

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**PROPOSED
HIGHWAY PLANS**

FAP ROUTE 344: US ROUTE 45
ROLLINS ROAD TO DADA DRIVE /GRANT DRIVE
SECTION 2015-043TS
PROJECT CM-0344(062)
TRAFFIC SIGNAL INTERCONNECT
LAKE COUNTY

C-91-371-15

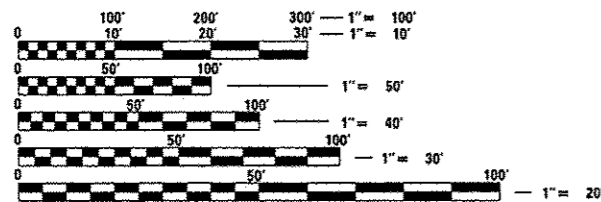
| F.A.P. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|-----------------------------|------------|--------|--------------|-----------|
| 344 | 2015-043TS | LAKE | 16 | 1 |
| ILLINOIS CONTRACT NO. 62B03 | | | | |

FOR INDEX OF SHEETS, SEE SHEET NO. 2

DESIGN DESIGNATIONS:

US ROUTE 45 – OTHER PRINCIPAL ARTERIAL
2015 ADT: 18,000
POSTED SPEED LIMIT: 45 MPH

THE PROJECT IS LOCATED IN
THE VILLAGE OF LAKE VILLA
IN LAKE COUNTY

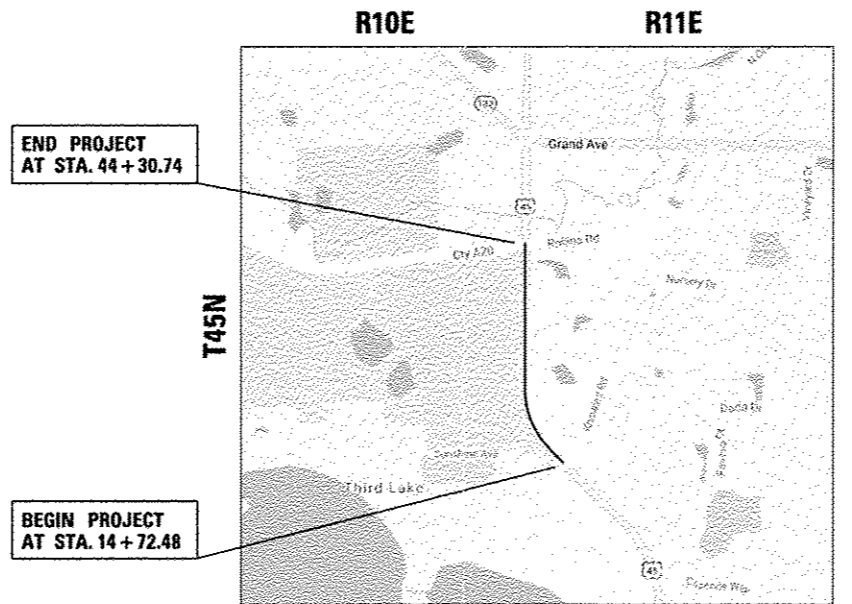


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

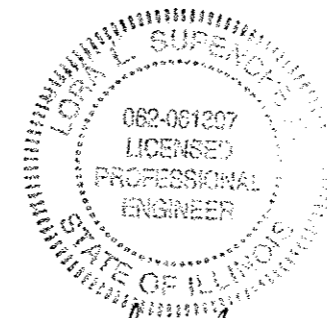
J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

PROJECT ENGINEER: LUKASZ POCIECHA (847) 705-4420
PROJECT MANAGER: DARYLE DREW (847) 705-4424

CONTRACT NO. 62B03



AVON AND WARREN TOWNSHIPS
GROSS LENGTH = 2,958 FEET = 0.56 MILE



SIGNED *Lora L. Supencheck*
LORA L. SUPENCHECK, P.E. 062-061307
EXP. 11-30-2017
DATE 3/24/17

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED *May 24 2017*
Walter P. [Signature]
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

May 12 2017
Walter M. Addis, Jr.
ENGINEER OF DESIGN AND ENVIRONMENT

May 12 2017
Paul [Signature]
DIRECTOR OF PROGRAM DEVELOPMENT

SINGH
SINGH + ASSOCIATES INC.
CONSULTING ENGINEERS
230 W. MONROE ST
SUITE 1400
CHICAGO, IL 60606
(312) 629-0240

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

INDEX OF SHEETS

| SHEET NO. | DESCRIPTION |
|-----------|---|
| 1 | COVER SHEET |
| 2 | INDEX OF SHEETS, HIGHWAY STANDARDS & GENERAL NOTES |
| 3-4 | SUMMARY OF QUANTITIES |
| 5-11 | DISTRICT ONE STANDARD TRAFFIC SIGNAL DESIGN DETAILS |
| 12-14 | INTERCONNECT PLANS |
| 15 | INTERCONNECT SCHEMATIC |
| 16 | ARTERIAL ROAD INFORMATION SIGN (ITC-22) |

HIGHWAY STANDARDS

| STD. NO. | TITLE |
|-----------|---|
| 000001-06 | STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS |
| 001006 | DECIMAL OF AN INCH AND OF A FOOT |
| 701001-02 | OFF-ROAD OPERATIONS, 2L, 2W, MORE THAN 15' (4.5m) AWAY |
| 701006-05 | OFF-ROAD OPERATIONS, 2L, 2W, 15' (4.5m) TO 24" (600mm) FROM PAVEMENT EDGE |
| 701201-04 | LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS >= 45 MPH |
| 701901-06 | TRAFFIC CONTROL DEVICES |
| 814001-03 | HANDHOLES |

GENERAL NOTES:

- BEFORE STARTING ANY EXCAVATION, THE CONTRACTOR SHALL CALL "JULIE" AT (800) 892-0123 OR 811 FOR FIELD LOCATIONS OF BURIED ELECTRIC, TELEPHONE AND GAS UTILITIES. 48 HOUR NOTIFICATION IS REQUIRED.
- THE CONTRACTOR SHALL CONTACT THE TRAFFIC CONTROL SUPERVISOR AT (847) 705-4470 72 HOURS IN ADVANCE OF BEGINNING WORK.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION.
- THE EXACT LOCATION OF ALL UTILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE ORDERING ANY MATERIALS AND STARTING ANY WORK. FOR LOCATIONS OF UTILITIES, LOCALLY OWNED EQUIPMENT, LEASED ENFORCEMENT CAMERA SYSTEM FACILITIES AND IDOT UNDERGROUND FACILITIES, CONTACT THE LOCAL COUNTIES, MUNICIPALITIES AND IDOT FOR LOCATES. THE CONTRACTOR SHALL CALL "JULIE" AT (312) 744-7000 FOR FIELD LOCATIONS OF BURIED UTILITIES (48 HOUR NOTIFICATION REQUIRED).
- IF THIS CONTRACT REQUIRES THE SERVICES OF AN ELECTRICAL CONTRACTOR, THE CONTRACTOR SHALL BE RESPONSIBLE AT HIS/HER OWN EXPENSE FOR LOCATING EXISTING IDOT ELECTRICAL FACILITIES PRIOR TO PERFORMING ANY WORK. IF THIS CONTRACT DOES NOT REQUIRE THE SERVICES OF AN ELECTRICAL CONTRACTOR, THE CONTRACTOR MAY REQUEST ONE FREE LOCATE FOR EXISTING IDOT ELECTRICAL FACILITIES FROM THE DISTRICT ONE ELECTRICAL MAINTENANCE CONTRACTOR PRIOR TO THE START OF ANY WORK. ADDITIONAL REQUESTS MAY BE AT THE EXPENSE OF THE CONTRACTOR. THE LOCATION OF UNDERGROUND TRAFFIC FACILITIES DOES NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO REPAIR ANY FACILITIES DAMAGED DURING CONSTRUCTION AT THEIR EXPENSE.
- THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH UTILITY COMPANIES, LOCAL GOVERNMENT AGENCIES AND IDOT.
- RESTORATION OF THE TRAFFIC SIGNAL WORK AREA SHALL BE INCLUDED IN THE RELATED PAY ITEMS SUCH AS FOUNDATION, CONDUIT, HANDHOLE, ETC., AND NO EXTRA COMPENSATION SHALL BE ALLOWED. ALL ROADWAY SURFACES SUCH AS SHOULDERS, MEDIAN, SIDEWALKS, PAVEMENT, ETC. SHALL BE REPLACED IN KIND. 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.
- THIS PROJECT HAS RECEIVED AN IN-HOUSE ENVIRONMENTAL SIGN-OFF. DUE TO THE RURAL SETTING ANY SOIL EXCAVATED SHALL REMAIN ON SITE. THE CONTRACTOR SHALL SPREAD THE SOIL AT THE SAME LOCATION FROM WHICH IT WAS EXCAVATED. THE GRADING SHALL BE DONE SO THAT THE EXISTING DITCH PROFILES AND WATER FLOW PATTERNS ARE MAINTAINED. THIS WORK SHALL BE INCLUDED IN THE RELATED PAY ITEM SUCH AS FOUNDATION, HANDHOLE, GRADING AND SHAPING DITCHES, ETC. AND NO EXTRA COMPENSATION SHALL BE ALLOWED. FINAL GROUND SURFACE SHALL BE COVERED WITH TOPSOIL, SEED AND EROSION CONTROL BLANKET FOR WHICH NOMINAL QUANTITIES HAS BEEN PROVIDED.

| | | | | | | | | | | | |
|-----------------------|--------------------|------------------|-----------|---|--|---------------------------|------------|----------------------|--------------|-----------|--|
| FILE NAME = | USER NAME = .USER. | DESIGNED - V.O. | REVISED - | STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION | INDEX OF SHEETS, HIGHWAY STANDARDS, GENERAL NOTES US ROUTE 45 (ROLLINS RD TO DADA DR /GRANT DR) | F.A.P. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. | |
| #FILE# | | DRAWN - E.C. | REVISED - | | | 344 | 2015-043TS | LAKE | 16 | 2 | |
| PLOT SCALE = | | CHECKED - L.S. | REVISED - | | | CONTRACT NO. 62803 | | | | | |
| PLOT DATE = 3/28/2017 | | DATE - 3/24/2017 | REVISED - | | | ILLINOIS FED. AID PROJECT | | | | | |
| | | | | | SCALE: NONE | SHEET NO. 1 OF 1 SHEETS | | STA. N/A TO STA. N/A | | | |

| CODE NO. | ITEM | UNIT | TOTAL QUANTITY | CONSTRUCTION CODE | | |
|----------|---|--------|----------------|---|--|--|
| | | | | 80% FED 20% STATE INTERCONNECT 0021 URBAN | | |
| 21101615 | TOPSOIL FURNISH AND PLACE, 4" | SO YD | 575 | 575 | | |
| 21400100 | GRADING AND SHAPING DITCHES | FOOT | 500 | 500 | | |
| 25000210 | SEEDING, CLASS 2A | ACRE | 0.15 | 0.15 | | |
| 25000400 | NITROGEN FERTILIZER NUTRIENT | POUND | 14 | 14 | | |
| 25000500 | PHOSPHORUS FERTILIZER NUTRIENT | POUND | 14 | 14 | | |
| 25000600 | POTASSIUM FERTILIZER NUTRIENT | POUND | 14 | 14 | | |
| 25100630 | EROSION CONTROL BLANKET | SO YD | 575 | 575 | | |
| 67000400 | ENGINEER'S FIELD OFFICE | CAL MO | 3 | 3 | | |
| 67100100 | MOBILIZATION | L SUM | 1 | 1 | | |
| 70100450 | TRAFFIC CONTROL AND PROTECTION, STANDARD 701201 | L SUM | 1 | 1 | | |
| 81028200 | UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA. | FOOT | 2588 | 2588 | | |
| 81400200 | HEAVY-DUTY HANDHOLE | EACH | 4 | 4 | | |
| 85000200 | MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION | EACH | 2 | 2 | | |
| 86400100 | TRANSCEIVER - FIBER OPTIC | EACH | 1 | 1 | | |
| 87300925 | ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 IC | FOOT | 3013 | 3013 | | |

