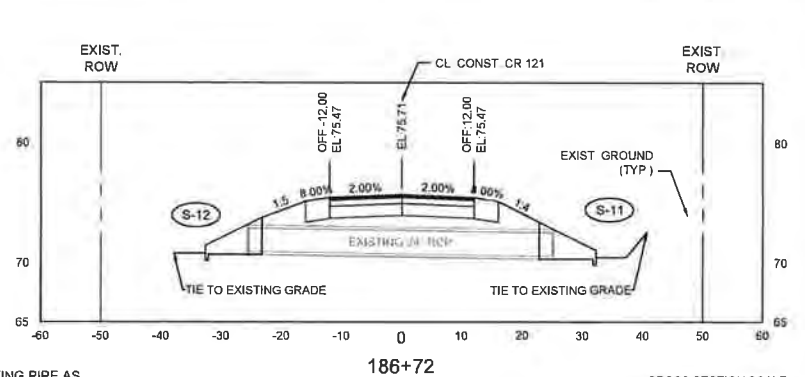
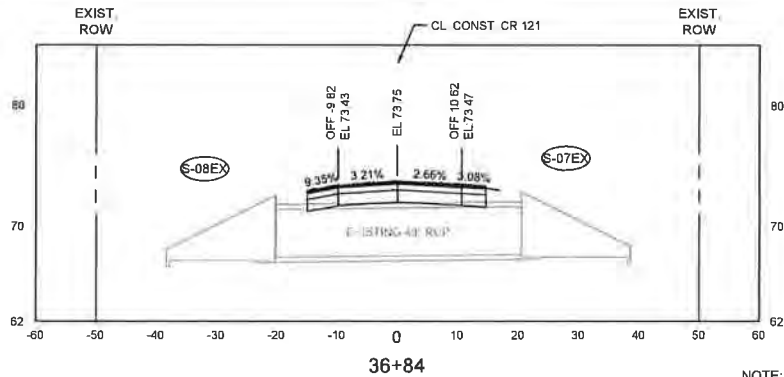
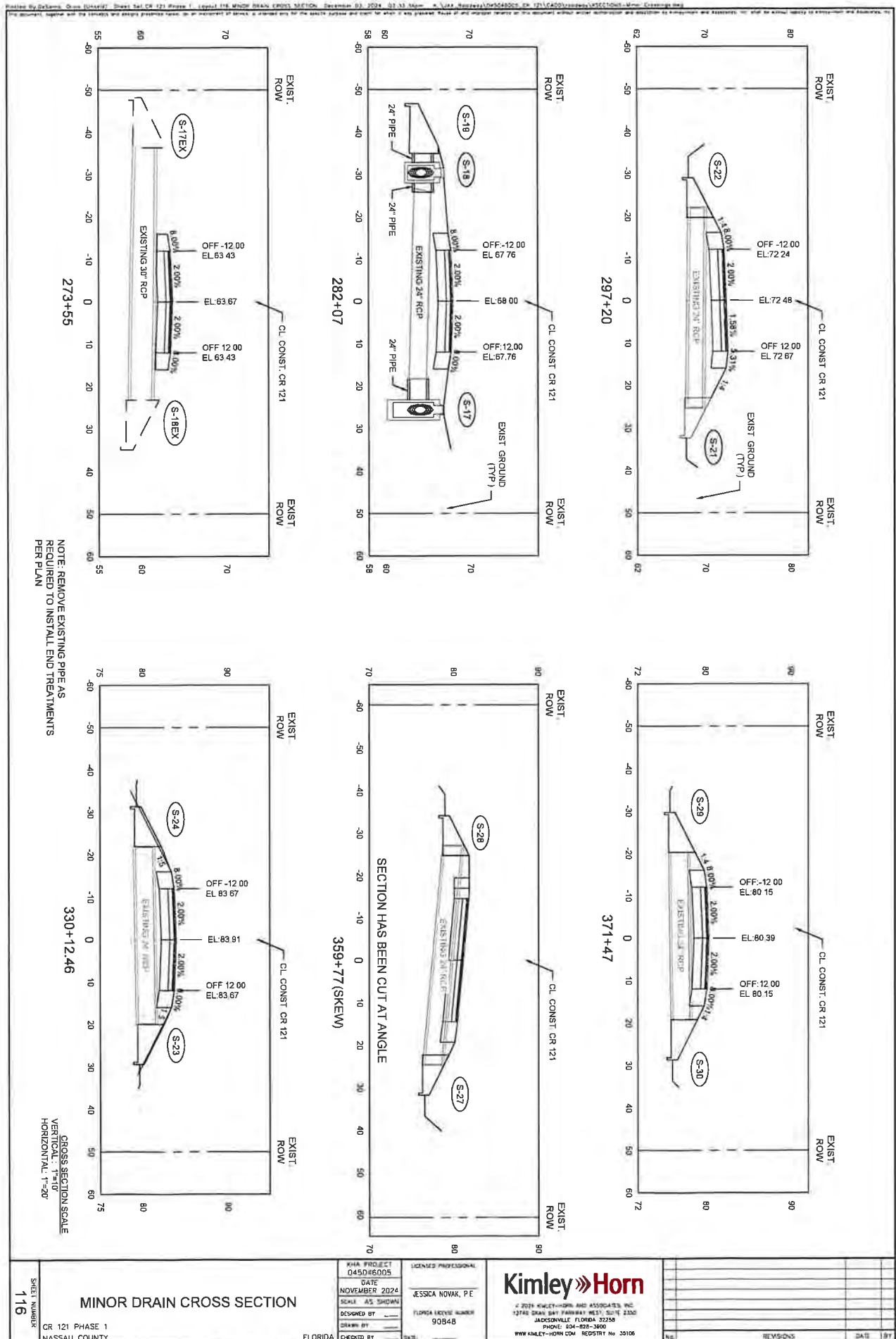
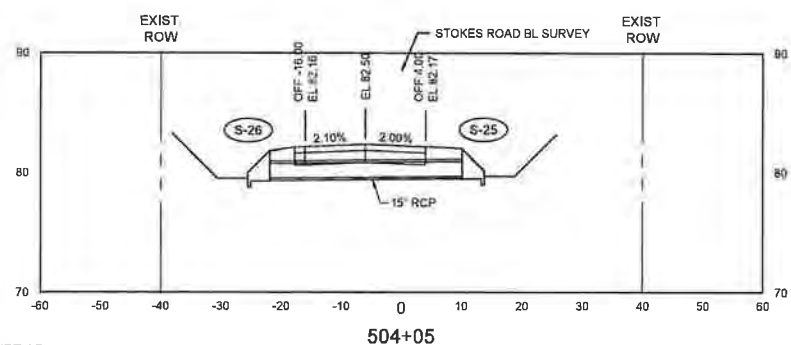




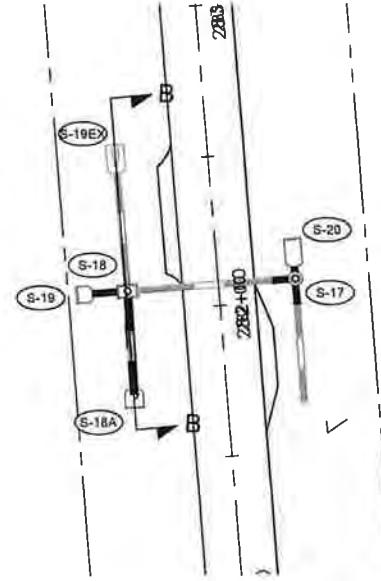
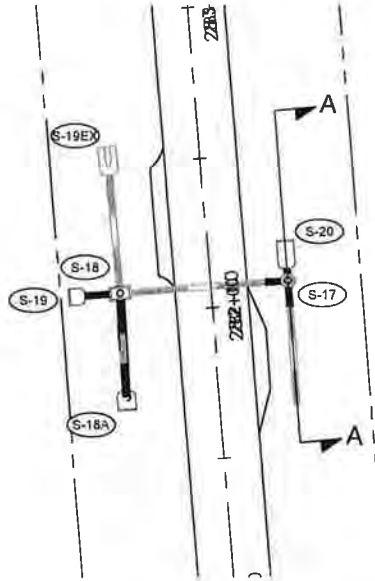
CROSS SECTION SCALE
VERTICAL : 1"=10'
HORIZONTAL: 1"=20'



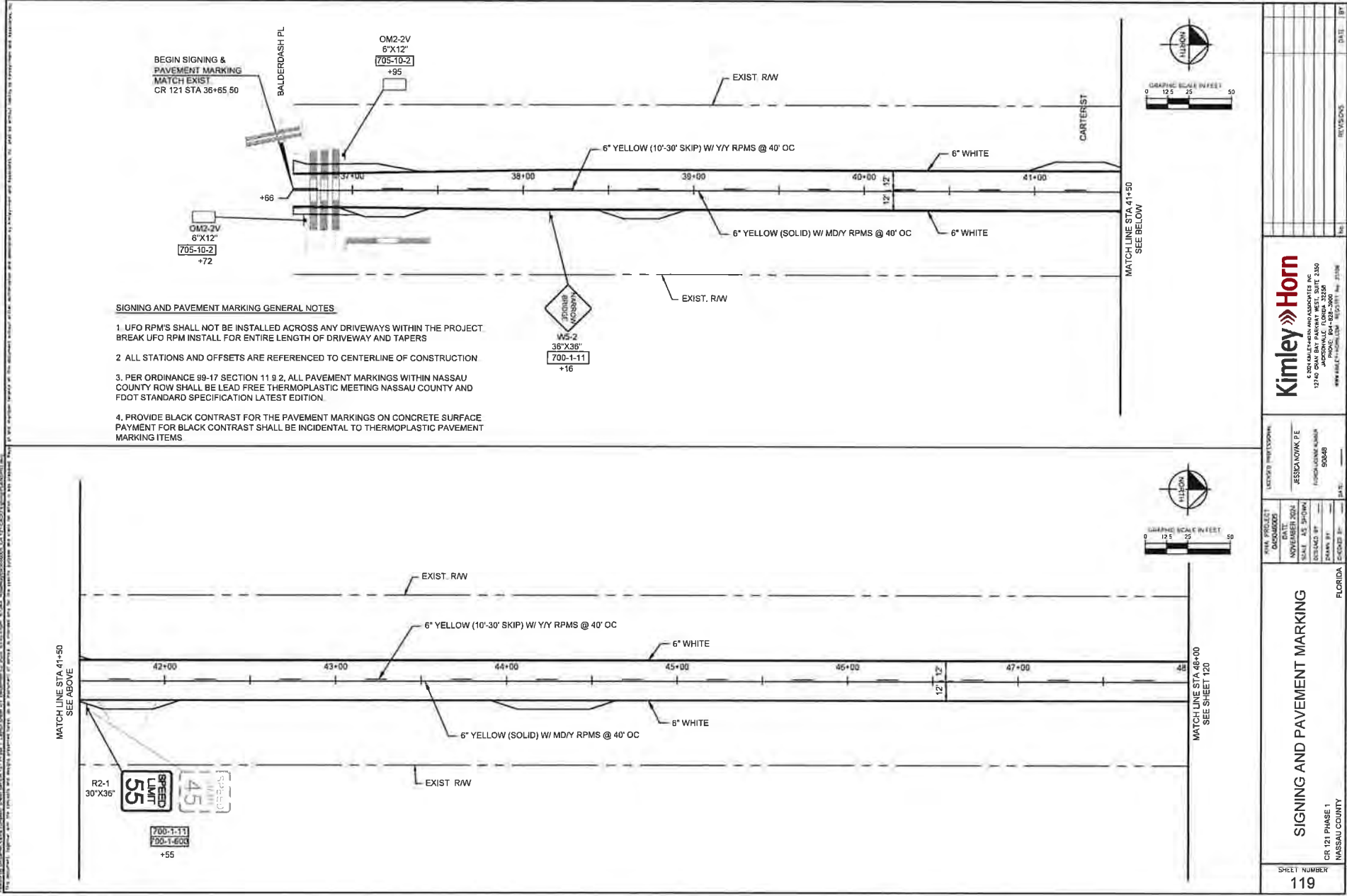


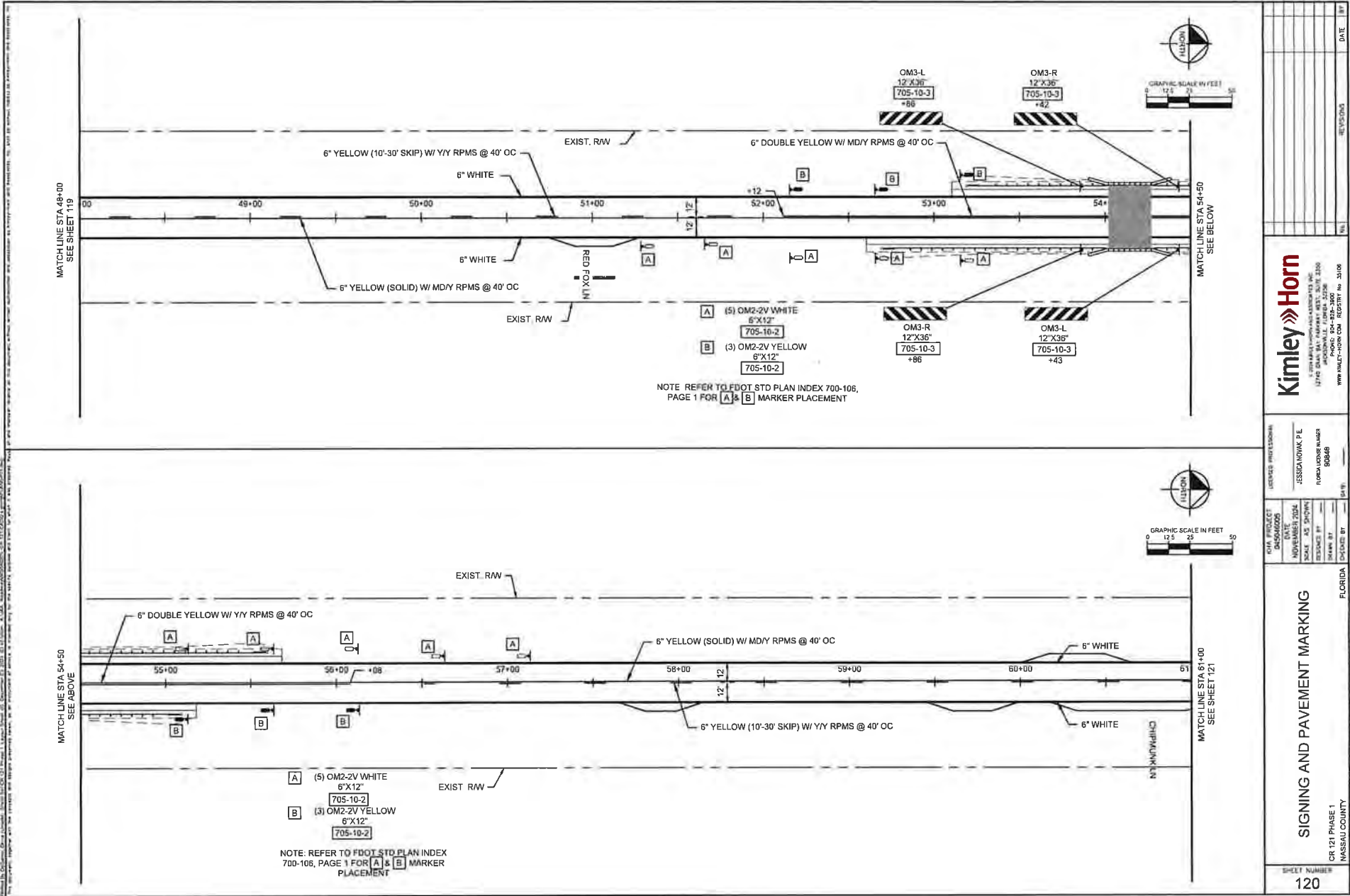
NOTE: REMOVE EXISTING PIPE AS
REQUIRED TO INSTALL END TREATMENTS
PER PLAN

117	SHEET NUMBER	OR 121 PHASE 1 MINOR DRAIN CROSS SECTION NASSAU COUNTY FLORIDA	KIMLEY-HORN 17259 UNIVERSITY BLVD. SUITE 200 JACKSONVILLE, FLORIDA 32256 90448 WWW.KIMLEY-HORN.COM REGISTRY NO. 35106	LICENSED PROFESSIONAL JESSICA NOVAK, P.E. FLORIDA LICENSE NUMBER 90848	DATE 01/13/23	NO. OF REVISIONS



1





Kimley»Horn

12742 SW 14th Avenue, Suite 200
Miami, FL 33195
PH: 305-444-1000
WWW.KIMLEY-HORN.COM REG. NO. 30106

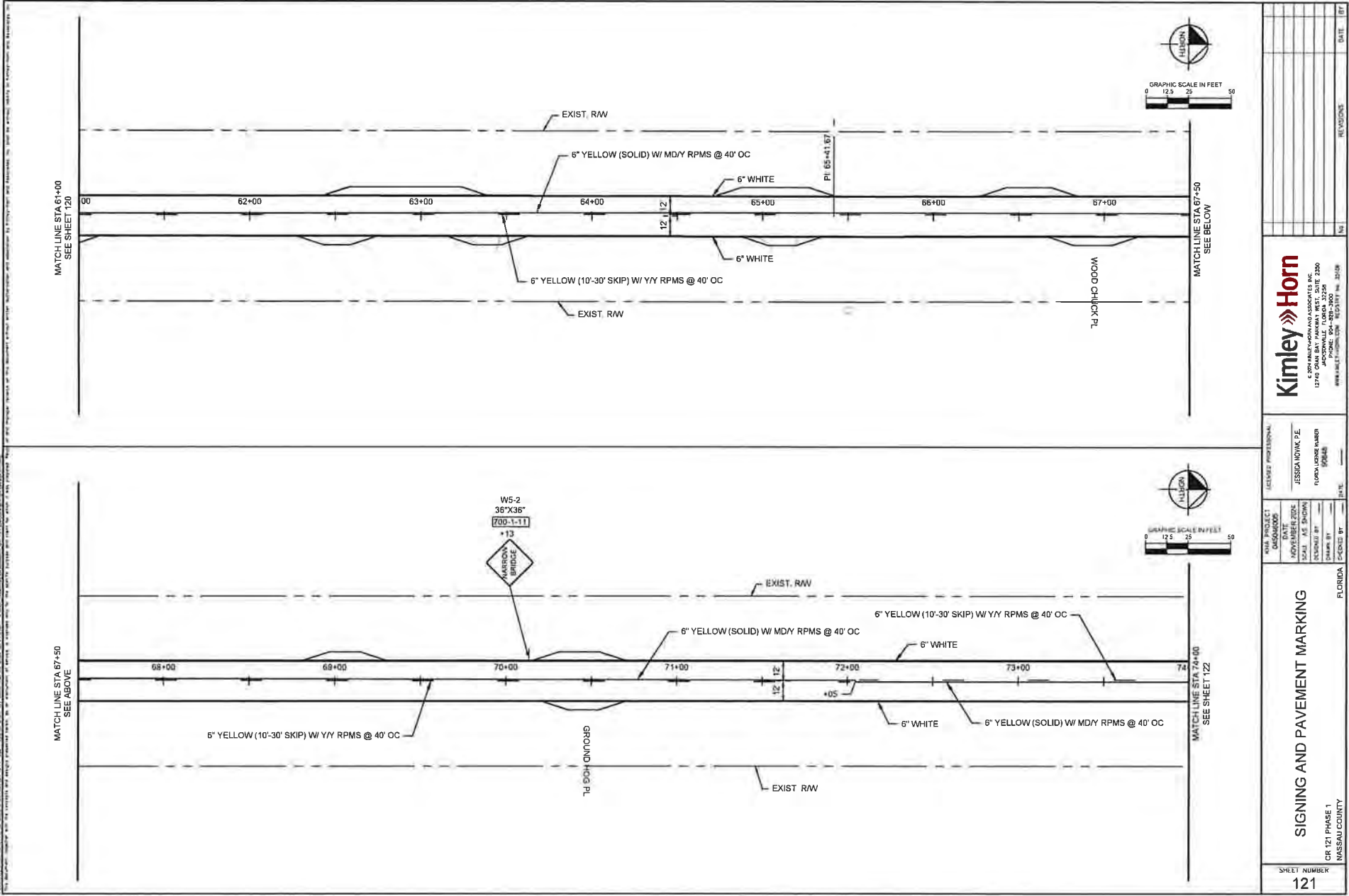
PROJECT: 12742 SW 14th Avenue, Suite 200
DATE: NOVEMBER 2024
SCALE: AS SHOWN
DESIGNED BY: JESSICA HOWAK, P.E.
DRAWN BY: JESSICA HOWAK, P.E.
CHECKED BY: JESSICA HOWAK, P.E.
FLORIDA LICENSE NUMBER: 90948

SIGNING AND PAVEMENT MARKING

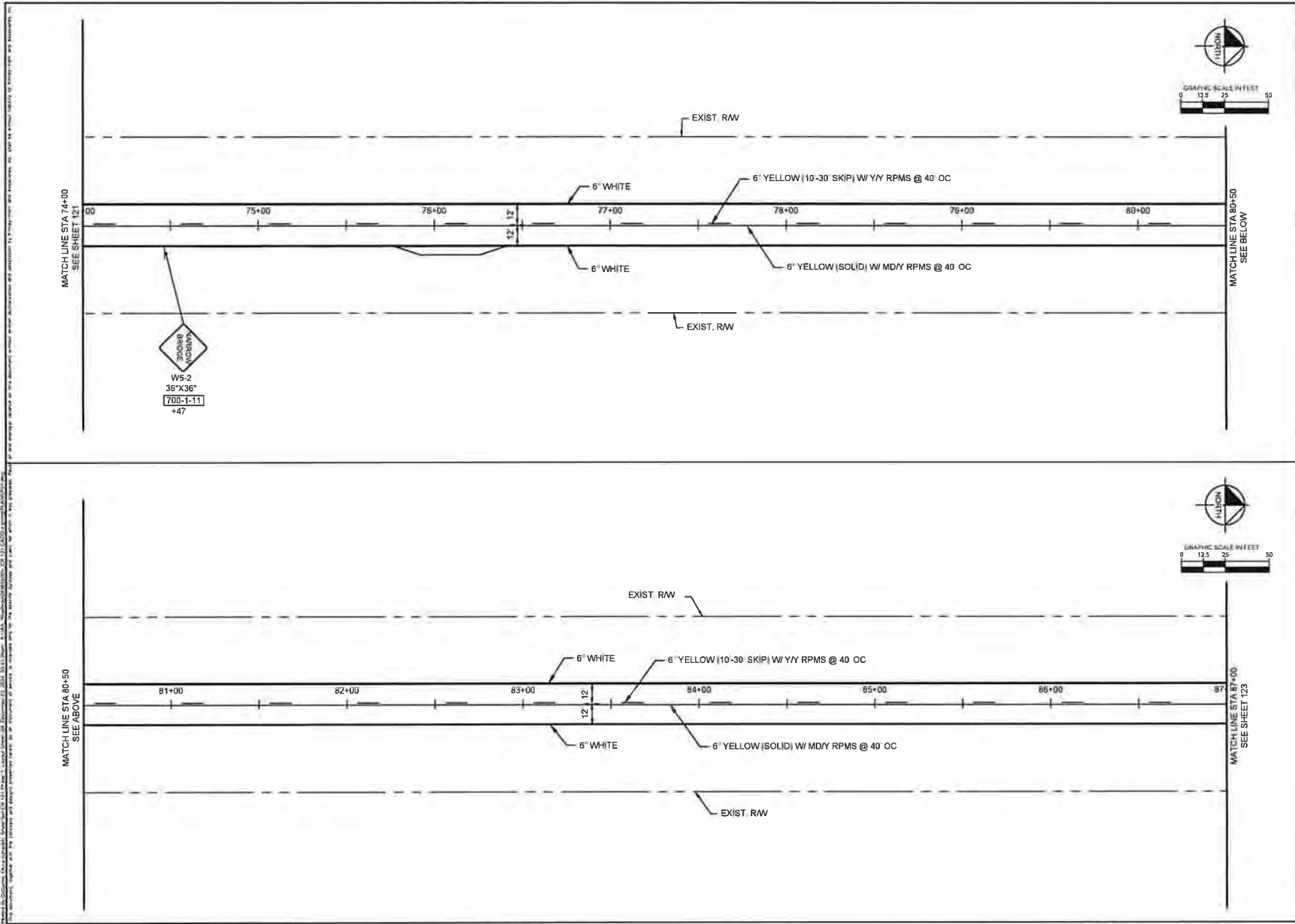
FLORIDA
OR 121 PHASE 1
NASSAU COUNTY

SHEET NUMBER
120

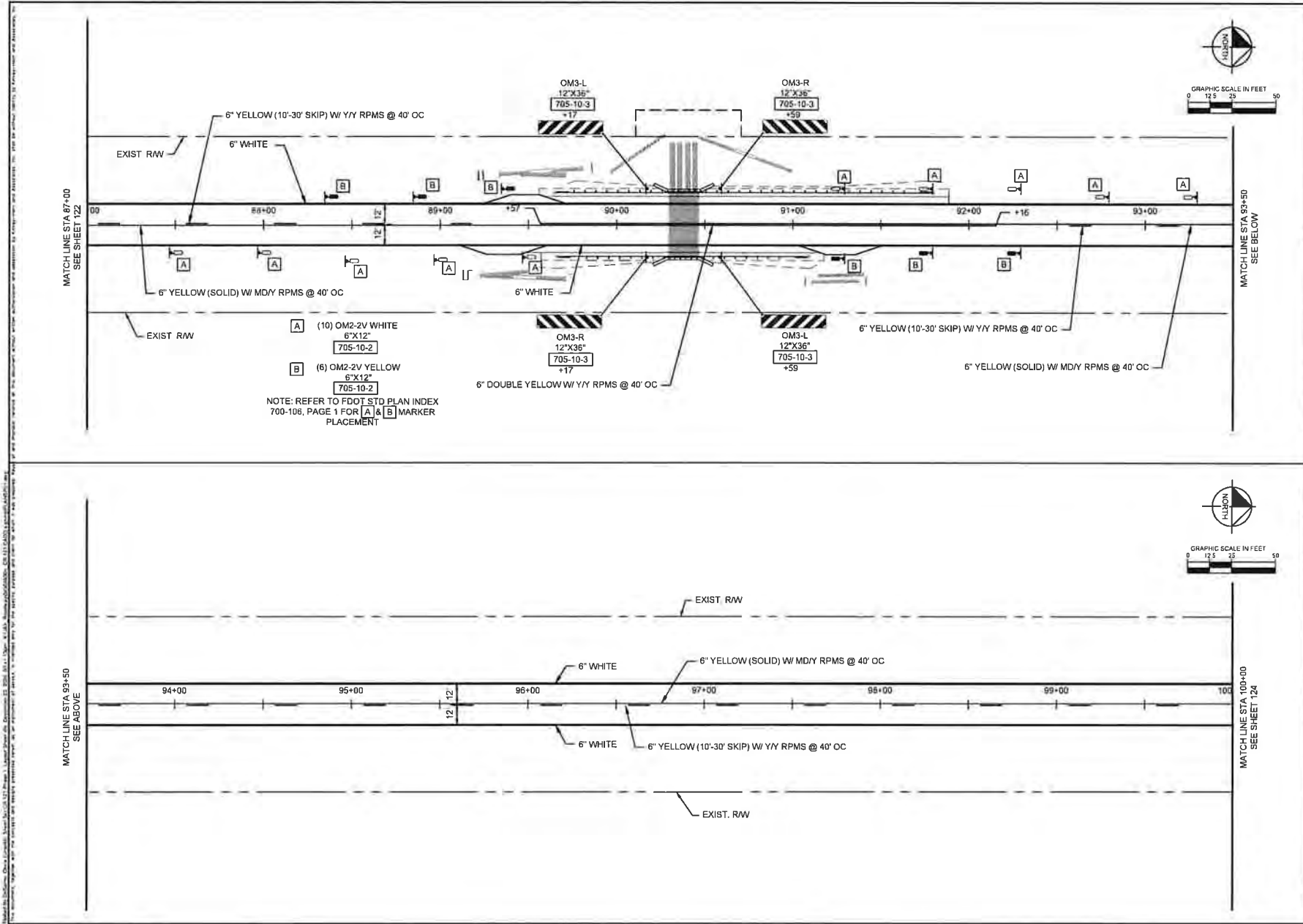
THE OFFICIAL RECORD OF THIS SHIRT IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



SIGNING AND PAVEMENT MARKING		Kimley»Horn	
SHEET NUMBER 121		DATE 12/15/2011	
PROJECT CD 121 PHASE 1		DESIGNED BY JESSICA WIDAK, P.E.	
DRAWN BY JESSICA WIDAK		CHECKED BY JESSICA WIDAK	
DATE 12/15/2011		DATE 12/15/2011	
LOCATION FLORIDA		LOCATION FLORIDA	
SHEET NUMBER 121		SHEET NUMBER 121	
DATE 12/15/2011		DATE 12/15/2011	
REVISIONS		REVISIONS	
DATE		DATE	



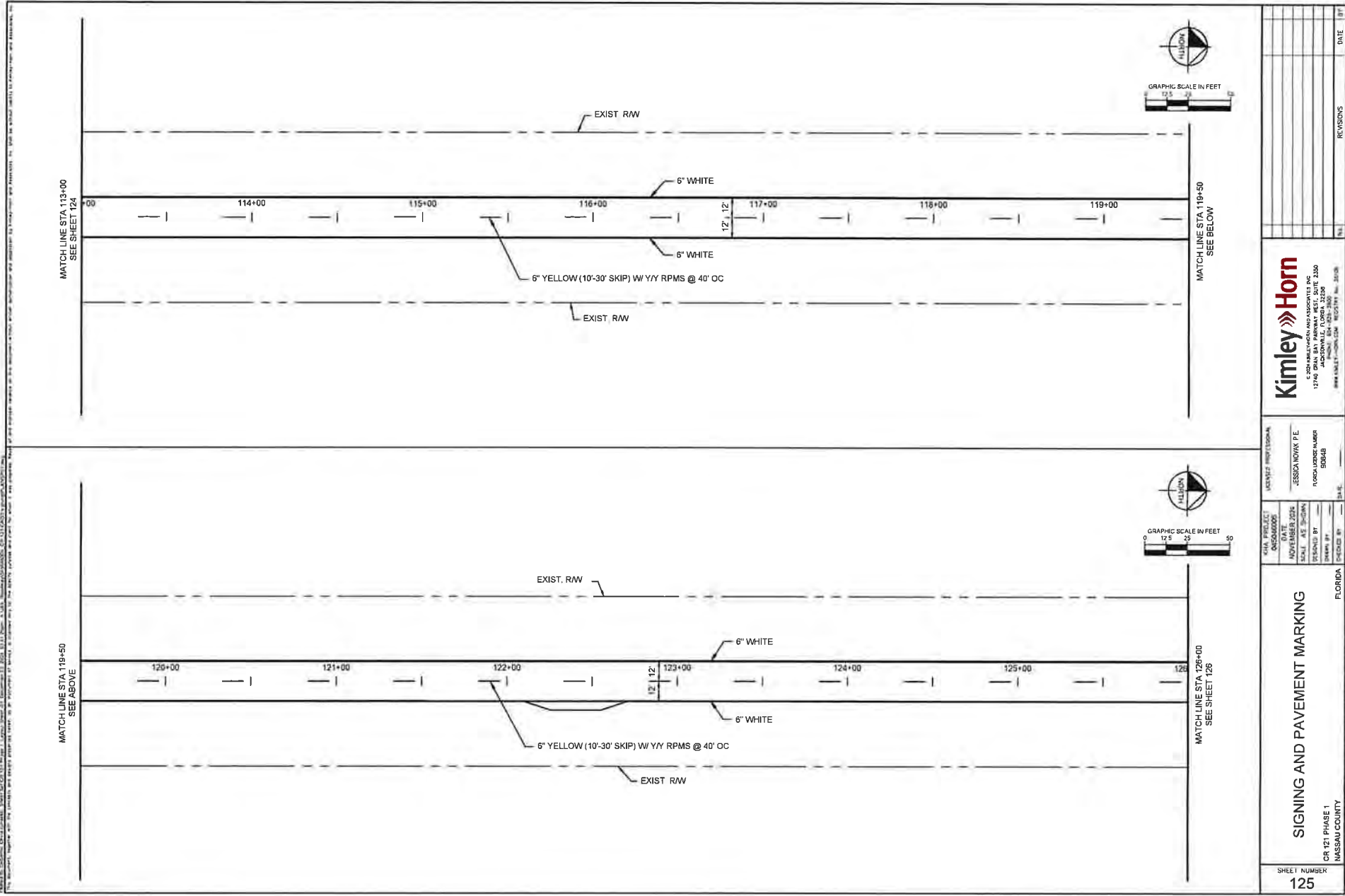
SHEET NUMBER 122		CR 121 PHASE 1 NASSAU COUNTY		FLORIDA THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-73.004, F.A.C.		DATE NOVEMBER 2024		DRAWN BY JESSICA NOWAK, P.E.		CHECKED BY JESSICA NOWAK, P.E.		FLORIDA LICENSE NUMBER 9048		WWW.KIMLEY-HORN.COM		REVISIONS		DATE		BY	
Kimley-Horn 6 BELLEVILLE-HORN AND ASSOCIATES, INC. 12140 CHASE WAY, PARKWAY WEST, SUITE 200 JACKSONVILLE, FLORIDA 32256 PHONE: 904-428-3000																					



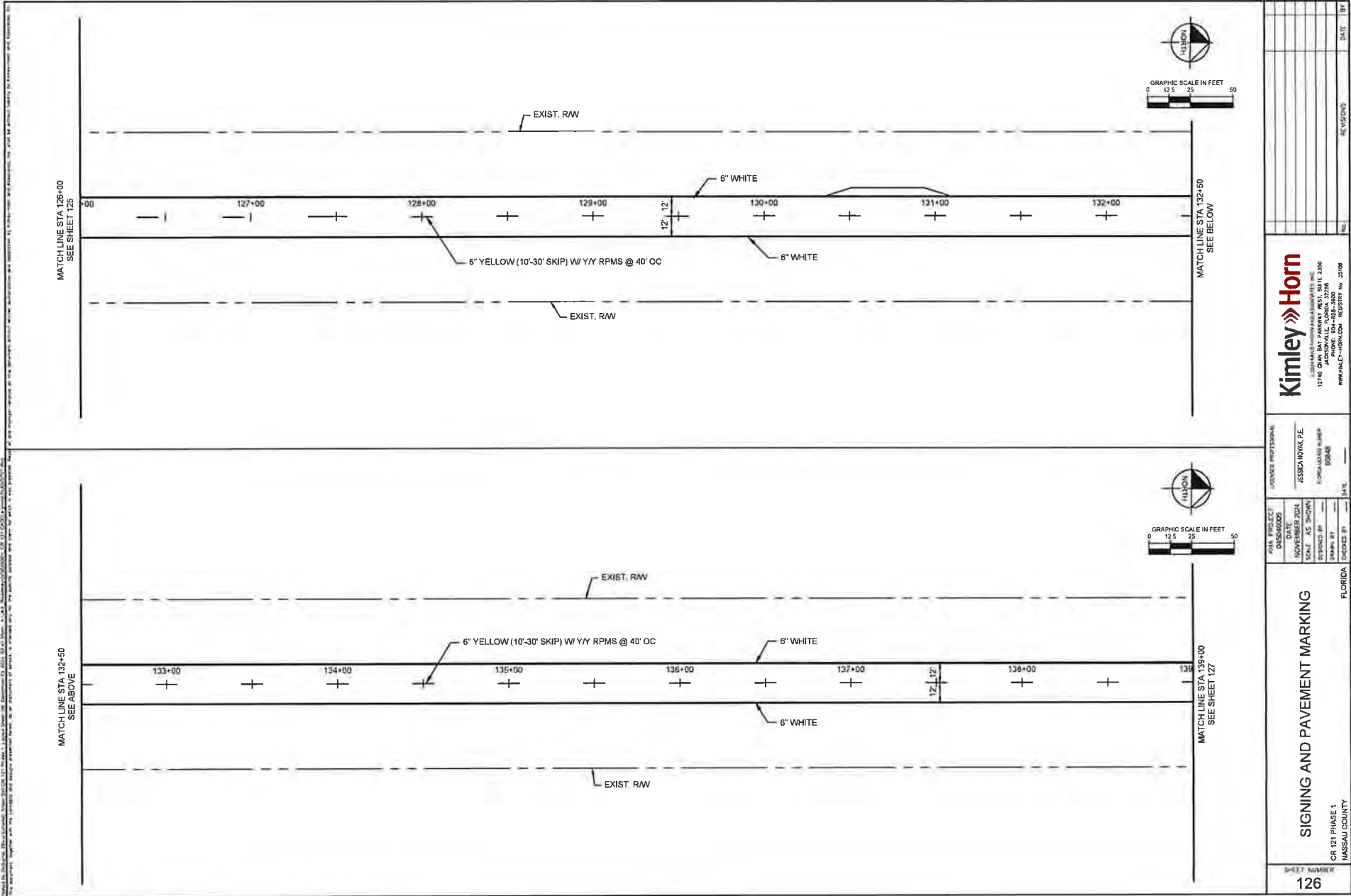
Kimley»Horn A SIGNAGE MANUFACTURING AND INSTALLATION COMPANY 12740 GRAY BAY PARKWAY WEST, SUITE 3350 JACKSONVILLE, FLORIDA 32256 www.kimley-horn.com 904.731.1100		REVISIONS	DATE	BY
PROJECT: CR 121 PHASE 1 DATE: NOVEMBER 2024 SCALE: AS SHOWN DESIGNED BY: JESSICA KOVAK, P.E. DRAWN BY: JESSICA KOVAK, P.E. CHECKED BY: JESSICA KOVAK, P.E. DATE: 11/15/24		THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DISTANTLY SIGNED AND SEALED UNDER PUBLIC REGISTRATION, P.A.C.		
SHEET NUMBER 123		CR 121 PHASE 1 NASSAU COUNTY FLORIDA		



THIS OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61013-23004, F.A.C.



KIMLEY-HORN		KIMLEY-HORN	
C-302 KIMLEY-HORN AND ASSOCIATES, INC.		C-302 KIMLEY-HORN AND ASSOCIATES, INC.	
12740 DIXIE AVENUE, SUITE 2300		12740 DIXIE AVENUE, SUITE 2300	
JACKSONVILLE, FLORIDA 32256		JACKSONVILLE, FLORIDA 32256	
PHONE: 904-423-3300		PHONE: 904-423-3300	
FAX: 904-423-3300		FAX: 904-423-3300	
WWW.KIMLEY-HORN.COM		WWW.KIMLEY-HORN.COM	
PROJECT: 0505000000		PROJECT: 0505000000	
DATE: NOVEMBER 2024		DATE: NOVEMBER 2024	
SCALE: AS SHOWN		SCALE: AS SHOWN	
DESIGNED BY: JESSICA NOVAK P.E.		DESIGNED BY: JESSICA NOVAK P.E.	
DRAWN BY: JESSICA NOVAK		DRAWN BY: JESSICA NOVAK	
CHECKED BY: JESSICA NOVAK		CHECKED BY: JESSICA NOVAK	
APPROVED BY: JESSICA NOVAK		APPROVED BY: JESSICA NOVAK	
FLORIDA		FLORIDA	
SHEET NUMBER		SHEET NUMBER	
125		125	
SIGNING AND PAVEMENT MARKING		SIGNING AND PAVEMENT MARKING	
OR 121 PHASE 1		OR 121 PHASE 1	
WASSAU COUNTY		WASSAU COUNTY	
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61E13-23.004, F.A.C.		THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61E13-23.004, F.A.C.	



Kimley»Horn

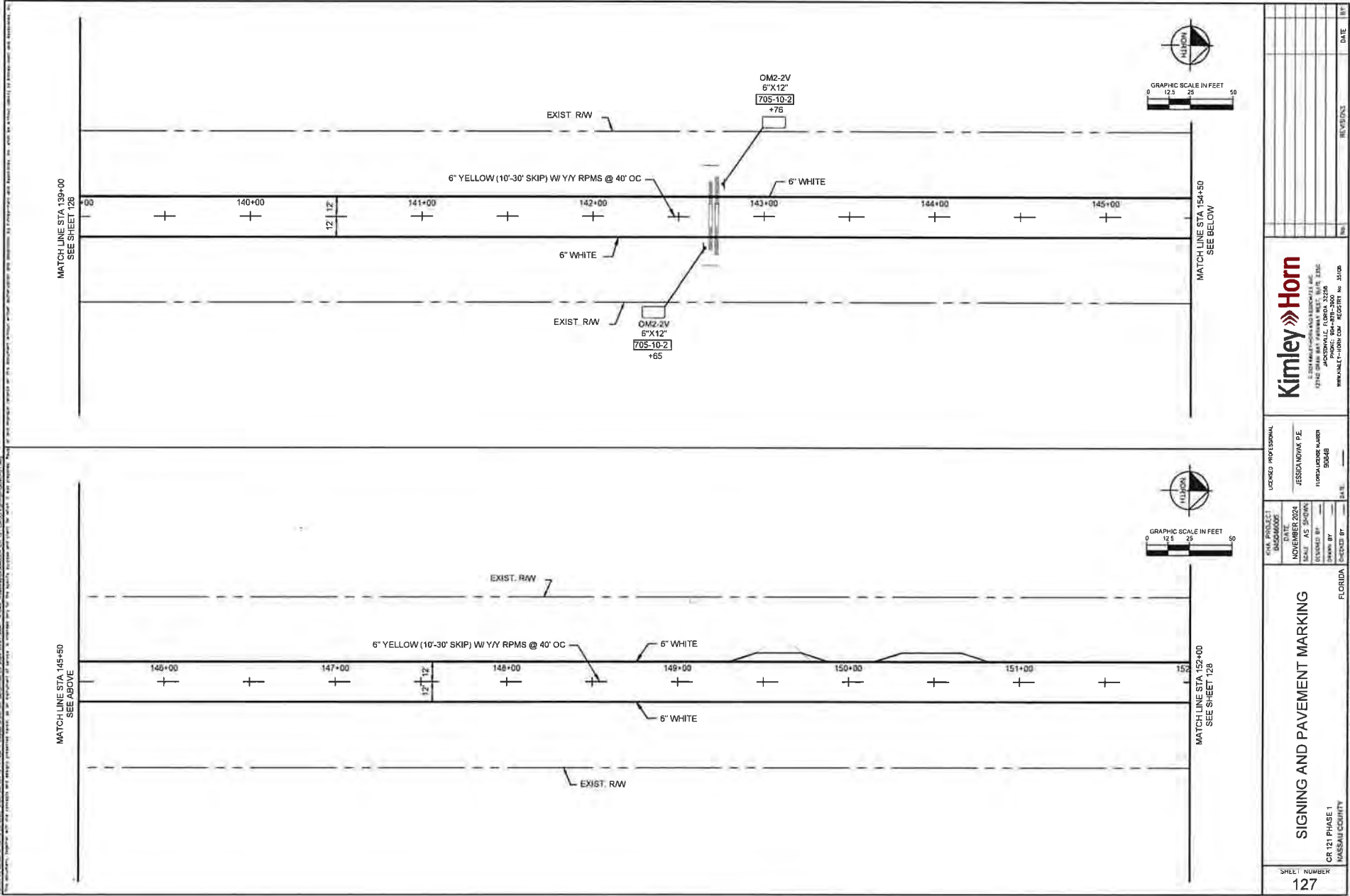
12740 GRAN BAY PARKWAY WEST, SUITE 200
JACKSONVILLE, FLORIDA 32256
WWW.KIMLEY-HORN.COM REGISTRY NO. 3508

PROJECT NO.	CR 121 PHASE 1
DATE	NOVEMBER 2024
DESIGNED BY	AS SHOWN
CHECKED BY	AS SHOWN
DATE	NOVEMBER 2024

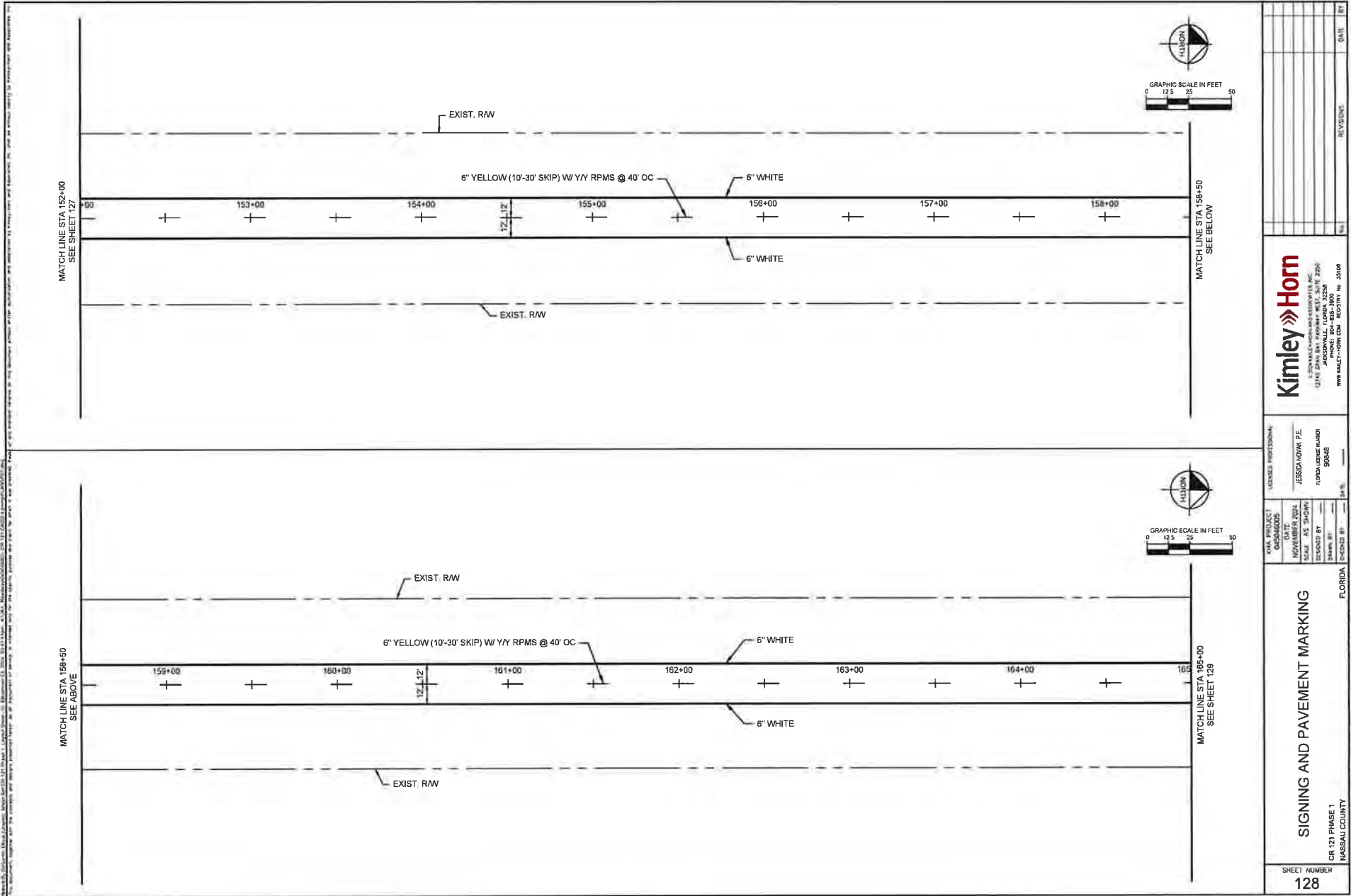
SIGNING AND PAVEMENT MARKING

CR 121 PHASE 1
NASSAU COUNTY
FLORIDA

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE ORIGINALLY SIGNED AND SEALED UNDER RULE 61E13-7.004, F.A.C.



