

62737

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	1

D-91-171-04

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**PROPOSED
HIGHWAY PLANS**

**DISTRICT 1
CONGESTION MITIGATION AIR QUALITY
FIBER OPTIC COMMUNICATIONS NETWORK
FAP ROUTE 330 US ROUTE 12/45 (LEE-MANNHEIM RD.)
FROM ALGONQUIN RD. TO PROSPECT AVE.**

**SECTION 2004-018 TS
COOK COUNTY
C-91-171-04**

PROJ. CMF-0330(045)



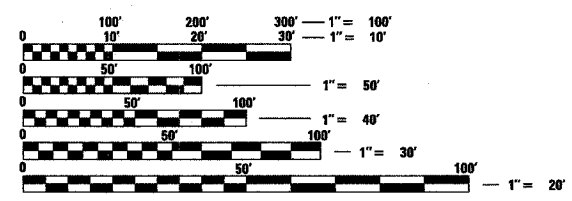
LOCATION OF SECTION INDICATED THUS: —

INDEX OF SHEETS

1. TITLE SHEET
2. SUMMARY OF TRAFFIC SIGNAL QUANTITIES
- 3-6. STANDARD TRAFFIC SIGNAL DESIGN DETAILS
7. TEMPORARY TRAFFIC SIGNAL INSTALLATION, US RTE. 12/45 (LEE-MANNHEIM RD.) AND ALGONQUIN RD.
8. TEMPORARY CABLE PLAN, PHASE DESIGNATION DIAGRAM, U.S. RTE. 12/45 (LEE-MANNHEIM RD.) AND ALGONQUIN RD.
9. TRAFFIC SIGNAL MODIFICATION PLAN, U.S. RTE. 12/45 (LEE-MANNHEIM RD.) AND ALGONQUIN RD.
10. CABLE PLAN, PHASE DESIGNATION DIAGRAM, AND SCHEDULE OF QUANTITIES, U.S. RTE. 12/45 (LEE-MANNHEIM RD.) AND ALGONQUIN RD.
11. TRAFFIC SIGNAL MODIFICATION PLAN, U.S. RTE. 12/45 (LEE-MANNHEIM RD.) AND OAKTON ST.
12. CABLE PLAN, PHASE DESIGNATION DIAGRAM, AND SCHEDULE OF QUANTITIES, U.S. RTE. 12/45 (LEE-MANNHEIM RD.) AND OAKTON ST.
13. TEMPORARY TRAFFIC SIGNAL INSTALLATION PLAN, U.S. RTE. 12/45 (MANNHEIM RD) AND LEE ST.
14. TEMPORARY CABLE PLAN, U.S. RTE. 12/45 (MANNHEIM RD.) AND LEE ST.
15. TRAFFIC SIGNAL INSTALLATION PLAN, U.S. RTE. 12/45 (MANNHEIM RD.) AND LEE ST.
16. CABLE PLAN, PHASE DESIGNATION DIAGRAM AND SCHEDULE OF QUANTITIES, U.S. RTE. 12/45 (MANNHEIM RD.) AND LEE ST.
17. TEMPORARY TRAFFIC SIGNAL PLAN, U.S. RTE. 12/45 (MANNHEIM RD.) AND PROSPECT AVE.
18. TEMPORARY CABLE PLAN, U.S. RTE. 12/45 (MANNHEIM RD.) AND PROSPECT AVE.
19. TEMPORARY SEQUENCE OF OPERATION AND RAILROAD PREEMPTION SEQUENCE OF OPERATION, U.S. RTE. 12/45 (MANNHEIM RD.) AND PROSPECT AVE.
20. TRAFFIC SIGNAL INSTALLATION PLAN - U.S. RTE. 12/45 (MANNHEIM RD.) AND PROSPECT AVE.
21. CABLE PLAN AND SCHEDULE OF QUANTITIES, U.S. RTE. 12/45 (MANNHEIM RD.) AND PROSPECT AVE.
22. SEQUENCE OF OPERATION, EMERGENCY VEHICLE PREEMPTION SEQUENCE OF OPERATION, AND RAILROAD PREEMPTION SEQUENCE OF OPERATION, US RTE. 12/45 (MANNHEIM RD.) AND PROSPECT AVE.
- 23-25. INTERCONNECT PLANS 1 TO 3, U.S. RTE. 12/45 (LEE-MANNHEIM RD) FROM PROSPECT AVE. TO ALGONQUIN RD.
26. INTERCONNECT SCHEMATIC PLAN - U.S. RTE. 12/45 (LEE-MANNHEIM RD) FROM PROSPECT AVE. TO ALGONQUIN RD.
- 27-28. MAST ARM MOUNTED STREET NAME SIGNS.

STANDARDS

701 006-02	702001-05	880006	701 801-03
701 011-01	424001-03	701 501-03	780001-01
701 101-01	814001	701 606-04	880001
701 301-02	857001	701 701-04	

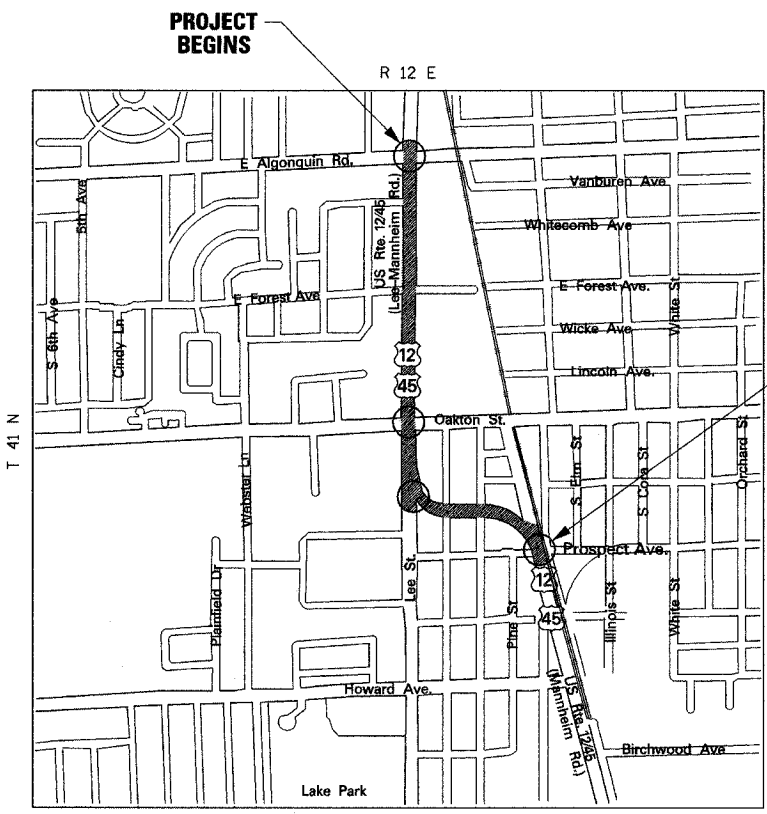


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123

CONTRACT NO. 62737

K&E KAM ENGINEERING, INC.
CONSULTING ENGINEERS
707A Davis Road, Suite 205
Elgin, Illinois 60123-1369



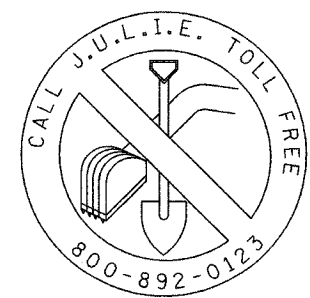
MAINE TOWNSHIP
LOCATION MAP
SCALE: 1" = .18 MILES



SIGNED *Mr. Altman*
DATE 02-17-05
EXPIRES ON 11-30-05



PROJECT ENDS



48 - HOURS BEFORE DIGGING

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED *March 22* 20 05
Diane M. O'Keefe
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

May 13 20 05
Mike Nere
ENGINEER OF DESIGN AND ENVIRONMENT

May 13 20 05
Victor Moders
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

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

Rev.

BUREAU OF TRAFFIC: TERRY RAMMACHER / DARYLE DREW (847) 705-4420

URBAN
80% FED.
20% STATE

Y031-IF

SUMMARY OF QUANTITIES

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	2
STA.		TO STA.		
FED. ROAD DIST. NO. 1		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 62737				

CODE NO.	PAY ITEM	UNIT	TOTAL QUANTITY	US 12/45 AND ALGONQUIN RD.	US 12/45 AND OAKTON ST.	US 12/45 AND LEE MANNHEIM RD.	US 12/45 AND PROSPECT AVE.	INTERCONNECT
20101350	TREE PRUNING (OVER 10 INCH DIA)	EACH	3	-	-	3	-	-
44003100	MEDIAN REMOVAL	SQ FT	140	-	-	140	-	-
44201794	CLASS D PATCHES TYPE III, 12 INCH	SQ YD	15.5	-	-	15.5	-	-
70102620	TRAFFIC CONTROL AND PROTECTION, STANDARD 701501	L SUM	1	0.2	0.2	0.2	0.2	0.2
70102625	TRAFFIC CONTROL AND PROTECTION, STANDARD 701606	L SUM	1	0.2	0.2	0.2	0.2	0.2
70102635	TRAFFIC CONTROL AND PROTECTION, STANDARD 701701	L SUM	1	0.2	0.2	0.2	0.2	0.2
70102640	TRAFFIC CONTROL AND PROTECTION, STANDARD 701801	L SUM	1	0.2	0.2	0.2	0.2	0.2
72000100	SIGN PANEL - TYPE 1	SQ FT	60	18	-	9	33	-
72000200	SIGN PANEL - TYPE 2	SQ FT	55	27.5	-	27.5	-	-
78000100	THERMOPLASTIC PAVEMENT MARKING LETTERS AND SYMBOLS	SQ FT	73	-	-	73	-	-
78000200	THERMOPLASTIC PAVEMENT MARKING LINE 4"	FOOT	28	-	-	28	-	-
78000600	THERMOPLASTIC PAVEMENT MARKING LINE 12"	FOOT	58	-	-	58	-	-
78000650	THERMOPLASTIC PAVEMENT MARKING LINE 24"	FOOT	151	-	-	60	91	-
80600400	GROUNDING EXISTING HANDHOLE FRAME AND COVER	EACH	3	3	-	-	-	-
81000600	CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL	FOOT	5208	441	-	596	605	3566
81000700	CONDUIT IN TRENCH, 2 1/2" DIA., GALVANIZED STEEL	FOOT	192	11	-	77	104	-
81001000	CONDUIT IN TRENCH, 4" DIA., GALVANIZED STEEL	FOOT	77	-	-	35	42	-
81018500	CONDUIT PUSHED, 2" DIA., GALVANIZED STEEL	FOOT	1253	-	-	139	-	1114
81018600	CONDUIT PUSHED, 2 1/2" DIA., GALVANIZED STEEL	FOOT	16	-	-	16	-	-
81018700	CONDUIT PUSHED, 3" DIA., GALVANIZED STEEL	FOOT	62	-	-	-	62	-
81018900	CONDUIT PUSHED, 4" DIA., GALVANIZED STEEL	FOOT	448	-	-	194	254	-
81400100	HANDHOLE	EACH	22	-	-	7	7	8
81400200	HEAVY-DUTY HANDHOLE	EACH	2	1	-	-	1	-
81400300	DOUBLE HANDHOLE	EACH	2	-	-	1	1	-
81500200	TRENCH AND BACKFILL FOR ELECTRICAL WORK	FOOT	5476	452	-	708	750	3566
85000200	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	4	1	1	1	1	-
85700200	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET	EACH	3	1	-	1	1	-
85700300	FULL-ACTUATED CONTROLLER AND TYPE V CABINET	EACH	1	-	1	-	-	-
86000100	MASTER CONTROLLER	EACH	1	-	-	-	-	1
86400100	TRANSCEIVER - FIBER OPTIC	EACH	4	1	1	1	1	-
87301215	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	1095	760	-	-	335	-
87301225	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	3415	1340	-	745	1330	-
87301245	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	4675	645	-	1730	2300	-
87301255	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	1453	1245	-	-	208	-
87301305	ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR	FOOT	6235	2115	795	1900	1725	-
87301805	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C	FOOT	222	120	30	40	32	-
87502480	TRAFFIC SIGNAL POST, GALVANIZED STEEL 14 FT.	EACH	4	-	-	2	2	-
87502500	TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.	EACH	2	2	-	-	-	-
87502520	TRAFFIC SIGNAL POST, GALVANIZED STEEL 18 FT.	EACH	2	-	-	1	1	-
87700160	STEEL MAST ARM ASSEMBLY AND POLE, 24 FT.	EACH	3	-	-	1	2	-
87700180	STEEL MAST ARM ASSEMBLY AND POLE, 28 FT.	EACH	3	2	-	1	-	-
87700190	STEEL MAST ARM ASSEMBLY AND POLE, 30 FT.	EACH	5	2	-	1	2	-
87800100	CONCRETE FOUNDATION, TYPE A	FOOT	24	-	-	12	12	-
87800200	CONCRETE FOUNDATION, TYPE D	FOOT	8	-	-	4	4	-
87800400	CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	135	30	-	45	60	-
87900200	DRILL EXISTING HANDHOLE	EACH	9	6	-	-	9	-
88200210	TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM	EACH	33	8	8	8	9	-
88500100	INDUCTIVE LOOP DETECTOR	EACH	34	9	12	5	8	-
88600100	DETECTOR LOOP, TYPE I	FOOT	500	-	-	120	380	-
88700200	LIGHT DETECTOR	EACH	5	-	-	3	2	-
88700300	LIGHT DETECTOR AMPLIFIER	EACH	2	-	-	1	1	-
88800100	PEDESTRIAN PUSH-BUTTON	EACH	15	6	6	-	3	-
89000100	TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	3	1	-	1	1	-
89100400	ILLUMINATED SIGN L.E.D.	EACH	4	-	-	-	4	-
89502300	REMOVE ELECTRIC CABLE FROM CONDUIT	FOOT	13931	6885	30	1650	5366	-
89502375	REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	4	1	1	1	1	-
89502380	REMOVE EXISTING HANDHOLE	EACH	18	1	-	10	7	-
89502385	REMOVE EXISTING CONCRETE FOUNDATION	EACH	14	3	-	4	7	-
X0322925	ELECTRIC CABLE IN CONDUIT, TRACER NO. 14 1C	FOOT	4950	-	-	-	-	4950
X0323319	POST MOUNTED FLASHING BEACON INSTALLATION (SPECIAL)	EACH	1	-	-	1	-	-
X8050015	SERVICE INSTALLATION, POLE MOUNTED	EACH	4	1	1	1	1	-
X8710020	FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM12F	FOOT	4950	-	-	-	-	4950
X8730027	ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6 1C	FOOT	2270	415	30	1025	800	-
X8730250	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 20 3C TWISTED, SHIELDED	FOOT	1100	245	-	455	400	-
X8800020	SIGNAL HEAD, L.E.D., 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	24	4	4	8	8	-
X8800035	SIGNAL HEAD, L.E.D., 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	8	-	-	3	5	-
X8800037	SIGNAL HEAD, L.E.D., 1-FACE, 4-SECTION, BRACKET MOUNTED	EACH	1	-	-	-	1	-
X8800038	SIGNAL HEAD, L.E.D., 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	1	-	-	-	1	-
X8800040	SIGNAL HEAD, L.E.D., 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	8	4	4	-	-	-
X8800045	SIGNAL HEAD, L.E.D., 1-FACE, 5-SECTION, MAST ARM MOUNTED	EACH	8	4	4	-	-	-
X8810610	PEDESTRIAN SIGNAL HEAD, L.E.D., 1-FACE, BRACKET MOUNTED	EACH	10	4	4	-	2	-
X8810620	PEDESTRIAN SIGNAL HEAD, L.E.D., 2-FACE, BRACKET MOUNTED	EACH	5	2	2	-	1	-
XX002264	ELECTRIC CABLE IN CONDUIT, RAILROAD NO. 14 3C	FOOT	121	-	-	-	121	-
XX002856	RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM	L SUM	1	-	-	-	-	1
Z0048665	RAILROAD PROTECTIVE LIABILITY INSURANCE	L SUM	1	-	-	-	-	1
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	4	0.8	0.8	0.8	0.8	0.8
67100100	MOBILIZATION	L SUM	1	0.2	0.2	0.2	0.2	0.2

⊕ SPECIALTY ITEMS
 * SFTY-ID
 ** Y031-3D - 100% COST TO THE VILLAGE OF DESPLAINES
 NOTE: ALL ITEMS FOR CONSTRUCTION TYPE CODE: Y031-IF, EXCEPT AS NOTED

REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION
NAME	DATE	
		SUMMARY OF TRAFFIC SIGNAL QUANTITIES

SCALE: NONE
DATE: 3/22/2005

DRAWN BY: RV/MD
DESIGNED BY: DS
CHECKED BY: AS/KG



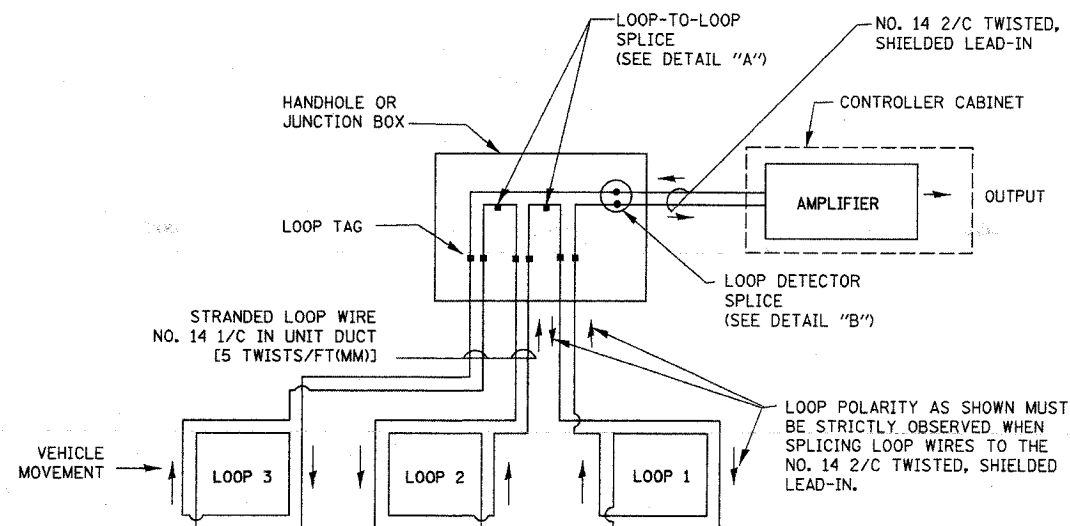
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3/22/2005

TS-02

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	3
STA.		TO STA.		
FED. ROAD DIST. NO. 1		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 62737				

LOOP DETECTOR NOTES

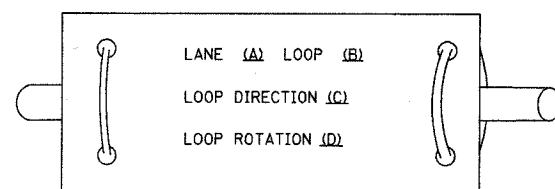
- EACH PAIR OF LOOP WIRES SHALL BE PLACED IN A SEPARATE UNIT DUCT FROM THE EDGE OF PAVEMENT TO THE HANDHOLE. SPACING BETWEEN THE HOLES DRILLED IN THE PAVEMENT SHALL NOT BE LESS THAN 6" (150 mm). UNIT DUCT SHALL BE INCLUDED IN THE COST OF THE LOOP WIRE.
- THE NUMBER OF LOOP TURNS SHALL BE AS RECOMMENDED 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 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.
- 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.



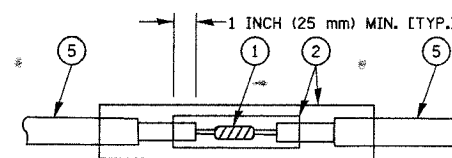
DETECTOR LOOP WIRING SCHEMATIC

- 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.

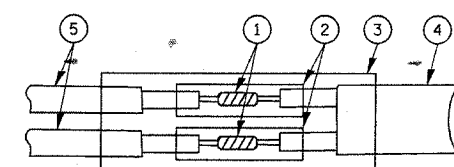
LOOP LEAD-IN CABLE TAG



- 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.



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.

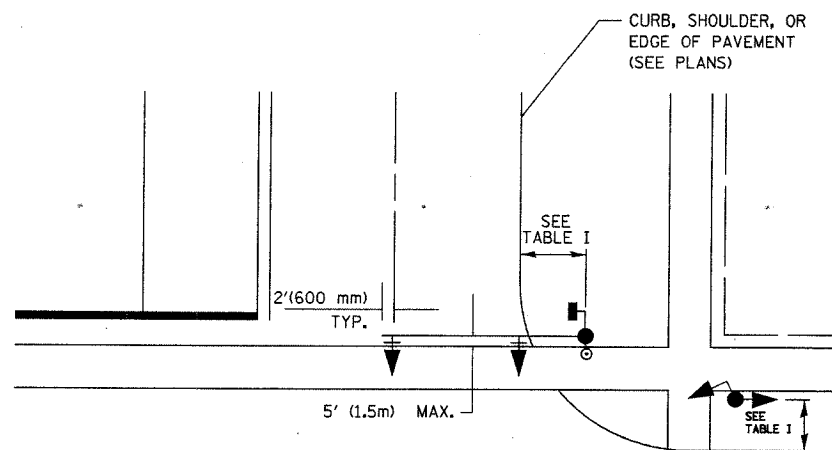
TS-03

REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION
NAME	DATE	
		DISTRICT 1 STANDARD TRAFFIC SIGNAL DESIGN DETAILS
SCALE: VERT. NONE HORIZ. NONE		DRAWN BY: RWP DESIGNED BY: DAD CHECKED BY: DAZ SHEET 1 OF 4
DATE 1-01-02		

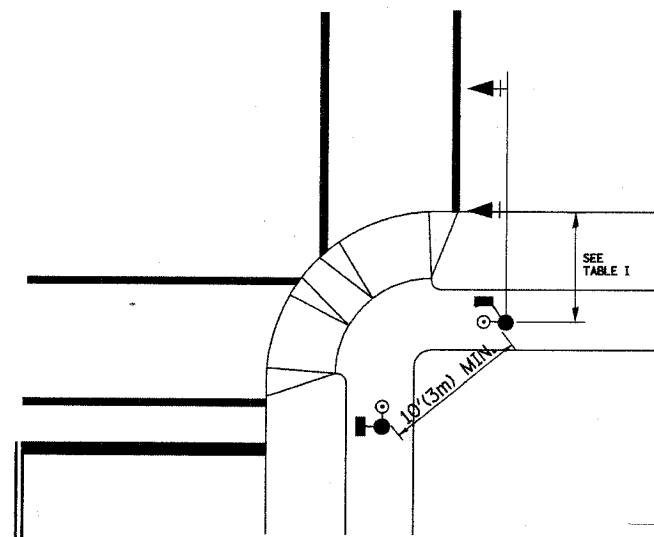
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330	2004-018TS	COOK	28	4
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FED. ROAD DIST. NO. 1		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 62737				

TRAFFIC SIGNAL MAST ARM AND POST

MAST ARM MOUNTED SIGNAL IN PROPOSED & FUTURE SIDEWALK AREA, INTERSECTION SHOWN WITH PEDESTRIAN SIGNAL AND PUSHBUTTON DETECTOR



PEDESTRIAN SIGNAL PUSHBUTTON



RECOMMENDED PUSHBUTTON LOCATIONS FOR ACCESSIBLE PEDESTRIAN SIGNALS SHALL BE IN ACCORDANCE WITH THE CURRENT MUTCD (SEE NOTE 1). TO MEET MUTCD REQUIREMENTS, PEDESTRIAN SIGNAL PUSHBUTTONS MAY HAVE TO BE MOUNTED ON A SEPARATE POST.

1. AT ACCESSIBLE PEDESTRIAN SIGNAL LOCATIONS WITH PEDESTRIAN ACTUATION, EACH PUSHBUTTON SHALL ACTIVATE BOTH THE WALK INTERVAL AND THE ACCESSIBLE PEDESTRIAN SIGNALS.

AT ACCESSIBLE PEDESTRIAN SIGNAL LOCATIONS, PUSHBUTTONS SHOULD CLEARLY INDICATE WHICH CROSSWALK SIGNAL IS ACTUATED BY EACH PUSHBUTTON. PUSHBUTTONS AND TACTILE ARROWS SHOULD HAVE HIGH VISUAL CONTRAST (SEE THE DEPARTMENT OF JUSTICE'S AMERICANS WITH DISABILITIES ACT STANDARDS FOR ACCESSIBLE DESIGN, 1991). TACTILE ARROWS SHOULD POINT IN THE SAME DIRECTION AS THE ASSOCIATED CROSSWALK. AT CORNERS OF SIGNALIZED LOCATIONS WITH ACCESSIBLE PEDESTRIAN SIGNALS WHERE PEDESTRIAN PUSHBUTTONS ARE PROVIDED, THE PUSHBUTTONS SHOULD BE SEPARATED BY THE DISTANCE OF AT LEAST 10 FT (3m). THIS ENABLES PEDESTRIANS WHO HAVE VISUAL DISABILITIES TO DISTINGUISH AND LOCATE THE APPROPRIATE PUSHBUTTON.

PUSHBUTTONS FOR ACCESSIBLE PEDESTRIAN SIGNALS SHOULD BE LOCATED AS FOLLOWS:

- A: ADJACENT TO A LEVEL ALL-WEATHER SURFACE TO PROVIDE ACCESS FROM A WHEELCHAIR, AND WHERE THERE IS AN ALL WEATHER SURFACE, WHEELCHAIR ACCESSIBLE ROUTE TO THE RAMP.
- B: WITHIN 5 FT (1.5m) OF THE CROSSWALK EXTENDED.
- C: WITHIN 10 FT (3m) OF THE EDGE OF CURB, SHOULDER, OR PAVEMENT.
- D: PARALLEL TO THE CROSSWALK TO BE USED (SEE MUTCD FIGURE 4E-2).
- E: NORMAL PEDESTRIAN PUSHBUTTON MOUNTING HEIGHT SHOULD BE 3.5 FT (1.05m) ABOVE ADJACENT SIDEWALK

2. PEDESTRIAN SIGNAL FACES SHALL BE MOUNTED WITH THE BOTTOM OF THE HOUSING NOT LESS THAN 8 FT (2.4m) NOR MORE THAN 10 FT (3.0m) ABOVE THE SIDEWALK LEVEL AND SO THERE IS A PEDESTRIAN INDICATION IN THE LINE OF PEDESTRIANS' VISION WHICH PERTAINS TO THE CROSSWALK BEING USED.

3. THE BOTTOM OF THE HOUSING OF A VEHICLE SIGNAL FACE, NOT MOUNTED OVER A ROADWAY, SHALL BE AT LEAST 10 FT (3.0m) BUT NOT MORE THAN 15 FT (4.5m) ABOVE THE SIDEWALK OR, ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE HIGHWAY IF NO SIDEWALKS EXIST.

