ADDENDUM NO. 6

REQUEST FOR QUALIFICATIONS / REQUEST FOR PROPOSALS

El Camino Hike & Bike Trail Lighting Improvements Project

City of Floresville, Texas

Date Issued: June 11, 2026

This Addendum No. 6 forms a part of the solicitation documents for the El Camino Hike & Bike Trail Lighting Improvements Project and modifies the original solicitation and any previously issued addenda. All respondents shall acknowledge receipt of this addendum in their submission.

1. ADDITIONAL PROJECT DOCUMENTS

The City is issuing the following documents as part of this addendum:

- Construction Plans
- Engineer's Cost Estimate
- Unit Cost Breakdown Form

These documents are incorporated into and made a part of the solicitation documents.

2. DOCUMENT AVAILABILITY

The Unit Cost Breakdown Form has been uploaded to the City's website and is available for review and use by all interested contractors and respondents.

The Construction Plans and Engineer's Cost Estimate are also being issued with this addendum and shall be utilized when preparing bid submissions.

Contractors are responsible for reviewing all documents issued with this addendum and incorporating the information into their submissions.

3. UNIT COST BREAKDOWN FORM REQUIREMENT

To promote consistency in bid submissions and facilitate the evaluation process, all bidders shall utilize the provided Unit Cost Breakdown Form when preparing their bid.

The completed Unit Cost Breakdown Form shall be submitted with the bid package.

Note: The Unit Cost Breakdown Form must be completed, signed by an authorized representative of the bidder, and submitted in **PDF format** with the bid package. Failure to

submit the signed Unit Cost Breakdown Form may result in the bid being deemed non-responsive.

4. REISSUANCE TO CONTRACTORS

This addendum, along with the associated plans, engineer's estimate, and Unit Cost Breakdown Form, shall be distributed to all known plan holders and interested contractors to ensure all parties have access to the same project information.

5. EFFECT OF ADDENDUM

Except as modified herein, all other terms, conditions, requirements, specifications, and deadlines contained in the solicitation documents and previously issued addenda shall remain unchanged and in full force and effect.

CITY OF FLORESVILLE

Cynthia Sturm
Finance Director
City of Floresville

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6			1A
STATE	STATE DIST.	COUNTY	
TEXAS	SAT	WILSON	
CONT.	SECT.	JOB	HIGHWAY NO.
			NA

INDEX OF SHEETS

FLORESVILLE

DESIGN SPEED = 12 MPH
AREA OF DISTURBED SOIL = <1 AC
ADT: N/A

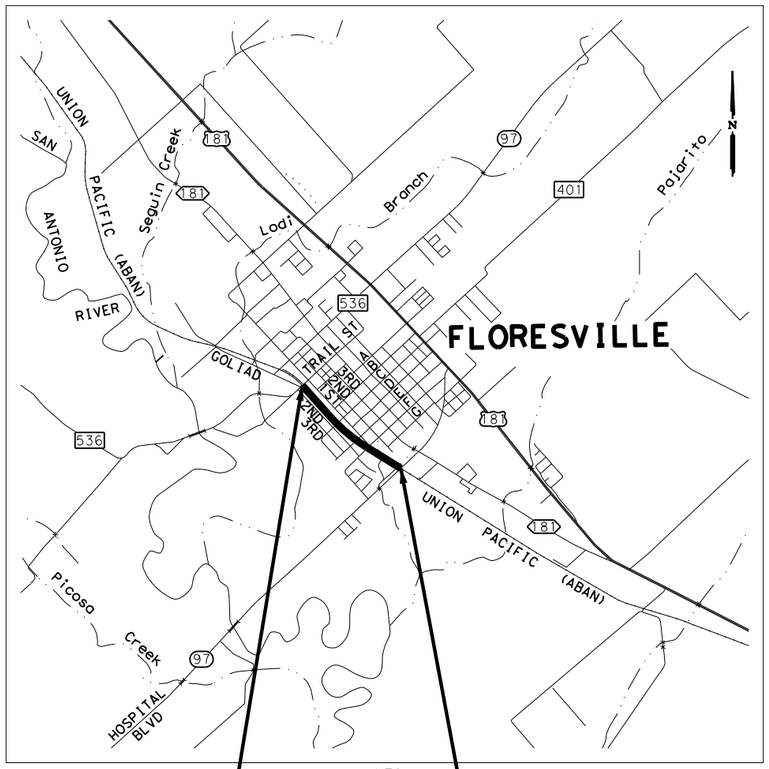
ACCESSIBILITY STANDARDS = PROWAG

WILSON COUNTY
HIKE AND BIKE TRAIL

LIMITS FROM: ON EL CAMINO REAL TRAIL FROM TRAIL ST
TO: HOSPITAL BLVD (HWY 97)

NET LENGTH OF ROADWAY = 4,839.70 FT = 0.917 MI
NET LENGTH OF BRIDGE = 0.00 FT = 0.000 MI
NET LENGTH OF PROJECT = 4,839.70 FT = 0.917 MI

FOR WORK CONSISTING OF: HIKE AND BIKE SHARED USE PATH ILLUMINATION



NTS

BEGIN PROJECT STA 10+44.70

END PROJECT STA 58+84.40

EXCEPTIONS: NONE
EQUATIONS: NONE
R.R. CROSSINGS: NONE

FINAL PLANS

LETTING DATE: _____

DATE CONTRACTOR BEGAN WORK: _____

DATE WORK WAS ACCEPTED: _____

FINAL CONTRACT COST: $ _____

CONTRACTOR: _____

THE STANDARD SHEETS SEPCIFICALLY SHOWN WITH PRECEDING (*), HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

STATE OF TEXAS — JUSTIN W. CLARK — 118715 — LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 6/10/2026 DATE

PLANS PREPARED BY:

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

APPROVED FOR LETTING

CITY MANAGER

FILE LOCATION AND NAME
T:\Engdata\Standards\Design\TITLESHEET-2014Specs.DGN

LEVELS DISPLAYED
1

PROJ. NO.
LETTING DATE
COUNTY
HWY. NO.
DATE ACCEPTED

ITEM	0416-7005	0618-7054	0618-7055	0618-7090	0620-7007	0620-7008	0620-7010	0624-7002
INTERSECTION	DRILL SHAFT (30 IN)	CONDT (PVC) (SCH 80) (2")	CONDT (PVC) (SCH 80) (2") (BORE)	CONDUIT (PREPARE)	ELEC CONDR (NO. 8) BARE	ELEC CONDR (NO. 8) INSULATED	ELEC CONDR (NO. 6) INSULATED	GROUND BOX TY A (122311)W/APRON
	LF	LF	LF	LF	LF	LF	LF	EA
ILLUMINATION LAYOUT BASE BID	96	1766	33	340	2112	4224		2
ILLUMINATION LAYOUT ALT 1	84	1579	66		1678		3355	4
ILLUMINATION LAYOUT ALT 2	90	1540			1540		3080	
TOTALS	270	4885	99	340	5330	4224	6435	6

ITEM	0624-7013	0628-XXX1	6501-6001
INTERSECTION	REMOVE GROUND BOX	MODIFY ELECTRICAL SERVICE	LED PEDESTRAIN ILLM ASSEMBLY
	EA	EA	EA
ILLUMINATION LAYOUT BASE BID	1	1	16
ILLUMINATION LAYOUT ALT 1			14
ILLUMINATION LAYOUT ALT 2			15
TOTALS	1	1	45

ALL SIDEWALK REPAIR DUE TO TRENCHING SUBSIDIARY TO ITEM 618.

PAPE-DAWSON ENGINEERS
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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

FLORESVILLE

HIKE & BIKE TRAIL

ESTIMATE AND QUANTITIES

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
98C @10:	6	TEXAS	SEE TITLE SHEET			NA
DW:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
98C @24:	SAT	WILSON				1B

℄ FHBT

Beginning chain P_FHBT description
Feature: Geom_Centerline

Point 1 N 13,599,667.89 E 2,235,313.80 Sta 10+00.00

Course from 1 to PC P_FHBT_3 S 45° 16′ 42" E Dist 191.91

		Curve Data				
Curve P_FHBT_3						
P.I. Station		16+40.00	N	13,599,217.54	E	2,235,768.54
Delta	=	7° 19′ 31" (RT)				
Degree	=	0° 49′ 07"				
Tangent	=	448.09				
Length	=	894.96				
Radius	=	7,000.00				
External	=	14.33				
Long Chord	=	894.35				
Mid. Ord.	=	14.30				
P.C. Station		11+91.91	N	13,599,532.85	E	2,235,450.15
P.T. Station		20+86.87	N	13,598,864.22	E	2,236,044.12
C.C.			N	13,594,559.11	E	2,230,524.51
Back	= S 45° 16′ 42" E					
Ahead	= S 37° 57′ 11" E					
Chord Bear	= S 41° 36′ 56" E					

Course from PT P_FHBT_3 to PC P_FHBT_6 S 37° 57′ 11" E Dist 701.84

		Curve Data				
Curve P_FHBT_6						
P.I. Station		33+53.78	N	13,597,865.24	E	2,236,823.29
Delta	=	19° 43′ 36" (LT)				
Degree	=	1° 45′ 47"				
Tangent	=	565.07				
Length	=	1,118.95				
Radius	=	3,250.00				
External	=	48.76				
Long Chord	=	1,113.43				
Mid. Ord.	=	48.04				
P.C. Station		27+88.71	N	13,598,310.81	E	2,236,475.76
P.T. Station		39+07.66	N	13,597,563.12	E	2,237,300.81
C.C.			N	13,600,309.60	E	2,239,038.44
Back	= S 37° 57′ 11" E					
Ahead	= S 57° 40′ 46" E					
Chord Bear	= S 47° 48′ 59" E					

Course from PT P_FHBT_6 to 2 S 57° 40′ 46" E Dist 1,714.93

Point 2 N 13,596,646.23 E 2,238,750.05 Sta 56+22.59

Course from 2 to 3 S 58° 45′ 18" E Dist 365.00

Point 3 N 13,596,456.90 E 2,239,062.11 Sta 59+87.59

Ending chain P_FHBT description

DESIGN

STATE OF TEXAS · ERNESTO GARZA JR. · 141557 · LICENSED PROFESSIONAL ENGINEER

ERNESTO GARZA JR., P.E. — 6/10/2026 DATE

APPROVAL

STATE OF TEXAS · JUSTIN W. CLARK · 118715 · LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 6/10/2026 DATE

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2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

FLORESVILLE

HIKE & BIKE TRAIL

HORIZONTAL ALIGNMENT DATA

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
08/06/2026	6	TEXAS	SEE TITLE SHEET			NA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
08/06/2026	SAT	WILSON				2

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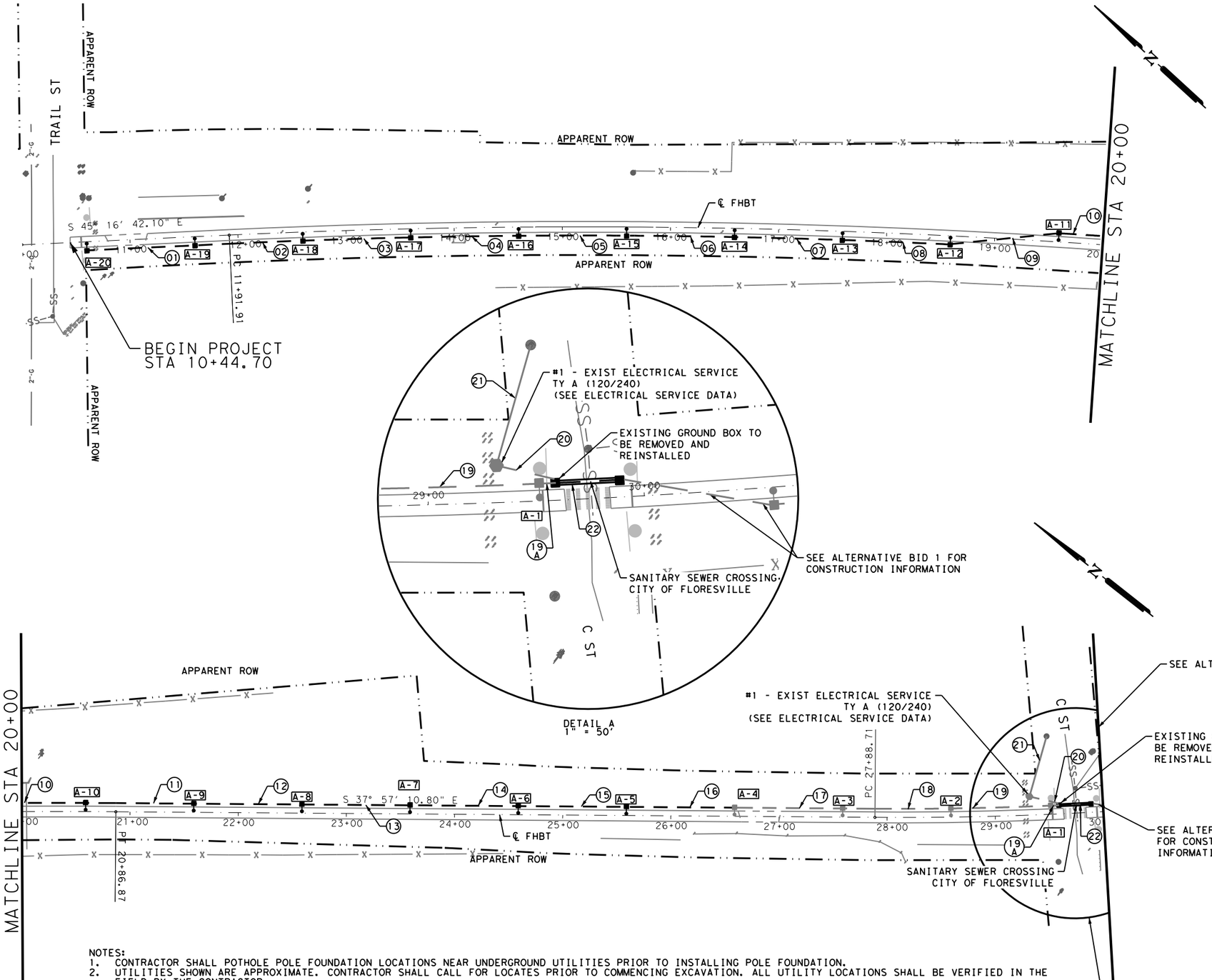

LEGEND

- EXISTING ROADWAY
- EXISTING 2" CONDUIT PVC SCHD 80 (TRENCH)
- PROPOSED 2" CONDUIT PVC SCHD 80 (TRENCH)
- PROPOSED 2" CONDUIT PVC SCHD 80 (BORE)
- CONDUIT RUN NUMBER (XX)
- ILLUMINATION POLE LABEL X-X
- EXISTING SINGLE ARM ILLUMINATION ASSEMBLY
- PROPOSED SINGLE ARM ILLUMINATION ASSEMBLY
- EXISTING GROUND BOX TY A
- PROPOSED GROUND BOX TY A
- EXISTING ELECTRIC SERVICE
- OVERHEAD ELECTRIC SERVICE CONNECTION — OH E —

0 50 100 150
SCALE: 1"= 100'

NOTES:
1. CONTRACTOR SHALL POTHOLE POLE FOUNDATION LOCATIONS NEAR UNDERGROUND UTILITIES PRIOR TO INSTALLING POLE FOUNDATION.
2. UTILITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL CALL FOR LOCATES PRIOR TO COMMENCING EXCAVATION. ALL UTILITY LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
3. LUMINAIRES ARE SHOWN FOR CLARITY PURPOSES ONLY; ORIENT THEM AS DIRECTED BY THE ENGINEER.
4. AN ADDITIONAL 2" SCHEDULE 80 PVC SHALL BE INSTALLED AT EACH POLE FOUNDATION STUBBED OUT 2' FROM THE FACE OF THE FOUNDATION. STUB OUTS SHALL BE APPROPRIATELY CAPPED BELOW GRADE FOR FUTURE USE.
5. THE CONTRACTOR SHALL SUPPLY AND INSTALL THE ADDRESS IN PERMANENT NUMBERS AND LETTERS TO THE STREET SIDE OF THE SERVICE ENCLOSURE. SAID ADDRESS SHALL ALSO BE RECORDED AND GIVEN TO THE CITY OF FLORESVILLE INSPECTOR FOR THEIR RECORDS.
6. NEATLY CAP/COIL ALL WIRES AND CABLES IN GROUND BOX OR AT TERMINATION.

DESIGN

STATE OF TEXAS · JACOB W. SHELTON · 154071 · LICENSED PROFESSIONAL ENGINEER

JACOB W. SHELTON, P.E. — 6/10/2026 DATE

APPROVAL

STATE OF TEXAS · JUSTIN W. CLARK · 118715 · LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 6/10/2026 DATE

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

FLORESVILLE

HIKE & BIKE TRAIL

ILLUMINATION LAYOUT

BASE BID

STA 10+00 TO STA 30+00

SHEET 1 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	SEE TITLE SHEET			NA
DW:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DW:	SAT	WILSON				3

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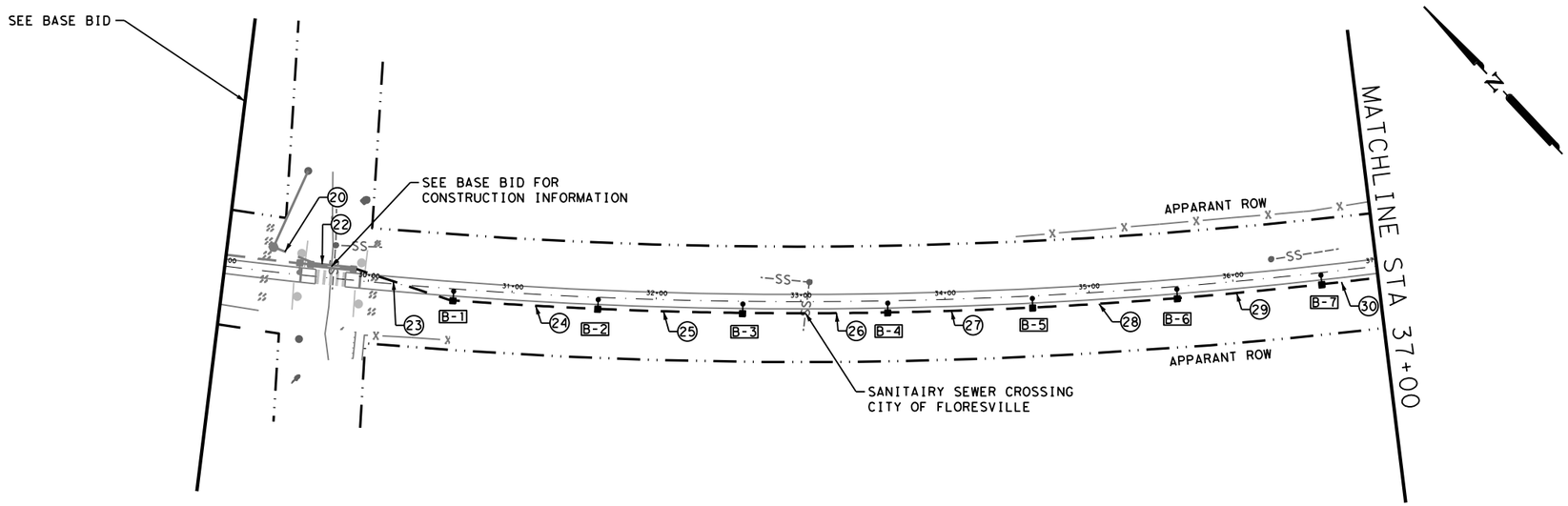
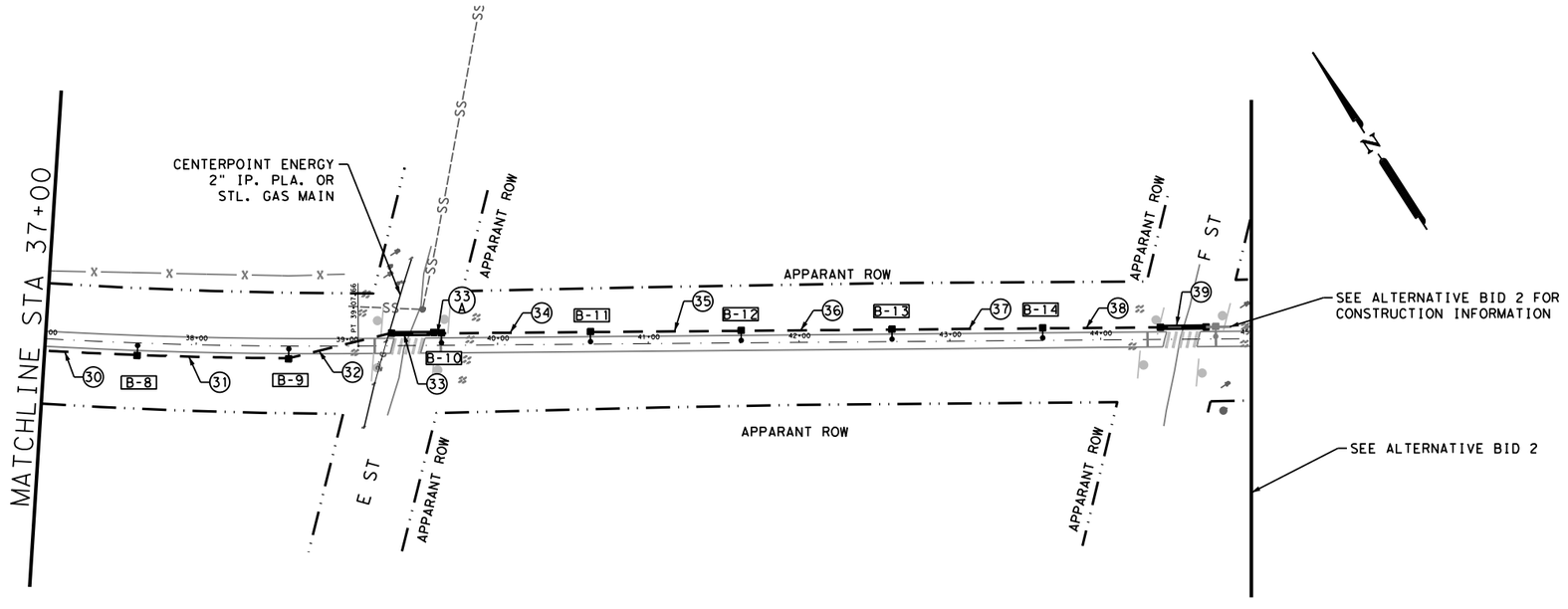
Plotted on: 6/10/2026





LEGEND

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- EXISTING 2" CONDUIT PVC SCHD 80 (TRENCH)
- PROPOSED 2" CONDUIT PVC SCHD 80 (TRENCH)
- PROPOSED 2" CONDUIT PVC SCHD 80 (BORE)
- CONDUIT RUN NUMBER (XX)
- ILLUMINATION POLE LABEL [X-X]
- EXISTING SINGLE ARM ILLUMINATION ASSEMBLY
- PROPOSED SINGLE ARM ILLUMINATION ASSEMBLY
- EXISTING GROUND BOX TY A
- PROPOSED GROUND BOX TY A
- EXISTING ELECTRIC SERVICE
- OVERHEAD ELECTRIC SERVICE CONNECTION — OH E —

0 50 100 150
SCALE: 1" = 100'

DESIGN

STATE OF TEXAS · JACOB W. SHELTON · 154071 · LICENSED PROFESSIONAL ENGINEER

JACOB W. SHELTON, P.E. — 6/10/2026 DATE

APPROVAL

STATE OF TEXAS · JUSTIN W. CLARK · 118715 · LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 6/10/2026 DATE

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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

FLORESVILLE

HIKE & BIKE TRAIL

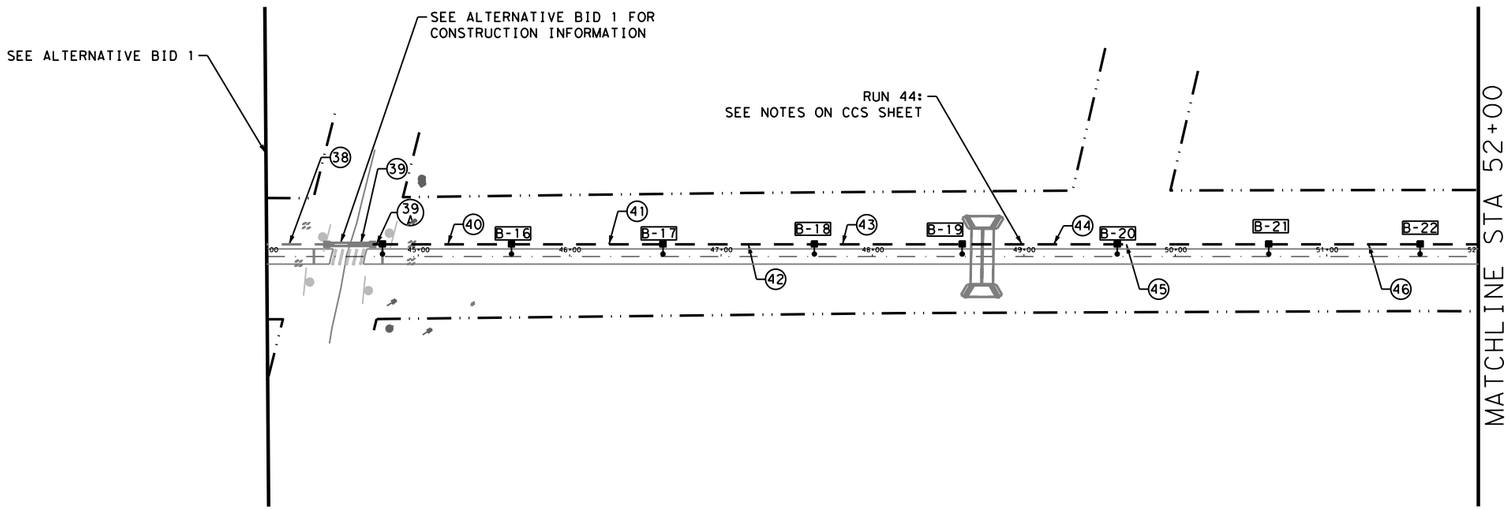
ILLUMINATION LAYOUT

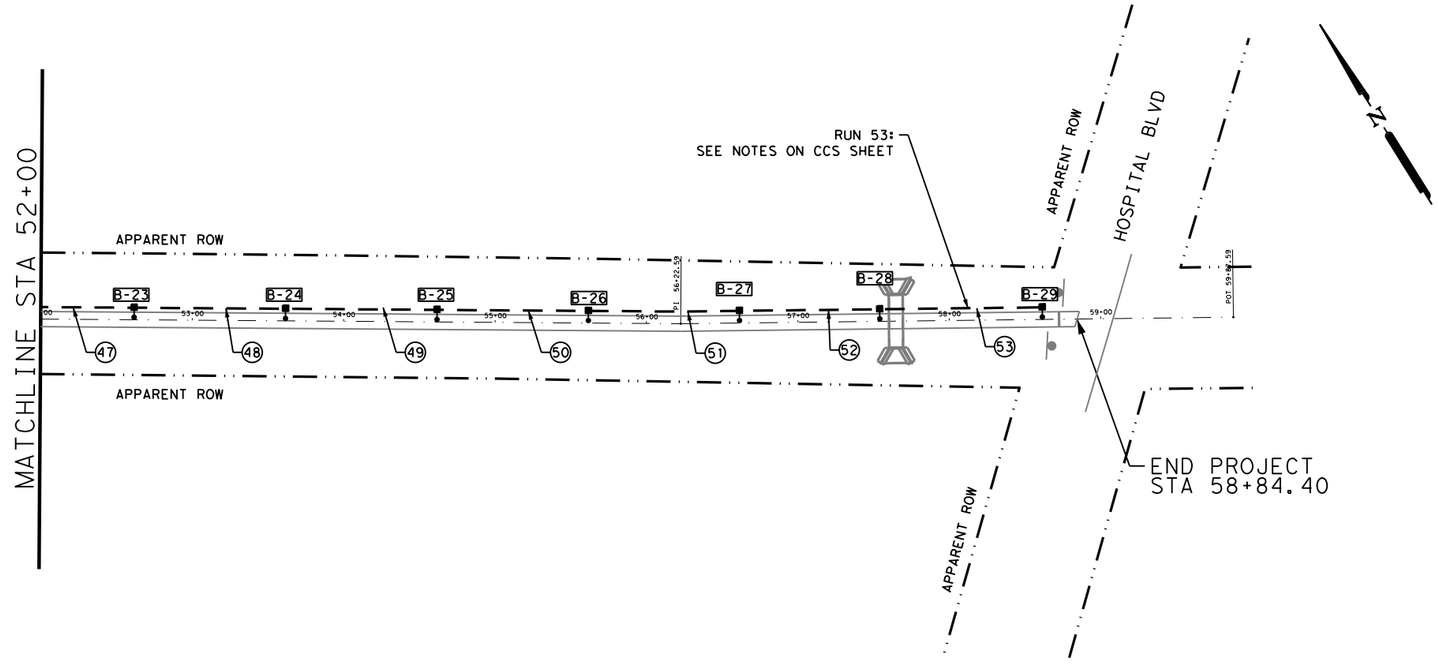
ALTERNATIVE BID 1

STA 29+00 TO STA 45+00

SHEET 2 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	SEE TITLE SHEET			NA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	SAT	WILSON				4





LEGEND

- EXISTING ROADWAY
- EXISTING 2" CONDUIT PVC SCHD 80 (TRENCH)
- PROPOSED 2" CONDUIT PVC SCHD 80 (TRENCH)
- PROPOSED 2" CONDUIT PVC SCHD 80 (BORE)
- CONDUIT RUN NUMBER (XX)
- ILLUMINATION POLE LABEL [X-X]
- EXISTING SINGLE ARM ILLUMINATION ASSEMBLY
- PROPOSED SINGLE ARM ILLUMINATION ASSEMBLY
- EXISTING GROUND BOX TY A
- PROPOSED GROUND BOX TY A
- EXISTING ELECTRIC SERVICE
- OVERHEAD ELECTRIC SERVICE CONNECTION — OH E —

0 50 100 150
SCALE: 1" = 100'

DESIGN

STATE OF TEXAS — JACOB W. SHELTON — 154071 — LICENSED PROFESSIONAL ENGINEER

JACOB W. SHELTON, P.E. — 6/10/2026 DATE

APPROVAL

STATE OF TEXAS — JUSTIN W. CLARK — 118715 — LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 6/10/2026 DATE

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
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FLORESVILLE

HIKE & BIKE TRAIL

ILLUMINATION LAYOUT

ALTERNATIVE BID 2

STA 44+00 TO END

SHEET 3 OF 3

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	SEE TITLE SHEET			NA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	SAT	WILSON				5

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6. NEATLY CAP/COIL ALL WIRES AND CABLES IN GROUND BOX OR AT TERMINATION.

Design Filename: \\pape-dawson\pd-legacy\P-Drive\128\26\00\Design\Civil\Traffic\-01 Lighting Extension\TRAF_ILLUM3.dgn
Plotted on: 6/10/2026

CONDUIT AND CONDUCTOR SCHEDULE - BASE BID

CKT NO.	RUN NO.	CONDUIT: CONDT (PVC) (SCHD 80) (2")	CONDUIT: CONDT (PVC) (SCHD 80) (2")	CONDUIT: # COND	CONDUCTOR: ELEC CONDR (NO. 8)	CONDUCTOR: # BARE	CONDUCTOR: ELEC CONDR (NO. 6) INSULA	CONDUCTOR: ELEC CONDR (NO. 8) INSULA	CONDUCTOR: # INSUL	CONDUIT CONDITION
A	01	100		1	100	1		200	2	PROPOSED
A	02	100		1	100	1		200	2	PROPOSED
A	03	100		1	100	1		200	2	PROPOSED
A	04	100		1	100	1		200	2	PROPOSED
A	05	100		1	100	1		200	2	PROPOSED
A	06	100		1	100	1		200	2	PROPOSED
A	07	100		1	100	1		200	2	PROPOSED
A	08	100		1	100	1		200	2	PROPOSED
A	09	105		1	105	1		210	2	PROPOSED
A	10	100		1	100	1		200	2	PROPOSED
A	11	100		1	100	1		200	2	PROPOSED
A	12	100		1	100	1		200	2	PROPOSED
A	13	100		1	100	1		200	2	PROPOSED
A	14	100		1	100	1		200	2	PROPOSED
A	15	100		1	100	1		200	2	PROPOSED
A	16	100		1	100	1		200	2	PROPOSED
A	17				100	1		200	2	EXISTING
A	18				100	1		200	2	EXISTING
A	19				95	1		190	2	EXISTING
A	19A				10	1		20	2	EXISTING
A	20				10	1		20	2	EXISTING
A	21	EXISTING OVERHEAD POWER CONNECTION								
B	22		30	1						PROPOSED
TOTAL + 10% CONTINGENCY		1766	33		2112		0	4224		

CONDUIT AND CONDUCTOR SCHEDULE - ALTERNATIVE BID 1

CKT NO.	RUN NO.	CONDUIT: CONDT (PVC) (SCHD 80) (2")	CONDUIT: CONDT (PVC) (SCHD 80) (2")	CONDUIT: # COND	ELEC CONDR (NO. 8)	# BARE	ELEC CONDR (NO. 6) INSULA	ELEC CONDR (NO. 8) INSULA	# INSUL	CONDUIT CONDITION
A	20				10	1	20		2	EXISTING
A	21	EXISTING OVERHEAD POWER CONNECTION								
B	22				30	1	60		2	EXISTING
B	23	75		1	75	1	150		2	PROPOSED
B	24	100		1	100	1	200		2	PROPOSED
B	25	100		1	100	1	200		2	PROPOSED
B	26	100		1	100	1	200		2	PROPOSED
B	27	100		1	100	1	200		2	PROPOSED
B	28	100		1	100	1	200		2	PROPOSED
B	29	100		1	100	1	200		2	PROPOSED
B	30	100		1	100	1	200		2	PROPOSED
B	31	100		1	100	1	200		2	PROPOSED
B	32	70		1	70	1	140		2	PROPOSED
B	33		30	1	30	1	60		2	PROPOSED
B	33A	10		1	10	1	20		2	PROPOSED
B	34	100		1	100	1	200		2	PROPOSED
B	35	100		1	100	1	200		2	PROPOSED
B	36	100		1	100	1	200		2	PROPOSED
B	37	100		1	100	1	200		2	PROPOSED
B	38	80		1	80	1	160		2	PROPOSED
B	39		30	1	30	1	60		2	PROPOSED
TOTAL + 10% CONTINGENCY		1579	66		1678		3355	0		

CONDUIT AND CONDUCTOR SCHEDULE - ALTERNATIVE BID 2

CKT NO.	RUN NO.	CONDUIT: CONDT (PVC) (SCHD 80) (2")	CONDUIT: CONDT (PVC) (SCHD 80) (2")	CONDUIT: # COND	ELEC CONDR (NO. 8)	# BARE	ELEC CONDR (NO. 6) INSULA	ELEC CONDR (NO. 8) INSULA	# INSUL	CONDUIT CONDITION
B	38				80	1	160		2	EXISTING
B	39				30	1	60		2	PROPOSED
B	39A	10		1	10	1	20		2	PROPOSED
B	40	85		1	85	1	170		2	PROPOSED
B	41	100		1	100	1	200		2	PROPOSED
B	42	100		1	100	1	200		2	PROPOSED
B	43	100		1	100	1	200		2	PROPOSED
B	44	100		1	100	1	200		2	PROPOSED
B	45*	100		1	100	1	200		2	PROPOSED
B	46*	100		1	100	1	200		2	PROPOSED
B	47	100		1	100	1	200		2	PROPOSED
B	48	100		1	100	1	200		2	PROPOSED
B	49	100		1	100	1	200		2	PROPOSED
B	50	100		1	100	1	200		2	PROPOSED
B	51	100		1	100	1	200		2	PROPOSED
B	52	95		1	95	1	190		2	PROPOSED
B	53	110		1	110	1	220		2	PROPOSED
TOTAL + 10% CONTINGENCY		1540	0		1540		3080	0		

FIXTURE TYPE: CLP-BELL LED
OPTIC DISTRIBUTION: TYPE 2
LED COLOR TEMP: 3000 K
125 WATTS (EACH)
.36 AMPS (EACH) @ 240 VOLTS

MODIFIED ELECTRIC SERVICE DATA **

Elec. Service No.	Electrical Service Description (see ED (5) - 25)	Service Conduit Size	Service Conductors No./Size	Safety Switch Amps	Main Ckt. Bkr. Pole/Amp	Two-Pole Contactor Amps	Panelbd/ Loadcenter Amp Rating	Circuit No.	Branch Ckt. Bkr. Pole/Amps	Branch Circuit Amps	KVA Load
1	ELEC SERV TY A(120/240)060(NS)SS(E)SP(O)	3"	3/#6	N/A	2P/60	60	N/A	A (EXIST B (PROP)	2P/15 2P/15	7 12	4.6

* CONTRACTOR TO PLACE CONDUIT AT 18" DEPTH NEAR CULVERTS. CONTRACTOR TO ENSURE CULVERTS ARE NOT DAMAGED.

** CONTRACTOR TO COORDINATE WITH UTILITY COMPANY TO ADD ADDITIONAL CIRCUIT TO ELECTRIC SERVICE. ALL WORK ASSOCIATED WITH MODIFYING SERVICE IS SUBSIDIARY TO BID ITEM 628.

DESIGN

STATE OF TEXAS — JACOB W. SHELTON — 154071 — LICENSED PROFESSIONAL ENGINEER

JACOB W. SHELTON, P.E. — 6/10/2026 DATE

APPROVAL

STATE OF TEXAS — JUSTIN W. CLARK — 118715 — LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 6/10/2026 DATE

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

FLORESVILLE

HIKE & BIKE TRAIL

CONDUIT & CONDUCTOR SCHEDULE

SHEET 1 OF 2

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	SEE TITLE SHEET			NA
DW:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DW:	SAT	WILSON				6

ILLUMINATION ASSEMBLY LOCATIONS

LIGHT NO.	STATION	BASELINE	OFFSET	POLE TYPE	LUMINAIRE TYPE	30" DRILL SHAFT LENGTH (FT)	CONDITION	BID
A-01	29+52	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	EXISTING	BASE
A-02	28+60	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	EXISTING	BASE
A-03	27+60	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	EXISTING	BASE
A-04	26+60	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	EXISTING	BASE
A-05	25+60	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-06	24+60	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-07	23+60	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-08	22+60	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-09	21+60	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-10	20+60	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-11	19+60	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-12	18+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-13	17+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-14	16+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-15	15+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-16	14+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-17	13+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-18	12+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-19	11+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
A-20	10+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	BASE
B-01	30+61	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 1
B-02	31+61	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 1
B-03	32+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 1
B-04	33+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 1
B-05	34+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 1
B-06	35+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 1
B-07	36+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 1
B-08	37+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 1
B-09	38+60	FHBT	8' RT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 1
B-10	39+63	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 1
B-11	40+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 1
B-12	41+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 1
B-13	42+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 1
B-14	43+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 1
B-15	44+76	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2
B-16	45+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2
B-17	46+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2
B-18	47+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2
B-19	48+59	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2
B-20	49+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2
B-21	50+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2
B-22	51+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2
B-23	52+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2
B-24	53+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2
B-25	54+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2
B-26	55+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2
B-27	56+62	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2
B-28	57+54	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2
B-29	58+61	FHBT	8' LT	CL-RSS ROUND POLE (16 FT)	FIXTURE TYPE CLP-BELL LED*	6	PROPOSED	ALT 2

* FIXTURE TYPE: CLP-BELL LED
OPTIC DISTRIBUTION: TYPE 2
LED COLOR TEMP: 3000 K
125 WATTS (EACH)
.36 AMPS (EACH) @ 240 VOLTS

DESIGN

STATE OF TEXAS
JACOB W. SHELTON
154071
LICENSED
PROFESSIONAL ENGINEER

JACOB W. SHELTON, P.E. — 6/10/2026 DATE

APPROVAL

STATE OF TEXAS
JUSTIN W. CLARK
118715
LICENSED
PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 6/10/2026 DATE

PAPE-DAWSON ENGINEERS
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CONDUIT & CONDUCTOR SCHEDULE

SHEET 2 OF 2

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	SEE TITLE SHEET			NA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	SAT	WILSON				7

NOTE: CONTRACTOR MAY USE SPEC PROVIDED OR EQUIVALENT WITH APPROVAL BY THE CITY AND ENGINEER.

CLP-BELL — Architectural LED Luminaire

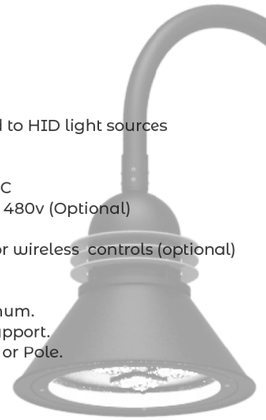
MADE IN USA

CLP-BELL Architectural LED Luminaire, suitable for wet locations. Perfect for lighting up Commercial Exteriors, Walkways, Perimeters, School Campuses, Industrial Spaces, Parking Lots, Recreational Parks.

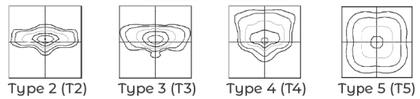
-Dark Sky compliant
-10 Year /100,000 warranty.

Features:
- Energy Savings: Over 66% compared to HID light sources
- Improved lumen maintenance
- Utilizes high efficient Lumiled LED's
- Operating temperatures: -30°C ~ 60°C
- Driver: Constant current, 120-277v or, 480v (Optional)
- 10Kv Surge Protector. (standard)
- 0-10V Dimming, Buttom Photo Cell or wireless controls (optional)

Construction:
- Housing, Heavy Gauge Spun Aluminum.
- Cast Aluminum top for additional support.
- Mounting (YM): Over 3" O.D Tenon or Pole.
- 3 Mill Powder Coat Finish.
- Clear Optic System.



Optic Distribution



Example: CLP-BELL-M-TP1-SH1-AM-50CLED-30K-MV-BRZ-HSS

Cat #	Top/Shade	Mounting	Wattage	Light Dist.	Color Temp.	Voltage	Finish	Options
	Tops	Arm Mount **(AM)**	40W **(40CLED)**	Type 2 **(T2)**	3000K **(30K)**	120-277V **(MV)**	Black **(BLK)**	Occupancy Sensor (OCC)
	Top 1 **(TP1)**	Yoke Mount **(YM)**	50W **(50CLED)**	Type 3 **(T3)**	4000K **(40K)**	480V **(HV)**	White **(WHT)**	Button Photo Cell **(PC)**
CLP-BELL-M **(CLP-BELL-M)**	Top 2 **(TP2)** (YOKE MOUNT ONLY)	Side Slip Arm (Over 2" 3/8 Arm) **(SSA)**	60W **(60CLED)**	Type 4 **(T4)**	5000K **(50K)**		Silver **(SLR)**	Wireless controls **(WC)**
			80W **(80CLED)**	Type 5 **(T5)**			Bronze **(BRZ)**	House Side Shield **(HSS)**
CLP-BELL-LG **(CLP-BELL-L)** (*UP TO 180W)	Top 3 **(TP3)**		100W **(100CLED)**				Graphite **(GPH)**	Wattage Adjuster **(WA)**
	Shades		120W **(120CLED)**				Custom **(CST)**	Decorative Rings **(DR)** (Top 3 Only)
	Shade 1 **(SH1)**		150W **(150CLED)**					
	Shade 2 **(SH2)**		180W **(180CLED)**					
	Shade 3 **(SH3)**							

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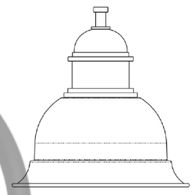
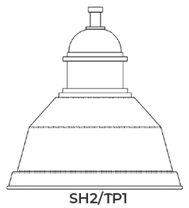
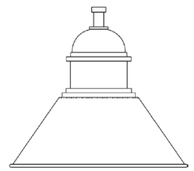
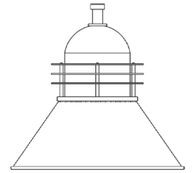
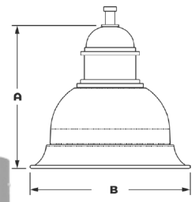
CLP-BELL


SH1/TP1

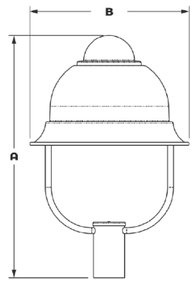

SH2/TP1


SH3/TP1

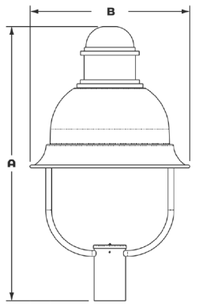

SH3/TP3/DR



ARM MOUNT (AM)



YOKE MOUNT-TOP 2 (YM-TP2)



YOKE MOUNT-TOP 1 (YM-TP1)

Cat#	EPA
CLP-BELL-M-AM	1.38
CLP-BELL-M-PT1-YM	1.83
CLP-BELL-M-PT2-YM	1.59
CLP-BELL-L-AM	1.67
CLP-BELL-L-PT1-YM	2.14
CLP-BELL-L-PT2-YM	1.90

Cat#	A	B
CLP-BELL-M-AM	18"	20"
CLP-BELL-M-PT1-YM	37" 3/8	20"
CLP-BELL-M-PT2-YM	31" 7/8	20"
CLP-BELL-L-AM	20"	25"
CLP-BELL-L-PT1-YM	38" 7/8	25"
CLP-BELL-L-PT2-YM	33" 3/8	25"

Cat #	Input Power	Lumen Output	LPW	Color Temp. (CCT)	CRI	Rated Life (L70)	Imput Voltage	HID Equivalent
CLP-BELL-M-40CLED	45W	5,504	122	5000K	70+	>200,000	120-277V	70W HPS
CLP-BELL-M-50CLED	55W	6,880	125	5000K	70+	>200,000	120-277V	100W MH
CLP-BELL-M-60CLED	65W	8,256	127	5000K	70+	>200,000	120-277V	150W PSMH
CLP-BELL-M-80CLED	85W	9,590	119	5000K	70+	>200,000	120-277V	175W MH
CLP-BELL-M-100CLED	105W	12,306	123	5000K	70+	>200,000	120-277V	250W PSWH
CLP-BELL-M/L-120CLED	125W	16,012	133	5000K	70+	>200,000	120-277V	310W HPS
CLP-BELL-M/L-150CLED	155W	19,098	127	5000K	70+	>200,000	120-277V	400W PSMH
CLP-BELL-L-175CLED	180W	23,429	130	5000K	70+	>200,000	120-277V	500W PSWH

Proudly Manufactured and Assembled in the USA

DESIGN

STATE OF TEXAS — JACOB W. SHELTON — 154071 — LICENSED PROFESSIONAL ENGINEER
JACOB W. SHELTON, P.E. — 6/10/2026 DATE

APPROVAL

STATE OF TEXAS — JUSTIN W. CLARK — 118715 — LICENSED PROFESSIONAL ENGINEER
JUSTIN W. CLARK, P.E. — 6/10/2026 DATE

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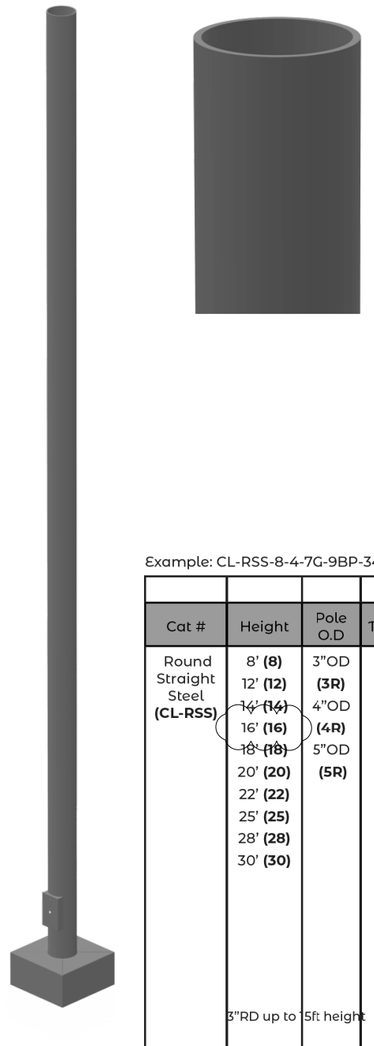
LUMINAIRE SPEC SHEET

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	SEE TITLE SHEET			NA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	SAT	WILSON				8

Design Filename: \\pape-dawson\pd-legacy\P-Drive\128\26\00\Design\Civil\Traffic\-01 Lighting Extension\TRAF_LUMINAR SPEC.dgn
Plotted on: 6/10/2026

CL-RSS — Round Straight Steel



Pole Shaft

Pole shaft shall be weldable-grade, cold-rolled, commercial quality carbon steel tubing conforming to ASTM A500 Grade B. Tubing has minimum yield strength of 45,000 PSI. CL-RSS includes ground Lug welded inside opposite of Hand Hole. Options include 11 and 7 gauge.

Base Plate

4-Bolt Steel Plate base is manufactured from hot rolled carbon steel conforming to ASTM–A36 or equivalent (36,000 PSI). 3/4" thick Steel for poles up to 20ft and 1" thick for poles 21ft to 30ft.

