SUBJECT: PLANS AND PROPOSAL ADDENDUMS
PROJECT: STP 2022(581)HES CONTROL: 0005-01-115
COUNTY: ECTOR
LETTING: 06/02/2022
REFERENCE NO: 0524

PROPOSAL ADDENDUMS

_ PROPOSAL COVER
X BID INSERTS (SH. NO.: ALL)
X GENERAL NOTES (SH. NO.: G)
_ SPEC LIST (SH. NO.:)
_ SPECIAL PROVISIONS:
ADDED:

DELETED:

_ SPECIAL SPECIFICATIONS:
ADDED:

DELETED:

X OTHER: PLAN SHEETS AND OTHER CHANGES

DESCRIPTION OF ABOVE CHANGES
(INCLUDING PLANS SHEET CHANGES)

***** Bid Insert *****

ALL BID INSERT PROPOSAL SHEETS AND E&Q PLAN SHEETS 4A - 4C ARE REPLACED AS PART OF THIS ADDENDUM.

REVISED QUANTITIES FOR THE FOLLOWING BID ITEMS:
621-6005, 636-6001, 682-6003

ADDED THE FOLLOWING BID ITEMS:
686-6045

DELETED THE FOLLOWING BID ITEMS:
416-6030, 686-6047

***** General Notes *****

GENERAL NOTE PROPOSAL SHEET G AND PLAN SHEET 3C ARE REPLACED AS PART OF THIS ADDENDUM

SHEET G: ITEM 680 REMOVED NOTE
DESCRIPTION OF ABOVE CHANGES (CONTINUED)
(INCLUDING PLANS SHEET CHANGES)

***** Plan Sheets *****

SHEET 3C (GENERAL NOTES): REFER TO GENERAL NOTES CHANGES AS NOTED ABOVE

SHEET 4A - 4C (ESTIMATE & QUANTITY): REFER TO BID INSERTS CHANGES AS NOTED ABOVE

SHEETS 5 - 6: REMOVED ITEMS

SHEETS 8, 10: REMOVED ITEM, ADDED ITEM, REVISED QUANTITIES

SHEETS 48 - 49: ADDED PLAN SHEET NUMBERS AND ADDED ADDITIONAL ALLUMINUM SIGNS

SHEETS 78 - 79: REMOVED COBRA HEAD LUMINAIRE AND UPDATED QUANTITIES

SHEET 91: UPDATED QUANTITIES IN SHIPPING PARTS LIST TABLE

SHEET 103: ADDED INFO FOR 24" DIAMETER

SHEETS 122 - 124: REVISED PLAN SHEET NUMBERS

Item 666 Retroreflectorized Pavement Markings

Type I markings shall meet the minimum retroreflectivity values defined by Article 4.4 Retroreflectivity Requirements.

Place Type I pavement markings with a ribbon-gun application.

Measure thickness for markings in accordance with Tex-854-B using usage rates (Part II).

Item 672: Raised Pavement Markers

Item 677: Eliminating Existing Pavement Markings and Markers

Submit eliminating plan for approval by the Engineer in accordance with Item 677.

Item 680: Highway Traffic Signals

Wire signal installations to operate in accordance with the phase diagrams shown in the plans. Set time intervals as directed.

Use aluminum signal heads and components for this project.

Provide an approved technician who is available at all times by an on-call basis for maintenance of any installed signal equipment during the period of time in which installed signals are operating, including the test period for this project.

Provide a minimum length of 24" for each signal cable in each signal pole. All conductors are to be continuous without splices between terminals.

Remove existing foundations which are to be abandoned a minimum of one foot (1') below subgrade or two feet (2') below natural ground. This work is considered subsidiary to Item 680, "Highway Traffic Signals".

When D3-1 signs are required, provide one piece 0.080" (80 mil) thick aluminum alloy sheet sign blank with Type C (high specific intensity) green sign background and Type C (high specific intensity) white letters, border, and/or symbols in accordance with the details shown on the plans. Overhead signs D3-1 and R10-12 are subsidiary item 680.

Initially operate traffic signals at new locations in flash mode until such time as is approved so that phase sequencing may be initiated.

County: ECTOR, etc. **Sheet:**
Highway: BI 20, etc. **Control: 0005-01-115, etc.**

Ensure the safe movement of traffic through any intersection where construction renders an existing traffic signal inoperable. Enlist off-duty law enforcement officers to assist in maintaining safe and efficient traffic movement through a disabled signalized intersection. Give the Engineer 48 hours advance notification prior to disabling any traffic signal and at that time inform the Engineer of the method or methods of ensuring safe movement of traffic through the intersection. Enlistment of off-duty law enforcement will not be paid for directly, but is considered subsidiary to this bid item.

Changes in the locations of poles, conduit, pull boxes, or other items as shown on the plans may be made in those instances deemed necessary, or when requested by the Contractor and approved.

Replace any LEDs that fail during the thirty (30) day test period in a timely manner. Equipment and incidentals necessary for replacement of failed LEDs are considered subsidiary to the various bid items and will not be paid for directly.

Supply a TS-2 Type 1 traffic signal controller assembly with an Intelight X3 Controller. Verify the controller has Ethernet capability, an internal embedded web page (web server), along with internal Power over Ethernet (POE), and 4 port harden internal Ethernet switch. The web browser and controller must have the capability to have separate passwords and both are I.P. addressable. Provide the controller with the latest firmware release. Provide the software and all necessary components for an intelligent detection control system. Provide Cabinet Option 4 as defined by DMS-11170.

Item 682: Vehicle and Pedestrian Signal Heads

Replace any LEDs that fail during the thirty (30) day test period in a timely manner. Equipment and incidentals necessary for replacement of failed LEDs are considered subsidiary to the various bid items and will not be paid for directly.

Use aluminum signal heads and components for this project.

Item 684: Traffic Signal Cables

Attach permanent non-metallic tags to each signal cable in the access compartment of each signal pole and inside the traffic signal controller cabinet. Conductor(s) and/or cable(s) which connects signal heads to the terminal block will be tagged to indicate which specific signal head is being served. Signal cable at the traffic signal controller cabinet will be tagged to identify separate signal phases. Material, labor, tools, equipment, and incidentals are necessary to perform this work are subsidiary to the various bid items.

Item 685: Roadside Flashing Beacon Assemblies

Provide a minimum of 7 feet from the roadway surface to the bottom of the flashing signal head.

Use concrete drilled shaft foundations for this project.

Use Sch. 80 poles to help with breaking over in high winds.

Item 6185: Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)

General Note 5 of TCP (2-1)-18 provides for additional shadow vehicle(s) with truck mounted attenuator (TMA); one (1) additional shadow vehicle with TMA is included in the basis of estimate

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0005-01-115 **DISTRICT** Odessa **COUNTY** Ector, Midland, Reeves, Winkler
HIGHWAY BI 20E, SH 302, SH 349, US 285

													TOTAL EST.	TOTAL FINAL
			CONTROL SECTION JOB	**0005-01-115**		**0139-04-053**		**0380-09-097**		**0463-06-037**				
			PROJECT ID	**A00176674**		**A00176963**		**A00177040**		**A00176956**				
			COUNTY	**Ector**		**Reeves**		**Midland**		**Winkler**				
			HIGHWAY	**BI 20E**		**US 285**		**SH 349**		**SH 302**				
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL			
	416-6031	DRILL SHAFT (TRF SIG POLE) (30 IN)	LF	56.000				24.000		12.000			92.000	
	416-6032	DRILL SHAFT (TRF SIG POLE) (36 IN)	LF			42.000				28.000			70.000	
	416-6034	DRILL SHAFT (TRF SIG POLE) (48 IN)	LF	50.000				44.000					94.000	
	500-6001	MOBILIZATION	LS	1.000									1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	4.000									4.000	
	506-6042	BIODEG EROSN CONT LOGS (INSTL) (18")	LF	90.000		90.000		90.000		120.000			390.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	90.000		90.000		90.000		120.000			390.000	
	618-6023	CONDT (PVC) (SCH 40) (2")	LF	3,806.000									3,806.000	
	618-6024	CONDT (PVC) (SCH 40) (2") (BORE)	LF	956.000									956.000	
	618-6029	CONDT (PVC) (SCH 40) (3")	LF	880.000									880.000	
	618-6030	CONDT (PVC) (SCH 40) (3") (BORE)	LF	463.000									463.000	
	618-6033	CONDT (PVC) (SCH 40) (4")	LF	547.000									547.000	
	618-6034	CONDT (PVC) (SCH 40) (4") (BORE)	LF	276.000									276.000	
	618-6046	CONDT (PVC) (SCH 80) (2")	LF			132.000		236.000		155.000			523.000	
	618-6058	CONDT (PVC) (SCH 80) (4")	LF			198.000		17.000		135.000			350.000	
	618-6059	CONDT (PVC) (SCH 80) (4") (BORE)	LF			106.000		349.000		85.000			540.000	
	620-6009	ELEC CONDR (NO.6) BARE	LF	7,516.000		411.000		509.000		370.000			8,806.000	
	620-6010	ELEC CONDR (NO.6) INSULATED	LF	4,084.000									4,084.000	
	620-6012	ELEC CONDR (NO.4) INSULATED	LF			60.000		45.000		60.000			165.000	
1	621-6005	TRAY CABLE (4 CONDR) (12 AWG)	LF			274.000		723.000		105.000			1,102.000	
	624-6002	GROUND BOX TY A (122311)W/APRON	EA	25.000		3.000		4.000		3.000			35.000	
	624-6008	GROUND BOX TY C (162911)W/APRON	EA	8.000									8.000	
	624-6010	GROUND BOX TY D (162922)W/APRON	EA			1.000		1.000		1.000			3.000	
	628-6145	ELC SRV TY D 120/240 060(NS)SS(E)SP(O)	EA	1.000		1.000		1.000		1.000			4.000	
1	636-6001	ALUMINUM SIGNS (TY A)	SF	108.000		45.000		51.000		44.000			248.000	
	644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	7.000									7.000	
	644-6004	IN SM RD SN SUP&AM TY10BWG(1)SA(T)	EA	23.000		6.000		4.000		6.000			39.000	
	644-6007	IN SM RD SN SUP&AM TY10BWG(1)SA(U)	EA	4.000									4.000	
	644-6030	IN SM RD SN SUP&AM TYS80(1)SA(T)	EA			1.000							1.000	
	644-6033	IN SM RD SN SUP&AM TYS80(1)SA(U)	EA							2.000			2.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA	38.000		8.000		6.000		9.000			61.000	
	666-6030	REFL PAV MRK TY I (W)8"(DOT)(100MIL)	LF	66.000									66.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	2,405.000		425.000		640.000		1,720.000			5,190.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	162.000		98.000		114.000		54.000			428.000	
	666-6054	REFL PAV MRK TY I (W)(ARROW)(100MIL)	EA	7.000		4.000		4.000		8.000			23.000	
	666-6078	REFL PAV MRK TY I (W)(WORD)(100MIL)	EA	7.000		4.000		4.000		8.000			23.000	
	666-6102	REF PAV MRK TY I(W)36"(YLD TRI)(100MIL)	EA							6.000			6.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0005-01-115 **DISTRICT** Odessa **COUNTY** Ector, Midland, Reeves, Winkler
HIGHWAY BI 20E, SH 302, SH 349, US 285

