01-16-2026 LETTING ITEM 015

# STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION**

# KOE 33 1 CONTRACT NO. 61M02

FOR INDEX OF SHEETS, SEE SHEET NO. 2

FOR LIST OF HIGHWAY STANDARDS, SEE SHEET NO. 2

TRAFFIC DATA

0

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KIMBALL STREET: 2023 ADT = 16,900

DESIGN CLASSIFICATION = MINOR ARTERIAL

STA, 103+25 KIMBALL ST & N. GROVE AVE IMPROVEMENT BEGINS

DESIGN SPEED = 35 MPH

POSTED SPEED = 35 MPH

**PROPOSED** HIGHWAY PLANS

> **FAU ROUTE 1314 (KIMBALL STREET)** SECTION 22-00197-00-TL PROJECT 6ZDW(029) TRAFFIC SIGNAL MODERNIZATION AND INTERCONNECT CITY OF ELGIN KANE COUNTY

> > C-91-240-24



STA. 123+67.00 KIMBALL ST & DUNDEE AVE IMPROVEMENT ENDS LOCATION OF SECTION INDICATED THUS; - -

APPROVED October 29 20 25

Aaron Neal CITY OF ELGIN. PUBLIC WORKS DIRECTOR

STATE OF BLINDIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIEHWAYS

PASSED NOV 6

DISTRICT 1 ENGINEER OF LOCAL ROADS AND STREETS

RELEASING FOR BID BASED ON LIMITED

DEPUTY DIRECTOR OF HANWAYS, REGIONAL ENGINEER

CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION 1-800-892-0123 OR 811

CONTRACT NO. 61M02

PROJECT ENGINEER: DOMINIK MARCISZ PROJECT MANAGER: NICHOLAS HALAN, PE, PTOE

HALAN 062-073388

10/28/2025

ILUNOIS REGISTERED ENGINEER NO. 082-073388
REGISTRATION EXPIRES NOV. 30. 2027

SCALE: 1"=290"

GROSS LENGTH = 2.042 FT. = 0.39 MILE

NET LENGTH = 2,042 FT. = 0.39 MILE

Hampton, Lenzini and Renwick, Inc.
Chil Enthering - Sentrate Captures
Line Surveyors - Entiroprensi Serves ES 160 A MIDIS FOR STORE STORE

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT

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#### INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	GENERAL NOTES
3	SUMMARY OF QUANTITIES
4-5	EXISTING TYPICAL SECTIONS
6-7	PROPOSED TYPICAL SECTIONS
8-16	TRAFFIC SIGNAL DETAILS
17-26	TRAFFIC SIGNAL PLANS
27-28	INTERCONNECT PLAN
29	TRAFFIC SIGNAL INTERCONNECT SCHEMATIC AND ITS
30-31	FIBER SPLICING DETAIL
32-33	IDOT DISTRICT ONE STANDARD DETAILS

#### HIGHWAY STANDARDS

701006-05 OFF-RD OPERATIONS, 2L, 2W, 15' (4.5 m) TO 24" (600 mm) FROM PAVEMENT EDGE

701101-05 OFF-RD OPERATIONS, MULTILANE, 15' (4.5 m) TO 24" (600 mm) FROM PAVEMENT EDGE

000001-09 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS

TC-10

TC-14

701001-02 OFF-RD OPERATIONS, 2L, 2W, MORE THAN 15' (4.5 m) AWAY

TRAFFIC CONTROL AND PROTECTION AT TURN BAYS

701427-05	LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPER., FOR SPEEDS ≤ 40 MPH
701701-10	URBAN LANE CLOSURE, MULTILANE INTERSECTION
701801-06	SIDWALK, CORNER OR CROSSWALK CLOSURE
701901-11	TRAFFIC CONTROL DEVICES
857001-01	STANDARD PHASE DESIGNATION DIAGRAMS AND PHASE SEQUENCES
862001-01	UNINTERRUPTABLE POWER SUPPLY (UPS)
880006-01	TRAFFIC SIGNAL MOUNTING DETAILS
	IDOT DISTRICT ONE STANDARD DETAILS
TS-05	STANDARD TRAFFIC SIGNAL DESIGN DETAILS
TS-08	EMERGENCY VEHICLE PREEMPTION SEQUENCE OF OPERATION - MAIN STREET AND CROSS STE

TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS AND DRIVEWAYS

#### GENERAL NOTES

- 1. ALL WORK SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED JANUARY 1, 2022, (HEREINAFTER REFERRED TO AS THE STANDARD SPECIFICATIONS); THE SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS", ADOPTED JANUARY 1, 2026; THE LATEST EDITION OF THE "ILLINOIS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS"; THE DETAILS IN THE PLANS, AND THE SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS.
- 2. ANY REFERENCE TO STANDARDS THROUGHOUT THE PLANS OR SPECIAL PROVISIONS SHALL BE INTERPRETED AS THE LATEST STANDARD OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION.
- 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE OWNERS OF ALL UTILITIES PRIOR TO CONSTRUCTION TO DETERMINE THE LOCATION OF ALL UTILITY EQUIPMENT. THE CONTRACTOR SHALL COOPERATE WITH ALL UTILITY OWNERS AS PROVIDED FOR IN THE STANDARD SPECIFICATIONS IF UTILITY RELOCATION, ADJUSTMENT, OR PROTECTION IS NECESSARY.
- 4.THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UNDERGROUND AND SURFACE UTILITIES EVEN THOUGH THEY MAY NOT BE SHOWN ON THE PLANS. ANY UTILITY THAT IS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER.
- 5. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL SECTION OR SUBSECTION MONUMENTS, PROPERTY CORNERS, AND REFERENCE MARKERS UNTIL THE OWNER, HIS AGENT, OR A PROFESSIONAL LAND SURVEYOR HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATIONS.
- 6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR HIS WORK. ANY WORK THAT IS VANDALIZED OR OTHERWISE DAMAGED AND JUDGED UNACCEPTABLE BY THE CITY SHALL BE REMOVED AND REPLACED.
- 7. FORTY-EIGHT HOURS BEFORE STARTING EXCAVATION, THE CONTRACTOR WILL CALL J.U.L.I.E. (1-800-892-0123) TO HAVE THE LOCATION OF THE EXISTING UTILITIES MARKED.
- 8. THE CONTRACTOR SHALL CONTACT THE CITY OF ELGIN PUBLIC WORKS SUPERINTENDENT, THE ENGINEER, AND THE CITY'S TRAFFIC SIGNAL CONSULTANT AT LEAST SEVENTY TWO HOURS IN ADVANCE TO BEGINNING WORK.
- 9. INTERSECTIONS WHERE TRAFFIC SIGNAL CABINETS ARE BEING REPLACED, THE REPLACEMENT WORK SHALL BE PERFORMED ONLY MONDAY THROUGH THURSDAY FROM 9:00AM TO 3:00PM AND COMPLETED ON THE SAME DAY. THE CONTRACTOR SHALL CONTACT THE CITY OF ELGIN PUBLIC WORKS SUPERINTENDENT, THE ENGINEER, AND THE CITY'S TRAFFIC SIGNAL CONSULTANT AT LEAST ONE (1) WEEK PRIOR TO STARTING THIS WORK. THE CONTRACTOR SHALL PLACE THE INTERSECTION INTO AN ALL-WAY STOP CONDITION AND PROVIDE THE NECESSARY TRAFFIC CONTROL. THIS WORK SHALL BE INCLUDED IN THE PRICE OF THE "TRAFFIC CONTROL AND PROTECTION, COMPLETE" PAY ITEM.
- 10. THE CONTRACTOR SHALL AT ALL TIMES PROVIDE PROTECTION FOR TRAFFIC AS CALLED FOR IN THE APPLICATION OF TRAFFIC CONTROL DEVICES. THE STANDARD SPECIFICATIONS AND THE PLANS.
- 11. CATALOG CUTS SHALL BE REVIEWED BY THE CITY OF ELGIN OR AN AUTHORIZED REPRESENTATIVE THEREOF PRIOR TO BE SUBMITTED FOR REVIEW BY LOCAL BOADS

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	Hampton, Lenzini and Renwick, Inc.
ü	Civi Engineers - Structural Engineers
NAME:	Land Surveyors · Environmental Services
žΙ	1707 N. RANDALL ROAD, SUITE 100 ELGIN, ILLINOIS 60123
ш	047 007 0700
⊒	184,000959 847,697,6700 www.nirengineering.com
1.	ELINOIS PROFESSIONAL DESIGN FIRM EST PET SE CONFORATION

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PLOT DATE = 12/10/2025	DATE	-	12/10/2025	REVISED -

SCALE:

KIMB	KIMBALL STREET – TRAFFIC SIGNAL INTERCONNECT GENERAL NOTES						SECTION		COUNTY	TOTAL SHEETS	SHEET NO.
							1314 22-00197-00-TL		KANE	33	2
									CONTRACT	NO. 6	IM02
	SHEET	OF	SHEETS	STA.	TO STA.		ILLIN	OIS FED. A	ID PROJECT		

CON	ISTRU	IC7	ION	CODE
	CMA	Ω.	FUND	5
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					80% FED / 20% LOC
		SUMMARY OF QUANTITIES			SAFETY
SPECIALTY				~~~·	0021
ITEM	PAY CODE	PAY ITEM	UNIT	TOTAL QUANTITY	URBAN
			L SUM	1	7
	67100100	MOBILIZATION	L SUM	I	
	70102635	TRAFFIC CONTROL AND PROTECTION, STANDARD 701701	L SUM	1	1
	70102640	TRAFFIC CONTROL AND PROTECTION, STANDARD 701801	L SUM	1	1
	72400205	REMOVE AND RELOCATE SIGN PANEL ASSEMBLY - TYPE A	EACH	1	1
	85000200	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	7	7
*	85100500	PAINT NEW TRAFFIC SIGNAL POST	EACH	7	7
	87501200	TRAFFIC SIGNAL POST, 16 FT.	EACH	7	7
	89500100	RELOCATE EXISTING SIGNAL HEAD	EACH	7	7
	89501410	RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM, PHASING UNIT	EACH	5	5
	89502375	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	5	5
	X0324599	ROD AND CLEAN EXISTING CONDUIT	FOOT	2,700	2,700
	X1400102	OUTDOOR RATED NETWORK CABLE	FOOT	586	586
	X1400217	TERMINATE FIBER IN CABINET	EACH	36	36
	X8570324	ADVANCED TRANSPORTATION CONTROLLER AND TYPE IV STRETCHED CABINET	EACH	5	5
	X8620200	UNINTERRUPTABLE POWER SUPPLY (SPECIAL)	EACH	.5	5
	X8710031	FIBER OPTIC CABLE 36 FIBERS, SINGLE MODE	FOOT	3,300	3,300
	X8891007	VIDEO VEHICLE DETECTION SYSTEM COMPLETE	EACH	5	5
	XX005940	REMOTE CONTROLLED VIDEO SYSTEM	EACH	5	5
	XX008453	ETHERNET SWITCH, TYPE 1	EACH	7	7
	Z0010688	CAMERA MOUNTING ASSEMBLY	EACH	5	5

Hampton, Lenzini and Renwick, Inc.
Core Engagere - Several Engagere  1707 N. RANDALL ROAD, SUFFE 150  2107 N. RANDAL ROAD, SUFFE 150  2107 N. RA
ELEVOLE PROFESSIONAL DOSTON PRIMATE PER SE CONFORMON

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

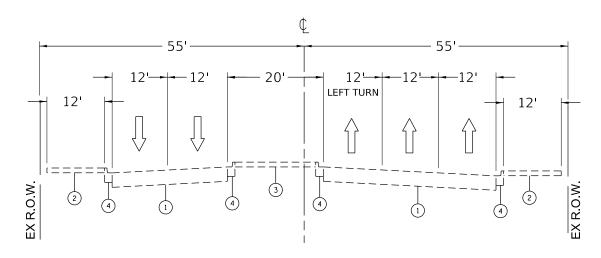
	KIMBA	LL STRE	et Tra	FFIC SIGN	IAL IN	TERCONNECT	
SUMMARY OF QUANTITIES							
1	SCALE:	SHEET	OF	SHEETS	STA.	TO STA.	

F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.				
1314	22-00197-00-TL	KANE	31	3				
		CONTRACT	NO. 6:	M02				
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JPL Defaux

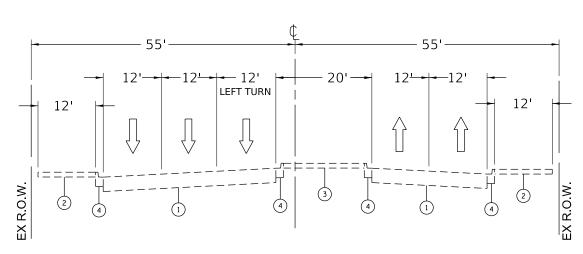
#### **EXISTING LEGEND**

- EXISTING PAVEMENT
- **EXISTING SIDEWALK**
- **EXISTING GRASS MEDIAN**
- EXISTING CC&G



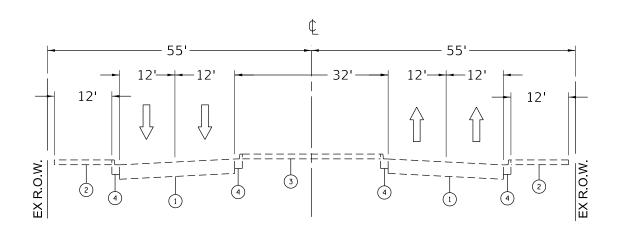
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STA. 100+00 TO 103+82 STA. 105+84 TO 107+76 STA. 109+22 TO 111+74 STA. 113+60 TO 115+70



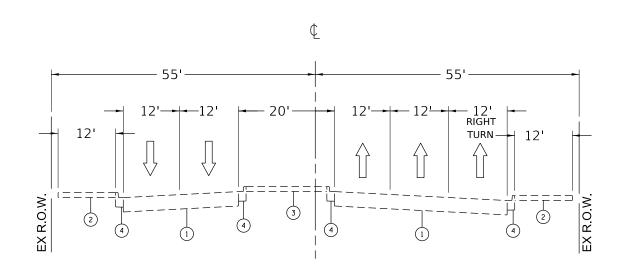
## **EXISTING TYPICAL SECTION**

STA. 103+82 TO 105+84 STA. 111+74 TO 113+60 STA. 115+70 TO 118+00



#### **EXISTING TYPICAL SECTION**

STA. 107+76 TO 109+22



#### **EXISTING TYPICAL SECTION**

STA. 118+00 TO 119+61

Hampton, Lenzini and Renwick, Inc.	- 1
Civi Engineers - Structural Engineers Land Surveyors - Environmental Services	
1707 N. RANDALL ROAD, SUITE 100 ELGIN, ILLINOIS 60123 847.697.6700 www.hlrengineering.com	
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION	

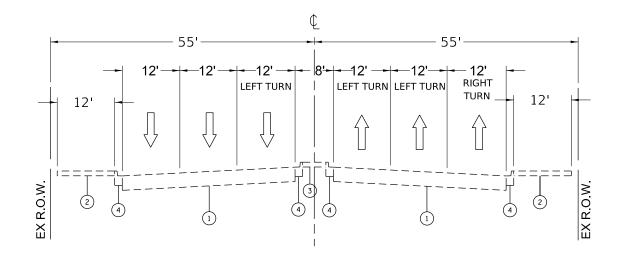
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STATE OF ILLINOIS

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	SHEET	OF	SHEETS	STA.	TO STA.

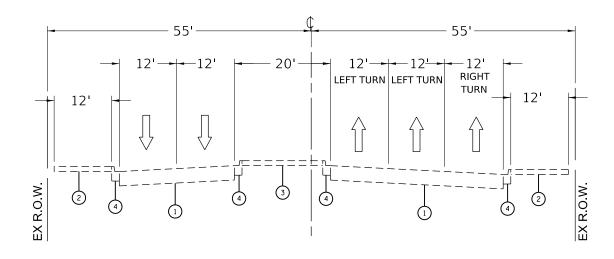
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1314	22-00197-00-TL			KANE	33	4
				CONTRACT	NO. 63	IM02
		ILLINOIS	FED. A	ID PROJECT		

**DEPARTMENT OF TRANSPORTATION** 



#### **EXISTING TYPICAL SECTION**

STA. 119+61 TO 121+84



## **EXISTING TYPICAL SECTION**

STA. 121+84 TO 123+67

Hampton, Lenzini and Renwick, Inc.
Chi Espiteore - Structural Espiteores
1707 N. RANDALL ROAD, SUITE 100
ELON, ELLINOSIS 60123
B47.697.6700 www.hitengineeting.com
Lincia ProcessionAL ESSIN PMIL 5 PE 148 CORPORATION

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

KIMBALL STREET - TRAFFIC SIGNAL INTERCONNECT					
	EXI	STING 1	TYPICAL S	ECTION	S
SCALE:	SHEET	OF	SHEETS	STA.	TO STA.

