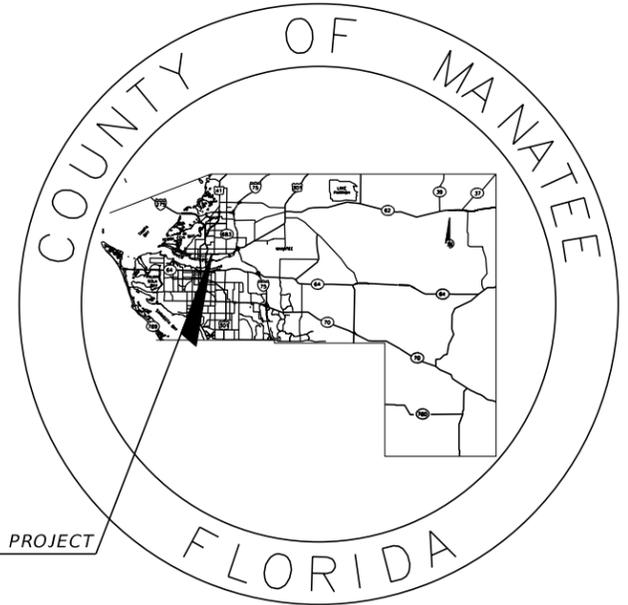


**MANATEE COUNTY  
PUBLIC WORKS DEPARTMENT**

**CONTRACT PLANS**

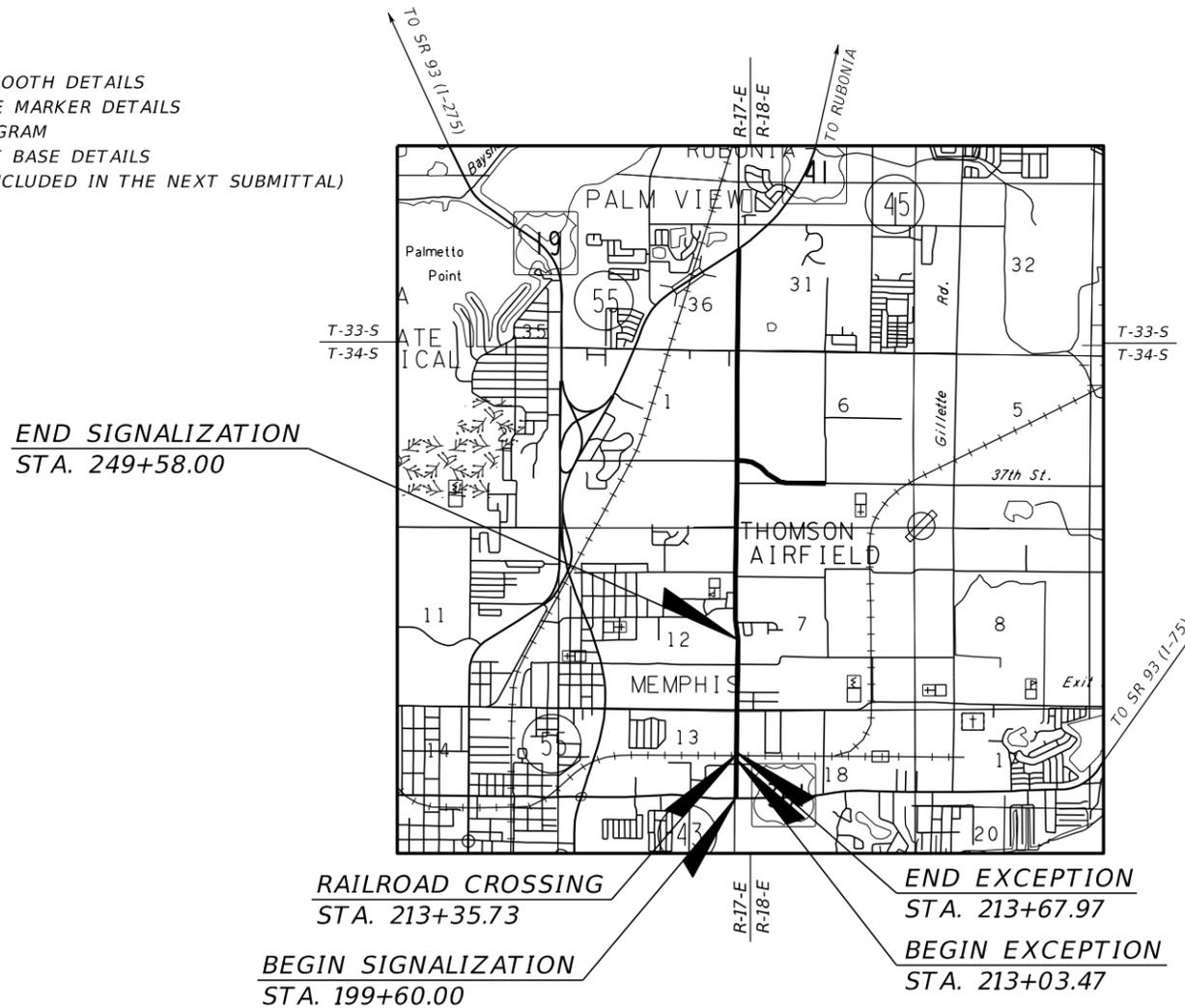
**MANATEE COUNTY  
PROJECT NUMBER 6094360  
CANAL ROAD (16TH AVENUE EAST)  
SEGMENT 1 - US 301 TO 17TH STREET EAST  
SIGNALIZATION PLANS**



LOCATION OF PROJECT

**INDEX OF SIGNALIZATION PLANS**

SHEET NO.	SHEET DESCRIPTION
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T-5	GENERAL NOTES
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T-27	PEDESTRIAN SIGNAL AND CABINET BASE DETAILS
T-28	MAST ARM DATA TABLE (TO BE INCLUDED IN THE NEXT SUBMITTAL)



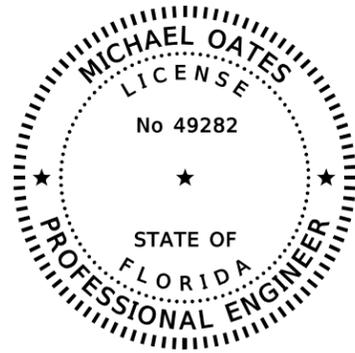
**SIGNALIZATION PLANS  
ENGINEER OF RECORD:**

MICHAEL J. OATES, P.E.  
P.E. NO.: 49282  
HDR ENGINEERING, INC.  
2601 CATTLEMEN ROAD, SUITE 400  
SARASOTA, FLORIDA 34232  
VENDOR NO. 47-0680568

MANATEE CO. PROJECT MANAGER:  
MICHAEL L. STURM, P.E.

FISCAL YEAR	SHEET NO.
21	T-1

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

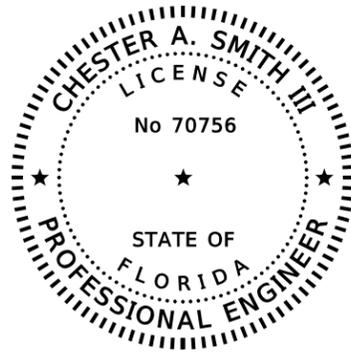
ON THE DATE ADJACENT TO THE SEAL

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

HDR ENGINEERING, INC.  
2601 CATTLEMEN ROAD, SUITE 400  
SARASOTA, FLORIDA 34232-6212  
MICHAEL OATES, P.E. NO. 49282

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

SHEET NO.	SHEET DESCRIPTION
T-1	KEY SHEET
T-2	SIGNATURE SHEET
T-3 - T-4	TABULATION OF QUANTITIES
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T-18 - T-19	GUIDE SIGN WORKSHEET
T-20 - T-21	MAST ARM TABULATION
T-22 - T-23	SPLICING DIAGRAM
T-24	CABINET, CCTV, MVDS AND BLUETOOTH DETAILS
T-25	CONCRETE APRON & CABLE ROUTE MARKER DETAILS
T-26	GENERATOR CABINET WIRING DIAGRAM



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

ON THE DATE ADJACENT TO THE SEAL

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HDR ENGINEERING, INC.  
2601 CATTLEMEN ROAD, SUITE 400  
SARASOTA, FLORIDA 34232-6212  
CHESTER A. SMITH III, P.E. NO. 70756

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

SHEET NO.	SHEET DESCRIPTION
T-2	SIGNATURE SHEET
T-27	PEDESTRIAN SIGNAL AND CABINET BASE DETAILS
T-28	MAST ARM DATA TABLE (TO BE INCLUDED IN THE NEXT SUBMITTAL)

SCALE	AS NOTED			
DESIGNED BY	MO			
DRAWN BY	SM			
CHECKED BY	IR			
No.	REVISIONS	DATE	BY	PW:\
		12/9/2021		



HDR Engineering, Inc.  
2601 Cattlemen Road  
Suite 400  
Sarasota, FL 34232-6233

DATE  
12/2021

PROJECT NO.  
6094360



MANATEE COUNTY  
PUBLIC WORKS

DESIGN ENGINEER  
MICHAEL J. OATES  
FL. LICENSE NO.  
49282

SIGNATURE SHEET

SHEET NO.

T-2

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS												TOTAL THIS SHEET		GRAND TOTAL			
			T-7		T-8		T-9		T-10		T-11		T-12		T-13		PLAN	FINAL	PLAN	FINAL
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL				
630-2-11	CONDUIT, FURNISH & INSTALL, OPEN TRENCH	LF	190				325		360		605		600		695		2775			
630-2-12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	LF	240				305				110		120				775			
632-7-1	SIGNAL CABLE- NEW OR RECONSTRUCTED INTERSECTION, FURNISH & INSTALL	PI	1				1										2			
633-1-121	FIBER OPTIC CABLE, F&I, UNDERGROUND, 2-12 FIBERS	LF							540								540			
633-1-123	FIBER OPTIC CABLE, F&I, UNDERGROUND, 49-96 FIBERS	LF																		
633-1-420	FIBER OPTIC CABLE, RELOCATE, UNDERGROUND	LF																		
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	EA							4								4			
633-3-11	FIBER OPTIC CONNECTION HARDWARE, F&I, SPLICE ENCLOSURE	EA							1								1			
633-3-12	FIBER OPTIC CONNECTION HARDWARE, F&I, SPLICE TRAY	EA							1								1			
633-3-15	FIBER OPTIC CONNECTION HARDWARE, F&I, PRETERMINATED PATCH PANEL	EA	1				1										2			
635-2-11	PULL & SPLICE BOX, F&I, 17" x 30" COVER SIZE	EA	12				25										37			
635-2-12	PULL & SPLICE BOX, F&I, 24" x 36" COVER SIZE	EA							2		1				1		4			
635-2-13	PULL & SPLICE BOX, F&I, 30" X 60" RECTANGULAR OR 36" ROUND COVER SIZE	EA							2								2			
639-1-122	ELECTRICAL POWER SERVICE, F&I, UNDERGROUND, METER PURCHASED BY CONTRACTOR	AS	1				1										2			
639-1-620	ELECTRICAL POWER SERVICE, REMOVE UNDERGROUND	AS					1										1			
639-2-1	ELECTRICAL SERVICE WIRE, FURNISH & INSTALL	LF	65				65										130			
639-4-6	EMERGENCY GENERATOR - PORTABLE, INSTALL HOUSING ONLY	EA	1				1										2			
641-2-12	PRESTRESSED CONCRETE POLE, F&I, TYPE P-II SERVICE POLE	EA	1				1										2			
641-2-60	PRESTRESSED CONCRETE POLE, COMPLETE POLE REMOVAL- PEDESTAL/SERVICE POLE	EA					1										1			
646-1-11	ALUMINUM SIGNALS POLE, FURNISH & INSTALL PEDESTAL	EA	4				8										12			
646-1-60	ALUMINUM SIGNALS POLE, REMOVE	EA					4										4			
649-21-3	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 40'	EA	1														1			
649-21-6	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 50'	EA					1										1			
649-21-10	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 60'	EA					3										3			
649-21-13	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, DOUBLE ARM 60'-50'	EA	1														1			
649-21-21	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 78'	EA	1														1			
649-26-5	STEEL MAST ARM ASSEMBLY, REMOVE, DEEP FOUNDATION- BOLT ON ATTACHMENT	EA					4										4			
650-1-14	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 3 SECTION, 1 WAY	AS				5	7										12			
650-1-16	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 4 SECTION, 1 WAY	AS				4	6										10			
650-1-19	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 5 SECTION CLUSTER, 1 WAY	AS				3	3										6			
653-1-11	PEDESTRIAN SIGNAL, FURNISH & INSTALL LED COUNTDOWN, 1 WAY	AS				4	8										12			
660-3-11	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL CABINET EQUIPMENT	EA	1				1										2			
660-3-12	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL, ABOVE GROUND EQUIPMENT	EA	8				6										14			
660-6-121	VEHICLE DETECTION SYSTEM- AVI, BLUETOOTH, FURNISH & INSTALL, CABINET EQUIPMENT	EA	1				1										2			
660-6-122	VEHICLE DETECTION SYSTEM- AVI, BLUETOOTH, FURNISH & INSTALL, ABOVE GROUND EQUIPMENT	EA	1				1										2			
665-1-11	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA	4				8										12			
670-5-111	TRAFFIC CONTROLLER ASSEMBLY, F&I, NEMA, 1 PREEMPTION	AS	1				1										2			
670-5-600	TRAFFIC CONTROLLER ASSEMBLY, REMOVE CONTROLLER WITH CABINET	AS					1										1			
682-1-113	ITS CCTV CAMERA, F&I, DOME PTZ ENCLOSURE - PRESSURIZED, 1P, HIGH DEFINITION	EA	1				1										2			
684-1-1	MANAGED FIELD ETHERNET SWITCH, FURNISH & INSTALL	EA	1				1										2			
685-1-12	UNINTERRUPTIBLE POWER SUPPLY, FURNISH AND INSTALL, ONLINE/DOUBLE CONVERSION	EA	1				1										2			
700-3-201	SIGN PANEL, FURNISH & INSTALL OVERHEAD MOUNT, UP TO 12 SF	EA				5	4										9			
700-5-22	INTERNALLY ILLUMINATED SIGN, FURNISH & INSTALL, OVERHEAD MOUNT, 12-18 SF	EA				4	4										8			
700-11-391	ELECTRONIC DISPLAY SIGN, FURNISH & INSTALL OVERHEAD MOUNT - AC POWERED, BLANK OUT SIGN, UP TO 12 SF	AS				1	3										4			

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SCALE AS NOTED		 HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE 12/2021	 MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER MICHAEL J. OATES	SHEET NO.  T-3
DESIGNED BY MO			PROJECT NO. 6094360		FL. LICENSE NO. 49282	
DRAWN BY SM						
CHECKED BY IR						
No.	REVISIONS	DATE	BY			