													TOTAL EST.	TOTAL FINAL
			CONTROL SECTION JOB		**0005-01-115**		**0139-04-053**		**0380-09-097**		**0463-06-037**			
			PROJECT ID		**A00176674**		**A00176963**		**A00177040**		**A00176956**			
			COUNTY		**Ector**		**Reeves**		**Midland**		**Winkler**			
			HIGHWAY		**BI 20E**		**US 285**		**SH 349**		**SH 302**			
ALT	**BID CODE**	**DESCRIPTION**		**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	666-6147	REFL PAV MRK TY I (Y)24"(SLD)(100MIL)		LF			14.000						14.000	
	666-6300	RE PM W/RET REQ TY I (W)4"(BRK)(100MIL)		LF	980.000		643.000		380.000				2,003.000	
	666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)		LF	5,862.000		3,582.000		1,820.000		1,720.000		12,984.000	
	666-6312	RE PM W/RET REQ TY I (Y)4"(BRK)(100MIL)		LF					292.000				292.000	
	666-6315	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL)		LF	5,678.000		5,084.000		2,070.000		3,080.000		15,912.000	
	668-6034	PREFAB PAV MRK TY B (W)(36")(YLD TRI)		EA	13.000								13.000	
	672-6007	REFL PAV MRKR TY I-C		EA			56.000		52.000		92.000		200.000	
	672-6009	REFL PAV MRKR TY II-A-A		EA			258.000		100.000		160.000		518.000	
	672-6010	REFL PAV MRKR TY II-C-R		EA	159.000								159.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")		LF	12,520.000		9,309.000		4,562.000		4,800.000		31,191.000	
	677-6003	ELIM EXT PAV MRK & MRKS (8")		LF	2,405.000		140.000		640.000		1,720.000		4,905.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")		LF	34.000		98.000		114.000		54.000		300.000	
	677-6008	ELIM EXT PAV MRK & MRKS (ARROW)		EA	7.000				3.000		7.000		17.000	
	677-6012	ELIM EXT PAV MRK & MRKS (WORD)		EA	7.000				3.000		8.000		18.000	
	677-6019	ELIM EXT PAV MRK & MRKS (36")(YLD TRI)		EA			4.000				12.000		16.000	
	680-6002	INSTALL HWY TRF SIG (ISOLATED)		EA	1.000		1.000		1.000		1.000		4.000	
	682-6001	VEH SIG SEC (12")LED(GRN)		EA	12.000		9.000		12.000		8.000		41.000	
	682-6002	VEH SIG SEC (12")LED(GRN ARW)		EA	8.000		1.000		2.000		1.000		12.000	
1	682-6003	VEH SIG SEC (12")LED(YEL)		EA	24.000		13.000		20.000		12.000		69.000	
	682-6004	VEH SIG SEC (12")LED(YEL ARW)		EA	8.000		1.000		2.000		1.000		12.000	
	682-6005	VEH SIG SEC (12")LED(RED)		EA	12.000		9.000		12.000		8.000		41.000	
	682-6006	VEH SIG SEC (12")LED(RED ARW)		EA	10.000								10.000	
	682-6033	BACK PLATE (12")(1 SEC)(VENTED)ALUM		EA	12.000								12.000	
	682-6050	BACKPLATE W/REFL BRDR(5 SEC)		EA			1.000		2.000		1.000		4.000	
	682-6054	BACKPLATE W/REF BRDR(3 SEC)(VENT)ALUM		EA	18.000								18.000	
	682-6055	BACKPLATE W/REF BRDR(4 SEC)(VENT)ALUM		EA	2.000								2.000	
	682-6060	BACKPLATE W/REFL BRDR(3 SEC)		EA			8.000		10.000		7.000		25.000	
	684-6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)		LF	3,518.000								3,518.000	
	684-6030	TRF SIG CBL (TY A)(14 AWG)(4 CONDR)		LF	672.000								672.000	
	684-6033	TRF SIG CBL (TY A)(14 AWG)(7 CONDR)		LF	145.000		1,528.000		1,465.000		1,201.000		4,339.000	
	684-6038	TRF SIG CBL (TY A)(14 AWG)(12 CONDR)		LF	3,469.000								3,469.000	
	685-6001	INSTALL RDSD FLASH BEACON ASSEMBLY		EA	4.000								4.000	
	685-6003	REMOVE RDSD FLASH BEACON ASSEMBLY		EA	4.000								4.000	
	685-6004	INSTL RDSD FLSH BCN ASSM (SOLAR PWRD)		EA	2.000		2.000		4.000		2.000		10.000	
	686-6025	INS TRF SIG PL AM (S)1 ARM(24')		EA							1.000		1.000	
	686-6027	INS TRF SIG PL AM(S)1 ARM(24')LUM		EA	2.000								2.000	
	686-6031	INS TRF SIG PL AM(S)1 ARM(28')LUM		EA					2.000				2.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0005-01-115 **DISTRICT** Odessa **COUNTY** Ector, Midland, Reeves, Winkler
HIGHWAY BI 20E, SH 302, SH 349, US 285

				0005-01-115		0139-04-053		0380-09-097		0463-06-037		TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB											
		PROJECT ID		**A00176674**		**A00176963**		**A00177040**		**A00176956**			
		COUNTY		**Ector**		**Reeves**		**Midland**		**Winkler**			
		HIGHWAY		**BI 20E**		**US 285**		**SH 349**		**SH 302**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	686-6035	INS TRF SIG PL AM(S)1 ARM(32')LUM	EA	2.000								2.000	
	686-6039	INS TRF SIG PL AM(S)1 ARM(36')LUM	EA			1.000				1.000		2.000	
	686-6041	INS TRF SIG PL AM(S)1 ARM(40')	EA							1.000		1.000	
1	686-6045	INS TRF SIG PL AM(S)1 ARM(44')	EA			2.000						2.000	
	686-6055	INS TRF SIG PL AM(S)1 ARM(50')LUM	EA	1.000				1.000				2.000	
	686-6057	INS TRF SIG PL AM(S)1 ARM(55')	EA	1.000								1.000	
	686-6059	INS TRF SIG PL AM(S)1 ARM(55')LUM	EA					1.000				1.000	
	6056-6001	PREFORMED IN-LANE(TRANS) RUMBLE STRIP	LF			80.000		160.000		80.000		320.000	
	6058-6001	BBU SYSTEM (EXTERNAL BATT CABINET)	EA	1.000								1.000	
	6083-6001	VIDEO IMAGING AND RAD VEH DETECTION SYS	EA	1.000								1.000	
	6185-6002	TMA (STATIONARY)	DAY	20.000		10.000		10.000		10.000		50.000	
	6185-6003	TMA (MOBILE OPERATION)	HR	40.000		24.000		16.000		24.000		104.000	
	6306-6002	VIVDS CAM ASSY FXD LNS	EA			3.000		4.000		3.000		10.000	
	6306-6005	VIVDS CNTRL SOFTWARE	EA			1.000		1.000		1.000		3.000	
	6306-6007	VIVDS CABLING	LF			671.000		896.000		783.000		2,350.000	
	08	CONTRACTOR FORCE ACCOUNT EROSION CONTROL MAINTENANCE (NON-PARTICIPATING)	LS	1.000								1.000	
		CONTRACTOR FORCE ACCOUNT SAFETY CONTINGENCY (NON-PARTICIPATING)	LS	1.000								1.000	
	26	CONTRACTOR FORCE ACCOUNT OR AGREED UNIT PRICE (PARTICIPATING)	LS	1.000								1.000	

