

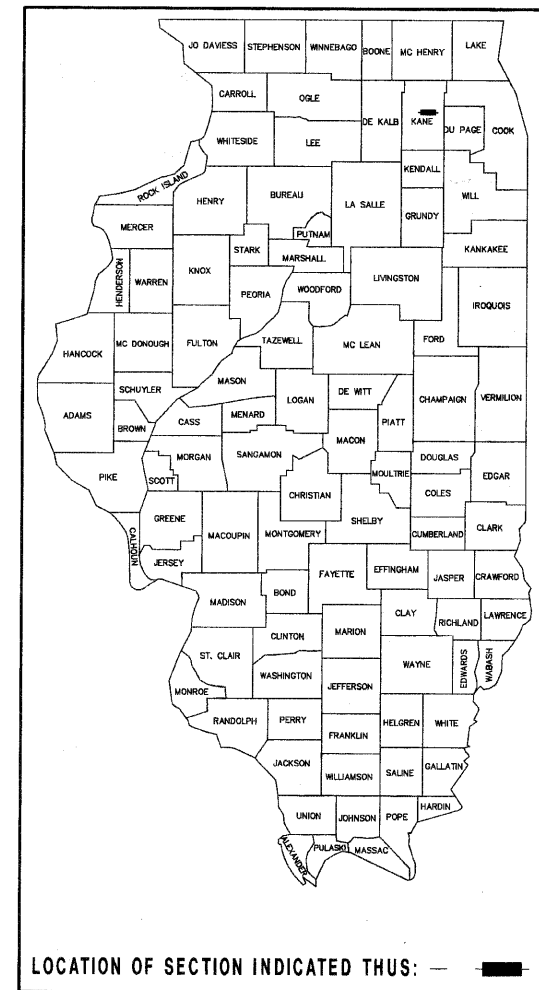
INDEX TO SHEETS

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4	KIMBALL STREET INTERCONNECT PLAN (DUNDEE AVENUE: KIMBALL ST. TO DIVISION ST.)
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6	NATIONAL STREET INTERCONNECT PLAN (NATIONAL STREET: STATE ST. TO GROVE AVE.)
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9-14	DISTRICT 1 TRAFFIC SIGNAL STANDARDS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED
FEDERAL AID HIGHWAY
F.A.U. 1314 KIMBALL STREET AND F.A.U. 1326 NATIONAL STREET
IL 31 (STATE STREET) TO DUNDEE AVENUE/VILLA STREET
TRAFFIC SIGNAL SYSTEM INTERCONNECT
SECTION 10-00181-00-TL
PROJECT NO. CMM-9003 (732)
CITY OF ELGIN
KANE COUNTY
JOB NO. C-91-164-11

F.A.U. ROUTE	MUNICIPAL SECTION	COUNTY	TOTAL SHEET SHTS.	SHTS. NO.
1314 & 1326	10-00181-00-TL	KANE	14	1

COVER SHEET
 F.H.W.A. REG.5 ILLINOIS CONTRACT NO. 63529

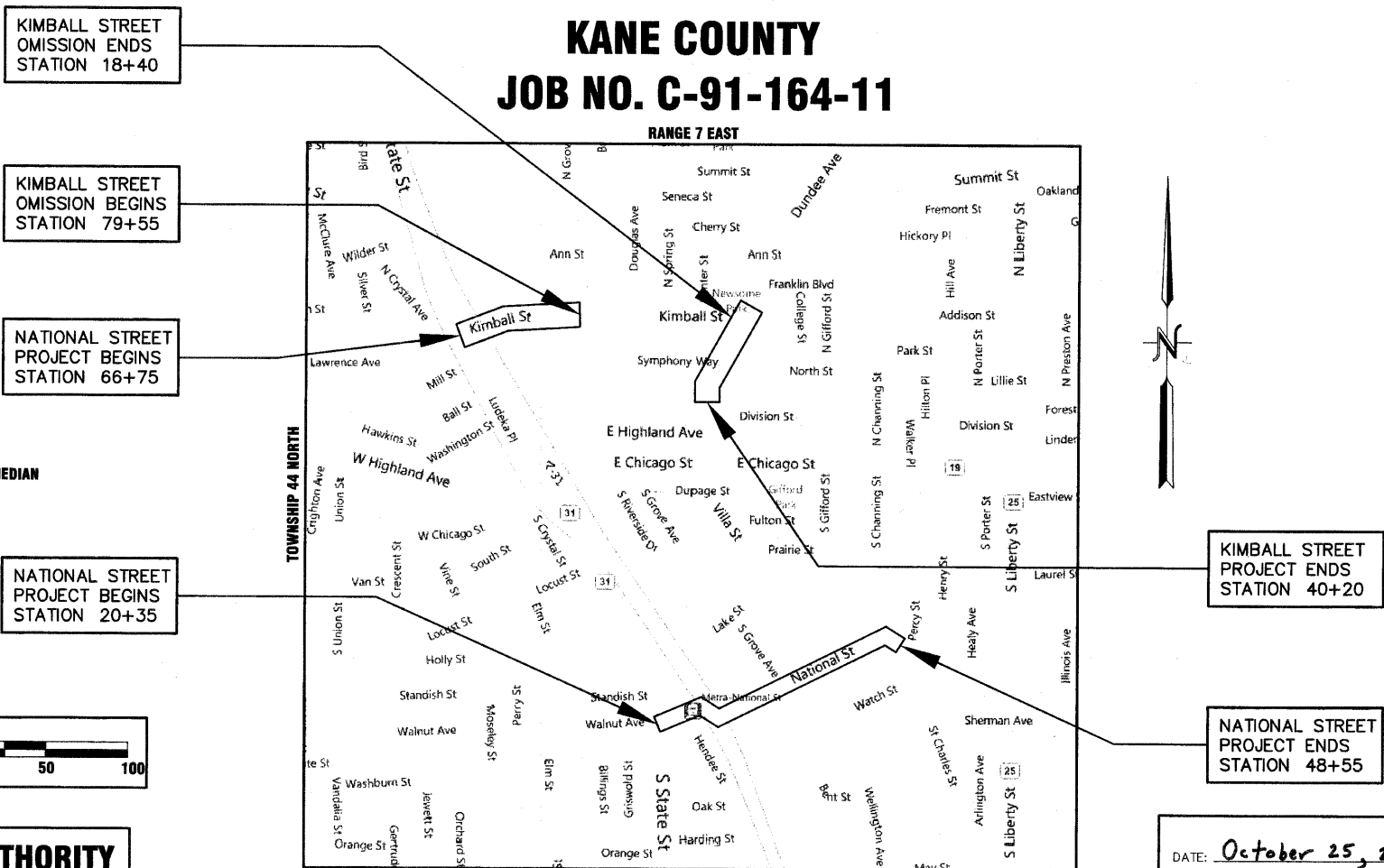


DESIGN DESIGNATION

KIMBALL STREET - ARTERIAL, 30 MPH POSTED SPEED LIMIT
 DUNDEE AVENUE - ARTERIAL, 30 MPH POSTED SPEED LIMIT
 NATIONAL STREET - COLLECTOR, 30 MPH POSTED SPEED LIMIT

STATE STANDARDS

- 000001-06 STANDARD SYMBOLS ABBREVIATIONS & PATTERNS
- 701501-06 URBAN LANE CLOSURE - 2-LANE, 2-WAY - UNDIVIDED
- 701601-07 URBAN LANE CLOSURE MULTI-LANE 1W OR 2W WITH NON-TRAVERSABLE MEDIAN
- 701901-01 TRAFFIC CONTROL DEVICES
- 814001-02 HANDHOLES
- 857001-01 STANDARD PHASE DESIGNATION DIAGRAMS AND PHASE SEQUENCES



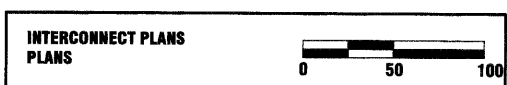
LOCATION MAP
 APPROXIMATE SCALE 1" = 1,000'
 GROSS LENGTH OF PROJECT = 4900 FT (0.93 MILE)
 NET LENGTH OF PROJECT = 4900 FT (0.93 MILE)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

APPROVED October 25, 2010
Joe Brent
 CITY ENGINEER, CITY OF ELGIN

PASSED November 5, 2010
Chris Smith
 DISTRICT 1 ENGINEER OF LOCAL ROADS AND STREETS

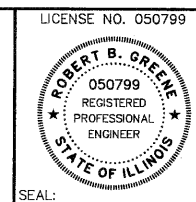
RELEASING FOR BID
 BASED ON LIMITED REVIEW November 8, 2010
Diana M. O'Keefe
 DEPUTY DIRECTOR OF HIGHWAYS REGION 1 ENGINEER



**PRINTED BY THE AUTHORITY
 OF THE STATE OF ILLINOIS**

CONTRACT NO. 63529

DATE: October 25, 2010
 BY: Robert B. Greene
 LICENSE EXPIRES: NOVEMBER 30, 2011



HLR
 Hampton Lenzini and Renwick, Inc.
 Civil Engineers
 Land Surveyors
 380 Shepard Drive
 Elgin, Illinois 60123-7010
 847.697.6700
 Account Number
 10.0181.330

PROGRAM AND OFFICE ENGINEER: CHARLES F. RIDDLE, P.E. 847-705-4406

GENERAL NOTES

THE EXACT LOCATION OF ALL UTILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE THE INSTALLATION OF ANY COMPONENTS OF THE TRAFFIC SIGNAL SYSTEM. FOR LOCATION OF UTILITIES CALL J.U.L.I.E. TOLL-FREE NUMBER 1-800-892-0123 AND/OR NON-J.U.L.I.E. UTILITIES AT THE NUMBER GIVEN IN THE CONTRACT DOCUMENTS. A MINIMUM 48-HOUR ADVANCE NOTICE IS REQUIRED.

THE LOCATION OF EXISTING DRAINAGE STRUCTURES, STORM SEWERS, WATER MAINS, SANITARY SEWERS, AND ANY OTHER PUBLIC OR PRIVATE UTILITIES AS SHOWN ON THE PLANS IS APPROXIMATE, AND THEIR EXACT LOCATION IS TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR. THE CONTRACTOR SHALL USE ALL NECESSARY PRECAUTIONS AND PROTECTIVE MEASURES REQUIRED TO MAINTAIN, AND PREVENT THE UNDERMINING OF EXISTING UTILITIES AND SEWERS IN SERVICE. THIS WORK SHALL BE CONSIDERED INCLUDED IN THE COST OF MOBILIZATION.

THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE CITY OF ELGIN TRAFFIC SIGNAL SUPERINTENDENT AT (847) 697-3160 PRIOR TO THE START OF ANY WORK ON THIS CONTRACT. A MINIMUM 72-HOUR ADVANCE NOTICE IS REQUIRED.

BASELINES SHOWN ARE TO THE C OF RIGHT-OF-WAY UNLESS OTHERWISE SHOWN.

ALL CONDUITS SHALL HAVE A MINIMUM OF 24-INCHES OF COVER.

ALL CONDUIT SPLICES ARE INCLUDED IN THE COST OF THE NEW CONDUIT BEING INSTALLED.

THE ACTUAL TYPE, SIZE AND LOCATION OF ALL PROPOSED CONCRETE FOUNDATIONS SHALL BE APPROVED BY THE CITY OF ELGIN PRIOR TO CONSTRUCTION OF THE FOUNDATIONS. ALL PROPOSED CONCRETE FOUNDATIONS SHALL BE MEASURED PRIOR TO POURING OF CONCRETE.

THE CONTRACTOR WILL BE REQUIRED TO RELOCATE OR REMOVE AND REPLACE SIGNS WHICH INTERFERE WITH HIS CONSTRUCTION OPERATIONS AND TO TEMPORARILY RESET ALL SUCH SIGNS DURING CONSTRUCTION OPERATIONS AND IN ACCORDANCE WITH ARTICLE 107.25.

WORK INVOLVING SIGNS SHALL ADHERE TO THE FOLLOWING:

- a) SIGNS SHALL NOT BE MOVED UNTIL PROGRESS OF WORK REQUIRE IT.
- b) SIGNS REMOVED MUST BE RE-ERECTED AT A TEMPORARY LOCATION IN A WORKMANLIKE MANNER AND BE VISIBLE TO THE TRAFFIC FOR WHICH INTENDED. ALL SUCH SIGNS MUST BE MAINTAINED STRAIGHT AND CLEAN FOR DURATION OF THE WORK.
- c) EXISTING SIGNS SHALL BE FINAL RELOCATED AS APPROVED BY THE ENGINEER.

ALL TRAFFIC CONTROL AND OTHER ADVISORY SIGNS NEEDED FOR CONSTRUCTION ARE TO BE FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH ARTICLE 107.14 OF THE STANDARD SPECIFICATIONS. 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.

ALL TYPE I AND II BARRICADES SHALL BE WEIGHTED DOWN WITH TWO SANDBAGS EACH.

EARTH EXCAVATION AND DISPOSAL OF SURPLUS MATERIAL REQUIRED FOR CONSTRUCTION WILL NOT BE PAID FOR, BUT SHALL BE INCLUDED IN THE COST OF THE ITEM CONSTRUCTED.

