



WILLIAMSON COUNTY, TEXAS CHANGE ORDER NUMBER: 1

Received

SEP 27 2019

I CONTRACTOR James Constit	action Group	A STUR		Project:	1809-261
CONTRACTOR: James Construction Change Order Work Limits: St.		to Sta.	323+50	Roadway:	CR 110 Middl
Type of Change(on federal-aid non-			r (Major/Minor)	CSJ	
4. Reasons: 1A, 3F			tance - Primary first)	Number:	
5. Describe the work being revised: 1A: Design Error or Omission. Incorr. County Convenience. Additional wor fencing (install and remove) and docum	k desired by the C	ounty. This one contract for	Change Order adds i r materials (6'x4' box	tems for tempora	ry sediment contr
Work to be performed in accorda		see attac		7D C 127E 127	C 145 148A
7. New or revised plan sheet(s) are			5,14,132,137,13	7/1-20	lo
8. New Special Provisions/Specifica				_	
9. New Special Provisions to Item_I	N/A No. N/A	Special Spe	citication itemN	order (CO)	eu.
Each signatory hereby warrants that	each has the auti				
The contractor must sign the Change Order and any and all claims for additional compensation di expenses, additional changes for time, overhead compensation as a result of this change	ue to any and all other	waive	e following inform	Days added o	
THE CONTRACTOR D	Date 9/24	19 Amou	int added by this ch	ange order:	\$66,291.83
P		_			
Typed/Printed Name	Llews	_			
Typed/Printed Title	M Cue	20			
RECOMMENDED FOR EXECUTIO	N:				
Famo 1X	PE. 9/30	/s =	County Commis		1 [
Project Manager	Date	1.7	APPROVED	☐ REC	
Project Manager	Date				QUEST APPRO\
,	Date		County Commis	ssioner Precinct	QUEST APPRO\
N/A	Date			ssioner Precinct	QUEST APPRO\
,	Date		County Commis	ssioner Precinct	QUEST APPRO\
N/A	Date		County Commis	ssioner Precinct	QUEST APPROV
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N/A	Date Date	<i>P</i> X	County Commis APPROVED Weller County Commis	ssioner Precinct REC	QUEST APPROV
N/A Design Engineer	9/3/201	<i>P</i> X	County Commis APPROVED County Commis APPROVED	ssioner Precinct REC REC Ssioner Precinct REC	QUEST APPROV
N/A Design Engineer	9/3/201	<i>P</i> X	County Commis APPROVED Weller County Commis	ssioner Precinct REC ssioner Precinct REC	QUEST APPROV
N/A Design Engineer	9/3/2019 Date	<u>*</u>	County Commis APPROVED County Commis APPROVED	ssioner Precinct Sioner Precinct REC	QUEST APPROV
N/A Design Engineer Program Manager	9/3/2019 Date	<u>*</u>	County Commis APPROVED County Commis APPROVED County Commis APPROVED	ssioner Precinct Sioner Precinct REC	QUEST APPROV

WILLIAMSON COUNTY, TEXAS

	CHANGE ORDER NUMBER:	1	Project #	1809-261
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TABLE A: Force Account Work and Materials Placed into Stock

LABOR	HOURLY RATE		HOURLY RATE	
Costs for additional work tracked by force account.				

TABLE B: Contract Items:

				ORIGINAL + PRE	/IOUSLY REVISED	ADD or (DEDUCT)		NEW	
ITEM	DESCRIPTION	UNIT	UNIT PRICE	QUANTITY	ITEM COST	QUANTITY	QUANTITY	ITEM COST	OVERRUN/ UNDERRUN
416-6032	DRILL SHAFT (TRF SIG POLE)(36")	LF	\$308.83	66.00	\$20,382.78	26.00	92.00	\$28,412.36	\$8,029.58
462-6011	CONC BOX CULV (6' X 4')	LF	\$344.50	182.00	\$62,699.00	(182.00)	0.00	\$0.00	(\$62,699.00)
462-WC01	CONC BOX CULV (6' X 4')(LESS CREDIT FOR MATERIAL FURNISHED BY COUNTY)	LF	\$207.31	0.00	\$0.00	182.00	182.00	\$37,730.42	\$37,730.42
506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	\$3.10	0.00	\$0.00	15,000.00	15,000.00	\$46,500.00	\$46,500.00
506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	\$0.49	0.00	\$0.00	15,000.00	15,000.00	\$7,350.00	\$7,350.00
681-6001	TEMPORARY TRAFFIC SIGNALS	EA	\$5,088.54	0.00	\$0.00	1.00	1.00	\$5,088.54	\$5,088.54
686-6002	INS TRF SIG PL AM (S) ILSN ARM (9')	EA	\$1,651.35	1.00	\$1,651.35	1.00	2.00	\$3,302.70	\$1,651.35
686-6007	INS TRF SIG PL AM (S)STR)TY B)	EA	\$4,590.91	4.00	\$18,363.64	(4.00)	0.00	\$0.00	(\$18,363.64)
686-6008	INS TRF SIG PL AM (S)STR(TY B)LUM	EA	\$6,738.39	1.00	\$6,738.39	(1.00)	0.00	\$0.00	(\$6,738.39)
686-6020	INS TRF SIG PL AM (S)STR(TY D)LUM	EA	\$7,484.00	0.00	\$0.00	6.00	6.00	\$44,904.00	\$44,904.00
6090-6002	ILSN (LED)(8D)	EA	\$2,838.97	1.00	\$2,838.97	1.00	2.00	\$5,677.94	\$2,838.97
	TOTAL	S			\$112,674.13			\$178,965.96	\$66,291.83

CHANGE ORDER REASON(S) CODE CHART

Design Error or Omission	1A. Incorrect PS&E
	1B. Other
2. Differing Site Conditions	2A. Dispute resolution (expense caused by conditions and/or resulting delay)
(unforeseeable)	2B. Unavailable material
	2C. New development (conditions changing after PS&E completed)
	2D. Environmental remediation
	2E. Miscellaneous difference in site conditions (unforeseeable)(Item 9)
	2F. Site conditions altered by an act of nature
	2G. Unadjusted utility (unforeseeable)
	2H. Unacquired Right-of-Way (unforeseeable)
	2I. Additional safety needs (unforeseeable)
	2J. Other
3. County Convenience	3A. Dispute resolution (not resulting from error in plans or differing site conditions)
	3B. Public relations improvement
	3C. Implementation of a Value Engineering finding
	3D. Achievement of an early project completion
	3E. Reduction of future maintenance
	3F. Additional work desired by the County
	3G. Compliance requirements of new laws and/or policies
	3H. Cost savings opportunity discovered during construction
	3I. Implementation of improved technology or better process
	3J. Price adjustment on finished work (price reduced in exchange for acceptance)
	3K. Addition of stock account or material supplied by state provision
	3L. Revising safety work/measures desired by the County
	3M. Other
4. Third Party Accommodation	4A. Failure of a third party to meet commitment
	4B. Third party requested work
	4C. Compliance requirements of new laws and/or policies (impacting third party)
	4D. Other
5. Contractor Convenience	5A. Contractor exercises option to change the traffic control plan
	5B. Contractor requested change in the sequence and/or method of work
	5C. Payment for Partnering workshop
	5D. Additional safety work/measures desired by the contractor
	5E. Other
6. Untimely ROW/Utilities	6A. Right-of-Way not clear (third party responsibility for ROW)
	6B. Right-of-Way not clear (County responsibility for ROW)
	6C. Utilities not clear
	6D. Other

Williamson County Road Bond Program

CR 110 Middle Williamson County Project No. 1809-261

Change Order No. 1

Reason for Change

This Change Order revises items and quantities related to the traffic signals, adds items for temporary sediment control fencing (install and remove) and credits the contract for materials (6' x 4' box culvert) furnished by the County.

