

60C16

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	2006-045TS	WILL	12	1
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT:		
D-91-135-07				

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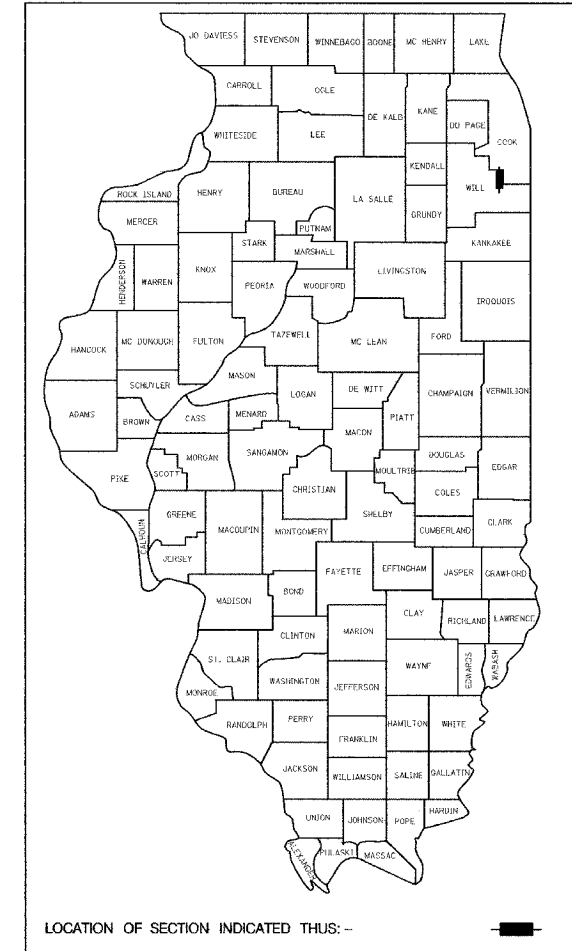
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED
FEDERAL AID HIGHWAY

SCALES { PLAN 1" = 20'
PROFILE HORIZ. NA
PROFILE VERT. NA
CROSS SECTIONS NA

DISTRICT 1
Traffic Signal Installation Plans For
F.A.P. Route 348 - Illinois Route 43 (Harlem Avenue)
from Vollmer Road to West Benton Drive

Section: 2006-045TS
Contract: 60C16
C-91-135-07
Cook/Will County
PROJECT: HSI P-0348(038)
FRANKFORT TOWNSHIP

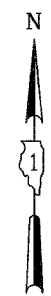
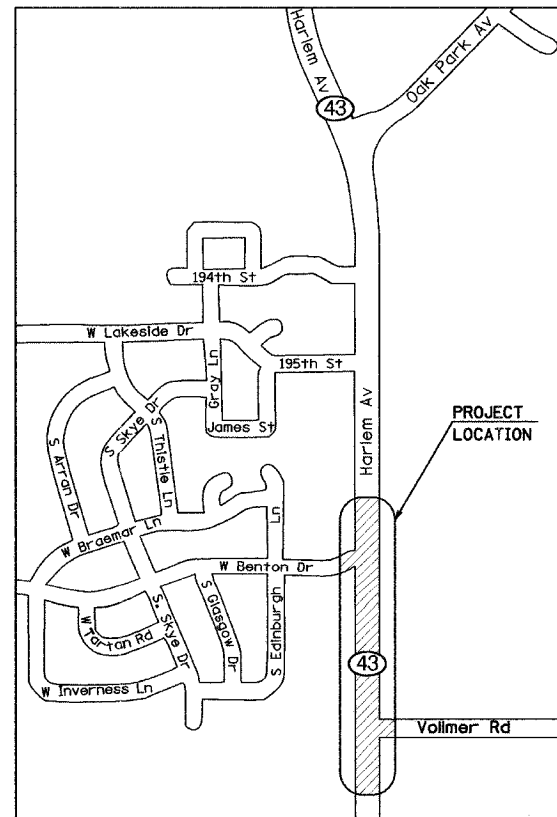


STANDARD DRAWINGS

701006	701011	701101	701301	702001
424001	720001	813001	814001	814006
857001	877001	877006	877011	
878001	880001	880006	888001	
606001				

701201	701316	701321	701406
701501	701502	701601	701606
701701	701801		

NOTE: STANDARD DRAWINGS REQUIRED (CIRCLED)



Eric E. Shriver 3/7/2007
Exp. 11/30/2007

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED: March 30, 2007
District Engineer: *Debra M. O'Keefe*

ENGINEER OF PROJECT DEVELOPMENT AND IMPLEMENTATION: _____

ENGINEER OF DESIGN AND ENVIRONMENT: *Eric E. Shriver*, May 11, 2007

DIRECTOR, DIVISION OF HIGHWAYS: *Milton R. See, P.E.*, May 11, 2007

FOR UNDERGROUND UTILITY
LOCATIONS, CALL
J.U.L.I.E.
TOLL FREE
TEL. 800-892-0123

PRINTED BY AUTHORITY OF
THE STATE OF ILLINOIS

PREPARED BY: *Steve Tarran* 3/30/07
TRAFFIC ENGINEER DATE

GROSS LENGTH = 1,898 FEET = 0.359 MILES
NET LENGTH = 1,898 FEET = 0.359 MILES
CONTRACT NO. 60C16

BUREAU OF TRAFFIC - DARYLE DREW - (847) 705-4420

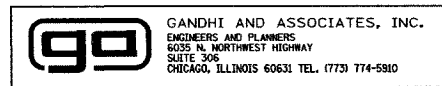
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
348	2006-045TS	WILL	12	2
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	

CONTRACT # 60C16

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, medians, 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.

IDOT PAY ITEM NUMBER	DESIGNATION	UNIT	SUMMARY OF QUANTITIES		WILL COUNTY		COOK COUNTY	
			URBAN TOTAL QUANTITIES	TOTAL ILL. RTE. 43 @ W. BENTON DR. QUANTITIES	TOTAL INTERCONNECT QUANTITIES	ILL. RTE. 43 @ W. BENTON DR.	INTERCONNECT QUANTITIES	ILL. RTE. 43 @ W. BENTON DR.
42400200	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	260	260	0	260	-	-
44000500	COMBINATION CURB AND GUTTER REMOVAL	FOOT	32	32	0	32	-	-
44000600	SIDEWALK REMOVAL	SQ FT	220	220	0	220	-	-
60603800	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.12	FOOT	32	32	0	32	-	-
67100100	MOBILIZATION	L SUM	1	-	-	0.25	0.25	0.25
70102620	TRAFFIC CONTROL AND PROTECTION, STANDARD 701501	L SUM	1	0.50	0.50	0.25	0.25	0.25
70102635	TRAFFIC CONTROL AND PROTECTION, STANDARD 701701	L SUM	1	0.50	0.50	0.25	0.25	0.25
70102640	TRAFFIC CONTROL AND PROTECTION, STANDARD 701801	L SUM	1	0.50	0.50	0.25	0.25	0.25
** 72000100	SIGN PANEL - TYPE 1	SQ FT	20	20	0	7.5	-	12.5
** 72000200	SIGN PANEL - TYPE 2	SQ FT	12.5	12.5	0	-	-	12.5
** 78008230	POLYUREA PAVEMENT MARKING TYPE I - LINE 6"	FOOT	83	83	0	83	-	-
** 78008270	POLYUREA PAVEMENT MARKING TYPE I - LINE 24"	FOOT	77	77	0	43	-	34
81000600	CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL	FOOT	1486	57	915	310	-	261
81000700	CONDUIT IN TRENCH, 2 1/2" DIA., GALVANIZED STEEL	FOOT	180	180	0	60	-	120
81001000	CONDUIT IN TRENCH, 4" DIA., GALVANIZED STEEL	FOOT	34	34	0	34	-	-
81018600	CONDUIT PUSHED, 2 1/2" DIA., GALVANIZED STEEL	FOOT	58	58	0	-	-	58
81018900	CONDUIT PUSHED, 4" DIA., GALVANIZED STEEL	FOOT	152	152	0	104	-	48
81400100	HANDHOLE	EACH	1	1	0	1	-	-
81400200	HEAVY-DUTY HANDHOLE	EACH	5	4	1	2	-	2
81400300	DOUBLE HANDHOLE	EACH	1	1	0	1	-	-
81900200	TRENCH AND BACKFILL FOR ELECTRICAL WORK	FOOT	1705	790	915	467	-	323
85000200	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	1	0	1	-	-	1
85700305	FULL-ACTUATED CONTROLLER AND TYPE V CABINET, SPECIAL	EACH	1	1	0	1	-	-
86000105	MASTER CONTROLLER (SPECIAL)	EACH	1	0	1	-	1	-
86400100	TRANSCEIVER-FIBER OPTIC	EACH	2	1	1	1	-	-
87301215	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	167	167	0	167	-	-
87301225	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	321	321	0	321	-	-
87301245	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	855	855	0	201	-	654
87301255	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	1012	1012	0	340	-	672
87301305	ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR	FOOT	1700	1305	395	815	-	490
87301805	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2C	FOOT	31	31	0	31	-	-
87502480	TRAFFIC SIGNAL POST, GALVANIZED STEEL 14 FT.	EACH	1	1	0	-	-	1
87502490	TRAFFIC SIGNAL POST, GALVANIZED STEEL 15 FT.	EACH	2	2	0	-	-	2
87502500	TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.	EACH	1	1	0	1	-	-
87502520	TRAFFIC SIGNAL POST, GALVANIZED STEEL 18 FT.	EACH	2	2	0	2	-	-
87700170	STEEL MAST ARM ASSEMBLY AND POLE, 26 FT.	EACH	1	1	0	-	-	1
87700200	STEEL MAST ARM ASSEMBLY AND POLE, 32 FT.	EACH	1	1	0	1	-	-
87800100	CONCRETE FOUNDATION, TYPE A	FOOT	24	24	0	12	-	12
87800150	CONCRETE FOUNDATION, TYPE C	FOOT	4	4	0	4	-	-
87800400	CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER	FOOT	10	10	0	-	-	10
87800415	CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	15	15	0	15	-	-
87900200	DRILL EXISTING HANDHOLE	EACH	1	0	1	-	-	1
88030020	SIGNAL HEAD, L.E.D., 1-FACE, 3-SECTION, MAST-ARM MOUNTED	EACH	3	3	0	2	-	1
88030050	SIGNAL HEAD, L.E.D., 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	1	1	0	-	-	1
88030070	SIGNAL HEAD, LED, 1-FACE, 4-SECTION, BRACKET MOUNTED	EACH	2	2	0	1	-	1
88030100	SIGNAL HEAD, L.E.D., 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	1	1	0	1	-	-
88030110	SIGNAL HEAD, L.E.D., 1-FACE, 5-SECTION, MAST-ARM MOUNTED	EACH	1	1	0	-	-	1
88030230	SIGNAL HEAD, L.E.D., 2-FACE, 1-3 SECTION, 1-4 SECTION, BRACKET MOUNTED	EACH	2	2	0	1	-	1
88102710	PEDESTRIAN SIGNAL HEAD, L.E.D., 1-FACE, BRACKET MOUNTED	EACH	2	2	0	2	-	-
88200100	TRAFFIC SIGNAL BACKPLATE	EACH	4	4	0	2	-	2
88500100	INDUCTIVE LOOP DETECTOR	EACH	6	5	1	3	-	2
88600100	DETECTOR LOOP, TYPE I	FOOT	410	410	0	252	-	158
* 88700200	LIGHT DETECTOR	EACH	2	2	0	2	-	-
* 88700300	LIGHT DETECTOR AMPLIFIER	EACH	1	1	0	1	-	-
88800100	PEDESTRIAN PUSH-BUTTON	EACH	2	2	0	2	-	-
89502200	MODIFY EXISTING CONTROLLER	EACH	1	0	0	-	-	1
X0322925	ELECTRIC CABLE IN CONDUIT, TRACER, NO. 14 1C	FOOT	1350	0	1350	-	-	1350
X0324007	OPTIMIZE TRAFFIC SIGNAL SYSTEM	EACH	1	0	1	-	1	-
X8050015	SERVICE INSTALLATION-POLE MOUNTED	EACH	1	1	0	1	-	-
X8620020	UNINTERRUPTABLE POWER SUPPLY	EACH	1	1	0	1	-	-
X8710020	FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125 MM12F SM12F	FOOT	1376	0	1376	-	-	1376
X8730027	ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6 1C	FOOT	579	579	0	241	-	338
* X8730250	ELECTRIC CABLE IN CONDUIT NO. 20 3/C, TWISTED, SHIELDED	FOOT	136	136	0	136	-	-
XX005723	VIDEO DETECTION SYSTEM COMPLETE INTERSECTION	EACH	1	1	0	1	-	-