4. THE BOTTOM OF THE HOUSING OF A VEHICLE SIGNAL FACE, MOUNTED OVER A ROADWAY, SHALL BE ACCORDING TO CURRENT STATE STANDARDS 877001 AND 877006. (16 FT (5m) MIN., 18 FT (5.5m) MAX., FROM HIGHEST POINT OF PAVEMENT)

PEDESTRIAN SIGNAL POST

PEDESTRIAN SIGNAL HEAD AND PEDESTRIAN PUSHBUTTON DETECTOR LOCATION

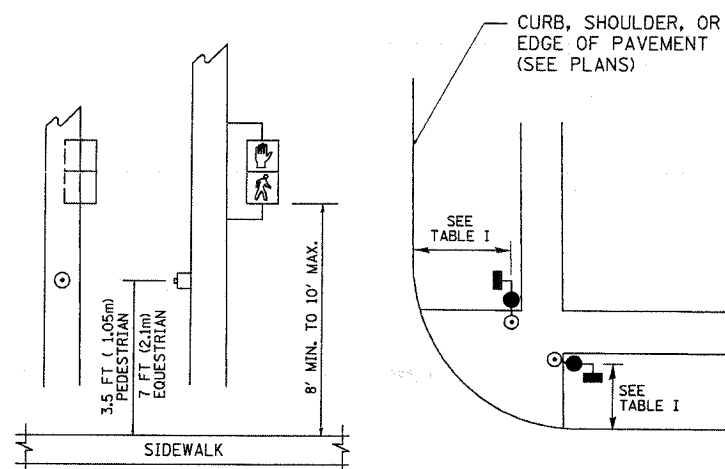


TABLE I

TRAFFIC SIGNAL EQUIPMENT	COMBINATION CONCRETE CURB AND GUTTER (MIN. DIST. FROM BACK OF CURB)	SHOULDER/NON-CURBED AREA (MIN. DIST. FROM EDGE OF PAVEMENT)
TRAFFIC SIGNAL MAST ARM POLE	6 FT (1.8m)	SHOULDER WIDTH + 2FT(0.6m), MINIMUM 10FT(3.0m)
TRAFFIC SIGNAL POST	4 FT (1.2m)	SHOULDER WIDTH + 2FT(0.6m), MINIMUM 10FT(3.0m)
PEDESTRIAN SIGNAL POST	4 FT (1.2m)	SHOULDER WIDTH + 2FT(0.6m), MINIMUM 10FT(3.0m)
PEDESTRIAN PUSHBUTTON	SEE NOTE 1	SEE NOTE 1

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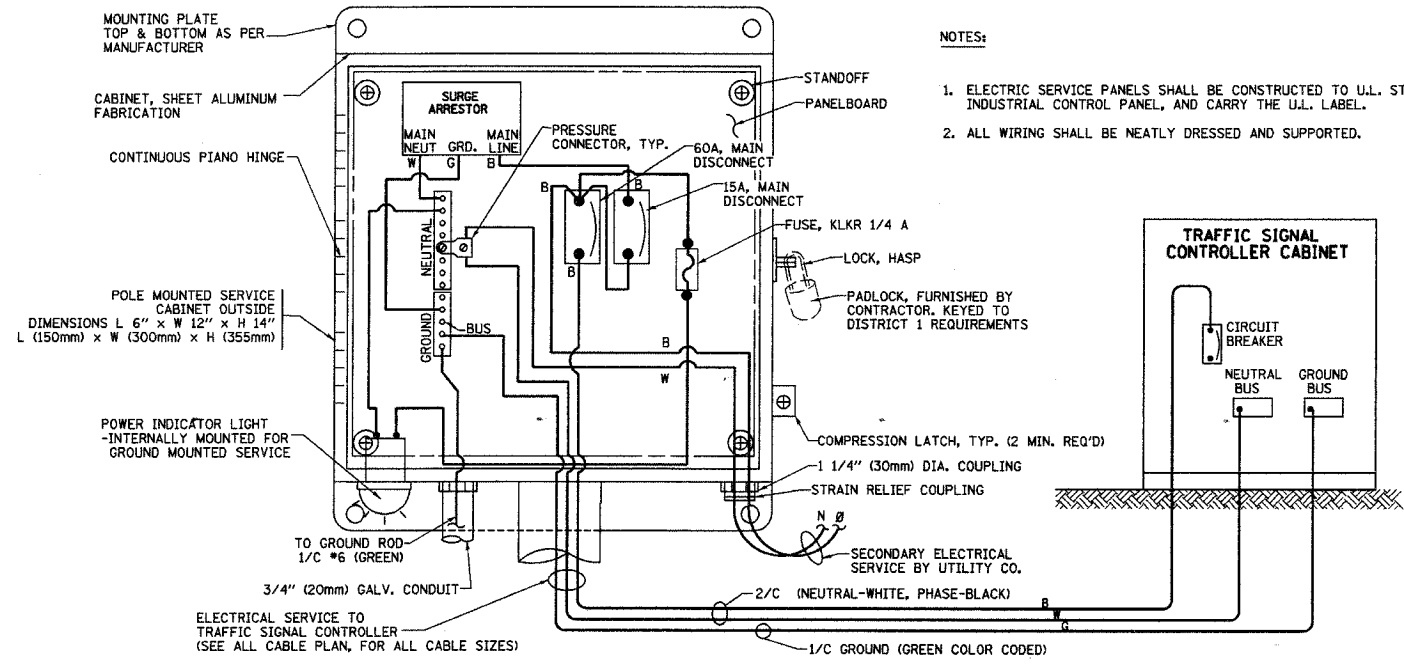
TS-04

REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION
NAME	DATE	
		DISTRICT 1 STANDARD TRAFFIC SIGNAL DESIGN DETAILS

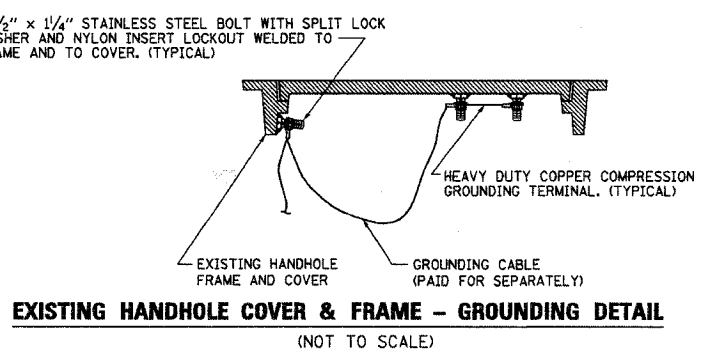
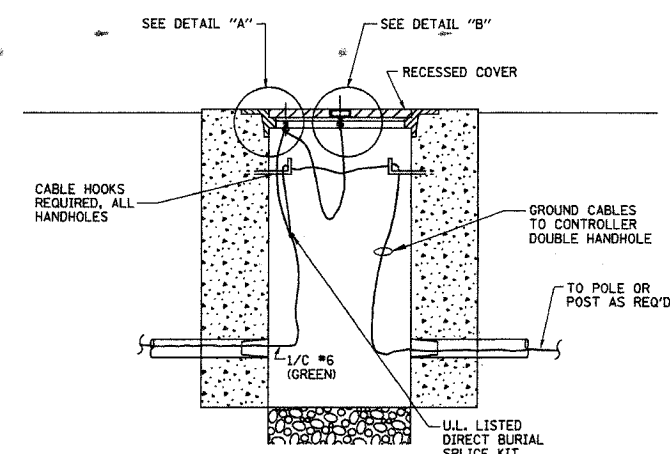
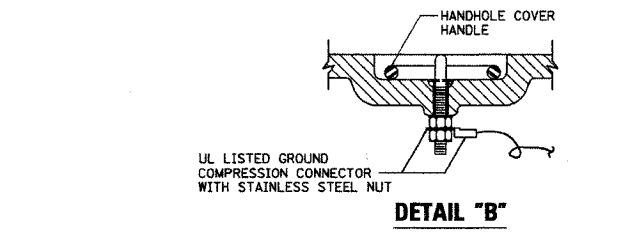
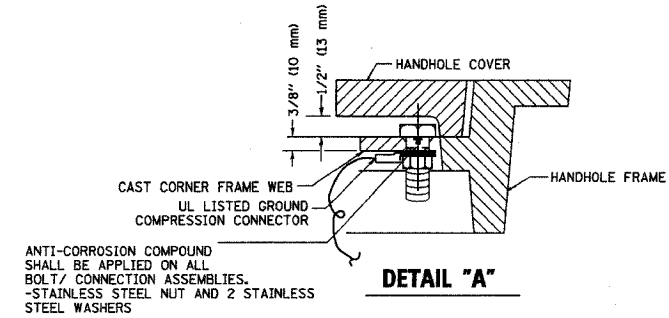
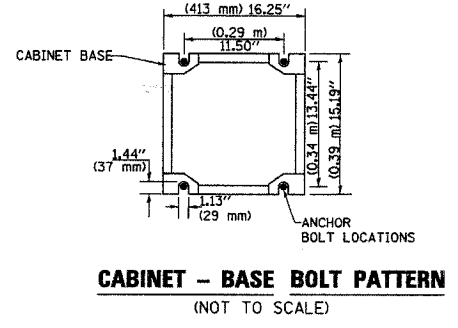
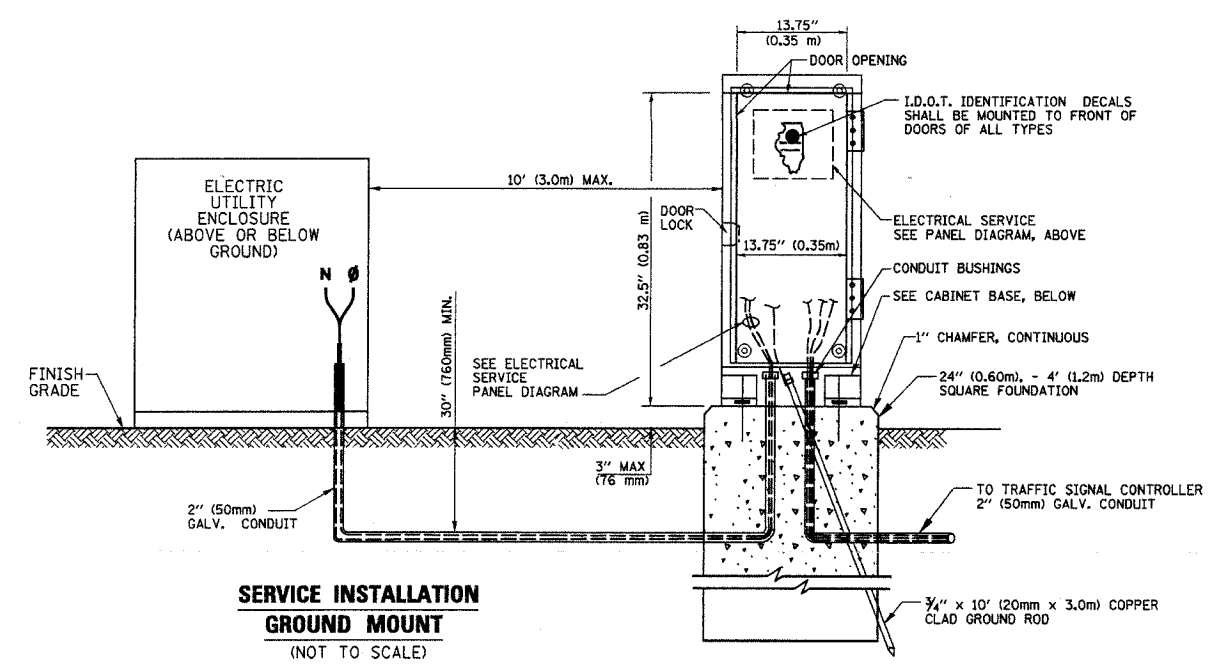
SCALE: VERT. NONE
HORIZ. NONE
DATE 1-01-02

DRAWN BY: RWP
DESIGNED BY: DAD
CHECKED BY: DAZ
SHEET 2 OF 4

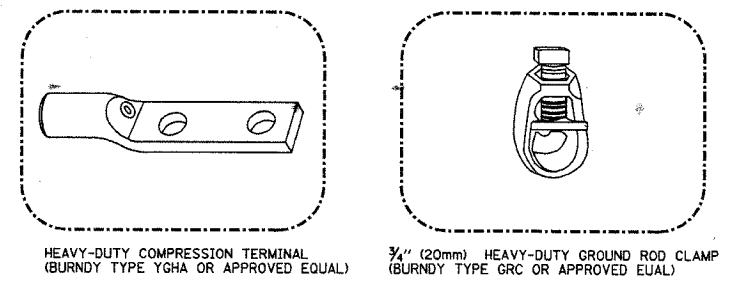
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	5
STA.	TO STA.			
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				
CONTRACT NO. 62737				



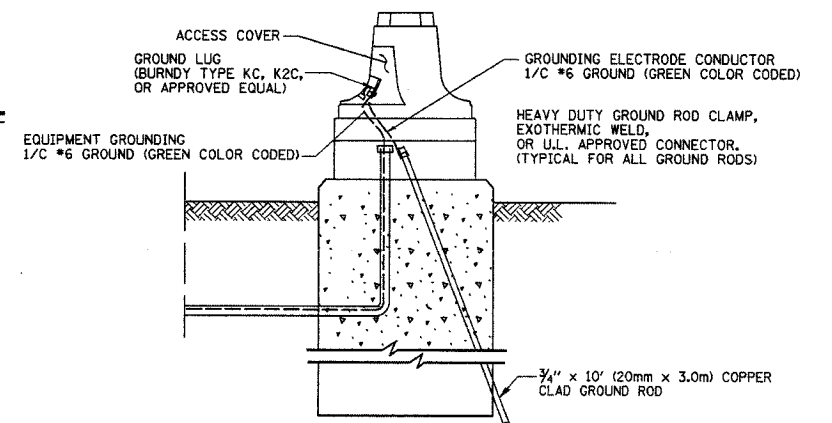
ELECTRICAL SERVICE - PANEL DIAGRAM (TYPICAL FOR POLE AND GROUND MOUNTED SERVICE)
SERVICE INSTALLATION POLE MOUNT (SHOWN)
 (NOT TO SCALE)



- NOTES:**
- GROUNDING SYSTEM**
- 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) 705-4139.
 - 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.
 - ALL EQUIPMENT GROUNDING CONDUCTORS SHALL TERMINATE AT THE GROUND BUS IN THE CONTROLLER CABINET.
 - THE CONTRACTOR SHALL PROVIDE A GROUND CABLE WITH CONNECTORS BETWEEN THE HANDHOLE COVER AND HANDHOLE FRAME.



- NOTES:**
- ALL CLAMPS SHALL BE BRONZE OR COPPER, UL APPROVED.
 - GROUND CABLE SHALL BE LOOPEO 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.



REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION	
NAME	DATE		

DISTRICT 1
 STANDARD TRAFFIC SIGNAL
 DESIGN DETAILS

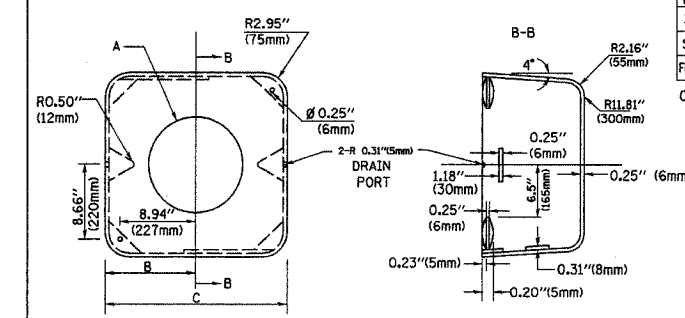
SCALE: VERT. NONE
 HORIZ. NONE
 DATE: 1-01-02

DRAWN BY: RWP
 DESIGNED BY: DAD
 CHECKED BY: DAZ
 SHEET 3 OF 4

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	6
STA.		TO STA.		
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				
CONTRACT NO. 62737				

MATERIAL:
 - ASTM A48 CLASS 30 GREY IRON
 - ASTM A123 HOT DIPPED GALVANIZED

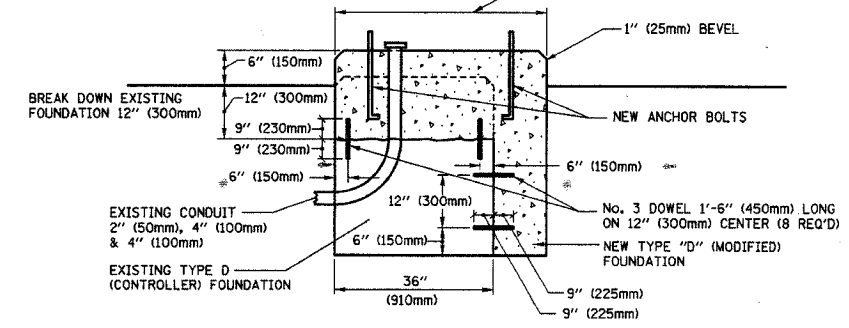


TYPE	A	B	C	HEIGHT	WEIGHT
I	Ø 10.125" (257mm)	9.5" (241mm)	19" (483mm)	12" (300mm)	24kg
II	Ø 11.125" (283mm)	10.75" (273mm)	21.5" (546mm)	12" (300mm)	26kg

SHROUD DETAIL

NOTE

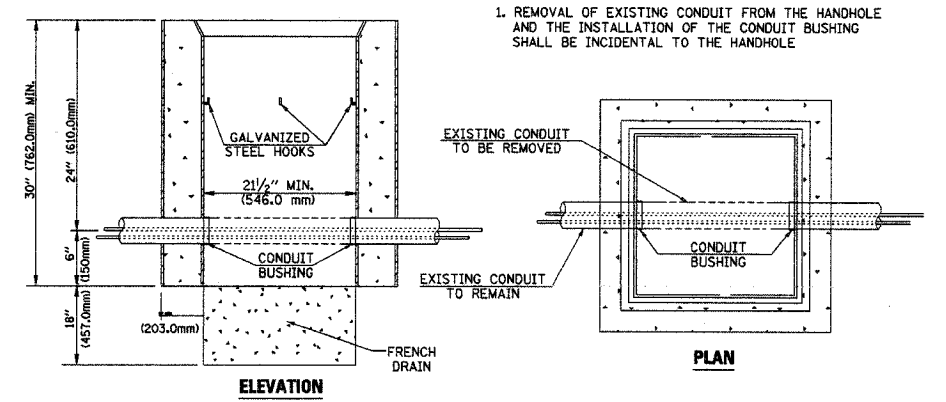
SUPPORT EXISTING CABINET AND CONTROL EQUIPMENT ABOVE FOUNDATION TO KEEP TRAFFIC SIGNAL FUNCTIONING WHILE FOUNDATION MODIFICATION WORK IS PROCEEDING.



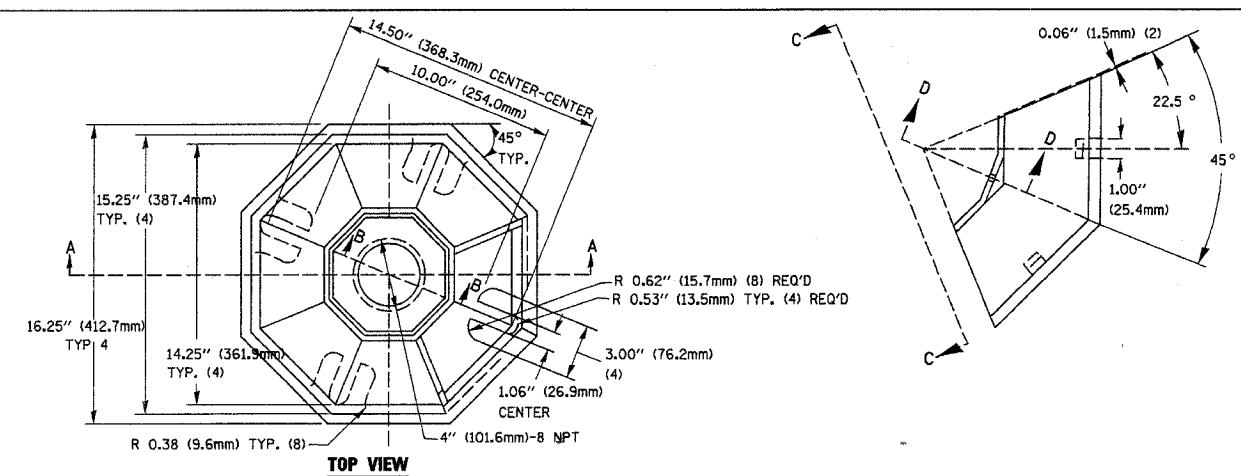
MODIFY EXISTING TYPE "D" FOUNDATION (NOT TO SCALE)

NOTE

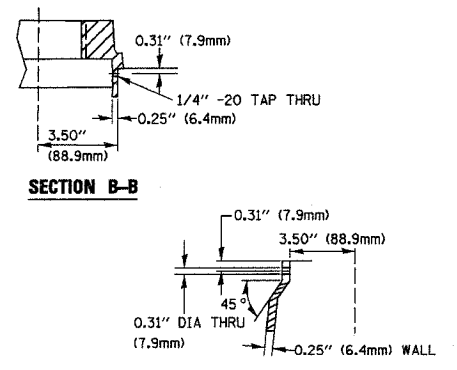
1. REMOVAL OF EXISTING CONDUIT FROM THE HANDHOLE AND THE INSTALLATION OF THE CONDUIT BUSHING SHALL BE INCIDENTAL TO THE HANDHOLE



DETAIL HANDHOLE TO INTERCEPT EXISTING CONDUIT (NOT TO SCALE)

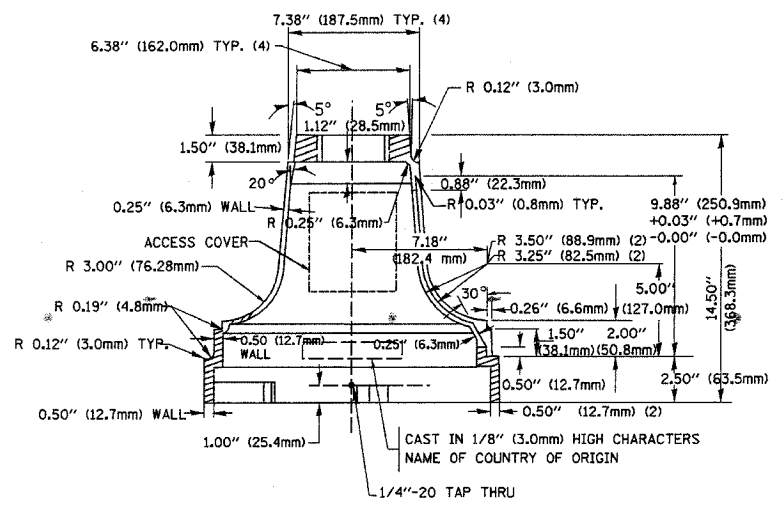


TOP VIEW

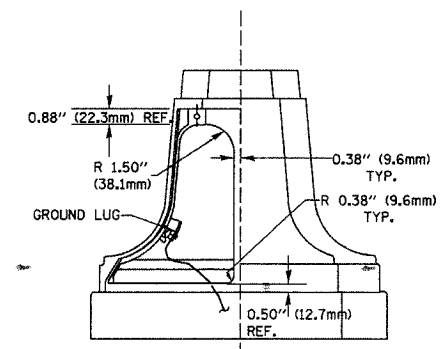


SECTION B-B

SECTION D-D



SECTION A-A



VIEW C-C

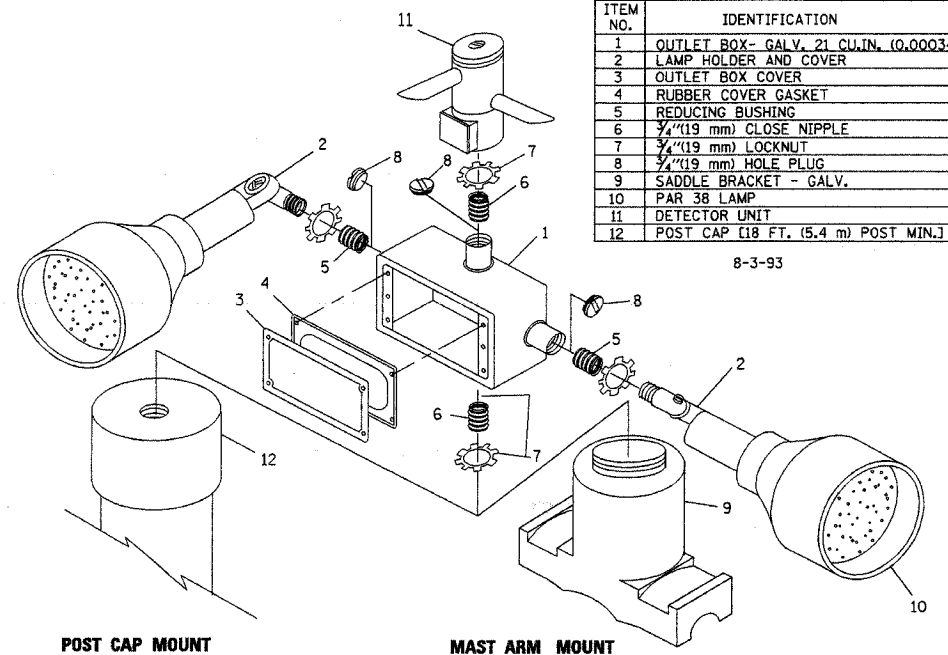
TRAFFIC SIGNAL POST - MOUNTING BASE - TYPE A

NOTES:

- ALL ELECTRICAL ITEMS, EXCEPT ITEMS *2 AND *11 SHALL BE ALUMINUM OR GALVANIZED
- 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
- 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.

ITEM NO.	IDENTIFICATION
1	OUTLET BOX- GALV. 21 CU.IN. (0.00344 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	PAR 38 LAMP
11	DETECTOR UNIT
12	POST CAP [18 FT. (5.4 m) POST MIN.]

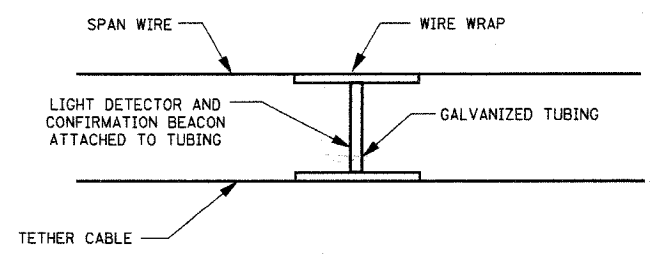
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POST CAP MOUNT

MAST ARM MOUNT

EMERGENCY VEHICLE DETECTOR WITH CONFIRMATION BEACON MOUNTING DETAIL



LIGHT DETECTOR AND CONFIRMATION BEACON MOUNTING FOR TEMPORARY TRAFFIC SIGNALS (NOT TO SCALE)

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 DISTRICT 1
 STANDARD TRAFFIC SIGNAL
 DESIGN DETAILS

SCALE: VERT. NONE
 HORIZ. 1"=10'-0"
 DATE 1-01-02

DRAWN BY: RWP
 DESIGNED BY: DAD
 CHECKED BY: DAZ
 SHEET 4 OF 4

TS-06

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	07
STA.	TO STA.			
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		
CONTRACT NO. 62737				

EXISTING EQUIPMENT TO BE REMOVED LEGEND

- EXISTING SIGNAL HEAD TO BE REMOVED
- EXISTING SERVICE INSTALLATION TO BE REMOVED
- EXISTING SIGNAL POST AND FOUNDATION TO BE REMOVED
- EXISTING ALUMINUM MAST ARM POLE AND FOUNDATION TO BE REMOVED
- EXISTING CONTROLLER AND FOUNDATION TO BE REMOVED
- EXISTING HANDHOLE TO BE REMOVED
- EXISTING PEDESTRIAN SIGNAL HEAD TO BE REMOVED
- EXISTING PEDESTRIAN PUSHBUTTON TO BE REMOVED
- EMERGENCY VEHICLE LIGHT DETECTOR TO BE REMOVED
- CONFIRMATION BEACON TO BE REMOVED
- EXISTING HEAVY-DUTY HANDHOLE TO BE REMOVED
- EXISTING STEEL MAST ARM POLE AND FOUNDATION TO BE REMOVED
- EXISTING JUNCTION BOX TO BE REMOVED

THE FOLLOWING EXISTING TRAFFIC SIGNAL EQUIPMENT SHALL BE REMOVED BY THE CONTRACTOR. SHALL REMAIN THE PROPERTY OF THE STATE AND SHALL BE DELIVERED BY THE CONTRACTOR TO THE STATE'S TRAFFIC SIGNAL MAINTENANCE CONTRACTOR'S MAIN FACILITY AS PER THE TRAFFIC SIGNAL SPECIFICATIONS:

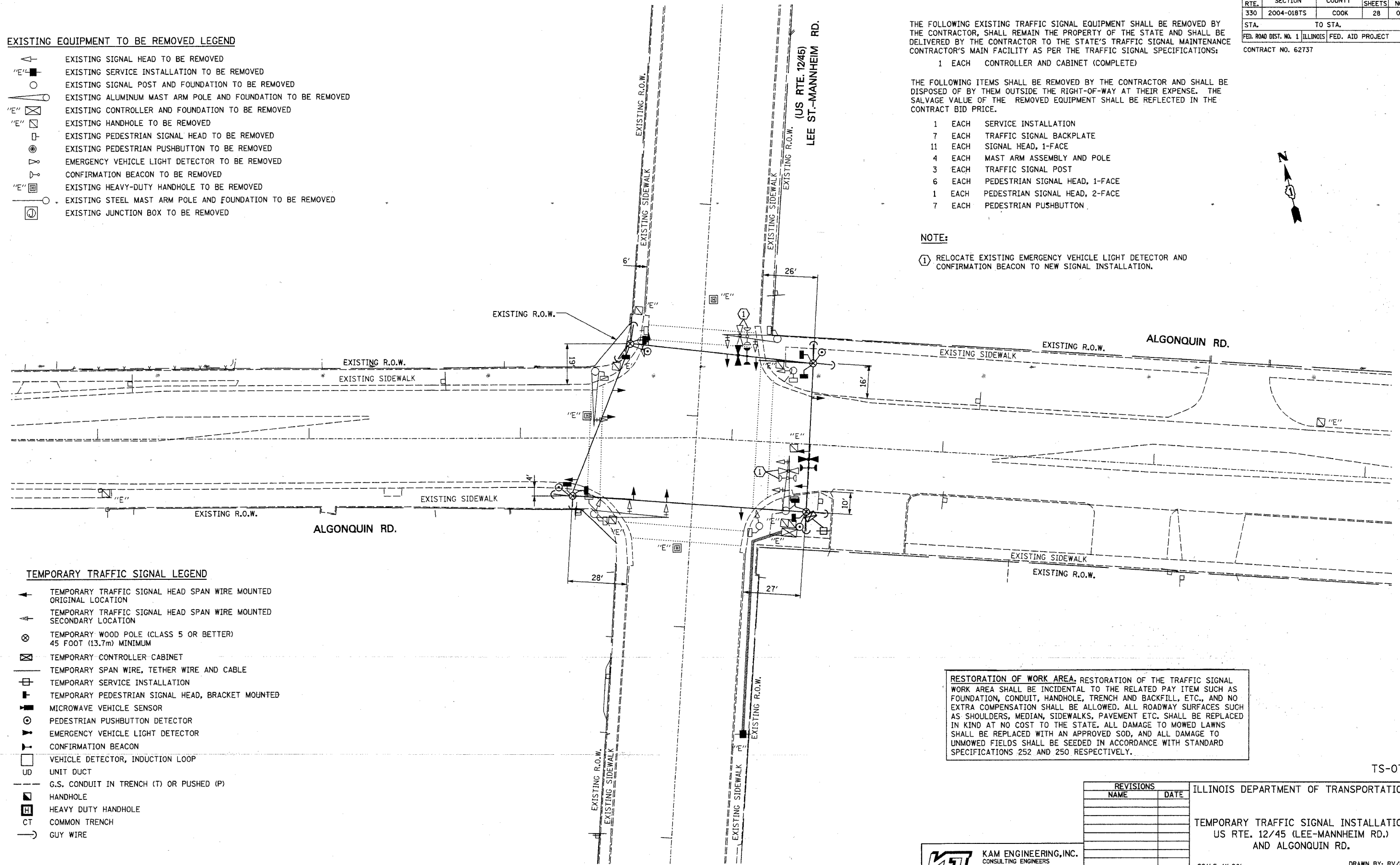
- 1 EACH CONTROLLER AND CABINET (COMPLETE)

THE FOLLOWING ITEMS SHALL BE REMOVED BY THE CONTRACTOR AND SHALL BE DISPOSED OF BY THEM OUTSIDE THE RIGHT-OF-WAY AT THEIR EXPENSE. THE SALVAGE VALUE OF THE REMOVED EQUIPMENT SHALL BE REFLECTED IN THE CONTRACT BID PRICE.

- 1 EACH SERVICE INSTALLATION
- 7 EACH TRAFFIC SIGNAL BACKPLATE
- 11 EACH SIGNAL HEAD, 1-FACE
- 4 EACH MAST ARM ASSEMBLY AND POLE
- 3 EACH TRAFFIC SIGNAL POST
- 6 EACH PEDESTRIAN SIGNAL HEAD, 1-FACE
- 1 EACH PEDESTRIAN SIGNAL HEAD, 2-FACE
- 7 EACH PEDESTRIAN PUSHBUTTON

NOTE:

- ① RELOCATE EXISTING EMERGENCY VEHICLE LIGHT DETECTOR AND CONFIRMATION BEACON TO NEW SIGNAL INSTALLATION.



TEMPORARY TRAFFIC SIGNAL LEGEND

- TEMPORARY TRAFFIC SIGNAL HEAD SPAN WIRE MOUNTED ORIGINAL LOCATION
- TEMPORARY TRAFFIC SIGNAL HEAD SPAN WIRE MOUNTED SECONDARY LOCATION
- TEMPORARY WOOD POLE (CLASS 5 OR BETTER) 45 FOOT (13.7m) MINIMUM
- TEMPORARY CONTROLLER CABINET
- TEMPORARY SPAN WIRE, TETHER WIRE AND CABLE
- TEMPORARY SERVICE INSTALLATION
- TEMPORARY PEDESTRIAN SIGNAL HEAD, BRACKET MOUNTED
- MICROWAVE VEHICLE SENSOR
- PEDESTRIAN PUSHBUTTON DETECTOR
- EMERGENCY VEHICLE LIGHT DETECTOR
- CONFIRMATION BEACON
- VEHICLE DETECTOR, INDUCTION LOOP
- UNIT DUCT
- G.S. CONDUIT IN TRENCH (T) OR PUSHED (P)
- HANDHOLE
- HEAVY DUTY HANDHOLE
- COMMON TRENCH
- GUY WIRE

RESTORATION OF WORK AREA: RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIAN, SIDEWALKS, PAVEMENT ETC. SHALL BE REPLACED IN KIND AT NO COST TO THE STATE. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

TS-07

REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION
NAME	DATE	
		TEMPORARY TRAFFIC SIGNAL INSTALLATION US RTE. 12/45 (LEE-MANNHEIM RD.) AND ALGONQUIN RD.

