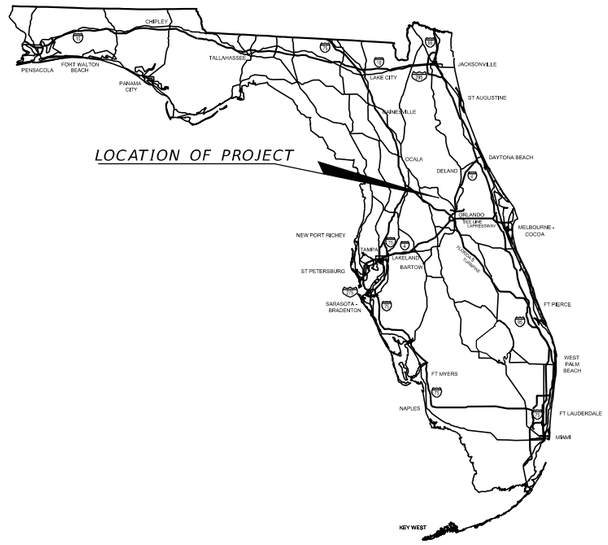
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

SR 453 (WEKIVA PARKWAY) FROM SYSTEM INTERCHANGE TO SR 46

LAKE COUNTY
CFX PROJECT NUMBER: 429-206
LIGHTING PLANS

INDEX OF LIGHTING PLANS



CENTRAL FLORIDA
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LIGHTING SHOP DRAWINGS
TO BE SUBMITTED TO:
JAMES W. HIGHLAND, P.E.
941 LAKE BALDWIN LANE,
ORLANDO, FL 32814
(407) 896-0594

PLANS PREPARED BY:

DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS

DRMP, INC.
941 LAKE BALDWIN LANE
ORLANDO, FLORIDA 32814
(407) 896-0594 CERT. OF AUTH. NO. 2648

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

B.M. DATUM: NAVD-'88

APPROVED _____ DATE / /

CENTRAL FLORIDA
EXPRESSWAY AUTHORITY

PRE-BID SUBMITTAL
OCTOBER 2015

KEY SHEET REVISIONS	
DATE	DESCRIPTION

LIGHTING PLANS
ENGINEER OF RECORD: JAMES W. HIGHLAND, P.E.

P.E. NO.: 68240

CFX PROJECT MANAGER: GLENN PRESSIMONE, P.E.

FISCAL YEAR	SHEET NO.
15	L-1

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS																				TOTAL THIS SHEET		GRAND TOTAL		REF. SHEET
			L-7		L-8		L-9		L-10		L-11		L-12		L-13		L-14		L-15		L-16						
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	
630-2-11	CONDUIT (F&I) (OPEN TRENCH)	LF	235		477		198		713		320		19		907		1343		1278		1369		6859				
630-2-11	3" CONDUIT (F&I) (OPEN TRENCH)	LF																									
630-2-12	CONDUIT (F&I) (DIRECTIONAL BORE)	LF	642		151		18				178												989				
630-2-12	3" CONDUIT (F&I) (DIRECTIONAL BORE)	LF																									
635-2-11	PULL & SPLICE BOX (F&I) (STANDARD)	EA	7		5		3		1		7		1		4		5		4		5		42				
635-3-12	JUNCTION BOX (F&I) (MOUNTED)	EA	2		1						3		9		3								18				
639-3-11	ELECTRICAL SERVICE DISCONNECT(F&I) (POLE MOUNT)	AS																									
715-1-11	LIGHTING CONDUCTORS (F&I) (#10 OR SMALLER)	LF																									
715-1-12	LIGHTING CONDUCTORS (F&I) (#8 TO #6)	LF	4344		1876		648		2139		4218		5976		2085		1785		1692		1947		26710				
715-1-13	LIGHTING CONDUCTORS (F&I) (#4 TO #2)	LF	2694		936						513		393		2037		711						7284				
715-1-14	LIGHTING CONDUCTORS (F&I) (#1 TO #0)	LF									2127		1743				1536		2142		2169		9717				
715-4-132	LIGHT POLE COMPLETE (F&I) (110 MPH) (45')	EA													2		4		4		4		14				
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	EA	2								1												3				
715-11-126	LUMINAIRE (F&I) (UNDERDECK) (PENDANT HUNG)	EA																									
715-50	LIGHTING, INSIDE BOX GIRDER	LS																									
715-500-1	LIGHT POLE CABLE DISTRIBUTION SYSTEM (CONVENTIONAL)	EA													2		4		4		4		14				
715-500-3	LIGHT POLE CABLE DISTRIBUTION SYSTEM (WALL MOUNTED)	EA									4		7		2								13				
715-513-145	LIGHT POLE COMPLETE, SPECIAL DESIGN (F&I)	EA									4		6		1								11				
	(SINGLE ARM, WALL MOUNT) (ALUMINUM) (45')																										
715-514-145	LIGHT POLE COMPLETE, SPECIAL DESIGN (F&I)	EA																									
	(DOUBLE ARM, WALL MOUNTED) (ALUMINUM) (45')																										
715-515-145	LIGHT POLE COMPLETE, SPECIAL DESIGN (F&I)	EA											1		1								2				
	(SINGLE ARM, BRIDGE MOUNT) (ALUMINUM) (45')																										

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DRMP
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CERTIFICATE OF AUTHORIZATION NO. 2648
JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.
429-206

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

TABULATION OF QUANTITIES

SHEET NO.
L-2

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS																		TOTAL THIS SHEET		GRAND TOTAL		REF. SHEET
			L-17		L-18		L-19		L-20		L-21		L-22		L-23		L-24		L-25						
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	
630-2-11	CONDUIT (F&I) (OPEN TRENCH)	LF	534		1749		394		202												2879		9738		
630-2-11	3" CONDUIT (F&I) (OPEN TRENCH)	LF			53																53		53		
630-2-12	CONDUIT (F&I) (DIRECTIONAL BORE)	LF			490		1023		375												1888		2877		
630-2-12	3" CONDUIT (F&I) (DIRECTIONAL BORE)	LF			168																168		168		
635-2-11	PULL & SPLICE BOX (F&I) (STANDARD)	EA	4		14		8		3												29		71		
635-3-12	JUNCTION BOX (F&I) (MOUNTED)	EA			1						4		2		4		8		9		28		46		
639-3-11	ELECTRICAL SERVICE DISCONNECT(F&I) (POLE MOUNT)	AS	1																		1		1		
715-1-11	LIGHTING CONDUCTORS (F&I) (#10 OR SMALLER)	LF									705		174		426		342		105		1752		1752		
715-1-12	LIGHTING CONDUCTORS (F&I) (#8 TO #6)	EA	933		5835		6231		1731								294		318		15342		42052		
715-1-13	LIGHTING CONDUCTORS (F&I) (#4 TO #2)	EA			0																0		7284		
715-1-14	LIGHTING CONDUCTORS (F&I) (#1 TO #0)	EA	669		3261																3930		13647		
715-4-132	LIGHT POLE COMPLETE (F&I) (110 MPH) (45')	EA	3		7		7		2												19		33		
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	EA			1																1		4		
715-11-126	LUMINAIRE (F&I) (UNDERDECK) (PENDANT HUNG)	EA									6		2		4						12		12		
715-50	LIGHTING, INSIDE BOX GIRDER	LS																					1		
715-500-1	LIGHT POLE CABLE DISTRIBUTION SYSTEM (CONVENTIONAL)	EA	3		7		7		2												19		33		
715-500-3	LIGHT POLE CABLE DISTRIBUTION SYSTEM (WALL MOUNTED)	EA					2														2		15		
715-513-145	LIGHT POLE COMPLETE, SPECIAL DESIGN (F&I)	EA					1														1		12		
	(SINGLE ARM, WALL MOUNT) (ALUMINUM) (45')																								
715-514-145	LIGHT POLE COMPLETE, SPECIAL DESIGN (F&I)	EA					1														1		1		
	(DOUBLE ARM, WALL MOUNTED) (ALUMINUM) (45')																								
715-515-145	LIGHT POLE COMPLETE, SPECIAL DESIGN (F&I)	EA																					2		
	(SINGLE ARM, BRIDGE MOUNT) (ALUMINUM) (45')																								

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DATE	DESCRIPTION	DATE	DESCRIPTION

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CENTRAL FLORIDA EXPRESSWAY AUTHORITY

TABULATION OF QUANTITIES

SHEET NO.
L-3

PROJECT NOTES

1.) SPARE CONDUIT SHALL BE PLACED AT ALL MAINLINE PAVEMENT CROSSINGS. SPARE CONDUIT SHALL BE CAPPED AND SEALED AT BOTH ENDS. PAYMENT FOR THE MAINLINE SPARE CONDUIT SHALL BE PAID FOR UNDER THE PAY ITEM NUMBER 630-2-12.

2.) PRIOR TO ANY EQUIPMENT ORDER, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL EQUIPMENT SPECIFICATION OR DESIGN DATA FOR ALL MATERIAL PROPOSED FOR THE PROJECT. THESE MUST SPECIFICALLY INCLUDE:

A) LUMINAIRE PHOTOMETRICS
B) LOAD CENTER ELECTRONIC EQUIPMENT
C) POLE SHOP DRAWINGS
D) POLE STRENGTH CALCULATIONS
E) POLE FRANGIBILITY TEST
F) BOLT SPECIFICATIONS AND BOLD CIRCLE DIAMETER

3.) SUBMITTAL DATA SHALL INCLUDE COMPUTER PRINTOUT SHOWING HORIZONTAL FOOT CANDLE LEVELS TO BE OBTAINED USING THE SUBMITTED LUMINAIRES ON THIS PROJECT. AT FINAL INSPECTION, THE CONTRACTOR SHALL VERIFY THE HORIZONTAL FOOT-CANDLE LEVELS ON THE ROADWAY WITH AN APPROVED CURRENTLY CALIBRATED LIGHT METER. PAYMENT TO BE INCIDENTAL TO THE LIGHTING AND LUMINAIRE PAY ITEM NUMBERS. A REPORT DETAILING ACTUAL FIELD LIGHT LEVEL READINGS SHALL BE SUBMITTED FOR APPROVAL. SEVEN (7) COPIES OF SHOP DRAWINGS AND DESIGN DATA FOR HIGHWAY LIGHTING EQUIPMENT AND LOAD CENTER ELECTRICAL EQUIPMENT SHALL BE SUBMITTED TO THE ENGINEER IN CHARGE OF THE PROJECT.

4.) THE LOCATIONS OF EXISTING UTILITIES, AS SHOWN ON THESE PLANS, ARE APPROXIMATE AND BASED ON THE INFORMATION FURNISHED TO THE ENGINEER BY THE UTILITY OWNER(S) AND ARE SHOWN AS NOTICE TO THE CONTRACTOR THAT UNDERGROUND UTILITIES EXIST. THE CONTRACTOR SHALL STAKE ALL POLE LOCATIONS AND NOTIFY UTILITY OWNER(S) FOR LOCATION AND STAKING OF UNDERGROUND FACILITIES BEFORE EXCAVATING.

5.) FLORIDA STATUTE 553.851 (1998) AND 556 (1998) REQUIRES THAT BEFORE EXCAVATING, NOTICE BE GIVEN TO THE UTILITY OWNER A MINIMUM OF TWO (2) DAYS AND A MAXIMUM OF FIVE (5) DAYS, EXCLUDING SATURDAY, SUNDAY AND LEGAL HOLIDAYS. NOT ALL UTILITY COMPANIES ARE MEMBERS OF "SUNSHINE" 1-800-432-4770. SEE ROADWAY PLANS FOR UTILITY OWNER'S PHONE NUMBERS.

6.) THE LOCATION OF THE POLES, CONDUCTORS, CONDUITS, JUNCTION BOXES AND SERVICE POLES ARE DIAGRAMMATIC ONLY AND MAY BE SHIFTED BY THE ENGINEER TO ACCOMODATE LOCAL CONDITIONS AND EXISTING UTILITY LOCATIONS.

7.) ALUMINUM POLES, LUMINAIRES AND BASES SHALL BE DESIGNED AND FABRICATED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" AND SHALL HAVE BEEN TESTED BY FHWA-APPROVED METHODS. CERTIFICATION FOR TESTS SHALL BE SUBMITTED WITH THE SHOP DRAWINGS.

8.) ALL ELECTRICAL WORK SHALL MEET ALL REQUIREMENTS OF THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, THE NATIONAL ELECTRICAL SAFETY CODE AND THE STATE OF FLORIDA D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. ALL COMPONENTS SHALL BE PROPERLY GROUNDED AND BONDED PER N.E.C. REQUIREMENTS.

9.) INSTALL LIGHTNING ARRESTERS, PROPERLY GROUNDED, IN POWER (SECONDARY) ENTRANCES.

10.) IN ACCORDANCE WITH N.E.C., IDENTIFY ALL CIRCUITS AND EQUIPMENT WITH "LAMACOID TAGS". INSTALL SIMILAR TAGS OF STAINLESS STEEL IDENTIFYING THE CIRCUIT FOR EACH LUMINAIRE AT ACCESS HANDHOLE FOR EACH POLE.

11.) THE CONTRACTOR SHALL NOTIFY DUKE ENERGY AT LEAST 2 BUSINESS DAYS PRIOR TO ANY INSULATION THAT IS WITHIN TEN (10) FEET OF ENERGIZED ELECTRICAL CONDUCTORS. DUKE ENERGY, AT ITS OPTION, SHALL ASSIST THE CONTRACTOR, PROVIDE PROTECTION FOR ENERGIZED CONDUCTORS AT INSTALLATION SITE, OR TAKE OTHER SAFETY PRECAUTIONS AS NECESSARY. EXTREME CAUTION SHALL BE EXERCISED AT ALL TIMES IN PERFORMANCE OF WORK AROUND THE PRIMARY HIGH VOLTAGE COMPONENTS.

12.) PULLING INSTRUCTIONS: CONNECT PULLING DEVICES TO COPPER WIRE AND NOT TO JACKET AND MEET MANUFACTURER'S REQUIREMENTS. USE PULLING COMPOUND PER MANUFACTURER'S REQUIREMENTS. ALL BENDS SHALL NOT BE LESS THAN RECOMMENDED BY N.E.C. OR N.E.S.C. FOR CABLE USED. PULL CABLE SHALL BE POLYESTER. STEEL CABLE OR FISH TAPES SHALL NOT BE UTILIZED.

13.) FURNISH AND INSTALL AN ALUMINUM IDENTIFICATION TAG ON EACH ROADWAY LIGHT POLE. TAGS SHALL BE 2"X8" IN SIZE WITH BLACK LETTERS ON YELLOW BACKGROUND, ATTACHED WITH RIVETS (NO SCREWS) NUMBERS SHALL BE AS SHOWN ON THE POLE DATA SHEET ON THE POLE IDENTIFICATION TAG DETAIL. COST OF TAGS SHALL BE INCLUDED IN THE BID ITEMS FOR LIGHT POLE COMPLETE FOR PROPOSED POLES. TAG SHALL BE PLACED 5' ABOVE GRADE. SEE DETAIL ON L-5.

14.) THE LIGHT POLES SHALL BE GROUNDED PER STANDARDS REGARDLESS OF LOCAL PRACTICES. GROUNDING THE POLES THROUGH THE HANDHOLE IS UNACCEPTABLE.

15.) ALL LIGHTING ASSEMBLIES SHALL HAVE TRUSS STYLE ALUMINUM BRACKET ARMS. THE UPPER AND LOWER MEMBERS SHALL BE ATTACHED TO THE POLE'S SHAFT WITH CAST ALUMINUM POLE BANDS (COLLARS) WITH STAINLESS STEEL HARDWARE. THE STANDARD BOLTED TYPE IS NOT ALLOWED. THE MAXIMUM RISE OF THE BRACKET ARM SHALL NOT EXCEED 6'.

16.) THE CONCRETE PAD INDICATED IN THE FDOT INDEX 17500 IS REQUIRED AROUND LIGHTING POLES AND PULL BOXES.

17.) THE CONTRACTOR SHALL VERIFY POLE LENGTHS REQUIRED PER THE CROSS SECTION AND OFFSET IN ORDER TO ACHIEVE THE PROPER LUMINAIRE MOUNTING HEIGHT (PAVEMENT TO LUMINAIRE HOUSING) PRIOR TO SUBMITTING SHOP DRAWINGS.

18.) ALL CONDUITS UNDER ROADWAY (AND/OR SIDEWALK) SHALL BE INSTALLED PRIOR TO INSTALLATION OF ROADWAY BASE AND AND SURFACE (OR CONCRETE), EXCEPT WHERE OTHERWISE SPECIFIED IN THE PLANS.

19.) AT LOCATIONS WHERE UNDERGROUND UTILITIES ARE WITHIN 2 FEET OF THE LIGHT POLE FOUNDATIONS OR CONDUIT RUN, AS DETERMINED BY THE ENGINEER, THE CONTRACTOR WILL HAND DIG THE FIRST 4 FEET OF THE HOLE FOR THE POLE FOUNDATION AND CONDUIT RUN.

20.) CONDUIT LOCATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. CONDUIT MUST BE PLACED WITHIN THE RIGHT-OF-WAY BUT CAN BE ADJUSTED TO FIT AROUND THE EXISTING AND PROPOSED UTILITIES. WHERE PLANNED LOCATION OF LIGHTING CONDUIT RUNS 36" UNDER PAVEMENT IS FOUND TO CONFLICT WITH UNDERGROUND UTILITIES, THE LIGHTING CONDUIT POSITION SHALL BE ALTERED VERTICALLY OR HORIZONTALLY TO AVOID THE CONFLICT AS RECOMMENDED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. A 24" ABSOLUTE MINIMUM DEPTH SHALL BE MAINTAINED WHERE LIGHTING CONDUITS ARE RELOCATED CLOSER THAN 36" BELOW THE GROUND SURFACE AND SHALL BE PLACED IN AN ADDITIONAL 3" PVC SLEEVE OR BACKFILLED WITH A MIN. OF 4" X 4" OF CONCRETE. COST OF SUCH TREATMENT WILL BE INCIDENTAL TO PAY ITEMS PROVIDED. THE CONTRACTOR IS TO TAKE EXTRA CARE AND HAND DIG THE CONDUIT AT UTILITY CONFLICT.

21.) CONTRACTOR SHALL PREPARE ACCURATELY DIMENSIONED "AS BUILT" PLANS OF FINAL POLE, CONTROLLER, CABLE AND CONDUIT LOCATIONS. PLANS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER AND SUBMITTED TO THE RESIDENT ENGINEER. COST OF SUCH PREPARATION SHALL BE INCIDENTAL TO PAY ITEMS PROVIDED.

22.) ALL SPLICES SHALL BE MADE IN PULL BOXES ONLY WITH COMPRESSION SLEEVES OF SPLIT BOLT CONNECTIONS, PROPERLY TAPED AND WATERPROOFED.

23.) SPLICES AND CONNECTIONS MADE IN PULL BOXES SHALL BE LIMITED TO THE SERVICE POINT AND CONDUIT JUNCTION WITH MULTI-DIRECTIONAL CONDUITS AS INDICATED ON PLANS. THE CONNECTION MADE AT THESE POINTS SHOULD BE PROPERLY TAPED AND HEAT SHRINK TUBES OR CAPS SHALL BE USED TO WATERPROOF THESE CONNECTIONS.

24.) INSPECT ALIGNMENT OF EACH INDIVIDUAL POLE AND FIXTURE AS FOLLOWS:

25.) POLE ALIGNMENT: WITHIN ONE HALF DEGREE ON VERTICAL +/-, CONFIRM VERTICAL ALIGNMENT, VIEWING FROM ADJACENT SERIES OF POLES, IN BOTH DIRECTIONS.

26.) FIXTURE ALIGNMENT: WITHIN ONE DEGREE OF HORIZONTAL +/-, USING CALIBRATED LEVEL ALONG BOTH AXES OF CUT-OFF FIXTURE FACE, WITH LENS ONLY.

27.) ALL CONDUITS SHALL BE MANDREL TESTED AND CLEANED. CONDUIT PLACED FOR FUTURE USE SHALL HAVE 3/4" POLYESTER CORD PULLED IN PLACE AND CAPPED, WITH NOTATION INSIDE CONDUIT AS TO LOCATION OF OPPOSITE END. PLACE DUCT MARKER OR PULL BOXES TO MARK ENDS OF EMPTY CONDUITS.

28.) SCREW TYPE ANCHOR FOUNDATIONS ARE NOT TO BE USED ON THIS PROJECT.

29.) EACH SIGN LUMINAIRE SHALL BE PROVIDED WITH A LABEL ON THE OUTSIDE IDENTIFYING THE VOLTAGE OF THE BALLAST.

30.) SIGN LUMINAIRE SHALL BE SIMILAR OR EQUAL TO HOLOPHANE SIGN-VUE LED WITH MODEL NUMBER SVLED35K7ASSSVDG OR AUTHORITY EQUAL. SIGN LUMINAIRES SHALL BE MOUNTED AT THE BOTTOM OF THE SIGN.

PAY ITEM FOOTNOTES

630-2-XX: CONDUIT, ELBOWS, SWEEPS, CONNECTING HARDWARE,TRENCHING/BORE AND BACKFILL AS INDICATED IN THE PLANS AND THE DESIGN STANDARDS AS WELL AS RESTORING CUT PAVEMENT, SIDEWALKS, SOD AND ETC. TO ITS ORIGINAL CONDITION SHALL BE INCIDENTAL TO THIS ITEM. ALL CONDUIT SHALL BE 2" UNLESS OTHERWISE NOTED IN PLANS.

635-2-11: PULL BOX COVER SHALL BE NONMETALLIC AND SHALL BE MARKED "STREET LIGHTING". THE PULL BOX METAL COVER WILL BE BONDED TO THE GROUND ROD WITH 2' OF NO. 6 EXTRA FLEXIBLE BARE COPPER CONDUCTOR; THIS WORK SHALL BE INCIDENTAL TO THIS ITEM.

715-1-XX: CONDUCTORS AS INDICATED IN THE PLANS AND THE DESIGN STANDARDS SHALL BE INCIDENTAL TO THIS ITEM. MEASUREMENT SHALL BE MADE BASED ON LINEAR FEET OF SINGLE CONDUCTOR.

715-50: ALL WORK & MATERIALS, INCLUDING CONDUIT, WIRING (WITHIN THE BOX GIRDER), POWER DISTRIBUTION (MINI POWER CENTER), RECEPTACLES, LUMINAIRES, CHANNELS, EXPANSION FITTINGS, NONMETALLIC OUTLET BOX, ALLOY 316 STAINLESS STEEL SUPPORTING HARDWARE, TIMERS, AND WIRE GROUNDING SHALL BE INCIDENTAL TO THIS LUMP SUM PAY ITEM.

715-500-1 & 715-500-3: POLE CABLE DISTRIBUTION SYSTEMS SHALL BE INSTALLED IN ALL PULL BOXES LOCATED ADJACENT TO ALL PROPOSED POLES. POLE CABLE DISTRIBUTION SYSTEM SHALL BE MANUFACTURED BY DURALINE/[MG]°2.

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429-206

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

PROJECT NOTES

SHEET NO.
L-4

POLE DATA

POLE NO.	CIRCUIT	STATION	DIST. OR ARM	LUMINAIRE WATTAGE	MOUNTING HEIGHT	POLE SETBACK	SPECIAL NOTES	PAY ITEM
1	E-1	STA. 160+71 RT ℄ CONST. SR 453	12'	400W	45'	PILASTER MOUNTED	H.S.S	715-513-145
2	E-6	STA. 161+95 LT ℄ CONST. SR 453	12'	400W	45'	PILASTER MOUNTED	H.S.S	715-513-145
3	E-1	STA. 162+97 RT ℄ CONST. SR 453	12'	400W	45'	PILASTER MOUNTED	H.S.S	715-513-145
4	E-6	STA. 630+50 RT ℄ CONST. RAMP B	12'	400W	45'	PILASTER MOUNTED	H.S.S	715-513-145
5	E-1	STA. 465+06 RT ℄ CONST. RAMP D	12'	400W	45'	PILASTER MOUNTED	H.S.S	715-513-145
6	E-6	STA. 628+02 RT ℄ CONST. RAMP B	12'	400W	45'	PILASTER MOUNTED	H.S.S	715-513-145
7	E-1	STA. 467+19 RT ℄ CONST. RAMP D	12'	400W	45'	PILASTER MOUNTED	H.S.S	715-513-145
8	E-6	STA. 625+88 RT ℄ CONST. RAMP B	12'	400W	45'	PILASTER MOUNTED	H.S.S	715-513-145
9	E-1	STA. 468+92 RT ℄ CONST. RAMP D	12'	400W	45'	PILASTER MOUNTED	H.S.S	715-513-145
10	E-6	STA. 623+94 RT ℄ CONST. RAMP B	12'	400W	45'	PILASTER MOUNTED	H.S.S	715-513-145
11	E-1	STA. 470+68 RT ℄ CONST. RAMP D	12'	400W	45'	PILASTER MOUNTED	H.S.S	715-515-145
12	E-2	STA. 372+45 LT ℄ CONST. RAMP C	12'	400W	45'	PILASTER MOUNTED		715-515-145
13	E-1	STA. 473+91 RT ℄ CONST. RAMP D	12'	400W	45'	PILASTER MOUNTED		715-513-145
14*	E-2	STA. 376+17 LT ℄ CONST. RAMP C	15'	400W	45'	5' FROM F.O.G.R.		715-4-132
15	E-1	STA. 477+38 RT ℄ CONST. RAMP D	15'	400W	45'	6' FROM F.O.C.		715-4-132
16*	E-2	STA. 379+67 LT ℄ CONST. RAMP C	15'	400W	45'	5' FROM F.O.G.R.		715-4-132
17	E-1	STA. 481+01 RT ℄ CONST. RAMP D	15'	400W	45'	6' FROM F.O.C.		715-4-132
18*	E-2	STA. 383+02 LT ℄ CONST. RAMP C	15'	400W	45'	6' FROM F.O.G.R.		715-4-132
19	E-1	STA. 484+92 RT ℄ CONST. RAMP D	15'	400W	45'	7' FROM F.O.C.		715-4-132
20*	E-2	STA. 386+18 LT ℄ CONST. RAMP C	15'	400W	45'	5' FROM F.O.G.R.		715-4-132
21	E-1	STA. 488+75 RT ℄ CONST. RAMP D	15'	400W	45'	10' FROM F.O.C.		715-4-132
22*	E-2	STA. 389+59 LT ℄ CONST. RAMP C	15'	400W	45'	5' FROM F.O.G.R.		715-4-132
23	E-1	STA. 492+75 RT ℄ CONST. RAMP D	15'	400W	45'	10' FROM F.O.C.		715-4-132
24*	E-2	STA. 392+78 LT ℄ CONST. RAMP C	15'	400W	45'	5' FROM F.O.G.R.		715-4-132
25	E-1	STA. 496+43 RT ℄ CONST. RAMP D	15'	400W	45'	6' FROM F.O.C.		715-4-132
26*	E-2	STA. 396+08 LT ℄ CONST. RAMP C	15'	400W	45'	5' FROM F.O.G.R.		715-4-132
27	E-1	STA. 499+77 RT ℄ CONST. RAMP D	15'	400W	45'	7' FROM F.O.C.		715-4-132
101	E-4	STA. 209+05 RT ℄ CONST. CR 46	15'	400W	45'	10' FROM F.O.C.		715-4-132
102	E-3	STA. 209+87 LT ℄ CONST. CR 46	15'	400W	45'	10' FROM F.O.C.		715-4-132
103	E-4	STA. 210+93 RT ℄ CONST. CR 46	15'	400W	45'	10' FROM F.O.C.		715-4-132
104	E-3	STA. 212+20 LT ℄ CONST. CR 46	15'	400W	45'	10' FROM F.O.C.		715-4-132
105	E-4	STA. 612+93 RT ℄ CONST. RAMP B	15'	400W	45'	9' FROM F.O.C.		715-4-132
106*	E-3	STA. 214+30 LT ℄ CONST. CR 46	15'	400W	45'	17' FROM F.O.C.		715-4-132
107	E-4	STA. 615+19 RT ℄ CONST. RAMP B	15'	400W	45'	10' FROM F.O.C.		715-4-132
108	E-3	STA. 216+24 LT ℄ CONST. CR 46	15'	400W	45'	22' FROM F.O.C.		715-4-132
109	E-5	STA. 217+42 RT ℄ CONST. CR 46	15'	400W	45'	6' FROM F.O.C.		715-4-132
110	E-5	STA. 617+09 RT ℄ CONST. RAMP B	15'	400W	45'	14' FROM E.O.T.L.		715-4-132
111	E-3	STA. 218+20 LT ℄ CONST. CR 46	15'	400W	45'	10' FROM F.O.C.		715-4-132
112	E-5	STA. 219+49 RT ℄ CONST. CR 46	15'	400W	45'	6' FROM F.O.C.		715-4-132
113	E-6	STA. 619+66 RT ℄ CONST. RAMP B	12'/12'	400W/400W	45'	PILASTER MOUNTED		715-517-145
114	E-5	STA. 221+65 RT ℄ CONST. CR 46	15'	400W	45'	7' FROM F.O.C.		715-4-132
115	E-3	STA. 220+21 LT ℄ CONST. CR 46	15'	400W	45'	10' FROM F.O.C.		715-4-132
116	E-6	STA. 621+85 RT ℄ CONST. RAMP B	12'	400W	45'	PILASTER MOUNTED		715-513-145
117	E-3	STA. 222+78 LT ℄ CONST. CR 46	15'	400W	45'	10' FROM F.O.C.		715-4-132
118	E-5	STA. 222+89 RT ℄ CONST. CR 46	15'	400W	45'	8' FROM F.O.C.		715-4-132
119	E-5	STA. 224+80 RT ℄ CONST. CR 46	15'	400W	45'	10' FROM F.O.C.		715-4-132
120	E-3	STA. 226+81 LT ℄ CONST. CR 46	15'	400W	45'	10' FROM F.O.C.		715-4-132
121	E-5	STA. 228+70 RT ℄ CONST. CR 46	15'	400W	45'	10' FROM F.O.C.		715-4-132

F.O.C. = FACE OF CURB E.O.T.L. = EDGE OF TRAVEL LANE
H.S.S = HOUSE SIDE SHIELD F.O.G.R. = FACE OF GUARDRAIL
* = ON SLOPE OF 1:4 OR GREATER (SEE INDEX 17515)

CONVENTIONAL LIGHTING DESIGN CRITERIA

CONVENTIONAL LIGHTING DESIGN CRITERIA	
AVERAGE INITIAL INTENSITY	1.7 F.C. (DESIRED.) (1.5 F.C. (MIN) TO 2.25 F.C. (MAX))
UNIFORMITY RATIO AVG/MIN.	4:1 OR LESS
WIND SPEED MAX/MIN.	10:1 OR LESS
	110 M.P.H. (LAKE COUNTY)
VEILING LUMINANCE RATIO LV(MAX)/LVAVG	0.3:1 OR LESS

SIGN LIGHTING DESIGN CRITERIA	
AVERAGE INITIAL INTENSITY	(25 (MIN) TO 35 F.C. MAX)
UNIFORMITY RATIO MAX/MIN.	6:1 OR LESS
WIND SPEED	110 M.P.H. (LAKE COUNTY)

SYMBOLS — LEGEND

SHOULDER MOUNTED 400 WATT HIGH PRESSURE SODIUM (HPS) LIGHT POLE COMPLETE DESIGNED FOR MEDIUM CUTOFF – TYPE III DISTRIBUTION, INTEGRAL MAGNETIC REGULATOR TYPE BALLAST WIRED FOR 480 VOLT OPERATION. MOUNTING HEIGHT 45' W/ 15' MOUNTING ARM, GE MODEL M-400A POWR/DOOR LUMINAIRE W/ CUTOFF OPTICS OR AUTHORITY APPROVED EQUAL. GE PHOTOMETRIC CURVE #35-451002. TRANSFORMER BASES SHALL HAVE HINGED DOORS. SYMBOL INCLUDES CONCRETE SLAB, PULL BOX, POLE CABLE DISTRIBUTION SYSTEM, AND HOUSE SIDE SHIELDS (AS SPECIFIED). PULL BOX AND POLE CABLE DISTRIBUTION SYSTEM ARE PAID FOR SEPARATELY. SEE GENERAL NOTE 15 REGARDING POLE DETAILS.

PILASTER MOUNTED 400 WATT HIGH PRESSURE SODIUM (HPS) LIGHT POLE COMPLETE DESIGNED FOR MEDIUM CUTOFF – TYPE III DISTRIBUTION, INTEGRAL MAGNETIC REGULATOR TYPE BALLAST WIRED FOR 480 VOLT OPERATION. MOUNTING HEIGHT 45' W/ 12' MOUNTING ARM, GE MODEL M-400A POWR/DOOR LUMINAIRE W/ CUTOFF OPTICS OR AUTHORITY APPROVED EQUAL. GE PHOTOMETRIC CURVE #35-451002. SYMBOL INCLUDES PULL BOX. POLE CABLE DISTRIBUTION SYSTEM PAID FOR SEPARATELY, SYMBOL INCLUDES HOUSE SIDE SHIELD AS SPECIFIED IN PLANS AND ARE CONSIDERED INCIDENTAL TO THE LIGHT POLE ASSEMBLY SEE GENERAL NOTE 15 REGARDING POLE DETAILS.

PILASTER MOUNTED BACK-BACK 400 WATT HIGH PRESSURE SODIUM (HPS) LIGHT POLE COMPLETE DESIGNED FOR MEDIUM CUTOFF – TYPE III DISTRIBUTION, INTEGRAL MAGNETIC REGULATOR TYPE BALLAST WIRED FOR 480 VOLT OPERATION. MOUNTING HEIGHT 45' W/ 12' MOUNTING ARM FACING ROADWAY AND 12' MOUNTING ARM FACING SIDEWALK. GE MODEL M-400A POWR/DOOR LUMINAIRE W/ CUTOFF OPTICS OR AUTHORITY APPROVED EQUAL. GE PHOTOMETRIC CURVE #35-451002. SYMBOL INCLUDES PULL BOX. POLE CABLE DISTRIBUTION SYSTEM PAID FOR SEPARATELY, SYMBOL INCLUDES HOUSE SIDE SHIELD AS SPECIFIED IN PLANS AND ARE CONSIDERED INCIDENTAL TO THE LIGHT POLE ASSEMBLY SEE GENERAL NOTE 15 REGARDING POLE DETAILS.

△ 90 WATT LED TYPE VS, 120 LED TYPE V MEDIUM DISTRIBUTION, 350mA DRIVE CURRENT, 4300K EDGE AREA. CREE CURVE # TSP-EDG-5M-PD OR AUTHORITY APPROVED EQUAL.

PROPOSED 2" SCHEDULE 40 P.V.C. UNDERGROUND CONDUIT WITH THWN-2 STANDARD COPPER CONDUCTORS INSIDE (CONDUCTOR AND GROUND WIRE SIZES SHOWN ON PLAN SHEETS) AND INSULATED GREEN STRANDED CU BOND WIRE CONNECTING ALL POLES, AND INSULATED STRANDED COPPER CIRCUIT CONDUCTORS.

PROPOSED 2" SCHEDULE 40 HDPE DIRECTIONAL BORE CONDUIT WITH THWN-2 STANDARD COPPER CONDUCTORS INSIDE. DIRECTIONAL BORE UNDER PAVEMENT. (CONDUCTOR AND GROUND WIRE SIZES SHOWN ON PLAN SHEETS) AND INSULATED GREEN STRANDED CU BOND WIRE CONNECTING ALL POLES, AND INSULATED STRANDED COPPER CIRCUIT CONDUCTORS.

PROPOSED 3" SCHEDULE 40 HDPE DIRECTIONAL BORE CONDUIT WITH THWN-2 STANDARD COPPER CONDUCTORS INSIDE. DIRECTIONAL BORE UNDER PAVEMENT. (CONDUCTOR AND GROUND WIRE SIZES SHOWN ON PLAN SHEETS) AND INSULATED GREEN STRANDED CU BOND WIRE CONNECTING ALL POLES, AND INSULATED STRANDED COPPER CIRCUIT CONDUCTORS.

PROPOSED 2" PVC CONDUIT UV-RESISTANT SCHEDULE 80 WITH THWN-2 STANDARD COPPER CONDUCTORS FOR MAINTENANCE LIGHTING INSIDE BOX GIRDERS.

PROPOSED 3" SCHEDULE 40 HDPE UNDERGROUND CONDUIT WITH THWN-2 STANDARD COPPER CONDUCTORS INSIDE. (CONDUCTOR AND GROUND WIRE SIZES SHOWN ON PLAN SHEETS) AND INSULATED GREEN STRANDED CU BOND WIRE CONNECTING ALL POLES, AND INSULATED STRANDED COPPER CIRCUIT CONDUCTORS.

PROPOSED 2" EMBEDDED CONDUIT WITH STANDARD COPPER CONDUCTORS AND THWN-2 INSULATION.

□ PULL BOX (SEE INDEX 17500 DESIGN STANDARDS BOOKLET DATED 2014.) PULL BOXES ARE REQUIRED AT BOTH ENDS OF CONDUIT AT ROADWAY CROSSINGS AND AS NECESSARY FOR COMPLETION OF THE PROJECT. PULL BOX COVER SHALL HAVE "STREET LIGHTING" LOGO. SYMBOL INCLUDES PULL BOX AND CONCRETE SLAB (INCIDENTAL).

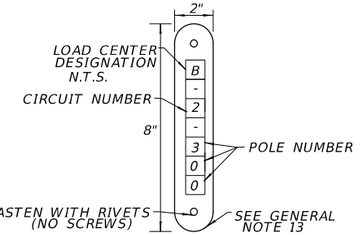
EMBEDDED PULL BOX ON BRIDGE PER FDOT SPECIFICATION 635.

DISTRIBUTION POINT SEE INDEX 17504 OF DESIGN STANDARDS.

7.5 KVA MINI POWER CENTER WITH EIGHT 20A BREAKERS USED AS STEP DOWN TRANSFORMER FROM 480V TO 120V TO ENERGIZE 100W INCANDESCENT MAINTENANCE LUMINAIRES.

PROPOSED POINT OF SERVICE

PROPOSED CONCRETE PEDESTAL W/ PANEL AND TRANSROMER (IF NECESSARY)



POLE IDENTIFICATION TAG DETAIL

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JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.
429-206

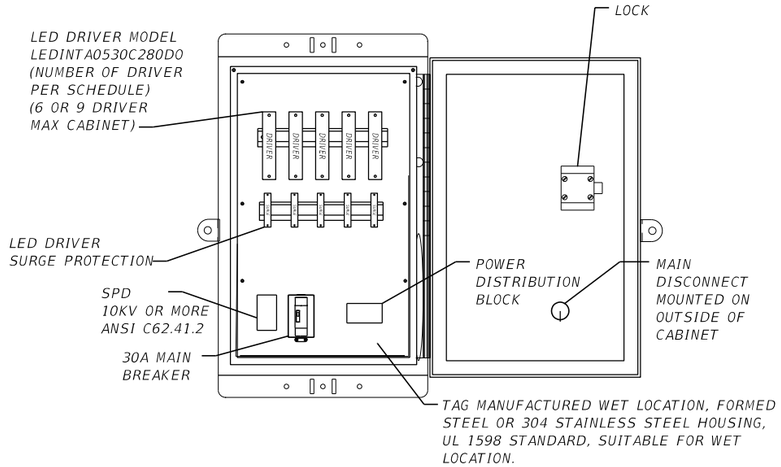
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

POLE DATA & LEGEND SHEET

SHEET NO.
L-5

SIGN LUMINAIRE DATA

SIGN PANEL	STRUCTURE NO.	CIRCUIT NO.	SIGN STATION	ARM LENGTH	TILT	LUMINAIRE WATTAGE	LED DRIVER OUTPUT	NO. LED DRIVERS	FIXTURE PLACEMENT			
									CONFIG. TYPE	SIGN SIZE (W X H)	A	B
101	OT-3	A-1	108+00 ℄ CONST. SR 453	4'	0"	129W	1050mA	3	3S	35.0' x 20.5'	4.5'	13'
105	OT-1	E-1	149+00 ℄ CONST. SR 453	4'	0"	82W	700mA	3	3S	40.5' x 12.5'	6.75'	13.5'
106	OC-2	E-1	159+00 ℄ CONST. SR 453	4'	0"	55W	700mA	3	3S	28.0' x 13.5'	4.7'	9.3'
107	OT-4	E-1	466+97 ℄ CONST. RAMP D	4'	0"	82W	700mA	3	3S	40.5' x 12.5'	6.75'	13.5'
108	OT-5	E-1	479+35 ℄ CONST. RAMP D	4'	0"	55W	700mA	2	2S	20.5' x 11.5'	5.12'	10.26'
109		E-1		4'	0"	129W	1050mA	1	1S	17.0' x 11.5'	8.5'	N.A.
110	OT-2	E-1	496+20 ℄ CONST. RAMP D	4'	0"	55W	700mA	2	2S	20.5' x 11.5'	5.25'	10.0'
111		E-1		4'	0"	82W	700mA	1	1S	16.5' x 8.0'	8.25'	N.A.
112		E-1		4'	0"	82W	700mA	1	1S	13.5' x 11.5'	6.75'	N.A.
113 & 114	OC-8	E-3	227+00 ℄ CONST. CR 46	4'	0"	82W	700mA	2	2S	16.5' x 20.5'	3.65'	4.6'
116 & 117	OC-6	E-4	611+90 ℄ CONST. RAMP B	4'	0"	129W	1050mA	2	2S	20.0' x 19.5'	3.0'	7.0'
116 & 117	OC-7	E-3	218+50 ℄ CONST. CR 46	4'	0"	129W	1050mA	2	2S	20.0' x 19.5'	3.0'	7.0'



CABINET DETAIL

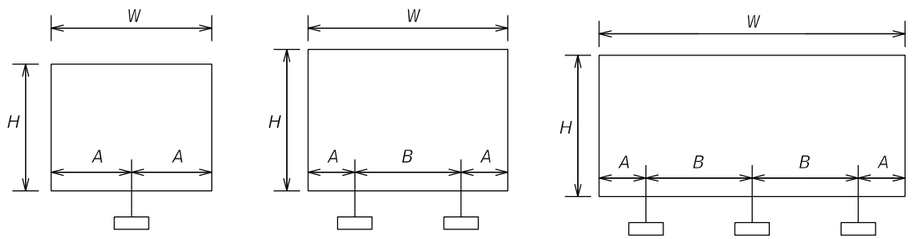
UNDERDECK LUMINAIRE DATA

LUM. NO.	CIRCUIT NO.	STATION	LUMINAIRE WATTAGE	MOUNTING HEIGHT	LUMINAIRE OFFSET	PAY ITEM	NOTES
UD 1	A-2	STA. 101+10 ℄ CONST. SR 453	90	16'	45' RT	715-11-126	PENDANT HUNG
UD 2	A-2	STA. 101+78 ℄ CONST. SR 453	90	16'	25' RT	715-11-126	PENDANT HUNG
UD 3	A-1	STA. 102+41 ℄ CONST. SR 453	90	16'	31' LT	715-11-126	PENDANT HUNG
UD 4	A-2	STA. 102+42 ℄ CONST. SR 453	90	16'	22' RT	715-11-126	PENDANT HUNG
UD 5	A-1	STA. 102+92 ℄ CONST. SR 453	90	16'	31' LT	715-11-126	PENDANT HUNG
UD 6	A-1	STA. 103+49 ℄ CONST. SR 453	90	16'	46' LT	715-11-126	PENDANT HUNG
UD 7	E-1	STA. 161+54 ℄ CONST. SR 453	90	16'	38' RT	715-11-126	PENDANT HUNG
UD 8	E-6	STA. 162+18 ℄ CONST. SR 453	90	16'	38' LT	715-11-126	PENDANT HUNG
UD 9	E-1	STA. 472+35 ℄ RAMP D	90	16'	40' LT	715-11-126	PENDANT HUNG
UD 10	E-1	STA. 473+12 ℄ RAMP D	90	16'	40' LT	715-11-126	PENDANT HUNG
UD 11	E-6	STA. 622+02 ℄ RAMP B	90	16'	6' LT	715-11-126	PENDANT HUNG
UD 12	E-6	STA. 621+22 ℄ RAMP B	90	16'	8' LT	715-11-126	PENDANT HUNG

UNDERDECK NOTES:

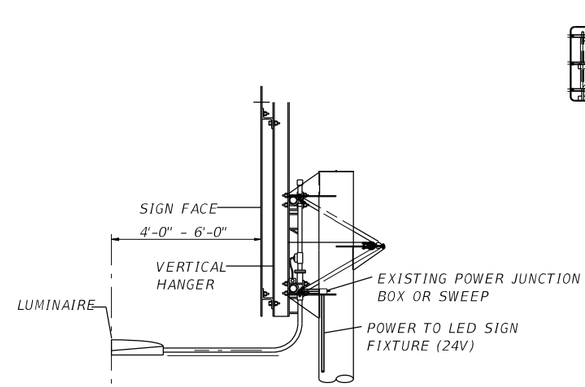
1. REFER TO UNDERDECK LIGHTING DETAILS FOR MORE INFORMATION.
2. MOUNTING HEIGHT MEASURED FROM CENTER OF MOUNTED LUMINAIRE.

SIGN LIGHT FIXTURE PLACEMENT CONFIGURATION TYPES:

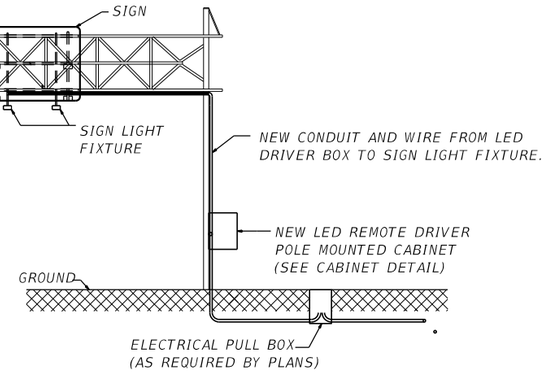


SIGN LIGHTING DESIGN CRITERIA BASED ON MEDIUM & HIGH AMBIENT LUMINANCE OF SURROUNDING AREA

LED REMOTE DRIVER BOX - POLE MOUNT



LED SIGN LIGHT FIXTURE ON STRUCTURE (PROFILE)



SIGN CONDUIT DIAGRAM

SIGN LIGHTING NOTES:

1. SIGN ILLUMINATION SHALL BE SIMILAR OR EQUAL TO HOLOPHANE SIGN-VUE LED SIGN LIGHT, MODEL SVLED (2 OR 3) 5K 7 AS S SV D G, & SVLED 3 5K 1 AS S SV D G OR CFX APPROVED EQUAL. SIGN LUMINAIRES SHALL BE GREY OR GRAPHITE IN COLOR. TOP MOUNTED LUMINAIRES SHALL NOT BE ALLOWED WITHOUT PRIOR CFX APPROVAL. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A COMPUTER PRINTOUT FOR EACH SIGN INDICATING THAT THE SELECTED LUMINAIRE MEETS OR EXCEEDS THE ABOVE CRITERIA. THE NUMBER OF LUMINAIRES INDICATED ON INDEX 17505 IS SUPERSEDED BY THE NUMBER OF LUMINAIRES INDICATED IN THE SCHEDULE OF LIGHTED SIGNS.
2. FIXTURES SHALL BE MOUNTED ONE FOOT BELOW THE BOTTOM OF THE SIGN AND FOUR FEET OFFSET, OR AS CALLED FOR IN SIGN LUMINAIRE DATA CHART. SEE FDOT DESIGN STANDARDS 17505 AND SIGN DETAIL DRAWING FOR FURTHER INFORMATION ON SIGN LIGHT INSTALLATION. PER THE SIGN LUMINAIRE TABLE EACH FIXTURE WILL HAVE ONE LED DRIVER THAT WILL HELP MAINTAIN CONSTANT CURRENT OUTPUT.
3. UPON APPROVAL FROM THE ENGINEER THE SPACING MAY BE ADJUSTED BY CONTRACTOR AS NECESSARY TO ACCOMMODATE STRUCTURAL MEMBERS.

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JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	SIGN & UNDERDECK LUMINAIRE DATA	SHEET NO.
429-206			L-6

LOAD CENTER "A"
STA 102+51 +/-
240/480 V SINGLE PHASE,
3 WIRE 3-#4 UNDERGROUND
225 AMP RATED, MLO,
WITH PHOTOCELL
CKT. 1 - 30A, 2P
CKT. 2 - 30A, 2P
CKT. 3 - 30A, 2P SPARE
CKT. 4 - 30A, 2P SPARE

MAINTENANCE LIGHTING
LOAD CENTER "B"
STA 102+57 +/-
240/480 V SINGLE PHASE,
3 WIRE, 100 AMP RATED,
2P, 40 AMP MCB, CIRCUIT
BREAKERS
CKT. 1 - 30A, 2P
CKT. 2 - 30A, 2P
CKT. 3 - 30A, 2P SPARE
CKT. 4 - 30A, 2P SPARE

2-#6
1-#6 GND

2-#4
1-#4 GND

2-#8 CKT. B-1
2-#4 CKT. B-2
1-#4 GND

2-#6 CKT. A-1
2-#6 CKT. A-2
1-#6 GND

2" C
2-#6 CKT. A-1
2-#6 CKT. A-2
1-#6 GND
2" C
2-#8 CKT. B-1
2-#4 CKT. B-2
1-#4 GND

LA R/W

EXIST RW LINE

COUNTY LINE ROAD

BEGIN APPROACH SLAB
STA. 101+79.50

BEGIN BRIDGE
STA. 101+39.50

℄ CONST. SR 453

N 89° 47' 27" W

N 89° 04' 37" W

N 59° 46' 03" W

S 88° 16' 52" W

1425 1426 1427 98 99 100 101 102 103 104 2432 2433

800 801 802 803 804 805 900 901 902 903 904 905

BEGIN ROADWAY LIGHTING
STA. 101+10
℄ CONST. SR 453

℄ CONST. EXIST
ACCESS RD.

℄ CONST. EXIST
ACCESS RD. 1

SEE UNDERDECK
LIGHTING
PLANS FOR DETAILS

END APPROACH SLAB
STA. 103+79.50

END BRIDGE
STA. 103+19.50

MATCHLINE STA. 104+80

0 10 50
Feet

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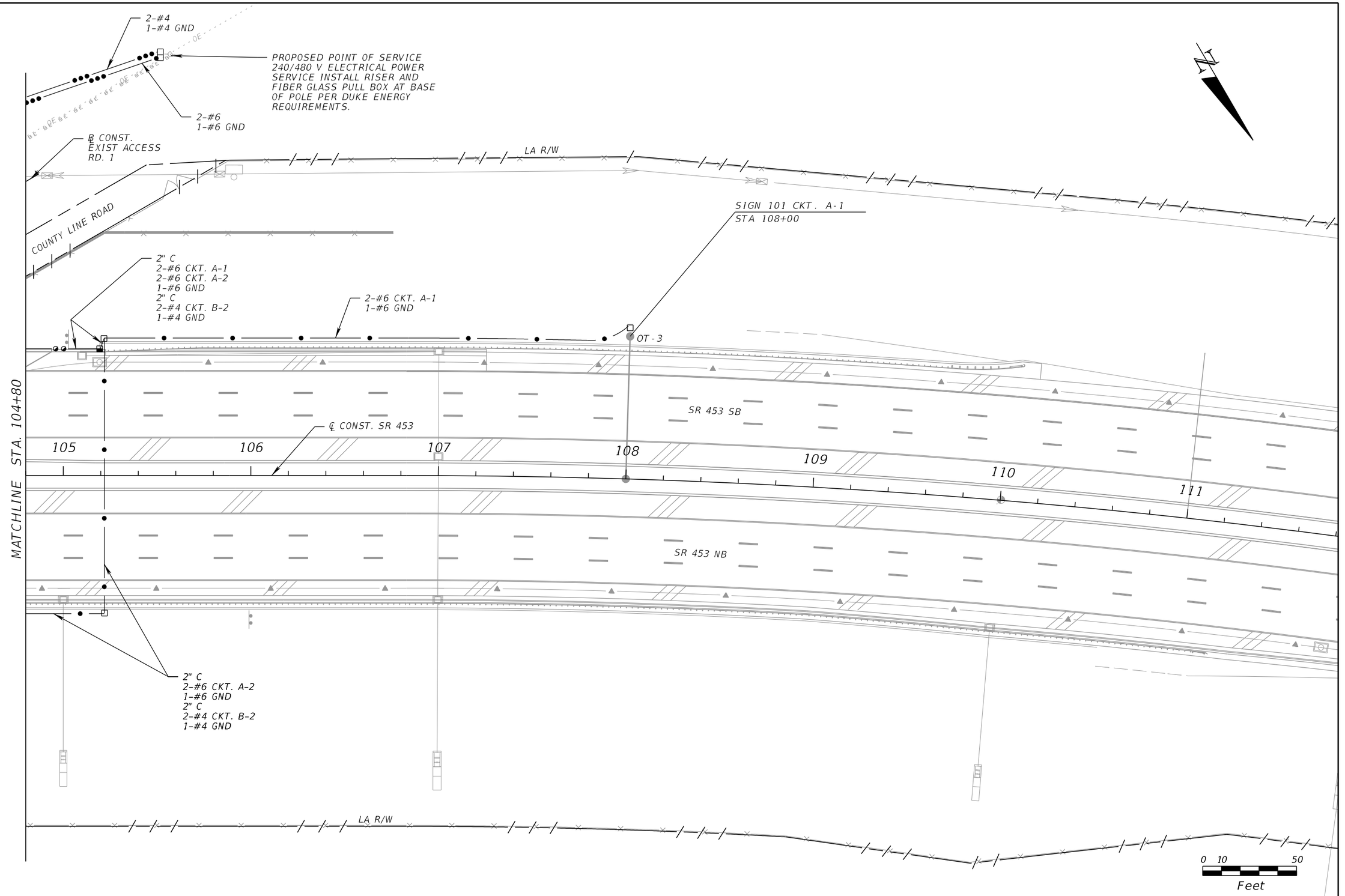
CFX PROJ. NO.
429-206