** SPECIALTY ITEMS
* 100% COST TO FRANKFORT FIRE PROTECTION DISTRICT(4031-30)

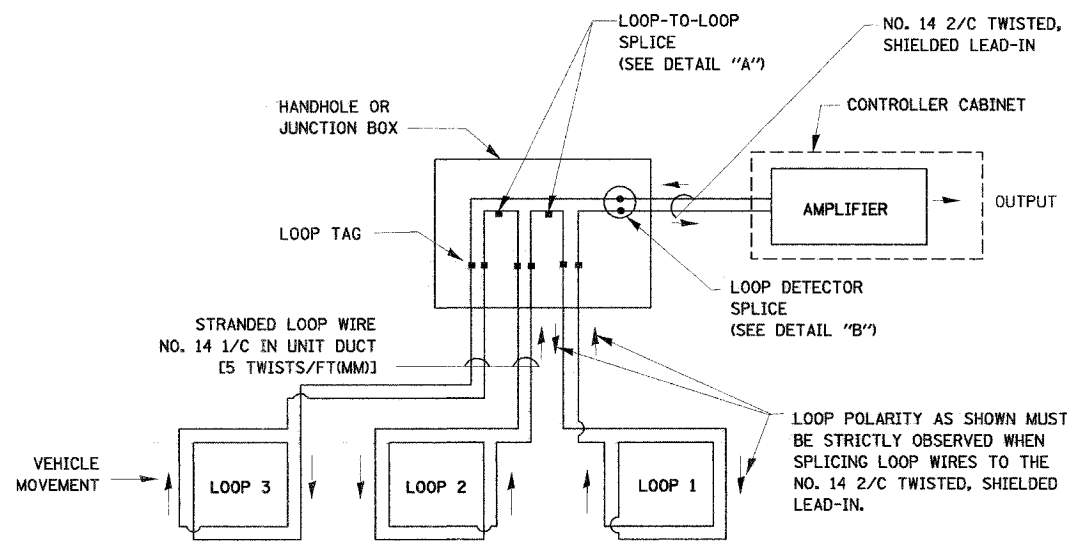


REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
SUMMARY OF QUANTITIES
ILLINOIS ROUTE 43 (HARLEM AVENUE) AT
W. BENTON DRIVE
SCALE: NONE
DATE: 03/08/2007
DRAWN BY: KGP
DESIGNED BY: PKG
CHECKED BY: PKG

LOOP DETECTOR NOTES

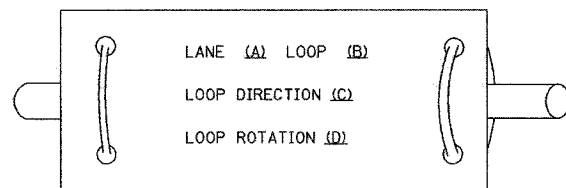
- EACH PAIR OF LOOP WIRES SHALL BE PLACED IN A SEPARATE UNIT DUCT FROM THE EDGE OF PAVEMENT TO THE HANDHOLE. SPACING BETWEEN THE HOLES DRILLED IN THE PAVEMENT SHALL NOT BE LESS THAN 6" (150 mm). UNIT DUCT SHALL BE INCLUDED IN THE COST OF THE LOOP WIRE.
- THE NUMBER OF LOOP TURNS SHALL BE AS RECOMMENDED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



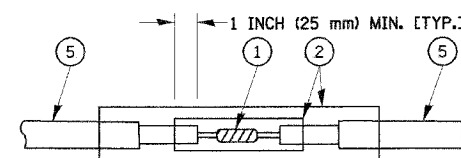
DETECTOR LOOP WIRING SCHEMATIC

- 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.

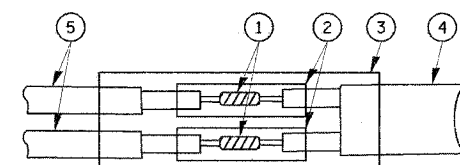
LOOP LEAD-IN CABLE TAG



- 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.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT ONE
STANDARD TRAFFIC SIGNAL
DESIGN DETAILS

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

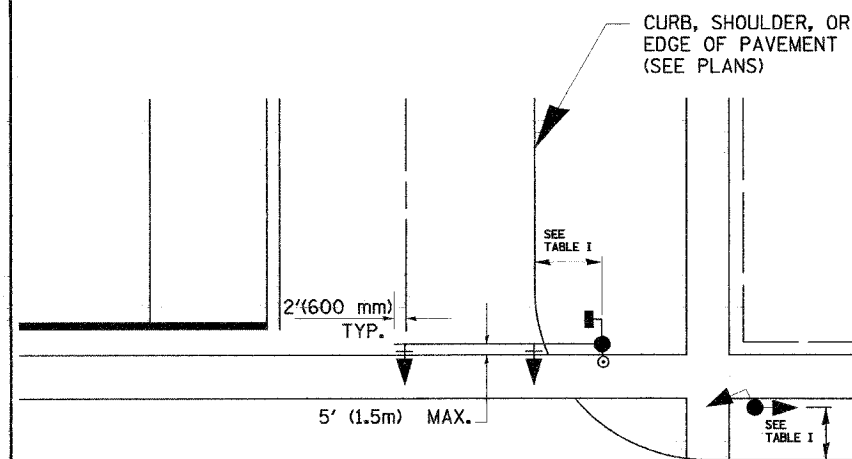
DRAWN BY: RWP
DESIGNED BY: DAD
CHECKED BY: DAZ
SHEET 1 OF 4

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	2006-045TS	WILL	12	4
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

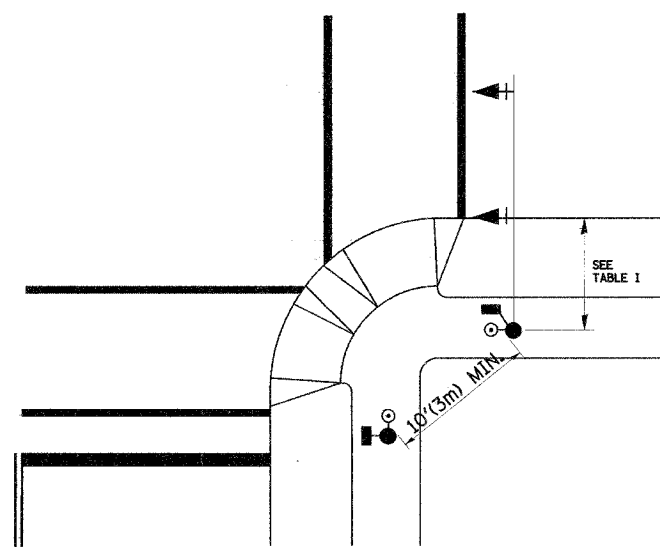
CONTRACT # 60C16

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.

NOTES:

- 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
- 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.
- 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.
- 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

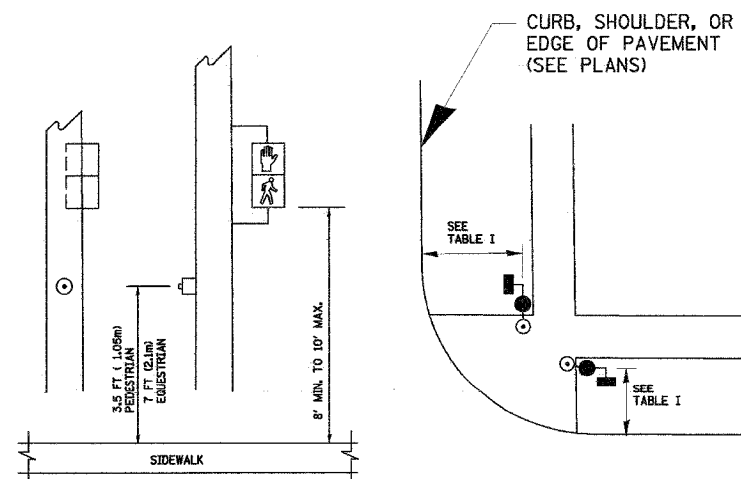


TABLE I

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

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
 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

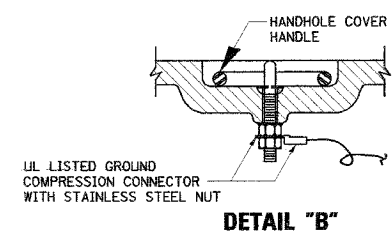
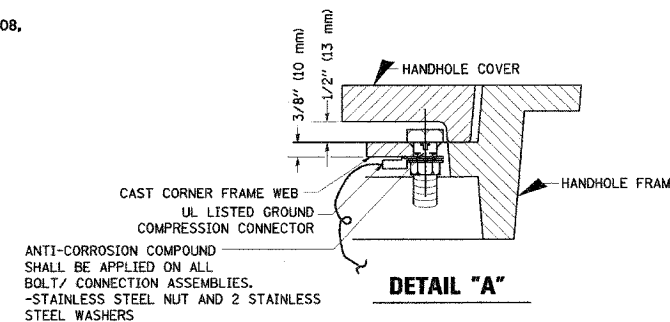
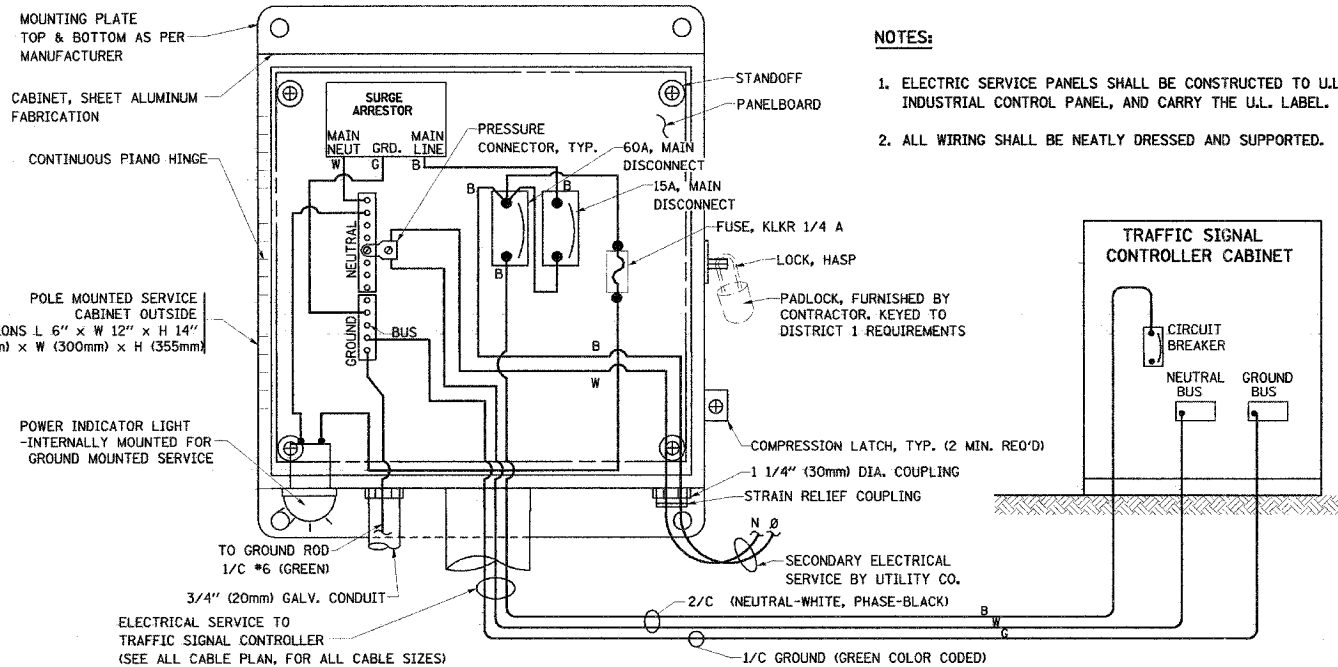
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT:		