F.A.U RTE	SECTION			COUNTY	TOTAL SHEETS	SHEET NO.
1314	22-00197-00-TL			KANE	33	5
				CONTRACT	NO. 63	IM02
		ILLINOIS	FED. A	D PROJECT		

**EXISTING LEGEND** 

2 EXISTING SIDEWALK

(3) EXISTING GRASS MEDIAN

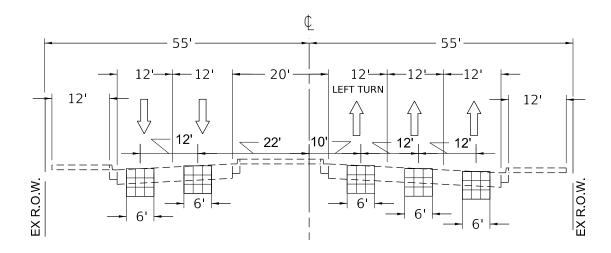
EXISTING PAVEMENT

(4) EXISTING CC&G

#### PROPOSED LEGEND

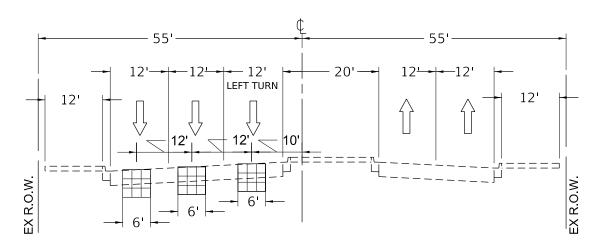


VIDEO DETECTION ZONE



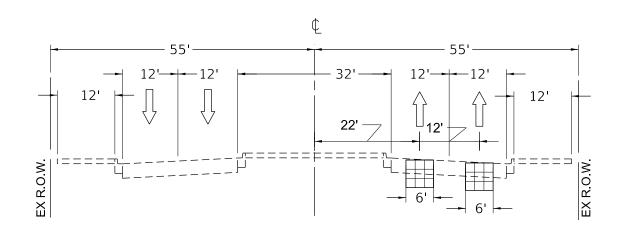
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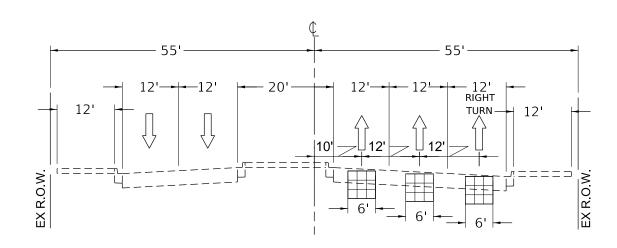
#### **PROPOSED TYPICAL SECTION**

STA. 103+82 TO 105+84 STA. 111+74 TO 113+60 STA. 115+70 TO 118+00



#### PROPOSED TYPICAL SECTION

STA. 107+76 TO 109+22



#### PROPOSED TYPICAL SECTION

STA. 118+00 TO 119+61

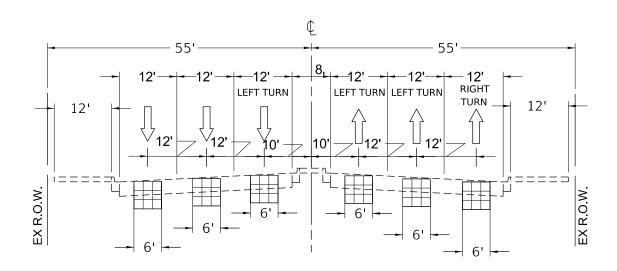
	oton, Lenzini and Renwick, inc.
	Civi Engineers - Structural Engineers and Surveyors - Environmental Services
#R	1707 N, RANDALL ROAD, SUITE 100 ELGIN, ILLINOIS 80123
184,000959	847.697.6700 www.hirengineering.com
	FESSIONAL DESIGN FIRM LS / PE / SE CORPORATION

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	1 1101	UJLD	TITIOAL 3	LUTIUNS				CONTRAC	T NO. 6	1M02
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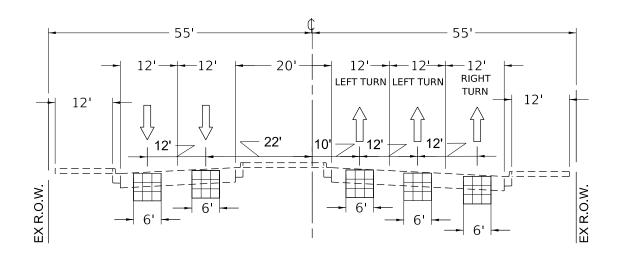
#### PROPOSED LEGEND

VIDEO DETECTION ZONE



#### **PROPOSED TYPICAL SECTION**

STA. 119+61 TO 121+84



## **PROPOSED TYPICAL SECTION**

STA. 121+84 TO 123+67

l Hamp	oton, Lenzini and Renwick, Inc.
	Civi Engineers - Structural Engineers and Surveyors - Environmental Services
HER	1707 N. RANDALL ROAD, SUITE 100 ELGIN, ILLINOIS 80123 847.697.6700 www.hirengineering.com
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STATE (	OF ILLINOIS
DEPARTMENT OF	TRANSPORTATION

IMBALL STREET - TRAFFIC SIGNAL INTERCONNECT	F.A.U RTE	SECTION
PROPOSED TYPICAL SECTIONS	1314	22-00197-00-TL
THOI USED TITIONE SECTIONS		

KANE 33 7 CONTRACT NO. 61M02

## TRAFFIC SIGNAL LEGEND

(NOT TO SCALE)

EM	EXISTING	PROPOSED	<u>ITEM</u>	<u>EXISTING</u>	PROPOSED	ITEM	<u>EXISTING</u>	PROPOSED
ONTROLLER CABINET			HANDHOLE -SQUARE -ROUND			SIGNAL HEAD -(P) PROGRAMMABLE SIGNAL HEAD		R R Y
COMMUNICATION CABINET	ECC	СС	HEAVY DUTY HANDHOLE					G G ←Y ←Y ←G
ASTER CONTROLLER	EMC	MC	-SQUARE -ROUND	$\mathbb{H}$	<b>H (9)</b>		<b>€</b> 9 <b>€</b> 9 P	<b>∢</b> G <b>∢</b> G
IASTER MASTER CONTROLLER	EMMC	ммс	DOUBLE HANDHOLE			SIGNAL HEAD WITH BACKPLATE	(전)	
UNINTERRUPTABLE POWER SUPPLY	4	<b>9</b>	JUNCTION BOX		•	-(P) PROGRAMMABLE SIGNAL HEAD -(RB) RETROREFLECTIVE BACKPLATE		Y Y Y
SERVICE INSTALLATION	-□- <sup>P</sup>	- <b></b> P	RAILROAD CANTILEVER MAST ARM	$X \longrightarrow X$	X <del>OX X</del>			<b>4 4 4 6 4 6 4 6</b>
(P) POLE MOUNTED SERVICE INSTALLATION	_	_	RAILROAD FLASHING SIGNAL	$X \rightarrow X$	X•X		P RB	P RB
(G) GROUND MOUNTED (GM) GROUND MOUNTED METERED	$\boxtimes^{G} \boxtimes^{GM}$	$\mathbf{M}^{G} \mathbf{M}^{GM}$	RAILROAD CROSSING GATE	<del>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</del>	X•X-	PEDESTRIAN SIGNAL HEAD		•
FELEPHONE CONNECTION	ET	Т	RAILROAD CROSSBUCK	₹	*	AT RAILROAD INTERSECTIONS	<b>T</b>	Ā
STEEL MAST ARM ASSEMBLY AND POLE	O	•——	RAILROAD CONTROLLER CABINET		<b>&gt;</b> ₹	PEDESTRIAN SIGNAL HEAD WITH COUNTDOWN TIMER	© C (*) D	<b>♥</b> C <b>★</b> D
ALUMINUM MAST ARM ASSEMBLY AND POLE			UNDERGROUND CONDUIT (UC), GALVANIZED STEEL					
TEEL COMBINATION MAST ARM SSEMBLY AND POLE WITH LUMINAIRE	o <del>-</del> ;x	•*	TEMPORARY SPAN WIRE, TETHER WIRE, AND CABLE			ILLUMINATED SIGN "NO LEFT TURN"/"NO RIGHT TURN"		
SIGNAL POST (BM) BARREL MOUNTED - TEMPORARY	0	<ul> <li>● BM</li> </ul>	SYSTEM ITEM	S	SP	NUMBER OF CONDUCTORS, ELECTRIC CABLE NO. 14, UNLESS NOTED OTHERWISE.		
			INTERSECTION ITEM	I	IP	ALL DETECTOR LOOP CABLE TO BE SHIELDED		
WOOD POLE	⊗	•	REMOVE ITEM		R	GROUND CABLE IN CONDUIT, NO. 6 SOLID COPPER (GREEN)	1#6	<del></del>
GUY WIRE	<i>&gt;</i> -	<b>≻</b>	RELOCATE ITEM		RL	ELECTRIC CABLE IN CONDUIT, TRACER		
SIGNAL HEAD WITH BACKPLATE	+⊳	+>	ABANDON ITEM		А	NO. 14 1/C		
SIGNAL HEAD OPTICALLY PROGRAMMED	> <sup>P</sup> +->	- <b>▶</b> P + <b>▶</b> P	CONTROLLER CABINET AND FOUNDATION TO BE REMOVED		RCF	COAXIAL CABLE	— <u>c</u>	<u> </u>
ELASHER INSTALLATION			MAST ARM POLE AND FOUNDATION TO BE REMOVED		RMF	VENDOR CABLE		
(FS) SOLAR POWERED	OF OF FS	•→ <sup>F</sup> •→ <sup>FS</sup>	SIGNAL POST AND FOUNDATION TO BE REMOVED		RPF	COPPER INTERCONNECT CABLE, NO. 18, 3 PAIR TWISTED, SHIELDED		<del>(6#18)</del>
PEDESTRIAN SIGNAL HEAD	-0	-1	DETECTOR LOOP, TYPE I	ПО	ПО	FIBER OPTIC CABLE -NO. 62.5/125, MM12F		—(12F)—
PEDESTRIAN PUSH BUTTON (APS) ACCESSIBLE PEDESTRIAN PUSH BUTTON	⊚	⊚ ⊗ APS	PREFORMED DETECTOR LOOP	P P	P P	-NO. 62.5/125, MM12F SM12F -NO. 62.5/125, MM12F SM24F	24F	
RADAR DETECTION SENSOR	[R][]	R	SAMPLING (SYSTEM) DETECTOR	<b>S S</b>	<b>S S</b>		—(36F)—	—(36F)—
/IDEO DETECTION CAMERA	[v]1		INTERSECTION AND SAMPLING	IS (IS)	is (s)			<u></u>
RADAR/VIDEO DETECTION ZONE	<b>₩</b>	<u></u>	(SYSTEM) DETECTOR  QUEUE AND SAMPLING			GROUND ROD -(C) CONTROLLER	<u> </u>	± <sup>C</sup> ± <sup>M</sup> ± <sup>P</sup> ± <sup>S</sup>
			(SYSTEM) DETECTOR	QS QS	QS QS	-(M) MAST ARM -(P) POST	0 0 0 0	• • • •
AN, TILT, ZOOM (PTZ) CAMERA	PTZ]	PTZ.	WIRELESS DETECTOR SENSOR	<b>(iii)</b>	<b>®</b>	-(S) SERVICE		
MERGENCY VEHICLE LIGHT DETECTOR	$\bowtie$	<b>~</b>	WIRELESS ACCESS POINT					
CONFIMATION BEACON	o-()	<b></b>						
WIRELESS INTERCONNECT	<del>○-    </del>	•· <del>।   </del>						
	ERR	RR	1			1		

HAMPTON, LENZINI AND RENWICK, INC.
197 IN RANDALL ROAD, BUTTE 169
E.GUN, ILLINOIS 8073, BUTTE 169
E.GUN, ILLINOIS 8074, DESIGN FEM.
LS / PE / SE CORP. 184.00699

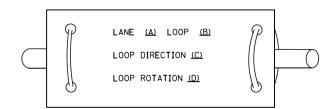
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

DISTRICT ONE					
STANDARD TRAFFIC SIGNAL DESIGN DETAILS					
SCALE: NONE	SHEET 1 OF 7 SHEETS STA. TO STA.	1-	-		

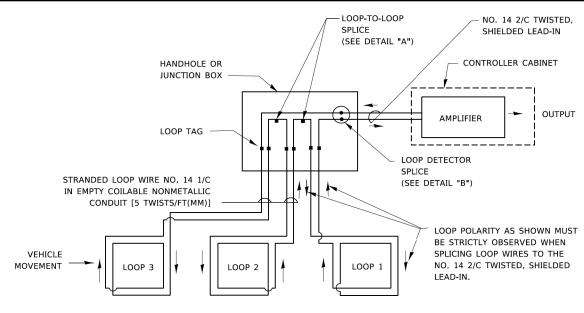
#### **LOOP DETECTOR NOTES**

- 1. EACH PAIR OF LOOP WIRES SHALL BE PLACED IN A SEPARATE EMPTY COILABLE NONMETALLIC CONDUIT FROM THE EDGE OF PAVEMENT TO THE HANDHOLE. SPACING BETWEEN THE HOLES DRILLED IN THE PAVEMENT SHALL NOT BE LESS THAN 6" (150 mm). EMPTY COILABLE NONMETALLIC CONDUIT SHALL BE INCLUDED IN THE COST OF THE LOOP WIRE.
- 2. THE NUMBER OF LOOP TURNS SHALL BE AS RECOMMENDED BY THE AMPLIFIER MANUFACTURER. ALL ADJACENT SIDES OF THE LOOPS SHALL BE INSTALLED IN SUCH A WAY THAT THE CURRENT FLOW IS IN THE SAME DIRECTION TO REINFORCE ITS MAGNETIC FIELDS FOR SMALL VEHICLE DETECTION.
- 3. EACH LOOP LEAD-IN SHALL BE IDENTIFIED AND PERMANENTLY TAGGED IN THE HANDHOLE. EACH LEAD-IN CABLE TAG SHALL INDICATE THE LOCATION OF THE LOOP, LOOP ROTATION (CLOCKWISE/COUNTERCLOCKWISE), LOOP LEAD-IN DIRECTION (IN OR OUT), LOOP CABLE NUMBER AND LOCATION IN CABINET, AND NUMBER OF TURNS IN THE DETECTOR LOOPS IN WATER PROOF INK AS INDICATED ON THE DISTRICT 1 STANDARD TRAFFIC SIGNAL DESIGN DETAIL. THE CONTRACTOR SHALL MARK LOOP LOCATIONS ON RECORD DRAWINGS AND PRESENT TO THE ENGINEER AFTER FINAL INSPECTION. LOOPS SHALL BE MARKED BY LANE AND LOOP NUMBER. SEE DETAIL BELOW.
- 4. ALL LOOP CABLE SHALL BE FASTENED WITH PLASTIC TIE WRAP TO THE HANDHOLE HOOKS.
- 5. IN ASPHALT PAVEMENT, LOOPS SHOULD BE PLACED IN THE BINDER AND DIVEHOLES MARKED AT THE CURB WITH A SAW-CUT. THE SAW-CUT SHALL BE CUT IN ACCORDANCE WITH LOCAL AND E.P.A. DUST CONTROL REQUIREMENTS. DETECTOR LOOP(S) SHALL NOT BE INSTALLED IN WET CONDITIONS AND THE SAW-CUTS MUST BE FREE OF DEBRIS AND RESIDUE SUCH AS DUST AND WATER WHICH IS TO BE ACHIEVED BY THE USE OF COMPRESSED AIR, WIRE BRUSHING AND HEAT DRYING ACCORDING TO SEALANT MANUFACTURER REQUIREMENTS. THE DETECTOR WIRE SHALL BE HELD IN PLACE BY THE USE OF FORM WEDGES. WEDGES SHALL BE SPACED NO MORE THAN 18" (450 mm) APART.
- 6. LOOP SPLICES SHALL BE SOLDERED USING A SOLDERING IRON. BLOW TORCHES OR OTHER DEVICES WHICH OXIDIZE COPPER CABLE SHALL NOT BE ALLOWED FOR SOLDERING OPERATIONS. SEE DETAIL BELOW RIGHT.
- 7. PREFORMED DETECTOR LOOPS SHALL BE USED, AS SHOWN ON THE PLANS, WHERE NEW CONCRETE PAVEMENT IS PROPOSED. THE INSTALLATION OF PREFORMED LOOPS SHALL BE IN ACCORDANCE WITH THE DISTRICT 1 SPECIFICATIONS OR AS DIRECTED BY THE ENGINEER.

#### LOOP LEAD-IN CABLE TAG

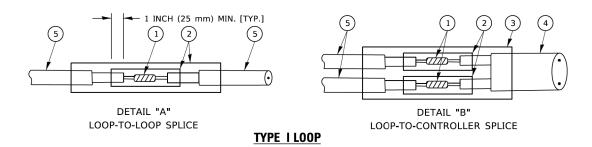


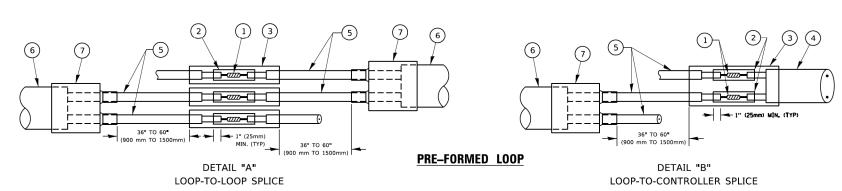
- A. LANE 1 IS THE LANE CLOSEST TO THE CENTERLINE OF THE ROADWAY
- B. LOOP #1 IS THE LOOP IN THE LANE CLOSEST TO THE INTERSECTION.
- C. LABEL LOOP CABLE "IN" OR LOOP CABLE "OUT".
- D. LABEL LOOP CABLE CLOCKWISE OR LOOP CABLE COUNTERCLOCKWISE.



