# STATE OF ILLINOIS

# DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS**

# TRAFFIC SIGNAL **MODIFICATION PLAN**

SAFETY BEACON INSTALLATION **FOR** 

RANDALL ROAD (C.H. 34) @ KESLINGER ROAD

SECTION: 06-00353-00-SP PROJECT: HS-0336 (042) JOB NUMBER: C-91-007-07

**KANE** COUNTY

# WARNING CALL BEFORE YOU DIG

INDEX

3-6. ILLINOIS DEPARTMENT OF TRANSPORTATION

DISTRICT 1 STANDARD TRAFFIC SIGNAL

7. MAST ARMS WITH BEACONS AND SIGNS PLAN

2. SUMMARY OF QUANTITIES

DESIGN DETAILS

1. TITLE SHEET

### **IDOT STANDARDS**

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

LANE CLOSURE, MULTILANE, DAY OPERATIONS ONLY, FOR SPEEDS 45MPH TO 55MPH 701421-01

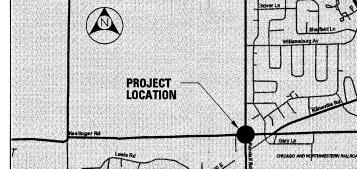
701901 TRAFFIC CONTROL DEVICES 720001 SIGN PANEL MOUNTING DETAILS SIGN PANEL ERECTION DETAILS 720006--01

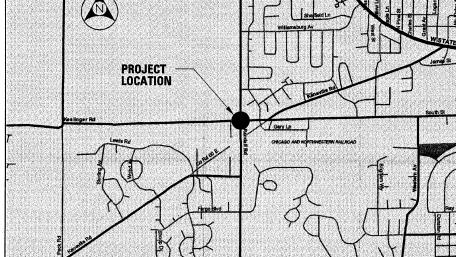
814001-01

701101--01

877001-03 STEEL MAST ARM ASSEMBLY AND POLE

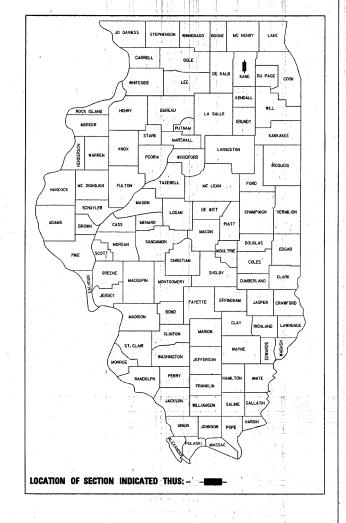
**CONCRETE FOUNDATION DETAILS** TRAFFIC SIGNAL MOUNTING DETAILS

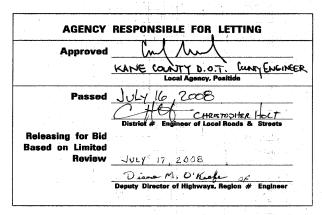




LOCATION MAP

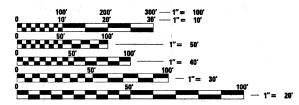
| CED DOAD | DIST, NO. | 1111  | ILLINOIS | CONTRACT | F NO. 6         | 3048         |
|----------|-----------|-------|----------|----------|-----------------|--------------|
|          | 06-003    | 53-00 | -SP      | KANE     | . 7             | 1            |
| RTE.     | SEC       | TION  | -        | COUNTY   | TOTAL<br>SHEETS | SHEET<br>NO. |





Expires 11/30/09

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**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

PROJECT ENGINEER **PROJECT MANAGER** 

**CONTRACT NO. 63048** 

| <br>F.A.<br>RTE. | SEC        | CTION            | COUNTY  | TOTAL<br>SHEETS | SHEET<br>NO. |
|------------------|------------|------------------|---------|-----------------|--------------|
| L                | 06-003     | 53-00-SP         | KANE    | 7.00            | 2            |
|                  |            |                  | CONTRAC | T NO. 6         | 3048         |
| FED RO           | AD DIST NO | ILLINOIS FED AIR | PPOJECT |                 |              |