1 REVISED PER ADDENDUM 1 05/24/2022

SIGNING AND STRIPING SUMMARY

SHEET NUMBER	FROM	TO	LENGTH	ITEM 0636 6001	ITEM 0644 6001	ITEM 0644 6004	ITEM 0644 6007	ITEM 0644 6076	ITEM 0666 6030	ITEM 0666 6036	ITEM 0666 6048	ITEM 0666 6054	ITEM 0666 6078	ITEM 0666 6300	ITEM 0666 6303	ITEM 0666 6315	ITEM 0668 6034	ITEM 0672 6010	ITEM 0677 6001	ITEM 0677 6003	ITEM 0677 6007	ITEM 0677 6008	ITEM 0677 6012	ITEM 6185 6003
				1 ALUMINUM SIGNS (TY A)	IN SM RD SN SUP&AM TY10BWG(1)SA (P)	IN SM RD SN SUP&AM TY10BWG(1)SA (T)	IN SM RD SN SUP&AM TY10BWG(1)SA (U)	REMOVE SM RD SN SUP&AM	REFL PAV MRK TY I (W)8"(DOT)(100 MIL)	REFL PAV MRK TY I (W)8"(SLD)(100M IL)	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	REFL PAV MRK TY I (W)(ARRO W)(100MIL)	REFL PAV MRK TY I (W)(WORD)(100 MIL)	RE PM W/RET REQ TY I (W)4"(BRK)(1 00MIL	RE PM W/RET REQ TY I (W)4"(SLD) (100MIL	RE PM W/RET REQ TY I (Y)4"(SLD)(100MIL	PREFAB PAV MRK TY B (W)(36")(YL D TRI)	REFL PAV MRKR TY II-C-R	ELIM EXT PAV MRK & MRKS (4")	ELIM EXT PAV MRK & MRKS (8")	ELIM EXT PAV MRK & MRKS (24")	ELIM EXT PAV MRK & MRKS (ARROW)	ELIM EXT PAV MRK & MRKS (WORD)	TMA (MOBILE OPERATION)
				SF	EA	EA	EA	EA	LF	LF	LF	EA	EA	LF	LF	LF	EA	EA	LF	LF	LF	EA	EA	HR
PAVEMENT MARKING PLAN																								40
1	102+23	107+79	0.11			1		1		365		1	1	280	1111	1113		33	2504	365		1	1	
2	107+79	113+34	0.11		5	9	1	17	36	812	79	2	2	220	1915	1785	6	44	3920	812	16	2	2	
3	113+34	118+68	0.10		1	9	2	15	30	992	83	3	2	250	1933	1885	7	59	4068	992	18	3	2	
4	118+68	123+38	0.09		1	4	1	5		236		1	2	230	903	895		23	2028	236		1	2	
FLASHING BEACON PLAN																								
1	-	-		54																				
FLASHING BEACON PLAN																								
1	-	-		54																				
CSJ: 0005-01-115 TOTAL				108	7	23	4	38	66	2405	162	7	7	980	5862	5678	13	159	12520	2405	34	7	7	40

STATE OF TEXAS
OLUWASEYE P. AKELE
125497
LICENSED PROFESSIONAL ENGINEER

05/23/2022

1 REVISED PER ADDENDUM 1 05/24/2022

REV. NO.	DATE	DESCRIPTION	BY

ARCADIS Design & Consultancy for natural and built assets

FIRM #533

Texas Department of Transportation

BI 20 at SL 338

CONSOLIDATED SUMMARY

SHEET 1 OF 3

	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
DSN:	6	TEXAS				BI 20, ETC
CK:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
DRN:	ODA	ECTOR, ETC.	0005	01	115, ETC.	5
CK:						

TRAFFIC SIGNAL SUMMARY

DESCRIPTION	ITEM 0416 6031 (1) DRILL SHAFT (TRF SIG POLE) (30 IN) LF	ITEM 0416 6034 DRILL SHAFT (TRF SIG POLE) (48 IN) LF	ITEM 506 6042 BIODEG EROSN CONT LOGS (INSTL) (18") LF	ITEM 506 6043 BIODEG EROSN CONT LOGS (REMOVE) LF	ITEM 0618 6023 CONDT (PVC) (SCH 40) (2") LF	ITEM 0618 6024 CONDT (PVC) (SCH 40) (2") (BORE) LF	ITEM 0618 6029 CONDT (PVC) (SCH 40) (3") LF	ITEM 0618 6030 CONDT (PVC) (SCH 40) (3") (BORE) LF	ITEM 0618 6033 CONDT (PVC) (SCH 40) (4") LF	ITEM 0618 6034 CONDT (PVC) (SCH 40) (4") (BORE)	ITEM 0620 6009 ELEC CONDR (NO.6) BARE LF	ITEM 0620 6010 ELEC CONDR (NO.6) INSULATED LF	ITEM 0624 6002 GROUND BOX TY A (122311)W/A PRON EA	ITEM 0624 6008 GROUND BOX TY C (162911)W/ APRON EA	ITEM 0628 6145 ELC SRV TY D 120/240 060(NS)SS(E) SP(O) EA	ITEM 0680 6002 INSTALL HWY TRF SIG (ISOLATED) EA	ITEM 0682 6001 VEH SIG SEC (12") LED (GRN) EA	ITEM 0682 6002 VEH SIG SEC (12") LED (GRN ARW) EA	ITEM 0682 6003 VEH SIG SEC (12") LED (YEL) EA	ITEM 0682 6004 VEH SIG SEC (12") LED (YEL ARW) EA	ITEM 0682 6005 VEH SIG SEC (12") LED (RED) EA
CONDUIT PLAN																					
SHEET 1 OF 9					947	281	180	276		182	2067	1246	8	3							
SHEET 2 OF 9					769		567		547		1964	1588	1	2	1	1					
SHEET 3 OF 9					172	575	133	187		94	1338	788	5	3							
SHEET 4 OF 9					1022	50					1122		5								
SHEET 5 OF 9					400						406		1								
SHEET 6 OF 9					224	50					312		3								
SHEET 7 OF 9					228						231	462									
EAST INTERSECTION																					
TRAFFIC SIGNAL PLAN																					
SHEET 1 OF 2			45	45													6	4	6	4	6
SHEET 2 OF 2	28	25	45	45																	
FLASHING BEACON																					
SHEET 1 OF 1					22						38		1						6		
FLASHING BEACON REMOVAL																					
SHEET 1 OF 1																					
WEST INTERSECTION																					
TRAFFIC SIGNAL PLAN																					
SHEET 1 OF 2																	6	4	6	4	6
SHEET 2 OF 2	28	25																			
FLASHING BEACON																					
SHEET 1 OF 1					22						38		1						6		
FLASHING BEACON REMOVAL																					
SHEET 1 OF 1																					
CSJ: 0005-01-115 TOTAL	**56**	**50**	**90**	**90**	**3806**	**956**	**880**	**463**	**547**	**276**	**7516**	**4084**	**25**	**8**	**1**	**1**	**12**	**8**	**24**	**8**	**12**

05/23/2022

(1) REVISED PER ADDENDUM 1 05/24/2022

REV. NO.	DATE	DESCRIPTION	BY

ARCADIS Design & Consultancy for natural and built assets

FIRM #533

Texas Department of Transportation

BI 20 at SL 338

CONSOLIDATED SUMMARY

SHEET 2 OF 3

	FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
DSN:	6	TEXAS				BI 20, ETC.
CK:						
DRN:	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CK:	ODA	ECTOR, ETC.	0005	01	115, ETC.	6

SUMMARY OF SIGNING AND PAVEMENT MARKING

LOCATION	636 6001 ALUMINUM SIGNS (TY A)	644 6004 IN SM RD SN SUP&AM TY10BWG(1)SA(T)	644 6030 IN SM RD SN SUP&AM TYS80(1)SA(T)	644 6033 IN SM RD SN SUP&AM TYS80(1) SA(U)	644 6076 REMOVE SM RD SN SUP&AM	666 6036 REFL PAV MRK TY I (W)8"(SLD) (100MIL)	666 6048 REFL PAV MRK TY I (W)24"(SLD) (100MIL)	666 6054 REFL PAV MRK TY I (W)(ARROW) (100MIL)	666 6078 REFL PAV MRK TY I (W)(WORD) (100MIL)	666 6102 REF PAV MRK TY I(W)36"(YLD TRI) (100MIL)	666 6147 REFL PAV MRK TY I (Y)24"(SLD)(100MIL)	666 6300 RE PM W/RET REQ TY I (W)4"(BRK) (100MIL)	666 6303 RE PM W/RET REQ TY I (W)4"(SLD) (100MIL)	666 6312 RE PM W/RET REQ TY I (Y)4"(BRK) (100MIL)
CSJ : 0463-06-037	SF	EA	EA	EA	EA	LF	LF	EA	EA	EA	LF	LF	LF	LF
SH 302 AT CR 313	44	6		2	9	1,720	54	8	8	6			1,720	
CSJ : 0380-09-097														
SH 349 AT CR 140	51	4			6	640	114	4	4			380	1,820	292
CSJ : 0139-04-053														
US 285 AT FM 1216	45	6	1		8	425	98	4	4		14	643	3,582	
PROJECT TOTALS	**140**	**16**	**1**	**2**	**23**	**2,785**	**266**	**16**	**16**	**6**	**14**	**1,023**	**7,122**	**292**

