

SIGNALIZATION PLANS
FOR

U.S. 27 (S.R. 25) AND MEADOWS AVENUE

SECTION 11040000, MILEPOST 3.242

FINANCIAL PROJECT ID 421342-1-58-01

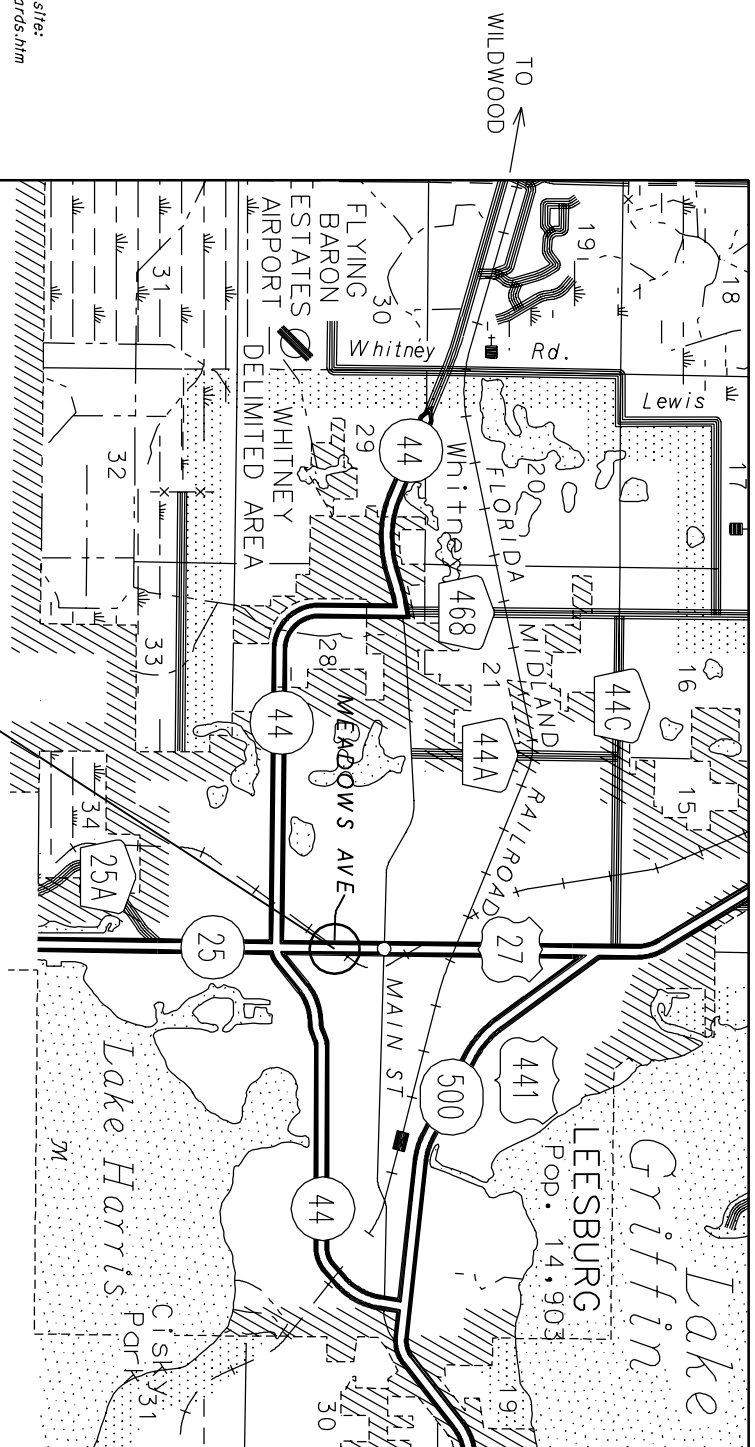
CITY OF LEESBURG, FL

CITY OF LEESBURG



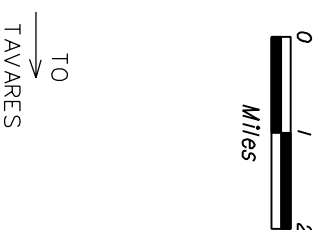
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PROJECT LOCATION

TO
OKAHUMPKA



SIGNALIZATION SHOP DRAWINGS
TO BE SUBMITTED TO:
KIMLEY-HORN AND ASSOCIATES, INC.
RONALD C. HILDEBRAND, P.E.
3660 MAGUIRE BOULEVARD
SUITE 200
ORLANDO, FLORIDA 32803

PLANS PREPARED BY:
KIMLEY-HORN AND ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
3660 MAGUIRE BOULEVARD
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ORLANDO, FLORIDA 32803
TEL: (407) 898-1511
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Corporate Registration No. CA 00000696
Vendor No. 56-0885615
Contract No. C-7670

NOTE: THE SCALE OF THESE PLANS MAY
HAVE CHANGED DUE TO REPRODUCTION.

