

**Item 632 - Signal Support Foundation, As Per Plan (Cont'd)**

If any foundation locations must be adjusted, the Contractor shall notify the Engineer and Maintaining Agency, who will determine the revised location and if needed, the support design. The Contractor will not be responsible for determining the revised design. The Engineer will inform the Contractor of any changes necessary and authorize the Contractor to order the support.

The Contractor shall, when developing the progress schedule, and those of subcontractors, ensure that the foundations are installed at the earliest time as is feasible and practical, and shall include sufficient time in the progress schedule for ordering, manufacturing, delivery, and installation of the support items after the foundations are in place.

No payments for delivered materials for the foundation or support items shall be made until the foundations are in place, and if changes in the design of this item are required, no payment shall be made for the items manufactured to the original design.

For Location 3, based on sandy conditions of the soil, about 3 feet of depth shall be added to the dimensions detailed on TC-21.21 for the proposed installation of the traffic signal foundation.

Payment will be at the contract unit price and will be full compensation for all labor, materials, tools, equipment, and other incidentals necessary for each support furnished, in place, complete and accepted.

**Item 632 – Test Hole Performed**

It is anticipated that the Contractor will encounter underground utilities while excavating for signal support foundations or similar foundations. After accurately identifying the proposed location of the foundation, as shown in the plans and after modifying that location, if necessary, based on the filed marking of underground utility location, the Contractor discovers a utility conflict during the excavation operation, the Contractor will be compensated for each partial foundation excavation according to the bid price.

Before the Contractor begins the excavation at the modified location, the Contractor shall verify that there will be no overhead utility conflicts resulting from the new signal support location. New support locations are to be approved by the Engineer.

The work will include backfilling, compacting, and restoration of the excavation to the site's original condition.

Excavations shall not be left open overnight.

Payment for this item shall be at the unit price bid per each Item 632 Test Hole Performed to be used at the direction of the Engineer.

**Item 632 - Signal Support, TC-81.22, Design 2, As Per Plan**  
**Item 632 - Signal Support, TC-81.22, Design 4, As Per Plan**

In addition to provisions of the ODOT C&MS, furnish and install signal poles as specified in the plans.

The signal support designer shall provide drawings of a signal support with structural aspects of the design and materials in compliance with the AASHTO LRFDLTS-1.

Submit, to the Engineer prior to incorporation: two copies of the signal support drawings and shop drawings, which identify and describe each manufactured signal support and signal support item which is being incorporated into the construction. The signal support drawings and shop drawings shall each be reviewed, stamped, and dated by a registered Professional Engineer.

Payment for Item 632 "Signal Support, TC-81.22, Design 2, As Per Plan" and "Signal Support, TC-81.22, Design 4, As Per Plan" shall be made at the contract unit price per each complete and in place, and shall include all signal support design, labor, materials, and equipment necessary to complete the work.

**Item 632 – Combination Signal Support, Type TC-81.22, (By Design), As Per Plan**

The support at Location 1 (SP-2) shall consist of a TC-81.22 Design 12 pole with a TC-81.22 Design 2 and Design 4 signal arm. Support SP-3 shall consist of a TC-12.31 Design 10 pole with a TC-81.22 Design 12 and Design 13 signal arm. The support at Location 3 (SP-5) shall consist of a TC-81.22 Design 4 pole with light pole extension. All signal support items required by C&MS Item 632 and all sign support items required by C&MS Item 630 shall be included as part of this support.

Payment will be at the contract unit price and will be full compensation for all labor, materials, tools, equipment, and other incidentals necessary for each support furnished, in place, complete and accepted.

**Item 632 - Removal of Traffic Signal Installation, As Per Plan**

Traffic signal installations, including signal heads, cable, messenger wire, signal supports, cabinet, controller, etc., shall be removed in accordance with C&MS 632.26 and as indicated on the plans. Unless noted, Power Services shall be removed in accordance with C&MS 625.21.F. Removed items shall be reused as part of a new installation on the project or stored on the project for salvage by the Contractor in accordance with the listing given herein.

Items to be reused:

- Location 1 – Preemption Unit
- Location 2 – Traffic Signal Heads and Advanced Radar Detection Unit
- Location 3 – Traffic Signal Heads and Stop Bar Radar Detection Unit

Items to be salvaged:

- Location 1 – Control Housing, UPS, Radar Detection Units and Traffic Signal Heads with LEDs

Salvaged items shall be delivered by the contractor to the nearest ODOT facility whose address is listed below:

ODOT – Signal Shop  
25609 Emery Rd, Warrensville Heights, Ohio 44128  
Attn: Leonard Paige  
Office: (216) 584-2302

Provide a minimum of one week's notice to the ODOT Maintenance contract to coordinate and or schedule delivery.