#### **DETECTOR LOOP WIRING SCHEMATIC**

- LOOPS SHALL BE SPLICED IN SERIES SAW-CUTS SHALL BE A MINIMUM WIDTH OF 5/16" (8 mm).
- SAW-CUT DEPTHS SHALL BE 3" (75 mm). IF IN CONCRETE,
- THE SAW-CUT DEPTH SHALL BE TO THE TOP OF THE REINFORCEMENT.
- LOOP CORNERS SHALL BE DRILLED WITH A 2" (50 mm) DIAMETER CORE.





#### LOOP DETECTOR SPLICE

- (1) WESTERN UNION SPLICE SOLDERED WITH ROSIN CORE FLUX. ALL EXPOSED SURFACES OF THE SOLDER SHALL BE SMOOTH. THE WESTERN UNION SPLICES SHALL BE STAGGERED.
- (2) WCSMW 30/100 HEAT SHRINK TUBE, MINIMUM LENGTH 3" (75 mm), UNDERWATER GRADE
- (3) WCS 200/750 HEAT SHRINK TUBE, MINIMUM LENGHT 6" (150 mm), UNDERWATER GRADE.
- (4) NO. 14 2/C TWISTED, SHIELDED CABLE.

- 5 LOOP CONDUCTOR WITH FLEXIBLE PLASTIC TUBE. PRE-FORMED LOOP
- (6) XL POLYOLEFIN 2 CONDUCTOR
- (7) BREAKOUT SEALS. TYCO CBR-2 OR APPROVED EQUAL

HAMPTON, LENZINI AND RENWICK, INC ILLINOIS PROFESSIONAL DESIGN FI LS / PE / SE CORP. 184.000959

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STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

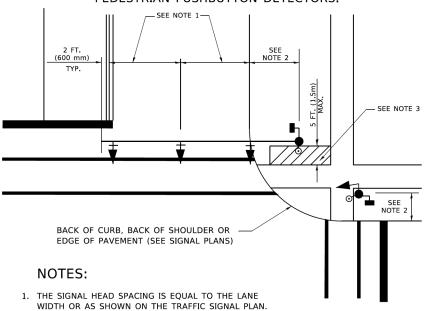
DISTRICT ONE STANDARD TRAFFIC SIGNAL DESIGN DETAILS SHEET 2 OF 7 SHEETS STA.

COUNTY 1314 22-00197-00-TL KANE 33 9 TS-05 CONTRACT NO.

#### TRAFFIC SIGNAL MAST ARM AND SIGNAL POST

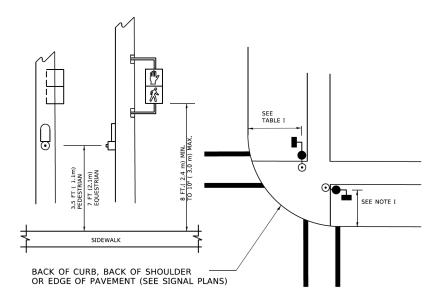
MAST ARM MOUNTED SIGNALS IN EXISTING, PROPOSED OR FUTURE SIDEWALK/BICYCLE PATH AREA. INTERSECTION SHOWN WITH PEDESTRIAN SIGNALS AND

PEDESTRIAN PUSHBUTTON DETECTORS.



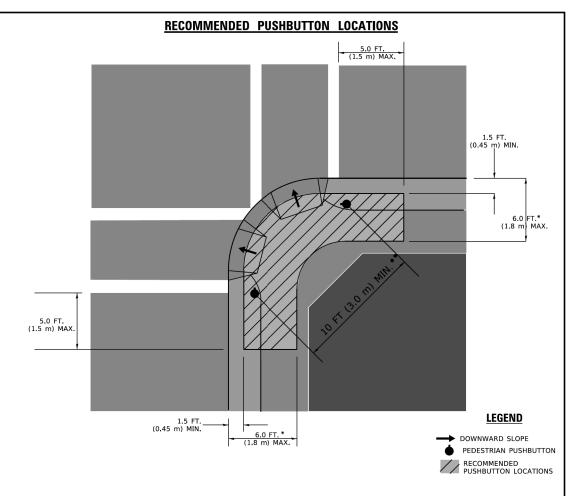
- 2. REFER TO THE TRAFFIC SIGNAL EQUIPMENT OFFSET TABLE.
- 3. PROVIDE A LEVEL ALL-WEATHER SURFACE (CONCRETE SIDEWALK, ASPHALT BICYCLE PATH SURFACE OR MATCHING MATERIAL TO THE ADJACENT SURFACE) UP TO THE MAST ARM SHAFT OR
- 4. THE FACE OF THE PEDESTRIAN PUSHBUTTON SHALL BE PARALLEL TO THE CROSSWALK TO BE USED.
- 5. THE LOCATIONS AND INSTALLATION OF PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSHBUTTONS SHALL MEET THE REQUIREMENTS OF THE MUTCD AND INFORMATION FOUND IN THE "AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES.'

## PEDESTRIAN SIGNAL POST PEDESTRIAN PUSH BUTTON POST



#### NOTES:

- 1. REFER TO THE TRAFFIC SIGNAL EQUIPMENT OFFSET TABLE.
- 2. PROVIDE A LEVEL ALL-WEATHER SURFACE (CONCRETE SIDEWALK, ASPHALT BICYCLE PATH SURFACE OR MATCHING MATERIAL TO THE ADJACENT SURFACE) UP TO THE PEDESTRIAN SIGNAL POST OR THE PEDESTRIAN PUSH BUTTON POST.
- 3. THE FACE OF THE PEDESTRIAN PUSHBUTTON SHALL BE PARALLEL TO THE CROSSWALK TO BE USED.
- 4. THE LOCATIONS AND INSTALLATION OF PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSHBUTTONS SHALL MEET THE REQUIREMENTS OF THE MUTCD AND INFORMATION FOUND IN THE "AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR



- \* WHERE THERE ARE CONSTRAINTS THAT MAKE IT IMPRACTICAL TO PLACE THE PEDESTRIAN PUSHBUTTON BETWEEN 1.5 FT (0.45 m) AND 6 FT ( 1.8 m) FROM THE EDGE OF THE CURB. SHOULDER, OR PAVEMENT, IT SHOULD NOT BE FURTHER THAN 10 FT (3 m) FROM THE EDGE OF CURB, SHOULDER, OR PAVEMENT.
- \*\* WHERE THERE ARE CONSTRAINTS ON A PARTICULAR CORNER THAT MAKE IT IMPRACTICAL TO PROVIDE THE 10 FT (3 m) SEPERATION BETWEEN THE TWO PEDESTRIAN PUSHBUTTONS, THE PUSHBUTTONS MAY BE PLACED CLOSER TOGETHER OR ON THE SAME POLE.

#### NOTES:

- 1. PEDESTRIAN SIGNAL HEADS SHALL BE MOUNTED WITH THE BOTTOM OF THE SIGNAL HOUSING INCLUDING BRACKETS NOT LESS THAN 8 FT (2.4 m) OR MORE THAN 10 FT (3 m) ABOVE SIDEWALK LEVEL, AND SHALL BE POSITIONED AND ADJUSTED TO PROVIDE MAXIMUM VISIBILITY AT THE BEGINNING OF THE CONTROLLED CROSSWALK.
- 2. THE BOTTOM OF THE SIGNAL HOUSING (INCLUDING BRACKETS) OF A VEHICULAR SIGNAL FACE THAT IS NOT LOCATED OVER A HIGHWAY SHALL BE AT LEAST 8 FT (2.4 m) BUT NOT MORE THAN 19 FT (5.8 m) ABOVE THE SIDEWALK OR. IF THERE IS NO SIDEWALK, ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY
- 3. THE BOTTOM OF THE SIGNAL HOUSING AND ANY RELATED ATTACHMENTS TO A SIGNAL FACE LOCATED OVER ANY PORTION OF A HIGHWAY SHALL BE ACCORDING TO CURRENT STATE STANDARDS 877001, 877002, 877006, 877011 AND 877012 WITH A MINIMUM OF 16 FT (5.0 m) AND A MAXIMUM OF 18 FT. (5.5 m) FROM THE HIGHEST POINT OF PAVEMENT.
- 4. THE BOTTOM OF THE TEMPORARY SPAN WIRE MOUNTED SIGNAL HOUSING AND ANY RELATED ATTACHMENTS TO A SIGNAL FACE LOCATED OVER ANY PORTION OF A HIGHWAY SHALL BE ACCORDING TO CURRENT STATE STANDARD 880001 WITH A MINIMUM OF 17 FT (5.18 m) FROM THE HIGHEST POINT OF PAVEMENT.
- 5. THE TOP OF THE SIGNAL HOUSING OF A SIGNAL FACE LOCATED OVER ANY PORTION OF A HIGHWAY SHALL NOT BE MORE THAN 25.6 FT (7.8 m) ABOVE THE PAVEMENT.

#### TRAFFIC SIGNAL EQUIPMENT OFFSET

TRAFFIC SIGNAL EQUIPMENT	COMBINATION CONCRETE CURB AND GUTTER (MINIMUM DISTANCE FROM BACK OF CURB TO CENTERLINE OF FOUNDATION)	SHOULDER/NON-CURBED AREA (MINIMUM DISTANCE FROM EDGE OF PAVEMENT TO CENTERLINE OF FOUNDATION)
TRAFFIC SIGNAL MAST ARM POLE	6 FT (1.8m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
TRAFFIC SIGNAL POST	4 FT (1.2m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
PEDESTRIAN SIGNAL POST	4 FT (1.2m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
PEDESTRIAN PUSHBUTTON POST	4 FT (1.2m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
TEMPORARY WOOD POLE	6 FT (1.8m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
CONTROLLER CABINET	6 FT (1.8m) MINIMUM DISTANCE SEE NOTE 2	SHOULDER WIDTH + 6 FT (1.8m), MINIMUM 16 FT (4.9m) SEE NOTE 3.
SERVICE INSTALLATION, GROUND MOUNT	6 FT (1.8m) MINIMUM DISTANCE SEE NOTE 2	SHOULDER WIDTH + 6 FT (1.8m), MINIMUM 16 FT (4.9m) SEE NOTE 3.

#### NOTES:

- 1. CONTACT THE "AREA TRAFFIC SIGNAL MAINTENANCE AND OPERATIONS ENGINEER" FOR ASSISTANCE IN LOCATING THE TRAFFIC SIGNAL EQUIPMENT WHEN THERE ARE CONFLICTS WITH DITCHES OR THE MINIMUM OFFSET DISTANCES CANNOT BE MET.
- 2. MINIMUM DISTANCE FROM THE BACK OF CURB TO THE ROADWAY SIDE OF THE FOUNDATION.
- 3. MINIMUM DISTANCE FROM THE EDGE OF PAVEMENT TOTHE ROADWAY SIDE OF THE FOUNDATION.
- 4. ANY CHANGES TO THE OFFSETS OF THE FOUNDATIONS, FROM THE MINIMUM DISTANCES LISTED IN THE "TRAFFIC SIGNAL EQUIPMENT OFFSET" CHART AND THE TRAFFIC SIGNAL INSTALLATION PLAN, COULD EFFECT THE PLACEMENT OF THE SIGNAL HEADS, PEDESTRIAN SIGNAL HEADS AND THE PEDESTRIAN PUSHBUTTONS. THE SIGNAL HEAD PLACEMENT ON THE MAST ARMS SHALL REMAIN AS PER THE TRAFFIC SIGNAL INSTALLATION PLAN AND THE "TRAFFIC SIGNAL MAST ARM AND SIGNAL POST" DETAIL ABOVE. THE PROPOSED MAST ARM LENGTHS MAY NEED TO BE REVISED TO MEET THE ABOVE REQUIREMENTS. THE PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSHBUTTONS MUST MEET THE REQUIREMENTS UNDER THE DETAILS ON THIS SHEET.

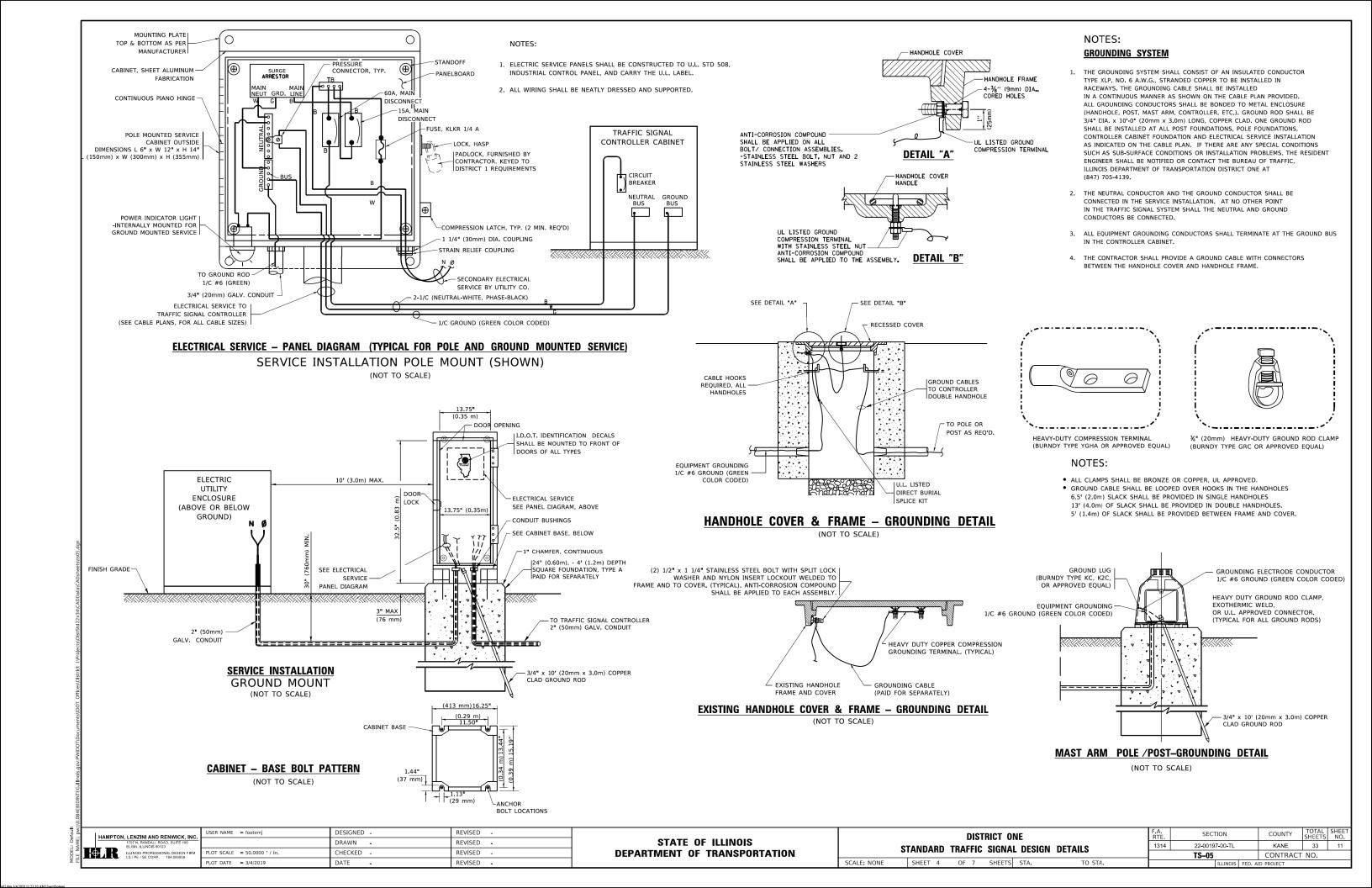
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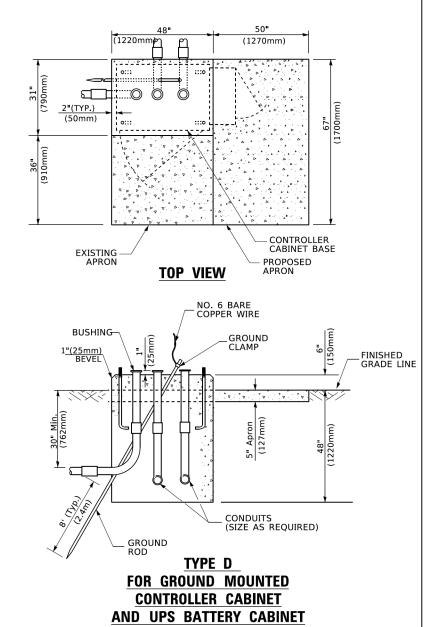
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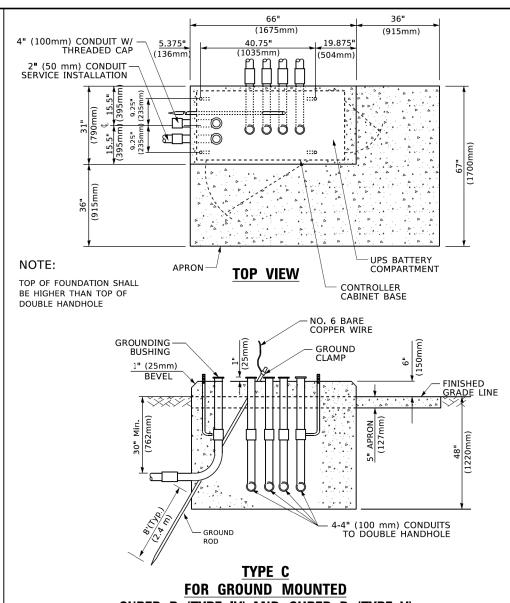
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#### STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION**

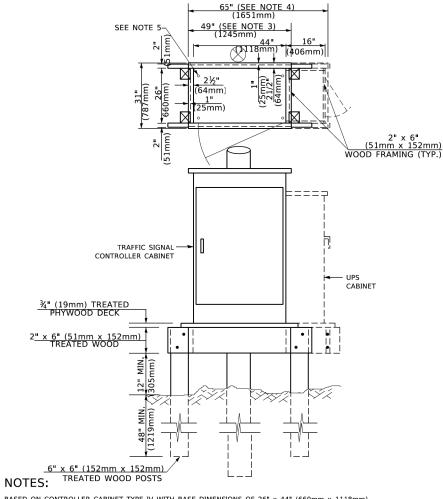
DISTRICT ONE		F.A. RTE.	SECTION		COUNTY	TOTAL SHEETS	SHEET NO.				
		DETAILS	1314	22-00197-00-TL		KANE	33	10			
STANDARD TRAFFIC SIGNAL DESIGN DETAILS			TS-05		CONTRACT	NO.					
	SHEET 3	OF 7	SHEETS	STA.	TO STA.		ILLINOIS	FED. A	D PROJECT		







SUPER P (TYPE IV) AND SUPER R (TYPE V) **CONTROLLER CABINETS** 



- BASED ON CONTROLLER CABINET TYPE IV WITH BASE DIMENSIONS OF 26" x 44" (660mm x 1118mm).
   ADJUST PLATFORM SIZE TO FIT CABINET BASE DIMENSIONS BEING SUPPLIED
- BASED ON UNINTERRUPTIBLE POWER SUPPLY CABINET WITH BASE DIMENSIONS OF 16" x 25" (406mm x 635mm).
   ADJUST PLATFORM SIZE TO FIT CABINET BASE DIMENSIONS BEING SUPPLIED.
- 3. PLATFORM SIZE FOR CONTROLLER CABINET TYPE IV.
- 4. PLATFORM SIZE FOR CONTROLLER CABINET TYPE IV AND UNINTERRUPTIBLE POWER SUPPLY CABINET.
- 5. DRILLED HOLES THROUGH THE PLATFORM BASE TO MATCH THE CONTROLLER CABINET BOLT TEMPLATE, FASTEN THE CONTROLLER CABINET TO THE PLATFORM WITH CARRIAGE BOLTS, WASHERS AND NUTS.
- 6. FASTEN ALL SUPPORT WOOD FRAMING TO THE WOOD POSTS WITH 2 LAG SCREWS FOR EACH CONNECTION.