Type D signal poles replaces the Type B signal poles originally called out in the plans. The Type B poles are not sufficient for the length of the mast arm. The Type D poles require deeper drill shaft foundations, adding quantity to the drill shafts. Additionally, street name signs will be added to the signals at Limmer Loop.

Item 681-6001 Temporary Traffic Signals is added to the contract to compensate the Contractor to maintain the traffic signals during the construction of the project. This Item was not originally included in the contract.

The bid tab did not include a pay item for the installation and removal of temporary sediment control fence (silt fence). These items were added to reduce erosion during construction. This Change Order adds Item 506-6038 Temporary Sediment Control Fence (Install) and Item 506-6039 Temporary Sediment Control Fence (Remove) to the contract.

The County furnished 165.5 feet of 6' x 4' Box Culvert precast materials for the project. The precast materials were called out to be installed on the previous CR 110 South contract, but due to right of way acquisition issues the culvert could not be installed. The County retained possession of the box culverts, from the previous contract. The bid price submitted by the Contractor included the full cost for furnishing and installing the box culvert. Since the County furnished the materials, a credit is due the County. This Change Order documents the credit to the County for the materials furnished.

Following is a summary of the new items required for this change order.

ITEM	DESCRIPTION	QTY	UNIT
462-WC01	CONC BOX CULV (6' X 4') (LESS CREDIT FOR	182.00	LF
	MATERIAL FURNISHED BY COUNTY)		

506-6038	TEMPORARY SEDIMENT CONTROL FENCE (INSTALL)	15000.00	LF
506-6039	TEMPORARY SEDIMENT CONTROL FENCE (REMOVE)	15000.00	LF
681-6001	TEMPORARY TRAFFIC SIGNALS	1.00	EACH
686-6020	INS TRF SIG PL AM (S)STR(TY D)LUM	6.00	EACH

This Change Order results in a net increase of \$66,291.83 to the Contract amount, for an adjusted Contract total of \$8,977,154.56. The original Contract amount was \$8,910,862.73. As a result of this and all Change Orders to-date, \$66,291.83 has been added to the Contract, resulting in a .74% net increase in the Contract cost. Zero (0) additional days will be added to the Contract as a result of this Change Order.

HNTB Corporation

James Klotz, P.E.

Dawn Haggard

From: Clayton Weber

Sent: Thursday, June 06, 2019 4:47 PM

To: Amber Basonic

Cc: James Klotz; 62811_1809-261_CR110Middle; David Thomas; Eddie R. Church

Subject: RE: CR 110 Middle BC invoice

We are in agreement with the proposal to add a deductive line for the material credit to the County for the 165.5 LF at \$150.87. We will probably add two lines as you describe.

Clayton K. Weber

Construction Manager

Tel (512) 539-9342 Email cweber@hntb.com

From: Amber Basonic <ABasonic@prim.com>

Sent: Thursday, June 6, 2019 9:30 AM **To:** Clayton Weber <cweber@HNTB.com>

Cc: James Klotz <jklotz@HNTB.com>; 62811_1809-261_CR110Middle <34275_RB_CR110?Middle_KHA?@HNTB.com>;

David Thomas dathomas@HNTB.com; Eddie R. Church erchurch@HNTB.com>

Subject: RE: CR 110 Middle BC invoice

Clayton,

As only 165.5 LF of the Chasco boxes were available for use, and our contract quantity is 182 LF, please confirm my understanding of your proposition, below.

Original Contract:

ITEM	QTY	UP	TOTAL
6x4 RCB	182 LF	344.50	\$62,699

Mat'l Credit to County:

ITEM QTY UP TOTAL

6x4 RCB 165.5 LF (150.87) (\$24,968.99) *This would be the net savings to the County.

Revised Contract (CO Item)

ITEM QTY UP TOTAL 6x4 RCB 182 LF 207.31 \$37,730.01

This change can be reflected as a new deductive line for a material credit to the County of (\$24,968.99), or as two lines, one reducing the existing bid item to 0 LF and the second, a new item with the revised UP of \$207.31.

If my understanding as described above is correct, JCG is agreeable to the change proposed. JCG is not agreeable to reducing the unit price for all 182 LF by \$150.87/LF. Please advise.

Thank you,

Amber Basonic James Construction Group C: (254) 718-8755

www.prim.com



"No business objective is so important that it will be pursued at the sacrifice of safety."

From: Clayton Weber [mailto:cweber@HNTB.com]

Sent: Wednesday, June 05, 2019 4:50 PM **To:** Amber Basonic ABasonic@prim.com

Cc: James Klotz <jklotz@HNTB.com>; 62811 1809-261 CR110Middle <34275 RB CR110?Middle KHA?@HNTB.com>;

David Thomas <<u>dathomas@HNTB.com</u>>; Eddie R. Church <<u>erchurch@HNTB.com</u>>

Subject: CR 110 Middle BC invoice

EXTERNAL EMAIL

Chasco's cost for the 6 x 4 box culvert sections is \$150.87. We can accept this deduction to JCG bid price if this is acceptable.

Clayton K. Weber

Construction Manager

HNTB CORPORATION

101 E. Old Settlers Blvd, Ste 100 | Round Rock, Texas 78664 | hntb.com

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Note!: This email originated from outside our organization. Be cautious when opening Links and Attachments that you were not expecting.

Job Fax: (254) 939-8611



6/11/2019 JCG Letter# 10743-03

Eddie Church, P.E. HNTB CORPORATION 101 E Old Settlers Blvd Suite 100 Round Rock, TX 78664

WILLIAMSON Co. - CR 110 MIDDLE SECTION

Job #: 1809-261

RE: Change Order Pricing/Reg for Change Order(Signal Items)

Dear Mr. Church:

James Construction Group respectfully submits the following new item change order pricing for consideration:

CO ITEM	BID ITEM	DESCRIPTION	QTY CHANGE	UM	UP	TOTAL
4	0686 6020	INS TRF SIG PL AM (S)STR(TY D)LUM	6.00	EΑ	7,484.00	44,904.00
5	0681 6001	TEMPORARY TRAFFIC SIGNAL	1.00	EΑ	5,088.54	5,088.54

When compared to the March 2019 Statewide average low bid prices (item not listed in Austin District's current average low bid data), James Construction Group's price for Item 0686 6020 INS TRF SIG PL AM (S)STR(TY D)LUM is 25% higher than the average low bid and item 0681 6001 TEMPORARY TRAFFIC SIGNAL is 88% below the statewide average low bid. The higher than average unit price for the TY D STRAIN poles is a result of lower quantities than those used to calculate the average low bid. The lower than average unit price for the TEMPORARY SIGNAL at University is because no materials are anticipated to be used. This price is for the scope described in the contract documents including moving the signal heads for the three movements of traffic during construction of the University Blvd culvert crossing, maintenance and 24-Hour On-Call support during the course of construction.

