

PROJECT SPONSOR

CITY OF CRYSTAL LAKE MCHENRY COUNTY
PUBLIC WORKS DEPARTMENT DIVISION OF TRANSPORTATION
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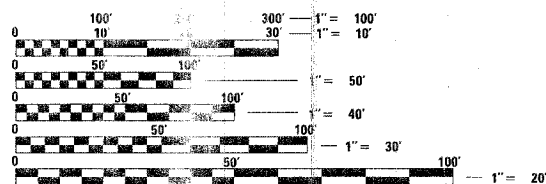
FEBRUARY 17, 2006

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HIGHWAY STANDARDS (EFFECTIVE 8-5-05)

- 424001-04 CURB RAMPS FOR SIDEWALKS
701006-02 OFF-RD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE
701201-02 LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS >= 45 MPH
701301-02 LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701701-04 URBAN LANE CLOSURE, MULTILANE INTERSECTION
701801-03 LANE CLOSURE, MULTILANE, 1W OR 2W CROSSWALK OR SIDEWALK CLOSURE
702001-06 TRAFFIC CONTROL DEVICES
720001 SIGN PANEL MOUNTING DETAILS
720006 SIGN PANEL ERECTION DETAILS
805001 ELECTRICAL SERVICE INSTALLATION DETAILS
814001 CONCRETE HANDHOLES
814006 DOUBLE HANDHOLES
857001 STANDARD PHASE DESIGNATION DIAGRAMS AND PHASE SEQUENCES
877011-02 STEEL COMBINATION MAST ARM ASSEMBLY AND POLE
878001-04 CONCRETE FOUNDATION DETAILS
880006 TRAFFIC SIGNAL MOUNTING DETAILS



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. JOINT INFORMATION FOR EXCAVATION
1-800-...

CONFIDENTIAL NO. 83844

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROPOSED TRAFFIC SIGNAL PLANS

ACKMAN ROAD FAU 3873 (CH 42-A46)
AT GOLF COURSE ROAD FAU 3872

SECTION 04-00101-00-TL

PROJECT NO: M-8003 (548)

JOB NO: C-91-083-06

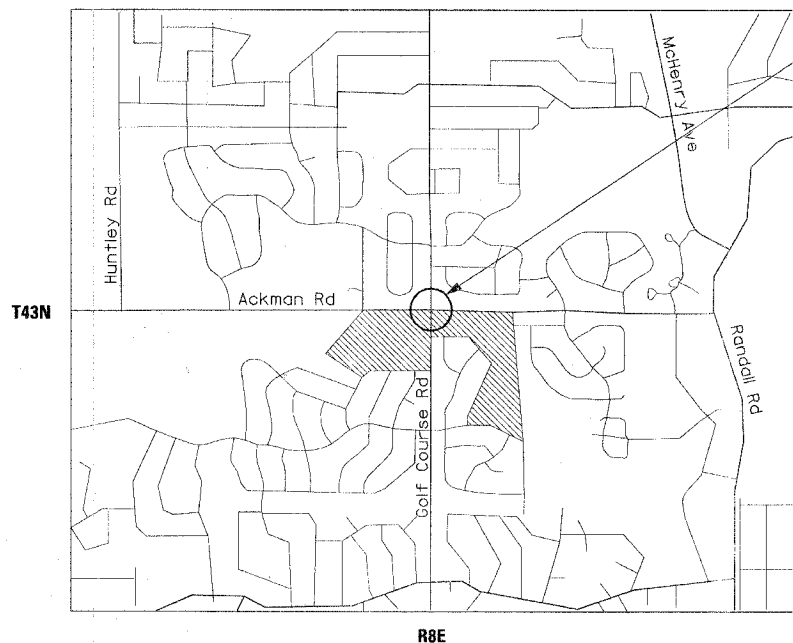
TRAFFIC SIGNAL IMPROVEMENTS

CITY OF CRYSTAL LAKE

MCHENRY COUNTY

ALGONQUIN TOWNSHIP

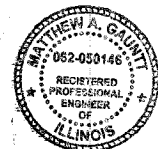
LOCATION MAP



TRAFFIC SIGNAL IMPROVEMENT



ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION NO. 184-000812



I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED UNDER MY DIRECT SUPERVISION.

DATED AT ST. CHARLES, ILLINOIS THIS 27th DAY OF February, 2006

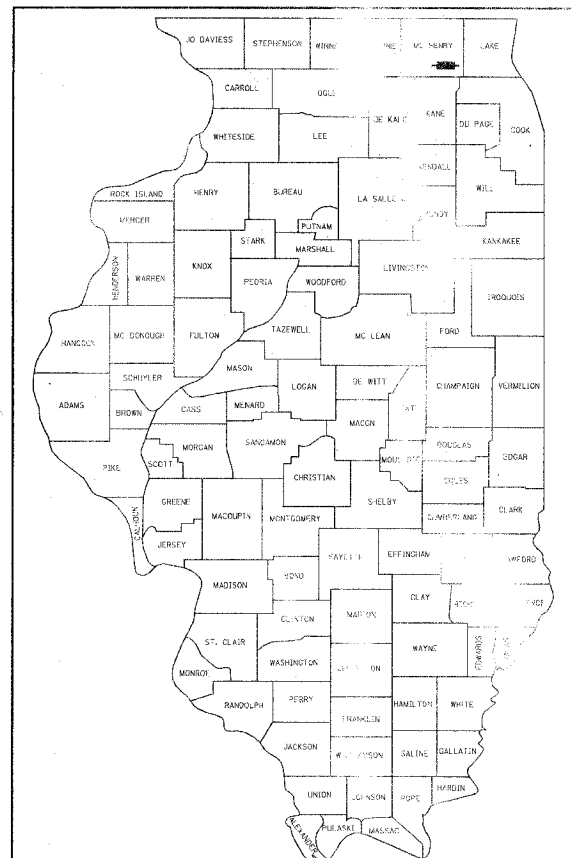
Matthew A. Gauntt (Signature)

MATTHEW GAUNTT
ILLINOIS REG. PROF. ENGINEER NO. 062-050146 EXPIRATION DATE 11-30-2007



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Illinois 60174
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E-mail - rha@rhaengr.com

Table with columns: F.A. RTE., SECTION, COUNTY. Values: 04-00101-00-TL, MCHENRY.



LOCATION OF SECTION INDICATED THUS: - [Symbol] -

CITY OF CRYSTAL LAKE
APPROVED February 23, 2006
[Signature] CITY ENGINEER

COUNTY OF MCHENRY
DIVISION OF TRANSPORTATION
APPROVED FEBRUARY 28, 2006
[Signature] DIRECTOR OF TRANSPORTATION

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
PASSED March 1, 2006
[Signature] ENGINEER OF LOCAL ROADS AND STREETS
APPROVED March 1, 2006
[Signature] DEPUTY DIRECTOR OF HIGHWAYS REGION ENGINEER

PRINTED BY THE
OF THE STATE OF ILLINOIS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
04-00101-00-1L		MCHENRY	22	2
STA. -		TO STA. -		
FED. ROAD DIST. NO.		FED. AID PROJECT		

SUMMARY OF QUANTITIES

ITEM	PAY CODE	DESCRIPTION	UNIT	Y031-1F TRAFFIC SIGNALS QUANTITY	Y030-1E HIGHWAY LIGHTING QUANTITY	1000 ROADWAY QUANTITY	TOTAL QUANTITY
1	40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON			42	42
2	40600300	AGGREGATE (PRIME COAT)	TON			8.3	8.3
3	40600980	BITUMINOUS SURFACE REMOVAL - BUTT JOINT	SQ YD			40.5	40.5
4	40600990	TEMPORARY RAMP	SQ YD			80	80
5	42400200	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT			677	677
6	42400800	DETECTABLE WARNINGS	SQ FT			66	66
7	44000006	BITUMINOUS SURFACE REMOVAL 1 1/2"	SQ YD			4146	4146
8	44000600	SIDEWALK REMOVAL	SQ FT			677	677
9	67100100	MOBILIZATION	L SUM			1	1
10	70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM			1	1
11	70102635	TRAFFIC CONTROL AND PROTECTION, STANDARD 701701	L SUM			1	1
12	70102640	TRAFFIC CONTROL AND PROTECTION, STANDARD 701801	L SUM			1	1
13	70300100	SHORT-TERM PAVEMENT MARKING	FOOT	300			300
14	70300280	TEMPORARY PAVEMENT MARKING - LINE 24"	FOOT	48			48
15	72000100	SIGN PANEL - TYPE 1	SQ FT	86.5			86.5
16	78000100	THERMOPLASTIC PAVEMENT MARKING - LETTERS AND SYMBOLS	SQ FT	109.2			109.2
17	78000200	THERMOPLASTIC PAVEMENT MARKING - LINE 4"	FOOT	4320			4320
18	78000400	THERMOPLASTIC PAVEMENT MARKING - LINE 6"	FOOT	719			719
19	78000600	THERMOPLASTIC PAVEMENT MARKING - LINE 12"	FOOT	48			48
20	78000650	THERMOPLASTIC PAVEMENT MARKING - LINE 24"	FOOT	96			96
21	78100100	RAISED REFLECTIVE PAVEMENT MARKER	EACH	49			49
22	80400100	ELECTRIC SERVICE INSTALLATION	EACH		1		1
23	80400200	ELECTRIC UTILITY SERVICE CONNECTION	L SUM		1		1
24	80700140	GROUND ROD, 5/8 DIA. X 10 FT	EACH		17		17
25	81000700	CONDUIT IN TRENCH, 2 1/2" DIA., GALVANIZED STEEL	FOOT	134	110		244
26	81001000	CONDUIT IN TRENCH, 4" DIA., GALVANIZED STEEL	FOOT	5			5
27	81018600	CONDUIT PUSHED, 2 1/2" DIA., GALVANIZED STEEL	FOOT		152		152
28	81018900	CONDUIT PUSHED, 4" DIA., GALVANIZED STEEL	FOOT	227	58		285
29	81400400	CONCRETE HANDHOLE	EACH	3			3
30	81400600	CONCRETE DOUBLE HANDHOLE	EACH	1			1
31	81500200	TRENCH AND BACKFILL FOR ELECTRICAL WORK	FOOT		200		200
32	81702440	ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 3-1/8 NO. 1/0	FOOT		200		200
33	82102100	LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT, 100 WATT	EACH		8		8
34	82102150	LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT, 150 WATT	EACH		12		12
35	82500505	LIGHTING CONTROLLER, SPECIAL	EACH		1		1
36	83000400	LIGHT POLE, ALUMINUM, 30 FT. M.H., 10 FT. MAST ARM	EACH		8		8
37	83000400	LIGHT POLE, ALUMINUM, 40 FT. M.H., 10 FT. MAST ARM	EACH		8		8
38	83600400	POLE FOUNDATION METAL	EACH		16		16
39	83800105	BREAKAWAY DEVICE, TRANSFORMER BASE, 11.5 INCH BOLT CIRCLE	EACH		8		8
40	83800205	BREAKAWAY DEVICE, TRANSFORMER BASE, 15 INCH BOLT CIRCLE	EACH		8		8
41	84200500	REMOVAL OF EXISTING LIGHTING UNIT, SALVAGE	EACH		1		1
42	85700205	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL	EACH		1		1
43	87301215	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	1036			1036
44	87301225	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	1345			1345
45	87301245	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	625			625
46	87301255	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	1220			1220
47	87301805	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C	FOOT	429			429
48	87502500	TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.	EACH		4		4
49	87702860	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 26 FT.	EACH		1		1
50	87702870	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 28 FT.	EACH		1		1
51	87702880	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 30 FT.	EACH		1		1
52	87702890	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 32 FT.	EACH		1		1
53	87800100	CONCRETE FOUNDATION, TYPE A	FOOT		16		16
54	87800200	CONCRETE FOUNDATION, TYPE D	FOOT		4		4
55	87800415	CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT		48		48
56	88200210	TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM	EACH		8		8
57	88700200	LIGHT DETECTOR	EACH		2		2
58	88700300	LIGHT DETECTOR AMPLIFIER	EACH		1		1
59	88800100	PEDESTRIAN PUSH-BUTTON	EACH		8		8
60	XX004079	PEDESTRIAN SIGNAL HEAD, LED, 1-FACE BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH		8		8
61	XX006507	ELECTRIC CABLE IN CONDUIT, SIGNAL BELDEN 5 1/2 PAIR NO. 16	FOOT		785		785
62	XX006505	EXTERNAL LIGHT SHIELD, HOUSE SIDE	EACH			20	20
	XX006506	POLYETHYLENE DUCT, BORED AND PULLED, 1 1/4 INCH DIA WITH ELECTRIC CABLE 600 V (XLP-TYPE-USE), 2-1/8 NO. 6, 1/8 NO. 6 GROUND AND 1/8 NO. 14	FOOT			3000	3000
63		GRAY TRACER WIRE	FOOT			3000	3000
64	X0323370	TRAFFIC SIGNAL BATTERY BACKUP	EACH		1		1
65	X4066406	BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, MIX "D", N70	TON			358	358
66	X8350015	SERVICE INSTALLATION - POLE MOUNTED	EACH		1		1
67	X8070210	GROUND ROD ARRAY	EACH			1	1
68	X8730250	ELECTRIC CABLE IN CONDUIT NO. 20 3/C, TWISTED, SHIELDED	FOOT		249		249
69	X8800020	SIGNAL HEAD LED, 1-FACE, 3-SECTION, MAST-ARM MOUNTED	EACH		4		4
70	X8800040	SIGNAL HEAD LED, 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH		4		4
71	X8800045	SIGNAL HEAD LED, 1-FACE, 5-SECTION, MAST-ARM MOUNTED	EACH		4		4
72	XX003912	VIDEO VEHICLE DETECTION SYSTEM	L SUM		1		1

SPECIFICATIONS, STANDARDS AND SPECIAL PROVISIONS

ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED JAN 1, 2002 (HEREINAFTER REFERRED TO AS THE STANDARD SPECIFICATIONS), THE "SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS" ADOPTED MARCH 1, 2005, THE LATEST EDITION OF THE "ILLINOIS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", THE DETAILS IN THE PLANS AND THE "SPECIAL PROVISIONS" INCLUDED IN THE CONTRACT DOCUMENTS.

ANY REFERENCE TO THE STANDARDS THROUGHOUT THE PLANS OR SPECIAL PROVISIONS SHALL BE INTERPRETED AS THE LATEST STANDARD OF THE DEPARTMENT AS SHOWN.

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

THE CONTRACTOR SHALL AT ALL TIMES PROVIDE PROTECTION FOR TRAFFIC AS CALLED FOR IN THE APPLICATION OF TRAFFIC CONTROL DEVICES ALONG THE SHOULDER NEXT TO THE EDGE OF THE PAVEMENT WHERE THERE IS ANY DROP OFF THREE INCHES OR GREATER.

THE CONTRACTOR SHALL PROVIDE CERTIFICATE OF INSURANCE AND NAME THE CITY OF CRYSTAL LAKE, MCHENRY COUNTY AND ROBERT H. ANDERSON & ASSOCIATES, INC. AS ADDITIONALLY INSURED.

UTILITIES

UTILITIES SHOWN ON THESE PLANS REFLECT SURVEY FOR ABOVE GROUND, OBSERVABLE FEATURES. NO SUBSURFACE EXPLORATION WAS COMPLETED. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES BY CONDUCTING A JULI.I.E. LOCATE PRIOR TO CONSTRUCTION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE OWNERS OF ALL EXISTING FACILITIES SO THE UTILITIES AND THEIR APPURTENANCES MAY BE LOCATED AND ADJUSTED OR MOVED, IF NECESSARY, PRIOR TO THE START OF CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL COOPERATE WITH ALL UTILITY OWNERS AS PROVIDED FOR IN THE STANDARD SPECIFICATIONS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UNDERGROUND OR SURFACE UTILITIES EVEN THOUGH THEY MAY NOT BE SHOWN ON THE PLANS, ANY UTILITY THAT IS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER OR THE OWNER OR REPLACED. THIS WORK SHALL BE AT THE CONTRACTOR'S EXPENSE.

COORDINATION OF ALL UTILITY WORK INVOLVED IN THE CONSTRUCTION AREA WILL BE DISCUSSED AT A PRECONSTRUCTION CONFERENCE.

ALL FIELD TILES ENCOUNTERED SHALL BE CAREFULLY PRESERVED REPAIRED AND OR RECONNECTED TO THE EXISTING DRAINAGE TILE IF THE TILE IS DAMAGED DURING CONSTRUCTION. ANY FIELD TILES FOUND WITHIN THE LIMITS OF CONSTRUCTION SHALL BE WITNESSED BY THE ENGINEER PRIOR TO BACKFILLING.

STAKING

THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL SECTION OR SUBSECTION MONUMENTS OR PROPERTY OR REFERENCED MARKERS UNTIL THE OWNER, HIS AGENT OR AN AUTHORIZED SURVEYOR HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATIONS.

ALL ELEVATIONS ARE ON U.S.G.S. DATUM.