CONTRACT # 60C16

NOTES:

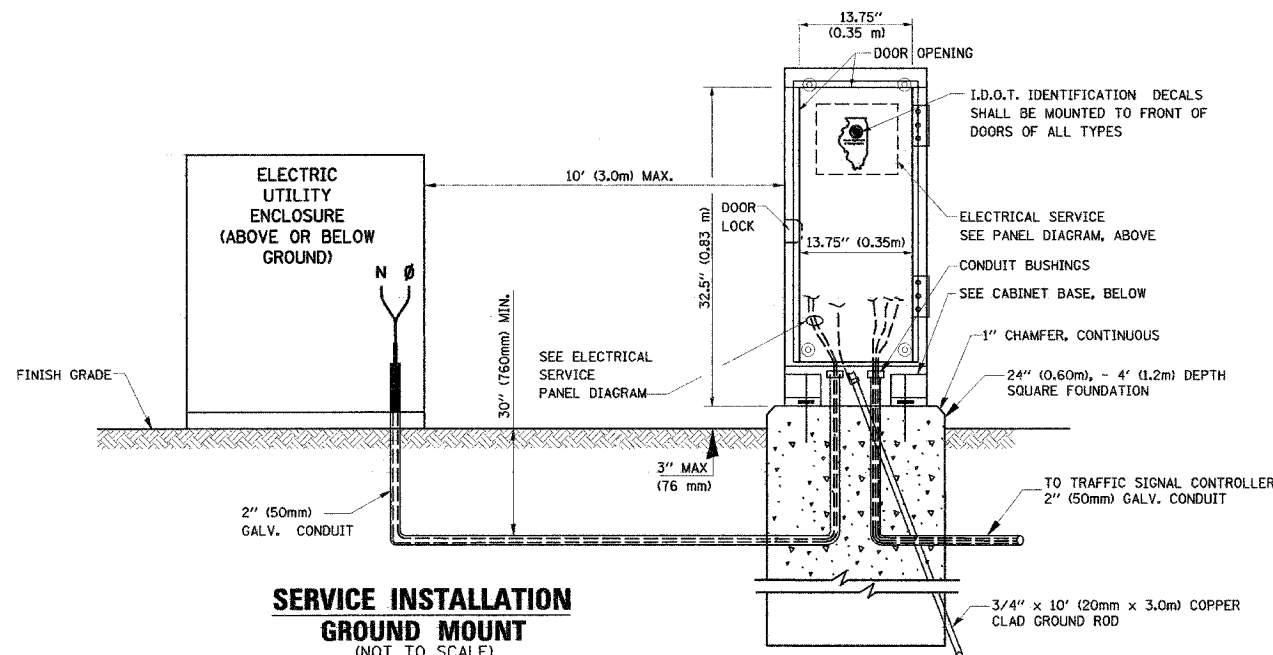
GROUNDING SYSTEM

1. THE GROUNDING SYSTEM SHALL CONSIST OF AN INSULATED CONDUCTOR TYPE XLP, NO. 6 A.W.G., STRANDED COPPER TO BE INSTALLED IN RACEWAYS. THE GROUNDING CABLE SHALL BE INSTALLED IN A CONTINUOUS MANNER AS SHOWN ON THE CABLE PLAN PROVIDED. ALL GROUNDING CONDUCTORS SHALL BE BONDED TO METAL ENCLOSURE (HANDHOLE, POST, MAST ARM, CONTROLLER, ETC.). GROUND ROD SHALL BE 3/4" DIA. x 10'-0" (20mm x 3.0m) LONG, COPPER CLAD. ONE GROUND ROD SHALL BE INSTALLED AT ALL POST FOUNDATIONS, POLE FOUNDATIONS, CONTROLLER CABINET FOUNDATION AND ELECTRICAL SERVICE INSTALLATION AS INDICATED ON THE CABLE PLAN. IF THERE ARE ANY SPECIAL CONDITIONS SUCH AS SUB-SURFACE CONDITIONS OR INSTALLATION PROBLEMS, THE RESIDENT ENGINEER SHALL BE NOTIFIED OR CONTACT THE BUREAU OF TRAFFIC, ILLINOIS DEPARTMENT OF TRANSPORTATION DISTRICT ONE AT (847) 705-4139.
2. THE NEUTRAL CONDUCTOR AND THE GROUND CONDUCTOR SHALL BE CONNECTED IN THE SERVICE INSTALLATION. AT NO OTHER POINT IN THE TRAFFIC SIGNAL SYSTEM SHALL THE NEUTRAL AND GROUND CONDUCTORS BE CONNECTED.
3. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL TERMINATE AT THE GROUND BUS IN THE CONTROLLER CABINET.
4. THE CONTRACTOR SHALL PROVIDE A GROUND CABLE WITH CONNECTORS BETWEEN THE HANDHOLE COVER AND HANDHOLE FRAME.

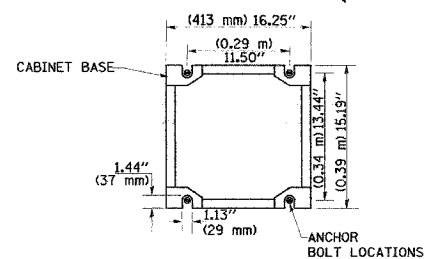


ELECTRICAL SERVICE – PANEL DIAGRAM (TYPICAL FOR POLE AND GROUND MOUNTED SERVICE)

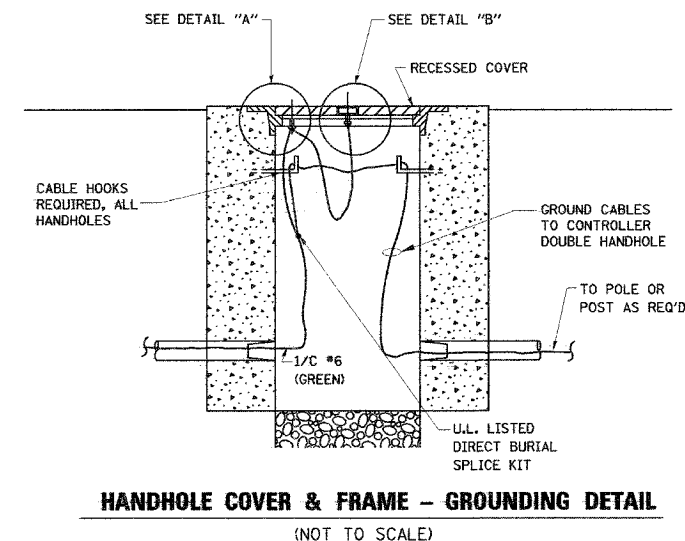
SERVICE INSTALLATION POLE MOUNT (SHOWN) (NOT TO SCALE)



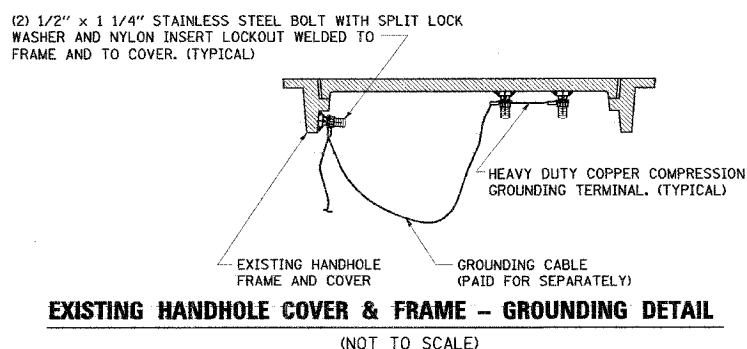
SERVICE INSTALLATION GROUND MOUNT (NOT TO SCALE)



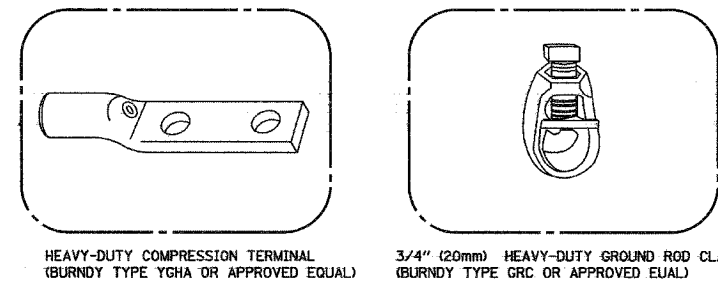
CABINET – BASE BOLT PATTERN (NOT TO SCALE)



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

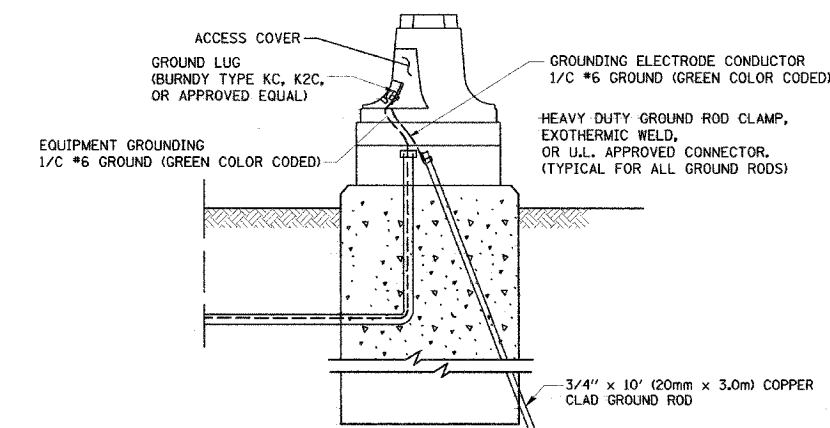


EXISTING HANDHOLE COVER & FRAME – GROUNDING DETAIL (NOT TO SCALE)



NOTES:

- ALL CLAMPS SHALL BE BRONZE OR COPPER, 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.



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

REVISIONS	
NAME	DATE

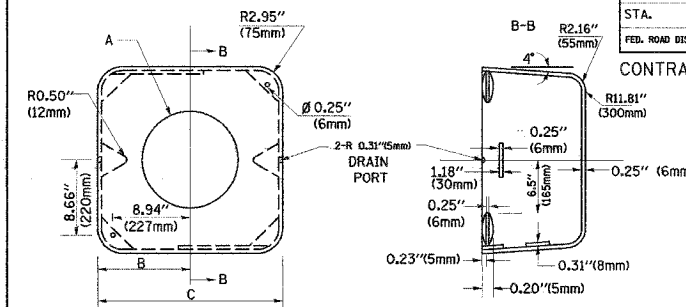
ILLINOIS DEPARTMENT OF TRANSPORTATION
DISTRICT 1
STANDARD TRAFFIC SIGNAL
DESIGN DETAILS

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

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

CONTRACT # 60C16

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

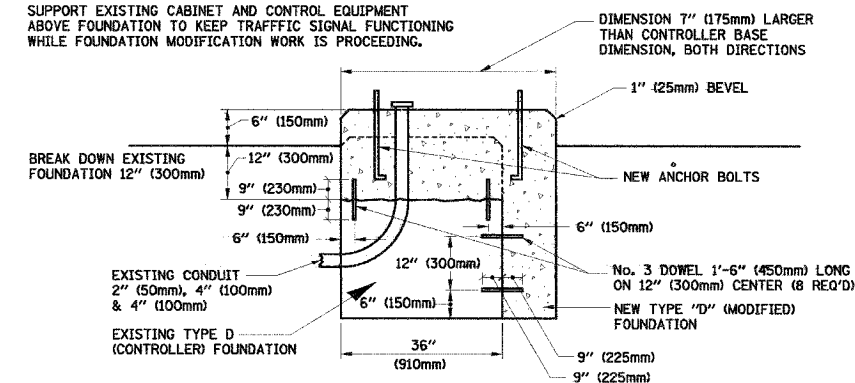


TYPE	A	B	C	HEIGHT	WEIGHT
I	∅ 10.125" (257mm)	9.5" (241mm)	19" (483mm)	12" (300mm)	24kg
II	∅ 11.125" (283mm)	10.75" (273mm)	21.5" (546mm)	12" (300mm)	26kg