• SPECIALTY ITEMS

•• NOMINAL QUANTITY TO BE USED AS NEEDED
AND AS APPROVED BY THE ENGINEER

7-15-08 10:00 AM

| CODE NO. | ITEM | UNIT | TOTAL QUANTITY | CONSTRUCTION CODE | | |
|-------------|---|-------|----------------|-------------------|-----------|--|
| | | | | 80% FED | 20% STATE | |
| | | | | INTERCONNECT | | |
| | | | | 0021 | | |
| | | | | URBAN | | |
| 87900200 | DRILL EXISTING HANDHOLE | EACH | 1 | 1 | | |
| 89502210 | MODIFY EXISTING CONTROLLER CABINET | EACH | 1 | 1 | | |
| ** X0324599 | ROD AND CLEAN EXISTING CONDUIT | FOOT | 100 | 100 | | |
| X8100105 | CONDUIT SPLICE | EACH | 1 | 1 | | |
| X8710024 | FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM24F | FOOT | 3085 | 3085 | | |
| X8711130 | FIBER OPTIC CABLE ON MESSENGER, NO. 62.5/125, MM12F SM24F | FOOT | 175 | 175 | | |
| Z0030850 | TEMPORARY INFORMATION SIGNING | 50 FT | 103 | 103 | | |
| Z0033046 | RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM LEVEL 2 | EACH | 1 | 1 | | |

* SPECIALTY ITEMS

** NOMINAL QUANTITY TO BE USED AS NEEDED AND AS APPROVED BY THE ENGINEER

| | | | | | | | | | | | | |
|-----------------------|-------------------|------------------|-----------|---|--|-------------------------|----------|-------------|--------------------|--------|--------------|-----------|
| FILE NAME * | USER NAME * USER_ | DESIGNED - V.O. | REVISED - | STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION | SUMMARY OF QUANTITIES | | | F.A.P. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| *FILEL4 | | DRAWN - E.C. | REVISED - | | US ROUTE 45 (ROLLINS RD TO DADA DR /GRANT DR) | | | 344 | 2015-043TS | LAKE | 16 | 4 |
| PLOT SCALE * | | CHECKED - L.S. | REVISED - | | SCALE: NONE | SHEET NO. 2 OF 2 SHEETS | STA. N/A | TO STA. N/A | CONTRACT NO. 62B03 | | | |
| PLOT DATE * 3/23/2017 | | DATE - 3/24/2017 | REVISED - | | ILLINOIS FED. AID PROJECT | | | | | | | |

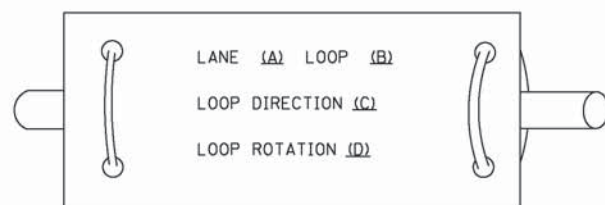
TRAFFIC SIGNAL LEGEND

| ITEM | REMOVAL | EXISTING | PROPOSED | ITEM | REMOVAL | EXISTING | PROPOSED | ITEM | REMOVAL | EXISTING | PROPOSED | | | | | | | | | | | |
|---|----------|----------|----------|---|---------|----------|----------|--|---------|----------|----------|----------|--|--|--|--|--|--|--|--|--|--|
| CONTROLLER CABINET | | | | EMERGENCY VEHICLE LIGHT DETECTOR | | | | ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1/C, UNLESS NOTED OTHERWISE | | | | | | | | | | | | | | |
| RAILROAD CONTROL CABINET | | | | CONFIRMATION BEACON | | | | COAXIAL CABLE | | | | | | | | | | | | | | |
| COMMUNICATIONS CABINET | | | | HANDHOLE | | | | VENDOR CABLE FOR CAMERA | | | | | | | | | | | | | | |
| MASTER CONTROLLER | | | | HEAVY DUTY HANDHOLE | | | | COPPER INTERCONNECT CABLE, NO. 18 3 PAIR TWISTED, SHIELDED | | | | | | | | | | | | | | |
| MASTER MASTER CONTROLLER | | | | DOUBLE HANDHOLE | | | | FIBER OPTIC CABLE NO. 62.5/125, MM12F | | | | | | | | | | | | | | |
| UNINTERRUPTABLE POWER SUPPLY | | | | JUNCTION BOX | | | | FIBER OPTIC CABLE NO. 62.5/125, MM12F SM12F | | | | | | | | | | | | | | |
| SERVICE INSTALLATION, (P) POLE OR (G) GROUND MOUNT | | | | UNDERGROUND CONDUIT, GALVANIZED STEEL (UC) | | | | FIBER OPTIC CABLE NO. 62.5/125, MM12F SM24F | | | | | | | | | | | | | | |
| TELEPHONE CONNECTION (P) POLE OR (G) GROUND MOUNT | | | | TEMPORARY SPAN WIRE, TETHER WIRE, AND CABLE | | | | FIBER OPTIC CABLE NO. 62.5/125, MM12F SM24F | | | | | | | | | | | | | | |
| STEEL MAST ARM ASSEMBLY AND POLE | | | | COMMON TRENCH | | | | GROUND ROD AT (C) CONTROLLER, (H) HANDHOLE, (P) POST, (M) MAST ARM, OR (S) SERVICE | | | | | | | | | | | | | | |
| ALUMINUM MAST ARM ASSEMBLY AND POLE | | | | COILABLE NONMETALLIC CONDUIT (EMPTY) | | | | CONTROLLER CABINET AND FOUNDATION TO BE REMOVED | | | | | | | | | | | | | | |
| STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE | | | | SYSTEM ITEM | | | | STEEL MAST ARM POLE AND FOUNDATION TO BE REMOVED | | | | | | | | | | | | | | |
| STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH PTZ CAMERA | | | | INTERSECTION ITEM | | | | ALUMINUM MAST ARM POLE AND FOUNDATION TO BE REMOVED | | | | | | | | | | | | | | |
| SIGNAL POST | | | | REMOVE ITEM | | | | STEEL COMBINATION MAST ARM ASSEMBLY AND POLE WITH LUMINAIRE AND FOUNDATION TO BE REMOVED | | | | | | | | | | | | | | |
| TEMPORARY WOOD POLE (CLASS 5 OR BETTER) 45 FOOT (13.7m) MINIMUM | | | | RELOCATE ITEM | | | | SIGNAL POST AND FOUNDATION TO BE REMOVED | | | | | | | | | | | | | | |
| GUY WIRE | | | | ABANDON ITEM | | | | INTERSECTION & SAMPLING (SYSTEM) DETECTOR | | | | | | | | | | | | | | |
| SIGNAL HEAD | | | | 12" (300mm) TRAFFIC SIGNAL SECTION | | | | SAMPLING (SYSTEM) DETECTOR | | | | | | | | | | | | | | |
| SIGNAL HEAD CONSTRUCTION STAGES (NUMBERS INDICATE THE CONSTRUCTION STAGE) | | | | 12" (300mm) RED WITH 8" (200mm) YELLOW AND GREEN TRAFFIC SIGNAL FACE | | | | QUEUE DETECTOR | | | | | | | | | | | | | | |
| SIGNAL HEAD WITH BACKPLATE | | | | SIGNAL FACE | | | | PERFORMED QUEUE DETECTOR | | | | | | | | | | | | | | |
| SIGNAL HEAD OPTICALLY PROGRAMMED | | | | SIGNAL FACE WITH BACKPLATE. "P" INDICATES PROGRAMMED HEAD | | | | PERFORMED INTERSECTION AND SAMPLING (SYSTEM) DETECTOR | | | | | | | | | | | | | | |
| FLASHER INSTALLATION (S DENOTES SOLAR POWER) | | | | "RB" INDICATES REFLECTIVE BACKPLATE | | | | PERFORMED SAMPLING (SYSTEM) DETECTOR | | | | | | | | | | | | | | |
| PEDESTRIAN SIGNAL HEAD | | | | 12" (300mm) PEDESTRIAN SIGNAL HEAD WALK/DON'T WALK SYMBOL | | | | <h2 style="margin: 0;">RAILROAD SYMBOLS</h2> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">EXISTING</th> <th style="width: 50%;">PROPOSED</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table> | | | EXISTING | PROPOSED | | | | | | | | | | |
| EXISTING | PROPOSED | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | |
| PEDESTRIAN PUSHBUTTON DETECTOR | | | | 12" (300mm) PEDESTRIAN SIGNAL HEAD INTERNATIONAL SYMBOL, OUTLINED | | | | | | | | | | | | | | | | | | |
| ACCESSIBLE PEDESTRIAN PUSHBUTTON DETECTOR | | | | 12" (300mm) PEDESTRIAN SIGNAL HEAD INTERNATIONAL SYMBOL, SOLID | | | | | | | | | | | | | | | | | | |
| ILLUMINATED SIGN "NO LEFT TURN" | | | | PEDESTRIAN SIGNAL HEAD, INTERNATIONAL SYMBOL, WITH COUNTDOWN TIMER | | | | | | | | | | | | | | | | | | |
| ILLUMINATED SIGN "NO RIGHT TURN" | | | | RADIO INTERCONNECT | | | | | | | | | | | | | | | | | | |
| DETECTOR LOOP, TYPE I | | | | RADIO REPEATER | | | | | | | | | | | | | | | | | | |
| PERFORMED DETECTOR LOOP | | | | DENOTES NUMBER OF CONDUCTORS, ELECTRIC CABLE NO. 14, UNLESS NOTED OTHERWISE, ALL DETECTOR LOOP CABLE TO BE SHIELDED | | | | | | | | | | | | | | | | | | |
| MICROWAVE VEHICLE SENSOR | | | | GROUND CABLE IN CONDUIT NO. 6 SOLID COPPER (GREEN) | | | | | | | | | | | | | | | | | | |
| VIDEO DETECTION CAMERA | | | | | | | | | | | | | | | | | | | | | | |
| VIDEO DETECTION ZONE | | | | | | | | | | | | | | | | | | | | | | |
| PAN, TILT, ZOOM CAMERA | | | | | | | | | | | | | | | | | | | | | | |
| WIRELESS DETECTOR SENSOR | | | | | | | | | | | | | | | | | | | | | | |
| WIRELESS ACCESS POINT | | | | | | | | | | | | | | | | | | | | | | |

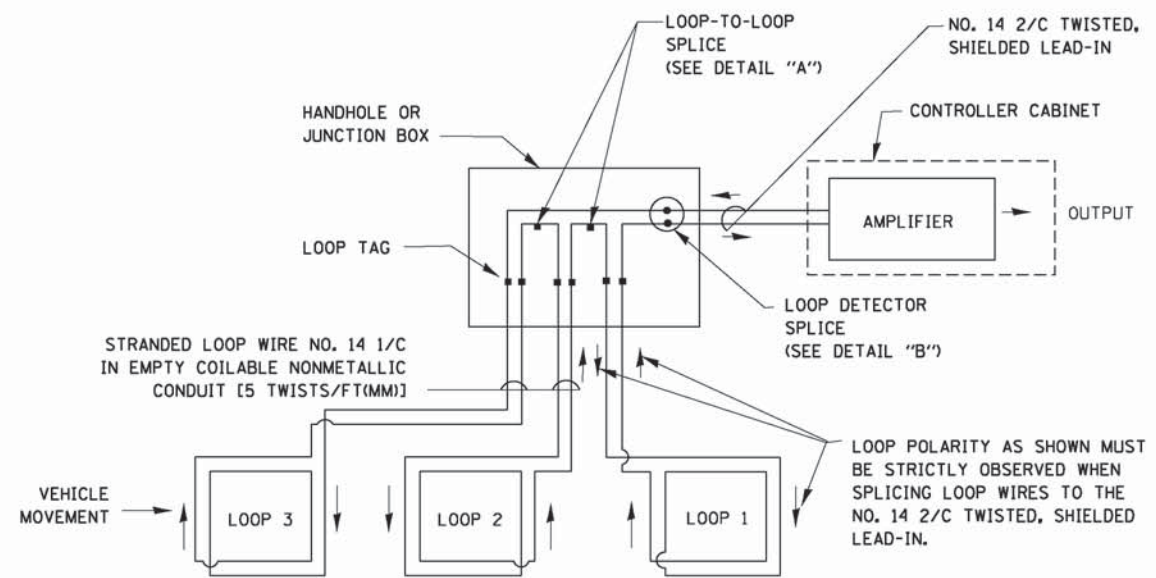
LOOP DETECTOR NOTES

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

LOOP LEAD-IN CABLE TAG

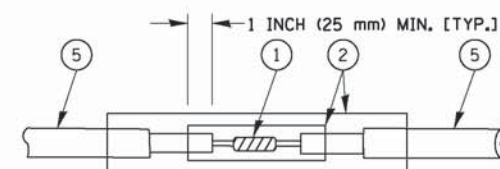


- A. LANE 1 IS THE LANE CLOSEST TO THE CENTERLINE OF THE ROADWAY
- B. LOOP #1 IS THE LOOP IN THE LANE CLOSEST TO THE INTERSECTION.
- C. LABEL LOOP CABLE "IN" OR LOOP CABLE "OUT".
- D. LABEL LOOP CABLE CLOCKWISE OR LOOP CABLE COUNTERCLOCKWISE.