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

LIGHTING PLAN SHEET

SHEET NO.
L-7



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CFX PROJ. NO.	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	LIGHTING PLAN SHEET	SHEET NO.
429-206			L-8

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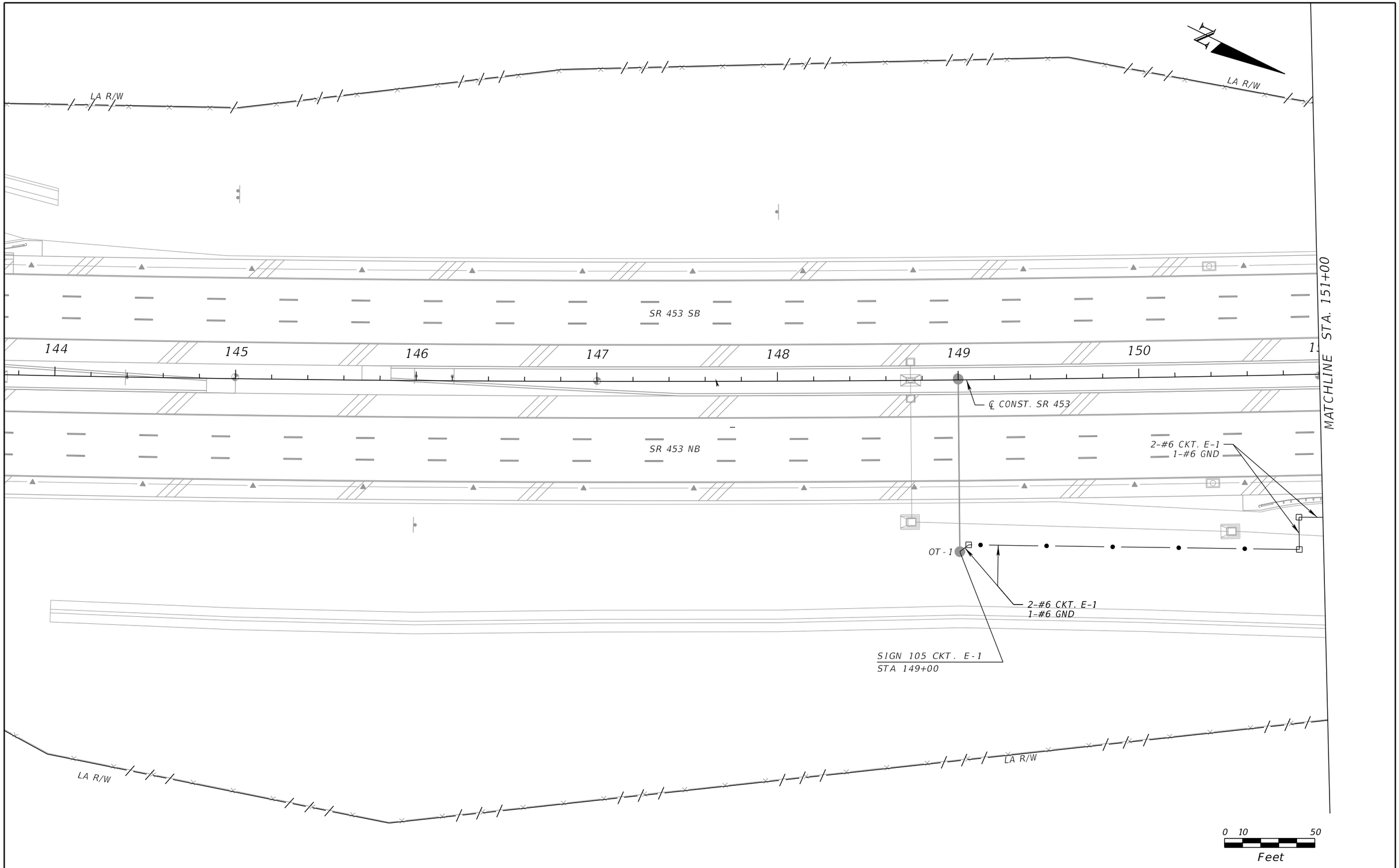

REVISIONS			
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JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	LIGHTING PLAN SHEET	SHEET NO.
429-206			L-9

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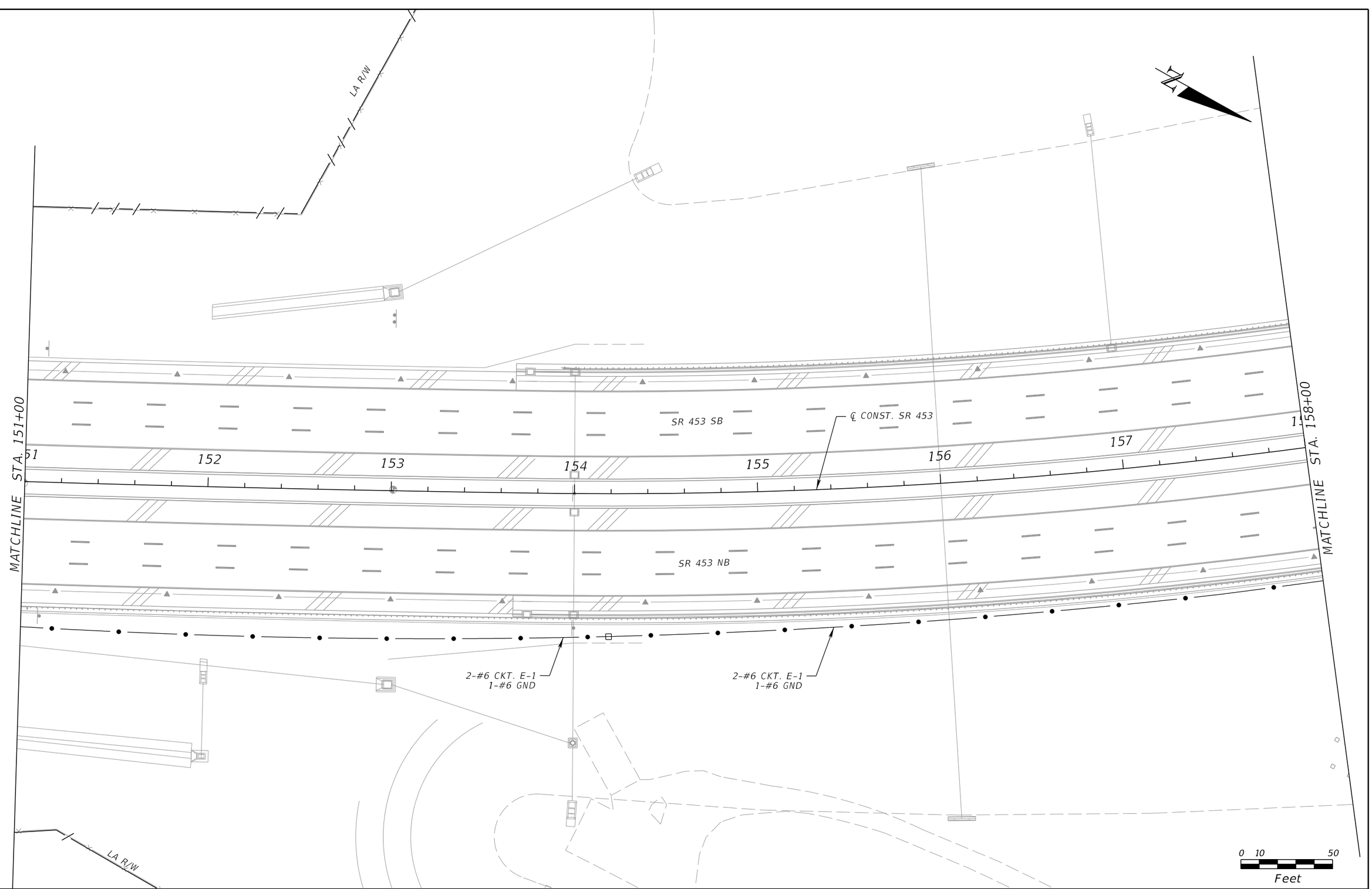

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CERTIFICATE OF AUTHORIZATION NO. 2648
JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	LIGHTING PLAN SHEET	SHEET NO.
429-206			L-10

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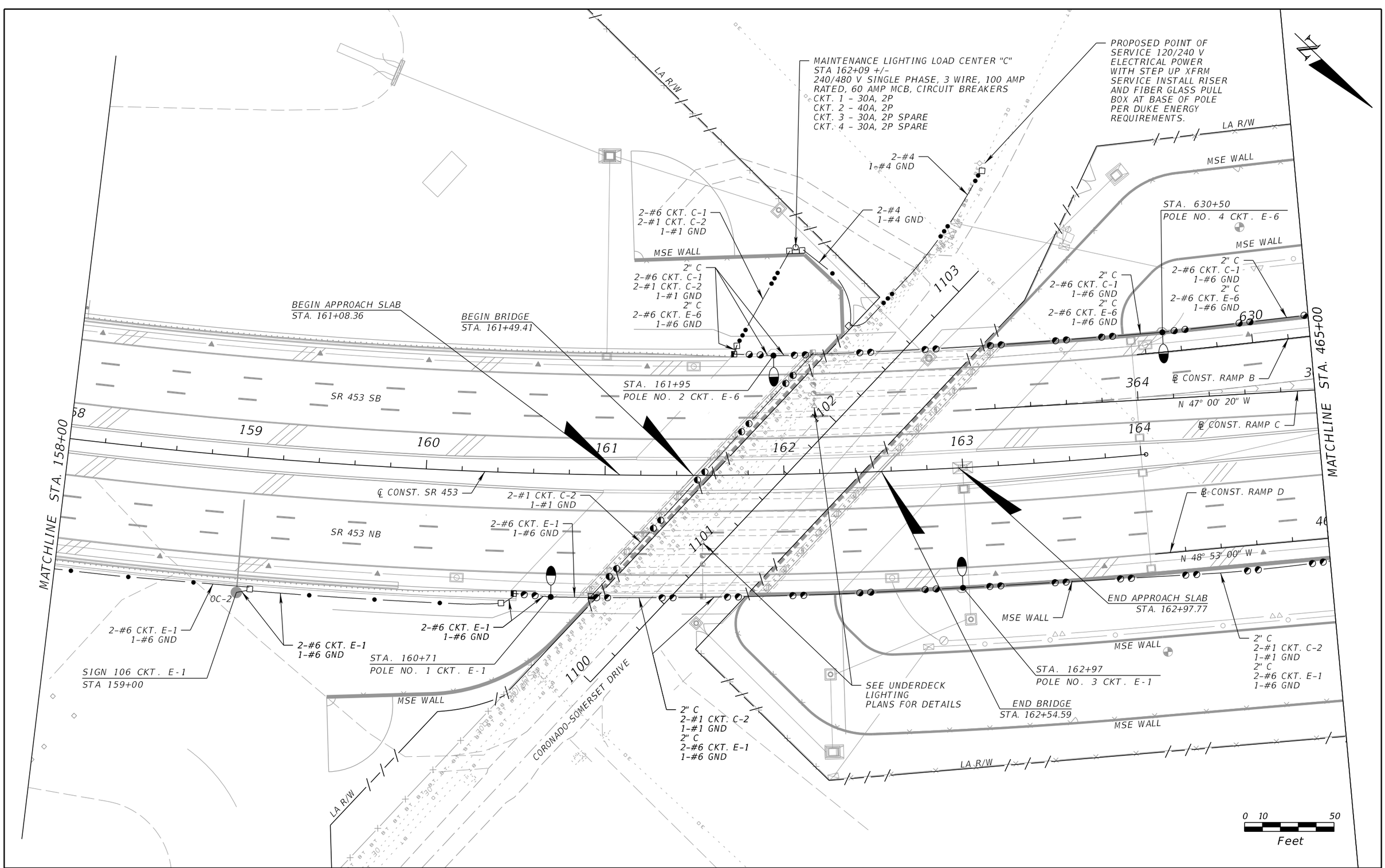

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CFX PROJ. NO.
429-206

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

LIGHTING PLAN SHEET

SHEET NO.
L-11

LA R/W

MSE WALL

2" C
2-#6 CKT. C-1
1-#6 GND
2" C
2-#6 CKT. E-6
1-#6 GND

STA. 628+02
POLE NO. 6 CKT. E-6

2" C
2-#6 CKT. C-1
1-#6 GND
2" C
2-#6 CKT. E-6
1-#6 GND

STA. 625+88
POLE NO. 8 CKT. E-6

2" C
2-#6 CKT. C-1
1-#6 GND
2" C
2-#6 CKT. E-6
1-#6 GND

STA. 623+94
POLE NO. 10 CKT. E-6

2" C
2-#6 CKT. C-1
1-#6 GND
2" C
2-#6 CKT. E-6
1-#6 GND

MATCHLINE STA. 622+60
SEE SHEET L-19

629 628 627 626 625 624 623

℄ CONST. RAMP B

S 50° 13' 22" E

END APPROACH SLAB
STA. 623+51.02 ℄ RAMP B

END BRIDGE
STA. 623+21.00 ℄ RAMP B

BEGIN APPROACH SLAB
STA. 370+71.00 ℄ CONST. RAMP C

℄ RAMP C

EMPTY CONDUIT
FOR FUTURE USE

MATCHLINE STA. 465+00

365 366 367 368 369 370 371 372

N 47° 00' 20" W

2" C
2-#1 CKT. C-2
1-#1 GND
2" C
2-#6 CKT. E-1
1-#6 GND

SR 453 NB

℄ CONST. RAMP D

BEGIN BRIDGE
STA. 371+01.00 ℄ CONST. RAMP C

467 468 469 470 471 472

N 48° 53' 00" W

OT-4

STA. 467+19
POLE NO. 7 CKT. E-1

MSE WALL

STA. 470+68
POLE NO. 11 CKT. E-1

2" C
2-#1 CKT. C-2
1-#1 GND
2" C
2-#4 CKT. E-1
1-#4 GND

MSE WALL

2" C
2-#1 CKT. C-2
1-#1 GND
2" C
2-#6 CKT. E-1
1-#6 GND

2-#6 CKT. E-1
1-#6 GND

STA. 468+92
POLE NO. 9 CKT. E-1

2" C
2-#1 CKT. C-2
1-#1 GND
2" C
2-#6 CKT. E-1
1-#6 GND

2" C
2-#1 CKT. C-2
1-#1 GND
2" C
2-#6 CKT. E-1
1-#6 GND

STA. 465+06
POLE NO. 5 CKT. E-1

SIGN 107 CKT. E-1
STA 466+97

2-#4 CKT. E-1
1-#4 GND

MSE WALL

LA R/W

R/W LINE

R/W LINE

MATCHLINE STA. 472+00

0 10 50
Feet

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS
DRMP, INC.
941 LAKE BALDWIN LANE, ORLANDO, FLORIDA 32814
PHONE: (407) 896-0594 FAX: (407) 896-4836
CERTIFICATE OF AUTHORIZATION NO. 2648
JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.
429-206

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

LIGHTING PLAN SHEET

SHEET NO.
L-12

jflorez 10/16/2015 11:19:40 AM P:\Projects12\12-0150.000_00CEA_429-206_Wekiva_Parkway\Wekiva_206\lighting\PLANLT02.DGN

N

END BRIDGE
STA. 373+92.00 ℄ CONST. RAMP C

END APPROACH SLAB
STA. 374+22.00 ℄ CONST. RAMP C

EMPTY CONDUIT
FOR FUTURE USE

STA. 372+45
POLE NO. 12 CKT. E-2

2-#6 CKT. E-2
1-#6 GND

℄ CR46

CR 46

MSE WALL

2-#6 CKT. E-2
1-#6 GND

STA. 376+17
POLE NO. 14 CKT. E-2

2-#6 CKT. E-2
1-#6 GND

℄ CONST. RAMP C

MATCHLINE STA. 472+00

MATCHLINE STA. 478+80

MSE WALL

2-#4 CKT. E-1
1-#4 GND

2-#4 CKT. E-1
1-#4 GND

STA. 473+91
POLE NO. 13 CKT. E-1

PT STA. 475+75.75

℄ CONST. RAMP D

2-#4 CKT. E-1
1-#4 GND

STA. 477+38
POLE NO. 15 CKT. E-1

2-#4 CKT. E-1
1-#4 GND

SEE UNDERDECK
LIGHTING PLANS
FOR DETAILS

2-#4 CKT. E-1
1-#4 GND

LA R/W

LA R/W

R/W LINE

0 10 50
Feet

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS
DRMP, INC.
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PHONE: (407) 896-0594 FAX: (407) 896-4836
CERTIFICATE OF AUTHORIZATION NO. 2648
JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