SAWCUTTING FOR REMOVAL ITEMS AS NOTED ON THE PLANS, SPECIFIED IN THE STANDARD SPECIFICATIONS, OR AS REQUIRED BY THE ENGINEER, SHALL BE INCLUDED IN THE COST OF THE ITEM BEING REMOVED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING FRESH CONCRETE FROM DAMAGE AND VANDALISM. ANY DAMAGED OR VANDALIZED CONCRETE SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL MAINTAIN ACCESS TO ADJACENT PROPERTY, EXISTING SIDE STREETS, DRIVEWAYS, ALLEYS, AND PEDESTRIAN WALKWAYS AT ALL TIMES DURING CONSTRUCTION OF THE PROJECT. AT ALL TIMES, PEDESTRIAN CROSSING SHALL BE PROVIDED IN EACH DIRECTION ACROSS ALL INTERSECTIONS ON BOTH SIDES.

SUMMARY OF QUANTITIES


PI #	ITEM DESCRIPTION	UNIT	QTY	CONSTRUCTION CODE	SPECIAL PROVISION
67100100	MOBILIZATION	L SUM	1	Y031-1F	
70102620	TRAFFIC CONTROL AND PROTECTION, STANDARD 701501	L SUM	1	Y031-1F	
70102630	TRAFFIC CONTROL AND PROTECTION, STANDARD 701601	L SUM	1	Y031-1F	
81018500	CONDUIT PUSHED, 2" DIA., GALVANIZED STEEL	FOOT	50	Y031-1F	
81400100	HANDHOLE	EACH	1	Y031-1F	
85000200	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	9	Y031-1F	*
85700200	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET	EACH	1	Y031-1F	
85700500	FULL-ACTUATED CONTROLLER IN EXISTING CABINET	EACH	4	Y031-1F	*
86000100	MASTER CONTROLLER	EACH	1	Y031-1F	*
86400100	TRANSCEIVER - FIBER OPTIC	EACH	5	Y031-1F	
87900200	DRILL EXISTING HANDHOLE	EACH	2	Y031-1F	
88500100	INDUCTIVE LOOP DETECTOR	EACH	43	Y031-1F	
89502210	MODIFY EXISTING CONTROLLER CABINET	EACH	6	Y031-1F	*
89502300	REMOVE ELECTRIC CABLE FROM CONDUIT	FOOT	1923	Y031-1F	
89502375	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	5	Y031-1F	*
X0323713	RADIO INTERCONNECT SYSTEM COMPLETE, LOCAL	EACH	1	Y031-1F	*
X8710024	FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM24F	FOOT	5374	Y031-1F	*
Z0033090	ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C	FOOT	5374	Y031-1F	*

SCHEDULE OF QUANTITIES

KIMBALL SYSTEM			TOTAL	IL 31 AT	KIMBALL AT	KIMBALL AT	DUNDEE AT	CENTER AT	SYSTEM
PI #	ITEM DESCRIPTION	UNIT	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
70102620	TRAFFIC CONTROL AND PROTECTION, STANDARD 701501	L SUM	0						
70102630	TRAFFIC CONTROL AND PROTECTION, STANDARD 701601	L SUM	1	0.2	0.2	0.2	0.2	0.2	
81018500	CONDUIT PUSHED, 2" DIA., GALVANIZED STEEL	FOOT	50			50			
81400100	HANDHOLE	EACH	1			1			
85000200	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	5	1	1	1	1	1	
85700200	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET	EACH	1					1	
85700500	FULL-ACTUATED CONTROLLER IN EXISTING CABINET	EACH	0						
86000100	MASTER CONTROLLER	EACH	0						
86400100	TRANSCEIVER - FIBER OPTIC	EACH	1					1	
87900200	DRILL EXISTING HANDHOLE	EACH	2				2		
88500100	INDUCTIVE LOOP DETECTOR	EACH	1					1	
89502210	MODIFY EXISTING CONTROLLER CABINET	EACH	2	1	1				
89502300	REMOVE ELECTRIC CABLE FROM CONDUIT	FOOT	0						
89502375	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1					1	
X0323713	RADIO INTERCONNECT SYSTEM COMPLETE, LOCAL	EACH	0						
X8710024	FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM24F	FOOT	3451						3451
Z0033090	ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C	FOOT	3451						3451

NATIONAL SYSTEM			TOTAL	IL 31 AT	NATIONAL AT	NATIONAL AT	NATIONAL AT	SYSTEM
PI #	ITEM DESCRIPTION	UNIT	QUANTITY	QUANTITY	GROVE	RAYMOND	VILLA	QUANTITY
70102620	TRAFFIC CONTROL AND PROTECTION, STANDARD 701501	L SUM	1	0.25	0.25	0.25	0.25	
70102630	TRAFFIC CONTROL AND PROTECTION, STANDARD 701601	L SUM	0					
81018500	CONDUIT PUSHED, 2" DIA., GALVANIZED STEEL	FOOT	0					
81400100	HANDHOLE	EACH	0					
85000200	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	4	1	1	1	1	
85700200	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET	EACH	0					
85700500	FULL-ACTUATED CONTROLLER IN EXISTING CABINET	EACH	4	1	1	1	1	
86000100	MASTER CONTROLLER	EACH	1		1			
86400100	TRANSCEIVER - FIBER OPTIC	EACH	4	1	1	1	1	
87900200	DRILL EXISTING HANDHOLE	EACH	0					
88500100	INDUCTIVE LOOP DETECTOR	EACH	42	10	13	8	11	
89502210	MODIFY EXISTING CONTROLLER CABINET	EACH	4	1	1	1	1	
89502300	REMOVE ELECTRIC CABLE FROM CONDUIT	FOOT	1923					1923
89502375	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	4	1	1	1	1	
X0323713	RADIO INTERCONNECT SYSTEM COMPLETE, LOCAL	EACH	1					1
X8710024	FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM24F	FOOT	1923					1923
Z0033090	ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C	FOOT	1923					1923

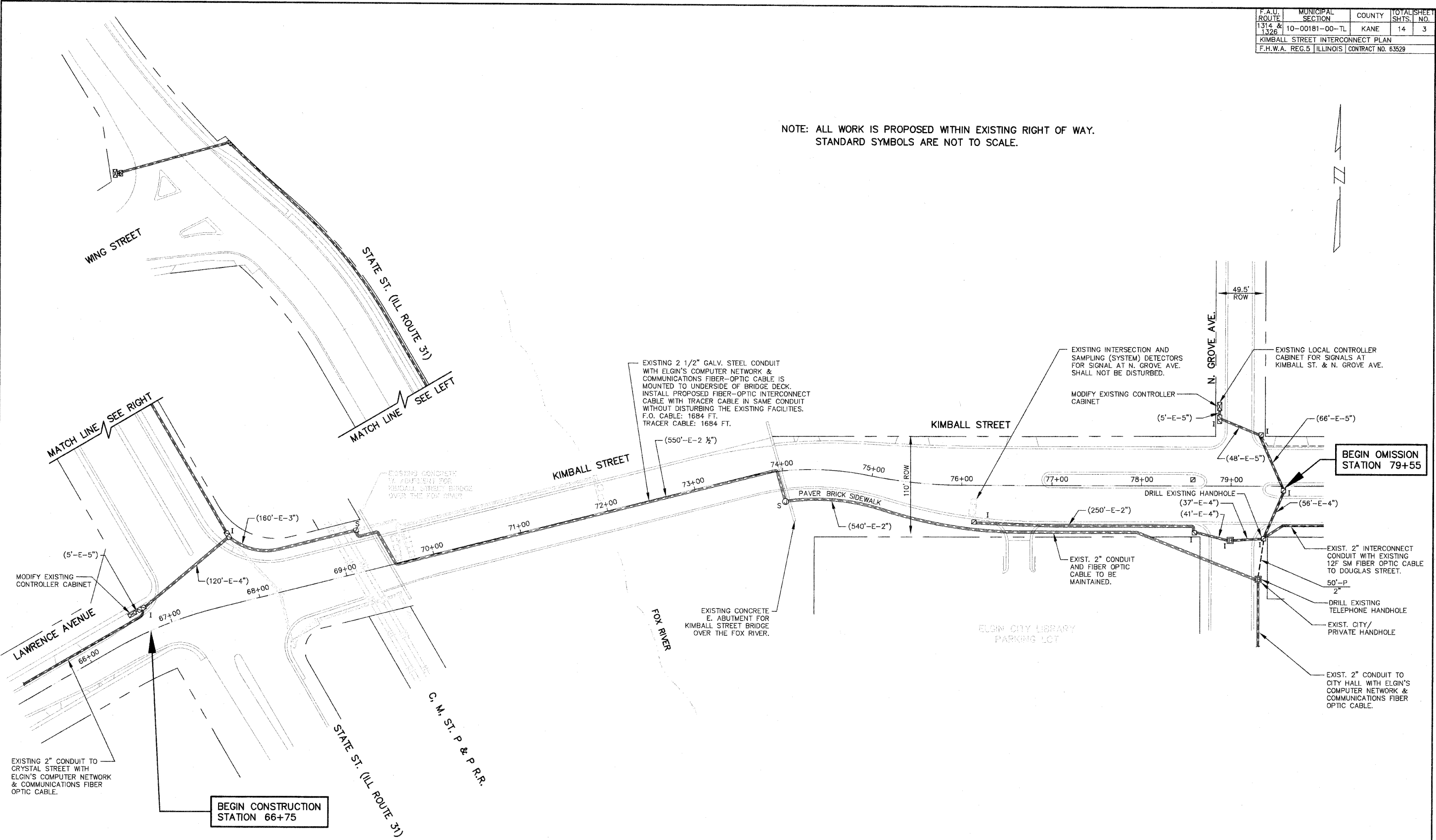
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PLOT SCALE =	CHECKED -- RBG	REVISED --	1314			10-00181-00-TL	KANE	14	2	
PLOT DATE =	DATE -- 8-27-10	REVISED --	1326			CONTRACT NO. 63529		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT		
SCALE:						SHEET NO. OF SHEETS STA. TO STA.				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.U. ROUTE	MUNICIPAL SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1314 & 1326	10-00181-00-TL	KANE	14	3
KIMBALL STREET INTERCONNECT PLAN				
F.H.W.A. REG.5 ILLINOIS CONTRACT NO. 63529				

NOTE: ALL WORK IS PROPOSED WITHIN EXISTING RIGHT OF WAY.
STANDARD SYMBOLS ARE NOT TO SCALE.



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Nov 09, 2010 at 15:41
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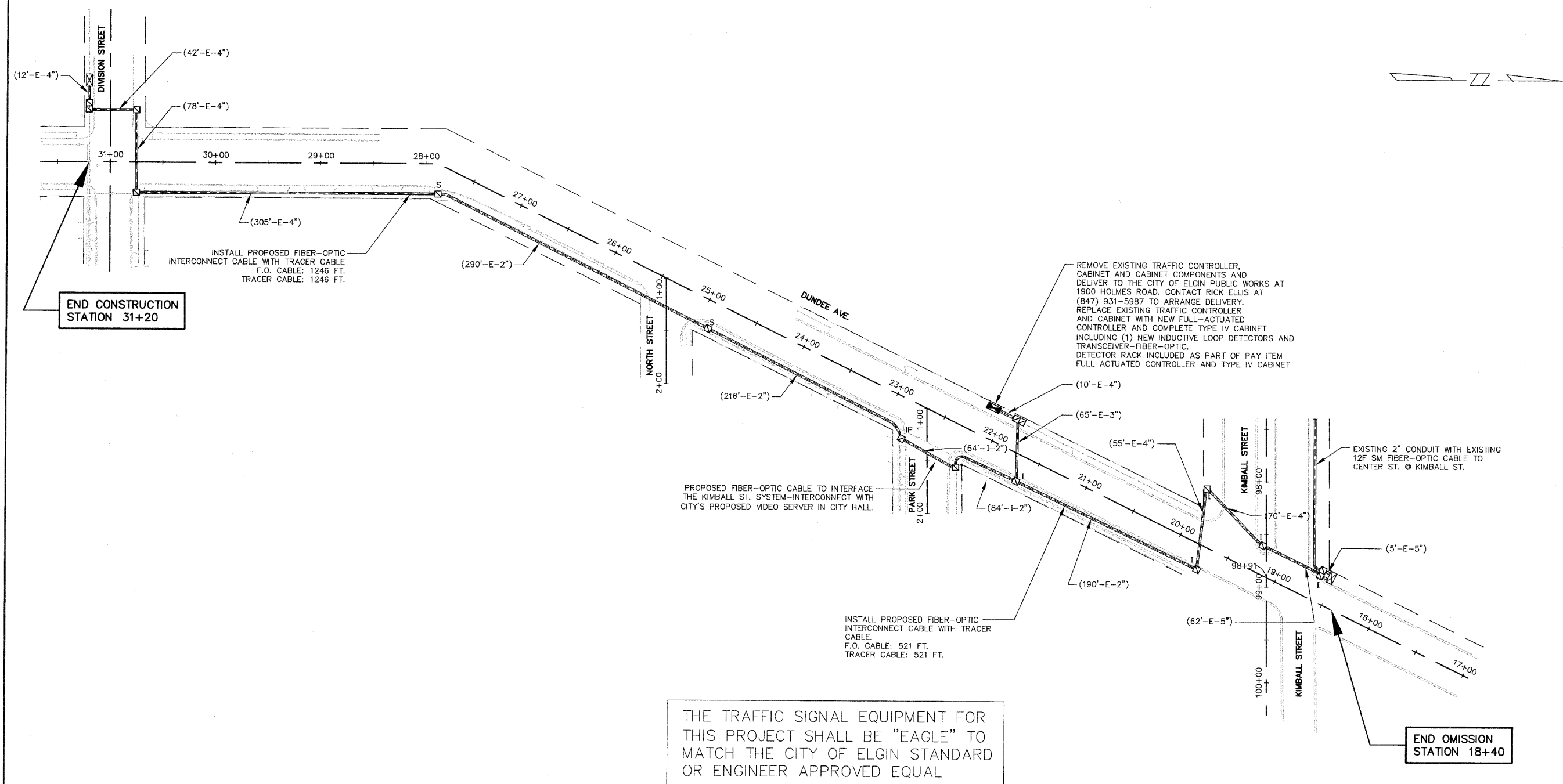
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

ELR
ELGIN CBD TRAFFIC SIGNAL SYSTEM INTERCONNECT
KIMBALL STREET INTERCONNECT PLAN

F.A.U. ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1314 & 1326	10-00181-00-TL	KANE	14	3
CONTRACT NO. 63529				
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

F.A.U. ROUTE	MUNICIPAL SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1314 & 1326	10-00181-00-TL	KANE	14	4
KIMBALL STREET INTERCONNECT PLAN				
F.H.W.A. REG. 5 ILLINOIS CONTRACT NO. 63529				

NOTE: ALL WORK IS PROPOSED WITHIN EXISTING RIGHT OF WAY.
STANDARD SYMBOLS ARE NOT TO SCALE.