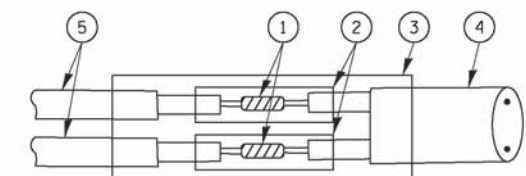


DETECTOR LOOP WIRING SCHEMATIC

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

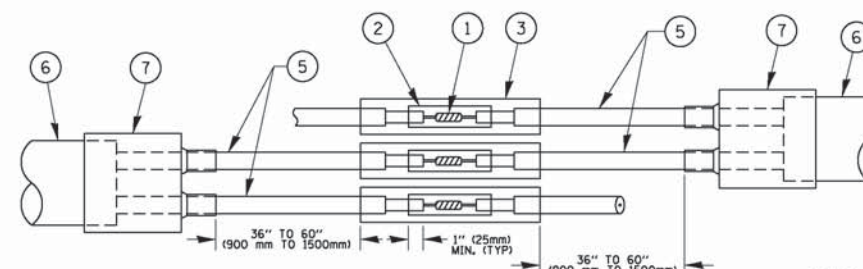


DETAIL "A"
LOOP-TO-LOOP SPLICE

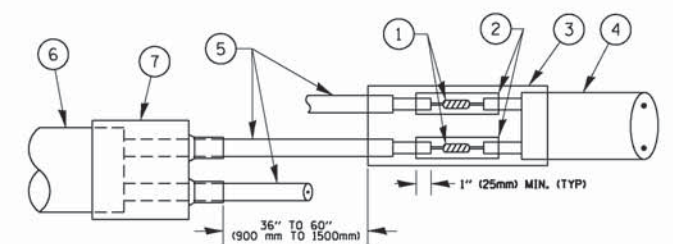


DETAIL "B"
LOOP-TO-CONTROLLER SPLICE

TYPE I LOOP



DETAIL "A"
LOOP-TO-LOOP SPLICE



DETAIL "B"
LOOP-TO-CONTROLLER SPLICE

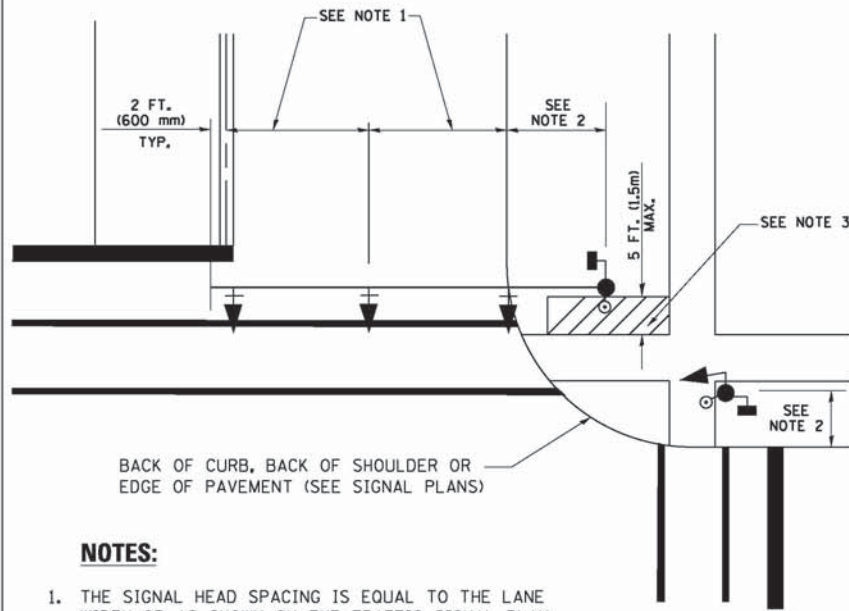
PREFORMED LOOP

LOOP DETECTOR SPLICE

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

| | | | | | | | | | | | | |
|---|-----------------------------|-----------------|----------------------|---|--|-------------------------|--------------|-----------------|--------------------|--------------------|-----------------|-------------|
| FILE NAME = | USER NAME = footemj | DESIGNED - DAD | REVISED - DAG 1-1-14 | STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION | DISTRICT ONE STANDARD TRAFFIC SIGNAL DESIGN DETAILS | | | F.A.P. RTE. 344 | SECTION 2015-043TS | COUNTY LAKE | TOTAL SHEETS 16 | SHEET NO. 6 |
| ct:\pw_work\p\dot\footemj\d0108315\ts05.dgn | PLOT SCALE = 58.8888' / in. | DRAWN - BCK | REVISED - | | SCALE: NONE | SHEET NO. 2 OF 7 SHEETS | STA. TO STA. | TS-05 | | CONTRACT NO. 62B03 | | |
| PLOT DATE = 1/13/2014 | DATE - 10-28-09 | CHECKED - DAD | REVISED - | | FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT | | | | | | | |
| | | DATE - 10-28-09 | REVISED - | | | | | | | | | |

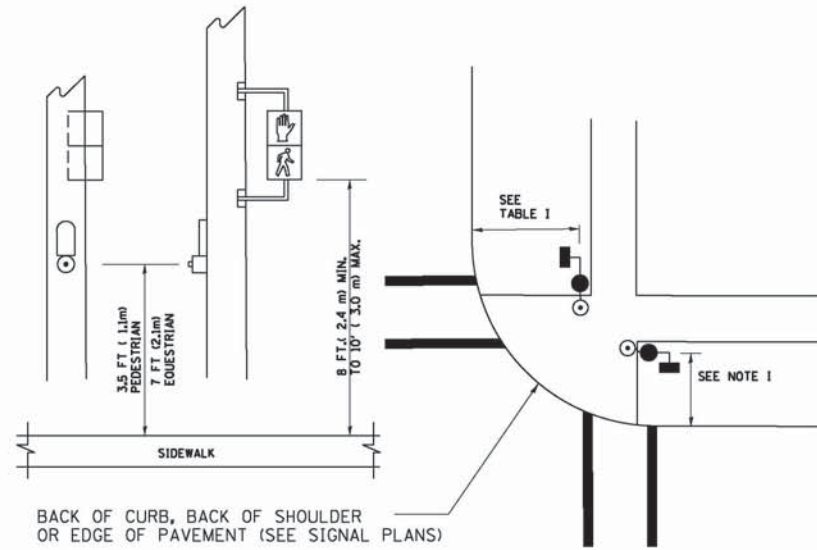
**TRAFFIC SIGNAL MAST ARM AND SIGNAL POST
MAST ARM MOUNTED SIGNALS IN EXISTING, PROPOSED OR
FUTURE SIDEWALK/BICYCLE PATH AREA. INTERSECTION SHOWN
WITH PEDESTRIAN SIGNALS AND PEDESTRIAN PUSHBUTTON DETECTORS.**



NOTES:

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

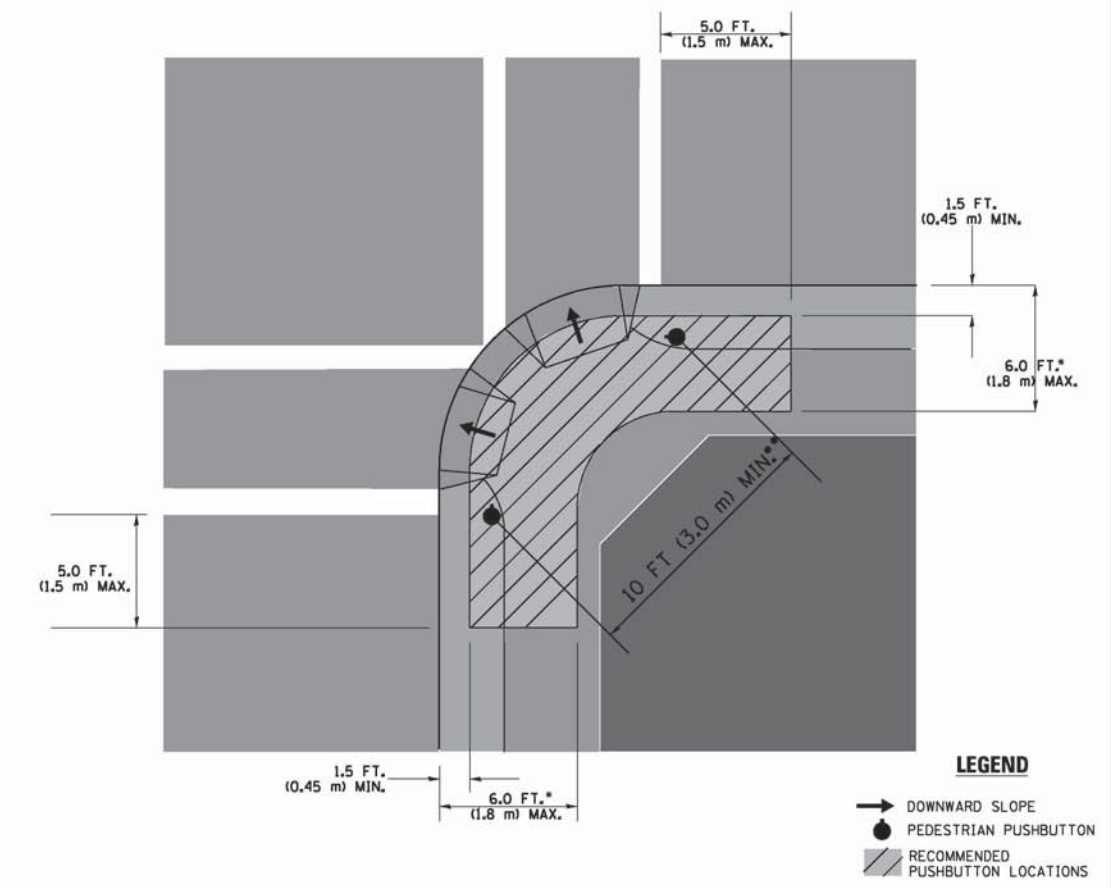
**PEDESTRIAN SIGNAL POST
AND
PEDESTRIAN PUSH BUTTON POST**



NOTES:

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

RECOMMENDED PUSHBUTTON LOCATIONS



LEGEND

- DOWNWARD SLOPE
- PEDESTRIAN PUSHBUTTON
- ▨ RECOMMENDED PUSHBUTTON LOCATIONS

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

NOTES:

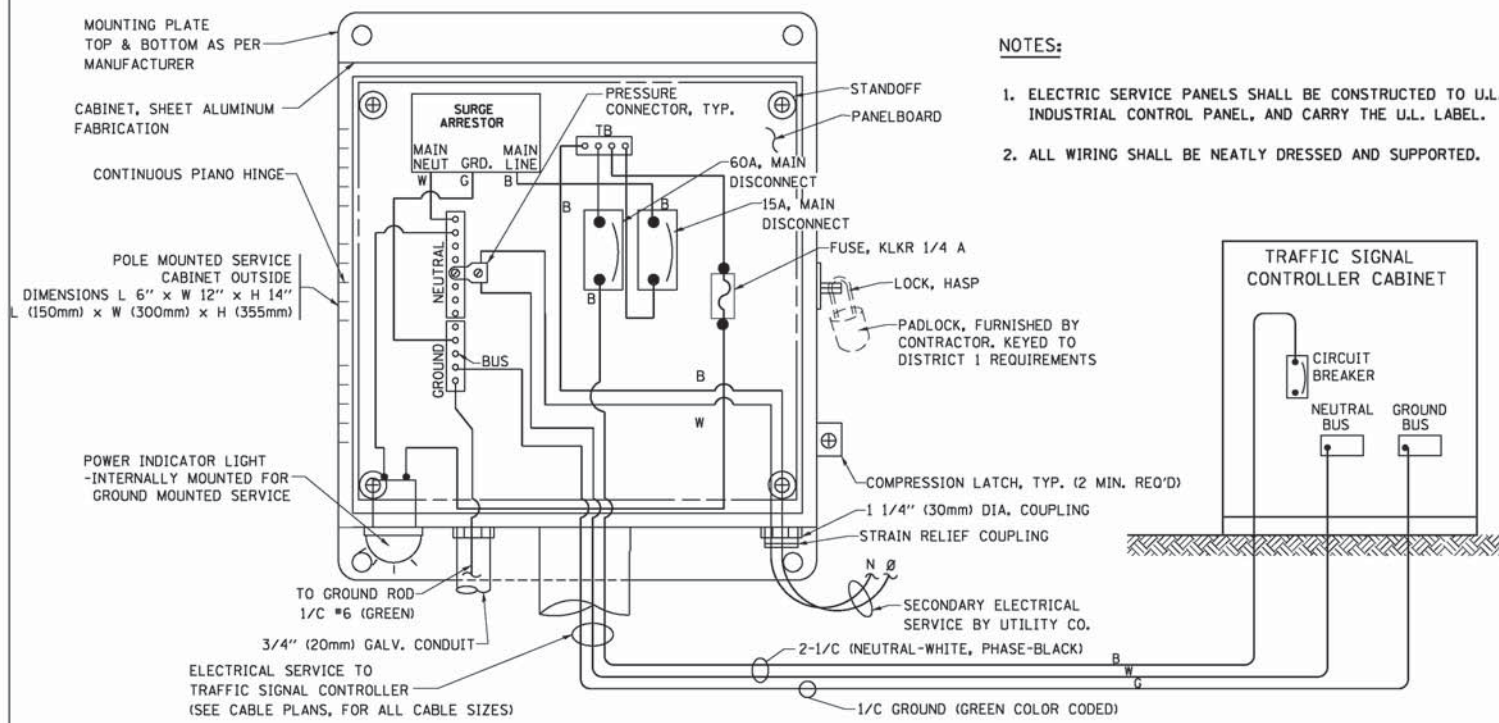
1. PEDESTRIAN SIGNAL HEADS SHALL BE MOUNTED WITH THE BOTTOM OF THE SIGNAL HOUSING INCLUDING BRACKETS NOT LESS THAN 8 FT (2.4 m) OR MORE THAN 10 FT (3 m) ABOVE SIDEWALK LEVEL, AND SHALL BE POSITIONED AND ADJUSTED TO PROVIDE MAXIMUM VISIBILITY AT THE BEGINNING OF THE CONTROLLED CROSSWALK.
2. THE BOTTOM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

TRAFFIC SIGNAL EQUIPMENT OFFSET

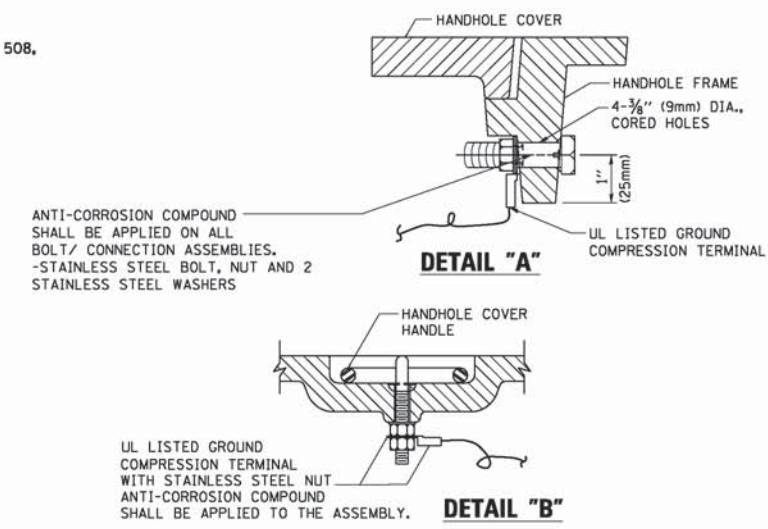
| TRAFFIC SIGNAL EQUIPMENT | COMBINATION CONCRETE CURB AND GUTTER (MINIMUM DISTANCE FROM BACK OF CURB TO CENTERLINE OF FOUNDATION) | SHOULDER/NON-CURBED AREA (MINIMUM DISTANCE FROM EDGE OF PAVEMENT TO CENTERLINE OF FOUNDATION) |
|------------------------------------|---|---|
| TRAFFIC SIGNAL MAST ARM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

NOTES:

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

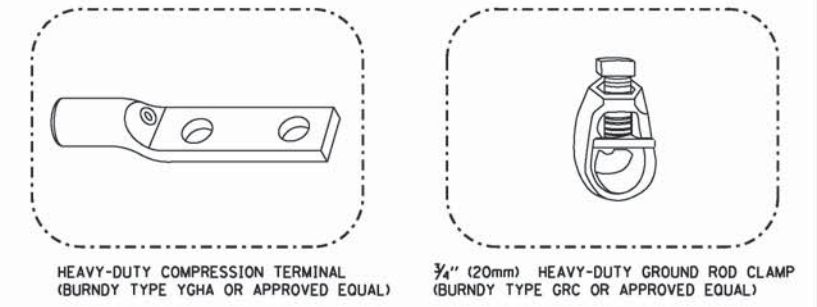
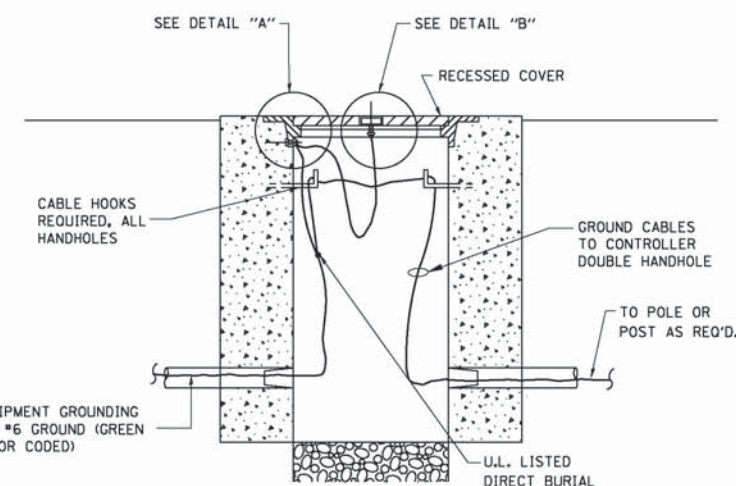


**ELECTRICAL SERVICE - PANEL DIAGRAM (TYPICAL FOR POLE AND GROUND MOUNTED SERVICE)
SERVICE INSTALLATION POLE MOUNT (SHOWN)
(NOT TO SCALE)**

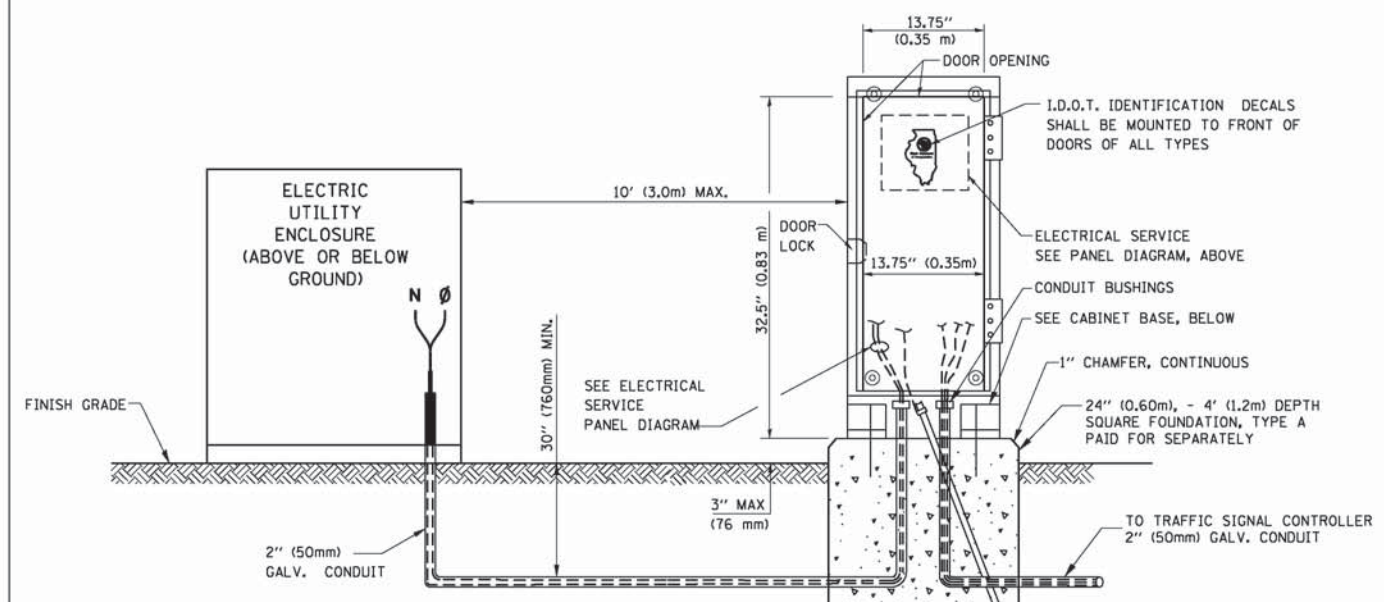
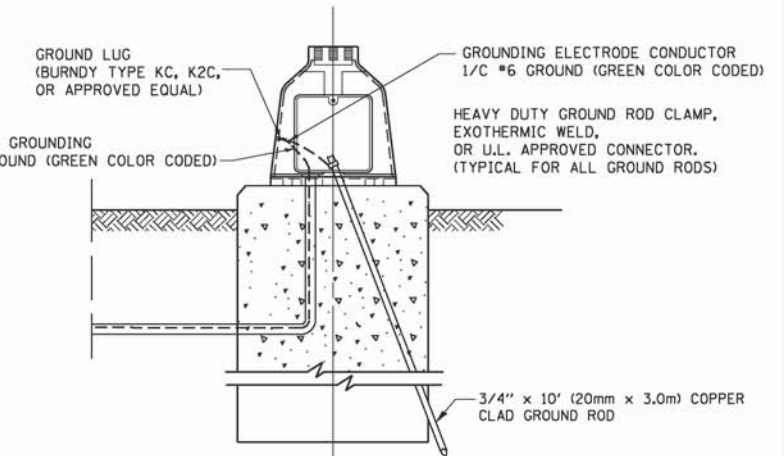
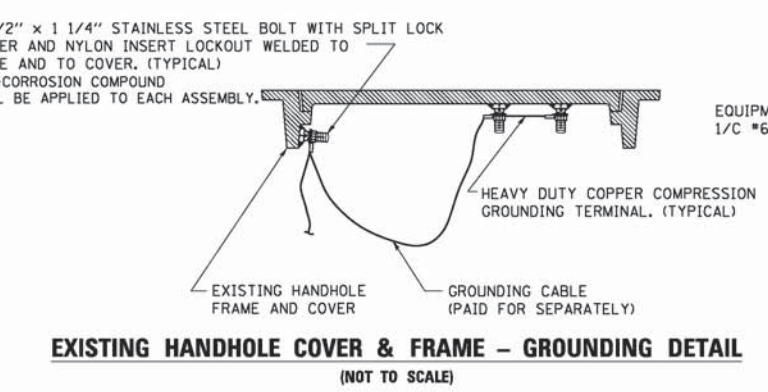


**NOTES:
GROUNDING SYSTEM**

- 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.

