FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	STP 2023(559)HES		1
STATE	STATE DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

INDEX OF SHEETS

SEE SHEET 2 FOR INDEX OF SHEETS

PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT
PROJECT NO. STP 2023(559)HES
CCSJ: 0029-02-058

GUADALUPE COUNTY
US 90

LIMITS: VARIOUS LOCATIONS DISTRICTWIDE
PROJECT LENGTH: 0.2 MILES

DESIGN SPEED = N/A
AREA OF DISTURBED SOIL = N/A
ADT: N/A

ACCESSIBILITY STANDARDS = PROWAG

REGISTERED ACCESSIBILITY SPECIALIST INSPECTION REQUIRED
TDLR NO.

FOR WORK CONSISTING OF TRAFFIC SIGNAL IMPROVEMENTS OF 8 INTERSECTIONS

PROJECT LOCATION #1
US 90 (KINGSBURY ST) AT HEIDEKE ST
CSJ 0029-02-058

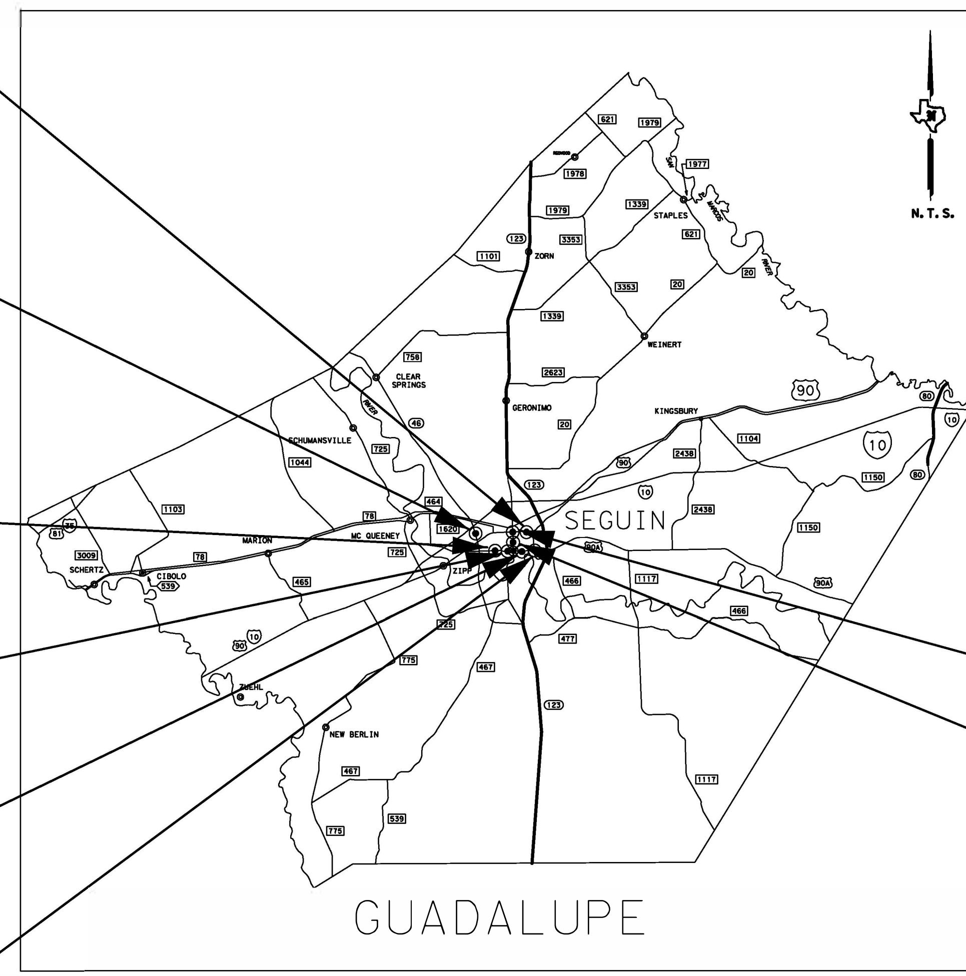
PROJECT LOCATION #2
SH 46 AT CH MATTHIES JR
CSJ 0216-02-068

PROJECT LOCATION #3
US 90A (COURT ST) AT TRAVIS ST
CSJ 0915-46-057

PROJECT LOCATION #4
US 90A (COURT ST) AT CAMP ST
CSJ 0915-46-057

PROJECT LOCATION #5
US 90A (COURT ST) AT RIVER ST
CSJ 0915-46-057

PROJECT LOCATION #6
US 90A (COURT ST) AT SAN MARCOS ST
CSJ 0915-46-057



PROJECT LOCATION #7
US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)
CSJ 0915-46-057

PROJECT LOCATION #8
BS SH 123 (AUSTIN ST) AT CEDAR ST
CSJ 0915-46-057

FINAL PLANS

LETTING DATE: ____________________

DATE CONTRACTOR BEGAN WORK: ____________________

DATE WORK WAS ACCEPTED: ____________________

FINAL CONTRACT COST: $ ____________________

CONTRACTOR: ____________________

FINAL PLANS STATEMENT:

THE CONSTRUCTION WORK WAS PERFORMED IN ACCORDANCE WITH THE PLANS.

____________________ P.E. ____________
AREA ENGINEER DATE

TEXAS DEPARTMENT OF TRANSPORTATION

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

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

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, JULY 5, 2022)

SUBMITTED FOR LETTING: DocuSigned by: Eduardo Villalon 1/30/2023
TRANSPORTATION ENGINEER SUPERVISOR

RECOMMENDED FOR LETTING: DocuSigned by: Clayton Ripps, P.E. 1/31/2023
DIRECTOR OF TRANSPORTATION PLANNING & DEVELOPMENT

REVIEWED FOR LETTING: DocuSigned by: DRogorio, P.E. 1/30/2023
TRANSPORTATION ENGINEER SUPERVISOR

APPROVED FOR LETTING: DocuSigned by: Gina E. Gallegos, P.E. 1/31/2023
DISTRICT ENGINEER

FILE LOCATION
http://www.txdot.gov/inside-txdot/district/san-antonio/specinfo.html

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

LEVELS DISPLAYED

SHEET NO.		DESCRIPTION
		GENERAL
1		TITLE SHEET/VICINITY MAP
2		INDEX OF SHEETS
3, 3A-3C		ESTIMATE & QUANTITY SUMMARY
4, 4A-4G		GENERAL NOTES
5		QUANTITY SUMMARY - US 90 (KINGSBURY ST) AT HEIDEKE ST
6		QUANTITY SUMMARY - SH 46 AT C H MATTHIES JR
7		QUANTITY SUMMARY - US 90A (W COURT ST) AT TRAVIS ST
8		QUANTITY SUMMARY - US 90A (W COURT ST) AT CAMP ST
9		QUANTITY SUMMARY - US 90A (E COURT ST) AT RIVER ST
10		QUANTITY SUMMARY - US 90A (E COURT ST) AT SAN MARCOS ST
11		QUANTITY SUMMARY - US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)
12		QUANTITY SUMMARY - BS SH 123 (AUSTIN ST) AT CEDAR ST
		TRAFFIC CONTROL PLAN STANDARDS
13-14	*	WZ(BTS-1)-13 THRU WZ(BTS-2)-13
		ROADWAY STANDARDS
15-18	*	PED-18 (1-4)
19	*	MISCELLANEOUS CURB AND SIDEWALK DETAILS (SA DISTRICT)
		SIGNAL LAYOUTS
20		EXISTING INTERSECTION LAYOUT - US 90 (KINGSBURY ST) AT HEIDEKE ST
21		PROPOSED INTERSECTION LAYOUT - US 90 (KINGSBURY ST) AT HEIDEKE ST
22		PROPOSED WIRING DIAGRAM - US 90 (KINGSBURY ST) AT HEIDEKE ST
23		PROPOSED PAVEMENT MARKINGS & RAMPS - US 90 (KINGSBURY ST) AT HEIDEKE ST
24		PROPOSED ELEVATION VIEW - US 90 (KINGSBURY ST) AT HEIDEKE ST
25		INTERSECTION QUANTITIES & DETAILS - US 90 (KINGSBURY ST) AT HEIDEKE ST
26		EXISTING INTERSECTION LAYOUT - SH 46 AT C H MATTHIES JR
27		PROPOSED INTERSECTION LAYOUT - SH 46 AT C H MATTHIES JR
28		PROPOSED WIRING DIAGRAM - SH 46 AT C H MATTHIES JR
29		PROPOSED PAVEMENT MARKINGS & RAMPS - SH 46 AT C H MATTHIES JR
30		PROPOSED ELEVATION VIEW - SH 46 AT C H MATTHIES JR
31		INTERSECTION QUANTITIES & DETAILS - SH 46 AT C H MATTHIES JR
32		EXISTING INTERSECTION LAYOUT - US 90A (W COURT ST) AT TRAVIS ST
33		PROPOSED INTERSECTION LAYOUT - US 90A (W COURT ST) AT TRAVIS ST
34		PROPOSED WIRING DIAGRAM - US 90A (W COURT ST) AT TRAVIS ST
35		PROPOSED PAVEMENT MARKINGS - US 90A (W COURT ST) AT TRAVIS ST
36		PROPOSED RAMPS AND SIDEWALKS - US 90A (W COURT ST) AT TRAVIS ST
37		PROPOSED ELEVATION VIEW - US 90A (W COURT ST) AT TRAVIS ST
38		INTERSECTION QUANTITIES & DETAILS - US 90A (W COURT ST) AT TRAVIS ST
39		EXISTING INTERSECTION LAYOUT - US 90A (W COURT ST) AT CAMP ST
40		PROPOSED INTERSECTION LAYOUT - US 90A (W COURT ST) AT CAMP ST
41		PROPOSED WIRING DIAGRAM - US 90A (W COURT ST) AT CAMP ST
42		PROPOSED PAVEMENT MARKINGS - US 90A (W COURT ST) AT CAMP ST
43		PROPOSED RAMPS AND SIDEWALKS - US 90A (W COURT ST) AT CAMP ST
44		PROPOSED ELEVATION VIEW - US 90A (W COURT ST) AT CAMP ST
45		INTERSECTION QUANTITIES & DETAILS - US 90A (W COURT ST) AT CAMP ST
46		EXISTING INTERSECTION LAYOUT - US 90A (E COURT ST) AT RIVER ST
47		PROPOSED INTERSECTION LAYOUT - US 90A (E COURT ST) AT RIVER ST
48		PROPOSED WIRING DIAGRAM - US 90A (E COURT ST) AT RIVER ST
49		PROPOSED PAVEMENT MARKINGS - US 90A (E COURT ST) AT RIVER ST
50		PROPOSED RAMPS AND SIDEWALKS - US 90A (E COURT ST) AT RIVER ST
51		PROPOSED ELEVATION VIEW - US 90A (E COURT ST) AT RIVER ST
52		INTERSECTION QUANTITIES & DETAILS - US 90A (E COURT ST) AT RIVER ST
53		EXISTING INTERSECTION LAYOUT - US 90A (E COURT ST) AT SAN MARCOS ST
54		EQUIPMENT REMOVAL LAYOUT - US 90A (E COURT ST) AT SAN MARCOS ST
55		PROPOSED INTERSECTION LAYOUT - US 90A (E COURT ST) AT SAN MARCOS ST
56		PROPOSED WIRING DIAGRAM - US 90A (E COURT ST) AT SAN MARCOS ST
57		PROPOSED PAVEMENT MARKINGS & RAMPS - US 90A (E COURT ST) AT SAN MARCOS ST
58		PROPOSED ELEVATION VIEW - US 90A (E COURT ST) AT SAN MARCOS ST
59		INTERSECTION QUANTITIES & DETAILS - US 90A (E COURT ST) AT SAN MARCOS ST

SHEET NO.		DESCRIPTION
		SIGNAL LAYOUTS CONT.
60		EXISTING INTERSECTION LAYOUT - US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)
61		PROPOSED INTERSECTION LAYOUT - US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)
62		PROPOSED WIRING DIAGRAM - US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)
63		PROPOSED PAVEMENT MARKINGS & RAMPS - US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)
64		PROPOSED ELEVATION VIEW - US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)
65		INTERSECTION QUANTITIES & DETAILS - US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)
66		EXISTING INTERSECTION LAYOUT - BS SH 123 (AUSTIN ST) AT CEDAR ST
67		PROPOSED INTERSECTION LAYOUT - BS SH 123 (AUSTIN ST) AT CEDAR ST
68		PROPOSED WIRING DIAGRAM - BS SH 123 (AUSTIN ST) AT CEDAR ST
69		PROPOSED PAVEMENT MARKINGS & RAMPS - BS SH 123 (AUSTIN ST) AT CEDAR ST
70		PROPOSED ELEVATION VIEW - BS SH 123 (AUSTIN ST) AT CEDAR ST
71		INTERSECTION QUANTITIES & DETAILS - BS SH 123 (AUSTIN ST) AT CEDAR ST
		SIGNAL STANDARDS
72	*	ED(1)-14
73-75	*	ED(3)-14 THRU ED(5)-14
76-79	*	ED(7)-14 THRU ED(10)-14
80	*	ED(12)-14
81	*	LUM-A-12
82	*	MA-C-12
83	*	MA-D-12
84	*	MA-DPD-20
85	*	TS-BP-20
86	*	MTS-18 (SA DISTRICT)
87		SMA-80(1)-12 US 90 (KINGSBURY ST) AT HEIDEKE ST
88		SMA-80(1)-12 SH 46 AT C H MATTHIES JR
89		SMA-80(1)-12 US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)
90		SMA-80(1)-12 BS SH 123 (AUSTIN ST) AT CEDAR ST
91	*	SMA-80(2)-12
92-93	*	DMA-80(1)-12 THRU DMA-80(2)-12
94		DMA-80(3)-12 US 90A (W COURT ST) AT TRAVIS ST
95		DMA-80(3)-12 US 90A (W COURT ST) AT CAMP ST
96		DMA-80(3)-12 US 90A (E COURT ST) AT RIVER ST
97		TS-FD-12 US 90 (KINGSBURY ST) AT HEIDEKE ST
98		TS-FD-12 SH 46 AT C H MATTHIES JR
99		TS-FD-12 US 90A (W COURT ST) AT TRAVIS ST
100		TS-FD-12 US 90A (W COURT ST) AT CAMP ST
101		TS-FD-12 US 90A (E COURT ST) AT RIVER ST
102		TS-FD-12 US 90A (E COURT ST) AT SAN MARCOS ST
103		TS-FD-12 US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)
104		TS-FD-12 BS SH 123 (AUSTIN ST) AT CEDAR ST
105	*	RPDD-RADD-20 (SA DISTRICT)
106	*	SMD(GEN)-08
107-109	*	SMD(SLIP 1)-08 THRU SMD(SLIP 3)-08
110-113	*	PM(1)-22 THRU PM(4)-22A
114-115	*	TPMD(2)-18 THRU TPMD(3)-18 (SA DISTRICT)
116	*	TCD-05 (SA DISTRICT)
117	*	02-SW-2 CONCRETE SIDEWALK DRAIN (CITY OF SEGUIN)
		ENVIRONMENTAL
118		ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS (EPIC)
119-120		STORM WATER POLLUTION PREVENTION PLAN (SW3P) (Less than 1 Acre)
121	*	EC(1)-16
		SUBSURFACE UTILITY ENGINEERING (SUE)
122		US90 - TITLE SHEET
123		US90 - PLAN LAYOUT AND SHEEET INDEX
124		US90 - LEGEND AND UTILITY CONTACTS
125		US90 - US90A AT N TRAVIS ST (SHEET 1 OF 7)
126		US90 - US90A AT N CAMP ST (SHEET 2 OF 7)
127		US90 - US90A AT S RIVER ST (SHEET 3 OF 7)
128		US90 - US90A AT N SAN MARCOS ST (SHEET 4 OF 7)
129		US90 - TX 123 AT E CEDAR ST (SHEET 5 OF 7)
130		US90 - TX 123 AT US 90 (SHEET 6 OF 7)
131		US90 - US 90 AT N HEIDEKE ST (SHEET 7 OF 7)

THE STANDARD SHEETS SPECIFICALLY INDENTIFIED ABOVE (*) HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

STATE OF TEXAS
CHARLES R. STEVENS, JR
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/27/2023 DATE

NO.		REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

INDEX OF SHEETS

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		2
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0029-02-058 **DISTRICT** San Antonio **COUNTY** Guadalupe
HIGHWAY SH 46, US 90, Various

			CONTROL SECTION JOB	**0029-02-058**		**0216-02-068**		**0915-46-057**		TOTAL EST.	TOTAL FINAL
			PROJECT ID	**A00190393**		**A00190391**		**A00190579**			
			COUNTY	**Guadalupe**		**Guadalupe**		**Guadalupe**			
			HIGHWAY	**US 90**		**SH 46**		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	104-6015	REMOVING CONC (SIDEWALKS)	SY					168.300		168.300	
	104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF					186.000		186.000	
	104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	100.000				150.000		250.000	
	104-6064	REMOVING CONC (MISC)	CY					2.000		2.000	
	416-6031	DRILL SHAFT (TRF SIG POLE) (30 IN)	LF	23.000		11.000		90.200		124.200	
	416-6032	DRILL SHAFT (TRF SIG POLE) (36 IN)	LF	26.000		40.000		81.000		147.000	
	420-6074	CL C CONC (MISC)	CY					4.700		4.700	
	432-6003	RIPRAP (CONC)(6 IN)	CY					77.200		77.200	
	471-6003	GRATE & FRAME	EA					159.000		159.000	
	500-6001	MOBILIZATION	LS	1.000						1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	1.875		1.875		11.250		15.000	
	529-6001	CONC CURB (TY I)	LF	64.000		10.000		50.000		124.000	
	529-6002	CONC CURB (TY II)	LF					430.500		430.500	
	529-6015	CONC CURB (TY C1)	LF					60.000		60.000	
	531-6001	CONC SIDEWALKS (4")	SY			23.000		127.000		150.000	
	531-6003	CONC SIDEWALKS (6")	SY					27.500		27.500	
	531-6004	CURB RAMPS (TY 1)	EA					36.000		36.000	
	531-6005	CURB RAMPS (TY 2)	EA					1.000		1.000	
	531-6008	CURB RAMPS (TY 5)	EA	2.000						2.000	
	531-6017	CURB RAMPS (TY 22)	EA			1.000		1.000		2.000	
	531-6037	CURB RAMP (TY 1) (MOD)	EA	2.000						2.000	
	618-6046	CONDT (PVC) (SCH 80) (2")	LF	90.000		240.000		527.000		857.000	
	618-6047	CONDT (PVC) (SCH 80) (2") (BORE)	LF	185.000		335.000		920.000		1,440.000	
	618-6053	CONDT (PVC) (SCH 80) (3")	LF	65.000		260.000		530.000		855.000	
	618-6054	CONDT (PVC) (SCH 80) (3") (BORE)	LF	370.000		670.000		1,945.000		2,985.000	
	620-6009	ELEC CONDR (NO.6) BARE	LF	780.000		1,660.000		3,932.000		6,372.000	
	620-6010	ELEC CONDR (NO.6) INSULATED	LF	15.000		25.000		865.000		905.000	
	621-6005	TRAY CABLE (4 CONDR) (12 AWG)	LF	50.000		950.000		995.000		1,995.000	
	624-6010	GROUND BOX TY D (162922)W/APRON	EA	4.000		5.000		24.000		33.000	
	628-6002	REMOVE ELECTRICAL SERVICES	EA	1.000		1.000		2.000		4.000	
	628-6164	ELC SRV TY D 120/240 070(NS)AL(E)PS(U)	EA	1.000		1.000		5.000		7.000	
	628-6168	ELC SRV TY D 120/240 070(NS)AL(E)TS(O)	EA					1.000		1.000	
	644-6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA			2.000				2.000	
	644-6070	RELOCATE SM RD SN SUP&AM TY S80	EA					3.000		3.000	
	666-6006	REFL PAV MRK TY I (W)4"(DOT)(100MIL)	LF			235.000				235.000	
	666-6034	REFL PAV MRK TY I (W)8"(SLD)(060MIL)	LF					969.000		969.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	200.000		450.000		300.000		950.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0029-02-058 **DISTRICT** San Antonio **COUNTY** Guadalupe
HIGHWAY SH 46, US 90, Various

			CONTROL SECTION JOB	**0029-02-058**		**0216-02-068**		**0915-46-057**		TOTAL EST.	TOTAL FINAL
			PROJECT ID	**A00190393**		**A00190391**		**A00190579**			
			COUNTY	**Guadalupe**		**Guadalupe**		**Guadalupe**			
			HIGHWAY	**US 90**		**SH 46**		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	666-6046	REFL PAV MRK TY I (W)24"(SLD)(060MIL)	LF					1,406.000		1,406.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	365.000		483.000		649.000		1,497.000	
	666-6052	REFL PAV MRK TY I (W)(ARROW)(060MIL)	EA			1.000		17.000		18.000	
	666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	2.000		6.000		2.000		10.000	
	666-6076	REFL PAV MRK TY I (W)(WORD)(060MIL)	EA			1.000		14.000		15.000	
	666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	2.000		3.000		2.000		7.000	
	666-6090	REF PAV MRK TY I (W)(MED NOSE)(100MIL)	EA					2.000		2.000	
	666-6102	REF PAV MRK TY I(W)36"(YLD TRI)(100MIL)	EA			7.000				7.000	
	666-6147	REFL PAV MRK TY I (Y)24"(SLD)(100MIL)	LF					46.000		46.000	
	666-6224	PAVEMENT SEALER 4"	LF	1,990.000		1,095.000		1,960.000		5,045.000	
	666-6226	PAVEMENT SEALER 8"	LF	200.000		450.000		300.000		950.000	
	666-6230	PAVEMENT SEALER 24"	LF	365.000		483.000		649.000		1,497.000	
	666-6231	PAVEMENT SEALER (ARROW)	EA	2.000		6.000		2.000		10.000	
	666-6232	PAVEMENT SEALER (WORD)	EA	2.000		3.000		2.000		7.000	
	666-6243	PAVEMENT SEALER (YLD TRI)	EA			7.000				7.000	
	666-6298	RE PM W/RET REQ TY I (W)4"(BRK)(060MIL)	LF			210.000		200.000		410.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF	200.000						200.000	
	666-6301	RE PM W/RET REQ TY I (W)4"(SLD)(060MIL)	LF			1,920.000		1,342.000		3,262.000	
	666-6307	RE PM W/RET REQ TY I (W)6"(SLD)(060MIL)	LF					135.000		135.000	
	666-6310	RE PM W/RET REQ TY I (Y)4"(BRK)(060MIL)	LF					280.000		280.000	
	666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	40.000						40.000	
	666-6313	RE PM W/RET REQ TY I (Y)4"(SLD)(060MIL)	LF			790.000		5,291.000		6,081.000	
	666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	1,750.000		860.000		1,960.000		4,570.000	
	672-6007	REFL PAV MRKR TY I-C	EA	38.000		65.000		95.000		198.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	88.000		44.000		327.000		459.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	1,190.000		510.000		1,190.000		2,890.000	
	677-6003	ELIM EXT PAV MRK & MRKS (8")	LF	100.000		385.000		280.000		765.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	368.000		170.000		764.000		1,302.000	
	677-6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	2.000		3.000		2.000		7.000	
	677-6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	2.000		3.000		3.000		8.000	
	680-6002	INSTALL HWY TRF SIG (ISOLATED)	EA	1.000		1.000		2.000		4.000	
	680-6003	INSTALL HWY TRF SIG (SYSTEM)	EA					4.000		4.000	
	680-6004	REMOVING TRAFFIC SIGNALS	EA	1.000		1.000		6.000		8.000	
	682-6001	VEH SIG SEC (12")LED(GRN)	EA	8.000		8.000		44.000		60.000	
	682-6002	VEH SIG SEC (12")LED(GRN ARW)	EA	2.000		4.000		12.000		18.000	
	682-6003	VEH SIG SEC (12")LED(YEL)	EA	8.000		8.000		44.000		60.000	
	682-6004	VEH SIG SEC (12")LED(YEL ARW)	EA	4.000		2.000		20.000		26.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0029-02-058 **DISTRICT** San Antonio **COUNTY** Guadalupe
HIGHWAY SH 46, US 90, Various

			CONTROL SECTION JOB	**0029-02-058**		**0216-02-068**		**0915-46-057**		TOTAL EST.	TOTAL FINAL
			PROJECT ID	**A00190393**		**A00190391**		**A00190579**			
			COUNTY	**Guadalupe**		**Guadalupe**		**Guadalupe**			
			HIGHWAY	**US 90**		**SH 46**		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	682-6005	VEH SIG SEC (12")LED(RED)	EA	8.000		8.000		44.000		60.000	
	682-6006	VEH SIG SEC (12")LED(RED ARW)	EA	2.000		2.000		10.000		14.000	
	682-6018	PED SIG SEC (LED)(COUNTDOWN)	EA	8.000		6.000		46.000		60.000	
	682-6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	2.000		2.000		12.000		16.000	
	682-6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	8.000		8.000		42.000		58.000	
	684-6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	750.000		1,110.000		5,625.000		7,485.000	
	684-6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	760.000		1,430.000		4,040.000		6,230.000	
	684-6030	TRF SIG CBL (TY A)(14 AWG)(4 CONDR)	LF					1,335.000		1,335.000	
	684-6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	710.000		1,070.000		4,922.000		6,702.000	
	686-6025	INS TRF SIG PL AM (S)1 ARM(24')	EA	1.000				1.000		2.000	
	686-6027	INS TRF SIG PL AM(S)1 ARM(24')LUM	EA			1.000				1.000	
	686-6029	INS TRF SIG PL AM (S)1 ARM(28')	EA					4.000		4.000	
	686-6031	INS TRF SIG PL AM(S)1 ARM(28')LUM	EA	1.000						1.000	
	686-6033	INS TRF SIG PL AM(S)1 ARM(32')	EA					2.000		2.000	
	686-6035	INS TRF SIG PL AM(S)1 ARM(32')LUM	EA					1.000		1.000	
	686-6045	INS TRF SIG PL AM(S)1 ARM(44')	EA	2.000						2.000	
	686-6051	INS TRF SIG PL AM(S)1 ARM(48')LUM	EA			3.000				3.000	
	686-6092	IN TRF SG PL AM(S)2ARM(28-28')LUM&ILSN	EA					1.000		1.000	
	686-6108	IN TRF SG PL AM(S)2ARM(32-32')LUM&ILSN	EA					1.000		1.000	
	686-6120	IN TRF SG PL AM(S)2ARM(36-28')LUM&ILSN	EA					1.000		1.000	
	686-6144	IN TRF SG PL AM(S)2ARM(40-32')LUM&ILSN	EA					1.000		1.000	
	686-6148	IN TRF SG PL AM(S)2ARM(40-36')LUM&ILSN	EA					2.000		2.000	
	687-6001	PED POLE ASSEMBLY	EA	6.000		4.000		29.000		39.000	
	687-6005	REMOVE PED POLE ASSEMBLY	EA					8.000		8.000	
	688-6001	PED DETECT PUSH BUTTON (APS)	EA	8.000		6.000		46.000		60.000	
	688-6003	PED DETECTOR CONTROLLER UNIT	EA	1.000		1.000		6.000		8.000	
	5003-6004	RETROFIT DET WARN SURF(SURF APPLIED)	EA			5.000				5.000	
	6004-6031	ITS COM CBL (ETHERNET)	LF	150.000		150.000		550.000		850.000	
	6010-6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1.000		1.000		6.000		8.000	
	6185-6002	TMA (STATIONARY)	DAY	10.000		10.000		60.000		80.000	
	6292-6001	RVDS(PRESENCE DETECTION ONLY)	EA	4.000		4.000		22.000		30.000	
	6292-6002	RVDS(ADVANCE DETECTION ONLY)	EA			2.000				2.000	
	6411-6002	ILSN (LED) (8 S)	EA					10.000		10.000	
	18	LAW ENFORCEMENT: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000		6.000		8.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000		6.000		8.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0029-02-058 **DISTRICT** San Antonio **COUNTY** Guadalupe
HIGHWAY SH 46, US 90, Various

			CONTROL SECTION JOB	**0029-02-058**		**0216-02-068**		**0915-46-057**		TOTAL EST.	TOTAL FINAL
			PROJECT ID	**A00190393**		**A00190391**		**A00190579**			
			COUNTY	**Guadalupe**		**Guadalupe**		**Guadalupe**			
			HIGHWAY	**US 90**		**SH 46**		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	18	ITS: CONTRACTOR FORCE ACCOUNT WORK PARTICIPATING	LS	1.000		1.000		6.000		8.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000		6.000		8.000	

**********GENERAL NOTES**********
2014 Specification Book (Revised January 18, 2023)

--General--
Contact the Engineer or the City when construction operations are within 400 feet of a signalized intersection to determine/verify the location of loop detectors, conduit, ground-boxes, etc. Repair or replace any signal equipment damaged by construction operations. The method of repair or replacement shall be pre-approved and inspected. Depending on the type and extent of the damage, the Engineer reserves the right to perform the repair or replacement work and the Contractor will be billed for this work.

City of Seguin: (830) 401-2416

Any materials removed and not reused and determined to be salvageable shall be stored within the project limits at an approved location or delivered undamaged to the storage yard as directed. Deface traffic signs so that they will not reappear in public as signs.

Any sign panels that are adjusted or removed and replaced, shall be done the same workday unless otherwise approved. This work shall be considered subsidiary to Item 502.

Notify the Engineer at least two weeks prior to a proposed traffic pattern change(s) that will require a revision to traffic signals.

Locate and reference all manholes and valves within the construction area with station and offset or GPS. Each manhole and valve shall be identified by its owner (SAWS, CPS, etc.). No roadwork will begin until this list has been submitted. All valves and manhole covers have to be accessible at all times, therefore; temp. CTB, material stockpiles, etc. cannot be placed over these valves or covers.

The Contractor has the option to adjust or construct all manholes and valves to final pavement elevations prior to the final mat of HMA or after final mat of HMA. If between the final elevation adjustment and the final mat of HMA, the manholes and valves are going to be exposed to traffic, place temporary asphalt around the manhole and valve to provide a +/- 50:1 taper. The cost of elevation adjustment and the concrete apron around the manhole and valve will be part of the manhole and valve work. The asphalt tapers are part of the HMA work.

Hurricane Evacuation

Hurricane Season is from June 1 thru November 30. As the closest metropolitan city inland from the Texas Coast, the City of San Antonio is a major shelter destination during mandatory hurricane evacuations. As such, planned work zone lane or road closures may be restricted and/or suspended during mandatory hurricane evacuation operations. The District will coordinate these restrictions at a minimum H-120 from any projected impact to the Texas Coast.

Control: 0029-02-058

County: Guadalupe

Highway: US 90

No time charges will be made if the Engineer determines that work on the project was impacted by the hurricane.

The Engineer may order changes in the Traffic Control Plan to accommodate evacuation traffic, and may suspend the work, all or in part, to ensure timely completion of this work. All work to implement changes in the Traffic Control Plan will be paid through existing bid prices or through Item 9.5, Force Account. However, the Department will not entertain any request for delay damages, loss of efficiency that may be attributed to the restriction or suspension of road or lane closures, or to changes in the Traffic Control Plan.

In accordance with the Underground Facility Damage Prevention Act (One Call Bill) the phone number for a utility locator is 811. It is the Contractor's responsibility to plan for utility locators as needed.

Underground utilities owned by the Texas Department of Transportation may be present within the Right-Of-Way. Call or email the TxDOT offices listed below for locates a minimum of 48 hours in advance of excavation. If city or town owned irrigation facilities are present, call the appropriate department of the local city or town a minimum of 48 hours in advance of excavation. The Contractor is liable for all damages incurred to the above-mentioned utilities when working without having the utilities located prior to excavation.

For signal and ITS locates call TransGuide at 210-731-5136 or email sat_its_locates@txdot.gov for ITS locates and signal.request@txdot.gov for signal locates.

Contractor questions on this project are to be addressed to the following individual(s):

Eduardo L. Villalon, P.E, CFM. District Traffic Engineer, eduardo.villalon@txdot.gov

Questions may be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address: https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

The Letting Pre-Bid Q&A web page for each project can be accessed by using the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.

The Contractor must measure the vertical clearance at each structure after the final surface of the roadway is completed and provide the vertical clearance measurement to the Engineer.

--Item 5--

Prevention of Migratory Bird Nesting

It is anticipated that migratory birds, a protected group of species, may try to nest on bridges, culverts, vegetation, or gravel substrate, at any time of the year. The preferred nesting season for migratory birds is from February 15 through October 1. When practicable, schedule construction operations outside of the preferred nesting season. Otherwise, nests containing migratory birds must be avoided and no work will be performed in the nesting areas until the young birds have fledged.

Structures

Bridge and culvert construction operations cannot begin until swallow nesting prevention is implemented, until after October 1 if it's determined that swallow nesting is actively occurring, or until it's determined swallow nests have been abandoned. If the State installed nesting deterrent on the bridges and culverts, maintain the existing nesting deterrent to prevent swallow nesting until October 1 or completion of the bridge and culvert work, whichever occurs earlier. If new nests are built and occupied after the beginning of the work, do not perform work that can interfere with or discourage swallows from returning to their nests. Prevention of swallow nesting can be performed by one of the following methods:

1. By February 15 begin the removal of any existing mud nests and all other mud placed by swallows for the construction of nests on any portion of the bridge and culverts. The Engineer will inspect the bridges and culverts for nest building activity. If swallows begin nest building, scrape, or wash down all nest sites. Perform these activities daily unless the Engineer determines the need to do this work more frequently. Remove nests and mud through October 1 or until bridge and culvert construction operations are completed.

2. By February 15 place a nesting deterrent (which prevents access to the bridge and culvert by swallows) on the entire bridge (except deck and railing) and culverts. This work is subsidiary to the various bid items.

No extension of time or compensation payment will be granted for a delay or suspension of work caused by nesting swallows.

Provide a non-intrusive back-up alarm system on all heavy equipment used in close proximity to residential areas. This item is subsidiary to various bid items.

When a precast or cast-in-place concrete element is included in the plans, a precast concrete alternate may be submitted in accordance with "Standard Operating Procedure for Alternate Precast Proposal Submission" found online at https://www.txdot.gov/inside-txdot/forms-publications/consultants-contractors/publications/bridge.html#design. Acceptance or denial of an

alternate is at the sole discretion of the Engineer. Impacts to the project schedule and any additional costs resulting from the use of alternates are the sole responsibility of the Contractor.

--Item 6--
Show the stockpile lot and/or sub lot numbers on all tickets for all materials.

Steel Wrapped or Asbestos Utility Lines:

Existing steel wrapped natural gas and/or asbestos cement (AC) water lines that will no longer be in service are usually abandoned in place (AIP). However, if any of these lines have to be removed for whatever reason (in the way of other construction, to make tie-ins, etc.), comply with Item 6.

If removal of AC water lines is included in the construction contract, then notify the Engineer of proposed dates of removal of the AC water lines in accordance to Item 6. Excavate to the top of the AC water line to allow a separate contractor hired by the State to remove the AC water line. The excavation for the AC water line removal is subsidiary to the work that created the need for the removal (excavation for structures, roadway, a new line, tie-ins, etc.).

To comply with the latest provisions of Build America, Buy America Act (BABA Act) of the Bipartisan Infrastructure Law, the contractor must submit a notarized original of the TxDOT Construction Material Buy America Certification Form for all items classified as construction materials. This form is not required for materials classified as a manufactured product.

Refer to the Buy America Material Classification Sheet for clarification on material categorization.

The Buy America Material Classification Sheet is located at the below link.

https://www.txdot.gov/business/resources/materials/buy-america-material-classification-sheet.html for clarification on material categorization.

--Item 7--
The total disturbed area within the project is anticipated at less than one (1) acre. Due to this type of construction, the project qualifies for exclusion under the Construction General Permit (CGP) issued by the Texas Commission on Environmental Quality (TCEQ). However, should the sum of the Engineer's anticipated disturbances and the Contractor's (On ROW and off ROW) PSL's equal or exceed the one (1) acre threshold; both TxDOT and the Contractor have project responsibilities under the CGP that reverts to non-exclusion status. Obtain approval for all non-depicted areas of disturbance that increases the initial soil and vegetation disturbed area estimates before work starts at these locations.

Notify the Engineer of the disturbed acreage within one (1) mile of the project limits. Obtain authorization from the TCEQ for Contractor PSL's for construction support activities on or off ROW.

Roadway closures during the following key dates and/or special event are prohibited.
See the general notes under Item 502 for these dates.

--Item 8--
Working days will be computed and charged in accordance with Article 8.3.1.4: Standard work week.

Create and maintain a Bar Chart schedule.

A Special Provision to Item 8 for a delayed authorized date to begin work has been included in the contract. The reason for including the Special Provision is for material processing or contractor mobilization.

--Item 9--
When approved, provide uniformed, off-duty law enforcement officers with marked vehicles during work that requires a lane closure. The officer in marked vehicles shall be located as approved to monitor or direct traffic during the closure. The method used to direct traffic at signalized intersections shall be as approved. Additional officers and vehicles may be provided when approved or directed.

Complete the daily tracking form provided by the department and submit invoices that agree with the tracking form for payment at the end of each month approved services were provided.

Show proof of certification by the Texas Commission on Law Enforcement Standards.

All law enforcement personnel used in Work Zone Traffic Control shall be trained for performing duties in work zones and are required to take "Safe and Effective Use of Law Enforcement Personnel in Work Zones" (Course #133119) which can be found online at the following site: www.nhi.fhwa.dot.gov

Certificates of completion should be available to all who finish the course. These should be kept by the officers to substantiate completion when reporting to the work site.

Minimums, scheduling fees, etc. will not be paid; TxDOT will consider paying cancellation fees on a case-by-case basis.

--Item 100--
Trim and remove brush and trees within the stations noted in the plans and as needed for construction operations. Unless shown otherwise in the plans or a designated non-mow area,

perform trimming or removal for areas to the ROW limits. Trim or remove to provide minimum of 5 ft. of horizontal clearance and 7 ft. of vertical clearance for the following: sidewalks, paths, guard fence, rails, signs, object markers, and structures. Trim to provide a minimum of 12 ft. vertical clearance under all trees.

Obtain approval for proposed method of tree and brush trimming and removal. Vertical flailing equipment is not allowed. Treat damaged or cut branches, roots and/or stumps of all oak trees with a commercial tree wound dressing. Disinfect all pruning tools with a solution of 70% alcohol before moving from one tree to another. Unless otherwise approved remove all resulting vegetative debris from the ROW within 24 hours. The Engineer can stop all construction operations if the dressing, cut and removal requirements are not followed.

Removal and disposal of existing abandoned utilities that were unable to be identified before letting required to support this project's construction shall be performed under the overall Preparing Right of Way. If you are uncertain whether the utility is active, contact the District Utility Section.

--Item 160--
Approximately **25 CY** of existing topsoil may be windrowed or stockpiled (as approved) for later use under this Item. Place erosion control measures for the stockpile and/or windrow.

--Item 247--
There is no minimum PI requirement for this project.

--Item 275--
The Engineer will designate a target cement content and optimum moisture content necessary to produce a stabilized mixture that meets the strength requirements and moisture susceptibility requirements shown in Table 1. The Contractor shall furnish the Engineer with representative samples of the materials to be used in production of the cement treated base.

Table 1
Requirements for Cement Treatment

Description	Minimum	Maximum
Cement Content (by dry weight of base)	2%	5%
	Procedure	Minimum
7-Day Unconfined Compressive Strength	Tex-120-E, Part I	150 psi
Retained Strength after Moisture Conditioning	Tex-120-E, Part I (Submerged in water for 24 hrs. after seven days of curing)	80% of 7—Day Unconfined Compressive Strength

Microcracking will be required in accordance with Item 275.4.7.

--Item 302--
Previously tested aggregates found to contain excessive quantities of dust (more than 0.5 percent passing the No. 40 sieve) during precoating, stockpiling or hauling operations, may be rejected. Use Test Method Tex-200-F, Part I for testing.

Precoated Aggregate Type PE shall consist of crushed slag, crushed stone or natural limestone rock asphalt.

--Item 401--
A shrinkage compensator is not required for when used for backfilling pipes.

--Item 416—
Concrete for drill shafts shall be Class C.

A limited access drilling rig will be required to drill signal pole foundations in locations with limited vertical clearance.

--Item 500--
"Materials on Hand" payments will not be considered in determining percentages for mobilization payments.

--Item 502--
General

In addition to providing a Contractor's Responsible Person and a phone number for emergency contact, have an employee available to respond on the project for emergencies and for taking corrective measures within 2 hours or within a reasonable time frame as specified by the Engineer.

Treat the pavement drop-offs as shown in the TCP.

Avoid placing stockpiles, equipment, and other construction materials within the roadway's horizontal clear zone or at any location that will constitute a hazard and will endanger traffic. If a stockpile is placed within the clear zone, address in accordance with the TMUTCD.

If Nighttime work is required and work is not behind positive barrier then full Class 3 reflective gear is required to be worn by all workers, hard hat halos are required to be worn by the flaggers at flagging stations, TY III barricades are required to be spaced at 500 ft, and a mandatory night work meeting is required.

The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

Mounting and moving the mailbox as needed for the various construction phases is subsidiary to Item 502.

Access to adjoining property must be maintained at all times.

Barricades, Signs, and Traffic Control Devices

When advanced warning flashing arrow panels and/or changeable message sign is specified, have one standby unit in good condition at the job site. Standby time shall be considered subsidiary to the bid item.

After written notification, the time frame is provided on the Form 599 to provide properly maintained signs and barricades before considered in non-compliance with this item.

Moving an existing sign to a temporary location is subsidiary to Item 502. Installations with permanent supports at permanent locations will be paid for under the applicable bid item(s).

Cover permanent signs if not used. This is subsidiary to Item 502.

Lane and Ramp Closures and Detours

Notify the Engineer in writing 10 business days in advance of any temporary or permanent lane, ramp, connector, etc. closures/detours, restrictions to lane widths, alterations to vertical clearances, or modifications to radii. Any other modifications to the roadway that may adversely affect the mobility of oversized/overweight trucks also require 10 business days advance written notice to the Engineer. At least one lane must always remain open.

For closures not listed in the TCP; the lane closures are limited to between the hours of 9:00AM and 3:00PM, and at least one lane must remain open at all times.

At no time shall two consecutive intersecting roadways be closed at one time during construction.

At no time shall two consecutive ramps be closed at one time during construction or overlay operations.

Unless otherwise noted in the plans and/or as directed by the Engineer, daily lane closures shall be limited according to the following restrictions:

No lane closures will be permitted for the following dates and/or special events:
Between December 15 and January 1
Wednesday before Thanksgiving thru the Sunday after Thanksgiving
Saturday and Sunday before Memorial Day and Labor Day
Saturday or Sunday when July 4 falls on a Friday or Monday

Traffic Signals

There are traffic signals at the intersection of US 90 at Heideke St, SH 46 at CH Matthies Jr, US 90A at Travis St, US 90A at Camp St, US 90A at River St, US 90A at San Marcos St, BS SH 123 at US 90 and BS SH 123 at Cedar St.

Always keep the signals in operation except when necessary for specific installation operations, including any modifications to existing signal heads to always maintain clear visibility. Adjustment of any signal head will be subsidiary to Item 502. When it is necessary for a signal to be turned off, or when left-turn lanes are closed, hire off duty police officers to control the traffic until the signals are back in satisfactory condition.

Moving or adjustment of traffic signal heads, VIVDS, and radar detection for the purpose of alignment with the shifting of lanes in conjunction with the traffic control plan will be subsidiary to various bid items.

Coordinate with the appropriate entity (City of Seguin, City of San Antonio, City of New Braunfels, etc.) or TxDOT when left-turn lanes are closed and/or for signal timing revisions as necessary.

Hauling

The use of rubber-tired equipment will be required for moving dirt or other materials along or across pavement surfaces. Where the contractor desires to move any equipment not licensed for operation on public highways, on or across pavement, they shall protect the pavement from damage as directed/approved by the Engineer.

Throughout construction operations, the Contractor will be required to conduct their hauling operations in a manner such that vehicles will not haul over previously recompacted subgrade or compacted base material, except in short sections for dumping manipulations.

The Contractor shall keep the roadway clean and free of dirt or other materials during hauling operations. If the Contractor does not maintain a clean roadway, they shall cease all construction

operations, when directed by the Engineer, to clean the roadway to the satisfaction of the Engineer.

--Item 506--
The Storm Water Pollution Prevention Plan (SWP3) consists of temporary erosion control measures needed and provided for under this Item. The disturbed area is less than one acre and use of erosion control measures is not anticipated. If physical conditions encountered at the job site require necessary controls, BMP installation, maintenance, and removal will be paid as extra work on a force account basis per Articles 4.4 and 9.7. An Inspector will perform a regularly scheduled SW3P inspection every 7 calendar days if erosion control measures are installed.

Failure to address items noted on the SW3P inspection report within two report cycles may result in the Department stopping all construction operations, exclusive of time charges, or withholding that month's estimate until the SW3P deficiencies are corrected unless the Engineer determines that the area is too wet to correct SW3P deficiencies.

Failure to correctly maintain daily monitoring reports and submitting to TxDOT on a daily/weekly basis may result in the monthly estimate being withheld.

--Item 529--
Curb inlets and extensions are based on an exposed curb height of 7 inches. The roadway curb height and shape will be transitioned to the inlet's curb with a 40: 1 taper.

Class "C" concrete is required for machine extruded curb.

--Item 531--
The curb ramp locations shown in the plans have considered the geometric features of the intersection, traffic signals, and the pavement markings. If anything changes during construction, the location of curb ramps must be adjusted to ensure they meet TAS requirements.

--Item 618--
It might be necessary to cut concrete for placement of conduit. Saw cut existing concrete, remove the concrete from the steel reinforcement (bars or fabric) and bend the steel to install the conduit. After the conduit has been placed, bend the steel back to its original position and back-fill the trench with an approved concrete. This work is subsidiary to this Item.

--Item 628--
Make all arrangements for electrical service, and compliance with local standards and practices for proper installations.

--Item 644--
The wedge anchor system shown on State Standard Sheet SMD (TWT) is not allowed.

Triangular Slipbase Systems with set screws are not allowed.

Triangular Slip Base Systems
(For use with 10 BWG and Schedule 80 Round Posts)

Southern Plains Fabrication	SPF Triangular Slipbase Housing	Info@SouthernPlainsFabrication.com http://SouthernPlainsFabrication.com (806) 241-0060
Structural and Steel Products	Triangular Slipbase Breakaway Support	CustServ@s-steel.com http://s-steelcom (800) 782-5804

--Item 666--
Use TY II markings (vs. an acrylic or epoxy) on asphalt surfaces as the sealer for the TY I markings, unless otherwise approved by the Engineer.

Failure to provide the retroreflectometer testing data within the time specified in the specifications will result in non-payment of the bid item.

--Item 672--
Place all adhesive material directly from the heated dispenser to the pavement. Do not use portable or non-heated containers. Use adhesive of sufficient thickness so that when the marker is pressed into the adhesive, 1/8" or more adhesive will remain under 100% of the marker. The adhesive should extend not less than 1/2" but not more than 1 1/2" beyond the perimeter of the marker.

--Item 677--
Obtain approval before using the mechanical method for the elimination of existing thermoplastic pavement markings.

--Item 680--
Furnish and install all required materials and equipment necessary for the complete and operating traffic signal installation at the following intersections:

US 90 at Heideke St, SH 46 at CH Matthies Jr, US 90A at Travis St, US 90A at Camp St, US 90A at River St, US 90A at San Marcos St, BS SH 123 at US 90 and BS SH 123 at Cedar St.

The locations shown on the plans for signal pole foundations, controller foundations, conduit and other items may be adjusted to better fit field conditions as approved.

Furnish and install a new Henke Enterprises or Mobotrex eight-phase NEMA TS2 Type 2 and TX2 Size 5, 12 Position, Base Mount controller and cabinet, meeting the requirements of Departmental Materials Specifications DMS-11170. Provide detector panel toggle switches that

additionally permit the user to disconnect the detector. For both ground and pole-mount cabinets, provide cabinet configuration with 16 position load bay for TS2 Type 2 only.

Deliver TS type 2 and TX2 Size 5, 12 Position, Base Mount controller cabinet and assembly to the TxDOT San Antonio district signal shop for programming and testing two weeks in advance prior to contractor installing equipment in the field. Coordinate drop off and pick up with Mark Perez (210) 218-7430.

Connect all field wiring to the controller assembly into the polyphaser. The Signal Shop representative will assist in determining how the detection cables are to be connected, and will also program the controller for operation, hook up the malfunction management unit (MMU) or conflict monitor, detector units, and other equipment, and turn on the controller. Have a qualified technician on the project site to place the traffic signals in operation.

Once final punch list is complete, contractor is allowed to begin flashing signal operations. Signal shall flash for a minimum of 7 days prior to full operation, unless otherwise approved by the Engineer.

Use LED lamps from the prequalified material producer lists as shown on the Texas Department of Transportation (TxDOT) – Construction Division's (CST) material producer list. Category is "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials found on this list.

Demonstrate that the field wiring is properly installed. Install the electrical equipment in a neat and workmanlike manner.

Use the following wiring sequence when connecting signal sections to the cabinet:

Conductor No.	Base Color	Tracer Color	Signal Face
1	Black		Yellow Ball
2	White		Neutral
3	Red		Red Ball
4	Green		Green Ball
5	Orange		Yellow Arrow
6	Blue		Green Arrow
7	White	Black	Spare

All existing signal equipment with the exception of the signal controller and related equipment become the property of the Contractor. Deliver the controller and related equipment to the Signal shop, located at 4615 NW Loop 410 (corner of IH 410 and Callaghan Road) in San Antonio, Texas or to the Area Office as directed.

Use qualified personnel to respond to and diagnose all trouble calls during the thirty-day test period. Repair any malfunction to Contractor-supplied signal equipment. Provide to the Engineer a local telephone number, not subject to frequent changes and available on a 24-hour basis, for reporting trouble calls. Response time to reported calls must be less than 2 hours. Make appropriate repairs within 24 hours. Place a logbook in the controller cabinet and keep a record of each trouble call reported. Notify the Engineer of each trouble call. Do not clear the error log in the conflict monitor or MMU during the thirty-day test period without approval.

Integrate the proposed traffic signal(s) into the existing Advanced Traffic Management System (ATMS) as shown on the plans. Centracs ATMS software, which utilizes Econolite controllers, is currently in use in the San Antonio District. Provide controllers on this project that fully communicate with the existing ATMS software.

This project includes the installation of at least one cellular modem at the location(s) specified in the plans. Cellular modem(s) and power supply(s) will be furnished by the department. Provide all materials not supplied by the department necessary for the cellular modem installation. All materials provided by the contractor must be new unless otherwise shown on the plans. Equipment provided by the department shall be stored by the department for pick up at the TxDOT San Antonio TransGuide Office, 3500 NW Loop 410 San Antonio, TX 78229. Prevent damage to all cellular modem components supplied by the department. Replace any component that is damaged or lost during transportation or installation at the contractor's expense. Verify operation of the cellular modem(s) together with operation of its links; demonstrate that data can be transmitted at a satisfactory rate from the field location to the central location. Demonstrate that the cellular modem(s) data packets are being received at the central site via a networked computer. Transportation, installation and incidentals for installation of the cellular modem(s) shall be considered subsidiary to item 680.

Provide a submittal compliance matrix with all traffic signal submittals.

Field verify the depths of the drill shafts to meet the minimum clearances specified in the plans before ordering materials.

Ensure that all TMS (Traffic Management System) equipment furnished and installed is completely compatible with the existing hardware and software located within the TransGuide operations center (i.e., TransGuide central software). The contractor shall contact the traffic management engineer for details on the system network architecture.

Contractor shall be responsible for integrating and testing all new TMS equipment and any existing TMS equipment that is relocated into the existing network management system, subsidiary to the various bid items.

--Item 682--
Pedestrian signals may be by a different manufacturer than the vehicle signal heads.

Cover all signal faces until placed in operation. This work is subsidiary to various bid items.

All mounting attachments shall be constructed of steel pipe and mounted as shown on the plans.

--Item 684--
Provide an extra 10' for each cable terminating in the controller cabinet. All cables must be continuous without splices from terminal point to terminal point. All proposed signal cable must be #12 AWG stranded copper.

--Item 686 & 687--
Provide all signal poles from the same manufacturer. Pedestrian poles may be from a different manufacturer.

--Item 688--
The sealant used for vehicle loop wire must be approved.

The button placement must be coordinated with the concrete pad to access the button according to ADA and TAS. If any mounting modifications are needed (extensions, brackets, etc.) to meet ADA and TAS requirements the adjustment will be subsidiary to Item 688. The concrete pad (if required) will be paid separately.

The pedestrian push button must be wired with a 2/C#14 loop detector cable in lieu of a #12 A.W.G. XHHW wire.

Furnish and install new Polara Enterprises accessible pedestrian signals (APS) push buttons or approved equivalent.

--Item 6185--
1- shadow vehicles with TMA will be required for this project. The TMA's will be measured and paid for by the DAY for each TMA/TA set up and operational on the worksite. The contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMA's needed for the project. See TMA and TA Summary sheet in the plans.

--Item 6292--
Radar presence detection device must utilize true-presence detection. Systems using locking algorithms to attempt presence detection will not be accepted. In addition, radar systems will not be allowed to use extensions/delays or place the controller on locking detection to aid in presence detection.

Radar presence detection device must be able to detect up to 10 lanes with a minimum offset of 6’ and have at least 16 zones and channels per unit.

Radar presence detection device must be mounted on the same side of the intersection as the lanes it is set to detect.

Final placement of radar devices must be approved by the engineer.

Furnish and install new Wavetronix SmartSensor Matrix, or approved equivalent, for radar presence detectors and Wavetronix SmartSensor Advance, or approved equivalent, for radar advanced detection devices.

SUMMARY OF TRAFFIC SIGNAL QUANTITIES (CSJ 0029-02-058)

ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST QUANTITY
104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	100
416	6031	DRILL SHAFT (TRF SIG PCLE) (30 IN)	LF	23
416	6032	DRILL SHAFT (TRF SIG PCLE) (36 IN)	LF	26
529	6001	CONC CURB (TY I)	LF	64
531	6008	CURB RAMPS (TY 5)	EA	2
531	6037	CURB RAMP (TY 1) (MOD)	EA	2
618	6046	CONDT (PVC) (SCH 80) (2")	LF	90
618	6047	CONDT (PVC) (SCH 80) (2")(BORE)	LF	185
618	6053	CONDT (PVC) (SCH 80) (3")	LF	65
618	6054	CONDT (PVC) (SCH 80) (3")(BORE)	LF	370
620	6009	ELEC CONDR (NO.6) BARE	LF	780
620	6010	ELEC CONDR (NO.6) INSULATED	LF	15
621	6005	TRAY CABLE (4 CONDR) (12 AWG)	LF	50
624	6010	GROUND BOX TY D (162922) W/APRON	EA	4
628	6002	REMOVE ELECTRICAL SERVICE	EA	1
628	6164	ELC SRV TY D 120/240 070(NS)AL(PS)(U)	EA	1
666	6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	200
666	6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	365
666	6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	2
666	6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	2
666	6224	PAVEMENT SEALER 4"	LF	1990
666	6226	PAVEMENT SEALER 8"	LF	200
666	6230	PAVEMENT SEALER 24"	LF	365
666	6231	PAVEMENT SEALER (ARROW)	EA	2
666	6232	PAVEMENT SEALER (WORD)	EA	2
666	6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF	200
666	6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	40
666	6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	1750
672	6007	REFL PAV MRKR TY I-C	EA	38
672	6009	REFL PAV MRKR TY II-A-A	EA	88
677	6001	ELIM EXT PAV MRK & MRKS (4")	EA	1190
677	6003	ELIM EXT PAV MRK & MRKS (8")	EA	100
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	368
677	6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	2
677	6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	2
680	6002	INSTALL HWY TRF SIG (ISOLATED)	EA	1
**		NEMA TX 2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET	EA	1
**		TRAFFIC CONTROLLER FOUNDATION	EA	1
**		R10-12 (30" X 36") "LEFT TURN YIELD ON GREEN BALL"	EA	2
**		R10-17T (30" X 30") "LEFT TURN YIELD ON FLASHING YELLOW ARROW"	EA	2
CITY SUPPLIED		D3-1G - STREET NAME SIGN' "N Heideke St" (INSTALLED BY CONTRACTOR)	EA	2
CITY SUPPLIED		D3-1G - STREET NAME SIGN' "E Kingsbury St" (INSTALLED BY CONTRACTOR)	EA	2
680	6004	REMOVING TRAFFIC SIGNALS	EA	1
682	6001	VEH SIG SEC (12")LED(GRN)	EA	8
682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	2
682	6003	VEH SIG SEC (12")LED(YEL)	EA	8
682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	4
682	6005	VEH SIG SEC (12")LED(RED)	EA	8
682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	2
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	8
682	6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	2
682	6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	8
684	6009	TRF SIG CBL(TY A)(12 AWG)(4 CONDR)	LF	750
684	6012	TRF SIG CBL(TY A)(12 AWG)(7 CONDR)	LF	760
684	6080	TRF SIG CBL(TY C)(14 AWG)(2 CONDR)	LF	710
686	6025	INS TRF SIG PL AM(S)1 ARM(24')	EA	1
686	6031	INS TRF SIG PL AM(S)1 ARM(28')LUM	EA	1
686	6045	INS TRF SIG PL AM(S)1 ARM(44')	EA	2
687	6001	PED POLE ASSEMBLY	EA	6
**		DRILL SHAFT (24 IN)	LF	36
688	6001	PED DETECT PUSH BUTTON (APS)	EA	8
**	**	R10-3e (L) (9" X 15") "PEDESTRIAN SIGN"	EA	4
**	**	R10-3e (R) (9" X 15") "PEDESTRIAN SIGN"	EA	4
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1

SUMMARY OF TRAFFIC SIGNAL QUANTITIES (CSJ 0029-02-058)

ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST QUANTITY
6004	6031	ITS COM CBL (ETHERNET)	LF	150
6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
6185	6002	TMA (STATIONARY)	DAY	10
6292	6001	RVDS(PRESENCE DETECTION ONLY)	EA	4
**		RVDS (RADAR PRESENCE DETECTOR POWER AND COMMUNICATION CABLE)	LF	425
****	****	CONTRACTOR FORCE ACCOUNT (COMM PACKAGE)	EA	1
		CELLULAR MODEM (CISCO MODEL IR1101)	EA	1
		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
		IP CAMERA (AXIS M5525-E)	EA	1
		IP CAMERA MOUNTING BRACKET (AXIS T94A01D PENDANT KIT)	EA	1
		POWER STRIP	EA	1
		SWITCH POWER SUPPLY	EA	1
		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1

** SUBSIDIARY TO PERTINENT ITEM

**** **** CONTRACTOR FORCE ACCOUNT

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

QUANTITY SUMMARY

US 90 (KINGSBURY ST) AT HEIDEKE ST

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		5
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

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SUMMARY OF TRAFFIC SIGNAL QUANTITIES (CSJ 0216-02-068)

ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST QUANTITY
416	6031	DRILL SHAFT (TRF SIG POLE) (30 IN)	LF	11
416	6032	DRILL SHAFT (TRF SIG POLE) (36 IN)	LF	40
529	6001	CONC CURB (TY I)	LF	10
531	6001	CONC SIDEWALKS (4")	SY	23
531	6017	CURB RAMPS (TY 22)	EA	1
618	6046	CONDT (PVC) (SCH 80) (2")	LF	240
618	6047	CONDT (PVC) (SCH 80) (2") (BORE)	LF	335
618	6053	CONDT (PVC) (SCH 80) (3")	LF	260
618	6054	CONDT (PVC) (SCH 80) (3") (BORE)	LF	670
620	6009	ELEC CONDR (NO.6) BARE	LF	1660
620	6010	ELEC CONDR (NO.6) INSULATED	LF	25
621	6005	TRAY CABLE (4 CONDR) (12 AWG)	LF	950
624	6010	GROUND BOX TY D (162922)W/APRON	EA	5
628	6002	REMOVE ELECTRICAL SERVICES	EA	1
628	6164	ELC SRV TY D 120/240 070(NS)AL(E)PS(U)	EA	1
644	6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2
666	6006	REFL PAV MRK TY I (W)4"(DOT)(100MIL)	LF	235
666	6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	450
666	6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	483
666	6052	REFL PAV MRK TY I (W)(ARROW)(060MIL)	EA	1
666	6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	6
666	6076	REFL PAV MRK TY I (W)(WORD)(060MIL)	EA	1
666	6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	3
666	6102	REF PAV MRK TY I(W)36"(YLD TRI)(100MIL)	LF	7
666	6224	PAVEMENT SEALER 4"	LF	1095
666	6226	PAVEMENT SEALER 8"	LF	450
666	6230	PAVEMENT SEALER 24"	LF	483
666	6231	PAVEMENT SEALER (ARROW)	EA	6
666	6232	PAVEMENT SEALER (WORD)	EA	3
666	6243	PAVEMENT SEALER (YLD TRI)	EA	7
666	6298	RE PM W/RET REQ TY I (W)4"(BRK)(060MIL)	LF	210
666	6301	RE PM W/RET REQ TY I (W)4"(SLD)(060MIL)	LF	1920
666	6313	RE PM W/RET REQ TY I (Y)4"(SLD)(060MIL)	LF	790
666	6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	860
672	6007	REFL PAV MRKR TY I-C	EA	65
672	6009	REFL PAV MRKR TY II-A-A	EA	44
677	6001	ELIM EXT PAV MRK & MRKS (4")	LF	510
677	6003	ELIM EXT PAV MRK & MRKS (8")	LF	385
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	170
677	6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	3
677	6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	3
680	6002	INSTALL HWY TRF SIG (ISOLATED)	EA	1
**		TS 2 TYPE 2 CONTROLLER CABINET	EA	1
**		TRAFFIC SIGNAL CONTROLLER FOUNDATION	EA	1
**		R10-10L (30" X 36") "LEFT TURN SIGNAL"	EA	2
**		D3-1G STREET NAME SIGN "SH 46" (54"X18")	EA	2
**		D3-1G STREET NAME SIGN "C H Matthies Jr" (114"X18")	EA	2
680	6004	REMOVING TRAFFIC SIGNALS	EA	1
682	6001	VEH SIG SEC (12")LED(GRN)	EA	8
682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	4
682	6003	VEH SIG SEC (12")LED(YEL)	EA	8
682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	2
682	6005	VEH SIG SEC (12")LED(RED)	EA	8
682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	2
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	6
682	6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	2
682	6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	8
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	1110
684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	1430
684	6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	1070
686	6027	INS TRF SIG PL AM(S)1 ARM(24')LUM	EA	1
686	6051	INS TRF SIG PL AM(S)1 ARM(48')LUM	EA	3
687	6001	PED POLE ASSEMBLY	EA	4
**		DRILL SHAFT (24 IN)	LF	24
688	6001	PED DETECT PUSH BUTTON (APS)	EA	6
**		R10-3e (L) (9" X 15") PEDESTRIAN SIGN	EA	3
**		R10-3e (R) (9" X 15") PEDESTRIAN SIGN	EA	3
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1

SUMMARY OF TRAFFIC SIGNAL QUANTITIES (CSJ 0215-02-068)

ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST QUANTITY
5003	6004	RETROFIT DET WARN SURF(SURF APPLIED)	EA	5
6004	6031	ITS COM CBL (ETHERNET)	LF	150
6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
6185	6002	TMA (STATIONARY)	DAY	10
6292	6001	RVDS(PRESENCE DETECTION ONLY)	EA	4
**		RVDS (RADAR PRESENCE DETECTOR POWER AND COMMUNICATION CABLE)	LF	860
6292	6002	RVDS(ADVANCE DETECTION ONLY)	EA	2
**		RVDS (RADAR ADVANCE DETECTOR POWER AND COMMUNICATION CABLE)	LF	495
****	****	CONTRACTOR FORCE ACCOUNT (COMM PACKAGE)	EA	1
		CELLULAR MODEM (CISCO MODEL IR1101)	EA	1
		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
		IP CAMERA (AXIS M5525-E)	EA	1
		IP CAMERA MOUNTING BRACKET (AXIS T94A01D PENDANT KIT)	EA	1
		POWER STRIP	EA	1
		SWITCH POWER SUPPLY	EA	1
		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1

** SUBSIDIARY TO PERTINENT ITEM

**** **** CONTRACTOR FORCE ACCOUNT

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

QUANTIITY SUMMARY

SH 46 AT C H MATTHIES JR

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		6
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

SUMMARY OF TRAFFIC SIGNAL QUANTITIES (CSJ 0915-46-057)

ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST. QUANTITY
104	6029	REMOVING CONC (CURB OR CURB AND GUTTER)	LF	42
104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	50
416	6032	DRILL SHAFT (TRF SIG POLE)(36IN)	LF	27
420	6074	CL C CONC (MISC)	CY	1
432	6003	RIPRAP (CONC) (6 IN)	CY	13
471	6003	GRATE & FRAME	EA	35
529	6002	CONC CURB (TY II)	LF	85.5
531	6004	CURB RAMPS (TY 1)	EA	8
618	6046	CONDT(PVC)(SCH 80)(2")	LF	82
618	6047	CONDT(PVC)(SCH 80)(2")(BORE)	LF	140
618	6053	CONDT(PVC)(SCH 80)(3")	LF	45
618	6054	CONDT(PVC)(SCH 80)(3")(BORE)	LF	350
620	6009	ELEC CONDR (NO.6) BARE	LF	617
620	6010	ELEC CONDR (NO.6) INSULATED	LF	150
621	6005	TRAY CABLE (4 CONDR)(12 AWG)	LF	230
624	6010	GROUND BOX TY D (162922)W/APRON	EA	4
628	6164	ELC SRV TY A 240/480 070(NS)AL(E)PS(U)	EA	1
666	6034	REFL PAV MRK TY 1 (W)8"(SLD)(060MIL)	LF	120
666	6046	REFL PAV MRK TY 1 (W)24"(SLD)(060MIL)	LF	369
666	6052	REFL PAV MRK TY 1 (W)(ARROW)(060MIL)	EA	3
666	6076	REFL PAV MRK TY 1 (W)(WORD)(060MIL)	EA	3
666	6301	RE PM W/RET REQ TY 1 (W)4"(SLD)(060MIL)	LF	112
666	6307	RE PM W/RET REQ TY 1 (W)6"(SLD)(060MIL)	LF	135
666	6313	RE PM W/RET REQ TY 1 (Y)4"(SLD)(060MIL)	LF	1494
672	6007	REFL PAV MRKR TY I-C	EA	8
672	6009	REFL PAV MRKR TY II-A-A	EA	76
680	6003	INSTALL HWY TRF SIG (SYSTEM)	EA	1
	*	NEMA TX 2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET	EA	1
	*	TRF SIG CONTROLLER CONCRETE BASE PAD FOUNDATION	EA	1
	*	R10-17T (30"X30") "LEFT TURN ON FLASHING YELLOW ARROW"	EA	2
680	6004	REMOVING TRAFFIC SIGNALS	EA	1
682	6001	VEH SIG SEC (12")LED(GRN)	EA	8
682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	2
682	6003	VEH SIG SEC (12")LED(YEL)	EA	8
682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	4
682	6005	VEH SIG SEC (12")LED(RED)	EA	8
682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	2
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	8
682	6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	2
682	6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	8
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	1100
684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	675
684	6030	TRF SIG CBL (TY A)(14 AWG)(4 CONDR)	LF	470
684	6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	807
686	6144	INS TRF SIG PL AM(S)2 ARM(40-32')LUM&ILSN	EA	1
	*	LED LUMINAIRE (250 W EQ) WITH ARM	EA	1
686	6148	INS TRF SIG PL AM(S)2 ARM(40-36')LUM&ILSN	EA	1
	*	LED LUMINAIRE (250 W EQ) WITH ARM	EA	1
687	6001	PED POLE ASSEMBLY	EA	6
	*	DRILL SHAFT (24IN)	LF	36
687	6005	REMOVE PED POLE ASSEMBLY	EA	2
688	6001	PED DETECT PUSH BUTTON (APS)	EA	8
	*	R10-3eR (9"X15") PEDESTRIAN SIGN (RIGHT ARROW)	EA	4
	*	R10-3eL (9"X15") PEDESTRIAN SIGN (LEFT ARROW)	EA	4
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
6004	6031	ITS COMM CBL (ETHERNET)	LF	60
6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
6185	6002	TMA (STATIONARY)	DAY	10
6292	6001	RVDS(PRESENCE DETECTION ONLY)	EA	4
	*	6/C-RADAR SMARTSENSOR CABLE	LF	490
6411	6002	ILSN (LED) (8S)	EA	4
**		CONTRACTOR FORCE ACCOUNT (COMM PACKAGE)	EA	1
**		CELLULAR MODEM (CISCO MODEL 809)	EA	1
**		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
**		IP CAMERA (AXIS M5525-E)	EA	1
**		IP CAMERA MOUNTING BRACKET (AXIS T94A01D PENDANT KIT)	EA	1
**		POWER STRIP	EA	1
**		SWITCH POWER SUPPLY	EA	1
**		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
**		CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
**		CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1

* SUBSIDIARY TO PERTINENT ITEM

** CONTRACTOR FORCE ACCOUNT

NO.		REVISION	APPROV.

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

Texas Department of Transportation®

QUANTITY SUMMARY

US 90A (W COURT ST) AT TRAVIS ST

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		7
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

$DATE$
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SUMMARY OF TRAFFIC SIGNAL QUANTITIES (CSJ 0915-46-057)

ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST. QUANTITY
104	6029	REMOVING CONC (CURB OR CURB AND GUTTER)	LF	64
104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	50
416	6032	DRILL SHAFT (TRF SIG POLE)(36IN)	LF	27
420	6074	CL C CONC (MISC)	CY	1.8
432	6003	RIPRAP (CONC) (6 IN)	CY	22.5
471	6003	GRATE & FRAME	EA	59
529	6002	CONC CURB (TY II)	LF	108
531	6004	CURB RAMPS (TY 1)	EA	6
618	6046	CONDT(PVC)(SCH 80)(2")	LF	65
618	6047	CONDT(PVC)(SCH 80)(2")(BORE)	LF	105
618	6053	CONDT(PVC)(SCH 80)(3")	LF	100
618	6054	CONDT(PVC)(SCH 80)(3")(BORE)	LF	310
620	6009	ELEC CONDR (NO.6) BARE	LF	580
620	6010	ELEC CONDR (NO.6) INSULATED	LF	80
621	6005	TRAY CABLE (4 CONDR)(12 AWG)	LF	220
624	6010	GROUND BOX TY D (162922)W/APRON	EA	4
628	6164	ELC SRV TY A 240/480 070(NS)AL(E)PS(U)	EA	1
666	6034	REFL PAV MRK TY 1 (W)8"(SLD)(060MIL)	LF	125
666	6046	REFL PAV MRK TY 1 (W)24"(SLD)(060MIL)	LF	315
666	6052	REFL PAV MRK TY 1 (W)(ARROW)(060MIL)	EA	3
666	6076	REFL PAV MRK TY 1 (W)(WORD)(060MIL)	EA	1
666	6090	REFL PAV MRK TY 1 (W)(MED NOSE)(100MIL)	EA	1
666	6147	REFL PAV MRK TY 1 (Y) 24" (SLD)(100MIL)	LF	18
666	6301	RE PM W/RET REQ TY 1 (W)4"(SLD)(060MIL)	LF	330
666	6313	RE PM W/RET REQ TY 1 (Y)4"(SLD)(060MIL)	LF	442
672	6007	REFL PAV MRKR TY I-C	EA	7
672	6009	REFL PAV MRKR TY II-A-A	EA	24
680	6003	INSTALL HWY TRF SIG (SYSTEM)	EA	1
	*	NEMA TX 2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET	EA	1
	*	TRF SIG CONTROLLER CONCRETE BASE PAD FOUNDATION	EA	1
	*	R10-17T (30"X30") "LEFT TURN ON FLASHING YELLOW ARROW"	EA	1
	*	R3-1 (24"X24") "NO RIGHT TURN" SIGN	EA	1
	*	R3-2 (24"X24") "NO LEFT TURN" SIGN	EA	1
	*	R6-1L (36"X12") "ONE WAY" SIGN	EA	2
	*	R6-1R (36"X12") "ONE WAY" SIGN	EA	3
680	6004	REMOVING TRAFFIC SIGNALS	EA	1
682	6001	VEH SIG SEC (12")LED(GRN)	EA	6
682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	1
682	6003	VEH SIG SEC (12")LED(YEL)	EA	6
682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	2
682	6005	VEH SIG SEC (12")LED(RED)	EA	6
682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	1
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	8
682	6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	1
682	6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	6
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	855
684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	380
684	6030	TRF SIG CBL (TY A)(14 AWG)(4 CONDR)	LF	285
684	6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	595
686	6120	INS TRF SIG PL AM(S)2 ARM(36-28')LUM&ILSN	EA	1
	*	LED LUMINAIRE (250 W EQ) WITH ARM	EA	1
*** 686	6148	IN TRF SG PL AM(S)2 ARM(40-36')LUM&ILSN (36' CLAMP ON ARM NOT INCLUDED)	EA	1
	*	LED LUMINAIRE (250 W EQ) WITH ARM	EA	1
687	6001	PED POLE ASSEMBLY	EA	6
	*	DRILL SHAFT (24IN)	LF	36
687	6005	REMOVE PED POLE ASSEMBLY	EA	2
688	6001	PED DETECT PUSH BUTTON (APS)	EA	8
	*	R10-3eR (9"X15") PEDESTRIAN SIGN (RIGHT ARROW)	EA	6
	*	R10-3eL (9"X15") PEDESTRIAN SIGN (LEFT ARROW)	EA	2
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
6004	6031	ITS COMM CBL (ETHERNET)	LF	105
6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
6185	6002	TMA (STATIONARY)	DAY	10
6292	6001	RVDS(PRESENCE DETECTION ONLY)	EA	3
	*	6/C-RADAR SMARTSENSOR CABLE	LF	315
6411	6002	ILSN (LED) (8S)	EA	3
**		CONTRACTOR FORCE ACCOUNT (COMM PACKAGE)	EA	1
**		CELLULAR MODEM (CISCO MODEL 809)	EA	1
**		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
**		IP CAMERA (AXIS M5525-E)	EA	1
**		IP CAMERA MOUNTING BRACKET (AXIS T94A01D PENDANT KIT)	EA	1
**		POWER STRIP	EA	1
**		SWITCH POWER SUPPLY	EA	1
**		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
**		CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
**		CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1

* SUBSIDIARY TO PERTINENT ITEM ** CONTRACTOR FORCE ACCOUNT

*** SPECIAL NOTE:

THE 36' CLAMP ON ARM FOR POLE "B" WILL NOT BE INCLUDED IN THIS PROJECT. THIS WILL BE PURCHASED AND INSTALLED BY THE CITY OF SEGUIN AT A LATER DATE.

$DATE$
$FILE$

NO.		REVISION	APPROV.

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

QUANTITY SUMMARY

US 90A (W COURT ST) AT CAMP ST

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		8
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

SUMMARY OF TRAFFIC SIGNAL QUANTITIES (CSJ 0915-46-057)

	ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST. QUANTITY
	104	6015	REMOVING CONC (SIDEWALKS)	SY	80
	104	6029	REMOVING CONC (CURB OR CURB AND GUTTER)	LF	80
	104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	50
	416	6032	DRILL SHAFT (TRF SIG POLE)(36IN)	LF	27
	420	6074	CL C CONC (MISC)	CY	1.9
	432	6003	RIPRAP (CONC) (6 IN)	CY	41.7
	471	6003	GRATE & FRAME	EA	65
	529	6002	CONC CURB (TY II)	LF	212
	531	6003	CONC SIDEWALKS (6")	SY	6.5
	531	6004	CURB RAMPS (TY 1)	EA	5
	618	6046	CONDT(PVC)(SCH 80)(2")	LF	165
	618	6047	CONDT(PVC)(SCH 80)(2")(BORE)	LF	150
	618	6053	CONDT(PVC)(SCH 80)(3")	LF	60
	618	6054	CONDT(PVC)(SCH 80)(3")(BORE)	LF	420
	620	6009	ELEC CONDR (NO.6) BARE	LF	795
	620	6010	ELEC CONDR (NO.6) INSULATED	LF	215
	621	6005	TRAY CABLE (4 CONDR)(12 AWG)	LF	355
	624	6010	GROUND BOX TY D (162922)W/APRON	EA	4
	628	6164	ELC SRV TY A 240/480 070(NS)AL(E)PS(U)	EA	1
	666	6034	REFL PAV MRK TY 1 (W)8"(SLD)(060MIL)	LF	412
	666	6046	REFL PAV MRK TY 1 (W)24"(SLD)(060MIL)	LF	406
	666	6052	REFL PAV MRK TY 1 (W)(ARROW)(060MIL)	EA	5
	666	6076	REFL PAV MRK TY 1 (W)(WORD)(060MIL)	EA	4
	666	6090	REFL PAV MRK TY 1 (W)(MED NOSE)(100MIL)	EA	1
	666	6147	REFL PAV MRK TY 1 (Y) 24" (SLD)(100MIL)	LF	28
	666	6301	RE PM W/RET REQ TY 1 (W)4"(SLD)(060MIL)	LF	900
	666	6313	RE PM W/RET REQ TY 1 (Y)4"(SLD)(060MIL)	LF	952
	672	6007	REFL PAV MRKR TY I-C	EA	23
	672	6009	REFL PAV MRKR TY II-A-A	EA	41
	680	6003	INSTALL HWY TRF SIG (SYSTEM)	EA	1
		*	NEMA TX 2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET	EA	1
		*	TRF SIG CONTROLLER CONCRETE BASE PAD FOUNDATION	EA	1
		*	R10-17T (30"X30") "LEFT TURN ON FLASHING YELLOW ARROW"	EA	1
		*	R3-1 (24"X24") "NO RIGHT TURN" SIGN	EA	1
		*	R3-2 (24"X24") "NO LEFT TURN" SIGN	EA	1
		*	R6-1L (36"X12") "ONE WAY" SIGN	EA	1
		*	R6-1R (36"X12") "ONE WAY" SIGN	EA	1
	680	6004	REMOVING TRAFFIC SIGNALS	EA	1
	682	6001	VEH SIG SEC (12")LED(GRN)	EA	6
	682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	1
	682	6003	VEH SIG SEC (12")LED(YEL)	EA	6
	682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	2
	682	6005	VEH SIG SEC (12")LED(RED)	EA	6
	682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	1
	682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	8
	682	6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	1
	682	6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	6
	684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	1180
	684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	470
	684	6030	TRF SIG CBL (TY A)(14 AWG)(4 CONDR)	LF	580
	684	6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	1140
***	686	6108	IN TRF SG PL AM(S) 2 ARM (32-32')LUM&ILSN (32' CLAMP ON ARM NOT INCLUDED)	EA	1
		*	LED LUMINAIRE (250 W EQ) WITH ARM	EA	1
	686	6092	INS TRF SIG PL AM(S)2 ARM (28-28')LUM&ILSN	EA	1
		*	LED LUMINAIRE (250 W EQ) WITH ARM	EA	1
	687	6001	PED POLE ASSEMBLY	EA	6
		*	DRILL SHAFT (24IN)	LF	36
	687	6005	REMOVE PED POLE ASSEMBLY	EA	2
	688	6001	PED DETECT PUSH BUTTON (APS)	EA	8
		*	R10-3eR (9"X15") PEDESTRIAN SIGN (RIGHT ARROW)	EA	4
		*	R10-3eL (9"X15") PEDESTRIAN SIGN (LEFT ARROW)	EA	4
	688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
	6004	6031	ITS COMM CBL (ETHERNET)	LF	60
	6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
	6185	6002	TMA (STATIONARY)	DAY	10
	6292	6001	RVDS(PRESENCE DETECTION ONLY)	EA	3
		*	6/C-RADAR SMARTSENSOR CABLE	LF	480
	6411	6002	ILSN (LED) (8S)	EA	3
	**		CONTRACTOR FORCE ACCOUNT (COMM PACKAGE)	EA	1
	**		CELLULAR MODEM (CISCO MODEL 809)	EA	1
	**		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
	**		IP CAMERA (AXIS M5525-E)	EA	1
	**		IP CAMERA MOUNTING BRACKET (AXIS T94A01D PENDANT KIT)	EA	1
	**		POWER STRIP	EA	1
	**		SWITCH POWER SUPPLY	EA	1
	**		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
	**		CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
	**		CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1

* SUBSIDIARY TO PERTINENT ITEM ** CONTRACTOR FORCE ACCOUNT

*** SPECIAL NOTE:

THE 32' CLAMP ON ARM FOR POLE "A" WILL NOT BE INCLUDED IN THIS PROJECT. THIS WILL BE PURCHASED AND INSTALLED BY THE CITY OF SEGUIN AT A LATER DATE.

NO.		REVISION	APPROV.

TEDSI INFRASTRUCTURE GROUP
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TBPE F-1640

Texas Department of Transportation®

QUANTITY SUMMARY

US 90A (E COURT ST) AT RIVER ST

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		9
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

$DATE$
$FILE$

SUMMARY OF TRAFFIC SIGNAL QUANTITIES (CSJ 0915-46-057)

ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST. QUANTITY
104	6015	REMOVING CONC (SIDEWALKS)	SY	17.3
531	6003	CONC SIDEWALKS (6")	SY	21.0
531	6004	CURB RAMPS (TY 1)	EA	4
618	6046	CONDT(PVC)(SCH 80)(2")	LF	55
618	6047	CONDT(PVC)(SCH 80)(2")(BORE)	LF	185
618	6053	CONDT(PVC)(SCH 80)(3")	LF	70
618	6054	CONDT(PVC)(SCH 80)(3")(BORE)	LF	185
620	6009	ELEC CONDR (NO.6) BARE	LF	485
620	6010	ELEC CONDR (NO.6) INSULATED	LF	110
624	6010	GROUND BOX TY D (162922)W/APRON	EA	4
628	6164	ELC SRV TY A 240/480 070(NS)AL(E)PS(U)	EA	1
666	6034	REFL PAV MRK TY 1 (W)8"(SLD)(060MIL)	LF	160
666	6046	REFL PAV MRK TY 1 (W)24"(SLD)(060MIL)	LF	316
666	6052	REFL PAV MRK TY 1 (W)(ARROW)(060MIL)	EA	4
666	6076	REFL PAV MRK TY 1 (W)(WORD)(060MIL)	EA	4
666	6310	RE PM W/RET REQ TY 1 (Y)4"(BRK)(060MIL)	LF	200
666	6313	RE PM W/RET REQ TY 1 (Y)4"(SLD)(060MIL)	LF	1262
672	6007	REFL PAV MRKR TY I-C	EA	10
672	6009	REFL PAV MRKR TY II-A-A	EA	24
680	6003	INSTALL HWY TRF SIG (SYSTEM)	EA	1
	*	NEMA TX 2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET	EA	1
	*	TRF SIG CONTROLLER CONCRETE BASE PAD FOUNDATION	EA	1
	*	R10-17T (30"X30") "LEFT TURN ON FLASHING YELLOW ARROW"	EA	2
680	6004	REMOVING TRAFFIC SIGNALS	EA	1
682	6001	VEH SIG SEC (12")LED(GRN)	EA	8
682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	2
682	6003	VEH SIG SEC (12")LED(YEL)	EA	8
682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	4
682	6005	VEH SIG SEC (12")LED(RED)	EA	8
682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	2
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	8
682	6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	2
682	6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	8
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	725
684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	605
684	6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	685
687	6001	PED POLE ASSEMBLY	EA	5
	*	DRILL SHAFT (24IN)	LF	30
687	6005	REMOVE PED POLE ASSEMBLY	EA	2
688	6001	PED DETECT PUSH BUTTON (APS)	EA	8
	*	R10-3eR (9"X15") PEDESTRIAN SIGN (RIGHT ARROW)	EA	6
	*	R10-3eL (9"X15") PEDESTRIAN SIGN (LEFT ARROW)	EA	2
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
6004	6031	ITS COMM CBL (ETHERNET)	LF	110
6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
6185	6002	TMA (STATIONARY)	DAY	10
6292	6001	RVDS(PRESENCE DETECTION ONLY)	EA	4
	*	6/C-RADAR SMARTSENSOR CABLE	LF	445
**		CONTRACTOR FORCE ACCOUNT (COMM PACKAGE)	EA	1
**		CELLULAR MODEM (CISCO MODEL 809)	EA	1
**		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
**		IP CAMERA (AXIS M5525-E)	EA	1
**		IP CAMERA MOUNTING BRACKET (AXIS T94A01D PENDANT KIT)	EA	1
**		POWER STRIP	EA	1
**		SWITCH POWER SUPPLY	EA	1
**		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
**		CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
**		CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1

* SUBSIDIARY TO PERTINENT ITEM

** CONTRACTOR FORCE ACCOUNT

NO.		REVISION	APPROV.

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
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(832) 619-1000
TBPE F-1640

Texas Department of Transportation®

QUANTITY SUMMARY

US 90A (E COURT ST) AT SAN MARCOS ST

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		10
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

$DATE$
$FILE$

SUMMARY OF TRAFFIC SIGNAL QUANTITIES (CSJ# 0915-46-057)				
ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST QUANTITY
104	6015	REMOVING CONC (SIDEWALKS)	SY	71
416	6031	DRILL SHAFT (TRF SIG POLE)(30 IN)	LF	45.2
529	6002	CONC CURB (TY II)	LF	25
529	6015	CONC CURB (TY C1)	LF	60
531	6001	CONC SIDEWALK (4")	SY	113
531	6004	CURB RAMPS (TY 1)	EA	5
531	6005	CURB RAMPS (TY 2)	EA	1
531	6017	CURB RAMPS (TY 22)	EA	1
618	6046	CONDT (PVC) (SCH 80) (2")	LF	30
618	6047	CONDT (PVC) (SCH 80) (2")(BORE)	LF	180
618	6053	CONDT (PVC) (SCH 80) (3")	LF	90
618	6054	CONDT (PVC) (SCH 80) (3")(BORE)	LF	360
620	6009	ELEC CONDR (NO.6) BARE	LF	680
620	6010	ELEC CONDR (NO.6) INSULATED	LF	300
621	6005	TRAY CABLE (4 CONDR) (12 AWG)	LF	190
624	6010	GROUND BOX TY D (162922)W/APRON	EA	4
628	6002	REMOVE ELECTRICAL SERVICE	EA	1
628	6168	ELC SRV TY D 120/240 070(NS)AL(E)TS(O)	EA	1
644	6070	RELOCATE SM RD SN SUP&AM TY S80	EA	3
666	6034	REF PAV MRK TYI (W) 8" (SLD) (60MIL)	LF	152
666	6048	REF PAV MRK TYI (W) 24" (SLD) (100MIL)	LF	352
666	6052	REF PAV MRK TYI (W)(ARROW)(60MIL)	EA	2
666	6076	REF PAV MRK TYI (W)(WORD)(60MIL)	EA	2
666	6230	PAVEMENT SEALER (24")	LF	352
666	6298	RE PM W/RET REQ TYI (W) 4" (BRK)(60MIL)	LF	200
666	6310	RE PM W/RET REQ TYI (Y) 4" (BRK)(60MIL)	LF	80
666	6313	RE PM W/RET REQ TYI (Y) 4" (SLD)(60MIL)	LF	1141
672	6007	REFL PAV MRKR TY I-C	EA	17
672	6009	REFL PAV MRKR TY II-AA	EA	58
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	428
680	6002	INSTALL HWY TRF SIG (ISOLATED)	EA	1
*		TX2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET	EA	1
*		TRAFFIC SIGNAL CONTROLLER FOUNDATION	EA	1
*		R10-17T (30" X 30") "LEFT TURN ON FLASHING YELLOW ARROW"	EA	2
*		D3-1G OVERHEAD STREET NAME SIGNS	EA	4
680	6004	REMOVING TRAFFIC SIGNALS	EA	1
682	6001	VEH SIG SEC (12")LED(GRN)	EA	8
682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	4
682	6003	VEH SIG SEC (12")LED(YEL)	EA	8
682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	4
682	6005	VEH SIG SEC (12")LED(RED)	EA	8
682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	2
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	6
682	6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	4
682	6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	6
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	885
684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	1070
684	6080	TRF SIG CBL (TY A)(14 AWG)(2 CONDR)	LF	855
686	6029	INS TRF SIG PL AM(S)1 ARM(28')	EA	2
686	6033	INS TRF SIG PL AM(S)1 ARM(32')	EA	1
686	6035	INS TRF SIG PL AM(S)1 ARM(32')LUM	EA	1
687	6001	PEDESTAL POLE ASSEMBLY	EA	2
*		DRILL SHAFT (TRF SIG POLE)(24 IN)	LF	12
688	6001	PED DETECT PUSH BUTTON (APS)	EA	6
*		R10-3e (L) (9" x 15") "PEDESTRIAN SIGN"	EA	3
*		R10-3e (R) (9" x 15") "PEDESTRIAN SIGN"	EA	3
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
6004	6031	ITS COM CBL (ETHERNET)	LF	65
6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
6185	6002	TMA (STATIONARY)	DAY	10
6292	6001	RVDS (PRESENCE DETECTION ONLY)	EA	4
*		RVDS (RADAR PRESENCE DETECTOR POWER AND COMMUNICATION CABLE)	LF	580

SUMMARY OF TRAFFIC SIGNAL QUANTITIES (CSJ# 0915-46-057)				
ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST QUANTITY
****	****	CONTROLLER FORCE ACCOUNT (COMM PACKAGE)	EA	1
		CELLULAR MODEM (CISCO MODEL 1R1101)	EA	1
		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
		IP CAMERA (AXIS M5525-E)	EA	1
		IP CAMERA MOUNTING BRACKET (AXIS T9401D PENDANT KIT)	EA	1
		POWER STRIP	EA	1
		SWITCH POWER SUPPLY	EA	1
		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1

* SUBSIDIARY TO PERTINENT ITEM

**** **** CONTRACTOR FORCE ACCOUNT

NO.	DATE	REVISION	APPROV.

DOUGHERTY Engineering Group, PLLC
TBPE Firm No. F-18636

QUANTITY SUMMARY
US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)

SHEET 1 OF 1

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		11
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/26/2023 12:06:06 PM ...\SUMMARY OF TRAFFIC SIGNAL QUANTITIES.dgn

SUMMARY OF TRAFFIC SIGNAL QUANTITIES (CSJ 0915-46-057)				
ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST QUANTITY
104	6064	REMOVING CONC (MISC)	CY	2
416	6031	DRILL SHAFT (TRF SIG POLE) (30 IN)	LF	45
529	6001	CONC CURB (TY I)	LF	50
531	6001	CONC SIDEWALKS (4")	SY	14
531	6004	CURB RAMPS (TY 1)	EA	8
618	6046	CONDT (PVC) (SCH 80) (2")	LF	130
618	6047	CONDT (PVC) (SCH 80) (2")(BORE)	LF	160
618	6053	CONDT (PVC) (SCH 80) (3")	LF	165
618	6054	CONDT (PVC) (SCH 80) (3")(BORE)	LF	320
620	6009	ELEC CONDR (NO.6) BARE	LF	775
620	6010	ELEC CONDR (NO.6) INSULATED	LF	10
624	6010	GROUND BOX TY D (162922) W/APRON	EA	4
628	6002	REMOVE ELECTRICAL SERVICE	EA	1
628	6164	ELC SRV TY D 120/240 070(NS)AL(PS)(U)	EA	1
666	6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	300
666	6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	297
666	6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	2
666	6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	2
666	6224	PAVEMENT SEALER 4"	LF	1960
666	6226	PAVEMENT SEALER 8"	LF	300
666	6230	PAVEMENT SEALER 24"	LF	297
666	6231	PAVEMENT SEALER (ARROW)	EA	2
666	6232	PAVEMENT SEALER (WORD)	EA	2
666	6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	1960
672	6007	REFL PAV MRKR TY I-C	EA	30
672	6009	REFL PAV MRKR TY II-A-A	EA	104
677	6001	ELIM EXT PAV MRK & MRKS (4")	LF	1190
677	6003	ELIM EXT PAV MRK & MRKS (8")	LF	280
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	336
677	6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	2
677	6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	3
680	6002	INSTALL HWY TRF SIG (ISOLATED)	EA	1
**		NEMA TX 2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET	EA	1
**		TRAFFIC SIGNAL CONTROLLER FOUNDATION	EA	1
**		R10-12 (30" X 36") "LEFT TURN YIELD ON GREEN BALL"	EA	2
**		R10-17T (30" X 30") "LEFT TURN YIELD ON FLASHING YELLOW ARROW"	EA	2
CITY SUPPLIED		D3-1G OVERHEAD STREET NAME SIGN "N Austin St" (INSTALLED BY CONTRACTOR)	EA	2
CITY SUPPLIED		D3-1G OVERHEAD STREET NAME SIGN "E Cedar" St (INSTALLED BY CONTRACTOR)	EA	2
680	6004	REMOVING TRAFFIC SIGNALS	EA	1
682	6001	VEH SIG SEC (12")LED(GRN)	EA	8
682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	2
682	6003	VEH SIG SEC (12")LED(YEL)	EA	8
682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	4
682	6005	VEH SIG SEC (12")LED(RED)	EA	8
682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	2
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	8
682	6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	2
682	6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	8
684	6009	TRF SIG CBL(TY A)(12 AWG)(4 CONDR)	LF	880
684	6012	TRF SIG CBL(TY A)(12 AWG)(7 CONDR)	LF	840
684	6080	TRF SIG CBL(TY C)(14 AWG)(2 CONDR)	LF	840
686	6025	INS TRF SIG PL AM(S)1 ARM(24')	EA	1
686	6029	INS TRF SIG PL AM(S)1 ARM(28')	EA	2
686	6033	INS TRF SIG PL AM(S)1 ARM(32')	EA	1
687	6001	PED POLE ASSEMBLY	EA	4
**		DRILL SHAFT (24 IN)	LF	24
688	6001	PED DETECT PUSH BUTTON (APS)	EA	8
**		R10-3e (L) (9" X 15") "PEDESTRIAN SIGN"	EA	6
**		R10-3e (R) (9" X 15") "PEDESTRIAN SIGN"	EA	2
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1

SUMMARY OF TRAFFIC SIGNAL QUANTITIES (CSJ 0915-46-057)				
ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST QUANTITY
6004	6031	ITS COM CBL (ETHERNET)	LF	150
6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
6185	6002	TMA (STATIONARY)	DAY	10
6292	6001	RVDS(PRESENCE DETECTION ONLY)	EA	4
**		RVDS (RADAR PRESENCE DETECTOR POWER AND COMMUNICATION CABLE)	LF	500
****	****	CONTRACTOR FORCE ACCOUNT (COMM PACKAGE)	EA	1
		CELLULAR MODEM (CISCO MODEL IR1101)	EA	1
		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
		IP CAMERA (AXIS M5525-E)	EA	1
		IP CAMERA MOUNTING BRACKET (AXIS T94A01D PENDANT KIT)	EA	1
		POWER STRIP	EA	1
		SWITCH POWER SUPPLY	EA	1
		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1

** SUBSIDIARY TO PERTINENT ITEM

**** **** CONTRACTOR FORCE ACCOUNT

NO.		REVISION	APPROV.

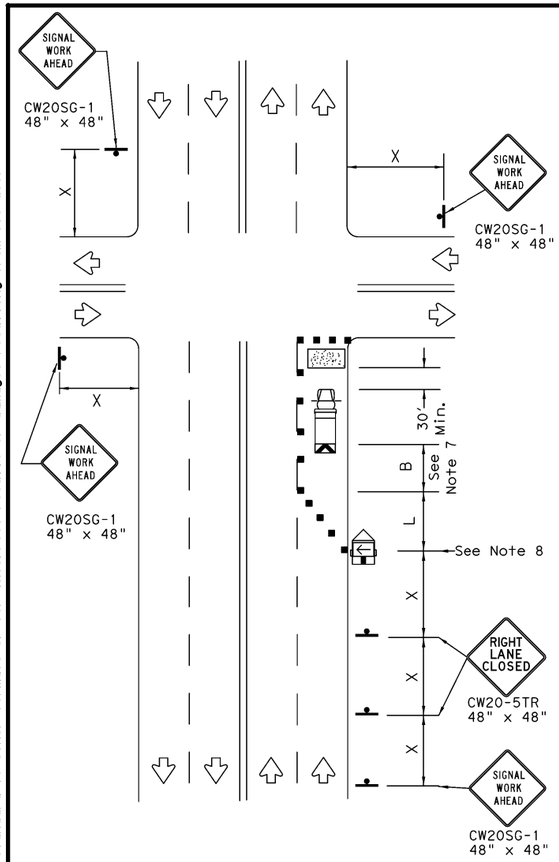
STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

QUANTITY SUMMARY

BS SH 123 (AUSTIN ST) AT CEDAR ST

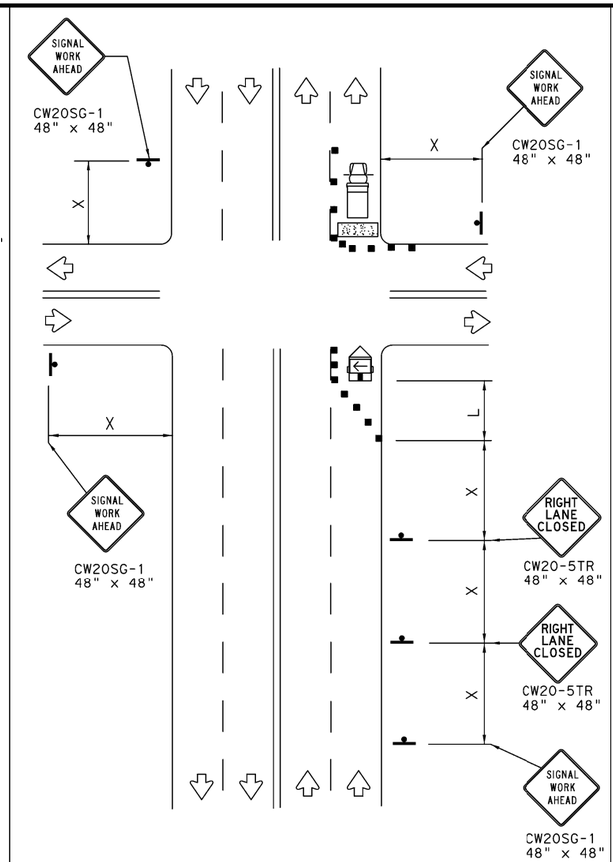
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		12
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

...\12 Quantity Summary BS SH 123 at Cedar.dgn 1/24/2023 9:09:29 AM



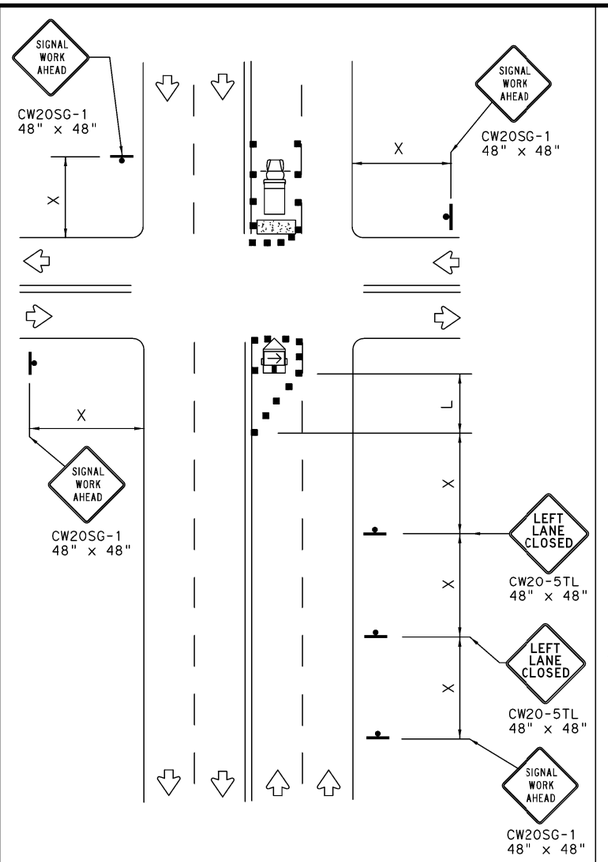
NEAR SIDE LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE RIGHT LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE LEFT LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY

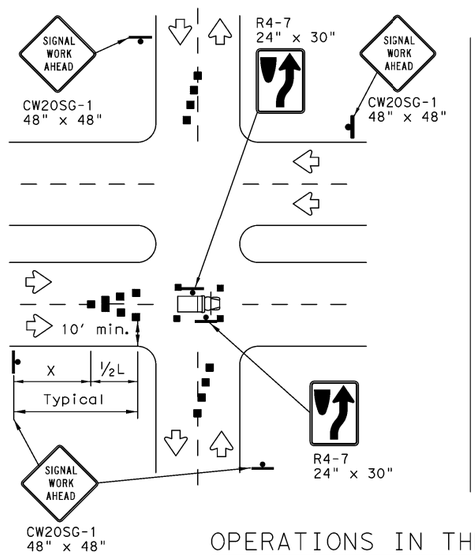
LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

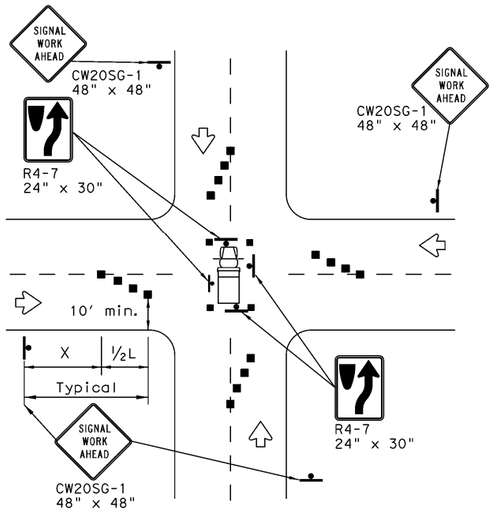
Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

WORKERS IN BUCKET TRUCKS SHALL NOT WORK ABOVE OPEN LANES OF TRAFFIC.





OPERATIONS IN THE INTERSECTION

SHORT DURATION

GENERAL NOTES

1. The minimum size channelizing device is the 28" cone. 42" Two-piece cones, drums, vertical panels or barricades will be required when the device must be left unattended at night.
2. Obstructions or hazards at the work area shall be clearly marked and delineated at all times.
3. Flaggers and Flagger Symbol (CW20-7) signs may be required according to field conditions.
4. Vehicles parked in roadway shall be equipped with at least two high intensity rotating, flashing, oscillating or strobe type lights.
5. High level warning devices (flag trees) may be used at corners of the vehicle.
6. When work operations are performed on existing signals, the signals may be placed in flashing red mode when approved by the engineer. If existing signals do not have power, All-Way Stop (R1-1 and R1-3P) signs may be implemented when approved by the engineer.
7. For Short-Term Stationary work the buffer space "B" from the above table should be used if field conditions permit. For Short Duration (less than 1 hour) any buffer space provided will enhance the safety of the setup.
8. The arrow board at this location may be omitted for Short Duration work if the work vehicle has an arrow board in operation. As an option, the arrow board may be placed at the end of the taper in the closed lane if space is not available at the beginning of the taper.
9. Signs and devices for the NEAR SIDE LANE CLOSURE may be altered for a left lane closure by using a LEFT LANE CLOSED (CW20-5TL) and adding channelizing devices on the centerline to protect the work space from opposing traffic.

SHEET 1 OF 2

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC SIGNAL WORK TYPICAL DETAILS

WZ(BTS-1)-13

FILE: wzbts-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	0029	02	058	US 90
2-98 10-99 7-13	DIST	COUNTY		SHEET NO.
4-98 3-03	SAT	GUADALUPE		13

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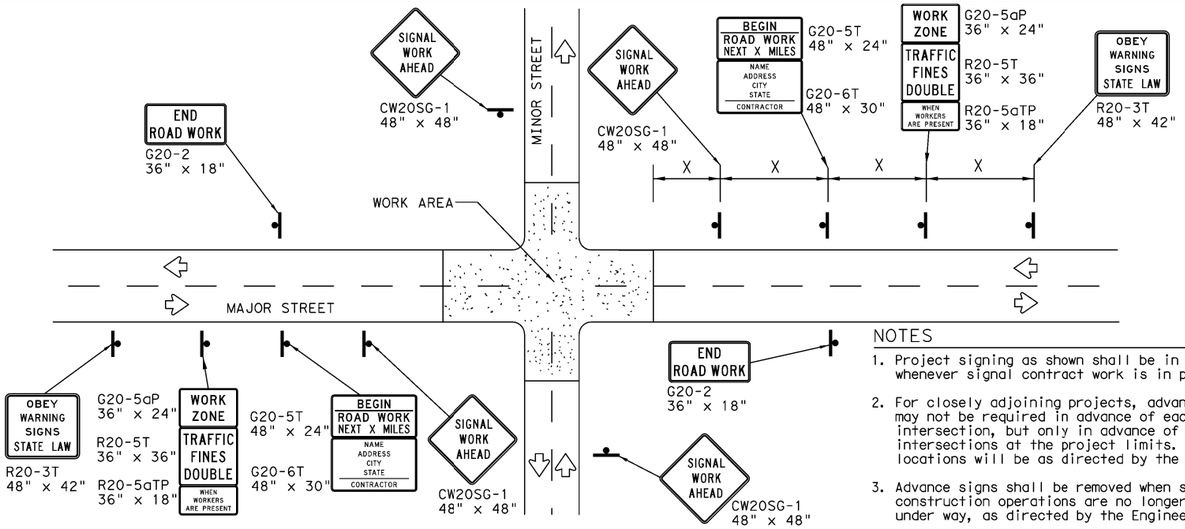


TYPICAL ADVANCE SIGNAL PROJECT SIGNING

FOR LONG TERM and INTERMEDIATE-TERM STATIONARY WORK OPERATIONS

NOTES

1. Project signing as shown shall be in place whenever signal contract work is in progress.
2. For closely adjoining projects, advance signing may not be required in advance of each intersection, but only in advance of the intersections at the project limits. Actual locations will be as directed by the Engineer.
3. Advance signs shall be removed when signal construction operations are no longer under way, as directed by the Engineer.
4. Warning sign spacing shown is typical for both directions.
5. See the Table on shee- 1 of 2 for Typical warning sign spacing.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Signs shall be installed and maintained in a straight and plumb condition.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. Nails shall NOT be used to attach signs to any support.
5. All signs shall be installed in accordance with the plans or as directed by the Engineer.
6. The Contractor shall furnish the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD).
7. The Contractor shall furnish sign supports and substrates listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD), installed as per the manufacturer's recommendations.
8. Temporary signs that have damaged or cracked substrates and/or damaged or marred reflective sheeting shall be replaced as directed by the Engineer.
9. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1".
10. Damaged wood posts shall be replaced. Splicing wood posts will not be allowed.