SUMMARY OF SIGNING AND PAVEMENT MARKING

LOCATION	666 6315 RE PM W/RET REQ TY I (Y)4"(SLD) (100MIL)	672 6007 REFL PAV MRKR TY I-C	672 6009 REFL PAV MRKR TY II-A-A	677 6001 ELIM EXT PAV MRK & MRKS (4")	677 6003 ELIM EXT PAV MRK & MRKS (8")	677 6007 ELIM EXT PAV MRK & MRKS (24")	677 6008 ELIM EXT PAV MRK & MRKS (ARROW)	677 6012 ELIM EXT PAV MRK & MRKS (WORD)	677 6019 ELIM EXT PAV MRK & MRKS (36")(YLD TRI)	6056 6001 PREFORMED IN-LANE(TRANS) RUMBLE STRIP	6185 6003 TMA (MOBILE OPERATION)
CSJ : 0463-06-037	LF	EA	EA	LF	LF	EA	EA	EA	EA	LF	HR
SH 302 AT CR 313	3,080	92	160	4,800	1,720	54	7	8	12	80	24
CSJ : 0380-09-097											
SH 349 AT CR 140	2,070	52	100	4,562	640	114	3	3		160	16
CSJ : 0139-04-053											
US 285 AT FM 1216	5,084	56	258	9,309	140	98			4	80	24
PROJECT TOTALS	**10,234**	**200**	**518**	**18,671**	**2,500**	**266**	**10**	**11**	**16**	**320**	**64**

1 REVISED PER ADDENDUM 1 05/24/2022

I. S. ENGINEERS, LLC
7670 WOODWAY DRIVE, SUITE 320
HOUSTON, TEXAS 77063
TBPE REG. # F-11657

SUMMARY OF SIGNING & PAVEMENT MARKING QUANTITIES

SHEET 1 OF 1

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	(SEE TITLE SHEET)		BI20, ETC
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ODA	ECTOR, ETC	8
CONTROL	SECTION	JOB	
0005	01	115, ETC	

SUMMARY OF SIGNAL ITEMS

LOCATION	416 6031 DRILL SHAFT (TRF SIG POLE) (30 IN)	416 6032 DRILL SHAFT (TRF SIG POLE) (36 IN)	416 6034 DRILL SHAFT (TRF SIG POLE) (48 IN)	618 6046 CONDT (PVC) (SCH 80) (2")	618 6058 CONDT (PVC) (SCH 80) (4")	618 6059 CONDT (PVC) (SCH 80) (4") (BORE)	620 6009 ELEC CONDR (NO.6) BARE	620 6012 ELEC CONDR (NO.4) INSULATED	621 6005 △1 TRAY CABLE (4 CONDR) (12 AWG)	624 6002 GROUND BOX TY A (122311)W/APRON
CSJ : 0463-06-037	**LF**	**LF**	**LF**	**LF**	**LF**	**LF**	**LF**	**LF**	**LF**	**EA**
SH 302 AT CR 313	12	28		155	135	85	370	60	105	3
CSJ : 0380-09-097										
SH 349 AT CR 140	24		44	236	17	349	509	45	723	4
CSJ : 0139-04-053										
US 285 AT FM 1216		42		132	198	106	411	60	274	3
PROJECT TOTALS	**36**	**70**	**44**	**523**	**350**	**540**	**1,290**	**165**	**1,102**	**10**

SUMMARY OF SIGNAL ITEMS

LOCATION	624 6010 GROUND BOX TY D (162922)W/APRON	628 6145 ELC SRV TY D 120/240 060(NS)SS(E)SP(O)	680 6002 INSTALL HWY TRF SIG (ISOLATED)	682 6001 VEH SIG SEC (12")LED(GRN)	682 6002 VEH SIG SEC (12")LED(GRN ARW)	682 6003 △1 VEH SIG SEC (12")LED(YEL)	682 6004 VEH SIG SEC (12")LED(YEL ARW)	682 6005 VEH SIG SEC (12")LED(RED)	682 6050 BACKPLATE W/REFL BRDR (5 SEC)	682 6060 BACKPLATE W/REFL BRDR (3 SEC)	684 6033 TRF SIG CBL (TY A)(14 AWG)(7 CONDR)	685 6004 INSTL RDSD FLSH BCN ASSM (SOLAR PWRD)
CSJ : 0463-06-037	**EA**	**EA**	**EA**	**EA**	**EA**	**EA**	**EA**	**EA**	**EA**	**EA**	**LF**	**EA**
SH 302 AT CR 313	1	1	1	8	1	12	1	8	1	7	1201	2
CSJ : 0380-09-097												
SH 349 AT CR 140	1	1	1	12	2	20	2	12	2	10	1465	4
CSJ : 0139-04-053												
US 285 AT FM 1216	1	1	1	9	1	13	1	9	1	8	1528	2
PROJECT TOTALS	**3**	**3**	**3**	**29**	**4**	**45**	**4**	**29**	**4**	**25**	**4,194**	**8**

SUMMARY OF SIGNAL ITEMS

LOCATION	686 6025 INS TRF SIG PL AM (S)1 ARM(24')	686 6031 INS TRF SIG PL AM(S)1 ARM(28')LUM	686 6039 INS TRF SIG PL AM(S)1 ARM(36')LUM	686 6041 INS TRF SIG PL AM(S)1 ARM(40')	686 6045 △1 INS TRF SIG PL AM(S)1 ARM(44')	686 6055 INS TRF SIG PL AM(S)1 ARM(50')LUM	686 6059 INS TRF SIG PL AM(S)1 ARM(55')LUM	6185 6002 TMA (STATIONARY)	6306 6002 VIVDS CAM ASSY FXD LNS	6306 6005 VIVDS CNTRL SOFTWARE	6306 6007 VIVDS CABLING
CSJ : 0463-06-037	**EA**	**EA**	**EA**	**EA**	**EA**	**EA**	**EA**	**DAY**	**EA**	**EA**	**LF**
SH 302 AT CR 313	1		1	1				10	3	1	783
CSJ : 0380-09-097											
SH 349 AT CR 140		2				1	1	10	4	1	896
CSJ : 0139-04-053											
US 285 AT FM 1216			1		2			10	3	1	671
PROJECT TOTALS	**1**	**2**	**2**	**1**	**2**	**1**	**1**	**30**	**10**	**3**	**2,350**

△1 REVISED PER ADDENDUM 1 05/24/2022

I. S. ENGINEERS, LLC
7670 WOODWAY DRIVE, SUITE 320
HOUSTON, TEXAS 77063
TBPE REG. # F-11657

SUMMARY OF TRAFFIC SIGNAL QUANTITIES

SHEET 1 OF 1

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	(SEE TITLE SHEET)		BI20, ETC
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ODA	ECTOR, ETC	10
CONTROL	SECTION	JOB	
0005	01	115, ETC	

SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO. ⚠1	SIGN NO.	SIGN NOMENCLATURE	SIGN ⚠1	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE: FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS: 1 or 2	ANCHOR TYPE: UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION: PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
LOCATION 2												
45	(01)	W16-18P	NOTICE	24 x 12	X		S80	2	SA	U	1EXT	
		R14-1	TRUCK ROUTE	24 x 18	X							
		M3-1	NORTH <AUXILIARY SIGN>	24 x 12	X							
		M5-1	LEFT ARROW <AUXILIARY SIGN>	21 x 15	X							
		M3-2	EAST <AUXILIARY SIGN>	24 x 12	X							
		M1-6T-3	302 TEXAS	24 x 24	X							
		M6-3	ARROW VERTICAL STRAIGHT <AUXILARY>	21 x 15	X							
45	(02)	M1-6T-3	302 TEXAS	24 x 24	X		10BWG	1	SA	T		
		M6-4	ARROW DUAL LEFT RIGHT <AUXILLARY>	21 x 15	X							
45	(03)	M1-7T	DOUBLE ARROW	96 x 36	X		10BWG	1	SA	T		
45	(04)	M3-2	EAST <AUXILIARY SIGN>	24 x 12	X		10BWG	1	SA	T		
		M1-6T-3	302 TEXAS	24 x 24	X							
45	(05)	R3-7R	RIGHT LANE MUST TURN RIGHT	36 x 36	X		10BWG	1	SA	T		
45	(06)	W16-18P	NOTICE	24 x 12	X		S80	2	SA	U	1EXT	
		R14-1	TRUCK ROUTE	24 x 18	X							
		M6-3	THRU ARROW <AUXILIARY SIGN>	24 x 12	X							
		M3-4	WEST	24 x 12	X							
		W16-18P	NOTICE	24 x 12	X							
		R14-1	TRUCK ROUTE	24 x 18	X							
		M6-1	RIGHT ARROW <AUXILIARY SIGN>	21 x 15	X							
		M3-1	NORTH	24 x 12	X							
45	(07)	R1-2	YIELD	36 x 36	X		10BWG	1	SA	T		
45	(08)	R1-2	YIELD	36 x 36	X		10BWG	1	SA	T		
71	S1, S3	D3-1B(6)	CR 313	54 x 18	X							
71	S2	D3-1B(6)	SH 302	54 x 18	X							
71	S5, S6	W3-3	FLASHING BEACON	48 x 48	X							
71	S4	R10-12	LEFT TURN YIELD ON GREEN	30 x 36	X							
LOCATION 3												
46	(1)	R2-1	SPEED LIMIT 60	30 x 36	X		10BWG	1	SA	T		
46	(2)	R2-1	SPEED LIMIT 40	30 x 36	X		10BWG	1	SA	T		
46	(3)	M4-14	BEGIN	24 x 12	X		10BWG	1	SA	T		
		R3-9B	CENTER LANE ONLY	24 x 36	X							
46	(4)	M4-14	END	24 x 12	X		10BWG	1	SA	T		
		R3-9B	CENTER LANE ONLY	24 x 36	X							
74	S2, S5	D3-1B(6)	CR 140	54 x 18	X							
74	S3, S6	D3-1B(6)	SH 349	54 x 18	X							