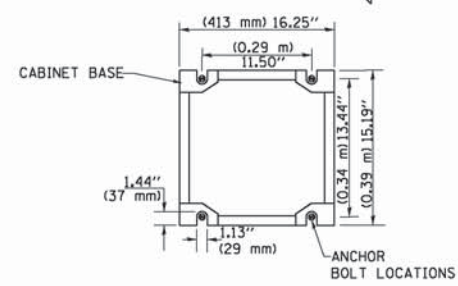


- NOTES:**
- ALL CLAMPS SHALL BE BRONZE OR COPPER, UL APPROVED.
 - GROUND CABLE SHALL BE LOOPED OVER HOOKS IN THE HANDHOLES. 6.5' (2.0m) SLACK SHALL BE PROVIDED IN SINGLE HANDHOLES. 13' (4.0m) OF SLACK SHALL BE PROVIDED IN DOUBLE HANDHOLES. 5' (1.4m) OF SLACK SHALL BE PROVIDED BETWEEN FRAME AND COVER.

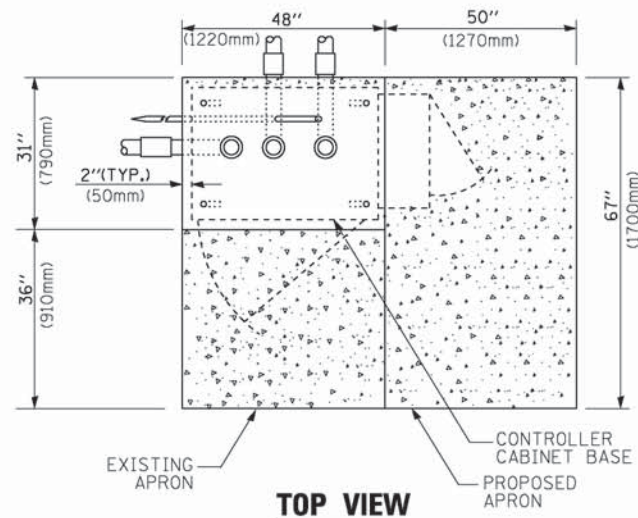


**SERVICE INSTALLATION GROUND MOUNT
(NOT TO SCALE)**

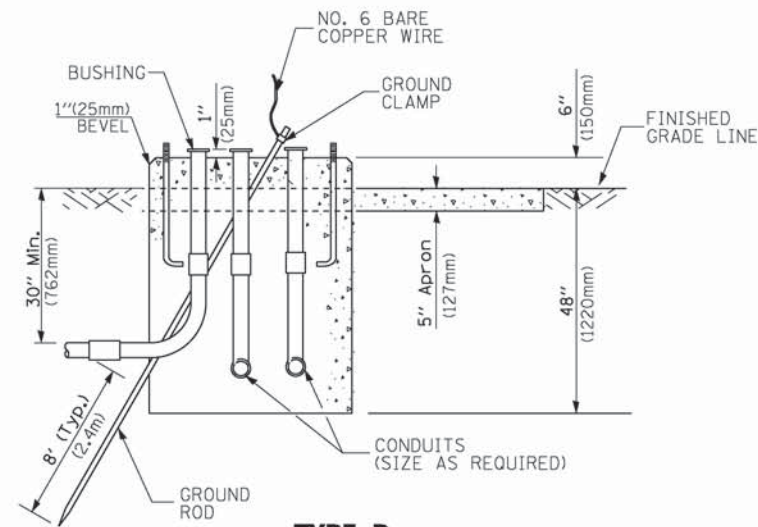
**CABINET - BASE BOLT PATTERN
(NOT TO SCALE)**



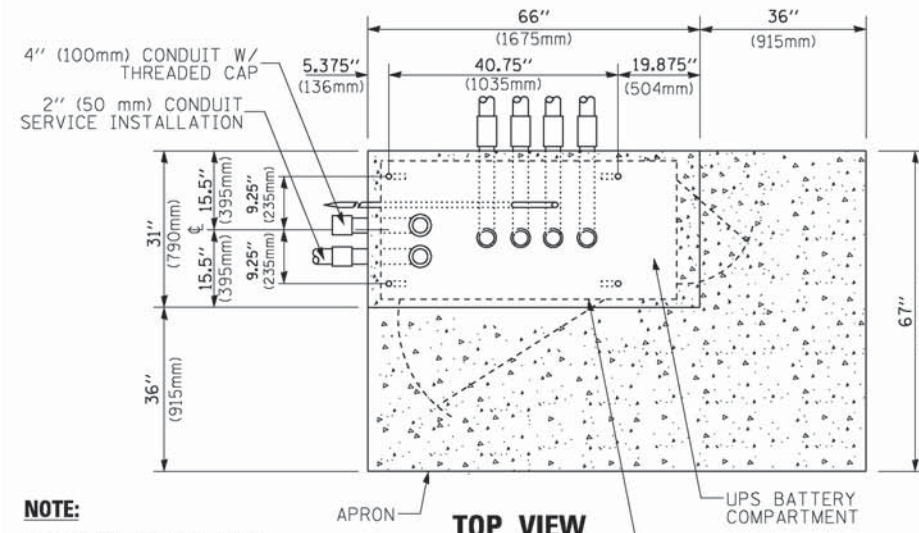
| | | | | | | | | | | | | |
|--|-----------------------------|-----------------|----------------------|---|--|-------------|-------------|-----------------|--------------------|-------------|---------------------------|-------------|
| FILE NAME = | USER NAME = footemj | DESIGNED - DAD | REVISED - DAG 1-1-14 | STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION | DISTRICT ONE STANDARD TRAFFIC SIGNAL DESIGN DETAILS | | | F.A.P. RTE. 344 | SECTION 2015-043TS | COUNTY LAKE | TOTAL SHEETS 16 | SHEET NO. 8 |
| ct\pw_work\p\dot\footemj\d0108315\ts05.dgn | PLOT SCALE = 58.8888' / in. | DRAWN - BCK | REVISED - | | SCALE: NONE | SHEET NO. 4 | OF 7 SHEETS | STA. TO STA. | TS-05 | | CONTRACT NO. 62B03 | |
| | PLOT DATE = 1/13/2014 | CHECKED - DAD | REVISED - | | FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT | | | | | | | |
| | | DATE - 10-28-09 | REVISED - | | | | | | | | | |



TOP VIEW



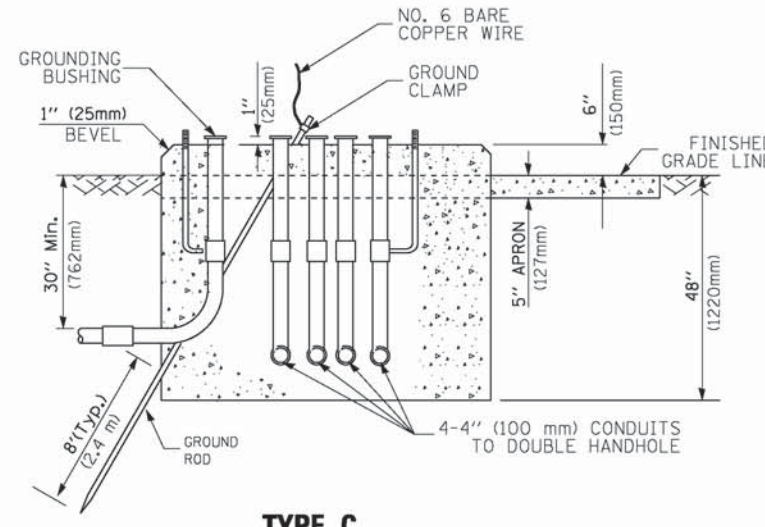
**TYPE D
FOR GROUND MOUNTED
CONTROLLER CABINET
AND UPS BATTERY CABINET**



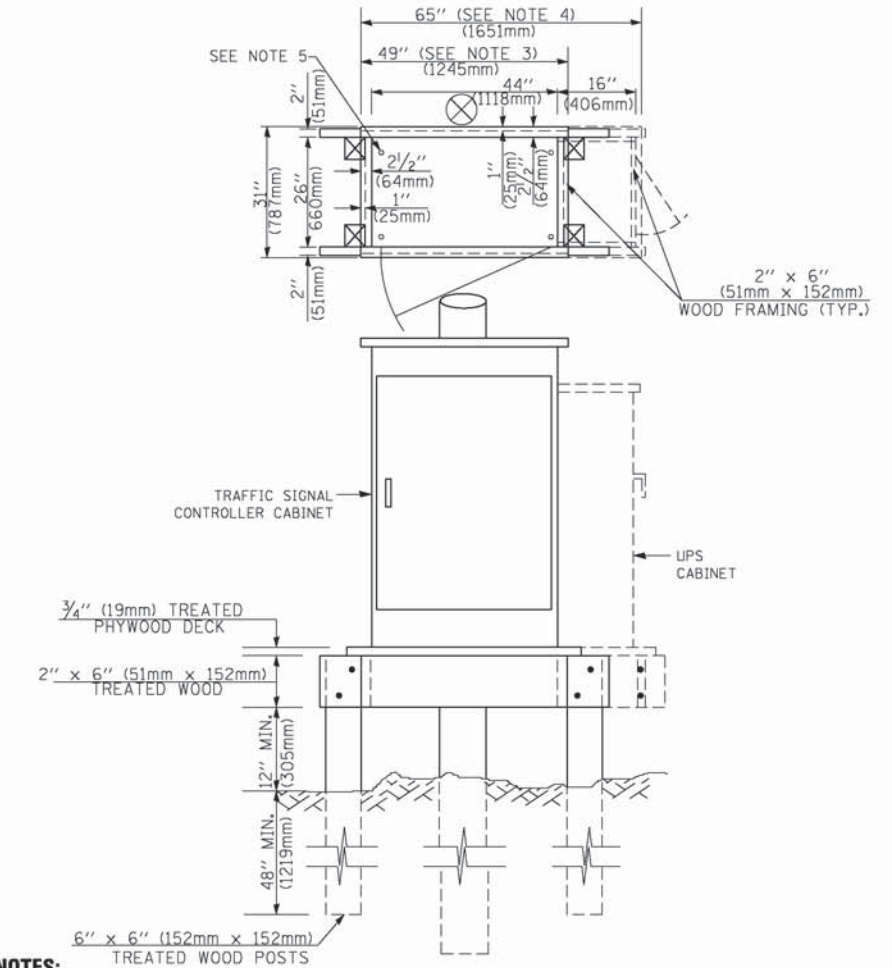
TOP VIEW

NOTE:

TOP OF FOUNDATION SHALL BE HIGHER THAN TOP OF DOUBLE HANDHOLE



**TYPE C
FOR GROUND MOUNTED
SUPER P (TYPE IV) AND SUPER R (TYPE V)
CONTROLLER CABINETS**



NOTES:

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

**TEMPORARY SIGNAL CONTROLLER
WOOD SUPPORT PLATFORM**

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

CABLE SLACK

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

VERTICAL CABLE LENGTH

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

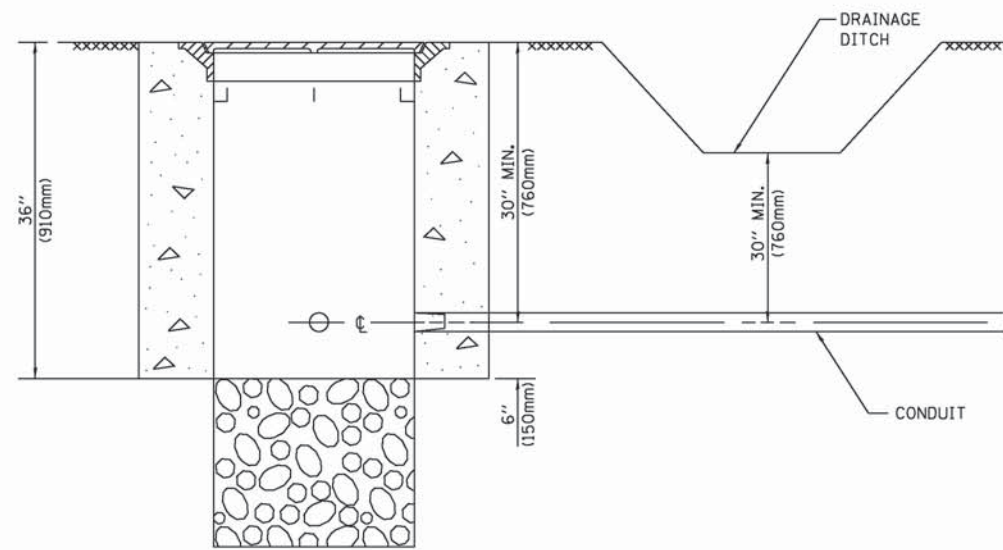
DEPTH OF FOUNDATION

| MAST ARM LENGTH | ① FOUNDATION DEPTH | FOUNDATION DIAMETER | SPIRAL DIAMETER | QUANTITY OF REBARS | SIZE OF REBARS |
|--|--------------------|---------------------|-----------------|--------------------|----------------|
| Less than 30' (9.1 m) | 10'-0" (3.0 m) | 30" (750mm) | 24" (600mm) | 8 | 6(19) |
| Greater than or equal to 30' (9.1 m) and less than 40' (12.2 m) | 13'-6" (4.1 m) | 30" (750mm) | 24" (600mm) | 8 | 6(19) |
| Greater than or equal to 40' (12.2 m) and less than 50' (15.2 m) | 11'-0" (3.4 m) | 36" (900mm) | 30" (750mm) | 12 | 7(22) |
| Greater than or equal to 50' (15.2 m) and up to 55' (16.8 m) | 13'-0" (4.0 m) | 36" (900mm) | 30" (750mm) | 12 | 7(22) |
| Greater than or equal to 55' (16.8 m) and up to 65' (19.8 m) | 15'-0" (4.6 m) | 36" (900mm) | 30" (750mm) | 12 | 7(22) |
| Greater than or equal to 65' (19.8 m) and less than 75' (22.9 m) | 21'-0" (6.4 m) | 42" (1060mm) | 36" (900mm) | 16 | 8(25) |
| Greater than or equal to 75' (22.9 m) | 25'-0" (7.6 m) | 42" (1060mm) | 36" (900mm) | 16 | 8(25) |

NOTES:

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

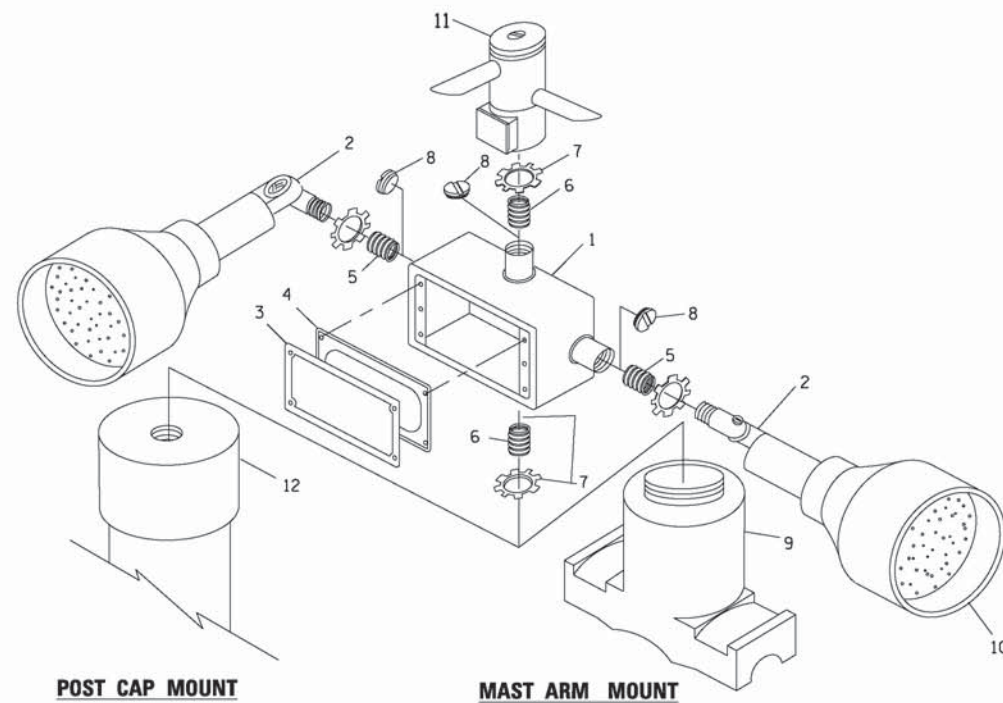
DEPTH OF MAST ARM FOUNDATIONS, TYPE E



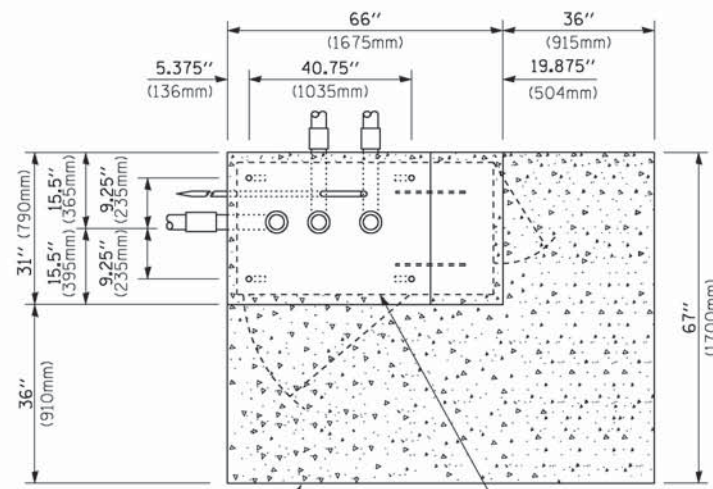
NOTES:

1. CONDUIT DEPTH SHALL BE A MINIMUM OF 30" (760mm) BELOW THE BOTTOM OF THE DRAINAGE DITCH OR ANY SLOPING GROUND
2. THE MINIMUM CONDUIT DEPTH APPLIES TO ALL CONDUIT PLACED UNDER ROADWAY PAVEMENT, MULTI-USE PATHS, SIDEWALKS AND SOIL SURFACES.
3. THE MINIMUM CONDUIT DEPTH APPLIES TO ALL HANDHOLES, HEAVY DUTY HANDHOLES AND DOUBLE HANDHOLES.

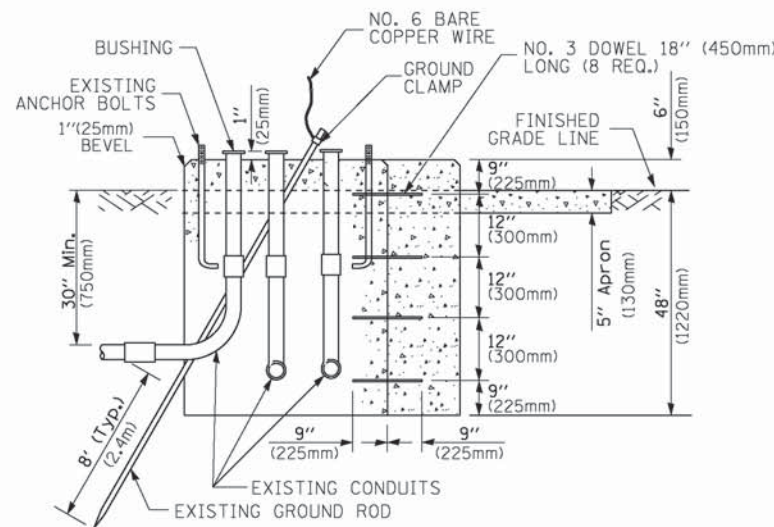
HANDHOLE WITH MINIMUM CONDUIT DEPTH
(NOT TO SCALE)



EMERGENCY VEHICLE DETECTOR WITH CONFIRMATION BEACON MOUNTING DETAIL



TOP VIEW
(NOT TO SCALE)

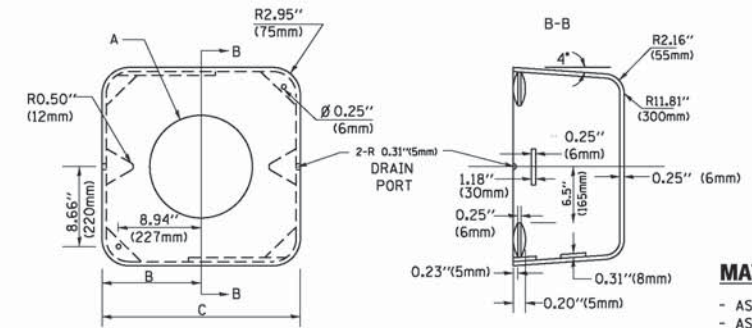


MODIFY EXISTING TYPE "D" FOUNDATION TO TYPE "C" FOUNDATION
(NOT TO SCALE)

| ITEM NO. | IDENTIFICATION |
|----------|---|
| 1 | OUTLET BOX- GALV. 21 CU.IN. (0.000344 CU-M) |
| 2 | LAMP HOLDER AND COVER |
| 3 | OUTLET BOX COVER |
| 4 | RUBBER COVER GASKET |
| 5 | REDUCING BUSHING |
| 6 | 3/4" (19 mm) CLOSE NIPPLE |
| 7 | 3/4" (19 mm) LOCKNUT |
| 8 | 3/4" (19 mm) HOLE PLUG |
| 9 | SADDLE BRACKET - GALV. |
| 10 | 6 WATT PAR 38 LED FLOOD LAMP |
| 11 | DETECTOR UNIT |
| 12 | POST CAP [18 FT. (5.4 m) POST MIN.] |

NOTES:

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



MATERIAL:
- ASTM A36 STEEL
- ASTM A-123 HOT DIPPED GALVANIZED

| A | B | C | HEIGHT | WEIGHT |
|--------|---------------|--------------|--------------------------|-----------------|
| VARIES | 9.5"(241mm) | 19"(483mm) | 7" (178mm) - 12" (300mm) | 53 lbs (24kg) |
| VARIES | 10.75"(273mm) | 21.5"(546mm) | 7" (178mm) - 12" (300mm) | 68 lbs (31 kg) |
| VARIES | 13.0"(330mm) | 26"(660mm) | 7" (178mm) - 12" (300mm) | 81 lbs (37 kg) |
| VARIES | 18.5"(470mm) | 37"(940mm) | 7" (178mm) - 12" (300mm) | 126 lbs (57 kg) |

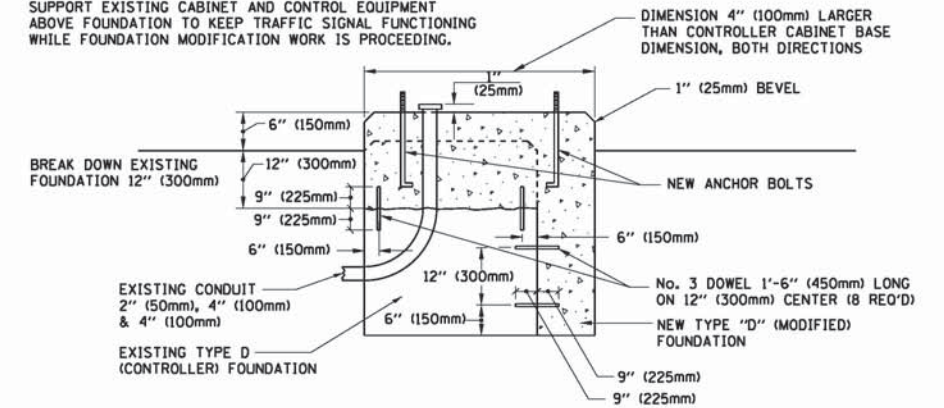
SHROUD

NOTES:

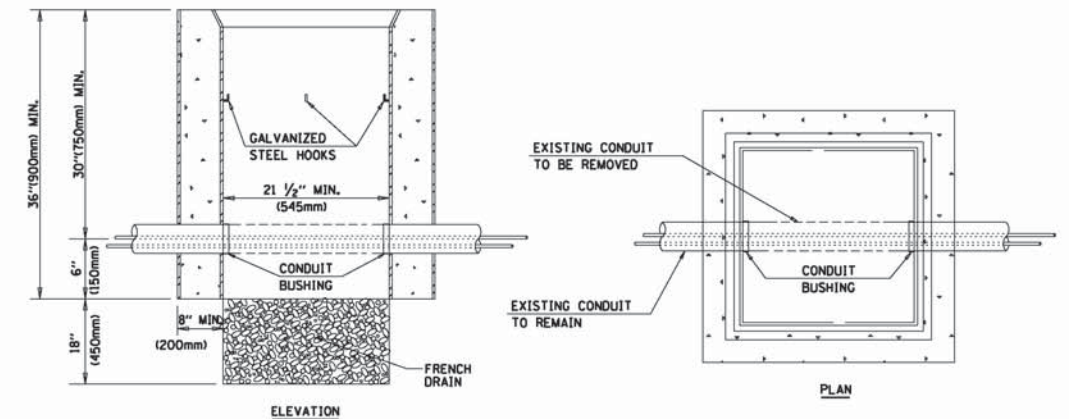
1. DIMENSION "A" IS EQUAL TO THE DIAMETER OF THE MAST ARM POLE AT THE TOP OF THE SHROUD. THE SHROUD SHALL BE TIGHT TO THE MAST ARM POLE.
2. THE SUPPLIER SHALL VERIFIED THE ABOVE DIMENSIONS BASED ON MAST ARM REQUIREMENTS.
3. THE HEIGHT OF THE SHROUD SHALL COVER THE ANCHOR BOLTS, NUTS AND MAST ARM POLE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

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



NOTES:

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

HANDHOLE TO INTERCEPT EXISTING CONDUIT

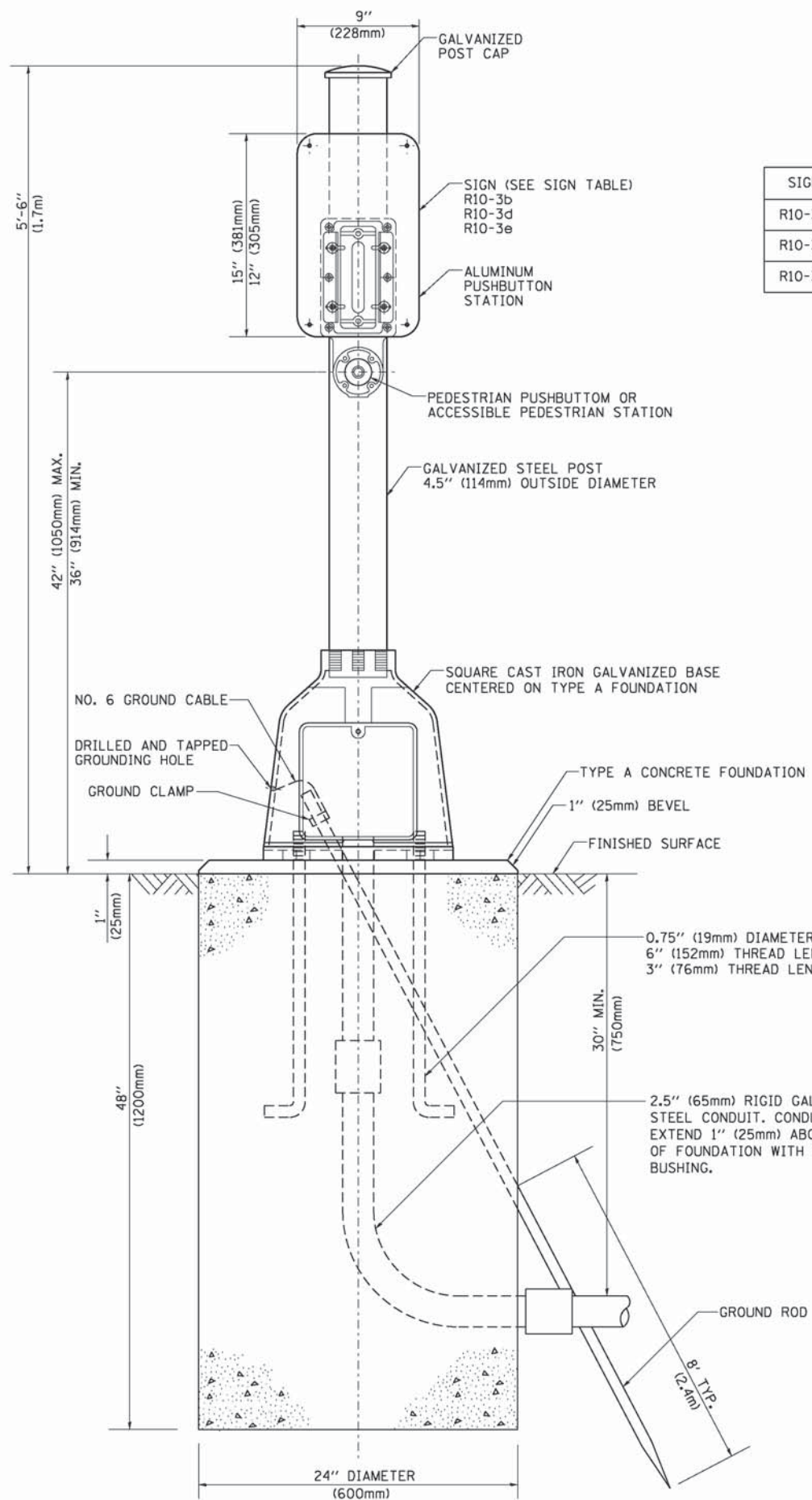
| | | | |
|---|-----------------------------|-----------------|----------------------|
| FILE NAME = | USER NAME = footemj | DESIGNED - DAD | REVISED - DAG 1-1-14 |
| ct:\pw_work\pwork\footemj\d0108315\ts05.dgn | | DRAWN - BCK | REVISED - |
| | PLOT SCALE = 50.0000' / in. | CHECKED - DAD | REVISED - |
| | PLOT DATE = 1/13/2014 | DATE - 10-28-09 | REVISED - |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DISTRICT ONE
STANDARD TRAFFIC SIGNAL DESIGN DETAILS

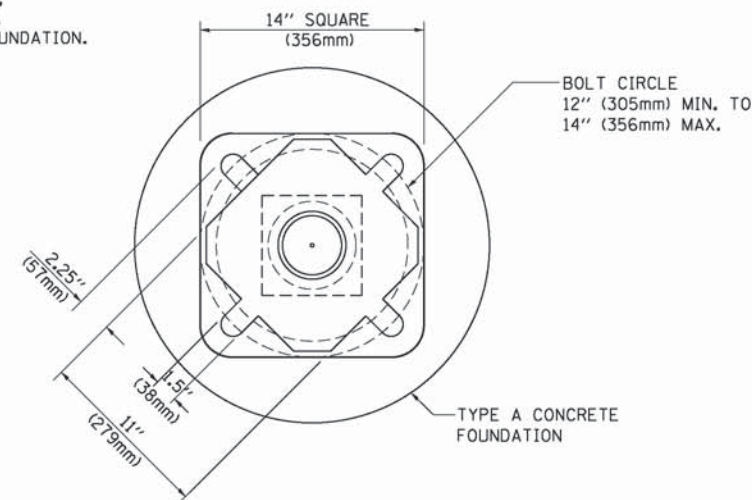
SCALE: NONE SHEET NO. 6 OF 7 SHEETS STA. TO STA.

| | | | | |
|---|------------|---------------------------|--------------|-----------|
| F.A.P. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 344 | 2015-043TS | LAKE | 16 | 10 |
| TS-05 | | CONTRACT NO. 62B03 | | |
| FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT | | | | |



SIGN TABLE

| SIGN | DIMENSIONS |
|--------|--------------------------|
| R10-3b | 9" (228mm) X 12" (305mm) |
| R10-3d | 9" (228mm) X 12" (305mm) |
| R10-3e | 9" (228mm) X 15" (381mm) |



BOLT PATTERN

PEDESTRIAN PUSH BUTTON POST, TYPE A

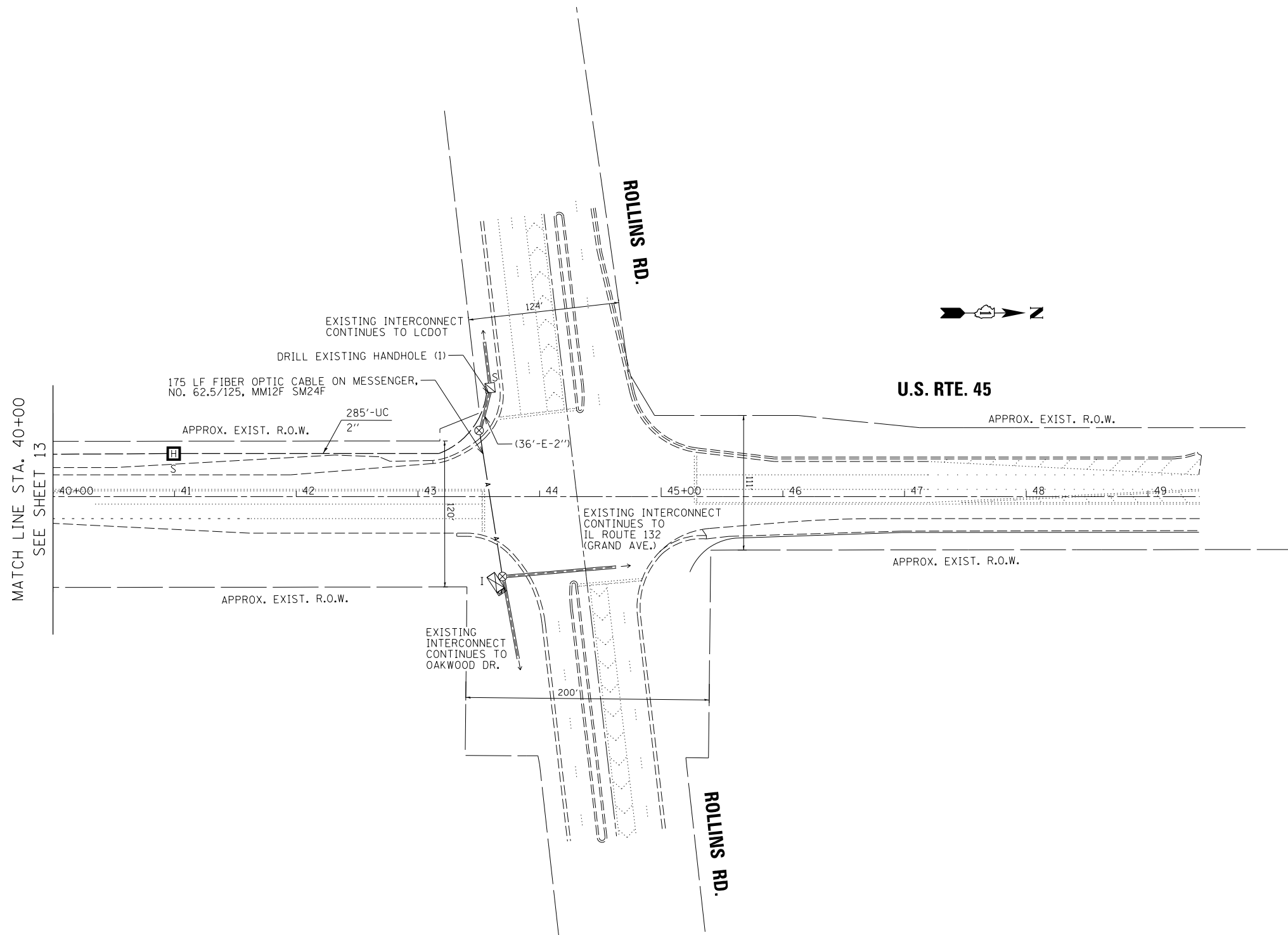
| | | | |
|---|----------------------------|------------------|----------------------|
| FILE NAME = | USER NAME = footemj | DESIGNED - DAG | REVISED - DAG 1-1-14 |
| ca:\pwork\pwork\footemj\d0108315\ts05.dgn | | DRAWN - GND | REVISED - |
| | PLOT SCALE = 50.0000' / 1" | CHECKED - DAD | REVISED - |
| | PLOT DATE = 1/13/2014 | DATE - 10/1/2012 | REVISED - |

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**DISTRICT ONE
STANDARD TRAFFIC SIGNAL DESIGN DETAILS**

SCALE: NONE SHEET NO. 7 OF 7 SHEETS STA. TO STA.