SHROUD DETAIL

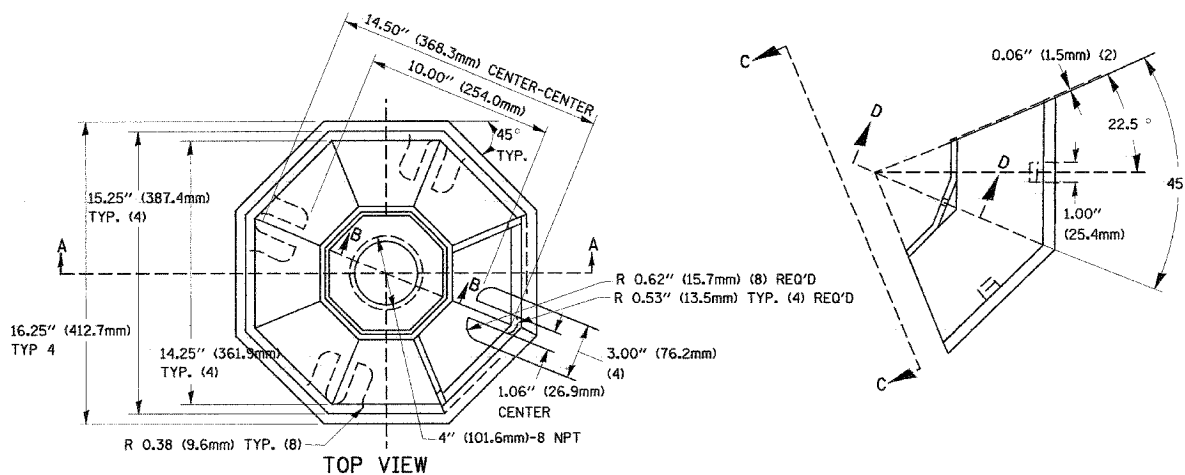
NOTE:

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



MODIFY EXISTING TYPE "D" FOUNDATION

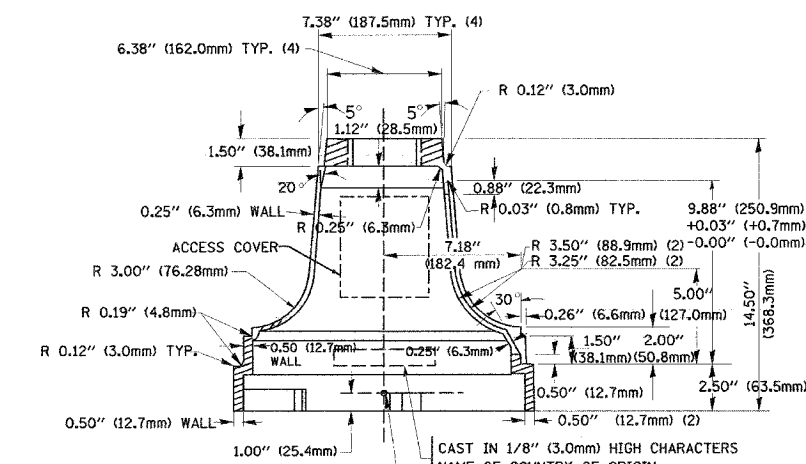
(NOT TO SCALE)



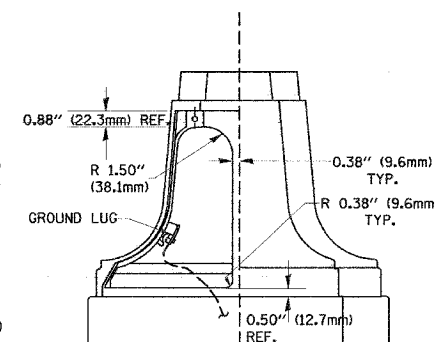
TOP VIEW

SECTION B-B

SECTION D-D



SECTION A-A

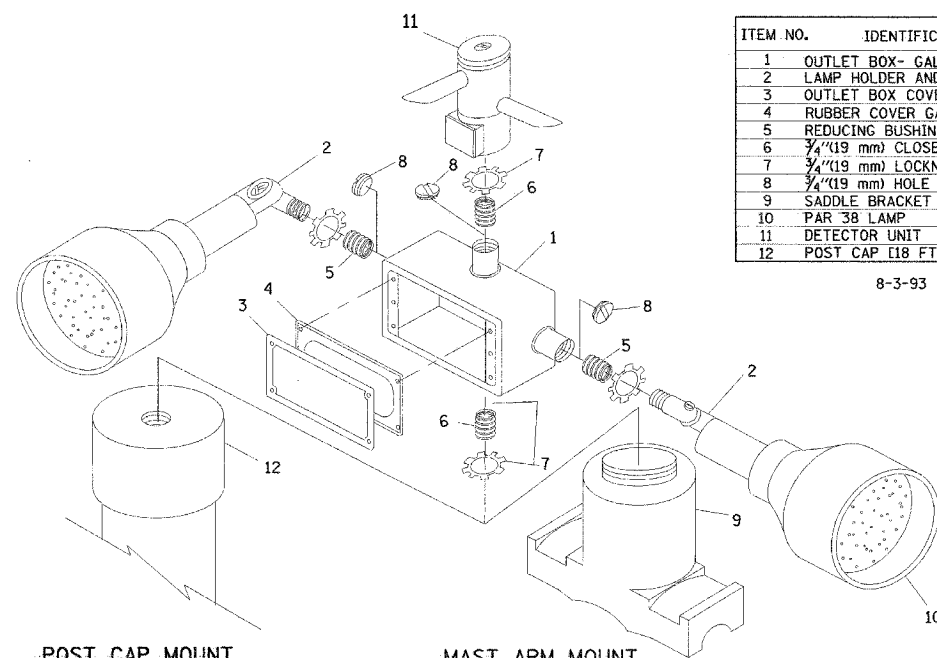


VIEW C-C

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.



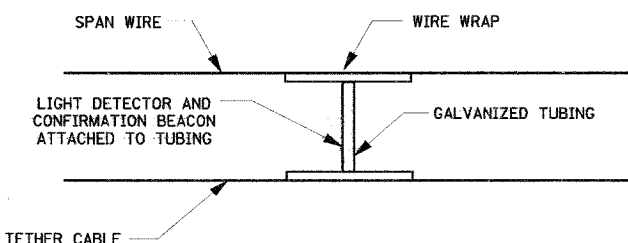
POST CAP MOUNT

MAST ARM MOUNT

EMERGENCY VEHICLE DETECTOR WITH CONFIRMATION BEACON MOUNTING DETAIL

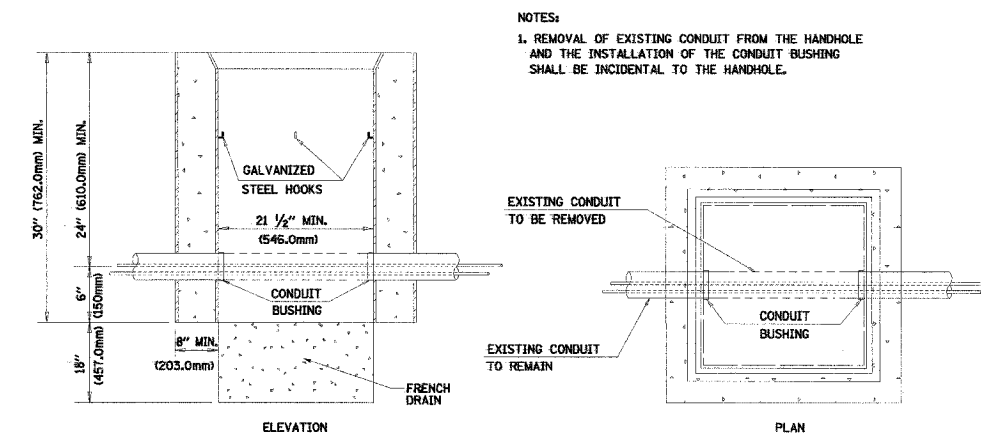
ITEM NO.	IDENTIFICATION
1	OUTLET BOX- GALV. 21 CU.IN. (0.000344 CU-M)
2	LAMP HOLDER AND COVER
3	OUTLET BOX COVER
4	RUBBER COVER GASKET
5	REDUCING BUSHING
6	3/4" (19 mm) CLOSE NIPPLE
7	3/4" (19 mm) LOCKNUT
8	3/4" (19 mm) HOLE PLUG
9	SADDLE BRACKET - GALV.
10	PAR 38 LAMP
11	DETECTOR UNIT
12	POST CAP [18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

8-3-93



LIGHT DETECTOR AND CONFIRMATION BEACON MOUNTING FOR TEMPORARY TRAFFIC SIGNALS

(NOT TO SCALE)



DETAIL HANDHOLE TO INTERCEPT EXISTING CONDUIT N.T.S.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

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 4 OF 4

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	2006-045TS	WILL	12	7
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

CONTRACT # 60C16

LANDSCAPE LGEND

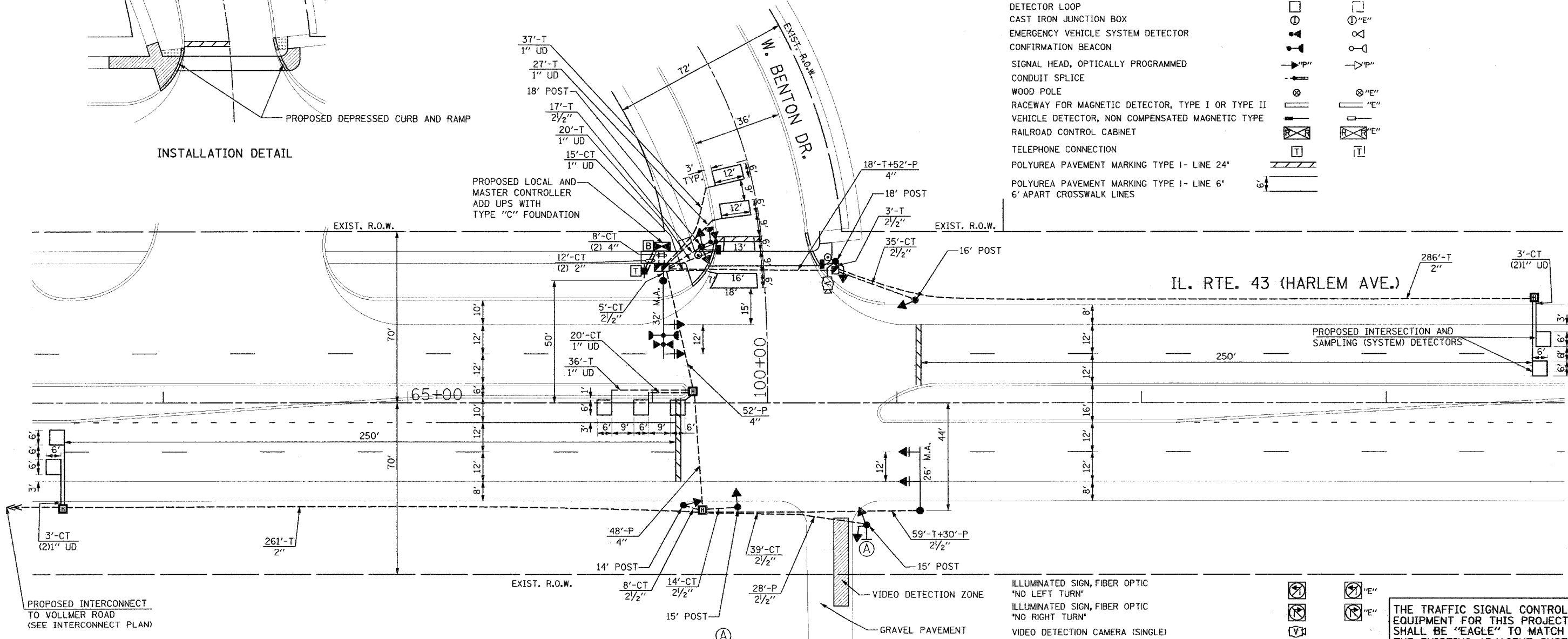
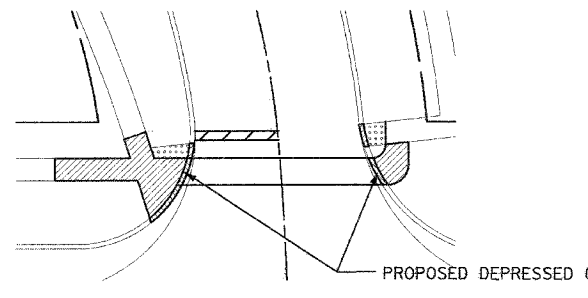
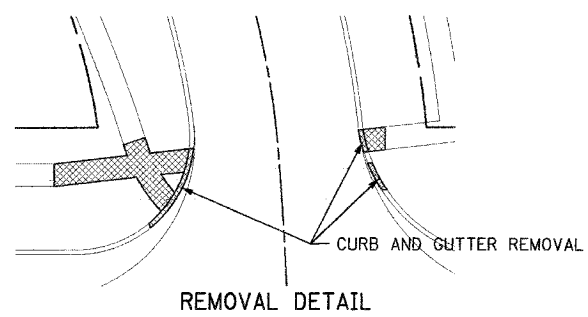
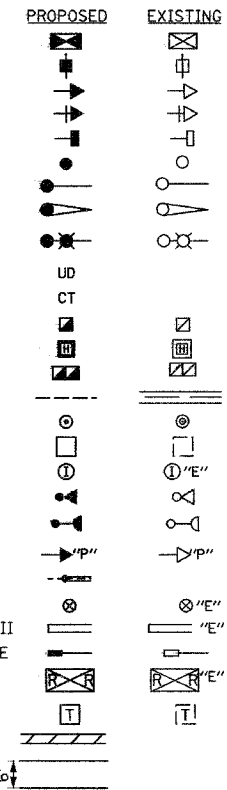
- SIDEWALK REMOVAL
- PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH
- SEEDING TYPE 2A AND SODDING
- CURB AND GUTTER REMOVAL
- PROPOSED CURB AND GUTTER