THE TRAFFIC SIGNAL EQUIPMENT FOR THIS PROJECT SHALL BE "EAGLE" TO MATCH THE CITY OF ELGIN STANDARD OR ENGINEER APPROVED EQUAL

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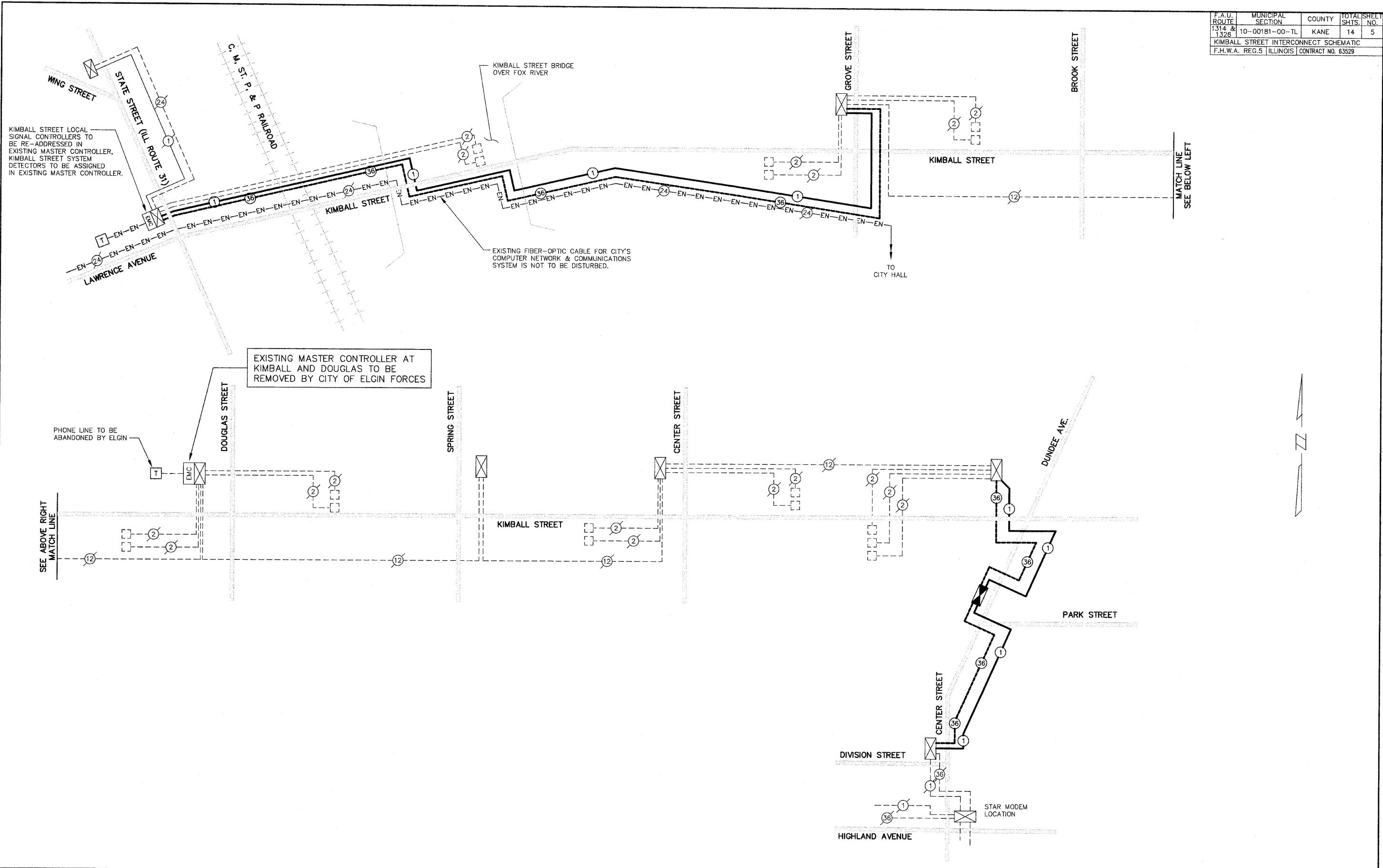
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**


**ELGIN CBD TRAFFIC SIGNAL SYSTEM INTERCONNECT
KIMBALL STREET INTERCONNECT PLAN**

SCALE: 1" = 50'

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1314 & 1326	10-00181-00-TL	KANE	14	4
CONTRACT NO. 63529				
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

F.A.U. ROUTE	MUNICIPAL SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1314 & 1326	10-00181-00-TL	KANE	14	5
KIMBALL STREET INTERCONNECT SCHEMATIC				
F.H.W.A. REG.5 ILLINOIS CONTRACT NO. 63529				



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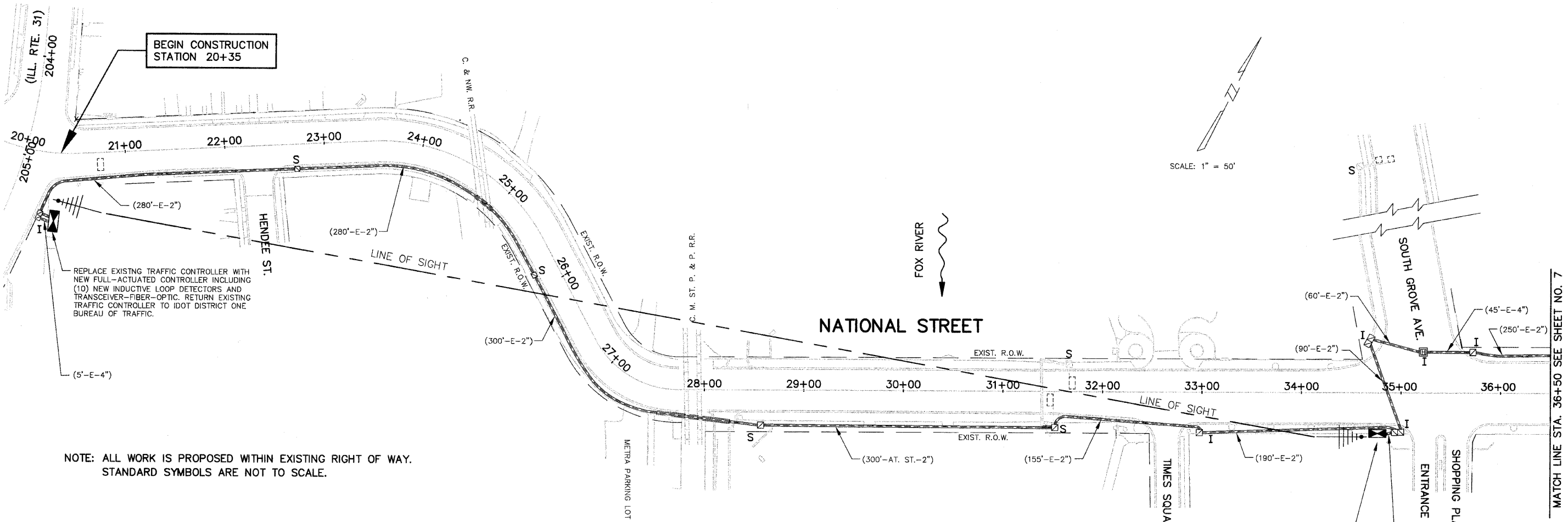
**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**ELGIN CBD TRAFFIC SIGNAL SYSTEM INTERCONNECT
 KIMBALL STREET INTERCONNECT SCHEMATIC**

SCALE: N.T.S. SHEET NO. OF SHEETS STA. TO STA.

F.A.U. ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1314 & 1326	10-00181-00-TL	KANE	14	5
CONTRACT NO. 63529				
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

F.A.U. ROUTE	MUNICIPAL SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1314 & 1326	10-00181-00-TL	KANE	14	6
NATIONAL STREET INTERCONNECT PLAN				
F.H.W.A. REG. 5 ILLINOIS CONTRACT NO. 63529				



NOTE: ALL WORK IS PROPOSED WITHIN EXISTING RIGHT OF WAY. STANDARD SYMBOLS ARE NOT TO SCALE.

THE TRAFFIC SIGNAL EQUIPMENT FOR THIS PROJECT SHALL BE "EAGLE" TO MATCH THE CITY OF ELGIN STANDARD OR ENGINEER APPROVED EQUAL

REMOVE EXISTING TRAFFIC CONTROLLER AND DELIVER TO THE CITY OF ELGIN PUBLIC WORKS AT 1900 HOLMES ROAD. CONTACT RICK ELLIS AT (847) 931-5987 TO ARRANGE DELIVERY. REPLACE EXISTING TRAFFIC CONTROLLER WITH NEW FULL-ACTUATED CONTROLLER INCLUDING (13) NEW INDUCTIVE LOOP DETECTORS AND TRANSCIVER-FIBER-OPTIC. PROPOSED MASTER CONTROLLER SHALL ALSO BE INSTALLED AT THIS LOCATION BUT SHALL BE PAID AS A SEPARATE ITEM. DETECTOR RACK TO BE INCLUDED AS PART OF PAY ITEM. MODIFY EXISTING CONTROLLER CABINET.

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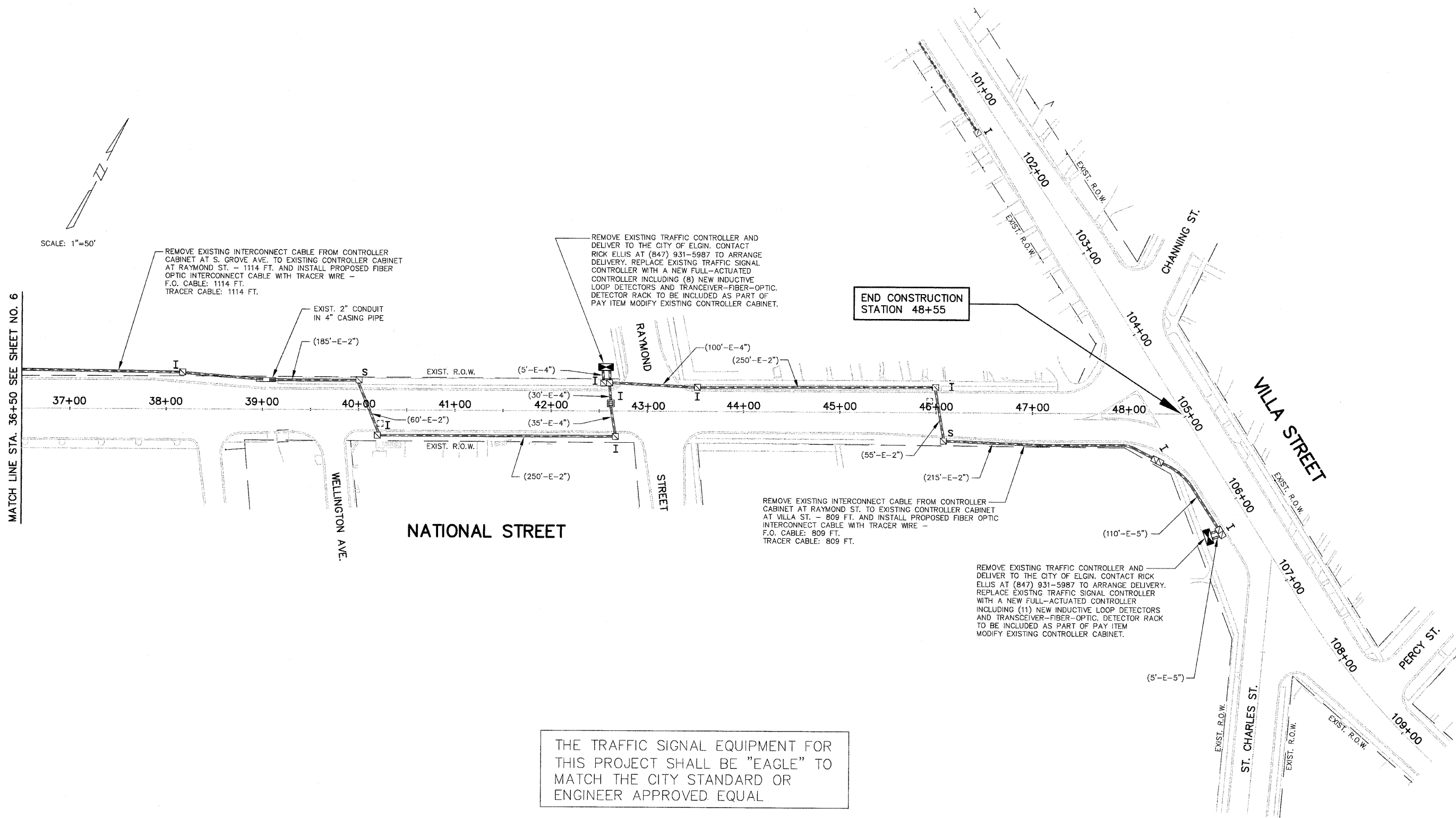
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