GOVERNING STANDARDS AND SPECIFICATIONS:
FLORIDA DEPARTMENT OF TRANSPORTATION,
DESIGN STANDARDS DATED 2006,
AND STANDARD SPECIFICATIONS FOR ROAD
AND BRIDGE CONSTRUCTION DATED 2004,
AS AMENDED BY CONTRACT DOCUMENTS.

APPLICABLE DESIGN STANDARDS MODIFICATIONS: 01/01/06
For Design Standards modifications go to the following Web Site:
<http://www.dot.state.fl.us/rddesign/Design/2010standards/Standards.htm>

REVISIONS

KEY SHEET REVISIONS	
DATE	DESCRIPTION

SIGNALIZATION PLANS
ENGINEER OF RECORD: RONALD C. HILDEBRAND, P.E.

P.E. NO. 41936

FISCAL
YEAR

SHEET
NO.


T-1

1. THE CONTRACTOR SHALL VERIFY COLOR CODES FOR BOTH SIGNAL CABLE AND INTERCONNECT CABLE WITH THE MAINTAINING AGENCY (STEVE BOLLINGER, LAKE COUNTY DEPARTMENT OF PUBLIC SERVICES, SIGNAL SHOP, 352-742-1766) BEFORE ORDERING.
 2. THE CONTRACTOR SHALL HAND DIG THE FIRST 4 FEET AT EACH POLE AND 2 FEET AT EACH PEDESTAL TO VERIFY THERE ARE NOT UTILITY CONFLICTS.
 3. IT SHOULD BE NOTED THAT NO TEST BORINGS WERE MADE WHERE CONDUIT RUNS ARE TO BE INSTALLED BY JACKING, DIRECTIONAL BORING, OR TRENCHING. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE JOB SITE CONDITIONS BEFORE SUBMITTING BID PROPOSALS IN ACCORDANCE WITH SECTION 2-4 OF THE SPECIFICATIONS.
 4. THE CONTRACTOR IS REQUIRED TO INSPECT THE TRAFFIC SIGNALS IN ACCORDANCE WITH STANDARD SPECIFICATIONS 105-5.10. THE CONTRACTOR SHALL COORDINATE THE INSPECTION WITH THE ENGINEER AT LEAST TEN DAYS IN ADVANCE. STEVE BOLLINGER OF LAKE COUNTY (352-742-1766) AND RAY MARLIN (386-943-5318) SHOULD ALSO BE CONTACTED TEN DAYS BEFORE THE INSPECTION IS TO BE PERFORMED SO THEY MAY BE PRESENT.
 5. A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED WITH THE CITY OF LEESBURG PUBLIC WORKS, (352) 435-9442, AND LAKE COUNTY TRAFFIC OPERATIONS, (352) 742-1766, PRIOR TO ANY CONSTRUCTION.
 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE CITY OF LEESBURG PUBLIC WORKS, AT (352) 435-9442 AND LAKE COUNTY TRAFFIC OPERATIONS, AT (352) 742-1766, 48 HOURS IN ADVANCE OF ALL PHASES OF CONSTRUCTION INCLUDING, INSTALLING SIGNAL POLES, GROUND RODS, UNDERGROUND CONDUIT, AND SIGNAL HEAD ASSEMBLIES.
 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS, INCLUDING THE ELECTRIC PERMIT, AND TO COORDINATE APPLICATION FOR POWER, WITH THE CITY OF LEESBURG.
 8. ALL MATERIALS AND HARDWARE SHALL BE F.D.O.T. APPROVED, AND PRE-APPROVED BY LAKE COUNTY TRAFFIC OPERATIONS.
 9. ALL REMOVED EQUIPMENT SHALL BE DELIVERED TO LAKE COUNTY TRAFFIC OPERATIONS, 28127 C.R. 561, TAWARES, FLORIDA (352) 742-1766, NOTE; CARE SHALL BE TAKEN NOT TO DAMAGE THE EQUIPMENT IN THE REMOVAL PROCESS.
 10. THE MOUNTING OF ELECTRICAL SERVICE EQUIPMENT TO THE TRAFFIC SIGNAL CABINET SHALL BE PROHIBITED.
 11. OPTICOM PREEMPTION OR EQUIVALENT SHALL BE USED WHEN EMERGENCY PREEMPTION IS REQUESTED.
 12. THE CONTRACTOR SHALL FURNISH LAKE COUNTY TRAFFIC OPERATIONS WITH EMERGENCY CONTACTS AND PHONE NUMBERS AND HAVE AN IMSA LEVEL II OR III CERTIFIED SIGNAL TECHNICIAN ON CALL WITHIN A TWO HOUR MINIMUM RESPONSE TIME.
 13. ANY STRIPING/PAVEMENT MARKINGS OR LANDSCAPING DESTROYED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED AT THE CONTRACTOR'S EXPENSE.
 14. THE CONTRACTOR SHALL FURNISH LAKE COUNTY TRAFFIC OPERATIONS, TWO COMPLETE SETS OF AS-BUILT PLANS THAT INCLUDE CONDUIT AND PULL BOX LOCATIONS, AT FINAL INSPECTION.
 15. PULL BOXES AND COVERS SHALL BE FDOT APPROVED OF NON-METALLIC CONSTRUCTION WITH RECESSED COVER LOGO "TRAFFIC SIGNAL" OR "FIBER OPTIC" AS APPROPRIATE.
 16. MULTIPLE CONDUIT RUNS IN THE SAME TRENCH SHALL BE JACK AND BORED OR DIRECTIONAL BORED FOR THE FIRST CONDUIT ONLY. SUBSEQUENT CONDUIT RUN SHALL BE PAID FOR AS UNDERGROUND.
- TIMINGS / CONTROLLER
17. THE CONTROLLER CABINET ASSEMBLY SHALL BE A LAKE COUNTY NAZTEC REGIONAL TS-2 WITH A TS-1 CONTROLLER, ETHERNET ENABLED FOR COUNTY CLOSED LOOP SYSTEM. THE ADDITIONAL EQUIPMENT AND ACCESSORIES FOR THE FIBER OPTIC CABLE INTERCONNECT SHALL BE FURNISHED AND INSTALLED AS PART OF THE CONTROLLER ASSEMBLY.
- SIGNAL HEADS / AUXILIARIES
18. ALL SIGNAL DISPLAYS INCLUDING PEDESTRIAN SIGNALS SHALL BE LED.
 19. ALL SIGNAL HEAD ASSEMBLIES SHALL BE CAST ALUMINUM.
- PAY ITEM NOTES
21. PAY ITEM NO. 639-1-22 SHALL INCLUDE ALL FEES BY THE POWER COMPANY FOR ENERGIZING THE POWER SERVICE