# SUMMARY OF QUANTITIES (Construction Type Code Y-031-1F)

| CODE NO. | DESCRIPTION                        |                                | ,       | UNIT  | QUANTITY |
|----------|------------------------------------|--------------------------------|---------|-------|----------|
| 67100100 | MOBILIZATION                       |                                |         | L SUM | 1        |
| 70101800 | TRAFFIC CONTROL AND PROTECTION     | ON (SPECIAL)                   |         | L SUM | 1        |
| 72400310 | REMOVE SIGN PANEL - TYPE 1         |                                |         | SQ FT | 14       |
| 81000500 | CONDUIT IN TRENCH, 11/2" DIA., GAL | VANIZED STEEL                  |         | FOOT  | 48       |
| 81018400 | CONDUIT PUSHED, 11/2" DIA., GALVA  | NIZED STEEL                    | -       | FOOT  | 86       |
| 81400200 | HEAVY-DUTY HANDHOLE                |                                |         | EACH  | 1        |
| 81900200 | TRENCH AND BACKFILL FOR ELEC       | TRICAL WORK                    |         | FOOT  | 48       |
| 85000300 | MAINTENANCE OF EXISTING TRAFF      | C SIGNAL INSTALLATION          |         | L SUM | 1        |
| 87301215 | ELECTRIC CABLE IN CONDUIT, NO.     | 14 2/C                         |         | FOOT  | 4094     |
| X8730027 | ELECTRIC CABLE IN CONDUIT, GRO     | UNDING, NO. 6 1C               |         | FOOT  | 2090     |
| 87700210 | STEEL MAST ARM ASSEMBLY AND        | POLE, 34 FT.                   |         | EACH  | 2        |
| 87800400 | CONCRETE FOUNDATION, TYPE E, 3     | 30 INCH DIAMETER               |         | FOOT  | 30       |
| 87900200 | DRILL EXISTING HANDHOLE            |                                |         | EACH  | . 1      |
| X8050015 | SERVICE INSTALLATION - POLE MC     | DUNTED                         |         | EACH  | 1        |
| 88040010 | SIGNAL HEAD, POLYCARBONATE, LE     | D, 1-FACE, 1-SECTION, MAST-ARM | MOUNTED | EACH  | 4        |
| 88200100 | TRAFFIC SIGNAL BACKPLATE           |                                |         | EACH  | 4        |
| 89502200 | MODIFY EXISTING CONTROLLER         |                                |         | EACH  | 1        |



METRO TRANSPORTATION GROUP, INC.
TRAFFIC ENGINEERING
TRANSPORTATION PLANNING/ENGINEERING
SIGNAL SYSTEMS/DESIGN

TRANSPORTATION PLANNING/ENGINEERING
STATES, IL 60169-2093
PH: 630.213.1000, FAX: 630.213.3227
www.metrotransportation.com

| :-  | REVISIONS |                                       |             |   |
|-----|-----------|---------------------------------------|-------------|---|
| - 1 | NO.       | DATE                                  | DESCRIPTION |   |
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SHEET NO.:

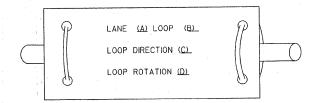
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OF 7

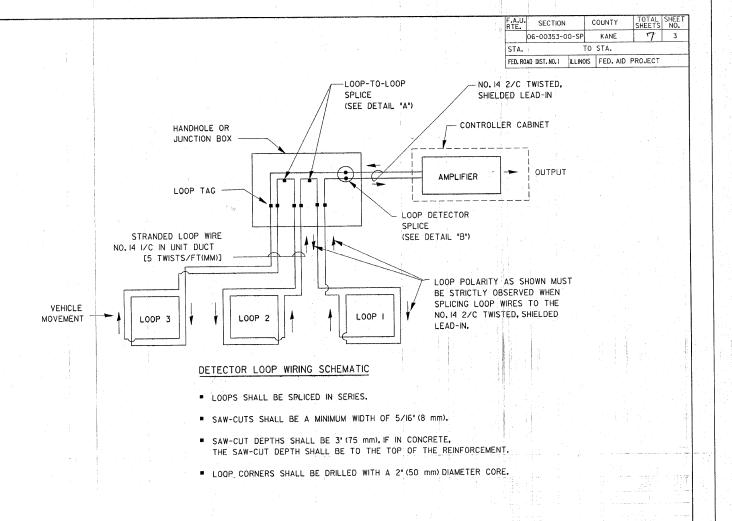
#### LOOP DETECTOR NOTES

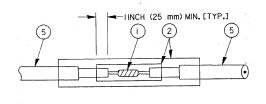
- I. EACH PAIR OF LOOP WIRES SHALL BE PLACED IN A SEPARATE UNIT DUCT FROM THE EDGE OF PAVEMENT TO THE HANDHOLE. SPACING BETWEEN THE HOLES DRILLED IN THE PAVEMENT SHALL NOT BE LESS THAN 6" (150 mm). UNIT DUCT SHALL BE INCLUDED IN THE COST OF THE LOOP WIPE
- 2. THE NUMBER OF LOOP TURNS SHALL BE AS RECOMMENDED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