#### **TEMPORARY SIGNAL CONTROLLER WOOD SUPPORT PLATFORM**

CABLE SLACK LENGTH	FEET	METER
HANDHOLE	6.5	2.0
DOUBLE HANDHOLE	13.0	4.0
SIGNAL POST	2.0	0.6
MAST ARM	2.0	0.6
CONTROLLER CABINET	1.5	0.5
FIBER OPTIC AT CABINET	13.0	4.0
ELECTRIC SERVICE AT (CABINET OR SERVICE LOCATION)	1.5	0.5
GROUND CABLE (SIGNAL POST, MAST ARM, CABINET)	1.5	0.5
GROUND CABLE (BETWEEN FRAME AND COVER)	5.0	1.6

VERTICAL CABLE LENGTH	FEET	METER
MAST ARM POLE ( MAST ARM MOUNTED SIGNAL HEAD)		
(L = MAST ARM LENGTH - DISTANCE TO SIGNAL HEAD FROM END OF ARM)	20.0+L	6.0+L
BRACKET MOUNTED (MAST ARM POLE OR SIGNAL POLE)	13.0	4.0
PEDESTRIAN PUSH BUTTON	6.0	2.0
SERVICE INSTALLATION POLE MOUNT TO SERVICE DROP	13.5	4.1
SERVICE INSTALLATION POLE MOUNT TO GROUND	13.5	4.1
SERVICE INSTALLATION GROUND MOUNT	6.0	2.0
FOUNDATION (SIGNAL POST, MAST ARM POLE, CONTROLLER CABINET, SERVICE-GROUND MOUNT)	3.0	1.0

#### **VERTICAL CABLE LENGTH**

**CABLE SLACK** 

FOUNDATION	DEPTH
TYPE A - Signal Post	4'-0" (1.2m)
TYPE C - CONTROLLER W/ UPS	4'-0" (1.2m)
TYPE D - CONTROLLER	4'-0" (1.2m)
SERVICE INSTALLATION, GROUND MOUNT, TYPE A - SQUARE	4'-0" (1.2m)

#### **DEPTH OF FOUNDATION**

Mast Arm Length	① Foundation Depth	Foundation Diameter	Spiral Diameter	Quantity of Rebars	Size of Rebars
Less than 30′ (9.1 m)	10'-0" (3.0 m)	30" (750mm)	24" (600mm)	8	6(19)
Greater than or equal to	13'-6" (4 <sub>•</sub> 1 m)	30" (750mm)	24" (600mm)	8	6(19)
30' (9.1 m) and less than 40' (12.2 m)	11'-0'' (3.4 m)	36" (900mm)	30" (750mm)	12	7(22)
Greater than or equal to 40' (12.2 m) and less than 50' (15.2 m)	13'-0" (4 <sub>•</sub> 0 m)	36" (900mm)	30" (750mm)	12	7(22)
Greater than or equal to 50' (15.2 m) and up to 55' (16.8 m)	15'-0'' (4 <b>.</b> 6 m)	36" (900mm)	30" (750mm)	12	7(22)
Greater than or equal to 56' (16.8 m) and less than 65' (19.8 m)	21'-0'' (6 <sub>*</sub> 4 m)	42" (1060mm)	36" (900mm)	16	8(25)
Greater than or equal to 65' (19.8 m) and up to 75' (22.9 m)	25'-0'' (7 <b>.</b> 6 m)	42" (1060mm)	36" (900mm)	16	8(25)

#### NOTES:

- 1. These foundation depths are for sites which have cohesive soils (clayey silt, sandy clay, etc.) along the length of the shaft, with an average Unconfined Compressive Strength (Ou) > 1.0 tsf (100 kpa). This strength shall be verified by boring data prior to construction or with testing by the Engineer during foundation drilling. The Bureau of Bridges & structures should be contacted for a revised design if other conditions are encountered.
- 2. Combination mast arm assemblies under 55 feet (16.8 m) shall use 36" (900 mm) diameter foundations.
- 3. Combination mast arm assemblies under 56 feet (16.8 m) through 75 feet (22.9 m) shall use 42" (1060 mm) diameter foundations
- 4. For most arm assemblies with dual arms refer to state standard 878001...

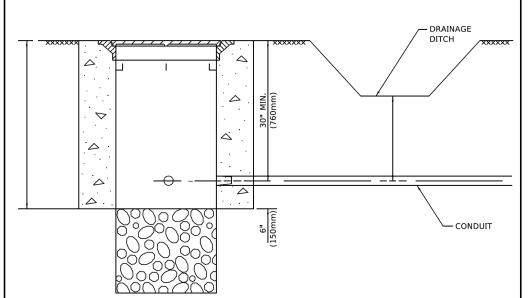
## DEPTH OF MAST ARM FOUNDATIONS, TYPE E

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AME:	1707 N. RANDALL ROAD, SUITE 100 ELGIN, ILLINOIS 60123	L
TE N	ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	L
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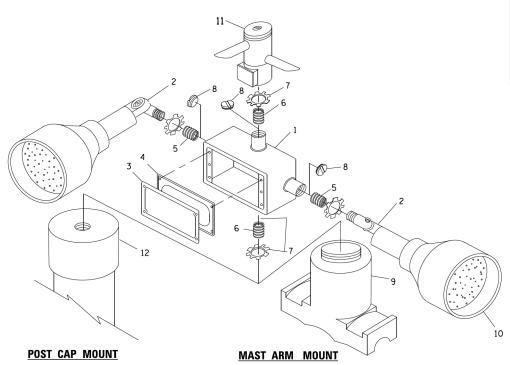
STATI	E OF	ILLINOIS
DEPARTMENT	OF	TRANSPORTATION

DISTRICT ONE	F.A. RTE.	SECTION	COUNTY
STANDARD TRAFFIC SIGNAL DESIGN DETAILS	1314	22-00197-00-TL	KANE
STANDARD TRAFFIC SIGNAL DESIGN DETAILS		TS-05	CONTRAC
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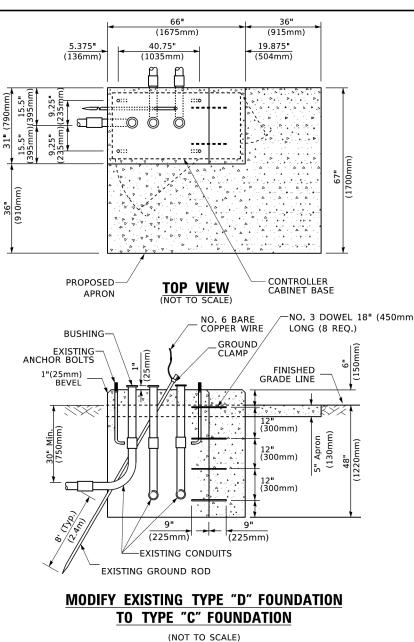
- 1. CONDUIT DEPTH SHALL BE A MINIMUM OF 30" (760mm) BELOW THE BOTTOM OF THE DRAINAGE DITCH OR ANY SLOPING GROUND
- 2. THE MINIMUM CONDUIT DEPTH APPLIES TO ALL CONDUIT PLACED UNDER ROADWAY PAVEMENT, MULTI-USE PATHS, SIDEWALKS AND SOIL SURFACES.
- 3. THE MINIMUM CONDUIT DEPTH APPLIES TO ALL HANDHOLES, HEAVY DUTY HANDHOLES AND DOUBLE HANDHOLES.

## HANDHOLE WITH MINIMUM CONDUIT DEPTH



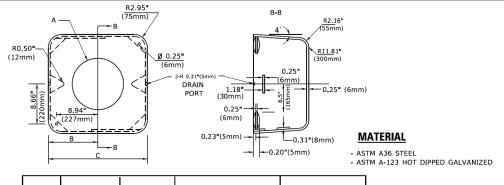
**EMERGENCY VEHICLE DETECTOR WITH CONFIRMATION BEACON MOUNTING DETAIL** 

NOTES:



#### IDENTIFICATION 1 OUTLET BOX- GALV. 21 CU.IN. (0.000344 CU-M) 2 LAMP HOLDER AND COVER 3 OUTLET BOX COVER RUBBER COVER GASKET REDUCING BUSHING ¾"(19 mm) CLOSE NIPPLI ¾"(19 mm) LOCKNUT 8 ¾"(19 mm) HOLE PLUG 9 SADDLE BRACKET - GAL 10 6 WATT PAR 38 LED FLOOD LAMP 11 DETECTOR UNIT 12 POST CAP [18 FT. (5.4 m) POST MIN.

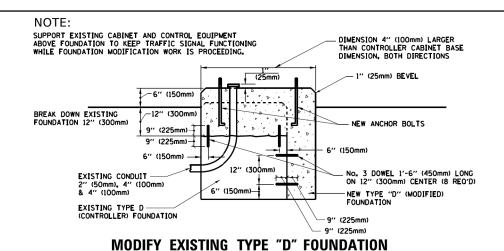
- 1. ALL ELECTRICAL ITEMS, EXCEPT ITEMS #2 AND #11 SHALL BE ALUMINUM OR
- 2. ITEM #1- OZ/GEDNEY FSX-1-50 OR EQUIVALENT ITEM #2- MULBERRY CON-O-SHADE LAMP SHIELD OR EQUIVALENT ITEM #9- "BAND-IT" SADDLE BRACKET OR EQUIVALENT
- 3. WHEN POST MOUNTING IS SPECIFIED, ITEM #9 SHALL NOT BE REQUIRED. THE DETECTION UNIT SHALL BE MOUNTED DIRECTLY ON TOP OF THE CAP BY DRILLING AND TAPPING A 3/4 "(19 mm) HOLE WITH PIPE THREADS. THE POST CAP SHALL EITHER BE SCREWED TO THE TOP OF THE POST OR A MINIMUM OF 3 TIGHTENING SCREWS SHALL BE REQUIRED ON EACH CAP.

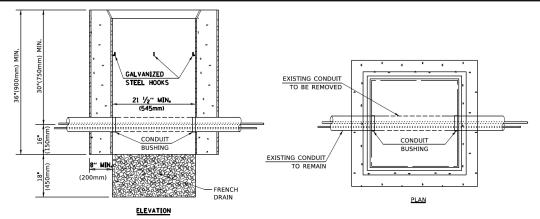


Α	В	С	HEIGHT	WEIGHT
VARIES	9.5"(241mm)	19 <b>"</b> (483mm)	7" (178mm) - 12" (300mm)	53 lbs (24kg)
VARIES	10.75"(273mm)	21.5"(546mm)	7" (178mm) - 12" (300mm)	68 lbs (31 kg)
VARIES	13.0"(330mm)	26"(660mm)	7" (178mm) - 12" (300mm)	81 lbs (37 kg)
VARIES	18.5"(470mm)	37"(940mm)	7" (178mm) - 12" (300mm)	126 lbs (57 kg)

#### **SHROUD**

- . DIMENSION "A" IS EQUAL TO THE DIAMETER OF THE MAST ARM POLE AT THE TOP OF THE SHROUD. THE SHROUD SHALL BE TIGHT TO THE MAST ARM POLE.
- 2. THE SUPPLIER SHALL VERIFIED THE ABOVE DIMENSIONS BASED ON MAST ARM REQUIREMENTS.
- 3. THE HEIGHT OF THE SHROUD SHALL COVER THE ANCHOR BOLTS, NUTS AND MAST ARM POLE BASE.





- 1. HANDHOLE CONSTRUCTED PER STATE STANDARD 814001.
- 2. REMOVAL OF THE EXISTING CONDUIT FROM THE HANDHOLE AND THE INSTALLATION OF THE CONDUIT BUSHINGS SHALL BE INCLUDED WITH THE COST OF THE HANDHOLE.

#### HANDHOLE TO INTERCEPT EXISTING CONDUIT

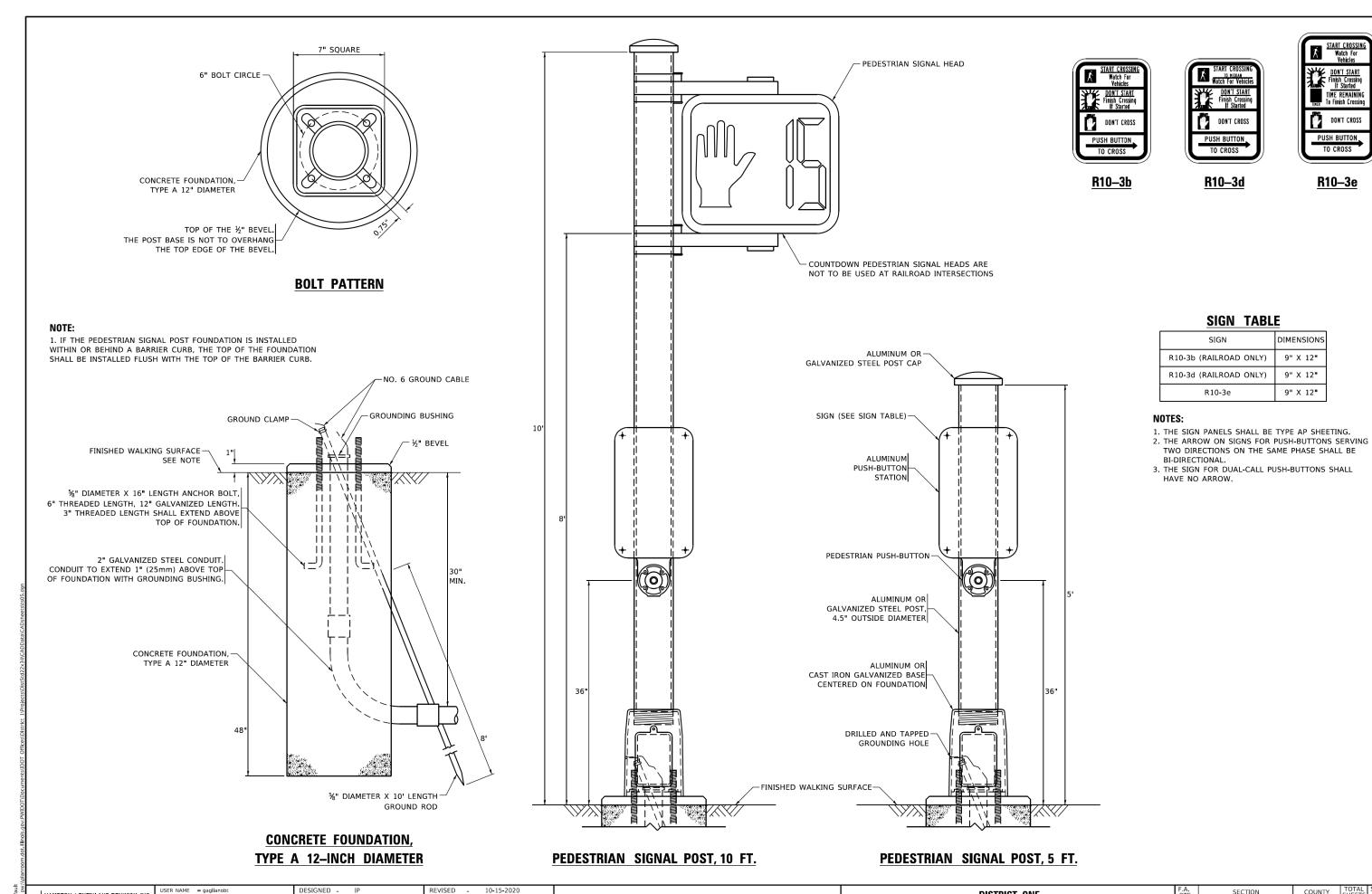
	DISTRICT ONE	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
	STANDARD TRAFFIC SIGNAL DESIGN DETAILS	1314	22-00197-00-TL	KANE	33	13	
	STANDARD TRAFFIC SIGNAL DESIGN DETAILS		TS-05 CONTRACT NO.				
NE	SHEET 6 OF 7 SHEETS STA. TO STA.		ILLINOIS FED.	AID PROJECT			

DESIGNED -USER NAME = footem REVISED DRAWN REVISED -LOT SCALE = 50,0000 ' / in. CHECKED REVISED DATE

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

HAMPTON, LENZINI AND RENWICK, INC

ILLINOIS PROFESSIONAL DESIGN FIR



1314

22-00197-00-TL KANE 33 14 TS-05 CONTRACT NO.