K&E KAM ENGINEERING, INC.
CONSULTING ENGINEERS
7074 Davis Road, Suite 205
Elgin, Illinois 60123-1369

SCALE: 1"=20'
DATE: FEBRUARY, 2005
DRAWN BY: RV/MD
DESIGNED BY: DS
CHECKED BY: AS/KG

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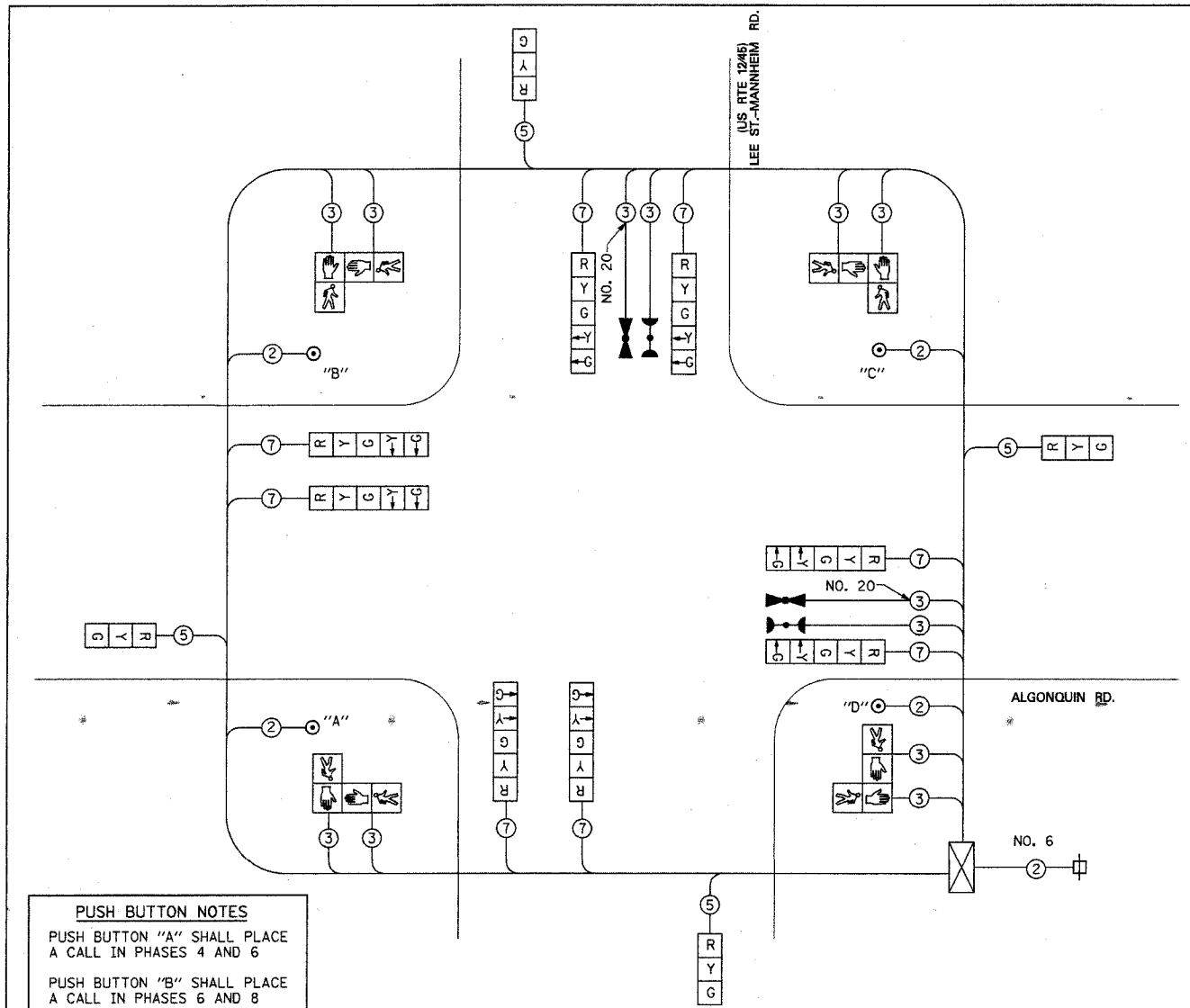
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	08
STA. TO STA.				
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				
CONTRACT NO. 62737				

TEMPORARY CABLE DIAGRAM LEGEND

- TEMPORARY TRAFFIC SIGNAL SECTION OR PEDESTRIAN SIGNAL SECTION 12" (300mm)
- TEMPORARY CONTROLLER CABINET
- TEMPORARY SERVICE INSTALLATION
- INDICATES NUMBER OF CONDUCTORS IN CABLE. ALL CONDUCTORS TO BE NUMBER 14 AWG WIRE UNLESS OTHERWISE NOTED
- EMERGENCY VEHICLE LIGHT DETECTOR
- CONFIRMATION BEACON
- VEHICLE DETECTOR, INDUCTION LOOP
- PEDESTRIAN PUSHBUTTON DETECTOR
- 12" (300mm) PEDESTRIAN SIGNAL SECTION
- MICROWAVE VEHICLE SENSOR
- GROUND ROD AT ELECTRIC SERVICE INSTALLATION
- EXISTING RAILROAD CONTROLLER CABINET

NOTES FOR TEMPORARY TRAFFIC SIGNALS

1. ALL CONTROL EQUIPMENT INCLUDING EMERGENCY PRE-EMPTION AND COMMUNICATION DEVICES FOR THE TEMPORARY TRAFFIC SIGNAL(S) SHALL BE FURNISHED BY THE CONTRACTOR
2. ONLY CONTROLLERS SUPPLIED BY ONE OF THE DISTRICT APPROVED CLOSED LOOP EQUIPMENT MANUFACTURERS WILL BE APPROVED FOR USE AT TEMPORARY SIGNAL LOCATIONS. ALL CONTROLLERS USED FOR TEMPORARY TRAFFIC SIGNALS SHALL BE FULLY ACTUATED NEMA MICROPROCESSOR BASED WITH RS232 DATA ENTRY PORTS COMPATIBLE WITH EXISTING MONITORING SOFTWARE APPROVED BY IDOT DISTRICT 1, INSTALLED IN A NEMA TS1 OF TS2 CABINET. ONLY ONE BRAND OF CONTROLLER WILL BE ACCEPTED FOR ANY ONE CONTRACT.
3. ALL TRAFFIC SIGNAL SECTIONS AND PEDESTRIAN SIGNAL SECTIONS SHALL BE 12" (300mm). HEADS SHALL BE PLACED AS INDICATED ON THE TEMPORARY TRAFFIC SIGNAL PLAN OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL FURNISH ENOUGH CABLE SLACK TO RELOCATE HEADS TO ANY POSITION ON THE SPAN WIRE OR AT LOCATIONS ILLUSTRATED ON THE PLANS FOR CONSTRUCTION STAGING. THE TEMPORARY TRAFFIC SIGNAL SHALL REMAIN IN OPERATION DURING ALL SIGNAL HEAD RELOCATIONS. EACH TEMPORARY TRAFFIC SIGNAL HEAD SHALL HAVE ITS OWN CABLE FROM THE CONTROLLER CABINET TO THE SIGNAL HEAD.
4. ALL EXISTING STREET NAME AND INTERSECTION REGULATORY SIGNS SHALL BE REMOVED FROM EXISTING POLES, RELOCATED AND SECURELY FASTENED TO THE SIGNAL SPAN WIRE OR WOOD POLE AS DIRECTED BY THE ENGINEER.
5. ANY TEMPORARY SIGNAL WITHIN AN EXISTING CLOSED LOOP TRAFFIC SIGNAL SYSTEM SHALL BE INTERCONNECTED TO THAT SYSTEM USING SIMILAR BRAND CONTROL EQUIPMENT.
6. THE TEMPORARY TRAFFIC SIGNAL SHALL HAVE THE SIGNAL HEAD DISPLAYS, SIGNAL HEAD PLACEMENTS AND CONTROLLER PHASING MATCH THE EXISTING TRAFFIC SIGNAL, AT THE TIME OF THE TURN ON, IF NO TRAFFIC STAGING IS IN PLACE OR WILL NOT BE STAGED ON THE DAY OF THE TURN ON.



TEMPORARY CABLE PLAN
NOT TO SCALE

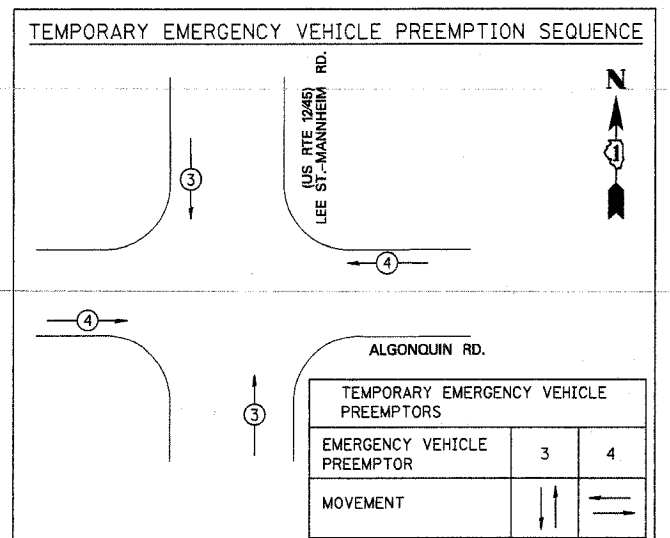
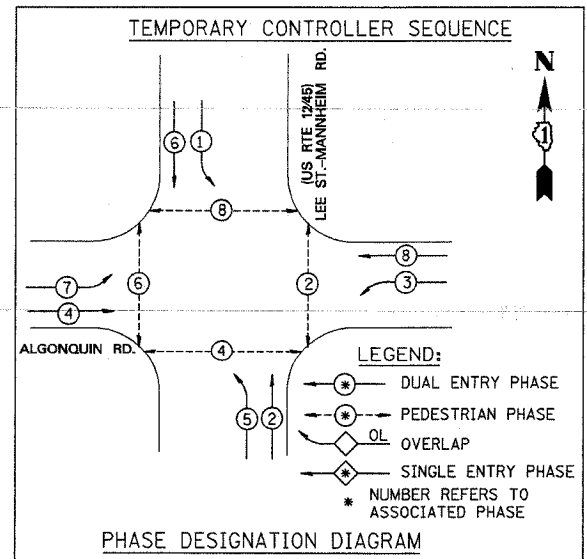
PUSH BUTTON NOTES

PUSH BUTTON "A" SHALL PLACE A CALL IN PHASES 4 AND 6

PUSH BUTTON "B" SHALL PLACE A CALL IN PHASES 6 AND 8

PUSH BUTTON "C" SHALL PLACE A CALL IN PHASES 8 AND 2

PUSH BUTTON "D" SHALL PLACE A CALL IN PHASES 4 AND 2



I.D.O.T.
TRAFFIC SIGNAL INSTALLATION
ELECTRICAL SERVICE REQUIREMENTS

TYPE	NO. LAMPS	WATTAGE	% OPERATION	TOTAL WATTAGE	
		INCAND	LED		
SIGNAL (RED)	12	135	17	0.50	810
(YELLOW)	12	135	25	0.25	405
(GREEN)	12	135	15	0.25	405
ARROW	16	135	12	0.10	216
PED. SIGNAL	8	90	25	1.00	720
CONTROLLER	1	100	100	1.00	100
ILLUM. SIGN		84	35	0.05	
TOTAL =				2656	

ENERGY COST TO: Illinois Department of Transportation
Division of Highways / District 1
201 W Center Court, Schaumburg, Illinois 60196-1096

ENERGY SUPPLY: CONTACT: **Mr. Sam Thomas**
PHONE: **(630)-691-4456**
COMPANY: ComEd

K&J KAM ENGINEERING, INC.
CONSULTING ENGINEERS
707A Davis Road, Suite 205
Elgin, Illinois 60123-1369

REVISIONS

NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

TEMPORARY
CABLE PLAN, PHASE DESIGNATION DIAGRAM
US RTE. 12/45 (LEE-MANNHEIM RD.)
AND ALGONQUIN RD.

SCALE: NONE

DATE: FEBRUARY, 2005

DRAWN BY: RV/MD
DESIGNED BY: DS
CHECKED BY: AS/KG

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	09
STA.	TO STA.			
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				
CONTRACT NO. 62737				

NOTES:

- ① REUSE EXISTING CONTROLLER FOUNDATION, INSTALL NEW CONTROLLER AND TYPE IV CABINET, AND RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM PHASING UNIT TO NEW CONTROLLER CABINET. THE COST OF THIS RELOCATION IS INCIDENTAL TO NEW CONTROLLER AND CABINET.
- ② REMOVE EXISTING SERVICE CABLE, GROUND CABLE AND SERVICE. INSTALL NEW SERVICE, SERVICE CABLE AND GROUND CABLE.
- ③ REMOVE EXISTING HANDHOLE AND INSTALL NEW HEAVY DUTY HANDHOLE AT THE EXISTING LOCATION. THE EXISTING CONDUIT SHALL BE REUSED AND SHALL REMAIN IN PLACE THROUGH THE PROPOSED HEAVY DUTY HANDHOLE.
- ④ REUSE EXISTING FOUNDATION FOR PROPOSED POST.
- ⑤ REUSE EXISTING FOUNDATION FOR PROPOSED MAST ARM ASSEMBLY AND POLE.
- ⑥ THE CONTRACTOR SHALL VERIFY ANY UNDERGROUND UTILITIES CONFLICT FOR THE PROPOSED MAST ARM ASSEMBLY AND POLE FOUNDATION.
- ⑦ RELOCATE EXISTING EMERGENCY VEHICLE LIGHT DETECTOR AND CONFIRMATION BEACON TO NEW SIGNAL INSTALLATION.
- ⑧ CONTRACTOR TO REUSE EXISTING CONDUITS AND REMOVE EXISTING CABLES FROM CONDUITS.

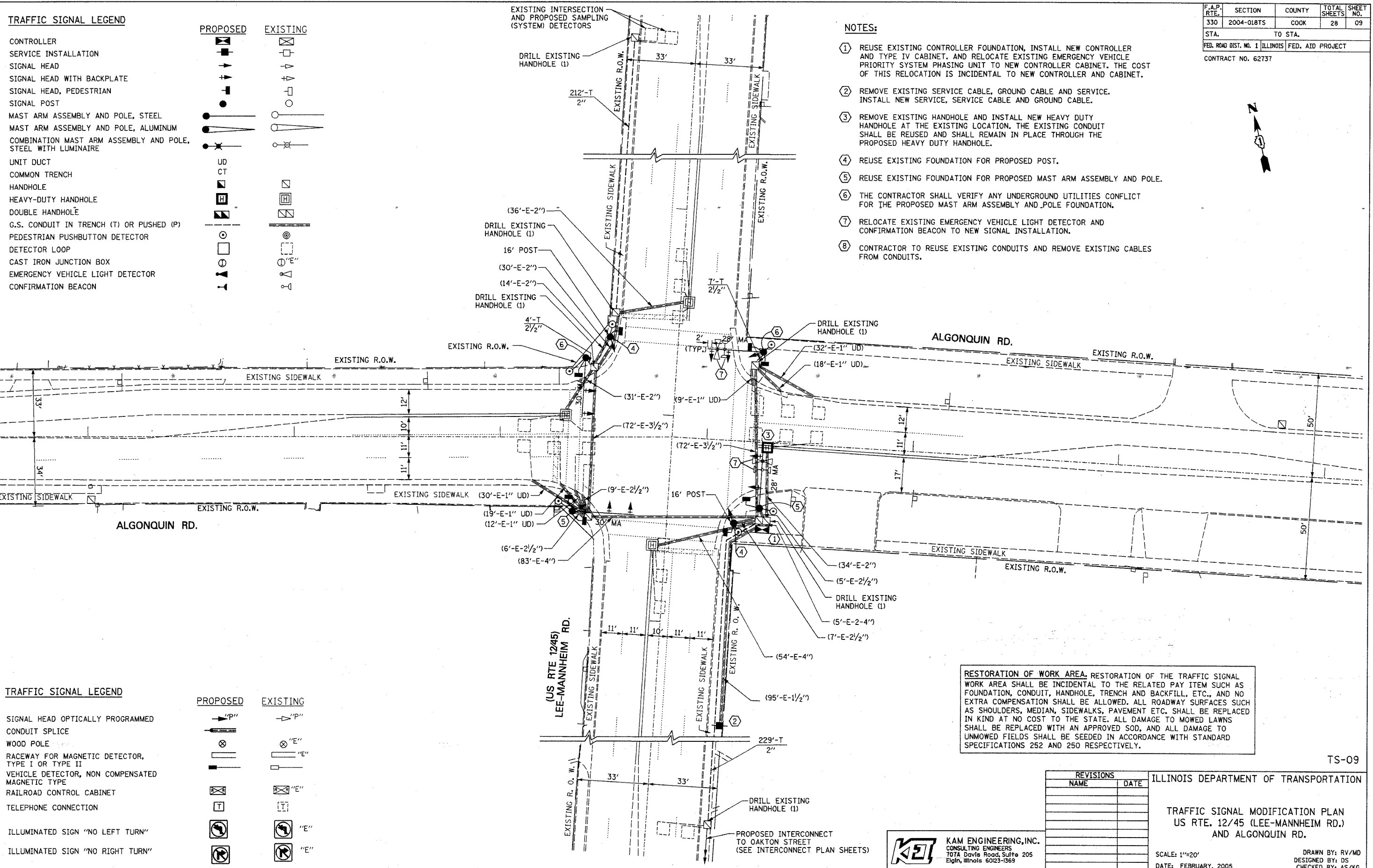


TRAFFIC SIGNAL LEGEND

CONTROLLER		
SERVICE INSTALLATION		
SIGNAL HEAD		
SIGNAL HEAD WITH BACKPLATE		
SIGNAL HEAD, PEDESTRIAN		
SIGNAL POST		
MAST ARM ASSEMBLY AND POLE, STEEL		
MAST ARM ASSEMBLY AND POLE, ALUMINUM		
COMBINATION MAST ARM ASSEMBLY AND POLE, STEEL WITH LUMINAIRE		
UNIT DUCT		
COMMON TRENCH		
HANDHOLE		
HEAVY-DUTY HANDHOLE		
DOUBLE HANDHOLE		
G.S. CONDUIT IN TRENCH (T) OR PUSHED (P)		
PEDESTRIAN PUSHBUTTON DETECTOR		
DETECTOR LOOP		
CAST IRON JUNCTION BOX		
EMERGENCY VEHICLE LIGHT DETECTOR		
CONFIRMATION BEACON		

TRAFFIC SIGNAL LEGEND

SIGNAL HEAD OPTICALLY PROGRAMMED		
CONDUIT SPLICE		
WOOD POLE		
RACEWAY FOR MAGNETIC DETECTOR, TYPE I OR TYPE II		
VEHICLE DETECTOR, NON COMPENSATED MAGNETIC TYPE		
RAILROAD CONTROL CABINET		
TELEPHONE CONNECTION		
ILLUMINATED SIGN "NO LEFT TURN"		
ILLUMINATED SIGN "NO RIGHT TURN"		



RESTORATION OF WORK AREA. RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIAN, SIDEWALKS, PAVEMENT ETC. SHALL BE REPLACED IN KIND AT NO COST TO THE STATE. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDING IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

TS-09

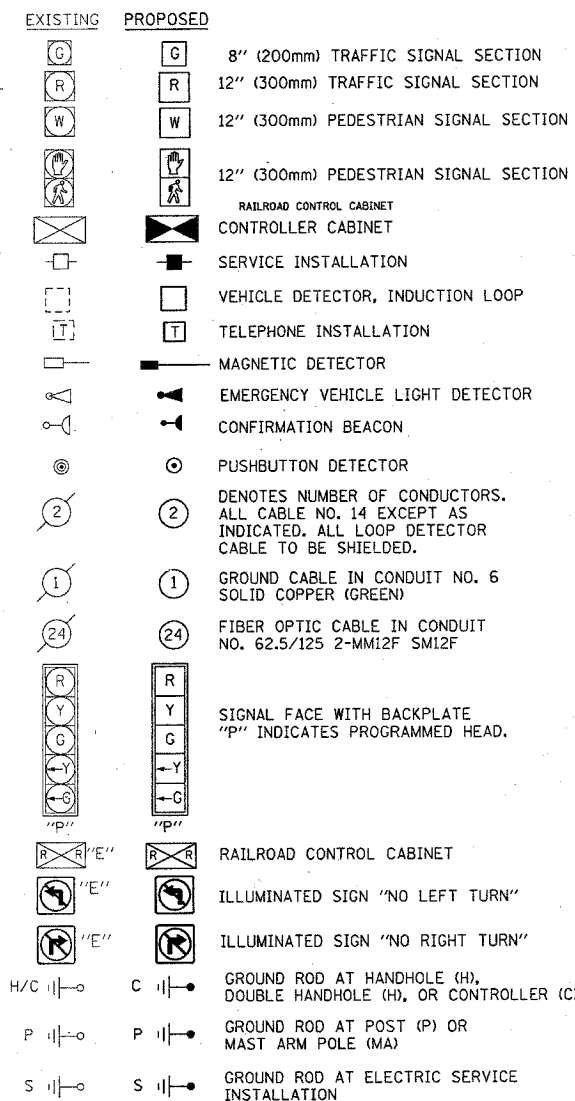
REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION
NAME	DATE	
		<p>TRAFFIC SIGNAL MODIFICATION PLAN US RTE. 12/45 (LEE-MANNHEIM RD.) AND ALGONQUIN RD.</p> <p>SCALE: 1"=20' DATE: FEBRUARY, 2005</p> <p>DRAWN BY: RV/MD DESIGNED BY: DS CHECKED BY: AS/KG</p>

K&E KAM ENGINEERING, INC.
CONSULTING ENGINEERS
707A Davis Road, Suite 205
Elgin, Illinois 60123-1369

G:\projects\JDB\337\SH1\Mannheim\Algonquin_sgl.sht 02/15/2005

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	10
STA.		TO STA.		
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				
CONTRACT NO. 62737				

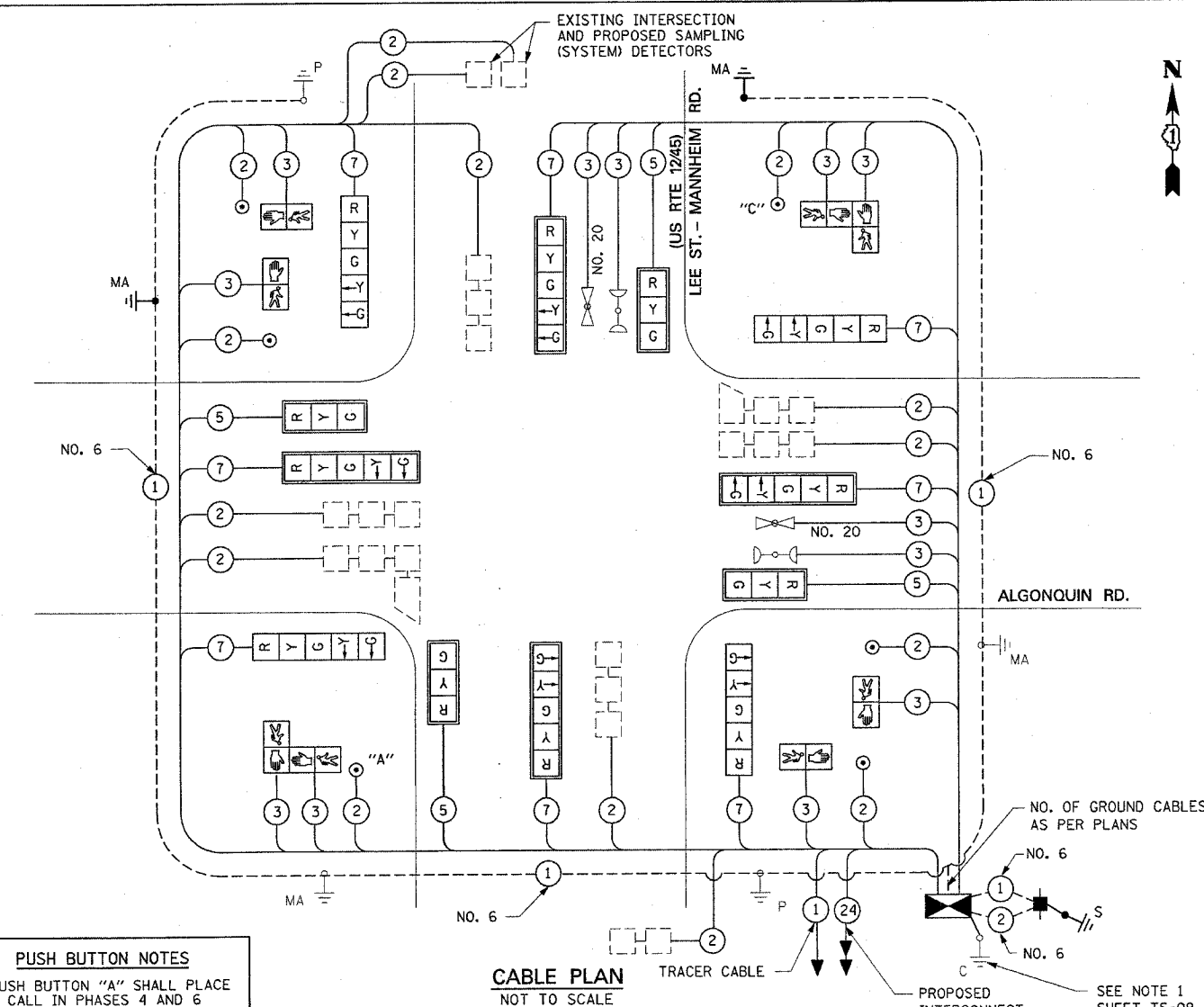
CABLE PLAN LEGEND



SCHEDULE OF QUANTITIES

PAY ITEM	UNITS	TOTAL
TRAFFIC CONTROL AND PROTECTION, STANDARD 701501	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701606	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701701	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701801	L SUM	0.2
SIGN PANEL - TYPE 1	SQ FT	18
SIGN PANEL - TYPE 2	SQ FT	27.5
GROUNDING EXISTING HANDHOLE FRAME AND COVER	EACH	3
CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL	FOOT	441
CONDUIT IN TRENCH, 2 1/2" DIA., GALVANIZED STEEL	FOOT	11
HEAVY-DUTY HANDHOLE	EACH	1
TRENCH AND BACKFILL FOR ELECTRICAL WORK	FOOT	452
MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	1
FULL-ACTUATED CONTROLLER AND TYPE IV CABINET	EACH	1
TRANSCEIVER - FIBER OPTIC	EACH	1
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	760
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	1340
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	645
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	1245
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR	FOOT	2115
ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C	FOOT	120
TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.	EACH	2
STEEL MAST ARM ASSEMBLY AND POLE, 28 FT.	EACH	2
STEEL MAST ARM ASSEMBLY AND POLE, 30 FT.	EACH	2
CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	30
DRILL EXISTING HANDHOLE	EACH	6
TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM	EACH	8
INDUCTIVE LOOP DETECTOR	EACH	9
PEDESTRIAN PUSH-BUTTON	EACH	6
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
REMOVE ELECTRIC CABLE FROM CONDUIT	FOOT	6885
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
REMOVE EXISTING HANDHOLE	EACH	1
REMOVE EXISTING CONCRETE FOUNDATION	EACH	3
SERVICE INSTALLATION, POLE MOUNTED	EACH	1
ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6 1C	FOOT	415
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 20 3C TWISTED, SHIELDED	FOOT	245
SIGNAL HEAD, L.E.D., 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	4
SIGNAL HEAD, L.E.D., 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	4
SIGNAL HEAD, L.E.D., 1-FACE, 5-SECTION, MAST ARM MOUNTED	EACH	4
PEDESTRIAN SIGNAL HEAD, L.E.D., 1-FACE, BRACKET MOUNTED	EACH	4
PEDESTRIAN SIGNAL HEAD, L.E.D., 2-FACE, BRACKET MOUNTED	EACH	2

** Y031-3D - 100% COST TO THE VILLAGE OF DESPLAINES



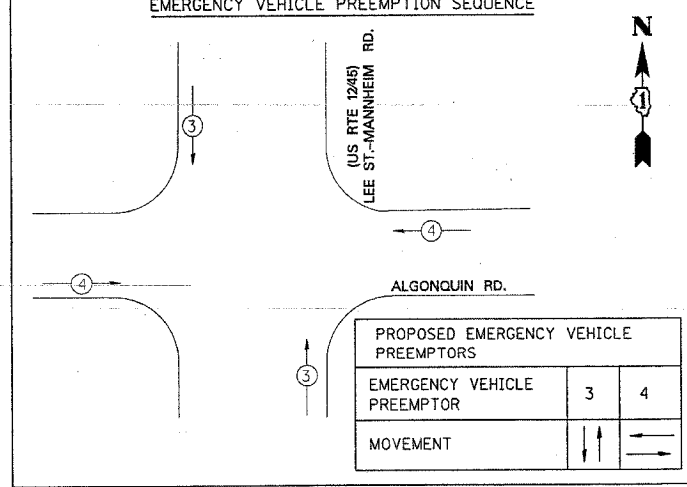
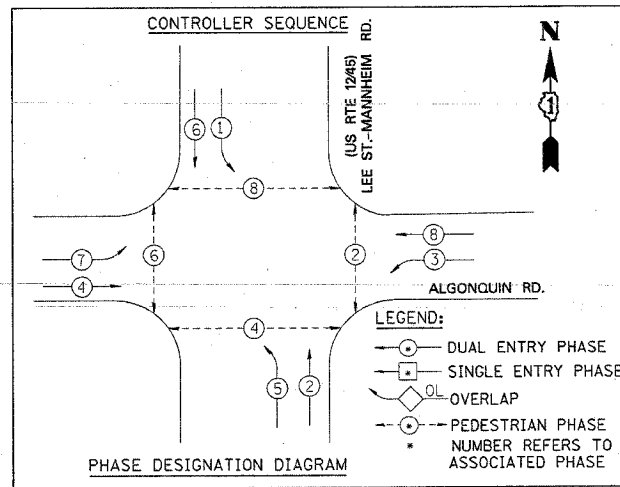
PUSH BUTTON NOTES
 PUSH BUTTON "A" SHALL PLACE A CALL IN PHASES 4 AND 6
 PUSH BUTTON "C" SHALL PLACE A CALL IN PHASES 8 AND 2

CABLE PLAN

NOT TO SCALE

THE END OF THE TRACER CABLE SHALL BE CONTINUOUS AND EXTEND INTO THE CONTROLLER CABINET

SEE NOTE 1 SHEET TS-09



I.D.O.T. TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS					TOTAL WATTAGE
TYPE	NO. LAMPS	WATTAGE INCAND	WATTAGE LED	% OPERATION	
SIGNAL (RED)	12	135	17	0.50	102.00
(YELLOW)	12	135	25	0.25	75.00
(GREEN)	12	135	15	0.25	45.00
ARROW	16	135	12	0.10	19.20
PED. SIGNAL	8	90	25	1.00	200.00
CONTROLLER	1	100	100	1.00	100.00
ILLUM. SIGN		84	35	0.05	
FLASHER		135	25	0.50	
TOTAL =					541.20

ENERGY COST TO: Illinois Department of Transportation
 Division of Highways / District 1
 201 W Center Court / Schaumburg, Illinois 60196-1096

ENERGY SUPPLY: CONTACT: MS. JUDY SCHOMER
 PHONE: (847)-870-2063
 COMPANY: ComEd

FOUNDATION (DEPTH)	(FT.) (m)	CABLE SLACK (FT.) (m)	CABLE SLACK (FT.) (m)
TYPE A - POST	4 (1.2)	HANDHOLE	6.5 (2.0)
D - CONTROLLER	4 (1.2)	DOUBLE HANDHOLE	13 (4.0)
E - M. ARM POLE		SIGNAL POST	2 (1.0)
24" (600mm)	10 (3.0)	CONTROLLER CAB.	1 (0.5)
30" (750mm)	15 (4.6)	FIBER OPTIC	13 (4.0)
		ELECTRIC SERVICE	1 (0.5)
		GROUND CABLE	1 (0.5)
		POST MOUNTED	6 (1.8)

K&E KAM ENGINEERING, INC.
 CONSULTING ENGINEERS
 707A Davis Road, Suite 205
 Elgin, Illinois 60123-1369

REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION
NAME	DATE	
		CABLE PLAN, PHASE DESIGNATION DIAGRAM, AND SCHEDULE OF QUANTITIES US 12/45 (LEE-MANNHEIM RD.) AND ALGONQUIN RD.