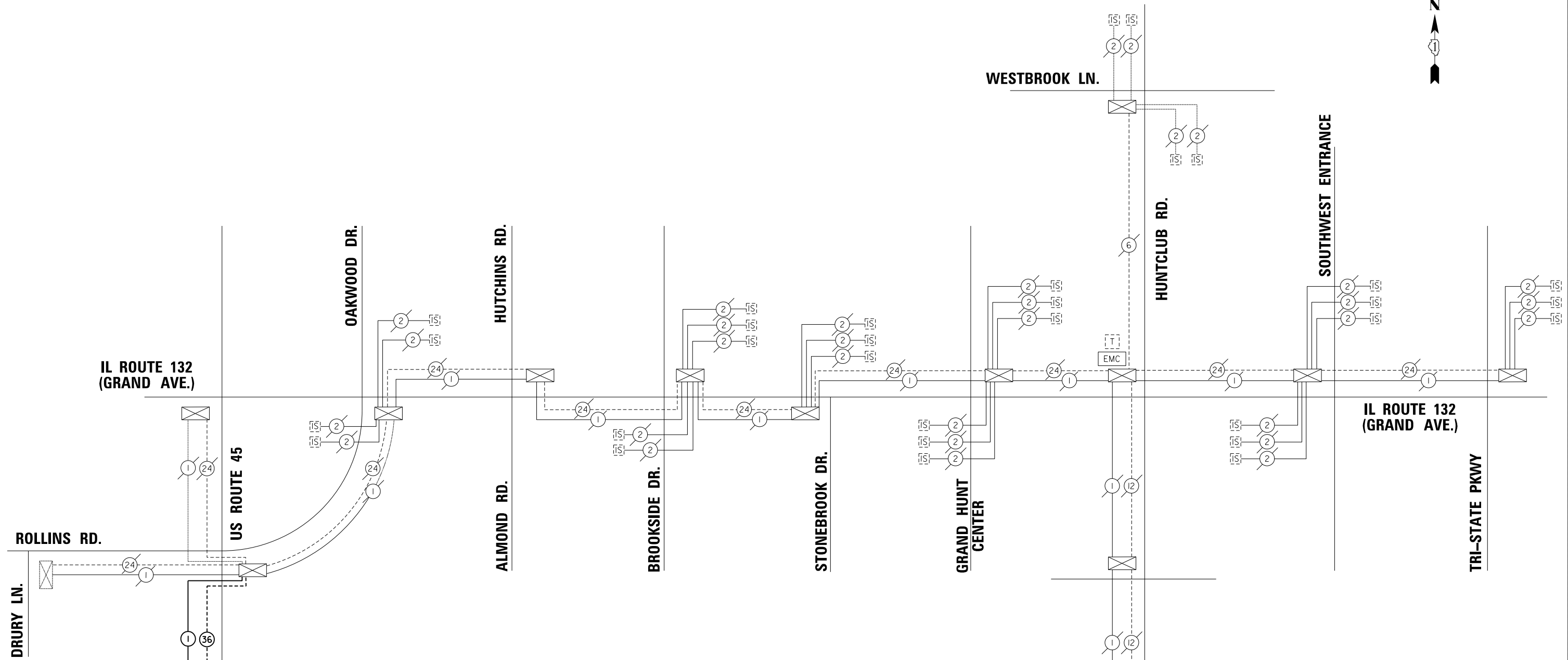
| | | | | |
|---|------------|--------|---------------------------|-----------|
| F.A.P. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 344 | 2015-043TS | LAKE | 16 | 11 |
| TS-05 | | | CONTRACT NO. 62B03 | |
| FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT | | | | |



THE TRAFFIC SIGNAL CONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH EXISTING ADJACENT SYSTEM.

ECON 152

| | | | | | | | | | | | | | |
|------------------------|------------------------------|------------------|-------------|---|--|------------|------|-------------------------|---------|----------------------|--------------|--------------------|--|
| FILE NAME = *FILEL* | USER NAME = .USER. | DESIGNED - V.O. | REVISED - - | STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION | INTERCONNECT PLAN US ROUTE 45 (ROLLINS RD TO DADA DR /GRANT DR) | | | F.A.P. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. | |
| | | DRAWN - E.C. | REVISED - - | | 344 | 2015-043TS | LAKE | 16 | 14 | | | | |
| | PLOT SCALE = 100.0000' / in. | CHECKED - L.S. | REVISED - - | | SCALE: 1"=50' | | | SHEET NO. 3 OF 3 SHEETS | | STA. N/A TO STA. N/A | | CONTRACT NO. 62B03 | |
| | PLOT DATE = 3/20/2017 | DATE - 3/24/2017 | REVISED - - | | ILLINOIS FED. AID PROJECT | | | | | | | | |



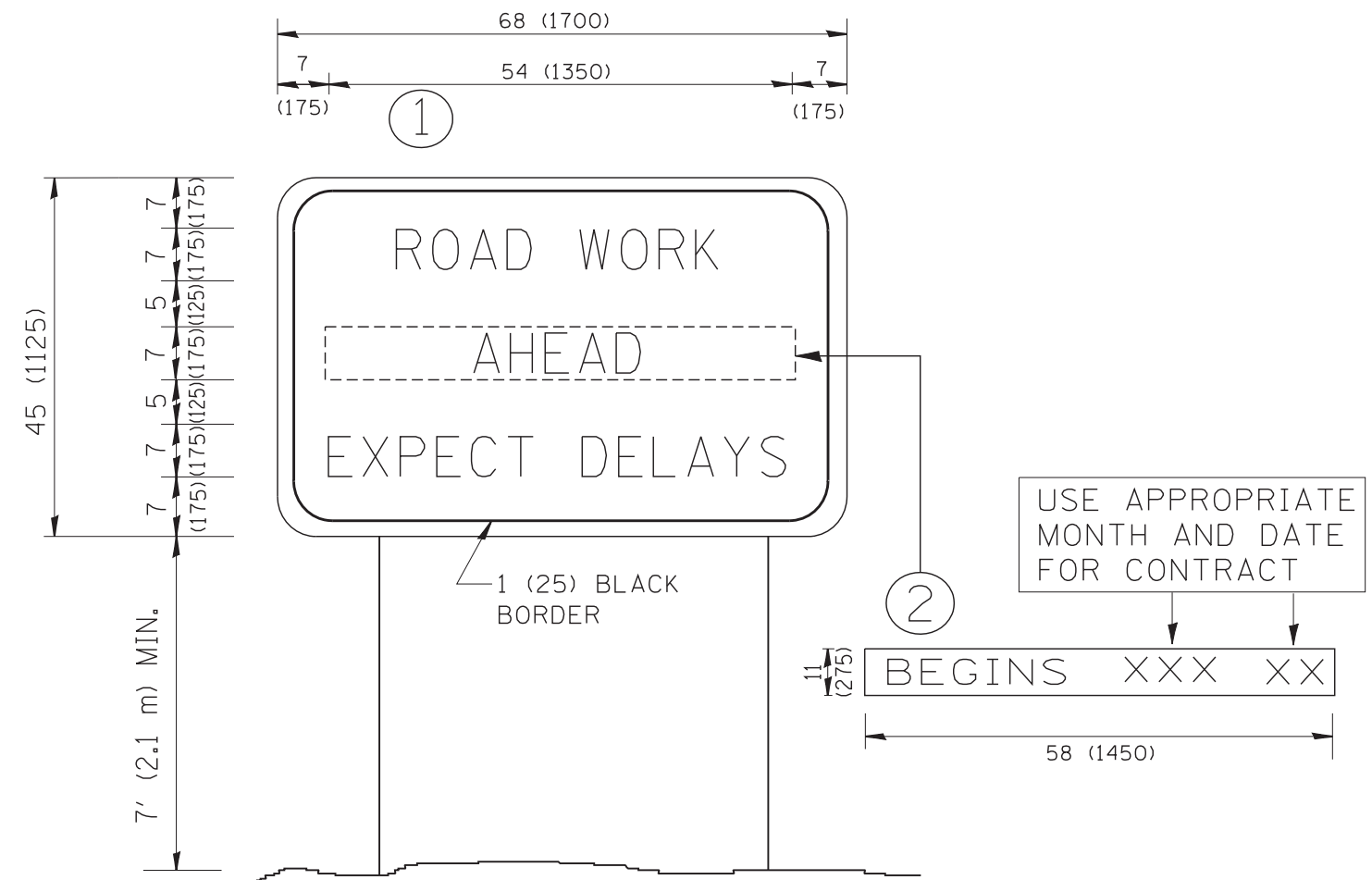
SCHEDULE OF QUANTITIES

| QUANTITY | UNIT | ITEM |
|----------|------|---|
| 2588 | FOOT | UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA. |
| 4 | EACH | HEAVY-DUTY HANDHOLE |
| 2 | EACH | MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION |
| 1 | EACH | TRANSCEIVER - FIBER OPTIC |
| 3013 | FOOT | ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C |
| 1 | EACH | DRILL EXISTING HANDHOLE |
| 1 | EACH | MODIFY EXISTING CONTROLLER CABINET |
| 100 | FOOT | ROD AND CLEAN EXISTING CONDUIT |
| 1 | EACH | CONDUIT SPLICE |
| 3085 | FOOT | FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM24F |
| 175 | FOOT | FIBER OPTIC CABLE ON MESSENGER, NO. 62.5/125, MM12F SM24F |
| 1 | EACH | RE-OPTIMIZE TRAFFIC SIGNAL SYSTEM LEVEL 2 |

• NOMINAL QUANTITY TO BE USED AS NEEDED AND AS APPROVED BY THE ENGINEER

THE TRAFFIC SIGNALCONTROLLER EQUIPMENT FOR THIS PROJECT SHALL BE "ECONOLITE" TO MATCH EXISTING ADJACENT SYSTEM.

ECON 152



NOTES:

1. USE BLACK LETTERING ON ORANGE BACKGROUND.
2. ERECT SIGNS IN ADVANCE OF THE LOCATION FOR THE "ROAD CONSTRUCTION AHEAD" SIGN AT LOCATIONS AS DIRECTED BY THE ENGINEER.
3. ERECT SIGN ① WITH INSTALLED PANEL ② ONE WEEK PRIOR TO THE START OF CONSTRUCTION.
4. REMOVE PANEL ② SOON AFTER THE START OF CONSTRUCTION.
5. SEE SPECIAL PROVISION FOR "TEMPORARY INFORMATION SIGNING" FOR ADDITIONAL INFORMATION.
6. ONE SIGN ASSEMBLY EQUALS 25.70 SQ. FT. (2.3 SQ. M.)
7. SHALL BE PAID FOR AS TEMPORARY INFORMATION SIGNING.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

| | | | |
|--|----------------------------|------------|---------------------------------|
| FILE NAME = W:\diststd\22x34\tc22.dgn | USER NAME = gegltonbt | DESIGNED - | REVISED - R. MIRS 09-15-97 |
| | | DRAWN - | REVISED - R. MIRS 12-11-97 |
| | PLOT SCALE = 50.000' / IN. | CHECKED - | REVISED - T. RAMMACHER 02-02-99 |
| | PLOT DATE = 1/4/2008 | DATE - | REVISED - C. JUCIUS 01-31-07 |

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**ARTERIAL ROAD
INFORMATION SIGN**

SCALE: NONE SHEET NO. 1 OF 1 SHEETS STA. TO STA.

| F.A.P. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|------------|--------|---------------------------|-----------|
| 344 | 2015-043TS | LAKE | 16 | 16 |
| TC-22 | | | CONTRACT NO. 62B03 | |
| FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT | | | | |