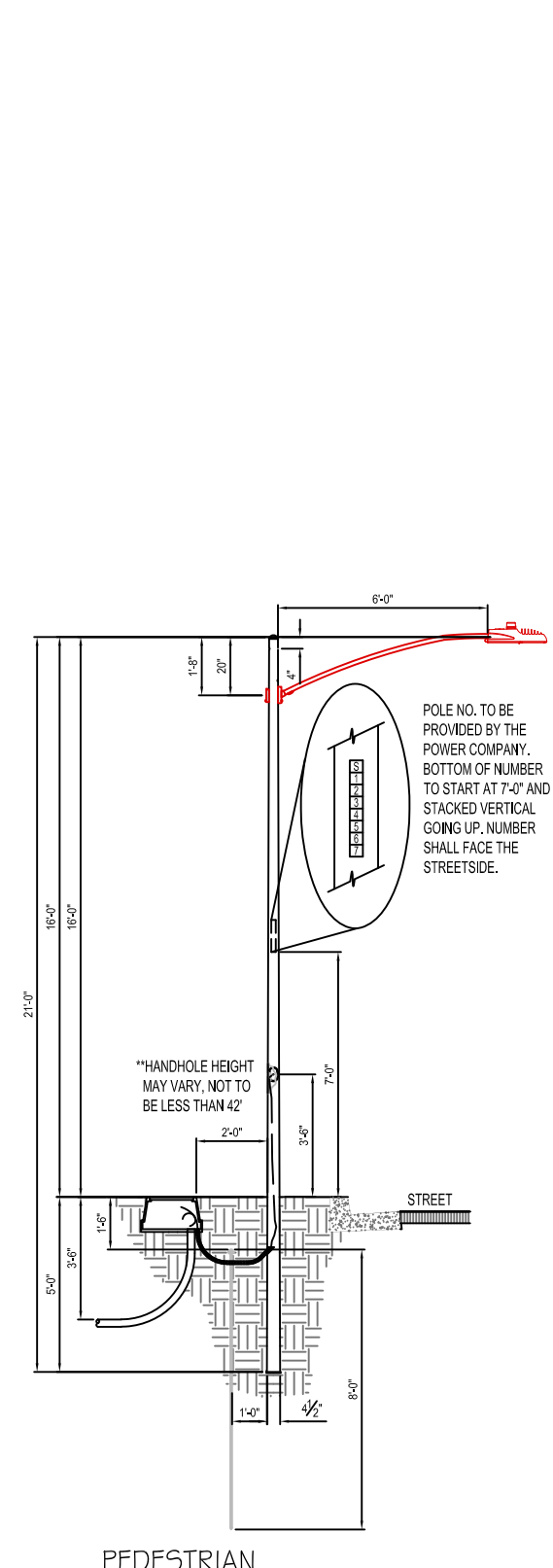


DUAL MAST ARM MAJOR

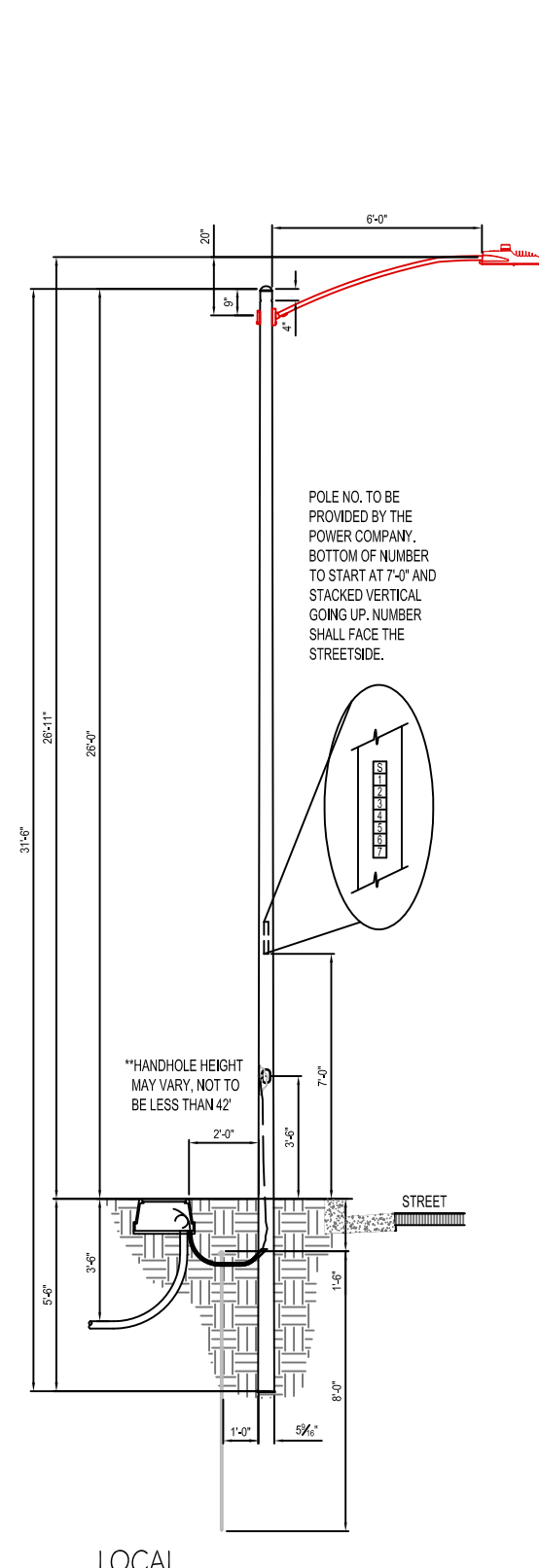


DUAL MAST ARM HI-RISE

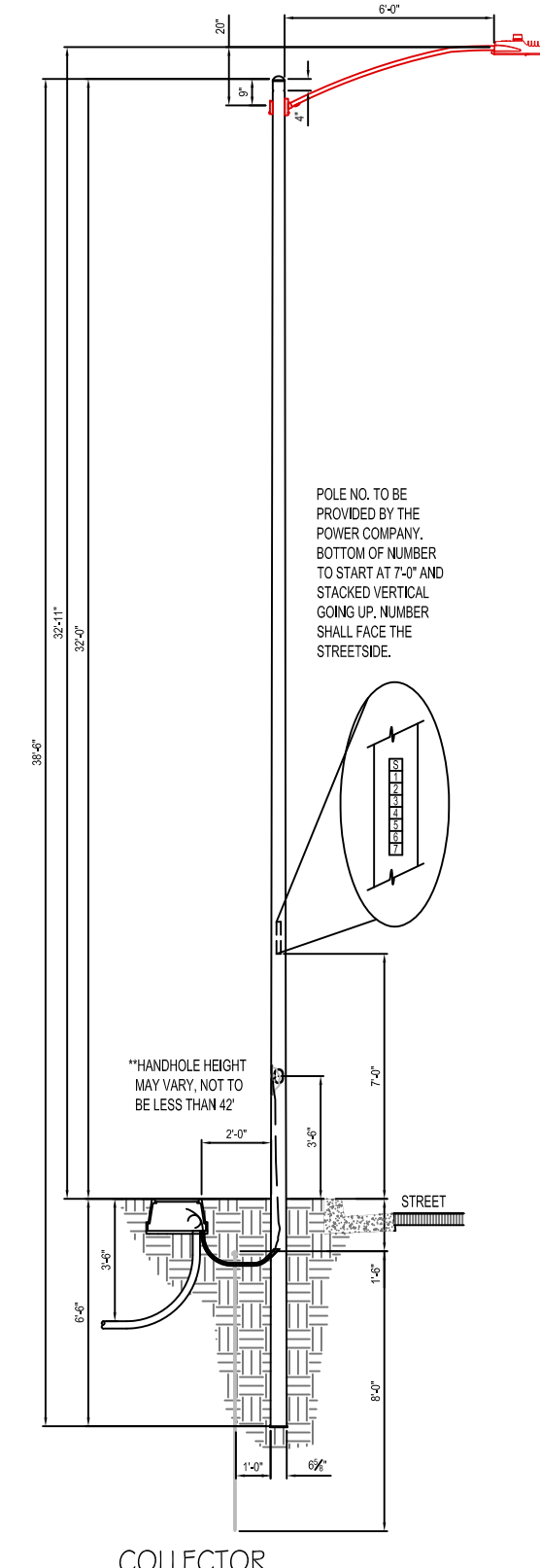
DARK BRONZE SQUARE POLE STANDARDS



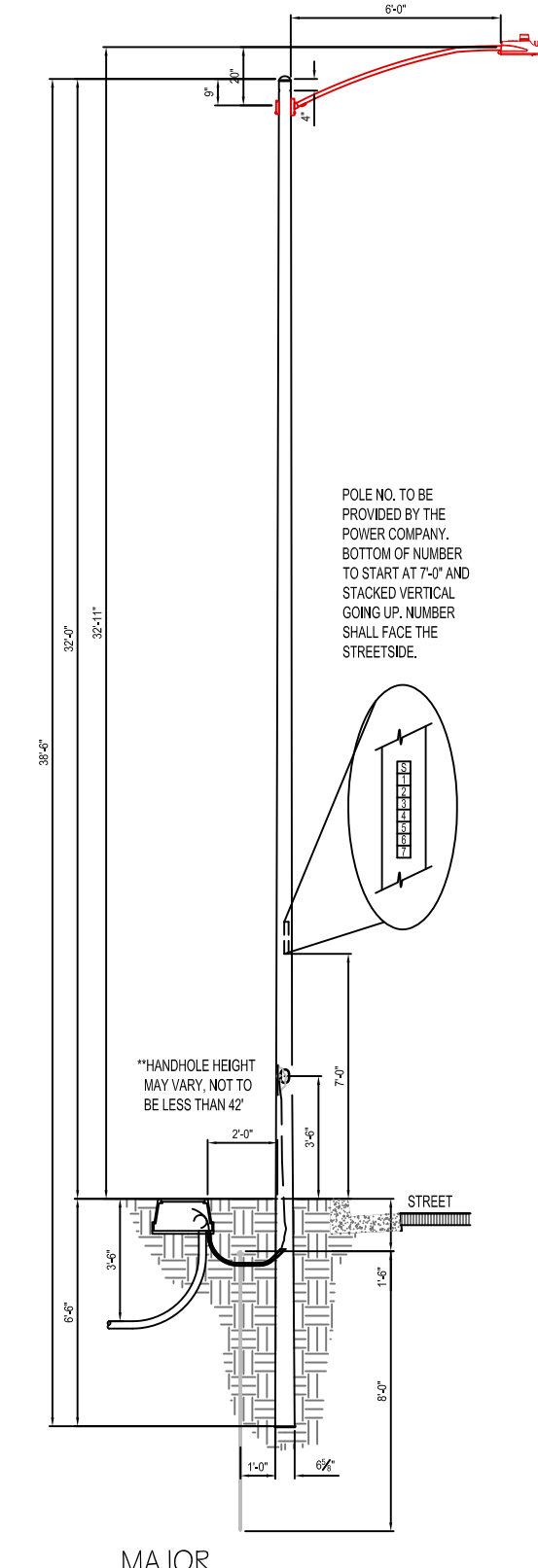
PEDESTRIAN



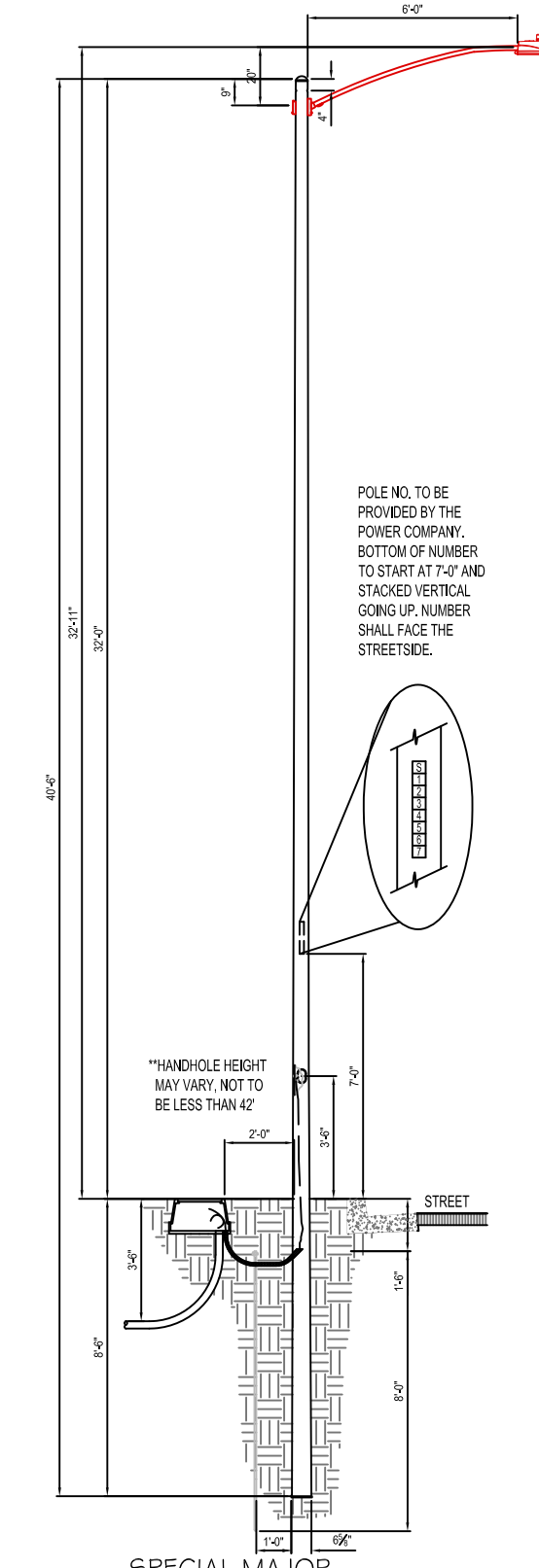
LOCAL



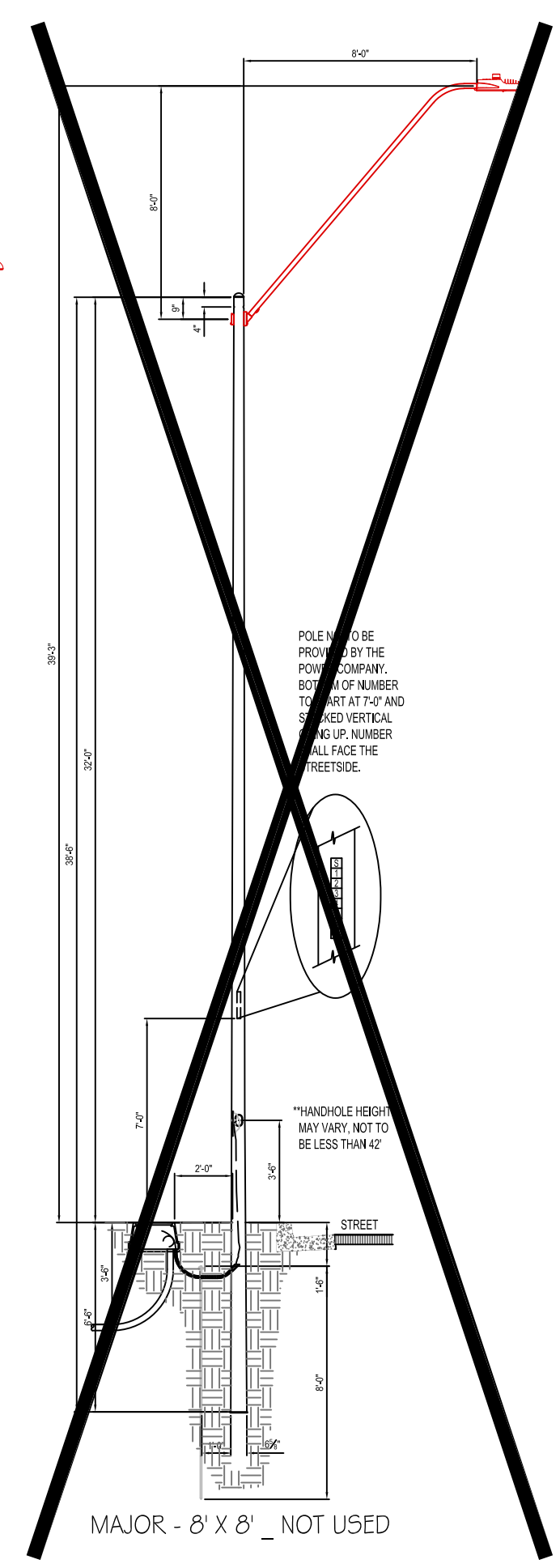
COLLECTOR



MAJOR



SPECIAL MAJOR



MAJOR - 8' X 8' NOT USED

SPECIAL GRAY ROADWAY POLE STANDARDS

GRAY ROADWAY POLE STANDARDS

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DUAL MAST ARM STREET LIGHTS
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT



PROJECT #:	FILE NO:
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SCALE: NTS	