ELGIN CBD TRAFFIC SIGNAL SYSTEM INTERCONNECT
 NATIONAL STREET INTERCONNECT PLAN

F.A.U. ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1314 & 1326	10-00181-00-TL	KANE	14	6
CONTRACT NO. 63529				
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

F.A.U. ROUTE	MUNICIPAL SECTION	COUNTY	TOTAL SHEET SHTS.	SHEET NO.
1314 & 1326	10-00181-00-TL	KANE	14	7
NATIONAL STREET INTERCONNECT PLAN				
F.H.W.A. REG.5 ILLINOIS CONTRACT NO. 63529				



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		DRAWN - AC	REVISED -
		CHECKED - RBG	REVISED -
		DATE - 8-27-10	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELR

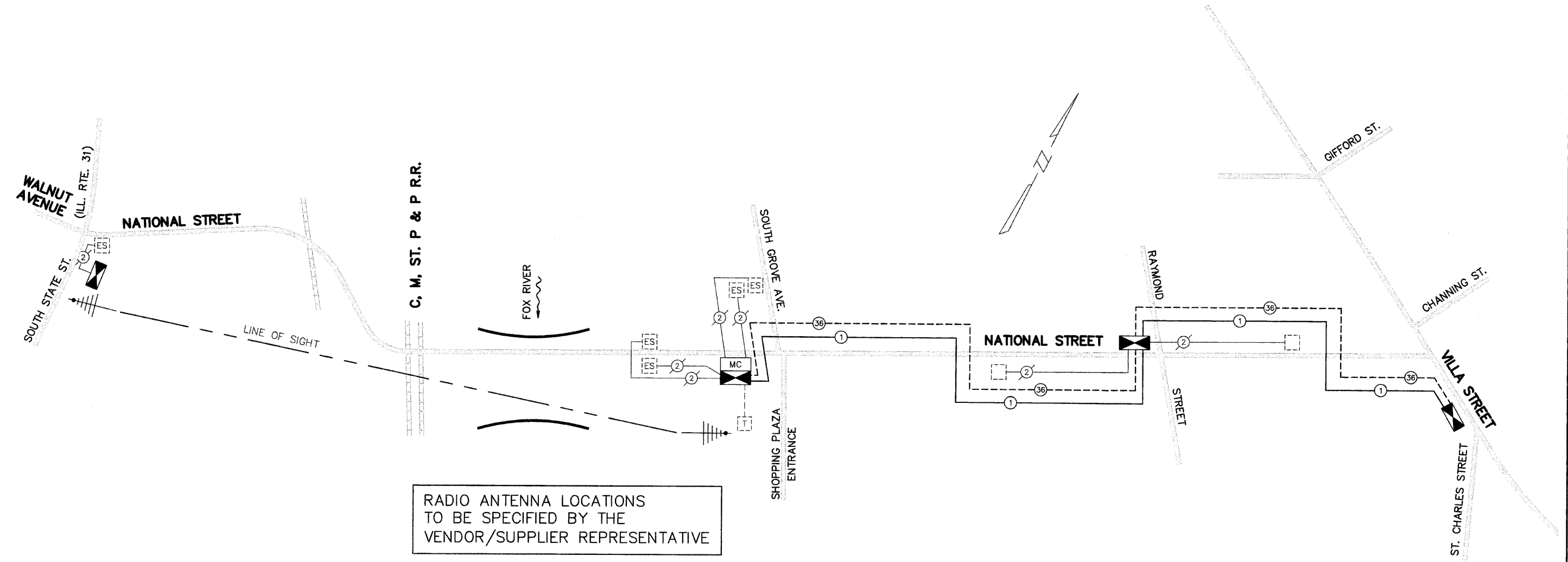
SCALE: 1" = 50'

ELGIN CBD TRAFFIC SIGNAL SYSTEM INTERCONNECT
 NATIONAL STREET INTERCONNECT PLAN

SHEET NO. OF SHEETS STA. TO STA.

F.A.U. ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1314 & 1326	10-00181-00-TL	KANE	14	7
CONTRACT NO. 63529				
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

F.A.U. ROUTE	MUNICIPAL SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1314 & 1326	10-00181-00-TL	KANE	14	8
NATIONAL STREET INTERCONNECT PLAN				
F.H.W.A. REG.5 ILLINOIS CONTRACT NO. 63529				



RADIO ANTENNA LOCATIONS
TO BE SPECIFIED BY THE
VENDOR/SUPPLIER REPRESENTATIVE

P:\2010\100181\cad\phase 2\dwg\100181-Sht-Interconnect_National.dwg
Oct 29, 2010 at 11:34
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		DRAWN --AC	REVISED --
		CHECKED --RBG	REVISED --
		DATE --8-27-10	REVISED --
PLOT SCALE =			
PLOT DATE =			

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



ELGIN CBD TRAFFIC SIGNAL SYSTEM INTERCONNECT
NATIONAL STREET INTERCONNECT SCHEMATIC

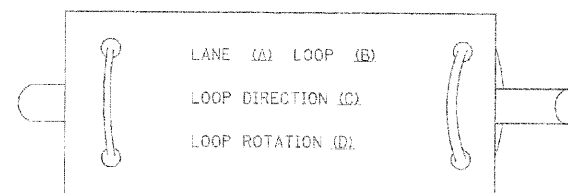
F.A.U. ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1314 & 1326	10-00181-00-TL	KANE	14	8
CONTRACT NO. 63529				
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

SCALE: N.T.S. SHEET NO. OF SHEETS STA. TO STA.

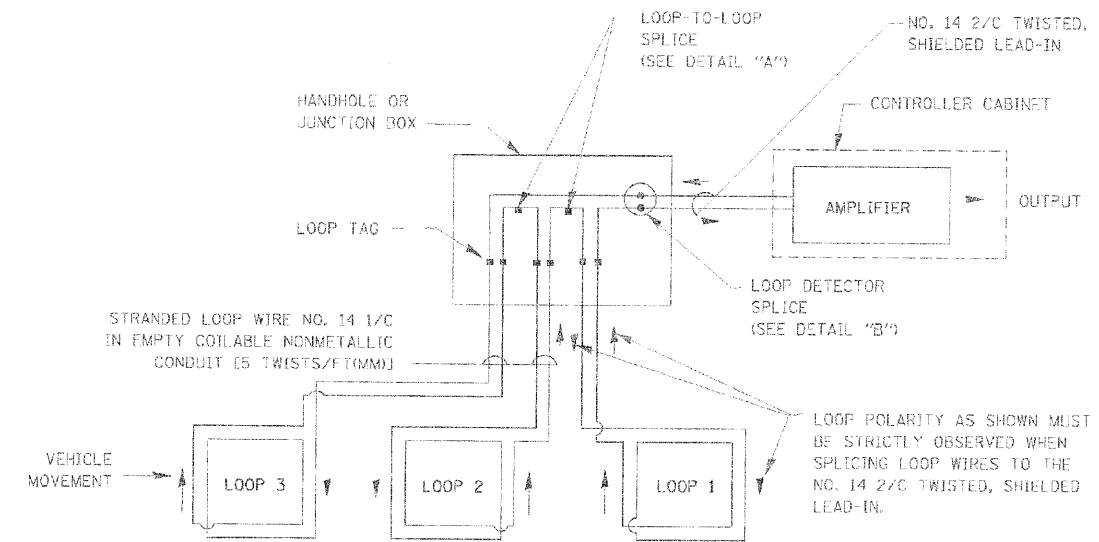
LOOP DETECTOR NOTES

- 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.
- 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.
- 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.
- ALL LOOP CABLE SHALL BE FASTENED WITH PLASTIC TIE WRAP TO THE HANDHOLE HOOKS.
- IN ASPHALT PAVEMENT, LOOPS SHOULD BE PLACED IN THE BINDER AND DIVESHOLES 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 LOOPS 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.
- 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.
- 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

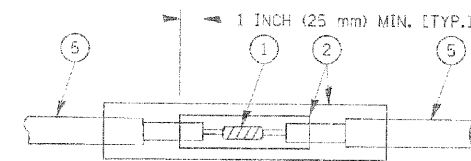


- LANE 1 IS THE LANE CLOSEST TO THE CENTERLINE OF THE ROADWAY
- LOOP #1 IS THE LOOP IN THE LANE CLOSEST TO THE INTERSECTION.
- LABEL LOOP CABLE "IN" OR LOOP CABLE "OUT".
- LABEL LOOP CABLE CLOCKWISE OR LOOP CABLE COUNTERCLOCKWISE.

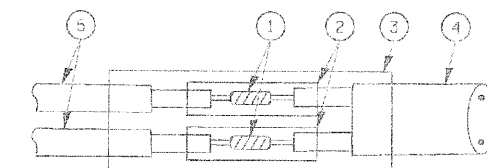


DETECTOR LOOP WIRING SCHEMATIC

- 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.

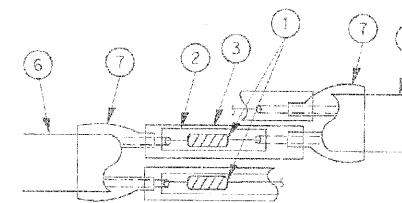


DETAIL "A"
LOOP-TO-LOOP SPLICE

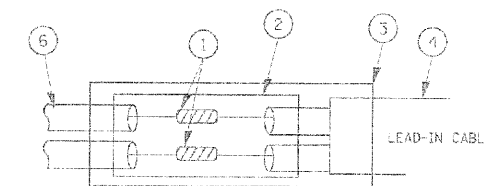


DETAIL "B"
LOOP-TO-CONTROLLER SPLICE

TYPE I LOOP



DETAIL "A"
LOOP-TO-LOOP SPLICE



DETAIL "B"
LOOP-TO-CONTROLLER SPLICE

LOOP DETECTOR SPLICE

- WESTERN UNION SPLICE SOLDERED WITH ROSIN CORE FLUX. ALL EXPOSED SURFACES OF THE SOLDER SHALL BE SMOOTH.
- WCSMW 30/100 HEAT SHRINK TUBE, MINIMUM LENGTH 3" (75 mm), UNDERWATER GRADE.
- WCS 200/750 HEAT SHRINK TUBE, MINIMUM LENGTH 6" (150 mm), UNDERWATER GRADE.
- NO. 14 2/C TWISTED, SHIELDED CABLE.
- LOOP CONDUCTOR WITH FLEXIBLE PLASTIC TUBE.
- PRE-FORMED LOOP
- XL POLYOLEFIN 2 CONDUCTOR BREAKOUT SEALS, TYCO CBR-2 OR APPROVED EQUAL

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DISTRICT ONE
STANDARD TRAFFIC SIGNAL DESIGN DETAILS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			14	9
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT			CONTRACT NO. 63529	

SCALE: SHEET NO. 1 OF 8 SHEETS STA. TO STA.