⚠1 REVISED PER ADDENDUM 1 05/24/2022

LEGEND:

- (#) SIGN TO BE RELOCATED
- ⚠(#) SIGN TO BE REMOVED
- (#) SIGN TO BE INSTALLED
- (#)(#) SIGN TO BE REMOVED AND REINSTALLED

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

STATE OF TEXAS
ABDULLAH SBAITI
139401
LICENSED
PROFESSIONAL ENGINEER
5/23/2022

SHEET 1 OF 2

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-16 8-16	0005	01	115, ETC	B120, ETC
	DIST	COUNTY		SHEET NO.
	ODA	ECTOR, ETC		48

18

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DATE: 5/23/2022 3:53:05 PM

SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO. △1	SIGN NO.	SIGN NOMENCLATURE	SIGN △1	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE: FRP = Fiberglass, TWT = Thin-Wall, 10BWG = 10 BWG, S80 = Sch 80	POSTS: 1 or 2	ANCHOR TYPE: UA=Universal Conc, UB=Universal Bolt, SA=Slipbase-Conc, SB=Slipbase-Bolt, WS=Wedge Steel, WP=Wedge Plastic	MOUNTING DESIGNATION: PREFABRICATED: P = "Plain", T = "T", U = "U"	MOUNTING DESIGNATION: 1EXT or 2EXT = # of Ext, BM = Extruded Wind Beam, WC = 1.12 #/ft Wing Channel, EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE: TY N, TY S
74	S7, S8	W3-3	FLASHING BEACON	48 x 48	X							
74	S1, S4	R10-12	LEFT TURN YIELD ON GREEN	30 x 36	X							
LOCATION 4												
47	①①	M3-1	NORTH <AUXILIARY SIGN>	24 x 12	X		10BWG	1	SA	T		
		M1-6F	FARM ROAD 1216	24 x 24	X							
		M6-1	LEFT ARROW <AUXILIARY SIGN>	21 x 15	X							
47	②②	M1-4	US 285 SHIELD	24 x 30	X		10BWG	1	SA	T		
		M6-4	TWO WAY DIRETIONAL ARROW <AUXILIARY SIGN>	21 x 15	X							
47	③③	M1-7T	DOUBLE ARROW	96 x 36	X		S80	1	SA	T		
47	④④	M3-3	SOUTH <AUXILIARY SIGN>	24 x 12	X		10BWG	1	SA	T		
		M1-4	US 285 SHIELD	24 x 30	X							
47	⑤⑤	M3-1	NORTH <AUXILIARY SIGN>	24 x 12	X		10BWG	1	SA	T		
		M1-6F	FARM ROAD 1216	24 x 24	X							
		M6-1	RIGHT ARROW <AUXILIARY SIGN>	21 x 15	X							
47	⑥⑥	R2-1	SPEED LIMIT 55	30 x 36	X		10BWG	1	SA	T		
47	⑦⑦	M3-1	NORTH <AUXILIARY SIGN>	24 x 12	X		10BWG	1	SA	T		
		M1-4	US 285 SHIELD	24 x 30	X							
78	S2, S4	D3-1B(6)	FM 1216	60 x 18	X							
78	S3	D3-1B(6)	US 285	54 x 18	X							
78	S5, S6	W3-3	FLASHING BEACON	48 x 48	X							
78	S1	R10-12	LEFT TURN YIELD ON GREEN	30 x 36	X							

△1 REVISED PER ADDENDUM 1 05/24/2022

LEGEND:

- (A) SIGN TO BE RELOCATED
- (#) SIGN TO BE REMOVED
- (#) SIGN TO BE INSTALLED
- (#)(#) SIGN TO BE REMOVED AND REINSTALLED

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
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http://www.txdot.gov/

NOTE:

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2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

STATE OF TEXAS
ABDULLAH SHATTI
139401
LICENSED PROFESSIONAL ENGINEER
5/23/2022

SHEET 2 OF 2

Texas Department of Transportation — Traffic Operations Division Standard

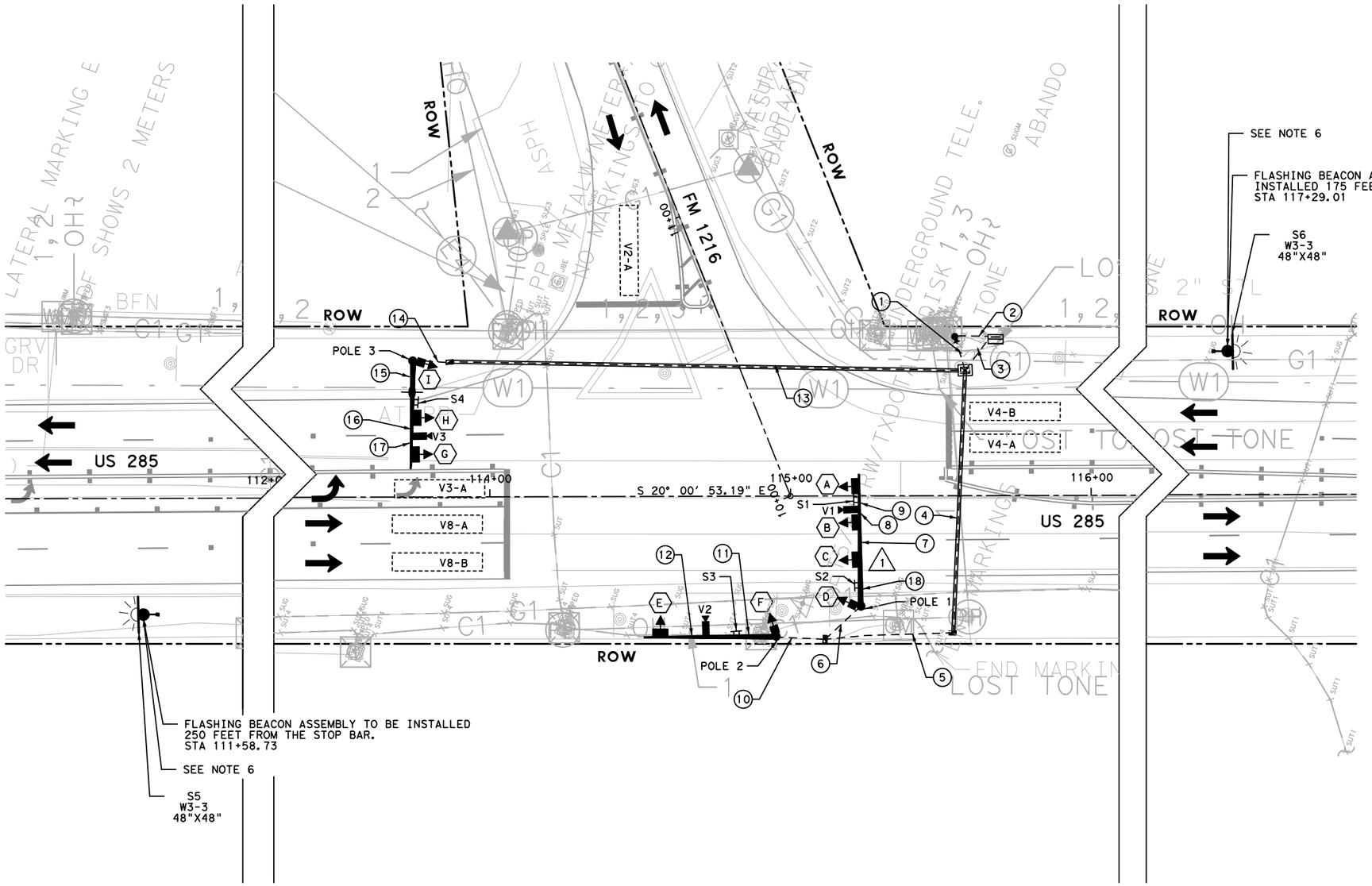
SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-16 8-16	0005	01	115, ETC	BI20, ETC
	DIST	COUNTY		SHEET NO.
	ODA	ECTOR, ETC		49

18

FILE: L:\Odessa District\Various Intersections WA 2 PS&E\CADD\Sheets\10 Signing\sums16.dgn
DATE: 5/23/2022 3:53:26 PM



0' 10' 20' 40'

SCALE IN FEET

LEGEND

- PROPOSED CONTROLLER CABINET
- PROPOSED SIGNAL POLE/MAST ARM
- PROPOSED CONDUIT (TRENCH)
- PROPOSED CONDUIT (BORE)
- PROPOSED TYPE A GROUND BOX WITH APRON
- PROPOSED TYPE D GROUND BOX WITH APRON
- PROPOSED HORIZONTAL SIGNAL HEAD
- PROPOSED VERTICAL SIGNAL HEAD
- PROPOSED SIGN ON MAST ARM
- PROPOSED SERVICE & METER DISCONNECT
- VIVDS CAMERA
- PROPOSED DIRECTION OF TRAFFIC
- (X) RUN DESIGNATION
- (X) SIGNAL HEAD DESIGNATION
- PROPOSED LUMINAIRE
- PROPOSED ROADSIDE FLASHING BEACON & BATTERY BOX

NOTES:

1. CONTRACTOR TO FIELD VERIFY EXISTING ROW AND UTILITIES BOTH SHOWN AND NOT SHOWN. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION.