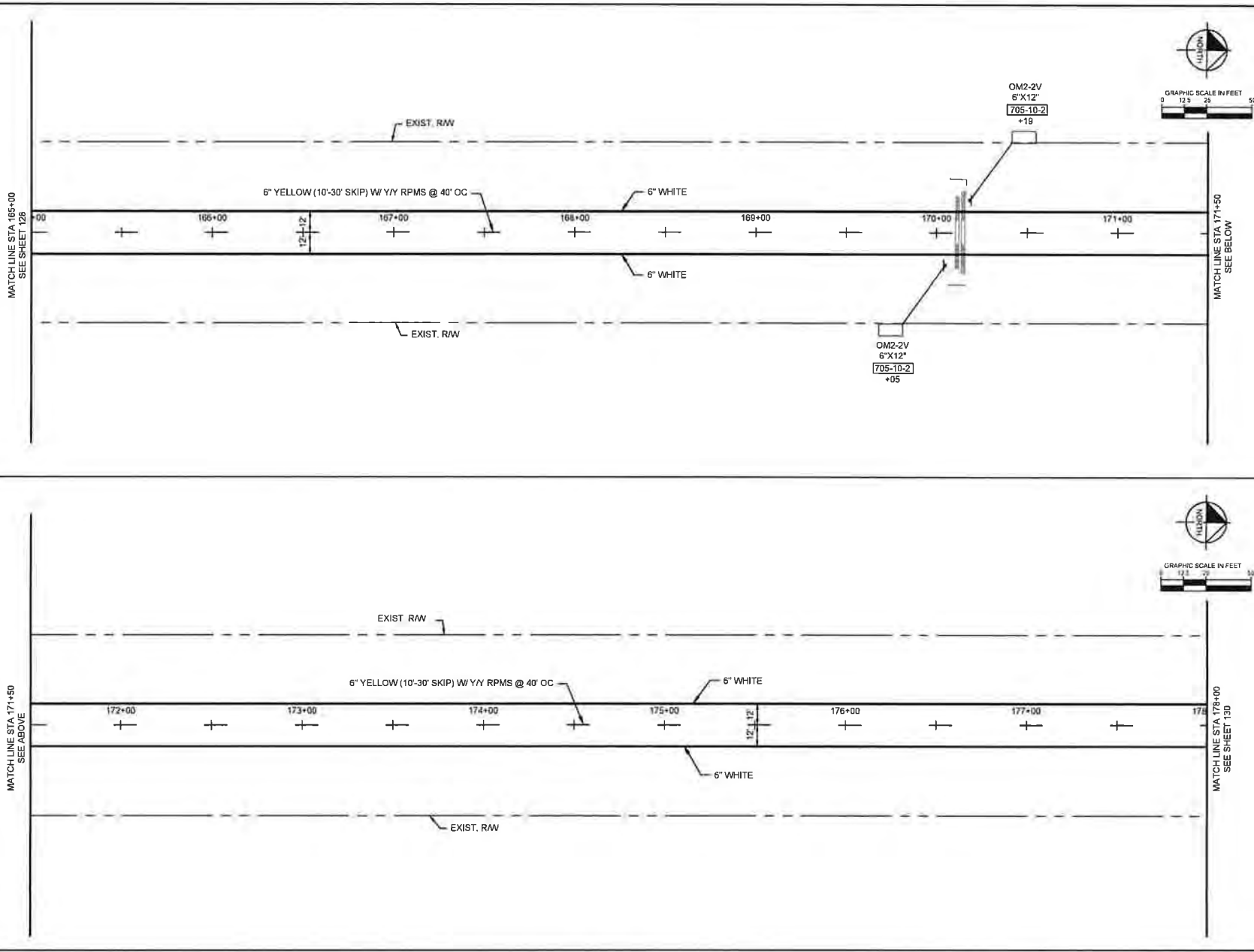
KIMLEY-HORN		KIMLEY-HORN	
KIMLEY-HORN & ASSOCIATES, INC.		KIMLEY-HORN & ASSOCIATES, INC.	
12000 W. 11TH AVENUE, SUITE 100		12000 W. 11TH AVENUE, SUITE 100	
DENVER, COLORADO 80202		DENVER, COLORADO 80202	
www.kimley-horn.com		www.kimley-horn.com	
PROJECT PROFESSIONAL		PROJECT PROFESSIONAL	
DATE: NOVEMBER 2024		DATE: NOVEMBER 2024	
DRAWN BY: JESSE ANDERSON		DRAWN BY: JESSE ANDERSON	
CHECKED BY: JESSE ANDERSON		CHECKED BY: JESSE ANDERSON	
APPROVED BY: JESSE ANDERSON		APPROVED BY: JESSE ANDERSON	
FLORIDA		FLORIDA	
SIGNED AND SEALED UNDER ENGINEERING LICENSE NO. 10000		SIGNED AND SEALED UNDER ENGINEERING LICENSE NO. 10000	
SHEET NUMBER		SHEET NUMBER	
127		127	
CD 13 PHASE 1		CD 13 PHASE 1	
HARRIS COUNTY		HARRIS COUNTY	
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER ENGINEERING LICENSE NO. 10000		THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER ENGINEERING LICENSE NO. 10000	



Kimley»Horn

12345 MAIN STREET, SUITE 200
JACKSONVILLE, FLORIDA 32256
WWW.KIMLEY-HORN.COM REGISTRY NO. 35108

SHEET NUMBER		128
SIGNING AND PAVEMENT MARKING		
KIMLEY-HORN PROJECT		045000005
DESIGNED BY		JESSICA HORN, P.E.
CHECKED BY		JESSICA HORN, P.E.
DATE		NOVEMBER 2024
SCALE		AS SHOWN
PROJECT NO.		045000005
SHEET NO.		128
PROJECT LOCATION		FLORIDA
SHEET TITLE		THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE PRINTED HEREIN WITH 61015-23 004, F.A.C.



SIGNING AND PAVEMENT MARKING

JESSICA NOVAK, P.E.

Kimley»Horn

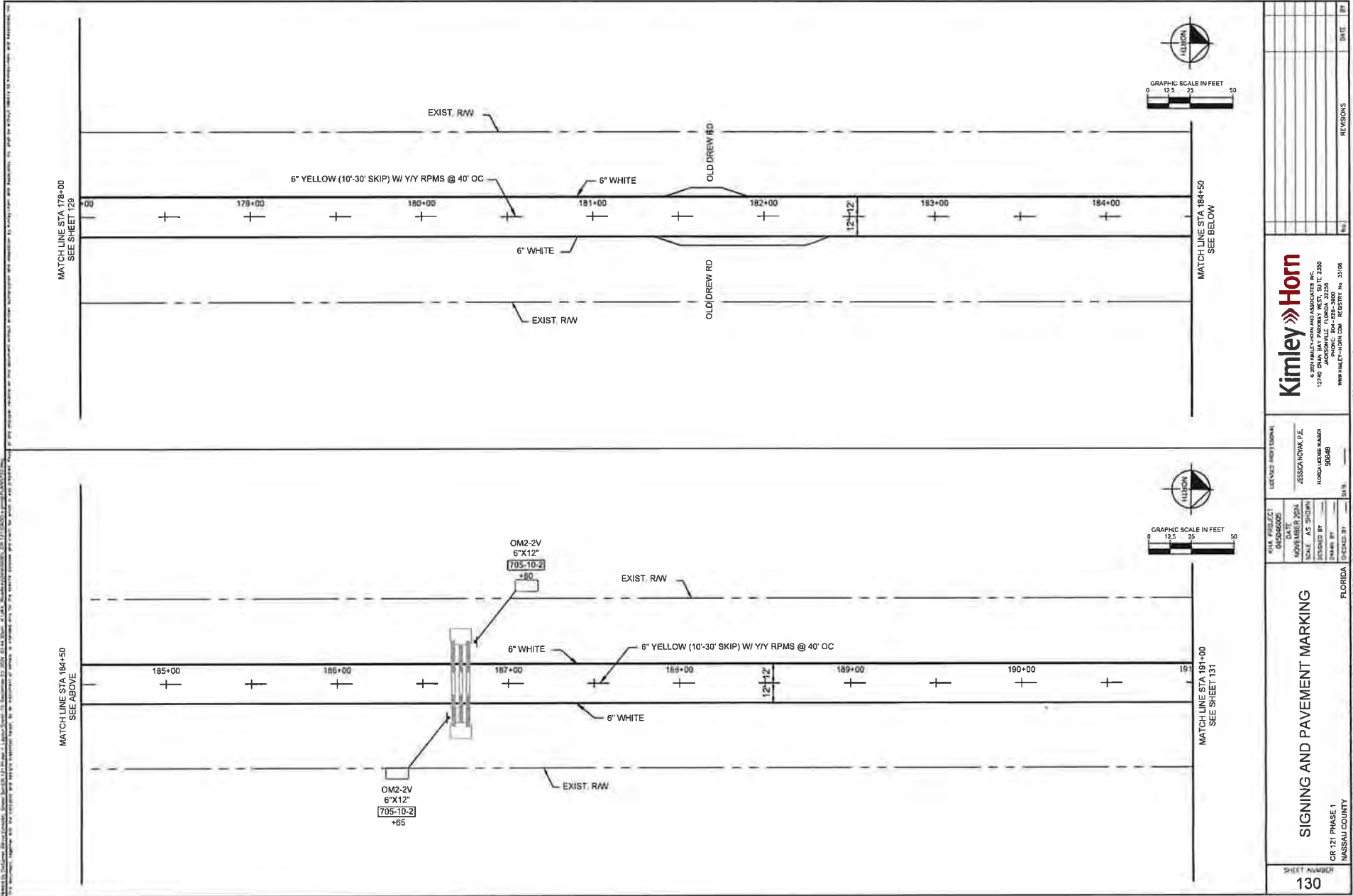
CR 121 PHASE 1
NASSAU COUNTY

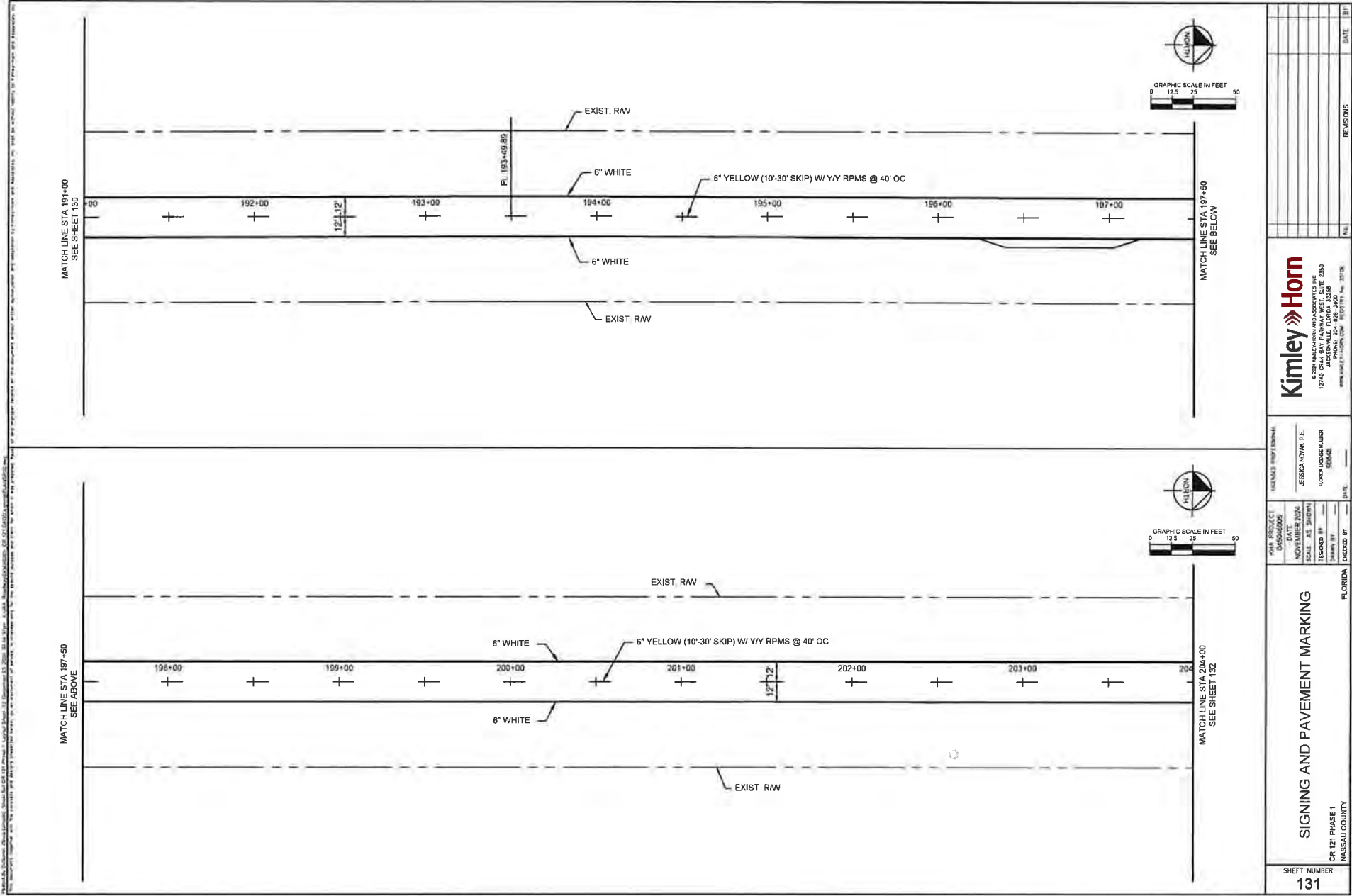
FLORIDA

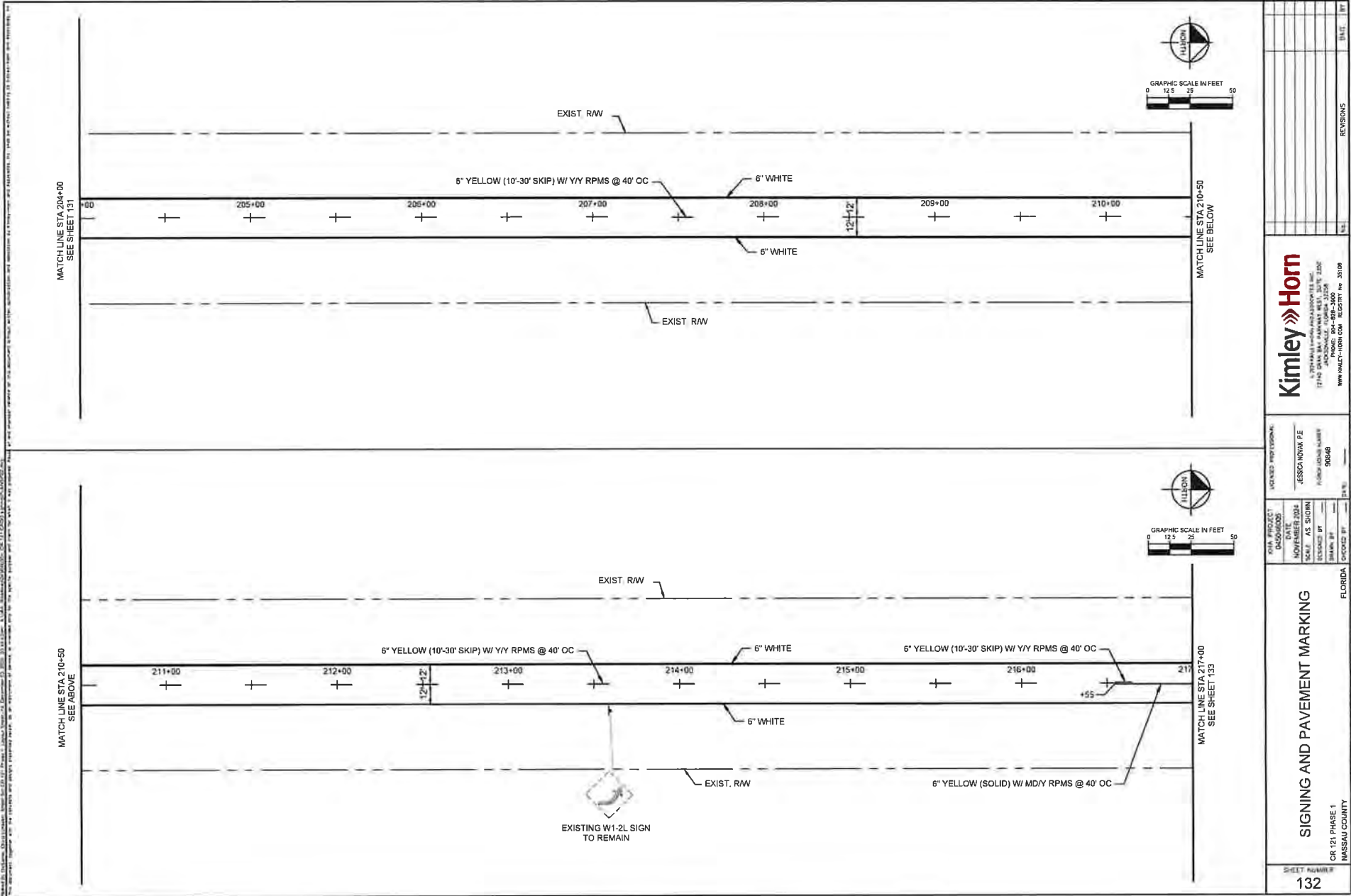
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE INSTANTLY SIGNED AND SEALED UNDER RULE 61G(15-23094) P. 4C.

REV	DATE	BY
REVISIONS		

REVISIONS







Kimley»Horn
A STEWART & STEWART COMPANY
17140 CHAMBERS AVENUE, SUITE 100
JACKSONVILLE, FL 32218
PHONE: 904-446-1000
WWW.KIMLEY-HORN.COM EUGENE No. 35108

PROJECT NO.	2024-0001
DATE	NOVEMBER 2024
SCALE	AS SHOWN
DESIGNED BY	JSS/NOVA/PE
DRAWN BY	90848
CHECKED BY	90848
IN CHARGE	90848

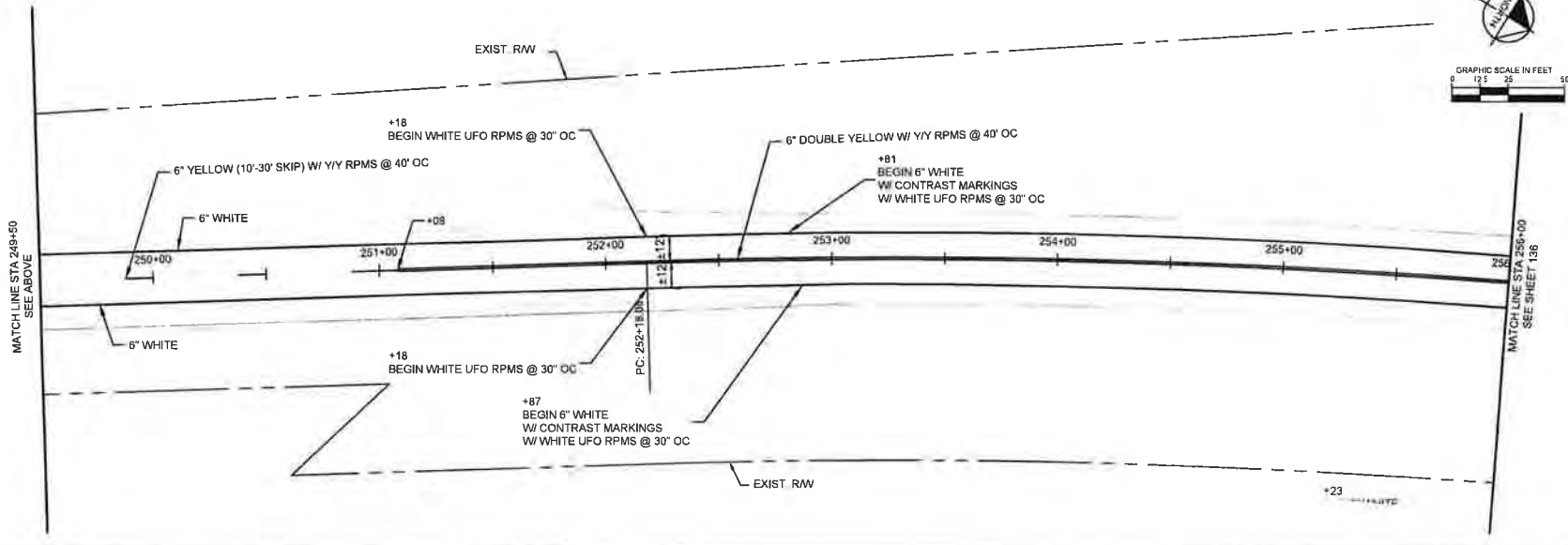
SIGNING AND PAVEMENT MARKING

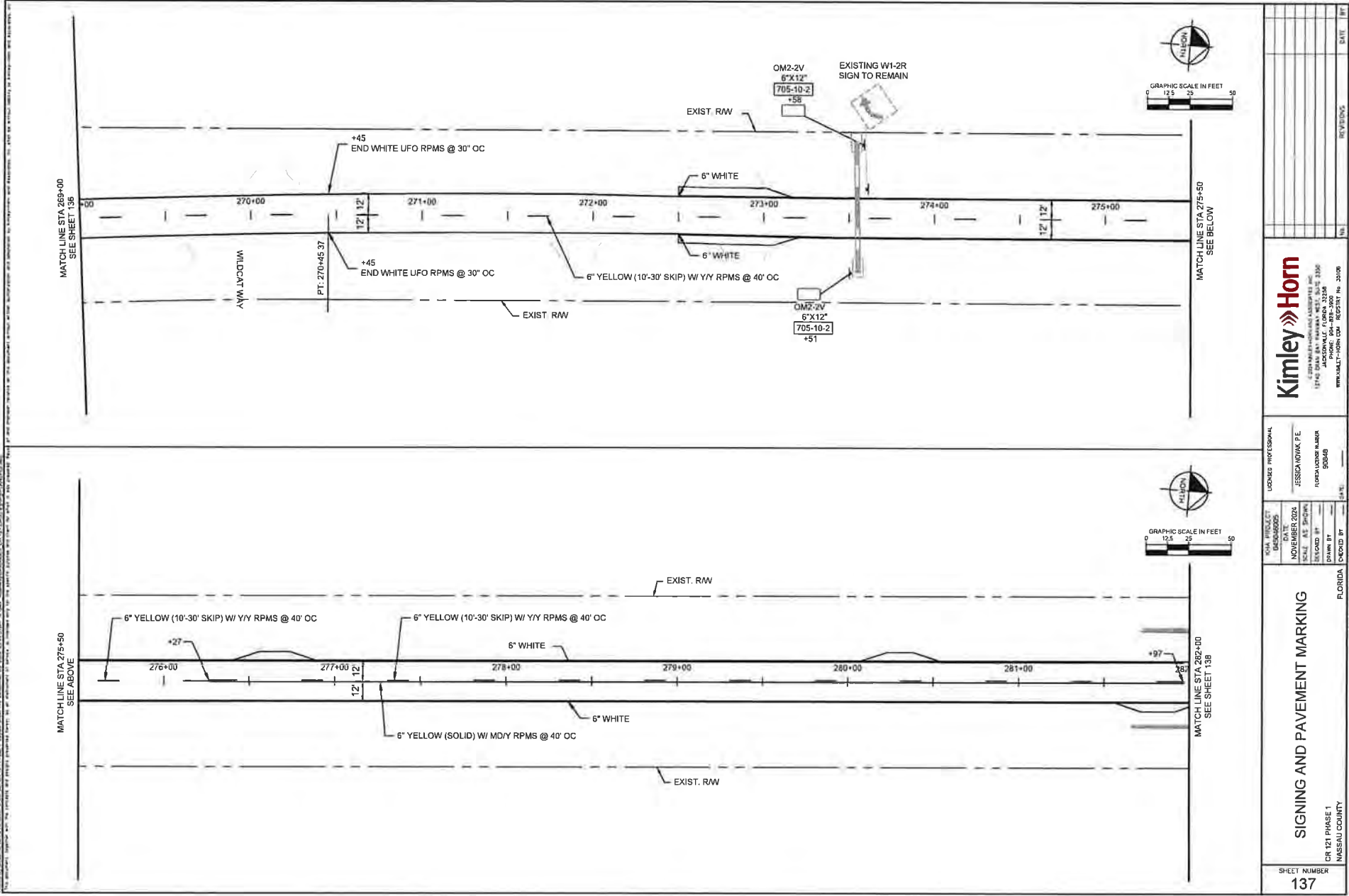
CR 121 PHASE 1
NASSAU COUNTY
FLORIDA

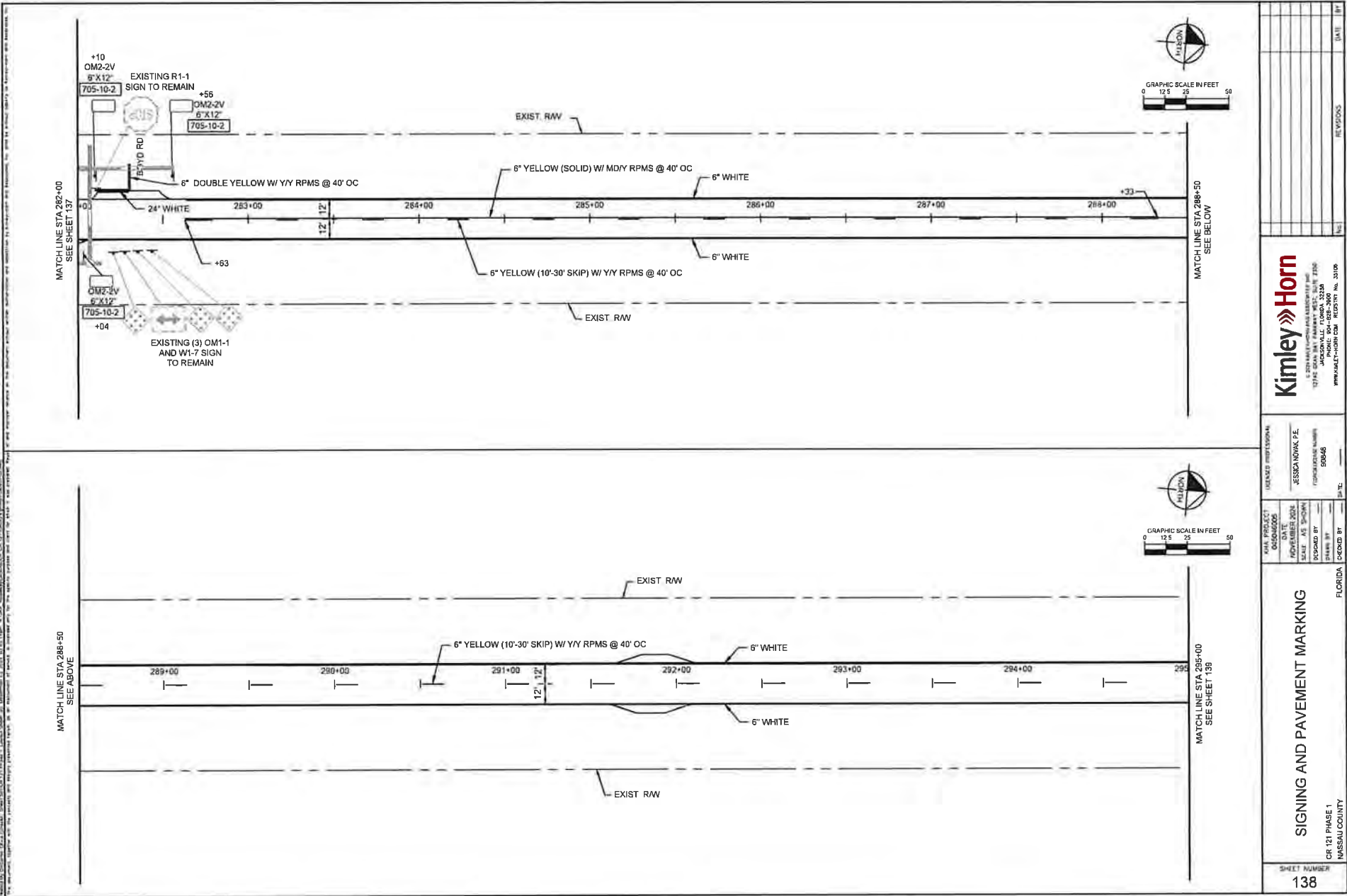
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE OUTPUT. SIGHTS AND SPACES UNDER RAMP 61013-7300L F.A.C.





[illegible]





Kimley»Horn

ISSUED PROFESSIONAL
DATE: 08/04/2024
PROJECT: CR 121 PHASE 1
SHEET: 138
DRAWN BY: JESSANDRAK PE
CHECKED BY: JESSANDRAK PE
DATE: 08/04/2024

SIGNING AND PAVEMENT MARKING

SHEET NUMBER
138

CR 121 PHASE 1
HARRIS COUNTY

FLORIDA

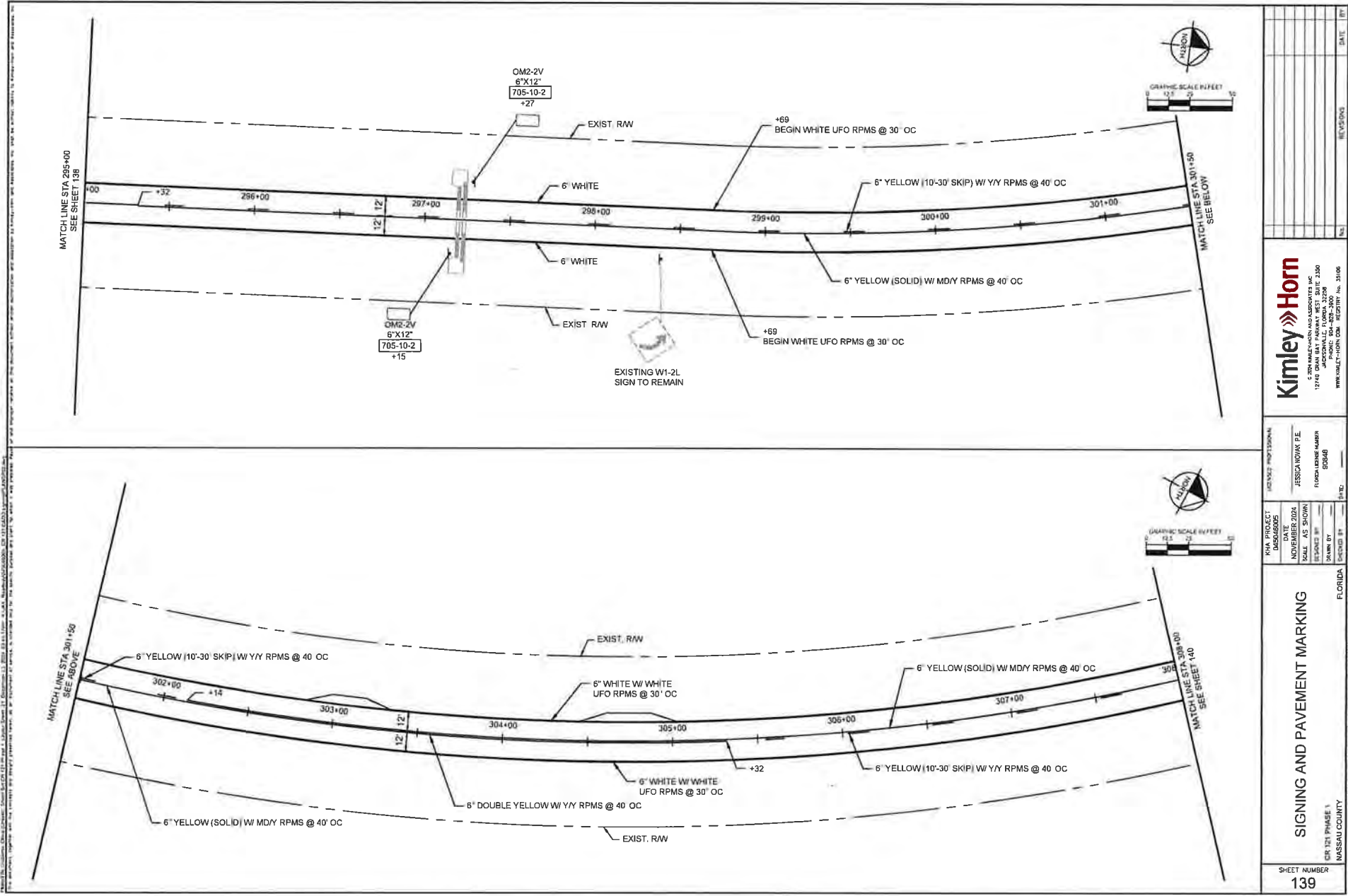
CHECKED BY: JESSANDRAK PE
DATE: 08/04/2024

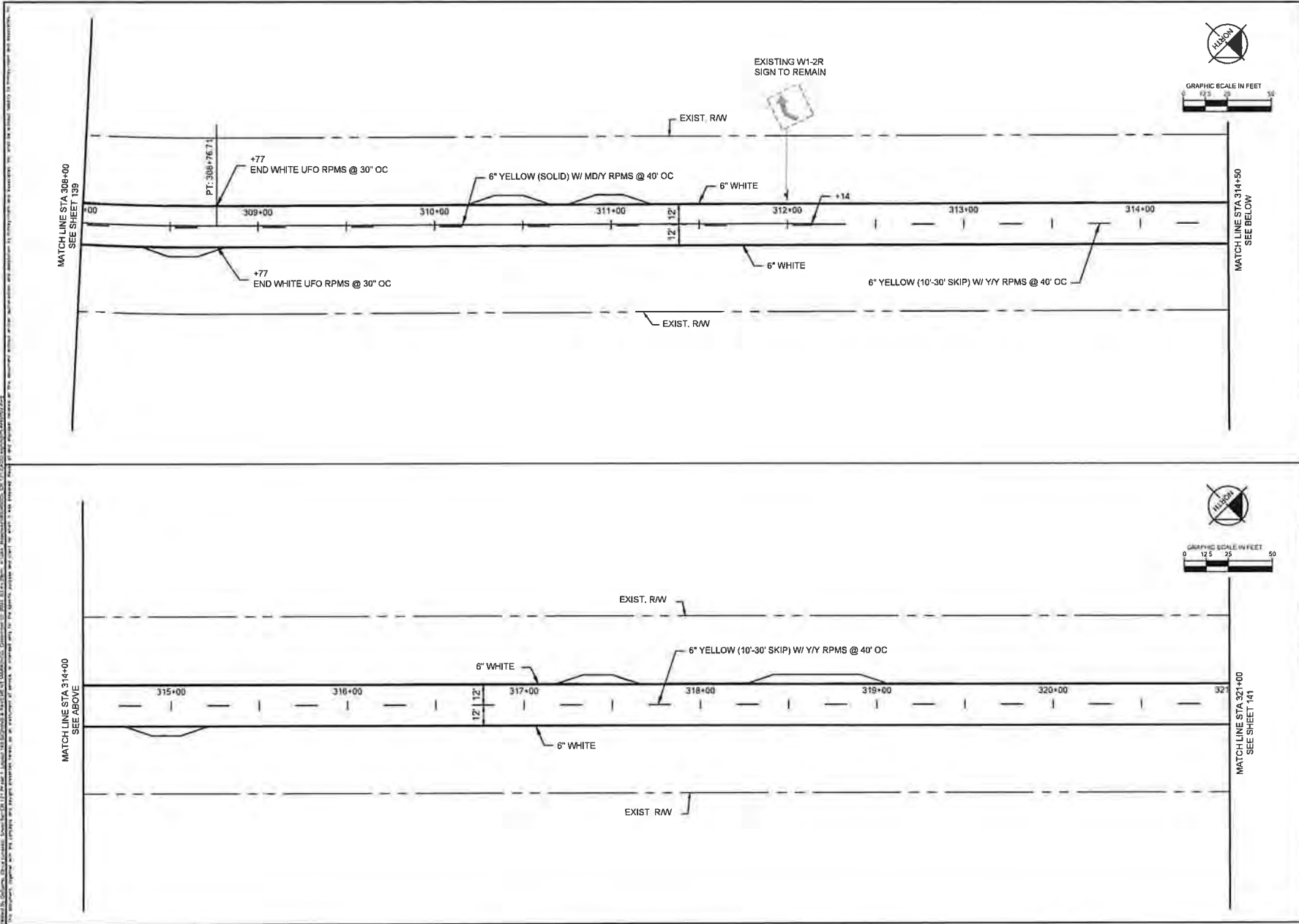
ISSUED PROFESSIONAL
DATE: 08/04/2024

PROJECT: CR 121 PHASE 1
SHEET: 138
DRAWN BY: JESSANDRAK PE
CHECKED BY: JESSANDRAK PE
DATE: 08/04/2024

REVISIONS
DATE

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61C15-23.004, F.A.C.





Kimley-Horn and Associates, Inc. is a professional engineering firm licensed in the State of Florida. The design shown on this sheet is based on the information provided to us by the client. We do not warrant the accuracy or completeness of the information provided to us, nor do we warrant the accuracy or completeness of the design shown on this sheet. The design is for informational purposes only and is not to be used for construction without the approval of the Florida Department of Transportation. The design is not to be used for any other purpose without the written consent of Kimley-Horn and Associates, Inc.