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS												TOTAL THIS SHEET		GRAND TOTAL	
			T-14		T-15		T-16		T-17									
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL
630-2-11	CONDUIT, FURNISH & INSTALL, OPEN TRENCH	LF	592		701		595		417								2305	5080
630-2-12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	LF					87		88								175	950
632-7-1	SIGNAL CABLE- NEW OR RECONSTRUCTED INTERSECTION, FURNISH & INSTALL	PI																2
633-1-121	FIBER OPTIC CABLE, F&I, UNDERGROUND, 2-12 FIBERS	LF	270														270	810
633-1-123	FIBER OPTIC CABLE, F&I, UNDERGROUND, 49-96 FIBERS	LF	200														200	200
633-1-420	FIBER OPTIC CABLE, RELOCATE, UNDERGROUND	LF	357		751		732		555								2395	2395
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	EA	16														16	20
633-3-11	FIBER OPTIC CONNECTION HARDWARE, F&I, SPLICE ENCLOSURE	EA	1														1	2
633-3-12	FIBER OPTIC CONNECTION HARDWARE, F&I, SPLICE TRAY	EA	1														1	2
633-3-15	FIBER OPTIC CONNECTION HARDWARE, F&I, PRETERMINATED PATCH PANEL	EA																2
635-2-11	PULL & SPLICE BOX, F&I, 17" x 30" COVER SIZE	EA																37
635-2-12	PULL & SPLICE BOX, F&I, 24" x 36" COVER SIZE	EA	2		1		1		1								5	9
635-2-13	PULL & SPLICE BOX, F&I, 30" X 60" RECTANGULAR OR 36" ROUND COVER SIZE	EA	1														1	3
639-1-122	ELECTRICAL POWER SERVICE, F&I, UNDERGROUND, METER PURCHASED BY CONTRACTOR	AS																2
639-1-620	ELECTRICAL POWER SERVICE, REMOVE UNDERGROUND	AS																1
639-2-1	ELECTRICAL SERVICE WIRE, FURNISH & INSTALL	LF																130
639-4-6	EMERGENCY GENERATOR - PORTABLE, INSTALL HOUSING ONLY	EA																2
641-2-12	PRESTRESSED CONCRETE POLE, F&I, TYPE P-II SERVICE POLE	EA																2
641-2-60	PRESTRESSED CONCRETE POLE, COMPLETE POLE REMOVAL- PEDESTAL/SERVICE POLE	EA																1
646-1-11	ALUMINUM SIGNALS POLE, FURNISH & INSTALL PEDESTAL	EA																12
646-1-60	ALUMINUM SIGNALS POLE, REMOVE	EA																4
649-21-3	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 40'	EA																1
649-21-6	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 50'	EA																1
649-21-10	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 60'	EA																3
649-21-13	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, DOUBLE ARM 60'-50'	EA																1
649-21-21	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 78'	EA																1
649-26-5	STEEL MAST ARM ASSEMBLY, REMOVE, DEEP FOUNDATION- BOLT ON ATTACHMENT	EA																4
650-1-14	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 3 SECTION, 1 WAY	AS																12
650-1-16	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 4 SECTION, 1 WAY	AS																10
650-1-19	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 5 SECTION CLUSTER, 1 WAY	AS																6
653-1-11	PEDESTRIAN SIGNAL, FURNISH & INSTALL LED COUNTDOWN, 1 WAY	AS																12
660-3-11	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL CABINET EQUIPMENT	EA																2
660-3-12	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL, ABOVE GROUND EQUIPMENT	EA																14
660-6-121	VEHICLE DETECTION SYSTEM- AVI, BLUETOOTH, FURNISH & INSTALL, CABINET EQUIPMENT	EA																2
660-6-122	VEHICLE DETECTION SYSTEM- AVI, BLUETOOTH, FURNISH & INSTALL, ABOVE GROUND EQUIPMENT	EA																2
665-1-11	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA																12
670-5-111	TRAFFIC CONTROLLER ASSEMBLY, F&I, NEMA, 1 PREEMPTION	AS																2
670-5-600	TRAFFIC CONTROLLER ASSEMBLY, REMOVE CONTROLLER WITH CABINET	AS																1
682-1-113	ITS CCTV CAMERA, F&I, DOME PTZ ENCLOSURE - PRESSURIZED, 1P, HIGH DEFINITION	EA																2
684-1-1	MANAGED FIELD ETHERNET SWITCH, FURNISH & INSTALL	EA																2
685-1-12	UNINTERRUPTIBLE POWER SUPPLY, FURNISH AND INSTALL, ONLINE/DOUBLE CONVERSION	EA																2
700-3-201	SIGN PANEL, FURNISH & INSTALL OVERHEAD MOUNT, UP TO 12 SF	EA																9
700-5-22	INTERNALLY ILLUMINATED SIGN, FURNISH & INSTALL, OVERHEAD MOUNT, 12-18 SF	EA																8
700-11-391	ELECTRONIC DISPLAY SIGN, FURNISH & INSTALL OVERHEAD MOUNT - AC POWERED, BLANK OUT SIGN, UP TO 12 SF	AS																4

SCALE AS NOTED		 HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE 12/2021	 <b>MANATEE COUNTY PUBLIC WORKS</b>	DESIGN ENGINEER MICHAEL J. OATES	<b>TABULATION OF QUANTITIES (2)</b>	SHEET NO. T-4
DESIGNED BY MO			PROJECT NO. 6094360		FL. LICENSE NO. 49282		
DRAWN BY SM							
CHECKED BY IR							
No.	REVISIONS	DATE	BY				

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



**PAY ITEM NOTES**

1. 630-2-11 & 630-2-12:  
CONDUITS INSTALLED WITH THE DIRECTIONAL BORE METHOD SHALL BE HDPE WITH A MINIMUM SIZE OF 2" UNLESS OTHERWISE NOTED IN THE PLANS. COST OF PULL WIRE SHALL BE INCLUDED UNDER THIS PAY ITEM.  
  
#14 XHHW PULL WIRE SHALL BE INSTALLED IN ALL CONDUITS. AT LEAST 2 FEET OF PULL WIRE SHALL BE ACCESSIBLE.  
  
ALL CONDUIT RUNS SHOWN ON THE PLANS ARE SCHEMATIC AND FIELD ADJUSTMENTS MAY BE NECESSARY. WITH THE EXCEPTION OF ELECTRICAL POWER SERVICE DUCTS, JACK & BORE SLEEVES, AND DIRECTIONAL BORE CONDUITS, ALL UNDERGROUND AND UNDER PAVEMENT CONDUITS SHALL BE SCHEDULE 40 PVC WITH A MINIMUM SIZE OF 2" UNLESS OTHERWISE SPECIFIED IN THE PLANS. COST OF PULL WIRE SHALL BE INCLUDED UNDER THIS PAY ITEM.  
  
FOUR SEPARATE UNDERGROUND CONDUIT RUNS LOCATED 180 DEGREES APART ARE REQUIRED FOR ALL MAST ARMS. THE SPARE CONDUIT SHALL BE CAPPED IN THE NEAREST PULL BOX. THERE SHALL BE A MINIMUM OF FOUR RUNS OF 2" CONDUIT BETWEEN THE LAST LOW VOLTAGE PULL BOX LOCATED NEAR THE CONTROLLER CABINET & THE CONTROLLER CABINET, ITSELF.
2. 632-7-1:  
USE A MINIMUM OF 7 CONDUCTOR SIGNAL CABLES FOR SIGNAL HEADS AND PEDESTRIAN HEADS.  
  
EACH PHASE/MOVEMENT SHALL BE WIRED FROM THE SIGNAL DISPLAY TO THE CONTROLLER AS A SEPARATE PHASE/MOVEMENT. THIS INCLUDES THE LEFT TURN MOVEMENT WHICH SHALL HAVE CONDUCTORS AVAILABLE FOR EITHER PROTECTED OR PERMISSIVE MOVEMENTS. THE CONTRACTOR SHALL VERIFY COLOR CODES FOR SIGNAL CABLE WITH THE MANATEE COUNTY BEFORE ORDERING, AND WIRE THE SIGNAL IN ACCORDANCE WITH THAT COLOR CODE AND F.D.O.T. SPECIFICATIONS. THERE SHALL BE ONE NEUTRAL PER APPROACH. THIS PAY ITEM INCLUDES FURNISHING AND INSTALLING THE REQUIRED CABLING FOR THE PROPOSED PEDESTRIAN SIGNAL ASSEMBLIES. ALL PEDESTRIAN DETECTORS SHALL BE WIRED USING SEPARATE CABLE UTILIZING LOW VOLTAGE CONDUIT AND PULL BOXES.
3. 635-2-11, 635-2-12 & 635-2-13:  
PULL BOXES SHALL BE TRAFFIC BEARING, ALL POLYMER CONSTRUCTION (NOT CONCRETE), PULL BOXES AND LIDS (QUAZITE OR ANOTHER EQUIVALENT FDOT APPROVED MANUFACTURER). PULL BOXES ARE TO BE PLACED BEHIND CURB AND GUTTER. IF THERE IS NO CURB AND GUTTER, PULL BOXES SHALL BE PLACED A MINIMUM OF 7' FROM THE EDGE OF PAVEMENT.  
  
STANDARD PULL BOX DIMENSIONS SHALL BE 17" X 30" X 12" AND THE LID SHALL BE STAMPED "MANATEE COUNTY TRAFFIC SIGNAL" ON THE COVER. STANDARD FIBER OPTIC COMMUNICATIONS PULL BOX DIMENSIONS SHALL BE 24" X 36" X 24" AND FIBER OPTIC SPLICE BOX DIMENSIONS SHALL BE 30" X 60" X 48". FIBER OPTIC PULL AND SPLICE BOX LIDS SHALL BE STAMPED "MANATEE COUNTY FIBER OPTIC SYSTEM" ON THE COVER.
4. 639-1-122:  
THIS PAY ITEM SHALL INCLUDE THE COST OF ALL SPECIAL IMPACT CONNECTION FEES CHARGED BY LOCAL POWER COMPANIES FOR ELECTRICAL SERVICE CONNECTION. ANY CHARGES BY FPL (FLORIDA POWER AND LIGHT) TO BE ON SITE TO DE-ENERGIZE ELECTRIC SERVICE LINES AND MONITOR WORK WHILE LINES ARE REROUTED ONTO THE NEW SERVICE POLE WILL BE INCLUDED UNDER THIS PAY ITEM.  
  
THIS PAY ITEM INCLUDES METER BASE AND SERVICE DISCONNECT. ELECTRICAL SERVICE DISCONNECT SHALL BE COMPRISED OF SIX (6) CIRCUIT DISCONNECT BOX WITH THREE CIRCUIT BREAKERS - ONE 15 AMP FOR INTERNALLY ILLUMINATED STREET NAME SIGNS, ONE 15 AMP FOR FUTURE USE AND ONE 60 AMP FOR CONTROLLER CABINET MAIN BREAKER, ONE 15 AMP BREAKER FOR INTERNALLY ILLUMINATED SIGNS, ONE SIGNAL BREAKER AND SURGE SUPPRESSION BREAKER (FUTURE USE) SHOULD BE INSTALLED.
5. 639-4-6:  
MANATEE COUNTY WILL NOT FURNISH THIS ITEM. THE CONTRACTOR SHALL FURNISH AND INSTALL THE HOUSING AND FOUNDATION / PAD. ALL COSTS FOR THE HOUSING FOUNDATION / PAD IS INCLUDED IN THE COST OF THIS PAY ITEM. THE CONTRACTOR SHALL COORDINATE WITH MANATEE COUNTY TO OBTAIN THE DESIRED HOUSING DIMENSIONS.
6. 649-21-3, 649-21-6, 649-21-10, 649-21-13 & 649-21-21:  
THE CONTRACTOR SHALL FIELD VERIFY ALL CRITICAL ELEVATIONS PRIOR TO ORDERING MAST ARM ASSEMBLIES.  
  
USE THREE 2" AND ONE 3/4" CONDUIT STUBBED OUT THROUGH THE MAST ARM POLE FOUNDATION AND TEMPORARILY SEALED.  
  
THE CONTRACTOR SHALL CONTACT THE LOCAL POWER COMPANY FOR THEIR ASSISTANCE IN PERFORMING ALL NECESSARY WORK UNDER POWER LINES AT SIGNAL POLES. SUCH WORK SHALL INCLUDE, BUT IS NOT LIMITED TO THE INSTALLATION OF SIGNAL CABLE, INSTALLATION OF MAST ARM FOUNDATIONS OR POLES.

7. 650-1-14, 650-1-16 & 650-1-19:  
USE SIGNAL HEAD SUPPORTING HANGER THAT IS CAPABLE OF ADJUSTING VERTICALLY A MINIMUM OF 1.5'.  
  
ALL SIGNAL HEADS SHALL HAVE ALUMINUM LOUVERED BACKPLATES INSTALLED. BACKPLATES SHALL BE MANUFACTURED FOR THE SIGNAL HEADS USED & INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS. THE BACKPLATE SHALL HAVE A 2" YELLOW REFLECTORIZED (TYPE III REFLECTIVITY) OUTER EDGE BORDER UNLESS SPECIFIED OTHERWISE IN THE PLANS.  
  
THE EXTERNAL COLOR OF SIGNAL HOUSING SHALL BE BLACK. ALL TRAFFIC SIGNAL HEAD INDICATIONS SHALL BE 12" LED. ALL SIGNAL HEADS SHALL HAVE TUNNEL VISORS. THE COST FOR THE TUNNEL VISORS SHALL BE INCLUDED UNDER THIS PAY ITEM.
8. 653-1-11:  
PEDESTRIAN SIGNAL HEADS TO BE 16" INTERNATIONAL SYMBOL, LED COUNTDOWN TYPE. USE LOCKING COLLARS FOR MOUNTING PEDESTRIAN SIGNAL HEADS TO PEDESTRIAN PEDESTALS. USE BREAKAWAY ALUMINUM SQUARE BASE WITH ALUMINUM DOORS FOR PEDESTRIAN PEDESTALS.
9. 660-3-11:  
SHALL INCLUDE ALL NECESSARY WAVETRONIX CLICKS UNITS FOR A COMPLETE AND OPERATIONAL SETUP.
10. 660-3-12:  
SHALL INCLUDE WAVETRONIX SMARTSENSOR HD MATRIX OR HD ADVANCE MVDS AS NOTED IN PLANS. THIS PAY ITEM WILL INCLUDE ALL NECESSARY MOUNTING BRACKETS AND CLAMPING EQUIPMENT. SHALL INCLUDE ANY COST ASSOCIATED WITH PHYSICAL INSTALLATION OF SENSOR AND ANY SOFTWARE NECESSARY TO PROGRAM THE SENSOR.
11. 660-6-121 & 660-6-122:  
THE CONTRACTOR SHALL FURNISH AND INSTALL BLUETOOTH (BLUETOOTH UNIT) SPECTRA WITH RSU, POE UNIT AS SHOWN IN THE PLANS. (COORDINATE WITH THE VENDOR).
12. 665-1-11:  
SHALL INCLUDE ADDITIONAL COST OF LABOR AND MATERIALS REQUIRED FOR INSTALLATION OF PEDESTRIAN SIGNAL SIGN FTP-68B-06. THIS SIGN SHALL BE MOUNTED ABOVE EACH PEDESTRIAN DETECTOR. ALL PEDESTRIAN PUSH BUTTONS SHALL BE A.D.A. COMPLIANT. STREET NAMES SHALL BE IN ACCORDANCE WITH THE STREET NAMES ON THE PLAN SHEETS.
13. 670-5-111:  
USE A NEMA TS2 TYPE 1 CONTROLLER, P-44 CABINET ASSEMBLY 7006-TS2/FL TYPE 6 ENCLOSURE AS SHOWN IN TABLE 7-1 OF THE 2003 NEMA STANDARD TS2. THE NAZTEC ATC CONTROLLER SHALL COME EQUIPPED WITH 6 SERIAL PORTS AND ONE ETHERNET PORT. ALL CONTROLLER EQUIPMENT TO BE COMPATIBLE WITH MANATEE COUNTY'S EXISTING ATMS SYSTEM (NAZTEC'S ATMS.NOW) AND SYNCHROGREEN TRAFFIC CONTROLLER SOFTWARE. THE CABINET SHALL COME EQUIPPED WITH A ETHERNET SWITCH PAID UNDER A SEPARATE PAY ITEM NUMBER AND ALL THE NECESSARY SYSTEM COMPONENTS FOR INTEGRATION INTO AN ETHERNET-BASED FIBER OPTIC NETWORK. CONTACT MANATEE COUNTY PRIOR TO ORDERING CONTROLLER ASSEMBLY TO CONFIRM EQUIPMENT COMPATIBILITY.  
  
TRAFFIC SIGNAL CONTROLLER BASE:  
THIS ITEM SHALL INCLUDE THE INSTALLATION OF A CONCRETE BASE FOR THE CONTROLLER ASSEMBLY. THE CONTROLLER ASSEMBLY FOUNDATION SHALL HAVE A MINIMUM OF FOUR (4) - 2" CONDUIT SPARES. TWO (2) OF THE SPARES SHALL BE TERMINATED IN THE NEAREST PULL BOX AND FITTED WITH A WEATHERPROOF CAP. THE OTHER TWO (2) SPARES SHALL BE TERMINATED IN THE SIGNAL CABLE AND LOW VOLTAGE PULL BOXES. THE CABINET BASE WHEN SECURED TO THE CONCRETE SLAB WITH CONTROLLER CABINET ATTACHED MUST WITHSTAND A MINIMUM WIND LOAD OF 130 MPH OR A 850 LB FORCE APPLIED AT 49" ABOVE THE BOTTOM OF THE BASE WITHOUT CAUSING THE BASE OR CABINET TO COME OUT OF THEIR ANCHORED POSITION OR CAUSE ANY PERMANENT DEFORMATION. ALL COSTS OF LABOR, CONCRETE, AND OTHER MATERIALS FOR THE CONTROLLER ASSEMBLY, TECHNICIAN PADS, STEPS AS REQUIRED, ARE INCLUDED IN THIS ITEM.  
  
INSTALL A PVC SLEEVE TO PREVENT THE GROUND ROD FROM DIRECT EMBEDMENT IN THE SLAB. EXTEND CONDUITS FOR FUTURE USE AT LEAST 18-INCHES FROM THE EDGE OF THE SLAB. TERMINATE UNDERGROUND WITH A COUPLING AND CAP AND SEAL SO THAT THE SEAL CAN BE REMOVED WITHOUT DAMAGING THE COUPLING. ANCHOR THE CONTROLLER CABINET TO THE BASE USING FOUR STAINLESS STEEL 1/2"-13 NC BOLTS.  
  
THE CONTROLLER BASE SHALL BE AT LEAST 2' HIGH OR THE SAME ELEVATION AS THE CROWN OF THE ROADWAY, WHICHEVER IS GREATER. THE MAXIMUM DISTANCE FROM THE TECHNICIAN PAD OR STEP TO THE FOUNDATION TOP IS 24". THE CABINET DOORS SHALL OPEN TOWARDS OR PARALLEL TO THE RIGHT-OF-WAY LINE AND AWAY FROM TRAFFIC.  
- TRAFFIC CONTROLLER: NAZTEC TS2 TYPE 1 980 ATC.  
- TRAFFIC CONTROLLER CABINET: NAZTEC TS2 TYPE 1, SIZE: TYPE - VI WITH FRONT AND BACK DOOR ACCESS.
14. 682-1-113:  
THE CCTV CAMERA UNIT SHALL BE BOSCH ITS 7000 STARLITE SERIES 1080P 30x40.

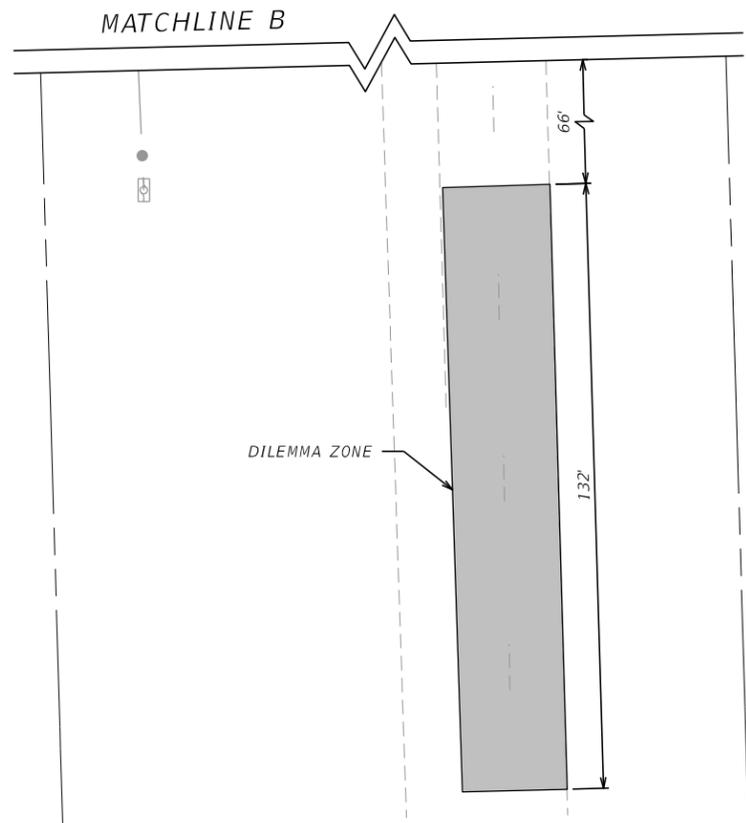
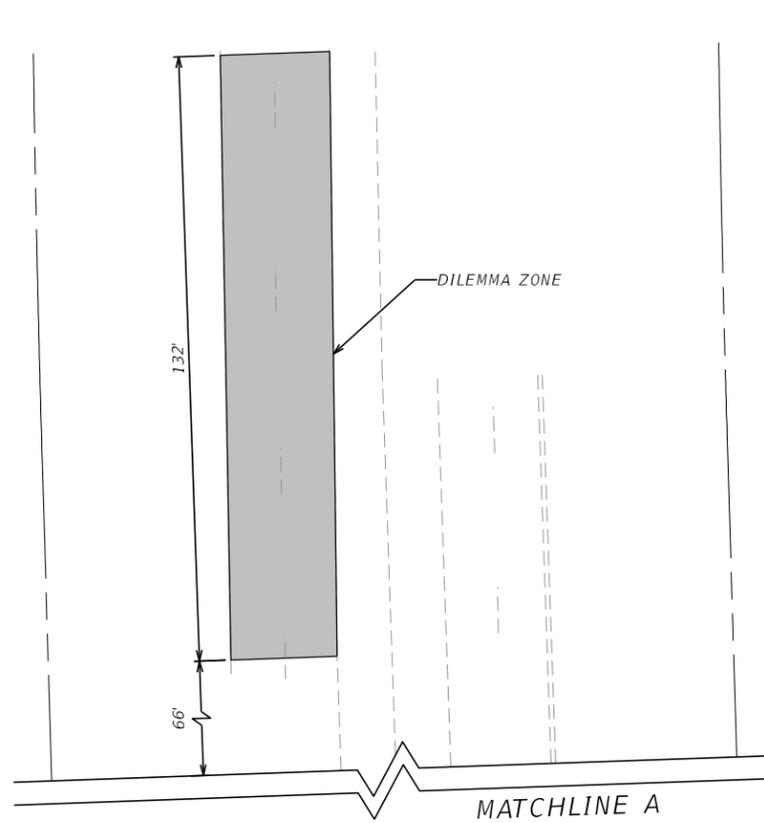
15. 684-1-1:  
THE ETHERNET SWITCH SHALL BE A RUGGEDCOM SWITCH MODEL NUMBER RSG920P, PART NUMBER 6GK6092-OPS23-0BA0-ZA05+B05+C02+D02.
16. 685-1-12:  
SHALL INCLUDE AN UNINTERRUPTED POWER SUPPLY UNIT (UPS) MODEL NO. ALPHA FXM 1100 EQUIPPED WITH AN ETHERNET PORT. ALL UNINTERRUPTIBLE POWER SUPPLIES SHALL SUPPORT SNMP (PROTOCOL) FOR REMOTE MONITORING AND MANAGEMENT. THE UPS SHALL BE SIZED TO ACCOMMODATE THE MAXIMUM CONNECTED LOAD. THE BATTERY BANK SHALL BE SIZED TO PROVIDE A MINIMUM 8 HOURS RUN TIME UNDER FULL LOAD.
17. 700-5-22:  
ALL INTERNALLY ILLUMINATED STREET NAME SIGNS SHALL BE EDGE LIT LED TYPE AND SHALL BE LISTED IN THE FDOT APPROVED PRODUCT LIST. THE COST OF THIS ITEM SHALL INCLUDE PROPERLY DESIGNED AND SIZED ADJUSTABLE HANGERS, BRACKETS, CLAMPS, AND ALL MISCELLANEOUS HARDWARE NECESSARY TO MOUNT THE SIGNS AS SHOWN IN THE PLANS. THE SIGNS SHALL BE POWERED USING IMSA 50-2 CABLE. THIS ITEM SHALL ALSO INCLUDE INSTALLATION OF THE PHOTOCCELL ON THE SERVICE POLE OR INSIDE SIGNAL CABINET. INTERNALLY ILLUMINATED STREET NAME SIGNS SHALL HAVE 120 VOLT LED BULBS. BULB TUBES LESS THAN 8 FEET SHALL HAVE 28.5 WATTS POWER CONSUMPTION AT 1900 LUMENS AND TUBES 8 FOOT OR GREATER SHALL HAVE 38 WATTS POWER CONSUMPTION AT 2600 LUMENS.

SCALE AS NOTED				DATE 12/2021		DESIGN ENGINEER MICHAEL J. OATES		SHEET NO.	
DESIGNED BY MO				PROJECT NO. 6094360		FL. LICENSE NO. 49282		T-6	
DRAWN BY SM				 <b>MANATEE COUNTY PUBLIC WORKS</b>		<b>PAY ITEM NOTES</b>			
CHECKED BY IR									
No.	REVISIONS	DATE	BY						



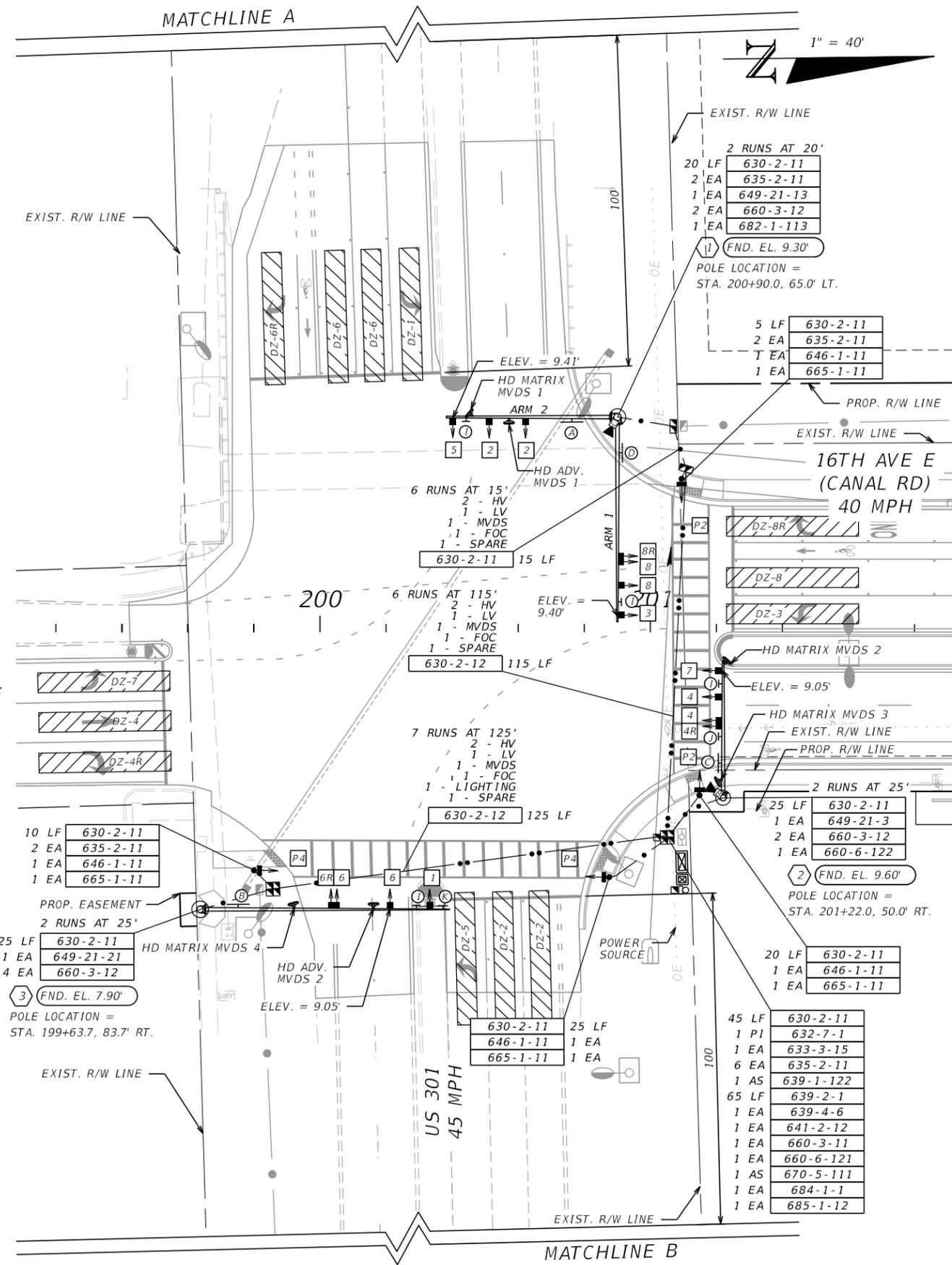
HDR Engineering, Inc.  
2601 Cattlemen Road  
Suite 400  
Sarasota, FL 34232-6233

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



**LEGEND**

- PROPOSED DETECTION ZONE (VIRTUAL LOOPS) (40' x 6') POSITIONED 2' BEYOND STOP BAR
- PROPOSED HD MATRIX OR ADVANCE MVDS SMART SENSOR
- PROPOSED BLUETOAD
- PROPOSED CCTV



SCALE	AS NOTED		
DESIGNED BY	MO		
DRAWN BY	SM		
CHECKED BY	IR		
No.	REVISIONS	DATE	BY
		12/9/2021	PW:\



DATE  
12/2021

PROJECT NO.  
6094360



DESIGN ENGINEER  
MICHAEL J. OATES

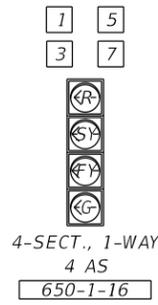
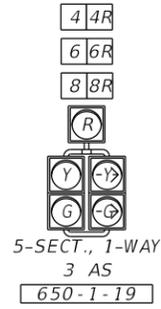
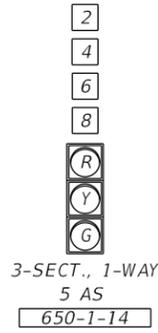
FL. LICENSE NO.  
49282

**SIGNALIZATION PLAN (1)**

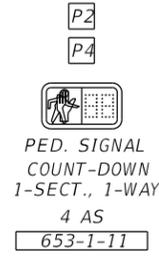
SHEET NO.  
T-7

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

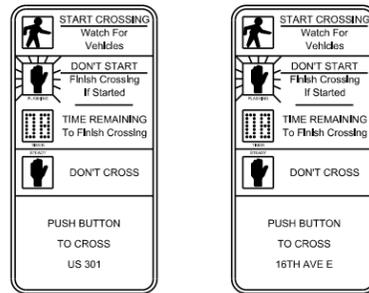
SIGNAL HEAD DETAILS



PEDESTRIAN HEAD DETAILS



USE LOUVERED ALUMINUM SIGNAL HEAD BACK PLATES WITH A 2" YELLOW REFLECTORIZED (TYPE III REFLECTIVITY) OUTER EDGE BORDER.



4 EA  
FTP-68B-06  
9" X 18"



(A) (B) (C) (D)

700-5-22 4 EA

FTP-85-13  
30" x 36"



(I)

700-3-201 4 EA

BLANK OUT SIGN  
R3-1  
30" x 30"



(J)

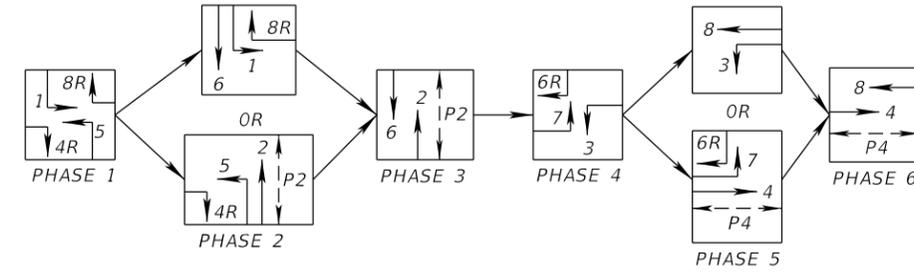
700-11-391 1 AS

R3-4  
36" x 36"



(K)

700-3-201 1 EA



CONTROLLER OPERATIONS:

- MAJOR STREET IS US 301 (MOVEMENTS 1, 2, 5 AND 6) AND MINOR STREET IS 16TH AVE E (CANAL RD) (MOVEMENTS 3, 4, 7 AND 8).
- WHILE IN FLASH MODE, MOVEMENTS 2 & 6 SHALL FLASH YELLOW. ALL OTHER MOVEMENTS SHALL FLASH RED.
- CONTROLLER CABINET SHALL BE WIRED AS AN SOP 10 (WITH RIGHT TURN OVERLAPS) WITH THE FOLLOWING: CONCURRENT/ACTUATED PEDESTRIANS FOR MOVEMENTS 2 (P2) AND 4 (P4).
- REQUEST UPDATED SIGNAL TIMINGS FROM FDOT TSM&O ENGINEER - ARTERIALS (863-519-2216) WHEN ALL LANES, STRIPING, SIGNALS AND PEDESTRIAN FACILITIES ARE IN THEIR FINAL CONFIGURATION AND THE SIGNAL IS OPERATING AS DESIGNED. PROVIDE FDOT WITH ALL 'AS-BUILT' INFORMATION NECESSARY TO DEVELOP THE BASIC SIGNAL TIMING PARAMETERS AND ALLOW THREE (3) WEEKS FOLLOWING THE REQUEST FOR FDOT TO DEVELOP THE UPDATED TIMINGS. PROGRAM THE CONTROLLER PER THE TIMINGS PROVIDED BY FDOT.
- PROGRAM PHASE RESTRICTIONS TO OMIT MOVEMENT 1 AND REDIRECT CALLS FROM MOVEMENT 1 TO MOVEMENT 6, WHEN MOVEMENT 2 IS GREEN, AND TO OMIT MOVEMENT 5 AND REDIRECT CALLS FROM MOVEMENT 5 TO MOVEMENT 2, WHEN MOVEMENT 6 IS GREEN.
- OVERLAP PHASES AND NOTES:  
4R = 5 WITH MINIMUM GREEN = 7 SEC., YELLOW = 4.8 SEC., ALL RED = 2.0 SEC.  
6R = 7 WITH MINIMUM GREEN = 7 SEC., YELLOW = 4.4 SEC., ALL RED = 3.1 SEC.  
8R = 1 WITH MINIMUM GREEN = 7 SEC., YELLOW = 4.8 SEC., ALL RED = 2.0 SEC.
- PROGRAM A START-UP DELAY OF 2 SECONDS FOR THE FLASHING YELLOW ARROW ON MOVEMENTS 1, 3, 5 AND 7 (RELATIVE TO THE OPPOSING THROUGH MOVEMENTS).

SIGNALIZATION NOTES:

- COUNTY REPRESENTATIVE OR ENGINEER OF RECORD SHALL FIELD LOCATE PEDESTRIAN SIGNAL POLES.
- POWER SERVICE METER BASE AND DISCONNECT SHALL BE INSTALLED ON THE CONCRETE SERVICE POLE AS SHOWN ON THE PLANS AND PER STANDARD PLANS INDEX NUMBERS 639-001 AND 639-002.
- FLORIDA POWER AND LIGHT (FPL) EXISTING TRANSFORMER SHALL BE USED FOR POWER SERVICE. THE CONTRACTOR SHALL COORDINATE WITH MANATEE COUNTY AND THE POWER COMPANY REGARDING THE EXACT LOCATION AND TIMING OF INSTALLATION.
- INTERNALLY ILLUMINATED SIGNS SHALL BE RIGID MOUNTED TO MAST ARMS.

CONTROLLER TIMINGS (SECONDS)									
MOVEMENT # (CONTROLLER PHASE C)	1	2	3	4	5	6	7	8	NOTES
DIRECTION	EBL	WB	SBL	NB	WBL	EB	NBL	SB	
TURN TYPE	PROT/PERM		PROT/PERM		PROT/PERM		PROT/PERM		
MIN GREEN	7	20	7	10	7	20	7	10	
EXT	3	3	3	3	3	3	3	3	
YELLOW	4.8	4.8	4.4	4.4	4.8	4.8	4.4	4.4	
ALL RED	2.0	2.0	3.1	3.1	2.0	2.0	3.1	3.1	
MAX I	25	50	25	30	25	50	25	30	
MAX II	-	-	-	-	-	-	-	-	
WALK	-	7	-	7	-	-	-	-	
FLASHING DONT WALK	-	23	-	28	-	-	-	-	
DETECTOR MEMORY									
DET. CROSS SWITCH									
DUAL ENTRY		ON		ON		ON		ON	
VEHICLE RECALL	-	MIN	-	-	-	MIN	-	-	
CNA									
REST IN WALK									

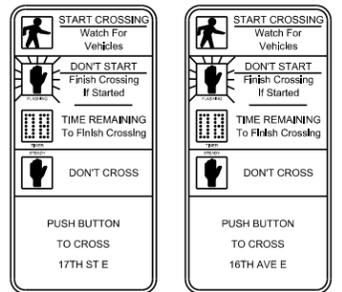
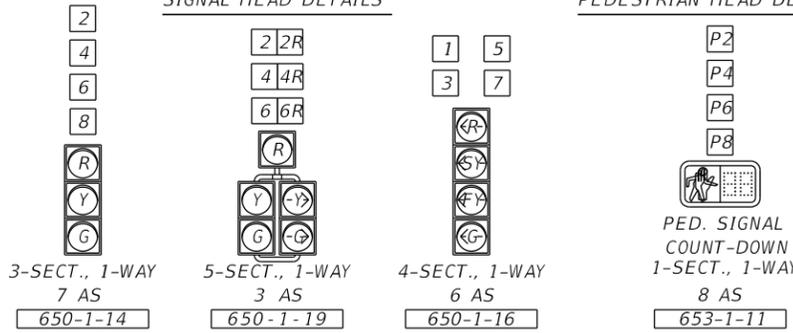
DELAY TIME IS INITIAL AND MAY REQUIRE FIELD ADJUSTING AS DIRECTED BY THE ENGINEER.

MICROWAVE VEHICLE DETECTION ASSIGNMENTS		
MICROWAVE DETECTION	DETECTION ZONE	DELAY TIME (SECS.)
HD MATRIX 1	DZ-1	
	DZ-6R	8
HD MATRIX 2	DZ-3	
	DZ-8R	8
HD MATRIX 3	DZ-2	
	DZ-5	
HD MATRIX 4	DZ-4R	8
	DZ-7	
HD ADV. 1	DZ-2	
HD ADV. 2	DZ-6	

SCALE AS NOTED				DATE 12/2021		DESIGN ENGINEER MICHAEL J. OATES		SHEET NO. T-8
DESIGNED BY MO				PROJECT NO. 6094360		FL. LICENSE NO. 49282		
DRAWN BY SM				MANATEE COUNTY PUBLIC WORKS		SIGNALIZATION PLAN (1A)		
CHECKED BY IR				HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233				
No.	REVISIONS	DATE	BY	PW:\				

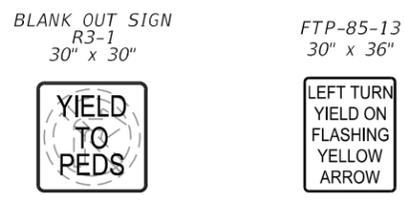
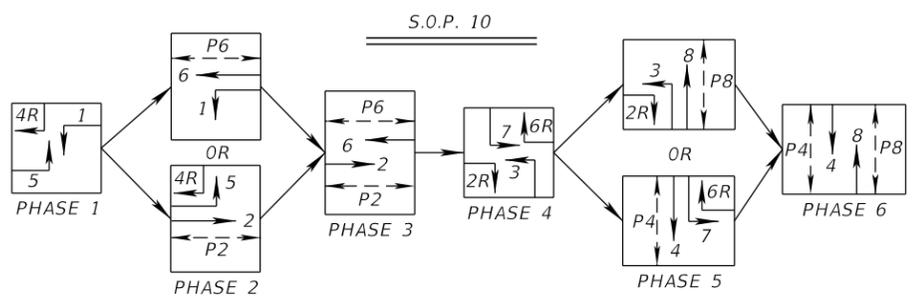
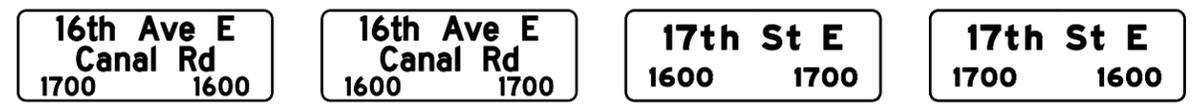
SIGNAL HEAD DETAILS

PEDESTRIAN HEAD DETAILS



PAY ITEM	QTY
639-1-620	1 AS
641-2-60	1 EA
646-1-60	4 EA
649-26-5	4 EA
670-5-600	1 AS

USE LOUVERED ALUMINUM SIGNAL HEAD BACK PLATES WITH A 2" YELLOW REFLECTORIZED (TYPE III REFLECTIVITY) OUTER EDGE BORDER.

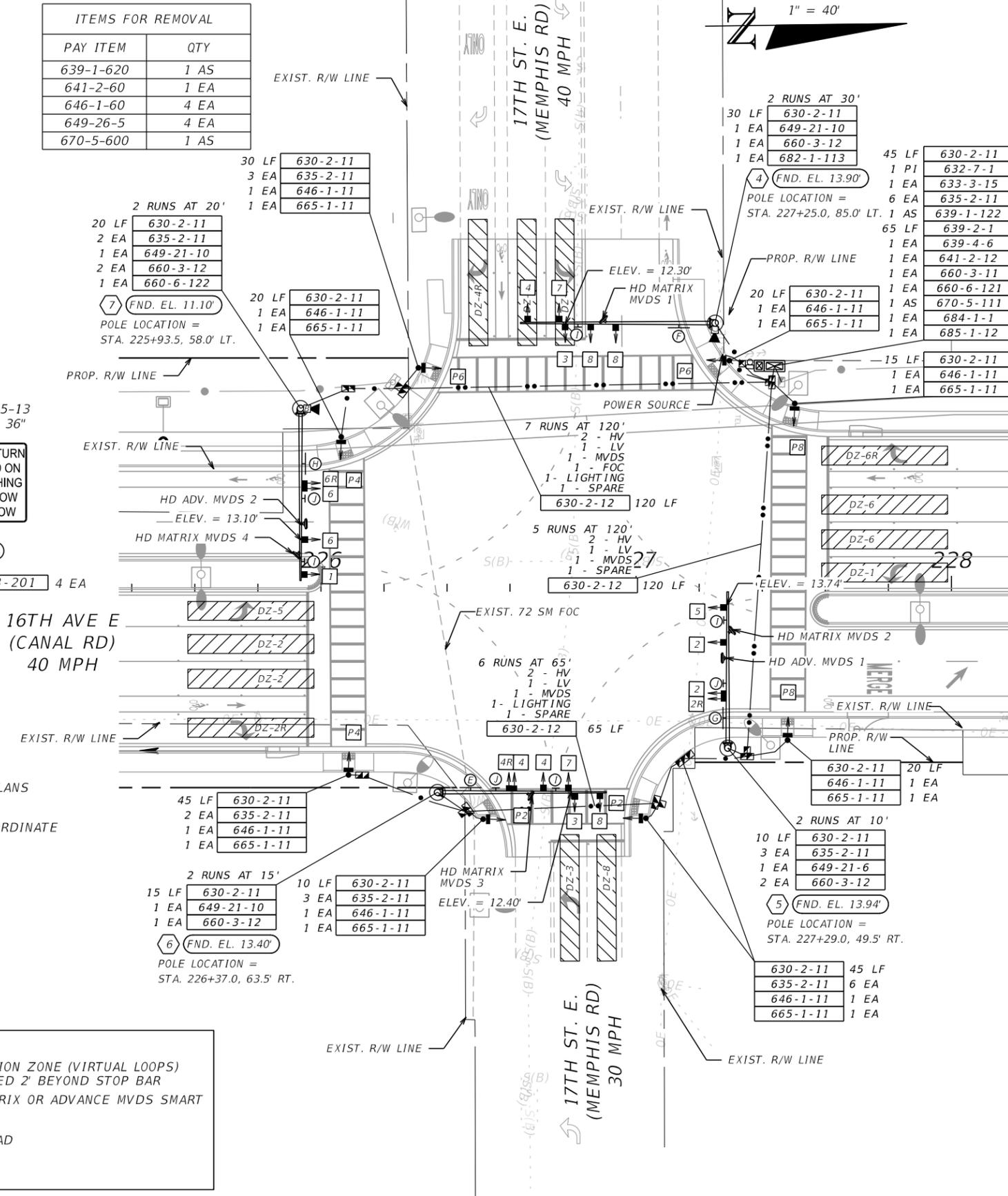
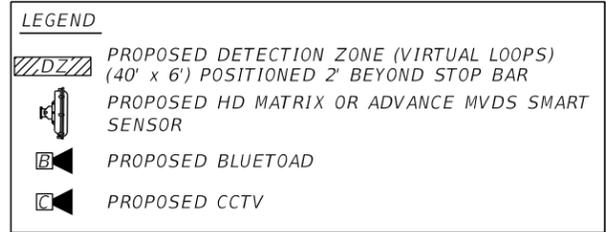


- CONTROLLER OPERATIONS:**
- MAJOR STREET IS 16TH AVE E (CANAL RD) (MOVEMENTS 1, 2, 5 AND 6) AND MINOR STREET IS 17TH ST. E. (MEMPHIS RD) (MOVEMENTS 3, 4, 7 AND 8).
  - WHILE IN FLASH MODE, MOVEMENTS 2 & 6 SHALL FLASH YELLOW. ALL OTHER MOVEMENTS SHALL FLASH RED.
  - CONTROLLER CABINET SHALL BE WIRED AS AN SOP 10 WITH THE FOLLOWING:  
CONCURRENT/ACTUATED PEDESTRIANS FOR MOVEMENTS 2 (P2), 4 (P4), 6 (P6) AND 8 (P8).
- SIGNALIZATION NOTES:**
- COUNTY REPRESENTATIVE OR ENGINEER OF RECORD SHALL FIELD LOCATE PEDESTRIAN SIGNAL POLES.
  - POWER SERVICE METER BASE AND DISCONNECT SHALL BE INSTALLED ON THE CONCRETE SERVICE POLE AS SHOWN ON THE PLANS AND PER STANDARD PLANS INDEX NUMBERS 639-001 AND 639-002.
  - FLORIDA POWER AND LIGHT (FPL) EXISTING TRANSFORMER SHALL BE USED FOR POWER SERVICE. THE CONTRACTOR SHALL COORDINATE WITH MANATEE COUNTY AND THE POWER COMPANY REGARDING THE EXACT LOCATION AND TIMING OF INSTALLATION.
  - INTERNALLY ILLUMINATED SIGNS SHALL BE RIGID MOUNTED TO MAST ARMS.

MICROWAVE VEHICLE DETECTION ASSIGNMENTS		
MICROWAVE DETECTION	DETECTION ZONE	DELAY TIME (SECS.)
HD MATRIX 1	DZ-4R	8
	DZ-4	
HD MATRIX 2	DZ-7	8
	DZ-1	
HD MATRIX 3	DZ-6R	8
	DZ-6	
HD MATRIX 4	DZ-3	8
	DZ-8	
HD ADV 1	DZ-2R	8
	DZ-2	
HD ADV 2	DZ-5	
	DZ-6	

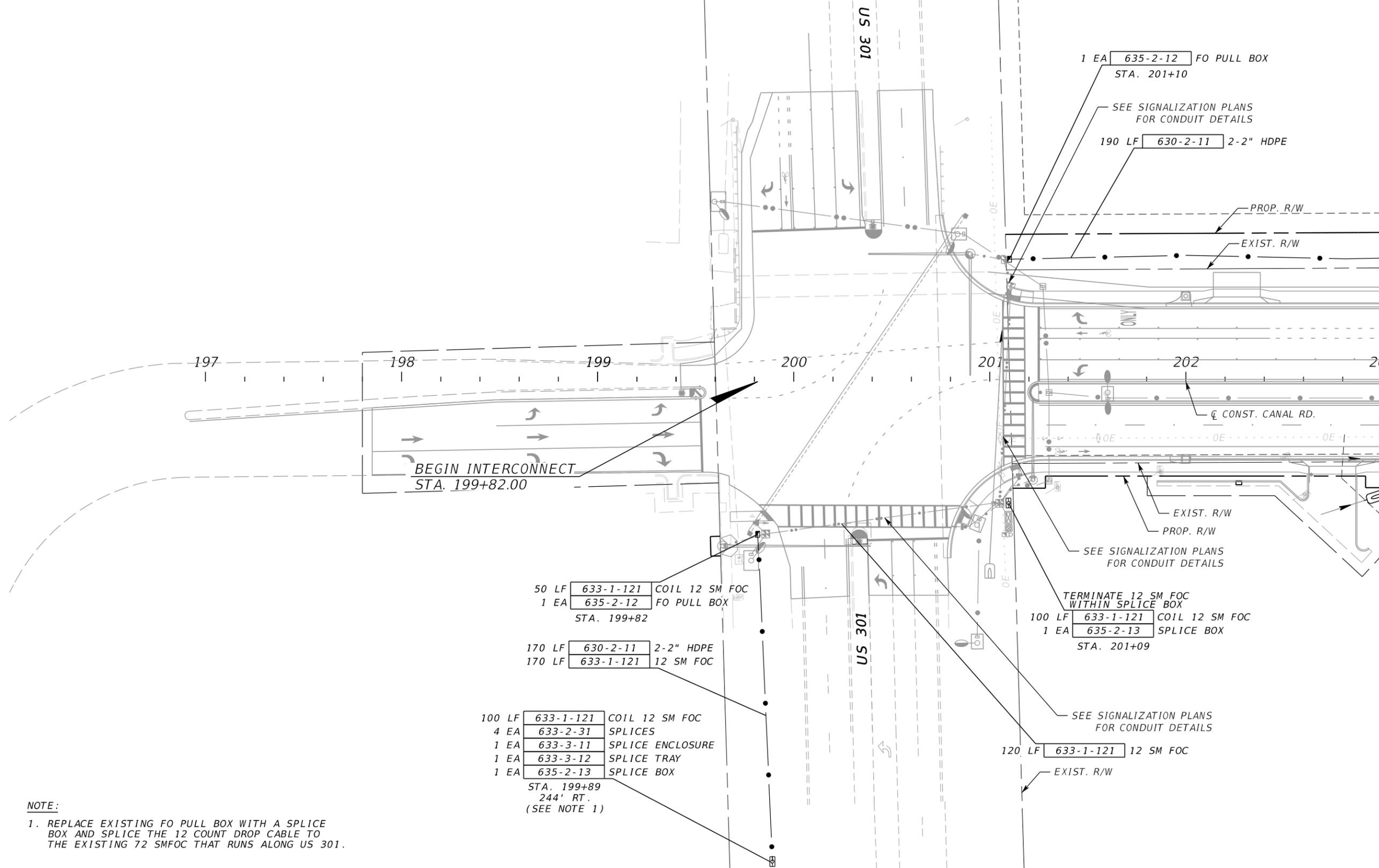
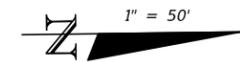
CONTROLLER TIMINGS								
TIMING FUNCTION								
MOVEMENT NUMBER	1	2	3	4	5	6	7	8
MINIMUM GREEN	7	20	7	10	7	20	7	10
EXTENSION	3	3	3	3	3	3	3	3
MAXIMUM GREEN 1	25	50	25	30	25	50	25	30
MAXIMUM GREEN 2	-	-	-	-	-	-	-	-
YELLOW CLEARANCE	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
ALL RED	2.6	2.6	2.0	2.0	2.6	2.6	2.0	2.0
PEDESTRIAN WALK	-	7	-	7	-	7	-	7
PED. CLEARANCE	-	13	-	26	-	25	-	26
RECALL	-	MIN	-	-	-	MIN	-	-

DELAY TIME IS INITIAL AND MAY REQUIRE FIELD ADJUSTING AS DIRECTED BY THE ENGINEER.



No. _____ REVISIONS _____ DATE _____ BY _____	SCALE	AS NOTED	HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE	12/2021	DESIGN ENGINEER MICHAEL J. OATES FL. LICENSE NO. 49282	SHEET NO. T-9
	DESIGNED BY	MO		PROJECT NO.	6094360		
	DRAWN BY	SM		MANATEE COUNTY PUBLIC WORKS			
	CHECKED BY	IR					

16TH AVE E (CANAL RD.)



MATCHLINE STA. 203+00.00

**NOTE:**

1. REPLACE EXISTING FO PULL BOX WITH A SPLICE BOX AND SPLICE THE 12 COUNT DROP CABLE TO THE EXISTING 72 SMFOC THAT RUNS ALONG US 301.

50 LF 633-1-121 COIL 12 SM FOC  
 1 EA 635-2-12 FO PULL BOX  
 STA. 199+82

170 LF 630-2-11 2-2" HDPE  
 170 LF 633-1-121 12 SM FOC

100 LF 633-1-121 COIL 12 SM FOC  
 4 EA 633-2-31 SPLICES  
 1 EA 633-3-11 SPLICE ENCLOSURE  
 1 EA 633-3-12 SPLICE TRAY  
 1 EA 635-2-13 SPLICE BOX  
 STA. 199+89  
 244' RT.  
 (SEE NOTE 1)

1 EA 635-2-12 FO PULL BOX  
 STA. 201+10

SEE SIGNALIZATION PLANS  
 FOR CONDUIT DETAILS  
 190 LF 630-2-11 2-2" HDPE

TERMINATE 12 SM FOC  
 WITHIN SPLICE BOX  
 100 LF 633-1-121 COIL 12 SM FOC  
 1 EA 635-2-13 SPLICE BOX  
 STA. 201+09

120 LF 633-1-121 12 SM FOC  
 EXIST. R/W

SCALE	AS NOTED		
DESIGNED BY	MO		
DRAWN BY	SM		
CHECKED BY	IR		
No.	REVISIONS	DATE	BY
		12/9/2021	



HDR Engineering, Inc.  
 2601 Cattlemen Road  
 Suite 400  
 Sarasota, FL 34232-6233

DATE  
 12/2021  
 PROJECT NO.  
 6094360



MANATEE COUNTY  
 PUBLIC WORKS

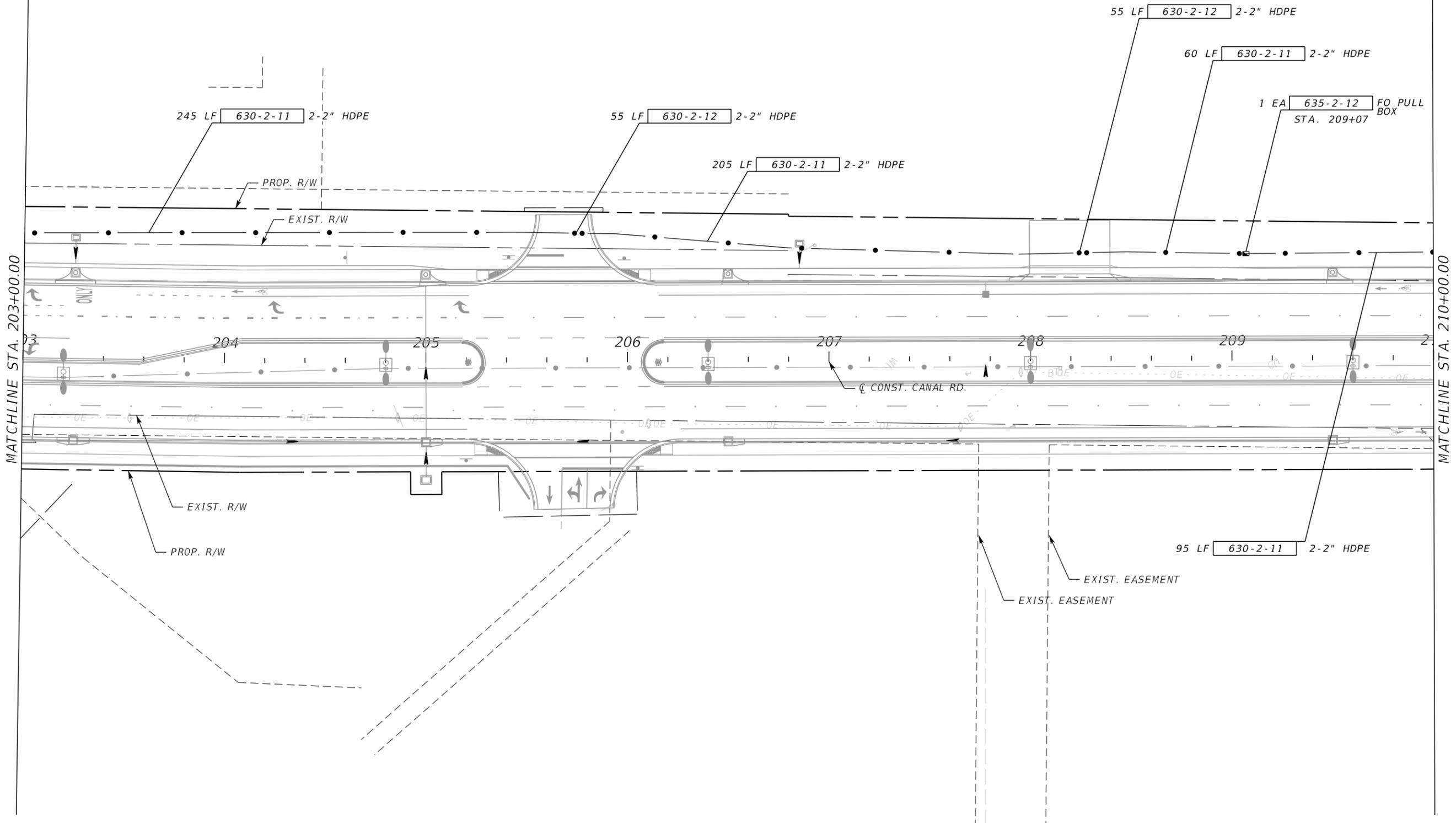
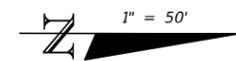
DESIGN ENGINEER  
 MICHAEL J. OATES  
 FL. LICENSE NO.  
 49282

INTERCONNECT PLAN (1)

SHEET NO.  
 T-10

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16TH AVE E (CANAL RD.)



MATCHLINE STA. 203+00.00

MATCHLINE STA. 210+00.00

No.		REVISIONS		DATE	BY	PW:\	SCALE	AS NOTED	<p>HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233</p>	DATE	12/2021	<p>MANATEE COUNTY PUBLIC WORKS</p>	DESIGN ENGINEER	MICHAEL J. OATES	<p>INTERCONNECT PLAN (2)</p>	SHEET NO.	T-11
							DESIGNED BY	MO		PROJECT NO.	6094360		FL. LICENSE NO.	49282			
							DRAWN BY	SM									
							CHECKED BY	IR									

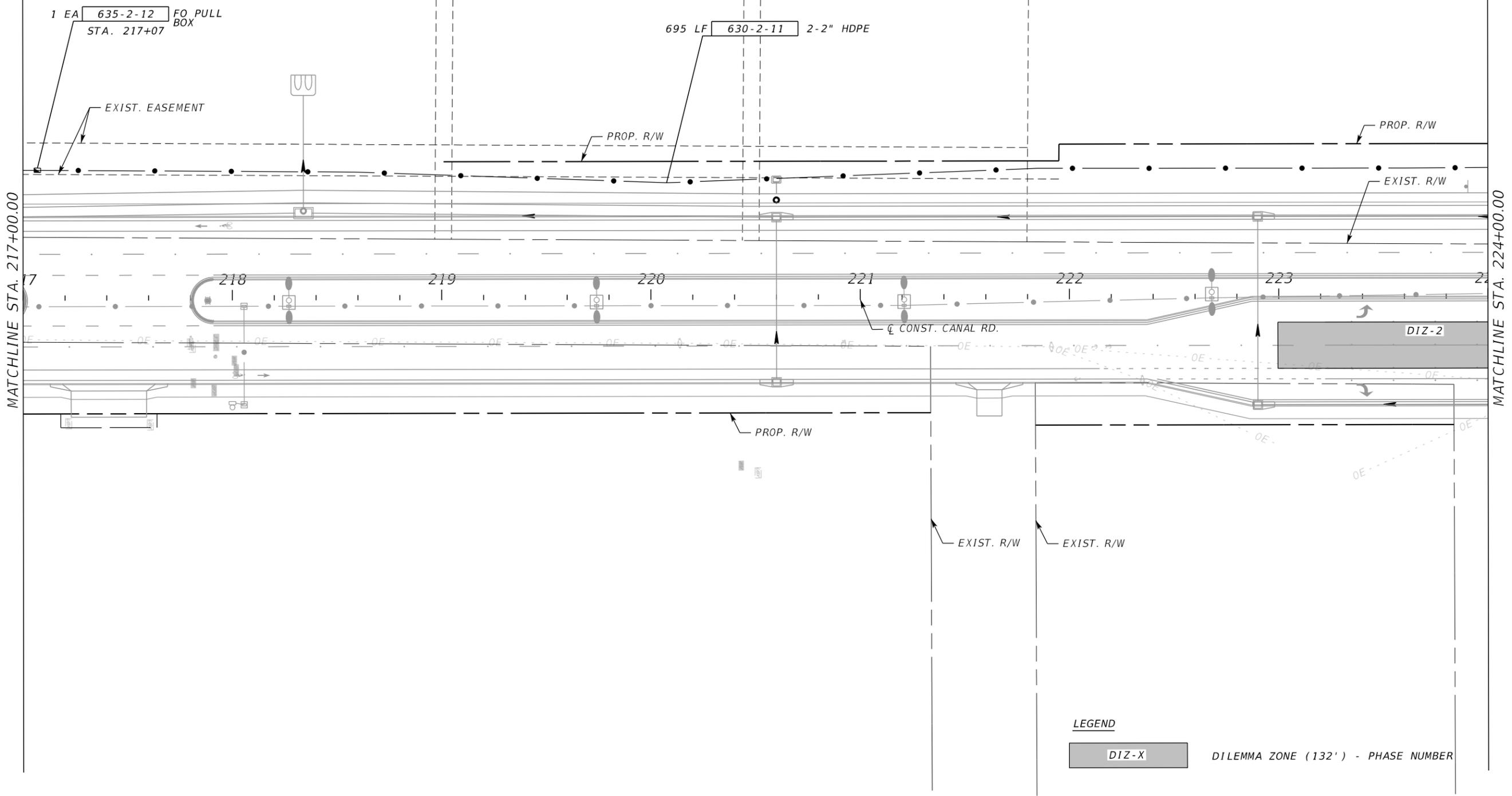
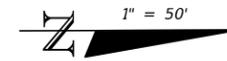
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12/9/2021

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16TH AVE E (CANAL RD.)



LEGEND

DIZ-X DILEMMA ZONE (132') - PHASE NUMBER

No.	REVISIONS	DATE	BY
		12/9/2021	IR

**HDR**  
 HDR Engineering, Inc.  
 2601 Cattlemen Road  
 Suite 400  
 Sarasota, FL 34232-6233

DATE  
12/2021  
 PROJECT NO.  
6094360

**Manatee County**  
 MANATEE COUNTY  
 PUBLIC WORKS

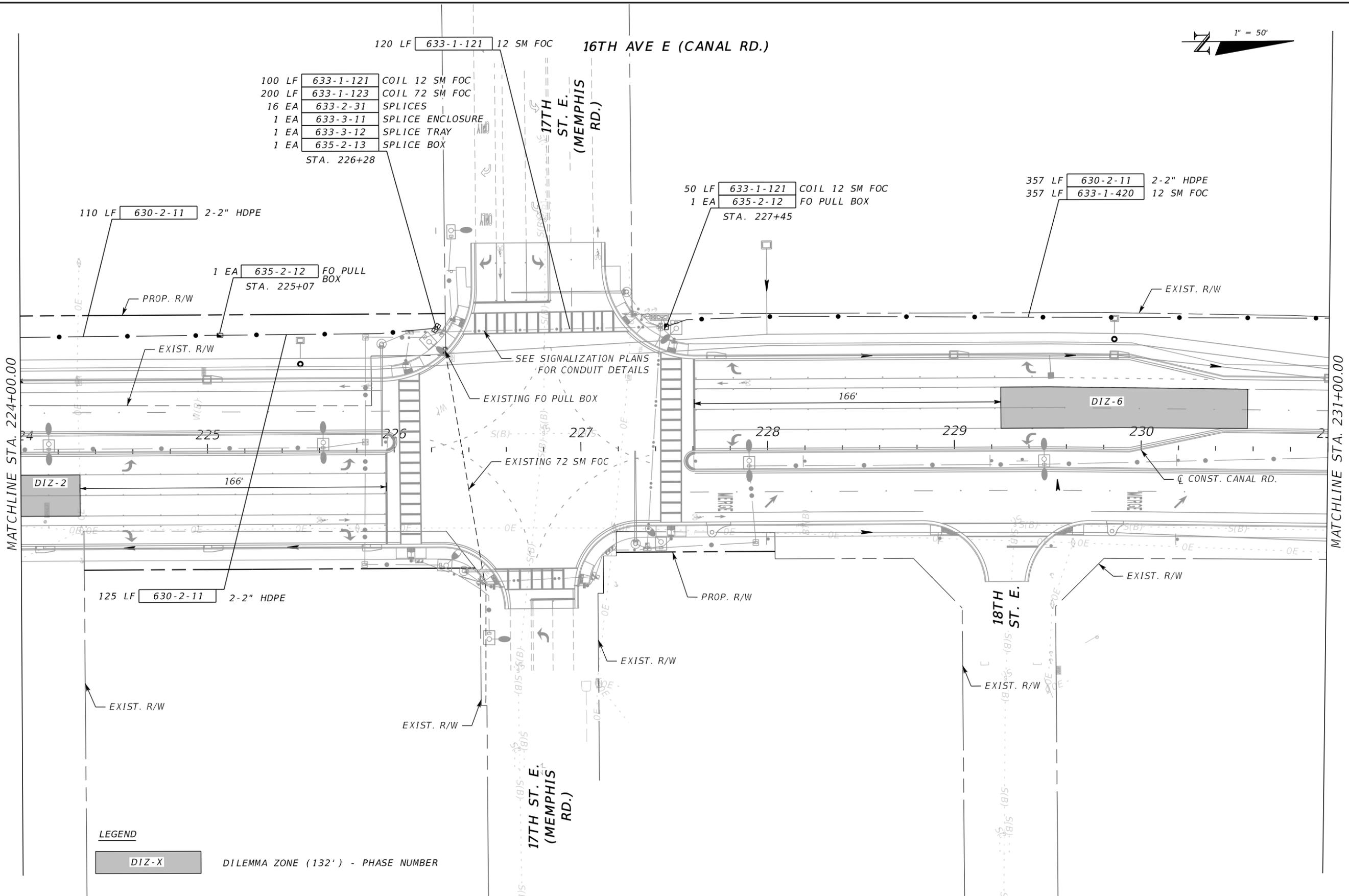
DESIGN ENGINEER  
MICHAEL J. OATES  
 FL. LICENSE NO.  
49282