**Reuse of Vehicular Signal Head, As Per Plan**

This item shall consist of reusing the existing vehicular signal heads located at Location 2 and 3 of this project. The contractor shall remove the existing signal heads from the existing signal supports and reinstall said signal heads on proposed signal supports as shown on each location respectively.

This item shall only apply to existing signal heads at Location 2 and 3 of this project.

Payment for Item 632 "Reuse of Vehicular Signal Heads" shall be made at the contract unit each and shall include all labor, materials, signal head attachment assemblies and equipment to install the signal heads.

**Item 632 – Signalization, Misc.: Preemption Equipment**

This item shall consist of removing and reinstalling the existing Emergency Vehicle Preemption Equipment. The existing Preemption Equipment Unit is located on Location 1 of this project. The Contractor shall remove and reinstall all preemption equipment with the exception of the detector cable. The Contractor shall provide a new detector cable to ensure the detector cable quantities fit the location of the proposed signal installation.

This item shall only apply to existing preemption equipment unit at Location 1 of this project.

Payment for Item 632 "Signalization Misc.: Preemption Equipment" shall be made at the contract unit each and shall include all labor, materials, preemption receiving unit, detector cable, phase selector assembly and interface wiring panel, and confirmation light needed to re-install the emergency preemption equipment.

**Item 632 – Signalization, Misc.: Reuse of Existing Advanced Radar Detection**

This item shall consist of removing and reinstalling the existing Advanced Radar Detection unit at signal pole 4 (SP-4). The Contractor shall remove and reinstall detection unit and provide a new detector cable.

This item shall only apply to the existing advanced radar detection unit at Location 2 of this project.

Payment for Item 632 "Signalization Misc.: Reuse of Existing Advanced Radar Detection" shall be made at the contract unit each and shall include all labor, materials, and equipment to re-install the emergency preemption equipment.

**Item 632 – Signalization, Misc.: Reuse of Existing Stop Line Radar Detection Unit**

This item shall consist of removing and reinstalling the existing Stop Line Radar Detection Unit at signal pole 5 (SP-5). The Contractor shall remove and reinstall detection unit and provide a new detector cable.

This item shall only apply to the existing stop line radar detection unit at Location 3 of this project.

Payment for Item 632 "Signalization Misc.: Reuse of Existing Stop Line Radar Detection Unit" shall be made at the contract unit each and shall include all labor, materials, and equipment to re-install the emergency preemption equipment.

**Item 632 – Vehicular Signal Head, (LED), 3-Section, 12" Lens, 1-Way, Polycarbonate, As Per Plan, Yellow**  
**Item 632 – Vehicular Signal Head, (LED), 4-Section, 12" Lens, 1-Way, Polycarbonate, As Per Plan, Yellow**

This item shall consist of installing Dialight 15-year warranty LED traffic signal heads at all proposed traffic signal locations on Location 1: SR-14 at IR-480 ramp. The light emitting diode (LED) modules shall meet the requirements of C&MS 732.04. An LED module shall be furnished and installed for the type of signal lens specified in the bid item description.

This item shall only apply to proposed signal heads at Location 1 of this project.

Payment for Items 632 "Vehicular Signal Head, (LED), 3-Section, 12" Lens, 1-Way, Polycarbonate, As Per Plan, Yellow" and "Vehicular Signal Head, (LED), 4-Section, 12" Lens, 1-Way, Polycarbonate, As Per Plan, Yellow" shall be made at the contract unit each and shall include all labor, materials, signal head attachment assemblies and equipment to install the signal heads.

**Item 633 - Cabinet, Type 332, As Per Plan**

The cabinet shall be furnished and installed according to C&MS 633 and 733 and be listed on the Traffic Authorized Products List (TAP). The cabinet shall be furnished with an EDI Monitor as allowed on the TAP/Approved Products List. The Contractor shall not reassign the cabinet detector inputs in order to reduce the number of 2-channel detector units supplied and shall use the standard Caltrans Input File designations following Plan Insert Sheet 203324.

