CONTRACT PLANS COMPONENTS

ROADWAY PLANS
SIGNING AND PAVEMENT MARKINGS PLANS
SIGNALIZATION PLANS

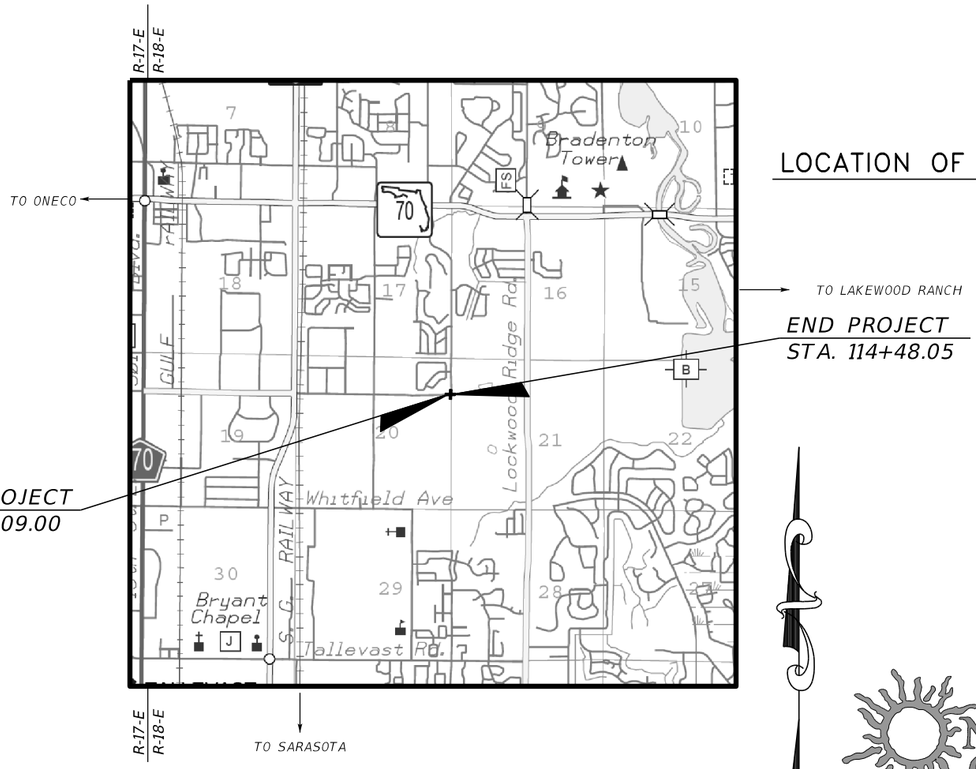
INDEX OF ROADWAY PLANS

* This sheet is included for information only.

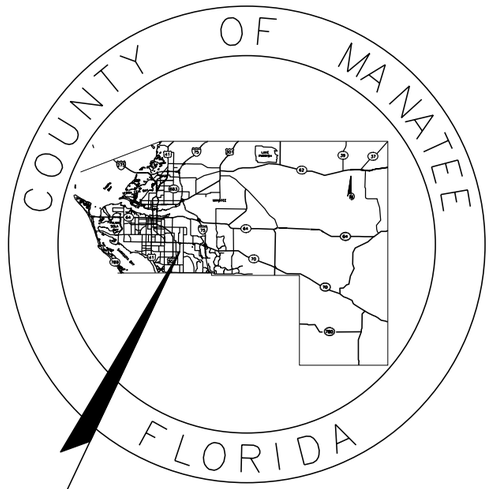
MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

CONTRACT PLANS

MANATEE COUNTY
PROJECT NUMBER # 6065961
TUTTLE AVENUE AT 63RD AVENUE EAST (HONORE AVE)
INTERSECTION IMPROVEMENTS
ROADWAY PLANS



THIS PROJECT TO BE LET TO CONTRACT
WITH PROJECT ID(S):
CIP 6107860



LOCATION OF PROJECT

90% SUBMITTAL
12/2023

ROADWAY PLANS ENGINEER OF RECORD:

JASON L. STARR, P.E.
P.E. NO.: 70171
HDR ENGINEERING, INC.
401 N CATTLEMEN ROAD, SUITE 210
SARASOTA, FLORIDA 34232
VENDOR NO. 47-0680568

MANATEE CO. PROJECT MANAGER:
ANTHONY RUSSO, P.E.

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY2023-24 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: http://www.fdot.gov/design/standardplans

APPLICABLE IRs: N/A

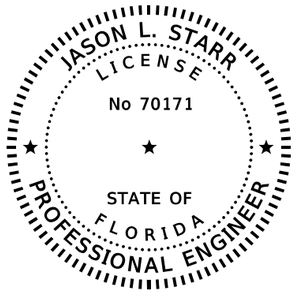
GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, FY2023-24 Standard Specifications for Road and Bridge Construction at the following website: http://www.fdot.gov/programmanagement/Implemented/SpecBooks

PROJECT LENGTH IS BASED ON C/L OF CONSTRUCTION

LENGTH OF PROJECT		
	LINEAR FEET	MILES
ROADWAY	2533.00	0.480
EXCEPTIONS	0.00	0.00
GROSS LENGTH OF PROJECT	2533.00	0.480

FISCAL YEAR	SHEET NO.
23	1



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY

ON THE DATE ADJACENT TO THE SEAL

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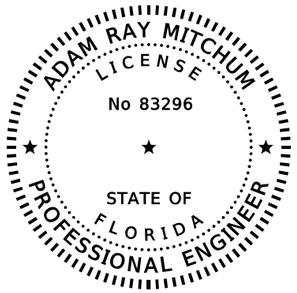
HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FLORIDA 34232-6441
JASON L. STARR, PE NO. 70171

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

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	SIGNATURE SHEET
3	SUMMARY OF PAY ITEMS
4 - 5	TYPICAL SECTION
7	PROJECT LAYOUT
8	CURVE & COORDINATE DATA
9	GENERAL NOTES
10 - 15	ROADWAY PLAN
16 - 21	ROADWAY PROFILE
22	INTERSECTION DETAIL
28 - 46	CROSS SECTIONS
57 - 60	TEMPORARY TRAFFIC CONTROL PLAN
61 - 66	UTILITY ADJUSTMENTS



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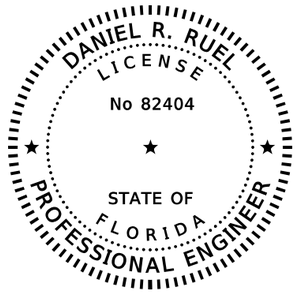
HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232-6441
ADAM RAY MITCHUM, PE NO. 83296

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

SHEET NO.	SHEET DESCRIPTION
2	SIGNATURE SHEET
6	SUMMARY OF DRAINAGE STRUCTURES
23 - 27	DRAINAGE STRUCTURES
47 - 50	STORMWATER POLLUTION PREVENTION PLAN
51 - 56	EROSION CONTROL PLAN



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TIERRA, INC.
7351 TEMPLE TERRACE HIGHWAY
TAMPA, FL 33637
DANIEL R. RUEL, PE NO. 82404

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

SHEET NO.	SHEET DESCRIPTION
2	SIGNATURE SHEET
GR-1	ROADWAY SOIL SURVEY
GR-2 - GR-3	ROADWAY SOIL PROFILES
GR-4	ORGANIC DELINEATION PLAN

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

SIGNATURE SHEET

SHEET NO.: 2

ROADWAY			
ITEM NO.	ITEM	UNIT	QUANTITY
104-10-3	SEDIMENT BARRIER	LF	2332
101-15	SOIL TRACKING PREVENTION DEVICE	EA	2
104-18	INLET PROTECTION SYSTEM	EA	4
107-1	LITTER REMOVAL	AC	9.88
107-2	MOWING	AC	9.88
110-1-1	CLEARING AND GRUBBING	AC	6.35
110-4-10	REMOVAL OF EXISTING CONCRETE	SY	2273
120-1	REGULAR EXCAVATION	CY	4780
120-4	SUBSOIL EXCAVATION	CY	1775
120-6	EMBANKMENT	CY	3273
160-4	TYPE B STABILIZATION	SY	18532
285-709	OPTIONAL BASE GROUP 09	SY	17042
327-70-6	MILLING EXIST ASPH PAVT, 1 1/2" AVG DEPTH	SY	1889
334-1-13	SUPERPAVE ASPHALTIC CONCRETE TRAFFIC C	TN	2716.8
337-7-83	ASPHALT CONCRETE FRICTION COURSE, TRAFFIC C, FC-12.5, PG 76-22	TN	2337.4
425-1-351	INLETS, CURB, TYPE P-5, <10'	EA	7
425-1-361	INLETS, CURB, TYPE P-6, <10	EA	4
425-1-451	INLETS, CURB, TYPE J-5, <10'	EA	1
425-2-61	MANHOLES, P-8, <10'	EA	3
425-6	VALVE BOXES, ADJUST	EA	12
430-175-118	PIPE CULVERT, OPTIONAL MATERIAL, ROUND, 18" S/CD	LF	744
430-175-124	PIPE CULVERT, OPTIONAL MATERIAL, ROUND, 24" S/CD	LF	4
430-175-130	PIPE CULVERT, OPTIONAL MATERIAL, ROUND, 30" S/CD	LF	8
430-175-218	PIPE CULVERT, OPTIONAL MATERIAL, OTHER-ELIP/ARCH, 18"S/CD	LF	359
430-175-224	PIPE CULVERT, OPTIONAL MATERIAL, OTHER SHAPE-ELIP/ARCH, 24"S/CD	LF	222
520-1-10	CONCRETE CURB AND GUTTER, TYPE F	LF	3234
520-2-4	CONCRETE CURB, TYPE D	LF	32
520-3	VALLEY GUTTER - CONCRETE	LF	122
520-5-41	TRAFFIC SEPARATOR CONCRETE- TYPE IV, 4' WIDE	LF	1082
520-70	CONCRETE TRAFFIC SEPARATOR, SPECIAL- VARIABLE WIDTH	SY	177
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4" THICK	SY	1764
522-2	CONCRETE SIDEWALK AND DRIVEWAYS, 6" THICK	SY	262
527-2	DETECTABLE WARNINGS	SF	95
570-1-2	PERFORMANCE TURF (SOD)	SY	6759
MC-R-01	WOODLAND TRACE VEHICLE DETECTION	LS	1

SIGNING & PAVEMENT MARKING			
ITEM NO.	ITEM	UNIT	QUANTITY
700-1-11	SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	AS	23
700-1-50	SINGLE POST SIGN, RELOCATE	AS	3
700-1-60	SINGLE POST SIGN, REMOVE	AS	2
700-1-74	SINGLE POST SIGN, F&I CUSTOM, 31+ SF	AS	3
700-3-101	SIGN PANEL, FURNISH & INSTALL GROUND MOUNT, UP TO 12 SF	EA	6
700-13-15	RETROREFLECTIVE SIGN STRIP, FURNISH AND INSTALL, 5'	EA	1
704-1-2	TUBULAR MARKER, DURABLE, 36" YELLOW POST	EA	5
705-10-1	OBJECT MARKER, TYPE 1	EA	3
706-1-3	RAISED PAVEMENT MARKER ,TYPE B	EA	374
710-11-290	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, ISLAND NOSE	SF	63
710-90	PAINTED PAVEMENT MARKINGS, FINAL SURFACE	LS	1
711-11-102	THERMOPLASTIC, STANDARD, WHITE, SOLID, 8" FOR INTERCHANGE AND URBAN ISLAND	GM	0.159
711-11-123	THERMOPLASTIC, STANDARD, WHITE, SOLID, 12" FOR CROSSWALK AND ROUNDABOUT	LF	909
711-11-124	THERMOPLASTIC, STANDARD, WHITE, SOLID, 18" FOR DIAGONALS AND CHEVRONS	LF	401
711-11-125	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24" FOR STOP LINE	LF	224
711-11-141	THERMOPLASTIC, STANDARD, WHITE, 2-4 DOTTED GUIDELINE/ 6-10 GAP EXTENSION, 6"	GM	0.144
711-11-170	THERMOPLASTIC, STANDARD, WHITE, ARROW	EA	32
711-11-224	THERMOPLASTIC, STANDARD, YELLOW, SOLID, 18" FOR DIAGONAL OR CHEVRON	LF	707
711-11-241	THERMOPLASTIC, STANDARD, YELLOW, 2-4 DOTTED GUIDE LINE /6-10 DOTTED EXTENSION LINE, 6"	GM	0.147
711-14-125	THERMOPLASTIC, PREFORMED, WHITE, SOLID, 24" FOR CROSSWALK	LF	715
711-14-160	THERMOPLASTIC, PREFORMED, WHITE, MESSAGE	EA	12
711-14-170	THERMOPLASTIC, PREFORMED, WHITE, ARROW	EA	12
711-16-101	THERMOPLASTIC, STANDARD-OTHER SURFACES, WHITE, SOLID, 6"	GM	1.819
711-16-131	THERMOPLASTIC, STANDARD-OTHER SURFACES, WHITE, SKIP, 6",10-30 SKIP OR 3-9 LANE DROP	GM	0.240
711-16-201	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SOLID, 6"	GM	0.820
920-714-100	GREEN COLORED PAVEMENT MARKINGS, BIKE LANE	SF	1966

SIGNALIZATION			
ITEM NO.	ITEM	UNIT	QUANTITY
630-2-11	CONDUIT, FURNISH & INSTALL, OPEN TRENCH	LF	3045
630-2-12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	LF	710
630-2-14	CONDUIT, FURNISH & INSTALL, ABOVEGROUND	LF	120
632-7-1	SIGNAL CABLE- NEW OR RECONSTRUCTED INTERSECTION, FURNISH & INSTALL	PI	1
633-1-121	FIBER OPTIC CABLE, F&I, UNDERGROUND,2-12 FIBERS	EA	145
633-1-122	FIBER OPTIC CABLE, F&I, UNDERGROUND,13-48 FIBERS	EA	885
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	EA	52
633-2-32	FIBER OPTIC CONNECTION, INSTALL, TERMINATION	EA	12
633-3-11	FIBER OPTIC CONNECTION HARDWARE, F&I, SPLICE ENCLOSURE	EA	2
633-3-12	FIBER OPTIC CONNECTION HARDWARE, F&I, SPLICE TRAY	EA	5
633-3-13	FIBER OPTIC CONNECTION HARDWARE, F&I, PRETERMINATED CONNECTOR ASSEMBLY	EA	12
633-3-16	FIBER OPTIC CONNECTION HARDWARE, F&I, PATCH PANEL- FIELD TERMINATED	EA	1
633-3-17	FIBER OPTIC CONNECTION HARDWARE, F&I, CONNECTOR PANEL	EA	1
633-8-1	MULTI-CONDUCTOR COMMUNICATION CABLE, FURNISH & INSTALL	EA	4305
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	EA	9
635-2-12	PULL & SPLICE BOX, F&I, 24" x 36" COVER SIZE	EA	2
635-2-13	PULL & SPLICE BOX, F&I, 30" X 60" RECTANGULAR OR 36" ROUND COVER SIZE	EA	1
635-2-14	PULL & SPLICE BOX, F&I, 17" x 30" COVER SIZE	EA	14
639-1-122	ELECTRICAL POWER SERVICE, F&I, UNDERGROUND, METER PURCHASED BY CONTRACTOR	AS	1
639-2-1	ELECTRICAL SERVICE WIRE, FURNISH & INSTALL	LF	50
639-4-6	EMERGENCY GENERATOR - PORTABLE, FURNISH & INSTALL HOUSING ONLY	EA	1
641-2-12	PRESTRESSED CONCRETE POLE, F&I, TYPE P-II SERVICE POLE	EA	1
641-2-13	PRESTRESSED CONCRETE POLE, F&I, TYPE P-III	EA	3
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	EA	8
649-21-10	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 60'	AS	3
649-21-15	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 70'	AS	1
650-1-34	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL POLYCARBONATE, 3 SECTION, 1 WAY	AS	6
650-1-36	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL POLYCARBONATE, 4 SECTION, 1 WAY	AS	4
650-1-39	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL POLYCARBONATE, 5 SECTION CLUSTER, 1 WAY	AS	4
653-1-11	PEDESTRIAN SIGNAL, FURNISH & INSTALL, LED COUNTDOWN, 1 WAY	AS	8
660-3-11	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL CABINET EQUIPMENT	EA	4
660-3-12	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL, ABOVE GROUND EQUIPMENT	EA	9
665-1-11	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA	8
670-5-111	TRAFFIC CONTROLLER ASSEMBLY, F&I, NEMA, 1 PREEMPTION	AS	1
676-3-10	SMALL EQUIPMENT ENCLOSURE, FURNISH AND INSTALL, LESS THAN 10"W X 13"H X 11" D	EA	3
682-1-113	ITS CCTV CAMERA, F&I, DOME PTZ ENCLOSURE - PRESSURIZED, IP, HIGH DEFINITION	EA	1
684-1-1	MANAGED FIELD ETHERNET SWITCH, FURNISH & INSTALL	EA	1
685-1-12	UNINTERRUPTIBLE POWER SUPPLY, FURNISH AND INSTALL, ONLINE/DOUBLE CONVERSION	EA	1
685-2-1	REMOTE POWER MANAGEMENT UNIT- RPMU, FURNISH AND INSTALL	EA	1
700-3-201	SIGN PANEL, FURNISH & INSTALL OVERHEAD MOUNT, UP TO 12 SF	EA	4
700-5-22	INTERNALLY ILLUMINATED SIGN, FURNISH & INSTALL, OVERHEAD MOUNT, 12-18 SF	EA	4
700-141-360	ENHANCED HIGHWAY SIGN ASSEMBLY, AC POWERED, F&I OVERHEAD MOUNT, BLANK OUT SIGN <12 SF	EA	4

LIGHTING			
ITEM NO.	ITEM	UNIT	QUANTITY
630-2-11	CONDUIT, FURNISH & INSTALL, OPEN TRENCH	LF	490
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	EA	9
715-1-12	LIGHTING CONDUCTORS, F&I, INSULATED, NO. 8 - 6	LF	4065
715-5-31	LUMINAIRE & BRACKET ARM- ALUMINUM, F&I NEW LUMINAIRE AND ARM ON NEW/EXISTING POLE	EA	3
715-61-252	LIGHT POLE COMPLETE, F&I, STANDARD POLE STANDARD FOUNDATION, 35' MOUNTING HEIGHT, 15' ARM LENGTH	EA	5
715-61-352	LIGHT POLE COMPLETE, F&I, STANDARD POLE STANDARD FOUNDATION, 40' MOUNTING HEIGHT, 15' ARM LENGTH	EA	1
715-500-1	POLE CABLE DISTRIBUTION SYSTEM, FURNISH AND INSTALL, CONVENTIONAL	EA	6

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No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

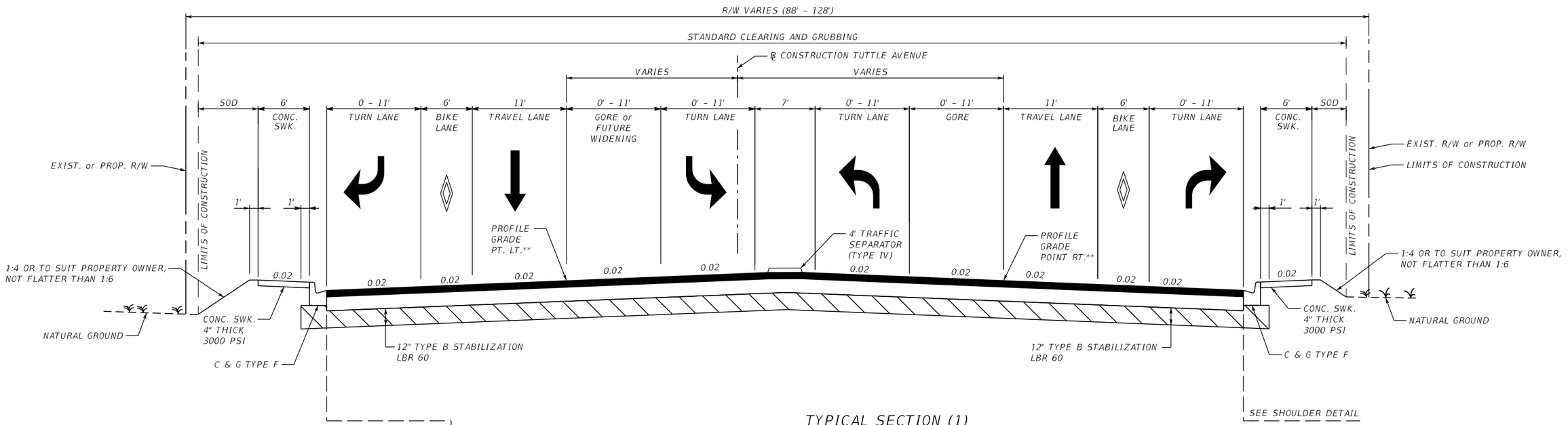
DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

SUMMARY OF PAY ITEMS

SHEET NO.: 3



TYPICAL SECTION (1)

TUTTLE AVENUE
STA. 101+66.92 TO STA. 114+48.05 (SB)
STA. 100+09.00 TO STA. 114+48.05 (NB)

TRAVEL LANES AND SHOULDER PAVEMENT

OPTIONAL BASE GROUP 9 (10") WITH
3" STRUCTURAL COURSE TYPE SP 12.5 (TRAFFIC C) AND
1-1/2" FRICTION COURSE FC-12.5 (TRAFFIC C, PG 76-22)

MILLING AND RESURFACING

TUTTLE AVENUE
STA. 101+42.06 TO STA. 101+66.92 (SB)
STA. 99+84.00 TO STA. 100+09.00 (NB)
STA. 114+48.05 TO STA. 114+73.05

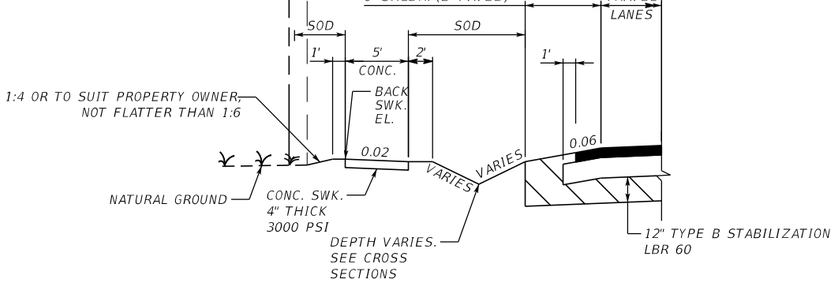
MILLING AND RESURFACING

MILL EXISTING ASPHALT PAVEMENT (1-1/2" AVG. DEPTH)
1-1/2" FRICTION COURSE FC-12.5 (TRAFFIC C, PG 76-22)

FUTURE WIDENING

TUTTLE AVENUE
STA. 101+66.92 TO STA. 103+52.30

PROFILE GRADE POINT LT.**	PROFILE GRADE POINT RT.**
STA. 101+66.92, 12.20' LT	STA. 102+98.70, 21.34' RT
STA. 105+16.72, 22.45' LT	STA. 104+66.37, 17.71' RT
STA. 107+21.40, 23.09' LT	STA. 107+21.52, 16.91' RT
STA. 108+93.14, 14.44' LT	STA. 108+93.61, 3.56' RT
STA. 111+77.89, 12.22' LT	STA. 111+77.99, 5.78' RT
STA. 114+48.03, 1.72' RT	STA. 114+48.03, 2.57' RT



SHOULDER DETAIL

TUTTLE AVENUE
STA. 112+34.92 TO STA. 114+48.05 (NB)
STA. 110+02.90 TO STA. 114+48.05 (SB)

TRAFFIC DATA

CURRENT YEAR = 2022 AADT = 4578

NORTH LEG DESIGN SPEED = 35 MPH
NORTH LEG POSTED SPEED = 30 MPH
SOUTH LEG DESIGN SPEED = 35 MPH
SOUTH LEG POSTED SPEED = 30 MPH

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

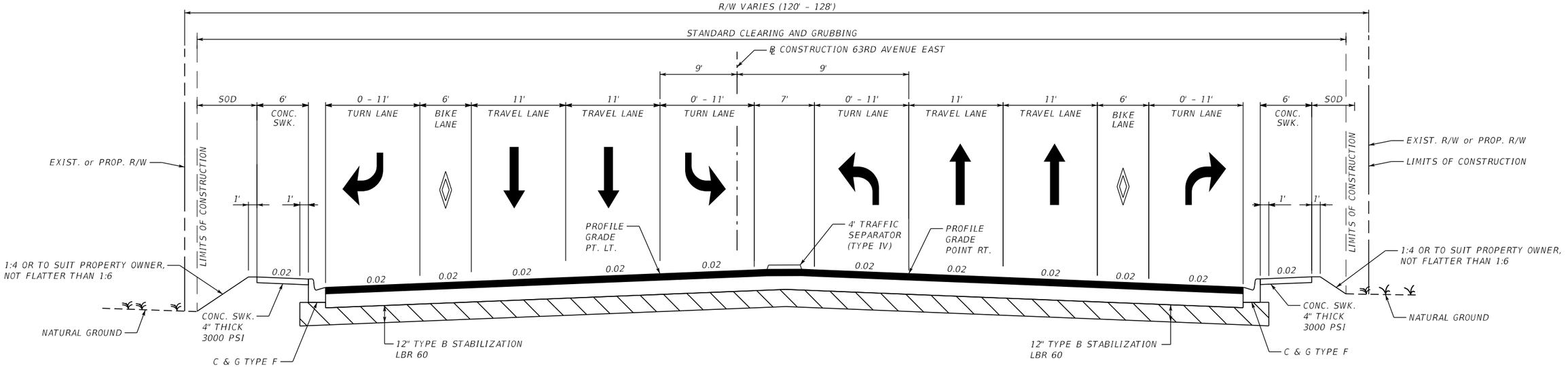
DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

TYPICAL SECTION (1)

SHEET NO.: 4



TYPICAL SECTION (2)

63RD AVENUE EAST (HONORE AVENUE)
STA. 210+40.00 TO STA. 217+94.11 (EB)
STA. 210+40.00 TO STA. 218+06.10 (WB)

TRAVEL LANES

OPTIONAL BASE GROUP 9 (10") WITH
3" STRUCTURAL COURSE TYPE SP 12.5 (TRAFFIC C) AND
1-1/2" FRICTION COURSE FC-12.5 (TRAFFIC C, PG 76-22)

MILLING AND RESURFACING

63RD AVENUE EAST (HONORE AVENUE)
STA. 217+94.11 TO STA. 220+84.23 (EB)
STA. 218+06.10 TO STA. 219+37.49 (WB)

MILLING AND RESURFACING

MILL EXISTING ASPHALT PAVEMENT (1-1/2" AVG. DEPTH)
1-1/2" FRICTION COURSE FC-12.5 (TRAFFIC C, PG 76-22)

TRAFFIC DATA

CURRENT YEAR	= 2022	AADT = 11,100
ESTIMATED OPENING YEAR	= 2025	AADT = 11,500
ESTIMATED DESIGN YEAR	= 2045	AADT = 15,000

K = 9% D = 55% T = 8.2% (24 HOUR)
DESIGN HOUR T = 4.1%
DESIGN SPEED = 40 MPH

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

TYPICAL SECTION (2)

SHEET NO.: 5

QUANTITY	STR. NO.	STATION	SIDE	DESCRIPTION	BARRELS	STORM DRAIN OPTIONAL MATERIAL					CURB INLETS			MANHOLES	REMARKS
						ROUND			ELLIPTICAL		P-5	P-6	J-5	P-8	
						18"	24"	30"	14"x23"	19"x30"	<10'	<10'	<10'	<10'	
P	S-400	210+45.00	LT.	INLET	1						1				BL 63RD
F															
P	S-401	210+80.00	RT.	INLET, PIPE	1	39					1				BL 63RD
F															
P	S-402	212+00.00	RT.	INLET, PIPE	1	117					1				BL 63RD
F															
P	S-403	212+60.00	RT.	MANHOLE, PIPE	1	59								1	BL 63RD
F															
P	S-404	212+69.62	LT.	MANHOLE, PIPE	1					222				1	BL 63RD
F															
P	S-405	111+20.00	LT.	INLET, PIPE	1				272			1			BL TUTTLE
F															
P	S-406	110+95.00	RT.	INLET, PIPE	1				87		1				BL TUTTLE
F															
P	S-407	107+00.00	LT.	INLET, PIPE	1	46						1			BL TUTTLE
F															
P	S-500	214+20.00	LT.	INLET, PIPE	1	92					1				BL 63RD
F															
P	S-501	214+70.00	RT.	INLET, PIPE	1	96						1			BL 63RD
F															
P	S-502	215+15.00	LT.	INLET, PIPE	1			8					1		BL 63RD, CONC. JACKET
F															
P	S-600			NOT USED											
F															
P	S-601	104+60.00	LT.	INLET, PIPE	1	174					1				BL TUTTLE
F															
P	S-602			NOT USED											
F															
P	S-603	105+95.00	RT.	MANHOLE, PIPE	1		4							1	BL TUTTLE, CONC. JACKET
F															
P	S-604	106+35.00	RT.	INLET, PIPE	1	37						1			BL TUTTLE
F															
P	S-605	106+35.00	LT.	INLET, PIPE	1	84					1				BL TUTTLE
F															
SHEET TOTALS				PLAN QUANTITY		744	4	8	359	222	7	4	1	3	
				FINAL QUANTITY											

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: ARM
DRAWN BY: GAC
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

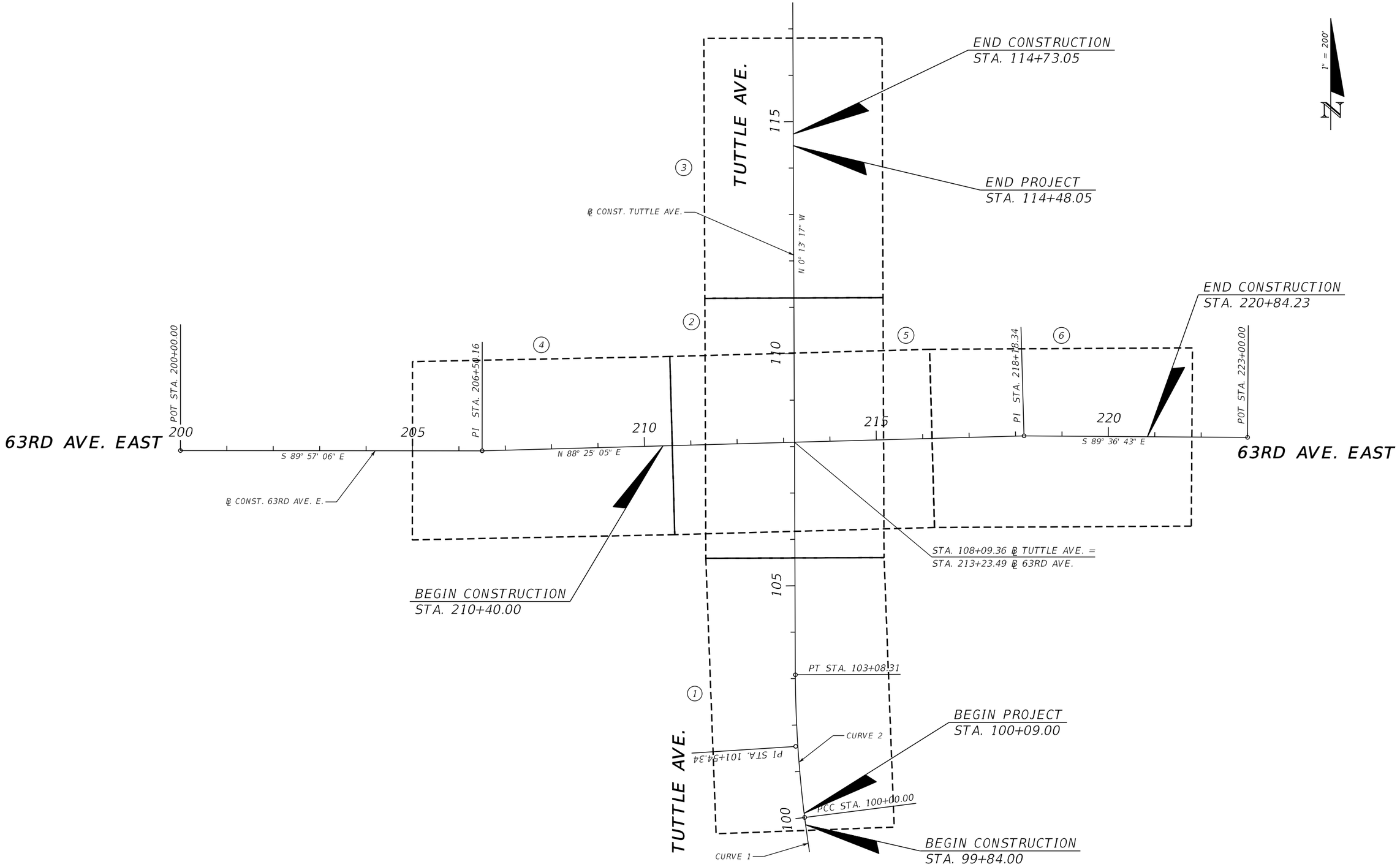
DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: ADAM RAY MITCHUM
FL. LICENSE NO.: 83296

SUMMARY OF DRAINAGE STRUCTURES

SHEET NO.: 6



No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

PROJECT LAYOUT

SHEET NO.: 7

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

CURVE AND COORDINATE DATA

BASELINE	CURVE NUMBER	CONTROL POINT	STATION	COORDINATES		Δ	D	T	L	R	BEARING BACK	BEARING AHEAD
				NORTH	EAST							
BL Const. Tuttle Ave.	CURVE 1	PC	98+00.00	1,124,491.96	489,637.15	4° 31' 52" (RT.)	2° 15' 56"	100.05	200.00	2,529.00	N 11° 44' 15" W	N 7° 12' 23" W
		PI	99+00.05	1,124,589.92	489,616.79							
		PCC	100+00.00	1,124,689.18	489,604.25							
	CURVE 2	PCC	100+00.00	1,124,689.18	489,604.25	6° 59' 05" (RT.)	2° 15' 56"	154.34	308.31	2,529.00	N 7° 12' 23" W	N 0° 13' 17" W
		PI	101+54.34	1,124,842.30	489,584.89							
		PT	103+08.31	1,124,996.65	489,584.29							
		POT	121+00.00	1,126,788.33	489,577.36						N 0° 13' 17" W	
BL Const. 63rd Ave.E.		POT	200+00.00	1,125,479.66	488,259.12							S 89° 57' 06" E
		PI	206+50.16	1,125,479.11	488,909.29						S 89° 57' 06" E	N 88° 25' 05" E
		PI	218+18.34	1,125,511.36	490,077.02						N 88° 25' 05" E	S 89° 36' 43" E
		POT	221+53.35	1,125,509.09	490,412.02						S 89° 36' 43" E	

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CURVE & COORDINATE DATA

SHEET NO.: 8

1. ANY PUBLIC LAND CORNER WITHIN THE LIMITS OF CONSTRUCTION IS TO BE PROTECTED.

2. THE REMOVAL OF ANY DRAINAGE STRUCTURE OR PIPE WITHIN 5.0 FEET OF ANY UTILITY THAT IS IN SERVICE SHALL BE ACCOMPLISHED SO AS NOT TO DAMAGE THE UTILITY.

3. ANY PORTION OF THE EXISTING RIGHT OF WAY THAT IS DISTURBED OUTSIDE THE LIMITS OF CONSTRUCTION SHALL BE REDRESSED AND SODDED AT THE CONTRACTOR'S EXPENSE.

4. NO STOCKPILE OF MATERIAL IS PERMITTED WITHIN THE PROJECT LIMITS WITHOUT PRIOR APPROVAL OF THE ENGINEER.

5. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY EXISTING DRAINAGE INVERT ELEVATIONS THAT WILL REMAIN PART OF THE PROPOSED DRAINAGE SYSTEM. ANY DIFFERENCE FROM PLAN ELEVATION SHALL BE REPORTED TO THE ENGINEER.

6. EXISTING SIDEWALK, CURB & GUTTER, TRAFFIC SEPARATOR, FENCE, DRAINAGE STRUCTURES, AND PIPES WITHIN CONSTRUCTION LIMITS SHALL REMAIN, UNLESS OTHERWISE NOTED.

7. THE COUNTY RESERVES THE RIGHT TO PERFORM QUALITY ASSURANCE TESTING ON ALL MATERIAL DELIVERED TO THE PROJECT AND TO REJECT ALL MATERIALS NOT MEETING ACCEPTABLE STANDARDS.

8. ANY DAMAGE TO COUNTY, OR LOCAL ROADS CAUSED BY THE CONTRACTOR'S HAULING OR EXCAVATION EQUIPMENT SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE COUNTY, PAYMENT SHALL NOT BE MADE FOR THIS WORK.

9. OVERALL CLEANUP SHALL BE ACCOMPLISHED BY THE CONTRACTOR TO THE SATISFACTION OF THE COUNTY. ANY AND ALL EXPENSES INCURRED FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE FOR MOBILIZATION.

10. SEE COUNTY HIGHWAY & TRAFFIC STANDARD MANUAL ROAD CONNECTION DETAIL 403.3 AT ALL WIDENING AND CONNECTIONS TO EXISTING PAVEMENT.

11. THE CONTRACTOR IS TO FIELD VERIFY THE LOCATIONS AND ELEVATIONS OF ALL DRAINAGE STRUCTURES AND PIPES PRIOR TO ORDERING, CASTING OR PLACING PROPOSED DRAINAGE STRUCTURES AND PIPES.

12. ALL CONSTRUCTION ON THIS PROJECT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF MANATEE COUNTY UTILITY AND TRANSPORTATION STANDARDS AND/OR FDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" UNLESS OTHERWISE INDICATED ON THE PLANS.

13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL CONDITIONS AND REQUIREMENTS OF ALL PERMITS AND ALL GOVERNING FEDERAL, STATE, AND LOCAL AGENCIES. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS THAT ARE NOT PROVIDED IN THE BID DOCUMENTS, AT NO ADDITIONAL COST TO THE OWNER.

14. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN THE ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH CONSTRUCTION.

15. AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT SUNSHINE STATE ONE CALL OF FLORIDA AT 1-800-432-4770 OR THE NATIONAL 811 ONE CALL NUMBER WHEN APPLICABLE FOR UTILITY LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL UTILITIES FOR THE POSSIBLE RELOCATION OR THE TEMPORARY MOVEMENT OF ANY EXISTING UTILITIES WITHIN THE RIGHTS-OF-WAY.

16. THE CONTRACTOR SHALL USE ALL NECESSARY SAFETY PRECAUTIONS TO AVOID CONTACT WITH OVERHEAD AND UNDERGROUND UTILITIES, POWER LINES, ETC.

17. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. THIS EXCLUSION DOES NOT ALLEVIATE THE CONTRACTOR FOR PROVIDING A CONTINUOUS SAFE WORKSPACE.

18. NO MATERIAL SHALL BE STOCKPILED IN ROADWAYS. ALL DIRT AND DEBRIS SHALL BE REMOVED FROM THE JOB SITE DAILY. ROADS SHALL BE SWEPT DAILY AS PART OF DAILY CLEAN UP.

19. THE CONTRACTOR IS TO CONTROL ALL FUGITIVE DUST ORIGINATING ON THIS PROJECT BY WATERING OR OTHER METHODS AS REQUIRED.

20. INGRESS AND EGRESS TO ALL THE PROPERTIES IN THE CONSTRUCTION AREA SHALL BE MAINTAINED AT ALL TIMES.

21. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THERE MAY BE OTHER IMPROVEMENTS, UTILITIES, ETC. WHICH ARE WITHIN THE PROJECT AREA AND WHICH HAVE NOT BEEN LOCATED OR IDENTIFIED, MAY NOT BE IN THE EXACT LOCATION SHOWN OR RELOCATED SINCE THE PREPARATION OF THESE PLANS. THE CONTRACTOR SHALL VERIFY, PRIOR TO CONSTRUCTION, THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES STRUCTURES AND OTHER FEATURES (WHETHER OR NOT SHOWN ON THE PLANS) THAT MAY EFFECT HIS WORK. ALL EXISTING UTILITIES TO BE EXTENDED, CROSSED OR CONNECTION POINTS SHALL BE EXPOSED PRIOR TO CONSTRUCTION TO VERIFY LOCATION AND ELEVATION. ANY DISCREPANCIES OR CONFLICTS FOUND SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR RESOLUTION.

22. THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, WATER AND SEWER LINES, STORM DRAINS, UTILITIES, DRIVEWAYS, SIDEWALKS, SIGNS, MAIL BOXES, FENCES, TREES, LANDSCAPING, AND ANY OTHER IMPROVEMENT OR FACILITY IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DAMAGED ITEM DUE TO HIS CONSTRUCTION ACTIVITIES TO EQUAL OR BETTER THAN PRE-CONSTRUCTION CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.

23. IF THERE IS A DISCREPANCY OR CONFLICT BETWEEN PLAN NOTES AND MANFACTURUER RECOMMENDATIONS WHEN INSTALLING COMPONENTS, CONTACT THE ENGINEER FOR DIRECTION BEFORE PROCEEDING.

24. ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM, 1988 ADJUSTMENT (NAVD 88).

UTILITY CONTACTS:

CHARTER COMMUNICATIONS
ALEX FLEMMING
5413 E. STATE ROAD 64
BRADENTON, FL. 34208-5535
(941 748-3816
James.Fleming@mybrighthouse.com

FLORIDA POWER & LIGHT
BRIAN GARVER
1253 12TH AVENUE EAST
PALMETTO, FL. 34221
(941) 723-4442
brian.garver@fpl.com

FRONTIER COMMUNICATIONS
DENISE HUTTON
1701 RINGLING BLVD.
SARASOTA, FL. 34236
(941) 906-6722
denise.hutton@ftr.com

MANATEE COUNTY PUBLIC WORKS
VICTOR DULCEAK
(941) 290-8876
victor.dulceak@mymanatee.org

TECO PEOPLES GAS
ALEX MCFARLANE
8261 VICO COURT
SARASOTA, FL. 34240
(813) 275-3762
AMcFarlane@tecoenergy.com

COMCAST
KEVIN MILLER
5205 FRUITVILLE ROAD
SARASOTA, FL 34232
(239) 318-1411
Kevin_Miller6@comcast.com

UNITI FIBER
BOB MENSCHING
200 CUMBERLAND DRIVE
ST. AUGUSTINE, FL 32095
(904) 718-8152

PAY ITEM NOTE:

MC-R-01 - WOODLAND TRACE VEHICLE DETECTION

AN EXISTING CAMERA IS LOCATED AT LAUREL WOOD RUN FOR VEHICULAR ACCESS TO WOODLAND TRACE. THIS EXISTING CAMERA IS CURRENTLY BEHIND THE EXISTING CURB LINE AND WILL BE IN A PROPOSED PAVEMENT AREA DUE TO THIS PROJECT WIDENING. THE EXISTING CAMERA SHALL BE RELOCATED TO A CLEAR LOCATION BEHIND THE PROPOSED SIDEWALK AND CURBING AT THIS INTERSECTON. CONTRACTOR SHALL COORDINATE WITH WOODLAND TRACE HOA BEFORE AND DURING CONSTRUCTION TO PROVIDE VEHICLE DETECTION DURING CONSTRUCTION AND IN THE POST-CONSTRUCTION CONDITION. THIS PAY ITEM IS INCLUSIVE OF WORK REQUIRED TO COORDINATE WITH WOODLAND TRACE, TO RELOCATE EXISTING CAMERA, AND TO REESTABLISH CONNECTION TO THE VEHICLE DETECTION SYSTEM USED BY THE GATED ENTRANCE. ADJUSTMENTS MAY BE REQUIRED TO PROVIDE AN ACCEPTABLE WORKING GATED ENTRANCE BASED ON THIS CAMERA RELOCATION. WOODLAND TRACE HOA WILL PROVIDE CONFIRMATION THAT VEHICLE DETECTION IS WORKING AS INTENDED UPON RELOCATION EFFORTS.

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No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

GENERAL NOTES

SHEET NO.: 9

CURVE DATA C1
PI STA. = 99+00.05
Δ = 4° 31' 52" (RT)
D = 2° 15' 56"
T = 100.05
L = 200.00
R = 2,529.00
PC STA. = 98+00.00
PT STA. = 100+00.00
e = NC

CURVE DATA C2
PI STA. = 101+54.34
Δ = 6° 59' 05" (RT)
D = 2° 15' 56"
T = 154.34
L = 308.31
R = 2,529.00
PC STA. = 100+00.00
PT STA. = 103+08.31
e = NC

TUTTLE AVE.

LAUREL WOOD RUN

0 10 40
Feet

END MILLING AND RESURFACING (SB)
BEGIN RECONSTRUCTION (SB)
STA. 101+66.92

MILLING LIMITS

BEGIN CONSTRUCTION
BEGIN MILLING AND RESURFACING (SB)
STA. 101+42.06

EXIST. R/W

CURVE C1

EXIST. SIDEWALK

EXIST. EOP

PCC STA. 100+00.00

℄ CONST. TUTTLE AVE.

CURVE C2

BEGIN C & G TYPE F
MATCH EXIST.
BEGIN TRANSITION
STA. 101+66.92, 29.21' LT

C & G TYPE F

5' CONC. SIDEWALK

MATCH EXIST. SIDEWALK

TEMP. CONST. EASEMENT

EXIST. SIDEWALK

MATCH EXIST. SWK.
STA. 103+59.71
66.95' LT

MILLING LIMITS

END RECONSTRUCTION

CURB TYPE D

EXIST. R/W

EXIST. SIDEWALK

MATCH EXIST. SWK.
STA. 104+28.53
66.95' LT

CONST. 174' OF 18" PIPE
6' CONC. SIDEWALK

C & G TYPE F

END TRANSITION
STA. 105+16.34, 39.45' LT

SEE NOTE 1

4' CONC. TRAFFIC SEPARATOR (TYPE IV)

60' CR

VARIABLE WIDTH CONC. TRAFFIC SEPARATOR (TYPE IV)

N 0° 13' 17" W

MATCHLINE STA. 105+60.00

C & G TYPE F

EXIST. R/W

BEGIN PROJECT
END MILLING AND RESURFACING (NB)
BEGIN RECONSTRUCTION (NB)
STA. 100+09.00

BEGIN MILLING AND RESURFACING (NB)
STA. 99+84.00

MILLING LIMITS

EXIST. SIDEWALK

6' CONC. SIDEWALK

+93.43. 50.51' RT.
MATCH EXIST. SIDEWALK

103+08.94
60.00' RT

103+45.00
60.03' LT

+48.53
48.44' LT

103+08.97
60.04' LT

+54.72
64.94' LT

+08.92
49.46' LT

+42.78
43.58' LT

+66.92
12.20' LT

+39.21
15.25' LT

PT STA. 103+08.31

PI STA. 101+54.34

+88.82
10.51' RT

+99.01
38.34' RT

+40.25
9.32' RT

+00.00
11.92' RT

+00.00
22.92' RT

+09.00
22.74' RT

+09.00
39.33' RT

+66.58
34.71' RT

+00.74
45.43' RT

+00.76
50.51' RT

+00.74
44.16' RT

+16.61
45.55' RT

103+51.86
131.56' LT

103+60.00
100.00' LT

+65.71
98.25' LT

103+51.85
95.03' LT

+59.71
66.96' LT

+17.59
73.24' LT

+65.77
66.95' LT

104+31.86
146.09' LT

+17.65
98.24' LT

104+25.00
100.00' LT

104+31.85
95.01' LT

+23.73
73.23' LT

+29.45
66.54' LT

104+40.00
59.97' LT

104+66.84
60.00' LT

+24.02
6.24' LT

+24.40
6.08' RT

+66.31
5.21' RT

+16.29
5.95' LT

25' R
10' R
35' R
35' R
25' R
12' R
6' R
3368' R
3340' R
2456' R

CR-C
CR-C
S-601
A
B

100 101 102 103 104 105

60'
28'
50'
60'

NOTE 1

CONTRACTOR TO COORDINATE WITH WOODLAND TRACE HOA REGARDING RELOCATION OF EXISTING CAMERA FOR VEHICLE DETECTION AT GATED ENTRANCE OF LAUREL WOOD RUN. SEE PAY ITEM NOTE FOR MORE INFORMATION. CAMERA TO BE RELOCATED AND CONNECTION TO BE REESTABLISHED BEHIND PROPOSED SIDEWALK IN A LOCATION AGREED UPON WITH WOODLAND TRACE HOA.

1 +82.20. 66.95' LT. MATCH EXIST.
2 +01.71 70.09' LT.
3 +01.73. 73.24' LT. MATCH EXIST.
4 +59.59 62.03' LT.
5 +24.89 64.32' LT.

A END C & G TYPE F, BEGIN VALLEY GUTTER STA. 103+32.19, 31.98" LT
B END VALLEY GUTTER, BEGIN C & G TYPE F STA. 104+54.01, 36.92' LT.

LEGEND
MILLING & RESURFACING
FUTURE WIDENING
6" CONCRETE SIDEWALK

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

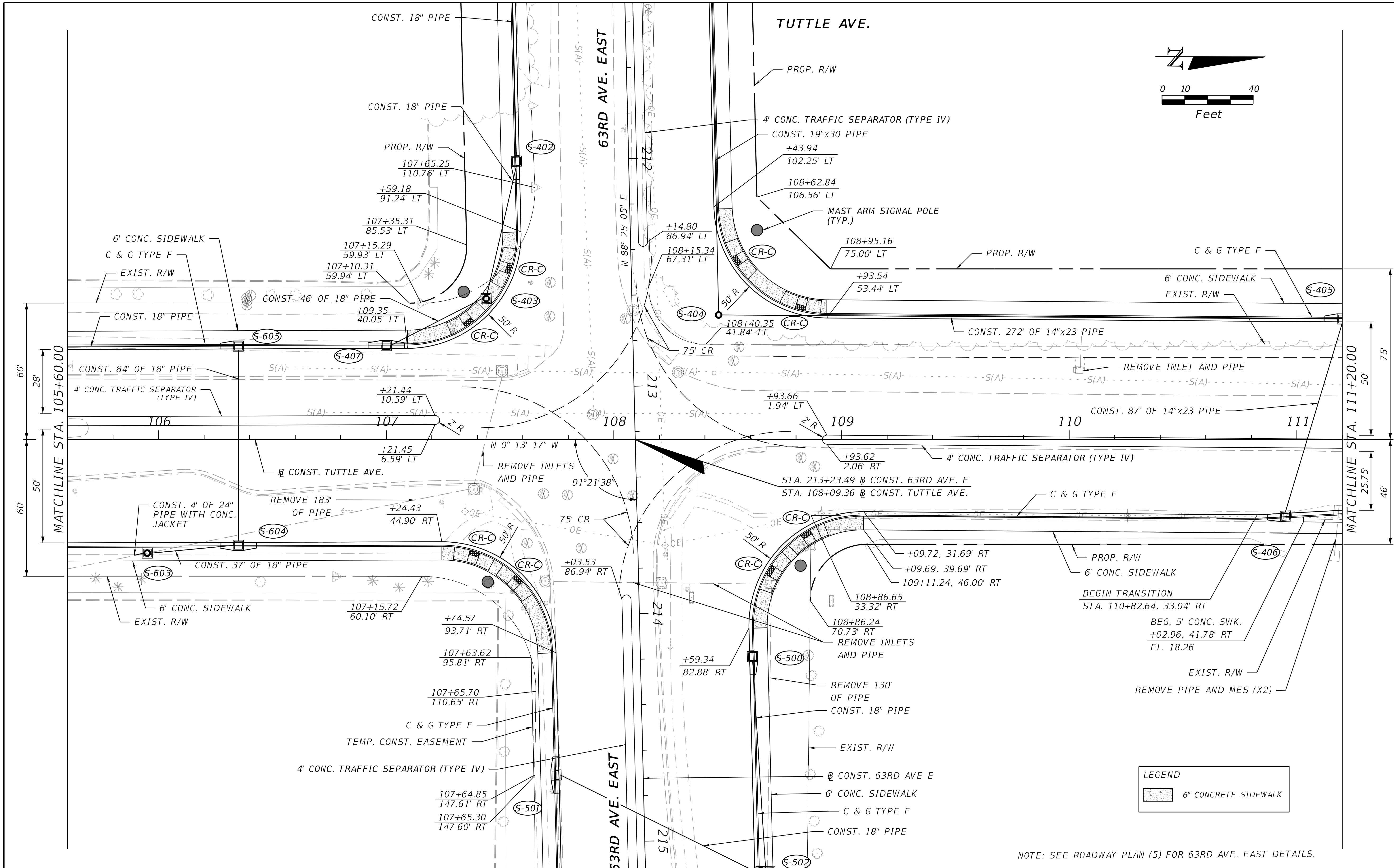
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

ROADWAY PLAN (1) TUTTLE AVE.

SHEET NO.: 10

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


TUTTLE AVE.
63RD AVE. EAST
N 88° 25' 05" E
N 0° 13' 17" W
91°21'38"
0 10 40
Feet
CONST. 18" PIPE
PROP. R/W
S-402
107+65.25
110.76' LT
+59.18
91.24' LT
107+35.31
85.53' LT
107+15.29
59.93' LT
107+10.31
59.94' LT
6' CONC. SIDEWALK
C & G TYPE F
EXIST. R/W
CONST. 46' OF 18" PIPE
+09.35
40.05' LT
CR-C
S-403
50' R
S-605
S-407
CONST. 84' OF 18" PIPE
4' CONC. TRAFFIC SEPARATOR (TYPE IV)
+21.44
10.59' LT
2' R
+21.45
6.59' LT
℄ CONST. TUTTLE AVE.
REMOVE INLETS AND PIPE
REMOVE 183' OF PIPE
+24.43
44.90' RT
75' CR
CONST. 4' OF 24" PIPE WITH CONC. JACKET
S-604
S-603
CONST. 37' OF 18" PIPE
6' CONC. SIDEWALK
EXIST. R/W
107+15.72
60.10' RT
+03.53
86.94' RT
+74.57
93.71' RT
107+63.62
95.81' RT
107+65.70
110.65' RT
C & G TYPE F
TEMP. CONST. EASEMENT
4' CONC. TRAFFIC SEPARATOR (TYPE IV)
107+64.85
147.61' RT
107+65.30
147.60' RT
S-501
MATCHLINE STA. 105+60.00
60'
28'
50'
60'
106
107
108
109
110
111
212
213
214
215
4' CONC. TRAFFIC SEPARATOR (TYPE IV)
CONST. 19"x30 PIPE
+43.94
102.25' LT
108+62.84
106.56' LT
MAST ARM SIGNAL POLE (TYP.)
+14.80
86.94' LT
108+15.34
67.31' LT
108+95.16
75.00' LT
PROP. R/W
+93.54
53.44' LT
C & G TYPE F
6' CONC. SIDEWALK
EXIST. R/W
S-405
S-404
50' R
108+40.35
41.84' LT
CONST. 272' OF 14"x23 PIPE
75' CR
REMOVE INLET AND PIPE
CONST. 87' OF 14"x23 PIPE
+93.66
1.94' LT
+93.62
2.06' RT
4' CONC. TRAFFIC SEPARATOR (TYPE IV)
STA. 213+23.49 ℄ CONST. 63RD AVE. E
STA. 108+09.36 ℄ CONST. TUTTLE AVE.
C & G TYPE F
+09.72, 31.69' RT
+09.69, 39.69' RT
109+11.24, 46.00' RT
108+86.65
33.32' RT
108+86.24
70.73' RT
REMOVE INLETS AND PIPE
+59.34
82.88' RT
S-500
S-406
PROP. R/W
6' CONC. SIDEWALK
BEGIN TRANSITION
STA. 110+82.64, 33.04' RT
BEG. 5' CONC. SWK.
+02.96, 41.78' RT
EL. 18.26
EXIST. R/W
REMOVE PIPE AND MES (X2)
REMOVE 130' OF PIPE
CONST. 18" PIPE
EXIST. R/W
℄ CONST. 63RD AVE E
6' CONC. SIDEWALK
C & G TYPE F
CONST. 18" PIPE
S-502
MATCHLINE STA. 111+20.00
75'
50'
25.75'
46'
LEGEND
6" CONCRETE SIDEWALK
NOTE: SEE ROADWAY PLAN (5) FOR 63RD AVE. EAST DETAILS.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

Manatee County FLORIDA
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

ROADWAY PLAN (2)
TUTTLE AVE.

SHEET NO. 11

TTRAN 12/12/2023 11:04:24 PM Default PW:\

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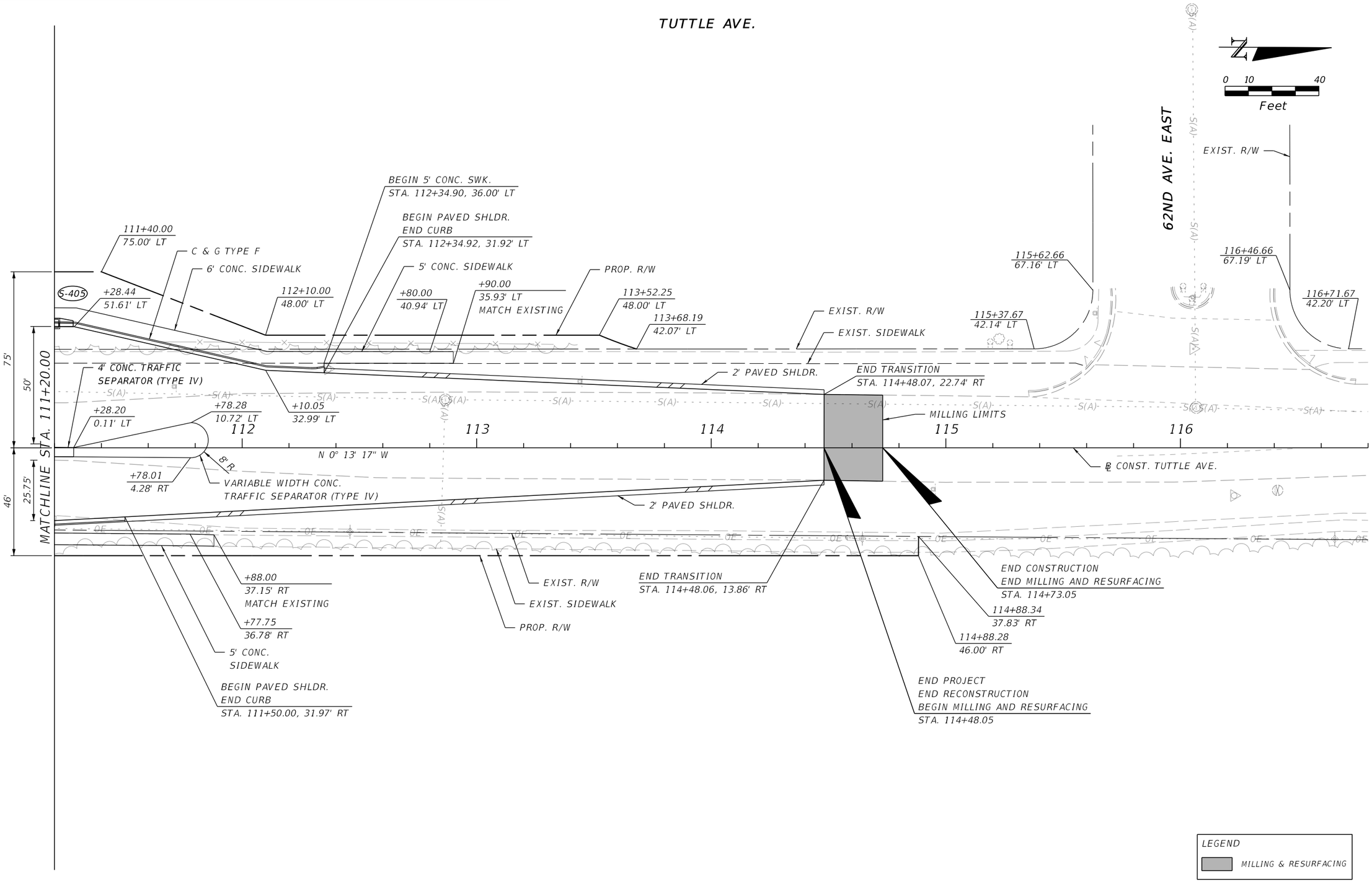
TUTTLE AVE.



No.	REVISIONS	DATE	BY

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401 N. CATTLEMEN ROAD, SUITE 210
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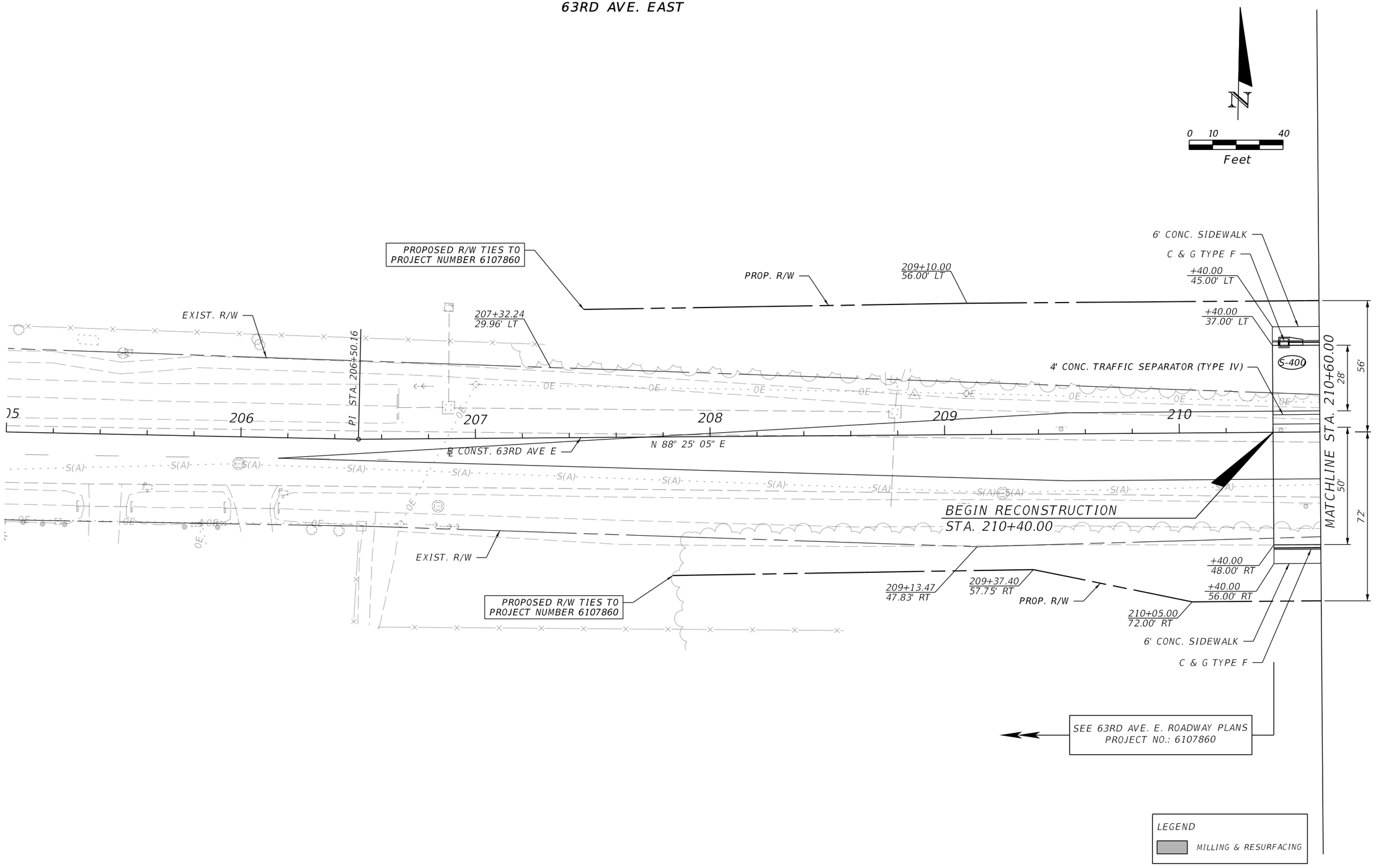
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

ROADWAY PLAN (3)
TUTTLE AVE.

SHEET NO.: 12

63RD AVE. EAST



No.	REVISIONS	DATE	BY

SCALE: AS NOTED
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HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

ROADWAY PLAN (4)
63RD AVE. EAST

SHEET NO.: 13

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

63RD AVE. EAST

TUTTLE AVE.

EXIST. R/W

PROP. R/W

CONST. 14"x23" PIPE

4' CONC. TRAFFIC SEPARATOR (TYPE IV)

PROP. R/W

N

0 10 40

Feet

+72.06
85.42' LT

212+50.54
87.56' LT

212+18.22
56.00' LT

+57.55
99.58' LT

213+71.89
100.76' LT

213+58.63
76.48' LT

213+96.02
75.18' LT

REMOVE 130' OF PIPE

EXIST. R/W

C & G TYPE F

6' CONC. SIDEWALK

+22.09
37.00' LT

CR-C

50' R

S-404

75' CR

+07.52
48.00' LT

CONST. 8' OF 30" PIPE
WITH CONC. JACKET

C & G TYPE F

6' CONC. SIDEWALK

S-500

CONST. 92' OF 18" PIPE

S-502

CONST. 222' OF 19"x30" PIPE

212+56.33
7.58' LT

212+82.39
31.97' LT

CONST. 96' OF 18" PIPE

EXIST. R/W

4' CONC. TRAFFIC SEPARATOR (TYPE IV)

+36.70
7.50' LT

91°21'38"

REMOVE INLETS AND PIPE

56'

28'

50'

72'

MATCHLINE STA. 210+60.00

211 212 213 214 215 216

MATCHLINE STA. 216+20.00

67'

50'

28'

53'

N 88° 25' 05" E

℄ CONST. 63RD AVE E

108

2' R

+93.63
7.50' RT

4' CONC. TRAFFIC SEPARATOR (TYPE IV)

STA. 108+09.36 CONST. TUTTLE AVE.
STA. 213+23.49 ℄ CONST. 63RD AVE. E

S-501

CONST. 39' OF 18" PIPE

CONST. 117' OF 18" PIPE

212+11.67
41.42' RT

S-401

S-402

75' CR

CR-C

50' R

N 0° 13' 17" W

REMOVE INLETS AND PIPE

214+33.07
46.27' RT

+70.00
47.55' RT

+15.65
37.00' RT

+18.18
48.00' RT

+70.00
48.00' RT

EXIST. R/W

6' CONC. SIDEWALK

C & G TYPE F

TEMP. CONST. EASEMENT

CONST. 59' OF 18" PIPE

6' CONC. SIDEWALK

C & G TYPE F

+31.08
48.00' RT

S-403

PROP. R/W

MAST ARM SIGNAL POLE
(TYP.)

+66.36
85.97' RT

212+36.22
72.00' RT

213+81.35
95.04' RT

CONST. 18" PIPE

212+61.33
92.62' RT

S-407

212+61.21
97.60' RT

℄ CONST. TUTTLE AVE.

REMOVE 183' OF PIPE

107

TUTTLE AVE.

+81.07
99.03' RT

4' CONC. TRAFFIC SEPARATOR (TYPE IV)

EXIST. R/W

S-605

S-604

CONST. 18" PIPE

CONST. 18" PIPE

LEGEND

6" CONCRETE SIDEWALK

NOTE: SEE ROADWAY PLAN (2) FOR TUTTLE AVENUE DETAILS.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

Manatee County FLORIDA

MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

ROADWAY PLAN (5)
63RD AVE. EAST

SHEET NO.: 14

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

TTRAN 12/12/2023 11:04:58 PM Default PW:\

63RD AVE. EAST

41ST ST. EAST

EXIST. R/W

218+18.34
95.56' LT

219+36.44
95.42' LT

END CONSTRUCTION
END MILLING AND RESURFACING (EB)
STA. 220+84.23

219+71.48
60.46' LT

MATCH EXIST. SIDEWALK

EXIST. R/W

217+83.54
61.74' LT

+28.13
48.00' LT

6' CONC. SIDEWALK

5' CONC. SIDEWALK

C & G TYPE F

60' R

+78.13
37.00' LT

+62.79
40.12' LT

MATCH EXISTING CURB
STA. 218+06.10 35.66' LT

+06.10
6.18' LT

PI STA. 218+18.34

+36.84
38.41' RT

END MILLING AND RESURFACING (WB)
STA. 219+37.49

MILLING LIMITS

+27.80
6.28' LT

2' R

+28.29
3.50' RT

217

218

219

220

221

+78.70
3.49' LT

N 88° 25' 05" E

+94.11
2.30' LT

+27.89
2.28' LT

S 89° 36' 43" E

MATCH EXISTING CURB
STA. 217+94.11, 38.69' RT

+93.75
37.00' RT

+25.60
41.54' RT

MILLING LIMITS

67'

50'

53'

28'

MATCHLINE STA. 216+20.00

C & G TYPE F

6' CONC. SIDEWALK

EXIST. R/W

5' CONC. SIDEWALK

MATCH EXIST. SIDEWALK

EXIST. SIDEWALK

END RECONSTRUCTION (WB)
BEGIN MILLING AND RESURFACING (WB)
STA. 218+06.10

END RECONSTRUCTION (EB)
BEGIN MILLING AND RESURFACING (EB)
STA. 217+94.11

N

0 10 40
Feet

LEGEND
MILLING & RESURFACING

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DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

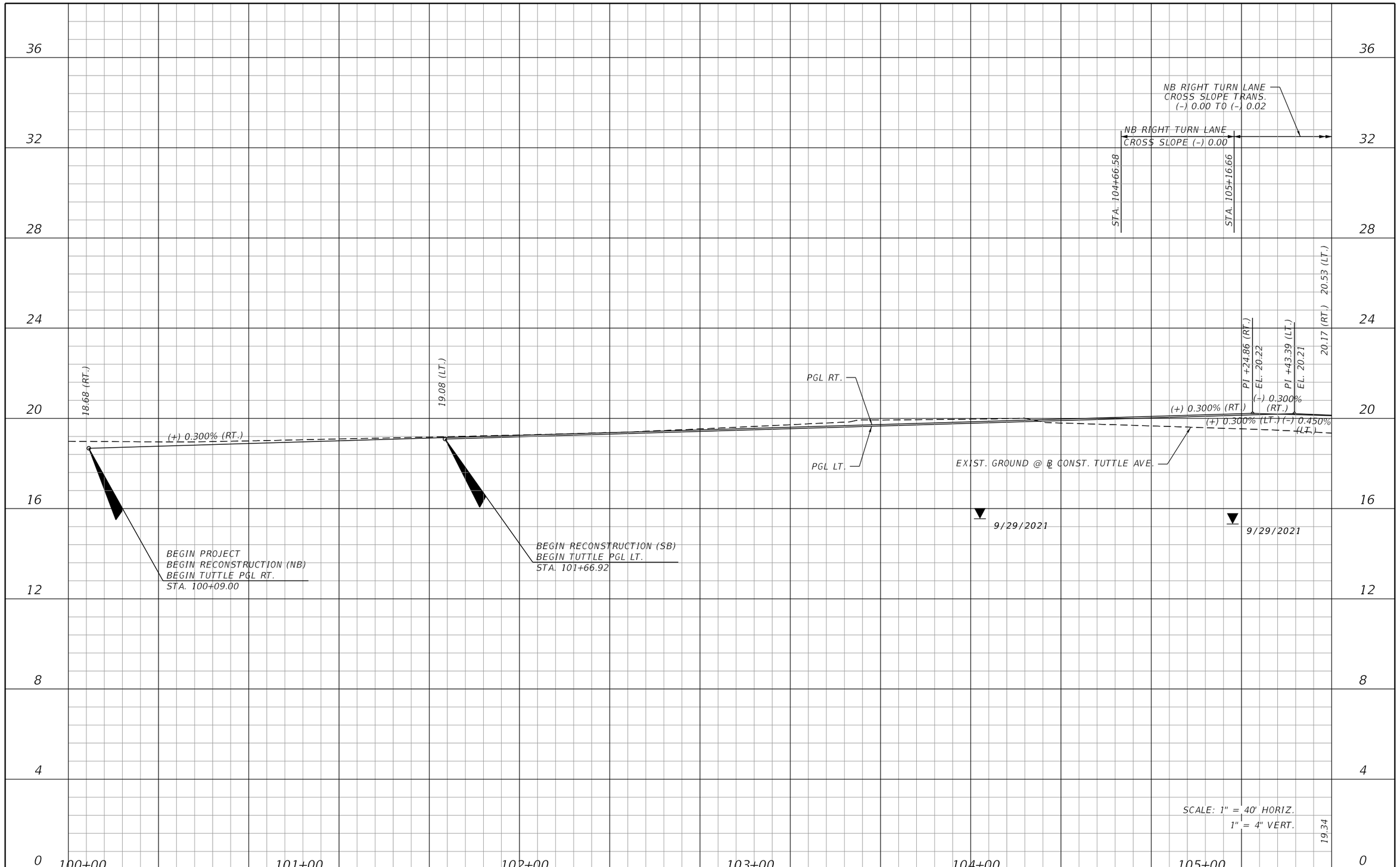
DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

ROADWAY PLAN (6)
63RD AVE. EAST

SHEET NO.: 15



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401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

ROADWAY PROFILE (1) TUTTLE AVE.

SHEET NO.: 16

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TTRAN 12/12/2023 11:08:15 PM Profile Clips PW:\

SB LANES
CROSS SLOPE TRANS.
(–) 0.02 TO (–) 0.005

SEE INTERSECTION DETAIL

SB LANES
CROSS SLOPE TRANS.
(–) 0.005 TO (–) 0.02

NB RIGHT TURN LANE
CROSS SLOPE TRANS.
(–) 0.00 TO (–) 0.02

NB ALL LANES
CROSS SLOPE TRANS.
(–) 0.02 TO (+) 0.005

SEE INTERSECTION DETAIL

NB LANES
CROSS SLOPE TRANS.
(+) 0.005 TO (–) 0.02

STA. 105+91.00
STA. 106+15
STA. 106+34.00
STA. 107+21.00
STA. 107+50.00
STA. 108+93.00
STA. 109+10.00
STA. 109+70.00
STA. 110+40.00

20.17 (RT.) 20.53 (LT.)

63RD AVE. EAST CROSSING
SEE INTERSECTION DETAIL

STA. 107+59.18
STA. 108+59.34

PGL RT.
PGL LT.

PI +08.27 (RT.)
EL. 20.04
PI +09.66 (LT.)
EL. 19.89

(–) 0.300% (RT.)
(–) 0.450% (LT.)
(+) 0.317% (RT.)
(+) 0.343% (LT.)
(+) 0.317% (RT.)
(+) 0.343% (LT.)
(–) 0.528% (RT.)
(–) 0.462% (LT.)

120' V.C. (RT.)
K = 145

18.32 (LT.) 19.04 (RT.)

+50.00 (RT.) EL. 18.76
18.72
18.64
18.59
18.56

(+) 0.300% (RT.)
(–) 0.528% (RT.)