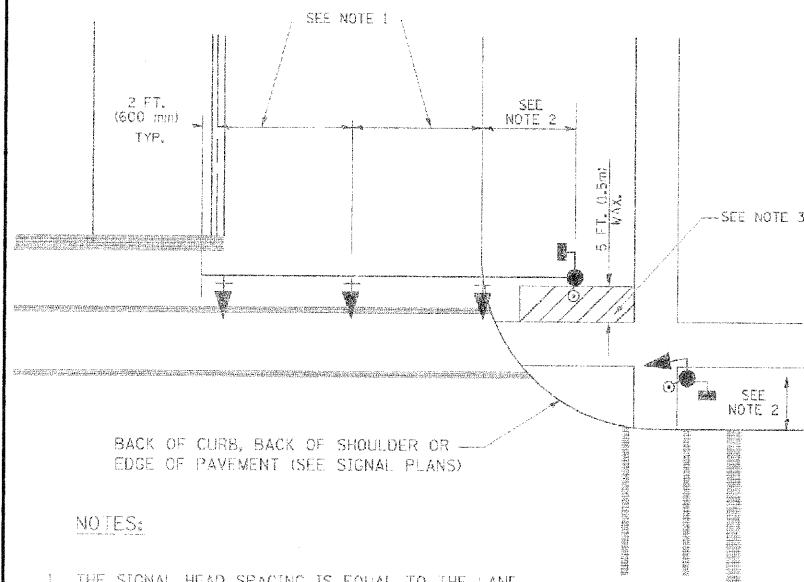
FILE NAME	USER NAME	DESIGNED	REVISION
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		BCK	
		DAD	

DRAWN	CHECKED	DATE	REVISION
BCK	DAD	10/28/09	

PLOT SCALE	PLOT DATE
20/8000 1/2 IN.	10/28/09

TRAFFIC SIGNAL MAST ARM AND SIGNAL POST

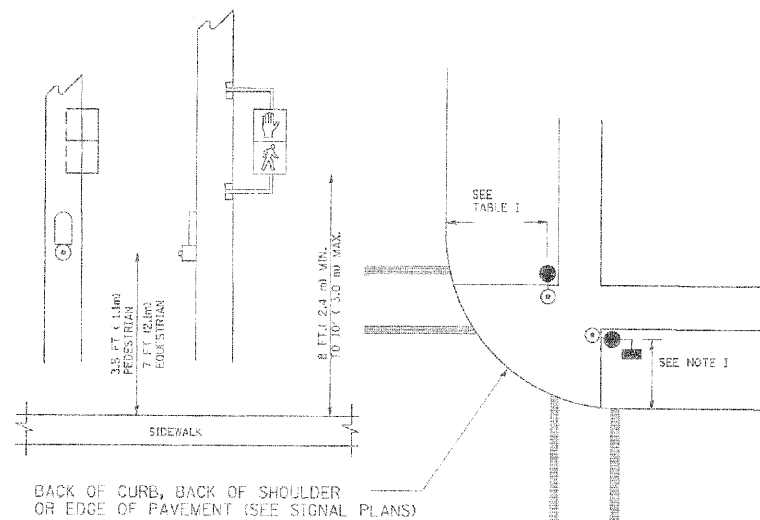
MAST ARM MOUNTED SIGNALS IN EXISTING, PROPOSED OR FUTURE SIDEWALK/BICYCLE PATH AREA. INTERSECTION SHOWN WITH PEDESTRIAN SIGNALS AND PEDESTRIAN PUSHBUTTON DETECTORS.



NOTES:

1. THE SIGNAL HEAD SPACING IS EQUAL TO THE LANE WIDTH OR AS SHOWN ON THE TRAFFIC SIGNAL PLAN.
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 THE SIGNAL POST.
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."

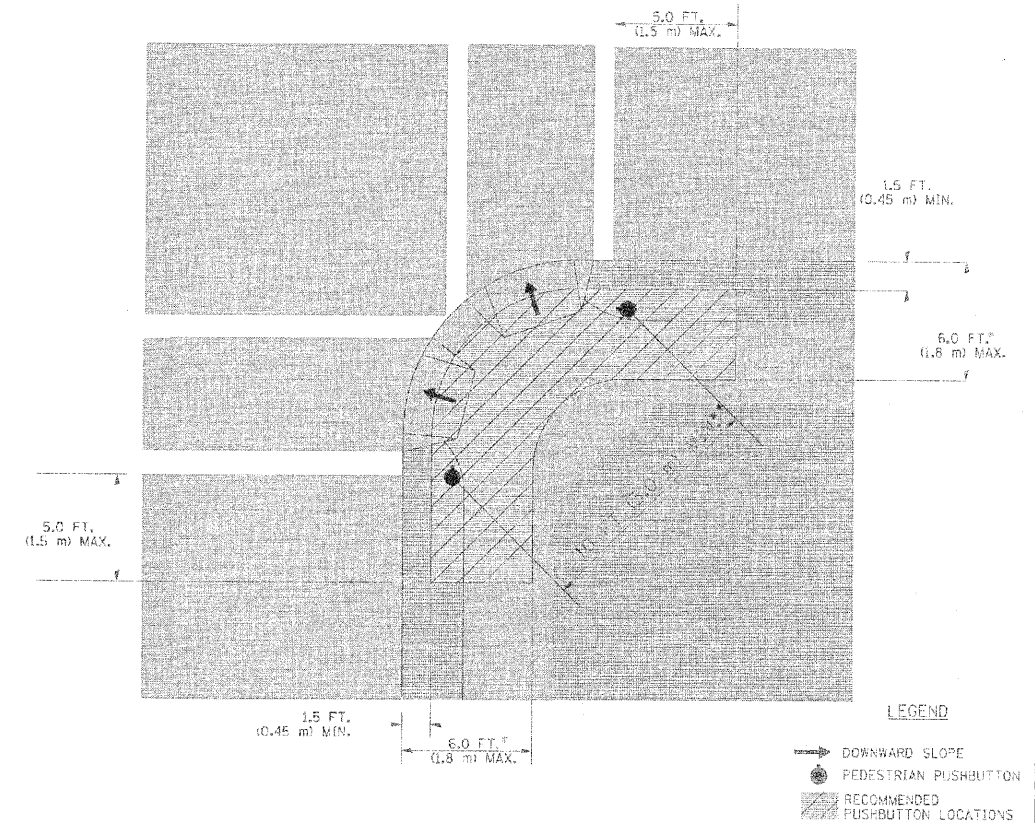
PEDESTRIAN SIGNAL POST AND PEDESTRIAN PUSH BUTTON POST



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 BUILDINGS AND FACILITIES."

RECOMMENDED PUSHBUTTON LOCATIONS



- * 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) SEPARATION 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 TO THE 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 AFFECT 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.

FILE NAME -	USER NAME -	DESIGNED -	REVISED -
DATE PLOTTED -	PLINT SCALE -	CHECKED -	REVISED -
PLINT DATE -		DATE	

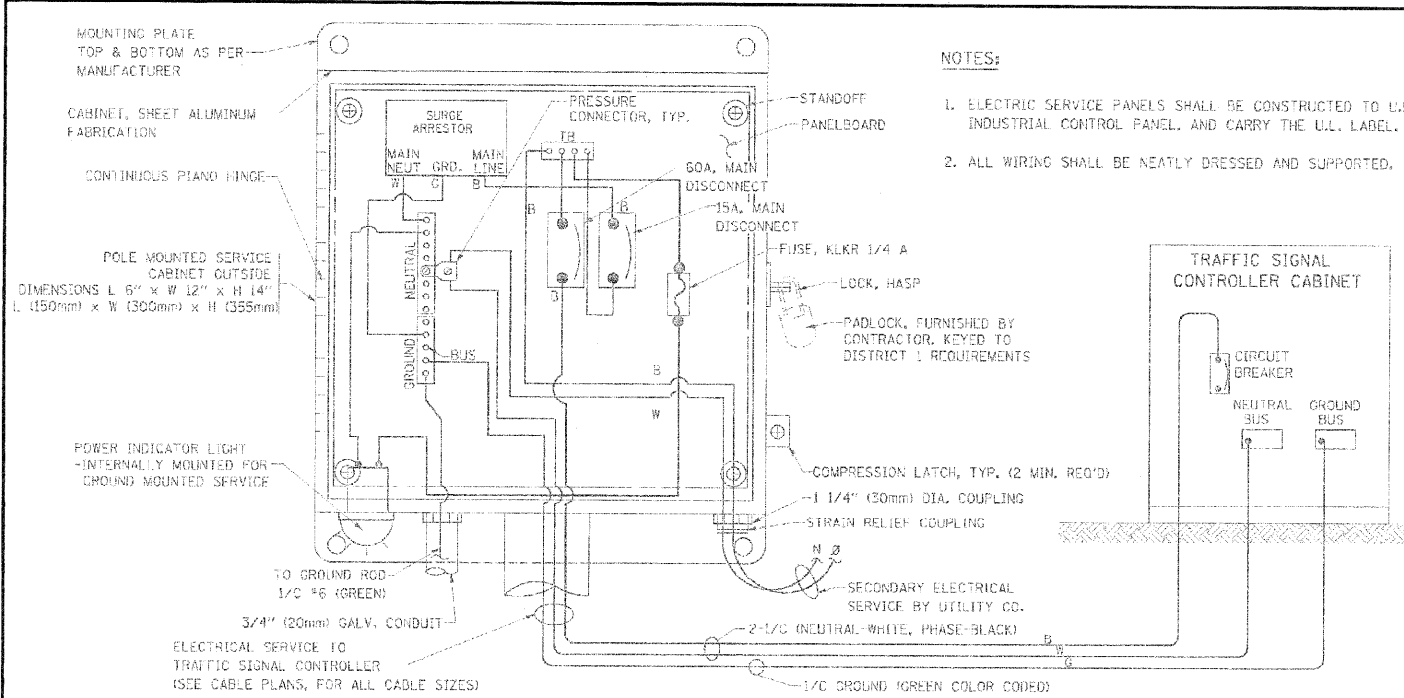
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**DISTRICT 1
STANDARD TRAFFIC SIGNAL DESIGN DETAILS**

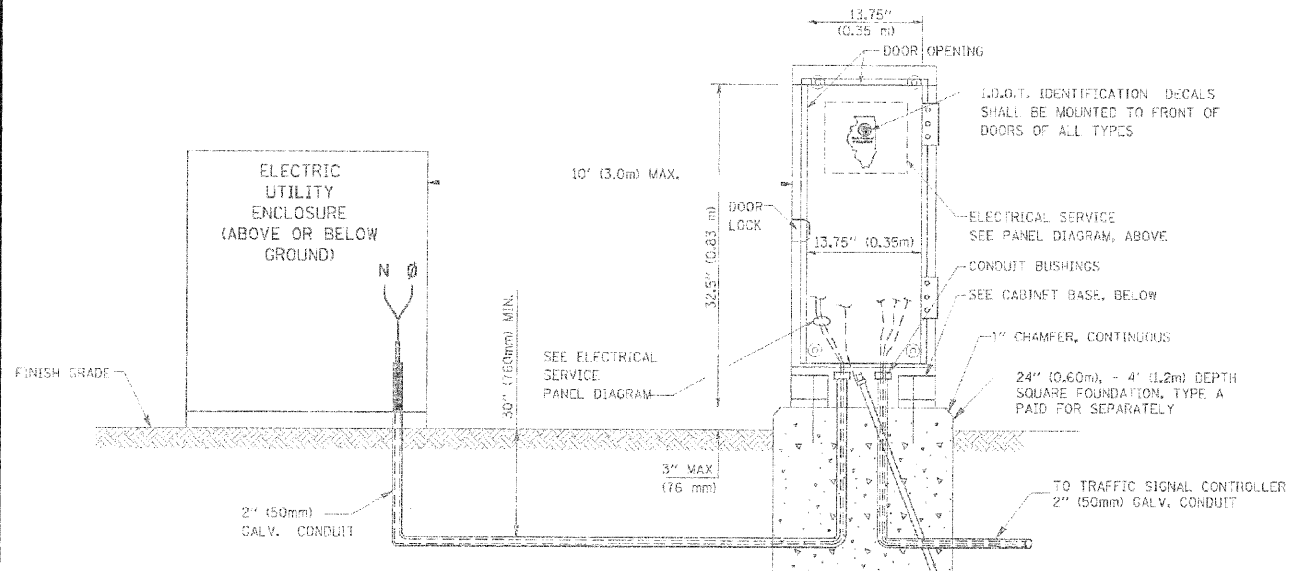
F.A. DIST.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	10-00101-00-TL	KANE	14	10
CONTRACT NO. 63529				

SCALE: SHEET NO. 2 OF 6 SHEETS STA. TO STA.