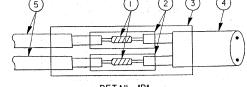
#### LOOP LEAD-IN CABLE TAG



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







DETAIL "A"
LOOP-TO-LOOP SPLICE

DETAIL "B"
LOOP-TO-CONTROLLER SPLICE

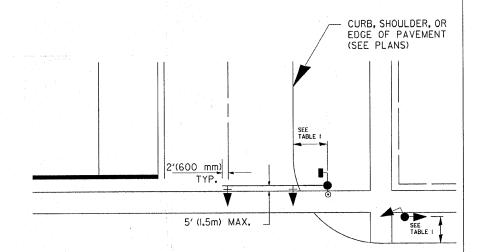
#### LOOP DETECTOR SPLICE

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

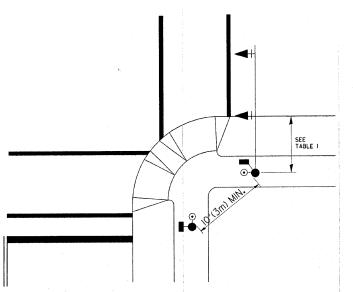
|                                       | REVISIONS | ILLINOIS DEPARTMENT OF TRANSPORTATION |                        |
|---------------------------------------|-----------|---------------------------------------|------------------------|
|                                       | NAME DATE |                                       |                        |
|                                       |           | DISTRICT ONE                          |                        |
| · · · · · · · · · · · · · · · · · · · |           | STANDARD TRAFFIC SIG                  | GNAL                   |
| std_1.dgn                             |           | DESIGN DETAILS                        |                        |
| 5                                     |           | → SCALE: VENT: NONE DESIG             | N BY: RWP              |
| <u>of</u> 7                           |           |                                       | KED BY: DAZ<br>T IOF 4 |

## 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 MUTCO (SEE NOTE I). TO MEET MUTCO REQUIREMENTS, PEDESTRIAN SIGNAL PUSHBUTTONS MAY HAVE TO BE MOUNTED ON A SEPARATE POST.

### NOTES:

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

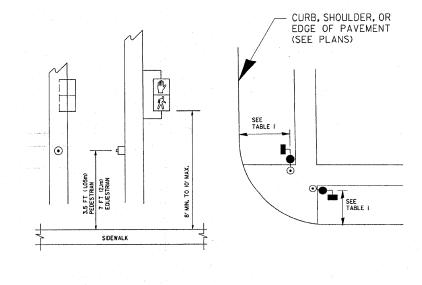
AT ACCESSIBLE PEDESTRIAN SIGNAL LOCATIONS, PUSHBUTTONS SHOULD CLEARLY INDICATE WHICH CROSSWALK SIGNAL IS ACTUATED BY EACH PUSHBUTTON. PUSHBUTTONS AND TACTILE ARROWS SHOULD HAVE HIGH VISUAL CONTRAST (SEE THE DEPARTMENT OF JUSTICE'S AMERICANS WITH DISABILITIES ACT STANDARDS FOR ACCESSIBLE DESIGN, 1991). 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 IQ 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<br>(MIN. DIST. FROM EDGE OF PAVEMENT) |
|------------------------------|---|--|
| TRAFFIC SIGNAL MAST ARM POLE | 6 FT (I.8m)   | SHOULDER WIDTH + 2FT(0,6m), MINIMUM IOFT(3.0m)                 |
| TRAFFIC SIGNAL POST          | 4 FT (I.2m)   | SHOULDER WIDTH + 2FT(0.6m), MINIMUM IOFT(3.0m)                 |
| PEDESTRIAN SIGNAL POST       | 4 FT (I.2m)   | SHOULDER WIDTH + 2FT(0.6m), MINIMUM IOFT(3.0m)                 |
| PEDESTRIAN PUSHBUTTON        | SEE NOTE I  | SEE NOTE I   |

REVISIONS
NAME DATE

DISTRICT |

STANDARD TRAFFIC SIGNAL

DESIGN DETAILS

OF 7

SCALE: VERT. NONE DESIGNED BY: DO. CHECKED BY:

TS05