PI +00.00 (RT.)
EL. 19.70
PI +00.00 (LT.)
EL. 19.51

GNE 9/7/2021

EXIST. GROUND @ ℄ CONST. TUTTLE AVE.

9/29/2021
9/29/2021
9/7/2021
9/7/2021
8/25/2021
9/7/2021
8/25/2021
9/7/2021

PI +10.00 (RT.)
EL. 18.45

19.34
18.29

SCALE: 1" = 40' HORIZ.
1" = 4" VERT.

106+00 107+00 108+00 109+00 110+00 111+00

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
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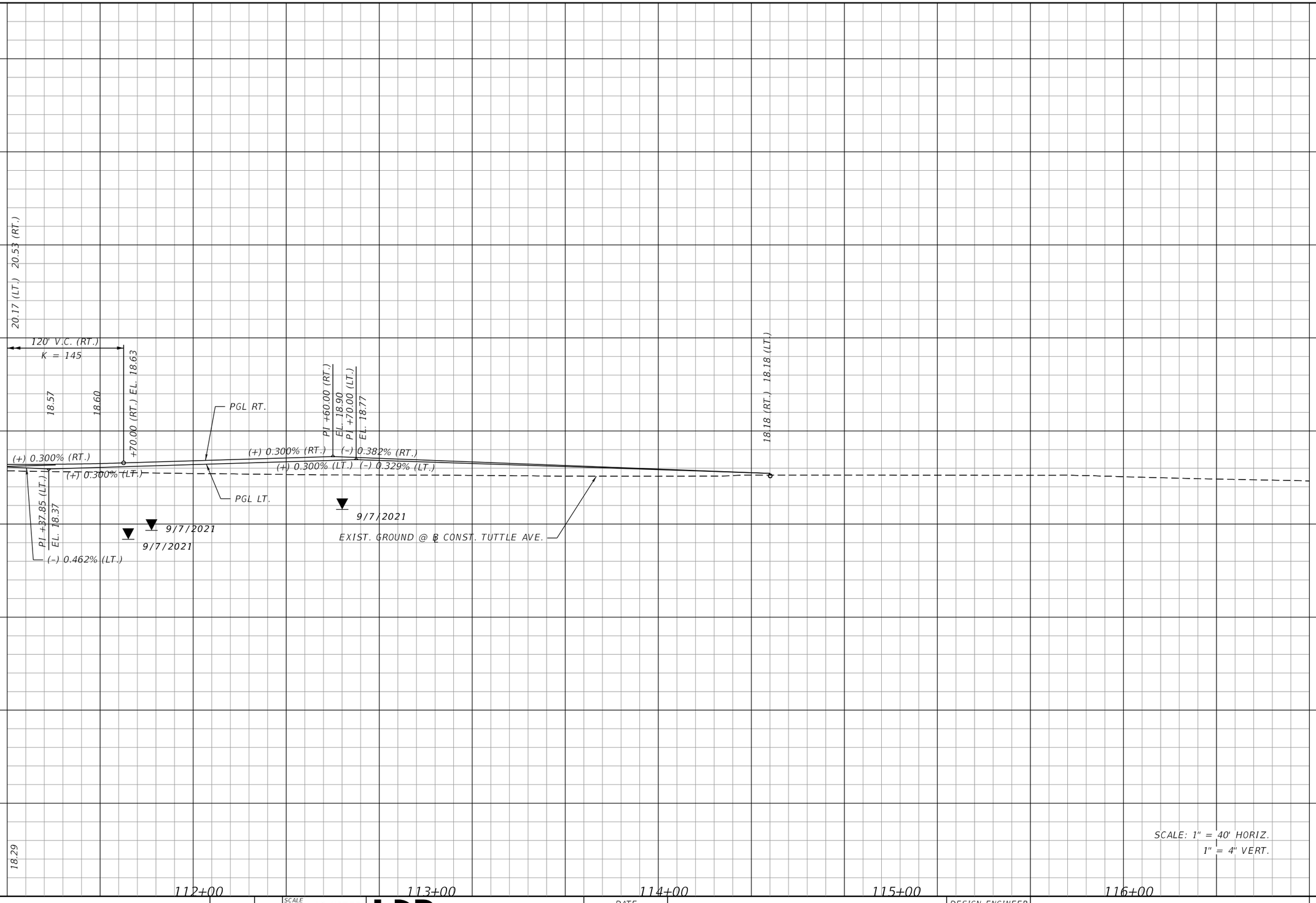
Manatee County FLORIDA
MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

ROADWAY PROFILE (2)
TUTTLE AVE.

SHEET NO.: 17

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



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HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
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Manatee County FLORIDA

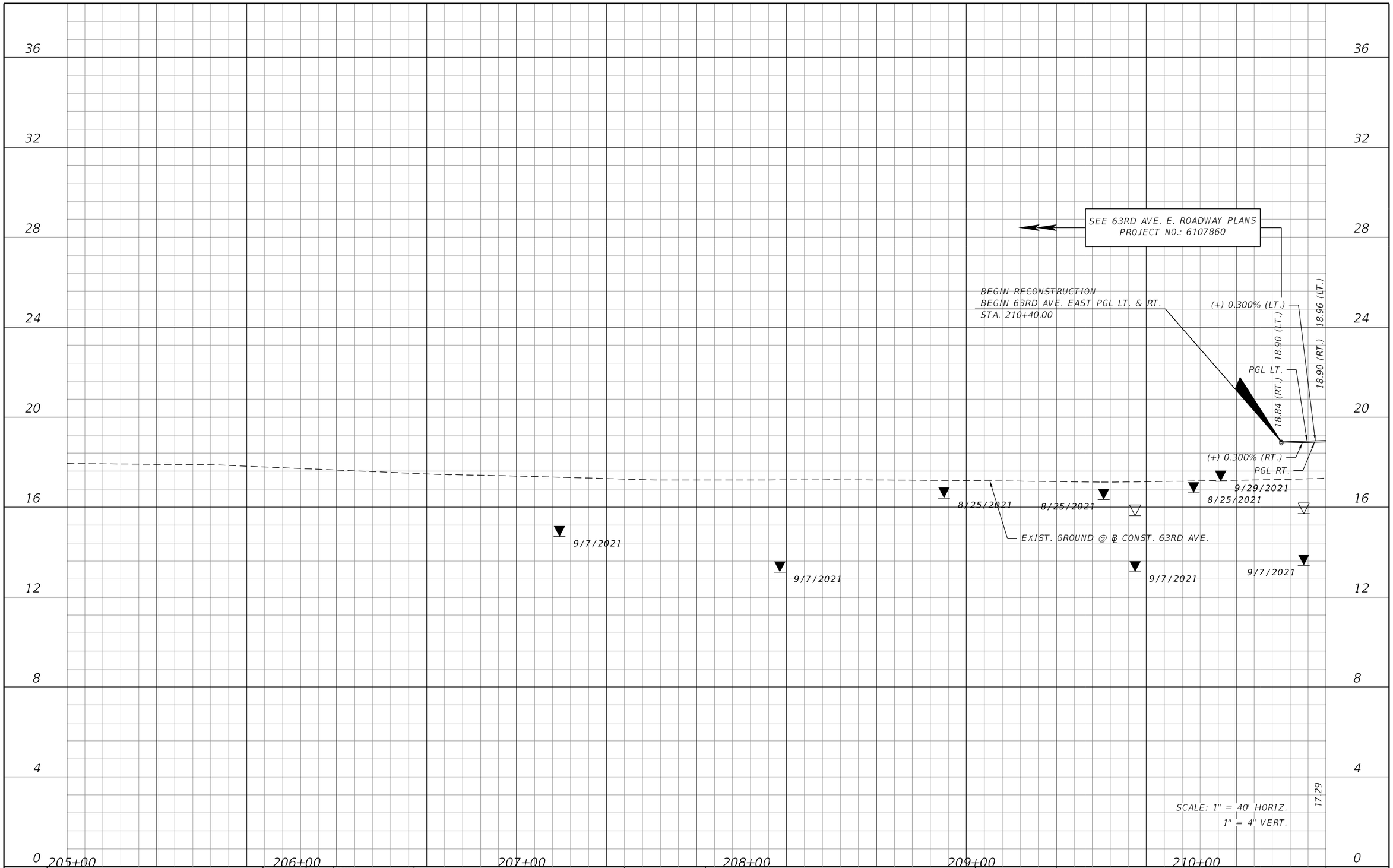
MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

ROADWAY PROFILE (3)
TUTTLE AVE.

SHEET NO.: 18

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



No.	REVISIONS	DATE	BY

SCALE: AS NOTED
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DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

ROADWAY PROFILE (4)
63RD AVE. EAST

SHEET NO.: 19

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

WB RIGHT TURN LANE
CROSS SLOPE TRANS.
(–) 0.016 TO (–) 0.033

WB RIGHT TURN LANE
CROSS SLOPE (–) 0.033

STA. 213+95.00

STA. 214+70.00

EB BIKE LANE
CROSS SLOPE TRANS.
(–) 0.005 TO (–) 0.03

EB BIKE LANE
CROSS SLOPE TRANS.
(–) 0.005 TO (–) 0.03

STA. 213+95.00

STA. 214+70.00

STA. 215+20.00

EB & WB LANES
CROSS SLOPE TRANS.
(–) 0.02 TO (–) 0.005

SEE INTERSECTION DETAIL

EB & WB LANES
CROSS SLOPE TRANS.
(–) 0.005 TO (–) 0.02

STA. 211+55.00

STA. 212+30.00

STA. 213+95.00

STA. 214+70.00

TUTTLE AVE. CROSSING
SEE INTERSECTION DETAIL

18.96 (LT.)

18.90 (RT.)

STA. 212+69.37

STA. 213+68.13

PGL RT.

PI +20.00 (RT.)
EL. 20.49

PI +80.00 (LT.)
EL. 20.72

21.14 (RT.)

21.26 (LT.)

PI +20.00 (RT.)
EL. 21.14

(+) 0.324% (RT.)

(+) 0.500% (LT.)

(+) 0.387% (LT.)

(+) 0.387% (LT.)

(+) 0.324% (RT.)

(+) 0.548% (RT.)

(+) 0.300% (LT.)

(+) 0.500% (LT.)

(+) 0.300% (RT.)

(+) 0.548% (RT.)

PGL LT.

PI +14.44 (RT.)
EL. 19.36

PI +30.00 (LT.))
EL. 19.47

EXIST. GROUND @ ℄ CONST. 63RD AVE.

8/25/2021

8/25/2021

9/29/2021

8/25/2021

8/25/2021

9/7/2021

9/29/2021

9/7/2021

17.29

21.09

SCALE: 1" = 40' HORIZ.
1" = 4" VERT.

211+00 212+00 213+00 214+00 215+00 216+00

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
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CHECKED BY: TTT

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MANATEE COUNTY PUBLIC WORKS

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FL. LICENSE NO.: 70171

ROADWAY PROFILE (5)
63RD AVE. EAST

SHEET NO.: 20

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

36
32
28
24
20
16
12
8
4

WB RIGHT TURN LANE
CROSS SLOPE (-) 0.033

STA. 216+78.13

21.14 (RT.) 21.26 (LT.)

PI +30.00 (LT.)
EL. 21.30

(-) 0.402% (LT.)

(-) 0.389% (RT.)

PGL LT.

PGL RT.

20.46 (RT.)

20.59 (LT.)

EXIST. GROUND @ ℄ CONST. 63RD AVE.

END RECONSTRUCTION (EB)
END 63RD AVE. EAST PGL RT
STA. 217+94.11

END RECONSTRUCTION (WB)
END 63RD AVE. EAST PGL LT
STA. 218+06.10

21.09

217+00 218+00 219+00 220+00 221+00

SCALE: 1" = 40' HORIZ.
1" = 4" VERT.

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No.	REVISIONS	DATE	BY

SCALE: AS NOTED
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HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

ROADWAY PROFILE (6)
63RD AVE. EAST

SHEET NO.: 21

N

0 10 40
Feet

63RD AVE. EAST

212

211+55.00

212+30.00

212+22.09
48.00' RT
EL. 19.22

VPC
212+25.60
48.00' RT
EL. 19.26

212+42.00
49.21' RT
EL. 19.41

+50.56
61.97' LT
EL. 19.51

+36.36
48.08' LT
EL. 19.52

VPT
+24.17
42.35' LT
EL. 19.47

+09.35
40.05' LT
EL. 19.40

212+37.34
20.00' RT

212+38.70
5.50' LT
EL. 19.53

70' V.C.

212+22.09
37.00' LT
EL. 19.26

VPT
212+30.01
37.63' LT
EL. 19.33

212+52.85
37.00' LT
EL. 19.46

+70.65
59.18' LT
EL. 19.45

+89.72
53.61' LT
EL. 19.33

+09.72
53.31' LT
EL. 19.11

80' V.C.

CROWN LINE

VPC
+04.53
53.35' LT
EL. 19.18

63RD AVE.
PGL RT

63RD AVE.
PGL LT

+93.14
14.44' LT

TUTTLE AVE.

TUTTLE AVE.
PGL LT

+75.00

+21.40
23.09' LT

+21.44
10.59' LT
EL. 19.75

+23.44
8.60' LT
EL. 19.64

+50.00

+95.00

+70.00

+91.65
0.29' RT
EL. 19.59

+09.66
18.65' LT
EL. 19.89

106 107 108 109 110

℄ CONST. TUTTLE AVE.

+34.00

+09.35
6.55' LT
EL. 19.69

+21.52
16.91' RT

+91.00
34.32' RT

TUTTLE AVE.
PGL RT

+21.00

+08.27
10.18' RT
EL. 20.04

+50.00

+80.00

+93.61
3.56' RT

+09.72
31.69' RT
EL. 19.32

VPT
+75.24
45.11' RT
EL. 19.73

+68.66
52.60' RT
EL. 19.82

213+95.42
49.49' LT
EL. 19.92

VPC
214+15.30
48.00' LT
EL. 19.92

214+16.34
48.00' LT
EL. 19.91

50' V.C.

30.1' V.C.

62.49' V.C.

213+91.63
5.50' RT
EL. 20.35

213+93.63
9.00' RT

213+93.13
9.00' LT

213+95.00
31.00' RT

213+95.00
37.00 LT

214

PVC
+09.35
44.95' RT
EL. 19.77

+24.43
44.90' RT
EL. 19.85

PVRC
+39.23
47.09' RT
EL. 19.98

213+78.78
54.00' RT
EL. 20.14

VHIGH
214+01.58
39.23' RT
EL. 20.22

214+13.85
37.06' RT
EL. 20.20

VPT
214+16.34
37.00' RT
EL. 20.19

℄ CONST.
63RD AVE E

214+70.00
31.00 RT

214+70.00
37.00 LT

215

0.02 0.005 0.016 0.033 0.03

NOTE: ALL PARTIAL STATIONS REFERENCE
℄ CONST. TUTTLE AVE.
ALL FULL STATIONS REFERENCE
℄ CONST. 63RD AVE E.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
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DATE: 12/2023
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Manatee County FLORIDA
MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

INTERSECTION DETAIL

SHEET NO.: 22

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

℄ CONSTRUCTION TUTTLE AVE.

EXIST R/W

S-605
STA. 106+35.00 (41.07' LT)
CONST. INLET P-5
INDEX NO. 425-021
EOP EL. 19.54
FL 15.20 BK.
FL 15.20 RT.

S-604
STA. 106+35.00 (46.43' RT)
CONST. INLET P-6
INDEX NO. 425-021
EOP EL. 19.34
FL 15.10 LT.
FL 15.10 BK.

18" PIPE
18" PIPE
FROM S-601
18" PIPE
TO S-603

S-605
S-604
106+35.00

S-603
STA. 105+95.00 (50.00' RT)
CONST. MANHOLE P-8
INDEX NOs. 425-001, 425-010
RIM EL. 19.86
FL 15.00 AH.
FL 15.00 BK.

FROM S-604
18" PIPE
24" PIPE
CONC. JACKET
INDEX 430-001
EXIST. 24" PIPE

S-603
105+95.00

EXIST R/W

S-601
STA. 104+60.00 (38.40' LT)
CONST. INLET P-5
INDEX NO. 425-021
EOP EL. 19.62
FL 15.40 AH.

TO S-605
18" PIPE

S-601
104+60.00

SCALE:
1" = 20' HORIZ.
1" = 10' VERT

℄ CONSTRUCTION TUTTLE AVE.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: AJM
DRAWN BY: AMS
CHECKED BY: PH

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: ADAM RAY MITCHUM
FL. LICENSE NO.: 83296

DRAINAGE STRUCTURES TUTTLE AVE.

SHEET NO.: 23

11:10:21 PM 12/12/2023 PW:\

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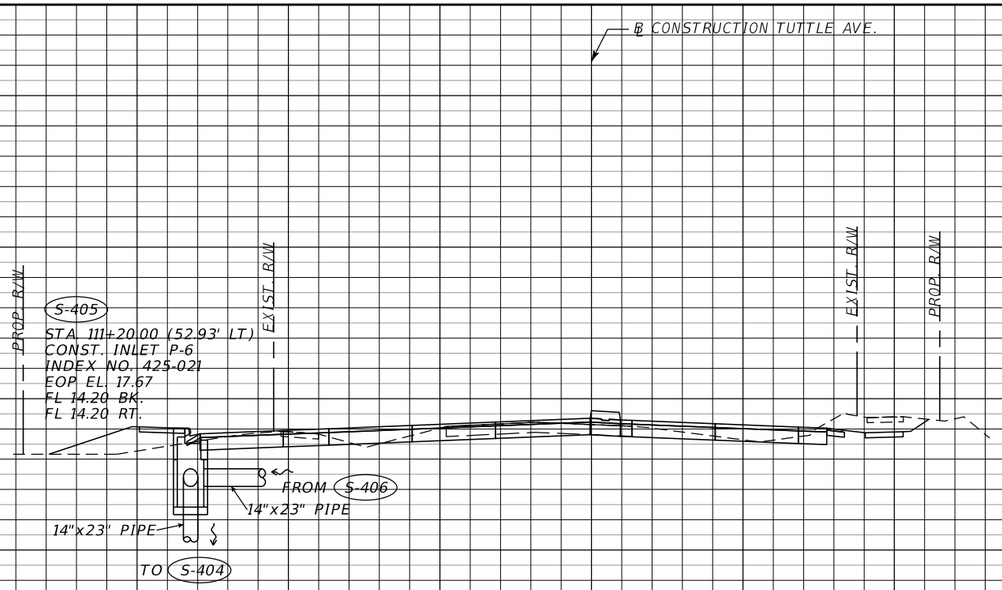

No.	REVISIONS	DATE	BY

11:10:22 PM 12/12/2023 PW:\

SCALE: AS NOTED
DESIGNED BY: AJM
DRAWN BY: AMS
CHECKED BY: PH

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: ADAM RAY MITCHUM
FL. LICENSE NO.: 83296

DRAINAGE STRUCTURES TUTTLE AVE.

SHEET NO.: 24

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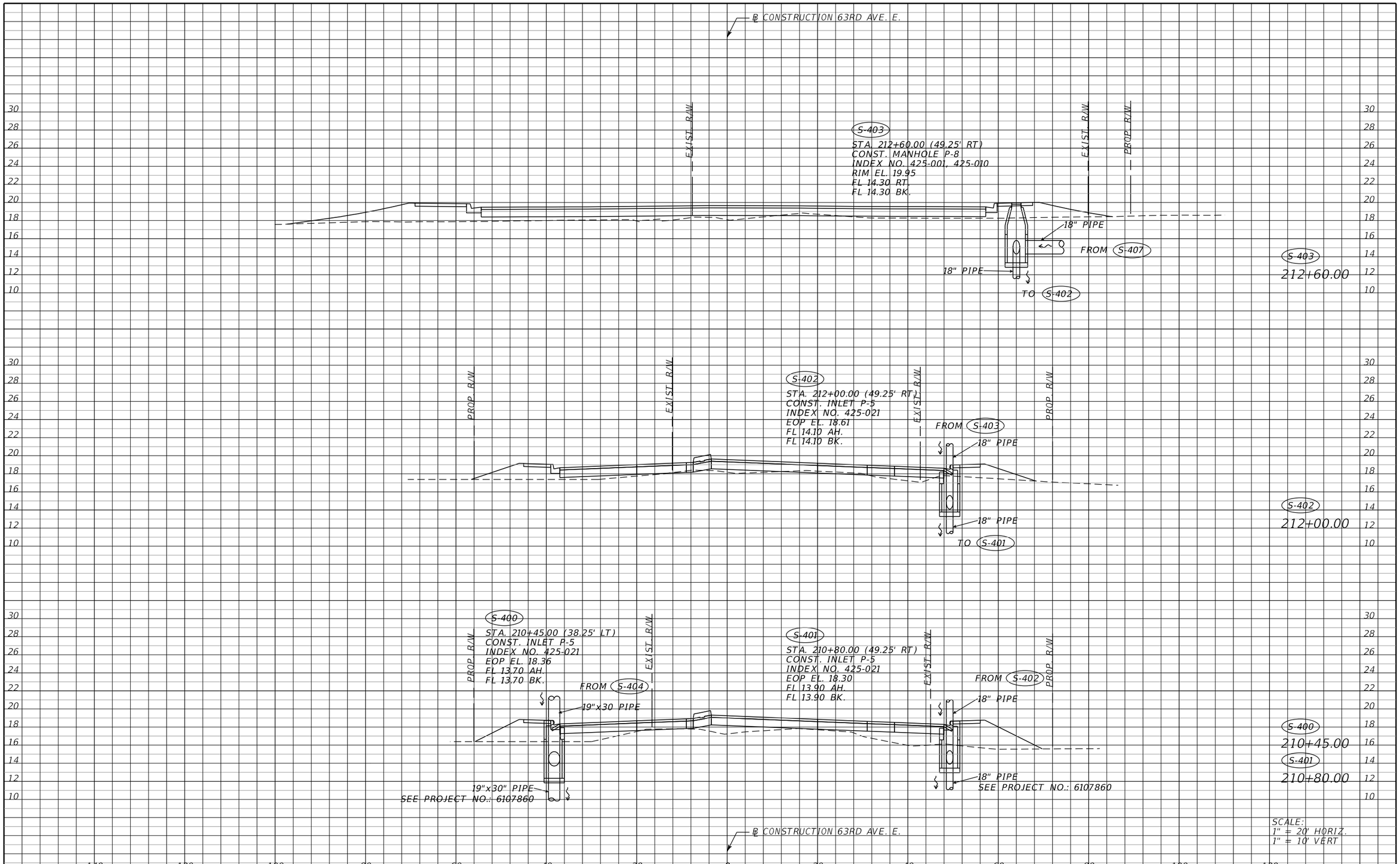


No.	REVISIONS	DATE	BY

11:11:20 PM 12/12/2023 PW:\

SCALE: AS NOTED
DESIGNED BY: AJM
DRAWN BY: AMS
CHECKED BY: PH

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

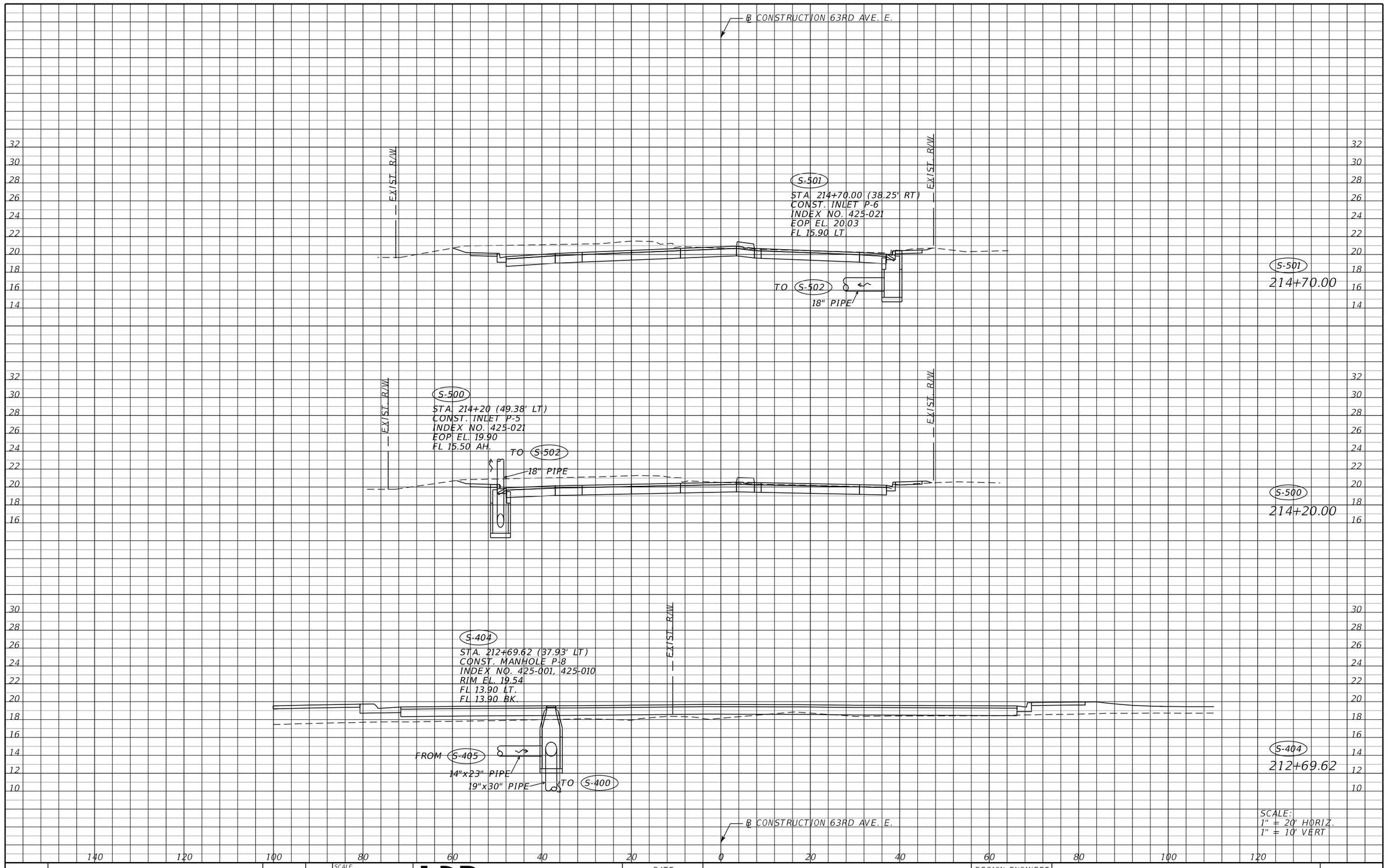
Manatee County FLORIDA
MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER
ADAM RAY MITCHUM
FL. LICENSE NO.
83296

DRAINAGE STRUCTURES
63RD AVE. EAST

SHEET NO.
25

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



No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: AJM
DRAWN BY: AMS
CHECKED BY: PH

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

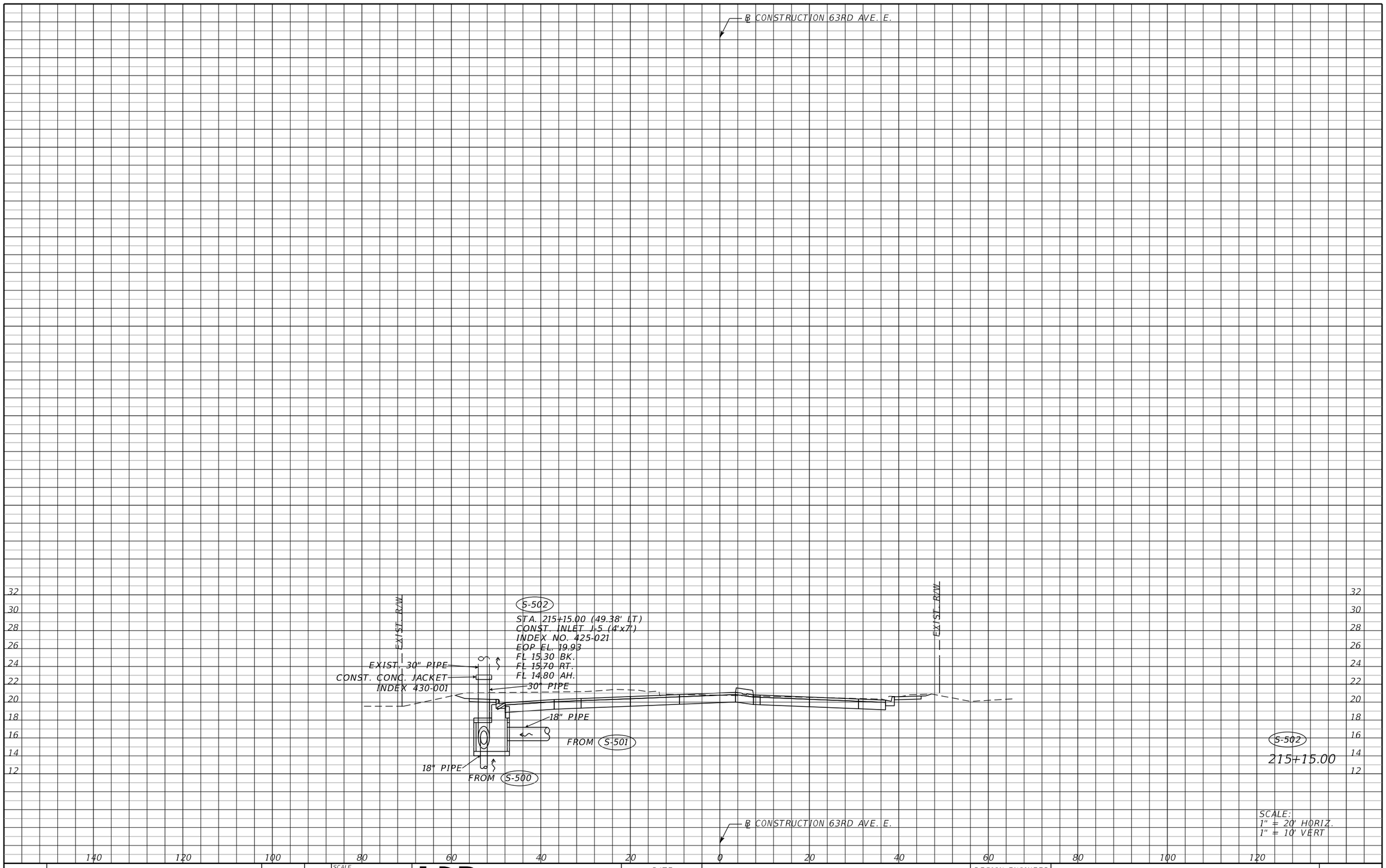
DESIGN ENGINEER: ADAM RAY MITCHUM
FL. LICENSE NO.: 83296

DRAINAGE STRUCTURES 63RD AVE. EAST

SHEET NO.: 26

11:11:22 PM 12/12/2023 PW:\

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



No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: AJM
DRAWN BY: AMS
CHECKED BY: PH

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

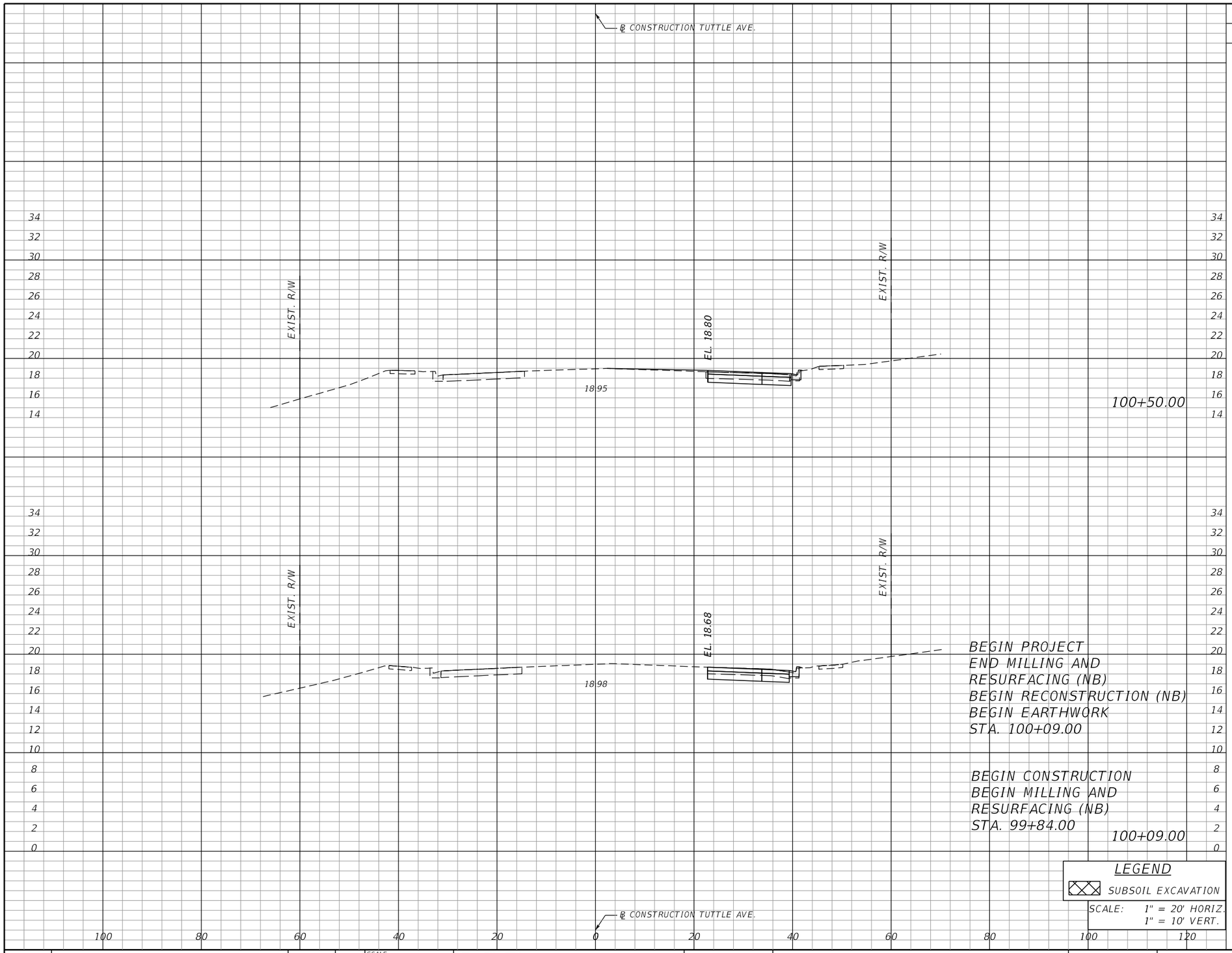
DESIGN ENGINEER: ADAM RAY MITCHUM
FL. LICENSE NO.: 83296

DRAINAGE STRUCTURES
63RD AVE. EAST

SHEET NO.: 27

11:11:24 PM 12/12/2023 PW:\

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



Subsoil Exc.		Regular Exc.		Embankment	
A	V	A	V	A	V
0		20		2	
	0		31		2
0		21		0	
	0		0		0

LEGEND

SUBSOIL EXCAVATION

SCALE: 1" = 20' HORIZ.
1" = 10' VERT.

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

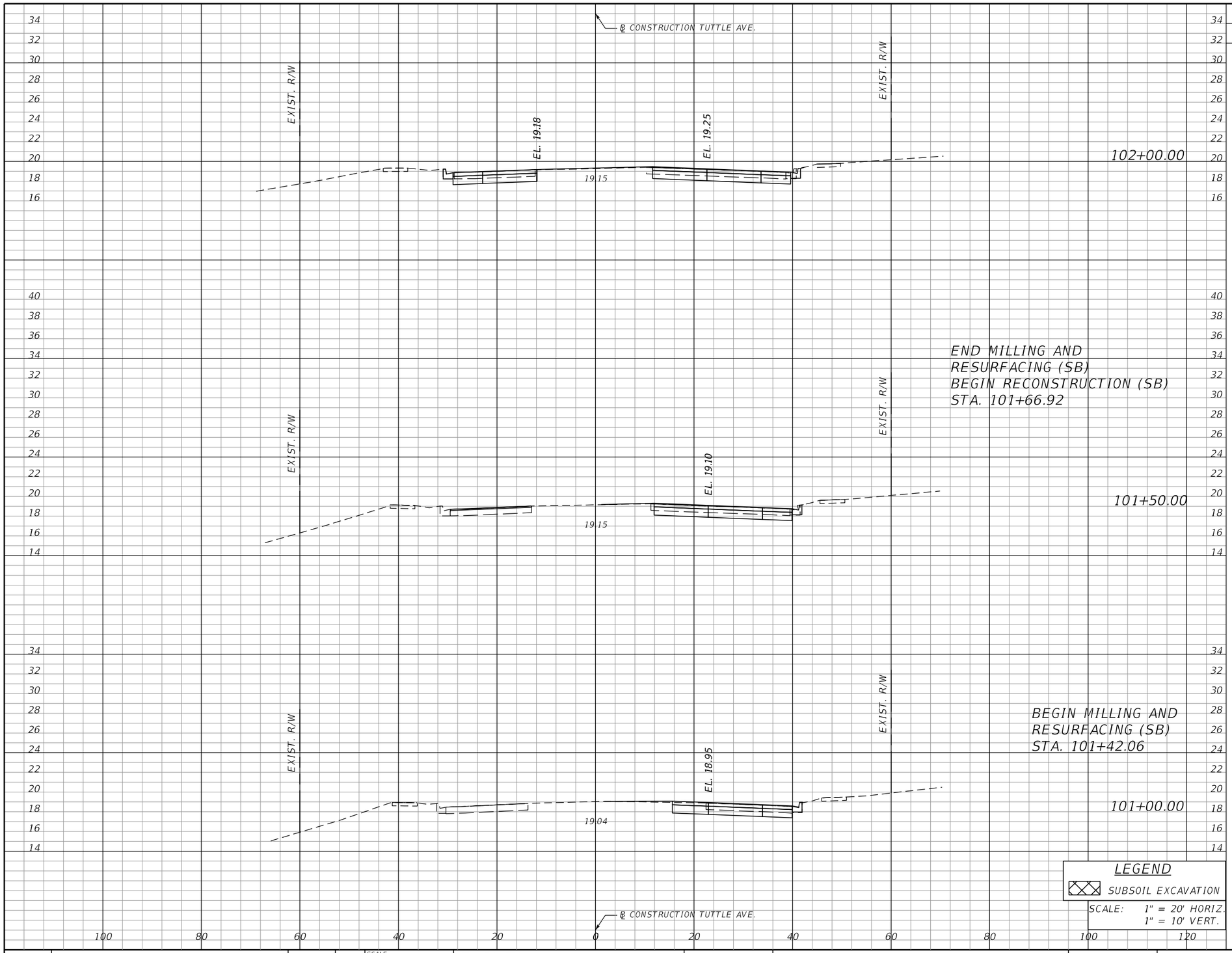
DATE: 12/2023
PROJECT NO.: 6065961

Manatee County FLORIDA
MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS TUTTLE AVE.

SHEET NO.: 28



Subsoil Exc.		Regular Exc.		Embankment	
A	V	A	V	A	V
0		56		1	
	0		85		1
0		36		0	
	0		60		1
0		29		1	
	0		45		3

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

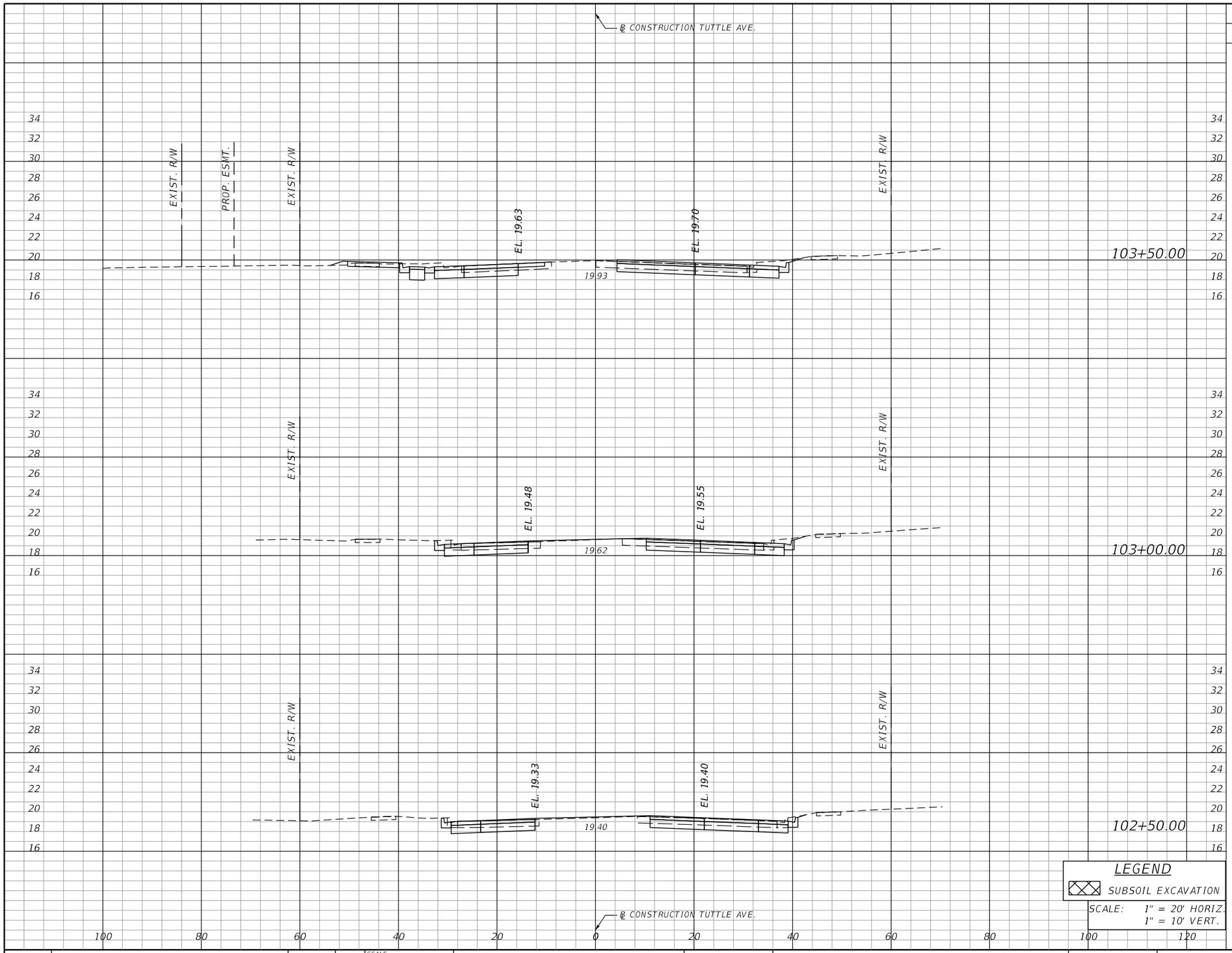
MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS
TUTTLE AVE.

SHEET NO.: 29

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



Subsoil Exc.		Regular Exc.		Embankment	
A	V	A	V	A	V
0	0	76	123	1	2
0	0	57	105	1	3
0	0	56	104	2	3

LEGEND

SUBSOIL EXCAVATION

SCALE: 1" = 20' HORIZ.
1" = 10' VERT.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

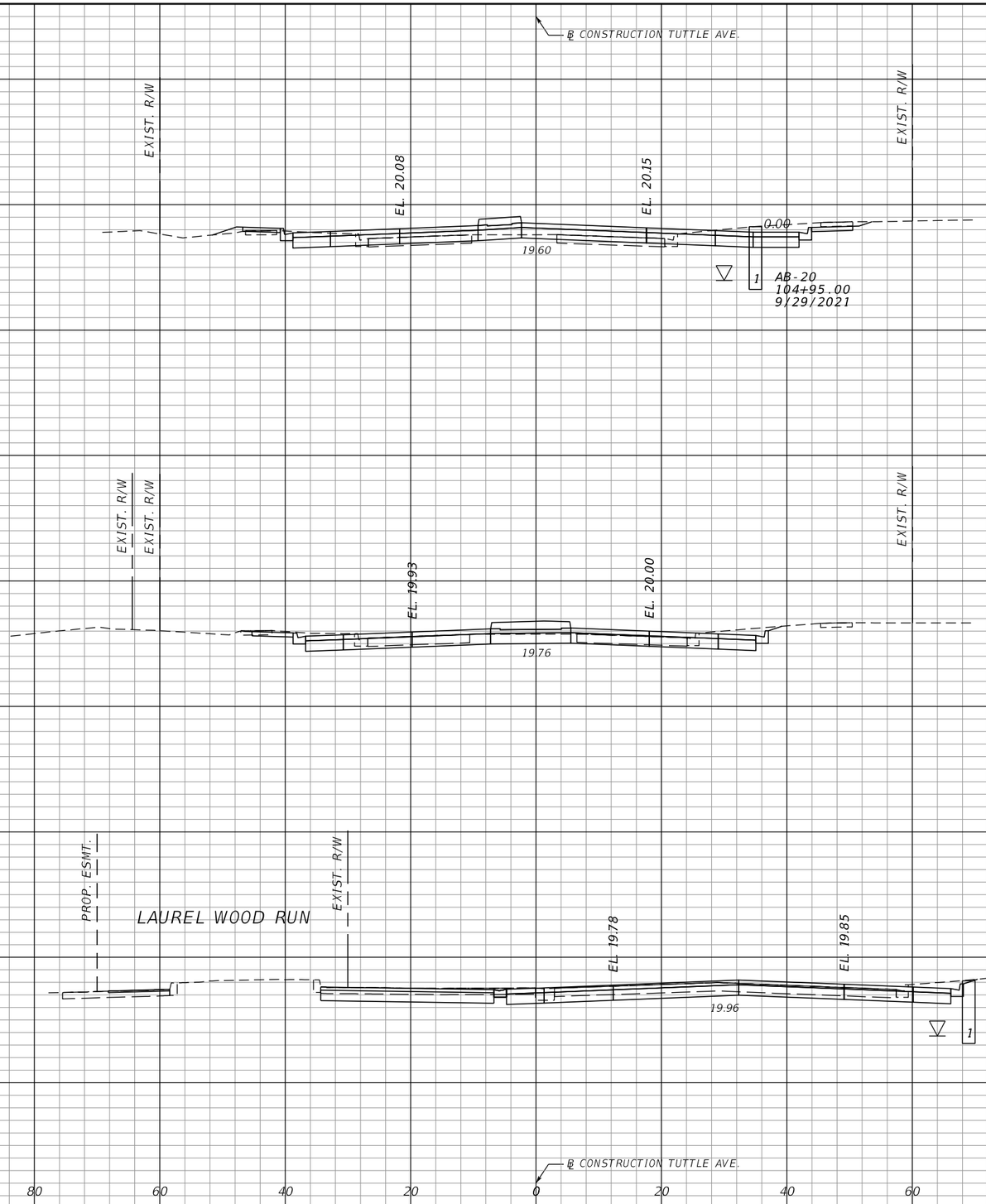
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS TUTTLE AVE.

SHEET NO.: 30

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



	Subsoil Exc.		Regular Exc.		Embankment	
	A	V	A	V	A	V
105+00.00	0		71		1	
		0		136		1
104+50.00	0		76		0	
		0		169		0
104+00.00	0		107		0	
		0		169		1

LEGEND

SUBSOIL EXCAVATION

SCALE: 1" = 20' HORIZ.
1" = 10' VERT.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

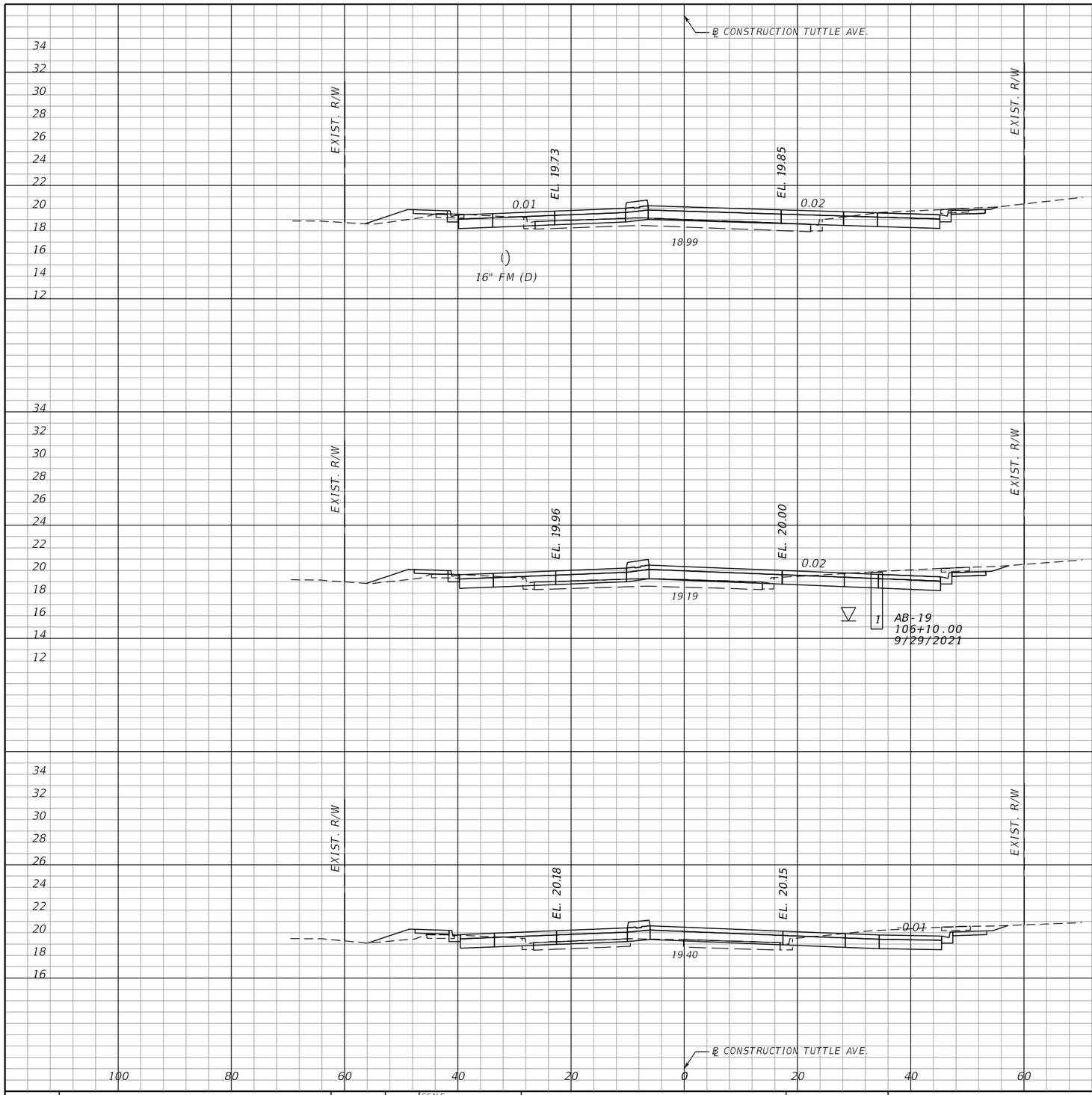
DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS TUTTLE AVE.

SHEET NO.: 31

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

TTRAN 12/12/2023 11:32:05 PM Rdxsrd_shg PW:\



	Subsoil Exc.		Regular Exc.		Embankment	
	A	V	A	V	A	V
106+50.00	0		51		6	
		0		107		10
106+00.00	0		65		5	
		0		120		9
105+50.00	0		65		5	
		0		126		6

LEGEND

SUBSOIL EXCAVATION

SCALE: 1" = 20' HORIZ.
1" = 10' VERT.

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

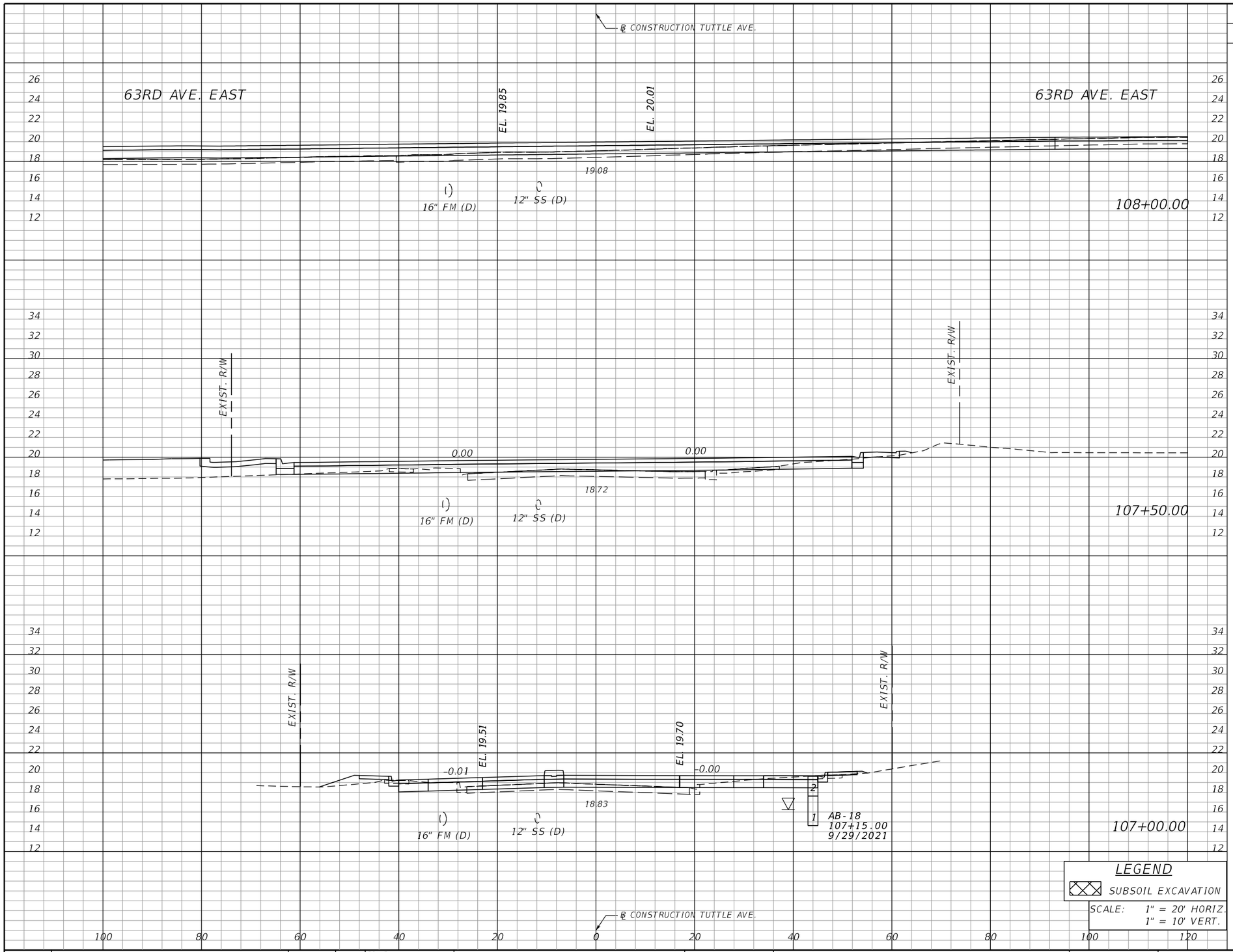
Manatee County FLORIDA
MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS
TUTTLE AVE.

SHEET NO.: 32

TTRAN 12/12/2023 11:32:06 PM Rdxsrd_shg PW:\



Subsoil Exc.		Regular Exc.		Embankment	
A	V	A	V	A	V
0		101		70	
	0		119		152
0		28		94	
	0		70		93
0		48		6	
	0		92		11

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No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

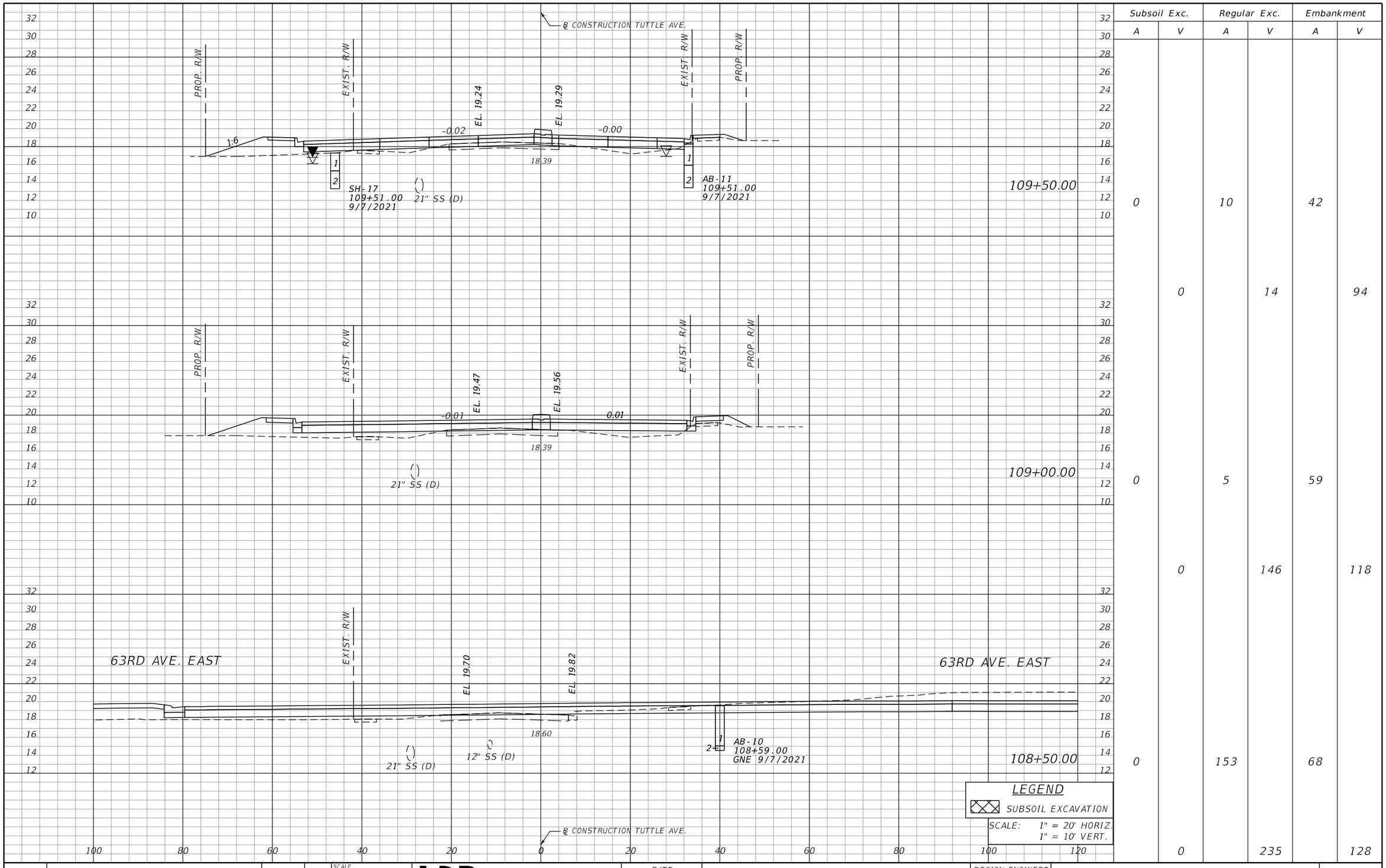
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS TUTTLE AVE.

SHEET NO.: 33

TTRAN 12/12/2023 11:32:07 PM Rdxsrd_shg PW:\



	Subsoil Exc.		Regular Exc.		Embankment	
	A	V	A	V	A	V
109+50.00	0	0	10	14	42	94
109+00.00	0	0	5	146	59	118
108+50.00	0	0	153	235	68	128

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

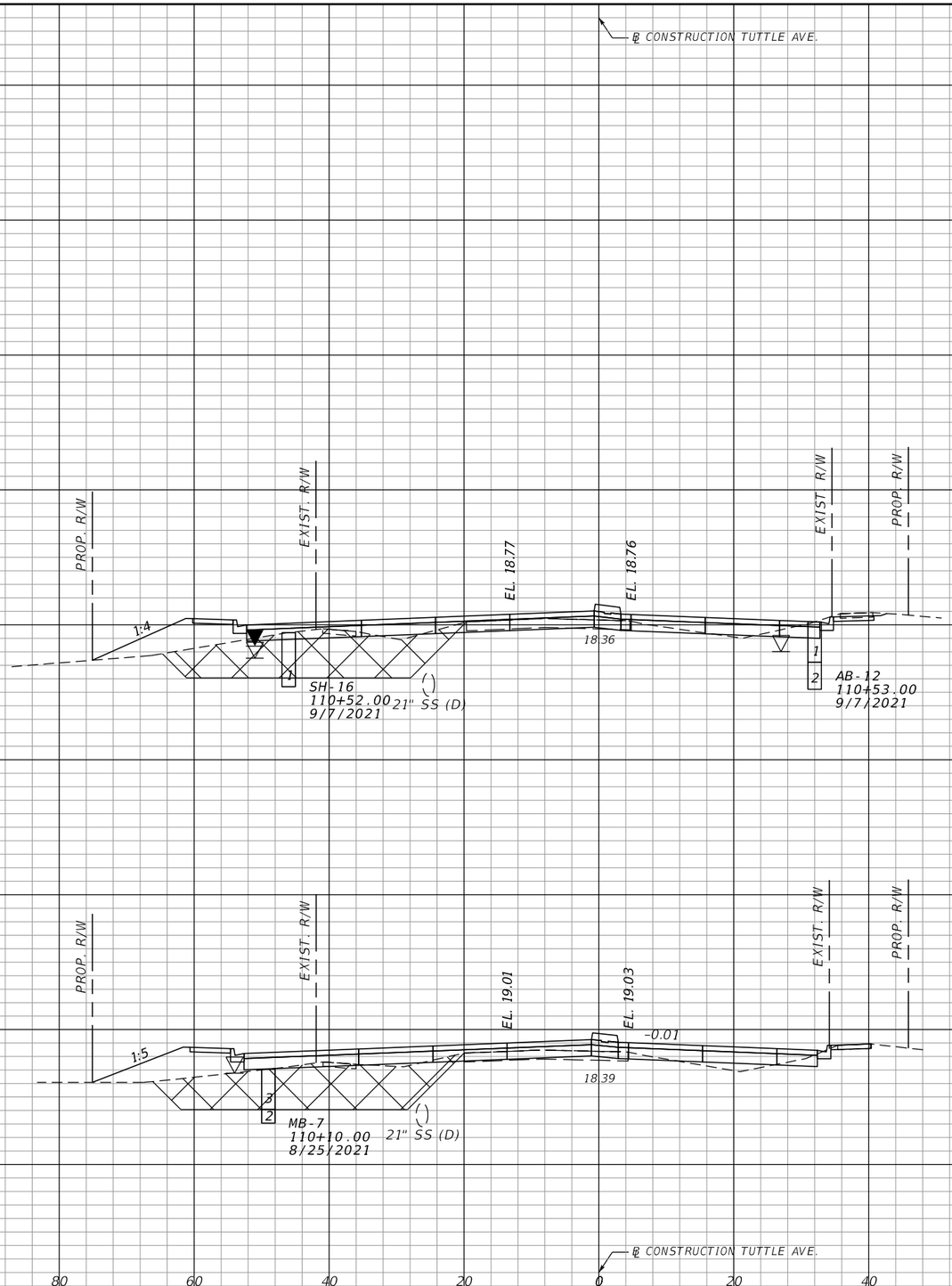
DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS TUTTLE AVE.

SHEET NO.: 34

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

TTRAN 12/12/2023 11:32:08 PM Rdxsrd_shg PW:\



	Subsoil Exc.		Regular Exc.		Embankment	
	A	V	A	V	A	V
110+50.00	107		34		139	
		208		50		270
110+00.00	117		20		153	
		109		28		233

LEGEND

SUBSOIL EXCAVATION

SCALE: 1" = 20' HORIZ.
1" = 10' VERT.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

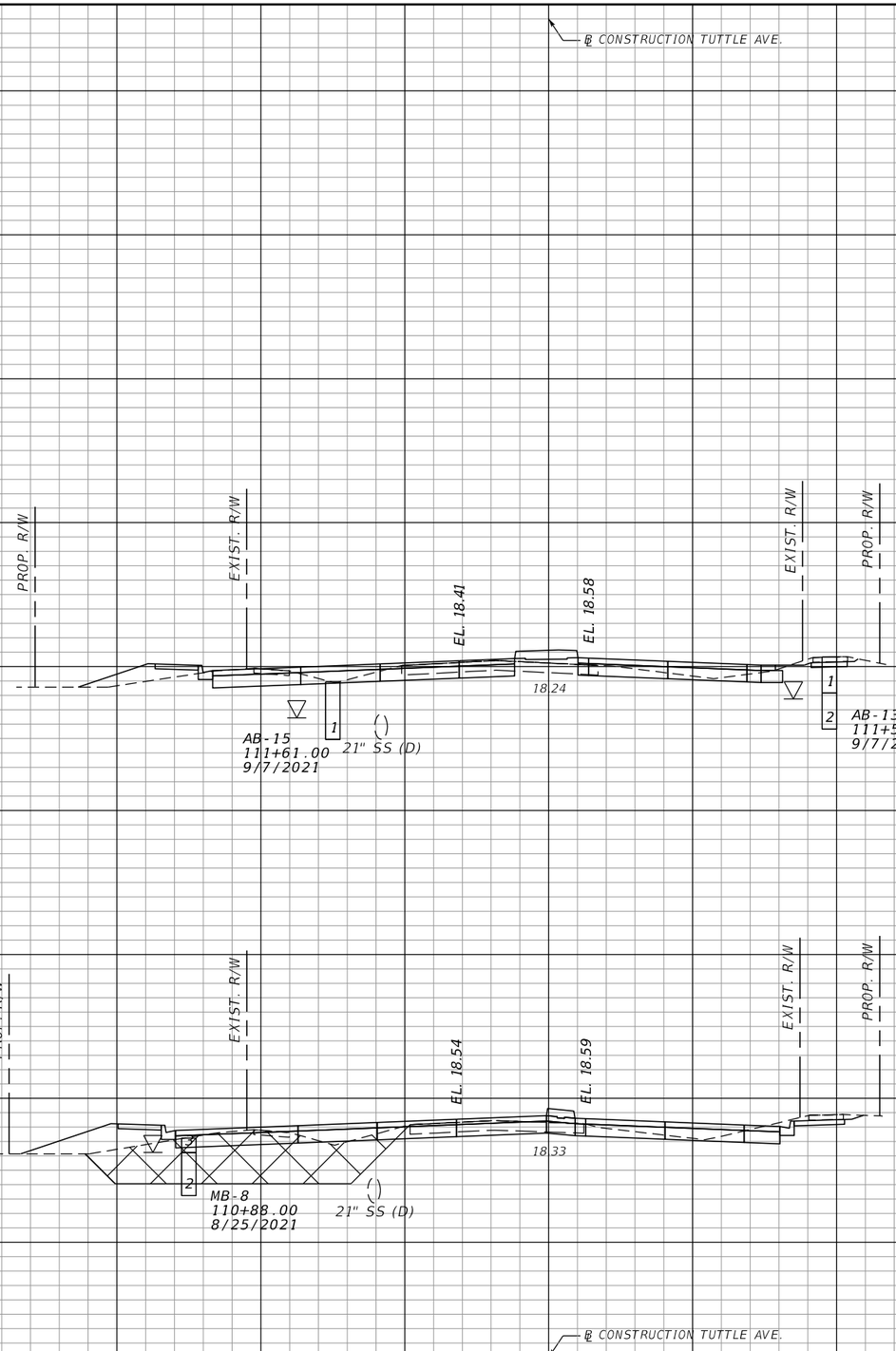
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS TUTTLE AVE.

SHEET NO.: 35

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



	Subsoil Exc.		Regular Exc.		Embankment	
	A	V	A	V	A	V
111+50.00	0		57		14	
		0		112		208
111+00.00	122		64		144	
		213		91		263

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

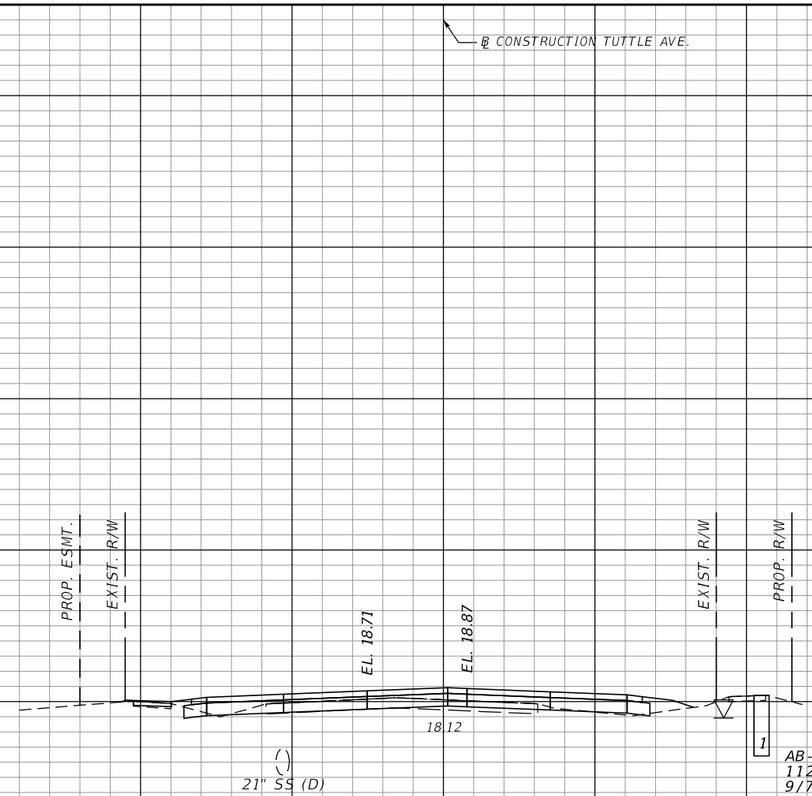
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS TUTTLE AVE.

SHEET NO.: 36

TTRAN 12/12/2023 11:32:10 PM Rdxsrd_shg PW:\



	Subsoil Exc.		Regular Exc.		Embankment	
	A	V	A	V	A	V
112+50.00	0		23		5	
		0		54		10
112+00.00	0		35		6	
		0		85		19

LEGEND

SUBSOIL EXCAVATION

SCALE: 1" = 20' HORIZ.
1" = 10' VERT.

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

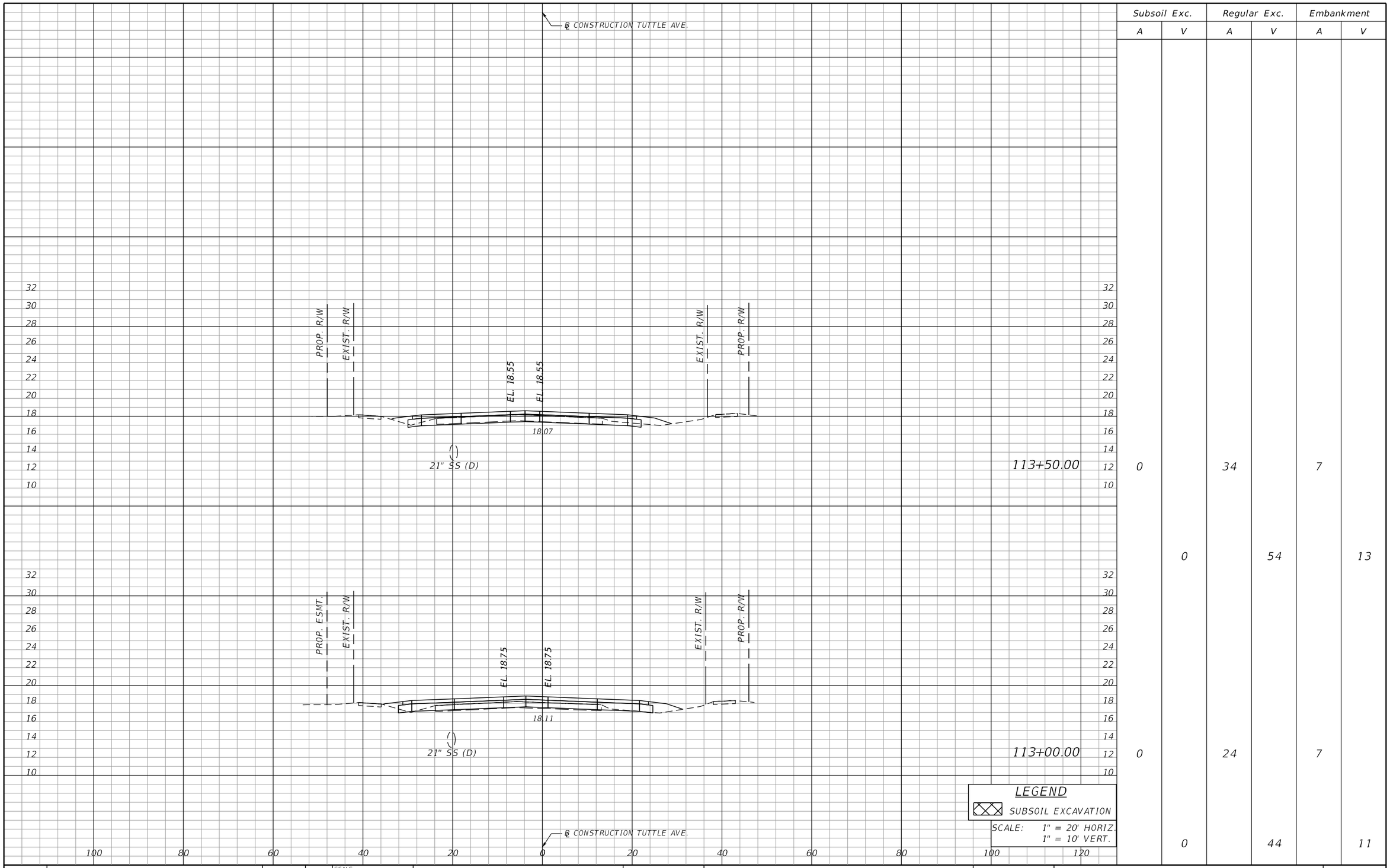
DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS TUTTLE AVE.

SHEET NO.: 37



	Subsoil Exc.		Regular Exc.		Embankment	
	A	V	A	V	A	V
113+50.00	0		34		7	
		0		54		13
113+00.00	0		24		7	
		0		44		11

LEGEND

SUBSOIL EXCAVATION

SCALE: 1" = 20' HORIZ.
1" = 10' VERT.