When combined with the other signal item changes generated by responses to RFIs 10743-01 (Foundation Depths), 10743-02 (Add Pole C1 to Quantity), 10743-03 (Bid Item Omission (Temp Signal)), 10743-11 (ILSN at Limmer Loop Facing South), and 10743-12 (ILSN Arm Standard & Clamp Type), the proposed change order should reflect the below:

CO ITEM	BID ITEM	DESCRIPTION	QTY CHANGE	UM	UP	TOTAL
1	0416 6032	DRILL SHAFT (TRF SIG POLE)(36")	26.00	LF	308.83	8,029.58
2	0686 6007	INS TRF SIG PL AM (S)STR(TY B)	(4.00)	EA	4,590.91	(18,363.64)
3	0686 6008	INS TRF SIG PL AM (S)STR(TY B)LUM	(1.00)	EΑ	6,738.39	(6,738.39)
4	0686 6020	INS TRF SIG PL AM (S)STR(TY D)LUM	6.00	EΑ	7,484.00	44,904.00
5	0681 6001	TEMPORARY TRAFFIC SIGNAL	1.00	EΑ	5,088.54	5,088.54
6	0686 6002	INS TRF SIG PL AM (S) ILSN ARM (9')	1.00	EΑ	1,651.35	1,651.35
7	6090 6002	ILSN (LED)(8D)	1.00	EΑ	2,838.97	2,838.97
						\$37,410.41

Please also let this change order acknowledge added Sheet 148A and revised Sheets 5, 132 (previously only redlined), 137, (previously only redlined), 137B, 137C, 137E, 137G and 145.

Respectfully yours,

James Construction Group

Amber Basonic **Project Manager** 5/02/2019

JCG Letter# 10743-01

Eddie Church, P.E. HNTB CORPORATION 101 E Old Settlers Blvd Suite 100 Round Rock, TX 78664

WILLIAMSON Co. - CR 110 MIDDLE SECTION

Job #: 1809-261

RE: Change Order Pricing – Add Temporary Sediment Control Fence Items

Dear Mr. Church:

James Construction Group respectfully submits the following change order item pricing for consideration:

BID ITEM	ITEM DESCRIPTION	QUANTITY	UM	UNIT PRICE	TOTAL
506 6038	TEMP SEDMT CONT FENCE (INSTALL)	15,000	LF	\$3.10	\$46,500.00
506 6039	TEMP SEDMT CONT FENCE (REMOVE)	15,000	LF	\$.49	\$7,350.00

As described in RFI 10743-14 Erosion Control - Add TSCF, temporary sediment control fence was omitted from the contract quantities, but is called out in the project Storm Water Pollution Prevention Plan.

When compared to the March 2019 average low bid prices for TxDOT's Austin District, James Construction Group's price for Item 506 6038 TEMP SEDMT CONT FENCE (INSTALL) is 15% higher than the average low bid and Item 506 6039 TEMP SEDMT CONT FENCE (REMOVE) is 14% higher than the average low bid. The higher unit prices are a result of lower quantities than those used to calculate the average low bid prices.

Respectfully yours,

James Construction Group

Amber Basonic Project Manager

CC: Project files

FILENAME: G:\068501503*CR 110\Design\CR110summ02.dgn PLOTTED: 5/8/2019 2:19:35 PM

SIGNING AND PAVEMENT MARKINGS SUMMARY

SPEC ITEM #	0644 6002	0644 6060	0644 6061	0644 6068	0644 6071	0644 6076	0658 6008	0658 6046	0666 6036	0666 6048	0666 6054	0666 6078	0666 6147	0666 6303	0666 6312	0666 6315	0672 6007	0672 6009
ITEM DESCRIPTION	IN SM RD SN	IN SM RD SN	IN SM RD SN	RELOCATE	RELOCATE	REMOVE	INSTL DEL	INSTL OM	REFL PAV	RE PM	RE PM	RE PM	REFL PAV	REFL PAV				
	SUP&AM	SUP&AM	SUP&AM	SM RD SN	SM RD SN	SM RD SN	ASSM	ASSM	MRK TY I (W)	MRK TY I (Y)	W/RET REQ	W/RET REQ	W/RET REQ	MRKR	MRKR			
	TY10BWG(1)	TYTWT(1)	TYTWT(1)	SUP&AM	SUP&AM	SUP&AM	(D-SW)SZ1	(OM-2X) (WC)	8" (SLD)	24" (SLD)	(ARROW)	(WORD)	24" (SLD)	TY 1(W)4"	TY I (Y) 4"	TY I (Y) 4"	TY I-C	TY II-A-A
	SA (P-BM)	WS(P)	WS(T)	TY 10BWG	TY TWT		(FLX) (GF2) (BI)	GND	(100MIL)	(100MIL)	(100MIL)	(100MIL)	(100MIL)	(SLD) (100MIL)	(BRK) (100MIL)	(SLD) (100MIL)		
UNITS	EA	EA	EA	EA	EA	EA	EA	EA	LF	LF	EA	EA	LF	LF	LF	LF	EA	EA
SIGNING AND PAVEMENT MARKINGS																		
SHEET 1 OF 5	0	5	0	0	1	1	0	4	284	0	1	1	0	3572	1050	4937	15	165
SHEET 2 OF 5	1	5	2	1	0	4	12	15	0	15	0	0	0	2319	1160	4638	0	116
SHEET 3 OF 5	1	5	0	0	0	0	3	5	0	40	0	0	0	2397	1200	4811	0	120
SHEET 4 OF 5	0	2	3	4	0	11	3	8	1518	104	8	8	0	5387	680	6544	80	187
SHEET 5 OF 5	3	13	1	0	0	2	0	4	1337	298	0	0	90	2892	460	4994	0	117
SHEET 6 OF 6	0	4	2	1	0	3	8	2	1540	75	6	6	0	4300	0	5710	80	280
TOTAL	5	34	8	6	1	21	26	38	4679	532	15	15	90	20867	4550	31634	175	985

SIGNAL SUMMARY

SPEC ITEM #	0416 6032	0618 6046	0618 6053	0620 6007	0620 6008	0620 6009	0620 6010	0624 6010	0625 6003	0628 6213	0636 6001	0680 6002	0680 6004	0682 6001	0682 6002	0682 6003	0682 6004	0682 6005
ITEM DESCRIPTION	DRILL SHAFT	CONDT	CONDT	ELEC	ELEC	ELEC	ELEC	GROUND	ZINC-COAT	ELC SRV	ALUMINUM	INSTALL	REMOVING	VEH SIG SEC				
	(TRF SIG POLE	(PVC)	(PVC)	CONDR	CONDR	CONDR	CONDR	вох	STL WIRE	TY D 120/240	SIGNS (TY A)	HWY TRF SIG	TRAF	(12")	(12")	(12")	(12")	(12")
	(36 IN)	(SCH 80)	(SCH 80)	(NO. 8)	(NO. 8)	(NO. 6)	(NO. 6)	TY D	STRAND (3/8")	100 (NS) AL		(ISOLATED)	SIGNALS	LED	LED	LED	LED	LED
		(2")	(3")	BARE	INSULATED	BARE	INSULATED	(162922)		(E) PS (U)				(GRN)	(GRN ARW)	(YEL)	(YEL ARW)	(RED)
								W/APRON									'	
UNITS	LF	LF	LF	LF	LF	LF	LF	EA	LF	EA	SF	EA	EA	EA	EA	EA	EA	EA
	\sim																	
CR110/UNIVERSITY	31	30	15	125	1390				760		26	1	1	8	6	8	6	8
CR110/LIMMER LOOP	(61)	245	45	160	1900	130	816	1	1024	1		1		8	5	8	9	8
TOTAL	92	275	60	285	3290	130	816	1	1784	1	26	2	1	16	11	16	15	16

* FOR CONTRACTORS INFORMATION ONLY SUBSIDIARY TO ITEM 680

SIGNAL SUMMARY CONT.

SIGNAL SOMMANT	CONT.										(L,			
SPEC ITEM #	0682 6006	0682 6023	0682 6024	0682 6025	0684 6008	0684 6031	0684 6033	0684 6049	0686 6001	0686 6002	0686 6007	0686 6008	0686 6020	6002 6001	6002 6002	6002 6003
ITEM DESCRIPTION	VEH SIG SEC	BACK PLATE	BACK PLATE	BACK PLATE	TRF SIG CBL	TRF SIG CBL	TRF SIG CBL	TRF SIG CBL	INS TRF SIG	INS TRF SIG	INS TRF SIG	INS TRF SIG	INS TRF SIG	VIVDS	VIVDS	VIVDS
	(12")	(12")	(12")	(12")	(TY A)	(TY A)	(TY A)	(TY A)	PL AM	PL AM (PL AM	PL AM	PL AM (S) <	PROCESSOR	CAMERA	SET-UP
	LED	(3 SEC)	(4 SEC)	(5 SEC)	(12 AWG)	(14 AWG)	(14 AWG)	(16 AWG)	(S) ILSN ARM(7')	(S) ILSN ARM (9')	(S)STR(TY B)	(S)STR(TY B)LUM	STR(TY D)LUM) SYSTEM	ASSEMBLY	SYSTEM
	(RED ARW)				(3 CONDR)	(5 CONDR)	(7 CONDR)	(3 CONDR)		(<	\langle		
														1		
UNITS	EA	EA	EA	EA	LF	LF	LF	LF	EA	EA	> EA	EA	EA	EA EA	EA	EA
													_			
CR110/UNIVERSITY	4	10	2		685	720	1005				>	0	<u> </u>)		1
CR110/LIMMER LOOP		7	4	1	930	1062	1039	1392	2	2 /	> 0			1	4	1
													4 _ <	(
TOTAL	4	17	6	1	1615	1782	2044	1392	2	> 2 <	> 0	0	6) 1	4	2
													O . /			
										<u>/2\</u>			<u> </u>			

ADJUSTED SIGNAL FOUNDATION QTY
ADDITIONAL ILSN

SIGNAL SUMMARY CONT.

SPEC ITEM #	6002 6004	6002 6005	6057 6001	6089 6001	6090 6001	6090 6002	CORR 001	CORR 002	CORR 003	CORR 004	CORR 005	CORR 006	CORR 007
ITEM DESCRIPTION	VIVDS	VIVDS	RADAR	ETHERNET	ILSN	ILSN	BATTERY	HARDENED	5.8 GHz	OPTICOM	OPTICOM	OPTICOM	OPTICOM
	CENTRAL	COMMUNICATION	ADVANCED	CABLE AND	(LED)	(LED)	BACK-UP	ETHERNET	WIRELESS	DETECTOR	PHASE SELECTOR	CARD RACK	CABLE
	CONTROL	CABLE	DETECTION	CONNECTORS	(6D)	(8D)	SYSTEM	SWITCH	ETHERNET	GTT MODEL	GTT MODEL	GTT MODEL	GTT MODEL
		(COAXIAL)	DEVICE						RADIO	722	764	760	138
UNITS	EA	LF	EA	LF	EA	EA	EA	EA	EA	EA	EA	EA	LF
CR110/UNIVERSITY		930	2			7							335
CR110/LIMMER LOOP	1	1392	2	60	2	2 <	1	1	1	2	1	1	455
TOTAL	1	2322	4	60	2	2 <	1	1	1	2	1	1	790

Kimley»Horn

WILLIAMSON COUNTY

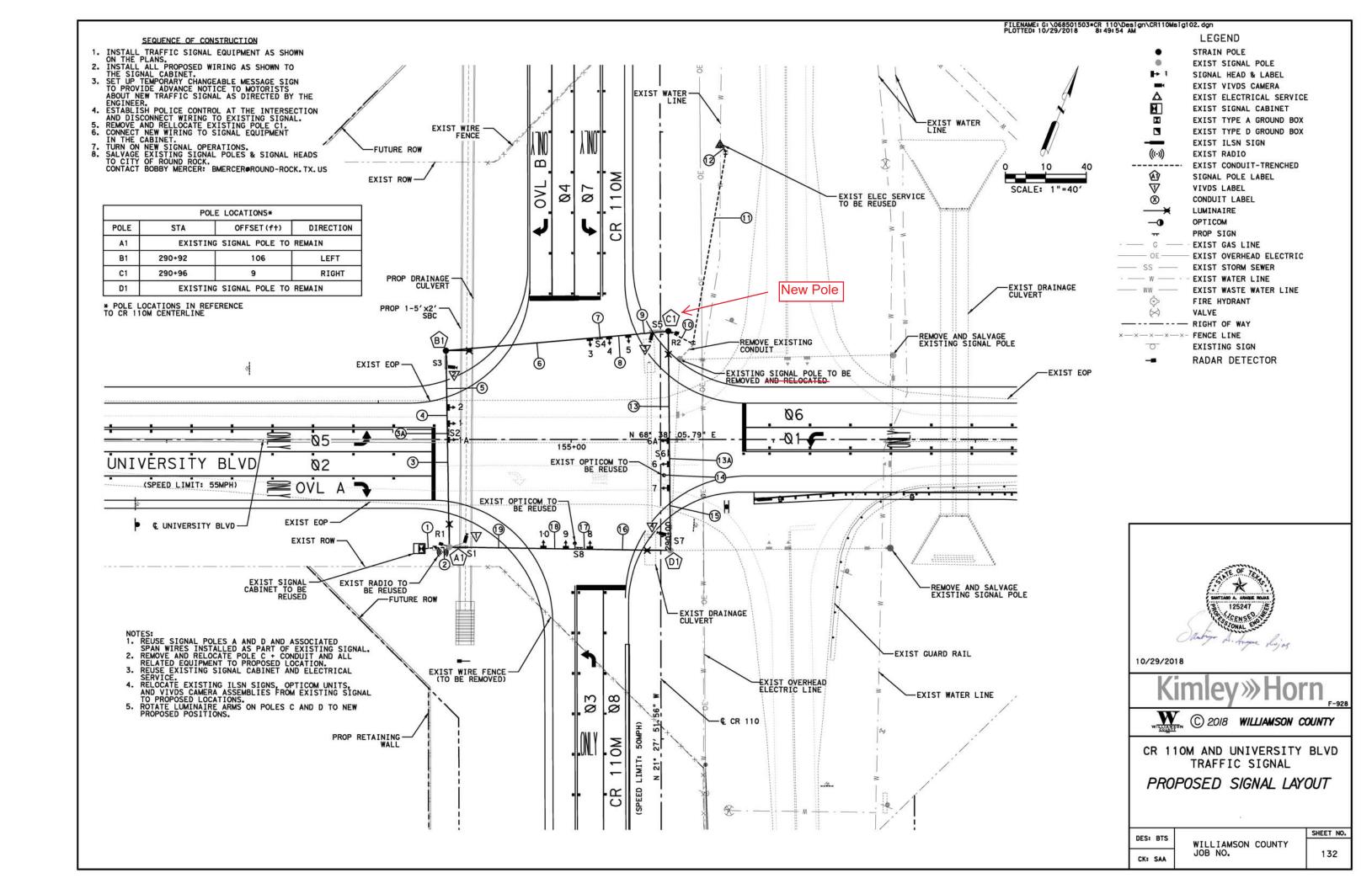
CR 110 (MIDDLE SECTION)

QUANTITY SUMMARIES

SHEET 2 OF 3

SHEET NO.

DES: ASH	WILLIAMSON	COUNTY
CK: TAN	JOB NO.	



				\triangle
		ESTIMATED QUANTITIES		
ITEM	CODE	DESCRIPTION	UNIT	{ QUANTITY }
0416	6032	DRILL SHAFT (TRF SIG POLE) (36 IN)	LF	J. 31, 2
0618	6046	CONDT (PVC) (SCH 80) (2")	LF	30
0618	6053	CONDT (PVC) (SCH 80) (3")	LF	15
0620	6007	ELEC CONDR (NO.8) BARE	LF	125
0620	6008	ELEC CONDR (NO.8) INSULATED	LF	1,390
0625	6003	ZINC-COAT STL WIRE STRAND (3/8")	LF	760
0636	6001	ALUMINUM SIGNS (TY A)+	SF	26 +
0680	6002	INSTALL HWY TRF SIG (ISOLATED)	EA	1
0680	6004	REMOVING TRAFFIC SIGNALS	EA	1
0682	6001	VEH SIG SEC (12")LED(GRN)	EA	8
0682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	6
0682	6003	VEH SIG SEC (12")LED(YEL)	EA	8
0682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	6
0682	6005	VEH SIG SEC (12")LED(RED)	EA	8
0682	6006	VEH SIG SEC (12")LED(RED ARW)	EA	4
0682	6023	BACK PLATE (12")(3 SEC)	EA	10
0682	6024	BACK PLATE (12")(4 SEC)	EA	2
0684	6008	TRF SIG CBL (TY A) (12 AWG) (3 CONDR)	LF	685
0684	6031	TRF SIG CBL (TY A) (14 AWG) (5 CONDR)	LF	720
0684	6033	TRF SIG CBL (TY A) (14 AWG) (7 CONDR)	LF	1,005
0686	6020	INS TRF SIG PL AM (S)STR(TY D)LUM	EA	+ ←
0686	6283	RELOC TRF SG PL AM (S) (STRAIN POLE)	EA	1
6002	6003	VIVDS SET-UP SYSTEM	EA	1
6002	6005	VIVDS COMMUNICATION CABLE (COAXIAL)	LF	930
6057	6001	RADAR ADVANCED DETECTION DEVICE	EA	2
CORR	007	OPTICOM CABLE - GTT MODEL 138	LF	335

+ SUBSIDIARY TO ITEM 680

NOTE:
1. RELOCATION OF EXISTING VIVDS CAMERAS, OPTICOM UNITS, ILSN SIGNS, & SIGNAL POLE SHALL BE SUBSIDIARY TO ITEM 680-6004.

ADJUSTED SIGNAL FOUNDATION QTY

04/12/2019



WILLIAMSON COUNTY

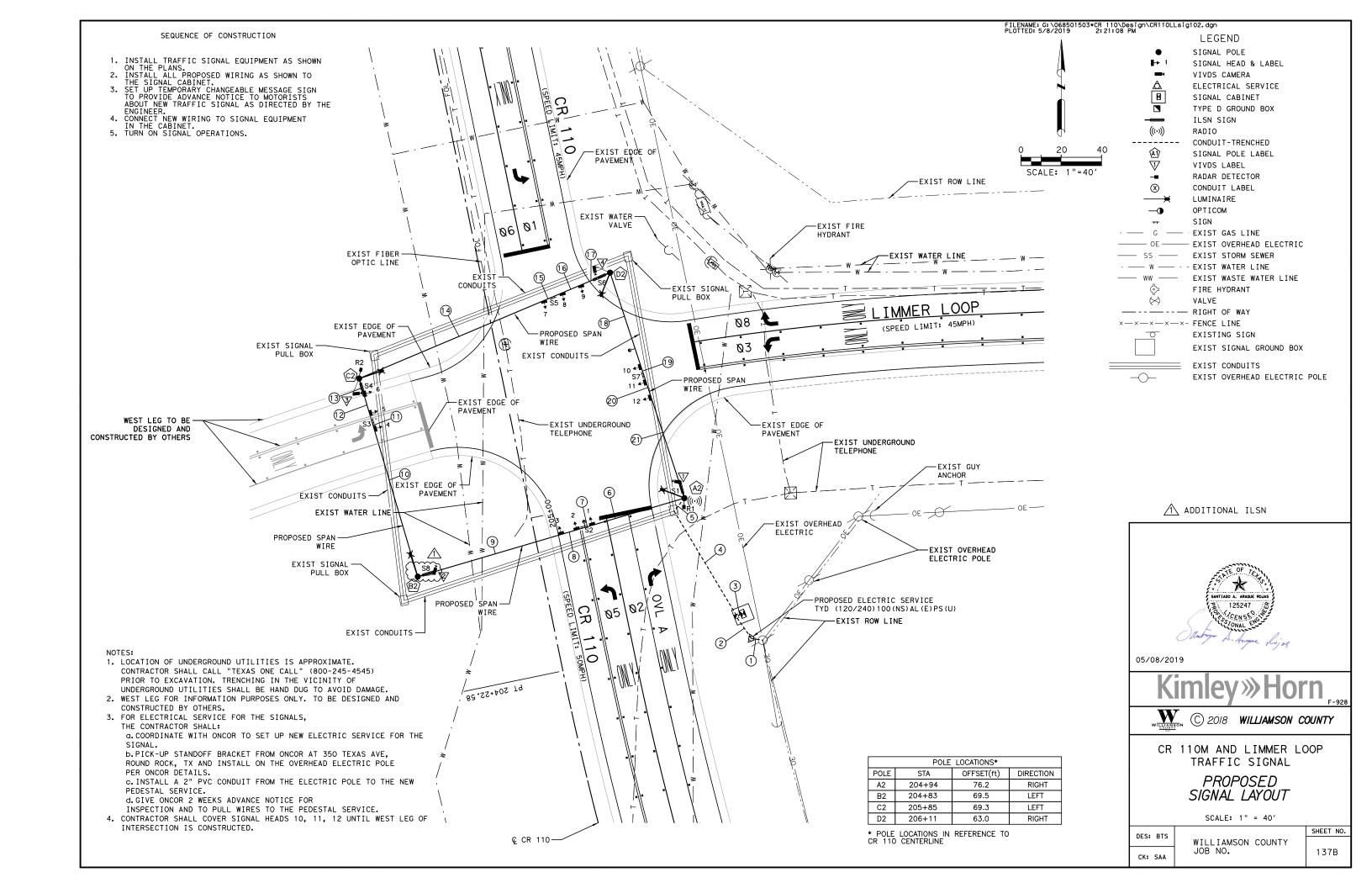
CR 110M AND UNIVERSITY BLVD
TRAFFIC SIGNAL

ITEM SUMMARY

DES: BTS CK: SAA

WILLIAMSON COUNTY JOB NO.

SHEET NO. 137



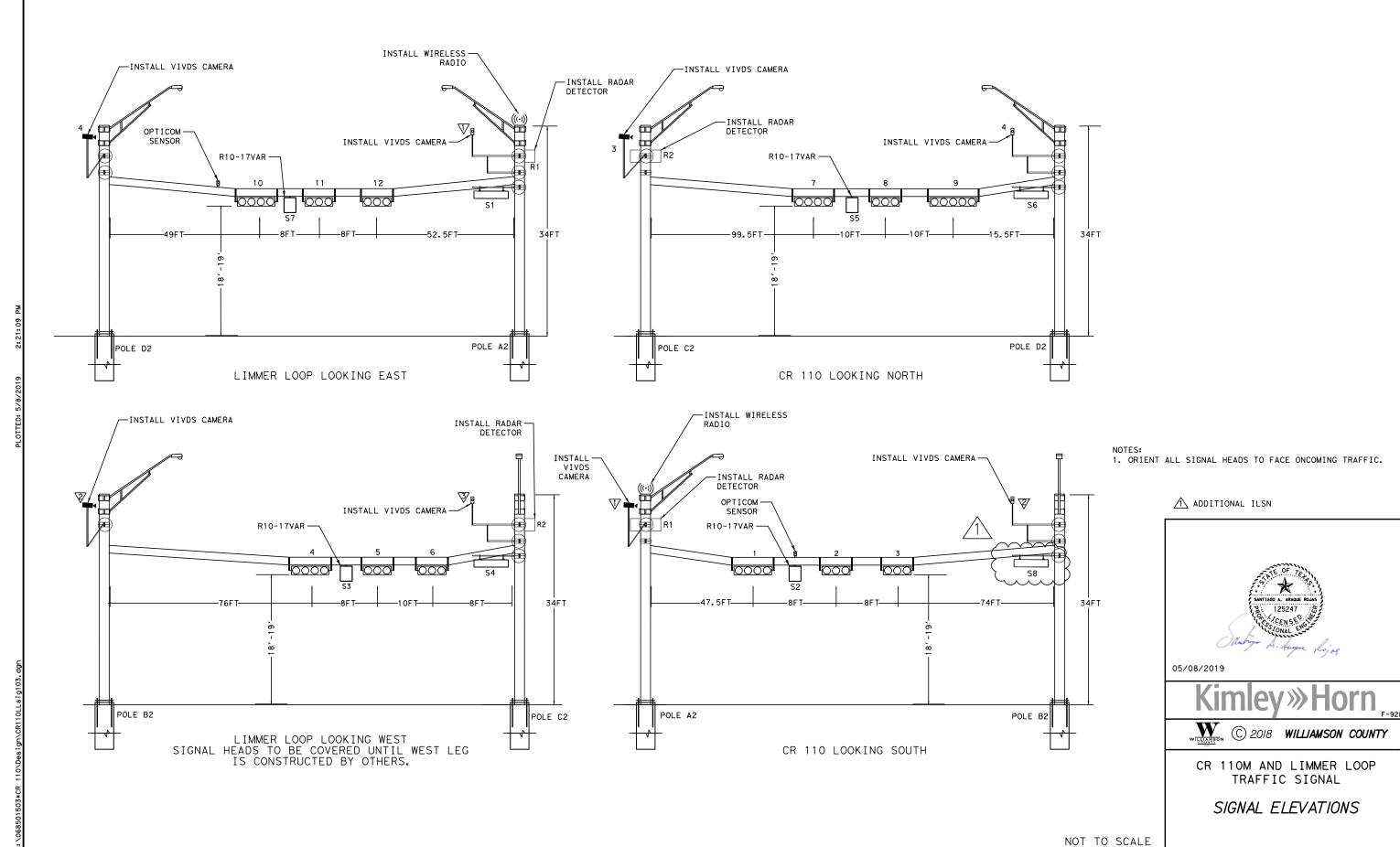
DES: BTS

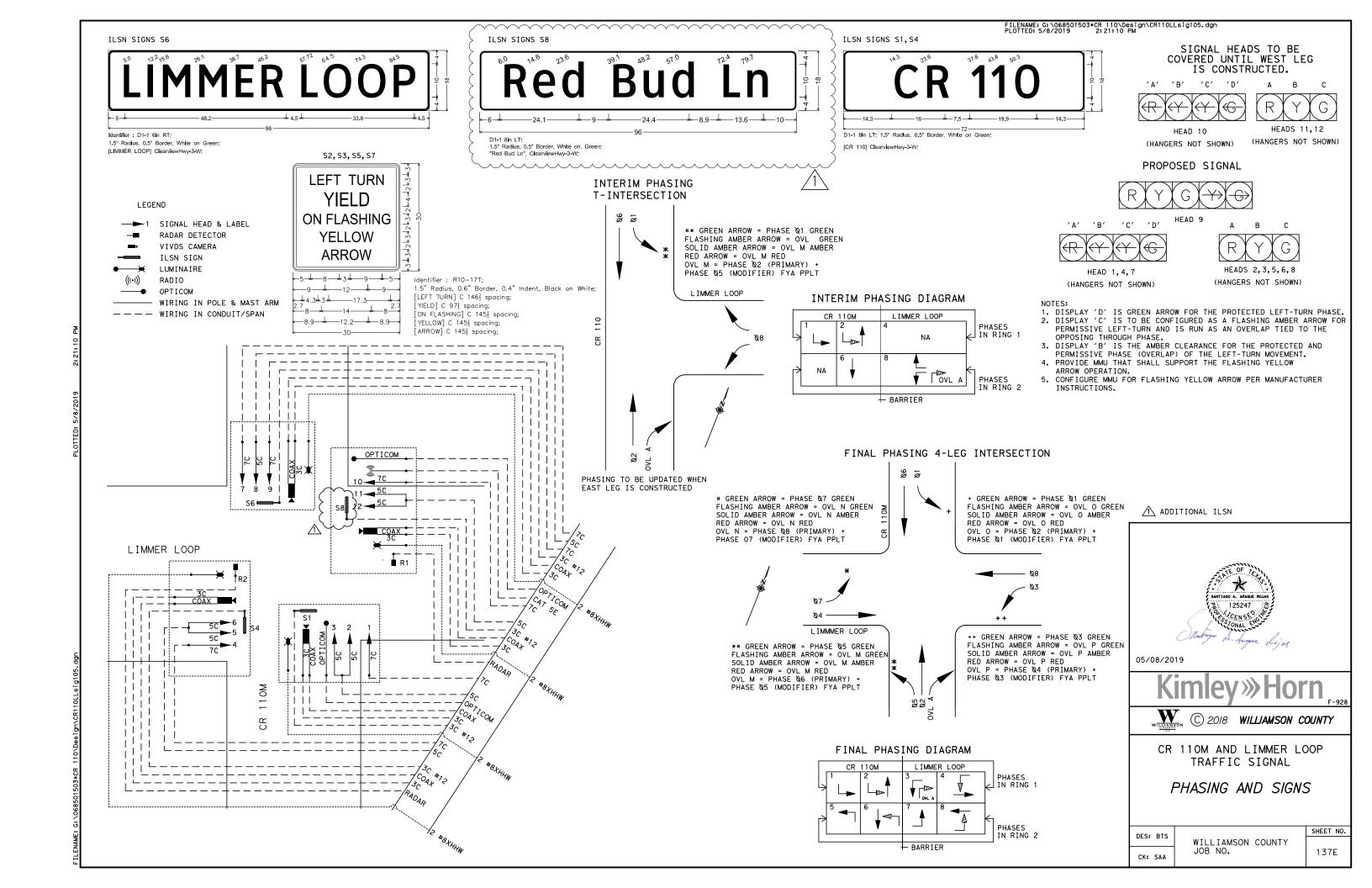
CK: SAA

SHEET NO.

137C

WILLIAMSON COUNTY JOB NO.





				\sim	
		ESTIMATED QUANTITIES			1
ITEM	CODE	DESCRIPTION	UNIT	(QUANTITY)	1
0416	6032	DRILL SHAFT (TRF SIG POLE) (36 IN)	LF	\ \A61\	1
0618	6046	CONDT (PVC) (SCH 80) (2")	LF	245	1
0618	6053	CONDT (PVC) (SCH 80) (3")	LF	45	l
0620	6007	ELEC CONDR (NO.8) BARE	LF	160	l
0620	6008	ELEC CONDR (NO.8) INSULATED	LF	1,900	l
0620	6009	ELEC CONDR (NO.6) BARE	LF	130	Ì
0620	6010	ELEC CONDR (NO.6) INSULATED	LF	816	l
0624	6010	GROUND BOX TY D (162922)W/APRON	EA	1	Ì
0625	6003	ZINC-COAT STL WIRE STRAND (3/8")	LF	1,024	l
0680	6002	INSTALL HWY TRF SIG (ISOLATED)	EA	1	l
0682	6001	VEH SIG SEC (12")LED(GRN)	EA	8	
0682	6002	VEH SIG SEC (12")LED(GRN ARW)	EA	5	
0682	6003	VEH SIG SEC (12")LED(YEL)	EA	8	
0682	6004	VEH SIG SEC (12")LED(YEL ARW)	EA	9	
0682	6005	VEH SIG SEC (12")LED(RED)	EA	8	
0682	6023	BACK PLATE (12")(3 SEC)	EA	7	
0682	6024	BACK PLATE (12")(4 SEC)	EA	4	
0682	6025	BACK PLATE (12") (5 SEC)	EA	1	
0684	6008	TRF SIG CBL (TY A) (12 AWG) (3 CONDR)	LF	930]
0684	6031	TRF SIG CBL (TY A) (14 AWG) (5 CONDR)	LF	1,062]
0684	6033	TRF SIG CBL (TY A) (14 AWG) (7 CONDR)	LF	1,039]
0684	6049	TRF SIG CBL (TY A) (16 AWG) (3 CONDR)	LF	1,392]
0686	6001	INS TRF SIG PL AM (S)ILSN ARM(7')	EA	2	
0686	6002	INS TRF SIG PL AM (S)ILSN ARM(9')	EA	1]
0686	6020	INS TRF SIG PL AM (S)STR(TY D)LUM	EA	4]
6002	6001	VIVDS PROCESSOR SYSTEM	EA	1]
6002	6002	VIVDS CAMERA ASSEMBLY	EA	4]
6002	6003	VIVDS SET-UP SYSTEM	EA	1]
6002	6004	VIVDS CENTRAL CONTROL	EA	1	
6002	6005	VIVDS COMMUNICATION CABLE (COAXIAL)	LF	1,392	
6057	6001	RADAR ADVANCED DETECTION DEVICE	EA	2	
6089	6001	ETHERNET CABLE AND CONNECTORS	LF	60_	
6090	6001	ILSN (LED) (6D)	EA	~ A ~	,
6090	6002	ILSN (LED) (8D)	EA	2)] 🖄
CORR	001	BATTERY BACK-UP SYSTEM	EA	$\frac{1}{\sqrt{1}}$	
CORR	002	HARDENED ETHERNET SWITCH	EA		
CORR	003	5.8 GHz WIRELESS ETHERNET RADIO	EA	1]
CORR	004	OPTICOM DETECTOR - GTT MODEL 722	EA	2]
CORR	005	OPTICOM PHASE SELECTOR - GTT MODEL 764	EA	1]
CORR	006	OPTICOM CARD RACK - GTT MODEL 760	EA	1]
CORR	007	OPTICOM CABLE - GTT MODEL 138	LF	455]

ADJUSTED SIGNAL FOUNDATION QTY ADJUSTED ILSN SIGN QUANTITY

05/08/2019



WILLIAMSON COUNTY

CR 110M AND LIMMER LOOP TRAFFIC SIGNAL

ITEM SUMMARY

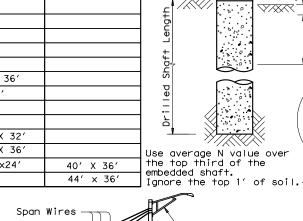
DES: BTS CK: SAA

WILLIAMSON COUNTY JOB NO.

SHEET NO. 137G

						FOUND	ATION	DESI	GN T	ABLE			
FDN	DRILLED		FORCING TEEL	EMBEDDE LENGT	D DRILLE H-f+④,	D SHAFT (5), (6)		HOR BO	LT DES	IGN	FOUNDA DESI	TION GN D	
TYPE	SHAFT DIA	VERT BARS	SPIRAL & PITCH	TEXAS CO	ONE PENE blows/f 15	TROMETER † 40	ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT	D ② SHEAR Kips	TYPICAL APPLICATION
24-A	24"	4-#5	#2 at 12"	5.7	5.3	4.5	3/4 "	36	12 3/4"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8-#9	#3 at 6"	11.3	10.3	8.0	1 1/2 "	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 3/4"	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 1/4"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)

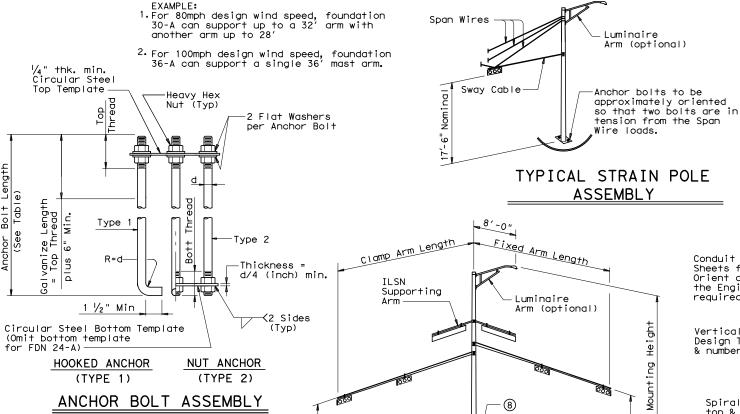
	FOUNDATION SELE ARM PLUS IL	ECTION TABL SN SUPPORT	E FOR STANDA ASSEMBLIES	ARD MAST (ft)	
		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
7	MAX SINGLE ARM LENGTH	32′	48′		
IGN		24′ X 24′			
DESI(SPEED		28′ X 28′			
<u> </u>	MAXIMUM DOUBLE ARM	32′ X 28′	32′ X 32′		
80 MPH WIND	LENGTH COMBINATIONS		36′ X 36′		
∞ ≥			40′ X 36′		
~			44′ X 28′	44′ X 36′	
z	MAX SINGLE ARM LENGTH		36′	44′	
H DESIGN SPEED			24′ X 24′		
			28′ X 28′		
1 H 75	MAXIMUM DOUBLE ARM		32′ X 24′	32′ X 32′	
₹2	LENGTH COMBINATIONS			36′ X 36′	
OO MPH WIND				40′ x24′	40′ X 36′
_					44′ × 36′



TYPICAL MAST ARM

ASSEMBLY

Traffic Signal Pole-



8 Orient anchor bolts orthogonal

ensure that two bolts are in

tension under dead load.

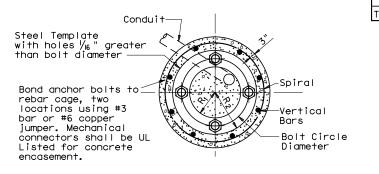
with the fixed arm direction to

NOTES:

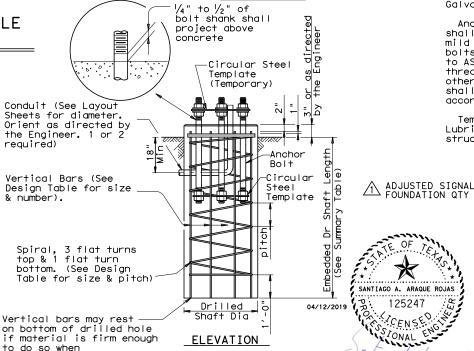
- 1) Anchor bolt design develops the foundation capacity given under Foundation Design Loads.
- (2) Foundation Design Loads are the allowable moments and shears at the base of the structure.
- (3) Foundations may be listed separately or grouped according to similarity of location and type. Quantities 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.

	ANC	HOR BOLT	% TEMPL	ATE SIZE	S					
BOLT TOP BOTTOM BOLT R2 R1										
3/4 "	1′-6"	3"	_	12 3/4"	7 1/8"	5 % "				
1 1/2 "	3'-4"	6"	4"	17"	10"	7"				
1 3/4"	3'-10"	7"	4 1/2 "	19"	11 1/4"	7 3/4"				
2"	4'-3"	8"	5"	21"	12 1/2"	8 1/2"				
2 1/4"	4'-9"	9"	5 ½"	23"	13 ¾"	9 1/4"				

(7) Min dimensions given, longer bolts are acceptable.

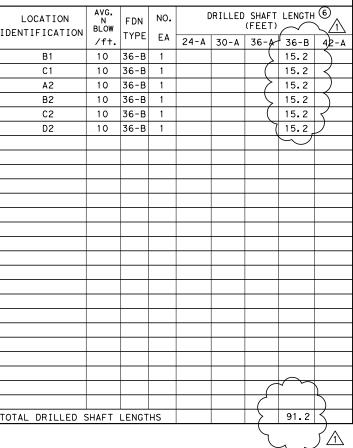


TOP VIEW



FOUNDATION DETAILS

concrete is placed.



FOUNDATION SUMMARY TABLE

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".



TS-FD-12

© TxDOT August 1995 CK: JSY DW: MAO/MMF CK: JSY/T CONT SECT JOB WILLIAMSON

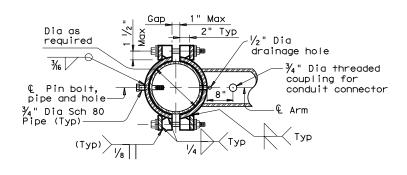
SANTIAGO A. ARAQUE ROJAS 125247

CENSED

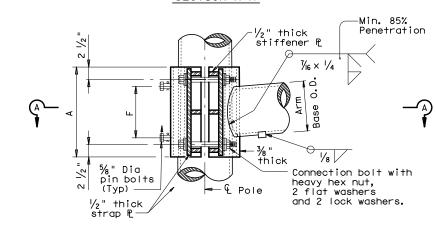
STONAL ENG.

128

	TABLE OF DIMENSIONS										
for ILSN Support Arm Clamp-on Details 1,2 and 3											
ILSN ARM	SIZE		F	CONN.	BOLTS	PIN E	BOLTS				
	_	Α	٦ [No.	Dia	No.	Dia				
3 in. c		in.	in.	ea.	in.	ea.	in.				
	Schedule 40 Pipe			4	3/4	2	5/8				



SECTION A-A



ILSN CLAMP-ON DETAIL 1

GENERAL NOTES:

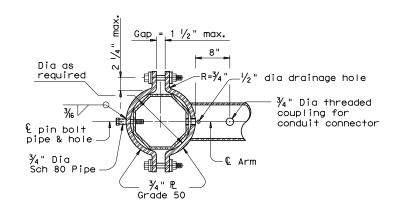
Clamp-on details shall be used for ILSN support arm assemblies. A 1 1/2" inch diameter hole shall be cut in the front clamp plate for wiring access. A matched hole shall be field drilled through the pole to provide wire access after arm is oriented. Deburr both holes.

Where duplicate parts occur on a detail, welds shown for one part shall apply to all similar parts on the details.

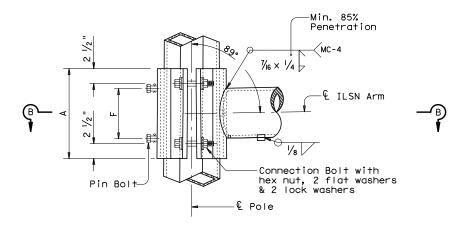
Pin bolts are required to prevent rotation of clamp-on arms under design wind forces.

NOTE:

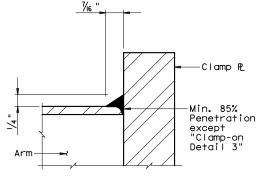
Pin bolts shall be A325 with threads excluded from the shear plane. Pin bolt and $\frac{3}{4}$ " dia pipe shall have $\frac{3}{6}$ " dia holes for a $\frac{1}{8}$ " dia galvanized cotter pin. Back clamp plate shall be furnished with a $\frac{3}{4}$ " dia hole for each pin bolt. An $\frac{1}{16}$ " dia hole for each pin bolt shall be field drilled through the pole after arm orientations have been approved by the Engineer.



SECTION B-B

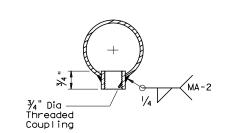


ILSN CLAMP-ON DETAIL 2

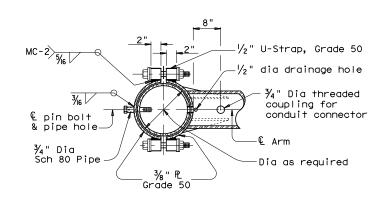


CLAMP-ON ARM

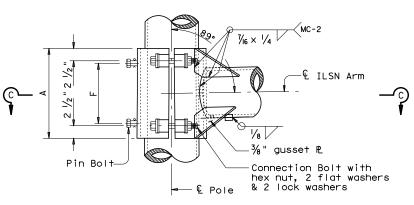
ARM BASE WELD DETAILS



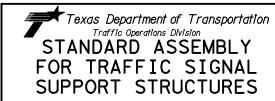
ILSN ARM COUPLING DETAIL



SECTION C-C



ILSN CLAMP-ON DETAIL 3



MAST-ARM CONNECTIONS

MA-C(ILSN)-12

C TxDOT August 1995	DN: MS		CK: JSY	DW:	MMF	CK: JSY
REVISIONS	CONT	SECT	JOB		н	IGHWAY
	DIST		COUNTY			SHEET NO.
		1	WILLIAM	102	1	148A