DURATION OF WORK

1. Work zone durations are defined in Part 6, Section 6G.02 of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

SIGN MOUNTING HEIGHT

1. Sign height of Long-term/Intermediate-term warning signs shall be as shown on Figure 6F-1 of the TMUTCD.
2. Sign height of Short-term/Short Duration warning signs shall be as shown on Figure 6F-2 of the TMUTCD.
3. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered, unless otherwise approved by the Engineer.
2. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night without damaging the sign sheeting. Burlap, or heavy materials such as plywood or aluminum shall not be used to cover signs.
3. Duct tape or other adhesive material shall NOT be affixed to a sign face.
4. Signs and anchor stubs shall be removed and holes back filled upon completion of the work.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the requirements of the DMS and color usage table shown on this sheet.

SIGN SUPPORT WEIGHTS

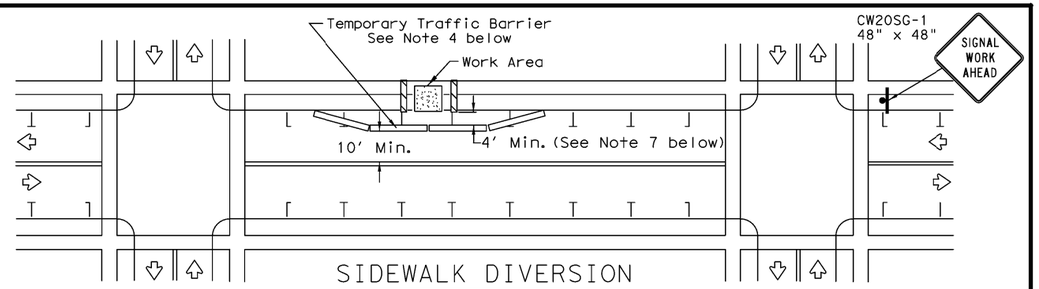
1. Weights used to keep signs from turning over should be sandbags filled with dry, cohesionless material.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber, such as tire inner tubes, shall not be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fastners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

LEGEND	
	Sign
	Channelizing Devices
	Type 3 Barricade

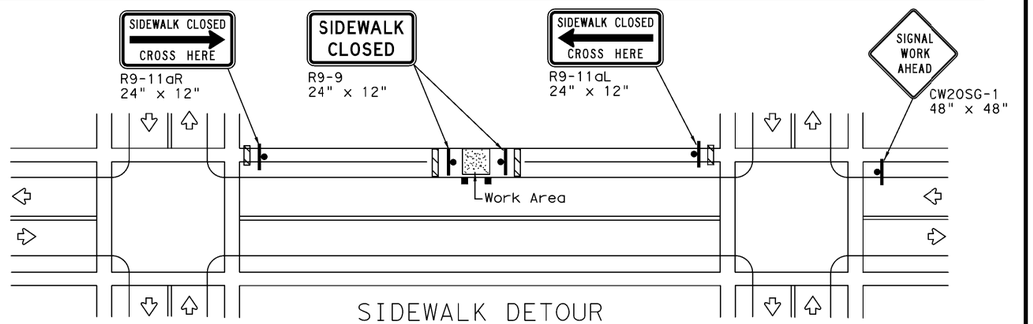
DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
FLEXIBLE ROLL-UP REFLECTIVE SIGNS	DMS-8310

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL} SHEETING
WHITE	BACKGROUND	TYPE A SHEETING
BLACK	LEGEND & BORDERS	ACRYLIC NON-REFLECTIVE SHEETING

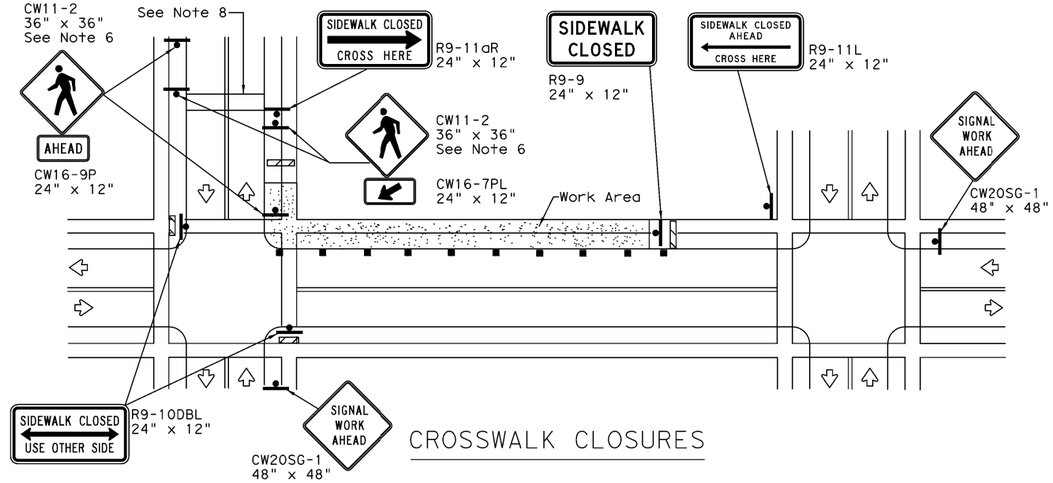
Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:
http://www.txdot.gov/txdot_library/publications/construction.htm



SIDEWALK DIVERSION



SIDEWALK DETOUR



CROSSWALK CLOSURES

PEDESTRIAN CONTROL

1. Holes, trenches or other hazards shall be adequately protected by covering, delineating or surrounding the hazard with orange plastic pedestrian fencing or longitudinal channelizing devices, or as directed by the Engineer.
2. "CROSSWALK CLOSURES" as detailed above will require the Engineer's approval prior to installation.
3. R9 series signs shown may be placed on supports detailed on the BC standards or CWZTCD list, or when fabricated from approved lightweight plastic substrates, they may be mounted on top of a plastic drum at or near the location shown.
4. For speeds less than 45 mph longitudinal channelizing devices may be used instead of traffic barriers when approved by the Engineer. Attenuation of blunt ends and installation of water filled devices shall be as per BC(9) and manufacturer's recommendations.
5. Location of devices are for general guidance. Actual device spacing and location must be field adjusted to meet actual conditions.
6. Where pedestrians with visual disabilities normally use the closed sidewalk Detectable Pedestrian Barricades should be used instead of the Type 3 Barricades shown.
7. The width of existing sidewalk should be maintained if practical.
8. Pavement markings for mid-block crosswalks shall be paid for under the appropriate bid items.
9. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.

SHEET 2 OF 2

Texas Department of Transportation | Traffic Operations Division Standard

TRAFFIC SIGNAL WORK BARRICADES AND SIGNS

WZ(BTS-2)-13

FILE:	wzbts-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS		0029	02	058	US 90
2-98 10-99 7-13		DIST	COUNTY		SHEET NO.
4-98 3-03		SAT	GUADALUPE		14

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DATE: 1/23/2023
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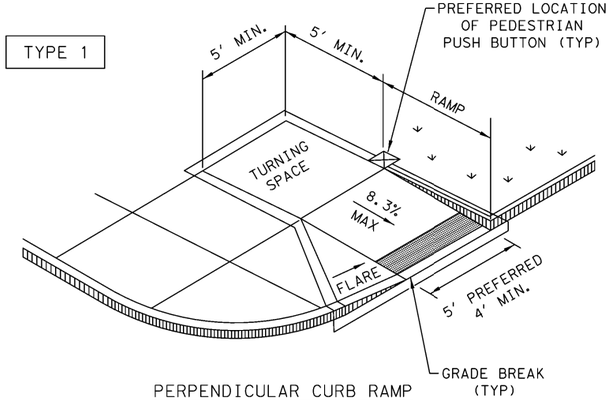
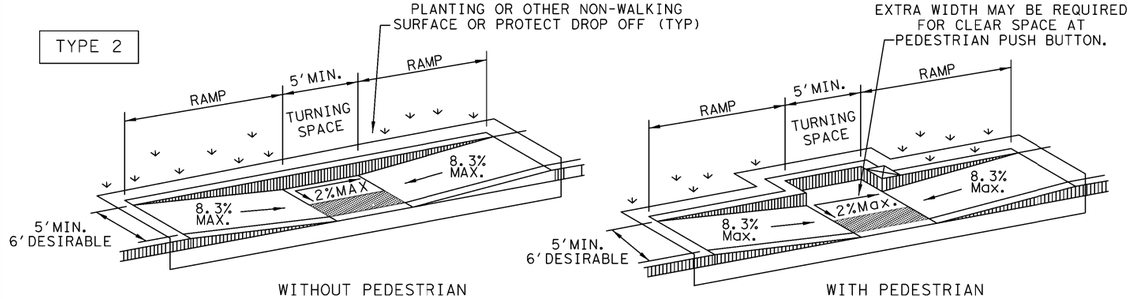


PERPENDICULAR CURB RAMP

TYPE 2

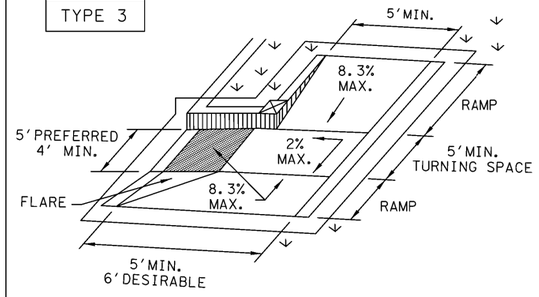


WITHOUT PEDESTRIAN PUSH BUTTON

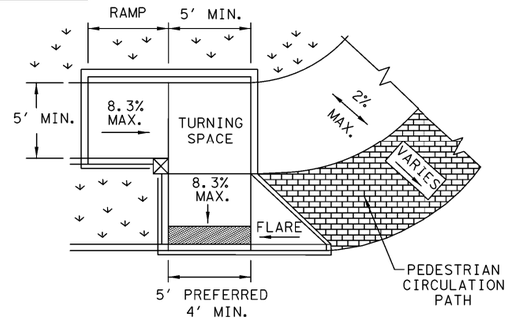
WITH PEDESTRIAN PUSH BUTTON

PARALLEL CURB RAMP

TYPE 3

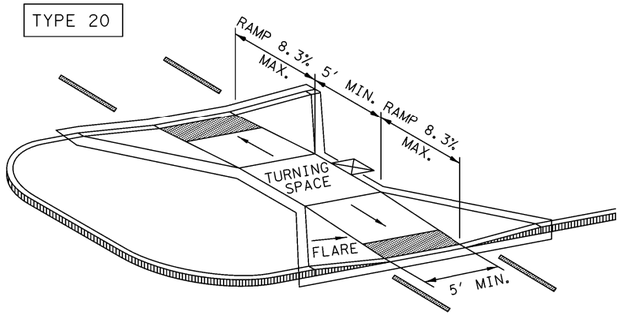


TYPE 6



COMBINATION CURB RAMPS

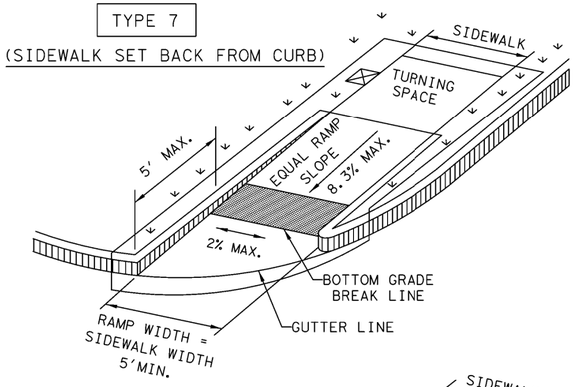
TYPE 20



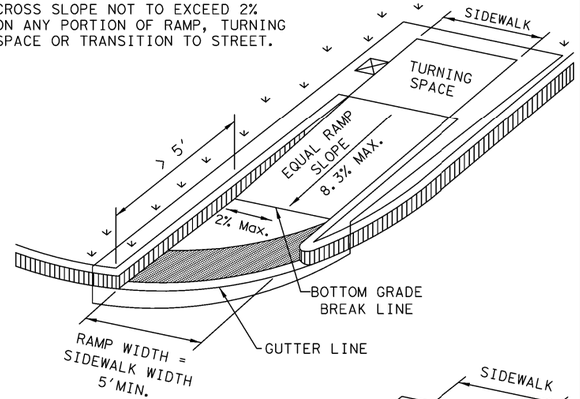
CURB RAMPS AT MEDIAN ISLANDS

TYPE 7

(SIDEWALK SET BACK FROM CURB)

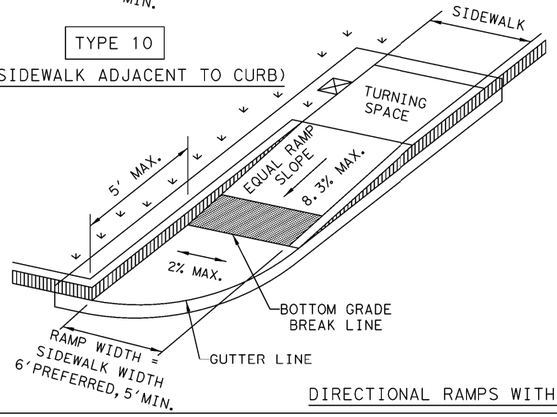


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.

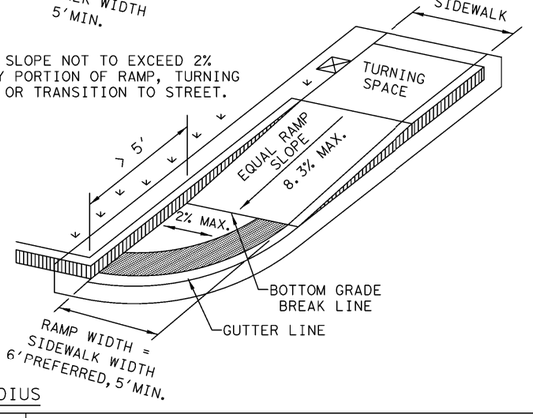


TYPE 10

(SIDEWALK ADJACENT TO CURB)

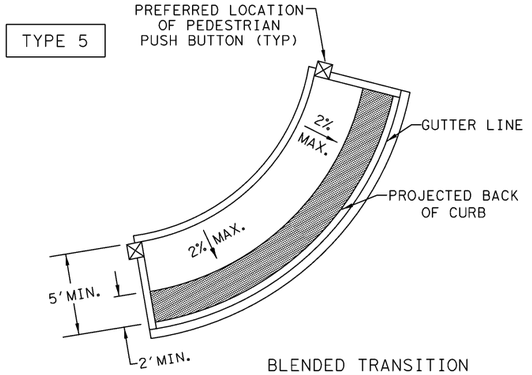


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



DIRECTIONAL RAMPS WITHIN RADIUS

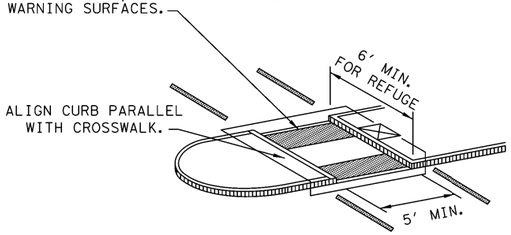
TYPE 5



BLENDED TRANSITION
(FLUSH LANDING)

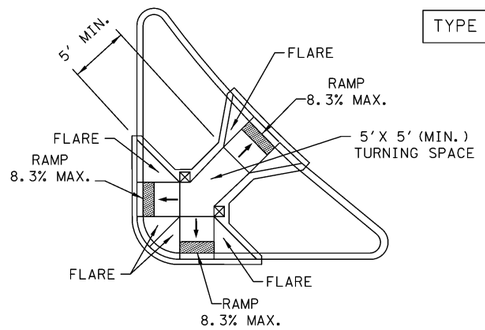
TYPE 21

INSTALL DETECTABLE WARNING SURFACE AT EACH END OF THE CUT-THROUGH RAMP WITH A MINIMUM 2' USUAL SIDEWALK SURFACE BETWEEN. IF MEDIAN IS LESS THAN 6' WIDE, ELIMINATE DETECTABLE WARNING SURFACES.

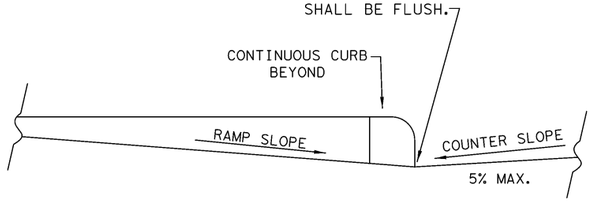


NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

SHEET 1 OF 4

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0029	02	058	US 90
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		15

DATE: 1/23/2023
FILE: ...\6.3 Standards\15-18 ped18.dgn

GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5′. Where the sidewalk is adjacent to the back of curb, a 6′ sidewalk width is desirable. Where a 5′ sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4′ for short distances. 5′x 5′ passing areas at intervals not to exceed 200′ are required.
5. Turning Spaces shall be 5′x 5′ minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4′x 4′ wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6′ wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5′x 5′ landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicalble standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

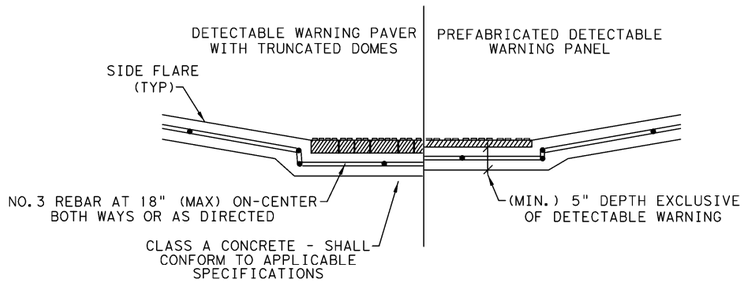
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

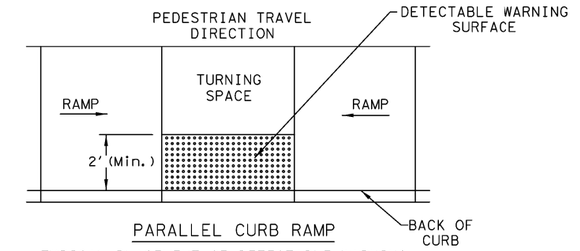
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

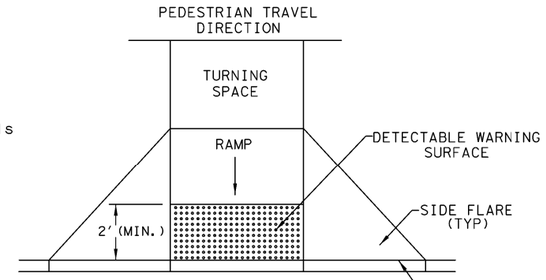


SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

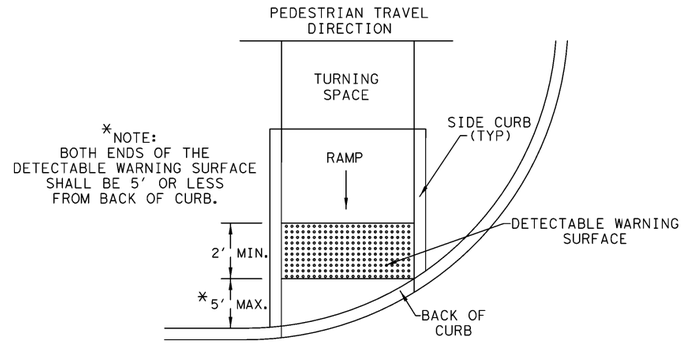
DETECTABLE WARNING SURFACE DETAILS



PARALLEL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



PERPENDICULAR CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



DIRECTIONAL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

Texas Department of Transportation | Design Division Standard

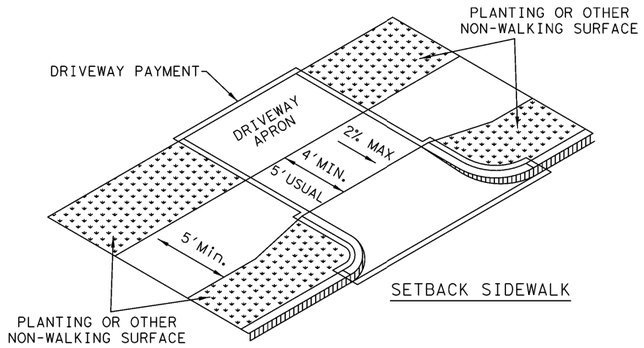
PEDESTRIAN FACILITIES CURB RAMPS

PED-18

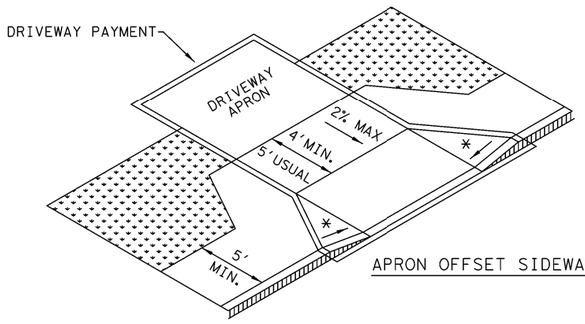
FILE: ped18	DN: TxDOT		DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY
REVISIONS	0029	02	058		US 90
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY			SHEET NO.
	SAT	GUADALUPE			16

DATE: 1/23/2023
FILE: ...\6.3 Standards\15-18 ped18.dgn

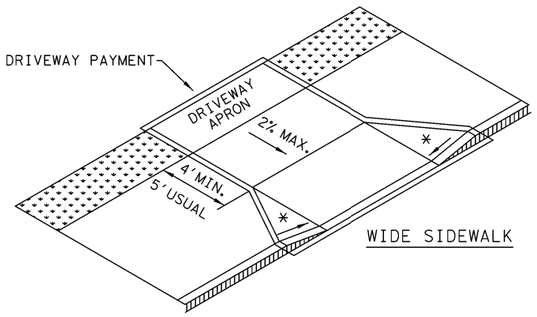
SIDEWALK TREATMENT AT DRIVEWAYS



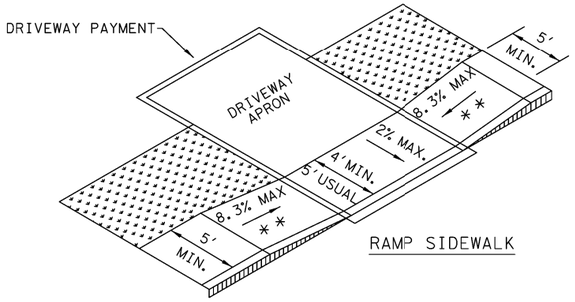
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

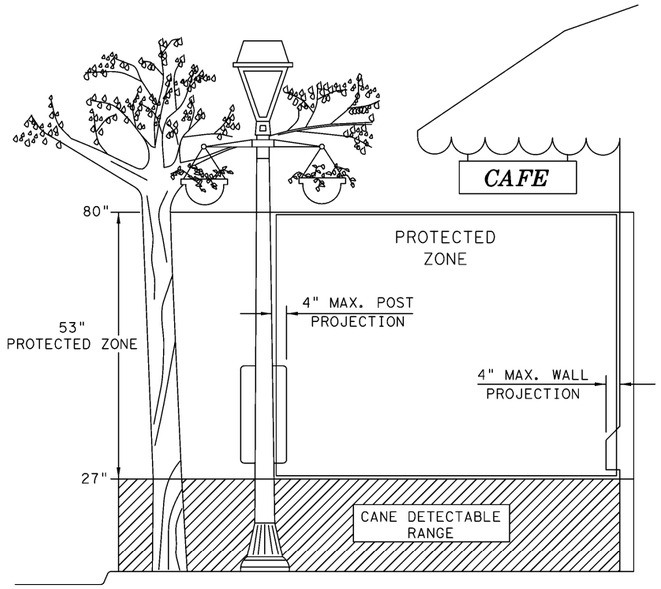


RAMP SIDEWALK

NOTES:

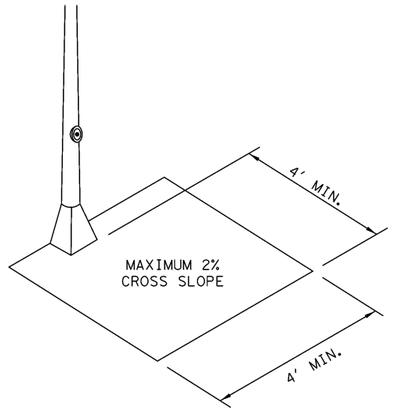
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

* * IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.

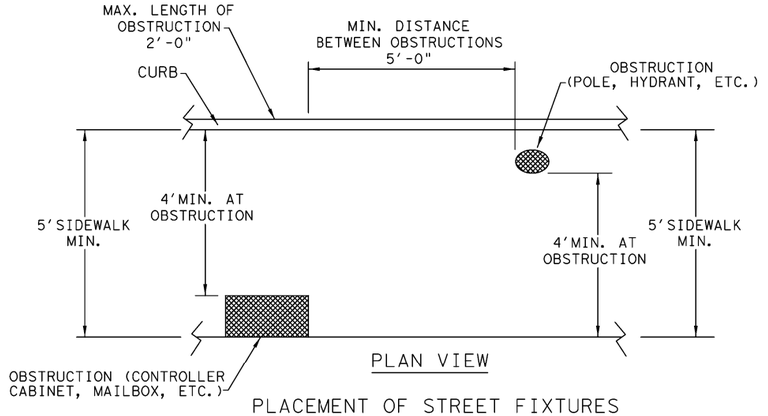


PROTECTED ZONE

NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



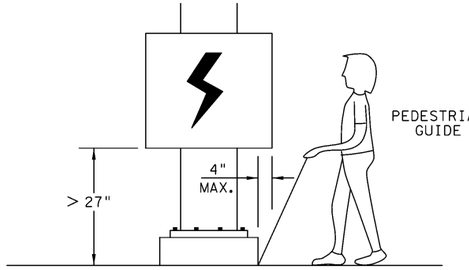
CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



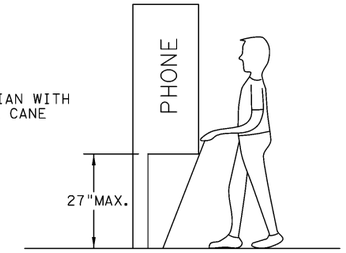
PLAN VIEW

PLACEMENT OF STREET FIXTURES

NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.



PROTRUDING OBJECTS OF A HEIGHT ≤ 27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

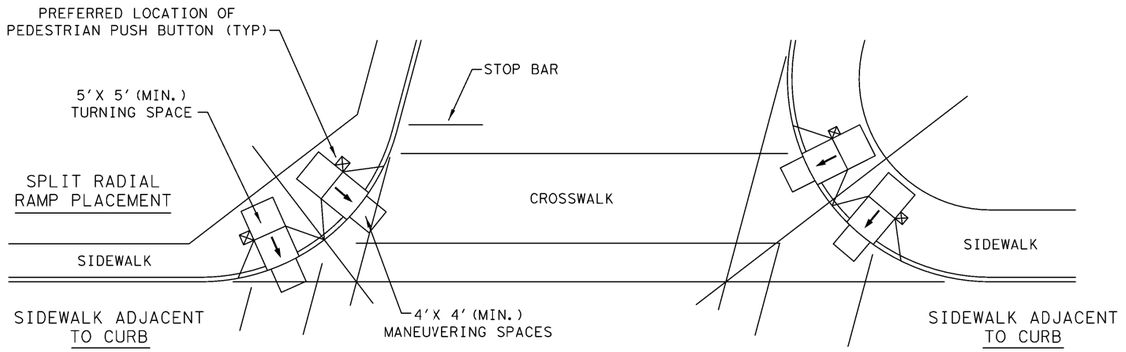
PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0029	02	058	US 90
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		17

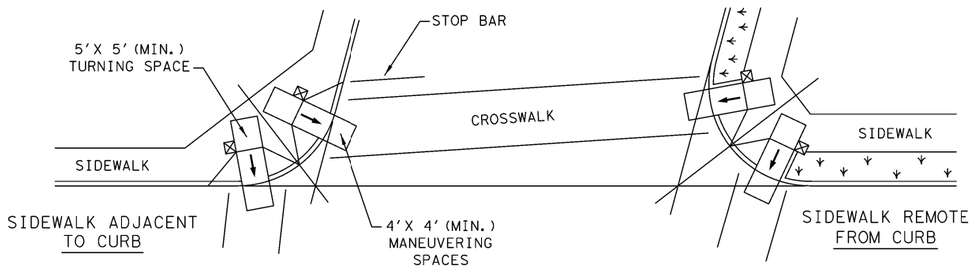
DATE: 1/23/2023
FILE: ...\6.3 Standards\15-18 ped18.dgn

TYPICAL CROSSING LAYOUTS

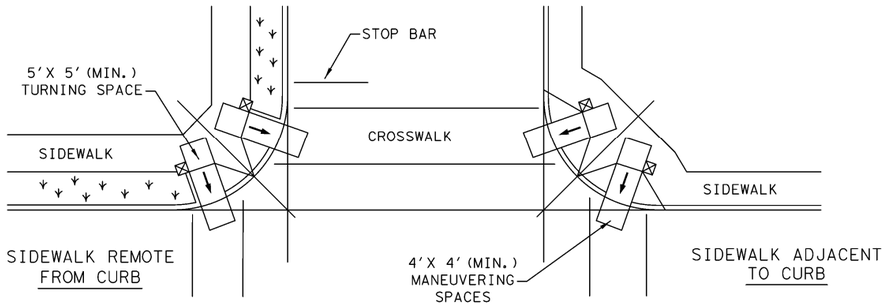
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



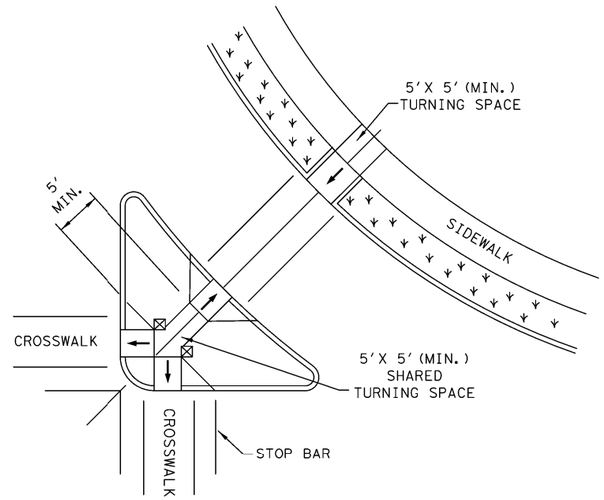
SKEWED INTERSECTION WITH "LARGE" RADIUS



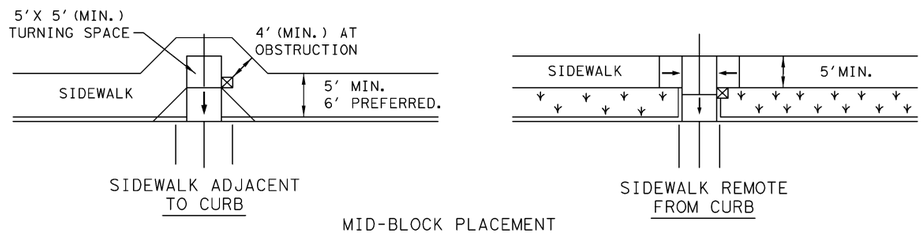
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

LEGEND:

SHOWS DOWNWARD SLOPE. →

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ⊠

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

SHEET 4 OF 4

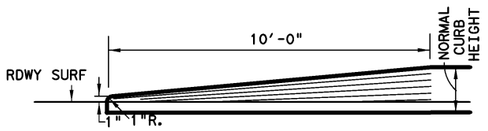
Texas Department of Transportation

Design Division Standard

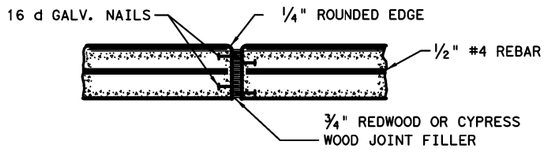
PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0029	02	058	US 90
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		18

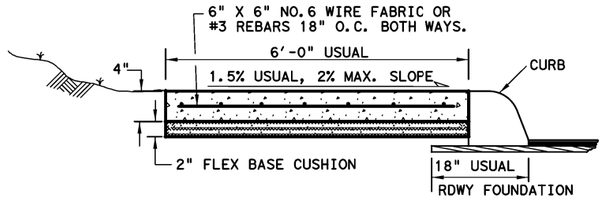


TRANSITION FOR CONCRETE CURB ENDS



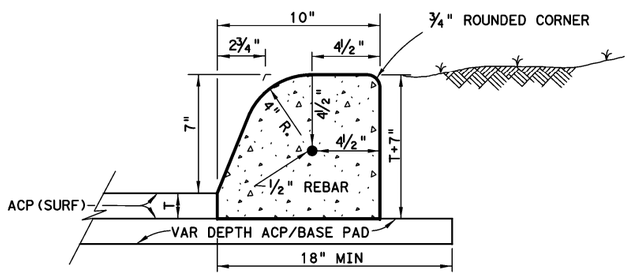
EXPANSION JOINTS TO BE PLACED AT BEGINNING AND END OF CURVES, DRIVEWAYS WHEELCHAIR RAMPS, INLETS, ILLUMINATION/ SIGNAL FOUNDATIONS AND OTHER FIXED OBJECTS.

TYPICAL CURB EXPANSION JOINT DETAIL

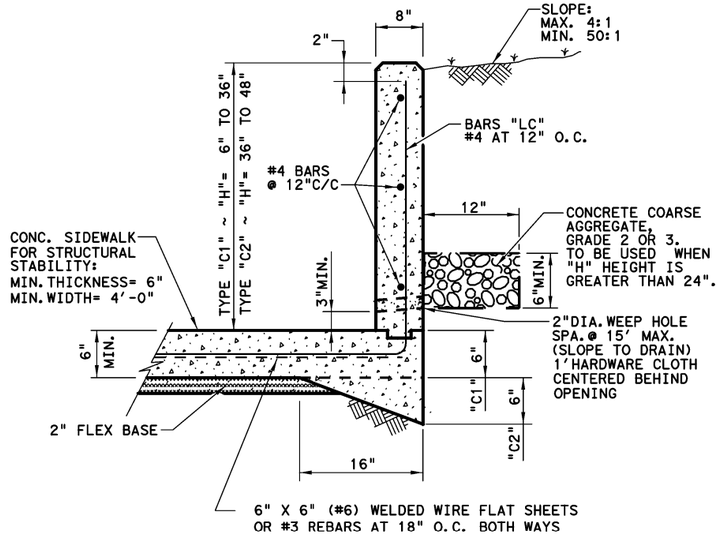


TYPICAL SIDEWALK SECTION

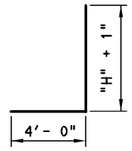
GROOVED JOINTS IN THE SIDE WALK SHALL BE AT A MAX. SPACING OF 10 FT. AND SHALL HAVE 3/4" EXPANSION JOINTS AT A MAX. SPACING OF 60' AND TO COINSIDE WITH THE CURB EXP. JOINTS.



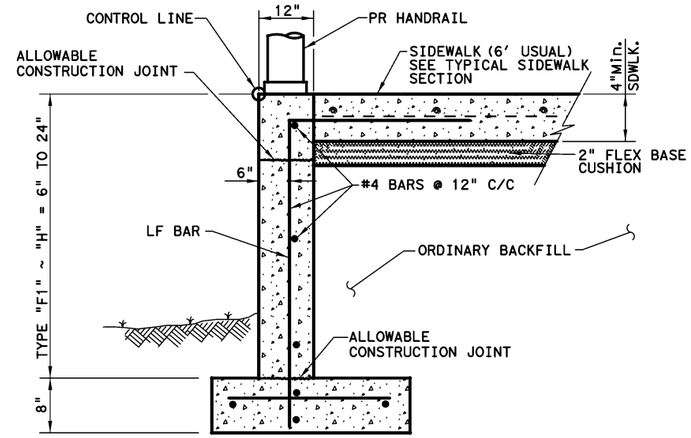
CONCRETE CURB (TYPE I)



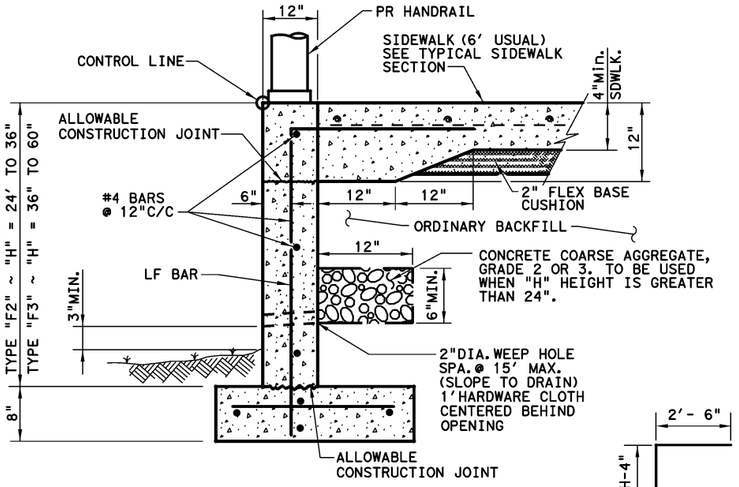
TYPE "C1" & "C2" CURB



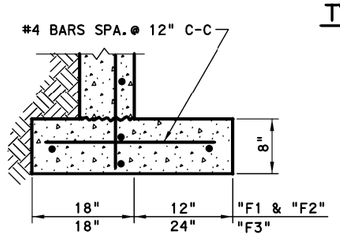
BAR "LC"



TYPE "F1" CURB‡



TYPE "F2" & "F3" CURB‡



FOOTING DETAIL

BAR "LF"

GENERAL NOTES:
All Concrete shall be Class "C".
All Reinforcing Steel shall be Grade 60.

‡ Until the sidewalk is complete, lateral support for the "F" curbs will be required.

DESIGN SOIL PARAMETERS:
Soil Unit Wt.= 120 pcf
Phi = 30 Degrees
Cohesion = 50 psf
Min. PI = 15
Max. PI = 30
SURCHARGE:
TYPE F CURB q = 2' Adjacent to sidewalk
Max. slope behind TYPE C Curb = 4:1
Min. Factor of Safety against sliding is 1.5.
Designed in accordance with current AASHTO Standards and Interim Specifications.

Texas Department of Transportation
San Antonio District

MISCELLANEOUS CURB AND SIDEWALK DETAILS

San Antonio District Standard

T:Engdata/Standards/MiscCurbdetails.dgn	PREPARED BY AND FOR USE OF TxDoT.						
ORIGINAL DRAWING DATE:	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT #				SHEET
REVISIONS	SAT	6					19
09-01-08	COUNTY		CONTROL	SECTION	JOB	HIGHWAY	
10-10-17 sidewalk width equals 6' usual	GUADALUPE		0029	02	058	US 90	

2:12:58 PM
1/23/2023
...\19 miscurbdetails.dgn

EXISTING SIGNS

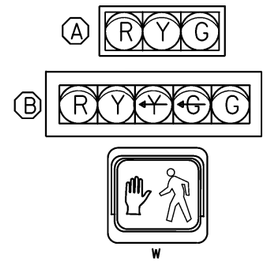
S1 S2

S3

S4

S5

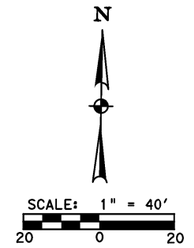
EXISTING SIGNAL HEADS



EXISTING SIGNS ON POSTS TO BE RELOCATED

S6

S7



NOTE:

1. REMOVAL OF EXISTING FOUNDATIONS FOR RELOCATED TXDOT SIGNS, EXISTING ABANDONED COMMERCIAL SIGNS AND LIGHTING IS SUBSIDIARY TO ITEM 531 "CURB RAMPS".

LEGEND:

- EXISTING CONTROLLER CABINET
- EXISTING SIGNAL HEAD HORIZONTAL
- EXISTING TRAFFIC SIGNAL POLE
- EXISTING TRAFFIC SIGNAL MAST ARM
- EXISTING VIVDS DETECTION CAMERA
- EXISTING MAST ARM MOUNTED SIGN
- EXISTING PEDESTRIAN SIGNAL HEAD
- EXISTING PEDESTRIAN PUSH BUTTON
- DIRECTION OF TRAFFIC FLOW

POSTED SPEED LIMITS:
E KINGSBURY ST = 35 MPH
N HEIDEKE ST = 30 MPH

PAVEMENT TYPE:
E KINGSBURY ST = ASPHALT
N HEIDEKE ST = ASPHALT

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

NO.		REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 Houston, TX. 77095 PHONE: (713) 828-4742

EXISTING INTERSECTION LAYOUT US 90 (KINGSBURY ST) AT HEIDEKE ST

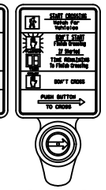
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		20
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

PROPOSED SIGN SCHEDULE

E Kingsbury st
S1
(2 EA)

N Heideke st
S2
(2 EA)

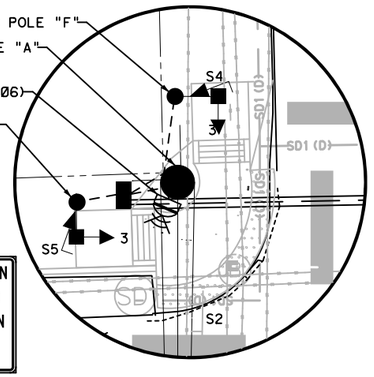
R10-3eL
(9"X15")
S4
(4 EA)



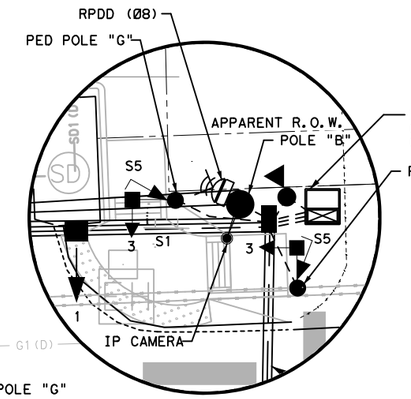
R10-3eR
(9"X15")
S5
(4 EA)

R10-17T
(30"X30")
S3
(2 EA)

R10-12
(30"X36")
S6
(2 EA)



DETAIL "A"

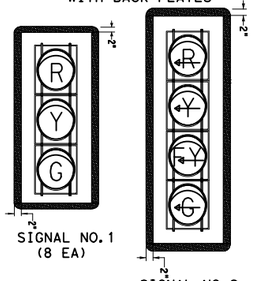


DETAIL "B"

LED PEDESTRIAN COUNTDOWN SIGNAL
SIGNAL NO.3
(8 EA)

PROPOSED SIGNAL HEADS

12" LED VERTICAL SIGNAL SECTIONS WITH BACK PLATES



SIGNAL NO.1
(8 EA)

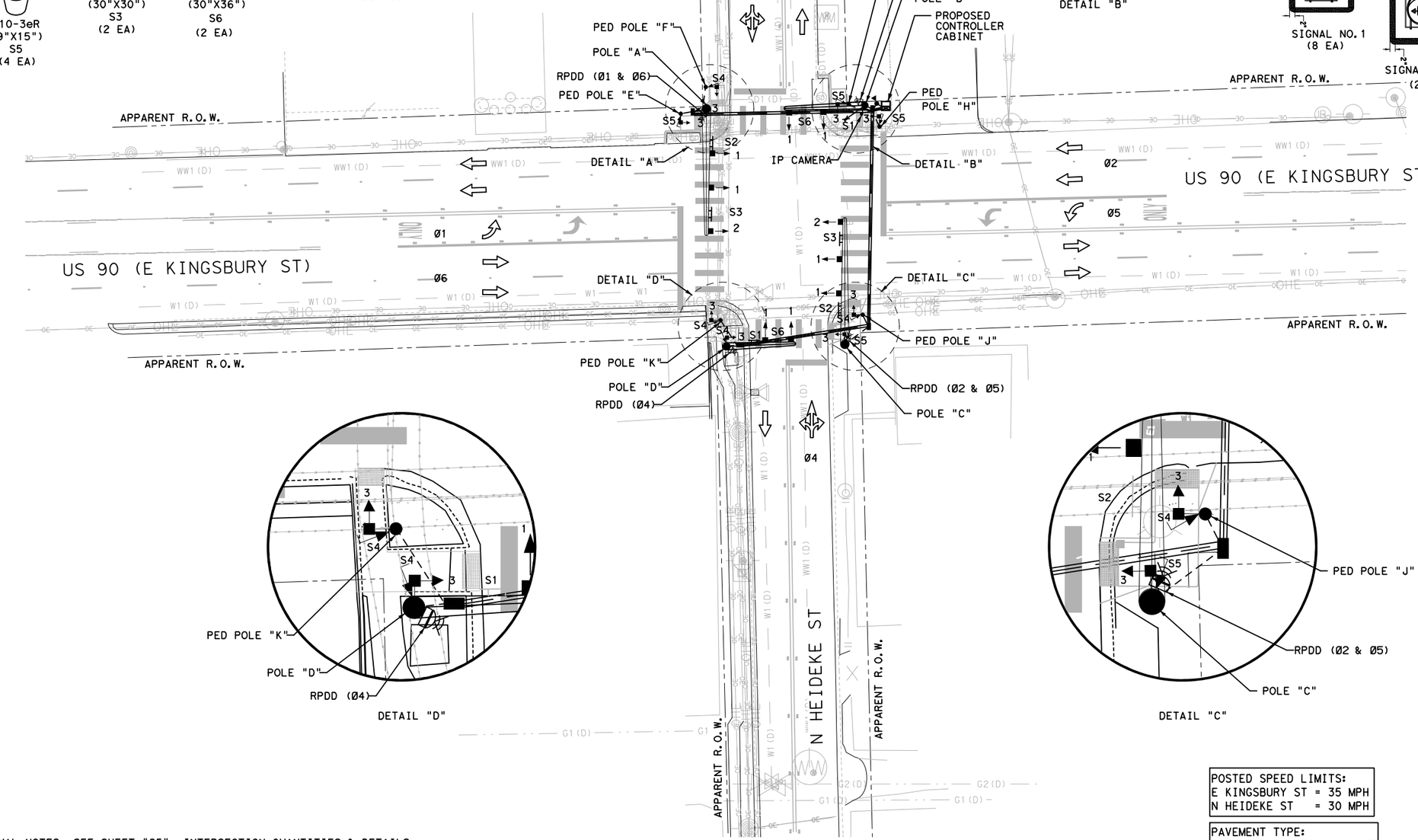
SIGNAL NO.2
(2 EA)

N

SCALE: 1" = 40'
20 0 20

LEGEND

- ADVANCE RADAR DETECTION
- CONTROLLER CABINET
- DIRECTION OF TRAFFIC FLOW
- ELECTRICAL SERVICE
- GROUND BOX
- IP CAMERA
- LUMINAIRE AND ARM
- MAST ARM MOUNTED SIGN
- PEDESTRIAN POLE
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PRESENCE RADAR DETECTION
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- SIGNAL HEAD VERTICAL
- SIGNAL MAST ARM
- 1 SIGNAL HEAD
- TRAFFIC SIGNAL POLE



DETAIL "D"

DETAIL "C"

NOTE:

TRAFFIC SIGNAL NOTES, SEE SHEET "25" INTERSECTION QUANTITIES & DETAILS

POSTED SPEED LIMITS:
E KINGSBURY ST = 35 MPH
N HEIDEKE ST = 30 MPH

PAVEMENT TYPE:
E KINGSBURY ST = ASPHALT
N HEIDEKE ST = ASPHALT

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/24/2023 DATE

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

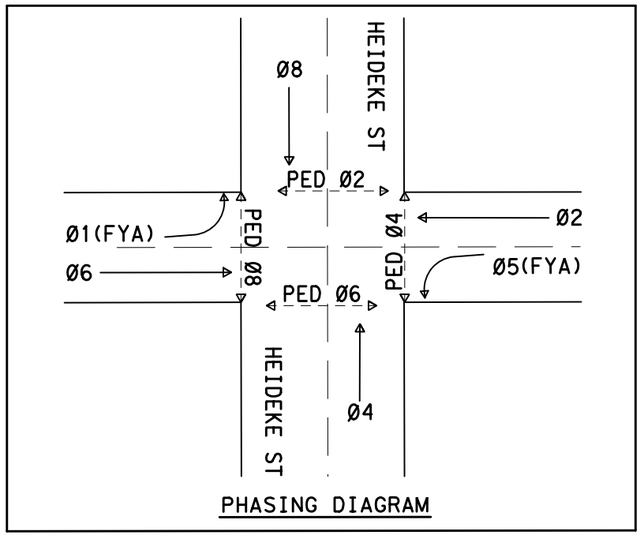
PROPOSED INTERSECTION LAYOUT US 90(KINGSBURY ST) AT HEIDEKE ST

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		21
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

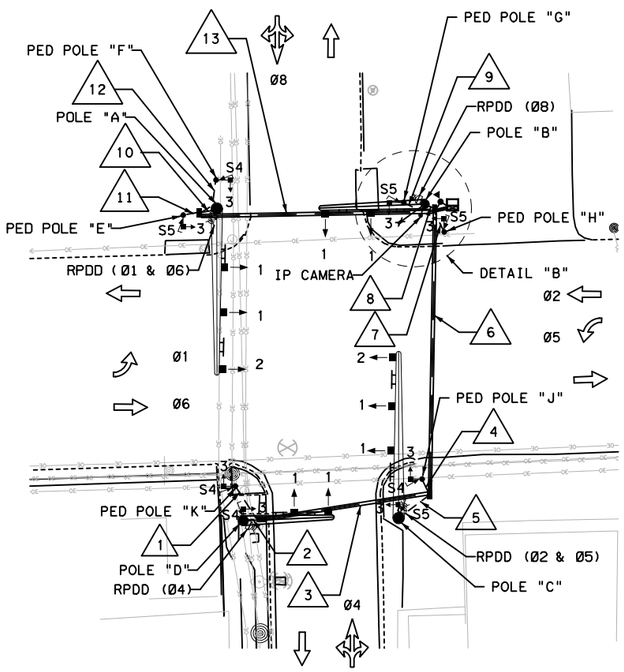
1/24/2023 11:27:35 AM
...\21 US 90\PROPOSED INTERSECTION LAYOUT.dgn

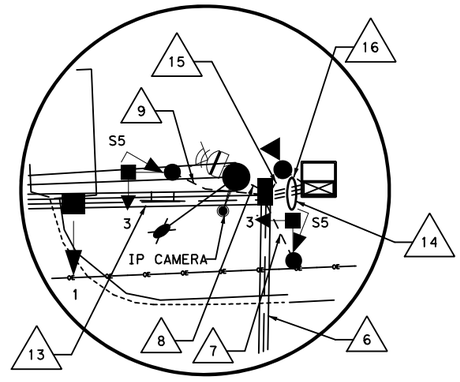
PROPOSED CONDUIT AND CONDUCTOR SCHEDULE

	RUN NUMBER		1	2		3		4	5		6		7	8		9	10		11	12	13		14		15	16
	CONDUIT SIZE IN INCHES		2.0	2.0	3.0	2.0	3.0	2.0	2.0	3.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	3.0	2.0	3.0	2.0	2.0
	NUMBER OF CONDUITS		1	1	2	1	2	1	1	2	1	2	1	1	2	1	1	2	1	1	1	2	1	3	1	2
	LENGTH OF RUN (FT)		10	5	5	45	45	5	10	10	75	75	5	5	5	10	5	5	5	10	65	65	5	5	5	5
	TRENCH (T)/BORE (B)/CONTROLLER (C)		T	T	T	B	B	T	T	T	B	B	T	T	T	T	T	T	T	T	B	B	C	C	T	T
CABLE	CIRCUIT		NUMBER OF CONDUCTORS																							
#6 XHHW	120 POWER HOT																									1
	120 POWER COMMON																									1
#6 BARE	BARE BOND GROUND		1	1	2	1	2	1	1	2	1	2	1	1	2	1	1	2	1	1	1	2	1	3	1	2
7 COND. #12 STRANDED TY A	SIGNALS	PHASE 01								1		1												1		
		PHASE 02																1				1		1		
		PHASE 03																								
		PHASE 04												1										1		
		PHASE 05																1				1		1		
		PHASE 06								1		1												1		
		PHASE 07																								
		PHASE 08			1		1					1												1		
4 COND. #12 STRANDED TY A	PED. SIGNALS	PHASE 02											1						1			1		2		
		PHASE 04						1				1				1								2		
		PHASE 06			1		1			1		2												2		
		PHASE 08	1				1					1								1		1		2		
2 COND. #14 STRANDED TY C	PED. PUSH BUTTONS	PHASE 02											1						1			1		2		
		PHASE 04						1				1				1								2		
		PHASE 06			1		1			1		2												2		
		PHASE 08	1				1					1								1		1		2		
6 COND. #22	RVDS (PRESENCE DETECTION DEVICE)	PHASE 01 & 06																1				1		1		
		PHASE 02 & 05								1		1												1		
		PHASE 04			1		1					1												1		
		PHASE 08													1									1		
TRAY CABLE (4 CONDR)(12 AWG)	LUMINAIRE													1											1	
CAT 5 ETHERNET CABLE & POWER	IP CAMERA														1									1		



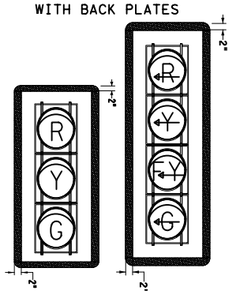
PHASING DIAGRAM





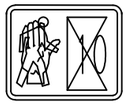
PROPOSED SIGNAL HEADS

12" LED VERTICAL SIGNAL SECTIONS WITH BACK PLATES



SIGNAL NO.1 (8 EA)

SIGNAL NO.2 (2 EA)



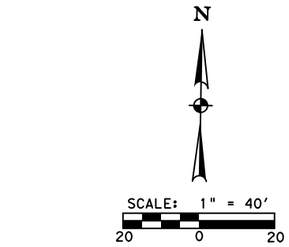
LED PEDESTRIAN COUNTDOWN SIGNAL

SIGNAL NO.3

(8 EA)

POSTED SPEED LIMITS:
E KINGSBURY = 35 MPH
N HEIDEKE ST = 30 MPH

PAVEMENT TYPE:
E KINGSBURY = ASPHALT
N HEIDEKE ST = ASPHALT



LEGEND

- ADVANCE RADAR DETECTION
- CONTROLLER CABINET
- DIRECTION OF TRAFFIC FLOW
- ELECTRICAL SERVICE
- GROUND BOX
- IP CAMERA
- LUMINAIRE AND ARM
- MAST ARM MOUNTED SIGN
- PEDESTRIAN POLE
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PRESENCE RADAR DETECTION
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- SIGNAL HEAD VERTICAL
- SIGNAL MAST ARM
- 1 SIGNAL HEAD
- TRAFFIC SIGNAL POLE

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/24/2023 DATE

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

PROPOSED WIRING DIAGRAM US 90 (KINGSBURY ST) AT HEIDEKE ST

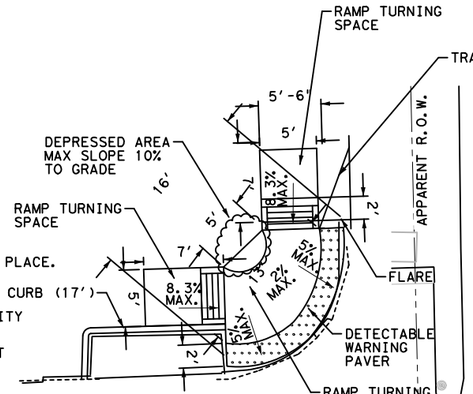
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		22
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/24/2023 11:29:17 AM
...\22 US 90- CONDUIT AND CONDUCTOR SCHEDULE.dgn

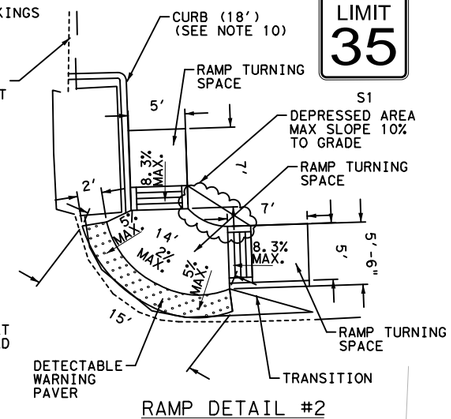
NOTES:

1. REMOVE AND INSTALL NEW LANE LINES, CENTERLINES, CROSSWALK PAVEMENT MARKINGS, AND STOP BAR MARKINGS, 200' EB ON US 90 (E. KINGSBURY ST) AND 200' WB ON US 90 (E. KINGSBURY ST). ALSO, REMOVE AND INSTALL NEW LANE LINES, CENTERLINES, CROSSWALK PAVEMENT MARKINGS, AND STOP BAR MARKINGS, 200' NB ON N. HEIDEKE ST AND 200' SB ON N. HEIDEKE ST.
2. EXISTING RAMPS SHALL BE REMOVED AND REPLACED WITH NEW RAMPS AS SHOWN IN THE DETAILS ON THE PLAN SHEET AND AS PER TXDOT STANDARDS AND SPECIFICATIONS.
3. ALL GROUND MOUNTED SIGNS ARE TO REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
4. ALL MATERIAL SHALL BE AS PER TXDOT APPROVED MATERIAL LIST.
5. ALL WORK SHALL BE DONE AS PER TXDOT STANDARDS AND SPECIFICATIONS.
6. EXISTING WHEELCHAIR RAMPS ON THE SOUTHWEST CORNER SHALL REMAIN IN PLACE. CONTRACTOR SHALL BE VERY CAREFUL NOT TO CAUSE ANY DAMAGE DURING CONSTRUCTION.
   ANY DAMAGE OCCURRING DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AT NO COST TO TXDOT.
7. SIGNS S1 & S2 ARE SHOWN IN THEIR RELOCATED POSITION IN THIS LAYOUT (SEE EXISTING CONDITION).
   THESE RELOCATED SIGNS SHALL BE ON A NEW SLIP BASE FOUNDATION.
8. REMOVAL OF EXISTING FOUNDATIONS FOR RELOCATED TXDOT SIGNS, EXISTING ABANDONED COMMERCIAL SIGNS AND LIGHTING IS SUBSIDIARY TO ITEM 531 "CURB RAMPS".
9. TO CONNECT TO EXISTING SIDEWALK, REFER TO SAN ANTONIO DISTRICT STANDARD "MISCELLANEOUS CURB AND SIDEWALK DETAILS"
10. CURB ADDED TO TOP OF INLET TO PREVENT PEDESTRIANS FROM USING AS AN ACCESSIBLE PATH.

EXISTING SIGNS ON POSTS TO BE RELOCATED



RAMP DETAIL #1
N.T.S.



RAMP DETAIL #2
N.T.S.

RAMP DETAIL #3
N.T.S.

ESTIMATE OF QUANTITIES-PAVEMENT MARKINGS

ITEM NO.	DESC CODE	DESCRIPTION	UNIT	EST QUANTITY
104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	100
529	6001	CONC CURB (TY I)	LF	64
531	6008	CURB RAMPS (TY 5)	EA	2
531	6037	CURB RAMP (TY 1) (MOD)	EA	2
666	6036	REFL PAV MRK TY I (W) 8"(SLD) (100MIL)	LF	200
666	6048	REFL PAV MRK TY I (W) 24"(SLD) (100MIL)	LF	365
666	6054	REFL PAV MRK TY I (W) (ARROW) (100MIL)	EA	2
666	6078	REFL PAV MRK TY I (W) (WORD) (100MIL)	EA	2
666	6224	PAVEMENT SEALER 4"	LF	1990
666	6226	PAVEMENT SEALER 8"	LF	200
666	6230	PAVEMENT SEALER 24"	LF	365
666	6231	PAVEMENT SEALER (ARROW)	EA	2
666	6232	PAVEMENT SEALER (WORD)	EA	2
666	6300	RE PM W/RET REQ TY I (W) 4"(BRK) (100MIL)	LF	200
666	6312	RE PM W/RET REQ TY I (Y) 4"(BRK) (100MIL)	LF	40
666	6315	RE PM W/RET REQ TY I (Y) 4"(SLD) (100MIL)	LF	1750
672	6007	REFL PAV MRKR TY I-C	EA	38
672	6009	REFL PAV MRKR TY II-A-A	EA	88
677	6001	ELIM EXT PAV MRK & MRKS (4")	LF	1190
677	6003	ELIM EXT PAV MRK & MRKS (8")	LF	100
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	368
677	6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	2
677	6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	2

N

SCALE: 1" = 40'
20 0 20

LEGEND

- (A) RE PM W/RET REQ TYI(Y)4"(SLD)(100MIL)
- (B) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (C) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (D) REFL PAV MRKR TY I-C
- (E) REFL PAV MRKR TY II-A-A
- (F) RE PM W/RET REQ TYI(W)4"(BRK)(100MIL)
- (G) REFL PAV MRK TY I (W)(ARROW)(100MIL)
- (H) REFL PAV MRK TY I (W)(WORD)(100MIL)
- (J) RE PM W/RET REQ TY1(Y)4"(BRK)(100MIL)
- ⇦ DIRECTION OF TRAFFIC FLOW

POSTED SPEED LIMITS:
E KINGSBURY ST= 35 MPH
N HEIDEKE ST = 30 MPH

PAVEMENT TYPE:
E KINGSBURY ST = ASPHALT
N HEIDEKE ST = ASPHALT

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

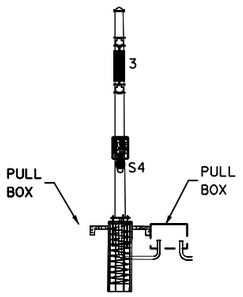
PROPOSED PAVEMENT MARKINGS & RAMPS US 90 (KINGSBURY ST) AT HEIDEKE ST

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	23

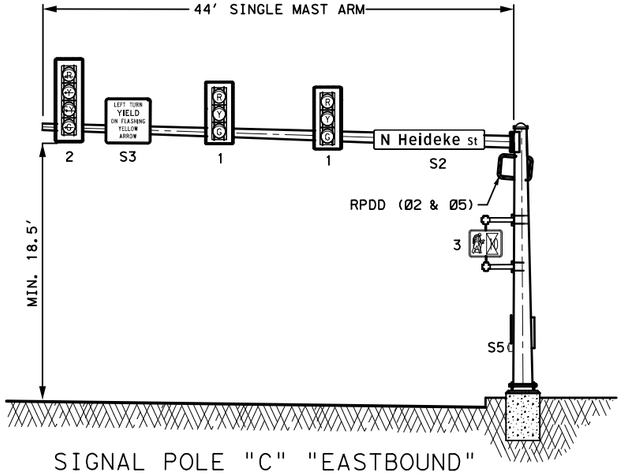
STATE	DIST.	COUNTY
TEXAS	SAT	GUADALUPE

CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

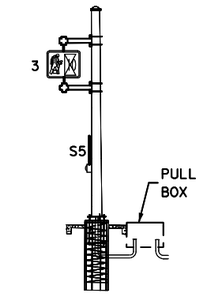
1/23/2023 4:01:35 PM ...\25 US 90\PROP STRIPING LAYOUT.dgn



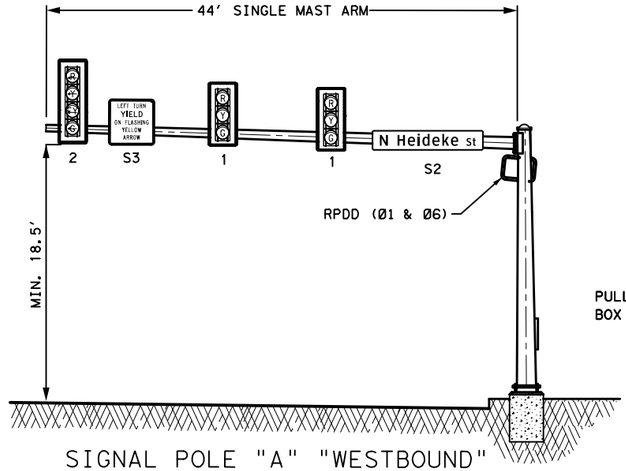
PED POLE "J"
VIEW



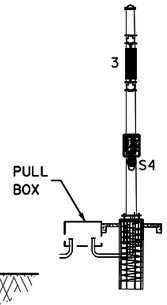
SIGNAL POLE "C" "EASTBOUND"



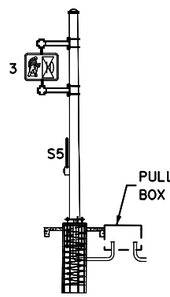
PED POLE "E"
VIEW



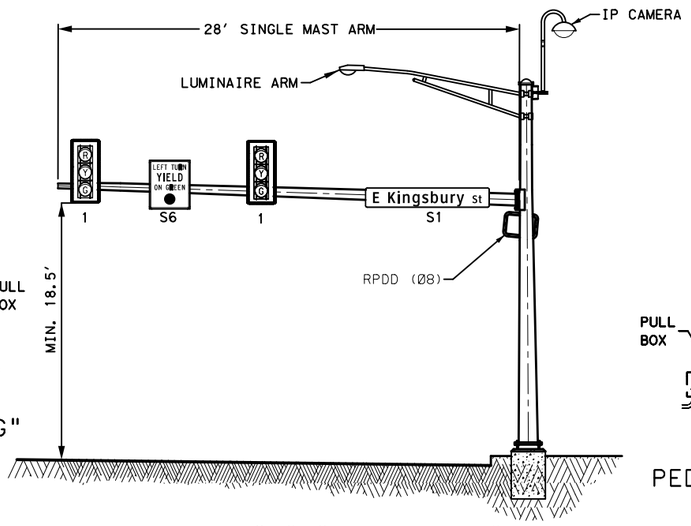
SIGNAL POLE "A" "WESTBOUND"



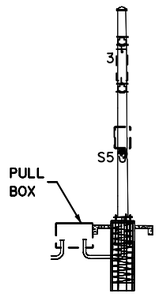
PED POLE "F"
VIEW



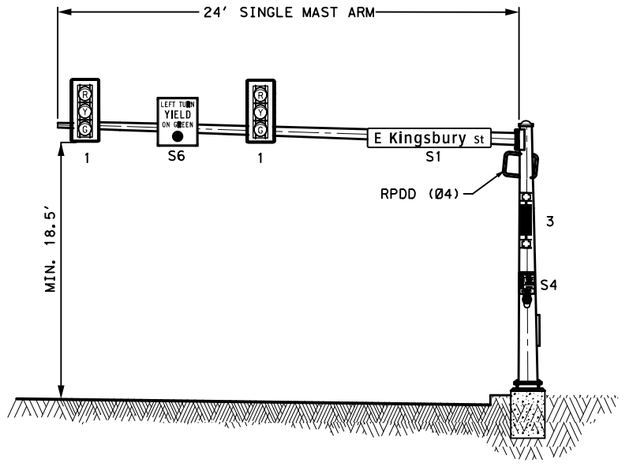
PED POLE "G"
VIEW



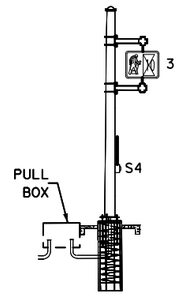
SIGNAL POLE "B" "NORTHBOUND"



PED POLE "H"
VIEW



SIGNAL POLE "D" "SOUTHBOUND"



PED POLE "K"
VIEW

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/24/2023 DATE

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

PROPOSED ELEVATION VIEW US 90 (KINGSBURY ST) AT HEIDEKE ST

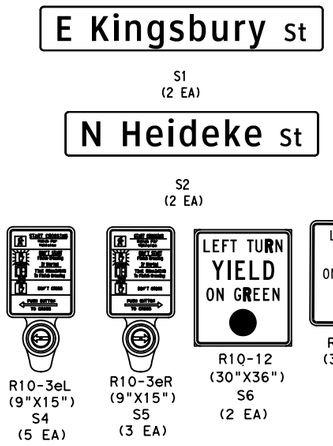
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		24
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/24/2023 11:31:48 AM
...\24 TRAFFIC SIGNAL ELEVATION VIEW.dgn

ESTIMATE OF QUANTITIES - TRAFFIC SIGNAL				
ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST QUANTITY
104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	100
416	6031	DRILL SHAFT (TRF SIG POLE) (30 IN)	LF	23
416	6032	DRILL SHAFT (TRF SIG POLE) (36 IN)	LF	26
529	6001	CONC CURB (TY I)	LF	64
531	6008	CURB RAMPS (TY 5)	EA	2
531	6037	CURB RAMP (TY 1) (MOD)	EA	2
618	6046	CONDT (PVC) (SCH 80) (2")	LF	90
618	6047	CONDT (PVC) (SCH 80) (2")(BORE)	LF	185
618	6053	CONDT (PVC) (SCH 80) (3")	LF	65
618	6054	CONDT (PVC) (SCH 80) (3")(BORE)	LF	370
620	6009	ELEC CONDR (NO.6) BARE	LF	780
620	6010	ELEC CONDR (NO.6) INSULATED	LF	15
621	6005	TRAY CABLE (4 CONDR) (12 AWG)	LF	50
624	6010	GROUND BOX TY D (162922) W/APRON	EA	4
628	6002	REMOVE ELECTRICAL SERVICE	EA	1
628	6164	ELC SRV TY D 120/240 070 (NS)AL(PS)(U)	EA	1
666	6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	200
666	6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	365
666	6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	2
666	6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	2
666	6224	PAVEMENT SEALER 4"	LF	1990
666	6226	PAVEMENT SEALER 8"	LF	200
666	6230	PAVEMENT SEALER 24"	LF	365
666	6231	PAVEMENT SEALER (ARROW)	EA	2
666	6232	PAVEMENT SEALER (WORD)	EA	2
666	6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)	LF	200
666	6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)	LF	40
666	6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	1750
672	6007	REFL PAV MRKR TY II-C	EA	38
672	6009	REFL PAV MRKR TY II-A-A	EA	88
677	6001	ELIM EXT PAV MRK & MRKS (4")	EA	1190
677	6003	ELIM EXT PAV MRK & MRKS (8")	EA	100
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	368
677	6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	2
677	6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	2
680	6002	INSTALL HWY TRF SIG (ISOLATED)	EA	1
**		NEMA TX 2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET	EA	1
**		TRAFFIC CONTROLLER FOUNDATION	EA	1
**		R10-12 (30"X36") "LEFT TURN YIELD ON GREEN BALL"	EA	2
**		R10-17T (30"X30") "LEFT TURN YIELD ON FLASHING YELLOW ARROW"	EA	2
CITY SUPPLIED		D3-1G - STREET NAME SIGN' "N Heideke St" (INSTALLED BY CONTRACTOR)	EA	2
CITY SUPPLIED		D3-1G - STREET NAME SIGN' "E Kingsbury St" (INSTALLED BY CONTRACTOR)	EA	2
680	6004	REMOVING TRAFFIC SIGNALS	EA	1
682	6001	VEH SIG SEC (12")LED (GRN)	EA	8
682	6002	VEH SIG SEC (12")LED (GRN ARW)	EA	2
682	6003	VEH SIG SEC (12")LED (YEL)	EA	8
682	6004	VEH SIG SEC (12")LED (YEL ARW)	EA	4
682	6005	VEH SIG SEC (12")LED (RED)	EA	8
682	6006	VEH SIG SEC (12")LED (RED ARW)	EA	2
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	8
682	6049	BACKPLATE W/REFL BRDR (4 SEC)	EA	2
682	6060	BACKPLATE W/REFL BRDR (3 SEC)	EA	8
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	750
684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	760
684	6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	710
686	6025	INS TRF SIG PLAM (S)1 ARM (24')	EA	1
686	6031	INS TRF SIG PLAM (S)1 ARM (28')LUM	EA	1
686	6045	INS TRF SIG PLAM (S)1 ARM (44')	EA	2
687	6001	PED POLE ASSEMBLY	EA	6
**		DRILL SHAFT (24 IN)	LF	36
688	6001	PED DETECT PUSH BUTTON (APS)	EA	8
**	**	R10-3e (L) (9"X15") "PEDESTRIAN SIGN"	EA	4
**	**	R10-3e (R) (9"X15") "PEDESTRIAN SIGN"	EA	4
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
6004	6031	ITS COM CBL (ETHERNET)	LF	150
6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
6185	6002	TMA (STATIONARY)	DAY	10
6292	6001	RVDS (PRESENCE DETECTION ONLY)	EA	4
**		RVDS (RADAR PRESENCE DETECTOR POWER AND COMMUNICATION CABLE)	LF	425
****	****	CONTRACTOR FORCE ACCOUNT (COMM PACKAGE)	EA	1
		CELLULAR MODEM (CISCO MODEL IR1101)	EA	1
		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
		IP CAMERA (AXIS M5525-E)	EA	1
		IP CAMERA MOUNTING BRACKET (AXIS T94A01D PENDANT KIT)	EA	1
		POWER STRIP	EA	1
		SWITCH POWER SUPPLY	EA	1
		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1
**		SUBSIDIARY TO PERTINENT ITEM		
****	****	CONTRACTOR FORCE ACCOUNT		

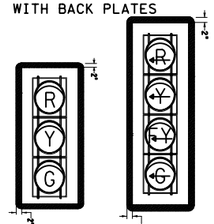
POLE ID.	POLE & EQUIPMENT DESCRIPTIONS WITH ATTACHMENTS
A	44' SINGLE MAST ARM ON A 36-A FOUNDATION AT 13 FT. WITH THREE VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE D3-1G STREET NAME SIGN, ONE R10-17T (30"X30") SIGN, ONE RVDS PRESENCE DETECTION (RPDD 01 & 05).
B	28' SINGLE MAST ARM ON A 30-A FOUNDATION AT 11 FT. WITH ONE LUMINAIRE, TWO VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE D3-1G STREET NAME SIGN, ONE R10-12 (30"X36") SIGN, ONE RVDS PRESENCE DETECTION (RPDD 08) AND ONE IP CAMERA.
C	44' SINGLE MAST ARM ON A 36-A FOUNDATION AT 13 FT. WITH THREE VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE D3-1G STREET NAME SIGN, ONE R10-17T (30"X30") SIGN, ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, R10-3eR PEDESTRIAN SIGN AND ONE RVDS PRESENCE DETECTION (RPDD 02 & 05).
D	24' SINGLE MAST ARM ON A 30-A FOUNDATION AT 11 FT. WITH TWO VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE D3-1G STREET NAME SIGN, ONE R10-12 (30"X36") SIGN, ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, R10-3eL PEDESTRIAN SIGN AND ONE RVDS PRESENCE DETECTION (RPDD 04).
E	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND R10-3eR PEDESTRIAN SIGN.
F	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND R10-3eL PEDESTRIAN SIGN.
G	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND R10-3eR PEDESTRIAN SIGN.
H	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND R10-3eR PEDESTRIAN SIGN.
J	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND R10-3eL PEDESTRIAN SIGN.
K	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND R10-3eL PEDESTRIAN SIGN.

PROPOSED SIGN SCHEDULE



PROPOSED SIGNAL HEADS

12" LED VERTICAL SIGNAL SECTIONS WITH BACK PLATES



LED PEDESTRIAN COUNTDOWN SIGNAL

SIGNAL NO. 3
(8 EA)

ELECTRICAL SERVICE DATA													
C-S-J	PROJECT LOCATION	ELECTRIC SERVICE NO.	SHEET NO.	ELECTRICAL SERVICE DESCRIPTION (SEE ED (5)-14)	SERVICE CONDUIT SIZE	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN DISCONNECT CKT. BRK. POLE/AMP	TWO-POLE CONTACTOR AMPS ***	PANEL BD./LOADCENTER AMP RATING (MIN)	CIRCUIT NO.	BRANCH CKT. BRK. POLE/AMPS	BRANCH CIRCUIT AMPS	KVA LOAD
0029-02-058	E KINGSBURY AT N HEIDEKE ST	ES	21	TY D (120/240) 070 (NS)AL(E)PS(U)	1 1/4"	3/#4	N/A	2P/70	30	100	SIGNAL LIGHTING	1P/50 1P/20	40 1	<7.1

NOTES:

1. ALL TRAFFIC SIGNAL EQUIPMENT LOCATIONS ARE BASED ON A SURVEY. CONTRACTOR SHALL VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
2. APPARENT RIGHT-OF-WAY LINES ARE FROM TXDOT MAPS. VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
3. THE EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE APPROXIMATE. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS/HER FAILURE TO LOCATE, PRESERVE, AND PROTECT THESE UTILITIES.
4. CONTRACTOR SHALL REMOVE AND REPLACE EXISTING SIGNAL HEADS WITH NEW VERTICAL SIGNAL HEADS AS SHOWN ON THE PLANS AND SHALL HAVE A MINIMUM OF 18.5 FEET CLEARANCE ABOVE ROADWAY SURFACE. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE PRIOR TO STARTING THIS WORK TO ENSURE A SMOOTH TRAFFIC MOVEMENT FOR ALL MOTORISTS DURING THIS TRANSITION.
5. CONTRACTOR SHALL REMOVE ALL EXISTING TRAFFIC SIGNAL EQUIPMENT AND INSTALL NEW EQUIPMENT AS PER DESIGN LAYOUTS AND IN ACCORDANCE TO TXDOT STANDARDS AND SPECIFICATIONS AND IN ACCORDANCE TO THE ACCESSIBILITY REQUIREMENTS AND CONNECT PROPOSED FIELD WIRING TO CONTROLLER.
6. FOR PAVEMENT MARKINGS, SEE PROPOSED PAVEMENT MARKINGS & RAMPS LAYOUT SHEET.
7. ALL EXISTING CURB RAMPS SHALL BE REMOVED AND NEW WHEELCHAIR RAMPS INSTALLED (IF ANY), AS PER DESIGN DETAILS ON THE PROPOSED PAVEMENT MARKINGS & RAMPS LAYOUT SHEET AND IN ACCORDANCE TO TXDOT STANDARDS AND SPECIFICATIONS AND IN ACCORDANCE TO THE ACCESSIBILITY REQUIREMENTS.
8. THE CONTRACTOR SHALL INSTALL NEW PRESENCE RADAR DETECTORS. THE LOCATION OF THE RADAR DETECTORS SHOWN ARE APPROXIMATE. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD AND ADJUSTED TO PROVIDE PROPER DETECTION ZONES AND A COMPLETE OPERABLE SYSTEM.
9. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT LOCATED AT 4615 NW LOOP 410, CONTACT MARK PEREZ AT 210-218-7430.
10. CONTRACTOR SHALL FURNISH AND DELIVER ONE (1) TS 2 TYPE 2 AND SEVEN (7) TX 2 TYPE 5 (12-POSITION) CONTROLLER CABINETS AND ASSEMBLY TO TXDOT SIGNAL SHOP FOR PROGRAMMING AND TESTING TWO WEEKS IN ADVANCE PRIOR TO CONTRACTOR INSTALLING EQUIPMENT IN THE FIELD. COORDINATE DROP OFF AND PICKUP WITH MARK PEREZ AT 210-218-7430.
11. THE INSTALLATION OF ALL COMMUNICATION PACKAGE ITEMS (MODEM, POWER STRIP, ETC.) IS SUBSIDIARY TO ITEM 680.
12. TRAY CABLES SHALL BE RUN IN 2" CONDUIT SEPARATE FROM THE SIGNAL CABLE.
13. ADJUST EXISTING AND PROPOSED SIGNAL HEADS AS NECESSARY TO KEEP THEM VISIBLE AT ALL TIMES DURING CONSTRUCTION. ADJUSTING SIGNAL HEADS DURING CONSTRUCTION IS SUBSIDIARY TO ITEM 502.
14. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF SEVEN (7) DAYS PRIOR TO BEGINNING CONSTRUCTION.
15. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE TRAFFIC SIGNAL TURN-ON.
16. THE CITY OF SEGUIN SHALL PROVIDE THE STREET NAME SIGNS EXCEPT FOR THE INTERSECTION OF SH 46 AT C H MATTHIES JR AND THE CONTRACTOR SHALL INSTALL THEM AS SHOWN ON THE PLANS. INSTALLATION OF THESE SIGNS SHALL BE SUBSIDIARY TO ITEM 680.

STATE OF TEXAS
CHARLES R. STEVENS, JR
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/24/2023 DATE

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

INTERSECTION QUANTITIES & DETAILS US 90 (KINGSBURY ST) AT HEIDEKE ST

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		25
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

...\23 TRAFFIC SIGNAL DETAILS.dgn 1/24/2023 11:30:30 AM

EXISTING SIGNS

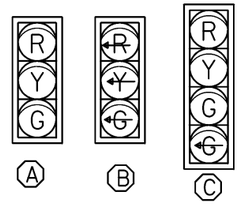
SH 46

S1

C.H. Matthies Jr

S2

EXISTING SIGNAL HEADS



N

SCALE: 1" = 40'

20 0 20

LEGEND

- EXISTING CONTROLLER CABINET
- EXISTING TRAFFIC SIGNAL POLE
- EXISTING TRAFFIC SIGNAL SPAN WIRE
- EXISTING SIGNAL HEAD VERTICAL
- EXISTING VIVDS DETECTION CAMERA
- EXISTING SPREAD SPECTRUM ANTENNA
- EXIST SPAN WIRE MOUNTED SIGN
- EXISTING SIGN ON POST
- EXISTING SIGNAL HEAD
- EXISTING ELECTRICAL SERVICE
- EXISTING UTILITY POLE
- EXISTING OVERHEAD POWER LINE
- DIRECTION OF TRAFFIC FLOW

APPARENT R.O.W.

SH 46

ONLY

C H MATTHIES JR

S1

S2

POSTED SPEED LIMITS:
SH 46 = 45 MPH
C H MATTHIES JR = ASSUMED 30 MPH

PAVEMENT TYPE:
SH 46 = ASPHALT
C H MATTHIES JR (EAST)= ASPHALT
C H MATTHIES JR (WEST)= CONCRETE

STATE OF TEXAS
CHARLES R. STEVENS, JR
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

EXISTING INTERSECTION LAYOUT SH 46 AT C H MATTHIES JR

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		26
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/23/2023 2:13:32 PM

...\26 SH46*EXIST INTERSECTION LAYOUT.dgn

PROPOSED SIGN SCHEDULE

CH Matthies Jr

6.8 — 16.1 — 9 — 59.6 — 7.5 — 8.2 — 6.8 (114")

4 — 10 — 4 (18")

1.5" Radius, 0.5" Border, White on Green;
"CH Matthies", ClearviewHwy-3-W; "Jr", ClearviewHwy-3-W;
S2
(2 EA)

LEFT TURN SIGNAL

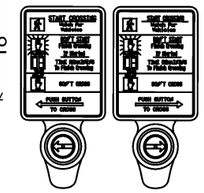
R10-10L
(30"x36")
S3
(2 EA)

SH 46

7.3 — 15.6 — 8.2 — 15.6 — 7.3 (54")

4 — 10 — 4 (18")

1.5" Radius, 0.5" Border, White on Green;
"SH 46", ClearviewHwy-3-W;
S1
(2 EA)



R10-3eL
(9"X15")
S5
(3 EA)

R10-3eR
(9"X15")
S4
(3 EA)

N

SCALE: 1" = 40'
20 0 20

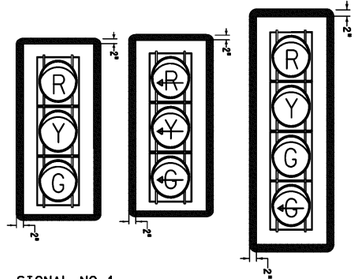
LEGEND

- ADVANCE RADAR DETECTION
- CONTROLLER CABINET
- DIRECTION OF TRAFFIC FLOW
- ELECTRICAL SERVICE
- GROUND BOX
- IP CAMERA
- LUMINAIRE AND ARM
- MAST ARM MOUNTED SIGN
- PEDESTRIAN POLE
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PRESENCE RADAR DETECTION
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- SIGNAL HEAD VERTICAL
- SIGNAL MAST ARM
- 1 SIGNAL HEAD
- TRAFFIC SIGNAL POLE

APPARENT R.O.W.
SH 46
Ø6 Ø6 Ø1
ONLY
YIELD
INSTALL R1-2 (18"X18") S6 (1 EA)
DO NOT ENTER
INSTALL R5-1 (30"X30") S7 (1 EA)
BACKFILL TO LEVEL ACCESS PAD
PED POLE "E"
POLE "A"
RPDD (Ø4)
RADD (Ø2)
IP CAMERA
RPDD (Ø1 & Ø6)
POLE "B"
BACKFILL TO LEVEL ACCESS PAD
PED POLE "F"
Ø4
C H MATTHIES JR
Ø3
BACKFILL TO LEVEL ACCESS PAD
PED POLE "H"
RADD (Ø6)
POLE "D"
RPDD (Ø2 & Ø5)
Ø5 Ø2 Ø2
RPDD (Ø3)
POLE "C"
PED POLE "G"
BACKFILL TO LEVEL ACCESS PAD
APPARENT R.O.W.
SH 46

PROPOSED SIGNAL HEADS

12" LED VERTICAL SIGNAL SECTIONS WITH BACK PLATES



SIGNAL NO.1 (6 EA)
SIGNAL NO.2 (2 EA)
SIGNAL NO.3 (2 EA)

LED PEDESTRIAN COUNTDOWN SIGNAL

SIGNAL NO.4
(6 EA)

NOTE:

TRAFFIC SIGNAL NOTES, SEE SHEET "31" INTERSECTION QUANTITIES & DETAILS

POSTED SPEED LIMITS:
SH 46 = 45 MPH
C H MATTHIES JR = ASSUMED 30 MPH

PAVEMENT TYPE:
SH 46 = ASPHALT
C H MATTHIES JR (EAST)= ASPHALT
C H MATTHIES JR (WEST)= CONCRETE

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 Houston, TX. 77095 PHONE: (713) 828-4742

PROPOSED INTERSECTION LAYOUT SH 46 AT C H MATTHIES JR

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		27
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

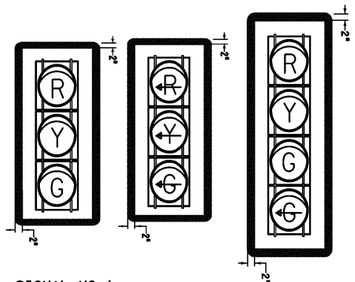
...\27 SH46*PROP INTERSECTION LAYOUT.dgn 1/23/2023 2:13:36 PM

PROPOSED CONDUIT AND CONDUCTOR SCHEDULE

	RUN NUMBER		1	2		3		4	5		6		7	8		9	10		11		12		13		14	15
	CONDUIT SIZE IN INCHES		2.0	2.0	3.0	2.0	3.0	2.0	2.0	3.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0	2.0	2.0
	NUMBER OF CONDUITS		1	1	2	1	2	1	1	2	1	2	1	1	2	1	1	2	1	2	1	2	1	3	1	2
	LENGTH OF RUN (FT)		15	50	50	75	75	25	15	15	100	100	25	5	5	15	160	160	25	25	20	20	10	10	15	10
	TRENCH (T)/BORE (B)/ CONTROLLER (C)		T	T	T	B	B	T	T	T	B	B	T	T	T	T	B	B	T	T	T	T	C	C	T	T
CABLE	CIRCUIT		NUMBER OF CONDUCTORS																							
#6 XHHW	120 POWER HOT																									1
	120 POWER COMMON																									1
#6 BARE	BARE BOND GROUND		1	1	2	1	2	1	1	2	1	2	1	1	2	1	2	2	1	2	1	2	1	3	1	2
7 COND. #12 STRANDED TY A	SIGNALS	PHASE 01			1		1											1		1				1		
		PHASE 02																				1		1		
		PHASE 03													1			1		1				1		
		PHASE 04								1		1								1				1		
		PHASE 05																				1		1		
		PHASE 06			1		1											1		1				1		
		PHASE 07																								
		PHASE 08																								
4 COND. #12 STRANDED TY A	PED. SIGNALS	PHASE 02						1			1	1								2				2		
		PHASE 03														1		1		1		1		2		
		PHASE 06	1				1								1			2		2				2		
		PHASE 08																								
2 COND. #14 STRANDED TY C	PED. PUSH BUTTONS	PHASE 02						1			1	1								2				2		
		PHASE 03														1		1		1		1		2		
		PHASE 06	1				1								1			2		2				2		
		PHASE 08																								
6 COND. #22	RVDS (PRESENCE DETECTION DEVICE)	PHASE 01 & 06																				1		1		
		PHASE 02 & 05			1		1											1		1				1		
		PHASE 03								1		1								1				1		
		PHASE 04													1			1		1				1		
TRAY CABLE (4 CONDR) (12 AWG)	LUMINAIRE			1		1			1		1			1			2		3		1				4	
6 COND. #22	RVDS (ADVANCE DETECTION DEVICE)	PHASE 02																				1		1		
		PHASE 06			1		1											1		1				1		
CAT 5 ETHERNET CABLE & POWER	IP CAMERA																					1		1		

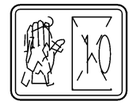
PROPOSED SIGNAL HEADS

12" LED VERTICAL SIGNAL SECTIONS WITH BACK PLATES

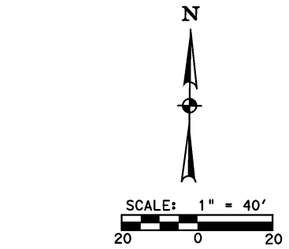


SIGNAL NO. 1 (6 EA) | SIGNAL NO. 2 (2 EA) | SIGNAL NO. 3 (2 EA)

LED PEDESTRIAN COUNTDOWN SIGNAL

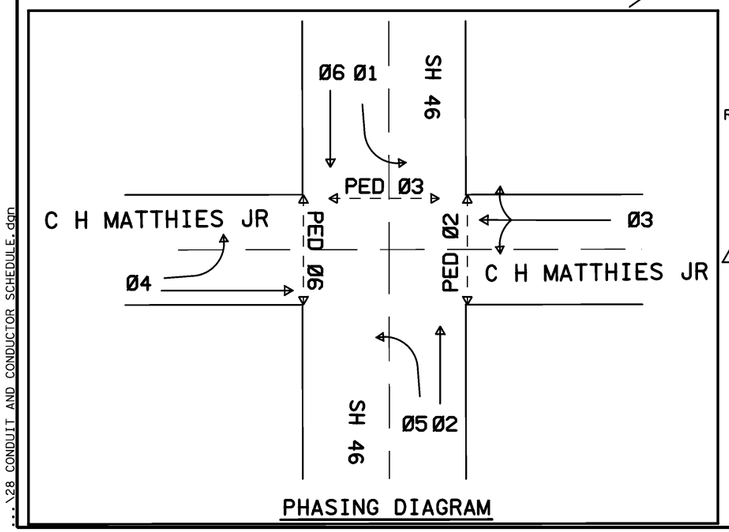


SIGNAL NO. 4 (6 EA)

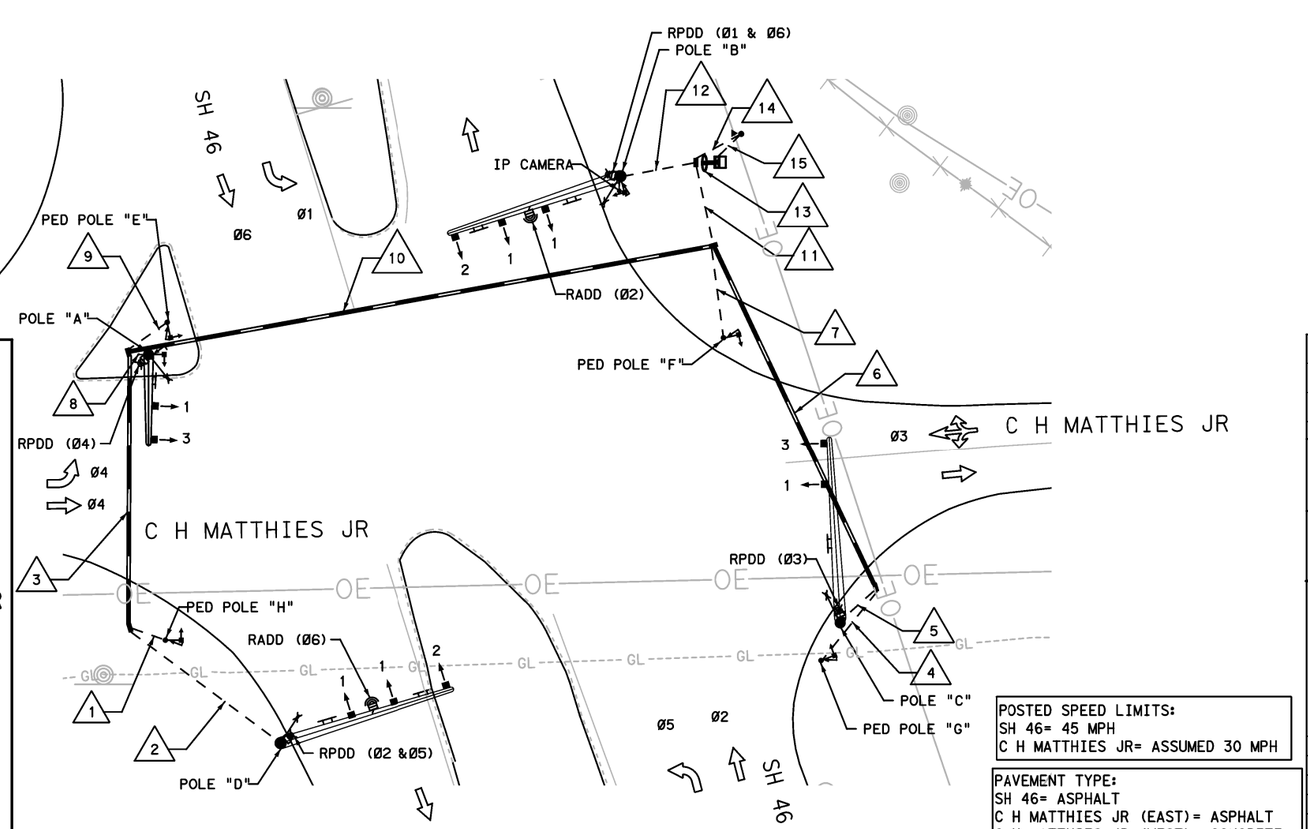


LEGEND

- ADVANCE RADAR DETECTION
- CONTROLLER CABINET
- DIRECTION OF TRAFFIC FLOW
- ELECTRICAL SERVICE
- GROUND BOX
- IP CAMERA
- LUMINAIRE AND ARM
- MAST ARM MOUNTED SIGN
- PEDESTRIAN POLE
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PRESENCE RADAR DETECTION
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- SIGNAL HEAD VERTICAL
- SIGNAL MAST ARM
- 1 SIGNAL HEAD
- TRAFFIC SIGNAL POLE



PHASING DIAGRAM



POSTED SPEED LIMITS:
SH 46= 45 MPH
C H MATTHIES JR= ASSUMED 30 MPH

PAVEMENT TYPE:
SH 46= ASPHALT
C H MATTHIES JR (EAST)= ASPHALT
C H MATTHIES JR (WEST)= CONCRETE

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

PROPOSED WIRING DIAGRAM SH 46 AT C H MATTHIES JR

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		28
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

N

SCALE: 1" = 40'
20 0 20

60' TO END OF PAVEMENT MARKINGS

APPARENT R.O.W.

SH 46

(115 LF) K
(5 EA) D
(150 LF) B
J
(50 LF) F
G
(40 LF) C
(70 LF) K
(150 LF) K
(7 EA) L
(140 LF) K
(@125 LF) K
(22 EA) E
(2@200 LF) N
P
(15 EA) D
R
(190 LF) A
P
(5 EA) D
(50 LF) F
(200 LF) K
(190 LF) A
(40 LF) C
(150 LF) C
(110 LF) K
(120 LF) M
(80 LF) C
(115 LF) M
(60 LF) N
(35 LF) C
(165 LF) K
(150 LF) B
(125 LF) K
(5 EA) D
(60 LF) F
(210 LF) A
(160 LF) K
(15 EA) D
(5 EA) D
(50 LF) F
(150 LF) B
(195 LF) A
(140 LF) K
(13 LF) C
(165 LF) K
(80 LF) C
(22 EA) E
(145 LF) K
(2@200 LF) N
(45 LF) C
(110 LF) K

40' TO END OF PAVEMENT MARKINGS

50' TO END OF PAVEMENT MARKINGS

C H MATTHIES JR

TYPE 22 CURB RAMP SEE DETAIL#1

BACKFILL TO LEVEL ACCESS PAD (SEE NOTE 6)

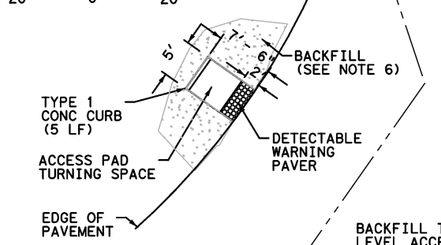
SEE ACCESS PAD DETAIL#2

SEE ACCESS PAD DETAIL#3

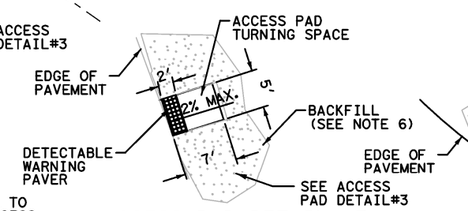
SEE ACCESS PAD DETAIL#4

SEE ACCESS PAD DETAIL#5

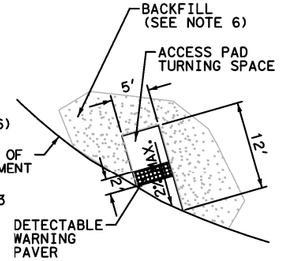
SEE ACCESS PAD DETAIL#6



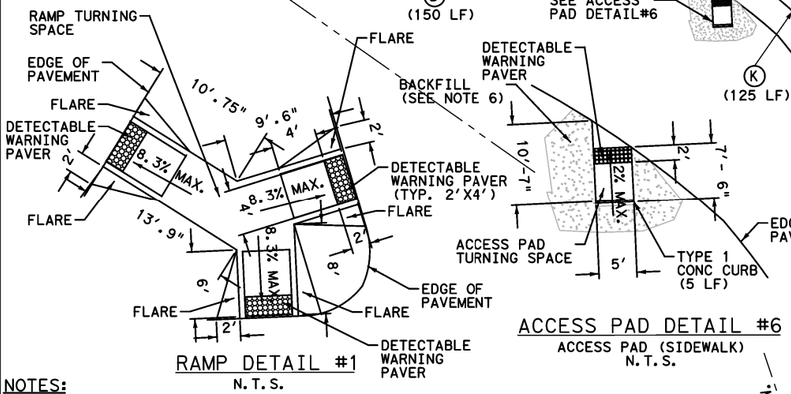
ACCESS PAD DETAIL #2
ACCESS PAD (SIDEWALK)
N.T.S.



ACCESS PAD DETAIL #3
ACCESS PAD (SIDEWALK)
N.T.S.

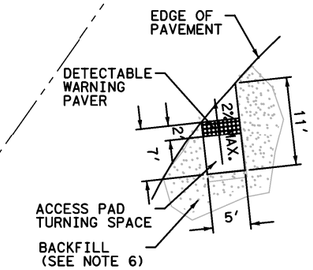


ACCESS PAD DETAIL #4
ACCESS PAD (SIDEWALK)
N.T.S.



RAMP DETAIL #1
N.T.S.

ACCESS PAD DETAIL #6
ACCESS PAD (SIDEWALK)
N.T.S.



ACCESS PAD DETAIL #5
ACCESS PAD (SIDEWALK)
N.T.S.

NOTES:
1. LANE LINES, CENTERLINES, CROSSWALK PAVEMENT MARKINGS, AND STOP BAR MARKINGS, 200' ON C H MATTHIES JR (EAST & WEST), AS SHOWN ON PLANS. ALSO, LANE LINES, CENTERLINES, CROSSWALK PAVEMENT MARKINGS, AND STOP BAR MARKINGS, 200' ON SH 46 (NORTH & SOUTH), AS SHOWN ON PLANS.
3. ALL GROUND MOUNTED SIGNS ARE TO REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
4. ALL MATERIAL SHALL BE AS PER TXDOT APPROVED MATERIAL LIST.
5. ALL WORK SHALL BE DONE AS PER TXDOT STANDARDS AND SPECIFICATIONS.
6. BACKFILL AREA TO PROVIDE LEVEL ACCESS PAD AND ELIMINATE OR REDUCE ADJACENT EDGE DROP-OFF END WHERE NO CURB IS PRESENT, PROVIDE BACKFILL ADJACENT TO LANDING PAD AT A SLOPE NO GREATER THAN 8.3%. BACKFILL MATERIALS AND LABOR ARE SUBSIDIARY TO ITEM 531 CONC SIDEWALKS.