SCALE: NONE
 DATE: FEBRUARY, 2005

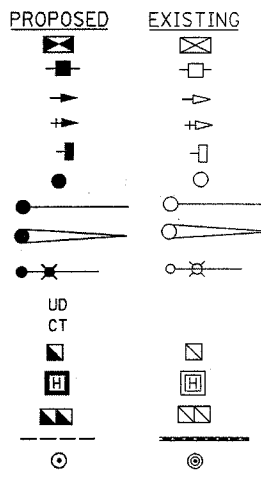
DRAWN BY: RV/MD
 DESIGNED BY: DS
 CHECKED BY: AS/KG

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-0187S	COOK	28	11
STA.	TO STA.			
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				
CONTRACT NO. 62737				

TRAFFIC SIGNAL LEGEND

- CONTROLLER
- SERVICE INSTALLATION
- SIGNAL HEAD
- SIGNAL HEAD WITH BACKPLATE
- SIGNAL HEAD, PEDESTRIAN
- SIGNAL POST
- MAST ARM ASSEMBLY AND POLE, STEEL
- MAST ARM ASSEMBLY AND POLE, ALUMINUM
- COMBINATION MAST ARM ASSEMBLY AND POLE, STEEL WITH LUMINAIRE
- UNIT DUCT
- COMMON TRENCH
- HANDHOLE
- HEAVY-DUTY HANDHOLE
- DOUBLE HANDHOLE
- G.S. CONDUIT IN TRENCH (T) OR PUSHED (P)
- PEDESTRIAN PUSHBUTTON DETECTOR

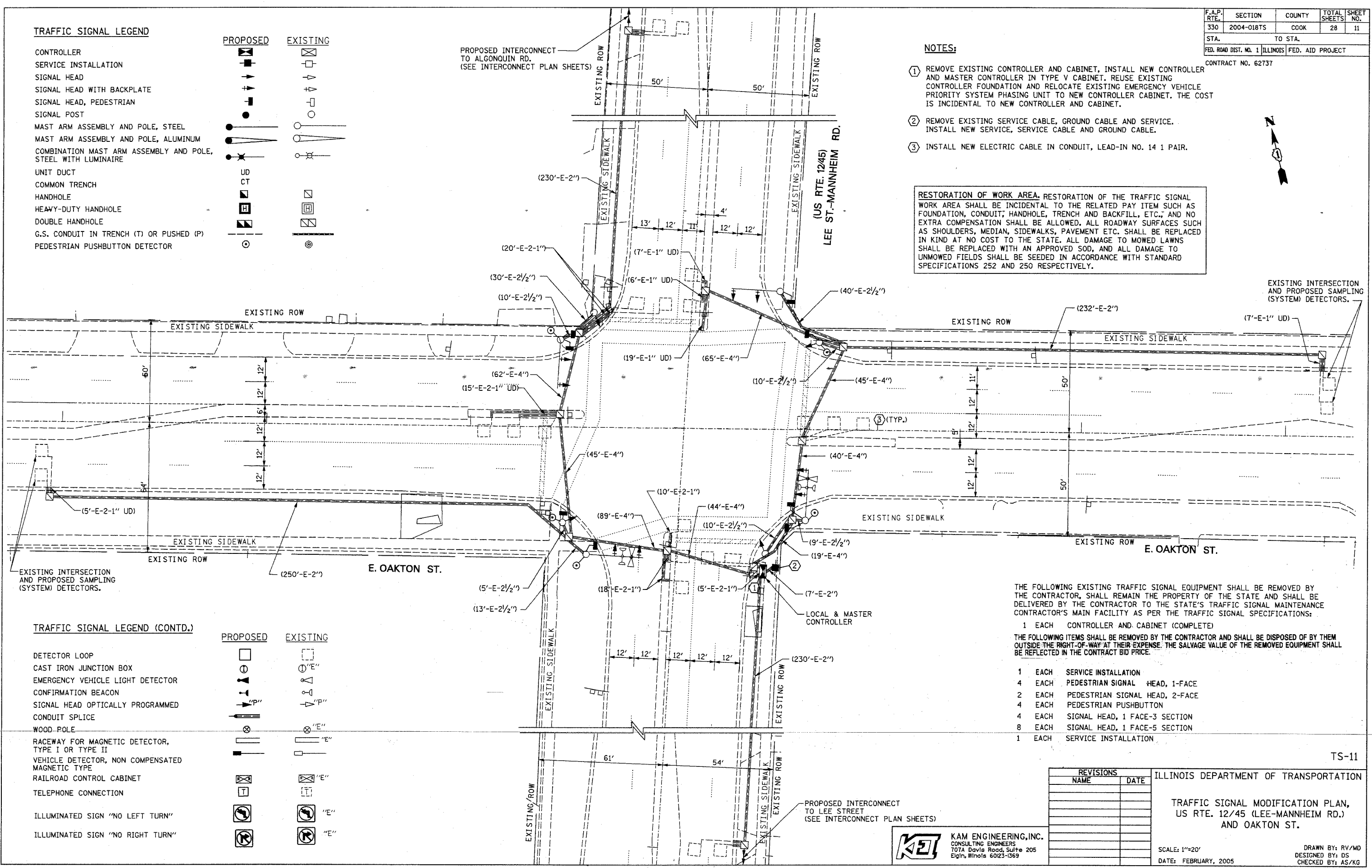


PROPOSED INTERCONNECT TO ALGONQUIN RD. (SEE INTERCONNECT PLAN SHEETS)

NOTES:

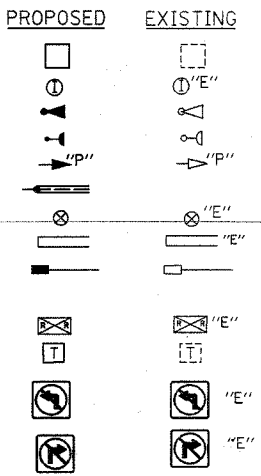
- ① REMOVE EXISTING CONTROLLER AND CABINET, INSTALL NEW CONTROLLER AND MASTER CONTROLLER IN TYPE V CABINET. REUSE EXISTING CONTROLLER FOUNDATION AND RELOCATE EXISTING EMERGENCY VEHICLE PRIORITY SYSTEM PHASING UNIT TO NEW CONTROLLER CABINET. THE COST IS INCIDENTAL TO NEW CONTROLLER AND CABINET.
- ② REMOVE EXISTING SERVICE CABLE, GROUND CABLE AND SERVICE. INSTALL NEW SERVICE, SERVICE CABLE AND GROUND CABLE.
- ③ INSTALL NEW ELECTRIC CABLE IN CONDUIT, LEAD-IN NO. 14 1 PAIR.

RESTORATION OF WORK AREA: RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIAN, SIDEWALKS, PAVEMENT ETC. SHALL BE REPLACED IN KIND AT NO COST TO THE STATE. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.



TRAFFIC SIGNAL LEGEND (CONTD.)

- DETECTOR LOOP
- CAST IRON JUNCTION BOX
- EMERGENCY VEHICLE LIGHT DETECTOR
- CONFIRMATION BEACON
- SIGNAL HEAD OPTICALLY PROGRAMMED
- CONDUIT SPLICE
- WOOD POLE
- RACEWAY FOR MAGNETIC DETECTOR, TYPE I OR TYPE II
- VEHICLE DETECTOR, NON COMPENSATED MAGNETIC TYPE
- RAILROAD CONTROL CABINET
- TELEPHONE CONNECTION
- ILLUMINATED SIGN "NO LEFT TURN"
- ILLUMINATED SIGN "NO RIGHT TURN"



THE FOLLOWING EXISTING TRAFFIC SIGNAL EQUIPMENT SHALL BE REMOVED BY THE CONTRACTOR, SHALL REMAIN THE PROPERTY OF THE STATE AND SHALL BE DELIVERED BY THE CONTRACTOR TO THE STATE'S TRAFFIC SIGNAL MAINTENANCE CONTRACTOR'S MAIN FACILITY AS PER THE TRAFFIC SIGNAL SPECIFICATIONS:

- 1 EACH CONTROLLER AND CABINET (COMPLETE)

THE FOLLOWING ITEMS SHALL BE REMOVED BY THE CONTRACTOR AND SHALL BE DISPOSED OF BY THEM OUTSIDE THE RIGHT-OF-WAY AT THEIR EXPENSE. THE SALVAGE VALUE OF THE REMOVED EQUIPMENT SHALL BE REFLECTED IN THE CONTRACT BID PRICE.

- 1 EACH SERVICE INSTALLATION
- 4 EACH PEDESTRIAN SIGNAL HEAD, 1-FACE
- 2 EACH PEDESTRIAN SIGNAL HEAD, 2-FACE
- 4 EACH PEDESTRIAN PUSHBUTTON
- 4 EACH SIGNAL HEAD, 1 FACE-3 SECTION
- 8 EACH SIGNAL HEAD, 1 FACE-5 SECTION
- 1 EACH SERVICE INSTALLATION

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNAL MODIFICATION PLAN,
US RTE. 12/45 (LEE-MANNHEIM RD.)
AND OAKTON ST.

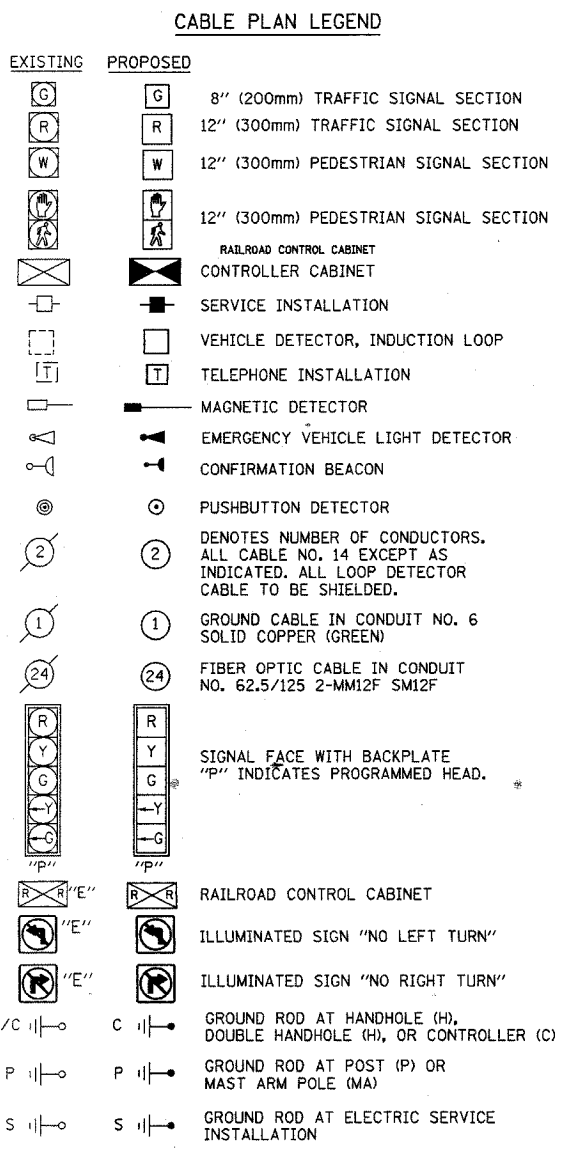
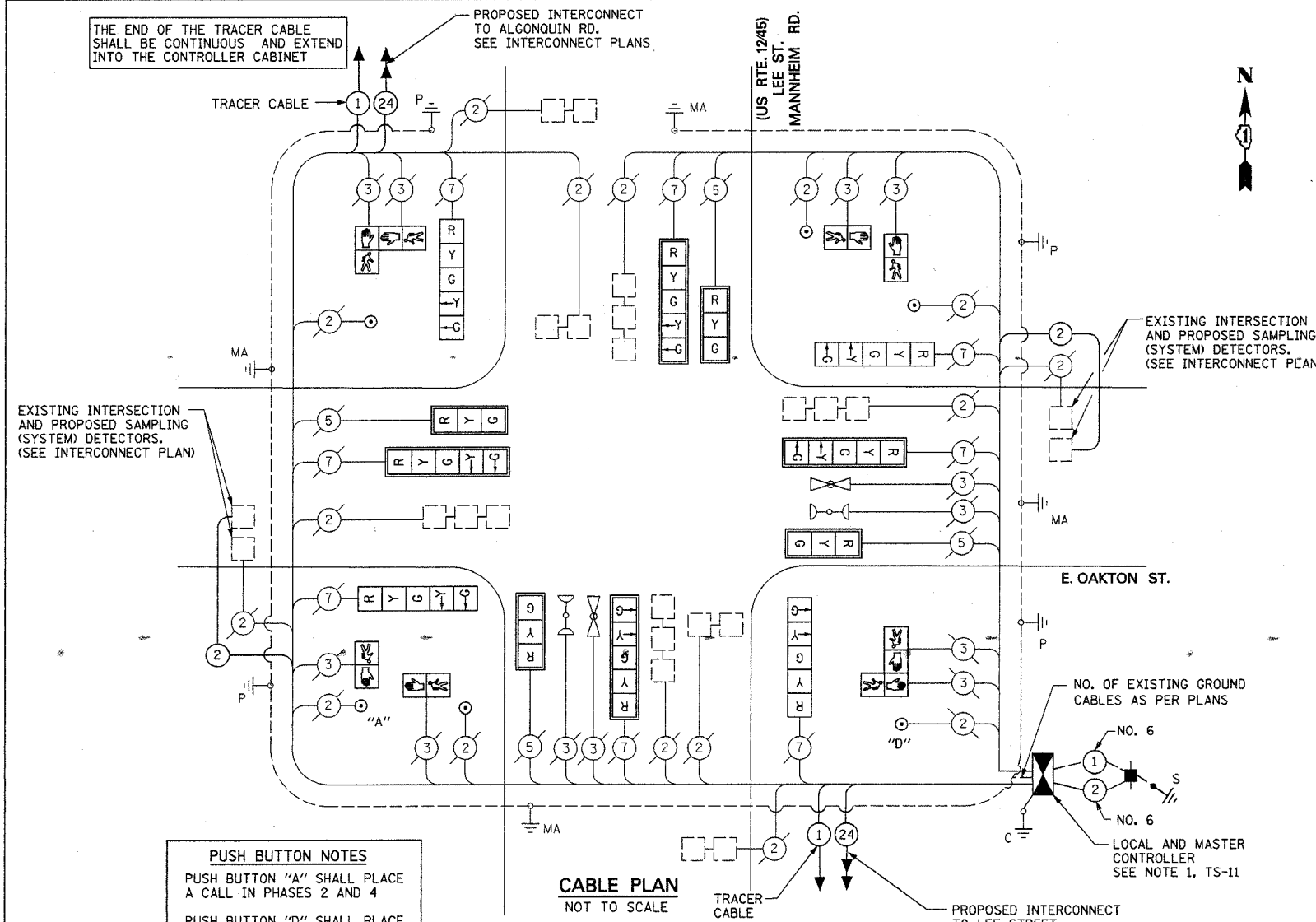
SCALE: 1"=20'
DATE: FEBRUARY, 2005

DRAWN BY: RV/MD
DESIGNED BY: DS
CHECKED BY: AS/KG

K&E KAM ENGINEERING, INC.
CONSULTING ENGINEERS
707A Davis Road, Suite 205
Elgin, Illinois 60123-1369

G:\projects\JOB 337\SHY\Mannheim\Oakton sigl.sht 02/15/2005

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	12
STA. TO STA.		FED. AID PROJECT		
FED. ROAD DIST. NO. 1		ILLINOIS		
CONTRACT NO. 62737				



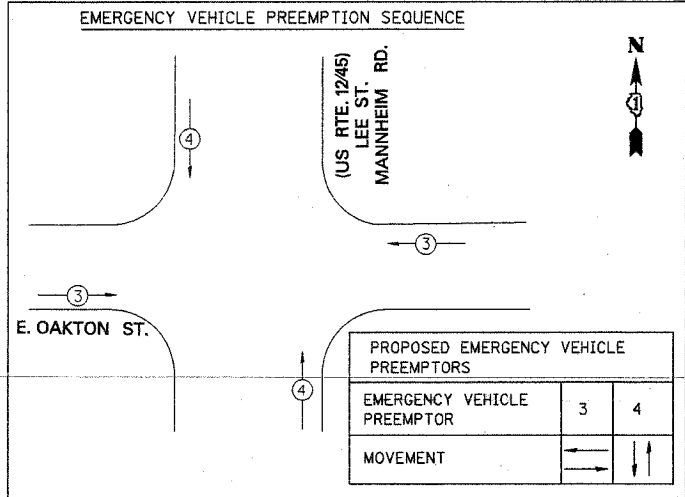
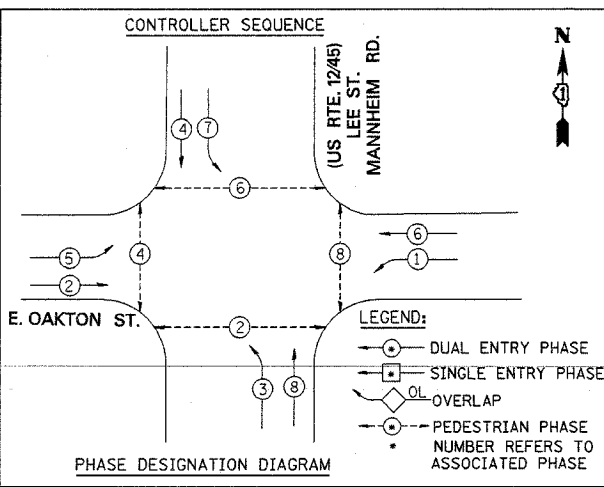
SCHEDULE OF QUANTITIES

PAY ITEM	UNITS	TOTAL
TRAFFIC CONTROL AND PROTECTION, STANDARD 701501	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701606	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701701	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701801	L SUM	0.2
MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	1
FULL-ACTUATED CONTROLLER AND TYPE V CABINET	EACH	1
TRANSCEIVER - FIBER OPTIC	EACH	1
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR	FOOT	795
ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C	FOOT	30
TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM	EACH	8
INDUCTIVE LOOP DETECTOR	EACH	12
PEDESTRIAN PUSH-BUTTON	EACH	6
REMOVE ELECTRIC CABLE FROM CONDUIT	FOOT	30
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
SERVICE INSTALLATION, POLE MOUNTED	EACH	1
ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6 1C	FOOT	30
SIGNAL HEAD, L.E.D., 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	4
SIGNAL HEAD, L.E.D., 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	4
SIGNAL HEAD, L.E.D., 1-FACE, 5-SECTION, MAST ARM MOUNTED	EACH	4
PEDESTRIAN SIGNAL HEAD, L.E.D., 1-FACE, BRACKET MOUNTED	EACH	4
PEDESTRIAN SIGNAL HEAD, L.E.D., 2-FACE, BRACKET MOUNTED	EACH	2

PUSH BUTTON NOTES
 PUSH BUTTON "A" SHALL PLACE A CALL IN PHASES 2 AND 4
 PUSH BUTTON "D" SHALL PLACE A CALL IN PHASES 8 AND 2

CABLE PLAN
 NOT TO SCALE

THE END OF THE TRACER CABLE SHALL BE CONTINUOUS AND EXTEND INTO THE CONTROLLER CABINET



I.D.O.T. TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS

TYPE	NO. LAMPS	WATTAGE INCAND.	WATTAGE LED	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	12	135	17	0.50	102
(YELLOW)	12	135	25	0.25	75
(GREEN)	12	135	15	0.25	45
ARROW	16	135	12	0.10	19.2
PED. SIGNAL	8	90	25	1.00	200
CONTROLLER	1	100	100	1.00	100
ILLUM. SIGN		84	35	0.05	
FLASHER					
TOTAL =					541.2

FOUNDATION (DEPTH)	(FT.) (m)	CABLE SLACK	(FT.) (m)	CABLE SLACK	(FT.) (m)
TYPE A - POST	4 (1.2)	HANDHOLE	6.5 (2.0)	ALL FOUNDATIONS	3.5 (1.0)
D - CONTROLLER	4 (1.2)	DOUBLE HANDHOLE	13 (4.0)	MAST ARM (L) POLE	20'-H-2' (6m-H-0.6m)=
E - M. ARM POLE		SIGNAL POST	2 (1.0)	BRACKET MOUNTED	13 (4.0)
24" (600mm)	10 (3.0)	CONTROLLER CAB.	1 (0.5)	PED. PUSHBUTTON	4 (1.2)
30" (750mm)	15 (4.6)	FIBER OPTIC	13 (4.0)	ELECTRIC SERVICE	13.5 (4.1)
		ELECTRIC SERVICE	1 (0.5)	SERVICE TO GROUND	13.5 (4.1)
		GROUND CABLE	1 (0.5)	POST MOUNTED	6 (1.8)

ENERGY COST TO: Illinois Department of Transportation
 Division of Highways / District 1
 201 W Center Court / Schaumburg, Illinois 60196-1096

ENERGY SUPPLY: CONTACT: Mr. Sam Thomas
 PHONE: (630)-691-4456
 COMPANY: ComEd

K&E KAM ENGINEERING, INC.
 CONSULTING ENGINEERS
 707A Davis Road, Suite 205
 Elgin, Illinois 60123-1369

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

CABLE PLAN, PHASE DESIGNATION DIAGRAM, AND SCHEDULE OF QUANTITIES, US 12/45 (LEE-MANNHEIM RD.) AND OAKTON ST.

SCALE: NONE
 DATE: FEBRUARY, 2005

DRAWN BY: RV/MD
 DESIGNED BY: DS
 CHECKED BY: AS/KG

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	13
STA.		TO STA.		
FED. ROAD DIST. NO. 1		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 62737				

EXISTING EQUIPMENT TO BE REMOVED LEGEND

- ▲ EXISTING SIGNAL HEAD TO BE REMOVED
- "E" EXISTING SERVICE INSTALLATION TO BE REMOVED
- EXISTING SIGNAL POST AND FOUNDATION TO BE REMOVED
- EXISTING ALUMINUM MAST ARM POLE AND FOUNDATION TO BE REMOVED
- ⊠ "E" EXISTING CONTROLLER AND FOUNDATION TO BE REMOVED
- ⊠ "E" EXISTING HANDHOLE TO BE REMOVED
- ⊠ EXISTING PEDESTRIAN SIGNAL HEAD TO BE REMOVED
- ⊙ EXISTING PEDESTRIAN PUSHBUTTON TO BE REMOVED
- ⊘ EMERGENCY VEHICLE LIGHT DETECTOR TO BE REMOVED
- ⊘ CONFIRMATION BEACON TO BE REMOVED
- ⊠ "E" EXISTING HEAVY-DUTY HANDHOLE TO BE REMOVED
- EXISTING STEEL MAST ARM POLE AND FOUNDATION TO BE REMOVED
- ⊠ EXISTING JUNCTION BOX TO BE REMOVED

THE FOLLOWING EXISTING TRAFFIC SIGNAL EQUIPMENT SHALL BE REMOVED BY THE CONTRACTOR, SHALL REMAIN THE PROPERTY OF THE STATE AND SHALL BE DELIVERED BY THE CONTRACTOR TO THE STATE'S TRAFFIC SIGNAL MAINTENANCE CONTRACTOR'S MAIN FACILITY AS PER THE TRAFFIC SIGNAL SPECIFICATIONS:

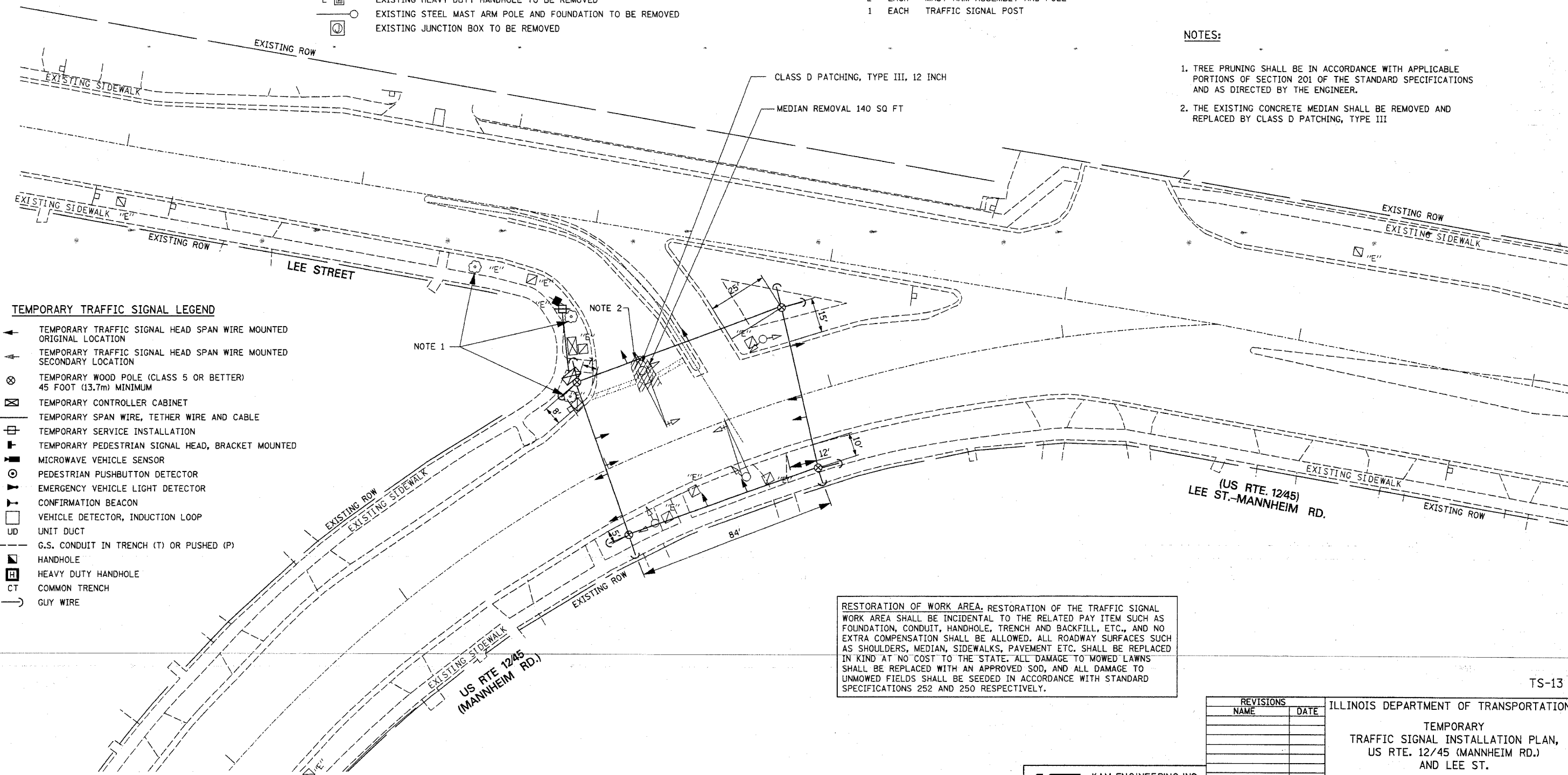
- 1 EACH CONTROLLER AND CABINET (COMPLETE)

THE FOLLOWING ITEMS SHALL BE REMOVED BY THE CONTRACTOR AND SHALL BE DISPOSED OF BY THEM OUTSIDE THE RIGHT-OF-WAY AT THEIR EXPENSE. THE SALVAGE VALUE OF THE REMOVED EQUIPMENT SHALL BE REFLECTED IN THE CONTRACT BID PRICE.

- 1 EACH SERVICE INSTALLATION
- 3 EACH SIGNAL HEAD, 1-FACE
- 3 EACH SIGNAL HEAD, 2-FACE
- 2 EACH MAST ARM ASSEMBLY AND POLE
- 1 EACH TRAFFIC SIGNAL POST

NOTES:

1. TREE PRUNING SHALL BE IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 201 OF THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
2. THE EXISTING CONCRETE MEDIAN SHALL BE REMOVED AND REPLACED BY CLASS D PATCHING, TYPE III



TEMPORARY TRAFFIC SIGNAL LEGEND

- ▲ TEMPORARY TRAFFIC SIGNAL HEAD SPAN WIRE MOUNTED ORIGINAL LOCATION
- ▲ TEMPORARY TRAFFIC SIGNAL HEAD SPAN WIRE MOUNTED SECONDARY LOCATION
- ⊙ TEMPORARY WOOD POLE (CLASS 5 OR BETTER) 45 FOOT (13.7m) MINIMUM
- ⊠ TEMPORARY CONTROLLER CABINET
- TEMPORARY SPAN WIRE, TETHER WIRE AND CABLE
- ⊠ TEMPORARY SERVICE INSTALLATION
- ⊠ TEMPORARY PEDESTRIAN SIGNAL HEAD, BRACKET MOUNTED
- ⊘ MICROWAVE VEHICLE SENSOR
- ⊘ PEDESTRIAN PUSHBUTTON DETECTOR
- ⊘ EMERGENCY VEHICLE LIGHT DETECTOR
- ⊘ CONFIRMATION BEACON
- ⊠ VEHICLE DETECTOR, INDUCTION LOOP
- UD UNIT DUCT
- G.S. CONDUIT IN TRENCH (T) OR PUSHED (P)
- ⊠ HANDHOLE
- ⊠ HEAVY DUTY HANDHOLE
- CT COMMON TRENCH
- GUY WIRE

RESTORATION OF WORK AREA: RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIAN, SIDEWALKS, PAVEMENT ETC. SHALL BE REPLACED IN KIND AT NO COST TO THE STATE. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 TEMPORARY TRAFFIC SIGNAL INSTALLATION PLAN,
 US RTE. 12/45 (MANNHEIM RD.)
 AND LEE ST.