DON'T CROSS

TO CROSS

R10-3e

USER NAME = gaglianobt HAMPTON, LENZINI AND RENWICK, INC 1707 N. RANDALL ROAD, SUITE 100 DRAWN -ILLINOIS PROFESSIONAL DESIGN FIR PLOT SCALE = 100.0000 ' / in. CHECKED -

REVISED -

REVISED

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** 

DISTRICT ONE STANDARD TRAFFIC SIGNAL DESIGN DETAILS SHEET 7 OF 7 SHEETS STA.

EMERGENCY VEHICLE PREEMPTION SEQUENCE	OF 0	PERA1	ION																												PREEMPTOR NUMBER 3	PREEMPTOR NUMBER 4	
CHANGE FROM NORMAL SEQUENCE OF OPERATION INTERVAL NUMBER	1		5		5			8		8		11		11		14		18		1	8		22		2	2		26		26			CLEAR TO
EMERGENCY VEHICLE PREEMPTION SEQUENCE OF OPERATION INTERVAL NUMBER	1A	1B	1C	1D	1E	1F	1G	1H	1)	1K	1L	1M	1N	1P	1Q	1R	15	1T	1U	1V	1W	1X	1Y	1Z	1AA	1BB	1CC	1DD	1EE	1FF	2	3	NORMAL SEQUENC
CHANGE TO EMERGENCY VEHICLE PREEMPTION SEQUENCE OF OPERATION INTERVAL NUMBER	2 OR 3	1C	2	1E	1F	3	1Н	2	1K	1L	3	2	1P	1Q	3	OR 3	1T	10	2	1W	3	1Y	1Z	2	1BB	3	1DD	1EE	2	3			<b>♦</b>
MAIN STREET E/B END MAST ARM AND FAR LEFT SIGNALS	R —Y	R	R	R	R	R	G <del>-</del> G	G <del>-</del> Y	G <del>-</del> G	Υ	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	R	<b>♦</b>
MAIN STREET E/B FAR RIGHT SIGNAL	R	R	R	R	R	R	G	G	G	Υ	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	R	<b>♦</b>
MAIN STREET W/B END MAST ARM AND FAR LEFT SIGNALS	R — Y	G <del>-</del> G	G <del>■</del> Y	G <del>-</del> G	Y	R	R	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	R	<b>♦</b>
MAIN STREET W/B FAR RIGHT SIGNAL	R	G	G	G	Y	R	R	R	R	R	R	G	G	Υ	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	R	<b>♦</b>
CROSS STREET S/B END MAST ARM AND FAR LEFT SIGNALS	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R <del></del> Y	R	R	R	R	R	G <del>-</del> G	Υ	R	G <del>▼</del> G	G <b>→</b> Y	G	Y	R	G	R	G	<b>♦</b>
CROSS STREET S/B FAR RIGHT SIGNAL	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Υ	R	G	G	G	Y	R	G	R	G	<b>♦</b>
CROSS STREET N/B END MAST ARM AND FAR LEFT SIGNALS	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R —Y	G <del>-</del> G	Y	R	G <del>-</del> G	G <b>→</b> Y	R	R	R	R	R	G	Υ	R	G	R	G	<b>♦</b>
CROSS STREET N/B FAR RIGHT SIGNAL	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Υ	R	G	G	R	R	R	R	R	G	Υ	R	G	R	G	<b>♦</b>
PEDESTRIAN SIGNALS CROSSING CROSS STREET ON NORTHSIDE OF MAIN STREET	н	FH	н	FH	н	Н	н	н	н	н	н	FH	FH	н	Н	н	н	Н	н	н	Н	н	н	Н	н	Н	Н	Н	н	н	н	н	<b>♦</b>
PEDESTRIAN SIGNALS CROSSING CROSS STREET ON SOUTHSIDE OF MAIN STREET	н	н	Н	Н	н	Н	FH	н	FH	Н	н	FH	FH	Н	Н	Н	Н	Н	Н	н	Н	н	н	Н	Н	Н	Н	Н	н	Н	н	н	<b>♦</b>
PEDESTRIAN SIGNALS CROSSING MAIN STREET ON EASTSIDE OF CROSS STREET	Н	н	Н	Н	н	Н	Н	н	н	Н	н	н	Н	н	Н	Н	FH	Н	Н	FH	Н	Н	Н	Н	н	Н	FH	Н	н	FH	н	Н	<b>♦</b>
PEDESTRIAN SIGNALS CROSSING MAIN STREET ON WESTSIDE OF CROSS STREET	н	н	Н	н	н	н	н	н	н	н	н	н	н	н	н	н	н	н	н	н	Н	FH	н	Н	FH	н	FH	н	н	FH	н	н	<b>♦</b>

MERGENCY VEHICLE SEQUENCE SHALL PROVIDE THE PROPER CLEARANCE INTERVAL TO RESUME THE NORMAL SEQUENCE OF OPERATION OR PROPER CLEARANCE INTERVAL TO DISPLAY A DIFFERENT EMERGENCY INTERVAL AFTER EMERGENCY VEHICLE 2 OR 3 IS TERMINATED.

HAMPTON, LENZINI AND RENWICK, INC.

1707 N. RANDALL ROAD, SUITE 100
ELON, ILLINOIS BROTZS
ILLINOIS BROTZS
ILLINOIS PROFESSIONAL DESIGN FIRM
1.5 / PE 1 SE CORP. 144 400909

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EMERGENCY VEHICLE PREEMPTION										
SEQUENCE	OF OPE	RATION	- N	/AIN S	STREET	AND CROSS STREET	Ľ			
SCALE:	SHEET 1	OF	2	SHEETS	STA.	TO STA.	╁			

 F.A. RTE.
 SECTION
 COUNTY SHEETS NO.
 TOTAL SHEETS NO.

 1314
 22-00197-00-TL
 KANE
 33
 15

 TS-08
 CONTRACT NO.

 ILLINOIS FED. AID PROJECT

CHANGE FROM NORMAL SEQUENCE OF OPERATION INTERVAL NUMBER
CHANGE FROM EMERGENCY VEHICLE PREEMPTION SEQUENCE OF OPERATION INTERVAL NUMBER
RAILROAD PREEMPTION SEQUENCE OF OPERATION INTERVAL NUMBER
CHANGE TO RAILROAD PREEMPTION SEQUENCE OF OPERATION INTERVAL NUMBER
MAIN STREET E/B END MAST ARM AND FAR LEFT SIGNALS

MAIN STREET

MAIN STREET

FAR RIGHT SIGNAL

CROSS STREET FAR RIGHT SIGNAL

CROSS STREET FAR RIGHT SIGNAL

CROSS STREET

FAR RIGHT SIGNAL

END MAST ARM AND FAR LEFT SIGNALS

END MAST ARM AND FAR LEFT SIGNALS

END MAST ARM AND FAR LEFT SIGNALS

PEDESTRIAN SIGNALS CROSSING CROSS

STREET ON NORTHSIDE OF MAIN STREET
PEDESTRIAN SIGNALS CROSSING CROSS

STREET ON SOUTHSIDE OF MAIN STREET
PEDESTRIAN SIGNALS CROSSING MAIN

STREET ON EASTSIDE OF CROSS STREET
PEDESTRIAN SIGNALS CROSSING MAIN

STREET ON WESTSIDE OF CROSS STREET

INTERNALLY ILLUMINATED NRT SIGNS

INTERNALLY ILLUMINATED NLT SIGNS

PROPOSED SEQUENCE OF OPERATION

MAIN STREET E/B END MAST ARM AND FAR LEFT SIGNALS

PEDESTRIAN SIGNALS CROSSING CROSS

STREET ON NORTHSIDE OF MAIN STREET
PEDESTRIAN SIGNALS CROSSING CROSS
STREET ON SOUTHSIDE OF MAIN STREET
PEDESTRIAN SIGNALS CROSSING MAIN
STREET ON EASTSIDE OF CROSS STREET
PEDESTRIAN SIGNALS CROSSING MAIN
STREET ON WESTSIDE OF CROSS STREET

E/B

PROPOSED RAILROAD PREEMPTION SEQUENCE OF OPERATION

E/B

R

NRT

MOVEMENT

PHASE

INTERVAL

CHANGE TO

MAIN STREET

MAIN STREET

MAIN STREET FAR RIGHT SIGNAL CROSS STREET

FAR RIGHT SIGNAL

CROSS STREET FAR RIGHT SIGNAL

FAR RIGHT SIGNA

5 **—** 1

1 + 5

2

5 2 **4**····•

2 + 5

10

1 + 6

11

18

22

26

2

NRT NRT NRT

2→←6

2 + 6

13A 13B

3+8 4+7

12

3 + 7

15 16

PREEMPTOR PREEMPTOR PREEMPTOR

NUMBER 3 NUMBER 4 NUMBER 2

1R 1S

2

3

G

R

Н

Н

NRT

NRT

NRT NRT

3 + 8

19 20A 20B 21

1+5

1+6

2+5

2+6

Ħ				
wd		USER NAME = footemj	DESIGNED -	REVISED -
AME	HAMPTON, LENZINI AND RENWICK, INC. 1707 N. RANDALL ROAD, SUITE 100 ELGIN, ILLINOIS 60123 ILLINOIS PROFESSIONAL DESIGN FIRM LS/FE/SECORP. 184-009059		DRAWN -	REVISED -
Z H	ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184-000959	PLOT SCALE = 50,0000 ' / in,	CHECKED -	REVISED -
Ē	23772752 0017: 104-000339	PLOT DATE = 3/4/2019	DATE -	REVISED -

NRT NRT NRT

NRT NRT

NRT NRT NRT

NLT

NRT NRT

#### STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

R

EMERGENCY VEHICLE PREEMPTION											
SEQUENCE	OF OPERA	TION –	MAIN S	STREET	AND CROSS STREET						
SCALE:	SHEET 2	OF 2	SHEETS	STA.	TO STA.						

F.A. RTE.	SEC	ΠΟN		COUNTY	TOTAL SHEETS	SHE
1314	22-0019	7-00-TL		KANE	33	16
	TS-08			CONTRACT	NO.	
		ILLINOIS	FED. A	ID PROJECT		

G	G	Y
G	G	Y
G	G	Y
н	н	Н
Н	н	Н
*P	**FH	Н
*P	**FH	Н

**↑ ↑ 7** 

4 + 7

23 24A 24B

2+5

25

G

22

CLEAR

NORMAL

SEQUENCE

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Δ

Δ

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Δ

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Δ

Δ

Δ

Δ

Δ

Δ

Δ

Н

NLT

HOLD

NRT | NRT

4 + 8

28E

1+5

2+5

2+6

27 28A

\* TO APPEAR ONLY UPON PUSHBUTTON ACTIVATION

\*\* FLASHING "M" IS TO TERMINATE AT THE COMPLETION OF THE PEDESTRIAN INTERVAL CLEARANCE.

THIS  $^{\prime\prime}$  OR FLASHING  $^{\prime\prime}$  INTERVAL MAY FINISH TIMIMG IN THE

→ BIDIRECTIONAL STRAIGHT THROUGH MOVEMENT IF THE LEFT ARROW TIME IS NOT SUFFICIENT TO COMPLETE AO OR FLASHING AO INTERVALS.

"AND FLASHING AT ARE INDICATED IN THE SEQUENCE OF OPERATION.

P = ILLUMINATED PERSON = WALK

FH = ILLUMINATED FLASHING HAND = FLASHING DON'T WALK

H = ILLUMINATED SOLID HAND = DON'T WALK

PHASE 2+6 SHALL BE PLACED ON RECALL.