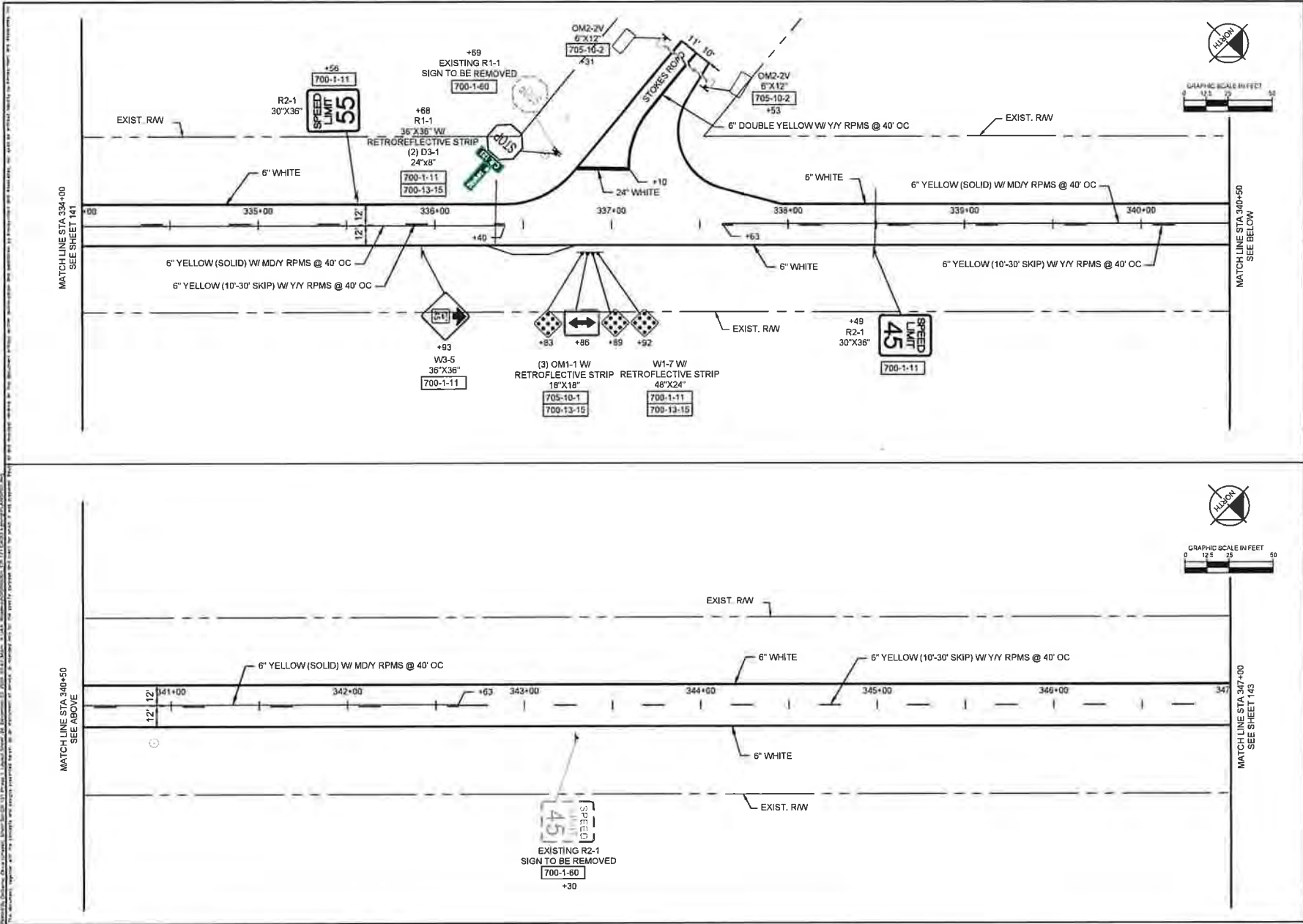
		DATE PROJECT NOVEMBER 2024 DATE AS 3P-00N DESIGNED BY JESSICA KOWAK CHECKED BY JESSICA KOWAK DATE 11/20/2024		SHEET PROJECT CR 121 PHASE 1 NASSAU COUNTY FLORIDA THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC "PDF DIGITAL" SIGNED AND SEALED UNDER RULE 61E13-23.002, F.A.C.	
12746 GUN BAY PARKWAY WEST, SUITE 200 JACKSONVILLE, FLORIDA 32218 PHONE: 904-408-1000 WWW.KIMLEY-HORN.COM		JESSICA KOWAK, P.E. FLORIDA LICENSE NUMBER 90048		REVISIONS NO. DATE	

SIGNING AND PAVEMENT MARKING

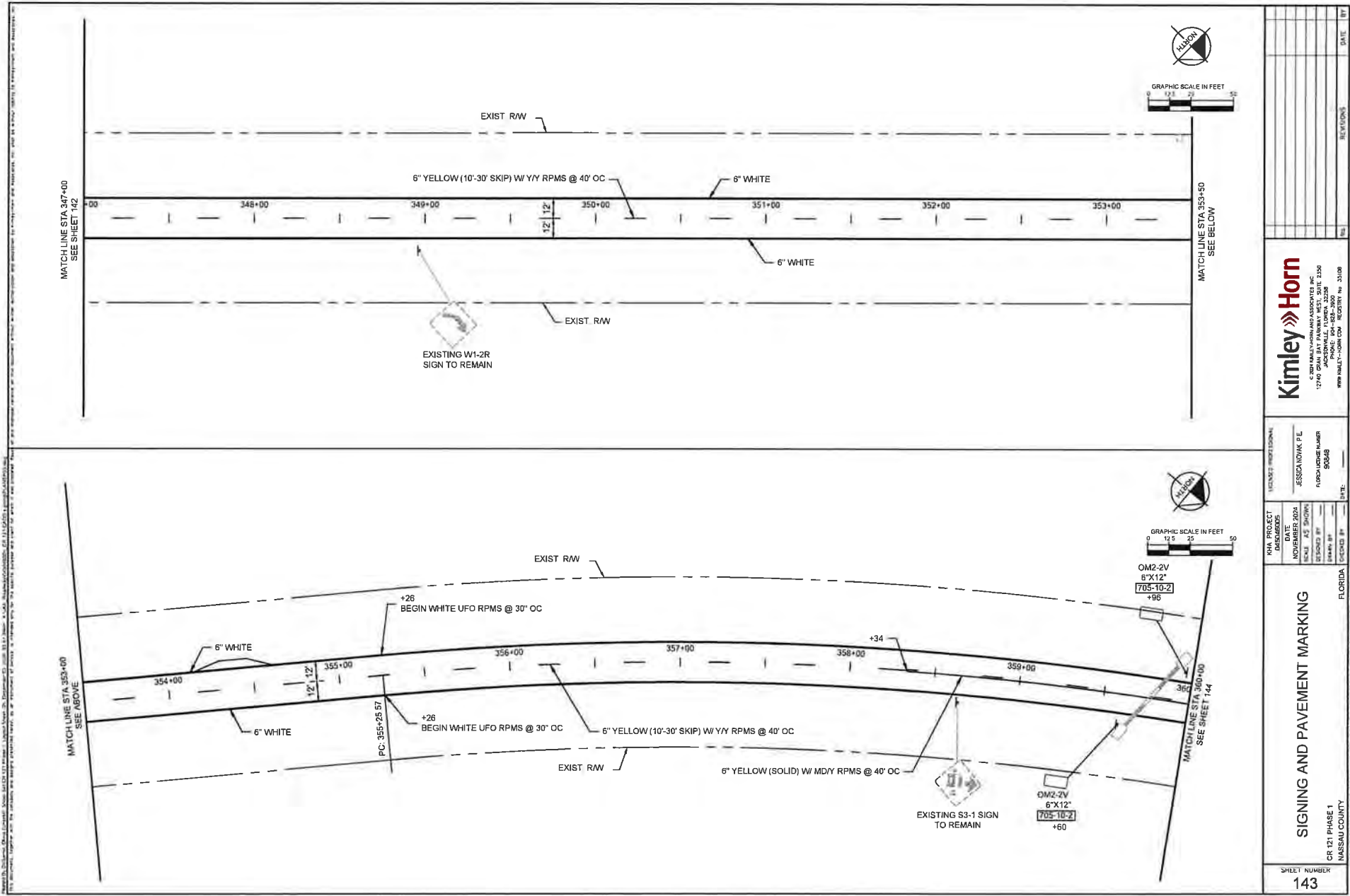
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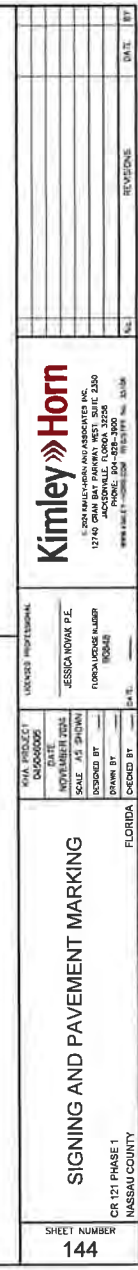
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

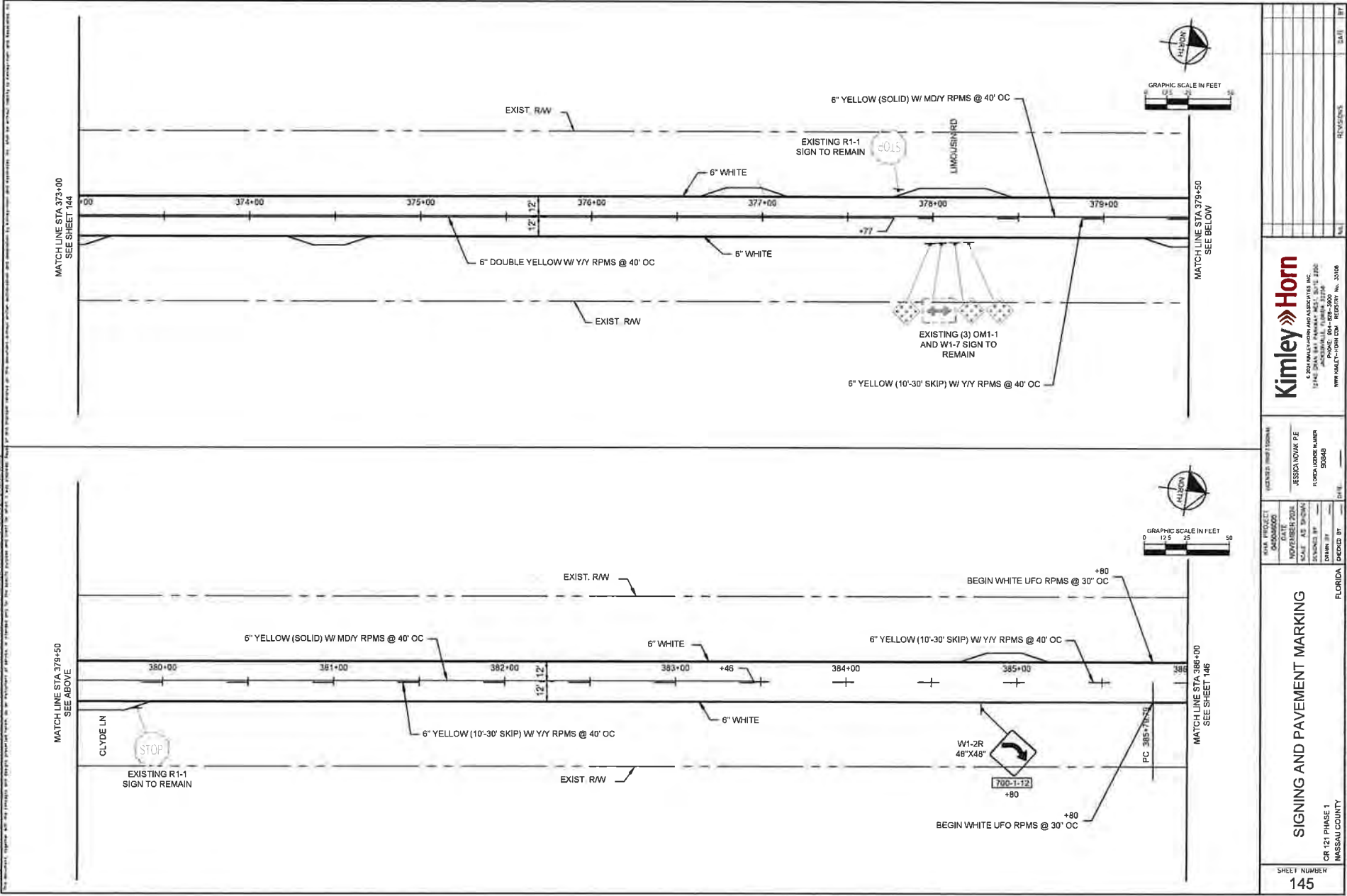


Kimley»Horn C. J. KIMLEY-HORN AND ASSOCIATES, INC. 12742 DAWN BAY PALMWAY, SUITE 200 DADE COUNTY, FL 33156 PHONE: 305-499-3900 WWW.KIMLEY-HORN.COM	
PROJECT: 045062005	DATE: NOVEMBER 2021
SCALE: AS SHOWN	DESIGNED BY: JESSICA NOWAK P.E.
CHECKED BY: HENRY B.	FLORIDA LICENSE NUMBER: 80080
SHEET NUMBER: 142	
CR 121 PHASE 1	
NASSAU COUNTY	
FLORIDA	
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.	



Kimley»Horn CORPORATE HEADQUARTERS 12740 GRAN BAY PARKWAY WEST, SUITE 1100 JACKSONVILLE, FLORIDA 32256 WWW.KIMLEY-HORN.COM PROJECT No. 33108	
PROJECT INFORMATION	
PROJECT NAME	CR 121 PHASE 1
DATE	NOVEMBER 2024
SCALE	AS SHOWN
DESIGNED BY	BRADLEY
DRAWN BY	BRADLEY
CHECKED BY	BRADLEY
DATE	NOVEMBER 2024
PROJECT LOCATION	FLORIDA
SHEET NUMBER 143	



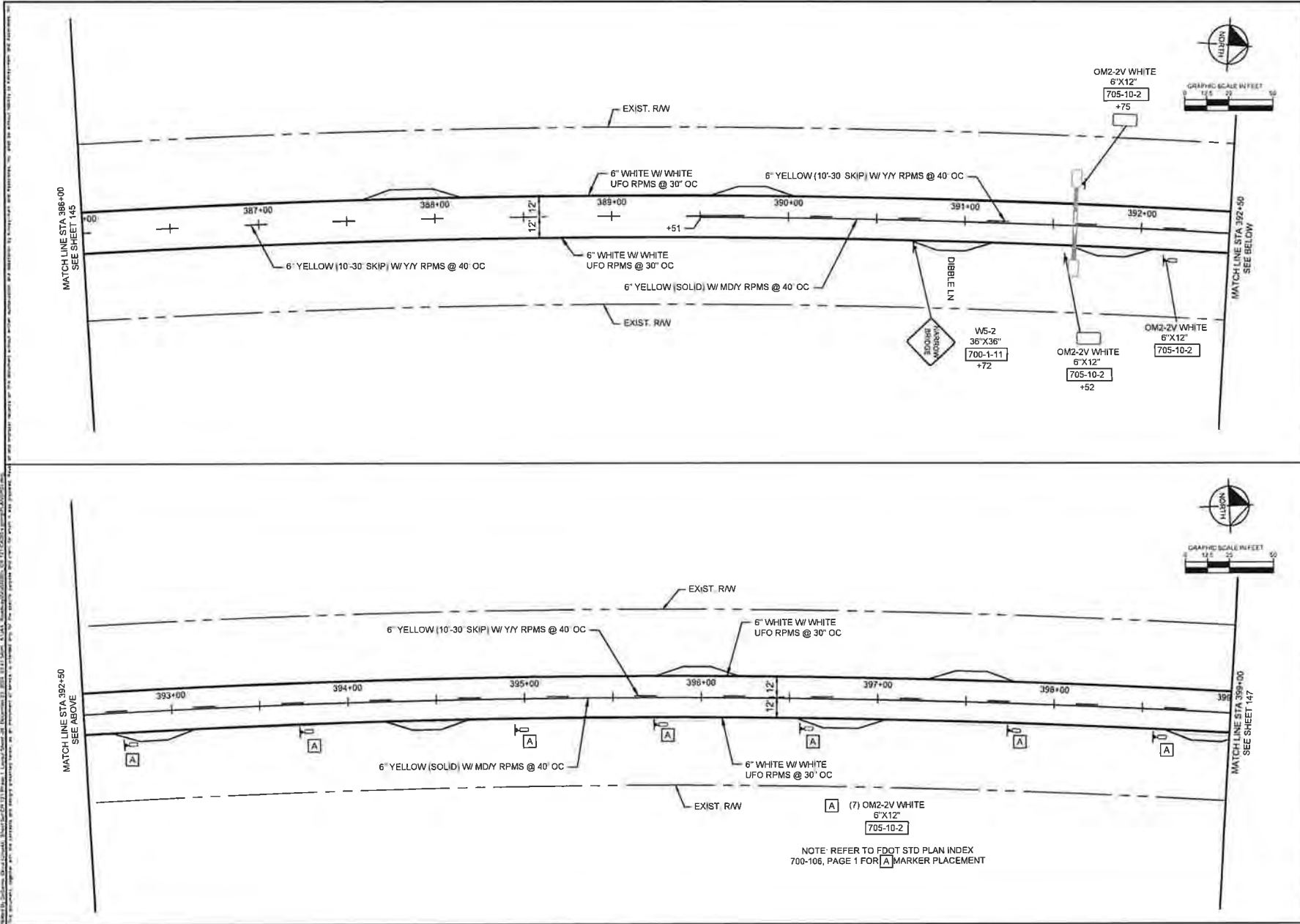


SHEET NUMBER		145
OR 121 PHASE 1		
MISSISSAUGA COUNTY		
FLORIDA		
PROJECT		61C15-23 004 F.A.C.
DATE		NOVEMBER 2024
SCALE		AS SHOWN
DESIGNED BY		JESSICA KIMLEY
DRAWN BY		ALISA LUTER
CHECKED BY		BOB BLO
PROJECT NO.		20040
SHEET NO.		145
DATE		NOVEMBER 2024
REVISIONS		
REV		DATE
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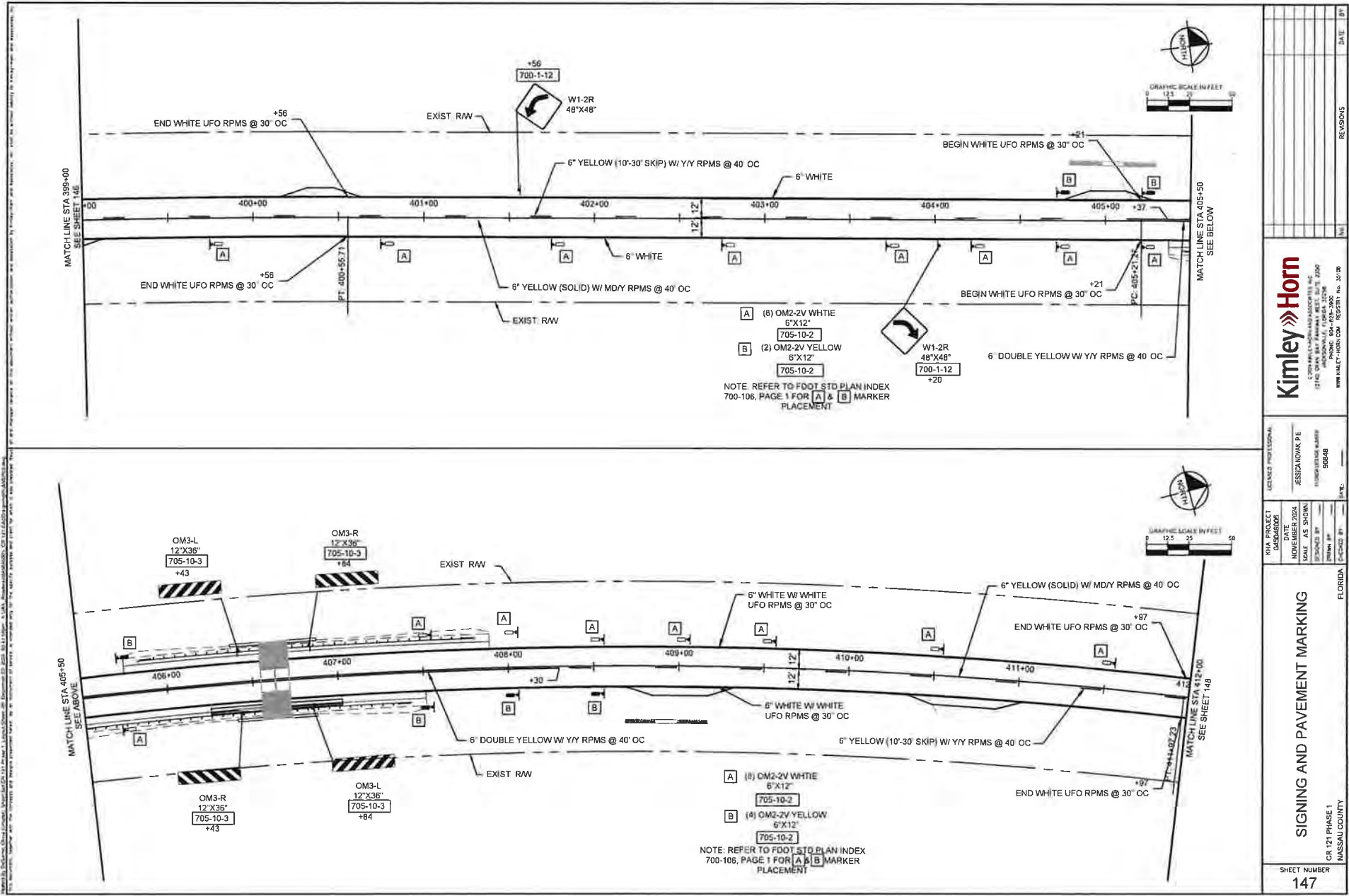
Kimley»Horn
C. 2024 KIMLEY HORN AND ASSOCIATES, INC.
13440 S. RIVERVIEW AVE., SUITE 200
DALLAS, TEXAS 75244
PHONE: 972-497-3000
WWW.KIMLEY-HORN.COM

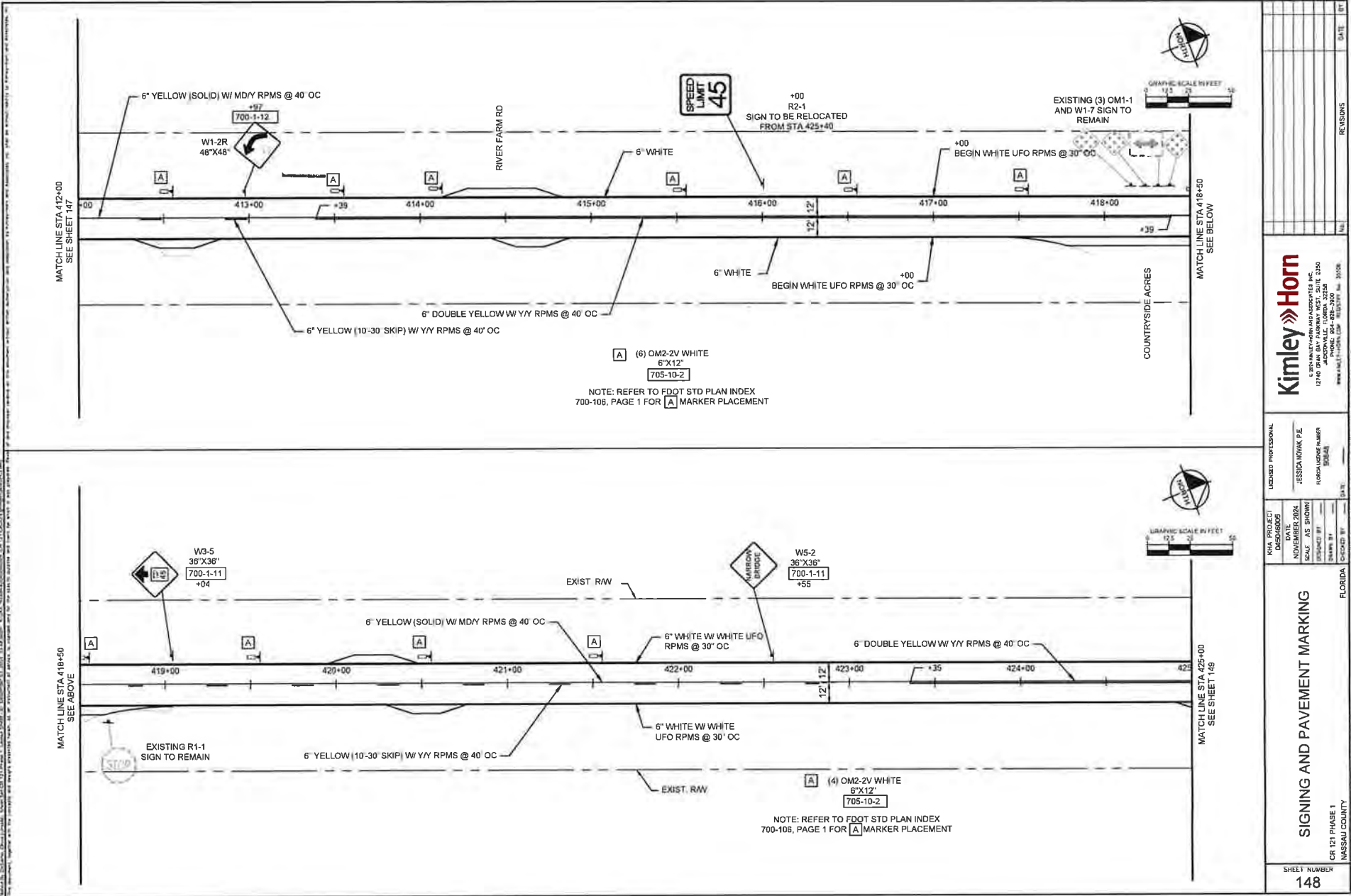
JESSICA KIMLEY, P.E.
ALISA LUTER, AIA
BOB BLO, P.E.

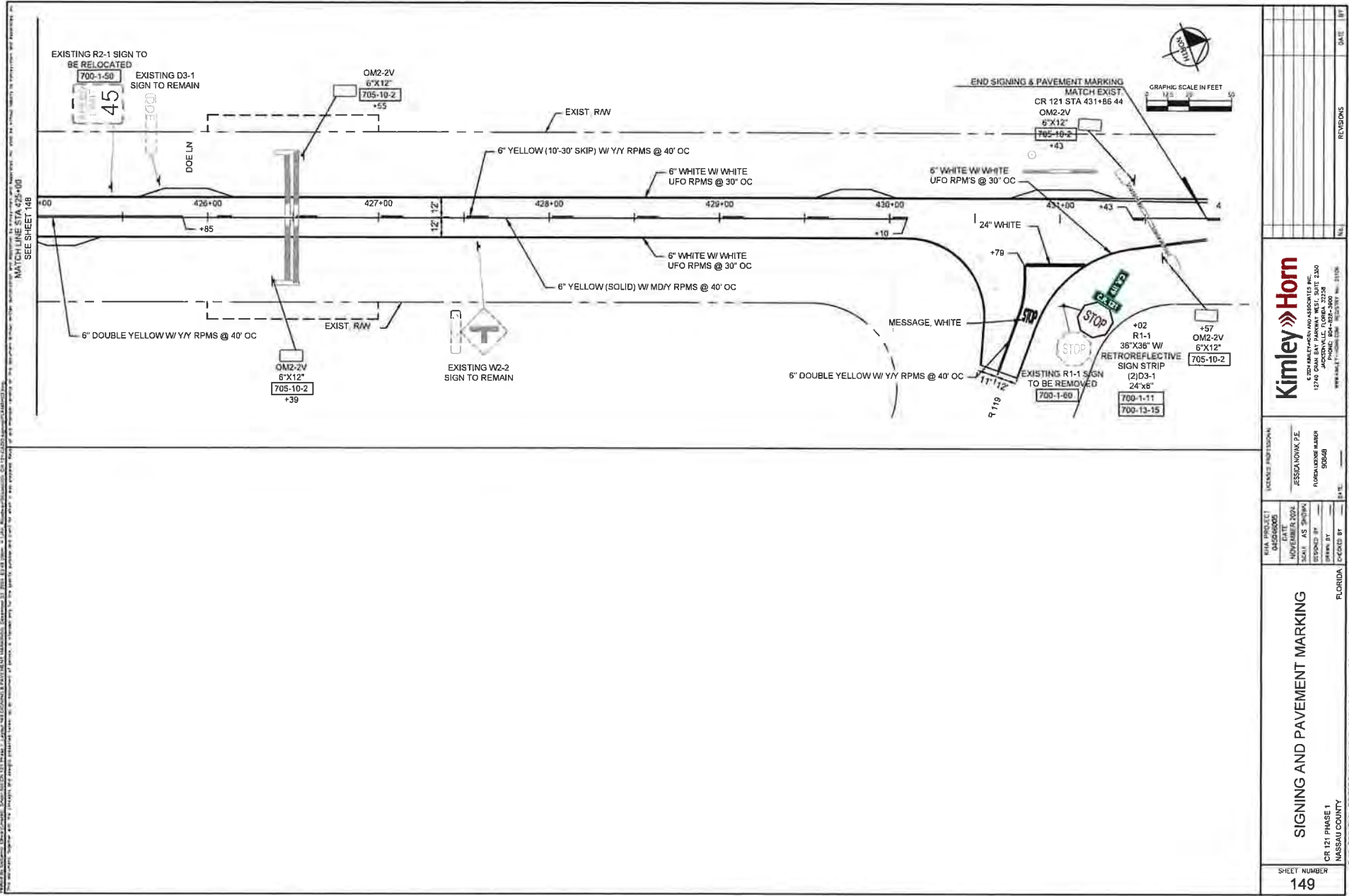
SIGNING AND PAVEMENT MARKING
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61C15-23 004 F.A.C.



Kimley-Horn	
KIMLEY-HORN & ASSOCIATES, INC. 12742 CHAIR BAY PARKWAY WEST SUITE 2300 JACKSONVILLE, FLORIDA 32256 WWW.KIMLEY-HORN.COM REGISTRY No. 33106	
LICENSED PROFESSIONAL ENGINEER JESSICA NOVAK, P.E. FLORIDA LICENSE NUMBER 90348	
PROJECT: D45D4465-EABC-4CB4-9D6F-06F39945983E DATE: NOVEMBER 2024 SCALE: AS SHOWN DESIGNED BY: [Redacted] DRAWN BY: [Redacted] CHECKED BY: [Redacted] DATE: [Redacted]	
SHEET NUMBER 146	
CS 021 PHASE 1 NASSAU COUNTY FLORIDA	
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE ROUTINELY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.	







Kimley»Horn	
KIMLEY-HORN & ASSOCIATES, P.C. 12745 DAWN PALM PARKWAY, SUITE 200 JACKSONVILLE, FLORIDA 32256 WWW.KIMLEY-HORN.COM TEL: 904.731.1100 FAX: 904.731.1101	
PROJECT: CR 121 PHASE 1 SHEET: 149 OF 150 DATE: 11/05/2021 DRAWN BY: JESSICA WARD CHECKED BY: JESSICA WARD APPROVED BY: JESSICA WARD	
SIGNED AND SEALED UNDER SEAL # 016763-33,000 P.A.C.	
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER SEAL # 016763-33,000 P.A.C.	

FIRE CHIEF: BRADY RIGDON (904) 530-6600

SHEET NUMBER		150	
TRAFFIC CONTROL GENERAL NOTES		FLORIDA	
CR 121 PHASE 1		NAUSSAU COUNTY	
KIMLEY-HORN PROJECT 045246005 DATE NOVEMBER 2024 SCALE: AS SHOWN DESIGNED BY (SIGNED) (DATE) (NAME) 62.530 DRAWN BY CHECKED BY DATE		KIMLEY-HORN 1201 KIMLEY-HORN AND ASSOCIATES, INC. 1201 KIMLEY-HORN AND ASSOCIATES, INC. JACKSONVILLE, FLORIDA 32204 PHONE: 904-875-3800 FPM KIMLEY-HORN CO. REGISTRATION NO. 30108	
		REVISIONS DATE BY	

TRAFFIC CONTROL GENERAL NOTES

SHEET NUMBER
150

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



BOX CULVERT DATA TABLES

BOX, HEADWALL AND CUTOFF WALL DATA TABLE (inches unless shown otherwise)																			Table Date 7 01 09	
LOCATION	STRUCTURE / BRIDGE NUMBER	BOX										HEADWALL AND CUTOFF WALL								
		Wc(ft)	Hc(ft)	Tt	Tw	Tb	Ti	#cells	Lc(ft)	Cover	Bh/w	Hh/w	Br/hw	Hr/hw	B/cw	H/cw	Brcw	Hrcw	SL(deg)	SR(deg)
STA 54+14.00	744321	12	6	14	12	14	12	2	40.1	3	18	18	18	18	12	18	12	18	0	0
STA 406+59.00	S-3	8	4	12	12	12	12	2	46	3	18	85	18	74	12	24	12	24	0	0

LEFT SIDE WINGWALLS DATA TABLE (inches unless shown otherwise)																	Table Date 01/01/11	
STRUCTURE /BRIDGE NUMBER	LEFT END WINGWALL									LEFT BEGIN WINGWALL								
	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)
744321	14	18	30	10	105	0.01	7	7.5	11	14	18	30	10	105	0.01	7	7.5	11
S-3	30	18	63	14	90	0.01	11.1	11.1	16	30	18	63	14	90	0.01	11.1	11.1	16

RIGHT SIDE WINGWALLS DATA TABLE (inches unless shown otherwise)																		Table Date 01.01.11	
STRUCTURE / BRIDGE NUMBER	RIGHT END WINGWALL									RIGHT BEGIN WINGWALL									
	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	
744321	14	18	30	10	105	0.01	6.8	7.3	11	14	18	30	10	105	0.01	6.8	7.3	11	
S-3	30	18	63	14	90	0.01	10.2	10.2	14	30	18	63	14	90	0.01	10.2	10.2	14	

ESTIMATED CONCRETE QUANTITIES (CY)																			Table Date 7-01-13		
STRUCTURE /BRIDGE NUMBER	BOX								LEFT END WINGWALL			LEFT BEGIN WINGWALL			RIGHT END WINGWALL			RIGHT BEGIN WINGWALL			
	Left Cutoff Wall	Right Cutoff Wall	Bottom Slab	Walls	Top Slab	Left Head Wall	Right Head Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	
744321	0.333	0.333	50.3	26.7	46.8	0.5	0.5	126	2.23	4.43	6.66	2.23	4.43	6.66	2.23	4.31	6.54	2.23	4.31	6.54	
S-3	0.704	0.704	34.5	20.4	32.4	6.42	5.45	101	6.89	9.87	16.8	6.89	9.87	16.8	6.03	7.93	14	6.03	7.93	14	

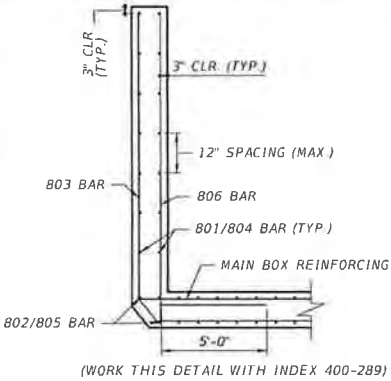
MAIN STEEL REINFORCEMENT SPACING (inches)																	Table Date 7-01-09
STRUCTURE /BRIDGE NUMBER	BOX														HEADWALLS		CUTOFF WALLS
	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	
744321	6	8	8	6	8	8	8	8	12	12	12	12	12	12	12	12	6
S-3	6	6	6	6	12	8	12	12	12	12	12	12	12	12	12	12	12

WINGWALL STEEL REINFORCEMENT SPACING (inches)																										Table Date 7-01-09		
STRUCTURE /BRIDGE NUMBER	LEFT END WINGWALL							LEFT BEGIN WINGWALL							RIGHT END WINGWALL							RIGHT BEGIN WINGWALL						
	401 407(8)	402 (403)	404 (405)	406	409	410	411	501 507(8)	502 (503)	504 (505)	506	509	510	511	601 607(8)	602 (603)	604 (605)	606	609	610	611	701 707(8)	702 (703)	704 (705)	706	709	710	711
744321	8	8	12	8	8	8	8	8	8	12	8	8	8	8	8	8	12	8	8	8	8	8	8	12	8	8	8	8
S-3	8	12	8	12	8	8	8	8	12	8	12	8	8	8	8	12	8	12	8	8	8	8	12	8	12	8	8	8

WINGWALL NOTE: Bar designations in "() " are only required for variable height wingwalls.

BRIDGE NO. 744321

REVISIONS				Kimley-Horn JOSEPH A. ROBERTS JR. P.E. LICENSE NUMBER 78347 200 SOUTH ORANGE AVENUE, SUITE 600 ORLANDO, FL 32801 REGISTRY 35106	DRAWN BY JRG CHECKED BY JAR DESIGNED BY JRG CHECKED BY JAR	CR 121 BOX CULVERT DESIGN	BOX CULVERT DATA TABLES (1 OF 2)	SHT. NO. S-01
DATE	DESCRIPTION	DATE	DESCRIPTION					



- NOTES:
- 1 ENVIRONMENTAL CLASS EXTREMELY AGGRESSIVE
 - 2 REINFORCING STEEL, GRADE 60
 - 3 CONCRETE CLASS IV F'C = 5500 KSI
 - 4 SOIL PROPERTIES:
 - 5-1: FRICTION ANGLE = 35 DEG
MODULUS OF SUBGRADE REACTION = 132,000 PCF
NOMINAL BEARING RESISTANCE = 4,200 PSF
 - 5-3: FRICTION ANGLE = 35 DEG
MODULUS OF SUBGRADE REACTION = 84,000 PCF
NOMINAL BEARING RESISTANCE = 4,200 PSF
 - 5 WORK THIS DRAWING WITH STANDARD PLANS INDEX 400-289
 - 6 SETTLEMENT CRITERIA FOR PRECAST CULVERT OPTION
LONG TERM DIFFERENTIALS SETTLEMENT: 0.4 INCHES
EFFECTIVE LENGTH FOR SETTLEMENT: 15 FEET
 - 7 CONTRACTOR SHALL PREPARE THE BEARING AREA AS DETAILED IN THE "REPORT OF GEOTECHNICAL INVESTIGATION" CR 121 CULVERT EXTENSION, PREPARED BY ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC. REPORT NUMBER 13-54-23-02 DATED 09/06/24
 - 8 FOR ADDITIONAL NOTES, SEE "BOX CULVERT DATA TABLES (2 OF 2)"

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

BOX, HEADWALL AND CUTOFF WALL DATA TABLE (inches unless shown otherwise)																				Table Date 7-01-09	
LOCATION	STRUCTURE /BRIDGE NUMBER	BOX									HEADWALL AND CUTOFF WALL										
		Wc(ft)	Hc(ft)	Tt	Tw	Tb	Tf	#cells	Lc(ft)	Cover	Blhw	Hlhw	Brhw	Hrhw	Blcw	Hlcw	Brw	Hrcw	SL(deg)	SR(deg)	
STA. 90+40.00	S-2L	8	4	12	12	12	12	2	5	3	18	17	0	0	12	24	0	0	0	0	
STA. 90+40.00	S-2R	8	4	12	12	12	12	2	5	3	0	0	18	15	0	0	12	24	0	0	

NOTES:

1. ENVIRONMENTAL CLASS EXTREMELY AGGRESSIVE

2. REINFORCING STEEL, GRADE 60

3. CONCRETE CLASS IV FC = 5500 KSI

4. SOIL PROPERTIES:

5-2L AND 5-2R:

FRICITION ANGLE = 35 DEG

MODULUS OF SUBGRADE REACTION = 120,000 PCF

NOMINAL BEARING RESISTANCE = 3,600 PSF

5. WORK THIS DRAWING WITH STANDARD PLANS INDEX 400-289

6. SETTLEMENT CRITERIA FOR PRECAST CULVERT OPTION

LONG TERM DIFFERENTIALS SETTLEMENT: 0.4 INCHES

EFFECTIVE LENGTH FOR SETTLEMENT: 15 FEET

7. CONNECTION TYPE PERMITTED FOR CULVERT

EXTENSION = TYPE I OR TYPE II

8. QUANTITIES FOR TYPE I AND TYPE II

CONNECTIONS INCLUDE 2 FEET ADDITIONAL LENGTH BEYOND Lc FOR CONNECTION TO EXISTING BOX CULVERT

9. DEWATERING IN ACCORDANCE WITH FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION

SHALL BE ANTICIPATED TO PREPARE A STABLE SURFACE CONDITION FOR CONSTRUCTION OF THE PROPOSED CULVERT STRUCTURES COST OF SUCH DEWATERING SHALL BE INCIDENTAL TO THE PAY ITEM FOR THE CONSTRUCTION OF THE PROPOSED CULVERT STRUCTURES

10. ALL COSTS ASSOCIATED WITH TEMPORARY NON-CRITICAL SHEET PILING NOT SHOWN IN THE PLANS, IF NEEDED TO PERFORM EXCAVATIONS AND FACILITATE DEWATERING, SHALL BE INCIDENTAL TO THE PAY ITEM FOR THE CONSTRUCTION OF THE PROPOSED CULVERT STRUCTURES.

11. IF THE CONTRACTOR PROPOSES THE PRECAST CONCRETE BOX CULVERT OPTION, CONTRACTOR MUST PROVIDE LINK SLABS, AS PER INDEX 400-291

LEFT SIDE WINGWALLS DATA TABLE (inches unless shown otherwise)																		Table Date 01-01-11	
STRUCTURE /BRIDGE NUMBER	LEFT END WINGWALL									LEFT BEGIN WINGWALL									
	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	
S-2L	12	18	30	12	116	0.01	4.91	5.42	7	12	18	30	12	116	0.01	4.91	5.42	7	
S-2R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

RIGHT SIDE WINGWALLS DATA TABLE (inches unless shown otherwise)																		Table Date 01-01-11	
STRUCTURE /BRIDGE NUMBER	RIGHT END WINGWALL									RIGHT BEGIN WINGWALL									
	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	
S-2L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
S-2R	12	18	30	12	116	0.01	4.75	5.25	7	12	18	30	12	116	0.01	4.75	5.25	7	

ESTIMATED CONCRETE QUANTITIES (CY)																		Table Date 7-01-13		
STRUCTURE /BRIDGE NUMBER	BOX								LEFT END WINGWALL			LEFT BEGIN WINGWALL			RIGHT END WINGWALL			RIGHT BEGIN WINGWALL		
	Left Cutoff Wall	Right Cutoff Wall	Bottom Slab	Walls	Top Slab	Left Head Wall	Right Head Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total
S-2L	0.704	0	5.98	3.11	4.93	0.44	0	15.2	1.56	2.01	3.56	1.56	2.01	3.56	0	0	0	0	0	0
S-2R	0	0.704	5.98	3.11	4.93	0	0.264	15	0	0	0	0	0	0	1.56	1.94	3.5	1.56	1.94	3.5

MAIN STEEL REINFORCEMENT SPACING (inches)																		Table Date 7-01-09	
STRUCTURE /BRIDGE NUMBER	BOX														HEADWALLS		CUTOFF WALLS		
	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115, 116	803	806	809	812
S-2L	6	6	6	6	6	6	6	6	12	12	12	12	12	12	12	8	0	12	0
S-2R	6	6	6	6	6	6	6	6	12	12	12	12	12	12	12	0	8	0	12

WINGWALL STEEL REINFORCEMENT SPACING (inches)																						Table Date 7-01-09						
STRUCTURE /BRIDGE NUMBER	LEFT END WINGWALL							LEFT BEGIN WINGWALL							RIGHT END WINGWALL							RIGHT BEGIN WINGWALL						
	401 (407)	402 (403)	404 (405)	406	409	410	411	501 (507)	502 (503)	504 (505)	506	509	510	511	601 (607)	602 (603)	604 (605)	606	609	610	611	701 (707)	702 (703)	704 (705)	706	709	710	711
S-2L	6	12	12	12	9	9	9	6	12	12	12	9	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S-2R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	12	12	12	9	9	9	6	12	12	12	9	9	9

WINGWALL NOTE: Bar designations in "()" are only required for variable height wingwalls

REVISIONS				Kimley-Horn JOSEPH A. ROBERTS JR. P.E. LICENSE NUMBER 78547 200 SOUTH ORANGE AVENUE, SUITE 600 ORLANDO, FL 32801 REGISTRY 35106	DRAWN BY IPG CHECKED BY: JAR DESIGNED BY IPG CHECKED BY: JAR	CR 121 BOX CULVERT DESIGN	BOX CULVERT DATA TABLES (2 OF 2)	SHT. NO.
DATE	DESCRIPTION	DATE	DESCRIPTION					

S-02

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

MARK		LENGTH		NO	TYP	STY	B		C		D		E		F		H		J		K		N	Ø
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION					MAIN BOX					NO. REQUIRED = 1														
7	101	26- 6		81	1			26- 6																
6	102	26- 6		61	1			26- 6																
6	103	26- 6		65	1			26- 6																
6	104	26- 6		87	1			26- 6																
6	105	6-11	120	10				2- 0					4-11											
6	106	6-11	120	10				2- 0					4-11											
6	107	5-11	240	10				1- 0					4-11											
6	108	7- 9	120	1				7- 9																
6	109	42- 7	28	1				42- 7																
6	110	39- 7	28	1				39- 7																
6	111	38-11	28	1				38-11																
6	112	42- 7	28	1				42- 7																
6	113	39- 7	14	1				39- 7																
6	114	39- 7	14	1				39- 7																
6	115	38-11	14	1				38-11																
LOCATION					LEFT END WINGWALL					NO. REQUIRED = 1														
4	401	6- 9	17	1				6- 9																
5	402	10- 6	12	1				10- 6																
5	404	10- 6	8	1				10- 6																
5	406	6- 9	12	1				6- 9																
4	407	4- 1	17	10				2- 2					1-11											
4	409	4- 8	17	1				4- 8																
5	410	4- 8	17	1				4- 8																
5	411	10- 6	16	1				10- 6																
5	412	2- 0	12	1				2- 0																
LOCATION					LEFT BEGIN WINGWALL					NO. REQUIRED = 1														
4	501	6- 9	17	1				6- 9																
5	502	10- 6	12	1				10- 6																
5	504	10- 6	8	1				10- 6																
5	506	6- 9	12	1				6- 9																
4	507	4- 1	17	10				2- 2					1-11											
4	509	4- 8	17	1				4- 8																
5	510	4- 8	17	1				4- 8																
5	511	10- 6	16	1				10- 6																
5	512	2- 0	12	1				2- 0																
LOCATION					RIGHT END WINGWALL					NO. REQUIRED = 1														
4	601	6- 6	17	1				6- 6																
5	602	10- 6	11	1				10- 6																
5	604	10- 6	8	1				10- 6																
5	606	6- 6	12	1				6- 6																
4	607	4- 1	17	10				2- 2					1-11											
4	609	4- 8	17	1				4- 8																
5	610	4- 8	17	1				4- 8																
5	611	10- 6	16	1				10- 6																
5	612	2- 0	12	1				2- 0																
LOCATION					RIGHT BEGIN WINGWALL					NO. REQUIRED = 1														
4	701	6- 6	17	1				6- 6																
5	702	10- 6	11	1				10- 6																
5	704	10- 6	8	1				10- 6																
5	706	6- 6	12	1				6- 6																
4	707	4- 1	17	10				2- 2					1-11											
REVISIONS					Kimley»Horn					CR 121 BOX CULVERT DESIGN					S-1 REINFORCING BAR LIST (1 OF 2)					SHT. NO.				
DATE		DESCRIPTION			DATE		DESCRIPTION			DESIGNED BY JAH					CHECKED BY JAH					S-03				

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

MARK	LENGTH	NO	TYP	STY	B	C	D	E	F	H	J	K	N	Ø								
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG	
4	709	4- 8	17	1				4- 8														
5	710	4- 8	17	1				4- 8														
5	711	10- 6	16	1				10- 6														
5	712	2- 0	12	1				2- 0														
LOCATION LEFT HEADWALL																					NO. REQUIRED = 1	
8	801	26- 6	3	1				26- 6														
8	802	26- 6	3	1				26- 6														
4	803	4- 3	54	27				0-11	0- 6	0- 6	0- 4	0- 6	0-10	0-10								
LOCATION RIGHT HEADWALL																					NO. REQUIRED = 1	
8	804	26- 6	3	1				26- 6														
8	805	26- 6	3	1				26- 6														
4	806	4- 3	54	27				0-11	0- 6	0- 6	0- 4	0- 6	0-10	0-10								
LOCATION LEFT CUTOFF WALL																					NO. REQUIRED = 1	
5	807	26- 6	2	1				26- 6														
5	808	26- 6	2	1				26- 6														
3	809	3- 4	41	7				0-11	0- 6	0- 6	0- 6											
LOCATION RIGHT CUTOFF WALL																					NO. REQUIRED = 1	
5	810	26- 6	2	1				26- 6														
5	811	26- 6	2	1				26- 6														
3	812	3- 4	41	7				0-11	0- 6	0- 6	0- 6											
END OF LIST																						

REVISIONS				KimleyHorn JOSEPH A. ROBERTS JR. P.E. LICENSE NUMBER 18541 200 SOUTH ORANGE AVENUE, SUITE 600 ORLANDO, FL 32801 REGISTRY 35106	DRAWN BY IPC CHECKED BY JAN DESIGNED BY IPC CHECKED BY JAR	CR 121 BOX CULVERT DESIGN	5-1 REINFORCING BAR LIST (2 OF 2)	SHT NO.
DATE	DESCRIPTION	DATE	DESCRIPTION					

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

MARK	LENGTH	NO	TYP	STY	B	C	D	E	F	H	J	K	N	Ø							
SIZE	DES	FT	IN	BARS	BAR	A	C	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION					MAIN BOX					NO. REQUIRED = 1											
6	101	18- 6	14	1		18- 6															
5	102	18- 6	14	1		18- 6															
5	103	18- 6	17	1		18- 6															
5	104	18- 6	17	1		18- 6															
5	105	5- 3	26	10		1- 8		3- 7													
5	106	5- 3	26	10		1- 8		3- 7													
5	107	4- 5	52	10		0-10		3- 7													
5	108	5- 6	26	1		5- 6															
5	109	8- 0	20	1		8- 0															
5	110	6- 6	20	1		6- 6															
5	111	6- 2	20	1		6- 2															
5	112	8- 0	20	1		8- 0															
5	113	6- 6	10	1		6- 6															
5	114	6- 6	10	1		6- 6															
5	115	5-10	10	1		5-10															
LOCATION					LEFT END WINGWALL					NO. REQUIRED = 1											
5	401	4- 8	14	1		4- 8															
5	402	6- 6	6	1		6- 6															
5	404	6- 6	6	1		6- 6															
5	406	4- 8	8	1		4- 8															
5	407	4- 5	14	10		2- 0		2- 5													
5	409	4- 6	10	1		4- 6															
5	410	4- 6	10	1		4- 6															
5	411	6- 6	14	1		6- 6															
5	412	2- 0	9	1		2- 0															
LOCATION					LEFT BEGIN WINGWALL					NO. REQUIRED = 1											
5	501	4- 8	14	1		4- 8															
5	502	6- 6	6	1		6- 6															
5	504	6- 6	6	1		6- 6															
5	506	4- 8	8	1		4- 8															
5	507	4- 5	14	10		2- 0		2- 5													
5	509	4- 6	10	1		4- 6															
5	510	4- 6	10	1		4- 6															
5	511	6- 6	14	1		6- 6															
5	512	2- 0	9	1		2- 0															
LOCATION					LEFT HEADWALL					NO. REQUIRED = 1											
6	801	18- 6	3	1		18- 6															
6	802	18- 6	3	1		18- 6															
3	803	4- 1	29	27		0-10		0- 6		0- 6		0- 4		0- 5		0-10		0-10			
LOCATION					LEFT CUTOFF WALL					NO. REQUIRED = 1											
4	807	18- 6	2	1		18- 6															
4	808	18- 6	2	1		18- 6															
3	809	4- 4	19	7		1- 5		0- 6		0- 6		0- 6									
END OF LIST																					