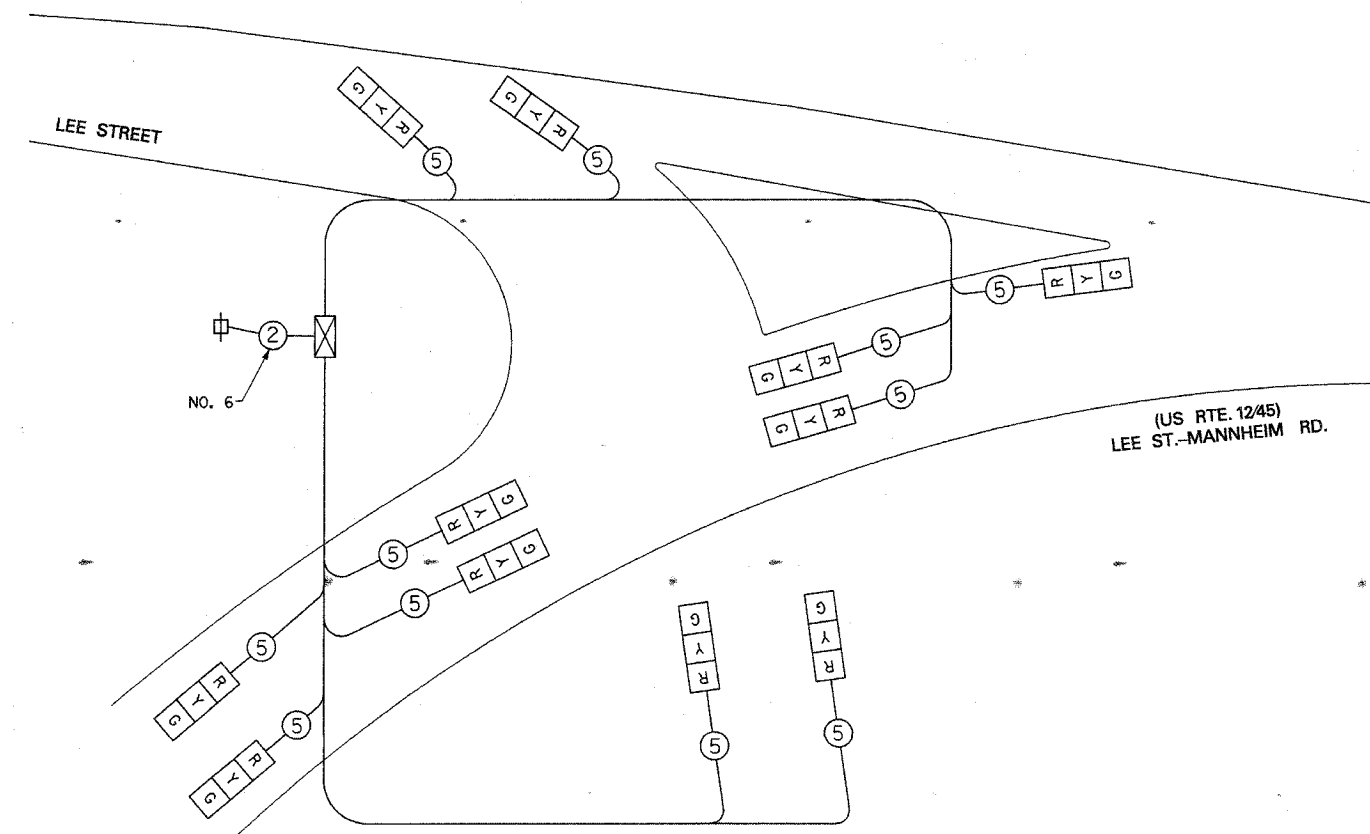
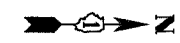
SCALE: 1"=20'
 DATE: FEBRUARY, 2005

DRAWN BY: RV/MD
 DESIGNED BY: DS
 CHECKED BY: AS/KG

KEI KAM ENGINEERING, INC.
 CONSULTING ENGINEERS
 707A Davis Road, Suite 205
 Elgin, Illinois 60123-1369

TS-13

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	14
STA.		TO STA.		
FED. ROAD DIST. NO. 1		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 62737				



TEMPORARY CABLE PLAN
(NOT TO SCALE)

TEMPORARY CABLE DIAGRAM LEGEND

- TEMPORARY TRAFFIC SIGNAL SECTION OR PEDESTRIAN SIGNAL SECTION 12" (300mm)
- TEMPORARY CONTROLLER CABINET
- TEMPORARY SERVICE INSTALLATION
- INDICATES NUMBER OF CONDUCTORS IN CABLE. ALL CONDUCTORS TO BE NUMBER 14 AWG WIRE UNLESS OTHERWISE NOTED
- EMERGENCY VEHICLE LIGHT DETECTOR
- CONFIRMATION BEACON
- VEHICLE DETECTOR, INDUCTION LOOP
- PEDESTRIAN PUSHBUTTON DETECTOR
- 12" (300mm) PEDESTRIAN SIGNAL SECTION
- MICROWAVE VEHICLE SENSOR
- GROUND ROD AT ELECTRIC SERVICE INSTALLATION
- EXISTING RAILROAD CONTROLLER CABINET

NOTES FOR TEMPORARY TRAFFIC SIGNALS

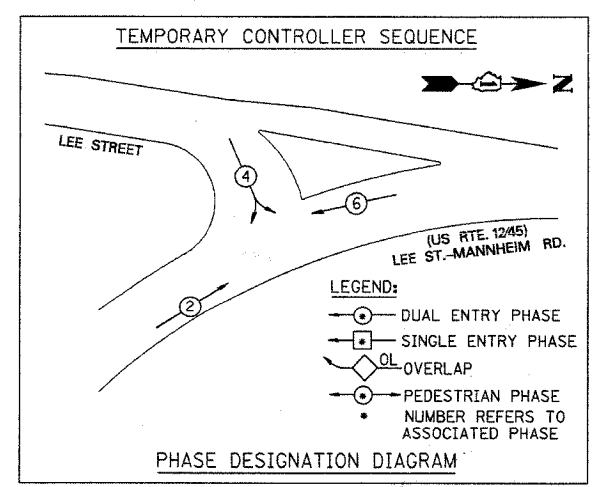
1. ALL CONTROL EQUIPMENT INCLUDING EMERGENCY PRE-EMPTION AND COMMUNICATION DEVICES FOR THE TEMPORARY TRAFFIC SIGNAL(S) SHALL BE FURNISHED BY THE CONTRACTOR
2. ONLY CONTROLLERS SUPPLIED BY ONE OF THE DISTRICT APPROVED CLOSED LOOP EQUIPMENT MANUFACTURERS WILL BE APPROVED FOR USE AT TEMPORARY SIGNAL LOCATIONS. ALL CONTROLLERS USED FOR TEMPORARY TRAFFIC SIGNALS SHALL BE FULLY ACTUATED NEMA MICROPROCESSOR BASED WITH RS232 DATA ENTRY PORTS COMPATIBLE WITH EXISTING MONITORING SOFTWARE APPROVED BY IDOT DISTRICT 1, INSTALLED IN A NEMA TS1 OF TS2 CABINET. ONLY ONE BRAND OF CONTROLLER WILL BE ACCEPTED FOR ANY ONE CONTRACT.
3. ALL TRAFFIC SIGNAL SECTIONS AND PEDESTRIAN SIGNAL SECTIONS SHALL BE 12" (300mm). HEADS SHALL BE PLACED AS INDICATED ON THE TEMPORARY TRAFFIC SIGNAL PLAN OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL FURNISH ENOUGH CABLE SLACK TO RELOCATE HEADS TO ANY POSITION ON THE SPAN WIRE OR AT LOCATIONS ILLUSTRATED ON THE PLANS FOR CONSTRUCTION STAGING. THE TEMPORARY TRAFFIC SIGNAL SHALL REMAIN IN OPERATION DURING ALL SIGNAL HEAD RELOCATIONS. EACH TEMPORARY TRAFFIC SIGNAL HEAD SHALL HAVE ITS OWN CABLE FROM THE CONTROLLER CABINET TO THE SIGNAL HEAD.
4. ALL EXISTING STREET NAME AND INTERSECTION REGULATORY SIGNS SHALL BE REMOVED FROM EXISTING POLES, RELOCATED AND SECURELY FASTENED TO THE SIGNAL SPAN WIRE OR WOOD POLE AS DIRECTED BY THE ENGINEER.
5. ANY TEMPORARY SIGNAL WITHIN AN EXISTING CLOSED LOOP TRAFFIC SIGNAL SYSTEM SHALL BE INTERCONNECTED TO THAT SYSTEM USING SIMILAR BRAND CONTROL EQUIPMENT.
6. THE TEMPORARY TRAFFIC SIGNAL SHALL HAVE THE SIGNAL HEAD DISPLAYS, SIGNAL HEAD PLACEMENTS AND CONTROLLER PHASING MATCH THE EXISTING TRAFFIC SIGNAL, AT THE TIME OF THE TURN ON, IF NO TRAFFIC STAGING IS IN PLACE OR WILL NOT BE STAGED ON THE DAY OF THE TURN ON.

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I.D.O.T. TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS					TOTAL WATTAGE
TYPE	NO. LAMPS	WATTAGE INCAND	LED	% OPERATION	
SIGNAL (RED)	11	135	17	0.50	742.5
(YELLOW)	11	135	25	0.25	371.25
(GREEN)	11	135	15	0.25	371.25
ARROW		135	12	0.10	
PED. SIGNAL		90	25	1.00	
CONTROLLER	1	100	100	1.00	100.00
ILLUM. SIGN		84	35	0.05	
FLASHER		135		0.50	
TOTAL =					1585

ENERGY COST TO: Illinois Department of Transportation
Division of Highways / District 1
201 W Center Court/Schaumburg, Illinois 60196-1096

ENERGY SUPPLY: CONTACT: Mr. Sam Thomas
PHONE: (630)-691-4456
COMPANY: ComEd



TS-14

REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION
NAME	DATE	
		TEMPORARY CABLE PLAN, US RTE. 12/45 (MANNHEIM RD.) AND LEE ST.

SCALE: NONE
DATE: FEBRUARY, 2005

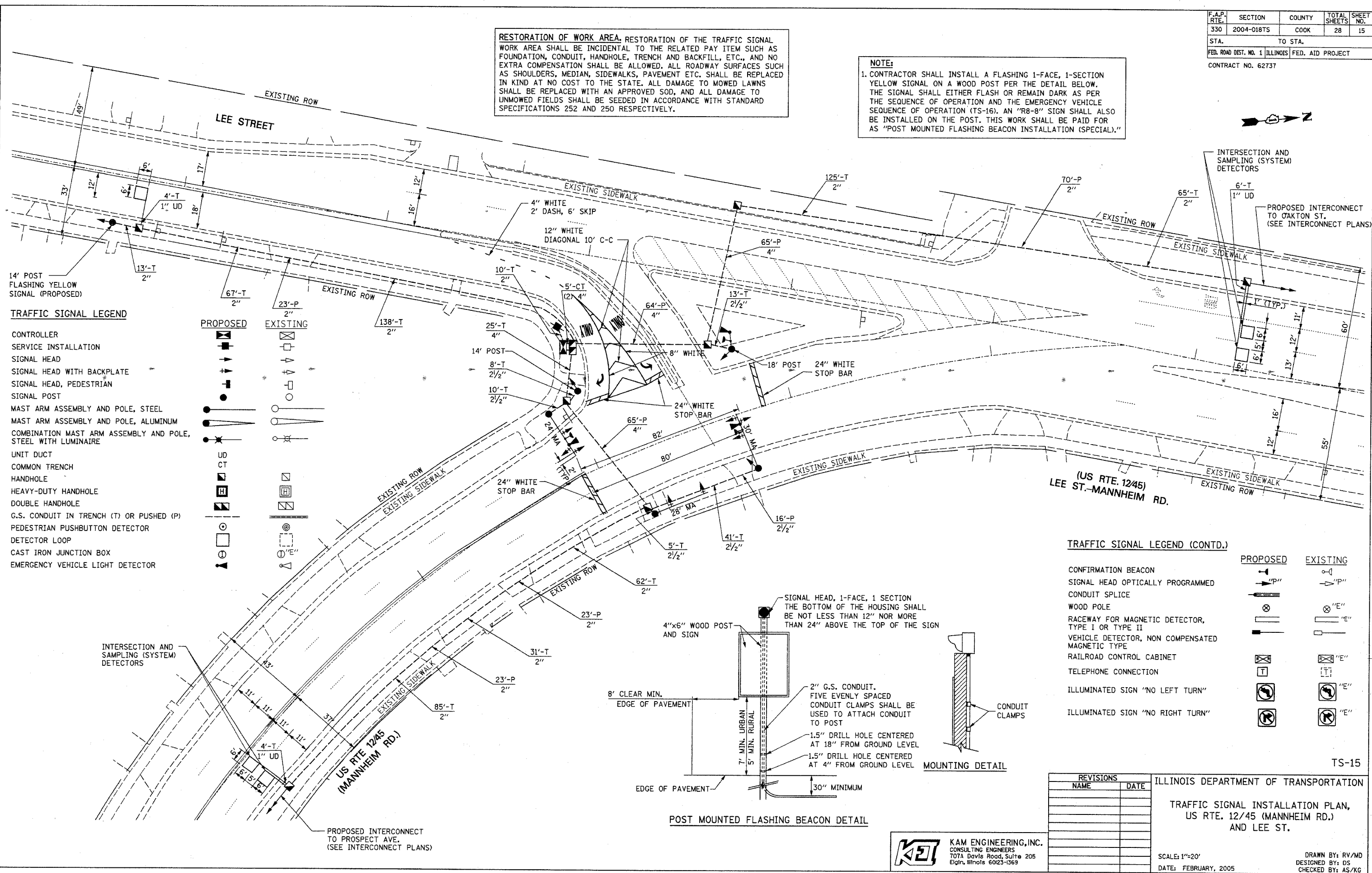
DRAWN BY: RV/MD
DESIGNED BY: DS
CHECKED BY: AS/KG

KAM ENGINEERING, INC.
CONSULTING ENGINEERS
707A Davis Road, Suite 205
Elgin, Illinois 60123-1369

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	15
STA.		TO STA.		
FED. ROAD DIST. NO. 1		ILLINOIS FED. AID PROJECT		
CONTRACT NO. 62737				

RESTORATION OF WORK AREA. RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIAN, SIDEWALKS, PAVEMENT ETC. SHALL BE REPLACED IN KIND AT NO COST TO THE STATE. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

NOTE:
 1. CONTRACTOR SHALL INSTALL A FLASHING 1-FACE, 1-SECTION YELLOW SIGNAL ON A WOOD POST PER THE DETAIL BELOW. THE SIGNAL SHALL EITHER FLASH OR REMAIN DARK AS PER THE SEQUENCE OF OPERATION AND THE EMERGENCY VEHICLE SEQUENCE OF OPERATION (TS-16). AN "R8-8" SIGN SHALL ALSO BE INSTALLED ON THE POST. THIS WORK SHALL BE PAID FOR AS "POST MOUNTED FLASHING BEACON INSTALLATION (SPECIAL)."

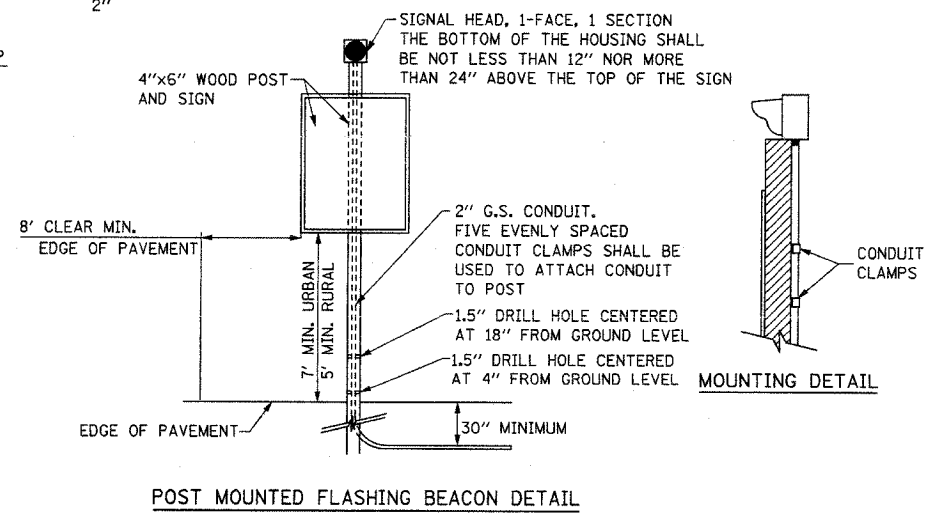


TRAFFIC SIGNAL LEGEND

CONTROLLER	PROPOSED	EXISTING
SERVICE INSTALLATION	[Symbol]	[Symbol]
SIGNAL HEAD	[Symbol]	[Symbol]
SIGNAL HEAD WITH BACKPLATE	[Symbol]	[Symbol]
SIGNAL HEAD, PEDESTRIAN	[Symbol]	[Symbol]
SIGNAL POST	[Symbol]	[Symbol]
MAST ARM ASSEMBLY AND POLE, STEEL	[Symbol]	[Symbol]
MAST ARM ASSEMBLY AND POLE, ALUMINUM	[Symbol]	[Symbol]
COMBINATION MAST ARM ASSEMBLY AND POLE, STEEL WITH LUMINAIRE	[Symbol]	[Symbol]
UNIT DUCT	[Symbol]	[Symbol]
COMMON TRENCH	[Symbol]	[Symbol]
HANDHOLE	[Symbol]	[Symbol]
HEAVY-DUTY HANDHOLE	[Symbol]	[Symbol]
DOUBLE HANDHOLE	[Symbol]	[Symbol]
G.S. CONDUIT IN TRENCH (T) OR PUSHED (P)	[Symbol]	[Symbol]
PEDESTRIAN PUSHBUTTON DETECTOR	[Symbol]	[Symbol]
DETECTOR LOOP	[Symbol]	[Symbol]
CAST IRON JUNCTION BOX	[Symbol]	[Symbol]
EMERGENCY VEHICLE LIGHT DETECTOR	[Symbol]	[Symbol]

TRAFFIC SIGNAL LEGEND (CONTD.)

	PROPOSED	EXISTING
CONFIRMATION BEACON	[Symbol]	[Symbol]
SIGNAL HEAD OPTICALLY PROGRAMMED	[Symbol]	[Symbol]
CONDUIT SPLICE	[Symbol]	[Symbol]
WOOD POLE	[Symbol]	[Symbol]
RACEWAY FOR MAGNETIC DETECTOR, TYPE I OR TYPE II	[Symbol]	[Symbol]
VEHICLE DETECTOR, NON COMPENSATED MAGNETIC TYPE	[Symbol]	[Symbol]
RAILROAD CONTROL CABINET	[Symbol]	[Symbol]
TELEPHONE CONNECTION	[Symbol]	[Symbol]
ILLUMINATED SIGN "NO LEFT TURN"	[Symbol]	[Symbol]
ILLUMINATED SIGN "NO RIGHT TURN"	[Symbol]	[Symbol]



REVISIONS

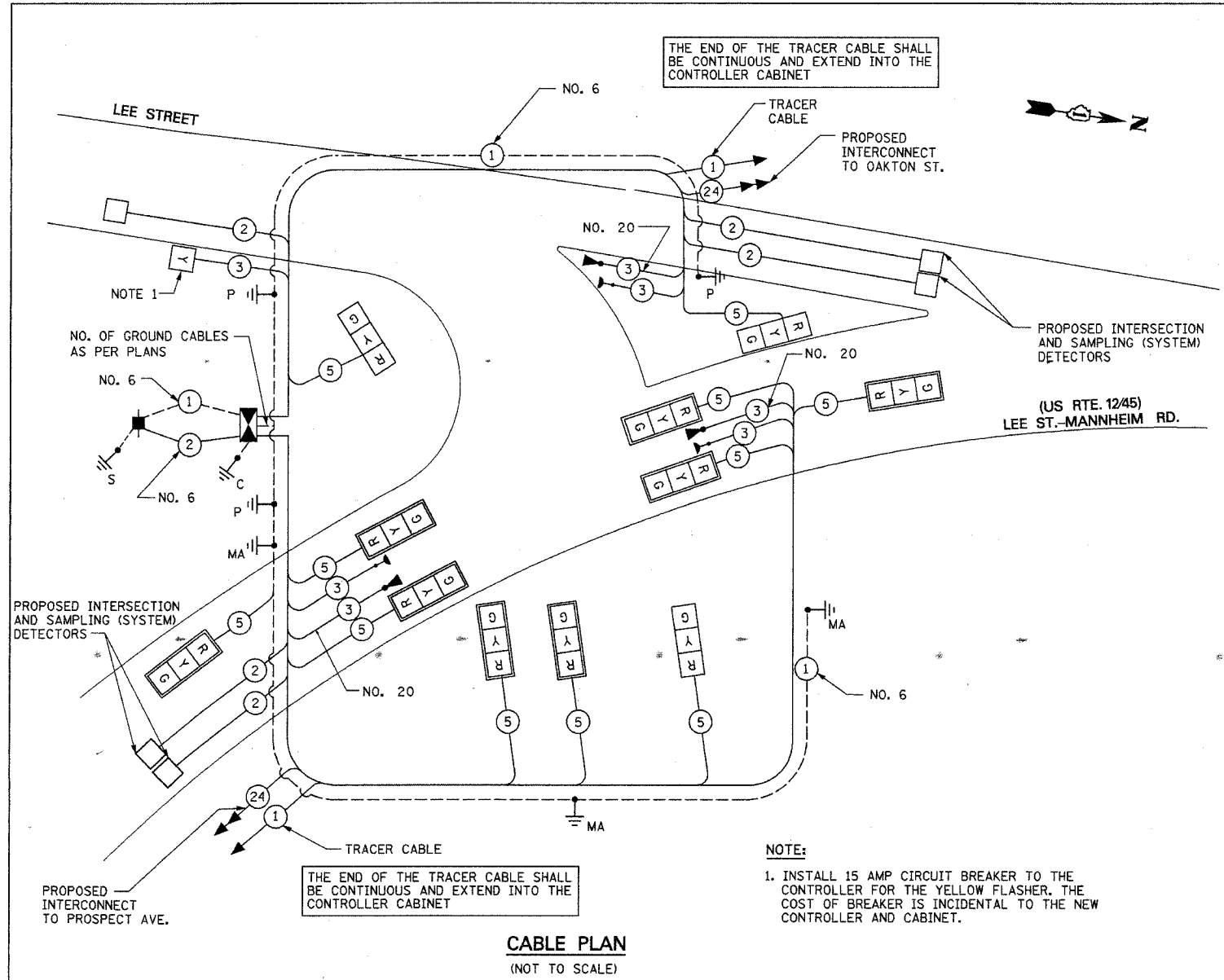
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 TRAFFIC SIGNAL INSTALLATION PLAN,
 US RTE. 12/45 (MANNHEIM RD.)
 AND LEE ST.
 SCALE: 1"=20'
 DATE: FEBRUARY, 2005
 DRAWN BY: RV/MD
 DESIGNED BY: DS
 CHECKED BY: AS/XG

K&E KAM ENGINEERING, INC.
 CONSULTING ENGINEERS
 7074 Davis Road, Suite 205
 Elgin, Illinois 60123-1369

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 02/15/2005

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	16
STA. TO STA.		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT		
CONTRACT NO. 62737				



CABLE PLAN LEGEND

EXISTING	PROPOSED	DESCRIPTION
(G)	(G)	8" (200mm) TRAFFIC SIGNAL SECTION
(R)	(R)	12" (300mm) TRAFFIC SIGNAL SECTION
(W)	(W)	12" (300mm) PEDESTRIAN SIGNAL SECTION
(H)	(H)	12" (300mm) PEDESTRIAN SIGNAL SECTION
(C)	(C)	RAILROAD CONTROL CABINET
(S)	(S)	CONTROLLER CABINET
(P)	(P)	SERVICE INSTALLATION
(V)	(V)	VEHICLE DETECTOR, INDUCTION LOOP
(T)	(T)	TELEPHONE INSTALLATION
(M)	(M)	MAGNETIC DETECTOR
(E)	(E)	EMERGENCY VEHICLE LIGHT DETECTOR
(B)	(B)	CONFIRMATION BEACON
(D)	(D)	PUSHBUTTON DETECTOR
(2)	(2)	DENOTES NUMBER OF CONDUCTORS. ALL CABLE NO. 14 EXCEPT AS INDICATED. ALL LOOP DETECTOR CABLE TO BE SHIELDED.
(1)	(1)	GROUND CABLE IN CONDUIT NO. 6 SOLID COPPER (GREEN)
(24)	(24)	FIBER OPTIC CABLE IN CONDUIT NO. 62.5/125 2-MM12F SM12F
(R)	(R)	SIGNAL FACE WITH BACKPLATE
(P)	(P)	"P" INDICATES PROGRAMMED HEAD.
(R)	(R)	RAILROAD CONTROL CABINET
(E)	(E)	ILLUMINATED SIGN "NO LEFT TURN"
(E)	(E)	ILLUMINATED SIGN "NO RIGHT TURN"
(H)	(H)	GROUND ROD AT HANDHOLE (H), DOUBLE HANDHOLE (H), OR CONTROLLER (C)
(P)	(P)	GROUND ROD AT POST (P) OR MAST ARM POLE (MA)
(S)	(S)	GROUND ROD AT ELECTRIC SERVICE INSTALLATION

SCHEDULE OF QUANTITIES

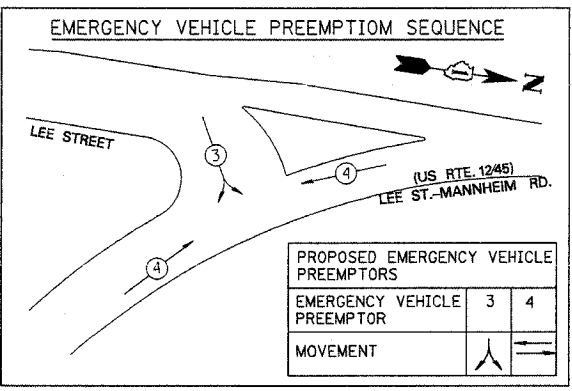
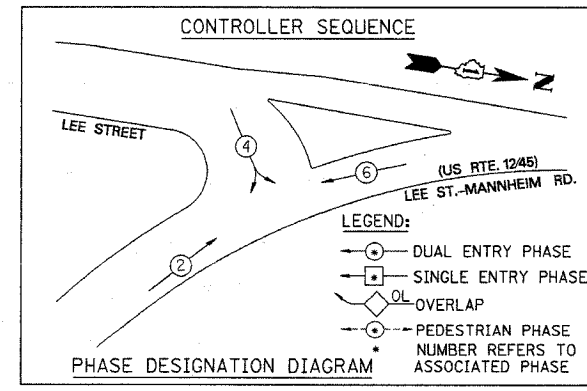
ITEM	UNIT	QNTY.
TREE PRUNING (OVER 10 INCH DIA)	EACH	3
MEDIAN REMOVAL	SQ FT	140
CLASS D PATCHES TYPE III, 12 INCH	SQ YD	15.5
TRAFFIC CONTROL AND PROTECTION, STANDARD 701501	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701606	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701701	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701801	L SUM	0.2
SIGN PANEL - TYPE 1	SQ FT	9
SIGN PANEL - TYPE 2	SQ FT	27.5
THERMOPLASTIC PAVEMENT MARKING LETTERS AND SYMBOLS	SQ FT	73
THERMOPLASTIC PAVEMENT MARKING LINE 4"	FOOT	28
THERMOPLASTIC PAVEMENT MARKING LINE 12"	FOOT	58
THERMOPLASTIC PAVEMENT MARKING LINE 24"	FOOT	60
CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL	FOOT	596
CONDUIT IN TRENCH, 2 1/2" DIA., GALVANIZED STEEL	FOOT	77
CONDUIT IN TRENCH, 4" DIA., GALVANIZED STEEL	FOOT	35
CONDUIT PUSHED, 2" DIA., GALVANIZED STEEL	FOOT	139
CONDUIT PUSHED, 2 1/2" DIA., GALVANIZED STEEL	FOOT	16
CONDUIT PUSHED, 4" DIA., GALVANIZED STEEL	FOOT	194
HANDHOLE	EACH	7
DOUBLE HANDHOLE	EACH	1
TRENCH AND BACKFILL FOR ELECTRICAL WORK	FOOT	708
MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	1
FULL-ACTUATED CONTROLLER AND TYPE IV CABINET	EACH	1
TRANSCIVER - FIBER OPTIC	EACH	1
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	745
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	1730
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR	FOOT	1900
ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C	FOOT	40
TRAFFIC SIGNAL POST, GALVANIZED STEEL 14 FT.	EACH	2
TRAFFIC SIGNAL POST, GALVANIZED STEEL 18 FT.	EACH	1
STEEL MAST ARM ASSEMBLY AND POLE, 24 FT.	EACH	1
STEEL MAST ARM ASSEMBLY AND POLE, 28 FT.	EACH	1
STEEL MAST ARM ASSEMBLY AND POLE, 30 FT.	EACH	1
CONCRETE FOUNDATION, TYPE A	FOOT	12
CONCRETE FOUNDATION, TYPE D	FOOT	4
CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	45
TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM	EACH	8
INDUCTIVE LOOP DETECTOR	EACH	5
DETECTOR LOOP, TYPE I	FOOT	120
LIGHT DETECTOR	EACH	3
LIGHT DETECTOR AMPLIFIER	EACH	1
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
REMOVE ELECTRIC CABLE FROM CONDUIT	FOOT	1650
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
REMOVE EXISTING HANDHOLE	EACH	10
REMOVE EXISTING CONCRETE FOUNDATION	EACH	4
POST MOUNTED FLASHING BEACON INSTALLATION (SPECIAL)	EACH	1
SERVICE INSTALLATION, POLE MOUNTED	EACH	1
ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6 1C	FOOT	1025
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 20 3C TWISTED, SHIELDED	FOOT	455
SIGNAL HEAD, L.E.D., 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	8
SIGNAL HEAD, L.E.D., 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	3

- SFTY-1D
- Y031-3D - 100% COST TO THE VILLAGE OF DESPLAINES

CABLE PLAN
(NOT TO SCALE)

NOTE:
1. INSTALL 15 AMP CIRCUIT BREAKER TO THE CONTROLLER FOR THE YELLOW FLASHER. THE COST OF BREAKER IS INCIDENTAL TO THE NEW CONTROLLER AND CABINET.

I.D.O.T. TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS					TOTAL WATTAGE
TYPE	NO. LAMPS	WATTAGE INCAND	WATTAGE LED	% OPERATION	
SIGNAL (RED)	11	135	17	0.50	93.5
(YELLOW)	11	135	25	0.25	68.75
(GREEN)	11	135	15	0.25	41.25
ARROW					
PED. SIGNAL		90	25	1.00	
CONTROLLER	1	100	100	1.00	100
ILLUM. SIGN		84	35	0.05	
FLASHER (YELLOW)	1	135	25	0.50	12.5
TOTAL =					316



FOUNDATION (DEPTH)	(FT.) (m)	CABLE SLACK (FT.) (m)	CABLE SLACK (FT.) (m)
TYPE A - POST	4 (1.2)	HANDHOLE	6.5 (2.0)
D - CONTROLLER	4 (1.2)	DOUBLE HANDHOLE	13 (4.0)
E - M. ARM POLE		SIGNAL POST	2 (1.0)
24" (600mm)	10 (3.0)	CONTROLLER CAB.	1 (0.5)
30" (750mm)	15 (4.6)	FIBER OPTIC	13 (4.0)
		ELECTRIC SERVICE	1 (0.5)
		GROUND CABLE	1 (0.5)
		POST MOUNTED	6 (1.8)

FOUNDATION (DEPTH)	(FT.) (m)	CABLE SLACK (FT.) (m)
ALL FOUNDATIONS	3.5 (1.0)	
MAST ARM (L) POLE	20'H-2'=(6m+L-0.6m)=	
BRACKET MOUNTED	13 (4.0)	
PED. PUSHBUTTON	4 (1.2)	
ELECTRIC SERVICE	13.5 (4.1)	
SERVICE TO GROUND	13.5 (4.1)	

KAM ENGINEERING, INC.
CONSULTING ENGINEERS
707A Davis Road, Suite 205
Eglin, Illinois 60123-1369

REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION
NAME	DATE	
		CABLE PLAN, PHASE DESIGNATION DIAGRAM AND SCHEDULE OF QUANTITIES, US RTE. 12/45 (MANNHEIM RD.) AND LEE ST.

SCALE: NONE
DATE: FEBRUARY, 2005

DRAWN BY: RV/MD
DESIGNED BY: DS
CHECKED BY: AS/KG

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	17
STA.		TO STA.		
FED. ROAD DIST. NO. 1		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 62737				

EXISTING EQUIPMENT TO BE REMOVED LEGEND

- ▲ EXISTING SIGNAL HEAD TO BE REMOVED
- EXISTING SERVICE INSTALLATION TO BE REMOVED
- EXISTING SIGNAL POST AND FOUNDATION TO BE REMOVED
- ▲ EXISTING ALUMINUM MAST ARM POLE AND FOUNDATION TO BE REMOVED
- ⊠ EXISTING CONTROLLER AND FOUNDATION TO BE REMOVED
- ⊠ EXISTING HANDHOLE TO BE REMOVED
- ⊠ EXISTING PEDESTRIAN SIGNAL HEAD TO BE REMOVED
- ⊠ EXISTING PEDESTRIAN PUSHBUTTON TO BE REMOVED
- ⊠ EMERGENCY VEHICLE LIGHT DETECTOR TO BE REMOVED
- ⊠ CONFIRMATION BEACON TO BE REMOVED
- ⊠ EXISTING HEAVY-DUTY HANDHOLE TO BE REMOVED
- ⊠ EXISTING STEEL MAST ARM POLE AND FOUNDATION TO BE REMOVED
- ⊠ EXISTING JUNCTION BOX TO BE REMOVED
- ⊠ EXISTING G.S. CONDUIT IN TRENCH OR PUSHED

THE FOLLOWING EXISTING TRAFFIC SIGNAL EQUIPMENT SHALL BE REMOVED BY THE CONTRACTOR, SHALL REMAIN THE PROPERTY OF THE STATE AND SHALL BE DELIVERED BY THE CONTRACTOR TO THE STATE'S TRAFFIC SIGNAL MAINTENANCE CONTRACTOR'S MAIN FACILITY AS PER THE TRAFFIC SIGNAL SPECIFICATIONS:

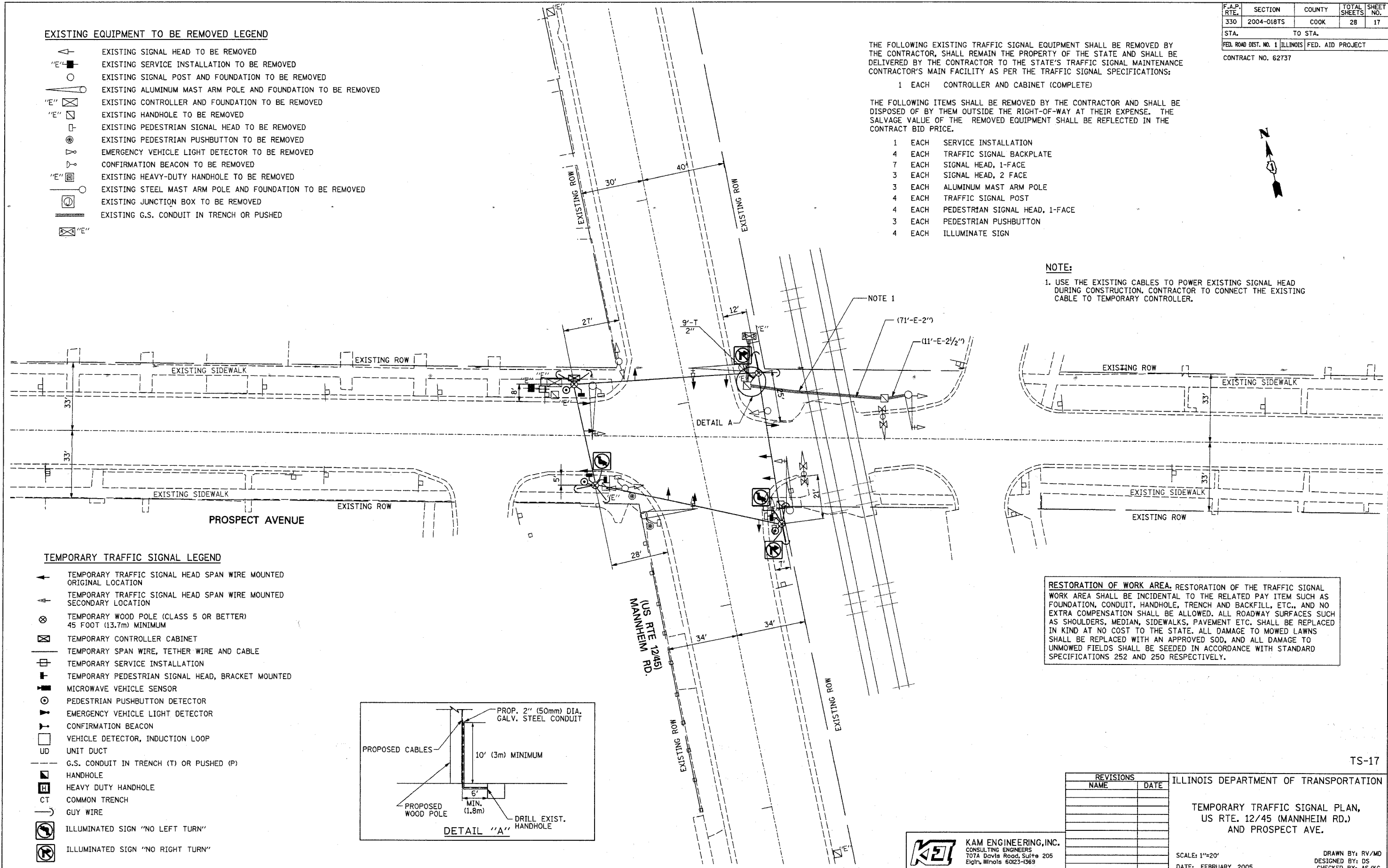
- 1 EACH CONTROLLER AND CABINET (COMPLETE)

THE FOLLOWING ITEMS SHALL BE REMOVED BY THE CONTRACTOR AND SHALL BE DISPOSED OF BY THEM OUTSIDE THE RIGHT-OF-WAY AT THEIR EXPENSE. THE SALVAGE VALUE OF THE REMOVED EQUIPMENT SHALL BE REFLECTED IN THE CONTRACT BID PRICE.

- 1 EACH SERVICE INSTALLATION
- 4 EACH TRAFFIC SIGNAL BACKPLATE
- 7 EACH SIGNAL HEAD, 1-FACE
- 3 EACH SIGNAL HEAD, 2 FACE
- 3 EACH ALUMINUM MAST ARM POLE
- 4 EACH TRAFFIC SIGNAL POST
- 4 EACH PEDESTRIAN SIGNAL HEAD, 1-FACE
- 3 EACH PEDESTRIAN PUSHBUTTON
- 4 EACH ILLUMINATE SIGN

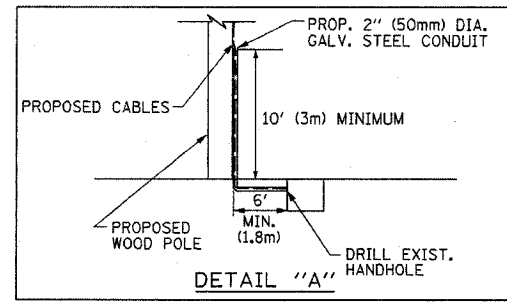
NOTE:

- 1. USE THE EXISTING CABLES TO POWER EXISTING SIGNAL HEAD DURING CONSTRUCTION. CONTRACTOR TO CONNECT THE EXISTING CABLE TO TEMPORARY CONTROLLER.



TEMPORARY TRAFFIC SIGNAL LEGEND

- ▲ TEMPORARY TRAFFIC SIGNAL HEAD SPAN WIRE MOUNTED ORIGINAL LOCATION
- ▲ TEMPORARY TRAFFIC SIGNAL HEAD SPAN WIRE MOUNTED SECONDARY LOCATION
- ⊠ TEMPORARY WOOD POLE (CLASS 5 OR BETTER) 45 FOOT (13.7m) MINIMUM
- ⊠ TEMPORARY CONTROLLER CABINET
- ⊠ TEMPORARY SPAN WIRE, TETHER WIRE AND CABLE
- ⊠ TEMPORARY SERVICE INSTALLATION
- ⊠ TEMPORARY PEDESTRIAN SIGNAL HEAD, BRACKET MOUNTED
- ⊠ MICROWAVE VEHICLE SENSOR
- ⊠ PEDESTRIAN PUSHBUTTON DETECTOR
- ⊠ EMERGENCY VEHICLE LIGHT DETECTOR
- ⊠ CONFIRMATION BEACON
- ⊠ VEHICLE DETECTOR, INDUCTION LOOP
- ⊠ UNIT DUCT
- ⊠ G.S. CONDUIT IN TRENCH (T) OR PUSHED (P)
- ⊠ HANDHOLE
- ⊠ HEAVY DUTY HANDHOLE
- ⊠ COMMON TRENCH
- ⊠ GUY WIRE
- ⊠ ILLUMINATED SIGN "NO LEFT TURN"
- ⊠ ILLUMINATED SIGN "NO RIGHT TURN"



RESTORATION OF WORK AREA. RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIAN, SIDEWALKS, PAVEMENT ETC. SHALL BE REPLACED IN KIND AT NO COST TO THE STATE. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

TEMPORARY TRAFFIC SIGNAL PLAN,
US RTE. 12/45 (MANNHEIM RD.)
AND PROSPECT AVE.

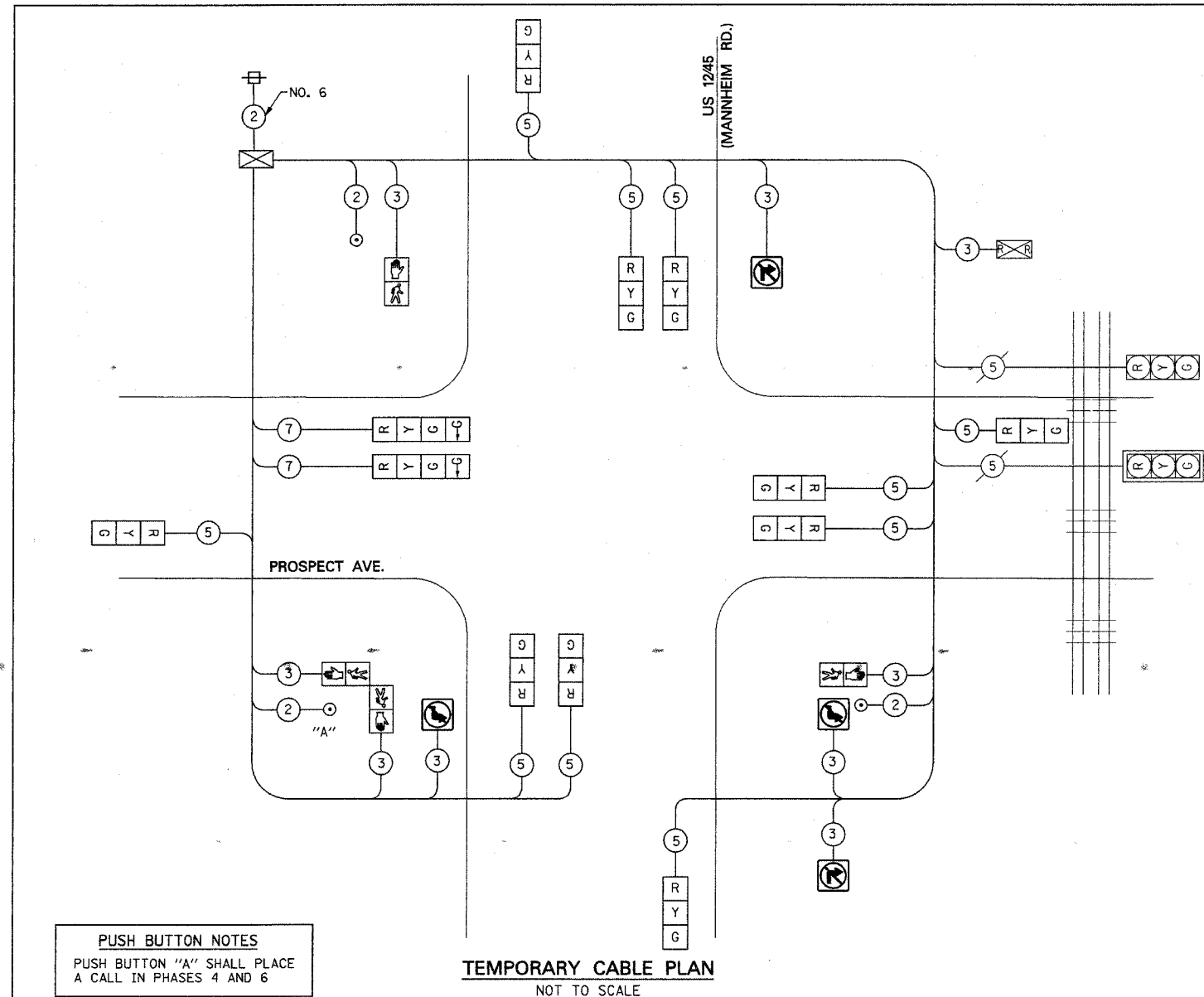
K&T KAM ENGINEERING, INC.
CONSULTING ENGINEERS
707A Davis Road, Suite 205
Eggen, Illinois 60223-1569

SCALE: 1"=20'
DATE: FEBRUARY, 2005

DRAWN BY: RV/MD
DESIGNED BY: DS
CHECKED BY: AS/KG

G:\projects\337\SH\T\Mannheim\TempProspect.sht 02/16/2005

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	18
STA.		TO STA.		
FED. ROAD DIST. NO. 1		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 62737				



- TEMPORARY CABLE DIAGRAM LEGEND**
- -
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 -
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 -
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 -
 -
 -
 -
 -
- 2 DENOTES EXISTING NUMBER OF CONDUCTORS.

- NOTES FOR TEMPORARY TRAFFIC SIGNALS**
- ALL CONTROL EQUIPMENT INCLUDING EMERGENCY PRE-EMPTION AND COMMUNICATION DEVICES FOR THE TEMPORARY TRAFFIC SIGNAL(S) SHALL BE FURNISHED BY THE CONTRACTOR
 - ONLY CONTROLLERS SUPPLIED BY ONE OF THE DISTRICT APPROVED CLOSED LOOP EQUIPMENT MANUFACTURERS WILL BE APPROVED FOR USE AT TEMPORARY SIGNAL LOCATIONS. ALL CONTROLLERS USED FOR TEMPORARY TRAFFIC SIGNALS SHALL BE FULLY ACTUATED NEMA MICROPROCESSOR BASED WITH RS232 DATA ENTRY PORTS COMPATIBLE WITH EXISTING MONITORING SOFTWARE APPROVED BY IDOT DISTRICT 1, INSTALLED IN A NEMA TS1 OF TS2 CABINET. ONLY ONE BRAND OF CONTROLLER WILL BE ACCEPTED FOR ANY ONE CONTRACT.
 - ALL TRAFFIC SIGNAL SECTIONS AND PEDESTRIAN SIGNAL SECTIONS SHALL BE 12" (300mm). HEADS SHALL BE PLACED AS INDICATED ON THE TEMPORARY TRAFFIC SIGNAL PLAN OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL FURNISH ENOUGH CABLE SLACK TO RELOCATE HEADS TO ANY POSITION ON THE SPAN WIRE OR AT LOCATIONS ILLUSTRATED ON THE PLANS FOR CONSTRUCTION STAGING. THE TEMPORARY TRAFFIC SIGNAL SHALL REMAIN IN OPERATION DURING ALL SIGNAL HEAD RELOCATIONS. EACH TEMPORARY TRAFFIC SIGNAL HEAD SHALL HAVE ITS OWN CABLE FROM THE CONTROLLER CABINET TO THE SIGNAL HEAD.
 - ALL EXISTING STREET NAME AND INTERSECTION REGULATORY SIGNS SHALL BE REMOVED FROM EXISTING POLES, RELOCATED AND SECURELY FASTENED TO THE SIGNAL SPAN WIRE OR WOOD POLE AS DIRECTED BY THE ENGINEER.
 - ANY TEMPORARY SIGNAL WITHIN AN EXISTING CLOSED LOOP TRAFFIC SIGNAL SYSTEM SHALL BE INTERCONNECTED TO THAT SYSTEM USING SIMILAR BRAND CONTROL EQUIPMENT.
 - THE TEMPORARY TRAFFIC SIGNAL SHALL HAVE THE SIGNAL HEAD DISPLAYS, SIGNAL HEAD PLACEMENTS AND CONTROLLER PHASING MATCH THE EXISTING TRAFFIC SIGNAL, AT THE TIME OF THE TURN ON, IF NO TRAFFIC STAGING IS IN PLACE OR WILL NOT BE STAGED ON THE DAY OF THE TURN ON.

PUSH BUTTON NOTES
 PUSH BUTTON "A" SHALL PLACE A CALL IN PHASES 4 AND 6

TEMPORARY CABLE PLAN
 NOT TO SCALE

I.D.O.T. TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS					
TYPE	NO. LAMPS	WATTAGE INCAND	WATTAGE LED	% OPERATION	TOTAL WATTAGE
SIGNAL (RED)	12	135	17	0.50	810
(YELLOW)	12	135	25	0.25	405
(GREEN)	12	135	15	0.25	405
ARROW	2	135	12	0.10	27
PED. SIGNAL	4	90	25	1.00	360
CONTROLLER	1	100	100	1.00	100
ILLUM. SIGN	4	84	35	0.05	16.8
FLASHER		135	25	0.50	
TOTAL =					2123.8

ENERGY COST TO: Illinois Department of Transportation
 Division of Highways / District 1
 201 W Center Court / Schaumburg, Illinois 60196-1096

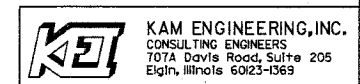
ENERGY SUPPLY: CONTACT: Mr. Sam Thomas
 PHONE: (630)-691-4456
 COMPANY: ComEd

REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION
NAME	DATE	

**TEMPORARY CABLE PLAN,
 US 12/45 (MANNHEIM RD.)
 AND PROSPECT AVE.**

SCALE: NONE
 DATE: FEBRUARY, 2005

DRAWN BY: RV/MD
 DESIGNED BY: DS
 CHECKED BY: AS/KG



G:\projects\JOB 337\SH1\Mannheim\TimpProspectcb1.sht 02/16/2005

TEMPORARY SEQUENCE OF OPERATION

MOVEMENT	N ↑ ↓	6 ↑ ↓ 2				8 ← → 4				F L A S H		
		1	2	3A	3B	4	5	6A	6B		6C	6D
PHASE		2+6				4+8						
INTERVAL		1	2	3A	3B	4	5	6A	6B	6C	6D	
CHANGE TO		/	/	4+8		/	/	2+6				
US RTE. 12/45 (MANNHEIM RD.) ALL SIGNALS	N/B	G	G	Y	R	R	R	R	R	R	R	R
US RTE. 12/45 (MANNHEIM RD.) ALL SIGNALS	S/B	G	G	Y	R	R	R	R	R	R	R	R
PROSPECT AVE. (EAST OF TRACKS) ALL SIGNALS	W/B	R	R	R	R	G	G	Y	R	R	R	R
PROSPECT AVE. (WEST OF TRACKS) NEAR SIDE SIGNALS	W/B	R	R	R	R	G	G	G	G	Y	R	R
PROSPECT AVE. (WEST OF TRACKS) FAR SIDE SIGNALS	W/B	R	R	R	R	G	G	G	G	Y	R	R
PROSPECT AVE. ALL SIGNALS	E/B	R	R	R	R	G	G	G	G	Y	R	R
PEDESTRIAN SIGNALS CROSSING PROSPECT AVE. ON WEST SIDE OF US RTE. 12/45		*W	**FL DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
PEDESTRIAN SIGNALS CROSSING US RTE. 12/45 ON SOUTH SIDE OF PROSPECT AVE.		DW	DW	DW	DW	*W	**FL DW	DW	DW	DW	DW	DW


- TO APPEAR ONLY UPON PUSHBUTTON ACTUATION
- FLASHING "Ⓜ" IS TO TERMINATE AT THE COMPLETION OF THE PEDESTRIAN INTERVAL CLEARANCE.


TEMPORARY RAILROAD PREEMPTION SEQUENCE OF OPERATION

CHANGE FROM NORMAL SEQUENCE OF OPERATION INTERVAL NUMBER	PREEMPTOR NUMBER 2					3	4	5	CLEAR TO NORMAL SEQUENCE		
	1	4	1A	1B	1C					1D	2
RAILROAD PREEMPTION SEQUENCE OF OPERATION INTERVAL NUMBER			1A	1B	1C	1D	2	3	4	5	
CHANGE TO RAILROAD PREEMPTION SEQUENCE OF OPERATION INTERVAL NUMBER			1B	2	1D	2	3	4	5		
US RTE. 12/45 (MANNHEIM RD.) ALL SIGNALS	N/B		Y	R	R	R	R	R	R	G	△
US RTE. 12/45 (MANNHEIM RD.) ALL SIGNALS	S/B		Y	R	R	R	R	R	R	G	△
PROSPECT AVE. (EAST OF TRACKS) ALL SIGNALS	W/B		R	R	Y	R	R	R	R	R	△
PROSPECT AVE. (WEST OF TRACKS) NEAR SIDE SIGNALS	W/B		R	R	G	G	→G	Y	R	R	△
PROSPECT AVE. (WEST OF TRACKS) FAR SIDE SIGNALS	W/B		R	R	G	G	→G	Y	R	R	△
PROSPECT AVE. ALL SIGNALS	E/B		R	R	Y	R	R	R	R	R	△
PEDESTRIAN SIGNALS CROSSING PROSPECT AVE. ON WEST SIDE OF US RTE. 12/45		FL DW	DW	DW	DW	DW	DW	DW	DW	DW	△
PEDESTRIAN SIGNALS CROSSING US RTE. 12/45 ON SOUTH SIDE OF PROSPECT AVE.		DW	DW	FL DW	DW	DW	DW	DW	DW	DW	△
INTERNALLY ILLUMINATED NO RIGHT TURN SIGNS		NRT	NRT	NRT	NRT	NRT	NRT	NRT	NRT	NRT	△
INTERNALLY ILLUMINATED NO LEFT TURN SIGNS		NLT	NLT	NLT	NLT	NLT	NLT	NLT	NLT	NLT	△

△ = 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.

- W = ILLUMINATED PERSON = WALK
- FL = ILLUMINATED FLASHING HAND = FLASHING DON'T WALK
- DW = ILLUMINATED SOLID HAND = DON'T WALK

NRT = "NO RIGHT TURN" OR 

NLT = "NO LEFT TURN" OR 

HOLD

TS-19

REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION
NAME	DATE	
		TEMPORARY SEQUENCE OF OPERATION AND RAILROAD PREEMPTION SEQUENCE OF OPERATION, US RTE. 12/45 (MANNHEIM RD.) AND PROSPECT AVE. SCALE: NONE DATE: FEBRUARY, 2005 DRAWN BY: RV/MD DESIGNED BY: DS CHECKED BY: AS/KG

K&E KAM ENGINEERING, INC.
CONSULTING ENGINEERS
707A Davis Road, Suite 205
Elgin, Illinois 60123-1369

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	20
STA.		TO STA.		
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				
CONTRACT NO. 62737				



TRAFFIC SIGNAL LEGEND

CONTROLLER		
SERVICE INSTALLATION		
SIGNAL HEAD		
SIGNAL HEAD WITH BACKPLATE		
SIGNAL HEAD, PEDESTRIAN		
SIGNAL POST		
MAST ARM ASSEMBLY AND POLE, STEEL		
MAST ARM ASSEMBLY AND POLE, ALUMINUM		
COMBINATION MAST ARM ASSEMBLY AND POLE, STEEL WITH LUMINAIRE		
UNIT DUCT		
COMMON TRENCH		
HANDHOLE		
HEAVY-DUTY HANDHOLE		
DOUBLE HANDHOLE		
G.S. CONDUIT IN TRENCH (T) OR PUSHED (P)		
PEDESTRIAN PUSHBUTTON DETECTOR		
DETECTOR LOOP		

TRAFFIC SIGNAL LEGEND (CONTD.)

CAST IRON JUNCTION BOX		
EMERGENCY VEHICLE LIGHT DETECTOR		
CONFIRMATION BEACON		
SIGNAL HEAD OPTICALLY PROGRAMMED		
CONDUIT SPLICE		
WOOD POLE		
RACEWAY FOR MAGNETIC DETECTOR, TYPE I OR TYPE II		
VEHICLE DETECTOR, NON COMPENSATED MAGNETIC TYPE		
RAILROAD CONTROL CABINET		
TELEPHONE CONNECTION		
ILLUMINATED SIGN "NO LEFT TURN"		
ILLUMINATED SIGN "NO RIGHT TURN"		

PROPOSED INTERCONNECT TO LEE- ST. (SEE INTERCONNECT PLANS)

SAMPLING LOOPS
US RTE 12/45 (MANNHEIM RD.)

NOTE:
EXISTING PAVEMENT MARKINGS AT THE RAILROAD CROSSING SHALL REMAIN UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

RESTORATION OF WORK AREA: RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIAN, SIDEWALKS, PAVEMENT ETC. SHALL BE REPLACED IN KIND AT NO COST TO THE STATE. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

TS-20

REVISIONS	
NAME	DATE
	2-22-05

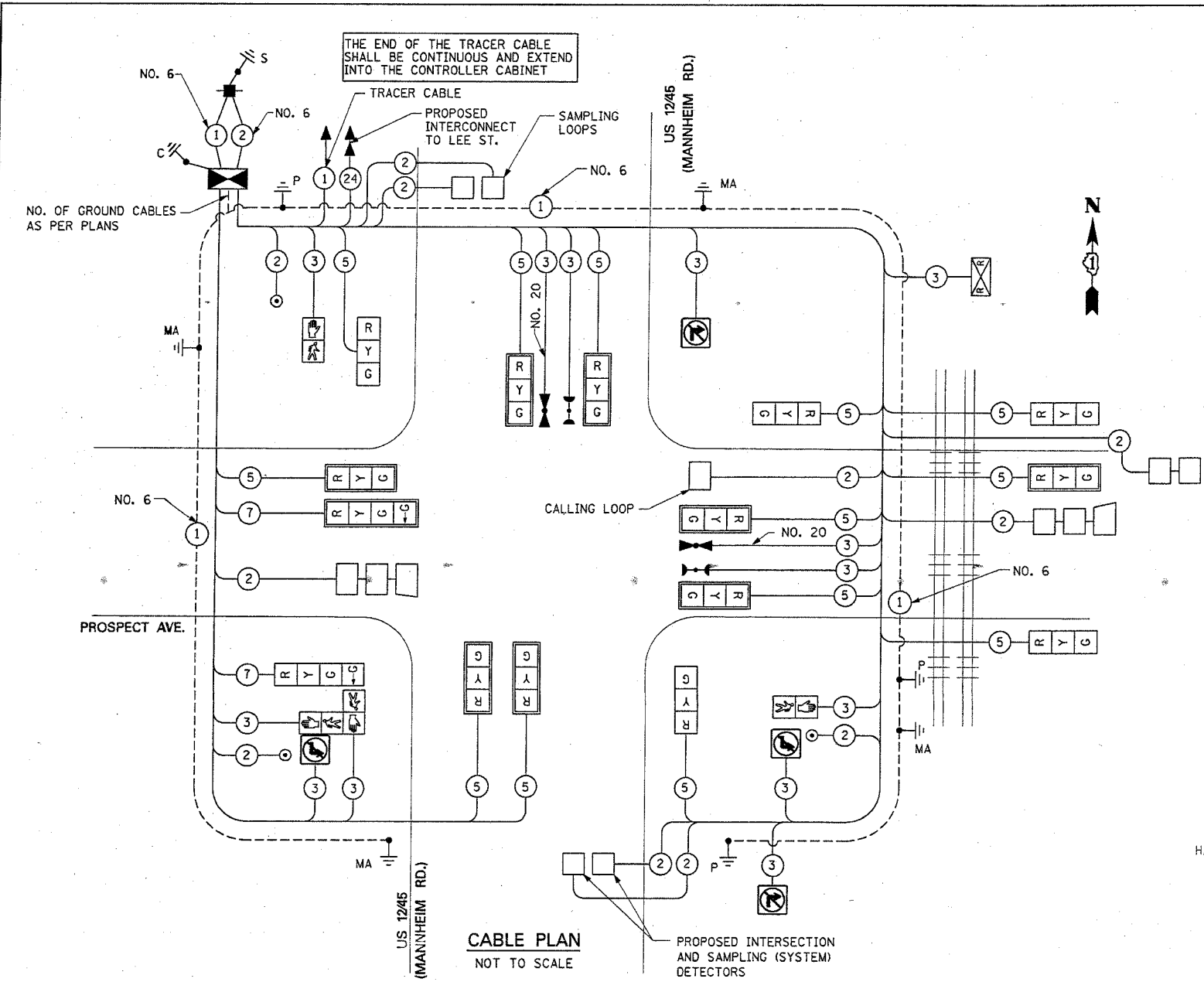
ILLINOIS DEPARTMENT OF TRANSPORTATION
TRAFFIC SIGNAL INSTALLATION PLAN,
US RTE. 12/45 (MANNHEIM RD.)
AND PROSPECT AVE.
SCALE: 1"=20'
DATE: FEBRUARY, 2005

K&E KAM ENGINEERING, INC.
CONSULTING ENGINEERS
707A Davis Road, Suite 205
Eglin, Illinois 60123-1369

DRAWN BY: RV/MD
DESIGNED BY: DS
CHECKED BY: AS/KG

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2/22/2005

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	21
STA.		TO STA.		
FED. ROAD DIST. NO. 1		ILLINOIS		FED. AID PROJECT
CONTRACT NO. 62737				



CABLE PLAN
NOT TO SCALE

CABLE PLAN LEGEND

- | EXISTING | PROPOSED | |
|----------|----------|---|
| | | 8" (200mm) TRAFFIC SIGNAL SECTION |
| | | 12" (300mm) TRAFFIC SIGNAL SECTION |
| | | 12" (300mm) PEDESTRIAN SIGNAL SECTION |
| | | RAILROAD CONTROL CABINET |
| | | CONTROLLER CABINET |
| | | SERVICE INSTALLATION |
| | | VEHICLE DETECTOR, INDUCTION LOOP |
| | | TELEPHONE INSTALLATION |
| | | MAGNETIC DETECTOR |
| | | EMERGENCY VEHICLE LIGHT DETECTOR |
| | | CONFIRMATION BEACON |
| | | PUSHBUTTON DETECTOR |
| | | 2 DENOTES NUMBER OF CONDUCTORS. ALL CABLE NO. 14 EXCEPT AS INDICATED. ALL LOOP DETECTOR CABLE TO BE SHIELDED. |
| | | 1 GROUND CABLE IN CONDUIT NO. 6 SOLID COPPER (GREEN) |
| | | 24 FIBER OPTIC CABLE IN CONDUIT NO. 62.5/125 2-MM12F SM12F |
| | | SIGNAL FACE WITH BACKPLATE "P" INDICATES PROGRAMMED HEAD. |
| | | RAILROAD CONTROL CABINET |
| | | ILLUMINATED SIGN "NO LEFT TURN" |
| | | ILLUMINATED SIGN "NO RIGHT TURN" |
| | | C GROUND ROD AT HANDHOLE (H), DOUBLE HANDHOLE (H), OR CONTROLLER (C) |
| | | P GROUND ROD AT POST (P) OR MAST ARM POLE (MA) |
| | | S GROUND ROD AT ELECTRIC SERVICE INSTALLATION |

SCHEDULE OF QUANTITIES

PAY ITEM	UNITS	TOTAL
TRAFFIC CONTROL AND PROTECTION, STANDARD 701501	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701606	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701701	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701801	L SUM	0.2
SIGN PANEL - TYPE I	SQ FT	33
THERMOPLASTIC PAVEMENT MARKING LINE 24"	FOOT	91
CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL	FOOT	605
CONDUIT IN TRENCH, 2 1/2" DIA., GALVANIZED STEEL	FOOT	104
CONDUIT IN TRENCH, 4" DIA., GALVANIZED STEEL	FOOT	42
CONDUIT PUSHED, 3" DIA., GALVANIZED STEEL	FOOT	62
CONDUIT PUSHED, 4" DIA., GALVANIZED STEEL	FOOT	254
HANDHOLE	EACH	7
HEAVY-DUTY HANDHOLE	EACH	1
DOUBLE HANDHOLE	EACH	1
TRENCH AND BACKFILL FOR ELECTRICAL WORK	FOOT	750
MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	1
FULL-ACTUATED CONTROLLER AND TYPE IV CABINET	EACH	1
TRANSCIEVER - FIBER OPTIC	EACH	1
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	335
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	1330
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	2300
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	208
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR	FOOT	1725
ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2-C	FOOT	32
TRAFFIC SIGNAL POST, GALVANIZED STEEL 14 FT.	EACH	2
TRAFFIC SIGNAL POST, GALVANIZED STEEL 18 FT.	EACH	1
STEEL MAST ARM ASSEMBLY AND POLE, 24 FT.	EACH	2
STEEL MAST ARM ASSEMBLY AND POLE, 30 FT.	EACH	2
CONCRETE FOUNDATION, TYPE A	FOOT	12
CONCRETE FOUNDATION, TYPE D	FOOT	4
CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	60
TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM	EACH	9
INDUCTIVE LOOP DETECTOR	EACH	8
DETECTOR LOOP, TYPE I	FOOT	380
LIGHT DETECTOR	EACH	2
LIGHT DETECTOR AMPLIFIER	EACH	1
PEDESTRIAN PUSH-BUTTON	EACH	3
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
ILLUMINATED SIGN L.E.D.	EACH	4
REMOVE ELECTRIC CABLE FROM CONDUIT	FOOT	5356
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
REMOVE EXISTING HANDHOLE	EACH	7
REMOVE EXISTING CONCRETE FOUNDATION	EACH	7
SERVICE INSTALLATION, POLE MOUNTED	EACH	1
ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6 1C	FOOT	800
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 20 3C TWISTED, SHIELDED	FOOT	400
SIGNAL HEAD, L.E.D., 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	0
SIGNAL HEAD, L.E.D., 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	5
SIGNAL HEAD, L.E.D., 1-FACE, 4-SECTION, BRACKET MOUNTED	EACH	1
SIGNAL HEAD, L.E.D., 1-FACE, 4-SECTION, MAST ARM MOUNTED	EACH	1
PEDESTRIAN SIGNAL HEAD, L.E.D., 1-FACE, BRACKET MOUNTED	EACH	2
PEDESTRIAN SIGNAL HEAD, L.E.D., 2-FACE, BRACKET MOUNTED	EACH	1
ELECTRIC CABLE IN CONDUIT, RAILROAD NO. 14 3C	FOOT	121
RAILROAD PROTECTIVE LIABILITY INSURANCE	L SUM	1

- SFTY-10
- Y031-30 - 100% COST TO THE VILLAGE OF DESPLAINES

I.D.O.T. TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS					TOTAL WATTAGE
TYPE	NO. LAMPS	WATTAGE INCANDI	WATTAGE LED	% OPERATION	
SIGNAL (RED)	15	135	17	0.50	127.5
(YELLOW)	15	135	25	0.25	93.75
(GREEN)	15	135	15	0.25	56.25
ARROW		135	12	0.10	
PED. SIGNAL	4	90	25	1.00	100
CONTROLLER	1	100	100	1.00	100
ILLUM. SIGN	4	84	35	0.05	7
FLASHER		135	25	0.50	
TOTAL =					484.5

ENERGY COST TO: Illinois Department of Transportation
Division of Highways / District 1
201 W Center Court / Schaumburg, Illinois 60196-1096

ENERGY SUPPLY: CONTACT: **Mr. Sam Thomas**
PHONE: **(630)-691-4456**
COMPANY: **ComEd**

FOUNDATION (DEPTH)	(FT.) (m)	CABLE SLACK (FT.) (m)	CABLE SLACK (FT.) (m)	CABLE SLACK (FT.) (m)	
TYPE A - POST	4 (1.2)	HANDHOLE	6.5 (2.0)	ALL FOUNDATIONS	3.5 (1.0)
D - CONTROLLER	4 (1.2)	DOUBLE HANDHOLE	13 (4.0)	MAST ARM (L) POLE	20'H-2' (6m+L-0.6m)
E - M. ARM POLE		SIGNAL POST	2 (0.6)	BRACKET MOUNTED	13 (4.0)
24" (600mm)	10 (3.0)	CONTROLLER CAB.	1 (0.5)	PED. PUSHBUTTON	4 (1.2)
30" (750mm)	15 (4.6)	FIBER OPTIC	13 (4.0)	ELECTRIC SERVICE	13.5 (4.1)
		ELECTRIC SERVICE	1 (0.5)	SERVICE TO GROUND	13.5 (4.1)
		GROUND CABLE	1 (0.5)	POST MOUNTED	6 (1.8)



REVISIONS	
NAME	DATE
Brenda K.	2-22-05

ILLINOIS DEPARTMENT OF TRANSPORTATION

CABLE PLAN AND SCHEDULE OF QUANTITIES,
US 12/45 (MANNHEIM RD.) AND PROSPECT AVE.

SCALE: NONE
DATE: FEBRUARY, 2005

DRAWN BY: RV/MD
DESIGNED BY: DS
CHECKED BY: AS/XG

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SEQUENCE OF OPERATION

MOVEMENT	N	6				8				F L A S H		
		1	2	3A	3B	4	5	6A	6B		6C	6D
PHASE		2+6				4+8						
INTERVAL		1	2	3A	3B	4	5	6A	6B	6C	6D	
CHANGE TO				4+8				2+6				
US RTE. 12/45 (MANNHEIM RD.) ALL SIGNALS	N/B	G	G	Y	R	R	R	R	R	R	R	R
US RTE. 12/45 (MANNHEIM RD.) ALL SIGNALS	S/B	G	G	Y	R	R	R	R	R	R	R	R
PROSPECT AVE. (EAST OF TRACKS) ALL SIGNALS	W/B	R	R	R	R	G	G	Y	R	R	R	R
PROSPECT AVE. (WEST OF TRACKS) FAR RIGHT MAST ARM SIGNAL	W/B	R	R	R	R	G	G	G	G	Y	R	R
PROSPECT AVE. (WEST OF TRACKS) FAR LEFT AND MAST ARM SIGNALS	W/B	R	R	R	R	G	G	G	G	Y	R	R
PROSPECT AVE. ALL SIGNALS	E/B	R	R	R	R	G	G	G	G	Y	R	R
PEDESTRIAN SIGNALS CROSSING PROSPECT AVE. ON WEST SIDE OF US RTE. 12/45	*W	**FL DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
PEDESTRIAN SIGNALS CROSSING US RTE. 12/45 ON SOUTH SIDE OF PROSPECT AVE.	DW	DW	DW	DW	*W	**FL DW	DW	DW	DW	DW	DW	DW

EMERGENCY VEHICLE PREEMPTION SEQUENCE OF OPERATION

CHANGE FROM NORMAL SEQUENCE OF OPERATION INTERVAL NUMBER	1		1		4		4		PREEMPTOR NUMBER 3	PREEMPTOR NUMBER 4	CLEAR TO NORMAL SEQUENCE
	1A	1B	1C	1D	1E	1F	1G	2	3		
EMERGENCY VEHICLE PREEMPTION SEQUENCE OF OPERATION INTERVAL NUMBER	1A	1B	1C	1D	1E	1F	1G	2	3		
CHANGE TO EMERGENCY VEHICLE PREEMPTION SEQUENCE OF OPERATION INTERVAL NUMBER	1B	2	1D	3	1F	2	3				
US RTE. 12/45 (MANNHEIM RD.) ALL SIGNALS	N/B	G	G	G	Y	R	R	R	G	R	◇
US RTE. 12/45 (MANNHEIM RD.) ALL SIGNALS	S/B	G	G	G	Y	R	R	R	G	R	◇
PROSPECT AVE. (EAST OF TRACKS) ALL SIGNALS	W/B	R	R	R	R	Y	R	G	R	G	◇
PROSPECT AVE. (WEST OF TRACKS) FAR RIGHT MAST ARM SIGNAL	W/B	R	R	R	R	Y	R	G	R	G	◇
PROSPECT AVE. (WEST OF TRACKS) FAR LEFT AND MAST ARM SIGNALS	W/B	R	R	R	R	Y	R	G	R	G	◇
PROSPECT AVE. ALL SIGNALS	E/B	R	R	R	R	Y	R	G	R	G	◇
PEDESTRIAN SIGNALS CROSSING PROSPECT AVE. ON WEST SIDE OF US RTE. 12/45	FL DW	DW	FL DW	DW	DW	DW	DW	DW	W	DW	◇
PEDESTRIAN SIGNALS CROSSING US RTE. 12/45 ON SOUTH SIDE OF PROSPECT AVE.	DW	DW	DW	DW	FL DW	DW	FL DW	W	DW	◇	

RAILROAD PREEMPTION SEQUENCE OF OPERATION

CHANGE FROM NORMAL SEQUENCE OF OPERATION INTERVAL NUMBER	1		4		PREEMPTOR NUMBER 3	PREEMPTOR NUMBER 4	PREEMPTOR NUMBER 2	CLEAR TO NORMAL SEQUENCE
	1A	1B	1C	1D	1E	1F	1G	
CHANGE FROM EMERGENCY VEHICLE PREEMPTION SEQUENCE OF OPERATION INTERVAL NUMBER					2	3		
RAILROAD PREEMPTION SEQUENCE OF OPERATION INTERVAL NUMBER	1A	1B	1C	1D	1E	1F	1G	1H
CHANGE TO RAILROAD PREEMPTION SEQUENCE OF OPERATION INTERVAL NUMBER	1B	2	1D	2	1F	2	1H	2
US RTE. 12/45 (MANNHEIM RD.) ALL SIGNALS	N/B	Y	R	R	R	Y	R	R
US RTE. 12/45 (MANNHEIM RD.) ALL SIGNALS	S/B	Y	R	R	R	Y	R	R
PROSPECT AVE. (EAST OF TRACKS) ALL SIGNALS	W/B	R	R	Y	R	R	Y	R
PROSPECT AVE. (WEST OF TRACKS) FAR RIGHT MAST ARM SIGNAL	W/B	R	R	G	G	R	R	G
PROSPECT AVE. (WEST OF TRACKS) FAR LEFT AND MAST ARM SIGNALS	W/B	R	R	G	G	R	R	G
PROSPECT AVE. ALL SIGNALS	E/B	R	R	Y	R	R	Y	R
PEDESTRIAN SIGNALS CROSSING PROSPECT AVE. ON WEST SIDE OF US RTE. 12/45	FL DW	DW	DW	DW	DW	DW	DW	DW
PEDESTRIAN SIGNALS CROSSING US RTE. 12/45 ON SOUTH SIDE OF PROSPECT AVE.	DW	DW	FL DW	DW	DW	DW	DW	DW
INTERNALLY ILLUMINATED NO RIGHT TURN SIGNS	NRT	NRT	NRT	NRT	NRT	NRT	NRT	NRT
INTERNALLY ILLUMINATED NO LEFT TURN SIGNS	NLT	NLT	NLT	NLT	NLT	NLT	NLT	NLT

* TO APPEAR ONLY UPON PUSHBUTTON ACTUATION

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

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

△ = 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.

W = ILLUMINATED PERSON = WALK
 FL DW = ILLUMINATED FLASHING HAND = FLASHING DON'T WALK
 DW = ILLUMINATED SOLID HAND = DON'T WALK

NRT = "NO RIGHT TURN" OR

NLT = "NO LEFT TURN" OR

HOLD

TS-22

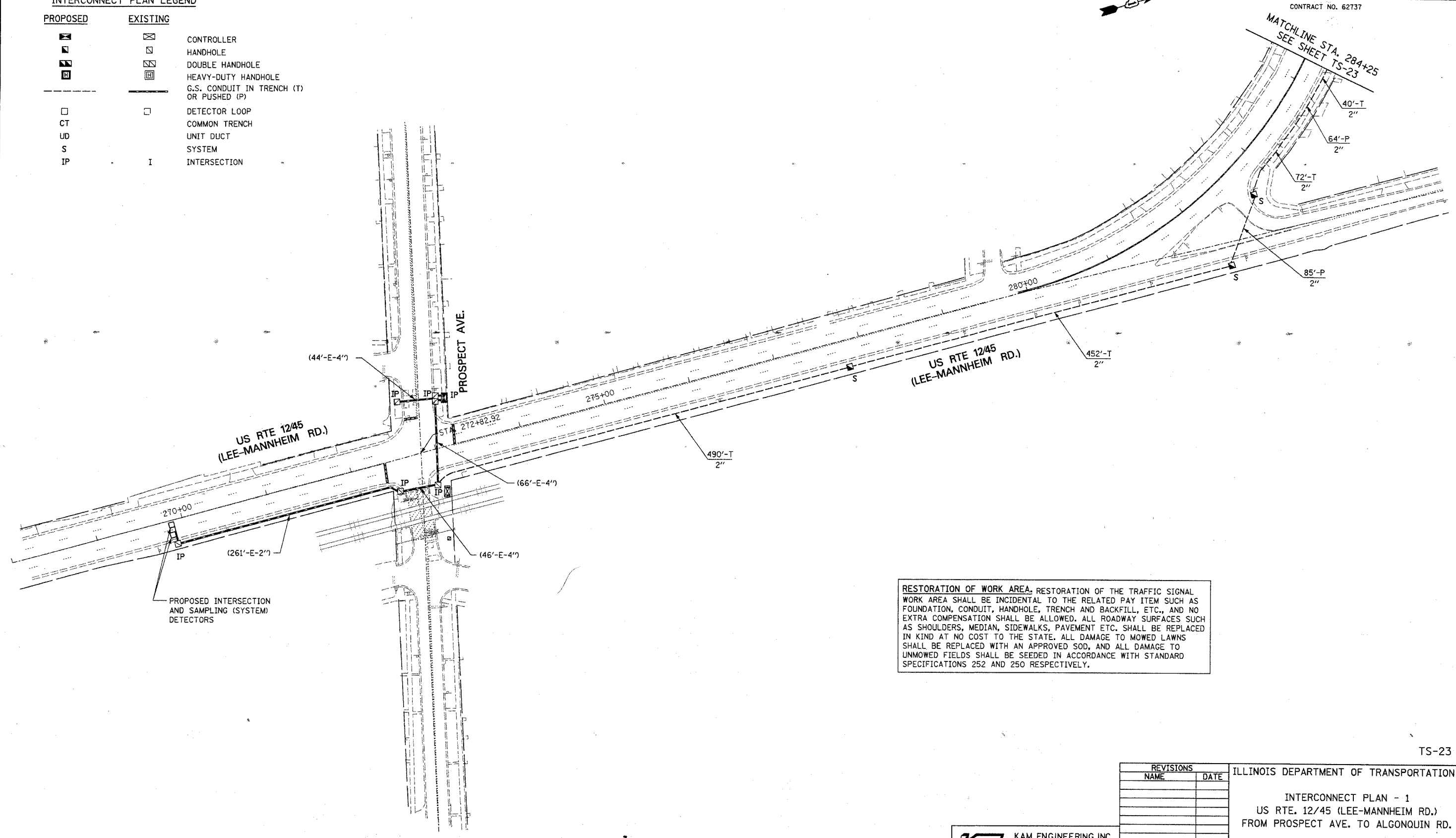
REVISIONS		ILLINOIS DEPARTMENT OF TRANSPORTATION
NAME	DATE	
		SEQUENCE OF OPERATION, EMERGENCY VEHICLE PREEMPTION SEQUENCE OF OPERATION AND RAILROAD PREEMPTION SEQUENCE OF OPERATION, US RTE. 12/45 (MANNHEIM RD.) AND PROSPECT AVE. SCALE: NONE DATE: FEBRUARY, 2005 DRAWN BY: RV/MD DESIGNED BY: DS CHECKED BY: AS/KG

K&E KAM ENGINEERING, INC.
 CONSULTING ENGINEERS
 707A Davis Road, Suite 205
 Elgin, Illinois 60123-1369

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	23
STA.		TO STA.		
FED. ROAD DIST. NO. 1		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 62737				

INTERCONNECT PLAN LEGEND

PROPOSED	EXISTING	
		CONTROLLER
		HANDHOLE
		DOUBLE HANDHOLE
		HEAVY-DUTY HANDHOLE
		G.S. CONDUIT IN TRENCH (T) OR PUSHED (P)
		DETECTOR LOOP
		COMMON TRENCH
		UNIT DUCT
		SYSTEM
		INTERSECTION



PROPOSED INTERSECTION AND SAMPLING (SYSTEM) DETECTORS

RESTORATION OF WORK AREA. RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIAN, SIDEWALKS, PAVEMENT ETC. SHALL BE REPLACED IN KIND AT NO COST TO THE STATE. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

G:\Projects\JOB 337\SH\Mannheim\INTER-1.sht 02/17/2005

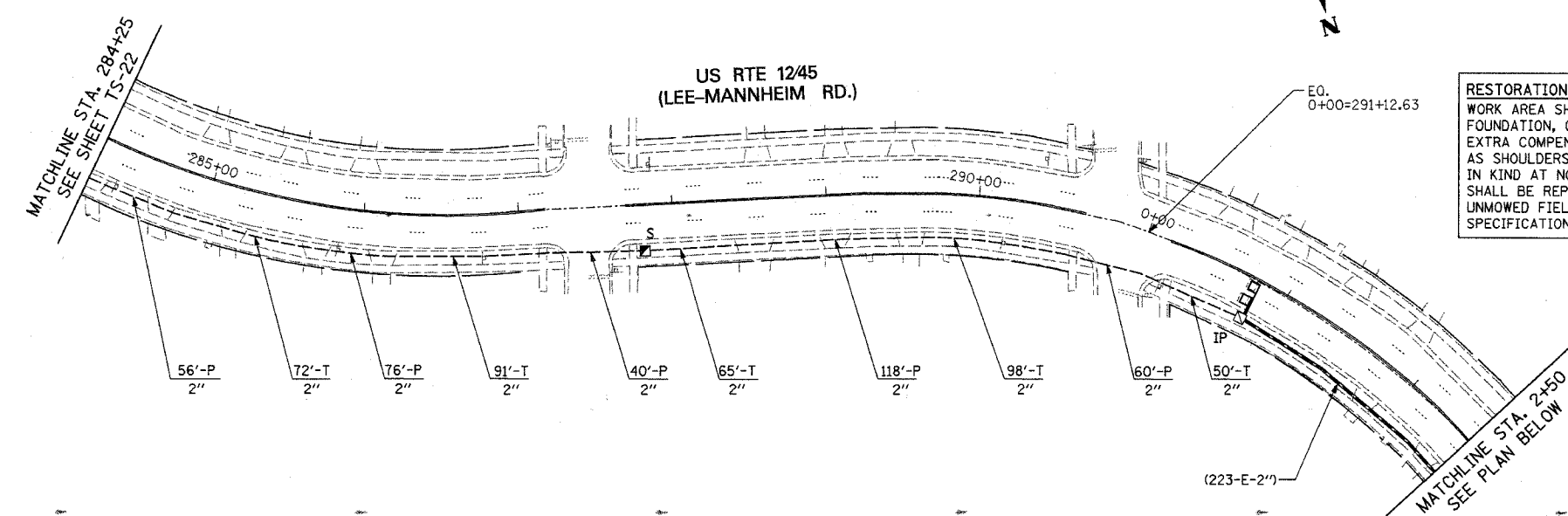
TS-23

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 INTERCONNECT PLAN - 1
 US RTE. 12/45 (LEE-MANNHEIM RD.)
 FROM PROSPECT AVE. TO ALGONQUIN RD.
 SCALE: 1"=50'
 DATE: FEBRUARY, 2005
 DRAWN BY: RV/MD
 DESIGNED BY: DS
 CHECKED BY: AS/KG

KEI KAM ENGINEERING, INC.
 CONSULTING ENGINEERS
 7074 Davis Road, Suite 205
 Elgin, Illinois 60123-1369

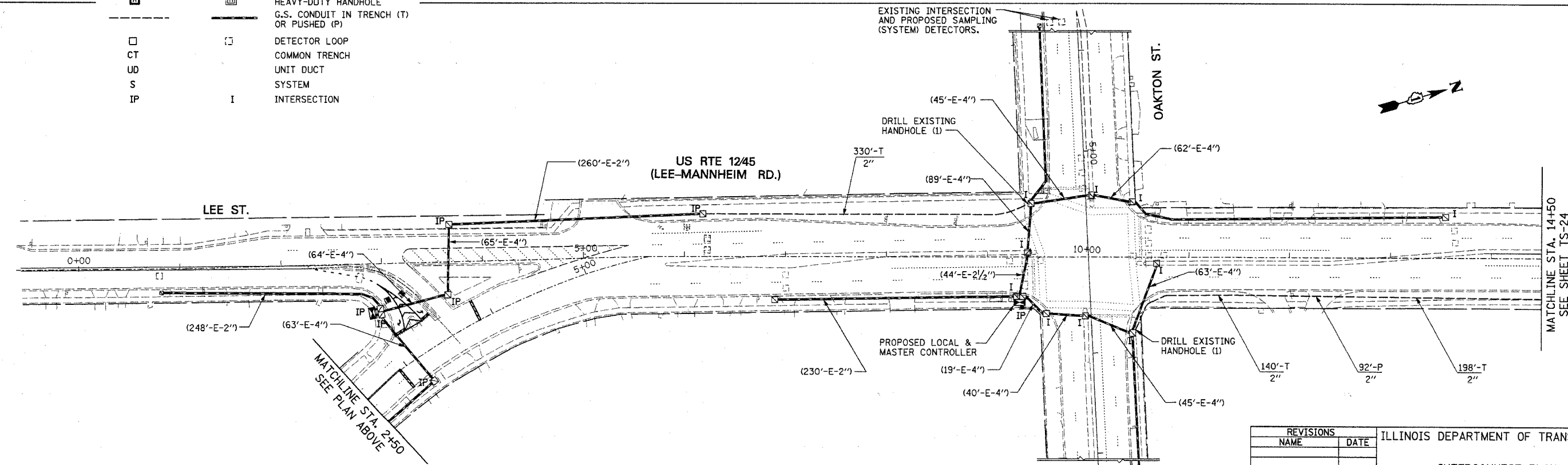
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	24
STA.		TO STA.		
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				
CONTRACT NO. 62737				



RESTORATION OF WORK AREA. RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIAN, SIDEWALKS, PAVEMENT ETC. SHALL BE REPLACED IN KIND AT NO COST TO THE STATE. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

INTERCONNECT PLAN LEGEND

PROPOSED	EXISTING	
		CONTROLLER
		HANDHOLE
		DOUBLE HANDHOLE
		HEAVY-DUTY HANDHOLE
		G.S. CONDUIT IN TRENCH (T) OR PUSHED (P)
		DETECTOR LOOP
		COMMON TRENCH
		UNIT DUCT
		SYSTEM
		INTERSECTION



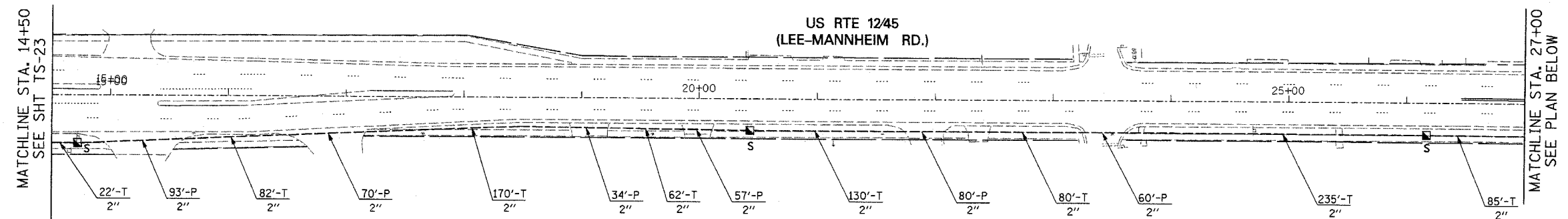
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 INTERCONNECT PLAN - 2
 US RTE. 12/45 (LEE-MANNHEIM RD.)
 FROM PROSPECT AVE. TO ALGONQUIN RD.
 SCALE: 1"=50'
 DATE: FEBRUARY, 2005
 DRAWN BY: RV/MD
 DESIGNED BY: DS
 CHECKED BY: AS/KG

K&E KAM ENGINEERING, INC.
 CONSULTING ENGINEERS
 707A Davis Road, Suite 205
 Elgin, Illinois 60123-1369

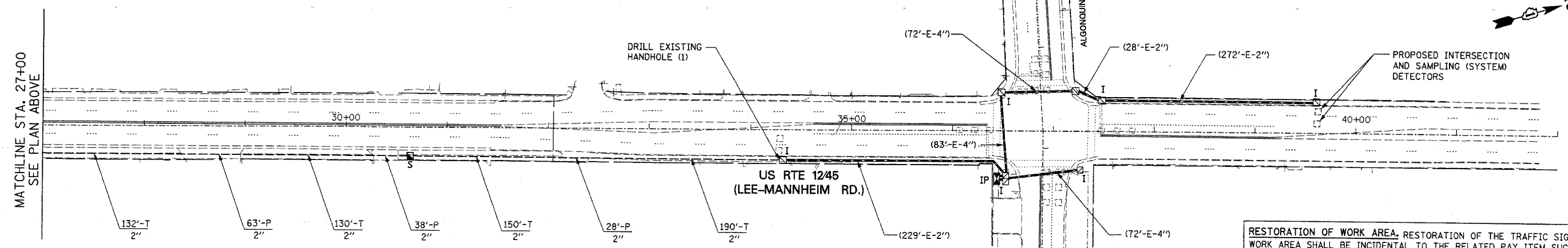
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	25
STA.		TO STA.		
FED. ROAD DIST. NO. 1		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 62737				



INTERCONNECT PLAN LEGEND

PROPOSED	EXISTING	
		CONTROLLER
		HANDHOLE
		DOUBLE HANDHOLE
		HEAVY-DUTY HANDHOLE
		G.S. CONDUIT IN TRENCH (T) OR PUSHED (P)
		DETECTOR LOOP
		COMMON TRENCH
		UNIT DUCT
		SYSTEM
		INTERSECTION



RESTORATION OF WORK AREA. RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCIDENTAL TO THE RELATED PAY ITEM SUCH AS FOUNDATION, CONDUIT, HANDHOLE, TRENCH AND BACKFILL, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIAN, SIDEWALKS, PAVEMENT ETC. SHALL BE REPLACED IN KIND AT NO COST TO THE STATE. ALL DAMAGE TO MOWED LAWNS SHALL BE REPLACED WITH AN APPROVED SOD, AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDED IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.

TS-25

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 INTERCONNECT PLAN - 3
 US RTE. 12/45 (LEE-MANNHEIM RD.)
 FROM PROSPECT AVE. TO ALGONQUIN RD.
 SCALE: 1"=50'
 DATE: FEBRUARY, 2005
 DRAWN BY: RV/MD
 DESIGNED BY: DS
 CHECKED BY: AS/KG

K&E KAM ENGINEERING, INC.
 CONSULTING ENGINEERS
 707A Davis Road, Suite 205
 Elgin, Illinois 60123-1569

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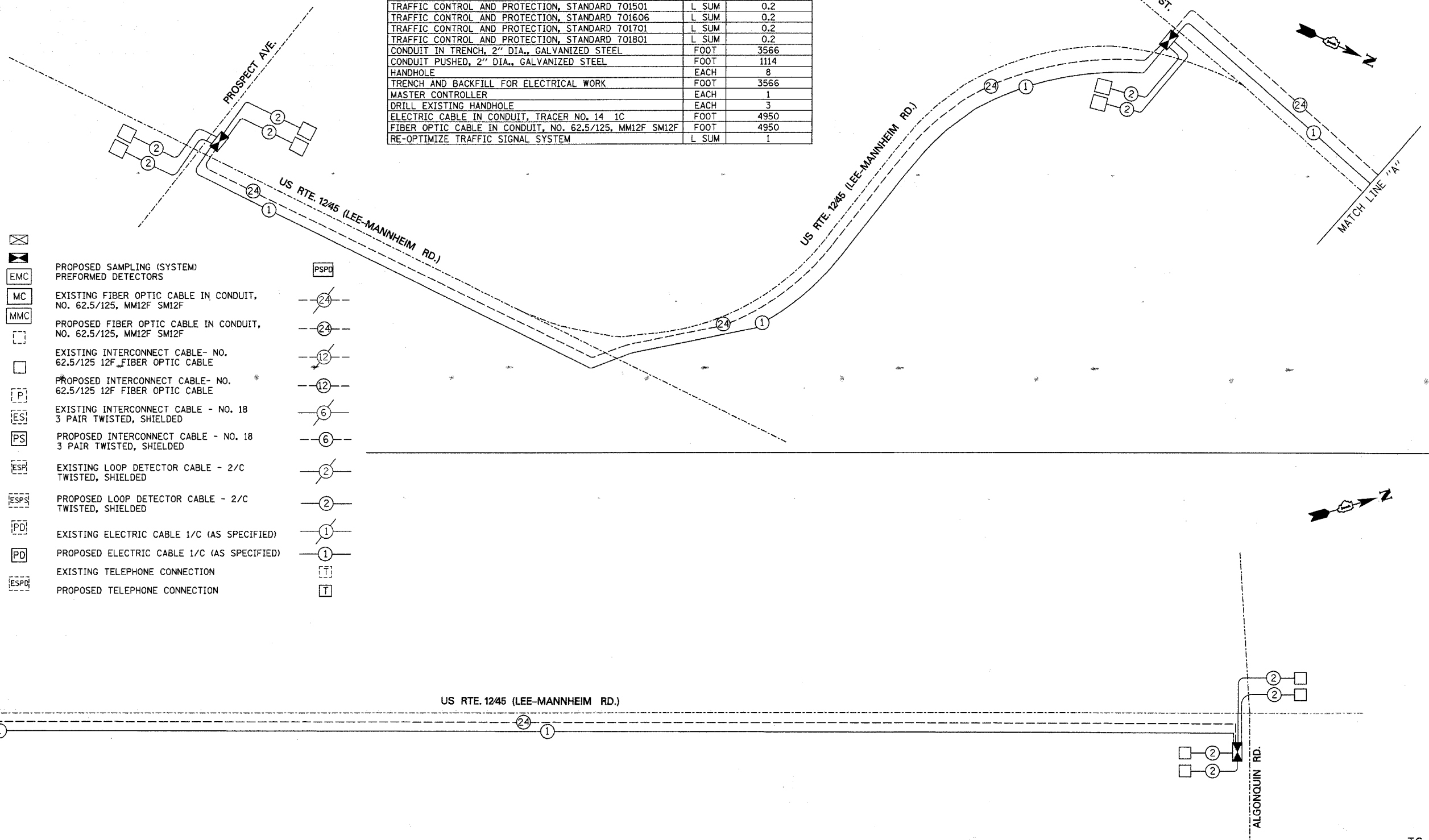
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	2004-018TS	COOK	28	26
STA.		TO STA.		
FED. ROAD DIST. NO. 1		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 62737				

INTERCONNECT SCHEDULE OF QUANTITIES

PAY ITEM	UNIT	INTERCONNECT
TRAFFIC CONTROL AND PROTECTION, STANDARD 701501	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701606	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701701	L SUM	0.2
TRAFFIC CONTROL AND PROTECTION, STANDARD 701801	L SUM	0.2
CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL	FOOT	3566
CONDUIT PUSHED, 2" DIA., GALVANIZED STEEL	FOOT	1114
HANDHOLE	EACH	8
TRENCH AND BACKFILL FOR ELECTRICAL WORK	FOOT	3566
MASTER CONTROLLER	EACH	1
DRILL EXISTING HANDHOLE	EACH	3
ELECTRIC CABLE IN CONDUIT, TRACER NO. 14 1C	FOOT	4950
FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM12F	FOOT	4950
RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM	L SUM	1