THE SEEDING AND SODDING REQUIRED IN THE AREA WHERE THE EXISTING SIDEWALK IS REMOVED, SHALL BE CONSIDERED INCIDENTAL TO THE PROPOSED P.C.C. SIDEWALK, 5 INCH AND NO EXTRA COMPENSATION SHALL BE ALLOWED FOR THE SAME.

THE CONTRACTOR SHALL VERIFY THE TYPE OF EXISTING COMBINATION CURB AND GUTTER AND CONSTRUCT THE PROPOSED COMBINATION CURB AND GUTTER TO MATCH THE EXISTING COMBINATION CURB AND GUTTER.

TRAFFIC SIGNAL LEGEND

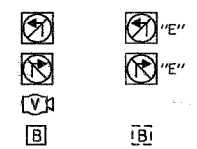
- CONTROLLER
- SERVICE INSTALLATION
- SIGNAL HEAD
- SIGNAL HEAD WITH BACKPLATE
- SIGNAL HEAD, PEDESTRIAN
- SIGNAL POST
- MAST ARM ASSEMBLY AND POLE, STEEL
- MAST ARM ASSEMBLY AND POLE, ALUMINUM
- COMBINATION MAST ARM ASSEMBLY AND POLE, STEEL WITH LUMINAIRE
- UNIT DUCT
- COMMON TRENCH
- HANDHOLE
- HEAVY DUTY HANDHOLE
- DOUBLE HANDHOLE
- GALVANIZED STEEL CONDUIT IN TRENCH OR PUSHED
- PEDESTRIAN PUSHBUTTON DETECTOR
- DETECTOR LOOP
- CAST IRON JUNCTION BOX
- EMERGENCY VEHICLE SYSTEM 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
- POLYUREA PAVEMENT MARKING TYPE I- LINE 24'
- POLYUREA PAVEMENT MARKING TYPE I- LINE 6' 6' APART CROSSWALK LINES



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, medians, 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.



- ILLUMINATED SIGN, FIBER OPTIC "NO LEFT TURN"
- ILLUMINATED SIGN, FIBER OPTIC "NO RIGHT TURN"
- VIDEO DETECTION CAMERA (SINGLE)
- UPS-BATTERY BACK-UP



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

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
TRAFFIC SIGNAL INSTALLATION
 ILLINOIS ROUTE 43 (HARLEM AVENUE)
 AT W. BENTON DRIVE
 SCALE: 1"=20'
 DATE: 03/08/2007
 DRAWN BY: KGP
 DESIGNED BY: PKG
 CHECKED BY: PKG

GO GANDHI AND ASSOCIATES, INC.
 ENGINEERS AND PLANNERS
 6035 N. NORTHWEST HIGHWAY
 SUITE 306
 CHICAGO, ILLINOIS 60631 TEL. (773) 774-5910

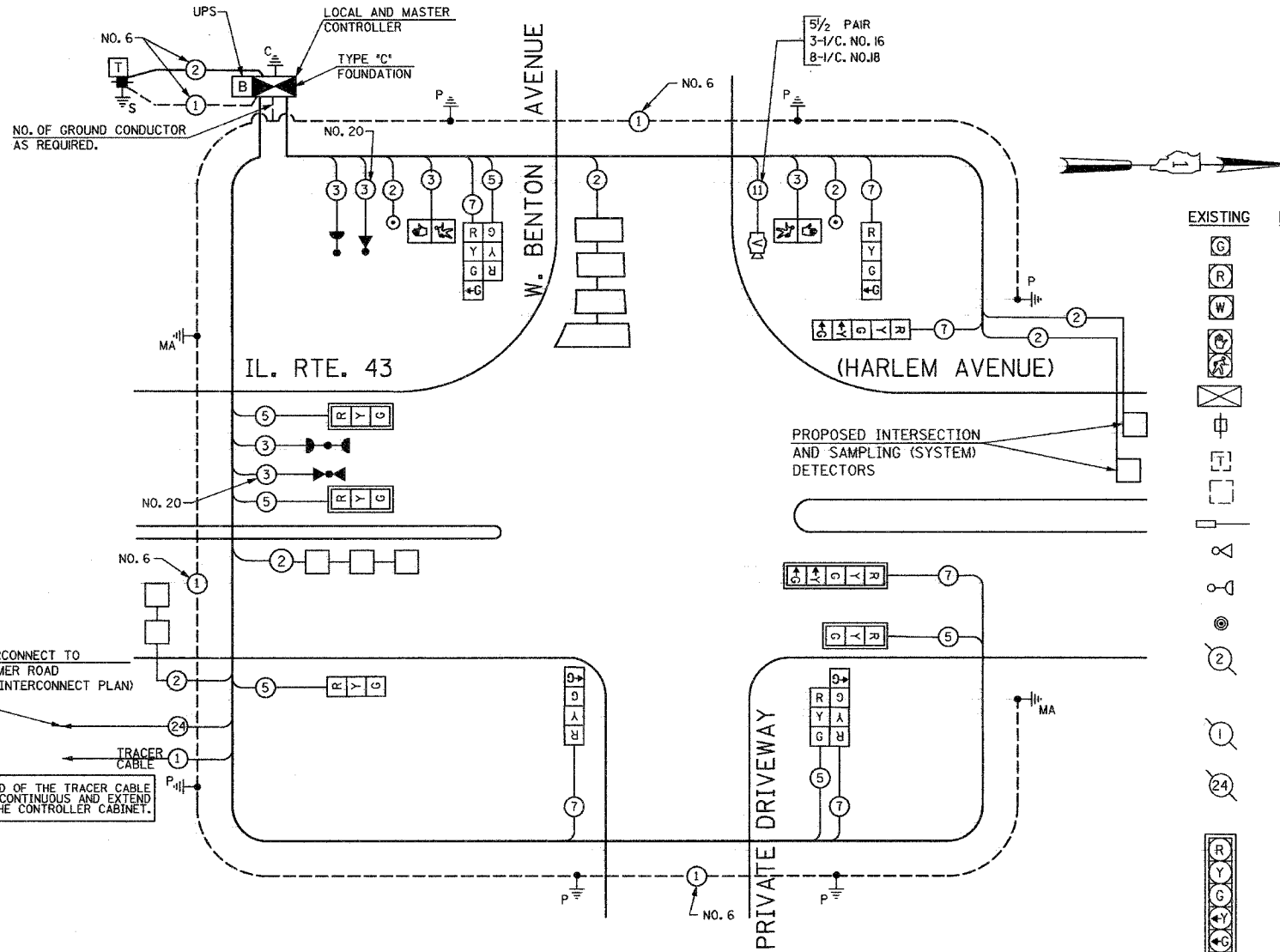
SCHEDULE OF QUANTITIES

QUANTITY	UNIT	ITEM
260	SQ.FT.	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH
32	FOOT	COMBINATION CURB AND GUTTER REMOVAL
220	SQ.FT.	SIDEWALK REMOVAL
32	FOOT	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.12
20	SQ FT.	SIGN PANEL - TYPE 1
12.5	SQ FT.	SIGN PANEL - TYPE 2
83	FOOT	POLYUREA PAVEMENT MARKING TYPE I - LINE 6"
77	FOOT	POLYUREA PAVEMENT MARKING TYPE I - LINE 24"
571	FOOT	CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL
180	FOOT	CONDUIT IN TRENCH, 2 1/2" DIA., GALVANIZED STEEL
34	FOOT	CONDUIT IN TRENCH, 4" DIA., GALVANIZED STEEL
58	FOOT	CONDUIT PUSHED, 2 1/2" DIA., GALVANIZED STEEL
152	FOOT	CONDUIT PUSHED, 4" DIA., GALVANIZED STEEL
1	EACH	HANDHOLE
4	EACH	HEAVY-DUTY HANDHOLE
1	EACH	DOUBLE HANDHOLE
790	FOOT	TRENCH AND BACKFILL FOR ELECTRICAL WORK
1	EACH	FULL-ACTUATED CONTROLLER AND TYPE V CABINET, SPECIAL
1	EACH	TRANSCIEVER-FIBER OPTIC
167	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C
321	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C
855	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C
1012	FOOT	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C
1305	FOOT	ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR
31	FOOT	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2C
1	EACH	TRAFFIC SIGNAL POST, GALVANIZED STEEL 14 FT.
2	EACH	TRAFFIC SIGNAL POST, GALVANIZED STEEL 15 FT.
1	EACH	TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.
2	EACH	TRAFFIC SIGNAL POST, GALVANIZED STEEL 18 FT.
1	EACH	STEEL MAST ARM ASSEMBLY AND POLE, 26 FT.
1	EACH	STEEL MAST ARM ASSEMBLY AND POLE, 32 FT.
24	FOOT	CONCRETE FOUNDATION, TYPE A
4	FOOT	CONCRETE FOUNDATION, TYPE C
10	FOOT	CONCRETE FOUNDATION, TYPE E 30-INCH DIAMETER
15	FOOT	CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER
3	EACH	SIGNAL HEAD, L.E.D., 1-FACE, 3-SECTION, MAST ARM MOUNTED
1	EACH	SIGNAL HEAD, L.E.D., 1-FACE, 3-SECTION, BRACKET MOUNTED
2	EACH	SIGNAL HEAD, LED, 1-FACE, 4-SECTION, BRACKET MOUNTED
1	EACH	SIGNAL HEAD, L.E.D., 1-FACE, 5-SECTION, BRACKET MOUNTED
1	EACH	SIGNAL HEAD, L.E.D., 1-FACE, 5-SECTION, MAST ARM MOUNTED
2	EACH	SIGNAL HEAD, L.E.D., 2-FACE, 1-3 SECTION, 1-4 SECTION, BRACKET MOUNTED
2	EACH	PEDESTRIAN SIGNAL HEAD, L.E.D., 1-FACE, BRACKET MOUNTED
4	EACH	TRAFFIC SIGNAL BACKPLATE
5	EACH	INDUCTIVE LOOP DETECTOR
410	FOOT	DETECTOR LOOP, TYPE 1
2	EACH	LIGHT DETECTOR
1	EACH	LIGHT DETECTOR AMPLIFIER
2	EACH	PEDESTRIAN PUSH-BUTTON
1	EACH	SERVICE INSTALLATION, POLE MOUNTED
1	EACH	UNINTERRUPTABLE POWER SUPPLY
579	FOOT	ELECTRIC CABLE IN CONDUIT, GROUNDING, NO. 6 1C (GREEN)
136	FOOT	ELECTRIC CABLE IN CONDUIT NO. 20 3/C, TWISTED, SHIELDED
1	EACH	VIDEO DETECTION SYSTEM COMPLETE INTERSECTION