Powder Coating

All poles are sandblast prior to painting, Powder coat is applied to a minimum of 3 millimeters and baked at 400 °F temperature. CL-RSS comes with (3) three year warranty.

Anchor Bolts

Anchor bolt Kit includes 4 L-Shaped Hot Dip Galvanized Bolts, each anchor bolt come with two galvanized nuts and washer per bolt, Anchor bolts meet or exceed a minimum of 36,000 PSI and conform to ASTM F1554 grade 36.

Base Cover, Hand Hole Cover and Pole Cap

CL-RSS come with Removable Pole Cap and Aluminum Base Cover Powder Coated to match Pole. Cast Hand Hole Cover are provided with Internal bridge support and are powder coated to match pole.

Example: CL-RSS-8-4-7G-9BP-342-D180-BRZ-T3R

Cat #	Height	Pole O.D	Thickness	Bolt Circle	Anchor bolt	Mounting	Finish	Options
Round Straight Steel **(CL-RSS)**	8' **(8)** 12' **(12)** ~~14' (14)~~ 16' **(16)** ~~18' (18)~~ 20' **(20)** 22' **(22)** 25' **(25)** 28' **(28)** 30' **(30)** 3"RD up to 15ft height	3"OD **(3R)** 4"OD **(4R)** 5"OD **(5R)**	.120" **(11G)** .180" **(7G)**	8"3/16 - 10"3/16 Bolt Circle (10'-20') **(9BP)** 10" - 14" Bolt Circle (21' Over) **(12BP)**	3/4"x24" **(342)** 1"x36" **(136)**	Single **(SGL)** Double 180° **(D180)** Double 90° **(D90)** Triple 90° **(T90)** Triple 120° **(T120)** Quad **(QD)**	Bronze **(BRZ)** White **(WHT)** Silver **(SVR)** Green **(GRN)** Black **(BLK)** Graphite **(GPH)** Custom **(CST)** Marine Grade **(MG)**	Tenon 2" 3/8 RND **(T2R)** 3"RND **(T3R)** 3" 1/2RND **(T312R)** 4"RND **(T4R)** 4"1/2RND **(T412R)** 3" 1/2SQ **(T312S)** 4"1/2SQ **(T412S)** 5"1/2SQ **(T412S)** Round Base Cover **(RBC)** GFI Provision ONLY **(GFIP)** GFI KIT **(GFIK)**

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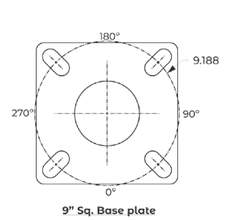
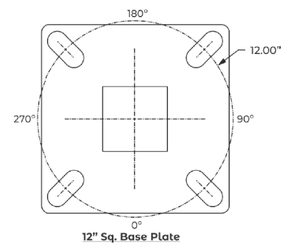
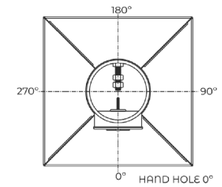
CL-RSS



9" Sq. Base plate



12" Sq. Base Plate



POLE EPA											
Maximum EPA (ft) allowance											
Height	Pole Dia.	Thickness	Base Plate	Bolt Circle	Bolts	90 mph	100 mph	110 mph	120 mph	130 mph	140 mph
8'	3" OD.	11G	3/4" X 9" SQ	9"-3/16	3/4" X 24"	14.2	11.2	10.4	8.6	7.2	6.0
10'	3" OD.	11G	3/4" X 9" SQ	9"-3/16	3/4" X 24"	10.8	8.5	7.8	6.4	5.2	4.3
10'	4" OD.	11G	3/4" X 9" SQ	9"-3/16	3/4" X 24"	20.8	16.6	15.2	12.6	10.4	8.8
12'	3" OD.	11G	3/4" X 9" SQ	9"-3/16	3/4" X 24"	8.4	6.6	6.0	4.8	3.8	3.0
12'	4" OD.	11G	3/4" X 9" SQ	9"-3/16	3/4" X 24"	16.6	13.0	12	9.8	8.0	6.8
14'	3" OD.	11G	3/4" X 9" SQ	9"-3/16	3/4" X 24"	6.8	5.1	4.6	3.6	2.8	2.0
14'	4" OD.	11G	3/4" X 9" SQ	9"-3/16	3/4" X 24"	13.4	10.4	9.6	7.6	6.2	5.1
16'	3" OD.	11G	3/4" X 9" SQ	9"-3/16	3/4" X 24"	5.4	4.0	3.6	2.7	1.9	1.3
16'	4" OD.	11G	3/4" X 9" SQ	9"-3/16	3/4" X 24"	11.0	8.4	7.6	6.0	4.6	3.8
18'	3" OD.	11G	3/4" X 9" SQ	9"-3/16	3/4" X 24"	4.2	2.9	2.6	1.8	1.1	-
18'	4" OD.	11G	3/4" X 9" SQ	9"-3/16	3/4" X 24"	9.0	6.6	6.0	4.5	3.4	2.7
20'	4" OD.	11G	3/4" X 9" SQ	9"-3/16	3/4" X 24"	7.2	5.2	4.6	3.3	2.3	1.6
20'	5" OD.	11G	1" X 12" SQ	12"-1/2	3/4" X 24"	12.5	9.4	8.8	7.1	5.9	4.9
20'	5" OD.	7G	1" X 12" SQ	12"-1/2	1" X 36"	20.6	15.8	14.6	12.2	10.2	8.6
22'	4" OD.	7G	3/4" X 9" SQ	9"-3/16	3/4" X 24"	15.5	10.1	9.9	6.0	5.1	3.4
22'	5" OD.	7G	1" X 12" SQ	12"-1/2	1" X 36"	19.4	14.2	13.1	11.0	9.1	7.2
25'	4" OD.	7G	3/4" X 9" SQ	9"-3/16	3/4" X 24"	3.8	2.3	1.9	.08	-	-
25'	5" OD.	11G	1" X 12" SQ	12"-1/2	1" X 36"	7.6	5.2	4.7	3.7	2.9	2.2
25'	5" OD.	7G	1" X 12" SQ	12"-1/2	1" X 36"	13.4	9.8	9.	7.4	6.0	5.0
30'	5" OD.	11G	1" X 12" SQ	12"-1/2	1" X 36"	4.0	2.1	1.8	1.2	-	-
30'	5" OD.	7G	1" X 12" SQ	12"-1/2	1" X 36"	8.6	5.8	5.2	4.0	3.2	2.4
35'	5" OD.	7G	1" X 12" SQ	12"-1/2	1" X 36"	5.0	2.6	2.2	1.5	1.0	-

Proudly Manufactured and Assembled in the USA

DESIGN

STATE OF TEXAS — JACOB W. SHELTON — 154071 — LICENSED PROFESSIONAL ENGINEER

JACOB W. SHELTON, P.E. — 6/10/2026 DATE

APPROVAL

STATE OF TEXAS — JUSTIN W. CLARK — 118715 — LICENSED PROFESSIONAL ENGINEER

JUSTIN W. CLARK, P.E. — 6/10/2026 DATE

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

FLORESVILLE

HIKE & BIKE TRAIL

POLE SPEC SHEET

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS	SEE TITLE SHEET			NA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	SAT	WILSON				9

DATE:
FILE:

GENERAL NOTES FOR ALL ELECTRICAL WORK

1. The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.

2. Provide new, unused, and undamaged materials. Ensure that all materials and installations comply with the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as CSA Group, Intertek Testing Services, or FM Approvals can be considered equivalent to UL. Where reference is made to NEMA listed devices, International Electrotechnical Commission (IEC) listed devices will not be considered an acceptable equal to NEMA. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection. Replace or reinstall rejected material or equipment at no additional cost to the Department.

3. Miscellaneous nuts, bolts, and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is 1/2 in. or less in diameter.

4. Provide the following test equipment as required by the Engineer to confirm compliance with the contract and the NEC: voltmeter, ammeter, megohm meter (1000 volt DC), ground resistance tester, torque wrenches, and torque screwdrivers. Ensure all equipment has been properly calibrated within the last year. Provide calibration certification to the Engineer upon request. Operate test equipment during inspection as requested by the Engineer.

5. Install grounding as shown on the plans and in accordance with the NEC. Ensure all metallic conduits, metal poles, luminaires, and metal enclosures are bonded to an equipment grounding conductor. Provide stranded bare copper or green insulated grounding conductors. Ground rods, connectors, and bonding jumpers are subsidiary to the various bid items.

6. When required by the Engineer, notify the Department in writing of materials from the Material Producer List (MPL) intended for use on each project. Prequalified materials are listed on the MPL on TxDOT's website under "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials on this list.

CONDUIT

A. MATERIALS

1. Provide conduit, junction boxes, fittings, and hardware per TxDOT Departmental Material Specification DMS-11030, "Conduit" and Item 618, "Conduit" of TxDOT's "Standard Specifications for Construction and Maintenance of Highways, Streets, And Bridges," latest edition. Provide conduits listed under Item 618 on the MPL under "Roadway Illumination and Electrical Supplies." Provide conduit types according to the descriptive code or as shown on the plans. Do not substitute other types of conduits for those shown. Provide Liquidtight Flexible Metal Conduit (LFMC) when flexible conduit is called for on galvanized steel Rigid Metal Conduit (RMC) systems. Provide Liquidtight Flexible Nonmetallic Conduit (LFNC) when flexible conduit is called for on Polyvinyl Chloride (PVC) systems.

2. Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.

3. Unless otherwise shown on the plans, provide junction boxes with a minimum size as shown in the following table, which applies to the greatest number of conductors entering the box through one conduit with no more than four conduits per box. When a mixture of conductor sizes are present, count the conductors as if all are of the larger size. For situations not applicable to this table, size junction boxes per the NEC.

JUNCTION BOX SIZES

AWG	3 CONDUCTORS	5 CONDUCTORS	7 CONDUCTORS
#1	10" x 10" x 4"	12" x 12" x 4"	16" x 16" x 4"
#2	8" x 8" x 4"	10" x 10" x 4"	12" x 12" x 4"
#4	8" x 8" x 4"	10" x 10" x 4"	10" x 10" x 4"
#6	8" x 8" x 4"	8" x 8" x 4"	10" x 10" x 4"
#8	8" x 8" x 4"	8" x 8" x 4"	8" x 8" x 4"

4. Junction boxes with internal volumes up to 100 cu. in. and that are supported by entering raceways must have threaded entries or hubs identified for the intended purpose and be supported by connection of two or more rigid metal conduits. Secure conduit within 3 ft. of the box or within 18 in. of the box if all conduit entries are on the same side. Mechanically secure all junction boxes with an internal volume greater than 100 cu. in.

5. Provide hot dipped galvanized cast iron or sand cast aluminum outlet boxes for junction boxes containing only 10 AWG or 12 AWG conductors. Do not use die cast aluminum boxes. Size outlet boxes according to the NEC.

6. Do not use Intermediate Metal Conduit (IMC) or Electrical Metallic Tubing (EMT) unless specifically required by the plan sheets. When EMT is called for, provide junction boxes sized as directed above, listed and approved for outdoor use, unless otherwise noted on the plans. Provide junction boxes for IMC conduit systems that meet the same requirements for junction boxes used with RMC systems.

7. Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

8. Provide PVC elbows, unless otherwise shown in the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system.

A. MATERIALS (CONTINUED)

9. When galvanized steel RMC elbows are specifically called for in the plans and any portion of the RMC elbow is buried less than 18 in. below grade or bottom of the ground box, ground the RMC elbow with a grounding bushing on a rigid metal extension. Grounding of the rigid metal elbow is not required if the entire RMC elbow is encased in a minimum of 2 in. of concrete. PVC extensions are allowed on these concrete encased rigid metal elbows. Elbows are subsidiary to various bid items.

10. When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to DMS-11060, "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors according to DMS-11030 for PVC conduit bid under Item 618. Provide conduit of the size and schedule as shown on the plans. Do not extend HDPE conduit into ground boxes or foundations. Provide PVC elbows at all ground boxes and foundations.

11. Use two-hole straps or strut straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized strut straps or stand-off straps are allowed on the service riser conduit.

B. CONSTRUCTION METHODS

1. Provide and install expansion joint conduit fittings on all structure-mounted conduits at the structure's expansion joints to allow for movement of the conduit. In addition, provide and install expansion joint fittings on all continuous runs of galvanized steel RMC conduit externally exposed on structures such as bridges at maximum intervals of 150 ft. When requested by the project Engineer, supply manufacturer's specification sheet for expansion joint conduit fittings. Repair or replace expansion joint fittings that do not allow for movement at no additional cost to the Department. Provide the method of determining the amount of expansion to the Engineer upon request. Do not use LFMC or LFNC as a substitute for the required expansion conduit fittings.

2. Space all conduit supports at maximum intervals of 5 ft. Install conduit spacers when attaching metal conduit to surfaces of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit supports within 3 ft. of all enclosures and conduit terminations.

3. Do not attach conduit supports directly to pre-stressed concrete beams, except as shown specifically in the plans or as approved by the Engineer.

4. Unless otherwise shown on the plans, jack or bore conduit placed beneath existing roadways, driveways, sidewalks, or after the base or surfacing operation has begun. Backfill and compact the bore pits below the conduit per Item 476 "Jacking, Boring, or Tunneling Pipe or Box" prior to installing conduit or duct cable to prevent bending of the connections.

5. When placing conduit in the subgrade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the subbase of new roadways, backfill all trenches with cement-stabilized base as per requirements of Items: 110, "Excavation;" 400, "Excavation and Backfill for Structures;" 401, "Flowable Backfill;" 402, "Trench Excavation Protection;" and 403, "Temporary Special Shoring."

6. During construction, temporarily cap or plug open ends of all conduit and raceways immediately after installation to prevent entry of dirt, debris and animals. Temporary caps constructed of durable duct tape are allowed. Tightly affix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.

7. Ensure conduit entry into the top of an enclosure is waterproof by installing conduit sealing hubs or using boxes with threaded bosses. This includes surface mounted safety switches, meter cans, service enclosures, auxiliary enclosures and junction boxes. Grounding bushings on water tight sealing hubs are not required.

8. Fit the ends of all PVC conduit terminations with bushings or bell end fittings. Provide and install a grounding bushing on all metal conduit terminations.

9. Install a bonding jumper from each grounding bushing to the nearest ground rod, grounding lug, or equipment grounding conductor. Ensure all bonding jumpers are the same size as the equipment grounding conductor. Bonding of conduit used as a casing under roadways for duct cable is not required, if the duct extends the full length through the casing.

10. Place conduits entering ground boxes so that the conduit openings are between 3 in. and 6 in. from the bottom of the box. See the ground box detail on sheet ED(4).

11. After completion of conductor installation, immediately seal ends of all conduits emerging from ground with duct seal, expandable foam, or other methods approved by the Engineer. Do not use silicone caulking. Do not use duct tape as a permanent seal.

12. File smooth the cut ends of all mounting strut and conduit. To avoid overspray, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% min. zinc content as specified on DMS-8103 and listed on the MPL for Galvanizing Repair Paints) before installing. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with zinc rich paint as an alternative for materials required to be galvanized.

13. For all conduits, ensure the burial depth is 18" min. For conduits placed under a roadway, ensure the burial depth is 24" min.

Texas Department of Transportation

Traffic Safety Division Standard

ELECTRICAL DETAILS CONDUITS & NOTES

ED(1)-25

FILE:	ed1-25.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT		
©TxDOT	April 2025	CONT	SECT	JOB		HIGHWAY	
REVISIONS						NA	
1-92 3-03 4-25 4-98 5-03 12-00 10-14		DIST	COUNTY			SHEET NO.	
		SAT	WILSON			10	

71A

DATE:
FILE:

ELECTRICAL CONDUCTORS

A. MATERIAL INFORMATION

1. Provide Type XHHW insulated copper conductors in accordance with Departmental Material Specification DMS-11040, "Conductors" and Item 620, "Electrical Conductors." Provide conductors as listed on the Material Producer List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 620.

2. Identify grounded (neutral) conductors with white insulation. Identify grounding conductors (ground wires) with green insulation or bare conductors. Identify ungrounded (hot) conductors with any color insulation except green, white, or gray. Keep color scheme consistent throughout the wiring system. Identify conductors 6 American Wire Gauge (AWG) and smaller by continuous color jacket. Identify electrical conductors 4 AWG and larger by continuous color jacket or by colored tape. When identifying conductors with colored tape, mark at least 6 in. of the conductor's insulation with half laps of tape at each accessible location.