DESIGN AGENCY



DESIGNER

AL

REVIEWER

DAB 11-29-23

PROJECT ID

107326

SHEET TOTAL

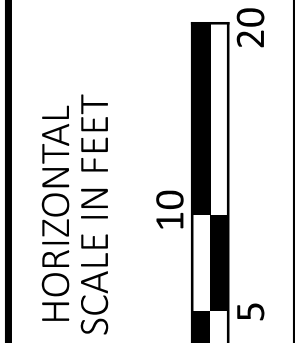
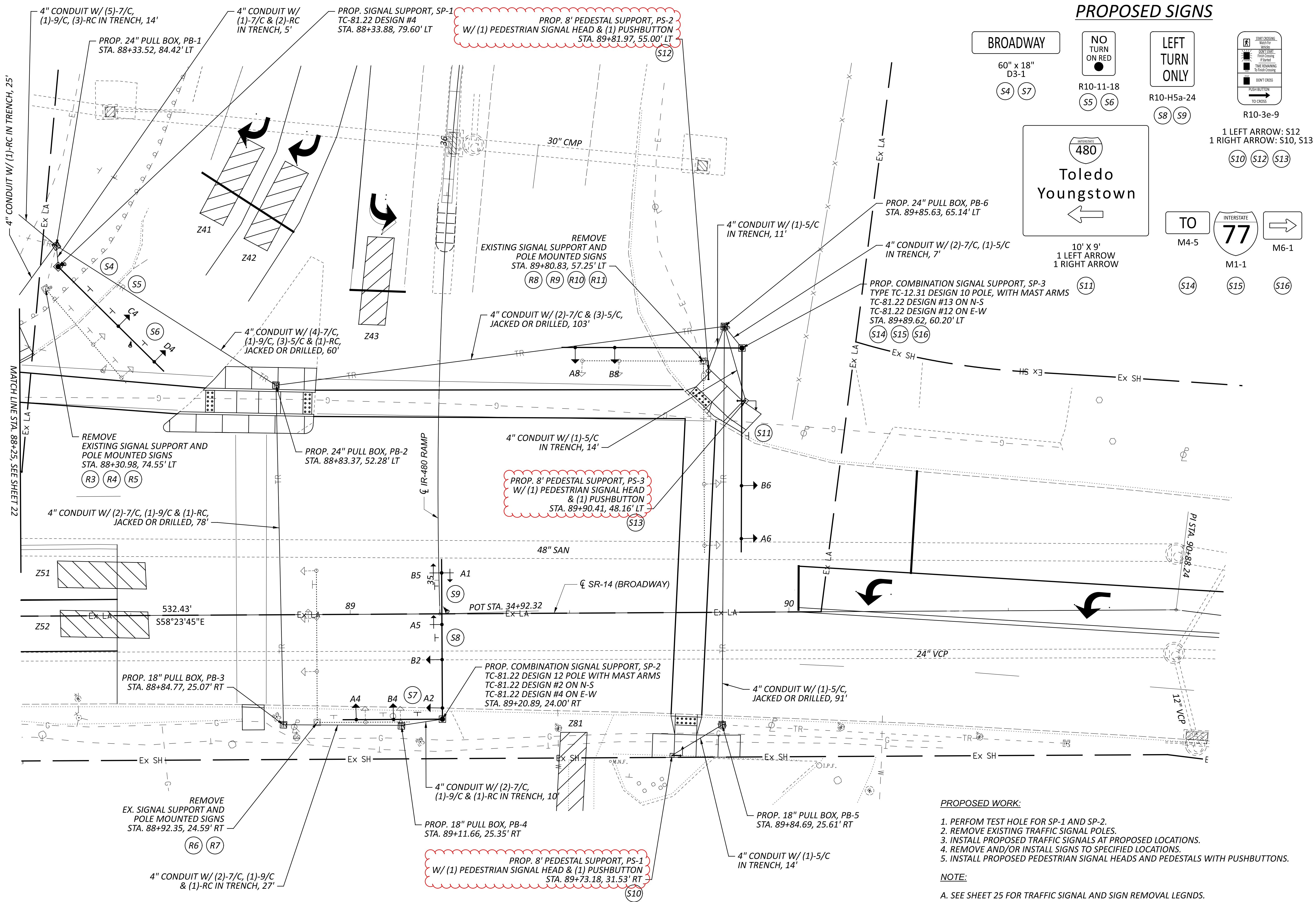
06 | 33