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No.	REVISIONS	DATE	BY

SCALE: AS NOTED
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CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

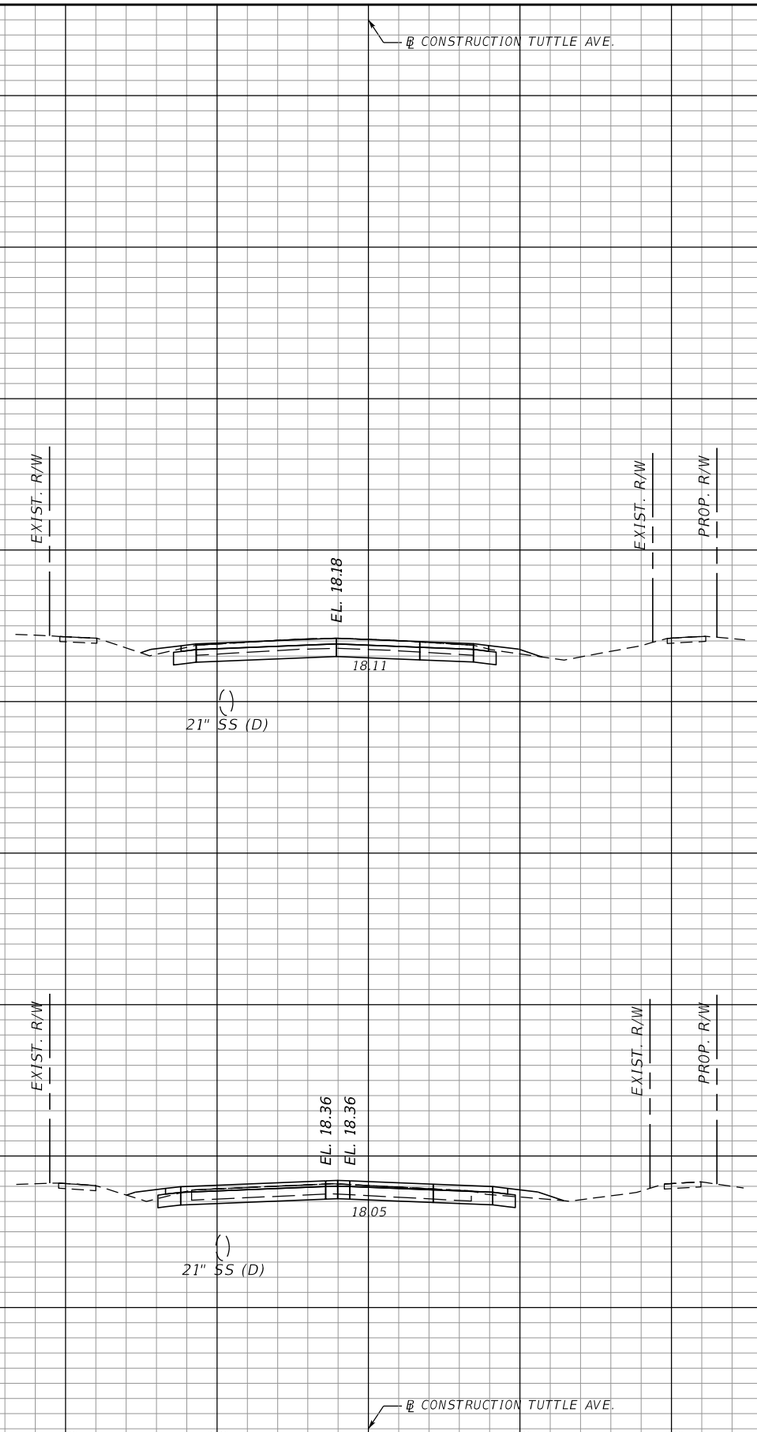
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS TUTTLE AVE.

SHEET NO.: 38

TTRAN 12/12/2023 11:32:12 PM Rdxsrd_shg PW:\



TUTTLE AVE.
SUMMARY OF EARTHWORK

DESCRIPTION	P CY	F CY
ROADWAY EXCAVATION	2728	
SUBSOIL EXCAVATION	643	
ROADWAY EMBANKMENT	1,683	

END CONSTRUCTION
END MILLING AND RESURFACING
STA. 114+73.05

END PROJECT
BEGIN MILLING AND RESURFACING
END RECONSTRUCTION
END EARTHWORK
STA. 114+48.05

LEGEND
SUBSOIL EXCAVATION

SCALE: 1" = 20' HORIZ.
1" = 10' VERT.

	Subsoil Exc.		Regular Exc.		Embankment	
	A	V	A	V	A	V
114+48.05	0		50		3	
		0		83		7
114+00.00	0		43		5	
		0		71		11

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SARASOTA, FL 34232

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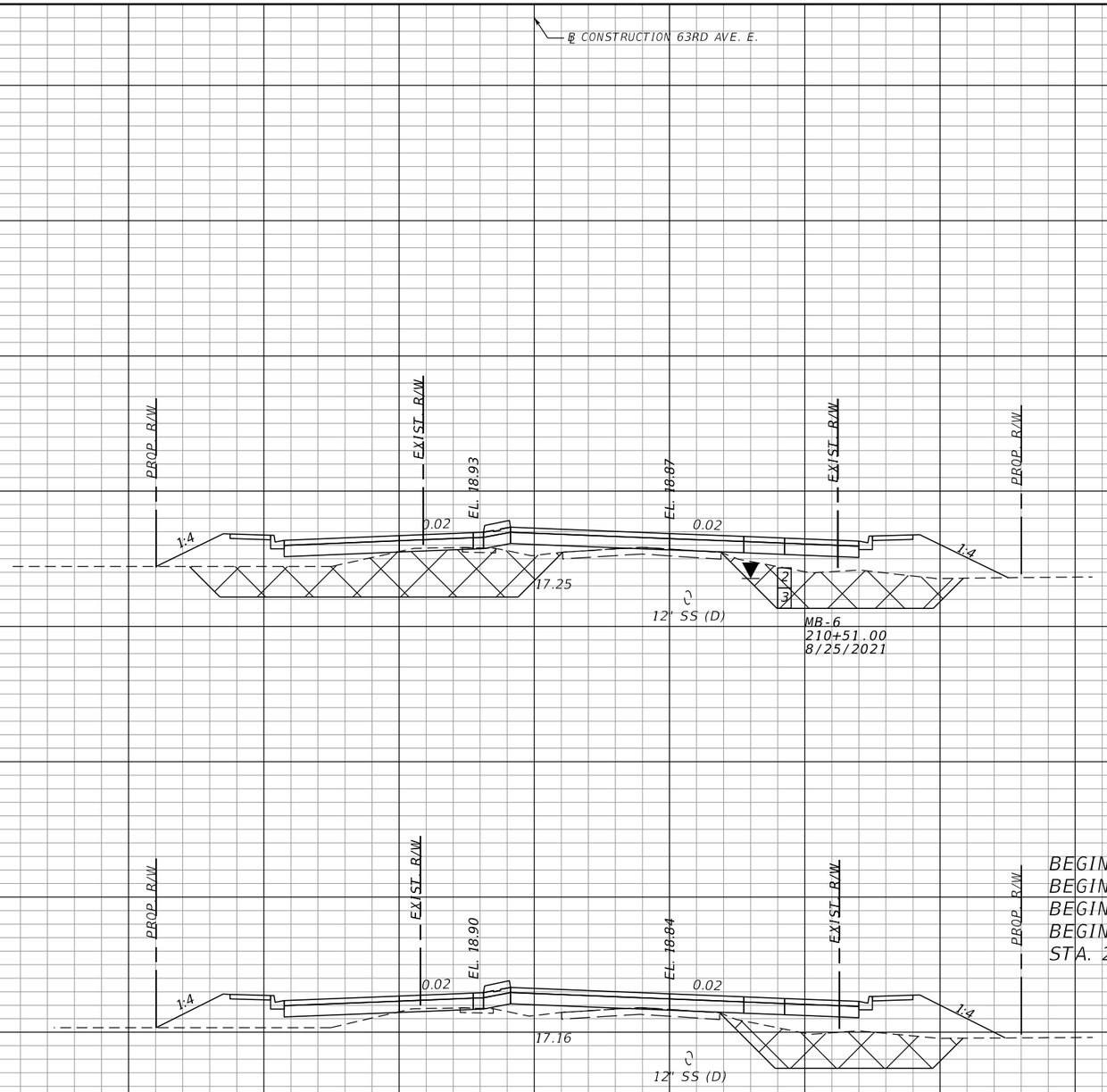
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS TUTTLE AVE.

SHEET NO.: 39



Subsoil Exc.		Regular Exc.		Embankment	
A	V	A	V	A	V
220		1		328	
	55		1		96
78		2		187	
	0		0		0

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
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CHECKED BY: TTT

HDR ENGINEERING, INC.
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SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

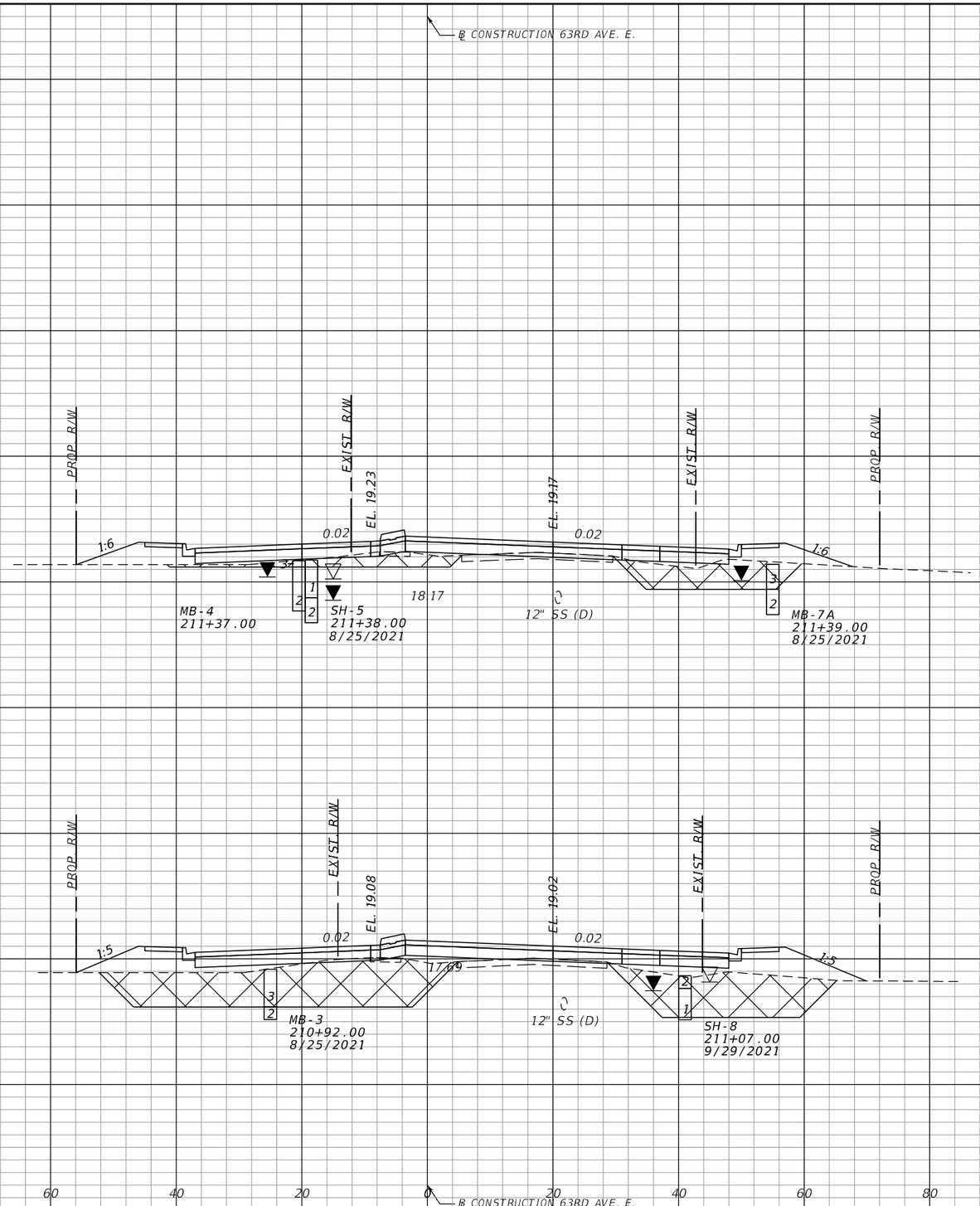
DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS 63RD AVE. EAST

SHEET NO.: 40

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

TTRAN 12/12/2023 11:33:28 PM Rdxsrd_shg PW:\



Subsoil Exc.		Regular Exc.		Embankment	
A	V	A	V	A	V
79		5		123	
	314		6		425
	444		3		615

211+50.00

211+00.00

LEGEND

SUBSOIL EXCAVATION

SCALE: 1" = 20' HORIZ.
1" = 10' VERT.

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DATE: 12/2023
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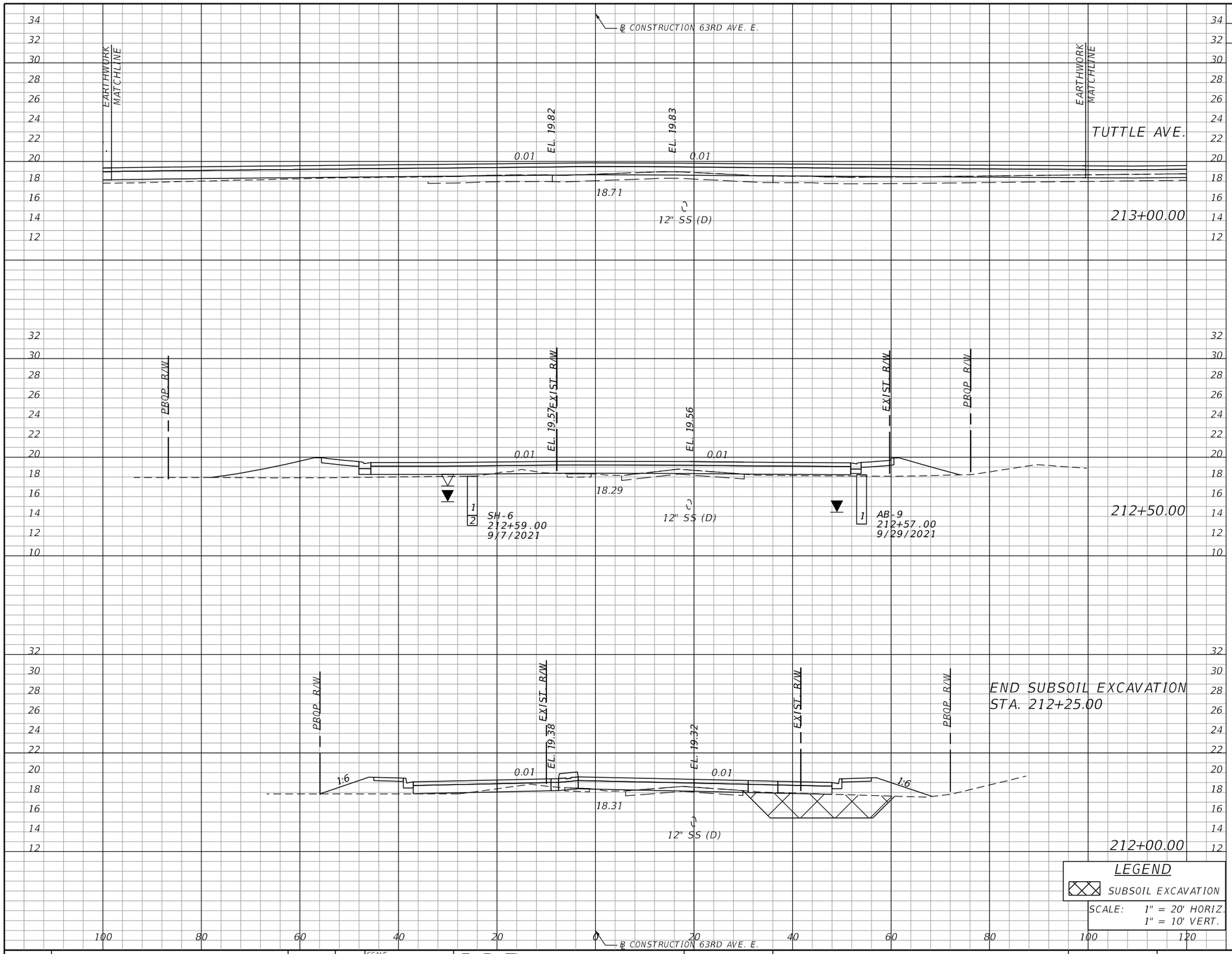
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS 63RD AVE. EAST

SHEET NO.: 41



	Subsoil Exc.		Regular Exc.		Embankment	
	A	V	A	V	A	V
	0		19		2	
		0		24		60
	0		7		63	
		57		19		176
	62		14		105	
		131		18		211

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No.	REVISIONS	DATE	BY

SCALE: AS NOTED
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HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
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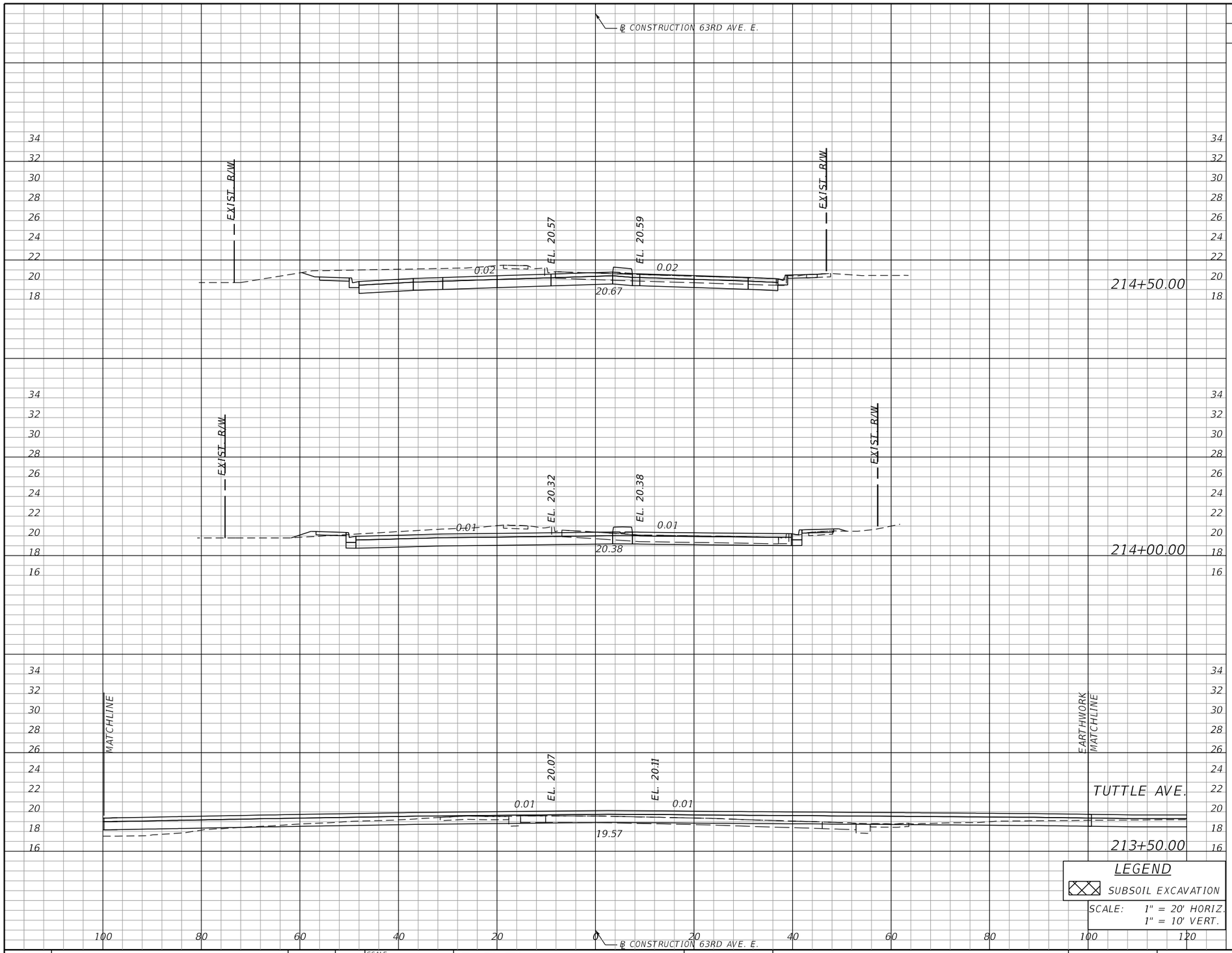
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS 63RD AVE. EAST

SHEET NO.: 42

TTRAN 12/12/2023 11:33:31 PM Rdxsrd_shg PW:\



Subsoil Exc.		Regular Exc.		Embankment	
A	V	A	V	A	V
0	0	153	256	0	2
0	0	124	194	2	2
0	0	86	97	0	2

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No.	REVISIONS	DATE	BY

SCALE: AS NOTED
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SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

Manatee County FLORIDA

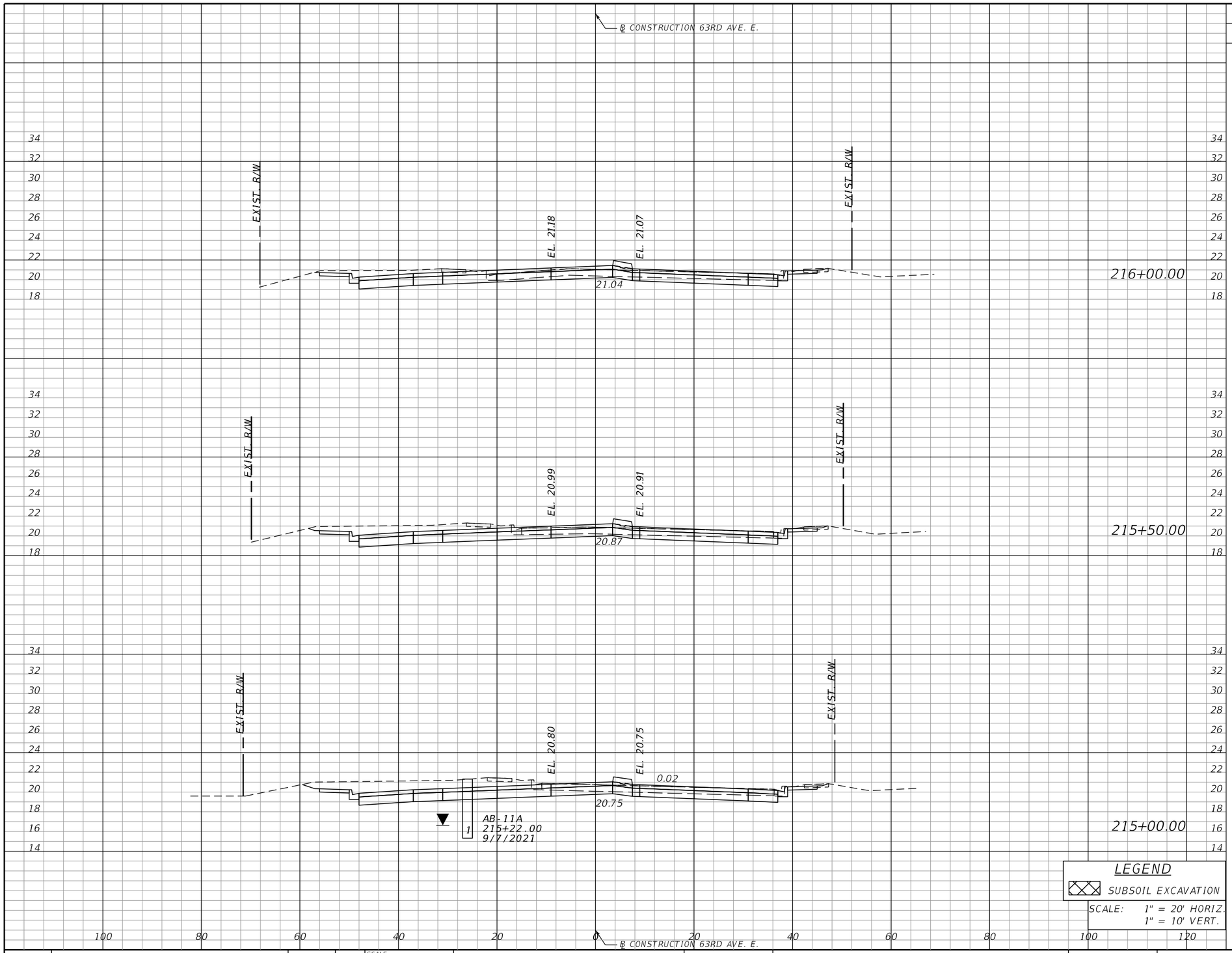
MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS
63RD AVE. EAST

SHEET NO.: 43

TTRAN 12/12/2023 11:33:33 PM Rdxsrd_shg PW:\



	Subsoil Exc.		Regular Exc.		Embankment	
	A	V	A	V	A	V
216+00.00	0		112		0	
		0		223		0
215+50.00	0		129		0	
		0		256		0
215+00.00	0		148		0	
		0		279		0

LEGEND

SUBSOIL EXCAVATION

SCALE: 1" = 20' HORIZ.
1" = 10' VERT.

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No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

Manatee County FLORIDA

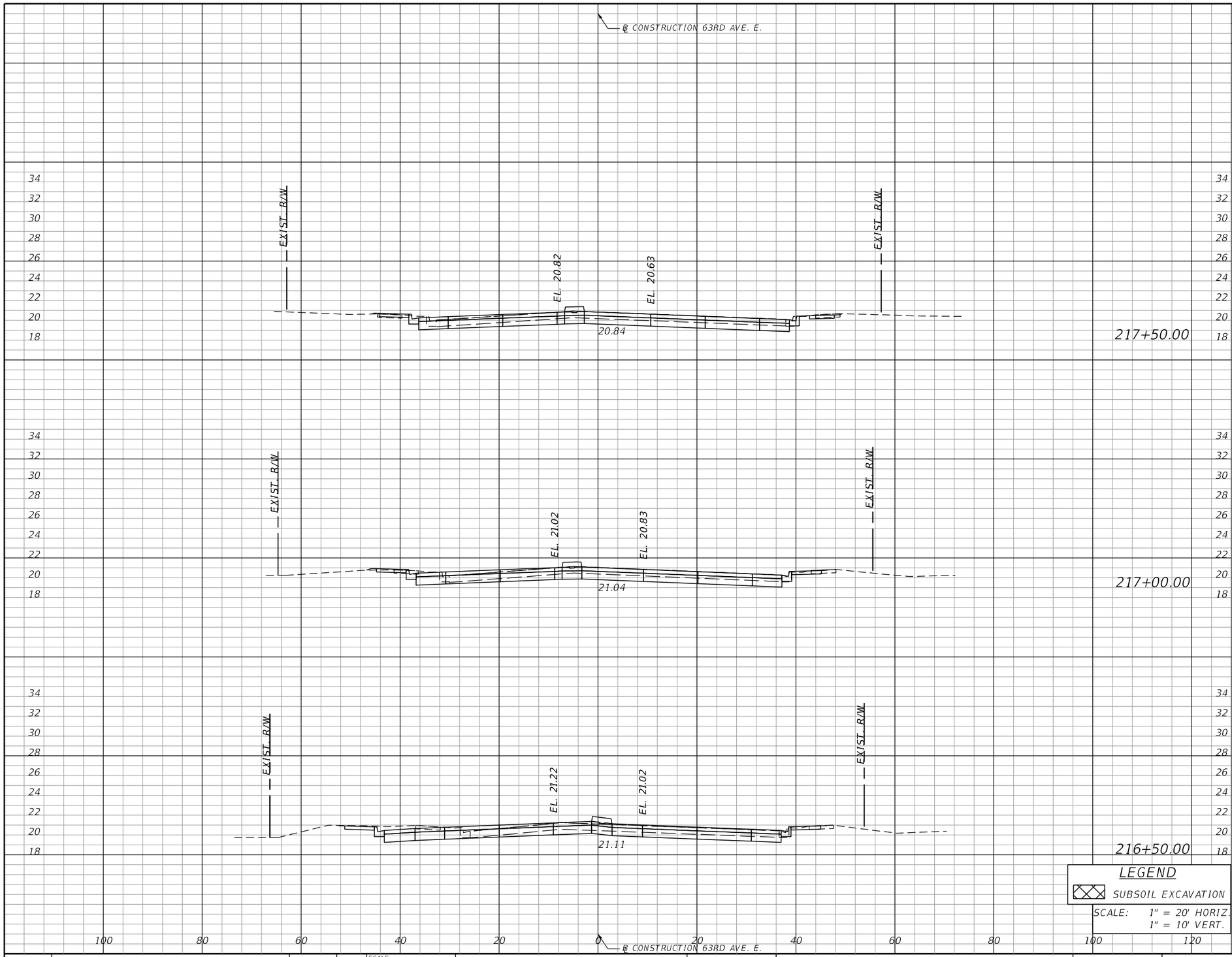
MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS
63RD AVE. EAST

SHEET NO.: 44

TTRAN 12/12/2023 11:33:34 PM Rdxsrd_shg PW:\



Subsoil Exc.		Regular Exc.		Embankment	
A	V	A	V	A	V
0	0	94	171	0	0
0	0	91	175	0	0
0	0	98	194	0	0

LEGEND

SUBSOIL EXCAVATION

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DESIGN ENGINEER: JASON L. STARR
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CROSS SECTIONS 63RD AVE. EAST

SHEET NO.: 45

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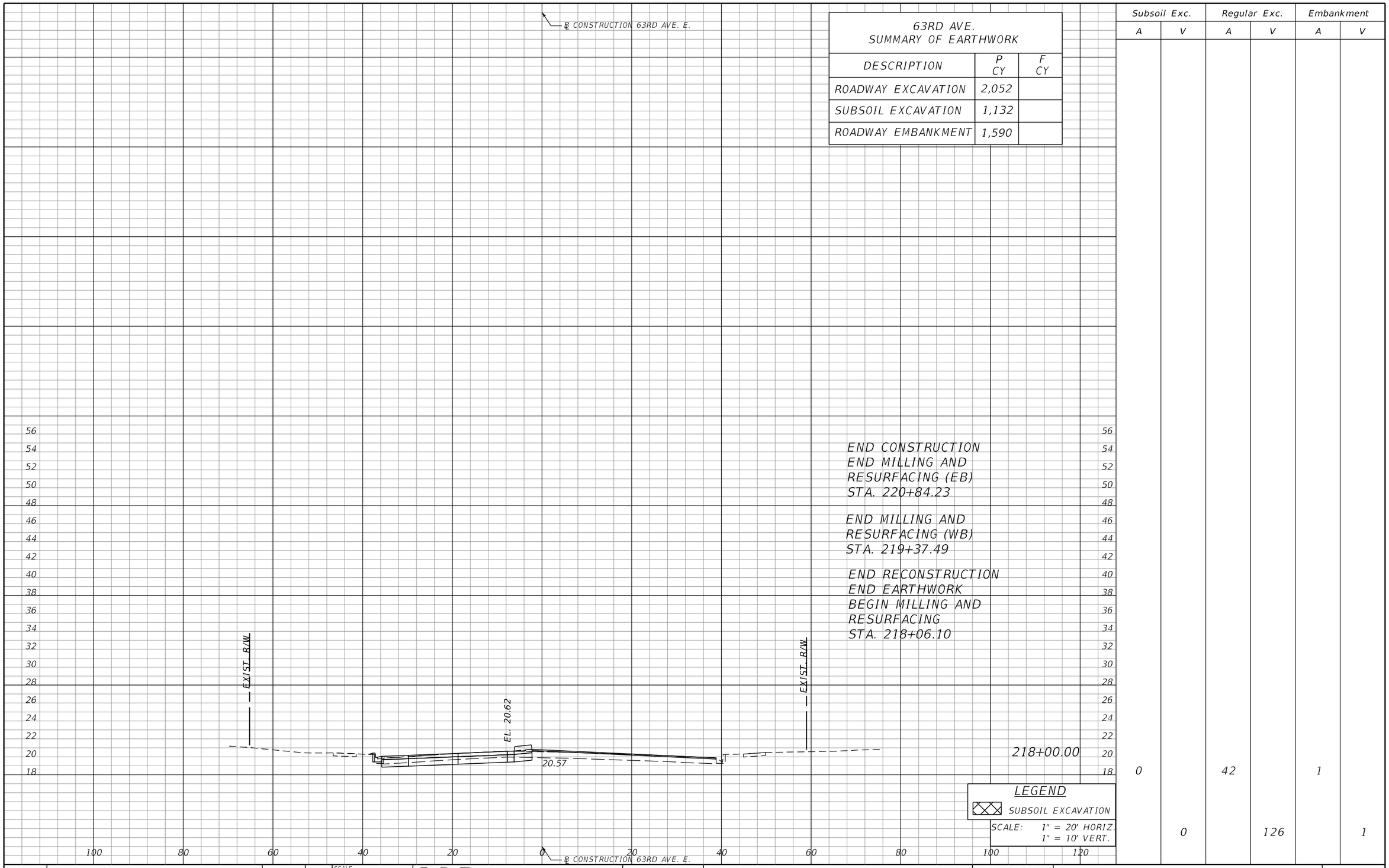

63RD AVE.
SUMMARY OF EARTHWORK

DESCRIPTION	P CY	F CY
ROADWAY EXCAVATION	2,052	
SUBSOIL EXCAVATION	1,132	
ROADWAY EMBANKMENT	1,590	

Subsoil Exc.		Regular Exc.		Embankment	
A	V	A	V	A	V
0	0	42	126	1	1

LEGEND
SUBSOIL EXCAVATION

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1" = 10' VERT.

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MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

CROSS SECTIONS
63RD AVE. EAST

SHEET NO.: 46

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II. CONTROLS: SEDIMENT AND EROSION CONTROLS

THE CONTRACTOR SHALL PROVIDE SEDIMENT AND EROSION CONTROL BEST MANAGEMENT PRACTICES (BMPS) IN ACCORDANCE WITH THE STATE OF FLORIDA EROSION AND SEDIMENT CONTROL DESIGNER AND REVIEWER MANUAL.

(1) WATER QUALITY MONITORING:

(a) WATER QUALITY MONITORING SHALL BE CONDUCTED IN ACCORDANCE WITH THE SPECIAL CONDITIONS OF ANY ENVIRONMENTAL PERMIT OR BY THE CONTRACTOR UPON THE OBSERVATION THAT WATER QUALITY STANDARDS MAY BE VIOLATED BY THE CONTRACTOR'S ACTIVITIES. MONITORING LOCATIONS MAY BE SPECIFIED IN THE ENVIRONMENTAL PERMIT OR MAY BE DESIGNATED BY THE CONTRACTOR AND APPROVED BY THE PROJECT ADMINISTRATOR.

(b) THE PROJECT ADMINISTRATOR WILL BE RESPONSIBLE FOR MONITORING ANY ACTIVITIES FOR VIOLATION OF WATER QUALITY STANDARDS AS THEY RELATE TO TURBIDITY (29 NTU'S ABOVE BACKGROUND OR 1 NTU ABOVE BACKGROUND FOR DIRECT DISCHARGES TO OFW'S).

(c) IF WATER QUALITY STANDARDS ARE VIOLATED, CONSTRUCTION SHALL BE STOPPED IMMEDIATELY, THE ENVIRONMENTAL PERMIT CONDITIONS FOLLOWED AND EROSION AND SEDIMENT CONTROL DEVICES RE-EVALUATED AND APPROVED BY THE ENIGNEER PRIOR TO ANY CONTINUATION OF ACTIVITY. MONITORING ACTIVITIES AND TURBIDITY READINGS SHALL BE RECORDED ON THE CONSTRUCTION INSPECTION REPORT AND CONTINUED UNTIL TURBIDITY READINGS FALL BELOW AN ACCEPTABLE LEVEL (29 NTU'S ABOVE BACKGROUND OR 1 NTU ABOVE BACKGROUND FOR DIRECT DISCHARGES TO OFW'S).

(d) WATER QUALITY MONITORING MAY BE CONDUCTED DURING ANY PHASE OF CONSTRUCTION AS DIRECTED BY THE ENGINEER.

(2) STABILIZATION PRACTICES:

(a) STABILIZATION MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO MAINTAINING, ESTABLISHING AND USING VEGETATION, APPLYING MULCHES, SODDING, SEEDING, BMP'S AND THE USE OF ROLLED EROSION CONTROLLED PRODUCTS. WHEN CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, SIDE SLOPES SHALL BE STABILIZED WITH PERFORMANCE SODDING OR SEEDING OR ANY OTHER APPROVED METHOD OF STABILIZATION INCLUDED IN THE STATE OF FLORIDA EROSION AND SEDIMENT CONTROL DESIGNER AND REVIEW MANUAL (E&SC MANUAL).

(b) STABILIZATION SHALL TAKE PLACE AS SOON AS PRACTICAL IN PORTIONS OF THE PROJECT WHERE CONSTRUCTION ACTIVITIES HAVE CEASED, BUT NO LATER THAN 7 DAYS AFTER ANY CONSTRUCTION ACTIVITY CEASES EITHER TEMPORARILY OR PERMANENTLY.

(c) ALL EROSION CONTROL DEVICES SHALL BE INSTALLED ACCORDING TO THE CONTRACT DOCUMENTS, AND THE CONTRACTOR'S APPROVED EROSION CONTROL PLAN.

(d) ANY TEMPORARY MATERIAL USED FOR POLLUTION OR EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION SHALL BE REMOVED AT THE COMPLETION OF THE PROJECT AND FINAL STABILIZATION OF THE PROJECT HAS BEEN ACHIEVED.

(e) SEDIMENT BARRIERS SHOULD BE USED ALONG THE LENGTH OF THE PROJECT WHERE THE GROUND SLOPES AWAY FROM THE RIGHT OF WAY OR WHERE THERE IS POTENTIAL FOR SEDIMENT TO BE DIRECTED OFF-SITE. PARTICULAR CARE SHOULD BE USED WHEN THERE ARE WETLANDS OR WATERS OF THE U.S. ARE INVOLVED. SEDIMENT BARRIERS SHOULD BE USED AROUND THE PERIMETER OF STOCKPILE AREAS.

(f) SPACING OF SEDIMENT BARRIERS USED AS DITCH OR SWALE CHECKS/DAMS SHOULD BE BASED UPON THE HEIGHT OF THE BARRIER AND THE SLOPE OF THE DITCH OR SWALE.

(g) THE CONTRACTOR SHALL BE RESPONSIBLE FOR MODIFYING SOIL TRACKING PREVENTION SYSTEMS OR PROCEDURES AS NEEDED.

(3) STRUCTURAL PRACTICES FOR EROSION AND SEDIMENT CONTROL:

(a) ROLLED EROSION CONTROL PRODUCTS (ARTIFICIAL COVERINGS)

PURPOSE:TO PROTECT DISTURBED SLOPE SURFACES AGAINST EROSION DUE TO RAINFALL OR FLOWING WATER.

(1) USED FOR PAUSES IN CONSTRUCTION DUE TO INCLEMENT WEATHER OR OTHER CIRCUMSTANCES. COULD INCLUDE NATURAL OR SYNTHETIC FIBER MATS, PLASTIC SHEETING OR NETS.
(2) COULD INCLUDE BIODEGRADABLE EROSION CONTROL BLANKETS INSTALLED ON A SEEDED AREA, ON FILL SLOPES OR IN DITCHES.
(3) USED TO STABILIZE DRAINAGE CHANNELS. CONSULT E&SC MANUAL TO DETERMINE CORRECT PRODUCT TYPE FOR CHANNEL STABILIZATION.

(b) RUNOFF CONTROL STRUCTURE (TEMPORARY SLOPE DRAIN)

PURPOSE: TO PROTECT HILLSIDE SURFACES AGAINST EROSION DUE TO CONCENTRATED FLOW OF RUNOFF WATER.

(1) USED ON FILL SLOPES AND CUT SLOPES TO REDUCE SEDIMENT TRANSPORT AND COULD INCLUDE TEMPORARY SLOPE DRAINS, GRASS-LINED CHANNELS, ROCK-LINED CHANNELS AND CHECK DAMS.
(2) RUNOFF CONTROL STRUCTURES TYPICALLY DISCHARGE TO A SEDIMENT BASIN.

(c) SEDIMENT BASIN (CONTAINMENT SYSTEM)

PURPOSE: A CONTAINMENT SYSTEM IS DESIGNED TO DETAIN AN ADEQUATE VOLUME OF RUNOFF, REDUCE THE VELOCITY OF FLOW THROUGH THE SYSTEM, ALLOW FOR SETTLEMENT OF SUSPENDED SOLIDS AND REGULATE THE DISCHARGE RATE FROM THE SEDIMENT BASIN.

(1) SEDIMENT BASINS MUST BE PLACED IN STRATEGIC LOCATIONS WITHIN THE ACTIVE AREAS OF CONSTRUCTION. CONTRIBUTING AREA AND SIZE OF TARGET SOIL PARTICLE WILL DICTATE WHETHER THE SEDIMENT BASIN WILL BE TYPE 1, TYPE 2 OR TYPE 3 SYSTEM.
(2) THE USE OF SMALLER PRE-SEDIMENTATION BASINS USED IN CONJUNCTION WITH LARGER PERMANENT RETENTION/DETENTION PONDS ARE EFFECTIVE IN CAPTURING LARGER VOLUMES OF SEDIMENTS. THIS TECHNIQUE REQUIRES PERIODICALLY SCHEDULED REMOVAL OF THE ACCUMULATED SEDIMENTS.

(d) SEDIMENT BARRIERS (TEMPORARY CONSTRUCTION SITE BMP'S)

PURPOSE: SEDIMENT BARRIERS EITHER OBSTRUCT FLOW OR PREVENT THE PASSAGE OF WATER WHILE CONSTRUCTION ACTIVITIES OCCUR. SMALLER SEDIMENT BARRIERS MAY FUNCTION AS A SMALL SEDIMENT CONTAINMENT SYSTEM OR AS A METHOD TO REDUCE FLOW VELOCITY.

(1) THESE CONSTUCTION BMP'S CAN INCLUDE SEDIMENT BARRIERS, SYNTHETIC BALES, STAKED SILT FENCE, TURBIDITY BARRIER, STORM SEWER INLET PROTECTION, ROCK BAGS, AND GEOSYNTHETIC BARRIERS, SUCH AS "GUTTER BUDDY" OR GUTTER GATOR" SEDIMENT CONTIANMENT SYSTEMS.
(2) APPROPRIATE LOCATIONS INCLUDE SITE PERIMETER, BELOW DISTURBED AREAS SUBJECT TO SHEET AND RILL EROSION, BELOW THE TOE OF EXPOSED AND ERODIBLE SLOPES, ALONG THE TOE OF STREAM AND CHANNEL BANKS, AROUND DRAINS AND INLETS LOCATED IN LOWPOINTS OR THE DOWNSTREAM EDGE OF AREAS UNDERGOING VERTICAL OR BOX CULVERT CONSTRUCTION ACTIVITIES.
(3) INAPPROPRIATE LOCATIONS FOR THESE SAME MEASURES INCLUDE PARALLEL TO A HILLSIDE CONTOUR, IN CHANNELS WITH CONCENTRATED FLOW (UNLESS PROPERLY REINFORCED), UPSTREAM OR DOWNSTREAM OF CULVERTS WITH CONCENTRATED FLOW, IN FRONT OF OR AROUND INLETS ON A GRADE WITH CONCENTRATED FLOW OR IN FLOWING STREAMS.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 07/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: ADAM RAY MITCHUM
FL. LICENSE NO.: 83296

STORMWATER POLLUTION PREVENTION PLAN (2)

SHEET NO.: 47

I. SITE DESCRIPTION:

(1) THE PROJECT CONSISTS OF THE RECONSTRUCTION OF THE INTERSECTION OF TUTTLE AVENUE AT 63RD AVENUE EAST. THE NEW ROADWAY INTERSECTION WILL CONSIST OF TWO THROUGH LANES WITH RIGHT AND LEFT TURN LANES ALONG EACH LEG OF THE INTERSECTION. THE ROADWAY TYPICAL SECTION WILL INCLUDE A CURB AND GUTTER ROADWAY WITH TWO 11-FEET WIDE TRAVEL LANES, 6-FEET WIDE BIKE LANE AND 6-FEET WIDE SIDEWALK IN EACH DIRECTION. THE ROADWAY WILL BE DRAINED BY STORMDRAIN SYSTEM TO WET DETENTION STORMWATER PONDS FOR TREATMENT AND ATTENUATION.

(2) SEQUENCE OF MAJOR SOIL DISTURBING ACTIVITIES:

(a) THE CONTRACTOR SHALL BE REQUIRED TO PREPARE A SITE SPECIFIC EROSION AND SEDIMENT CONTROL PLAN ALONG WITH A DETAILED CONSTRUCTION SCHEDULE TO INDICATE DATES OF MAJOR GRADING ACTIVITIES AND DETERMINE SEQUENCES OF TEMPORARY AND PERMANENT SOIL DISTURBING ACTIVITIES ON ALL PORTIONS OF THE PROJECT.

(b) THE CONTRACTOR WILL BE REQUIRED TO MODIFY THE PLAN OR MATERIALS TO ADAPT TO SEASONAL VARIATIONS, CONSTRUCTION ACTIVITY VARIATIONS, OR AS DIRECTED BY THE ENGINEER.

(c) APPLICABLE EROSION AND SEDIMENT CONTROL DEVICES AND IMPLEMENTATION PROCEDURES ARE SUPPLIED IN THE STATE OF FLORIDA EROSION AND SEDIMENT CONTROL DESIGNER AND REVIEW MANUAL (E&SC MANUAL).

(d) THE ENGINEER IS RESPONSIBLE FOR DETERMINING IF ANY MODIFICATIONS OR ADDITIONAL CONTROLS ARE REQUIRED AND TO OBTAIN DEPLOYMENT SCHEDULES FOR THE IMPLEMENTATION OF ALL ADDITIONAL EROSION AND SEDIMENT CONTROL DEVICES FROM THE CONTRACTOR.

(3) GENERAL NOTES:

(a) ALL EROSION AND SEDIMENT CONTROL DEVICES FOR EACH PHASE OF WORK ARE TO BE INSTALLED PRIOR TO BEGINNING WORK ON THAT PHASE.

(b) INSTALL EROSION AND SEDIMENT CONTROL DEVICES WHERE LISTED IN THE CONTRACTOR'S APPROVED EROSION AND SEDIMENT CONTROL PLAN FOR PERIMETER CONTROLS BEFORE THE LAND IS DISTURBED.

(c) PROVIDE SEDIMENT BARRIERS WHERE LISTED IN THE CONTRACTOR'S APPROVED EROSION AND SEDIMENT CONTROL PLAN FOR DITCH/SWALE CHECK DAMS DURING CONSTRUCTION.

(d) PROVIDE INLET PROTECTION SYSTEMS AT INLET OPENINGS.

(e) COVER OR STABILIZE DISTURBED AREAS AS SOON AS POSSIBLE.

(f) DO NOT DISTURB AN AREA UNTIL IT IS NECESSARY FOR CONSTRUCTION TO PROCEED.

(g) TIME CONSTRUCTION ACTIVITIES TO LIMIT IMPACT FROM SEASONAL CLIMATE CHANGES OR WEATHER EVENTS.

(h) DO NOT REMOVE PERIMETER CONTROLS UNTIL ALL UPSTREAM AREAS ARE FULLY STABILIZED AND PERMANENT VEGETATION IS ESTABLISHED.

(i) ALL SOILS EXCAVATED WITHIN CSXT'S RAILROAD RIGHT-OF-WAY SHALL REMAIN ON CSXT'S RIGHT-OF-WAY. TESTING OF SOILS ON CSXT ROW IS PROHIBITED WITHOUT PRIOR WRITTEN CSXT AUTHORIZATION. ANY SOILS EXCAVATED ON CSXT ROW CAN BE REUSED ON THE ROW PROVIDED PLACING SOILS ALONG CSXT ROW POSES NO ADVERSE IMPACTS TO THE EXISTING TERRAIN, DRAINAGE OR ENVIRONMENT. SHOULD SOIL NEED TO BE REMOVED FROM CSXT ROW, THE CSXT ENVIRONMENTAL DEPARTMENT WILL SAMPLE THE SAIL FOR DISPOSITION. SOIL STAGED ON CSXT MUST FOLLOW CSXT PROTOCOL AND BE PROPERLY STORED AND/OR PROTECTED FROM THE ELEMENTS AND POTENTIAL EXPOSURE.

(j) IF ANY SPILL, ISSUE OR INCIDENT OCCURS WITHIN CSXT ROW, PLEASE CONTACT THE CSXT PUBLIC SAFETY COORDINATION CENTER AT 800-232-0144.

(4) PROJECT AREAS:

THE ESTIMATED TOTAL PROJECT AREA IS 6.05 ACRES. THE ESTIMATED AREA TO BE DISTURBED DURING CONSTRUCTION ACTIVITIES IS 4.90 ACRES.

(5) RUNOFF COEFFICIENTS BEFORE Cw (B), DURING Cw (D) AND AFTER Cw (A) CONSTRUCTION:

RUNOFF COEFFICIENT FOR: GRASSED SHOULDERS ADJACENT TO ROADWAY: C = 0.35
IMPERVIOUS ROADWAYS AND PAVED SHOULDER: C = 0.95
DISTURBED AREAS, EXPOSED SOIL, ETC., DURING CONSTRUCTION: C = 0.67

WEIGHTED RUNOFF COEFFICIENT:
BEFORE: Cw (B) = 0.52 DURING: Cw (D) = VARIES FROM 0.52 TO 0.83 AFTER: Cw (A) = 0.83

THE RUNOFF COEFFICIENT DURING CONSTRUCTION, Cw (D), IS CALCULATED ASSUMING THAT THE MAXIMUM ALLOWABLE AREA OF SOIL IS DISTURBED DURING CONSTRUCTION AND THE REMAINING AMOUNT IS THE EXISTING IMPERVIOUS AND GRASSED SHOULDER AREAS.

(6) DESCRIPTION OF SOIL OR QUALITY OF DISCHARGE:

THE SOIL CHARACTERISTICS ARE TYPICALLY EAU GALLIE SANDS (HSG B/D) WITH SEASONAL HIGH GROUNDWATER (SHWT) DEPTH OF 0 TO 1-FOOT. THE SUGARHOUSE CREEK FLOWWAY EXHIBITS BRADENTON AND WABASSO SANDS (HSG B/D) WITH SEASONAL HIGH GROUNDWATER (SHWT) DEPTH OF 0 TO 1-FOOT

SOIL TYPE	HYDROLOGIC GROUP	DEPTH TO SHWT
20 - EAUGALLIE, FINE SAND	A/D	0.5' - 1.5'
26 - FLORIDANA-IMMOKALEE-OKEELANTA	C/D	~ 0.0'
40 - PINELLAS FINE SAND	B/D	0.0' - 1.0'

REFERENCE: NRCS WEB SOIL SURVEY

(7) ESTIMATED DRAINAGE AREA AND AVERAGE SLOPE OF DRAINAGE FOR EACH OUTFALL:

(a) DRAINAGE MAPS OR MAPS WITH APPROPRIATE CONTOURS: TO BE INCLUDED WITH THESE DRAINAGE MEMORANDUM.

(8) RECEIVING WATERS:

EXISTING DRAINAGE PATTERNS FOLLOW EXISTING WATERSHED FLOW PATTERNS TO PEARCE DRAIN CANAL. ONSITE RUNOFF FROM TUTTLE AVENUE AND 63RD AVENUE EAST ARE COLLECTED AND CONVEYED RD ARE COLLECTED AND COVEYED WITHIN A CLOSED STORMDRAIN SYSTEM TO PROPOSED STORMWATER MANAGEMENT FACILITIES WITHIN THE PROJECT LIMITS. ALL PROJECT AREAS ARE WITHIN OPEN BASINS.

(9) THE PROJECT'S OUTFALLS (PEARCE DRAIN CANAL) IS NOT 303(d) LISTED, IMPAIRED WATERS FOR PARAMETERS SUCH AS TOTAL SUSPENDED SOLIDS (TSS), TURBIDITY, NUTRIENTS, DISSOLVED OXYGEN, FECAL COLIFORM, ETC.

(10) OUTFALL LOCATIONS: (TEMPORARY AND PERMANENT)

(a) EXIST SMF: LAT. 27°25'45.9" N LONG. 82°30'33.2" W
(b) EXIST SMF: LAT. 27°25'38.0" N LONG. 82°30'47.0" W
(c) ROADSIDE DITCH: LAT. 27°25'47.3" N LONG. 82°30'48.5" W
(d) 24" PIPE: LAT. 27°25'44.3" N LONG. 82°30'52.1" W

(11) WETLAND AND/OR SURFACE WATER IMPACTS ARE LIMITED TO THE AREAS DESCRIBED IN THE APPROVED PERMITS FOR THE PROJECT.

(12) DESCRIPTION OF STORMWATER MANAGEMENT: (EXISTING/PROPOSED)

(a) STORMWATER RUNOFF FOR THE INTERSECTION IS DIVIDED BETWEEN FOUR SUBBASINS. TWO SUBBASINS OUTFALL TO EXISTING DETENTION PONDS. THE REMAINING SUBBASINS FLOW OUTSIDE THE PROJECT LIMITS VIA ROADSIDE DITCHES. THE PROPOSED RUNOFF WILL DISCHARGE TO THE SAME WATER COURSES AS THE EXISTING DRAINAGE PATTERNS. THE OFFSITE FLOW WILL BE MAINTAINED.

(b) OFF-SITE RUNOFF SHOULD BE DIVERTED AWAY OR THROUGH THE CONSTRUCTION AREA, IF POSSIBLE. THIS ADDITIONAL FLOW, IF NOT DIVERTED, CAN ADD VOLUME AND SIZE TO STRUCTURAL PRACTICES, REQUIRING MORE FREQUENT MAINTENANCE AND LIMITING EFFECTIVENESS OF EROSION AND SEDIMENT CONTROLS.

(c) THE CONTRACTOR WILL PROVIDE POLLUTION CONTROL BY IMPLEMENTING DUST CONTROL DURING ALL PHASES OF CONSTRUCTION. SEDIMENT CONTROL WILL BE ACCOMPLISHED BY USING STREET OR VACUUM SWEEPERS.

(d) STORMWATER RUNOFF SHALL BE CONVEYED TO EITHER TEMPORARY SEDIMENT BASINS, CONTAINMENT SYSTEMS AND/OR TO PERMANENT STORMWATER MANAGEMENT FACILITIES (TREATMENT AND ATTENUATION PONDS). THE PROPOSED SEDIMENT BASINS, CONTAINMENT SYSTEMS AND/OR STORMWATER MANAGEMENT FACILITIES SHALL BE CONSTRUCTED DURING THE INITIAL PHASE OF CONSTRUCTION AND USED DURING CONSTRUCTION OF THE ROADWAY. THE OUTFALL STRUCTURES ARE TO BE PLUGGED WHEN TEMPORARY SEDIMENT BASINS, CONTAINMENT SYSTEMS OR PERMANENT STORMWATER MANAGEMENT FACILITIES ARE USED FOR EROSION AND SEDIMENT CONTROL.

(e) THE CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO PREVENT UNAUTHORIZED MATERIALS FROM ENTERING WETLANDS, WATERWAYS, OTHER SURFACE WATERS OR WATERS OF THE U.S.

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DATE: 07/2023
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MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: ADAM RAY MITCHUM
FL. LICENSE NO.: 83296

STORMWATER POLLUTION PREVENTION PLAN (1)

SHEET NO.: 48

(e) FLOATING TURBIDITY BARRIER

PURPOSE: USED IN PERMANENT BODIES OF WATER TO RETAIN SEDIMENT AND FLOATING DEBRIS FROM A CONSTRUCTION AREA SO THAT REMOVAL OR CONTAINMENT OF THE MATERIAL IS POSSIBLE. THEY ARE ALSO USED TO CONTROL MIGRATION OF SUSPENDED SEDIMENTS.

(1) TYPE I, LIGHT DUTY, IS USED WHERE THERE IS LITTLE OR NO CURRENT, NO WIND AND NO WAVE ACTION.
(2) TYPE II, MODERATE DUTY, IS USED WITH SOME CURRENT (<3.5 FT. PER SECOND) AND SOME EXPOSURE TO WIND.
(3) TYPE III, HEAVY DUTY, IS USED WITH GREATER CURRENT (3.5-5.0 FT. PER SECOND), MODERATE WIND AND WAVE ACTION.
(4) BARRIER MUST BE ATTACHED AT BOTH ENDS AND WEIGHTED ON THE BOTTOM.
(5) MULTIPLE LINES OF BARRIER MAY BE USED IN SOME CIRCUMSTANCES FOR ADDITIONAL PROTECTION.
(6) STANDARD PANELS FOR WATER DEPTHS ARE 5.0'. ADDITIONAL PANELS CAN BE USED FOR WATER DEPTHS > 5.0'.

(f) STAKED TURBIDITY BARRIER

PURPOSE: THIS ITEM IS COMMONLY USED IN AREAS WHERE CONTINUOUS CONSTRUCTION ACTIVITIES CHANGE THE NATURAL CONTOURS AND DRAINAGE RUNOFF PATTERNS.

(1) COMMONLY USED IN LAKES AND STREAMS AS A SEDIMENT CONTAINMENT SYSTEM. SHOULD NOT BE USED WHERE WATER CURRENTS MOVE THE CURTAIN AND DISLODGE COLLECTED SEDIMENTS.
(2) MAXIMUM DEPTH OF PANEL IS 3'-8".
(3) POST MUST BE A MINIMUM LENGTH OF 5.0' AND A MINIMUM OF 10" OF FABRIC MUST BE IMBEDDED IN THE GROUND.

(g) INLET PROTECTION SYSTEM

PURPOSE: ANY OF A NUMBER OF SEDIMENT BARRIERS THAT EITHER PREVENT SEDIMENT FROM ENTERING AN INLET OR TRAP THE SEDIMENTS ONCE THEY ENTER THE INLET.

(1) TYPICAL APPLICATIONS INCLUDE ROCK BAGS, FRAME AND FILTER BARRIERS, CURB INLET "SUMP" BARRIER, CURB INLET DIVERSION BERM, CURB AND GUTTER SEDIMENT CONTAINMENT SYSTEM OR CURB INLET INSET, SUCH AS "GUTTER BUDDY" OR "GUTTER GATOR" SEDIMENT CONTAINMENT SYSTEM.
(2) SHOULD BE INSTALLED ONLY WHEN CONSTRUCTION ACTIVITIES ARE ON-GOING AND ONLY WHERE SUMP CONDITIONS EXIST.
(3) SHOULD NOT BE USED WHEN CONSTRUCTION IS COMPLETE AND SHOULD NOT BE USED IN AREAS WHERE FLOODING COULD ENCROACH INTO THE TRAVEL LANES.

(h) SOIL TRACKING PREVENTION DEVICE

PURPOSE: TEMPORARY STRUCTURES TO ASSIST WITH THE REMOVAL OF SOIL MATERIAL CAPTURED ON VEHICLE TIRES BEFORE THE VEHICLES ENTER THE ROADWAY.

(1) USE ONE DEVICE PER MILE WITH A MINIMUM OF TWO PER PROJECT.
(2) USE ADDITIONAL DEVICES FOR CONSRUCTION AREAS THAT ARE NOT ADJACENT TO THE ROAD RIGHT OF WAY AND NO ACCESS IS PROVIDED THROUGH A SOIL TRACKING PREVENTION DEVICE.
(3) RRR PROJECTS SHOULD BE HANDLED ON A CASE BY CASE BASIS.

(4) CHEMICAL TREATMENTS FOR EROSION AND SEDIMENT CONTROL:

(a) CHEMICAL TREATMENT - POLYACRYLAMIDES (PAM AND PAM BLENDS)

PURPOSE: REDUCE SOIL EROSION THROUGH SOIL BINDING, USED AS A WATER TREATMENT ADDITIVE TO REMOVE SUSPENDED SOLIDS FROM RUNOFF, PROVIDES APPROPRIATE MEDIUM FOR GROWTH OF VEGETATION FOR STABILIZATION AND INCREASES INFILTRATION BY INCREASING SIZE OF SOIL PARTICLE.

(1) CAN BE USED ON DISTURBED SOILS. CAN BE USED IN CONJUNCTION WITH OTHER BMP'S TO ENHANCE PERFORMANCE. CAN BE APPLIED IN DISSOLVED FORM WITH WATER, CAN BE USED AS A DRY POWDER, CAN BE USED IN GRANULAR FORM OR MAY BE USED IN THE FORM OF FLOC LOGS.
(2) HIGHER CONCENTRATIONS OF PAM'S DON'T INCREASE THE EFFECTIVENESS OF THE PRODUCT.
(3) ACTIVELY WORKED AREAS WILL REQUIRE REAPPLICATION TO REMAIN EFFECTIVE.
(4) PAM SHOULD NOT BE USED WHERE THE IS A POTENTIAL FOR EQUIPMENT CLOGGING OR TOXICITY IS A CONCERN.

(b) CHEMICAL TREATMENT - ALUM

PURPOSE: REMOVE SUSPENDED SOLIDS AND POLLUTANTS BY ENMESHMENT AND ABSORPTION INTO ALUM. COLLECT FLOCS OF SUSPENDED SEDIMENTS IN RUNOFF AND STORE THEM IN SEDIMENT BASINS OR STORMWATER MANAGEMENT FACILITIES.

(1) ALUM IS INJECTED INTO THE FLOW STREAM CONTAINING TURBID WATER. INJECTION IS CONTROLLED BY VARIABLE SPEED CHEMICAL PUMP TO FEED ALUM AT MULTIPLE TREATMENT POINTS. ALUM TREATMENT IS EFFECTIVE IN TREATMENT OF RUNOFF THAT CONTAINS LIMEROCK FROM UNPAVED SURFACES.
(2) ALUM TREATMENT REQUIRES CLOSE MONITORING OF DOSAGE. COMBINATION WITH OTHER COMPOUNDS MAY VIOLATE TOXICITY REQUIREMENTS AND THE USE OF ALUM MAY LOWER Ph LEVELS.

NOTE: THIS PAY ITEM IS CONSIDERED A CONTRACTOR'S OPTION FOR SEDIMENT CONTROL ISSUES THAT ARE PROJECT/SITE SPECIFIC. NOT TO BE USED IN THE DESIGN PROCESS WITHOUT CONTACTING LARRY RITCHIE IN THE STATE CONSTRUCTION OFFICE.

III. OTHER CONTROLS:

(1) WASTE DISPOSAL:
(a) THE CONTRACTOR WILL PROVIDE LITTER CONTROL AND COLLECTION WITHIN THE PROJECT BOUNDARIES DURING CONSTRUCTION ACTIVITIES.
(b) ALL FERTILIZER AND CHEMICAL CONTAINERS SHALL BE DISPOSED OF BY THE CONTRACTOR ACCORDING TO EPA'S STANDARD PRACTICES AS DETAILED BY THE MANUFACTURER.
(c) NO SOLID MATERIALS, INCLUDING BUILDING AND CONSTRUCTION MATERIALS, SHALL BE DISCHARGED TO WETLANDS OR BURIED ON SITE.
(d) ALL SANITARY WASTE WILL BE COLLECTED FROM PORTABLE UNITS BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR AS REQUIRED BY STATE REGULATIONS.

(2) OFF-SITE VEHICLE TRACKING - WILL BE CONTROLLED BY THE FOLLOWING METHODS:
(a) LOADED HAUL TRUCKS ARE TO BE COVERED BY A TARPAULIN AT ALL TIMES.
(b) EXCESS DIRT ON ROAD WILL BE REMOVED DAILY.

(3) STATE AND FEDERAL REGULATIONS: PERMITS WILL BE REQUIRED FROM THE FOLLOWING AGENCIES:

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT ERP NO. (PENDING)
U.S. ARMY CORPS OF ENGINEERS PERMIT NO. (PENDING)

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 07/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: ADAM RAY MITCHUM
FL. LICENSE NO.: 83296

STORMWATER POLLUTION PREVENTION PLAN (3)

SHEET NO.: 49

IV. MAINTENANCE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIRS OF ALL EROSION AND SEDIMENT CONTROL DEVICES AND REMOVAL OF EROSION AND SEDIMENT CONTROL DEVICES WHEN NOTICE OF TERMINATION IS MAILED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND PROPER DISPOSAL OF SEDIMENT BUILDUP THROUGH THE LIFE OF THE INSTALLED EROSION AND SEDIMENT CONTROL DEVICES.

(1) ALL CONTROL MEASURES WILL BE MAINTAINED DAILY BY THE CONTRACTOR AND ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER. IF A REPAIR IS NECESSARY, IT WILL BE INITIATED WITHIN 24 HOURS OF NOTICE.
(2) SODDING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.
(3) SYNTHETIC BALES SHALL BE MAINTAINED TO ENSURE THEIR USEFULNESS AND NOT BLOCK OR IMPEDE STORMWATER FLOW OR DRAINAGE.
(4) STAKED SILT FENCES SHALL BE REPLACED EVERY TWELVE (12) MONTHS OR WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORMWATER FLOW OR DRAINAGE.
(5) STABILIZED CONSTRUCTION ENTRANCES SHALL BE MAINTAINED TO PREVENT CLOGGING OF ROCK BEDDING WHICH MAY IMPEDE THE USEFULNESS OF THE STRUCTURE.

V. INSPECTION:

(1) THE CONTRACTOR SHALL INSTALL AND MAINTAIN RAIN GAUGES ON THE PROJECT SITE AND RECORD WEEKLY RAINFALL IN ACCORDANCE WITH THE NPDES PERMIT.
(2) ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED DAILY BY CONTRACTOR'S PERSONNEL WHO ARE F.D.E.P. CERTIFIED STORMWATER MANAGEMENT INSPECTORS.
(3) THE CONTRACTOR SHALL COMPLETE ALL SWPPP INSPECTION REPORT FORMS REQUIRED FOR THE NPDES PERMIT.

VI. WATER QUALITY MONITORING:

(1) MONITORING FOR TURBIDITY AS MEASURED IN NEPHELOMETRIC TURBIDITY UNITS (NTUs) SHALL BE CONDUCTED FOR THE DURATION OF CONSTRUCTION ACTIVITIES. SAMPLING WILL COMMENCE 24 HOURS BEFORE INITIATION OF CONSTRUCTION ACTIVITIES AND WILL BE CONDUCTED ACCORDING TO THE APPROVED WATER QUALITY MONITORING PLAN AS SUBMITTED BY THE CONTRACTOR. SEE THE SWFWMD ERP FOR WATER QUALITY MONITORING SITE LOCATIONS.

(A.) A MINIMUM OF SEVEN (7) WATER QUALITY MONITORING SITES AND FOUR (4) BACKGROUND CHECK SITES WILL BE ESTABLISHED AS SHOWN IN THE PERMIT.

(B.) THE BACKGROUND SITES WILL BE MARKED BY TEMPORARY BUOYS AND SHALL BE MAINTAINED FOR THE DURATION OF THE SAMPLING PROGRAM. THESE SITES CANNOT BE CHANGED WITHOUT SPECIFIC WRITTEN AUTHORIZATION FROM THE SWFWMD SARASOTA REGULATION DEPARTMENT.

(2) THE FOLLOWING INFORMATION MUST BE RECORDED FOR EACH SAMPLE TAKEN IN A MONITORING REPORT:

(A.) SITE NUMBER;
(B.) DATES AND TIME OF DAY WHEN SAMPLE WAS COLLECTED;
(C.) TOTAL DEPTH AND SAMPLE DEPTH;
(D.) ANTECEDENT WEATHER CONDITIONS, INCLUDING WIND DIRECTION AND VELOCITY; AND,
(E.) TIDAL STAGE AND/OR FLOW DIRECTION.

(3) IN ADDITION TO THE ABOVE MENTIONED, EACH MONITORING REPORT MUST INCLUDE THE FOLLOWING:

(A.) A STATEMENT OF METHODOLOGY INCLUDING TYPES OF SAMPLING EQUIPMENT AND ANALYTICAL INSTRUMENTATION, PRESERVATION, AND HANDLING;
(B.) PERMIT NUMBER;
(C.) A MAP INDICATING NUMBERED LOCATIONS OF ALL SAMPLING SITES;
(D.) COPIES OF THE QUALITY ASSURANCE/QUALITY CONTROL LOG; AND,
(E.) A STATEMENT BY THE QUALITY CONTROL OFFICER AS TO THE AUTHENTICITY OF THE DATA.

(4) ALL TURBIDITY MONITORING REPORTS SHALL BE SUBMITTED TO THE SARASOTA REGULATION DEPARTMENT OF THE DISTRICT, ATTENTION ENVIRONMENTAL MANAGER WITHIN SEVEN DAYS OF SAMPLE COLLECTION. ALL CORRESPONDENCE SHOULD INCLUDE THE PERMITTEE NAME AND PERMIT NUMBER. FAILURE TO SUBMIT REPORTS IN A TIMELY MANNER CONSTITUTES A VIOLATION OF THE PERMIT AND MAY BE GROUNDS FOR REVOCATION.

(5) THE FOLLOWING QA/QC PROTOCOL IS REQUIRED FOR EACH SAMPLE COLLECTED:

(A.) ALL TURBIDITY ANALYSIS SHALL BE PERFORMED ON INSTRUMENTS THAT CAN PERFORM NEPHELOMETRIC MEASUREMENTS;
(B.) THE INSTRUMENT MUST BE CALIBRATED EACH MORNING AND EACH TIME THE INSTRUMENT IS TURNED ON, AND RECALIBRATED EVERY FOUR HOURS THEREAFTER;
(C.) CALIBRATIONS MUST BE PERFORMED AGAINST A BLANK SAMPLE, AND AT LEAST ONE FORMALIN OR GEL-TYPE STANDARD. THE STANDARD VALUE SHOULD BE IN THE SAME RANGE AS THE SAMPLE READINGS.
(D.) ALL CALIBRATION PROCEDURES MUST BE RECORDED IN A PERMANENT LOG BOOK, AND COPIES MUST BE SUBMITTED WITH THE DATA; AND,
(E.) DATE AND TIME OF COLLECTION, DATE AND TIME OF ANALYSES, WARM-UP TIME, AND THE NAME OF THE ANALYST MUST BE INCLUDED IN THE LOG.

(6) IF 29 NTUs EXCEED BACKGROUND AMBIENT WATER QUALITY, ALL CONSTRUCTION ACTIVITIES SHALL IMMEDIATELY CEASE. ANY VIOLATIONS SHALL BE IMMEDIATELY REPORTED TO THE DISTRICT AT (941) 377-3722. THE VIOLATION
REPORT SHALL INCLUDE THE DESCRIPTION OF THE CORRECTIVE ACTIONS BEING TAKEN OR PROPOSED TO BE TAKEN.
IF VIOLATIONS ARE NOTED AFTER NORMAL BUSINESS HOURS, ON HOLIDAYS OR ON WEEKENDS, THE REPORT SHALL
BE MADE TO THE DISTRICT AS SOON AS NORMAL BUSINESS HOURS RESUME. A COPY OF ALL MONITORING DATA SHEETS,
WHICH INDICATE VIOLATIONS, SHALL BE FORWARDED IMMEDIATELY TO THE SARASOTA REGULATION DEPARTMENT OF
THE DISTRICT, ATTENTION ENVIRONMENTAL MANAGER AND INCLUDE A COPY TO (SWFWMD) MANATEE COUNTY DEPARTMENT OF PUBLIC WORKS, INFRASTRUCTURE ENGINEERING DIVISION: ATTN. SIA MOLLANAZAR (941) 708-7487.

(7) WHEN A TURBIDITY VIOLATION IS FOUND, CONSTRUCTION OPERATIONS MAY NOT RESUME UNTIL A COMPLIANCE INSPECTION BY DISTRICT PERSONNEL HAS BEEN CONDUCTED AND A SET OF SAMPLES HAS BEEN TAKEN WHICH DEMONSTRATES THAT WATER QUALITY STANDARDS DESIGNATED ABOVE ARE NO LONGER EXCEEDED. INTERIM SAMPLES TAKEN FOLLOWING THE VIOLATION SHALL BE TAKEN IN THE SAME MANNER AS THE ROUTINE MONITORING
AND THE SAME LOCATIONS. IF SAMPLES DEMONSTRATE THE WATER QUALITY STANDARDS SPECIFIED ABOVE FOR TURBIDITY ARE STILL BEING VIOLATED, SAMPLING SHALL CONTINUE AT TWO-HOUR INTERVALS UNTIL THE INTERIM
SAMPLES DEMONSTRATE THAT NO VIOLATION IS OCCURRING.

(8) FAILURE TO REPORT VIOLATIONS OR TO FOLLOW CORRECT PROCEDURES BEFORE RESUMING WORK WILL CONSTITUTE
GROUNDS FOR REVOCATION OF THE DISTRICT PERMIT AND MAY ALSO RENDER THE PERMITTEE SUBJECT TO ENFORCEMENT ACTION.

VII. TRACKING AND REPORTING:

(1) THE CONTRACTOR SHALL SUBMIT A WEEKLY REPORT TO THE COUNTY DOCUMENTING THE DAILY INSPECTIONS AND MAINTENANCE OR REPAIRS TO THE EROSION AND SEDIMENT CONTROL DEVICES. THE CONTRACTOR SHALL MAINTAIN ALL REQUIRED REPORTS AND COMPLETE ALL SWPPP INSPECTION FORMS.

(2) PREPARATION OF ALL THE CONTRACTOR'S REPORTS OF INSPECTION, MAINTENANCE AND REPAIRS REQUIRED FOR THE CONTROL AND ABATEMENT OF EROSION AND WATER POLLUTION, SHALL BE INCLUDED IN THE INDIVIDUAL COSTS OF THE EROSION AND SEDIMENT CONTROL DEVICES OF THE PROJECT.

(3) THE CONTRACTOR SHALL USE THE FDOT'S STANDARD SWPPP CONSTRUCTION INSPECTION REPORT FORM # 650-040-03, FOR DAILY INSPECTIONS.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 07/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: ADAM RAY MITCHUM
FL. LICENSE NO.: 83296

STORMWATER POLLUTION PREVENTION PLAN (4)

SHEET NO.: 50

TUTTLE AVE.

LAUREL WOOD RUN

EXIST. R/W

N

0 10 40

Feet

TEMP. CONST. EASEMENT

EXIST. SIDEWALK

END MILLING AND RESURFACING (SB)
BEGIN RECONSTRUCTION (SB)
STA. 101+66.92

MILLING LIMITS

BEGIN CONSTRUCTION
BEGIN MILLING AND RESURFACING (SB)
STA. 101+42.06

EXIST. R/W

EXIST. SIDEWALK

EXIST. EOP

+30.20
80.71' LT.

+35.98
68.71' LT.

+44.68
62.63' LT.

+54.67
59.03' LT.

S-601

100 101 102 103 104 105

℄ CONST. TUTTLE AVE.

N 0° 13' 17" W

MATCHLINE STA. 105+60.00

EXIST. R/W

BEGIN PROJECT
END MILLING AND RESURFACING (NB)
BEGIN RECONSTRUCTION (NB)
STA. 100+09.00

BEGIN MILLING AND RESURFACING (NB)
STA. 99+84.00

LEGEND

- MILLING & RESURFACING
- FUTURE WIDENING
- SEDIMENT BARRIER
- INLET PROTECTION

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 07/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER
ADAM RAY MITCHUM
FL. LICENSE NO.
83296

EROSION CONTROL PLAN (1)

SHEET NO.
51

TUTTLE AVE.

63RD AVE. EAST

PROP. R/W

EXIST. R/W

+37.34
83.83' LT.

+33.85
70.75' LT.

+26.89
63.23' LT.

+20.81
59.20' LT.

+13.53
58.65' LT.

+63.07
82.77' LT.

+71.62
73.62' LT.

+63.78
62.58' LT.

+81.04
70.15' LT.

S-402 S-403 S-404 S-405 S-406 S-407 S-500 S-501 S-502 S-603 S-604 S-605

N 88° 25' 05" E

N 0° 13' 17" W

91°21'38"

212 213 214 215

106 107 108 109 110 111

MATCHLINE STA. 105+60.00

MATCHLINE STA. 111+20.00

℄ CONST. TUTTLE AVE.

STA. 213+23.49 ℄ CONST. 63RD AVE. E
STA. 108+09.36 ℄ CONST. TUTTLE AVE.

+02.77
44.92' RT.

+89.58
52.87' RT.

+82.54
67.66' RT.

TEMP. CONST. EASEMENT

℄ CONST. 63RD AVE E

S(A) OE

0 10 40
Feet

LEGEND
SEDIMENT BARRIER

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CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 07/2023
PROJECT NO.: 6065961

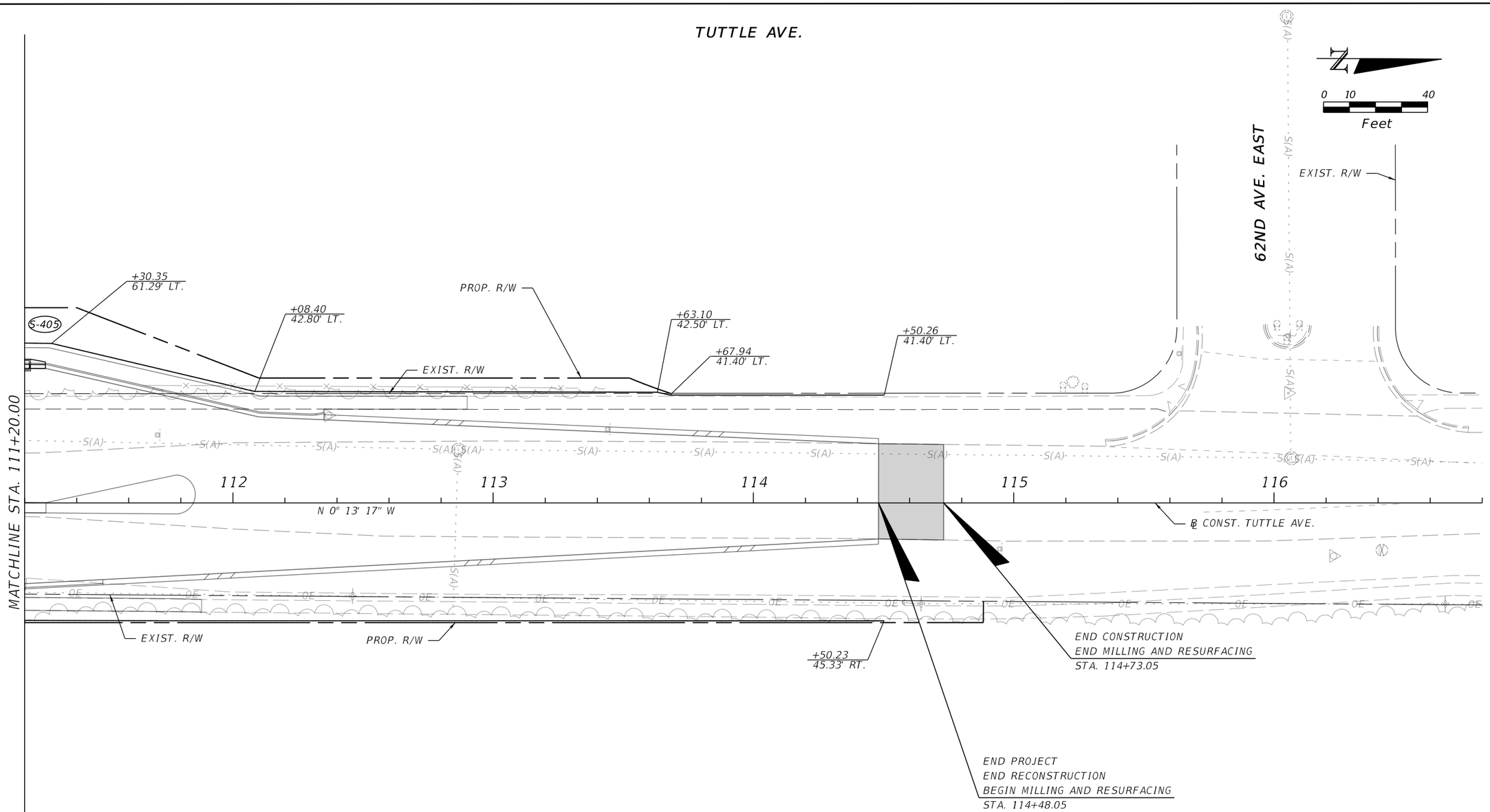
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: ADAM RAY MITCHUM
FL. LICENSE NO.: 83296

EROSION CONTROL PLAN (2)

SHEET NO.: 52

TTRAN 12/12/2023 11:14:27 PM Default PW:\



No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 07/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: ADAM RAY MITCHUM
FL. LICENSE NO.: 83296

EROSION CONTROL PLAN (3)

SHEET NO.: 53

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

63RD AVE. EAST

N

0 10 40
Feet

PROP. R/W

+40.00
48.02' LT.

EXIST. R/W

S-400

205 206 207 208 209 210

℄ CONST. 63RD AVE E

N 88° 25' 05" E

MATCHLINE STA. 210+60.00

BEGIN FULL RECONSTRUCTION
STA. 210+40.00

EXIST. R/W

PROP. R/W

+40.00
68.62' RT.

SEE 63RD AVE. E. ROADWAY PLANS
PROJECT NO.: 6107860

LEGEND

SEDIMENT BARRIER

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No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 07/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: ADAM RAY MITCHUM
FL. LICENSE NO.: 83296

EROSION CONTROL PLAN (4)

SHEET NO.: 54

63RD AVE. EAST

TUTTLE AVE.

EXIST. R/W

PROP. R/W

+64.59
155.86' LT.

+55.06
73.33' LT.

+51.36
63.99' LT.

+42.01
55.66' LT.

+26.55
47.08' LT.

S-404

EXIST. R/W

211 212 213 214 215 216

91°21'38"

N 88° 25' 05" E

℄ CONST. 63RD AVE E

MATCHLINE STA. 210+60.00

S-401 S-402 S-403 S-407 S-605

PROP. R/W

+37.97
70.01' RT.

+50.96
73.81' RT.

+58.32
80.94' RT.

+62.20
87.12' RT.

+62.57
94.41' RT.

EXIST. R/W

108 109 107

N 0° 13' 17" W

TUTTLE AVE.

PROP. R/W

+70.61
92.32' LT.

+78.24
78.95' LT.

+92.87
71.55' LT.

EXIST. R/W

S-500 S-502 S-501

STA. 108+09.36 CONST. TUTTLE AVE.
STA. 213+23.49 ℄ CONST. 63RD AVE. E

EXIST. R/W

TEMP. CONST. EASEMENT

℄ CONST. TUTTLE AVE.

S-604

MATCHLINE STA. 216+20.00

N

0 10 40
Feet

LEGEND

SEDIMENT BARRIER

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No.	REVISIONS	DATE	BY

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DESIGNED BY: JLS
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HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 07/2023
PROJECT NO.: 6065961

Manatee County FLORIDA

MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER
ADAM RAY MITCHUM
FL. LICENSE NO.
83296

EROSION CONTROL PLAN (5)

SHEET NO.
55

TTRAN 12/12/2023 11:15:03 PM Default PW:\

63RD AVE. EAST

41ST ST. EAST

EXIST. R/W

+18.34
57.98' LT.

EXIST. R/W

END CONSTRUCTION
END MILLING AND RESURFACING (EB)
STA. 220+84.23

END MILLING AND RESURFACING (WB)
STA. 219+37.49

MATCHLINE STA. 216+20.00

217

N 88° 25' 05" E

218

219

220

S 89° 36' 43" E

221

EXIST. R/W

END RECONSTRUCTION (WB)
BEGIN MILLING AND RESURFACING (WB)
STA. 218+06.10

END RECONSTRUCTION (EB)
BEGIN MILLING AND RESURFACING (EB)
STA. 217+94.11

N

0 10 40

Feet

LEGEND

MILLING & RESURFACING

SEDIMENT BARRIER

INLET PROTECTION

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No.	REVISIONS	DATE	BY

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HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 07/2023
PROJECT NO.: 6065961

Manatee County FLORIDA

MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER
ADAM RAY MITCHUM
FL. LICENSE NO.
83296

EROSION CONTROL PLAN (6)

SHEET NO.
56

TTRAN 12/12/2023 11:16:41 PM Default PW:\

TRAFFIC CONTROL GENERAL NOTES

1. THE PROJECT SHALL BE CONSTRUCTED WITH CIP PROJECT 6107860. REFER TO 63RD AVENUE EAST TTCP PLANS FOR ADDITIONAL DETAILS INCLUDING ADVANCE WARNING AND SIDE STREET SIGNAGE.

2. MAINTENANCE OF TRAFFIC SHALL FOLLOW FDOT STANDARD PLANS NOS. 102-600, 120-601, 102-602, 102-620, AND 102-660, AS SPECIFIED IN THE CONSTRUCTION PHASING NOTES AND OTHER TRAFFIC CONTROL INDEXES AS APPLICABLE.

3. ACCESS TO ADJACENT PROPERTIES AND SIDE STREETS SHALL BE MAINTAINED BY THE CONTRACTOR DURING ALL PHASES OF CONSTRUCTION.

4. THE COST OF MAINTENANCE OF TRAFFIC OPERATIONS SHALL BE INCLUDED UNDER THE LUMP SUM PAY ITEM, UNLESS A SEPARATE PAY ITEM IS PROVIDED.

5. CONTRACTOR SHALL MAINTAIN SUFFICIENT TRAVEL WAYS TO PROVIDE INGRESS AND EGRESS AS WELL AS SAFE BARRICADES TO ALL PROPERTIES WITHIN THE PROJECT AREA AT ALL TIMES.

6. TRAFFIC CONDITIONS, ACCIDENTS, AND OTHER UNFORESEEN EMERGENCY CONDITIONS MAY REQUIRE THE COUNTY TO RESTRICT OR REMOVE LANE CLOSURES OR CHANNELIZATIONS SHOWN IN THE PLANS. THE CONTRACTOR SHALL RESPOND AND PROVIDE ADJUSTMENTS AS DIRECTED BY THE COUNTY WITHOUT DELAY UNDER THESE CONDITIONS. THE CONTRACTOR SHALL ALSO RESPOND WITHIN TIME CONSTRAINTS OUTLINED IN THE STANDARD SPECIFICATIONS UPON NOTIFICATION BY THE COUNTY TO ANY REQUESTS FOR CORRECTION, IMPROVEMENT, OR MODIFICATION TO THE TRAFFIC CONTROL PLAN AND/OR DEVICES. ALL COSTS SHALL BE INCLUDED IN THE BID PRICE FOR MAINTENANCE OF TRAFFIC.

7. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO INSTALL AND MAINTAIN TEMPORARY DRAINAGE AND EROSION CONTROL FACILITIES AS SHOWN ON THE PLANS OR AS DIRECTED BY THE COUNTY. POSITIVE DRAINAGE OFF OF THE TRAVELED ROADWAY SHALL BE MAINTAINED AT ALL TIMES.

8. PRIOR TO IMPLEMENTING ANY TEMPORARY DIVERSIONS THE CONTRACTOR SHALL NOTIFY THE MANATEE COUNTY PUBLIC WORKS MAINTENANCE OF TRAFFIC:

   MATT MERUCCI
   1022 26TH AVE. E.
   BRADENTON, FL 34208
   (941) 708-7450 X 7342
   Matt.Merucci@mymanatee.org

9. CONTRACTOR SHALL COORDINATE PAVEMENT MARKINGS AND SIGNAGE WORK WITH SCHEDULING OF SIGNAL ACTIVATION. THE SIGNAL SHALL NOT BE FULLY ACTIVATED UNTIL ALL PROPOSED STOP BARS, CROSSWALKS, RAMPS, AND PAVEMENT REMOVAL WORK IS COMPLETE. THE EXISTING STOP SIGNS SHALL BE REMOVED UPON FULL SIGNAL ACTIVATION.

10. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TWO PORTABLE 4' X 8' VARIABLE-MESSAGE SIGNS (VMS) FOR A PERIOD OF TWO WEEKS. THE VMS WILL BE LOCATED AT AN APPROPRIATE DISTANCE IN ADVANCE OF EACH APPROACH TO THE NEW SIGNALIZED INTERSECTION AS SPECIFIED BY THE MAINTANING AGENCY'S ENGINEER. THE VMS WILL BE PROVIDED ONE (1) WEEK PRIOR TO THE SCHEDULED ACTIVATION IN FULL COLOR OPERATION AND SHALL REMAIN IN PLACE FOR ONE (1) WEEK FOLLOWING ACTIVATION. THE COST OF FURNISHING VMS TO BE INCLUDED UNDER THE ASSOCIATED PAY ITEM FOR MAINTENANCE OF TRAFFIC.

    A. PRIOR TO ACTIVATION, THE VMS SIGN SHALL BE:

       PANEL ONE – LINE 1: "TRAFFIC" PANEL TWO – LINE 1: "ACTIVATED"
       PANEL ONE – LINE 2: "SIGNAL" PANEL TWO – LINE 2: "ON DAY"
       PANEL ONE – LINE 3: "WILL BE" PANEL TWO – LINE 2: "MONTH X"

    B. SUBSTITUTION FOR THE WORD "DAY" SHALL BE AS FOLLOWS:

       SUNDAY AS "SUN" THURSDAY AS "THUR"
       MONDAY AS "MON" FRIDAY AS "FRI"
       TUESDAY AS "TUE" SATURDAY AS "SAT"
       WEDNESDAY AS "WED"

    C. SUBSTITUTION FOR THE WORD "MONTH" SHALL BE AS FOLLOWS:

       JANUARY AS "JAN" MAY AS "MAY" SEPTEMPBER AS "SEP"
       FEBRUARY AS "FEB" JUNE AS "JUN" OCTOBER AS "OCT"
       MARCH AS "MAR" JULY AS "JUL" NOVEMBER AS "NOV"
       APRIL AS "APR" AUGUST AS "AUG" DECEMBER AS "DEC"

    D. SUBSTITUTION THE WORD "XX" SHALL BE AS FOLLOWS:

       * THE NUMERICAL DAY OF THE MONTH, FROM ONE (1) TO THIRTY-ONE (31).
       ** DATES LESS THAN TEN (10) SHALL BE PRECEDED BY A ZERO (0); EXAMPLE: "JAN 03" FOR JANUARY 3RD.

    E. AFTER THE TURN-ON, THE VMS SHALL BE CHANGED TO:

       PANEL ONE – LINE 1: "TRAFFIC" PANEL TWO – LINE 1: "NOW"
       PANEL ONE – LINE 2: "SIGNAL" PANEL TWO – LINE 2: "ACTIVE"

       PANEL TWO, LINE 1 AND LINE 2, SHALL FLASH THREE (3) TIMES BEFORE REVERTING TO PANEL ONE.

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No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

TEMPORARY TRAFFIC CONTROL PLAN (1)

SHEET NO.: 57

TRAFFIC CONTROL PHASING NOTES

63RD AVENUE EAST
PHASE I:
THE INTENT OF PHASE I IS TO CONSTRUCT THE PROPOSED WORK ON THE NORTH SIDE WHILE MAINTAINING TRAFFIC IN ITS EXISTING CONFIGURATION. MAINTAIN MINIMUM 10-FT TRAVEL LANES AT ALL TIMES.

1. INSTALL ALL ADVANCED WARNING SIGNS AND TEMPORARY TRAFFIC CONTROL DEVICES PER CIP PROJECT 6107860.
2. INSTALL EROSION CONTROL DEVICES.
3. CONSTRUCT STRUCTURAL COURSE FOR WB LANES, SHOULDER, SIDEWALK, DRAINAGE STRUCTURES, AND SLOPES. USE THE TUTTLE AVENUE NORTH LEG DETOUR TO CONSTRUCT THE CONNECTION WITH 63RD AVENUE EAST.

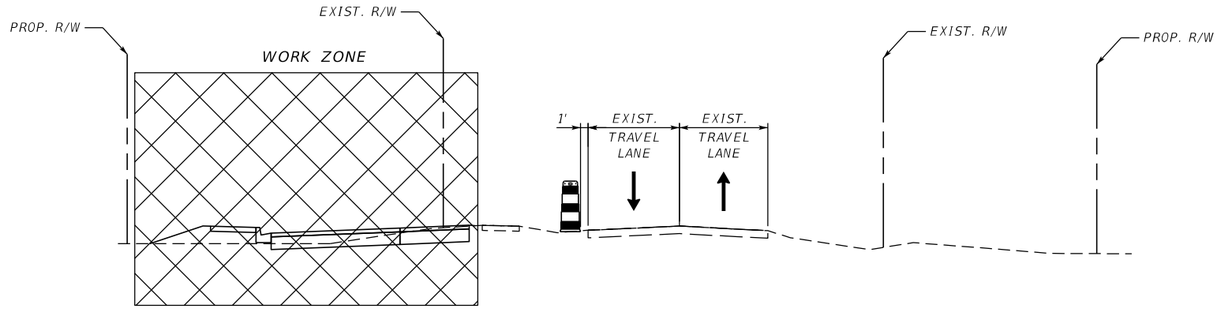
PHASE II:
THE INTENT OF PHASE II IS TO CONSTRUCT THE PROPOSED WORK ON THE SOUTH SIDE WHILE TRAFFIC IS SHIFTED TO THE NORTH ON THE NEW PAVEMENT CONSTRUCTED IN THE PREVIOUS PHASE. MAINTAIN MINIMUM 10-FT TRAVEL LANES AT ALL TIMES.

1. INSTALL ALL ADVANCED WARNING SIGNS AND TEMPORARY TRAFFIC CONTROL DEVICES PER CIP PROJECT 6107860.
2. INSTALL EROSION CONTROL DEVICES.
3. CONSTRUCT STRUCTURAL COURSE FOR THE EB LANES, SHOULDER, SIDEWALK, DRAINAGE STRUCTURES, AND SLOPES. USE THE TUTTLE AVENUE SOUTH LEG DETOUR TO CONSTRUCT THE CONNECTION WITH 63RD AVENUE EAST.

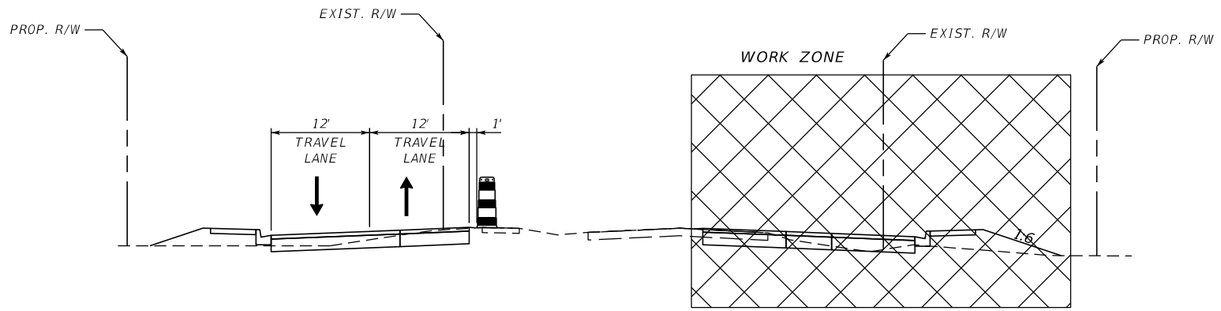
PHASE III:
THE INTENT OF PHASE III IS TO CONSTRUCT THE PROPOSED WORK IN THE MEDIAN WHILE TRAFFIC IS SHIFTED TO THE NEW PAVEMENT WITH ONE LANE IN THE EASTBOUND DIRECTION AND ONE LANE IN THE WESTBOUND DIRECTION. MAINTAIN MINIMUM 10-FT TRAVEL LANES AT ALL TIMES.

PHASE IV:
THE INTENT OF PHASE IV IS TO CONSTRUCT FRICTION COURSE AND FINAL PAVEMENT MARKINGS.

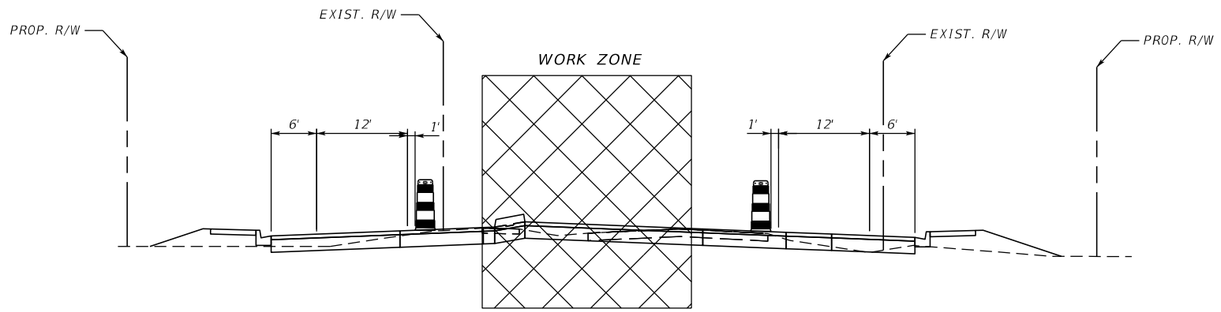
1. INSTALL ADVANCED WARNING SIGNS AND TEMPORARY TRAFFIC CONTROL DEVICES PER FDOT CIP PROJECT 6107860.
2. PLACE FRICTION COURSE AND FINAL PAVEMENT MARKINGS.
3. OPEN ALL LANES TO TRAFFIC IN FINAL CONFIGURATION.



PHASE I
63RD AVENUE EAST
STA. 210+40.00 TO STA. 218+06.10



PHASE II
63RD AVENUE EAST
STA. 210+40.00 TO STA. 218+06.10



PHASE III
63RD AVENUE EAST
STA. 210+40.00 TO STA. 218+06.10

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

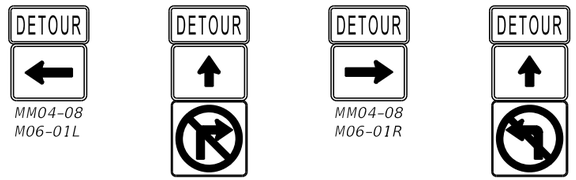
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

TEMPORARY TRAFFIC CONTROL PLAN (2)

SHEET NO.: 58

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



MM04-08 M06-01L

MM04-08 M06-03 R03-01

MM04-08 M06-01R

MM04-08 M06-03 R03-02

PCMS MESSAGES (DURING CLOSURE)

(1)	TUTTLE CLOSED AT 63RD	FOLLOW DETOUR
(2)	TUTTLE CLOSED AT 63RD	USE ALT ROUTE

PCMS MESSAGES (14 DAYS PRIOR TO CLOSURE)

TUTTLE TO CLOSE AT 63RD	MM/DD TO MM/DD

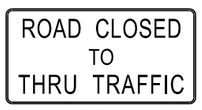
(Z-1)

W16-8P M4-8A

(Z-2)

W16-8P M4-8A

(X)



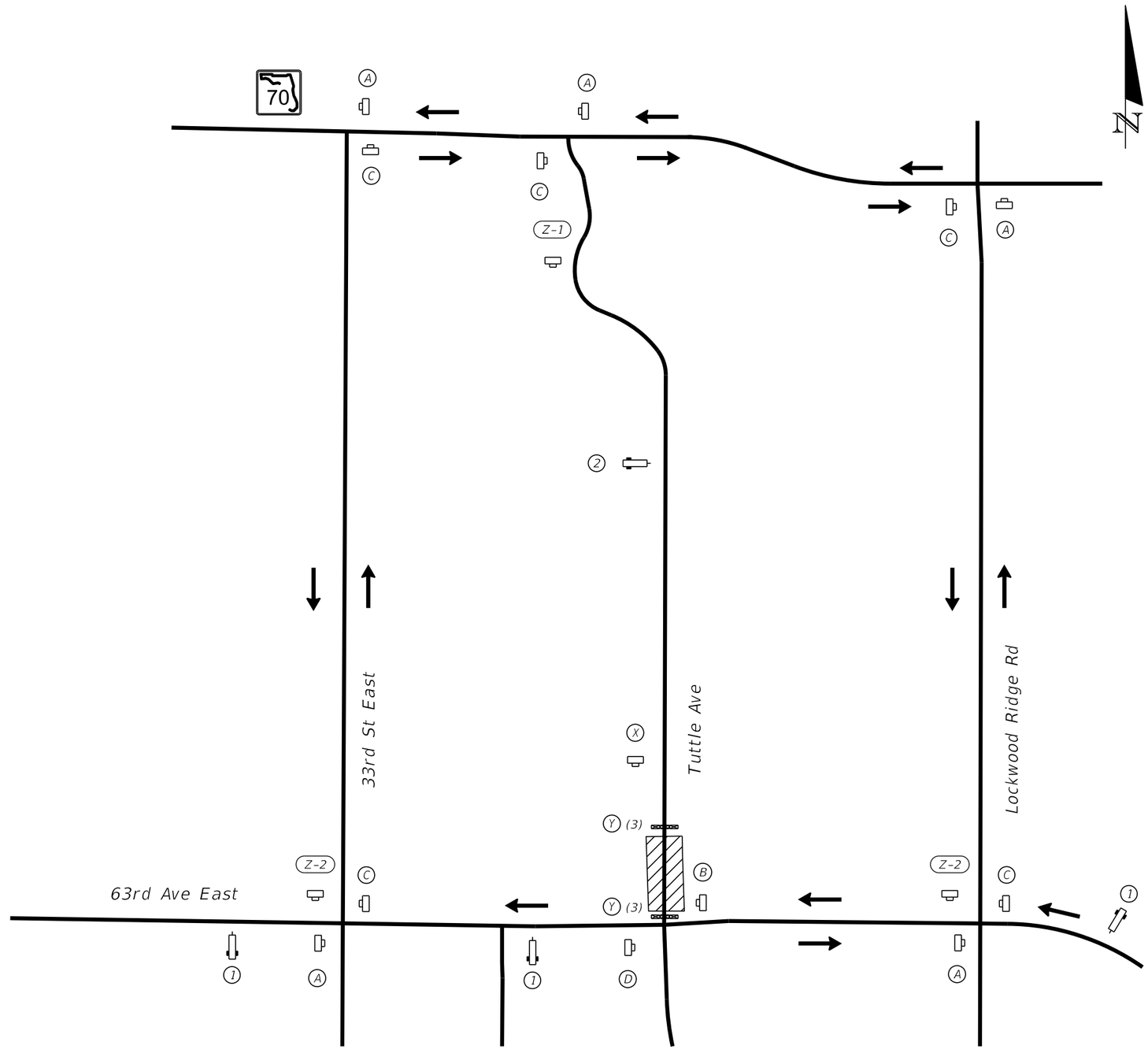
R11-4

(Y)

R11-2

LEGEND

- PORTABLE CHANGEABLE MESSAGE SIGN
- WORK ZONE SIGN
- DETOUR ROUTE
- TYPE III BARRICADE
- WORK ZONE



DETOUR TUTTLE AVE NORTH INTERSECTION LEG

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

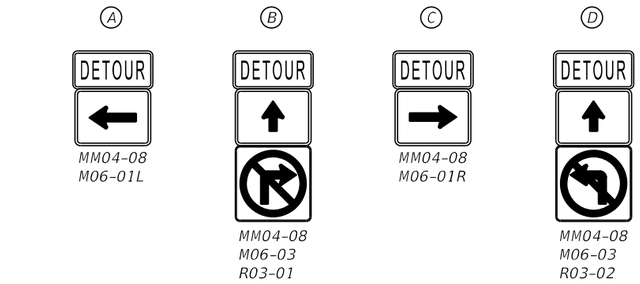
Manatee County FLORIDA

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

TEMPORARY TRAFFIC CONTROL PLANS (3)

SHEET NO.: 59

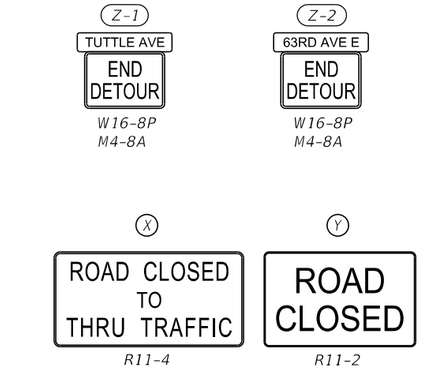


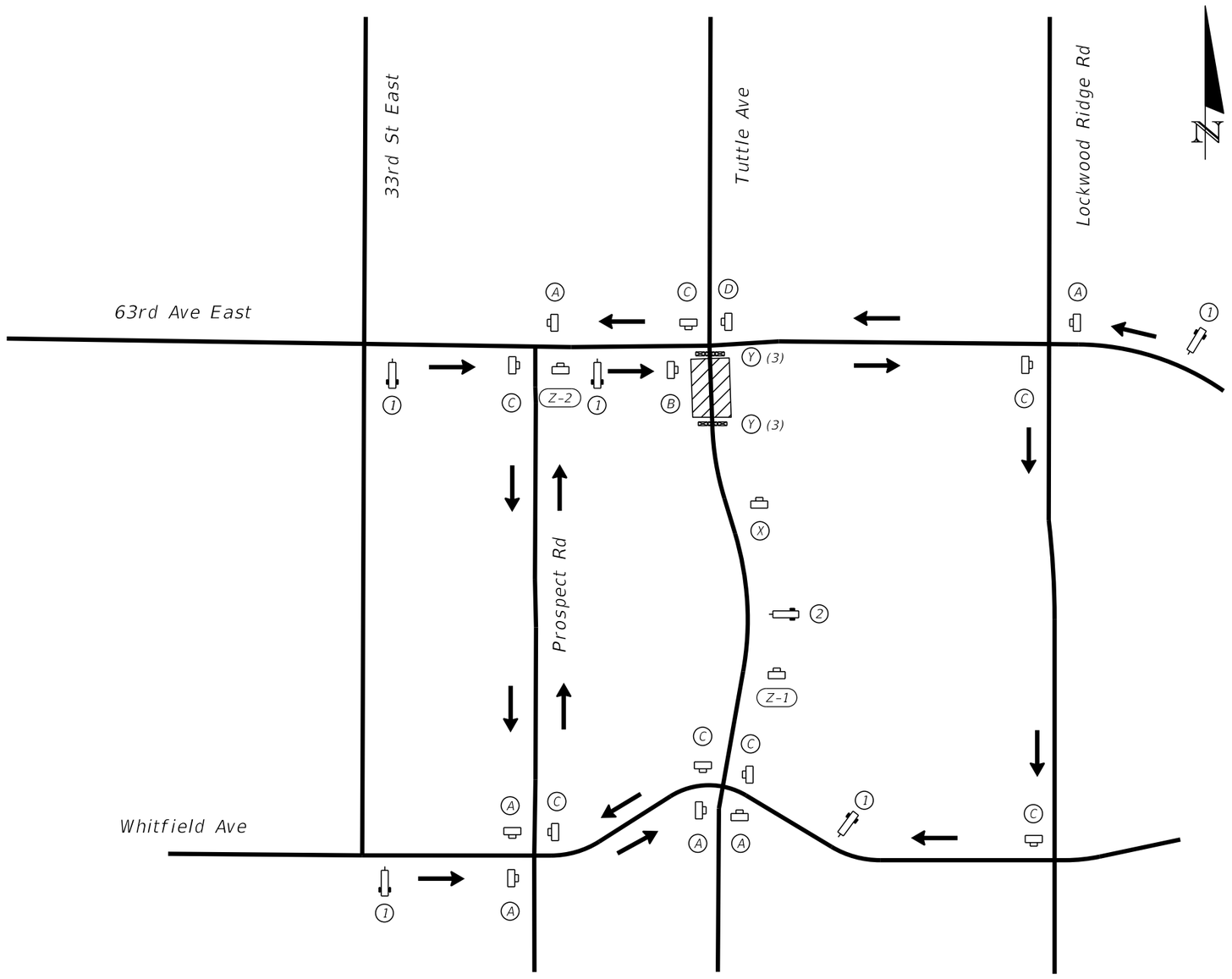
PCMS MESSAGES
(DURING CLOSURE)

1	TUTTLE CLOSED AT 63RD	FOLLOW DETOUR
2	TUTTLE CLOSED AT 63RD	USE ALT ROUTE

PCMS MESSAGES
(14 DAYS PRIOR TO CLOSURE)

TUTTLE TO CLOSE AT 63RD	MM/DD TO MM/DD





LEGEND

- PORTABLE CHANGEABLE MESSAGE SIGN
- WORK ZONE SIGN
- DETOUR ROUTE
- TYPE III BARRICADE
- WORK ZONE

DETOUR TUTTLE AVE.
SOUTH INTERSECTION LEG

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

TEMPPORARY TRAFFIC CONTROL PLAN (4)

SHEET NO.: 60

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

TUTTLE AVE.

LAUREL WOOD RUN

EXIST. R/W

N

0 10 40

Feet

END MILLING AND RESURFACING (SB)
BEGIN RECONSTRUCTION (SB)
STA. 101+66.92

BEGIN CONSTRUCTION
BEGIN MILLING AND RESURFACING (SB)
STA. 101+42.06

EXIST. R/W

EXIST. 8" WM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

PROP. 8" DI WM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

S-601

(D)WM

PCC STA. 100+00.00

100 101 102 103 104 105

PT STA. 103+08.31

PI STA. 101+54.34

MATCHLINE STA. 105+60.00

(D)NPW

BEGIN PROJECT
END MILLING AND RESURFACING (NB)
BEGIN RECONSTRUCTION (NB)
STA. 100+09.00

EXIST. R/W

BEGIN MILLING AND RESURFACING (NB)
STA. 99+84.00

EXIST. 4" RCWM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

PROP. 4" DI RCWM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

UTILITY ADJUSTMENTS (1)

SHEET NO.: 61

TUTTLE AVE.

63RD AVE. EAST

N 88° 25' 05" E

N 0° 13' 17" W

PROP. 8" DI FM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. 12" GM / TO REMAIN
MANATEE COUNTY

EXIST. 8" FM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

PROP. 3" FM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

PROP. R/W

EXIST. 8" WM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. R/W

PROP. 8" DI WM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. 16" WM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. OE / TO BE REMOVED
FPL

PROP. 10" DI FM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

PROP. 16" DI WM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. 21" GM / TO REMAIN
MANATEE COUNTY

MATCHLINE STA. 105+60.00

MATCHLINE STA. 111+20.00

℄ CONST. TUTTLE AVE.

EXIST. 4" RCWM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

PROP. 4" DI RCWM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST 30" RCWM / TO REMAIN
MANATEE COUNTY

EXIST 16" FM / TO REMAIN
MANATEE COUNTY

EXIST. 8" WM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

PROP. 24" PVC FM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

PROP. 8" DI WM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. 24" FM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

MAST ARM WILL BE CLEARED BY VVH
NEXT SUBMITTAL

EXIST. 16" WM / TO REMAIN
MANATEE COUNTY

PROP. 16" PVC FM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

S-402 S-403 S-404 S-405 S-406 S-407 S-500 S-501 S-502 S-603 S-604 S-605

106 107 108 109 110 111 212 213 214 215

0 10 40
Feet

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

UTILITY ADJUSTMENTS (2)

SHEET NO.: 62

TUTTLE AVE.

62ND AVE. EAST

N

0 10 40

Feet

MATCHLINE STA. 111+20.00

S-405

112 113 114 115 116

N 0° 13' 17" W

EXIST. 21" GM / TO REMAIN
MANATEE COUNTY

PROP. R/W

EXIST. R/W

EXIST. 10" PVC GM / TO REMAIN
MANATEE COUNTY

EXIST. 10" PVC GM / TO REMAIN
MANATEE COUNTY

EXIST. R/W

PROP. R/W

℄ CONST. TUTTLE AVE.

EXIST. R/W

PROP. 24" PVC FM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. 8" WM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. 0E / TO REMAIN
FPL

END CONSTRUCTION
END MILLING AND RESURFACING
STA. 114+73.05

EXIST. 24" FM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

PROP. 8" DI WM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

END PROJECT
END RECONSTRUCTION
BEGIN MILLING AND RESURFACING
STA. 114+48.05

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

Manatee County FLORIDA

MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

UTILITY ADJUSTMENTS (3)

SHEET NO.: 63

63RD AVE. EAST

N

0 10 40
Feet

PROP. 16" DI WM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST 16" WM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. 30" RCWM / TO REMAIN
MANATEE COUNTY

PROP. R/W

EXIST. R/W

PI STA. 206+50.16

205 206 207 208 209 210

W(D) OE NPW(B) S(D) S(A)

MATCHLINE STA. 210+60.00

BEGIN FULL RECONSTRUCTION
STA. 210+40.00

EXIST. R/W

EXIST. 12" GM / TO REMAIN
MANATEE COUNTY

PROP. 8" DI FM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

PROP. R/W

EXIST. 8" FM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

PROP. 30" DI RCWM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

SEE 63RD AVE. E. ROADWAY PLANS
PROJECT NO.: 6107860

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

UTILITY ADJUSTMENTS (4)

SHEET NO.: 64

63RD AVE. EAST

TUTTLE AVE.

MATCHLINE STA. 210+60.00

MATCHLINE STA. 216+20.00

EXIST. R/W

PROP. R/W

EXIST. 21" GM / TO REMAIN
MANATEE COUNTY

PROP. 16" DI WM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. 0E / TO BE REMOVED
FPL

EXIST. 12" GM / TO REMAIN
MANATEE COUNTY

PROP. 8" DI FM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. 8" FM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

PROP. 8" DI WM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. 8" WM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. R/W

N 88° 25' 05" E

℄ CONST. 63RD AVE. E

PROP. 8" DI FM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

PROP. R/W

EXIST. 8" WM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. 24" FM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

PROP. 24" DI FM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. 16" WM / TO REMAIN
MANATEE COUNTY

EXIST. R/W

EXIST. 0E / TO BE REMOVED
FPL

STA. 108+09.36 CONST. TUTTLE AVE.
STA. 213+23.49 ℄ CONST. 63RD AVE. E

N 0° 13' 17" W

EXIST. 30" RCWM / TO REMAIN
MANATEE COUNTY

PROP. 16" DI FM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. 16" FM / TO REMAIN
MANATEE COUNTY

EXIST. R/W

PROP. 4" DI RCWM / TO BE CONSTRUCTED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST 4" RCWM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

℄ CONST. TUTTLE AVE.

EXIST. 8" WM / TO BE REMOVED
MANATEE COUNTY
SEE CIP 6107860 PLANS

EXIST. R/W

N

0 10 40
Feet

211 212 213 214 215 216

107 108 109 110

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO. 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO. 70171

UTILITY ADJUSTMENTS (5)

SHEET NO. 65

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

63RD AVE. EAST

41ST ST. EAST

N

0 10 40

Feet

EXIST. 16" WM / TO REMAIN
MANATEE COUNTY

EXIST. R/W

END CONSTRUCTION
END MILLING AND RESURFACING (EB)
STA. 220+84.23

END MILLING AND RESURFACING (WB)
STA. 219+37.49

MATCHLINE STA. 216+20.00

217

218

PI STA. 218+18.24

219

220

221

N 88° 25' 05" E

EXIST. 30" RCWM / TO REMAIN
MANATEE COUNTY

EXIST. 16" FM / TO REMAIN
MANATEE COUNTY

EXIST. R/W

END RECONSTRUCTION (WB)
BEGIN MILLING AND RESURFACING (WB)
STA. 218+06.10

END RECONSTRUCTION (EB)
BEGIN MILLING AND RESURFACING (EB)
STA. 217+94.11

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

UTILITY ADJUSTMENTS (6)

SHEET NO.: 66

DATE OF SURVEY: DECEMBER 2023
SURVEY MADE BY: TIERRA, INC.
SUBMITTED BY: DANIEL R. RUEL, P.E.

MANATEE COUNTY

COUNTY: MANATEE

PROJECT NAME: TUTTLE AVENUE AT 63RD AVENUE EAST (HONORE AVENUE) - INTERSECTION IMPROVEMENTS

CROSS SECTION SOIL SURVEY FOR THE DESIGN OF ROADS

SURVEY BEGINS STA. : 210+40.00 TBS 220+84.23 REFERENCE: CENTERLINE CONSTRUCTION OF 63RD AVE EAST
SURVEY BEGINS STA. : 99+84.00 TBS 114+73.05 REFERENCE: CENTERLINE CONSTRUCTION OF TUTTLE AVE

	ORGANIC CONTENT		MOISTURE CONTENT		SIEVE ANALYSIS RESULTS PERCENT PASS (%)						ATTERBERG LIMITS (%)					CORROSION TEST RESULTS				
STRATUM NO.	NO. OF TESTS	% ORGANIC	NO. OF TESTS	MOISTURE CONTENT	NO. OF TESTS	10 MESH	40 MESH	60 MESH	100 MESH	200 MESH	NO. OF TESTS	LIQUID LIMIT	PLASTIC INDEX	AASHTO GROUP	DESCRIPTION	NO. OF TESTS	RESISTIVITY ohm-cm	CHLORIDE ppm	SULFATES ppm	pH
1	--	--	--	--	7	--	--	--	--	4-9	--	--	--	A-3	GRAY TO BROWN SAND TO SAND WITH SILT OCCASIONALLY WITH ROCK FRAGMENTS	--	--	--	--	--
2	--	--	4	23-31	7	--	--	--	--	11-29	4	NP	NP	A-2-4	LIGHT GRAY TO BROWN SILTY SAND OCCASIONALLY CEMENTED	--	--	--	--	--
3	6	10-22	6	21-102	6	--	--	--	--	13-31	--	--	--	A-8	DARK BROWN ORGANIC SILTY SAND TO PEAT	--	--	--	--	--

NOTES:

1. THE MATERIAL FROM STRATUM 1 (A-3) APPEARS SATISFACTORY FOR USE IN THE EMBANKMENT WHEN UTILIZED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-001.
2. THE MATERIAL FROM STRATUM 2 (A-2-4) APPEARS SATISFACTORY FOR USE IN THE EMBANKMENT WHEN UTILIZED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-001. HOWEVER, THIS MATERIAL IS LIKELY TO RETAIN EXCESS MOISTURE AND MAY BE DIFFICULT TO DRY AND COMPACT. IT SHOULD BE USED IN THE EMBANKMENT ABOVE THE WATER LEVEL EXISTING AT THE TIME OF CONSTRUCTION.
3. THE MATERIAL FROM STRATUM 3 (A-8) IS ORGANIC MATERIAL AND SHALL BE REMOVED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-002 AND UTILIZED IN ACCORDANCE WITH STANDARD PLANS, INDEX 120-001. THE REMOVAL LIMITS WILL BE DEPICTED ON THE ROADWAY CROSS-SECTIONS AND ON THE MUCK DELINEATION SHEETS.

EMBANKMENT AND SUBGRADE MATERIAL

STRATA BOUNDARIES ARE APPROXIMATE. MAKE FINAL CHECK AFTER GRADING.

▽ - ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
▼ - WATER TABLE ENCOUNTERED
GNE - GROUNDWATER NOT ENCOUNTERED
NP - NON-PLASTIC

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY:
DRAWN BY:
CHECKED BY:

DANIEL R. RUEL, P.E.
P.E. LICENSE NUMBER 82404
TIERRA, INC.
7351 TEMPLE TERRACE HIGHWAY
TAMPA, FLORIDA 33637

DATE: 12/2023
PROJECT NO.: 6065961

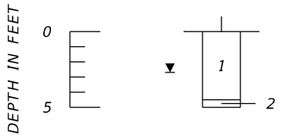
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: DANIEL R. RUEL
FL. LICENSE NO.: 82404

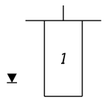
ROADWAY SOIL SURVEY

SHEET NO.: GR-1

BOR # AB-1
EASTING 488956
NORTHING 1125513
DATE 9/7/2021



BOR # AB-2
EASTING 489054
NORTHING 1125490
DATE 9/7/2021



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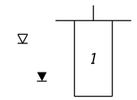
EASTING 489212
NORTHING 1125502
DATE 9/7/2021



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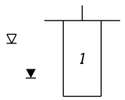
EASTING 489287
NORTHING 1125502
DATE 9/7/2021



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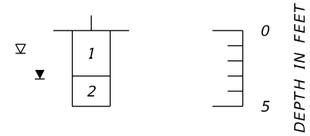
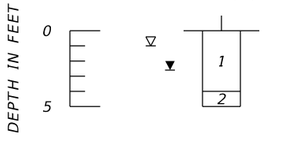
EASTING 489395
NORTHING 1125513
DATE 9/7/2021



BOR # AB-6
EASTING 489517
NORTHING 1125520
DATE 9/7/2021



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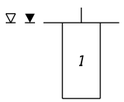
EASTING 489252
NORTHING 1125453
DATE 9/29/2021



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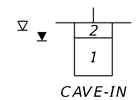
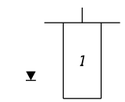
NORTHING 1125450
DATE 9/29/2021



CAVE-IN

BOR # AB-9
EASTING 489517
NORTHING 1125442
DATE 9/29/2021



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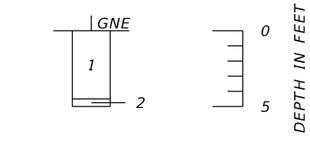
EASTING 489622
NORTHING 1125548
DATE 9/7/2021



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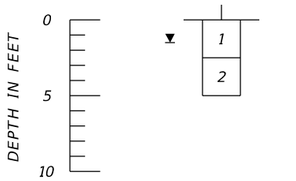
EASTING 489614
NORTHING 1125639
DATE 9/7/2021



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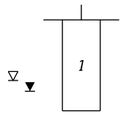
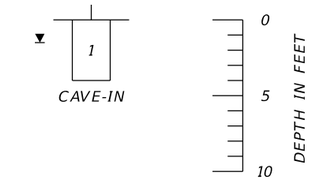
EASTING 489779
NORTHING 1125529
DATE 9/7/2021



BOR # AB-12
EASTING 489613
NORTHING 1125741
DATE 9/7/2021

BOR # AB-13
EASTING 489619
NORTHING 1125840
DATE 9/7/2021

BOR # AB-14
EASTING 489622
NORTHING 1125931
DATE 9/7/2021



CAVE-IN

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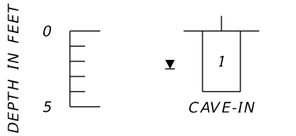
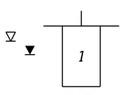
EASTING 489550
NORTHING 1125849
DATE 9/7/2021



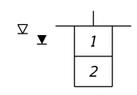
CAVE-IN

BOR # AB-16
EASTING 489535
NORTHING 1125740
DATE 9/7/2021



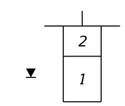
CAVE-IN

BOR # AB-17
EASTING 489536
NORTHING 1125639
DATE 9/7/2021



CAVE-IN

BOR # AB-18
EASTING 489626
NORTHING 1125403
DATE 9/29/2021



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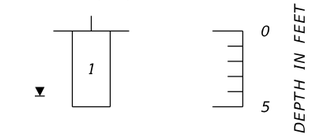
EASTING 489617
NORTHING 1125298
DATE 9/29/2021



LEGEND

1.	GRAY TO BROWN SAND TO SAND WITH SILT OCCASIONALLY WIHT ROCK FRAGMENTS (SP/SP-SM) (A-3)
2.	LIGHT GRAY TO BROWN SILTY SAND OCCASIONALLY CEMENTED (SM) (A-2-4)
3.	DARK BROWN ORGANIC SILTY SAND TO PEAT (PT) (A-8)
A-3	AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
SP	UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.
▽	ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
▼	GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS
GNE	GROUNDWATER NOT ENCOUNTERED
CAVE-IN	CAVE-IN DUE TO SHALLOW GROUNDWATER INTRUSION
EASTING	EASTING COORDINATE REFERENCED TO THE FLORIDA STATE PLANE COORDINATE SYSTEM, FLORIDA WEST ZONE, N.A.D. 83.
NORTHING	NORTHING COORDINATE REFERENCED TO THE FLORIDA STATE PLANE COORDINATE SYSTEM, FLORIDA WEST ZONE, N.A.D. 83.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BJS
DRAWN BY: BJS
CHECKED BY: DRR

DANIEL R. RUEL, P.E.
P.E. LICENSE NUMBER 82404
TIERRA, INC.
7351 TEMPLE TERRACE HIGHWAY
TAMPA, FLORIDA 33637

DATE: 12/2023
PROJECT NO.: 6065961

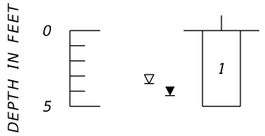
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: DANIEL R. RUEL
FL. LICENSE NO.: 82404

ROADWAY SOIL PROFILES (1)

SHEET NO.: GR-2

BOR # AB-20
EASTING 489618
NORTHING 1125183
DATE 9/29/2021



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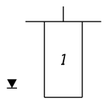
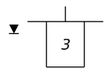
EASTING 489622
NORTHING 1125072
DATE 9/29/2021

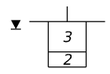


BOR # MB-1
EASTING 489126
NORTHING 1125514
DATE 8/25/2021



CAVE-IN

BOR # MB-2
EASTING 489238
NORTHING 1125512
DATE 8/25/2021



CAVE-IN

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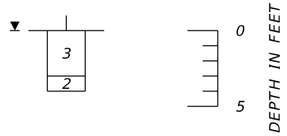
EASTING 489349
NORTHING 1125516
DATE 8/25/2021



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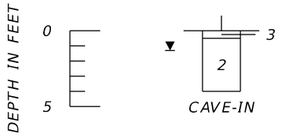
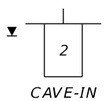
EASTING 489395
NORTHING 1125513
DATE 8/25/2021



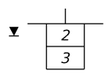
CAVE-IN

BOR # MB-5
EASTING 489199
NORTHING 1125452
DATE 8/25/2021



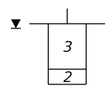
CAVE-IN

BOR # MB-6
EASTING 489311
NORTHING 1125453
DATE 8/25/2021



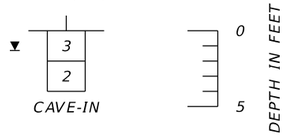
CAVE-IN

BOR # MB-7
EASTING 489532
NORTHING 1125698
DATE 8/25/2021



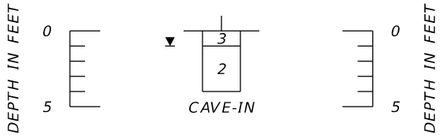
CAVE-IN

BOR # MB-7A
EASTING 489399
NORTHING 1125437
DATE 8/25/2021



CAVE-IN

BOR # MB-8
EASTING 489531
NORTHING 1125776
DATE 8/25/2021



CAVE-IN

LEGEND

1.	GRAY TO BROWN SAND TO SAND WITH SILT OCCASIONALLY WIHT ROCK FRAGMENTS (SP/SP-SM) (A-3)
2.	LIGHT GRAY TO BROWN SILTY SAND OCCASIONALLY CEMENTED (SM) (A-2-4)
3.	DARK BROWN ORGANIC SILTY SAND TO PEAT (PT) (A-8)
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▽	ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
▼	GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS
GNE	GROUNDWATER NOT ENCOUNTERED
CAVE-IN	CAVE-IN DUE TO SHALLOW GROUNDWATER INTRUSION
EASTING	EASTING COORDINATE REFERENCED TO THE FLORIDA STATE PLANE COORDINATE SYSTEM, FLORIDA WEST ZONE, N.A.D. 83.
NORTHING	NORTHING COORDINATE REFERENCED TO THE FLORIDA STATE PLANE COORDINATE SYSTEM, FLORIDA WEST ZONE, N.A.D. 83.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BJS
DRAWN BY: BJS
CHECKED BY: DRR

DANIEL R. RUEL, P.E.
P.E. LICENSE NUMBER 82404
TIERRA, INC.
7351 TEMPLE TERRACE HIGHWAY
TAMPA, FLORIDA 33637

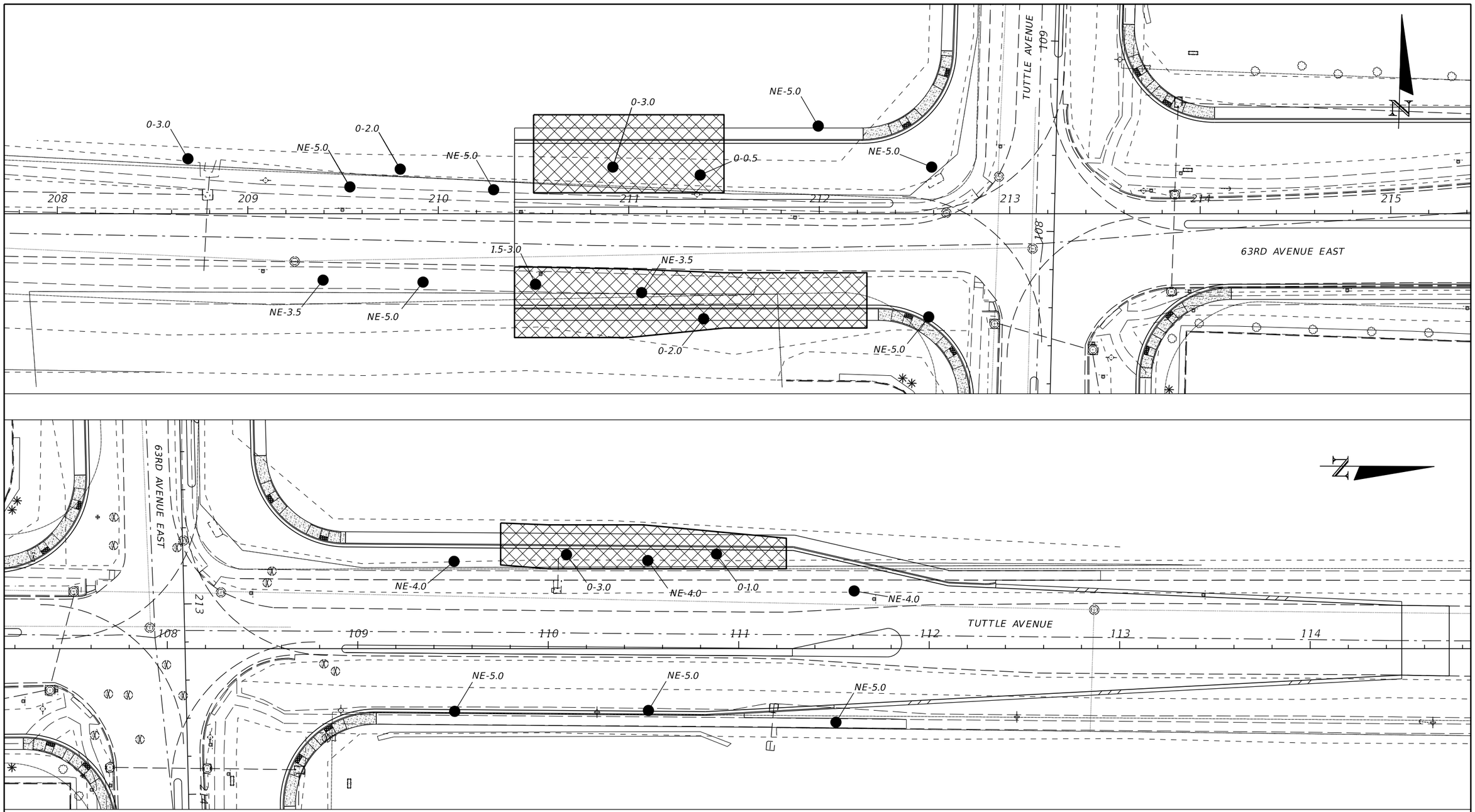
DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: DANIEL R. RUEL
FL. LICENSE NO.: 82404

ROADWAY SOIL PROFILES (2)

SHEET NO.: GR-3



LEGEND

1.0-2.0 / NE-5.0 — ORGANICS ENCOUNTERED 1.0 TO 2.0 FEET BELOW EXISTING GRADE; ORGANICS NOT ENCOUNTERED TO 5.0 FEET BELOW EXISTING GRADE

APPROXIMATE LIMITS OF ORGANIC REMOVAL

0 10 50
Feet

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BJS
DRAWN BY: BJS
CHECKED BY: DRR

DANIEL R. RUEL, P.E.
P.E. LICENSE NUMBER 82404
TIERRA, INC.
7351 TEMPLE TERRACE HIGHWAY
TAMPA, FLORIDA 33637

DATE: 12/2023
PROJECT NO.: 6065961

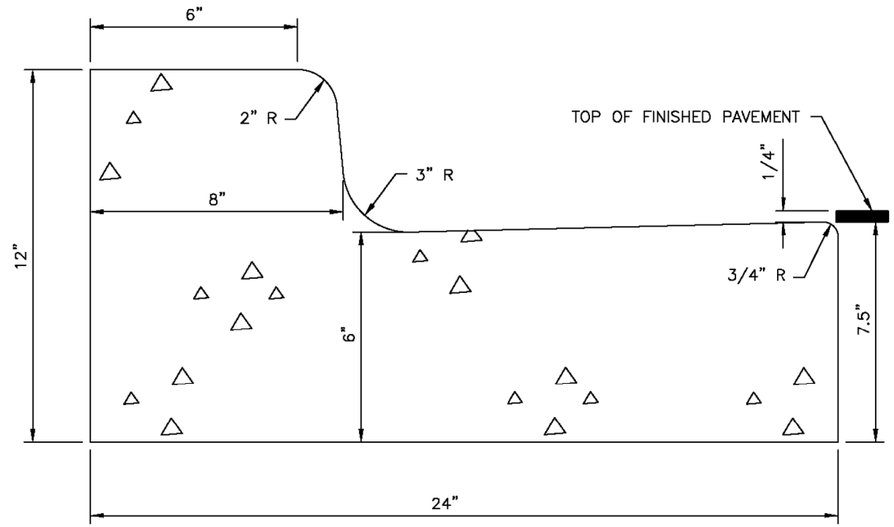
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: DANIEL R. RUEL
FL. LICENSE NO.: 82404

ORGANIC DELINEATION PLAN

SHEET NO.: GR-4

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



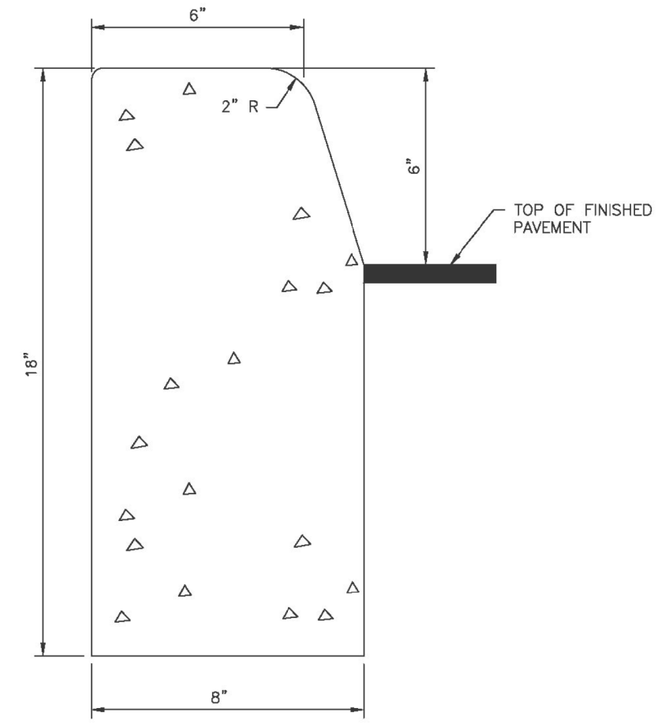
TYPE F
CURB & GUTTER

NOTES:

A. CLASS 1 CONCRETE 3,000 PSI AT 28 DAYS.

B. CURB AND GUTTER SHALL MEET FDOT STANDARD SPECIFICATIONS AND FDOT STANDARD PLANS, INDEX 520–001, LATEST EDITION.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE		
		4/26/22 DATE OF B.O.C.C. APPROVAL	TYPE F CURB & GUTTER
			201.2



TYPE D
CURB

NOTES:

A. CLASS 1 CONCRETE 3,000 PSI AT 28 DAYS.

B. CURB AND GUTTER SHALL MEET FDOT STANDARD SPECIFICATIONS AND FDOT STANDARD PLANS, INDEX 520–001, LATEST EDITION.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE		
		4/26/22 DATE OF B.O.C.C. APPROVAL	TYPE D CURB
			201.4

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

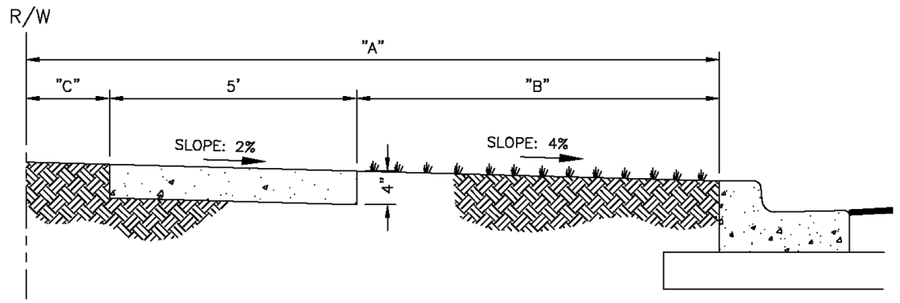
DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

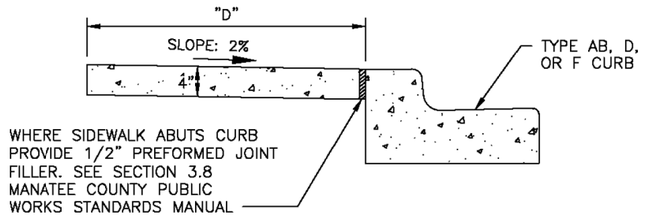
ROADWAY DETAILS (1)

SHEET NO.: DET-1



"A"= BACK OF CURB TO RIGHT-OF-WAY (VARIES)
"B"= UNPAVED AREA (VARIES)
"C"= VARIES, SEE DETAILS 401.1-401.10

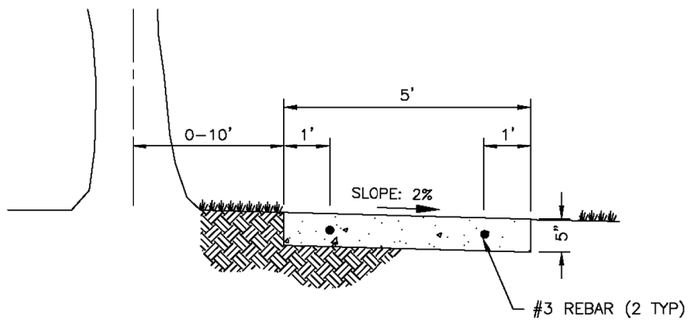
TYPICAL SIDEWALK LOCATION



"D"= SIDEWALK WIDTH SHALL BE 6' STANDARD, WHERE SIDEWALK ABUTS TYPE AB, D, OR F CURB.

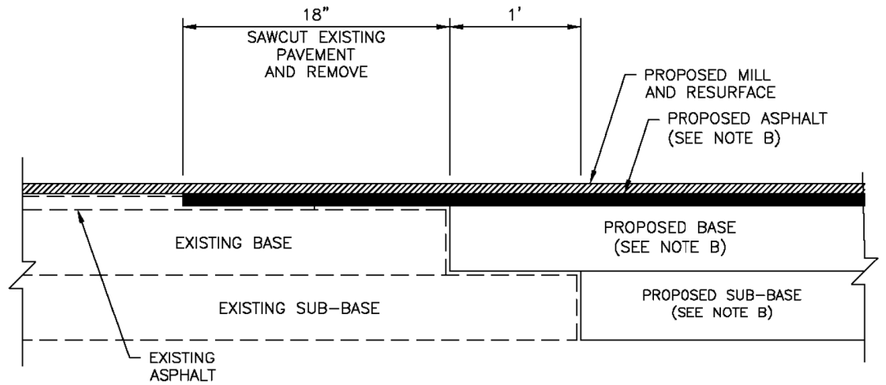
SEE SECTION 3.8 SIDEWALKS, MANATEE COUNTY PUBLIC WORKS STANDARDS MANUAL, FOR FURTHER INFORMATION.

ALTERNATE SIDEWALK LOCATION



SIDEWALK LOCATION CLOSE TO TREES

MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE		
		4/26/22 DATE OF B.O.C.C. APPROVAL	SIDEWALK REQUIREMENTS
			301.0



NOT TO SCALE

NOTES:

A. LIMITS OF MILL AND RESURFACE – EDGE OF PAVEMENT TO EDGE OF PAVEMENT AND 25' BEYOND LIMITS OF CONSTRUCTION.

B. ASPHALT, BASE, AND SUB-BASE SHALL MATCH EXISTING THICKNESS OR THE APPLICABLE COUNTY STANDARD TYPICAL SECTION, WHICHEVER IS GREATER.

C. SIGNAGE AND MARKING PLAN SHALL ACCOMPANY CONSTRUCTION PLAN.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT			
REV.BY	DATE		
		4/26/22 DATE OF B.O.C.C. APPROVAL	ROAD CONNECTION DETAIL
			403.3

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: JLS
DRAWN BY: TME
CHECKED BY: TTT

HDR ENGINEERING, INC.
401 N. CATTLEMEN ROAD, SUITE 210
SARASOTA, FL 34232

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: JASON L. STARR
FL. LICENSE NO.: 70171

ROADWAY DETAILS (2)

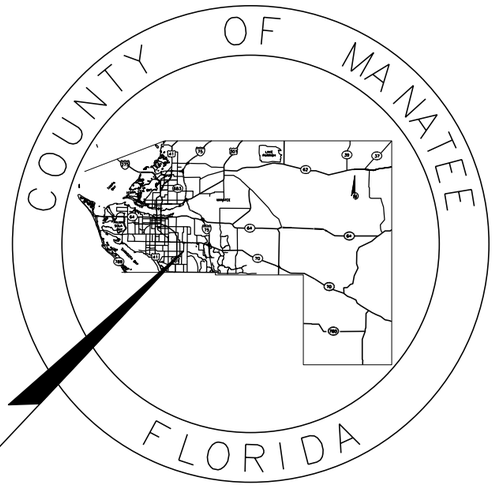
SHEET NO.: DET-2

MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

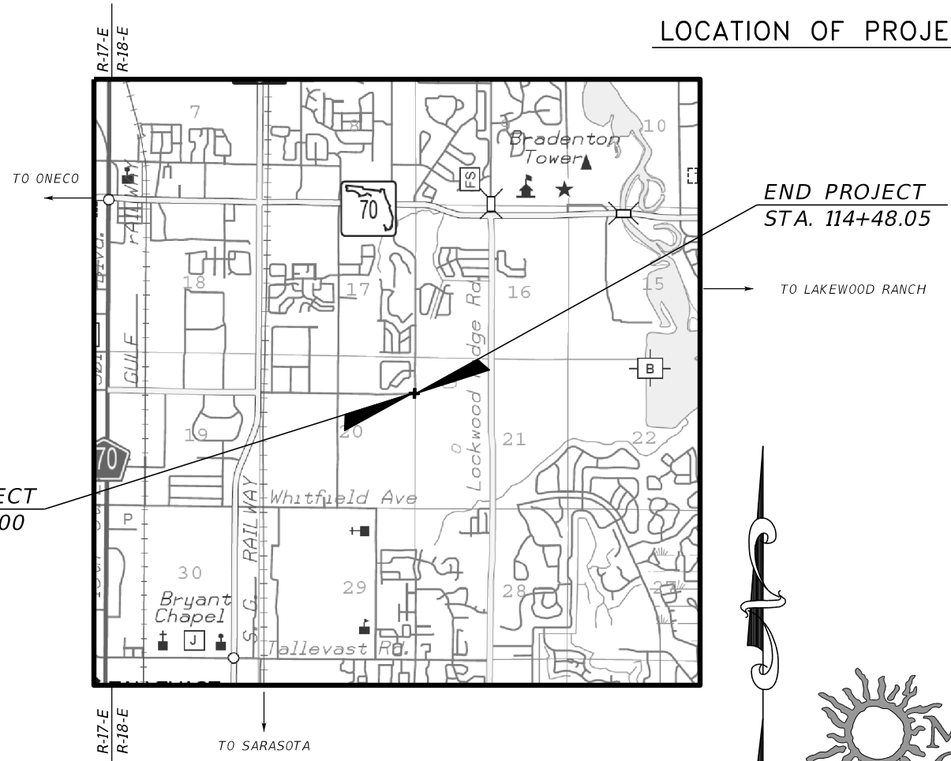
CONTRACT PLANS

MANATEE COUNTY
PROJECT NUMBER # 6065961
TUTTLE AVENUE AT 63RD AVENUE EAST (HONORE AVE)
INTERSECTION IMPROVEMENTS
SIGNALIZATION PLANS

INDEX OF SIGNALIZATION PLANS



LOCATION OF PROJECT



90% SUBMITTAL
12/2023

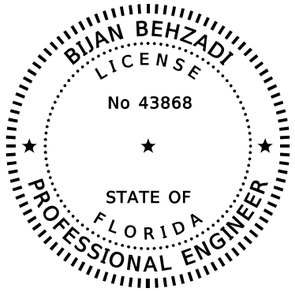
SIGNALIZATION PLANS ENGINEER OF RECORD:

BIJAN BEHZADI, P.E.
P.E. NO.: 43868
HDR ENGINEERING, INC.
401 N CATTLEMEN ROAD, SUITE 210
SARASOTA, FLORIDA 34232
VENDOR NO. 47-0680568

MANATEE CO. PROJECT MANAGER:
ANTHONY RUSSO, P.E.

Manatee County FLORIDA

FISCAL YEAR	SHEET NO.
23	T-1



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

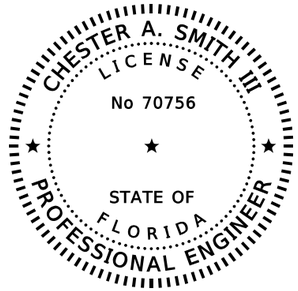
ON THE DATE ADJACENT TO THIS SEAL

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

HDR ENGINEERING, INC.
401 N CATTLEMEN ROAD, SUITE 210
SARASOTA, FLORIDA 34232-6441
BIJAN BEHZADI, P.E. NO. 43868

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
T-5	GENERAL NOTES
T-6	PAY ITEM NOTES
T-7 - T-9	SIGNALIZATION PLAN
T-10 - T-18	INTERCONNECT PLAN
T-19	GUIDE SIGN WORKSHEET
T-20	MAST ARM TABULATION
T-21 - T-22	SPLICING DIAGRAM
T-23 - T-26	MAST ARM CROSS SECTION
T-27	TRAFFIC MONITORING SITE CROSS SECTION
T-28	CABINET, CCTV AND MVDS DETAILS
T-29	CONCRETE APRON & CABLE ROUTE MARKER DETAILS
T-30	PEDESTRIAN SIGNAL AND CABINET BASE DETAILS
T-31	GENERATOR CABINET WIRING DIAGRAM
T-32	UNINTERRUPTIBLE POWER SUPPLY DETAILS
T-33	BLANKOUT SIGN DETAIL
T-34	LIGHTING POLE DATA TABLE AND LEGEND
T-35 - T-36	LIGHTING PLAN
T-37	ELECTRICAL ONE LINE DIAGRAM



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

ON THE DATE ADJACENT TO THIS SEAL

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HDR ENGINEERING, INC.
401 N CATTLEMEN ROAD, SUITE 210
SARASOTA, FLORIDA 34232-6441
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-38	MAST ARM DATA TABLE

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SIGNATURE SHEET

SHEET NO.: T-2

3:03:02 PM 12/8/2023 PW:\

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS														TOTAL THIS SHEET		GRAND TOTAL	
			T-7		T-9		T-10		T-11		T-12		T-13		T-14					
			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	50		190		85		525		680		465		325		2320			
630-2-12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	LF			425								130		15		570			
630-2-14	CONDUIT, FURNISH & INSTALL, ABOVEGROUND	LF					30								30		60			
632-7-1	SIGNAL CABLE- NEW OR RECONSTRUCTED INTERSECTION, FURNISH & INSTALL	PI	1														1			
633-1-121	FIBER OPTIC CABLE, F&I, UNDERGROUND,2-12 FIBERS	LF	20								125						145			
633-1-122	FIBER OPTIC CABLE, F&I, UNDERGROUND,13-48 FIBERS	LF									670						670			
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	EA	12								4						16			
633-2-32	FIBER OPTIC CONNECTION, INSTALL, TERMINATION	EA	12														12			
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						2			
633-3-13	FIBER OPTIC CONNECTION HARDWARE, F&I, PRETERMINATED CONNECTOR ASSEMBLY	EA	12														12			
633-3-16	FIBER OPTIC CONNECTION HARDWARE, F&I, PATCH PANEL- FIELD TERMINATED	EA	1														1			
633-3-17	FIBER OPTIC CONNECTION HARDWARE, F&I, CONNECTOR PANEL	EA	1														1			
633-8-1	MULTI-CONDUCTOR COMMUNICATION CABLE, FURNISH & INSTALL	LF					115		525		1095		595		370		2700			
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	EA	1				1						1		2		5			
635-2-12	PULL & SPLICE BOX, F&I, 24" X 36" COVER SIZE	EA									2						2			
635-2-13	PULL & SPLICE BOX, F&I, 30" X 60" RECTANGULAR OR 36" ROUND COVER SIZE	EA									1						1			
635-2-14	PULL & SPLICE BOX, F&I, 17" x 30" COVER SIZE	EA	14														14			
639-1-122	ELECTRICAL POWER SERVICE, F&I, UNDERGROUND, METER PURCHASED BY CONTRACTOR	AS	1														1			
639-2-1	ELECTRICAL SERVICE WIRE, FURNISH & INSTALL	LF	50														50			
639-4-6	EMERGENCY GENERATOR - PORTABLE, FURNISH & INSTALL HOUSING ONLY	EA	1														1			
641-2-12	PRESTRESSED CONCRETE POLE, F&I, TYPE P-II SERVICE POLE	EA	1														1			
641-2-13	PRESTRESSED CONCRETE POLE, F&I, TYPE P-III	EA					1								1		2			
646-1-11	ALUMINUM SIGNALS POLE, FURNISH AND INSTALL, PEDESTAL	EA	8														8			
649-21-10	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 60'	EA	3														3			
649-21-15	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 70'	EA	1														1			
650-1-34	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL POLYCARBONATE, 3 SECTION, 1 WAY	AS	6														6			
650-1-36	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL POLYCARBONATE, 4 SECTION, 1 WAY	AS	4														4			
650-1-39	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL POLYCARBONATE, 5 SECTION CLUSTER, 1 WAY	AS	4														4			
653-1-11	PEDESTRIAN SIGNAL, FURNISH & INSTALL LED COUNTDOWN, 1 WAY	AS	8														8			
660-3-11	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL CABINET EQUIPMENT	EA	1														1			
660-3-12	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL, ABOVE GROUND EQUIPMENT	EA	6				1								1		8			
665-1-11	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA	8														8			
670-5-111	TRAFFIC CONTROLLER ASSEMBLY, F&I, NEMA, 1 PREEMPTION	AS	1														1			
682-1-113	ITS CCTV CAMERA, F&I, DOME PTZ ENCLOSURE - PRESSURIZED, IP, HIGH DEFINITION	EA	1														1			
684-1-1	MANAGED FIELD ETHERNET SWITCH, FURNISH & INSTALL	EA	1														1			
685-1-12	UNINTERRUPTIBLE POWER SUPPLY, FURNISH AND INSTALL, ONLINE/DOUBLE CONVERSION	EA	1														1			
685-2-1	REMOTE POWER MANAGEMENT UNIT- RPMU, FURNISH AND INSTALL	EA	1														1			
700-3-201	SIGN PANEL, FURNISH & INSTALL OVERHEAD MOUNT, UP TO 12 SF	EA	4														4			
700-5-22	INTERNALLY ILLUMINATED SIGN, FURNISH & INSTALL, OVERHEAD MOUNT, 12-18 SF	EA	4														4			
700-141-360	ENHANCED HIGHWAY SIGN ASSEMBLY, AC POWERED, F&I OVERHEAD MOUNT,	EA	4														4			
	BLANK OUT SIGN <12 SF																			
715-1-12	LIGHTING CONDUCTORS, F&I, INSULATED, NO.8 - 6	LF																		
715-5-31	LUMINAIRE & BRACKET ARM- ALUMINUM, F&I NEW LUMINAIRE AND ARM ON NEW/EXISTING POLE	EA																		
715-61-252	LIGHT POLE COMPLETE, F&I, STANDARD POLE STANDARD FOUNDATION,	EA																		
	35' MOUNTING HEIGHT, 15' ARM LENGTH																			
715-61-352	LIGHT POLE COMPLETE, F&I, STANDARD POLE STANDARD FOUNDATION,	EA																		
	40' MOUNTING HEIGHT, 15' ARM LENGTH																			
715-500-1	POLE CABLE DISTRIBUTION SYSTEM, FURNISH AND INSTALL, CONVENTIONAL	EA																		

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

TABULATION OF QUANTITIES (1)

SHEET NO.: T-3

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

3:03:13 PM 12/8/2023 PW:\

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS														TOTAL THIS SHEET		GRAND TOTAL	
			T-15		T-16		T-17		T-18		T-35		T-36							
			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	10		115		445		155		105		385				1215		3535	
630-2-12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	LF					140										140		710	
630-2-14	CONDUIT, FURNISH & INSTALL, ABOVEGROUND	LF							30								30		90	
632-7-1	SIGNAL CABLE- NEW OR RECONSTRUCTED INTERSECTION, FURNISH & INSTALL	PI																	1	
633-1-121	FIBER OPTIC CABLE, F&I, UNDERGROUND,2-12 FIBERS	LF																	145	
633-1-122	FIBER OPTIC CABLE, F&I, UNDERGROUND,13-48 FIBERS	LF			215												215		885	
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	EA			36												36		52	
633-2-32	FIBER OPTIC CONNECTION, INSTALL, TERMINATION	EA																	12	
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			3												3		5	
633-3-13	FIBER OPTIC CONNECTION HARDWARE, F&I, PRETERMINATED CONNECTOR ASSEMBLY	EA																	12	
633-3-16	FIBER OPTIC CONNECTION HARDWARE, F&I, PATCH PANEL- FIELD TERMINATED	EA																	1	
633-3-17	FIBER OPTIC CONNECTION HARDWARE, F&I, CONNECTOR PANEL	EA																	1	
633-8-1	MULTI-CONDUCTOR COMMUNICATION CABLE, FURNISH & INSTALL	LF	240		595		585		185								1605		4305	
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	EA			1		2		1				9				13		18	
635-2-12	PULL & SPLICE BOX, F&I, 24" X 36" COVER SIZE	EA																	2	
635-2-13	PULL & SPLICE BOX, F&I, 30" X 60" RECTANGULAR OR 36" ROUND COVER SIZE	EA																	1	
635-2-14	PULL & SPLICE BOX, F&I, 17" x 30" COVER SIZE	EA																	14	
639-1-122	ELECTRICAL POWER SERVICE, F&I, UNDERGROUND, METER PURCHASED BY CONTRACTOR	AS																	1	
639-2-1	ELECTRICAL SERVICE WIRE, FURNISH & INSTALL	LF																	50	
639-4-6	EMERGENCY GENERATOR - PORTABLE, FURNISH & INSTALL HOUSING ONLY	EA																	1	
641-2-12	PRESTRESSED CONCRETE POLE, F&I, TYPE P-II SERVICE POLE	EA																	1	
641-2-13	PRESTRESSED CONCRETE POLE, F&I, TYPE P-III	EA							1								1		3	
646-1-11	ALUMINUM SIGNALS POLE, FURNISH AND INSTALL, PEDESTAL	EA																	8	
649-21-10	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 60'	EA																	3	
649-21-15	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, SINGLE ARM 70'	EA																	1	
650-1-34	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL POLYCARBONATE, 3 SECTION, 1 WAY	AS																	6	
650-1-36	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL POLYCARBONATE, 4 SECTION, 1 WAY	AS																	4	
650-1-39	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL POLYCARBONATE, 5 SECTION CLUSTER, 1 WAY	AS																	4	
653-1-11	PEDESTRIAN SIGNAL, FURNISH & INSTALL LED COUNTDOWN, 1 WAY	AS																	8	
660-3-11	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL CABINET EQUIPMENT	EA																	1	
660-3-12	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL, ABOVE GROUND EQUIPMENT	EA							1								1		9	
665-1-11	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA																	8	
670-5-111	TRAFFIC CONTROLLER ASSEMBLY, F&I, NEMA, 1 PREEMPTION	AS																	1	
682-1-113	ITS CCTV CAMERA, F&I, DOME PTZ ENCLOSURE - PRESSURIZED, IP, HIGH DEFINITION	EA																	1	
684-1-1	MANAGED FIELD ETHERNET SWITCH, FURNISH & INSTALL	EA																	1	
685-1-12	UNINTERRUPTIBLE POWER SUPPLY, FURNISH AND INSTALL, ONLINE/DOUBLE CONVERSION	EA																	1	
685-2-1	REMOTE POWER MANAGEMENT UNIT- RPMU, FURNISH AND INSTALL	EA																	1	
700-3-201	SIGN PANEL, FURNISH & INSTALL OVERHEAD MOUNT, UP TO 12 SF	EA																	4	
700-5-22	INTERNALLY ILLUMINATED SIGN, FURNISH & INSTALL, OVERHEAD MOUNT, 12-18 SF	EA																	4	
700-141-360	ENHANCED HIGHWAY SIGN ASSEMBLY, AC POWERED, F&I OVERHEAD MOUNT,	EA																	4	
	BLANK OUT SIGN <12 SF																			
715-1-12	LIGHTING CONDUCTORS, F&I, INSULATED, NO.8 - 6	LF									339		3726				4065		4065	
715-5-31	LUMINAIRE & BRACKET ARM- ALUMINUM, F&I NEW LUMINAIRE AND ARM ON NEW/EXISTING POLE	EA											3				3		3	
715-61-252	LIGHT POLE COMPLETE, F&I, STANDARD POLE STANDARD FOUNDATION,	EA											5				5		5	
	35' MOUNTING HEIGHT, 15' ARM LENGTH																			
715-61-352	LIGHT POLE COMPLETE, F&I, STANDARD POLE STANDARD FOUNDATION,	EA											1				1		1	
	40' MOUNTING HEIGHT, 15' ARM LENGTH																			
715-500-1	POLE CABLE DISTRIBUTION SYSTEM, FURNISH AND INSTALL, CONVENTIONAL	EA											6				6		6	

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

TABULATION OF QUANTITIES (2)

SHEET NO.: T-4

GENERAL NOTES

1. CONTACT THE ENGINEER, IN CONJUNCTION WITH MANATEE COUNTY'S PROJECT MANAGEMENT DIVISION BEFORE STARTING WORK.

2. 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, PERMITTEE TO CONTACT THE TRAFFIC SIGNAL INSPECTOR/LIAISON:

   MANATEE COUNTY PROJECT MANAGEMENT DIVISION
   ANTHONY RUSSO, P.E.
   1022 26TH AVENUE EAST
   BRADENTON, FLORIDA 34208
   PHONE: 941-708-7450 EXT. 7349

4. ONE WEEK PRIOR TO THE BEGINNING OF THE TRAFFIC SIGNAL INSTALLATION OR TURN ON OF A NEW SIGNAL, NOTIFY THE ENGINEER:

   MANATEE COUNTY PROJECT MANAGEMENT DIVISION
   ANTHONY RUSSO, P.E.
   1022 26TH AVENUE EAST
   BRADENTON, FLORIDA 34208
   PHONE: 941-708-7450 EXT. 7349

   MANATEE COUNTY TRAFFIC ENGINEERING DIVISION
   MR. MUKUNDA GOPALAKRISHNA, P.E., PTOE
   2101 47TH TERRACE EAST
   BRADENTON, FLORIDA 34203
   PHONE: 941-749-3500 EXT. 7813

5. NOTIFY THE TRAFFIC ENGINEERING DIVISION VIA THE PROJECT MANAGER AT LEAST FIVE (5) BUSINESS DAYS IN ADVANCE TO SCHEDULE THE INITIAL POWER SERVICE AND/OR TRAFFIC SIGNAL INSPECTION.

6. PRIOR TO SCHEDULING THE INITIAL TRAFFIC SIGNAL INSPECTION, DELIVER THREE HARD COPY SETS OF AS-BUILT RECORD DRAWINGS, TWO SETS OF IMSA INSPECTION FORMS (OTDRS FOR FIBER OPTIC PROJECTS), AND ONE COMPACT DISC OF RECORD DRAWINGS IN ADOBE ACROBAT (.PDF) AND AUTOCAD (.DWG) FORMAT TO:

   MANATEE COUNTY TRAFFIC OPERATIONS DIVISION
   MR. AARON BURKETT
   2904 12TH STREET COURT EAST
   BRADENTON, FLORIDA 34208
   PHONE: 941-708-7450 EXT. 7509

7. UPON PASSING THE FINAL INSPECTION, SEND A WRITTEN REQUEST TO THE PROJECT MANAGEMENT DIVISION AND THE TRAFFIC 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.

ELECTRICAL AND POWER SERVICE

1. CONTACT THE LOCAL POWER COMPANY PROVIDING ELECTRICAL POWER TO DETERMINE IF A SERVICE PROCESSING FEE IS REQUIRED. ANY FEE SHALL BE INCLUDED AS PART OF PAYMENT FOR THE ELECTRICAL POWER SERVICE ASSEMBLY. COORDINATE THE CONSTRUCTION, INSPECTION AND ENERGIZING OF THE NEW POWER SERVICE IN A TIMELY MANNER IN ORDER TO PROMOTE PROJECT COMPLETION WITHIN CONTRACT TIME.

2. 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.

3. ELECTRICAL WIRING AND EQUIPMENT INSTALLATION SHALL CONFORM TO THE MOST RECENT VERSIONS OF THE NEC OR NESC WHERE APPLICABLE.

SIGNAL POLE FOUNDATION

1. HAND DIG THE FIRST 48 INCHES OF THE HOLE FOR THE POLE FOUNDATION OR CONDUIT RUN WHERE UTILITIES ARE IN CLOSE PROXIMITY.

2. DE-WATER THE POLE FOUNDATION EXCAVATION IF THE ELEVATION OF WATER IS HIGHER THAN THE ELEVATION OF THE FOUNDATION BASE.

3. ELEVATION OF THE TOP OF THE MAST ARM FOUNDATION IS TO BE SIX INCHES ABOVE EXISTING GRADE, UNLESS LOCATED DIRECTLY AT BACK OF SIDEWALK. IF LOCATED AT BACK OF SIDEWALK, THE FOUNDATION ELEVATION HAS TO MATCH SIDEWALK GRADE. SEE TOP OF FOUNDATION ELEVATION ON "MAST ARM TABULATION" SHEET.

4. THE TYPE OF EQUIPMENT USED IN THE INSTALLATION OF MAST ARMS/ FOUNDATIONS HAS TO MEET THE FOLLOWING REQUIREMENTS:
   I) OVERHEAD LINES WILL STAY IN PLACE BOTH, VERTICALLY AND HORIZONTALLY; AND
   2) MEET ALL APPLICABLE OSHA REQUIREMENTS. ANY COST ASSOCIATED WITH THE TYPE OF EQUIPMENT REQUIRED FOR THIS INSTALLATION IS TO BE INCLUDED IN THE RELATED PAY ITEMS.

GROUNDING

1. ALL COSTS FOR GROUNDING IS TO BE INCLUDED IN THE COST OF THE ITEM BEING GROUNDED. ALL GROUND ROD ASSEMBLIES FOR POLES, SERVICES, CABINETS, AND OTHER RELATED EQUIPMENT ARE TO BE BONDED TOGETHER TO FORM AN INTEGRATED GROUNDING SYSTEM USING #6 AWG THIN COPPER WIRE. THE UPPER END OF ALL GROUND RODS ARE TO BE 18 INCHES BELOW GROUND ELEVATION. 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. GROUNDING CONDUCTOR MUST BE #6 OR LARGER INSULATED COPPER.

2. CONNECTING DEVICES SHALL BE NON-CORROSIVE SPLIT BOLTS, CLAMPS, PRESSURE CONNECTORS, OR OTHER APPROVED MEANS TO ENSURE A POSITIVE CONNECTION.

3. GROUND RESISTANCE TESTER, OR OTHER APPROVED MEANS WILL BE USED TO ACQUIRE THE GROUND ROD RESISTANCE. THE ENGINEER, OR A REPRESENTATIVE OF THE ENGINEER FROM THE TRAFFIC OPERATIONS DIVISION STAFF WILL BE PRESENT DURING THE TEST.

SIGNALIZATION AND ITS MATERIALS SUBMITTAL

1. CONTACT THE TRAFFIC ENGINEERING DIVISION FOR THE LIST OF ALL PERTINENT APPROVED ITS COMPONENTS FOR ALL ATMS MATERIALS PRIOR TO SUBMITTING SHOP DRAWINGS. THIS INCLUDES BUT NOT LIMITED TO ETHERNET SWITCH, UPS, FIBER PULL BOXES, SPLICE BOXES AND ROUTE MARKERS WITH CORRECT WORDING.

2. THE ACCEPTANCE OF ANY SUBMITTED DATA FOR MATERIALS, EQUIPMENT, APPARATUS, DEVICES, ARRANGEMENTS AND/OR LAYOUTS WILL 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 WILL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS OF ANY SORT ON THE SUBMITTAL DATA.

3. SHOP DRAWINGS TO BE SUBMITTED FOR REVIEW FOR ALL EQUIPMENT AND MATERIALS FURNISHED AND INSTALLED. FURNISH COPIES OF ALL DRAWINGS, SCHEDULES AND COMPLETE DESCRIPTIVE AND TECHNICAL DATA ON ALL ITEMS TO THE PROJECT MANAGER.

   IDENTIFY ALL OF THE TECHNICAL DATA FOR ALL EQUIPMENT, DEVICES FOR FURNISHING AND INSTALLATION.

CONDUIT NOTES

1. ALL HDPE CONDUIT CONNECTIONS SHALL BE JOINED WITH A FUSION COUPLER OR FUSION SPLICE.

2. INSTALL AND ADJUST THE CONDUIT RUNS VERTICALLY OR HORIZONTALLY, TO AVOID ANY UTILITY CONFLICTS IDENTIFIED BY THE LOCATES. ANY SIGNIFICANT CHANGE WILL BE APPROVED BY THE ENGINEER.

3. FIELD LOCATE ALL ABOVEGROUND AND UNDERGROUND CONFLICTS IN ADVANCE OF THE PLACEMENT OF ANY CONDUIT OR OTHER FACILITIES.

4. FIELD MARK THE PROPOSED ALIGNMENT FOR REVIEW AND CONCURRENCE BY THE ENGINEER PRIOR TO TRENCHING AND/OR PLACEMENT. NO PULL BOXES ARE TO BE LOCATED IN DRAINAGE SWALES, OR PAVED SHOULDERS.

5. WHEN TRENCHING FOR INSTALLATION, INSTALL COMMUNICATIONS AND POWER SERVICE IN THE SAME TRENCH. THE POWER SERVICE WILL HAVE SEPARATE PULL BOXES FOR ACCESS. DO NOT INSTALL COMMUNICATIONS AND POWER SERVICE IN THE SAME CONDUIT AND PULL BOX.

6. IT SHOULD BE NOTED THAT NO TEST BORINGS WERE MADE WHERE CONDUIT RUNS ARE TO BE INSTALLED BY JACKING OR BORING.

7. 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.

FIBER OPTIC CABLE SPLICING AND SYSTEMS INTEGRATION

1. PRIOR TO PERFORMING OUTSIDE PLANT SPLICING OF THE FIBER OPTIC CABLES, CONTACT THE COUNTY'S TRAFFIC SYSTEM ENGINEER TO CONFIRM THE ALLOCATED BUFFER TUBE AND THE CIRCUITS TO BE SPLICED. ONE WEEK PRIOR TO THE CONFIGURATION/PROGRAMMING OF NETWORK DEVICES, CONTACT TRAFFIC ENGINEERING DIVISION: MUKUNDA GOPALAKRISHNA AT (941-749-3500 EXT. 7813) TO OBTAIN IP ADDRESSES FOR FIELD DEVICES AND ETHERNET SWITCH CONFIGURATION INFORMATION.

UTILITIES RELATED NOTES:

1. THE UTILITIES SHOWN IN THESE PLANS REPRESENT APPROXIMATE LOCATIONS OF THE UTILITIES AND ARE FOR INFORMATIONAL PURPOSES ONLY AND DO NOT REPRESENT THE EXTENT OF UTILITIES ON THIS PROJECT. DESIGNATE, LOCATE AND PROTECT ALL EXISTING ABOVEGROUND AND UNDERGROUND STRUCTURES AND FACILITIES LOCATED WITHIN THE PROJECT LIMITS DURING FIBER AND EQUIPMENT INSTALLATIONS.

2. UNDERGROUND UTILITIES MUST BE VERIFIED VERTICALLY AND HORIZONTALLY (VVH) FOR ALL CONDUIT AND POLE INSTALLATIONS. THE COST FOR THE VVH SHALL BE INCLUDED IN THE COST OF CONDUIT AND THE POLE. ADJUST THE CONDUIT RUNS, BORES AND SERVICE POLE PLACEMENTS TO AVOID ANY UTILITY CONFLICT IDENTIFIED BY THE LOCATES. ANY SIGNIFICANT CHANGES SHALL BE APPROVED BY THE ENGINEER. WHEN BORING UNDER PAVEMENT, VERIFY THE VERTICAL DEPTH BY POTHOLING PRIOR TO SHOOTING THE BORE. ANY OTHER METHOD MUST BE APPROVED BY THE ENGINEER. HORIZONTAL CLEARANCE LESS THAN 36" TO AN OBSTRUCTION FOR ABOVEGROUND FACILITIES SHALL BE INSTALLED PER FDOT STANDARD PLANS.

3. UTILITY/ AGENCY OWNERS: REFER TO UTILITY ADJUSTMENT PLANS FOR LIST OF AGENCY AND DEPARTMENT UTILITY LIST.

4. THE LOCATION(S) OF THE UTILITIES SHOWN IN THE PLANS (INCLUDING THOSE DESIGNATED Vv, Vh AND Vvh) ARE BASED ON LIMITED INVESTIGATION TECHNIQUES AND SHOULD BE CONSIDERED APPROXIMATE ONLY. THE VERIFIED LOCATION/ELEVATIONS APPLY ONLY AT THE POINTS SHOWN. INTERPOLATIONS BETWEEN POINTS HAVE NOT BEEN VERIFIED.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

GENERAL NOTES

SHEET NO.: T-5

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.

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. 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 & 635-2-14:
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.

ELECTRICAL PULL BOX DIMENSIONS SHALL BE 13" X 24" X 12" AND THE LID SHALL BE STAMPED "ELECTRIC" ON THE COVER. LIGHTING PULL BOX DIMENSIONS SHALL BE 13" X 24" X 12" AND THE LID SHALL BE STAMPED "LIGHTING" ON THE COVER. TRAFFIC SIGNAL PULL BOX DIMENSIONS SHALL BE 17" X 30" X 12" AND THE LID SHALL BE STAMPED "TRAFFIC SIGNAL" ON THE COVER. 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 36" AND THE LIDS SHALL BE STAMPED "MANATEE COUNTY FIBER OPTIC SYSTEM" ON THE COVER.

4. 639-1-122:
MAIN TRAFFIC SIGNAL ELECTRICAL SERVICE

- METER SOCKET SHALL BE 200 AMP LEVER BYPASS NEMA 3R ENCLOSURE RATED FOR OUTDOOR USE.
- MAIN BREAKER LOAD CENTER SHALL BE 100 AMP 6 SPACE / 12 CIRCUIT RATED FOR OUTDOOR USE AND SERVICE ENTRANCE.
- SURGE PROTECTION DEVICE (SPD) SHALL BE A DOUBLE POLE 120/240 VAC
- ALL CIRCUIT BREAKERS AND SPACES SHALL BE ASSIGNED AS FOLLOWS:
  - CKT. 1, 3 SHALL BE A DOUBLE POLE 60 AMP FOR SECONDARY LOAD CENTER
  - CKT. 2, 4 SHALL BE A DOUBLE POLE 20 AMP FOR SPD
  - SPACES 5, 6 SHALL BE RESERVED FOR FUTURE USE
- #2 AWG WIRE SHALL BE USED FROM THE METER SOCKET TO THE POINT OF SERVICE.

SECONDARY ELECTRICAL SERVICE FOR TRAFFIC SIGNAL

- MAIN LUG LOAD CENTER SHALL BE 100 AMP 6 SPACE / 12 CIRCUIT RATED FOR OUTDOOR USE.
- SURGE PROTECTION DEVICE (SPD) SHALL BE A DOUBLE POLE 120/240 VAC
- ALL CIRCUIT BREAKERS AND SPACES SHALL BE ASSIGNED AS FOLLOWS:
  - CKT. 1 SHALL BE A SINGLE POLE 30 AMP FOR TRAFFIC SIGNAL CABINET
  - CKT. 2, 3 SHALL BE A DOUBLE POLE 20 AMP FOR SPD
  - CKT. 4, 5 SHALL BE A DOUBLE POLE 30 AMP FOR INTERSECTION LIGHTING
  - SPACE 6 SHALL BE RESERVED FOR FUTURE USE
- #2 AWG WIRE SHALL BE USED FROM THE MAIN LOAD CENTER CIRCUIT 1, 2 TO THE SECONDARY MAIN LUG LOAD CENTER.
- #10 AWG WIRE SHALL BE USED FROM THE SECONDARY LOAD CENTER CKT. 1 TO TRAFFIC SIGNAL CABINET.
- ABOVE GROUND ELECTRICAL SERVICE CONDUIT SHALL BE RIGID GALVANIZED OR SCHEDULE 80 PVC.
- RIGID GALVANIZED CONDUIT SHALL BE CONNECTED TOGETHER BY USE OF GALVANIZED THREADED COUPLINGS.
- WHEN USING SCHEDULE 80 PVC, THE PIPE SHALL HAVE LARGER DIAMETER PVC SLEEVE AROUND IT AT GROUND LEVEL EXTENDING 12" ABOVE AND 6" BELOW FINISH GRADE.
- #6 AWG GREEN GROUND WIRE SHALL BE IN 3/4 INCH SCHEDULE 80 PVC OR 3/4 INCH RIGID GALVANIZED CONDUIT. CONDUIT SHALL EXTEND A MINIMUM OF 6" BELOW FINISH GRADE.

5. 639-4-6:
MANATEE COUNTY WILL NOT FURNISH THIS ITEM. FURNISH AND INSTALL THE HOUSING AND FOUNDATION / PAD. ALL COSTS FOR THE HOUSING FOUNDATION / PAD IS INCLUDED IN THE COST OF THIS PAY ITEM. COORDINATE WITH MANATEE COUNTY TO OBTAIN THE DESIRED HOUSING DIMENSIONS.

6. 649-21-10 & 649-21-15:
FIELD VERIFY ALL CRITICAL ELEVATIONS PRIOR TO ORDERING MAST ARM ASSEMBLIES.

7. 650-1-34, 650-1-36 & 650-1-39:
USE SIGNAL HEAD SUPPORTING HANGER THAT IS CAPABLE OF ADJUSTING VERTICALLY A MINIMUM OF 1.5'.

ALL SIGNAL HEADS SHALL HAVE POLYCARBONATE LOUVERED BACKPLATES INSTALLED. BACKPLATES SHALL BE MANUFACTURED FOR THE SIGNAL HEADS USED & INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS. THE BACKPLATES 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. USE WAVETRONIX EXPANSE SYSTEM WITH XP20 SENSOR AND ARC DEVICE INSTALLED INSIDE THE SIGNAL CABINET.

10. 660-3-12:
COORDINATE WITH THE VENDOR AND PROVIDE DETECTION OVERLAY PLANS FOR COUNTY'S REVIEW, PRIOR TO FINALIZING SENSOR INSTALLATION LOCATIONS IN THE FIELD. SHALL INCLUDE WAVETRONIX SMART SENSOR HD MATRIX, HD ADVANCE OR XP20 TRAFFIC MONITORING SITE MVDS AS NOTED IN PLANS. MVDS (MID BLOCK) SHALL BE A WAVETRONIX EXPANSE SYSTEM WITH UP TO 2 XP20 SENSORS CONNECTED TO AN ARC DEVICE IN THE CONTROLLER CABINET. 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. 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.

12. 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). THE CABINET SHALL COME EQUIPPED WITH AN 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 ½ -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.

13. 682-1-113:
THE CCTV CAMERA UNIT SHALL BE BOSCH ITS 7000 STARLITE SERIES 1080P 30x40. 1080P 30x40. FURNISH AND INSTALL ONE (1) CCTV CAMERA UNIT AS SHOWN IN THE PLANS. ADDITIONALLY, FURNISH ONE (1) ADDITIONAL UNIT AND DELIVER IT TO PUBLIC WORKS, TRAFFIC ENGINEERING, 2101 47TH TERRACE E, BRADENTON, FL 34203.

14. 684-1-1:
THE ETHERNET SWITCH SHALL BE A RUGGEDCOM SWITCH MODEL NUMBER RSG920P, PART NUMBER 6GK6092-OPS23-0BA0-ZA05+B05+C02+D02. THIS INCLUDES AN EXTERNAL POWER SUPPLY (RUGGEDCOM-MODEL #RPS1300) TO POWER THE POE PORTS. FURNISH AND INSTALL ONE (1) ETHERNET SWITCH AS SHOWN IN THE PLANS. ADDITIONALLY, FURNISH ONE (1) ADDITIONAL SWITCH AND DELIVER IT TO PUBLIC WORKS, TRAFFIC ENGINEERING, 2101 47TH TERRACE E, BRADENTON, FL 34203.

15. 685-1-12:
SEE UNINTERRUPTED POWER SUPPLY DETAILS SHEET IN THIS PLANS FOR INFORMATION. THE UNIT SHALL BE APC1300.

16. 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 PHOTOCELL 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.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

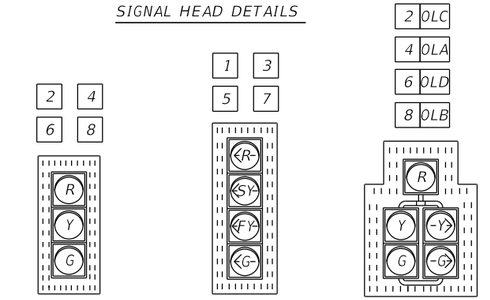
DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

PAY ITEM NOTES

SHEET NO.: T-6

3:03:26 PM 12/8/2023 PW:\

SIGNAL HEAD DETAILS

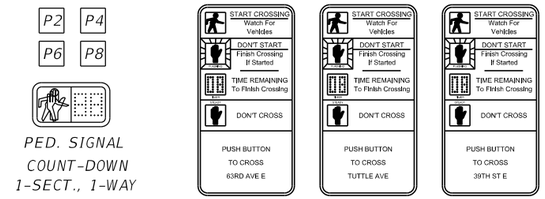


3-SECT., 1-WAY
6 AS
650-1-34

4-SECT., 1-WAY
4 AS
650-1-36

5-SECT., 1-WAY
4 AS
650-1-39

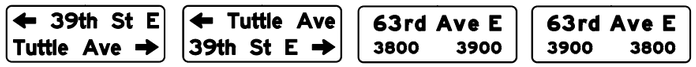
PEDESTRIAN SIGNAL HEAD DETAILS



PED. SIGNAL
COUNT-DOWN
1-SECT., 1-WAY
8 AS
653-1-11

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

STREET NAME SIGN DETAILS



Ⓐ Ⓑ Ⓒ Ⓓ

700-5-22 4 EA

REGULATORY SIGN DETAILS

FTP-85-13
30" x 36"

Ⓔ

700-3-201 4 EA

BLANK OUT SIGN WITH
FULL LED, FULL COLOR,
36" x 36", R3-1

Ⓕ

700-141-360 4 AS

CONTROLLER OPERATIONS:

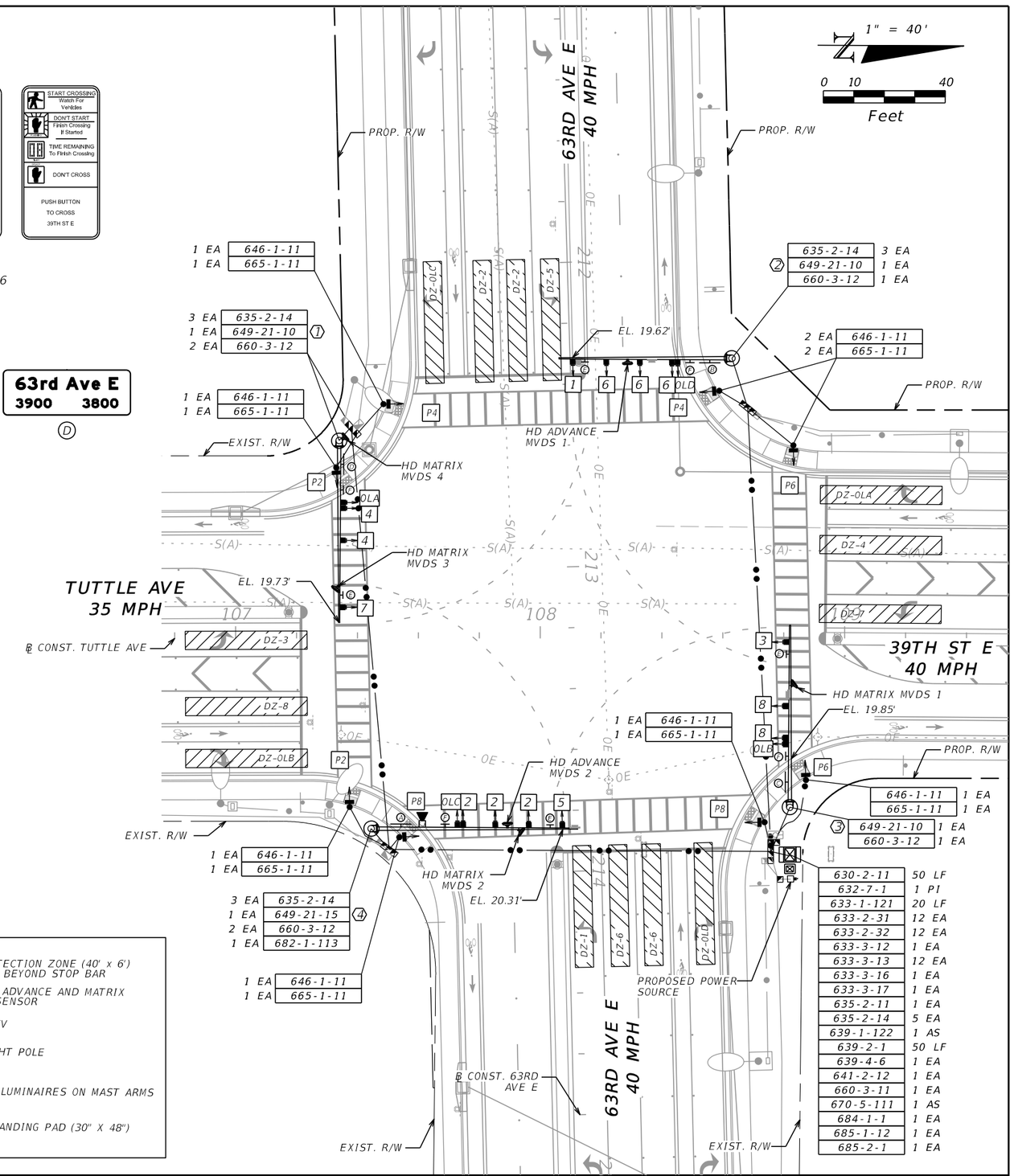
1. MAJOR STREET IS 63RD AVE E (MOVEMENTS 1, 2, OL-C, 5, 6 AND OL-D) AND MINOR STREET IS TUTTLE AVE (MOVEMENTS 3, 4, OL-B, 7, 8 AND OL-A).
2. WHILE IN FLASH MODE, MOVEMENTS 2 & 6 SHALL FLASH YELLOW. ALL OTHER MOVEMENTS SHALL FLASH RED.
3. CONTROLLER CABINET SHALL BE WIRED AS AN SOP 10. SEE SHEET T-8 FOR DETAILS.
4. 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.
5. CONFIGURE THE PHASE SEQUENCE, PHASE CONCURRENCY AND OVERLAP PROGRAMMING TO COMPLY WITH THE MUTCD.
6. PROGRAM A START-UP DELAY OF 3 SECONDS FOR THE FLASHING YELLOW ARROW ON MOVEMENTS 1, 3, 5, AND 7 (RELATIVE TO THE OPPOSING THROUGH MOVEMENTS).

TABLE OF MAST ARM POLES

MAST ARM POLE #	STATION	OFFSET	BASELINE	H.P. ROADWAY ELEVATION	TOP OF FDN. ELEV. (ABOVE GROUND)
⟨1⟩	107+34.0	65.0' LT.	℄ CONST. TUTTLE AVE	19.73'	20.33'
⟨2⟩	108+63.0	92.0' LT.	℄ CONST. TUTTLE AVE	19.62'	19.91'
⟨3⟩	108+82.0	55.5' RT.	℄ CONST. TUTTLE AVE	19.85'	21.10'
⟨4⟩	107+44.5	62.5' RT.	℄ CONST. TUTTLE AVE	20.31'	21.88'

LEGEND

- DZ — PROPOSED DETECTION ZONE (40' x 6') POSITIONED 2' BEYOND STOP BAR
- PROPOSED HD ADVANCE AND MATRIX MVDS SMART SENSOR
- PROPOSED CCTV
- PROPOSED LIGHT POLE
- UNDER-MOUNT LUMINAIRES ON MAST ARMS
- PEDESTRIAN LANDING PAD (30" X 48")



No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

Manatee County FLORIDA
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SIGNALIZATION PLAN (1)

SHEET NO.: T-7

3:03:40 PM 12/8/2023 PW:\

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

CONSTRUCTION NOTES:

1. INSTALL POWER SERVICE METER BASE AND DISCONNECT ON THE CONCRETE SERVICE POLE AS SHOWN ON THE PLANS AND PER STANDARD PLANS INDEX NUMBERS 639-001 AND 639-002.
2. FLORIDA POWER AND LIGHT TRANSFORMER (FPL) SHALL BE USED FOR POWER SERVICE. COORDINATE WITH OKALOOSA COUNTY AND THE POWER COMPANY REGARDING THE EXACT LOCATION AND TIMING OF INSTALLATION.
3. CONSTRUCT THE SIGNAL CONTROLLER CABINET BASE AT ELEVATION OF 22.00'.
4. INTERNALLY ILLUMINATED SIGNS SHALL BE RIGID MOUNTED TO MAST ARMS.
5. COUNTY REPRESENTATIVE OR ENGINEER OF RECORD SHALL FIELD LOCATE PEDESTRIAN SIGNAL POLES.

CONTROLLER PHASE TIMINGS - 63RD AVE E AND TUTTLE AVE

MOVEMENT	1	2	3	4	5	6	7	8	P2	P4	P6	P8
DIRECTION	WBLT	EB	NBLT	SB	EBLT	WB	SBLT	NB				
TURN TYPE	P/P	THRU	P/P	THRU	P/P	THRU	P/P	THRU				
MINIMUM GREEN	10	30	10	15	10	30	10	15				
EXTENSION												
YELLOW CLEARANCE	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4				
ALL RED	3.2	3.2	3.3	3.3	3.2	3.2	3.3	3.3				
MAXIMUM GREEN I	20	50	20	35	20	50	20	35				
MAXIMUM GREEN II	25	60	25	40	25	60	25	40				
PEDESTRIAN WALK									7	7	7	7
PEDESTRIAN CLEARANCE									29	28	28	32
DUAL ENTRY		ON		ON		ON		ON	ON		ON	
RECALL		MIN				MIN			MIN		MIN	

TIMINGS ARE INITIAL AND MAY BE FIELD-ADJUSTED AS DIRECTED BY THE ENGINEER.

P/P = PROTECTED/PERMISSIVE

EXISTING SPEED LIMITS ARE AS FOLLOWS:
40 MPH ON 63RD AVE E
35 MPH ON TUTTLE AVE
40 MPH ON 39TH ST E

MICROWAVE VEHICLE DETECTION ASSIGNMENTS

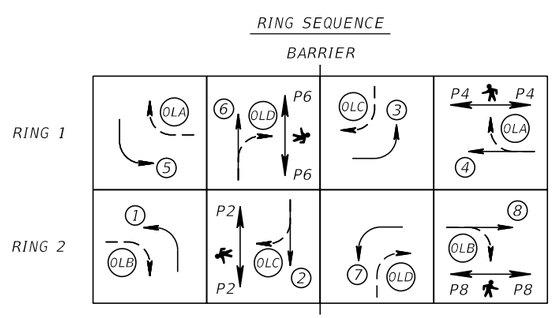
MICROWAVE DETECTION	DETECTION ZONE	DELAY TIME (SECS.)
HD MATRIX 1	DZ-7	
	DZ-4	
	DZ-0LA	8
HD MATRIX 2	DZ-1	
	DZ-6	
	DZ-0LD	8
HD MATRIX 3	DZ-3	
	DZ-8	
	DZ-0LB	8
HD MATRIX 4	DZ-5	
	DZ-2	
	DZ-0LC	8
HD ADV 1	DZ-6	
HD ADV 2	DZ-2	

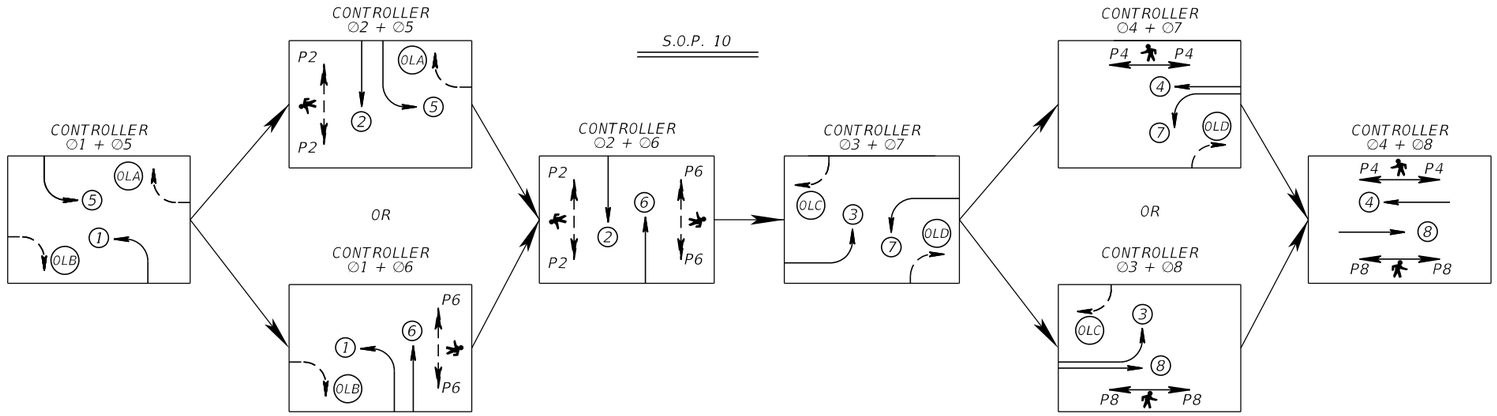
DELAY TIME IS INITIAL AND MAY REQUIRE FIELD ADJUSTING AS DIRECTED BY THE ENGINEER.

VEHICLE OVERLAP PARENT PHASES

PHASE	0L - A	0L - B	0L - C	0L - D
DIRECTION	SBRT	NBRT	EBRT	WBRT
TURN TYPE	P/P	P/P	P/P	P/P
TRAIL GREEN (SEC.)	10	10	10	10
YELLOW CLEARANCE (SEC.)				
ALL RED (SEC.)				
INCLUDED PHASES	1 + 5	1 + 5	3 + 7	3 + 7

PROGRAM ALL OVERLAP TYPES AS 'NORMAL'.
INHIBIT OL-A AND OL-B WHEN P8 AND P4 ARE ACTIVE.
INHIBIT OL-C AND OL-D WHEN P6 AND P2 ARE ACTIVE.





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No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

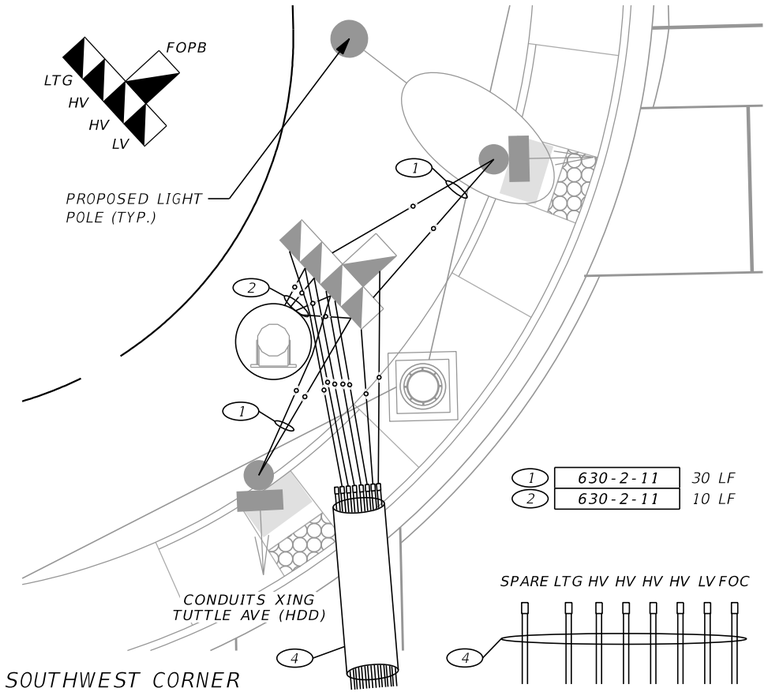
Manatee County FLORIDA
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SIGNALIZATION PLAN (2)

SHEET NO.: T-8

3:03:42 PM 12/8/2023 PW:\



SOUTHWEST CORNER

1" = 40'

THE INTENT OF THIS PLAN SHEET IS TO IDENTIFY THE PULL BOX TYPE AND NUMBER OF CONDUITS NECESSARY TO CONSTRUCT THE UNDERGROUND SIGNAL RACEWAYS. FIELD ADJUSTMENTS MAY BE MADE UPON APPROVAL BY THE ENGINEER.

SCHEDULE OF UNDERGROUND CONDUITS	
1	2-2" CONDUITS: 2-PED DETECTION (HV, LV)
2	4-2" CONDUITS: 2-SIGNALS, 1-SIGN, 1-VEHICLE DETECTION AND CCTV, 1-3/4" FOR GND.
3	6-2" CONDUITS: 2-SIGNALS, 1-PED DETECTION (LV), 1-LTG 1-VEHICLE DETECTION, 1-SPARE
4	8-2" CONDUITS: 2-SIGNALS, 2-PED DETECTION (HV, LV), 1-FOC 1-LTG, 1-VEHICLE DETECTION, 1-SPARE
5	9-2" CONDUITS: 3-SIGNALS, 2-PED DETECTION (HV, LV), 1-FOC, 1-LTG, 1-VEHICLE DETECTOR, 1-SPARE

STREET NAME SIGN CONDUCTORS AND PED SIGNAL CONDUCTORS CAN BE INSTALLED INSIDE THE SIGNAL HV CONDUITS AND NOT TO EXCEED CONDUIT FILL RATIO PER NEC.

LEGEND	DESCRIPTION
	VARIOUS PULL BOXES AND ARRANGEMENTS
	DRILLED SHAFT FOUNDATION
	SIGNAL CABINET AND GENERATOR CABINET
	PEDESTRIAN SIGNAL POLE
	POWER SERVICE POLE WITH METER AND SERVICE DISCONNECT
	CONDUIT RACEWAYS

HV - HIGH VOLTAGE CONDUIT AND/OR PULL BOX (SIGNAL HEAD, STREET NAME SIGN, PED SIGNAL)

LV - LOW VOLTAGE CONDUIT AND/OR PULL BOX (PED PUSH BUTTON CABLE, EVD CABLE)

LTG - LIGHTING CONDUIT AND/OR PULL BOX

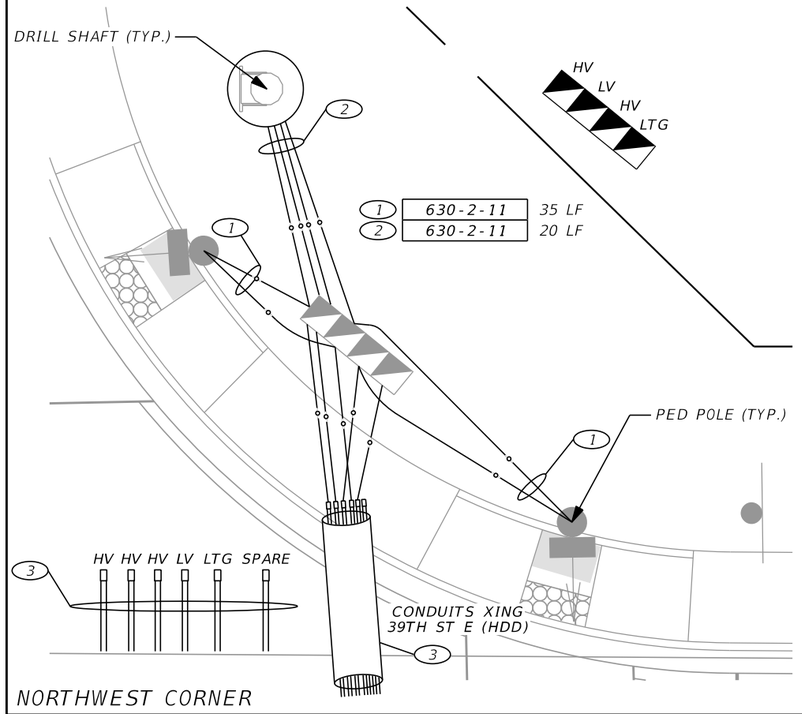
FOPB - FIBER OPTIC PULL BOX

FOC - FIBER OPTIC CABLE/CONDUIT

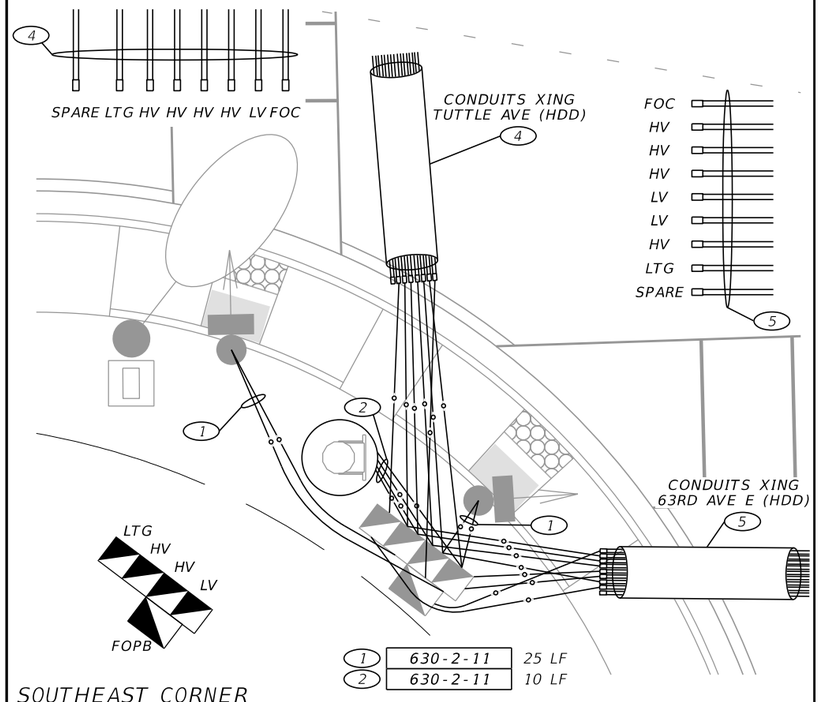
DIRECTIONAL BORE PAY ITEM AND QUANTITIES

3	630-2-12	150 LF (NW TO NE)
4	630-2-12	145 LF (SW TO SE)
5	630-2-12	130 LF (SE TO NE)

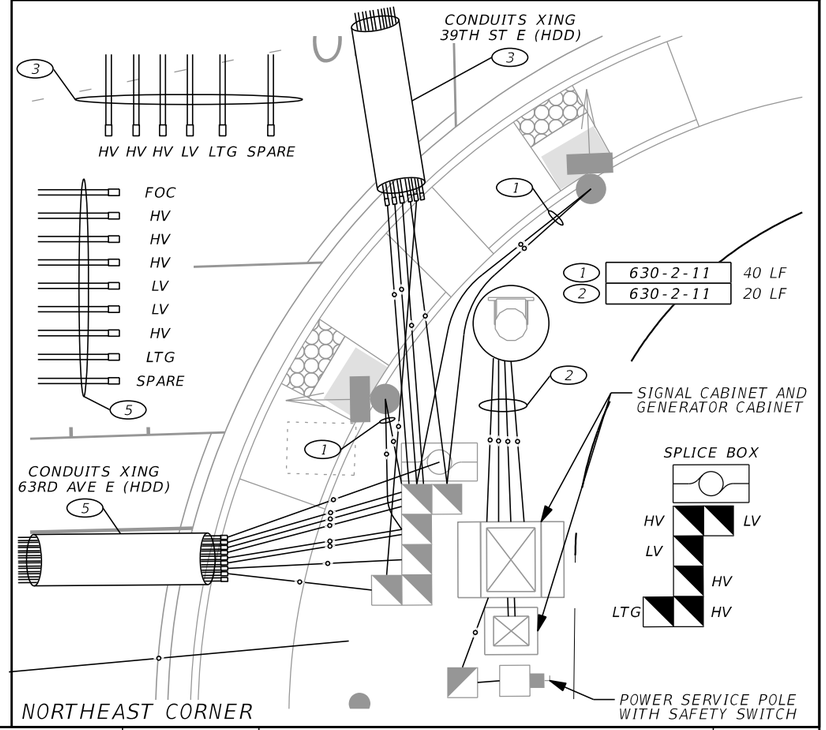
CONDUIT AND PULL BOX ARRANGEMENT DETAILS



NORTHWEST CORNER



SOUTHEAST CORNER



NORTHEAST CORNER

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

Manatee County FLORIDA

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SIGNALIZATION PLAN (3)

SHEET NO.: T-9

3:03:43 PM 12/8/2023 PW:\

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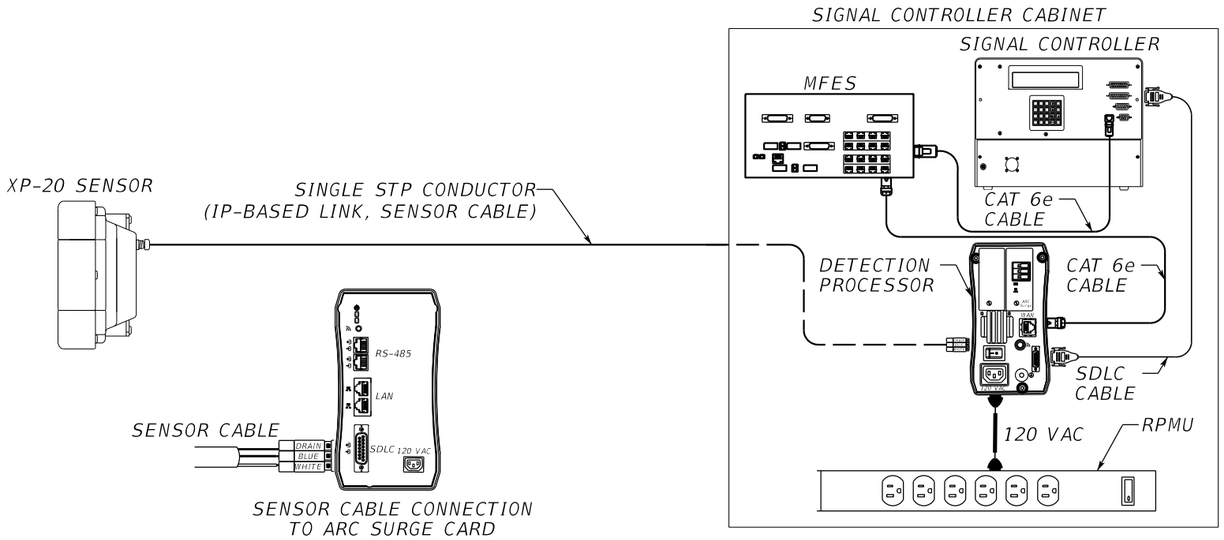
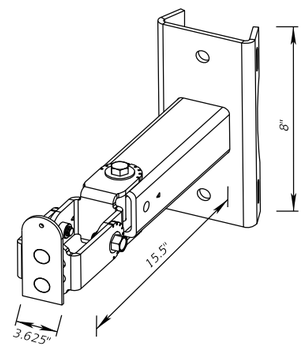
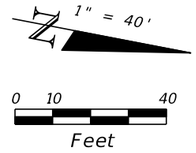
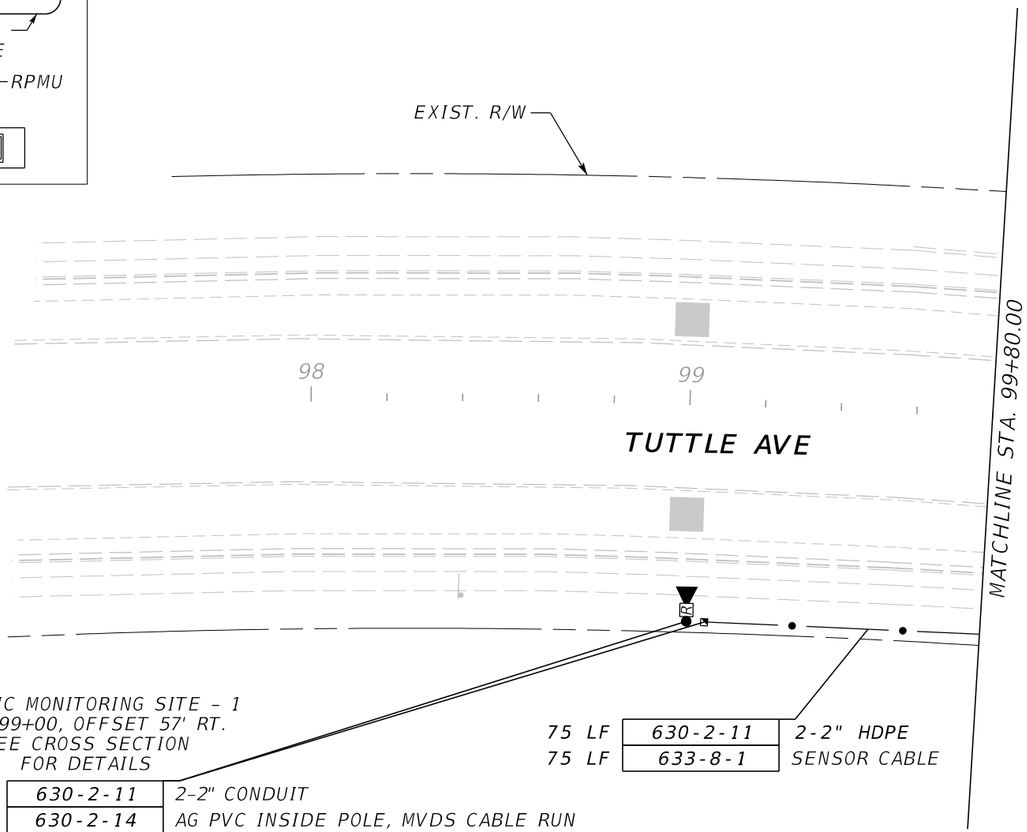


SENSOR CABLE CONNECTION
TO ARC SURGE CARD



POLE MOUNTED BRACKET ARM FOR XP-20 SENSOR





LEGEND

TRAFFIC MONITORING VIRTUAL DETECTION ZONE

STP SHIELD TWISTED PAIR

10 LF	630-2-11	2-2" CONDUIT
30 LF	630-2-14	AG PVC INSIDE POLE, MVDS CABLE RUN
40 LF	633-8-1	SENSOR CABLE
1 EA	635-2-11	PULL BOX
1 EA	641-2-13	TYPE P-III POLE
1 EA	660-3-12	MVDS HD (XP-20)
75 LF	630-2-11	2-2" HDPE
75 LF	633-8-1	SENSOR CABLE

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

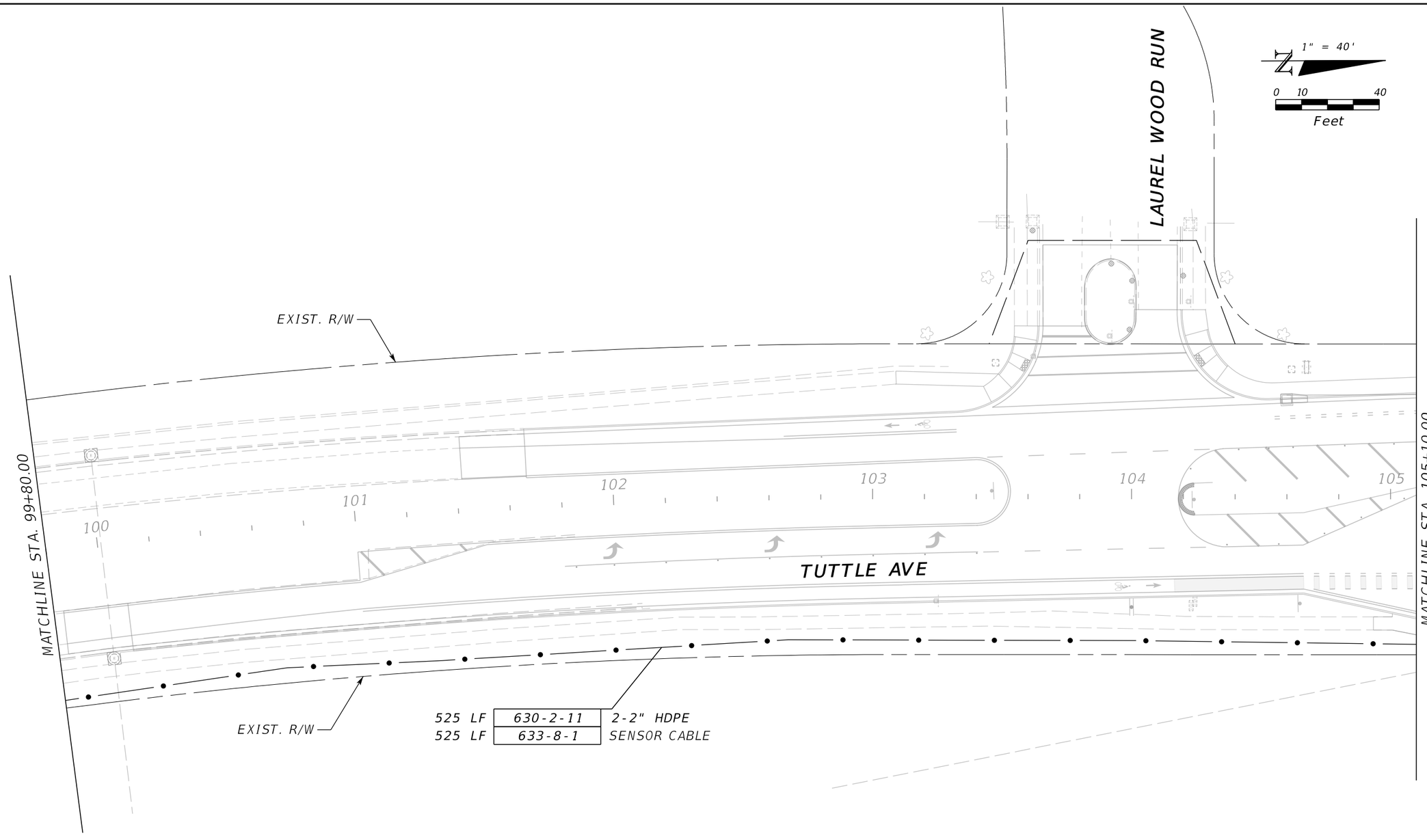
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

INTERCONNECT PLAN (1)

SHEET NO.: T-10

3:03:55 PM 12/8/2023 PW:\



No.	REVISIONS	DATE	BY

3:04:06 PM 12/8/2023 PW:\

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

INTERCONNECT PLAN (2)

SHEET NO.: T-11

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MATCHLINE STA. 211+60.00 (SEE INTERCONNECT PLAN (7))

PROP. R/W

2-2" FOC
1-2" COMM CABLE

3-2" HDPE	630-2-11	95 LF
36 SM FOC	633-1-122	95 LF
SENSOR CABLE	633-8-1	95 LF

COIL 36 SM FOC	633-1-122	50 LF
FO PULL BOX	635-2-12	1 EA

EXIST. R/W

SEE SIGNALIZATION PLAN FOR CONDUIT DETAILS

36 SM FOC	633-1-122	145 LF
SENSOR CABLE	633-8-1	145 LF

PROP. R/W

2-2" HDPE	630-2-11	225 LF
SENSOR CABLE	633-8-1	225 LF

PROP. R/W

1" = 40'

0 10 40

Feet

MATCHLINE STA. 105+10.00

MATCHLINE STA. 110+90.00

TUTTLE AVE
35 MPH

106 107 108 109 110 212 213 214

63RD AVE E
40 MPH

EXIST. R/W

245 LF	630-2-11	2-2" HDPE
245 LF	633-8-1	SENSOR CABLE

COIL 36 SM FOC	633-1-122	50 LF
FO PULL BOX	635-2-12	1 EA

36 SM FOC	633-1-122	130 LF
SENSOR CABLE	633-8-1	270 LF

SEE SIGNALIZATION PLAN FOR CONDUIT DETAILS

PROP. R/W

100 LF	633-1-121	12 SM FOC COIL
25 LF	633-1-121	12 SM FOC DROP
200 LF	633-1-122	COIL 36 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. 108+77

115 LF	630-2-11	2-2" HDPE
115 LF	633-8-1	SENSOR CABLE

MATCHLINE STA. 215+00.00 (SEE INTERCONNECT PLAN (8))

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No.	REVISIONS	DATE	BY

3:04:17 PM 12/8/2023

SCALE: AS NOTED
DESIGNED BY: BB
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CHECKED BY: MO
PW:\

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

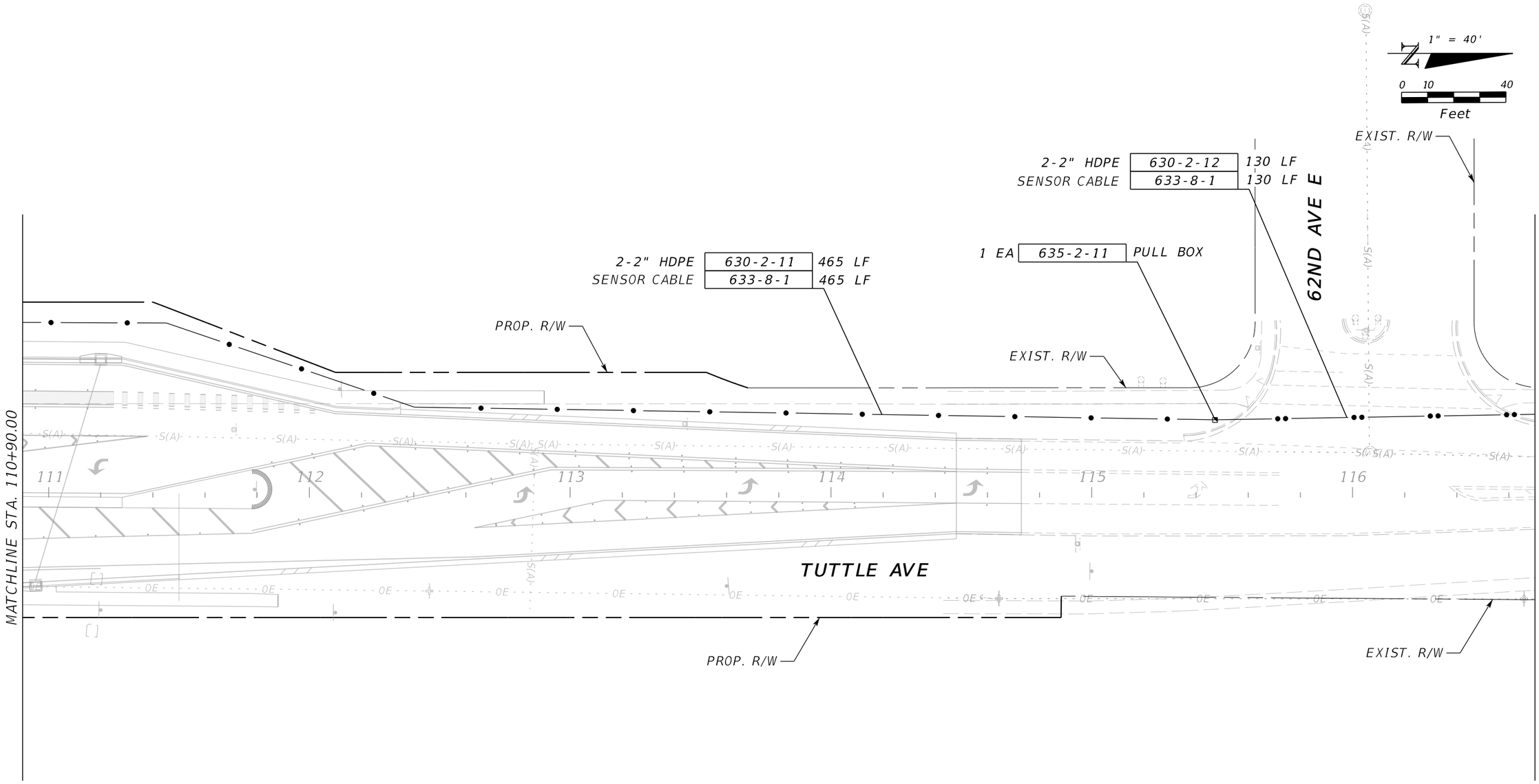
Manatee County FLORIDA

MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

INTERCONNECT PLAN (3)

SHEET NO.: T-12



No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
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Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

INTERCONNECT PLAN (4)

SHEET NO.: T-13

3:04:28 PM 12/8/2023 PW:\

1" = 40'

0 10 40

Feet

TRAFFIC MONITORING SITE – 2
STA. 120+00, OFFSET 34' LT.
SEE CROSS SECTION
FOR DETAILS

10 LF	630-2-11	2–2" CONDUIT
30 LF	630-2-14	AG PVC INSIDE POLE, MVDS CABLE RUN
40 LF	633-8-1	SENSOR CABLE
1 EA	635-2-11	PULL BOX
1 EA	641-2-13	TYPE P–III POLE
1 EA	660-3-12	MVDS HD (XP–20)

2-2" HDPE	630-2-12	15 LF
SENSOR CABLE	633-8-1	15 LF

PULL BOX 635-2-11 1 EA

2-2" HDPE	630-2-11	315 LF
SENSOR CABLE	633-8-1	315 LF

EXIST. R/W

S(A) S(A)

117 118 119 120

MATCHLINE STA. 116+70.00

EXIST. R/W

OE OE

TUTTLE AVE

SIGNAL CONTROLLER CABINET

SIGNAL CONTROLLER

MFES

CAT 6e CABLE

CAT 6e CABLE

DETECTION PROCESSOR

SDLC CABLE

RPMU

120 VAC

SINGLE STP CONDUCTOR
(IP-BASED LINK, SENSOR CABLE)

XP-20 SENSOR

RS-485

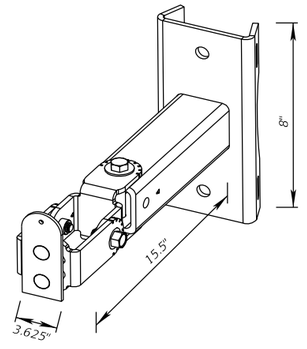
LAN

120 VAC SDLC

DRAIN
BLUE
WHITE

SENSOR CABLE

SENSOR CABLE CONNECTION
TO ARC SURGE CARD



POLE MOUNTED BRACKET ARM FOR XP-20 SENSOR

LEGEND

TRAFFIC MONITORING VIRTUAL DETECTION ZONE

STP SHIELD TWISTED PAIR

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No.	REVISIONS	DATE	BY

SCALE AS NOTED
DESIGNED BY BB
DRAWN BY SM
CHECKED BY MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE 12/2023
PROJECT NO. 6065961

Manatee County FLORIDA

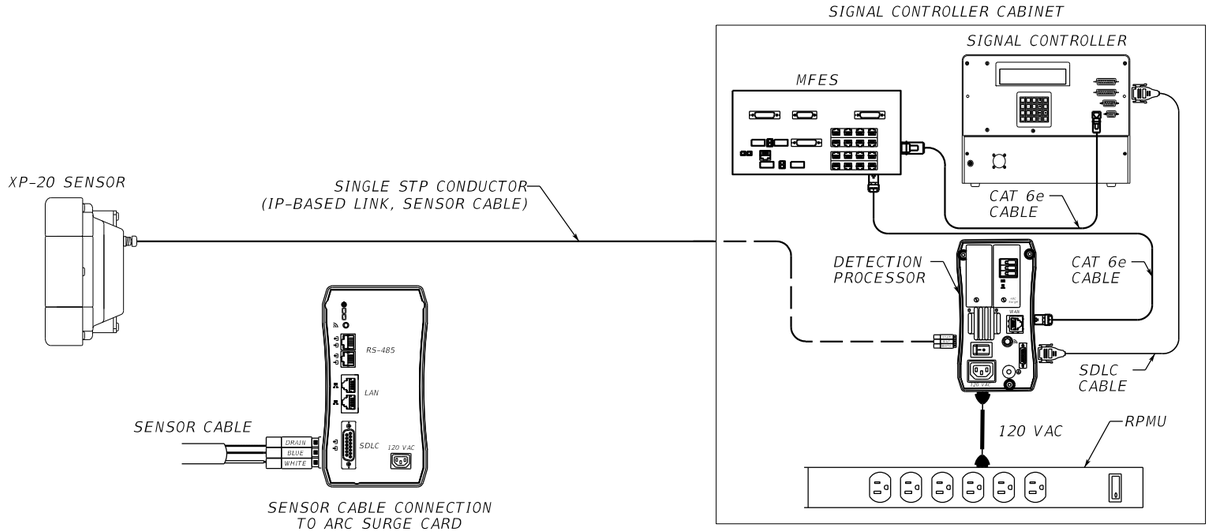
MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER
BIJAN BEHZADI
FL. LICENSE NO.
43868

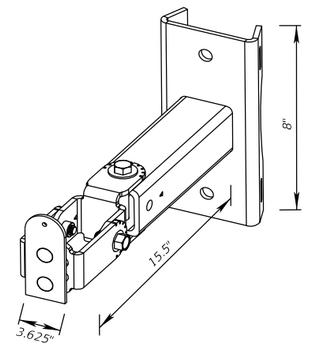
INTERCONNECT PLAN (5)

SHEET NO.
T-14

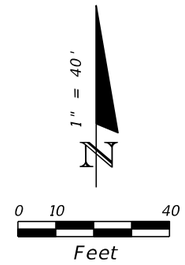
3:04:41 PM 12/8/2023 PW:\



SENSOR CABLE CONNECTION
TO ARC SURGE CARD

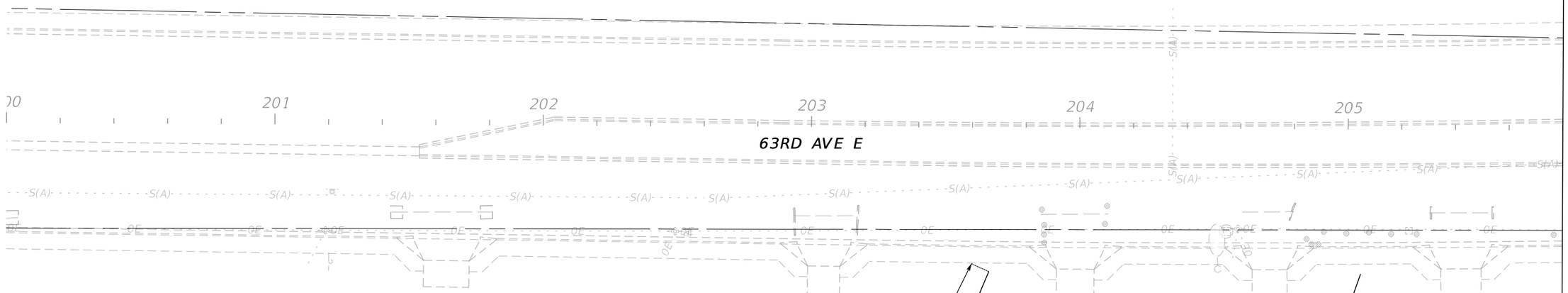


POLE MOUNTED BRACKET ARM FOR XP-20 SENSOR



LEGEND

	TRAFFIC MONITORING VIRTUAL DETECTION ZONE
STP	SHIELD TWISTED PAIR

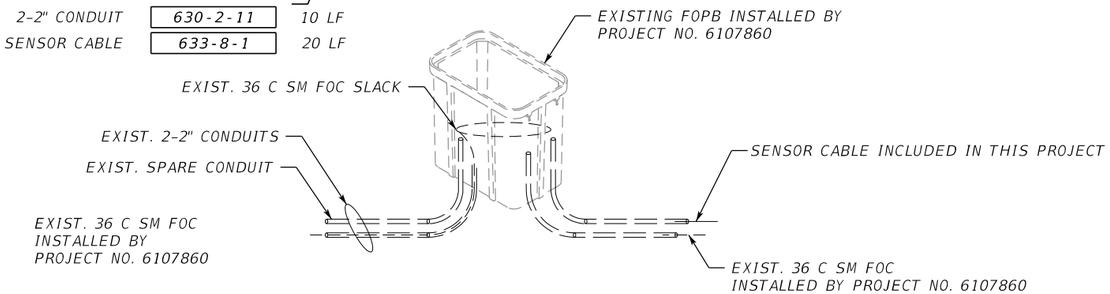


EXISTING TRAFFIC MONITORING SITE
PROPOSED BY OTHERS TO REMAIN
(MANATEE COUNTY PROJECT NUMBER: 6107860)

2-2" CONDUIT	630-2-11	10 LF
SENSOR CABLE	633-8-1	20 LF

INSTALL SENSOR CABLE INSIDE
EXISTING SPARE CONDUIT

SENSOR CABLE	633-8-1	220 LF



No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

INTERCONNECT PLAN (6)

SHEET NO.: T-15

3:04:54 PM 12/8/2023 PW:\

1" = 40'

0 10 40

Feet

MATCHLINE STA. 205+80.00

MATCHLINE STA. 211+60.00 (SEE INTERCONNECT PLAN (3))

PROP. R/W

206 207 208 209 210 211

63RD AVE E

S(A) OE

INSTALL SENSOR CABLE INSIDE EXISTING SPARE CONDUIT

SENSOR CABLE	633-8-1	120 LF

INSTALL SENSOR CABLE INSIDE EXISTING SPARE CONDUIT

SENSOR CABLE	633-8-1	360 LF

PROP. R/W

COIL 36 SM FOC	633-1-122	100 LF
FULL BUTT SPLICE	633-2-31	36 EA
SPLICE ENCL.	633-3-11	1 EA
SPLICE TRAY	633-3-12	3 EA

EXISTING FIBER OPTIC SPLICE BOX, CONDUITS AND 36 SM FOC PROPOSED BY OTHERS TO REMAIN (MANATEE COUNTY PROJECT NUMBER: 6107860)

SENSOR CABLE INCLUDED IN THIS PROJECT

EXIST. 36 C SM FOC SLACK

SENSOR CABLE INCLUDED IN THIS PROJECT

EXISTING FOSB INSTALLED BY PROJECT NO. 6107860

PROPOSED FIBER OPTIC SPLICE ENCLOSURE AND TRAYS INSTALLED BY THIS PROJECT

PULL BOX

3-2" HDPE

EXIST. FOPB INSTALLED BY PROJECT NO.6107860

EXIST. 36 C SM FOC INSTALLED BY PROJECT NO. 6107860

PROPOSED 36 C SM FOC INSTALLED BY THIS PROJECT

INSTALL PULL BOX ADJACENT TO EXIST. SPLICE BOX

PULL BOX	635-2-11	1 EA

2-2" FOC
1-2" SENSOR CABLE

3-2" HDPE	630-2-11	115 LF
36 SM FOC	633-1-122	115 LF
SENSOR CABLE	633-8-1	115 LF

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No.	REVISIONS	DATE	BY

3:05:06 PM 12/8/2023 PW:\

SCALE: AS NOTED
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HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

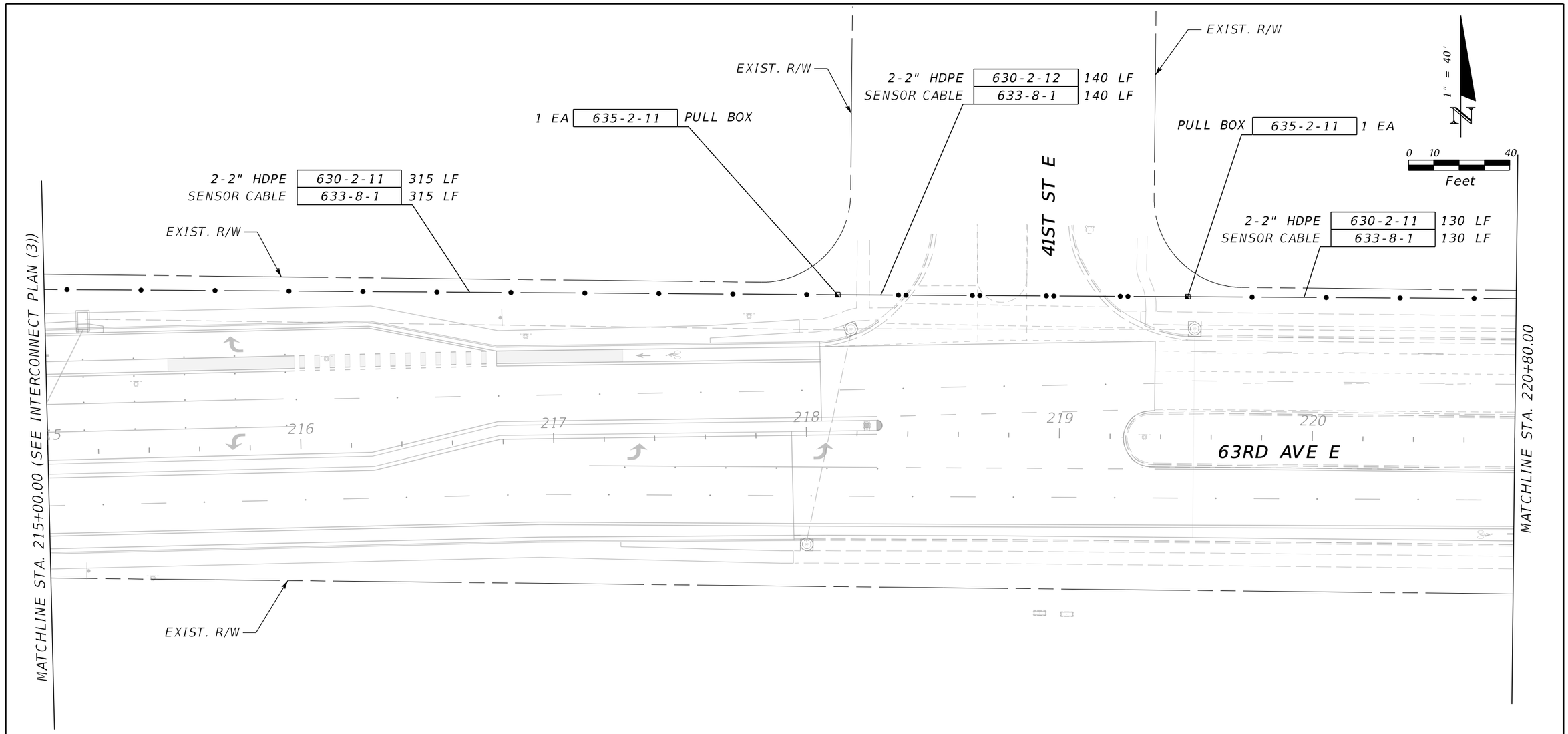
Manatee County FLORIDA

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

INTERCONNECT PLAN (7)

SHEET NO.: T-16



No.	REVISIONS	DATE	BY

3:05:17 PM 12/8/2023 PW:\

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
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DATE: 12/2023
PROJECT NO.: 6065961

Manatee County FLORIDA

MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

INTERCONNECT PLAN (8)

SHEET NO.: T-17

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

TRAFFIC MONITORING SITE – 3
STA. 222+20, OFFSET 53' LT.
SEE CROSS SECTION
FOR DETAILS

10 LF	630-2-11	2-2" CONDUIT
30 LF	630-2-14	AG PVC INSIDE POLE, MVDS CABLE RUN
40 LF	633-8-1	SENSOR CABLE
1 EA	635-2-11	PULL BOX
1 EA	641-2-13	TYPE P-III POLE
1 EA	660-3-12	MVDS HD (XP-20)

2-2" HDPE	630-2-11	145 LF
SENSOR CABLE	633-8-1	145 LF

1" = 40'

0 10 40
Feet

EXIST. R/W

MATCHLINE STA. 220+80.00

221 222 223

63RD AVE E

EXIST. R/W

SIGNAL CONTROLLER CABINET

SIGNAL CONTROLLER

MFES

CAT 6e CABLE

CAT 6e CABLE

DETECTION PROCESSOR

SDLC CABLE

RPMU

120 VAC

SINGLE STP CONDUCTOR
(IP-BASED LINK, SENSOR CABLE)

XP-20 SENSOR

RS-485

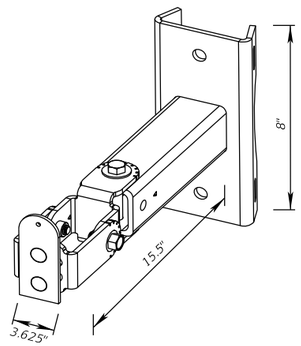
LAN

120 VAC SDLC

DRAIN
BLUE
WHITE

SENSOR CABLE

SENSOR CABLE CONNECTION
TO ARC SURGE CARD



POLE MOUNTED BRACKET ARM FOR XP-20 SENSOR

LEGEND

TRAFFIC MONITORING VIRTUAL DETECTION ZONE

STP SHIELD TWISTED PAIR

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

INTERCONNECT PLAN (9)

SHEET NO.: T-18

3:05:29 PM 12/8/2023 PW:\

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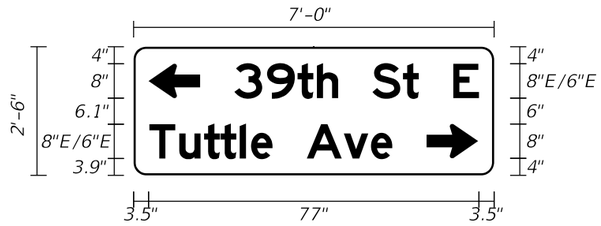
SIGN NAME	SIGN A	QTY	1	SIGN NUMBER	STATION(S)
PANEL		BORDER			
WIDTH	7'-0"	WIDTH	0.5"		
HEIGHT	2'-6"	RADII	3"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT
AR_Type D	90	3.5	18	8	12
AR_Type D	270	68.3	4	8	12

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Land	COLUMN SIZE		AVERAGE LENGTH



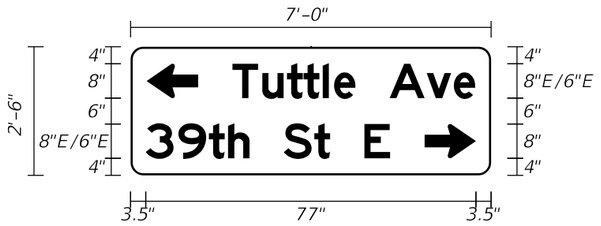
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

COPY		3	9	t	h		S	t		E		L												
SPACE	23.5	7.6	7.1	4.5	5	8	7.1	3.7	8	6	3.5	57												
COPY		T	u	t	t	l	e		A	v	e		L											
SPACE	3.7	7	5.8	3.8	4.5	2.6	5	8	8.6	6.3	5	23.7	56.6											
COPY																								
SPACE																								
COPY																								
SPACE																								
COPY																								
SPACE																								
COPY																								
SPACE																								

SIGN NAME	SIGN B	QTY	1	SIGN NUMBER	STATION(S)
PANEL		BORDER			
WIDTH	7'-0"	WIDTH	0.5"		
HEIGHT	2'-6"	RADII	3"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT
AR_Type D	90	3.7	18	8	12
AR_Type D	270	68.5	4	8	12

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Land	COLUMN SIZE		AVERAGE LENGTH



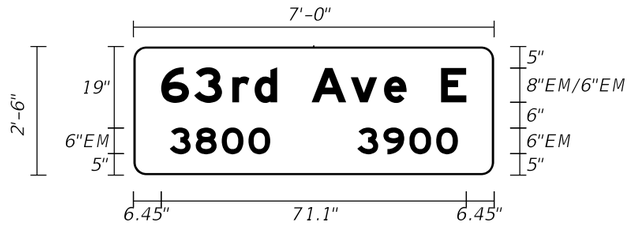
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

COPY		T	u	t	t	l	e		A	v	e		L											
SPACE	23.7	7	5.8	3.8	4.5	2.6	5	8	8.6	6.3	5	3.7	56.6											
COPY		3	9	t	h		S	t		E		L												
SPACE	3.5	7.6	7.1	4.5	5	8	7.1	3.7	8	6	23.5	57												
COPY																								
SPACE																								
COPY																								
SPACE																								
COPY																								
SPACE																								
COPY																								
SPACE																								

SIGN NAME	SIGN C	QTY	1	SIGN NUMBER	STATION(S)
PANEL		BORDER			
WIDTH	7'-0"	WIDTH	0.5"		
HEIGHT	2'-6"	RADII	3"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Land	COLUMN SIZE		AVERAGE LENGTH



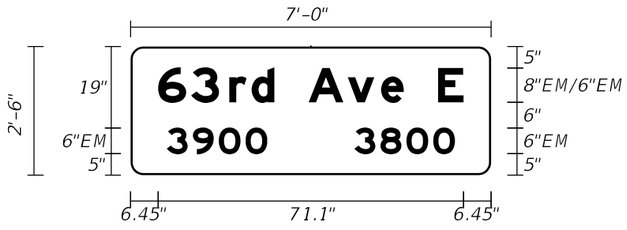
NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

COPY		6	3	r	d		A	v	e		E		L											
SPACE	6.4	7.7	8.9	5.2	5.3	8	9.1	7.8	5.3	8	5.9	6.4	71.1											
COPY		3	8	0	0		L																	
SPACE	8.4	6.1	6.1	6.2	5	52.2	23.4																	
COPY		3	9	0	0		L																	
SPACE	52.2	6.1	6.1	6.2	5	8.4	23.4																	
COPY																								
SPACE																								
COPY																								
SPACE																								
COPY																								
SPACE																								

SIGN NAME	SIGN D	QTY	1	SIGN NUMBER	STATION(S)
PANEL		BORDER			
WIDTH	7'-0"	WIDTH	0.5"		
HEIGHT	2'-6"	RADII	3"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Land	COLUMN SIZE		AVERAGE LENGTH



NO. OF LIGHT FIXTURES | FIXTURE SPACING | PHOTOMETRIC CURVE | WATT | VOLTAGE

COPY		6	3	r	d		A	v	e		E		L											
SPACE	6.4	7.7	8.9	5.2	5.3	8	9.1	7.8	5.3	8	5.9	6.4	71.1											
COPY		3	9	0	0		L																	
SPACE	8.4	6.1	6.1	6.2	5	52.2	23.4																	
COPY		3	8	0	0		L																	
SPACE	52.2	6.1	6.1	6.2	5	8.4	23.4																	
COPY																								
SPACE																								
COPY																								
SPACE																								
COPY																								
SPACE																								

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

GUIDE SIGN WORKSHEET

SHEET NO.: T-19

3:05:42 PM 12/8/2023 PW:\

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

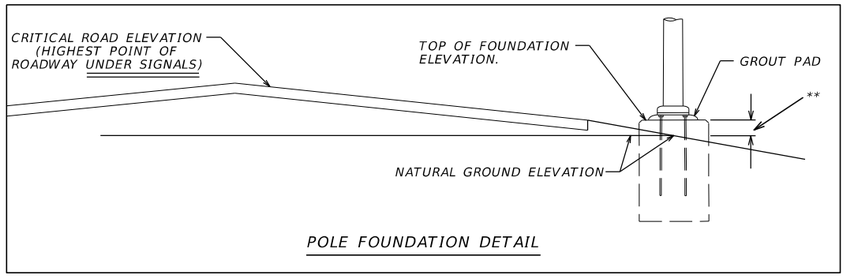
SPECIAL NOTES:

A. EACH POLE AND MAST ARM SHALL BE IDENTIFIED WITH A PERMANENT ONE INCH (1") HIGH ENGRAVED OR IMPRESSED MARK WHICH BEARS THE POLE IDENTIFICATION NUMBER SHOWN ON THE PLANS.

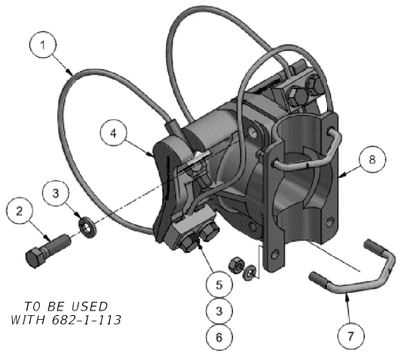
B. ANCHOR BOLT COVERS (ORNAMENTAL, NON-ORNAMENTAL, AND/OR PAINTED) SHALL BE GALVANIZED STEEL OR CAST ALUMINUM AND SHALL BE SECURED BY A MINIMUM OF TWO (2) THREADED FASTENERS. THE BOLT COVERS SHALL BE OF SUFFICIENT SIZE SO THAT THERE IS NO GAP BETWEEN ITSELF AND THE POLE SHAFT.

C. FIELD VERIFY ALL ELEVATIONS LISTED HEREIN.

D. MAST ARMS SHALL BE GALVANIZED, NON-PAINTED.



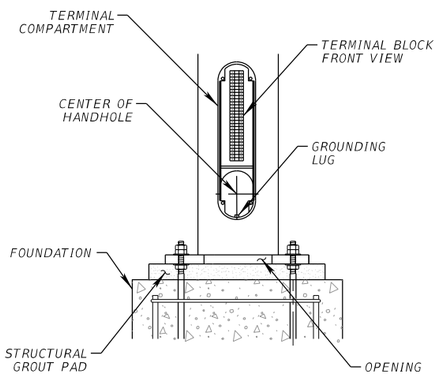
POLE FOUNDATION DETAIL



MAST ARM MOUNTED CCTV CABLE CLAMP ATTACHMENT DETAIL

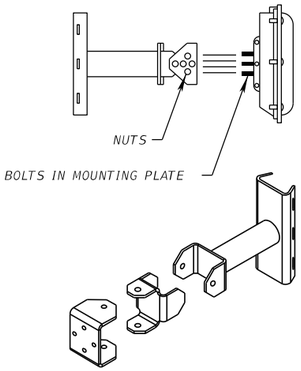
NTS

① CABLE ASSY, ASTRO-BRACKET, STAINLESS CABLE END & CABLE
② BOLT, HEX HEAD, 7/16"-14 X 1-1/2", TYPE 304 STAINLESS
③ LOCK WASHER, SPLIT, 7/16", TYPE 304 STAINLESS
④ CLAMP, FEMALE STELLAR ASTRO-BRACKET, CABLE MOUNT, ALUM
⑤ BOLT, HEX HEAD TAP, 7/16"-14 X 1-1/4", TYPE 304 STAINLESS
⑥ PLATE, CABLE CLAMP, ASTRO-BRACKET, STELLAR 2-HOLE, ALUM
⑦ KIT, V-BOLT, 5/16"-18, STAINLESS
⑧ CLAMP, MALE STELLAR ASTRO-BRACKET, ALUM



BACKFACE ELEVATION SHOWN

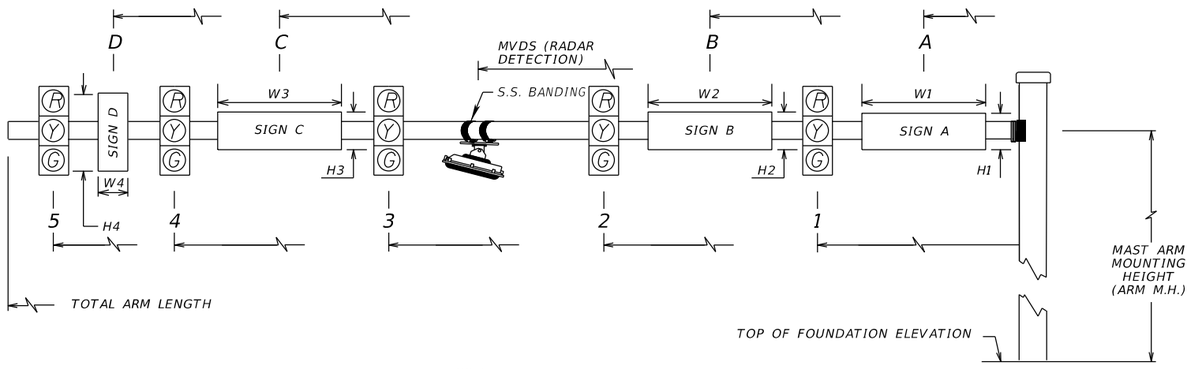
NTS



MVDS BRACKET ARM DETAIL

NTS

INTERNALLY ILLUMINATED SIGN "A" RIDGED MOUNTED ON MAST ARM



NOTE

-IN SIGN DATA TABLE, SIGN DESIGNATION (A, B, C, D, E) IS FOR POSITION REFERENCE ONLY. PLAN SHEETS AND SIGN DETAILS SHOULD BE REFERENCED FOR THE EXACT SIGNS TO BE INSTALLED ON MAST ARMS.

* DENOTES NUMBER OF SECTIONS IN SIGNAL HEAD ASSEMBLY

** DENOTES FOUNDATION IS DESIGNED AS 1.0' ABOVE GRADE

STRUCT. ID NO.	POLE ID NO.	SHEET NO.	LOCATION BY STA.	TOP OF FOUNDATION ELEV.	CRITICAL ROAD ELEV.	RDWY ARM NO.	SIGNAL DATA: SIGNAL V/H	BACK PLATES Y/N	PED. SIGNAL Y/N	SIGNAL DATA: DISTANCE FROM POLE 1	*	2	*	3	*	4	*	5	*	6	*	TOTAL ARM LENGTH	ARM M.H.	ANGLE BETWEEN DUAL ARMS 90/270	SIGN DATA: DISTANCE FROM POLE / HEIGHT AND WIDTH OF SIGN A	H1	W1	B	H2	W2	C	H3	W3	D	H4	W4	UNDERMOUNT LUMINAIRE 1	2	MVDS DISTANCE FROM POLE 1	2	CCTV DISTANCE FROM POLE 1
PROPOSED SCENARIO																																														
	1	T-7	107+34.0	20.33'	19.73'	1	V	Y	N	19.5	5	31.0	3	53.0	4							58			6	2.5	7	14.5	3	3	49	3	2.5						0	46	
	2	T-7	108+63.0	19.91'	19.62'	1	V	Y	N	17.0	5	28.5	3	39.5	3	50.5	4					55			5.5	2.5	7	12	3	3	46.5	3	2.5				24.5		32.5		
	3	T-7	108+82.0	21.10'	19.85'	1	V	Y	N	20.0	5	31.5	3	52.5	4							58			6.5	2.5	7	15	3	3	48.5	3	2.5				35		38		
	4	T-7	107+44.5	21.88'	20.31'	1	V	Y	N	27.5	5	39.0	3	50.0	3	61.0	4					66			8	2.5	7	22.5	3	3	57	3	2.5				65		43	46.5	15
FUTURE SCENARIO																																												
	1	T-7	107+34.0	20.33'	19.73'	1	V	Y	N	19.5	5	31.0	3	42.0	3	53.0	4					58			6	2.5	7	14.5	3	3	49	3	2.5						0	46	
	2	T-7	108+63.0	19.91'	19.62'	1	V	Y	N	17.0	5	28.5	3	39.5	3	50.5	4					55			5.5	2.5	7	12	3	3	46.5	3	2.5				24.5		32.5		
	3	T-7	108+82.0	21.10'	19.85'	1	V	Y	N	20.0	5	31.5	3	41.5	3	52.5	4					58			6.5	2.5	7	15	3	3	48.5	3	2.5				35		38		
	4	T-7	107+44.5	21.88'	20.31'	1	V	Y	N	27.5	5	39.0	3	50.0	3	61.0	4					66			8	2.5	7	22.5	3	3	57	3	2.5				65		43	46.5	15

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

MAST ARM TABULATION

SHEET NO.: T-20

3:05:52 PM 12/8/2023 PW:\

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

WEST OF TUTTLE AVE ON 63RD AVE E

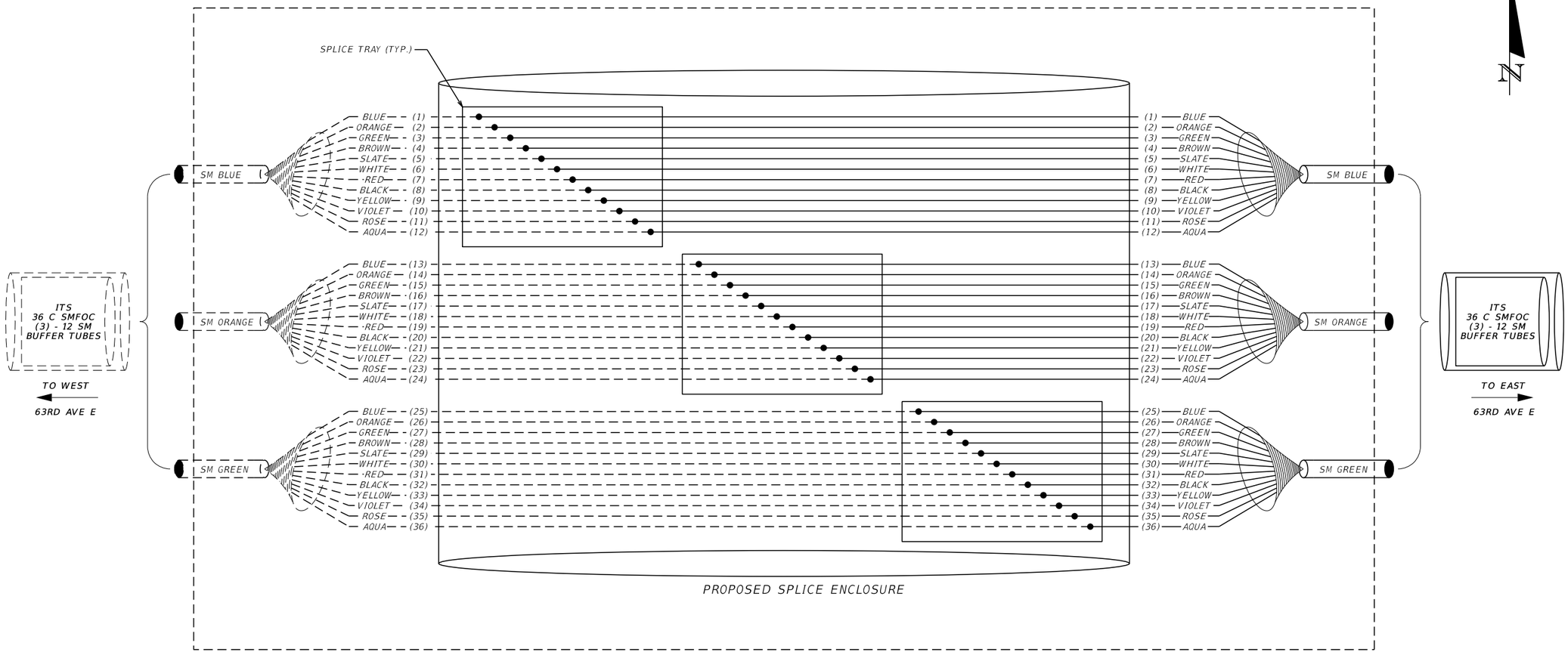
LEGEND	DESCRIPTION
●	FUSION SPLICE
———	PROPOSED SECTION OF FIBER
— — —	EXISTING SECTION OF FIBER

NOTE:

1. PERFORM FULL BUTT SPLICING COLOR-TO-COLOR AT THIS LOCATION.

COLOR CODE
TIA/EIA 598A

(1) BLUE
(2) ORANGE
(3) GREEN
(4) BROWN
(5) SLATE
(6) WHITE
(7) RED
(8) BLACK
(9) YELLOW
(10) VIOLET
(11) ROSE
(12) AQUA



EXISTING FIBER OPTIC SPLICE BOX ON
STA. 210+48 ℄ CONST. 63RD AVE E

N

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

No.	REVISIONS	DATE	BY

3:06:04 PM 12/8/2023

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO
PW:\

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SPLICING DIAGRAM (1)

SHEET NO.: T-21

TUTTLE AVE AT 63RD AVE E

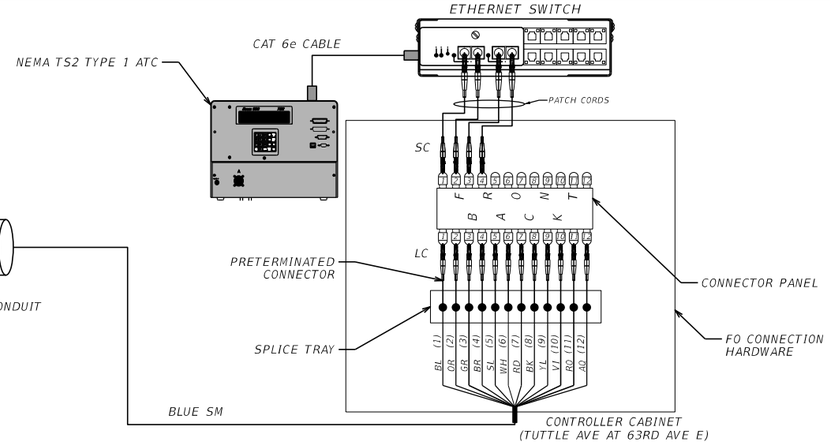
LEGEND	DESCRIPTION
●	FUSION SPLICE
———	PROPOSED SECTION OF FIBER
– – – –	EXISTING SECTION OF FIBER
⊣	COIL AND CAP

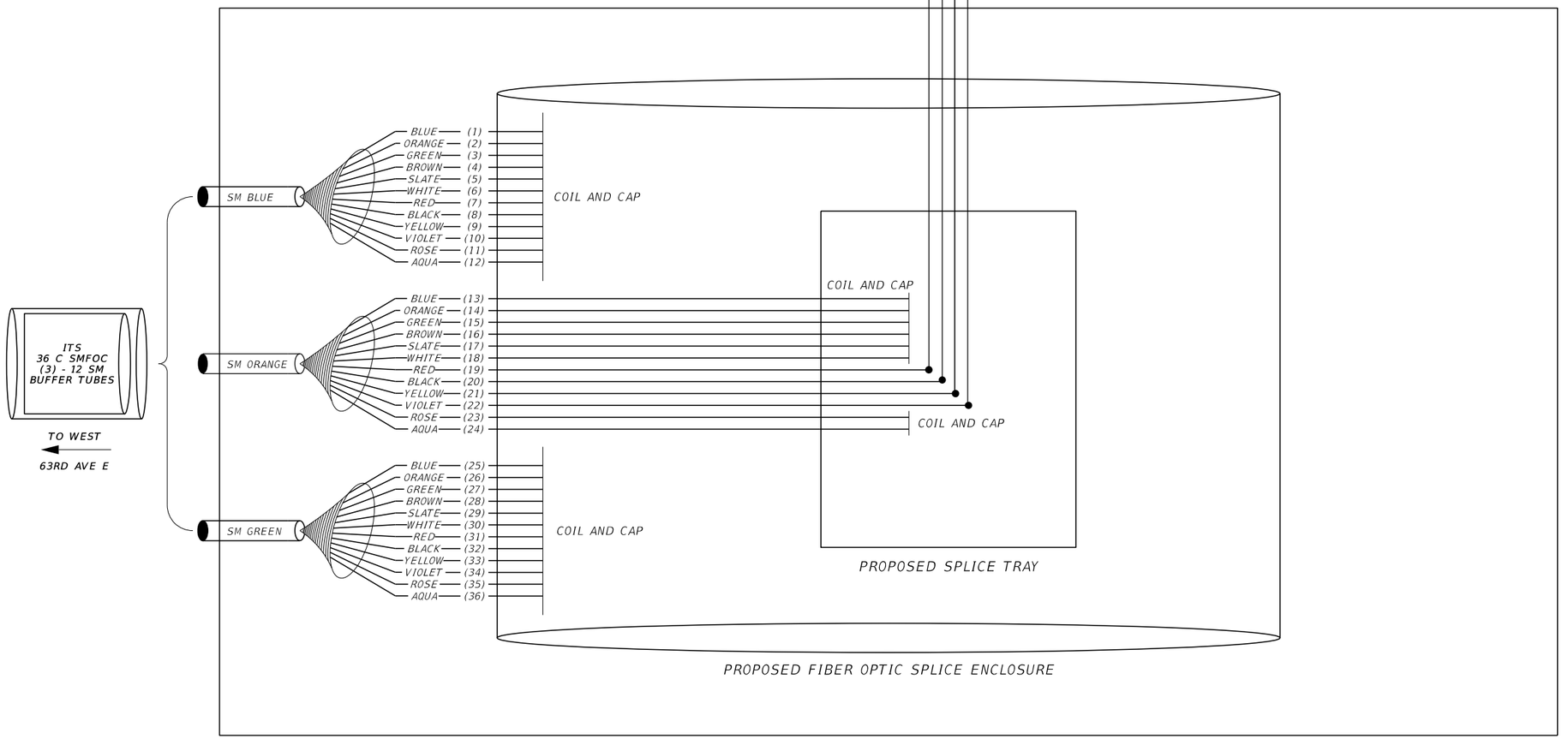
COLOR CODE
TIA/EIA 598A

(1) BLUE
(2) ORANGE
(3) GREEN
(4) BROWN
(5) SLATE
(6) WHITE
(7) RED
(8) BLACK
(9) YELLOW
(10) VIOLET
(11) ROSE
(12) AQUA

NOTES:
1. UNUSED FIBERS SHALL BE LEFT COILED, CAPPED, AND STORED IN SPLICE TRAY.
2. UNUSED BUFFER TUBES SHALL BE LEFT COILED AND STORED IN SPLICE TRAY.
3. BRING ALL 12 FIBERS INTO CABINET.
4. FDOT DROP CABLE SLACK REQUIREMENTS:
   100 LF INSIDE OF SPLICE BOX
   20 LF INSIDE OF CABINET
5. TOTAL DROP CABLE LENGTH IS THE DISTANCE BETWEEN SPLICE BOX, PLUS REQUIRED SLACK.
6. REFER TO THE PLANS FOR DROP CABLE COUNT:

633-2-31 (MATCH CABLE COUNT FOR 100% TERMINATION IN CABINET).
633-3-12 (12 F CAPACITY): 1 OR 2 GIVEN THE CABLE COUNT.
633-3-13 (MATCH CABLE COUNT FOR 100% TERMINATION IN CABINET).
633-3-16 (12 F CAPACITY): 1 GIVEN THE CABLE COUNT.
633-3-17 (12 F CAPACITY): 1 OR 2 GIVEN THE CABLE COUNT.





PROPOSED SPLICE BOX
STA 108+77 ℄ CONST. TUTTLE AVE

N

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

Manatee County FLORIDA
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SPLICING DIAGRAM (2)

SHEET NO.: T-22

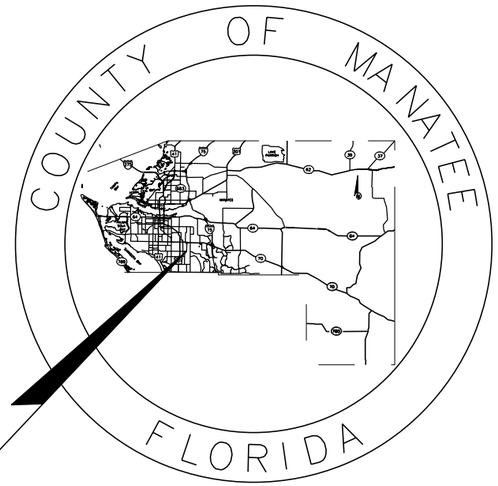
3:06:05 PM 12/8/2023 PW:\

MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

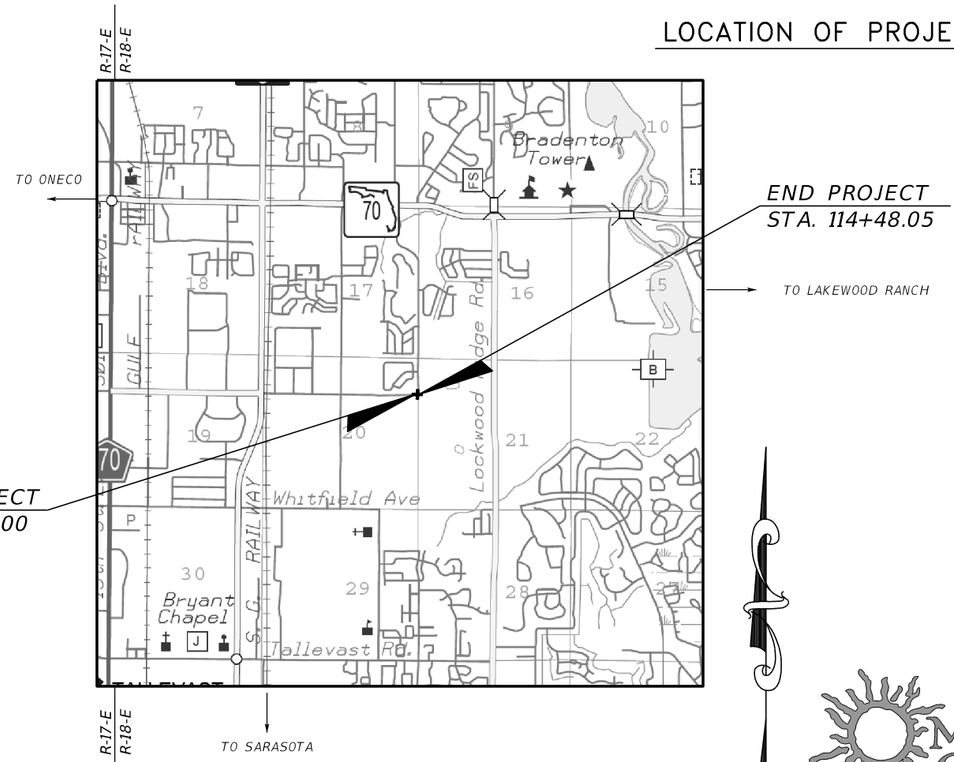
CONTRACT PLANS

MANATEE COUNTY
PROJECT NUMBER # 6065961
TUTTLE AVENUE AT 63RD AVENUE EAST (HONORE AVE)
INTERSECTION IMPROVEMENTS
SIGNALIZATION PLANS

INDEX OF SIGNALIZATION PLANS



LOCATION OF PROJECT



100% SUBMITTAL
12/2023

SIGNALIZATION PLANS ENGINEER OF RECORD:

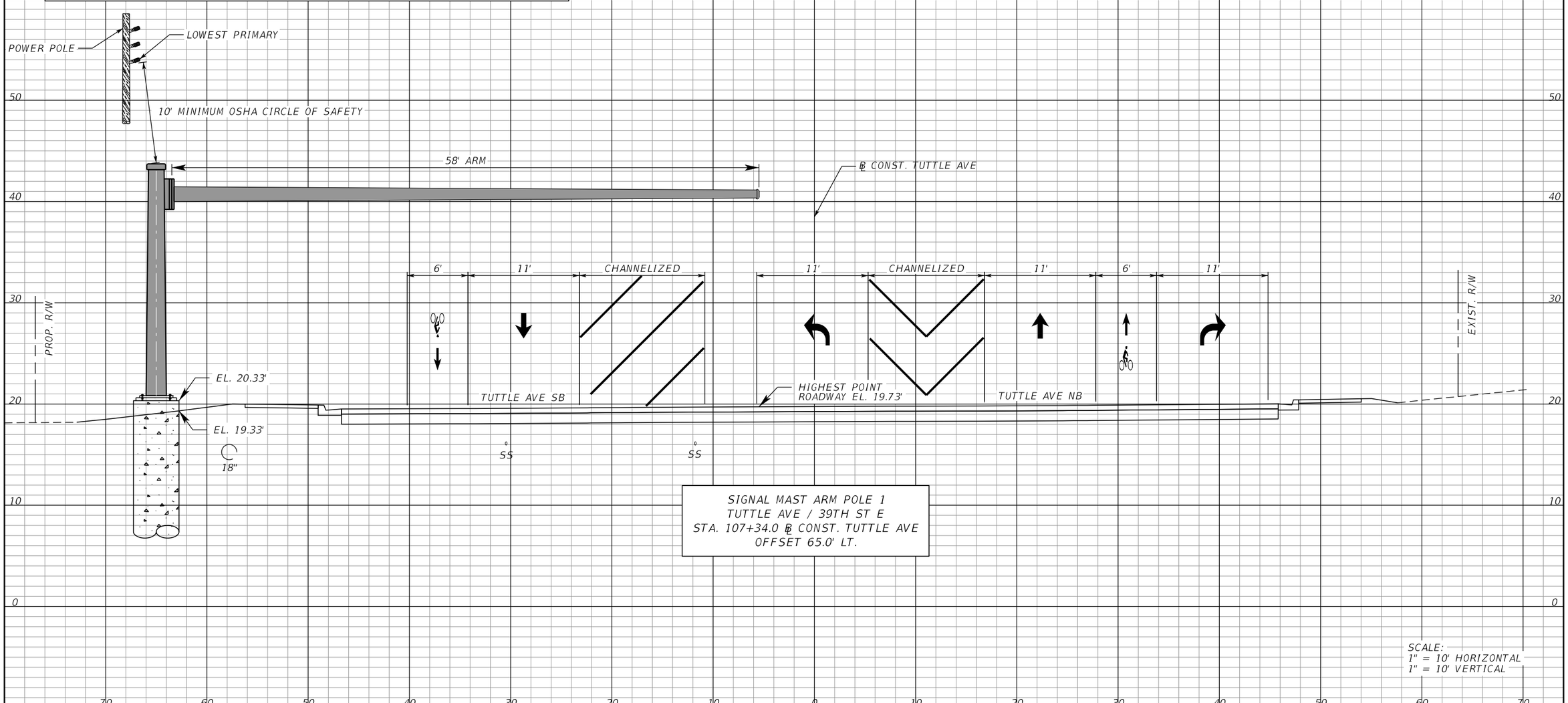
BIJAN BEHZADI, P.E.
P.E. NO.: 43868
HDR ENGINEERING, INC.
401 N CATTLEMEN ROAD, SUITE 210
SARASOTA, FLORIDA 34232
VENDOR NO. 47-0680568

MANATEE CO. PROJECT MANAGER:
ANTHONY RUSSO, P.E.

FISCAL YEAR	SHEET NO.
23	T-1

NOTES:

1. UTILITY LOCATIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OF THE MAST ARM POLES.
2. SUBMIT THE ACTUAL ELEVATIONS WITH THE MAST ARM POLE STRUCTURE SHOP DRAWINGS PRIOR TO FABRICATION.
3. FIELD VERIFY ALL THE ELEVATIONS OF OVERHEAD ELECTRIC POWER LINES. PRIOR TO DRILLED SHAFT 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 MAST ARM POLE ASSEMBLY AS SHOWN.
4. EXISTING OVERHEAD DISTRIBUTION POWER LINES EXIST AT THE INTERSECTION. PRIOR TO COMMENCING WORK UNDER THE EXISTING HIGH VOLTAGE POWER LINES, COORDINATE AND SCHEDULE MEETINGS ON SITE WITH THE POWER COMPANY AND ENSURE THE OSHA CIRCLE OF SAFETY IS MAINTAINED DURING AND AFTER THE CONSTRUCTION. THIS APPLIES TO ALL WORK RELATED TO PREPARING THE FOUNDATION HOLE, INSTALLING REBAR CAGE, FORMING THE DRILLED SHAFT FOUNDATION AND ERECTING THE MAST ARM POLE.



SIGNAL MAST ARM POLE 1
TUTTLE AVE / 39TH ST E
STA. 107+34.0 ℄ CONST. TUTTLE AVE
OFFSET 65.0' LT.

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

No.	REVISIONS	DATE	BY

3:06:34 PM 12/8/2023 PW:\

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

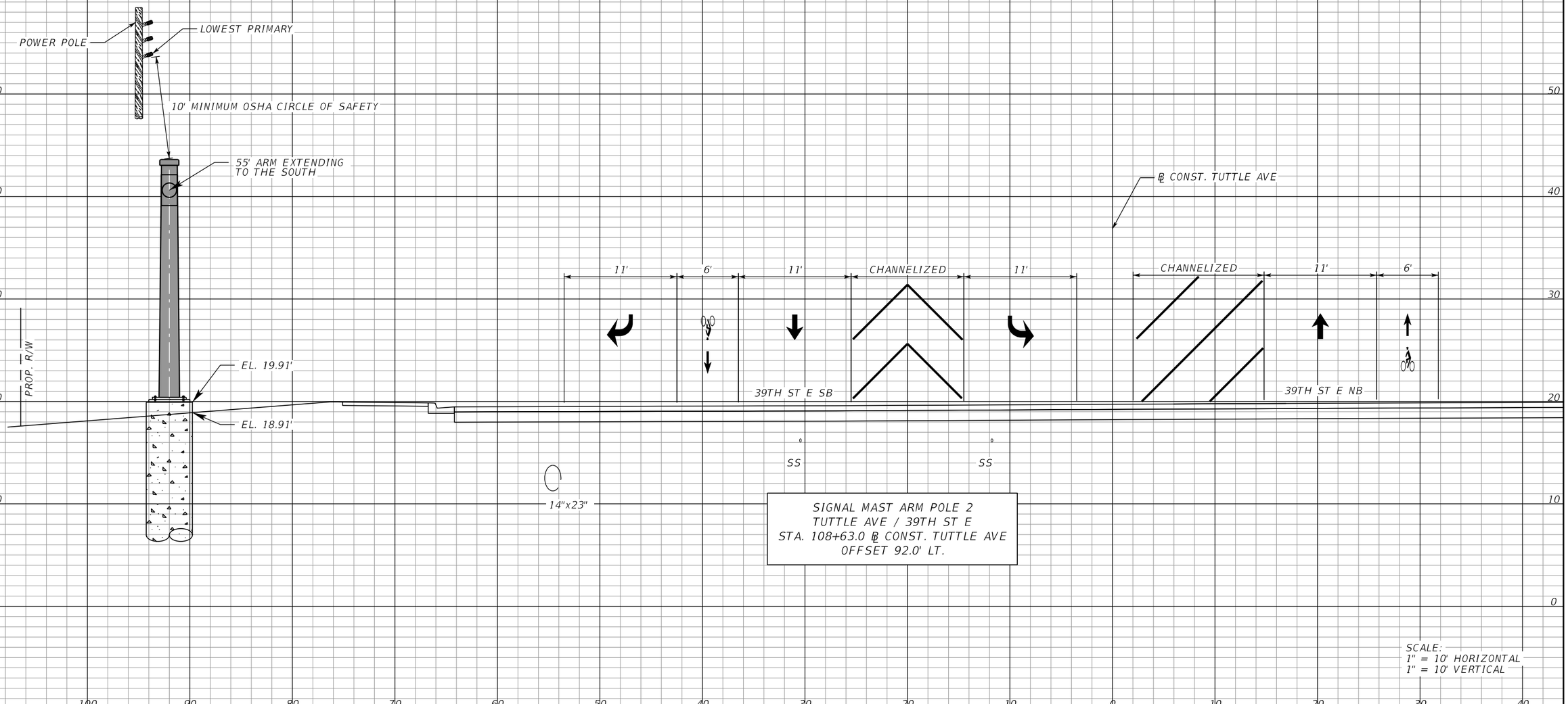
DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SIGNAL CROSS SECTION (1)

SHEET NO.: T-23

NOTES:

1. UTILITY LOCATIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OF THE MAST ARM POLES.
2. SUBMIT THE ACTUAL ELEVATIONS WITH THE MAST ARM POLE STRUCTURE SHOP DRAWINGS PRIOR TO FABRICATION.
3. FIELD VERIFY ALL THE ELEVATIONS OF OVERHEAD ELECTRIC POWER LINES. PRIOR TO DRILLED SHAFT 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 MAST ARM POLE ASSEMBLY AS SHOWN.
4. EXISTING OVERHEAD DISTRIBUTION POWER LINES EXIST AT THE INTERSECTION. PRIOR TO COMMENCING WORK UNDER THE EXISTING HIGH VOLTAGE POWER LINES, COORDINATE AND SCHEDULE MEETINGS ON SITE WITH THE POWER COMPANY AND ENSURE THE OSHA CIRCLE OF SAFETY IS MAINTAINED DURING AND AFTER THE CONSTRUCTION. THIS APPLIES TO ALL WORK RELATED TO PREPARING THE FOUNDATION HOLE, INSTALLING REBAR CAGE, FORMING THE DRILLED SHAFT FOUNDATION AND ERECTING THE MAST ARM POLE.



SIGNAL MAST ARM POLE 2
TUTTLE AVE / 39TH ST E
STA. 108+63.0 ℄ CONST. TUTTLE AVE
OFFSET 92.0' LT.

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

No.	REVISIONS	DATE	BY

3:06:36 PM 12/8/2023

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO
PW:\

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

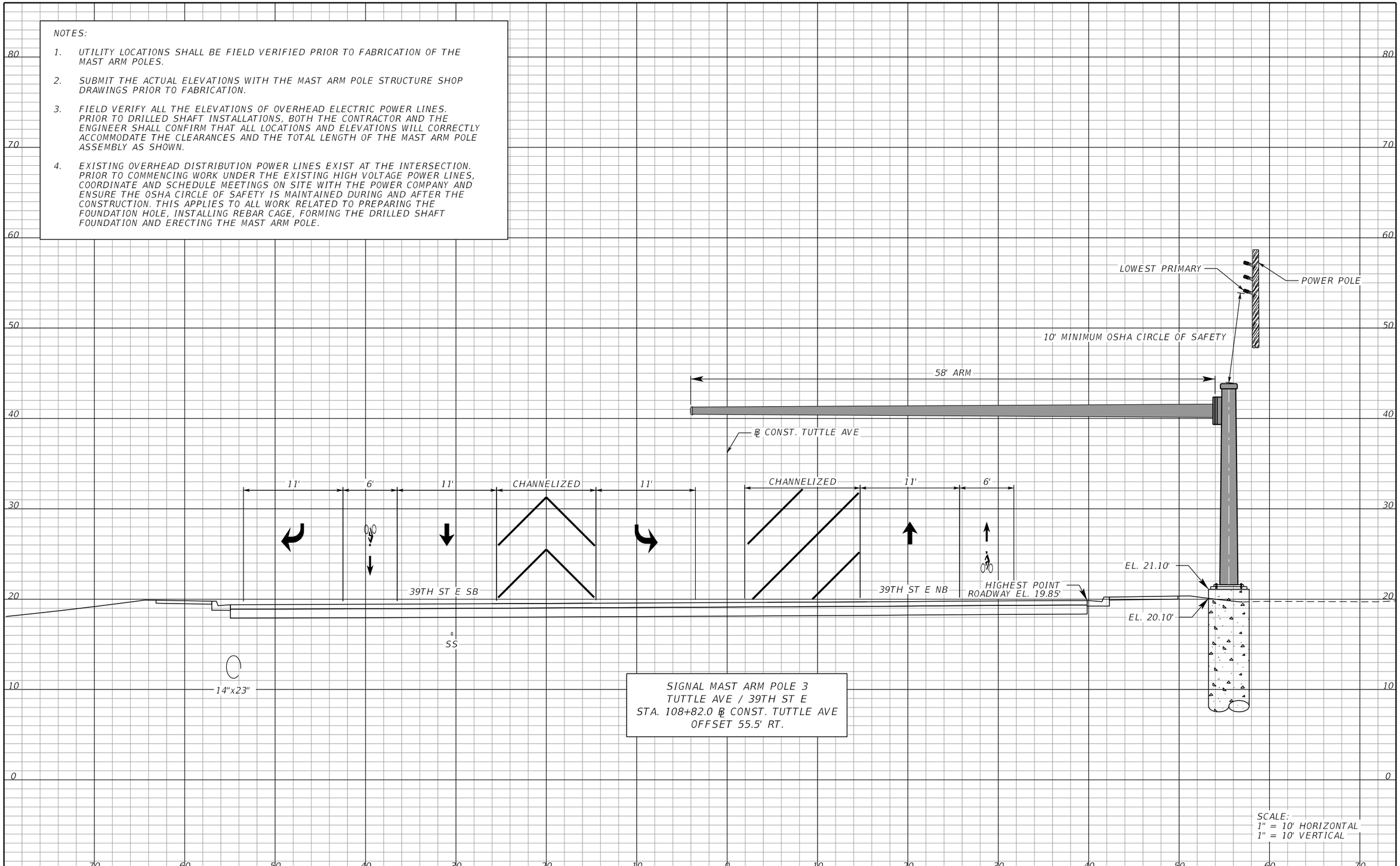
DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SIGNAL CROSS SECTION (2)

SHEET NO.: T-24

NOTES:

1. UTILITY LOCATIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OF THE MAST ARM POLES.
2. SUBMIT THE ACTUAL ELEVATIONS WITH THE MAST ARM POLE STRUCTURE SHOP DRAWINGS PRIOR TO FABRICATION.
3. FIELD VERIFY ALL THE ELEVATIONS OF OVERHEAD ELECTRIC POWER LINES. PRIOR TO DRILLED SHAFT 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 MAST ARM POLE ASSEMBLY AS SHOWN.
4. EXISTING OVERHEAD DISTRIBUTION POWER LINES EXIST AT THE INTERSECTION. PRIOR TO COMMENCING WORK UNDER THE EXISTING HIGH VOLTAGE POWER LINES, COORDINATE AND SCHEDULE MEETINGS ON SITE WITH THE POWER COMPANY AND ENSURE THE OSHA CIRCLE OF SAFETY IS MAINTAINED DURING AND AFTER THE CONSTRUCTION. THIS APPLIES TO ALL WORK RELATED TO PREPARING THE FOUNDATION HOLE, INSTALLING REBAR CAGE, FORMING THE DRILLED SHAFT FOUNDATION AND ERECTING THE MAST ARM POLE.



SIGNAL MAST ARM POLE 3
TUTTLE AVE / 39TH ST E
STA. 108+82.0 ℄ CONST. TUTTLE AVE
OFFSET 55.5' RT.

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

No.	REVISIONS	DATE	BY

3:06:38 PM 12/8/2023 PW:\

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

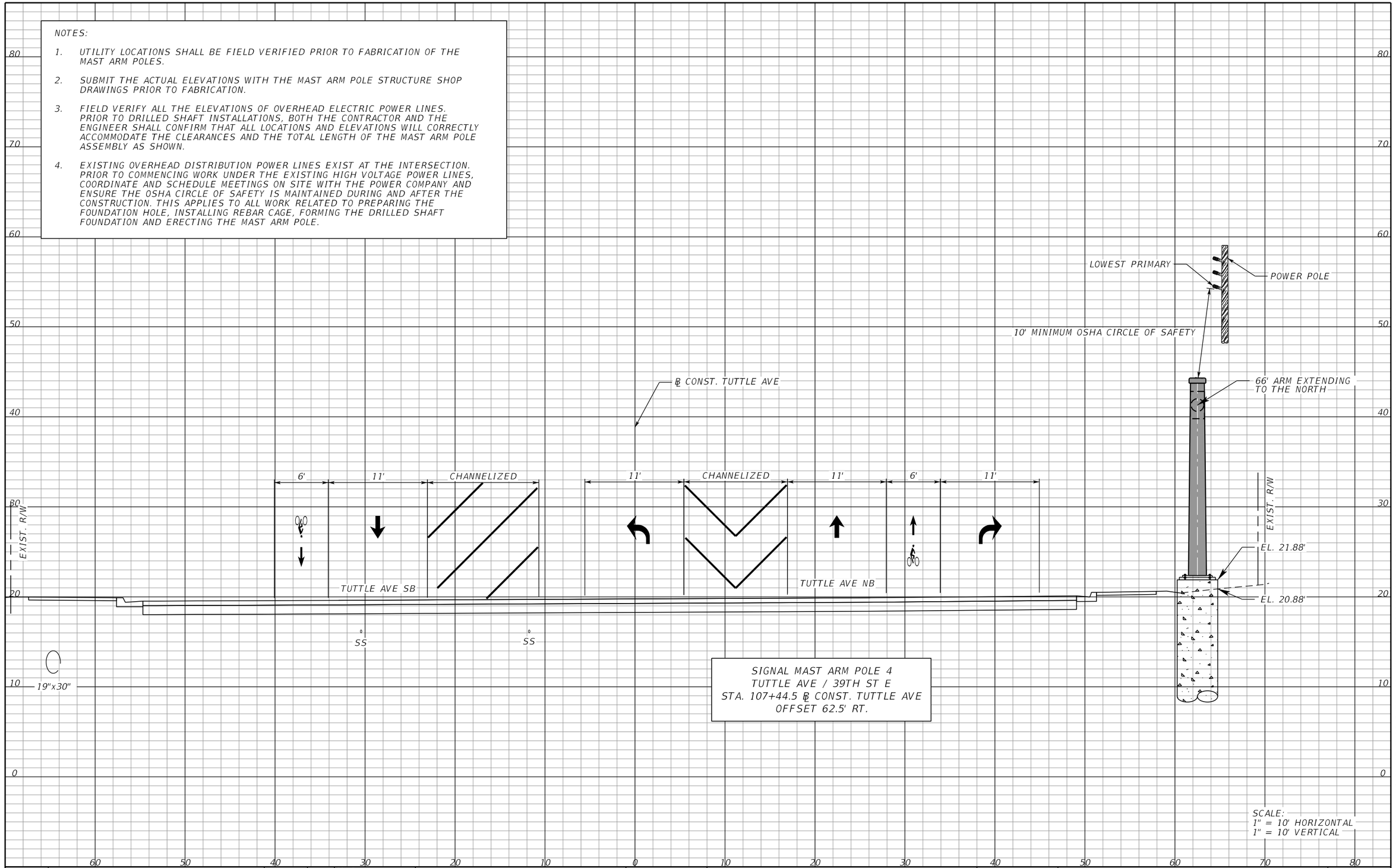
DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SIGNAL CROSS SECTION (3)

SHEET NO.: T-25

NOTES:

1. UTILITY LOCATIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OF THE MAST ARM POLES.
2. SUBMIT THE ACTUAL ELEVATIONS WITH THE MAST ARM POLE STRUCTURE SHOP DRAWINGS PRIOR TO FABRICATION.
3. FIELD VERIFY ALL THE ELEVATIONS OF OVERHEAD ELECTRIC POWER LINES. PRIOR TO DRILLED SHAFT 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 MAST ARM POLE ASSEMBLY AS SHOWN.
4. EXISTING OVERHEAD DISTRIBUTION POWER LINES EXIST AT THE INTERSECTION. PRIOR TO COMMENCING WORK UNDER THE EXISTING HIGH VOLTAGE POWER LINES, COORDINATE AND SCHEDULE MEETINGS ON SITE WITH THE POWER COMPANY AND ENSURE THE OSHA CIRCLE OF SAFETY IS MAINTAINED DURING AND AFTER THE CONSTRUCTION. THIS APPLIES TO ALL WORK RELATED TO PREPARING THE FOUNDATION HOLE, INSTALLING REBAR CAGE, FORMING THE DRILLED SHAFT FOUNDATION AND ERECTING THE MAST ARM POLE.



No.	REVISIONS	DATE	BY

3:06:39 PM 12/8/2023 PW:\

SCALE: AS NOTED
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DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

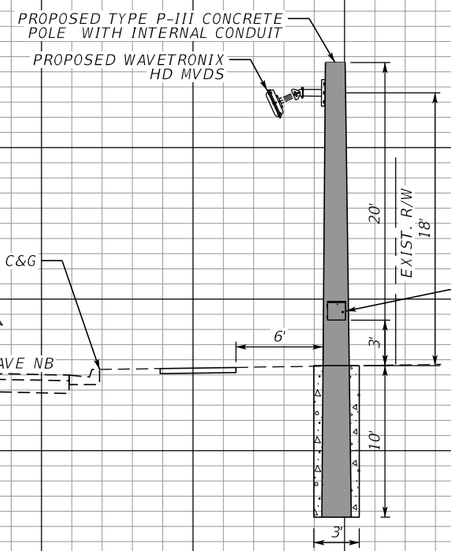
SIGNAL CROSS SECTION (4)

SHEET NO.: T-26

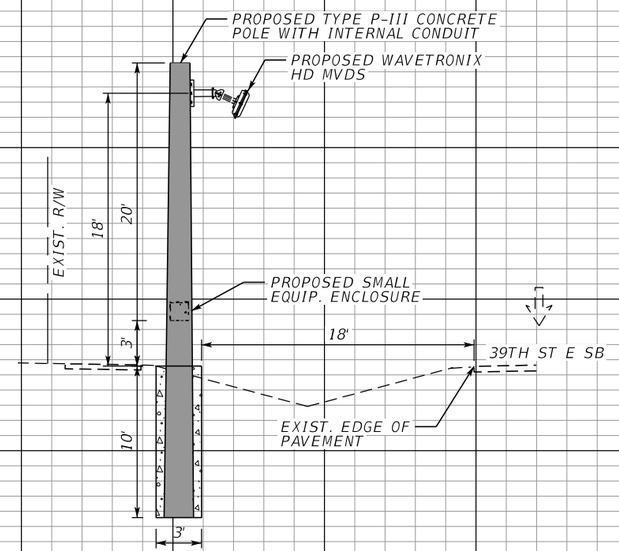
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

NOTES:

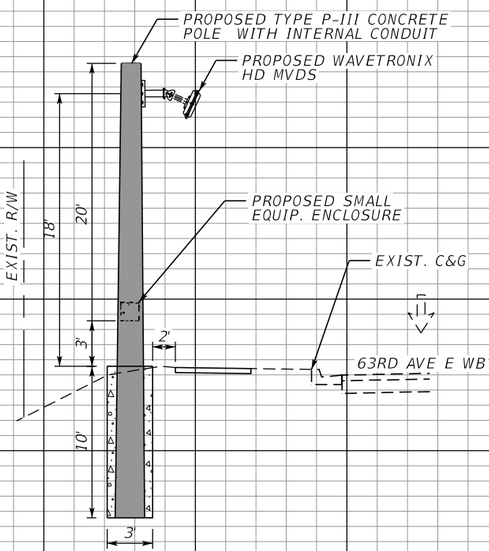
1. UTILITY LOCATIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OF THE ITS POLE.
2. SUBMIT THE ACTUAL ELEVATIONS WITH THE ITS POLE STRUCTURE SHOP DRAWINGS PRIOR TO FABRICATION.
3. PRIOR TO FOOTING INSTALLATIONS, BOTH THE CONTRACTOR AND THE ENGINEER SHALL CONFIRM THAT ALL LOCATIONS WILL CORRECTLY ACCOMMODATE THE CLEARANCES AND THE TOTAL LENGTH OF THE POLE AS SHOWN.
4. THE LOCATION FOR THE CONDUIT ENTRY HOLE WITH COVER SHALL BE COORDINATED WITH THE CONTRACTOR PREPARING THE FOUNDATION HOLE PRIOR TO FABRICATION, ACCOMMODATING THE HEIGHT SPECIFIED IN THE STANDARD PLANS AND ALLOW FOR ACCEPTABLE ACCESS HEIGHT TO THE HANDHOLE FRAME FOR THE MAINTENANCE PERSONNEL.
5. ELEVATIONS ARE RELATIVE AND ARE NOT TIED TO A BENCHMARK.



TRAFFIC MONITORING SITE - 1
TUTTLE AVE NB
STA. 99+00 ℄ CONST. TUTTLE AVE
OFFSET 57' RT.



TRAFFIC MONITORING SITE - 2
39TH ST E SB
STA. 120+00 ℄ CONST. TUTTLE AVE
OFFSET 34' LT.



TRAFFIC MONITORING SITE - 3
63RD AVE E WB
STA. 222+20 ℄ CONST. 63RD AVE
OFFSET 53' LT.

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

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DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

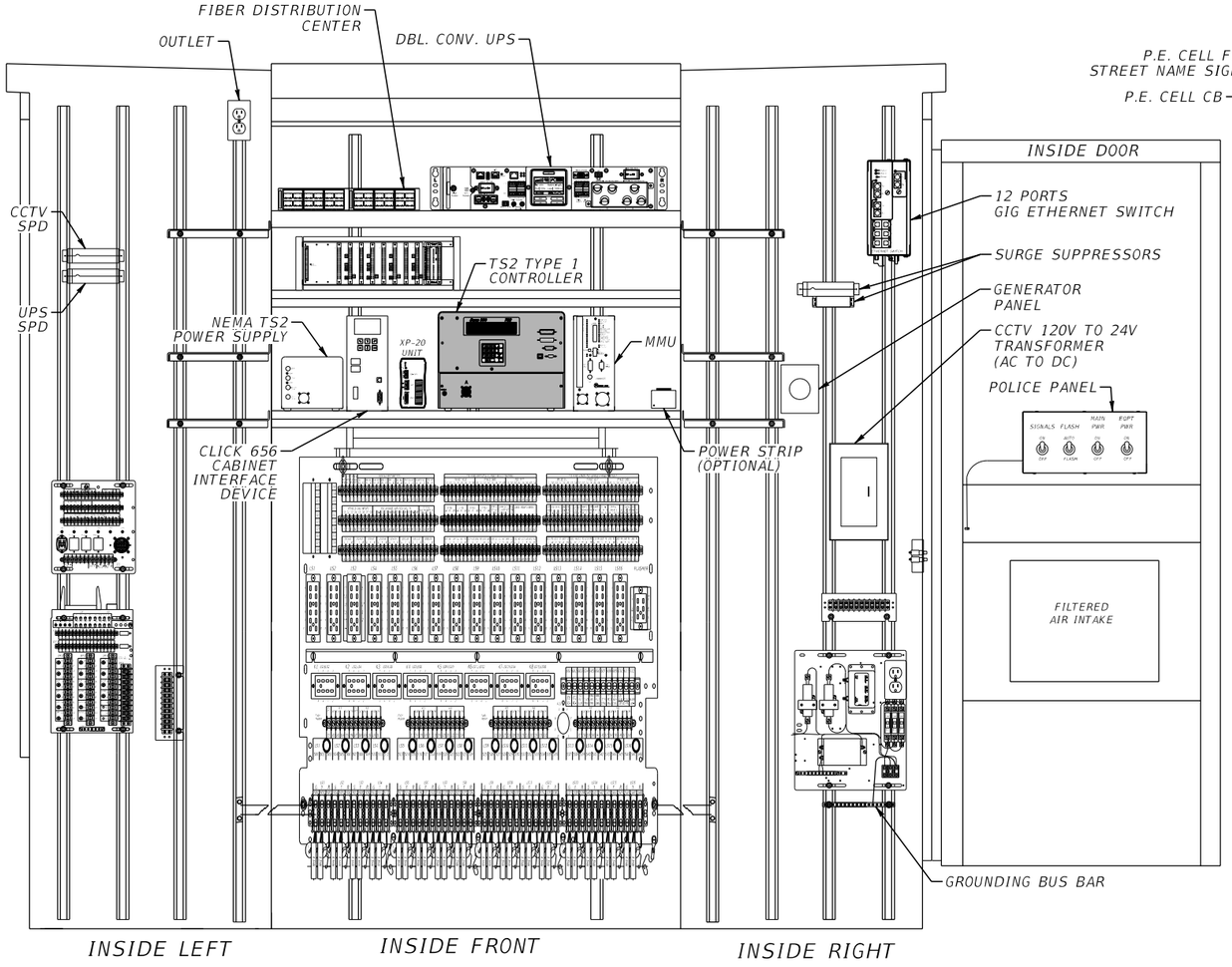
Manatee County FLORIDA
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

TRAFFIC MONITORING SITE CROSS SECTION

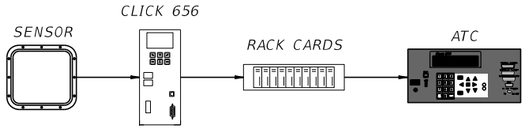
SHEET NO.: T-27

3:06:41 PM 12/8/2023 PW:\

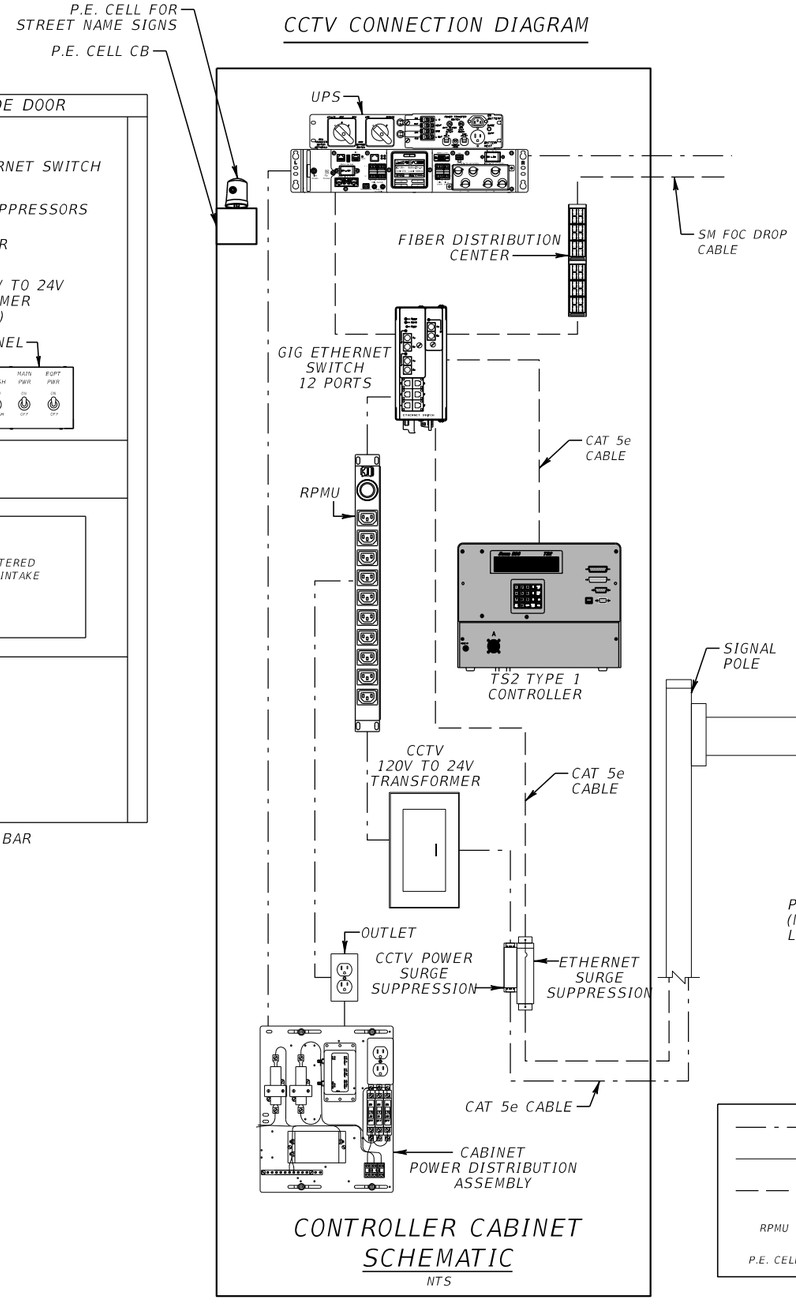


TWO DOOR TRAFFICWARE TYPE VI CABINET

NTS



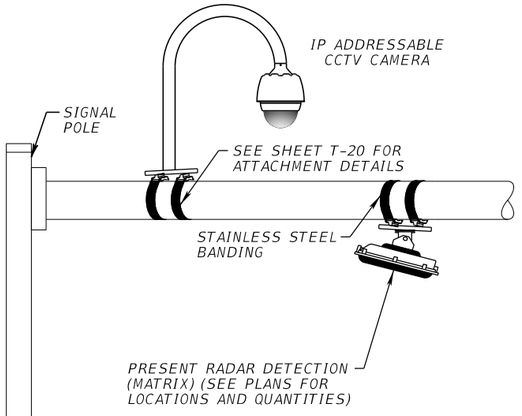
CLICK 656 USING SDLC AND CONTACT CLOSURE



CONTROLLER CABINET SCHEMATIC

NTS

CCTV CONNECTION DIAGRAM



THREE SERVICE WIRE	
FIBER CABLE/JUMPER	
CAT 5 CABLE (RJ-45)	
RPMU	REMOTE POWER MANAGEMENT SYSTEM
P.E. CELL	PHOTOELECTRIC CELL

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401 N Cattlemen Road
Suite 210
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Manatee County FLORIDA

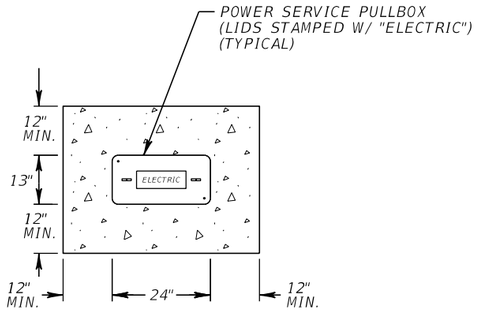
MANATEE COUNTY PUBLIC WORKS

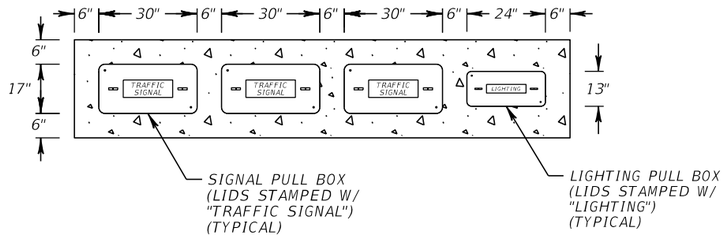
DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

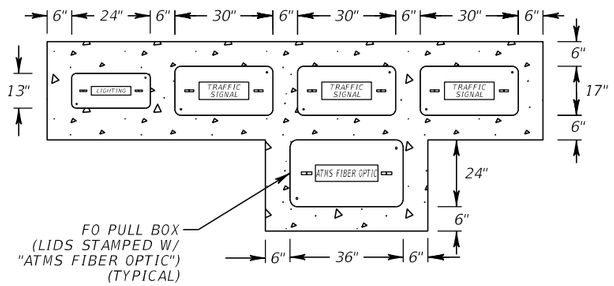
CABINET, CCTV, AND MVDS DETAILS

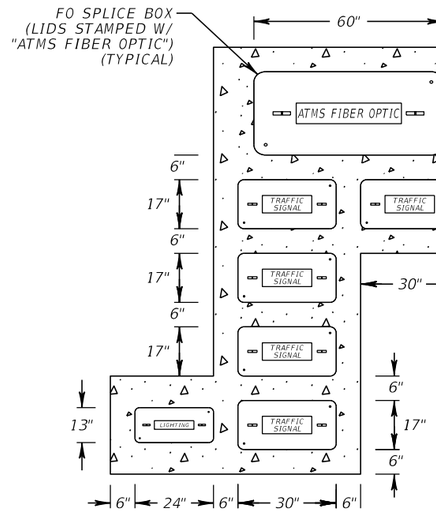
SHEET NO.: T-28

CONCRETE APRON DETAILS





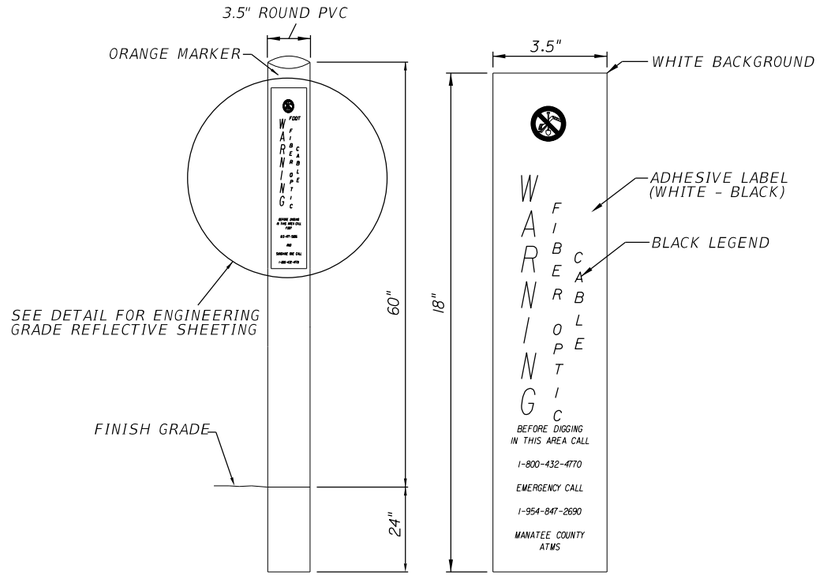




NOTES:

1. CONCRETE REINFORCEMENT AND INSTALLATION REQUIREMENTS TO BE PER STANDARD PLANS 635-001.
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.

FIBER OPTIC CABLE ROUTE MARKER



FRONT VIEW
NTS

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 WILL BE MADE FOR ROUTE MARKERS. COST 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.

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MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

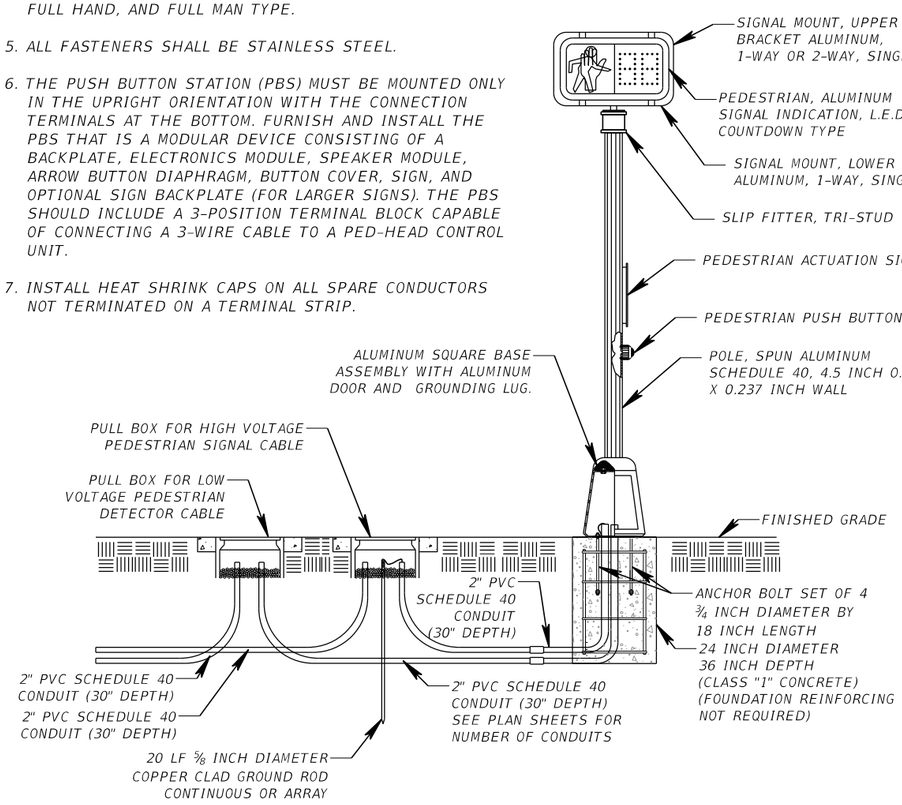
CONCRETE APRON & CABLE ROUTE MARKER DETAILS

SHEET NO.: T-29

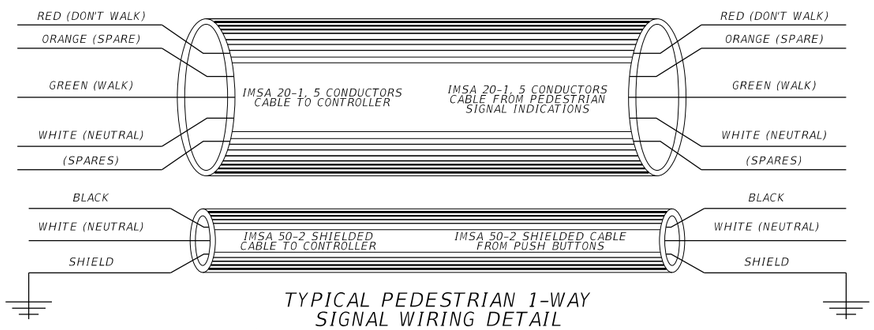
3:07:00 PM 12/8/2023 PW:\

CONSTRUCTION NOTES:

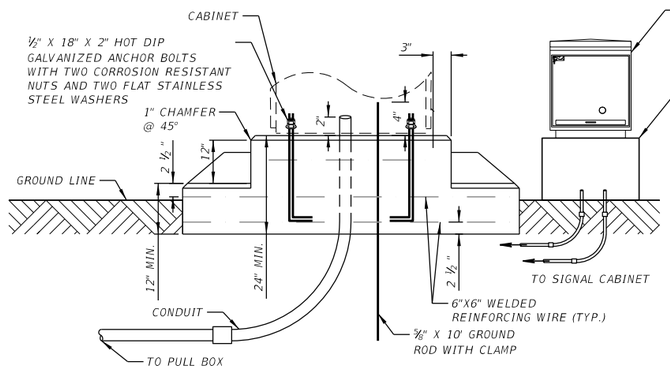
1. HIGH VOLTAGE PULL BOX SHALL CONTAIN SIGNAL CABLE, STREET LIGHTING CABLE, AND ILLUMINATED SIGN CABLE, AS NEEDED.
2. LOW VOLTAGE PULL BOX SHALL CONTAIN PEDESTRIAN DETECTION CABLE, VIDEO DETECTION CABLE, AND OPTICOM EMERGENCY VEHICLE DETECTION CABLE, AS NEEDED.
3. GROUND WIRE SHALL BE 6 STRANDED.
4. PEDESTRIAN SIGNAL INDICATIONS SHALL BE L.E.D., COUNTDOWN, FULL HAND, AND FULL MAN TYPE.
5. ALL FASTENERS SHALL BE STAINLESS STEEL.
6. THE PUSH BUTTON STATION (PBS) MUST BE MOUNTED ONLY IN THE UPRIGHT ORIENTATION WITH THE CONNECTION TERMINALS AT THE BOTTOM. FURNISH AND INSTALL THE PBS THAT IS A MODULAR DEVICE CONSISTING OF A BACKPLATE, ELECTRONICS MODULE, SPEAKER MODULE, ARROW BUTTON DIAPHRAGM, BUTTON COVER, SIGN, AND OPTIONAL SIGN BACKPLATE (FOR LARGER SIGNS). THE PBS SHOULD INCLUDE A 3-POSITION TERMINAL BLOCK CAPABLE OF CONNECTING A 3-WIRE CABLE TO A PED-HEAD CONTROL UNIT.
7. INSTALL HEAT SHRINK CAPS ON ALL SPARE CONDUCTORS NOT TERMINATED ON A TERMINAL STRIP.



TYPICAL PEDESTRIAN SIGNAL DETAIL
NTS



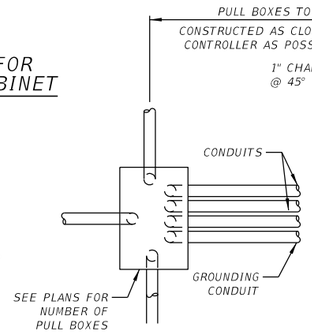
TYPICAL PEDESTRIAN 1-WAY SIGNAL WIRING DETAIL
NTS

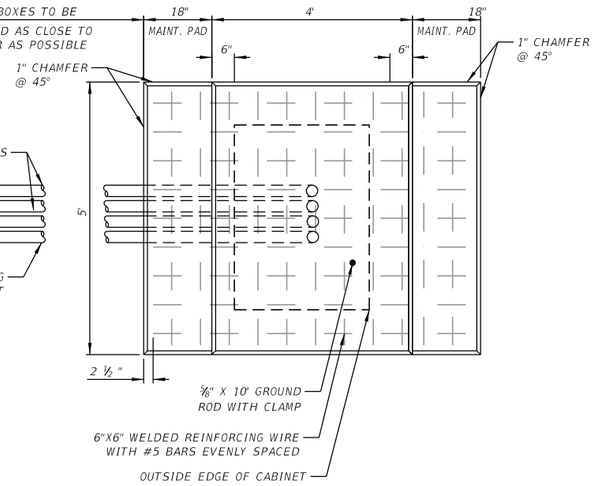


SIDE VIEW

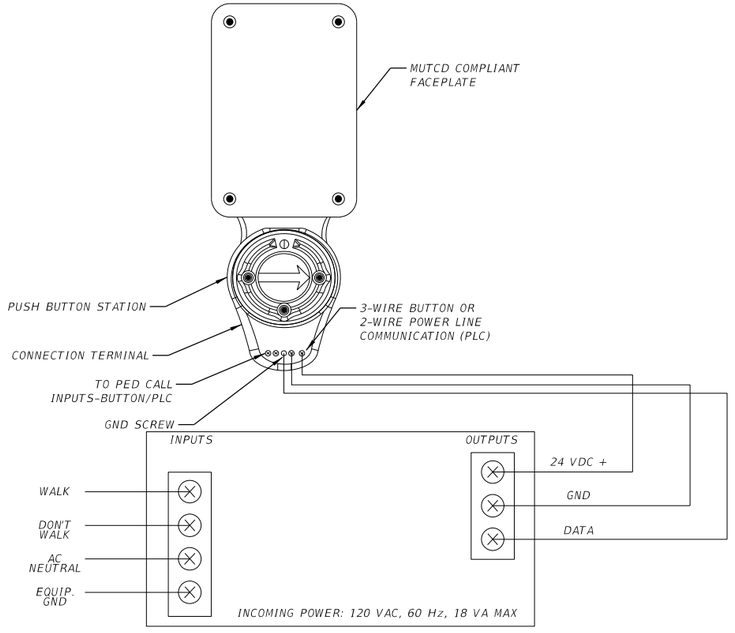
CONCRETE PAD DETAIL FOR TWO DOOR CONTROLLER CABINET
NTS

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). CONTACT MANATEE COUNTY FOR THE PROPER LAYOUT OF THE CONDUITS IN THE CONTROLLER FOUNDATION PRIOR TO POURING THE FOUNDATION.





TOP VIEW



PED-HEAD CONTROL UNIT INSIDE PED SIGNAL HOUSING
NTS

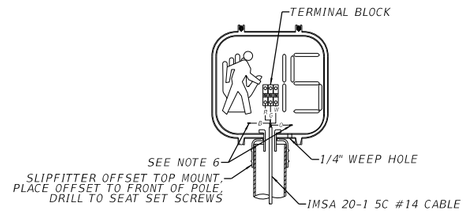
TYPICAL CONTROLLER CABINET INSTALLATION
NTS

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.



1-SECTION PEDESTRIAN SIGNAL WIRING DETAIL

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HDR Engineering, Inc.
401 N Cattlemen Road
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DATE: 12/2023
PROJECT NO.: 6065961

Manatee County FLORIDA
MANATEE COUNTY PUBLIC WORKS

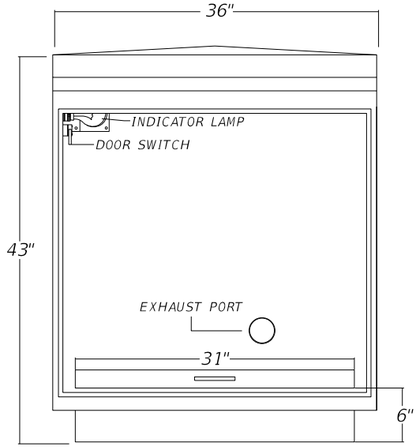
DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

PEDESTRIAN SIGNAL AND CABINET BASE DETAILS

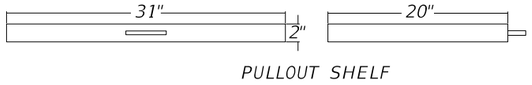
SHEET NO.: T-30

3:07:02 PM 12/8/2023 PW:\

MANATEE COUNTY GENERATOR WITHOUT UPS

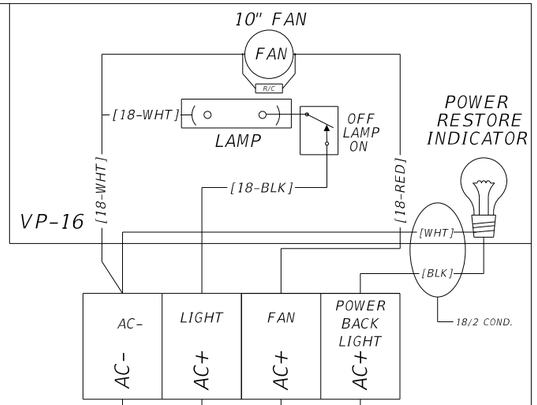


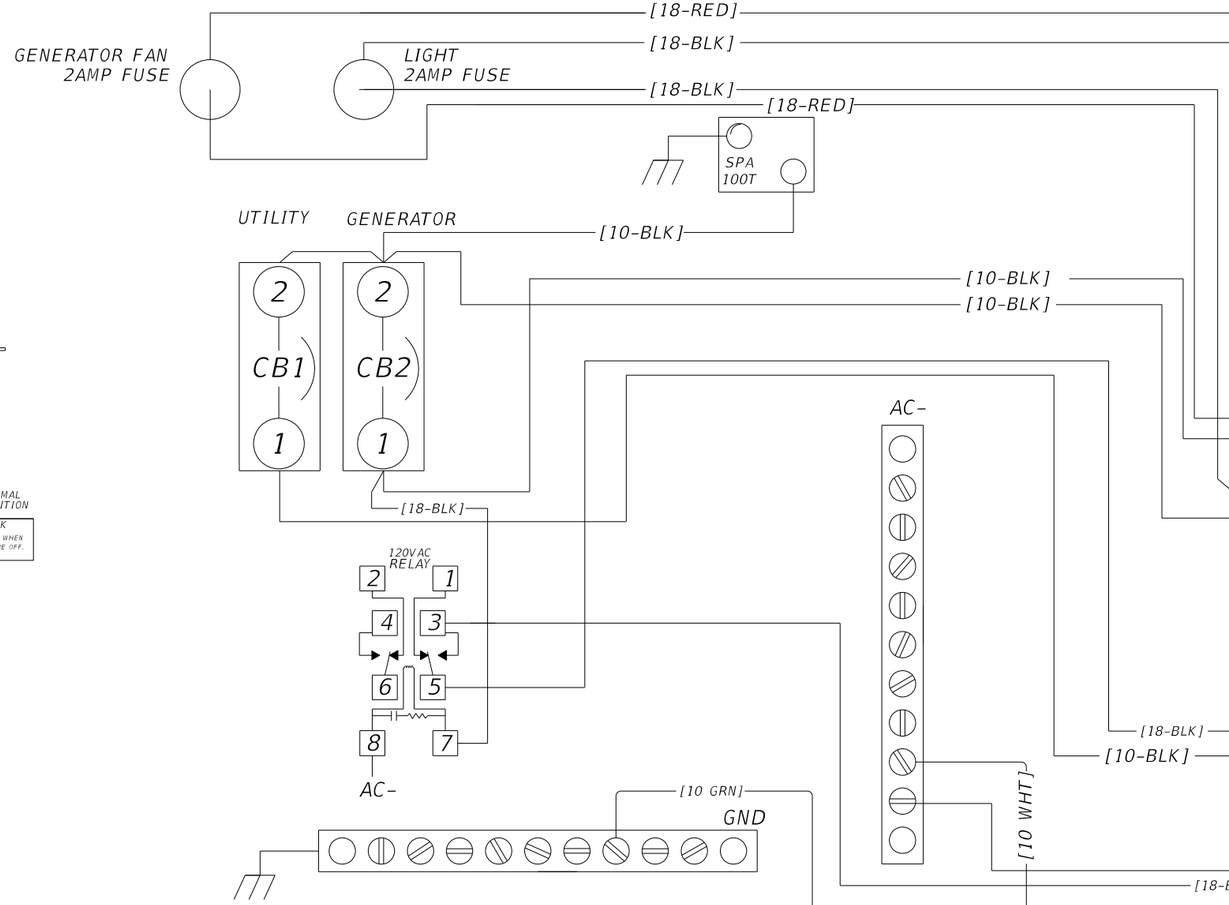
FRONT VIEW WITHOUT DOOR



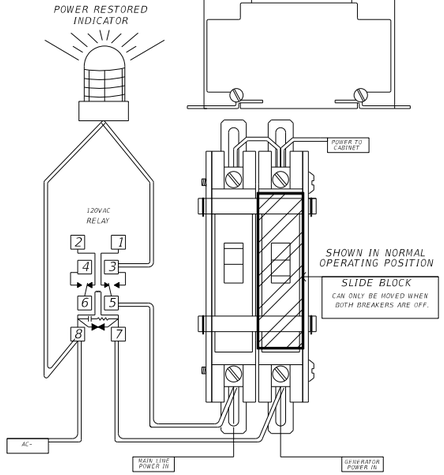
PULLOUT SHELF

CB#1-40 AMP MAIN POWER
CB#2-40 AMP GENERATOR POWER
MALE 6' COORD TO GENERATOR





6FT RUBBER SO CORD P/N WIRESJ10/3



MANATEE COUNTY POWER PANEL

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DATE: 12/2023
PROJECT NO.: 6065961

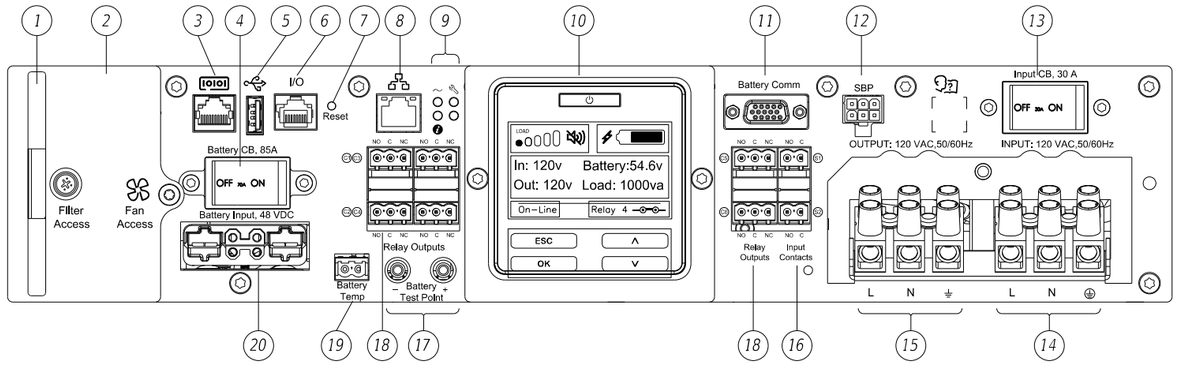
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

GENERATOR CABINET WIRING DIAGRAM

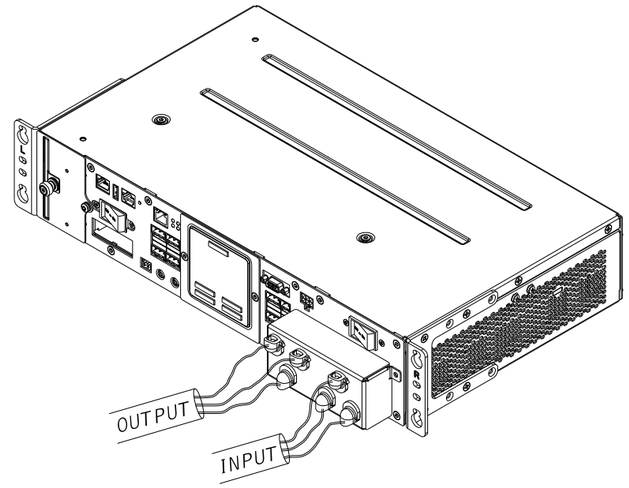
SHEET NO.: T-31

3:07:05 PM 12/8/2023 PW:\



FRONT PANEL – ENLARGED VIEW
TERMINAL BLOCK COVER NOT SHOWN

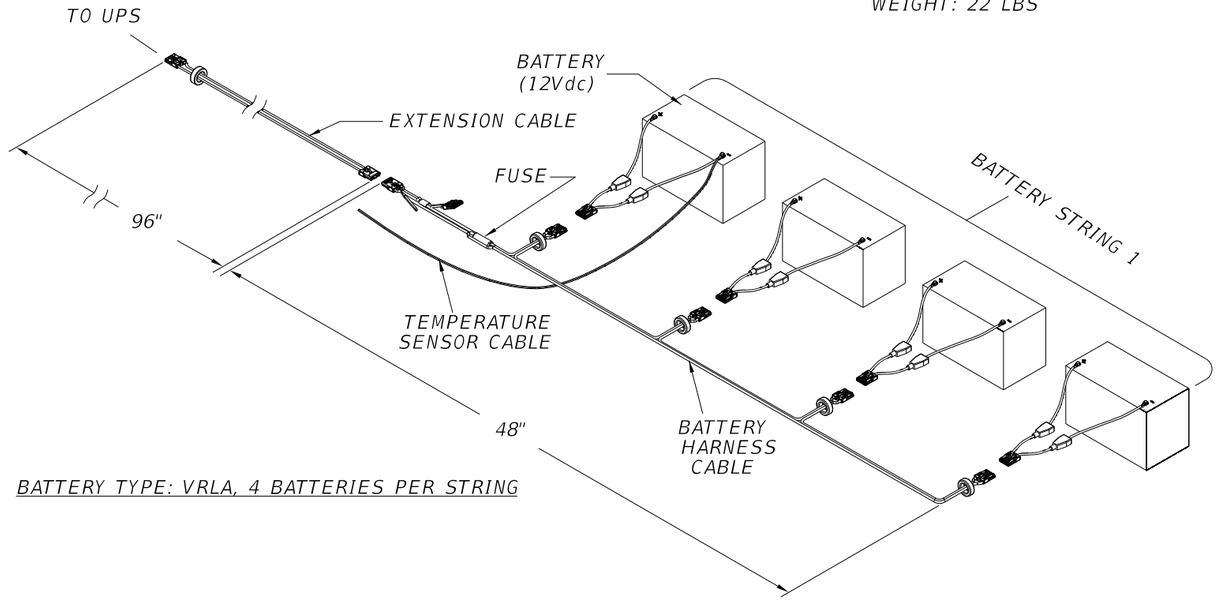
1. REPLACEABLE FILTER.
2. REPLACEABLE FAN ASSEMBLY.
3. SERIAL PORT.
4. BATTERY DC CIRCUIT BREAKER.
5. USB PORT.
6. UNIVERSAL I/O (UIO) PORT.
7. RESET BUTTON.
8. ETHERNET PORT.
9. STATUS LEDs.
10. LCD INTERFACE.
11. COMMUNICATIONS CONNECTOR – FUTURE USE.
12. SERVICE BYPASS (SBP) INTERFACE.
13. INPUT AC CIRCUIT BREAKER.
14. AC INPUT CONNECTOR (WHITE).
15. AC OUTPUT CONNECTOR (BLACK).
16. RELAY INPUT CONNECTOR.
17. BATTERY TEST POINTS
18. RELAY OUTPUT CONNECTOR.
19. BATTERY TEMPERATURE SENSOR CONNECTOR.
20. HIGH CURRENT DC INPUT/OUTPUT CONNECTOR.



ISOMETRIC VIEW

BATTERY HARNESS DETAILS

(TYPICAL ARRANGEMENT FOR 1 BATTERY STRING SHOWN FOR ILLUSTRATION. MULTIPLE BATTERY STRINGS CAN BE CONNECTED TO THE UPS DEPENDING UPON THE RUNTIME REQUIREMENT)



BATTERY TYPE: VRLA, 4 BATTERIES PER STRING

MECHANICAL DIMENSIONS:
HEIGHT: 3.5"
WIDTH: 17.1"
DEPTH: 10.3"
WEIGHT: 22 LBS

NOTE:

1. THE UPS FOR MANATEE COUNTY IS A SMART UPS INDUSTRIAL, 1300VA / 1300W, 120 VAC IN/OUT RACK MOUNTED, OUTPUT CONNECTOR TYPE, TO BE HARD WIRED (3 WIRE, SINGLE PHASE), DOUBLE CONVERSION, INTERNAL BYPASS (AUTOMATIC AND MANUAL), EQUIPPED WITH ETHERNET PORT, SUPPORTS SNMP PROTOCOL FOR REMOTE MONITORING AND MANAGEMENT. THE UPS TO BE SIZED TO ACCOMMODATE THE MAXIMUM CONNECTED LOADS.

No.	REVISIONS	DATE	BY

3:07:07 PM 12/8/2023 PW:\

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CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

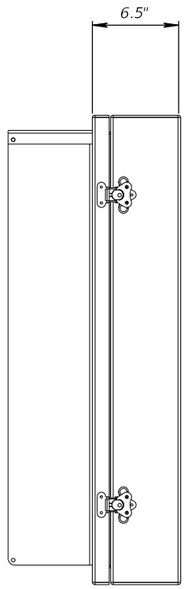
DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

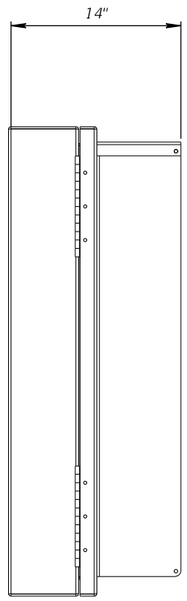
DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

UNINTERRUPTIBLE POWER SUPPLY DETAILS

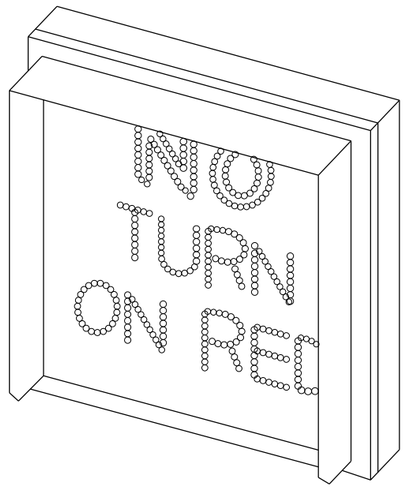
SHEET NO.: T-32



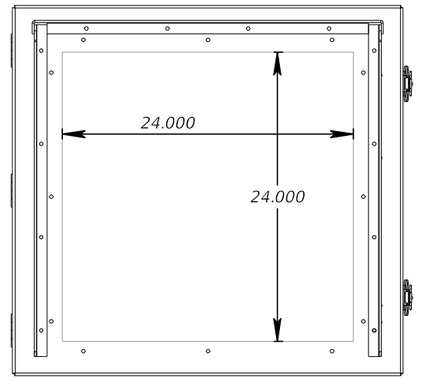
SIDE VIEW



SIDE VIEW



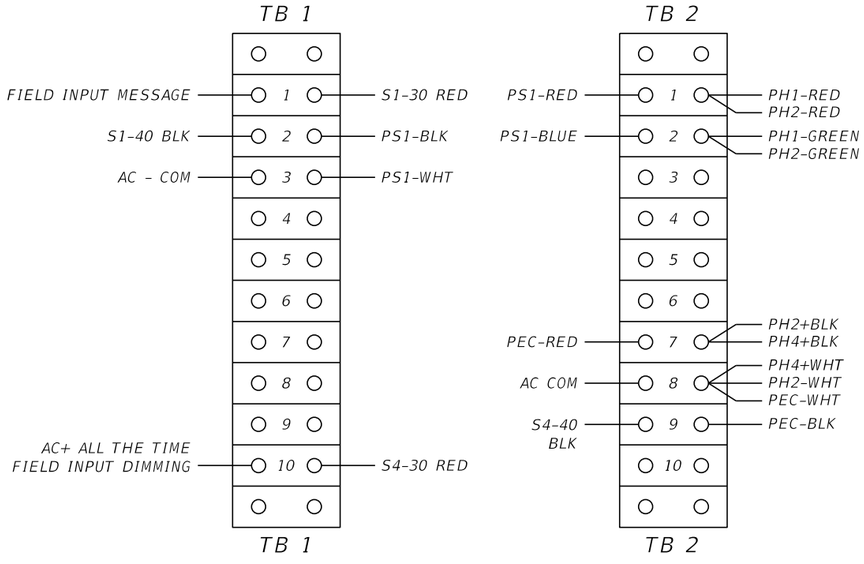
ISOMETRIC VIEW

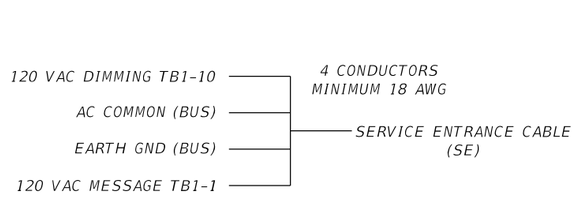


FRONT VIEW

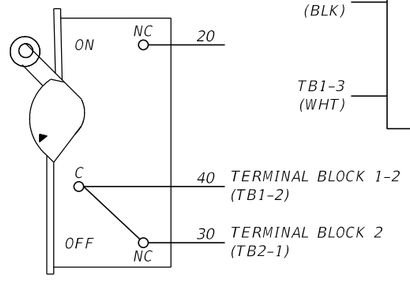
BLANKOUT SIGN

34 x 46 NO TURN ON RED

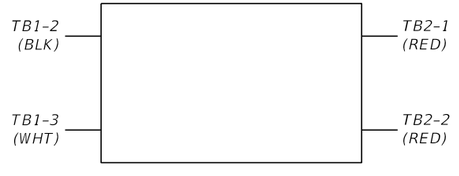




MESSAGE POWER SWITCH



MESSAGE POWER SUPPLY WIRING



BLANK OUT SIGN PERFORMANCE SPECIFICATIONS:

LEDS: WHITE LED, 5MM ROUND ROHS COMPLIANT. #C512T-WNN ANGLE 25 DEG. 9,000mcd @ 20ma.

LEDS: RED LED, 5MM ROUND ROHS COMPLIANT. RED LED #HLMP-EG2A-XYODD WAVELENGTH 626nm. VIEWING ANGLE 23 DEG. 12,000 mcd @ 20ma.

SIGN SHALL BE CAPABLE OF CONTINUOUS OPERATION OVER A RANGE IN TEMP. OF -35F TO +165F (-37C TO +75C) AND FROM 5% TO 95% RELATIVE HUMIDITY, NON CONDENSING.

LEDS HAVE AN EXPECTED LIFETIME OF 100,000 HOURS.

LEDS ARE MOUNTED ON A 0.062 PCB (CONFORMABLY COATED) WITH A SPACING OF 0.5" ± 10%.

MATERIAL
1. 5052-H32 ALUMINUM
A. ENCLOSURE THICKNESS AND SIGN FACE THICKNESS: 0.090"
B. DOOR THICKNESS: 0.125"
C. VISOR THICKNESS: 0.090"

2. FINISH: POWDER COATED SEMI-GLOSS BLACK.

3. GASKET: EXTRUDED NEOPRENE RUBBER

4. SIGN LENS: 0.125" POLYCARBONATE (NON-GLARE)

HARDWARE
1. ALL HARDWARE SHALL BE STAINLESS STEEL.
A. HINGES: 2" REMOVABLE.
B. INTERNAL LATCHES: SPRING TWIST LATCHES
C. EXTERNAL LATCHES: PADLOCKABLE TWIST LATCH WITH KEEPER
D. RIVETS: 0.187" BUTTON HEAD

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

Manatee County FLORIDA
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

BLANKOUT SIGN DETAIL

SHEET NO.: T-33

3:07:10 PM 12/8/2023 PW:\

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

LEGEND

SYMBOLS	DESCRIPTION
A	LIGHT POLE COMPLETE SHOULDER MOUNTED LED LUMINAIRE, 15' BRACKET ARM AND 40' MOUNTING HEIGHT. SYMBOL INCLUDES LUMINAIRE, BRACKET ARM, POLE WITH VIBRATION DAMPER, FRANGIBLE BASE, FOUNDATION, AND POLE CABLE DISTRIBUTION SYSTEM. THE DESIGN IS BASED ON GENERAL ELECTRIC LED ERL2 LUMINAIRE WITH TYPE IV DISTRIBUTION, 20,100 INITIAL LUMEN OUTPUT, 177 WATTS AND 3000K CCT. THE LUMINAIRE PHOTOMETRIC CURVE NUMBER IS ERL2_21D330XXXXX. THIS LUMINAIRE IS A CUTOFF FIXTURE WITH ZERO TILT.
B	LIGHT POLE COMPLETE SHOULDER MOUNTED LED LUMINAIRE, 15' BRACKET ARM AND 35' MOUNTING HEIGHT. SYMBOL INCLUDES LUMINAIRE, BRACKET ARM, POLE WITH VIBRATION DAMPER, FRANGIBLE BASE, FOUNDATION AND POLE CABLE DISTRIBUTION SYSTEM. THE DESIGN IS BASED ON GENERAL ELECTRIC LED ERL1 LUMINAIRE WITH TYPE IV DISTRIBUTION, 14,400 INITIAL LUMEN OUTPUT, 121 WATTS AND 3000K CCT. THE LUMINAIRE PHOTOMETRIC CURVE NUMBER IS ERL1_15D530XXXXX. THIS LUMINAIRE IS A CUTOFF FIXTURE WITH ZERO TILT.
C	LIGHT POLE COMPLETE SHOULDER MOUNTED LED LUMINAIRE, 15' BRACKET ARM AND 35' MOUNTING HEIGHT. SYMBOL INCLUDES LUMINAIRE, BRACKET ARM, POLE WITH VIBRATION DAMPER, FRANGIBLE BASE, FOUNDATION, CONCRETE SLAB, POLE CABLE DISTRIBUTION SYSTEM AND PULL BOX. THE DESIGN IS BASED ON GENERAL ELECTRIC LED ERL1 LUMINAIRE WITH TYPE II DISTRIBUTION, 12,400 INITIAL LUMEN OUTPUT, 102 WATTS AND 3000K CCT. THE LUMINAIRE PHOTOMETRIC CURVE NUMBER IS ERL1_13E530XXXXX. THIS LUMINAIRE IS A CUTOFF FIXTURE WITH ZERO TILT.
D	LIGHT POLE COMPLETE SHOULDER MOUNTED LED LUMINAIRE WITH HOUSE SIDE SHIELD, 15' BRACKET ARM AND 35' MOUNTING HEIGHT. SYMBOL INCLUDES LUMINAIRE, BRACKET ARM, POLE WITH VIBRATION DAMPER, FRANGIBLE BASE, FOUNDATION, POLE CABLE DISTRIBUTION SYSTEM AND HOUSE SIDE SHIELD. THE DESIGN IS BASED ON GENERAL ELECTRIC LED ERL1 LUMINAIRE WITH TYPE IV DISTRIBUTION, 13,820 INITIAL LUMEN OUTPUT, 121 WATTS AND 3000K CCT. THE LUMINAIRE PHOTOMETRIC CURVE NUMBER IS ERL1_15D530XXXXX-ELSHS-ERL1-BLCK. THIS LUMINAIRE IS A CUTOFF FIXTURE WITH ZERO TILT.
E	LIGHT POLE COMPLETE SHOULDER MOUNTED LED LUMINAIRE WITH HOUSE SIDE SHIELD, 15' BRACKET ARM AND 35' MOUNTING HEIGHT. SYMBOL INCLUDES LUMINAIRE, BRACKET ARM, POLE WITH VIBRATION DAMPER, FRANGIBLE BASE, FOUNDATION, POLE CABLE DISTRIBUTION SYSTEM AND HOUSE SIDE SHIELD. THE DESIGN IS BASED ON GENERAL ELECTRIC LED ERL1 LUMINAIRE WITH TYPE II DISTRIBUTION, 10,360 INITIAL LUMEN OUTPUT, 102 WATTS AND 3000K CCT. THE LUMINAIRE PHOTOMETRIC CURVE NUMBER IS ERL1_13E530XXXXX-ELSHS-ERL1-BLCK. THIS LUMINAIRE IS A CUTOFF FIXTURE WITH ZERO TILT.
	55 WATT LED LUMINAIRE ATTACHED ON MAST ARM. ANALYZED USING GENERAL ELECTRIC LIGHTING LUMINAIRE, PHOTOMETRIC CURVE NUMBER EACL01_C3AW730XXXXX AT 7400 LUMENS ASYMMETRIC WIDE, 3000° K, 240 VAC IN GRAY COLOR. SYMBOL INCLUDES LUMINAIRE AND BRACKET ARM.
	EXISTING LED LIGHT POLE TO REMAIN.
	EXISTING CONDUIT TO REMAIN.
	1-2" CONDUIT INSTALLED BY OPEN TRENCH METHOD WITH CONDUCTORS INSIDE. RUN ONE (1) COPPER GROUND BONDING CONDUCTOR (GREEN INSULATION) INSIDE WITH OTHER CONDUCTORS. ONE CONDUIT WILL BE A SPARE.
	PROPOSED TYPICAL FDOT SHOULDER MOUNTED LIGHTING PULL BOX. PULL BOX COVER SIZE 13" x 24" UNLESS OTHERWISE NOTED.
	PROPOSED TYPICAL FDOT SHOULDER MOUNTED LIGHTING PULL BOX WITH MODIFIED CONCRETE SLAB 36" x 36". PULL BOX COVER SIZE 13" x 24" UNLESS OTHERWISE NOTED.

STANDARD POLE DATA

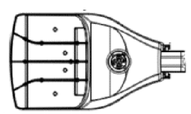
POLE NO.	CIRCUIT	STATION	ARM LENGTH	LUMINAIRE WATTAGE	MOUNTING HEIGHT	POLE SETBACK	PAY ITEM
01	EXIST. CKT. 2	211+72 BL CONST. 63RD AVE E	15'	177	40'	0.9' FROM BOS	715-61-352
02	SIGNAL	212+37 BL CONST. 63RD AVE E	15'	121	35'	11.5' FROM BOS	715-61-252
03	SIGNAL	109+38 BL CONST. TUTTLE AVE	15'	102	35'	2.6' FROM BOS	715-61-252
04	SIGNAL	106+95 BL CONST. TUTTLE AVE	15'	102	35'	0.9' FROM BOS	715-61-252
05	SIGNAL	107+31 BL CONST. TUTTLE AVE	15'	121	35'	0.9' FROM BOS	715-61-252
06	SIGNAL	214+64 BL CONST. 63RD AVE E	15'	102	35'	2.6' FROM BOS	715-61-252
UNDERMOUNT LUMINAIRE DATA							
UM-1	SIGNAL CKT.	SEE MAST ARM TABULATION	2'	55	20'	MOUNTED TO MAST ARM 2	715-5-31
UM-2	SIGNAL CKT.	SEE MAST ARM TABULATION	2'	55	20'	MOUNTED TO MAST ARM 3	715-5-31
UM-3	SIGNAL CKT.	SEE MAST ARM TABULATION	2'	55	20'	MOUNTED TO MAST ARM 4	715-5-31

NOTES:

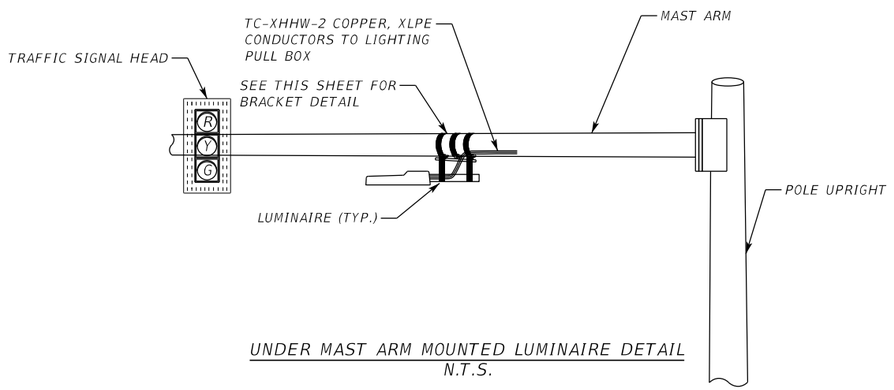
1. ALL POLE SETBACKS ARE MEASURED FROM THE FACE OF POLE.
2. LEGEND:
   BOS - BACK OF SIDEWALK
3. PHOTOELECTRIC CELLS WLL BE INCLUDED WITH THE LUMINAIRES TIED TO THE SIGNAL CIRCUIT BREAKER.

CONVENTIONAL LIGHTING DESIGN CRITERIA FOR SIGNALIZED INTERSECTION

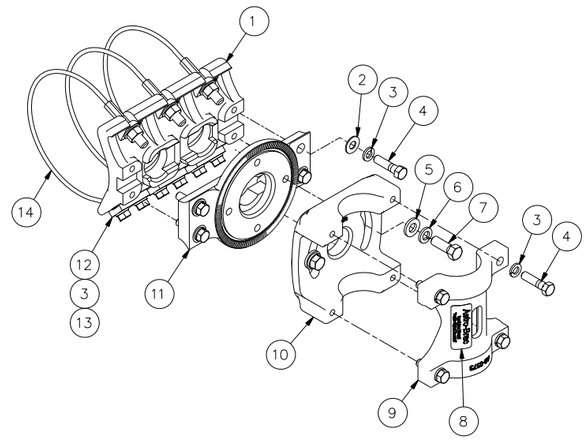
DESIGN WIND SPEED	140 MPH
AVERAGE HORIZONTAL INITIAL ILLUMINATION	3.0 STD./1.5 MIN. H.F.C.
AVERAGE VERTICAL INITIAL ILLUMINATION	1.5 STD./1.2 MIN. V.F.C.
AVERAGE TO MIN.	4:1 OR LESS
MAX TO MIN.	10:1 OR LESS



TOP VIEW



UNDER MAST ARM MOUNTED LUMINAIRE DETAIL
N.T.S.



ASTROBRACKET FOR 2" PIPE AND UNDER ARM LUMINAIRE
N.T.S.

KEY	DESCRIPTION
1	Clamp, Female Triton, Cable Mount, Alum
2	Washer, Flat, 3/8", .406" ID x .875" OD x .050" Thk, Type 304 St
3	Lock Washer, Split, 3/8", Type 304 Stainless
4	Bolt, Hex Hd, 3/8"-16 x 1-1/2", Type 304 Stainless
5	Washer, Flat Hvy Duty 7/16", .468" ID x .921" OD x .120" Thk, T
6	Lock Washer, Split, 7/16", Type 304 Stainless
7	Bolt, Hex Hd Tap, 7/16"-14 x 1-1/4", Type 304 Stainless
8	Label, Astro-Brac Mast Arm Mount, White On Clear Laminate
9	Saddle, Triton Tube, Alum
10	Saddle, Triton Serrated Tube, Alum
11	Adapter Plate, Triton, Alum
12	Plate, Cable Clamp, Astro-Brac Triton, Alum
13	Bolt, Hex Hd Tap, 3/8"-16 x 1", Type 304 Stainless
14	Cable Assy, Astro-Mini-Brac, Stainless End & Galvanized Cable

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

LIGHTING POLE DATA TABLE AND LEGEND

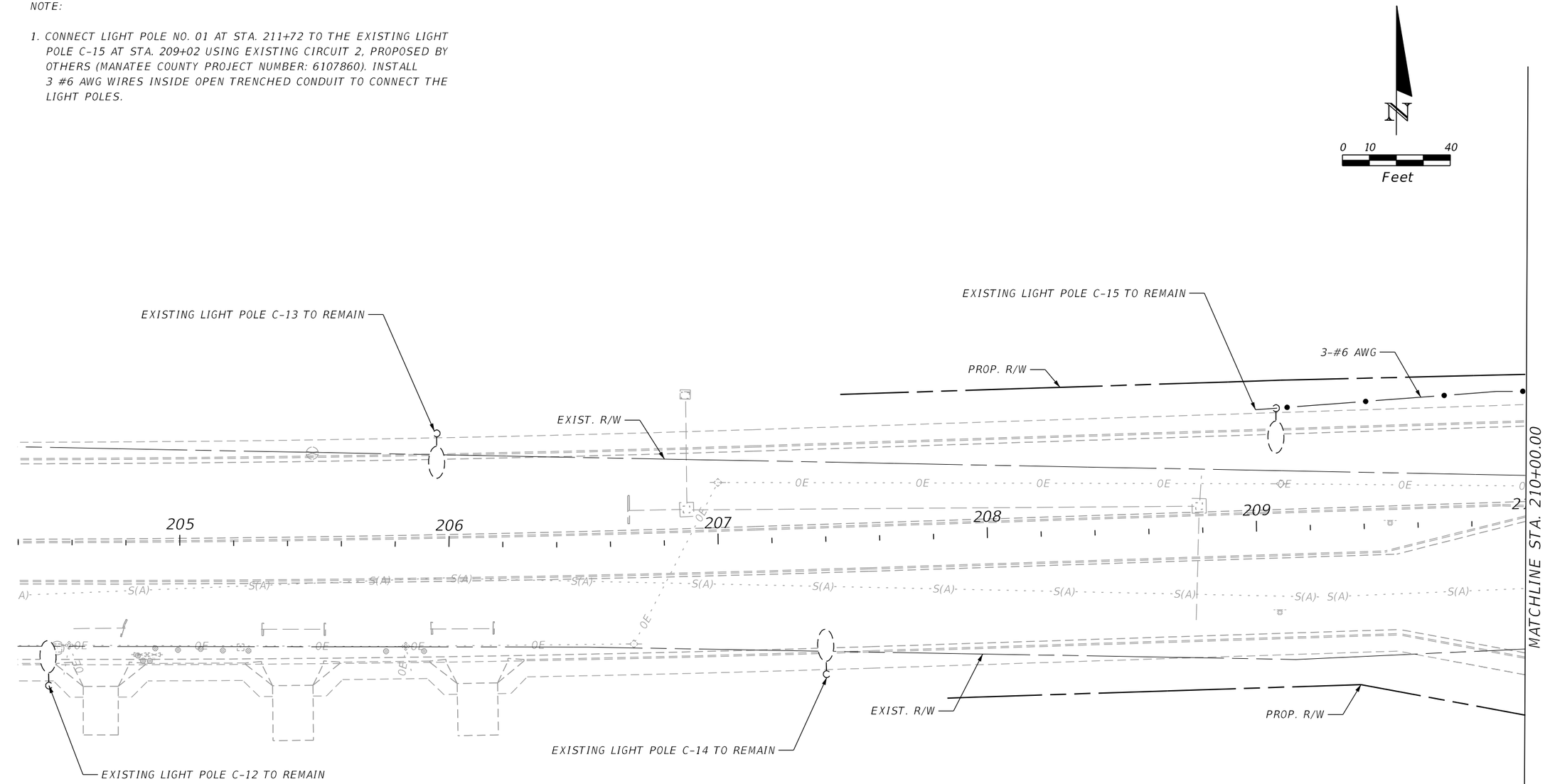
SHEET NO.: T-34

3:07:21 PM 12/8/2023 PW:\

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

NOTE:

1. CONNECT LIGHT POLE NO. 01 AT STA. 211+72 TO THE EXISTING LIGHT POLE C-15 AT STA. 209+02 USING EXISTING CIRCUIT 2, PROPOSED BY OTHERS (MANATEE COUNTY PROJECT NUMBER: 6107860). INSTALL 3 #6 AWG WIRES INSIDE OPEN TRENCHED CONDUIT TO CONNECT THE LIGHT POLES.



No.	REVISIONS	DATE	BY

3:07:33 PM 12/8/2023 PW:\

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

LIGHTING PLAN (1)

SHEET NO.: T-35

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NOTE:

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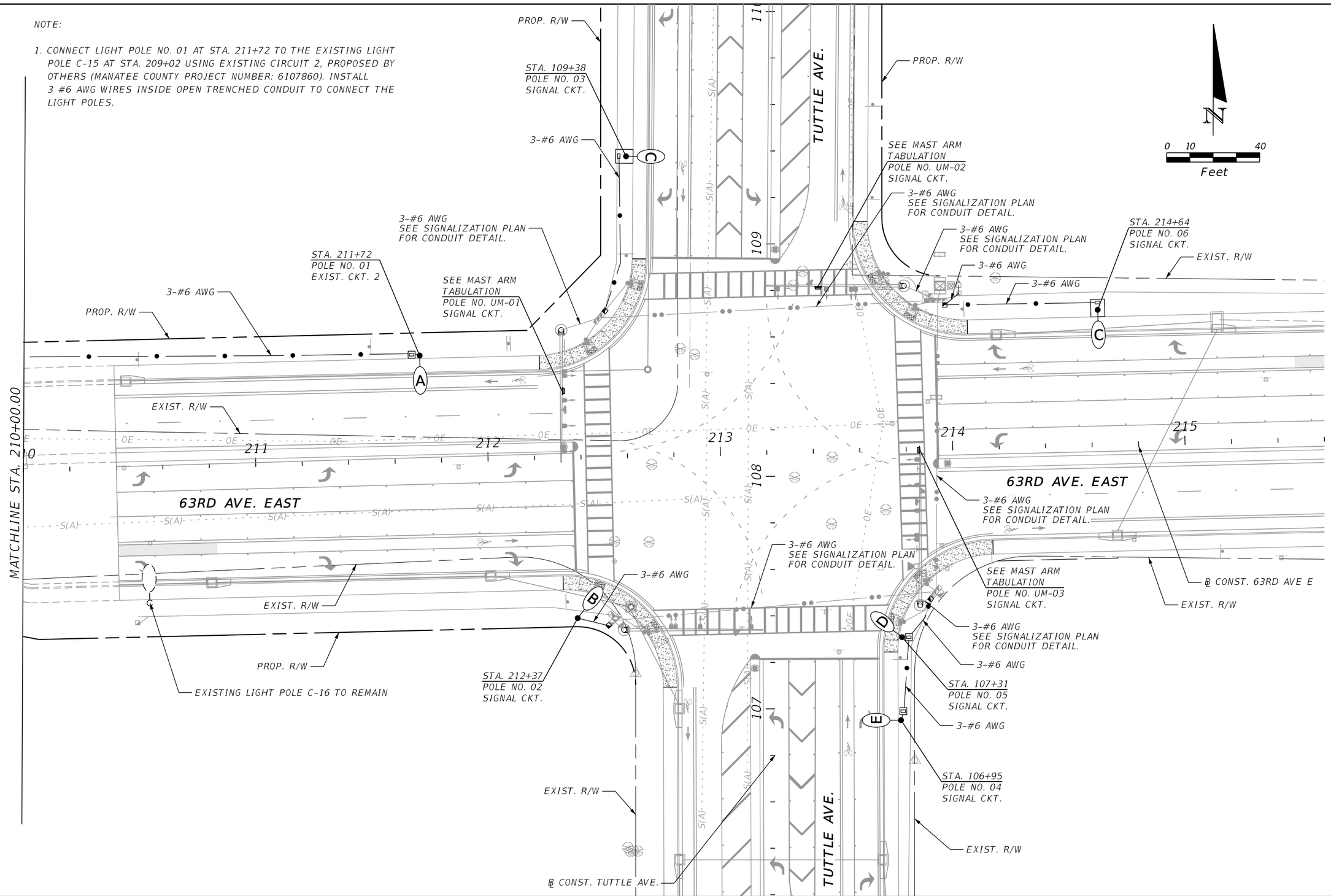


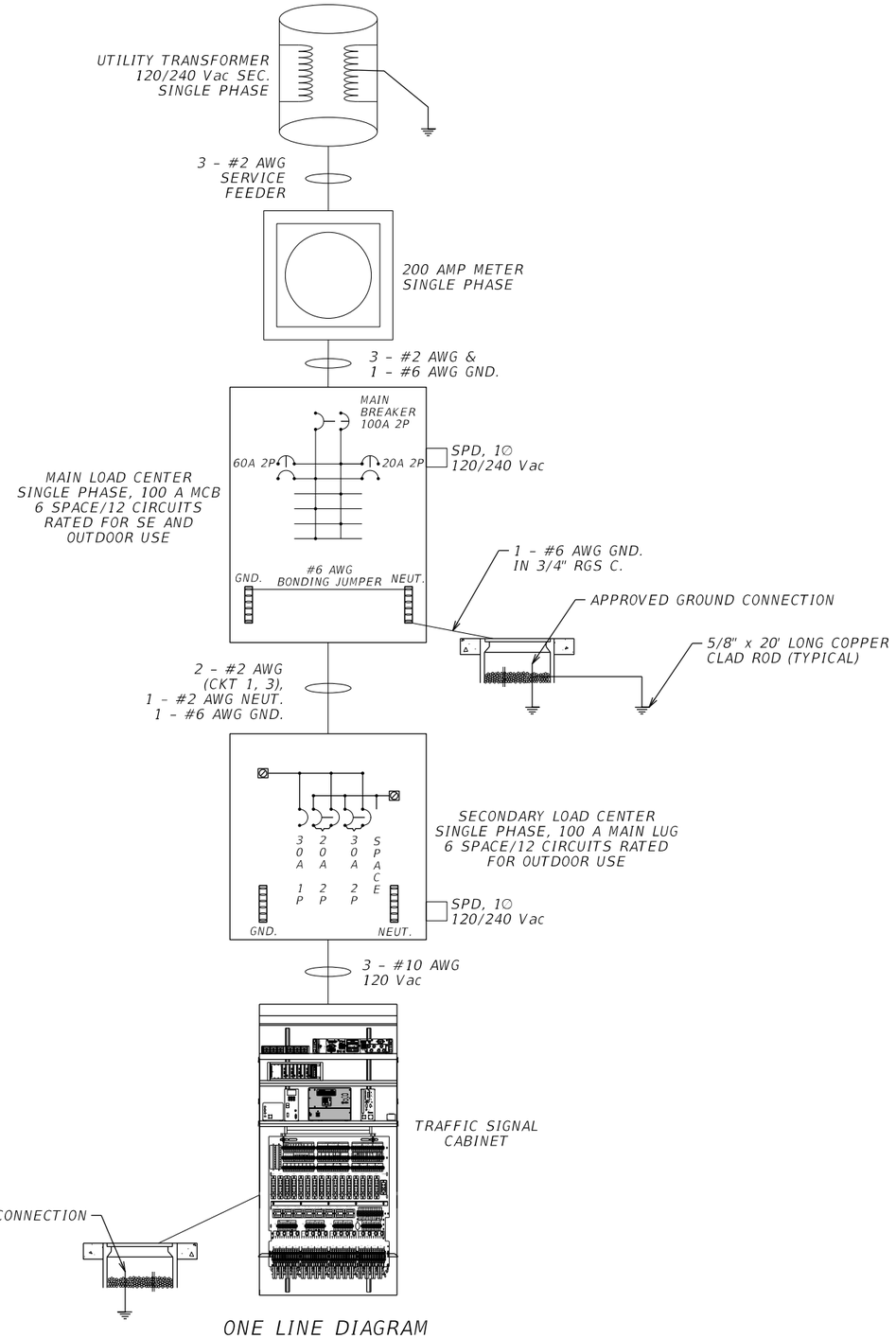
				SCALE	AS NOTED	HDR Engineering, Inc. 401 N Cattlemen Road Suite 210 Sarasota, FL 34232-6441	DATE 12/2023	MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER BIJAN BEHZADI	LIGHTING PLAN (2)	SHEET NO. T-36
				DESIGNED BY	BB		PROJECT NO. 6065961		FL. LICENSE NO. 43868		
				DRAWN BY	SM						
				CHECKED BY	MO						
No.	REVISIONS	DATE	BY								

3:07:44 PM 12/8/2023 PW:\

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

REFERENCE NOTE:

1. WORK THIS SHEET WITH PAY ITEM NOTE 639-1-122.



ONE LINE DIAGRAM

No.	REVISIONS	DATE	BY

3:07:59 PM 12/8/2023 PW:\

SCALE: AS NOTED
DESIGNED BY: BB
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HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

ELECTRICAL ONE LINE DIAGRAM

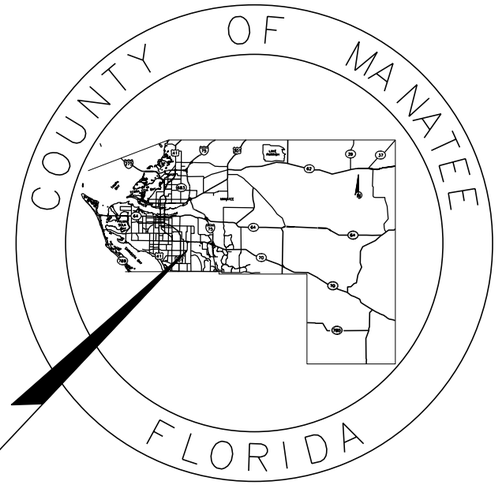
SHEET NO.: T-37

MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

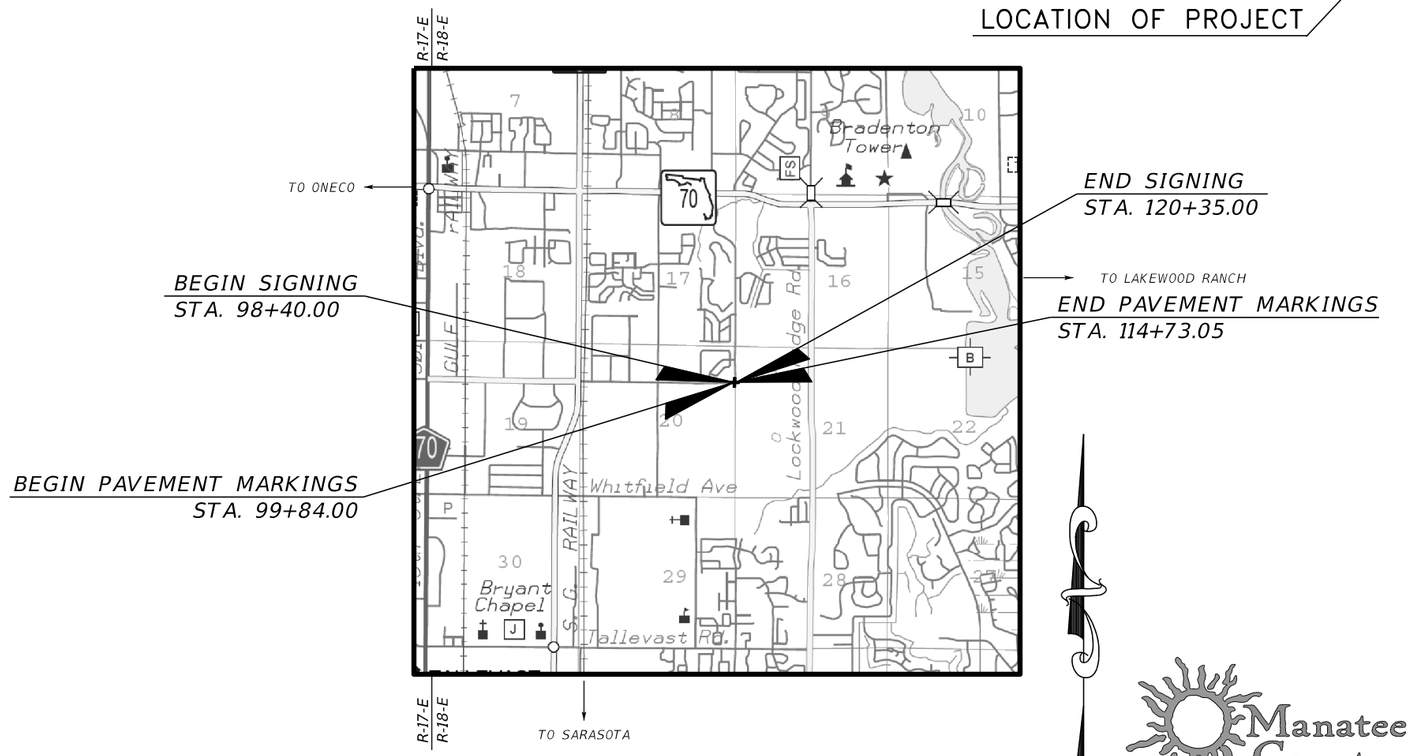
CONTRACT PLANS

INDEX OF SIGNING AND PAVEMENT MARKING PLANS

MANATEE COUNTY
PROJECT NUMBER # 6065961
TUTTLE AVENUE AT 63RD AVENUE EAST (HONORE AVE)
INTERSECTION IMPROVEMENTS
SIGNING AND PAVEMENT MARKING PLANS



LOCATION OF PROJECT



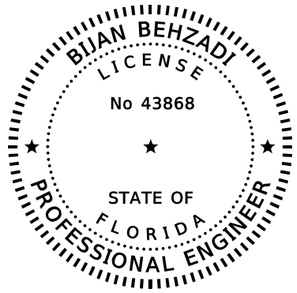
90% SUBMITTAL
12/2023

SIGNING AND PAVEMENT MARKING PLANS ENGINEER OF RECORD:

BIJAN BEHZADI, P.E.
P.E. NO.: 43868
HDR ENGINEERING, INC.
401 N CATTLEMEN ROAD, SUITE 210
SARASOTA, FLORIDA 34232
VENDOR NO. 47-0680568

MANATEE CO. PROJECT MANAGER:
ANTHONY RUSSO, P.E.

FISCAL YEAR	SHEET NO.
23	S-1



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

ON THE DATE ADJACENT TO THIS 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.
401 N CATTLEMEN ROAD, SUITE 210
SARASOTA, FLORIDA 34232-6441
BIJAN BEHZADI, P.E. NO. 43868

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
S-1	KEY SHEET
S-2	SIGNATURE SHEET
S-3 - S-4	TABULATION OF QUANTITIES
S-5	GENERAL NOTES
S-6 - S-13	SIGNING AND PAVEMENT MARKING PLANS
S-14	GUIDE SIGN WORKSHEET

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
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HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SIGNATURE SHEET

SHEET NO.: S-2

2:56:09 PM 12/8/2023 PW:\

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS														TOTAL THIS SHEET		GRAND TOTAL	
			S-6		S-7		S-8		S-9		S-10		S-11		S-12					
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL
700-1-11	SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	AS			4		9		6		1		2		1		23			
700-1-50	SINGLE POST SIGN, RELOCATE	AS			1		2										3			
700-1-60	SINGLE POST SIGN, REMOVE	AS							1						1		2			
700-1-74	SINGLE POST SIGN, F&I CUSTOM, 31+ SF	AS	1								1						2			
700-3-101	SIGN PANEL, FURNISH & INSTALL GROUND MOUNT, UP TO 12 SF	EA					2								4		6			
700-13-15	RETROREFLECTIVE SIGN STRIP, FURNISH AND INSTALL, 5'	EA							1								1			
704-1-2	TUBULAR MARKER, DURABLE, 36" YELLOW POST	EA					4								1		5			
705-10-1	OBJECT MARKER, TYPE 1	EA			2				1								3			
706-1-3	RAISED PAVEMENT MARKER, TYPE B	EA																		
	(WHITE/RED)				9		130		21				27		45		232			
	(YELLOW/YELLOW)				11		22		56								89			
	(MONO-DIRECTIONAL YELLOW)				23				30								53			
710-11-290	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, ISLAND NOSE	SF			14		25		18						6		63			
710-90	PAINTED PAVEMENT MARKINGS, FINAL SURFACE	LS																		
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID, 6"	GM			0.248		0.768		0.235				0.182		0.386		1.819			
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR URBAN ISLAND, 8"	GM					0.145		0.014								0.159			
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR CROSSWALK AND ROUNDABOUT, 12"	LF			123		786										909			
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR DIAGONAL OR CHEVRON, 18"	LF					347		54								401			
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR STOP LINE, 24"	LF			19		205										224			
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SKIP, 10-30 OR 3-9 SKIP, 6" WIDE	GM					0.046						0.023		0.171		0.240			
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, 2-4 DOTTED GUIDELINE/6-10 DOTTED EXTENSION, 6"	GM			0.052		0.010		0.039						0.043		0.144			
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, ARROWS	EA																		
	RIGHT						9						2		1		12			
	LEFT				3		8		4				2		3		20			
*	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, SOLID FOR DIAGONAL OR CHEVRON, 18"	LF			157		351		199								707			
*	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, 2-4 DOTTED GUIDELINE/6-10 DOTTED EXTENSION, 6"	GM			0.036		0.075								0.036		0.147			
*	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, SOLID, 6"	GM			0.157		0.233		0.240				0.045		0.145		0.820			
711-11-102	THERMOPLASTIC, STANDARD, WHITE, SOLID, 8" FOR INTERCHANGE AND URBAN ISLAND	GM					0.145		0.014								0.159			
711-11-123	THERMOPLASTIC, STANDARD, WHITE, SOLID, 12" FOR CROSSWALK AND ROUNDABOUT	LF			123		786										909			
711-11-124	THERMOPLASTIC, STANDARD, WHITE, SOLID, 18" FOR DIAGONALS AND CHEVRONS	LF					347		54								401			
711-11-125	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24" FOR STOP LINE	LF			19		205										224			
711-11-141	THERMOPLASTIC, STANDARD, WHITE, 2-4 DOTTED GUIDE LINE/6-10 DOTTED EXTENSION LINE, 6"	GM			0.052		0.010		0.039						0.043		0.144			
711-11-170	THERMOPLASTIC, STANDARD, WHITE, ARROW	EA																		
	RIGHT						9						2		1		12			
	LEFT				3		8		4				2		3		20			
711-11-224	THERMOPLASTIC, STANDARD, YELLOW, SOLID, 18" FOR DIAGONAL OR CHEVRON	LF			157		351		199								707			
711-11-241	THERMOPLASTIC, STANDARD, YELLOW, 2-4 DOTTED GUIDE LINE /6-10 DOTTED EXTENSION LINE, 6"	GM			0.036		0.075								0.036		0.147			
711-14-125	THERMOPLASTIC, PREFORMED, WHITE, SOLID, 24" FOR CROSSWALK	LF					715										715			
711-14-160	THERMOPLASTIC, PREFORMED, WHITE, MESSAGE (BIKE)	EA			2		8								2		12			
711-14-170	THERMOPLASTIC, PREFORMED, WHITE, ARROW (BIKE ARROW)	EA			2		8								2		12			
711-16-101	THERMOPLASTIC, STANDARD-OTHER SURFACES, WHITE, SOLID, 6"	GM			0.248		0.768		0.235				0.182		0.386		1.819			
711-16-131	THERMOPLASTIC, OTHER SURFACES, WHITE, SKIP, 6",10-30 SKIP OR 3-9 LANE DROP	GM					0.046						0.023		0.171		0.240			
711-16-201	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SOLID, 6"	GM			0.157		0.233		0.240				0.045		0.145		0.820			
920-714-100	GREEN COLORED PAVEMENT MARKINGS, BIKE LANE	SF			340		558		234				204		630		1966			

* THESE QUANTITIES ARE PAID FOR UNDER PAINTED PAVEMENT MARKINGS (FINAL SURFACE), LUMP SUM ITEM NO. 710-90. THE QUANTITIES SHOWN ARE FOR ONE APPLICATION: SEE SPECIFICATION 710 FOR THE NUMBER OF APPLICATIONS REQUIRED.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

TABULATION OF QUANTITIES (1)

SHEET NO.: S-3

2:56:19 PM 12/8/2023 PW:\

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS S-13 PLAN	S-13 FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	TOTAL THIS SHEET PLAN	TOTAL THIS SHEET FINAL	GRAND TOTAL PLAN	GRAND TOTAL FINAL
700-1-11	SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	AS																	23	
700-1-50	SINGLE POST SIGN, RELOCATE	AS																	3	
700-1-60	SINGLE POST SIGN, REMOVE	AS																	2	
700-1-74	SINGLE POST SIGN, F&I CUSTOM, 31+ SF	AS	1														1		3	
700-3-101	SIGN PANEL, FURNISH & INSTALL GROUND MOUNT, UP TO 12 SF	EA																	6	
700-13-15	RETROREFLECTIVE SIGN STRIP, FURNISH AND INSTALL, 5'	EA																	1	
704-1-2	TUBULAR MARKER, DURABLE, 36" YELLOW POST	EA																	5	
705-10-1	OBJECT MARKER, TYPE 1	EA																	3	
706-1-3	RAISED PAVEMENT MARKER, TYPE B	EA																	374	
	(WHITE/RED)																			
	(YELLOW/YELLOW)																			
	(MONO-DIRECTIONAL YELLOW)																			
710-11-290	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, ISLAND NOSE	SF																	63	
710-90	PAINTED PAVEMENT MARKINGS, FINAL SURFACE	LS	1														1		1	
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID, 6"	GM																	1.819	
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR URBAN ISLAND, 8"	GM																	0.159	
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR CROSSWALK AND ROUNDABOUT, 12"	LF																	909	
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR DIAGONAL OR CHEVRON, 18"	LF																	401	
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR STOP LINE, 24"	LF																	224	
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SKIP, 10-30 OR 3-9 SKIP, 6" WIDE	GM																	0.240	
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, 2-4 DOTTED GUIDELINE/6-10 DOTTED EXTENSION, 6"	GM																	0.144	
*	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, ARROWS	EA																	32	
	RIGHT																			
	LEFT																			
*	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, SOLID FOR DIAGONAL OR CHEVRON, 18"	LF																	707	
*	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, 2-4 DOTTED GUIDELINE/6-10 DOTTED EXTENSION, 6"	GM																	0.147	
*	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, SOLID, 6"	GM																	0.820	
711-11-102	THERMOPLASTIC, STANDARD, WHITE, SOLID, 8" FOR INTERCHANGE AND URBAN ISLAND	GM																	0.159	
711-11-123	THERMOPLASTIC, STANDARD, WHITE, SOLID, 12" FOR CROSSWALK AND ROUNDABOUT	LF																	909	
711-11-124	THERMOPLASTIC, STANDARD, WHITE, SOLID, 18" FOR DIAGONALS AND CHEVRONS	LF																	401	
711-11-125	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24" FOR STOP LINE	LF																	224	
711-11-141	THERMOPLASTIC, STANDARD, WHITE, 2-4 DOTTED GUIDE LINE/6-10 DOTTED EXTENSION LINE, 6"	GM																	0.144	
711-11-170	THERMOPLASTIC, STANDARD, WHITE, ARROW	EA																	32	
	RIGHT																			
	LEFT																			
711-11-224	THERMOPLASTIC, STANDARD, YELLOW, SOLID, 18" FOR DIAGONAL OR CHEVRON	LF																	707	
711-11-241	THERMOPLASTIC, STANDARD, YELLOW, 2-4 DOTTED GUIDE LINE /6-10 DOTTED EXTENSION LINE, 6"	GM																	0.147	
711-14-125	THERMOPLASTIC, PREFORMED, WHITE, SOLID, 24" FOR CROSSWALK	LF																	715	
711-14-160	THERMOPLASTIC, PREFORMED, WHITE, MESSAGE (BIKE)	EA																	12	
711-14-170	THERMOPLASTIC, PREFORMED, WHITE, ARROW (BIKE ARROW)	EA																	12	
711-16-101	THERMOPLASTIC, STANDARD-OTHER SURFACES, WHITE, SOLID, 6"	GM																	1.819	
711-16-131	THERMOPLASTIC, OTHER SURFACES, WHITE, SKIP, 6",10-30 SKIP OR 3-9 LANE DROP	GM																	0.240	
711-16-201	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SOLID, 6"	GM																	0.820	
920-714-100	GREEN COLORED PAVEMENT MARKINGS, BIKE LANE	SF																	1966	

* THESE QUANTITIES ARE PAID FOR UNDER PAINTED PAVEMENT MARKINGS (FINAL SURFACE), LUMP SUM ITEM NO. 710-90. THE QUANTITIES SHOWN ARE FOR ONE APPLICATION: SEE SPECIFICATION 710 FOR THE NUMBER OF APPLICATIONS REQUIRED.

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

TABULATION OF QUANTITIES (2)

SHEET NO.: S-4

2:56:20 PM 12/8/2023 PW:\

SIGNING AND PAVEMENT MARKING GENERAL NOTES:

1. ALL PAVEMENT MARKINGS WITHIN THE MANATEE COUNTY RIGHT-OF-WAY SHALL BE THERMOPLASTIC.

2. REFER TO F.D.O.T. STANDARD PLANS INDEX NO. 706-001 FOR RETRO-REFLECTIVE PAVEMENT MARKER PLACEMENT DETAILS.

3. CAUTION SHALL BE EXERCISED WHILE RELOCATING EXISTING SIGNS SO AS TO PREVENT DAMAGE TO THE SIGNS. IF THE SIGNS ARE DAMAGED BEYOND USE, AS DETERMINED BY THE ENGINEER, THEY SHALL BE REPLACED BY THE CONTRACTOR AT THEIR EXPENSE.

4. THE SIGN LOCATIONS ARE APPROXIMATE AND MAY REQUIRE FIELD ADJUSTMENT AS DIRECTED BY THE ENGINEER.

5. ANY EXISTING SIGN TO REMAIN THAT IS DISTURBED DURING CONSTRUCTION OR RELOCATED SHALL BE RESET TO CURRENT STANDARDS FOR HEIGHT, OFFSET, AND METHOD OF INSTALLATION. COST OF THIS WORK SHALL BE REFLECTED IN THE PAY ITEM NO. 102-1 IN THE SUMMARY OF ROADWAY PAY ITEMS.

6. ALL COLUMNS (POSTS) FOR SINGLE COLUMN SIGNS SHALL BE U-CHANNEL POST, UNLESS OTHERWISE INDICATED IN THE PLANS.

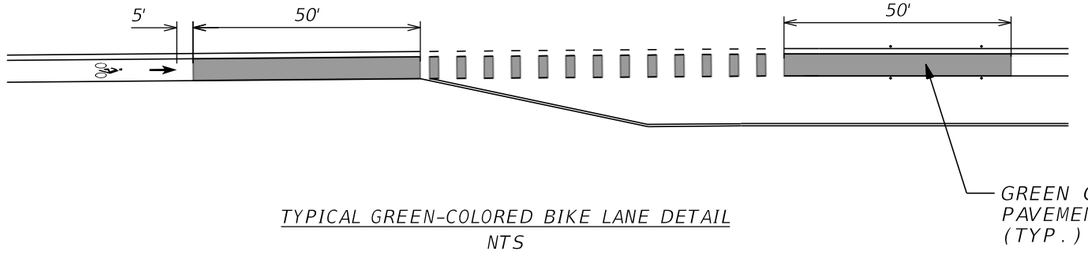
7. ALL SINGLE COLUMN SIGNS WITHIN THE LIMITS OF CLEARING AND GRUBBING SHALL BE REMOVED UNLESS OTHERWISE NOTED IN THE PLANS. PAYMENT SHALL BE REFLECTED IN THE PAY ITEM NO. 110-1-1 IN THE SUMMARY OF ROADWAY PAY ITEMS.

8. AT LOCATIONS WHERE UNDERGROUND UTILITIES ARE IN CLOSE PROXIMITY TO SIGN FOUNDATIONS AS DETERMINED BY THE CONTRACTOR, THE CONTRACTOR SHALL HAND DIG THE FIRST FOUR FEET OF THE HOLE FOR THE MULTI POST OR SINGLE COLUMN CANTILEVER SIGN FOUNDATIONS.

9. UNLESS OTHERWISE NOTED ON PLAN SHEETS, ALL CROSSWALKS SHALL BE TEN FEET (10') IN WIDTH. MEASUREMENTS SHALL BE FROM INSIDE TO INSIDE OF 12" STRIPES.

10. MATCH ALL EXISTING PAVEMENT MARKINGS AT THE MILLING LIMITS.

11. ALL OF THE SIGNING AND PAVEMENT MARKINGS SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE MUTCD, FDOT DESIGN STANDARDS AND THE MANATEE COUNTY PUBLIC WORKS DEPARTMENT HIGHWAY, TRAFFIC AND STORMWATER STANDARDS.



TYPICAL GREEN-COLORED BIKE LANE DETAIL
NTS

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

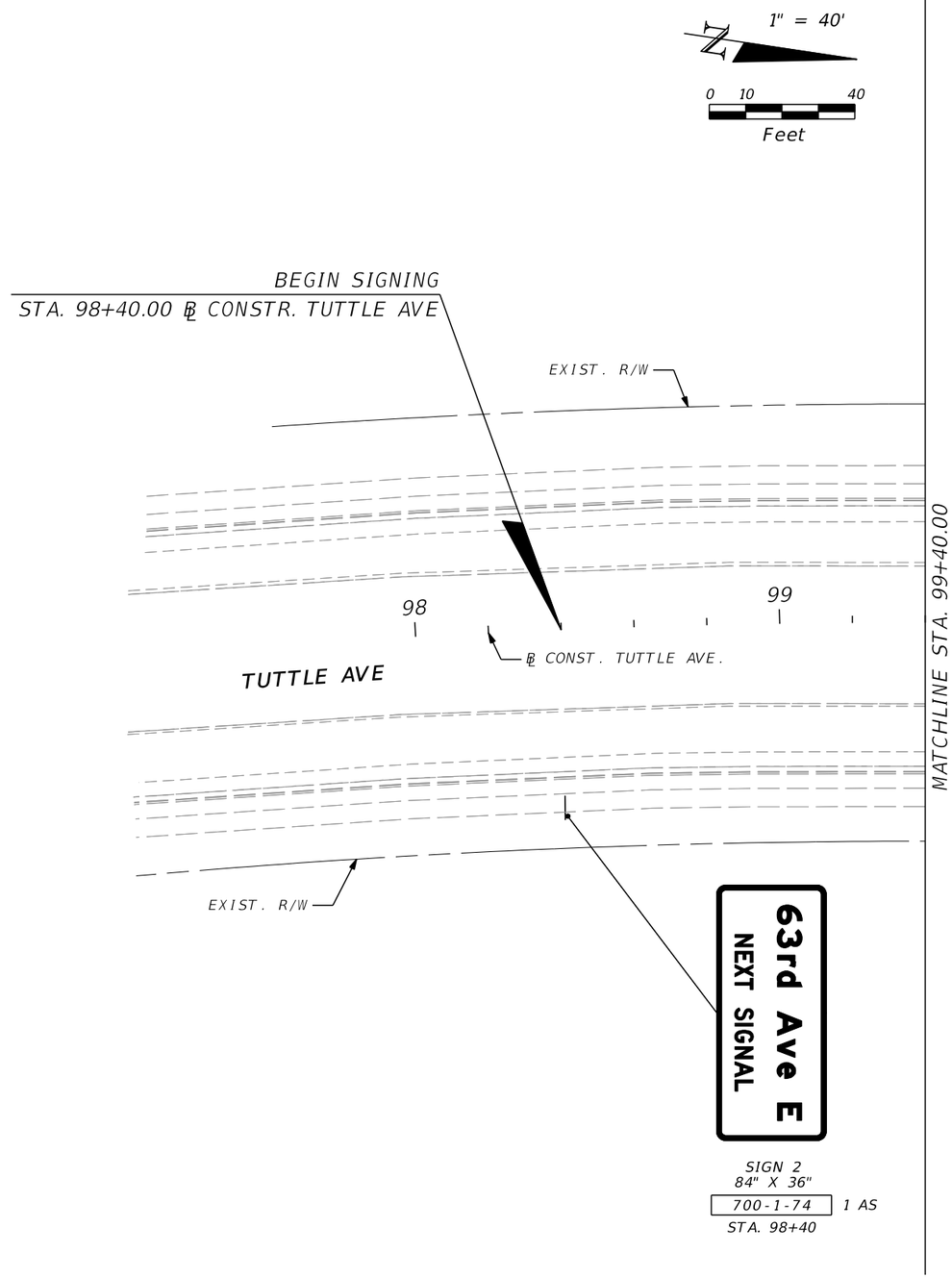
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

GENERAL NOTES

SHEET NO.: S-5

2:56:30 PM 12/8/2023 PW:\



No.	REVISIONS	DATE	BY

2:56:42 PM 12/8/2023 PW:\

SCALE: AS NOTED
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HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

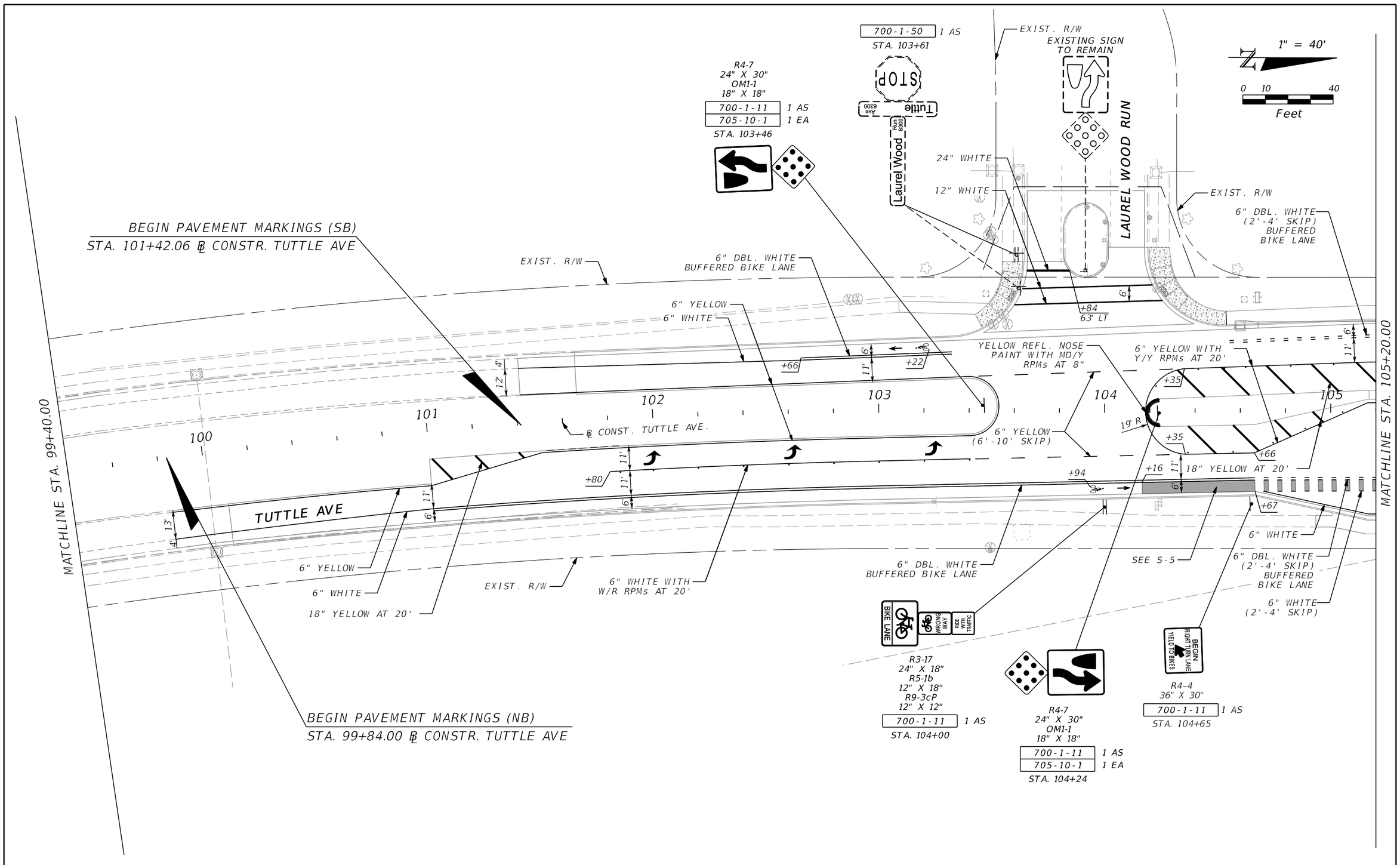
DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SIGNING AND PAVEMENT MARKING PLANS (1)

SHEET NO.: S-6



No.	REVISIONS	DATE	BY

2:56:53 PM 12/8/2023 PW:\

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

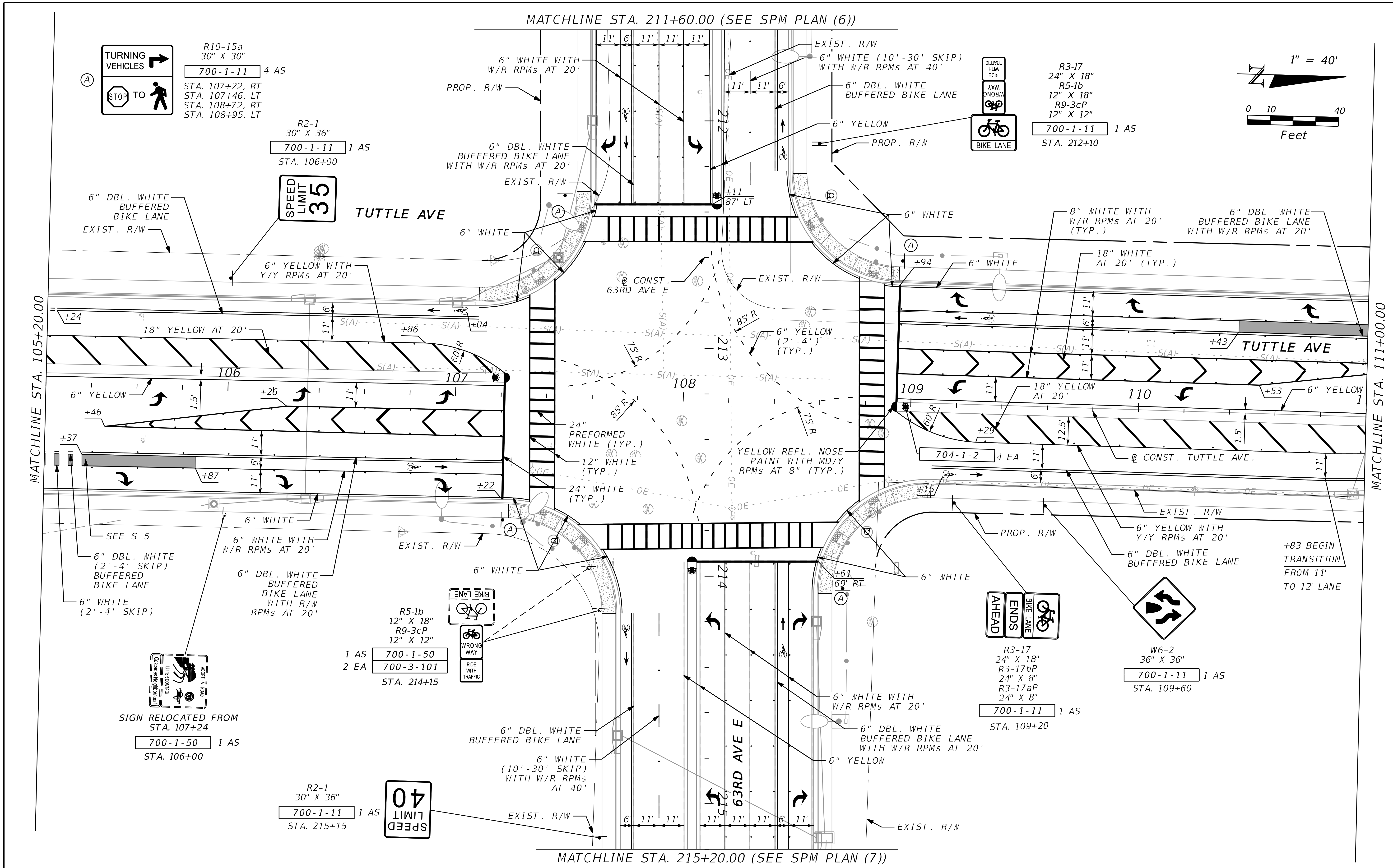
Manatee County FLORIDA
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SIGNING AND PAVEMENT MARKING PLANS (2)

SHEET NO.: S-7

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


MATCHLINE STA. 211+60.00 (SEE SPM PLAN (6))
MATCHLINE STA. 215+20.00 (SEE SPM PLAN (7))
MATCHLINE STA. 105+20.00
MATCHLINE STA. 111+00.00
TUTTLE AVE
63RD AVE E
1" = 40'
0 10 40
Feet
R10-15a
30" X 30"
700-1-11 4 AS
STA. 107+22, RT
STA. 107+46, LT
STA. 108+72, RT
STA. 108+95, LT
TURNING VEHICLES
STOP TO
R2-1
30" X 36"
700-1-11 1 AS
STA. 106+00
SPEED LIMIT 35
R3-17
24" X 18"
R5-1b
12" X 18"
R9-3cP
12" X 12"
700-1-11 1 AS
STA. 212+10
BIKE LANE
6" WHITE WITH W/R RPMs AT 20'
PROP. R/W
EXIST. R/W
6" WHITE (10'-30' SKIP) WITH W/R RPMs AT 40'
6" DBL. WHITE BUFFERED BIKE LANE
6" YELLOW
6" DBL. WHITE BUFFERED BIKE LANE WITH W/R RPMs AT 20'
6" DBL. WHITE BUFFERED BIKE LANE
6" WHITE
+11 87' LT
8" WHITE WITH W/R RPMs AT 20' (TYP.)
6" DBL. WHITE BUFFERED BIKE LANE WITH W/R RPMs AT 20'
6" YELLOW WITH Y/Y RPMs AT 20'
℄ CONST. 63RD AVE E
18" WHITE AT 20' (TYP.)
+94
18" YELLOW AT 20'
6" YELLOW (2'-4') (TYP.)
85' R
75' R
60' R
+43
+86
+04
+24
106
107
108
109
110
+26
+46
+37
+87
+22
+53
+29
1.5'
11'
6'
12.5'
24" PREFORMED WHITE (TYP.)
12" WHITE (TYP.)
24" WHITE (TYP.)
YELLOW REFL. NOSE PAINT WITH MD/Y RPMs AT 8" (TYP.)
704-1-2 4 EA
℄ CONST. TUTTLE AVE.
+15
6" YELLOW WITH Y/Y RPMs AT 20'
6" DBL. WHITE BUFFERED BIKE LANE
+83 BEGIN TRANSITION FROM 11' TO 12' LANE
SEE S-5
6" DBL. WHITE (2'-4' SKIP) BUFFERED BIKE LANE
6" WHITE (2'-4' SKIP)
6" WHITE WITH W/R RPMs AT 20'
6" DBL. WHITE BUFFERED BIKE LANE WITH R/W RPMs AT 20'
+61 69' RT
R5-1b
12" X 18"
R9-3cP
12" X 12"
1 AS 700-1-50
2 EA 700-3-101
STA. 214+15
WRONG WAY
RIDE WITH TRAFFIC
AHEAD
ENDS
BIKE LANE
R3-17
24" X 18"
R3-17bP
24" X 8"
R3-17aP
24" X 8"
700-1-11 1 AS
STA. 109+20
W6-2
36" X 36"
700-1-11 1 AS
STA. 109+60
SIGN RELOCATED FROM STA. 107+24
700-1-50 1 AS
STA. 106+00
6" WHITE (10'-30' SKIP) WITH W/R RPMs AT 40'
R2-1
30" X 36"
700-1-11 1 AS
STA. 215+15
SPEED LIMIT 40
212
213
214
215

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No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO. 6065961

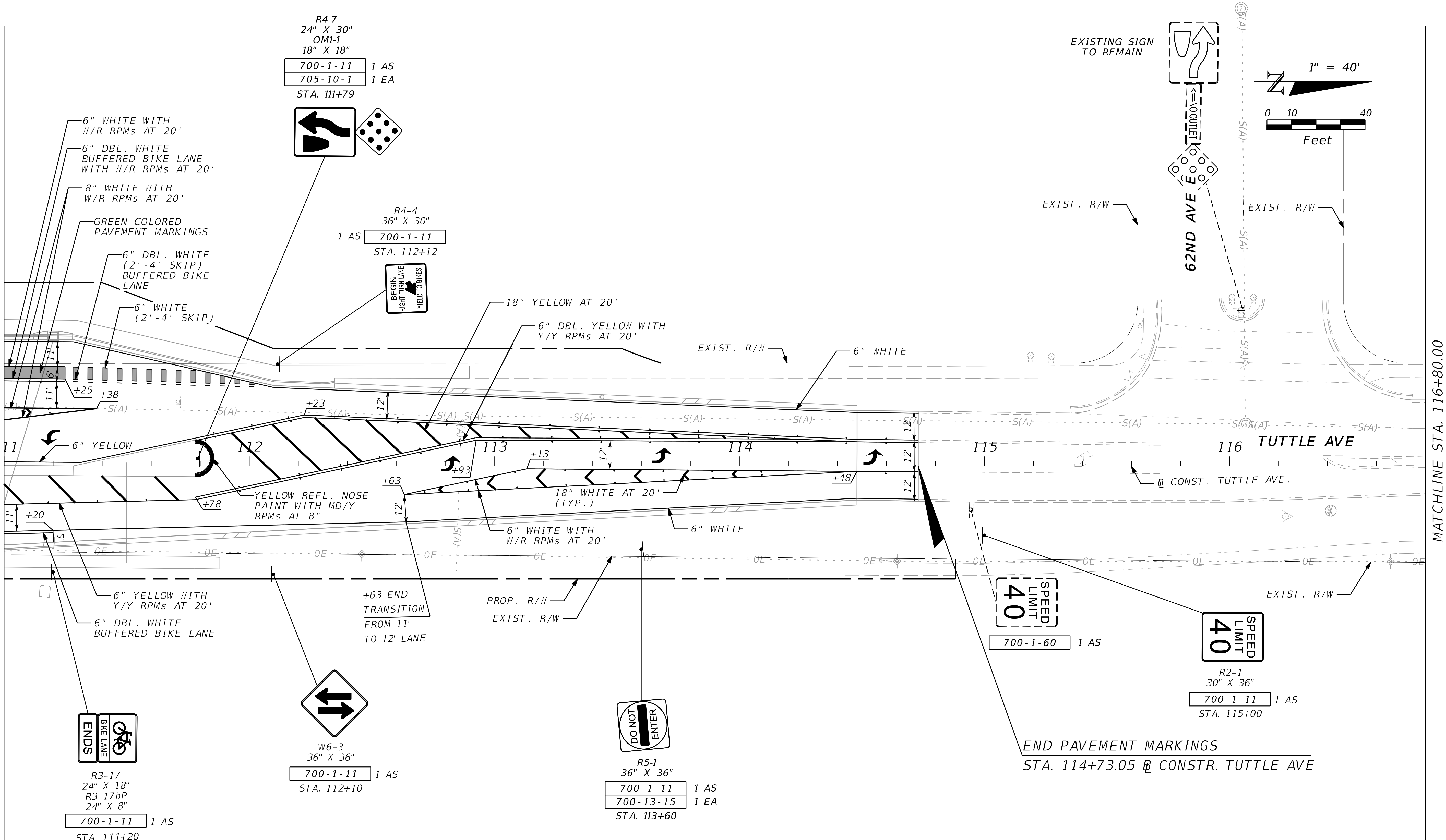
Manatee County FLORIDA
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO. 43868

SIGNING AND PAVEMENT MARKING PLANS (3)

SHEET NO. S-8

2:57:05 PM 12/8/2023 PW:\



R4-7
24" X 30"
OM1-1
18" X 18"
700-1-11 1 AS
705-10-1 1 EA
STA. 111+79
6" WHITE WITH W/R RPMs AT 20'
6" DBL. WHITE BUFFERED BIKE LANE WITH W/R RPMs AT 20'
8" WHITE WITH W/R RPMs AT 20'
GREEN COLORED PAVEMENT MARKINGS
6" DBL. WHITE (2'-4' SKIP) BUFFERED BIKE LANE
6" WHITE (2'-4' SKIP)
R4-4
36" X 30"
1 AS 700-1-11
STA. 112+12
BEGIN RIGHT TURN LANE YIELD TO BIKES
18" YELLOW AT 20'
6" DBL. YELLOW WITH Y/Y RPMs AT 20'
EXIST. R/W
6" WHITE
EXISTING SIGN TO REMAIN
NO OUTLET
62ND AVE E
1" = 40'
0 10 40
Feet
MATCHLINE STA. 111+00.00
MATCHLINE STA. 116+80.00
6" YELLOW
YELLOW REFL. NOSE PAINT WITH MD/Y RPMs AT 8"
18" WHITE AT 20' (TYP.)
TUTTLE AVE
℄ CONST. TUTTLE AVE.
6" WHITE WITH W/R RPMs AT 20'
6" WHITE
6" YELLOW WITH Y/Y RPMs AT 20'
6" DBL. WHITE BUFFERED BIKE LANE
+63 END TRANSITION FROM 11' TO 12' LANE
PROP. R/W
EXIST. R/W
SPEED LIMIT 40
700-1-60 1 AS
R2-1
30" X 36"
700-1-11 1 AS
STA. 115+00
BIKE LANE ENDS
R3-17
24" X 18"
R3-17bP
24" X 8"
700-1-11 1 AS
STA. 111+20
W6-3
36" X 36"
700-1-11 1 AS
STA. 112+10
DO NOT ENTER
R5-1
36" X 36"
700-1-11 1 AS
700-13-15 1 EA
STA. 113+60
END PAVEMENT MARKINGS
STA. 114+73.05 ℄ CONSTR. TUTTLE AVE

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

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO. 6065961

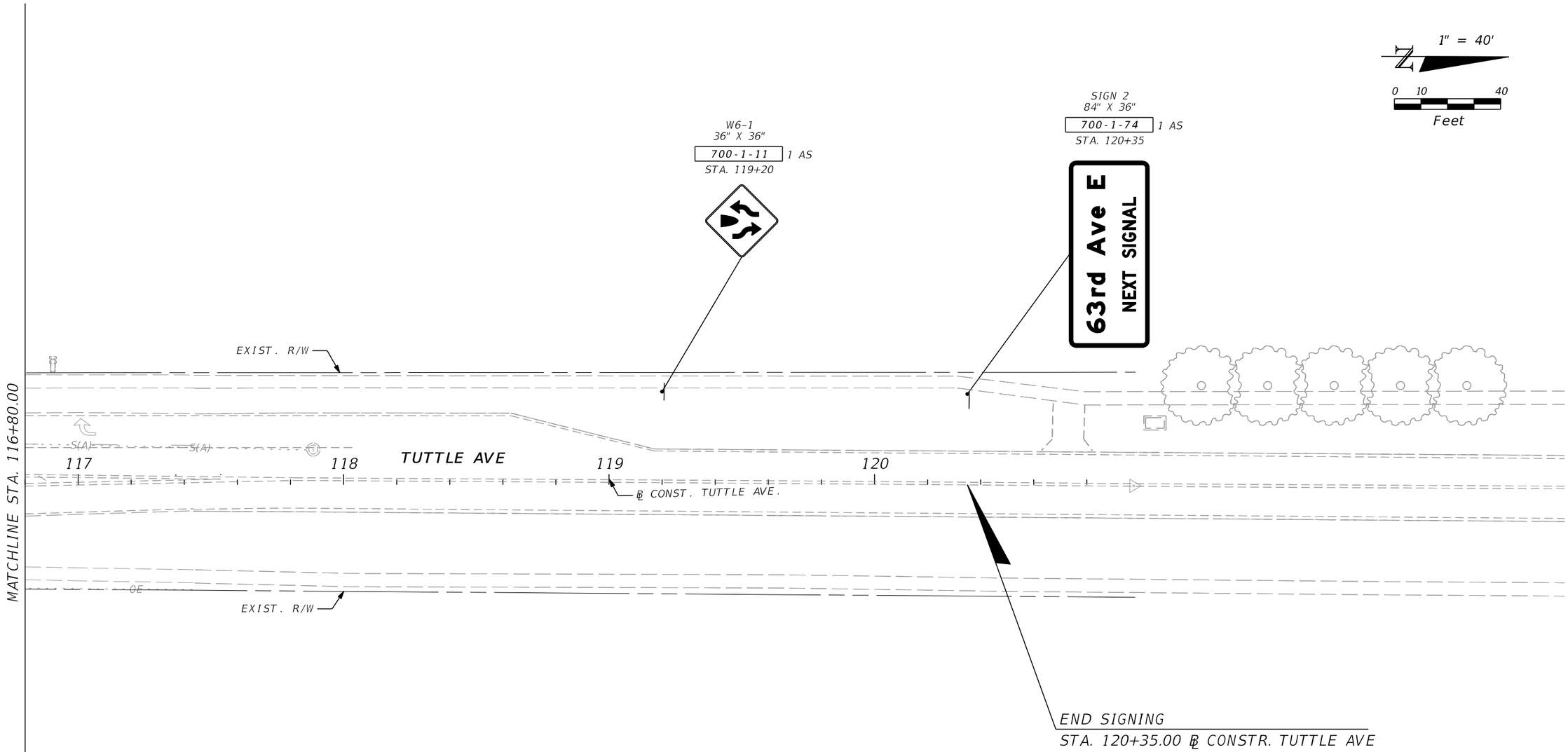
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO. 43868

SIGNING AND PAVEMENT MARKING PLANS (4)

SHEET NO. S-9

2:57:16 PM 12/8/2023 PW:\



No.	REVISIONS	DATE	BY

2:57:27 PM 12/8/2023

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO
PW:\

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

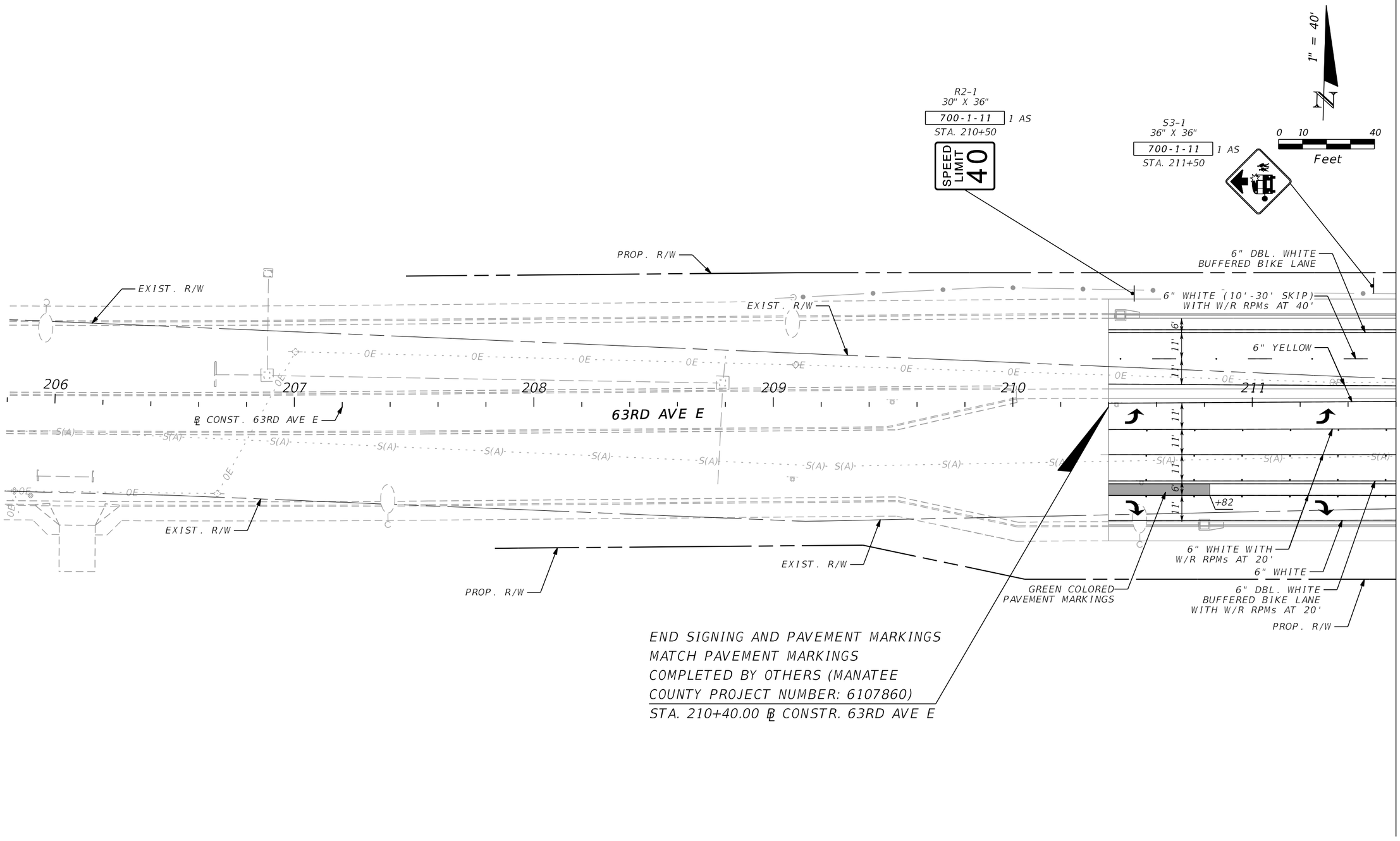
DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SIGNING AND PAVEMENT MARKING PLANS (5)

SHEET NO.: S-10



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No.	REVISIONS	DATE	BY

2:57:38 PM 12/8/2023 PW:\

SCALE: AS NOTED
DESIGNED BY: BB
DRAWN BY: SM
CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

Manatee County FLORIDA
MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SIGNING AND PAVEMENT MARKING PLANS (6)

SHEET NO.: S-11

MATCHLINE STA. 215+20.00 (SEE SPM PLAN (3))

EXISTING SIGN TO REMAIN
STOP
63RD AVE E (Saunders rd)

EXIST. R/W

41st ST EAST

R4-4
36" X 30"
700-1-11 1 AS
STA. 216+80

BEGIN RIGHT TURN LANE YIELD TO BIKES

R5-1b
12" X 18"
R9-3cP
12" X 12"
2 EA 700-3-101
STA. 217+78

RIDE WITH TRAFFIC
WRONG WAY
BIKE LANE

6" DBL. WHITE BUFFERED BIKE LANE WITH W/R RPMs AT 20'
6" WHITE WITH W/R RPMs AT 20'
6" WHITE
6" WHITE (2'-4' SKIP)
6" DBL. WHITE (2'-4' SKIP) BUFFERED BIKE LANE
6" DBL. WHITE BUFFERED BIKE LANE
SEE S-5

6" WHITE (10'-30' SKIP) WITH W/R RPMs AT 40'

41ST ST E

END PAVEMENT MARKINGS (WB)
STA. 219+37.49 ℄ CONSTR. 63RD AVE E

1" = 40'
0 10 40
Feet

+48 +98 +78 +28 +51 +94 +98 +14 +66

11' 6' 11' 11' 11' 11' 11' 6'

12' 4' 12' 12' 4'

216 217 218 219 220

℄ CONSTR. 63RD AVE E

704-1-2 1 EA

63RD AVE E

6" YELLOW
6" WHITE (10'-30' SKIP) WITH W/R RPMs AT 40'
EXIST. R/W
6" WHITE WITH W/R RPMs AT 20'
6" DBL. WHITE BUFFERED BIKE LANE
6" YELLOW (6'-10' SKIP)
YELLOW REFL. NOSE PAINT
6" YELLOW

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REMOVE POST OF MISSING W6-1 SIGN

EXISTING SIGN TO REMAIN

R5-1b
12" X 18"
R9-3cP
12" X 12"
2 EA 700-3-101
STA. 220+72

END PAVEMENT MARKINGS (EB)
STA. 220+84.23 ℄ CONSTR. 63RD AVE E

MATCHLINE STA. 221+00.00

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CHECKED BY: MO

HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE: 12/2023
PROJECT NO.: 6065961

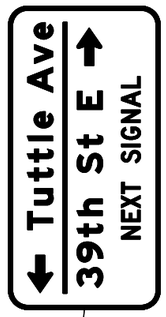
Manatee County FLORIDA
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SIGNING AND PAVEMENT MARKING PLANS (7)

SHEET NO.: S-12

SIGN 1
96" X 48"
700-1-74 1 AS
STA. 223+50



END SIGNING
STA. 223+50.00 ℄ CONSTR. 63RD AVE E

1" = 40'

0 10 40
Feet

EXIST. R/W

MATCHLINE STA. 221+00.00

221 222 223 224

℄ CONST. 63RD AVE E

63RD AVE E

EXIST. R/W

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DATE: 12/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: BIJAN BEHZADI
FL. LICENSE NO.: 43868

SIGNING AND PAVEMENT MARKING PLANS (8)

SHEET NO.: S-13

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COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT
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AR_Type D	270	77.2	18.3	8	12

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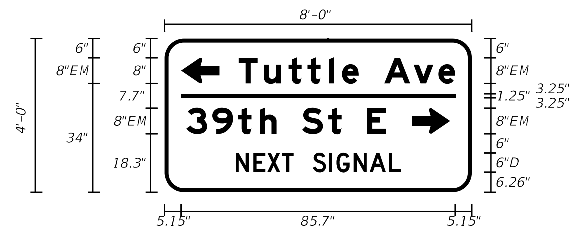

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SPACE	6.8	8.1	8.1	6.7	5.3	8	8.2	4.2	8	5.9	26.8	62.4		
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PANEL		BORDER			98+40
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HEIGHT	3'-0"	RADII	6"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

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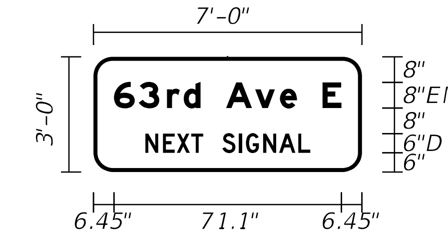

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SPACE	16.2	5.5	4.3	4.6	3.7	6	5.1	2.3	5.4	5	6	3.7	16.2	51.6
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HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6441

DATE 12/2023
PROJECT NO. 6065961

Manatee County FLORIDA
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER BIJAN BEHZADI
FL. LICENSE NO. 43868

GUIDE SIGN WORKSHEET

SHEET NO. S-14

Drainage Memorandum

Tuttle Avenue at 63rd Avenue East

Intersection Improvements

Manatee County, Florida
July 2023

For:
Manatee County Government
Public Works Department
1022 26th Avenue East
Bradenton, FL, 34205

By:
HDR Engineering Inc.
4830 W. Kennedy Blvd., Suite 400
Tampa, FL, 33609

Tuttle Avenue at 63rd Avenue East Intersection Improvements Drainage Technical Memorandum

Prepared For:

Manatee County Government
Public Works Department

Prepared By:

HDR Engineering Inc.
4830 W. Kennedy Blvd., Suite 400
Tampa, FL, 33609
Certificate of Authorization: 4213

Adam R. Mitchum
P.E. No. 83296
HDR Engineering, Inc.

Contents

Figures

Tables

Appendices

1 Project Information

1.1 Location

The project is located within Section 20/21, Township 35 South, Range 18 East, in Manatee County, Florida. The limits of construction include the intersection of 63rd Avenue / Honore Avenue and Tuttle Avenue, with roadway widening along Tuttle Avenue from approximately 300 feet south to 400 feet north of 63rd Avenue and along 63rd Avenue from approximately 250 feet west of Tuttle Avenue.

Figure 1: Project Location Map

1.2 Description

The project includes the following improvements to the intersection of Tuttle Avenue and 63rd Avenue:

- Reconfigure the intersection to include right and left turn lanes along all four legs of the intersection
- Addition of second through lane along each leg
- Milling and resurfacing of existing pavement

- Sidewalk reconstruction and the addition of curb ramps
- Signalization replacement due to intersection widening
- Minor modifications to existing drainage system to account for roadway improvements

1.3 Datum

Elevations in this report are based on the North American Vertical Datum of 1988 (NAVD 88). Datum conversion taken from NOAA Online Vertical Datum Transformation.

$$\text{NAVD } 88 = \text{NGVD } 29 - 0.99 \text{ Feet}$$

1.4 Design Requirements

The most recent applicable publications were referenced for the design of this project. The following is a list of resources utilized for the drainage analysis:

- FDOT Drainage Manual
- FDOT Drainage Design Guide
- Southwest Florida Water Management District (SWFWMD) Environmental Resource Permit (SWERP) Applicant's Handbook
- Manatee County Land Development Code
- Manatee County Public Works Standards (Stormwater Management Design Manual)

2 Existing Drainage Conditions

Stormwater runoff at the intersection is currently divided between four subbasins. Runoff from 63rd Avenue east of the intersection is collected via curb inlets and drains to a stormwater management facility located adjacent to Tamarind Place. Runoff from Tuttle Avenue south of the intersection is collected via curb inlets and drains south to a stormwater management facility located within the Cascades subdivision. Northbound Tuttle Avenue north or the intersection is collected by a roadside ditch, which flows north out of the project limits. Southbound Tuttle Avenue (north of the intersection) and 63rd Avenue (west of the intersection) is part of a larger drainage basin which flows west outside of the project limits via roadside ditches.

Refer to the existing drainage map within **Appendix A** for more information on the existing drainage patterns.

2.1 Soils

Most soils within the project limits, according to the NRCS Web Soil Survey, are Pinellas fine sands, which has a Hydrologic Soil Group of B/D. All adjacent soils fall within the A/D and C/D soil group.

An overview of the soils within the project limits is presented in **Appendix B**.

2.2 Floodplains

No Federal Emergency Management Agency (FEMA) 100-year floodplains exist within the project limits, based on the Flood Insurance Rate Map (FIRM) No. 12081C0317E (dated 3/17/2014); however, this project is within the limits of the Pearce Drain Canal Watershed Study. The watershed study set preliminary 100-year, 24-hour floodplain limits located within the northwest and southwest quadrants of the intersection. The ICPR4 model used to establish these floodplain limits shows the peak stage of the node representing south of Tuttle Avenue to be 16.00 feet (NAVD 88).

The proposed project improvements do not impact the 100-year floodplain.

The FEMA Flood Insurance Rate Map for this project area is presented in **Appendix C**.

3 Proposed Drainage Conditions

This project involves widening for the addition of right/left turn lanes and a second through lane for each leg of the intersection, the addition of curb ramps and modification of sidewalk, and milling and resurfacing of existing pavement. The proposed drainage design will divide the project into three drainage basins. Each basin will utilize curb inlets and closed stormwater systems to direct runoff to each respective outfall.

63rd Avenue east of the intersection is currently being treated and attenuated by a permitted stormwater treatment pond (designed under ERP #23589.009, modified under ERP #23589.001). The proposed design will reconfigure the existing drainage system to send the entire subbasin to the existing pond as the pond was designed for future widening to 63rd Avenue.

In the existing condition, Tuttle Avenue south of the intersection drains to an existing stormwater facility located within the Cascades subdivision (ERP #23591.006). The proposed roadway improvements will result in an increase in impervious area within the subbasin. Due to the existing stormwater facility being sized for the two-lane road, the proposed drainage design will modify the existing stormwater system to reduce the total area draining to the pond (see **Appendix F** for calculations). This area reduction will result in a reduction in the 25-year, 24-hour runoff to the pond (see **Table 1**). The remaining area within the drainage basin will be diverted away from the pond and will be sent to the adjacent subbasin (discussed further below).

Table 1 – South Basin Flow Rate

	Impervious (ac)	Total Area (ac)	Intensity (in/hr)	Runoff (cfs)
Existing	1.13	2.25	8.4	11.3
Proposed	1.19	2.02		10.2

Tuttle Avenue north of the intersection is divided between two subbasins in the existing condition. Northbound is currently collected via a roadside ditch and drains north. The southbound lane is part of a larger basin which includes all 63rd Avenue west of the intersection. To account for the treatment and attenuation requirements of these basins, and to reduce the right of way acquisition for stormwater facilities, Manatee County has directed HDR to work in coordination with Patel, Greene & Associates (PGA), who is designing a roadway widening project directly to the west (Project Number: 6107860).

The roadway project designed by PGA is a larger widening project which includes right of way acquisition for offsite stormwater facilities and floodplain compensation. The HDR design combines runoff from Tuttle Avenue (north of the intersection and the diverted area south of the intersection) with 63rd Avenue (west of the intersection) into one drainage basin. The drainage-system will collect all runoff via curb inlets and will connect with the proposed system of PGA's design west of the intersection, where it will be directed to a stormwater facility to be treated and attenuated (see **Appendix F** for treatment and attenuation calculations).

Design of the closed storm drain systems will follow the design criteria shown in **Table 2**. For the pipe sizing analysis of the closed storm drain systems, the design high water elevations for each outfall storm water management facility were used as the system tailwater elevations.

Table 2 – Storm Drain Design Criteria

	Design Criteria	Reference
Storm Drain Design	25-Year, 24-Hour	Manatee County Public Works Standards Stormwater Design Manual
Roadway Spread	One Half Travel Lane Clear, Design Speed 40 MPH	FDOT Drainage Manual, 3.9.1

4 Permitting

The intersection improvements include roadway widening which increases the capacity of the intersection. As such this project is required to meet water quantity attenuation, floodplain compensation, and formal water quality treatment. Due to this project being designed in coordination with PGA, and due to PGA's project including stormwater treatment facilities, the intersection improvements will be permitted under PGA's project. PGA's project will provide water quantity attenuation, floodplain compensation, and formal water quality treatment for both projects.

Appendix A

Drainage Maps

No.	REVISIONS	DATE	BY

9:28:47 AM 2/14/2023

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HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6233

DATE: 2/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: ADAM R. MITCHUM
FL. LICENSE NO.: 83296

DRAINAGE MAP EXISTING CONDITIONS

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HDR Engineering, Inc.
401 N Cattlemen Road
Suite 210
Sarasota, FL 34232-6233

DATE: 2/2023
PROJECT NO.: 6065961

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: ADAM R. MITCHUM
FL. LICENSE NO.: 83296

DRAINAGE MAP PROPOSED CONDITIONS

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Appendix B

NRCS Soils Information

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Manatee County, Florida

October 27, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:3,030 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Manatee County, Florida
Survey Area Data: Version 19, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 5, 2020—Mar 10, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
20	EauGallie-EauGallie wet, fine sand, 0 to 2 percent slopes	7.4	22.2%
26	Floridana-Immokalee-Okeelanta association	7.3	22.0%
40	Pinellas fine sand	18.6	55.8%
Totals for Area of Interest		**33.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Manatee County, Florida

20—EauGallie-EauGallie wet, fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2y9gx
Elevation: 10 to 150 feet
Mean annual precipitation: 45 to 61 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 335 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Eaugallie and similar soils: 70 percent
Eaugallie, wet, and similar soils: 15 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eaugallie

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 23 inches: fine sand
Bh - 23 to 47 inches: fine sand
Bw - 47 to 55 inches: fine sand
Btg - 55 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)

Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Description of Eaugallie, Wet

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 17 inches: fine sand
Bh - 17 to 26 inches: fine sand
Bw - 26 to 48 inches: fine sand
E'g - 48 to 72 inches: fine sand
Btg - 72 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 3 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Minor Components

Wabasso

Percent of map unit: 6 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear, convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Pinellas

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Cabbage Palm Flatwoods (R155XY005FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: No

Delray

Percent of map unit: 3 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, convex, concave
Across-slope shape: Concave, linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Myakka

Percent of map unit: 2 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Riviera

Percent of map unit: 1 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Concave, linear
Other vegetative classification: Slough (R155XY011FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

26—Floridana-Immokalee-Okeelanta association

Map Unit Setting

National map unit symbol: 1hg86
Elevation: 0 to 150 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Floridana, depressional, and similar soils: 35 percent
Immokalee and similar soils: 30 percent
Okeelanta and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Floridana, Depressional

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 19 inches: fine sand
E - 19 to 36 inches: fine sand
Btg - 36 to 63 inches: sandy clay loam
Cg - 63 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: C/D
Forage suitability group: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Hydric soil rating: Yes

Description of Immokalee

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Sandy marine deposits

Typical profile

A - 0 to 10 inches: fine sand
E - 10 to 34 inches: fine sand
Bh - 34 to 43 inches: fine sand
C - 43 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B/D
Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Description of Okeelanta

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Herbaceous organic material over sandy marine deposits

Typical profile

Oa - 0 to 20 inches: muck
C - 20 to 54 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0

Available water supply, 0 to 60 inches: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Forage suitability group: Organic soils in depressions and on flood plains (G155XB645FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Organic soils in depressions and on flood plains (G155XB645FL)
Hydric soil rating: Yes

Minor Components

Delray

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Anclote

Percent of map unit: 3 percent
Landform: Depressions on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Concave
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G155XB145FL)
Hydric soil rating: Yes

Chobee

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G155XB345FL)
Hydric soil rating: Yes

Pomona, non-hydric

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Manatee

Percent of map unit: 2 percent

Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL), Loamy and clayey soils on stream terraces, flood plains, or in depressions (G155XB345FL)
Hydric soil rating: Yes

Myakka, non-hydric

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

40—Pinellas fine sand

Map Unit Setting

National map unit symbol: 1hg8q
Elevation: 0 to 50 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Pinellas, non-hydric, and similar soils: 70 percent
Pinellas, hydric, and similar soils: 15 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pinellas, Non-hydric

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 11 inches: fine sand
Bk - 11 to 33 inches: fine sand

Btg - 33 to 45 inches: sandy clay loam
2Cg - 45 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Other vegetative classification: Cabbage Palm Flatwoods (R155XY005FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: No

Description of Pinellas, Hydric

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 11 inches: fine sand
Bk - 11 to 33 inches: fine sand
Btg - 33 to 45 inches: sandy clay loam
2Cg - 45 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0

Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Other vegetative classification: Cabbage Palm Flatwoods (R155XY005FL), Sandy over loamy soils on flats of hydric or mesic lowlands (G155XB241FL)
Hydric soil rating: Yes

Minor Components

Bradenton

Percent of map unit: 4 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Wetland Hardwood Hammock (R155XY012FL), Loamy and clayey soils on flats of hydric or mesic lowlands (G155XB341FL)
Hydric soil rating: Yes

Broward variant, non-hydric

Percent of map unit: 4 percent
Landform: Rises on marine terraces, flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Eaugallie

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Wabasso, non-hydric

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL), Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

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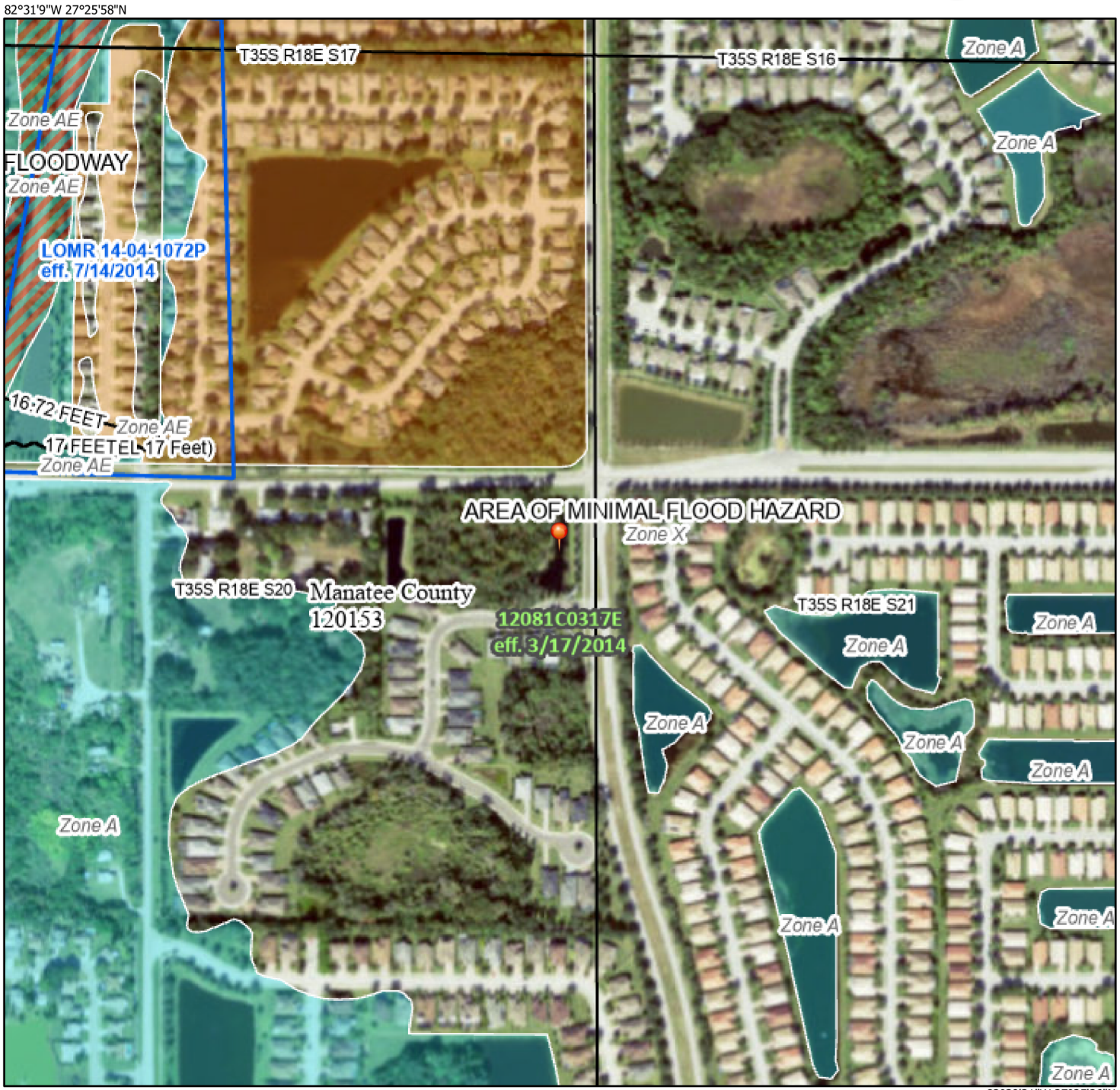
Appendix C

FEMA FIRM Map

National Flood Hazard Layer FIRMette

FEMA



Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/27/2022 at 9:07 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix D

Spread Calculations

FLORIDA DEPARTMENT OF TRANSPORTATION
SPREAD TABULATION FORM

Financial Project Identification: | **County:** | **Rainfall Zone: Zone 6** | **Prepared By:** | **Date: 03/23/2023**
Description: | **Organization:** | **State Road:** | **Checked By:** | **Date:**

Structure No.	Station	Offset	Side	Type of Structure	Drainage Area (acres)	Composite Runoff Coefficient	Rainfall Intensity (in/hr)	Overland Runoff (cfs)	Previous Inlet Bypass (cfs)	Total Runoff (cfs)	Cross Slope (ft/ft)	Longitudinal Slope (ft/ft)	Manning's n	Calculated Spread (ft)	Allowable Spread (ft)	Sumped Spread (ft)	Intercepted Flow (cfs)	Bypass Flow to Next Inlet (cfs)	Bypass to Structure No.
S-400	210+45.00	37.00	LT	Type 5 CI	0.29	0.95	4.00	2.34	0.00	2.34	0.020	0.3000	0.016	9.40	13.00	N/A	1.11	0.00	S-10x
S-405	111+20.00	51.70	LT	Type 6 CI	0.57	0.95	4.00	4.62	0.00	4.62	0.030		0.016	4.65	7.00	10.39	N/A	0.00	
S-406	110+95.00	32.40	RT	Type 5 CI	0.23	0.95	4.00	1.86	0.00	1.86	0.030	0.3277	0.016	6.59	7.00	N/A	0.88	0.00	

Remarks:
HEC-12 is used for spread and bypass computations.
All other computations performed using GEOPAK Drainage.

FLORIDA DEPARTMENT OF TRANSPORTATION
SPREAD TABULATION FORM

Financial Project Identification: | **County:** | **Rainfall Zone: Zone 6** | **Prepared By:** | **Date: 03/23/2023**
Description: | **Organization:** | **State Road:** | **Checked By:** | **Date:**

Structure No.	Station	Offset	Side	Type of Structure	Drainage Area (acres)	Composite Runoff Coefficient	Rainfall Intensity (in/hr)	Overland Runoff (cfs)	Previous Inlet Bypass (cfs)	Total Runoff (cfs)	Cross Slope (ft/ft)	Longitudinal Slope (ft/ft)	Manning's n	Calculated Spread (ft)	Allowable Spread (ft)	Sumped Spread (ft)	Intercepted Flow (cfs)	Bypass Flow to Next Inlet (cfs)	Bypass to Structure No.
S-401	210+80.00	48.00	RT	Type 5 CI	0.17	0.95	4.00	1.38	0.00	1.38	0.038	0.3000	0.016	6.63	7.00	N/A	0.65	0.00	
S-402	212+00.00	48.00	RT	Type 5 CI	0.19	0.95	4.00	1.53	0.00	1.53	0.037	0.3000	0.016	6.98	7.00	N/A	0.72	0.00	S-401
S-407	107+00.00	40.00	LT	Type 6 CI	0.24	0.95	4.00	1.95	0.00	1.95	0.020	0.6127	0.016	7.68	13.00	N/A	0.92	0.00	

Remarks:
HEC-12 is used for spread and bypass computations.
All other computations performed using GEOPAK Drainage.

FLORIDA DEPARTMENT OF TRANSPORTATION
SPREAD TABULATION FORM

Financial Project Identification: | **County:** | **Rainfall Zone: Zone 6** | **Prepared By:** | **Date: 03/23/2023**
Description: | **Organization:** | **State Road:** | **Checked By:** | **Date:**

Structure No.	Station	Offset	Side	Type of Structure	Drainage Area (acres)	Composite Runoff Coefficient	Rainfall Intensity (in/hr)	Overland Runoff (cfs)	Previous Inlet Bypass (cfs)	Total Runoff (cfs)	Cross Slope (ft/ft)	Longitudinal Slope (ft/ft)	Manning's n	Calculated Spread (ft)	Allowable Spread (ft)	Sumped Spread (ft)	Intercepted Flow (cfs)	Bypass Flow to Next Inlet (cfs)	Bypass to Structure No.
S-502	215+15.00	48.00	LT	Type 5 CI	0.22	0.78	4.00	1.42	0.00	1.42	0.035	0.3000	0.016	6.84	7.00	N/A	0.67	0.00	
S-500	214+20.00	48.00	LT	Type 5 CI	0.17	0.74	4.00	1.06	0.00	1.06	0.034	0.9769	0.016	5.48	7.00	N/A	0.50	0.00	
S-501	214+70.00	37.00	RT	Type 6 CI	0.24	0.78	4.00	1.55	0.00	1.55	0.022		0.016	3.06	13.00	3.73	N/A	0.00	

Remarks:
HEC-12 is used for spread and bypass computations.
All other computations performed using GEOPAK Drainage.

FLORIDA DEPARTMENT OF TRANSPORTATION
SPREAD TABULATION FORM

Financial Project Identification: **County:** **Rainfall Zone: Zone 6** **Prepared By:** **Date: 03/23/2023**
Description: **Organization:** **State Road:** **Checked By:** **Date:**

Structure No.	Station	Offset	Side	Type of Structure	Drainage Area (acres)	Composite Runoff Coefficient	Rainfall Intensity (in/hr)	Overland Runoff (cfs)	Previous Inlet Bypass (cfs)	Total Runoff (cfs)	Cross Slope (ft/ft)	Longitudinal Slope (ft/ft)	Manning's n	Calculated Spread (ft)	Allowable Spread (ft)	Sumped Spread (ft)	Intercepted Flow (cfs)	Bypass Flow to Next Inlet (cfs)	Bypass to Structure No.
S-604	106+35.00	45.19	RT	Type 6 CI	0.40	0.82	4.00	2.75	0.00	2.75	0.030		0.016	3.29	7.00	6.45	N/A	0.00	
S-605	106+35.00	39.80	LT	Type 5 CI	0.08	0.79	4.00	0.52	0.00	0.52	0.020	0.6127	0.016	4.70	13.00	N/A	0.25	0.00	
S-601	104+60.00	37.20	LT	Type 5 CI	0.09	0.95	4.00	0.70	0.00	0.70	0.020	0.3000	0.016	5.99	7.00	N/A	0.33	0.00	

Remarks:
HEC-12 is used for spread and bypass computations.
All other computations performed using GEOPAK Drainage.

Appendix E

Storm Sewer Tabulations

FLORIDA DEPARTMENT OF TRANSPORTATION
STORM SEWER TABULATION FORM

Financial Project ID: | **County:** | **Network: PGA Connection-North** | **Sheet:** _____ of _____
Description: | **Organization:** | **State Road:** | **Prepared by:** | **Date: 06/06/2023**
Checked by: | **Date:**

LOCATION OF UPPER END			STRUCTURE NO.	TYPE OF STRUCTURE	LENGTH (ft)	DRAINAGE AREA (ac. or ha.)			TIME OF CONCENTRATION (min)	TIME OF FLOW IN SECTION (min)	INTENSITY (in/hr)	TOTAL (C*A)	BASE FLOW (cfs)	TOTAL FLOW (cfs)	MINOR LOSSES (ft)	INLET ELEVATION (ft)	HGL CLEARANCE (ft)	HYDRAULIC GRADIENT			NUMBER OF BARRELS	PIPE SIZE (in)	SLOPE (%)	ACTUAL VELOCITY (fps)	FULL FLOW CAPACITY (cfs)	NOTES AND REMARKS
						INCREMENTAL												CROWN				RISE				
ALIGNMENT NAME						CUMULATIVE												FLOWLINE ELEVATION					HYD. GRAD.			ZONE: Zone 6
																							PHYSICAL			FREQUENCY (yrs): 25.00 Year
STATION	OFFSET DISTANCE (ft.)	SIDE	UPPER LOWER			COMPOSITE C VALUE	AREA	SUB-TOTAL (C*A)										UPPER END ELEVATION (ft)	LOWER END ELEVATION (ft)	FALL (ft)		SPAN	MIN. PHYSICAL	PHYSICAL VELOCITY (fps)		MANNINGS n: 0.012
																										TAILWATER EL. (ft): 15.50
BL_63			S-400	Type 5 CI	163.50	0.950	0.291	0.276	13.17	1.06	7.63	1.043	0.000	7.96	0.01	18.34	2.64	15.70	15.50	0.20	1	19" x 30"	0.115%	2.57	8.17	
210+45.00	-37.00	Lt.	Out-400A			0.950	1.098	1.043										15.28	15.08	0.20			0.12%	2.63		
																		13.70	13.50	0.20			0.11%			
BL_TUTTLE			S-404	Type 8 MH	224.62			0.000	10.45	1.82	8.33	0.766	0.000	6.38	0.10	19.53	3.57	15.96	15.70	0.26	1	19" x 30"	0.082%	2.06	6.97	
108+46.00	-54.75	Lt.	S-400					0.000										15.48	15.28	0.20			0.09%	2.25		
																		13.90	13.70	0.20			0.11%			
BL_TUTTLE			S-405	Type 6 CI	274.02	0.950	0.575	0.546	10.45	1.26	8.33	0.766	0.000	6.38	0.32	17.67	0.46	17.21	15.96	1.25	1	14" x 23"	0.340%	3.63	3.60	
111+20.00	-51.70	Lt.	S-404			0.950	0.807	0.766										15.37	15.07	0.30			0.11%	2.05		
																		14.20	13.90	0.30			0.16%			
BL_TUTTLE			S-406	Type 5 CI	90.29	0.950	0.232	0.220	10.00	1.42	8.46	0.220	0.000	1.86	0.02	18.05	0.80	17.25	17.21	0.04	1	14" x 23"	0.446%	1.06	7.24	
110+95.00	32.40	Rt.	S-405			0.950	0.232	0.220										15.77	15.37	0.40			0.44%	4.12		
																		14.60	14.20	0.40			0.16%			

Remarks: Computations performed using GEOPAK Drainage.

FLORIDA DEPARTMENT OF TRANSPORTATION
STORM SEWER TABULATION FORM

Financial Project ID: | **County:** | **Network: PGA Connection-South** | **Sheet:** _____ of _____
Description: | **Organization:** | **State Road:** | **Prepared by:** | **Date: 07/11/2023**
Checked by: | **Date:**

LOCATION OF UPPER END			STRUCTURE NO.	TYPE OF STRUCTURE	LENGTH (ft)	DRAINAGE AREA (ac. or ha.)			TIME OF CONCENTRATION (min)	TIME OF FLOW IN SECTION (min)	INTENSITY (in/hr)	TOTAL (C*A)	BASE FLOW (cfs)	TOTAL FLOW (cfs)	MINOR LOSSES (ft)	INLET ELEVATION (ft)	HGL CLEARANCE (ft)	HYDRAULIC GRADIENT			NUMBER OF BARRELS	PIPE SIZE (in)	SLOPE (%)	ACTUAL VELOCITY (fps)	FULL FLOW CAPACITY (cfs)	NOTES AND REMARKS
						INCREMENTAL												CROWN				RISE				
ALIGNMENT NAME						CUMULATIVE												FLOWLINE ELEVATION					HYD. GRAD.			ZONE: Zone 6
																							PHYSICAL			FREQUENCY (yrs): 25.00 Year
STATION	OFFSET DISTANCE (ft.)	SIDE	UPPER LOWER			COMPOSITE C VALUE	AREA	SUB-TOTAL (C*A)										UPPER END ELEVATION (ft)	LOWER END ELEVATION (ft)	FALL (ft)		SPAN				MANNINGS n: 0.012
																							MIN. PHYSICAL	PHYSICAL VELOCITY (fps)		TAILWATER EL. (ft): 15.50
BL_63			S-401	Type 5 CI	75.67	0.950	0.172	0.163	11.17	0.48	8.13	0.575	0.000	4.67	0.01	18.28	2.64	15.64	15.50	0.14	1	18	0.265%	2.64	5.87	
210+80.00	48.00	Rt.	Out-400			0.950	0.605	0.575										15.40	15.20	0.20			0.26%	3.32		
																		13.90	13.70	0.20			0.15%			
BL_63			S-402	Type 5 CI	120.00	0.950	0.191	0.181	10.46	1.03	8.32	0.412	0.000	3.43	0.01	18.61	2.85	15.76	15.64	0.12	1	18	0.162%	1.94	4.66	
212+00.00	48.00	Rt.	S-401			0.950	0.433	0.412										15.60	15.40	0.20			0.17%	2.64		
																		14.10	13.90	0.20			0.15%			
BL_63			S-403	Type 8 MH	61.84			0.000	10.00	0.93	8.46	0.230	0.000	1.95	0.01	19.95	4.17	15.78	15.76	0.03	1	18	0.044%	1.10	6.49	
212+60.00	64.00	Rt.	S-402					0.000										15.80	15.60	0.20			0.32%	3.67		
																		14.30	14.10	0.20			0.15%			
BL_TUTTLE			S-407	Type 6 CI	48.85	0.950	0.242	0.230	10.00	0.74	8.46	0.230	0.000	1.95	0.14	19.35	3.52	15.83	15.78	0.05	1	18	0.101%	1.10	14.60	
107+00.00	-40.00	Lt.	S-403			0.950	0.242	0.230										16.60	15.80	0.80			1.64%	8.26		
																		15.10	14.30	0.80			0.15%			

Remarks: Computations performed using GEOPAK Drainage.

FLORIDA DEPARTMENT OF TRANSPORTATION
STORM SEWER TABULATION FORM

Financial Project ID: | **County:** | **Network: East 63rd** | **Sheet:** _____ of _____
Description: | **Organization:** | **State Road:** | **Prepared by:** | **Date: 03/23/2023**
Checked by: | **Date:**

LOCATION OF UPPER END			STRUCTURE NO.	TYPE OF STRUCTURE	LENGTH (ft)	DRAINAGE AREA (ac. or ha.)			TIME OF CONCENTRATION (min)	TIME OF FLOW IN SECTION (min)	INTENSITY (in/hr)	TOTAL (C*A)	BASE FLOW (cfs)	TOTAL FLOW (cfs)	MINOR LOSSES (ft)	INLET ELEVATION (ft)	HGL CLEARANCE (ft)	HYDRAULIC GRADIENT			NUMBER OF BARRELS	PIPE SIZE (in)	SLOPE (%)	ACTUAL VELOCITY (fps)	FULL FLOW CAPACITY (cfs)	NOTES AND REMARKS
						INCREMENTAL												CROWN				RISE				
ALIGNMENT NAME						CUMULATIVE												FLOWLINE ELEVATION					HYD. GRAD.			ZONE: Zone 6
																							PHYSICAL			FREQUENCY (yrs): 25.00 Year
STATION	OFFSET DISTANCE (ft.)	SIDE	UPPER LOWER			COMPOSITE C VALUE	AREA	SUB-TOTAL (C*A)										UPPER END ELEVATION (ft)	LOWER END ELEVATION (ft)	FALL (ft)		SPAN	MIN. PHYSICAL	PHYSICAL VELOCITY (fps)		MANNINGS n: 0.012
BL_63			S-500	Type 5 CI	97.10	0.738	0.170	0.126	10.00	2.69	8.46	0.126	0.000	1.06	0.01	19.90	1.17	18.73	18.72	0.01	1	18	0.206%	0.60	5.18	TAILWATER EL. (ft): 17.66
214+20.00	-48.00	Lt.	S-502			0.738	0.170	0.126										17.00	16.80	0.20			0.21%	2.93		
																		15.50	15.30	0.20			0.15%			
BL_63			S-501	Type 6 CI	98.59	0.778	0.235	0.183	10.00	1.87	8.46	0.183	0.000	1.55	0.01	20.03	1.28	18.75	18.72	0.03	1	18	0.194%	0.88	5.14	
214+70.00	37.00	Rt.	S-502			0.778	0.235	0.183										17.40	17.20	0.20			0.20%	2.91		
																		15.90	15.70	0.20			0.15%			
BL_63			S-502	Type 5 CI	305.23	0.779	0.215	0.168	10.70	6.35	8.25	0.477	0.000	3.93	1.03	19.92	1.20	18.72	17.66	1.06	1	30	0.490%	0.80	31.23	
215+15.00	-48.00	Lt.	EX-500			0.768	0.621	0.477										17.30	15.80	1.50			0.49%	6.36		
																		14.80	13.30	1.50			0.08%			

Remarks: Computations performed using GEOPAK Drainage.

FLORIDA DEPARTMENT OF TRANSPORTATION
STORM SEWER TABULATION FORM

Financial Project ID: | **County:** | **Network: South Tuttle** | **Sheet:** _____ of _____
Description: | **Organization:** | **State Road:** | **Prepared by:** | **Date: 06/09/2023**
Checked by: | **Date:**

LOCATION OF UPPER END			STRUCTURE NO.	TYPE OF STRUCTURE	LENGTH (ft)	DRAINAGE AREA (ac. or ha.)			TIME OF CONCENTRATION (min)	TIME OF FLOW IN SECTION (min)	INTENSITY (in/hr)	TOTAL (C*A)	BASE FLOW (cfs)	TOTAL FLOW (cfs)	MINOR LOSSES (ft)	INLET ELEVATION (ft)	HGL CLEARANCE (ft)	HYDRAULIC GRADIENT			NUMBER OF BARRELS	PIPE SIZE (in)	SLOPE (%)	ACTUAL VELOCITY (fps)	FULL FLOW CAPACITY (cfs)	NOTES AND REMARKS
						INCREMENTAL												CROWN				RISE				
ALIGNMENT NAME						CUMULATIVE												FLOWLINE ELEVATION					HYD. GRAD.			ZONE: Zone 6
																							PHYSICAL			FREQUENCY (yrs): 25.00 Year
STATION	OFFSET DISTANCE (ft.)	SIDE	UPPER LOWER			COMPOSITE C VALUE	AREA	SUB-TOTAL (C*A)										UPPER END ELEVATION (ft)	LOWER END ELEVATION (ft)	FALL (ft)		SPAN	MIN. PHYSICAL	PHYSICAL VELOCITY (fps)		MANNINGS n: 0.012
																										TAILWATER EL. (ft): 18.80
BL_TUTTLE			S-601	Type 5 CI	176.86	0.950	0.087	0.083	10.00	7.41	8.46	0.083	0.000	0.70	0.00	19.63	0.59	19.04	19.03	0.01	1	18	0.108%	0.40	3.84	
104+60.00	-37.20	Lt.	S-605			0.950	0.087	0.083										16.90	16.70	0.20			0.11%	2.17		
																		15.40	15.20	0.20			0.15%			
BL_TUTTLE			S-603	Type 8 MH	317.06			0.000	12.60	4.55	7.76	0.470	0.000	3.65	0.01	19.86	0.98	18.88	18.80	0.08	1	24	0.290%	1.16	13.24	
105+95.00	50.00	Rt.	EX-600					0.000										17.00	16.08	0.92			0.29%	4.21		
																		15.00	14.08	0.92			0.10%			
BL_TUTTLE			S-604	Type 6 CI	40.17	0.821	0.395	0.325	12.60	0.32	7.76	0.470	0.000	3.65	0.09	19.34	0.33	19.01	18.88	0.14	1	18	0.244%	2.06	5.69	
106+35.00	45.19	Rt.	S-603			0.836	0.562	0.470										16.60	16.50	0.10			0.25%	3.22		
																		15.10	15.00	0.10			0.15%			
BL_TUTTLE			S-605	Type 5 CI	87.49	0.786	0.079	0.062	11.81	2.23	7.96	0.145	0.000	1.15	0.01	19.54	0.51	19.03	19.01	0.02	1	18	0.108%	0.65	3.86	
106+35.00	-39.80	Lt.	S-604			0.872	0.166	0.145										16.70	16.60	0.10			0.11%	2.18		
																		15.20	15.10	0.10			0.15%			

Remarks: Computations performed using GEOPAK Drainage.

Appendix F

Stormwater Calculations

EXISTING CALCULATIONS

Project: Tuttle at 63rd **Designed By:** ARM **Date:** 2/6/2023
Description **Checked By:** **Date:**

BASIN SOUTH LEG

Land Use Description	Hydrologic Soil Group	Runoff coefficient (C)	Area (Ac.)	C x Area	Intensity (in/hr)	Runoff (cfs)
Impervious (pavement)	A	0.95	1.13	1.1	8.4	11.3
Open Spaces (good condition)	D	0.20	1.12	0.2		
	Weighted C:	0.60	2.25			

PROPOSED CALCULATIONS

BASIN SOUTH LEG

Land Use Description	Hydrologic Soil Group	Runoff coefficient (C)	Area (Ac.)	C x Area	Intensity (in/hr)	Runoff (cfs)
Impervious (pavement)	A	0.95	1.19	1.1	8.4	10.2
Open Spaces (good condition)	D	0.20	0.83	0.2		
	Weighted C:	0.60	2.02			

Project:	Tuttle Ave at 63rd	Prepared by:	ARM	Date:	7/26/2022
Project Number:	6065961	Checked by:		Date:	
Basin Name:	Pond 2A - HDR	Location:	Manatee County		

Pond 2A - HDR Hydrologic Calculations

Existing Conditions

Total Impervious Area	
Impervious Roadway:	0.47 ac.
Impervious Other:	0.00 ac.
Total:	0.47 ac.

Curve Number

Description	Soil Group	CN	Area
Open Space (Good)	C	74	0.35 ac.
Woods(Good)	C	70	0.35 ac.
1/4 acre	C	83	0.00 ac.
Brush (Fair)	D	77	0.00 ac.
Impervious		98	0.47 ac.
		Total Area:	1.17 ac.

Weighted CN: 82.4

Proposed Conditions

Total Impervious Area	
Impervious Roadway:	1.76 ac.
Impervious Other:	0.00 ac.
Total:	1.76 ac.

Curve Number

Description	Soil Group	CN	Area
Open Space (Good)	C	74	0.03 ac.
Woods (Poor)	B	66	0.00 ac.
Brush (Good)	C	65	0.00 ac.
Commercial and Business	D	95	0.00 ac.
Impervious		98	1.76 ac.
		Total Area:	1.79 ac.

Weighted CN: 97.6

Treatment Calculations

Treatment Calculations	
Governing Agency:	SWFWMD
Treatment Method:	Wet Detention
Online or Offline:	Online
OFW:	No
Impaired Waterbody:	No
Open or Closed Basin	Open
Type of Project:	Roadway Widening

Treatment Area (Total Imp.):	1.76 ac.
Treatment Depth*:	1.0 in.
Treatment Volume Required:	**0.15 ac.-ft.**

* Dry Retention Criteria - 0.5 inch over DCIA
Wet Detention Criteria - 1.0 inch over DCIA

Attenuation Calculations

Attenuation Calculations	
Rainfall Depth*:	8.8 in.

Summary of Runoff	Existing	Proposed
Total Basin Area (LT and RT):	1.17 ac.	1.79 ac.
Weighted CN (LT and RT):	82.4	97.6
Soil Retention (S):	2.1 in.	0.2 in.
Runoff Depth (Q_R):	6.7 in.	8.5 in.
Runoff Volume:	0.6 ac.-ft.	1.3 ac.-ft.

Post-Pre Attenuation Volume (V_A): 0.62 ac.-ft.

*25 year/24 hour, NOAA Atlas-14 rainfall data

Total Runoff Volume Required

Total Runoff Volume Required	
Treatment Volume Required:	0.15 ac.-ft.
Attenuation Volume* (V_A):	0.62 ac.-ft.
Total:	**0.76 ac.-ft.**