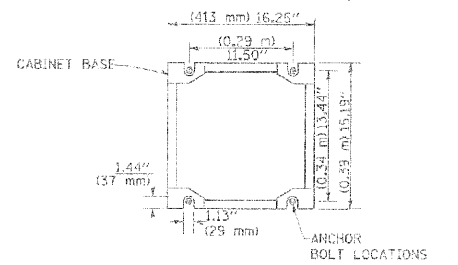
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT



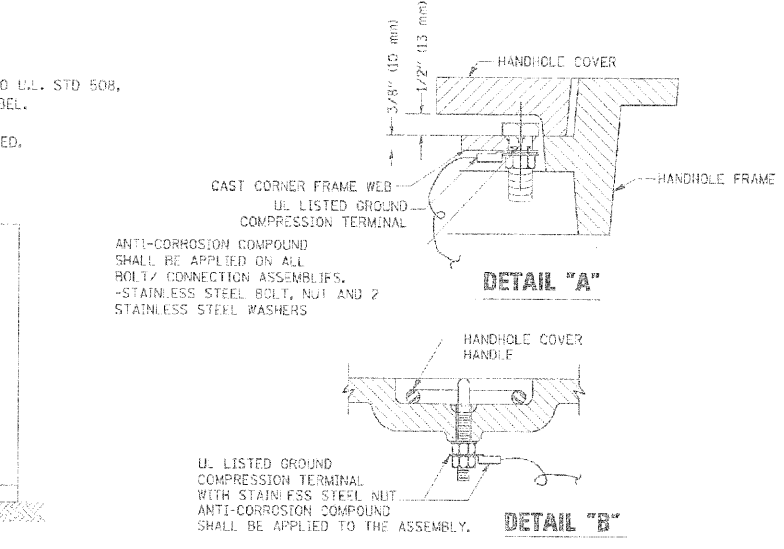
ELECTRICAL SERVICE - PANEL DIAGRAM (TYPICAL FOR POLE AND GROUND MOUNTED SERVICE)
SERVICE INSTALLATION POLE MOUNT (SHOWN)
 (NOT TO SCALE)



SERVICE INSTALLATION GROUND MOUNT
 (NOT TO SCALE)



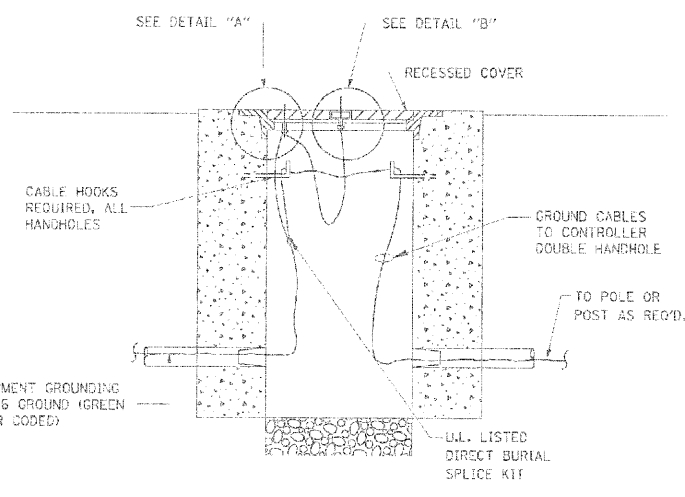
CABINET - BASE BOLT PATTERN
 (NOT TO SCALE)



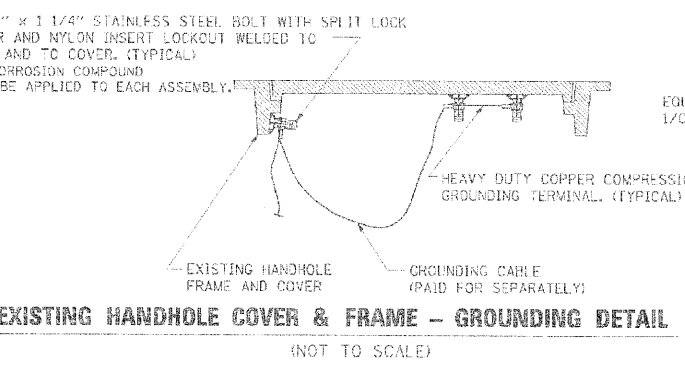
NOTES:

GROUNDING SYSTEM

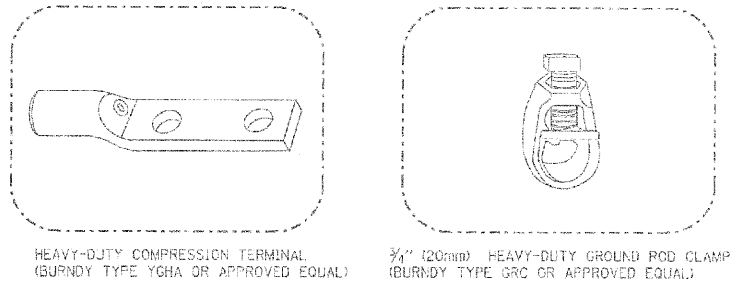
1. THE GROUNDING SYSTEM SHALL CONSIST OF AN INSULATED CONDUCTOR TYPE XLP, NO. 6 A.W.G., STRANDED COPPER TO BE INSTALLED IN RACEWAYS. THE GROUNDING CABLE SHALL BE INSTALLED IN A CONTINUOUS MANNER AS SHOWN ON THE CABLE PLAN PROVIDED. ALL GROUNDING CONDUCTORS SHALL BE BONDED TO METAL ENCLOSURE (HANDHOLE, POST, MAST ARM, CONTROLLER, ETC.). GROUND ROD SHALL BE 3/4" DIA. x 10'-0" (20mm x 3.0m) LONG. COPPER CLAD. ONE GROUND ROD SHALL BE INSTALLED AT ALL POST FOUNDATIONS, POLE FOUNDATIONS, CONTROLLER CABINET FOUNDATION AND ELECTRICAL SERVICE INSTALLATION AS INDICATED ON THE CABLE PLAN. IF THERE ARE ANY SPECIAL CONDITIONS SUCH AS SUB-SURFACE CONDITIONS OR INSTALLATION PROBLEMS, THE RESIDENT ENGINEER SHALL BE NOTIFIED OR CONTACT THE BUREAU OF TRAFFIC, ILLINOIS DEPARTMENT OF TRANSPORTATION DISTRICT ONE AT (847) 705-4135.
2. THE NEUTRAL CONDUCTOR AND THE GROUND CONDUCTOR SHALL BE CONNECTED IN THE SERVICE INSTALLATION. AT NO OTHER POINT IN THE TRAFFIC SIGNAL SYSTEM SHALL THE NEUTRAL AND GROUND CONDUCTORS BE CONNECTED.
3. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL TERMINATE AT THE GROUND BUS IN THE CONTROLLER CABINET.
4. THE CONTRACTOR SHALL PROVIDE A GROUND CABLE WITH CONNECTORS BETWEEN THE HANDHOLE COVER AND HANDHOLE FRAME.



HANDHOLE COVER & FRAME - GROUNDING DETAIL
 (NOT TO SCALE)

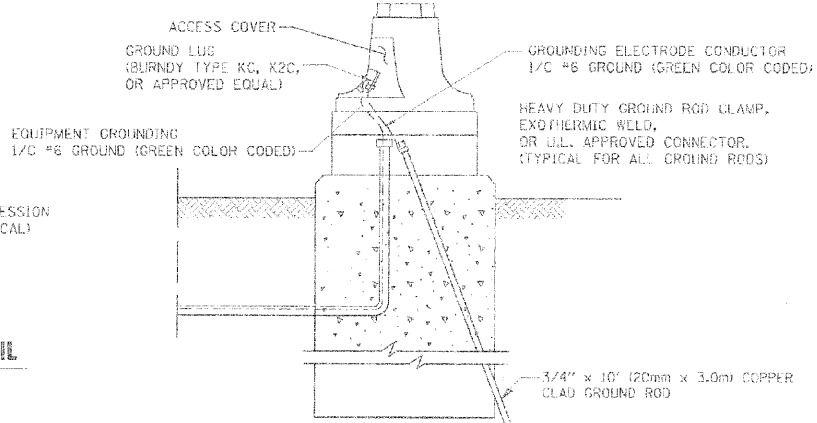


EXISTING HANDHOLE COVER & FRAME - GROUNDING DETAIL
 (NOT TO SCALE)

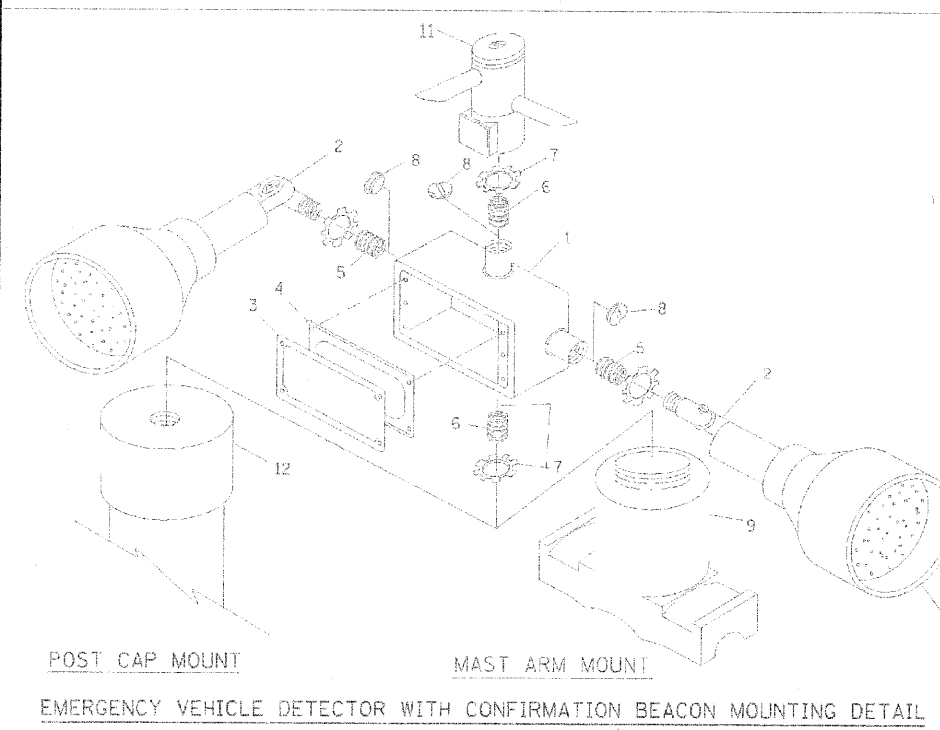
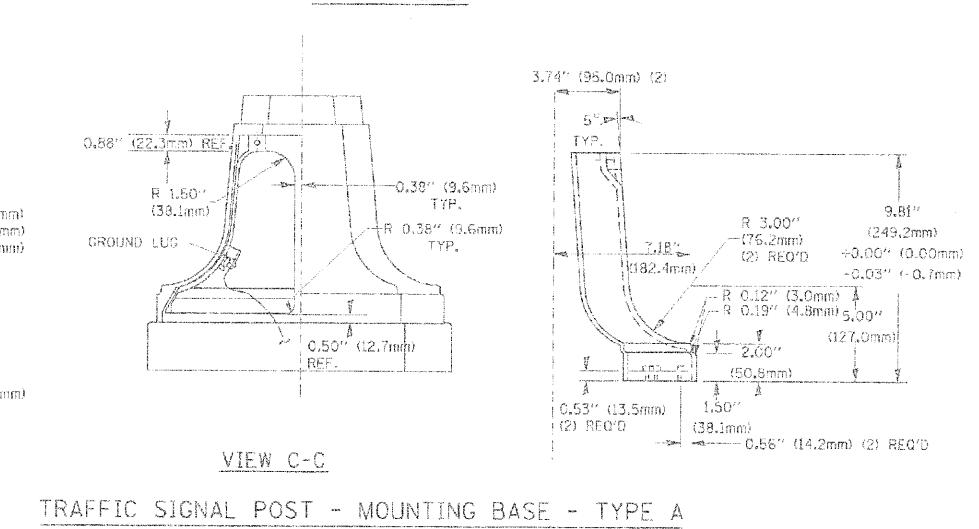
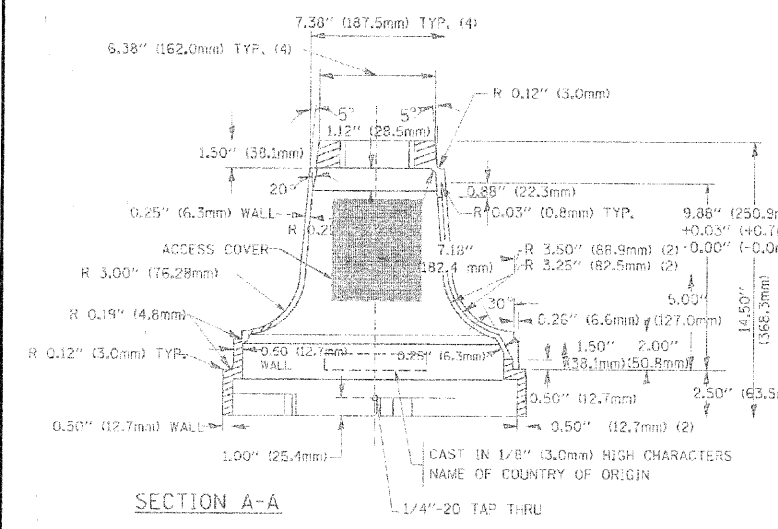
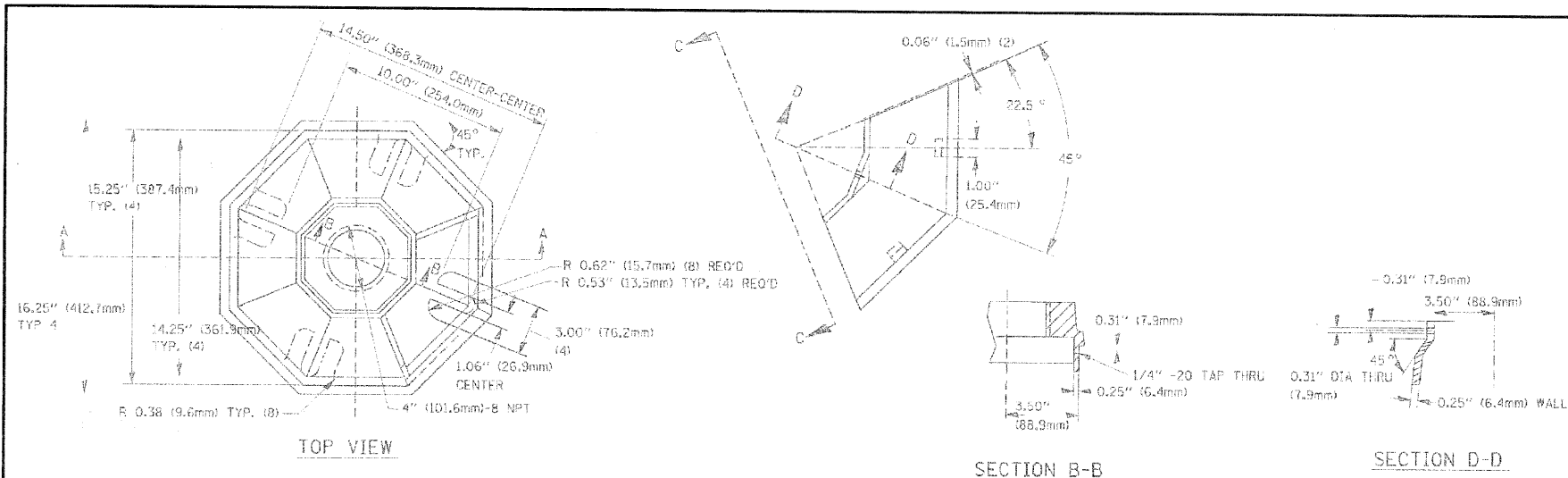