2. ALL HEIGHTS AND LOCATIONS OF ALL SIGNAL RELATED ITEMS, (I.E. HEAD LOCATIONS, POLE LOCATIONS, GROUND BOXES, FLASHING BEACONS, ELECTRICAL SERVICES, ETC.) ARE DIAGRAMMATIC ONLY AND MAY BE ADJUSTED IN THE FIELD IN ORDER TO ACCOMMODATE FIELD CONDITIONS AND TO ACHIEVE THE BEST POSSIBLE CONFIGURATION AS DIRECTED BY THE TRAFFIC ENGINEER.

3. SIGNAL HEAD DISTANCES ALONG THE MAST ARM MAY VERY.

4. FOUNDATIONS SHALL BE ADJUSTED IN THE FIELD IN ORDER TO MEET THE REQUIRED CLEARANCE. NO CORNER OF ANY APRON SHOULD BE EXPOSED MORE THAN 2" HEIGHT.

5. LOCATION OF MAST ARM POLES IS APPROXIMATE. THE ENGINEER SHALL APPROVE ANY CHANGES.

6. INSTALL SOLAR POWERED ROADSIDE FLASHING BEACON WITH W3-3 (SIGNAL AHEAD) PER TXDOT STANDARD SPRFBA(1)-13.

7. CONTRACTOR SHALL ENSURE THE LOCATIONS OF THE PROPOSED ROADSIDE FLASHING BEACONS ARE NOT IN CONFLICT WITH EXISTING SIGNS OR UTILITIES.

1 REVISED PER ADDENDUM 1 05/24/2022

STATE OF TEXAS
ABDULLAH SBAITI
139401
LICENSED PROFESSIONAL ENGINEER

5/23/2022

Rev. No.	C.O. No.	Description	Date	By

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I. S. ENGINEERS, LLC
7670 WOODWAY DRIVE, SUITE 320
HOUSTON, TEXAS 77063
TBPE REG. # F-11657

VARIOUS INTERSECTIONS
TRAFFIC SIGNAL LAYOUT
US 285 AT FM 1216

SHEET 2 OF 4

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	(SEE TITLE SHEET)		BI20, ETC
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ODA	ECTOR, ETC	78
CONTROL	SECTION	JOB	
0005	01	115, ETC	

FILENAME: L:\Odessa District\Various Intersections WA 2 PS&E\CADD\Sheets\10 Signing Striping and Signals\VAR INTX*PROP SIGNAL LAYOUT 4.dgn
DRAWING DATE: 5/23/2022

ELECTRICAL CHART - US 285 @ FM 1216																				
ITEM	TOTAL QTY.	RUN NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		RUN LENGTH (ft.)	5	10	10	96	6	15	6	5	7	16	13	7	168	11	7	8	25	12
		POINT:POINT	SP:GB	SP:C	C:GB	GB:GB	GB:GB	GB:P	SH:SH	SH:VI	VI:SH	GB:P	P:VI	VI:SH	GB:GB	GB:P	P:SH	SH:VI	VI:SH	P:SH
POWER	60	#4 INSULATED		3																
GROUND	411	#6 BARE	1	1	1	1	1	1				1			1	1				
LUMINAIRE	274	4/C - #12 TRAY	1												1	1				
SIGNAL CABLE	1005	#14/7C			4	3	3	2	3	1	1	1	1	1	1	1	1	2	1	2
VIVDS	671	# 16/3C			3	2	2	1	1	1		1	1		1	1	1	1		1
	671	R-59 COAX			3	2	2	1	1	1		1	1		1	1	1	1		1
CONDUIT	132	2" PVC	1	1				2				1				1				
	106	4" PVC BORE				1	1													
	198	4" PVC			1										1					

1

NOTE:

#14/7C CABLE USED FOR TRAFFIC SINAL HEADS.
TOTAL QTY SHOWN INCLUDES ADDITIONAL LENGTH IN GROUND BOXES AND POLES.

LEGEND:
GB: GROUND BOX
SH: SIGNAL HEAD
SP: SERVICE POLE
RR: RAILROAD CONTROLLER
C: SIGNAL CABINET CONTROLLER
P: VEHICLE/PEDESTRIAN SIGNAL POLE
VI: VIVDS CAMERA

GROUND BOX SUMMARY	
TYPE	EACH
A W/ APRON	3
D W/ APRON	1

VIVDS DETECTION		
CAMERA	DIRECTION	DETECTION ZONE
V1	SOUTHBOUND	V3-A, V8-A, V8-B
V2	WESTBOUND	V2-A
V3	NORTHBOUND	V4-A, V4-B

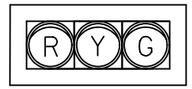
1

SIGNAL POLE AND CONTROLLER DATA CHART			
POLE	STATION	OFFSET (FT)	DESCRIPTION
1	115+23.34	36.62 RT	30' SIGNAL POLE; ATTACH: 44 FT MAST ARM,VIVDS CAMERA 1, VERTICAL SIGNAL HEAD
2	114+95.11	46.62 RT	19' SIGNAL POLE; ATTACH: 44 FT MAST ARM, VIVDS CAMERA 2, VERTICAL SIGNAL HEAD
3	113+74.46	45.25 LT	30' SIGNAL POLE; ATTACH: 36 FT MAST ARM, VIVDS CAMERA 3, LUMINAIRE ARM & LUMINAIRE, VERTICAL SIGNAL HEAD
METER	115+54.75	52.94 LT	PROPOSED ELECTRICAL SERVICE
CONTROLLER	115+68.30	52.03 LT	PROPOSED CONTROLLER CABINET AND FOUNDATION

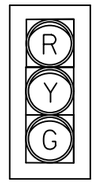
POLE NUMBER	SIGNAL POLE FOUNDATION (FEET)	ARM LENGTH (FEET)
	TYPE 36-A	
P-1	14	44
P-2	14	44
P-3	14	36
TOTAL	42	

Elec. Service No.	Sheet No.	Electrical Service Description (see ED (4) & (5) - 03)	Service Conduit Size	Service Conductor Size	Safety Switch Amp	Main Ckt. Bkr. Pole/Amp	Two-Pole Contactor Amps	Panelbd/ Loadcenter Amp Rating	Circuit No.	Branch Ckt. Bkr. Pole/Amps	Branch Circuit Amps	KVA Load
3		ELC SRV TY D 120/240 060 (NS) S	1 1/4"	3/#6	N/A	2P/60	N/A	100	TRAFFIC SIGNAL	1P/50	40	5.2
									LIGHTING	2P/15	3.2	

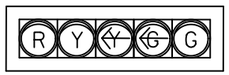
PROPOSED SIGNAL HEAD SCHEDULE



ONE WAY
3 SECTION HORIZONTAL
12" SIGNAL HEAD
SIGNAL HEADS
B, C, E, G, H



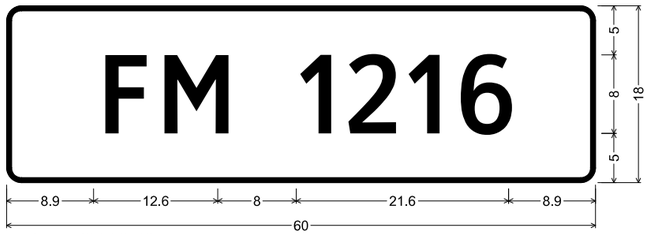
3 SECTION (LED)
VERTICAL SIGNAL HEAD
WITH BLACK BACKPLATE
SIGNAL HEAD
D, F, I



ONE WAY
5 SECTION HORIZONTAL
12" SIGNAL HEAD
SIGNAL HEADS A

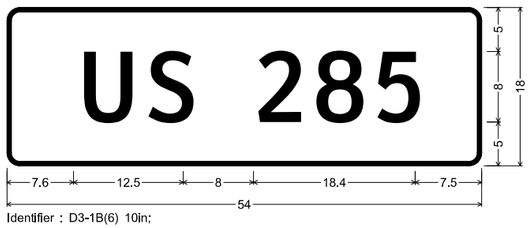
PROPOSED SIGN SCHEDULE

S2, S4
60"X18"



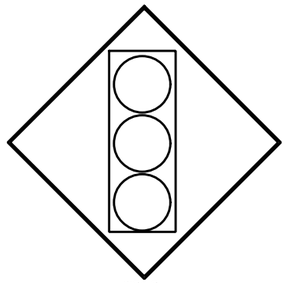
Identifier : D3-1B(6) 10in;
1.5" Radius, 0.5" Border, White on, Blue;
FM ClearviewHwy-3-W; 1216 ClearviewHwy-3-W;

S3
54"X18"



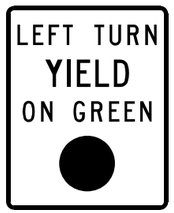
Identifier : D3-1B(6) 10in;
1.5" Radius, 0.5" Border, White on, Blue;
US ClearviewHwy-3-W; 285 ClearviewHwy-3-W;

S5, S6



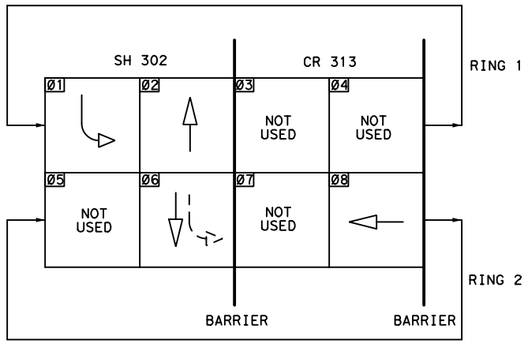
W3-3
48"X48"

S1



R10-12
30"X36"

PHASING DIAGRAM



1 REVISED PER ADDENDUM 1 05/24/2022

STATE OF TEXAS
ABDULLAH SBAITI
139401
LICENSED
PROFESSIONAL ENGINEER

5/23/2022

Rev. No.	C.O. No.	Description	Date	By

Texas Department of Transportation
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I.S. ENGINEERS, LLC
7670 WOODWAY DRIVE, SUITE 320
HOUSTON, TEXAS 77063
TBPE REG. # F-11657

VARIOUS INTERSECTIONS
TRAFFIC SIGNAL DETAILS
US 285 AT FM 1216

SHEET 3 OF 4

FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
6	(SEE TITLE SHEET)		BI20, ETC
STATE	DISTRICT	COUNTY	SHEET NO.
TEXAS	ODA	ECTOR, ETC	79
CONTROL	SECTION	JOB	
0005	01	115, ETC	

DATE: 5/23/2022 3:56:33 PM
FILE: L:\Odessa District\Various Intersections WA 2 PS&E\CADD\Sheets\10 Signing Striping and Signals\Tx0DT Standards\sma-80.dgn

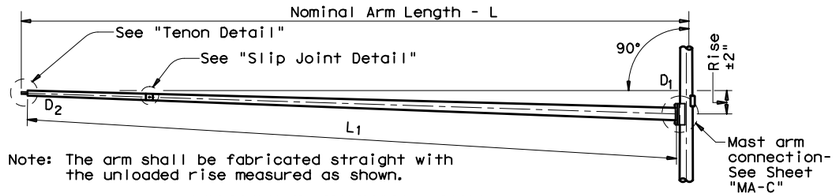
Arm Length	ROUND POLES					POLYGONAL POLES					Foundation Type
	D_B	D_{19}	D_{24}	D_{30}	① thk	D_B	D_{19}	D_{24}	D_{30}	① thk	
ft.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	
20	10.5	7.8	7.1	6.3	.179	11.5	8.5	7.7	6.8	.179	30-A
24	11.0	8.3	7.6	6.8	.179	12.0	9.0	8.2	7.3	.179	30-A
28	11.5	8.8	8.1	7.3	.179	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)

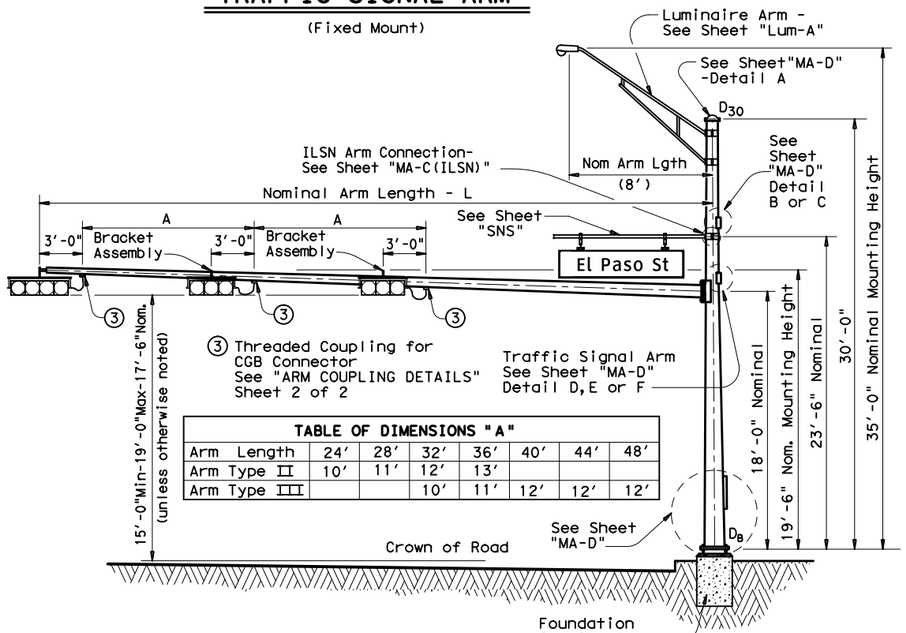


TABLE OF DIMENSIONS "A"

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

⚠1 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	2	28S-80		28-80	
32	32L-80		32S-80		32-80	
36	36L-80	2	36S-80		36-80	
40	40L-80		40S-80		40-80	1
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) ⚠1 1 CGB connector		Type II Arm (2 Signals) 1 Bracket Assembly and 2 CGB Connectors		Type III Arm (3 Signals) 2 Bracket Assemblies and 3 CGB Connectors	
ft	Designation	Quantity	Designation	Quantity	Designation	Quantity
20	20I-80					
24	24I-80		24II-80	1		
28	28I-80		28II-80	2		
32			32II-80		32III-80	
36			36II-80		36III-80	2
40					40III-80	1
44					44III-80	2
48					48III-80	

Luminaire Arms (1 per 30′ pole) ⚠1

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	

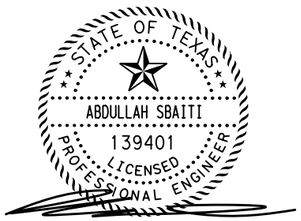
Anchor Bolt Assemblies (1 per pole)

Anchor Bolt Diameter	Anchor Bolt Length	Quantity
1 ½"	3′-4"	3
1 ¾"	3′-10"	5

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.

SHEET 1 OF 2



5/23/2022

⚠1 REVISED PER ADDENDUM 1 05/24/2022

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
0005	01	115, ETC	BI20,ETC
DIST	COUNTY		SHEET NO.
ODA	ECTOR, ETC		91

122A

DATE: 5/23/2022 3:58:28 PM
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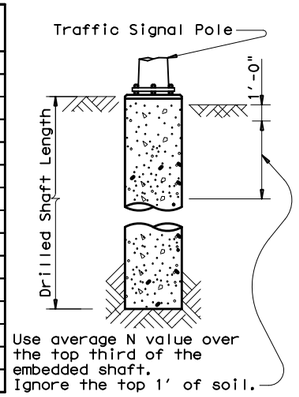
FOUNDATION DESIGN TABLE

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 10	15	40	ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
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'



Use average N value over the top third of the embedded shaft. Ignore the top 1' of soil.

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.

⚠1 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
SH 302 AT CR 313								
POLE 1	**10**	**36-A**	**1**			**14**		
POLE 2	**10**	**30-A**	**1**		**12**			
POLE 3	**10**	**36-A**	**1**			**14**		
FLASHING BEACONS	**10**	**24-A**	**2**	**6**				
SH 349 AT CR 140								
POLE 1	**10**	**30-A**	**1**		**12**			
POLE 2	**10**	**30-A**	**1**		**12**			
FLASHING BEACONS	**10**	**24-A**	**4**	**6**				
US 285 AT FM 1216								
POLE 1	**10**	**36-A**	**1**			**14**		
POLE 2	**10**	**36-A**	**1**			**14**		
POLE 3	**10**	**36-A**	**1**			**14**		
FLASHING BEACONS	**10**	**24-A**	**2**	**6**				
TOTAL DRILLED SHAFT LENGTHS				**48**	**36**	**70**		

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".

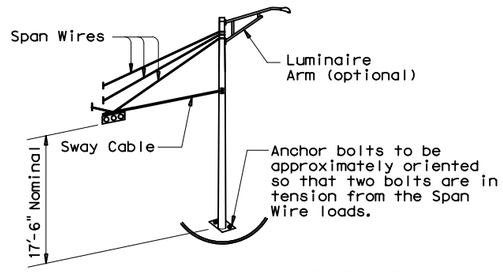
Concrete shall be Class "C".

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.

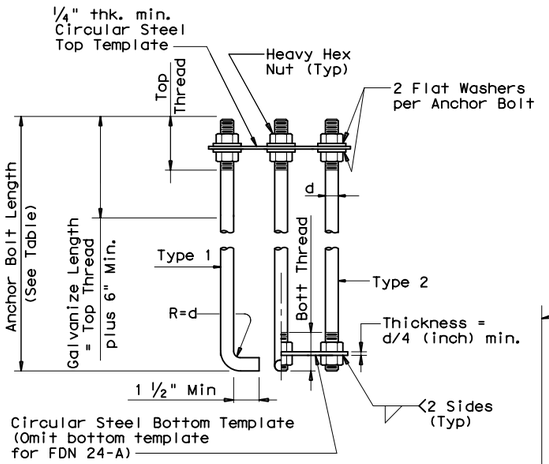
Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise 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".

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.

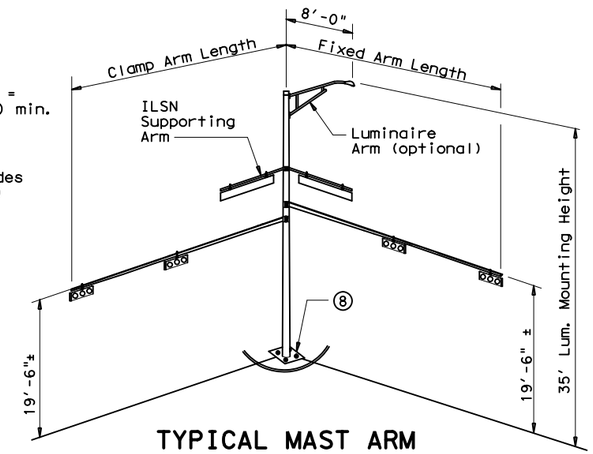


TYPICAL STRAIN POLE ASSEMBLY



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.

TOP VIEW

ELEVATION

FOUNDATION DETAILS

⚠1 REVISED PER ADDENDUM 1 05/24/2022

STATE OF TEXAS
ABDULLAH SBAITI
139401
LICENSED PROFESSIONAL ENGINEER
5/23/2022

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
0005	01	115, ETC	BI20, ETC
DIST	COUNTY		SHEET NO.
ODA	ECTOR, ETC		103

SUMMARY OF SMALL SIGNS

PLAN SHEET NO. ⚠1	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
118	1	R3-7L	LEFT LANE MUST TURN LEFT	36 X 36	X		10BWG	1	SA	T		
119	2	R3-7R	RIGHT LANE MUST TURN RIGHT	36 X 36	X		10BWG	1	SA	T		
120	3	R3-7L	LEFT LANE MUST TURN LEFT	36 X 36	X		10BWG	1	SA	T		
121	4	R3-7R	RIGHT LANE MUST TURN RIGHT	36 X 36	X		10BWG	1	SA	T		
119	R2	M3-2	EAST	36 X 18	X		10BWG	1	SA	P		
		M1-6T	302 TEXAS	36 X 36								
		M3-3	SOUTH	36 X 18								
		M1-6L	LOOP 338	36 X 36								
		M6-1L	←	30 X 24								
119	R3	R5-1	DO NOT ENTER	48 X 48	X		10BWG	1	SA	T		
119	R4	R6-1L	ONE WAY (LEFT)	54 X 18	X		10BWG	1	SA	T		
119	R5	M3-2	EAST	36 X 18	X		10BWG	1	SA	P		
		M1-6T	302 TEXAS	36 X 36								
		M3-3	SOUTH	36 X 18								
		M1-6L	LOOP 338	36 X 36								
		M6-1L	←	30 X 24								
119	R6	R6-1R	ONE WAY (RIGHT)	54 X 18	X		10BWG	1	SA	T		
119	R8	R4-7	KEEP RIGHT	24 X 30	X		10BWG	1	SA	T		
119	R10	M4-5	TO	36 X 18	X		10BWG	1	SA	U		
		M3-4	WEST	36 X 18								
		M1-1	INTERSTATE 20	36 X 36								
		M3-2 / M3-4	EAST / WEST	36 X 18								
		M1-2 / M1-2	BUSINESS LOOP 20 / BUSINESS LOOP 20	36 X 36								
		M6-1L / M6-1R	← / →	30 X 24								
119	R11	W1-11	HAIRPIN CURVE	30 X 30	X		10BWG	1	SA	P		
		W13-1P	25 MPH	18 X 18								
119	R12	D1-2	← ODESSA MONAHANS →	66 X 30	X		10BWG	1	SA	P		
119	R13	R1-2	YIELD	48 X 48 X 48	X		10BWG	1	SA	T		
119	R14	R5-1	DO NOT ENTER	48 X 48	X		10BWG	1	SA	T		
119	R16	R6-1R	ONE WAY (RIGHT)	54 X 18	X		10BWG	1	SA	T		
119	R17	R5-1	DO NOT ENTER	48 X 48	X		10BWG	1	SA	T		
119	R18	M3-4	WEST	36 X 18	X		10BWG	1	SA	P		
		M1-6T	302 TEXAS	36 X 36								
		M3-3	SOUTH	36 X 18								
		M1-6L	LOOP 338	36 X 36								
		M6-2R	↗	30 X 24								

⚠1 REVISED PER ADDENDUM 1 05/24/2022

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

STATE OF TEXAS
OLUWASEYE P. AKELE
125497
LICENSED PROFESSIONAL ENGINEER
05/23/2022

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-16 8-16	0005	01	115, ETC.	BI 20, ETC.
	DIST	COUNTY		SHEET NO.
	ODA	ECTOR, ETC.		122

18

DATE: 05/23/2022 $TIME$
FILE: ...\31. -33. Summary of Small Signs.dgn

SUMMARY OF SMALL SIGNS

PLAN SHEET NO. ⚠1	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX) POST TYPE: FRP = Fiberglass, TWT = Thin-Wall, 10BWG = 10 BWG, S80 = Sch 80	POSTS: 1 or 2	ANCHOR TYPE: UA=Universal Conc, UB=Universal Bolt, SA=Slipbase-Conc, SB=Slipbase-Bolt, WS=Wedge Steel, WP=Wedge Plastic	MOUNTING DESIGNATION: PREFABRICATED P = "Plain", T = "T", U = "U"	1EXT or 2EXT = # of Ext, BM = Extruded Wind Beam, WC = 1.12 #/ft Wing Channel, EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE: TY N, TY S
120	R19	M4-5 / M4-5	TO / TO	36 X 18	X		10BWG	1	SA	U		
		M3-4 / M3-2	WEST / EAST	36 X 18								
		M1-1 / M1-1	INTERSTATE 20 / INTERSTATE 20	36 X 36								
		M6-3 / M6-2R	↑ / ↗	30 X 24								
120	R20	M3-4	WEST	36 X 18	X		10BWG	1	SA	P		
		M1-6T	302 TEXAS	36 X 36								
		M3-1	NORTH	36 X 18								
		M1-6L	LOOP 338	36 X 36								
		M6-1L	←	30 X 24								
120	R23	R6-1R	ONE WAY (RIGHT)	54 X 18	X		10BWG	1	SA	T		
120	R24	R6-1L	ONE WAY (LEFT)	54 X 18	X		10BWG	1	SA	T		
120	R25	M3-2	EAST	36 X 18	X		10BWG	1	SA	T		
120	R27	R6-1L	ONE WAY (LEFT)	54 X 18	X		10BWG	1	SA	T		
120	R28	R5-1	DO NOT ENTER	48 X 48	X		10BWG	1	SA	T		
120	R29	R4-7	KEEP RIGHT	24 X 30	X		10BWG	1	SA	T		
120	R31	M3-2 / M3-4	EAST / WEST	36 X 18	X		10BWG	1	SA	U		
		M1-2 / M1-2	BUSINESS LOOP 20 / BUSINESS LOOP 20	36 X 36								
		M5-1L / M6-2R	← / ↗	30 X 24								
120	R32	R1-2	YIELD	48 X 48 X 48	X		10BWG	1	SA	T		
120	R33	R5-1	DO NOT ENTER	48 X 48	X		10BWG	1	SA	T		
121	R34	M3-2 / M3-4	EAST / WEST	36 X 18	X		10BWG	1	SA	U		
		M1-6T / M1-6T	302 TEXAS / 302 TEXAS	36 X 36								
		M3-3 / M3-3	SOUTH / SOUTH	36 X 18								
		M1-6L / M1-6L	LOOP 338 / LOOP 338	36 X 36								
		M6-3 / M6-2R	↑ / ↗	30 X 24								
121	R35	M2-1	JCT	30 X 21	X		10BWG	1	SA	P		
		M1-4	US 385	30 X 21								
		M6-1R	→	30 X 24								
121	R36	W3-5	REDUCED SPEED LIMIT AHEAD	36 X 36	X		10BWG	1	SA	T		
121	R37	W11-10	TRUCK	36 X 36	X		10BWG	1	SA	T		
121	R38	D2-1	MIDLAND 23	55 X 18	X		10BWG	1	SA	T		
WEST												
140	RFBA-1	W3-3	SIGNAL AHEAD	48 X 48			ROADSIDE FLASHING BEACON					
140	RFBA-2	W3-4	BE PREPARED TO STOP	48 X 48			ROADSIDE FLASHING BEACON					
		W16-13P	WHEN FLASHING (PLAQUE)	24 X 18								
140	RFBA-3	W3-4	BE PREPARED TO STOP	48 X 48			ROADSIDE FLASHING BEACON					
		W16-13P	WHEN FLASHING (PLAQUE)	24 X 18								

⚠1 REVISED PER ADDENDUM 1 05/24/2022

ALUMINUM SIGN BLANKS THICKNESS	
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3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

STATE OF TEXAS · OLUWASEYE P. AKELE · 125497 · LICENSED PROFESSIONAL ENGINEER

05/23/2022

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS 4-16 8-16	0005	01	115, ETC.	BI 20, ETC.
	DIST	COUNTY		SHEET NO.
	ODA	ECTOR, ETC.		123

18

DATE: DATE TIME
FILE: DOCUMENT NAME

SUMMARY OF SMALL SIGNS

PLAN SHEET NO. ⚠1	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)					BRIDGE MOUNT CLEARANCE SIGNS (See Note 2)
							POST TYPE	POSTS	ANCHOR TYPE	MOUNTING DESIGNATION		TY = TYPE
										PREFABRICATED	1EXT or 2EXT = # of Ext	
EAST							FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	1 or 2	UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	P = "Plain" T = "T" U = "U"	BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	TY N TY S
142	RFBA-1	W3-3	SIGNAL AHEAD	48 X 48			ROADSIDE FLASHING BEACON					
142	RFBA-2	W3-4	BE PREPARED TO STOP	48 X 48			ROADSIDE FLASHING BEACON					
		W16-13P	WHEN FLASHING (PLAQUE)	24 X 18								
142	RFBA-3	W3-4	BE PREPARED TO STOP	48 X 48			ROADSIDE FLASHING BEACON					
		W16-13P	WHEN FLASHING (PLAQUE)	24 X 18								

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STATE OF TEXAS
OLUWASEYE P. AKELE
125497
LICENSED PROFESSIONAL ENGINEER
03/25/2022

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

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REVISIONS	0005	01	115, ETC.	BI 20, ETC.
4-16 8-16	DIST	COUNTY		SHEET NO.
	DST	ECTOR, ETC.		124

18

⚠1 REVISED PER ADDENDUM 1 05/24/2022

DATE: DATE TIME
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