ITEM NUMBER	DESCRIPTION	UNIT	T-3	TOTAL
101-1	MOBILIZATION	LS		
102-1	MAINTENANCE OF TRAFFIC CONDUIT, UNDERGROUND	LS		
630-1-12	CONDUIT, JACKED	LF		
630-1-14	CONDUIT, JACKED	LF		
632-7-1	CABLE (SIGNAL)	PL		
635-1-11	PULLBOX	EA		
639-1-22	ELECTRICAL POWER SERVICE	AS		
639-2-1	ELECTRICAL SERVICE WIRE	LF		
641-41-112	PRESTRESSED CONCRETE POLE (TYPE N-11)	EA		
647-11-45 *	MAST ARM ASSEMBLY	EA		
647-11-60 **	MAST ARM ASSEMBLY	EA		
650-51-313	TRAFFIC SIGNAL (3-SEC, 1-WAY, L.E.D.)	AS		
650-51-513	TRAFFIC SIGNAL (5-SEC, 1-WAY, L.E.D.)	AS		
653-191	PEDESTRIAN SIGNAL (1-WAY) (COUNTDOWN)	EA		
653-192	PEDESTRIAN SIGNAL (2-WAY) (COUNTDOWN)	EA		
659-106	SIGNAL HEAD AUXILIARIES (TUNNEL VISOR)	EA		
659-108	SIGNAL HEAD AUXILIARIES (STEEL PEDESTAL)	EA		
660-1-101	LOOP DETECTOR, INDUCTIVE	EA		
660-1-102	LOOP DETECTOR, INDUCTIVE (DELAY)	EA		
660-2-102	LOOP ASSEMBLY (TYPE BI (6'x6')	AS		
660-2-106	LOOP ASSEMBLY (TYPE F) (6'x40')	AS		
663-704	VEHICLE DETECTOR ASSEMBLY (OPTICOM) (2-WAY)	AS		
670-5-111	CONTROLLER ASSEMBLY (F & I) (NEMA)	AS		
690-10	SIGNAL HEAD TRAFFIC ASSEMBLY, REMOVE	EA		
690-20	SIGNAL PEDESTRIAN ASSEMBLY, REMOVE	EA		
690-32-1	POLE REMOVAL, SHALLOW	EA		
690-50	CONTROLLER ASSEMBLY, REMOVE	EA		
690-80	SPAN WIRE ASSEMBLY, REMOVE	EA		
690-90	CONDUIT AND CABLING, REMOVE	PL		
690-100	SIGNAL EQUIPMENT, MISC. REMOVE	PL		
699-1-1	INTERNALLY ILLUMINATED SIGN	EA		
999-1	GENERATOR SWITCH BOX	EA		
999-2	GENERATOR PAD 3'x3'x4'	EA		