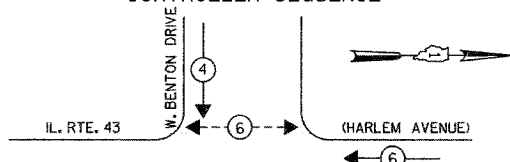
• 100% COST TO FRANKFORT FIRE PROTECTION DISTRICT

I.D.O.T. TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS					TOTAL WATTAGE
TYPE	NO LAMPS	WATTAGE		OPERATION	
SIGNAL (RED)	12	135	17	0.50	102.0
(YELLOW)	12	135	25	0.25	75.0
(GREEN)	12	135	15	0.25	45.0
ARROW	8	135	12	0.10	9.6
PED. SIGNAL	2	90	25	1.00	50.0
CONTROLLER ILLUM. SIGN	1	100	100	0.05	100.0
FLASHER				0.50	
ENERGY COSTS TO:					TOTAL = 381.6
ILLINOIS DEPARTMENT OF TRANSPORTATION 201 WEST CENTER COURT SCHAMBURG, ILLINOIS 60196-1096					
ENERGY SUPPLY CONTACT: Ms. DOLORES KREMNITZER PHONE: (815) 724-5241 COMPANY: COMED-EDISON					

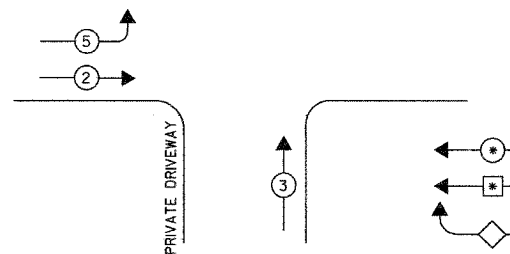
FOUNDATION (DEPTH)	FT. (m)	CABLE SLACK	FT. (m)	VERTICAL	FT. (m)
TYPE A-POST	4 (1.2)	HANDHOLE	6.5 (2.0)	ALL FOUNDATIONS	3.5 (1.0)
D-CONTROLLER	4 (1.2)	DOUBLE HANDHOLE	13 (4.0)	MAST ARM (L) POLE	20'-H-2'
F-M ARM POLE		SIGNAL POST	2 (0.6)	(6m-H-0.6m)=	
24" (600mm)	10 (3.0)	CONTROLLER CAB.	1 (0.5)	BRACKET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



CONTROLLER SEQUENCE



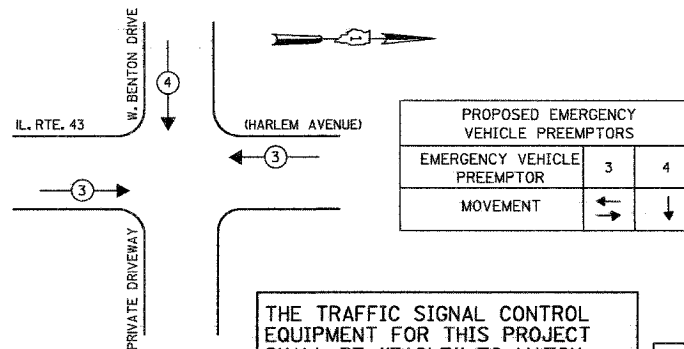
PHASE DESIGNATION DIAGRAM



LEGEND

- DUAL ENTRY PHASE
- SINGLE ENTRY PHASE
- O.L.
- OVERLAP
- PEDESTRIAN PHASE
- NUMBER REFERS TO ASSOCIATED PHASE

EMERGENCY VEHICLE PREEMPTION SEQUENCE



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

GO GANDHI AND ASSOCIATES, INC.
ENGINEERS AND PLANNERS
6035 N. NORTHWEST HIGHWAY
SUITE 306
CHICAGO, ILLINOIS 60651 TEL. (773) 774-5910

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
CABLE PLAN
PHASE DESIGNATION DIAGRAM
EMERGENCY VEHICLE PREEMPTION SEQUENCE
AND SCHEDULE OF QUANTITIES
IL. RTE. 43 AT W. BENTON DRIVE

SCALE: NONE
DATE: 03/08/2007

DRAWN BY: KGP
DESIGNED BY: PKG
CHECKED BY: PKG

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	2006-045TS	WILL	12	8
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	

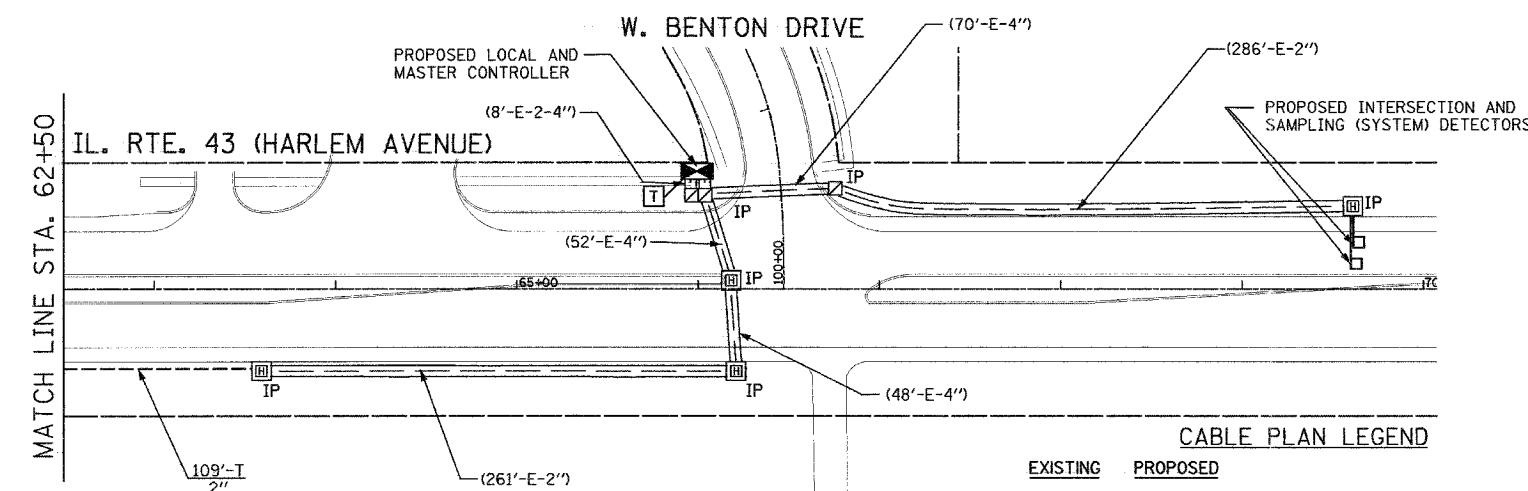
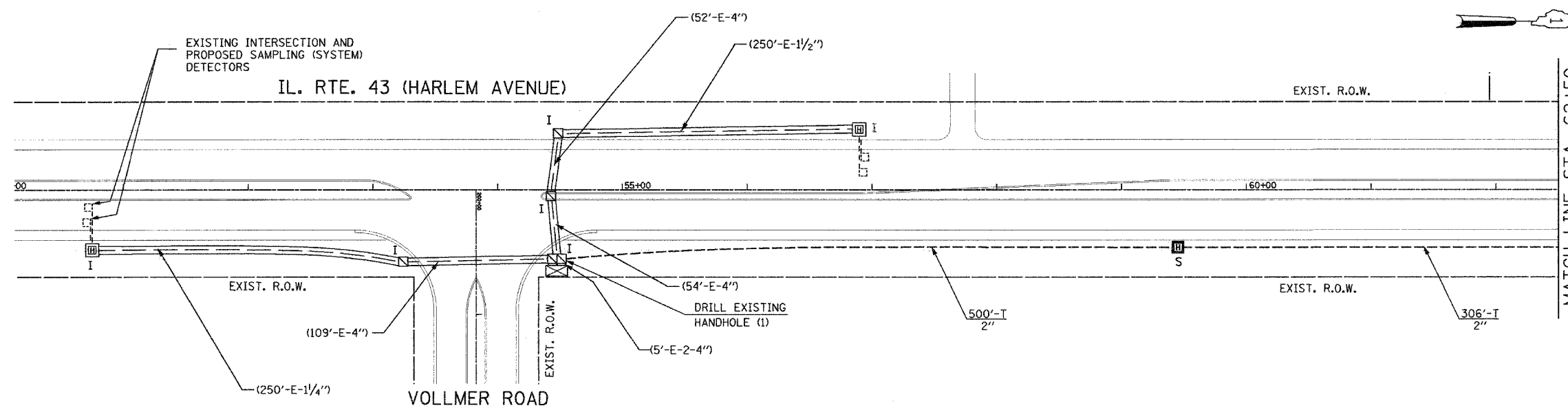
CONTRACT # 60C16

CABLE PLAN LEGEND

- | EXISTING | PROPOSED | |
|----------|----------|---|
| | | 8" (200mm) TRAFFIC SIGNAL SECTION |
| | | 12" (300mm) TRAFFIC SIGNAL SECTION |
| | | 12" (300mm) PEDESTRIAN SIGNAL SECTION |
| | | 12" (300mm) PEDESTRIAN SIGNAL SECTION |
| | | CONTROLLER CABINET |
| | | SERVICE INSTALLATION |
| | | TELEPHONE INSTALLATION |
| | | VEHICLE DETECTOR, INDUCTION LOOP |
| | | MAGNETIC DETECTOR |
| | | EMERGENCY VEHICLE LIGHT DETECTOR |
| | | CONFIRMATION BEACON |
| | | PUSH-BUTTON 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, FIBER OPTIC "NO LEFT TURN" |
| | | ILLUMINATED SIGN, FIBER OPTIC "NO RIGHT TURN" |
| | | H/C GROUND ROD AT HANDHOLE, DOUBLE HANDHOLE, OR CONTROLLER |
| | | P GROUND ROD AT POST OR MAST ARM POLE |
| | | S GROUND ROD AT ELECTRIC SERVICE INSTALLATION |
| | | V VIDEO DETECTION CAMERA (SINGLE) |
| | | B UPS - BATTERY BACK-UP SYSTEM |

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
348	2006-045TS	WILL	12	9
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

CONTRACT # 60C16

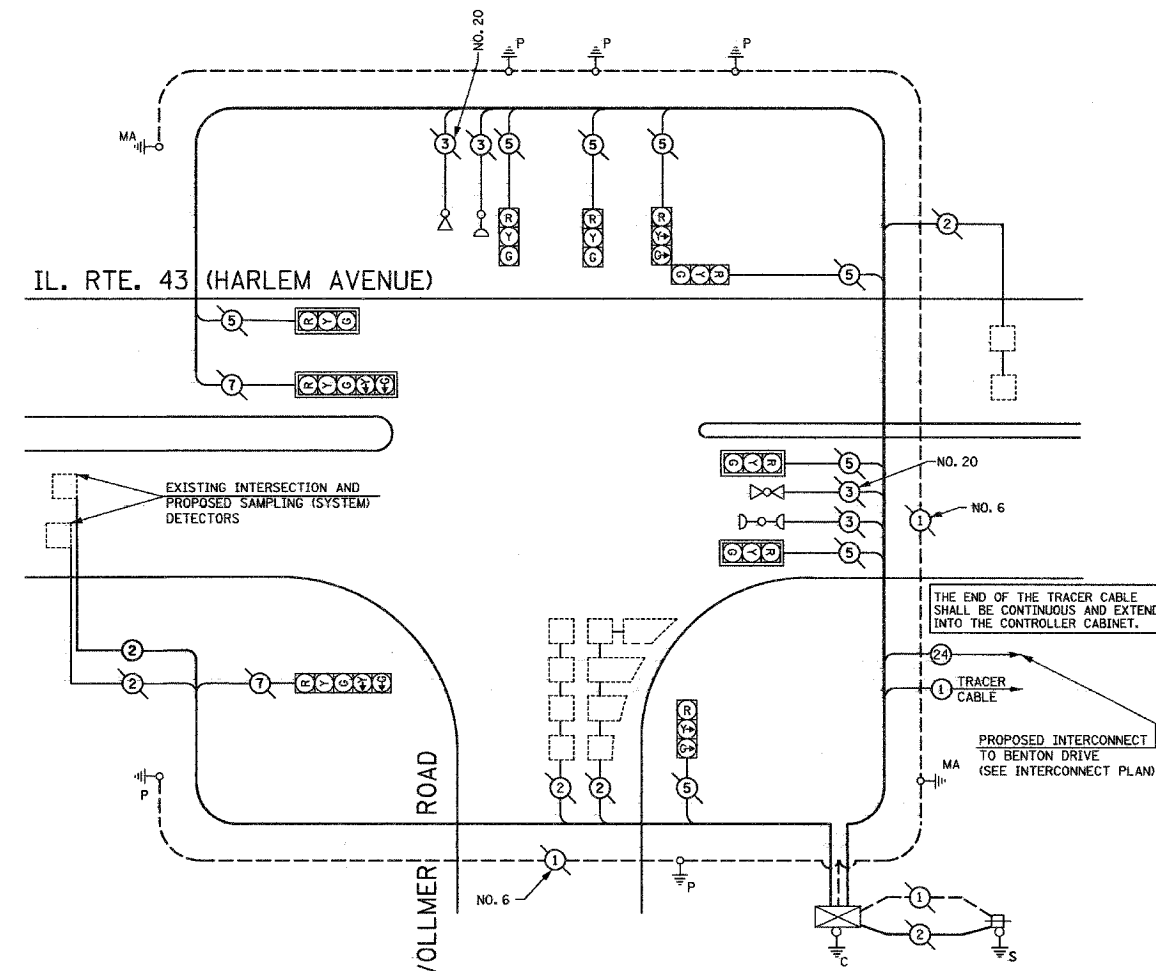


INTERCONNECT PLAN LEGEND

	PROPOSED	EXISTING
CONTROLLER		
HANDHOLE		
DOUBLE HANDHOLE		
HEAVY DUTY HANDHOLE		
GALVANIZED STEEL CONDUIT IN TRENCH OR PUSHED		
DETECTOR LOOP		
COMMON TRENCH	CT	
UNIT DUCT	UD	
SYSTEM	S	
INTERSECTION	IP	I
TELEPHONE CONNECTION	T	T

CABLE PLAN LEGEND

EXISTING	PROPOSED	
		12" (300mm) TRAFFIC SIGNAL SECTION
		CONTROLLER CABINET
		SERVICE INSTALLATION
		VEHICLE DETECTOR, INDUCTION LOOP
		EMERGENCY VEHICLE LIGHT DETECTOR
		CONFIRMATION BEACON
		DENOTES NUMBER OF CONDUCTORS, ALL CABLE NO. 14 EXCEPT AS INDICATED. ALL LOOP DETECTOR CABLE TO BE SHIELDED.
		GROUND CABLE IN CONDUIT NO. 6 SOLID COPPER (GREEN)
		FIBER OPTIC CABLE IN CONDUIT NO. 62.5/125 2-MM12F & SM12F
		SIGNAL FACE WITH BACKPLATE. *P* INDICATES PROGRAMMED HEAD.
		GROUND ROD AT POST OR MAST ARM POLE
		GROUND ROD AT ELECTRIC SERVICE INSTALLATION



CABLE PLAN
IL. RTE. 43 (HARLEM AVE.) AT VOLLMER RD.
N.T.S.

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

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
PROPOSED INTERCONNECT PLAN
ILLINOIS ROUTE 43 (HARLEM AVENUE) FROM
VOLLMER ROAD TO W. BENTON DRIVE
EXISTING CABLE PLAN
ILL. RTE. 43 AT VOLLMER RD.
SCALE: 1"=50'
DATE: 03/08/2007
DRAWN BY: KGP
DESIGNED BY: PKG
CHECKED BY: PKG

GO GANDHI AND ASSOCIATES, INC.
ENGINEERS AND PLANNERS
6036 N. NORTHWEST HIGHWAY
SUITE 305
CHICAGO, ILLINOIS 60631 TEL. (773) 774-5910





























F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

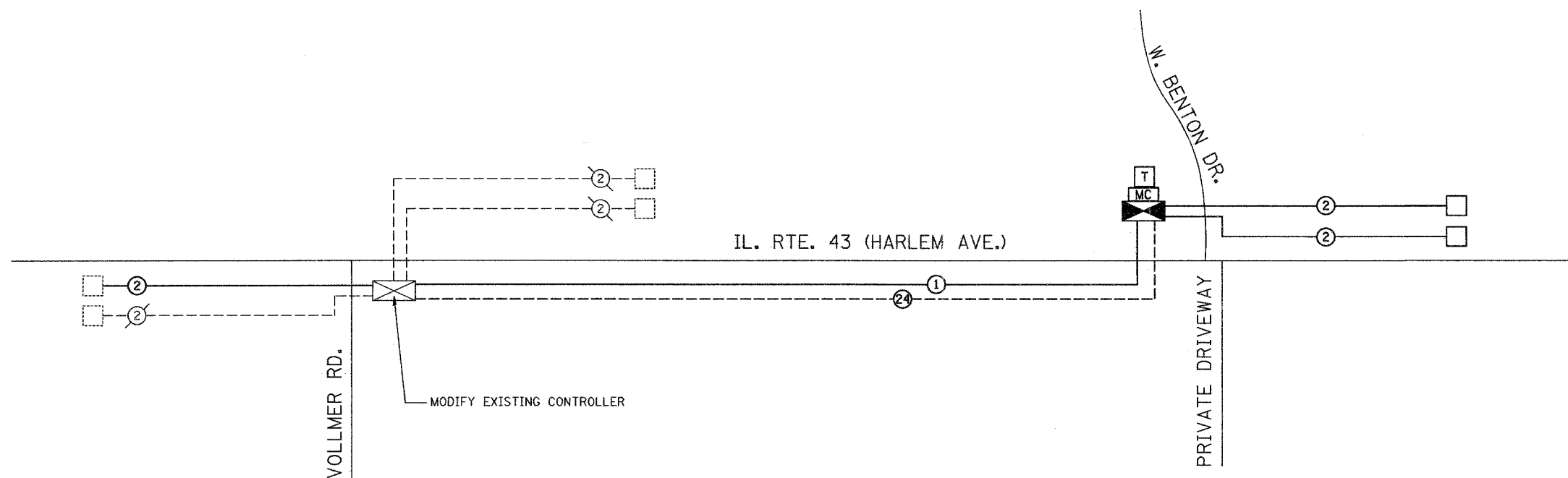
CONTRACT # 60C16

SCHEDULE OF INTERCONNECT QUANTITIES

QUANTITY	UNIT	ITEM
915	FOOT	CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL
1	EACH	HEAVY-DUTY HANDHOLE
915	FOOT	TRENCH AND BACKFILL FOR ELECTRICAL WORK
1	EACH	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION
1	EACH	MASTER CONTROLLER (SPECIAL)
1	EACH	TRANSCIEVER-FIBER OPTIC
395	FOOT	ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR
1	EACH	DRILL EXISTING HANDHOLE
1	EACH	INDUCTIVE LOOP DETECTOR
1	EACH	MODIFY EXISTING CONTROLLER
1350	FOOT	ELECTRIC CABLE IN CONDUIT, TRACER NO. 14 1C
1	EACH	OPTIMIZE TRAFFIC SIGNAL SYSTEM
1376	FOOT	FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125 MM12F & SM12F

INTERCONNECT SCHEMATIC LEGEND

-  EXISTING INTERSECTION CONTROLLER
-  PROPOSED INTERSECTION CONTROLLER
-  EXISTING MASTER CONTROLLER
-  PROPOSED MASTER CONTROLLER
-  MASTER MASTER CONTROLLER
-  EXISTING INTERSECTION & SAMPLING (SYSTEM) DETECTORS
-  PROPOSED INTERSECTION & SAMPLING (SYSTEM) DETECTORS
-  EXISTING INTERSECTION LOOP DETECTORS AND PROPOSED SAMPLING (SYSTEM) DETECTORS
-  EXISTING SAMPLING (SYSTEM) DETECTORS
-  PROPOSED SAMPLING (SYSTEM) DETECTORS
-  EXISTING SAMPLING (SYSTEM) DETECTORS, PROPOSED INTERSECTION & 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 FIBER OPTIC CABLE IN CONDUIT 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



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

REVISIONS	
NAME	DATE

GO GANDHI AND ASSOCIATES, INC.
ENGINEERS AND PLANNERS
6036 N. NORTHWEST HIGHWAY
SUITE 306
CHICAGO, ILLINOIS 60631 TEL. (773) 774-5910

ILLINOIS DEPARTMENT OF TRANSPORTATION
INTERCONNECT SCHEMATIC
ILLINOIS ROUTE 43 (HARLEM AVENUE) FROM
VOLLMER ROAD TO W. BENTON DRIVE
SCALE: N.T.S.
DATE: 03/08/2007
DRAWN BY: KGP
DESIGNED BY: PKG
CHECKED BY: PKG

CONTRACT # 60C16

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

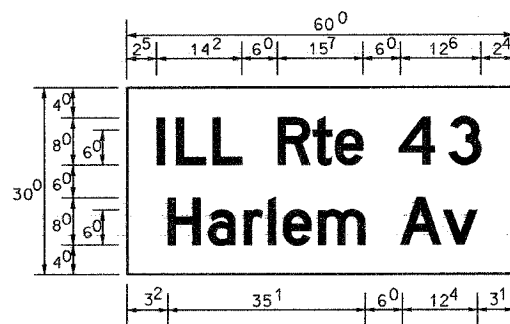
Illinois Department of Transportation
DISTRICT 1

MAST ARM MOUNTED STREET NAME SIGNS

SCALE: NONE
DATE: **DATE**

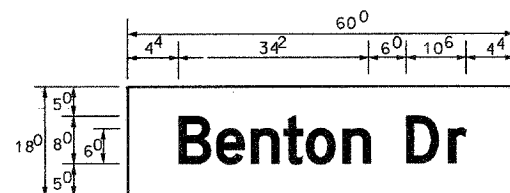
DRAWN BY: ROB
DESIGNED BY: JWE
CHECKED BY: DAD

PANEL SIGN DESIGN TYPE 2



12.50 Sq. Ft. each
1 Required
Design Series D

PANEL SIGN DESIGN TYPE 1



7.50 Sq. Ft. each
2 Required
Design Series D

NOTE: SIGN DIMENSIONS ARE IN ENGLISH UNITS

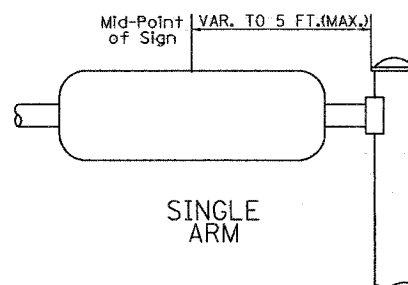
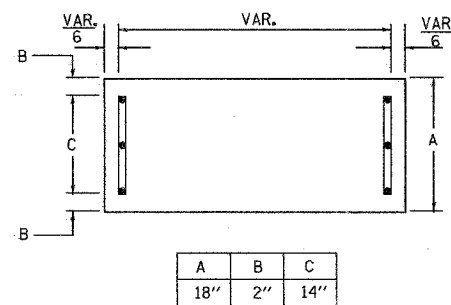
GENERAL NOTES

- WHERE MAST ARM MOUNTED STREET NAME SIGNS ARE SPECIFIED, THE MAST ARM ASSEMBLY AND POLES SHALL BE DESIGNED TO SUPPORT THE LOADINGS CALLED FOR ON STANDARDS 834001, 834006 AND 834011, AS APPLICABLE, PLUS TWO (2) SIGN PANELS 2'-6" x 6'-0" MOUNTED AS SHOWN. THE DESIGN SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" AS PUBLISHED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS FOR 80 M.P.H. WIND VELOCITY.
- ALL SIGNS SHALL HAVE A WHITE REFLECTORIZED LEGEND AND BORDER ON A GREEN REFLECTORIZED BACKGROUND, TYPE A SHEETING.
- THE SIGN LENGTH SHOULD BE INCREASED IN 6-INCH INCREMENTS, BUT THE OVERALL LENGTH SHOULD NOT EXCEED 6'-0".
- ALL BORDERS SHALL BE 3/4" WIDE AND CORNER RADIUS SHALL BE 2-1/4".
- SIGNFIX ALUMINUM CHANNEL FRAMING SYSTEM SHALL BE USED FOR ALL SIGNS ATTACHED TO SIGNAL POLES AND POSTS. LOCAL SUPPLIERS OF THE SIGNFIX ALUMINUM CHANNEL FRAMING SYSTEM ARE:
 - * A.K.T. CORPORATION SCHAUMBURG, IL
 - * TUCKER COMPANY, INC. WAUWATOSA, WI
 - * AMERICAN FABRICATION CO. CHICAGO HEIGHTS, IL
 - * WESTERN TRAFFIC CONTROL INC. CICERO, IL

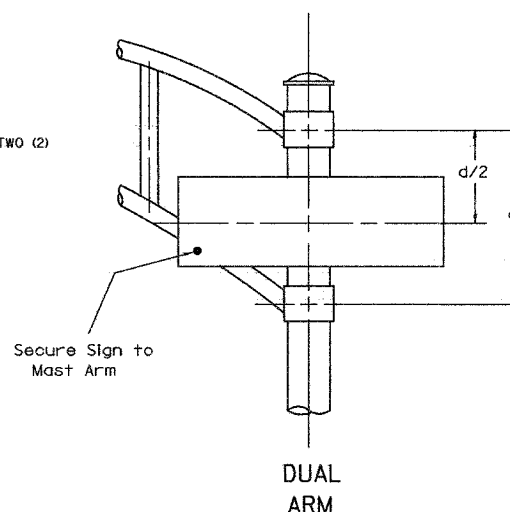
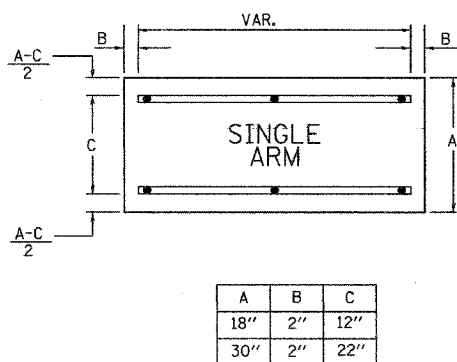
PARTS LISTING:
SIGN CHANNEL PART #HPN053 (MED. CHANNEL)
SIGN SCREWS 1/4" x 14 x 1" H.W.H. #3
BRACKETS PART #HPN034 (UNIVERSAL)

OTHER BRANDS OF MOUNTING HARDWARE ARE ACCEPTABLE, BASED UPON THE DEPARTMENT'S APPROVAL AND COMPATIBILITY WITH THE CHANNEL/BACKET OF THE ABOVE PRODUCT.

SUPPORTING CHANNELS



SUPPORTING CHANNELS



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 3/8"

FIRST LETTER	SECOND LETTER															
	acde		bhikl		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 ⁴	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"

FIRST LETTER	SECOND LETTER															
	acde		bhikl		f w		J		s t		v y		x		z	
	g o q	m n p r u														
ad 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 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 ⁴	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

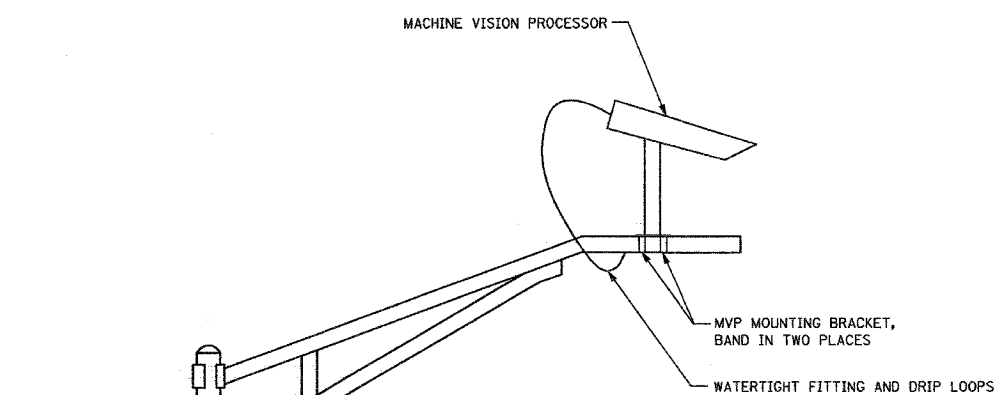
Number To Number

Spacing Chart 8 Inch Series "C & D"

FIRST NUMBER	SECOND NUMBER																			
	0		1		2		3		4		5		6		7		8		9	
	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D
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 </										

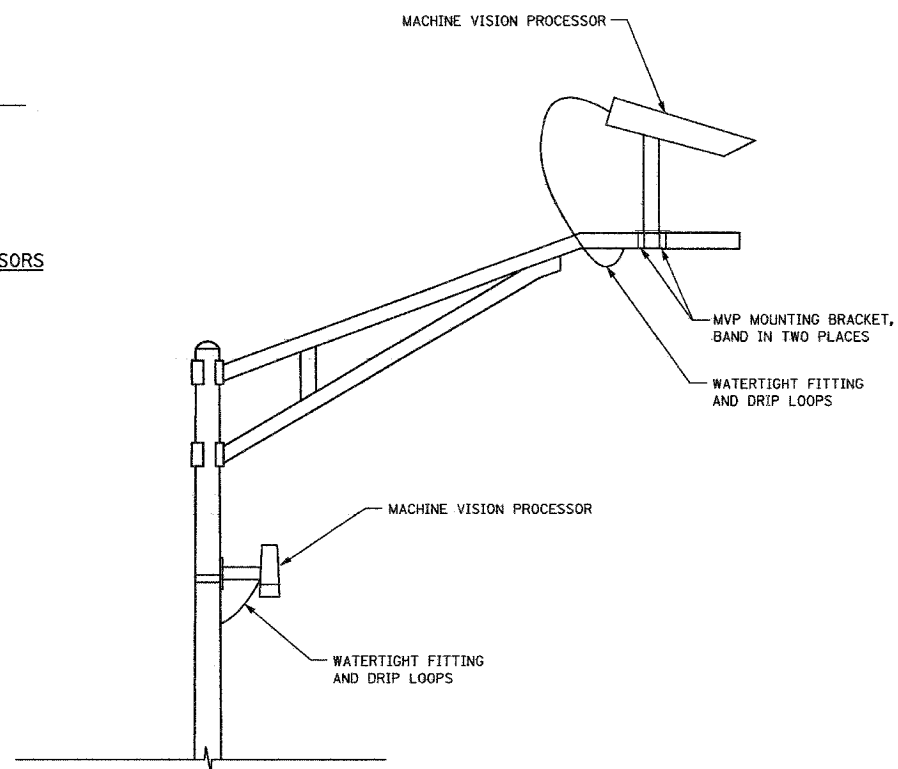
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
348	2006-045TS	WILL	12	12
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT:		

CONTRACT # 60C16

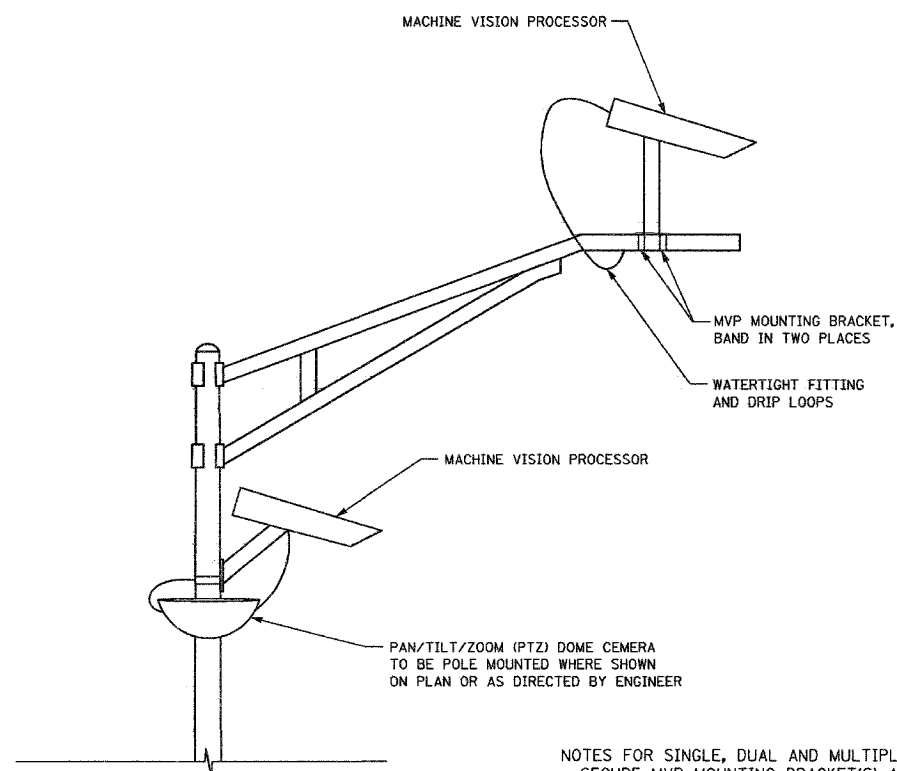


TYPICAL SINGLE MACHINE VISION PROCESSORS MOUNTING DETAILS

WARNING:
AIMING THE MACHINE VISION PROCESSOR AT DIRECT SUNLIGHT WILL CAUSE PERMANENT DAMAGE

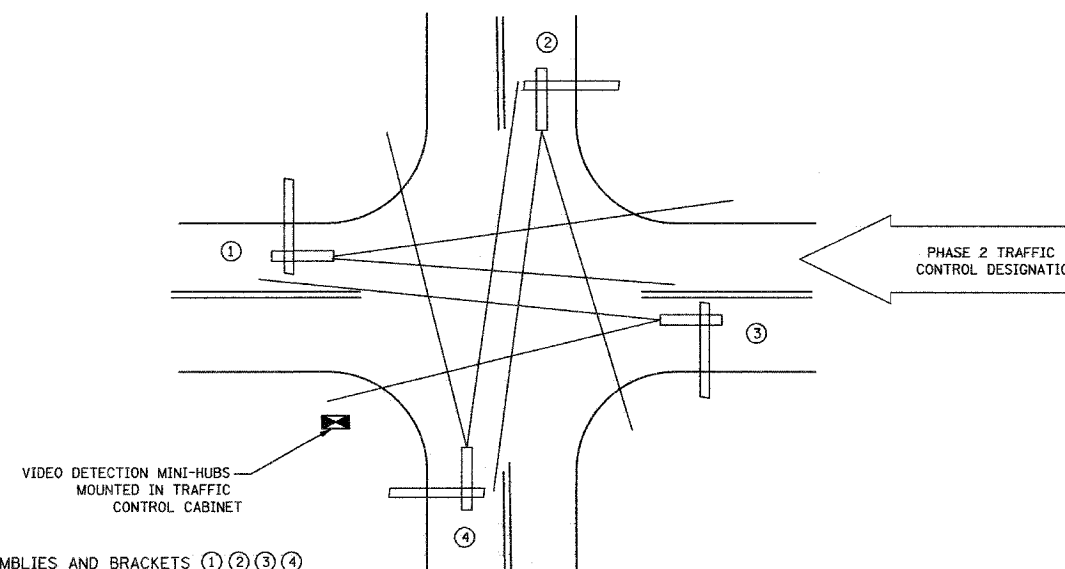


TYPICAL DUAL MACHINE VISION PROCESSORS MOUNTING DETAILS



TYPICAL MULTIPLE MACHINE VISION PROCESSORS MOUNTING DETAILS

NOTES FOR SINGLE, DUAL AND MULTIPLE MOUNTING:
- SECURE MVP MOUNTING BRACKET(S) AS HIGH AS POSSIBLE.
- AIM MVP BRACKET(S) TOWARD DIRECTION OF TRAFFIC TO BE DETECTED.
- MOUNT MACHINE VISION PROCESSOR(S) DOWN AT 30 DEGREE ANGLE.



(4) MACHINE VISION PROCESSOR ASSEMBLIES AND BRACKETS ① ② ③ ④
POWER CABLE TO EACH MACHINE VISION PROCESSOR (24 VAC OR VDC)
POWER CABLE TO PAN/TILT/ZOOM (DOME CAMERA) (115 VAC)

TYPICAL VIDEO VEHICLE DETECTION SYSTEM

ILLINOIS DEPARTMENT OF TRANSPORTATION

TYPICAL VIDEO DETECTION LAYOUT AND MOUNTING DETAILS

REVISIONS	
NAME	DATE

SCALE: NONE
DATE: 03/08/2007

DRAWN BY: KGP
DESIGNED BY: PKG
CHECKED BY: PKG

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