ESTIMATE OF QUANTITIES-PAVEMENT MARKINGS

ITEM NO.	DESC CODE	DESCRIPTION	UNIT	EST QUANTITY
529	6001	CONC CURB (TY I)	LF	10
531	6001	CONC SIDEWALKS (4")	SY	23
531	6017	CURB RAMPS (TY 22)	EA	1
644	6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2
666	6006	REFL PAV MRK TY I (W)4"(DOT)(100MIL)	EA	235
666	6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	450
666	6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	483
666	6052	REFL PAV MRK TY I (W)(ARROW)(060MIL)	EA	1
666	6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	6
666	6076	REFL PAV MRK TY I (W)(WORD)(060MIL)	EA	1
666	6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	3
666	6102	REF PAV MRK TY I(W)36"(YLD TRI)(100MIL)	EA	7
666	6224	PAVEMENT SEALER 4"	LF	1095
666	6226	PAVEMENT SEALER 8"	LF	450
666	6230	PAVEMENT SEALER 24"	LF	483
666	6231	PAVEMENT SEALER (ARROW)	EA	6
666	6232	PAVEMENT SEALER (WORD)	EA	3
666	6243	PAVEMENT SEALER (YLD TRI)	EA	7

ESTIMATE OF QUANTITIES-PAVEMENT MARKINGS (CONT)

ITEM NO.	DESC CODE	DESCRIPTION	UNIT	EST QUANTITY
666	6298	RE PM W/RET REQ TY I (W)4"(BRK)(060MIL)	LF	210
666	6301	RE PM W/RET REQ TY I (W)4"(SLD)(060MIL)	LF	1920
666	6313	RE PM W/RET REQ TY I (Y)4"(SLD)(060MIL)	LF	790
666	6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	860
672	6007	REFL PAV MRKR TY I-C	EA	65
672	6009	REFL PAV MRKR TY II-A-A	EA	44
677	6001	ELIM EXT PAV MRK & MRKS (4")	LF	510
677	6003	ELIM EXT PAV MRK & MRKS (8")	LF	385
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	170
677	6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	3
677	6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	3
5003	6004	RETROFIT DET WARN SURF(SURF APPLIED)	EA	5

LEGEND

- (A) RE PM W/RET REQ TYI(Y)4"(SLD)(60MIL)
- (B) REFL PAV MRK TY I (W)8"(SLD)(100MIL)
- (C) REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- (D) REFL PAV MRKR TY I-C
- (E) REFL PAV MRKR TY II-A-A
- (F) RE PM W/RET REQ TYI(W)4"(BRK)(60MIL)
- (G) REFL PAV MRK TY I (W)(ARROW)(60MIL)
- (J) REFL PAV MRK TY I (W)(WORD)(60MIL)
- (K) RE PM W/RET REQ TY I (W)4"(SLD)(60MIL)
- (L) REF PAV MRK TY I(W)36"(YLD TRI)(100MIL)
- (M) REFL PAV MRK TY I (W)4"(DOT)(100MIL)
- (N) RE PM W/RET REQ TYI(Y)4"(SLD)(100MIL)
- (P) REFL PAV MRK TY I (W)(ARROW)100MIL)
- (R) REFL PAV MRK TY I (W)(WORD)(100MIL)

⇦ DIRECTION OF TRAFFIC FLOW

POSTED SPEED LIMITS:
SH 46 = 45 MPH
C H MATTHIES JR = ASSUMED 30 MPH

PAVEMENT TYPE:
SH 46 = ASPHALT
C H MATTHIES JR (EAST) = ASPHALT
C H MATTHIES JR (WEST) = CONCRETE

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

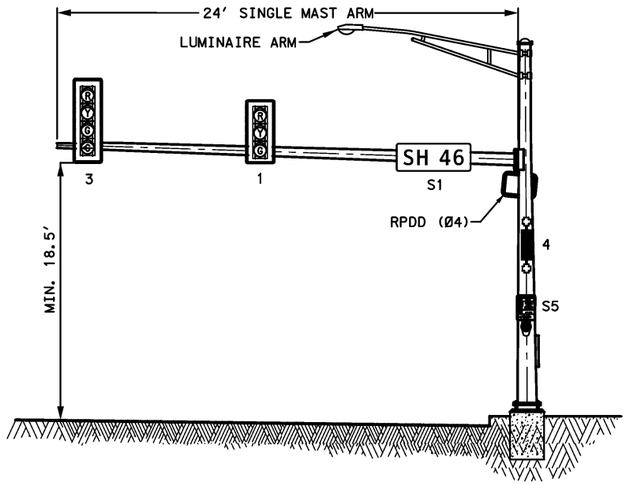
NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

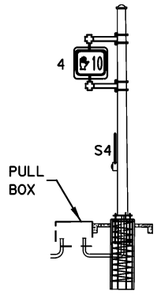
PROPOSED PAVEMENT MARKINGS & RAMPS SH 46 AT C H MATTHIES JR

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		29
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

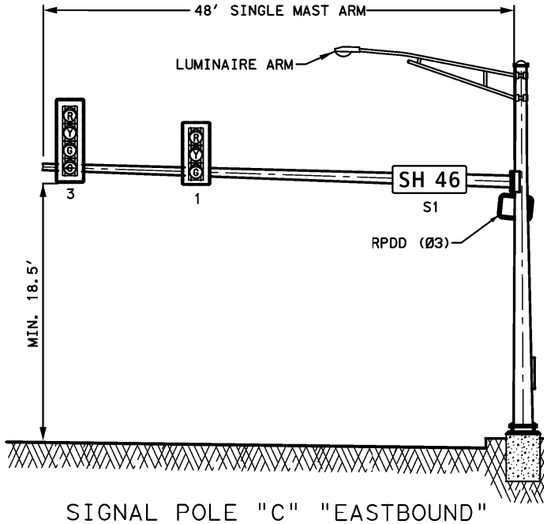
1/23/2023 2:13:47 PM
...\31 SH46\PROPOSED STRIPING LAYOUT.dgn



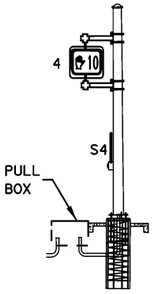
SIGNAL POLE "A" "WESTBOUND"



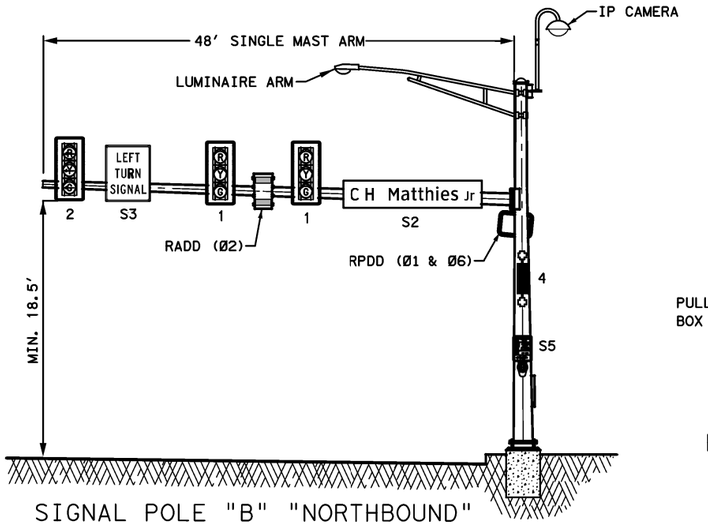
PED POLE "E" VIEW



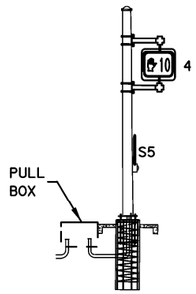
SIGNAL POLE "C" "EASTBOUND"



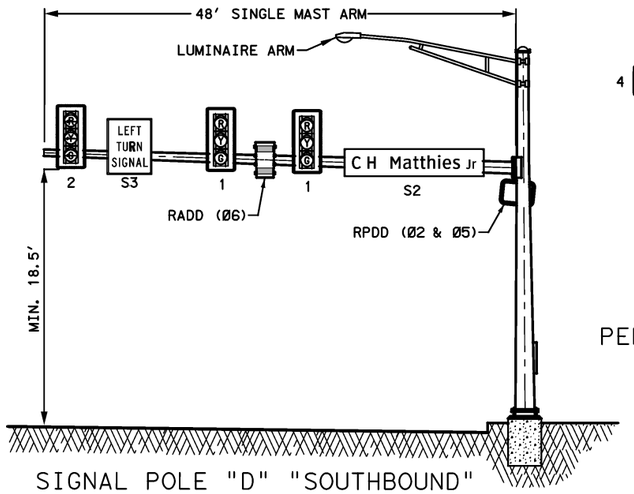
PED POLE "G" VIEW



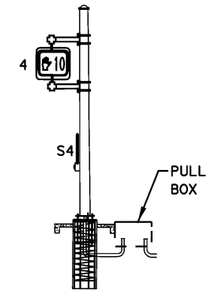
SIGNAL POLE "B" "NORTHBOUND"



PED POLE "F" VIEW



SIGNAL POLE "D" "SOUTHBOUND"



PED POLE "H" VIEW

STATE OF TEXAS
CHARLES R. STEVENS, JR
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 Houston, TX. 77095 PHONE: (713) 828-4742

PROPOSED ELEVATION VIEW SH 46 AT C H MATTHIES JR

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		30
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

ESTIMATE OF QUANTITIES - TRAFFIC SIGNAL

ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST QUANTITY
416	6031	DRILL SHAFT (TRF SIG POLE) (30 IN)	LF	11
416	6032	DRILL SHAFT (TRF SIG POLE) (36 IN)	LF	40
529	6001	CONC CURB (TY I)	LF	10
531	6001	CONC SIDEWALKS (4")	SY	23
531	6017	CURB RAMPS (TY 22)	EA	1
618	6046	CONDT (PVC) (SCH 80) (2")	LF	240
618	6047	CONDT (PVC) (SCH 80) (2") (BORE)	LF	335
618	6053	CONDT (PVC) (SCH 80) (3")	LF	260
618	6054	CONDT (PVC) (SCH 80) (3") (BORE)	LF	670
620	6009	ELEC CONDR (NO.6) BARE	LF	1660
620	6010	ELEC CONDR (NO.6) INSULATED	LF	25
621	6005	TRAY CABLE (4 CONDR) (12 AWG)	LF	950
624	6010	GROUND BOX TY D (162922)W/APRON	EA	5
628	6002	REMOVE ELECTRICAL SERVICES	EA	1
628	6164	ELC SRV TY D 120/240 070(NS)AL(E)PS(U)	EA	1
644	6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	2
666	6006	REFL PAV MRK TY I (W)4"(DOT)(100MIL)	LF	235
666	6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	450
666	6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	483
666	6052	REFL PAV MRK TY I (W)(ARROW)(060MIL)	EA	1
666	6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	6
666	6076	REFL PAV MRK TY I (W)(WORD)(060MIL)	EA	1
666	6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	3
666	6102	REF PAV MRK TY I(W)36"(YLD TRI)(100MIL)	LF	7
666	6224	PAVEMENT SEALER 4"	LF	1095
666	6226	PAVEMENT SEALER 8"	LF	450
666	6230	PAVEMENT SEALER 24"	LF	483
666	6231	PAVEMENT SEALER (ARROW)	EA	6
666	6232	PAVEMENT SEALER (WORD)	EA	3
666	6243	PAVEMENT SEALER (YLD TRI)	EA	7
666	6298	RE PM W/RET REQ TY I (W)4"(BRK)(060MIL)	LF	210
666	6301	RE PM W/RET REQ TY I (W)4"(SLD)(060MIL)	LF	1920
666	6313	RE PM W/RET REQ TY I (Y)4"(SLD)(060MIL)	LF	790
666	6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	860
672	6007	REFL PAV MRKR TY I-C	EA	65
672	6009	REFL PAV MRKR TY II-A-A	EA	44
677	6001	ELIM EXT PAV MRK & MRKS (4")	LF	510
677	6003	ELIM EXT PAV MRK & MRKS (8")	LF	385
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	170
677	6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	3
677	6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	3
680	6002	INSTALL HWY TRF SIG (ISOLATED)	EA	1
680	6004	REMOVING TRAFFIC SIGNALS	EA	1
682	6001	VEH SIG SEC (12")LED(GRN)	EA	8
682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	4
682	6003	VEH SIG SEC (12")LED(YEL)	EA	8
682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	2
682	6005	VEH SIG SEC (12")LED(RED)	EA	8
682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	2
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	6
682	6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	2
682	6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	8
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	1110
684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	1430
684	6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	1070
686	6027	INS TRF SIG PL AM(S)1 ARM(24')LUM	EA	1
686	6051	INS TRF SIG PL AM(S)1 ARM(48')LUM	EA	3
687	6001	PED POLE ASSEMBLY	EA	4
**		DRILL SHAFT (24 IN)	LF	24
688	6001	PED DETECT PUSH BUTTON (APS)	EA	6
**		R10-3e (L) (9" X 15") "PEDESTRIAN SIGN	EA	3
**		R10-3e (R) (9" X 15") "PEDESTRIAN SIGN	EA	3
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
5003	6004	RETROFIT DET WARN SURF(SURF APPLIED)	EA	5
6004	6031	ITS COM CBL (ETHERNET)	LF	150
6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
6185	6002	TMA (STATIONARY)	DAY	10
6292	6001	RVDS(PRESENCE DETECTION ONLY)	EA	4
**		RVDS (RADAR PRESENCE DETECTOR POWER AND COMMUNICATION CABLE)	LF	860
6292	6002	RVDS(ADVANCE DETECTION ONLY)	EA	2
**		RVDS (RADAR ADVANCE DETECTOR POWER AND COMMUNICATION CABLE)	LF	495
****	****	CONTRACTOR FORCE ACCOUNT (COMM PACKAGE)	EA	1
		CELLULAR MODEM (CISCO MODEL IR1101)	EA	1
		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
		IP CAMERA (AXIS M5525-E)	EA	1
		IP CAMERA MOUNTING BRACKET (AXIS T94AO1D PENDANT KIT)	EA	1
		POWER STRIP	EA	1
		SWITCH POWER SUPPLY	EA	1
		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1

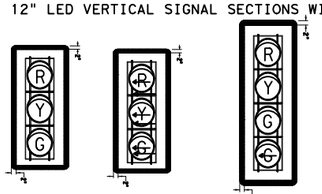
** SUBSIDIARY TO PERTINENT ITEM

**** **** CONTRACTOR FORCE ACCOUNT

POLE ID.	POLE & EQUIPMENT DESCRIPTIONS WITH ATTACHMENTS
A	24' SINGLE MAST ARM ON A 30-A FOUNDATION AT 11 FT. WITH ONE LUMINAIRE, TWO VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE D3-1G STREET NAME SIGN, ONE COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, R10-3eL PEDESTRIAN SIGN AND ONE RVDS PRESENCE DETECTION (RPDD 04).
B	48' SINGLE MAST ARM ON A 36-A FOUNDATION AT 13 FT. WITH ONE LUMINAIRE, THREE VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE D3-1G STREET NAME SIGN, ONE R10-10L (30"X36") SIGN, ONE COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, R10-3eL PEDESTRIAN SIGN, ONE RVDS PRESENCE DETECTION (RPDD 01 & 06), ONE RVDS ADVANCE DETECTION (RADD 02) AND ONE IP CAMERA.
C	48' SINGLE MAST ARM ON A 36-A FOUNDATION AT 13 FT. WITH ONE LUMINAIRE, TWO VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE D3-1G STREET NAME SIGN AND ONE RVDS PRESENCE DETECTION (RPDD 03).
D	48' SINGLE MAST ARM ON A 36-A FOUNDATION AT 13 FT. WITH ONE LUMINAIRE, THREE VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE D3-1G STREET NAME SIGN, ONE R10-10L (30"X36") SIGN, ONE RVDS PRESENCE DETECTION (RPDD 02 & 05) AND ONE RVDS ADVANCE DETECTION (RADD 06).
E	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND R10-3eR PEDESTRIAN SIGN.
F	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND R10-3eL PEDESTRIAN SIGN.
G	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND R10-3eR PEDESTRIAN SIGN.
H	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND R10-3eR PEDESTRIAN SIGN.

PROPOSED SIGNAL HEADS

12" LED VERTICAL SIGNAL SECTIONS WITH BACK PLATES



SIGNAL NO.1 (6 EA) SIGNAL NO.2 (2 EA) SIGNAL NO.3 (2 EA)

LED PEDESTRIAN COUNTDOWN SIGNAL

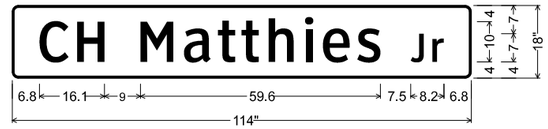
SIGNAL NO.4 (6 EA)

PROPOSED SIGNS ON POSTS

R1-2 (18"X18") S6 (1 EA)

R5-1 (30"X30") S7 (1 EA)

PROPOSED SIGN SCHEDULE



1.5" Radius, 0.5" Border, White on Green;
"CH Matthies", ClearviewHwy-3-W; "Jr", ClearviewHwy-3-W;

S1 (2 EA)

1.5" Radius, 0.5" Border, White on Green;
"SH 46", ClearviewHwy-3-W;

S2 (2 EA)

R10-10L (30"x36") S3 (2 EA)

R10-3eL (9"X15") S5 (3 EA)

R10-3eR (9"X15") S4 (3 EA)

ELECTRICAL SERVICE DATA

C-S-J	PROJECT LOCATION	ELECTRIC SERVICE NO.	SHEET NO.	ELECTRICAL SERVICE DESCRIPTION(SEE ED (5)-14)	SERVICE CONDUIT SIZE	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN DISCONNECT CKT. BRK. POLE/AMP	TWO-POLE CONTACT OR AMPS ***	PANEL BD./ LOADCENTER AMP RATING (MIN)	CIRCUIT NO.	BRANCH CKT. BRK. POLE/ AMPS	BRANCH CIRCUIT AMPS	KVA LOAD
0216-02-068	SH 46 AT C H MATTHIES JR	ES	27	TY D (120/240)070 (NS)AL(E)PS(U)	1 1/4"	3/#4	N/A	2P/70	30	100	SIGNAL LIGHTING	1P/50 1P/20	40 4	5.76

NOTES:

1. ALL TRAFFIC SIGNAL EQUIPMENT LOCATIONS ARE BASED ON A SURVEY. CONTRACTOR SHALL VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
2. APPARENT RIGHT-OF-WAY LINES ARE FROM TXDOT MAPS. VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
3. THE EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE APPROXIMATE. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS/HER FAILURE TO LOCATE, PRESERVE, AND PROTECT THESE UTILITIES.
4. CONTRACTOR SHALL REMOVE AND REPLACE EXISTING SIGNAL HEADS WITH NEW VERTICAL SIGNAL HEADS AS SHOWN ON THE PLANS AND SHALL HAVE A MINIMUM OF 18.5 FEET CLEARANCE ABOVE ROADWAY SURFACE. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE PRIOR TO STARTING THIS WORK TO ENSURE A SMOOTH TRAFFIC MOVEMENT FOR ALL MOTORISTS DURING THIS TRANSITION.
5. CONTRACTOR SHALL REMOVE ALL EXISTING TRAFFIC SIGNAL EQUIPMENT AND INSTALL NEW EQUIPMENT AS PER DESIGN LAYOUTS AND IN ACCORDANCE TO TXDOT STANDARDS AND SPECIFICATIONS AND IN ACCORDANCE TO THE ACCESSIBILITY REQUIREMENTS AND CONNECT PROPOSED FIELD WIRING TO CONTROLLER.
6. FOR PAVEMENT MARKINGS, SEE PROPOSED PAVEMENT MARKINGS & RAMPS LAYOUT SHEET.
7. ALL EXISTING CURB RAMPS SHALL BE REMOVED AND NEW WHEELCHAIR RAMPS INSTALLED (IF ANY), AS PER DESIGN DETAILS ON THE PROPOSED PAVEMENT MARKINGS & RAMPS LAYOUT SHEET AND IN ACCORDANCE TO TXDOT STANDARDS AND SPECIFICATIONS AND IN ACCORDANCE TO THE ACCESSIBILITY REQUIREMENTS.
8. THE CONTRACTOR SHALL INSTALL NEW PRESENCE RADAR DETECTORS. THE LOCATION OF THE RADAR DETECTORS SHOWN ARE APPROXIMATE. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD AND ADJUSTED TO PROVIDE PROPER DETECTION ZONES AND A COMPLETE OPERABLE SYSTEM.
9. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT LOCATED AT 4615 NW LOOP 410, CONTACT MARK PEREZ AT 210-218-7430.
10. CONTRACTOR SHALL FURNISH AND DELIVER ONE (1) TS 2 TYPE 2 AND SEVEN (7) TX 2 TYPE 5 (12-POSITION) CONTROLLER CABINETS AND ASSEMBLY TO TXDOT SIGNAL SHOP FOR PROGRAMMING AND TESTING TWO WEEKS IN ADVANCE PRIOR TO CONTRACTOR INSTALLING EQUIPMENT IN THE FIELD. COORDINATE DROP OFF AND PICKUP WITH MARK PEREZ AT 210-218-7430.
11. THE INSTALLATION OF ALL COMMUNICATION PACKAGE ITEMS (MODEM, POWER STRIP, ETC.) IS SUBSIDIARY TO ITEM 680.
12. TRAY CABLES SHALL BE RUN IN 2" CONDUIT SEPARATE FROM THE SIGNAL CABLE.
13. ADJUST EXISTING AND PROPOSED SIGNAL HEADS AS NECESSARY TO KEEP THEM VISIBLE AT ALL TIMES DURING CONSTRUCTION. ADJUSTING SIGNAL HEADS DURING CONSTRUCTION IS SUBSIDIARY TO ITEM 502.
14. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF SEVEN (7) DAYS PRIOR TO BEGINNING CONSTRUCTION.
15. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE TRAFFIC SIGNAL TURN-ON.
16. THE CITY OF SEGUIN SHALL PROVIDE THE STREET NAME SIGNS EXCEPT FOR THE INTERSECTION OF SH 46 AT C H MATTHIES JR. AND THE CONTRACTOR SHALL INSTALL THEM AS SHOWN ON THE PLANS. INSTALLATION OF THESE SIGNS SHALL BE SUBSIDIARY TO ITEM 680.

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

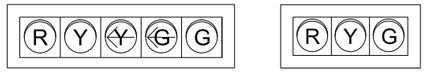
NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 Houston, TX. 77095 PHONE: (713) 828-4742

INTERSECTION QUANTITIES & DETAILS SH 46 AT C H MATTHIES JR

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		31
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

EXISTING SIGNAL HEAD SCHEDULE



LEGEND

- EXISTING CONTROLLER CABINET
- EXISTING SIGNAL HEAD VERTICAL
- EXISTING TRAFFIC SIGNAL POLE
- EXISTING PEDESTRIAN POLE
- EXISTING TRAFFIC SIGNAL MAST ARM
- EXISTING PEDESTRIAN SIGNAL HEAD
- EXISTING PEDESTRIAN PUSH BUTTON
- EXISTING MAST ARM MOUNTED SIGN
- EXISTING METER
- EXISTING LUMINAIRE AND ARM
- DIRECTION OF TRAFFIC FLOW

NOTES:

1. ALL TRAFFIC SIGNAL EQUIPMENT LOCATIONS AND RIGHT-OF-WAY LINES ARE APPROXIMATE. VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
2. THE EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS/HER FAILURE TO LOCATE, PRESERVE, AND PROTECT THESE UTILITIES.
3. COMMUNICATION EQUIPMENT INCLUDING CELL ROUTER, CELLULAR ANTENNA, ETHERNET SWITCH, ENCODER, AND ALL POWER SUPPLIES SHALL BE REMOVED FROM EXISTING SIGNAL CABINET AND REINSTALLED IN NEW SIGNAL CABINET. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ITEM 680.
4. CONTRACTOR SHALL CONTACT THE DISTRICT SIGNAL MAINTENANCE OFFICE AND AREA OFFICE A MINIMUM OF SEVEN (7) DAYS PRIOR TO BEGINNING CONSTRUCTION.
5. CONTRACTOR SHALL CONTACT THE DISTRICT SIGNAL MAINTENANCE OFFICE AND AREA OFFICE A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE TRAFFIC SIGNAL TURN-ON.

EXISTING SIGNS

S1

S6

S7

S4

S2

S5

S3

POSTED SPEED LIMITS:
W COURT ST = 30 MPH
TRAVIS ST = NO POSTED SPEED LIMIT SIGNS

PAVEMENT TYPE:
TRAVIS ST = ASPHALT
W COURT ST = ASPHALT

STATE OF TEXAS
YOHANNES A. TADESSE
107781
REGISTERED PROFESSIONAL ENGINEER
1/19/2023

NO.	REVISION	APPROV.

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

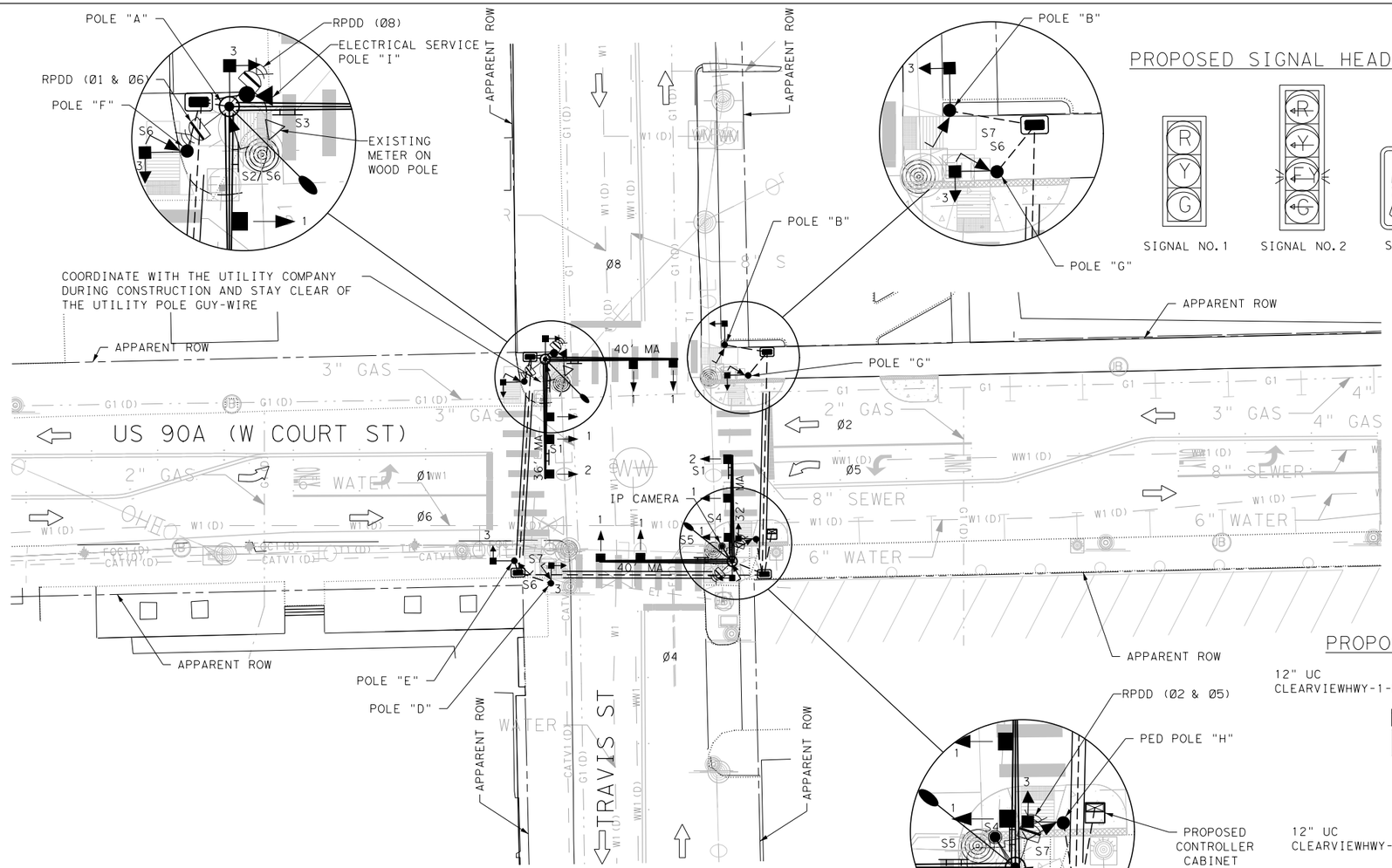
Texas Department of Transportation®

EXISTING INTERSECTION LAYOUT
US 90A (W COURT ST) AT TRAVIS ST

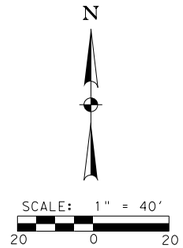
SHEET 1 OF 7

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		32
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/26/2023
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2020\2020-2096-00 - TxDOT El Paso•San Antonio (SIS)\Work Authorizations\2020-2096-03 - WA5 - Seguin Traffic Signals\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Signal\SH1•SIG1•WUS90AatTRAVIS•EXIST



PROPOSED SIGNAL HEAD SCHEDULE



LEGEND

- CONTROLLER CABINET
- SIGNAL HEAD VERTICAL
- TRAFFIC SIGNAL POLE
- PEDESTRIAN POLE
- SIGNAL MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- MAST ARM MOUNTED SIGN
- EXISTING METER
- ELECTRICAL SERVICE
- EXISTING LUMINAIRE AND ARM
- LUMINAIRE AND ARM
- GROUND BOX
- PRESENCE RADAR DETECTION
- IP CAMERA
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- DIRECTION OF TRAFFIC FLOW

NOTES:

1. ALL TRAFFIC SIGNAL EQUIPMENT LOCATIONS ARE BASED ON A SURVEY. CONTRACTOR SHALL VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
2. APPARENT RIGHT-OF-WAY LINES ARE FROM TXDOT MAPS. VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
3. THE EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS/HER FAILURE TO LOCATE, PRESERVE, AND PROTECT THESE UTILITIES.
4. CONTRACTOR SHALL REMOVE ALL EXISTING TRAFFIC SIGNAL EQUIPMENT AND INSTALL NEW EQUIPMENT AS PER DESIGN LAYOUTS AND IN ACCORDANCE WITH TXDOT STANDARDS AND SPECIFICATIONS AND IN ACCORDANCE WITH THE ACCESSIBILITY REQUIREMENTS AND CONNECT PROPOSED FIELD WIRING TO CONTROLLER.
5. FOR PAVEMENT MARKINGS, SEE PROPOSED PAVEMENT MARKINGS SHEET.
6. ALL EXISTING CURB RAMPS SHALL BE REMOVED AND NEW WHEELCHAIR RAMPS INSTALLED AS PER DESIGN DETAILS ON THE PROPOSED STRIPING LAYOUT SHEET AND IN ACCORDANCE WITH TXDOT STANDARDS AND SPECIFICATIONS AND IN ACCORDANCE WITH THE ACCESSIBILITY REQUIREMENTS.
7. THE CONTRACTOR SHALL INSTALL NEW PRESENCE RADAR DETECTORS. THE LOCATION OF THE RADAR DETECTORS SHOWN ARE APPROXIMATE. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD AND ADJUSTED TO PROVIDE PROPER DETECTION ZONES AND A COMPLETE OPERABLE SYSTEM.
8. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT SIGNAL SHOP AT 4615 NW LOOP 410 210-218-7430.
9. CONTRACTOR SHALL FURNISH AND DELIVER ONE (1) TS 2 TYPE 2 AND SEVEN (7) TX 2 TYPE 5 (12-POSITION) CONTROLLER CABINETS AND ASSEMBLY TO TXDOT SIGNAL SHOP FOR PROGRAMMING AND TESTING TWO WEEKS IN ADVANCE PRIOR TO CONTRACTOR INSTALLING EQUIPMENT IN THE FIELD. COORDINATE DROP OFF AND PICKUP WITH MARK PEREZ AT 210-218-7430.
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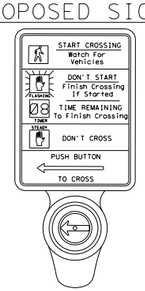
11. TRAY CABLES SHALL BE RUN IN 2" CONDUIT SEPARATE FROM THE SIGNAL CABLE.
12. ADJUST EXISTING AND PROPOSED SIGNAL HEADS AS NECESSARY TO KEEP THEM VISIBLE AT ALL TIMES DURING CONSTRUCTION. ADJUSTING SIGNAL HEADS DURING CONSTRUCTION IS SUBSIDIARY TO ITEM 502.
13. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF SEVEN (7) DAYS PRIOR TO BEGINNING CONSTRUCTION.
14. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE TRAFFIC SIGNAL TURN-ON.
15. LUMINAIRES ARE SHOWN FOR CLARITY PURPOSES ONLY. ORIENT THEM AS DIRECTED BY THE ENGINEER.

PROPOSED SIGNS

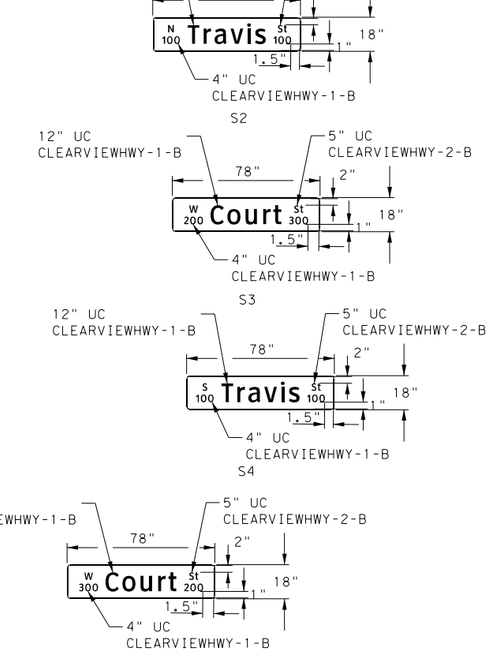
R10-3eR (9"X15") W/ACCESSIBLE PUSH BUTTON S6 (4 EA)



R10-3eL (9"X15") W/ACCESSIBLE PUSH BUTTON S7 (4 EA)

R10-17T (30"X30") S1 (2 EA)

PROPOSED ILSN SIGNS



POSTED SPEED LIMITS:
W COURT ST = 30 MPH
TRAVIS ST = NO POSTED SPEED LIMIT SIGNS

PAVEMENT TYPE:
TRAVIS = ASPHALT
W COURT ST = ASPHALT

STATE OF TEXAS
YOHANNES A. TADESSE
107781
LICENSED PROFESSIONAL ENGINEER
1/19/2023

NO.	REVISION	APPROV.

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

PROPOSED INTERSECTION LAYOUT US 90A (W COURT ST) AT TRAVIS ST

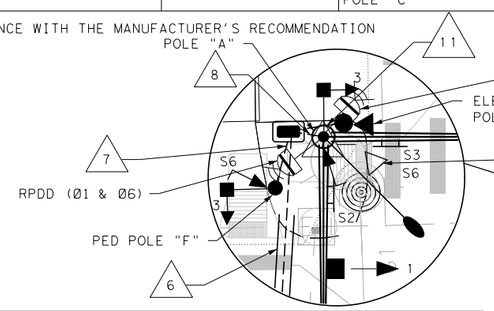
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		33
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

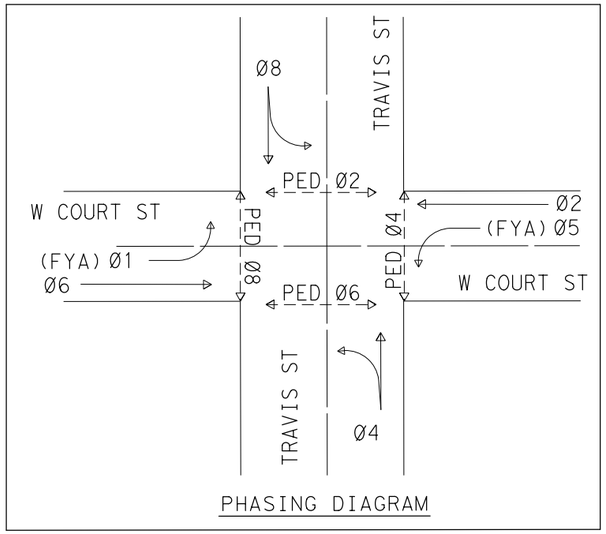
1/26/2023
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2020\2020-2096-00 - TxDOT El Paso•San Antonio (SIS)\Work Authorizations\2020-2096-03 - WA5 - Seguin Traffic Signals\v6.0 TEDSI Design\v6.08 CADD\v6.08.01 Sheet Files\Signal\SH1•SIG3•US90AatTRAVIS•PROPS

POLE CONDUIT AND CONDUCTOR SCHEDULE

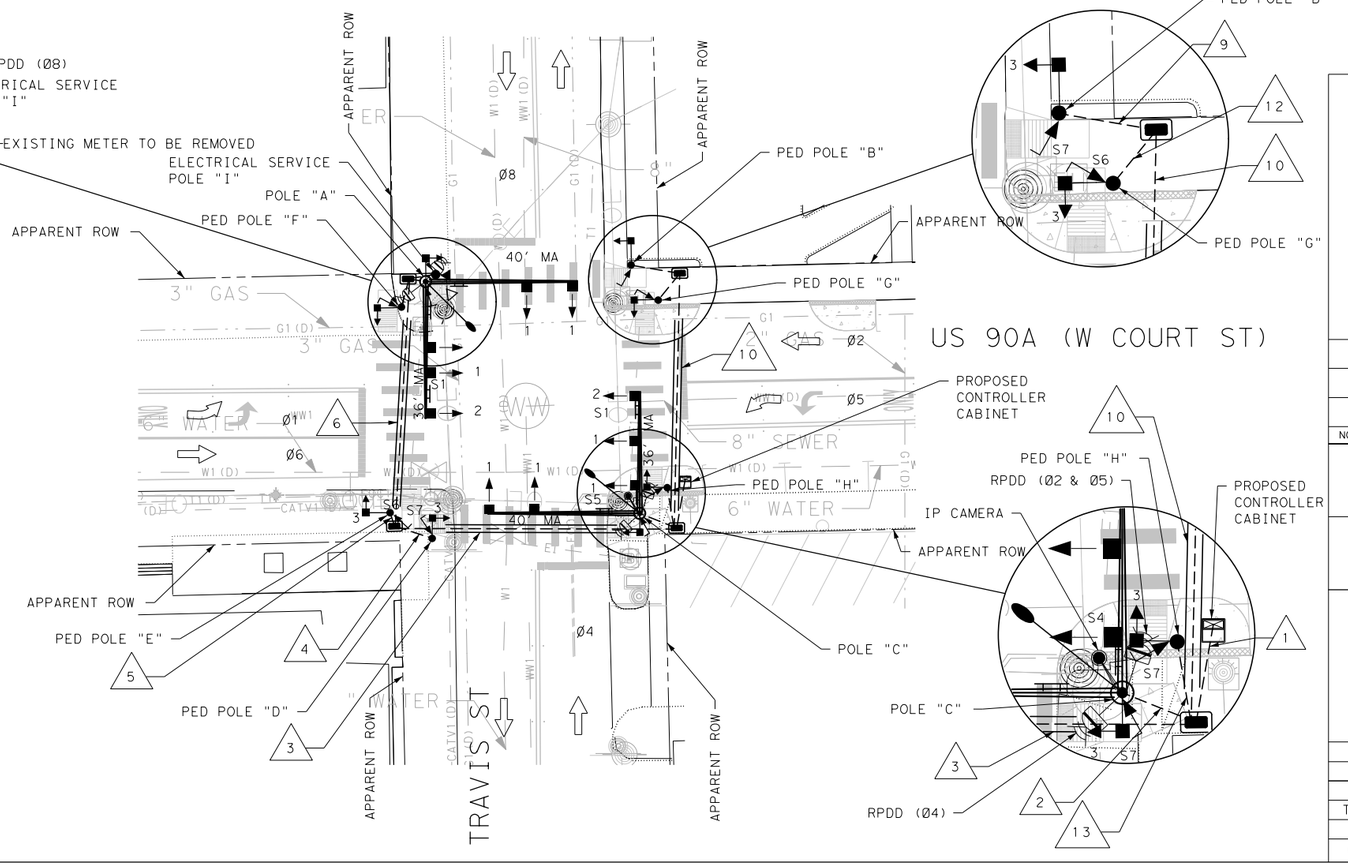
	RUN NUMBER		1			2			3			4	5	6			7	8			9	10	11	12	13
	CONDUIT SIZE IN INCHES		2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	3.0	3.0	2.0	2.0	3.0	3.0	2.0	3.0	2.0	2.0	2.0
	NUMBER OF CONDUITS		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	LENGTH OF RUN		15	15	15	10	10	10	75	75	75	10	5	65	65	65	7	5	5	5	15	70	10	10	10
	TRENCH (T)/BORE (B)/CONTROLLER (C)		C	C	C	T	T	T	B	B	B	T	T	B	B	B	T	T	T	T	T	B	T	T	T
CABLE	CIRCUIT		NUMBER OF CONDUCTORS																						
#6 XHHW	120 POWER HOT		1						1					1									1		
	120 POWER COMMON		1						1					1									1		
#6 BARE	BARE BOND GROUND		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7 COND. #12 STRANDED TY A	SIGNAL HEAD	PHASE 01 & 06			2			2																	
		PHASE 02 & 05			2						2					2				2					
		PHASE 04			1						1					1				1					
		PHASE 08			1			1																	
4 COND. #12 STRANDED TY A	PED. SIGNALS	PHASE 02			2						1					1				1	1	1			
		PHASE 04			2																	1		1	1
		PHASE 06			2			1			1	1													
		PHASE 08			2						2		1			1	1								
2 COND. #14 STRANDED TY C	PED. PUSH BUTTONS	PHASE 02			2						1					1				1	1	1			
		PHASE 04			2																	1		1	1
		PHASE 06			2			1			1	1													
		PHASE 08			2						2		1			1	1								
6 COND. #22*	RVDS (PRESENCE DETECTION DEVICE)	PHASE 01 & 06			1						1					1				1					
		PHASE 02 & 05			1			1																	
		PHASE 04			1			1																	
		PHASE 08			1						1					1				1					
CAT 5 ETHERNET CABLE & POWER*	IP CAMERA	POLE "C"			1			1																	
TRAY CABLE 4/C - #12 AWG TYPE A	LUMINAIRE	POLE "A"																1					1		
		POLE "C"				1			1					1									1		
4/C - #14AWG TYPE A	ILLUMINATED SIGN	POLE "A"																2					2		
		POLE "C"				2			2					2									2		

*IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION





PHASING DIAGRAM



LEGEND

- CONTROLLER CABINET
- SIGNAL HEAD VERTICAL
- TRAFFIC SIGNAL POLE
- PEDESTRIAN POLE
- SIGNAL MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- MAST ARM MOUNTED SIGN
- EXISTING METER
- ELECTRICAL SERVICE
- EXISTING LUMINAIRE AND ARM
- LUMINAIRE AND ARM
- GROUND BOX
- PRESENCE RADAR DETECTION
- IP CAMERA
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- DIRECTION OF TRAFFIC FLOW

N

SCALE: 1" = 40'
20 0 20

STATE OF TEXAS
YOHANNES A. TADESSE
107781
REGISTERED PROFESSIONAL ENGINEER
1/19/2023

NO.	REVISION	APPROV.

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1649

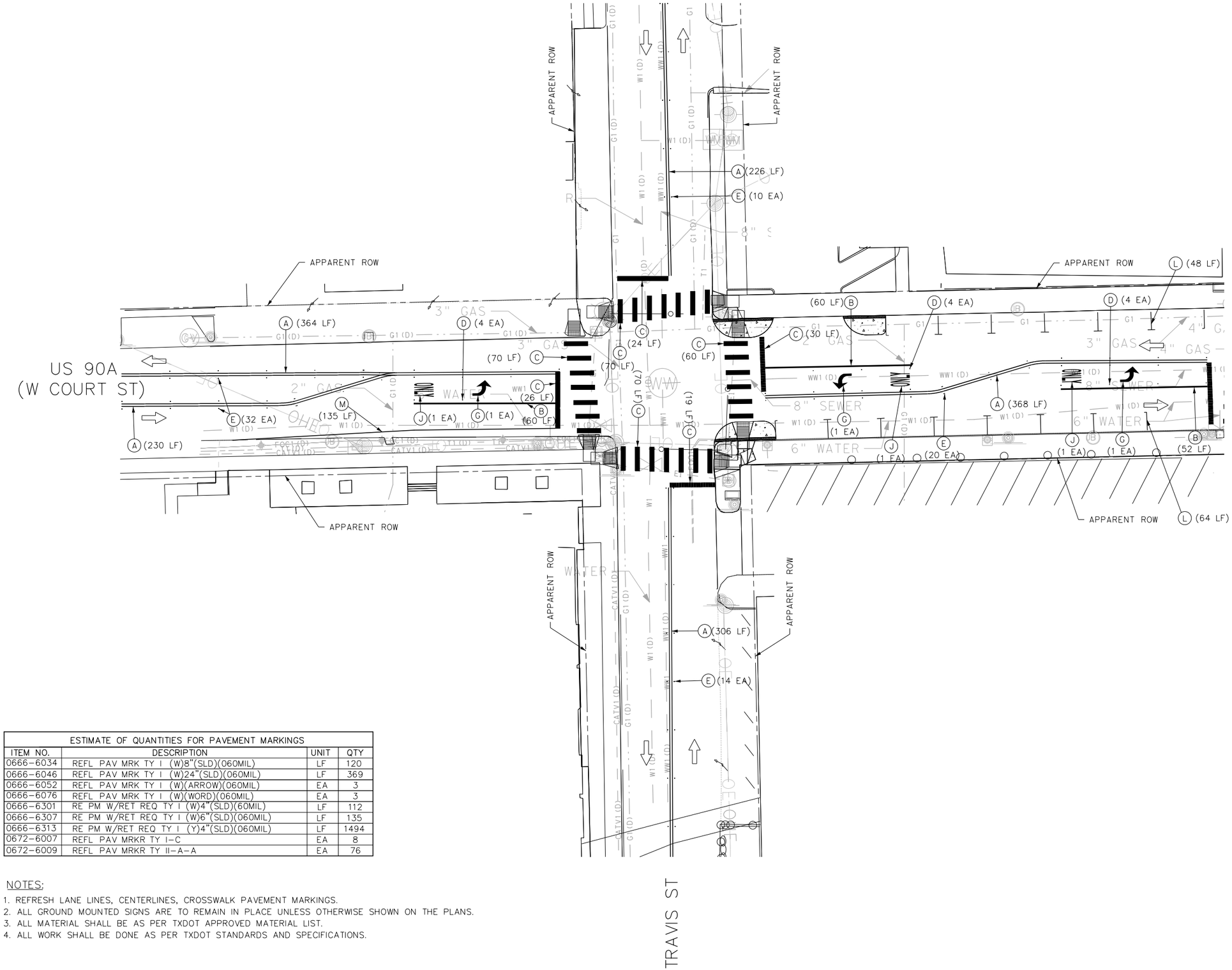
Texas Department of Transportation®

PROPOSED WIRING DIAGRAM US 90A (W COURT ST) AT TRAVIS ST

SHEET 3 OF 7

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	34

STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90



LEGEND

- (A) RE PM W/RET REQ TYI(Y)4"(SLD)(60MIL)
- (B) REFL PAV MRK TY I (W)(8")(SLD)(60MIL)
- (C) REFL PAV MRK TY I (W)(24")(SLD)(60MIL)
- (D) REFL PAV MRKR TY I-C
- (E) REFL PAV MRKR TY II-A-A
- (F) RE PM W/RET REQ TYI(W)4"(BRK)(60MIL)
- (G) REFL PAV MRK TY I (W)(ARROW)(60MIL)
- (H) REFL PAV MRK TY I (Y)24"(SLD)(60MIL)
- (I) REFL PAV MRK TY I (Y)(MED NOSE)(100MIL)
- (J) REFL PAV MRK TY I (W)(WORD)(60MIL)
- (K) RE PM W/RET REQ TY I (Y)4"(BRK)(60MIL)
- (L) RE PM W/RET REQ TY I (W)4"(SLD)(60MIL)
- (M) RE PM W/RET REQ TY I (W)6"(SLD)(60MIL)
- ⇦ DIRECTION OF TRAFFIC FLOW

N

SCALE: 1" = 40'
20 0 20

ESTIMATE OF QUANTITIES FOR PAVEMENT MARKINGS			
ITEM NO.	DESCRIPTION	UNIT	QTY
0666-6034	REFL PAV MRK TY I (W)8"(SLD)(060MIL)	LF	120
0666-6046	REFL PAV MRK TY I (W)24"(SLD)(060MIL)	LF	369
0666-6052	REFL PAV MRK TY I (W)(ARROW)(060MIL)	EA	3
0666-6076	REFL PAV MRK TY I (W)(WORD)(060MIL)	EA	3
0666-6301	RE PM W/RET REQ TY I (W)4"(SLD)(60MIL)	LF	112
0666-6307	RE PM W/RET REQ TY I (W)6"(SLD)(060MIL)	LF	135
0666-6313	RE PM W/RET REQ TY I (Y)4"(SLD)(060MIL)	LF	1494
0672-6007	REFL PAV MRKR TY I-C	EA	8
0672-6009	REFL PAV MRKR TY II-A-A	EA	76

NOTES:

1. REFRESH LANE LINES, CENTERLINES, CROSSWALK PAVEMENT MARKINGS.
2. ALL GROUND MOUNTED SIGNS ARE TO REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
3. ALL MATERIAL SHALL BE AS PER TXDOT APPROVED MATERIAL LIST.
4. ALL WORK SHALL BE DONE AS PER TXDOT STANDARDS AND SPECIFICATIONS.

STATE OF TEXAS
YOHANNES A. TADESSE
107781
REGISTERED PROFESSIONAL ENGINEER
1/19/2023

NO.	REVISION	APPROV.

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

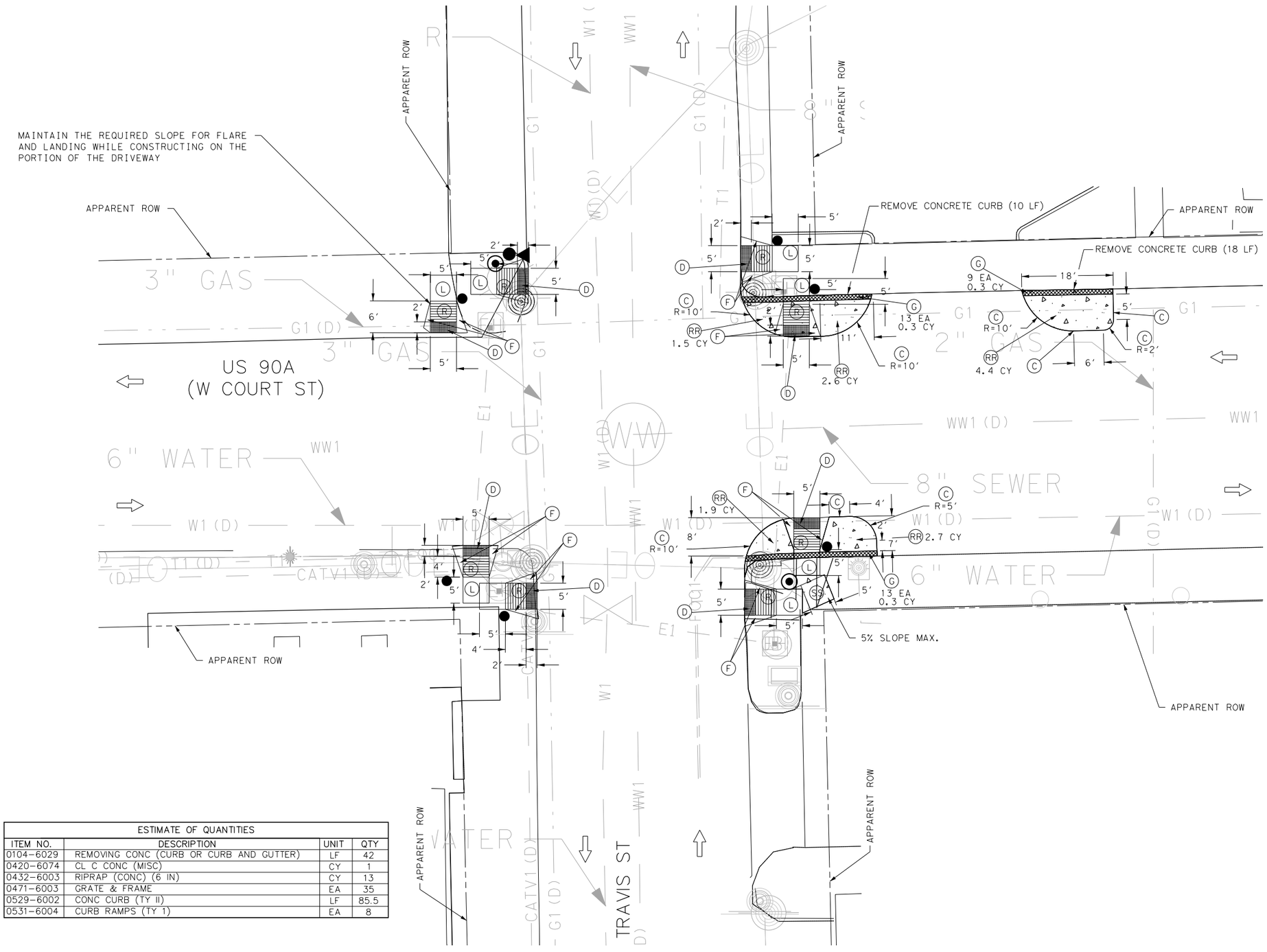
Texas Department of Transportation®

PROPOSED PAVEMENT MARKINGS US 90A (W COURT ST) AT TRAVIS ST

SHEET 4 OF 7

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		35
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/26/2023
dgn: \\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2020\2020-2096-00 - TxDOT El Paso_San Antonio (STS)\Work Authorizations\2020-2096-03 - WA5 - Seguin Traffic Signals\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Pavement Markings\SHT_SPM_US90AstTR



LEGEND

- (C) CONCRETE CURB
- (D) DETECTABLE WARNING PAVER
- (F) FLARE
- (G) GRATE & FRAME
- (L) LANDING
- (LS) LEVEL SIDEWALK
- (SS) SLOPE SIDEWALK
- (R) RAMP
- (RR) RIPRAP
- PED POLE
- TRAFFIC SIGNAL POLE
- ELECTRICAL SERVICE
- DIRECTION OF TRAFFIC FLOW

N

SCALE: 1" = 20'
10 0 10

ESTIMATE OF QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QTY
0104-6029	REMOVING CONC (CURB OR CURB AND GUTTER)	LF	42
0420-6074	CL C CONC (MISC)	CY	1
0432-6003	RIPRAP (CONC) (6 IN)	CY	13
0471-6003	GRATE & FRAME	EA	35
0529-6002	CONC CURB (TY II)	LF	85.5
0531-6004	CURB RAMPS (TY 1)	EA	8

NOTES:

1. THE SLOPE FOR ALL PROPOSED RAMPS SHALL BE 8.3% MAX. AS PER CRITERIA.
2. THE PROPOPOSED GRATE & FRAME ARE 12 INCHES WIDE AND EACH SEGMENT IS 2 FEET LONG. REFER TO CITY OF SEGUIN STANDARDS FOR GRATE & FRAME.
3. ALL LANDING PADS SHALL BE 5 FEET BY 5 FEET MIN. AND 2% CROSS SLOPE MAX.
4. ALL WORK SHALL BE DONE AS PER CITY OF SEGUIN AND TXDOT STANDARDS AND SPECIFICATIONS.

STATE OF TEXAS
YOHANNES A. TADESSE
107781
REGISTERED PROFESSIONAL ENGINEER
Yohannes Tadesse
1/19/2023

NO.		REVISION	APPROV.

TEDSI INFRASTRUCTURE GROUP
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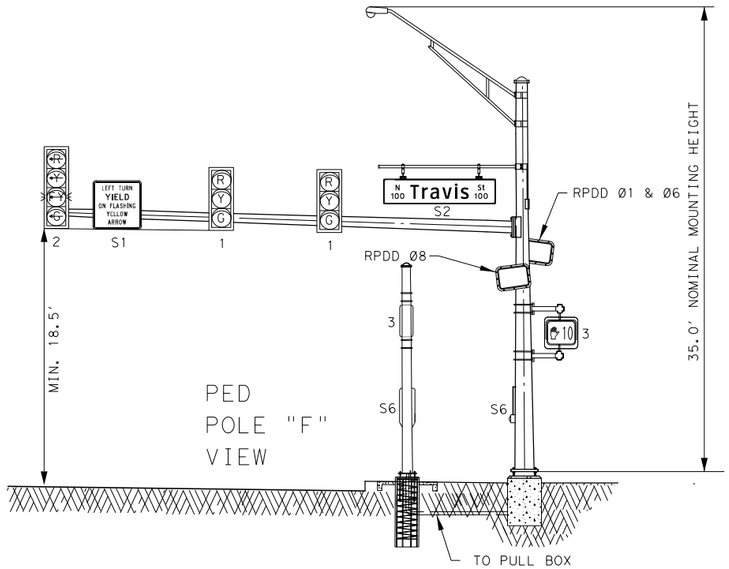
Texas Department of Transportation®

PROPOSED RAMPS AND SIDEWALKS US 90A (W COURT ST) AT TRAVIS ST

SHEET 5 OF 7

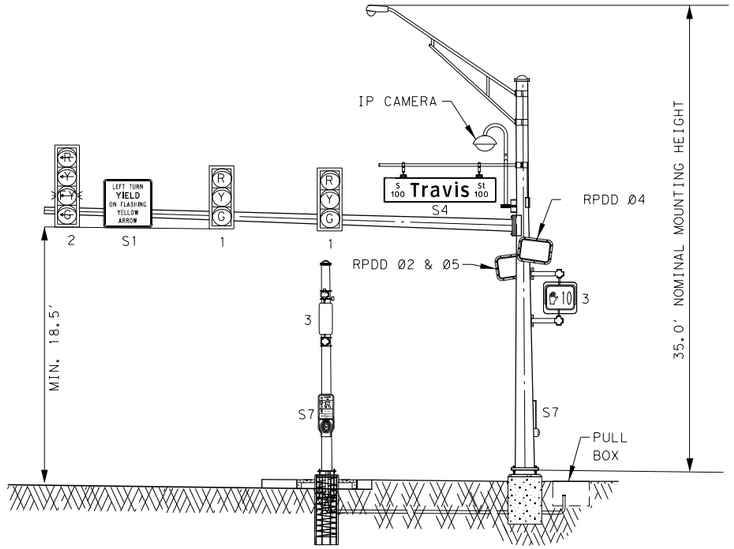
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		36
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/26/2023
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2020\2020-2096-00 - TxDOT El Paso_San Antonio (STS)\Work Authorizations\2020-2096-03 - WA5 - Seguin Traffic Signals\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Pavement Markings\SHT_RAMPS_US90Ast



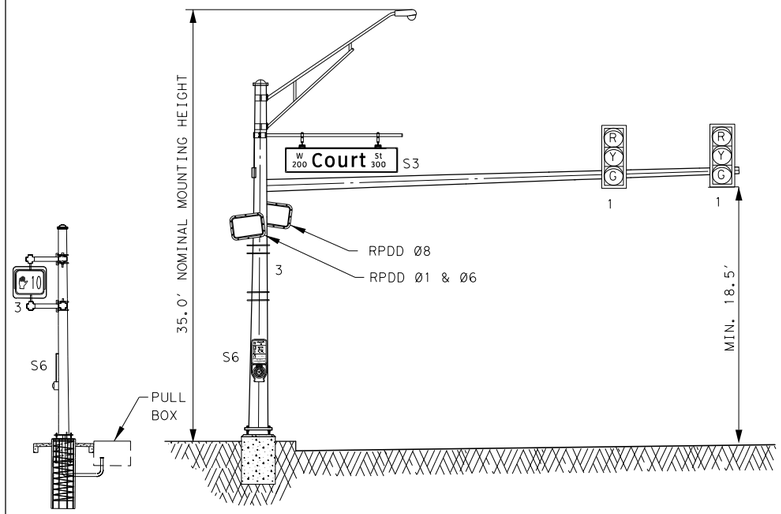
PED
POLE "F"
VIEW

PROPOSED POLE "A" "WESTBOUND"



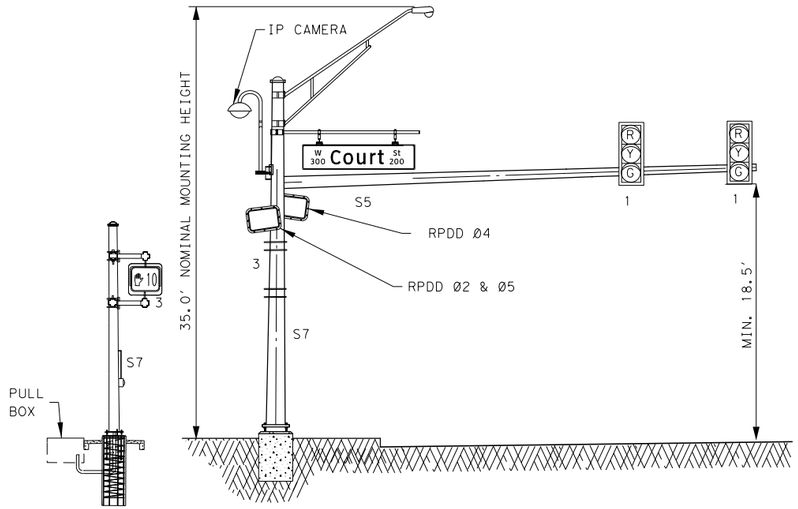
PED
POLE "H"
VIEW

PROPOSED POLE "C" "EASTBOUND"



PED
POLE "F"
VIEW

PROPOSED POLE "A" "NORTHBOUND"



PED
POLE "H"
VIEW

PROPOSED POLE "C" "SOUTHBOUND"

STATE OF TEXAS
YOHANNES A. TADESSE
107781
PROFESSIONAL REGISTERED ENGINEER
1/19/2023

NO.	REVISION	APPROV.

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PROPOSED ELEVATION VIEW US 90A (W COURT ST) AT TRAVIS ST

SHEET 6 OF 7

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		37
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

ESTIMATE OF QUANTITIES - TRAFFIC SIGNAL

ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST. QUANTITY
104	6029	REMOVING CONC (CURB OR CURB AND GUTTER)	LF	42
104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	50
416	6032	DRILL SHAFT (TRF SIG POLE)(36IN)	LF	27
420	6074	CL C CONC (MISC)	CY	1
432	6003	RIPRAP (CONC) (6 IN)	CY	13
471	6003	GRATE & FRAME	EA	35
529	6002	CONC CURB (TY II)	LF	85.5
531	6004	CURB RAMPS (TY 1)	EA	8
618	6046	CONDT(PVC)(SCH 80)(2")	LF	82
618	6047	CONDT(PVC)(SCH 80)(2")(BORE)	LF	140
618	6053	CONDT(PVC)(SCH 80)(3")	LF	45
618	6054	CONDT(PVC)(SCH 80)(3")(BORE)	LF	350
620	6009	ELEC CONDR (NO.6) BARE	LF	617
620	6010	ELEC CONDR (NO.6) INSULATED	LF	150
621	6005	TRAY CABLE (4 CONDR)(12 AWG)	LF	230
624	6010	GROUND BOX TY D (162922)W/APRON	EA	4
628	6164	ELC SRV TY A 240/480 070(NS)AL(E)PS(U)	EA	1
666	6034	REFL PAV MRK TY 1 (W)8"(SLD)(060MIL)	LF	120
666	6046	REFL PAV MRK TY 1 (W)24"(SLD)(060MIL)	LF	369
666	6052	REFL PAV MRK TY 1 (W)(ARROW)(060MIL)	EA	3
666	6076	REFL PAV MRK TY 1 (W)(WORD)(060MIL)	EA	3
666	6301	RE PM W/RET REQ TY 1 (W)4"(SLD)(060MIL)	LF	112
666	6307	RE PM W/RET REQ TY 1 (W)6"(SLD)(060MIL)	LF	135
666	6313	RE PM W/RET REQ TY 1 (Y)4"(SLD)(060MIL)	LF	1494
672	6007	REFL PAV MRKR TY I-C	EA	8
672	6009	REFL PAV MRKR TY II-A-A	EA	76
680	6003	INSTALL HWY TRF SIG (SYSTEM)	EA	1
	*	NEMA TX 2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET	EA	1
	*	TRF SIG CONTROLLER CONCRETE BASE PAD FOUNDATION	EA	1
	*	R10-17T (30"X30") "LEFT TURN ON FLASHING YELLOW ARROW"	EA	2
680	6004	REMOVING TRAFFIC SIGNALS	EA	1
682	6001	VEH SIG SEC (12")LED(GRN)	EA	8
682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	2
682	6003	VEH SIG SEC (12")LED(YEL)	EA	8
682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	4
682	6005	VEH SIG SEC (12")LED(RED)	EA	8
682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	2
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	8
682	6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	2
682	6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	8
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	1100
684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	675
684	6030	TRF SIG CBL (TY A)(14 AWG)(4 CONDR)	LF	470
684	6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	807
686	6144	INS TRF SIG PL AM(S)2 ARM(40-32')LUM&ILSN	EA	1
	*	LED LUMINAIRE (250 W EQ) WITH ARM	EA	1
686	6148	INS TRF SIG PL AM(S)2 ARM(40-36')LUM&ILSN	EA	1
	*	LED LUMINAIRE (250 W EQ) WITH ARM	EA	1
687	6001	PED POLE ASSEMBLY	EA	6
	*	DRILL SHAFT (24IN)	LF	36
687	6005	REMOVE PED POLE ASSEMBLY	EA	2
688	6001	PED DETECT PUSH BUTTON (APS)	EA	8
	*	R10-3eR (9"X15") PEDESTRIAN SIGN (RIGHT ARROW)	EA	4
	*	R10-3eL (9"X15") PEDESTRIAN SIGN (LEFT ARROW)	EA	4
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
6004	6031	ITS COMM CBL (ETHERNET)	LF	60
6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
6185	6002	TMA (STATIONARY)	DAY	10
6292	6001	RVDS(PRESENCE DETECTION ONLY)	EA	4
	*	6/C-RADAR SMARTSENSOR CABLE	LF	490
6411	6002	ILSN (LED) (8S)	EA	4
**		CONTRACTOR FORCE ACCOUNT (COMM PACKAGE)	EA	1
**		CELLULAR MODEM (CISCO MODEL 809)	EA	1
**		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
**		IP CAMERA (AXIS M5525-E)	EA	1
**		IP CAMERA MOUNTING BRACKET (AXIS T94A01D PENDANT KIT)	EA	1
**		POWER STRIP	EA	1
**		SWITCH POWER SUPPLY	EA	1
**		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
**		CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
**		CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1

* SUBSIDIARY TO PERTINENT ITEM

** CONTRACTOR FORCE ACCOUNT

POLE ID.	POLE AND EQUIPMENT DESCRIPTIONS WITH ATTACHMENTS
A	PROPOSED 40'X 36' DUAL MAST ARM ON A 36-A FOUNDATION AT 13 FT WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN AND ONE LED LUMINAIRE (250W HPS EQUIVALENT). 36' ARM WITH THREE VERTICAL VEHICLE SIGNAL HEADS, ONE ILSN STREET NAME SIGN,ONE R10-17T (30"X30") SIGN. ONE RVDS PRESENCE DETECTION (RPDD 01&06)AND ONE RVDS PRESENCE DETECTION (RPDD 08) MOUNTED ON POLE. 40' MAST ARM WITH TWO VERTICAL SIGNAL HEADS,ONE ILSN STREET NAME SIGN.
B	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eL PEDESTRIAN SIGN.
C	PROPOSED 40'X 32' DUAL MAST ARM ON A 36-A FOUNDATION AT 13 FT WITH ONE IP CAMERA,ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eL PEDESTRIAN SIGN AND ONE LED LUMINAIRE (250W HPS EQUIVALENT). ONE RVDS PRESENCE DETECTION (RPDD 02 & 05)AND ONE RVDS PRESENCE DETECTION (RPDD 04) MOUNTED ON POLE. 36' ARM WITH THREE VERTICAL VEHICLE SIGNAL HEADS, ONE ILSN STREET NAME SIGN,ONE R10-17T (30"X30") SIGN. 40' MAST ARM WITH TWO VERTICAL SIGNAL HEADS, ONE ILSN STREET NAME SIGN.
D	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eL PEDESTRIAN SIGN
E	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN
F	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN
G	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN
H	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eL PEDESTRIAN SIGN

CSJ	PROJECT LOCATION	ELECTRIC SERVICE NO.	SHEET NO.	ELECTRICAL SERVICE DESCRIPTION (SEE ED (4&5)-14)	SERVICE CONDUIT SIZE (RMC)	SERVICE CONDUCTORS NO./SIZE
0915-46-057	US 90A (W COURT ST) AT TRAVIS ST	POLE "I"		TY D (120/240) 70 (NS) AL (E) PS (U)	1-1/4"	3/#4
SAFETY SWITCH AMPS	MAIN CKT. BKR. POLE/AMP	TWO-POLE CONTACTOR AMPS	PANEL BD./ LOADCENTER AMP RATING MIN.	CIRCUIT NO.	BRANCH CKT. BKR. POLE/AMP	KVA LOAD
N/A	2P/70	30	100	SIGNAL LIGHTING	1P/50 1P/20	<7.1

PROPOSED SIGN SCHEDULE

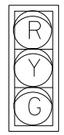
R10-17T
(30"x30")
S1

R10-3eR
(9"X15")
W/ACCESSIBLE
PUSH BUTTON
S6
(4 EA)

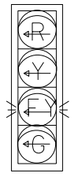
R10-3eL
(9"X15")
W/ACCESSIBLE
PUSH BUTTON
S7
(4 EA)

PROPOSED SIGNAL HEAD SCHEDULE

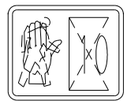
12" LED VERTICAL SIGNAL SECTIONS
W/REFLECTIVE BACK PLATES



SIGNAL NO. 1



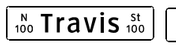
SIGNAL NO. 2



LED PEDESTRIAN
COUNTDOWN SIGNAL

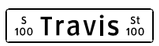
SIGNAL NO. 3

PROPOSED ILSN SIGNS



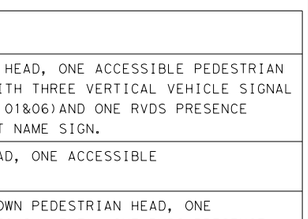
S2

S3



S4

S5



NO.	REVISION	APPROV.

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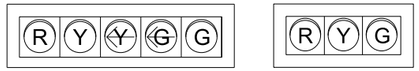
TBPE F-1649

INTERSECTION QUANTITIES & DETAILS US 90A (W COURT ST) AT TRAVIS ST

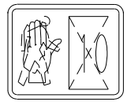
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		38
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

EXISTING SIGNAL HEAD SCHEDULE



A

B



C

N

SCALE: 1" = 40'

20 0 20

LEGEND

- EXISTING CONTROLLER CABINET
- EXISTING SIGNAL HEAD VERTICAL
- EXISTING TRAFFIC SIGNAL POLE
- EXISTING PEDESTRIAN POLE
- EXISTING TRAFFIC SIGNAL MAST ARM
- EXISTING PEDESTRIAN SIGNAL HEAD
- EXISTING PEDESTRIAN PUSH BUTTON
- EXISTING MAST ARM MOUNTED SIGN
- EXISTING METER
- EXISTING LUMINAIRE AND ARM
- DIRECTION OF TRAFFIC FLOW

NOTES:

1. ALL TRAFFIC SIGNAL EQUIPMENT LOCATIONS AND RIGHT-OF-WAY LINES ARE APPROXIMATE. VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
2. THE EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS/HER FAILURE TO LOCATE, PRESERVE, AND PROTECT THESE UTILITIES.
3. COMMUNICATION EQUIPMENT INCLUDING CELL ROUTER, CELLULAR ANTENNA, ETHERNET SWITCH, ENCODER, AND ALL POWER SUPPLIES SHALL BE REMOVED FROM EXISTING SIGNAL CABINET AND REINSTALLED IN NEW SIGNAL CABINET. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ITEM 680.
4. CONTRACTOR SHALL CONTACT THE DISTRICT SIGNAL MAINTENANCE OFFICE AND AREA OFFICE A MINIMUM OF SEVEN (7) DAYS PRIOR TO BEGINNING CONSTRUCTION.
5. CONTRACTOR SHALL CONTACT THE DISTRICT SIGNAL MAINTENANCE OFFICE AND AREA OFFICE A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE TRAFFIC SIGNAL TURN-ON.

EXISTING SIGNS

S1

S3

S2

S5

S6

S4

S7

POSTED SPEED LIMITS:
W COURT ST = 30 MPH
CAMP ST = NO POSTED SPEED LIMIT SIGNS

PAVEMENT TYPE:
CAMP = ASPHALT
W COURT ST = ASPHALT

STATE OF TEXAS
YOHANNES A. TADESSE
107781
PROFESSIONAL ENGINEER
REGISTERED
1/19/2023

NO.	REVISION	APPROV.

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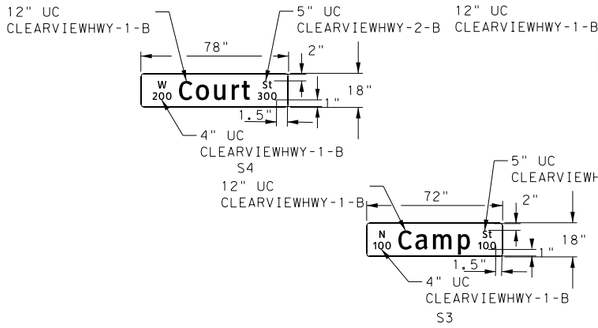
EXISTING INTERSECTION LAYOUT
US 90A (W COURT ST) AT CAMP ST

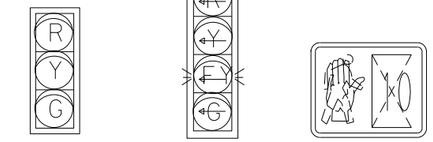
SHEET 1 OF 7

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		39
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

PROPOSED ILSN SIGNS



PROPOSED SIGNAL HEAD SCHEDULE



N

SCALE: 1" = 40'
20 0 20

LEGEND

- CONTROLLER CABINET
- SIGNAL HEAD VERTICAL
- TRAFFIC SIGNAL POLE
- PEDESTRIAN POLE
- SIGNAL MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- MAST ARM MOUNTED SIGN
- EXISTING METER
- ELECTRICAL SERVICE
- EXISTING LUMINAIRE AND ARM
- LUMINAIRE AND ARM
- GROUND BOX
- PRESENCE RADAR DETECTION
- IP CAMERA
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- DIRECTION OF TRAFFIC FLOW

SPECIAL NOTE:

THE 36' CLAMP ON ARM FOR POLE "B" WILL NOT BE INCLUDED IN THIS PROJECT.
THIS WILL BE PURCHASED AND INSTALLED BY THE CITY OF SEGUIN AT A LATER DATE.

NOTES:

1. ALL TRAFFIC SIGNAL EQUIPMENT LOCATIONS ARE BASED ON A SURVEY. CONTRACTOR SHALL VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
2. APPARENT RIGHT-OF-WAY LINES ARE FROM TXDOT MAPS. VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
3. THE EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS/HER FAILURE TO LOCATE, PRESERVE, AND PROTECT THESE UTILITIES.
4. CONTRACTOR SHALL REMOVE ALL EXISTING TRAFFIC SIGNAL EQUIPMENT AND INSTALL NEW EQUIPMENT AS PER DESIGN LAYOUTS AND IN ACCORDANCE WITH TXDOT STANDARDS AND SPECIFICATIONS AND IN ACCORDANCE WITH THE ACCESSIBILITY REQUIREMENTS AND CONNECT PROPOSED FIELD WIRING TO CONTROLLER.
5. FOR PAVEMENT MARKINGS, SEE PROPOSED PAVEMENT MARKINGS SHEET.
6. ALL EXISTING CURB RAMPS SHALL BE REMOVED AND NEW WHEELCHAIR RAMPS INSTALLED AS PER DESIGN DETAILS ON THE PROPOSED STRIPING LAYOUT SHEET AND IN ACCORDANCE WITH TXDOT STANDARDS AND SPECIFICATIONS AND IN ACCORDANCE WITH THE ACCESSIBILITY REQUIREMENTS.
7. THE CONTRACTOR SHALL INSTALL NEW PRESENCE RADAR DETECTORS. THE LOCATION OF THE RADAR DETECTORS SHOWN ARE APPROXIMATE. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD AND ADJUSTED TO PROVIDE PROPER DETECTION ZONES AND A COMPLETE OPERABLE SYSTEM.
8. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT SIGNAL SHOP AT 4615 NW LOOP 410 210-218-7430.
9. CONTRACTOR SHALL FURNISH AND DELIVER ONE (1) TS 2 TYPE 2 AND SEVEN (7) TX 2 TYPE 5 (12-POSITION) CONTROLLER CABINETS AND ASSEMBLY TO TXDOT SIGNAL SHOP FOR PROGRAMMING AND TESTING TWO WEEKS IN ADVANCE PRIOR TO CONTRACTOR INSTALLING EQUIPMENT IN THE FIELD. COORDINATE DROP OFF AND PICKUP WITH MARK PEREZ AT 210-218-7430.
10. THE INSTALLATION OF ALL COMMUNICATION PACKAGE ITEMS (MODEM, POWER STRIP, ETC.) IS SUBSIDIARY TO ITEM 680.
11. TRAY CABLES SHALL BE RUN IN 2" CONDUIT SEPARATE FROM THE SIGNAL CABLE.
12. ADJUST EXISTING AND PROPOSED SIGNAL HEADS AS NECESSARY TO KEEP THEM VISIBLE AT ALL TIMES DURING CONSTRUCTION. ADJUSTING SIGNAL HEADS DURING CONSTRUCTION IS SUBSIDIARY TO ITEM 502.
13. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF SEVEN (7) DAYS PRIOR TO BEGINNING CONSTRUCTION.
14. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE TRAFFIC SIGNAL TURN-ON.
15. LUMINAIRES ARE SHOWN FOR CLARITY PURPOSES ONLY. ORIENT THEM AS DIRECTED BY THE ENGINEER.

POSTED SPEED LIMITS:
W COURT ST = 30 MPH
CAMP ST = NO POSTED SPEED LIMIT SIGNS

PAVEMENT TYPE:
CAMP = ASPHALT
W COURT ST = ASPHALT

PROPOSED SIGNS

R10-17T
(30"X30")
S1

R3-1
(24"X24")
S5

R3-2
(24"X24")
S7

R6-1L
(36"X12")
S6
(2 EA)

R6-1R
(36"X12")
S8
(3 EA)

R10-3eR
(9"X15")
W/ACCESSIBLE
PUSH BUTTON
S9
(6 EA)

R10-3eL
(9"X15")
W/ACCESSIBLE
PUSH BUTTON
S10
(2 EA)

STATE OF TEXAS
YOHANNES A. TADESSE
107781
PROFESSIONAL ENGINEER
REGISTERED
1/19/2023

NO.	REVISION	APPROV.

TEDSI
TBPE F-1640
TEDSI INFRASTRUCTURE GROUP
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PROPOSED INTERSECTION LAYOUT
US 90A (W COURT ST) AT CAMP ST

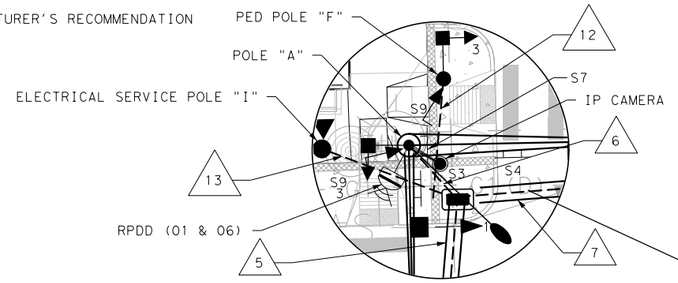
SHEET 2 OF 7

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		40
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

POLE CONDUIT AND CONDUCTOR SCHEDULE

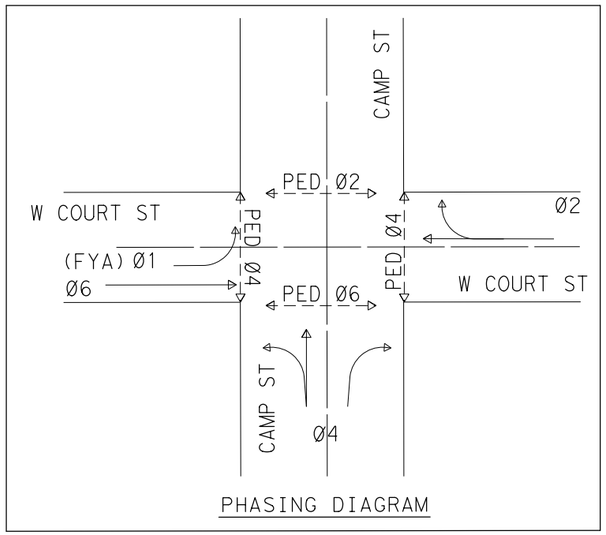
	RUN NUMBER		1			2			3			4	5			6			7		8	9	10	11	12	13
	CONDUIT SIZE IN INCHES		2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	3.0	3.0
	NUMBER OF CONDUITS		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	LENGTH OF RUN		5	5	5	55	55	55	15	15	15	5	50	50	50	10	10	10	50	50	5	20	10	10	20	15
	TRENCH (T)/BORE (B)/CONTROLLER (C)		T	T	T	B	B	B	C	C	C	T	B	B	B	T	T	T	B	B	T	T	T	T	T	T
CABLE	CIRCUIT		NUMBER OF CONDUCTORS																							
#6 XHHW	120 POWER HOT								1				1													1
	120 POWER COMMON								1				1													1
#6 BARE	BARE BOND GROUND		1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1
7 COND. #12 STRANDED TY A	SIGNAL HEAD	PHASE 04									1				1			1								
		PHASE 06 & 01			2			2			2															
		PHASE 02									1				1			1								
4 COND. #12 STRANDED TY A	PED. SIGNALS	PHASE 06 & 01			1			1			2													1		
		PHASE 02									2				2					1	1				1	
		PHASE 04						1			4	1			1			1		1		1	1			
2 COND. #14 STRANDED TY C	PED. PUSH BUTTONS	PHASE 06 & 01			1			1			2													1		
		PHASE 02									2				2					1	1				1	
		PHASE 04						1			4	1			1			1		1		1	1			
6 COND. #22*	RVDS (PRESENCE DETECTION DEVICE)	PHASE 04			1			1			1															
		PHASE 06 & 01									1				1			1								
		PHASE 02			1			1			1															
CAT 5 ETHERNET CABLE & POWER*	IP CAMERA	POLE "A"									1				1			1								
TRAY CABLE 4/C - #12 AWG TYPE A	LUMINAIRE	POLE "A"														1										1
		POLE "B"	1			1							1													1
4/C - #14AWG TYPE A	ILLUMINATED SIGN	POLE "A"														2										2
		POLE "B"	1			1							1													1

*IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION

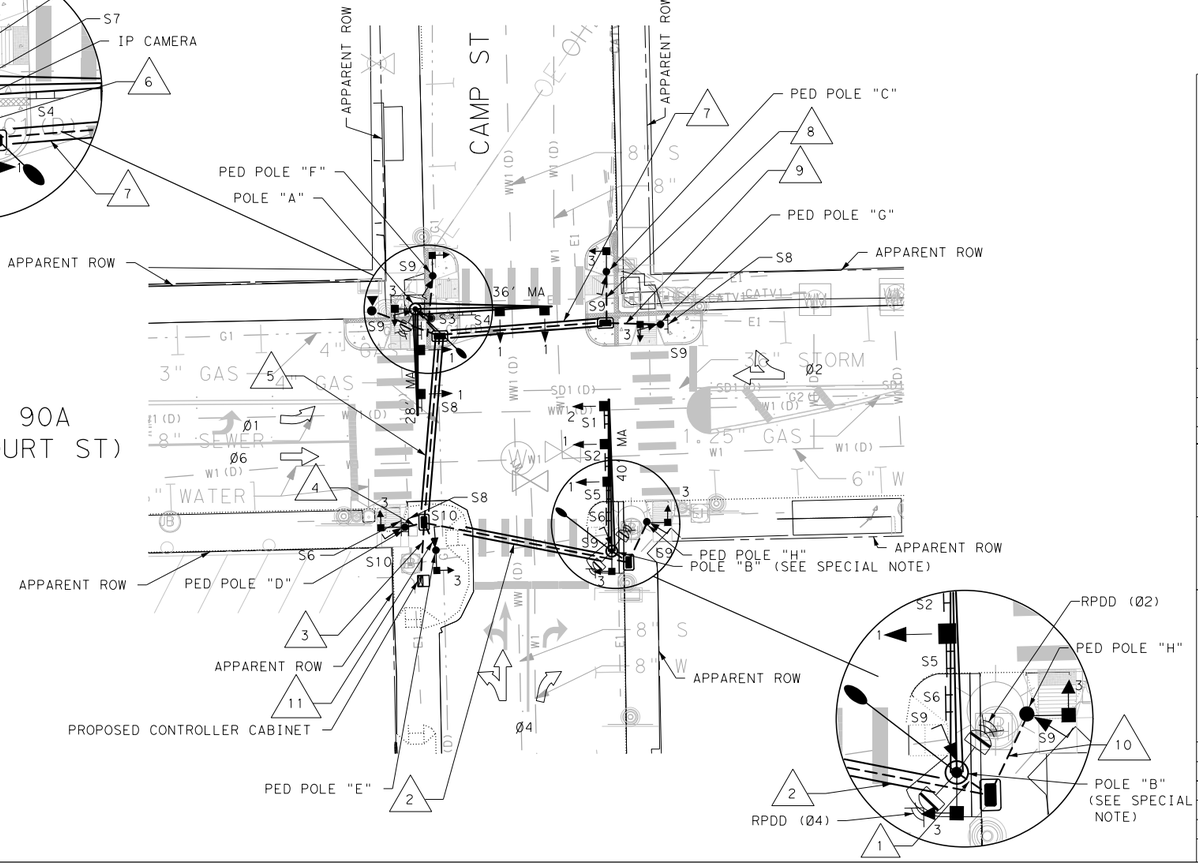


SPECIAL NOTE:

THE 36' CLAMP ON ARM FOR POLE "B" WILL NOT BE INCLUDED IN THIS PROJECT.
THIS WILL BE PURCHASED AND INSTALLED BY THE CITY OF SEGUIN AT A LATER DATE.



PHASING DIAGRAM



LEGEND

- CONTROLLER CABINET
- SIGNAL HEAD VERTICAL
- TRAFFIC SIGNAL POLE
- PEDESTRIAN POLE
- SIGNAL MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- MAST ARM MOUNTED SIGN
- EXISTING METER
- ELECTRICAL SERVICE
- EXISTING LUMINAIRE AND ARM
- LUMINAIRE AND ARM
- GROUND BOX
- PRESENCE RADAR DETECTION
- IP CAMERA
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- DIRECTION OF TRAFFIC FLOW

N

SCALE: 1" = 40'
20 0 20

STATE OF TEXAS
YOHANNES A. TADESSE
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REGISTERED PROFESSIONAL ENGINEER
1/19/2023

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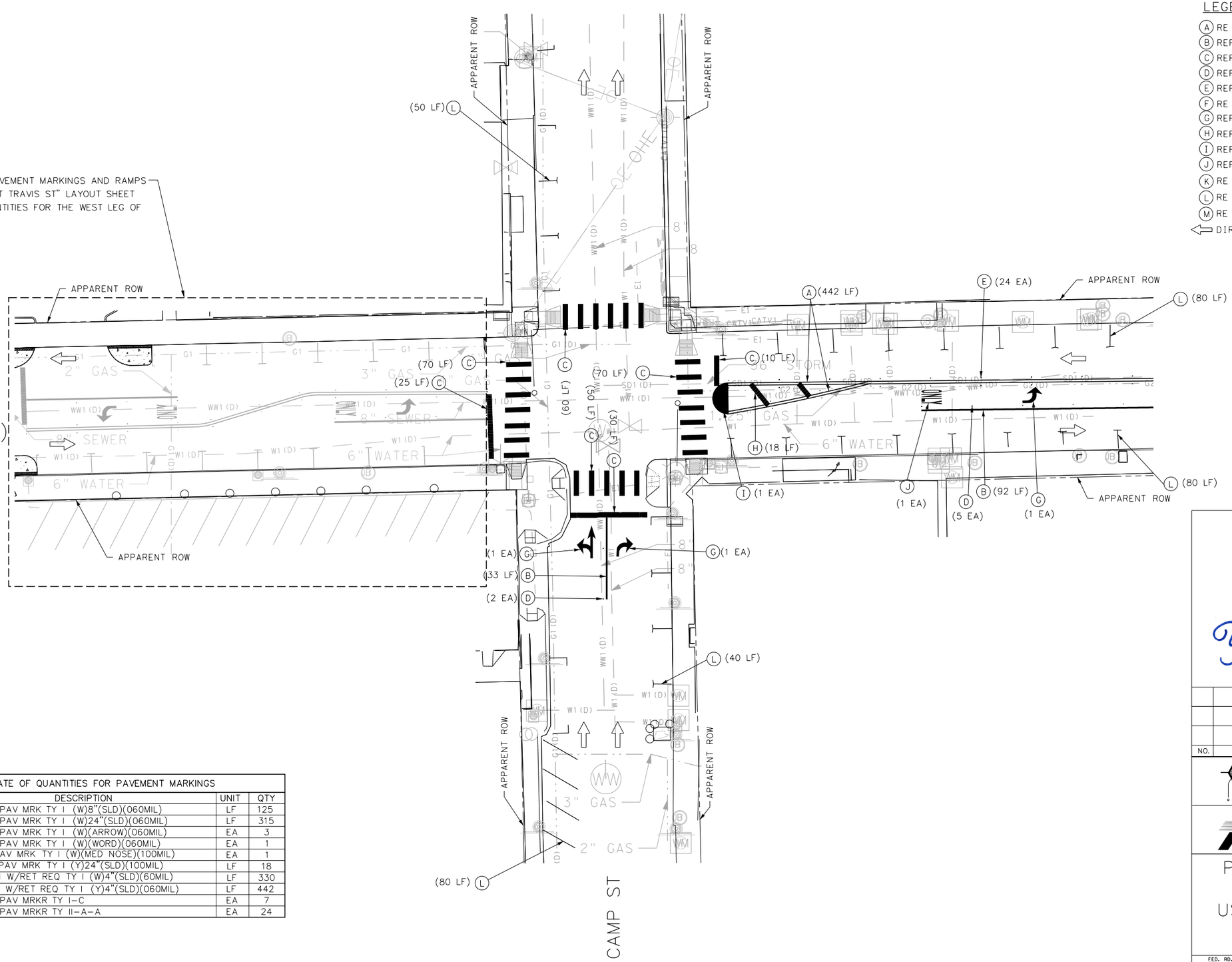
PROPOSED WIRING DIAGRAM US 90A (W COURT ST) AT CAMP ST

SHEET 3 OF 7

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	41

STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/26/2023
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2020\2020-2096-00 - TxDOT El Paso-San Antonio (SIS)\Work Authorizations\2020-2096-03 - WA5 - Seguin Traffic Signals\6.0 TEDSI Design\6.08 CAD\6.08.01 Sheet Files\Signal\SH*SIG4*US90AatCAMP*PROPSIG



LEGEND

- (A) RE PM W/RET REQ TYI(Y)4"(SLD)(60MIL)
- (B) REFL PAV MRK TY I (W)(8")(SLD)(60MIL)
- (C) REFL PAV MRK TY I (W)(24")(SLD)(60MIL)
- (D) REFL PAV MRKR TY I-C
- (E) REFL PAV MRKR TY II-A-A
- (F) RE PM W/RET REQ TYI(W)4"(BRK)(60MIL)
- (G) REFL PAV MRK TY I (W)(ARROW)(60MIL)
- (H) REFL PAV MRK TY I (Y)24"(SLD)(60MIL)
- (I) REFL PAV MRK TY I (Y)(MED NOSE)(100MIL)
- (J) REFL PAV MRK TY I (W)(WORD)(60MIL)
- (K) RE PM W/RET REQ TY I (Y)4"(BRK)(60MIL)
- (L) RE PM W/RET REQ TY I (W)4"(SLD)(60MIL)
- (M) RE PM W/RET REQ TY I (W)6"(SLD)(60MIL)
- ⇦ DIRECTION OF TRAFFIC FLOW

ESTIMATE OF QUANTITIES FOR PAVEMENT MARKINGS

ITEM NO.	DESCRIPTION	UNIT	QTY
0666-6034	REFL PAV MRK TY I (W)8"(SLD)(060MIL)	LF	125
0666-6046	REFL PAV MRK TY I (W)24"(SLD)(060MIL)	LF	315
0666-6052	REFL PAV MRK TY I (W)(ARROW)(060MIL)	EA	3
0666-6076	REFL PAV MRK TY I (W)(WORD)(060MIL)	EA	1
0666-6090	REF PAV MRK TY I (W)(MED NOSE)(100MIL)	EA	1
0666-6147	REFL PAV MRK TY I (Y)24"(SLD)(100MIL)	LF	18
0666-6301	RE PM W/RET REQ TY I (W)4"(SLD)(60MIL)	LF	330
0666-6313	RE PM W/RET REQ TY I (Y)4"(SLD)(060MIL)	LF	442
0672-6007	REFL PAV MRKR TY I-C	EA	7
0672-6009	REFL PAV MRKR TY II-A-A	EA	24

NOTES:

1. REFRESH LANE LINES, CENTERLINES, CROSSWALK PAVEMENT MARKINGS.
2. ALL GROUND MOUNTED SIGNS ARE TO REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
3. ALL MATERIAL SHALL BE AS PER TXDOT APPROVED MATERIAL LIST.
4. ALL WORK SHALL BE DONE AS PER TXDOT STANDARDS AND SPECIFICATIONS.

STATE OF TEXAS
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PROPOSED PAVEMENT MARKINGS US 90A (W COURT ST) AT CAMP ST

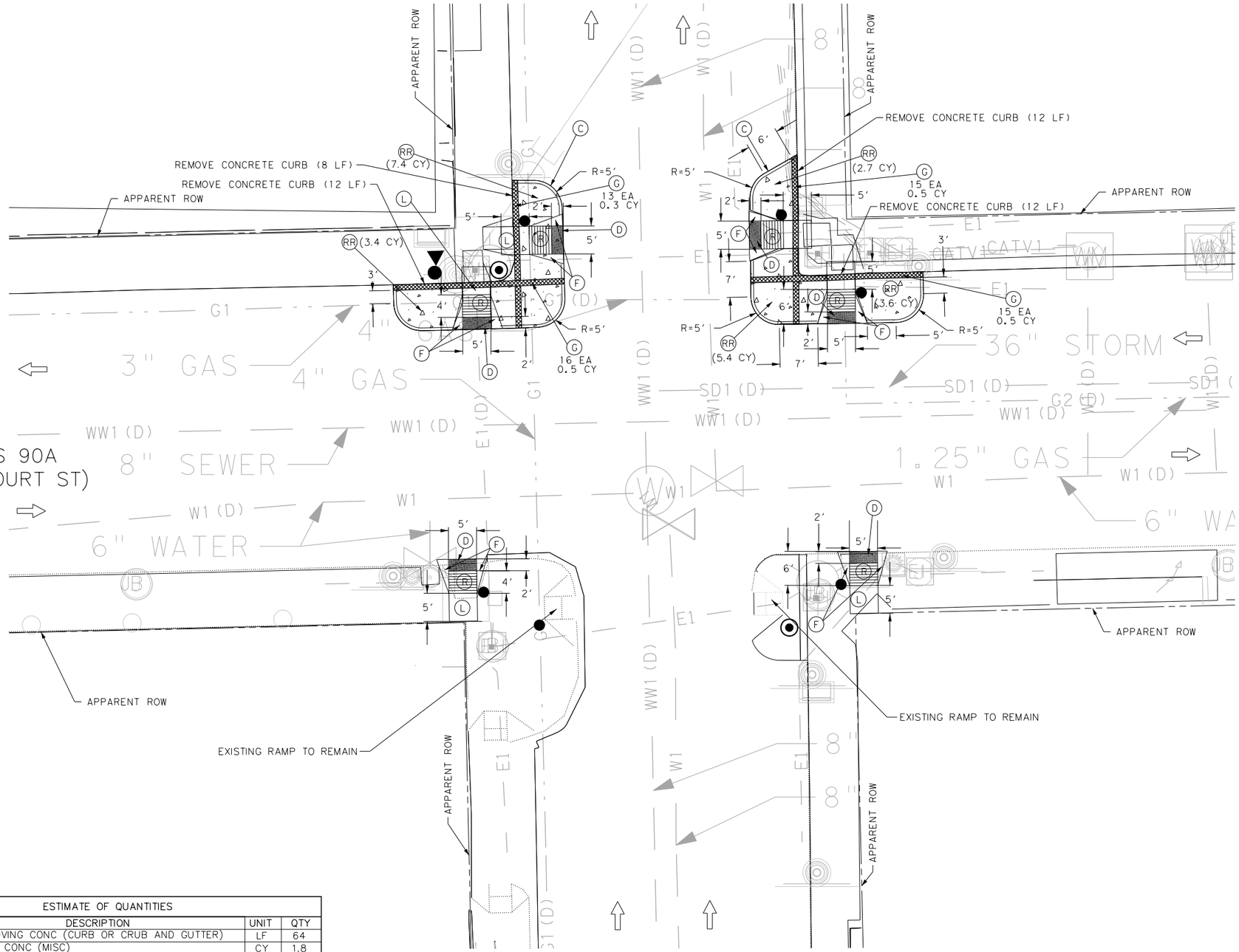
SHEET 4 OF 7

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	42

STATE	DIST.	COUNTY
TEXAS	SAT	GUADALUPE

CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/26/2023
dgn: \\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2020\2020-2096-00 - TxDOT El Paso_San Antonio (STS)\Work Authorizations\2020-2096-03 - WA5 - Seguin Traffic Signals\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Pavement Markings\SHT_SPM_US90AtCA



LEGEND

- (C) CONCRETE CURB
- (D) DETECTABLE WARNING PAVER
- (F) FLARE
- (G) GRATE & FRAME
- (L) LANDING
- (LS) LEVEL SIDEWALK
- (SS) SLOPE SIDEWALK
- (R) RAMP
- (RR) RIPRAP
- PED POLE
- TRAFFIC SIGNAL POLE
- ELECTRICAL SERVICE
- DIRECTION OF TRAFFIC FLOW

N

SCALE: 1" = 20'
10 0 10

ESTIMATE OF QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QTY
0104-6029	REMOVING CONC (CURB OR CRUB AND GUTTER)	LF	64
0420-6074	CL C CONC (MISC)	CY	1.8
0432-6003	RIPRAP (CONC) (6 IN)	CY	22.46
0471-6003	GRATE & FRAME	EA	59
0529-6002	CONC CURB (TY II)	LF	108
0531-6004	CURB RAMPS (TY 1)	EA	6

NOTES:

1. THE SLOPE FOR ALL PROPOSED RAMPS SHALL BE 8.3% MAX. AS PER CRITERIA.
2. THE PROPOPOSED GRATE & FRAME ARE 12 INCHES WIDE AND EACH SEGMENT IS 2 FEET LONG. REFER TO CITY OF SEGUIN STANDARDS FOR GRATE & FRAME.
3. ALL LANDING PADS SHALL BE 5 FEET BY 5 FEET MIN. AND 2% CROSS SLOPE MAX.
4. ALL WORK SHALL BE DONE AS PER CITY OF SEGUIN AND TXDOT STANDARDS AND SPECIFICATIONS.

STATE OF TEXAS
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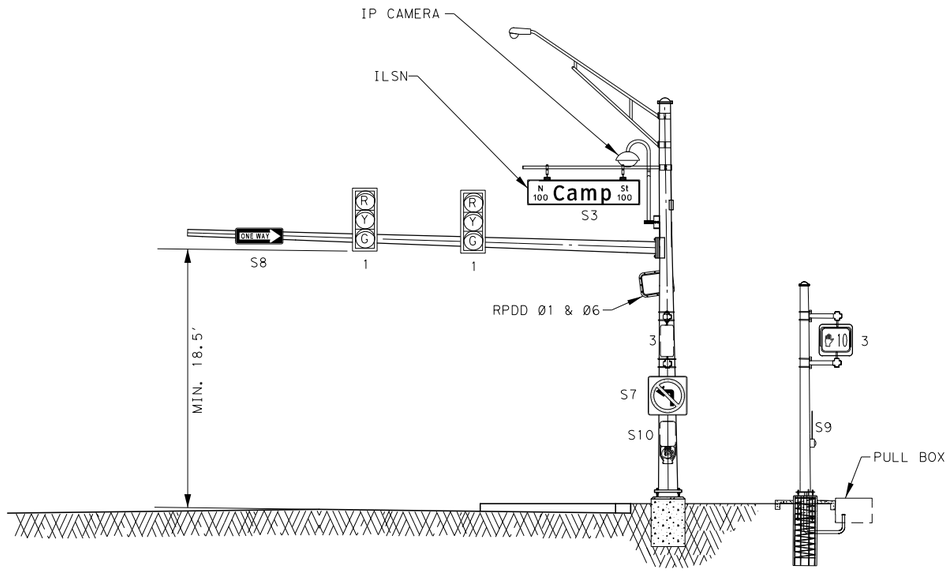
PROPOSED RAMPS AND SIDEWALKS US 90A (W COURT ST) AT CAMP ST

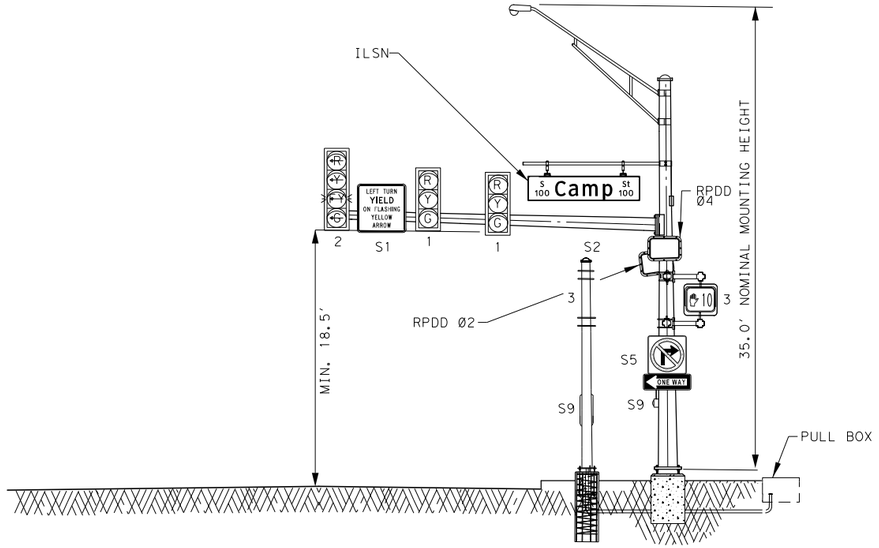
SHEET 5 OF 7

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		43
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90



WESTBOUND VIEW

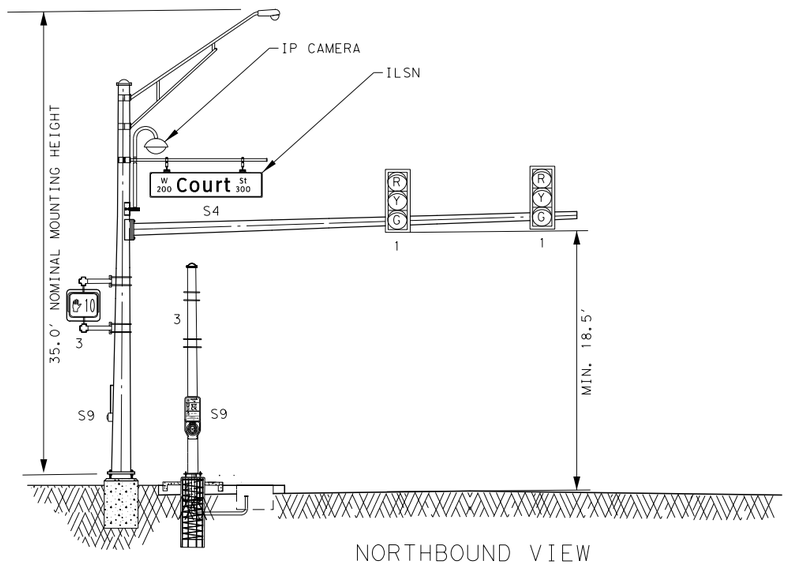
PROPOSED PED POLE "F"
POLE "A" VIEW



EASTBOUND VIEW

PED
POLE "H"
VIEW

PROPOSED
POLE "B"



NORTHBOUND VIEW

PROPOSED PED POLE "F"
POLE "A" VIEW

STATE OF TEXAS
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107781
PROFESSIONAL ENGINEER
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NO.		REVISION	APPROV.

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Houston, Texas 77079
(832) 619-1000
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Texas Department of Transportation®

PROPOSED ELEVATION VIEW US 90A (W COURT ST) AT CAMP ST

SHEET 6 OF 7

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		44
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

ESTIMATE OF QUANTITIES - TRAFFIC SIGNAL

	ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST. QUANTITY
	104	6029	REMOVING CONC (CURB OR CURB AND GUTTER)	LF	64
	104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	50
	416	6032	DRILL SHAFT (TRF SIG POLE)(36IN)	LF	27
	420	6074	CL C CONC (MISC)	CY	1.8
	432	6003	RIPRAP (CONC) (6 IN)	CY	22.5
	471	6003	GRATE & FRAME	EA	59
	529	6002	CONC CURB (TY II)	LF	108
	531	6004	CURB RAMPS (TY 1)	EA	6
	618	6046	CONDT(PVC)(SCH 80)(2")	LF	65
	618	6047	CONDT(PVC)(SCH 80)(2")(BORE)	LF	105
	618	6053	CONDT(PVC)(SCH 80)(3")	LF	100
	618	6054	CONDT(PVC)(SCH 80)(3")(BORE)	LF	310
	620	6009	ELEC CONDR (NO.6) BARE	LF	580
	620	6010	ELEC CONDR (NO.6) INSULATED	LF	80
	621	6005	TRAY CABLE (4 CONDR)(12 AWG)	LF	220
	624	6010	GROUND BOX TY D (162922)W/APRON	EA	4
	628	6164	ELC SRV TY A 240/480 070(NS)AL(E)PS(U)	EA	1
	666	6034	REFL PAV MRK TY 1 (W)8"(SLD)(060MIL)	LF	125
	666	6046	REFL PAV MRK TY 1 (W)24"(SLD)(060MIL)	LF	315
	666	6052	REFL PAV MRK TY 1 (W)(ARROW)(060MIL)	EA	3
	666	6076	REFL PAV MRK TY 1 (W)(WORD)(060MIL)	EA	1
	666	6090	REFL PAV MRK TY 1 (W)(MED NOSE)(100MIL)	EA	1
	666	6147	REFL PAV MRK TY 1 (Y) 24" (SLD)(100MIL)	LF	18
	666	6301	RE PM W/RET REQ TY 1 (W)4"(SLD)(060MIL)	LF	330
	666	6313	RE PM W/RET REQ TY 1 (Y)4"(SLD)(060MIL)	LF	442
	672	6007	REFL PAV MRKR TY I-C	EA	7
	672	6009	REFL PAV MRKR TY II-A-A	EA	24
	680	6003	INSTALL HWY TRF SIG (SYSTEM)	EA	1
		*	NEMA TX 2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET	EA	1
		*	TRF SIG CONTROLLER CONCRETE BASE PAD FOUNDATION	EA	1
		*	R10-17T (30"X30") "LEFT TURN ON FLASHING YELLOW ARROW"	EA	1
		*	R3-1 (24"X24") "NO RIGHT TURN" SIGN	EA	1
		*	R3-2 (24"X24") "NO LEFT TURN" SIGN	EA	1
		*	R6-1L (36"X12") "ONE WAY" SIGN	EA	2
		*	R6-1R (36"X12") "ONE WAY" SIGN	EA	3
	680	6004	REMOVING TRAFFIC SIGNALS	EA	1
	682	6001	VEH SIG SEC (12")LED(GRN)	EA	6
	682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	1
	682	6003	VEH SIG SEC (12")LED(YEL)	EA	6
	682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	2
	682	6005	VEH SIG SEC (12")LED(RED)	EA	6
	682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	1
	682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	8
	682	6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	1
	682	6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	6
	684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	855
	684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	380
	684	6030	TRF SIG CBL (TY A)(14 AWG)(4 CONDR)	LF	285
	684	6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	595
	686	6120	INS TRF SIG PL AM(S)2 ARM(36-28')LUM&ILSN	EA	1
		*	LED LUMINAIRE (250 W EQ) WITH ARM	EA	1
***	686	6148	IN TRF SG PL AM(S)2 ARM(40-36')LUM&ILSN (36' CLAMP ON ARM NOT INCLUDED)	EA	1
		*	LED LUMINAIRE (250 W EQ) WITH ARM	EA	1
	687	6001	PED POLE ASSEMBLY	EA	6
		*	DRILL SHAFT (24IN)	LF	36
	687	6005	REMOVE PED POLE ASSEMBLY	EA	2
	688	6001	PED DETECT PUSH BUTTON (APS)	EA	8
		*	R10-3eR (9"X15") PEDESTRIAN SIGN (RIGHT ARROW)	EA	6
		*	R10-3eL (9"X15") PEDESTRIAN SIGN (LEFT ARROW)	EA	2
	688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
	6004	6031	ITS COMM CBL (ETHERNET)	LF	105
	6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
	6185	6002	TMA (STATIONARY)	DAY	10
	6292	6001	RVDS(PRESENCE DETECTION ONLY)	EA	3
		*	6/C-RADAR SMARTSENSOR CABLE	LF	315
	6411	6002	ILSN (LED) (8S)	EA	3
	**		CONTRACTOR FORCE ACCOUNT (COMM PACKAGE)	EA	1
	**		CELLULAR MODEM (CISCO MODEL 809)	EA	1
	**		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
	**		IP CAMERA (AXIS M5525-E)	EA	1
	**		IP CAMERA MOUNTING BRACKET (AXIS T94A01D PENDANT KIT)	EA	1
	**		POWER STRIP	EA	1
	**		SWITCH POWER SUPPLY	EA	1
	**		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
	**		CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
	**		CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1

* SUBSIDIARY TO PERTINENT ITEM ** CONTRACTOR FORCE ACCOUNT

POLE ID.	POLE AND EQUIPMENT DESCRIPTIONS WITH ATTACHMENTS
A	PROPOSED 36'X28' DUAL MAST ARM ON A 36-A FOUNDATION AT 13 FT WITH ONE LED COUNT DOWN PEDESTRIAN SIGNAL HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT,ONE R10-3eR PEDESTRIAN SIGN, ONE IP CAMERA AND ONE LUMINAIRE (250 HPS EQUIVALENT). ONE NO LEFT TURN SIGN R3-2 AND ONE PRESENCE DETECTION (RPDD 01 & 06) MOUNTED ON POLE. 36' ARM WITH TWO VERTICAL SIGNAL HEADS AND ONE ILSN STREET NAME SIGN. 28' ARM WITH TWO VERTICAL SIGNAL HEADS ONE ONE WAY SIGN AND ONE ILSN STREET NAME SIGN.
B ***	PROPOSED 40'X36' DUAL MAST ARM ON A 36-A FOUNDATION WITH THREE VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE ILSN STREET NAME SIGN, ONE WAY R6-1 SIGN AND ONE NO RIGHT TURN SIGN, TWO RVDS PRESENCE DETECTIONS (RPDD 02) AND (RPDD 04),ONE LED COUNT DOWN PEDESTRIAN SIGNAL HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN, ONE LUMINAIRE (250 HPS EQUIVALENT).
C	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND ONE R10-3eL PEDESTRIAN SIGN
D	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND ONE R10-3eL PEDESTRIAN SIGN
E	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH TWO LED COUNTDOWN PEDESTRIAN HEADS, TWO ACCESSIBLE PEDESTRIAN SIGNAL UNITS, ONE R10-3eL AND ONE R10-3eR PEDESTRIAN SIGNS
F	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND ONE R10-3eR PEDESTRIAN SIGN
G	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND ONE R10-3eR PEDESTRIAN SIGN
H	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND ONE R10-3eR PEDESTRIAN SIGN

CSJ	PROJECT LOCATION	ELECTRIC SERVICE NO.	SHEET NO.	ELECTRICAL SERVICE DESCRIPTION (SEE ED (4&5)-14)	SERVICE CONDUIT SIZE (RMC)	SERVICE CONDUCTORS NO./SIZE
0915-46-057	US 90A (W COURT ST) AT CAMP ST	POLE "I"		TY D (120/240) 70 (NS) AL (E) PS (U)	1-1/4"	3/#4
SAFETY SWITCH AMPS	MAIN CKT. BKR. POLE/AMP	TWO-POLE CONTACTOR AMPS	PANEL BD./ LOADCENTER AMP RATING MIN.	CIRCUIT NO.	BRANCH CKT. BKR. POLE/AMP	KVA LOAD
N/A	2P/70	30	100	SIGNAL LIGHTING	1P/50 1P/20	<7.1

*** SPECIAL NOTE:

THE 36' CLAMP ON ARM FOR POLE "B" WILL NOT BE INCLUDED IN THIS PROJECT. THIS WILL BE PURCHASED AND INSTALLED BY THE CITY OF SEGUIN AT A LATER DATE.