REVISIONS				Kimley»Horn JOSEPH A. ROBERTS JR. P.L. LICENSE NUMBER 18541 200 SOUTH ORANGE AVENUE, SUITE 600 ORLANDO, FL 32801 REGISTRY 35106	DRAWN BY JPG		CR 121 BOX CULVERT DESIGN	SHT. NO					
DATE	DESCRIPTION	DATE	DESCRIPTION		CHECKED BY JPG				5-05	S-2L REINFORCING BAR LIST			
					DESIGNED BY								
					CHECKED BY								

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

MARK		LENGTH		NO	TYP	STY	B		C		D		E		F		H		J		K		N	Ø		
SIZE	DES	FT	IN	BARS	BAR	A/G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION MAIN BOX																										
NO. REQUIRED = 1																										
LOCATION MAIN BOX																										
NO. REQUIRED = 1																										
6	101	18- 6		14	1		18- 6																			
5	102	18- 6		14	1		18- 6																			
6	103	18- 6		17	1		18- 6																			
6	104	18- 6		17	1		18- 6																			
5	105	5- 3		26	10		1- 8						3- 7													
5	106	5- 3		26	10		1- 8						3- 7													
5	107	4- 5		52	10		0-10						3- 7													
5	108	5- 6		26	1		5- 6																			
5	109	8- 0		20	1		8- 0																			
5	110	6- 6		20	1		6- 6																			
5	111	6- 2		20	1		6- 2																			
5	112	8- 0		20	1		8- 0																			
5	113	6- 6		10	1		6- 6																			
5	114	6- 6		10	1		6- 6																			
5	115	5-10		10	1		5-10																			
LOCATION RIGHT END WINGWALL																										
NO. REQUIRED = 1																										
5	601	4- 6		14	1		4- 6																			
5	602	6- 6		6	1		6- 6																			
5	604	6- 6		6	1		6- 6																			
5	606	4- 6		8	1		4- 6																			
5	607	4- 5		14	10		2- 0					2- 5														
5	609	4- 6		10	1		4- 6																			
5	610	4- 6		10	1		4- 6																			
5	611	6- 6		14	1		6- 6																			
5	612	2- 0		9	1		2- 0																			
LOCATION RIGHT BEGIN WINGWALL																										
NO. REQUIRED = 1																										
5	701	4- 6		14	1		4- 6																			
5	702	6- 6		6	1		6- 6																			
5	704	6- 6		6	1		6- 6																			
5	706	4- 6		8	1		4- 6																			
5	707	4- 5		14	10		2- 0					2- 5														
5	709	4- 6		10	1		4- 6																			
5	710	4- 6		10	1		4- 6																			
5	711	6- 6		14	1		6- 6																			
5	712	2- 0		9	1		2- 0																			
LOCATION RIGHT HEADWALL																										
NO. REQUIRED = 1																										
6	804	18- 6		3	1		18- 6																			
6	805	18- 6		3	1		18- 6																			
3	806	3- 9		29	27		0- 8		0- 6		0- 6		0- 4		0- 3		0-10		0-10							
LOCATION RIGHT CUTOFF WALL																										
NO. REQUIRED = 1																										
4	810	18- 6		2	1		18- 6																			
4	811	18- 6		2	1		18- 6																			
3	812	4- 4		19	7		1- 5		0- 6		0- 6		0- 6													
END OF LIST																										

REVISIONS				Kimley»Horn	DRAWN BY JPG	CR 121 BOX CULVERT DESIGN	S-2R REINFORCING BAR LIST	SHT NO.
DATE	DESCRIPTION	DATE	DESCRIPTION					
				JOSEPH A. HUBERTS JR. P.E. LICENSE NUMBER 78547 200 SOUTH ORANGE AVENUE, SUITE 600 ORLANDO, FL 32801 REGISTRY 35106	CHECKED BY JAR DESIGNED BY JPG			5-06

MARK	LENGTH	NO	TYP	STY	B	C	D	E	F	H	J	K	N	Ø							
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION MAIN BOX NO. REQUIRED = 1																					
5	101	18- 6	92	1																	
5	102	18- 6	92	1																	
5	103	18- 6	98	1																	
5	104	18- 6	98	1																	
5	105	5- 3	92	10				1- 8	3- 7												
5	106	5- 3	138	10				1- 8	3- 7												
3	107	3-10	184	10				0- 6	3- 4												
3	108	5- 6	92	1				5- 6													
5	109	48- 6	20	1				48- 6													
5	110	48- 6	20	1				48- 6													
5	111	44-10	20	1				44-10													
5	112	48- 6	20	1				48- 6													
5	113	45- 6	10	1				45- 6													
5	114	45- 6	10	1				45- 6													
5	115	44-10	10	1				44-10													
LOCATION LEFT END WINGWALL NO. REQUIRED = 1																					
5	401	10-10	25	1				10-10													
5	402	15- 6	12	1				15- 6													
5	404	15- 6	18	1				15- 6													
5	406	10-10	25	1				10-10													
5	407	6- 1	25	10				3- 6	2- 7												
5	409	8- 9	25	1				8- 9													
5	410	8- 9	25	1				8- 9													
5	411	15- 6	30	1				15- 6													
5	412	2- 0	17	1				2- 0													
LOCATION LEFT BEGIN WINGWALL NO. REQUIRED = 1																					
5	501	10-10	25	1				10-10													
5	502	15- 6	12	1				15- 6													
5	504	15- 6	18	1				15- 6													
5	506	10-10	25	1				10-10													
5	507	6- 1	25	10				3- 6	2- 7												
5	509	8- 9	25	1				8- 9													
5	510	8- 9	25	1				8- 9													
5	511	15- 6	30	1				15- 6													
5	512	2- 0	17	1				2- 0													
LOCATION RIGHT END WINGWALL NO. REQUIRED = 1																					
5	601	9-11	22	1				9-11													
5	602	13- 6	11	1				13- 6													
5	604	13- 6	16	1				13- 6													
5	606	9-11	22	1				9-11													
5	607	6- 1	22	10				3- 6	2- 7												
5	609	8- 9	22	1				8- 9													
5	610	8- 9	22	1				8- 9													
5	611	13- 6	30	1				13- 6													
5	612	2- 0	16	1				2- 0													
LOCATION RIGHT BEGIN WINGWALL NO. REQUIRED = 1																					
5	701	9-11	22	1				9-11													
5	702	13- 6	11	1				13- 6													
5	704	13- 6	16	1				13- 6													
5	706	9-11	22	1				9-11													
5	707	6- 1	22	10				3- 6	2- 7												

REVISIONS				Kimley»Horn JOSEPH A. ROBERTS JR. P.E. LICENSE NUMBER 18541 200 SOUTH ORANGE AVENUE, SUITE 600 ORLANDO, FL 32801 REGISTRY 35106	DRAWN BY JPS CHECKED BY JAR DESIGNED BY JPS CHECKED BY JAR	CR 121 BOX CULVERT DESIGN	S-3 REINFORCING BAR LIST (1 OF 2)	SHT. NO S-07
DATE	DESCRIPTION	DATE	DESCRIPTION					

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MARK	LENGTH	NO	TYP	STY	B	C	D	E	F	H	J	K	N	Ø							
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
5	709	8- 9	22	1		8- 9															
5	710	8- 9	22	1		8- 9															
5	711	13- 6	30	1		13- 6															
5	712	2- 0	16	1		2- 0															
LOCATION LEFT HEADWALL						NO. REQUIRED = 1															
5	801	18- 6	16	1		18- 6															
5	802	18- 6	2	1		18- 6															
5	803	15- 5	19	10		8- 0	5- 0														
5	806	12- 4	19	10		7- 3	5- 0														
LOCATION RIGHT HEADWALL						NO. REQUIRED = 1															
5	803	11- 2	19	10		6- 11	5- 0														
5	804	18- 6	14	1		18- 6															
5	805	18- 6	2	1		18- 6															
5	806	13- 7	19	10		6- 2	5- 0														
LOCATION LEFT CUTOFF WALL						NO. REQUIRED = 1															
5	807	18- 6	2	1		18- 6															
5	808	18- 6	2	1		18- 6															
3	809	4- 4	19	7		1- 5	0- 6	0- 6	0- 6												
LOCATION RIGHT CUTOFF WALL						NO. REQUIRED = 1															
5	810	18- 6	2	1		18- 6															
5	811	18- 6	2	1		18- 6															
3	812	4- 4	19	7		1- 5	0- 6	0- 6	0- 6												

END OF LIST

REVISIONS				 JOSEPH A. ROBERTS JR. P.E. LICENSE NUMBER 78547 200 SOUTH ORANGE AVENUE, SUITE 600 ORLANDO, FL 32801 REGISTRY 35106	DRAWN BY JPG CHECKED BY JAR	CR 121 BOX CULVERT DESIGN	S-3 REINFORCING BAR LIST (2 OF 2)	SHT. NO. 5-08
DATE	DESCRIPTION	DATE	DESCRIPTION					

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Load Rating Summary Details for Reinforced Concrete Bridge Culverts (Box and Three-Sided Culvert)

Table Date 01-01-11

TABLE 2 - LRFR

LEVEL	LIMIT STATE	VEHICLE	WEIGHT (TONS)	LOAD FACTORS			MOMENT (STRENGTH)					SHEAR (STRENGTH)					COMMENTS:
				LL	DC	DW	UNFACTORED RATIO	LL PERMANENT LOADS	RATING FACTOR	TONS	LOCATION	DIMENSION	UNFACTORED RATIO	LL PERMANENT LOADS	RATING FACTOR	TONS	
DESIGN LOAD RATING	STRENGTH I (INV)	HL-93	N/A	1.75	1.25	1.50	2.97	1.51	N/A	A	7.0 FT	3.19	1.21	N/A	B	12.0 FT	
	STRENGTH I (OP)	HL-93	N/A	1.35	1.25	1.50	2.47	2.35	N/A	A	7.0 FT	2.66	1.88	N/A	B	12.0 FT	
PERMIT LOAD RATING	STRENGTH II	FL120	60.0	1.35	1.25	1.50	4.65	1.25	74.93	A	7.0 FT	4.07	1.23	73.86	B	12.0 FT	

GENERAL NOTES:

1. THIS TABLE IS BASED ON THE REQUIREMENTS ESTABLISHED IN THE JANUARY 2024 "STRUCTURES MANUAL"

TABLE 2 NOTES:

1. PERMIT CAPACITY IS DETERMINED BY USING THE PERMIT VEHICLE IN ALL LANES

2. DOES THE DEPTH OF FILL ABOVE THE TOP SLAB EXCEED THE SPAN LENGTH BETWEEN THE INSIDE FACES OF THE END WALLS (BRIDGE CULVERT TOTAL SPAN LENGTH)? ☐ YES ☒ NO

3. LOAD RATING CALCULATED USING FDOT BOX CULVERT V5.3 MATHCAD PROGRAM RELEASED 03/02/2022

ABBREVIATIONS:

DL - DEAD LOAD (LFR)

DC - COMPONENT DEAD LOAD (LRFR)

DW - WEARING SURFACE & UTILITY DEAD LOAD (LRFR)

LL - LIVE LOAD

INV - INVENTORY

OP - OPERATING

12'-0"

7'-0"

LOCATION "A"

LOCATION "B"

1ST INTERIOR WALL

12'-0" (PERPENDICULAR DISTANCE)

12'-0" (PERPENDICULAR DISTANCE)

BRIDGE CULVERT TOTAL SPAN LENGTH (MEASURED IN DIRECTION OF TRAVEL)

RATING LOCATIONS

ROADWAY SURFACE

"1'-2" (DESIGN DEPTH OF FILL)

DIRECTION OF STATIONING

BEGIN BRIDGE CULVERT END WALL

END BRIDGE CULVERT END WALL

REVISIONS

DATE	DESCRIPTION	DATE	DESCRIPTION
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KimleyHorn

JOSEPH A. HUBERTS JR.

P.E. LICENSE NUMBER 78347

200 SOUTH ORANGE AVENUE, SUITE 600

ORLANDO, FL 32801

REGISTRY 35106

DRAWN BY

IPG

CHECKED BY

JAR

DESIGNED BY

IPG

CHECKED BY

JAR

CR 121 BOX CULVERT DESIGN

LOAD RATING DATA TABLES

SH1 NO

5-09

BRIDGE NO. 744321

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REPORT OF
GEOTECHNICAL INVESTIGATION
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

Prepared For:

KIMLEY-HORN AND ASSOCIATES, INC.
12740 GRAN BAY PARKWAY WEST
SUITE 2350
JACKSONVILLE, FLORIDA 32258

Prepared By:

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.
3772 KORI ROAD
JACKSONVILLE, FLORIDA 32257
(904) 329-7180

November 2023
13-54-23-01

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

November 1, 2023

EGS File Number: 13-54-23-01

Kimley-Horn and Associates, Inc.
12740 Gran Bay Parkway West
Suite 2350
Jacksonville, Florida 32256

ATTN: Earl Wills, P.E.
Project Manager

SUBJECT: **Report of Geotechnical Investigation**
CR 121 Pavement Evaluation and Widening
From Duval County Line to CR 119
Nassau County, Florida

Environmental and Geotechnical Specialists, Inc. (**EGS**) has completed the Geotechnical Investigation, as authorized by Kimley-Horn and Associates, Inc. (**KHA**), associated with proposed roadway improvements along a segment of CR 121 extending from the Duval County line to CR 119 in Nassau County, Florida. Based on preliminary discussions, **EGS** understands the proposed roadway improvements generally consist of rehabilitation of the existing distressed roadway pavement present throughout a majority of the project limits and minor roadway widening at the Stokes Road and CR 119 intersections.

This Report includes a summary of the subsurface investigation conducted for this project, evaluation of field and laboratory test data, pavement and soil conditions encountered, groundwater measurements, estimated “normal” seasonal high groundwater values, conclusions concerning the likely cause of the existing pavement distress, geotechnical recommendations, and construction considerations.

SCOPE OF SERVICES

The Scope of Services authorized for this project consisted of the following:

- Performance of 79 pavement cores coupled with hand auger soil borings in the travel lanes to evaluate the existing pavement, base, and subgrade conditions within the project limits;
- Performance of 5 Standard Penetration Test (**SPT**) soil borings to an approximate depth of 20 feet below grade to evaluate the presence of any organic soils or other unsuitable materials which may be attributing to the existing pavement distress;
- Performance of 5 hand auger soil borings to an approximate depth of 5.5 feet below grade to evaluate the subsurface conditions below the proposed roadway widening areas;
- Collection of 5 bulk soil samples and performance of Limerock Bearing Ratio (**LBR**) testing to determine embankment strength properties;

*Report of Geotechnical Investigation
CR 121 Pavement Evaluation and Widening
From Duval County Line to CR 119
Nassau County, Florida
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- Performance of routine laboratory testing of representative soil samples to classify the subsoils;
- Classification of existing pavement layers, base materials, and structural coefficients to estimate the Existing Structural Number (**SNE**);
- Development of conclusions concerning the likely cause of the pavement distress, geotechnical recommendations, and construction considerations; and,
- Preparation of this Report.

SITE LOCATION AND CONDITIONS

In general, the project site consists of a segment of the existing CR 121 roadway, beginning at the Duval County line and extending approximately 7.5 miles north to the CR 119 intersection. A Project Location Map is provided as **Figure 1**.

Prior to beginning the field investigation, **EGS** personnel performed a preliminary “desktop” review of the available site condition data. To facilitate the preliminary review, a copy of the United States Geological Survey (**USGS**) Topographic Map contours were superimposed on a recent aerial image of the project area which has been included as **Figures 2A** through **2E**. As depicted in the **Figures**, the project site is relatively flat with an elevation of the natural ground ranging from approximate EL 70 feet to EL 85 feet throughout a majority of the project limits. At the crossings with Brandy Branch and an unnamed tributary of the St. Marys River, the elevation of the natural ground dips down to EL 50 feet. Based on a review of nearby water bodies, groundwater was anticipated to likely exist within 5 feet of existing grade throughout most of the project limits.

After completion of the preliminary “desktop” review, **EGS** personnel traveled to the project site to observe the existing field conditions. In general, the existing roadway consists of 1 northbound and 1 southbound asphalt paved travel lane, with paved shoulders extending beyond the outside lane lines in some locations. The existing roadway pavement appeared to be in poor condition, as evidenced by the visibly “severe” surface cracking and wheel path rutting observed throughout most of the project length. The roadway corridor appeared to receive relatively low to moderate levels of vehicular traffic, with a significant percentage of traffic consisting of large trucks. It should be noted that isolated locations of standing water along the roadway shoulders were observed during the field review, which supports the believe that groundwater generally exists at relatively shallow depths following periods of prolonged rainfall. The area surrounding the project corridor was primarily being utilized for silviculture (i.e., tree farms) with some intermittent residential developments present. Photographs of the existing site conditions have been provided as **Figures 3A** through **3F**.

Based on preliminary discussions with **KHA** and Nassau County personnel, **EGS** understands that in 2005 a full depth reclamation program was performed along most of the project length, except for a segment extending from approximately 1,500 feet south to 1,800 feet north of Brandy Branch, in an effort to address pavement distress issues at the time while also limiting temporary traffic control impacts due to construction.

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CR 121 Pavement Evaluation and Widening
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In general, full depth reclamation consists of performance of deep milling and temporary removal of the existing asphalt and base material, followed by on-site blending of the removed cuttings with a binder agent to increase the strength and bond of the composite material. The blended composite material is then placed back onto the milled surface and compacted to serve as a strengthened base layer below new structural asphalt. It should be noted that this method of stabilization can be extremely sensitive to subsurface variations of the in-situ materials and often requires several mix designs be developed in cases where homogeneous subsurface conditions are not present. An inadequate mix design often may be characterized by the presence of a highly “bonded” composite material that performs excessively stiff, resulting in subsurface fracturing and bottom-up reflective cracking of the overlying asphalt, or by the presence of a weak or “unbonded” composite material that is unable to adequately resist wheel path rutting.

EGS understands that after completion of the full depth reclamation program in 2005, severe pavement delamination, wheel path rutting, and intermittent cracking occurred throughout most of the project area over subsequent years, which resulted in a need for frequent milling and resurfacing to maintain a uniform roadway surface.

SUBSURFACE INVESTIGATION

The subsurface investigation outlined in this Report was conducted in May and June 2023. Katherine Morales, P.E., served as the Geotechnical Project Manager and Matthew Landschoot, P.E., served as the Senior Geotechnical Engineer of Record. Additional project oversight and quality assurance / quality control (**QA/QC**) was provided by Chandra Samakur, P.E., Senior Geotechnical Engineer.

EGS performed a total of 79 pavement cores on approximate 500-foot centers along the roadway alignment within the existing travel lanes using **EGS**’ pavement coring rotary drill in accordance with the Florida Department of Transportation (**FDOT**) *Materials Manual Section 3.2 – Flexible Pavement Coring and Evaluation*. After installing each pavement core, **EGS** field personnel recorded the base material type underlying the surficial asphalt pavement, and advanced a hand-auger soil boring coupled with Cone Penetrometer Index (**CPI**) tests to depths ranging from 2.5 to 5.5 feet below existing grade to evaluate the thickness and strength of base, subgrade, and subsoil materials.

Additionally, **EGS** installed 5 **SPT** soil borings to a depth of 20 feet below the existing ground surface in select areas to check for deeper unsuitable materials, and 5 hand auger soil borings to a depth of 5.5 feet below the existing ground surface to evaluate conditions below the proposed roadway widening areas. Soil borings were performed using both manual hand auger techniques and a truck mounted rotary drill rig equipped with an automatic hammer. To avoid impact to mismarked utilities, hand auger sampling coupled with Static Cone Penetrometer (**CPI**) tests was performed continuously to a depth of 5.5 feet below grade. Below 5.5 feet, **SPTs** were conducted continuously to a depth of 12 feet below grade, and then on 2.5-foot intervals thereafter until reaching the boring termination depth.

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CR 121 Pavement Evaluation and Widening
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To facilitate uniformity of the subsurface data, the **CPI “C”** values have been converted to equivalent **SPT “N”** values using the correlation $N = C/4$. The pavement coring and soil boring location data is provided in **TABLE 1**, and depicted on the Soil Boring Location Map included as **Figures 4A** through **4G**.

Soil samples were collected and classified in the field by **EGS** personnel, and then sealed and transported to **EGS’** Geotechnical Laboratory for testing. The laboratory testing included water contents, grain-size distributions, Atterberg Limits, organic contents, **LBR** tests, and corrosion series. The soil borings were classified with respect to the American Association of State Highway and Transportation Officials (**AASHTO**) Soil Classification System.

The results of the field and laboratory testing are summarized on the *Roadway Soil Survey and Report of Soil Boring* plan sheets provided in **APPENDIX A**, with detailed Soil Classification Data provided in **APPENDIX B**.

GENERAL PAVEMENT CONDITIONS

As previously noted, prior attempts to stabilize the existing pavement by surficial means (i.e., full depth reclamation with asphalt overbuild) have not performed in a manner consistent with normal design expectations. At the time of this study, **EGS** field personnel observed various types of “severe” pavement cracking, raveling, spalling, shoving, wheel path rutting, and patching. In general, most of the pavement observed during this study was in “poor” condition.

The detailed pavement core measurements, conditions, and locations are summarized in the standard format **FDOT** Pavement Evaluation Coring and Condition Data sheet provided as **APPENDIX C**. In addition to estimated pavement layer data, the corresponding base material type, visual observations, crack depths, rut depths, and measured cross slopes have been included.

For the purposes of this study, the blended composite material resulting from the full depth reclamation program have been identified herein as “Recycled Asphalt Stabilization” (**RAS**) where encountered. The **RAS** layer has been categorized either as “bonded” (i.e., material retained bond after core extraction), or as “unbonded” (i.e., material comprised of free aggregates separating after extraction).

Photographs of each pavement core and the corresponding field conditions at each core location have been provided in **APPENDIX D** as **Figures D1** through **D158**. A representative photograph of the bonded **RAS** is provided as **Figure D80**. Additionally, representative photographs of the limerock base and unbonded **RAS** base materials are provided as **Figures D159** and **D160**.

Pavement, Base, and Subgrade – In general, the existing asphalt thickness varies from approximately 2.5 to 5.4 inches. With exception to Soil Boring **PK-42** through **PK-48**, the base layer encountered consists of **RAS**, varying in thickness from 3.5 to 8.8 inches. At Cores **PK-42** through **PK-48**, a limerock base (without **RAS**) exists, varying in thickness from 7.7 to 13.5 inches. The average Existing Layer Thickness of each pavement and base layer have been provided in **TABLE 2**.

The subgrade primarily consists of silty fine sand with less than ($<$) 20% passing the No. 200 sieve (**A-2-4 / STRATUM 1**), with pockets of fine sand (**A-3 / STRATUM 1**) and silty fine sand with greater than or equal to ($\geq$) 20% passing the No. 200 sieve (**A-2-4 / STRATUM 2**). Additionally, it should be noted that the subgrade material consisted of silty fine sand with slight organics (**A-2-4 / STRATUM 4**) at Soil Boring **PK-8** and **PK-13**.

To facilitate review of spatial variability, the level of observed pavement distress (i.e., **Good**, **Fair**, and **Poor**), asphalt thickness, and base thickness have been depicted on the Soil Boring Location Map provided as **Figures 4A** through **4G**.

GENERAL SUBSURFACE CONDITIONS

Soils – As depicted in the *Roadway Soil Survey* and the *Report of Soil Borings*, the soils encountered during this investigation consisted primarily of fine to silty fine sand (**A-3, A-2-4 / STRATA 1 and 2**), with isolated layers of clayey fine to clayey sand (**A-2-6, A-6 / STRATUM 3**). Pockets of silty fine sand with organics (**A-2-4 / STRATUM 4**) were encountered at several boring locations throughout the project limits, ranging from depths of 1.0 to 5.5 feet below existing grade. Additionally, organic silty fine sand (**A-2-4 / STRATUM 5**) was encountered at Soil Borings **SK-3** and **SK-5**, ranging from the ground surface to a depth of 4.5 feet below existing grade. It should be noted that an obstruction was encountered at Soil Boring **PK-79** at a depth of 2.5 feet below existing grade.

Groundwater – To facilitate use of groundwater data, **TABLE 1** includes a summary of the measured 24-hour groundwater levels and the estimated depth to “normal” seasonal high groundwater. Additionally, the measured and estimated “normal” seasonal high groundwater are shown graphically on the *Report of Soil Borings* provided in **APPENDIX A**. As indicated in the **TABLE** and **APPENDIX**, groundwater was encountered from depths ranging from 2.5 feet to greater than ($>$) 5.5 feet below existing grade, and “normal” seasonal high groundwater was estimated to exist within 3 feet of the existing base at most soil boring locations.

NRCS Soil Survey – As part of this investigation, **EGS** reviewed the *United States Department of Agriculture (USDA) Natural Resources Conservation Service’s (NRCS) Soil Survey of Nassau County*. The soils reported in the **NRCS** Soil Survey are fairly consistent with the soils encountered during the field investigation. It should be noted, however, that the **NRCS** Soil Survey is used as an approximation of likely soils within the project area. Slight variations in soil properties will occur when comparing data from the **NRCS** Soil Survey and data obtained in the field.

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To correlate the properties summarized in the **NRCS** Soil Survey, **EGS** has provided **TABLE 3**, which includes the **NRCS** material number, name, and other pertinent data for each material reported within the project limits. Additionally, **Figures E1** through **E5**, as well as copies of selected **TABLES** from the **NRCS** Soil Survey have been provided in **APPENDIX E**.

Environmental Classification – For this study, 5 soil samples were collected to analyze their aggressiveness with respect to corrosion. The results of the corrosivity tests are summarized in **TABLE 4**. As indicated in the **TABLE**, the recommended environmental classification for the substructure is “**EXTREMELY AGGRESSIVE**” with respect to both the corrosion of steel and concrete.

LBR – For this study, **EGS** collected representative samples of existing “SELECT” soils (**STRATA 1** and **2**) within 2 feet of the existing ground surface for **LBR** testing. All soil samples for the **LBR** tests were collected within 5 feet of the soil boring location corresponding to the **LBR** test number. The **LBR** samples collected were found to be comprised of fine to silty fine sand (**A-3, A-2-4 / STRATA 1** and **2**), which are defined as “SELECT” soils by the **FDOT**. The **LBR** tests were performed in accordance with **FDOT Florida Sampling and Testing Method FM 5-515**. The **LBR** test results have been provided in **APPENDIX F**, summarized in **TABLE 5**, and included on the *Roadway Soil Survey* sheet provided in **APPENDIX A**.

GEOTECHNICAL RECOMMENDATIONS - PAVEMENT DESIGN

Likely Causes of Existing Pavement Distress – As previously noted, the existing asphalt was found to be in poor condition throughout the project limits based on the observed presence of severe cracking and rutting within both travel lanes. Based on the pavement core and soil boring data collected for this study, **EGS believes** that the following conditions are contributing factors to the observed asphalt pavement distress:

- Asphalt layer delamination was observed at approximately 18% of the pavement core locations (i.e., Core **PK-6, PK-7, PK-12, PK-13, PK-20, PK-28, PK-35, PK-42, PK-46, PK-56, PK-58, PK-64, PK-69, PK-70, and PK-83**), which is likely the result of an inadequate or failing “tack” binder between asphalt layers.
- The asphalt pavement at locations where a “bonded” **RAS** base was encountered was generally found to be experiencing a slightly greater frequency of bottom-up reflective cracking in comparison to the locations where “unbonded” **RAS** was encountered (Percentage of Cores with Full Depth Cracking: Bonded = 69% vs. Unbonded = 65%). Additionally, the asphalt pavement at locations where “unbonded” **RAS** was encountered was generally found to be experiencing significantly deeper wheel path rutting in comparison to locations where “bonded” **RAS** was encountered (Average Rut Depth: Bonded = 0.27 inches vs. Unbonded = 0.35 inches).

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- Estimated “Normal” Seasonal High Groundwater generally exists within 3 feet of the existing base through most of the project limits, which will result in temporary reduction of the resilient modulus (M_R) following prolonged periods of rainfall and elevated water table.
- The existing fine to silty fine sand (**A-3, A-2-4**) subgrade did not include any identifiable stabilization additive. Based on the **LBR** testing performed as part of this investigation, the in-situ **LBR** of the existing subgrade was found to be less than ($<$) than the standard minimum requirement of 40.
- The existing structural number (see below) may be inadequate to support the current traffic loading.

Existing Structural Number – The estimated Existing Structural Numbers (SN_E) are provided in **TABLE 5**, using the average existing layer thickness determinations from **TABLE 2**. Based on the pavement cores installed for this study, **EGS** believes the following average SN_E values are representative of the existing pavement structure:

- **Pavement Cores with “Bonded” RAS Base:**
 - $SN_E = 1.17$
- **Pavement Cores with “Unbonded” RAS Base:**
 - $SN_E = 1.04$
- **Pavement Cores with Limerock Base:**
 - $SN_E = 1.78$

Summary of Existing Pavement Measurements – Based on the pavement cores installed for this study, the following summarizes general pavement measurements taken:

- | | |
|--|--------------------|
| • Maximum Rut Depth: | 1.10-inches |
| • Minimum Core Thickness: | 2.50-inches |
| • Average Friction Course Thickness: | 1.20-inches |
| • Average Depth of Cracking: | Full Depth |
| • Minimum Base Thickness: | 3.50-inches |
| • Portland Cement Concrete (PCC) Encountered: | No |

Cross Slopes – As depicted in the Pavement Core and Condition Survey Table provided in **APPENDIX C**, **EGS** measured cross slopes at the pavement core locations ranging from 0.2 to 8.2 percent (%) with superelevation noted at Soil Borings **PK-37, PK-39, PK-44, PK-46, PK-54, PK-70, and PK-76** due to the existing curves.

Based on the measured cross slopes at the core locations and the allowable ranges indicated in the **FDOT Design Manual, Part 1, Section 122.5.8**, **EGS** believes that some cross-slope correction may be warranted.

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Base Considerations – Based on the results of this subsurface investigation, it should be noted that the estimated “normal” seasonal high groundwater level likely exists within 3 feet of the bottom of base within the proposed widening areas. If raising the proposed grade is not a feasible option for the design of the roadway widening, **EGS recommends consideration of the following design options in areas where base clearance is less than 3 feet above the estimated “normal” seasonal high groundwater:**

- Use a moisture resistant Optional Base Group material such as Graded Aggregate Base (**GAB**) or Type B-12.5 (referred to as Black Base); and,
- Reduction of the design Resilient Modulus as outlined in the **FDOT Design Manual** and the *Flexible Pavement Design Manual*.

Pavement Distress Mitigation Options – Based on the results of the pavement cores and soil borings performed as part of this investigation, **EGS** believes the following options may be considered to mitigate future pavement distress within the study area:

- **Option 1: Full Depth Reconstruction** – This option generally consists of removing the existing asphalt pavement and base materials to an approximate depth of 12-inches below grade, followed by mixing and compacting Type-B stabilization (**LBR** 40 minimum) into the existing subgrade to a depth of 12-inches. After the subgrade is compacted, placement and compaction of a uniform base material would occur, followed by reconstruction of the asphalt pavement to restore the profile and match surrounding conditions.

EGS believes full depth reconstruction is likely the most standard and reliable method to reduce future pavement distress within the roadway corridor. The upfront cost for full depth reconstruction is much greater than a standard mill and resurface approach; however, if considering long term performance and maintenance cost savings, this option may be the most economical approach. Due to the depth of cut required to prepare the subgrade, it should be noted that the Temporary Traffic Control (TTC) plan will likely require temporary drop off barrier protection and diversion.

- **Option 2: Stress Absorbing Membrane Interlayer** – This option consists of a targeted milling of the existing asphalt and installation of a Stress Absorbing Membrane Interlayer (**SAMI**) within the proposed pavement overlay layer to stiffen the pavement section and more uniformly distribute the roadway loads over the underlying deteriorating base material.

A **SAMI** is a prefabricated high-strength geosynthetic layer which, when bonded into the lower lifts of an asphalt pavement section, resists the flexure of the pavement section once a vertical load is applied. A minimum of 4 inches of asphalt cover is required to be placed above the **SAMI** to provide adequate cover and minimize future impacts due to milling equipment.

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The benefits of this option are that the existing base material would remain in place, resulting in a very minor depth of excavation during construction which would not require temporary drop off barrier protection or temporary diversions, and would reduce reflective cracking manifesting on the roadway surface. The disadvantages to this option are that the **SAMI** may not be an economical option due to the high cost of the material and installation, likely exceeding costs associated with full depth reconstruction noted above.

Additionally, while the **SAMI** layer will help mitigate reflective cracking, the existing base material to remain is not performing as intended and will likely cause the roadway pavement to continue to rut at an accelerated rate.

- **Option 3: Full-Depth Mill and Increased Structural Number** – This option consists of full-depth milling of the existing asphalt and replacing with a pavement section with an increased Design Structural Numbers (**SN_D**) to slow the development of cracking and wheel path rutting. As previously noted, the estimated Existing Structural Numbers (**SN_E**) are provided in **TABLE 3**, using the average existing layer thickness determinations from **TABLE 2**.

The benefit of this option is that it is the least invasive and likely the lowest up-front cost of the 3 options presented. However, the primary disadvantage of this option is that the existing base material to remain is not performing well and will likely continue to result in future reflective cracking at a similar rate to that already experienced by the County within the corridor. Cracks within any existing pavement or base layers to remain below the proposed pavement will likely reflect upwards over time due to stress concentrations at the cracks, temperature movement, and load deflections. This in turn will cause the overlay to deteriorate faster than would be indicated strictly by structural number calculation. If considering long term costs for the design life period, this option is not likely the most economical option.

Recommended Option – EGS recommends full depth reconstruction (Option 1) to mitigate the pavement distress within the corridor, designed in accordance with the FDOT Flexible Pavement Design Manual and constructed in accordance with the FDOT Standard Specifications for Road and Bridge Construction. EGS believes this Option will provide the most reliable long-term pavement performance, and will likely result in the least amount of future maintenance for the County.

GEOTECHNICAL RECOMMENDATIONS – ROADWAY WIDENING

Soils – Based on a review of the soils encountered and the soil definitions included in the *FDOT Standard Plans Index 120-001*, the following **STRATA** descriptions apply:

- **STRATA 1** and **2** are “SELECT” soils. Due to the high fines content, **STRATUM 2** will retain moisture and may be difficult to compact when wet;
- **STRATUM 3** is a “PLASTIC” soil;

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- **STRATUM 4** is a “SELECT” material with an average organic content greater than 2.5 percent, but no individual value greater than 5.0 percent. This material is not permitted in the subgrade portion of the roadway bed due to its organic content; and,
- **STRATUM 5** is an “ORGANIC” material with an average organic content greater than 5.0 percent, but no individual value greater than 20.0 percent.

EGS recommends that reuse of any materials excavated shall be in accordance with FDOT Standard Plans Index 120-001. Removal of any unsuitable materials shall be in accordance with FDOT Standard Plans Index 120-002 when appropriate. Placement and compaction of roadway materials should be performed in accordance with FDOT Standard Specifications for Road and Bridge Construction.

Groundwater Impacts – Based on the results of this subsurface investigation, it should be noted that the estimated “normal” seasonal high groundwater level likely exists within 3 feet of the bottom of base within the proposed widening areas if the proposed grade remains as-is. Due to the presence of shallow groundwater encountered at various soil boring locations, the presence of standing water in the roadway shoulders at various locations, and “normal” seasonal high groundwater within 3 feet of the proposed base, EGS believes that groundwater may be encountered during the construction of this project. If construction and excavations are to occur below the water table, dewatering countermeasures in accordance with the **FDOT Standard Specification for Road and Bridge Construction** should be considered prior to construction.

Subsoil Excavation – As previously noted, “SELECT” soils with an organic content greater than 2.5 percent but no individual value greater than 5.0 percent (**STRATUM 4**) were encountered at various depths within the project limits. As outlined in the **FDOT Standard Plans Index 120-001**, “SELECT” soils with an organic content greater than 2.5 percent but no individual value greater than 5.0 percent (**STRATUM 4**) are not permitted for use in the subgrade portion of the roadway bed. **EGS recommends** subsoil excavation be performed within the subgrade portion of the roadbed at Soil Borings **PK-8** and **PK-13** to a depth of 1 foot below the bottom of base at the following locations:

- Station 67+13 to 77+13; and,
- Station 92+12 to 102+13.

The approximate horizontal limits of subsoil excavation have been depicted in **Figures 4A through 4G**. **EGS recommends** the limits of subsoil excavation be included in the Roadway Plans. **EGS** requests the opportunity to review the Cross Sections once they become available to confirm the limits of subsoil excavation.

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LBR Values – As noted above, the **LBR** test number, corresponding boring location, maximum dry density, optimum moisture content, and **LBR** values have been summarized in **TABLE 5**. The following recommended design **LBR** values are based on the value determined by using the +/- 2% of Optimum Method and the 90% Design Method as described in the **FDOT Soils and Foundations Handbook**. **EGS recommends** the following design **LBR** values be used for the pavement design:

- **STRATUM 1 (A-3, A-2-4 with <20% Passing No. 200)** – Design **LBR** Value: 21
- **STRATUM 2 (A-2-4 with ≥20% Passing No. 200)** – Design **LBR** Value: 35

It should be noted that the recommended Design **LBR** values for **STRATA 1 and 2** were found to be less than 40. Therefore, **EGS cautions** that “SELECT” soil within the project limits used as subgrade may require additional stabilization to achieve an **LBR** value of 40.

Construction Plans – **EGS recommends** the following be included in the Roadway Construction Plans:

- Geotechnical Plan Sheets – *Roadway Soil Survey and Report of Soil Borings* included in **APPENDIX A** of this Report. Soil borings may also be plotted on the Cross Sections (if applicable) in lieu of the *Report of Soil Borings* sheets.

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CLOSURE

The data and results presented in this Geotechnical Investigation Report are intended for use by Kimley-Horn and Associates, Inc., for evaluation of a segment of CR 121 extending from the Duval County line to CR 119 in Nassau County, Florida as identified herein. This data may not be used without the expressed written consent of Kimley-Horn and Associates, Inc. This Report is not intended for any other use and will likely not be applicable. This Report shall not be reproduced, except in full, without the written approval of Environmental and Geotechnical Specialists, Inc. The data and recommendations presented in this Report are based on the soil borings made at the specific locations and depths noted. Subsurface conditions at other locations may vary significantly from those presented herein. Should data become available which is different from the data presented herein, Environmental and Geotechnical Specialists, Inc. requests the opportunity to review the data and make any modifications to the design recommendations that may be appropriate.

If you have any questions concerning the information contained in this Report, please do not hesitate to call at (904) 329-7180.

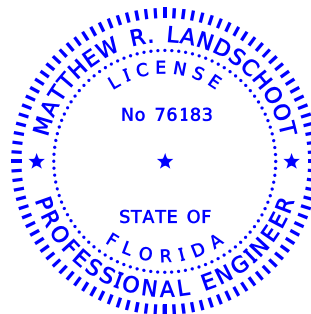
Very truly yours,

Environmental and Geotechnical Specialists, Inc.

Matthew R 2024.11.26
Landschoot 15:19:31 -05'00'

Matthew Landschoot, P.E.
Geotechnical Project Engineer
Florida PE No. 76183

*Environmental and Geotechnical Specialists, Inc.
3772 Kori Drive
Jacksonville, FL 32257*



This Report has been digitally signed and sealed by
Matthew Landschoot on the date adjacent to the seal.

Printed copies of this document are not considered signed
and sealed and the signature must be verified on any electronic copies.

TABLES

TABLE 1
SOIL BORING LOCATION AND GROUNDWATER DATA
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

PAGE 1 OF 3

BORING NUMBER	BORING DEPTH ¹ (FEET)	MEASURED GROUNDWATER DEPTH ¹ (FEET)	ESTIMATED "NORMAL" SEASONAL HIGH GROUNDWATER DEPTH ¹ (FEET)	STATION ² (FEET)	OFFSET ² (FEET)	GLOBAL POSITIONING SYSTEM (GPS) COORDINATES ³			
						LATITUDE		LONGITUDE	
						DEG	MIN	DEG	MIN
PK-1	5.5	> 5.5	2.0	37+13	8 RIGHT	30	18.609	82	0.502
PK-2	5.5	> 5.5	3.0	42+13	4 LEFT	30	18.691	82	0.505
PK-3	5.5	> 5.5	2.0	47+13	11 RIGHT	30	18.774	82	0.504
PK-4	5.5	> 5.5	1.5	52+13	3 LEFT	30	18.856	82	0.508
SK-1	20.0	5.5	1.0	55+63	33 LEFT	30	18.914	82	0.515
PK-5	5.5	> 5.5	2.0	57+13	10 RIGHT	30	18.939	82	0.507
PK-6	5.5	> 5.5	3.0	62+13	9 LEFT	30	19.021	82	0.512
PK-7	5.5	> 5.5	3.0	67+13	7 RIGHT	30	19.104	82	0.510
PK-8	5.5	> 5.5	3.0	72+13	4 LEFT	30	19.186	82	0.514
PK-9	5.5	> 5.5	3.0	77+13	4 RIGHT	30	19.269	82	0.515
PK-10	5.5	> 5.5	3.0	82+13	9 LEFT	30	19.351	82	0.519
PK-11	5.5	> 5.5	3.0	87+13	7 RIGHT	30	19.434	82	0.518
PK-12	5.5	> 5.5	3.0	92+12	2 LEFT	30	19.516	82	0.521
PK-13	5.5	> 5.5	2.0	97+13	7 RIGHT	30	19.599	82	0.521
PK-14	5.5	> 5.5	3.0	102+13	9 LEFT	30	19.681	82	0.526
PK-15	5.5	> 5.5	3.0	107+13	10 RIGHT	30	19.763	82	0.525
PK-16	5.5	> 5.5	3.0	112+13	9 LEFT	30	19.846	82	0.530
PK-17	5.5	> 5.5	2.0	117+13	4 RIGHT	30	19.928	82	0.530
PK-18	5.5	> 5.5	3.0	122+13	5 LEFT	30	20.011	82	0.534
PK-19	5.5	> 5.5	4.0	127+13	8 RIGHT	30	20.093	82	0.533
PK-20	5.5	> 5.5	3.0	132+12	2 LEFT	30	20.176	82	0.537
PK-21	5.5	4.5	2.0	137+13	8 RIGHT	30	20.258	82	0.537
PK-22	5.5	> 5.5	3.0	142+13	7 LEFT	30	20.341	82	0.543
PK-23	5.5	4.5	2.0	147+13	10 RIGHT	30	20.423	82	0.541
PK-24	5.5	> 5.5	2.0	152+13	2 LEFT	30	20.506	82	0.546
PK-25	3.0	2.5	1.5	157+13	5 RIGHT	30	20.588	82	0.547
PK-26	5.5	> 5.5	2.5	161+77	5 LEFT	30	20.664	82	0.550
PK-27	5.5	> 5.5	3.0	167+13	8 RIGHT	30	20.753	82	0.550
PK-28	5.5	5.0	3.0	172+13	9 LEFT	30	20.835	82	0.556
PK-29	5.5	> 5.5	2.0	177+13	9 RIGHT	30	20.918	82	0.554
PK-30	5.5	> 5.5	4.0	182+13	5 LEFT	30	21.000	82	0.559
SK-2	20.0	6.5	3.0	186+43	34 RIGHT	30	21.071	82	0.553
PK-31	5.5	> 5.5	2.0	187+13	5 RIGHT	30	21.083	82	0.559

NOTES: 1. DEPTH IS MEASURED BELOW EXISTING GROUND SURFACE.

2. CONSTRUCTION CENTERLINE STATIONING AND OFFSETS DETERMINED FROM ELECTRONIC FILES PROVIDED BY KIMLEY-HORN AND ASSOCIATES, INC.

3. COORDINATES ARE APPROXIMATE AND BASED ON FIELD MEASUREMENTS AND MAPPING SOFTWARE.

TABLE 1
SOIL BORING LOCATION AND GROUNDWATER DATA
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

PAGE 2 OF 3

BORING NUMBER	BORING DEPTH ¹ (FEET)	MEASURED GROUNDWATER DEPTH ¹ (FEET)	ESTIMATED "NORMAL" SEASONAL HIGH GROUNDWATER DEPTH ¹ (FEET)	STATION ² (FEET)	OFFSET ² (FEET)	GLOBAL POSITIONING SYSTEM (GPS) COORDINATES ³			
						LATITUDE		LONGITUDE	
						DEG	MIN	DEG	MIN
PK-32	5.5	> 5.5	3.0	192+13	9 LEFT	30	21.165	82	0.564
PK-33	5.5	> 5.5	2.0	197+13	4 RIGHT	30	21.248	82	0.563
PK-34	5.5	> 5.5	3.0	202+13	3 LEFT	30	21.330	82	0.566
PK-35	5.5	> 5.5	2.0	207+13	8 RIGHT	30	21.413	82	0.565
PK-36	5.5	> 5.5	1.5	212+13	8 LEFT	30	21.495	82	0.570
PK-37	5.5	> 5.5	1.0	217+13	8 RIGHT	30	21.578	82	0.569
PK-38	5.5	> 5.5	2.0	222+13	4 LEFT	30	21.659	82	0.580
PK-39	5.5	> 5.5	2.0	227+12	5 RIGHT	30	21.737	82	0.612
PK-40	5.5	> 5.5	2.0	232+13	9 LEFT	30	21.804	82	0.667
PK-41	5.5	> 5.5	2.0	237+12	9 RIGHT	30	21.873	82	0.720
PK-42	5.5	> 5.5	3.0	242+13	4 LEFT	30	21.938	82	0.778
PK-43	5.5	> 5.5	3.0	247+13	10 RIGHT	30	22.008	82	0.829
PK-44	5.5	> 5.5	2.0	252+13	7 LEFT	30	22.075	82	0.885
PK-45	5.5	> 5.5	3.0	257+13	4 RIGHT	30	22.147	82	0.931
PK-46	5.5	4.0	2.0	262+13	9 LEFT	30	22.222	82	0.969
PK-47	5.5	> 5.5	3.0	267+12	8 RIGHT	30	22.303	82	0.989
PK-48	5.5	> 5.5	4.0	272+11	11 LEFT	30	22.384	82	1.004
PK-49	5.5	> 5.5	3.0	277+12	8 RIGHT	30	22.467	82	1.008
PK-50	5.5	> 5.5	3.0	282+12	2 LEFT	30	22.549	82	1.019
PK-51	5.5	> 5.5	3.0	287+12	5 RIGHT	30	22.631	82	1.025
PK-52	5.5	> 5.5	3.0	292+12	7 LEFT	30	22.713	82	1.036
PK-53	5.5	5.0	2.0	297+13	10 RIGHT	30	22.796	82	1.041
PK-54	5.5	> 5.5	2.0	302+12	4 LEFT	30	22.876	82	1.060
PK-55	5.5	4.0	3.0	307+13	4 RIGHT	30	22.949	82	1.104
PK-56	5.5	> 5.5	3.0	312+14	8 LEFT	30	23.007	82	1.172
PK-57	5.5	> 5.5	3.0	317+13	1 RIGHT	30	23.066	82	1.238
PK-58	5.5	> 5.5	3.0	322+13	1 LEFT	30	23.123	82	1.306
PK-59	5.5	> 5.5	2.0	327+13	2 RIGHT	30	23.182	82	1.373
SK-3	20.0	6.0	2.0	329+81	45 RIGHT	30	23.218	82	1.404
PK-60	5.5	> 5.5	2.0	332+13	6 LEFT	30	23.239	82	1.442
PK-61	5.5	> 5.5	3.0	334+10	22 LEFT	30	23.260	82	1.471
PK-62	5.5	> 5.5	3.0	335+10	22 LEFT	30	23.271	82	1.484
PK-63	5.5	> 5.5	3.0	336+10	22 LEFT	30	23.283	82	1.498

NOTES: 1. DEPTH IS MEASURED BELOW EXISTING GROUND SURFACE.

2. CONSTRUCTION CENTERLINE STATIONING AND OFFSETS DETERMINED FROM ELECTRONIC FILES PROVIDED BY KIMLEY-HORN AND ASSOCIATES, INC.

3. COORDINATES ARE APPROXIMATE AND BASED ON FIELD MEASUREMENTS AND MAPPING SOFTWARE.

TABLE 1
SOIL BORING LOCATION AND GROUNDWATER DATA
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

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BORING NUMBER	BORING DEPTH ¹ (FEET)	MEASURED GROUNDWATER DEPTH ¹ (FEET)	ESTIMATED "NORMAL" SEASONAL HIGH GROUNDWATER DEPTH ¹ (FEET)	STATION ² (FEET)	OFFSET ² (FEET)	GLOBAL POSITIONING SYSTEM (GPS) COORDINATES ³			
						LATITUDE		LONGITUDE	
						DEG	MIN	DEG	MIN
PK-64	5.5	> 5.5	2.0	337+13	9 RIGHT	30	23.299	82	1.507
PK-65	5.5	> 5.5	2.0	337+60	33 LEFT	30	23.299	82	1.519
PK-66	5.5	> 5.5	3.0	342+13	2 LEFT	30	23.355	82	1.577
PK-67	5.5	> 5.5	4.0	347+13	5 RIGHT	30	23.414	82	1.643
PK-68	5.5	> 5.5	3.0	352+13	10 LEFT	30	23.471	82	1.713
PK-69	5.5	> 5.5	4.0	357+13	9 RIGHT	30	23.532	82	1.777
PK-70	5.5	> 5.5	4.0	362+14	1 LEFT	30	23.600	82	1.829
PK-71	5.5	> 5.5	3.0	367+14	6 RIGHT	30	23.679	82	1.855
SK-4	20.0	6.0	3.0	371+47	32 RIGHT	30	23.751	82	1.862
PK-72	5.5	> 5.5	4.0	372+14	8 LEFT	30	23.761	82	1.871
PK-73	5.5	5.0	3.0	377+14	10 RIGHT	30	23.843	82	1.881
PK-74	5.5	> 5.5	4.0	382+14	6 LEFT	30	23.924	82	1.897
PK-75	5.5	> 5.5	3.0	387+14	9 RIGHT	30	24.006	82	1.907
PK-76	5.5	> 5.5	2.0	392+15	3 LEFT	30	24.088	82	1.916
PK-77	5.5	> 5.5	1.0	397+14	8 RIGHT	30	24.171	82	1.913
PK-78	5.5	> 5.5	1.0	402+14	5 LEFT	30	24.253	82	1.906
SK-5	20.0	6.5	1.0	405+67	32 RIGHT	30	24.310	82	1.891
PK-79	2.5	> 2.5	1.0	407+15	13 RIGHT	30	24.334	82	1.890
PK-80	5.5	> 5.5	2.0	412+15	3 LEFT	30	24.414	82	1.867
PK-81	5.5	> 5.5	3.0	417+15	9 RIGHT	30	24.491	82	1.832
PK-82	5.5	> 5.5	2.0	422+15	10 LEFT	30	24.569	82	1.802
PK-83	5.5	> 5.5	3.0	427+15	4 RIGHT	30	24.645	82	1.767
PK-84	5.5	5.0	2.0	430+48	33 RIGHT	30	24.695	82	1.739

NOTES: 1. DEPTH IS MEASURED BELOW EXISTING GROUND SURFACE.

2. CONSTRUCTION CENTERLINE STATIONING AND OFFSETS DETERMINED FROM ELECTRONIC FILES PROVIDED BY KIMLEY-HORN AND ASSOCIATES, INC.

3. COORDINATES ARE APPROXIMATE AND BASED ON FIELD MEASUREMENTS AND MAPPING SOFTWARE.

TABLE 2
EXISTING LAYER THICKNESS
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

PAGE 1 OF 4

PAVEMENT CORE NUMBER	PAVEMENT CONDITION	PAVEMENT LAYERS THICKNESS (INCHES)			
		FC-3 ¹	SP ²	RAS ³	LR ⁴
PAVEMENT CORES WITH BONDED RECYCLED ASPHALT STABILIZATION					
PK-3	POOR	1.0	2.9	8.1	
PK-7	POOR	1.0	3.3	3.5	
PK-10	POOR	1.1	3.6	6.1	
PK-15	POOR	1.3	2.0	4.0	
PK-24	POOR	1.1	2.2	4.7	
PK-26	POOR	1.2	3.5	7.3	
PK-28	POOR	1.5	3.9	5.5	
PK-32	POOR	1.0	3.1	5.9	
PK-36	POOR	1.3	2.8	6.1	
PK-37	FAIR	1.5	2.2	5.7	
PK-38	POOR	1.2	1.8	8.0	
PK-40	FAIR	1.4	2.6	6.0	
PK-50	POOR	1.5	1.5	6.0	
PK-52	POOR	1.4	2.1	6.0	
PK-54	POOR	1.3	1.9	8.8	
PK-55	FAIR	1.4	1.7	6.7	
PK-57	POOR	1.5	1.3	6.2	
PK-66	POOR	1.4	1.6	5.0	
PK-67	POOR	1.1	1.6	5.0	
PK-68	FAIR	1.2	2.0	6.0	
PK-69	POOR	1.1	2.1	4.5	
PK-71	POOR	1.3	1.8	6.4	

NOTES: 1. FRICTION COURSE FC-3

4. LIMEROCK BASE

2. STRUCTURAL COURSE TYPE SP

3. RECYCLED ASPHALT STABILIZATION BASE

TABLE 2
EXISTING LAYER THICKNESS
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

PAGE 2 OF 4

PAVEMENT CORE NUMBER	PAVEMENT CONDITION	PAVEMENT LAYERS THICKNESS (INCHES)			
		FC-3 ¹	SP ²	RAS ³	LR ⁴
PAVEMENT CORES WITH BONDED RECYCLED ASPHALT STABILIZATION					
PK-73	POOR	1.1	2.7	6.3	
PK-77	POOR	1.0	2.1	5.5	
PK-78	POOR	1.4	1.1	6.0	
PK-82	POOR	1.0	2.9	5.3	
AVERAGE	POOR	1.2	2.3	5.9	
PAVEMENT CORES WITH UNBONDED RECYCLED ASPHALT STABILIZATION					
PK-1	POOR	1.5	3.4	7.1	
PK-2	POOR	1.2	2.3	6.1	
PK-4	POOR	1.5	1.7	6.4	
PK-5	POOR	1.2	2.2	4.6	
PK-6	POOR	1.3	3.3	4.9	
PK-8	POOR	1.2	3.0	5.3	
PK-9	GOOD	1.1	2.5	5.9	
PK-11	FAIR	1.1	2.9	8.3	
PK-12	POOR	1.0	3.3	5.4	
PK-13	GOOD	1.4	2.6	8.5	
PK-14	POOR	1.2	2.6	6.5	
PK-16	POOR	1.2	3.1	7.9	
PK-17	POOR	1.2	2.2	7.6	
PK-18	POOR	1.1	2.3	6.8	
PK-19	GOOD	1.1	3.2	5.7	
PK-20	POOR	1.1	1.9	5.5	

NOTES: 1. FRICTION COURSE FC-3

4. LIMEROCK BASE

2. STRUCTURAL COURSE TYPE SP

3. RECYCLED ASPHALT STABILIZATION BASE

TABLE 2
EXISTING LAYER THICKNESS
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

PAGE 3 OF 4

PAVEMENT CORE NUMBER	PAVEMENT CONDITION	PAVEMENT LAYERS THICKNESS (INCHES)			
		FC-3 ¹	SP ²	RAS ³	LR ⁴
PAVEMENT CORES WITH UNBONDED RECYCLED ASPHALT STABILIZATION					
PK-21	POOR	1.0	2.5	5.5	
PK-22	POOR	1.1	2.9	5.8	
PK-23	POOR	1.5	3.4	3.6	
PK-25	POOR	1.0	2.0	8.0	
PK-27	POOR	1.4	1.9	8.7	
PK-29	POOR	1.1	1.9	8.0	
PK-30	POOR	1.1	2.3	8.1	
PK-31	POOR	1.5	1.8	5.8	
PK-33	FAIR	1.1	1.6	5.5	
PK-34	POOR	1.1	2.9	6.5	
PK-35	POOR	1.3	1.9	5.8	
PK-39	POOR	1.4	1.1	6.5	
PK-41	POOR	1.2	1.6	4.2	
PK-49	POOR	1.2	2.2	6.3	
PK-51	POOR	1.4	2.2	7.3	
PK-53	POOR	1.5	3.3	5.1	
PK-56	POOR	1.1	2.4	6.5	
PK-58	POOR	1.0	2.0	8.4	
PK-59	POOR	1.1	1.6	5.3	
PK-60	POOR	1.3	2.1	6.2	
PK-64	POOR	1.3	1.4	5.1	
PK-70	POOR	0.9	2.7	6.0	

NOTES: 1. FRICTION COURSE FC-3

4. LIMEROCK BASE

2. STRUCTURAL COURSE TYPE SP

3. RECYCLED ASPHALT STABILIZATION BASE

TABLE 2
EXISTING LAYER THICKNESS
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

PAGE 4 OF 4

PAVEMENT CORE NUMBER	PAVEMENT CONDITION	PAVEMENT LAYERS THICKNESS (INCHES)			
		FC-3 ¹	SP ²	RAS ³	LR ⁴
PAVEMENT CORES WITH UNBONDED RECYCLED ASPHALT STABILIZATION					
PK-72	POOR	1.0	2.0	7.5	
PK-74	POOR	1.3	1.4	7.3	
PK-75	POOR	1.0	2.8	5.6	
PK-76	POOR	1.0	1.5	6.0	
PK-79	POOR	0.9	3.1	4.0	
PK-80	POOR	0.9	2.1	5.0	
PK-81	POOR	1.1	2.4	4.7	
PK-83	POOR	1.0	2.8	4.7	
AVERAGE	POOR	1.2	2.4	6.2	
PAVEMENT CORES WITH LIMEROCK BASE					
PK-42	FAIR	0.9	3.7		8.6
PK-43	POOR	1.1	2.2		7.7
PK-44	POOR	0.9	2.4		9.2
PK-45	POOR	0.9	3.1		13.5
PK-46	POOR	0.9	2.9		8.3
PK-47	POOR	1.7	2.5		8.3
PK-48	POOR	1.1	3.2		12.7
AVERAGE	POOR	1.1	2.9		9.8

NOTES: 1. FRICTION COURSE FC-3

4. LIMEROCK BASE

2. STRUCTURAL COURSE TYPE SP

3. RECYCLED ASPHALT STABILIZATION BASE

TABLE 3
NRCS SOIL SURVEY DATA
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

PAGE 1 OF 6

MATERIAL REFERENCE NUMBER	BORING NAMES	MATERIAL NAME	DEPTH (INCHES)	MATERIAL DESCRIPTION	MATERIAL CLASSIFICATION		REACTION	CORROSION POTENTIAL		DEPTH TO SEASONAL HIGH GROUNDWATER (FEET)
					UNIFIED	AASHTO	(pH)	UNCOATED STEEL	CONCRETE	
9	PK-41	LEON FINE SAND, 0 TO 2 PERCENT SLOPES	0 - 8	FINE SAND	SP-SM	A-2-4, A-3	3.5 - 4.7	HIGH	HIGH	0.5 - 1.5
			8 - 18	FINE SAND	SP-SM, SP	A-2-4, A-3	3.2 - 5.4			
			18 - 37	FINE SAND, LOAMY FINE SAND	SP-SM, SM	A-2-4, A-3	3.1 - 5.2			
			37 - 45	FINE SAND, LOAMY FINE SAND	SP-SM	A-2-4, A-3	4.3 - 5.2			
			45 - 80	FINE SAND, LOAMY FINE SAND	SP-SM	A-2-4, A-3	4.5 - 5.6			
11	PK-15, PK-16, PK-18 TO PK-21, PK-24, PK-29, PK-33, PK-40, PK-46 TO PK-48, PK-50, PK-60 TO PK-65, PK-77, PK-83, PK-84	CHAIRES FINE SAND	0 - 7	FINE SAND	SP-SM, SP	A-2-4, A-3	3.5 - 5.5	HIGH	HIGH	0.5 - 1.5
			7 - 18	FINE SAND	SP-SM, SP	A-2-4, A-3	3.5 - 5.5			
			18 - 27	SAND, FINE SAND, LOAMY FINE SAND	SP-SM, SM	A-2-4, A-3	3.5 - 5.5			
			27 - 31	SAND, FINE SAND	SP-SM, SP	A-2-4, A-3	3.5 - 5.5			
			31 - 80	SANDY CLAY LOAM, SANDY CLAY	SC	A-2-6, A-2-7, A-6	4.5 - 7.3			

NOTES: 1. STATION LIMITS REFERENCE BASELINE SURVEY SR 51.
2. BASED ON THE NRCS SOIL SURVEY REPORT FOR NASSAU COUNTY, FLORIDA.
3. SEE **APPENDIX E** FOR DETAILED NRCS SOIL SURVEY INFORMATION.

TABLE 3
NRCS SOIL SURVEY DATA
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

PAGE 2 OF 6

MATERIAL REFERENCE NUMBER	BORING NAMES	MATERIAL NAME	DEPTH (INCHES)	MATERIAL DESCRIPTION	MATERIAL CLASSIFICATION		REACTION	CORROSION POTENTIAL		DEPTH TO SEASONAL HIGH GROUNDWATER (FEET)
					UNIFIED	AASHTO	(pH)	UNCOATED STEEL	CONCRETE	
13	PK-2 TO PK-12, SK-1, PK-14, PK-23, PK-25, PK-26, PK-28, PK-31, PK-32, PK-34 TO PK-39, PK-42, PK-43, PK-49, PK-72	GOLDHEAD FINE SAND (HYDRIC)	0 - 8	FINE SAND	SP-SM, SP	A-3	4.5 - 7.8	HIGH	HIGH	0.0 - 0.5
			8 - 33	SAND, FINE SAND	SP-SM, SP	A-3	4.5 - 7.8			
			33 - 69	SANDY LOAM, CLAY LOAM, SANDY CLAY LOAM	SC-SM, SC, SM	A-2-4, A-2-6, A-6	4.5 - 8.4			
			69 - 80	FINE SAND, SAND, LOAMY FINE SAND	SP-SM, SM, SP	A-2-4, A-3	3.5 - 5.5			
16	PK-44, PK-45, SK-5, PK-79	ELLABELLE MUCKY FINE SAND, FREQUENTLY FLOODED	0 - 4	MUCKY FINE SAND	SP-SM, SM	A-1, A-2	4.5 - 5.5	HIGH	MODERATE	0.0 - 0.5
			4 - 12	FINE SAND	SP-SM, SM	A-1, A-2	4.5 - 5.5			
			12 - 36	FINE SAND	SP-SM, SM	A-1, A-2	4.5 - 5.5			
			36 - 80	SANDY CLAY LOAM, SANDY CLAY, FINE SANDY LOAM	CL, SC	A-6, A-7	4.5 - 5.5			

NOTES: 1. STATION LIMITS REFERENCE BASELINE SURVEY SR 51.
2. BASED ON THE NRCS SOIL SURVEY REPORT FOR NASSAU COUNTY, FLORIDA.
3. SEE **APPENDIX E** FOR DETAILED NRCS SOIL SURVEY INFORMATION.

TABLE 3
NRCS SOIL SURVEY DATA
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

PAGE 3 OF 6

MATERIAL REFERENCE NUMBER	BORING NAMES	MATERIAL NAME	DEPTH (INCHES)	MATERIAL DESCRIPTION	MATERIAL CLASSIFICATION		REACTION	CORROSION POTENTIAL		DEPTH TO SEASONAL HIGH GROUNDWATER (FEET)
					UNIFIED	AASHTO	(pH)	UNCOATED STEEL	CONCRETE	
22	PK-81, PK-82	SAPELO-LEON FINE SAND (SAPELO, HYDRIC)	0 - 6	FINE SAND	SP-SM, SM, SP	A-2, A-3	3.5 - 5.5	HIGH	HIGH	0.0 - 0.5
			6 - 21	FINE SAND	SP-SM, SM, SP	A-2, A-3	3.5 - 5.5			
			21 - 27	FINE SAND, SAND, LOAMY FINE SAND	SP-SM, SM	A-2, A-3	3.5 - 5.5			
			27 - 43	LOAMY FINE SAND, FINE SAND, SAND	SP-SM, SM, SP	A-2, A-3	3.5 - 5.5			
			43 - 70	FINE SANDY LOAM, SANDY CLAY LOAM, SANDY LOAM	SC-SM, SC, SM	A-2, A-4, A-6	3.5 - 5.5			
			70 - 80	LOAMY FINE SAND, FINE SAND	SP-SM, SM, SP	A-2, A-3	3.5 - 5.5			
23	--	OCILLA FINE SAND, 0 TO 5 PERCENT SLOPES	0 - 7	FINE SAND	SP-SM, SM	A-2, A-3	4.5 - 5.5	HIGH	HIGH	1.0 - 2.5
			7 - 34	FINE SAND	SP-SM, SM	A-2, A-3	4.5 - 5.5			
			34 - 80	SANDY LOAM, SANDY CLAY LOAM, FINE SANDY LOAM	CL, ML, SC, SM	A-2, A-4, A-6	4.5 - 5.5			

NOTES: 1. STATION LIMITS REFERENCE BASELINE SURVEY SR 51.
2. BASED ON THE NRCS SOIL SURVEY REPORT FOR NASSAU COUNTY, FLORIDA.
3. SEE **APPENDIX E** FOR DETAILED NRCS SOIL SURVEY INFORMATION.

TABLE 3
NRCS SOIL SURVEY DATA
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

PAGE 4 OF 6

MATERIAL REFERENCE NUMBER	BORING NAMES	MATERIAL NAME	DEPTH (INCHES)	MATERIAL DESCRIPTION	MATERIAL CLASSIFICATION		REACTION	CORROSION POTENTIAL		DEPTH TO SEASONAL HIGH GROUNDWATER (FEET)
					UNIFIED	AASHTO	(pH)	UNCOATED STEEL	CONCRETE	
33	PK-13, PK-17, PK-22, PK-27, PK-30, SK-2, SK-3, SK-4	GOLDHEAD-MEADOWBROOK FINE SANDS, DEPRESSIONAL (MEADOWBROOK)	0 - 6	FINE SAND	SP-SM, SP	A-3	3.5 - 7.3	HIGH	MODERATE	0.0
			6 - 55	SAND, FINE SAND	SP-SM, SP	A-3	3.5 - 8.4			
			55 - 80	SANDY LOAM, FINE SANDY LOAM, SANDY CLAY LOAM	SC-SM, SC, SM	A-2-4, A-2-6	4.5 - 8.4			
51 (DUVAL)	PK-1	PELHAM FINE SAND, 0 TO 2 PERCENT SLOPES	0 - 6	LOAMY FINE SAND, FINE SAND	SM	A-2-4	3.5 - 5.5	HIGH	HIGH	0.5 - 1.0
			6 - 26	FINE SAND, LOAMY FINE SAND	SM	A-2-4	3.5 - 5.5			
			26 - 42	SANDY CLAY LOAM, FINE SANDY LOAM	SC	A-2, A-6	3.5 - 5.5			
			42 - 83	FINE SANDY LOAM, SANDY CLAY LOAM	SC	A-2, A-6	3.5 - 5.5			
51 (NASSAU)	PK-80	ALBANY FINE SAND, 0 TO 5 PERCENT SLOPES	0 - 2	FINE SAND	SP-SM, SM	A-2	3.5 - 6.5	HIGH	HIGH	1.0 - 2.5
			2 - 50	FINE SAND	SP-SM, SM	A-2	3.5 - 6.5			
			50 - 80	SANDY CLAY LOAM, SAND LOAM, FINE SANDY LOAM	SC-SM, SC, SM	A-2, A-4, A-6	4.5 - 6.0			

NOTES: 1. STATION LIMITS REFERENCE BASELINE SURVEY SR 51.
2. BASED ON THE NRCS SOIL SURVEY REPORT FOR NASSAU COUNTY, FLORIDA.
3. SEE **APPENDIX E** FOR DETAILED NRCS SOIL SURVEY INFORMATION.

TABLE 3
NRCS SOIL SURVEY DATA
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

PAGE 5 OF 6

MATERIAL REFERENCE NUMBER	BORING NAMES	MATERIAL NAME	DEPTH (INCHES)	MATERIAL DESCRIPTION	MATERIAL CLASSIFICATION		REACTION	CORROSION POTENTIAL		DEPTH TO SEASONAL HIGH GROUNDWATER (FEET)
					UNIFIED	AASHTO	(pH)	UNCOATED STEEL	CONCRETE	
53	PK-51 TO PK-54	MEADOWBROOK FINE SAND (HYDRIC)	0 - 8	FINE SAND	SP-SM, SP	A-3	3.5 - 7.3	HIGH	MODERATE	0.0 - 0.5
			8 - 44	SAND, FINE SAND	SP-SM, SP	A-3	3.5 - 8.4			
			44 - 80	SANDY LOAM, FINE SANDY LOAM, SANDY CLAY LOAM	SC-SM, SC, SM	A-2-4, A-2-6	4.5 - 8.4			
54	PK-55 TO PK-59, PK-66 TO PK-71, PK-73 TO PK-76	SAPELO FINE SAND (HYDRIC)	0 - 6	FINE SAND	SP-SM, SM, SP	A-2, A-3	3.5 - 5.5	HIGH	HIGH	0.0 - 0.5
			6 - 21	FINE SAND	SP-SM, SM, SP	A-2, A-3	3.5 - 5.5			
			21 - 27	FINE SAND, SAND, LOAMY FINE SAND	SP-SM, SM	A-2, A-3	3.5 - 5.5			
			27 - 43	LOAMY FINE SAND, FINE SAND, SAND	SP-SM, SM, SP	A-2, A-3	3.5 - 5.5			
			43 - 70	FINE SANDY LOAM, SANDY CLAY LOAM, SANDY LOAM	SC-SM, SC, SM	A-2, A-4, A-6	3.5 - 5.5			
			70 - 80	FINE SAND, LOAMY FINE SAND	SP-SM, SM, SP	A-2, A-3	3.5 - 5.5			

NOTES: 1. STATION LIMITS REFERENCE BASELINE SURVEY SR 51.
2. BASED ON THE NRCS SOIL SURVEY REPORT FOR NASSAU COUNTY, FLORIDA.
3. SEE **APPENDIX E** FOR DETAILED NRCS SOIL SURVEY INFORMATION.

TABLE 3
NRCS SOIL SURVEY DATA
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

PAGE 6 OF 6

MATERIAL REFERENCE NUMBER	BORING NAMES	MATERIAL NAME	DEPTH	MATERIAL DESCRIPTION	MATERIAL CLASSIFICATION		REACTION	CORROSION POTENTIAL		DEPTH TO SEASONAL HIGH GROUNDWATER
			(INCHES)		UNIFIED	AASHTO	(pH)	UNCOATED STEEL	CONCRETE	
55	PK-78	MEADOWBROOK-GOLDHEAD- MEGETT COMPLEX, 2 TO 5 PERCENT SLOPES (MEGETT)	0 - 8	FINE SANDY LOAM	ML, SM	A-2, A-4	4.5 - 6.5	HIGH	MODERATE	0.0 - 0.5
			8 - 40	CLAY, SANDY CLAY, CLAY LOAM	CH, CL, MH	A-6, A-7	5.1 - 8.4			
			40 - 80	SANDY CLAY, SANDY CLAY LOAM, CLAY	MH, ML, SC, SM	A-4, A-6, A-7	6.1 - 8.4			

NOTES: 1. STATION LIMITS REFERENCE BASELINE SURVEY SR 51.
2. BASED ON THE NRCS SOIL SURVEY REPORT FOR NASSAU COUNTY, FLORIDA.
3. SEE **APPENDIX E** FOR DETAILED NRCS SOIL SURVEY INFORMATION.

TABLE 4
ENVIRONMENTAL CLASSIFICATION DATA
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

BORING NUMBER	DEPTH	RESISTIVITY	pH	SULFATES	CHLORIDES	ENVIRONMENTAL CLASSIFICATION	
	(FEET)	(OHM-CM)		(PPM)	(PPM)	STEEL	CONCRETE
FINE TO SILTY FINE SAND (<20% PASSING NO. 200 SIEVE) (A-3, A-2-4 / STRATUM 1)							
PK-59	2.0 - 3.5	14,000	4.4	36	15	EXTREMELY AGGRESSIVE	EXTREMELY AGGRESSIVE
SILTY FINE SAND (≥20% PASSING NO. 200 SIEVE) (A-2-4 / STRATUM 2)							
PK-2	1.0 - 2.5	4,100	5.9	63	15	EXTREMELY AGGRESSIVE	MODERATELY AGGRESSIVE
PK-34	4.0 - 5.5	19,000	4.1	9	30	EXTREMELY AGGRESSIVE	EXTREMELY AGGRESSIVE
CLAYEY FINE TO CLAYEY SAND (A-2-6, A-6 / STRATUM 3)							
PK-1	4.0 - 5.5	7,500	4.4	57	15	EXTREMELY AGGRESSIVE	EXTREMELY AGGRESSIVE
PK-11	3.0 - 4.5	11,000	4.7	72	30	EXTREMELY AGGRESSIVE	EXTREMELY AGGRESSIVE

NOTE: ENVIRONMENTAL CLASSIFICATION AS IDENTIFIED IN THE FDOT STRUCTURES DESIGN GUIDELINES TABLE 1.3.2-1.

TABLE 5
LBR SUMMARY
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

STRATUM ¹ NUMBER	AASHTO	LBR TEST NUMBER	DISTANCE ² (mi)	LBR TEST DEPTH	MAXIMUM ³ DRY DENSITY (lb/ft ³)	OPTIMUM WATER CONTENT (%)	MAXIMUM ⁴ LBR VALUE	LBR VALUE			
								± 2% METHOD		AVERAGE ± 2% LBR VALUE	90% METHOD
								MOISTURE CONTENT			
								- 2%	+ 2%		
1	A-3, A-2-4	PK-5	0.39	1.0 - 2.0	108.4	12.4	25	23	19	21	21
		PK-27	2.473	1.0 - 2.0	103.5	11.9	17	15	--		
		PK-38	3.515	1.0 - 2.0	100.4	15.5	33	30	23		
		PK-49	4.557	1.0 - 2.0	101.5	14.8	32	17	12		
		PK-62	5.655	1.0 - 2.0	111.9	10.7	28	22	24		
2	A-2-4	PK-16	1.432	1.0 - 2.0	116.6	9.5	58	25	45	35	--

NOTES: 1. SEE **APPENDIX A** FOR STRATUM NUMBERS AND DESCRIPTIONS.
2. DISTANCE IS MEASURED ALONG APPROXIMATE CENTERLINE OF EXISTING CR 121 FROM DUVAL COUNTY LINE.
3. DETERMINED FROM THE FDOT FLORIDA TEST METHOD FM1-T180.
4. DETERMINED FROM THE FDOT FLORIDA TEST METHOD FM 5-515.

TABLE 6
ESTIMATED AVERAGE EXISTING STRUCTURAL NUMBER
CR 121 PAVEMENT EVALUATION AND WIDENING
FROM DUVAL COUNTY LINE TO CR 119
NASSAU COUNTY, FLORIDA

LAYER ¹	THICKNESS ² (in.)	STRUCTURAL ³ COEFFICIENT	STRUCTURAL ⁴ NUMBER (SN _E)
PAVEMENT CORES WITH BONDED RECYCLED ASPHALT STABILIZATION			
FRICTION COURSE FC-3	1.20	0.15	0.18
STRUCTURAL COURSE SP-12.5	2.30	0.15	0.35
BONDED RECYCLED ASPHALT STABILIZATION	5.90	0.11	0.65
TOTAL SN _E ⁴			1.17
PAVEMENT CORES WITH UNBONDED RECYCLED ASPHALT STABILIZATION			
FRICTION COURSE FC-3	1.20	0.15	0.18
STRUCTURAL COURSE SP-12.5	2.40	0.15	0.36
UNBONDED RECYCLED ASPHALT STABILIZATION	6.20	0.08	0.50
TOTAL SN _E ⁴			1.04
PAVEMENT CORES WITH LIMEROCK BASE			
FRICTION COURSE FC-3	1.10	0.15	0.17
STRUCTURAL COURSE SP-12.5	2.90	0.15	0.44
LIMEROCK BASE	9.80	0.12	1.18
TOTAL SN _E ⁴			1.78

NOTES: 1. SEE APPENDIX C FOR DETAILED PAVEMENT CORE AND CONDITION INFORMATION.

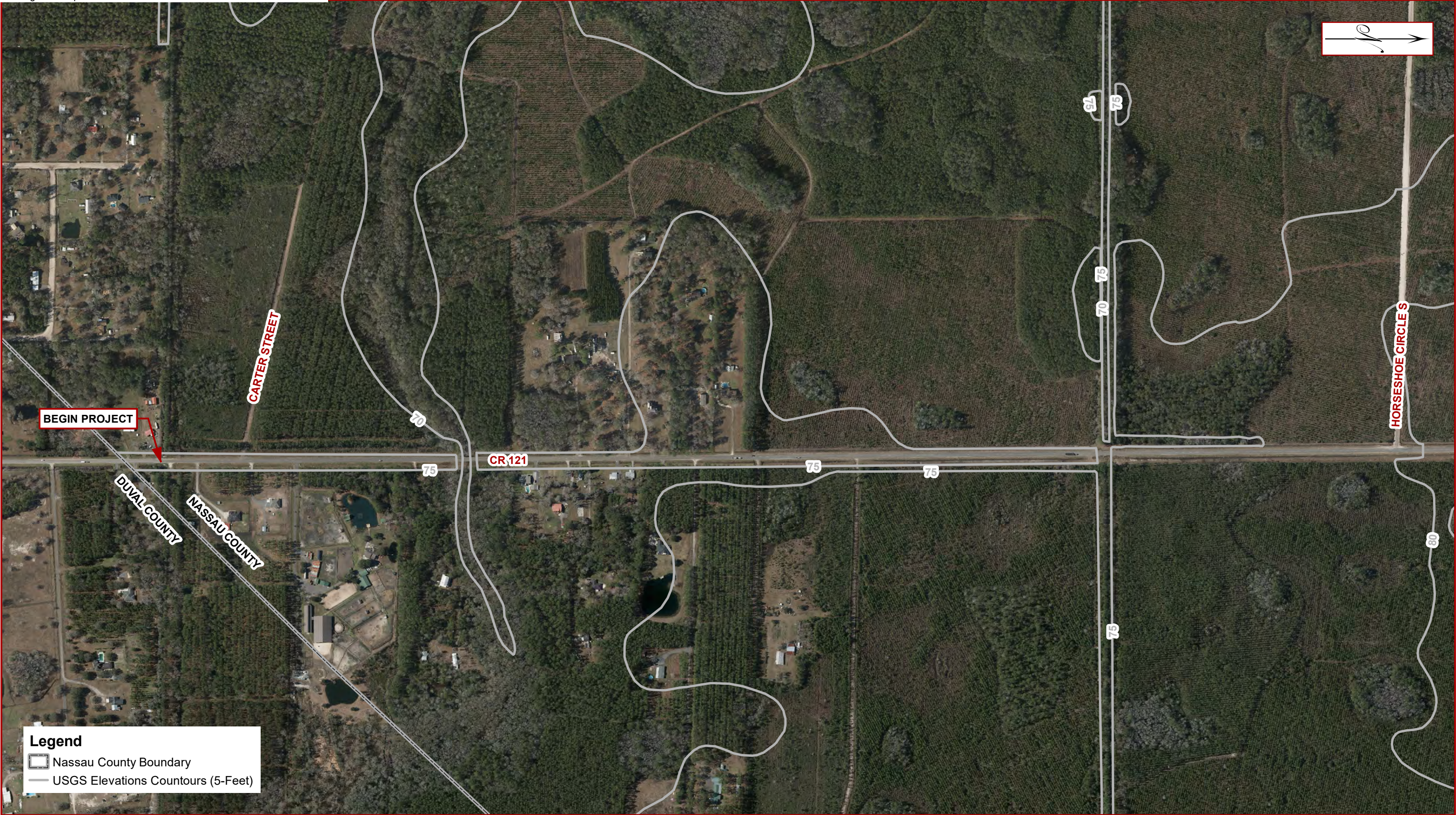
2. SEE **TABLE 2** FOR PAVEMENT CONDITION AND LAYER THICKNESSES AT EACH CORE LOCATION, AND AVERAGE VALUES FOR EXISTING LAYER THICKNESS CALCULATIONS.

3. BASED ON STRUCTURAL COEFFICIENTS PROVIDED IN TABLES 5.4 & 7.1 OF THE **FDOT FLEXIBLE PAVEMENT DESIGN MANUAL**.

4. BASED ON THE SN_E CALCULATION PROVIDED IN SECTION 7.4.4 OF THE **FDOT FLEXIBLE PAVEMENT DESIGN MANUAL**.

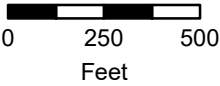
FIGURES

DRAWN: A. JETT		CHECKED: K. MORALES, P.E.	Environmental and Geotechnical Specialists, Inc. 3772 Kori Road Jacksonville, Florida 32257 Office: (904) 329-7180	TITLE: PROJECT LOCATION MAP CR 121 PAVEMENT EVALUATION AND WIDENING FROM DUVAL COUNTY LINE TO CR 119 NASSAU COUNTY, FLORIDA	
ENGINEER: M. LANDSCHOOT, P.E.				DATE: MAY 2023	
CLIENT: KIMLEY-HORN AND ASSOCIATES, INC.					
PROJ. NO.: 13-54-23-01					

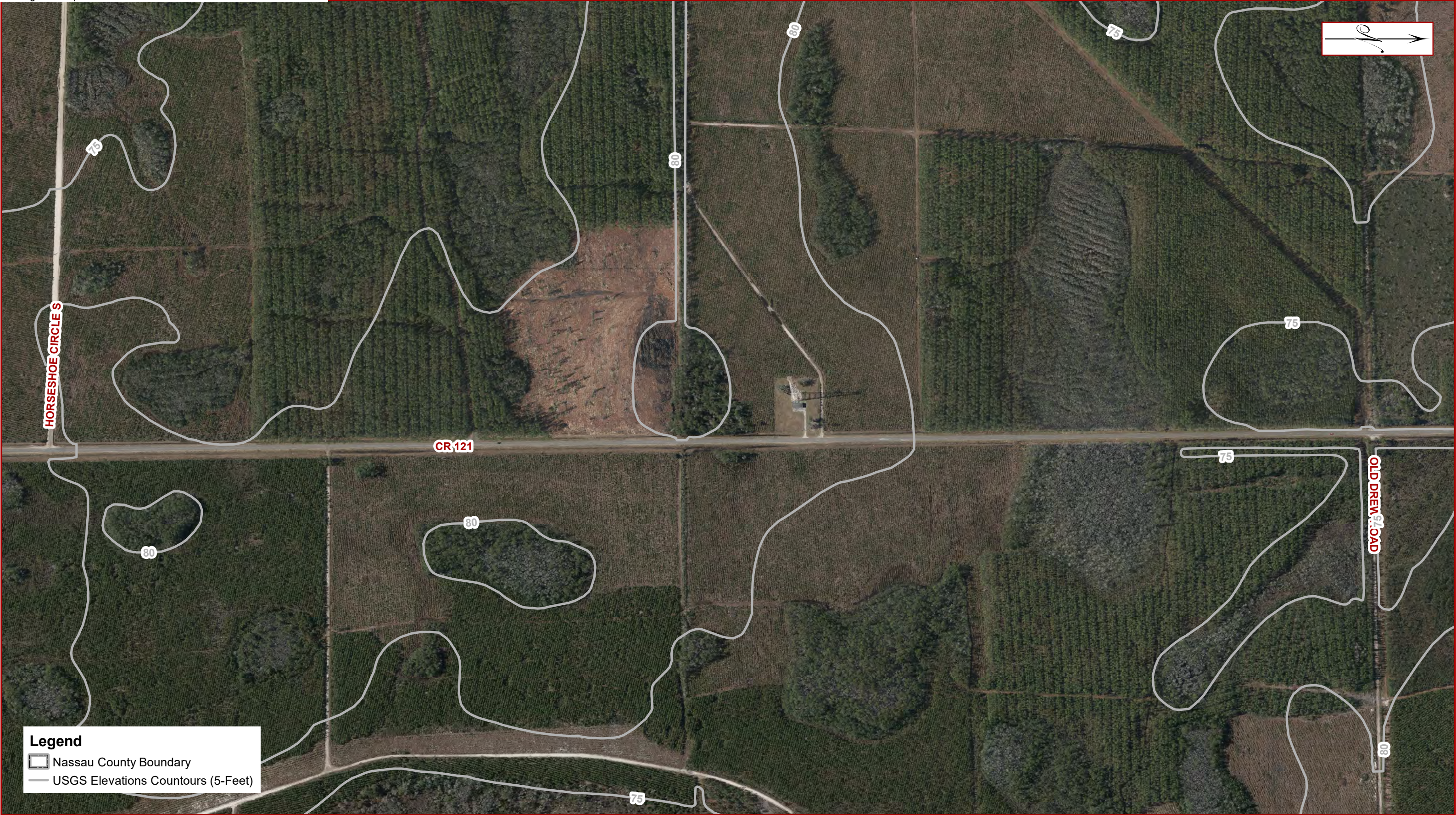


Legend

- Nassau County Boundary
- USGS Elevations Countours (5-Feet)

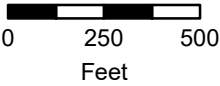


DRAWN: A. JETT		CHECKED: K. MORALES, P.E.	Environmental and Geotechnical Specialists, Inc. 3772 Kori Road Jacksonville, Florida 32257 Office: (904) 329-7180	TITLE: USGS TOPOGRAPHIC MAP CR 121 PAVEMENT EVALUATION AND WIDENING FROM DUVAL COUNTY LINE TO CR 119 NASSAU COUNTY, FLORIDA	
ENGINEER: M. LANDSCHOOT, P.E.					
CLIENT: KIMLEY-HORN AND ASSOCIATES, INC.					
PROJ. NO.: 13-54-23-01	SCALE: AS SHOWN				
DATE: JULY 2023		FIGURE NO.: 2A			

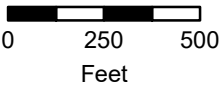


Legend

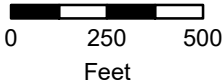
- Nassau County Boundary
- USGS Elevations Countours (5-Feet)



DRAWN: A. JETT		CHECKED: K. MORALES, P.E.		Environmental and Geotechnical Specialists, Inc. 3772 Kori Road Jacksonville, Florida 32257 Office: (904) 329-7180	TITLE: USGS TOPOGRAPHIC MAP CR 121 PAVEMENT EVALUATION AND WIDENING FROM DUVAL COUNTY LINE TO CR 119 NASSAU COUNTY, FLORIDA	
ENGINEER: M. LANDSCHOOT, P.E.						
CLIENT: KIMLEY-HORN AND ASSOCIATES, INC.						
PROJ. NO.: 13-54-23-01		SCALE: AS SHOWN			DATE: JULY 2023	
				FIGURE NO.: 2B		



DRAWN: A. JETT		CHECKED: K. MORALES, P.E.	Environmental and Geotechnical Specialists, Inc. 3772 Kori Road Jacksonville, Florida 32257 Office: (904) 329-7180	TITLE: USGS TOPOGRAPHIC MAP CR 121 PAVEMENT EVALUATION AND WIDENING FROM DUVAL COUNTY LINE TO CR 119 NASSAU COUNTY, FLORIDA	
ENGINEER: M. LANDSCHOOT, P.E.					
CLIENT: KIMLEY-HORN AND ASSOCIATES, INC.					
PROJ. NO.: 13-54-23-01	SCALE: AS SHOWN				
DATE: JULY 2023		FIGURE NO.: 2C			



DRAWN: A. JETT	CHECKED: K. MORALES, P.E.	Environmental and Geotechnical Specialists, Inc. 3772 Kori Road Jacksonville, Florida 32257 Office: (904) 329-7180	TITLE: USGS TOPOGRAPHIC MAP CR 121 PAVEMENT EVALUATION AND WIDENING FROM DUVAL COUNTY LINE TO CR 119 NASSAU COUNTY, FLORIDA	
ENGINEER: M. LANDSCHOOT, P.E.				
CLIENT: KIMLEY-HORN AND ASSOCIATES, INC.				
PROJ. NO.: 13-54-23-01	SCALE: AS SHOWN		DATE: JULY 2023	FIGURE NO.: 2D



0 250 500
Feet

DRAWN:	A. JETT	CHECKED:	K. MORALES, P.E.
ENGINEER:	M. LANDSCHOOT, P.E.		
CLIENT:	KIMLEY-HORN AND ASSOCIATES, INC.		
PROJ. NO.:	13-54-23-01	SCALE:	AS SHOWN

Environmental and Geotechnical Specialists, Inc.

3772 Kori Road
Jacksonville, Florida 32257
Office: (904) 329-7180

TITLE:		USGS TOPOGRAPHIC MAP CR 121 PAVEMENT EVALUATION AND WIDENING FROM DUVAL COUNTY LINE TO CR 119 NASSAU COUNTY, FLORIDA	
DATE:	JULY 2023	FIGURE NO.:	2E



FIGURE 3A: PHOTOGRAPH OF EXISTING SITE CONDITIONS NEAR SOIL BORING PK-1
(FACING NORTH)

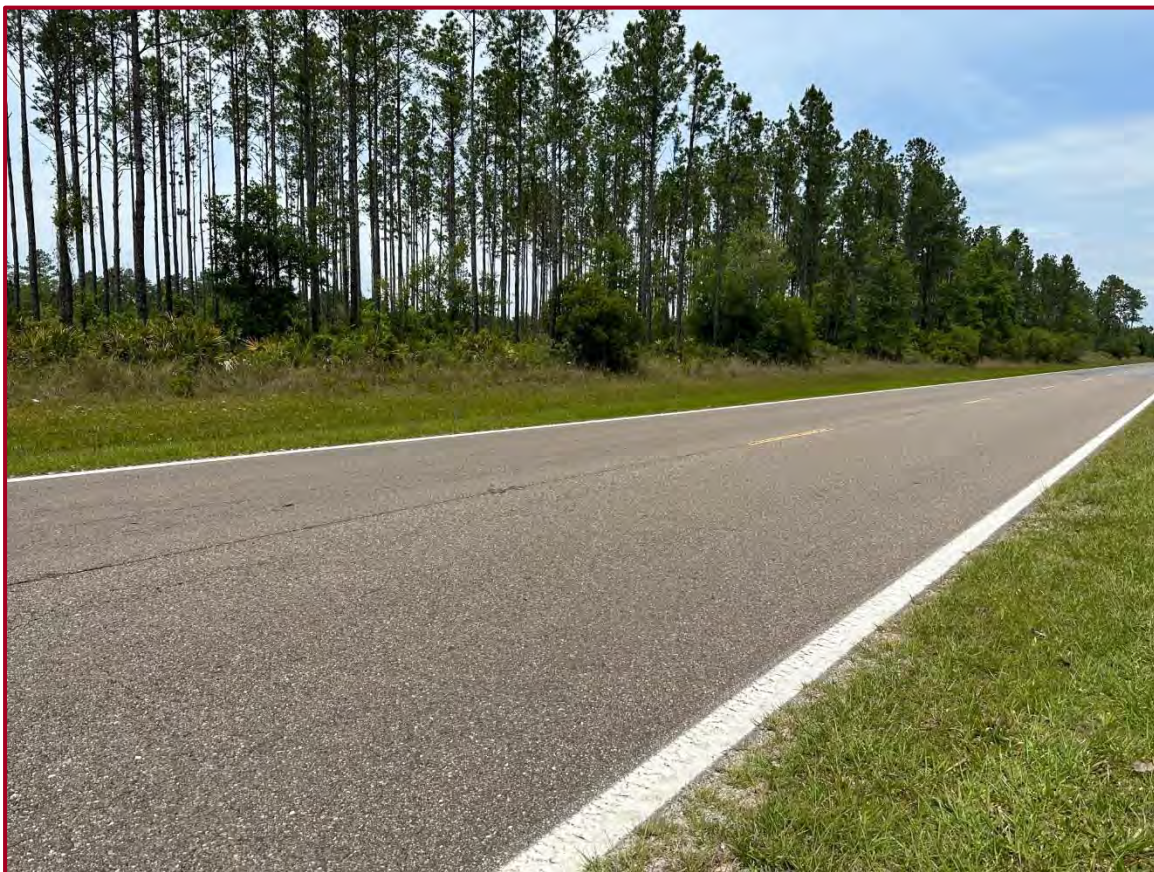


FIGURE 3B: PHOTOGRAPH OF EXISTING SITE CONDITIONS NEAR SOIL BORING PK-33
(FACING NORTHWEST)



FIGURE 3C: PHOTOGRAPH OF EXISTING SITE CONDITIONS NEAR SOIL BORING **PK-58**
(FACING NORTH)



FIGURE 3D: PHOTOGRAPH OF EXISTING SITE CONDITIONS NEAR SOIL BORING **PK-60**
(FACING NORTHWEST)

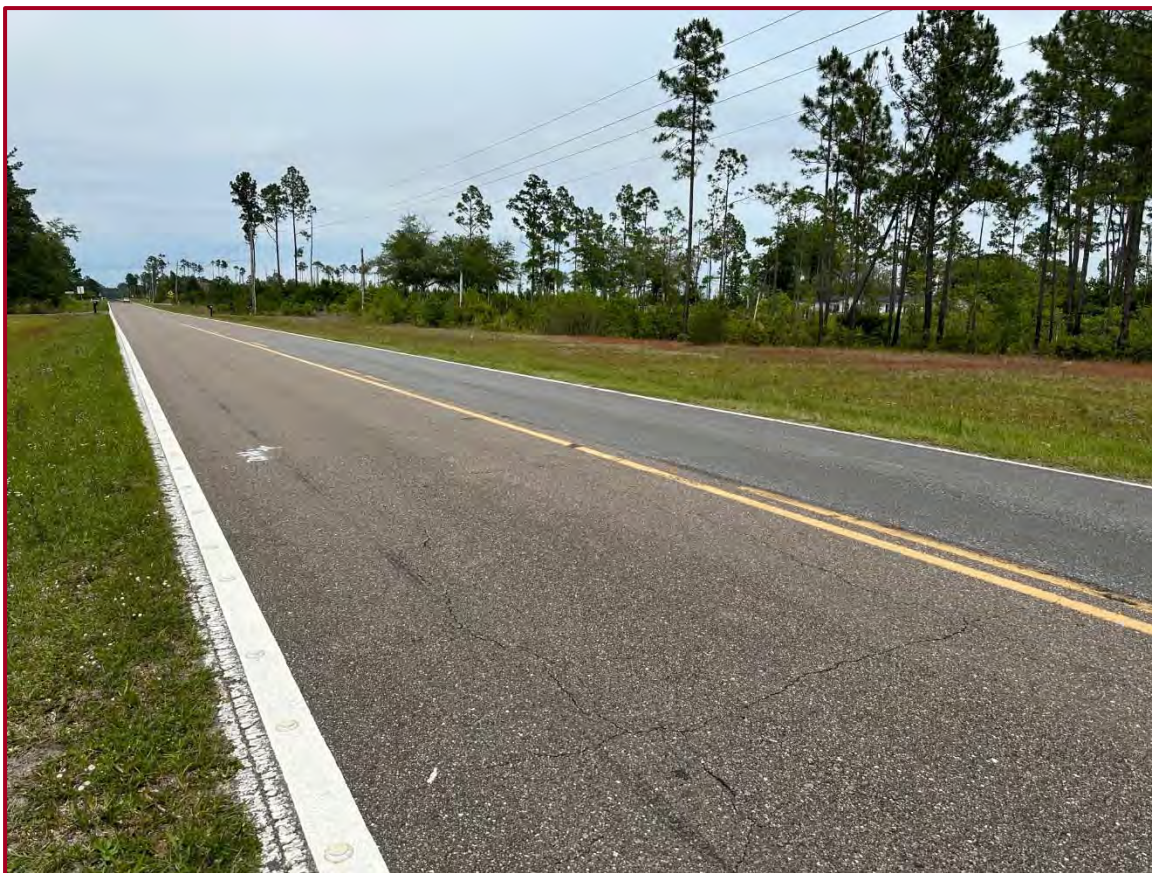


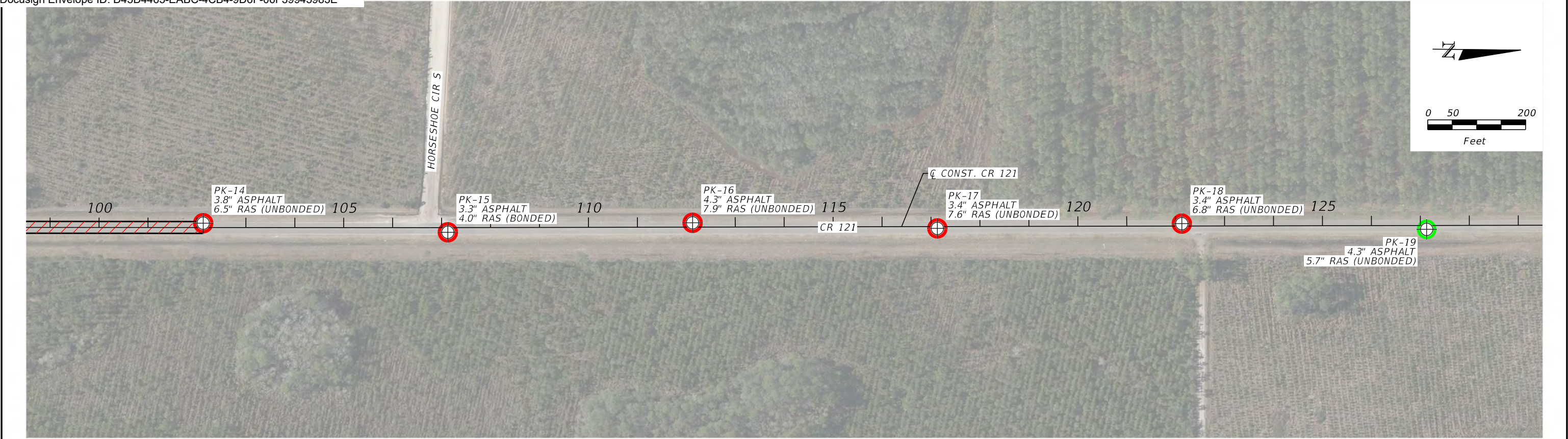
FIGURE 3E: PHOTOGRAPH OF EXISTING SITE CONDITIONS NEAR SOIL BORING PK-82 (FACING NORTHEAST)



FIGURE 3F: PHOTOGRAPH OF EXISTING SITE CONDITIONS NEAR SOIL BORING PK-84 (FACING NORTH)



LEGEND				PREPARED:	Environmental & Geotechnical Specialists, Inc. 3772 Kori Road Jacksonville, Florida 32257 Office: (904) 329-7180		SOIL BORING LOCATION MAP CR 121 PAVEMENT EVALUATION AND WIDENING FROM DUVAL COUNTY LINE TO CR 119 NASSAU COUNTY, FLORIDA	
	HAND AUGER SOIL BORING LOCATION		SPT SOIL BORING LOCATION	CHECKED:				
	POOR PAVEMENT CONDITION		GOOD PAVEMENT CONDITION	REVISED:				
	FAIR PAVEMENT CONDITION		APPROXIMATE LIMITS OF SUBSOIL EXCAVATION	ENGINEER:				
				K. MORALES, P.E.		SCALE: AS SHOWN		DATE: OCTOBER 2023
				M. LANDSCHOOT, P.E.		PROJ. NO.: 13-54-23-01		FIGURE NO.: 4A
				K. MORALES, P.E.				
				M. LANDSCHOOT, P.E.				



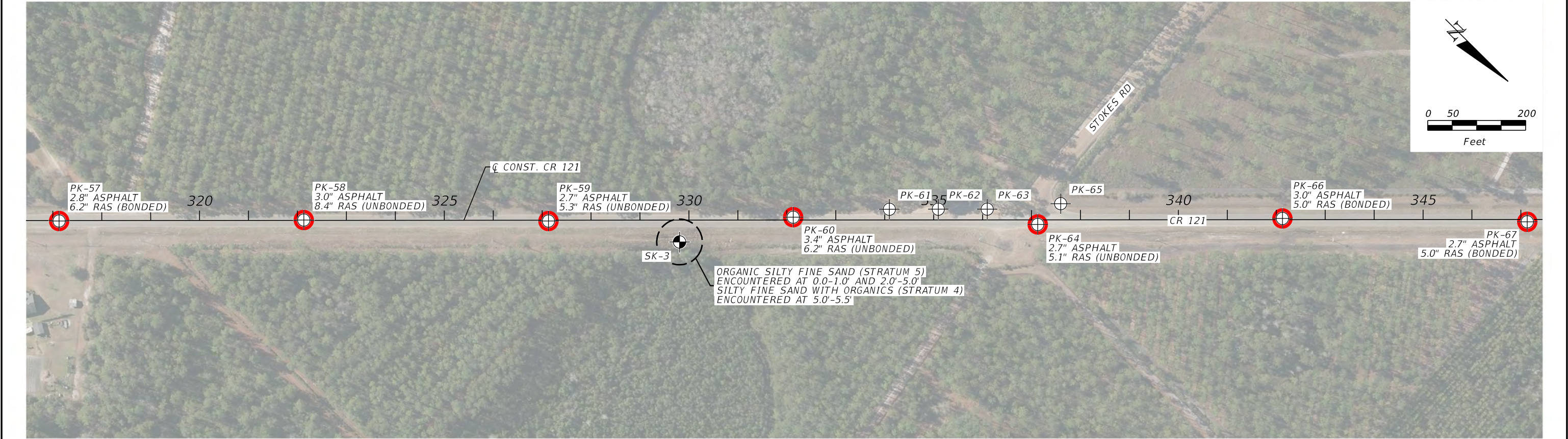
LEGEND				PREPARED: K. MORALES, P.E.		Environmental & Geotechnical Specialists, Inc. 3772 Kori Road Jacksonville, Florida 32257 Office: (904) 329-7180	SOIL BORING LOCATION MAP CR 121 PAVEMENT EVALUATION AND WIDENING FROM DUVAL COUNTY LINE TO CR 119 NASSAU COUNTY, FLORIDA		
 HAND AUGER SOIL BORING LOCATION		 SPT SOIL BORING LOCATION		CHECKED: M. LANDSCHOOT, P.E.					
 POOR PAVEMENT CONDITION		 GOOD PAVEMENT CONDITION		REVISED: K. MORALES, P.E.			SCALE: AS SHOWN		
 FAIR PAVEMENT CONDITION		 APPROXIMATE LIMITS OF SUBSOIL EXCAVATION		ENGINEER: M. LANDSCHOOT, P.E.			DATE: OCTOBER 2023		
						PROJ. NO.: 13-54-23-01		FIGURE NO.: 4B	



LEGEND				PREPARED:	Environmental & Geotechnical Specialists, Inc. 3772 Kori Road Jacksonville, Florida 32257 Office: (904) 329-7180		SOIL BORING LOCATION MAP CR 121 PAVEMENT EVALUATION AND WIDENING FROM DUVAL COUNTY LINE TO CR 119 NASSAU COUNTY, FLORIDA	
	HAND AUGER SOIL BORING LOCATION		SPT SOIL BORING LOCATION	CHECKED:				
	POOR PAVEMENT CONDITION		GOOD PAVEMENT CONDITION	REVISED:				
	FAIR PAVEMENT CONDITION		APPROXIMATE LIMITS OF SUBSOIL EXCAVATION	ENGINEER:				
				K. MORALES, P.E.		SCALE: AS SHOWN		DATE: OCTOBER 2023
				M. LANDSCHOOT, P.E.		PROJ. NO.: 13-54-23-01		FIGURE NO.: 4C
				K. MORALES, P.E.				
				M. LANDSCHOOT, P.E.				



LEGEND				PREPARED:		Environmental & Geotechnical Specialists, Inc. 3772 Kori Road Jacksonville, Florida 32257 Office: (904) 329-7180		SOIL BORING LOCATION MAP CR 121 PAVEMENT EVALUATION AND WIDENING FROM DUVAL COUNTY LINE TO CR 119 NASSAU COUNTY, FLORIDA	
	HAND AUGER SOIL BORING LOCATION		SPT SOIL BORING LOCATION	CHECKED:	M. LANDSCHOOT, P.E.				
	POOR PAVEMENT CONDITION		GOOD PAVEMENT CONDITION	REVISED:	K. MORALES, P.E.				
	FAIR PAVEMENT CONDITION		APPROXIMATE LIMITS OF SUBSOIL EXCAVATION	ENGINEER:	M. LANDSCHOOT, P.E.				
						SCALE: AS SHOWN		DATE: OCTOBER 2023	
						PROJ. NO.: 13-54-23-01		FIGURE NO.: 4D	



LEGEND				PREPARED:		Environmental & Geotechnical Specialists, Inc. 3772 Kori Road Jacksonville, Florida 32257 Office: (904) 329-7180	SOIL BORING LOCATION MAP CR 121 PAVEMENT EVALUATION AND WIDENING FROM DUVAL COUNTY LINE TO CR 119 NASSAU COUNTY, FLORIDA	
	HAND AUGER SOIL BORING LOCATION		SPT SOIL BORING LOCATION	CHECKED:	M. LANDSCHOOT, P.E.			
	POOR PAVEMENT CONDITION		GOOD PAVEMENT CONDITION	REVISED:	K. MORALES, P.E.			
	FAIR PAVEMENT CONDITION		APPROXIMATE LIMITS OF SUBSOIL EXCAVATION	ENGINEER:	M. LANDSCHOOT, P.E.			
						SCALE:	AS SHOWN	DATE: OCTOBER 2023
						PROJ. NO.:	13-54-23-01	FIGURE NO.: 4E



LEGEND				PREPARED:	K. MORALES, P.E.	Environmental & Geotechnical Specialists, Inc. 3772 Kori Road Jacksonville, Florida 32257 Office: (904) 329-7180	SOIL BORING LOCATION MAP CR 121 PAVEMENT EVALUATION AND WIDENING FROM DUVAL COUNTY LINE TO CR 119 NASSAU COUNTY, FLORIDA			
	HAND AUGER SOIL BORING LOCATION		SPT SOIL BORING LOCATION	CHECKED:	M. LANDSCHOOT, P.E.		SCALE:	AS SHOWN	DATE:	OCTOBER 2023
	POOR PAVEMENT CONDITION		GOOD PAVEMENT CONDITION	REVISED:	K. MORALES, P.E.		PROJ. NO.:	13-54-23-01	FIGURE NO.:	4F
	FAIR PAVEMENT CONDITION		APPROXIMATE LIMITS OF SUBSOIL EXCAVATION	ENGINEER:	M. LANDSCHOOT, P.E.					



LEGEND			
	HAND AUGER SOIL BORING LOCATION		SPT SOIL BORING LOCATION
	POOR PAVEMENT CONDITION		GOOD PAVEMENT CONDITION
	FAIR PAVEMENT CONDITION		APPROXIMATE LIMITS OF SUBSOIL EXCAVATION

PREPARED:	K. MORALES, P.E.
CHECKED:	M. LANDSCHOOT, P.E.
REVISED:	K. MORALES, P.E.
ENGINEER:	M. LANDSCHOOT, P.E.

Environmental & Geotechnical Specialists, Inc.

3772 Kori Road
Jacksonville, Florida 32257
Office: (904) 329-7180

SOIL BORING LOCATION MAP CR 121 PAVEMENT EVALUATION AND WIDENING FROM DUVAL COUNTY LINE TO CR 119 NASSAU COUNTY, FLORIDA	
SCALE: AS SHOWN	DATE: OCTOBER 2023
PROJ. NO.: 13-54-23-01	FIGURE NO.: 4G

APPENDIX A

GEOTECHNICAL PLAN SHEETS

Plotted By:EGSSStudent_Sheet Set:Kha_Layout:Layout1 ##### U:\1 - Active Projects\13 - Kinley-Horn\54 - CR 121 Phase I Resurfacing Project\01 - Pavement Eval\Report\Appendices\Apx A - Geotechnical Plan Sheets\ABORR01.dwg
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kinley-Horn and Associates, Inc. shall be without liability to Kinley-Horn and Associates, Inc.

NOTES

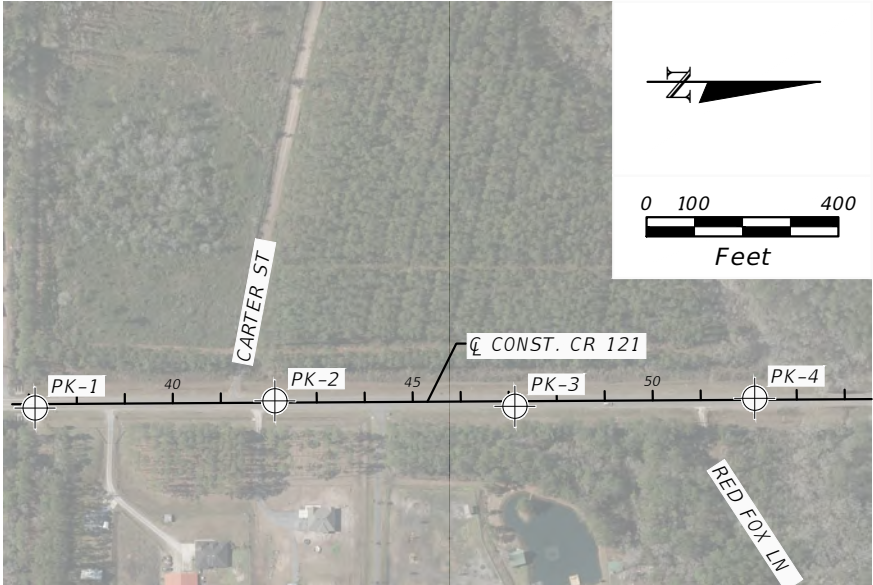
1. NUMBERS LEFT OF BORINGS INDICATE STANDARD PENETRATION TEST (SPT) N-VALUES OR EQUIVALENT FOR 12-INCH PENETRATION.
2. NUMBERS IN THE CENTER OF BORINGS INDICATE THE STRATUM.
3. SOIL DESCRIPTIONS, TEST DATA, AND STANDARD PENETRATION VALUES SHOWN ARE FOR THE SOIL BORING ONLY AND MAY NOT APPLY TO ANY OTHER LOCATIONS EXCEPT AT THE LOCATION OF THE SOIL BORING. EXTRAPOLATION OF THE SOIL BORING DATA TO OTHER LOCATIONS IS THE SOLE RESPONSIBILITY OF THE PERSON PERFORMING THE EXTRAPOLATION.
4. ASTERISK (*) INDICATES EQUIVALENT SPT N-VALUES CONVERTED FROM CONE PENETROMETER INDEX (CPI) VALUES.

SAFETY HAMMER / CPI		AUTOMATIC HAMMER	
GRANULAR MATERIALS RELATIVE DENSITY	SPT (BLOWS/12 IN.)	GRANULAR MATERIALS RELATIVE DENSITY	SPT (BLOWS/12 IN.)
VERY LOOSE	LESS THAN 4	VERY LOOSE	LESS THAN 3
LOOSE	4 - 10	LOOSE	3 - 8
MEDIUM DENSE	10 - 30	MEDIUM DENSE	8 - 24
DENSE	30 - 50	DENSE	24 - 40
VERY DENSE	GREATER THAN 50	VERY DENSE	GREATER THAN 40

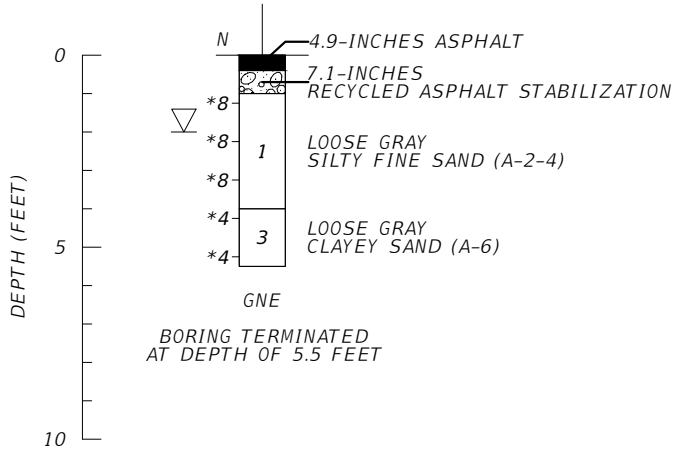
SPLIT-SPOON: INSIDE DIAMETER: 1.375 IN
OUTSIDE DIAMETER: 2.0 IN
AVG. HAMMER DROP: 30.0 IN
HAMMER WEIGHT: 140 LBS

LEGEND

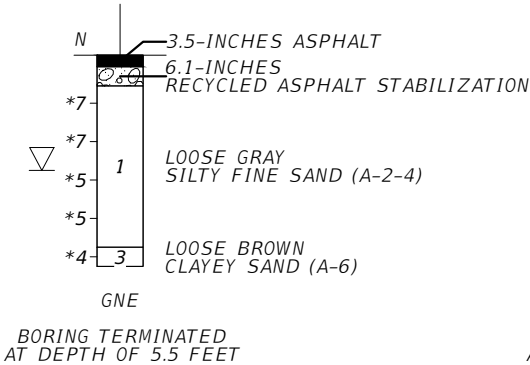
SPT SOIL BORING			ASPHALT
HAND AUGER SOIL BORING			
MEASURED GROUNDWATER			LIMEROCK BASE
ESTIMATED "NORMAL" SEASONAL HIGH GROUNDWATER			
GROUNDWATER NOT ENCOUNTERED	GNE		
AASHTO CLASSIFICATION GROUP SYMBOL	(A-3)		



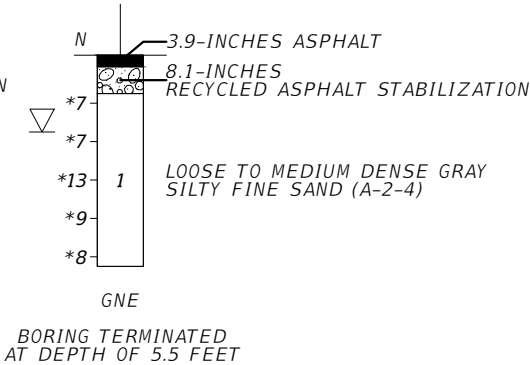
BOR # PK-1
STA. 37+13
OFF. 8 FEET RIGHT
DATE 5/30/2023
DRILLER W. CHOMAT
HAMMER CPI
RIG HAND AUGER



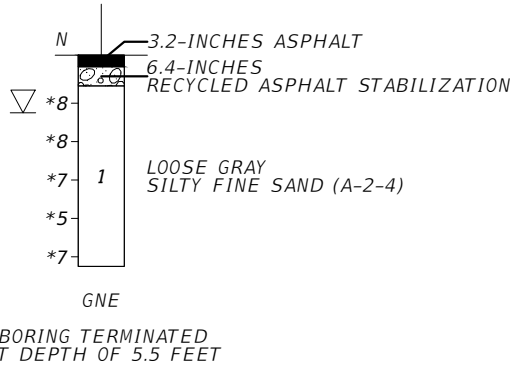
BOR # PK-2
STA. 42+13
OFF. 4 FEET LEFT
DATE 6/2/2023
DRILLER W. CHOMAT
HAMMER CPI
RIG HAND AUGER



BOR # PK-3
STA. 47+13
OFF. 11 FEET RIGHT
DATE 5/30/2023
DRILLER W. CHOMAT
HAMMER CPI
RIG HAND AUGER



BOR # PK-4
STA. 52+13
OFF. 3 FEET LEFT
DATE 6/2/2023
DRILLER W. CHOMAT
HAMMER CPI
RIG HAND AUGER



EGS
Environmental & Geotechnical Specialists, Inc.
3772 Kori Road
Jacksonville, Florida 32257
Phone: (904) 329-7180

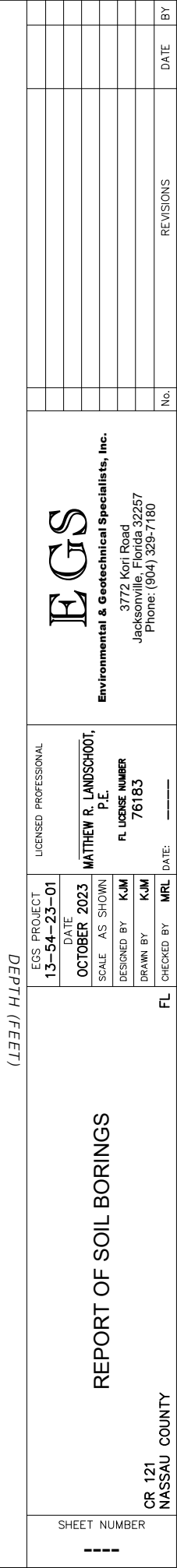
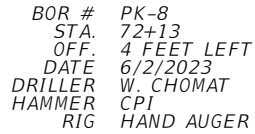
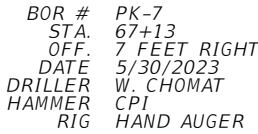
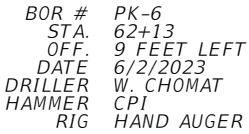
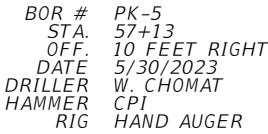
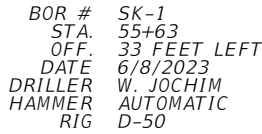
LICENSED PROFESSIONAL
MATTHEW R. LANDSCHOOT,
P.E.
FL LICENSE NUMBER
76183
DATE: _____

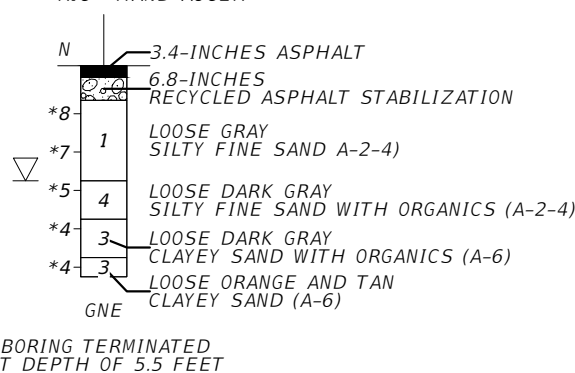
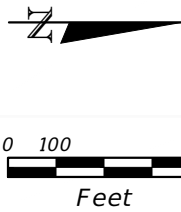
EGS PROJECT
13-54-23-01
DATE
OCTOBER 2023
SCALE AS SHOWN
DESIGNED BY
KJM
DRAWN BY
KJM
CHECKED BY
MRL
DATE: _____

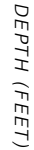
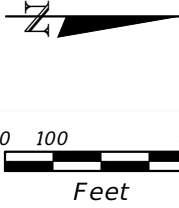
REPORT OF SOIL BORINGS

CR 121
NASSAU COUNTY

SHEET NUMBER



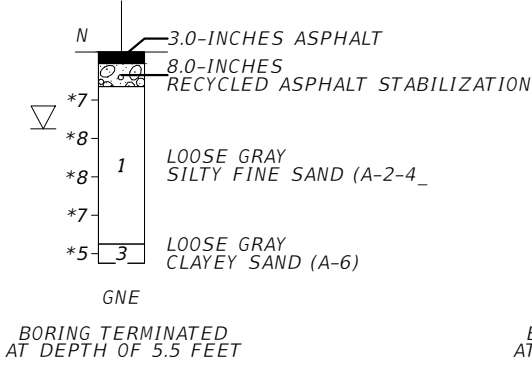
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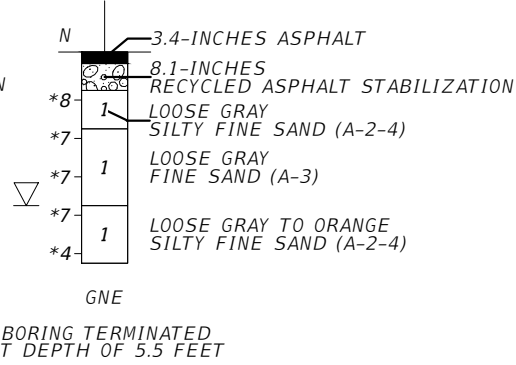
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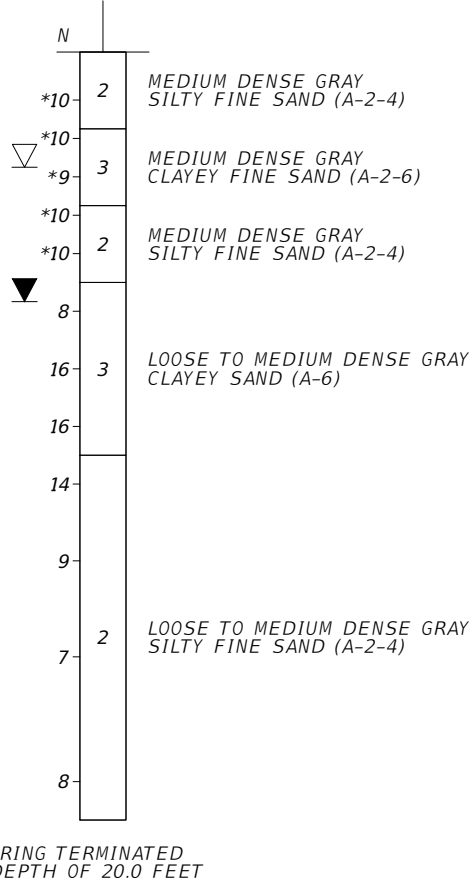
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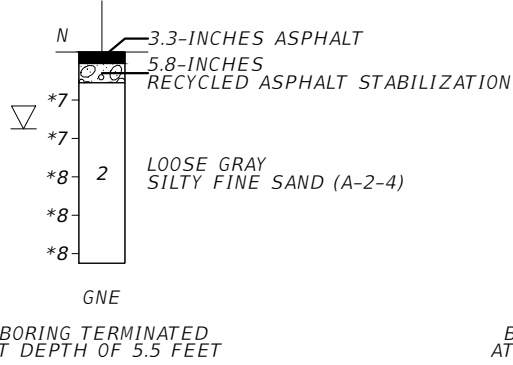
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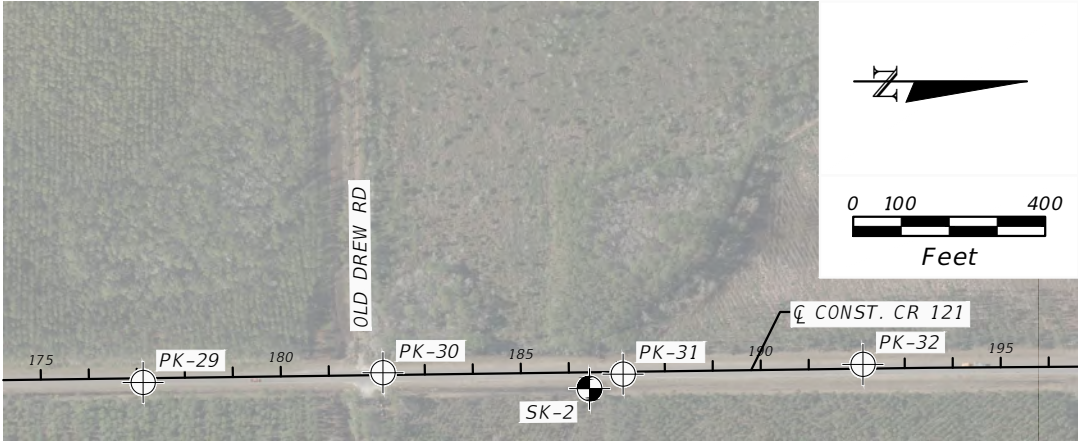
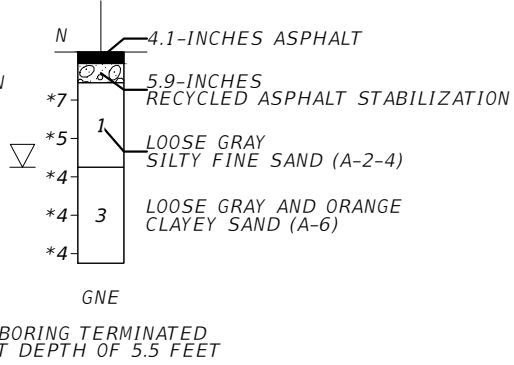
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HAMMER CPI
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BOR # PK-32
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DATE 5/31/2023
DRILLER W. CHOMAT
HAMMER CPI
RIG HAND AUGER



REPORT OF SOIL BORINGS

CR 121
NASSAU COUNTY

SHEET NUMBER

EGS
Environmental & Geotechnical Specialists, Inc.
3772 Kori Road
Jacksonville, Florida 32257
Phone: (904) 329-7180

LICENSED PROFESSIONAL
MATTHEW R. LANDSCHOOT,
P.E.
FL LICENSE NUMBER
76183

DESIGNED BY
KJM
DRAWN BY
KJM
CHECKED BY
MRL

DATE

EGS

Environmental & Geotechnical Specialists, Inc.

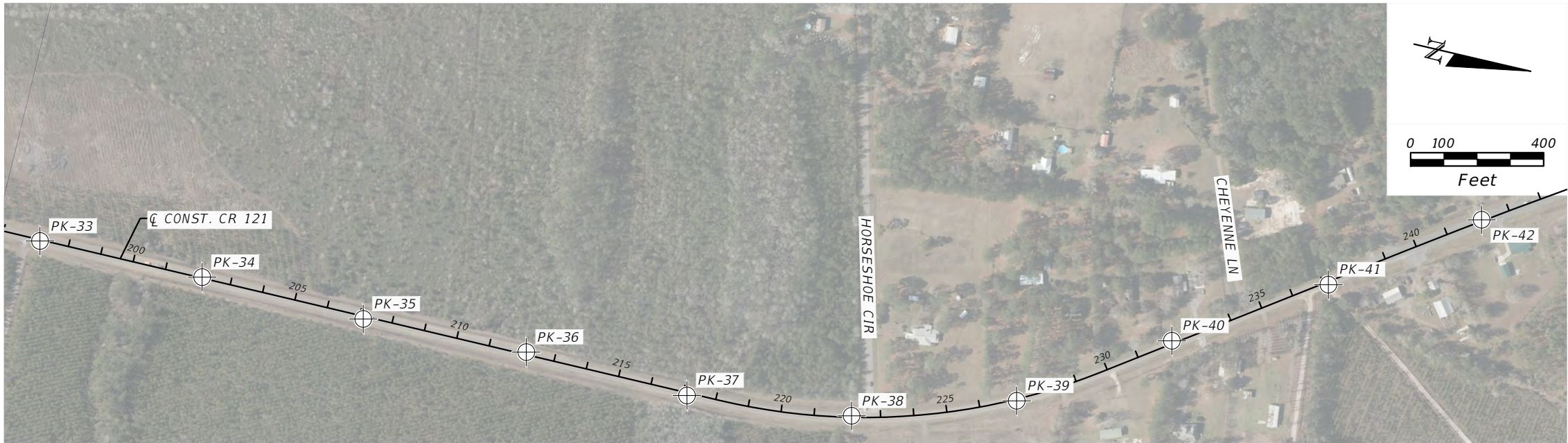
3772 Kori Road
Jacksonville, Florida 32257
Phone: (904) 329-7180

REVISIONS

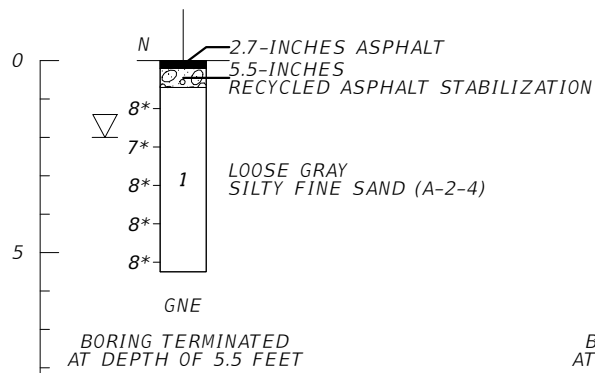
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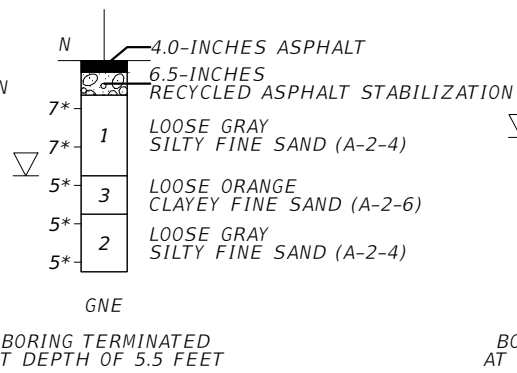
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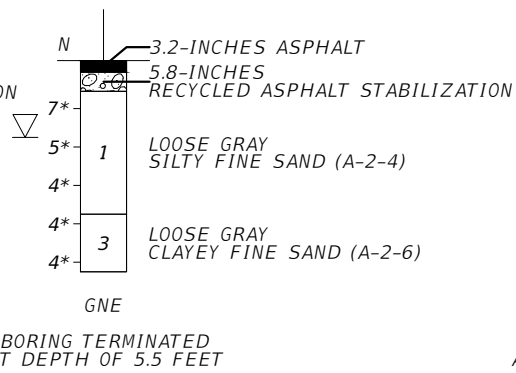
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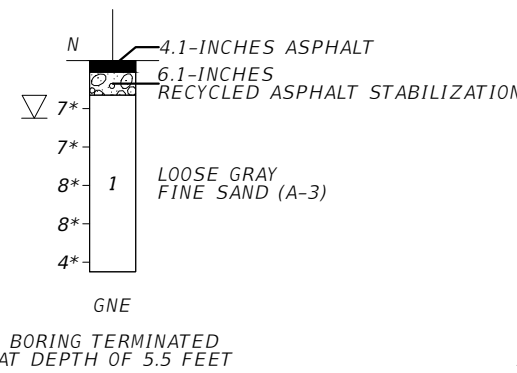
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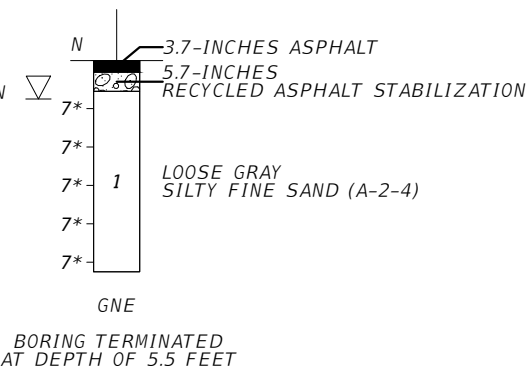
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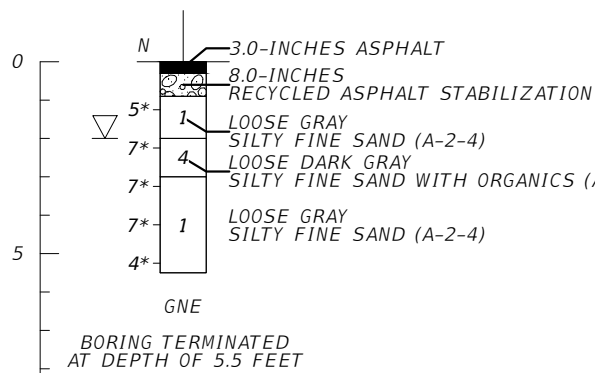
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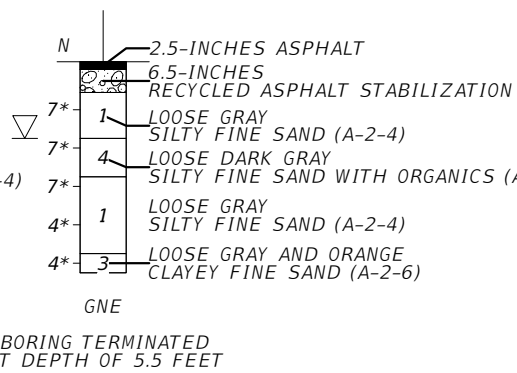
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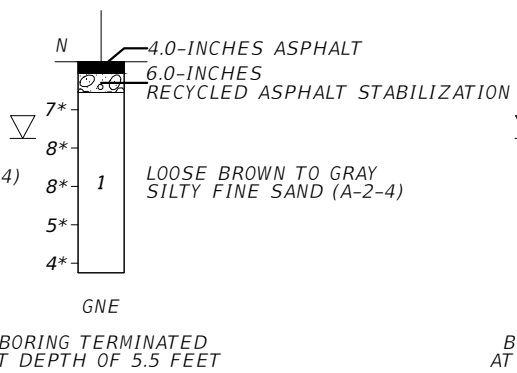
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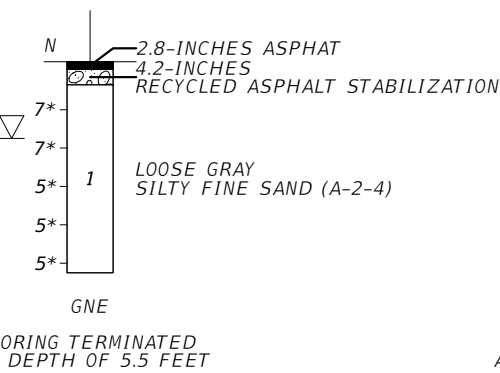
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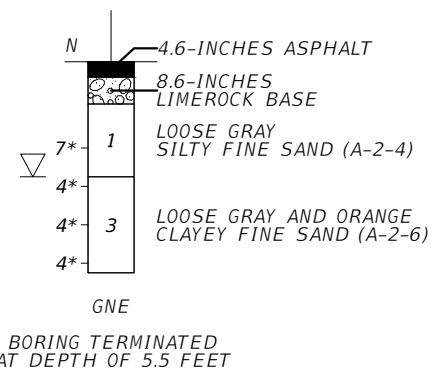
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HAMMER CPI
RIG HAND AUGER



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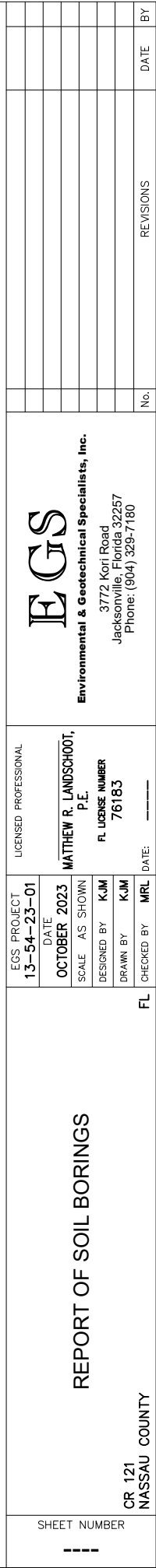


DEPTH (FEET)

DEPTH (FEET)

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EGS PROJECT		DATE		DESIGNED BY	
13-54-23-01		OCTOBER 2023		KJM	
SCALE		AS SHOWN		DRAWN BY	
				KJM	
LICENSED PROFESSIONAL		P.E.		CHECKED BY	
		MATTHEW R. LANDSCHOOT,		MRL	
		FL LICENSE NUMBER		DATE	
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				CR 121	
				NASSAU COUNTY	
				SHEET NUMBER	

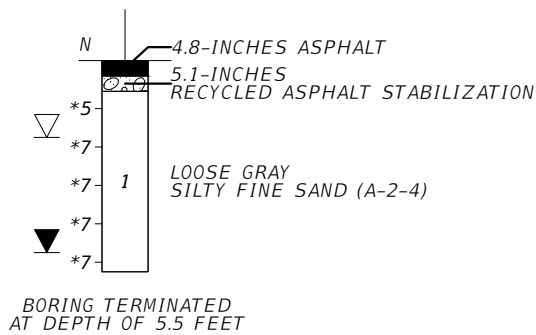
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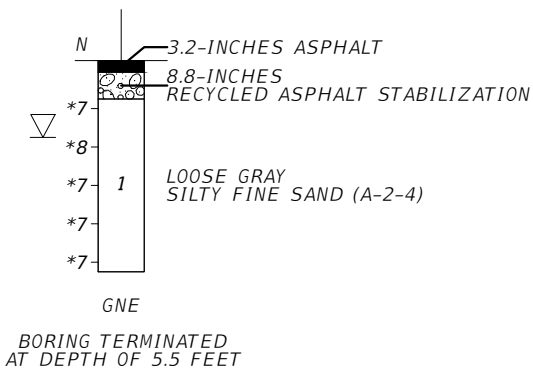
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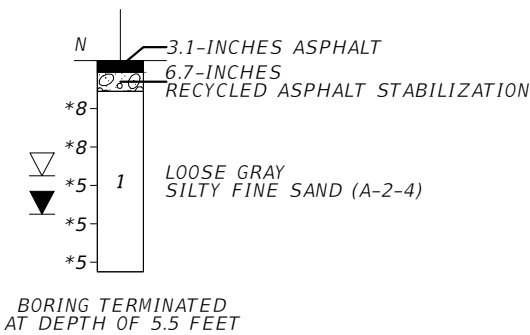
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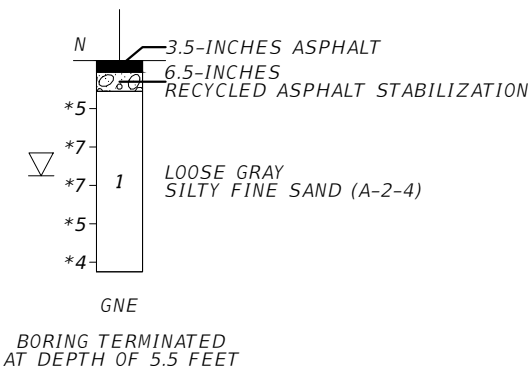
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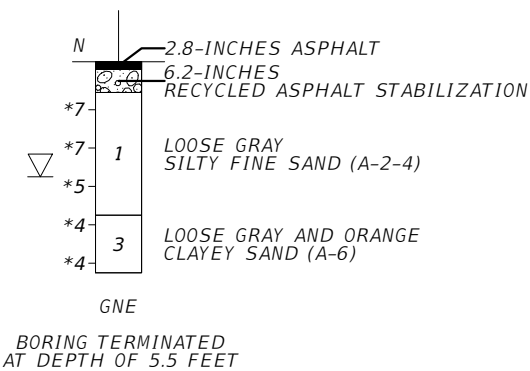
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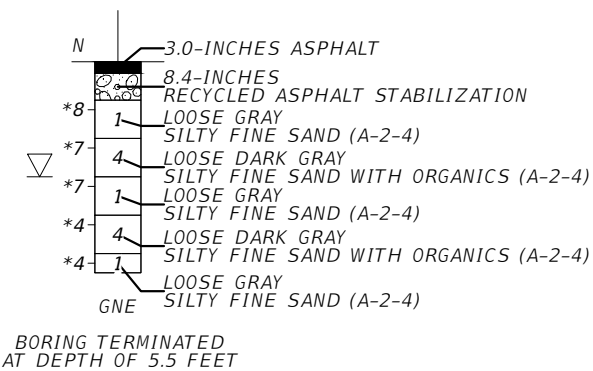
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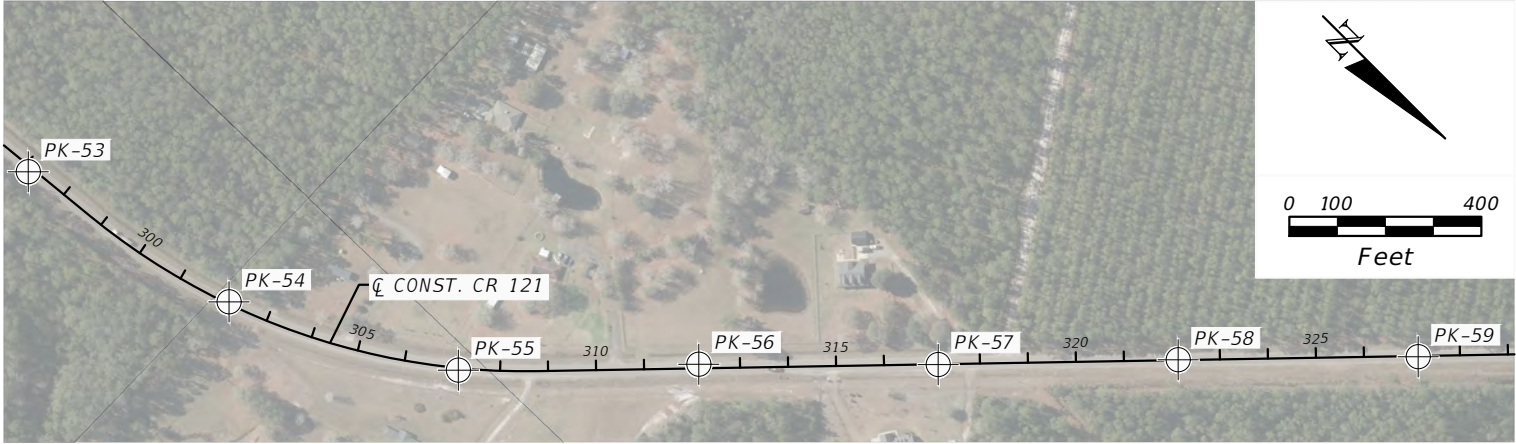
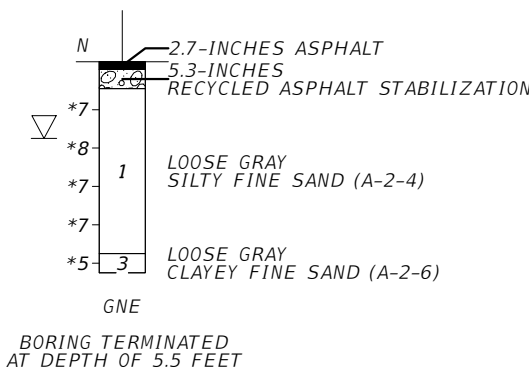
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DRILLER W. CHOMAT
HAMMER CPI
RIG HAND AUGER



BOR # PK-59
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OFF. 2 FEET RIGHT
DATE 6/1/2023
DRILLER W. CHOMAT
HAMMER CPI
RIG HAND AUGER



EGS

Environmental & Geotechnical Specialists, Inc.

3772 Kori Road
Jacksonville, Florida 32257
Phone: (904) 329-7180

EGS PROJECT
13-54-23-01

DATE
OCTOBER 2023

SCALE AS SHOWN

DESIGNED BY
KJM

DRAWN BY
KJM

CHECKED BY
MRL

MATTHEW R. LANDSCHOOT,
P.E.

FL LICENSE NUMBER
76183

DATE

REPORT OF SOIL BORINGS

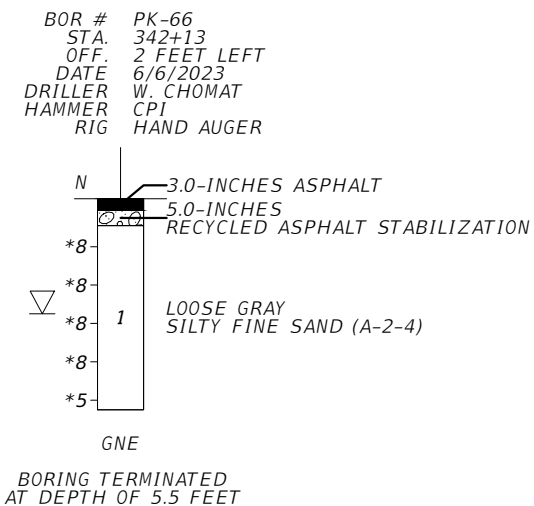
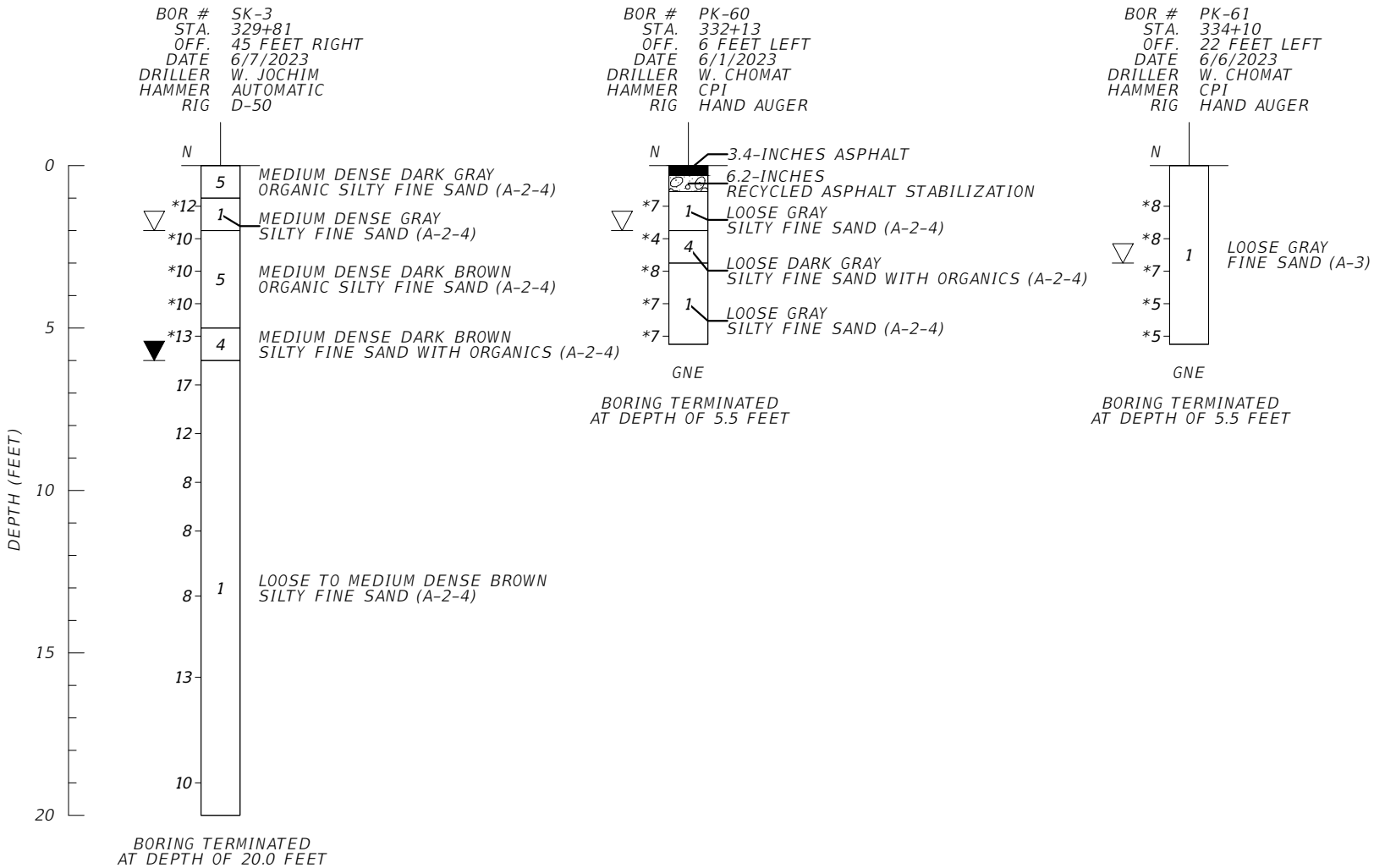
CR 121
NASSAU COUNTY

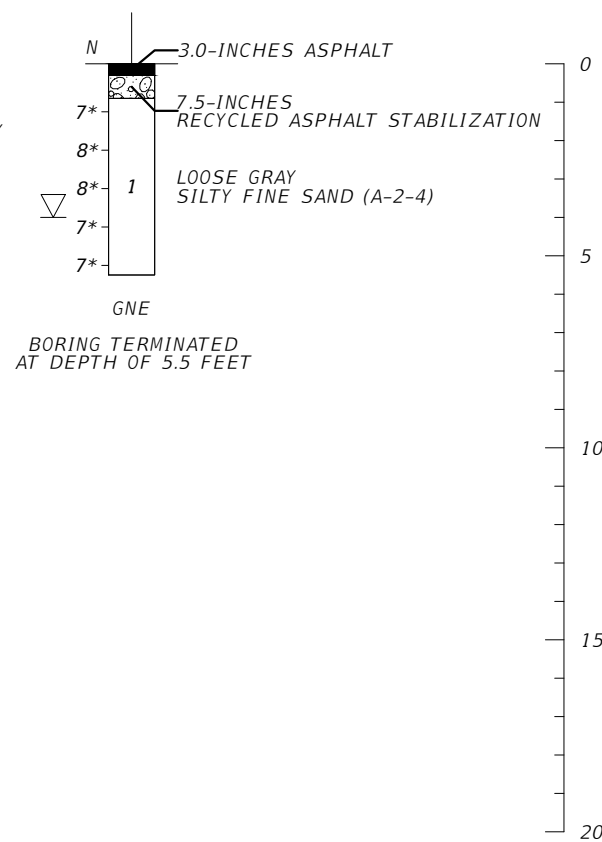
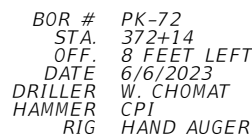
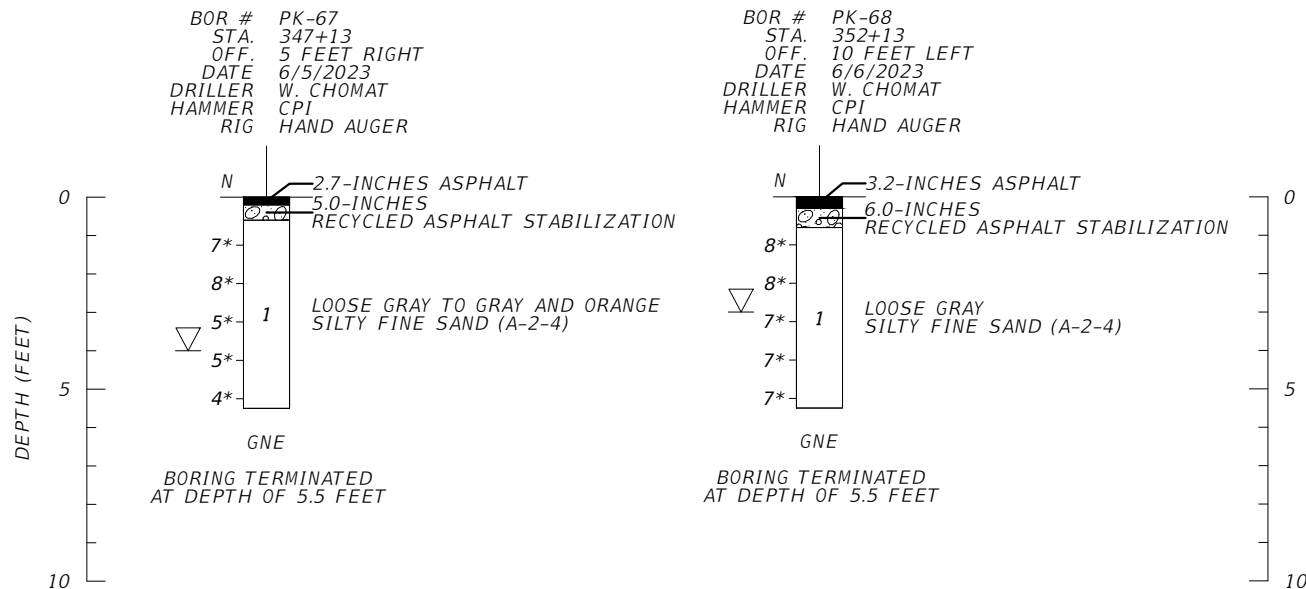
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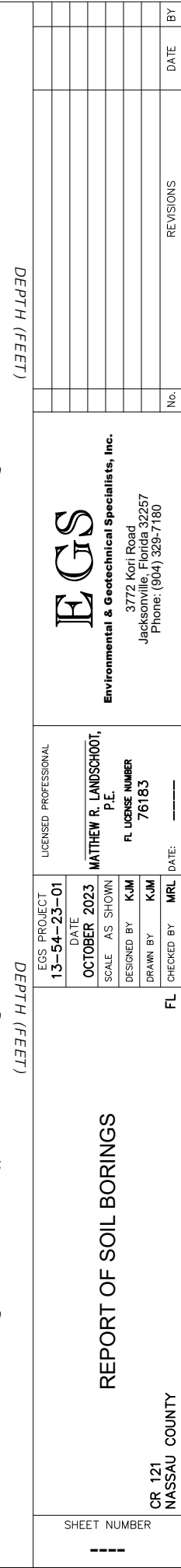
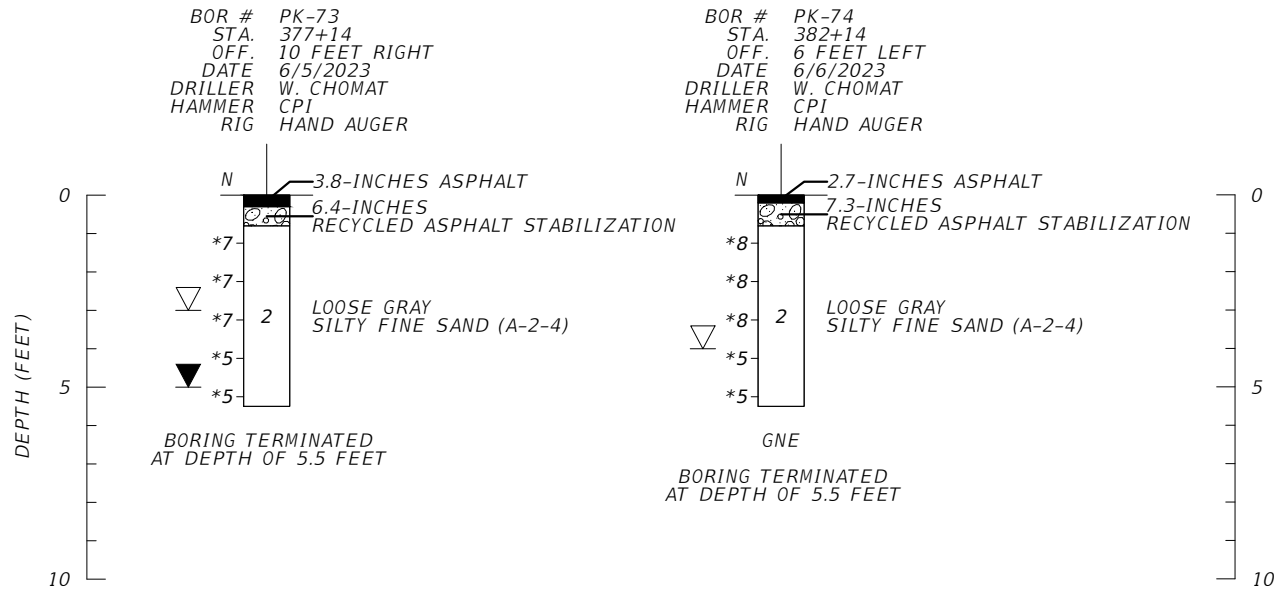
REVISIONS

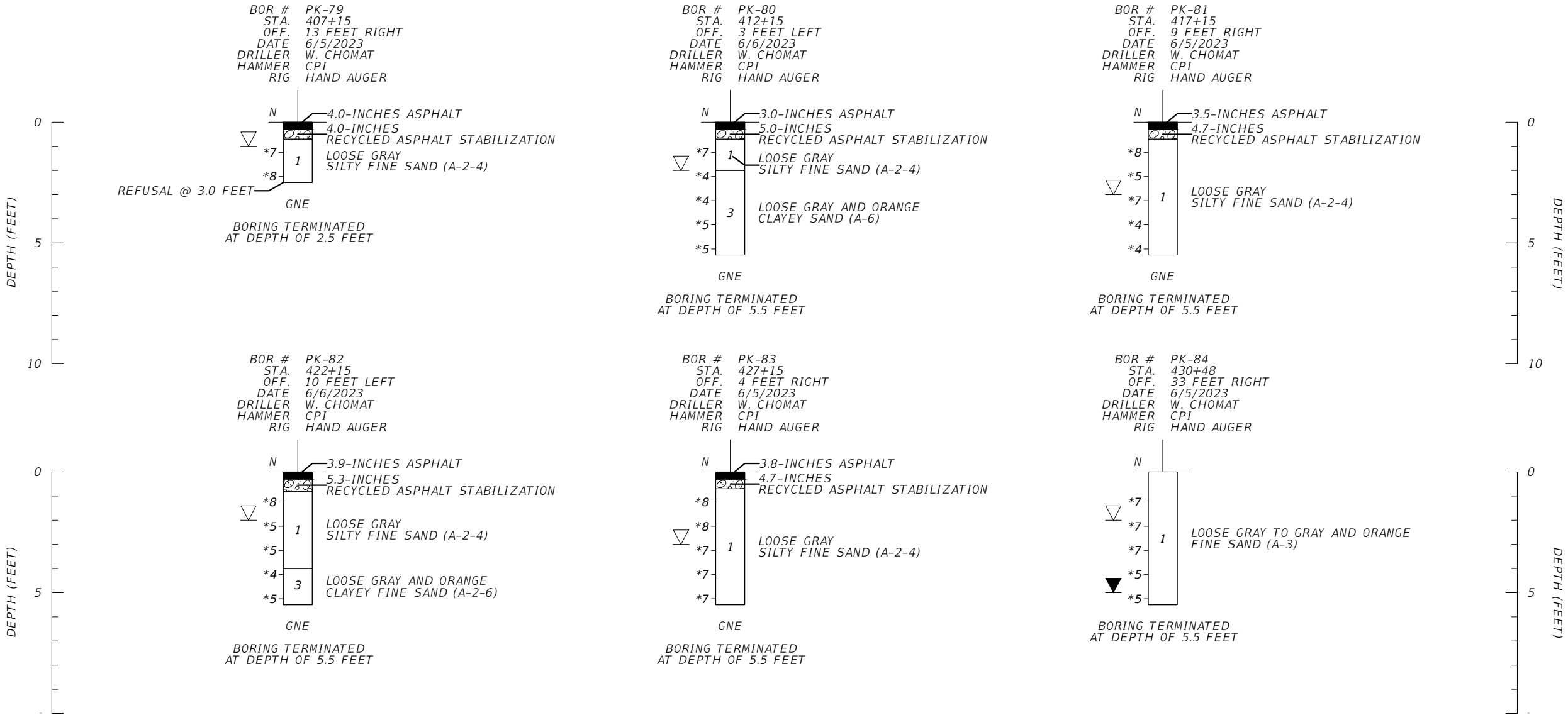
DATE

BY

[illegible]

[illegible]



[illegible]

APPENDIX B
SOIL CLASSIFICATION DATA

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-1

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-2

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-3

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-4

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA**Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119****Client: KIMLEY-HORN AND ASSOCIATES, INC.****Project No.: 13-54-23-01****Boring: SK-1****Location: NASSAU COUNTY, FLORIDA**

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	AASHTO	Mat. No.	Description
0.0-0.5	18											--	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
1.0-1.5	22	100	100	100	100	98	73	34	28	16		10	A-2-6	3	MEDIUM DENSE GRAY CLAYEY FINE SAND
2.0-2.5	21											8	A-2-6	3	LOOSE GRAY CLAYEY FINE SAND
3.0-3.5	16											10	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
4.0-4.5	20	100	100	100	100	98	54	13				10	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
5.0-5.5	26											9	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
6.0-7.5	22											7	A-2-4	1	LOOSE GRAY SILTY FINE SAND
7.5-9.0	24											7	A-2-4	1	LOOSE GRAY SILTY FINE SAND
9.0-10.5	23	100	100	100	100	100	38	12				10	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
10.5-12.0	22											9	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
12.5-14.0	22											11	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
15.0-16.5	22											9	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
18.0-20.0	25	100	100	100	100	99	54	18				7	A-2-4	1	LOOSE GRAY

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: SK-1

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-5

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-6

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-7

Location: NASSAU COUNTY, FLORIDA

[illegible]**ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.**

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-8

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-9

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-10

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-11

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-12

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-13

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-14

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-15

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-16

Location: NASSAU COUNTY, FLORIDA

[illegible]**ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.**

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-17

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-18

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-19

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-20

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-21

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-22

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-23

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-24

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-25

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-26

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-27

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-28

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-29

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-30

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA**Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119****Client: KIMLEY-HORN AND ASSOCIATES, INC.****Project No.: 13-54-23-01****Boring: SK-2****Location: NASSAU COUNTY, FLORIDA**

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	AASHTO	Mat. No.	Description
0.0-0.5	23											--	A-2-4	2	MEDIUM DENSE GRAY SILTY FINE SAND
1.0-1.5	15	100	100	100	100	99	66	23				10	A-2-4	2	MEDIUM DENSE GRAY SILTY FINE SAND
2.0-2.5	18	100	100	100	100	99	73	31	28	15		10	A-2-6	3	MEDIUM DENSE GRAY CLAYEY FINE SAND
3.0-3.5	29											9	A-2-6	3	MEDIUM DENSE GRAY CLAYEY FINE SAND
4.0-4.5	22											10	A-2-4	2	MEDIUM DENSE GRAY SILTY FINE SAND
5.0-5.5	27											10	A-2-4	2	MEDIUM DENSE GRAY SILTY FINE SAND
6.0-7.5	22	100	100	100	100	98	79	36	35	23		8	A-6	3	LOOSE GRAY CLAYEY SAND
7.5-9.0	20											16	A-6	3	MEDIUM DENSE GRAY CLAYEY SAND
9.0-10.5	20											16	A-6	3	MEDIUM DENSE GRAY CLAYEY SAND
10.5-12.0	21	100	100	100	100	99	57	21				14	A-2-4	2	MEDIUM DENSE GRAY SILTY FINE SAND
12.5-14.0	23											9	A-2-4	2	MEDIUM DENSE GRAY SILTY FINE SAND
15.0-16.5	28											7	A-2-4	2	LOOSE GRAY SILTY FINE SAND
18.0-20.0	27											8	A-2-4	2	LOOSE GRAY

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: SK-2

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-31

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-32

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-33

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-34

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-35

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-36

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-37

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-38

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-39

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-40

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-41

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-42

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-43

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-45

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-47

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-48

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-49

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-50

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-51

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-52

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-53

Location: NASSAU COUNTY, FLORIDA

[illegible]

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-55

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-56

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-57

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-58

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-59

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA**Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119****Client: KIMLEY-HORN AND ASSOCIATES, INC.****Project No.: 13-54-23-01****Boring: SK-3****Location: NASSAU COUNTY, FLORIDA**

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	AASHTO	Mat. No.	Description
0.0-0.5	35										9.6	--	A-2-4	5	MEDIUM DENSE DARK GRAY ORGANIC SILTY FINE SAND
1.0-1.5	19	100	100	100	99	98	59	12			1.0	12	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
2.0-2.5	33										6.2	10	A-2-4	5	MEDIUM DENSE DARK BROWN ORGANIC SILTY FINE SAND
3.0-3.5	20										5.2	10	A-2-4	5	MEDIUM DENSE DARK BROWN ORGANIC SILTY FINE SAND
4.0-4.5	19										5.1	10	A-2-4	5	MEDIUM DENSE DARK BROWN ORGANIC SILTY FINE SAND
5.0-5.5	18										4.1	13	A-2-4	4	MEDIUM DENSE DARK BROWN SILTY FINE SAND WITH ORGANICS
6.0-7.5	23	100	100	100	100	99	50	14			2.4	17	A-2-4	1	MEDIUM DENSE BROWN SILTY FINE SAND
7.5-9.0	21										2.3	12	A-2-4	1	MEDIUM DENSE BROWN SILTY FINE SAND
9.0-10.5	20											8	A-2-4	1	LOOSE BROWN SILTY FINE SAND
10.5-12.0	25											8	A-2-4	1	LOOSE BROWN SILTY FINE SAND
12.5-14.0	17											8	A-2-4	1	LOOSE BROWN SILTY FINE SAND
15.0-16.5	18											13	A-2-4	1	MEDIUM DENSE BROWN SILTY FINE SAND
18.0-20.0	15	100	100	100	100	99	39	12				10	A-2-4	1	MEDIUM DENSE BROWN

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: SK-3

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-60

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA**Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119****Client: KIMLEY-HORN AND ASSOCIATES, INC.****Project No.: 13-54-23-01****Boring: PK-61****Location: NASSAU COUNTY, FLORIDA**

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	AASHTO	Mat. No.	Description
0.0-0.5	5											--	A-3	1	LOOSE GRAY FINE SAND
1.0-1.5	5	100	100	99	98	97	49	8				8	A-3	1	LOOSE GRAY FINE SAND
2.0-2.5	8											8	A-3	1	LOOSE GRAY FINE SAND
3.0-3.5	11											7	A-3	1	LOOSE GRAY FINE SAND
4.0-4.5	19											5	A-3	1	LOOSE GRAY FINE SAND
5.0-5.5	21											5	A-3	1	LOOSE GRAY FINE SAND

SOIL CLASSIFICATION DATA**Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119****Client: KIMLEY-HORN AND ASSOCIATES, INC.****Project No.: 13-54-23-01****Boring: PK-62****Location: NASSAU COUNTY, FLORIDA**

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	AASHTO	Mat. No.	Description
0.0-0.5	6											--	A-2-4	1	LOOSE GRAY SILTY FINE SAND
1.0-1.5	7	100	100	100	100	99	49	12				8	A-2-4	1	LOOSE GRAY SILTY FINE SAND
2.0-2.5	11											8	A-2-4	1	LOOSE GRAY SILTY FINE SAND
3.0-3.5	22											7	A-2-4	1	LOOSE GRAY SILTY FINE SAND
4.0-4.5	22											5	A-2-4	1	LOOSE GRAY SILTY FINE SAND
5.0-5.5	24											4	A-2-4	1	LOOSE GRAY SILTY FINE SAND

SOIL CLASSIFICATION DATA**Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119****Client: KIMLEY-HORN AND ASSOCIATES, INC.****Project No.: 13-54-23-01****Boring: PK-63****Location: NASSAU COUNTY, FLORIDA**

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	AASHTO	Mat. No.	Description
0.0-0.5	10											--	A-3	1	LOOSE GRAY FINE SAND
1.0-1.5	7	100	100	99	98	93	49	9				8	A-3	1	LOOSE GRAY FINE SAND
2.0-2.5	9											7	A-3	1	LOOSE GRAY FINE SAND
3.0-3.5	14											7	A-3	1	LOOSE GRAY FINE SAND
4.0-4.5	21											7	A-3	1	LOOSE GRAY FINE SAND
5.0-5.5	14											5	A-3	1	LOOSE GRAY FINE SAND

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-64

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA**Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119****Client: KIMLEY-HORN AND ASSOCIATES, INC.****Project No.: 13-54-23-01****Boring: PK-65****Location: NASSAU COUNTY, FLORIDA**

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	AASHTO	Mat. No.	Description
0.0-0.5	13											--	A-3	1	LOOSE GRAY FINE SAND
1.0-1.5	11	100	78	75	73	70	44	6				7	A-3	1	LOOSE GRAY FINE SAND
2.0-2.5	16											7	A-3	1	LOOSE GRAY FINE SAND
3.0-3.5	15											5	A-3	1	LOOSE GRAY FINE SAND
4.0-4.5	20											4	A-3	1	LOOSE GRAY FINE SAND
5.0-5.5	23											4	A-3	1	LOOSE GRAY FINE SAND

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-66

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-67

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-68

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-69

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-70

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-71

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA**Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119****Client: KIMLEY-HORN AND ASSOCIATES, INC.****Project No.: 13-54-23-01****Boring: SK-4****Location: NASSAU COUNTY, FLORIDA**

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	AASHTO	Mat. No.	Description
0.0-0.5	46											--	A-2-4	2	MEDIUM DENSE GRAY SILTY FINE SAND
1.0-1.5	22	100	100	100	100	99	77	21				10	A-2-4	2	MEDIUM DENSE GRAY SILTY FINE SAND
2.0-2.5	53											8	A-2-4	2	LOOSE GRAY SILTY FINE SAND
3.0-3.5	22											10	A-2-4	2	MEDIUM DENSE GRAY SILTY FINE SAND
4.0-4.5	23	100	100	100	100	100	73	36	31	15		10	A-6	3	MEDIUM DENSE GRAY CLAYEY SAND
5.0-5.5	20											9	A-6	3	MEDIUM DENSE GRAY CLAYEY SAND
6.0-7.5	24											15	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
7.5-9.0	20											12	A-3	1	MEDIUM DENSE GRAY FINE SAND
9.0-10.5	20	100	100	100	100	100	34	6				13	A-3	1	MEDIUM DENSE GRAY FINE SAND
10.5-12.0	25											13	A-3	1	MEDIUM DENSE GRAY FINE SAND
12.5-14.0	20											9	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
15.0-16.5	19											12	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
18.0-20.0	18	100	100	100	100	100	100	19				11	A-2-4	1	MEDIUM DENSE GRAY

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: SK-4

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-72

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-73

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-74

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-75

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-76

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-77

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-78

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA**Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119****Client: KIMLEY-HORN AND ASSOCIATES, INC.****Project No.: 13-54-23-01****Boring: SK-5****Location: NASSAU COUNTY, FLORIDA**

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	AASHTO	Mat. No.	Description
0.0-0.5	11										1.5	--	A-2-4	1	LOOSE GRAY SILTY FINE SAND
1.0-1.5	31										10.3	8	A-2-4	5	LOOSE DARK GRAY ORGANIC SILTY FINE SAND
2.0-2.5	20	100	100	100	100	100	61	19			0.9	9	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
3.0-3.5	21										1.7	9	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
4.0-4.5	17											10	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
5.0-5.5	21											10	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
6.0-7.5	22											15	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
7.5-9.0	26	100	100	100	100	100	49	12				21	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
9.0-10.5	26											13	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
10.5-12.0	23											11	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
12.5-14.0	23											11	A-2-4	1	MEDIUM DENSE GRAY SILTY FINE SAND
15.0-16.5	24											6	A-2-4	1	LOOSE GRAY SILTY FINE SAND
18.0-20.0	27	100	100	100	100	98	42	13				8	A-2-4	1	LOOSE GRAY

ENVIRONMENTAL AND GEOTECHNICAL SPECIALISTS, INC.

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: SK-5

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-79

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-80

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-81

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-82

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA

Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119

Client: KIMLEY-HORN AND ASSOCIATES, INC.

Project No.: 13-54-23-01

Boring: PK-83

Location: NASSAU COUNTY, FLORIDA

[illegible]

SOIL CLASSIFICATION DATA**Project: CR 121 PAVEMENT EVALUATION FROM DUVAL COUNTY LINE TO CR 119****Client: KIMLEY-HORN AND ASSOCIATES, INC.****Project No.: 13-54-23-01****Boring: PK-84****Location: NASSAU COUNTY, FLORIDA**

DEPTH (FEET)	Wc (%)	-4 (%)	-10 (%)	-20 (%)	-40 (%)	-60 (%)	-100 (%)	-200 (%)	LL	PI	Org. (%)	N Value	AASHTO	Mat. No.	Description
0.0-0.5	9											--	A-3	1	LOOSE GRAY FINE SAND
1.0-1.5	15	100	100	100	99	98	50	5				7	A-3	1	LOOSE GRAY FINE SAND
2.0-2.5	21											7	A-3	1	LOOSE GRAY FINE SAND
3.0-3.5	24											7	A-3	1	LOOSE GRAY FINE SAND
4.0-4.5	21											5	A-3	1	LOOSE GRAY AND ORANGE FINE SAND
5.0-5.5	19											5	A-3	1	LOOSE GRAY AND ORANGE FINE SAND

APPENDIX C
**PAVEMENT EVALUATION CORING
AND CONDITION DATA**

TABLE 1
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PAVEMENT EVALUATION CORING AND CONDITION DATA

675-030-09
Materials
3/13

Cored by: E. PUCKETT, ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC. (EGS) Date: 06-05-23 Page: 1 of 6 Typical Section No.: 1

Roadway Section:		Name: CR 121 PAVEMENT EVALUATION			Lanes: 2	
Fin. Proj. ID:		From: DUVAL COUNTY LINE			Shoulder Type and Condition:	
F. A. Proj. No.:		To: CR 119			Inside: NONE	
County: NASSAU	SR No.:	Beg MP:	End MP:	Lgth:	Outside: GRASS	
Median Curbed (Y / N): N	Paved:	Lawn:	Other:	Curb & Gutter (Y / N): N		

Core No.	Distance ¹ (mi.)	Lane	Wheel Path	Pavement Layer (in.)			Base (in.)			Crack				Pavement Condition	Rut Depth (in.)	Cross Slope (%)	Cross Slope Direct.	PROJECT COMMENTS
				Top FC3	SP12.5	Core Lgth. (in.)	Un-bonded RAS ²	Bonded RAS ²	LR	Depth (in.)	Type	Class	Extent					
PK-1	0.011	R1	Y	1.5	3.4	4.9	7.1			4.90	C	II	M	POOR	0.30	2.00	O	SPALLING
PK-2	0.106	L1	N	1.2	2.3	3.5	6.1			2.00	C	III	M	POOR	0.50	1.00	O	LIGHT RAVELING, SPALLING, SHOING
PK-3	0.201	R1	Y	1.0	2.9	3.9		8.1		3.90	B	II	M	POOR	0.30	2.10	O	LIGHT RAVELING, TRANSVERSE CRACK
PK-4	0.295	L1	Y	1.5	1.7	3.2	6.4			3.20	C	II	M	POOR	0.40	1.50	O	LIGHT RAVELING, SPALLING, SHOING
PK-5	0.390	R1	Y	1.2	2.2	3.4	4.6			3.40	C	II	M	POOR	0.40	2.70	O	LIGHT RAVELING
PK-6	0.485	L1	Y	1.3	3.3	4.6	4.9			1.50	C	II	M	POOR	0.40	1.30	O	SEPARATION AT 1.4-INCHES, TRANSVERSE CRACK, LIGHT RAVELING, SPALLING
PK-7	0.580	R1	Y	1.0	3.3	4.3		3.5		--	A	--	--	POOR	0.30	1.20	O	PATCH IN OWP AND IWP
PK-8	0.674	L1	Y	1.2	3.0	4.2	5.3			--	A	--	--	POOR	0.10	1.1 / 1.5	O / I	MODERATE RAVELING, SPALLING
PK-9	0.769	R1	Y	1.1	2.5	3.6	5.9			--	A	--	--	GOOD	0.10	3.00	O	PATCH
PK-10	0.864	L1	Y	1.1	3.6	4.7		6.1		--	A	--	--	POOR	0.10	1.00	O	PATCH, LIGHT RAVELING, SPALLING
PK-11	0.958	R1	N	1.1	2.9	4.0	8.3			4.00	A	II	L	FAIR	0.10	3.20	O	TRANSVERSE CRACKING, LIGHT RAVELING, SPALLING
PK-12	1.053	L1	Y	1.0	3.3	4.1	5.4			--	A	--	--	POOR	0.20	0.80	O	SEPARATION AT 2.1-INCHES, PATCH, 2.0-INCHES BOTTOM UP CRACK, MODERATE RAVELING
PK-13	1.148	R1	N	1.4	2.6	4.0	8.5			--	A	IB	L	GOOD	0.10	4.30	O	TRANSVERSE CRACKING
PK-14	1.148	L1	Y	1.2	2.6	3.8	6.5			3.80	D	III	S	POOR	0.50	0.60	O	2.0-INCHES SPALLING TO STRUCTURAL COURSE, LIGHT RAVELING, SHOING

NOTES: 1. DISTANCE IS MEASURED ALONG APPROXIMATE CENTERLINE OF EXISTING CR 121 FROM DUVAL COUNTY LINE.
2. RAS REFERS TO RECYCLED ASPHALT STABILIZATION BASE FROM FULL DEPTH RELCAMATION OPERATIONS.

TABLE 1
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PAVEMENT EVALUATION CORING AND CONDITION DATA

675-030-09
Materials
3/13

Cored by: E. PUCKETT, ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC. (EGS) Date: 06-05-23 Page: 2 of 6 Typical Section No.: 1

Roadway Section:			Name: CR 121 PAVEMENT EVALUATION			Lanes: 2		
Fin. Proj. ID:			From: DUVAL COUNTY LINE			Shoulder Type and Condition:		
F. A. Proj. No.:			To: CR 119			Inside: NONE		
County: NASSAU		SR No.:	Beg MP:	End MP:	Lgth:	Outside: GRASS		
Median Curbed (Y / N): N		Paved:	Lawn:	Other:	Curb & Gutter (Y / N): N			

Core No.	Distance ¹ (mi.)	Lane	Wheel Path	Pavement Layer (in.)			Base (in.)			Crack				Pavement Condition	Rut Depth (in.)	Cross Slope (%)	Cross Slope Direct.	PROJECT COMMENTS
				Top FC3	SP12.5	Core Lgth. (in.)	Un-bonded RAS ²	Bonded RAS ²	LR	Depth (in.)	Type	Class	Extent					
PK-15	1.337	R1	Y	1.3	2.0	3.3		4.0		--	A	--	--	POOR	0.20	2.00	O	PATCH, LIGHT RAVELING
PK-16	1.432	L1	Y	1.2	3.1	4.3	7.9			2.50	C	II	M	POOR	0.30	0.30	O	LIGHT RAVELING, SPALLING, SHOIVING, POSSIBLE ALLIGATOR CRACKING IN IWP
PK-17	1.527	R1	Y	1.2	2.2	3.4	7.6			3.40	B	IB	L	POOR	0.30	3.40	O	
PK-18	1.621	L1	Y	1.1	2.3	3.4	6.8			3.40	C	II	M	POOR	0.40	1.60	O	ALLIGATOR CRACKING, LIGHT RAVELING, SPALLING
PK-19	1.716	R1	Y	1.1	3.2	4.3	5.7			--	A	--	--	GOOD	0.10	1.50	O	2.9-INCHES BOTTOM UP CRACK, SPALLING, LIGHT RAVELING
PK-20	1.811	L1	Y	1.1	1.9	3.0	5.5			--	A	--	--	POOR	0.60	1.40	O	MODERATE PATCH, PATCH ON PATCH, LIGHT RAVELING, SPALLING
PK-21	1.905	R1	N	1.0	2.5	3.5	5.5			9.00	C	II	M	POOR	0.30	2.70	O	9.0-INCHES CRACK THROUGH BASE, TRANSVERSE CRACKING, SPALLING, LIGHT RAVELING
PK-22	2.000	L1	N	1.1	2.9	4.0	5.8			2.00	C	II	M	POOR	0.60	1.00	O	LIGHT RAVELING, SPALLING, SHOIVING
PK-23	2.095	R1	Y	1.5	3.4	4.9	3.6			--	A	--	--	POOR	0.40	2.40	O	PATCH IN R1, LIGHT RAVELING, SPALLING
PK-24	2.189	L1	Y	1.1	2.2	3.3		4.7		3.30	B	III	M	POOR	0.30	1.00	O	8.0-INCHES CRACK THROUGH BASE, LIGHT RAVELING
PK-25	2.284	R1	N	1.0	2.0	3.0	8.0			3.00	C	II	M	POOR	0.60	4.90	O	LIGHT RAVELING, SPALLING, SHOIVING
PK-26	2.372	L1	N	1.2	3.5	4.7		7.3		4.70	B	IB	L	POOR	0.20	2.10	O	12.0-INCHES CRACK THROUGH BASE, PATCH
PK-27	2.473	R1	N	1.4	1.9	3.3	8.7			3.30	D	IB	M	POOR	0.60	2.40	O	LIGHT RAVELING, SPALLING, SHOIVING
PK-28	2.568	L1	Y	1.5	3.9	5.4		5.5		3.00	C	III	S	POOR	0.30	0.20	O	LIGHT RAVELING, SPALLING

NOTES: 1. DISTANCE IS MEASURED ALONG APPROXIMATE CENTERLINE OF EXISTING CR 121 FROM DUVAL COUNTY LINE.
2. RAS REFERS TO RECYCLED ASPHALT STABILIZATION BASE FROM FULL DEPTH RELCAMATION OPERATIONS.

TABLE 1
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PAVEMENT EVALUATION CORING AND CONDITION DATA

675-030-09
Materials
3/13

Cored by: E. PUCKETT, ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC. (EGS) Date: 06-05-23 Page: 3 of 6 Typical Section No.: 1

Roadway Section:			Name: CR 121 PAVEMENT EVALUATION			Lanes: 2		
Fin. Proj. ID:			From: DUVAL COUNTY LINE			Shoulder Type and Condition:		
F. A. Proj. No.:			To: CR 119			Inside: NONE		
County: NASSAU		SR No.:	Beg MP:	End MP:	Lgth:	Outside: GRASS		
Median Curbed (Y / N): N		Paved:	Lawn:	Other:	Curb & Gutter (Y / N): N			

Core No.	Distance ¹ (mi.)	Lane	Wheel Path	Pavement Layer (in.)			Base (in.)			Crack				Pavement Condition	Rut Depth (in.)	Cross Slope (%)	Cross Slope Direct.	PROJECT COMMENTS
				Top FC3	SP12.5	Core Lgth. (in.)	Un-bonded RAS ²	Bonded RAS ²	LR	Depth (in.)	Type	Class	Extent					
PK-29	2.663	R1	Y	1.1	1.9	3.0	8.0			3.00	C	II	M	POOR	0.90	2.90	O	LIGHT RAVELING, SPALLING, SHOIVING
PK-30	2.758	L1	Y	1.1	2.3	3.4	8.1			3.40	B	II	S	POOR	0.60	0.60	I	ALLIGATOR CRACKING, LIGHT RAVELING, SPALLING
PK-31	2.852	R1	Y	1.5	1.8	3.3	5.8			3.30	C	II	M	POOR	0.30	3.10	O	TRANSVERSE CRACKING, LIGHT RAVELING, SPALLING
PK-32	2.947	L1	Y	1.0	3.1	4.1		5.9		4.10	C	III	S	POOR	0.20	0.80	O	10.0-INCH CRACK THROUGH BASE, TRANSVERSE CRACKING, LIGHT RAVELING, SPALLING
PK-33	3.042	R1	Y	1.1	1.6	2.7	5.5			2.70	D	IB	M	FAIR	0.20	2.80	O	LIGHT RAVELING
PK-34	3.136	L1	Y	1.1	2.9	4.0	6.5			9.80	A	--	--	POOR	0.20	1.70	O	9.8-INCHES BOTTOM UP CRACK, PATCH
PK-35	3.231	R1	N	1.3	1.9	3.2	5.8			3.20	C	II	M	POOR	0.50	3.20	O	TRANSVERSE CRACKING, LIGHT RAVELING, SHOIVING
PK-36	3.326	L1	Y	1.3	2.8	4.1		6.1		4.10	B	III	S	POOR	0.30	0.80	O	10.2-INCHES CRACK THROUGH BASE, LIGHT RAVELING, SPALLING, SHOIVING, TRANSVERSE CRACKING
PK-37	3.420	R1	N	1.5	2.2	3.7		5.7		2.00	C	II	M	FAIR	0.20	1.90	I	SUPERELEVATED CURVE, LIGHT RAVELING, SPALLING, GRINDING
PK-38	3.515	L1	Y	1.2	1.8	3.0		8.0		3.00	D	IB	M	POOR	0.60	5.80	O	8.0-INCHES CRACK THROUGH BASE, ALLIGATOR CRACKING, LIGHT RAVELING, SPALLING
PK-39	3.610	R1	N	1.4	1.1	2.5	6.5			2.50	C	IB	M	POOR	0.40	4.50	I	SUPERELEVATED CURVE, LIGHT RAVELING, SPALLING
PK-40	3.705	L1	N	1.4	2.6	4.0		6.0		1.30	B	IB	L	FAIR	0.10	1.10	O	LIGHT RAVELING, SPALLING
PK-41	3.799	R1	Y	1.2	1.6	2.8	4.2			2.80	D	IB	S	POOR	1.00	2.00	O	SEVERE RAVELING, RAVELING TO STRUCTURAL COURSE, SPALLING TO STRUCTRAL COURSE, ALLIGATOR CRACKING
PK-42	3.894	L1	Y	0.9	3.7	4.6			8.6	--	A	--	--	POOR	0.50	1.20	O	LIGHT RAVELING, SPALLING, PATCH IN OWP

NOTES: 1. DISTANCE IS MEASURED ALONG APPROXIMATE CENTERLINE OF EXISTING CR 121 FROM DUVAL COUNTY LINE.
2. RAS REFERS TO RECYCLED ASPHALT STABILIZATION BASE FROM FULL DEPTH RELCAMATION OPERATIONS.

TABLE 1
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
PAVEMENT EVALUATION CORING AND CONDITION DATA

675-030-09
Materials
3/13

Cored by: E. PUCKETT, ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC. (EGS) Date: 06-05-23 Page: 4 of 6 Typical Section No.: 1

Roadway Section:			Name: CR 121 PAVEMENT EVALUATION			Lanes: 2		
Fin. Proj. ID:			From: DUVAL COUNTY LINE			Shoulder Type and Condition:		
F. A. Proj. No.:			To: CR 119			Inside: NONE		
County: NASSAU		SR No.:	Beg MP:	End MP:	Lgth:	Outside: GRASS		
Median Curbed (Y / N): N		Paved:	Lawn:	Other:	Curb & Gutter (Y / N): N			

Core No.	Distance ¹ (mi.)	Lane	Wheel Path	Pavement Layer (in.)			Base (in.)			Crack				Pavement Condition	Rut Depth (in.)	Cross Slope (%)	Cross Slope Direct.	PROJECT COMMENTS
				Top FC3	SP12.5	Core Lgth. (in.)	Un-bonded RAS ²	Bonded RAS ²	LR	Depth (in.)	Type	Class	Extent					
PK-43	3.989	R1	Y	1.1	2.2	3.3			7.7	--	A	--	--	POOR	0.50	1.20	O	LIGHT RAVELING, SPALLING, PATCHING IN OWP
PK-44	4.083	L1	Y	0.9	2.4	3.3			9.2	1.50	D	IB	L	POOR	0.40	4.20	I	LIGHT RAVELING, SUPERELEVATED CURVE
PK-45	4.178	R1	N	0.9	3.1	4.0			13.5	4.00	D	III	S	POOR	0.40	6.40	O	LIGHT RAVELING, SPALLING, TRANSVERSE CRACKING
PK-46	4.273	L1	Y	0.9	2.9	3.8			8.3	3.80	D	II	M	POOR	0.30	5.30	I	LIGHT RAVELING, SPALLING, SUPERELEVATED CURVE
PK-47	4.367	R1	Y	1.7	2.5	4.2			8.3	4.20	B	II	M	POOR	0.60	5.30	O	LIGHT RAVELING, SPALLING, SHOIVING
PK-48	4.462	L1	Y	1.1	3.2	4.3			12.7	4.30	D	II	M	POOR	0.40	1.30	O	LIGHT RAVELING, SPALLING
PK-49	4.557	R1	N	1.2	2.2	3.4	6.3			3.40	B	IB	L	POOR	0.50	2.50	O	LIGHT RAVELING, SPALLING, SHOIVING
PK-50	4.652	L1	Y	1.5	1.5	3.0		6.0		3.00	C	II	M	POOR	0.30	1.30	O	LIGHT RAVELING, SPALLING
PK-51	4.746	R1	N	1.4	2.2	3.6	7.3			3.60	B	III	M	POOR	0.30	2.20	O	TRANSVERSE CRACKING, LIGHT RAVELING, SHOIVING
PK-52	4.841	L1	Y	1.4	2.1	3.5		6.0		3.50	C	III	M	POOR	0.20	1.50	O	
PK-53	4.936	R1	Y	1.5	3.3	4.8	5.1			--	A	--	--	POOR	0.30	3.90	O	1.5-INCHES DIP IN OUTSIDE SHOULDER, LIGHT RAVELING
PK-54	5.030	L1	Y	1.3	1.9	3.2		8.8		3.20	C	III	S	POOR	0.40	8.20	O	12.0-INCHES CRACK THROUGH BASE, LIGHT RAVELING, SUPERELEVATED CURVE
PK-55	5.125	R1	N	1.4	1.7	3.1		6.7		3.10	C	III	M	FAIR	0.20	5.10	O	TRANSVERSE CRACKING, LIGHT RAVELING, SPALLING
PK-56	5.220	L1	Y	1.1	2.4	3.5	6.5			3.50	C	II	M	POOR	0.20	1.30	O	LIGHT RAVELING, SPALLING

NOTES: 1. DISTANCE IS MEASURED ALONG APPROXIMATE CENTERLINE OF EXISTING CR 121 FROM DUVAL COUNTY LINE.
2. RAS REFERS TO RECYCLED ASPHALT STABILIZATION BASE FROM FULL DEPTH RELCAMATION OPERATIONS.

TABLE 1

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

PAVEMENT EVALUATION CORING AND CONDITION DATA675-030-09
Materials
3/13Cored by: E. PUCKETT, ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC. (EGS) Date: 06-05-23 Page: 5 of 6 Typical Section No.: 1

Roadway Section:			Name: CR 121 PAVEMENT EVALUATION			Lanes: 2		
Fin. Proj. ID:			From: DUVAL COUNTY LINE			Shoulder Type and Condition:		
F. A. Proj. No.:			To: CR 119			Inside: NONE		
County: NASSAU		SR No.:	Beg MP:	End MP:	Lgth:	Outside: GRASS		
Median Curbed (Y / N): N		Paved:	Lawn:	Other:	Curb & Gutter (Y / N): N			

Core No.	Distance ¹ (mi.)	Lane	Wheel Path	Pavement Layer (in.)			Base (in.)			Crack				Pavement Condition	Rut Depth (in.)	Cross Slope (%)	Cross Slope Direct.	PROJECT COMMENTS
				Top FC3	SP12.5	Core Lgth. (in.)	Un-bonded RAS ²	Bonded RAS ²	LR	Depth (in.)	Type	Class	Extent					
PK-57	5.314	R1	N	1.5	1.3	2.8		6.2		2.80	C	III	M	POOR	0.60	1.70	O	9.0-INCHES CRACK THROUGH BASE, TRANSVERSE CRACKING, LIGHT RAVELING, GRINDING
PK-58	5.409	L1	Y	1.0	2.0	3.0	8.4			3.00	C	II	M	POOR	0.50	2.10	O	MODERATE RAVELING, SPALLING, GRINDING
PK-59	5.504	R1	Y	1.1	1.6	2.7	5.3			2.70	C	IB	S	POOR	1.10	2.90	O	LIGHT RAVELING, SHOVING, ALLIGATOR CRACKING
PK-60	5.598	L1	Y	1.3	2.1	3.4	6.2			1.70	C	II	M	POOR	0.30	1.60	O	LIGHT RAVELING, SPALLING
PK-64	5.693	R1	Y	1.3	1.4	2.7	5.1			2.70	D	II	S	POOR	0.70	2.00	O	MODERATE RAVELING, ALLIGATOR CRACKING
PK-66	5.788	L1	Y	1.4	1.6	3.0		5.0		3.00	B	III	M	POOR	0.30	1.50	O	LIGHT RAVELING, SPALLING
PK-67	5.883	R1	Y	1.1	1.6	2.7		5.0		2.70	B	II	M	POOR	0.40	2.40	O	MODERATE RAVELING, SPALLING
PK-68	5.977	L1	Y	1.2	2.0	3.2		6.0		1.30	B	II	L	FAIR	0.20	1.80	O	LIGHT RAVELING, SPALLING
PK-69	6.072	R1	Y	1.1	2.1	3.2		4.5		3.20	C	III	S	POOR	0.40	6.10	O	MODERATE RAVELING, SPALLING
PK-70	6.167	L1	Y	0.9	2.7	3.6	6.0			1.60	B	III	S	POOR	0.10	5.20	I	SEPARATION AT 1.6-INCHES, LIGHT RAVELING, SPALLING, SUPERELEVATED CURVE, TRANSVERSE CRACKING
PK-71	6.261	R1	N	1.3	1.8	3.1		6.4		3.10	C	III	S	POOR	0.30	4.50	O	9.5-INCHES THROUGH BASE, LIGHT RAVELING, SPALLING
PK-72	6.356	L1	N	1.0	2.0	3.0	7.5			3.00	C	III	S	POOR	0.20	1.10	O	LIGHT RAVELING, SPALLING
PK-73	6.451	R1	N	1.1	2.7	3.8		6.3		2.10	B	II	M	POOR	0.10	2.80	O	LIGHT RAVELING, SPALLING
PK-74	6.545	L1	N	1.3	1.4	2.7	7.3			2.70	B	III	S	POOR	0.30	2.00	O	LIGHT RAVELING, SPALLING, SHOVING

NOTES: 1. DISTANCE IS MEASURED ALONG APPROXIMATE CENTERLINE OF EXISTING CR 121 FROM DUVAL COUNTY LINE.
2. RAS REFERS TO RECYCLED ASPHALT STABILIZATION BASE FROM FULL DEPTH RECAMATION OPERATIONS.

TABLE 1

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

PAVEMENT EVALUATION CORING AND CONDITION DATA

675-030-09
Materials
3/13

Cored by: E. PUCKETT, ENVIRONMENTAL & GEOTECHNICAL SPECIALISTS, INC. (EGS)

Date: 06-05-23

Page: 6 of 6

Typical Section No.: 1

Roadway Section:			Name: CR 121 PAVEMENT EVALUATION			Lanes: 2		
Fin. Proj. ID:			From: DUVAL COUNTY LINE			Shoulder Type and Condition:		
F. A. Proj. No.:			To: CR 119			Inside: NONE		
County: NASSAU		SR No.:	Beg MP:		End MP:	Lgth:	Outside: GRASS	
Median Curbed (Y / N): N		Paved:	Lawn:		Other:	Curb & Gutter (Y / N): N		

Core No.	Distance ¹ (mi.)	Lane	Wheel Path	Pavement Layer (in.)			Base (in.)			Crack				Pavement Condition	Rut Depth (in.)	Cross Slope (%)	Cross Slope Direct.	PROJECT COMMENTS
				Top FC3	SP12.5	Core Lgth. (in.)	Un-bonded RAS ²	Bonded RAS ²	LR	Depth (in.)	Type	Class	Extent					
PK-75	6.640	R1	N	1.0	2.8	3.8	5.6			0.90	B	II	M	POOR	0.50	6.90	O	MODERATE RAVELING, SPALLING, SHOIVING
PK-76	6.735	L1	Y	1.0	1.5	2.5	6.0			2.50	B	II	M	POOR	0.10	3.10	I	LIGHT RAVELING, SPALLING, SUPERELEVATED CURVE
PK-77	6.830	R1	N	1.0	2.1	3.1		5.5		3.10	C	III	S	POOR	0.30	4.90	O	LIGHT RAVELING, SPALLING, SHOIVING
PK-78	6.924	L1	N	1.4	1.1	2.5		6.0		2.50	B	II	M	POOR	0.20	0.90	I	8.5-INCHES CRACK THROUGH BASE, LIGHT RAVELING, TRANSVERSE CRACKING, SPALLING
PK-79	7.019	R1	Y	0.9	3.1	4.0	4.0			--	A	--	--	POOR	0.20	7.30	O	2.5-INCHES BOTTOM UP CRACK, SEVERE RAVELING, PATCH, UNKNOWN OBSTRUCTION AT 2.5 FEET
PK-80	7.114	L1	Y	0.9	2.1	3.0	5.0			3.00	C	II	M	POOR	0.20	1.00	I	LIGHT RAVELING, SPALLING
PK-81	7.208	R1	Y	1.1	2.4	3.5	4.7			3.50	D	III	S	POOR	0.50	2.80	O	MODERATE RAVELING, SPALLING, TRANSVERSE CRACKING
PK-82	7.303	L1	Y	1.0	2.9	3.9		5.3		3.90	C	III	S	POOR	0.10	1.80	O	LIGHT RAVELING, SPALLING, TRANSVERSE CRACKING
PK-83	7.398	R1	Y	1.0	2.8	3.8	4.7			3.80	B	II	M	POOR	0.20	2.50	O	LIGHT RAVELING, SPALLING, SHOIVING

NOTES: 1. DISTANCE IS MEASURED IN MILES ALONG APPROXIMATE CENTERLINE OF EXISTING CR 121 FROM DUVAL COUNTY LINE.
2. RAS REFERS TO RECYCLED ASPHALT STABILIZATION BASE FROM FULL DEPTH RELCAMATION OPERATIONS.

APPENDIX D

PAVEMENT PHOTOGRAPHS



**FIGURE D1: EXISTING CONDITIONS AT PAVEMENT CORE PK-1
(FACING WEST)**



FIGURE D2: PHOTOGRAPH OF PAVEMENT CORE PK-1



**FIGURE D3: EXISTING CONDITIONS AT PAVEMENT CORE PK-2
(FACING EAST)**



FIGURE D4: PHOTOGRAPH OF PAVEMENT CORE PK-2



**FIGURE D5: EXISTING CONDITIONS AT PAVEMENT CORE PK-3
(FACING WEST)**



FIGURE D6: PHOTOGRAPH OF PAVEMENT CORE PK-3



**FIGURE D7: EXISTING CONDITIONS AT PAVEMENT CORE PK-4
(FACING EAST)**



FIGURE D8: PHOTOGRAPH OF PAVEMENT CORE PK-4



**FIGURE D9: EXISTING CONDITIONS AT PAVEMENT CORE PK-5
(FACING WEST)**



FIGURE D10: PHOTOGRAPH OF PAVEMENT CORE PK-5



**FIGURE D11: EXISTING CONDITIONS AT PAVEMENT CORE PK-6
(FACING EAST)**



FIGURE D12: PHOTOGRAPH OF PAVEMENT CORE PK-6



**FIGURE D13: EXISTING CONDITIONS AT PAVEMENT CORE PK-7
(FACING WEST)**



FIGURE D14: PHOTOGRAPH OF PAVEMENT CORE PK-7



**FIGURE D15: EXISTING CONDITIONS AT PAVEMENT CORE PK-8
(FACING EAST)**



FIGURE D16: PHOTOGRAPH OF PAVEMENT CORE PK-8



**FIGURE D17: EXISTING CONDITIONS AT PAVEMENT CORE PK-9
(FACING WEST)**



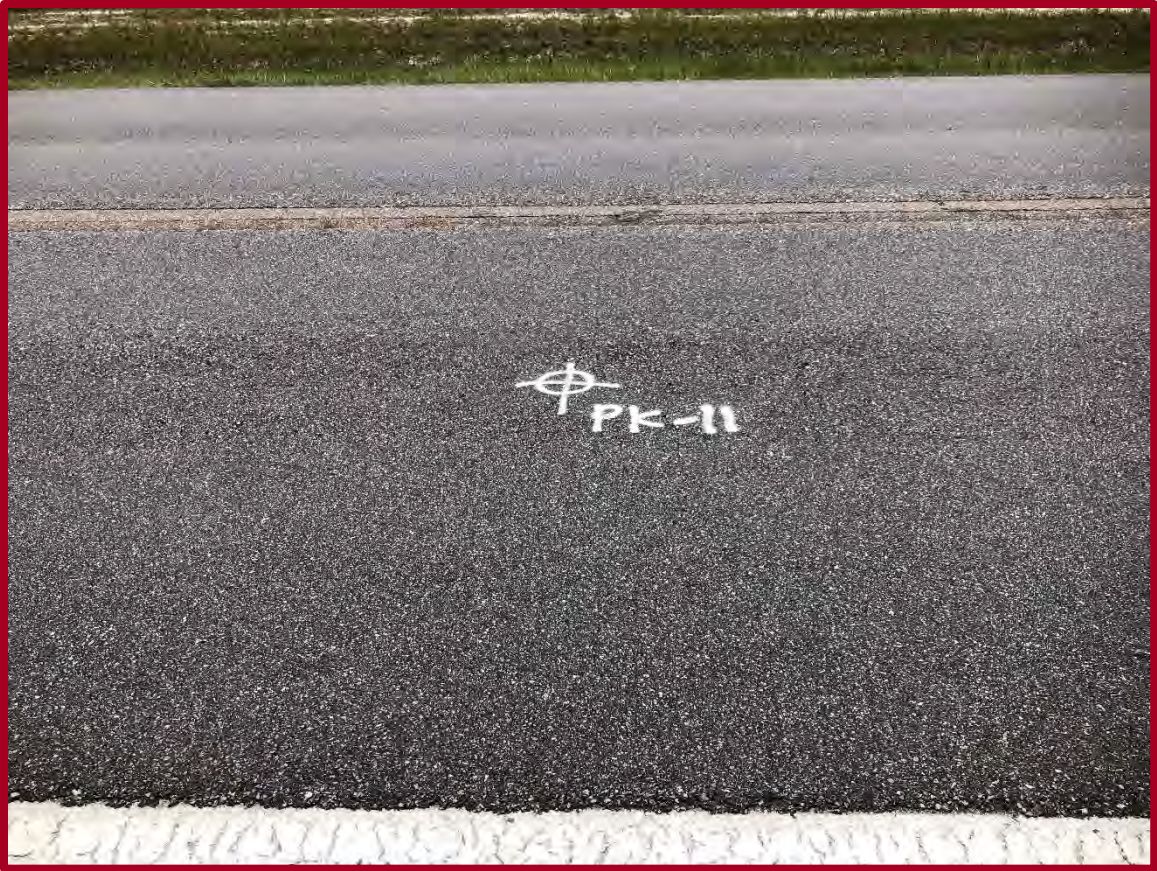
FIGURE D18: PHOTOGRAPH OF PAVEMENT CORE PK-9



**FIGURE D19: EXISTING CONDITIONS AT PAVEMENT CORE PK-10
(FACING EAST)**



FIGURE D20: PHOTOGRAPH OF PAVEMENT CORE PK-10



**FIGURE D21: EXISTING CONDITIONS AT PAVEMENT CORE PK-11
(FACING WEST)**



FIGURE D22: PHOTOGRAPH OF PAVEMENT CORE PK-11



**FIGURE D23: EXISTING CONDITIONS AT PAVEMENT CORE PK-12
(FACING EAST)**



FIGURE D24: PHOTOGRAPH OF PAVEMENT CORE PK-12



**FIGURE D25: EXISTING CONDITIONS AT PAVEMENT CORE PK-13
(FACING WEST)**



FIGURE D26: PHOTOGRAPH OF PAVEMENT CORE PK-13



**FIGURE D27: EXISTING CONDITIONS AT PAVEMENT CORE PK-14
(FACING EAST)**



FIGURE D28: PHOTOGRAPH OF PAVEMENT CORE PK-14



**FIGURE D29: EXISTING CONDITIONS AT PAVEMENT CORE PK-15
(FACING WEST)**



FIGURE D30: PHOTOGRAPH OF PAVEMENT CORE PK-15



**FIGURE D31: EXISTING CONDITIONS AT PAVEMENT CORE PK-16
(FACING EAST)**



FIGURE D32: PHOTOGRAPH OF PAVEMENT CORE PK-16



**FIGURE D33: EXISTING CONDITIONS AT PAVEMENT CORE PK-17
(FACING WEST)**

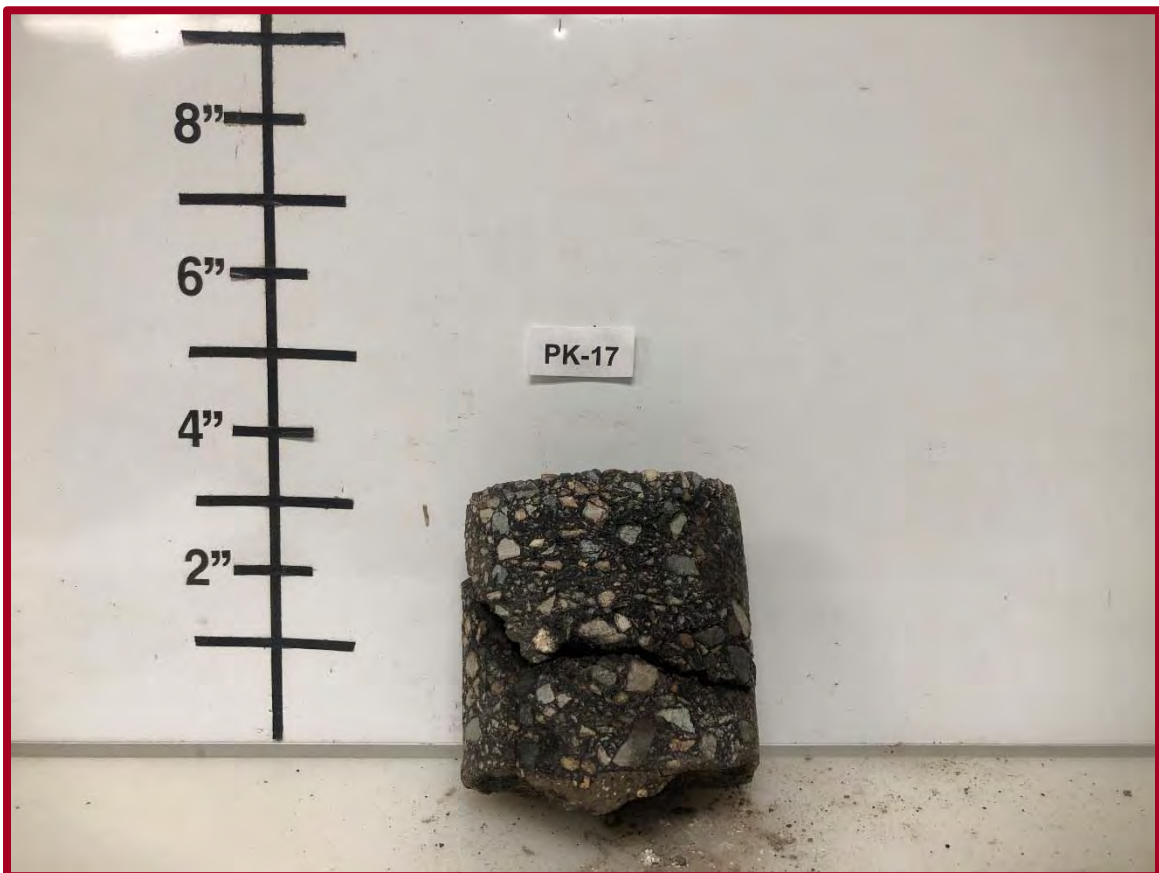


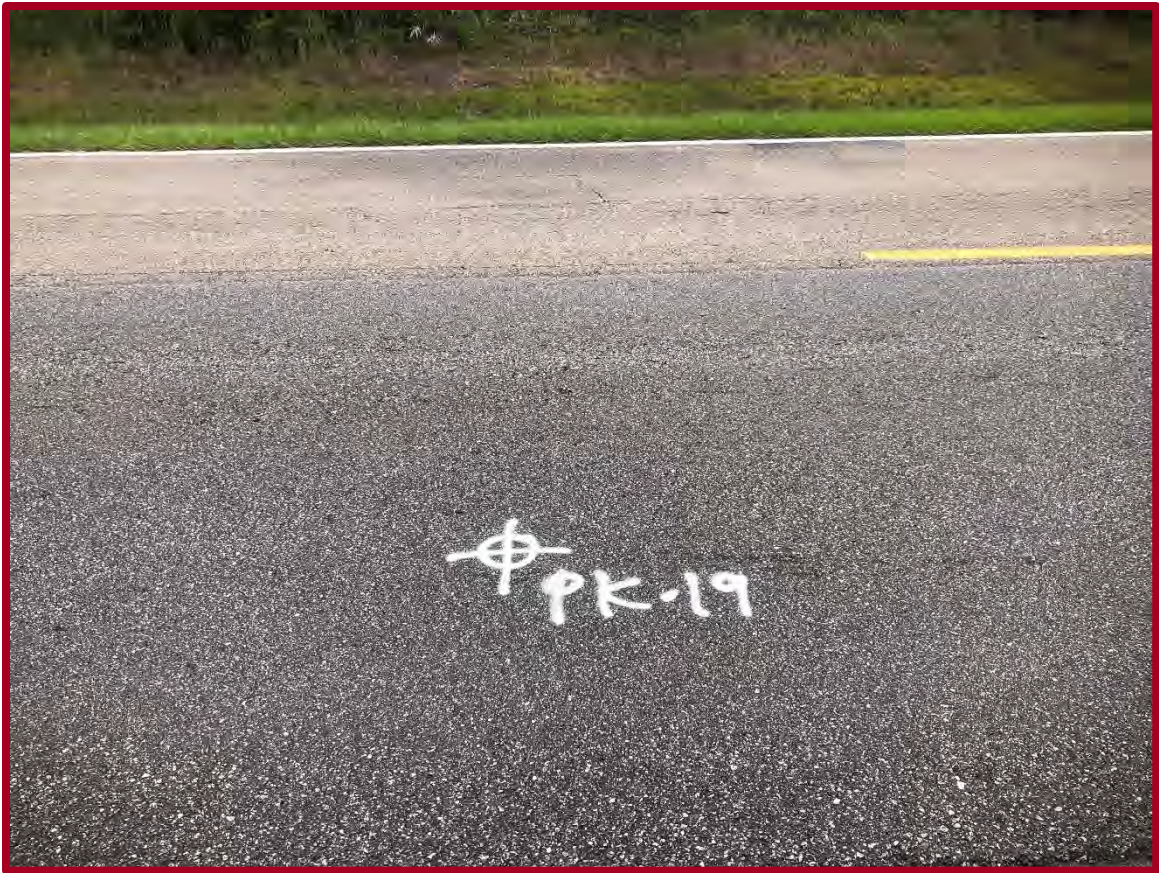
FIGURE D34: PHOTOGRAPH OF PAVEMENT CORE PK-17



**FIGURE D35: EXISTING CONDITIONS AT PAVEMENT CORE PK-18
(FACING EAST)**



FIGURE D36: PHOTOGRAPH OF PAVEMENT CORE PK-18



**FIGURE D37: EXISTING CONDITIONS AT PAVEMENT CORE PK-19
(FACING WEST)**



FIGURE D38: PHOTOGRAPH OF PAVEMENT CORE PK-19



**FIGURE D39: EXISTING CONDITIONS AT PAVEMENT CORE PK-20
(FACING EAST)**



FIGURE D40: PHOTOGRAPH OF PAVEMENT CORE PK-20



**FIGURE D41: EXISTING CONDITIONS AT PAVEMENT CORE PK-21
(FACING WEST)**

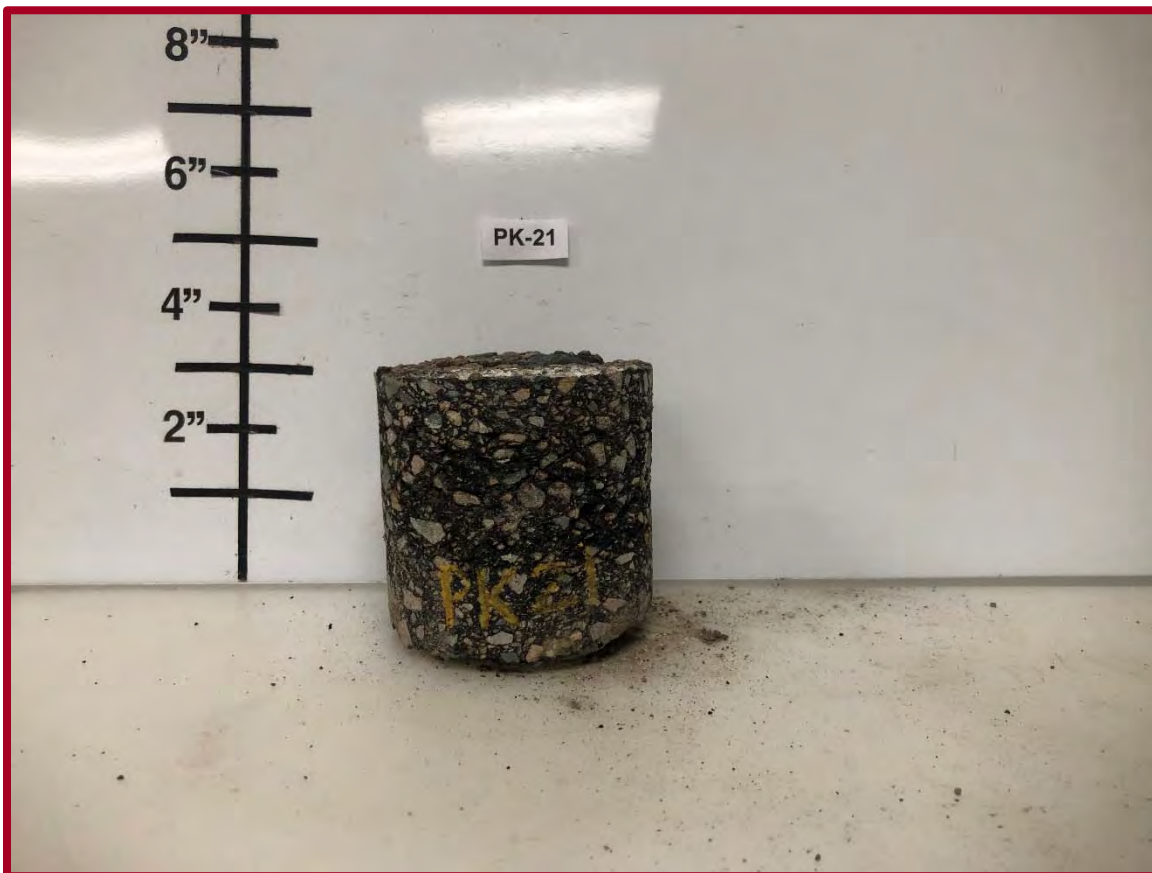


FIGURE D42: PHOTOGRAPH OF PAVEMENT CORE PK-21



FIGURE D43: EXISTING CONDITIONS AT PAVEMENT CORE PK-22 (FACING EAST)



FIGURE D44: PHOTOGRAPH OF PAVEMENT CORE PK-22



**FIGURE D45: EXISTING CONDITIONS AT PAVEMENT CORE PK-23
(FACING WEST)**



FIGURE D46: PHOTOGRAPH OF PAVEMENT CORE PK-23



**FIGURE D47: EXISTING CONDITIONS AT PAVEMENT CORE PK-24
(FACING EAST)**



FIGURE D48: PHOTOGRAPH OF PAVEMENT CORE PK-24



**FIGURE D49: EXISTING CONDITIONS AT PAVEMENT CORE PK-25
(FACING WEST)**

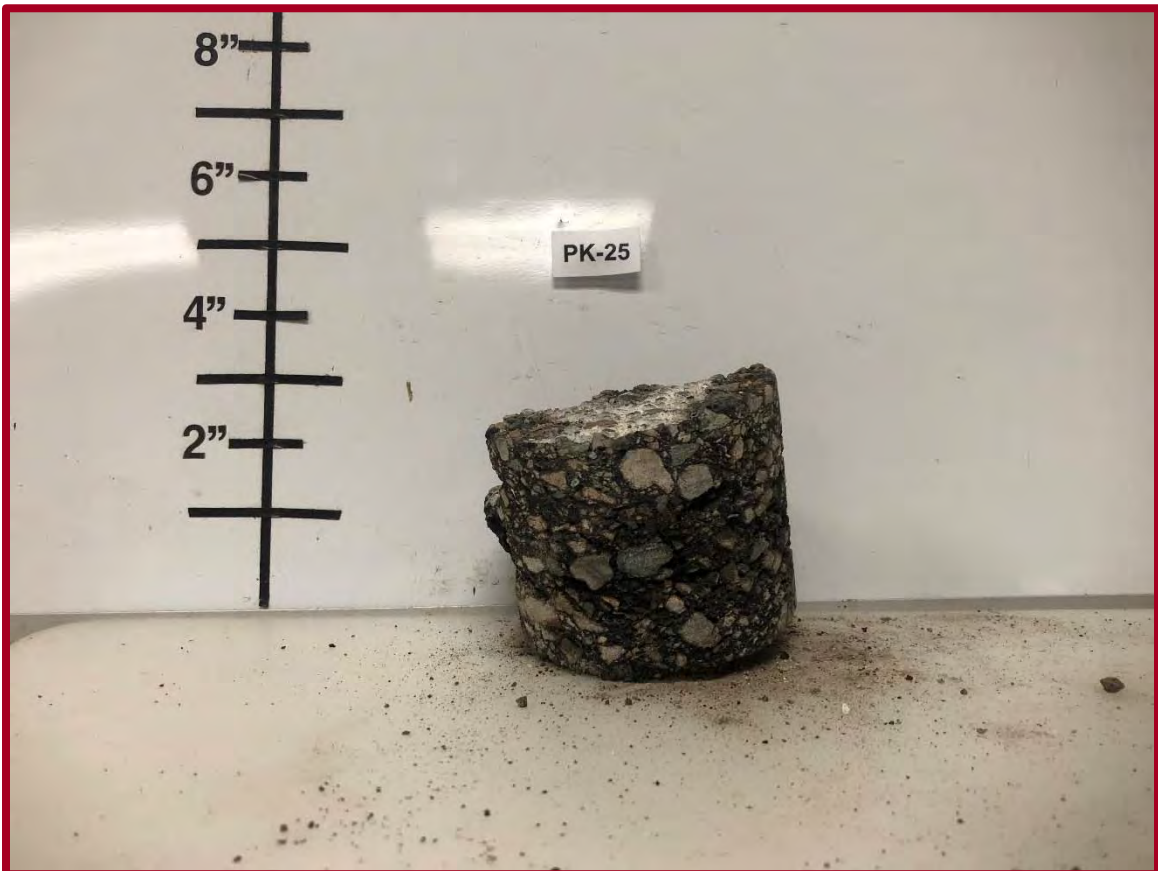


FIGURE D50: PHOTOGRAPH OF PAVEMENT CORE PK-25



**FIGURE D51: EXISTING CONDITIONS AT PAVEMENT CORE PK-26
(FACING EAST)**



FIGURE D52: PHOTOGRAPH OF PAVEMENT CORE PK-26



**FIGURE D53: EXISTING CONDITIONS AT PAVEMENT CORE PK-27
(FACING WEST)**



FIGURE D54: PHOTOGRAPH OF PAVEMENT CORE PK-27



FIGURE D55: EXISTING CONDITIONS AT PAVEMENT CORE PK-28 (FACING EAST)



FIGURE D56: PHOTOGRAPH OF PAVEMENT CORE PK-28



**FIGURE D57: EXISTING CONDITIONS AT PAVEMENT CORE PK-29
(FACING WEST)**

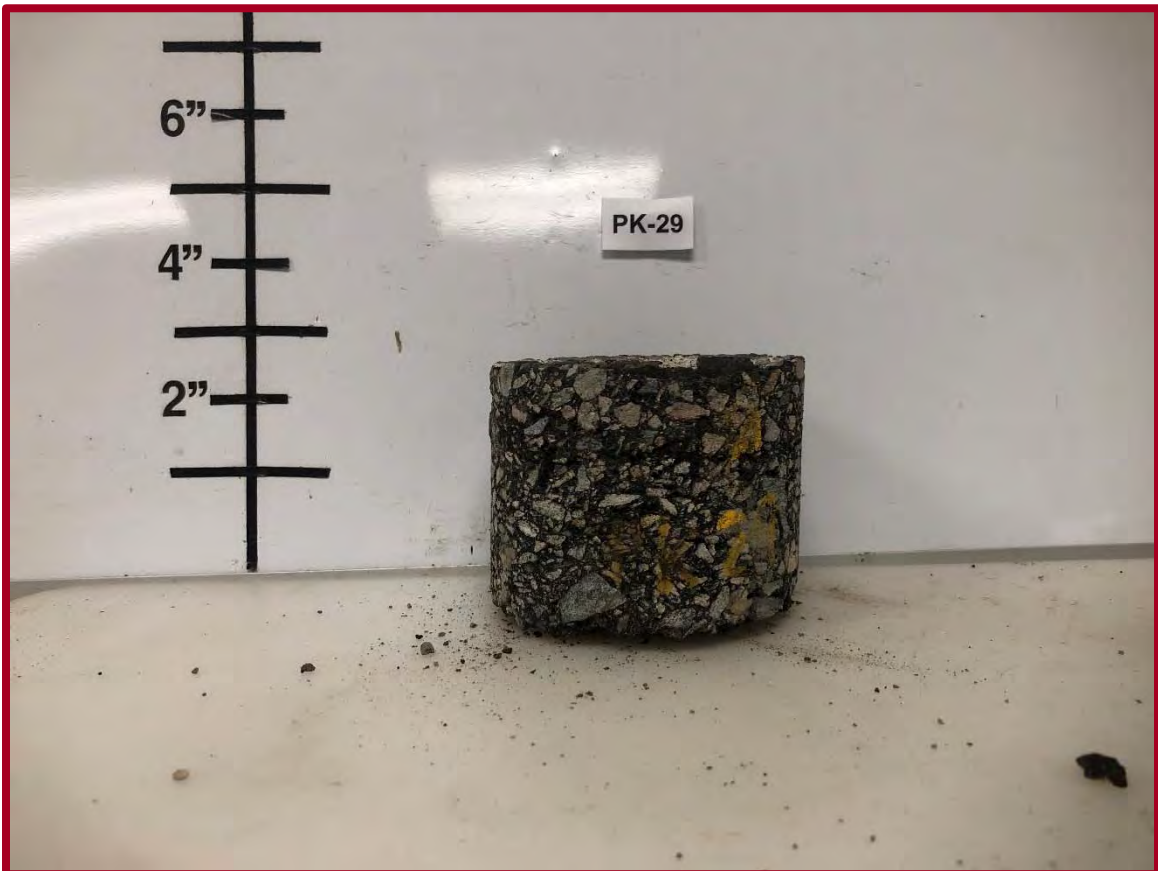


FIGURE D58: PHOTOGRAPH OF PAVEMENT CORE PK-29



**FIGURE D59: EXISTING CONDITIONS AT PAVEMENT CORE PK-30
(FACING EAST)**

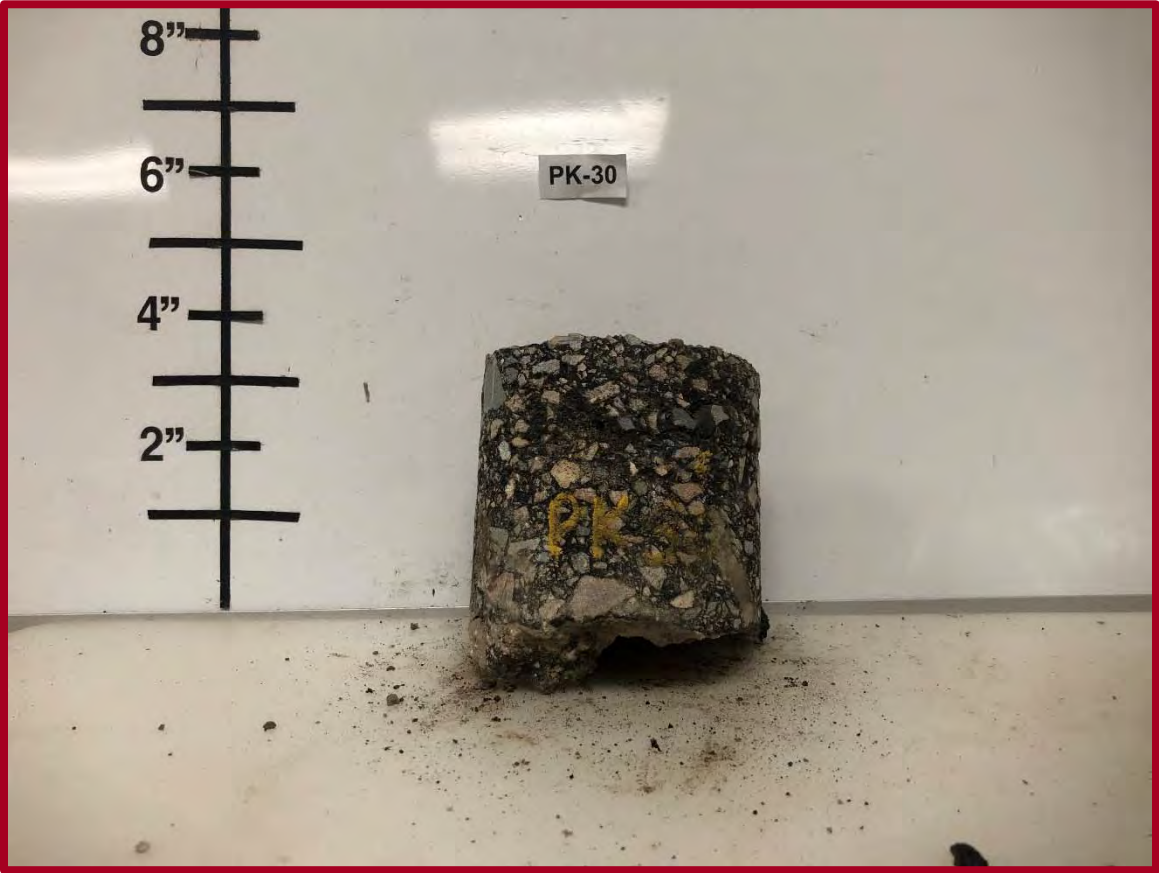


FIGURE D60: PHOTOGRAPH OF PAVEMENT CORE PK-30



**FIGURE D61: EXISTING CONDITIONS AT PAVEMENT CORE PK-31
(FACING WEST)**



FIGURE D62: PHOTOGRAPH OF PAVEMENT CORE PK-31



**FIGURE D63: EXISTING CONDITIONS AT PAVEMENT CORE PK-32
(FACING EAST)**



FIGURE D64: PHOTOGRAPH OF PAVEMENT CORE PK-32



**FIGURE D65: EXISTING CONDITIONS AT PAVEMENT CORE PK-33
(FACING WEST)**



FIGURE D66: PHOTOGRAPH OF PAVEMENT CORE PK-33



**FIGURE D67: EXISTING CONDITIONS AT PAVEMENT CORE PK-34
(FACING EAST)**



FIGURE D68: PHOTOGRAPH OF PAVEMENT CORE PK-34



**FIGURE D69: EXISTING CONDITIONS AT PAVEMENT CORE PK-35
(FACING WEST)**



FIGURE D70: PHOTOGRAPH OF PAVEMENT CORE PK-35



**FIGURE D71: EXISTING CONDITIONS AT PAVEMENT CORE PK-36
(FACING EAST)**



FIGURE D72: PHOTOGRAPH OF PAVEMENT CORE PK-36



**FIGURE D73: EXISTING CONDITIONS AT PAVEMENT CORE PK-37
(FACING WEST)**



FIGURE D74: PHOTOGRAPH OF PAVEMENT CORE PK-37