STORM SEWER

ANY LOOSE MATERIAL DEPOSITED IN THE FLOW LINE OF DITCHES, CUTTERS, CROSS ROAD PIPES, OR DRAINAGE STRUCTURES DUE TO CONSTRUCTION OPERATIONS SHALL BE REMOVED AT THE CLOSE OF EACH WORKING DAY. AT THE CONCLUSION OF CONSTRUCTION OPERATIONS, ALL STRUCTURES SHALL BE FREE OF DIRT AND DEBRIS. THE WORK SPECIFIED ABOVE WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCIDENTAL TO THE VARIOUS STORM SEWER ITEMS.

WHEN EXISTING DRAINAGE FACILITIES ARE DISTURBED, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY OUTLETS AND CONNECTIONS FOR ALL PRIVATE OR PUBLIC DRAINS, SEWERS OR CATCH BASINS. HE SHALL PROVIDE FACILITIES TO TAKE IN ALL STORM WATER WHICH WILL BE RECEIVED BY THESE DRAINS AND DISCHARGE THE SAME. HE SHALL PROVIDE AND MAINTAIN AN EFFICIENT PUMPING PLANT, IF NECESSARY, AND A TEMPORARY OUTLET AND BE PREPARED AT ALL TIMES TO DISPOSE OF THE WATER RECEIVED FROM THESE TEMPORARY CONNECTIONS UNTIL SUCH TIME AS THE PERMANENT CONNECTIONS WITH SEWERS ARE BUILT AND IN SERVICE. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCIDENTAL TO THE VARIOUS STORM SEWER ITEMS.

TRAFFIC SIGNALS

1. ALL SIGNAL POSTS SHALL BE SET BACK 4 FEET MINIMUM AND ALL MAST ARM POLES SHALL BE SET BACK 6 FEET MINIMUM FROM THEIR CENTER TO THE BACK OF CURB UNLESS OTHERWISE NOTED. IN NON-CURBED AREAS THE MAST ARM POLE AND THE SIGNAL POST SHALL BE LOCATED A MINIMUM OF 10 FEET BEHIND THE EDGE OF PAVEMENT OR 2 FEET BEHIND THE EDGE OF THE SHOULDER, WHICHEVER DISTANCE IS GREATER.

2. THE EXACT LOCATIONS OF ALL UTILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR BEFORE THE INSTALLATION OF ANY COMPONENTS OF THE TRAFFIC SIGNAL SYSTEM. FOR THE LOCATIONS OF THE UTILITIES, CALL JULIE TOLL FREE 1-800-892-0123

3. CONDUITS UNDER ROADWAYS AND DRIVEWAYS SHOULD BE INSTALLED IN TRENCH BEFORE PAVEMENT IS PLACED.

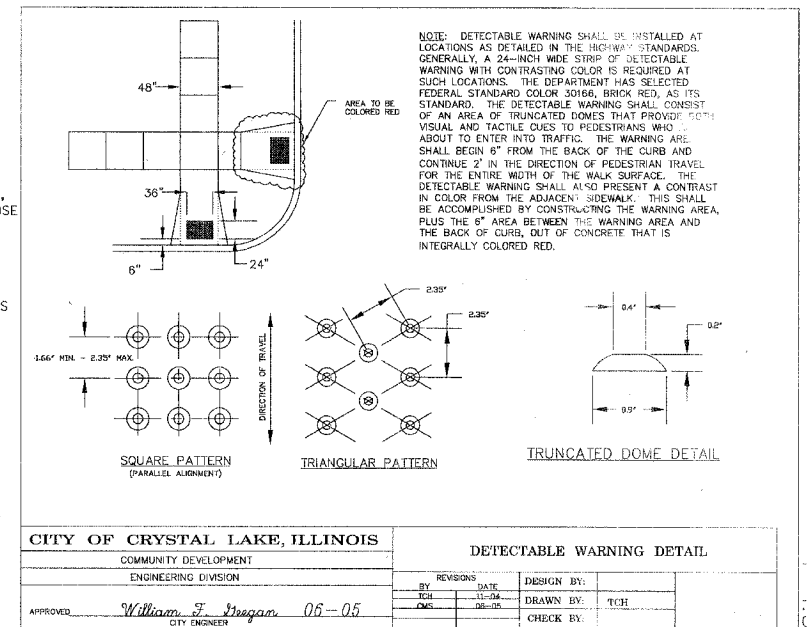
GENERAL

WHERE NEW WORK MEETS EXISTING FEATURES TO REMAIN IN PLACE, THE CONTRACTOR SHALL FIELD CHECK ALL DIMENSIONS AND ELEVATIONS BEFORE PROCEEDING WITH CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES IN WRITING. ALL SUCH MATCH LINES THAT ARE IN ASPHALT OR CONCRETE SHALL BE NEATLY SAW CUT. THE COST SHALL BE INCIDENTAL TO BITUMINOUS SURFACE REMOVAL.

DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL EXISTING SIGNAGE NECESSARY TO FACILITATE SAFE TRAFFIC FLOW.

RESTORATION OF WORK AREA

1. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION. THIS SHALL INCLUDE A MINIMUM OF 6" OF FINELY GRADED, PULVERIZED TOP SOIL SEEDING AND BLANKET IN PARKWAY AREAS. IF PAVEMENT IS DISTURBED DURING THE CONSTRUCTION OF THE SIGNALS OR APPURTENANCES, THE PAVEMENT SHALL BE RESTORED IN-KIND TO ITS ORIGINAL CONDITION ACCORDING TO ALL APPLICABLE DOT SPECIFICATIONS. NO ADDITIONAL PAYMENT SHALL BE MADE FOR RESTORATION. THIS ITEM SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION COST.



**RHA&A**  
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PROJECT MANAGER: MATT GAUNTT, P.E.  
 ENGINEER: COLE, E.I., K. JAY, E.I.  
 TECHNICIAN: TECHNICIAN

REVISIONS		DATE	
PRLM ENGR SUB1		9/9/05	
PRLM ENGR SUB1		12/29/05	
PRLM ENGR SUB2		2/10/06	
PRLM ENGR SUB3		2/17/06	

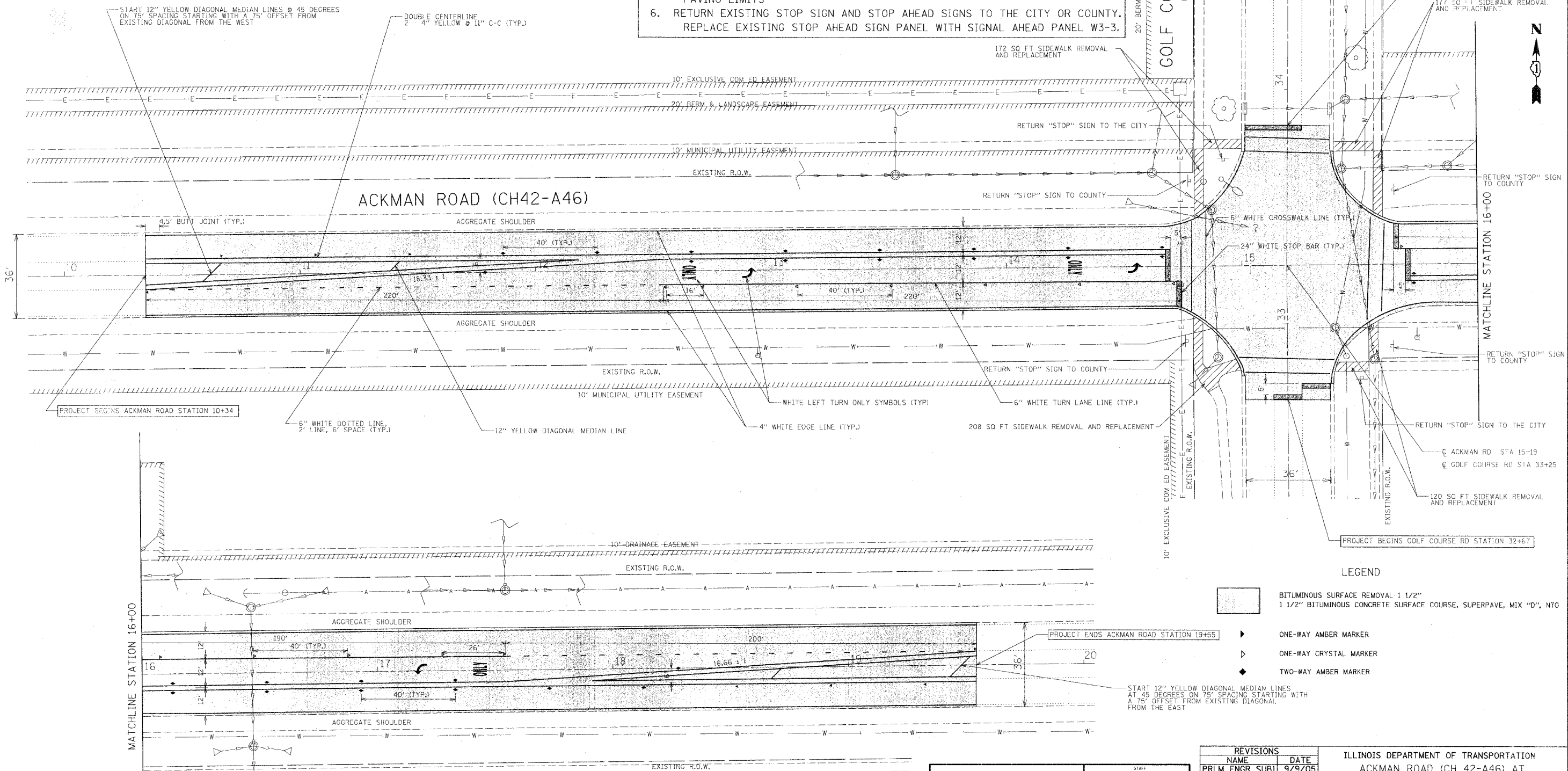
ILLINOIS DEPARTMENT OF TRANSPORTATION  
 ACKMAN ROAD (OH 42-A46) AT  
 GOLF COURSE ROAD  
 TRAFFIC SIGNAL IMPROVEMENTS

SUMMARY OF QUANTITIES - GENERAL NOTES  
 SCALE: NONE DRAWN BY: CMC  
 DATE: 2-17-06 CHECKED BY: MAG

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00101-00-7L	MCHENRY	22	3
STA. -	TO STA. -			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

ITEM	AC TYPE	VOIDS	MAX RAP %
BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, MIX "D", N70	PG 64-22	4% @ 70 GYR.	10

- NOTES:
1. ALL PROPOSED PAVEMENT MARKINGS TO BE THERMOPLASTIC
  2. USE TC13 - IDOT DISTRICT ONE TYPICAL PAVEMENT MARKING STANDARD
  3. USE TC11 - IDOT DISTRICT ONE TYPICAL APPLICATIONS - RAISED REFLECTIVE PAVEMENT MARKERS (SNOW PLOW RESISTANT)
  4. SHORT TERM PAVEMENT MARKINGS SHOULD BE ACCOMPANIED BY "GROOVED SURFACE" 30" X 30" SIGN
  5. DURING SURFACE TREATMENT OPERATIONS, USE "FRESH OIL" SIGNS W21-2 AT PAVING LIMITS
  6. RETURN EXISTING STOP SIGN AND STOP AHEAD SIGNS TO THE CITY OR COUNTY. REPLACE EXISTING STOP AHEAD SIGN PANEL WITH SIGNAL AHEAD PANEL W3-3.



**LEGEND**

- BITUMINOUS SURFACE REMOVAL 1 1/2"
- 1 1/2" BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, MIX "D", N70
- ONE-WAY AMBER MARKER
- ONE-WAY CRYSTAL MARKER
- TWO-WAY AMBER MARKER

**REVISIONS**

NAME	DATE
PRLM ENGR SUB1	9/29/05
FNL ENGR SUB1	12/29/05
FNL ENGR SUB2	2/10/06
FNL ENGR SUB3	2/17/06

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 ACKMAN ROAD (CH 42-A46) AT  
 GOLF COURSE ROAD  
 TRAFFIC SIGNAL IMPROVEMENTS

RESURFACING AND PAVEMENT MARKINGS

SCALE: 1"=20'  
 DATE: 2-17-06  
 DRAWN BY: CMC  
 CHECKED BY: MAG

**RHA&A**  
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 ENGINEER: T. COLE, E.I. K. JAY, E.I.  
 TECHNICIAN: [blank]  
 TECHNICIAN: [blank]

PLOT DATE = 02/17/2006  
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
04-00101-00-TL		MCHENRY	22	4
STA. -		TO STA. -		
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	

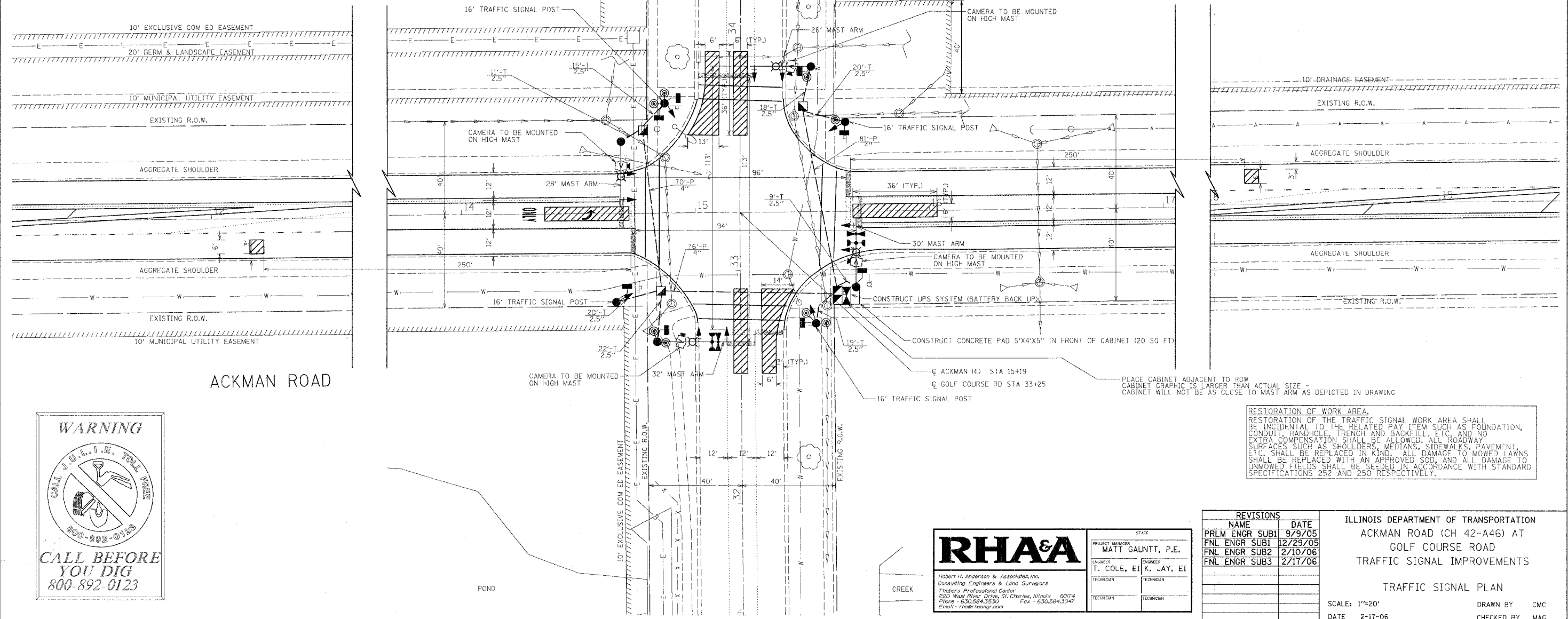
ITEM	STATION	OFFSET
NORTHBOUND MAST ARM	33+87.5	30' RT
NORTHBOUND SIGNAL POST	33+72	32.5' LT
SOUTHBOUND MAST ARM	32+70	36' LT
SOUTHBOUND SIGNAL POST	32+77	32' RT
EASTBOUND MAST ARM	15+68.5	32.5' RT
EASTBOUND SIGNAL POST	15+64.5	38' LT
WESTBOUND MAST ARM	14+68.5	31' LT
WESTBOUND SIGNAL POST	14+66	38' RT
SOUTHEAST DOUBLE HANDHOLE	15+61 OC	36.5' LT OC, SOUTH EDGE ADJACENT TO ROW
NORTHWEST HANDHOLE	33+60.5	41.5' LT
NORTHEAST HANDHOLE	33+70.5	27' RT
SOUTHWEST HANDHOLE	14+85	33' RT



- NOTES
1. ALL TRAFFIC CONTROL EQUIPMENT SHALL BE ECONOLITE TRAFFIC CONTROL EQUIPMENT.
  2. MAST ARM MOUNTED STREET NAME SIGNS SHALL BE DG3 MATERIAL.
  3. SIDEWALK REMOVAL AND REPLACEMENT SHOWN ON SHEET 3.
  4. TRAFFIC SIGNAL EQUIPMENT PLACEMENT WAS DESIGNED TO ACCOMMODATE POSSIBLE FUTURE EASTBOUND AND WESTBOUND RIGHT TURN LANE ADDITIONS. CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO ANY DEVIATION FROM SIGNAL EQUIPMENT LOCATIONS.
  5. CITY CONTRACTOR TO BE PRESENT FOR SIGNAL TURN ON FOR EVP TESTING AND ACCEPTANCE.

**TRAFFIC SIGNAL LEGEND**

- PROPOSED
- 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
  - HANDHOLE
  - HEAVY DUTY HANDHOLE
  - DOUBLE HANDHOLE
  - G.S. CONDUIT IN TRENCH OR PUSHED
  - PEDESTRIAN PUSHBUTTON DETECTOR
  - VIDEO DETECTION ZONE
  - CAST IRON JUNCTION BOX
  - COMMON TRENCH
  - UNIT DUCT
  - EMERGENCY VEHICLE SYSTEM DETECTOR
  - CONFIRMATION BEACON
  - SIGNAL HEAD OPTICALLY PROGRAMMED
  - VIDEO DETECTION CAMERA
  - TELEPHONE CONNECTION
  - CONDUIT SPLICE
  - LUMINAIRE



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 SOY AND ALL DAMAGE TO UNMOWED FIELDS SHALL BE SEEDING IN ACCORDANCE WITH STANDARD SPECIFICATIONS 252 AND 250 RESPECTIVELY.



**RHA&A**  
 Robert H. Anderson & Associates, Inc.  
 Consulting Engineers & Land Surveyors  
 Timbers Professional Center  
 220 West River Drive, St. Charles, Illinois 60174  
 Phone - 630-584-3530 Fax - 630-584-5147  
 Email - rha@rhaeng.com

STAFF	
PROJECT MANAGER	MATT GAUNTT, P.E.
ENGINEER	T. COLE, EIT K. JAY, EIT
TECHNICIAN	
TECHNICIAN	

REVISIONS	
NAME	DATE
PRLM ENGR SUB1	9/29/05
FNL ENGR SUB1	12/29/05
FNL ENGR SUB2	2/10/06
FNL ENGR SUB3	2/17/06

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 ACKMAN ROAD (CH 42-A46) AT  
 GOLF COURSE ROAD  
 TRAFFIC SIGNAL IMPROVEMENTS

TRAFFIC SIGNAL PLAN

SCALE: 1"=20'  
 DATE: 2-17-06

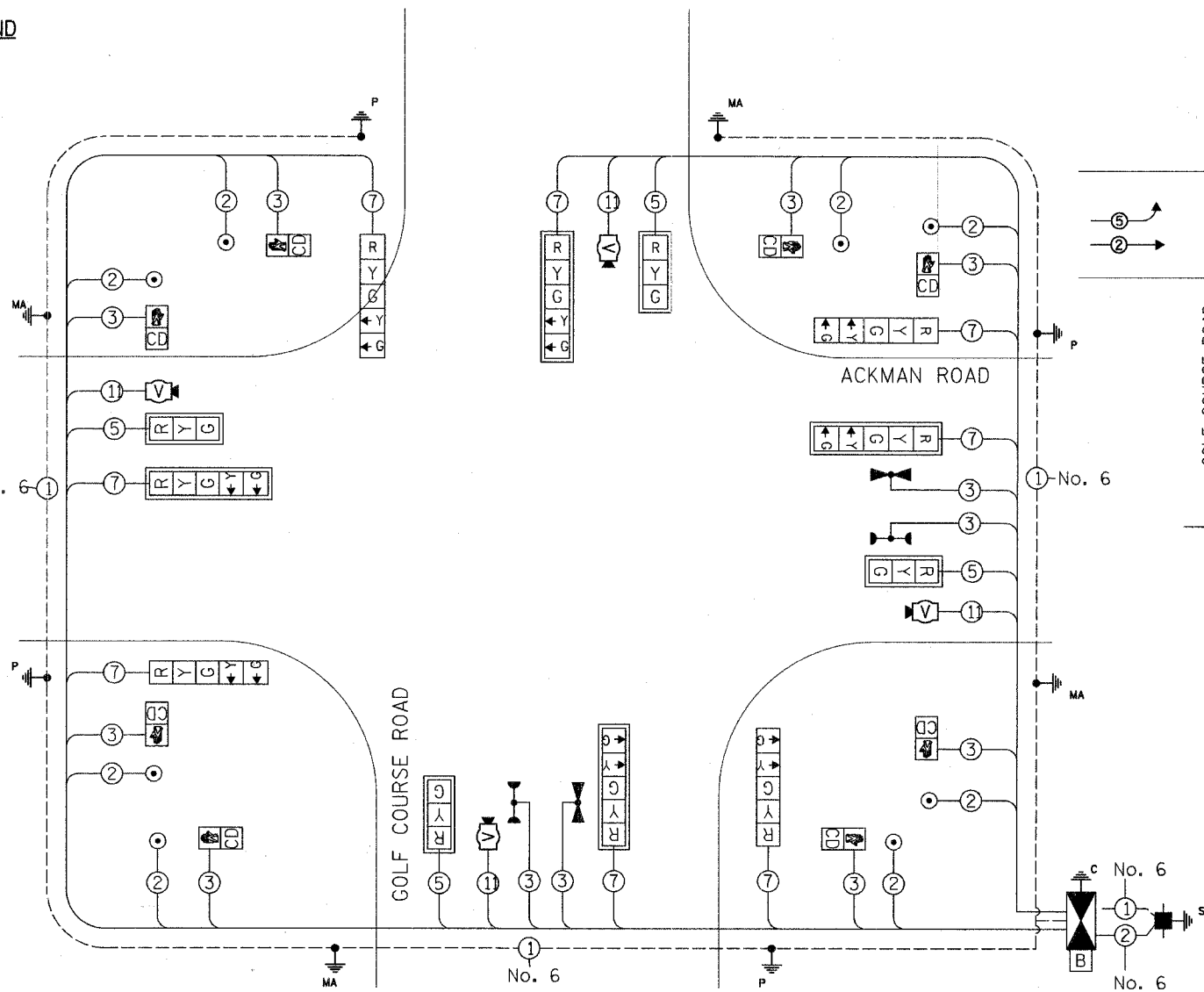
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 CHECKED BY: MAG

PLDT DATE = 02/17/2006  
 FILE NAME = H:\C:\jstol\_Lake\165925-Ackman\Design\Drawn\T801.dgn

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00101-00-TL	MCHENRY	22	5
STA. -	TO STA. -			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

**CABLE PLAN LEGEND**

- PROPOSED**
- 8" (200mm) TRAFFIC SIGNAL SECTION
  - 12" (300mm) TRAFFIC SIGNAL SECTION
  - 12" (300mm) PEDESTRIAN SIGNAL SECTION, TOP - HAND/MAN OVERLAY, BOTTOM - COUNTDOWN TIMER
  - CONTROLLER CABINET
  - SERVICE INSTALLATION
  - TELEPHONE CONNECTION
  - MAGNETIC DETECTOR
  - EMERGENCY VEHICLE LIGHT DETECTOR
  - CONFIRMATION BEACON
  - PUSHBUTTON DETECTOR
  - VEHICLE DETECTOR, INDUCTION LOOP
  - DENOTES NUMBER OF CONDUCTORS, ALL CABLE NO. 14 EXCEPT AS INDICATED. ALL LOOP DETECTOR CABLE TO BE SHIELDED.
  - MICROWAVE VEHICLE SENSOR
  - VIDEO DETECTION CAMERA
  - 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"
  - GROUND ROD AT HANDHOLE (H), DOUBLE HANDHOLE (H), OR CONTROLLER (C).
  - GROUND ROD AT POST (P), OR MAST ARM POLE (MA).
  - GROUND ROD AT ELECTRIC SERVICE INSTALLATION
  - GROUND CABLE IN CONDUIT NO. 6 SOLID COPPER (GREEN)
  - FIBER OPTIC CABLE IN CONDUIT NO. 62.5/125 MM12F SM12F
  - BATTERY BACKUP SYSTEM



**CABLE PLAN**

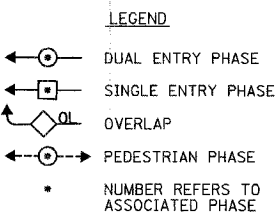
- NOTE:**
- ALL TRAFFIC SIGNAL CONTROL EQUIPMENT SHALL BE ECONOLITE TRAFFIC CONTROL EQUIPMENT.
  - VIDEO DETECTION CAMERA SHALL BE AUTOSCOPE SOLO PRO 2
  - VIDEO DETECTION CABLE SHALL BE BELDEN 5 1/2 PR #16.
  - CONTROLLER SHALL BE ECONOLITE ASC3
  - TYPE IV CABINET
  - EVP CABLE SHALL BE 3C #20, TWISTED, SHIELDED
  - CONFIRMATION BEACON CABLE SHALL BE 3C #14
  - ALL PEDESTRIAN HEADS SHALL BE COUNTDOWN HEADS. COUNTDOWN TIMER IN BOTTOM SECTION, TOP SECTION FULL HAND/MAN OVERLAY.
  - GROUNDING OF SIGNAL EQUIPMENT INCIDENTAL TO FOUNDATION PAY ITEM.
  - CONFIRMATION BEACON SHALL BE LED.

I.D.O.T TRAFFIC SIGNAL INSTALLATION ELECTRICAL SERVICE REQUIREMENTS					TOTAL WATTAGE
TYPE	NO. LAMPS	WATTAGE (INCAND.)	WATTAGE (LED)	XOPERATION	
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	16	135	12	0.25	48.0
PED. SIGNAL	8	90	25	1.00	200.0
CONTROLLER	1	100		1.00	100.0
CAMERA	4	20		1.00	80.0
<b>TOTAL =</b>					<b>650.0</b>

ENERGY COSTS TO:  
CITY OF CRYSTAL LAKE  
100 W. MUNICIPAL COMPLEX  
CRYSTAL LAKE, IL 60039-0597

ENERGY SUPPLY CONTACT: **ELLIE SARALLO**  
PHONE: **847.608.2400**  
COMPANY: **ComEd**

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'+L-2'= (6m+L-0.6m)=
E - M. ARM POLE		SIGNAL POST	2 (1.0)		
	24" (600mm)	CONTROLLER CAB.	1 (0.5)	BRACKET MOUNTED	13 (4.0)
	30" (750mm)	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)



**PHASE DESIGNATION DIAGRAM**

**SCHEDULE OF QUANTITIES**

PAY CODE	DESCRIPTION	UNIT	QUANTITY
81000700	CONDUIT IN TRENCH, 2 1/2" DIA., GALVANIZED STEEL	FOOT	244
81001000	CONDUIT IN TRENCH, 4" DIA., GALVANIZED STEEL	FOOT	5
81018900	CONDUIT PUSHED, 4" DIA., GALVANIZED STEEL	FOOT	285
81400400	CONCRETE HANDHOLE	EACH	3
85700205	FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL	EACH	1
87301215	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	1036
87301225	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	1345
87301245	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	625
87301255	ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	1220
87301805	ELECTRIC CABLE IN CONDUIT, SERVICE, NO. 6 2 C	FOOT	429
87502500	TRAFFIC SIGNAL POST, GALVANIZED STEEL 16 FT.	EACH	4
87702860	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 26 FT.	EACH	1
87702870	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 28 FT.	EACH	1
87702880	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 30 FT.	EACH	1
87702890	STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 32 FT.	EACH	1
87800100	CONCRETE FOUNDATION, TYPE A	FOOT	16
87800200	CONCRETE FOUNDATION, TYPE D	FOOT	4
87800415	CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	48
88200210	TRAFFIC SIGNAL BACKPLATE, LOUVERED, ALUMINUM	EACH	8
88700200	LIGHT DETECTOR	EACH	2
88700300	LIGHT DETECTOR AMPLIFIER	EACH	1
88800100	PEDESTRIAN PUSH-BUTTON	EACH	8
XX004679	PEDESTRIAN SIGNAL HEAD, LED, 1-FACE BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	8
XX004657	ELECTRIC CABLE IN CONDUIT, SIGNAL BELDEN 5 1/2 PAIR NO. 16	FOOT	785
X0323370	TRAFFIC SIGNAL BATTERY BACKUP	EACH	1
X8050015	SERVICE INSTALLATION - POLE MOUNTED	EACH	1
X8730250	ELECTRIC CABLE IN CONDUIT NO. 20 3/C, TWISTED, SHIELDED	FOOT	249
X8800020	SIGNAL HEAD, LED, 1-FACE, 3-SECTION, MAST-ARM MOUNTED	EACH	4
X8800040	SIGNAL HEAD, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	4
X8800045	SIGNAL HEAD, LED, 1-FACE, 5-SECTION, MAST-ARM MOUNTED	EACH	4
XX003982	VIDEO VEHICLE DETECTION SYSTEM	L SUM	1

REVISIONS	NAME	DATE
PRLM ENGR SUB1		9/9/05
FNL ENGR SUB1		12/29/05
FNL ENGR SUB2		2/10/06
FNL ENGR SUB3		2/17/06

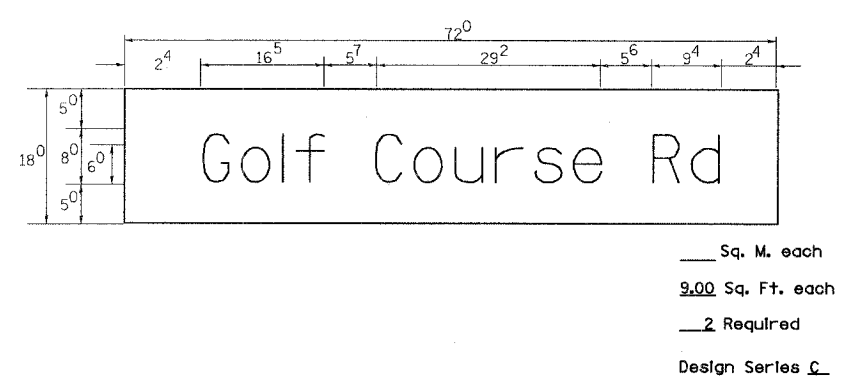
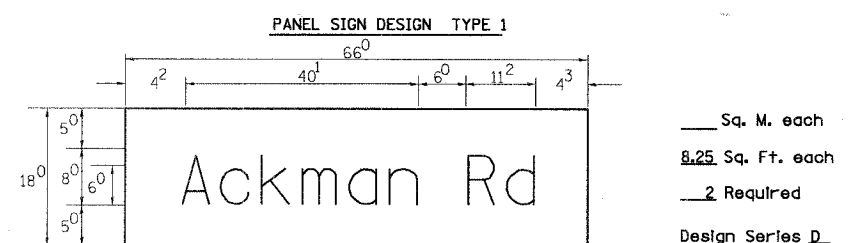
ILLINOIS DEPARTMENT OF TRANSPORTATION  
ACKMAN ROAD (CH 42-A46) AT  
GOLF COURSE ROAD  
TRAFFIC SIGNAL IMPROVEMENTS

CABLE PLAN AND PHASE DIAGRAM  
SCALE: NONE  
DATE: 2-17-06  
DRAWN BY: CMC  
CHECKED BY: MAG

**RHA&A**  
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STAFF  
PROJECT MANAGER: **MATT GAUNTT, P.E.**  
ENGINEER: **T. COLE, E.I., K. JAY, E.I.**  
TECHNICIAN: \_\_\_\_\_  
TECHNICIAN: \_\_\_\_\_





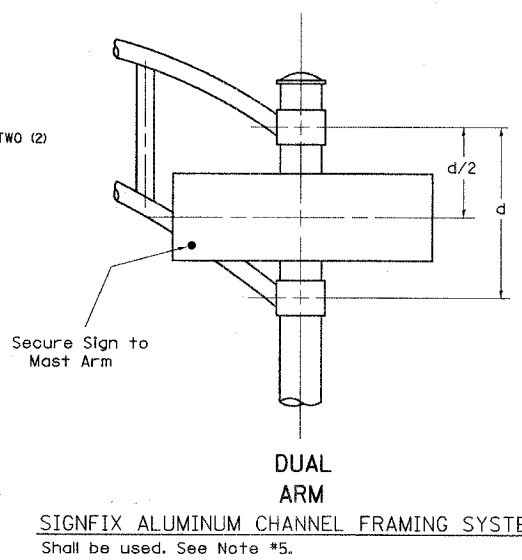
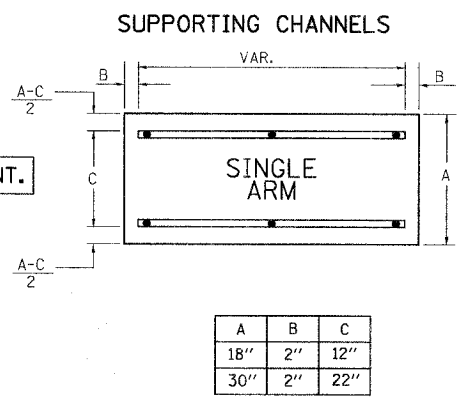
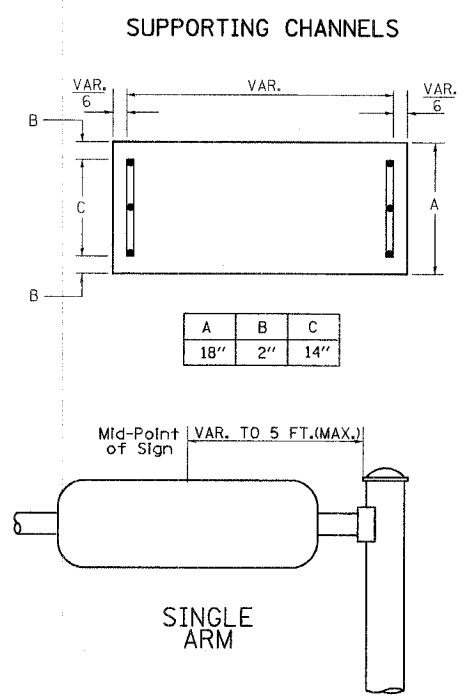
NOTE: MAST ARM STREET NAME SIGNS SHALL BE DG3 MATERIAL.

NOTE: MAST ARM STREET NAME SIGNS SHALL BE CLEARVIEW HWY FONT.

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     | SELF TAPPING WITH NEOPRENE WASHER             |
|              | PART #HPN034 (UNIVERSAL)                      |
|              | CHANNEL CLAMPS WITH STAINLESS STEEL STRAPPING |
- OTHER BRANDS OF MOUNTING HARDWARE ARE ACCEPTABLE, BASED UPON THE DEPARTMENT'S APPROVAL AND COMPATIBILITY WITH THE CHANNEL/BACKET OF THE ABOVE PRODUCT.



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

EXAMPLE, 2<sup>3</sup> DENOTES 3/8"

SERIES	SECOND LETTER																			
	a c d e		g o q		b h i k l		m n p r u		f w		J		s t		v y		x		z	
	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D
A W X	12	14	14	15	12	14	06	10	11	14	06	10	11	12	12	12	14			
B	14	15	20	21	14	15	11	12	14	15	12	14	12	14	16	17				
C E G	14	15	20	21	12	14	06	10	12	14	12	14	14	15	14	15				
D O Q R	14	15	20	21	14	15	06	10	12	14	12	14	14	15	14	15				
F	05	06	14	15	06	10	05	06	06	10	06	10	06	10	11	12				
H I M N	20	21	22	24	20	21	14	15	16	17	16	17	20	21	20	21				
J U	20	21	20	21	16	17	14	15	16	17	16	17	16	17	20	21				
K L	11	12	16	17	11	12	05	06	11	12	11	12	11	12	12	14				
P	12	14	14	15	12	14	05	06	11	12	11	12	12	14	12	14				
S	12	14	16	17	12	14	06	10	12	14	12	14	12	14	12	14				
T	11	12	16	17	06	10	06	10	11	12	11	12	11	12	12	14				
V	06	10	14	15	11	12	06	10	12	14	12	14	12	14	12	14				
Y	05	06	14	15	06	10	05	06	05	07	05	06	06	10	11	12				
Z	16	17	22	24	16	17	12	14	16	17	16	17	16	17	20	21				

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

SERIES	SECOND LETTER																			
	a c d e		g o q		b h i k l		m n p r u		f w		J		s t		v y		x		z	
	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D
ad h g l j	16	17	22	24	16	17	12	14	14	15	14	15	16	17	16	17				
im n q u																				
b f k o p s	12	14	16	17	11	12	05	06	11	12	11	12	12	14	12	14				
c e	12	14	16	17	12	14	06	10	12	14	12	14	12	14	12	14				
r	06	10	12	14	06	10	03	03	05	06	05	06	06	10	06	10				
t z	12	14	16	17	12	14	06	10	11	12	11	12	12	14	12	14				
v y	11	12	14	15	11	12	05	06	06	10	06	10	11	12	11	12				
w	11	12	14	15	11	12	05	06	11	12	11	12	11	12	12	14				
x	12	14	16	17	11	12	05	06	11	12	11	12	11	12	12	14				

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

SERIES	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	16	17	16	17	14	15	12	14	14	15	14	15	16	17	12	14	16	17	16	17
1	20	21	20	21	20	21	16	17	14	15	20	21	20	21	14	15	20	21	20	21
2 3 4	14	15	14	15	14	15	12	14	14	15	14	15	11	12	16	17	14	15		
5	14	15	14	15	14	15	11	12	11	12	14	15	14	15	11	12	14	15	14	15
6	16	17	14	15	14	15	12	14	14	15	14	15	11	12	14	15	14	15		
7	12	14	12	14	14	15	12	14	14	15	11	12	14	15	12	14	15	12	14	
8	16	17	16	17	14	15	12	14	14	15	16	17	12	14	16	17	14	15		

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	36	50	50	65	a	35	42
B	32	40	43	53	b	35	42
C	32	40	43	53	c	35	41
D	32	40	43	53	d	35	42
E	30	35	40	47	e	35	42
F	30	35	40	47	f	23	26
G	32	40	43	53	g	35	42
H	32	40	43	53	h	35	42
I	07	07	11	12	i	11	11
J	30	36	40	50	j	20	22
K	32	41	43	54	k	35	42
L	30	35	40	47	l	11	11
M	37	45	51	61	m	60	70
N	32	40	43	53	n	35	42
O	34	42	45	55	o	36	43
P	32	40	43	53	p	35	42
Q	34	42	45	55	q	35	42
R	32	40	43	53	r	26	32
S	32	40	43	53	s	36	42
T	30	35	40	47	t	27	32
U	32	40	43	53	u	35	42
V	35	44	47	60	v	42	47
W	44	52	60	70	w	55	64
X	34	40	45	53	x	44	51
Y	36	50	50	66	y	46	53
Z	32	40	43	53	z	36	43

NUMBER	6 INCH SERIES		8 INCH SERIES	
	C	D	C	D
1	12	14	15	20
2	32	40	43	53
3	32	40	43	53
4	35	43	47	57
5	32	40	43	53
6	32	40	43	53
7	32	40	43	53
8	32	40	43	53
9	32	40	43	53
0	34	42	45	55

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

Illinois Department of Transportation  
DISTRICT 1

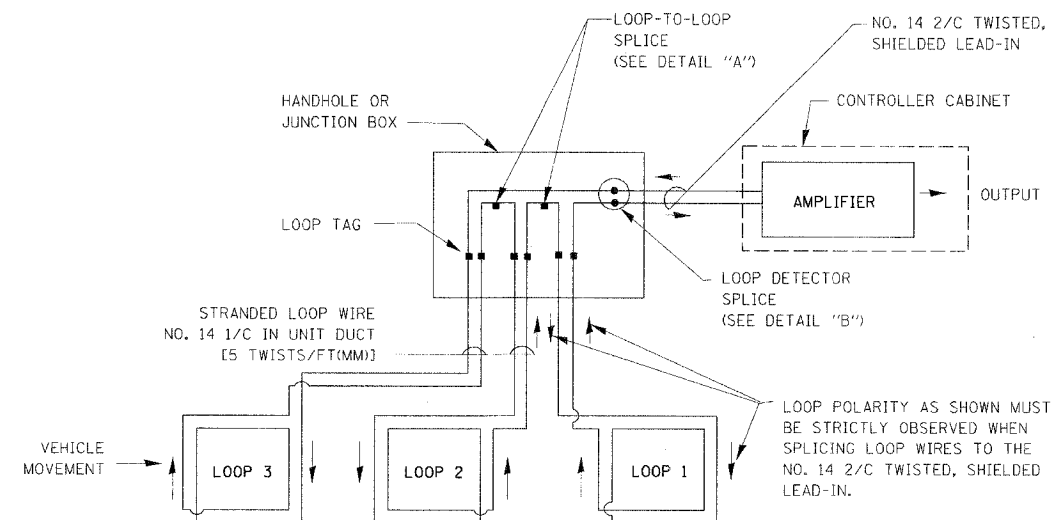
**MAST ARM MOUNTED STREET NAME SIGNS**

SCALE: NONE  
DATE:

DRAWN BY: KLJ  
DESIGNED BY: KLJ  
CHECKED BY: GNC

### LOOP DETECTOR NOTES

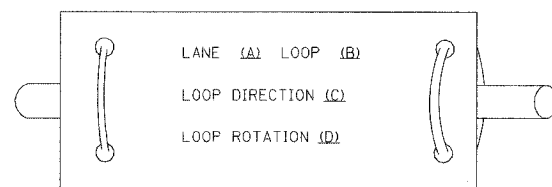
- EACH PAIR OF LOOP WIRES SHALL BE PLACED IN A SEPARATE UNIT DUCT FROM THE EDGE OF PAVEMENT TO THE HANDHOLE. SPACING BETWEEN THE HOLES DRILLED IN THE PAVEMENT SHALL NOT BE LESS THAN 6" (150 mm). UNIT DUCT SHALL BE INCLUDED IN THE COST OF THE LOOP WIRE.
- THE NUMBER OF LOOP TURNS SHALL BE AS RECOMMENDED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



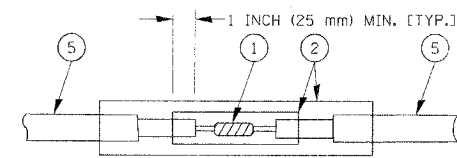
DETECTOR LOOP WIRING SCHEMATIC

- 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.

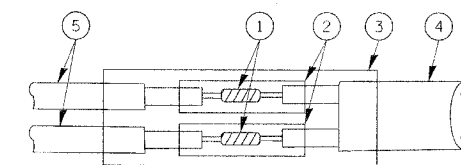
LOOP LEAD-IN CABLE TAG



- 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
CADD	5/30/00
ADD NOTE NO. 8	11/12/01
BUREAU OF TRAFFIC	1-01-02

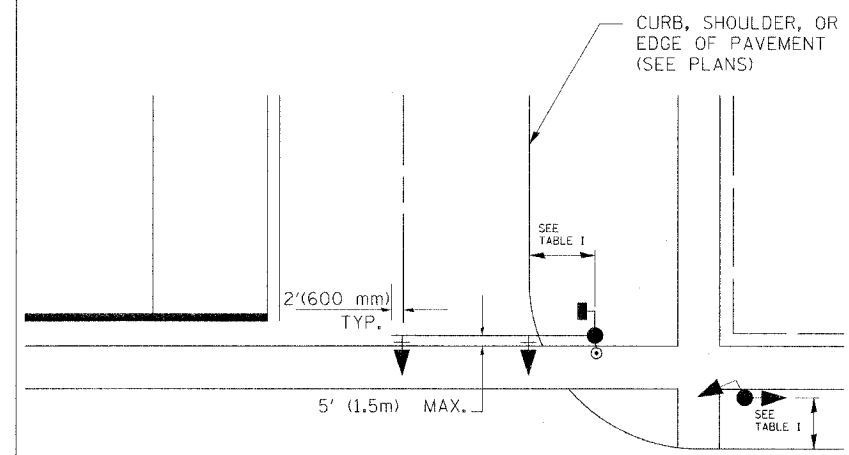
ILLINOIS DEPARTMENT OF TRANSPORTATION  
**DISTRICT ONE**  
**STANDARD TRAFFIC SIGNAL**  
**DESIGN DETAILS**

SCALE: VERT. NONE  
 HORIZ. NONE  
 DATE 10/18/2002

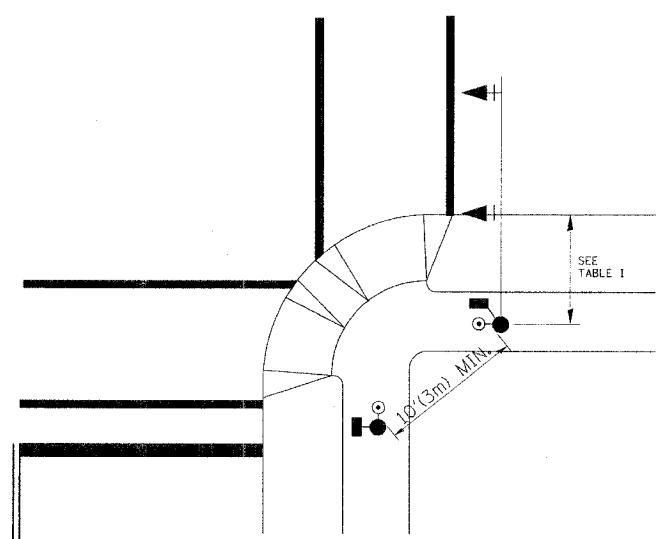
DRAWN BY: RWP  
 DESIGNED BY: DAD  
 CHECKED BY: DAZ  
 SHEET 1 OF 4

**TRAFFIC SIGNAL MAST ARM AND POST**

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



**PEDESTRIAN SIGNAL PUSHBUTTON**



RECOMMENDED PUSHBUTTON LOCATIONS FOR ACCESSIBLE PEDESTRIAN SIGNALS SHALL BE IN ACCORDANCE WITH THE CURRENT 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

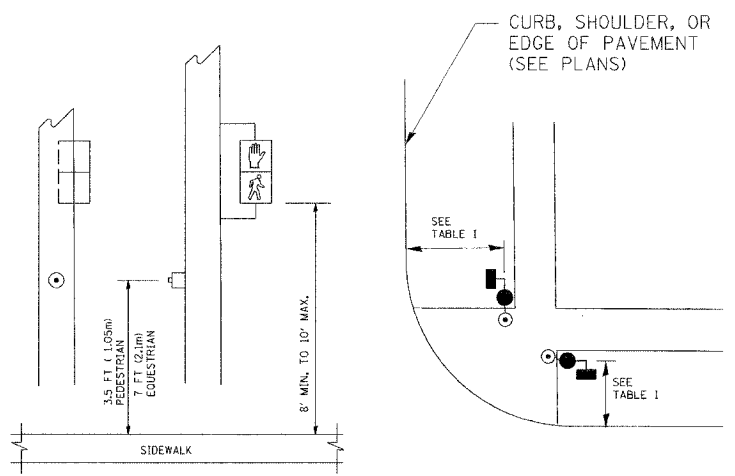


TABLE I

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
BUREAU OF TRAFFIC	1/01/02

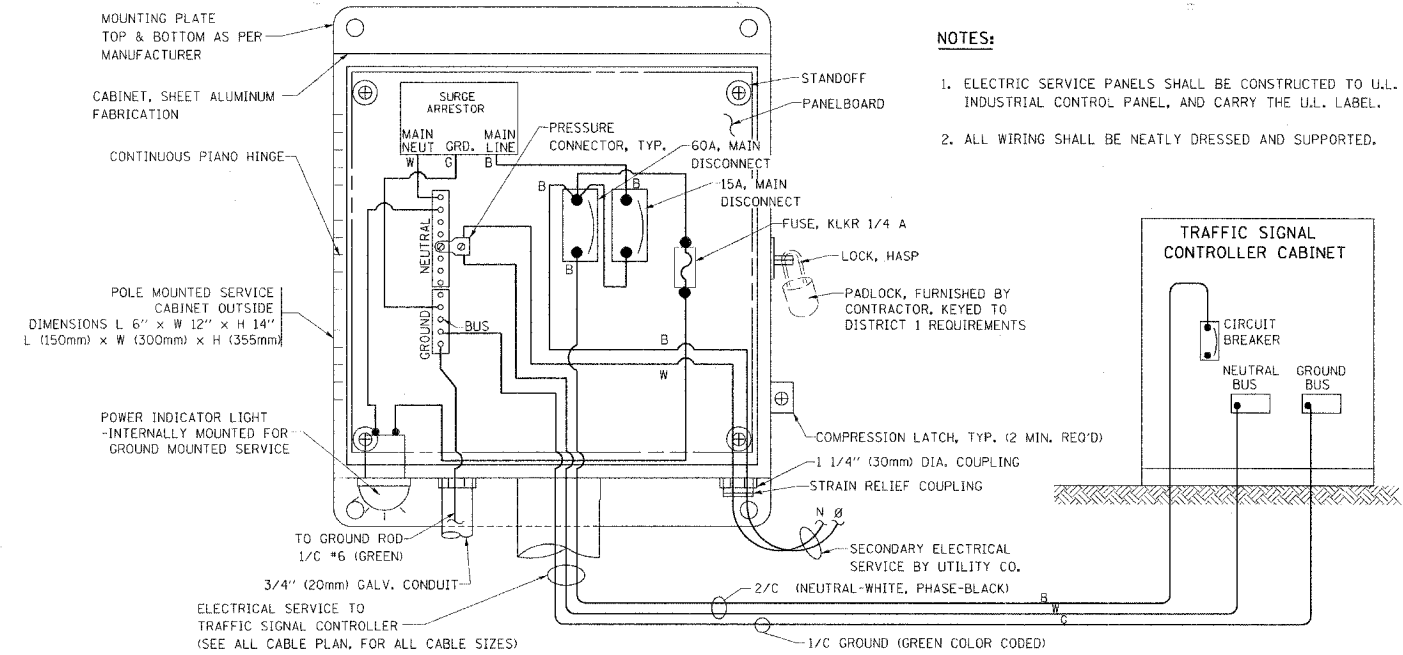
ILLINOIS DEPARTMENT OF TRANSPORTATION  
**DISTRICT 1**  
STANDARD TRAFFIC SIGNAL  
DESIGN DETAILS

SCALE: VERT. NONE  
HORIZ. NONE  
DATE 10/18/2002

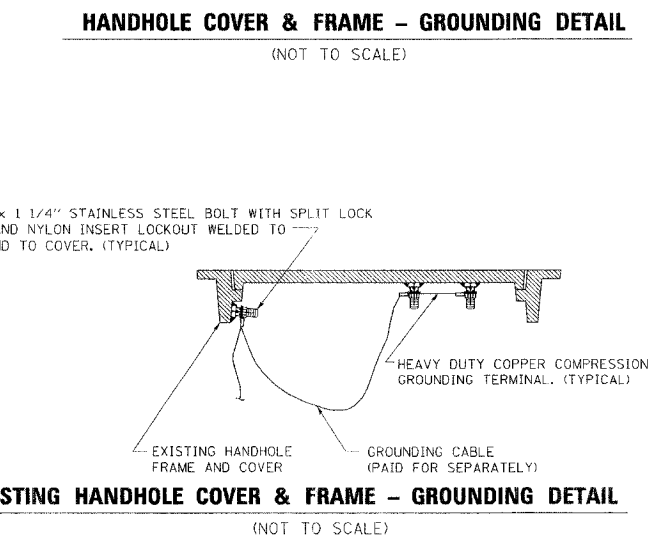
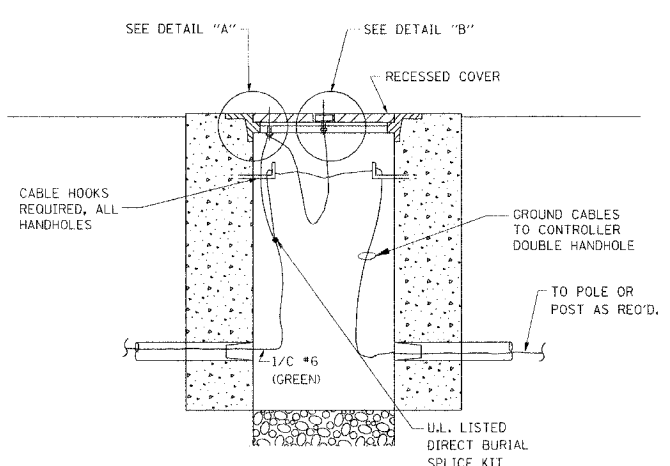
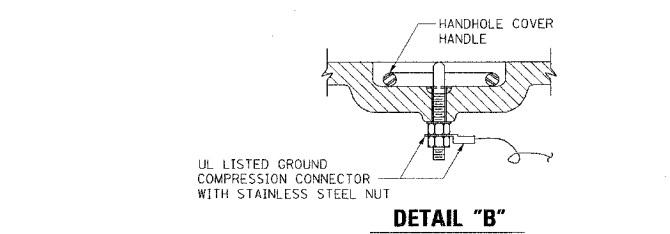
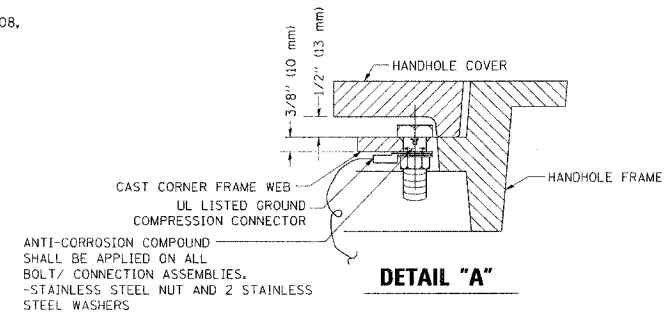
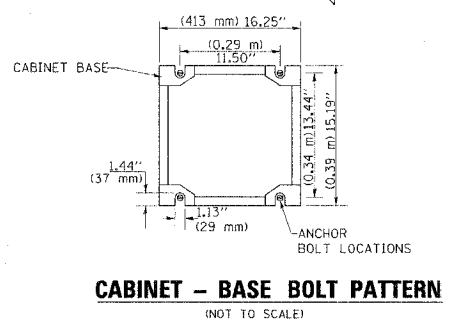
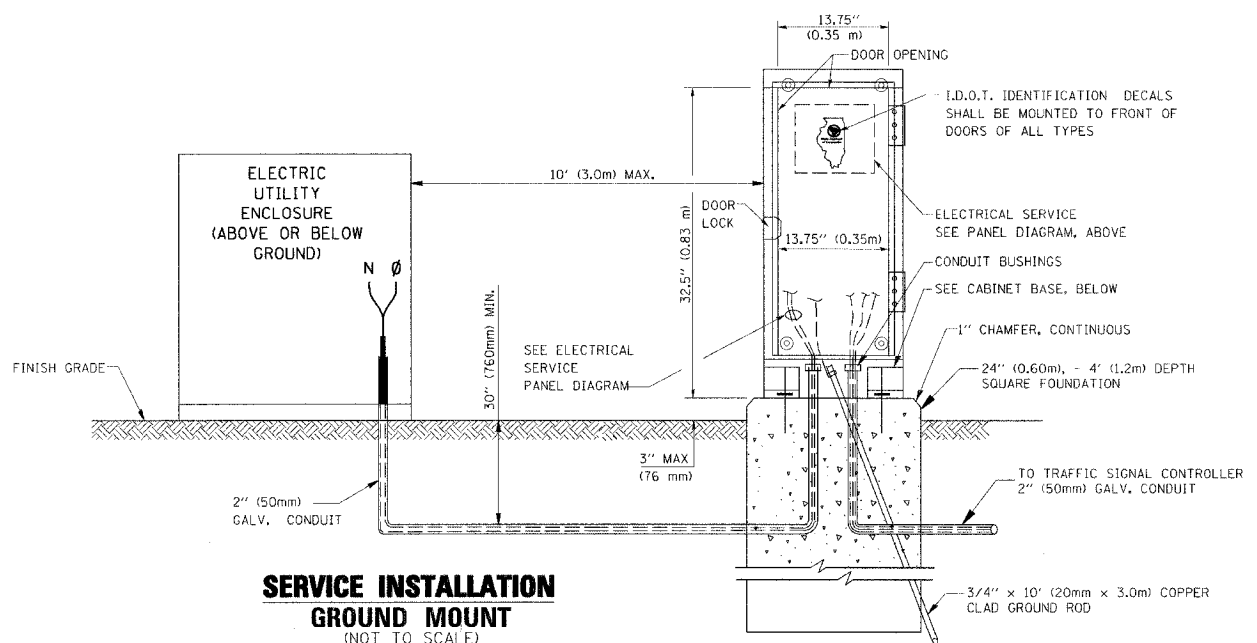
DRAWN BY: RWP  
DESIGNED BY: DAD  
CHECKED BY: DAZ  
SHEET 2 OF 4



F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			22	9
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			

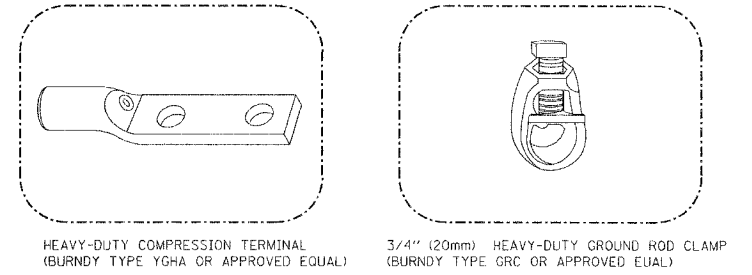


**ELECTRICAL SERVICE – PANEL DIAGRAM (TYPICAL FOR POLE AND GROUND MOUNTED SERVICE)**  
**SERVICE INSTALLATION POLE MOUNT (SHOWN)**  
 (NOT TO SCALE)

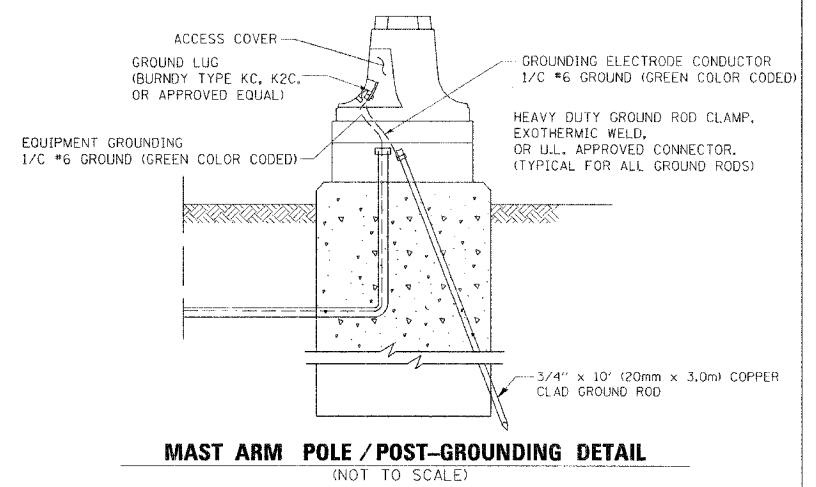


**NOTES:**  
**GROUNDING SYSTEM**

- 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.

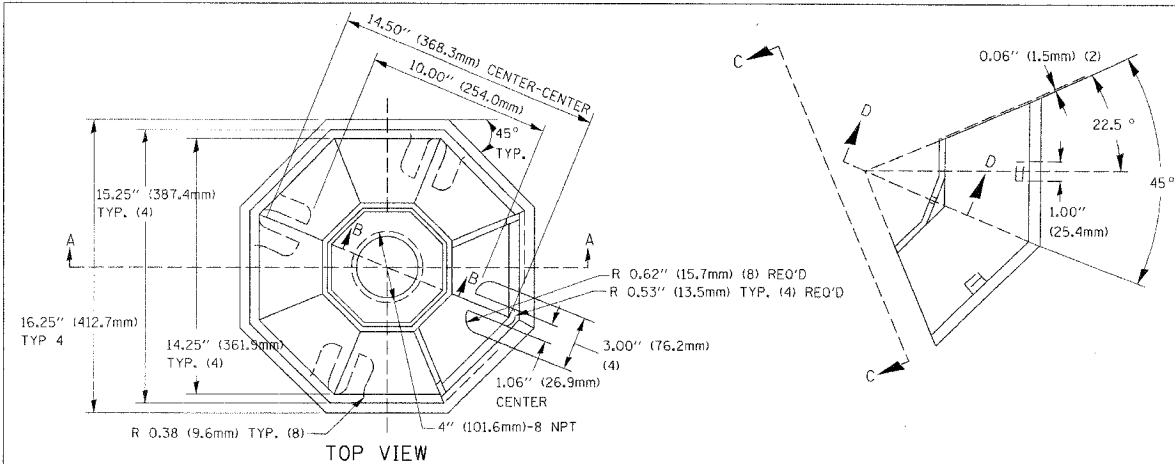


REVISIONS	
NAME	DATE
CADD	5/30/00
CADD	3/15/01
BUREAU OF TRAFFIC	1/01/02

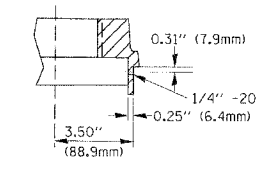
ILLINOIS DEPARTMENT OF TRANSPORTATION  
**DISTRICT 1**  
**STANDARD TRAFFIC SIGNAL**  
**DESIGN DETAILS**

SCALE: VERT. NONE  
 HORIZ. 1" = 10'  
 DATE 10/18/2002  
 DRAWN BY: RWP  
 DESIGNED BY: DAD  
 CHECKED BY: DAZ  
 SHEET 3 OF 4

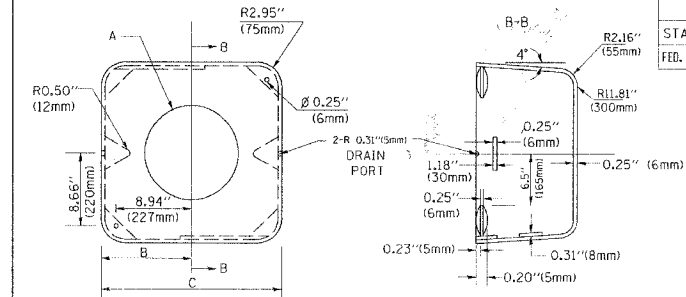
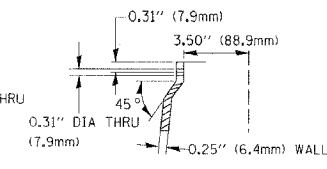
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			22	10
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION B-B

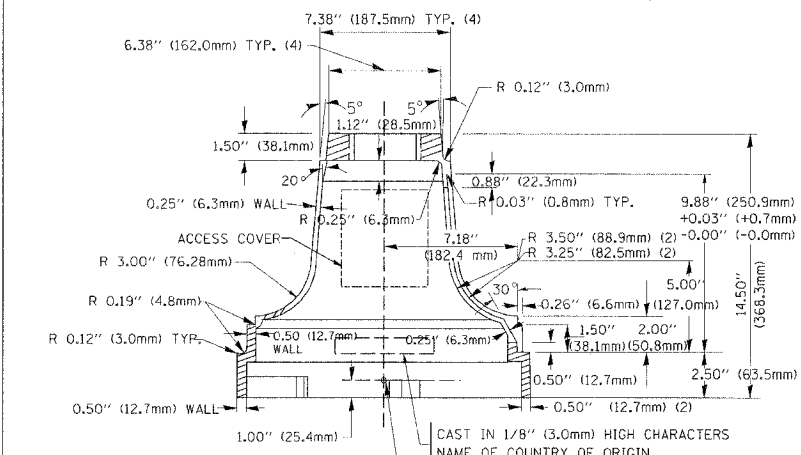


SECTION D-D

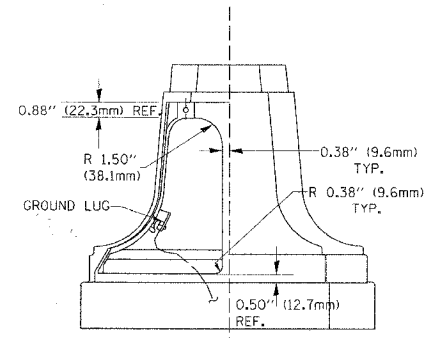


TYPE	A	B	C	HEIGHT	WEIGHT
I	Ø 10.125\" (257mm)	9.5\" (241mm)	19\" (483mm)	12\" (300mm)	24kg
II	Ø 11.125\" (283mm)	10.75\" (273mm)	21.5\" (546mm)	12\" (300mm)	26kg

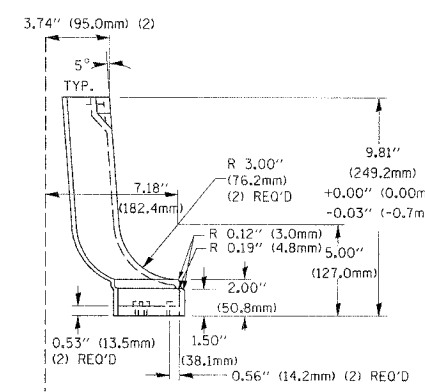
SHROUD DETAIL



SECTION A-A

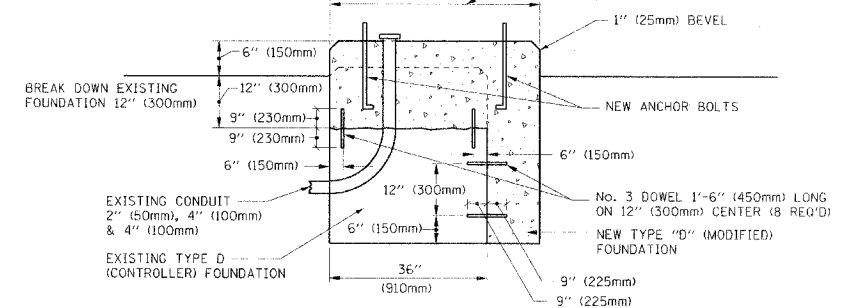


VIEW C-C



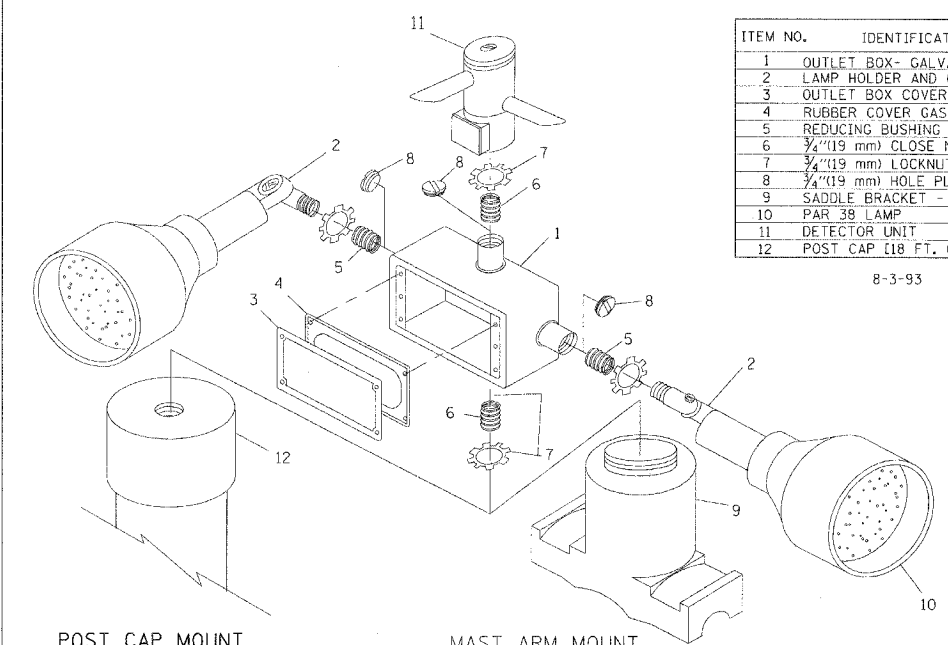
TRAFFIC SIGNAL POST - MOUNTING BASE - TYPE A

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)



POST CAP MOUNT

MAST ARM MOUNT

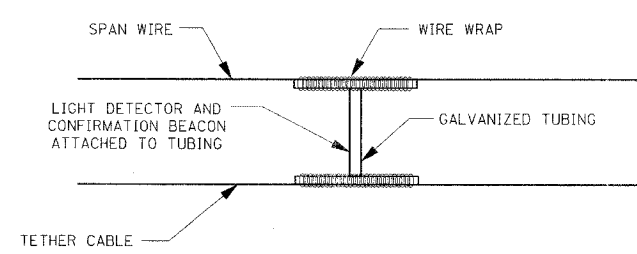
EMERGENCY VEHICLE DETECTOR WITH CONFIRMATION BEACON MOUNTING DETAIL

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

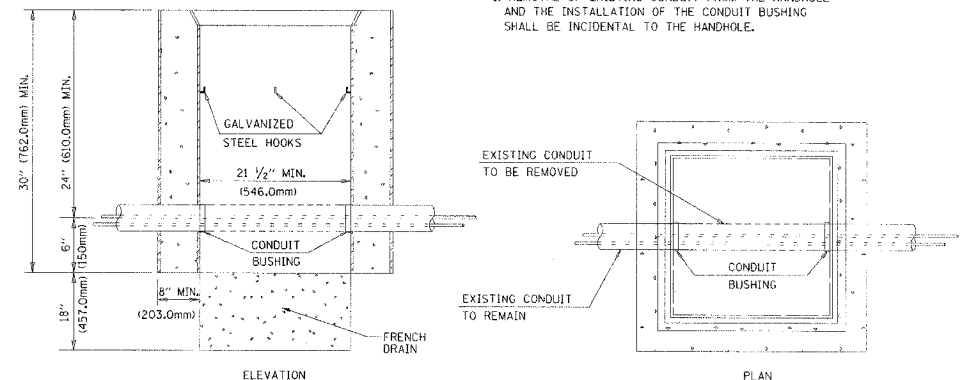
NOTES:

- 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.



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
BUREAU OF TRAFFIC	5/30/00
BUREAU OF TRAFFIC	3/15/01
BUREAU OF TRAFFIC	11/12/01
BUREAU OF TRAFFIC	1-01-02

ILLINOIS DEPARTMENT OF TRANSPORTATION  
DISTRICT 1  
STANDARD TRAFFIC SIGNAL  
DESIGN DETAILS

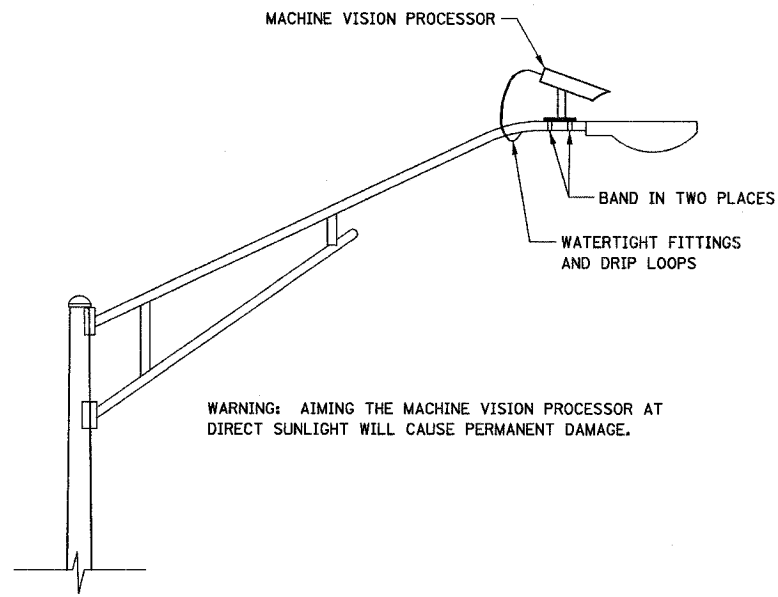
SCALE: VERT. NONE  
HORIZ. DATE 10/18/2002

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

TS05

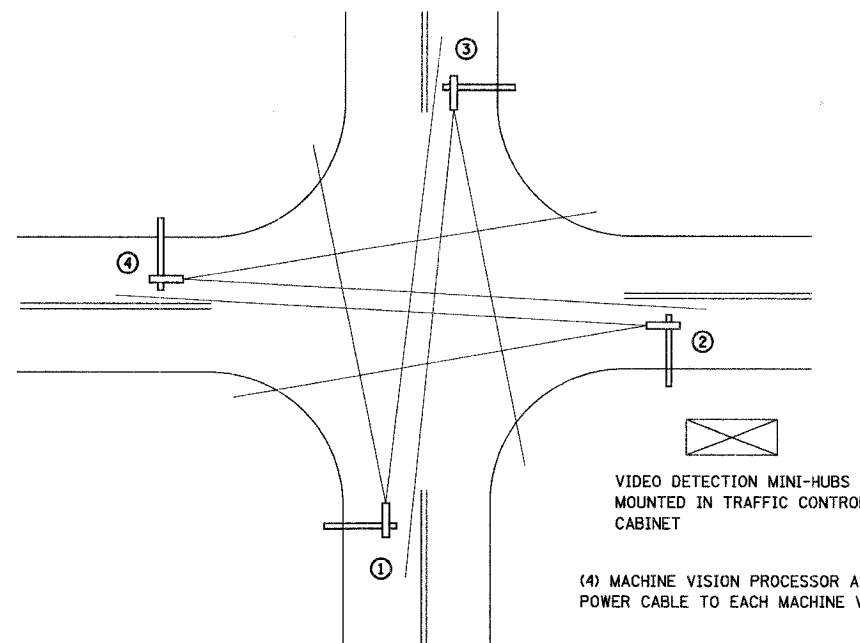
REVISION DATE: 01/01/02

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00101-00-TL	MCHENRY	22	11
STA. -		TO STA. -		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



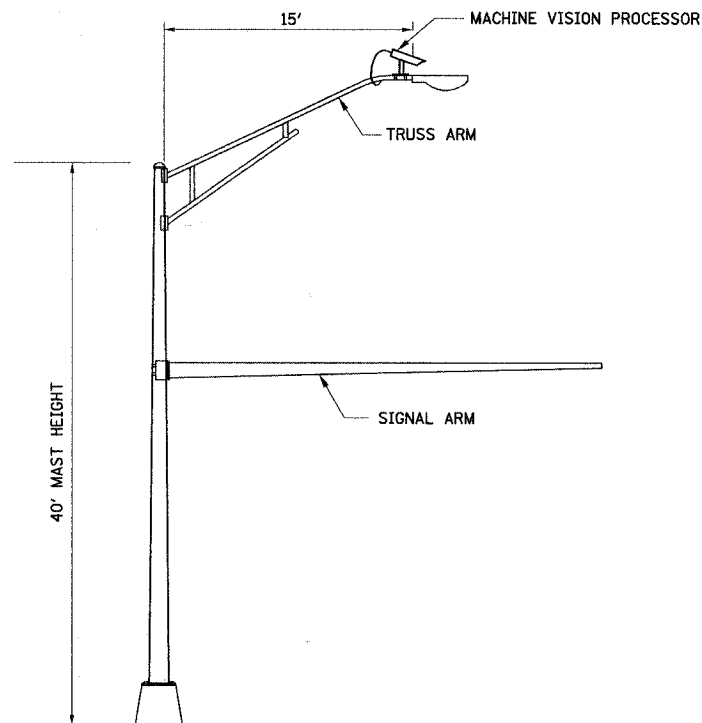
**MACHINE VISION PROCESSOR MOUNTING DETAIL**

(NOT TO SCALE)



**TYPICAL VIDEO VEHICLE DETECTION SYSTEM**

(NOT TO SCALE)



**COMBINATION MAST ARM ASSEMBLY AND POLE DIMENSIONS**

(NOT TO SCALE)

PLOT DATE = 02/17/2006  
FILE NAME = H:\Crystal Lake\1056883-Ackman\Design\09\11VD.dgn

**RHA&A**

Robert H. Anderson & Associates, Inc.  
Consulting Engineers & Land Surveyors  
Timbers Professional Center  
220 West River Drive, St. Charles, Illinois 60174  
Phone - 630.584.3530 Fax - 630.584.3547  
Email - rhain@rhaa.com

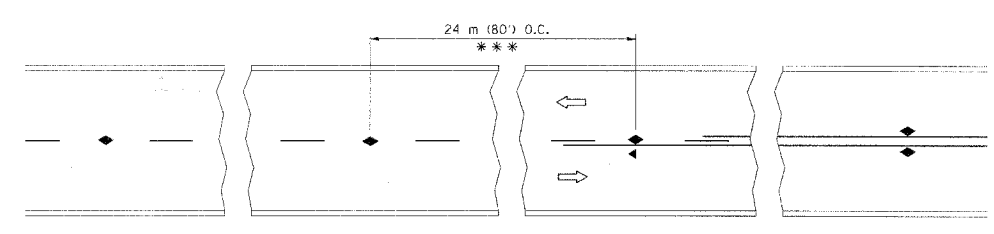
STAFF	
PROJECT MANAGER	MATT GAUNTT, P.E.
ENGINEER	T. COLE, EI
ENGINEER	K. JAY, EI
TECHNICIAN	
TECHNICIAN	

REVISIONS	
NAME	DATE
PRLM ENGR SUB1	9/9/05
FNL ENGR SUB1	12/29/05
FNL ENGR SUB2	2/10/06
FNL ENGR SUB3	2/17/06

ILLINOIS DEPARTMENT OF TRANSPORTATION  
ACKMAN ROAD (CH 42-A46) AT  
GOLF COURSE ROAD  
TRAFFIC SIGNAL IMPROVEMENTS

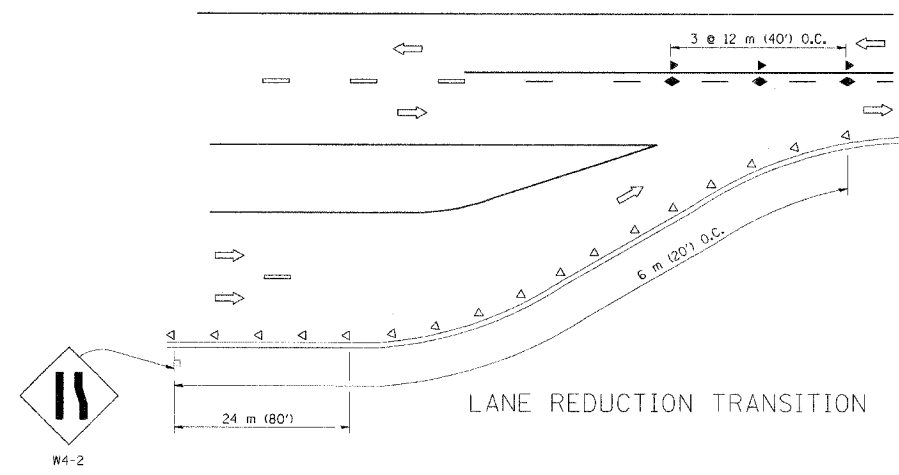
VIDEO DETECTION DETAILS

SCALE: DATE 2-17-06 DRAWN BY CMC CHECKED BY MAG

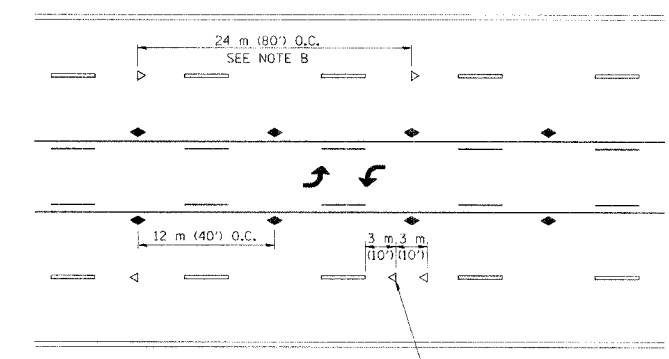


\*\*\* REDUCE TO 12 m (40') O.C. ON CURVES WITH POSTED OR ADVISORY SPEED 70 km/h (45 M.P.H.) OR LESS.

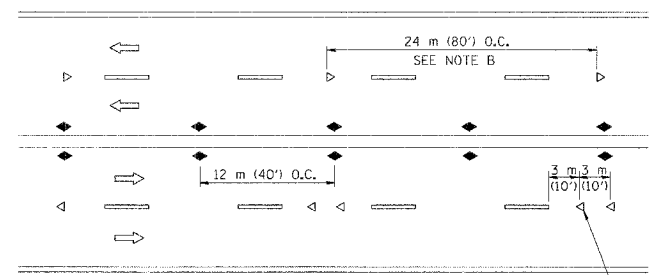
TWO-LANE/TWO-WAY



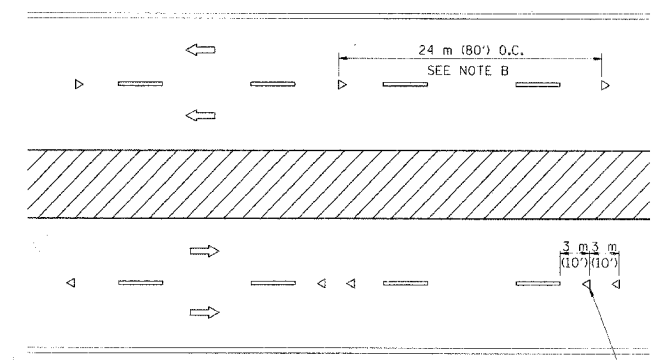
LANE REDUCTION TRANSITION



TWO-WAY LEFT TURN



MULTI-LANE/UNDIVIDED



MULTI-LANE/DIVIDED

GENERAL NOTES

1. MARKERS USED WITH DASHED LINES SHALL BE CENTERED IN THE GAP BETWEEN SEGMENTS.
2. MARKERS USED ADJACENT TO SOLID LINES SHALL BE OFFSET 50 TO 75 (2 TO 3) TOWARD TRAFFIC AS SHOWN.
3. MARKERS THROUGH TANGENTS LESS THAN 150 m (500') IN LENGTH BETWEEN CURVES SHALL BE INSTALLED AT THE LESSER OF THE TWO CURVE SPACINGS.

SYMBOLS

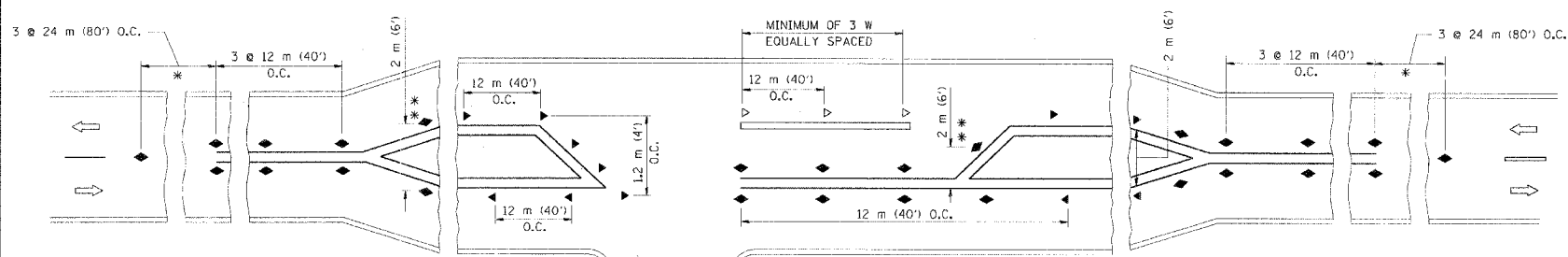
- YELLOW STRIPE
- WHITE STRIPE
- ◀ ONE-WAY AMBER MARKER
- ◁ ONE-WAY CRYSTAL MARKER (W/O)
- ◆ TWO-WAY AMBER MARKER

LANE MARKER NOTES

- B. REDUCE TO 12 m (40') O.C. ON CURVES WHERE ADVISORY SPEEDS ARE 20 km/h (10 M.P.H.) LOWER THAN POSTED SPEEDS.
- A. USE DOUBLE LANE LINE MARKERS SPACED AS SHOWN.