SHEET NUM.												PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE
3	4	10	11	14	15	16	25	30	32			01/NFP/21	EXT	TOTAL		SHEET		
								1				1	632	72101	1	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 2, AS PER PLAN	6
							1					1	632	72111	1	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 4, AS PER PLAN	6
							1					1	632	78369	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-12.31 DESIGN 10 POLE, WITH MAST ARMS TC-81.22 DESIGN 13 AND DESIGN 12, AS PER PLAN	6
									1			1	632	79111	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 4, AS PER PLAN	6
							1					1	632	79421	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.22 DESIGN 12 POLE, WITH MAST ARMS TC-81.22 DESIGN 4 AND DESIGN 2, AS PER PLAN	6
							3					1	632	89600	3	EACH	PEDESTAL, 8'	
							3	1	1			5	632	90101	5	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN	6
								2	2			4	632	90201	4	EACH	REUSE OF VEHICULAR SIGNAL HEAD, AS PER PLAN	6
							1					1	632	90400	1	EACH	SIGNALIZATION, MISC.: PREEMPTION EQUIPMENT	6
								1				1	632	90400	1	EACH	SIGNALIZATION, MISC.: REUSE OF EXISTING ADVANCED RADAR DETECTION	6
									1			1	632	90400	1	EACH	SIGNALIZATION, MISC.: REUSE OF EXISTING STOP LINE RADAR DETECTION	6
							1					1	633	65521	1	EACH	CABINET, TYPE 332, AS PER PLAN	6
							1					1	633	67100	1	EACH	CABINET FOUNDATION	
							1					1	633	67200	1	EACH	CONTROLLER WORK PAD	
							1					1	633	74001	1	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), AS PER PLAN	7
							3					3	809	69101	3	EACH	STOP LINE RADAR DETECTION, AS PER PLAN	7
							1					1	809	69123	1	EACH	ATC CONTROLLER, AS PER PLAN	7
																	<b>MAINTENANCE OF TRAFFIC</b>	
			3	24								24	614	11110	24	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
												3	614	18601	3	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	9
																	<b>INCIDENTALS</b>	
12												LS	614	11000	LS		MAINTAINING TRAFFIC	
												12	619	16011	12	MNTH	FIELD OFFICE, TYPE B, AS PER PLAN	3
												LS	623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
												LS	624	10000	LS		MOBILIZATION	

GENERAL SUMMARY

DESIGN AGENCY	
DESIGNER	VLN
REVIEWER	DAB
PROJECT ID	107326
SHEET	13
TOTAL	33



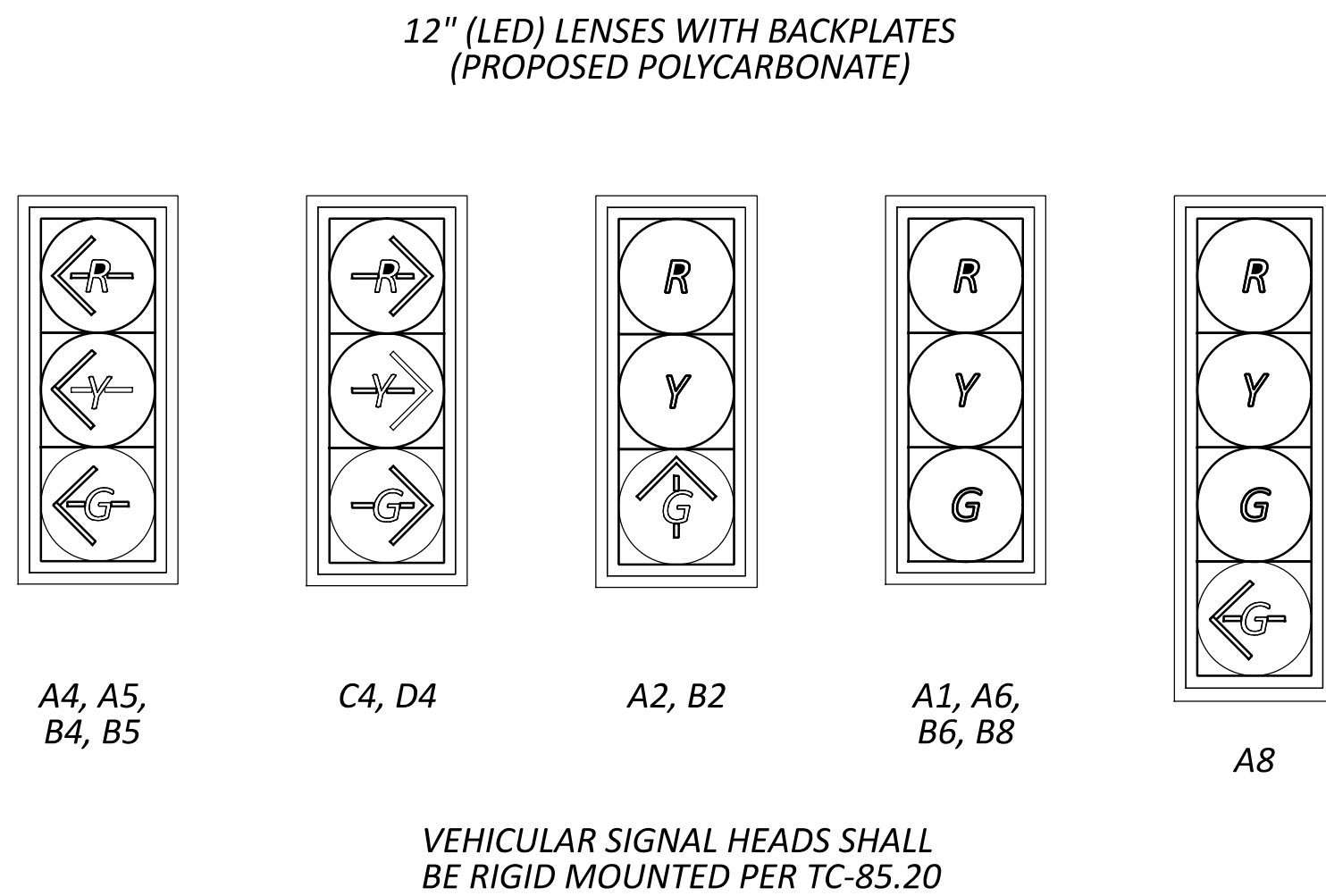
TRAFFIC SIGNAL AND SIGN DETAILS  
 LOCATION 1: CUY-14 AT IR-480 RAMPS

DESIGN AGENCY	
DESIGNER	VLN
REVIEWER	DAB 11-29-23
PROJECT ID	107326
SHEET	23
TOTAL	33

**TRAFFIC SIGNAL LEGEND**

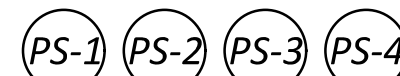
	PROPOSED	EXISTING
TRAFFIC SIGNAL, 2 UNIT, 3 UNIT, OR PHB HEAD, 12"		
TRAFFIC SIGNAL, 3 UNIT HEAD, 12", WITH ARROWS		
TRAFFIC SIGNAL, 4 OR 5 UNIT HEAD, 12"		
SIGNAL SUPPORT POLE		
PEDESTRIAN HEAD		
PEDESTRIAN PUSH BUTTON		
PEDESTAL SUPPORT		
LUMINAIRE, CONVENTIONAL		
332 CONTROLLER AND WORK PAD		
TS-2 CONTROLLER AND WORK PAD		
TRAFFIC PULL BOX		
DILEMMA ZONE RADAR DETECTION UNIT		
STOP LINE RADAR DETECTION UNIT		
DETECTOR LOOP		
DETECTION ZONE		
DETECTOR COUNT		

**SIGNAL HEADS**



**PEDESTRIAN SIGNAL HEAD**

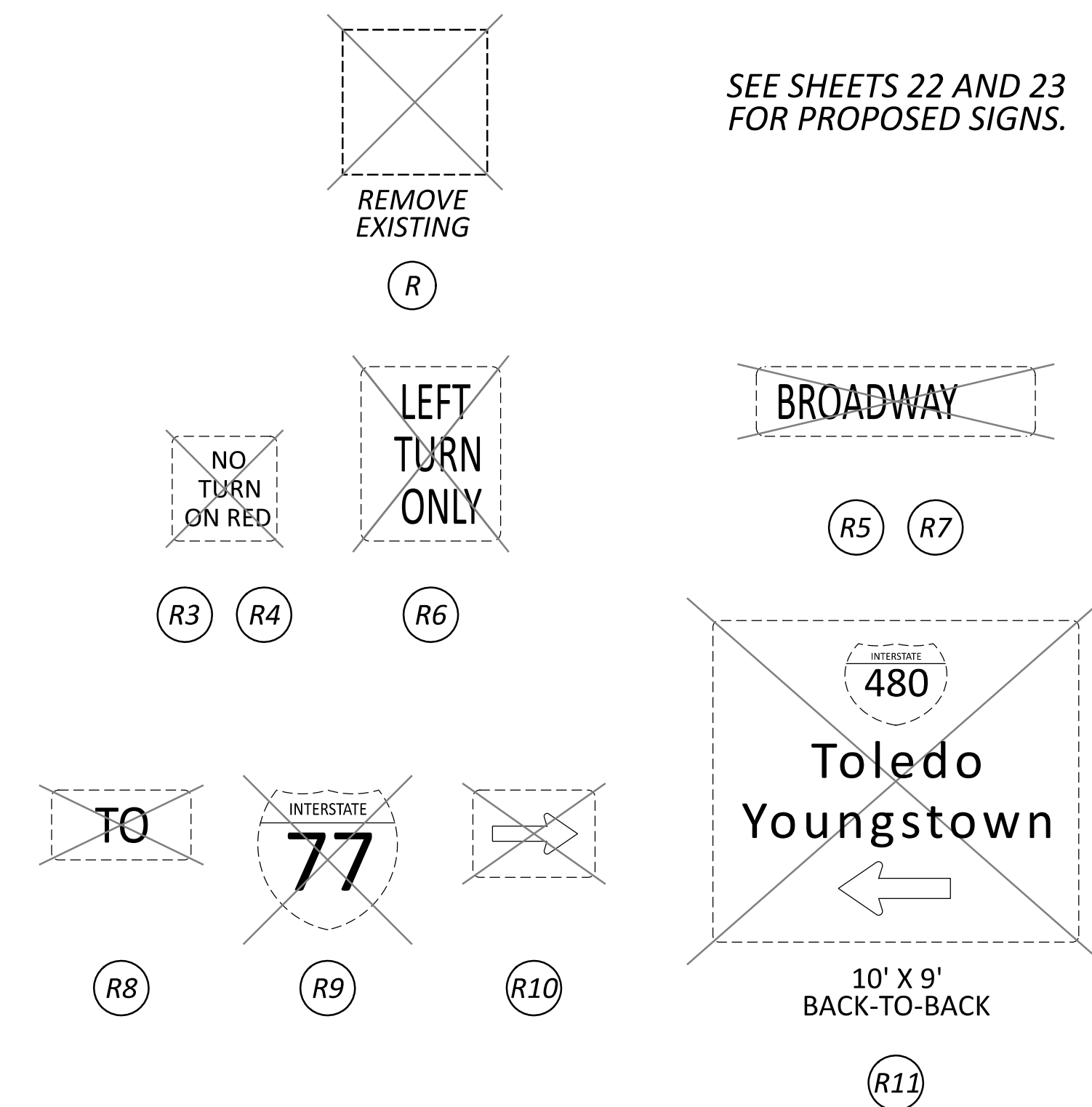
TYPE D2 PEDESTRIAN (LED) (COUNTDOWN) SIGNAL HEAD



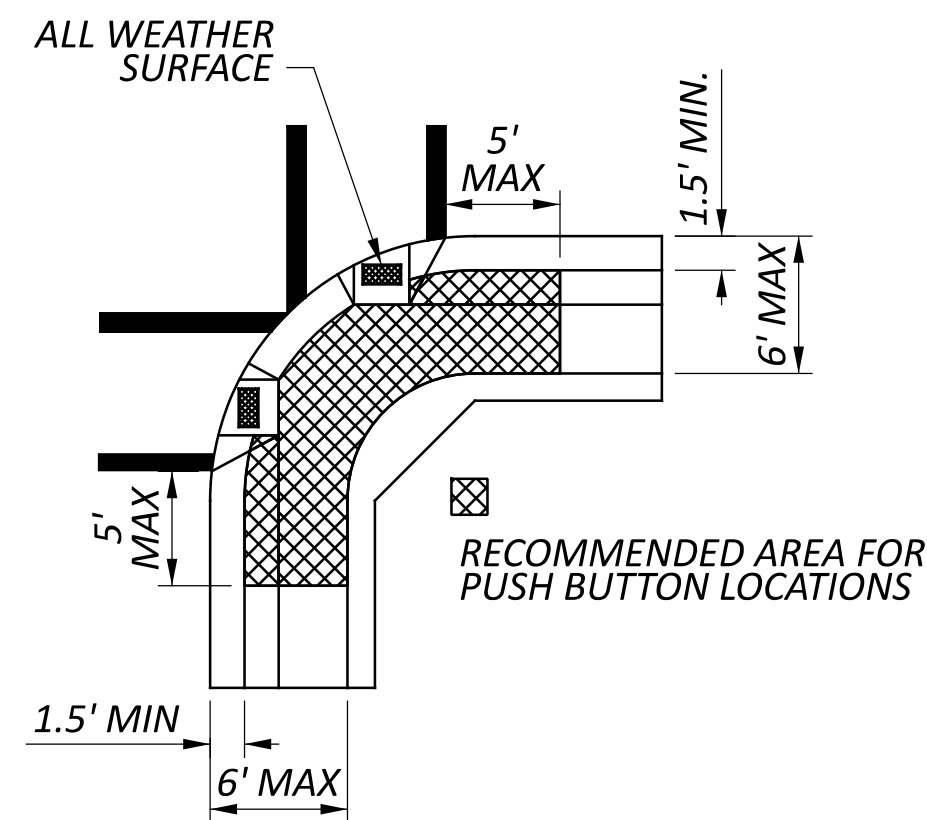
**LOCATION 1 SIGNAL QUANTITY SUBSUMMARY**

ITEM	QUANTITY	UNIT	DESCRIPTION
625	127	FT	CONDUIT, 4", 725.04
625	332	FT	CONDUIT, JACKED OR DRILLED, 725.04, 4"
625	127	FT	TRENCH
625	3	EACH	PULL BOX, 725.08, 18"
625	3	EACH	PULL BOX, 725.08, 24"
625	6	EACH	PULL BOX REMOVED
625	3	EACH	GROUND ROD
625	1	EACH	POWER SERVICE
625	127	FT	UNDERGROUND WARNING/MARKING TAPE
630	2	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL
632	12	EACH	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN, YELLOW
632	1	EACH	VEHICULAR SIGNAL HEAD, (LED), 4-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN, YELLOW
632	3	EACH	PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN, AS PER PLAN
632	13	EACH	COVERING OF VEHICULAR SIGNAL HEAD
632	3	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD
632	3	EACH	PEDESTRIAN PUSHBUTTON
632	771	FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG
632	1073	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG
632	528	FT	SIGNAL CABLE, 9 CONDUCTOR, NO. 14 AWG
632	3	EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	3	EACH	PEDESTAL FOUNDATION
632	2	EACH	TEST HOLE PERFORMED
632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 4, AS PER PLAN
632	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.22 DESIGN 12 POLE, WITH MAST ARMS TC-81.22 DESIGN 4 AND DESIGN 2, AS PER PLAN
632	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-12.31 DESIGN 10 POLE, WITH MAST ARMS TC-81.22 DESIGN 13 AND DESIGN 12, AS PER PLAN
632	3	EACH	PEDESTAL, 8'
632	3	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
632	1	EACH	SIGNALIZATION, MISC.: PREEMPTION EQUIPMENT
633	1	EACH	CABINET, TYPE 332, AS PER PLAN
633	1	EACH	CABINET FOUNDATION
633	1	EACH	CONTROLLER WORK PAD
633	1	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), AS PER PLAN
809	3	EACH	STOP LINE RADAR DETECTION, AS PER PLAN
809	1	EACH	ATC CONTROLLER, AS PER PLAN

**LOCATION 1 SIGN REMOVAL**



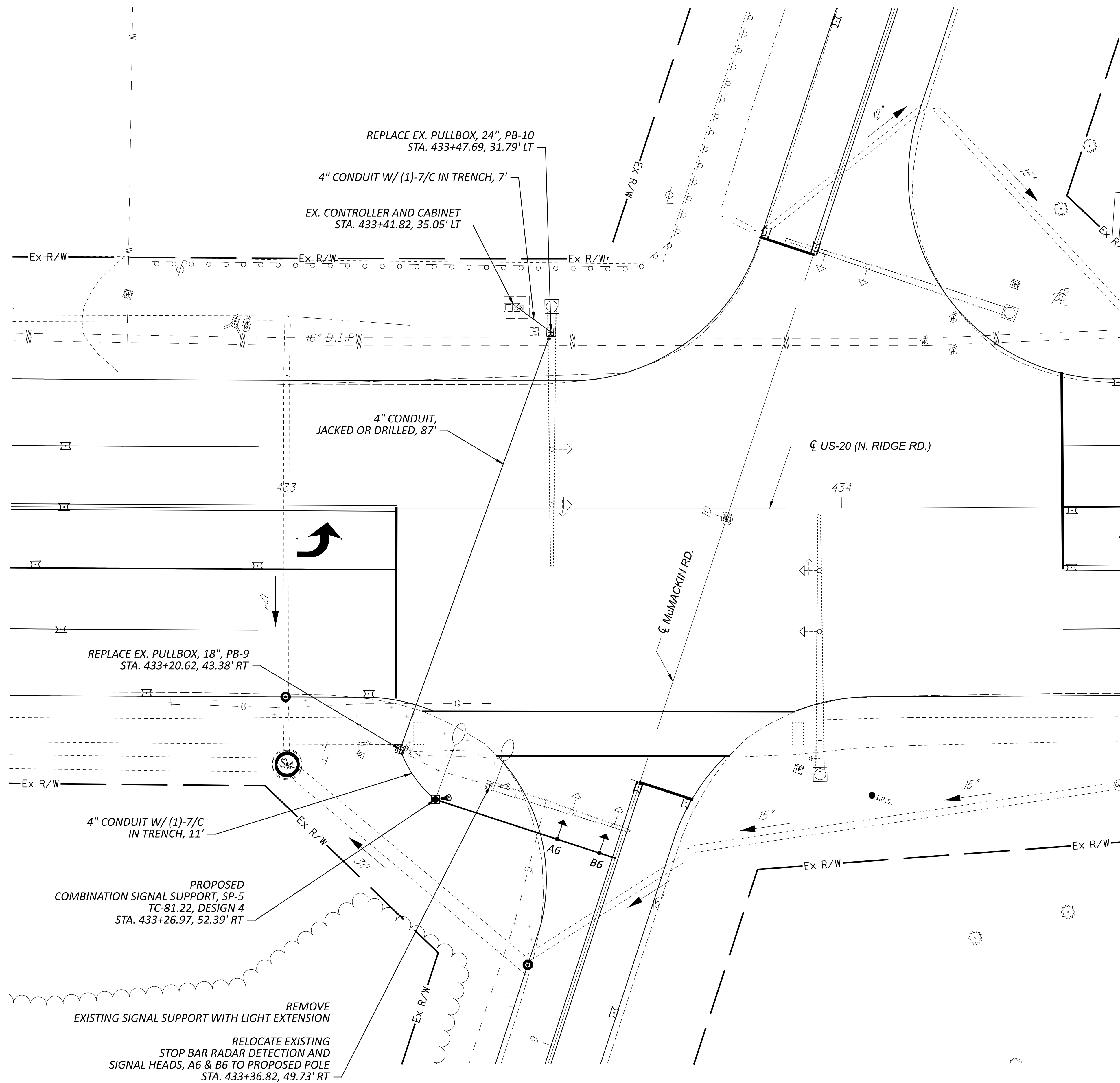
**ADA PUSHBUTTON & STRUCTURE DIAGRAM**



**LOCATION 1 PULL BOX TABLE**

PULL BOX #	STATION	SIDE	OFFSET	SIZE (IN.)
PB-1	88+33.52	LT	84.42'	24
PB-2	88+83.37	LT	52.28'	24
PB-3	88+84.77	RT	25.07'	18
PB-4	89+11.66	RT	25.35'	18
PB-5	89+84.69	RT	25.61'	18
PB-6	89+85.63	LT	65.14'	24

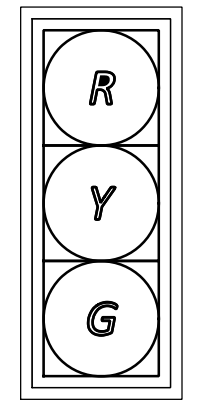




- PROPOSED WORK:**
1. REMOVE EXISTING SIGNAL SUPPORT.
  2. INSTALL PROPOSED COMBINATION SIGNAL SUPPORT AT PROPOSED LOCATION.
  3. REUSE AND RELOCATE EXISTING STOP BAR RADAR DETECTION TO PROPOSED SIGNAL SUPPORT.
  4. REUSE AND RELOCATE EXISTING SIGNAL HEADS (A6 AND B6) TO PROPOSED SIGNAL SUPPORT.
- NOTE:**
- A. WHEN REPLACING PULLBOX, DO NOT DISTURB SIGNAL CABLES TO REMAIN.
  - B. SEE SHEET 25 FOR TRAFFIC SIGNAL LEGEND.

**SIGNAL HEADS**

12" (LED) LENSES WITH BACKPLATES  
 (PROPOSED POLYCARBONATE)



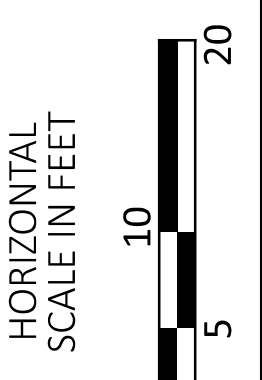
A6, B6

VEHICULAR SIGNAL HEADS SHALL BE RIGID MOUNTED PER TC-85.20

**PULL BOX TABLE**

PULL BOX #	STATION	OFFSET	SIDE	SIZE (IN.)
PB-9	433+20.62	43.38'	RT	18
PB-10	433+47.69	31.79'	LT	24

ITEM	QUANTITY	UNIT	DESCRIPTION
625	2	EACH	CONNECTION, FUSED PULL APART
625	1	EACH	BRACKET ARM, 12"
625	64	FT	NO. 4 AWG 600 VOLT DISTRIBUTION CABLE
625	64	FT	NO. 10 AWG POLE AND BRACKET CABLE
625	1	EACH	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), 120 VOLT
625	18	FT	CONDUIT, 4", 725.04
625	87	FT	CONDUIT, JACKED OR DRILLED, 725.04, 4"
625	18	FT	TRENCH
625	1	EACH	PULL BOX, 725.08, 18"
625	1	EACH	PULL BOX, 725.08, 24"
625	2	EACH	PULL BOX REMOVED
625	1	EACH	GROUND ROD
625	18	FT	UNDERGROUND WARNING/MARKING TAPE
625	191	FT	LIGHTING, MISC.: CABLE REMOVED AND REINSTALLED
632	191	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG
632	1	EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 4, AS PER PLAN
632	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
632	2	EACH	REUSE OF VEHICULAR SIGNAL HEAD, AS PER PLAN
632	1	EACH	SIGNALIZATION, MISC.: REUSE OF EXISTING STOP LINE RADAR DETECTION UNIT



DESIGN AGENCY



DESIGNER  
 AL

REVIEWER  
 DAB 11-29-23

PROJECT ID  
 107326

SHEET TOTAL  
 32 33