3. Insulated grounding conductors may be substituted for bare conductors, unless otherwise shown in the plans. Insulated grounding conductors must be color coded green in accordance with Note 2.

4. Provide a 6 AWG bare solid copper grounding electrode conductor to bond the electrical service equipment to the concrete encased grounding electrode or the ground rod at the service location. Connect the grounding electrode conductor to the ground rod with a UL listed connector in accordance with DMS-11040. Connect the grounding electrode conductor to the concrete encased grounding electrode as shown in the plans.

5. Where two or more circuits are present in one conduit or enclosure, permanently label the conductors of each branch circuit by attaching a non-metallic, weather resistant tag around both circuit conductors at each accessible location. Provide one-piece tags with two $\frac{3}{16}$" straps, large enough to indicate circuit number, letter, or other identification as shown in the plans. Print circuit identification on the tag with a permanent marker.

6. Use listed compression connectors, mechanical lugs, terminal blocks, or split bolt connectors for splicing as specified in DMS-11040. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Provide UL listed gel-filled insulating splice covers. Splicing materials, insulating materials, breakaway disconnects, splice covers, and fuse holders are subsidiary to various bid items.

B. CONSTRUCTION METHODS

1. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the conduit system.

2. Leave 2 ft. to 3 ft. of length for each conductor up to the splice in ground boxes. Leave 3 ft. to 4 ft. of length for each conductor in ground boxes when pulled through with no splice. Leave 1 ft. to 1.5 ft. of length for each conductor at enclosures and pole bases. Leave 1.5 ft. to 3 ft. of length as required by electric utility for conductors exiting weatherheads.

3. Make splices only in junction boxes, ground boxes, pole bases, or electrical enclosures and use only listed compression connectors, mechanical lugs, terminal blocks, or split bolt connectors. Insulate splices with heavy wall heat shrink tubing or gel-filled insulating splice covers to provide a watertight splice. Overlap conductor insulation with heat shrink tubing a minimum of 2 in. past both sides of the splice. Where heat shrink tubing may not shrink sufficiently to provide a watertight seal around the individual conductors, prior to heating the tubing, increase the diameter of the conductor insulation using hot melt adhesive tape to provide a watertight seal between each conductor and the heat shrink tubing. Ensure the tape extends past the heat shrink tubing. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Heat shrink tubing that appears to have been burned or overheated is considered defective and must be replaced.

4. Size and install gel-filled insulating splice covers according to manufacturer's specifications when used in place of heat shrink tubing.

5. Wire nuts with factory applied waterproof sealant may be used for 8 AWG or smaller conductors in above ground junction boxes, but not in pole bases or ground boxes. Install wire nuts in an upright position to prevent the accumulation of water.

6. Support conductors in illumination poles with a J-hook at the top of the pole.

7. When terminating conductors, remove the insulation and jacketing material without nicking the individual strands of the conductor. Conductors with nicked individual conductor strands or removed strands will be considered damaged.

8. Replace conductors and cables that are damaged or that fail an insulation resistance test at no additional cost to the Department.

9. Do not repair damaged conductors with duct tape, electrical tape, or wire nuts. Use only approved splicing methods.

B. CONSTRUCTION METHODS (CONTINUED)

10. Do not terminate more than one conductor under a single lug unless it is rated for multiple conductors. Do not exceed the lug's listing for maximum number and size of conductors allowed.

11. Follow manufacturer's instructions when terminating conductors to breakaway connectors. Properly torque threaded connections. Proper terminations are critical to the safe operation of breakaway devices. Trim waterproofing boots on breakaway connectors to fit snugly around the conductor to ensure a waterproof connection. Only one conductor may enter a single opening in a boot. Provide waterproof boots with the correct number of openings. Leave unused openings factory sealed. Use prequalified breakaway connectors as shown on the MPL.

12. Provide and install a separate stranded equipment grounding conductor (EGC) in all conduits that contain circuit wiring of 50 volts or more. Unless shown elsewhere, size the EGC to be the same size as the largest current carrying conductor in the conduit. Bond all EGCs together at every accessible location. For ITS installations, bond and ground metal ground box covers and other metal equipment as shown on ITS standards.

C. TEMPORARY WIRING

1. Install temporary conductors and electrical equipment in accordance with the NEC article "Temporary Installations" and Department standard sheets.

2. Provide a ground fault circuit interrupter (GFCI) for powering portable electrical equipment, power tools, ice machines, ice storage bins and refrigerators located outdoors at grade. GFCI may be any one of the following: molded cord and plug set, receptacle, or circuit breaker type.

3. Use listed wire nuts with factory applied sealant for temporary wiring where approved.

4. Enclose conductor splices within a listed enclosure or ground box, or ensure the splices are more than 10 ft. above grade vertically and more than 5 ft. horizontally from any metal structure. When installing temporary conductors in areas subject to vehicle traffic or mobile construction equipment, ensure the vertical clearance to ground is at least 18 ft. when measured at the lowest point. Ground messenger wires that support power conductors in conformance with the NEC.

5. Protect and when necessary repair any existing electrical conduits uncovered during the construction process in a timely manner and in conformance with the NEC.

GROUND RODS & GROUNDING ELECTRODES

A. MATERIAL INFORMATION

1. Provide and install a grounding electrode at electrical services. Provide ground rods according to DMS-11040 and the plans. Larger diameter or longer length rods may be called for in some locations. Concrete encased grounding electrodes may be called for in some locations including electrical services — see plan sheets.

B. CONSTRUCTION METHODS

1. Furnish and install ground rods in soil, concrete, or both, as called for in the plans. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in soil, ensure that the upper end is between 2 to 4 in. below finished grade.

2. Do not place ground rods in the same drilled hole as a timber or concrete pole.

3. Install ground rods so the imprinted part number is at the upper end of the rod.

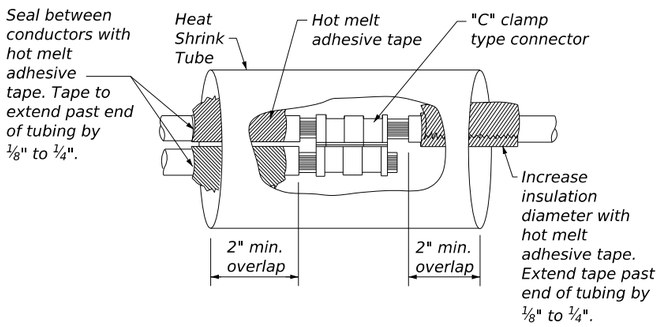
4. Remove all non-conductive material such as concrete splatter from the rod at the clamp location.

5. Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of 4 in.

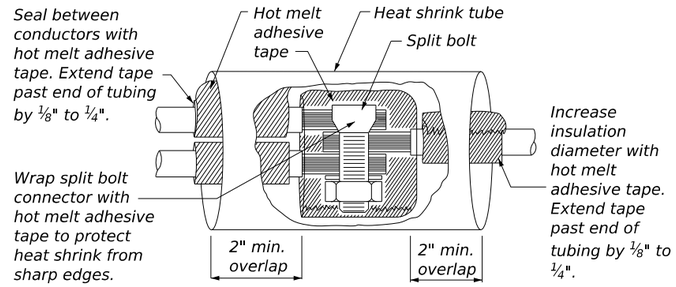
6. Unless otherwise called for in the plans, protect grounding electrode conductors with non-metallic conduit. When protecting grounding electrode conductors with metal conduit, provide and install a grounding bushing and properly sized bonding jumper on each end of the metal conduit.

7. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.

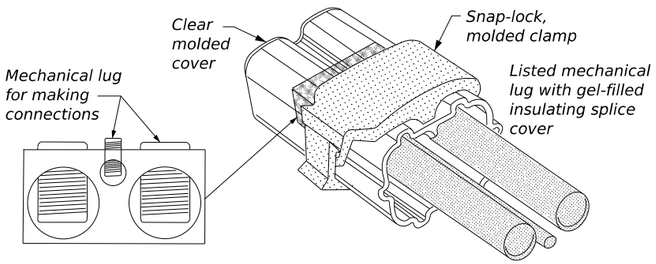
COMPRESSION SPLICE
OPTION 1



SPLIT BOLT SPLICE
OPTION 2



GEL-FILLED INSULATED SPLICE
OPTION 3



Texas Department of Transportation

Traffic Safety Division Standard

ELECTRICAL DETAILS CONDUCTORS

ED(3)-25

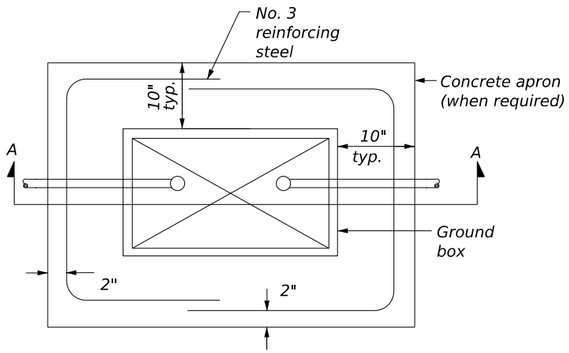
FILE: ed3-25.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2025	CONT	SECT	JOB	HIGHWAY
REVISIONS				NA
1-92 12-00 10-14 10-93 3-03 4-25 4-98 5-03	DIST	COUNTY		SHEET NO.
	SAT	WILSON		11

71C

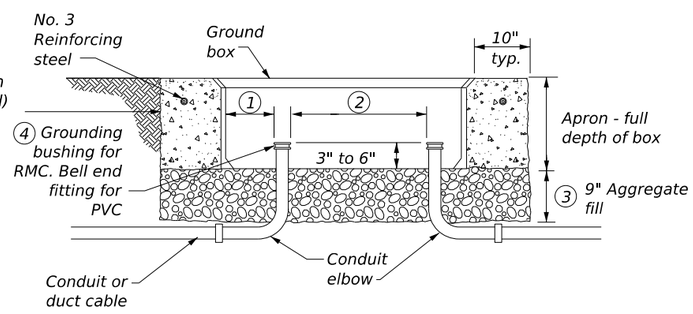
DATE:
FILE:

APRON FOR GROUND BOX

PLAN VIEW



SECTION A - A



SECTION A - A NOTES:

1. *Uniformly space ends of conduits within the ground box. Position ends of conduits so that ground box walls do not interfere with the installation of grounding bushings or bell end fittings.*
2. *Maintain sufficient space between conduits to allow for proper installation of bushing.*
3. *Place aggregate under the box, not in the box. Aggregate should not encroach on the interior volume of the box.*
4. *Install a grounding bushing on the upper end of all RMC terminating in a ground box. Ground RMC elbows when any part of the elbow is less than 18 in. below the bottom of the ground box. Install a PVC bushing or bell end fitting on the upper end of all PVC conduits terminating in a ground box.*

GROUND BOXES	
TYPE	OUTSIDE DIMENSIONS (Width x Length X Depth)
A	12" X 23" X 11"
B	12" X 23" X 22"
C	16" X 29" X 11"
D	16" X 29" X 22"
E	12" X 23" X 17"

NOTES:

A. MATERIALS

1. *Provide polymer concrete ground boxes measuring 16 in. x 30 in. x 24 in. (W x L x D) or smaller in accordance with Departmental Material Specification DMS-11070, "Ground Boxes" and Item 624, "Ground Boxes."*
2. *Provide Type A, B, C, D, and E ground boxes as shown in the plans and as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 624.*
3. *Ensure ground box cover is correctly labeled in accordance with DMS-11070.*
4. *Provide larger ground boxes in accordance with Item 624 and as shown in the plans.*

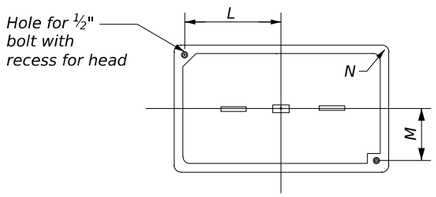
B. CONSTRUCTION METHODS

1. *Before setting ground box and after placing and capping conduits, lay an aggregate bed a minimum of 9 in. deep that extends 10 in. beyond the sides of the ground box. Provide coarse aggregate sized 3/4 in. to 2 in., with no more than 20% material passing through a no. 8 sieve, and as defined by the current ASTM C33/33M standard. Clean aggregate and dirt from conduits according to Item 618.*
2. *Cast ground box aprons in place. Reinforcing steel may be field bent. Ensure the depth of concrete for the apron extends from finished grade to the top of the aggregate bed under the box. Ground box aprons, including concrete and reinforcing steel, are subsidiary to ground boxes when called for by descriptive code.*
3. *Keep bolt holes in the box clear of dirt. Bolt covers down when not working in ground boxes.*
4. *Install all conduits and elbows in a professional and skillful manner. Uniformly space conduits so grounding bushings and bell end fittings can easily be installed.*
5. *Temporarily seal all conduits in the ground box until conductors are installed.*
6. *Permanently seal conduits immediately after the completion of conductor installation. Permanently seal the ends of all conduits with duct seal, expandable foam, or other method as approved. Do not use duct tape as a permanent conduit seal. Do not use silicone caulk as a sealant.*
7. *Bond all equipment grounding conductors in a ground box together with listed connectors.*
8. *When a Type B or D ground box is stacked to meet volume requirements, an appropriately sized hole may be cut for conduit entry in the side wall at least 18 in. below grade.*
9. *If an existing ground box in the contract has a metal cover, bond the cover to the equipment grounding conductor with a 3 ft. long stranded bonding jumper that is the same size as the grounding conductor. The bonding jumper is subsidiary to various bid items. Verify existing ground boxes with metal covers are shown on the plans, with notes fully describing the work required.*
10. *If other ground boxes with metal covers are within the project limits but are not part of the contract, the Engineer may direct the Contractor to bond the metal covers, identifying the specific boxes in writing. This work will be paid for separately.*
11. *Bond metal ground box covers to the grounding conductor with a tank ground type lug.*

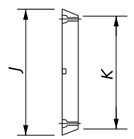
GROUND BOX COVERS								
TYPE	DIMENSIONS							
	H	I	J	K	L	M	N	P
A, B & E	23 ¼"	23"	13 ¾"	13 ½"	9 ⅞"	5 ⅛"	1 ⅜"	2"
C & D	30 ½"	30 ¼"	17 ½"	17 ¼"	13 ¼"	6 ¾"	1 ⅜"	2"

GROUND BOX COVER

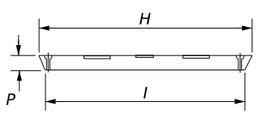
PLAN VIEW



END



SIDE



Texas Department of Transportation

Traffic Safety Division Standard

ELECTRICAL DETAILS GROUND BOXES

ED(4)-25

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ELECTRICAL SERVICES NOTES

1. Provide electrical services in accordance with Electrical Details standard sheets, Departmental Material Specification (DMS)-11080, "Electrical Services" and Item 628, "Electrical Services." Provide electrical service types A, C, and D, as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 628. Provide other service types as detailed on the plans.

2. Coordinate with the Engineer and the utility provider for metering and compliance with utility requirements. Primary line extensions, connection charges, meter charges, and other charges by the utility company to provide power to the location are paid for in accordance with Item 628. Get approval for the costs associated with these charges prior to engaging the utility company to do the work. Consult with the utility provider to determine costs and requirements, and coordinate the work as approved.

3. Provide a Master Lock, Model No. 2, M1, or 6121, keyed to code 2195. Master Lock 2195 keys and locks become property of the Department. Unless otherwise approved, do not energize electrical service equipment until locks are installed.

4. Enclosures with external disconnects that de-energize all equipment inside the enclosure do not need a dead front trim. Protect incoming line terminations from incidental contact as required by the NEC.

5. When galvanized is specified for nuts, screws, bolts or miscellaneous hardware, stainless steel may be used.

6. Provide wiring and electrical components rated for 75°C. Provide red, black, and white colored XHHW service entrance conductors of minimum size 6 American Wire Gauge (AWG). Identify conductors per ED(3). Ensure each service entrance conductor exits through a separately bushed non-metallic opening in the weatherhead. The lengths of the conductors outside the weatherhead are to be 1.5 ft. to 3 ft. as required by electric utility.

7. Provide rigid metal conduit (RMC) for all conduits on service, except for the ½ in. PVC conduit containing the electrical service grounding electrode conductor. Size the service entrance conduit as shown in the plans. Ensure conduit for branch circuit entry to enclosure is the same size as shown on the layout sheets for branch circuit conduit. Extend all rigid metal conduits a minimum of 6 in. underground and then couple to the type and schedule of the conduit shown on the plans. Install a grounding bushing on the RMC where it terminates in the service enclosure.

8. Use of liquidtight flexible metal conduit (LFMC) is allowed between the meter and service enclosure when they are mounted 90 to 180 degrees from each other. Size this LFMC the same size as the service entrance conduit. LFMC must not exceed 3 ft. in length. Strap LFMC within 1 ft. of each end. Terminate each end of the LFMC with a grounding bushing or fitting. The LFMC must contain a grounded (neutral) conductor. Ensure bends in LFMC do not exceed 180 degrees. A pull test is required on all installed conductors, with at least 6 in. of free conductor movement demonstrated to the satisfaction of the Engineer.

9. Ensure all mounting hardware and installation details of services conform to utility company specifications.

10. Provide the following documents in the electrical service document pocket: schematic drawing unique to the service from the UL 508 shop; plan sheet showing Electrical Service Data Chart for the service; plan sheets for the circuits powered by the service; and red lined plan sheets if installation differs from the original design. Reduce larger sheets to 8 ½ in. x 11 in. and laminate all documents.

11. When providing an "Off The Shelf" Type D or Type T service, provide laminated plan sheets detailing equipment and branch circuits supplied by that service. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in. before laminating. When the enclosure has no door pocket, deliver these drawings to the Engineer before completion of the work.

12. Do not install conduit in the back wall of a service enclosure where it would penetrate the equipment mounting panel inside the enclosure. Provide grounding bushings on all metal conduits, and terminate bonding jumpers to grounding bus. Grounding bushings are not required when the end of the metal conduit is fitted with a watertight conduit hub or meter hub.

MAIN DISCONNECT & BRANCH CIRCUIT BREAKERS

1. Field drill flange-mounted remote operator handle, if needed, to ensure handle is lockable in both the "On" and "Off" positions.

2. When the utility company provides a transformer larger than 50 KVA, verify that the available fault current is less than the circuit breaker's ampere interrupting capacity (AIC) rating and provide documentation from the electric utility provider to the Engineer.

PHOTOELECTRIC CONTROL

1. Provide photocell as listed on the MPL. Move, adjust, or shield the photocell from stray or ambient night time light to ensure proper operation. Mount photocell facing north when practical. Mount top of pole photocells as shown on Top Mounted Photocell Detail.

ELECTRICAL SERVICE DATA (EXAMPLE) ∗

ELEC. SERVICE ID	PLAN SHEET NUMBER	ELECTRICAL SERVICE DESCRIPTION	SERVICE CONDUIT SIZE ∗∗	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN CKT. BKR. POLE/AMPS	LIGHTING CONTACTOR AMPS	PANELBOARD/ LOADCENTER AMP RATING	BRANCH CIRCUIT ID	BRANCH CKT. BKR. POLE/AMPS	BRANCH CIRCUIT AMPS	KVA LOAD
SB 183	289	ELC SRV TY A 240/480 100(SS)AL(E)SF(U)	2"	3/#2	100	2P/100	2P/100	N/A	Lighting NB	2P/40	26	28.1
									Lighting SB	2P/40	25	
									Underpass	1P/20	15	
NB Access	30	ELC SRV TY D 120/240 060(NS)SS(E)TS(O)	1 ¼"	3/#6	N/A	2P/60	2P/30	100	Sig. Controller	1P/30	23	5.3
									Luminaires	2P/20	9	
									CCTV	1P/20	3	
2nd & Main	58	ELC SRV TY T 120/240 000(NS)GS(N)SP(O)	1 ¼"	3/#6	N/A	N/A	N/A	70	Flashing Beacon 1	1P/20	4	1.0
									Flashing Beacon 2	1P/20	4	

∗ Example only, not for construction. All new electrical services must have electrical service data chart specific to that service as shown in the plans.

∗∗ Verify service conduit size with utility. Size may change due to utility meter requirements. Ensure conduit size meets the National Electrical Code.

ELECTRICAL SERVICE BID ITEM DESCRIPTIONS

ELEC SERV TY X XXX/XXX XXX(XX)XX(X)XX(X)

SCHEMATIC TYPE

SERVICE VOLTAGE

DISCONNECT AMP RATING
NOTE: 000 indicates main lug only, typically Type T

SAFETY SWITCH
(SS) = Safety Switch Ahead of Meter - Check with Utility
(NS) = No Safety Switch Ahead of Meter - Check with Utility

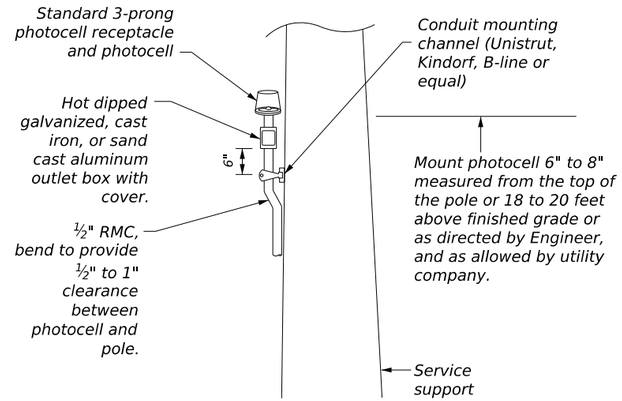
ENCLOSURE TYPE
GS = Galvanized steel ("off the shelf")
SS = Stainless steel (Custom Enclosure) - See MPL
AL = Aluminum (Custom Enclosure) - See MPL

PHOTOCELL MOUNTING LOCATION
(E) = Inside Service/Enclosure Mounted
(T) = Top of pole
(L) = Luminaire mounted
(N) = None - No Photocell or Lighting Contactor Required

SERVICE SUPPORT TYPE
GC = Granite concrete
OC = Other concrete
TP = Timber pole
SP = Steel pole
SF = Steel frame
OT = Pole by others or paid for separately
EX = Existing pole
TS = Service on traffic signal pole
PS = Pedestal Service

SERVICE FEED
O = Overhead Service Feed from Utility
U = Underground Service Feed from Utility

TOP MOUNTED PHOTOCELL



Install conduit strap maximum 3 ft. from box. Spacing between straps supporting conduit is 5 ft. maximum.

Texas Department of Transportation

Traffic Safety Division Standard

ELECTRICAL DETAILS SERVICE NOTES & DATA

ED(5)-25

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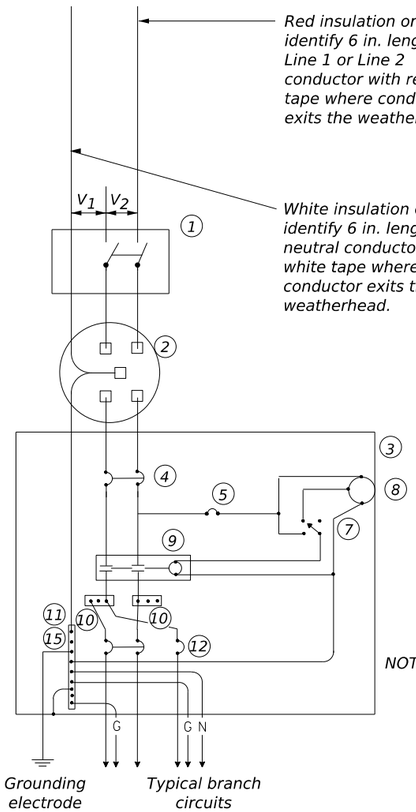
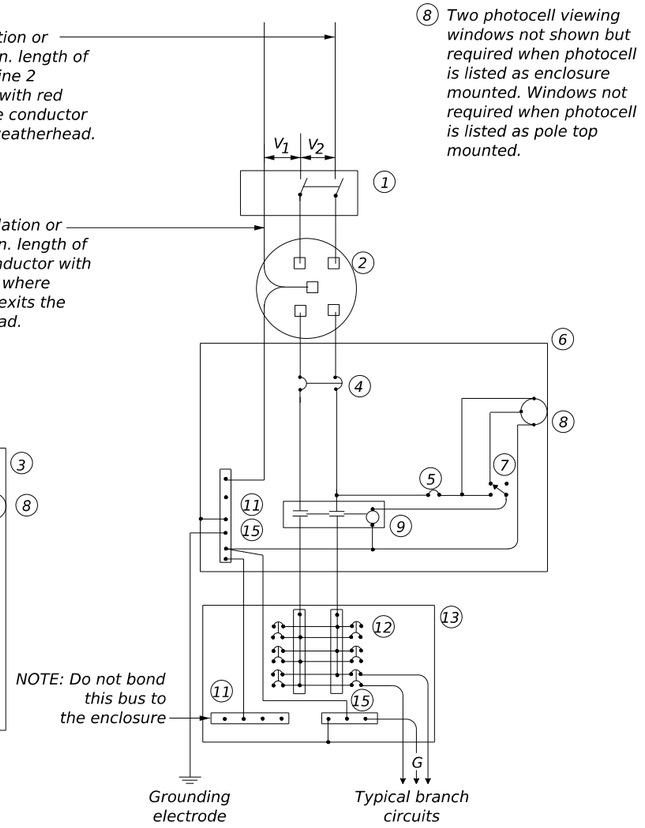
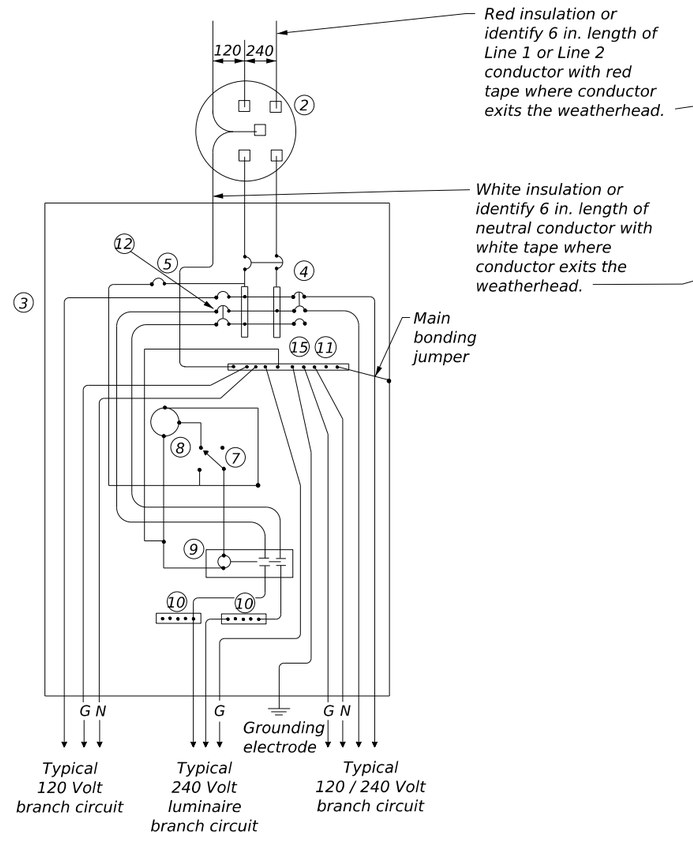
TYPE A
THREE WIRE



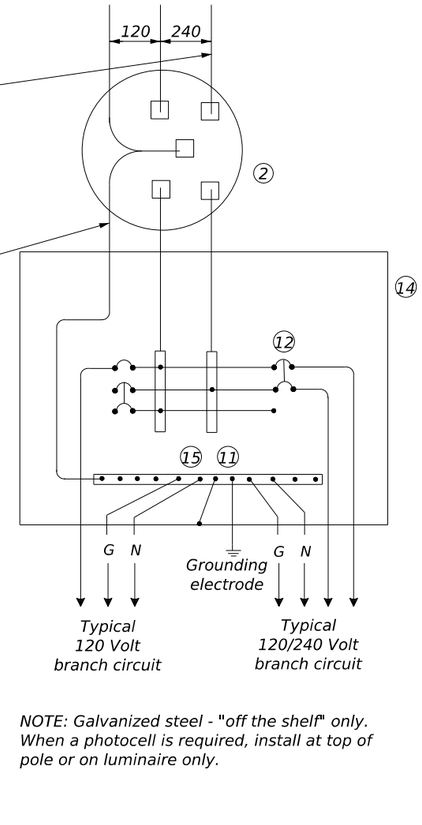
TYPE C
THREE WIRE



TYPE D - CUSTOM
120/240 VOLTS - THREE WIRE



TYPE T
120/240 VOLTS - THREE WIRE



NOTE: Galvanized steel - "off the shelf" only. When a photocell is required, install at top of pole or on luminaire only.

WIRING LEGEND	
———	Power Wiring
———	Control Wiring
—N—	Neutral Conductor
—G—	Equipment grounding conductor (always required)

SCHEMATIC NOTES:

1. Safety Switch (when required)
2. Meter (when required - verify with electric utility provider)
3. Service Assembly Enclosure
4. Main Disconnect Breaker (See Electrical Service Data)
5. Circuit Breaker, 15 Amp (Control Circuit)
6. Auxiliary Enclosure
7. Control Station ("H-O-A" Switch)
8. Photo Electric Control (enclosure-mounted shown)
9. Lighting Contactor
10. Power Distribution Terminal Blocks
11. Neutral Bus
12. Branch Circuit Breaker (See Electrical Service Data)
13. Separate Circuit Breaker Panelboard
14. Load Center
15. Ground Bus

Texas Department of Transportation

Traffic Safety Division Standard

ELECTRICAL DETAILS SERVICE SCHEMATICS AND NOTES

ED(6)-25

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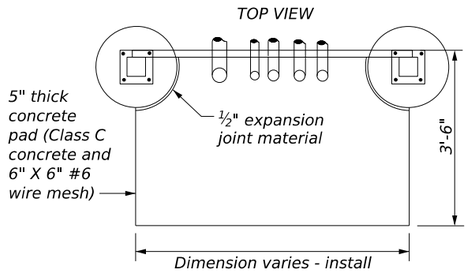
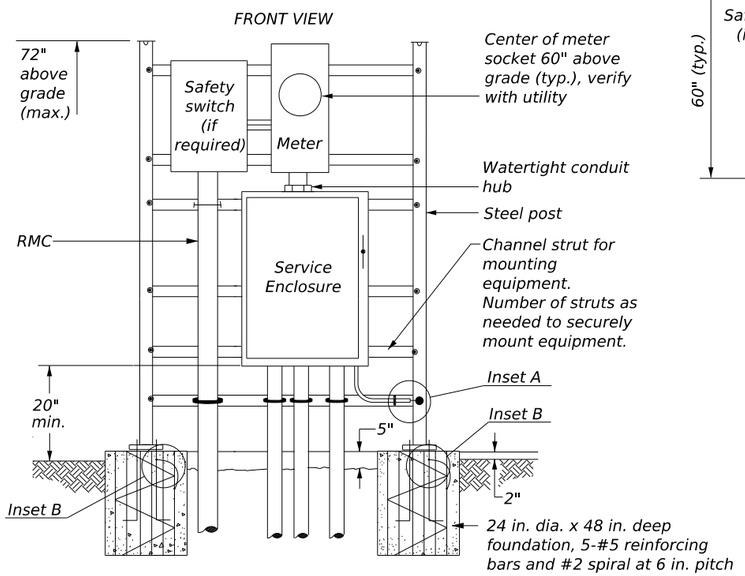
SUPPORT TYPE STEEL POLE (SP) AND STEEL FRAME (SF) NOTES:

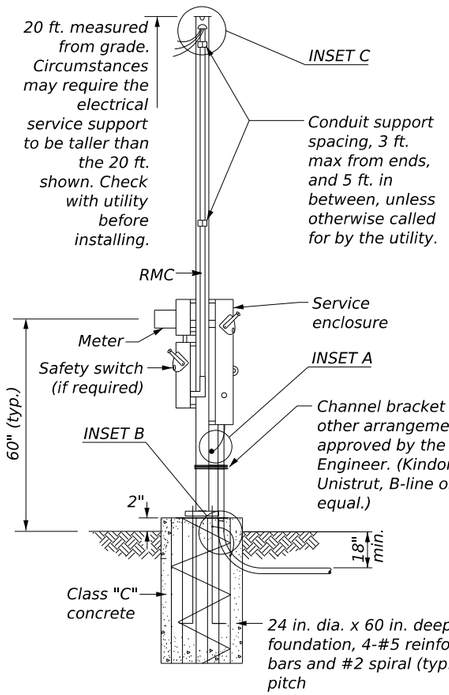
1. Provide steel pole and steel frame supports as per TxDOT Departmental Material Specification DMS-11080, "Electrical Services." Mount all equipment and conduit on 12 gauge galvanized steel or stainless steel channel strut, 1 ½ in. or 1 ⅝ in. wide by 1 in. to 3 ¾ in. deep Unistrut, Kindorf, B-line or equal. Drill, tap, and bolt or weld all channel and hardware to vertical members as approved. Do not stack channel. File smooth and paint field-cut ends of all channel with zinc-rich paint before installing.
2. Install a one point rack or eye bolt bracket 6 in. to 12 in. below the weatherhead as an overhead service drop anchoring point for the electric utility. Attaching bolt must pass through the pole and use a nut, washer, and locking washer on the other size. Self-tapping screws or lag bolts are not allowed.
3. Provide and install galvanized ¾ in. x 18 in. x 4 in. (dia. x length x hook length) anchor bolts for underground service supports. Provide and install galvanized ¾ in. x 56 in. x 4 in. anchor bolts for overhead service supports. Ensure anchor bolts have 3 in. of thread, with 3 ¼ in. to 3 ½ in. of the exposed anchor bolt projecting above finished foundation. Provide and install leveling nuts for all anchor bolts.
4. Use Class C concrete for foundations. Ensure reinforcing steel is Grade 60 with 3 in. of unobstructed concrete cover.
5. Shop drawings are not required for service support structure unless specifically stated elsewhere or directed by the Engineer.
6. Avoid contact of the service drop and service entrance conductors with the metal pole to prevent abrasion of the insulated conductors.
7. Placement of the meter and service enclosure may vary based on the installation of a safety switch.
8. Drill and tap steel poles and frames for ½ in. x 13 UNC tank ground fitting. For steel pole service supports, provide and install tank ground fitting 4 in. to 6 in. directly below the electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting.
9. For steel frame service supports, provide and install tank ground fitting on steel frame post. Install service grounding electrode conductor in a non-metallic conduit or tubing from the enclosure to the steel frame post. Connect electrical service grounding electrode conductor to the tank ground fitting. See SF, SP details and Inset A for more information.
10. Provide and install grounding bushings where RMC terminates in the enclosure. Grounding bushings are not required when RMC is fitted into a watertight conduit hub or meter hub.
11. If steel pole or frame is painted, bond each separate painted piece with a bonding jumper and lugs screwed into tapped holes.
12. Provide ¼ in. x 20 UNC machine screws for bonding. Do not use sheet metal screws. Remove all non-conductive material at contact points. Terminate bonding jumpers with listed devices. Install 6 AWG or larger stranded copper bonding jumpers. Make up all threaded bonding connections wrench-tight.
13. Bond one of the anchor bolts to the rebar cage with 6 AWG bare stranded copper conductor. Use listed mechanical connectors rated for embedment in concrete. See Inset B.

TYPE SF(U)
UNDERGROUND SERVICE

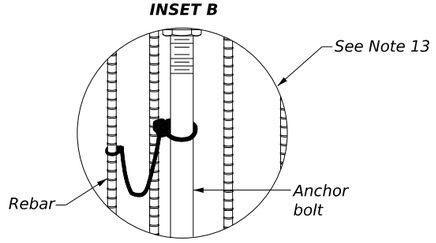




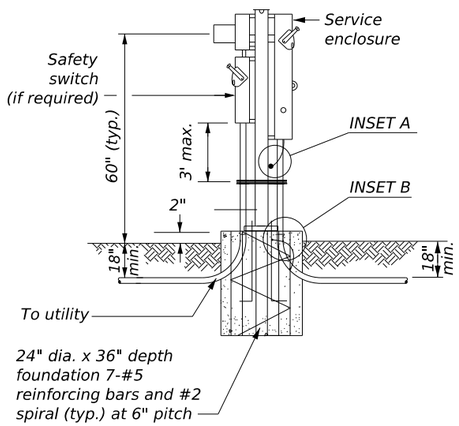
TYPE SP(O)
OVERHEAD SERVICE



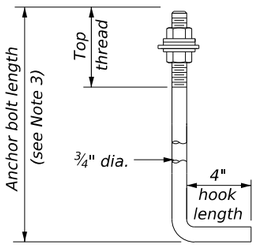
INSET B



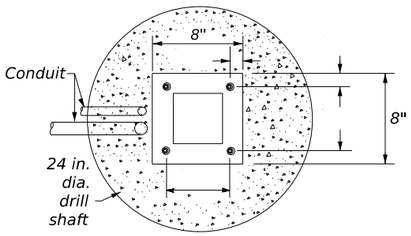
TYPE SP(U)



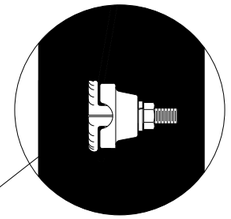
HOOKED ANCHOR DETAIL



BASE PLATE DETAIL

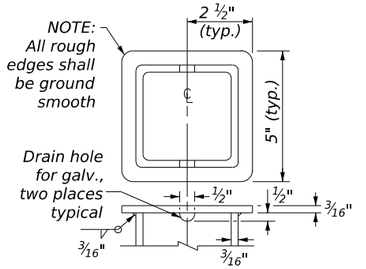


INSET A
FRONT VIEW

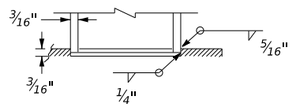


Drill, tap, and thread ½" x 13 UNC. Install tank ground fitting, connect electrical service grounding electrode conductor. See Note 8.

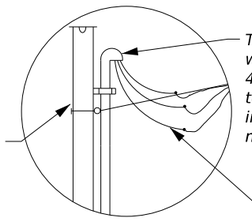
POLE TOP PLATE DETAIL



BOTTOM OF POLE DETAIL
TYPES SF & SP



INSET C
SIDE VIEW



Identify conductors red, black, and white as specified in ED(3), Electrical Conductors, Note A.2. Provide 1.5 ft. to 3 ft. of conductor length as required by electric utility.

Texas Department of Transportation

Traffic Safety Division Standard

ELECTRICAL DETAILS SERVICE SUPPORT TYPES SF & SP

ED(7)-25

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DATE:
FILE:

NOTES:

1. Provide duct cable in accordance with Departmental Material Specification DMS-11060, "Duct Cable" and Special Specification 6000, "Duct Cable." Provide duct cable as listed on the Material Producer List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Special Specification 6000 - Duct Cable. Provide and install duct cable according to NEC Article 354, Nonmetallic Underground Conduit with Conductors (NUCC).

2. Provide High-Density Polyethylene (HDPE) conduit in accordance with DMS-11030 and Item 618, "Conduit." Provide HDPE as listed on the MPL on the Department web site under "Roadway Illumination and Electrical Supplies," Item 618.

3. Supply duct cable with a minimum 2 in. diameter, unless otherwise shown in the plans. Provide duct cable and HDPE conduit as shown by descriptive code or on the plans. Bend duct cable and HDPE conduit as recommended by the manufacturer, with a minimum bending radius of 26 in. for 2 in. duct. Follow manufacturers' recommendations when handling duct cable and HDPE conduit reels and during installation of duct cable and HDPE conduit.

4. Do not splice conductors within duct cable or HDPE conduit. Couple duct cable and HDPE entering a ground box or foundation to a PVC elbow. When galvanized steel rigid metal conduit (RMC) elbows are called for in the plans and any portion of the RMC elbow is buried less than 18 in. from possible contact, ground the RMC elbow.

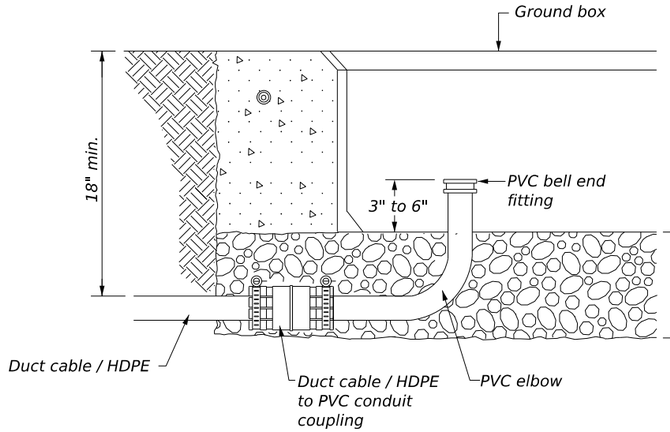
5. When conduit casing is called for in the plans, extend duct cable or HDPE conduit through the conduit casing in one continuous length without connection to the casing.

6. Seal the ends of duct cable or HDPE conduit with duct seal, expandable foam, or other approved method after installation.

7. Provide minimum cover of 24 in. under roadways, 18 in. in other locations, or as shown on the plans.

8. Furnish and install listed fittings to couple duct cable or HDPE conduit to other types of conduit. Duct cable and HDPE conduit may be field-threaded and spliced with PVC or RMC threaded couplings; connected with listed tie-wrap fittings; connected using listed couplings made of HDPE with stainless steel external banding clamps and locking rings; connected with approved electrofusion conduit couplings; or connected using an approved chemical fusion method using an epoxy or adhesive specifically designed for HDPE couplings and connectors. Install connectors in accordance with manufacturer's instructions. Do not use PVC glue on HDPE. Do not use water pipe fittings, or connect conduit with heat shrink tubing.

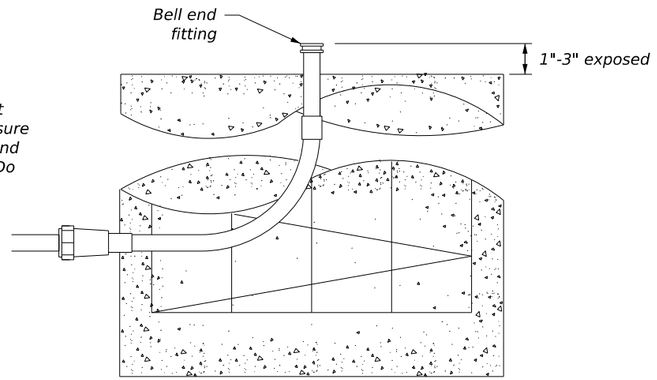
DUCT CABLE/HDPE AT GROUND BOX



When the upper end of an RMC elbow does not enter the ground box,it may be extended with a SCH-40 PVC conduit nipple and bell end, provided there is a minimum of 18 in. of cover over all parts of the elbow. If not, a rigid extension and ground bushing is required.

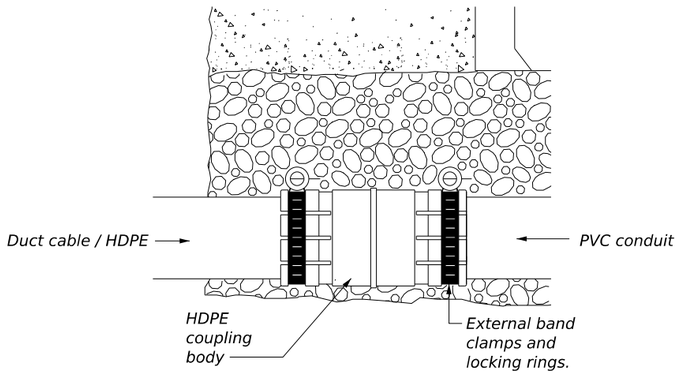
Bed of aggregate is to be a minimum of 9 in. deep, placed under and not in the ground box. Ensure the aggregate does not encroach into the interior of the box.

DUCT CABLE / HDPE AT FOUNDATION

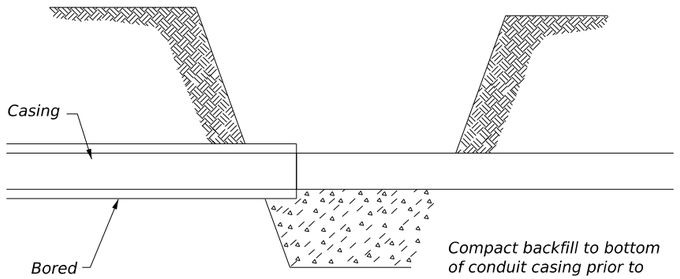


Couple duct to conduit elbow at foundations. Ensure conductors extend into pole base. Do not splice conductors in conduit.

DUCT CABLE / HDPE TO PVC



BORE PIT DETAIL



Compact backfill to bottom of conduit casing prior to placing duct cable, to prevent kinking.

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ELECTRICAL DETAILS DUCT CABLE/ HDPE CONDUIT

ED(11)-25

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ROADWAY ILLUMINATION ASSEMBLY NOTES

1. Details apply to roadway lighting installations bid or referenced under Item 610, "Roadway Illumination Assemblies." Provide, furnish, and install all other materials not shown on the plans which may be necessary for complete and proper construction. Where manufacturers provide warranties or guarantees as a customary trade practice, furnish to the State such warranties or guarantees.

2. The locations of poles and fixtures may be shifted by the Engineer to accommodate local conditions. Install or remove poles and luminaires located near overhead electrical lines using established industry and utility safety practices and in accordance with laws governing such work. Consult with the appropriate utility company prior to beginning such work.

3. Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC),TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA),and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association, Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection.

4. Provide Roadway Illumination Light Fixtures as per TxDOT Departmental Material Specification (DMS) 11010, Item 610, and as shown on the Material Producers List (MPL) for Roadway Illumination and Electrical Supplies.

5. Fabricate steel roadway illumination poles in accordance with Roadway Illumination Poles (RIP) standards and Item 610. Poles fabricated according to RIP standards do not require shop drawing submittals.

   a. Alternate designs to RIP standards or the use of aluminum to fabricate poles will require the submission of shop drawings electronically. For instructions on submitting shop drawings electronically see "Guide to Electronic Shop Drawing Submittal" on the TxDOT web site.

   b. Limitations on use of the RIP standard: The RIP standard details were developed for installations in locations where the 3-second gust basic maximum wind speed is 110 mph, and where the elevation of the base of the pole is less than (i.e. not more than) 25' above the elevation of the surrounding terrain, in accordance with the "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals," 6th Edition (2013) of the AASHTO Design Specifications. For poles to be installed in regions where the maximum basic wind speed exceeds 110 mph or to be mounted more than 25' above the surrounding terrain, provide poles meeting the following requirements:

      i. Submittals. Following the electronic shop drawing submittal process (see Guide to Electronic Shop Drawing Submittal on the TxDOT web site), submit to the Engineer for approval fabrication drawings and calculations for the poles, sealed by a Texas licensed professional engineer (P.E.).

      ii. Luminaire Structural Support Requirements. Provide light poles, arms, and anchor bolt assemblies with a 25 year design life to safely resist dead loads, ice loads and the required basic wind speeds at the location of installation in accordance with the 6th edition (2013) of the AASHTO Design Specifications. For transformer base poles, include transformer base and connecting hardware in calculations and shop drawing submittals. Structurally test all transformer bases to resist the theoretical plastic moment capacity of the pole. Submit certification of the plastic moment load test and FHWA breakaway requirement test of the model of base being furnished with the shop drawings. Show breakaway base model number, manufacturer's name, and logo on shop drawings. Include on manufacturer's shop drawings the ASTM designations for all materials to be used.

6. For both transformer and shoe-base type illumination poles, provide and install double-pole breakaway fuse holders as specified by DMS-11040. Breakaway fuse holders are listed on the MPL for Roadway Illumination and Electrical Supplies under Items 610 & 620. Provide 10 amp time delay fuses for breakaway connectors in light poles, or inside the light fixture for underpass luminaires. In each pole, connect luminaires to the breakaway connector with continuous stranded 12 AWG copper conductors as listed on the MPL. Bond all equipment grounding conductors together and to the ground lug in the transformer base or hand hole.

7. Tighten anchor bolts for shoe base, concrete traffic barrier base, and bridge mount roadway illumination poles, in accordance with Item 449.

8. Install T-Base with following procedure:

   a. Anchor Bolt Tightening.

      i. Coat the threads of the anchor bolts with electrically conductive lubricant.

      ii. Place the T-base over the anchor bolts. Foundation must be level and flat. The maximum permissible gap under any one corner of the t-base is 1/8" before nuts are tightened.

      iii. Coat the bearing surfaces of the nuts and washers with electrically conductive lubricant. Install (1) 1/2" hold down washer, (1) lock washer, and (1) nut on each anchor bolt. Turn the nuts onto the bolts so that each is hand-tight against the washer.

      iv. Using a torque wrench, tighten each nut to 150 ft-lb. Uniform contact is required between the foundation and the T-base in the corner regions of the T-base, and all corner gaps must be closed after applying torque. If a gap still exists after torquing to 150 ft-lbs, continue torquing each bolt incrementally until gap is closed or maximum allowable torque of 250 ft. pound is reached, whichever comes first. If 250 ft-lbs is not enough to close the gap the foundation must be leveled. Gaps along the straight sides of the T-bases and the foundation are permissible. Ensure that no high point of contact occurs between the straight sides of the T-base and the foundation.

      v. Check top of T-base for level. If not level then foundation must be leveled.

   b. Top Bolt Procedure

      i. Erect pole over T-base with crane. Coat bolts, nuts, washers, and lock washers with electrically conductive lubricant.

      ii. Install bolts and 1/2" connecting washers from the inside of the T-base, thread up through the pole base. Install flat washers, lock washers and nuts snug tight according to Item 447, "Structural Bolting."

      iii. Tighten each nut to 150 ft-lb. using a torque wrench.

   c. Level and Plumb

      i. Ensure pole is plumb and mast arm is perpendicular to the roadway according to plans to within 5 degrees.

9. Construct luminaire pole foundations in accordance with Item 416, "Drilled Shaft Foundations," and TxDOT standard sheet RID(2).

10. Provide and install underpass luminaires in accordance with Item 610, DMS-11010, and TxDOT standard sheet RID(3). Typical luminaire size for underpass luminaires is 150W HPS or 150W EQ LED.

11. Mount luminaires on arms level as shown by the luminaire level indicator.

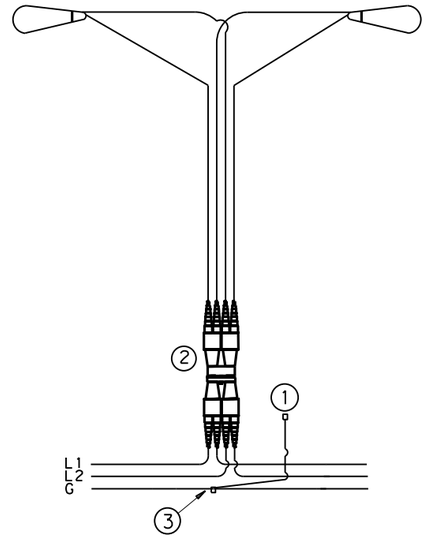
12. Orient luminaires perpendicular to the roadway intended to be lit unless otherwise shown on the plans.

Wiring Diagram Notes:

(1) Use 1/2 in.-13 UNC threaded, copper or tin-plated copper, pole bonding connector, sized appropriately for conductors, bonded to T-base, or use ground lug in handhole as available.

(2) Use pre-qualified two-pole breakaway connectors for all luminaire pole installations. For luminaires fed by a circuit with a neutral conductor, use double pole breakaway connectors with the neutral side unfused and marked white.

(3) Split Bolt or other connector.



L1,L2 = Hot Conductors
G = Grounding Conductor

TYPICAL WIRING DIAGRAM

LUMINAIRES SERVED AT 480V ON 240/480 VOLT SERVICE OR LUMINAIRES SERVED AT 240V FOR 120/240 VOLT SERVICE.

Decorative LED Lighting Notes:

1. LED Drivers in Remote Outdoor enclosures (for drivers that do not include an enclosure as part of a factory assembly):

   a. Provide NEMA 3R outdoor enclosure or as approved.

   b. Install enclosure at least 12" above ground or other horizontal surface. Mount vertically or on ceiling, and avoid direct sun where possible.

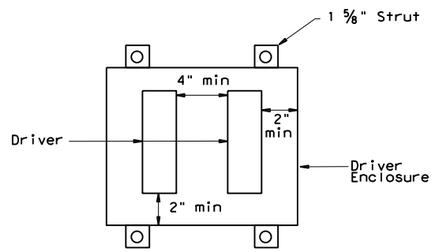
   c. Install drivers with at least 2 inches of space from enclosure walls.

   d. For multiple drivers in an enclosure, provide at least 4 inches side to side and 1 inch end to end from other drivers or electronic equipment

   e. For drivers mounted on back wall of enclosure, mount enclosure on 1 5/8" strut or other standoff to dissipate heat, or mount driver to side of the enclosure or to the metal cover.

   f. Provide remote drivers with a maximum of 100 watts

   g. Provide drivers with documentation of 100,000 hr lifetime at Tcase of 65C or higher.



Driver Spacing In Remote Enclosure

Texas Department of Transportation

Traffic Safety Division Standard

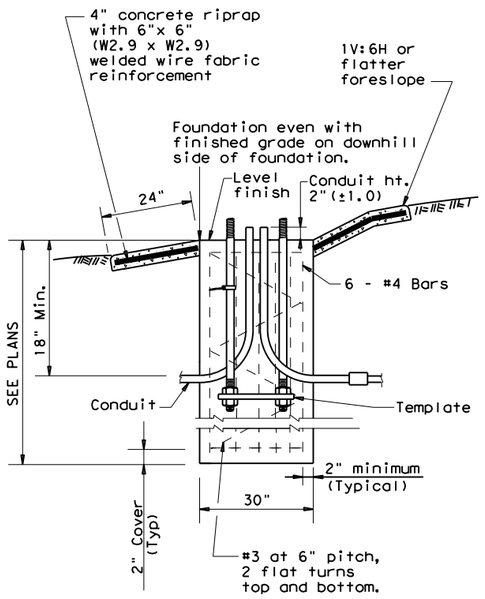
ROADWAY ILLUMINATION DETAILS

RID(1)-20

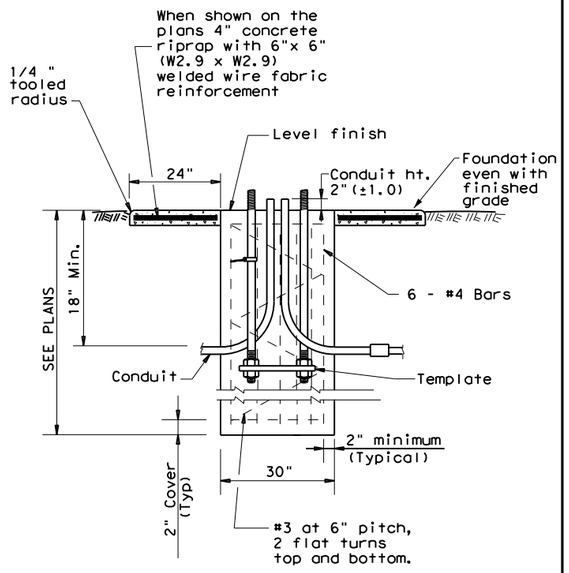
FILE: rid1-20.dgn	DN:	CK:	DW:	CK:
© TxDOT January 2007	CONT	SECT	JOB	HIGHWAY
REVISIONS				NA
7-17	DIST	COUNTY		SHEET NO.
12-20	SAT	WILSON		17

72A

DATE:
FILE:



SECTION A-A
SHOWING SLOPED GRADE



SECTION A-A
SHOWING CONSTANT GRADE

TABLE 1

ANCHOR BOLTS

POLE MOUNTING HEIGHT	BOLT CIRCLE		ANCHOR BOLT SIZE
	Shoe Base	T-Base	
<40 ft.	13 in.	14 in.	1in. x 30in.
40-50 ft.	15 in.	17 ¼in.	1 ¼in. x 30in.

TABLE 2

RECOMMENDED FOUNDATION LENGTHS
(See note 1)

MOUNTING HEIGHT	TEXAS CONE PENETROMETER N Blows/ft		
	10	15	40
≤20 ft.	6′	6′	6′
>20 ft. to 30 ft.	8′	6′	6′
>30 ft. to 40 ft.	8′	8′	6′
>40 ft. to 50 ft.	10′	8′	6′

TABLE 3

PAY QUANTITY OF RIPRAP PER FOUNDATION (Install only when shown on the plans)

Foundation Diameter	RIPRAP DIAMETER	RIPRAP (CONC) (CL B)
30 in.	78 in.	0.35 CY

GENERAL NOTES:

1. "Recommended Foundation Lengths" table is for information purposes only. Foundation lengths shall be as shown on the plans, or as directed by the Engineer. Foundations will be paid for under Item 416, "Drilled Shaft Foundations," unless otherwise shown on the plans.
2. Erect roadway illumination assembly poles plumb and true. Form and level the top 6" of the foundation so the pole will be plumb. Use leveling nuts to plumb shoe base poles. Do not use shims or leveling nuts under transformer bases. Do not grout between baseplate and the foundation.
3. Ensure Class 2A and 2B fit for anchor bolts and nuts. Tap and chase nuts after galvanizing. Anchor bolt body with rolled threads need not be full size.
4. Use appropriate class of concrete as specified in Items 416 and 432. Concrete for riprap may be upgraded to Class C at no extra cost to the Department.
5. Place riprap around the foundation when called for elsewhere in the plans. Riprap will be paid for under Item 432.
6. Locate breakaway roadway illumination assemblies as shown in the placement table, unless otherwise dimensioned on the plans. Protect non-breakaway illumination assemblies from vehicular impact (i.e. 2.5 ft. behind guard rail or mounted on traffic barrier), or located outside the clear zone, except that 2.5 ft. from curb face is minimum desired for light poles on city streets, 45 mph or less. See Roadway Design Manual for further information.
7. Use 4 hold down and 4 connecting washers on transformer base poles as recommended by the manufacturer and supplied with base.
8. Install a minimum of 2 conduits in each foundation. See lighting layout sheets for locations of foundations with more than 2 conduits. Cap unused conduits in foundations on both ends.
9. Conduit location in foundations is critical for breakaway devices. Place conduits 2 in. apart on centerline as shown.
10. Bond anchor bolt to rebar cage with #6 bare stranded copper conductor. Use listed mechanical connectors rated for embedment in concrete. The bonded steel in the foundation creates a concrete encased grounding electrode which replaces the ground rod.
11. Grade earthwork around T-base foundations even with the finished grade as shown in Section A-A to ensure proper function of the breakaway device. Use riprap on T-base foundations that are located on sloped grades, and as shown on the plans for level grades.

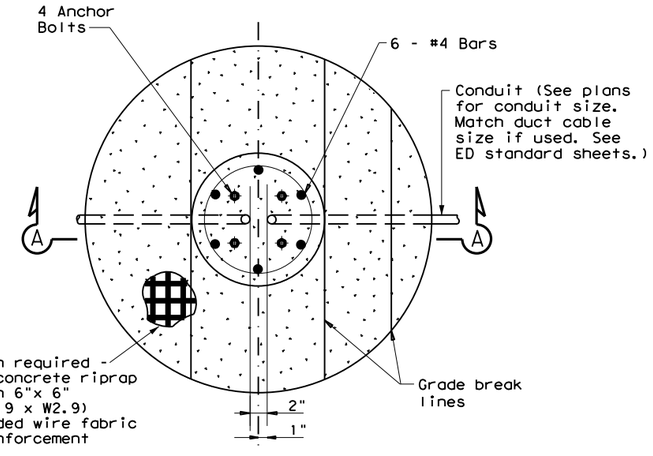
TABLE 4

BREAKAWAY POLE PLACEMENT (See note 6)

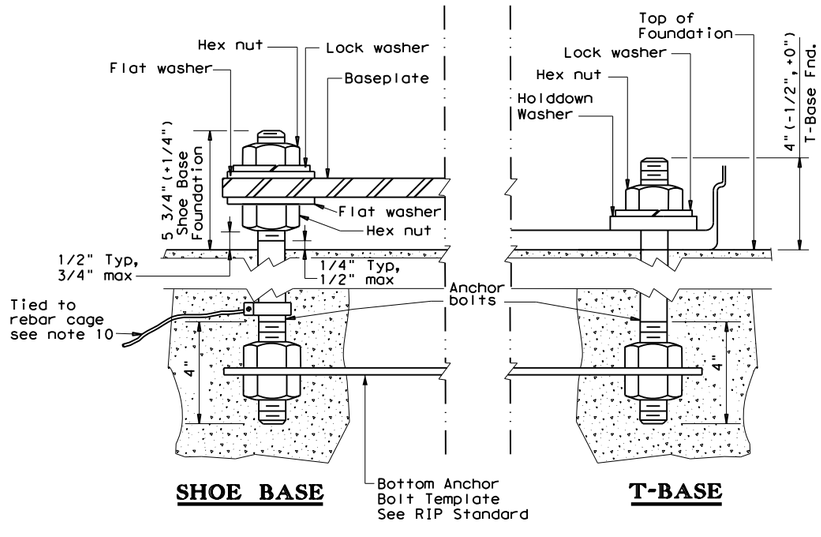
ROADWAY FUNCTIONAL CLASSIFICATION	** POLE OFFSET (DISTANCE TO FACE OF TRANSFORMER BASE)
Freeway Mainlanes (roadway with full control of access)	15 ft. (minimum and typical) from lane edge
All curbed, 45 mph or less design speed	2.5 ft. minimum (15 ft. desirable) from curb face
All others	10 ft. minimum*(15 ft. desirable) from lane edge

* or as close to ROW line as is practical

** provide 2/5 of the luminaire mounting height behind the pole for "falling area" to prevent encroachment on the other travel lanes. See design guidelines.



FOUNDATION DETAIL



ANCHOR BOLT DETAIL

Texas Department of Transportation

Traffic Safety Division Standard

ROADWAY ILLUMINATION DETAILS
(RDWY ILLUM FOUNDATIONS)
RID(2)-20

FILE: rid2-20.dgn	DN:	CK:	DW:	CK:
©TxDOT January 2007	CONT	SECT	JOB	HIGHWAY
REVISIONS				NA
1-11	DIST	COUNTY		SHEET NO.
7-17	SAT	WILSON		18
12-20				

72B

DATE:
FILE:

Addendums: No. 1 issued X/XX/2026
No. 2 issued X/XX/2026
No. 3 issued X/XX/2026
Bid Open: 6/25/2026

PAPE–DAWSON

City of Floresville

City of Floresville
Floresville Hike and Bike Trail
UNIT COST BREAKDOWN

ITEM		DESCRIPTION	UNITS	QTY	Company Name: UNIT PRICE	AMOUNT
BASE BID						
1.	0416-7005	DRILL SHAFT (30 IN)	LF	96		$0.00
2.	0618-7054	CONDT (PVC) (SCH 80) (2")	LF	1766		$0.00
3.	0618-7055	CONDT (PVC) (SCH 80) (2") (BORE)	LF	33		$0.00
4.	0618-7090	CONDUIT (PREPARE)	LF	340		$0.00
5.	0620-7007	ELEC CONDR (NO.8) BARE	LF	2112		$0.00
6.	0620-7008	ELEC CONDR (NO.8) INSULATED	LF	4224		$0.00
7.	0624-7002	GROUND BOX TY A (122311)W/APRON	EA	2		$0.00
8.	0624-7013	REMOVE GROUND BOX	EA	1		$0.00
9.	0628-XXX1	MODIFY ELECTRICAL SERVICE	EA	1		$0.00
10.	6501-6001	LED PEDESTRAIN ILLM ASSEMBLY	EA	16		$0.00
		MOBILIZATION	% / LS	0%		$0.00
		FORCE ACCOUNT - EROSION CONTROL	LS			$0.00
		FORCE ACCOUNT - TRAFFIC CONTROL	LS			$0.00
				BASE BID TOTAL	**$0.00**	
Alternative Bid 1						
1.	0416-7005	DRILL SHAFT (30 IN)	LF	84		$0.00
2.	0618-7054	CONDT (PVC) (SCH 80) (2")	LF	1579		$0.00
3.	0618-7055	CONDT (PVC) (SCH 80) (2") (BORE)	LF	66		$0.00
4.	0620-7007	ELEC CONDR (NO.8) BARE	LF	1678		$0.00
5.	0620-7010	ELEC CONDR (NO.6) INSULATED	LF	3355		$0.00
6.	0624-7002	GROUND BOX TY A (122311)W/APRON	EA	4		$0.00
7.	6501-6001	LED PEDESTRAIN ILLM ASSEMBLY	EA	14		$0.00
		MOBILIZATION	% / LS	0%		$0.00
		FORCE ACCOUNT - EROSION CONTROL	LS			$0.00
		FORCE ACCOUNT - TRAFFIC CONTROL	LS			$0.00
				ALTERNATIVE BID 1 TOTAL	**$0.00**	
Alternative Bid 2						
1.	0416-7005	DRILL SHAFT (30 IN)	LF	90		$0.00
2.	0618-7054	CONDT (PVC) (SCH 80) (2")	LF	1540		$0.00
3.	0620-7007	ELEC CONDR (NO.8) BARE	LF	1540		$0.00
4.	0620-7010	ELEC CONDR (NO.6) INSULATED	LF	3080		$0.00
5.	6501-6001	LED PEDESTRAIN ILLM ASSEMBLY	EA	15		$0.00
		MOBILIZATION	% / LS	0%		$0.00
		FORCE ACCOUNT - EROSION CONTROL	LS			$0.00
		FORCE ACCOUNT - TRAFFIC CONTROL	LS			$0.00
				ALTERNATIVE BID 2 TOTAL	**$0.00**	
				COMBINED PROJECT TOTAL	**$0.00**	

SIGNATURE: _____

NAME: _____

TITLE: _____

DATE: _____