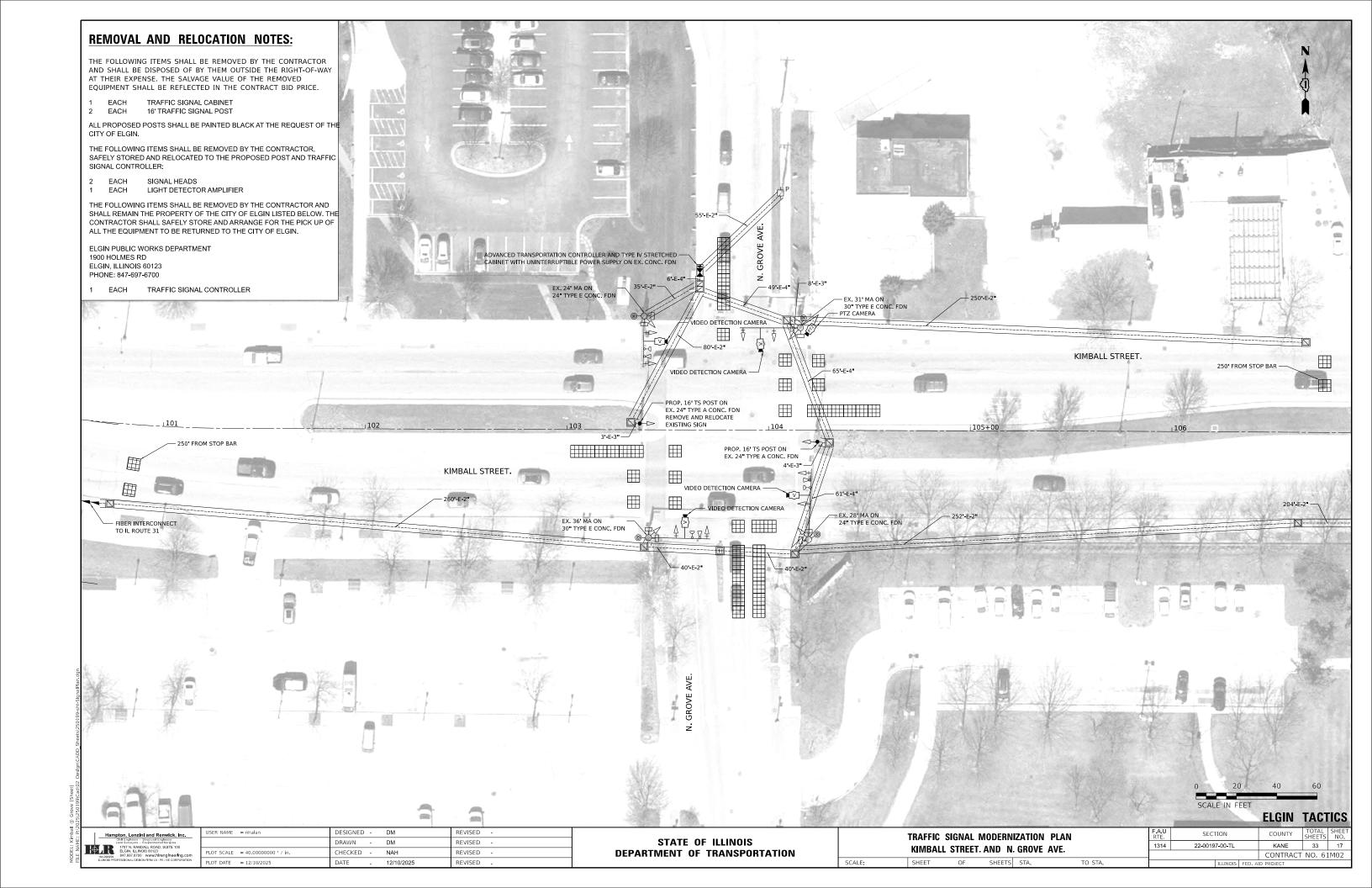
NLT = "NO LEFT TURN" OR

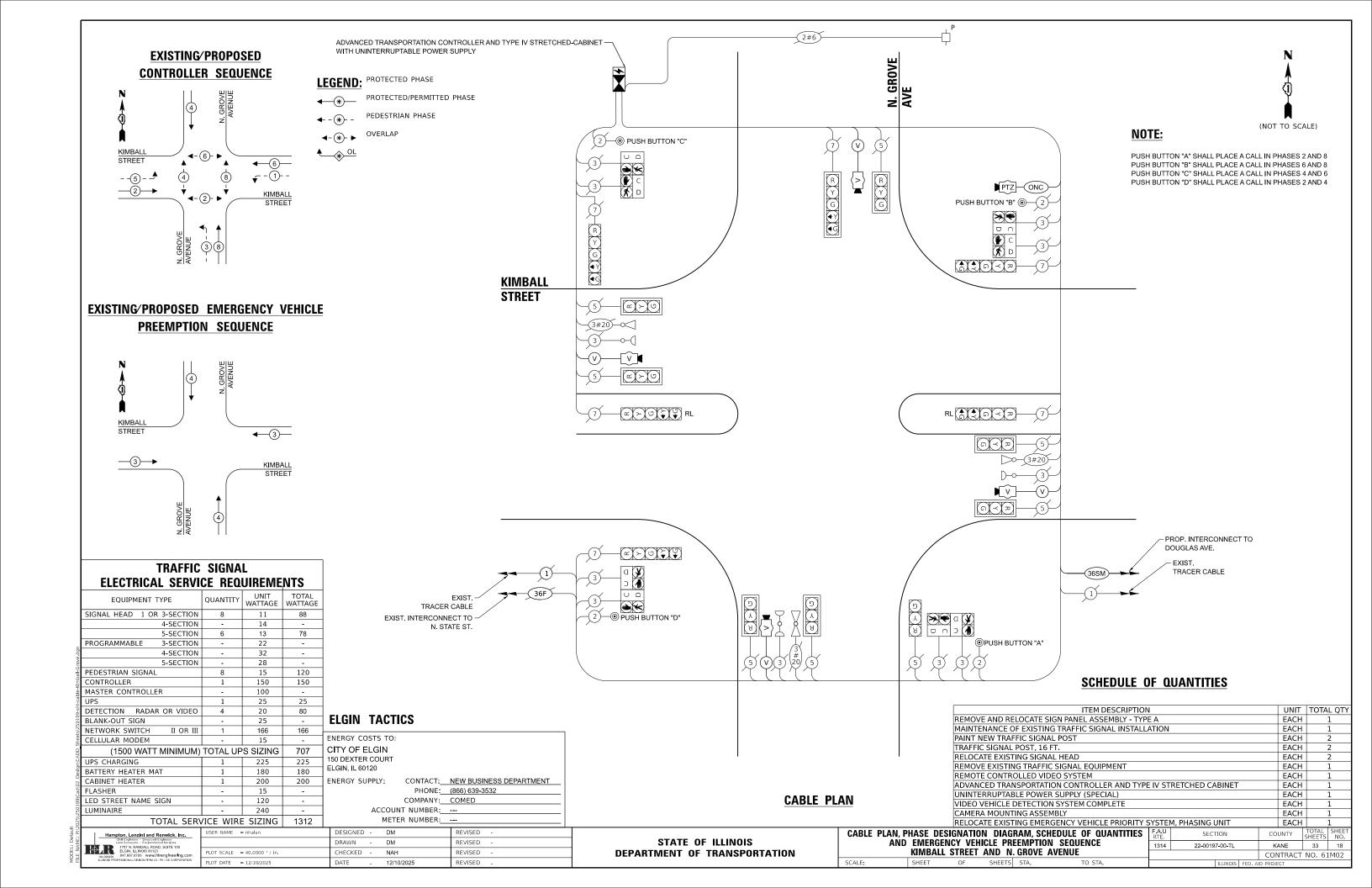


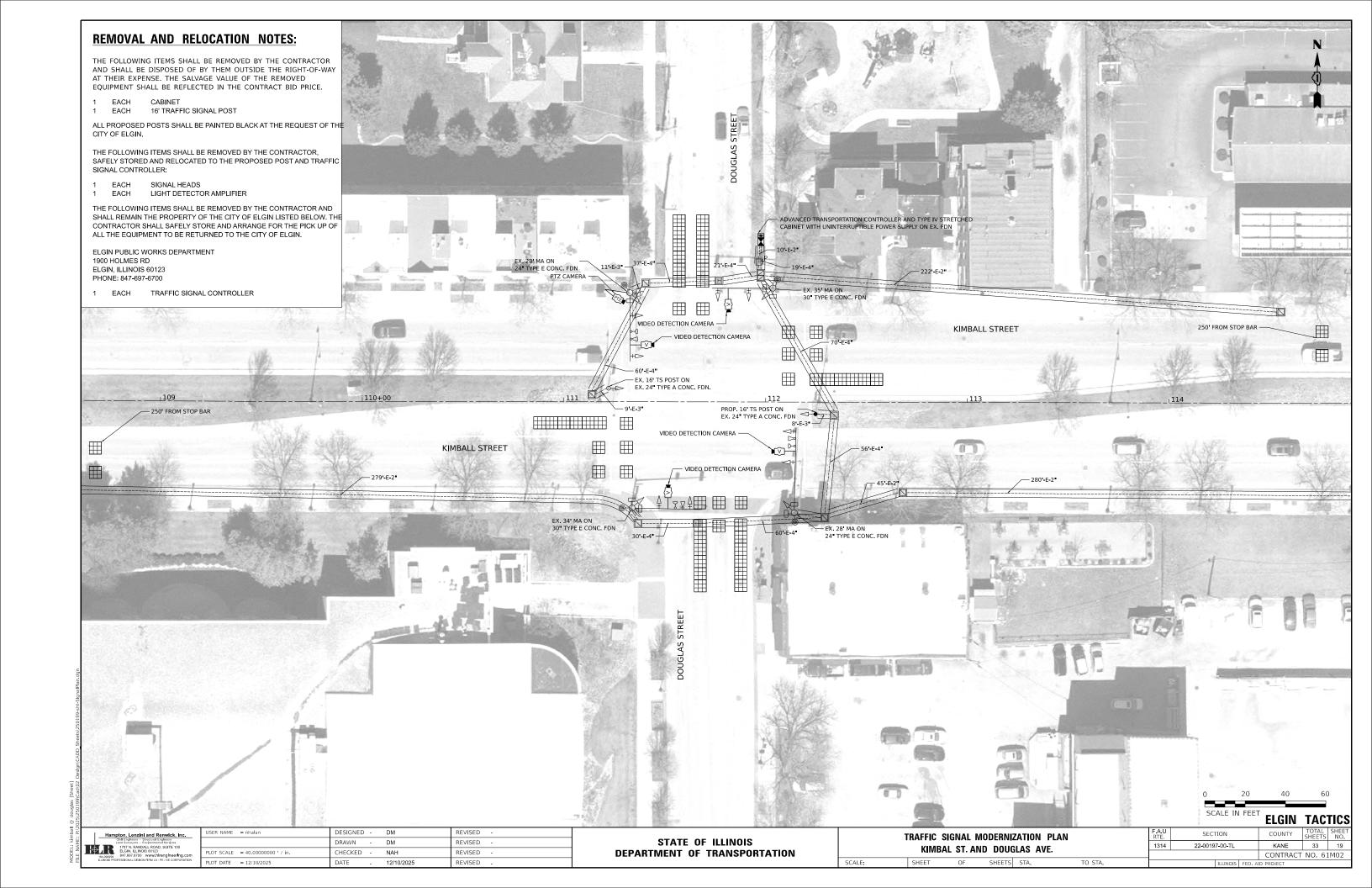
NRT = "NO RIGHT TURN" OR

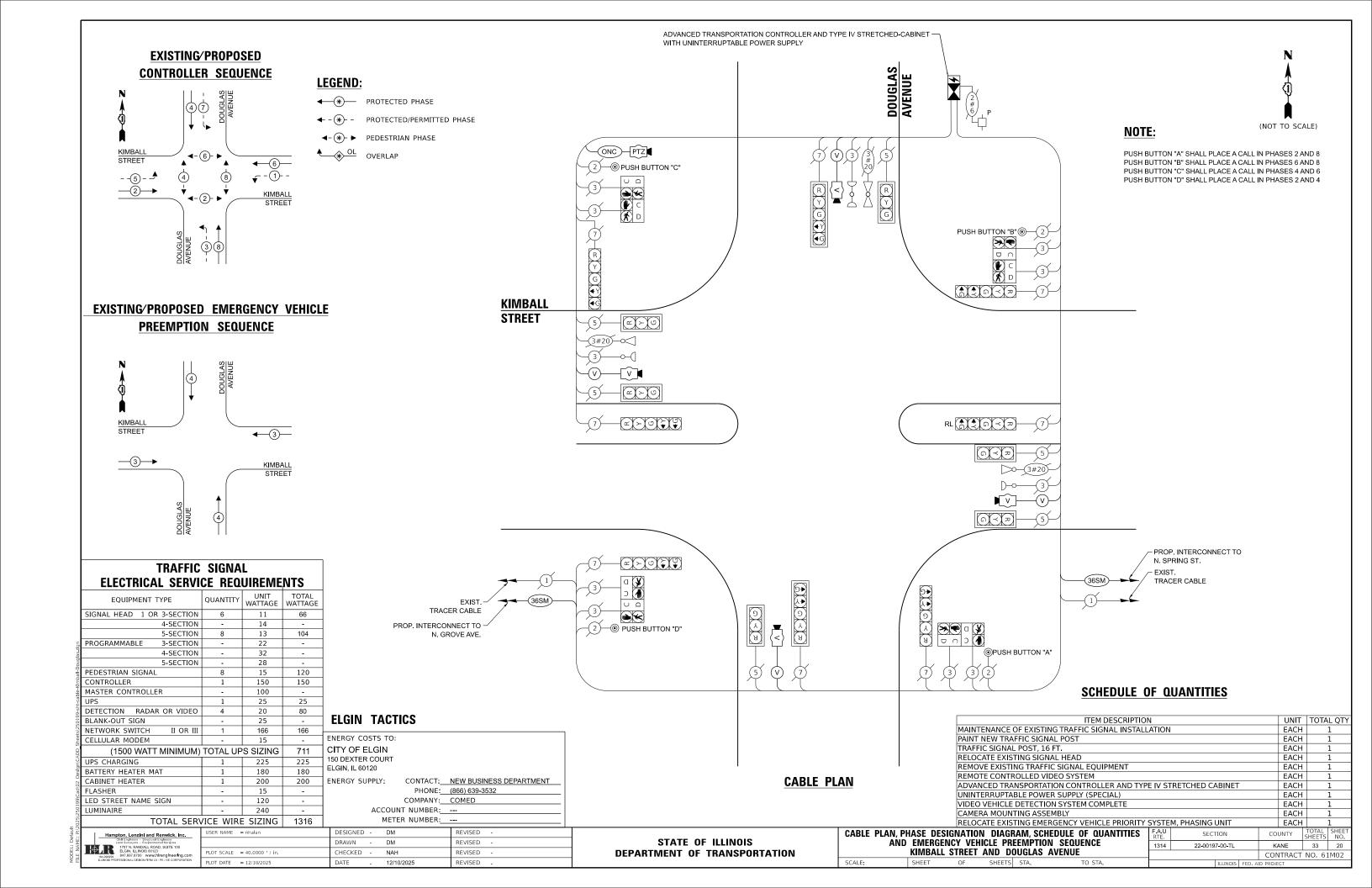


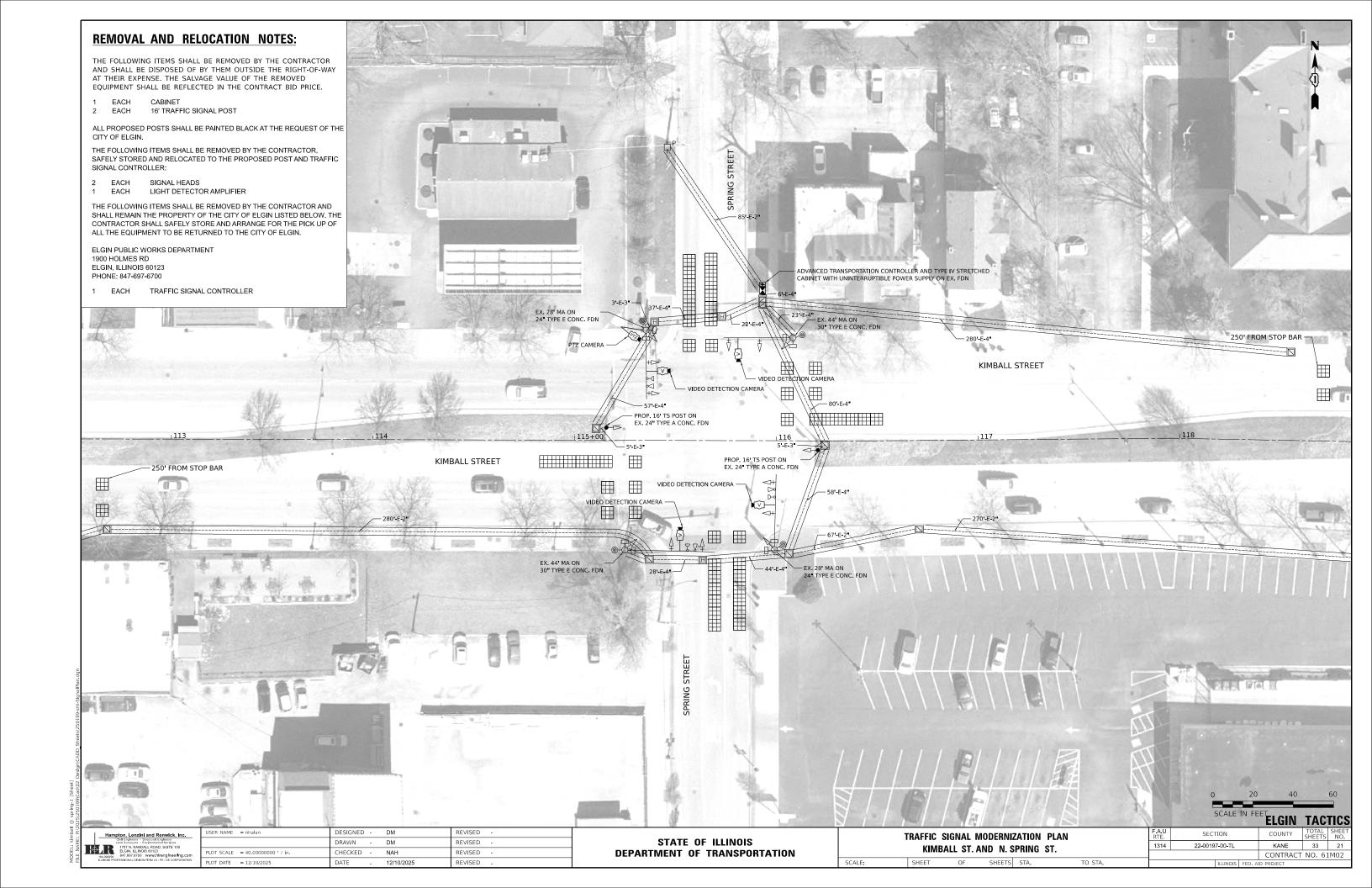
△ RAILROAD PREEMPTION SEQUENCE SHALL PROVIDE THE PROPER CLEARANCE INTERVAL TO RESUME THE NORMAL SEQUENCE OF OPERATION OR PROPER CLEARANCE INTERVAL TO DISPLAY AN EMERGENCY VEHICLE INTERVAL (IF APPLICABLE) AFTER RAILROAD PREEMPTION INTERVAL 5 IS TERMINATED.

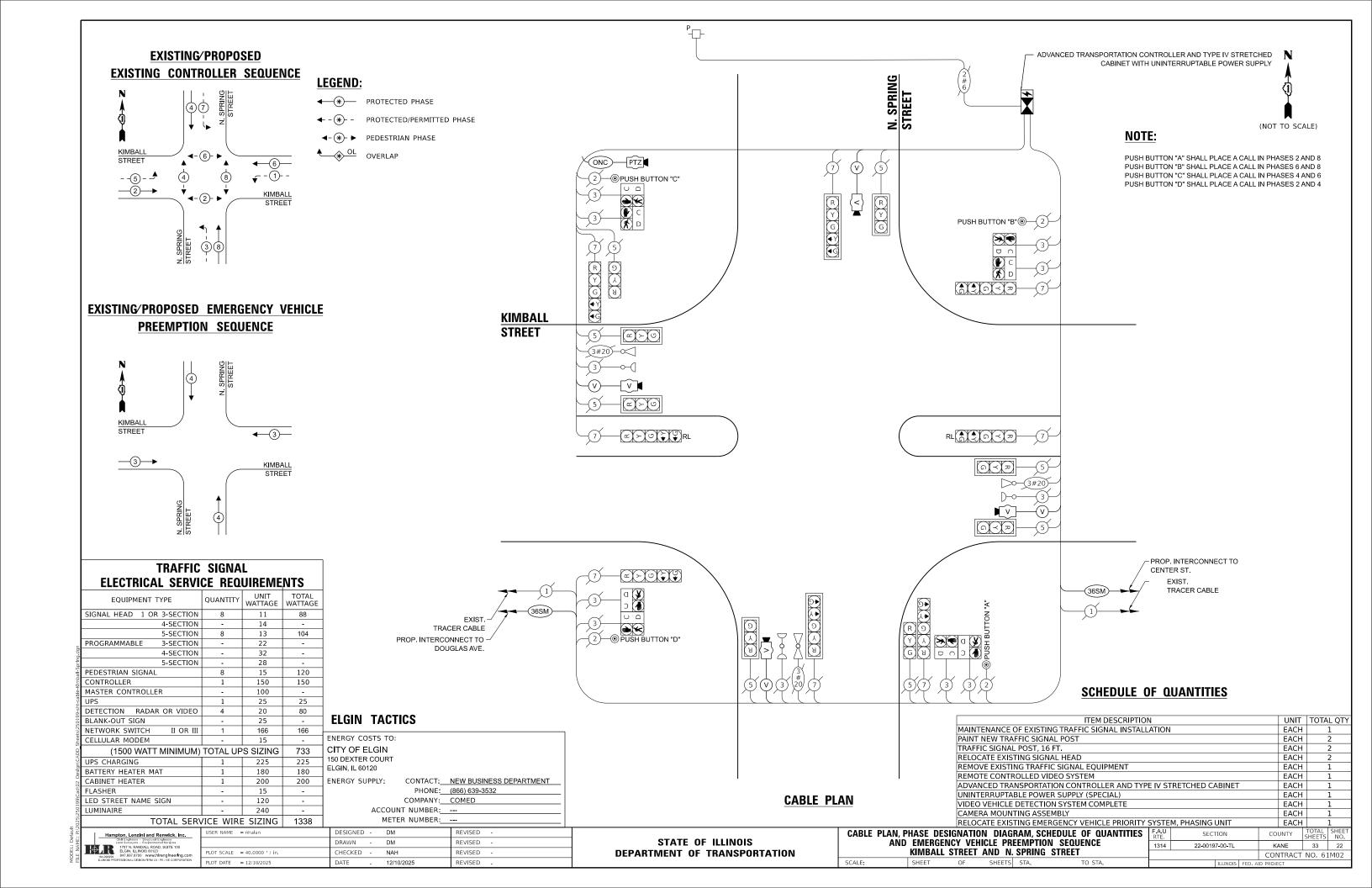




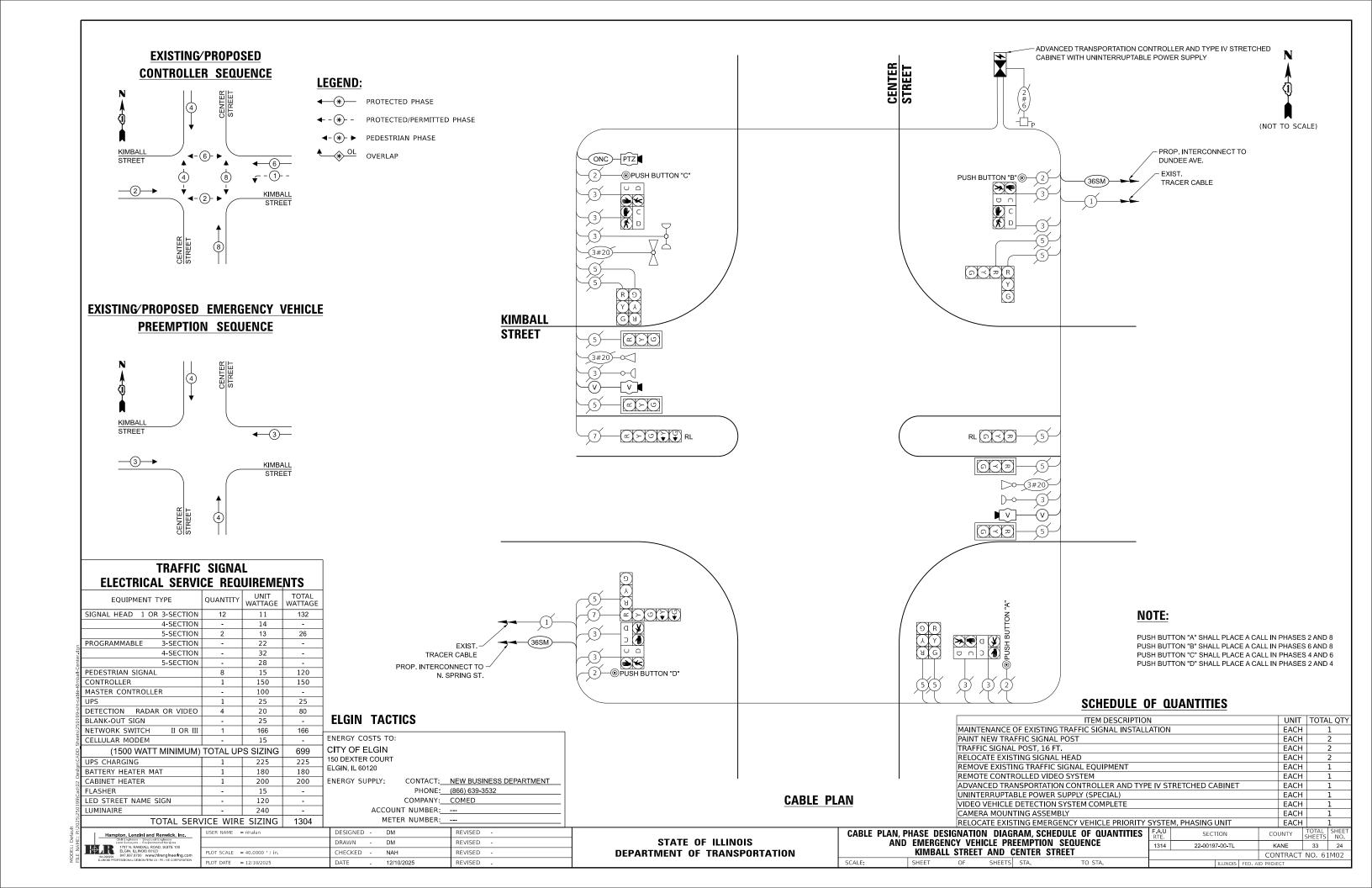


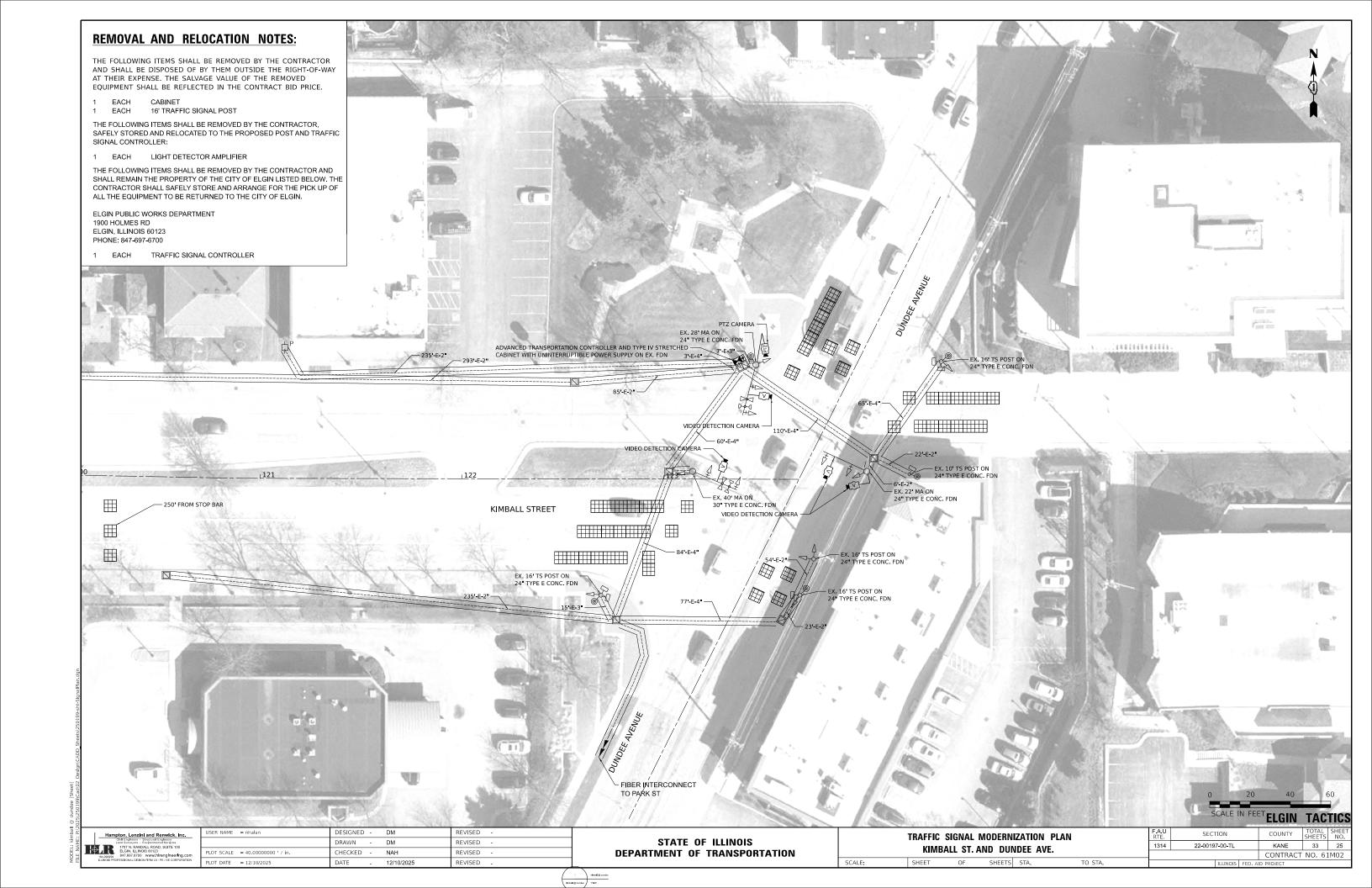


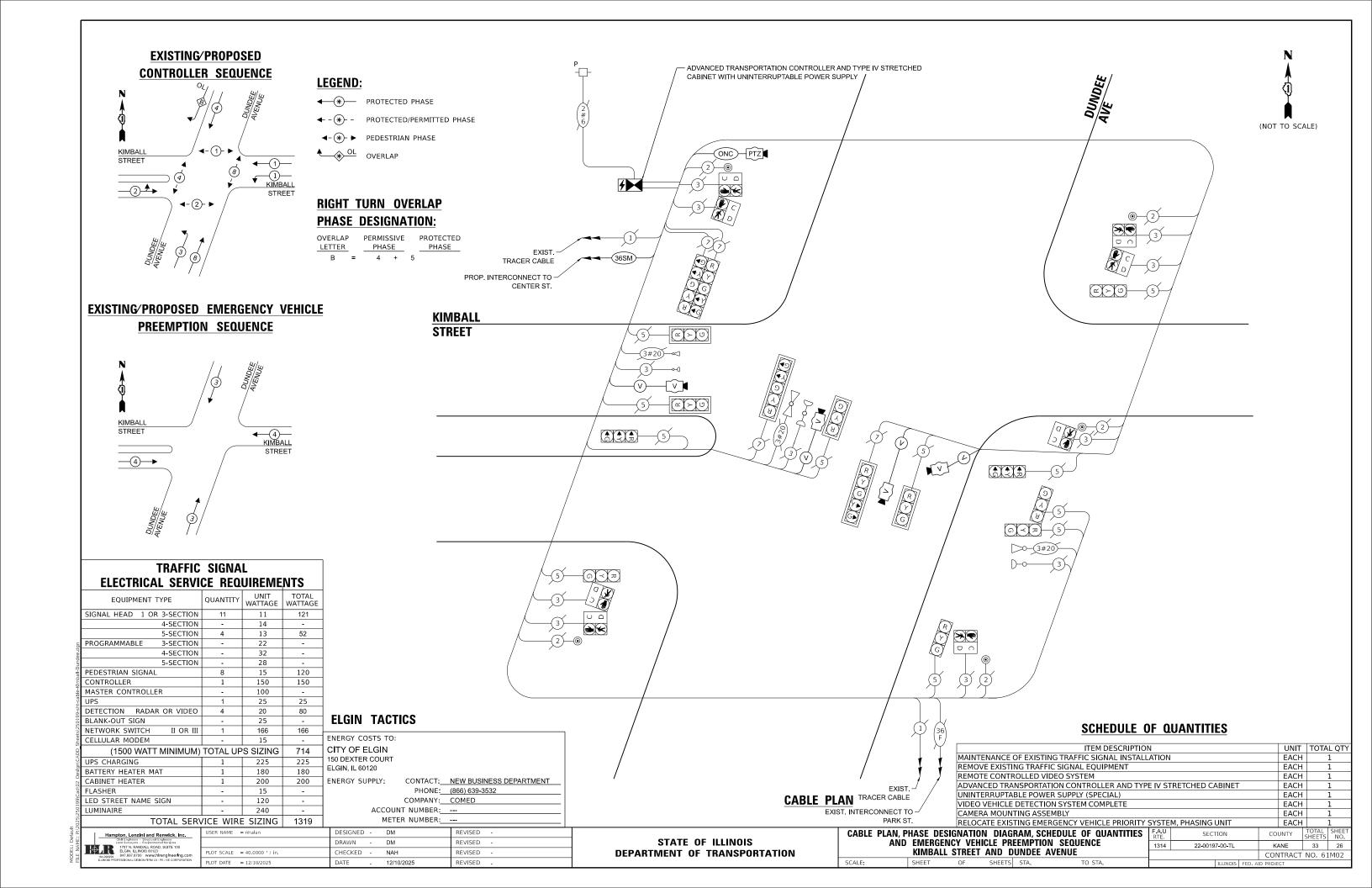


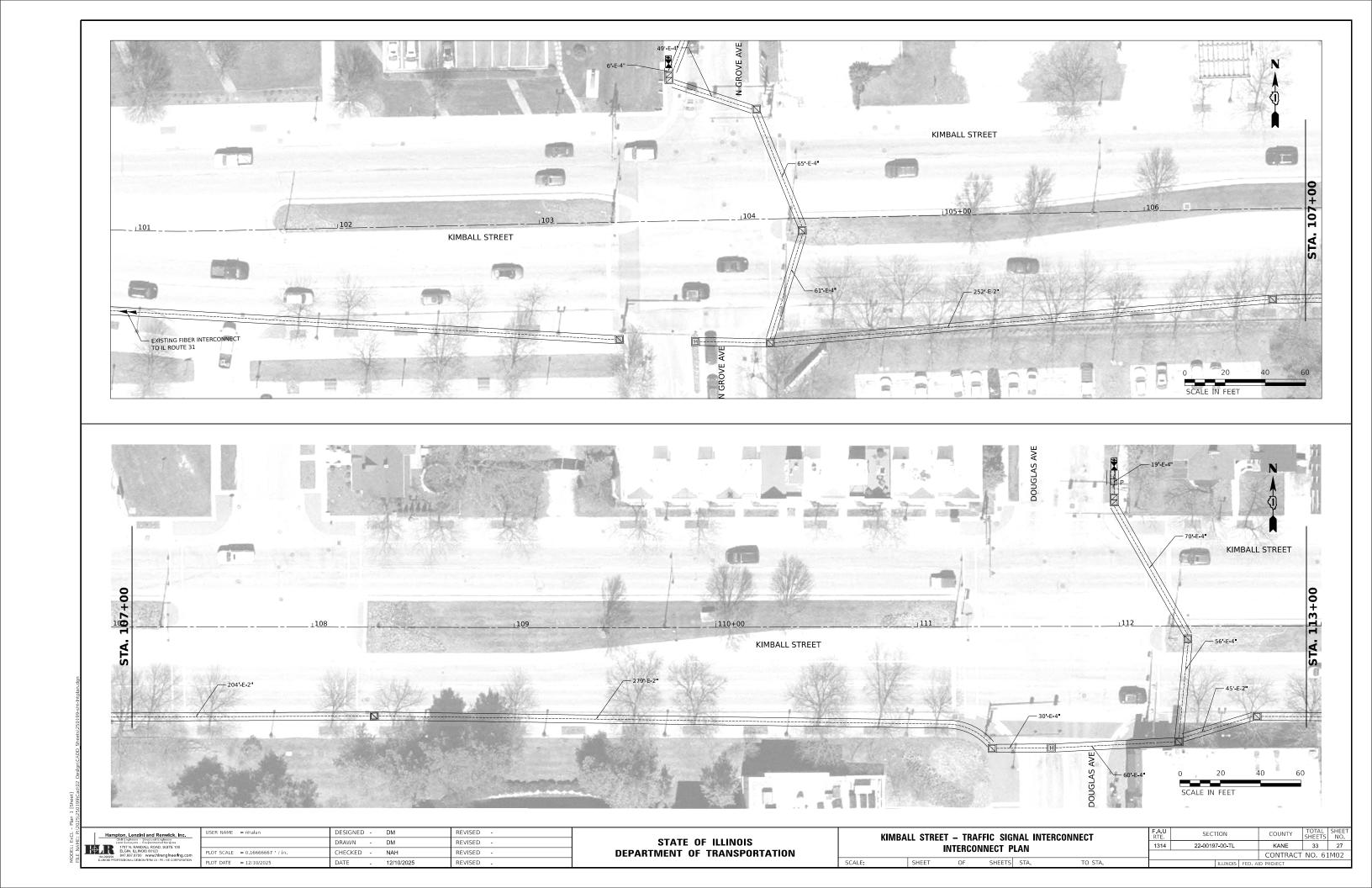




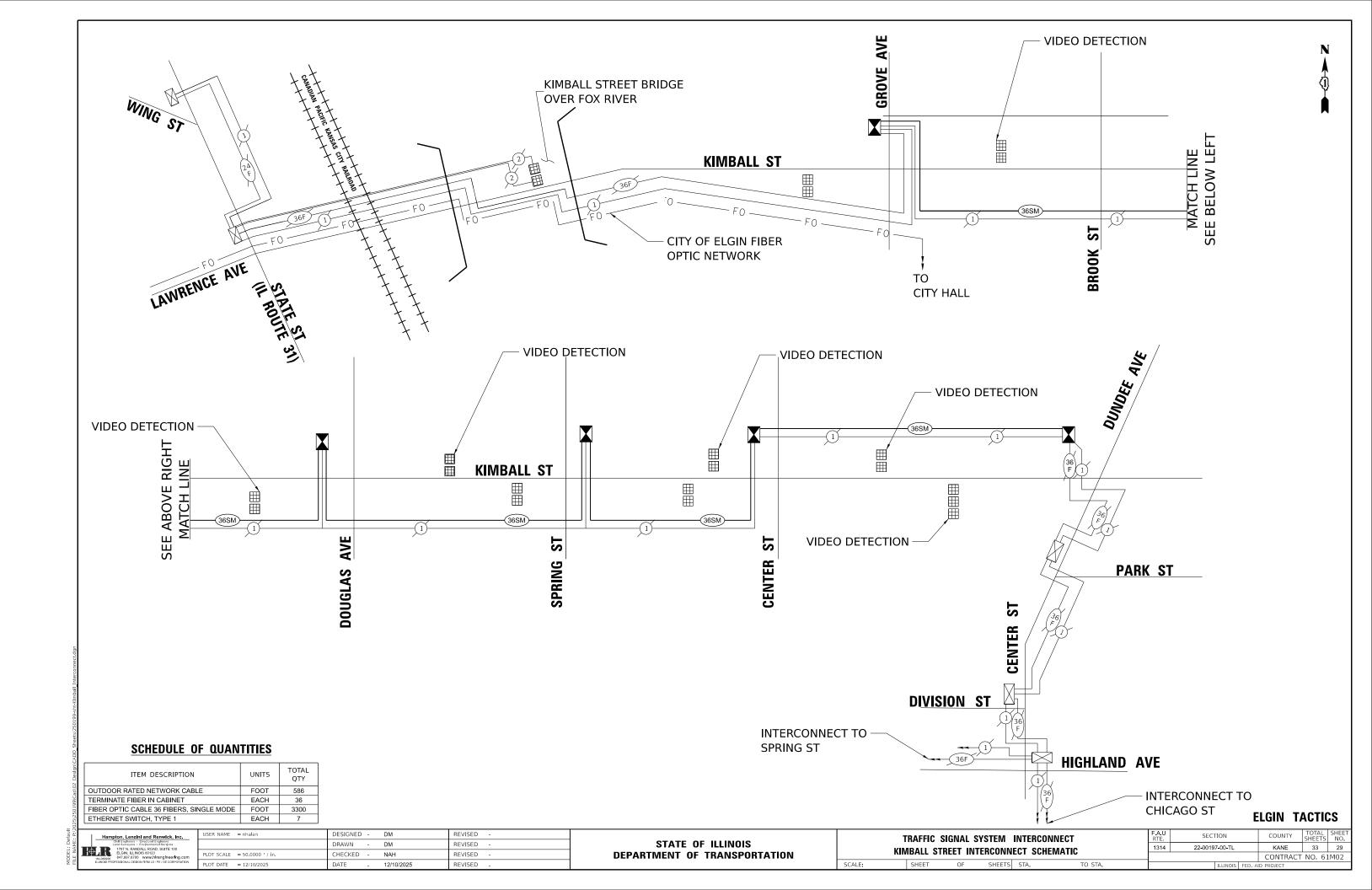




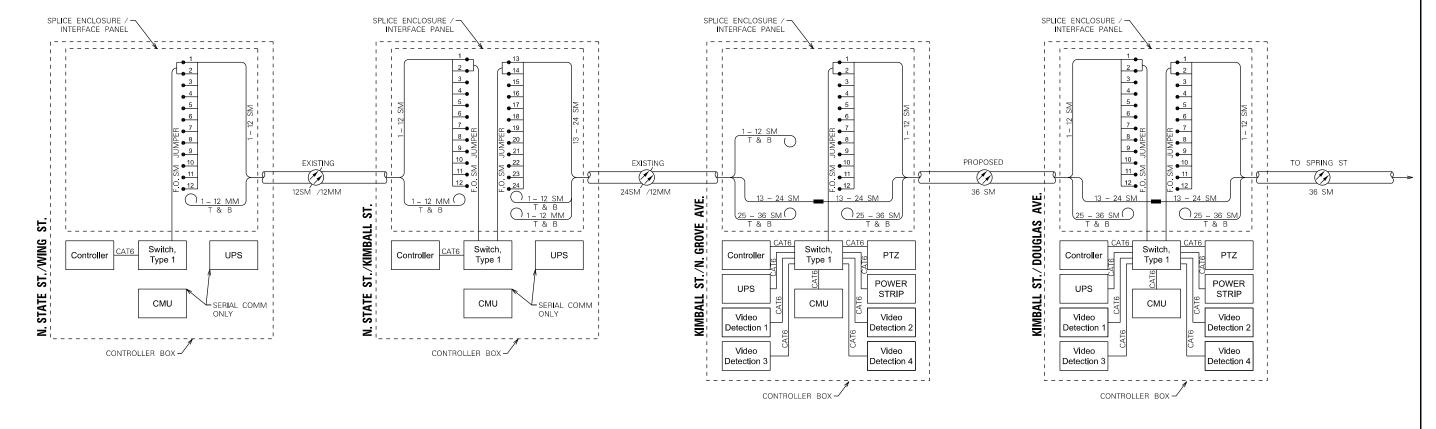








#### FIBER OPTIC SPLICING DIAGRAMS



#### <u>LEGEND</u>

Hampton, Lenzini and Renwick, Inc. Land Surveyors - Environmental Services

1707 N. RANDALL ROAD, SUITE 100
ELGIN, ILLINOIS 60123

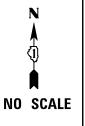
184-00055

847.897.87700 www.hirenglneering.com

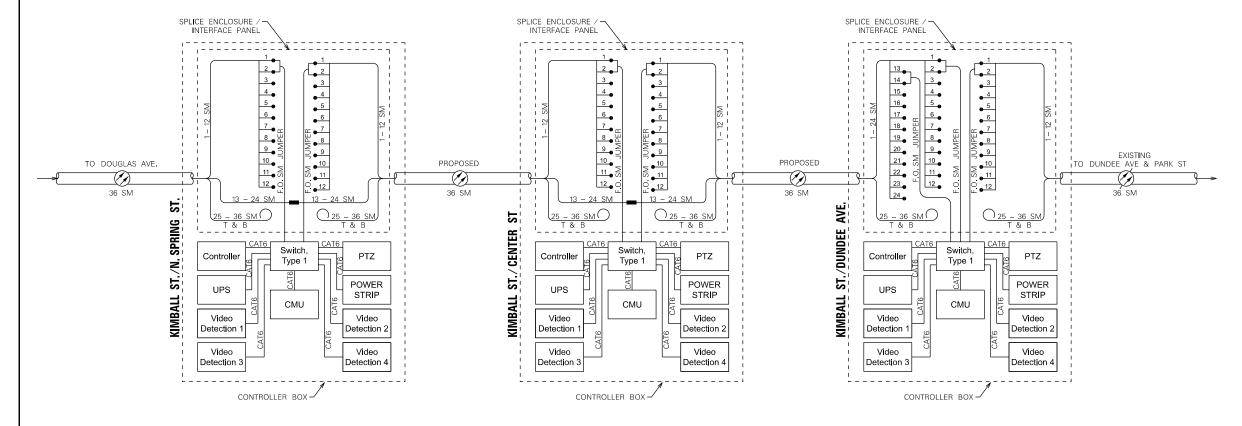
JSER NAME = nhalan DESIGNED -REVISED DRAWN DM REVISED NAH REVISED

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION**  PROPOSED FIBER OPTIC SPLICING DETAIL KIMBALL STREET FROM N. STATE ST. TO DOUGLAS AVE. SHEETS STA.

SECTION COUNTY 22-00197-00-TL 1314 KANE 33 30 CONTRACT NO. 61M02



#### FIBER OPTIC SPLICING DIAGRAMS



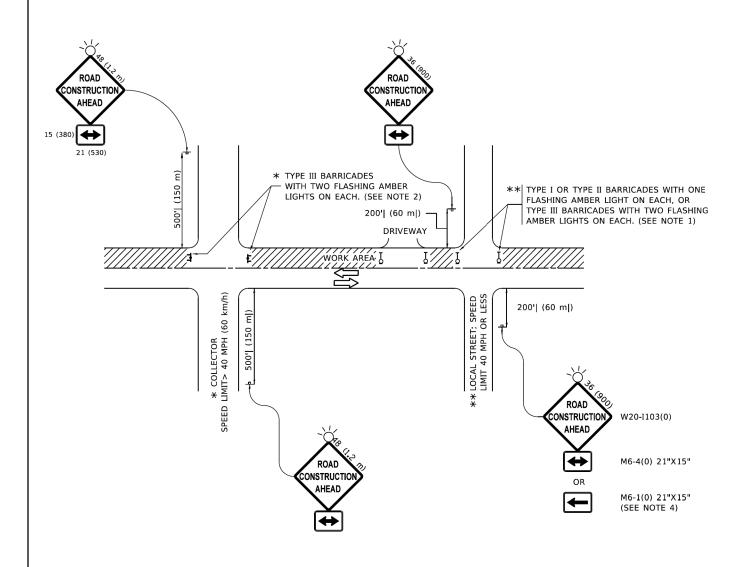
#### <u>LEGEND</u>

Hampton, Lenzini and Renwick, Inc. Land Surveyors - Environmental Services
1707 N. RANDALI ROAD, SUITE 100
ELGIN, ILLINOIS 80123
184.000359 847.897.8700 www.hirengineering.com
LUNOIS PROCESSIONAL DESIGN FIRM LS / PE / SE CORPORATION

JSER NAME = nhalan DESIGNED -REVISED DRAWN -DM REVISED NAH REVISED

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION**  PROPOSED FIBER OPTIC SPLICING DETAIL KIMBALL STREET FROM SPRING ST. TO DUNDEE AVE. SHEETS STA.

SECTION COUNTY 1314 22-00197-00-TL KANE 33 31 CONTRACT NO. 61M02



#### NOTES:

- 1. SIDE ROAD WITH A SPEED LIMIT OF 40 MPH (60 km/h) OR LESS AS SHOWN ON THE DRAWING AND AS DIRECTED BY THE ENGINEER:
- a) ONE "ROAD CONSTRUCTION AHEAD" SIGN 36 x 36 (900x900) WITH A FLASHER MOUNTED ON IT APPROXIMATELY 200' (60 m) IN ADVANCE OF THE MAIN ROUTE.
- b) THE CLOSED PORTION OF THE MAIN ROUTE SHALL BE PROTECTED BY BLOCKING WITH TYPE I, TYPE II OR TYPE III BARRICADES, 1/3 OF THE CROSS SECTION OF THE CLOSED PORTION.
- SIDE ROAD WITH A SPEED LIMIT GREATER THAN 40 MPH (60 km/h) AS SHOWN ON THE DRAWING AND AS DIRECTED BY THE ENGINEER:
  - a) ONE "ROAD CONSTRUCTION AHEAD" SIGN 48 x 48 (1.2 m x 1.2 m) WITH A FLASHER MOUNTED ON IT APPROXIMATELY 500' (150 m) IN ADVANCE OF THE MAIN ROUTE.
- THE CLOSED PORTION OF THE MAIN ROUTE SHALL BE PROTECTED BY
  b) BLOCKING WITH TYPE III BARRICADES, 1/2 OF THE CROSS SECTION
  OF THE CLOSED PORTION.
- 3. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS AT HALF THE SPACING DURING DAY OPERATIONS. CONES SHALL BE A MINIMUM OF 28 (710) IN HEIGHT
- WHEN THE SIDE ROAD LIES BETWEEN THE BEGINNING OF THE MAINLINE
  4. SIGNING AND THE WORK ZONE, A SINGLE HEADED ARROW (M6-1) SHALL
  BE USED IN LIEU OF THE DOUBLE HEADED ARROW (M6-4).

- WHEN WORK IS BEING PERFORMED ON A SIDE ROAD OR DRIVEWAY, FOLLOW THE APPLICABLE STANDARD(S). THE DIRECTIONAL ARROW (M6-1 OR M6-4) SHALL BE COVERED OR REMOVED WHEN NO LONGER CONSISTENT WITH THE TRAFFIC CONTROL SET-UP.
- 6. ADVANCE WARNING SIGNS ARE TO BE OMITTED ON DRIVEWAYS UNLESS OTHERWISE SPECIFIED IN THE PLANS OR BY THE ENGINEER
- THE TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS SHALL BE INCLUDED IN THE COST OF SPECIFIED TRAFFIC CONTROL STANDARDS OR ITEMS.

All dimensions are in inches (millimeters) unless otherwise shown.

HAMPTON, LENZINI AND RENWICK, INC.
1707 N. RANDALL BOAD, BUTE 100
EGMI, KLINGIS 60123
ILLINGIS ROPESSIONAL, DESIGN FRM
LI, SYPE / SE CORP. 184-008690

 USER NAME
 = Lawrence.DeManche
 DESIGNED
 L.H.A.
 REVISED
 T. RAMMACHER 01-06-00

 DRAWN
 REVISED
 A. SCHUETZE 07-01-13

 PLOT SCALE
 = 100.0000 '/ in.
 CHECKED
 REVISED
 A. SCHUETZE 09-15-16

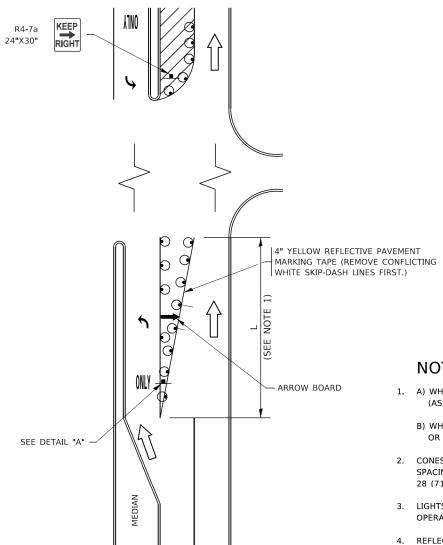
 PLOT DATE
 = 5/3/2024
 DATE
 06-89
 REVISED
 D. SENDERAK 05-03-24

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS

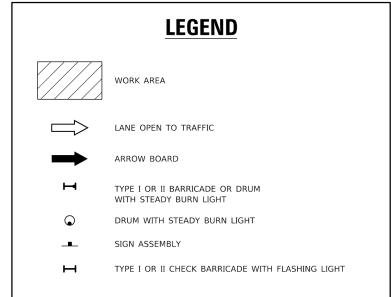
SHEET 1 OF 1 SHEETS STA. TO SECOND STANDARD STANDARD

# TURN BAY ENTRANCE AT START OF LANE CLOSURE TAPER



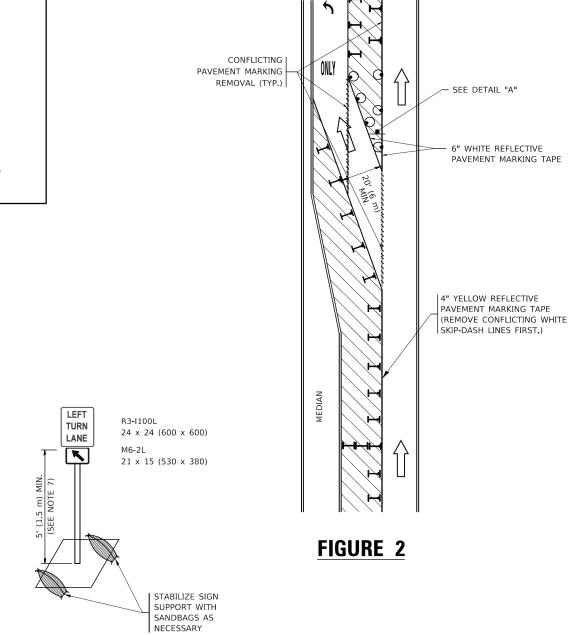
## FIGURE 1

# TURN BAY ENTRANCE WITHIN A LANE CLOSURE



#### NOTES:

- A) WHEN "L" IS ≤ THE STORAGE LENGTH OF THE TURN LANE (AS SHOWN IN FIG. 1), USE FIGURE 1.
  - B) WHEN "L" IS > THE STORAGE LENGTH OF THE TURN LANE
    OR THE TURN LANE IS WITHIN THE LANE CLOSURE, USE FIGURE 2.
- CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS AT HALF THE SPACING DURING DAY OPERATIONS. CONES SHALL BE A MINIMUM OF 28 (710) IN HEIGHT.
- LIGHTS WILL NOT BE REQUIRED ON BARRICADES OR DRUMS FOR DAY OPERATIONS. ALL LIGHTS SHALL BE MONODIRECTIONAL.
- 4. REFLECTIVE TEMPORARY PAVEMENT MARKINGS SHALL BE PLACED THROUGHOUT THE BARRICADED AREAS OF EACH TURN BAY AS SHOWN WHERE THE CLOSURE TIME IS GREATER THAN FOURTEEN (14) DAYS.
- THIS APPLICATION ALSO APPLIES WHEN WORK IS BEING PERFORMED IN THE RIGHT LANE(S) AND THE RIGHT TURN BAY IS TO REMAIN OPEN. UNDER THIS CONDITION, "RIGHT TURN LANE" R3-I100R 24 x 24 (600 x 600) AND M6-2R 21 x 15 (530 x 380) SHALL BE USED.
- THESE CONTROLS SHALL SUPPLEMENT MAINLINE TRAFFIC CONTROL FOR LANE CLOSURES.
- THE SIGNS SHALL BE MOUNTED ABOVE THE BARRICADES/DRUMS ON SEPARATE SIGN SUPPORTS THAT MEET NCHRP 350 OR MASH PREOUIREMENTS.
- TRAFFIC CONTROL AND PROTECTION AT TURN BAYS (TO REMAIN OPEN TO TRAFFIC) SHALL BE INCLUDED IN THE COST OF SPECIFIED TRAFFIC CONTROL STANDARDS OR ITEMS.



**DETAIL A** 

All dimensions are in inches (millimeters) unless otherwise shown.

HAMPTON, LENZINI AND RENWICK, INC.
1707 N. RANDALL ROAD, SUITE 100
ELON, ILLINO'S BO123
ILLINO'S POFESSIONAL DESIGN FIRM
LS / PE / SE CORP. 184.000959

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND PROTECTION AT TURN BAYS

(TO REMAIN OPEN TO TRAFFIC)

SCALE: NONE SHEET 1 OF 1 SHEETS STA. TO STA.