**INTERCONNECT PLAN (A)**

SHEET NO.  
T-13

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				SCALE	AS NOTED			DATE	12/2021	<b>MANATEE COUNTY PUBLIC WORKS</b>	DESIGN ENGINEER	MICHAEL J. OATES	<b>INTERCONNECT PLAN (5)</b>	SHEET NO.	T-14
				DESIGNED BY	MO			PROJECT NO.	6094360		FL. LICENSE NO.	49282			
				DRAWN BY	SM										
No.	REVISIONS			DATE	BY	IR									

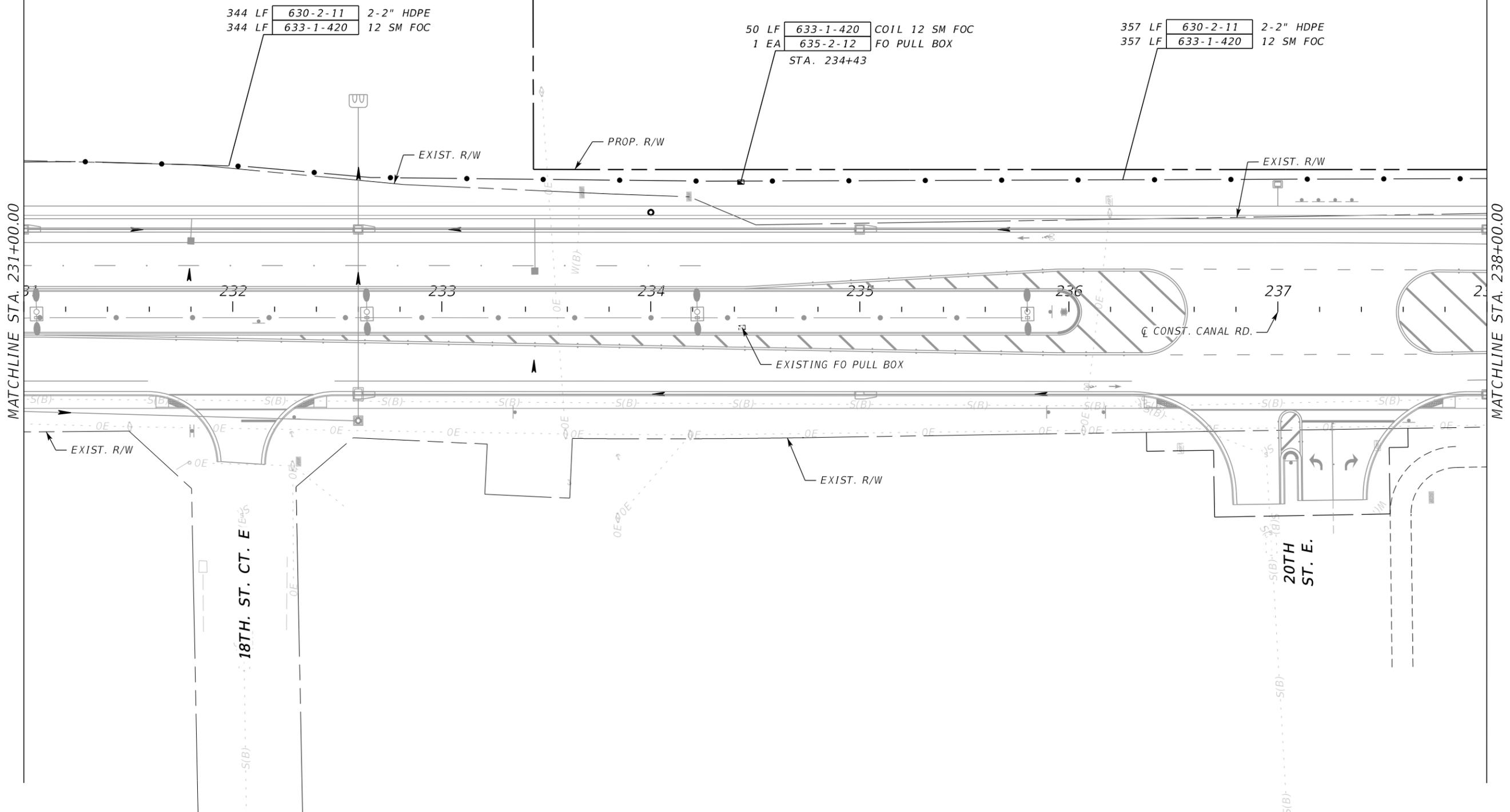
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12/9/2021

PW:\

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16TH AVE E (CANAL RD.)



SCALE AS NOTED DESIGNED BY MO DRAWN BY SM CHECKED BY IR				HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE 12/2021	MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER MICHAEL J. OATES	INTERCONNECT PLAN (6)	SHEET NO. T-15
REVISIONS No. DATE BY PW:\					PROJECT NO. 6094360		FL. LICENSE NO. 49282		

4:44:55 PM 12/9/2021

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

16TH AVE E (CANAL RD.)



MATCHLINE STA. 238+00.00

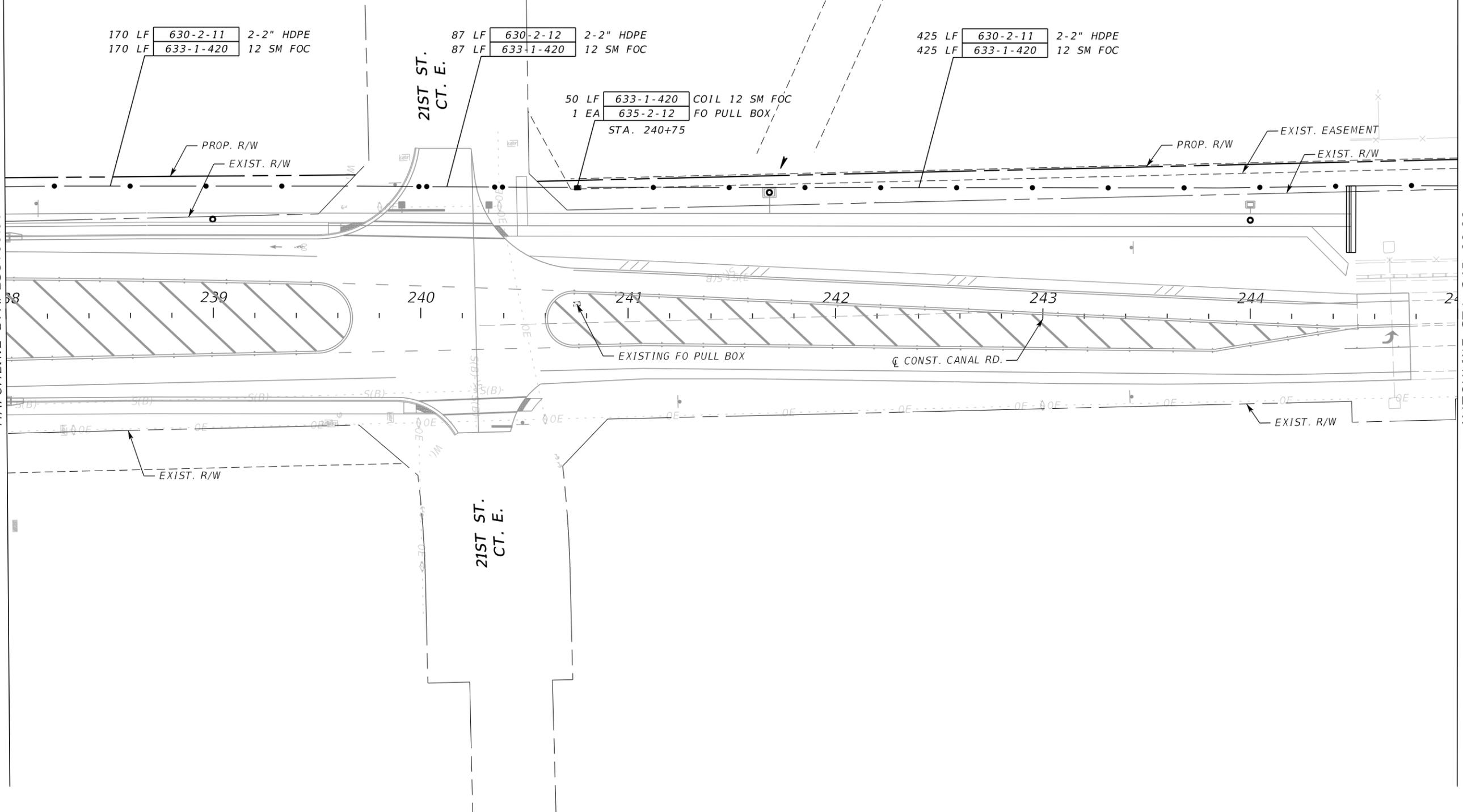
MATCHLINE STA. 245+00.00

170 LF 630-2-11 2-2" HDPE  
170 LF 633-1-420 12 SM FOC

87 LF 630-2-12 2-2" HDPE  
87 LF 633-1-420 12 SM FOC

425 LF 630-2-11 2-2" HDPE  
425 LF 633-1-420 12 SM FOC

50 LF 633-1-420 COIL 12 SM FOC  
1 EA 635-2-12 FO PULL BOX  
STA. 240+75



No.		REVISIONS		DATE	BY	IR	<p>HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233</p>	DATE	<p>MANATEE COUNTY PUBLIC WORKS</p>	DESIGN ENGINEER	<p>MANATEE COUNTY PUBLIC WORKS</p>	<p>INTERCONNECT PLAN (7)</p>	SHEET NO.
								DATE		12/2021			MICHAEL J. OATES

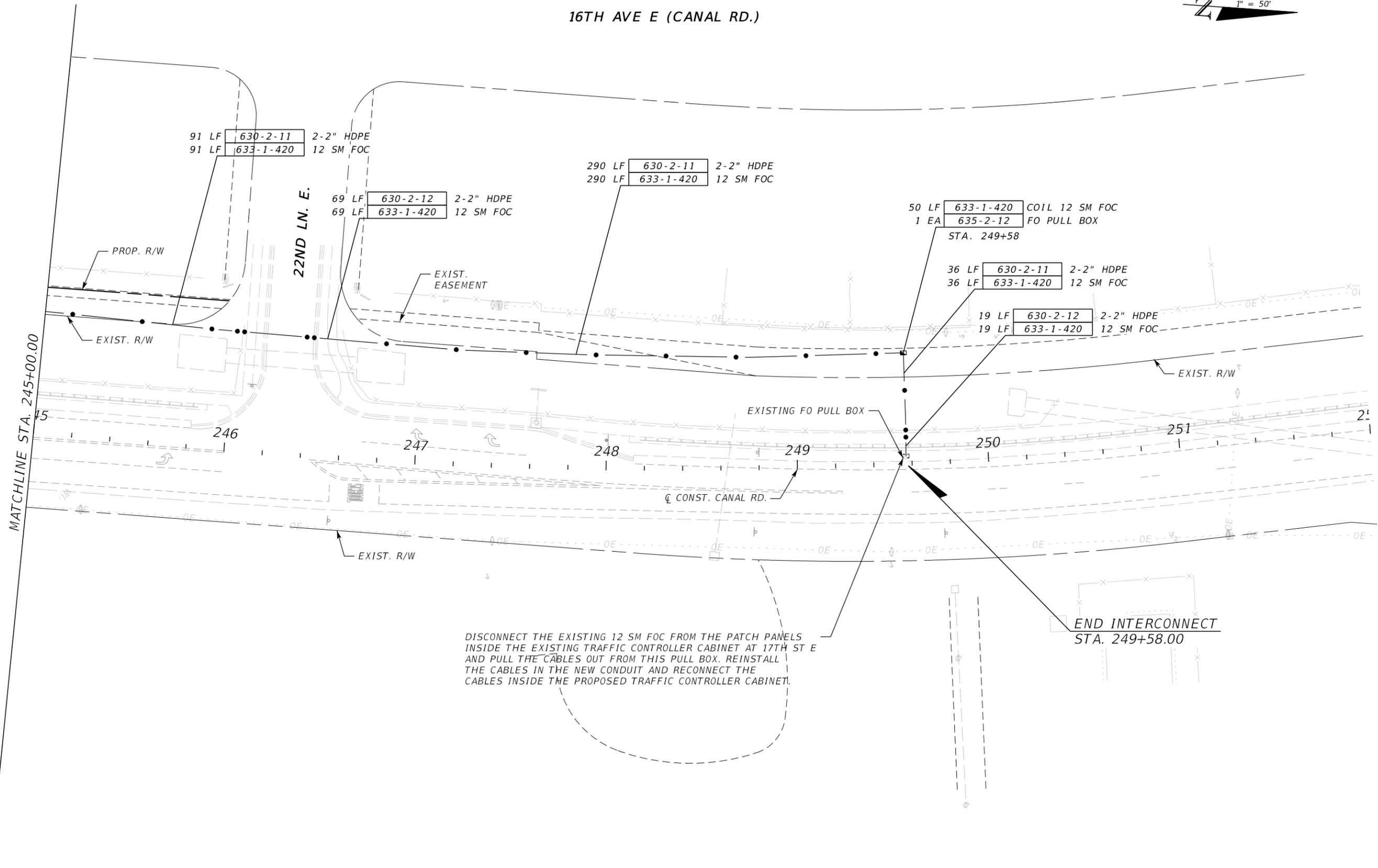
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12/9/2021

PW:\

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16TH AVE E (CANAL RD.)



4:45:01 PM

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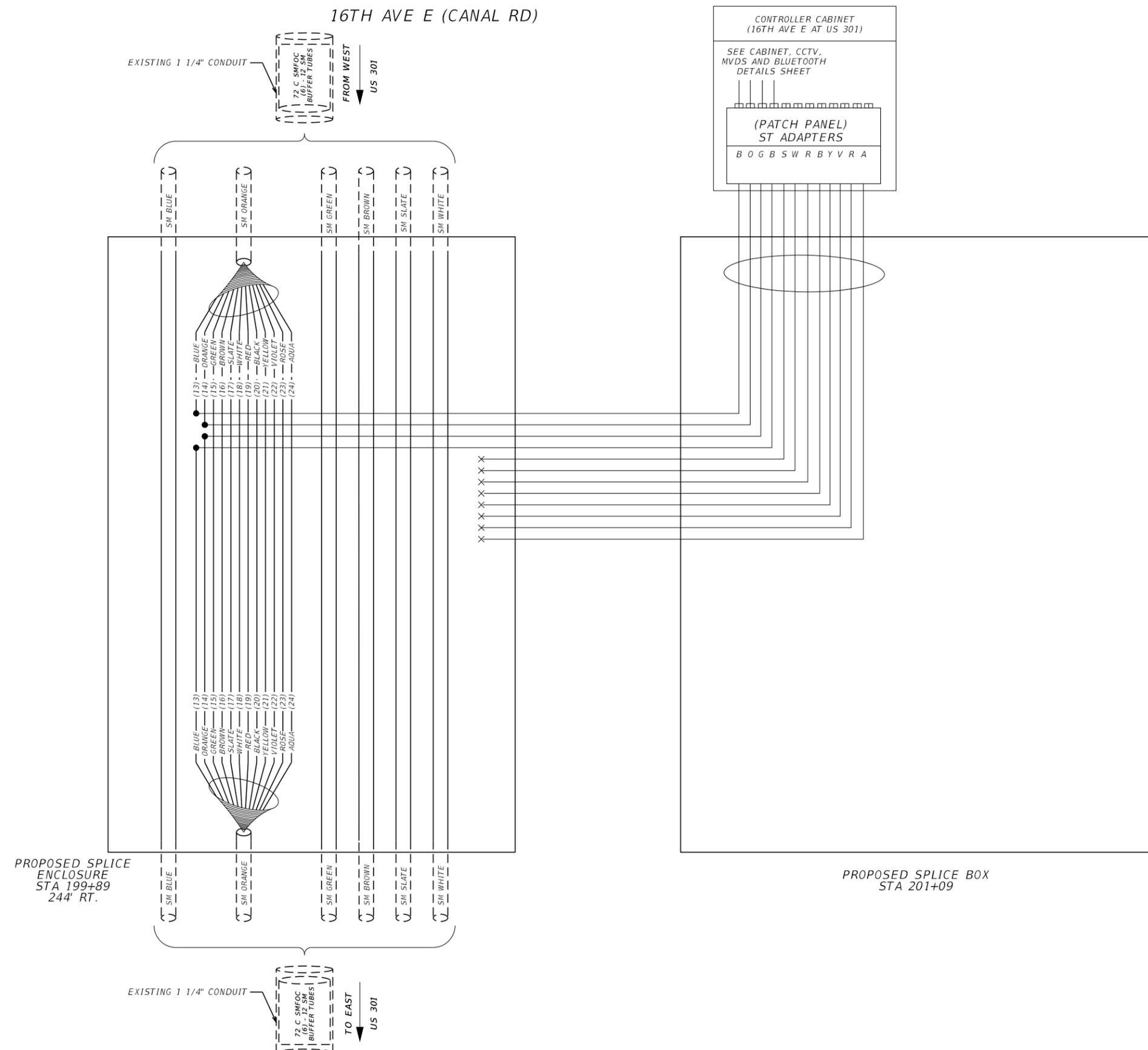




LEGEND	DESCRIPTION
●	FUSION SPLICE
—	PROPOSED SECTION OF FIBER
- - -	EXISTING SECTION OF FIBER

- NOTES:
- UNUSED FIBERS SHALL BE LEFT COILED, CAPPED, AND STORED IN SPLICE TRAY.
  - UNUSED BUFFER TUBES SHALL BE LEFT COILED AND STORED IN SPLICE TRAY.

COLOR CODE TIA/EIA 598A	
(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA



SCALE	AS NOTED		
DESIGNED BY	MO		
DRAWN BY	SM		
CHECKED BY	IR		
No.	REVISIONS	DATE	BY
	12/9/2021		PW:\



HDR Engineering, Inc.  
2601 Cattlemen Road  
Suite 400  
Sarasota, FL 34232-6233

DATE	12/2021
PROJECT NO.	6094360



MANATEE COUNTY  
PUBLIC WORKS

DESIGN ENGINEER	MICHAEL J. OATES
FL. LICENSE NO.	49282

SPLICING DIAGRAM (1)

SHEET NO.	T-22
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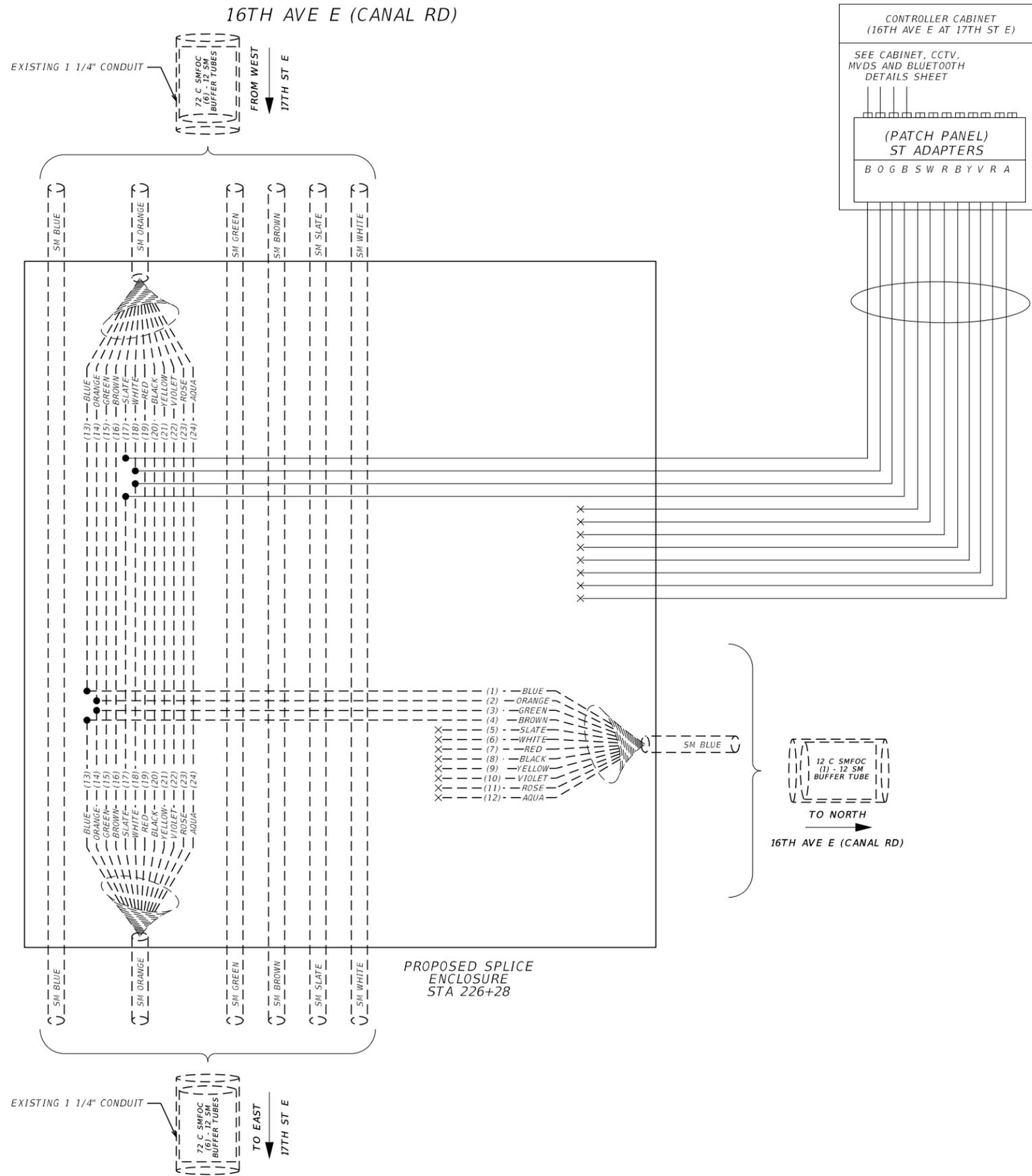
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No.	REVISIONS	DATE	BY
		12/9/2021	IR

SCALE AS NOTED

DESIGNED BY MO

DRAWN BY SM

CHECKED BY IR

**HDR**

HDR Engineering, Inc.  
2601 Cattlemen Road  
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Sarasota, FL 34232-6233

DATE	12/2021
PROJECT NO.	6094360

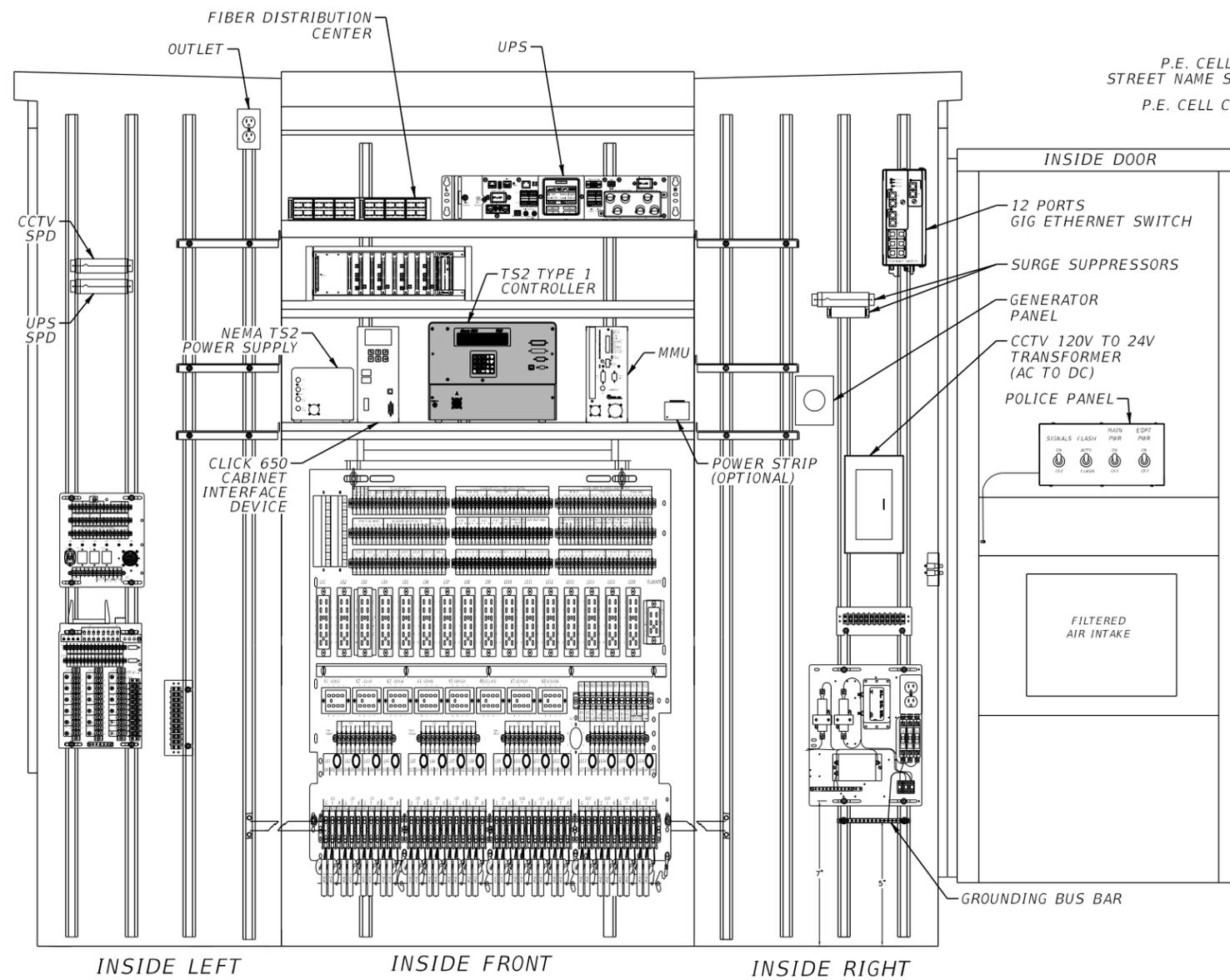
**Manatee County**  
FLORIDA

**MANATEE COUNTY  
PUBLIC WORKS**

DESIGN ENGINEER	MICHAEL J. OATES
FL. LICENSE NO.	49282

**SPLICING DIAGRAM (2)**

SHEET NO.	T-23
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TWO DOOR TRAFFICWARE TYPE VI CABINET

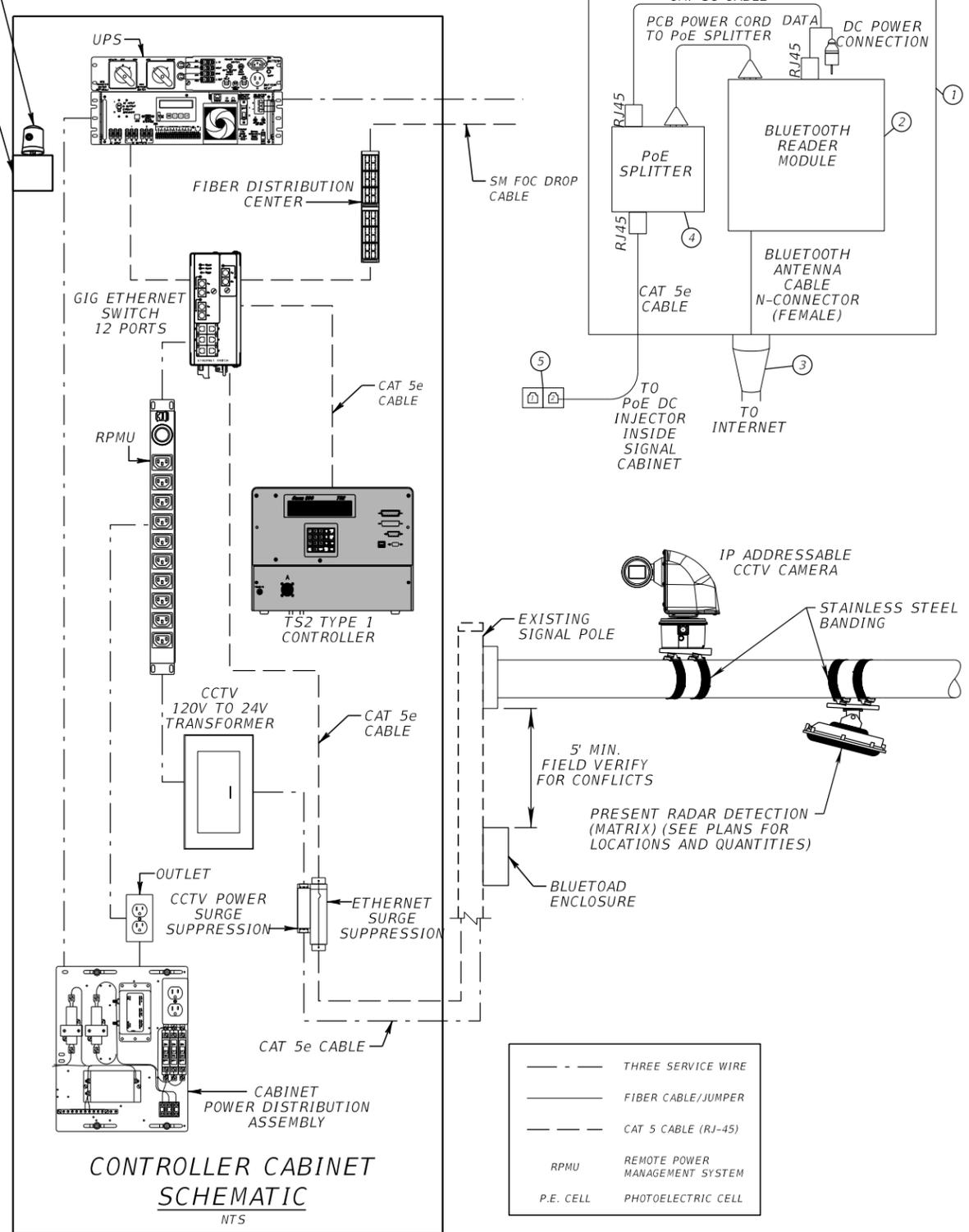
NTS

ETHERNET BASED BLUETOAD SYSTEM - COMPONENTS DETAIL

ITEM ID	DESCRIPTION	NOTE
1	FIBERGLASS ENCLOSURE	SEE NOTE 1
2	BLUETOOTH READER MODULE	ETHERNET BASED
3	BLUETOOTH ANTENNA	OMNI DIRECTIONAL
4	POWER OVER ETHERNET SPLITTER	
5	POWER OVER ETHERNET DC INJECTOR	POWERED BY AC IN TRAFFIC CONTROL CABINET

NOTE 1: FIBERGLASS NEMA 3R RATED ENCLOSURE WITH RAISED SNAP LATCH HINGED COVER 10" X 8" X 5.75". ENCLOSURE SHALL BE ATTACHED TO A POLE USING TWO GALVANNEALED STEEL AM BRACKETS.

CCTV AND ETHERNET-BASED BLUETOOTH CONNECTION DIAGRAM



CONTROLLER CABINET SCHEMATIC

NTS

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Suite 400  
Sarasota, FL 34232-6233

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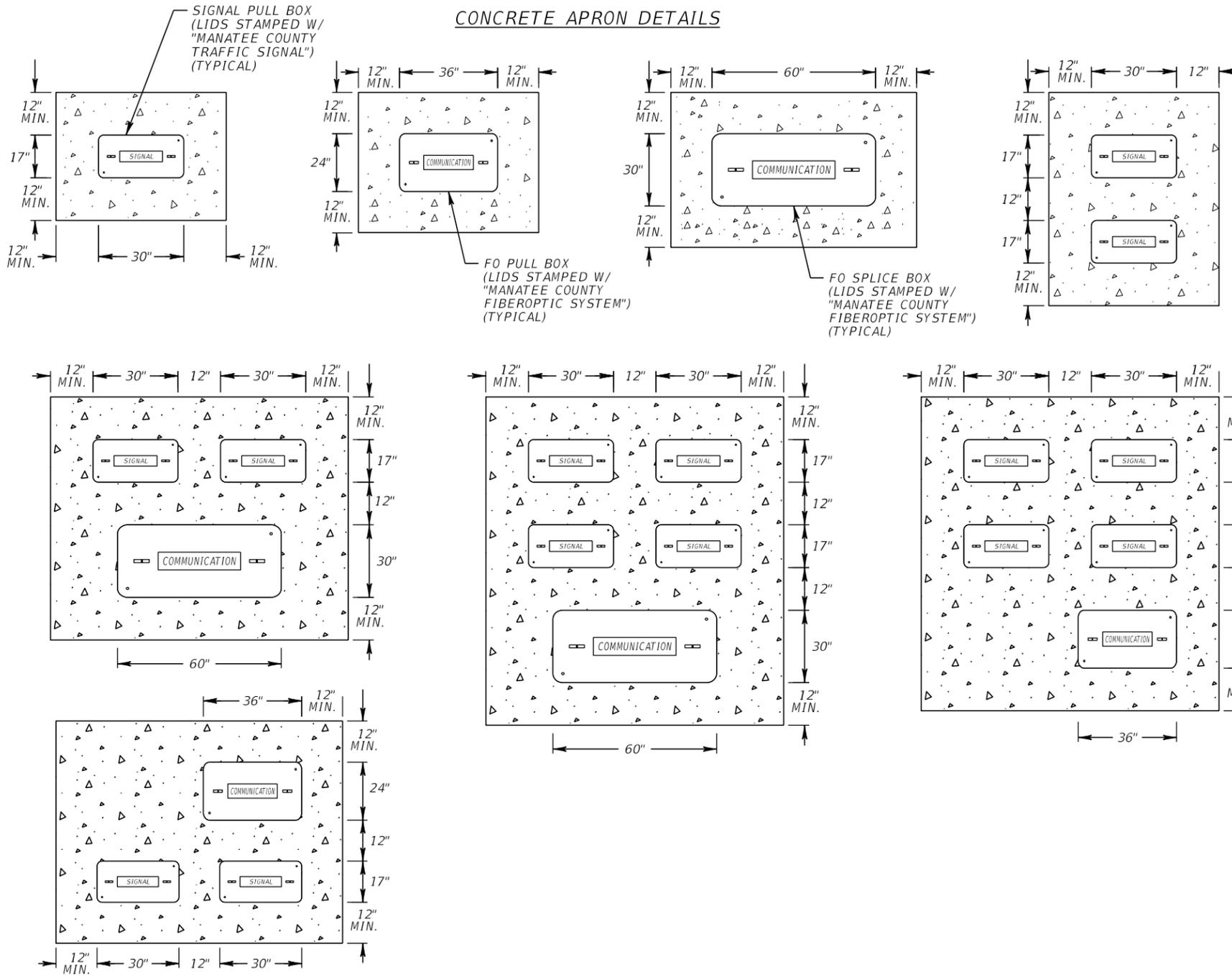
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FL. LICENSE NO.	49282

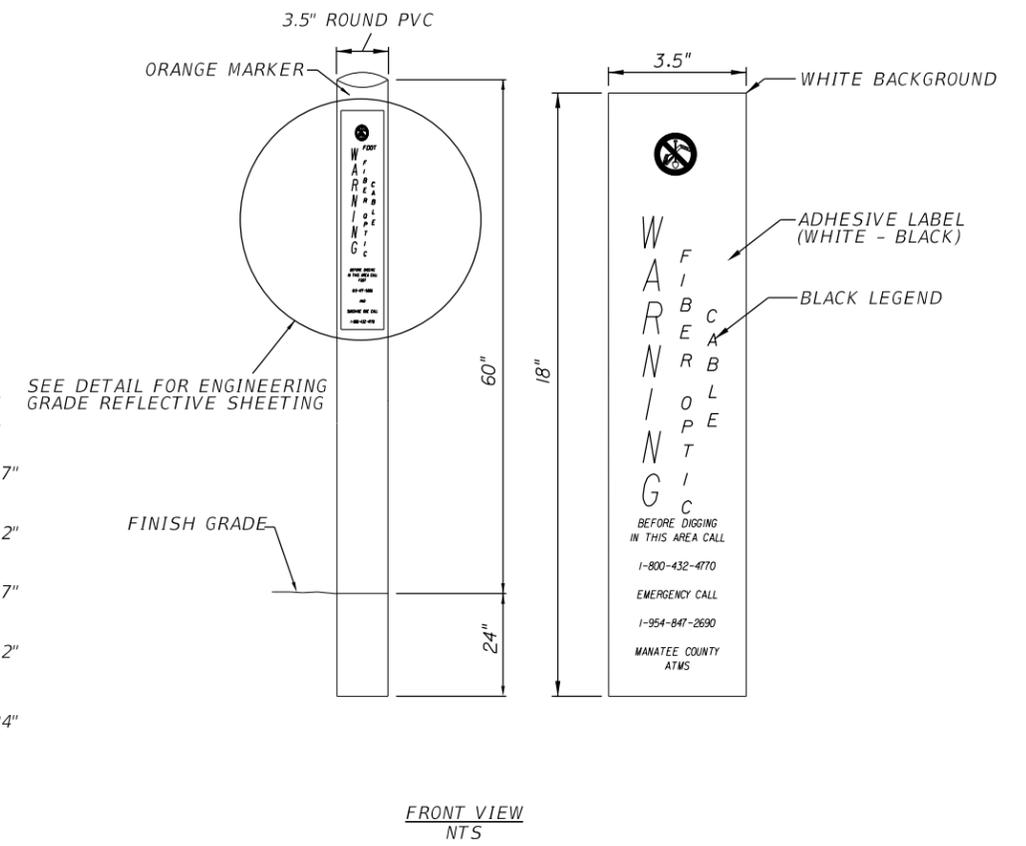
CABINET, CCTV, MVDS AND BLUETOOTH DETAILS

SHEET NO.	T-24
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**CONCRETE APRON DETAILS**



**FIBER OPTIC CABLE ROUTE MARKER**



**NOTES:**

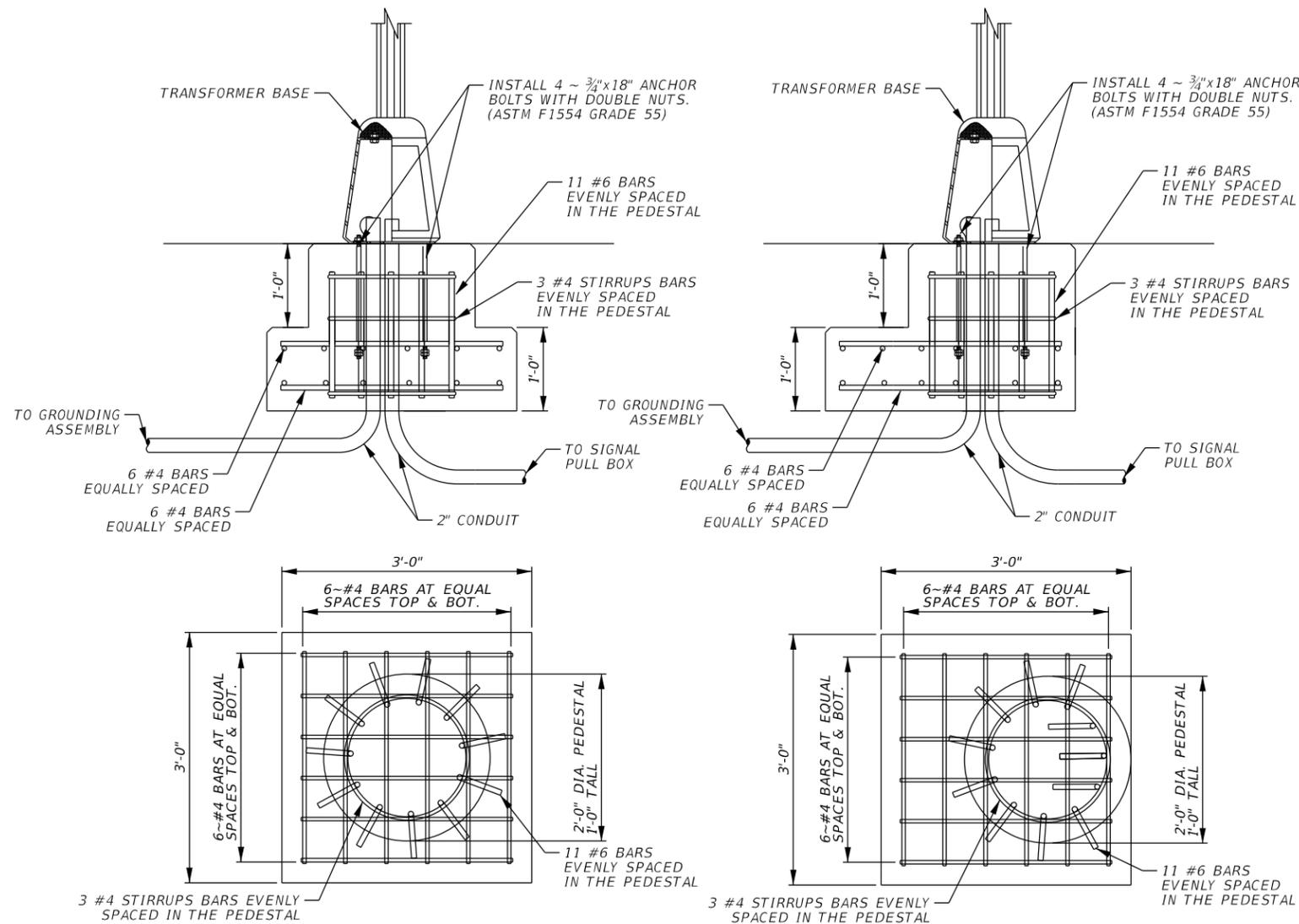
1. FOR TRENCH LINES WITH BOTH FIBER OPTIC CABLE AND POWER SERVICE WIRE, INSTALL POWER MARKER ALTERNATING WITH FIBER MARKER.
2. INSTALL FIBER OPTIC CABLE MARKER AT EVERY FIBER PULL BOX AND EVERY CHANGE IN DIRECTION NOT TO EXCEED 500 FEET.
3. TUBULAR MARKER TO BE PLACED OVER A V-CHANNEL METALLIC FENCE POST.
4. NO SEPARATE PAYMENT FOR ROUTE MARKERS. SHALL BE INCIDENTAL TO CONDUIT INSTALLATION.
5. A POLYDOME TOP SHALL BE INSTALLED ON EACH MARKER ORANGE, FOR FIBER AND RED FOR POWER.
6. ALL ROUTE MARKERS SHALL MEET SECTION 630 OF STANDARD SPECIFICATIONS.

**NOTES:**

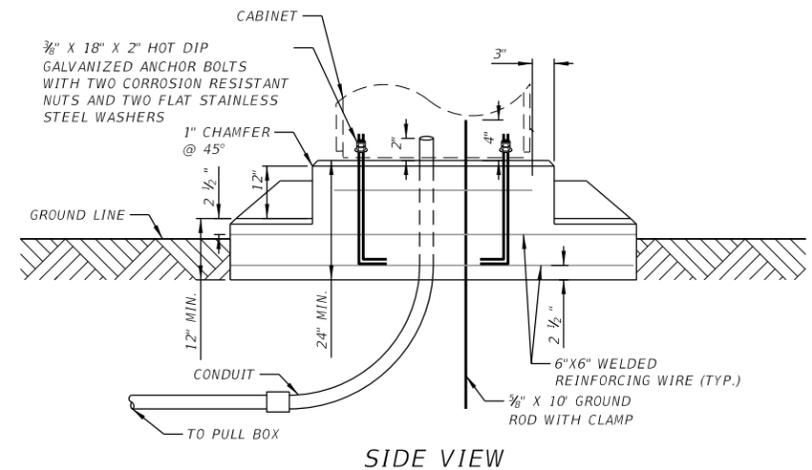
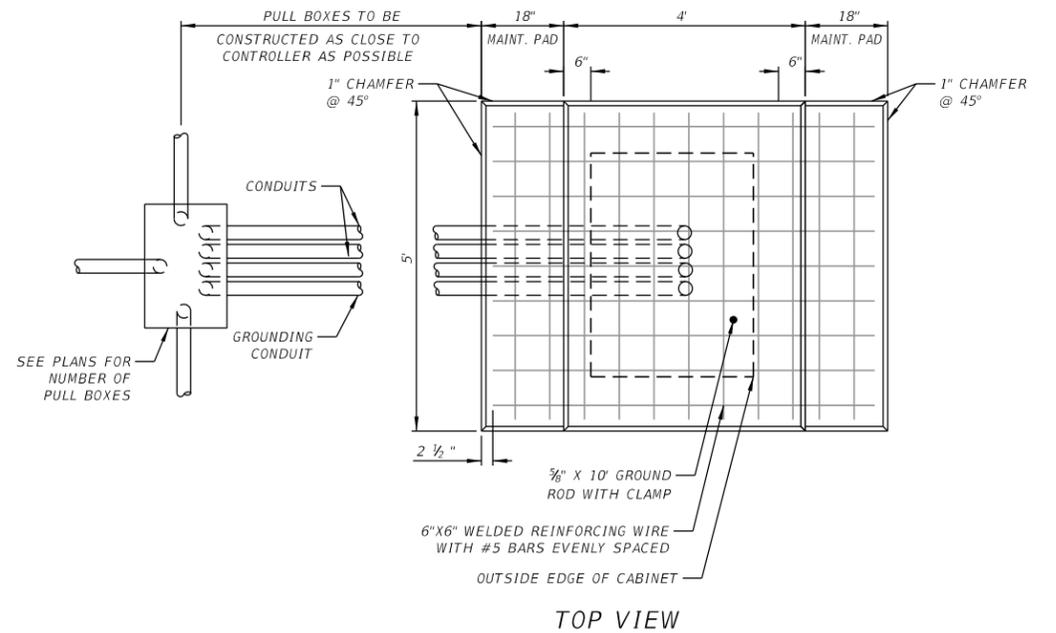
1. CONCRETE REINFORCEMENT AND INSTALLATION REQUIREMENTS TO BE PER STANDARD PLANS INDEX 715-001.
2. WHEN MULTIPLE CONFIGURATIONS OF PULL BOXES ARE ADJACENT TO ONE ANOTHER, THEY SHALL BE FORMED TOGETHER WITH AN EXPANSION JOINT BETWEEN THE APRONS UTILIZED TO AVOID CRACKING.
3. THE ORIENTATION OF CONCRETE APRONS WITH MULTIPLE PULL & JUNCTION BOXES SHALL BE DETERMINED IN THE FIELD.

				SCALE	AS NOTED				
				DESIGNED BY	MO				
				DRAWN BY	SM				
				CHECKED BY	IR				
				DATE	12/2021				
				PROJECT NO.	6094360				
				DESIGN ENGINEER	MICHAEL J. OATES			<b>CONCRETE APRON &amp; CABLE ROUTE MARKER DETAILS</b>	
				FL. LICENSE NO.	49282				





**PEDESTRIAN PEDESTAL ALTERNATE FOUNDATION DETAILS**  
WHEN APPROVED BY ENGINEER



**CONCRETE PAD DETAIL FOR TWO DOOR CONTROLLER CABINET**  
NTS

**NOTE:**  
THE CABINET FOUNDATION WILL HAVE 13-2" PVC CONDUITS (4-HIGH VOLTAGE, 4-LOW VOLTAGE, 3-SPARE, 2-COMM) ALONG WITH 2-1" PVC CONDUITS (1-GROUND, 1-POWER). THE CONTRACTOR SHALL CONTACT MANATEE COUNTY FOR THE PROPER LAYOUT OF THE CONDUITS IN THE CONTROLLER FOUNDATION PRIOR TO POURING THE FOUNDATION.

**TYPICAL CONTROLLER CABINET INSTALLATION**

NTS  
MATERIAL SPECIFICATIONS

- A. MATERIALS REQUIRED FOR THE CONTROLLER CABINET FOUNDATION, AND ALL PERTINENT EQUIPMENT AND ASSEMBLY IS INCLUDED IN THE PRICE BID FOR THE CONTROLLER.
- B. THE CONTROLLER CABINET FOUNDATION SHALL BE CLASS "I" CONCRETE & 6" X 6" WELDED REINFORCING WIRE WITH 3 #5 BARS EVENLY SPACED.
- C. A MINIMUM OF 4 EXPANSION BOLTS ARE REQUIRED. STAINLESS STEEL KWIK BOLT WITH A MIN. EMBEDMENT OF 18", SHALL BE USED TO MOUNT THE CONTROLLER CABINET TO THE CONCRETE PAD.

SCALE	AS NOTED		
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Sarasota, FL 34232-6233

DATE

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PROJECT NO.  
6094360



MANATEE COUNTY  
PUBLIC WORKS

DESIGN ENGINEER  
CHESTER A. SMITH  
III  
FL. LICENSE NO.  
70756

**PEDESTRIAN SIGNAL AND  
CABINET BASE DETAILS**

SHEET  
NO.

T-27