* LAKE COUNTY'S BID ITEM, EQUIVALENT TO FDOT NO. 649-713-002
** LAKE COUNTY'S BID ITEM, EQUIVALENT TO FDOT NO. 649-715-003

R E V I S I O N S			
DATE	BY	DESCRIPTION	DATE



Kinley-Horn and Associates, Inc.
Certificate of Authorization No. 696

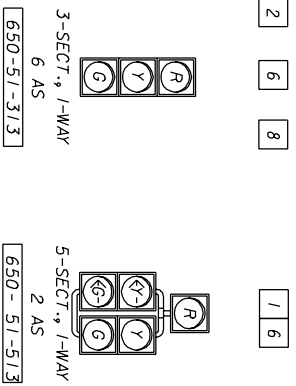


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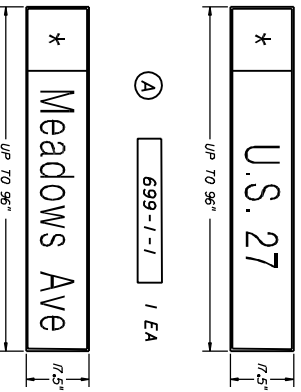
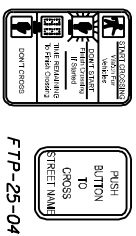
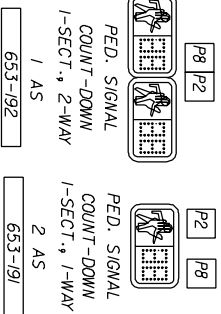
ROAD NO.	COUNTY	FINANCIAL PROJECT ID	SHEET NO.
25	LAKE	421342-1-58-01	T-2

GENERAL NOTES/
TABULATION OF QUANTITIES

SIGNAL DISPLAY DETAILS
ALL INDICATIONS SHALL BE L.E.D.

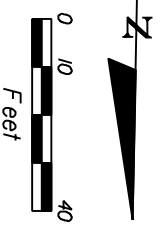
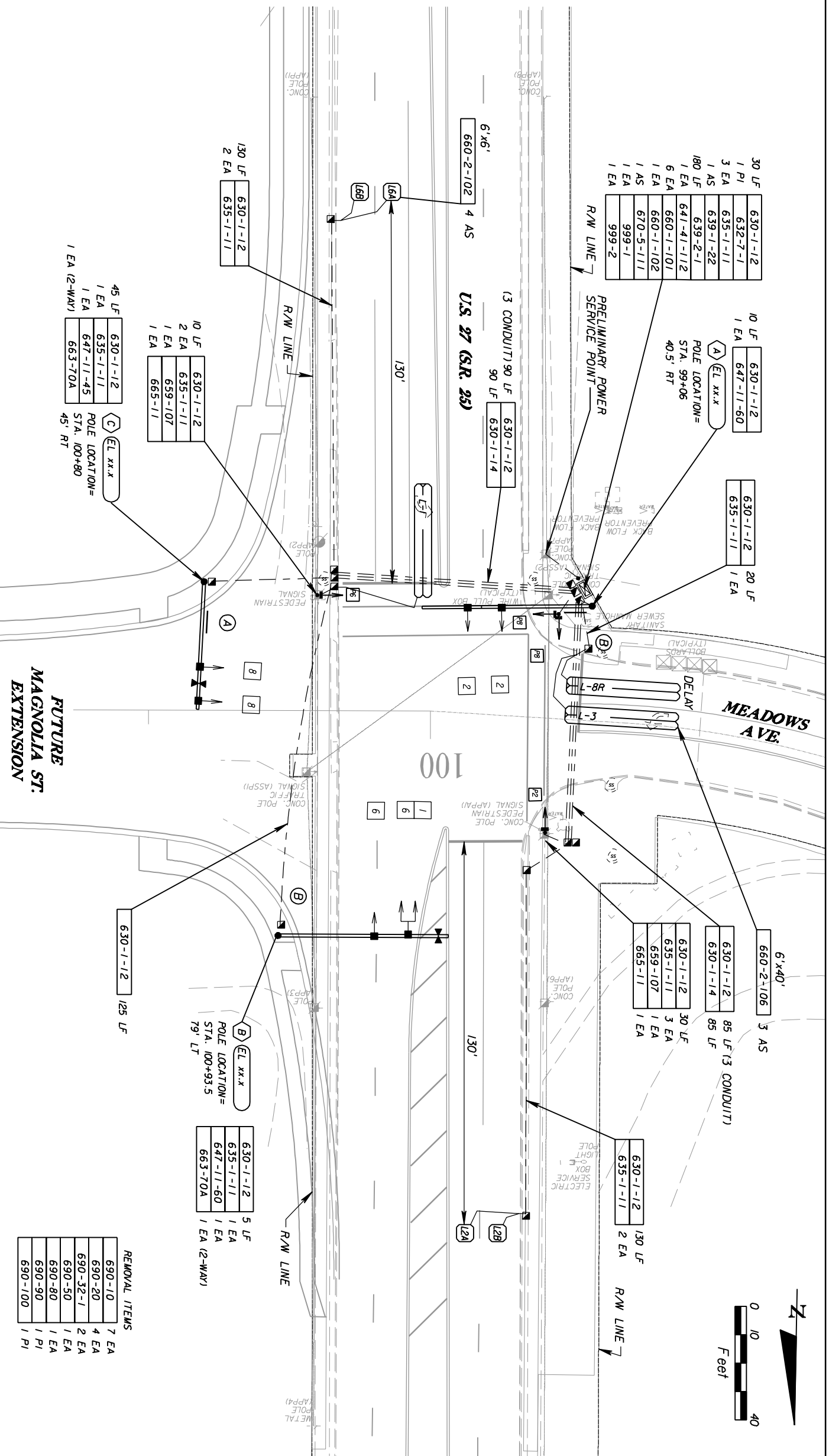


PEDESTRIAN DISPLAY DETAILS



- Ⓐ 699-1-1 1 EA
- Ⓑ 699-1-1 2 EA
- * CITY OF LEESBURG LOGO

- NOTES:
- MAJOR STREET IS U.S. 27. MINOR STREET IS MEADOWS AVENUE.
 - POWER SERVICE POINT SHALL BE VERIFIED AFTER A SITE VISIT WITH A POWER SERVICE REPRESENTATIVE.
 - FLASHING OPERATION: 2 AND 6 YELLOW.
 - S.O.P. 12 WITH CONCURRENT PEDESTRIAN PHASES
 - EXISTING PAVEMENT MARKINGS THROUGHOUT INTERSECTION TO REMAIN.



CONTROLLER TIMINGS

TIMING FUNCTION	1	2	3
MOVEMENT NUMBER	1	2, 6, 3, 8R	
MINIMUM GREEN			
EXTENSION			
MAXIMUM GREEN 1			
MAXIMUM GREEN 2			
YELLOW CLEARANCE			
ALL RED			
PEDESTRIAN WALK			
PED. CLEARANCE			
RECALL			

DETECTORS FOR LOOPS

LOOP	NO. OF LLOOPS	NO. OF NEW DETS.	DETECTOR OPERATION	TIMING FUNCTION	DELAY TIME (SECI)
L-1	1	1	NORMAL	1	-
L-2A	1	1	NORMAL	2	-
L-2B	1	1	NORMAL	2	-
L-3	1	1	NORMAL	3	-
L-6A	1	1	NORMAL	2	-
L-6B	1	1	NORMAL	2	-
L-8R	1	1	DELAY	3	5

REMOVAL ITEMS

690-10	7 EA
690-20	4 EA
690-32-1	2 EA
690-50	1 EA
690-80	1 EA
690-90	1 PI
690-100	1 PI

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

REVISIONS

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

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ROAD NO. 25 COUNTY LAKE FINANCIAL PROJECT ID 421342-1-58-01

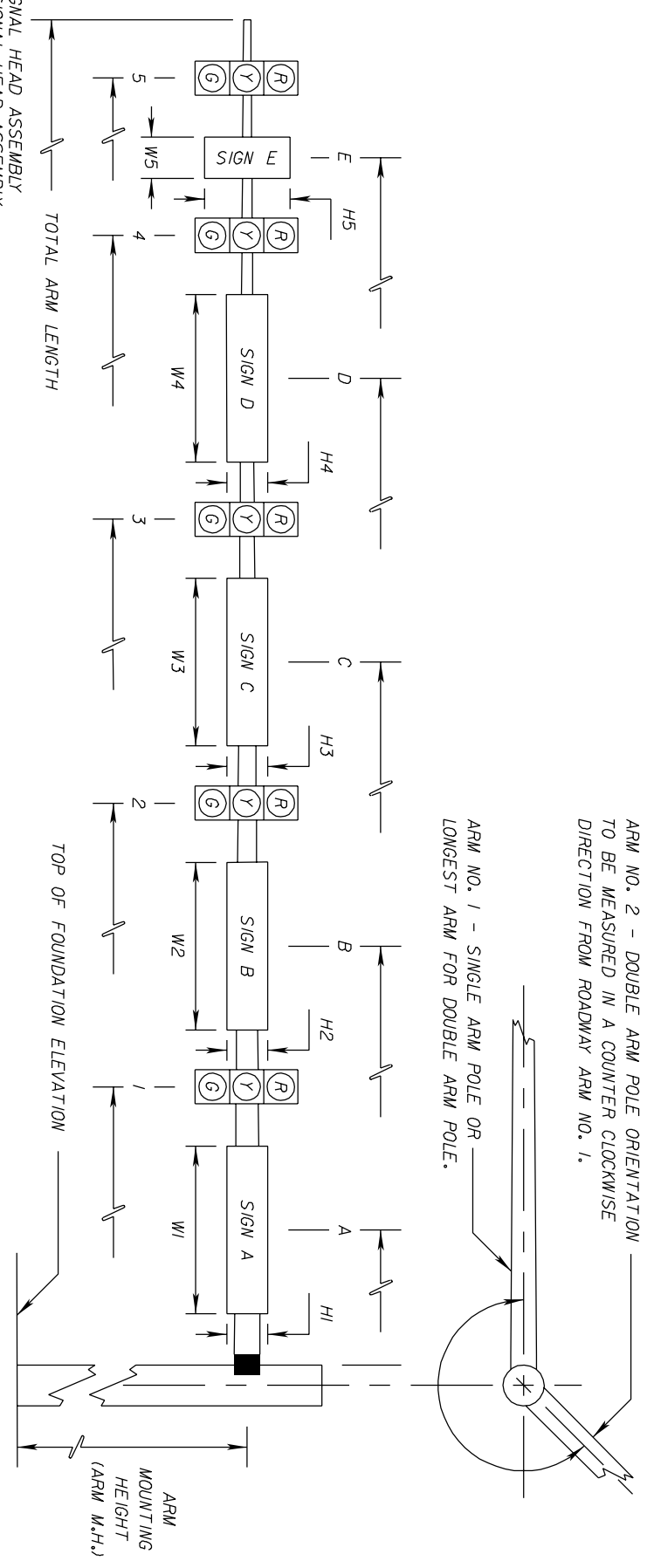
SIGNALIZATION PLAN

SHEET NO. T-3

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ARM NO. 2 - DOUBLE ARM POLE ORIENTATION
 TO BE MEASURED IN A COUNTER CLOCKWISE
 DIRECTION FROM ROADWAY ARM NO. 1.

ARM NO. 1 - SINGLE ARM POLE OR
 LONGEST ARM FOR DOUBLE ARM POLE.



(F) DENOTES FUTURE 3-SECTION SIGNAL HEAD ASSEMBLY
 * DENOTES NUMBER OF SECTIONS IN SIGNAL HEAD ASSEMBLY

ID NO.	SHEET NO.	LOCATION BY STA.	TOP OF FOUNDATION ELEVATION	RDWY ARM NO.	CROWN ELEV.	SIGNAL V/H	BACK PLATES Y/N	PED. SIGNAL Y/N	DISTANCE FROM POLE						TOTAL ARM LENGTH	ARM M.H.	L BETWEEN DUAL ARMS 90/270	DISTANCE FROM POLE / HEIGHT AND WIDTH OF SIGN										PAINT COLOR																					
									1	2	3	4	5	6				7	8	9	10	11	12	13	14	15	16		17																				
A	T-3	99+06, 40.5' RT	xx.x	1	xx.x	V	N	N							60			A	H1	W1	B	H2	W2	C	H3	W3	D	H4	W4	E	H5	W5	HUNTER GREEN																
B	T-3	100+93, 79' LT	xx.x	2	xx.x	V	N	N						60																			HUNTER GREEN																
C	T-3	100+80, 45' RT	xx.x	1	xx.x	V	Y	N						45																			HUNTER GREEN																

REVISIONS		DESCRIPTION	
DATE	BY	DATE	BY

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO. 25 COUNTY LAKE
 FINANCIAL PROJECT ID 421342-1-58-01

MAST ARM TABULATION

SHEET NO. T-4

STANDARD MAST ARM ASSEMBLIES DESIGN TABLE

STRUCTURE ID NUMBERS	ASSEMBLY ⁽¹⁾ NUMBERS	FIRST ARM		SECOND ARM		UF (deg)	LL (deg)	POLE			SPECIAL DRILLED SHAFT DATA ⁽⁴⁾								
		ARM TYPE	FAA ⁽²⁾ (ft.)	FBA ⁽²⁾ (in.)	ARM TYPE			FAA ⁽²⁾ (ft.)	FBA ⁽²⁾ (in.)	POLE TYPE	UAA ⁽³⁾ (ft.)	UB (ft.)	UCA ⁽³⁾ (in.)	DA (ft.)	DB (ft.)	RA	RB		

TABLE NOTES:

(1) Assembly Number Legend

Single Arm:

Arm Type - Pole Type = B# - Q#
= C# - R#

Double Arm:

First Arm Type - Second Arm Type - Pole Type = B# - B# - Q#
= C# - C# - R#

(2) If an entry appears in columns "FAA" and "FBA", a shorter arm is required. This is obtained by removing length from the arm tip. For these cases the mast arm length shall be shortened from "FAA" to "FAA" and the tip diameter shall be increased from "FB" to "FBA".

(3) If an entry appears in columns "UAA" and "UCA", a shorter pole is required. This is obtained by removing length from the pole tip. For these cases the pole height shall be shortened from "UA" to "UAA" and the pole tip diameter shall be increased from "UC" to "UCA".

(4) The foundations for Standard Mast Arm Assemblies are pre-designed and are based upon the following conservative soil criteria which covers the great majority of soil types found in Florida. Only complete the "Special Drilled Shaft Data" information if site conditions dictate drilled shafts in soils with lesser strength properties.


Classification = Cohesionless (Fine Sand)
Friction Angle = 30 Degrees (30°)
Unit Weight = 50 lbs./cu. ft. (assumed saturated)

GENERAL NOTES:

(1) Work this sheet with the Signal Designer's "Mast Arm Tabulation". See "Mast Arm Tabulation" for special instructions that include non-standard Handhole location, paint color, terminal compartment requirement, and pedestrian features.

(2) Work this sheet with Design Standards Index Nos. 17741, 17743 and 17745 as necessary.

(3) Contractor must verify that soil conditions meet the minimum specifications listed on this sheet (Table Note 4). If the soil conditions are lower than those shown, a special foundation may be required.

DATE		BY		DESCRIPTION		DATE		BY		DESCRIPTION		 Kimley-Horn and Associates, Inc. Certificate of Authorization No. 696 Ronald C. Hildebrand, P.E. License No. 41936 3660 Muguire Boulevard, Suite 200 Orlando, FL 32803-3062	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		ROAD NO. 25 COUNTY LAKE FINANCIAL PROJECT ID 421342-1-58-01		TABLE OF VARIABLES FOR STANDARD MAST ARM ASSEMBLIES		SHEET NO. T-5