PROPOSED SIGN SCHEDULE

R10-17T (30"x30") S1


R3-1 (24"X24") S5


R3-2 (24"x24") S7

R10-3eR (9"X15") W/ACCESSIBLE PUSH BUTTON S9 (4 EA)

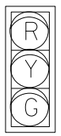
R10-3eL (9"X15") W/ACCESSIBLE PUSH BUTTON S10 (4 EA)

R6-1L (36"X12") S6 (2 EA)

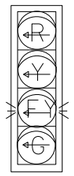
R6-1R (36"X12") S8 (3 EA)

PROPOSED SIGNAL HEAD SCHEDULE

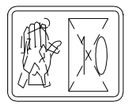
12" LED VERTICAL SIGNAL SECTIONS W/REFLECTIVE BACK PLATES



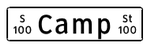
SIGNAL NO.1



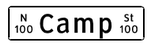
SIGNAL NO.2


LED PEDESTRIAN COUNTDOWN SIGNAL
SIGNAL NO. 3

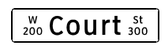
PROPOSED ILSN SIGNS



S2



S3



S4

STATE OF TEXAS
YOHANNES A. TADESSE
107781
REGISTERED
PROFESSIONAL ENGINEER
1/19/2023

NO.	REVISION	APPROV.

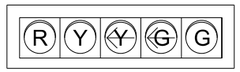
TEDSI Infrastructure Group
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI TBPE F-1640

INTERSECTION QUANTITIES & DETAILS US 90A (W COURT ST) AT CAMP ST

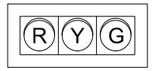
SHEET 7 OF 7

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		45
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

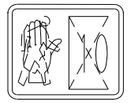
EXISTING SIGNAL HEAD SCHEDULE



A



B



C

US 90A (E COURT ST)

NOTES:

1. ALL TRAFFIC SIGNAL EQUIPMENT LOCATIONS AND RIGHT-OF-WAY LINES ARE APPROXIMATE. VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
2. THE EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS/HER FAILURE TO LOCATE, PRESERVE, AND PROTECT THESE UTILITIES.
3. COMMUNICATION EQUIPMENT INCLUDING CELL ROUTER, CELLULAR ANTENNA, ETHERNET SWITCH, ENCODER, AND ALL POWER SUPPLIES SHALL BE REMOVED FROM EXISTING SIGNAL CABINET AND REINSTALLED IN NEW SIGNAL CABINET. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ITEM 680.
4. CONTRACTOR SHALL CONTACT THE DISTRICT SIGNAL MAINTENANCE OFFICE AND AREA OFFICE A MINIMUM OF SEVEN (7) DAYS PRIOR TO BEGINNING CONSTRUCTION.
5. CONTRACTOR SHALL CONTACT THE DISTRICT SIGNAL MAINTENANCE OFFICE AND AREA OFFICE A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE TRAFFIC SIGNAL TURN-ON.

LEGEND

- EXISTING CONTROLLER CABINET
- EXISTING SIGNAL HEAD VERTICAL
- EXISTING TRAFFIC SIGNAL POLE
- EXISTING PEDESTRIAN POLE
- EXISTING TRAFFIC SIGNAL MAST ARM
- EXISTING PEDESTRIAN SIGNAL HEAD
- EXISTING PEDESTRIAN PUSH BUTTON
- EXISTING MAST ARM MOUNTED SIGN
- EXISTING METER
- EXISTING LUMINAIRE AND ARM
- DIRECTION OF TRAFFIC FLOW

EXISTING SIGNS

S1

S2

S3

S6

S4

S5

S7

S8

S9

POSTED SPEED LIMITS:
E COURT ST = 30 MPH
RIVER ST = 30 MPH

PAVEMENT TYPE:
CAMP = ASPHALT
E COURT ST = ASPHALT

NO.	REVISION	APPROV.

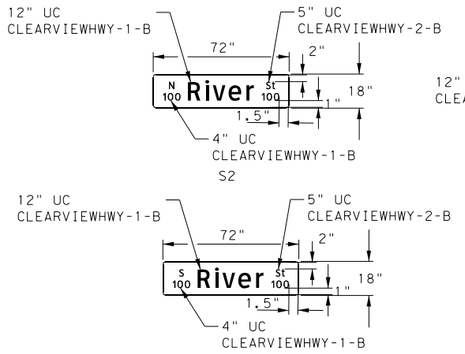
TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

EXISTING INTERSECTION LAYOUT
US 90A (E COURT ST) AT RIVER ST

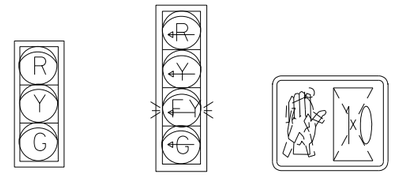
SHEET 1 OF 7

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		46
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

PROPOSED ILSN SIGNS



PROPOSED SIGNAL HEAD SCHEDULE



LEGEND

- CONTROLLER CABINET
- SIGNAL HEAD VERTICAL
- TRAFFIC SIGNAL POLE
- PEDESTRIAN POLE
- SIGNAL MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- MAST ARM MOUNTED SIGN
- EXISTING METER
- ELECTRICAL SERVICE
- EXISTING LUMINAIRE AND ARM
- LUMINAIRE AND ARM
- GROUND BOX
- PRESENCE RADAR DETECTION
- IP CAMERA
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- DIRECTION OF TRAFFIC FLOW

SPECIAL NOTE:

THE 32' CLAMP ON ARM FOR POLE "A" WILL NOT BE INCLUDED IN THIS PROJECT.
THIS WILL BE PURCHASED AND INSTALLED BY THE CITY OF SEGUIN AT A LATER DATE.

NOTES:

1. ALL TRAFFIC SIGNAL EQUIPMENT LOCATIONS ARE BASED ON A SURVEY. CONTRACTOR SHALL VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
2. APPARENT RIGHT-OF-WAY LINES ARE FROM TXDOT MAPS. VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
3. THE EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS/HER FAILURE TO LOCATE, PRESERVE, AND PROTECT THESE UTILITIES.
4. CONTRACTOR SHALL REMOVE ALL EXISTING TRAFFIC SIGNAL EQUIPMENT AND INSTALL NEW EQUIPMENT AS PER DESIGN LAYOUTS AND IN ACCORDANCE WITH TXDOT STANDARDS AND SPECIFICATIONS AND IN ACCORDANCE WITH THE ACCESSIBILITY REQUIREMENTS AND CONNECT PROPOSED FIELD WIRING TO CONTROLLER.
5. FOR PAVEMENT MARKINGS, SEE PROPOSED PAVEMENT MARKINGS SHEET.
6. ALL EXISTING CURB RAMPS SHALL BE REMOVED AND NEW WHEELCHAIR RAMPS INSTALLED AS PER DESIGN DETAILS ON THE PROPOSED STRIPING LAYOUT SHEET AND IN ACCORDANCE WITH TXDOT STANDARDS AND SPECIFICATIONS AND IN ACCORDANCE WITH THE ACCESSIBILITY REQUIREMENTS.
7. THE CONTRACTOR SHALL INSTALL NEW PRESENCE RADAR DETECTORS. THE LOCATION OF THE RADAR DETECTORS SHOWN ARE APPROXIMATE. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD AND ADJUSTED TO PROVIDE PROPER DETECTION ZONES AND A COMPLETE OPERABLE SYSTEM.
8. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT SIGNAL SHOP AT 4615 NW LOOP 410 210-218-7430.
9. CONTRACTOR SHALL FURNISH AND DELIVER ONE (1) TS 2 TYPE 2 AND SEVEN (7) TX 2 TYPE 5 (12-POSITION) CONTROLLER CABINETS AND ASSEMBLY TO TXDOT SIGNAL SHOP FOR PROGRAMMING AND TESTING TWO WEEKS IN ADVANCE PRIOR TO CONTRACTOR INSTALLING EQUIPMENT IN THE FIELD. COORDINATE DROP OFF AND PICKUP WITH MARK PEREZ AT 210-218-7430.
10. THE INSTALLATION OF ALL COMMUNICATION PACKAGE ITEMS (MODEM, POWER STRIP, ETC.) IS SUBSIDIARY TO ITEM 680.
11. TRAY CABLES SHALL BE RUN IN 2" CONDUIT SEPARATE FROM THE SIGNAL CABLE.
12. ADJUST EXISTING AND PROPOSED SIGNAL HEADS AS NECESSARY TO KEEP THEM VISIBLE AT ALL TIMES DURING CONSTRUCTION. ADJUSTING SIGNAL HEADS DURING CONSTRUCTION IS SUBSIDIARY TO ITEM 502.
13. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF SEVEN (7) DAYS PRIOR TO BEGINNING CONSTRUCTION.
14. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE TRAFFIC SIGNAL TURN-ON.
15. LUMINAIRES ARE SHOWN FOR CLARITY PURPOSES ONLY. ORIENT THEM AS DIRECTED BY THE ENGINEER.

PROPOSED SIGNS

POSTED SPEED LIMITS:
E COURT ST = 30 MPH
RIVER ST = 30 MPH

PAVEMENT TYPE:
CAMP = ASPHALT
E COURT ST = ASPHALT

SCALE: 1" = 40'
20 0 20

STATE OF TEXAS
YOHANNES A. TADESSE
107781
REGISTERED PROFESSIONAL ENGINEER
1/19/2023

NO.		REVISION	APPROV.

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

Texas Department of Transportation®

PROPOSED INTERSECTION LAYOUT
US 90A (E COURT ST) AT RIVER ST

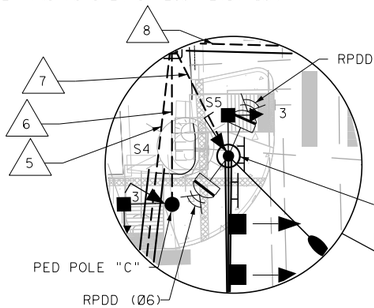
SHEET 2 OF 7

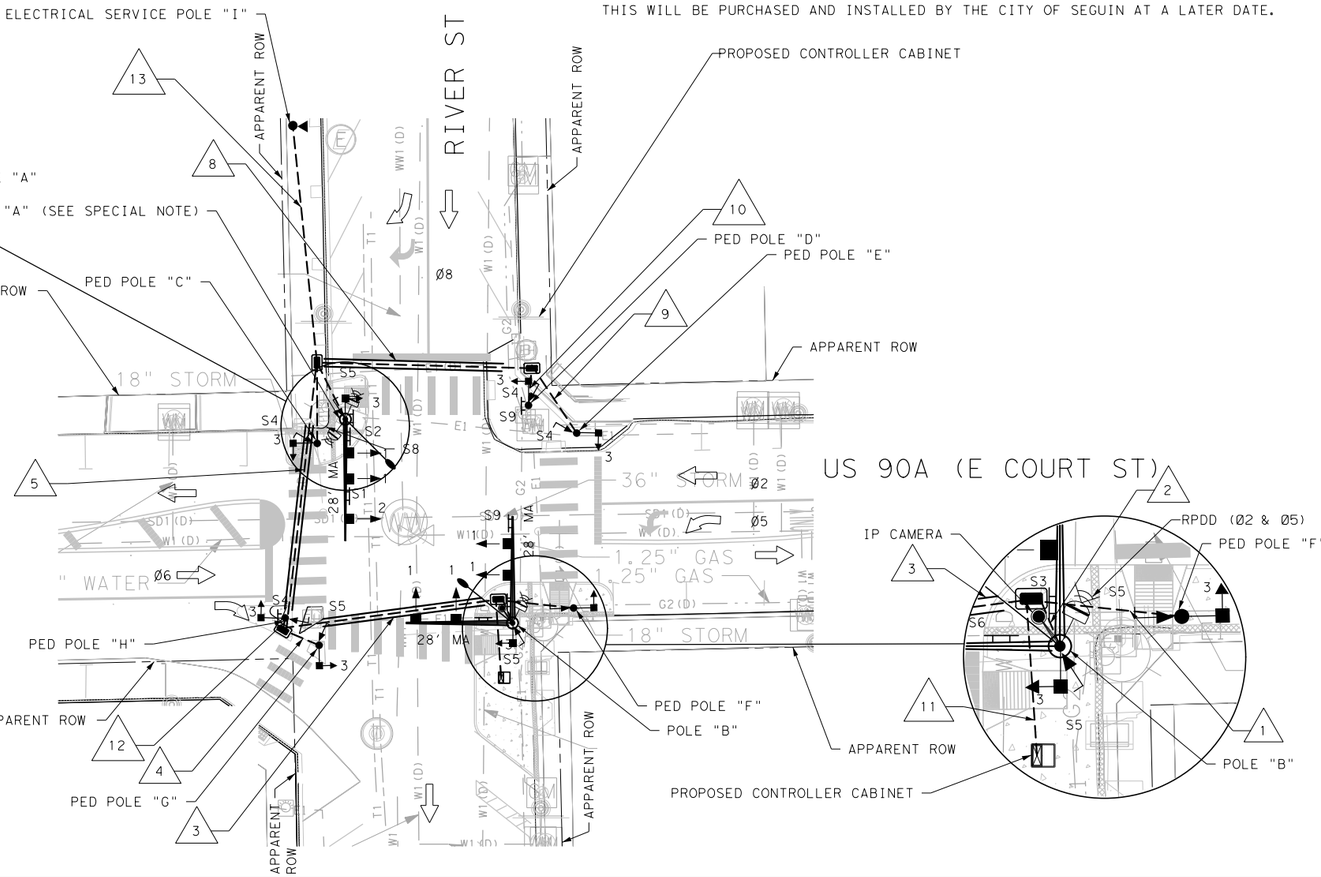
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		47
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

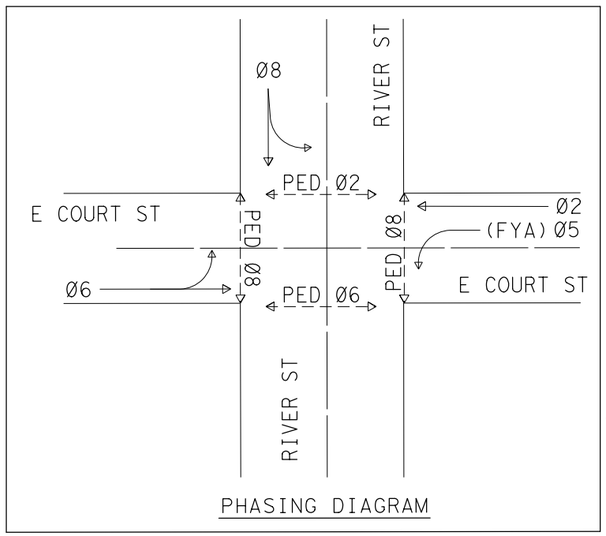
POLE CONDUIT AND CONDUCTOR SCHEDULE

	RUN NUMBER		1	2			3			4	5			6	7			8		9	10	11			12	13
	CONDUIT SIZE IN INCHES		2.0	2.0	3.0	3.0	2.0	3.0	3.0	3.0	2.0	3.0	3.0	2.0	2.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	3.0	3.0	2.0	2.0
	NUMBER OF CONDUITS		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	LENGTH OF RUN		20	5	5	5	50	50	50	5	65	65	65	20	15	15	15	60	60	20	10	15	15	15	5	65
	TRENCH (T)/BORE (B)/CONTROLLER (C)		T	T	T	T	B	B	B	T	B	B	B	T	T	T	T	B	B	T	T	C	C	C	T	T
CABLE	CIRCUIT		NUMBER OF CONDUCTORS																							
#6 XHHW	120 POWER HOT						1				1											1				1
	120 POWER COMMON						1				1											1				1
#6 BARE	BARE BOND GROUND		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7 COND. #12 STRANDED TY A	SIGNAL HEAD	PHASE 08				1																		1		
		PHASE 06				1																		1		
		PHASE 02 & 05							2				2				2							2		
4 COND. #12 STRANDED TY A	PED. SIGNALS	PHASE 08	1						3				3	1					1	1				4	1	
		PHASE 06				1			1	1														2		
		PHASE 02 & 05							2				2				1		1		1			2		
2 COND. #14 STRANDED TY C	PED. PUSH BUTTONS	PHASE 08	1						3				3	1					1	1				4	1	
		PHASE 06				1			1	1														2		
		PHASE 02 & 05							2				2				1		1		1			2		
6 COND. #22*	RVDS (PRESENCE DETECTION DEVICE)	PHASE 08							1				1				1							1		
		PHASE 01 & 06							1				1				1							1		
		PHASE 02 & 05				1																		1		
CAT 5 ETHERNET CABLE & POWER*	IP CAMERA	POLE "B"				1																		1		
TRAY CABLE 4/C - #12 AWG TYPE A	LUMINAIRE	POLE "A"													1											1
		POLE "B"		1			1				1															1
4/C - #14AWG TYPE A	ILLUMINATED SIGN	POLE "A"													1											1
		POLE "B"		2			2				2															2

*IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION







PHASING DIAGRAM

SPECIAL NOTE:

THE 32' CLAMP ON ARM FOR POLE "A" WILL NOT BE INCLUDED IN THIS PROJECT.
THIS WILL BE PURCHASED AND INSTALLED BY THE CITY OF SEGUIN AT A LATER DATE.

LEGEND

- CONTROLLER CABINET
- SIGNAL HEAD VERTICAL
- TRAFFIC SIGNAL POLE
- PEDESTRIAN POLE
- SIGNAL MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- MAST ARM MOUNTED SIGN
- EXISTING METER
- ELECTRICAL SERVICE
- EXISTING LUMINAIRE AND ARM
- LUMINAIRE AND ARM
- GROUND BOX
- PRESENCE RADAR DETECTION
- IP CAMERA
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- DIRECTION OF TRAFFIC FLOW

N

SCALE: 1" = 40'
20 0 20

STATE OF TEXAS
YOHANNES A. TADESSE
107781
REGISTERED PROFESSIONAL ENGINEER
1/19/2023

NO.	REVISION	APPROV.

TEDSI Infrastructure Group
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TBPE F-1640

Texas Department of Transportation®

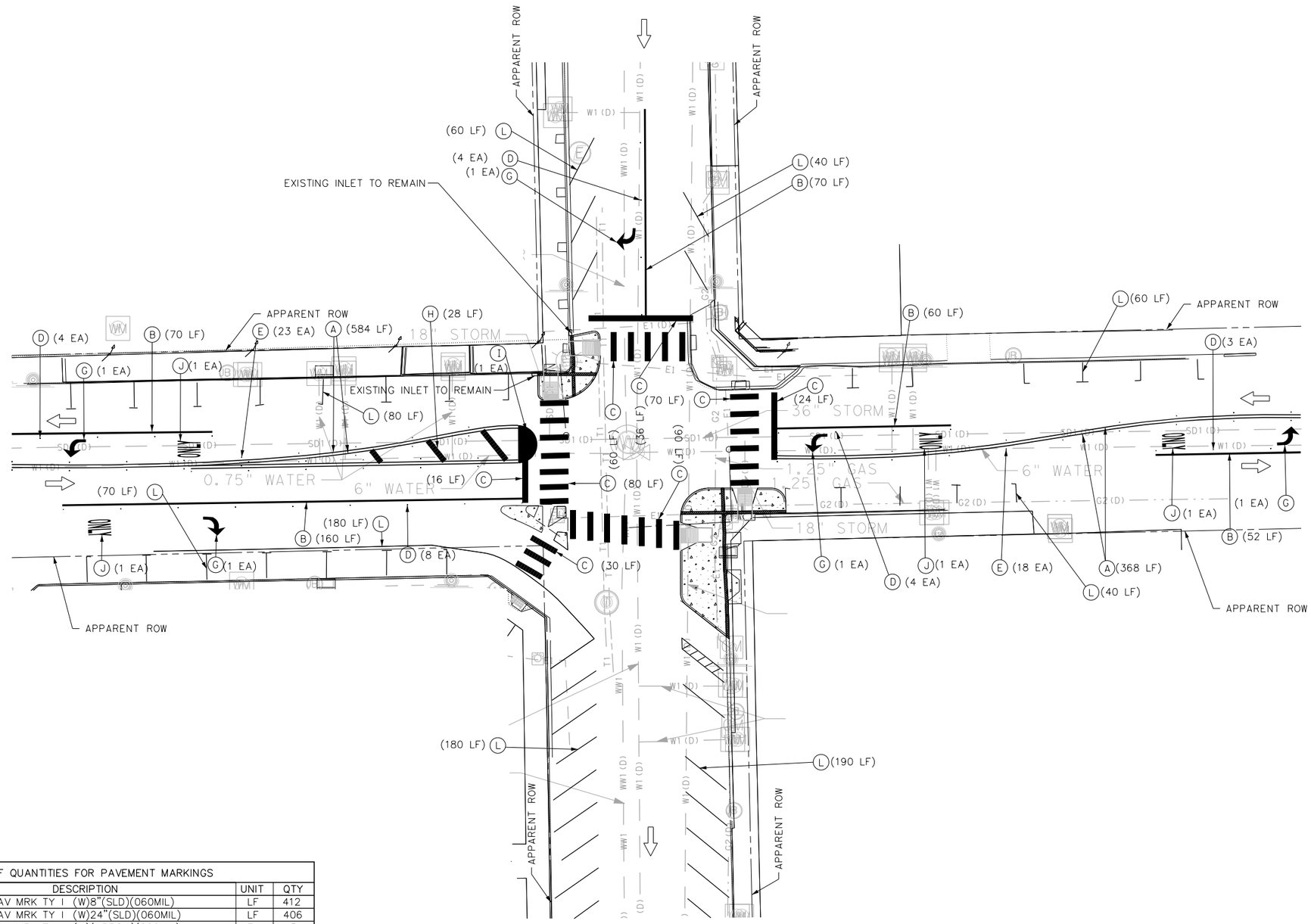
PROPOSED WIRING DIAGRAM US 90A (E COURT ST) AT RIVER ST

SHEET 3 OF 7

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	48

STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

US 90A
(W COURT ST)



ESTIMATE OF QUANTITIES FOR PAVEMENT MARKINGS			
ITEM NO.	DESCRIPTION	UNIT	QTY
0666-6034	REFL PAV MRK TY I (W)8"(SLD)(060MIL)	LF	412
0666-6046	REFL PAV MRK TY I (W)24"(SLD)(060MIL)	LF	406
0666-6052	REFL PAV MRK TY I (W)(ARROW)(060MIL)	EA	5
0666-6076	REFL PAV MRK TY I (W)(WORD)(060MIL)	EA	4
0666-6090	REF PAV MRK TY I (W)(MED NOSE)(100MIL)	EA	1
0666-6147	REFL PAV MRK TY I (Y)24"(SLD)(100MIL)	LF	28
0666-6301	RE PM W/RET REQ TY I (W)4"(SLD)(60MIL)	LF	900
0666-6310	RE PM W/RET REQ TY I (Y)4"(BRK)(060MIL)	LF	–
0666-6313	RE PM W/RET REQ TY I (Y)4"(SLD)(060MIL)	LF	952
0672-6007	REFL PAV MRKR TY I-C	EA	23
0672-6009	REFL PAV MRKR TY II-A-A	EA	41

NOTES:
1. REFRESH LANE LINES, CENTERLINES, CROSSWALK PAVEMENT MARKINGS.
2. ALL GROUND MOUNTED SIGNS ARE TO REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
3. ALL MATERIAL SHALL BE AS PER TXDOT APPROVED MATERIAL LIST.
4. ALL WORK SHALL BE DONE AS PER TXDOT STANDARDS AND SPECIFICATIONS.

LEGEND

- (A) RE PM W/RET REQ TYI(Y)4"(SLD)(60MIL)
- (B) REFL PAV MRK TY I (W)(8")(SLD)(60MIL)
- (C) REFL PAV MRK TY I (W)(24")(SLD)(60MIL)
- (D) REFL PAV MRKR TY I-C
- (E) REFL PAV MRKR TY II-A-A
- (F) RE PM W/RET REQ TYI(W)4"(BRK)(60MIL)
- (G) REFL PAV MRK TY I (W)(ARROW)(60MIL)
- (H) REFL PAV MRK TY I (Y)24"(SLD)(60MIL)
- (I) REFL PAV MRK TY I (Y)(MED NOSE)(100MIL)
- (J) REFL PAV MRK TY I (W)(WORD)(60MIL)
- (K) RE PM W/RET REQ TY I (Y)4"(BRK)(60MIL)
- (L) RE PM W/RET REQ TY I (W)4"(SLD)(60MIL)
- (M) RE PM W/RET REQ TY I (W)6"(SLD)(60MIL)
- ⇦ DIRECTION OF TRAFFIC FLOW

N

SCALE: 1" = 40'
20 0 20

STATE OF TEXAS
YOHANNES A. TADESSE
107781
REGISTERED PROFESSIONAL ENGINEER
1/19/2023

NO.	REVISION	APPROV.

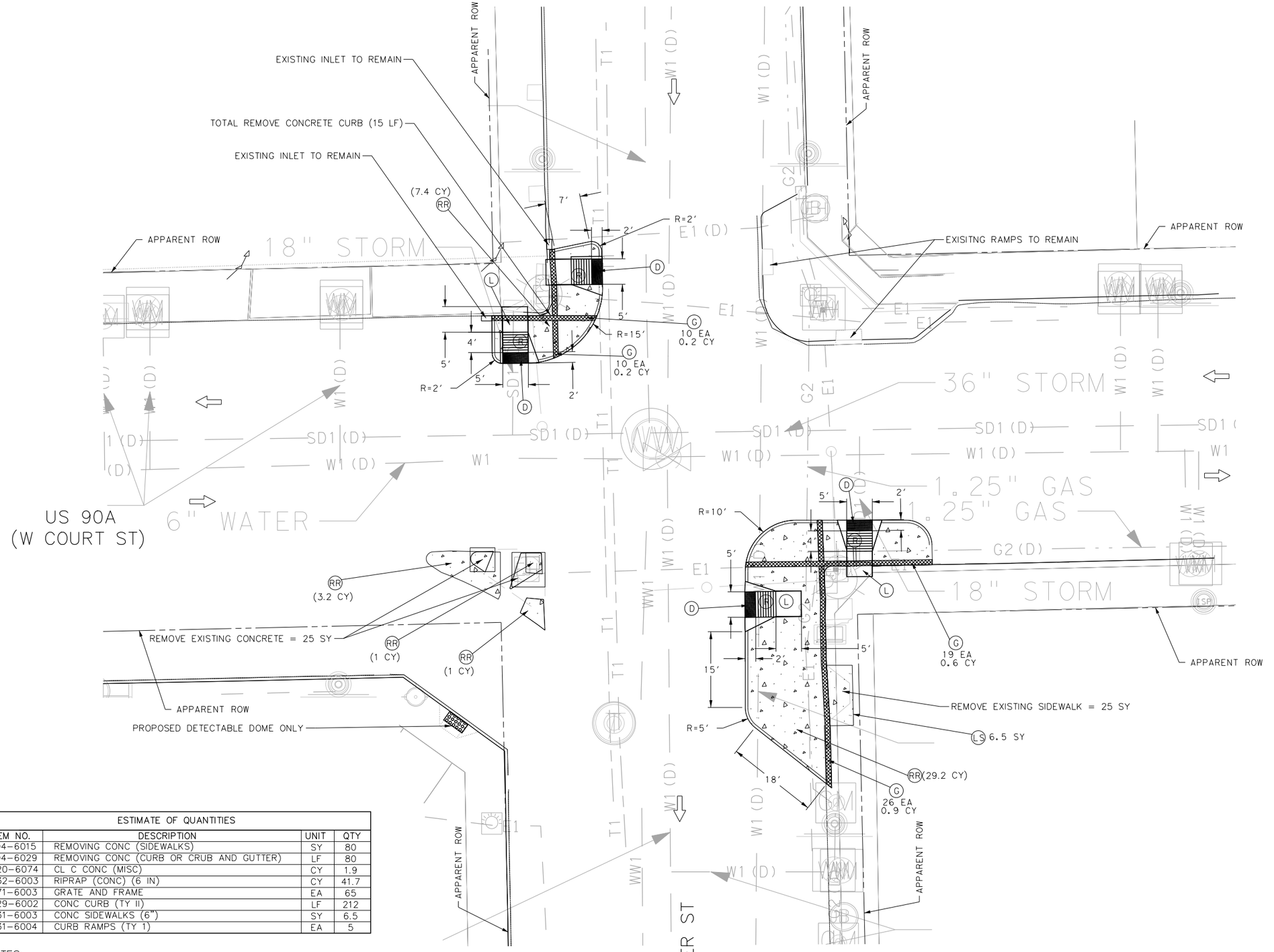
TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000
TEDSI
TBPE F-1649

PROPOSED PAVEMENT MARKINGS US 90A (E COURT ST) AT RIVER ST

SHEET 4 OF 7

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	49

STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90



LEGEND

- (C) CONCRETE CURB
- (D) DETECTABLE WARNING PAVER
- (F) FLARE
- (G) GRATE & FRAME
- (L) LANDING
- (LS) LEVEL SIDEWALK
- (SS) SLOPE SIDEWALK
- (R) RAMP
- (RR) RIPRAP
- PED POLE
- TRAFFIC SIGNAL POLE
- ELECTRICAL SERVICE
- DIRECTION OF TRAFFIC FLOW

N

SCALE: 1" = 20'
10 0 10

ESTIMATE OF QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QTY
0104-6015	REMOVING CONC (SIDEWALKS)	SY	80
0104-6029	REMOVING CONC (CURB OR CRUB AND GUTTER)	LF	80
0420-6074	CL C CONC (MISC)	CY	1.9
0432-6003	RIPRAP (CONC) (6 IN)	CY	41.7
0471-6003	GRATE AND FRAME	EA	65
0529-6002	CONC CURB (TY II)	LF	212
0531-6003	CONC SIDEWALKS (6")	SY	6.5
0531-6004	CURB RAMPS (TY 1)	EA	5

NOTES:

1. THE SLOPE FOR ALL PROPOSED RAMPS SHALL BE 8.3% MAX. AS PER CRITERIA.
2. THE PROPOPOSED GRATE & FRAME ARE 12 INCHES WIDE AND EACH SEGMENT IS 2 FEET LONG. REFER TO CITY OF SEGUIN STANDARDS FOR GRATE & FRAME.
3. ALL LANDING PADS SHALL BE 5 FEET BY 5 FEET MIN. AND 2% CROSS SLOPE MAX.
4. ALL WORK SHALL BE DONE AS PER CITY OF SEGUIN AND TXDOT STANDARDS AND SPECIFICATIONS.

STATE OF TEXAS
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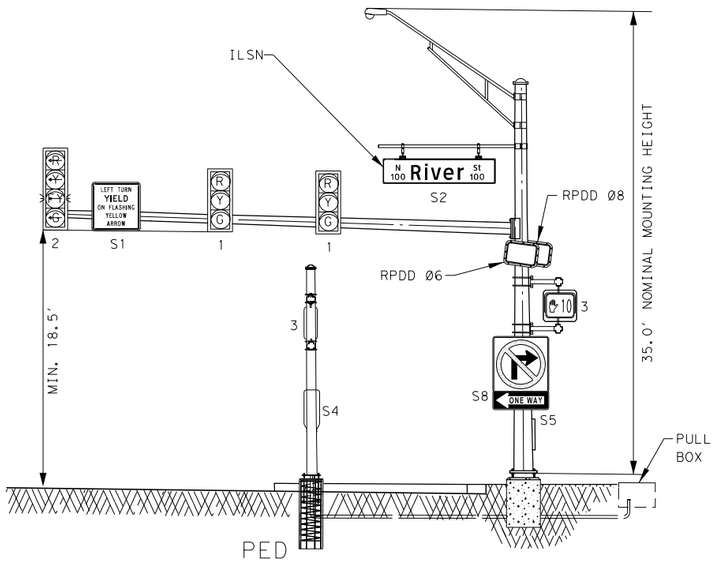
PROPOSED RAMPS AND SIDEWALKS US 90A (E COURT ST) AT RIVER ST

SHEET 5 OF 7

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	50

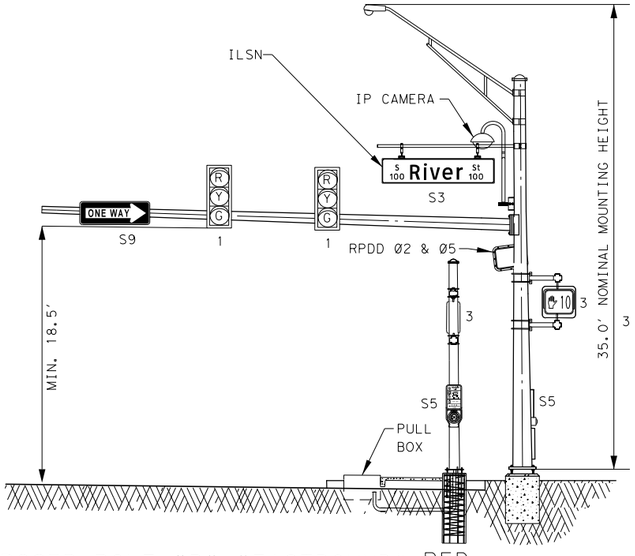
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/26/2023
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2020\2020-2096-00 - TxDOT El Paso_San Antonio (STS)\Work Authorizations\2020-2096-03 - WA5 - Seguin Traffic Signals\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Pavement Markings\SHT_RAMPS_US90Aet



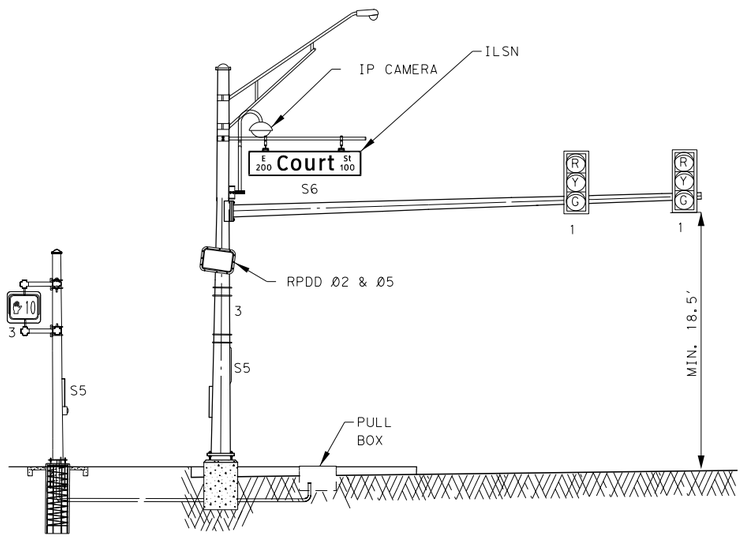
PED
POLE "C"
VIEW

PROPOSED POLE "A" "WESTBOUND"



PROPOSED POLE "B" "EASTBOUND"

PED
POLE "F"
VIEW



PROPOSED POLE "B" "SOUTHBOUND"

STATE OF TEXAS
YOHANNES A. TADESSE
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PROFESSIONAL ENGINEER
REGISTERED
1/19/2023

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Texas Department of Transportation®

PROPOSED ELEVATION VIEW US 90A (E COURT ST) AT RIVER ST

SHEET 6 OF 7

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	51

STATE	DIST.	COUNTY
TEXAS	SAT	GUADALUPE

CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/26/2023
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ESTIMATE OF QUANTITIES - TRAFFIC SIGNAL

	ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST. QUANTITY
	104	6015	REMOVING CONC (SIDEWALKS)	SY	80
	104	6029	REMOVING CONC (CURB OR CURB AND GUTTER)	LF	80
	104	6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	50
	416	6032	DRILL SHAFT (TRF SIG POLE)(36IN)	LF	27
	420	6074	CL C CONC (MISC)	CY	1.9
	432	6003	RIPRAP (CONC) (6 IN)	CY	41.7
	471	6003	GRATE & FRAME	EA	65
	529	6002	CONC CURB (TY II)	LF	212
	531	6003	CONC SIDEWALKS (6")	SY	6.5
	531	6004	CURB RAMPS (TY 1)	EA	5
	618	6046	CONDT(PVC)(SCH 80)(2")	LF	165
	618	6047	CONDT(PVC)(SCH 80)(2")(BORE)	LF	150
	618	6053	CONDT(PVC)(SCH 80)(3")	LF	60
	618	6054	CONDT(PVC)(SCH 80)(3")(BORE)	LF	420
	620	6009	ELEC CONDR (NO.6) BARE	LF	795
	620	6010	ELEC CONDR (NO.6) INSULATED	LF	215
	621	6005	TRAY CABLE (4 CONDR)(12 AWG)	LF	355
	624	6010	GROUND BOX TY D (162922)W/APRON	EA	4
	628	6164	ELC SRV TY A 240/480 070(NS)AL(E)PS(U)	EA	1
	666	6034	REFL PAV MRK TY 1 (W)8"(SLD)(060MIL)	LF	412
	666	6046	REFL PAV MRK TY 1 (W)24"(SLD)(060MIL)	LF	406
	666	6052	REFL PAV MRK TY 1 (W)(ARROW)(060MIL)	EA	5
	666	6076	REFL PAV MRK TY 1 (W)(WORD)(060MIL)	EA	4
	666	6090	REFL PAV MRK TY 1 (W)(MED NOSE)(100MIL)	EA	1
	666	6147	REFL PAV MRK TY 1 (Y) 24" (SLD)(100MIL)	LF	28
	666	6301	RE PM W/RET REQ TY 1 (W)4"(SLD)(060MIL)	LF	900
	666	6313	RE PM W/RET REQ TY 1 (Y)4"(SLD)(060MIL)	LF	952
	672	6007	REFL PAV MRKR TY I-C	EA	23
	672	6009	REFL PAV MRKR TY II-A-A	EA	41
	680	6003	INSTALL HWY TRF SIG (SYSTEM)	EA	1
		*	NEMA TX 2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET	EA	1
		*	TRF SIG CONTROLLER CONCRETE BASE PAD FOUNDATION	EA	1
		*	R10-17T (30"X30") "LEFT TURN ON FLASHING YELLOW ARROW"	EA	1
		*	R3-1 (24"X24") "NO RIGHT TURN" SIGN	EA	1
		*	R3-2 (24"X24") "NO LEFT TURN" SIGN	EA	1
		*	R6-1L (36"X12") "ONE WAY" SIGN	EA	1
		*	R6-1R (36"X12") "ONE WAY" SIGN	EA	1
	680	6004	REMOVING TRAFFIC SIGNALS	EA	1
	682	6001	VEH SIG SEC (12")LED(GRN)	EA	6
	682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	1
	682	6003	VEH SIG SEC (12")LED(YEL)	EA	6
	682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	2
	682	6005	VEH SIG SEC (12")LED(RED)	EA	6
	682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	1
	682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	8
	682	6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	1
	682	6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	6
	684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	1180
	684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	470
	684	6030	TRF SIG CBL (TY A)(14 AWG)(4 CONDR)	LF	580
	684	6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	1140
***	686	6108	IN TRF SG PL AM(S) 2 ARM (32-32')LUM&ILSN (32' CLAMP ON ARM NOT INCLUDED)	EA	1
		*	LED LUMINAIRE (250 W EQ) WITH ARM	EA	1
	686	6092	INS TRF SIG PL AM(S)2 ARM (28-28')LUM&ILSN	EA	1
		*	LED LUMINAIRE (250 W EQ) WITH ARM	EA	1
	687	6001	PED POLE ASSEMBLY	EA	6
		*	DRILL SHAFT (24IN)	LF	36
	687	6005	REMOVE PED POLE ASSEMBLY	EA	2
	688	6001	PED DETECT PUSH BUTTON (APS)	EA	8
		*	R10-3eR (9"X15") PEDESTRIAN SIGN (RIGHT ARROW)	EA	4
		*	R10-3eL (9"X15") PEDESTRIAN SIGN (LEFT ARROW)	EA	4
	688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
	6004	6031	ITS COMM CBL (ETHERNET)	LF	60
	6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
	6185	6002	TMA (STATIONARY)	DAY	10
	6292	6001	RVDS(PRESENCE DETECTION ONLY)	EA	3
		*	6/C-RADAR SMARTSENSOR CABLE	LF	480
	6411	6002	ILSN (LED) (8S)	EA	3
	**		CONTRACTOR FORCE ACCOUNT (COMM PACKAGE)	EA	1
	**		CELLULAR MODEM (CISCO MODEL 809)	EA	1
	**		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
	**		IP CAMERA (AXIS M5525-E)	EA	1
	**		IP CAMERA MOUNTING BRACKET (AXIS T94A01D PENDANT KIT)	EA	1
	**		POWER STRIP	EA	1
	**		SWITCH POWER SUPPLY	EA	1
	**		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
	**		CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
	**		CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1

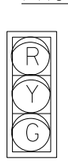
* SUBSIDIARY TO PERTINENT ITEM ** CONTRACTOR FORCE ACCOUNT

POLE ID.	POLE AND EQUIPMENT DESCRIPTIONS WITH ATTACHMENTS
A ***	PROPOSED 32'X32' DUAL MAST ARM ON A 30-A FOUNDATION WITH THREE VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED,ONE ILSN STREET NAME SIGN,ONE R10-17T (30"X30"), ONE SIGN, R3-1 (24"X24") "NO RIGHT TURN" SIGN, ONE R6-1L "ONE WAY" SIGN,TWO RVDS PRESENCE DETECTIONS (RPDD 06)& (RPDD 08, ONE LED COUNTDOWN PEDESTRIAN SIGNAL HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, R10-3eL PEDESTRIAN SIGN AND ONE LUMINAIRE (250 HPS EQUIVALENT)
B	PROPOSED 28'X28' DUAL MAST ARM ON A 30-A FOUNDATION WITH FOUR VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED,TWO ILSN STREET NAME SIGNS,ONE R6-1R ONE WAY SIGN, ONE RVDS PRESENCE DETECTION (RPDD 02&05),ONE LED COUNTDOWN PEDESTRIAN SIGNAL HEAD,ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eL PEDESTRIAN SIGN, ONE IP CAMERA AND ONE LUMINAIRE (250 HPS EQUIVALENT)
C	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN
D	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN
E	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN
F	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eL PEDESTRIAN SIGN
G	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eL PEDESTRIAN SIGN
H	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN

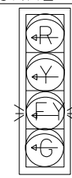
CSJ	PROJECT LOCATION	ELECTRIC SERVICE NO.	SHEET NO.	ELECTRICAL SERVICE DESCRIPTION (SEE ED (4&5)-14)	SERVICE CONDUIT SIZE (RMC)	SERVICE CONDUCTORS NO./SIZE
0915-46-057	US 90A (E COURT ST) AT RIVER ST	POLE "I"		TY D (120/240) 70 (NS) AL (E) PS (U)	1-1/4"	3/#4
SAFETY SWITCH AMPS	MAIN CKT. BKR. POLE/AMP	TWO-POLE CONTACTOR AMPS	PANEL BD./ LOADCENTER AMP RATING MIN.	CIRCUIT NO.	BRANCH CKT. BKR. POLE/AMP	KVA LOAD
N/A	2P/70	30	100	SIGNAL LIGHTING	1P/50 1P/20	<7.1

*** SPECIAL NOTE:
THE 32' CLAMP ON ARM FOR POLE "A" WILL NOT BE INCLUDED IN THIS PROJECT. THIS WILL BE PURCHASED AND INSTALLED BY THE CITY OF SEGUIN AT A LATER DATE.

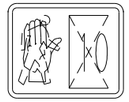
PROPOSED SIGNAL HEAD SCHEDULE



SIGNAL NO.1



SIGNAL NO.2



SIGNAL NO. 3

PROPOSED SIGNS

R10-17T (30"x30") S1 (1 EA)


R3-2 (24"X24") S7

R3-1 (24"X24")
R6-1L (36"X12")
S8

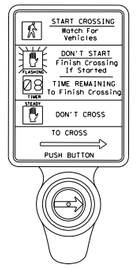
R6-1R (36"X12") S9

PROPOSED ILSN SIGNS

S6

S2

S3



R10-3eR (9"X15") W/ACCESSIBLE PUSH BUTTON S4 (4 EA)

R10-3eL (9"X15") W/ACCESSIBLE PUSH BUTTON S5 (4 EA)

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INTERSECTION QUANTITIES & DETAILS US 90A (E COURT ST) AT RIVER ST

SHEET 7 OF 7

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	52

STATE	DIST.	COUNTY
TEXAS	SAT	GUADALUPE

CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/26/2023
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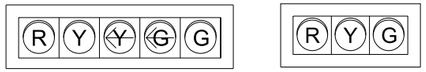
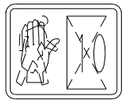
EXISTING SIGNAL HEAD SCHEDULE



A

B



C

LEGEND

- EXISTING CONTROLLER CABINET
- EXISTING SIGNAL HEAD VERTICAL
- EXISTING TRAFFIC SIGNAL POLE
- EXISTING PEDESTRIAN POLE
- EXISTING TRAFFIC SIGNAL MAST ARM
- EXISTING PEDESTRIAN SIGNAL HEAD
- EXISTING PEDESTRIAN PUSH BUTTON
- EXISTING MAST ARM MOUNTED SIGN
- EXISTING METER
- EXISTING LUMINAIRE AND ARM
- DIRECTION OF TRAFFIC FLOW

NOTES:

1. ALL TRAFFIC SIGNAL EQUIPMENT LOCATIONS AND RIGHT-OF-WAY LINES ARE APPROXIMATE. VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
2. THE EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS/HER FAILURE TO LOCATE, PRESERVE, AND PROTECT THESE UTILITIES.
3. COMMUNICATION EQUIPMENT INCLUDING CELL ROUTER, CELLULAR ANTENNA, ETHERNET SWITCH, ENCODER, AND ALL POWER SUPPLIES SHALL BE REMOVED FROM EXISTING SIGNAL CABINET AND REINSTALLED IN NEW SIGNAL CABINET. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ITEM 680.
4. CONTRACTOR SHALL CONTACT THE DISTRICT SIGNAL MAINTENANCE OFFICE AND AREA OFFICE A MINIMUM OF SEVEN (7) DAYS PRIOR TO BEGINNING CONSTRUCTION.
5. CONTRACTOR SHALL CONTACT THE DISTRICT SIGNAL MAINTENANCE OFFICE AND AREA OFFICE A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE TRAFFIC SIGNAL TURN-ON.
6. REMOVE SIGNAL HEADS AND SIGNS ON MAST ARMS. EXISTING CONDUCTORS SHALL BE REMOVED FROM ALL MAST ARMS.
7. CONTRACTOR SHALL INSTALL NEW SIGNAL CONDUCTORS FROM THE PROPOSED CONTROLLER TO THE PROPOSED SIGNAL HEADS MOUNTED ON EXISTING MAST ARMS.

EXISTING SIGNS

S1

S2

S3

S4

POSTED SPEED LIMITS:
E COURT ST = 30 MPH
SAN MARCOS ST = 30 MPH

PAVEMENT TYPE:
SAN MARCOS ST = ASPHALT
E COURT ST = ASPHALT

STATE OF TEXAS
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Texas Department of Transportation®

EXISTING INTERSECTION LAYOUT
US 90A (E COURT ST) AT SAN MARCOS ST

SHEET 1 OF 7

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		53
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/26/2023
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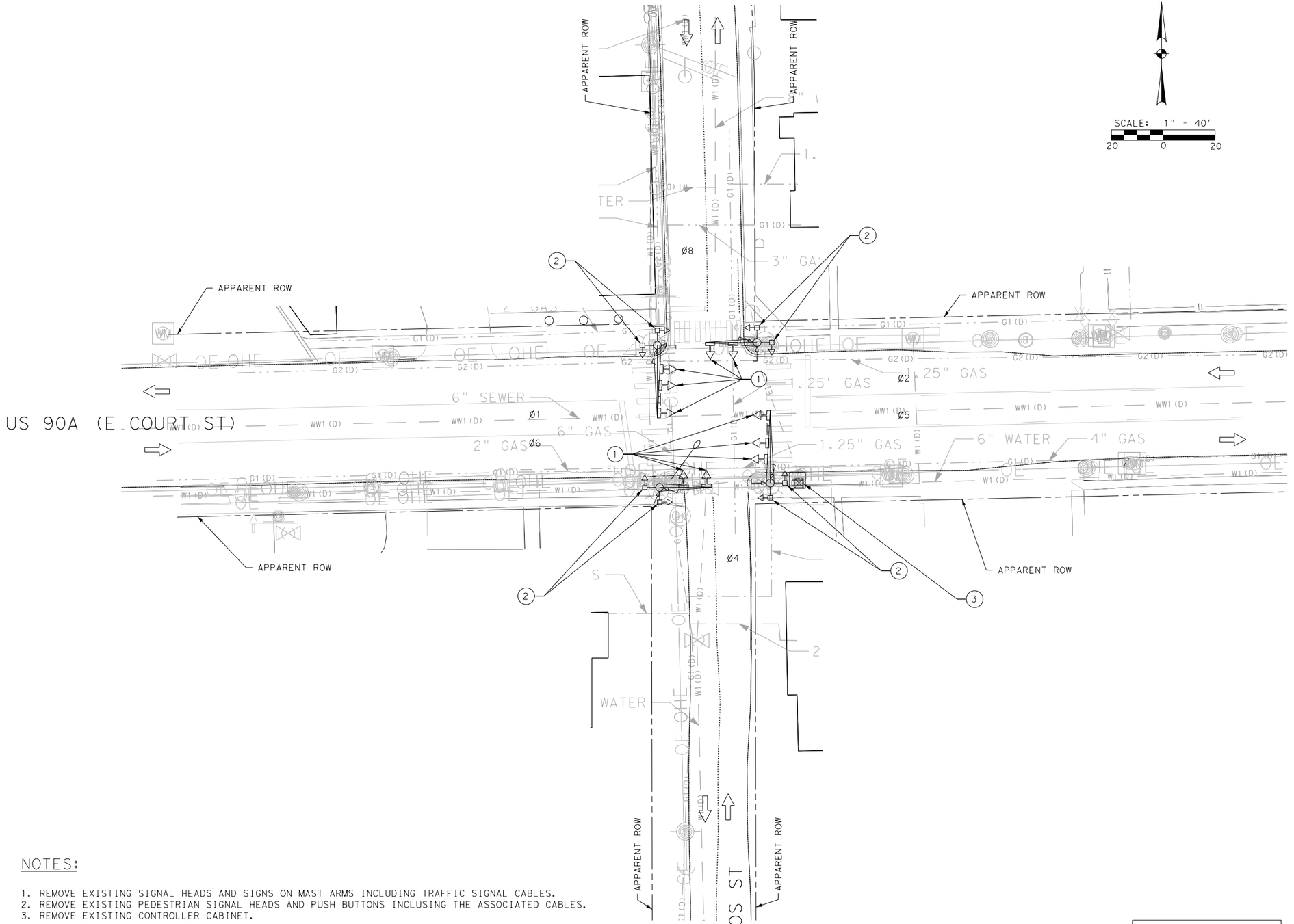

LEGEND

- EXISTING CONTROLLER CABINET
- EXISTING SIGNAL HEAD VERTICAL
- EXISTING TRAFFIC SIGNAL POLE
- EXISTING PEDESTRIAN POLE
- EXISTING TRAFFIC SIGNAL MAST ARM
- EXISTING PEDESTRIAN SIGNAL HEAD
- EXISTING PEDESTRIAN PUSH BUTTON
- EXISTING MAST ARM MOUNTED SIGN
- EXISTING METER
- EXISTING LUMINAIRE AND ARM
- DIRECTION OF TRAFFIC FLOW

NOTES:

1. REMOVE EXISTING SIGNAL HEADS AND SIGNS ON MAST ARMS INCLUDING TRAFFIC SIGNAL CABLES.
2. REMOVE EXISTING PEDESTRIAN SIGNAL HEADS AND PUSH BUTTONS INCLUSING THE ASSOCIATED CABLES.
3. REMOVE EXISTING CONTROLLER CABINET.

POSTED SPEED LIMITS:
E COURT ST = 30 MPH
SAN MARCOS ST = 30 MPH

PAVEMENT TYPE:
SAN MARCOS ST = ASPHALT
E COURT ST = ASPHALT

STATE OF TEXAS
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TBPE F-1640

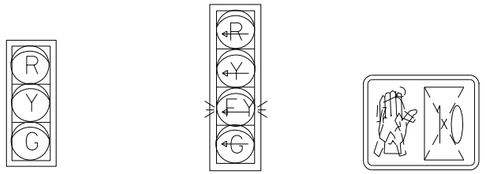
EQUIPMENT REMOVAL LAYOUT
US 90A (E COURT ST) AT SAN MARCOS ST

SHEET 2 OF 7

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		54
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/26/2023
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2020\2020-2096-00 - TxDOT El Paso\San Antonio (STS)\Work Authorizations\2020-2096-03 - WA5 - Seguin Traffic Signals\6.0 TEDSI Design\6.08 CAD\6.08.01 Sheet Files\Signal\SH1*SIG2*4US90AatSANMARCOS*PR

PROPOSED SIGNAL HEAD SCHEDULE



SIGNAL NO. 1 | SIGNAL NO. 2 | SIGNAL NO. 3

EXISTING SIGNS TO REMAIN*

S 100 San Marcos St 100 — S6

E 400 Court St 500 — S3

N 100 San Marcos St 100 — S2

E 500 Court St 400 — S7

* ALL NEW OVERHEAD STREET NAME SIGNS ARE ON THE MAST ARMS CURRENTLY WITH THE BEST HARDWARE AVAILABLE.

LEGEND

- PROPOSED CONTROLLER CABINET
- PROPOSED SIGNAL HEAD VERTICAL
- EXISTING TRAFFIC SIGNAL POLE
- EXISTING SIGNAL MAST ARM
- PROPOSED PEDESTRIAN SIGNAL HEAD
- PROPOSED PEDESTRIAN PUSH BUTTON
- MAST ARM MOUNTED SIGN
- EXISTING METER
- ELECTRICAL SERVICE
- EXISTING LUMINAIRE AND ARM
- PROPOSED GROUND BOX
- PROPOSED PRESENCE RADAR DETECTION
- PROPOSED IP CAMERA
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- DIRECTION OF TRAFFIC FLOW

NOTES:

1. ALL TRAFFIC SIGNAL EQUIPMENT LOCATIONS ARE BASED ON A SURVEY. CONTRACTOR SHALL VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
2. APPARENT RIGHT-OF-WAY LINES ARE FROM TXDOT MAPS. VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
3. THE EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS/HER FAILURE TO LOCATE, PRESERVE, AND PROTECT THESE UTILITIES.
4. CONTRACTOR SHALL REMOVE AND REPLACE EXISTING SIGNAL HEADS WITH NEW VERTICAL SIGNAL HEADS AS SHOWN ON THE PLANS AND SHALL HAVE A MINIMUM OF 18.5 FEET CLEARANCE ABOVE ROADWAY SURFACE. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE PRIOR TO STARTING THIS WORK TO ENSURE A SMOOTH TRAFFIC MOVEMENT FOR ALL MOTORISTS DURING THIS TRANSITION.
5. FOR PAVEMENT MARKINGS, SEE PROPOSED PAVEMENT MARKINGS SHEET.
6. ALL EXISTING CURB RAMPS SHALL BE REMOVED AND NEW WHEELCHAIR RAMPS INSTALLED AS PER DESIGN DETAILS ON THE PROPOSED STRIPING LAYOUT SHEET AND IN ACCORDANCE WITH TXDOT STANDARDS AND SPECIFICATIONS AND IN ACCORDANCE WITH THE ACCESSIBILITY REQUIREMENTS.
7. THE CONTRACTOR SHALL INSTALL NEW PRESENCE RADAR DETECTORS. THE LOCATION OF THE RADAR DETECTORS SHOWN ARE APPROXIMATE. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD AND ADJUSTED TO PROVIDE PROPER DETECTION ZONES AND A COMPLETE OPERABLE SYSTEM.
8. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT SIGNAL SHOP AT 4615 NW LOOP 410 210-218-7430.
9. CONTRACTOR SHALL FURNISH AND DELIVER ONE (1) TS 2 TYPE 2 AND SEVEN (7) TX 2 TYPE 5 (12-POSITION) CONTROLLER CABINETS AND ASSEMBLY TO TXDOT SIGNAL SHOP FOR PROGRAMMING AND TESTING TWO WEEKS IN ADVANCE PRIOR TO CONTRACTOR INSTALLING EQUIPMENT IN THE FIELD. COORDINATE DROP OFF AND PICKUP WITH MARK PEREZ AT 210-218-7430.
10. THE INSTALLATION OF ALL COMMUNICATION PACKAGE ITEMS (MODEM, POWER STRIP, ETC.) IS SUBSIDIARY TO ITEM 680.
11. ADJUST EXISTING AND PROPOSED SIGNAL HEADS AS NECESSARY TO KEEP THEM VISIBLE AT ALL TIMES DURING CONSTRUCTION. ADJUSTING SIGNAL HEADS DURING CONSTRUCTION IS SUBSIDIARY TO ITEM 502.
12. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF SEVEN (7) DAYS PRIOR TO BEGINNING CONSTRUCTION.
13. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE TRAFFIC SIGNAL TURN-ON.
14. THE CITY OF SEGUIN SHALL PROVIDE THE STREET NAME SIGNS AND THE CONTRACTOR SHALL INSTALL THEM AS SHOWN ON THE PLANS. INSTALLATION OF THESE SIGNS SHALL BE SUBSIDIARY TO ITEM 680.

PROPOSED SIGNS

LEFT TURN
YIELD
ON FLASHING
YELLOW
ARROW

R10-17T
(30"x30")
S1
(2 EA)

R10-3eR
(9"X15")
W/ACCESSIBLE
PUSH BUTTON
S4
(6 EA)

R10-3eL
(9"X15")
W/ACCESSIBLE
PUSH BUTTON
S5
(2 EA)

POSTED SPEED LIMITS:
E COURT ST = 30 MPH
SAN MARCOS ST = 30 MPH

PAVEMENT TYPE:
SAN MARCOS ST = ASPHALT
E COURT ST = ASPHALT

STATE OF TEXAS
YOHANNES A. TADESSE
107781
PROFESSIONAL ENGINEER
1/19/2023

NO.	REVISION	APPROV.

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Houston, Texas 77079
(832) 619-1000
TBPE F-1640

PROPOSED INTERSECTION LAYOUT
US 90A (E COURT ST) AT SAN MARCOS ST

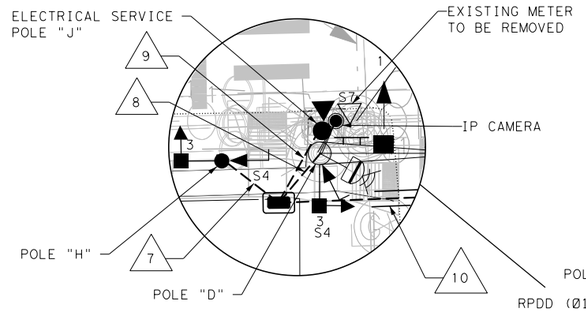
SHEET 3 OF 7

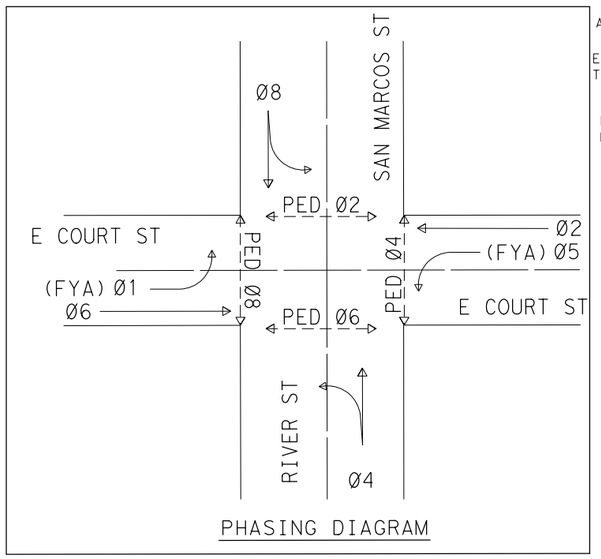
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		55
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

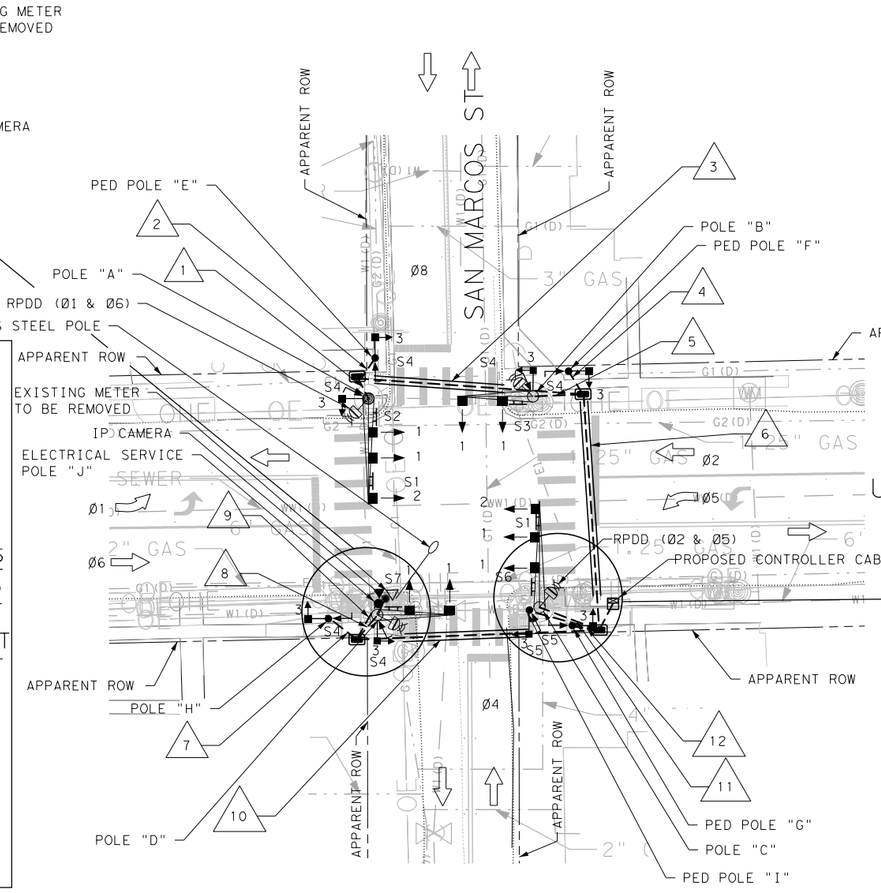
POLE CONDUIT AND CONDUCTOR SCHEDULE

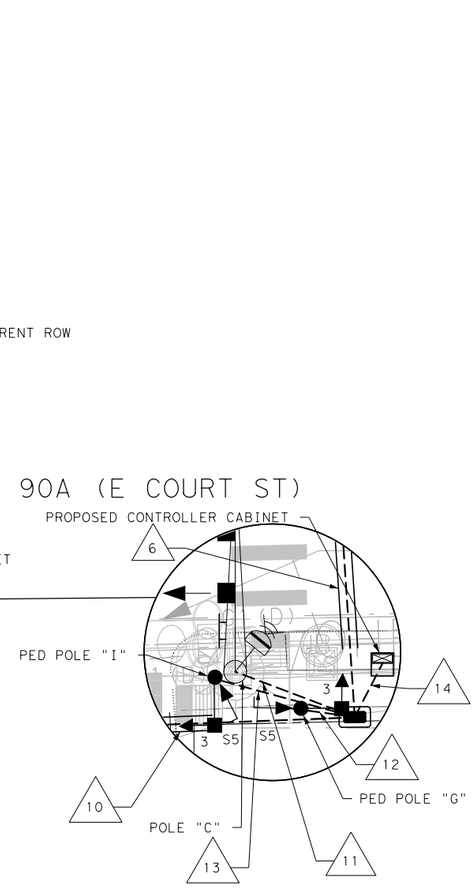
	RUN NUMBER		1	2	3		4	5	6		7	8	9	10		11	12	13	14	
	CONDUIT SIZE IN INCHES		3.0	2.0	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0	2.0	2.0	3.0	3.0	2.0	2.0	2.0	3.0
	NUMBER OF CONDUITS		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	LENGTH OF RUN		5	5	60	60	10	15	60	60	10	5	15	65	65	15	5	20	10	10
	TRENCH (T)/BORE (B)/CONTROLLER (C)		T	T	B	B	T	T	B	B	T	T	T	B	B	T	T	T	C	C
CABLE	CIRCUIT		NUMBER OF CONDUCTORS																	
#6 XHHW	120 POWER HOT												1		1					1
	120 POWER COMMON												1		1					1
#6 BARE	BARE BOND GROUND		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7 COND. #12 STRANDED TY A	SIGNAL HEAD	PHASE 01 & 06														2				2
		PHASE 02 & 05	2			2				2										2
		PHASE 04						1		1										1
		PHASE 08										1			1					1
4 COND. #12 STRANDED TY A	PED. SIGNALS	PHASE 02		1		1		1		2										2
		PHASE 04					1			1							1			2
		PHASE 06										1			1			1		2
		PHASE 08	1			1				1	1				1					2
2 COND. #14 STRANDED TY C	PED. PUSH BUTTONS	PHASE 02		1		1		1		2										2
		PHASE 04					1			1							1			2
		PHASE 06										1			1			1		2
		PHASE 08	1			1				1	1				1					2
6 COND. #22*	RVDS (PRESENCE DETECTION DEVICE)	PHASE 01 & 06	1			1				1										1
		PHASE 02 & 05														1				1
		PHASE 04										1			1					1
		PHASE 08						1		1										1
CAT 5 ETHERNET CABLE & POWER*	IP CAMERA	POLE "D"										1			1					1

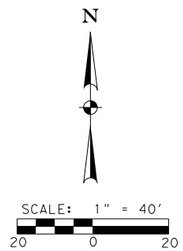
*IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION











LEGEND

- PROPOSED CONTROLLER CABINET
- PROPOSED SIGNAL HEAD VERTICAL
- EXISTING TRAFFIC SIGNAL POLE
- EXISTING SIGNAL MAST ARM
- PROPOSED PEDESTRIAN SIGNAL HEAD
- PROPOSED PEDESTRIAN PUSH BUTTON
- MAST ARM MOUNTED SIGN
- EXISTING METER
- ELECTRICAL SERVICE
- EXISTING LUMINAIRE AND ARM
- PROPOSED GROUND BOX
- PROPOSED PRESENCE RADAR DETECTION
- PROPOSED IP CAMERA
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- DIRECTION OF TRAFFIC FLOW

STATE OF TEXAS
YOHANNES A. TADESSE
107781
PROFESSIONAL ENGINEER
REGISTERED
1/19/2023

NO.	REVISION	APPROV.

TEDSI INFRASTRUCTURE GROUP
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Houston, Texas 77079
(832) 619-1000
TBPE F-1640

PROPOSED WIRING DIAGRAM US 90A (E COURT ST) AT SAN MARCOS ST

SHEET 4 OF 7

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	56

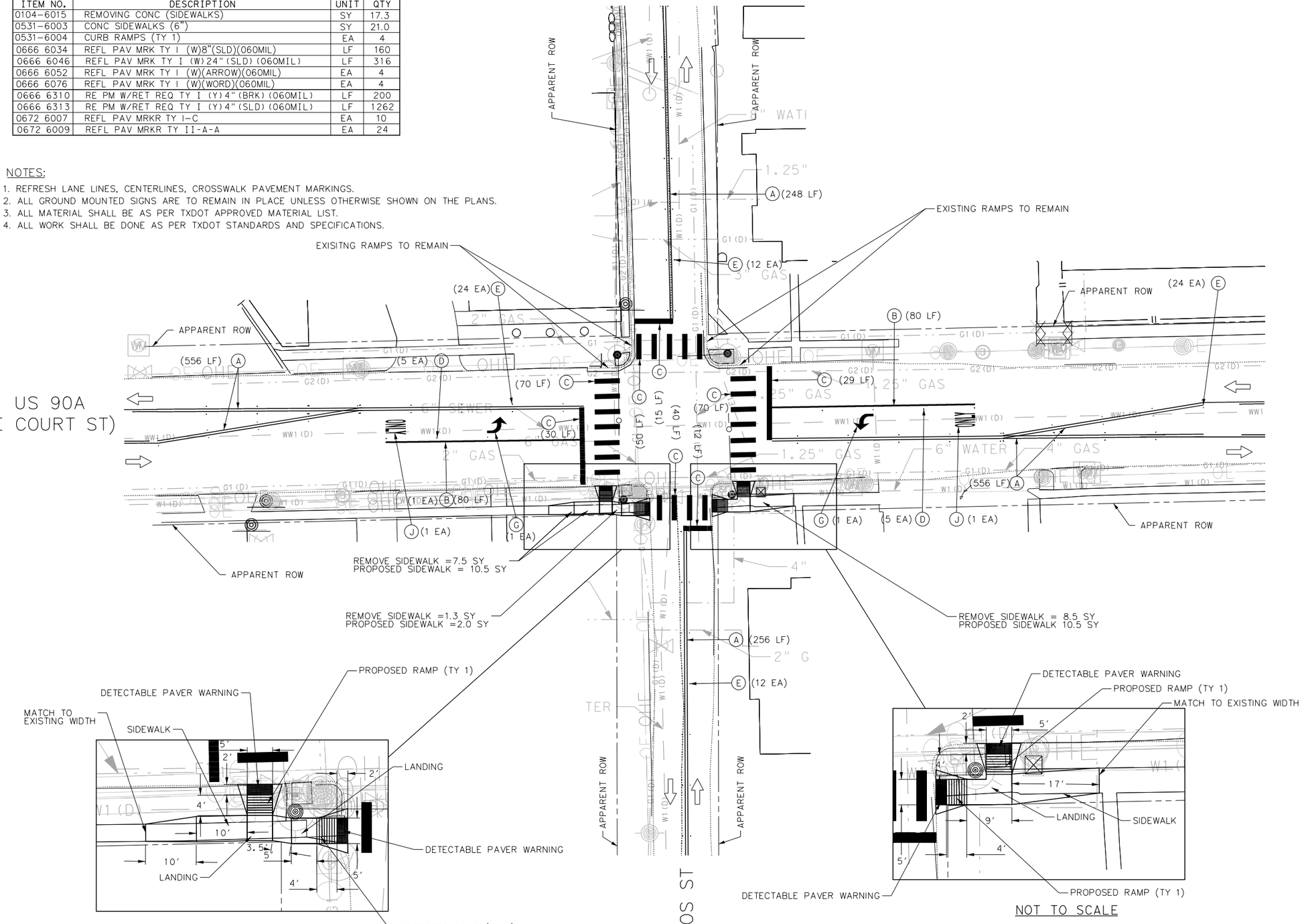
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/26/2023
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2020\2020-2096-00 - TxDOT El Paso\San Antonio (SIS)\Work Authorizations\2020-2096-03 - WA5 - Seguin Traffic Signals\6.0 TEDSI Design\6.08 CAD\6.08.01 Sheet Files\Signal\SH*SIG4*US90AatSANMARCOS*PR

ESTIMATE OF QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QTY
0104-6015	REMOVING CONC (SIDEWALKS)	SY	17.3
0531-6003	CONC SIDEWALKS (6")	SY	21.0
0531-6004	CURB RAMPS (TY 1)	EA	4
0666 6034	REFL PAV MRK TY I (W)8"(SLD)(060MIL)	LF	160
0666 6046	REFL PAV MRK TY I (W)24"(SLD)(060MIL)	LF	316
0666 6052	REFL PAV MRK TY I (W)(ARROW)(060MIL)	EA	4
0666 6076	REFL PAV MRK TY I (W)(WORD)(060MIL)	EA	4
0666 6310	RE PM W/RET REQ TY I (Y)4"(BRK)(060MIL)	LF	200
0666 6313	RE PM W/RET REQ TY I (Y)4"(SLD)(060MIL)	LF	1262
0672 6007	REFL PAV MRKR TY I-C	EA	10
0672 6009	REFL PAV MRKR TY II-A-A	EA	24

NOTES:

1. REFRESH LANE LINES, CENTERLINES, CROSSWALK PAVEMENT MARKINGS.
2. ALL GROUND MOUNTED SIGNS ARE TO REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
3. ALL MATERIAL SHALL BE AS PER TXDOT APPROVED MATERIAL LIST.
4. ALL WORK SHALL BE DONE AS PER TXDOT STANDARDS AND SPECIFICATIONS.



LEGEND

- (A) RE PM W/RET REQ TYI(Y)4"(SLD)(60MIL)
- (B) REFL PAV MRK TY I (W)(8")(SLD)(60MIL)
- (C) REFL PAV MRK TY I (W)(24")(SLD)(60MIL)
- (D) REFL PAV MRKR TY I-C
- (E) REFL PAV MRKR TY II-A-A
- (F) RE PM W/RET REQ TYI(W)4"(BRK)(60MIL)
- (G) REFL PAV MRK TY I (W)(ARROW)(60MIL)
- (H) REFL PAV MRK TY I (Y)24"(SLD)(60MIL)
- (I) REFL PAV MRK TY I (Y)(MED NOSE)(100MIL)
- (J) REFL PAV MRK TY I (W)(WORD)(60MIL)
- (K) RE PM W/RET REQ TY I (Y)4"(BRK)(60MIL)
- (L) RE PM W/RET REQ TY I (W)4"(SLD)(60MIL)
- (M) RE PM W/RET REQ TY I (W)6"(SLD)(60MIL)
- ⇦ DIRECTION OF TRAFFIC FLOW

N

SCALE: 1" = 40'
20 0 20

STATE OF TEXAS
YOHANNES A. TADESSE
107781
REGISTERED PROFESSIONAL ENGINEER
1/19/2023

NO.	REVISION	APPROV.

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Houston, Texas 77079
(832) 619-1000
TBPE F-1640

Texas Department of Transportation®

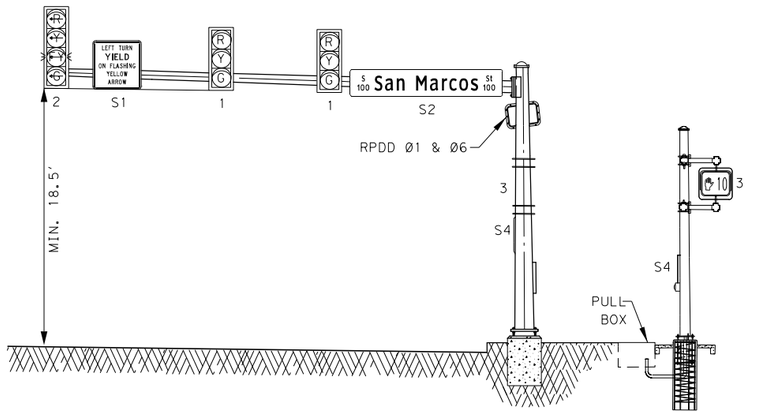
PROPOSED PAVEMENT MARKINGS & RAMPS US 90A (E COURT ST) AT SAN MARCOS ST

SHEET 5 OF 7

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	57

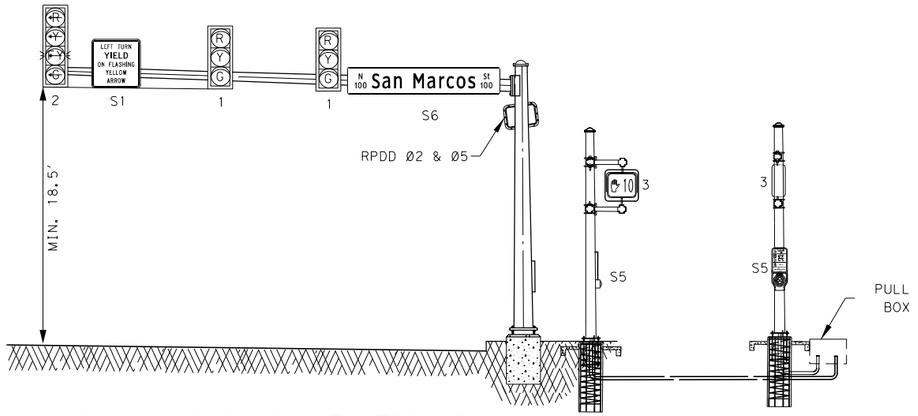
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/26/2023
dw: \\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2020\2020-2096-00 - TxDOT El Paso_San Antonio (STS)\Work Authorizations\2020-2096-03 - WA5 - Seguin Traffic Signals\6.0 TEDSI Design\6.08 CADD\6.08.01 Sheet Files\Pavement Markings\SHT_SPM_US90AtSA



EXISTING POLE "A" "WESTBOUND"

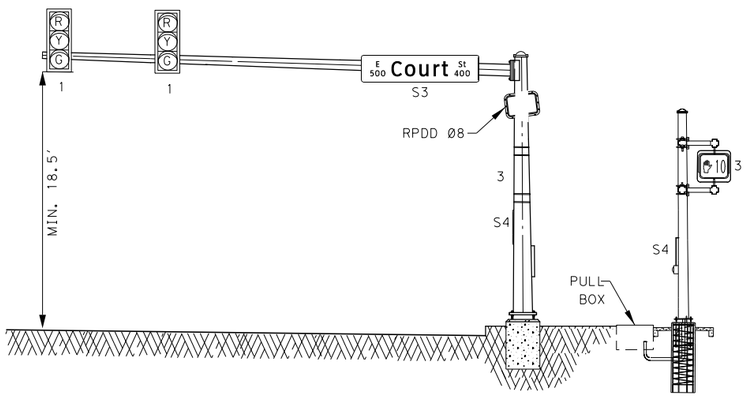
PED
POLE "E"
VIEW



EXISTING POLE "C" "EASTBOUND"

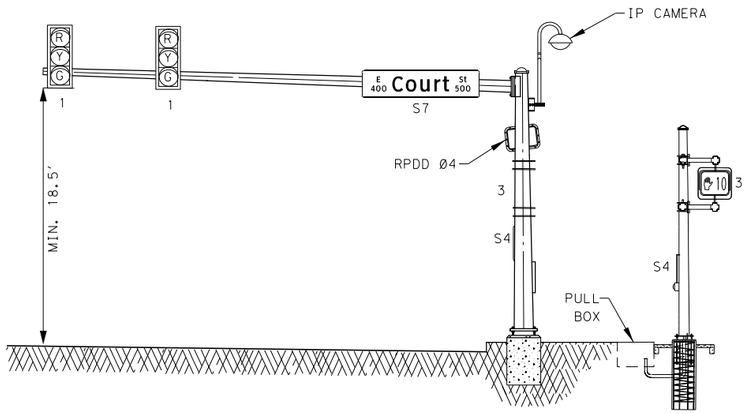
PED
POLE "I"
VIEW

PED
POLE "G"
VIEW



EXISTING POLE "B" "NORTHBOUND"

PED
POLE "F"
VIEW



EXISTING POLE "D" "SOUTHBOUND"

PED
POLE "H"
VIEW

STATE OF TEXAS
YOHANNES A. TADESSE
107781
PROFESSIONAL
REGISTERED
ENGINEER
1/19/2023

NO.	REVISION	APPROV.

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Texas Department of Transportation®

PROPOSED ELEVATION VIEW US 90A (E COURT ST) AT SAN MARCOS

SHEET 6 OF 7

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		58
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/26/2023
pw:\\tedsi-pw.bentley.com:tedsi-pw-01\Documents\Projects\2020\2020-2096-00 - TxDOT El Paso\San Antonio (SIS)\Work Authorizations\2020-2096-03 - WA5 - Seguin Traffic Signals\V6.0 TEDSI Design\V6.08 CADD\V6.08.01 Sheet Files\Signal\SH1*SIG6*US90AatSANMARCOS*EL

ESTIMATE OF QUANTITIES - TRAFFIC SIGNAL

ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST. QUANTITY
104	6015	REMOVING CONC (SIDEWALKS)	SY	17.3
531	6003	CONC SIDEWALKS (6")	SY	21.0
531	6004	CURB RAMPS (TY 1)	EA	4
618	6046	CONDT(PVC)(SCH 80)(2")	LF	55
618	6047	CONDT(PVC)(SCH 80)(2")(BORE)	LF	185
618	6053	CONDT(PVC)(SCH 80)(3")	LF	70
618	6054	CONDT(PVC)(SCH 80)(3")(BORE)	LF	185
620	6009	ELEC CONDR (NO.6) BARE	LF	485
620	6010	ELEC CONDR (NO.6) INSULATED	LF	110
624	6010	GROUND BOX TY D (162922)W/APRON	EA	4
628	6164	ELC SRV TY A 240/480 070(NS)AL(E)PS(U)	EA	1
666	6034	REFL PAV MRK TY 1 (W)8"(SLD)(060MIL)	LF	160
666	6046	REFL PAV MRK TY 1 (W)24"(SLD)(060MIL)	LF	316
666	6052	REFL PAV MRK TY 1 (W)(ARROW)(060MIL)	EA	4
666	6076	REFL PAV MRK TY 1 (W)(WORD)(060MIL)	EA	4
666	6310	RE PM W/RET REQ TY 1 (Y)4"(BRK)(060MIL)	LF	200
666	6313	RE PM W/RET REQ TY 1 (Y)4"(SLD)(060MIL)	LF	1262
672	6007	REFL PAV MRKR TY I-C	EA	10
672	6009	REFL PAV MRKR TY II-A-A	EA	24
680	6003	INSTALL HWY TRF SIG (SYSTEM)	EA	1
	*	NEMA TX 2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET	EA	1
	*	TRF SIG CONTROLLER CONCRETE BASE PAD FOUNDATION	EA	1
	*	R10-17T (30"X30") "LEFT TURN ON FLASHING YELLOW ARROW"	EA	2
680	6004	REMOVING TRAFFIC SIGNALS	EA	1
682	6001	VEH SIG SEC (12")LED(GRN)	EA	8
682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	2
682	6003	VEH SIG SEC (12")LED(YEL)	EA	8
682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	4
682	6005	VEH SIG SEC (12")LED(RED)	EA	8
682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	2
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	8
682	6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	2
682	6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	8
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	725
684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	605
684	6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	685
687	6001	PED POLE ASSEMBLY	EA	5
	*	DRILL SHAFT (24IN)	LF	30
687	6005	REMOVE PED POLE ASSEMBLY	EA	2
688	6001	PED DETECT PUSH BUTTON (APS)	EA	8
	*	R10-3eR (9"X15") PEDESTRIAN SIGN (RIGHT ARROW)	EA	6
	*	R10-3eL (9"X15") PEDESTRIAN SIGN (LEFT ARROW)	EA	2
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
6004	6031	ITS COMM CBL (ETHERNET)	LF	110
6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
6185	6002	TMA (STATIONARY)	DAY	10
6292	6001	RVDS(PRESENCE DETECTION ONLY)	EA	4
	*	6/C-RADAR SMARTSENSOR CABLE	LF	445
**		CONTRACTOR FORCE ACCOUNT (COMM PACKAGE)	EA	1
**		CELLULAR MODEM (CISCO MODEL 809)	EA	1
**		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
**		IP CAMERA (AXIS M5525-E)	EA	1
**		IP CAMERA MOUNTING BRACKET (AXIS T94A01D PENDANT KIT)	EA	1
**		POWER STRIP	EA	1
**		SWITCH POWER SUPPLY	EA	1
**		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
**		CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
**		CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1

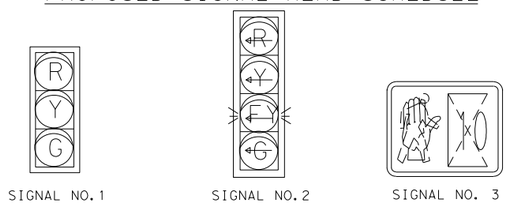
* SUBSIDIARY TO PERTINENT ITEM

** CONTRACTOR FORCE ACCOUNT

POLE ID.	POLE AND EQUIPMENT DESCRIPTIONS WITH ATTACHMENTS
A	EXISTING SINGLE MAST ARM ON A FOUNDATION WITH THREE VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED,ONE D3-1G STREET NAME SIGN, ONE R10-17T (30"X30") SIGN AND ONE RVDS PRESENCE DETECTION (RPDD 01 & 06), ONE LED COUNTDOWN PEDESTRIAN SIGNAL HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN
B	EXISTING SINGLE MAST ARM ON A FOUNDATION WITH TWO VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE D3-1G STREET NAME SIGN, ONE RVDS PRESENCE DETECTION (RPDD 08),ONE LED COUNTDOWN PEDESTRIAN SIGNAL HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN
C	EXISTING SINGLE MAST ARM ON A FOUNDATION WITH THREE VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED,ONE D3-1G STREET NAME SIGN, ONE R10-17T (30"X30") SIGN AND ONE RVDS PRESENCE DETECTION (RPDD 02 & 05).
D	EXISTING SINGLE MAST ARM ON A FOUNDATION WITH TWO VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE D3-1G STREET NAME SIGN, ONE RVDS PRESENCE DETECTION (RPDD 04),ONE LED COUNTDOWN PEDESTRIAN SIGNAL HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN AND IP CAMERA
E	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN
F	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN
G	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eL PEDESTRIAN SIGN
H	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eR PEDESTRIAN SIGN
I	10' PEDESTRIAN POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, ONE R10-3eL PEDESTRIAN SIGN

CSJ	PROJECT LOCATION	ELECTRIC SERVICE NO.	SHEET NO.	ELECTRICAL SERVICE DESCRIPTION (SEE ED (4&5)-14)	SERVICE CONDUIT SIZE (RMC)	SERVICE CONDUCTORS NO./SIZE
0915-46-057	US 90A (E COURT ST) AT SAN MARCOS ST	POLE "J"		TY D (120/240) 70 (NS) AL (E) PS (U)	1-1/4"	3/#4
SAFETY SWITCH AMPS	MAIN CKT. BKR. POLE/AMP	TWO-POLE CONTACTOR AMPS	PANEL BD./ LOADCENTER AMP RATING MIN.	CIRCUIT NO.	BRANCH CKT. BKR. POLE/AMP	KVA LOAD
N/A	2P/70	30	100	SIGNAL LIGHTING	1P/50 1P/20	<7.1

PROPOSED SIGNAL HEAD SCHEDULE



SIGNAL NO.1 SIGNAL NO.2 SIGNAL NO. 3

EXITING SIGNS TO BE REINSTALLED

S6

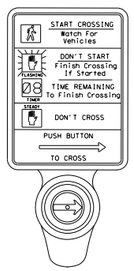
S2

S3

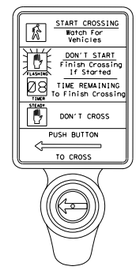
S7

PROPOSED SIGNS

R10-17T
(30"x30")
S1
(2 EA)



R10-3eR
(9"X15")
W/ACCESSIBLE
PUSH BUTTON
S4
(6 EA)



R10-3eL
(9"X15")
W/ACCESSIBLE
PUSH BUTTON
S5
(2 EA)

STATE OF TEXAS
YOHANNES A. TADESSE
107781
REGISTERED PROFESSIONAL ENGINEER
1/19/2023

NO.	REVISION	APPROV.

TEDSI
TBPE F-1640

TEDSI INFRASTRUCTURE GROUP
Consulting Engineers
738 Hwy 6 South, Suite 430
Houston, Texas 77079
(832) 619-1000

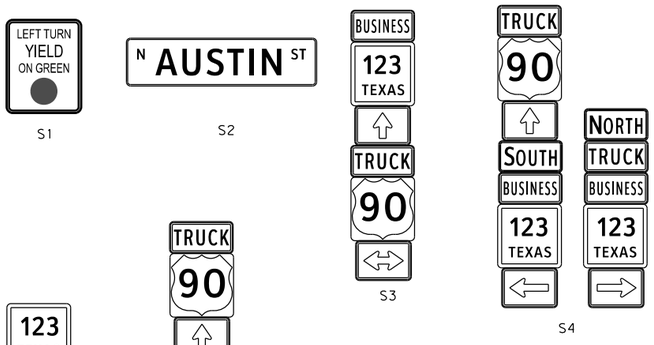
Texas Department of Transportation®

INTERSECTION QUANTITIES & DETAILS US 90A (E COURT ST) AT SAN MARCOS ST

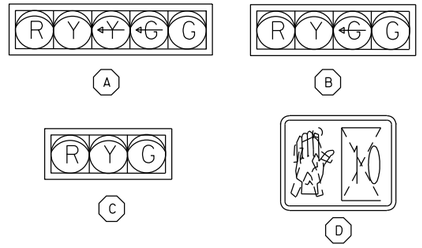
SHEET 7 OF 7

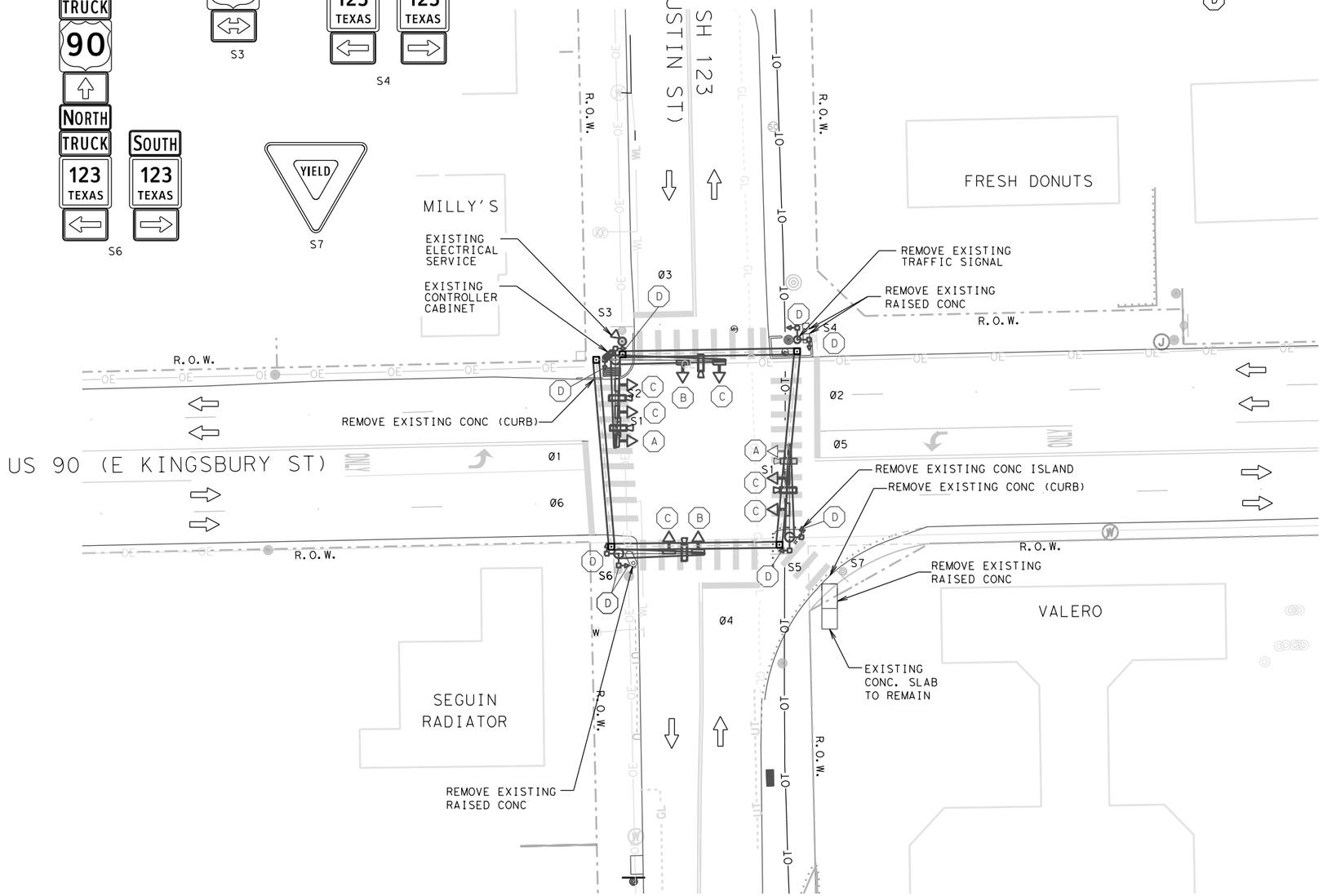
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		59
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

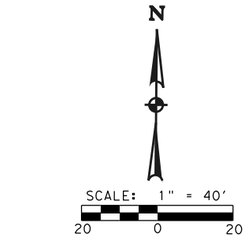
EXISTING SIGNS



EXISTING SIGNAL HEADS







LEGEND

- EXIST CONTROLLER CABINET
- EXIST TRAFFIC SIGNAL POLE
- EXIST PEDESTRIAN POLE
- EXIST SIGNAL HEAD VERTICAL
- EXIST TRAFFIC SIGNAL SPAN WIRE
- EXIST VIVDS DETECTION CAMERA
- EXIST PEDESTRIAN SIGNAL HEAD
- EXIST PEDESTRIAN PUSH BUTTON
- EXIST LUMINAIRE
- EXIST SIGN ON SPAN WIRE/POLE
- EXIST SIGN ON POST
- EXIST SIGNAL HEAD
- EXIST ELECTRICAL SERVICE
- EXIST GROUND BOX (TYPE D) W/APRON
- DIRECTION OF FLOW
- EXIST UTILITY POLE

1-20-2023

NO.	DATE	REVISION	APPROV.

DOUGHERTY Engineering Group, PLLC
TBPE Firm No. F-18636

EXISTING INTERSECTION LAYOUT
US 90(KINGSBURY ST) AT BS SH 123 (AUSTIN ST)

SHEET 1 OF 6

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		60
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

NOTES:

1. ALL TRAFFIC SIGNAL EQUIPMENT AND UTILITY LOCATIONS ARE APPROXIMATE. VERIFY LOCATIONS IN THE FIELD AS REQUIRED.
2. COMMUNICATION EQUIPMENT INCLUDING CELLULAR ROUTER, CELLULAR ANTENNA, ETHERNET SWITCH, ENCODER AND ALL POWER SUPPLIES SHALL BE REMOVED FROM EXISTING SIGNAL CABINET AND REINSTALLED IN NEW SIGNAL CABINET AS DIRECTED BY THE ENGINEER. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO ITEM 680.

POSTED SPEED LIMITS:
US 90 = 35 MPH
BS SH 123 = 30 MPH

PAVEMENT TYPE
US 90 = ASPHALT
BS SH 123 = ASPHALT

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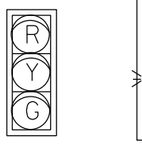
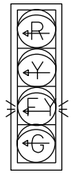
PROPOSED SIGNAL HEADS

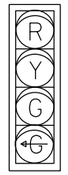
12" LED VERTICAL SIGNAL SECTIONS
W/ REFLECTIVE BACK PLATES



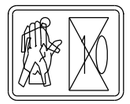
SIGNAL NO. 1



SIGNAL NO. 2



SIGNAL NO. 3



LED PEDESTRIAN
COUNTDOWN SIGNAL

SIGNAL NO. 4

PROPOSED SIGN SCHEDULE

E XXXX **Kingsbury** St XXXX

N XXXX **Austin** St XXXX

D3-1G
(96"x12")
S1
(2 EA)

D3-1G
(72"x12")
S2
(2 EA)

LEFT TURN
YIELD
ON FLASHING
YELLOW
ARROW

R10-17T
(30"x30")
S3
(2 EA)

R10-3eL
(9"x15")
S4
(3 EA)

R10-3eR
(9"x15")
S5
(3 EA)

POSTED SPEED LIMITS:
US 90 = 35 MPH
BS SH 123 = 30 MPH

PAVEMENT TYPE
US 90 = ASPHALT
BS SH 123 = ASPHALT

N

SCALE: 1" = 40'
20 0 20

LEGEND

- CONTROLLER CABINET
- SIGNAL HEAD VERTICAL
- TRAFFIC SIGNAL POLE
- PEDESTRIAN POLE
- TRAFFIC SIGNAL MAST ARM
- PRESENCE RADAR DETECTION
- LUMINAIRE
- IP PTZ CAMERA
- MAST ARM MOUNT SIGN
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- ELECTRICAL SERVICE
- GROUND BOX (TYPE D) W/APRON
- PVC (SCHEDULE 80) (TRENCH)
- PVC (SCHEDULE 80) (BORE)
- 1 SIGNAL HEAD NUMBER
- Ø2 SIGNAL TIMING PHASE
- DIRECTION OF FLOW

STATE OF TEXAS
GUILLERMO A. DOUGHERTY, JR.
93649
LICENSED
PROFESSIONAL ENGINEER

1-20-2023

NO.	DATE	REVISION	APPROV.

DOUGHERTY
Engineering Group, PLLC
TBPE Firm No. F-18636

NOTES:

1. ALL TRAFFIC SIGNAL EQUIPMENT LOCATIONS AND RIGHT-OF-WAY LINES ARE APPROXIMATE. VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
2. THE EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE APPROXIMATE. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS/HER FAILURE TO LOCATE, PRESERVE, AND PROTECT THESE UTILITIES.
3. SIGNAL HEADS SHALL HAVE A MINIMUM OF 18.5 FEET CLEARANCE ABOVE ROADWAY SURFACE.
4. FOR PAVEMENT MARKINGS, SEE PROPOSED PAVEMENT MARKINGS AND RAMPS SHEET.
5. THE LOCATION OF RADAR DETECTORS SHOWN ARE APPROXIMATE. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD AND ADJUSTED TO PROVIDE DETECTION ZONES AND A COMPLETE OPERABLE SYSTEM.
6. CONTRACTOR SHALL REMOVE AND DELIVER COMMUNICATION EQUIPMENT INCLUDING CONTROLLER AND ANY OTHER EQUIPMENT DEEMED SALVAGEABLE TO TXDOT SIGNAL SHOP LOCATED AT 4615 NW LOOP 410, CONTACT MARK PEREZ AT 210-218-7430.
7. THE INSTALLATION OF ALL COMMUNICATION. PACKAGE ITEMS (MODEM, POWER STRIP, ETC.) IS SUBSIDIARY TO ITEM 680.
8. ADJUST EXISTING SIGNAL HEADS AND PROPOSED SIGNAL HEADS NECESSARY TO KEEP THEM VISIBLE AT ALL TIMES DURING CONSTRUCTION. ADJUSTING SIGNAL HEADS DURING CONSTRUCTION IS SUBSIDIARY TO ITEM 502.

NOTES CONT.:

9. CONTRACTOR SHALL FURNISH AND DELIVER TS 2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET AND ASSEMBLY TO TXDOT SIGNAL SHOP FOR PROGRAMMING AND TESTING TWO WEEKS IN ADVANCE PROIR TO CONTRACTOR INSTALLING EQUIPMENT IN THE FIELD. COORDINATE DROP OFF AND PICKUP WITH MARK PEREZ AT 210-218-7430.
10. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF SEVEN (7) DAYS PRIOR TO BEGINNING CONSTRUCTION.
11. CONTRACTOR SHALL CONTACT THE DISTRICT SIGNAL MAINTENANCE OFFICE AND AREA OFFICE A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE TRAFFIC SIGNAL TURN-ON.
12. THE CITY OF SEGUIN SHALL PROVIDE THE STREET NAME SIGNS EXCEPT FOR THE INTERSECTION OF SH 46 AT C H MATTHIES JR. AND THE CONTRACTOR SHALL INSTALL THEM AS SHOWN ON THE PLANS. INSTALLATION OF THESE SIGNS SHALL BE SUBSIDIARY TO ITEM 680.

PROPOSED INTERSECTION LAYOUT
US 90(KINGSBURY ST) AT BS SH 123 (AUSTIN ST)

SHEET 2 OF 6

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		61
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

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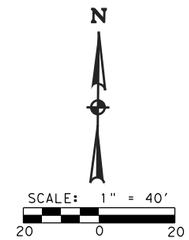
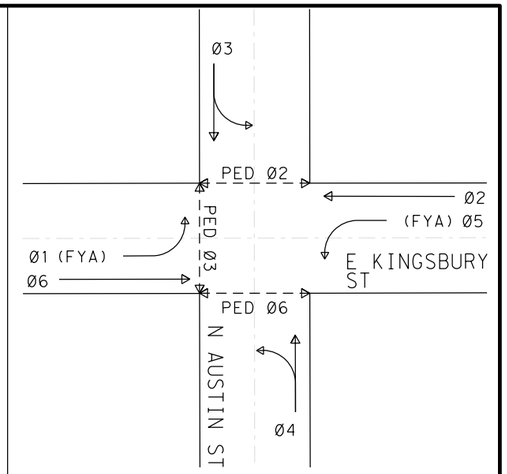
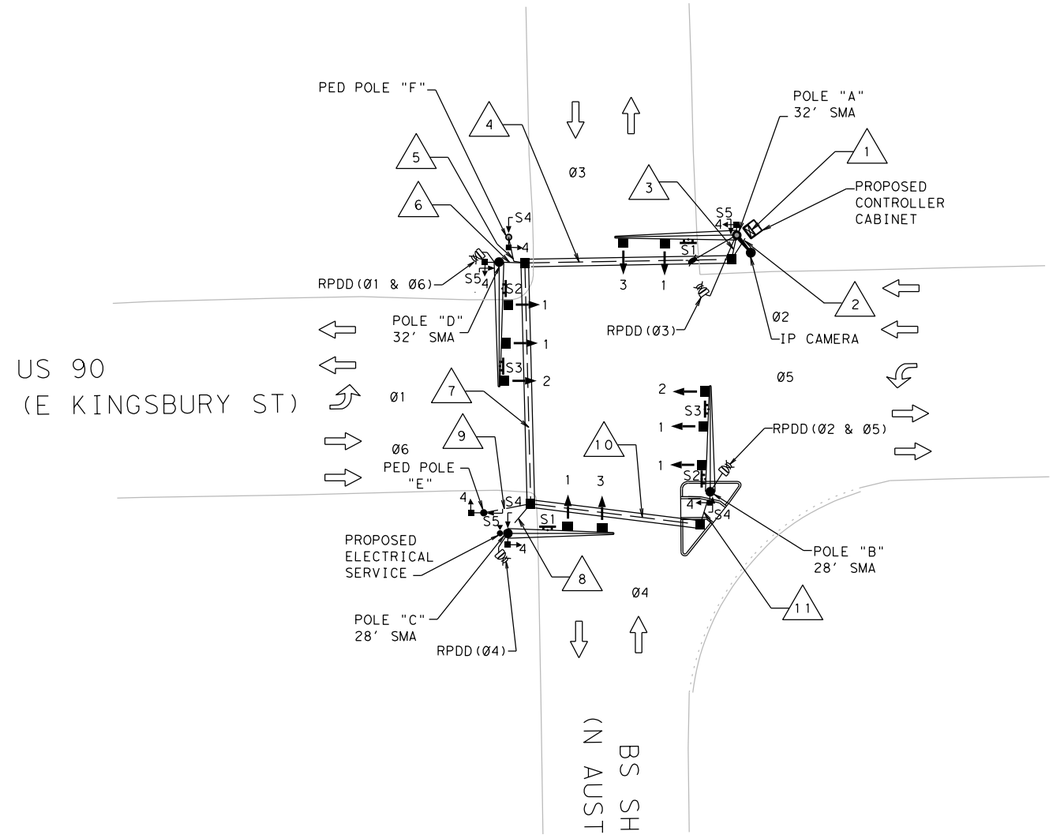
PROPOSED CONDUIT AND CONDUCTOR SCHEDULE

	RUN NUMBER		1	2		3		4		5	6		7		8		9	10		11	
	CONDUIT SIZE IN INCHES			2	3	2	3	2	3	3	2	3	2	3	2	3	3	2	3	2	3
	NUMBER OF CONDUITS			1	2	1	2	1	2	2	1	2	1	2	1	2	2	1	2	1	2
	LENGTH OF RUN (FT)		10	10	10	5	5	60	60	5	5	5	70	70	5	5	15	50	50	10	10
	TRENCH (T)/BORE (B)/ CONTROLLER (C)		C	T	T	T	T	B	B	T	T	T	B	B	T	T	T	B	B	T	T
CABLE	CIRCUIT		NUMBER OF CONDUCTORS																		
#6 XHHW	120 POWER HOT		1					1													
	120 POWER COMMON		1					1													
#6 BARE	BARE BOND GROUND		1	1	2	1	2	1	2	2	1	2	1	2	1	2	2	1	2	1	2
7 COND. #12 STRANDED TY A	SIGNALS	PHASE 01	1		1				1					1					1		1
		PHASE 02	1		1				1			1									
		PHASE 03	1		1				1					1		1					
		PHASE 04	1		1		1														
		PHASE 05	1		1				1			1									
		PHASE 06	1		1				1					1					1		1
4 COND. #12 STRANDED TY A	PED SIGNALS	PHASE 02	2		2				2	1		1									
		PHASE 03	2		2				2			1		1			1				
		PHASE 06	2		2				2					2		1			1		1
2 COND. #14 STRANDED TY C	PED. PUSH BUTTONS	PHASE 02	2		2				2	1		1									
		PHASE 03	2		2				2			1		1			1				
		PHASE 06	2		2				2					2		1			1		1
6 COND. #22	RADAR PRESENCE DETECTION (RP)	PHASE 01 & 06	1		1				1			1									
		PHASE 02 & 05	1		1				1					1					1		1
		PHASE 03	1		1		1														
		PHASE 04	1		1				1					1		1					
CAT 5 ETHERNET CABLE & POWER	IP CAMERA		1	1		1															
4 COND. #12	LUMINAIRE TRAY CABLE					1		1					1		1						





PHASING DIAGRAM

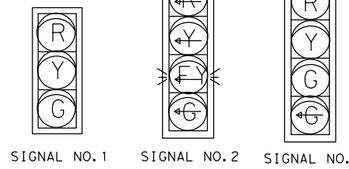


LEGEND

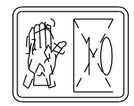
- CONTROLLER CABINET
- SIGNAL HEAD VERTICAL
- TRAFFIC SIGNAL POLE
- PEDESTRIAN POLE
- TRAFFIC SIGNAL MAST ARM
- PRESENCE RADAR DETECTION
- LUMINAIRE
- IP PTZ CAMERA
- MAST ARM MOUNT SIGN
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- ELECTRICAL SERVICE
- GROUND BOX (TYPE D) W/APRON
- PVC (SCHEDULE 80) (TRENCH)
- PVC (SCHEDULE 80) (BORE)
- 1 SIGNAL HEAD NUMBER
- Ø2 SIGNAL TIMING PHASE
- DIRECTION OF FLOW

PROPOSED SIGNAL HEADS

12" LED VERTICAL SIGNAL SECTIONS
W/ REFLECTIVE BACK PLATES



SIGNAL NO. 1 SIGNAL NO. 2 SIGNAL NO. 3



LED PEDESTRIAN COUNTDOWN SIGNAL

SIGNAL NO. 4

POSTED SPEED LIMITS:
US 90 = 35 MPH
BS SH 123 = 30 MPH

PAVEMENT TYPE
US 90 = ASPHALT
BS SH 123 = ASPHALT

STATE OF TEXAS
GUILLERMO A. DOUGHERTY, JR.
93649
LICENSED
PROFESSIONAL ENGINEER

1-20-2023

NO.	DATE	REVISION	APPROV.

