

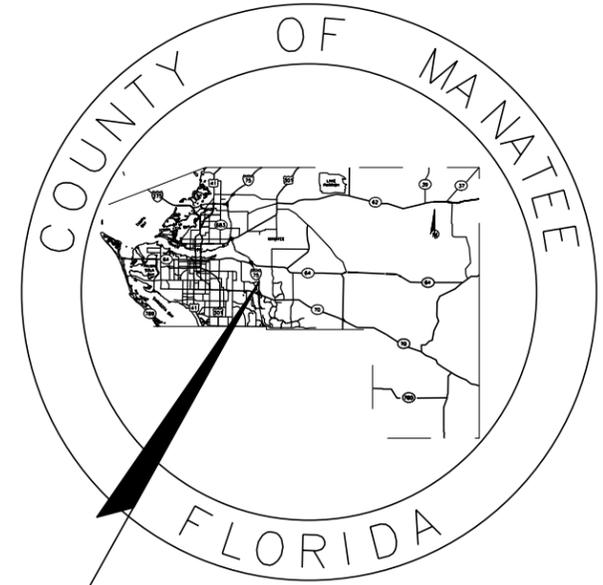
**MANATEE COUNTY
PUBLIC WORKS DEPARTMENT**

CONTRACT PLANS

**MANATEE COUNTY
PROJECT NUMBER 6045662
44TH AVENUE EAST
PHASE 2**

WEST OF I-75 TO LAKEWOOD RANCH BOULEVARD

SIGNALIZATION PLANS



LOCATION OF PROJECT

**90% SUBMITTAL
02/2022**

**SIGNALIZATION PLANS
ENGINEER OF RECORD:**

LIYANAGE RATNAYAKE, P.E.
P.E. NO.: 77692
HDR ENGINEERING, INC.
2601 CATTLEMEN ROAD, SUITE 400
SARASOTA, FLORIDA 34232
VENDOR NO. 47-0680568
CONTRACT NO. C9480

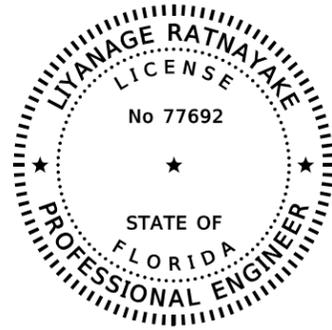
MANATEE CO. PROJECT MANAGER:
ERIC S. SHROYER, P.E.

INDEX OF SIGNALIZATION PLANS

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T-17	CONCRETE APRON DETAILS
T-18	FIBER OPTIC PULL BOX DETAILS
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T-21	MVDS BLOCK DIAGRAM
T-22	CABLE ROUTE MARKER DETAIL
T-23	SPLICING DIAGRAM

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
LIYANAGE RATNAYAKE, PE NO. 77692

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

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T-23	SPLICING DIAGRAM

		SCALE	AS NOTED	HDR ENGINEERING, INC.	DATE	02/2022	DESIGN ENGINEER	LIYANAGE RATNAYAKE	SHEET NO.
		DESIGNED BY	IR	2601 CATTLEMEN ROAD, SUITE 400	PROJECT NO.	6045662	FL. LICENSE NO.	77692	SIGNATURE SHEET
		DRAWN BY	SM	SARASOTA, FLORIDA 34232					
No.	REVISIONS	DATE	BY	MO					



**MANATEE COUNTY
PUBLIC WORKS**

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	290		1310		235		1035		1400		1410		1415		7095			
630-2-12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	LF	265					380									645			
630-2-14	CONDUIT, FURNISH & INSTALL, ABOVE GROUND	LF																		
630-2-16	CONDUIT, FURNISH & INSTALL, EMBEDDED CONCRETE BARRIERS AND TRAFFIC RAILINGS	LF			210		3525										3735			
633-1-123	FIBER OPTIC CABLE, F&I, UNDERGROUND, 49-96 FIBERS	LF	605		1480		1905		1515		1500		1510		1515		10030			
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	EA	96														96			
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	8														8			
633-8-1	MULTI-CONDUCTOR COMMUNICATION CABLE, FURNISH & INSTALL	LF																		
635-2-11	PULL & SPLICE BOX, F&I, 17" x 30" COVER SIZE	EA																		
635-2-12	PULL & SPLICE BOX, F&I, 24" X 36" COVER SIZE	EA	1		2		1		2		2		2		2		12			
635-2-13	PULL & SPLICE BOX, F&I, 30" X 60" RECTANGULAR OR 36" ROUND COVER SIZE	EA																		
635-3-13	JUNCTION BOX, FURNISH & INSTALL, EMBEDDED	EA			1		1										2			
641-2-13	PRESTRESSED CONCRETE POLE, F&I, TYPE P-111	EA																		
660-3-11	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL CABINET EQUIPMENT	EA																		
660-3-12	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL, ABOVE GROUND EQUIPMENT	EA																		
676-3-10	SMALL EQUIPMENT ENCLOSURE, FURNISH AND INSTALL, LESS THAN 10"W X 13"H X 11" D	EA																		

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SCALE AS NOTED		HDR ENGINEERING, INC.		DATE 02/2022		 MANATEE COUNTY PUBLIC WORKS		DESIGN ENGINEER LIYANAGE RATNAYAKE		TABULATION OF QUANTITIES (1)		SHEET NO. T-3	
DESIGNED BY IR		2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO. 6045662				FL. LICENSE NO. 77692					
DRAWN BY SM		SARASOTA, FLORIDA 34232											
CHECKED BY MO													
No.	REVISIONS	DATE	BY										

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS														TOTAL THIS SHEET		GRAND TOTAL	
			T-14		T-15															
			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	1255		1335												2590		9685	
630-2-12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	LF	155														155		800	
630-2-14	CONDUIT, FURNISH & INSTALL, ABOVE GROUND	LF			40												40		40	
630-2-16	CONDUIT, FURNISH & INSTALL, EMBEDDED CONCRETE BARRIERS AND TRAFFIC RAILINGS	LF																	3735	
633-1-123	FIBER OPTIC CABLE, F&I, UNDERGROUND, 49-96 FIBERS	LF	1460		1830												3290		13320	
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	EA			64												64		160	
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			6												6		14	
633-8-1	MULTI-CONDUCTOR COMMUNICATION CABLE, FURNISH & INSTALL	LF			805												805		805	
635-2-11	PULL & SPLICE BOX, F&I, 17" x 30" COVER SIZE	EA			2												2		2	
635-2-12	PULL & SPLICE BOX, F&I, 24" X 36" COVER SIZE	EA	1		3												4		16	
635-2-13	PULL & SPLICE BOX, F&I, 30" X 60" RECTANGULAR OR 36" ROUND COVER SIZE	EA			1												1		1	
635-3-13	JUNCTION BOX, FURNISH & INSTALL, EMBEDDED	EA																	2	
641-2-13	PRESTRESSED CONCRETE POLE, F&I, TYPE P-111	EA			1												1		1	
660-3-11	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL CABINET EQUIPMENT	EA			1												1		1	
660-3-12	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL, ABOVE GROUND EQUIPMENT	EA			1												1		1	
676-3-10	SMALL EQUIPMENT ENCLOSURE, FURNISH AND INSTALL, LESS THAN 10"W X 13"H X 11" D	EA			1												1		1	

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SCALE AS NOTED		HDR ENGINEERING, INC.		DATE 02/2022		 MANATEE COUNTY PUBLIC WORKS		DESIGN ENGINEER LIYANAGE RATNAYAKE		TABULATION OF QUANTITIES (2)		SHEET NO. T-4	
DESIGNED BY IR		2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO. 6045662				FL. LICENSE NO. 77692					
DRAWN BY SM		SARASOTA, FLORIDA 34232											
CHECKED BY MO													
No.	REVISIONS	DATE	BY										

GENERAL NOTES

1. THE CONTRACTOR SHALL CONTACT THE ENGINEER, IN CONJUNCTION WITH MANATEE COUNTY'S PROJECT MANAGEMENT DIVISION BEFORE STARTING WORK.
2. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, IN CONJUNCTION WITH MANATEE COUNTY'S TRAFFIC ENGINEERING DIVISION (941-749-3502 EXT. 7812), AT LEAST TWO WEEKS, BEFORE ANY CABINET MODIFICATIONS ARE TO BE PERFORMED. THE ENGINEER, IN CONJUNCTION WITH MANATEE COUNTY ENGINEERING DIVISION PERSONNEL WILL REVIEW, ASSIST AND PROVIDE TECHNICAL SUPPORT RELEVANT TO ANY FIELD MODIFICATIONS THAT ARE NECESSARY.
3. AT LEAST TWO (2) FULL BUSINESS DAYS PRIOR TO BEGINNING THE TRAFFIC SIGNAL INSTALLATION, CONTACT THE TRAFFIC SIGNAL INSPECTOR/LIAISON:

MANATEE COUNTY PROJECT MANAGEMENT DIVISION
ERIC S. SHROYER, P.E.
1022 26TH AVENUE EAST
BRADENTON, FLORIDA 34208
PHONE: 941-708-7450 EXT. 7344
4. ONE WEEK PRIOR TO THE BEGINNING OF THE TRAFFIC SIGNAL INSTALLATION OR TURN ON OF A NEW SIGNAL, THE CONTRACTOR SHALL NOTIFY THE ENGINEER:

MANATEE COUNTY PROJECT MANAGEMENT DIVISION
ERIC S. SHROYER, P.E.
1022 26TH AVENUE EAST
BRADENTON, FLORIDA 34208
PHONE: 941-708-7450 EXT. 7344

MANATEE COUNTY TRAFFIC ENGINEERING DIVISION
VISHAL KAKKAD
2101 47TH TERRACE EAST
BRADENTON, FLORIDA 34203
PHONE: 941-749-3500 EXT. 7812
5. DELIVER THREE SETS OF RECORD DRAWINGS, TWO SETS OF IMSA INSPECTION FORMS AND ONE COMPACT DISC OF RECORD DRAWINGS TO MR. AARON BURKETT, THE MANATEE COUNTY TRAFFIC OPERATIONS DIVISION MANAGER AT 2904 12TH ST. CT., EAST BRADENTON, FL 34208. RECORD DRAWINGS MUST BE DELIVERED TO THE COUNTY 48 HOURS PRIOR TO SCHEDULING THE FINAL INSPECTION.
6. UPON PASSING THE FINAL INSPECTION, THE CONTRACTOR SHALL SEND A WRITTEN REQUEST TO THE PROJECT MANAGEMENT DIVISION AND THE OPERATIONS DIVISION TO TRANSFER MAINTENANCE FROM THE CONTRACTOR TO MANATEE COUNTY. MANATEE COUNTY WILL RESPOND WITHIN 5 WORKING DAYS TO ESTABLISH A TIME TABLE FOR THE TRANSFER OF MAINTENANCE RESPONSIBILITY.
7. THE LOCATION OF UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR, VIA SUNSHINE STATE ONE CALL OF FLORIDA, INC AT 811 OR 1-800-432-4770. IN COORDINATION WITH UNDERGROUND AND OVERHEAD UTILITY OWNERS. THE CONTRACTOR SHALL NOTIFY UTILITY OWNERS/AGENCIES LISTED WITHIN OR IMPACTED BY THESE PLANS, NOT LESS THAN TWO (2) FULL BUSINESS DAYS IN ADVANCE OF BEGINNING CONSTRUCTION.
8. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS IN ADVANCE OF POLE SETTING OPERATIONS WHERE CONFLICT WITH OVERHEAD ELECTRICAL CONDUCTORS IS EXPECTED AND IN ALL CASES WHERE JOINT USE POLES ARE CALLED FOR.

THE CONTRACTOR SHALL CONTACT THE LOCAL POWER COMPANY FOR THEIR ASSISTANCE IN PERFORMING ALL NECESSARY WORK UNDER POWER LINES AT SIGNAL POLES SUCH AS THE INSTALLATION OF SIGNAL CABLE, FIBERGLASS INSULATORS, AND SIGNAL POLES.

AT LOCATIONS WHERE THE REQUIRED VERTICAL CLEARANCE TO THE POWER LINES CANNOT BE MAINTAINED, A QUALIFIED REPRESENTATIVE FROM THE POWER COMPANY SHALL BE PRESENT DURING ALL WORK UNDER POWER LINES. ANY COST ASSOCIATED WITH THIS SHALL BE INCLUDED IN THE RELATED PAY ITEMS.
9. THE CONTRACTOR SHALL HAND DIG THE FIRST 48 INCHES OF THE HOLE FOR THE POLE FOUNDATION OR CONDUIT RUN WHERE UTILITIES ARE IN CLOSE PROXIMITY.
10. THE CONTRACTOR IS TO DE-WATER THE POLE FOUNDATION EXCAVATION IF THE ELEVATION OF WATER IS HIGHER THAN THE ELEVATION OF THE FOUNDATION BASE.

CONDUIT NOTES

11. ALL MATERIALS, EQUIPMENT, AND OTHER CONTRACTOR SUPPLIED ITEMS SHALL BE INSTALLED AND MAINTAINED ACCORDING TO THE MANUFACTURERS RECOMMENDATIONS, UNLESS SPECIFICALLY DIRECTED OTHERWISE BY THE ENGINEER.
12. #14 XHHW PULL WIRE SHALL BE INSTALLED IN ALL CONDUITS. AT LEAST 2 FEET OF PULL WIRE SHALL BE ACCESSIBLE AT EACH CONDUIT TERMINATION AND SECURED IN THE PULL BOX OR PLACE OF TERMINATION.
13. ALL ELECTRICAL WIRING SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE PUBLISHED BY THE NATIONAL FIRE PROTECTION ASSOCIATION.
14. GROUNDING: ALL COSTS FOR GROUNDING SHALL BE INCLUDED IN THE COST OF THE ITEM BEING GROUNDED. ALL BONDING AND GROUNDING MUST COMPLY WITH FDOT DESIGN STANDARDS. MARK GROUND ROD LOCATION WITH PERMANENT MARKER SUCH AS AN EPOXIED STICKER LOCATED ON THE NEAREST CURB, AND PROVIDE AS-BUILT DRAWINGS WITH THE LOCATION OF GROUND RODS MARKED.

GROUND RESISTANCE TESTER, OR OTHER APPROVED MEANS SHALL BE USED TO ACQUIRE THE GROUND ROD RESISTANCE. THE ENGINEER, OR A REPRESENTATIVE OF THE ENGINEER FROM THE TRAFFIC OPERATIONS DIVISION STAFF SHALL BE PRESENT DURING THE TEST.
15. IT SHOULD BE NOTED THAT NO TEST BORINGS WERE MADE WHERE CONDUIT RUNS ARE TO BE INSTALLED BY JACKING OR BORING.
16. CONTRACTOR SHALL SUPPLY ALL MATERIAL SUBMITTALS TO THE ENGINEER PRIOR TO CONSTRUCTION FOR APPROVAL.
17. UNDER SUPERVISION OF THE COUNTY, THE CONTRACTOR SHALL PERFORM AN INITIAL OPERATION TEST TO ENSURE THE MVDS ASSEMBLY HAS BEEN INSTALLED CORRECTLY AS A COMPLETE AND FUNCTIONALLY ACCEPTABLE INSTALLATION.
18. PRIOR TO ORDERING MATERIALS, SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW FOR ALL EQUIPMENT AND MATERIALS FURNISHED AND INSTALLED. THE CONTRACTOR SHALL FURNISH COPIES OF ALL DRAWINGS, SCHEDULES AND COMPLETE DESCRIPTIVE AND TECHNICAL DATA ON ALL ITEMS TO THE PROJECT MANAGER.
19. THE ACCEPTANCE OF ANY SUBMITTED DATA FOR MATERIALS, EQUIPMENT, APPARATUS, DEVICES, ARRANGEMENTS AND/OR LAYOUTS SHALL NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF PLACING SAME AND PROPER DIMENSIONS, CAPACITIES, SIZES, QUANTITY AND INSTALLATIONS DETAILS TO EFFICIENTLY PERFORM THE REQUIREMENTS AND INTENT OF THE CONTRACT. SUCH ACCEPTANCE SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS OF ANY SORT ON THE SUBMITTAL DATA.
1. ALL HDPE CONDUIT CONNECTIONS SHALL BE JOINED WITH A FUSION COUPLER OR FUSION SPLICE.
2. THE CONTRACTOR SHALL ADJUST THE CONDUIT RUNS, DEVICE POLES, BORES AND SERVICE POLE PLACEMENTS TO AVOID ANY UTILITY CONFLICT IDENTIFY BY THE LOCATES. ANY SIGNIFICANT CHANGE SHALL BE APPROVED BY THE ENGINEER.
3. INSTALL ALL CONDUITS TO TOTALLY AVOID ANY CONFLICTS WITH EXISTING UTILITIES ALONG THE ROUTE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE NECESSARY INFORMATION REQUIRED TO PLAN THE WORK AHEAD FOR THE INSTALLATION OF THE REQUIRED CONDUITS WITHIN DESIGN OR SPECIFIED PARAMETERS, AND HIS TIME FRAME. THE CONTRACTOR SHALL ADJUST CONDUIT VERTICALLY OR HORIZONTALLY TO AVOID CONFLICT WITH UNDERGROUND UTILITIES. THE CONTRACTOR SHALL USE HAND EXCAVATION METHODS WHEN EXCAVATING NEAR EXISTING UTILITIES, NO SEPARATE PAYMENT SHALL BE MADE FOR THIS WORK. EXTREME CAUTION SHALL BE USED BY THE CONTRACTOR WHEN EXCAVATING, INSTALLING, BACK FILLING AND COMPACTING AROUND EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITY.
4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD LOCATE ALL UNDERGROUND CONFLICTS IN ADVANCE OF THE PLACEMENT OF ANY CONDUIT OR OTHER FACILITIES. 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 CONDUITS SHALL BE SCHEDULE 40 PVC WITH A MINIMUM SIZE OF 2" UNLESS OTHERWISE SPECIFIED IN THE PLANS.

THE CONTRACTOR SHALL FIELD MARK THE PROPOSED ALIGNMENT FOR REVIEW AND CONCURRENCE BY THE ENGINEER PRIOR TO TRENCHING AND/OR PLACEMENT. NO PULL BOXES SHALL BE LOCATED IN DRAINAGE SWALES, OR PAVED SHOULDERS.
5. WHEN TRENCHING FOR INSTALLATION, THE CONTRACTOR MAY RUN COMMUNICATIONS AND POWER SERVICE IN THE SAME TRENCH. THE POWER SERVICE SHALL HAVE SEPARATE PULL BOXES FOR ACCESS. THE CONTRACTOR SHALL NOT INSTALL COMMUNICATIONS AND POWER SERVICE IN THE SAME CONDUIT, PULL BOX OR MANHOLE.
6. THE CONTRACTOR SHALL PLACE ALL CONDUITS IN A MANNER THAT MINIMIZES DEFLECTION BOTH HORIZONTALLY AND VERTICALLY, THUS MINIMIZING STRESS ON CABLES DURING CABLE INSTALLATION. CONDUIT FOR FIBER OPTIC CABLE IN TRENCHES SHALL NOT DEFLECT MORE THAN 1-INCH PER FOOT VERTICALLY OR HORIZONTALLY. BENDS SHALL NOT BE PERMITTED EXCEPT AS SPECIFIED ON THE PLANS.
7. ALL CONDUIT TRENCHES SHALL BE BACKFILLED COMPLETELY TO PROVIDE SAFE CROSSING BY THE END OF THE WORKING DAY OR WHENEVER THE WORK ZONE BECOMES INACTIVE. DO NOT OPEN ANY AREA THAT CANNOT BE BACKFILLED IN THE SAME DAY/ NIGHT OPERATION.

BRACKETS AND SPACERS WHICH ARE REQUIRED TO OFFSET THE RIGID METAL CONDUIT FROM THE MOUNTING, SHALL BE OF SIMILAR MATERIALS TO PREVENT CATHODIC REACTION.
8. ALL NEW CONDUIT SHALL BE PLACED AT A MINIMUM DEPTH OF 30" UNLESS PLACED IN AN AREA OF NEW FILL, IN WHICH CASE THE CONDUIT SHALL BE 48". DIRECTIONALLY BORED CONDUIT SHALL BE AT A MINIMUM DEPTH OF 48".

				SCALE	AS NOTED	HDR ENGINEERING, INC.		DATE	02/2022	 MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	<p style="text-align: center;">GENERAL NOTES</p>	SHEET NO.	
				DESIGNED BY	IR	2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO.	6045662		LIYANAGE RATNAYAKE		77692	T-5
				DRAWN BY	SM	SARASOTA, FLORIDA 34232					FL. LICENSE NO.			
				CHECKED BY	MO									
No.	REVISIONS			DATE	BY									

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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.

2. 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. THE COST OF CABLE ROUTE MARKERS ARE INCLUDED IN PAY ITEMS 635-2-12 & 635-2-13. FIBER OPTIC ROUTE MARKERS SHOULD BE INSTALLED PER SECTION 630.3.10 OF THE FDOT SEPCIFICATIONS.

STANDARD PULL BOX DIMENSIONS SHALL BE 17" x 30" x 12" AND THE LID SHALL BE STAMPED "MANATEE COUNTY TRAFFIC SIGNAL" ON THE COVER.
 FIBER OPTIC PULL BOX DIMENSIONS SHALL BE 24" x 36" x 36" 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.

3. 660-3-11:
 SHALL INCLUDE ALL NECESSARY WAVETRONIX CLICKS UNITS FOR A COMPLETE AND OPERATIONAL SETUP.

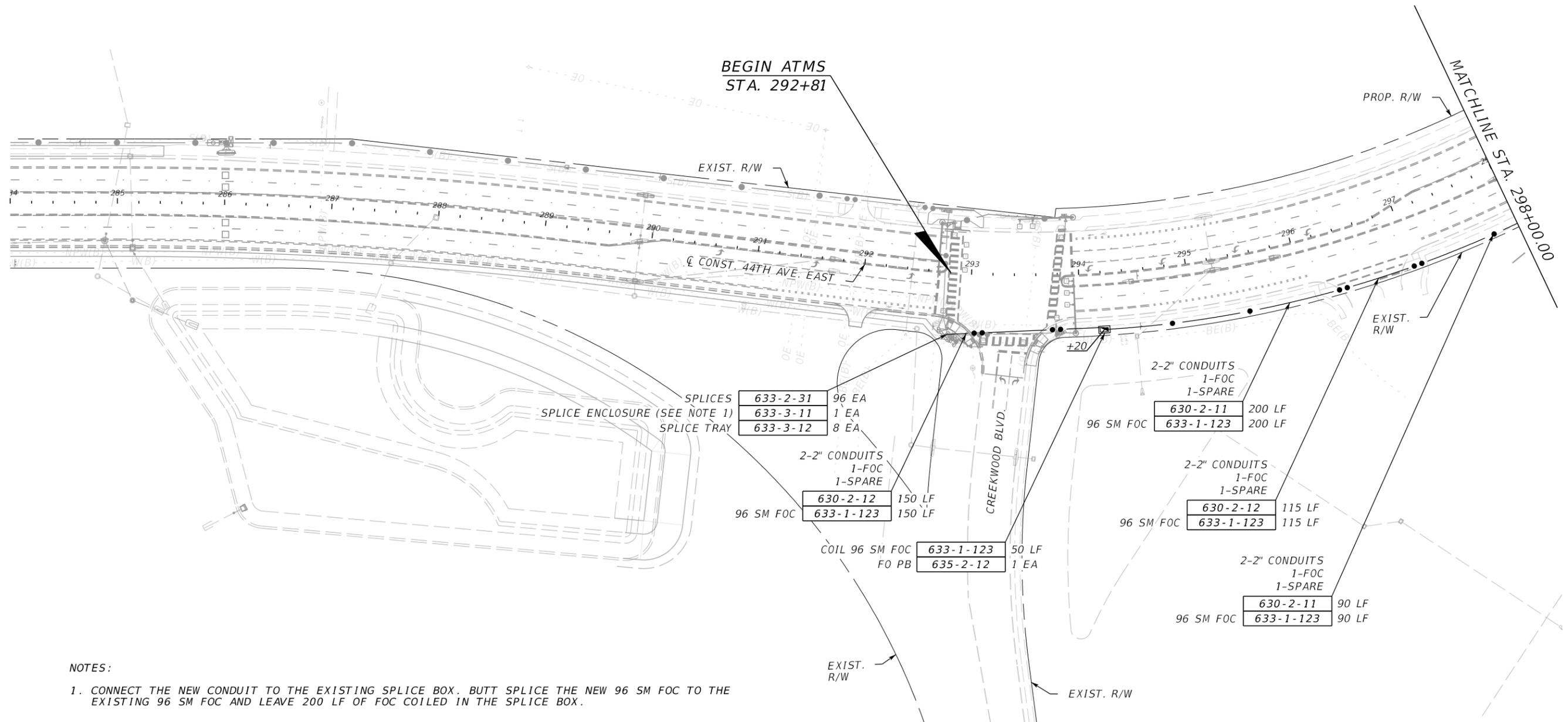
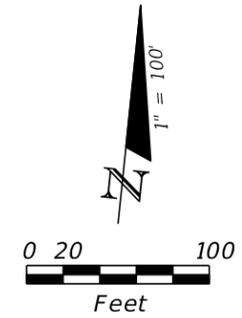
4. 660-3-12:
 SHALL INCLUDE WAVETRONIX SMART SENSOR ADVANCE FOR MAINLINE AND SMART SENSOR MATRIX AS NOTED IN PLANS. THIS PAY ITEM WILL INCLUDE ALL NECESSARY MOUNTING BRACKETS AND CLAMPING EQUIPMENT. SHALL INCLUDE ANY COST ASSOCIATED WITH PHYSICAL INSTALLATION OF SENSOR AND ANY SOFTWARE NECESSARY TO PROGRAM THE SENSOR.

COORDINATE WAVETRONIX DETECTOR PLACEMENT WITH THE VENDOR AND PROVIDE DETECTION ZONE OVERLAYS FOR REVIEW.

		SCALE	AS NOTED	HDR ENGINEERING, INC.		DATE	02/2022	DESIGN ENGINEER	LIYANAGE RATNAYAKE	SHEET NO.
		DESIGNED BY	IR	2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO.	6045662	FL. LICENSE NO.	77692	PAY ITEM NOTES
		DRAWN BY	SM	SARASOTA, FLORIDA 34232						
No.	REVISIONS	DATE	BY	CHECKED BY	MO					

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44TH AVENUE EAST



NOTES:

1. CONNECT THE NEW CONDUIT TO THE EXISTING SPLICE BOX. BUTT SPLICE THE NEW 96 SM FOC TO THE EXISTING 96 SM FOC AND LEAVE 200 LF OF FOC COILED IN THE SPLICE BOX.

SCALE		AS NOTED		HDR ENGINEERING, INC.		DATE		02/2022		DESIGN ENGINEER		LIYANAGE RATNAYAKE		SHEET NO.	
DESIGNED BY		IR		2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO.		6045662		FL. LICENSE NO.		77692		T-7	
DRAWN BY		SM		SARASOTA, FLORIDA 34232		PROJECT NO.		6045662		FL. LICENSE NO.		77692		T-7	
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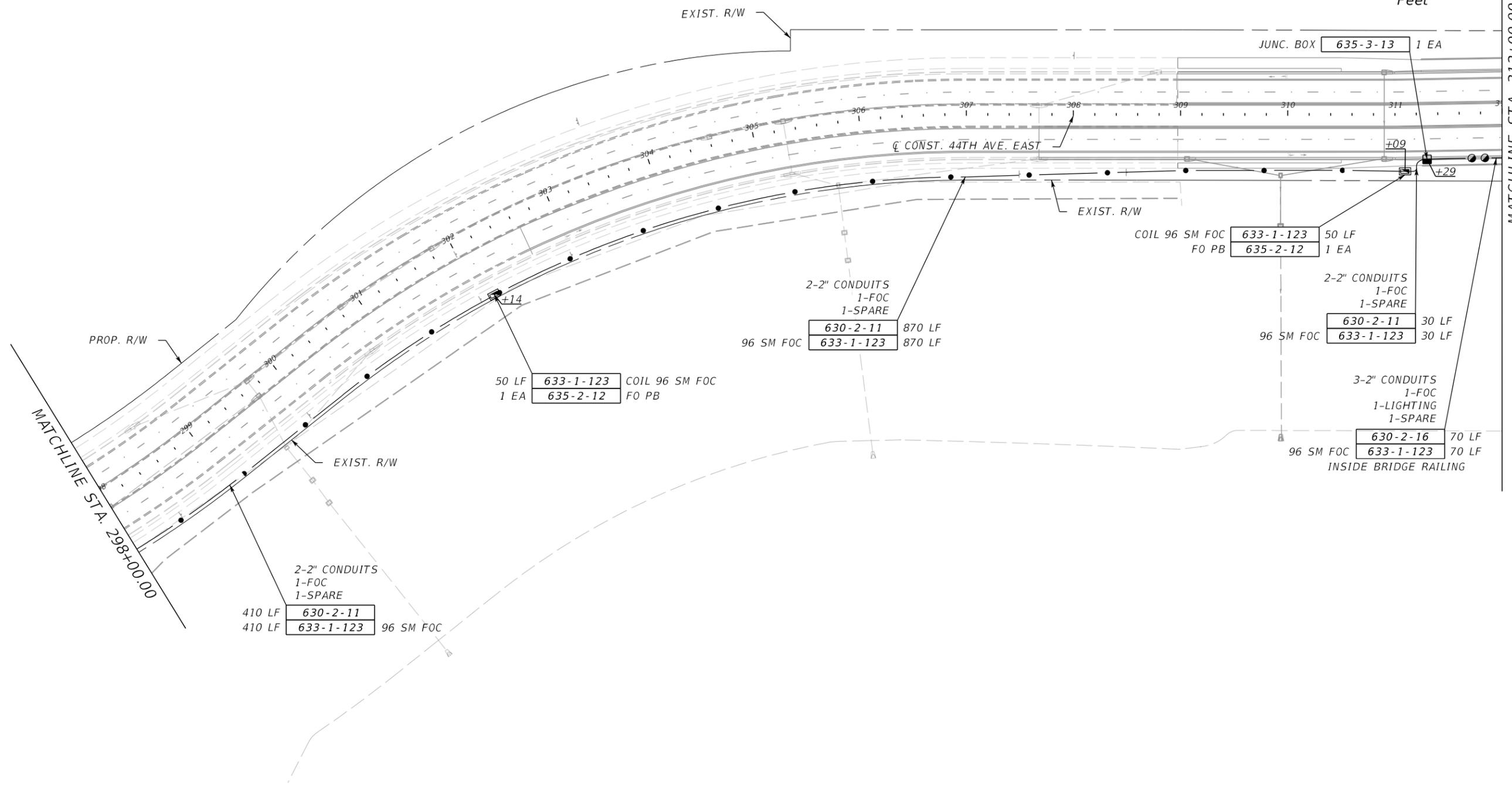
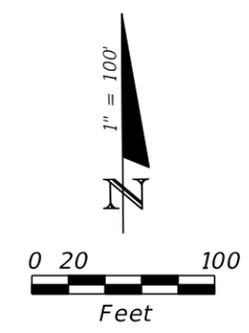
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MANATEE COUNTY
PUBLIC WORKS

ATMS PLAN (1)

44TH AVENUE EAST



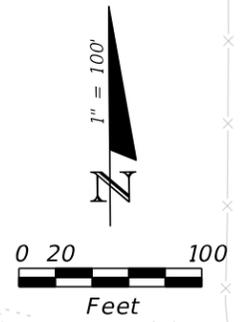
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MATCHLINE STA. 298+00.00

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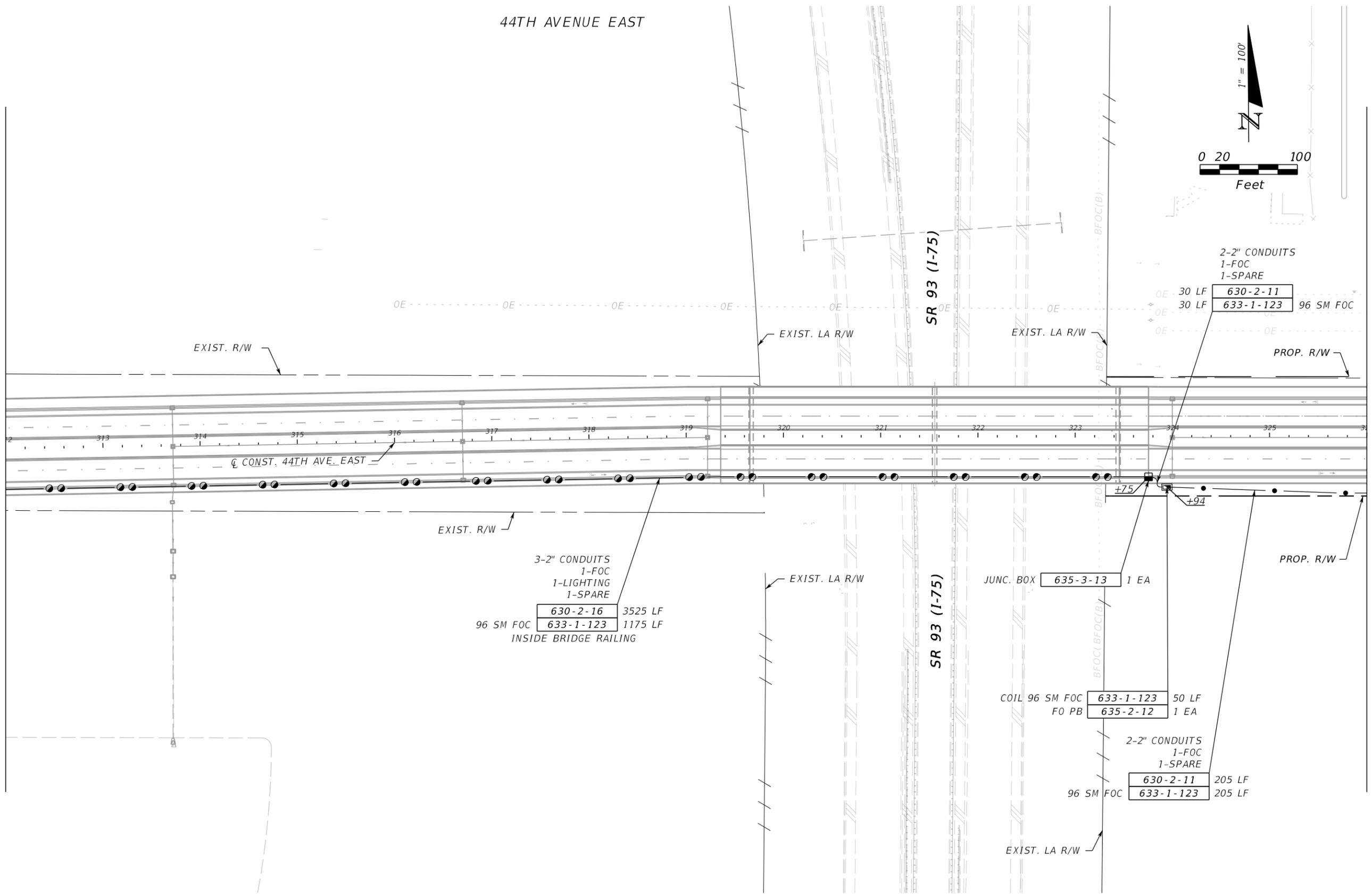
				SCALE	AS NOTED	HDR ENGINEERING, INC.		DATE	02/2022	 MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	LIYANAGE RATNAYAKE	<p style="text-align: center; font-size: 1.2em;">ATMS PLAN (2)</p>	SHEET NO.
				DESIGNED BY	IR	2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO.	6045662		FL. LICENSE NO.	77692		T-8
				DRAWN BY	SM	SARASOTA, FLORIDA 34232								
No.	REVISIONS			DATE	BY	MO								

44TH AVENUE EAST



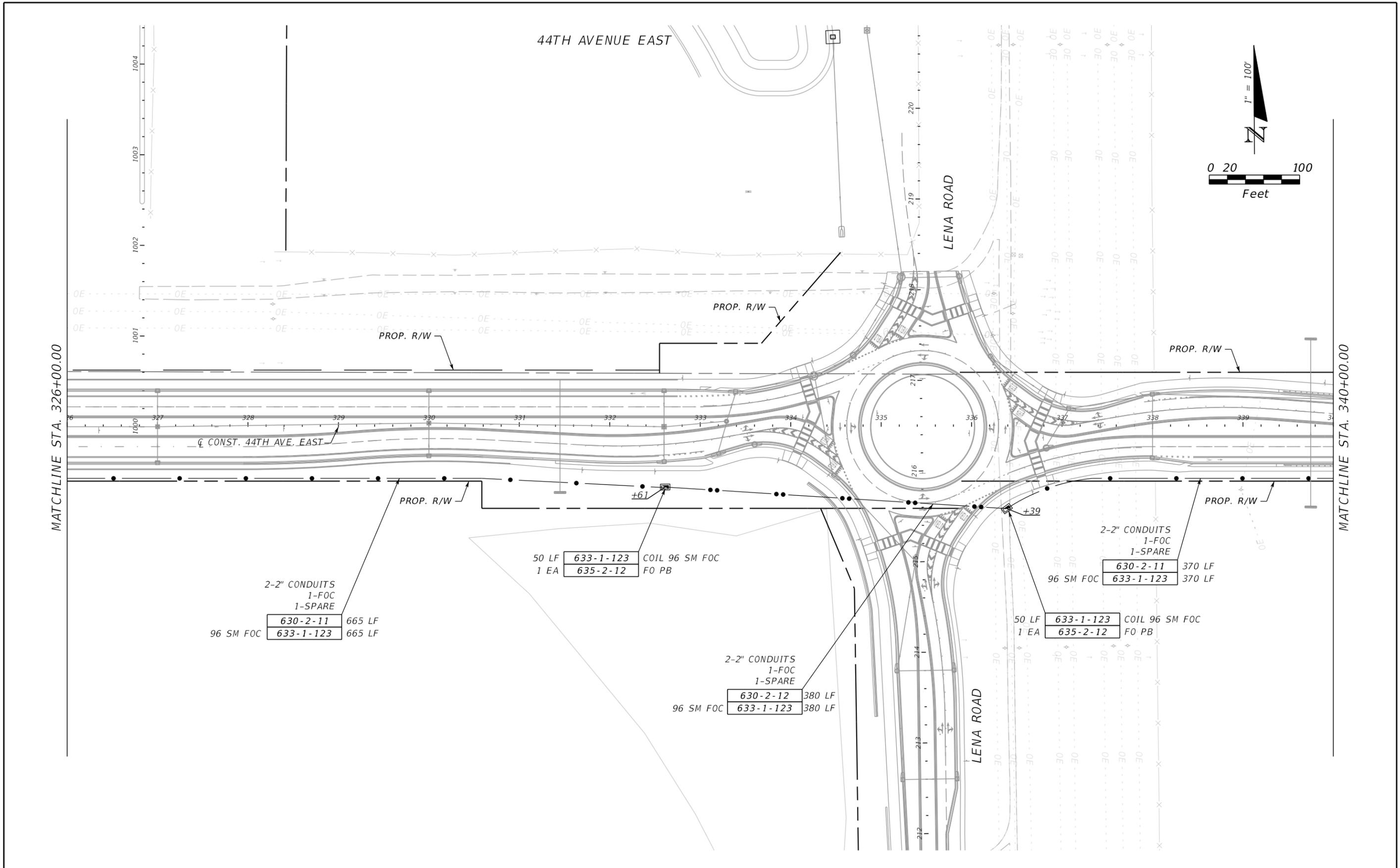
MATCHLINE STA. 312+00.00

MATCHLINE STA. 326+00.00



No.		REVISIONS		DATE	BY	MO	SCALE	AS NOTED	HDR ENGINEERING, INC.	DATE	02/2022	MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	LIYANAGE RATNAYAKE	ATMS PLAN (3)	SHEET NO.	T-9
							DESIGNED BY	IR	2601 CATTLEMEN ROAD, SUITE 400	PROJECT NO.	6045662		FL. LICENSE NO.	77692			
							DRAWN BY	SM	SARASOTA, FLORIDA 34232								
							CHECKED BY	MO									

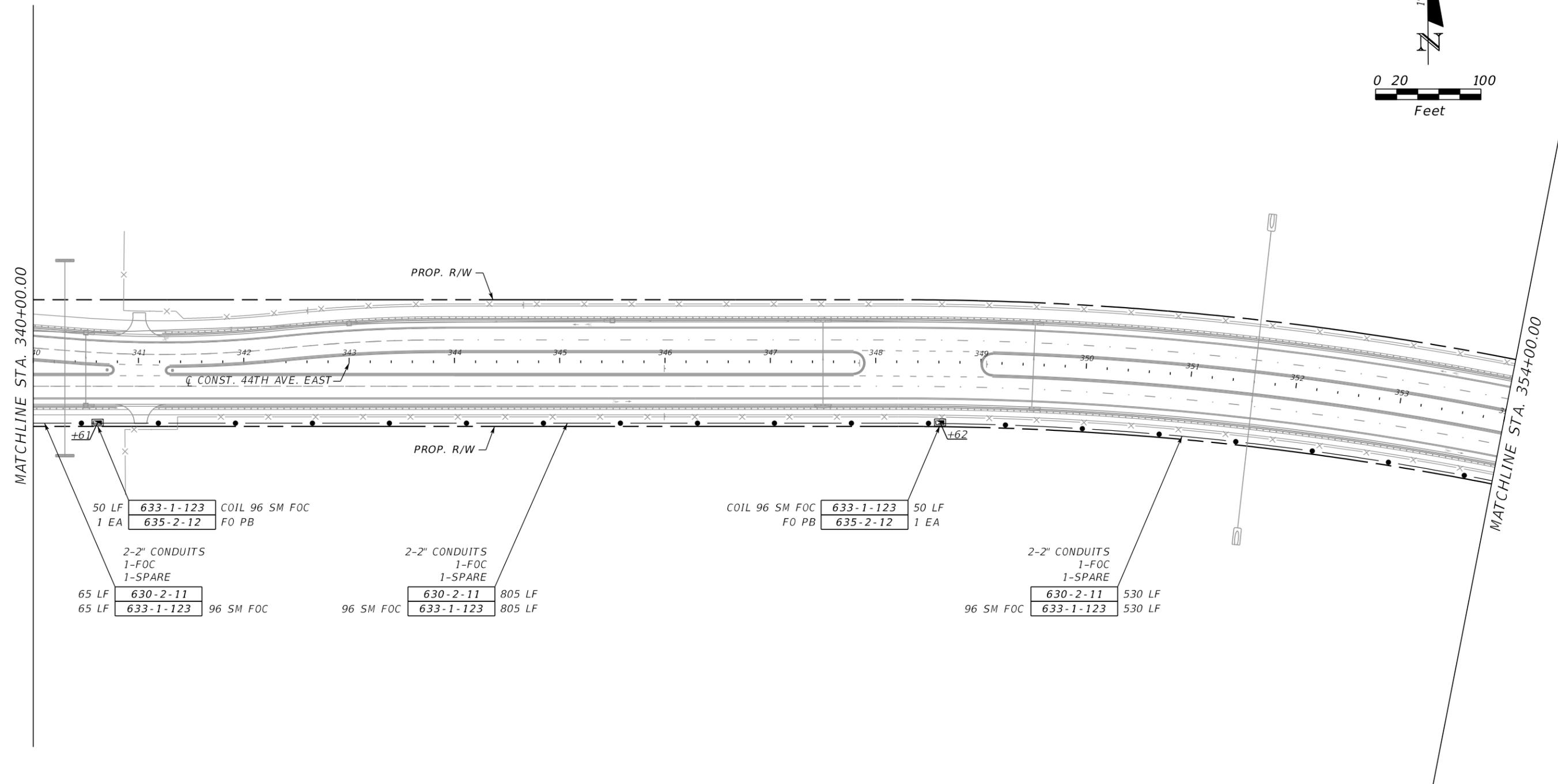
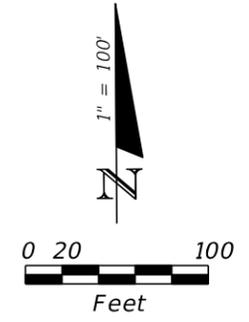
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No.		REVISIONS		DATE	BY	MO	SCALE AS NOTED	HDR ENGINEERING, INC. 2601 CATTLEMEN ROAD, SUITE 400 SARASOTA, FLORIDA 34232	DATE 02/2022	 MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER LIYANAGE RATNAYAKE	ATMS PLAN (4)	SHEET NO. T-10
							CHECKED BY SM	PROJECT NO. 6045662	FL. LICENSE NO. 77692				

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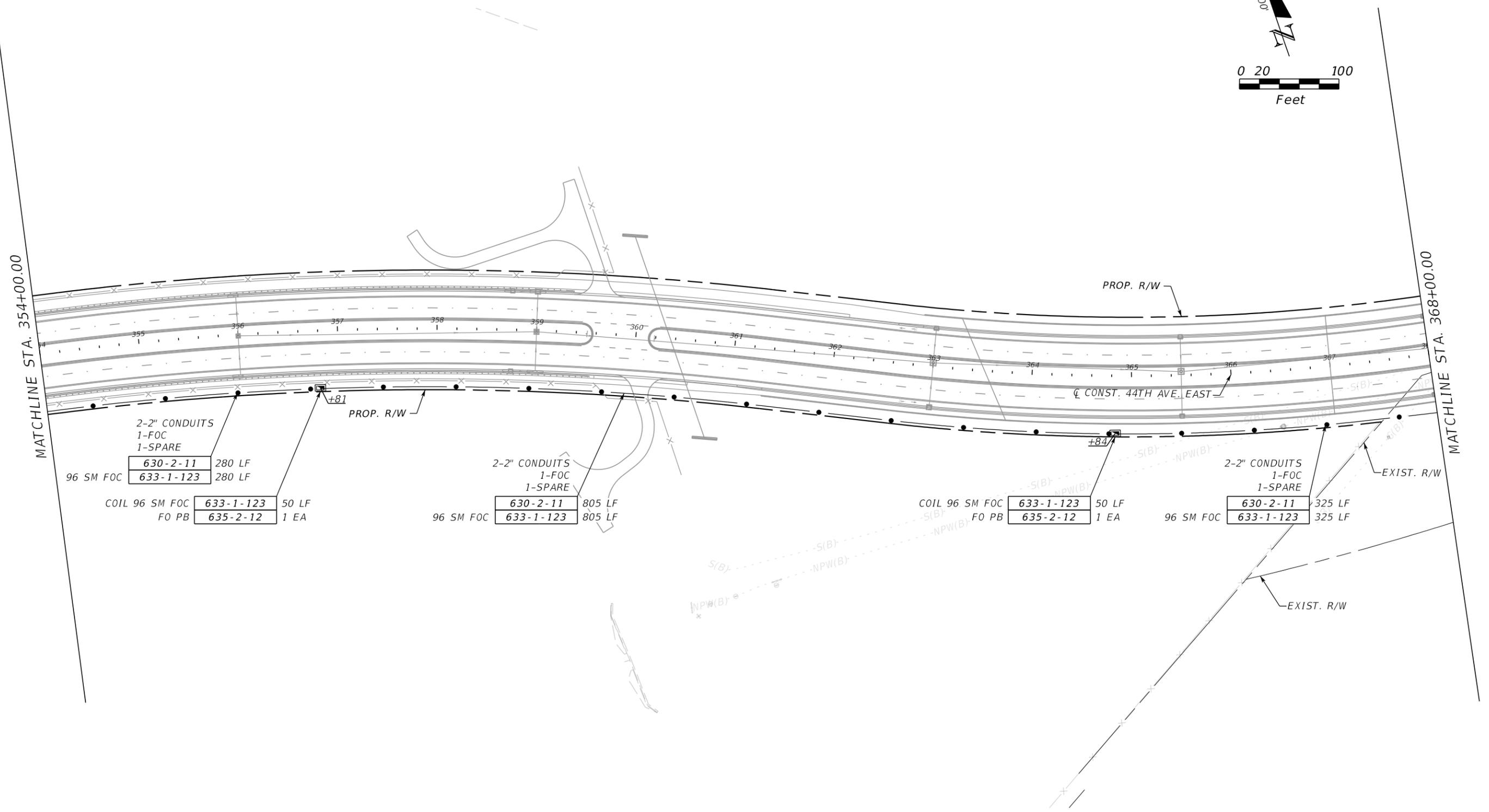
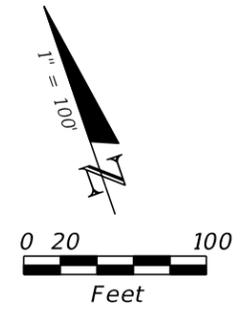
44TH AVENUE EAST



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				SCALE	AS NOTED	HDR ENGINEERING, INC.		DATE	02/2022	DESIGN ENGINEER	LIYANAGE RATNAYAKE	SHEET NO.
				DESIGNED BY	IR	2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO.	6045662	FL. LICENSE NO.	77692	
				DRAWN BY	SM	SARASOTA, FLORIDA 34232		MANATEE COUNTY PUBLIC WORKS				
				CHECKED BY	MO							ATMS PLAN (5)
No.	REVISIONS			DATE	BY							

44TH AVENUE EAST



2-2" CONDUITS
1-FOC
1-SPARE

96 SM FOC	630-2-11	280 LF
	633-1-123	280 LF

COIL 96 SM FOC 633-1-123 50 LF
FO PB 635-2-12 1 EA

2-2" CONDUITS
1-FOC
1-SPARE

96 SM FOC	630-2-11	805 LF
	633-1-123	805 LF

COIL 96 SM FOC 633-1-123 50 LF
FO PB 635-2-12 1 EA

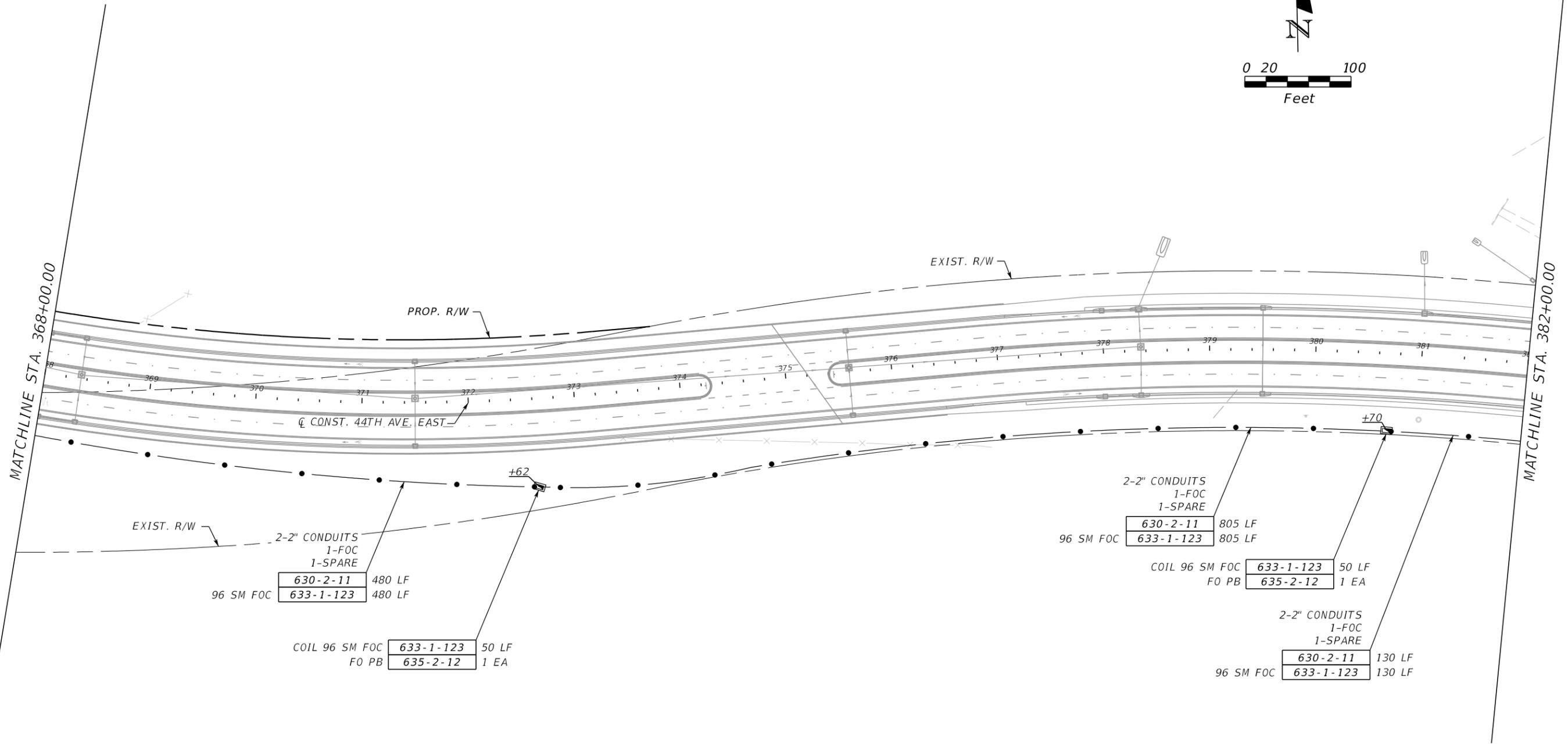
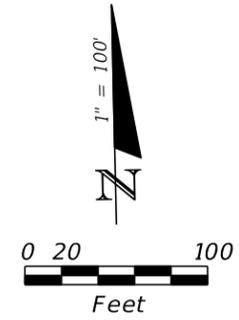
2-2" CONDUITS
1-FOC
1-SPARE

96 SM FOC	630-2-11	325 LF
	633-1-123	325 LF

No.	REVISIONS	DATE	BY	MO	SCALE AS NOTED	HDR ENGINEERING, INC. 2601 CATTLEMEN ROAD, SUITE 400 SARASOTA, FLORIDA 34232	DATE 02/2022	DESIGN ENGINEER LIYANAGE RATNAYAKE FL. LICENSE NO. 77692	SHEET NO. T-12
							PROJECT NO. 6045662	MANATEE COUNTY PUBLIC WORKS	

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

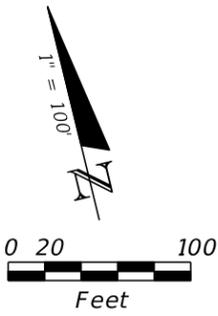
44TH AVENUE EAST



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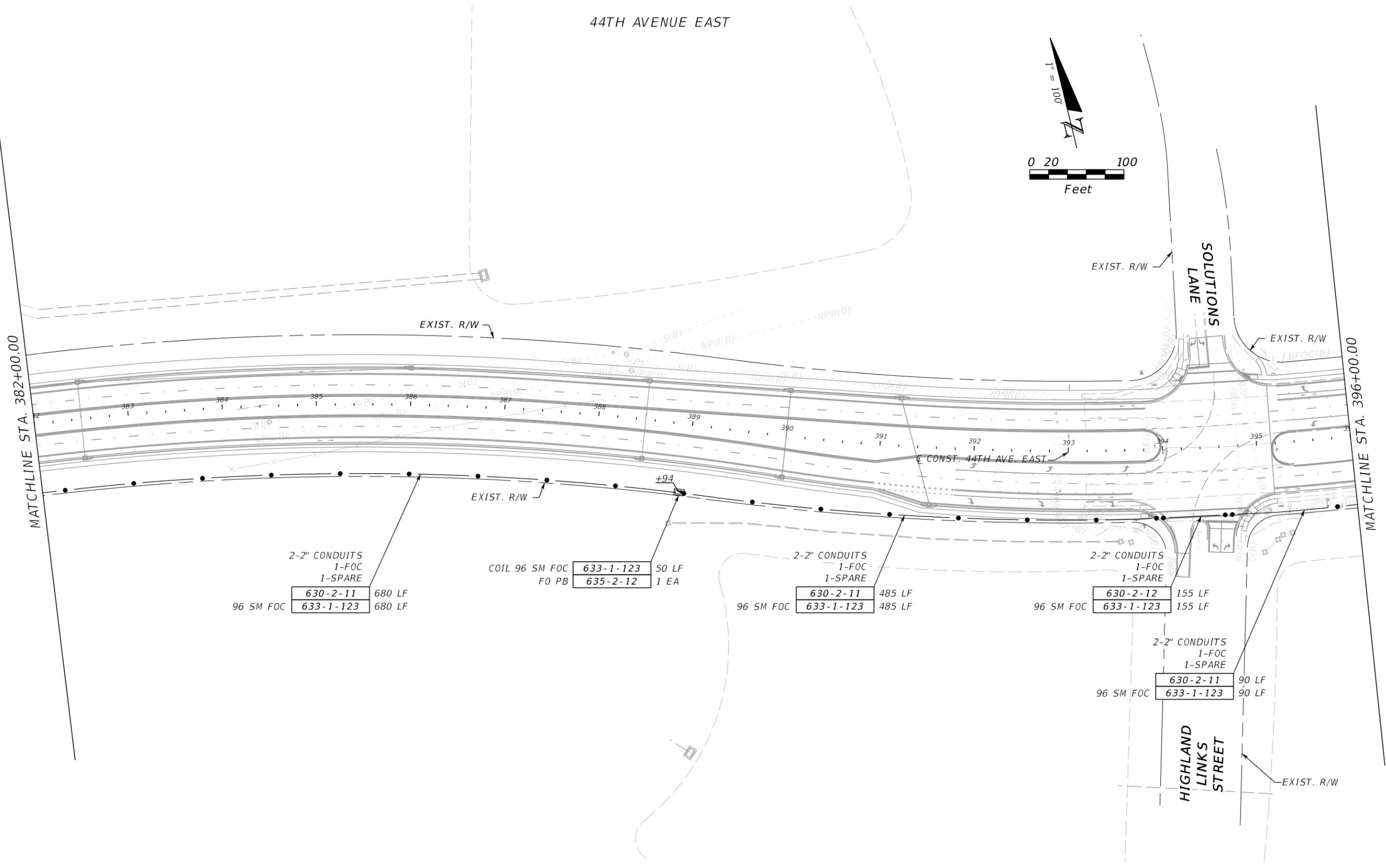
SCALE		AS NOTED		HDR ENGINEERING, INC.		DATE		02/2022		DESIGN ENGINEER		LIYANAGE RATNAYAKE		SHEET NO.	
DESIGNED BY		IR		2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO.		6045662		FL. LICENSE NO.		77692		ATMS PLAN (7)	
DRAWN BY		SM		SARASOTA, FLORIDA 34232		CHECKED BY		MO						T-13	
No.	REVISIONS			DATE	BY										

44TH AVENUE EAST



MATCHLINE STA. 382+00.00

MATCHLINE STA. 396+00.00



2-2" CONDUITS
1-FOC
1-SPARE
96 SM FOC

630-2-11	680 LF
633-1-123	680 LF

COIL 96 SM FOC
FO PB

633-1-123	50 LF
635-2-12	1 EA

2-2" CONDUITS
1-FOC
1-SPARE
96 SM FOC

630-2-11	485 LF
633-1-123	485 LF

2-2" CONDUITS
1-FOC
1-SPARE
96 SM FOC

630-2-12	155 LF
633-1-123	155 LF

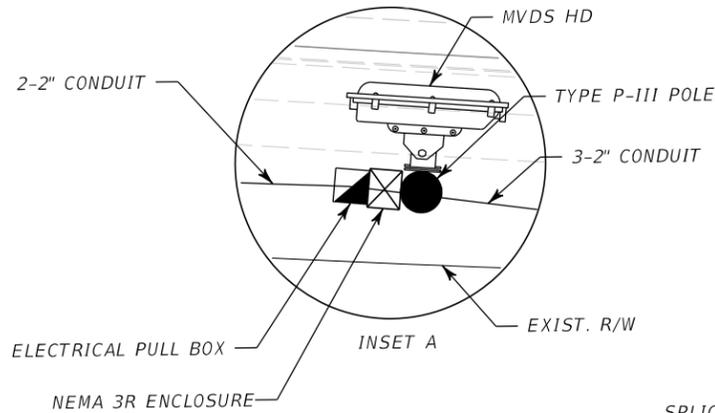
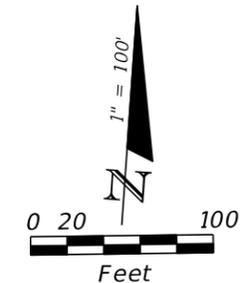
2-2" CONDUITS
1-FOC
1-SPARE
96 SM FOC

630-2-11	90 LF
633-1-123	90 LF

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SCALE	AS NOTED	HDR ENGINEERING, INC.		DATE	02/2022	 MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	ATMS PLAN (8)	SHEET NO.																																							
DESIGNED BY	IR	2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO.	6045662		LIYANAGE RATNAYAKE		FL. LICENSE NO. 77692		T-14																																					
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CHECKED BY	MO																																															
No.	REVISIONS	DATE	BY																																													

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44TH AVENUE EAST



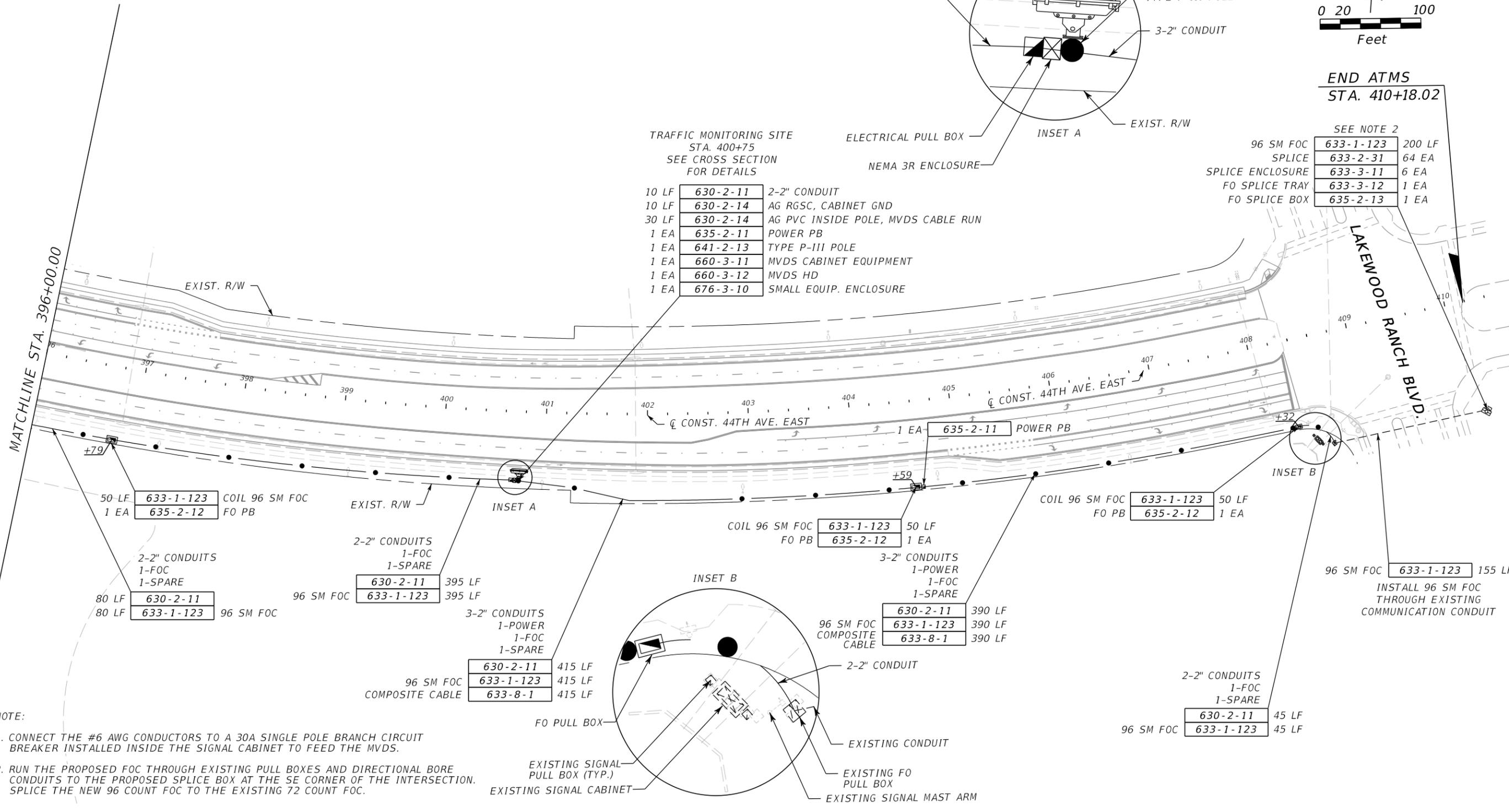
TRAFFIC MONITORING SITE
STA. 400+75
SEE CROSS SECTION
FOR DETAILS

10 LF	630-2-11	2-2" CONDUIT
10 LF	630-2-14	AG RGSC, CABINET GND
30 LF	630-2-14	AG PVC INSIDE POLE, MVDS CABLE RUN
1 EA	635-2-11	POWER PB
1 EA	641-2-13	TYPE P-III POLE
1 EA	660-3-11	MVDS CABINET EQUIPMENT
1 EA	660-3-12	MVDS HD
1 EA	676-3-10	SMALL EQUIP. ENCLOSURE

END ATMS
STA. 410+18.02

SEE NOTE 2

96 SM FOC	633-1-123	200 LF
SPLICE	633-2-31	64 EA
SPLICE ENCLOSURE	633-3-11	6 EA
FO SPLICE TRAY	633-3-12	1 EA
FO SPLICE BOX	635-2-13	1 EA

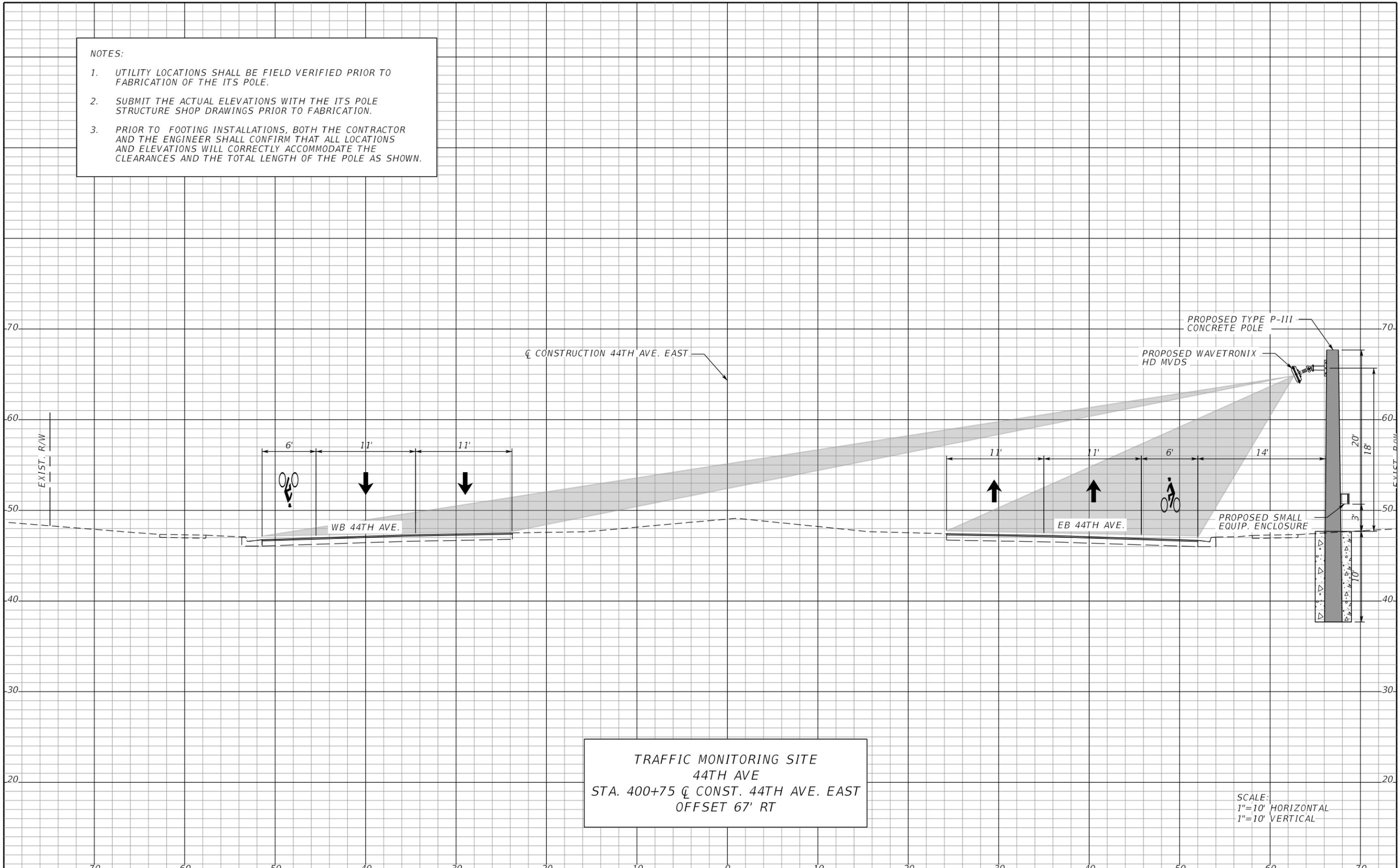


- NOTE:
- CONNECT THE #6 AWG CONDUCTORS TO A 30A SINGLE POLE BRANCH CIRCUIT BREAKER INSTALLED INSIDE THE SIGNAL CABINET TO FEED THE MVDS.
 - RUN THE PROPOSED FOC THROUGH EXISTING PULL BOXES AND DIRECTIONAL BORE CONDUITS TO THE PROPOSED SPLICE BOX AT THE SE CORNER OF THE INTERSECTION. SPLICE THE NEW 96 COUNT FOC TO THE EXISTING 72 COUNT FOC.

SCALE AS NOTED				HDR ENGINEERING, INC.		DATE 02/2022		DESIGN ENGINEER LIYANAGE RATNAYAKE		SHEET NO. T-15	
DESIGNED BY IR				2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO. 6045662		FL. LICENSE NO. 77692		ATMS PLAN (9)	
DRAWN BY SM				SARASOTA, FLORIDA 34232		PROJECT NO. 6045662		FL. LICENSE NO. 77692		T-15	
CHECKED BY MO											
No.	REVISIONS			DATE	BY						

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- NOTES:
1. UTILITY LOCATIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OF THE ITS POLE.
 2. SUBMIT THE ACTUAL ELEVATIONS WITH THE ITS POLE STRUCTURE SHOP DRAWINGS PRIOR TO FABRICATION.
 3. PRIOR TO FOOTING INSTALLATIONS, BOTH THE CONTRACTOR AND THE ENGINEER SHALL CONFIRM THAT ALL LOCATIONS AND ELEVATIONS WILL CORRECTLY ACCOMMODATE THE CLEARANCES AND THE TOTAL LENGTH OF THE POLE AS SHOWN.

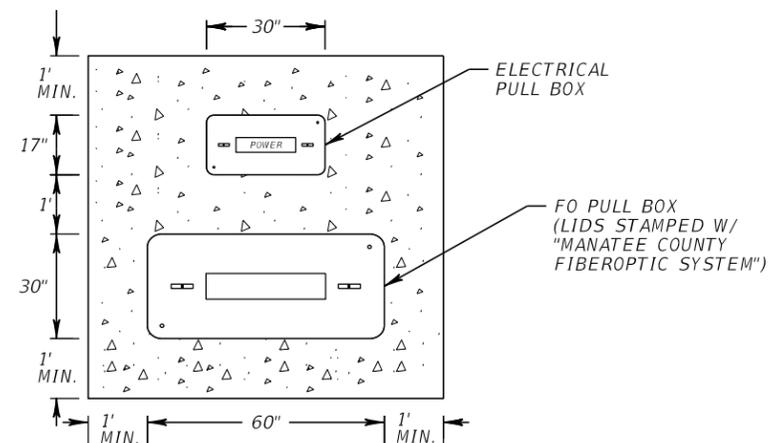
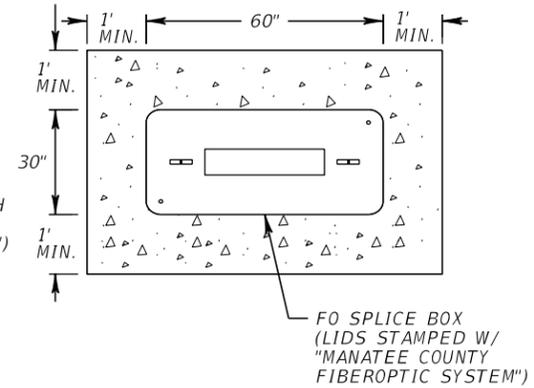
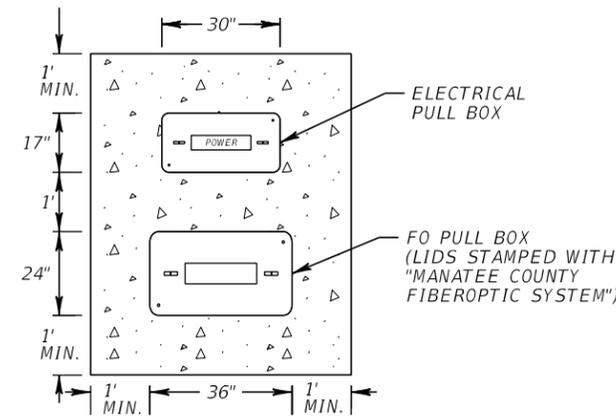
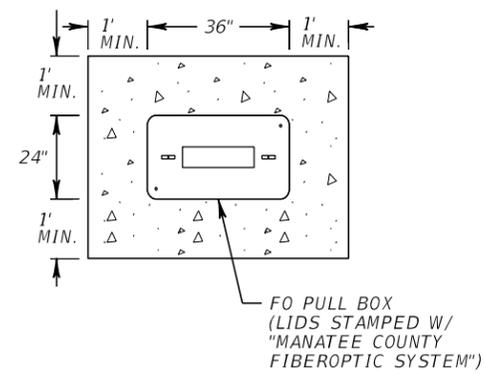
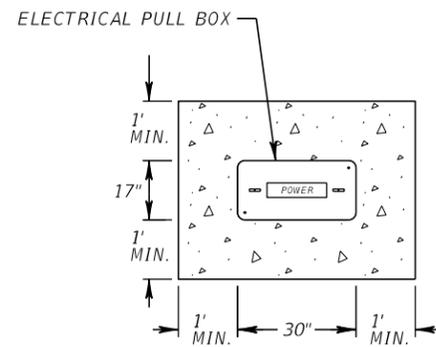


TRAFFIC MONITORING SITE
 44TH AVE
 STA. 400+75 Q CONST. 44TH AVE. EAST
 OFFSET 67' RT

SCALE:
 1"=10' HORIZONTAL
 1"=10' VERTICAL

SCALE AS NOTED		HDR ENGINEERING, INC.		DATE 02/2022		DESIGN ENGINEER LIYANAGE RATNAYAKE		TRAFFIC MONITORING SITE CROSS SECTION		SHEET NO. T-16
DESIGNED BY IR		2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO. 6045662		FL. LICENSE NO. 77692				
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CHECKED BY MO										
REVISIONS		DATE		BY						

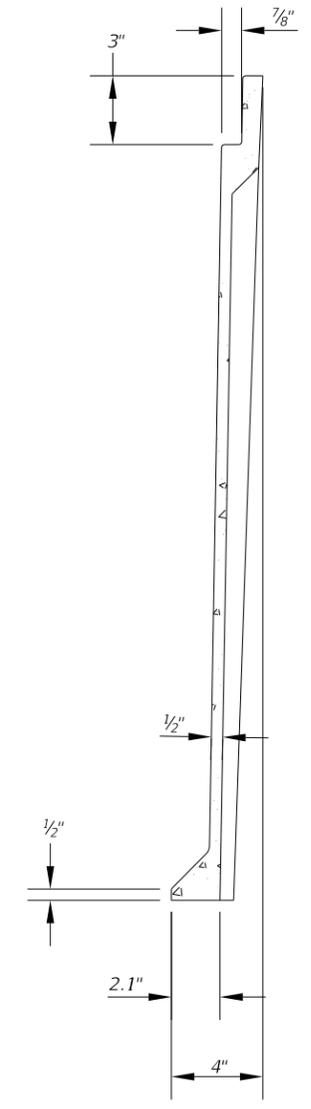
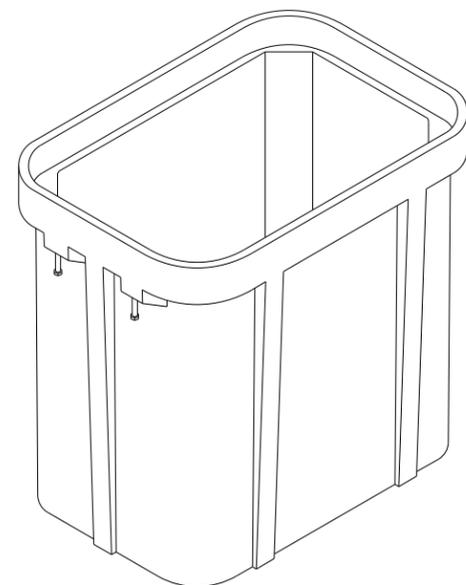
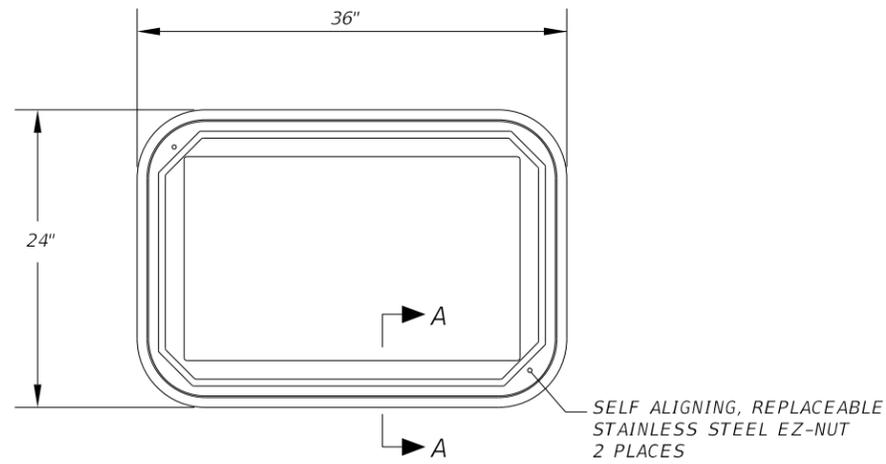
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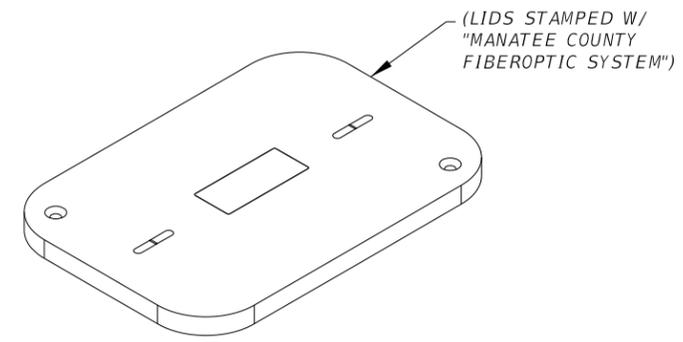
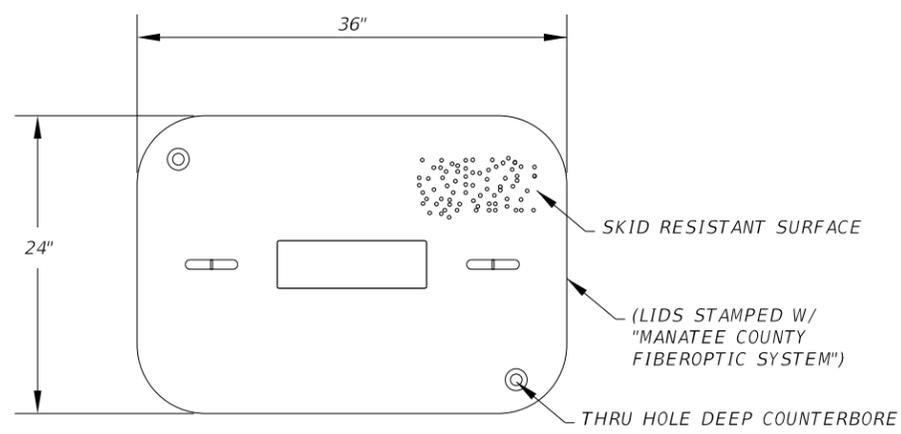
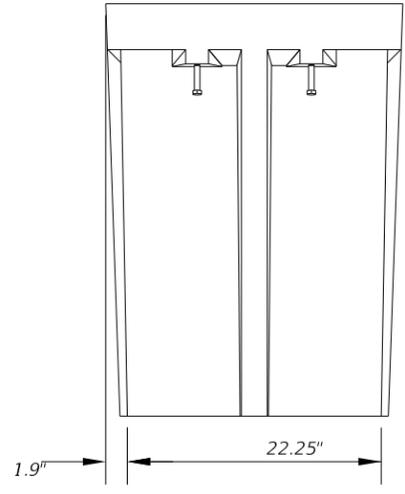
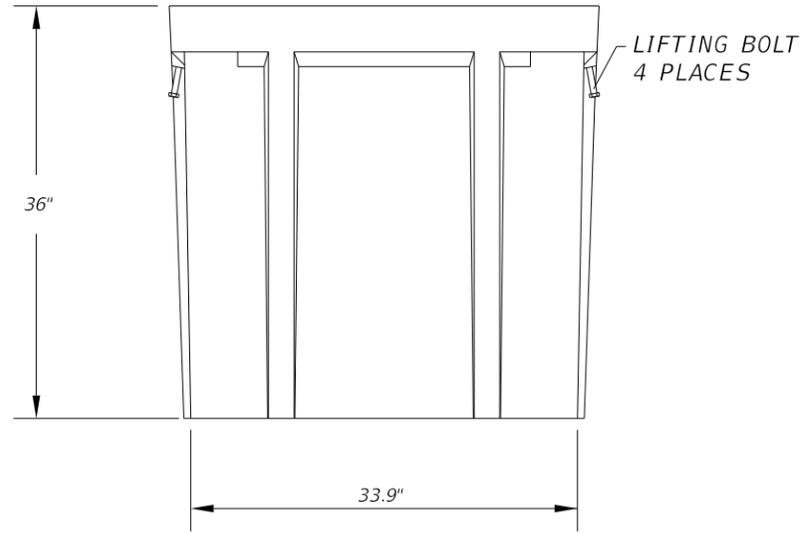
NOTES:

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	HDR ENGINEERING, INC.		DATE	02/2022	DESIGN ENGINEER	LIYANAGE RATNAYAKE	SHEET NO.	
				DESIGNED BY	IR	2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO.	6045662	FL. LICENSE NO.	77692	CONCRETE APRON DETAILS	T-17
				DRAWN BY	SM	SARASOTA, FLORIDA 34232		 MANATEE COUNTY PUBLIC WORKS					
No.	REVISIONS			DATE	BY	MO							

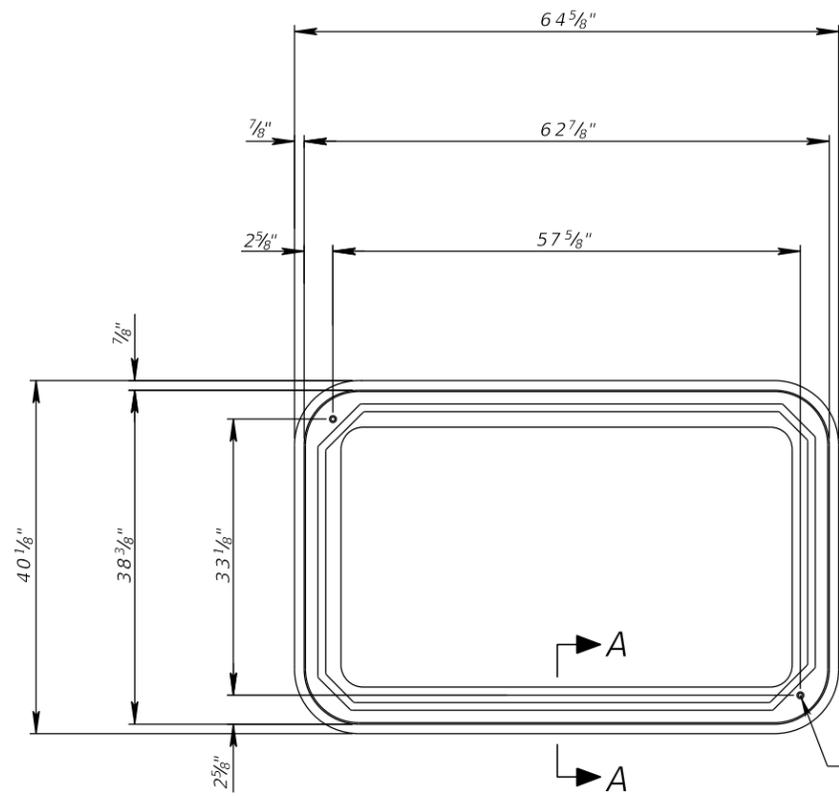


SECTION A-A

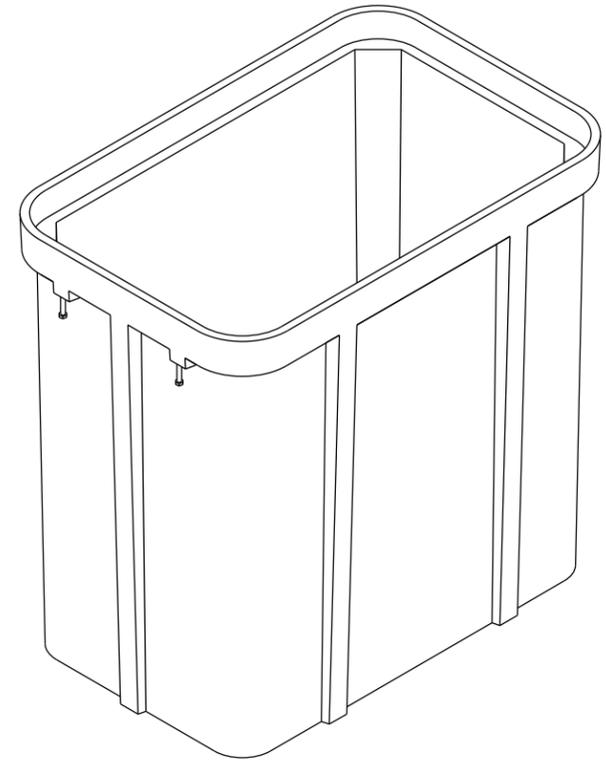


				SCALE	AS NOTED	HDR ENGINEERING, INC.		DATE	02/2022	 MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	FIBER OPTIC PULL BOX DETAILS	SHEET NO.	
				DESIGNED BY	IR	2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO.	6045662		FL. LICENSE NO.		77692	T-18
				DRAWN BY	SM	SARASOTA, FLORIDA 34232								
				CHECKED BY	MO									
No.	REVISIONS			DATE	BY									

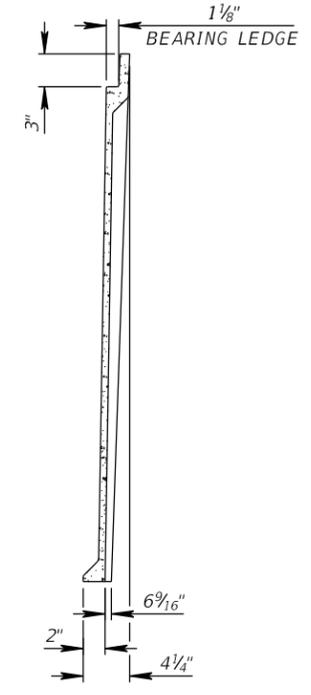
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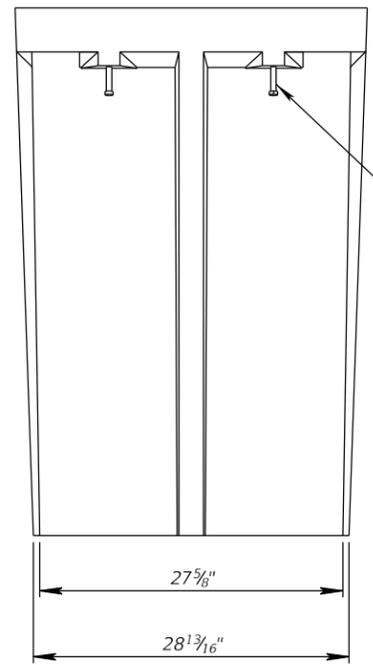
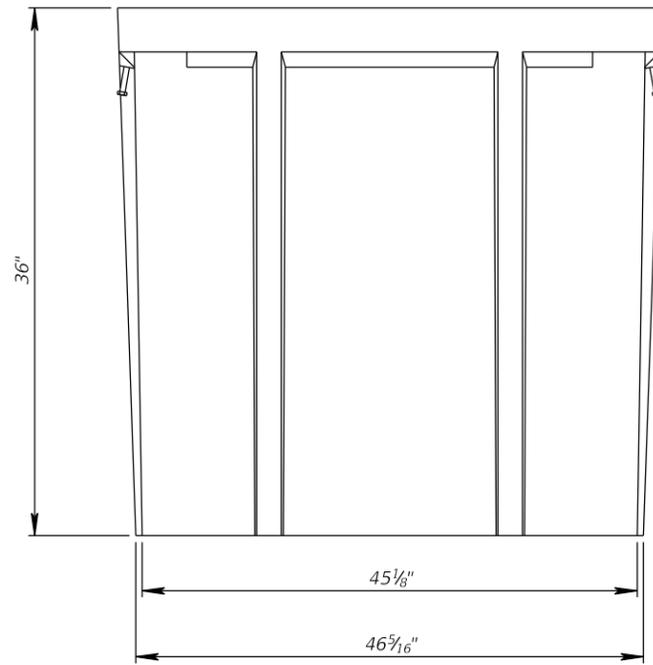
3/8"-7 SELF ALIGNING,
REPLACEABLE S.S. EZ-NUT
(2 PLACES)



30" W x 60" L x 48" D
DESIGN LOAD: 22,500 LBS



SECTION A-A

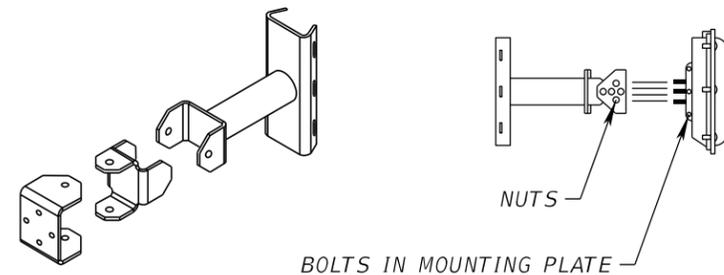
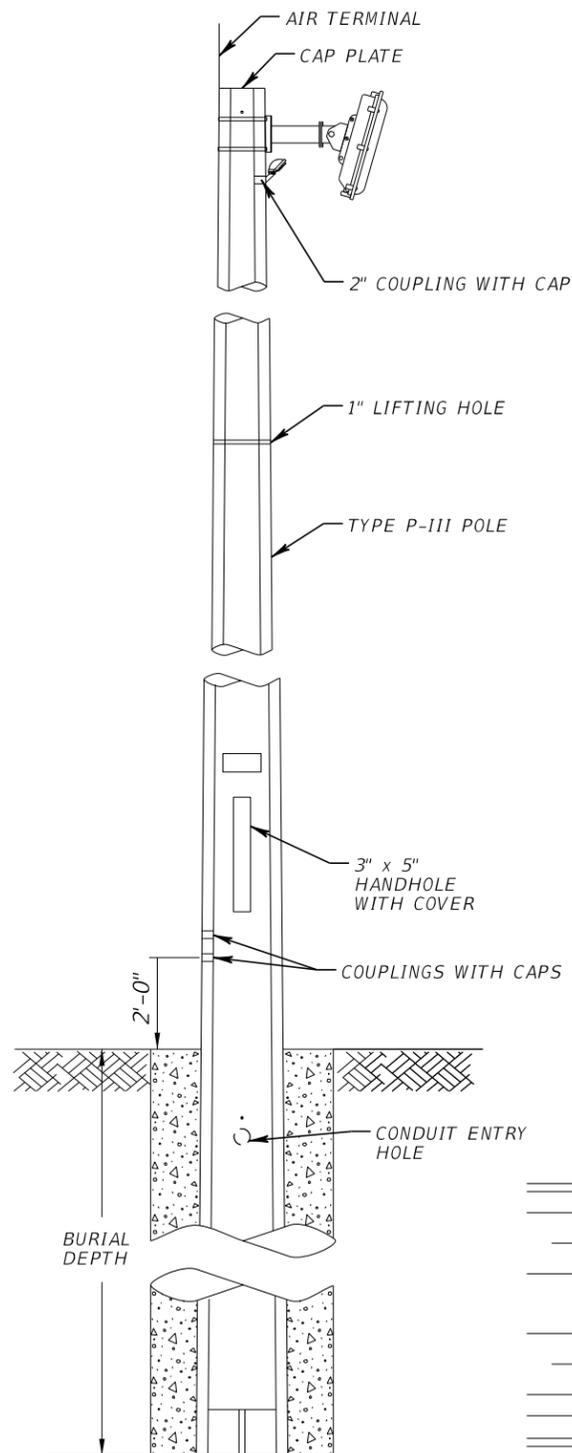


1/2"-13 UNC
LIFTING BOLT
4 PLACES

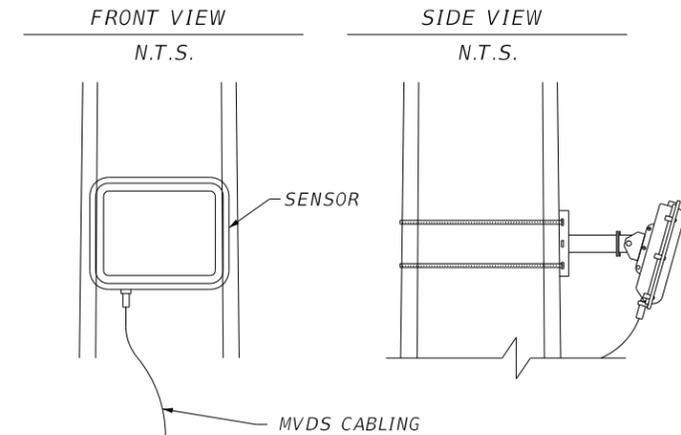
				SCALE AS NOTED	HDR ENGINEERING, INC.	DATE 02/2022	DESIGN ENGINEER LIYANAGE RATNAYAKE	FIBER OPTIC SPLICE BOX DETAILS	SHEET NO.
				DESIGNED BY IR	2601 CATTLEMEN ROAD, SUITE 400	PROJECT NO. 6045662	FL. LICENSE NO. 77692		T-19
				DRAWN BY SM	SARASOTA, FLORIDA 34232				
No.	REVISIONS	DATE	BY	CHECKED BY MO					

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SMART SENSOR ADVANCE
ATTACHMENT DETAIL
NTS



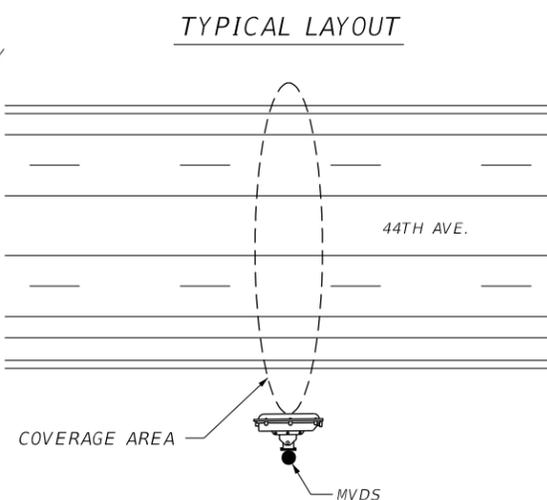
HD MVDS MOUNTING DETAILS
NTS

GROUNDING NOTES:

1. ALL EXOTHERMIC WELDS SHALL BE INSTALLED PER MANUFACTURER RECOMMENDATIONS.
2. USE EXOTHERMIC WELD MOLDS RECOMMENDED BY THE MANUFACTURER SPECIFIC TO EACH WELD APPLICATION. MOLDS SHALL BE APPROVED BY THE MANUFACTURER FOR #2 AWG TIN-PLATED SOLID CONDUCTOR WIRE.
3. THE STRUCTURE SHALL BE CONNECTED TO THE GROUNDING ARRAY.
4. GROUND WIRE LEADS SHALL BE BONDED TO EQUIPMENT CABINETS WITH A COPPER GROUND BAR. BOND SHALL BE LOCATED ON THE INSIDE OF THE CABINET WITH THE EARTH WIRE TERMINATED IN A CABLE LUG, BOLTED TO THE GROUND BAR AND PROTECTED WITH NO-OX COMPOUND.
5. THE GROUNDING SYSTEM SHALL MEET THE REQUIREMENT OF 5 OHMS OR LESS AS MEASURED FROM THE SIGN STRUCTURE USING THE THREE-POINT GROUND MEASUREMENT TECHNIQUE. REFER TO STANDARD SPEC. 630 FOR MORE DETAILS ON GROUNDING INSTALLATION REQUIREMENTS.
6. GROUNDING CONDUCTOR SHALL BE BONDED AT TOP AND BOTTOM OF RIGID GALVANIZED CONDUIT PER N.E.C.
7. ALL GROUNDING MATERIALS SHALL MEET THE REQUIREMENTS OF SECTION 630 OF THE FDOT SPECIFICATIONS UNLESS OTHERWISE NOTED.
8. 5/8" x 24" ZINC ANODE ROD. INSTALL A COMPRESSION FITTING TO ZINC ANODE ROD TO DIRECTLY CONNECT # 2 AWG TIN-PLATED BARE COPPER WIRE TO MAIN GROUND ROD.
9. INSTALL GROUND ENHANCEMENT MATERIALS PER MANUFACTURER'S RECOMMENDATION AT GROUNDING ARRAYS.

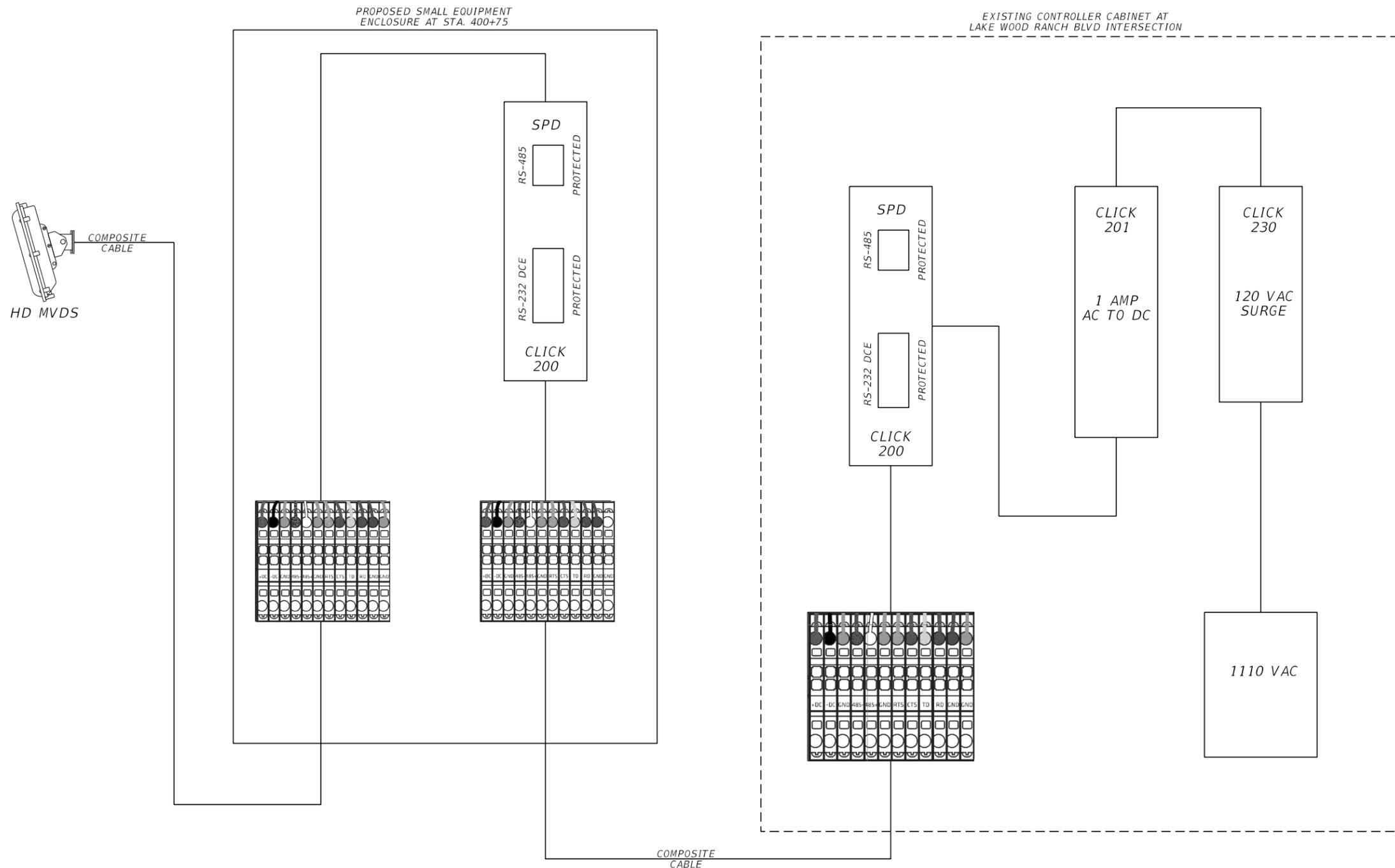
NOTES:

1. COMPONENT ARMS FOR THE MVDS ARE TO BE ATTACHED TO THE POLE USING 1/2" OR GREATER STAINLESS STEEL BANDING.
2. SET UP VIRTUAL SPEED PAIRS ACCORDING TO THE REQUIREMENTS OF THE MVDS USER MANUAL.
3. FABRICATE AND INSTALL THE TYPE P-III POLE ENSURING THE HAND HOLE WITH COVER, THE CONDUIT ENTRY HOLE, AND THE COUPLERS ARE IN CONFORMANCE WITH THE STANDARD PLANS INDEX 641-010, AND ACCEPTABLE ITS CABINET MOUNTING IS ACHIEVED.
4. INSTALL THE ITS CABINET, GROUND ROD ARRAY, AND AIR TERMINAL IN CONFORMANCE WITH THE STANDARD PLANS INDEX 641-020.
5. ALL ABOVE GROUND CONDUITS SHALL BE INSIDE THE POLE EXCEPT FOR THE GROUNDING CONDUIT.



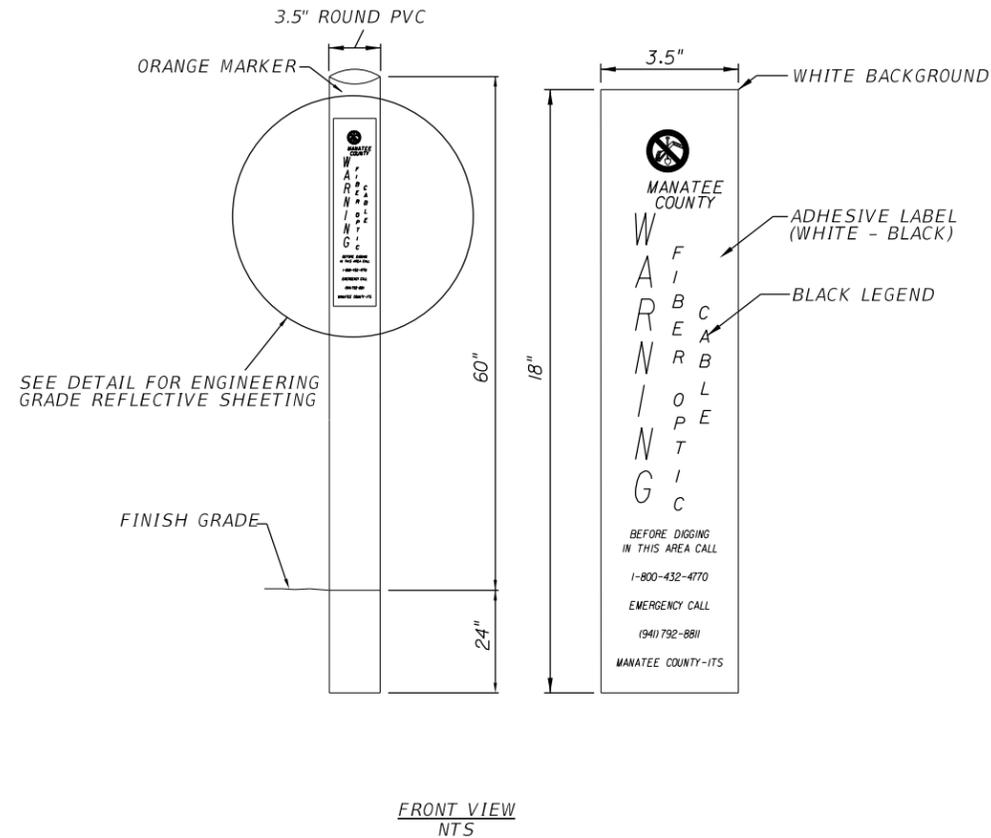
				SCALE	AS NOTED	HDR ENGINEERING, INC.		DATE	02/2022	DESIGN ENGINEER	LIYANAGE RATNAYAKE	SHEET NO.
				DESIGNED BY	IR	2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO.	6045662	FL. LICENSE NO.	77692	
				DRAWN BY	SM	SARASOTA, FLORIDA 34232		MANATEE COUNTY PUBLIC WORKS		MVDS SITE INSTALLATION DETAIL		
				CHECKED BY	MO			MANATEE COUNTY FLORIDA				
No.	REVISIONS			DATE	BY							

MVDS CONNECTION DIAGRAM



		SCALE	AS NOTED	HDR ENGINEERING, INC. 2601 CATTLEMEN ROAD, SUITE 400 SARASOTA, FLORIDA 34232	DATE	02/2022	MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	LIYANAGE RATNAYAKE	MVDS BLOCK DIAGRAM	SHEET NO.
		DESIGNED BY	IR		PROJECT NO.	6045662	FL. LICENSE NO.	77692	T-21		
No.	REVISIONS	DATE	BY	MO							

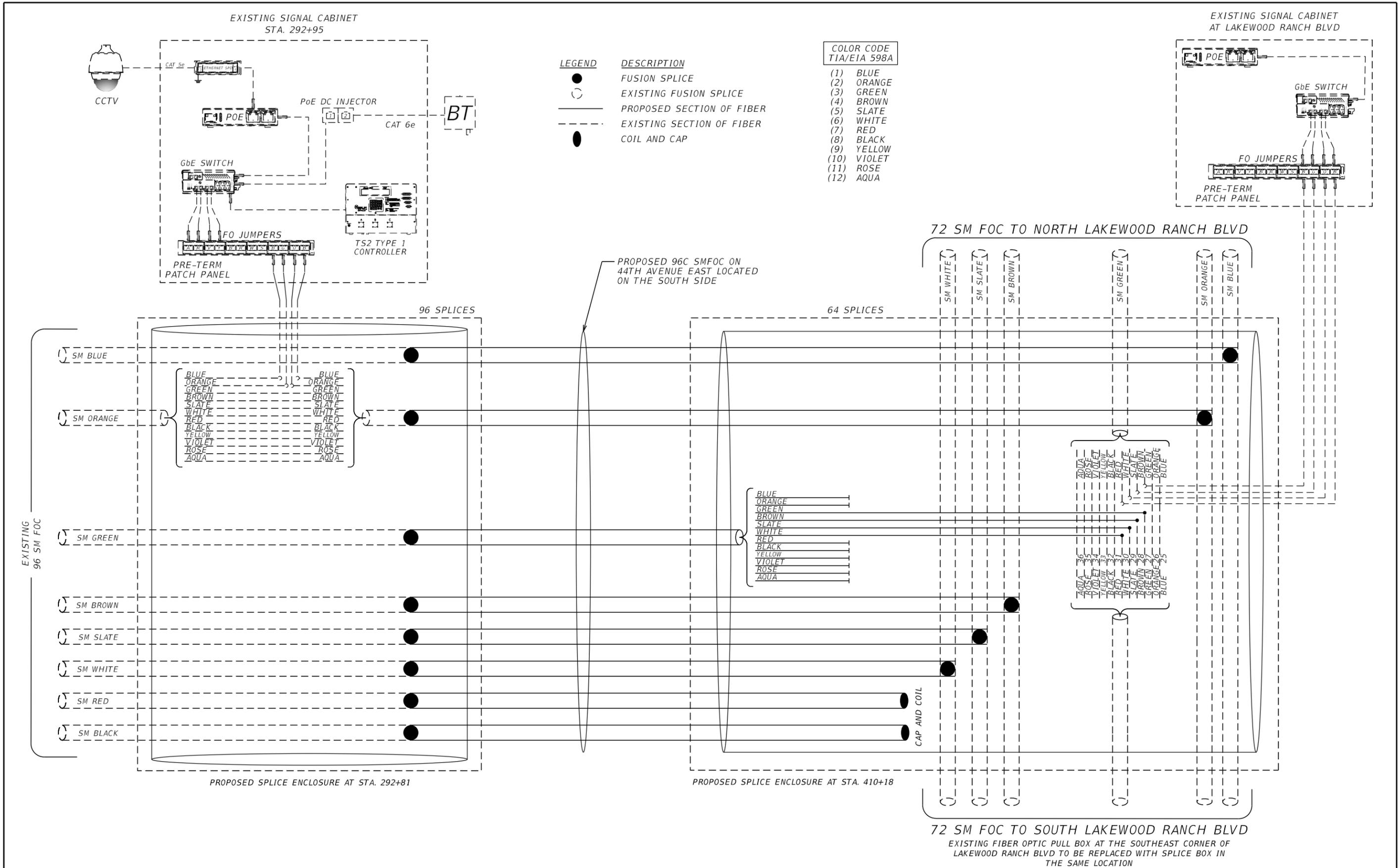
FIBER OPTIC CABLE ROUTE MARKER



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.
6. ALL ROUTE MARKERS SHALL MEET SECTION 630 OF STANDARD SPECIFICATIONS.

				SCALE	AS NOTED	HDR ENGINEERING, INC.		DATE	02/2022	DESIGN ENGINEER	LIYANAGE RATNAYAKE		SHEET NO.
				DESIGNED BY	IR	2601 CATTLEMEN ROAD, SUITE 400		PROJECT NO.	6045662	FL. LICENSE NO.	77692		T-22
				DRAWN BY	SM	SARASOTA, FLORIDA 34232		 MANATEE COUNTY PUBLIC WORKS		CABLE ROUTE MARKER DETAIL			
No.	REVISIONS			DATE	BY	MO							



SCALE AS NOTED DESIGNED BY IR DRAWN BY SM CHECKED BY MO				HDR ENGINEERING, INC. 2601 CATTLEMEN ROAD, SUITE 400 SARASOTA, FLORIDA 34232		DATE 02/2022 PROJECT NO. 6045662		MANATEE COUNTY PUBLIC WORKS		DESIGN ENGINEER LIYANAGE RATNAYAKE FL. LICENSE NO. 77692		SPLICING DIAGRAM		SHEET NO. T-23
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THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.