NOTES:

- ALL CLAMPS SHALL BE BRONZE OR COPPER, U.L. APPROVED.
- GROUND CABLE SHALL BE LOOPED OVER HOOKS IN THE HANDHOLES 6.5' (2.0m) SLACK SHALL BE PROVIDED IN SINGLE HANDHOLES 13' (4.0m) OF SLACK SHALL BE PROVIDED IN DOUBLE HANDHOLES. 5' (1.4m) OF SLACK SHALL BE PROVIDED BETWEEN FRAME AND COVER.

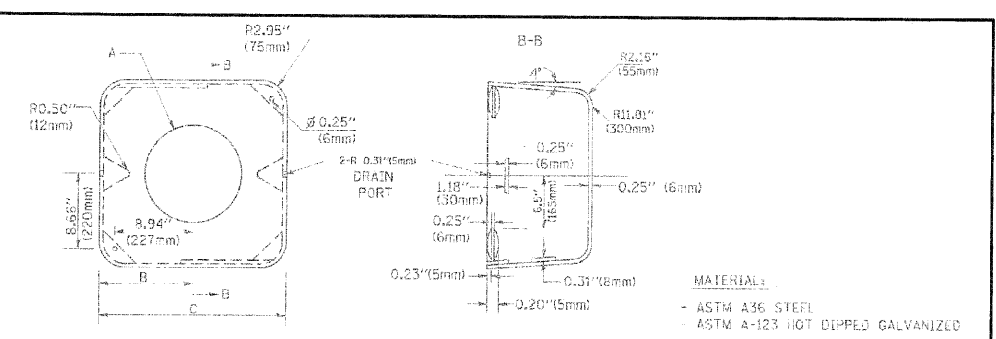


MAST ARM POLE / POST-GROUNDING DETAIL
 (NOT TO SCALE)



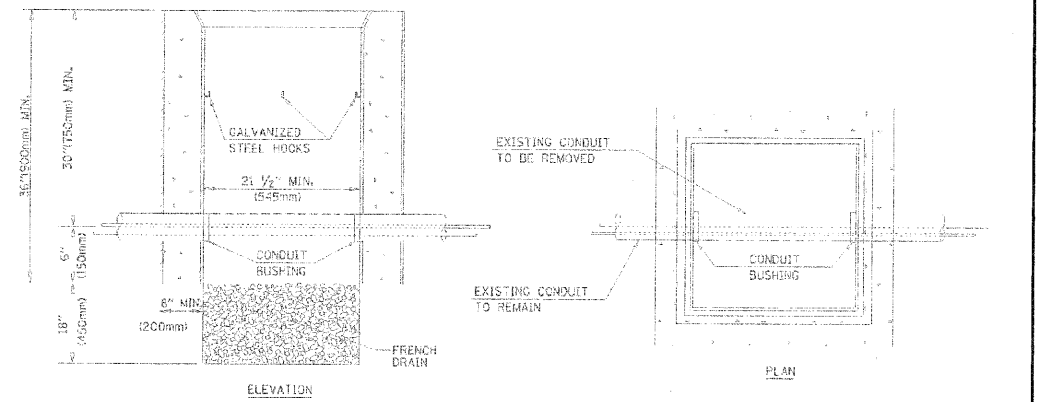
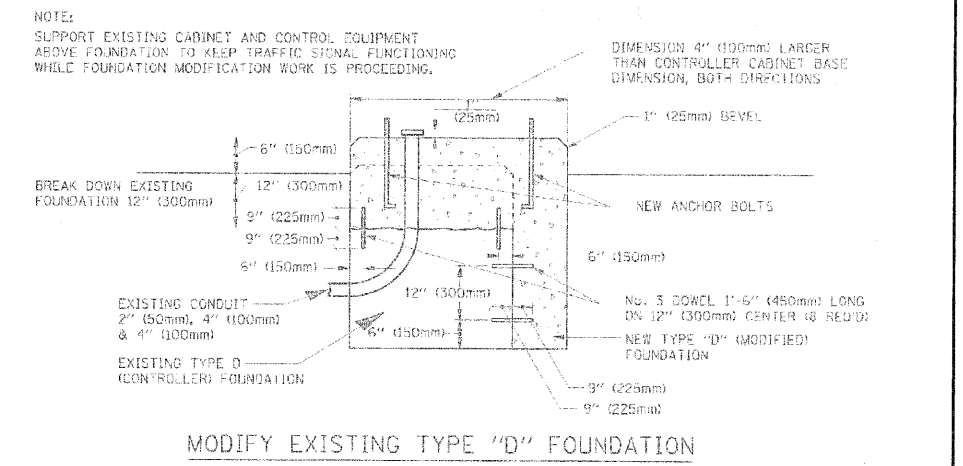
ITEM NO.	IDENTIFICATION
1	OUTLET BOX - GALV. 21 O.U.I.N. (0.000344 CU-M)
2	LAMP HOLDER AND COVER
3	OUTLET BOX COVER
4	RUBBER COVER GASKET
5	REDUCING BUSHING
6	3/4\" (19 mm) CLOSE NIPPLE
7	3/4\" (19 mm) LOCKNUT
8	3/4\" (19 mm) HOLE PLUG
9	SADDLE BRACKET - GALV.
10	6 WATT PAR 36 LED FLOOD LAMP
11	DETECTOR UNIT
12	POST CAP (18 FT. (5.4 m) POST MIN.)

- NOTES:**
- ALL ELECTRICAL ITEMS, EXCEPT ITEMS #2 AND #11 SHALL BE ALUMINUM OR GALVANIZED
 - ITEM #1- OZ/GEEDNEY FSX-1-50 OR EQUIVALENT
ITEM #2- MULBERRY CON-D-SHADE LAMP SHIELD OR EQUIVALENT
ITEM #9- "BAND-IT" SADDLE BRACKET OR EQUIVALENT
 - 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.

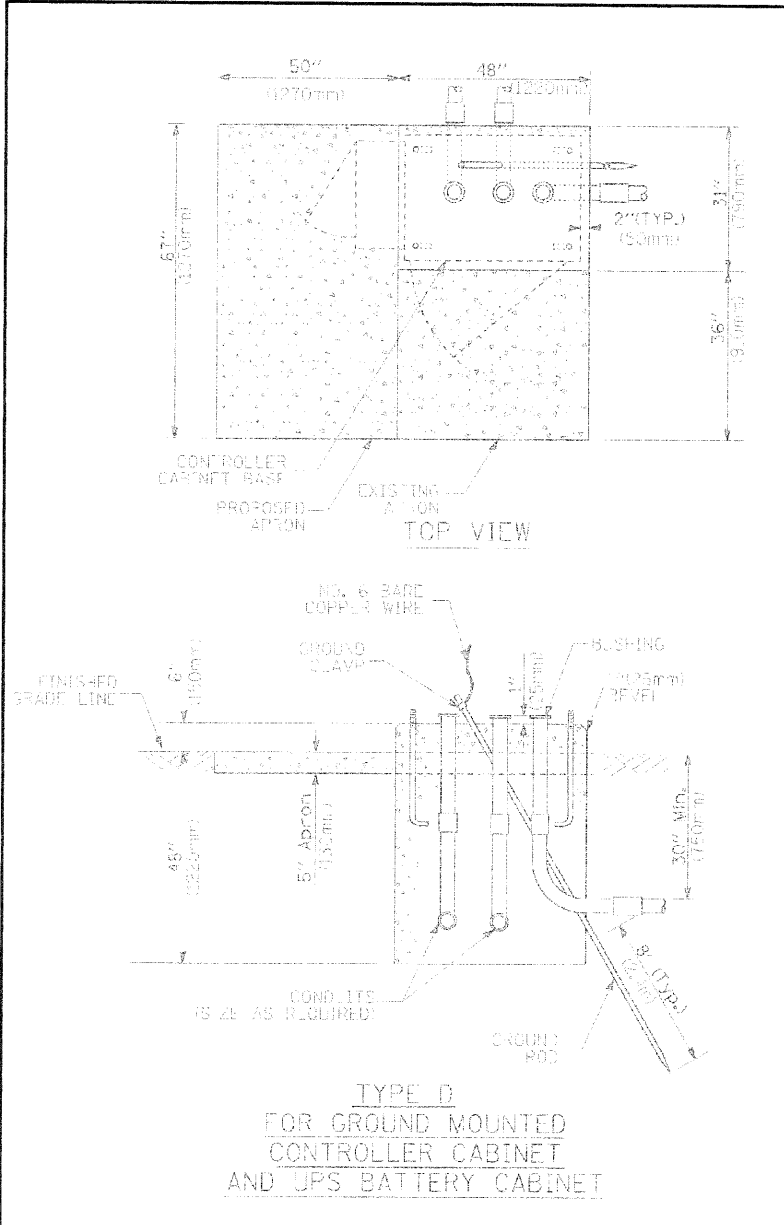


A	B	C	HEIGHT	WEIGHT
VARIABLES	9.5\" (241mm)	19\" (483mm)	7\" (178mm) - 12\" (300mm)	53 lbs (24kg)
VARIABLES	10.15\" (257.3mm)	21.5\" (546mm)	7\" (178mm) - 12\" (300mm)	68 lbs (31 kg)
VARIABLES	13.0\" (330mm)	26\" (660mm)	7\" (178mm) - 12\" (300mm)	81 lbs (37 kg)
VARIABLES	18.5\" (470mm)	37\" (940mm)	7\" (178mm) - 12\" (300mm)	126 lbs (57 kg)

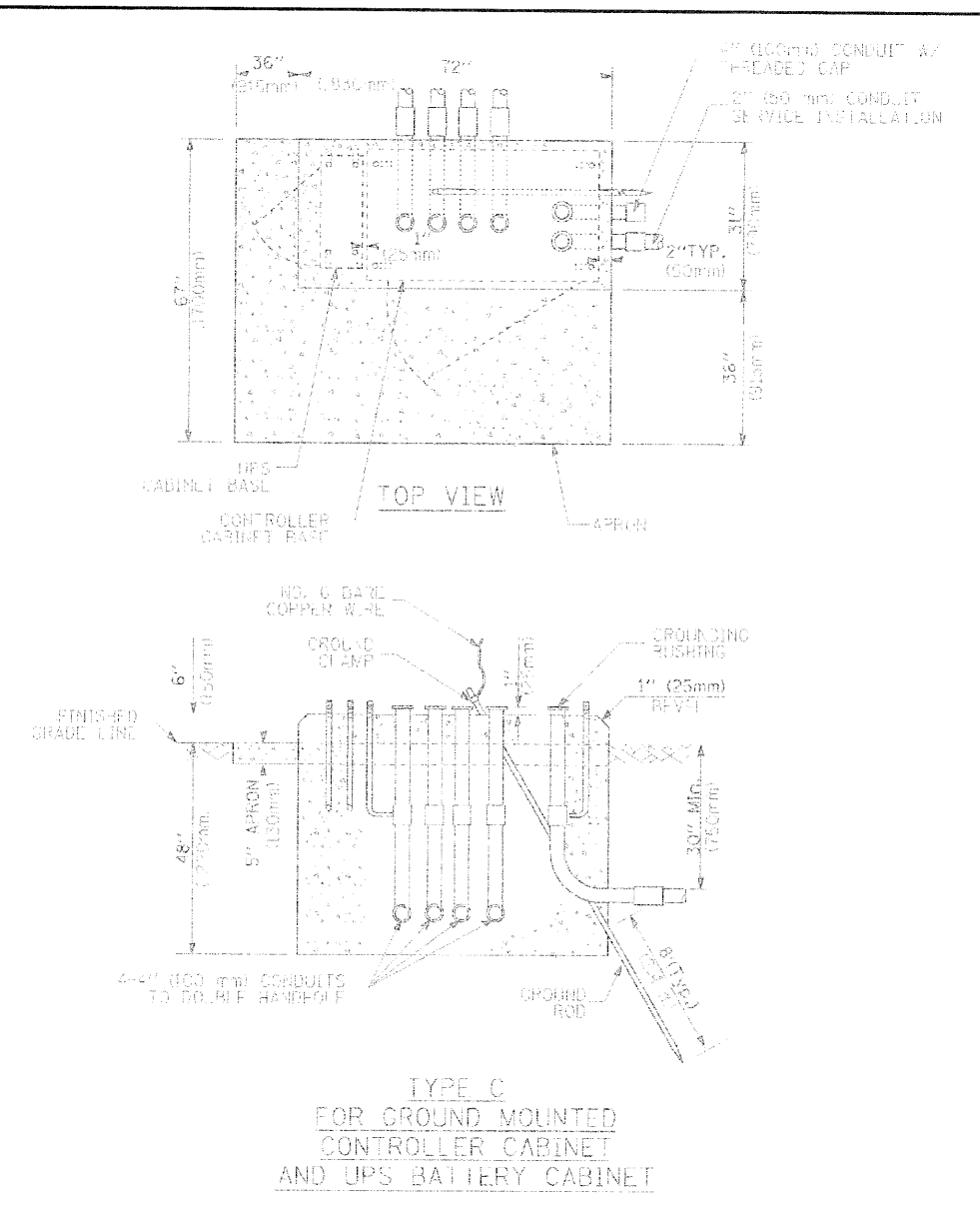
- NOTES:**
- DIMENSION "A" IS EQUAL TO THE DIAMETER OF THE MAST ARM POLE AT THE TOP OF THE SHROUD. THE SHROUD SHALL BE TIGHT TO THE MAST ARM POLE.
 - THE SUPPLIER SHALL VERIFY THE ABOVE DIMENSIONS BASED ON MAST ARM REQUIREMENTS.
 - THE HEIGHT OF THE SHROUD SHALL COVER THE ANCHOR BOLTS, NUTS AND MAST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