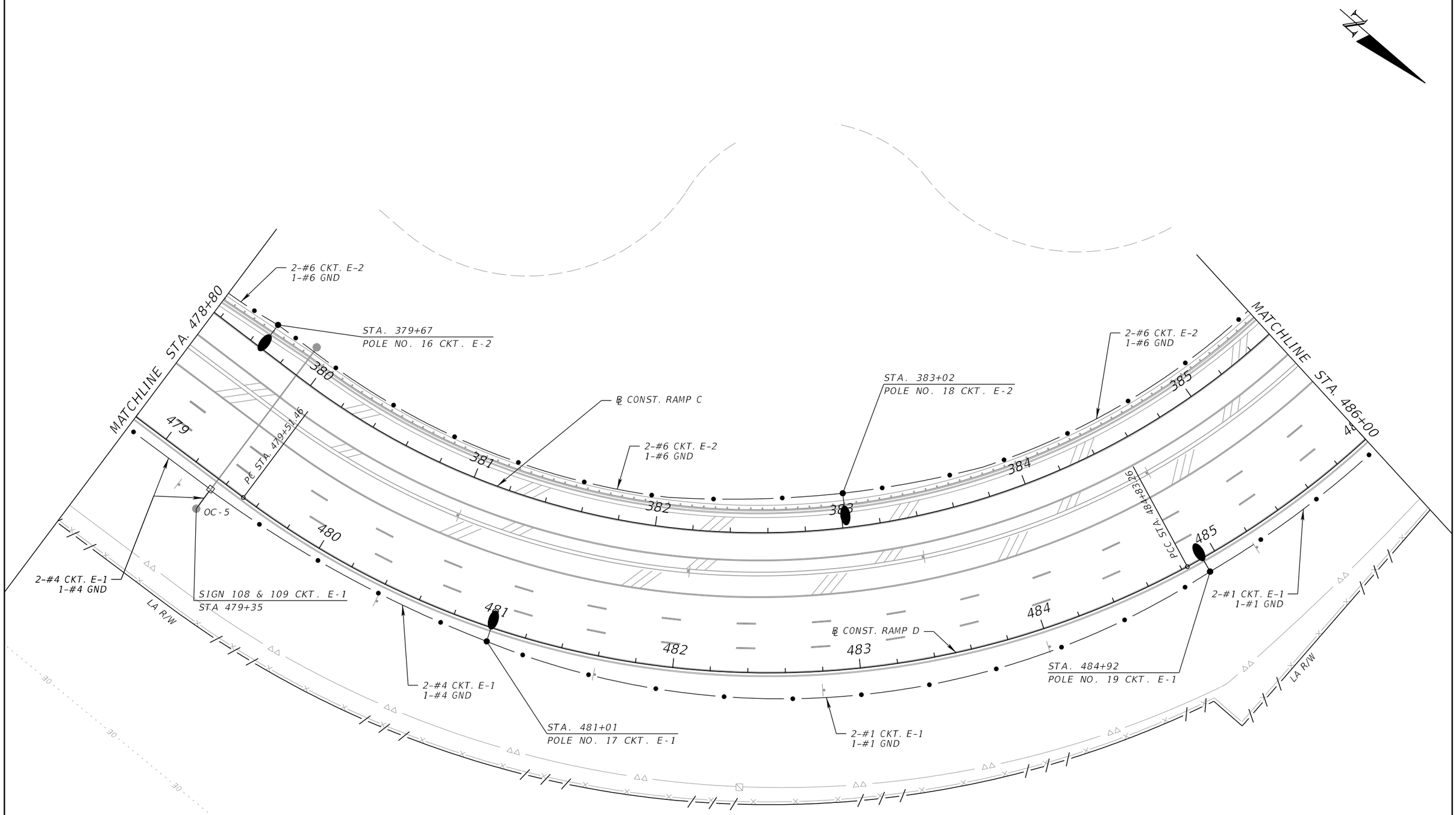
CFX PROJ. NO.
429-206

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

LIGHTING PLAN SHEET

SHEET NO.
L-13

jflorez 10/16/2015 11:19:43 AM P:\Projects12\12-0150.000_00CEA_429-206_Wekiva_Parkway\Wekiva_206\lighting\PLANLT03.DGN



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS
DRMP, INC.
941 LAKE BALDWIN LANE, ORLANDO, FLORIDA 32814
PHONE: (407) 896-0594 FAX: (407) 896-4836
CERTIFICATE OF AUTHORIZATION NO. 2648
JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

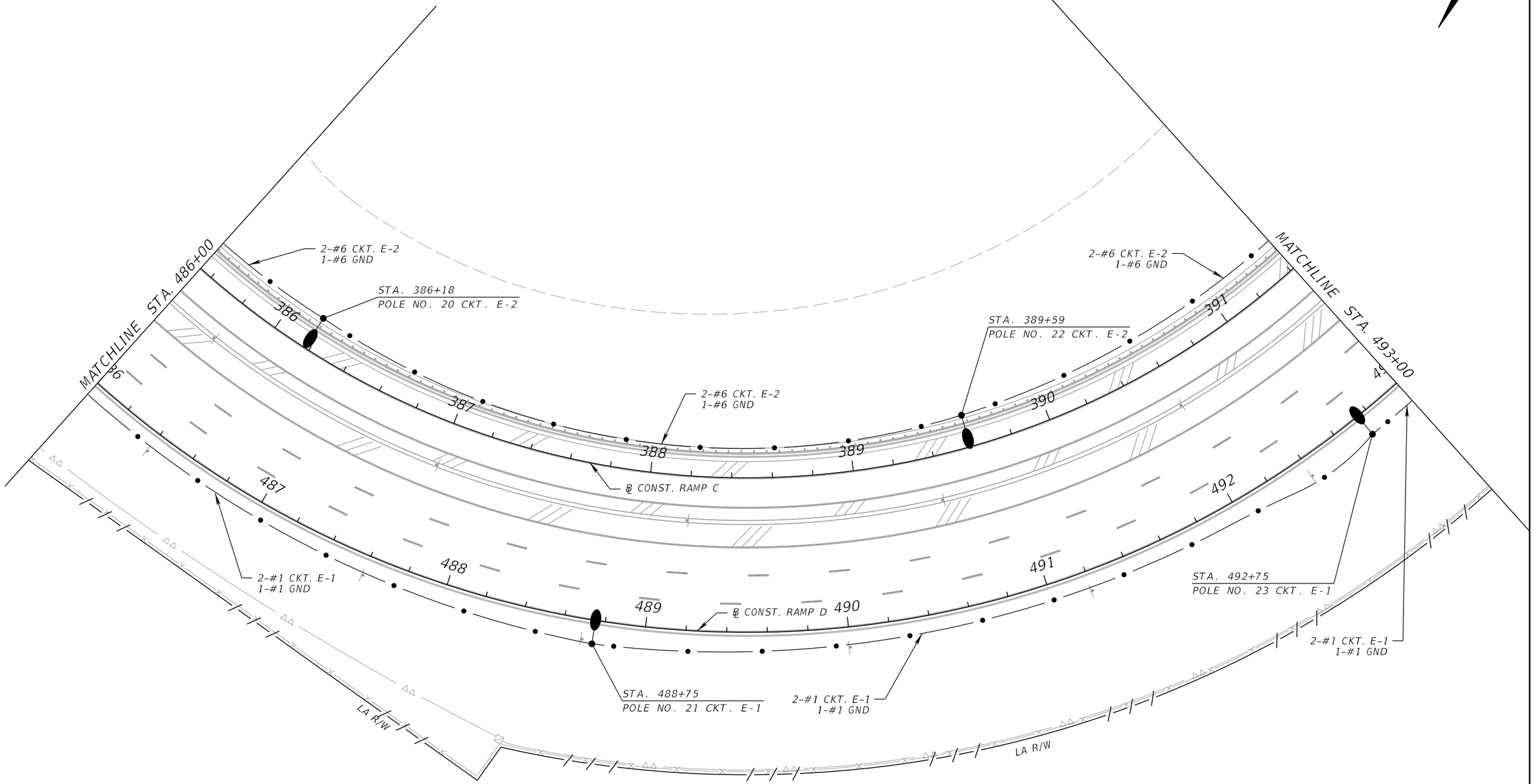
CFX PROJ. NO.
429-206

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

LIGHTING PLAN SHEET

SHEET NO.
L-14

jflorez 10/16/2015 11:19:47 AM P:\Projects12\12-0150.000_00CEA_429-206_Wekiva_Parkway\Wekiva_206\lighting\PLANLT04.DGN



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS
DRMP, INC.
941 LAKE BALDWIN LANE, ORLANDO, FLORIDA 32814
PHONE: (407) 896-0594 FAX: (407) 896-4836
CERTIFICATE OF AUTHORIZATION NO. 2648
JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	LIGHTING PLAN SHEET	SHEET NO.
429-206			L-15

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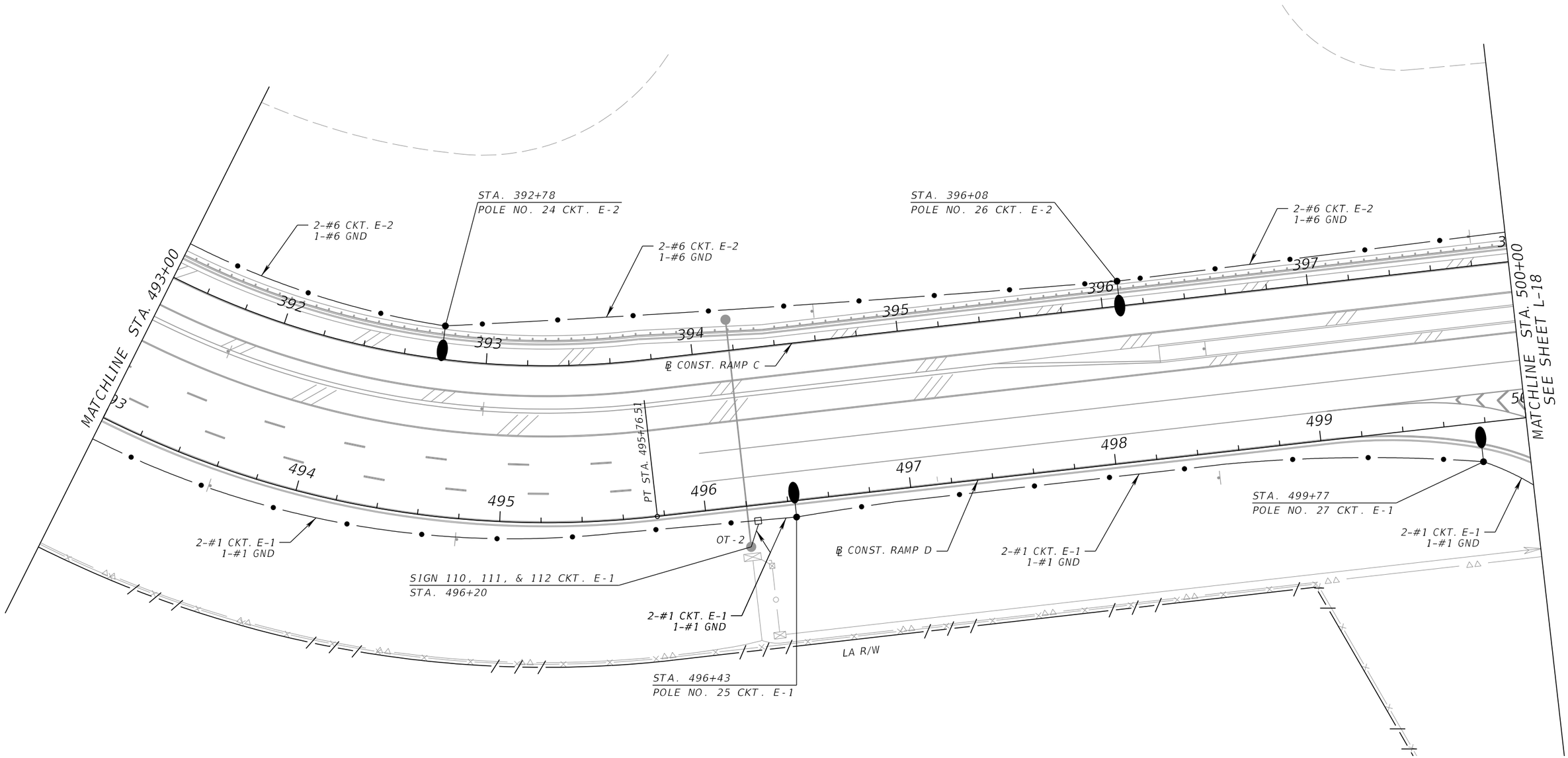
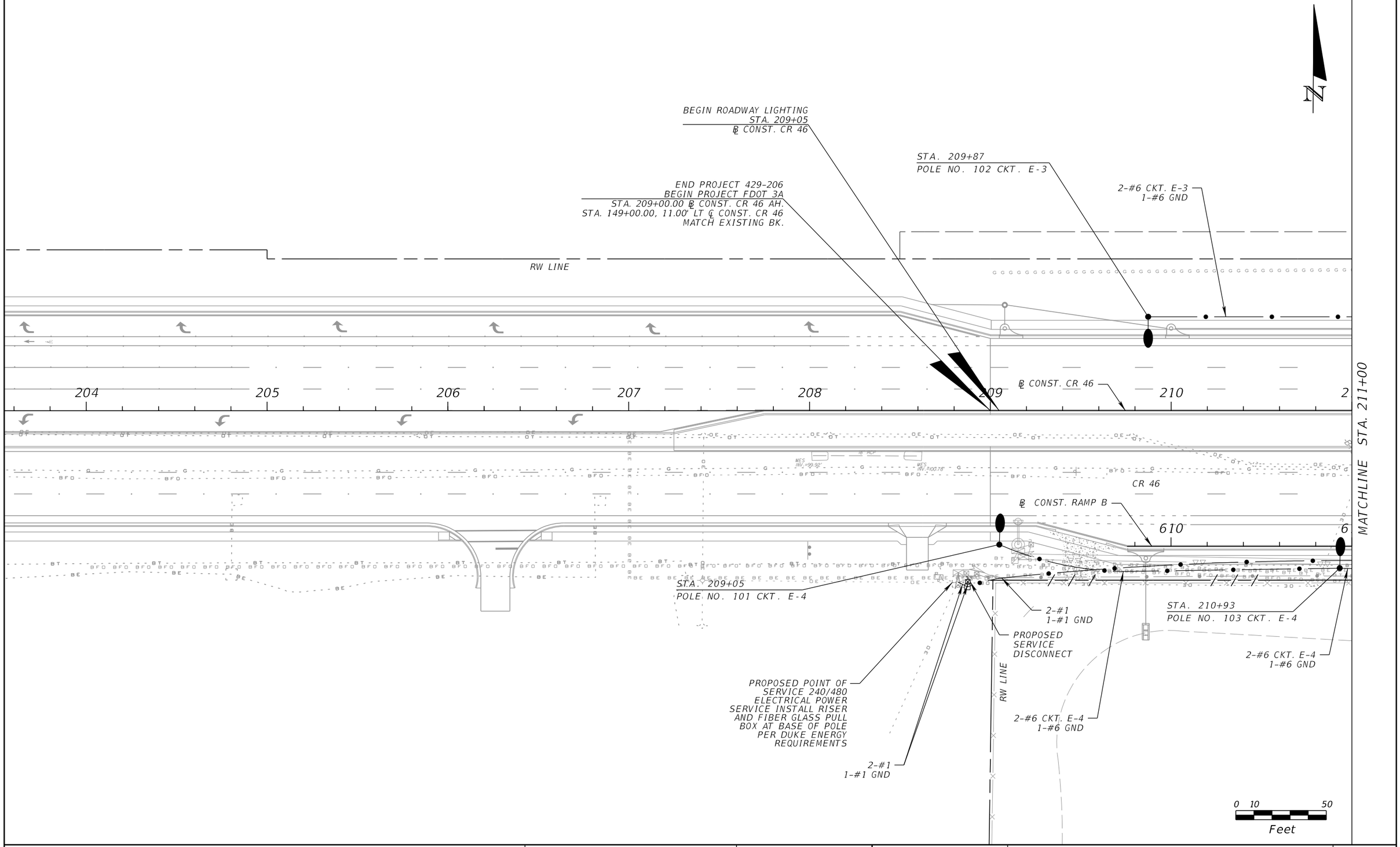


REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DRMP
ENGINEERS · SURVEYORS · PLANNERS · SCIENTISTS
DRMP, INC.
941 LAKE BALDWIN LANE, ORLANDO, FLORIDA 32814
PHONE: (407) 896-0594 FAX: (407) 896-4836
CERTIFICATE OF AUTHORIZATION NO. 2648
JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.		SHEET NO.
429-206	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	L-16

LIGHTING PLAN SHEET



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DRMP
ENGINEERS · SURVEYORS · PLANNERS · SCIENTISTS
DRMP, INC.
941 LAKE BALDWIN LANE, ORLANDO, FLORIDA 32814
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JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	LIGHTING PLAN SHEET	SHEET NO.
429-206			L-17

MATCHLINE STA. 500+00
SEE SHEET L-16

2-#6 CKT. E-2
1-#6 GND

℄ CONST. RAMP C

STA. 216+24
POLE NO. 108 CKT. E-3

3" DIRECTIONAL BORE CONDUIT
2-#1 CKT. E-1
2-#6 CKT. E-2
2-#6 CKT. E-3
1-#1 GND

STA. 212+20
POLE NO. 104 CKT. E-3

STA. 214+30
POLE NO. 106 CKT. E-3

2-#1 CKT. E-1
1-#1 GND

RW LINE

2-#6 CKT. E-3
1-#6 GND

2-#6 CKT. E-3
1-#6 GND

2-#6 CKT. E-3
1-#6 GND

2-#1 CKT. E-1
2-#6 CKT. E-3
1-#1 GND

STA. 217+42
POLE NO. 109 CKT. E-5

MATCHLINE STA. 211+00

MATCHLINE STA. 218+00

211 212 213 214 215 216 217 21

℄ CONST. CR 46

℄ CONST. RAMP D

EXIST RW LINE

CR 46

2-#6 CKT. E-5
1-#6 GND

2-#6 CKT. E-5
1-#6 GND

℄ CONST. RAMP B

211 612 613 614 615 616 617 618

OC-6

MSE WALL

2-#1
1-#1 GND

2-#6 CKT. E-4
1-#6 GND

2-#6 CKT. E-4
1-#6 GND

2-#6 CKT. E-4
1-#6 GND

2-#1
1-#1 GND

3" UNDERGROUND CONDUIT
2-#1 CKT. E-1
2-#6 CKT. E-2
2-#6 CKT. E-3
2-#6 CKT. E-4
1-#1 GND

2-#6 CKT. E-4
1-#6 GND

2-#6 CKT. E-5
2-#6 CKT. E-6
1-#6 GND

2-#6 CKT. E-6
1-#6 GND

LOAD CENTER "E"
STA 616+76 +/-
240/480 V SINGLE
PHASE, 3 WIRE
3-#2 UNDERGROUND
225 AMP RATED, MLO,
WITH PHOTOCELL
CKT. 1 - 30A, 2P
CKT. 2 - 30A, 2P
CKT. 3 - 30A, 2P
CKT. 4 - 30A, 2P
CKT. 5 - 30A, 2P
CKT. 6 - 30A, 2P
CKT. 7 - 30A, 2P SPARE
CKT. 8 - 30A, 2P SPARE

STA. 617+09
POLE NO. 110 CKT. E-5

2-#6 CKT. E-5
2-#6 CKT. E-6
1-#6 GND

SIGN 116 & 117 CKT. E-4
STA 611+90

STA. 612+93
POLE NO. 105 CKT. E-4

STA. 615+19
POLE NO. 107 CKT. E-4

0 10 50
Feet

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

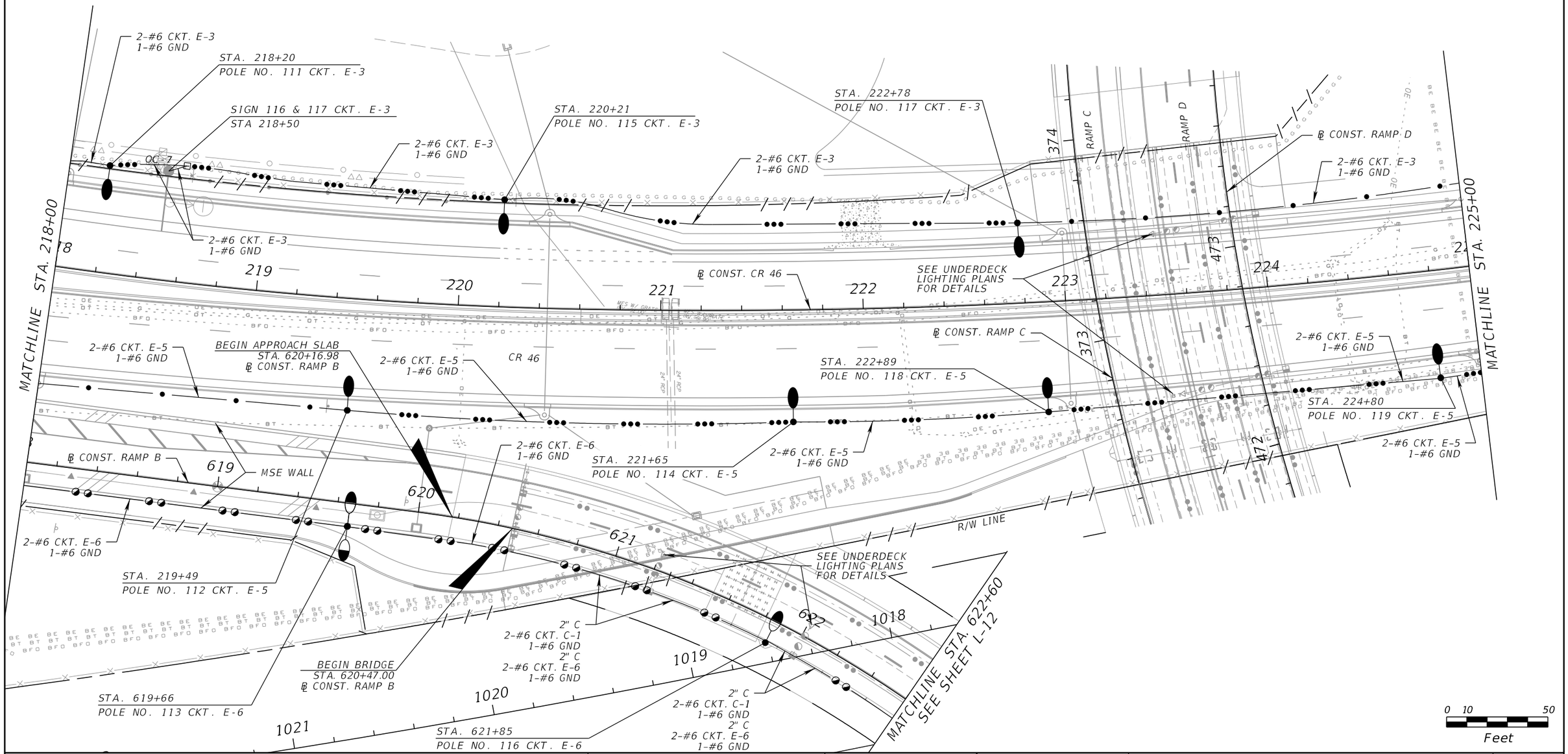
DRMP
ENGINEERS · SURVEYORS · PLANNERS · SCIENTISTS
DRMP, INC.
941 LAKE BALDWIN LANE, ORLANDO, FLORIDA 32814
PHONE: (407) 896-0594 FAX: (407) 896-4836
CERTIFICATE OF AUTHORIZATION NO. 2648
JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.
429-206

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

LIGHTING PLAN SHEET

SHEET NO.
L-18



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS
DRMP, INC.
941 LAKE BALDWIN LANE, ORLANDO, FLORIDA 32814
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CERTIFICATE OF AUTHORIZATION NO. 2648
JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	LIGHTING PLAN SHEET	SHEET NO.
429-206			L-19

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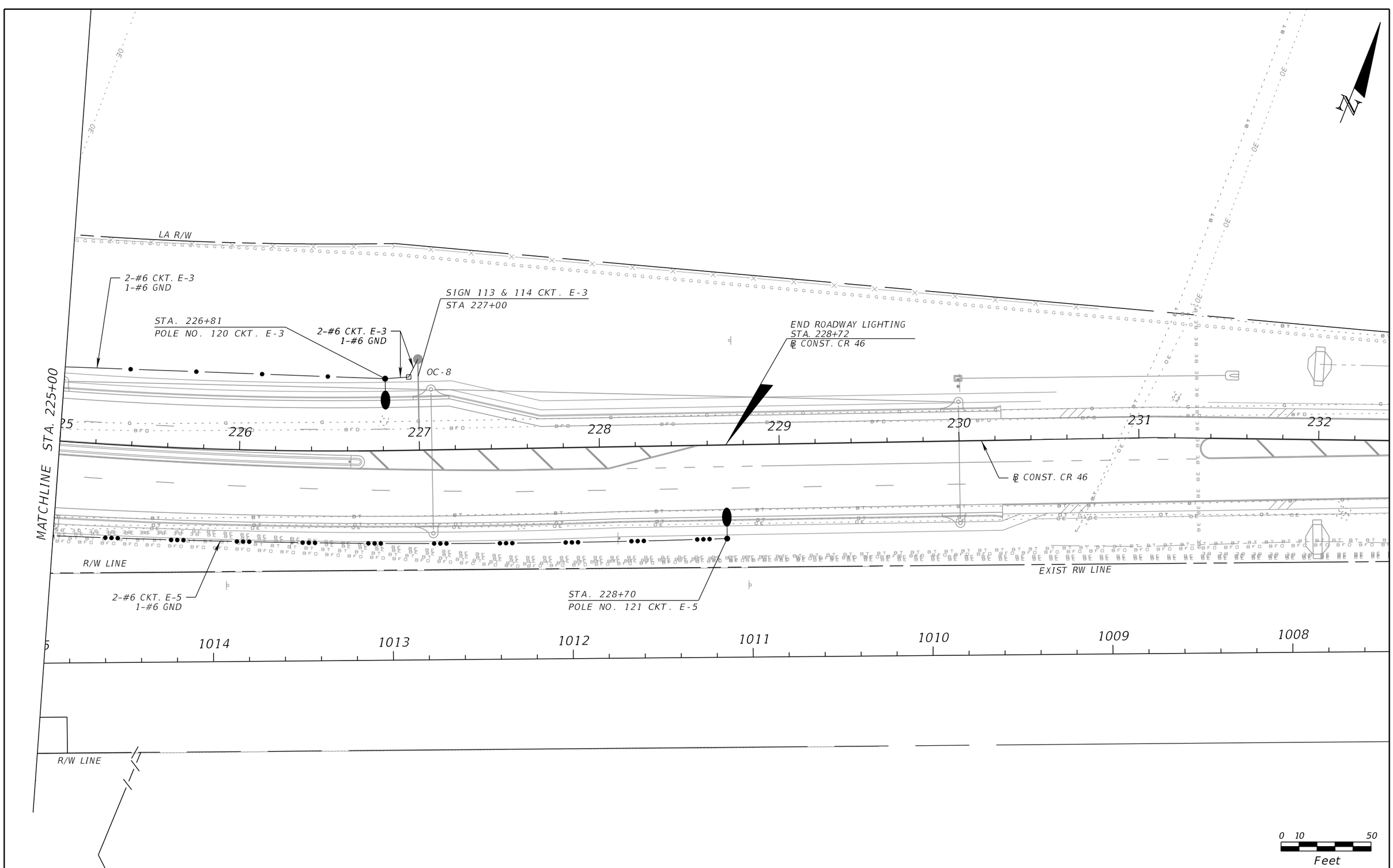

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DRMP
ENGINEERS · SURVEYORS · PLANNERS · SCIENTISTS
DRMP, INC.
941 LAKE BALDWIN LANE, ORLANDO, FLORIDA 32814
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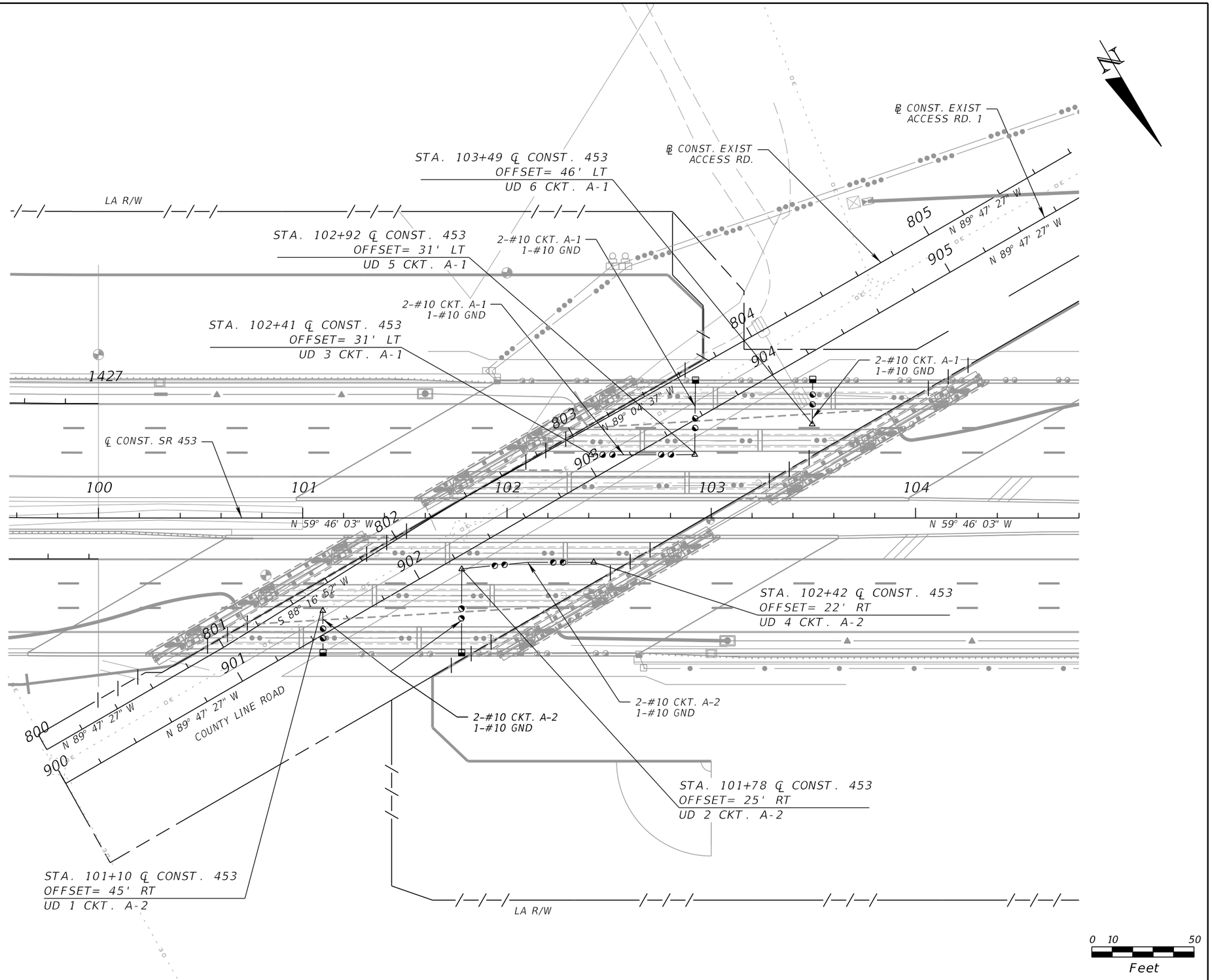
CFX PROJ. NO.	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	LIGHTING PLAN SHEET	SHEET NO.
429-206			L-20



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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DRMP, INC.
941 LAKE BALDWIN LANE, ORLANDO, FLORIDA 32814
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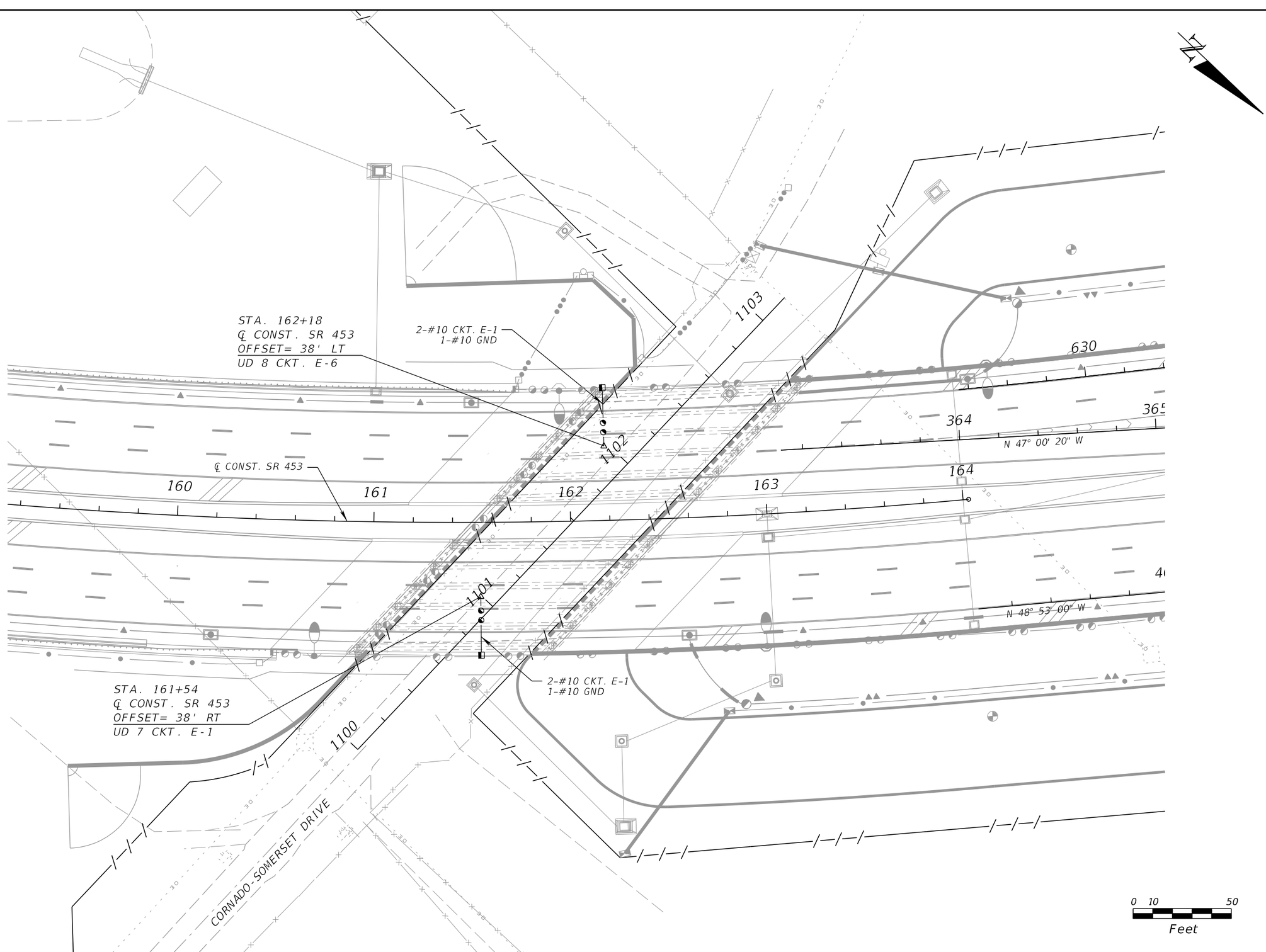
CERTIFICATE OF AUTHORIZATION NO. 2648
JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	UNDERDECK LIGHTING PLAN SHEET	SHEET NO.
429-206			L-21



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DRMP
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DRMP, INC.
941 LAKE BALDWIN LANE, ORLANDO, FLORIDA 32814
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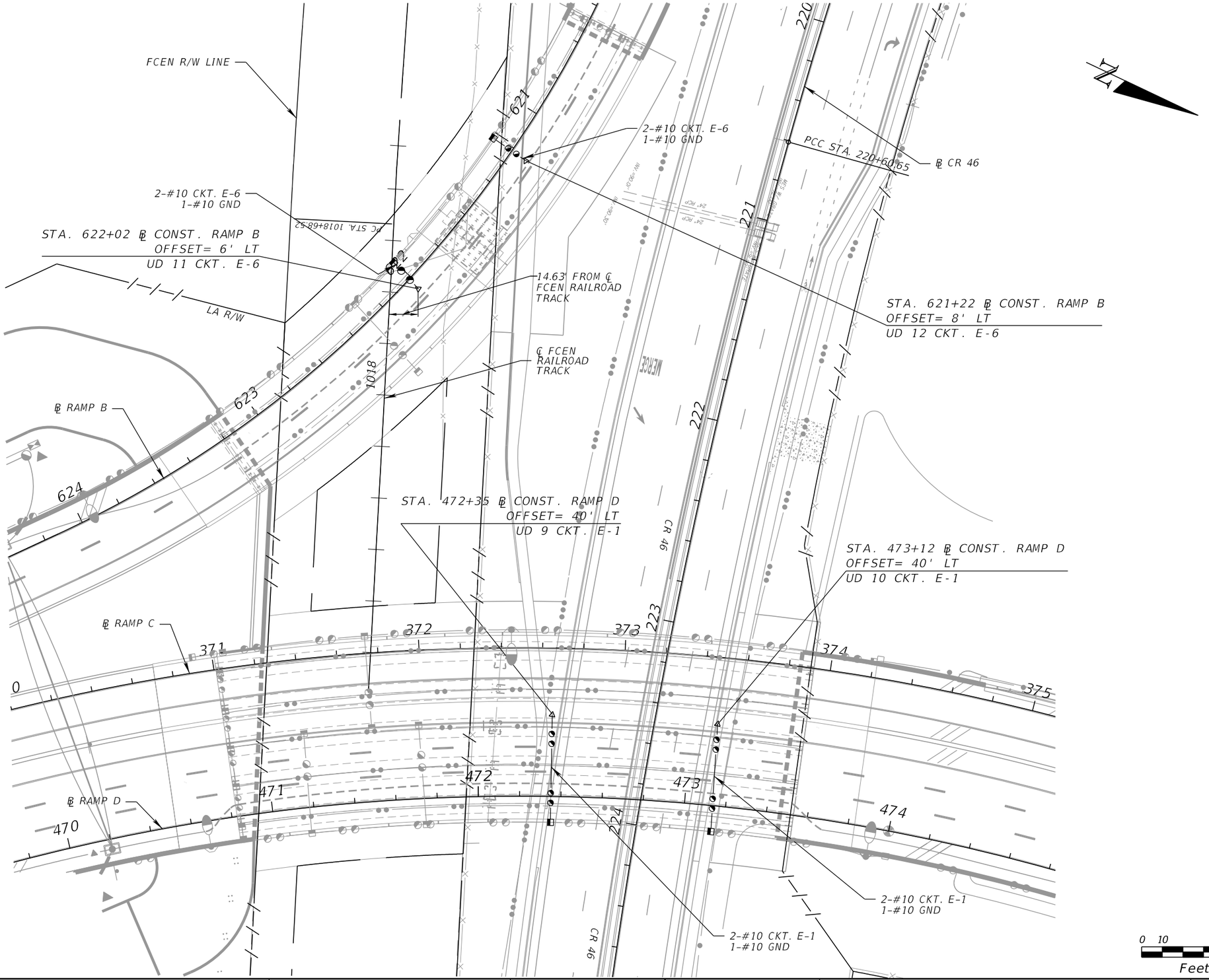
CERTIFICATE OF AUTHORIZATION NO. 2648
JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.
429-206

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

UNDERDECK LIGHTING PLAN SHEET

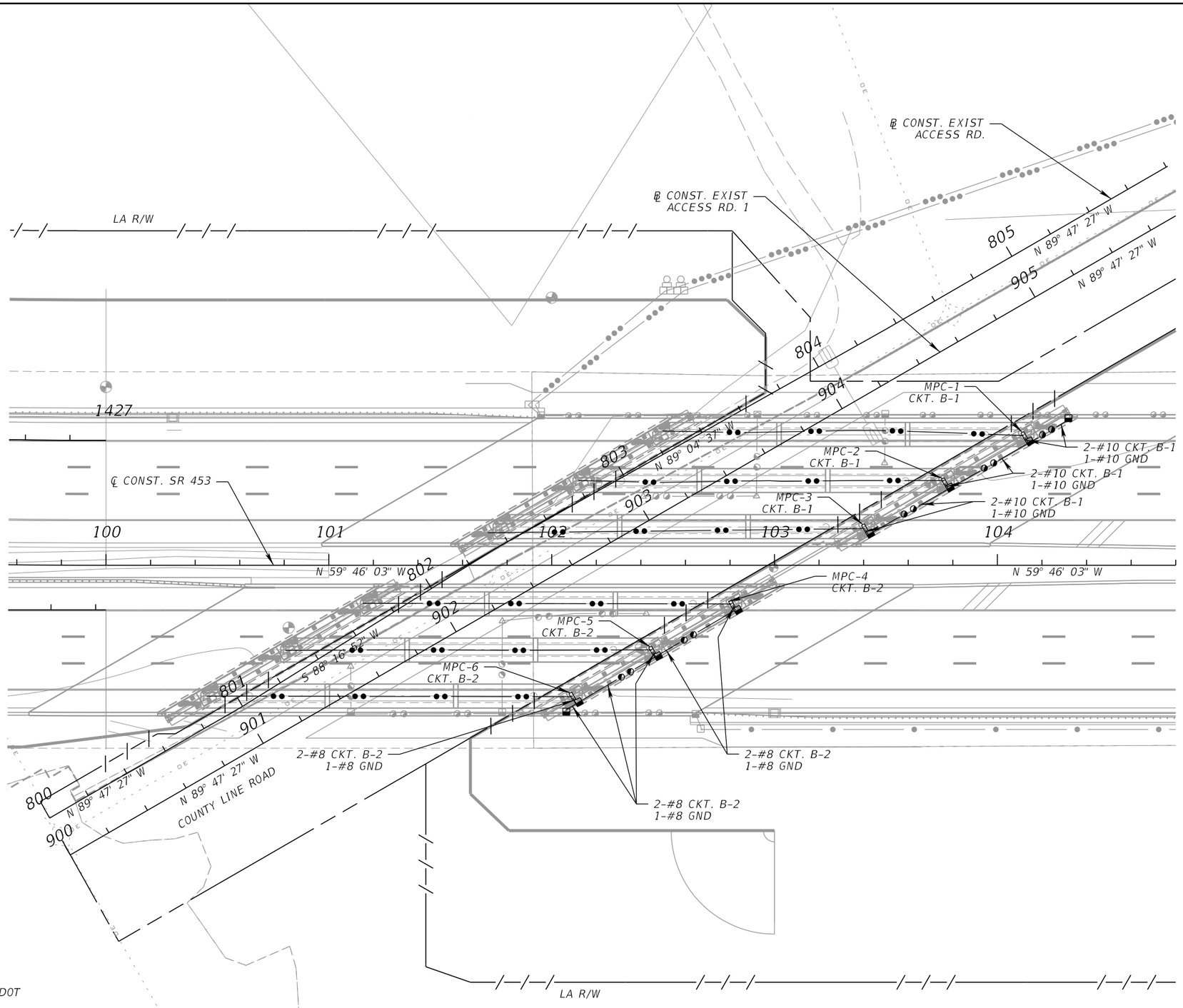
SHEET NO.
L-22



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DRMP
ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS
DRMP, INC.
941 LAKE BALDWIN LANE, ORLANDO, FLORIDA 32814
PHONE: (407) 896-0594 FAX: (407) 896-4836
CERTIFICATE OF AUTHORIZATION NO. 2648
JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	UNDERDECK LIGHTING PLAN SHEET	SHEET NO.
429-206			L-23



NOTES

1. ALL GIRDER / MAINTENANCE LIGHTING SHALL COMPLY WITH FDOT STANDARD INDEX 21240.
2. LOAD CENTER "B" SHALL POWER THE MAINTENANCE LIGHTING AND SHALL BE STEPPED DOWN TO 120V AT THE MINI POWER CENTERS IN EACH BOX GIRDER. WHICH WILL ENERGIZE THE 100W INCANDESCENT MAINTENANCE LAMPS.
3. MPC = MINI POWER CENTER

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DRMP
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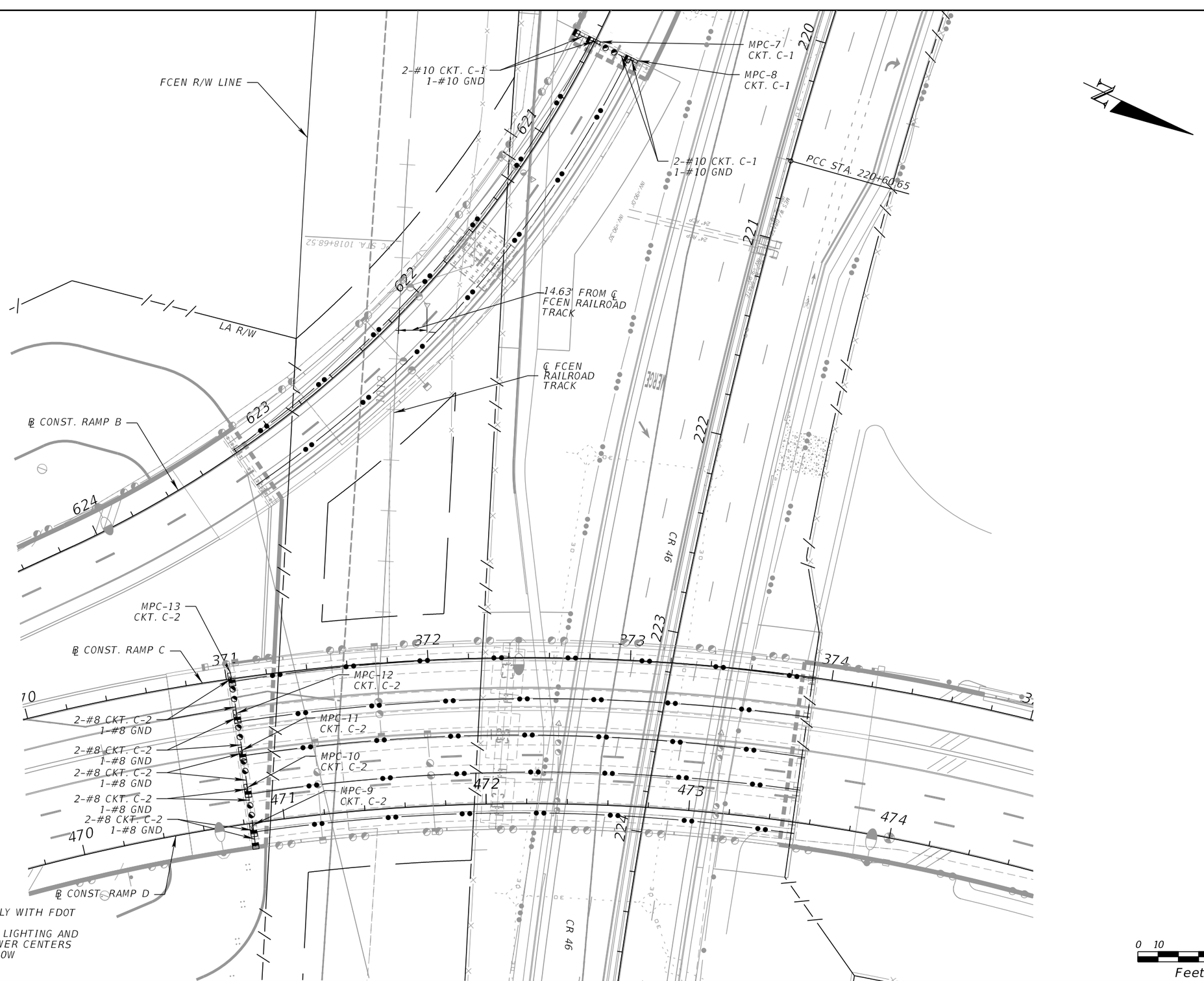
CERTIFICATE OF AUTHORIZATION NO. 2648
JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.	CENTRAL FLORIDA EXPRESSWAY AUTHORITY	MAINTENANCE LIGHTING PLAN SHEET	SHEET NO.
429-206			L-24



NOTES

1. ALL GIRDER / MAINTENANCE LIGHTING SHALL COMPLY WITH FDOT STANDARD INDEX 21240.
2. LOAD CENTER "C" SHALL POWER THE MAINTENANCE LIGHTING AND SHALL BE STEPPED DOWN TO 120V AT THE MINI POWER CENTERS IN EACH BOX GIRDER. WHICH WILL ENERGIZE THE 100W INCANDESCENT MAINTENANCE LAMPS.
3. MPC = MINI POWER CENTER

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DRMP
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CERTIFICATE OF AUTHORIZATION NO. 2648
JAMES W. HIGHLAND, P.E. LICENSE NO. 68240

CFX PROJ. NO.
429-206

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

MAINTENANCE LIGHTING PLAN SHEET

SHEET NO.
L-25

ROADWAY LIGHTING LOAD CENTER "A"

VOLTAGE: 480/240 STATION: 103+63
SINGLE PHASE, 3 WIRE WITH GROUND
FRAME 225A, MAIN LUGS ONLY
CU GROUND BUS, UNDERGROUND SERVICE

CKT NO.	BKR TRIP	POLES	WATTS	EQUIPMENT SERVED
1	30	2	657	SIGN PANEL 101, UD-3, UD-5, UD-6
2	30	2	270	UD-1, UD-2, UD-4
3	30	2		SPARE
4	30	2		SPARE
5				SPACE
6				SPACE
7				SPACE
8				SPACE
9				SPACE
10				SPACE
11				SPACE
12				SPACE

CONNECTED VA 1,091 AMPS: 2
EXTERNAL MAIN CB 60 AMPS
CONTACTOR SIZE 60 AMPS
INTERNAL WIRE & CONDUIT #4 PHASE, #4 NEUTRAL, #8 GROUND, 2" CONDUIT

BOX GIRDER MAINTENANCE LIGHTING LOAD CENTER "B"

VOLTAGE: 480/240 STATION: 103+70
SINGLE PHASE, 3 WIRE WITH GROUND
FRAME 100A, MAIN CIRCUIT BREAKER
CU GROUND BUS, UNDERGROUND SERVICE

CKT NO.	BKR TRIP	POLES	WATTS	EQUIPMENT SERVED
1	30	2	3,444	MPC-1, MPC-2, MPC-3
2	30	2	3,444	MPC-4, MPC-5, MPC-6
3	30	2		SPARE
4	30	2		SPARE
5				SPACE
6				SPACE
7				SPACE
8				SPACE
9				SPACE
10				SPACE
11				SPACE
12				SPACE

CONNECTED VA 8,104 AMPS: 17
INTERNAL MAIN CB 40 AMPS
CONTACTOR SIZE N/A
INTERNAL WIRE & CONDUIT #6 PHASE, #6 NEUTRAL, #8 GROUND, 2" CONDUIT

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

RS&H
301 E. Pine Street, Suite 350
Orlando, Florida 32801
407-893-5800
FL Cert. No. EB0005620
Engineer of Record: William B. Flatt PE No. 60944

CFX PROJ. NO.
429-206

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

PANEL SCHEDULES

SHEET NO.
L-26

BOX GIRDER MAINTENANCE LIGHTING LOAD CENTER "C"

VOLTAGE: 480/240 STATION: 162+09
SINGLE PHASE, 3 WIRE WITH GROUND
FRAME 100A, MAIN CIRCUIT BREAKER
CU GROUND BUS, UNDERGROUND SERVICE

CKT NO.	BKR TRIP	POLES	WATTS	EQUIPMENT SERVED
1	30	2	3,494	MPC-7, MPC-8
2	40	2	9,275	MPC-9, MPC-10, MPC-11, MPC-12, MPC-13
3	30	2		SPARE
4	30	2		SPARE
5				SPACE
6				SPACE
7				SPACE
8				SPACE
9				SPACE
10				SPACE
11				SPACE
12				SPACE

CONNECTED VA 15,022 AMPS: 31
INTERNAL MAIN CB 60 AMPS
CONTACTOR SIZE N/A
INTERNAL WIRE & CONDUIT #4 PHASE, #4 NEUTRAL, #8 GROUND, 2" CONDUIT

ROADWAY LIGHTING LOAD CENTER "E"

VOLTAGE: 480/240 STATION: 616+76
SINGLE PHASE, 3 WIRE WITH GROUND
FRAME 225A, MAIN LUGS ONLY
CU GROUND BUS, UNDERGROUND SERVICE

CKT NO.	BKR TRIP	POLES	WATTS	EQUIPMENT SERVED
1	30	2	7,040	POLES: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21,23, 25, 27, UD7, UD9, UD10, SIGNAGE
2	30	2	3,200	POLES: 12, 14, 16, 18, 20, 22, 24, 26
3	30	2	3,622	POLES: 102, 104, 106, 108, 111, 115, 117, 120, SIGNAGE
4	30	2	1,858	POLES: 101, 103, 105, 107, SIGNAGE
5	30	2	2,800	POLES: 109, 110, 112, 114, 118, 119, 121
6	30	2	3,470	POLES: 2, 4, 6, 8, 10, 113, 116, SIGNAGE, UD8, UD11, UD12
7	30	2		SPARE
8	30	2		SPARE
9				SPACE
10				SPACE
11				SPACE
12				SPACE

CONNECTED VA 25,871 AMPS: 54
EXTERNAL MAIN CB 100 AMPS
CONTACTOR SIZE 100 AMPS
INTERNAL WIRE & CONDUIT #2 PHASE, #2 NEUTRAL, #8 GROUND, 2" CONDUIT

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

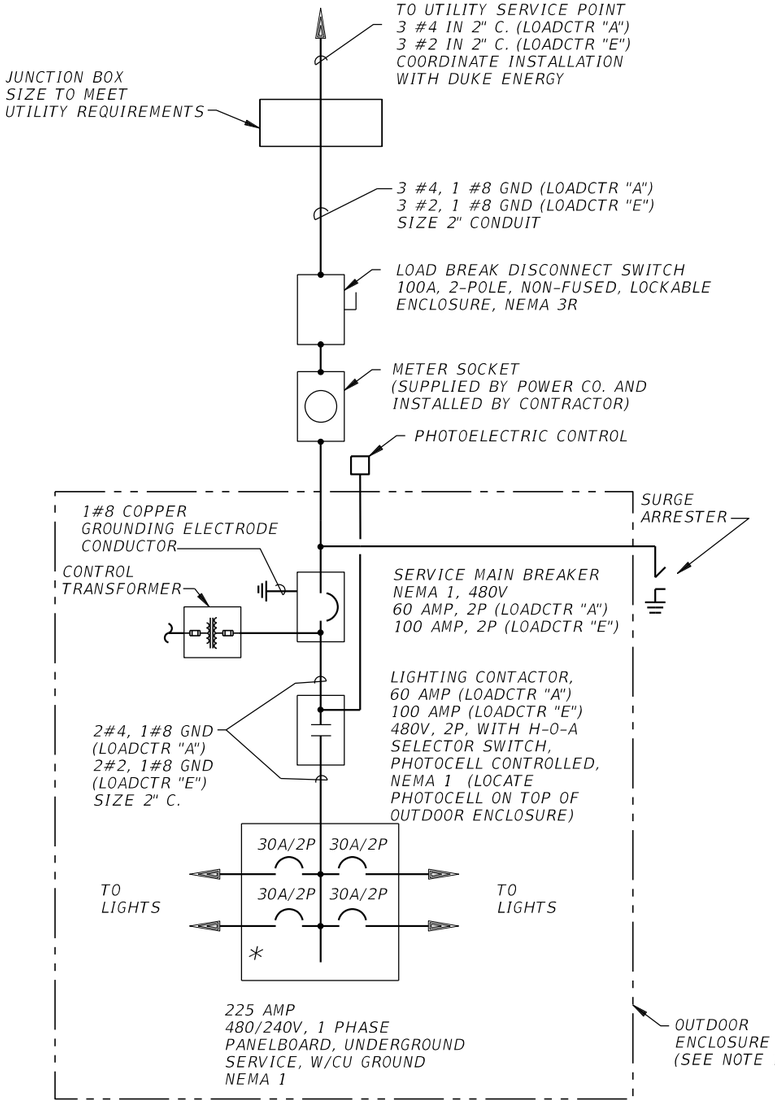
RS&H
301 E. Pine Street, Suite 350
Orlando, Florida 32801
407-893-5800
FL Cert. No. EB0005620
Engineer of Record: William B. Flatt PE No. 60944

CFX PROJ. NO.
429-206

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

PANEL SCHEDULES

SHEET NO.
L-27

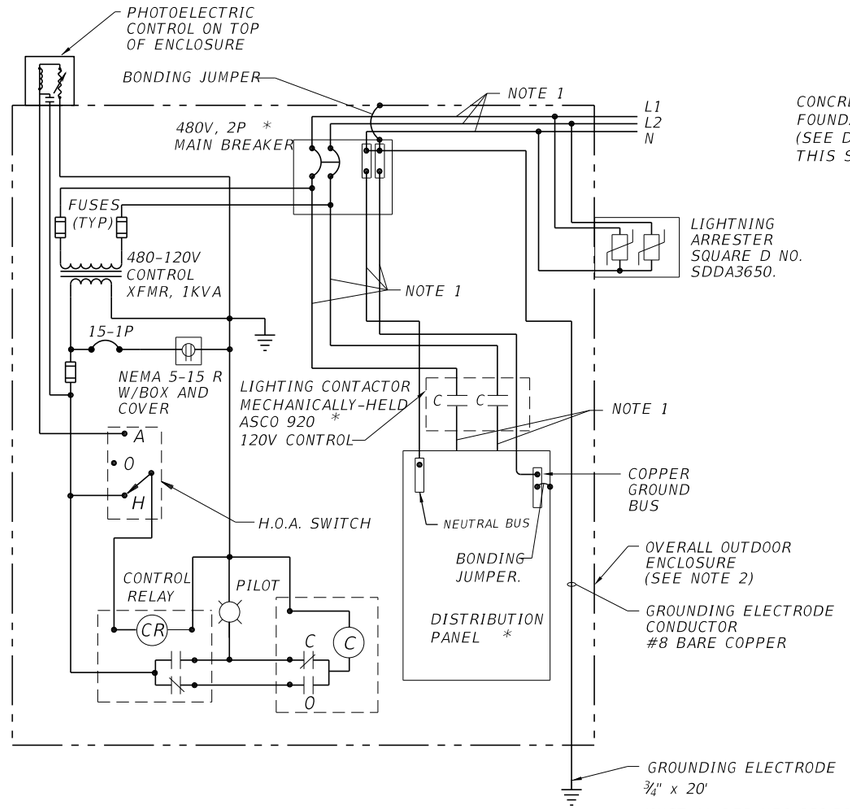


* REFER TO INDIVIDUAL PANEL SCHEDULE FOR BRANCH BREAKER REQUIREMENTS.

PROPOSED LIGHTING LOAD CENTERS "A" AND "E"

NOTES:
1. SEE CONNECTION LINE DIAGRAM ON THIS SHEET FOR ADDITIONAL INFORMATION.
2. ALL EQUIPMENT SHALL BE ENCLOSED IN INDIVIDUAL NEMA 1 ENCLOSURES, ALL WIRING INSIDE OUTDOOR CABINET SHALL BE IN INTERMEDIATE STEEL CONDUIT.

TYPICAL LOADCENTER SINGLE LINE DIAGRAM

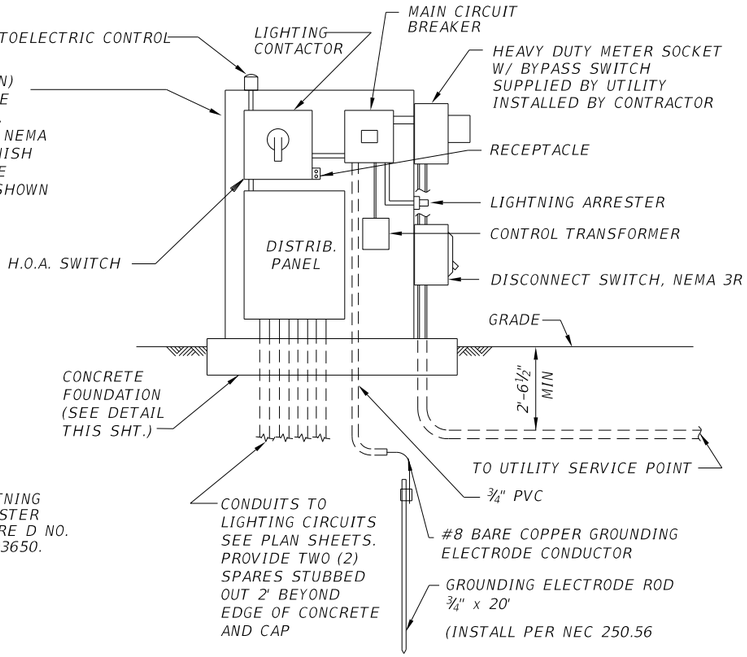


NOTE: 1. SEE PANEL SCHEDULE FOR INTERNAL WIRE AND CONDUIT SIZES.
2. ALL EQUIPMENT SHALL BE ENCLOSED IN INDIVIDUAL NEMA 1 ENCLOSURES, INSIDE THE OUTDOOR ENCLOSURE ALL WIRING SHALL BE IN INTERMEDIATE STEEL CONDUIT.

* = SIZE AS INDICATED ON PANEL SCHEDULE.

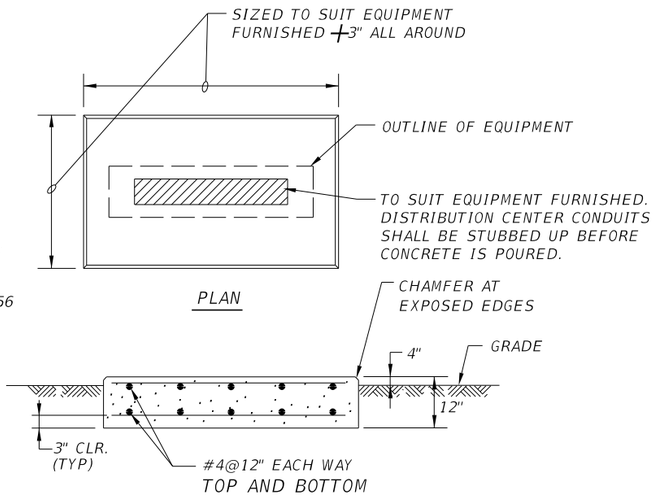
TYPICAL DISTRIBUTION LOAD CENTER CONNECTION DIAGRAM

NOTE: ALL INSULATED CONDUCTORS SHALL BE COPPER, RATED 600V, 75°C, TYPE RHW INSULATION.



TYPICAL DISTRIBUTION LOAD CENTER ELEVATION

N.T.S.



DISTRIBUTION CENTER FOUNDATION DETAIL

N.T.S.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

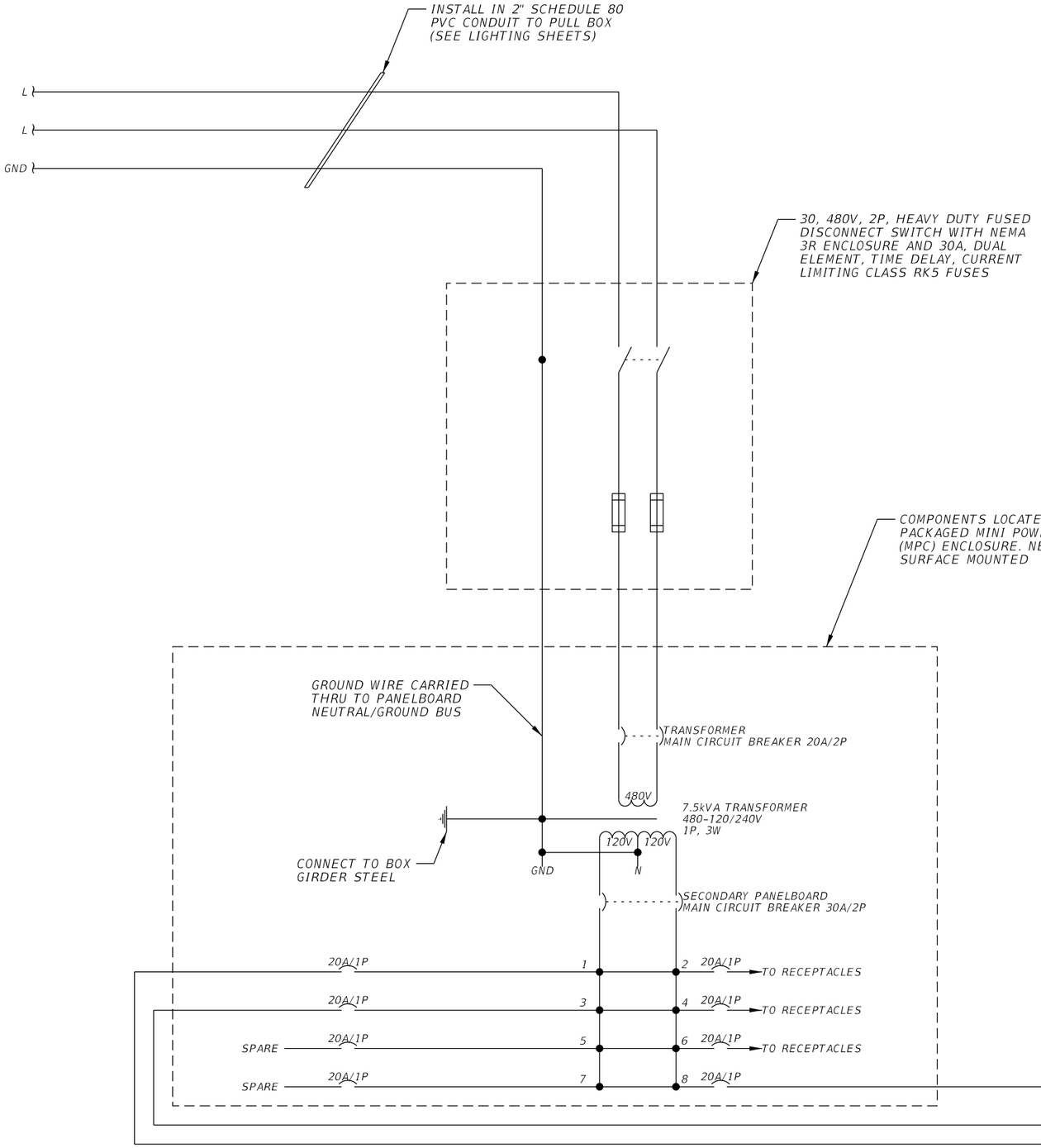
RS&H
301 E. Pine Street, Suite 350
Orlando, Florida 32801
407-893-5800
FL Cert. No. EB0005620
Engineer of Record: William B. Flatt PE No. 60944

CFX PROJ. NO.
429-206

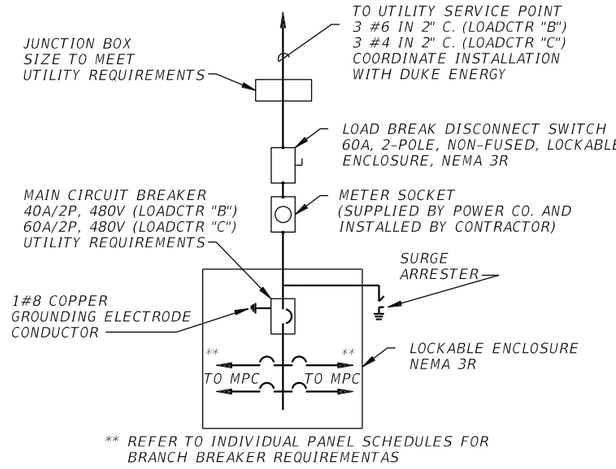
CENTRAL FLORIDA EXPRESSWAY AUTHORITY

ROADWAY LIGHTING LOAD CENTER DETAILS

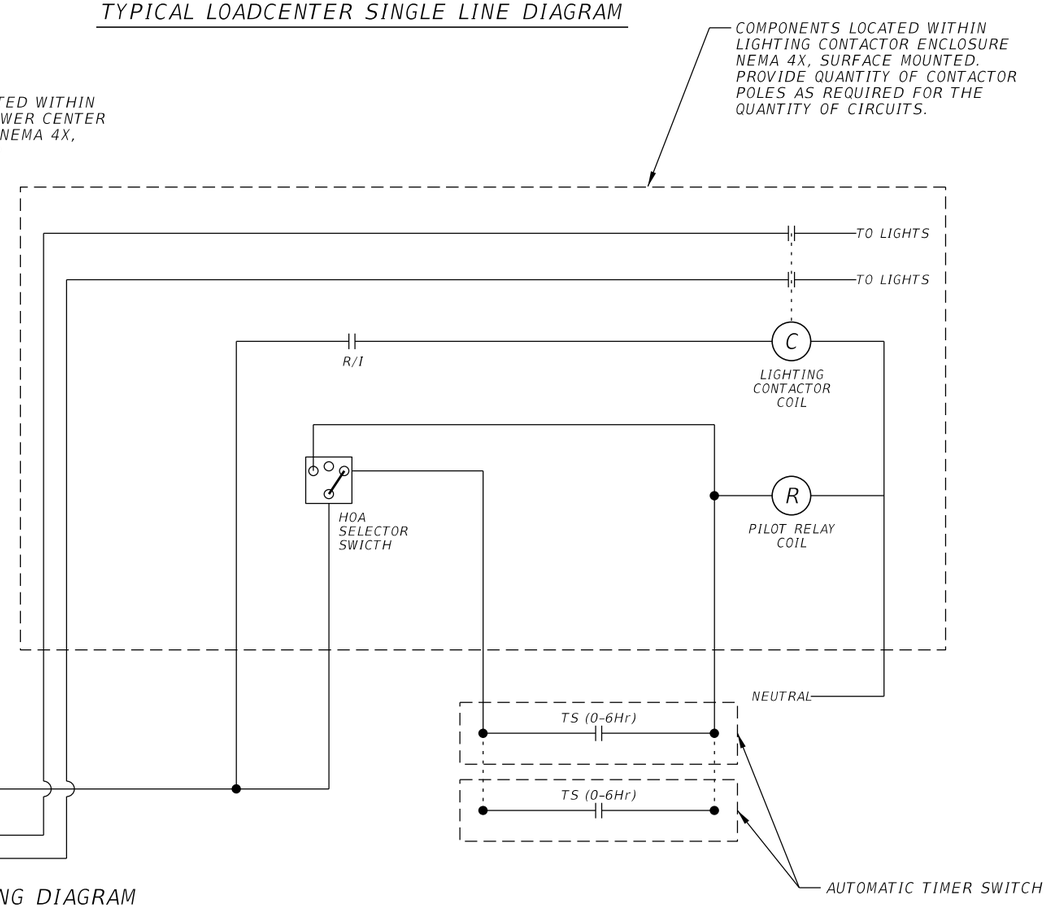
SHEET NO.
L-28



TYPICAL MPC SCHEMATIC WIRING DIAGRAM



TYPICAL LOADCENTER SINGLE LINE DIAGRAM



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

RS&H
301 E. Pine Street, Suite 350
Orlando, Florida 32801
407-893-5800
FL Cert. No. EB0005620
Engineer of Record: William B. Flatt PE No. 60944

CFX PROJ. NO.
429-206

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

BOX GIRDER LIGHTING LOAD CENTER AND MPC DETAILS

SHEET NO.
L-29