INTERCONNECT SCHEMATIC LEGEND

- | | | |
|--|--|--|
| EXISTING INTERSECTION CONTROLLER | | |
| PROPOSED INTERSECTION CONTROLLER | | |
| EXISTING MASTER CONTROLLER | | |
| PROPOSED MASTER CONTROLLER | | |
| MASTER MASTER CONTROLLER | | |
| EXISTING INTERSECTION AND SAMPLING (SYSTEM) DETECTORS | | |
| PROPOSED INTERSECTION AND SAMPLING (SYSTEM) DETECTORS | | |
| EXISTING INTERSECTION LOOP DETECTORS | | |
| PROPOSED SAMPLING (SYSTEM) DETECTORS | | |
| EXISTING SAMPLING (SYSTEM) DETECTORS | | |
| PROPOSED SAMPLING (SYSTEM) DETECTORS | | |
| EXISTING INTERSECTION AND SAMPLING (SYSTEM) DETECTORS | | |
| PROPOSED INTERSECTION AND SAMPLING (SYSTEM) DETECTORS | | |
| EXISTING SAMPLING (SYSTEM) DETECTORS | | |
| PROPOSED SAMPLING (SYSTEM) DETECTORS | | |
| EXISTING PREFORMED INTERSECTION & SAMPLING (SYSTEM) DETECTORS | | |
| PROPOSED PREFORMED INTERSECTION & SAMPLING (SYSTEM) DETECTORS | | |
| EXISTING SAMPLING (SYSTEM) PREFORMED DETECTORS | | |
| PROPOSED SAMPLING (SYSTEM) PREFORMED DETECTORS | | |
| EXISTING INTERCONNECT CABLE - NO. 62.5/125, MM12F SM12F | | |
| PROPOSED FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM12F | | |
| EXISTING INTERCONNECT CABLE - NO. 62.5/125 12F FIBER OPTIC CABLE | | |
| PROPOSED INTERCONNECT CABLE - NO. 62.5/125 12F FIBER OPTIC CABLE | | |
| EXISTING INTERCONNECT CABLE - NO. 18 3 PAIR TWISTED, SHIELDED | | |
| PROPOSED INTERCONNECT CABLE - NO. 18 3 PAIR TWISTED, SHIELDED | | |
| EXISTING LOOP DETECTOR CABLE - 2/C TWISTED, SHIELDED | | |
| PROPOSED LOOP DETECTOR CABLE - 2/C TWISTED, SHIELDED | | |
| EXISTING ELECTRIC CABLE 1/C (AS SPECIFIED) | | |
| PROPOSED ELECTRIC CABLE 1/C (AS SPECIFIED) | | |
| EXISTING TELEPHONE CONNECTION | | |
| PROPOSED TELEPHONE CONNECTION | | |

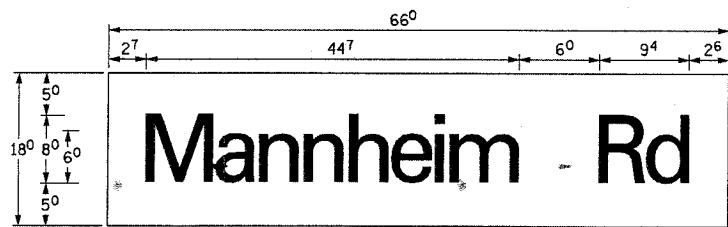
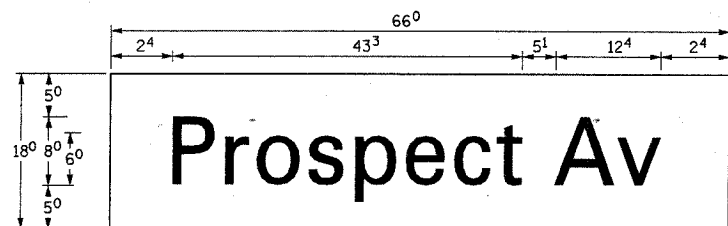
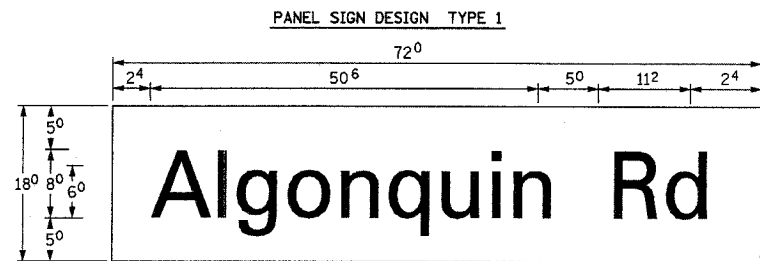


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REVISIONS	
NAME	DATE

K&E KAM ENGINEERING, INC.
CONSULTING ENGINEERS
707A Davis Road, Suite 205
Elgin, Illinois 60123-1369

ILLINOIS DEPARTMENT OF TRANSPORTATION
TS-26
INTERCONNECT SCHEMATIC PLAN
US RTE. 12/45 (LEE-MANNHEIM RD.)
FROM PROSPECT AVE. TO ALGONQUIN RD.
SCALE: NONE
DATE: FEBRUARY, 2005
DRAWN BY: RV/MD
DESIGNED BY: DS
CHECKED BY: AS/KG

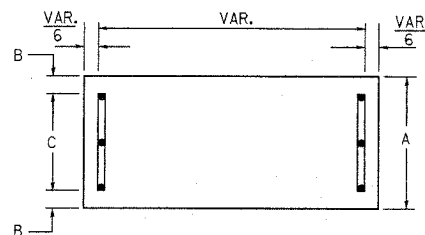


9.0 Sq. Ft. each
2 Required
Design Series D

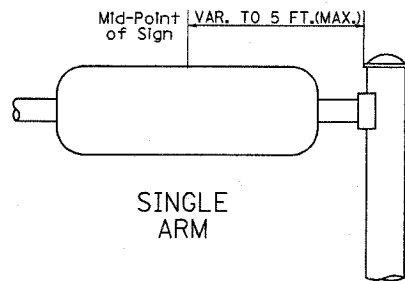
8.25 Sq. Ft. each
2 Required
Design Series D

8.25 Sq. Ft. each
2 Required
Design Series C

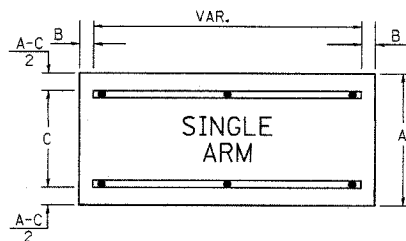
SUPPORTING CHANNELS



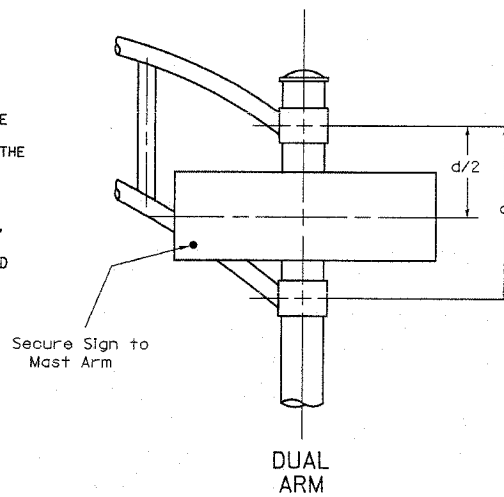
A	B	C
18"	2"	14"



SUPPORTING CHANNELS



A	B	C
18"	2"	12"
30"	2"	22"



SIGNFIX ALUMINUM CHANNEL FRAMING SYSTEM
Shall be used. See Note #5.

Upper Case To Lower Case
Spacing Chart 8-6 Inch Series "C & D"

EXAMPLE, 2 DENOTES 3/8"

SERIES	SECOND LETTER															
	a c d e		b h i k l		f w		j		s t		v y		x		z	
	g o a	m n p r u														
A W X	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ²	1 ⁴	0 ⁶	1 ⁰	1 ¹	1 ⁴	0 ⁶	1 ⁰	1 ¹	1 ²	1 ²	1 ⁴
B	1 ⁴	1 ⁵	2 ⁰	2 ¹	1 ⁴	1 ⁵	1 ¹	1 ²	1 ⁴	1 ⁵	1 ²	1 ⁴	1 ²	1 ⁴	1 ⁶	1 ⁷
C E G	1 ⁴	1 ⁵	2 ⁰	2 ¹	1 ²	1 ⁴	0 ⁶	1 ⁰	1 ²	1 ⁴	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ⁴	1 ⁵
D O Q R	1 ⁴	1 ⁵	2 ⁰	2 ¹	1 ⁴	1 ⁵	0 ⁶	1 ⁰	1 ²	1 ⁴	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ⁴	1 ⁵
F	0 ⁵	0 ⁶	1 ⁴	1 ⁵	0 ⁶	1 ⁰	0 ⁵	0 ⁶	0 ⁶	1 ⁰	0 ⁶	1 ⁰	0 ⁶	1 ⁰	1 ¹	1 ²
H I M N	2 ⁰	2 ¹	2 ²	2 ⁴	2 ⁰	2 ¹	1 ⁴	1 ⁵	1 ⁶	1 ⁷	1 ⁶	1 ⁷	2 ⁰	2 ¹	2 ⁰	2 ¹
J U	2 ⁰	2 ¹	2 ⁰	2 ¹	1 ⁶	1 ⁷	1 ⁴	1 ⁵	1 ⁶	1 ⁷	1 ⁶	1 ⁷	1 ⁶	1 ⁷	2 ⁰	2 ¹
K L	1 ¹	1 ²	1 ⁶	1 ⁷	1 ¹	1 ²	0 ⁵	0 ⁶	1 ¹	1 ²	1 ¹	1 ²	1 ¹	1 ²	1 ²	1 ⁴
P	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ²	1 ⁴	0 ⁵	0 ⁶	1 ¹	1 ²	1 ¹	1 ²	1 ²	1 ⁴	1 ²	1 ⁴
S	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ²	1 ⁴	0 ⁶	1 ⁰	1 ²	1 ⁴	1 ²	1 ⁴	1 ²	1 ⁴	1 ²	1 ⁴
T	1 ¹	1 ²	1 ⁶	1 ⁷	0 ⁶	1 ⁰	0 ⁶	1 ⁰	1 ¹	1 ²	1 ¹	1 ²	1 ¹	1 ²	1 ²	1 ⁴
V	0 ⁶	1 ⁰	1 ⁴	1 ⁵	1 ¹	1 ²	0 ⁶	1 ⁰	1 ²	1 ⁴	1 ²	1 ⁴	1 ²	1 ⁴	1 ²	1 ⁴
Y	0 ⁵	0 ⁶	1 ⁴	1 ⁵	0 ⁶	1 ⁰	0 ⁵	0 ⁶	0 ⁵	0 ⁷	0 ⁵	0 ⁶	0 ⁶	1 ⁰	1 ¹	1 ²
Z	1 ⁶	1 ⁷	2 ²	2 ⁴	1 ⁶	1 ⁷	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ⁶	1 ⁷	1 ⁶	1 ⁷	2 ⁰	2 ¹

Lower Case To Lower Case
Spacing Chart 6 Inch Series "C & D"

SERIES	SECOND LETTER															
	a c d e		b h i k l		f w		j		s t		v y		x		z	
	g o a	m n p r u														
a d h g i j	1 ⁶	1 ⁷	2 ²	2 ⁴	1 ⁶	1 ⁷	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ⁶	1 ⁷	1 ⁶	1 ⁷
l m n q u																
b f k o p s	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ¹	1 ²	0 ⁵	0 ⁶	1 ¹	1 ²	1 ¹	1 ²	1 ²	1 ⁴	1 ²	1 ⁴
c e	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ²	1 ⁴	0 ⁶	1 ⁰	1 ²	1 ⁴	1 ²	1 ⁴	1 ²	1 ⁴	1 ²	1 ⁴
r	0 ⁶	1 ⁰	1 ²	1 ⁴	0 ⁶	1 ⁰	0 ³	0 ³	0 ⁵	0 ⁶	0 ⁵	0 ⁶	0 ⁶	1 ⁰	0 ⁶	1 ⁰
t z	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ²	1 ⁴	0 ⁶	1 ⁰	1 ¹	1 ²	1 ¹	1 ²	1 ¹	1 ²	1 ²	1 ⁴
v y	1 ¹	1 ²	1 ⁴	1 ⁵	1 ¹	1 ²	0 ⁵	0 ⁶	0 ⁶	1 ⁰	0 ⁶	1 ⁰	1 ¹	1 ²	1 ¹	1 ²
w	1 ¹	1 ²	1 ⁴	1 ⁵	1 ¹	1 ²	0 ⁵	0 ⁶	1 ¹	1 ²	1 ¹	1 ²	1 ¹	1 ²	1 ²	1 ⁴
x	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ¹	1 ²	0 ⁵	0 ⁶	1 ¹	1 ²	1 ¹	1 ²	1 ¹	1 ²	1 ²	1 ⁴

Number To Number
Spacing Chart 8 Inch Series "C & D"

SERIES	SECOND NUMBER																			
	0	1	2	3	4	5	6	7	8	9										
0 9	1 ⁶	1 ⁷	1 ⁶	1 ⁷	1 ⁴	1 ⁵	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ⁶	1 ⁷	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ⁶	1 ⁷
1	2 ⁰	2 ¹	2 ⁰	2 ¹	2 ⁰	2 ¹	1 ⁶	1 ⁷	1 ⁴	1 ⁵	2 ⁰	2 ¹	2 ⁰	2 ¹	1 ⁴	1 ⁵	2 ⁰	2 ¹	2 ⁰	2 ¹
2 3 4	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ¹	1 ²	1 ⁶	1 ⁷	1 ⁴	1 ⁵		
5	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ¹	1 ²	1 ¹	1 ²	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ¹	1 ²	1 ⁴	1 ⁵	1 ⁴	1 ⁵
6	1 ⁶	1 ⁷	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ¹	1 ²	1 ⁴	1 ⁵	1 ⁴	1 ⁵		
7	1 ²	1 ⁴	1 ²	1 ⁴	1 ²	1 ⁴	1 ⁵	0 ⁵	0 ⁶	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ¹	1 ²	1 ⁴	1 ⁵	1 ²	1 ⁴	1 ⁵
8	1 ⁶	1 ⁷	1 ⁶	1 ⁷	1 ⁴	1 ⁵	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ⁶	1 ⁷	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ⁴	1 ⁵		

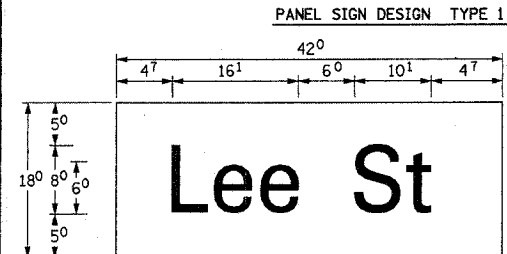
UPPER AND LOWER CASE
LETTER WIDTHS

LETTERS	6 INCH UPPER CASE LETTERS		8 INCH UPPER CASE LETTERS		LETTERS	6 INCH LOWER CASE LETTERS	
	SERIES		SERIES			SERIES	
	C	D	C	D		C	D
A	3 ⁶	5 ⁰	5 ⁰	6 ⁵	a	3 ⁵	4 ²
B	3 ²	4 ⁰	4 ³	5 ³	b	3 ⁵	4 ²
C	3 ²	4 ⁰	4 ³	5 ³	c	3 ⁵	4 ¹
D	3 ²	4 ⁰	4 ³	5 ³	d	3 ⁵	4 ²
E	3 ⁰	3 ⁵	4 ⁰	4 ⁷	e	3 ⁵	4 ²
F	3 ⁰	3 ⁵	4 ⁰	4 ⁷	f	2 ³	2 ⁶
G	3 ²	4 ⁰	4 ³	5 ³	g	3 ⁵	4 ²
H	3 ²	4 ⁰	4 ³	5 ³	h	3 ⁵	4 ²
I	0 ⁷	0 ⁷	1 ¹	1 ²	i	1 ¹	1 ¹
J	3 ⁰	3 ⁶	4 ⁰	5 ⁰	j	2 ⁰	2 ²
K	3 ²	4 ¹	4 ³	5 ⁴	k	3 ⁵	4 ²
L	3 ⁰	3 ⁵	4 ⁰	4 ⁷	l	1 ¹	1 ¹
M	3 ⁷	4 ⁵	5 ¹	6 ¹	m	6 ⁰	7 ⁰
N	3 ²	4 ⁰	4 ³	5 ³	n	3 ⁵	4 ²
O	3 ⁴	4 ²	4 ⁵	5 ⁵	o	3 ⁶	4 ³
P	3 ²	4 ⁰	4 ³	5 ³	p	3 ⁵	4 ²
Q	3 ⁴	4 ²	4 ⁵	5 ⁵	q	3 ⁵	4 ²
R	3 ²	4 ⁰	4 ³	5 ³	r	2 ⁶	3 ²
S	3 ²	4 ⁰	4 ³	5 ³	s	3 ⁶	4 ²
T	3 ⁰	3 ⁵	4 ⁰	4 ⁷	t	2 ⁷	3 ²
U	3 ²	4 ⁰	4 ³	5 ³	u	3 ⁵	4 ²
V	3 ⁵	4 ⁴	4 ⁷	6 ⁰	v	4 ²	4 ⁷
W	4 ⁴	5 ²	6 ⁰	7 ⁰	w	5 ⁵	6 ⁴
X	3 ⁴	4 ⁰	4 ⁵	5 ³	x	4 ⁴	5 ¹
Y	3 ⁶	5 ⁰	5 ⁰	6 ⁶	y	4 ⁶	5 ³
Z	3 ²	4 ⁰	4 ³	5 ³	z	3 ⁶	4 ³

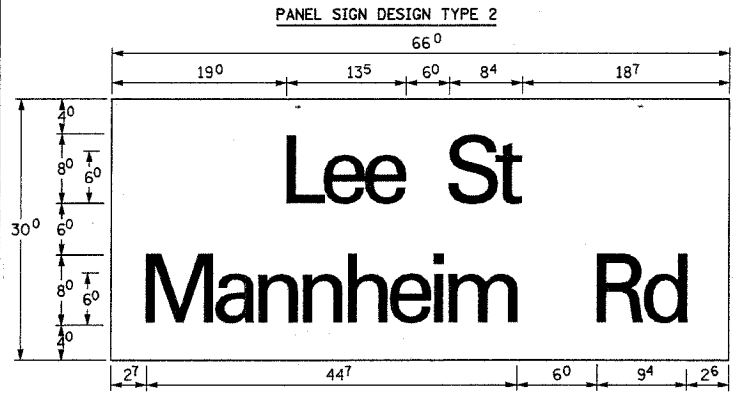
NUMBER	6 INCH SERIES		8 INCH SERIES	
	C	D	C	D
1	1 ²	1 ⁴	1 ⁵	2 ⁰
2	3 ²	4 ⁰	4 ³	5 ³
3	3 ²	4 ⁰	4 ³	5 ³
4	3 ⁵	4 ³	4 ⁷	5 ⁷
5	3 ²	4 ⁰	4 ³	5 ³
6	3 ²	4 ⁰	4 ³	5 ³
7	3 ²	4 ⁰	4 ³	5 ³
8	3 ²	4 ⁰	4 ³	5 ³
9	3 ²	4 ⁰	4 ³	5 ³
0	3 ⁴	4 ²	4 ⁵	5 ⁵

REVISIONS	
NAME	DATE
D.A.Z./D.A.G.	11/90
	6/98
CADD	10/00

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 1</

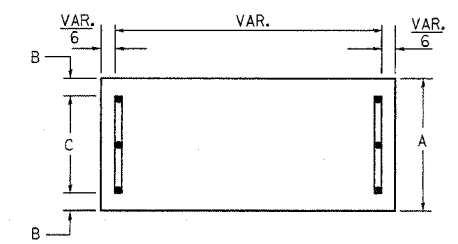


4.50 Sq. Ft. each
2 Required
Design Series D

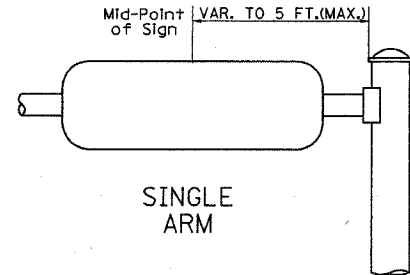


13.75 Sq. Ft. each
4 Required
Design Series C

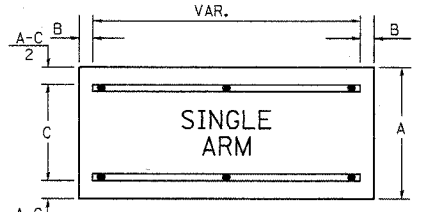
SUPPORTING CHANNELS



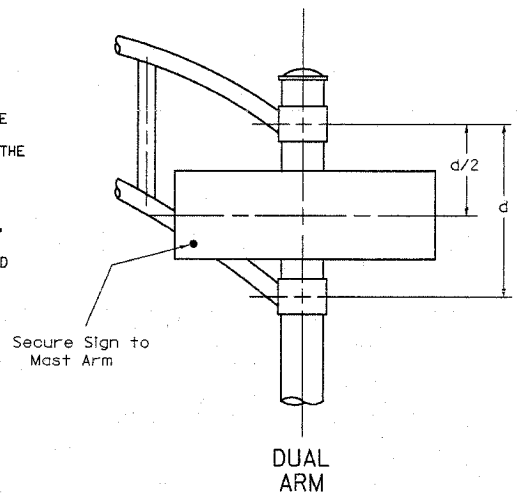
A	B	C
18"	2"	14"



SUPPORTING CHANNELS



A	B	C
18"	2"	12"
30"	2"	22"



SIGNFIX ALUMINUM CHANNEL FRAMING SYSTEM
Shall be used. See Note #5.

Upper Case To Lower Case
Spacing Chart 8-6 Inch Series "C & D"

EXAMPLE, 2³ DENOTES $\frac{3}{8}$

SERIES	SECOND LETTER															
	a c c e		b h i k l		f w		j		s t		v y		x		z	
	g o q	m n p r u														
A W X	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ²	1 ⁴	0 ⁶	1 ⁰	1 ¹	1 ⁴	0 ⁶	1 ⁰	1 ¹	1 ²	1 ²	1 ⁴
B	1 ⁴	1 ⁵	2 ⁰	2 ¹	1 ⁴	1 ⁵	1 ¹	1 ²	1 ⁴	1 ⁵	1 ²	1 ⁴	1 ²	1 ⁴	1 ⁶	1 ⁷
C E G	1 ⁴	1 ⁵	2 ⁰	2 ¹	1 ²	1 ⁴	0 ⁶	1 ⁰	1 ²	1 ⁴	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ⁴	1 ⁵
D O Q R	1 ⁴	1 ⁵	2 ⁰	2 ¹	1 ⁴	1 ⁵	0 ⁶	1 ⁰	1 ²	1 ⁴	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ⁴	1 ⁵
F	0 ⁵	0 ⁶	1 ⁴	1 ⁵	0 ⁶	1 ⁰	0 ⁵	0 ⁶	0 ⁶	1 ⁰	0 ⁶	1 ⁰	0 ⁶	1 ⁰	1 ¹	1 ²
H I M N	2 ⁰	2 ¹	2 ²	2 ⁴	2 ⁰	2 ¹	1 ⁴	1 ⁵	1 ⁶	1 ⁷	1 ⁶	1 ⁷	2 ⁰	2 ¹	2 ⁰	2 ¹
J U	2 ⁰	2 ¹	2 ⁰	2 ¹	1 ⁶	1 ⁷	1 ⁴	1 ⁵	1 ⁶	1 ⁷	1 ⁶	1 ⁷	1 ⁶	1 ⁷	2 ⁰	2 ¹
K L	1 ¹	1 ²	1 ⁶	1 ⁷	1 ¹	1 ²	0 ⁵	0 ⁶	1 ¹	1 ²	1 ¹	1 ²	1 ¹	1 ²	1 ²	1 ⁴
P	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ²	1 ⁴	0 ⁵	0 ⁶	1 ¹	1 ²	1 ¹	1 ²	1 ¹	1 ²	1 ²	1 ⁴
S	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ²	1 ⁴	0 ⁶	1 ⁰	1 ²	1 ⁴	1 ²	1 ⁴	1 ²	1 ⁴	1 ²	1 ⁴
T	1 ¹	1 ²	1 ⁶	1 ⁷	0 ⁶	1 ⁰	0 ⁶	1 ⁰	1 ¹	1 ²	1 ¹	1 ²	1 ¹	1 ²	1 ²	1 ⁴
V	0 ⁶	1 ⁰	1 ⁴	1 ⁵	1 ¹	1 ²	0 ⁶	1 ⁰	1 ²	1 ⁴	1 ²	1 ⁴	1 ²	1 ⁴	1 ²	1 ⁴
Y	0 ⁵	0 ⁶	1 ⁴	1 ⁵	0 ⁶	1 ⁰	0 ⁵	0 ⁶	0 ⁵	0 ⁷	0 ⁵	0 ⁶	0 ⁶	1 ⁰	1 ¹	1 ²
Z	1 ⁶	1 ⁷	2 ²	2 ⁴	1 ⁶	1 ⁷	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ⁶	1 ⁷	1 ⁶	1 ⁷	2 ⁰	2 ¹

Lower Case To Lower Case
Spacing Chart 6 Inch Series "C & D"

SERIES	SECOND LETTER															
	a c c e		b h i k l		f w		j		s t		v y		x		z	
	g o q	m n p r u														
a d h g l j	1 ⁶	1 ⁷	2 ²	2 ⁴	1 ⁶	1 ⁷	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ⁶	1 ⁷	1 ⁶	1 ⁷
l m n q u																
b f k o p s	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ¹	1 ²	0 ⁵	0 ⁶	1 ¹	1 ²	1 ¹	1 ²	1 ¹	1 ²	1 ⁴	1 ²
c e	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ²	1 ⁴	0 ⁶	1 ⁰	1 ²	1 ⁴	1 ²	1 ⁴	1 ²	1 ⁴	1 ²	1 ⁴
r	0 ⁶	1 ⁰	1 ²	1 ⁴	0 ⁶	1 ⁰	0 ³	0 ³	0 ⁵	0 ⁶	0 ⁵	0 ⁶	0 ⁶	1 ⁰	0 ⁶	1 ⁰
+ z	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ²	1 ⁴	0 ⁶	1 ⁰	1 ¹	1 ²	1 ¹	1 ²	1 ¹	1 ²	1 ⁴	1 ²
v y	1 ¹	1 ²	1 ⁴	1 ⁵	1 ¹	1 ²	0 ⁵	0 ⁶	0 ⁶	1 ⁰	0 ⁶	1 ⁰	1 ¹	1 ²	1 ¹	1 ²
w	1 ¹	1 ²	1 ⁴	1 ⁵	1 ¹	1 ²	0 ⁵	0 ⁶	1 ¹	1 ²	1 ¹	1 ²	1 ¹	1 ²	1 ²	1 ⁴
x	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ¹	1 ²	0 ⁵	0 ⁶	1 ¹	1 ²	1 ¹	1 ²	1 ¹	1 ²	1 ²	1 ⁴

Number To Number
Spacing Chart 8 Inch Series "C & D"

SERIES	SECOND NUMBER																			
	0		1		2		3		4		5		6		7		8		9	
0 9	1 ⁶	1 ⁷	1 ⁶	1 ⁷	1 ⁴	1 ⁵	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ⁶	1 ⁷	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ⁶	1 ⁷
1	2 ⁰	2 ¹	2 ⁰	2 ¹	2 ⁰	2 ¹	1 ⁶	1 ⁷	1 ⁴	1 ⁵	2 ⁰	2 ¹	2 ⁰	2 ¹	1 ⁴	1 ⁵	2 ⁰	2 ¹	2 ⁰	2 ¹
2 3 4	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ²	1 ⁴	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ¹	1 ²	1 ⁶	1 ⁷	1 ⁴	1 ⁵
5	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ¹	1 ²	1 ¹	1 ²	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ¹	1 ²	1 ⁴	1 ⁵	1 ⁴	1 ⁵
6	1 ⁶	1 ⁷	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ²	1 ⁴	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ⁴	1 ⁵	1 ¹	1 ²	1 ⁴	1 ⁵	1 ⁴	1 ⁵
7	1 ²	1 ⁴	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ²	1 ⁵	0 ⁵	0 ⁶	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ¹	1 ²	1 ⁴	1 ⁵	1 ²	1 ⁴
8	1 ⁶	1 ⁷	1 ⁶	1 ⁷	1 ⁴	1 ⁵	1 ²	1 ⁵	1 ²	1 ⁴	1 ⁴	1 ⁵	1 ⁶	1 ⁷	1 ²	1 ⁴	1 ⁶	1 ⁷	1 ⁴	1 ⁵

UPPER AND LOWER CASE
LETTER WIDTHS

LETTERS	6 INCH UPPER CASE LETTERS				8 INCH UPPER CASE LETTERS				6 INCH LOWER CASE LETTERS			
	SERIES		SERIES		SERIES		SERIES		SERIES		SERIES	
	C	D	C	D	C	D	C	D	C	D	C	D
A	3 ⁶	5 ⁰	5 ⁰	6 ⁵	a	3 ⁵	4 ²					
B	3 ²	4 ⁰	4 ³	5 ³	b	3 ⁵	4 ²					
C	3 ²	4 ⁰	4 ³	5 ³	c	3 ⁵	4 ¹					
D	3 ²	4 ⁰	4 ³	5 ³	d	3 ⁵	4 ²					
E	3 ⁰	3 ⁵	4 ⁰	4 ⁷	e	3 ⁵	4 ²					
F	3 ⁰	3 ⁵	4 ⁰	4 ⁷	f	2 ³	2 ⁶					
G	3 ²	4 ⁰	4 ³	5 ³	g	3 ⁵	4 ²					
H	3 ²	4 ⁰	4 ³	5 ³	h	3 ⁵	4 ²					
I	0 ⁷	0 ⁷	1 ¹	1 ²	i	1 ¹	1 ¹					
J	3 ⁰	3 ⁶	4 ⁰	5 ⁰	j	2 ⁰	2 ²					
K	3 ²	4 ¹	4 ³	5 ⁴	k	3 ⁵	4 ²					
L	3 ⁰	3 ⁵	4 ⁰	4 ⁷	l	1 ¹	1 ¹					
M	3 ⁷	4 ⁵	5 ¹	6 ¹	m	6 ⁰	7 ⁰					
N	3 ²	4 ⁰	4 ³	5 ³	n	3 ⁵	4 ²					
O	3 ⁴	4 ²	4 ⁵	5 ⁵	o	3 ⁶	4 ³					
P	3 ²	4 ⁰	4 ³	5 ³	p	3 ⁵	4 ²					
Q	3 ⁴	4 ²	4 ⁵	5 ⁵	q	3 ⁵	4 ²					
R	3 ²	4 ⁰	4 ³	5 ³	r	2 ⁶	3 ²					
S	3 ²	4 ⁰	4 ³	5 ³	s	3 ⁶	4 ²					
T	3 ⁰	3 ⁵	4 ⁰	4 ⁷	t	2 ⁷	3 ²					
U	3 ²	4 ⁰	4 ³	5 ³	u	3 ⁵	4 ²					
V	3 ⁵	4 ⁴	4 ⁷	6 ⁰	v	4 ²	4 ⁷					
W	4 ⁴	5 ²	6 ⁰	7 ⁰	w	5 ⁵	6 ⁴					
X	3 ⁴	4 ⁰	4 ⁵	5 ³	x	4 ⁴	5 ¹					
Y	3 ⁶	5 ⁰	5 ⁰	6 ⁶	y	4 ⁶	5 ³					
Z	3 ²	4 ⁰	4 ³	5 ³	z	3 ⁶	4 ³					

NUMBER	6 INCH SERIES		8 INCH SERIES	
	C	D	C	D
1	1 ²	1 ⁴	1 ⁵	2 ⁰
2	3 ²	4 ⁰	4 ³	5 ³
3	3 ²	4 ⁰	4 ³	5 ³
4	3 ⁵	4 ³	4 ⁷	5 ⁷
5	3 ²	4 ⁰	4 ³	5 ³
6	3 ²	4 ⁰	4 ³	5 ³
7	3 ²	4 ⁰	4 ³	5 ³
8	3 ²	4 ⁰	4 ³	5 ³