DOUGHERTY Engineering Group, PLLC
TBPE Firm No. F-18636

PROPOSED WIRING DIAGRAM US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)

SHEET 3 OF 6

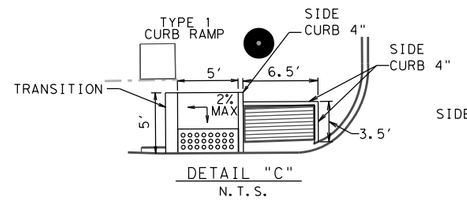
FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	62

STATE	DIST.	COUNTY
TEXAS	SAT	GUADALUPE

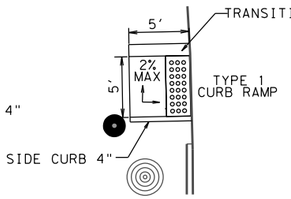
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

ESTIMATE OF QUANTITIES - PAVEMENT MARKINGS				
ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	ESTIMATE QUANTITY
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3
666	6034	REF PAV MRK TYI (W)8"(SLD)(60MIL)	LF	152
666	6048	REF PAV MRK TYI (W)24"(SLD)(100MIL)	LF	352
666	6052	REF PAV MRK TYI (ARROW)(60MIL)	EA	2
666	6076	REFL MRK TYI (W)(WORD)(60MIL)	EA	2
666	6230	PAVEMENT SEALER (24")	LF	352
666	6298	RE PM W/RET REQ TYI (W)4"(BRK)(60MIL)	LF	200
666	6310	RE PM W/RET REQ TYI (Y)4"(BRK)(60MIL)	LF	80
666	6313	RE PM W/RET REQ TYI (Y)4"(SLD)(60MIL)	LF	1141
672	6007	REFL PAV MRKR TYI-C	EA	17
672	6009	REFL PAV MRKR TYII-AA	EA	58
677	6007	ELIM EXT PAV MRK & MRKS(24")	LF	428

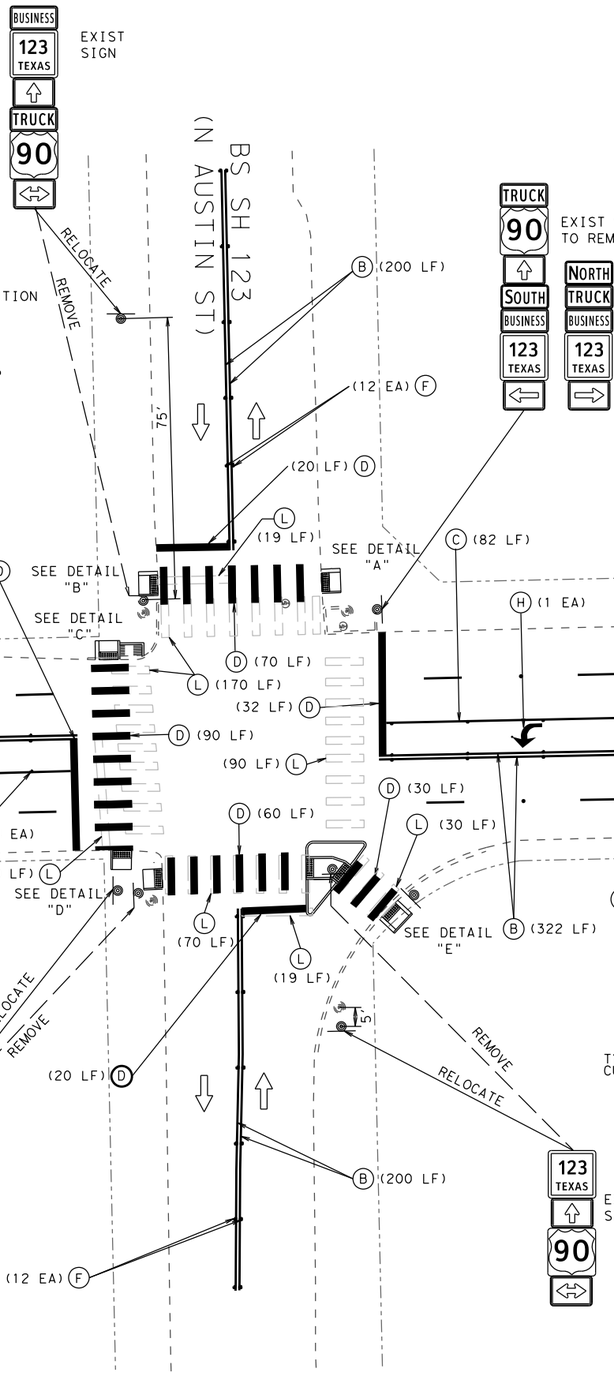
ITEM	DESCRIPTION	UNIT	QTY
0104 6015	REMOVING CONC (SIDEWALK)	SY	71
0529 6002	CONC CURB (TYII)	LF	42
0529 6015	CONC CURB (TY C1)	LF	60
0531 6001	CONC SIDEWALK (4")	SY	113
0531 6004	CURB RAMPS (TY 1)	EA	5
0531 6005	CURB RAMPS (TY 2)	EA	1
0531 6017	CURB RAMPS (TY 22)	EA	1

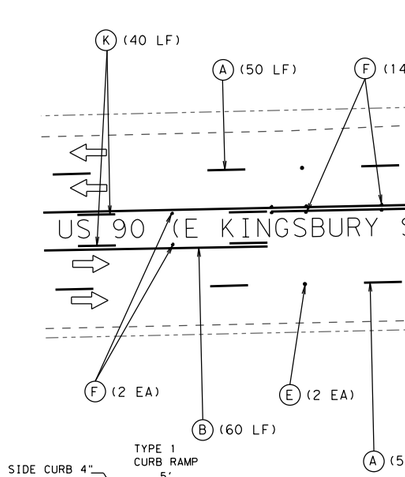


DETAIL "C"
N.T.S.

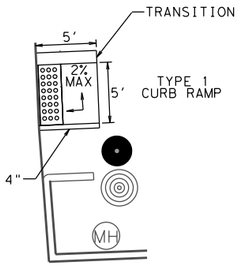


DETAIL "B"
N.T.S.

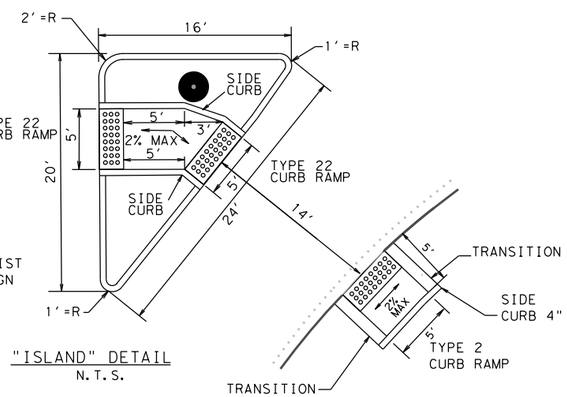




DETAIL "D"
N.T.S.



DETAIL "A"
N.T.S.



"ISLAND" DETAIL
N.T.S.

DETAIL "E"
N.T.S.

LEGEND

- (A) RE PM W/RET REQ TYI(W)4"(BRK)(60MIL)
- (B) RE PM W/RET REQ TYI(Y)4"(SLD)(60MIL)
- (C) REFL PAV MRK TY I (W) (8") (SLD)(60MIL)
- (D) REFL PAV MRK TY I (W) (24") (SLD)(100MIL)
- (E) REFL PAV MRKR TY II C-R
- (F) REFL PAV MRKR TY II-A-A
- (G) RE PM W/RET REQ TYI(W)4"(SLD)(60MIL)
- (H) REFL PAV MRK TY I (W) (ARROW)(60MIL)
- (J) REFL PAV MRK TY I (W) (WORD)(60MIL)
- (K) RE PM W/RET REQ TYI(Y)4"(BRK)(60MIL)
- (L) ELIM EXT PAV MRK & MRKS(24")
- DIRECTION OF TRAFFIC FLOW

N

SCALE: 1" = 40'
20 0 20

NOTES (CURB RAMPS):

1. FOR CURB RAMP DETAILS SEE PEDESTRIAN FACILITIES CURB RAMPS STANDARD.
2. MATCH ADJACENT CURB HEIGHTS WHEN ADJACENT CURB EXISTS.
3. CURB RAMPS TO BE CONSTRUCTED AFTER EXISTING SIGNAL IS REMOVED.

NOTES (SIGNS AND PAVEMENT MARKINGS):

1. REFRESH LANE LINES, CENTERLINES, CROSSWALK PAVEMENT MARKINGS, AND STOP BAR MARKINGS 200' ON US 90(KINGSBURY ST) AND BS SH 123(AUSTIN ST) AS SHOWN ON THE PLANS.
2. ALL GROUND MOUNTED SIGNS ARE TO REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
3. ALL MATERIAL SHALL BE AS PER TXDOT APPROVED MATERIAL LIST.
4. ALL WORK SHALL BE DONE AS PER TXDOT STANDARDS AND SPECIFICATIONS.

POSTED SPEED LIMITS:
US 90 = 35 MPH
BS SH 123 = 30 MPH

PAVEMENT TYPE
US 90 = ASPHALT
BS SH 123 = ASPHALT

STATE OF TEXAS
GUILLERMO A. DOUGHERTY, JR.
93649
LICENSED
PROFESSIONAL ENGINEER

1-20-2023

NO.	DATE	REVISION	APPROV.

DOUGHERTY
Engineering Group, PLLC
TBPE Firm No. F-18636

PROPOSED PAVEMENT MARKINGS & RAMPS US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)

SHEET 4 OF 6

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	63

STATE	DIST.	COUNTY
TEXAS	SAT	GUADALUPE

CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

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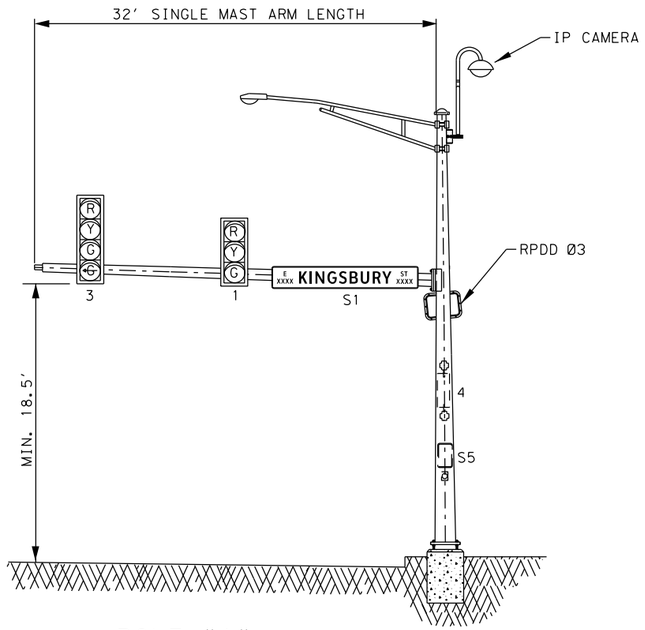
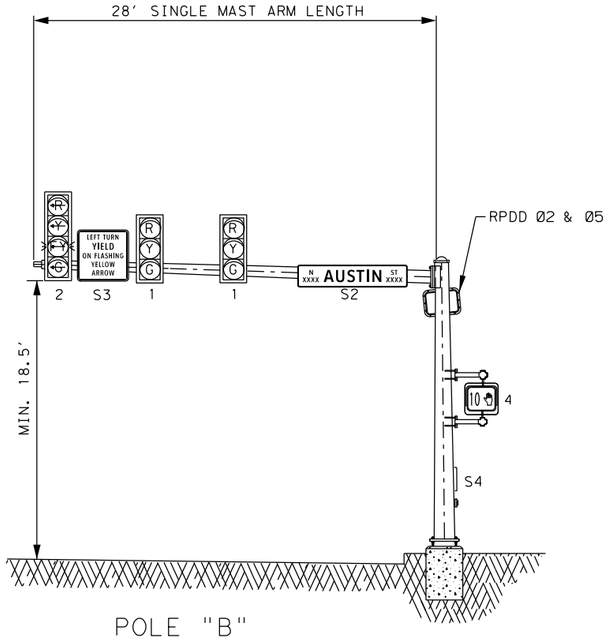
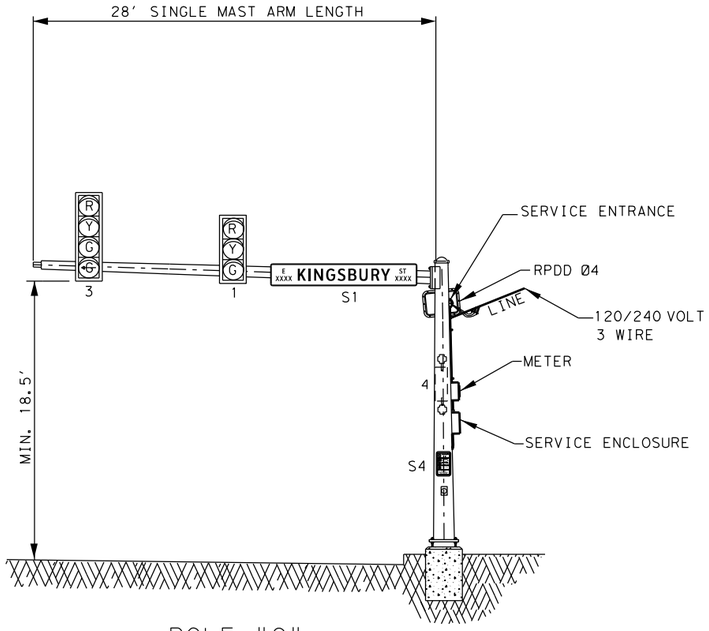


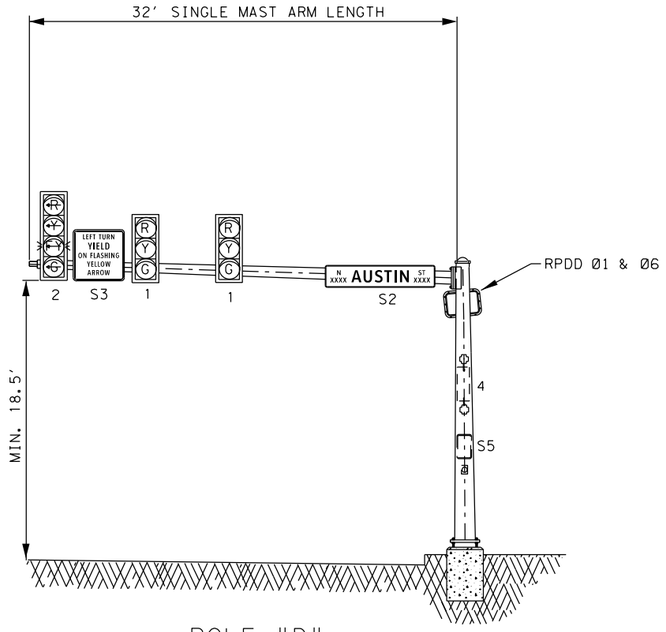
POLE "A"
NORTHBOUND



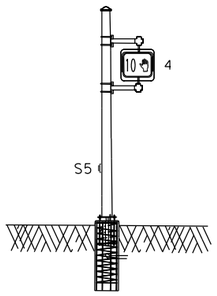
POLE "B"
EASTBOUND



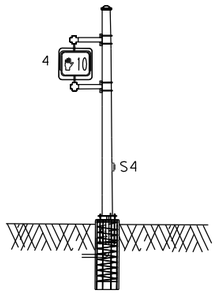
POLE "C"
SOUTHBOUND



POLE "D"
WESTBOUND



POLE "E"
PED VIEW



POLE "F"
PED VIEW

STATE OF TEXAS
GUILLERMO A. DOUGHERTY, JR.
93649
LICENSED
PROFESSIONAL ENGINEER

1-20-2023

NO.	DATE	REVISION	APPROV.

DOUGHERTY
Engineering Group, PLLC
TBPE Firm No. F-18636

PROPOSED
ELEVATION VIEW
US 90 (KINGSBURY ST) AT
BS SH 123 (AUSTIN ST)

SHEET 5 OF 6

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		64
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

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ESTIMATE OF QUANTITIES - TRAFFIC SIGNAL				
ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST QUANTITY
104	6015	REMOVING CONC (SIDEWALKS)	SY	71
416	6031	DRILL SHAFT (TRF SIG POLE)(30 IN)	LF	45.2
529	6002	CONC CURB (TY II)	LF	25
529	6015	CONC CURB (TY C1)	LF	60
531	6001	CONC SIDEWALK (4")	SY	113
531	6004	CURB RAMPS (TY 1)	EA	5
531	6005	CURB RAMPS (TY 2)	EA	1
531	6017	CURB RAMPS (TY 22)	EA	1
618	6046	CONDT (PVC) (SCH 80) (2")	LF	30
618	6047	CONDT (PVC) (SCH 80) (2")(BORE)	LF	180
618	6053	CONDT (PVC) (SCH 80) (3")	LF	90
618	6054	CONDT (PVC) (SCH 80) (3")(BORE)	LF	360
620	6009	ELEC CONDR (NO.6) BARE	LF	680
620	6010	ELEC CONDR (NO.6) INSULATED	LF	300
621	6005	TRAY CABLE (4 CONDR) (12 AWG)	LF	190
624	6010	GROUND BOX TY D (162922)W/APRON	EA	4
628	6002	REMOVE ELECTRICAL SERVICE	EA	1
628	6168	ELC SRV TY D 120/240 070(NS)AL(E)TS(O)	EA	1
644	6070	RELOCATE SM RD SN SUP&AM TY S80	EA	3
666	6034	REF PAV MRK TYI (W) 8" (SLD) (60MIL)	LF	152
666	6048	REF PAV MRK TYI (W) 24" (SLD) (100MIL)	LF	352
666	6052	REF PAV MRK TYI (W)(ARROW)(60MIL)	EA	2
666	6076	REF PAV MRK TYI (W)(WORD)(60MIL)	EA	2
666	6230	PAVEMENT SEALER (24")	LF	352
666	6298	RE PM W/RET REQ TYI (W) 4" (BRK)(60MIL)	LF	200
666	6310	RE PM W/RET REQ TYI (Y) 4" (BRK)(60MIL)	LF	80
666	6313	RE PM W/RET REQ TYI (Y) 4" (SLD)(60MIL)	LF	1141
672	6007	REFL PAV MRKR TY I-C	EA	17
672	6009	REFL PAV MRKR TY II-AA	EA	58
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	428
680	6002	INSTALL HWY TRF SIG (ISOLATED)	EA	1
*		NEMA TX2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET	EA	1
*		TRAFFIC SIGNAL CONTROLLER FOUNDATION	EA	1
*		R10-17T (30" X 30") "LEFT TURN ON FLASHING YELLOW ARROW"	EA	2
*		D3-1G OVERHEAD STREET NAME SIGNS	EA	4
680	6004	REMOVING TRAFFIC SIGNALS	EA	1
682	6001	VEH SIG SEC (12")LED(GRN)	EA	8
682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	4
682	6003	VEH SIG SEC (12")LED(YEL)	EA	8
682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	4
682	6005	VEH SIG SEC (12")LED(RED)	EA	8
682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	2
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	6
682	6049	BACKPLATE W/REFL BRDR(4 SEC)	EA	4
682	6060	BACKPLATE W/REFL BRDR(3 SEC)	EA	6
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	885
684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	1070
684	6080	TRF SIG CBL (TY A)(14 AWG)(2 CONDR)	LF	855
686	6029	INS TRF SIG PL AM(S)1 ARM(28')	EA	2
686	6033	INS TRF SIG PL AM(S)1 ARM(32')	EA	1
686	6035	INS TRF SIG PL AM(S)1 ARM(32')LUM	EA	1
687	6001	PEDESTAL POLE ASSEMBLY	EA	2
*		DRILL SHAFT (TRF SIG POLE)(24 IN)	LF	12
688	6001	PED DETECT PUSH BUTTON (APS)	EA	6
*		R10-3e (L) (9" x 15") "PEDESTRIAN SIGN"	EA	3
*		R10-3e (R) (9" x 15") "PEDESTRIAN SIGN"	EA	3
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
6004	6031	ITS COM CBL (ETHERNET)	LF	65
6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
6185	6002	TMA (STATIONARY)	DAY	10
6292	6001	RVDS (PRESENCE DETECTION ONLY)	EA	4
*		RVDS (RADAR PRESENCE DETECTOR POWER AND COMMUNICATION CABLE)	LF	580

PROPOSED SIGN SCHEDULE

D3-1G
96"x 12"
*S1
2 EA
**

D3-1G
72"x 12"
*S1
2 EA
**

*S3
2 EA

R10-17T
30"X30"

** THESE SIGNS WILL BE PROVIDED BY THE CITY OF SEGUIN FOR CONTRACTOR TO INSTALL. INSTALLATION OF THESE SIGNS SHALL BE SUBSIDIARY TO ITEM 680

*S4
3 EA

R10-3eL
9"x15"

*S5
3 EA

R10-3eR
9"x15"

ESTIMATE OF QUANTITIES - TRAFFIC SIGNAL				
ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST QUANTITY
****	****	CONTROLLER FORCE ACCOUNT (COMM PACKAGE)	EA	1
		CELLULAR MODEM (CISCO MODEL 1R1101)	EA	1
		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
		IP CAMERA (AXIS M5525-E)	EA	1
		IP CAMERA MOUNTING BRACKET (AXIS T9401D PENDANT KIT)	EA	1
		POWER STRIP	EA	1
		SWITCH POWER SUPPLY	EA	1
		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1

* SUBSIDIARY TO PERTINENT ITEM
**** **** CONTRACTOR FORCE ACCOUNT

ELECTRICAL SERVICE DATA						
C-S-J	PROJECT LOCATION	ELECTRIC SERVICE NO.	SHEET NO.	ELEC SERV DESCRIPTION (SEE ED (4) &(5) - 14	SERVICE CONDUIT SIZE (RMC)	SERVICE CONDUCTORS NO./SIZE
0915-00-235	US 90 AT BS SH 123	ES-01		TY D (120/240) 070 (NS) AL (E) TS (O)	1-1/4"	3/#4
SAFETY SWITCH AMPS	MAIN CKT. BKR. POLE/AMP	TWO-POLE CONTACTOR AMPS	PANEL BD./ LOADCENTER AMP RATING (MIN)	CIRCUIT NO.	BRANCH CKT. BKR. POLE/AMP	KVA LOAD
N/A	2P/70	30	100	Signal Lighting	1P/50 1P/20	<7.1

POLE ID.	POLE & EQUIPMENT DESCRIPTIONS WITH ATTACHMENTS
A	32' SINGLE MAST ARM ON A 30-A FOUNDATION AT 11 FT WITH TWO VEHICLE SIGNAL HEADS AS ILLUSTRATED. ONE D3-1G STREET NAME SIGN. ONE RVDS PRESENCE DETECTION (RPDD Ø3), AND ONE IP CAMERA, AND WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, AND ONE R10-3eR PEDESTRIAN SIGN, AND ONE LED LUMINAIRE(250W HPS EQUIVALENT).
B	28' SINGLE MAST ARM ON A 30-A FOUNDATION AT 11 FT. WITH THREE VEHICLE SIGNAL HEADS AS ILLUSTRATED. ONE D3-1G STREET NAME SIGN. ONE R10-17T(30"x30") SIGN, AND ONE RVDS PRESENCE DETECTION (RPDD Ø2 & Ø5) WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, AND ONE R10-3eL PEDESTRIAN SIGN.
C	28' SINGLE MAST ARM ON A 30-A FOUNDATION AT 11 FT. WITH TWO VEHICLE SIGNAL HEADS AS ILLUSTRATED. ONE D3-1G STREET NAME SIGN. ONE RVDS PRESENCE DETECTION (RPDD Ø4) WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, AND ONE R10-3eL PEDESTRIAN SIGN, AND ELECTRICAL SERVICE.
D	32' SINGLE MAST ARM ON A 30-A FOUNDATION AT 11 FT. WITH THREE VEHICLE SIGNAL HEADS AS ILLUSTRATED. ONE D3-1G STREET NAME SIGN. ONE R10-17T (30"x30") SIGN. ONE RVDS PRESENCE DETECTION (RPDD Ø1 & Ø6). ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT. AND ONE R10-3eR PEDESTRIAN SIGN.
E	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD. ONE ACCESSIBLE SIGNAL UNIT AND ONE R10-3eR PEDESTRIAN SIGN.
F	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD. ONE ACCESSIBLE SIGNAL UNIT AND ONE R10-3eL PEDESTRIAN SIGN.

STATE OF TEXAS
GUILLERMO A. DOUGHERTY, JR.
93649
LICENSED
PROFESSIONAL ENGINEER

1-20-2023

NO.	DATE	REVISION	APPROV.

DOUGHERTY Engineering Group, PLLC
TBPE Firm No. F-18636

INTERSECTION QUANTITIES & DETAILS US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)

SHEET 6 OF 6

FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	65

STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

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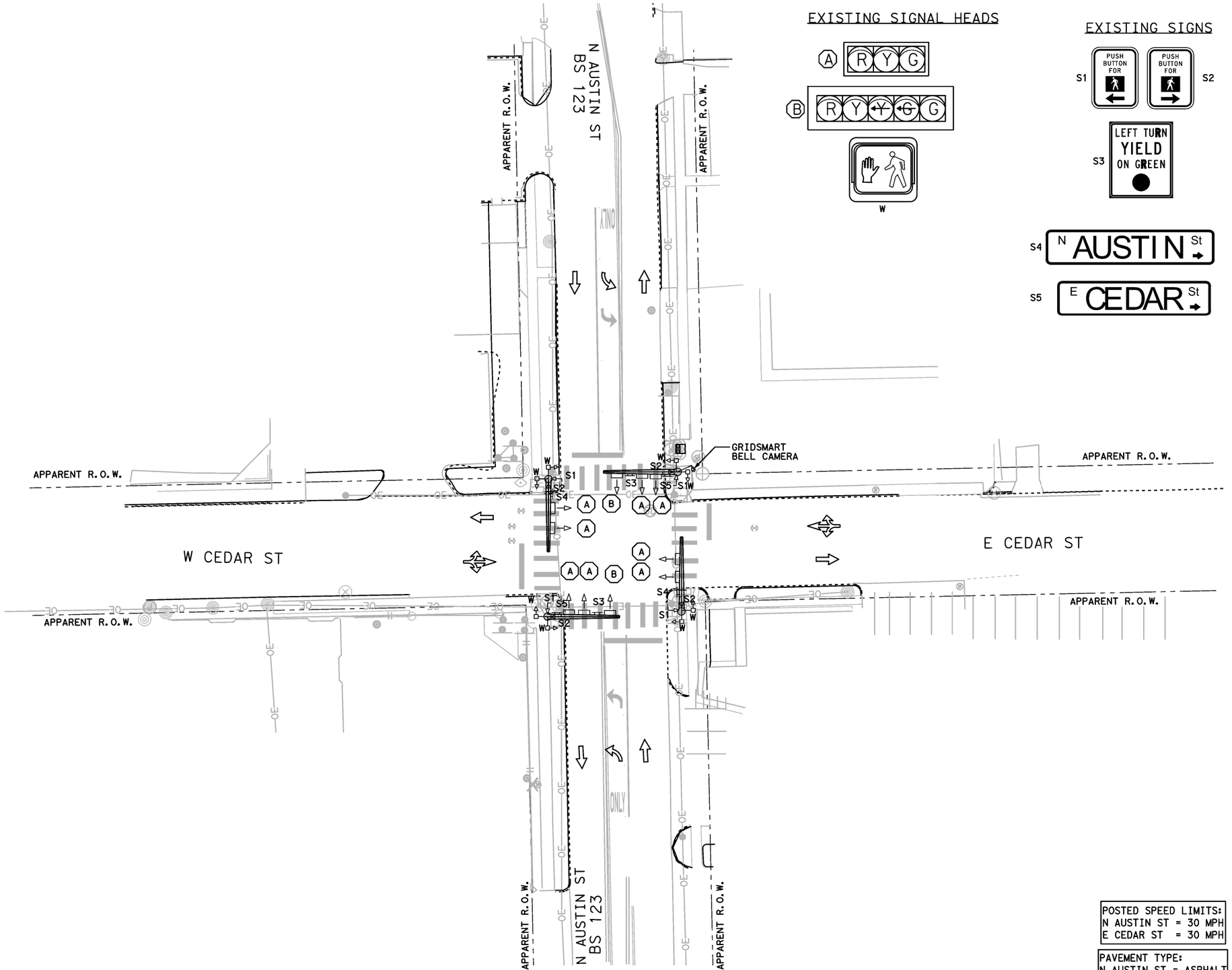
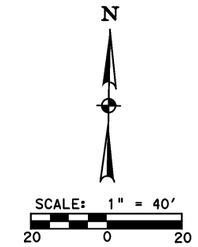


EXISTING SIGNAL HEADS

EXISTING SIGNS



LEGEND:

- EXISTING CONTROLLER CABINET
- EXISTING SIGNAL HEAD HORIZONTAL
- EXISTING TRAFFIC SIGNAL POLE
- EXISTING TRAFFIC SIGNAL MAST ARM
- EXISTING GRIDSMART BELL CAMERA
- EXISTING MAST ARM MOUNTED SIGN
- EXISTING PEDESTRIAN SIGNAL HEAD
- EXISTING PEDESTRIAN PUSH BUTTON
- DIRECTION OF TRAFFIC FLOW

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

NO.		REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 Houston, TX. 77095 PHONE: (713) 828-4742

EXISTING INTERSECTION LAYOUT
BS SH 123 (AUSTIN ST) AT CEDAR ST

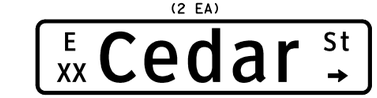
POSTED SPEED LIMITS:
N AUSTIN ST = 30 MPH
E CEDAR ST = 30 MPH

PAVEMENT TYPE:
N AUSTIN ST = ASPHALT
E CEDAR ST = ASPHALT

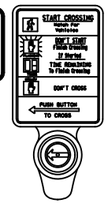
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		66
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

PROPOSED SIGN SCHEDULE

S1
(2 EA)



S2
(2 EA)



R10-3eL
(9"X15")
S5
(4 EA)

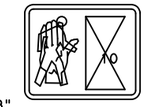
R10-3eR
(9"X15")
S4
(4 EA)

R10-17T
(30"X30")
S3
(2 EA)

R10-12
(30"X36")
S6
(2 EA)

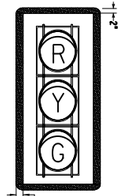
PROPOSED SIGNAL HEADS

12" LED VERTICAL SIGNAL SECTIONS
WITH BACK PLATES

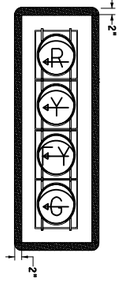


LED PEDESTRIAN
COUNTDOWN SIGNAL

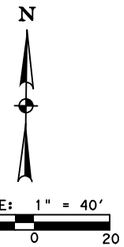
SIGNAL NO. 3
(8 EA)



SIGNAL NO. 1
(8 EA)

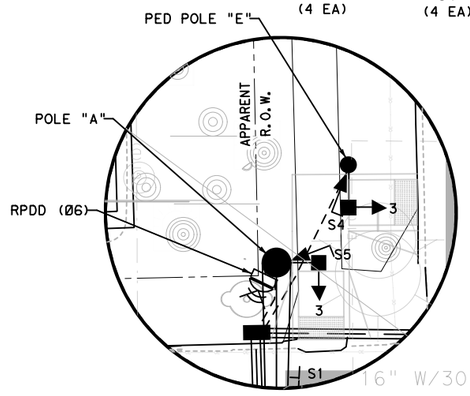


SIGNAL NO. 2
(2 EA)

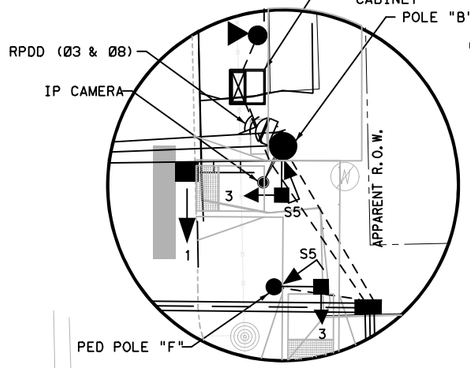


LEGEND

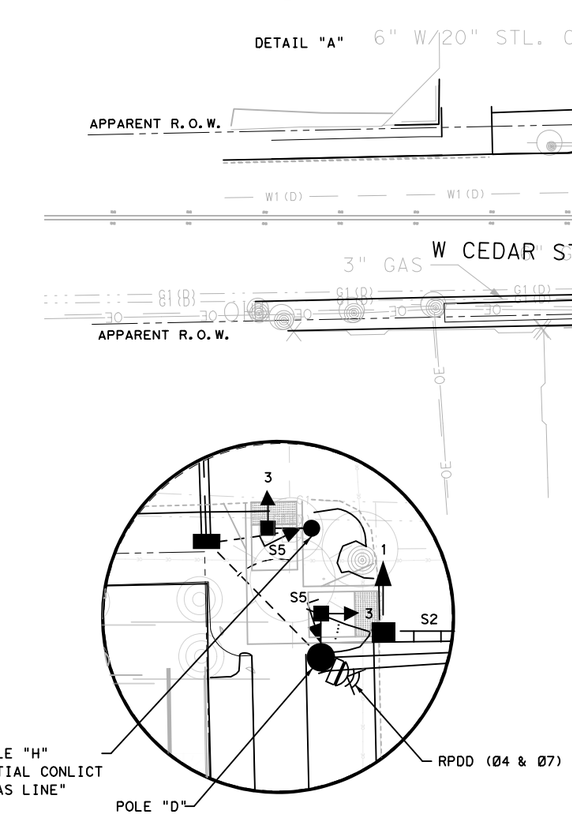
- ADVANCE RADAR DETECTION
- CONTROLLER CABINET
- DIRECTION OF TRAFFIC FLOW
- ELECTRICAL SERVICE
- GROUND BOX
- IP CAMERA
- LUMINAIRE AND ARM
- MAST ARM MOUNTED SIGN
- PEDESTRIAN POLE
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PRESENCE RADAR DETECTION
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- SIGNAL HEAD VERTICAL
- SIGNAL MAST ARM
- 1 SIGNAL HEAD
- TRAFFIC SIGNAL POLE



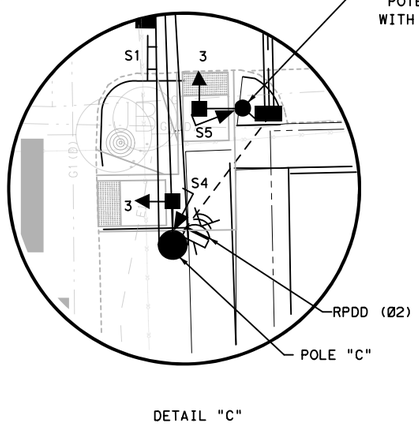
DETAIL "A"



DETAIL "B"



DETAIL "D"



DETAIL "C"

NOTE:

TRAFFIC SIGNAL NOTES, SEE SHEET "71" INTERSECTION QUANTITIES & DETAILS

POSTED SPEED LIMITS:
N AUSTIN ST = 30 MPH
E CEDAR ST = 30 MPH

PAVEMENT TYPE:
N AUSTIN ST = ASPHALT
E CEDAR ST = ASPHALT

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
PROFESSIONAL LICENSED ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/24/2023 DATE

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

PROPOSED INTERSECTION LAYOUT
BS SH 123 (AUSTIN ST) AT CEDAR ST

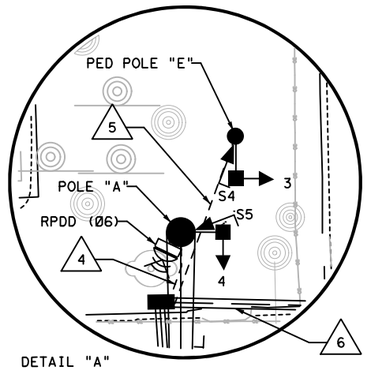
FED. RD. DIV. NO.	PROJECT NO.	SHEET NO.
6	SEE TITLE SHEET	67

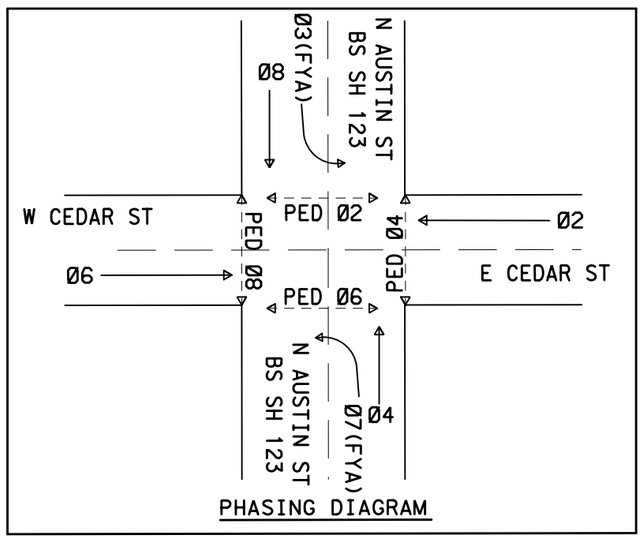
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/24/2023 11:32:53 AM
...\67 PROPOSED INTERSECTION LAYOUT.dgn

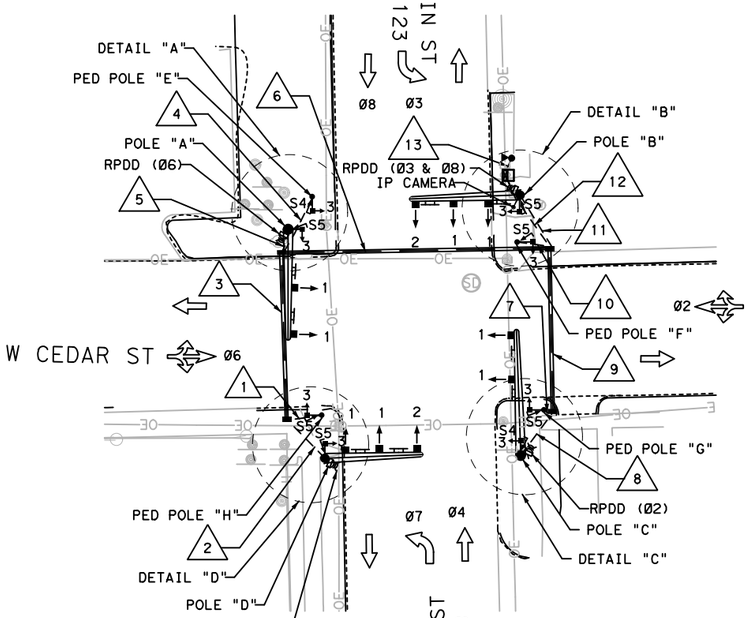
PROPOSED CONDUIT AND CONDUCTOR SCHEDULE

	RUN NUMBER		1	2		3		4	5		6		7	8		9		10	11		12		13
	CONDUIT SIZE IN INCHES		2.0	2.0	3.0	2.0	3.0	2.0	2.0	3.0	2.0	3.0	2.0	2.0	3.0	2.0	3.0	2.0	2.0	3.0	2.0	3.0	2.0
	NUMBER OF CONDUITS		1	1	2	1	2	1	1	2	1	2	1	1	2	1	2	1	1	2	1	3	1
	LENGTH OF RUN (FT)		10	15	15	45	45	15	5	5	70	70	20	10	10	45	45	10	15	15	25	25	5
	TRENCH (T)/BORE (B)/CONTROLLER (C)		T	T	T	B	B	T	T	T	B	B	T	T	T	B	B	T	T	T	C	C	T
CABLE	CIRCUIT		NUMBER OF CONDUCTORS																				
#6 XHHW	120 POWER HOT																						1
	120 POWER COMMON																						1
#6 BARE	BARE BOND GROUND		1	1	2	1	2	1	1	2	1	2	1	1	2	1	2	1	1	2	1	3	2
7 COND. #12 STRANDED TY A	SIGNALS	PHASE 01																					
		PHASE 02								1		1										1	
		PHASE 03			1		1					1										1	
		PHASE 04																		1		1	
		PHASE 05																					
		PHASE 06													1		1					1	
		PHASE 07																		1		1	
		PHASE 08			1		1					1										1	
4 COND. #12 STRANDED TY A	PED. SIGNALS	PHASE 02						1				1								1		2	
		PHASE 04											1				1	1				2	
		PHASE 06			1		1					1		1	1		1					2	
		PHASE 08	1				1			1		2										2	
2 COND. #14 STRANDED TY C	PED. PUSH BUTTONS	PHASE 02						1				1								1		2	
		PHASE 04											1				1	1				2	
		PHASE 06			1		1					1		1	1		1					2	
		PHASE 08	1				1			1		2										2	
6 COND. #22	RVDS (PRESENCE DETECTION DEVICE)	PHASE 03 & 08																		1		1	
		PHASE 02													1		1					1	
		PHASE 04 & 07			1		1					1										1	
		PHASE 06								1		1										1	
CAT 5 ETHERNET CABLE & POWER	IP CAMERA																			1		1	



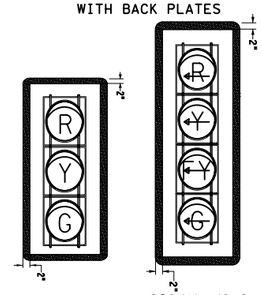


PHASING DIAGRAM



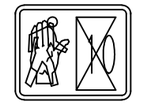
PROPOSED SIGNAL HEADS

12" LED VERTICAL SIGNAL SECTIONS WITH BACK PLATES



SIGNAL NO. 1 (8 EA)

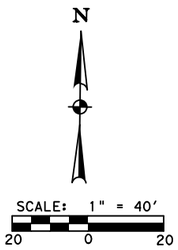
SIGNAL NO. 2 (2 EA)

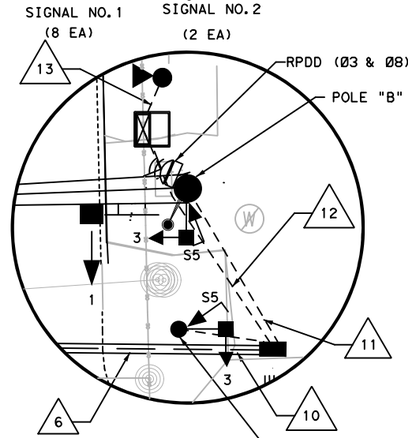


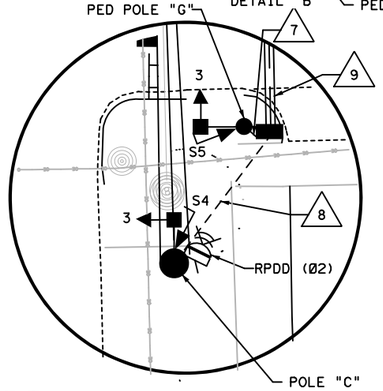
LED PEDESTRIAN COUNTDOWN SIGNAL

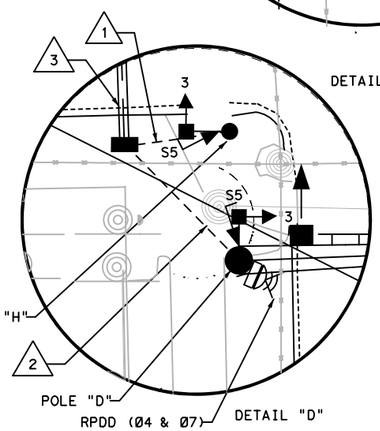
SIGNAL NO. 3

(8 EA)









LEGEND

- ADVANCE RADAR DETECTION
- CONTROLLER CABINET
- DIRECTION OF TRAFFIC FLOW
- ELECTRICAL SERVICE
- GROUND BOX
- IP CAMERA
- LUMINAIRE AND ARM
- MAST ARM MOUNTED SIGN
- PEDESTRIAN POLE
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PRESENCE RADAR DETECTION
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- SIGNAL HEAD VERTICAL
- SIGNAL MAST ARM
- 1 SIGNAL HEAD
- TRAFFIC SIGNAL POLE

POSTED SPEED LIMITS:
N AUSTIN ST = 30 MPH
E CEDAR ST = 30 MPH

PAVEMENT TYPE:
N AUSTIN ST = ASPHALT
E CEDAR ST = ASPHALT

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/24/2023 DATE

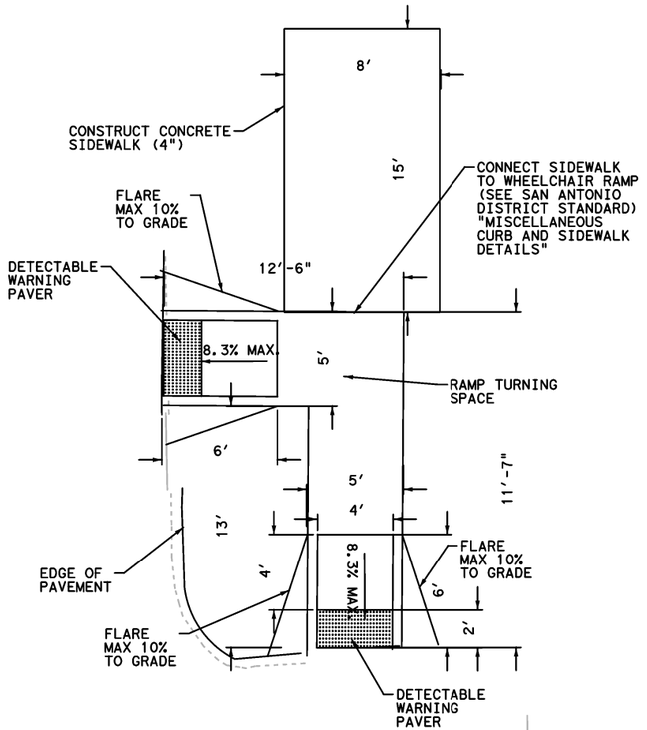
NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

PROPOSED WIRING DIAGRAM BS SH 123 (AUSTIN ST) AT CEDAR ST

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		68
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

1/24/2023 11:33:46 AM
...\68 CONDUIT AND CONDUCTOR SCHEDULE.dgn



RAMP DETAIL #2
N.T.S.

RAMP DETAIL #1
N.T.S.

RAMP DETAIL #4
N.T.S.

RAMP DETAIL #3
N.T.S.

NOTES:
1. REMOVE AND INSTALL NEW, LANE LINES, CENTERLINES, CROSSWALK PAVEMENT MARKINGS, AND STOP BAR MARKINGS, 200′ ON E. CEDAR ST AND 200′ ON W. CEDAR ST. ALSO, REPEAT THE SAME PROCESS, 200′ SB ON BS SH 123 (AUSTIN ST) TO KOEPSEL ST INTERSECTION AND 300′ NB ON BS SH 123 (AUSTIN ST) TO WEINERT ST INTERSECTION.
2. ALL EXISTING RAMPS SHALL BE REMOVED AND REPLACE WITH NEW RAMPS AS SHOWN IN THE DETAILS ON THE PLAN SHEET AND AS PER TXDOT STANDARDS AND SPECIFICATIONS.
3. ALL GROUND MOUNTED SIGNS ARE TO REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
4. ALL MATERIAL SHALL BE AS PER TXDOT APPROVED MATERIAL LIST.
5. ALL WORK SHALL BE DONE AS PER TXDOT STANDARDS AND SPECIFICATIONS.
6. TO CENNECT TO EXISTING SIDEWALK, REFER TO SAN ANTONIO DISTRICT STANDARD "MISCELLANEOUS CURB AND SIDEWALK DETAILS"

ESTIMATE OF QUANTITIES-PAVEMENT MARKINGS				
ITEM NO.	DESC CODE	DESCRIPTION	UNIT	EST QUANTITY
104	6064	REMOVING CONC (MISC)	CY	2
529	6001	CONC CURB (TY I)	LF	50
531	6001	CONC SIDEWALKS (4")	SY	14
531	6004	CURB RAMPS (TY 1)	EA	8
666	6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	300
666	6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	297
666	6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	2
666	6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	2
666	6224	PAVEMENT SEALER 4"	LF	1960
666	6226	PAVEMENT SEALER 8"	LF	300
666	6230	PAVEMENT SEALER 24"	LF	297
666	6231	PAVEMENT SEALER (ARROW)	EA	2
666	6232	PAVEMENT SEALER (WORD)	EA	2
666	6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)	LF	1960
672	6007	REFL PAV MRKR TY I-C	EA	30
672	6009	REFL PAV MRKR TY II-A-A	EA	104
677	6001	ELIM EXT PAV MRK & MRKS (4")	LF	1190
677	6003	ELIM EXT PAV MRK & MRKS (8")	LF	280
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	336
677	6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	2
677	6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	2

LEGEND

- (A) RE PM W/RET REQ TY I (Y) 4" (SLD) (100MIL)
- (B) REFL PAV MRK TY I (W) 8" (SLD) (100MIL)
- (C) REFL PAV MRK TY I (W) 24" (SLD) (100MIL)
- (D) REFL PAV MRKR TY I-C
- (E) REFL PAV MRKR TY II-A-A
- (G) REFL PAV MRK TY I (W) (ARROW) (100MIL)
- (J) REFL PAV MRK TY I (W) (WORD) (100MIL)
- ⇦ DIRECTION OF TRAFFIC FLOW

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

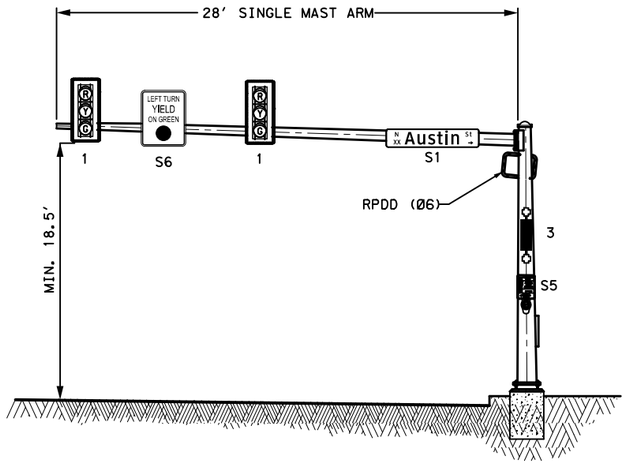
PROPOSED PAVEMENT MARKINGS & RAMPS BS SH 123 (AUSTIN ST) AT CEDAR ST

POSTED SPEED LIMITS:
N AUSTIN ST = 30 MPH
E CEDAR ST = 30 MPH

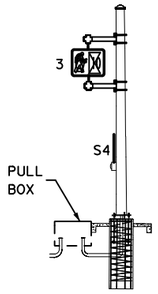
PAVEMENT TYPE:
N AUSTIN ST = ASPHALT
E CEDAR ST = ASPHALT

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		69
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

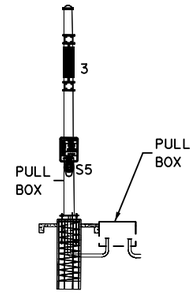
1/23/2023 2:14:20 PM
...\69*PROPOSED STRIPING LAYOUT*2D.dgn



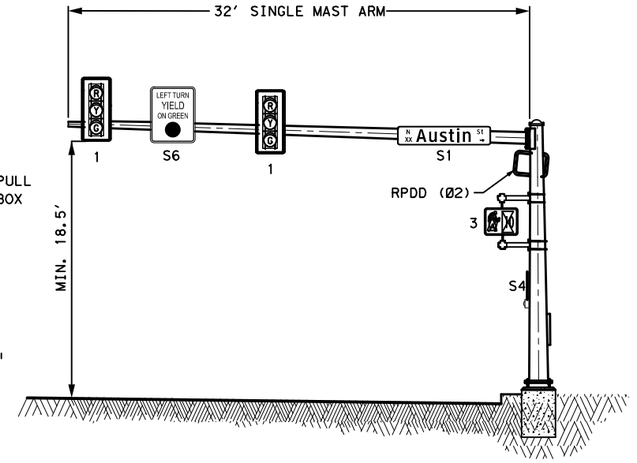
SIGNAL POLE "A" "WESTBOUND"



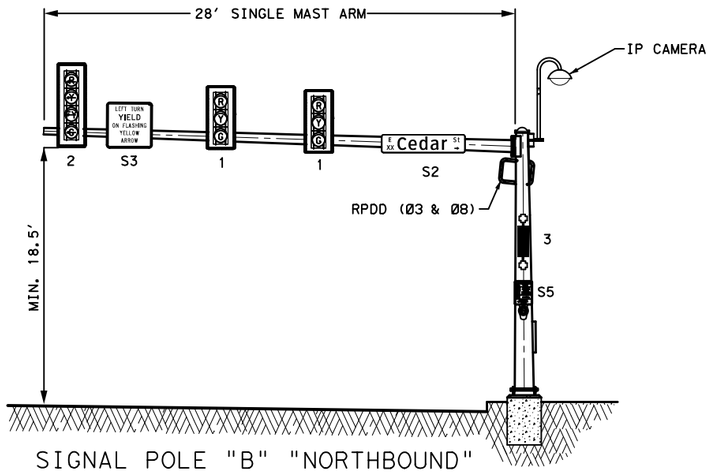
PED POLE "E" VIEW



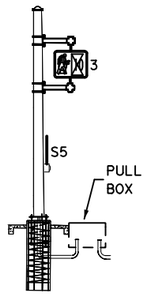
PED POLE "G" VIEW



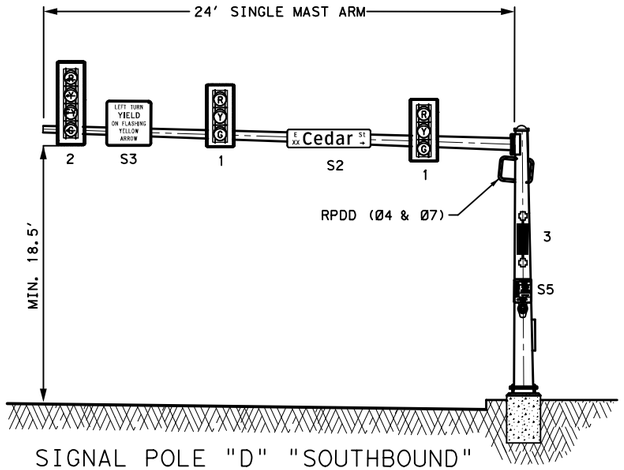
SIGNAL POLE "C" "EASTBOUND"



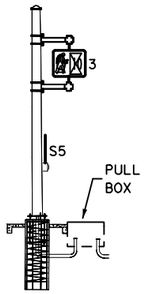
SIGNAL POLE "B" "NORTHBOUND"



PED POLE "F" VIEW



SIGNAL POLE "D" "SOUTHBOUND"



PED POLE "H" VIEW

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/24/2023 DATE

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

PROPOSED ELEVATION VIEW
BS SH 123 (AUSTIN ST) AT CEDAR ST

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		70
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

ESTIMATE OF QUANTITIES - TRAFFIC SIGNAL				
ITEM NO.	DESC. CODE	ITEM DESCRIPTION	UNIT	EST QUANTITY
104	6064	REMOVING CONC (MISC)	CY	2
416	6031	DRILL SHAFT (TRF SIG POLE) (30 IN)	LF	45
529	6001	CONC CURB (TY 1)	LF	50
531	6001	CONC SIDEWALKS (4")	SY	14
531	6004	CURB RAMPS (TY 1)	EA	8
618	6046	CONDT (PVC) (SCH 80) (2")	LF	130
618	6047	CONDT (PVC) (SCH 80) (2")(BORE)	LF	160
618	6053	CONDT (PVC) (SCH 80) (3")	LF	165
618	6054	CONDT (PVC) (SCH 80) (3") (BORE)	LF	320
620	6009	ELEC CONDR (NO.6) BARE	LF	775
620	6010	ELEC CONDR (NO.6) INSULATED	LF	10
624	6010	GROUND BOX TY D (162922) W/APRON	EA	4
628	6002	REMOVE ELECTRICAL SERVICE	EA	1
628	6164	ELC SRV TY D 120/240 070 (NS)AL(PS)(U)	EA	1
666	6036	REFL PAV MRK TY I(W)8"(SLD)(100MIL)	LF	300
666	6048	REFL PAV MRK TY I(W)24"(SLD)(100MIL)	LF	297
666	6054	REFL PAV MRK TY I(W)(ARROW)(100MIL)	EA	2
666	6078	REFL PAV MRK TY I(W)(WORD)(100MIL)	EA	2
666	6224	PAVEMENT SEALER 4"	LF	1960
666	6226	PAVEMENT SEALER 8"	LF	300
666	6230	PAVEMENT SEALER 24"	LF	297
666	6231	PAVEMENT SEALER (ARROW)	EA	2
666	6232	PAVEMENT SEALER (WORD)	EA	2
666	6315	RE PM W/RET REQ TY I(Y)4"(SLD)(100MIL)	LF	1960
672	6007	REFL PAV MRKR TY I-C	EA	30
672	6009	REFL PAV MRKR TY II-A-A	EA	104
677	6001	ELIM EXT PAV MRK & MRKS (4")	LF	1190
677	6003	ELIM EXT PAV MRK & MRKS (8")	LF	280
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	336
677	6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	2
677	6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	3
680	6002	INSTALL HWY TRF SIG (ISOLATED)	EA	1
**		NEMA TX 2 SIZE 5, 12 POSITION, BASE MOUNT CONTROLLER CABINET	EA	1
**		TRAFFIC SIGNAL CONTROLLER FOUNDATION	EA	1
**		R10-12 (30"X36") "LEFT TURN YIELD ON GREEN BALL"	EA	2
**		R10-17T (30"X30") "LEFT TURN YIELD ON FLASHING YELLOW ARROW"	EA	2
CITY SUPPLIED		D3-1G OVERHEAD STREET NAME SIGN "N Austin St" (INSTALLED BY CONTRACTOR)	EA	2
CITY SUPPLIED		D3-1G OVERHEAD STREET NAME SIGN "E Cedar St" (INSTALLED BY CONTRACTOR)	EA	2
680	6004	REMOVING TRAFFIC SIGNALS	EA	1
682	6001	VEH SIG SEC (12")LED (GRN)	EA	8
682	6002	VEH SIG SEC (12")LED (GRN ARW)	EA	2
682	6003	VEH SIG SEC (12")LED (YEL)	EA	8
682	6004	VEH SIG SEC (12")LED (YEL ARW)	EA	4
682	6005	VEH SIG SEC (12")LED (RED)	EA	8
682	6006	VEH SIG SEC (12")LED (RED ARW)	EA	2
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	8
682	6049	BACKPLATE W/REFL BRDR (4 SEC)	EA	2
682	6050	BACKPLATE W/REFL BRDR (3 SEC)	EA	8
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	880
684	6012	TRF SIG CBL (TY A)(12 AWG)(7 CONDR)	LF	840
684	6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	840
686	6025	INS TRF SIG PLAM (S)1 ARM (24')	EA	1
686	6029	INS TRF SIG PLAM (S)1 ARM (28')	EA	2
686	6033	INS TRF SIG PLAM (S)1 ARM (32')	EA	1
687	6001	PED POLE ASSEMBLY	EA	4
**		DRILL SHAFT (24 IN)	LF	24
688	6001	PED DETECT PUSH BUTTON (APS)	EA	8
**		R10-3e (L) (9"X15") "PEDESTRIAN SIGN"	EA	6
**		R10-3e (R) (9"X15") "PEDESTRIAN SIGN"	EA	2
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
6004	6031	ITS COM CBL (ETHERNET)	LF	150
6010	6010	CCTV FIELD EQUIP (ANALOG) (INSTL ONLY)	EA	1
6185	6002	TMA (STATIONARY)	DAY	10
6292	6001	RVDS (PRESENCE DETECTION ONLY)	EA	4
**		RVDS (RADAR PRESENCE DETECTOR POWER AND COMMUNICATION CABLE)	LF	500
****	****	CONTRACTOR FORCE ACCOUNT (COMM PACKAGE)	EA	1
		CELLULAR MODEM (CISCO MODEL IR1101)	EA	1
		ETHERNET SWITCH (MOXA MODEL EDR-810-VPN-2GSFP-T)	EA	1
		IP CAMERA (AXIS M5525-E)	EA	1
		IP CAMERA MOUNTING BRACKET (AXIS T94A01D PENDANT KIT)	EA	1
		POWER STRIP	EA	1
		SWITCH POWER SUPPLY	EA	1
		POE POWER SUPPLY - FOR CAMERA ONLY	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (LAW ENFORCEMENT)	EA	1
****	****	CONTRACTOR FORCE ACCOUNT (EROSION CONTROL)	EA	1
**		SUBSIDIARY TO PERTINENT ITEM		
****	****	CONTRACTOR FORCE ACCOUNT		

POLE ID.	POLE & EQUIPMENT DESCRIPTIONS WITH ATTACHMENTS
A	28' SINGLE MAST ARM ON A 30-A FOUNDATION AT 11 FT. WITH TWO VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE D3-1G STREET NAME SIGN, ONE R10-12 (30"X36") SIGN, ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, R10-3eL PEDESTRIAN SIGN AND ONE RVDS PRESENCE DETECTION (RPDD 06).
B	28' SINGLE MAST ARM ON A 30-A FOUNDATION AT 11 FT. WITH THREE VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE D3-1G STREET NAME SIGN, ONE R10-17T (30"X30") SIGN, ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, R10-3eL PEDESTRIAN SIGN, ONE RVDS PRESENCE DETECTION (RPDD 03 & 08) AND ONE IP CAMERA.
C	32' SINGLE MAST ARM ON A 30-A FOUNDATION AT 11 FT. WITH TWO VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE D3-1G STREET NAME SIGN, ONE R10-12 (30"X36") SIGN, ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, R10-3eR PEDESTRIAN SIGN AND ONE RVDS PRESENCE DETECTION (RPDD 02).
D	24' SINGLE MAST ARM ON A 30-A FOUNDATION AT 11 FT. WITH THREE VERTICAL VEHICLE SIGNAL HEADS AS ILLUSTRATED, ONE D3-1G STREET NAME SIGN, ONE R10-17T (30"X30") SIGN, ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT, R10-3eL PEDESTRIAN SIGN AND ONE RVDS PRESENCE DETECTION (RPDD 04 & 07).
E	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND R10-3eR PEDESTRIAN SIGN.
F	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND R10-3eL PEDESTRIAN SIGN.
G	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND R10-3eL PEDESTRIAN SIGN.
H	10' PEDESTRIAN SIGNAL POLE ASSEMBLY ON A 24-A FOUNDATION AT 6 FT. WITH ONE LED COUNTDOWN PEDESTRIAN HEAD, ONE ACCESSIBLE PEDESTRIAN SIGNAL UNIT AND R10-3eL PEDESTRIAN SIGN.

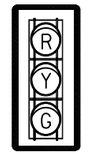
PROPOSED SIGNAL HEADS

12" LED VERTICAL SIGNAL SECTIONS WITH BACK PLATES

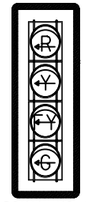
PROPOSED SIGN SCHEDULE

S1
(2 EA)

S2
(2 EA)



SIGNAL NO.1
(8 EA)



SIGNAL NO.2
(2 EA)
LED PEDESTRIAN COUNTDOWN SIGNAL

R10-3eL
(9"X15")
S5
(4 EA)

R10-3eR
(9"X15")
S4
(4 EA)

R10-17T
(30"x30")
S3
(2 EA)

R10-12
(30"x36")
S6
(2 EA)

SIGNAL NO.3
(8 EA)

ELECTRICAL SERVICE DATA													
C-S-J	PROJECT LOCATION	ELECTRIC SERVICE NO.	SHEET NO.	ELECTRICAL SERVICE DESCRIPTION (SEE ED (5)-14)	SERVICE CONDUIT SIZE	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN DISCONNECT CKT. BRK. POLE/AMP	TWO-POLE CONTACTOR AMPS ***	PANEL BD./LOADCENTER AMP RATING (MIN)	CIRCUIT NO.	BRANCH CIRCUIT AMPS	BRANCH CKT. BRK. POLE/AMPS	KVA LOAD
0915-46-057	N AUSTIN ST AT E CEDAR ST	ES	64	TY D (120/240) 070 (NS) AL (E) PS (U)	1 1/4"	3/#4	N/A	2P/70	30	100	SIGNAL	40	1P/50	<7.1

NOTES:

1. ALL TRAFFIC SIGNAL EQUIPMENT LOCATIONS ARE BASED ON A SURVEY. CONTRACTOR SHALL VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
2. APPARENT RIGHT-OF-WAY LINES ARE FROM TXDOT MAPS. VERIFY LOCATIONS IN THE FIELD AS NECESSARY.
3. THE EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE APPROXIMATE. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS/HER FAILURE TO LOCATE, PRESERVE, AND PROTECT THESE UTILITIES.
4. CONTRACTOR SHALL REMOVE AND REPLACE EXISTING SIGNAL HEADS WITH NEW VERTICAL SIGNAL HEADS AS SHOWN ON THE PLANS AND SHALL HAVE A MINIMUM OF 18.5 FEET CLEARANCE ABOVE ROADWAY SURFACE. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE PRIOR TO STARTING THIS WORK TO ENSURE A SMOOTH TRAFFIC MOVEMENT FOR ALL MOTORISTS DURING THIS TRANSITION.
5. CONTRACTOR SHALL REMOVE ALL EXISTING TRAFFIC SIGNAL EQUIPMENT AND INSTALL NEW EQUIPMENT AS PER DESIGN LAYOUTS AND IN ACCORDANCE TO TXDOT STANDARDS AND SPECIFICATIONS AND IN ACCORDANCE TO THE ACCESSIBILITY REQUIREMENTS AND CONNECT PROPOSED FIELD WIRING TO CONTROLLER.
6. FOR PAVEMENT MARKINGS, SEE PROPOSED PAVEMENT MARKINGS & RAMPS LAYOUT SHEET.
7. ALL EXISTING CURB RAMPS SHALL BE REMOVED AND NEW WHEELCHAIR RAMPS INSTALLED (IF ANY), AS PER DESIGN DETAILS ON THE PROPOSED PAVEMENT MARKINGS & RAMPS LAYOUT SHEET AND IN ACCORDANCE TO TXDOT STANDARDS AND SPECIFICATIONS AND IN ACCORDANCE TO THE ACCESSIBILITY REQUIREMENTS.
8. THE CONTRACTOR SHALL INSTALL NEW PRESENCE RADAR DETECTORS. THE LOCATION OF THE RADAR DETECTORS SHOWN ARE APPROXIMATE. THE EXACT LOCATION SHALL BE DETERMINED IN THE FIELD AND ADJUSTED TO PROVIDE PROPER DETECTION ZONES AND A COMPLETE OPERABLE SYSTEM.
9. CONTRACTOR SHALL REMOVE AND DELIVER ANY EQUIPMENT DEEMED SALVAGEABLE TO TXDOT LOCATED AT 4615 NW LOOP 410, CONTACT MARK PEREZ AT 210-218-7430.
10. CONTRACTOR SHALL FURNISH AND DELIVER ONE (1) TS 2 TYPE 2 AND SEVEN (7) TX 2 TYPE 5 (12-POSITION) CONTROLLER CABINETS AND ASSEMBLY TO TXDOT SIGNAL SHOP FOR PROGRAMMING AND TESTING TWO WEEKS IN ADVANCE PRIOR TO CONTRACTOR INSTALLING EQUIPMENT IN THE FIELD. COORDINATE DROP OFF AND PICKUP WITH MARK PEREZ AT 210-218-7430.
11. THE INSTALLATION OF ALL COMMUNICATION PACKAGE ITEMS (MODEM, POWER STRIP, ETC.) IS SUBSIDIARY TO ITEM 680.
12. TRAY CABLES SHALL BE RUN IN 2" CONDUIT SEPARATE FROM THE SIGNAL CABLE.
13. ADJUST EXISTING AND PROPOSED SIGNAL HEADS AS NECESSARY TO KEEP THEM VISIBLE AT ALL TIMES DURING CONSTRUCTION. ADJUSTING SIGNAL HEADS DURING CONSTRUCTION IS SUBSIDIARY TO ITEM 502.
14. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF SEVEN (7) DAYS PRIOR TO BEGINNING CONSTRUCTION.
15. CONTRACTOR SHALL CONTACT THE TXDOT SIGNAL SHOP AND AREA OFFICE A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE TRAFFIC SIGNAL TURN-ON.
16. THE CITY OF SEGUIN SHALL PROVIDE THE STREET NAME SIGNS EXCEPT FOR THE INTERSECTION OF SH 46 AT C H MATTHIES JR AND THE CONTRACTOR SHALL INSTALL THEM AS SHOWN ON THE PLANS. INSTALLATION OF THESE SIGNS SHALL BE SUBSIDIARY TO ITEM 680.

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/24/2023 DATE

NO.	REVISION	APPROV.

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 PHONE: (713) 828-4742
Houston, TX. 77095

INTERSECTION QUANTITIES & DETAILS BS SH 123 (AUSTIN ST) AT CEDAR ST

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	SEE TITLE SHEET		71
STATE	DIST.	COUNTY	
TEXAS	SAT	GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

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 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 (CSA), Intertek Testing Services NA Inc., or FM Approvals LLC 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 a NEMA listed device. Acceptable devices may have both a NEMA and IEC listing. 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 ½ 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 the 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 Producers 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 as 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 metallic 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 is present, count the conductors as if all are of the larger size. For situations not applicable to the table, size junction boxes in accordance with NEC.

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

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 made from galvanized steel sheeting, listed and approved for outdoor use, unless otherwise noted on the plans. Size all galvanized steel junction boxes in accordance with the NEC. 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 in PVC conduit systems, unless otherwise shown on the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system. 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., ground the RMC elbow by means of 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. RMC or PVC elbows are subsidiary to various bid items.

9. When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to Item 622 "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors for bored schedule 40 or schedule 80 PVC conduit bid under Item 618. Ensure bored HDPE substituted for PVC is schedule 40 and of the same size PVC called for in the plans. Ensure the substituted HDPE meets the requirements of Item 622, except that the conduit is supplied without factory-installed conductors. Make the transition of the HDPE conduit to PVC (or RMC elbow when required) at the bore pit. Provide conduit of the size and schedule as shown on the plans. Do not extend substituted conduit into ground boxes or foundations. Provide PVC or galvanized steel RMC elbows as called for at all ground boxes and foundations.

10. Use two-hole straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized one-hole standoff 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 surface of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit support 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 sub-grade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the sub-base 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. Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.

7. 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 fix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.

8. Ensure conduit entry into the top of any 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.

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

10. 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.

11. At all electrical services, install a 6 AWG solid copper grounding electrode conductor.

12. 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).

13. Seal ends of all conduits with duct seal, expandable foam, or by other methods approved by the Engineer. Seal conduit immediately after completion of conductor installation and pull tests. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a conduit sealant.

14. File smooth the cut ends of all mounting strut and conduit. Before installing, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% or more zinc content) to alleviate overspray. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with a zinc rich paint as an alternative for materials required to be galvanized.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUITS & NOTES

ED(1)-14

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© TxDOT	October 2014	CONT	SECT	JOB	HIGHWAY
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		DIST	COUNTY		SHEET NO.
		SAT	GUADALUPE		72

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ELECTRICAL CONDUCTORS

A. MATERIAL INFORMATION

1. Provide Type XHHW insulated conductors in accordance with Departmental Material Specification (DMS)11040 "Conductors" and Item 620 "Electrical Conductors." Provide conductors as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 620. Color code insulated conductors in conformance with the NEC. 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.
2. Provide a solid copper 6 AWG 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.
3. Where two or more circuits are present in one conduit or enclosure, permanently identify the conductors of each branch circuit by attaching a non-metallic tag around both circuit conductors at each accessible location. Provide tags with two 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.
4. Use listed compression or screw type pressure connectors, 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. After installing conductors in conduit, perform conductor pull test. If a conductor cannot be freely pulled, make any needed alterations or repairs at no additional cost to the department. Perform insulation resistance tests in accordance with Item 620. Coordinate with the Engineer to witness the tests.
2. Leave 2 ft. minimum, 3 ft. maximum length for each conductor up to the splice in ground boxes. Leave 3 ft. minimum, 4 ft. maximum length of conductor in ground boxes when pulled through with no splice. Leave 1 ft. minimum, 1.5 ft. maximum length of conductor at enclosures, weatherheads and pole bases.
3. Make splices only in junction boxes, ground boxes, pole bases, or electrical enclosures and use only listed compression or screw type pressure connectors, 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 the individual conductors 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 beyond repair 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.
10. Do not terminate more than one conductor under a single connector, unless the connector is rated for multiple conductors. Do not exceed the pressure connector's listing for maximum number and size of conductors allowed.
11. Install breakaway connectors on conductors bid under Item 620 whenever those conductors pass through a breakaway support device. 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 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 contained in the conduit. Ensure all EGCs are bonded together at every accessible location. For traffic signal installations, provide a minimum size 8 AWG EGC. The EGC is paid for under Item 620.

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 power outlets for 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. Where 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.

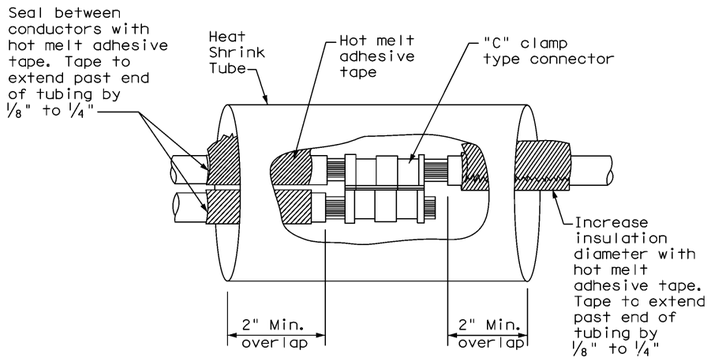
GROUND RODS & GROUNDING ELECTRODES

A. MATERIAL INFORMATION

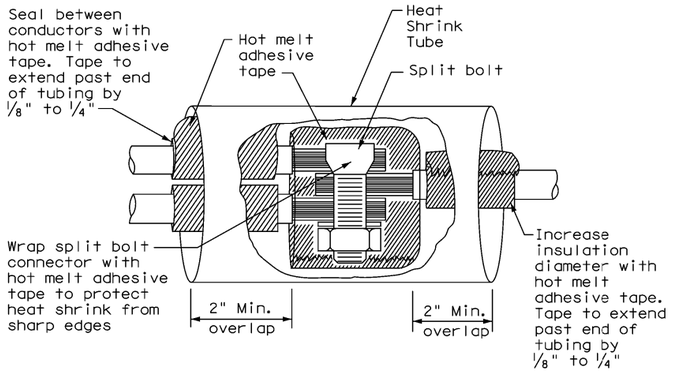
1. Provide and install a grounding electrode at electrical services. Provide ground rods according to DMS 11040 and the plans. Larger diameter or longer length rods may be called for in some specific locations, see the individual plans sheets. Concrete encased grounding electrodes may be called for in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

B. CONSTRUCTION METHODS

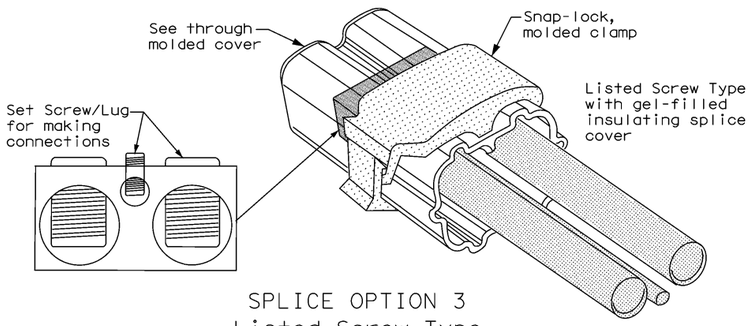
1. Furnish auxiliary ground rods for lightning protection and install in soil, concrete, or both, as called for in the plans. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in soil, 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 pole.
3. Install ground rods so the imprinted part number is at the upper end of the rod.
4. Remove all non-conductive coatings 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 four inches for these conductors.
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 type 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.



SPLICE OPTION 1
Compression Type



SPLICE OPTION 2
Split Bolt Type



SPLICE OPTION 3
Listed Screw Type

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUCTORS

ED(3)-14

FILE: ed3-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		73

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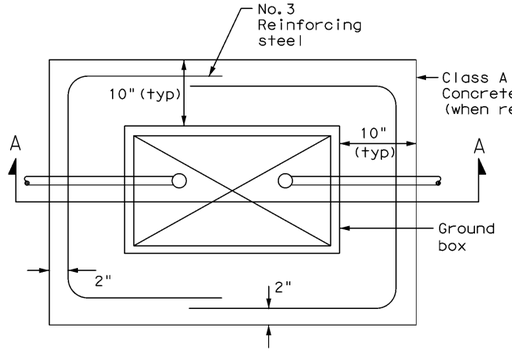
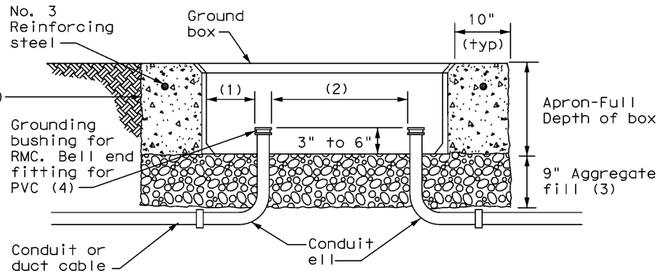


PLAN VIEW



SECTION A - A

APRON FOR GROUND BOX

(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.

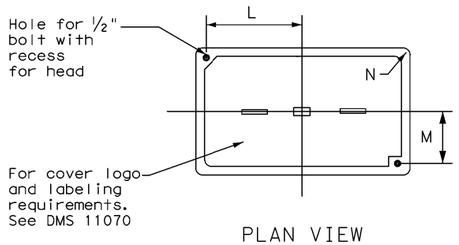
(2) Maintain sufficient space between conduits to allow for proper installation of bushing.

(3) Place aggregate under the box, not in the box. Aggregate should not encroach on the interior volume of the box.

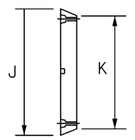
(4) Install a grounding bushing on the upper end of all RMC terminating in a ground box. Ground RMC elbows when any part of the elbow is less than 18 in. below the bottom of the ground box. Install a PVC bushing or bell end fitting on the upper end of all PVC conduits terminating in a ground box.

GROUND BOX DIMENSIONS	
TYPE	OUTSIDE DIMENSIONS (INCHES) (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

GROUND BOX COVER DIMENSIONS								
TYPE	DIMENSIONS (INCHES)							
	H	I	J	K	L	M	N	P
A, B & E	23 1/4	23	13 3/4	13 1/2	9 7/8	5 1/8	1 3/8	2
C & D	30 1/2	30 1/4	17 1/2	17 1/4	13 1/4	6 3/4	1 3/8	2



PLAN VIEW



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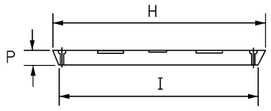

SIDE

GROUND BOX COVER

GROUND BOXES

A. MATERIALS

1. Provide polymer concrete ground boxes measuring 16x30x24 in. (WxLxD) 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. Remove all gravel and dirt from conduit. Cap all conduits prior to placing aggregate and setting ground box. Provide Grade 3 or 4 coarse aggregate as shown on Table 2 of Item 302 "Aggregates for Surface Treatments." Ensure aggregate bed is in place and at least 9 inches deep, prior to setting the ground box. Install ground box on top of aggregate.

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 ells in a neat and workmanlike 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 and pull tests. 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 sealant. Do not use silicone caulk as a sealant.

7. When a ground rod is present in a ground box, bond all equipment grounding conductors together and to the ground rod with listed connectors.

8. When a type B or D ground box is stacked to meet volume requirements, it is allowable to cut an appropriately sized hole for conduit entry in the side wall at least 18 inches 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 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.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
GROUND BOXES

ED(4)-14

FILE: ed4-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0029	02	058	US 90
	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		74

71D

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ELECTRICAL SERVICES NOTES

1. Provide new materials. Ensure installation and materials comply with the applicable provisions of the National Electrical Code (NEC) and National Electrical Manufacturers Association (NEMA) standards. Ensure material is Underwriters Laboratories (UL) listed. Provide and install electrical service conduits, conductors, disconnects, contactors, circuit breaker panels, and branch circuit breakers as shown on the Electrical Service Data chart in the plans. Faulty fabrication or poor workmanship in material, equipment, or installation is justification for rejection. Where manufacturers provide warranties and guarantees as a customary trade practice, furnish these to the State.

2. Provide electrical services in accordance with Electrical Details standard sheets, Departmental Material Specification (DMS) 11080 "Electrical Services,"DMS 11081 "Electrical Services-Type A," DMS 11082 "Electrical Services-Type C," DMS 11083 "Electrical Services-Type D," DMS 11084 "Electrical Services-Type T," DMS 11085 "Electrical Services-Pedestal (PS)", and Item 628 "Electrical Services" of the Standard Specifications. 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.

3. Provide all work, materials, services, and any incidentals needed to install a complete electrical service as specified in the plans.

4. 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.

5. The enclosure manufacturer will provide Master Lock Type 2 with brass tumblers keyed #2195 for all custom electrical enclosures. Installing Contractor is to provide Master Lock #2195 Type 2 with brass tumblers for "off the shelf" enclosures. Master Lock #2195 keys and locks become property of the State. Unless otherwise approved, do not energize electrical service equipment until locks are installed.

6. 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.

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

8. 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 size 6 AWG conductors by continuous color jacket. Identify electrical conductors sized 4 AWG and larger by continuous color jacket or by colored tape. Mark at least 6 inches of the conductor's insulation with half laps of colored tape, when identifying conductors. 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 12 inches minimum, 18 inches maximum, or as required by utility.

9. All electrical service conduit and conductors attached to the electrical service including the riser or the elbow below ground are subsidiary to the electrical service. For an underground utility feed, all service conduit and conductors after the elbow, including service conduit and conductors for the utility pole riser when furnished by the Contractor, will be paid for separately.

10. 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 that shown on the layout sheets for branch circuit conduit. Extend all rigid metal conduits a minimum of 6 inches underground and then couple to the type and schedule of the conduit shown on the layout for that particular branch circuit. Install a grounding bushing on the RMC where it terminates in the service enclosure.

11. Use of liquidtight flexible metal conduit (LFMC) is allowed between the meter and service enclosure when they are mounted 90 to 180 degrees to each other. Size the LFMC the same size as service entrance conduit. LFMC must not exceed 3 feet in length. Strap LFMC within 1 foot of each end. LFMC less than 12 inches in length need not be strapped. Each end of LFMC must have a grounding bushing or be terminated with a grounding fitting. The LFMC must contain a grounded (neutral) conductor. Ensure any bend in LFMC never exceeds 180 degrees. A pull test is required on all installed conductors, with at least six inches of free conductor movement demonstrated to the satisfaction of the Engineer.

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

13. For all electrical service enclosures listed under Item 628 on the MPL, the UL 508 enclosure manufacturers will prepare and submit a schematic drawing unique to each service. Before shipment to the job site, place the applicable laminated schematic drawings and the laminated plan sheet showing the electrical service data chart used to build the enclosure in the enclosure's data pocket. The installing contractor will copy and laminate the actual project plan sheets detailing all equipment and branch circuits supplied by that service. The laminated plan sheets are to be placed in the service enclosure's document pocket. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in. before laminating. If the installation differs from the plan sheets, the installing contractor is to redline plan sheets before laminating.

14. 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. Deliver these drawings before completion of the work to the Engineer, instead of placing in enclosure that has no door pocket.

15. 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 conduit sealing hub or threaded boss, such as a meter base hub.

SERVICE ASSEMBLY ENCLOSURE

1. Provide threaded hub for all conduit entries into the top of enclosure.

2. Type galvanized steel (GS) enclosures may be used for Type C panelboards and for Type D and T services that do not use an enclosure mounted photocell or lighting contactor. Provide GS enclosures in accordance with DMS 11080, 11082, 11083, and 11084.

3. Provide aluminum (AL) and stainless steel (SS) enclosures for Types A, C, and D in accordance with DMS 11080, 11081, 11082, 11083, and 11084. Do not paint stainless steel.

4. Provide pedestal service (PS) enclosures in accordance with ED(9) and DMS 11080 and 11085. Do not provide GS pedestal services. If GS is shown in the PS descriptive code, provide an AL enclosure.

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

Elec. Service ID	Plan Sheet Number	Electrical Service Description	Service Conduit **Size	Service Conductors No./Size	Safety Switch Amps	Main Ckt. Bkr. Pole/Amps	Two-Pole Contractor Amps	Panelbd/ 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	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		100	Sig. Controller	1P/30	23	5.3
							30		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	

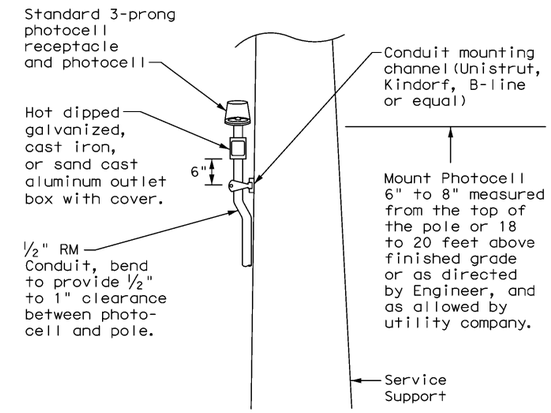
* Example only, not for construction. All new electrical services must have electrical service data chart specific to that service as shown in the plans.

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

EXPLANATION OF ELECTRICAL SERVICE DESCRIPTIVE CODE

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

- Schematic Type
- Service Voltage V / V
- Disconnect Amp Rating
  000 indicates main lug only/
  Typically Type T
- (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
- O= Overhead Service Feed from Utility
  U= Underground Service Feed from Utility



TOP MOUNTED PHOTOCELL

Install conduit strap maximum 3 feet from box. 5 foot maximum spacing between straps supporting conduit.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE NOTES & DATA

ED(5)-14

FILE: ed5-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		75

DATE: 1/23/2023 2:14:47 PM
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SUPPORT TYPE STEEL POLE (SP) AND STEEL FRAME (SF)

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. up to 3 ¾ in. deep Unistrut, Kindorf, B-line or equal. 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. Provide poles for overhead service with an eyebolt or similar fitting for attachment of the service drop to the pole in conformance with the electric utility provider's specifications.

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. 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.

5. Furnish and install rigid metallic ells in all steel pole and steel frame foundations for all conduits entering the service from underground.

6. Use class C concrete for foundations. Ensure reinforcing steel is Grade 60 with 3" of unobstructed concrete cover.

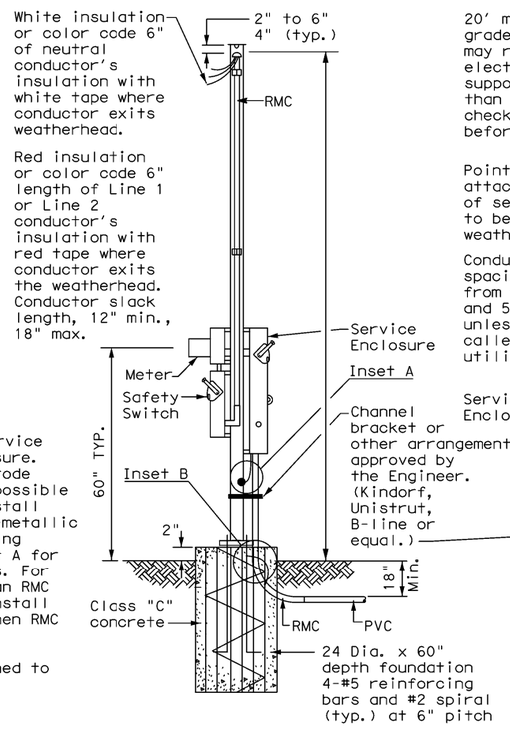
7. Drill and tap steel poles and frames for ½ in. X 13 UNC tank ground fitting. For steel pole service supports, provide and install tank ground fitting 4 in. to 6 in. below electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting. 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 steel frame and steel pole details and Inset A for more information. Size service entrance conduit and branch circuit conduit as shown in the plans. For underground conduit runs from the electrical service, extend RMC from the service enclosure to an RMC elbow, and then connect the schedule type and size of conduit shown in the plans. Provide and install grounding bushings where RMC terminates in the enclosure. Grounding bushings are not required when RMC is fitted into a sealing hub or threaded boss.

8. If Steel pole or frame is painted, bond each separate painted piece with a bonding jumper attached to a tapped hole.

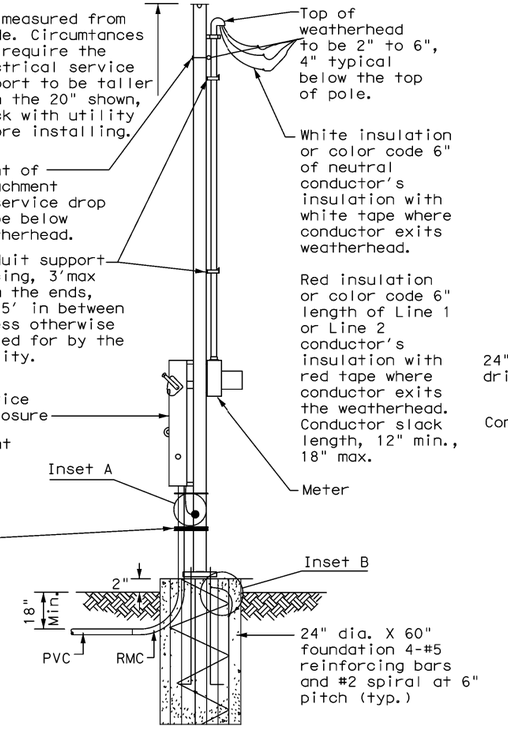
9. Provide ¼" - 20 machine screws for bonding. Do not use sheet metal screws. Remove all non-conductive material at contact points. Terminate bonding jumpers with listed devices. Install minimum size 6 AWG stranded copper bonding jumpers. Make up all threaded bonding connections wrench tight.

10. Avoid contact of the service drop and service entrance conductors with the metal pole to prevent abrasion of the insulated conductors.

11. Shop drawings are not required for service support structure unless specifically stated elsewhere or directed by the Engineer.

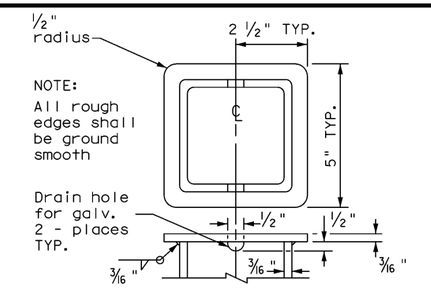


WITH SAFETY SWITCH

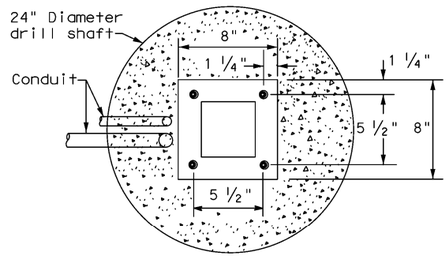


WITHOUT SAFETY SWITCH

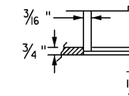
SERVICE SUPPORT TYPE SP (O) - OVERHEAD SERVICE



POLE TOP PLATE

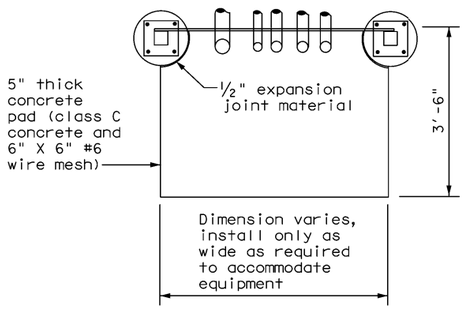


BASE PLATE DETAIL



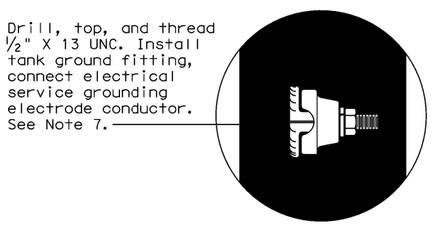
BOTTOM OF POLE

SERVICE SUPPORT TYPE SF & SP

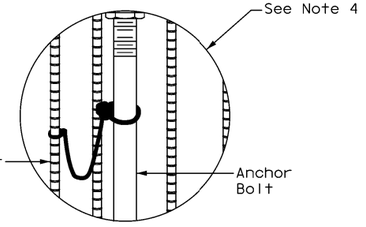


TOP VIEW

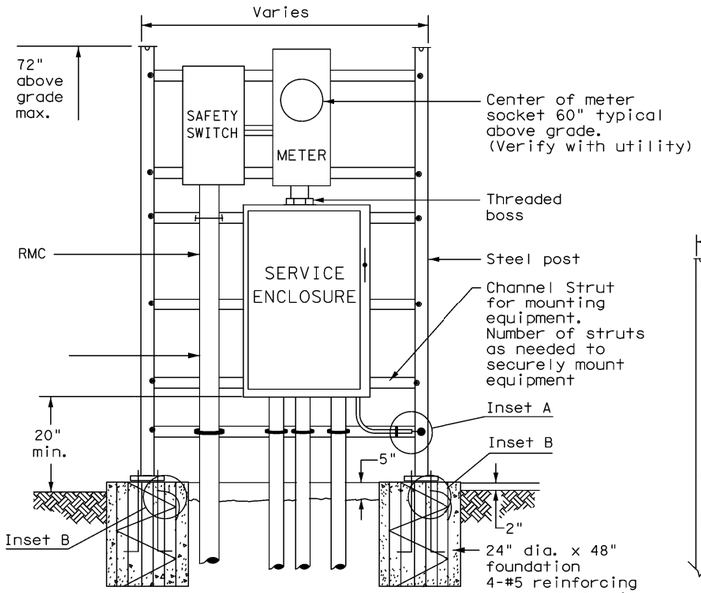
SERVICE SUPPORT TY SF (O) & SF (U)



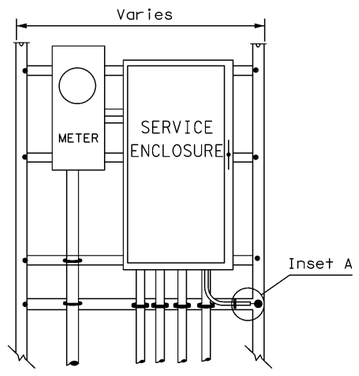
FRONT VIEW
INSET A



INSET B

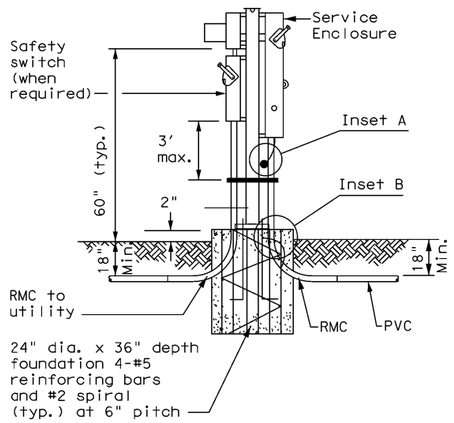


WITH SAFETY SWITCH
FRONT VIEW

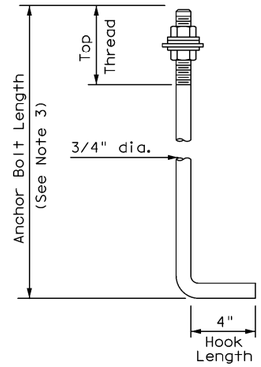


WITHOUT SAFETY SWITCH

SERVICE SUPPORT TYPE SF(U) - UNDERGROUND SERVICE



WITH SAFETY SWITCH



HOOKED ANCHOR DETAIL

SERVICE SUPPORT TYPE SP(U) - UNDERGROUND SERVICE

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE SUPPORT TYPES SF & SP

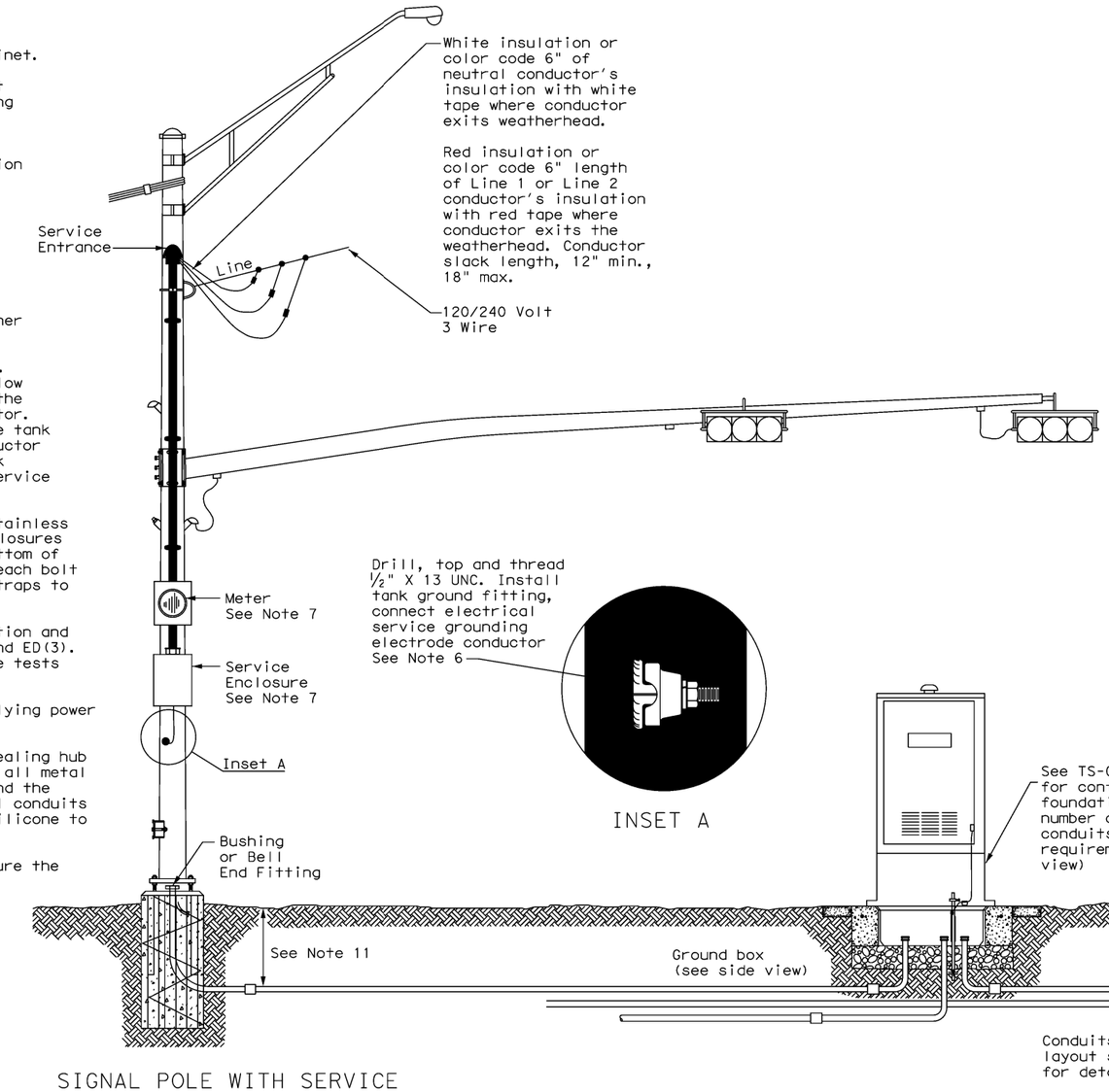
ED(7)-14

FILE: ed7-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0029	02	058	US 90
	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		76

71G

TRAFFIC SIGNAL NOTES

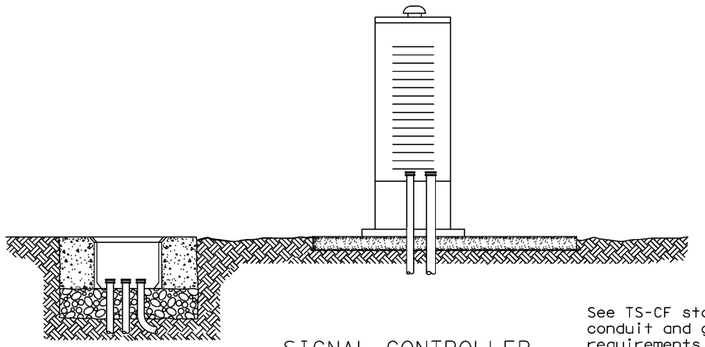
1. Do not pass luminaire conductors through the signal controller cabinet.
2. Include an equipment grounding conductor in all conduits throughout the electrical system. Bond all exposed metal parts to the grounding conductor.
3. Provide roadway luminaires, when required, in accordance with the material and construction sections of Item 610, "Roadway Illumination Assemblies," except for performance testing of luminaires. Test installed roadway luminaires for proper operation as a part of the associated traffic signal system test.
4. If internally illuminated street name signs are approved for use, ground the fixture to the pole with a 12 AWG green XHHW conductor.
5. Bond anchor bolts to rebar cage in two locations using #3 bars or 6 AWG stranded copper conductors. Use listed mechanical connectors rated for embedment in concrete. See TXDOT standard TS-FD for further details.
6. Drill and tap signal poles for ½ in. X 13 UNC tank ground fitting. Provide and install tank ground fitting 4 in. to 6 in. directly below electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Connect the electrical service grounding electrode conductor to the tank ground fitting. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting. See Inset A detail for further information. Size service entrance conduit and branch circuit conduit as shown in the plans.
7. Mount electrical service enclosure and meter to signal pole with stainless steel bands. Ensure bands are a minimum width of ¾ in. Secure enclosures to bands using two-bolt brackets. Install brackets near top and bottom of each enclosure. Install properly sized stainless steel washers on each bolt in the enclosure. Band or drill and tap properly sized stand-off straps to signal pole for attaching conduit.
8. Conduct pull tests and insulation resistance tests on all illumination and power conductors as required in Item 620 "Electrical Conductors" and ED(3). To prevent electronics damage, do not conduct insulation resistance tests on traffic signal cables after termination.
9. Lock all enclosures and bolt down all ground box covers before applying power to the signal installation.
10. Terminate conduits entering the top of enclosures with a conduit-sealing hub or threaded boss such as meter hub. Install a grounding bushing on all metal conduits not connected to conduit-sealing hub or threaded boss. Bond the grounding bushing to the ground bus with a bonding jumper. Seal all conduits entering enclosures with duct seal or expanding foam. Do not use silicone to seal conduit ends.
11. For all conduits, ensure the burial depth is a minimum of 18". Ensure the minimum burial depth for conduit placed under a roadway is 24".



SIGNAL POLE WITH SERVICE

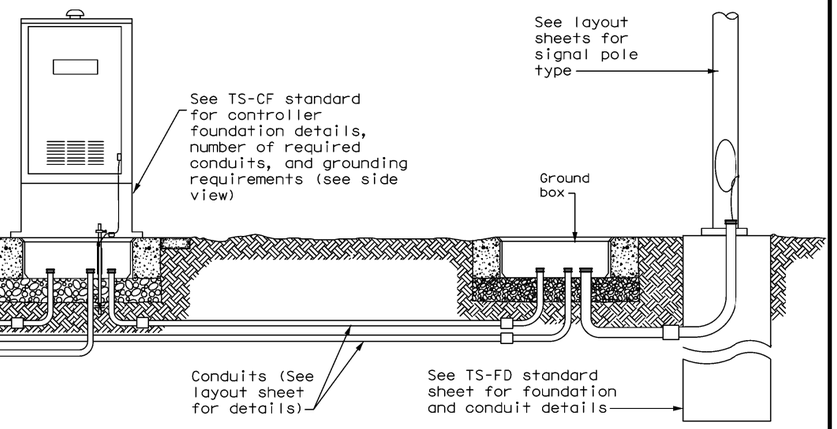
Type T electrical service mounted on signal pole shown as an example. See electrical details, layout sheets, and electrical service data chart for additional details.

INSET A



SIGNAL CONTROLLER SIDE VIEW

See TS-CF standard for conduit and grounding requirements. See layout sheets for ground box locations and any additional conduits that are required.



SIGNAL CONTROLLER FRONT VIEW

SIGNAL POLE

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS TYPICAL TRAFFIC SIGNAL SYSTEM DETAILS

ED(8)-14

FILE: ed8-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2014 REVISIONS	CONT	SECT	JOB	HIGHWAY
	0029	02	058	US 90
	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		77

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PEDESTAL SERVICE NOTES

1. Manufacture pedestal electrical services in accordance with Departmental Material Specifications (DMS)11080 "Electrical Services", 11085 "Electrical Services-Pedestal (PS)" and Item 628 "Electrical Services. "Provide pedestal electrical services as listed on the Material Producers list (MPL) on the Department's web site under "Roadway Illumination and Electrical Supplies," Item 628. Ensure all mounting hardware and installation details of services meet utility company specifications. Contact the local utility company for approval of pedestal details prior to installing the electrical pedestal service. Submit any changes required by the utility company prior to manufacturing the pedestal enclosure.

2. When a meter socket is required, provide a socket with a minimum 100 amp rating that complies with local utility requirements.

3. Provide Class A or C concrete for pedestal service foundations in accordance with Item 420, "Concrete Substructures," except that concrete will not be paid for directly but is considered subsidiary to Item 628.

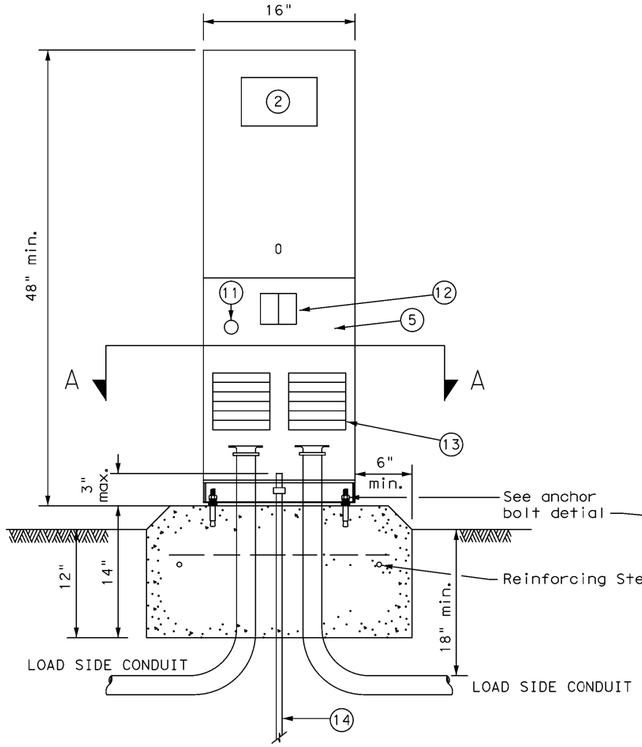
4. Provide #4 reinforcing steel for foundations in accordance with Item 440, "Reinforcement for Concrete."

5. Install ½ in. X 2 ⅛ in. minimum length concrete single expansion type anchors for mounting pedestal enclosure to foundation. Anchor location to match mounting holes in each corner of enclosure. Secure each of the four corners of the pedestal enclosure to the anchors in the foundation with a ½ in. galvanized or stainless steel machine thread bolt, a properly sized locknut and a flat washer.

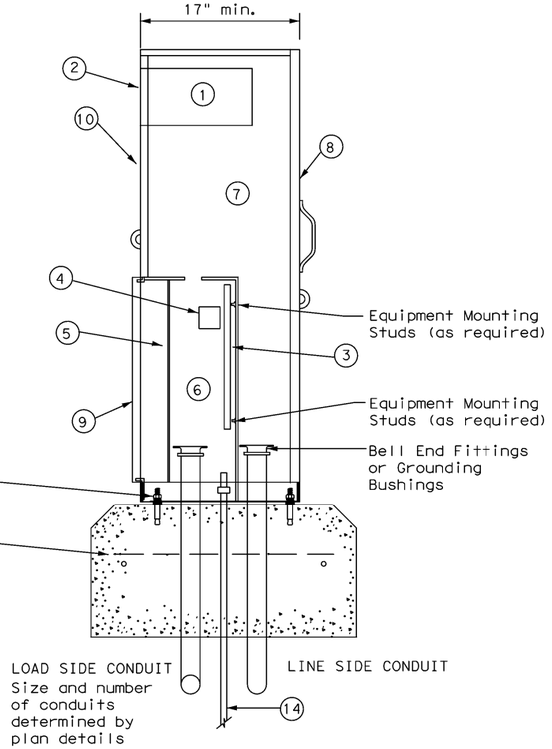
6. Finish top of concrete foundation in a neat and workmanlike manner. If leveling washers are used, ensure no more than ⅛ in. gap at any corner. Do not exceed a maximum dip or rise in the foundation of ⅛ in. per foot. When properly installed, ensure the top of the service enclosure is level front to back and side to side within ¼ in. Repair rocking or movement of the service enclosure at no additional cost to the department.

7. Do not use liquidtight flexible metal conduit (LFMC) on pedestal type services.

8. Ensure all elbows in the foundation are sized as per utility provider's conduit requirements for underground conduit and feeders. PVC extensions may be installed provided the ends of the rigid metal conduits are more than 2 in. below the top of the concrete foundation. Where extension conduits are metal, grounding bushings must be installed with a bonding jumper properly terminated.

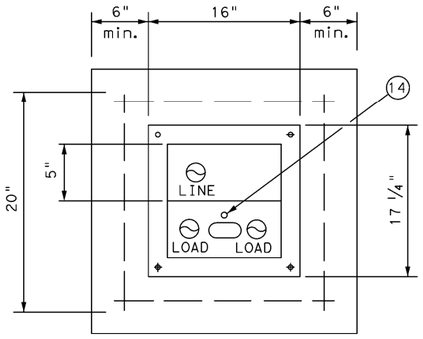


FRONT VIEW

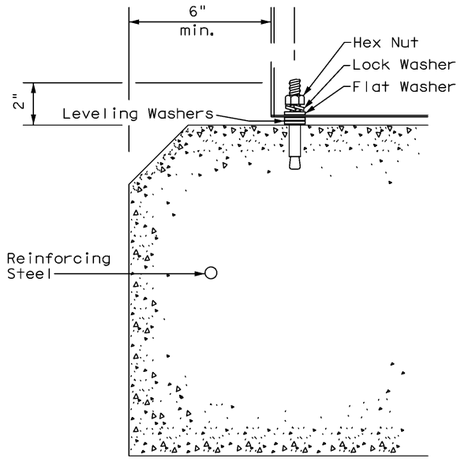


SIDE VIEW

TYPE C shown, TYPE A similar except that TYPE A shall have individual circuit breakers (CB) mounted on an equipment mounting panel. CB Handles shall protrude through hinged deadfront trim.



SECTION A-A



ANCHOR BOLT DETAIL

LEGEND	
1	Meter Socket, (when required)
2	Meter Socket Window, (when required)
3	Equipment Mounting Panel
4	Photo Electric Control Window, (When required)
5	Hinged Deadfront Trim
6	Load Side Conduit Trim
7	Line Side Conduit Area
8	Utility Access Door, with handle
9	Pedestal Door
10	Hinged Meter Access
11	Control Station (H-O-A Switch)
12	Main Disconnect
13	Branch Circuit Breakers
14	Copper Clad Ground Rod - 5/8" X 10'

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
ELECTRICAL SERVICE SUPPORT
PEDESTAL SERVICE TYPE PS

ED(9)-14

FILE: ed9-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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TIMBER POLE (TP) SERVICE SUPPORT NOTES

1. Ensure electrical service support is a class 5 treated timber pole as per Item 627 "Treated Timber Poles." Embed timber pole to depth required in Item 627.
2. Conduit and electrical conductors attached to the electrical service pole and underground within 12 in. of service pole are not paid for directly but are subsidiary to the electrial service.
3. Install pole-top mounted photocell (T) on north side of pole, or in service enclosure (E) as required. See Electrical Service Data chart in plan set.
4. Gain pole as required to provide flat surface for each channel. Gain timber pole to 5/8 in. max. depth and 1 7/8 in. max. height. Gain pole in a neat and workmanlike manner.
5. Mount meter and service equipment on stainless steel or galvanized channel (Unistrut, Kindorf, or equal). Provide channel sized 1 in. to 3 3/4 in. maximum depth, and 1½ in. to 1⅝ in. maximum width. File smooth the cut ends of galvanized channel and paint with zinc rich paint before installing on pole. Secure each channel section to timber pole with two galvanized or SS lag bolts, ¼ in. minimum diameter by 1½ in. minimum length. Use a galvanized or SS flat washer on each lag bolt. Do not stack channel.
6. When excess length must be trimmed from poles, trim from the top end only.

(1) Class 5 pole, height as required

(2) Service drop from utility company (attached below weatherhead)

(3) Service conduit (RMC) and service entrance conductors - One Red, One Black, One White (See Electrical Service Data)

(4) Safety switch (when required)

(5) Meter (when required)

(6) Service enclosure

(7) 6 AWG bare grounding electrode conductor in ½ in. PVC to ground rod - extend ½ in. PVC 6 in. underground.

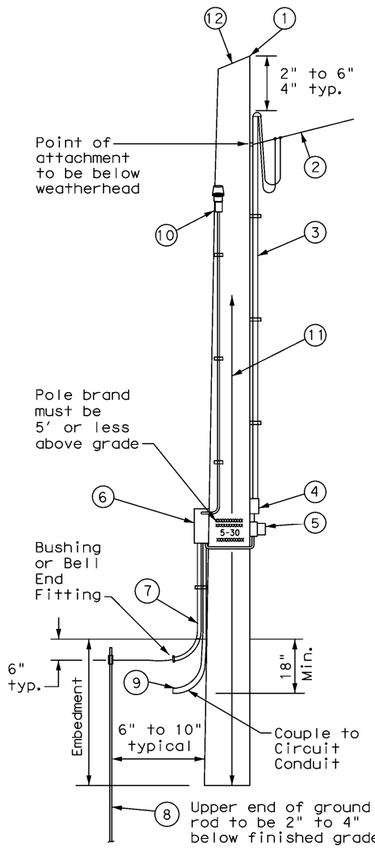
(8) ⅝ in. x 8 ft. Copper clad ground rod - drive ground rod to a depth of 2 in. to 4 in. below grade.

(9) RMC same size as branch circuit conduit.

(10) See pole-top mounted photocell detail on ED(5).

(11) When required by the serving utility provide bare 6 AWG copper conductor. Run wire from pole top to butt wrap or copper butt plate. Protect conductor with non-conductive material to a height of 8 ft. above finished grade.

(12) When required by utility, cut top of pole at an angle to enhance rain run off.

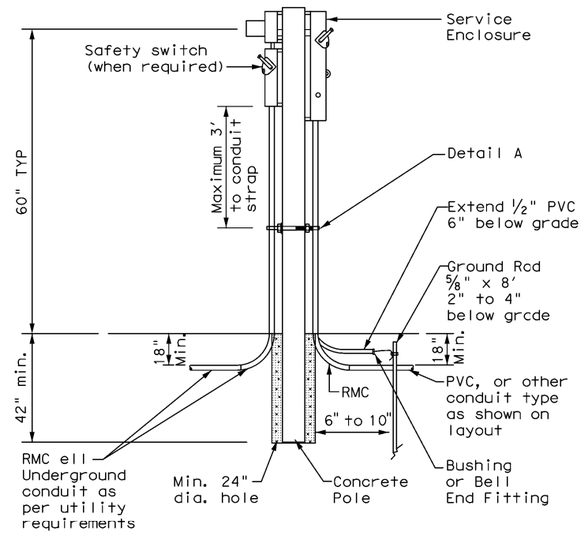


SERVICE SUPPORT TYPE TP (O)

GRANITE CONCRETE (GC) & OTHER CONCRETE (OC) NOTES

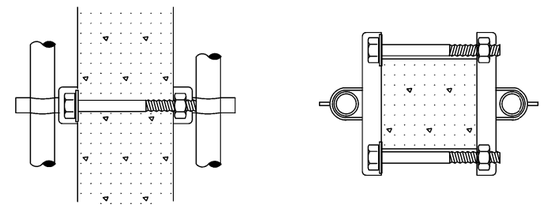
Ensure electrical service support structures bid as type Granite Concrete (GC) or Other Concrete (OC) meet the following requirements.

1. Provide GC and OC poles that meet the requirements of DMS 11080 "Electrical Services."
2. Provide prestressed concrete poles suitable for direct embedment into the ground without special foundations.
3. Verify poles are marked as required on DMS 11080. Location of marking should be approximately 4' above final grade. Use the two-point pickup locations when handling pole in horizontal position, and one-point pickup location for use in raising the pole to a vertical position. These marks are small but conspicuous.
4. Embed poles 42 in. or 10% of the length plus 2 ft., whichever is greater.
5. Ensure all installation details of services are in accordance with utility company specifications.
6. Install a one point rack or eye bolt bracket 6 inches to 12 inches below the weatherhead as an overhead service drop anchoring point for the electric utility.
7. Furnish and install galvanized or stainless steel channel strut 1 ½ in. or 1 ⅝ in. wide by 1 in. up to 3 3/4 in. deep (Unistrut, Kindorf, B-line or equal). Attach channel strut with stainless steel concrete anchors (max. 1" depth), square U-bolts or back to back channel strut with long bolts, or other secure mounting as approved by the Engineer. Ensure bolts are galvanized in accordance with ASTM A153. Do not stack channel struts.
8. Backfill the holes thoroughly by tamping in 6 in. lifts. After tamping to grade, place additional backfill material in a 6 inch high cone around the pole to allow for settling. Use material equal in composition and density to the surrounding area. Backfilling will not be paid for directly but is subsidiary to various bid items.



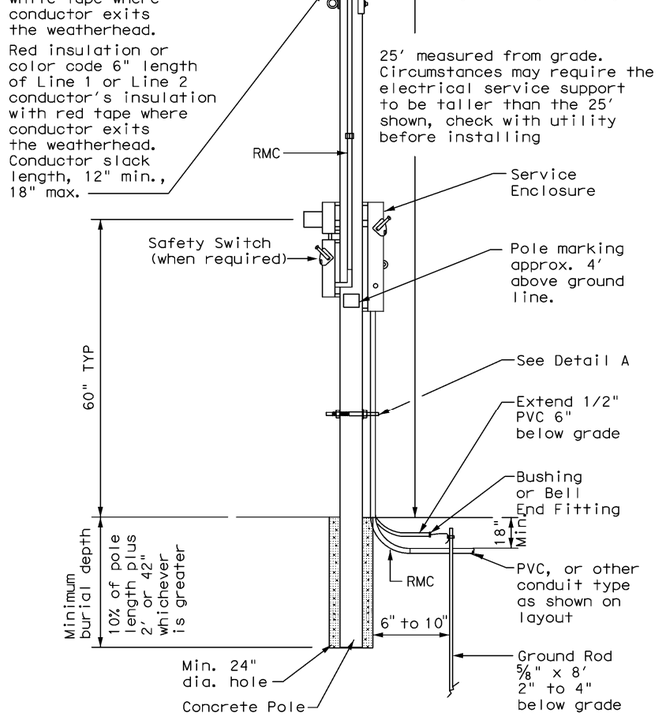
CONCRETE SERVICE SUPPORT

Underground (U)



DETAIL A

See Note 7. Before installing channel that has been cut, file sharp edges and paint with zinc-rich paint. Ensure there is no paint splatter on the pole.



CONCRETE SERVICE SUPPORT

Overhead (O)

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE SUPPORT TYPES GC, OC, & TP

ED(10)-14

FILE: ed10-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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BATTERY BOX GROUND BOXES NOTES

A. MATERIALS

1. Provide polymer concrete or fiberglass reinforced plastic (FRP) battery box ground box and cover in accordance with Departmental Material Specification (DMS) 11071 "Battery Box Ground Boxes." Battery box will accommodate up to 4 batteries, each measuring 8 in. x 13.5 in. x 10 in. (W x L x D). Label battery box ground box cover in accordance with DMS 11071.

2. Supply a marine grade batteries with covers. Secure the marine grade batteries with covers to the stainless steel rack in the bottom of the ground box with tie down straps.

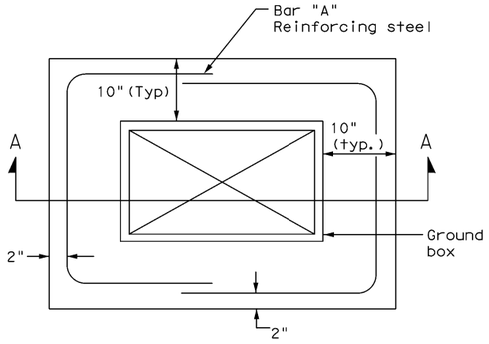
B. CONSTRUCTION METHODS

1. Ensure conduit entry will not interfere with placement of the batteries in the battery box ground box.

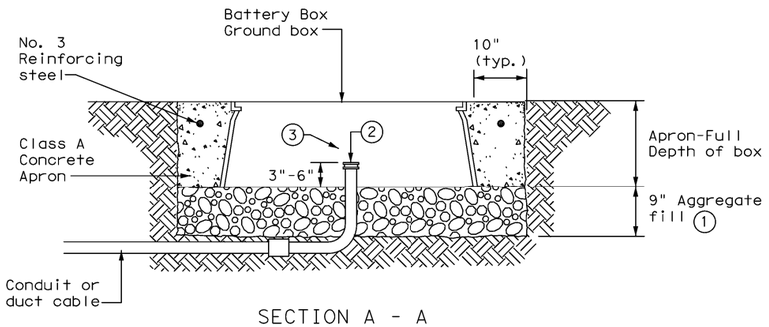
2. Remove all gravel and dirt from conduit. Cap all conduits prior to placing aggregate and setting battery box ground box. Provide Grade 3 or 4 coarse aggregate as shown on Table 2 of Item 302 "Aggregates for Surface Treatments." Ensure the aggregate bed is in place and is a minimum of 9 in. deep prior to setting the box. Install battery box ground box on top of aggregate.

3. Cast battery 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. Battery box ground box aprons, including concrete and reinforcing steel, are subsidiary to battery box ground boxes when called for by descriptive code.

4. Bolt covers down when not working in battery box ground boxes. Keep bolt holes in the box clear of dirt.



PLAN VIEW



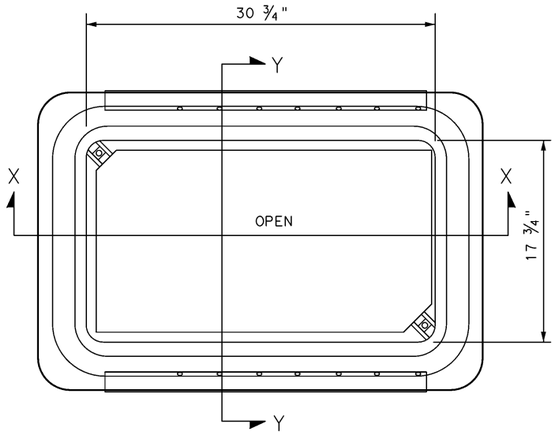
SECTION A - A

APRON FOR BATTERY BOX GROUND BOXES

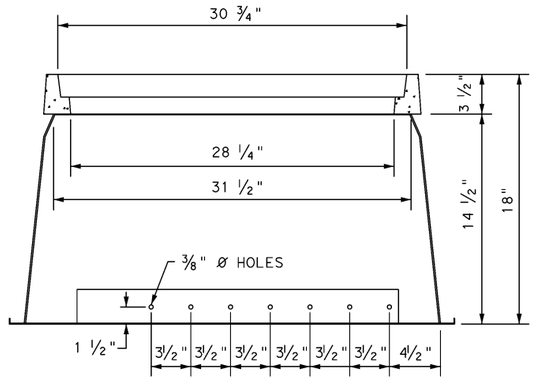
(1) Place aggregate under the box and not in the box. Aggregate should not encroach on the interior volume of the box.

(2) Install bushing or bell end fitting on the upper end of all ells.

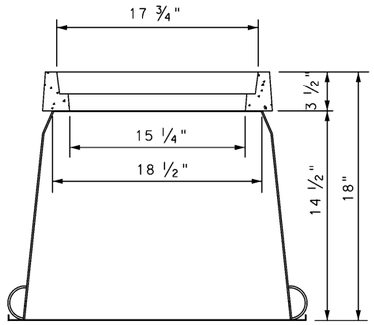
(3) Install all conduits in a neat and workmanlike manner.



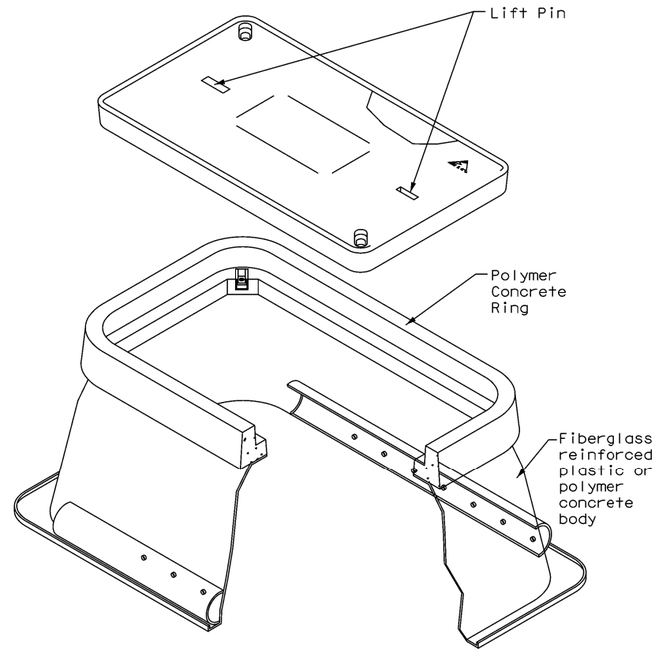
BATTERY BOX TOP VIEW



SECTION X-X



SECTION Y-Y



Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS BATTERY BOX GROUND BOXES

ED(12)-14

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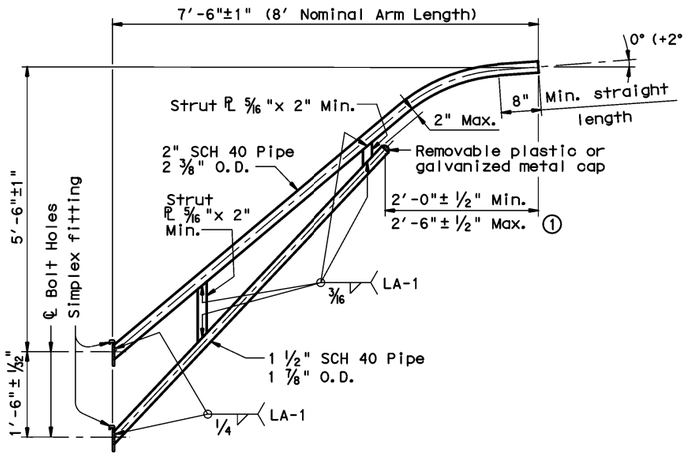
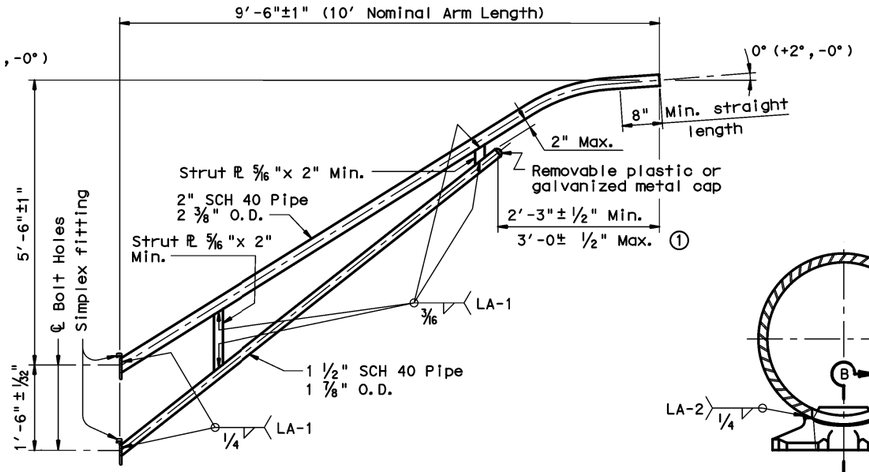


8-FOOT LUMINAIRE ARM



10-FOOT LUMINAIRE ARM

DIRECT ATTACHMENT DETAIL

MATERIALS	
Pole or Arm Simplex	ASTM A27 Gr.65-35 or A148 Gr.80-50, A576 Gr.1021 ③, or A36 (Arm only)
Arm Pipes	ASTM A53 Gr.B, A501, A1008 HSLAS-F Gr.50 ④, or A1011 HSLAS-F Gr.50 ④
Arm Strut Plates ②	ASTM A36, A572 Gr.50 ④, or A588
Misc.	ASTM designations as noted

① Dimensional limits are given to show acceptable variation in design. All of a Fabricator's production of a particular arm length shall have the same dimensions within specified toleranes.

② Any of the materials listed for plates may be used where the drawings do not specify a particular ASTM designation.

③ A576 must be suitable for forging and also meet minimum tensile strength of 65 ksi, minimum yield of 35 ksi, and elongation in 2 inches of 22 percent.

④ ASTM A572, A1008 HSLAS-F, and A1011 HSLAS-F may have higher yield strengths but shall not have less elongation than the grade indicated.

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Revisions thereto. Design Wind Speed equals 90 mph plus a 1.3 gust factor. Arms are designed to support a 60 lb. luminaire having an effective projected area (actual area times drag coefficient) of 1.6 sq. ft.

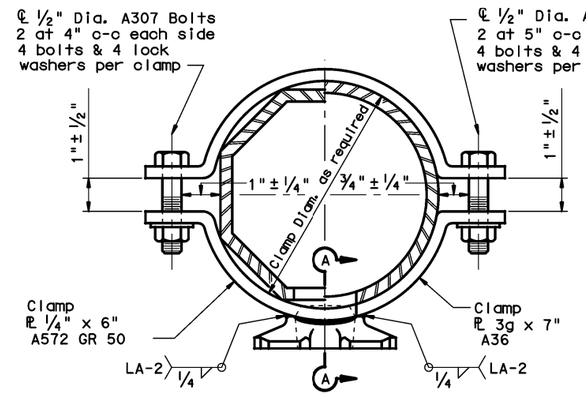
Materials and fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabriocation. In the absense of specified Fabricaton tolerances, dimensions shall be within the tolerances generally obtainable in normal fabrication practice.

Unless otherwise noted, all parts shall be galvanized after fabrication in accordance with Item 445, "Galvanizing".

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.

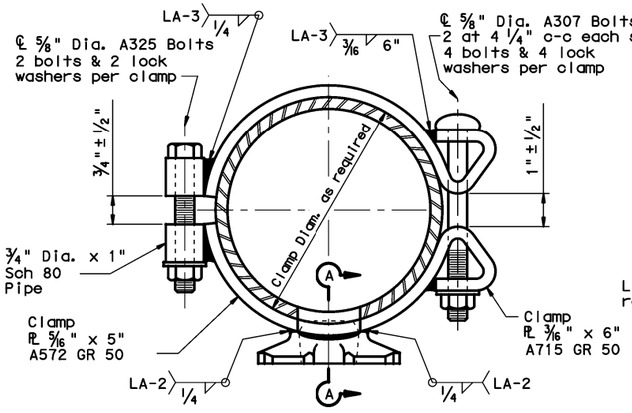
Each pole simplex fitting shall be supplied with 2 ASTM A325 bolts and 2 lock washers of the size specified. The bolts and lock washers shall be secured to the pole with the other hardware items called for in the plans. When clamp attachment is specified, the Fabricator shall ship the clamp assembly securely attached to the pole at the location shown on the plans.

If clamp assemblies are ordered without poles, the Fabricator shall ship one upper and one lower clamp assembly together in a single package, including all nuts and washers required for the clamps and simplex fittings.



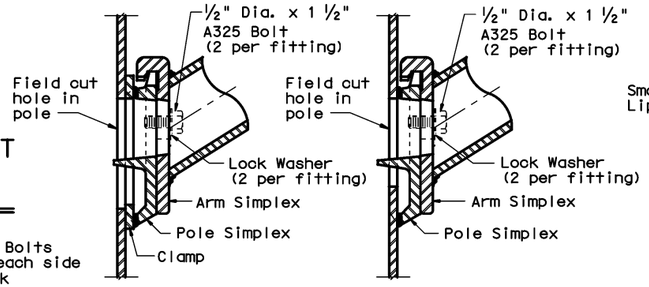
CLAMP ATTACHMENT DETAIL NO. 1 (HALF SECTION)

CLAMP ATTACHMENT DETAIL NO. 2 (HALF SECTION)



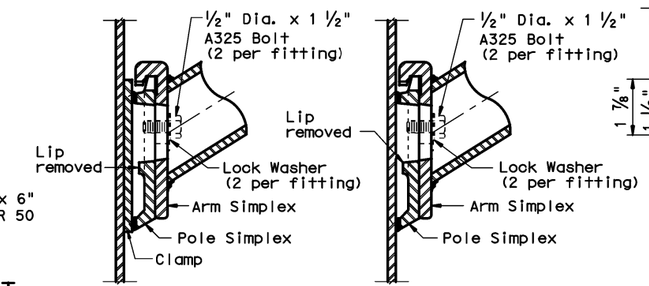
CLAMP ATTACHMENT DETAIL NO. 3 (HALF SECTION)

CLAMP ATTACHMENT DETAIL NO. 4 (HALF SECTION)



UPPER SIMPLEX FITTING

UPPER SIMPLEX FITTING

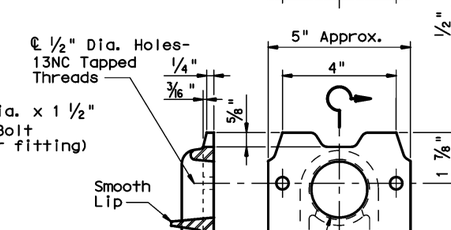


LOWER SIMPLEX FITTING

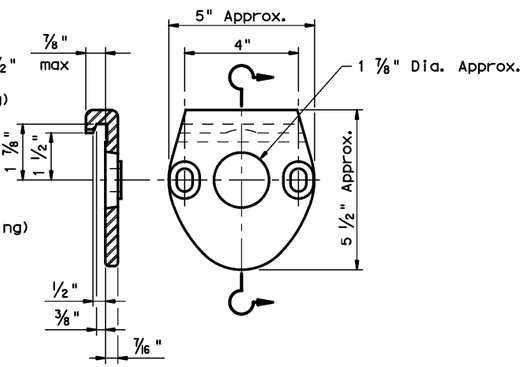
SECTON A-A

LOWER SIMPLEX FITTING

SECTON B-B



POLE SIMPLEX DETAIL



ARM SIMPLEX DETAIL

Texas Department of Transportation
Traffic Operations Division

STANDARD ASSEMBLY DRAWINGS FOR LUMINAIRE SUPPORT STRUCTURES

ARM DETAILS

LUM-A-12

DN: LEH	CK: JSY	DW: LTT	CK: TEB

REVISIONS
5-96
1-99
1-12

CONT	SECT	JOB	HIGHWAY
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DIST	COUNTY		SHEET NO.
SAT	GUADALUPE		81

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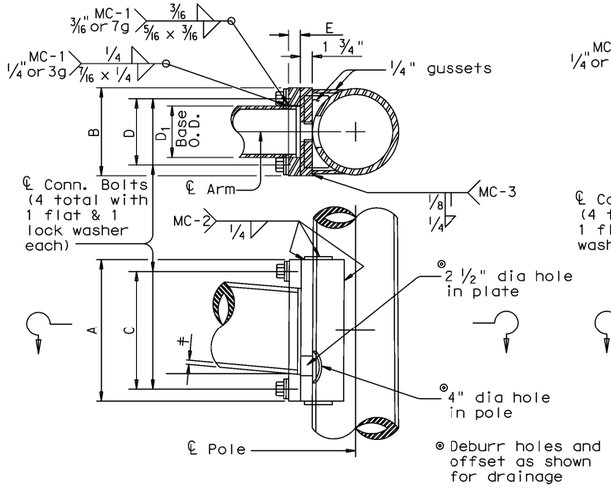
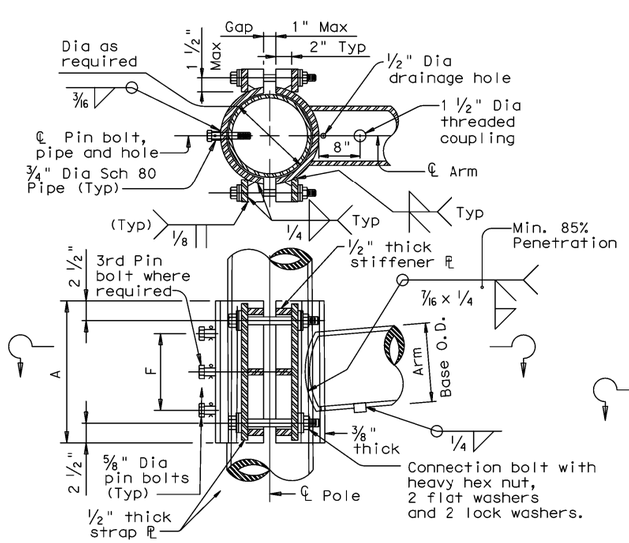
ARM SIZE D_1 in.	ARM SIZE ℄ in.	A in.	B in.	C in.	D in.	E in.	CONN BOLT DIA in.
6.5	.179	12	9	9	6	1 3/4	1
7.5	.179	13	9	10	6	1 3/4	1
8.0	.179	14	10	11	7	2	1 1/4
9.0	.179	16	11	13	8	2	1 1/4
9.5	.179	17	12	14	9	2	1 1/4
9.5	.239	18	12	15	9	2	1 1/4
10.0	.239	18	12	15	9	2	1 1/4
10.5	.239	18	13	15	10	3	1 1/2
11.0	.239	18	13	15	10	3	1 1/2



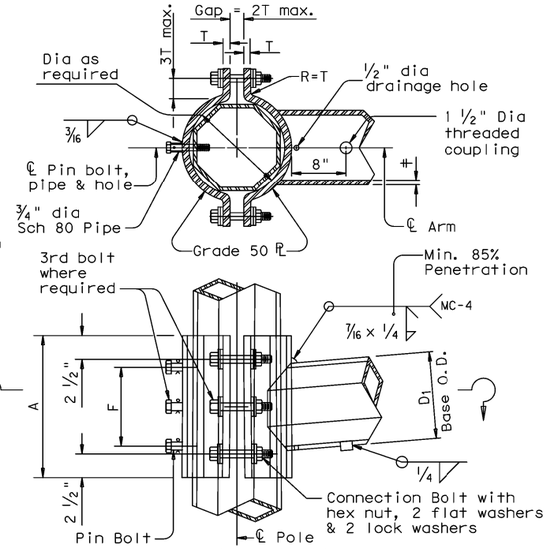
FIXED MOUNT DETAIL 1

ARM SIZE D_1 in.	ARM SIZE ℄ in.	A in.	F in.	CONN. BOLTS No. ea.	CONN. BOLTS Dia in.	PIN BOLTS No. ea.	PIN BOLTS Dia in.
6.5	.179	12	6	4	1	2	5/8
7.5	.179	14	8	4	1	2	5/8
8.0	.179	14	8	4	1	2	5/8
9.0	.179	16	10	4	1	2	5/8
9.5	.179	18	12	4	1 1/4	3	5/8
9.5	.239	18	12	4	1 1/4	3	5/8
10.0	.239	18	12	4	1 1/4	3	5/8



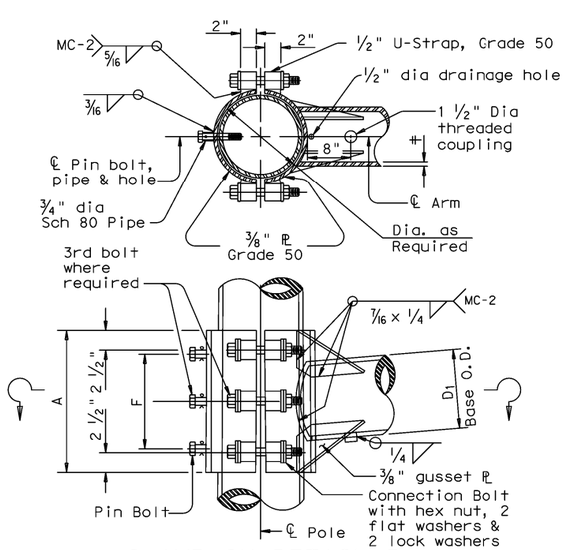
CLAMP-ON DETAIL 1

ARM SIZE D_1 in.	ARM SIZE ℄ in.	A in.	F in.	T in.	CONN. BOLTS No. ea.	CONN. BOLTS Dia in.	PIN BOLTS No. ea.	PIN BOLTS Dia in.
7.0	.179	12	6	3/4	4	3/4	2	5/8
7.5	.179	14	8	3/4	4	3/4	2	5/8
8.0	.179	14	8	3/4	4	3/4	2	5/8
9.0	.179	16	10	7/8	4	1	2	5/8
10.0	.179	18	10	7/8	4	1	2	5/8
9.5	.239	18	10	1	6	1	3	5/8
10.0	.239	18	10	1	6	1	3	5/8

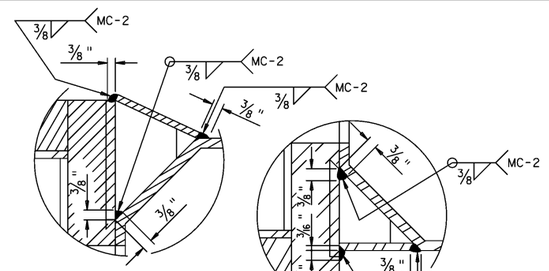


CLAMP-ON DETAIL 2

ARM SIZE D_1 in.	ARM SIZE ℄ in.	A in.	F in.	CONN. BOLTS No. ea.	CONN. BOLTS Dia in.	PIN BOLTS No. ea.	PIN BOLTS Dia in.
6.5	.179	12	6	4	1	2	5/8
7.5	.179	14	8	4	1	2	5/8
8.0	.179	14	8	4	1	2	5/8
9.0	.179	16	10	4	1	2	5/8
9.5	.179	18	12	6	1	3	5/8
9.5	.239	18	12	6	1	3	5/8
10.0	.239	18	12	6	1	3	5/8

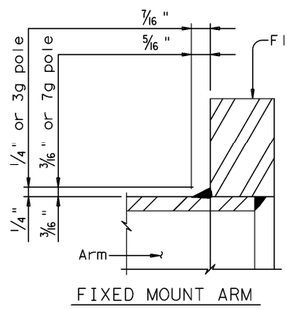


CLAMP-ON DETAIL 3

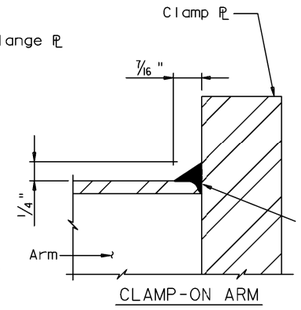


DETAIL A

DETAIL B



FIXED MOUNT ARM



CLAMP-ON ARM

ARM BASE WELD DETAILS

MATERIALS	
Round Shafts or Polygonal Shafts ①	ASTM A595 Gr.A, A588, A1008 HSLAS Gr.50 Class 2, A1011 HSLAS Gr.50 Class 2, A572 Gr.50 or A1011 SS Gr.50 ②
Plates ①	ASTM A36, A588, or A572 Gr.50
Connection Bolts	ASTM A325 or A449, except where noted
Pin Bolts	ASTM A325
Pipe ①	ASTM A53 Gr.B, A501, A1008 HSLAS-F Gr.50, A1011 HSLAS-F Gr.50
Misc. Hardware	Galvanized steel or stainless steel or as noted

① ASTM A572, A1008 HSLAS, A1011 HSLAS, A1008 HSLAS-F, A1011 HSLAS-F or A1011 SS may have higher yield strengths but shall not have less elongation than the grade indicated.

② ASTM A1011 SS Gr.50 material shall also have a minimum elongation of 18 percent in 8 inches or 23 percent in 2 inches. Material thickness in excess of those stipulated under A1011 SS will be acceptable providing the material meets all other A1011 SS requirements and the requirements of this item.

GENERAL NOTES:

Clamp-on details are used for the second arm on dual mast arm assemblies. A Maximum 1 1/2" wide vertical slotted hole shall be cut in the front clamp plate to facilitate drainage during galvanizing. The slot shall be centered behind the arm and shall be no longer than the arm diameter minus 1"

Fixed mount details are used for single mast arm assemblies and for the first arm on dual mast arm assemblies.

Where duplicate parts occur on a detail, welds shown for one part shall apply to all similar parts on the detail.

Pin bolts are required to prevent rotation of clamp-on arms under design wind forces.

NOTE:

Pin bolts shall be A325 with threads excluded from the shear plane. Pin bolt and 3/4" dia pipe shall have 5/16" dia holes for a 1/8" dia galvanized cotter pin. Back clamp plate shall be furnished with a 3/4" dia hole for each pin bolt. An 11/16" dia hole for each pin bolt shall be field drilled through the pole after arm orientations have been approved by the Engineer.

Texas Department of Transportation
Traffic Operations Division

STANDARD ASSEMBLY FOR TRAFFIC SIGNAL SUPPORT STRUCTURES

MAST ARM CONNECTIONS

MA-C-12

DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS: 5-96, 5-09, 1-12

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90
DIST	COUNTY		SHEET NO.
SAT	GUADALUPE		82

126A

DATE: 1/23/2023 2:15:04 PM
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DATE: 1/23/2023 2:15:07 PM
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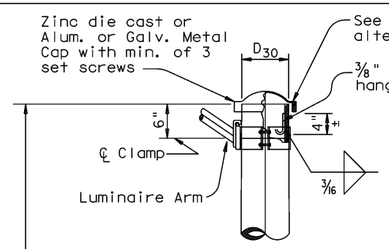
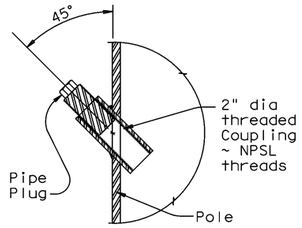
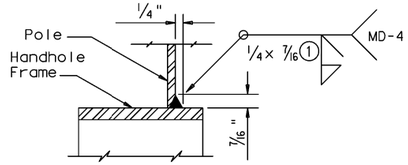


DETAIL A

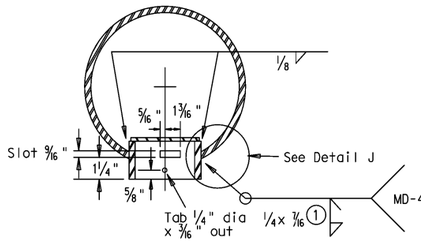
(for pole with luminaire)



POLE COUPLING DETAIL

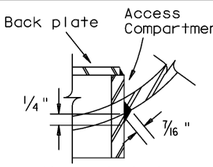


DETAIL G

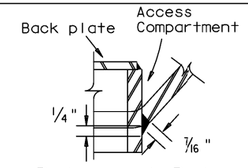


SECTION X-X

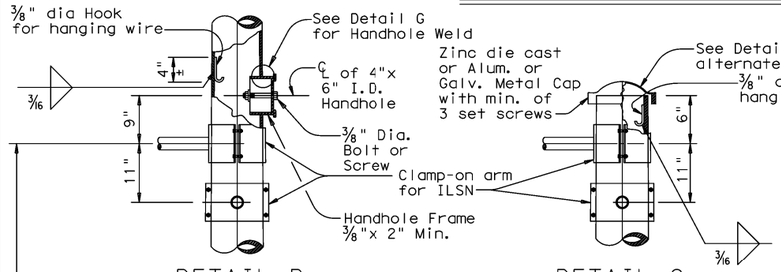
Opening for access compartment shall be no more than 1/16 inch wider than the access compartment itself.



Round Pole

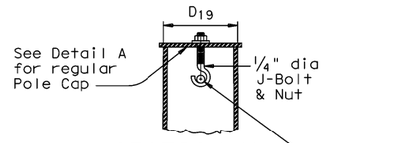


Polygonal Pole

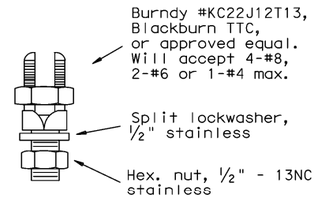


DETAIL B

DETAIL C



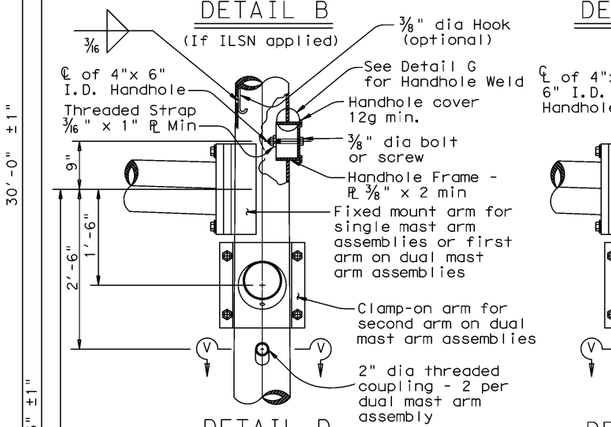
SECTION Y-Y



COPPER GROUND CONNECTOR

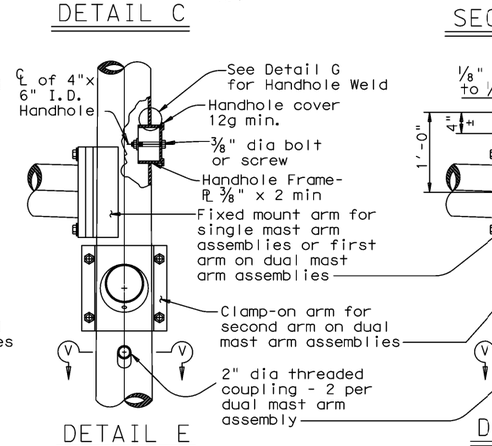
DETAIL J

ACCESS COMPARTMENT



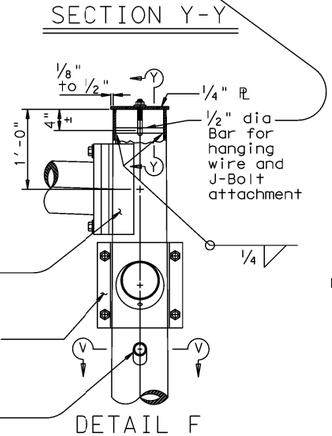
DETAIL D

(for 30' pole with luminaire and ILSN sign)



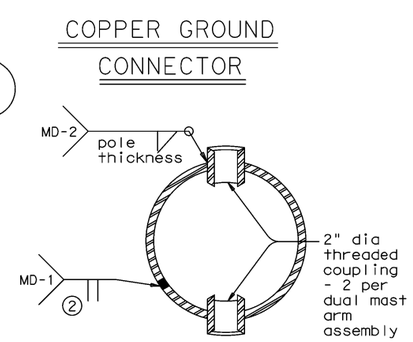
DETAIL E

(for 24' pole with ILSN sign and no luminaire)



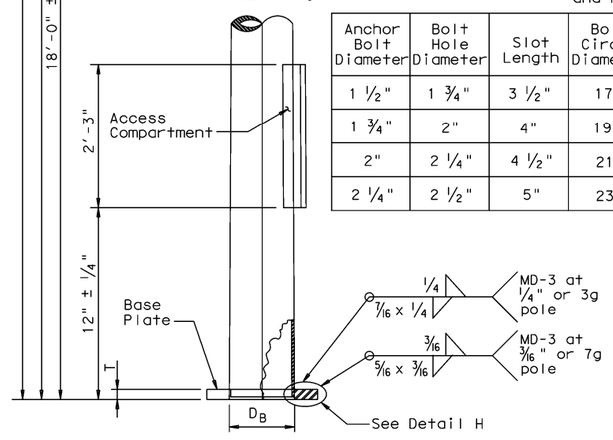
DETAIL F

(for 19' pole with no ILSN sign and no luminaire)

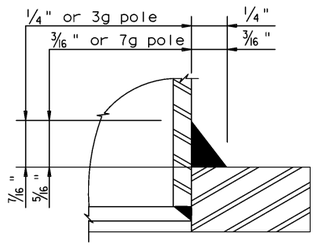


SECTION V-V

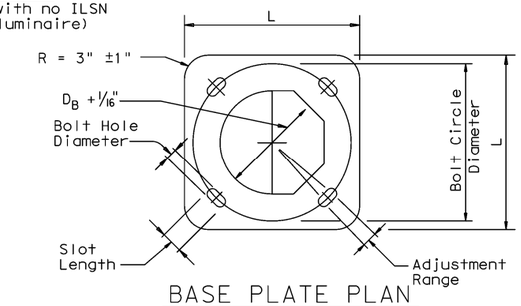
Anchor Bolt Diameter	Bolt Hole Diameter	Slot Length	Bolt Circle Diameter	Base PL Dim. L x T	Adjust. Range
1 1/2"	1 3/4"	3 1/2"	17"	18" x 1 1/2"	13.4°
1 3/4"	2"	4"	19"	20" x 1 3/4"	13.5°
2"	2 1/4"	4 1/2"	21"	22" x 2"	13.6°
2 1/4"	2 1/2"	5"	23"	24" x 2 1/4"	13.7°



POLE ELEVATION



DETAIL H



BASE PLATE PLAN

(1) 85% Min. penetration

(2) 60% Min. penetration 100% pemetration within 6" of circumferential base welds.

NOTES:

1. The cover shall be one piece formed from ABS plastic, shall be a pearl gray color, and shall be suitable for exposure to harsh sunlight and extreme weather. Cover shall latch with two screw latches and shall fit tightly to the enclosure ring to create a rainproof seal. Latch screws shall be 1/4-20 stainless flat socket head screws with tamper proof feature.
2. The pole manufacturer shall provide with each pole a separate kit consisting of: one cover with two latching assemblies, two terminal strips (Marathon #985GP12CU or approved equal), four #8-32 x 1 1/4" self tapping type "F" stainless steel pan head screws, and one ground connector (Blackburn TTC, Burndy KC22J12T13, or Ilsco SSS-5). The traffic signal contractor shall install the kit items in the field.
3. The screw hole spacing on the enclosure back plate shall be for two Marathon #985GP12 terminal strips, one Marathon #985GP06CU terminal strip, and one Bussmann #BM6032B fuse block.
4. Install one Bussmann #BM6032B, Littelfuse #L60030M-2C, or Ferraz-Shawmut #30352 fuse block for poles where luminaires are to be installed.

Texas Department of Transportation
Traffic Operations Division

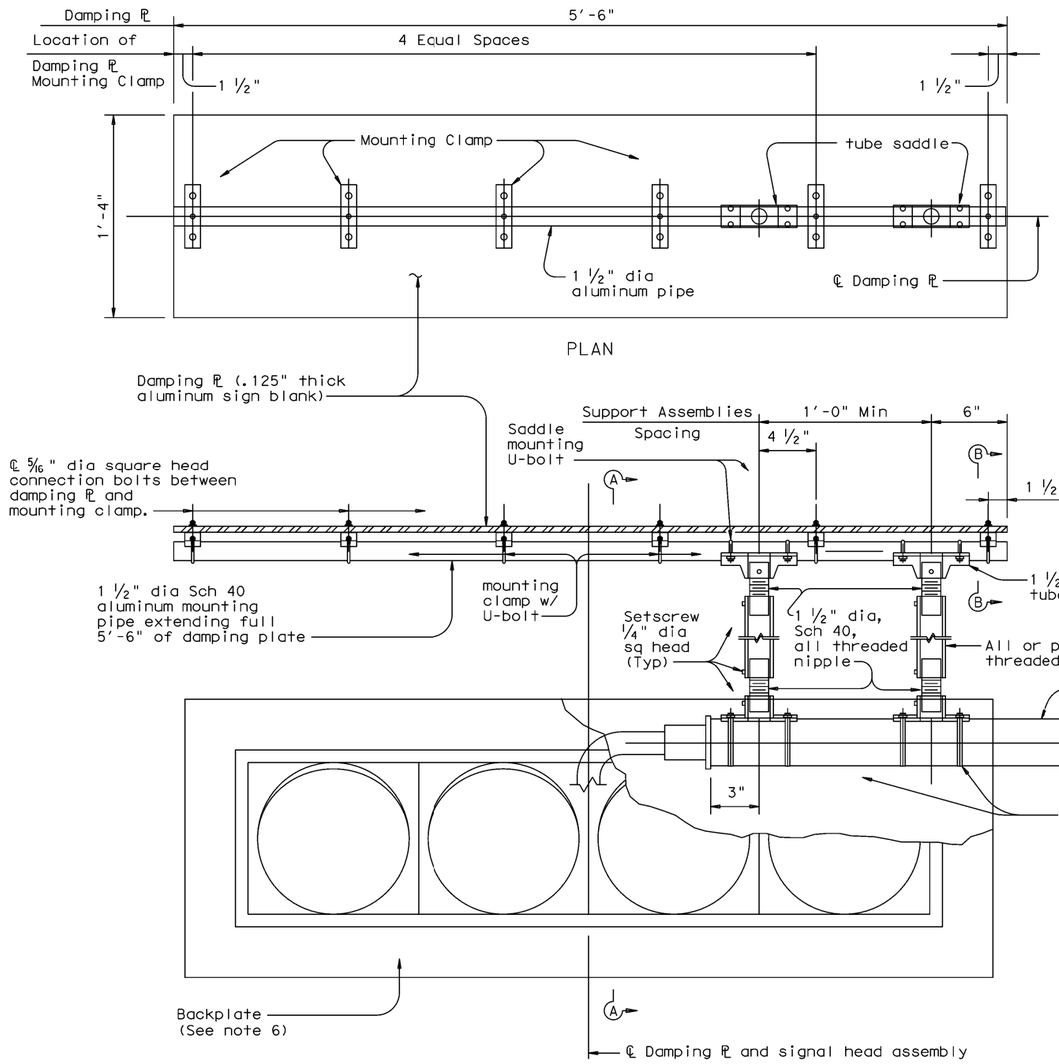
TRAFFIC SIGNAL SUPPORT STRUCTURES MAST ARM POLE DETAILS

MA-D-12

DN: MS	CK: JSY	DW: FDN	CK: CAL

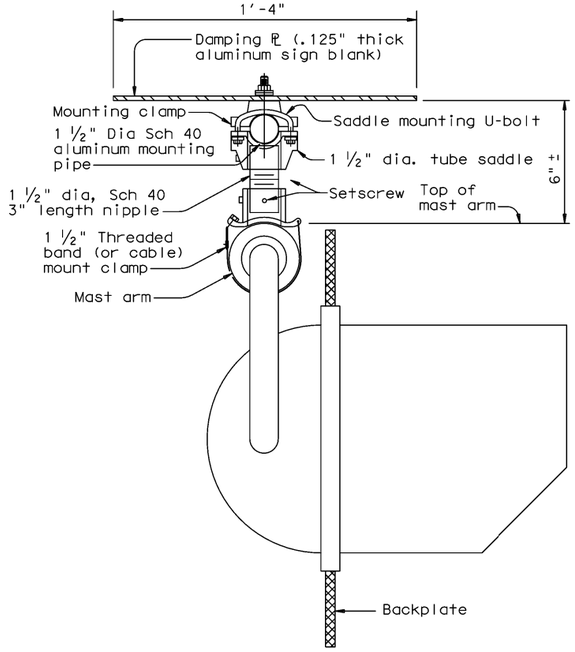
REVISIONS
8-99
1-12

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90
DIST	COUNTY		SHEET NO.
SAT	GUADALUPE		83



DAMPING PLATE MOUNTING DETAILS

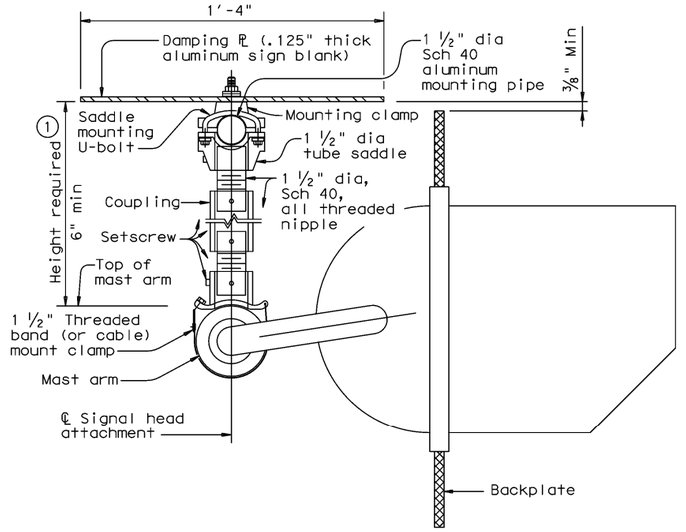
(Showing alternate placement of signal head)



SECTION A-A

(Showing standard placement of signal head)

(Mounting clamp U-bolt is not shown for clarity)

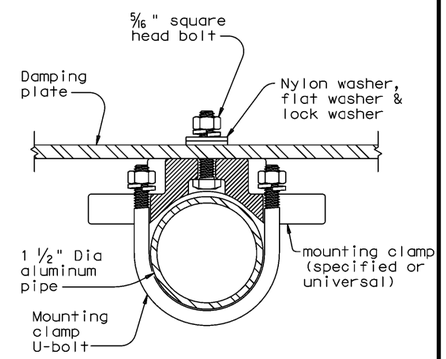


SECTION A-A

(Showing alternate placement of signal head)

(Mounting clamp U-bolt is not shown for clarity)

① Recommended supporting assemblies to achieve required height for horizontal section heads			
Height required	One nipple each length	Two nipples each length plus	One coupling each length
6"-6 ¾"	3"	-	-
7"-8 ½"	4"	-	-
9"-10 ½"	6"	-	-
11"-15 ½"	-	4"	5"
16"-24"	-	6"	10"



SECTION B-B

(Showing damping plate attachment)

GENERAL NOTES:

1. In accordance with the findings of TxDOT sponsored research, the installation of a damping plate in accordance with the details shown here at the end of signal mast arms of SMA and DMA standard structures reduces excessive harmonic vertical vibration, and thus fatigue damage. Any deviation from these details may reduce the effectiveness of this damping device.

2. Aluminum sign blank for damping plate will conform to Departmental Material Specifications DMS-7110. Materials for mast arm mounting clamp and tube saddle will be aluminum castings or aluminum alloys as in accordance with manufacturers' stipulations. Mounting pipe, pipe nipple and coupling will be aluminum alloy 6061-T6 or 6063-T6. Damping plate mounting clamp and u-bolt assemblies will conform to Standard sheet SMD(GEN). U-bolts for saddle mounting will have a minimum yield strength of 36 ksi.

3. Damping plate will be mounted horizontally. Position centerline of damping plate to align with centerline of mast arm or horizontal signal head assembly. Vertical clearance between signal head (with or without backing plate) and bottom of damping plate will be maintained as shown. The attachments shown here are examples only, other supporting details which meet both alignment and vertical clearance requirements are also acceptable.

4. Unless stipulated by the manufacturers, all steel parts will be galvanized finish in accordance with Standard Specification Item 445, "Galvanizing".

5. Contractor will verify applicable field dimensions before the installation.

6. Backplates are optional for traffic signals. When backplates are used, Backplates will have a 2-inch fluorescent yellow AASHTO Type B_{FL} or C_{FL} retroreflective border conforming to TxDOT DMS-8300 "Sign Face Materials." See Sheet TS-BP-20 for backplate details.

Texas Department of Transportation

Traffic Safety Division Standard

MAST ARM DAMPING PLATE DETAILS

MA-DPD-20

FILE: ma-dpd-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT January 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS	0029	02	058	US 90
6-20	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		84

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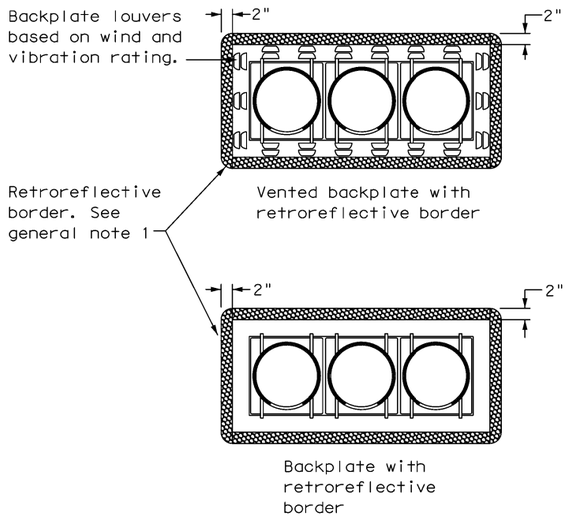
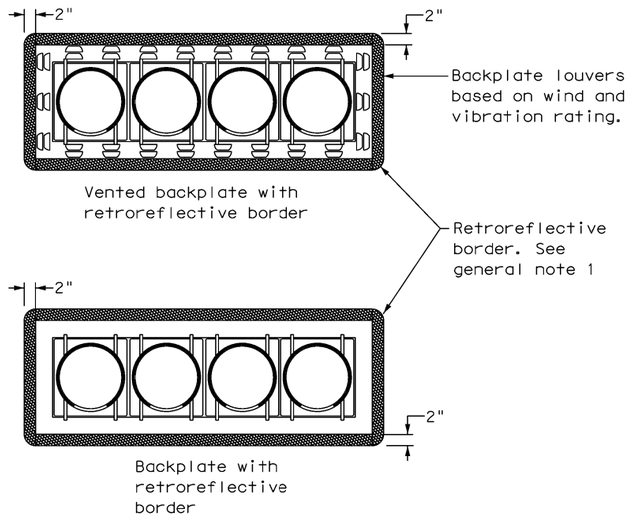
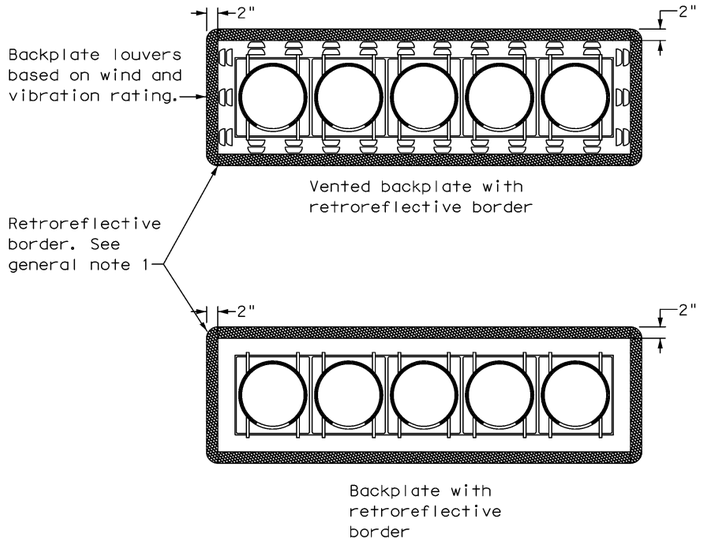


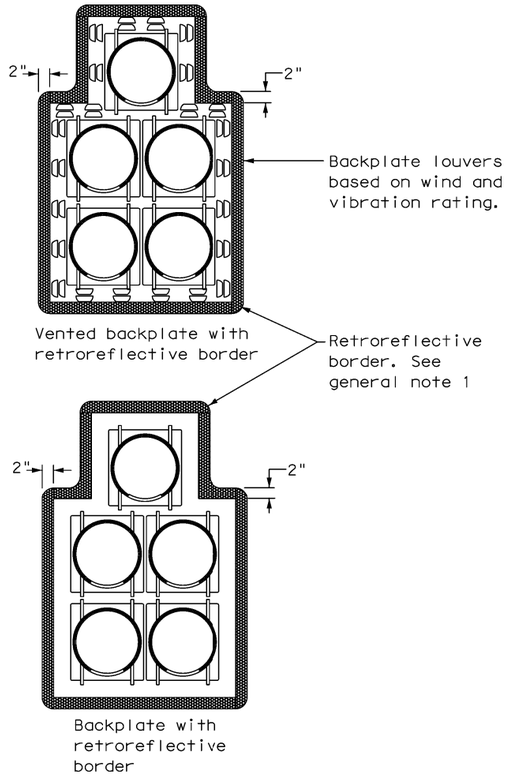
THREE-SECTION HEAD
HORIZONTAL OR VERTICAL



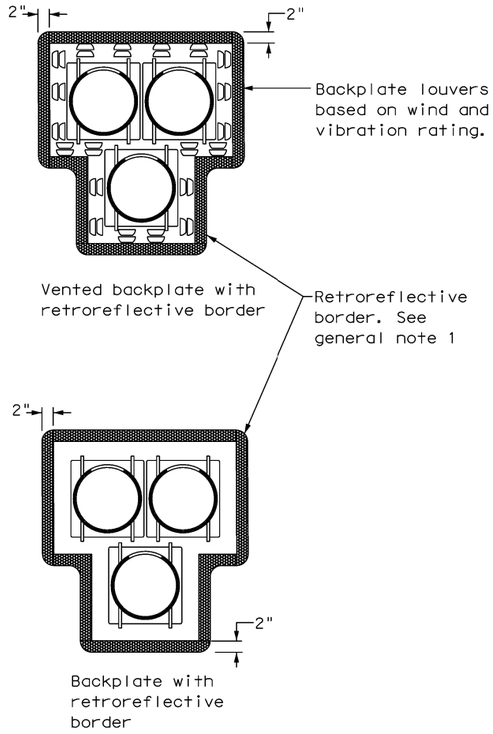
FOUR-SECTION HEAD
HORIZONTAL OR VERTICAL



FIVE-SECTION HEAD
HORIZONTAL OR VERTICAL



FIVE-SECTION HEAD
CLUSTER



PEDESTRIAN HYBRID
BEACON

GENERAL NOTES:

1. Backplates are optional for traffic signals and pedestrian hybrid beacons. When backplates are used, a 2-inch wide fluorescent yellow AASHTO Type B_{FL} or C_{FL} retroreflective border conforming to TxDOT DMS-8300 is required. Place on all approaches when used.
2. Signal head and backplate compatability must be verified by the contractor prior to installation.
3. When using backplates on signal heads, venting is preferred to reduce cyclic vibration stress.
4. When a vented backplate is used, the retroreflective border must not be placed over the louvers.
5. This standard sheet applies to all signal heads with backplates, including but not limited to:
   - Pole mounted
   - Overhead mounted
   - Span wire mounted
   - Mast arm mounted
   - Vertical signal heads
   - Horizontal signal heads
   - Clustered signal heads
   - Pedestrian hybrid beacons

Texas Department of Transportation

Traffic Safety Division Standard

TRAFFIC SIGNAL HEAD WITH BACKPLATE

TS-BP-20

FILE: ts-bp-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT June 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0029	02	058	US 90
	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		85

DATE: 1/23/2023 2:15:13 PM
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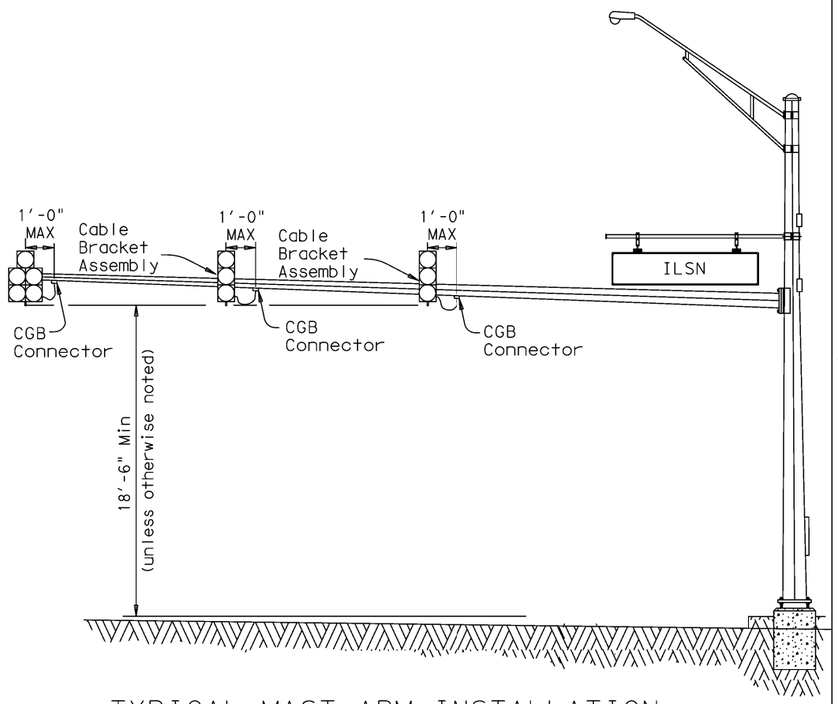
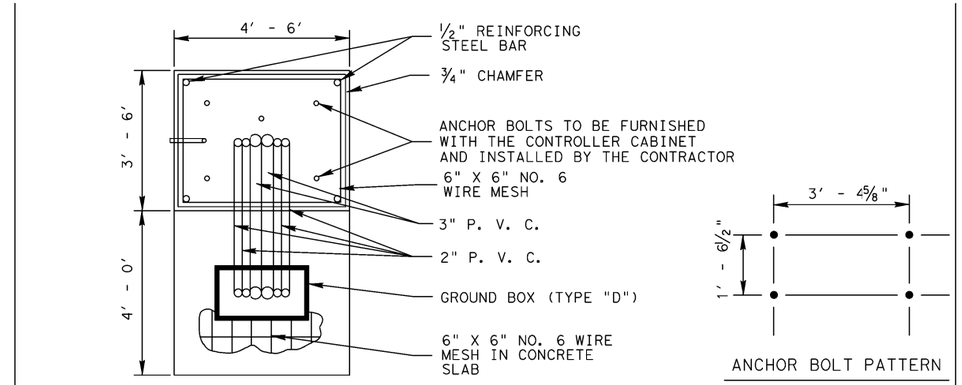
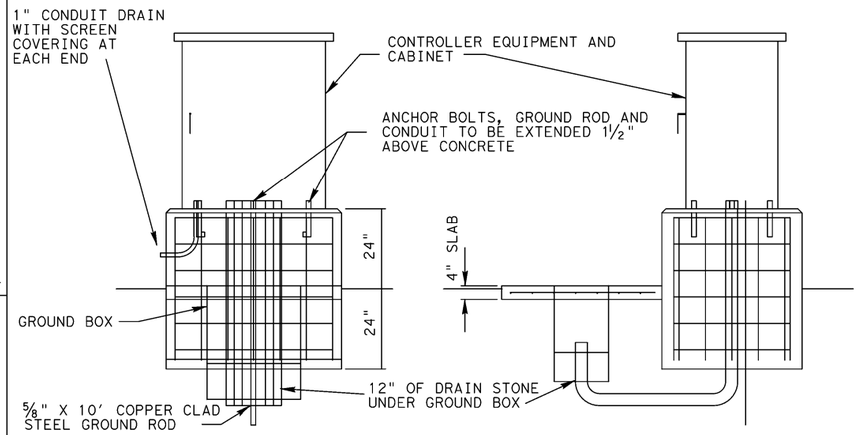


TYPICAL MAST ARM INSTALLATION

BACKPLATES ARE NOT SHOWN FOR CLARITY



ANCHOR BOLT PATTERN



CONTROLLER MOUNT NOTES :

ALL WIRING TERMINATING IN THE CONTROLLER SHALL BE LABELED IN A MANNER THAT CAN BE IDENTIFIED WHEN THE CONTROLLER IS INSTALLED THE CONTRACTOR SHALL CONNECT THE FIELD WIRING TO THE CONTROLLER

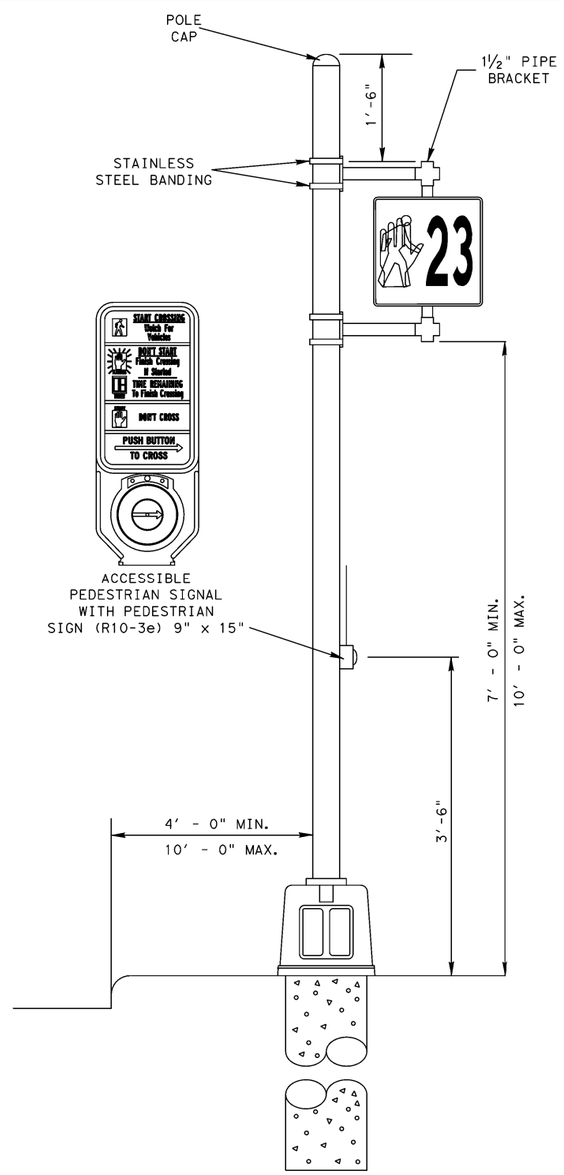
ONE 2" PVC SHALL REMAIN EMPTY FOR FUTURE USE

CONCRETE SHALL BE TESTED AS MISCELLANEOUS CONCRETE

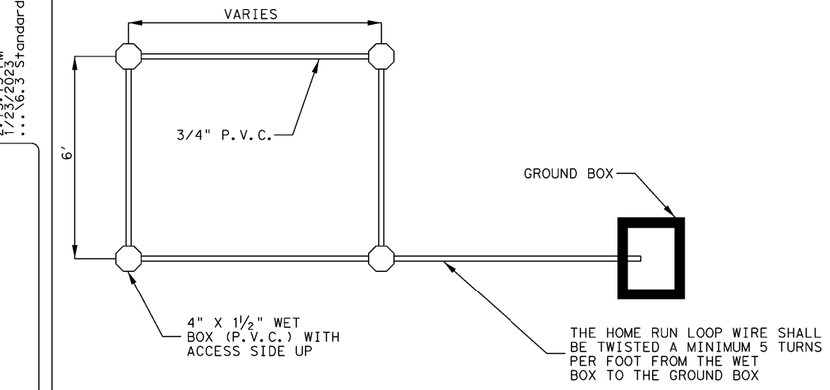
ALL MATERIALS SHOWN AND LABOR TO INSTALL THE CONTROLLER FOUNDATION SHALL BE CONSIDERED SUBSIDIARY TO PERTINENT ITEMS

CONTROLLER FOUNDATION SHALL BE AS SHOWN ON THE PLANS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

TYPICAL CONTROLLER MOUNT DETAILS



TYPICAL PEDESTAL POLE ASSEMBLY



NOTES:

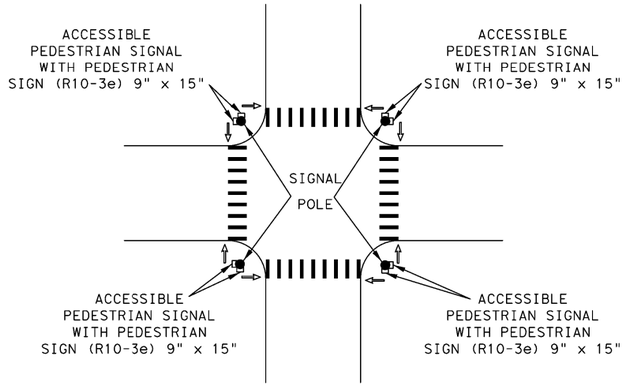
SHALL INSTALL CONDUIT ENCASED LOOPS AT THE LOCATIONS SHOWN ON THE PLANS USING 3/4 " DIAMETER PVC SCHEDULE 40 OR AT NO ADDITIONAL COST 1" DIAMETER PVC SCHEDULE 80.

LOOP LOCATIONS MAY BE STAGGERED SLIGHTLY (6") TO ACCOMMODATE HOME RUN PLACEMENT.

INDIVIDUAL HOME RUN CONDUITS SHALL BE EXTENDED TO THE GROUND BOX SHOWN ON THE PLANS FOR EACH LOOP INSTALLED.

THE NUMBER OF LOOP WIRE TURNS SHALL BE AS SHOWN ON THE TYPICAL LOOP DETECTOR DETAILS.

CONDUIT ENCASED LOOPS



TYPICAL PED PUSH BUTTON LOCATION

THE ENGINEER SHALL VERIFY ALL PEDESTRIAN SIGNAL AND PEDESTRIAN PUSH BUTTON LOCATIONS PRIOR TO INSTALLATION.

Texas Department of Transportation

San Antonio District Standard

MISCELLANEOUS TRAFFIC SIGNAL DETAILS

SCALE: NS

MTS-18

REVISIONS	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
FEB 2006	6	SEE TITLE SHEET		86
OCT 2007	STATE	DIST.	COUNTY	
MAR 2017	TEXAS	SAT	GUADALUPE	
MAY 2018	CONT.	SECT.	JOB	HIGHWAY NO.
	0029	02	058	US 90

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63

ACC:

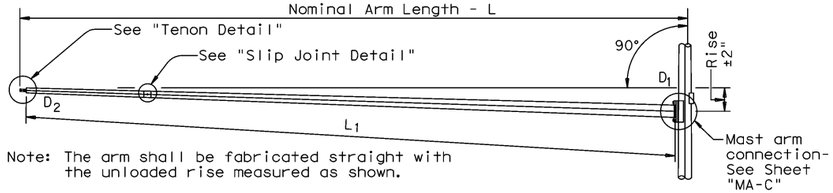
Arm Length	ROUND POLES					POLYGONAL POLES					Foundation Type
	D_B	D_{19}	D_{24}	D_{30}	① thk	D_B	D_{19}	D_{24}	D_{30}	① thk	
ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	10.5	7.8	7.1	6.3	.179	11.5	8.5	7.7	6.8	.179	30-A
24	11.0	8.3	7.6	6.8	.179	12.0	9.0	8.2	7.3	.179	30-A
28	11.5	8.8	8.1	7.3	.179	12.5	9.5	8.7	7.8	.179	30-A
32	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
36	12.0	9.3	8.6	7.8	.239	12.5	9.5	8.7	7.8	.239	36-A
40	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
44	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
48	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A

Arm Length	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	① thk	Rise	L_1	D_1	② D_2	① thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1′-9"	19.1	7.0	3.5	.179	1′-8"
24	23.1	7.5	4.3	.179	1′-10"	23.1	7.5	3.5	.179	1′-9"
28	27.1	8.0	4.2	.179	1′-11"	27.1	8.0	3.5	.179	1′-10"
32	31.0	9.0	4.7	.179	2′-1"	31.0	9.0	3.5	.179	2′-0"
36	35.0	9.5	4.6	.179	2′-4"	35.0	10.0	3.5	.179	2′-1"
40	39.0	9.5	4.1	.239	2′-8"	39.0	9.5	3.5	.239	2′-3"
44	43.0	10.0	4.1	.239	2′-11"	43.0	10.0	3.5	.239	2′-6"
48	47.0	10.5	4.1	.239	3′-4"	47.0	11.0	3.5	.239	2′-9"

D_B = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire
D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L = Nominal Arm Length

① Thickness shown are minimums, thicker materials may be used.

② D_2 may be increased by up to 1" for polygonal arms.



Note: The arm shall be fabricated straight with the unloaded rise measured as shown.

TRAFFIC SIGNAL ARM

(Fixed Mount)

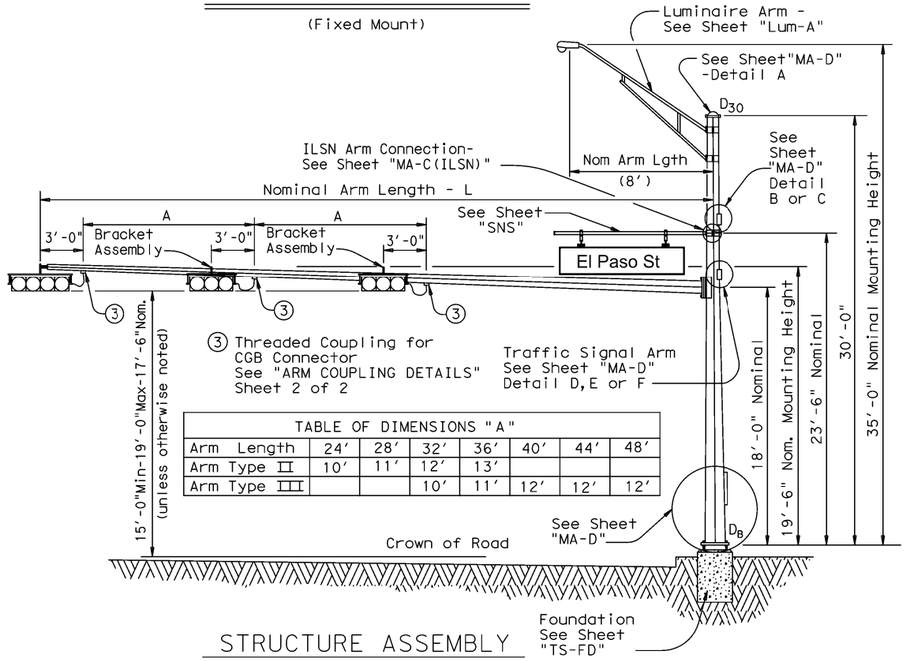


TABLE OF DIMENSIONS "A"							
Arm Length	24′	28′	32′	36′	40′	44′	48′
Arm Type II	10′	11′	12′	13′			
Arm Type III			10′	11′	12′	12′	12′

STRUCTURE ASSEMBLY

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed-arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length	30′ Poles With Luminaire		24′ Poles With ILSN		19′ Poles With No Luminaire and No ILSN	
	Above hardware plus: One (or two if ILSN attached) small hand hole, clamp-on simplex		Above hardware plus one small hand hole		See note above	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20L-80		20S-80		20-80	
24	24L-80		24S-80		24-80	1
28	28L-80	1	28S-80		28-80	
32	32L-80		32S-80		32-80	
36	36L-80		36S-80		36-80	
40	40L-80		40S-80		40-80	
44	44L-80		44S-80		44-80	2
48	48L-80		48S-80		48-80	

Traffic Signal Arms (1 per Pole) Ship each arm with the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	1 CGB connector		1 Bracket Assembly and 2 CGB Connectors		2 Bracket Assemblies and 3 CGB Connectors	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80	1	24III-80	
28	28I-80		28II-80	1		
32			32II-80		32III-80	
36			36II-80		36III-80	
40					40III-80	
44					44III-80	2
48					48III-80	

Luminaire Arms (1 per 30′ pole)

Nominal Arm Length	Quantity
8′ Arm	1

ILSN Arm (Max. 2 per pole) Ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7′ Arm	
9′ Arm	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 ½"	3′-4"	2
1 ¾"	3′-10"	2

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

US 90 (KINGSBURY ST) AT HEIDEKE ST

SHEET 1 OF 2

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

SINGLE MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

SMA-80(1)-12

DN: MS	CK: JSY	DW: MAF	CK: JSY

REVISIONS
5-96
11-99
1-12

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90
DIST	COUNTY		SHEET NO.
SAT	GUADALUPE		87

122A

DATE: 1/23/2023 2:15:18 PM
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DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

Arm Length	ROUND POLES					POLYGONAL POLES					Foundation Type
	D_B	D_{19}	D_{24}	D_{30}	① thk	D_B	D_{19}	D_{24}	D_{30}	① thk	
ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	10.5	7.8	7.1	6.3	.179	11.5	8.5	7.7	6.8	.179	30-A
24	11.0	8.3	7.6	6.8	.179	12.0	9.0	8.2	7.3	.179	30-A
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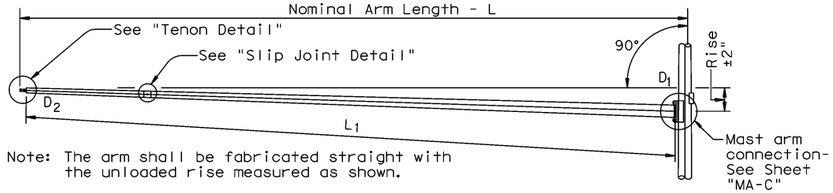
44	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
48	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A

Arm Length	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	① thk	Rise	L_1	D_1	② D_2	① thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1′-9"	19.1	7.0	3.5	.179	1′-8"
24	23.1	7.5	4.3	.179	1′-10"	23.1	7.5	3.5	.179	1′-9"
28	27.1	8.0	4.2	.179	1′-11"	27.1	8.0	3.5	.179	1′-10"
32	31.0	9.0	4.7	.179	2′-1"	31.0	9.0	3.5	.179	2′-0"
36	35.0	9.5	4.6	.179	2′-4"	35.0	10.0	3.5	.179	2′-1"
40	39.0	9.5	4.1	.239	2′-8"	39.0	9.5	3.5	.239	2′-3"
44	43.0	10.0	4.1	.239	2′-11"	43.0	10.0	3.5	.239	2′-6"
48	47.0	10.5	4.1	.239	3′-4"	47.0	11.0	3.5	.239	2′-9"

D_B = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire
D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L = Nominal Arm Length

① Thickness shown are minimums, thicker materials may be used.

② D_2 may be increased by up to 1" for polygonal arms.



Note: The arm shall be fabricated straight with the unloaded rise measured as shown.

TRAFFIC SIGNAL ARM

(Fixed Mount)

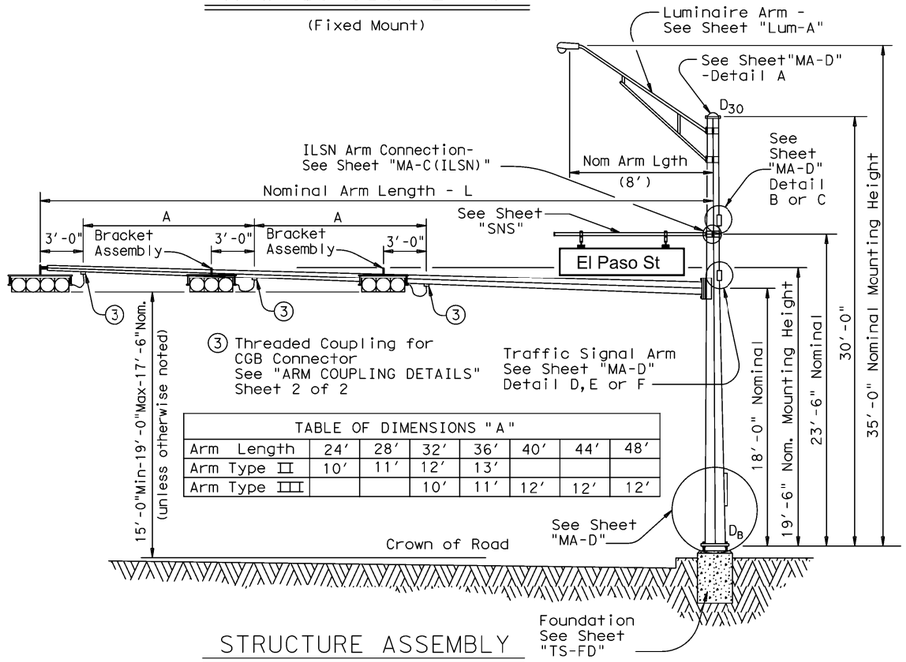


TABLE OF DIMENSIONS "A"							
Arm Length	24′	28′	32′	36′	40′	44′	48′
Arm Type II	10′	11′	12′	13′			
Arm Type III			10′	11′	12′	12′	12′

STRUCTURE ASSEMBLY

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed-arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length	30′ Poles With Luminaire		24′ Poles With ILSN		19′ Poles With No Luminaire and No ILSN	
	Above hardware plus: One (or two if ILSN attached) small hand hole, clamp-on simplex		Above hardware plus one small hand hole		See note above	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20L-80		20S-80		20-80	
24	24L-80	1	24S-80		24-80	
28	28L-80		28S-80		28-80	
32	32L-80		32S-80		32-80	
36	36L-80		36S-80		36-80	
40	40L-80		40S-80		40-80	
44	44L-80		44S-80		44-80	
48	48L-80	3	48S-80		48-80	

Traffic Signal Arms (1 per Pole) Ship each arm with the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	1 CGB connector		1 Bracket Assembly and 2 CGB Connectors		2 Bracket Assemblies and 3 CGB Connectors	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80	1	24III-80	
28	28I-80		28II-80			
32			32II-80		32III-80	
36			36II-80		36III-80	
40					40III-80	
44					44III-80	
48			48II-80	1	48III-80	2

Luminaire Arms (1 per 30′ pole)

Nominal Arm Length	Quantity
8′ Arm	4

ILSN Arm (Max. 2 per pole) Ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7′ Arm	
9′ Arm	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 ½"	3′-4"	1
1 ¾"	3′-10"	3

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

SH 46 AT C H MATTHIES JR

SHEET 1 OF 2

STATE OF TEXAS — CHARLES R. STEVENS, JR — 101286 — PROFESSIONAL LICENSED ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

SINGLE MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

SMA-80(1)-12

DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS
5-96
11-99
1-12

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90
DIST	COUNTY		SHEET NO.
SAT	GUADALUPE		88

122A

DATE: ₱/23/2023 2:15:21 PM
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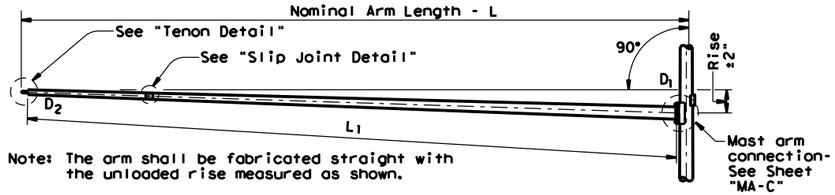
Arm Length	ROUND POLES					POLYGONAL POLES					Foundation Type
	D_B	D_{19}	D_{24}	D_{30}	① thk	D_B	D_{19}	D_{24}	D_{30}	① thk	
ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	10.5	7.8	7.1	6.3	.179	11.5	8.5	7.7	6.8	.179	30-A
24	11.0	8.3	7.6	6.8	.179	12.0	9.0	8.2	7.3	.179	30-A
28	11.5	8.8	8.1	7.3	.179	12.5	9.5	8.7	7.8	.179	30-A
32	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
36	12.0	9.3	8.6	7.8	.239	12.5	9.5	8.7	7.8	.239	36-A
40	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
44	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
48	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A

Arm Length	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	① thk	Rise	L_1	D_1	② D_2	① thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1'-9"	19.1	7.0	3.5	.179	1'-8"
24	23.1	7.5	4.3	.179	1'-10"	23.1	7.5	3.5	.179	1'-9"
28	27.1	8.0	4.2	.179	1'-11"	27.1	8.0	3.5	.179	1'-10"
32	31.0	9.0	4.7	.179	2'-1"	31.0	9.0	3.5	.179	2'-0"
36	35.0	9.5	4.6	.179	2'-4"	35.0	10.0	3.5	.179	2'-1"
40	39.0	9.5	4.1	.239	2'-8"	39.0	9.5	3.5	.239	2'-3"
44	43.0	10.0	4.1	.239	2'-11"	43.0	10.0	3.5	.239	2'-6"
48	47.0	10.5	4.1	.239	3'-4"	47.0	11.0	3.5	.239	2'-9"

D_B = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire
D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L = Nominal Arm Length

① Thickness shown are minimums, thicker materials may be used.

② D_2 may be increased by up to 1" for polygonal arms.



Note: The arm shall be fabricated straight with the unloaded rise measured as shown.

TRAFFIC SIGNAL ARM

(Fixed Mount)

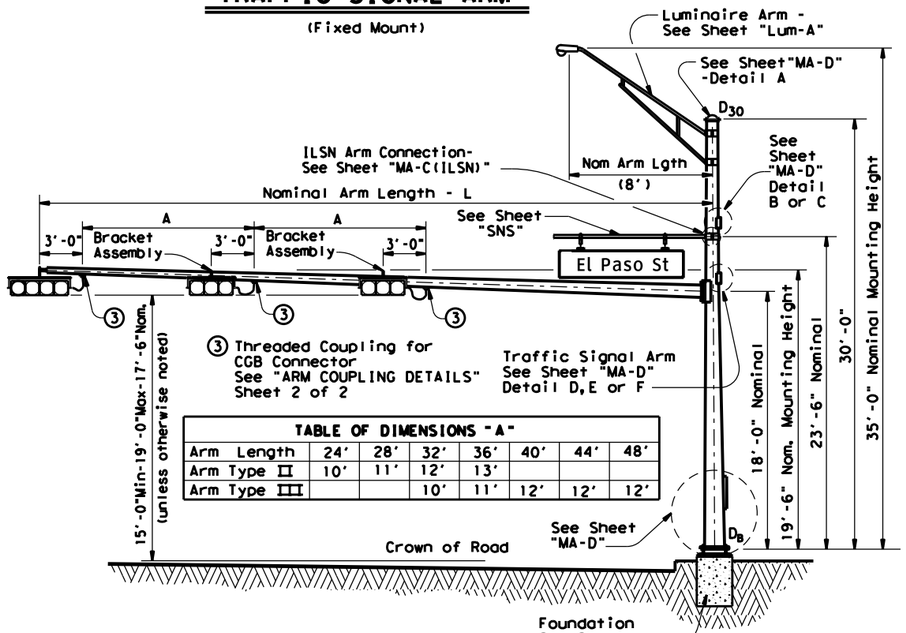


TABLE OF DIMENSIONS "A"							
Arm Length	24'	28'	32'	36'	40'	44'	48'
Arm Type II	10'	11'	12'	13'			
Arm Type III			10'	11'	12'	12'	12'

STRUCTURE ASSEMBLY

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed-arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length	30' Poles With Luminaire		24' Poles With ILSN		19' Poles With No Luminaire and No ILSN	
	Above hardware plus: One (or two if ILSN attached) small hand hole, clamp-on simplex		Above hardware plus one small hand hole		See note above	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20L-80		20S-80		20-80	
24	24L-80		24S-80		24-80	
28	28L-80	1	28S-80		28-80	2
32	32L-80		32S-80		32-80	1
36	36L-80		36S-80		36-80	
40	40L-80		40S-80		40-80	
44	44L-80		44S-80		44-80	
48	48L-80		48S-80		48-80	

Traffic Signal Arms (1 per Pole) Ship each arm with the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	1 CGB connector		1 Bracket Assembly and 2 CGB Connectors		2 Bracket Assemblies and 3 CGB Connectors	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80	3		
32			32II-80		32III-80	1
36			36II-80		36III-80	
40					40III-80	
44					44III-80	
48					48III-80	

Luminaire Arms (1 per 30' pole)

Nominal Arm Length	Quantity
8' Arm	1

ILSN Arm (Max. 2 per pole) Ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7' Arm	
9' Arm	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 ½"	3'-4"	4
1 ¾"	3'-10"	

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)

STATE OF TEXAS
GUILLERMO A. DOUGHERTY, JR.
93649
LICENSED PROFESSIONAL ENGINEER

1-20-2023

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

SINGLE MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

SMA-80(1)-12

REVISIONS
5-96
11-99
1-12

DATE:
FILE:

DN: MS	CK: JSY	DW: MWF	CK: JSY
CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90
DIST	COUNTY		SHEET NO.
SAT	GUADALUPE		89

122A

Arm Length	ROUND POLES					POLYGONAL POLES					Foundation Type
	D_B	D_{19}	D_{24}	D_{30}	① thk	D_B	D_{19}	D_{24}	D_{30}	① thk	
ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	10.5	7.8	7.1	6.3	.179	11.5	8.5	7.7	6.8	.179	30-A
24	11.0	8.3	7.6	6.8	.179	12.0	9.0	8.2	7.3	.179	30-A
28	11.5	8.8	8.1	7.3	.179	12.5	9.5	8.7	7.8	.179	30-A
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40	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
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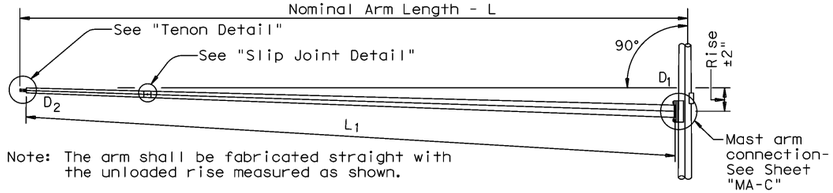
48	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A

Arm Length	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	① thk	Rise	L_1	D_1	② D_2	① thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1′-9"	19.1	7.0	3.5	.179	1′-8"
24	23.1	7.5	4.3	.179	1′-10"	23.1	7.5	3.5	.179	1′-9"
28	27.1	8.0	4.2	.179	1′-11"	27.1	8.0	3.5	.179	1′-10"
32	31.0	9.0	4.7	.179	2′-1"	31.0	9.0	3.5	.179	2′-0"
36	35.0	9.5	4.6	.179	2′-4"	35.0	10.0	3.5	.179	2′-1"
40	39.0	9.5	4.1	.239	2′-8"	39.0	9.5	3.5	.239	2′-3"
44	43.0	10.0	4.1	.239	2′-11"	43.0	10.0	3.5	.239	2′-6"
48	47.0	10.5	4.1	.239	3′-4"	47.0	11.0	3.5	.239	2′-9"

D_B = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire
D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L = Nominal Arm Length

① Thickness shown are minimums, thicker materials may be used.

② D_2 may be increased by up to 1" for polygonal arms.



Note: The arm shall be fabricated straight with the unloaded rise measured as shown.

TRAFFIC SIGNAL ARM

(Fixed Mount)

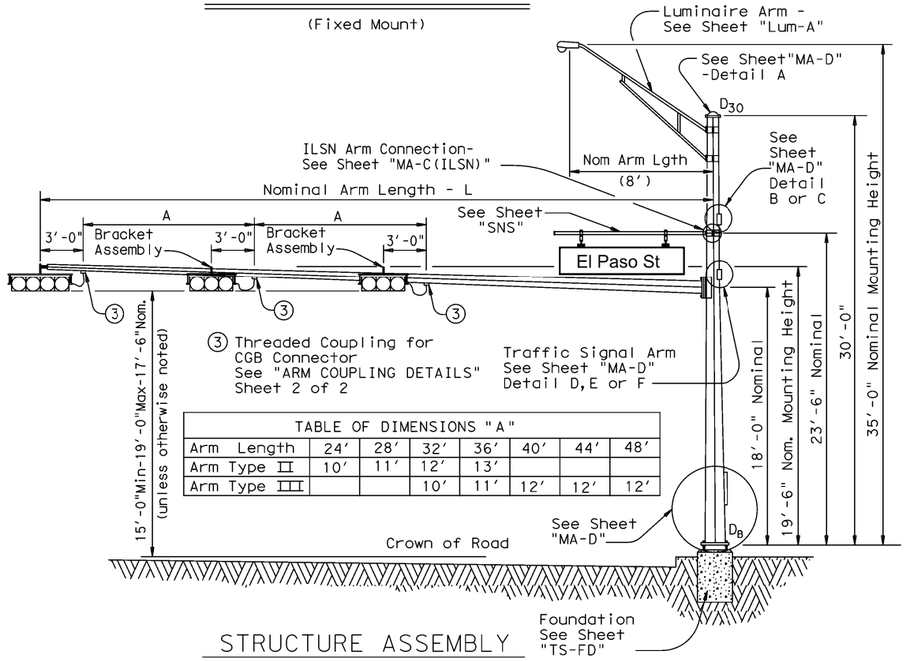


TABLE OF DIMENSIONS "A"							
Arm Length	24′	28′	32′	36′	40′	44′	48′
Arm Type II	10′	11′	12′	13′			
Arm Type III			10′	11′	12′	12′	12′

STRUCTURE ASSEMBLY

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed-arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length	30′ Poles With Luminaire		24′ Poles With ILSN		19′ Poles With No Luminaire and No ILSN	
	Above hardware plus: One (or two if ILSN attached) small hand hole, clamp-on simplex		Above hardware plus one small hand hole		See note above	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20L-80		20S-80		20-80	
24	24L-80		24S-80		24-80	1
28	28L-80		28S-80		28-80	2
32	32L-80		32S-80		32-80	1
36	36L-80		36S-80		36-80	
40	40L-80		40S-80		40-80	
44	44L-80		44S-80		44-80	
48	48L-80		48S-80		48-80	

Traffic Signal Arms (1 per Pole) Ship each arm with the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	1 CGB connector		1 Bracket Assembly and 2 CGB Connectors		2 Bracket Assemblies and 3 CGB Connectors	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80		24III-80	1
28	28I-80		28II-80	1	28III-80	1
32			32II-80	1	32III-80	
36			36II-80		36III-80	
40					40III-80	
44					44III-80	
48					48III-80	

Luminaire Arms (1 per 30′ pole)

Nominal Arm Length	Quantity
8′ Arm	

ILSN Arm (Max. 2 per pole) Ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7′ Arm	
9′ Arm	

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 ½"	3′-4"	4
1 ¾"	3′-10"	

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

BS SH 123 (AUSTIN ST) AT CEDAR ST

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

SHEET 1 OF 2

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

SINGLE MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

SMA-80(1)-12

DN: MS	CK: JSY	DW: MWF	CK: JSY

REVISIONS
5-96
11-99
1-12

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90
DIST	COUNTY		SHEET NO.
SAT	GUADALUPE		90

122A

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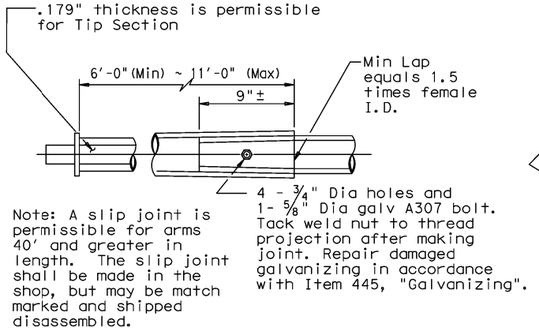
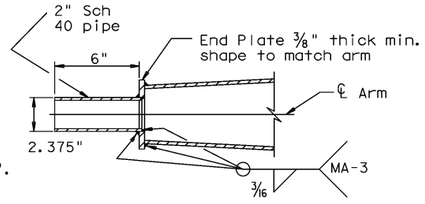


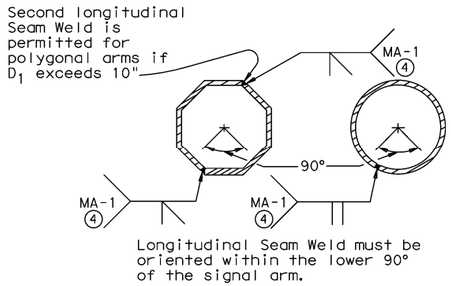
SLIP JOINT DETAIL



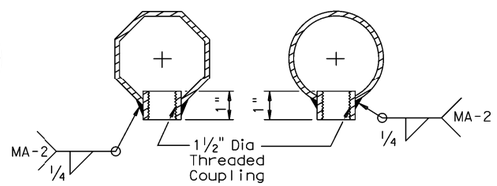
TENON DETAIL

Stainless steel bands (or Cables) and cast bracket as in "Astro-Brac", "Sky Bracket" or "Easy Bracket" with 1 ½" Dia Threaded Coupling.

BRACKET ASSEMBLY



ARM WELD DETAIL



ARM COUPLING DETAILS

④ 60% Min. penetration 100% pemetration within 6" of circumferential base welds.

VIBRATION WARNING

Mast Arms of SMA and DMA structures and clamp-on Arms of LMA structures of approximately 40 ft or longer are subject to harmonic vertical vibrations in light wind conditions due to the aeroelastic characteristics of a few of the myriads of possible combinations of the following: signal numbers, weights and positions; existence/solidity of backplates; presence of additional attachments to the arm, such as signs and cameras; arm-wind orientation; and arm-pole stiffness.

Such vibrations may cause fatigue damage to the structure and may lead to galloping in moderate wind conditions which may further damage the structure and alarm the public. Tests have indicated that when wind is blowing toward the back side of signal heads having un-vented backplates attached the probability of unacceptable harmonic vibration and/or galloping is rather high.

If backplates are not required for improved visibility they should not be applied to the signal heads or, if they must be applied, they should be vented as a first and inexpensive measure to mitigate vibrations.

The traffic signal mast arms shall be visually inspected in 5 to 20 mph wind conditions after installation of signal heads and any attachments, including any required backpates. If vertical movements with a total excursion (maximum upward excursion to maximum downward excursion) of more than approximately 8" are observed at the arm tip, a damping plate shall be fitted to the arm. See "Damping Plate Mounting Details" on standard sheet, MA-DPD-10.

This visual inspection shall be repeated after each modification of the structure that could affect its aeroelastic response. Excessive vibrations shall not be allowed to continue for more than two days.

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design Wind Speed equals 80 mph plus a 1.3 gust factor.

Poles are designed to support one 8'-0" luminaire arm, one 9'-0" internally lighted street name sign and one traffic signal arm with a length as tabulated. The specified luminaire load applied at the end of the luminaire arm equals 60 lbs vertical dead load plus the horizontal wind load on an effective projected area of 1.6 sq ft. The specified internally lighted street name sign load applied 4.5 ft from the centerline of the pole equals 85 lbs vertical dead load plus horizontal wind load on an effective projected area of 11.5 sq ft. The specified signal load applied at the end of the traffic signal arm equals 180 lbs vertical dead load plus the horizontal wind load on an effective projected area of 32.4 sq ft (actual area times drag coefficient).

See Standard Sheet "MA-D" for pole details, "MA-C" for traffic signal arm connection details, "MA-C (ILSN)" for internally lighted street name sign arm connection details, "LUM-A" for luminaire arm and connection details, "SNS" for internally lighted street name sign details, and "TS-FD" for anchor bolt and foundation details. See "MA-C" for material specifications.

Fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Materials, fabrication tolerances, and shipping practices shall meet the requirements of this sheet and Item 686, "Traffic Signal Pole Assemblies (Steel)".

Unless otherwise noted, all parts shall be galvanized in accordance with Item 445, "Galvanizing", after fabrication.

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

SINGLE MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

SMA-80(2)-12

DN: MS	CK: JSY	DW: MWF	CK: JSY

REVISIONS
5-96
1-12

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90
DIST	COUNTY		SHEET NO.
SAT	GUADALUPE		91

122B

DATE: 1/23/2023 2:15:26 PM
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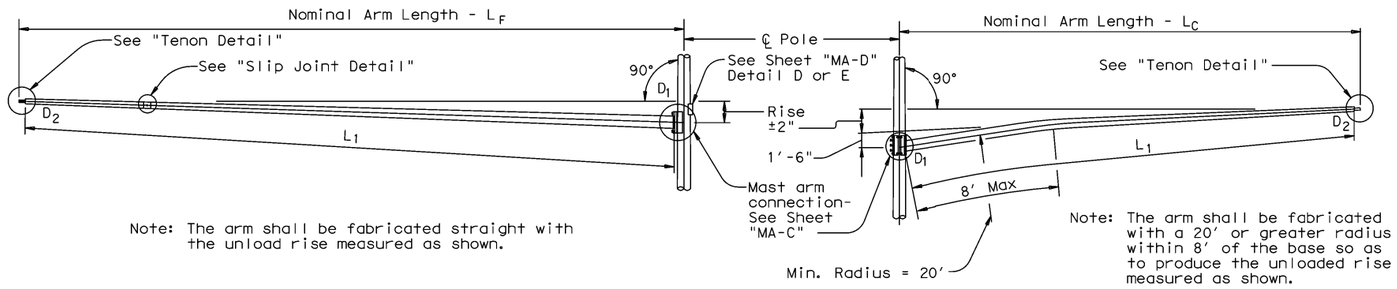
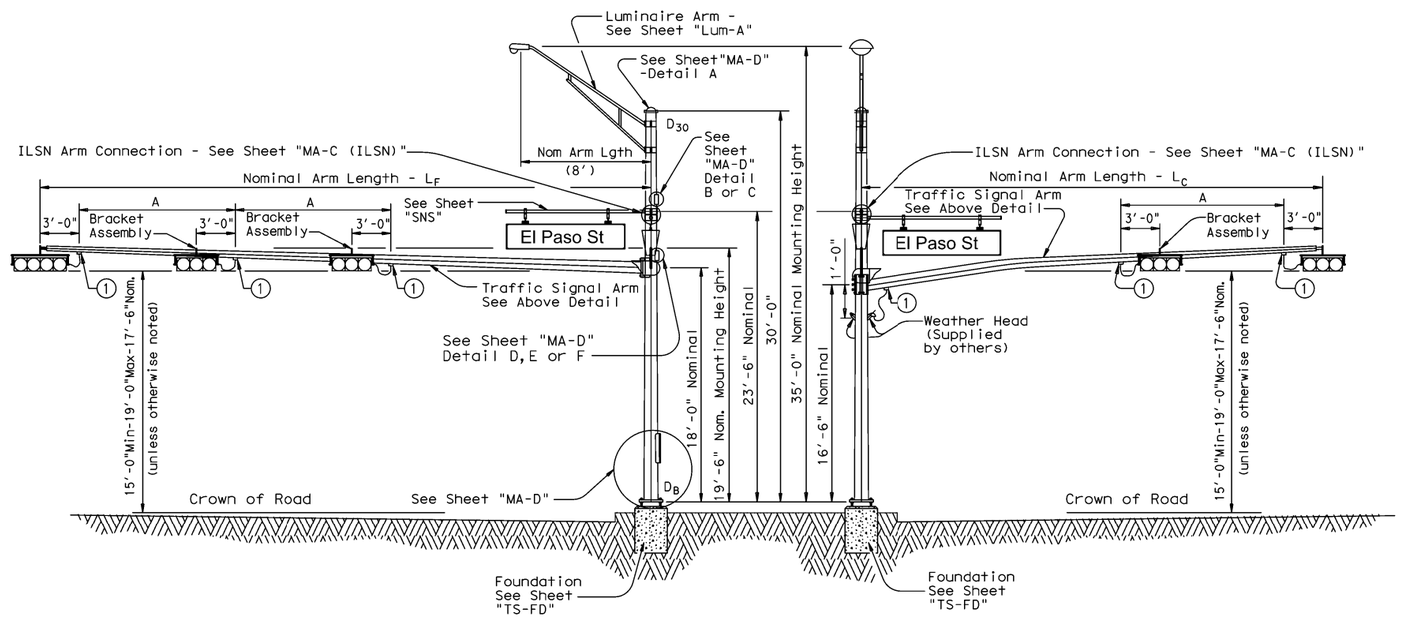


Note: The arm shall be fabricated straight with the unload rise measured as shown.

Note: The arm shall be fabricated with a 20' or greater radius within 8' of the base so as to produce the unloaded rise measured as shown.

FIXED MOUNT TRAFFIC SIGNAL ARM

CLAMP-ON TRAFFIC SIGNAL ARM



ELEVATION
(Showing fixed mount arm)

STRUCTURE ASSEMBLY
① Threaded Coupling for CGB Connector
See "ARM COUPLING DETAILS" Sheet 2 of 3

ELEVATION
(Showing clamp mount arm)

TABLE OF DIMENSIONS "A"						
Arm Length	24'	28'	32'	36'	40'	44'
Arm Type II	10'	11'	12'	13'		
Arm Type III			10'	11'	12'	12'

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals and Interim Specifications thereto. Design Wind Speed equals 80 mph plus a 1.3 gust factor. Designs are based on an arm included angle of 90 degrees or more. Angles of less than approximately 75 degrees will require a special design.

Poles are designed to support one 8'-0" luminaire arm, two 9'-0" internally lighted street name signs and two traffic signal arms with length combinations as tabulated. The specified luminaire load applied at the end of luminaire arm equals 60 lbs vertical dead load plus the horizontal wind load on an effective projected area of 1.6 sq ft. The specified internally lighted street name sign applied 4'-6" from the centerline of the pole equals 85 lbs vertical dead load plus the horizontal wind load on an effective projected area of 11.5 sq ft. The specified signal load applied at the end of the traffic signal arm equals 180 lbs vertical dead load plus the horizontal wind load on an effective projected area of 32.4 sq ft (actual area times drag coefficient).

See Standard Sheet "MA-D" for pole details, "MA-C" for traffic signal arm connection details, "MA-C (ILSN)" for internally lighted street name sign arm connection details, "LUM-A" for luminaire arm and connection details, "SNS" for internally lighted street name sign details, and "TS-FD" for anchor bolt and foundation details. See "MA-C" for material specifications.

Fabrication shall be in accordance with Item 686, "Traffic Signal Pole Assemblies (Steel)" and with the details, dimensions, and weld procedures shown herein. Weld references call for preapproved weld procedures which the Fabricator must obtain prior to fabrication. Materials, fabrication tolerances, and shipping practices shall meet the requirements of this sheet and Item 686, "Traffic Signal Pole Assemblies (Steel)".

Unless otherwise noted, all parts shall be galvanized in accordance with Item 445, "Galvanizing", after fabrication.

Deviation from the details and dimensions shown herein require submission of shop drawings in accordance with Item 441, "Steel Structures". Alternate designs are not acceptable.

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

DUAL MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

DMA-80 (1)-12

DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS	CONT	SECT	JOB	HIGHWAY
5-96 1-12	0029	02	058	US 90
	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		92

124A

DATE: 1/23/2023 2:15:29 PM
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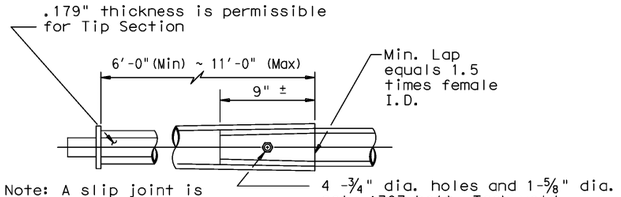
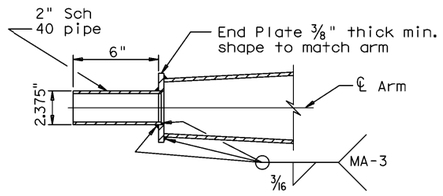


SLIP JOINT DETAIL



TENON DETAIL

Stainless steel bands (or Cables) and cast bracket as in "Astro-Brac", "Sky Bracket" or "Easy Bracket" with 1 ½" Dia Threaded Coupling.

BRACKET ASSEMBLY

VIBRATION WARNING

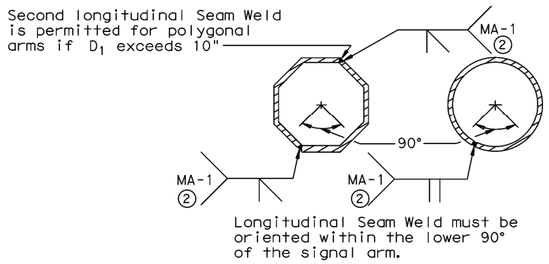
Mast Arms of SMA and DMA structures and clamp-on Arms of LMA structures of approximately 40 ft or longer are subject to harmonic vertical vibrations in light wind conditions due to the aeroelastic characteristics of a few of the myriads of possible combinations of the following: signal numbers, weights and positions; existence/solidity of backplates; presence of additional attachments to the arm, such as signs and cameras; arm-wind orientation; and arm-pole stiffness.

Such vibrations may cause fatigue damage to the structure and may lead to galloping in moderate wind conditions which may further damage the structure and alarm the public. Tests have indicated that when wind is blowing toward the back side of signal heads having un-vented backplates attached the probability of unacceptable harmonic vibration and/or galloping is rather high.

If backplates are not required for improved visibility they should not be applied to the signal heads or, if they must be applied, they should be vented as a first and inexpensive measure to mitigate vibrations.

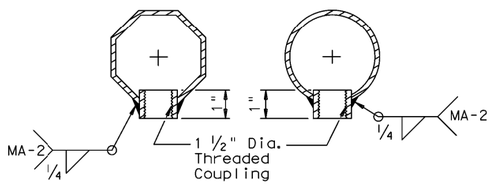
The traffic signal mast arms shall be visually inspected in 5 to 20 mph wind conditions after installation of signal heads and any attachments, including any required backpates. If vertical movements with a total excursion (maximum upward excursion to maximum downward excursion) of more than approximately 8" are observed at the arm tip, a damping plate shall be fitted to the arm. See "Damping Plate Mounting Details" on standard sheet, MA-DPD-10.

This visual inspection shall be repeated after each modification of the structure that could affect its aeroelastic response. Excessive vibrations shall not be allowed to continue for more than two days.



ARM WELD DETAIL

② 60% Min. penetration
100% pemetration within 6" of circumferential base welds.



ARM COUPLING DETAILS

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

DUAL MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

DMA-80 (2)-12

DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS
5-96
1-12

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90

DIST	COUNTY	SHEET NO.
SAT	GUADALUPE	93

124B

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SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length		30′ Poles With Luminaire		24′ Poles With ILSN		19′ Poles With no Luminaire and no ILSN	
		See note above plus: one (or two if ILSN attached) small hand hole, clamp-on simplex		See note above plus one small hand hole		See note above	
LF	Lc						
ft.	ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20	2020L-80		2020S-80		2020-80	
24	20	2420L-80		2420S-80		2420-80	
	24	2424L-80		2424S-80		2424-80	
28	20	2820L-80		2820S-80		2820-80	
	24	2824L-80		2824S-80		2824-80	
	28	2828L-80		2828S-80		2828-80	
32	20	3220L-80		3220S-80		3220-80	
	24	3224L-80		3224S-80		3224-80	
	28	3228L-80		3228S-80		3228-80	
	32	3232L-80		3232S-80		3232-80	
36	20	3620L-80		3620S-80		3620-80	
	24	3624L-80		3624S-80		3624-80	
	28	3628L-80		3628S-80		3628-80	
	32	3632L-80		3632S-80		3632-80	
	36	3636L-80		3636S-80		3636-80	
40	20	4020L-80		4020S-80		4020-80	
	24	4024L-80		4024S-80		4024-80	
	28	4028L-80		4028S-80		4028-80	
	32	4032L-80	1*	4032S-80		4032-80	
	36	4036L-80	1*	4036S-80		4036-80	
44	20	4420L-80		4420S-80		4420-80	
	24	4424L-80		4424S-80		4424-80	
	28	4428L-80		4428S-80		4428-80	
	32	4432L-80		4432S-80		4432-80	
	36	4436L-80		4436S-80		4436-80	

Traffic Signal Arms (Fixed Mount) (1 per pole) Ship each arm w/ the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	1 CGB connector		1 Bracket Assembly and 2 CGB Connectors		2 Bracket Assemblies and 3 CGB Connectors	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80			
32			32II-80		32III-80	
36			36II-80		36III-80	
40					40III-80	2*
44					44III-80	

Traffic Signal Arms (Clamp-On Mount) (1 per pole) Ship each arm w/ the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	2 CGB connector and 1 clamp w/bolts and washers		1 Bracket Assembly, 3 CGB Connectors, and 1 clamp w/bolts and washers		2 Bracket Assemblies, 4 CGB Connectors, and 1 clamp w/bolts and washers	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80			
32			32II-80		32III-80	1*
36			36II-80		36III-80	1*

Luminaire Arms (1 per 30′ pole)

Nominal Arm Length	Quantity
8′ Arm	2*

ILSN Arm (1 or 2 per pole) ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7′ Arm	
9′ Arm	2*

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 1/2"	3′-4"	
1 3/4"	3′-10"	2*
2"	4′-3"	

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

ARMS		ROUND POLES					POLYGONAL POLES					Foundation Type
LF	Lc	D_B	D_{19}	D_{24}	D_{30}	③ thk	D_B	D_{19}	D_{24}	D_{30}	③ thk	
ft.	ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	20	11.5	8.8	8.1	7.3	.179	12.5	9.5	8.7	7.8	.179	30-A
24	20	12.0	9.3	8.6	7.8	.179	13.0	10.0	9.2	8.3	.179	30-A
	24	12.0	9.3	8.6	7.8	.179	13.0	10.0	9.2	8.3	.239	30-A
28	20	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
	24	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
	28	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
32	20	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
	24	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
	28	12.0	9.3	8.6	7.8	.239	13.0	10.0	9.2	8.3	.239	30-A
	32	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
36	20	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
	24	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
	28	12.5	9.8	9.1	8.3	.239	13.5	10.5	9.7	8.8	.239	36-A
	32	12.5	9.8	9.1	8.3	.239	13.5	10.5	9.7	8.8	.239	36-A
	36	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
40	20	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
	24	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
	28	13.0	10.3	9.6	8.8	.239	14.0	11.0	10.2	9.3	.239	36-A
	32	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A
	36	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
44	20	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	24	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	28	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	32	14.0	11.3	10.6	9.8	.239	15.5	12.5	11.7	10.8	.239	36-B
	36	14.0	11.3	10.6	9.8	.239	15.5	12.5	11.7	10.8	.239	36-B

Arm L_F or L_C	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	③ thk	Rise	L_1	D_1	④ D_2	③ thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1′-9"	19.1	7.0	3.5	.179	1′-8"
24	23.1	7.5	4.3	.179	1′-10"	23.1	7.5	3.5	.179	1′-9"
28	27.1	8.0	4.2	.179	1′-11"	27.1	8.0	3.5	.179	1′-10"
32	31.0	9.0	4.7	.179	2′-1"	31.0	9.0	3.5	.179	2′-0"
36	35.0	9.5	4.6	.179	2′-4"	35.0	10.0	3.5	.179	2′-1"
40	39.0	9.5	4.1	.239	2′-8"	39.0	9.5	3.5	.239	2′-3"
44	43.0	10.0	4.1	.239	2′-11"	43.0	10.0	3.5	.239	2′-6"

D_B = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire

D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L_F = Fixed Arm Length
L_C = Clamp-on Arm Length (36′ Max)

③ Thickness shown are minimums, thicker materials may be used.

④ D_2 may be increased by up to 1.0" for polygonal arms.

THIS SEAL SUBSTANTIATES THE ITEMS IDENTIFIED WITH AN * ONLY AND DOES NOT CONFIRM THE DESIGN STANDARDS (BY OTHERS) PRESENTED HEREON.

STATE OF TEXAS
YOHANNES A. TADESSE
107781
PROFESSIONAL ENGINEER

1/19/2023

US 90A (COURT ST) AT TRAVIS ST

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

DUAL MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

DMA-80 (3)-12

DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS	CONT	SECT	JOB	HIGHWAY
5-96	0029	02	058	US 90
1-12	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		94

124C

DATE:
FILE:

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length		30′ Poles With Luminaire		24′ Poles With ILSN		19′ Poles With no Luminaire and no ILSN	
		See note above plus: one (or two if ILSN attached) small hand hole, clamp-on simplex		See note above plus one small hand hole		See note above	
LF	Lc						
ft.	ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20	2020L-80		2020S-80		2020-80	
24	20	2420L-80		2420S-80		2420-80	
	24	2424L-80		2424S-80		2424-80	
28	20	2820L-80		2820S-80		2820-80	
	24	2824L-80		2824S-80		2824-80	
	28	2828L-80		2828S-80		2828-80	
32	20	3220L-80		3220S-80		3220-80	
	24	3224L-80		3224S-80		3224-80	
	28	3228L-80		3228S-80		3228-80	
	32	3232L-80		3232S-80		3232-80	
36	20	3620L-80		3620S-80		3620-80	
	24	3624L-80		3624S-80		3624-80	
	28	3628L-80	1*	3628S-80		3628-80	
	32	3632L-80		3632S-80		3632-80	
	36	3636L-80		3636S-80		3636-80	
40	20	4020L-80		4020S-80		4020-80	
	24	4024L-80		4024S-80		4024-80	
	28	4028L-80		4028S-80		4028-80	
	32	4032L-80		4032S-80		4032-80	
	36	4036L-80	1*	4036S-80		4036-80	
44	20	4420L-80		4420S-80		4420-80	
	24	4424L-80		4424S-80		4424-80	
	28	4428L-80		4428S-80		4428-80	
	32	4432L-80		4432S-80		4432-80	
	36	4436L-80		4436S-80		4436-80	

Traffic Signal Arms (Fixed Mount) (1 per pole) Ship each arm w/ the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	1 CGB connector		1 Bracket Assembly and 2 CGB Connectors		2 Bracket Assemblies and 3 CGB Connectors	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80			
32			32II-80		32III-80	
36			36II-80	1*	36III-80	
40					40III-80	1*
44					44III-80	

Traffic Signal Arms (Clamp-On Mount) (1 per pole) Ship each arm w/ the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	2 CGB connector and 1 clamp w/bolts and washers		1 Bracket Assembly, 3 CGB Connectors, and 1 clamp w/bolts and washers		2 Bracket Assemblies, 4 CGB Connectors, and 1 clamp w/bolts and washers	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80	1*		
32			32II-80		32III-80	
36			36II-80		36III-80	

Luminaire Arms (1 per 30′ pole)

Nominal Arm Length	Quantity
8′ Arm	2*

ILSN Arm (1 or 2 per pole) ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7′ Arm	
9′ Arm	2*

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 1/2"	3′-4"	
1 3/4"	3′-10"	2*
2"	4′-3"	

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

ARMS		ROUND POLES					POLYGONAL POLES					Foundation Type
LF	Lc	D_B	D_{19}	D_{24}	D_{30}	③ thk	D_B	D_{19}	D_{24}	D_{30}	③ thk	
ft.	ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	20	11.5	8.8	8.1	7.3	.179	12.5	9.5	8.7	7.8	.179	30-A
24	20	12.0	9.3	8.6	7.8	.179	13.0	10.0	9.2	8.3	.179	30-A
	24	12.0	9.3	8.6	7.8	.179	13.0	10.0	9.2	8.3	.239	30-A
28	20	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
	24	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
	28	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
32	20	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
	24	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
	28	12.0	9.3	8.6	7.8	.239	13.0	10.0	9.2	8.3	.239	30-A
	32	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
36	20	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
	24	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
	28	12.5	9.8	9.1	8.3	.239	13.5	10.5	9.7	8.8	.239	36-A
	32	12.5	9.8	9.1	8.3	.239	13.5	10.5	9.7	8.8	.239	36-A
	36	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
40	20	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
	24	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
	28	13.0	10.3	9.6	8.8	.239	14.0	11.0	10.2	9.3	.239	36-A
	32	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A
	36	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
44	20	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	24	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	28	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	32	14.0	11.3	10.6	9.8	.239	15.5	12.5	11.7	10.8	.239	36-B
	36	14.0	11.3	10.6	9.8	.239	15.5	12.5	11.7	10.8	.239	36-B

Arm L_F or L_C	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	③ thk	Rise	L_1	D_1	④ D_2	③ thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1′-9"	19.1	7.0	3.5	.179	1′-8"
24	23.1	7.5	4.3	.179	1′-10"	23.1	7.5	3.5	.179	1′-9"
28	27.1	8.0	4.2	.179	1′-11"	27.1	8.0	3.5	.179	1′-10"
32	31.0	9.0	4.7	.179	2′-1"	31.0	9.0	3.5	.179	2′-0"
36	35.0	9.5	4.6	.179	2′-4"	35.0	10.0	3.5	.179	2′-1"
40	39.0	9.5	4.1	.239	2′-8"	39.0	9.5	3.5	.239	2′-3"
44	43.0	10.0	4.1	.239	2′-11"	43.0	10.0	3.5	.239	2′-6"

D_B = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire

D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L_F = Fixed Arm Length
L_C = Clamp-on Arm Length (36′ Max)

③ Thickness shown are minimums, thicker materials may be used.

④ D_2 may be increased by up to 1.0" for polygonal arms.

THIS SEAL SUBSTANTIATES THE ITEMS IDENTIFIED WITH AN * ONLY AND DOES NOT CONFIRM THE DESIGN STANDARDS (BY OTHERS) PRESENTED HEREON.

STATE OF TEXAS
YOHANNES A. TADESSE
107781
REGISTERED PROFESSIONAL ENGINEER

Yohannes Tadesse
1/19/2023

US 90A (COURT ST) AT CAMP ST

SHEET 3 OF 3

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

DUAL MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

DMA-80 (3)-12

DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS	CONT	SECT	JOB	HIGHWAY
5-96	0029	02	058	US 90
1-12	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		95

124C

DATE:
FILE:

SHIPPING PARTS LIST

Ship each pole with the following attached: enlarged hand hole, pole cap, fixed arm connection bolts and washers and any additional hardware listed in the table.

Nominal Arm Length		30′ Poles With Luminaire		24′ Poles With ILSN		19′ Poles With no Luminaire and no ILSN	
		See note above plus: one (or two if ILSN attached) small hand hole, clamp-on simplex		See note above plus one small hand hole		See note above	
LF	Lc						
ft.	ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20	2020L-80		2020S-80		2020-80	
24	20	2420L-80		2420S-80		2420-80	
	24	2424L-80		2424S-80		2424-80	
28	20	2820L-80		2820S-80		2820-80	
	24	2824L-80		2824S-80		2824-80	
	28	2828L-80	1*	2828S-80		2828-80	
32	20	3220L-80		3220S-80		3220-80	
	24	3224L-80		3224S-80		3224-80	
	28	3228L-80		3228S-80		3228-80	
	32	3232L-80	1*	3232S-80		3232-80	
36	20	3620L-80		3620S-80		3620-80	
	24	3624L-80		3624S-80		3624-80	
	28	3628L-80		3628S-80		3628-80	
	32	3632L-80		3632S-80		3632-80	
	36	3636L-80		3636S-80		3636-80	
40	20	4020L-80		4020S-80		4020-80	
	24	4024L-80		4024S-80		4024-80	
	28	4028L-80		4028S-80		4028-80	
	32	4032L-80		4032S-80		4032-80	
	36	4036L-80		4036S-80		4036-80	
44	20	4420L-80		4420S-80		4420-80	
	24	4424L-80		4424S-80		4424-80	
	28	4428L-80		4428S-80		4428-80	
	32	4432L-80		4432S-80		4432-80	
	36	4436L-80		4436S-80		4436-80	

Traffic Signal Arms (Fixed Mount) (1 per pole) Ship each arm w/ the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	1 CGB connector		1 Bracket Assembly and 2 CGB Connectors		2 Bracket Assemblies and 3 CGB Connectors	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80	1*		
32			32II-80		32III-80	1*
36			36II-80		36III-80	
40					40III-80	
44					44III-80	

Traffic Signal Arms (Clamp-On Mount) (1 per pole) Ship each arm w/ the listed equipment attached

Nominal Arm Length	Type I Arm (1 Signal)		Type II Arm (2 Signals)		Type III Arm (3 Signals)	
	2 CGB connector and 1 clamp w/bolts and washers		1 Bracket Assembly, 3 CGB Connectors, and 1 clamp w/bolts and washers		2 Bracket Assemblies, 4 CGB Connectors, and 1 clamp w/bolts and washers	
ft.	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80			
28	28I-80		28II-80	1*		
32			32II-80		32III-80	
36			36II-80		36III-80	

Luminaire Arms (1 per 30′ pole)

Nominal Arm Length	Quantity
8′ Arm	2*

ILSN Arm (1 or 2 per pole) ship with clamps, bolts and washers

Nominal Arm Length	Quantity
7′ Arm	
9′ Arm	2*

Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 1/2"	3′-4"	1*
1 3/4"	3′-10"	1*
2"	4′-3"	

Each anchor bolt assembly consists of the following: Top and Bottom templates, 4 anchor bolts, 8 nuts, 8 flat washers, and 4 nut anchor devices (Type 2) per Standard Drawing "TS-FD".

Templates may be removed for shipment.

ARMS		ROUND POLES					POLYGONAL POLES					Foundation Type
LF	Lc	D_B	D_{19}	D_{24}	D_{30}	③ thk	D_B	D_{19}	D_{24}	D_{30}	③ thk	
ft.	ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	20	11.5	8.8	8.1	7.3	.179	12.5	9.5	8.7	7.8	.179	30-A
24	20	12.0	9.3	8.6	7.8	.179	13.0	10.0	9.2	8.3	.179	30-A
	24	12.0	9.3	8.6	7.8	.179	13.0	10.0	9.2	8.3	.239	30-A
28	20	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
	24	12.5	9.8	9.1	8.3	.179	12.0	9.0	8.2	7.3	.239	30-A
	28	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
32	20	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
	24	13.0	10.3	9.6	8.8	.179	12.5	9.5	8.7	7.8	.239	30-A
	28	12.0	9.3	8.6	7.8	.239	13.0	10.0	9.2	8.3	.239	30-A
	32	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
36	20	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
	24	12.0	9.3	8.6	7.8	.239	13.5	10.5	9.7	8.8	.239	36-A
	28	12.5	9.8	9.1	8.3	.239	13.5	10.5	9.7	8.8	.239	36-A
	32	12.5	9.8	9.1	8.3	.239	13.5	10.5	9.7	8.8	.239	36-A
	36	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
40	20	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
	24	12.5	9.8	9.1	8.3	.239	14.0	11.0	10.2	9.3	.239	36-A
	28	13.0	10.3	9.6	8.8	.239	14.0	11.0	10.2	9.3	.239	36-A
	32	13.0	10.3	9.6	8.8	.239	15.0	12.0	11.2	10.3	.239	36-A
	36	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
44	20	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	24	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	28	13.5	10.8	10.1	9.3	.239	15.0	12.0	11.2	10.3	.239	36-A
	32	14.0	11.3	10.6	9.8	.239	15.5	12.5	11.7	10.8	.239	36-B
	36	14.0	11.3	10.6	9.8	.239	15.5	12.5	11.7	10.8	.239	36-B

Arm L_F or L_C	ROUND ARMS					POLYGONAL ARMS				
	L_1	D_1	D_2	③ thk	Rise	L_1	D_1	④ D_2	③ thk	Rise
ft.	ft.	in.	in.	in.		ft.	in.	in.	in.	
20	19.1	6.5	3.8	.179	1′-9"	19.1	7.0	3.5	.179	1′-8"
24	23.1	7.5	4.3	.179	1′-10"	23.1	7.5	3.5	.179	1′-9"
28	27.1	8.0	4.2	.179	1′-11"	27.1	8.0	3.5	.179	1′-10"
32	31.0	9.0	4.7	.179	2′-1"	31.0	9.0	3.5	.179	2′-0"
36	35.0	9.5	4.6	.179	2′-4"	35.0	10.0	3.5	.179	2′-1"
40	39.0	9.5	4.1	.239	2′-8"	39.0	9.5	3.5	.239	2′-3"
44	43.0	10.0	4.1	.239	2′-11"	43.0	10.0	3.5	.239	2′-6"

D_B = Pole Base O.D.
D_{19} = Pole Top O.D. with no Luminaire and no ILSN
D_{24} = Pole Top O.D. with ILSN w/out Luminaire
D_{30} = Pole Top O.D. with Luminaire

D_1 = Arm Base O.D.
D_2 = Arm End O.D.
L_1 = Shaft Length
L_F = Fixed Arm Length
L_C = Clamp-on Arm Length (36′ Max)

③ Thickness shown are minimums, thicker materials may be used.

④ D_2 may be increased by up to 1.0" for polygonal arms.

THIS SEAL SUBSTANTIATES THE ITEMS IDENTIFIED WITH AN * ONLY AND DOES NOT CONFIRM THE DESIGN STANDARDS (BY OTHERS) PRESENTED HEREON.

STATE OF TEXAS
YOHANNES A. TADESSE
107781
PROFESSIONAL ENGINEER

Yohannes Tadesse
1/19/2023

US 90A (COURT ST) AT RIVER ST

SHEET 3 OF 3

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL SUPPORT STRUCTURES

DUAL MAST ARM ASSEMBLY

(80 MPH WIND ZONE)

DMA-80 (3)-12

DN: MS	CK: JSY	DW: MMF	CK: JSY

REVISIONS
5-96
1-12

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90
DIST	COUNTY		SHEET NO.
SAT	GUADALUPE		96

124C

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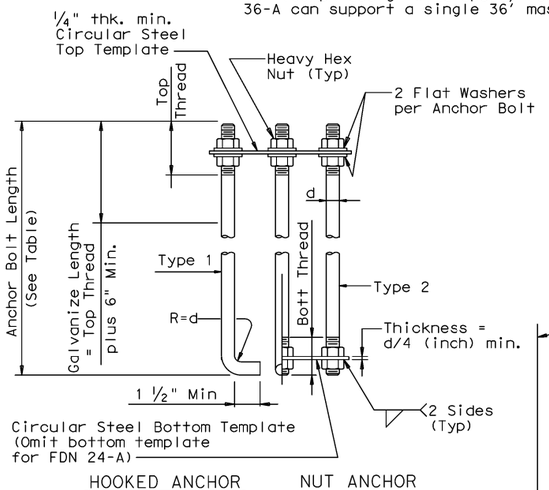
FOUNDATION DESIGN TABLE

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		EMBEDDED DRILLED SHAFT LENGTH-ft ④, ⑤, ⑥			ANCHOR BOLT DESIGN ①				FOUNDATION DESIGN LOAD ②		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
				10	15	40							
24-A	24"	4- #5	#2 at 12"	5.7	5.3	4.5	¾"	36	12 ¾"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8- #9	#3 at 6"	11.3	10.3	8.0	1 ½"	55	17"	2	87	3	Mast arm assembly. (see Selection Table)
36-A	36"	10- #9	#3 at 6"	13.2	12.0	9.4	1 ¾"	55	19"	2	131	5	Mast arm assembly. (see Selection Table) 30' strain pole with or without luminaire.
36-B	36"	12- #9	#3 at 6"	15.2	13.6	10.4	2"	55	21"	2	190	7	Mast arm assembly. (see Selection Table) Strain pole taller than 30' & strain pole with mast arm
42-A	42"	14- #9	#3 at 6"	17.4	15.6	11.9	2 ¼"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)

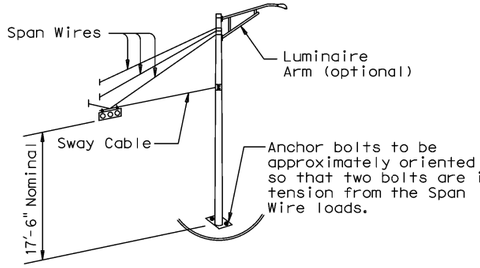
FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)

		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
80 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	32'	48'		
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 28'	32' X 32'		
			36' X 36'		
			40' X 36'		
			44' X 28'	44' X 36'	
100 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH		36'	44'	
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		24' X 24'		
			28' X 28'		
			32' X 24'	32' X 32'	
				36' X 36'	
				40' x24'	40' X 36'
					44' x 36'

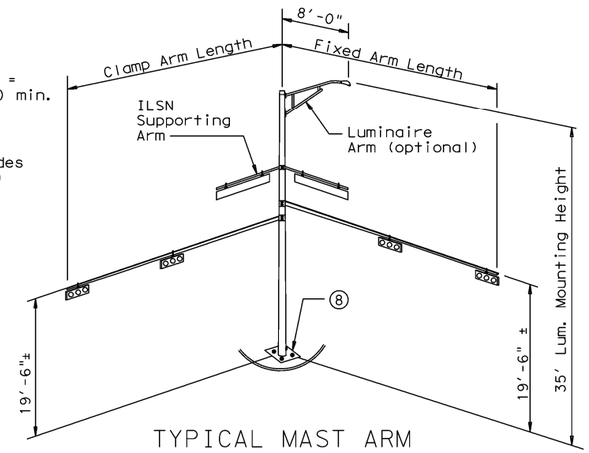
EXAMPLE:
1. For 80mph design wind speed, foundation 30-A can support up to a 32' arm with another arm up to 28'
2. For 100mph design wind speed, foundation 36-A can support a single 36' mast arm.



ANCHOR BOLT ASSEMBLY

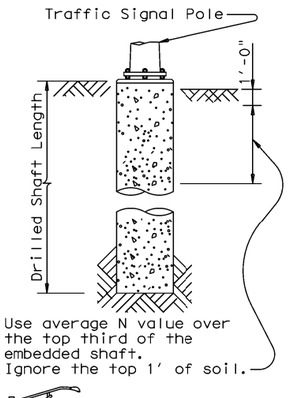


TYPICAL STRAIN POLE ASSEMBLY



TYPICAL MAST ARM ASSEMBLY

⑧ Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.



NOTES:

① Anchor bolt design develops the foundation capacity given under Foundation Design Loads.

② Foundation Design Loads are the allowable moments and shears at the base of the structure.

③ Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.

④ Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.

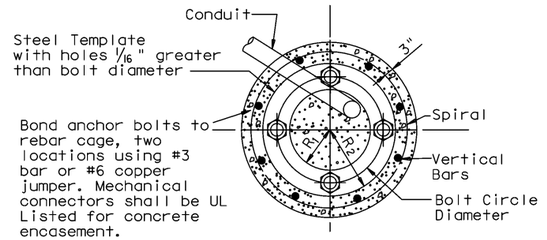
⑤ If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.

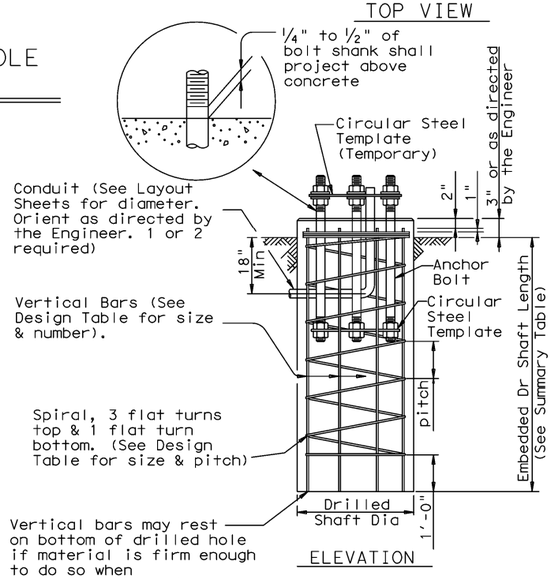
⑥ Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

ANCHOR BOLT & TEMPLATE SIZES

BOLT DIA IN.	⑦ BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R2	R1
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
1 ½"	3'-4"	6"	4"	17"	10"	7"
1 ¾"	3'-10"	7"	4 ½"	19"	11 ¼"	7 ¾"
2"	4'-3"	8"	5"	21"	12 ½"	8 ½"
2 ¼"	4'-9"	9"	5 ½"	23"	13 ¾"	9 ¼"

⑦ Min dimensions given, longer bolts are acceptable.





FOUNDATION DETAILS

FOUNDATION SUMMARY TABLE ③

LOCATION IDENTIFICATION	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH ⑥ (FEET)				
				24-A	30-A	36-A	36-B	42-A
US 90 (KINGSBURY ST) AT HEIDEKE ST								
POLE A	10	36-A	1			13.2		
POLE B	10	30-A	1		11.3			
POLE C	10	36-A	1			13.2		
POLE D	10	30-A	1		11.3			
TOTAL DRILLED SHAFT LENGTHS					22.6	26.4		

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.

Reinforcing steel shall conform to Item 440, "Reinforcing Steel".

Concrete shall be Class "C".

Threads for anchor bolts and nuts shall be rolled or cut threads of 8UN series up to 2" in diameter or UNC series for all sizes. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.

Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise noted. Exposed washers and exposed nuts shall be galvanized. All galvanizing shall be in accordance with Item 445, "Galvanizing".

Templates and embedded nuts need not be galvanized. Lubricate and tighten anchor bolts when erecting the structure in accordance with Item 449, "Anchor Bolts".

US 90 (KINGSBURY ST) AT HEIDEKE ST

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

DN: MS	CK: JSY	DW: MAO/MMF	CK: JSY/TEB

REVISIONS	CONT	SECT	JOB	HIGHWAY
5-96 11-98 1-12	0029	02	058	US 90
	DIST	COUNTY		SHEET NO.
11/14/2013	SAT	GUADALUPE		97

128

1/23/2023
...\SHEETS\96 TS-FD-12.DGN

FOUNDATION DESIGN TABLE

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		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
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			36' X 36'		
			40' X 36'		
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100 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH		36'	44'	
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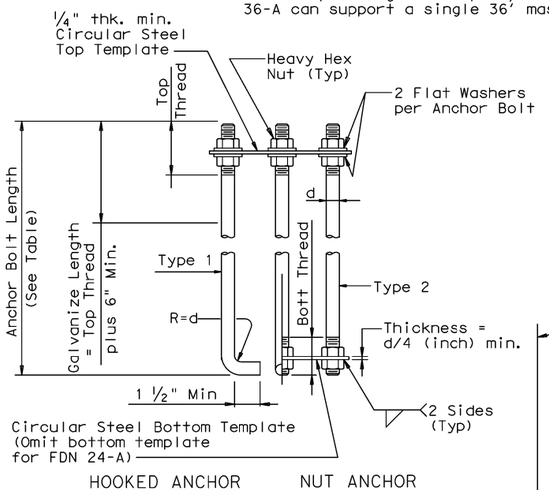
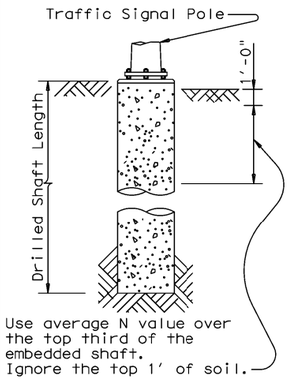
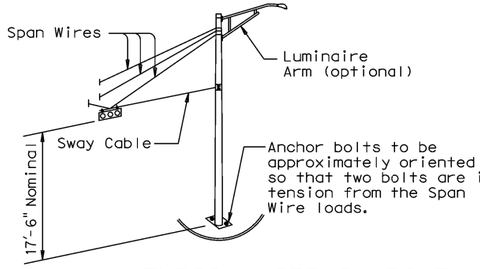


ANCHOR BOLT ASSEMBLY





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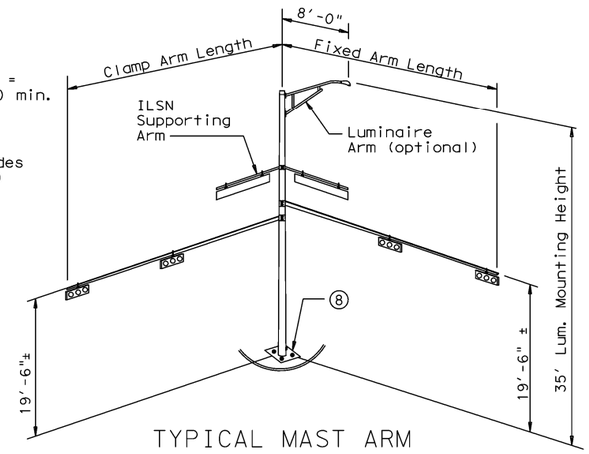

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⑧ Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.

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ANCHOR BOLT & TEMPLATE SIZES

BOLT DIA IN.	⑦ BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R2	R1
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
1 ½"	3'-4"	6"	4"	17"	10"	7"
1 ¾"	3'-10"	7"	4 ½"	19"	11 ¼"	7 ¾"
2"	4'-3"	8"	5"	21"	12 ½"	8 ½"
2 ¼"	4'-9"	9"	5 ½"	23"	13 ¾"	9 ¼"

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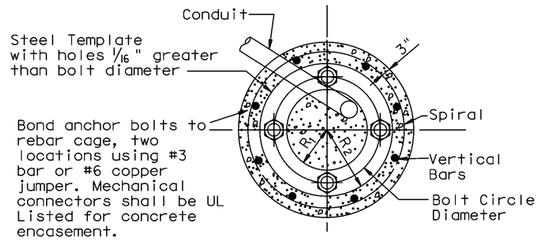

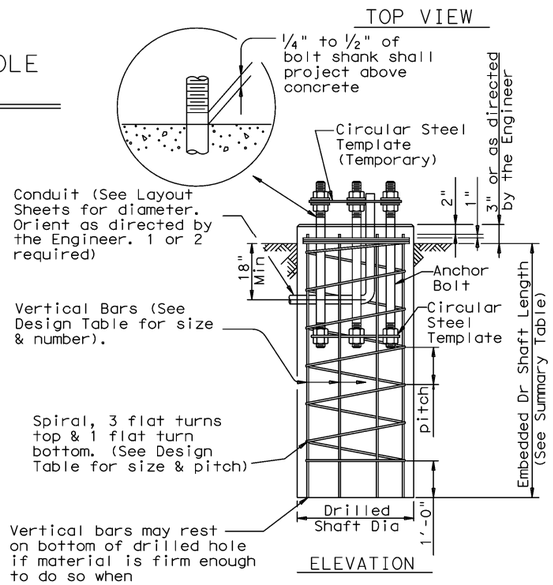

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SH 46 AT C. H. MATTHIES JR								
POLE A	10	30-A	1		11.3			
POLE B	10	36-A	1			13.2		
POLE C	10	36-A	1			13.2		
POLE D	10	36-A	1			13.2		
TOTAL DRILLED SHAFT LENGTHS					11.3	39.6		

GENERAL NOTES:

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Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

DN: MS	CK: JSY	DW: MAO/MMF	CK: JSY/TEB

REVISIONS: 5-96, 11-99, 1-12

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90
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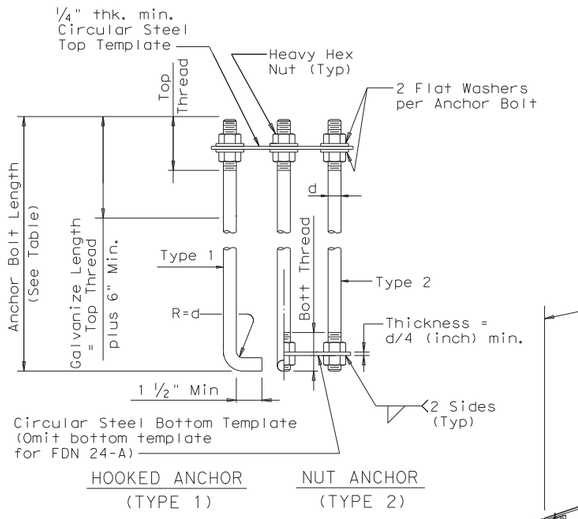

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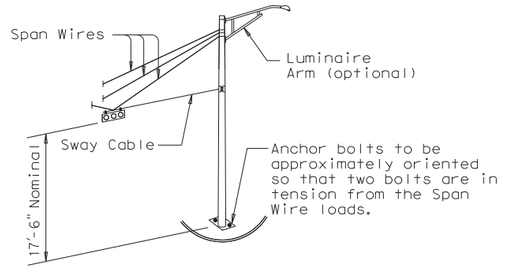

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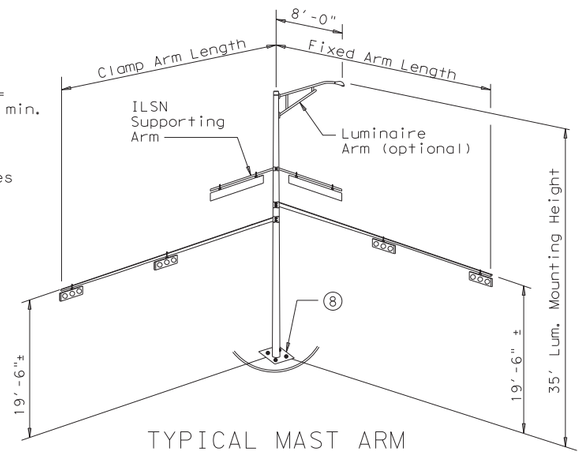

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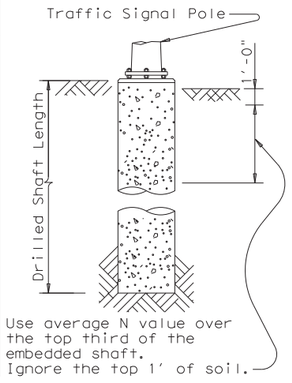

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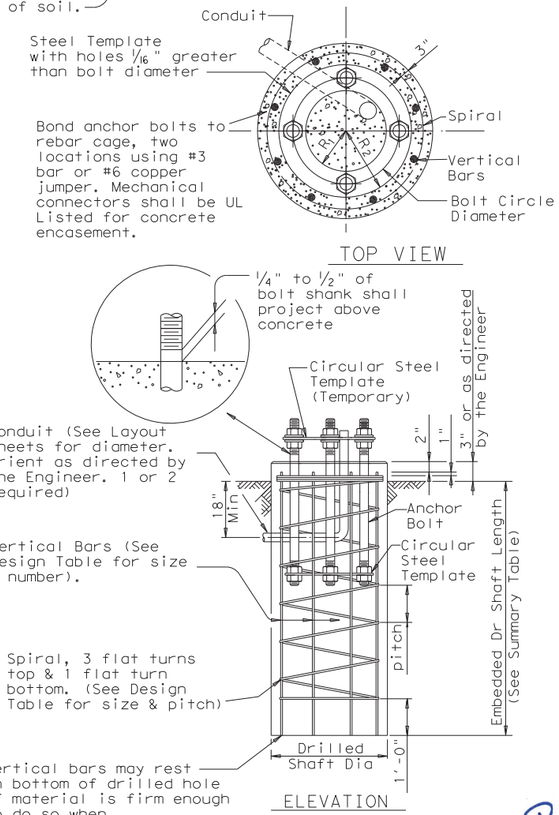

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PED POLE B	10	24-A	1	6				
POLE C	10	36-A	1			13.2		
PED POLE D	10	24-A	1	6				
PED POLE E	10	24-A	1	6				
PED POLE F	10	24-A	1	6				
PED POLE G	10	24-A	1	6				
PED POLE H	10	24-A	1	6				
TOTAL DRILLED SHAFT LENGTHS				36.0		26.4		

GENERAL NOTES:

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Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise noted. Exposed washers and exposed nuts shall be galvanized. All galvanizing shall be in accordance with Item 445, "Galvanizing".

Templates and embedded nuts need not be galvanized. Lubricate and tighten anchor bolts when erecting the structure in accordance with Item 449, "Anchor Bolts".

US 90A (COURT ST) AT TRAVIS ST

THIS SEAL SUBSTANTIATES THE ITEMS IDENTIFIED WITH AN ★ ONLY AND DOES NOT CONFIRM THE DESIGN STANDARDS (BY OTHERS) PRESENTED HEREON.

STATE OF TEXAS
YOHANNES A. TADESSE
107781
LICENSED PROFESSIONAL ENGINEER
1/19/2023

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

DN: MS	CK: JSY	DW: MAO/MMF	CK: JSY/TEB

REVISIONS
5-96
11-99
1-12

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90
DIST	COUNTY		SHEET NO.
SAT	GUADALUPE		99

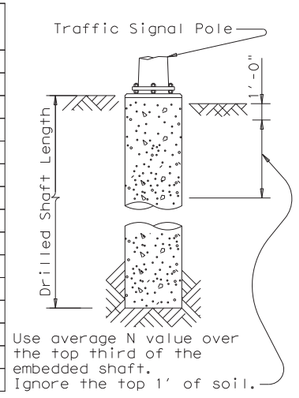
128

FOUNDATION DESIGN TABLE

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		EMBEDDED DRILLED SHAFT LENGTH-ft ④, ⑤, ⑥			ANCHOR BOLT DESIGN ①				FOUNDATION DESIGN LOAD ②		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
				10	15	40							
24-A	24"	4- #5	#2 at 12"	5.7	5.3	4.5	¾"	36	12 ¾"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8- #9	#3 at 6"	11.3	10.3	8.0	1 ½"	55	17"	2	87	3	Mast arm assembly. (see Selection Table)
36-A	36"	10- #9	#3 at 6"	13.2	12.0	9.4	1 ¾"	55	19"	2	131	5	Mast arm assembly. (see Selection Table) 30' strain pole with or without luminaire.
36-B	36"	12- #9	#3 at 6"	15.2	13.6	10.4	2"	55	21"	2	190	7	Mast arm assembly. (see Selection Table) Strain pole taller than 30' & strain pole with mast arm
42-A	42"	14- #9	#3 at 6"	17.4	15.6	11.9	2 ¼"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)

FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)

		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
80 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	32'	48'		
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 28'	32' X 32'		
			36' X 36'		
			40' X 36'		
			44' X 28'	44' X 36'	
100 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH		36'	44'	
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		24' X 24'		
			28' X 28'		
			32' X 24'	32' X 32'	
				36' X 36'	
				40' x24'	40' X 36'
					44' x 36'



NOTES:

① Anchor bolt design develops the foundation capacity given under Foundation Design Loads.

② Foundation Design Loads are the allowable moments and shears at the base of the structure.

③ Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.

④ Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.

⑤ If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.

⑥ Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

ANCHOR BOLT & TEMPLATE SIZES

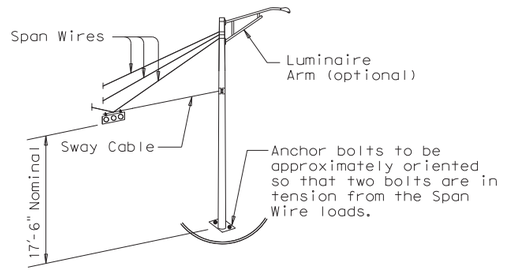
BOLT DIA IN.	⑦ BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R2	R1
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
1 ½"	3'-4"	6"	4"	17"	10"	7"
1 ¾"	3'-10"	7"	4 ½"	19"	11 ¼"	7 ¾"
2"	4'-3"	8"	5"	21"	12 ½"	8 ½"
2 ¼"	4'-9"	9"	5 ½"	23"	13 ¾"	9 ¼"

⑦ Min dimensions given, longer bolts are acceptable.

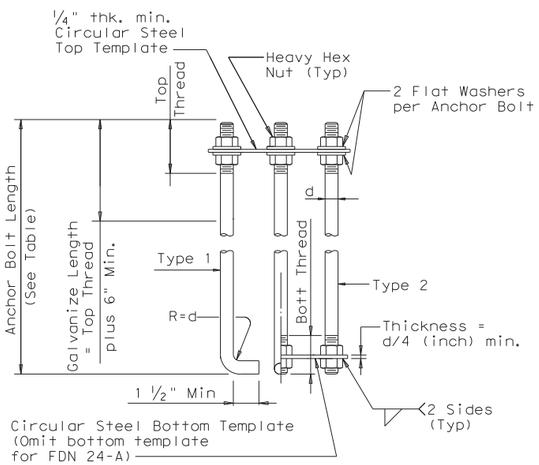
FOUNDATION SUMMARY TABLE ③

LOCATION IDENTIFICATION	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH ⑥ (FEET)				
				24-A	30-A	36-A	36-B	42-A
POLE A	10	36-A	1			13.2		
POLE B	10	36-A	1			13.2		
PED POLE C	10	24-A	1	6				
PED POLE D	10	24-A	1	6				
PED POLE E	10	24-A	1	6				
PED POLE F	10	24-A	1	6				
PED POLE G	10	24-A	1	6				
PED POLE H	10	24-A	1	6				
TOTAL DRILLED SHAFT LENGTHS				36.0		26.4		

EXAMPLE:
1. For 80mph design wind speed, foundation 30-A can support up to a 32' arm with another arm up to 28'
2. For 100mph design wind speed, foundation 36-A can support a single 36' mast arm.

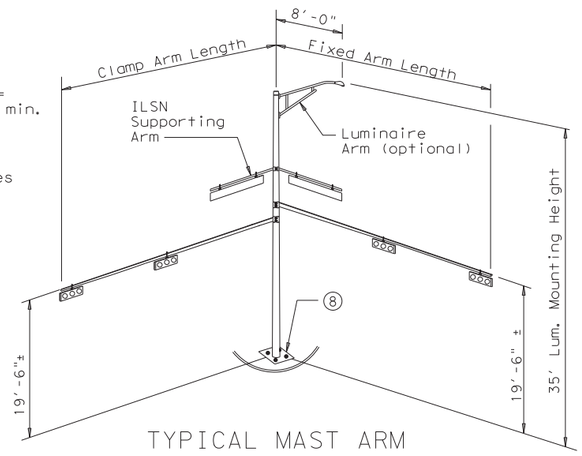


TYPICAL STRAIN POLE ASSEMBLY



ANCHOR BOLT ASSEMBLY

⑧ Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.



TYPICAL MAST ARM ASSEMBLY

TOP VIEW

ELEVATION

FOUNDATION DETAILS

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.

Reinforcing steel shall conform to Item 440, "Reinforcing Steel".

Concrete shall be Class "C".

Threads for anchor bolts and nuts shall be rolled or cut threads of 8UN series up to 2" in diameter or UNC series for all sizes. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.

Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise noted. Exposed washers and exposed nuts shall be galvanized. All galvanizing shall be in accordance with Item 445, "Galvanizing".

Templates and embedded nuts need not be galvanized. Lubricate and tighten anchor bolts when erecting the structure in accordance with Item 449, "Anchor Bolts".

US 90A (COURT ST) AT CAMP ST

THIS SEAL SUBSTANTIATES THE ITEMS IDENTIFIED WITH AN * ONLY AND DOES NOT CONFIRM THE DESIGN STANDARDS (BY OTHERS) PRESENTED HEREON.

STATE OF TEXAS
YOHANNES A. TADESSE
107781
PROFESSIONAL ENGINEER
1/19/2023

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

DN: MS	CK: JSY	DW: MAO/MMF	CK: JSY/TEB

REVISIONS: 5-96, 11-99, 1-12

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90
DIST	COUNTY		SHEET NO.
SAT	GUADALUPE		100

DATE:
FILE:

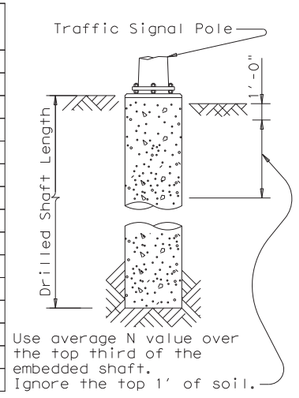
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

FOUNDATION DESIGN TABLE

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		EMBEDDED DRILLED SHAFT LENGTH-ft ④, ⑤, ⑥			ANCHOR BOLT DESIGN ①				FOUNDATION DESIGN LOAD ②		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
				10	15	40							
24-A	24"	4- #5	#2 at 12"	5.7	5.3	4.5	¾"	36	12 ¾"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8- #9	#3 at 6"	11.3	10.3	8.0	1 ½"	55	17"	2	87	3	Mast arm assembly. (see Selection Table)
36-A	36"	10- #9	#3 at 6"	13.2	12.0	9.4	1 ¾"	55	19"	2	131	5	Mast arm assembly. (see Selection Table) 30' strain pole with or without luminaire.
36-B	36"	12- #9	#3 at 6"	15.2	13.6	10.4	2"	55	21"	2	190	7	Mast arm assembly. (see Selection Table) Strain pole taller than 30' & strain pole with mast arm
42-A	42"	14- #9	#3 at 6"	17.4	15.6	11.9	2 ¼"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)

FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)

		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
80 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	32'	48'		
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 28'	32' X 32'		
			36' X 36'		
			40' X 36'		
			44' X 28'	44' X 36'	
100 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH		36'	44'	
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		24' X 24'		
			28' X 28'		
			32' X 24'	32' X 32'	
				36' X 36'	
				40' x24'	40' X 36'
					44' x 36'



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FOUNDATION SUMMARY TABLE ③

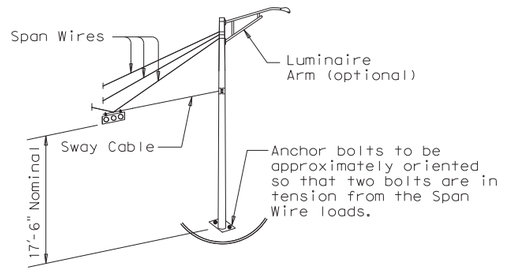
LOCATION IDENTIFICATION	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH ⑥ (FEET)				
				24-A	30-A	36-A	36-B	42-A
POLE A	10	36-A	1			13.2		
POLE B	10	36-A	1			13.2		
PED POLE C	10	24-A	1	6				
PED POLE D	10	24-A	1	6				
PED POLE E	10	24-A	1	6				
PED POLE F	10	24-A	1	6				
PED POLE G	10	24-A	1	6				
PED POLE H	10	24-A	1	6				
TOTAL DRILLED SHAFT LENGTHS				36.0		26.4		

ANCHOR BOLT & TEMPLATE SIZES

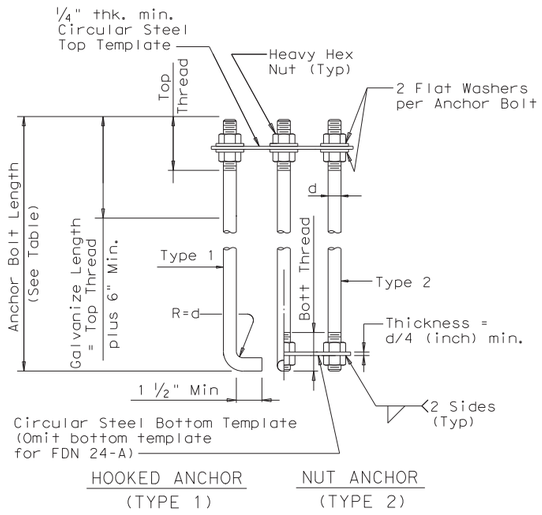
BOLT DIA IN.	⑦ BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R2	R1
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
1 ½"	3'-4"	6"	4"	17"	10"	7"
1 ¾"	3'-10"	7"	4 ½"	19"	11 ¼"	7 ¾"
2"	4'-3"	8"	5"	21"	12 ½"	8 ½"
2 ¼"	4'-9"	9"	5 ½"	23"	13 ¾"	9 ¼"

⑦ Min dimensions given, longer bolts are acceptable.

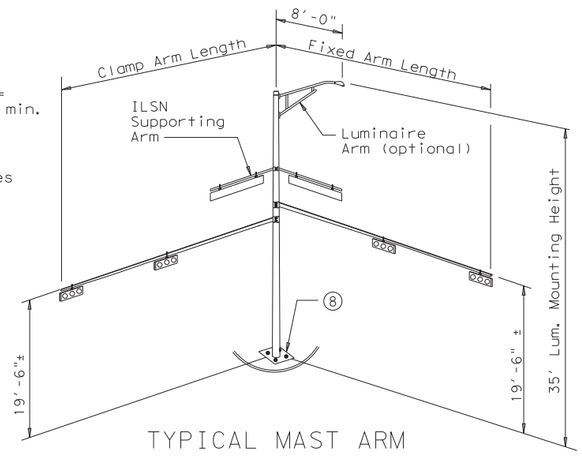
EXAMPLE:
1. For 80mph design wind speed, foundation 30-A can support up to a 32' arm with another arm up to 28'
2. For 100mph design wind speed, foundation 36-A can support a single 36' mast arm.



TYPICAL STRAIN POLE ASSEMBLY

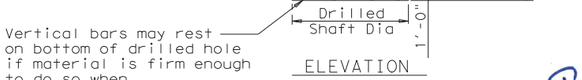


ANCHOR BOLT ASSEMBLY



TYPICAL MAST ARM ASSEMBLY

⑧ Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.



TOP VIEW

ELEVATION

FOUNDATION DETAILS

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.

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US 90A (COURT ST) AT RIVER ST

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STATE OF TEXAS
YOHANNES A. TADESSE
107781
FOR REGISTERED PROFESSIONAL ENGINEER
1/19/2023

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

DN: MS	CK: JSY	DW: MAO/MMF	CK: JSY/TEB

REVISIONS: 5-96, 11-99, 1-12

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90
DIST	COUNTY		SHEET NO.
SAT	GUADALUPE		101

128

DATE:
FILE:

FOUNDATION DESIGN TABLE

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		EMBEDDED DRILLED SHAFT LENGTH-ft ④, ⑤, ⑥			ANCHOR BOLT DESIGN ①				FOUNDATION DESIGN LOAD ②		TYPICAL APPLICATION
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FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)

		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
80 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	32'	48'		
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 28'	32' X 32'		
			36' X 36'		
			40' X 36'		
			44' X 28'	44' X 36'	
100 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH		36'	44'	
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		24' X 24'		
			28' X 28'		
			32' X 24'	32' X 32'	
				36' X 36'	
				40' x24'	40' X 36'
					44' x 36'

EXAMPLE:
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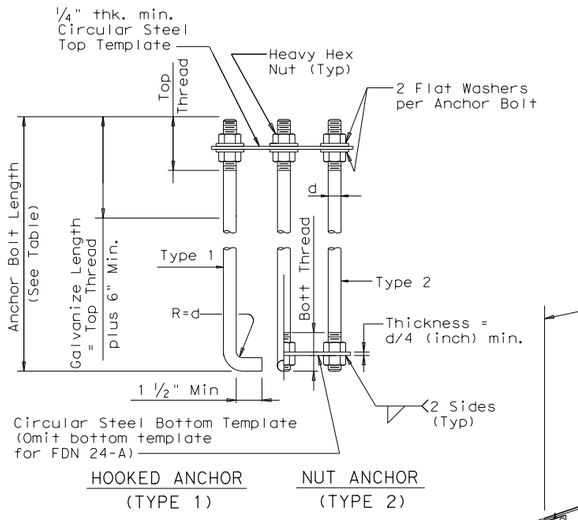
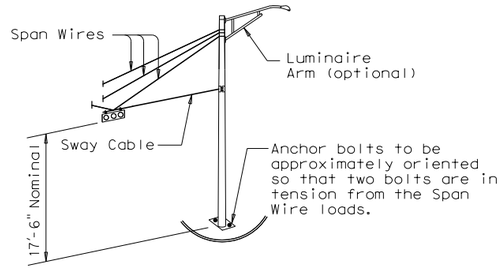
2. For 100mph design wind speed, foundation 36-A can support a single 36' mast arm.

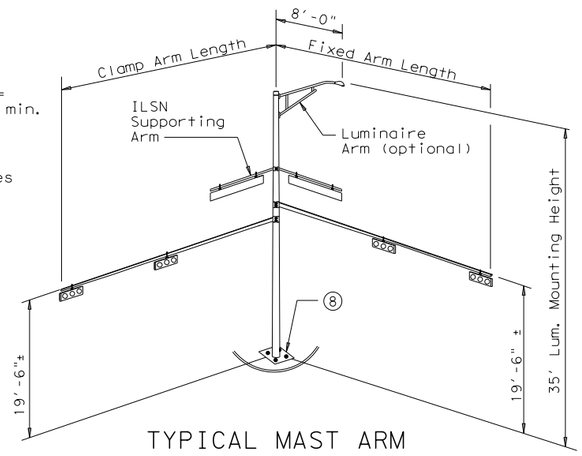


ANCHOR BOLT ASSEMBLY

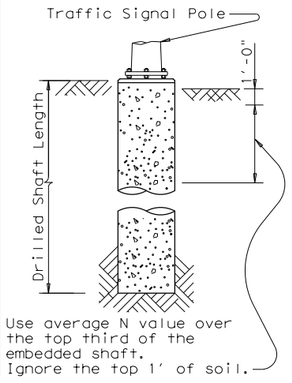
⑧ Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.



TYPICAL STRAIN POLE ASSEMBLY



TYPICAL MAST ARM ASSEMBLY



NOTES:

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⑥ Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

ANCHOR BOLT & TEMPLATE SIZES

BOLT DIA IN.	⑦ BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R2	R1
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
1 ½"	3'-4"	6"	4"	17"	10"	7"
1 ¾"	3'-10"	7"	4 ½"	19"	11 ¼"	7 ¾"
2"	4'-3"	8"	5"	21"	12 ½"	8 ½"
2 ¼"	4'-9"	9"	5 ½"	23"	13 ¾"	9 ¼"

⑦ Min dimensions given, longer bolts are acceptable.

FOUNDATION DETAILS

FOUNDATION SUMMARY TABLE ③

LOCATION IDENTIFICATION	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH ⑥ (FEET)				
				24-A	30-A	36-A	36-B	42-A
PED POLE E	10	24-A	1	6				
PED POLE F	10	24-A	1	6				
PED POLE G	10	24-A	1	6				
PED POLE H	10	24-A	1	6				
PED POLE I	10	24-A	1	6				
TOTAL DRILLED SHAFT LENGTHS				30.0				

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.

Reinforcing steel shall conform to Item 440, "Reinforcing Steel".

Concrete shall be Class "C".

Threads for anchor bolts and nuts shall be rolled or cut threads of 8UN series up to 2" in diameter or UNC series for all sizes. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.

Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise noted. Exposed washers and exposed nuts shall be galvanized. All galvanizing shall be in accordance with Item 445, "Galvanizing".

Templates and embedded nuts need not be galvanized. Lubricate and tighten anchor bolts when erecting the structure in accordance with Item 449, "Anchor Bolts".

US 90A (COURT ST) AT SAN MARCOS ST

THIS SEAL SUBSTANTIATES THE ITEMS IDENTIFIED WITH AN ★ ONLY AND DOES NOT CONFIRM THE DESIGN STANDARDS (BY OTHERS) PRESENTED HEREON.

STATE OF TEXAS
YOHANNES A. TADESSE
107781
PROFESSIONAL ENGINEER
1/19/2023

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

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REVISIONS: 5-96, 11-99, 1-12

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90

DIST	COUNTY	SHEET NO.
SAT	GUADALUPE	102

DATE:
FILE:

FOUNDATION DESIGN TABLE

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		EMBEDDED DRILLED SHAFT LENGTH-ft ④, ⑤, ⑥			ANCHOR BOLT DESIGN ①				FOUNDATION DESIGN LOAD ②		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
				10	15	40							
24-A	24"	4- #5	#2 at 12"	5.7	5.3	4.5	¾"	36	12 ¾"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8- #9	#3 at 6"	11.3	10.3	8.0	1 ½"	55	17"	2	87	3	Mast arm assembly. (see Selection Table)
36-A	36"	10- #9	#3 at 6"	13.2	12.0	9.4	1 ¾"	55	19"	2	131	5	Mast arm assembly. (see Selection Table) 30' strain pole with or without luminaire.
36-B	36"	12- #9	#3 at 6"	15.2	13.6	10.4	2"	55	21"	2	190	7	Mast arm assembly. (see Selection Table) Strain pole taller than 30' & strain pole with mast arm
42-A	42"	14- #9	#3 at 6"	17.4	15.6	11.9	2 ¼"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)

NOTES:

① Anchor bolt design develops the foundation capacity given under Foundation Design Loads.

② Foundation Design Loads are the allowable moments and shears at the base of the structure.

③ Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.

④ Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.

⑤ If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.

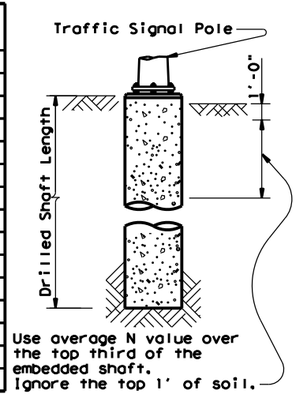
⑥ Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

FOUNDATION SUMMARY TABLE ③

LOCATION IDENTIFICATION	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH ⑥ (FEET)				
				24-A	30-A	36-A	36-B	42-A
US 90 (KINGSBURY ST) AT BS SH 123 (AUSTIN ST)								
POLE A		DS			11.3			
POLE B		DS			11.3			
POLE C		DS			11.3			
POLE D		DS			11.3			
POLE E		DS		6				
POLE F		DS		6				
TOTAL DRILLED SHAFT LENGTHS				12	45.2			

FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)

		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
80 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	32'	48'		
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 28'	32' X 32'		
			36' X 36'		
			40' X 36'		
			44' X 28'	44' X 36'	
100 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH		36'	44'	
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		24' X 24'		
			28' X 28'		
			32' X 24'	32' X 32'	
				36' X 36'	
				40' x24'	40' X 36'
					44' x 36'



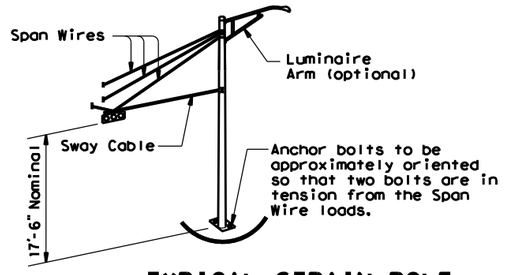
Use average N value over the top third of the embedded shaft. Ignore the top 1' of soil.

ANCHOR BOLT & TEMPLATE SIZES

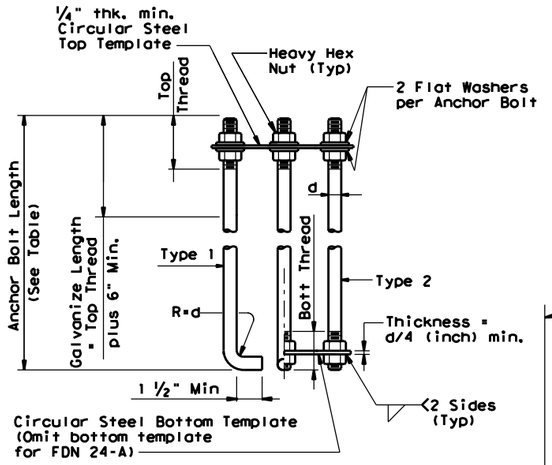
BOLT DIA IN.	⑦ BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R2	R1
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
1 ½"	3'-4"	6"	4"	17"	10"	7"
1 ¾"	3'-10"	7"	4 ½"	19"	11 ¼"	7 ¾"
2"	4'-3"	8"	5"	21"	12 ½"	8 ½"
2 ¼"	4'-9"	9"	5 ½"	23"	13 ¾"	9 ¼"

⑦ Min dimensions given, longer bolts are acceptable.

EXAMPLE:
1. For 80mph design wind speed, foundation 30-A can support up to a 32' arm with another arm up to 28'
2. For 100mph design wind speed, foundation 36-A can support a single 36' mast arm.

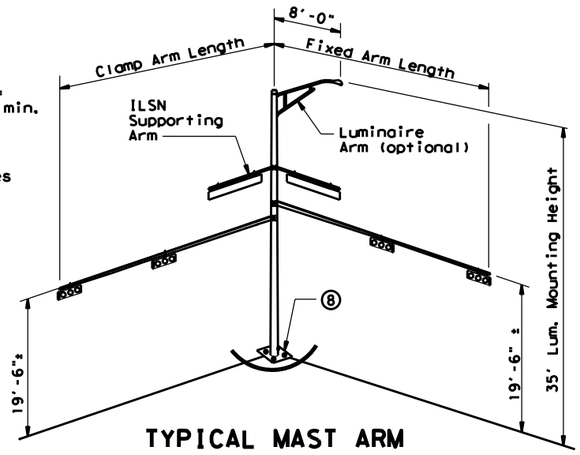


TYPICAL STRAIN POLE ASSEMBLY



HOOKED ANCHOR (TYPE 1) NUT ANCHOR (TYPE 2)

ANCHOR BOLT ASSEMBLY



TYPICAL MAST ARM ASSEMBLY

⑧ Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.

FOUNDATION DETAILS

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.

Reinforcing steel shall conform to Item 440, "Reinforcing Steel".

Concrete shall be Class "C".

Threads for anchor bolts and nuts shall be rolled or cut threads of 8UN series up to 2" in diameter or UNC series for all sizes. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.

Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise noted. Exposed washers and exposed nuts shall be galvanized. All galvanizing shall be in accordance with Item 445, "Galvanizing".

Templates and embedded nuts need not be galvanized. Lubricate and tighten anchor bolts when erecting the structure in accordance with Item 449, "Anchor Bolts".

STATE OF TEXAS
GUILLERMO A. DOUGHERTY, JR.
93649
LICENSED PROFESSIONAL ENGINEER

1-20-2023

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

REVISIONS
5-95
1-98
1-12

DN: MS	CK: JSY	DW: MAO/MMF	CK: JSY/TEB

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90

DIST	COUNTY	SHEET NO.
SAT	GUADALUPE	103

DATE: 1/26/2023 12:09:45 PM
FILE: ...\Standards\ts-fd.dgn

FOUNDATION DESIGN TABLE

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		EMBEDDED DRILLED SHAFT LENGTH-ft ④, ⑤, ⑥			ANCHOR BOLT DESIGN ①				FOUNDATION DESIGN LOAD ②		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
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FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)

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		28' X 28'			
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			36' X 36'		
			40' X 36'		
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	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		24' X 24'		
			28' X 28'		
			32' X 24'	32' X 32'	
				36' X 36'	
				40' x24'	40' X 36'
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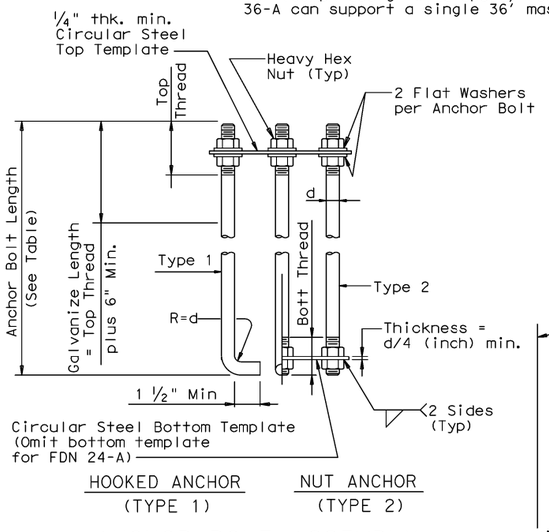
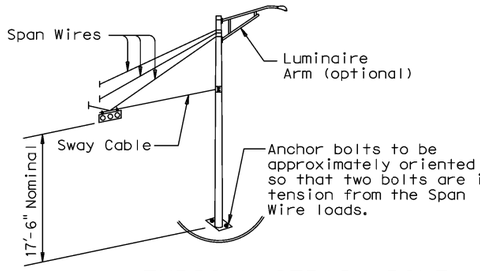


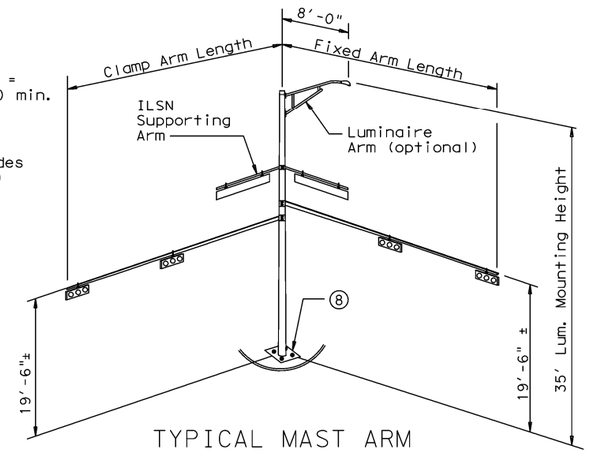
HOOKED ANCHOR (TYPE 1) NUT ANCHOR (TYPE 2)

ANCHOR BOLT ASSEMBLY

⑧ Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.



TYPICAL STRAIN POLE ASSEMBLY



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ANCHOR BOLT & TEMPLATE SIZES

BOLT DIA IN.	⑦ BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R2	R1
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
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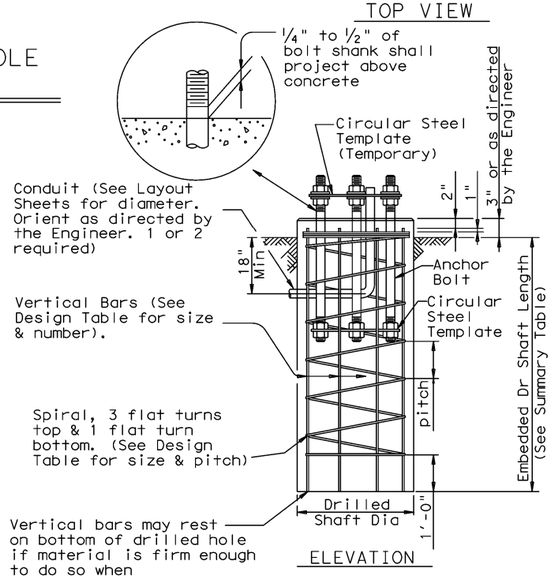

FOUNDATION DETAILS

FOUNDATION SUMMARY TABLE ③

LOCATION IDENTIFICATION	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH ⑥ (FEET)				
				24-A	30-A	36-A	36-B	42-A
BS 123 AUSTIN ST AT CEDAR ST								
POLE A	10	30-A	1		11.3			
POLE B	10	30-A	1		11.3			
POLE C	10	30-A	1		11.3			
POLE D	10	30-A	1		11.3			
TOTAL DRILLED SHAFT LENGTHS					45.2			

GENERAL NOTES:

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.

Reinforcing steel shall conform to Item 440, "Reinforcing Steel".

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Templates and embedded nuts need not be galvanized. Lubricate and tighten anchor bolts when erecting the structure in accordance with Item 449, "Anchor Bolts".

BS SH 123 (AUSTIN ST) AT CEDAR ST

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

DN: MS	CK: JSY	DW: MAO/MMF	CK: JSY/TEB

REVISIONS: 5-96, 11-98, 1-12

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90
DIST	COUNTY		SHEET NO.
SAT	GUADALUPE		104

11/14/2013

128

1/23/2023
...\SHEETS\102-TS-FD-12.DGN

MOUNTING LOCATIONS

PRESENCE (RPDD)

① PREFERRED PLACEMENT FOR MAST ARMS, STRAIN POLES AND TIMBER POLES. ON MAST ARM POLES, MOUNT BELOW CONNECTION OF MAST ARM TO A MINIMUM OF 15 FT., MOUNT AS HIGH AS POSSIBLE TO A MAXIMUM OF 30 FT ON STRAIN AND TIMBER POLES.

② PREFERRED PLACEMENT FOR MAST ARMS. MOUNT ON AND BELOW MAST ARM ON NEAR SIDE OF ARM.

③ ALTERNATE PLACEMENT LOCATION. MOUNT AS HIGH AS POSSIBLE TO A MAXIMUM OF 30 FT TO PREVENT OCCLUSION OF THE LEFT TURN LANES. THIS PLACEMENT TO BE USED ONLY IF RPDD CANNOT BE MOUNTED IN THE PREFERRED PLACEMENT LOCATIONS.

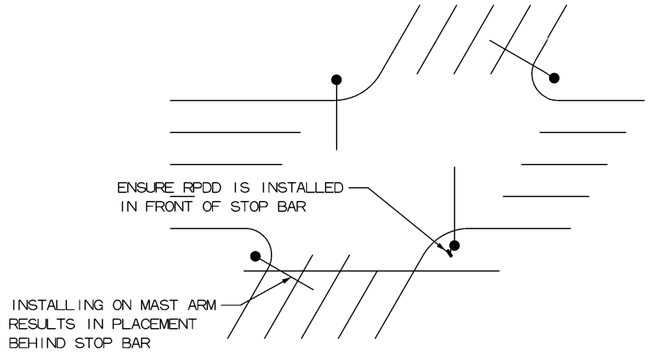
ADVANCE (RADD)

Ⓐ PREFERRED PLACEMENT FOR MAST ARMS. ALIGN RADD WITH CENTER OF TRAVEL LANES.

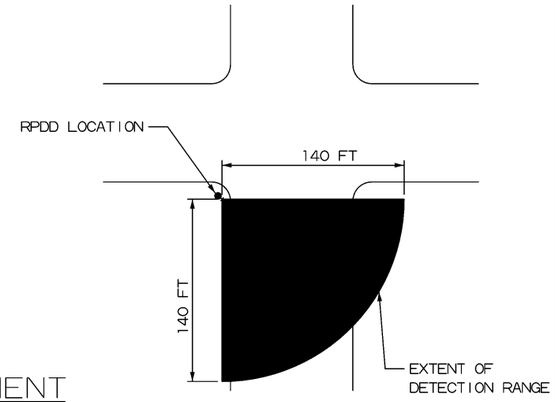
Ⓑ ALTERNATE PLACEMENT FOR MAST ARMS. MOUNT ON BACK SIDE OF OPPOSING MAST ARM.

Ⓒ STRAIN OR TIMBER POLE PLACEMENT. MOUNT ON NEAR SIDE POLE.

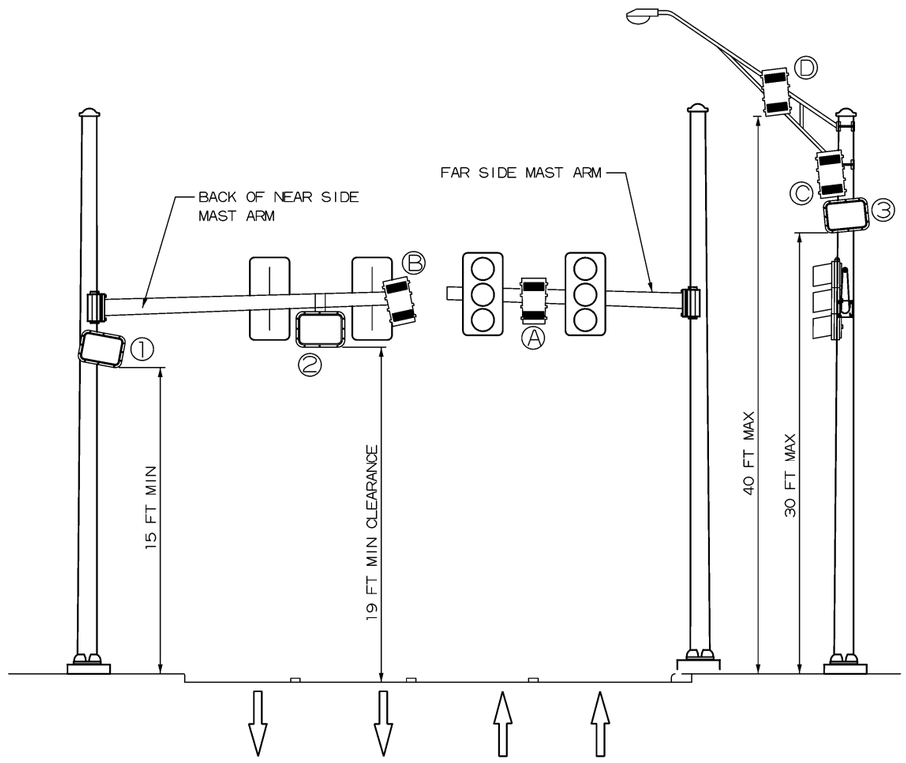
Ⓓ ALTERNATE STRAIN OR TIMBER POLE PLACEMENT. MOUNT LUMINAIRE ARM ON NEAR SIDE POLE WITH A MAXIMUM 40 FT MOUNTING HEIGHT.



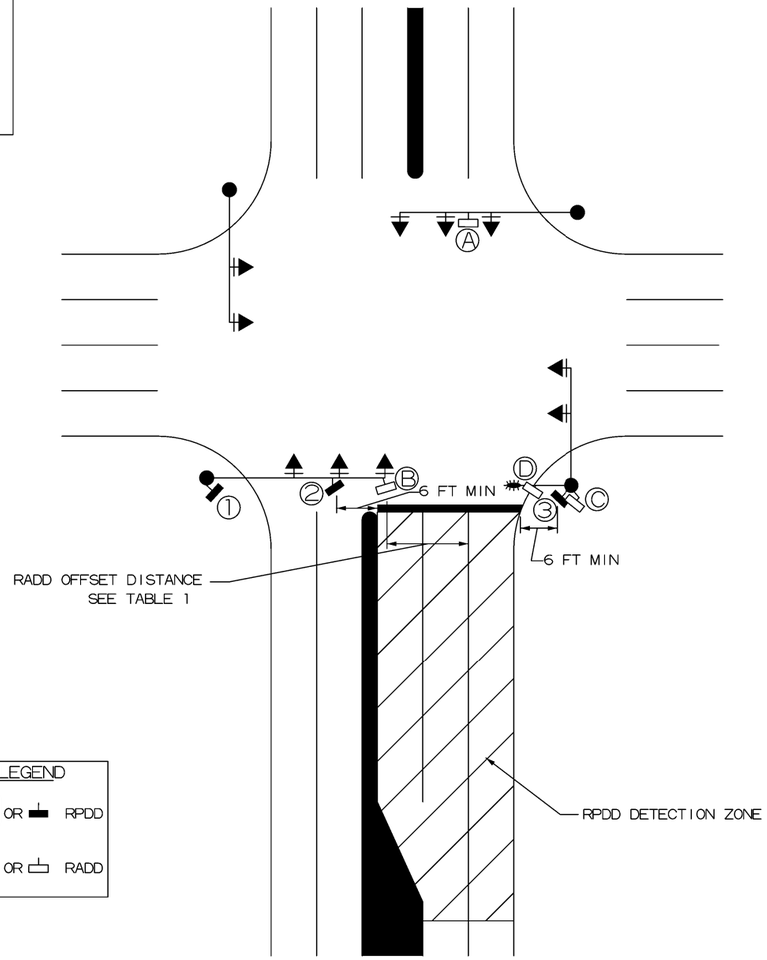
SKEWED INTERSECTION RPDD PLACEMENT
NTS



TYPICAL RPDD DETECTION RANGE
NTS



ELEVATION VIEW
NTS



PLAN VIEW
NTS

LEGEND

OR RPDD

OR RADD

NOTES:

1) A MINIMUM 6 FT HORIZONTAL OFFSET MUST BE MAINTAINED BETWEEN THE RPDD AND THE DETECTION ZONE

2) THE RPDD SHALL BE MOUNTED SUCH THAT AT LEAST 20 FT ALONG THE FARTHEST LANE TO BE MONITORED IS WITHIN THE FIELD OF VIEW OF THE RPDD

3) AIM RPDD AT THE CENTER OF THE LANES TO BE MONITORED, APPROXIMATELY 50 FT FROM THE RPDD UNIT

4) MOUNT RPDD SO THAT ITS FIELD OF VIEW IS NOT OCCLUDED BY POLES, SIGNS, OR OTHER STRUCTURES

5) RADD MOUNTING HEIGHT SHALL NOT BE LESS THAN 17 FT OR GREATER THAN 40 FT. RADD MOUNTING LOCATION SHALL HAVE A MAXIMUM 50 FT LATERAL OFFSET FROM CENTER OF TRAVEL LANES TO BE MONITORED

Texas Department of Transportation © 2020

San Antonio District Standard

RADAR PRESENCE DETECTOR (RPDD)
RADAR ADVANCED DETECTION DEVICE (RADD)
PLACEMENT

SCALE: NS — RPDD-RADD-20

REVISIONS	FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
MAR 2020	6	SEE TITLE SHEET		105
	STATE	DIST.	COUNTY	
	TEXAS	SAT	GUADALUPE	
	CONT.	SECT.	JOB	HIGHWAY NO.
	0029	02	058	US 90

LEVELS DISPLAYED
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
ACC:

2:15:42 PM
1/23/2023
...\103 rpdd+radd-20.dgn

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

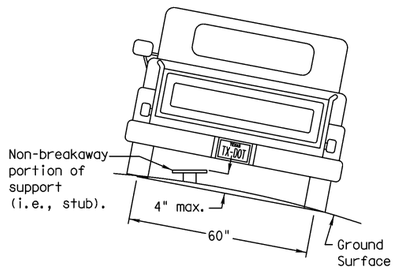
Post Type
- FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
- TWT = Thin-Walled Tubing (see SMD(TWT))
- 10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
- S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

Anchor Type
- UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
- UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
- WS = Wedge Anchor Steel - (see SMD(TWT))
- WP = Wedge Anchor Plastic (see SMD(TWT))
- SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
- SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation
- P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
- T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
- U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
- IF REQUIRED
- 1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
- BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
- WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
- EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

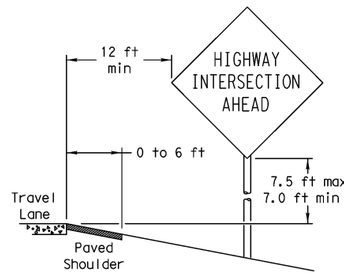
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

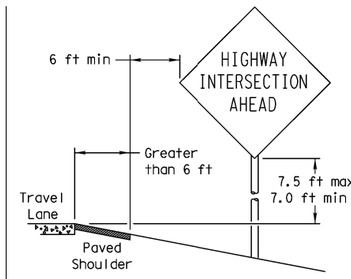
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

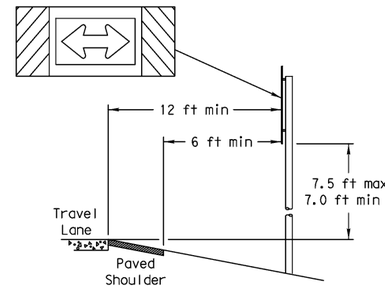
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



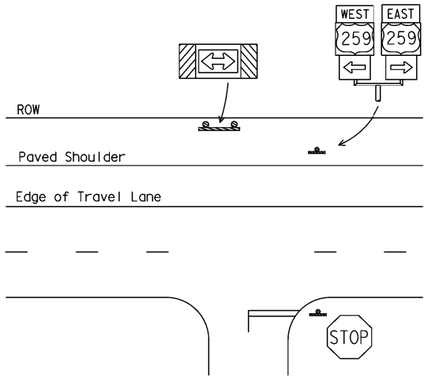
GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

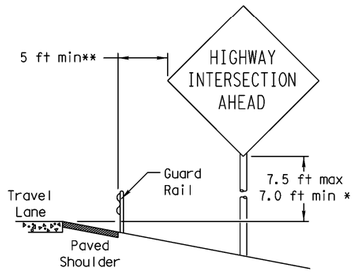
T-INTERSECTION



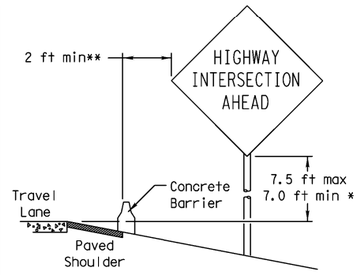
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

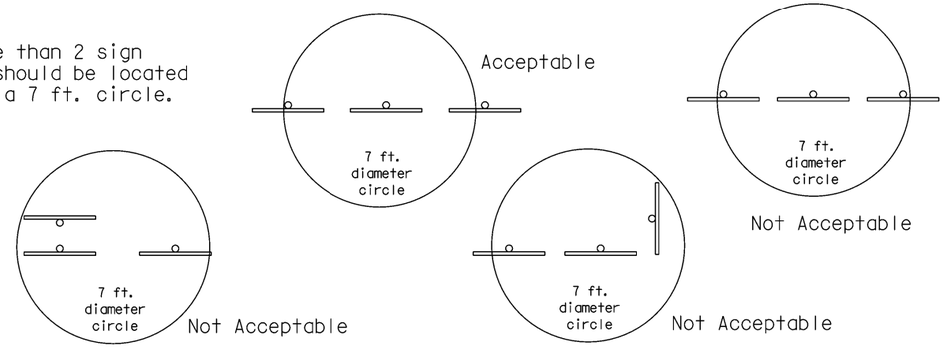
(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

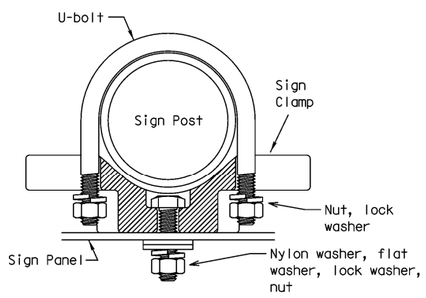
The website address is:
http://www.txdot.gov/publications/traffic.htm

No more than 2 sign posts should be located within a 7 ft. circle.



TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

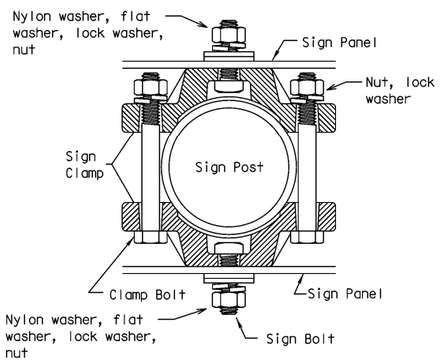


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

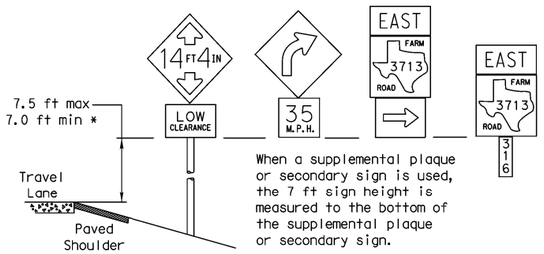
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



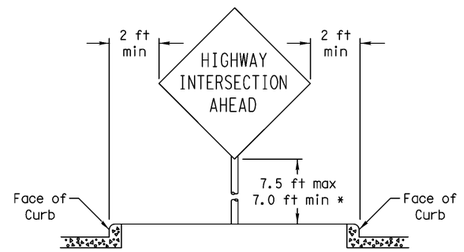
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



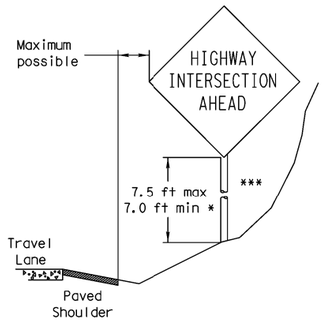
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS	CONT	SECT	JOB	HIGHWAY
9-08	0029	02	058	US 90
	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		106

26A

DATE: 1/23/2023 2:15:45 PM
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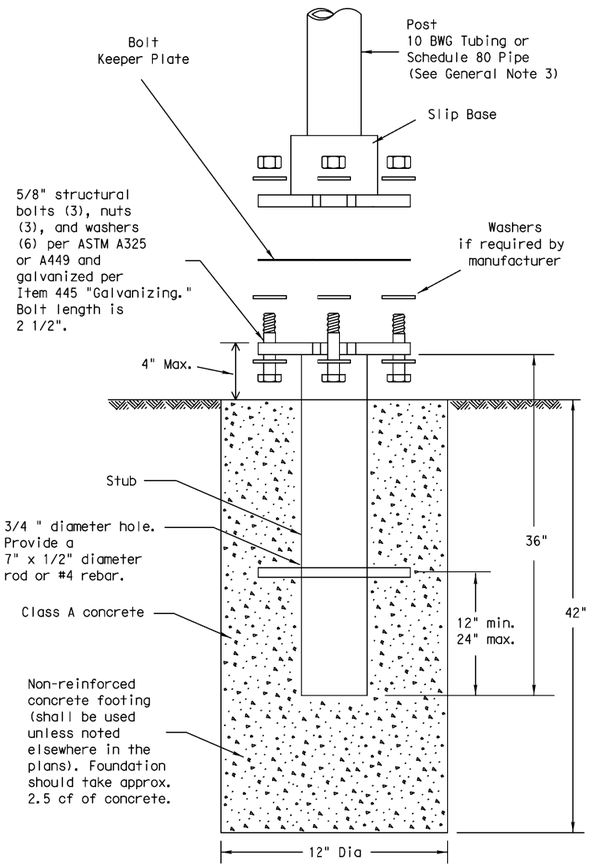
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   - 0.134" nominal wall thickness
   - Seamless or electric-resistance welded steel tubing or pipe
   - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   - Other steels may be used if they meet the following:
     - 55,000 PSI minimum yield strength
     - 70,000 PSI minimum tensile strength
     - 20% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

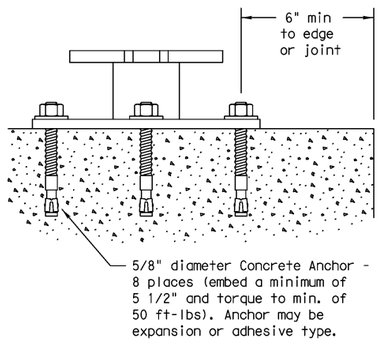
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum yield strength
     - 62,000 PSI minimum tensile strength
     - 21% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   - Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
9-08

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90

DIST	COUNTY	SHEET NO.
SAT	GUADALUPE	107

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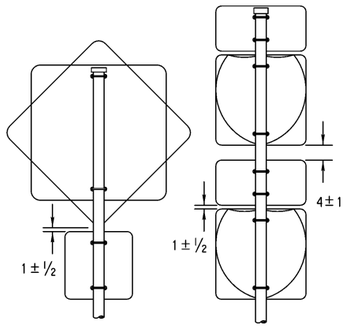

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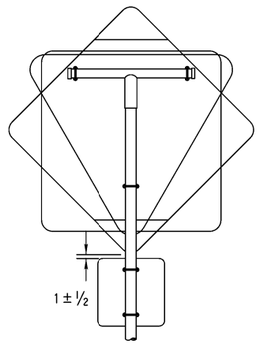

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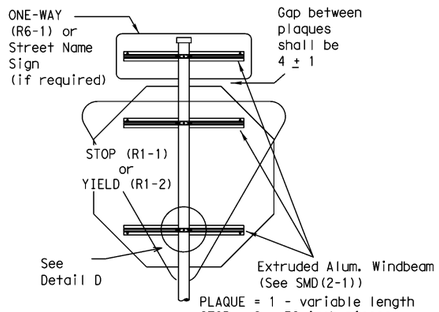

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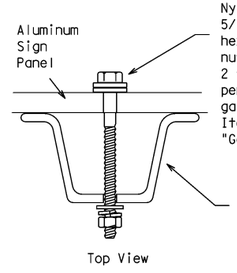
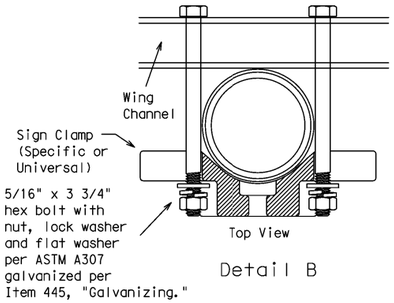
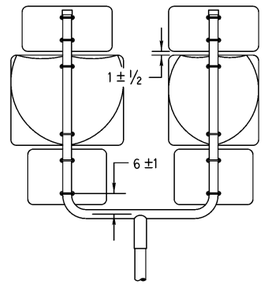


Detail A



Detail B



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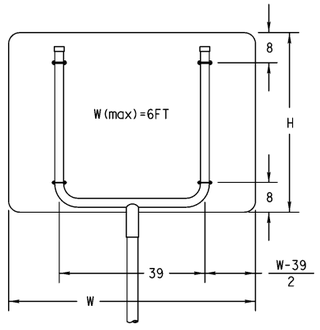

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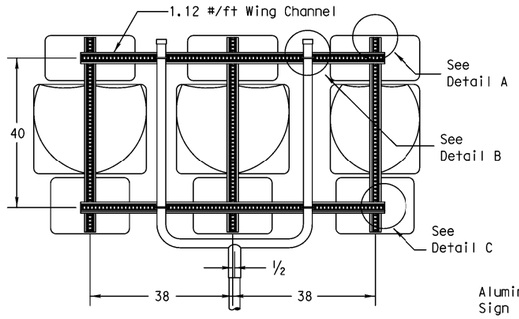
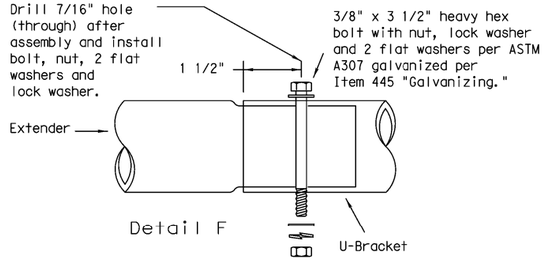
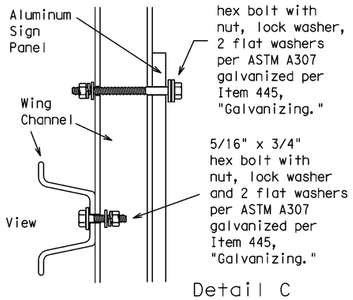


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

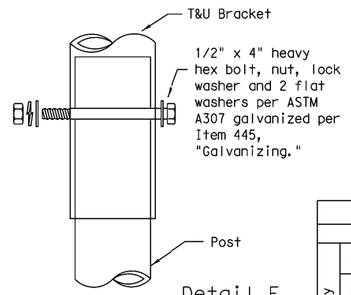


Detail F

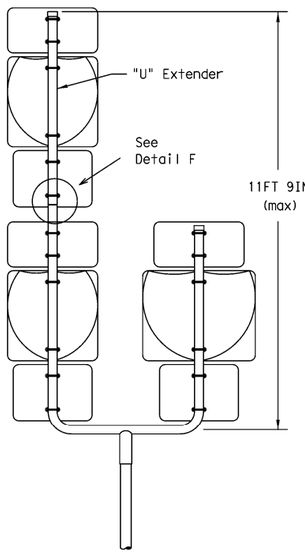
Splices shall only be allowed behind the sign substrate.



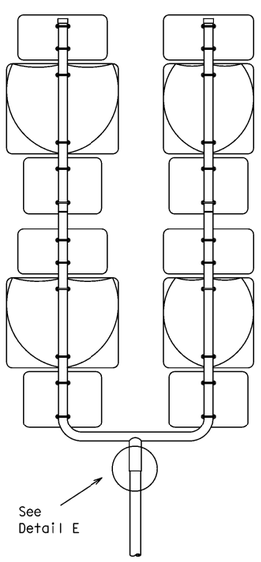
Detail C



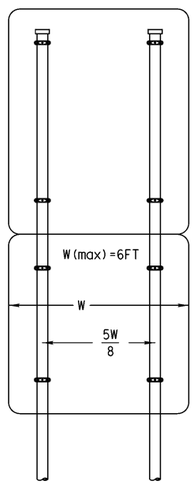
Detail E



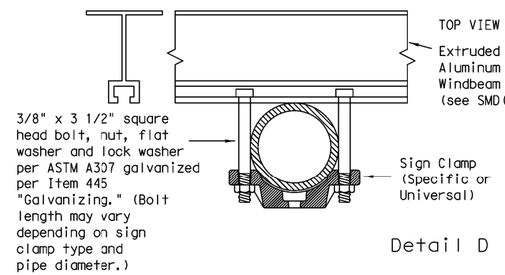
SM RD SGN ASSM TY S80(1)XX(U-1EXT)



SM RD SGN ASSM TY S80(1)XX(U-2EXT)

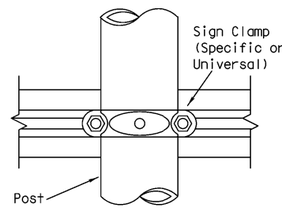


SM RD SGN ASSYM TY XXXXX(2)XX(P)



SIDE VIEW

Detail D



GENERAL NOTES:

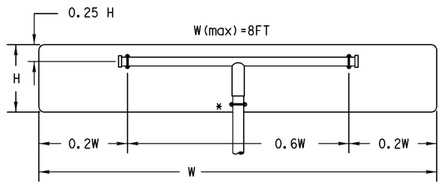
1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.

REQUIRED SUPPORT

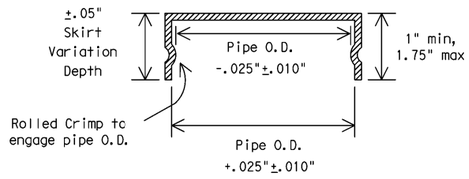
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)



SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0029	02	058	US 90
	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		108

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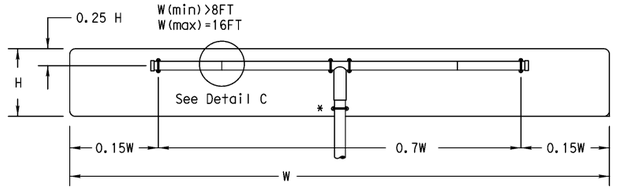
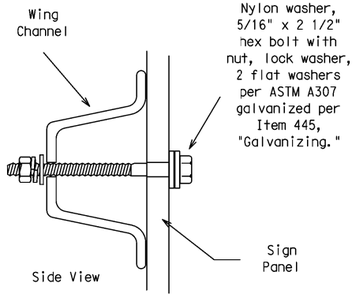
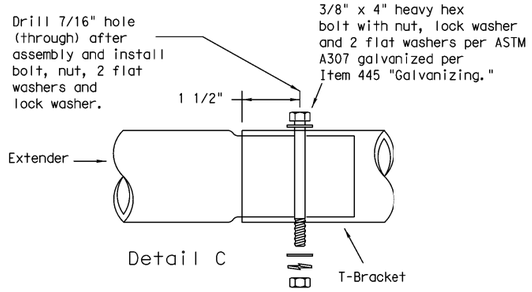


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)

(* - See Note 12)

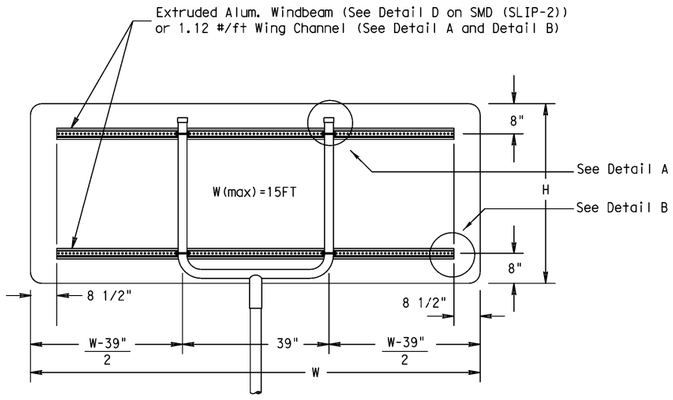


Detail B

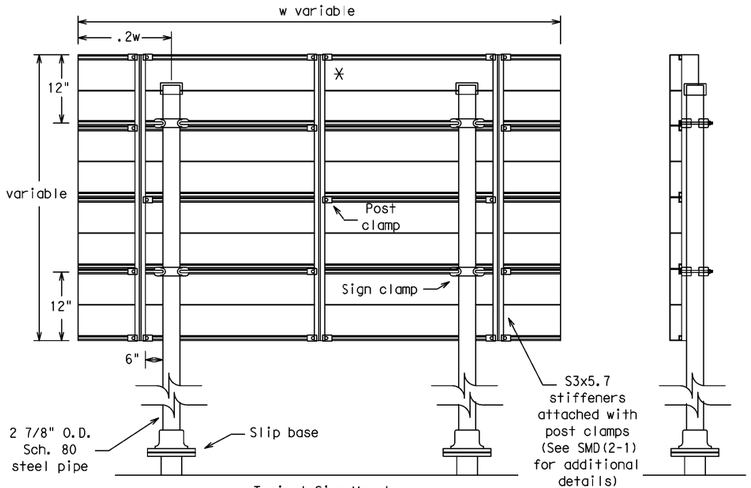


Detail C

Splices shall only be allowed behind the sign substrate.



SM RD SGN ASSM TY XXXXX(1)XX(U-XX)

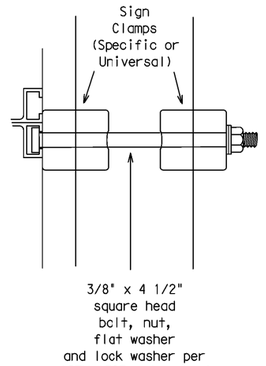


Typical Sign Mount

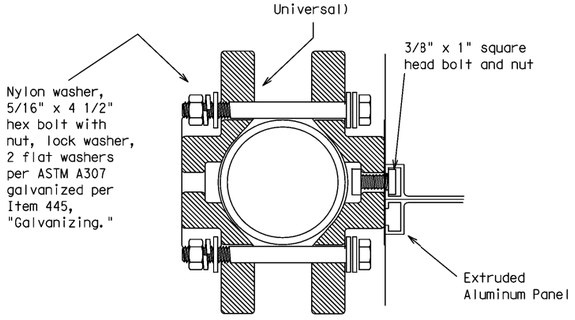
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

See Detail E for clamp installation



Detail E

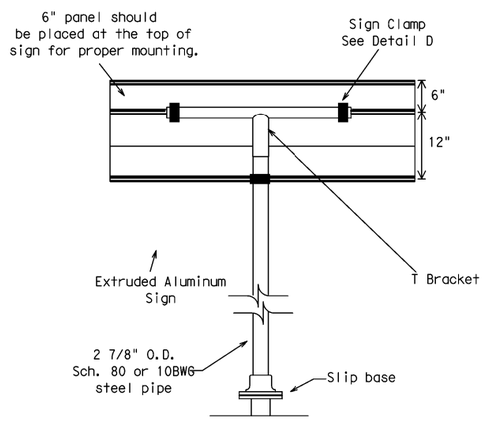


Top View

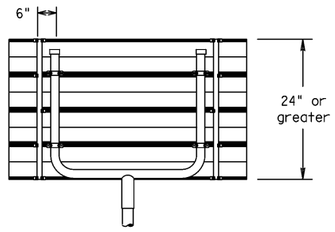
Detail A

Detail D

EXTRUDED ALUMINUM SIGN WITH T BRACKET



Extruded Aluminum Sign With T Bracket



Use Extruded Alum. Windbeam as stiffeners See SMD (2-1) for additional details

See Detail E for clamp installation

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

1. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
2. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
3. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
4. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
5. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
6. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
7. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
8. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
9. Sign blanks shall be the sizes and shapes shown on the plans.
10. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
11. Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS 9-08

CONT	SECT	JOB	HIGHWAY
0029	02	058	US 90
DIST	COUNTY		SHEET NO.
SAT	GUADALUPE		109

26D

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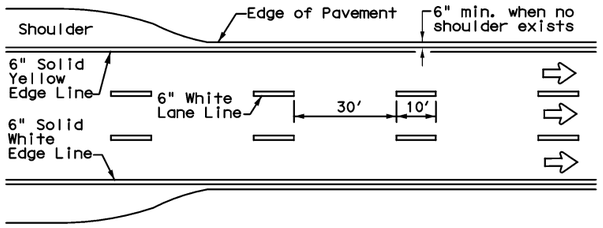
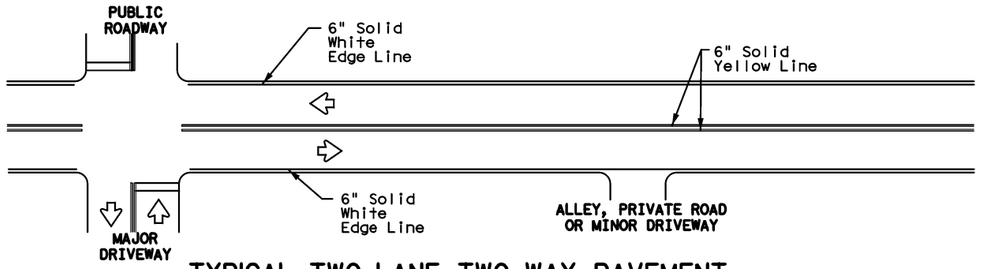
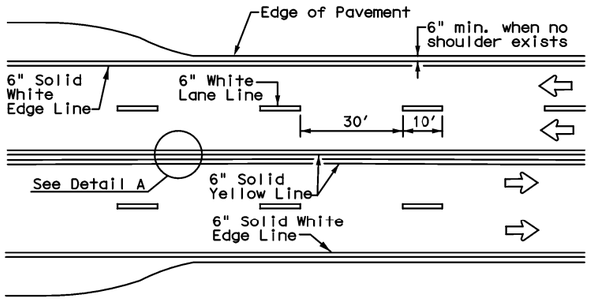
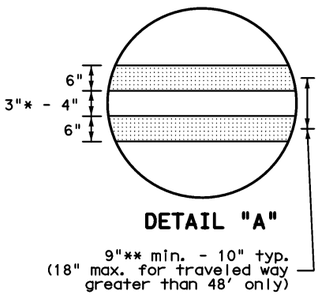


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS





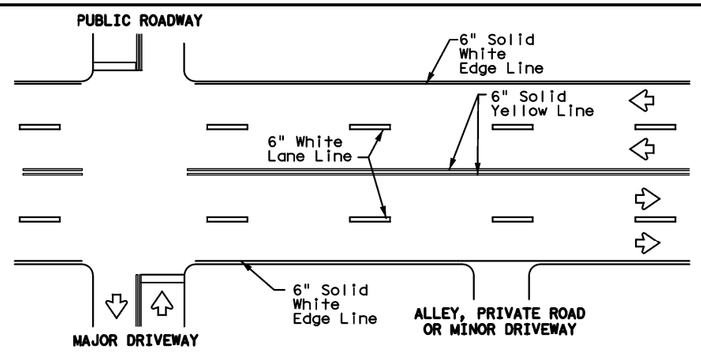
DETAIL "A"

9"** min. - 10" typ.
(18" max. for traveled way greater than 48' only)

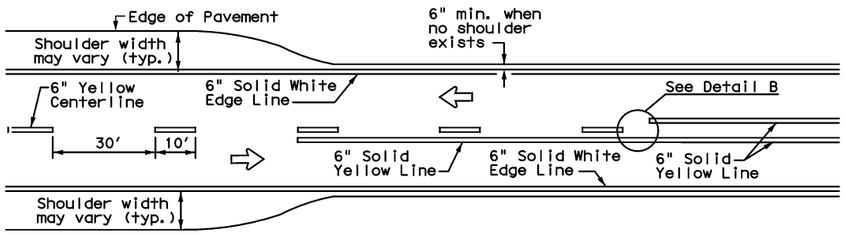
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

* 2" minimum for restripe projects when approved by the Engineer.

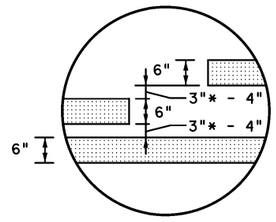
** 8" minimum for restripe projects when approved by the Engineer.



TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



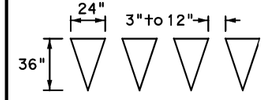
TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



18" min. - 20" max.
(16" minimum for restripe projects when approved by the Engineer.)

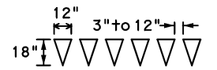
DETAIL "B"

* 2" minimum for restripe projects when approved by the Engineer.

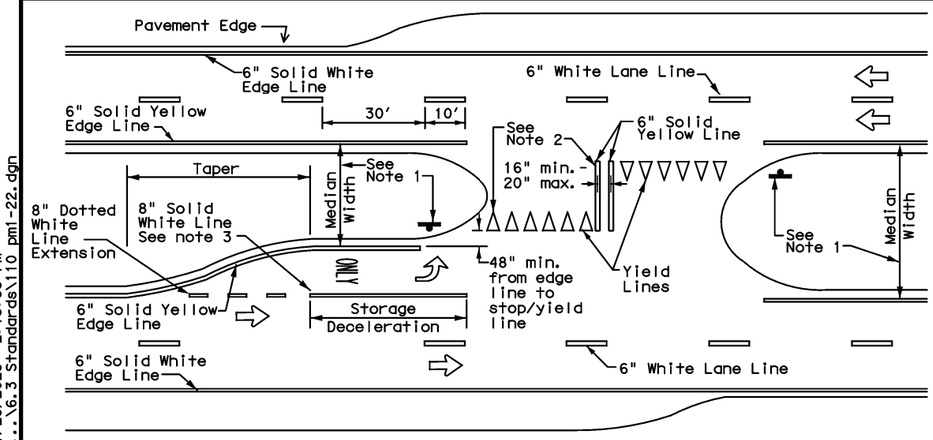


For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



For posted speed on road being marked equal to or less than 40 MPH.



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

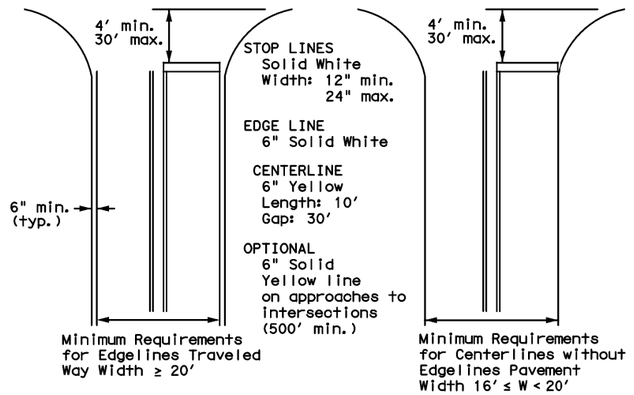
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
2. Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

GENERAL NOTES

1. Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Roadways

Texas Department of Transportation

Traffic Safety Division Standard

TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-22

FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 11-78 8-00 6-20 8-95 3-03 12-22 5-00 2-12	0029	02	058	US 90
	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		110

22A

DATE: 1/23/2023 2:15:55 PM
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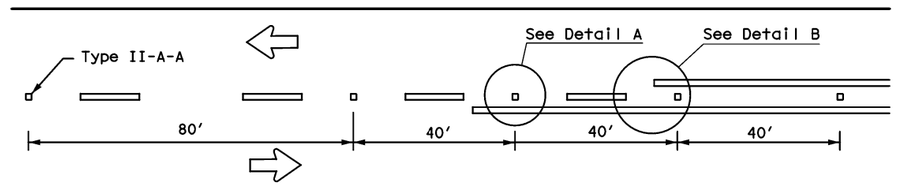
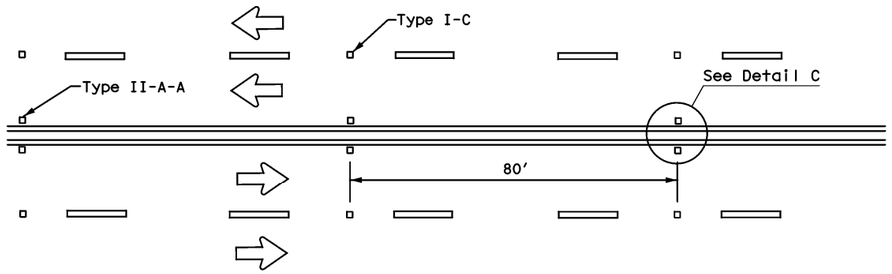
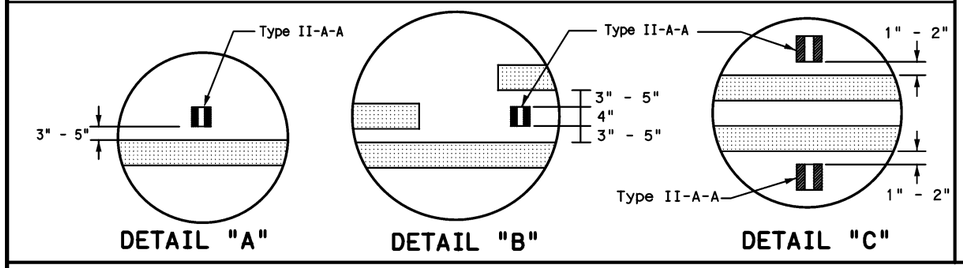
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE

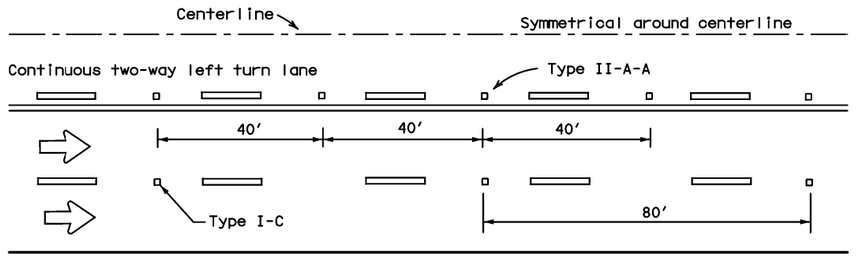


CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS

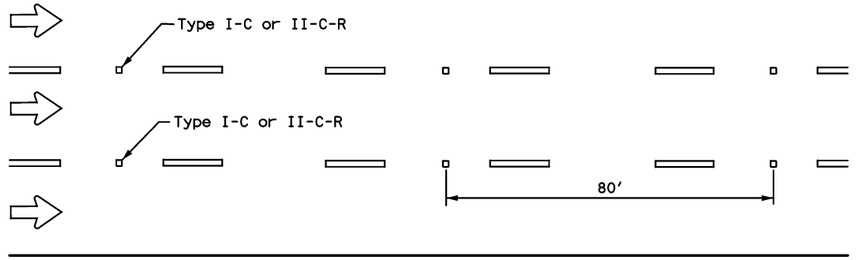


CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS





CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



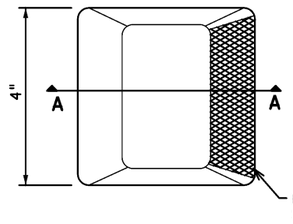
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

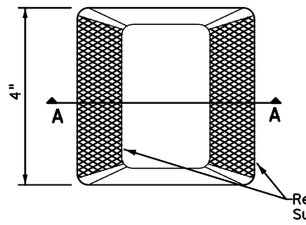
See Note 3.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

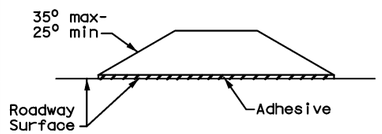
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

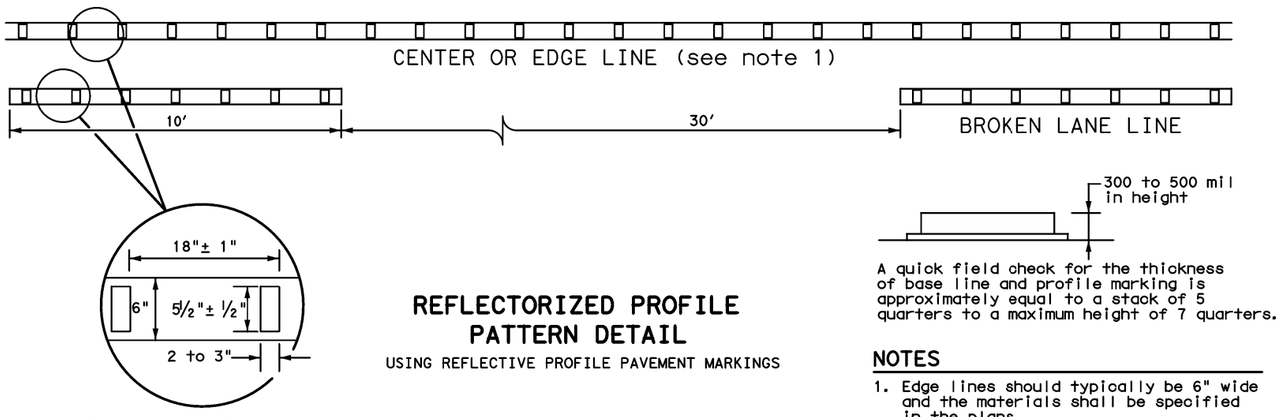


Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

NOTES

1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.

Texas Department of Transportation

Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-22

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		111

228

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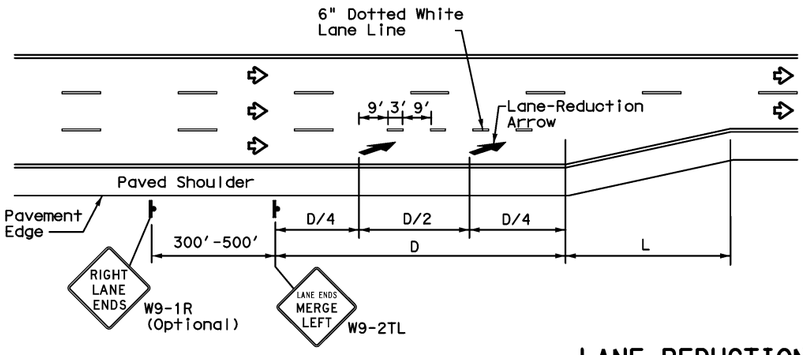


LANE REDUCTION

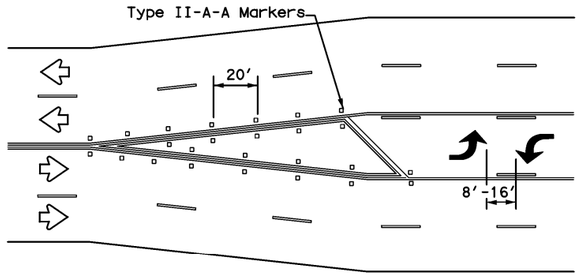
NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L=\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

GENERAL NOTES

1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

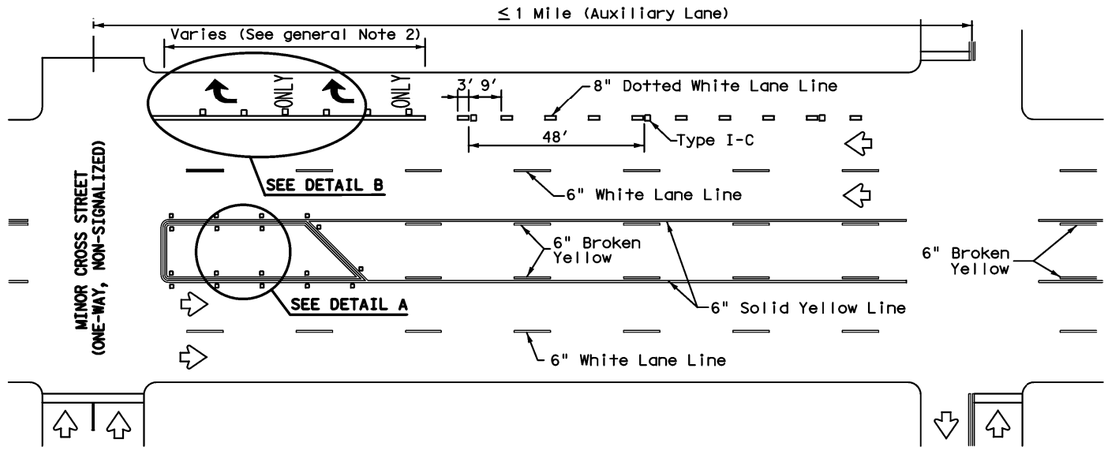


A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

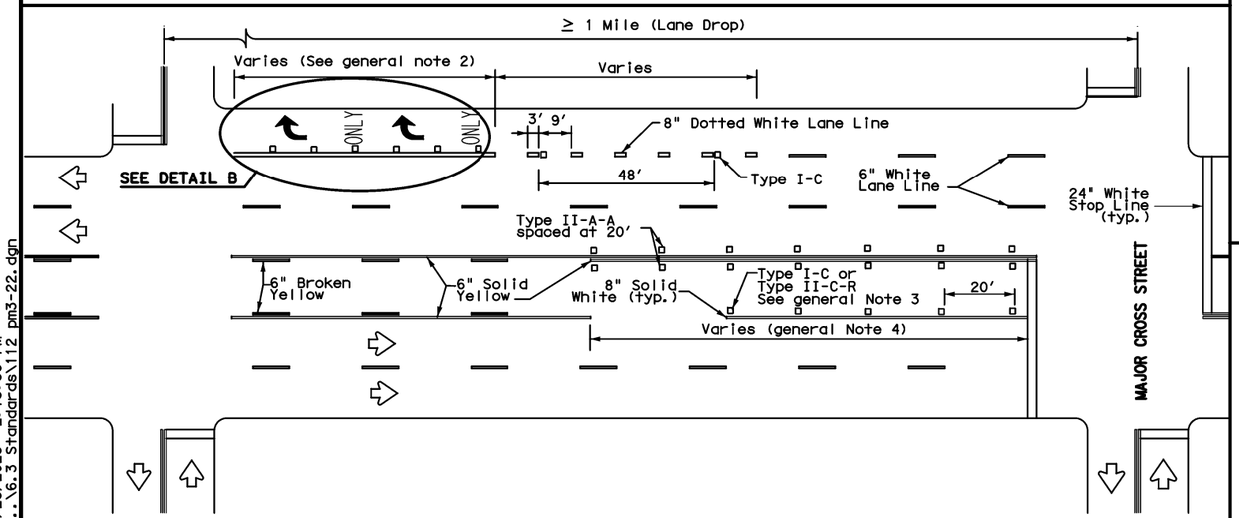
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

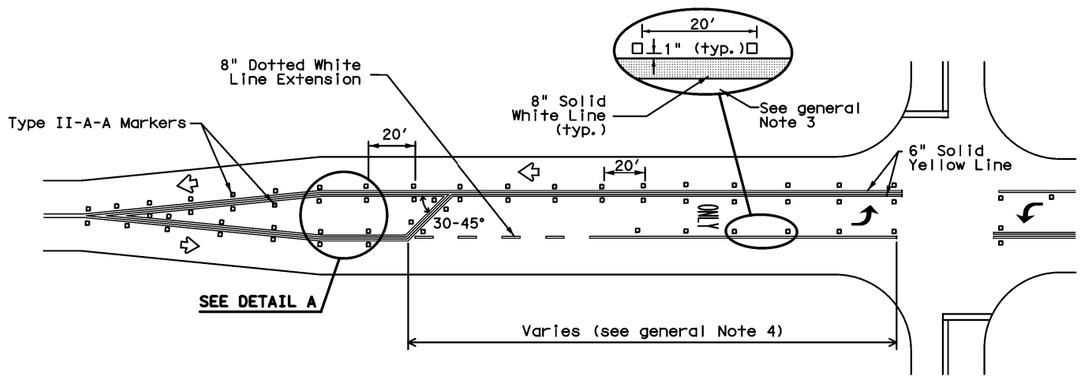
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



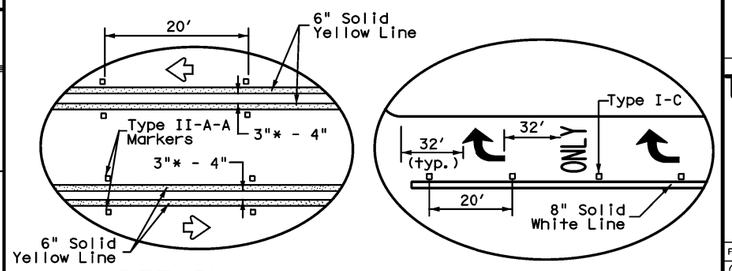
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



* 2" minimum allowed for restripe projects when approved by the Engineer.

Texas Department of Transportation

Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS

PM(3)-22

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
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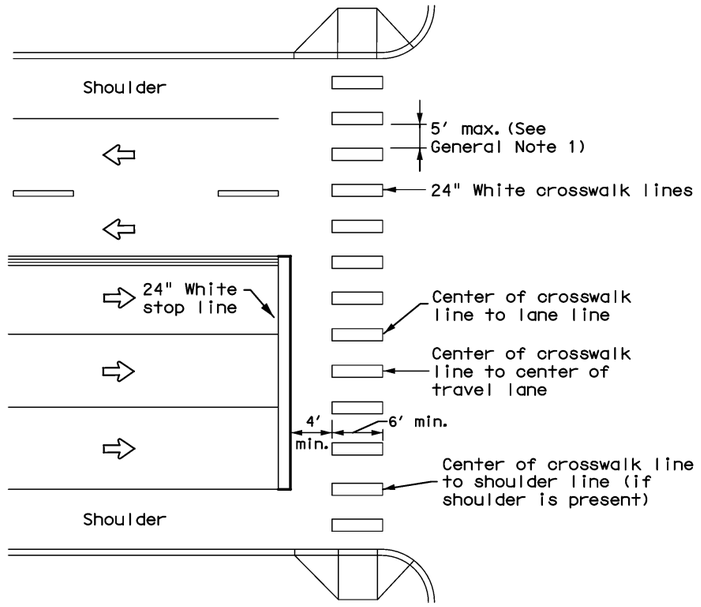


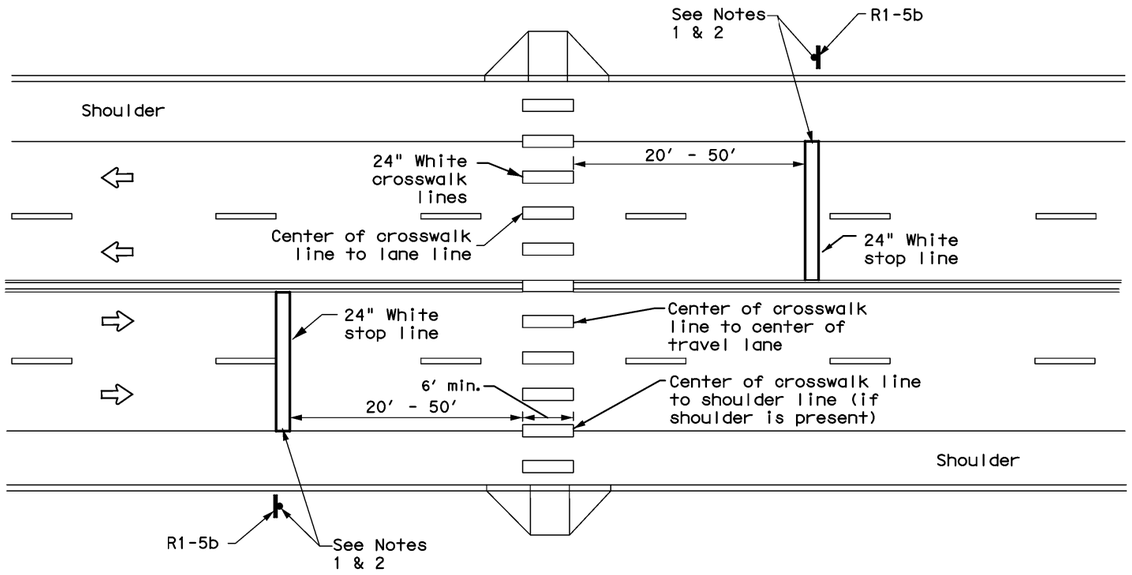
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



UNSIGNALIZED MIDBLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES:

1. Use stop bars with Stop Here For Pedestrians (R1-5b) signs at unsignalized midblock cross walks.
2. Use stop bars with STOP HERE ON RED (R10-6 or R10-6a) signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

Texas Department of Transportation

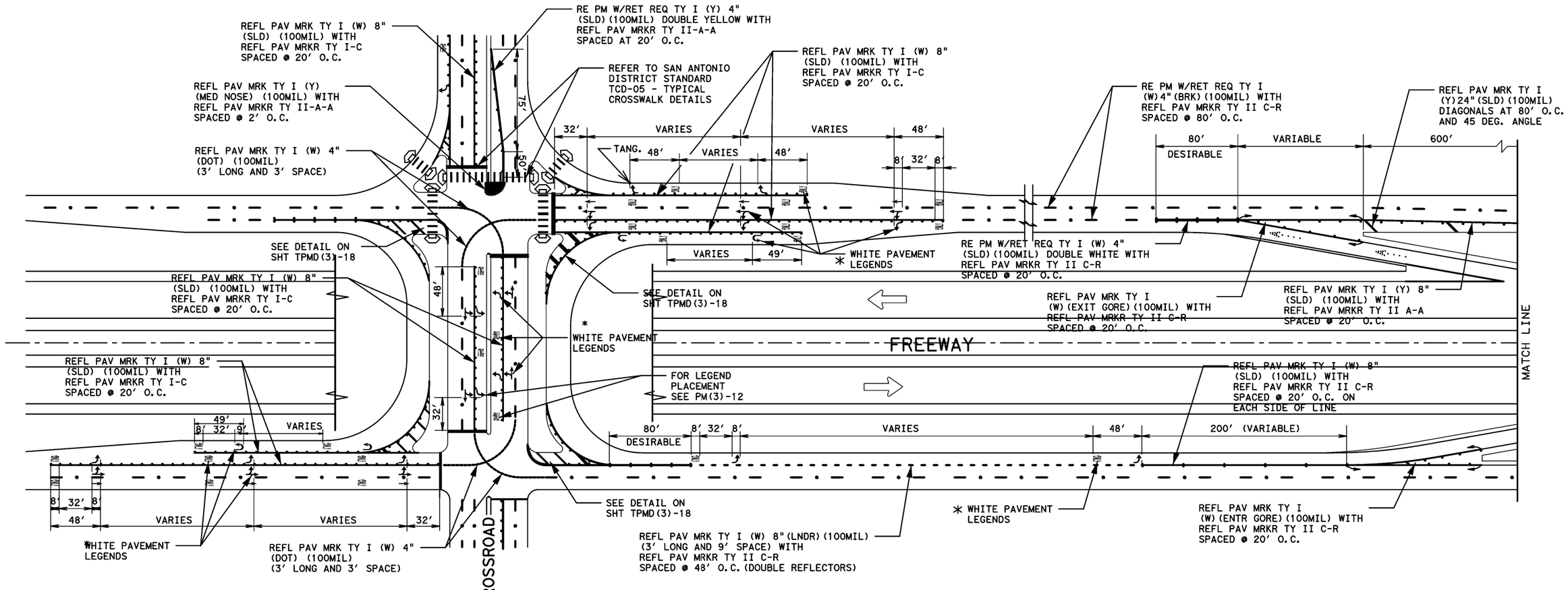
Traffic Safety Division Standard

CROSSWALK PAVEMENT MARKINGS

PM(4)-22A

FILE: pm4-22a.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0029	02	058	US 90
6-20	DIST	COUNTY		SHEET NO.
6-22	SAT	GUADALUPE		113
12-22				
220				

DATE: 1/23/2023 2:16:02 PM
FILE: ...\6.3 Standards\112 pm4-22a.dgn



* PROPOSED WHITE LEGENDS TEXT AND ARROW SIZE TO BE IN ACCORDANCE WITH THE TEXAS MUTCD

Texas Department of Transportation
© 2018

San Antonio District Standard

TYPICAL PAVEMENT MARKING DETAILS

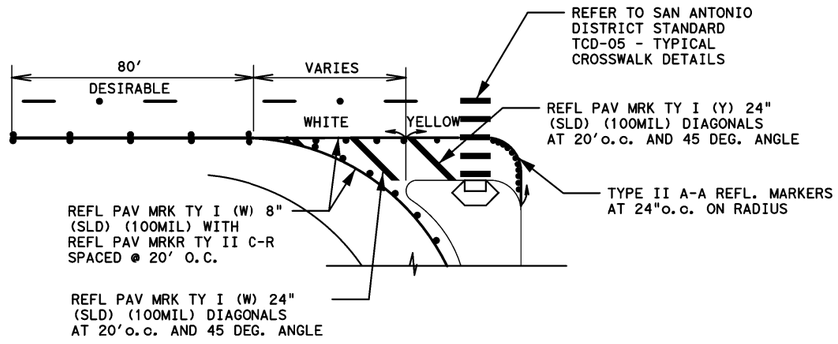
SCALE: NS

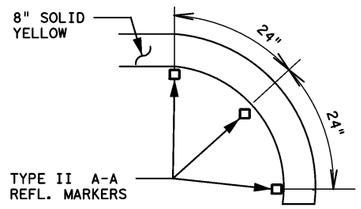
TPMD(2)-18

REVISIONS	FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
MAY 2018		SEE TITLE SHEET		114
	STATE	DIST.	COUNTY	
	TEXAS	SAT	GUADALUPE	
	CONT.	SECT.	JOB	HIGHWAY NO.
	0029	02	058	US 90

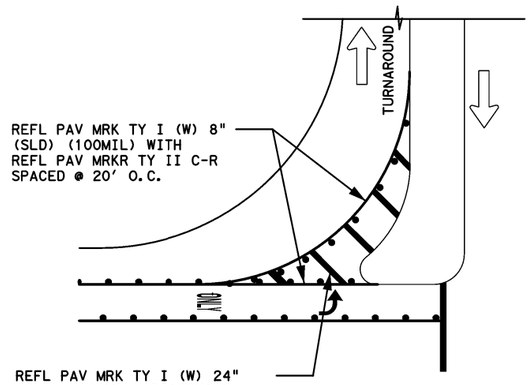
DRAWN BY: TED
REVISED BY: JCO3
CHECKED BY: GG / OMG
REVISED ON: 5-18
1/23/2023 2:16:02 PM
...\112-113 tpmd-18.dgn

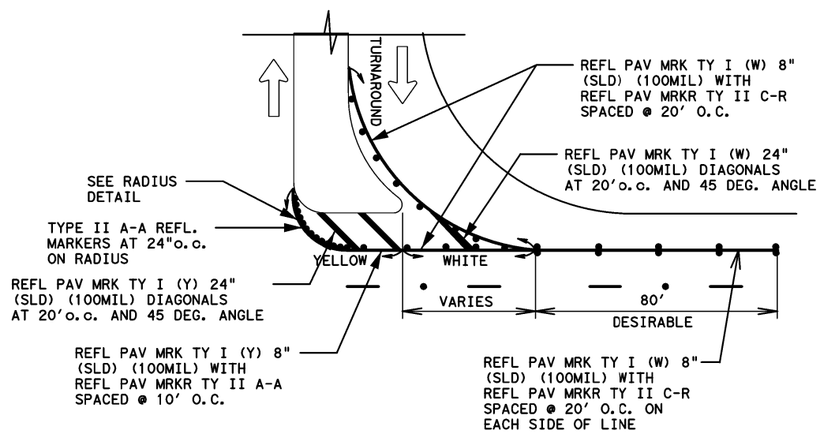
1/23/2023 2:16:04 PM | REVISED ON: 5-18 | CHECKED BY: GG / OMG | REVISED BY: JCO3 | DRAWN BY: TED





RADIUS DETAIL





TYPICAL TURNAROUND PAVEMENT MARKING DETAILS

...\112-113 tpmd-18.dgn

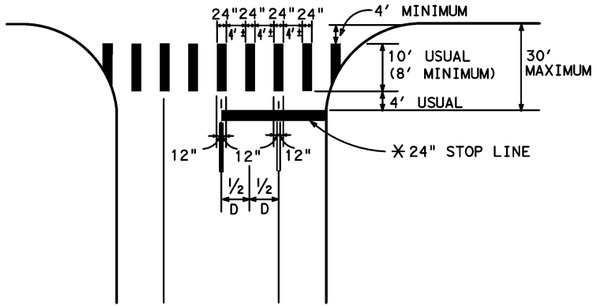
San Antonio District Standard

TYPICAL PAVEMENT MARKING DETAILS

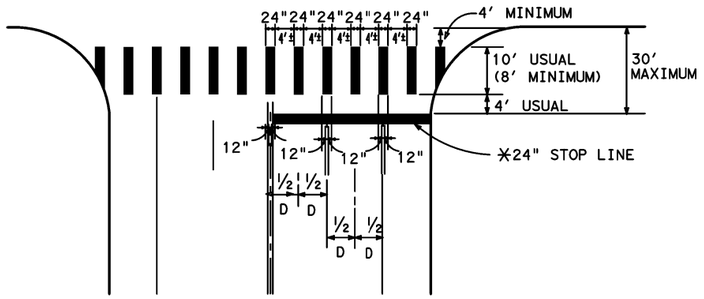
SCALE: NS

TPMD(3)-18

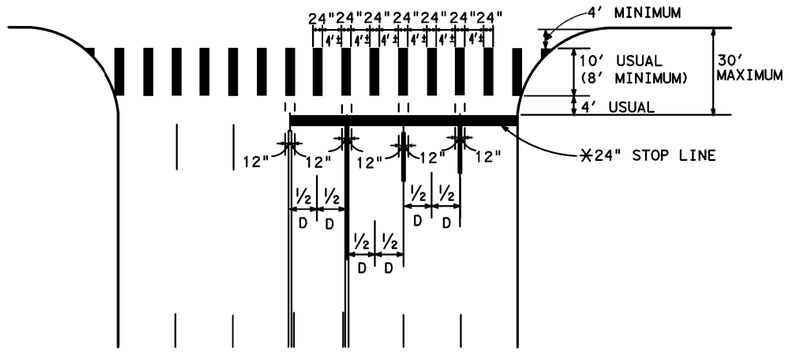
REVISIONS	FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.			SHEET NO.
MAY 2018		SEE TITLE SHEET			115
	STATE	DIST.	COUNTY		
	TEXAS	SAT	GUADALUPE		
	CONT.	SECT.	JOB	HIGHWAY NO.	
	0029	02	058	US 90	



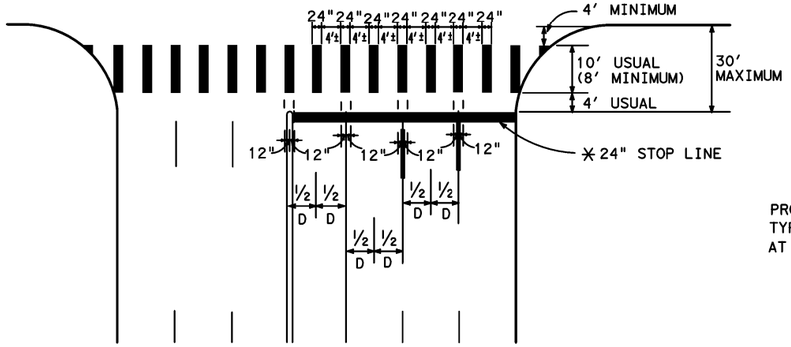
TWO LANES WITH SHOULDERS



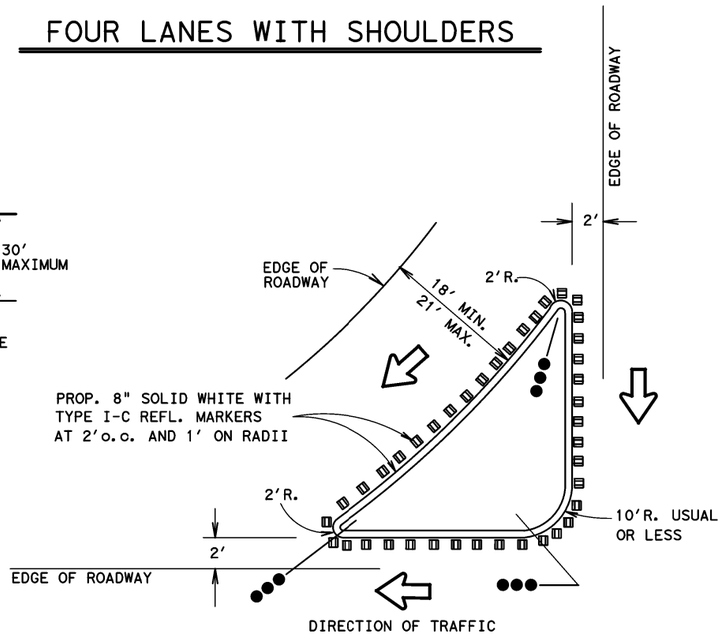
FOUR LANES WITH SHOULDERS



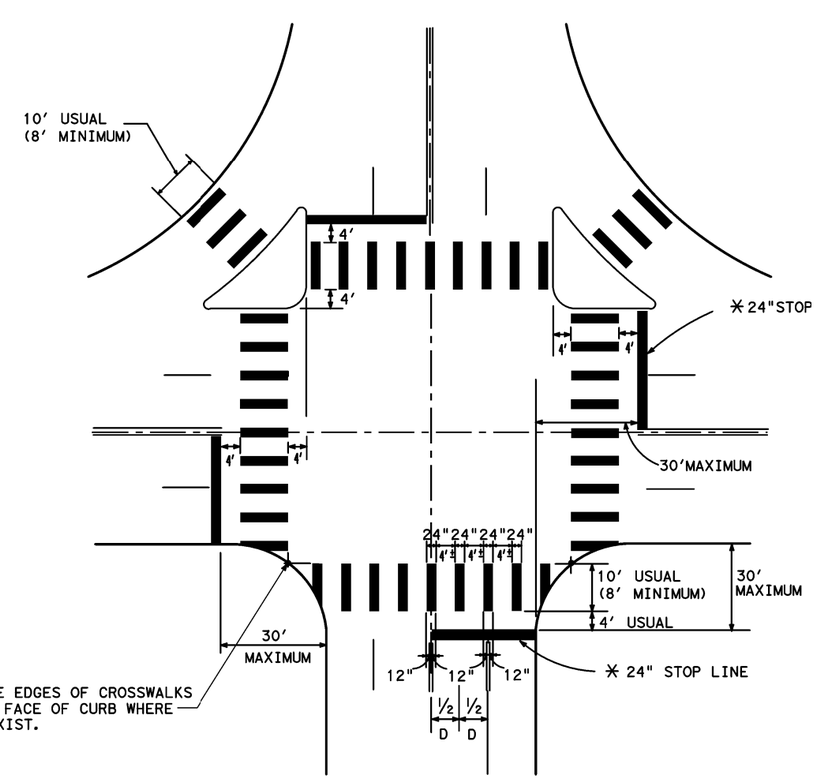
MULTI - LANES



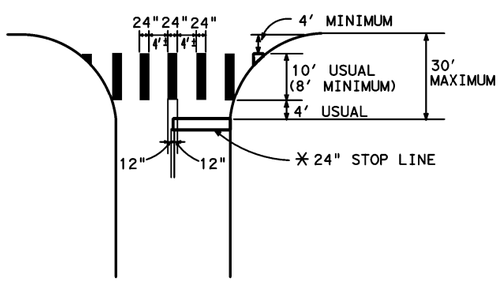
MULTI - LANE WITH MEDIAN



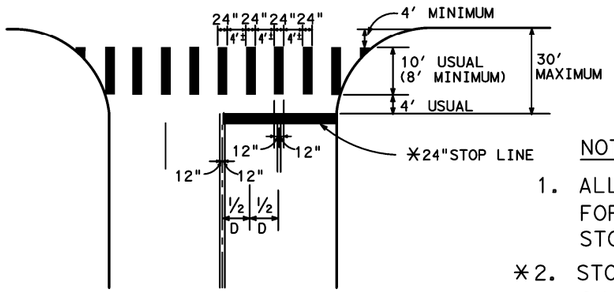
TYPICAL RIGHT TURN ISLAND
WITH DELINEATION



INTERSECTION WITH RIGHT - TURN ISLANDS



TWO LANES



FOUR LANES

NOTES:

1. ALL LONGITUDINAL LINES FORMING CROSSWALK AND STOP LINES SHALL BE WHITE
✳2. STOP LINES AS REQUIRED ON DETAILED PAVEMENT MARKING PLANS.
3. "D" IS EQUAL TO ONE HALF THE DISTANCE.

LEVELS DISPLAYED

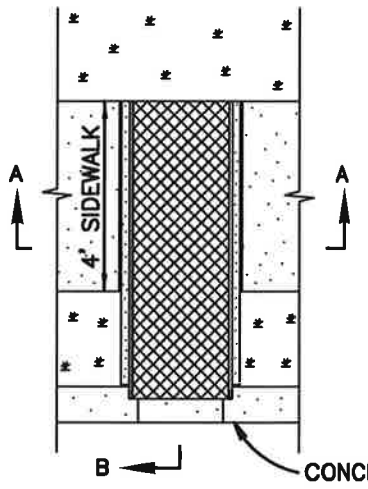
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ACC:	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	

San Antonio District Standard

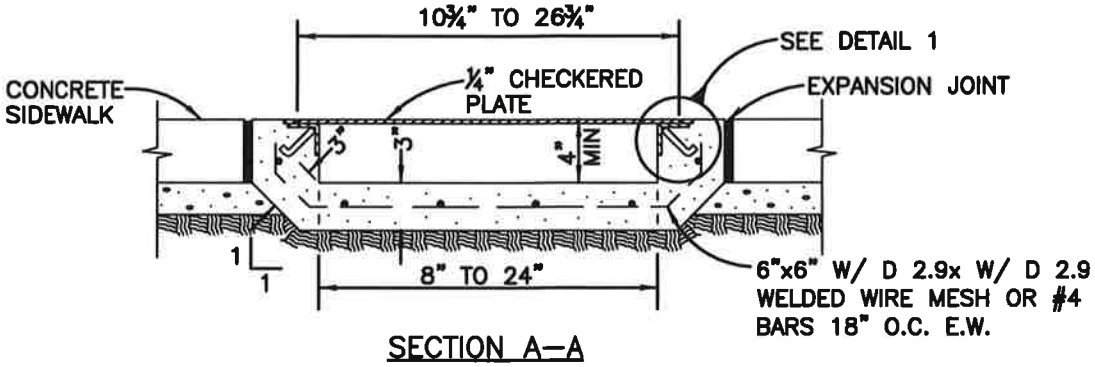
TYPICAL CROSSWALK DETAILS

TCD-05

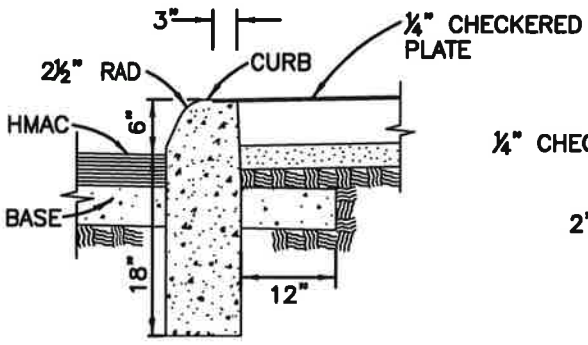
REVISIONS	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
DEC 1999	6	SEE TITLE SHEET		116
AUG 2005	STATE	DIST.	COUNTY	
	TEXAS	SAT	GUADALUPE	
	CONT.	SECT.	JOB	HIGHWAY NO.
	0029	02	058	US 90



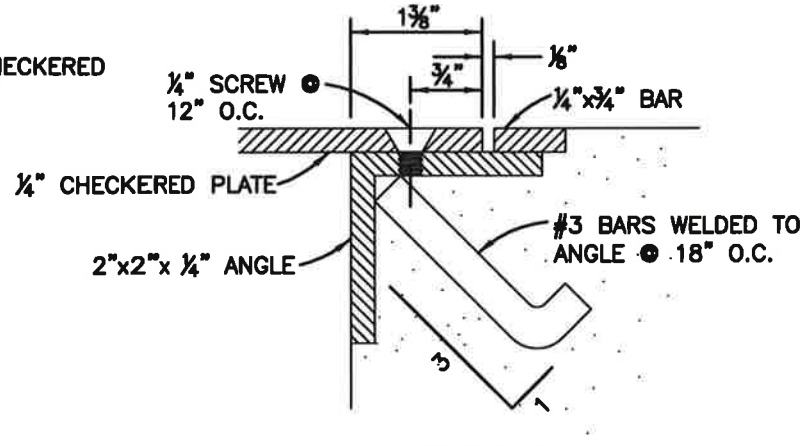
CONCRETE SIDEWALK DRAIN DETAIL



SECTION A–A



SECTION B



DETAIL 1

NOTE:

1. ADD MORE SPANS, IF NECESSARY (DEPENDING ON FLOW RATE)

SEGUIN TEXAS

It's real.

DATE ISSUED:	JUNE 1, 2013	
REV	DATE	BY

TITLE

CONCRETE SIDEWALK DRAIN

SCALE:	DRAWING No.
N.T.S.	SW–2

CSJ: 0029-02-058
SHEET 117

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

Texas Pollutant Discharge Elimination System (TPDES) TXR 150000: Stormwater Discharge Permit or Construction General Permit (CGP) required for projects with 1 or more acres distrubed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

☒ No Action Required ☐ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000.
2. Comply with the Storm Water Pollution Prevention Plan (SW3P) and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and Texas Commission on Environmental Quality (TCEQ), Environmental Protection Agency (EPA) or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, Contractor shall submit Notice of Intent (NOI) to TCEQ and the Engineer.

NOI required: ☐ Yes ☐ No

Note: If amount of soil disturbance changes, permit requirements may change.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

Army Corps of Engineers (USACE) Permit required for filling, dredging, excavating or other work in any potential USACE jurisdictional water, such as, rivers, creeks, streams, or wetlands.

Contractor shall adhere to all of the terms and conditions associated with the following permit(s):

☒ No Permit Required

☐ Nationwide Permit (NWP) 14 - Pre-construction Notice (PCN) not Required

☐ Nationwide Permit 14 - PCN Required

☐ Individual 404 Permit Required

☐ Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices (BMPs) planned to control erosion, sedimentation and post-project total suspended solids (TSS).

1.

2.

3.

4.

401 Best Management Practices: (Not applicable if no USACE permit)

Erosion	Sedimentation	Post-Construction TSS
☐ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☐ Mulch Filter Berm and Socks	☐ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ Sedimentation Chambers
		☐ Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

VEGETATION RESOURCES

Preserve native vegetation to the extent practical. Contractor must adhere to Construction Specification Requirements Specs 162,164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

☐ No Action Required ☒ Required Action

Action No.

1. MIGRATORY BIRD NESTS: Schedule construction activities as needed to meet the following requirements:

   Do not remove or destroy any active migratory bird nests (nests containing eggs and/or flightless birds) at any time of year. If there are any active nests, they shall not be removed until the nests become inactive.

   On/in structures, if there are any active nests, they shall not be removed until all nests become inactive. After inactive nests are removed and/or before nest activity begins, deterrent materials may be applied to the structures to prevent future nest building.

2. See Item 5 in General Notes.

3.

4.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediated area, and contact the Engineer immediately.

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the follwing are detected:

* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

Hazardous Materials or Contamination Issues Specific to this Project:

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

Does the project involve the demolition of a span bridge?

☐ Yes ☒ No (No further action required)

"Yes", a pre- demolition notification must be submitted to the Texas Department of State Health Services. The contractor shall contact TxDOT's Project Engineer 25 calendar days prior to the demolition of the bridges(s) on the project to assist with the notification.

OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

Texas Department of Transportation
San Antonio District Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: epic_2015-10-09_SAT.dgn	DN: TxDOT	CK: TxDOT	DW: BW	CK: GAG
©TxDOT OCTOBER 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0029	02	058	US 90
	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		118

1/23/2023 2:16:10 PM
...\6.3 Standards\15 epic.dgn

STORMWATER POLLUTION PRVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with TxDOT policy for projects disturbing less than 1 acre of soil, and not part of a larger common plan of development.

For all projects with any soil disturbing activities, TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office. If no field office is available, then this SWP3 shall be kept at the appropriate TxDOT Area Office.

This SWP3 is consistent with requirements specified in applicable stormwater plans, and the project's environmental permits, issues, and commitments (EPICs).

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):

0029-02-058

1.2 PROJECT LIMITS:

From: Same as stated on the Title Sheet

To: Same as stated on the Title Sheet

1.3 PROJECT COORDINATES:

BEGIN: (Lat) N/A ,(Long) N/A

END: (Lat) N/A ,(Long) N/A

1.4 TOTAL PROJECT AREA (Acres): Less Than 1 Acre

1.5 TOTAL AREA TO BE DISTURBED (Acres): Less Than 1 Acre

1.6 NATURE OF CONSTRUCTION ACTIVITY:

TRAFFIC SIGNAL IMPROVEMENTS

1.7 MAJOR SOIL TYPES:

Soil Type	Description

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):

PSLs must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

- ☐ PSLs determined during preconstruction meeting
- ☐ PSLs determined during construction
- ☐ No PSLs planned for construction

Type	Sheet #s

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

1.9 CONSTRUCTION ACTIVITIES:

(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.3.)

- ☐ Mobilization
- ☐ Install sediment and erosion controls
- ☐ Blade existing topsoil into windrows, prep ROW, clear and grub
- ☐ Remove existing pavement
- ☐ Grading operations, excavation, and embankment
- ☐ Excavate and prepare subgrade for proposed pavement widening
- ☐ Remove existing culverts, safety end treatments (SETs)
- ☐ Remove existing metal beam guard fence (MBGF), bridge rail
- ☐ Install proposed pavement per plans
- ☐ Install culverts, culvert extensions, SETs
- ☐ Install mow strip, MBGF, bridge rail
- ☐ Place flex base
- ☐ Rework slopes, grade ditches
- ☐ Blade windrowed material back across slopes
- ☐ Revegetation of unpaved areas
- ☐ Achieve site stabilization and remove sediment and erosion control measures
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

- ☐ Sediment laden stormwater from stormwater conveyance over disturbed area
- ☐ Fuels, oils, and lubricants from construction vehicles, equipment, and storage
- ☐ Solvents, paints, adhesives, etc. from various construction activities
- ☐ Transported soils from offsite vehicle tracking
- ☐ Construction debris and waste from various construction activities
- ☐ Contaminated water from excavation or dewatering pump-out water
- ☐ Sanitary waste from onsite restroom facilities
- ☐ Trash from various construction activities/receptacles
- ☐ Long-term stockpiles of material and waste
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.11 RECEIVING WATERS:

Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

Tributaries	Classified Waterbody

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES: TxDOT

- X Development of plans and specifications
- X Perform SWP3 inspections
- X Maintain SWP3 records and update to reflect daily operations
- ☐ Other: _____
- ☐ Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

- X Day To Day Operational Control
- X Maintain schedule of major construction activities
- X Install, maintain and modify BMPs
- ☐ Other: _____
- ☐ Other: _____

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 Houston, TX. 77095 PHONE: (713) 828-4742

STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
	SEE TITLE SHEET		119
STATE	STATE DIST.	COUNTY	
TEXAS		GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90

STORMWATER POLLUTION PRVENTION PLAN (SWP3):

2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by TxDOT within the times specified in this SWP3 or the CGP.

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

- ☐ ☐ Protection of Existing Vegetation
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Soil Retention Blankets
- ☐ ☐ Geotextiles
- ☐ ☐ Mulching/ Hydromulching
- ☐ ☐ Soil Surface Treatments
- ☐ ☐ Temporary Seeding
- ☐ ☐ Permanent Planting, Sodding or Seeding
- ☐ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Vertical Tracking
- ☐ ☐ Interceptor Swale
- ☐ ☐ Riprap
- ☐ ☐ Diversion Dike
- ☐ ☐ Temporary Pipe Slope Drain
- ☐ ☐ Embankment for Erosion Control
- ☐ ☐ Paved Flumes
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

2.2 SEDIMENT CONTROL BMPs:

T / P

- ☐ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Dewatering Controls
- ☐ ☐ Inlet Protection
- ☐ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Sandbag Berms
- ☐ ☐ Sediment Control Fence
- ☐ ☐ Stabilized Construction Exit
- ☐ ☐ Floating Turbidity Barrier
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Vegetated Filter Strips
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.3 PERMANENT CONTROLS:

(Coordinate post-construction BMPs with appropriate TxDOT maintenance sections.)

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

- ☐ Excess dirt/mud on road removed daily
- ☐ Haul roads dampened for dust control
- ☐ Loaded haul trucks to be covered with tarpaulin
- ☐ Stabilized construction exit
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.5 POLLUTION PREVENTION MEASURES:

- ☐ Chemical Management
- ☐ Concrete and Materials Waste Management
- ☐ Debris and Trash Management
- ☐ Dust Control
- ☐ Sanitary Facilities
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.6 VEGETATED BUFFER ZONES:

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

- ☒ Fire hydrant flushings
- ☒ Irrigation drainage
- ☒ Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- ☒ Potable water sources
- ☒ Springs
- ☒ Uncontaminated groundwater
- ☒ Water used to wash vehicles or control dust
- ☒ Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

2.8 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3 .

2.9 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3.

STATE OF TEXAS
CHARLES R. STEVENS, JR.
101286
LICENSED PROFESSIONAL ENGINEER

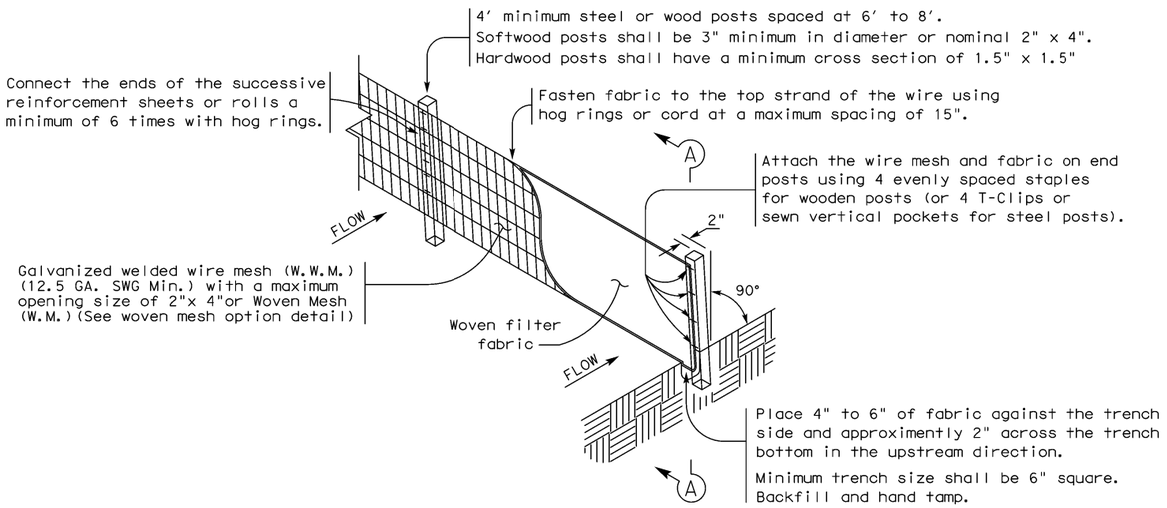
CHARLES R. STEVENS, JR., P.E. — 1/23/2023 DATE

STEVENS TECHNICAL
TEXAS REGISTERED ENGINEERING FIRM F-13097
14531 FM 529, SUITE 160 Houston, TX. 77095
PHONE: (713) 828-4742

STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)

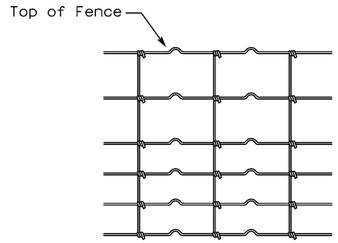
Texas Department of Transportation

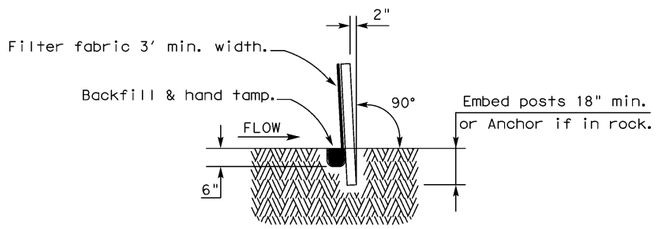
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
	SEE TITLE SHEET		120
STATE	STATE DIST.	COUNTY	
TEXAS		GUADALUPE	
CONT.	SECT.	JOB	HIGHWAY NO.
0029	02	058	US 90



TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT^2. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

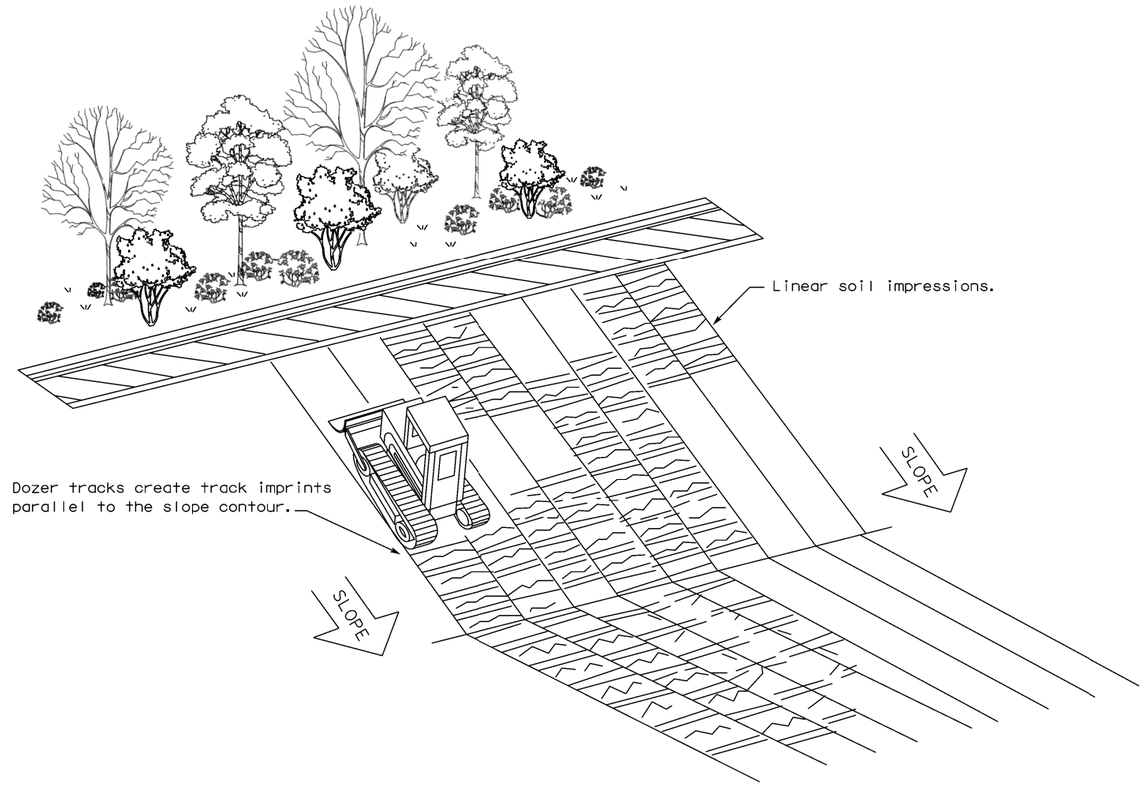
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VF	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0029	02	058	US 90
	DIST	COUNTY		SHEET NO.
	SAT	GUADALUPE		121

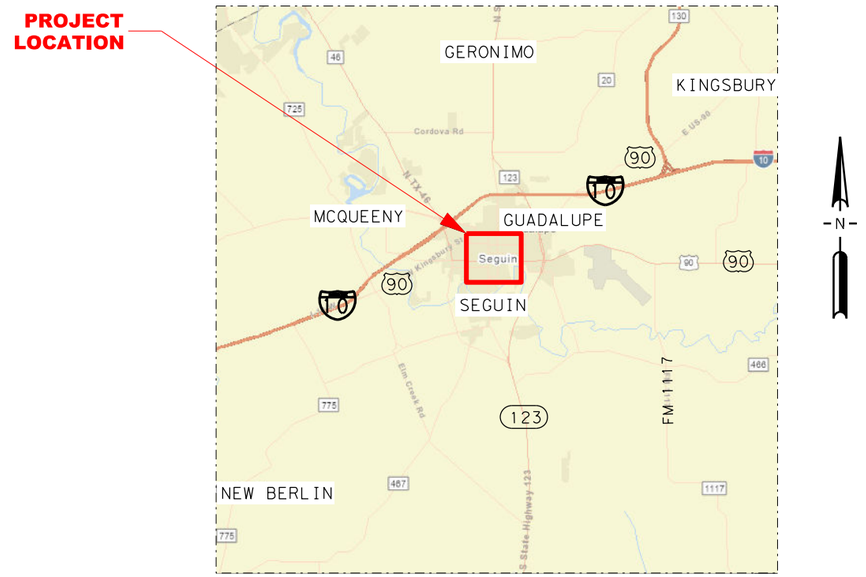
10/31/2023
FILE: ec116 (1).dgn

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF EXISTING SUBSURFACE UTILITIES
SUBSURFACE UTILITY ENGINEERING (SUE)
QUALITY LEVEL-B,C AND D

GUADALUPE COUNTY
HIGHWAY: US 90
PROJECT: US 90

VARIOUS LOCATIONS ALONG US90 AND US123
CONST. CSJ: 0029-02-058



VICINITY MAP
N.T.S.

Texas Department of Transportation

KCI TECHNOLOGIES
KCI ENGINEERS | PLANNERS | SCIENTISTS | CONSTRUCTION MANAGERS
5021 Lakawana Street
Suite 501
Dallas, TX 75247
Tel: 972-957-3016 Firm #: 10573

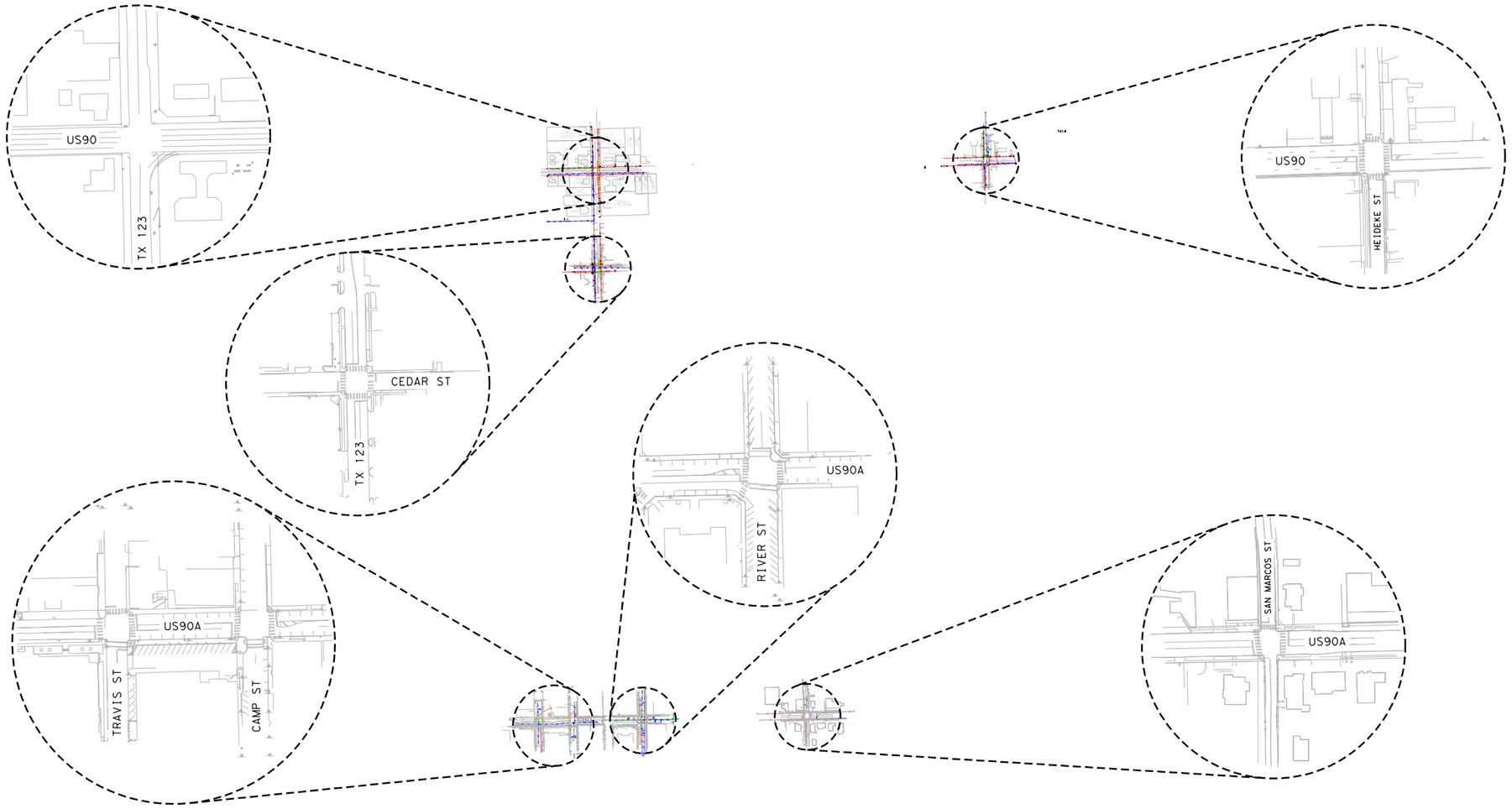
US90

TITLE SHEET

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO
LE	6	SEE TITLE SHEET		US90
DRAWN LE	STATE	DISTRICT	COUNTY	SHEET NO.
CHECKED CP	TEXAS	SAT	GUADALUPE	122
APPROVED CP	CONT	SECT	JOB	
	0029	02	058	

1/23/2023 M:\2022\Alamo City Eng\SH 16 and US 90\CADD\US90\US90_Sheet Files\US90_UTIL_SHT01_TTL.dgn



SHEET INDEX

SHEET NO.	NO OF NO	DESCRIPTION
1	1 OF 1	TITLE
2	1 OF 1	PLAN LAYOUT AND SHEET INDEX
3	1 OF 1	DATA SUMMARY SHEET
4	1 OF 7	US90A AT N TRAVIS ST
5	2 OF 7	US90A AT N CAMP ST
6	3 OF 7	US90A AT N RIVER ST
7	4 OF 7	US90A AT N SAN MARCOS ST
8	5 OF 7	TX 123 AT E CEDAR ST
9	6 OF 7	TX 123 AT US 90
10	7 OF 7	US 90 AT N HEIDEKE ST

Control Point # S04
Grid Northing: 13760458.54
Grid Easting: 2297534.95
NAVD 88 Elevation: 546.55'

Control Point # S03
Grid Northing: 13759910.16
Grid Easting: 2297500.10
NAVD 88 Elevation: 544.24'

Control Point # S02
Grid Northing: 13760212.54
Grid Easting: 2297777.26
NAVD 88 Elevation: 545.38'

Control Point # S01
Grid Northing: 13760212.54
Grid Easting: 2297777.26
NAVD 88 Elevation: 545.38'

COORDINATES SHOWN HEREON ARE BASED ON THE U.S. STATE PLANE COORDINATE SYSTEM OF 1983, TEXAS SOUTH CENTRAL ZONE NO. 4204, NORTH AMERICAN DATUM OF 1983 (NAD83) AS DETERMINED BY GPS OBSERVATIONS USING THE TXDOT VRS NETWORK, GEOID 12A MODEL A GRID TO SURFACE CONVERSION FACTOR OF 1.00013 (GUADALUPE COUNTY). ELEVATIONS ARE BASED ON NAVD 1988 BY TXDOT GPS VRS RTK OBSERVATIONS.

N

0' 500' 1000'
SCALE IN FEET

STATE OF TEXAS
COLE R. PRESTON
144595
REGISTERED
PROFESSIONAL ENGINEER

01/23/2023

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PLAN LAYOUT AND SHEET INDEX

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO
LE	6	SEE TITLE SHEET		US90
DRAWN	STATE	DISTRICT	COUNTY	SHEET NO.
LE	TEXAS	SAT	GUADALUPE	123
CHECKED	CONT	SECT	JOB	
CP	0029	02	058	
APPROVED				
CP				

1/23/2023 M:\2022\Alamo City Eng\SH 16 and US 90\CADD\US90\US90_Sheet Files\US90_UTIL_SHT02_LP.dgn

LEGEND

WATER	W1	CITY OF SEGUIN WATER
WATER	W1(D)	CITY OF SEGUIN WATER
WASTE WATER	WW1	CITY OF SEGUIN WASTE WATER
STORM DRAIN	SD1	CITY OF SEGUIN STORM
STORM DRAIN	SD1(D)	CITY OF SEGUIN STORM
ELECTRIC BURIED	E1	CITY OF SEGUIN
ELECTRIC BURIED	E1(D)	CITY OF SEGUIN
OVERHEAD UTILITIES	OHE	GVEC AND OTHER UTILITIES
TELEPHONE	T1	AT&T
TELEPHONE	T1(D)	AT&T
GAS	G1	CENTERPOINT
GAS	G1(D)	CENTERPOINT
GAS	G2	CENTERPOINT ABANDONED
GAS	G2(D)	CENTERPOINT ABANDONED
FIBER	FOC1	AT&T
FIBER	FOC1(D)	AT&T
CABLE	CATV1	SPECTRUM

* LINE SIZES ARE FROM BEST AVAIABLE RECORDS

IRRIGATION STAND PIPE	GAS METER
PEDESTRIAN SIGNAL BOX	GAS VALVE
SIGNAL CONTROL PANEL	GAS MANHOLE
TRAFFIC SIGNAL	FIBER OPTICS HAND HOLE
POWER POLE	WASTE WATER MANHOLE
POLE RISER	WATER MANHOLE
ELECTRIC JUNCTION BOX	WATER METER
ELECTRIC METER	WATER CAP
ELECTRIC PULL BOX	WATER VALVE
ELECTRIC PED	FIRE HYDRANT
CATV PEDESTAL	STORM MANHOLE
TELEPHONE MANHOLE	STORM INLET
TELEPHONE PED	STORM GRATE INLET
TELEPHONE JUNCTION BOX	HEAD WALL
	OUT OF SCOPE

OVERHEAD UTILITY LEGEND

NO.	UTILITY	OWNER
1	ELECTRIC	SEGUIN
2	FIBER	ATT
3	COPPER	ATT
4	CATV	SPECTRUM
5	FIBER	SPECTRUM

QUALITY LEVEL LEGEND

WW3	QUALITY LEVEL "B"
WW3(C)	QUALITY LEVEL "C"
WW3(D)	QUALITY LEVEL "D"

TYPICAL FOR ALL UTILITIES

NOTES:
OVERHEAD LABEL INDICATES
THE ORDER OF UTILITIES
FROM THE TOP DOWN E.G (1,3,4)
THE SAG ELEVATION IS SEPERATED
BY A COLON ":".

QUALITY LEVEL "D": INFORMATION DERIVED FROM EXISTING RECORDS AND/OR ORAL RECOLLECTIONS,

QUALITY LEVEL "C": INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION.

QUALITY LEVEL "B": INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES (AKA DESIGNATING).

QUALITY LEVEL "A": PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT (AKA LOCATING).

Utility	Utility Type	Utility Contact	Phone	Email	Address
Spectrum	Communications	Michael Macon	210-258-2832	Michael.Macon@charter.com	1900 Blue Crest Ln
Centerpoint Energy	Gas	James Gambino (Primary) James Steck Michael T. Brower	James Steck: 830-643-6929	james.p.gambino@centerpointenergy.com james.steck@centerpointenergy.com michael.brower@centerpointenergy.com	1079 Carlson Circle
ATT	Communications	Parish Austin	210-213-1893 O: 803-476-9280 M: 803-319-5437	pa2459@att.com	1010 N. St Mary's St., San Antonio, TX, 78215
City of Seguin	Electric, Storm Drainage, Wastewater, Water	Daniel Bermudez		dbermudez@seguintexas.gov	205 N River St
Guadalupe Valley Electric Coop Inc	Electric			jware@gvec.org	924 N State Highway 46

STATE OF TEXAS
COLE R. PRESTON
144595
REGISTERED
PROFESSIONAL ENGINEER
01/23/2023

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US90

LEGEND AND
UTILITY CONTACTS

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO
LE	6	SEE TITLE SHEET		US90
DRAWN	STATE	DISTRICT	COUNTY	SHEET NO.
LE	TEXAS	SAT	GUADALUPE	
CHECKED	CONT	SECT	JOB	124
CP	0029	02	058	
APPROVED				
CP				

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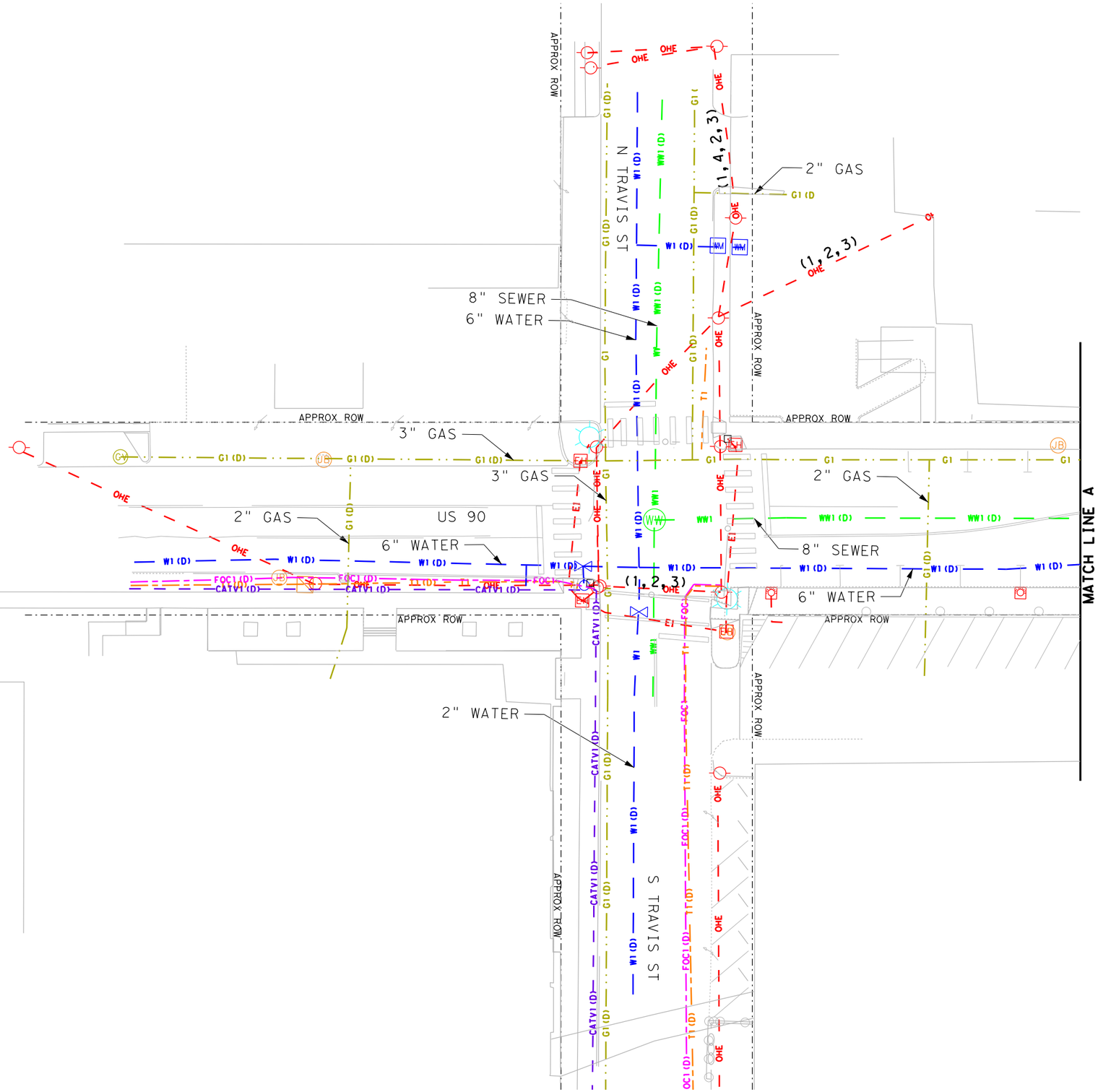

QUALITY LEVEL LEGEND

WW3	QUALITY LEVEL "B"
WW3(C)	QUALITY LEVEL "C"
WW3(D)	QUALITY LEVEL "D"

TYPICAL FOR ALL UTILITIES

N

0′ 20′ 40′
SCALE IN FEET

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COLE R. PRESTON
144595
REGISTERED
PROFESSIONAL ENGINEER

01/23/2023

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US90

US90A AT N TRAVIS ST

SHEET 1 OF 7

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO
LE	6	SEE TITLE SHEET		US90
DRAWN LE	STATE	DISTRICT	COUNTY	SHEET NO.
CHECKED CP	TEXAS	SAT	GUADALUPE	125
APPROVED CP	CONT	SECT	JOB	
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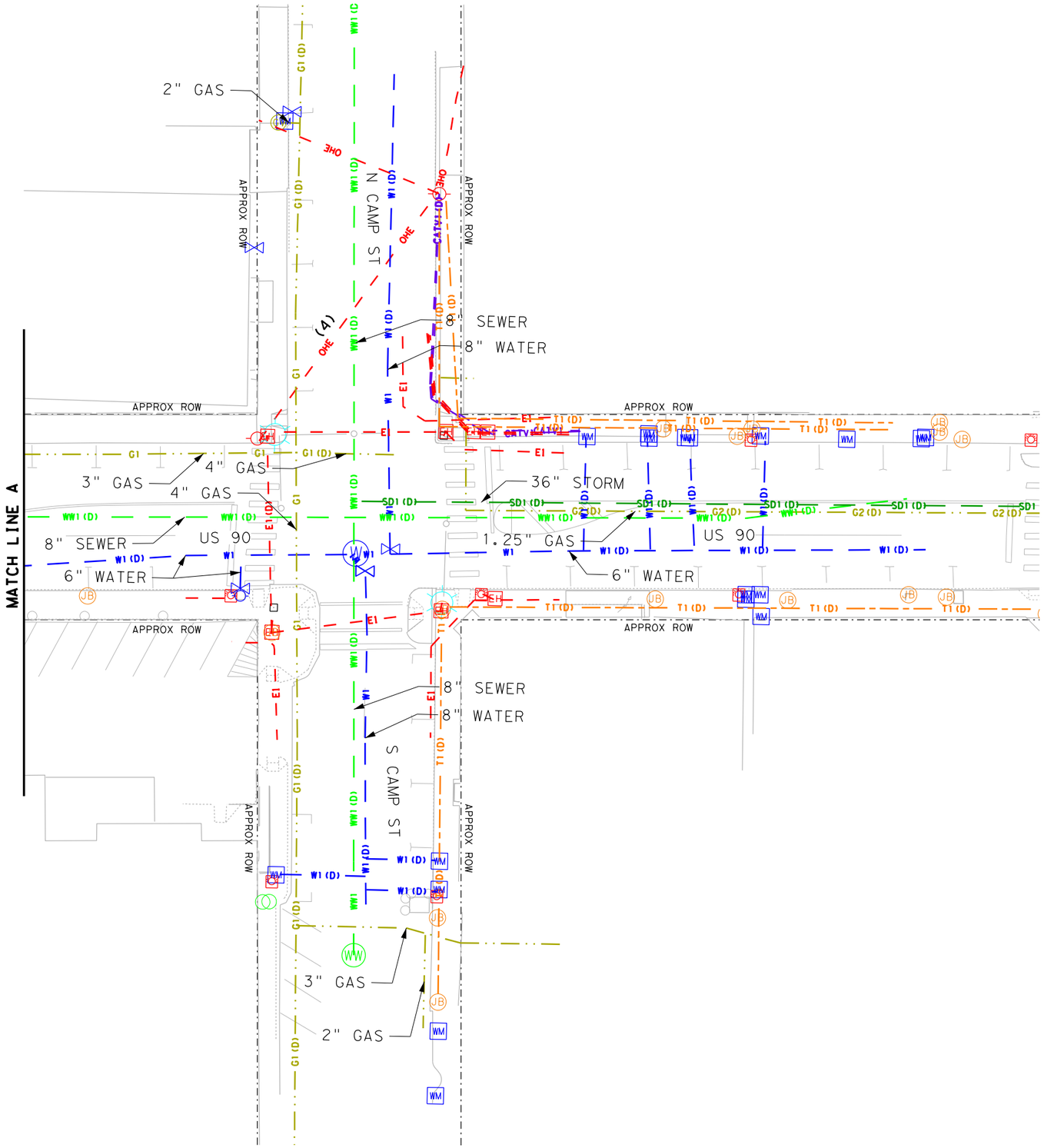

QUALITY LEVEL LEGEND

WW3	QUALITY LEVEL "B"
WW3(C)	QUALITY LEVEL "C"
WW3(D)	QUALITY LEVEL "D"

TYPICAL FOR ALL UTILITIES

-N-

0' 20' 40'
SCALE IN FEET

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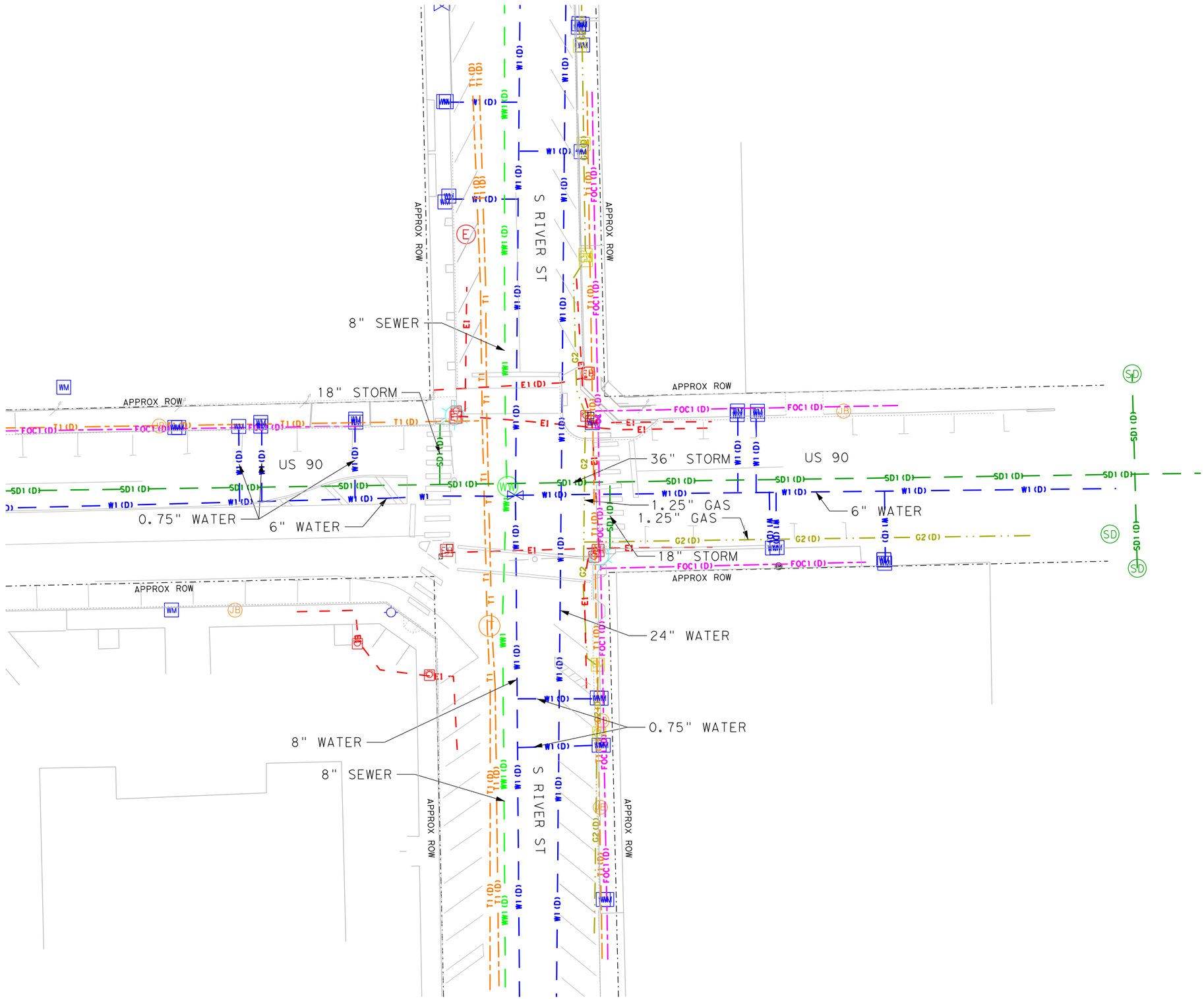
US90

US90A AT N CAMP ST

SHEET 2 OF 7

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
LE	6	SEE TITLE SHEET		US90
DRAWN LE	STATE	DISTRICT	COUNTY	SHEET NO.
CHECKED CP	TEXAS	SAT	GUADALUPE	126
APPROVED CP	CONT	SECT	JOB	
	0029	02	058	



QUALITY LEVEL LEGEND

WW3	QUALITY LEVEL "B"
WW3(C)	QUALITY LEVEL "C"
WW3(D)	QUALITY LEVEL "D"

TYPICAL FOR ALL UTILITIES

N

0' 20' 40'
SCALE IN FEET

STATE OF TEXAS
COLE R. PRESTON
144595
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01/23/2023

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US90

US90A AT S RIVER ST

SHEET 3 OF 7

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO
LE	6	SEE TITLE SHEET		US90
DRAWN LE	STATE	DISTRICT	COUNTY	SHEET NO.
CHECKED CP	TEXAS	SAT	GUADALUPE	127
APPROVED CP	CONT	SECT	JOB	
	0029	02	058	

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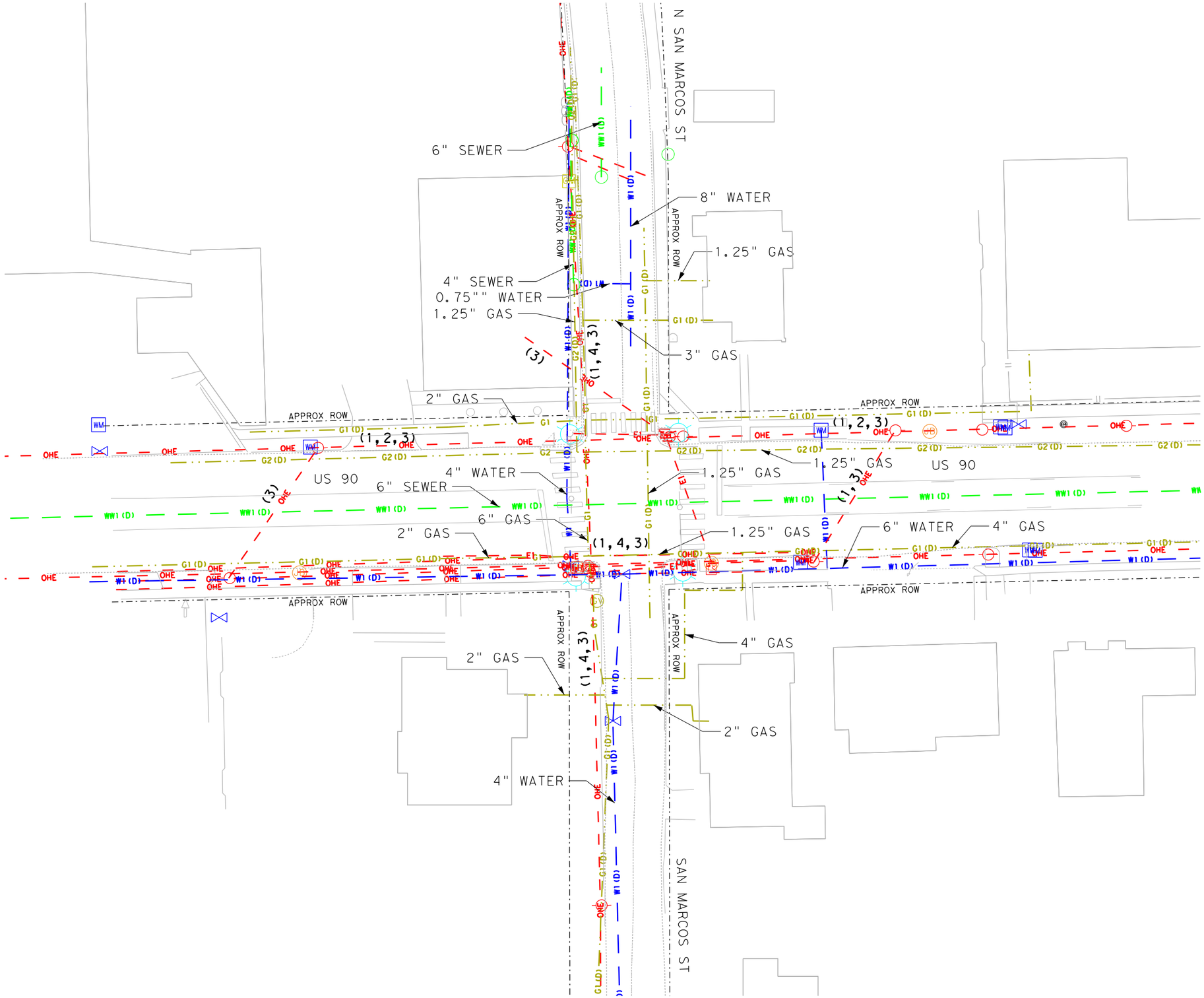

QUALITY LEVEL LEGEND

WW3	QUALITY LEVEL "B"
WW3(C)	QUALITY LEVEL "C"
WW3(D)	QUALITY LEVEL "D"

TYPICAL FOR ALL UTILITIES

-N-

0' 20' 40'
SCALE IN FEET

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REGISTERED
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US90

US90A AT N SAN MARCOS ST

SHEET 4 OF 7

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
LE	6	SEE TITLE SHEET		US90
DRAWN LE	STATE	DISTRICT	COUNTY	SHEET NO.
CHECKED CP	TEXAS	SAT	GUADALUPE	128
APPROVED CP	CONT	SECT	JOB	
	0029	02	058	

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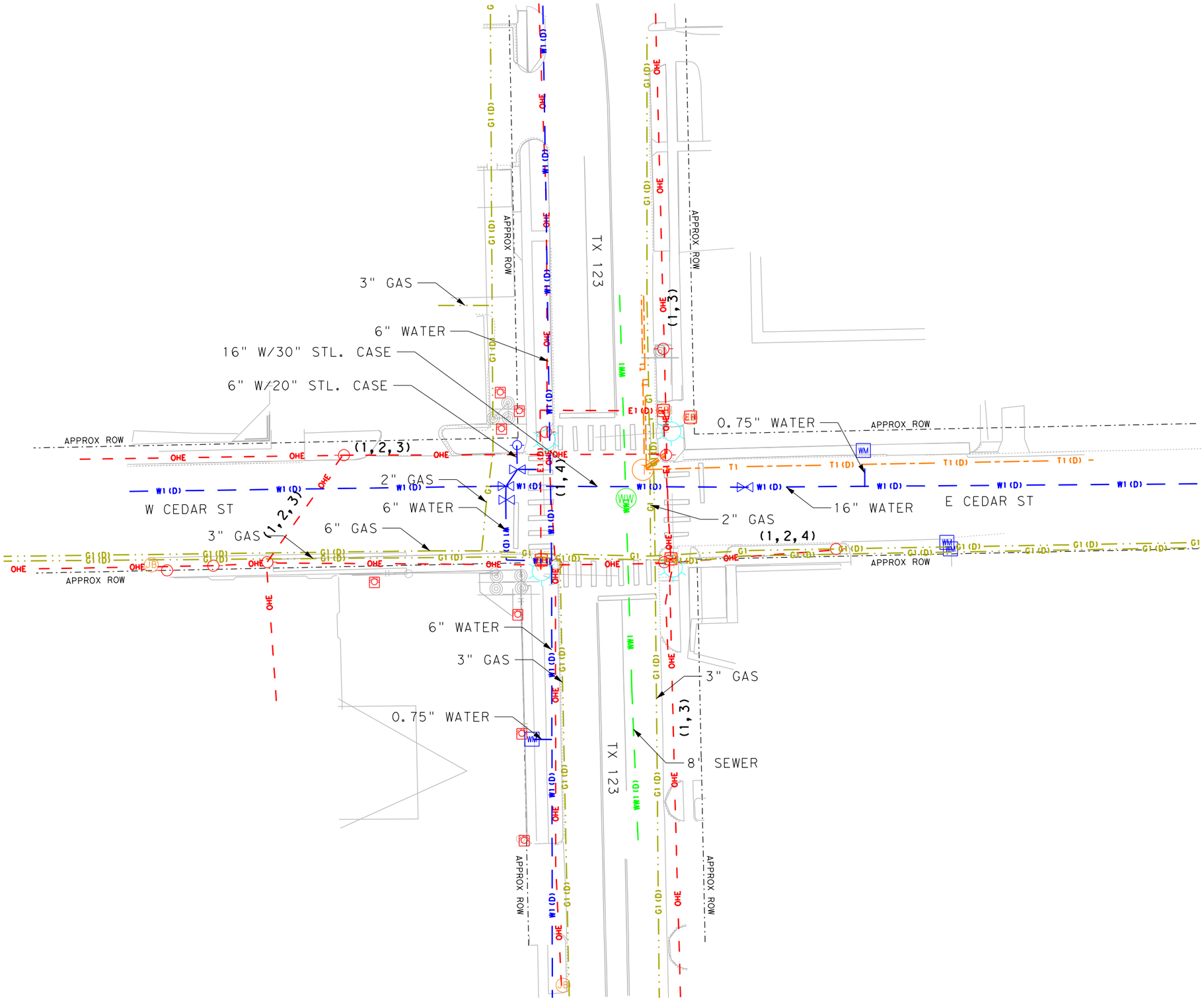

QUALITY LEVEL LEGEND

WW3	QUALITY LEVEL "B"
WW3(C)	QUALITY LEVEL "C"
WW3(D)	QUALITY LEVEL "D"

TYPICAL FOR ALL UTILITIES

-N-

0' 20' 40'
SCALE IN FEET

STATE OF TEXAS
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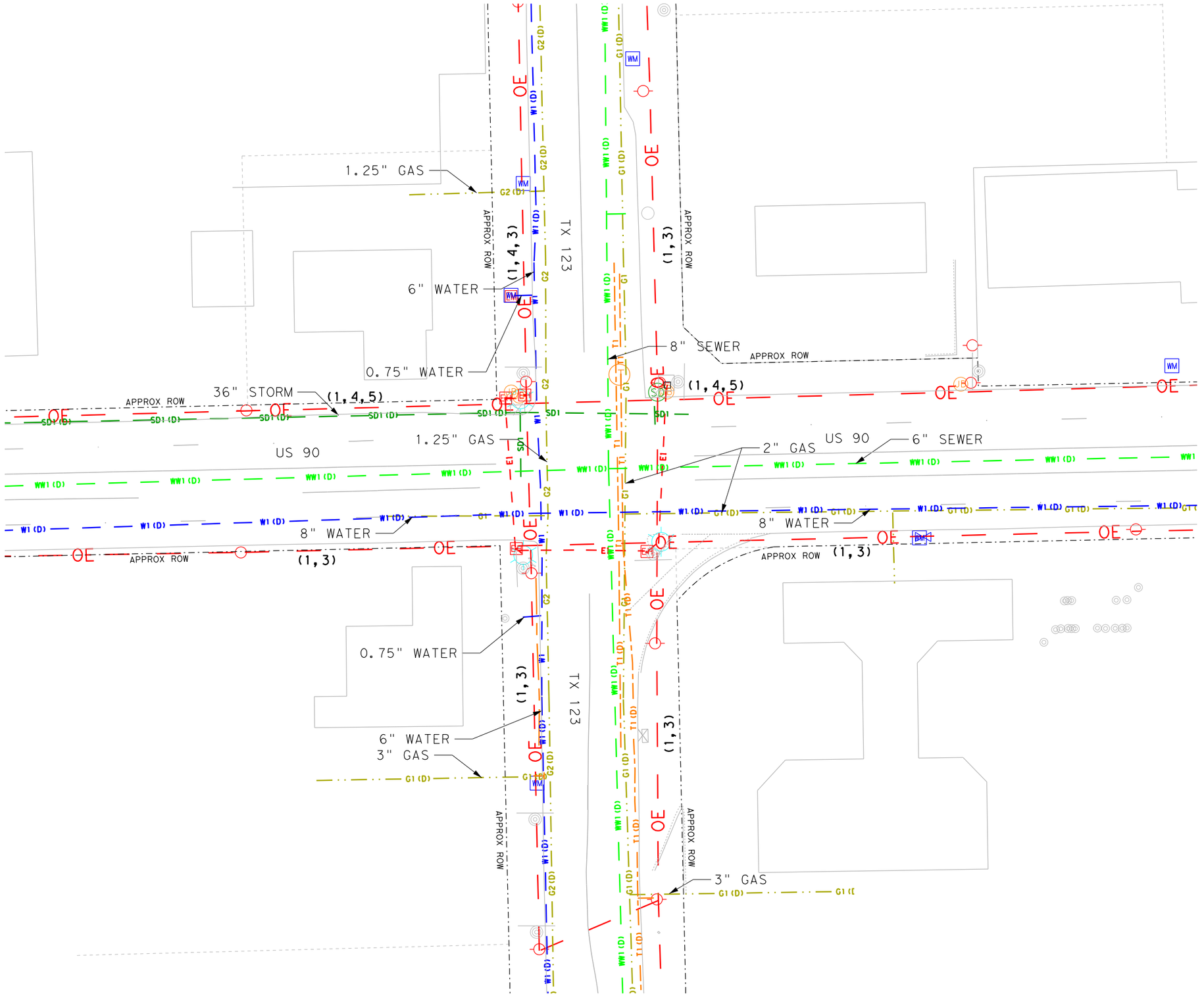
US90

TX 123 AT E CEDAR ST

SHEET 5 OF 7

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO
LE	6	SEE TITLE SHEET		US90
DRAWN LE	STATE	DISTRICT	COUNTY	SHEET NO.
CHECKED CP	TEXAS	SAT	GUADALUPE	129
APPROVED CP	CONT	SECT	JOB	
	0029	02	058	



QUALITY LEVEL LEGEND

WW3	QUALITY LEVEL "B"
WW3(C)	QUALITY LEVEL "C"
WW3(D)	QUALITY LEVEL "D"

TYPICAL FOR ALL UTILITIES

-N-

0' 20' 40'
SCALE IN FEET

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US90

TX 123 AT US 90

SHEET 6 OF 7

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO
LE	6	SEE TITLE SHEET		US90
DRAWN LE	STATE	DISTRICT	COUNTY	SHEET NO.
CHECKED CP	TEXAS	SAT	GUADALUPE	
APPROVED CP	CONT	SECT	JOB	130
	0029	02	058	

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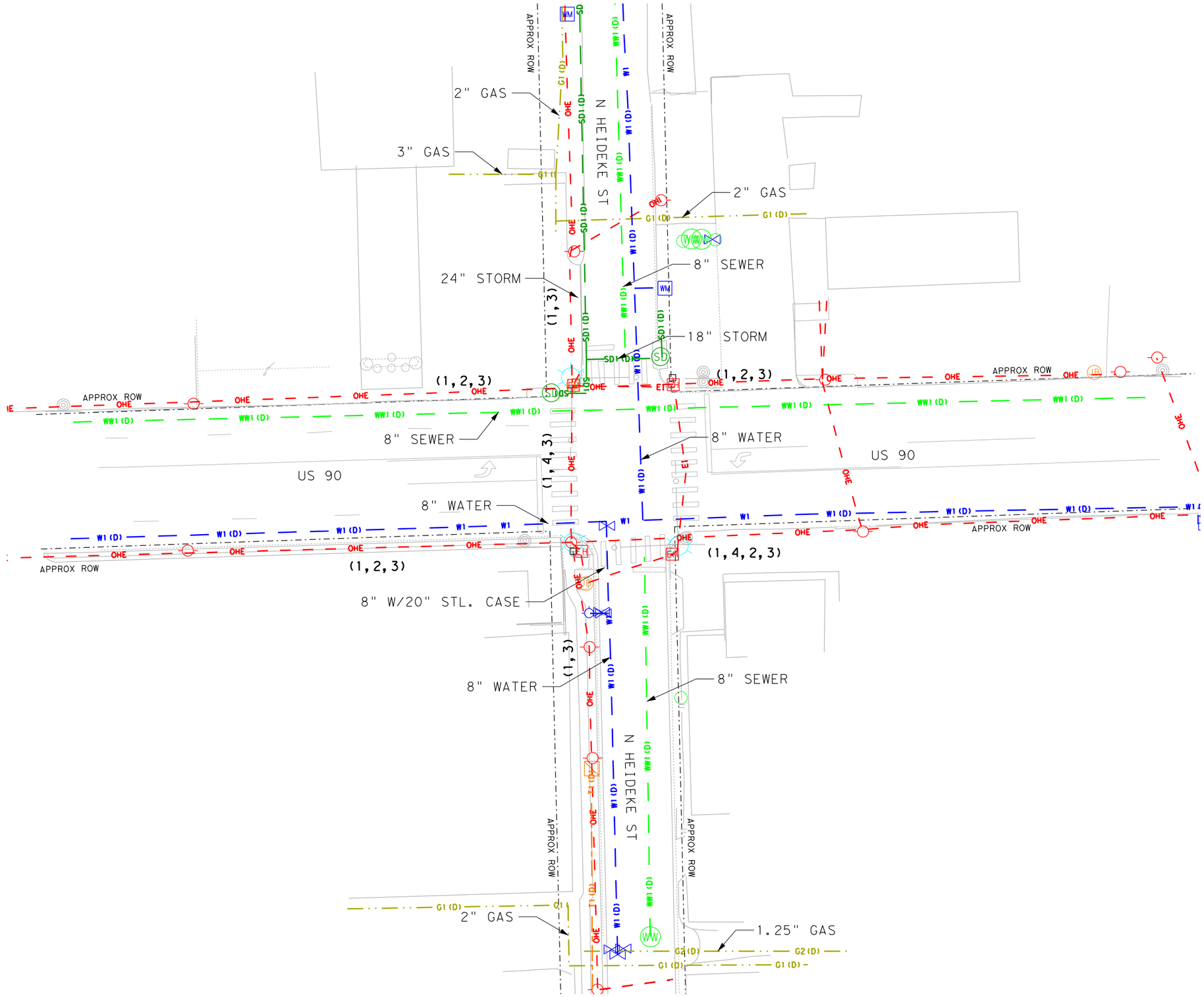

QUALITY LEVEL LEGEND

WW3	QUALITY LEVEL "B"
WW3(C)	QUALITY LEVEL "C"
WW3(D)	QUALITY LEVEL "D"

TYPICAL FOR ALL UTILITIES

-N-

0′ 20′ 40′

SCALE IN FEET

STATE OF TEXAS
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US90

US 90 AT N HEIDEKE ST

SHEET 7 OF 7

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO
LE	6	SEE TITLE SHEET		US90
DRAWN LE	STATE	DISTRICT	COUNTY	SHEET NO.
CHECKED CP	TEXAS	SAT	GUADALUPE	131
APPROVED CP	CONT	SECT	JOB	
	0029	02	058	

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