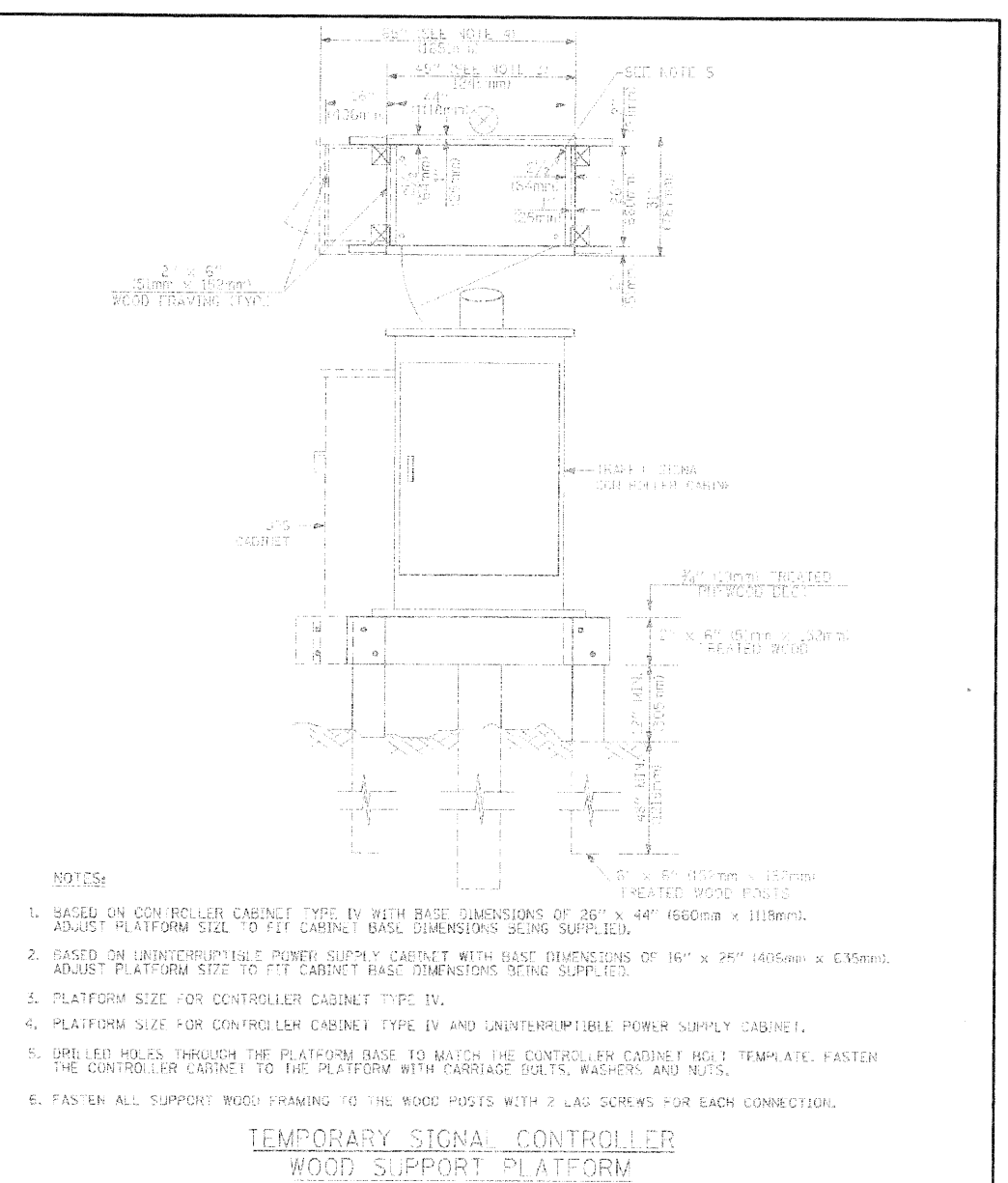
- NOTES:**
- HANDHOLE CONSTRUCTED PER STATE STANDARD 814001.
 - REMOVAL OF THE EXISTING CONDUIT FROM THE HANDHOLE AND THE INSTALLATION OF THE CONDUIT BUSHINGS SHALL BE INCIDENTAL TO THE HANDHOLE.



**TYPE D
FOR GROUND MOUNTED
CONTROLLER CABINET
AND UPS BATTERY CABINET**



**TYPE C
FOR GROUND MOUNTED
CONTROLLER CABINET
AND UPS BATTERY CABINET**



- NOTES:**
1. 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.
 2. BASED ON UNINTERRUPTIBLE POWER SUPPLY CABINET WITH BASE DIMENSIONS OF 16" x 25" (405mm 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 HOLE 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

FOUNDATION	DEPTH
TYPE A - Signal Post	4'-0" (1.2m)
TYPE C - CONTROLLER &/ 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	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 30' (9.1 m) and less than 40' (12.2 m)	13'-0" (4.1 m)	30" (750mm)	24" (600mm)	8	6(19)
Greater than or equal to 40' (12.2 m) and less than 50' (15.2 m)	11'-0" (3.4 m)	36" (900mm)	30" (750mm)	12	7(22)
Greater than or equal to 50' (15.2 m) and up to 55' (16.8 m)	13'-0" (4.0 m)	36" (900mm)	30" (750mm)	12	7(22)
Greater than or equal to 55' (16.8 m) and less than 65' (19.8 m)	21'-0" (6.4 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" (7.6 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 (UCS) > 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 mast arm assemblies with dual arms refer to state standard 878001.

DEPTH OF MAST ARM FOUNDATIONS, TYPE E

TRAFFIC SIGNAL LEGEND

ITEM	REMOVAL	EXISTING	PROPOSED	ITEM	REMOVAL	EXISTING	PROPOSED	ITEM	REMOVAL	EXISTING	PROPOSED
CONTROLLER CABINET				EMERGENCY VEHICLE LIGHT DETECTOR				ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1/C, UNLESS NOTED OTHERWISE			
RAILROAD CONTROL CABINET				CONFIRMATION BEACON				COAXIAL CABLE			
COMMUNICATIONS CABINET				HANDHOLE				VENDOR CABLE FOR CAMERA			
MASTER CONTROLLER				HEAVY DUTY HANDHOLE				COPPER INTERCONNECT CABLE, NO. 18 3 PAIR TWISTED, SHIELDED			
MASTER MASTER CONTROLLER				DOUBLE HANDHOLE				FIBER OPTIC CABLE, NO. 62.5/125, MM12F			
UNINTERRUPTIBLE POWER SUPPLY				JUNCTION BOX				FIBER OPTIC CABLE, NO. 62.5/125, MM12F 5M12F			
SERVICE INSTALLATION, (P) POLE OR (G) GROUND MOUNT				GALVANIZED STEEL CONDUIT IN TRENCH (T) OR PUSHED (P)				FIBER OPTIC CABLE NO. 62.5/125, (NUMBER OF FIBERS & TYPE TO BE NOTED ON PLANS)			
TELEPHONE CONNECTION (P) POLE OR (G) GROUND MOUNT				TEMPORARY SPAN WIRE, TETHER WIRE, AND CABLE				GROUND ROD AT (C) CONTROLLER, (H) HANDHOLE, (P) POST, (M) MAST ARM, OR (S) SERVICE			
STEEL MAST ARM ASSEMBLY AND POLE				COMMON TRENCH				CONTROLLER CABINET AND FOUNDATION TO BE REMOVED			
ALUMINUM MAST ARM ASSEMBLY AND POLE				COILABLE NONMETALLIC CONDUIT (EMPTY)				STEEL MAST ARM POLE AND FOUNDATION TO BE REMOVED			
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE				SYSTEM ITEM				ALUMINUM MAST ARM POLE AND FOUNDATION TO BE REMOVED			
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH PTZ CAMERA				INTERSECTION ITEM				STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE AND FOUNDATION TO BE REMOVED			
SIGNAL POST				REMOVE ITEM				SIGNAL POST AND FOUNDATION TO BE REMOVED			
TEMPORARY WOOD POLE (CLASS 5 OR BETTER) 45 FOOT (13.7m) MINIMUM				RELOCATE ITEM				INTERSECTION & SAMPLING (SYSTEM) DETECTOR			
GUY WIRE				ABANDON ITEM				SAMPLING (SYSTEM) DETECTOR			
SIGNAL HEAD				12" (300mm) TRAFFIC SIGNAL SECTION				EXISTING INTERSECTION LOOP DETECTOR PROPOSED INTERSECTION AND SAMPLING (SYSTEM) DETECTOR			
SIGNAL HEAD CONSTRUCTION STAGES (NUMBERS INDICATE THE CONSTRUCTION STAGE)				12" (300mm) RED WITH 8" (200mm) YELLOW AND GREEN TRAFFIC SIGNAL FACE				EXISTING PREFORMED INTERSECTION LOOP DETECTOR PROPOSED INTERSECTION AND SAMPLING (SYSTEM) DETECTOR			
SIGNAL HEAD WITH BACKPLATE				SIGNAL FACE				PREFORMED INTERSECTION AND SAMPLING (SYSTEM) DETECTOR			
SIGNAL HEAD OPTICALLY PROGRAMMED				SIGNAL FACE WITH BACKPLATE, "P" INDICATES PROGRAMMED HEAD				PREFORMED SAMPLING (SYSTEM) DETECTOR			
FLASHER INSTALLATION (S DENOTES SOLAR POWER)				12" (300mm) PEDESTRIAN SIGNAL HEAD WALK/DON'T WALK SYMBOL							
PEDESTRIAN SIGNAL HEAD				12" (300mm) PEDESTRIAN SIGNAL HEAD INTERNATIONAL SYMBOL, OUTLINED							
PEDESTRIAN PUSHBUTTON DETECTOR				12" (300mm) PEDESTRIAN SIGNAL HEAD INTERNATIONAL SYMBOL, SOLID							
ACCESSIBLE PEDESTRIAN PUSHBUTTON DETECTOR				PEDESTRIAN SIGNAL HEAD, INTERNATIONAL SYMBOL, WITH COUNTDOWN TIMER							
ILLUMINATED SIGN "NO LEFT TURN"				RADIO INTERCONNECT							
ILLUMINATED SIGN "NO RIGHT TURN"				RADIO REPEATER							
DETECTOR LOOP, TYPE I				DENOTES NUMBER OF CONDUCTORS, ELECTRIC CABLE NO. 14, UNLESS NOTED OTHERWISE, ALL DETECTOR LOOP CABLE TO BE SHIELDED							
PREFORMED DETECTOR LOOP				GROUND CABLE IN CONDUIT NO. 6 SOLID COPPER (GREEN)							
MICROWAVE VEHICLE SENSOR											
VIDEO DETECTION CAMERA											
VIDEO DETECTION ZONE											
PAN, TILT, ZOOM CAMERA											
WIRELESS DETECTOR SENSOR											
WIRELESS ACCESS POINT											

RAILROAD SYMBOLS

	EXISTING	PROPOSED
RAILROAD CONTROL CABINET		
RAILROAD CANTILEVER MAST ARM		
FLASHING SIGNAL		
CROSSING GATE		
CROSSBUCK		