DESIGN NOTES

1. DOUBLE LANE LINE MARKERS SHALL BE USED UNLESS SPECIFIED OTHERWISE.
2. EXCEPT AS SHOWN ON THE LANE REDUCTION TRANSITION AND FREEWAY EXIT RAMP DETAIL, MARKERS ARE NOT TO BE SPECIFIED ON RIGHT EDGE LINES.
3. THE EXACT MARKER LIMITS, SPACING, AND COLOR SHOULD BE INCLUDED IN THE PLANS.
4. MARKERS SHOULD NOT BE USED ALONGSIDE CURBS EXCEPT FOR EXTREMELY SHORT SECTIONS OF CURBS WHERE NOT MORE THAN TWO MARKERS WOULD BE INVOLVED.



LEFT TURN

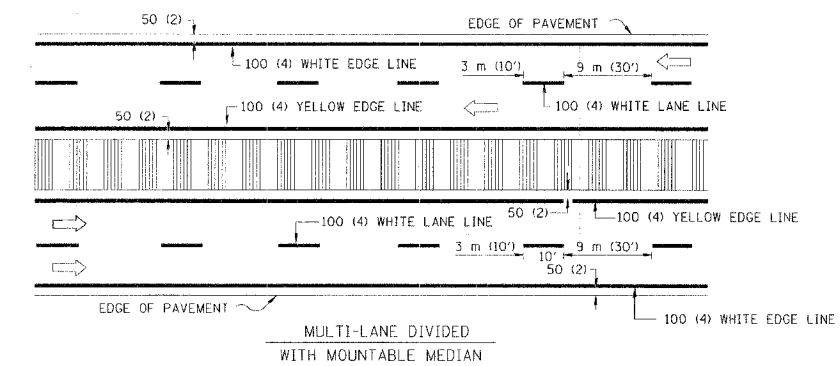
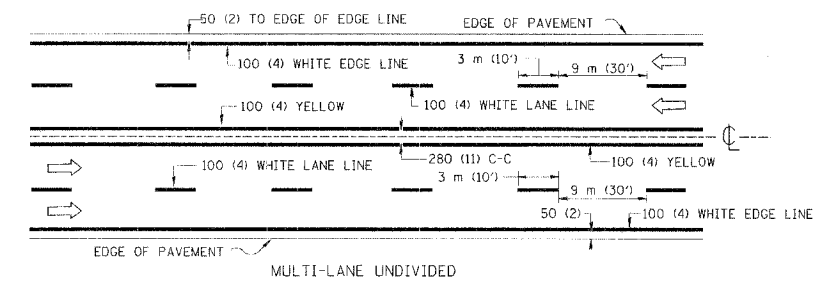
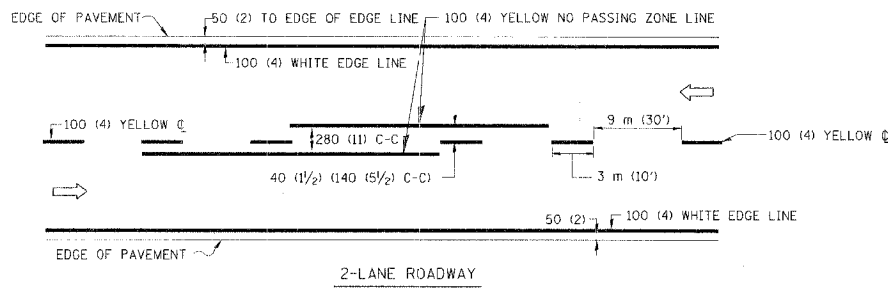
\* SEE TWO-LANE/TWO-WAY WHERE MARKERS CONTINUE  
 \*\* WHERE THE MEDIAN WIDTH IS 2 m (6') OR LESS USE TWO-WAY MARKERS.

All dimensions are in millimeters (inches) unless otherwise shown.

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 TYPICAL APPLICATIONS  
 RAISED REFLECTIVE PAVEMENT MARKERS  
 (SNOW-PLOW RESISTANT)

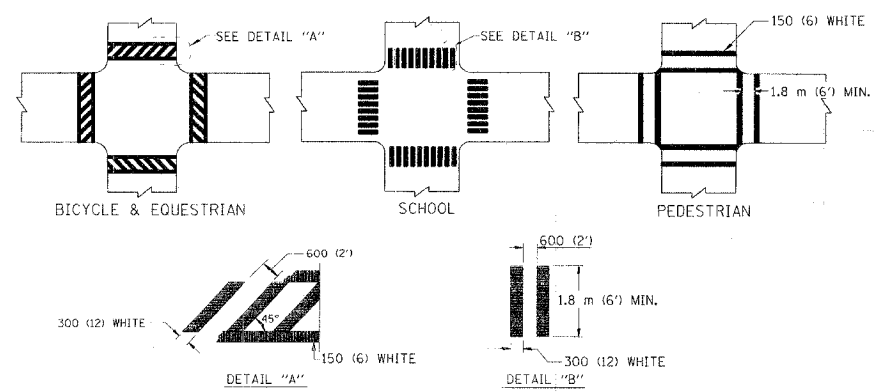
REVISIONS	
NAME	DATE
T. RAMMACHER	09-19-94
T. RAMMACHER	03-12-99
T. RAMMACHER	01-05-00

SCALE: NONE  
 DATE: 10/18/2002  
 DRAWN BY: CADD  
 CHECKED BY: TC-II

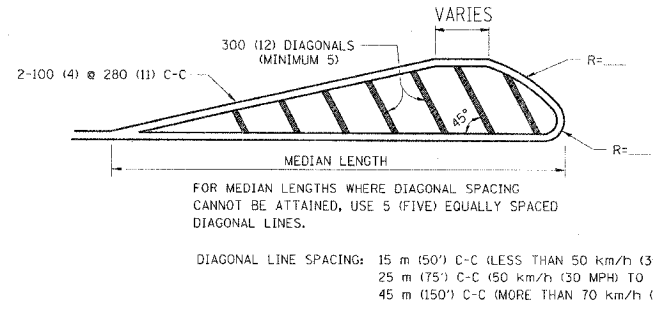
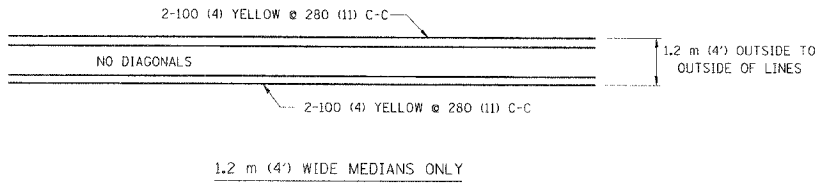


NOTE: MEDIANS WITH BARRIER CURB DO NOT REQUIRE AN EDGE LINE

TYPICAL LANE AND EDGE LINE MARKING

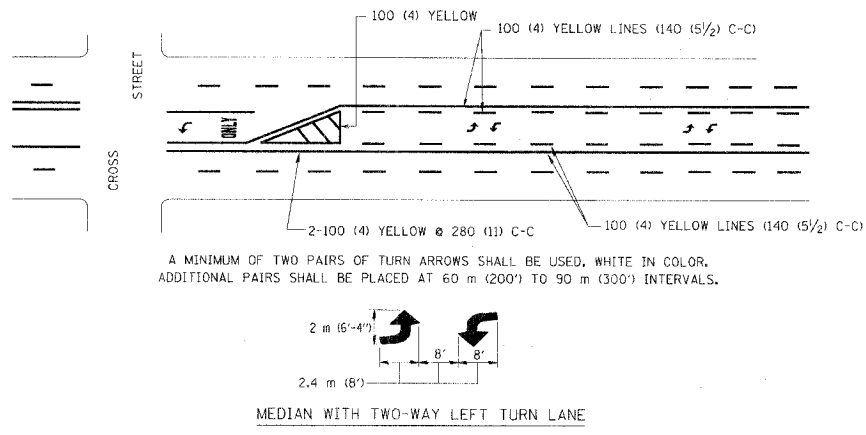


TYPICAL CROSSWALK MARKING



DIAGONAL LINE SPACING: 15 m (50') C-C (LESS THAN 50 km/h (30 MPH))  
25 m (75') C-C (50 km/h (30 MPH) TO 70 km/h (45 MPH))  
45 m (150') C-C (MORE THAN 70 km/h (45 MPH))

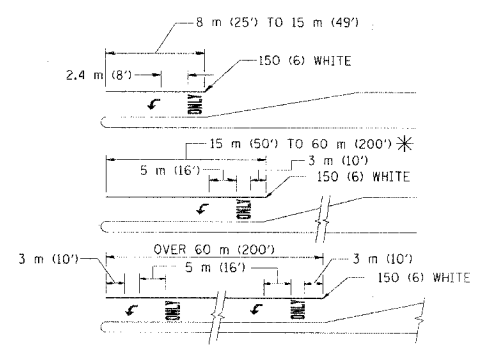
MEDIANS OVER 1.2 m (4') WIDE



A MINIMUM OF TWO PAIRS OF TURN ARROWS SHALL BE USED, WHITE IN COLOR. ADDITIONAL PAIRS SHALL BE PLACED AT 60 m (200') TO 90 m (300') INTERVALS.

MEDIAN WITH TWO-WAY LEFT TURN LANE

TYPICAL PAINTED MEDIAN MARKING

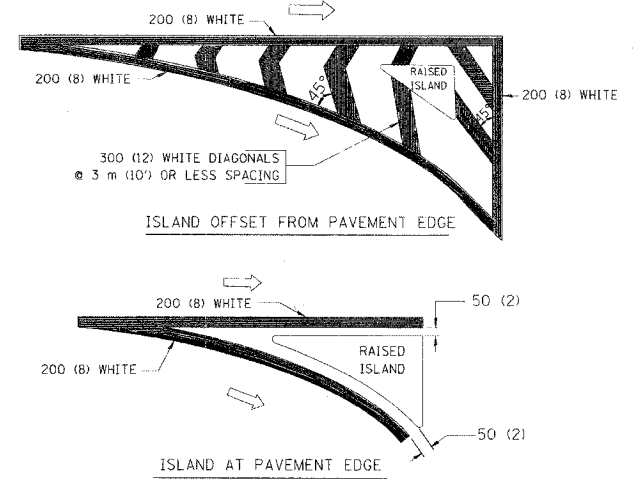


FULL SIZE LETTERS 2.4 m (8') AND ARROWS SHALL BE USED.  
AREA = 1.5 m<sup>2</sup> (15.6 SQ. FT.) ONLY AREA = 1.9 m<sup>2</sup> (20.8 SQ. FT.)

\* TURN LANES IN EXCESS OF 120 m (400') IN LENGTH MAY HAVE AN ADDITIONAL SET OF ARROW - "ONLY" INSTALLED MIDWAY BETWEEN THE OTHER TWO SETS OF ARROW - "ONLY".

TYPICAL LEFT (OR RIGHT) TURN LANE

TYPICAL TURN LANE MARKING



TYPICAL ISLAND MARKING

TYPE OF MARKING	WIDTH OF LINE	PATTERN	COLOR	SPACING / REMARKS
CENTERLINE ON 2 LANE PAVEMENT	100 (4)	SKIP-DASH	YELLOW	3 m (10') LINE WITH 9 m (30') SPACE
CENTERLINE ON MULTI-LANE UNDIVIDED PAVEMENT	2 @ 100 (4)	SOLID	YELLOW	280 (11) C-C
NO PASSING ZONE LINES: FOR ONE DIRECTION FOR BOTH DIRECTIONS	100 (4) 2 @ 100 (4)	SOLID SOLID	YELLOW YELLOW	140 (5 1/2) C-C FROM SKIP-DASH CENTERLINE 280 (11) C-C OMIT SKIP-DASH CENTERLINE BETWEEN
LANE LINES	100 (4) 125 (5) ON FREEWAYS	SKIP-DASH SKIP-DASH	WHITE WHITE	3 m (10') LINE WITH 9 m (30') SPACE
DOTTED LINES (EXTENSIONS OF CENTER, LANE OR TURN LANE MARKINGS)	SAME AS LINE BEING EXTENDED	SKIP-DASH	SAME AS LINE BEING EXTENDED	600 (2') LINE WITH 1.8 m (6') SPACE
EDGE LINES	100 (4)	SOLID	YELLOW-LEFT WHITE-RIGHT	OUTLINE MOUNTABLE MEDIANS IN YELLOW; EDGE LINES ARE NOT USED NEXT TO BARRIER CURB
TURN LANE MARKINGS	150 (6) LINE; FULL SIZE LETTERS & SYMBOLS (2.4 m (8'))	SOLID	WHITE	SEE TYPICAL TURN LANE MARKING DETAIL
TWO WAY LEFT TURN MARKING	2 @ 100 (4) EACH DIRECTION 2.4 m (8') LEFT ARROW	SKIP-DASH AND SOLID IN PAIRS	YELLOW WHITE	3 m (10') LINE WITH 9 m (30') SPACE FOR SKIP-DASH 140 (5 1/2) C-C BETWEEN SOLID LINE AND SKIP-DASH LINE SEE TYPICAL TWO-WAY LEFT TURN MARKING DETAIL
CROSSWALK LINES (PEDESTRIAN) A. DIAGONALS (BIKE & EQUESTRIAN) B. LONGITUDINAL BARS (SCHOOL)	2 @ 150 (6) 300 (12) @ 45° 300 (12) @ 90°	SOLID SOLID SOLID	WHITE WHITE WHITE	NOT LESS THAN 1.8 m (6') APART 600 (2') APART 600 (2') APART SEE TYPICAL CROSSWALK MARKING DETAILS.
STOP LINES	600 (24)	SOLID	WHITE	PLACE 1.2 m (4') IN ADVANCE OF AND PARALLEL TO CROSSWALK, IF PRESENT. OTHERWISE, PLACE AT DESIRED STOPPING POINT. PARALLEL TO CROSSROAD CENTERLINE, WHERE POSSIBLE
PAINTED MEDIANS	2 @ 100 (4) WITH 300 (12) DIAGONALS @ 45° NO DIAGONALS USED FOR 1.2 m (4') WIDE MEDIANS	SOLID	YELLOW; TWO WAY TRAFFIC WHITE; ONE WAY TRAFFIC	280 (11) C-C FOR THE DOUBLE LINE SEE TYPICAL PAINTED MEDIAN MARKING.
GORE MARKING AND CHANNELIZING LINES	200 (8) WITH 300 (12) DIAGONALS @ 45°	SOLID	WHITE	DIAGONALS: 4.5 m (15') C-C (LESS THAN 50 km/h (30 MPH)) 6 m (20') C-C (50 km/h (30 MPH) TO 70 km/h (45 MPH)) 9 m (30') C-C (OVER 70 km/h (45 MPH))
RAILROAD CROSSING	600 (24) TRANSVERSE LINES; "RR" IS 1.8 m (6') LETTERS; 400 (16) LINE FOR "X"	SOLID	WHITE	SEE STATE STANDARD 780001 AREA OF: "R"=0.33m <sup>2</sup> (3.6 SQ. FT.) EACH "X"=5.0 m <sup>2</sup> (54.0 SQ. FT.)
SHOULDER DIAGONALS	300 (12) @ 45°	SOLID	WHITE - RIGHT YELLOW - LEFT	15 m (50') C-C (LESS THAN 50 km/h (30 MPH)) 25 m (75') C-C (50 km/h (30 MPH) TO 70 km/h (45 MPH)) 45 m (150') C-C (OVER 70 km/h (45 MPH))

FOR FURTHER DETAILS ON PAVEMENT MARKING REFER TO STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND STATE STANDARD 780001.

All dimensions are in millimeters (inches) unless otherwise shown.

ILLINOIS DEPARTMENT OF TRANSPORTATION  
DISTRICT ONE  
TYPICAL PAVEMENT MARKINGS

REVISIONS	
NAME	DATE
EVERS	03-19-90
T. RAMMACHER	10-27-94
ALEX HOUSEH	10-09-96
ALEX HOUSEH	10-17-96
T. RAMMACHER	01-06-00

SCALE: NONE  
DATE 10/18/2002  
DRAWN BY CADD  
CHECKED BY  
TC-13



### BILL OF MATERIALS

PAY CODE	ITEM	UNIT	QUAN
80400100	ELECTRIC SERVICE INSTALLATION	EACH	1
80400200	ELECTRIC UTILITY SERVICE CONNECTION	L. SUM	1
80700140	GROUND ROD, 5/8" DIA. x 10 FT	EACH	17
81000700	CONDUIT IN TRENCH, 2 1/2" DIA., GALVANIZED STEEL	FOOT	110
81018600	CONDUIT PUSHED, 2 1/2" DIA. GALVANIZED STEEL	FOOT	152
81018900	CONDUIT PUSHED, 4" DIA. GALVANIZED STEEL	FOOT	58
81500200	TRENCH AND BACKFILL FOR ELECTRICAL WORK	FOOT	200
81702440	ELECTRIC CABLE IN CONDUIT 600 V (XLP TYPE USE) 3 -1/2" NO. 1/0	FOOT	200
82102100	LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT, 100 WATT	EACH	8
82102150	LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT, 150 WATT	EACH	12
82500505	LIGHTING CONTROLLER, SPECIAL	EACH	1
83006400	LIGHT POLE, ALUMINUM 30 FT. M.H. 10 FT MAST ARM	EACH	8
83008400	LIGHT POLE, ALUMINUM 40 FT. M.H. 10 FT MAST ARM	EACH	8
83600400	POLE FOUNDATION METAL	EACH	16
83800105	BREAKAWAY DEVICE, TRANSFORMER BASE, 11.5" BOLT CIRCLE	EACH	8
83800205	BREAKAWAY DEVICE, TRANSFORMER BASE, 15" BOLT CIRCLE	EACH	8
84200500	REMOVAL OF EXISTING LIGHTING UNIT, SALVAGE	EACH	1
X8070200	GROUND ROD ARRAY	EACH	1
X006505	EXTERNAL LIGHT SHIELD, HOUSE SIDE	EACH	20
X006506	POLYETHYLENE DUCT, BORED AND PULLED, 1/4" DIA WITH ELECTRIC CABLE 600 V (XLP TYPE - USE), 2-1/2" NO. 6, 1/2" NO. 6 GROUND AND 1/2" NO. 14 GRAY TRACER WIRE	FOOT	3,000

### GENERAL NOTES

- WHERE SEPARATE CIRCUIT RUNS ARE TO BE INSTALLED PARALLEL WITH EACH OTHER, ONE COMMON TRENCH SHALL BE USED AND SHALL BE MEASURED ONLY ONCE FOR PAYMENT, AS TRENCH AND BACKFILL.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MARK THE PROPOSED LOCATIONS OF ALL LIGHT POLES FOR EXAMINATION AND CONFIRMATION WITH THE ENGINEER AT THE PRECONSTRUCTION INSPECTION. THE EXACT LOCATIONS OF ALL OTHER ROADWAY LIGHTING ITEMS, INCLUDING THE LIGHTING CONTROLLER(S), SHALL BE CONFIRMED WITH THE ENGINEER PRIOR TO STARTING WORK.
- THE RESPONSIBILITY FOR COORDINATING FINISHED GRADE ELEVATION WITH THE TOP OF THE FOUNDATION HEIGHTS SHALL BE REMAIN WITH THE CONTRACTOR.
- THE CONTRACTOR SHALL SUBMIT FOR THE RESIDENT ENGINEER REVIEW, WITHIN 30 DAYS AFTER CONTRACT EXECUTION, EIGHT (8) COPIES OF APPROVABLE MANUFACTURER'S PRODUCT DATA AND DETAIL SHOP DRAWINGS TO THE ATTENTION OF COUNTY ENGINEER, DIRECTOR OF TRANSPORTATION, 16111 NELSON ROAD, WOODSTOCK, IL 60098.
  - TRENCH: ELECTRICAL WARNING TAPE
  - FOUNDATION CONCRETE: CLASS "SI" CONCRETE, REINFORCEMENT, RACEWAYS. ANCHOR BOLTS WITH NUTS & WASHERS. METAL: SHOP DRAWING
  - CONDUIT: CONDUIT AND CONDUIT FITTINGS.
  - GROUND ROD: GROUND ROD, COPPER WIRE, EXOTHERMIC WELD.
  - UNIT DUCT/CABLES: UNIT DUCT, CABLES
  - ELECTRIC CABLES: ELECTRIC CABLES
  - LIGHT POLE/ARM: POLE DETAILS, SHOP DRAWING, & WIND LOAD CALCULATIONS, POLE WIRE
  - LUMINAIRE: ROADWAY LUMINAIRE WITH BALLAST ASSEMBLY.
  - ELECTRICAL ITEMS: ELECTRIC TAPES, QUICK DISCONNECT WITH FUSE, LAMPS.
  - LIGHTING CONTROLLER: CIRCUITRY DETAIL, CATALOG ON MATERIALS, PAINT.
  - LUMINAIRE SHIELD: MANUFACTURER CATALOG AND DETAILS
  - BREAKAWAY DEVICE, TRANSFORMER BASE.
- UNIT DUCT PROVIDED IN THIS CONTRACT SHALL BE 1/4" DIA. DUCT WITH 2-1/2" NO. 6 (BLACK-RED), 1/2" NO. 6 (GREEN) GROUND AND 1/2" NO. 14 TRACER WIRE (GRAY) SOLID COLOR CODED INSULATED CONDUCTOR.
- THE CONTRACTOR SHALL SUBMIT FOUR (4) SET FULL SIZED COMPLETE, NEAT AND ACCURATE "RECORD DRAWINGS" TO THE ENGINEER FOR REVIEW AND COMMENT. AS SPECIFIED. THE "RECORD DRAWINGS" SHALL BE UPDATED ON REGULAR BASIS AND DEPICT ALL ROADWAY LIGHTING MATERIAL INSTALLATIONS WITH ANY CHANGES INDICATED IN RED. "RECORD DRAWINGS" SHALL BE SUBMITTED AT LEAST 7 DAYS BEFORE SCHEDULING A FINAL INSPECTION.
- THE CONTRACTOR SHALL NOTIFY J.U.L.I.E. AT (1-800-892-0123) TO LOCATE AND MARK/STAKE ALL UNDERGROUND UTILITIES.
- THE CONTRACTOR SHALL GIVE IN WRITING TO THE ENGINEER FOR REVIEW, CONSTRUCTION STAGING FOR THE PROPOSED ROADWAY LIGHTING WORK, AND THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE ENGINEER.
- THE LIGHT POLE SETBACK FROM THE EDGE OF TRAVELED PAVEMENT SHALL BE 10 FT OR 8'-6" FROM THE BACK FACE OF THE CURB TO THE FACE OF FOUNDATION.
- RESTORATION OF PARKWAY AND PROJECT SITE SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS.
- THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL CODES AND ORDINANCES.
- THE PROPOSED TRENCH SHALL BE 30 INCH BELOW GRADE.

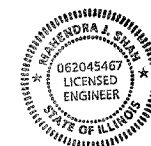
### SYMBOLS

- LIGHTING UNIT, ALUMINUM 40 FT. MOUNTING HEIGHT, 10 FT MAST ARM, LUMINAIRE WITH HOUSE SIDE LIGHT SHIELD AND 150 WATT HIGH PRESSURE SODIUM VAPOR LAMP. BALLAST -240 VOLT AUTO REGULATOR (LEAD TYPE) CWA. LIGHTING UNIT IS MOUNTED ON METAL FOUNDATION WITH BREAKAWAY DEVICE-TRANSFORMER BASE.
- LIGHTING UNIT, ALUMINUM 30 FT. MOUNTING HEIGHT, 10 FT MAST ARM, LUMINAIRE WITH HOUSE SIDE LIGHT SHIELD AND 100 WATT HIGH PRESSURE SODIUM VAPOR LAMP. BALLAST -240 VOLT AUTO REGULATOR (LEAD TYPE) CWA. LIGHTING UNIT IS MOUNTED ON METAL FOUNDATION WITH BREAKAWAY DEVICE-TRANSFORMER BASE.
- STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 40 FT. MOUNTING HEIGHT, 15 FT MAST ARM, FOR ROADWAY LUMINAIRE WITH HOUSE SIDE LIGHT SHIELD AND 150 WATT HIGH PRESSURE SODIUM VAPOR LAMP. BALLAST -240 VOLT AUTO REGULATOR (LEAD TYPE) CWA.
- STATION NUMBER (TYP)
- POLE NUMBER (TYP)
- BRANCH CIRCUIT DESIGNATION (TYP)
- GROUND ROD, 5/8" DIA. x 10 FT
- CONDUIT IN TRENCH (T) OR PUSHED (P)
- RIGID GALVANIZED CONDUIT (RGC) DIA. x LENGTH
- UNIT DUCT WITH 600V CABLES (XLP-TYPE USE), POLYETHYLENE CONDUIT, CABLE AND DUCT SIZE AS SHOWN ON THE PLAN.
- PROPOSED LIGHTING CONTROLLER 225 AMP MAIN BREAKER
- EXISTING UTILITY SERVICE POLE
- EXISTING LIGHTING UNIT, TO BE REMOVED AND SALVAGE

### CAUTION

"THE CONTRACTOR SHALL VERIFY THAT THERE ARE NO CONFLICTS BETWEEN THE PROPOSED LIGHT POLE FOUNDATION LOCATIONS AND EXISTING UTILITIES, PROPOSED UTILITIES, EXISTING DRIVEWAYS, AND PROPOSED DRIVEWAYS. IF A CONFLICT IS FOUND, THE CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER. IN THE EVENT OF A CONFLICT, THE CONTRACTOR SHALL OBTAIN WRITTEN INSTRUCTIONS FROM THE ENGINEER PRIOR TO PROCEEDING WITH ANY PART OF THE WORK AFFECTED. FAILING TO SECURE SUCH INSTRUCTIONS, THE CONTRACTOR WILL BE CONSIDERED TO HAVE PROCEEDED AT HIS OWN RISK AND EXPENSE."

PROJECT ENGINEER



LICENSE EXPIRE: NOVEMBER 30, 2007

*Reshonda L. Slick*

PROJECT DRAWINGS #E-1 TO #E-9 ARE PREPARED BY SUNJOY INC.

### NOTE:

- THE MATERIALS AND WORK FOR THIS PROJECT SHALL CONFORM TO THE APPLICABLE STANDARD SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS, ISSUED BY THE ILLINOIS DEPARTMENT OF TRANSPORTATION, SPECIAL



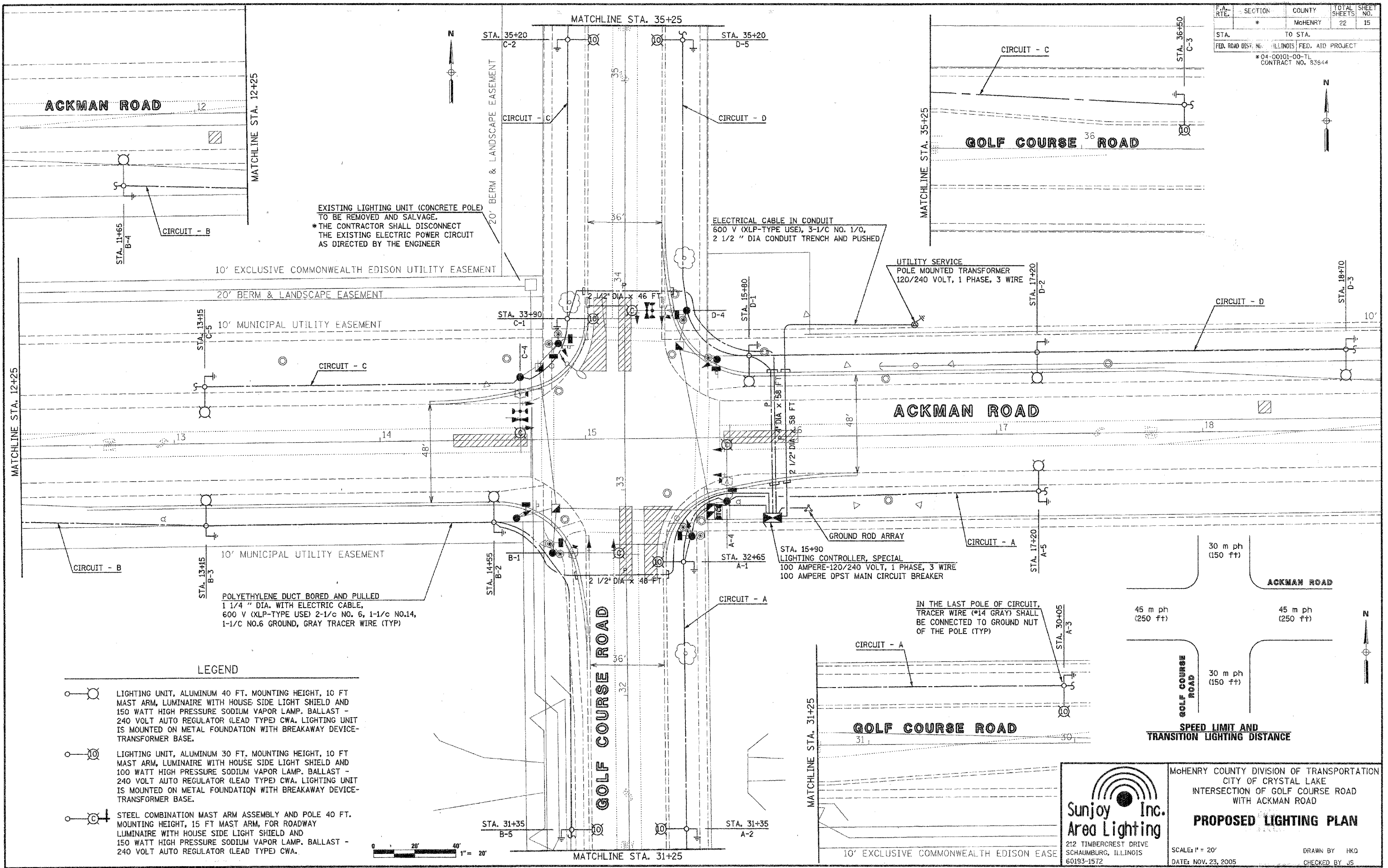
McHENRY COUNTY DIVISION OF TRANSPORTATION  
CITY OF CRYSTAL LAKE  
INTERSECTION OF GOLF COURSE ROAD  
WITH ACKMAN ROAD

### BILL OF MATERIALS, SYMBOLS & GENERAL NOTES

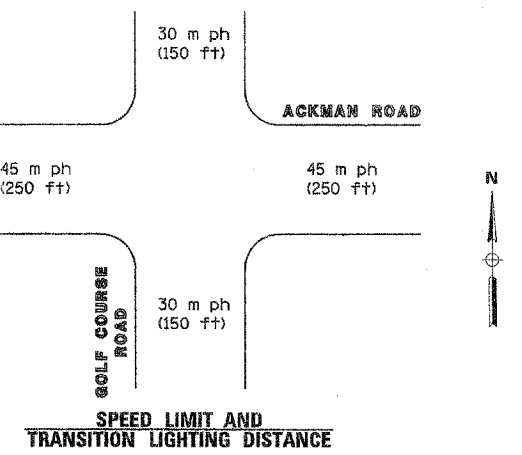
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DATE: NOV. 23, 2005

DRAWN BY: HKO  
CHECKED BY: JS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	McHENRY	ILLINOIS	22	15
STA. 11+65 TO STA. 36+50				
FED. ROAD DIST. NO. 04-00101-00-TL				
ILLINOIS FED. AID PROJECT				
*04-00101-00-TL				
CONTRACT NO. 93644				



- LEGEND**
- LIGHTING UNIT, ALUMINUM 40 FT. MOUNTING HEIGHT, 10 FT MAST ARM, LUMINAIRE WITH HOUSE SIDE LIGHT SHIELD AND 150 WATT HIGH PRESSURE SODIUM VAPOR LAMP. BALLAST - 240 VOLT AUTO REGULATOR (LEAD TYPE) CWA. LIGHTING UNIT IS MOUNTED ON METAL FOUNDATION WITH BREAKAWAY DEVICE-TRANSFORMER BASE.
  - LIGHTING UNIT, ALUMINUM 30 FT. MOUNTING HEIGHT, 10 FT MAST ARM, LUMINAIRE WITH HOUSE SIDE LIGHT SHIELD AND 100 WATT HIGH PRESSURE SODIUM VAPOR LAMP. BALLAST - 240 VOLT AUTO REGULATOR (LEAD TYPE) CWA. LIGHTING UNIT IS MOUNTED ON METAL FOUNDATION WITH BREAKAWAY DEVICE-TRANSFORMER BASE.
  - STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 40 FT. MOUNTING HEIGHT, 15 FT MAST ARM, FOR ROADWAY LUMINAIRE WITH HOUSE SIDE LIGHT SHIELD AND 150 WATT HIGH PRESSURE SODIUM VAPOR LAMP. BALLAST - 240 VOLT AUTO REGULATOR (LEAD TYPE) CWA.



**Sunjoy Inc.**  
Area Lighting

212 TIMBERCREST DRIVE  
SCHAUMBURG, ILLINOIS  
60193-1572

McHENRY COUNTY DIVISION OF TRANSPORTATION  
CITY OF CRYSTAL LAKE  
INTERSECTION OF GOLF COURSE ROAD  
WITH ACKMAN ROAD

**PROPOSED LIGHTING PLAN**

SCALE: 1" = 20'  
DATE: NOV. 23, 2005

DRAWN BY: HKO  
CHECKED BY: JS

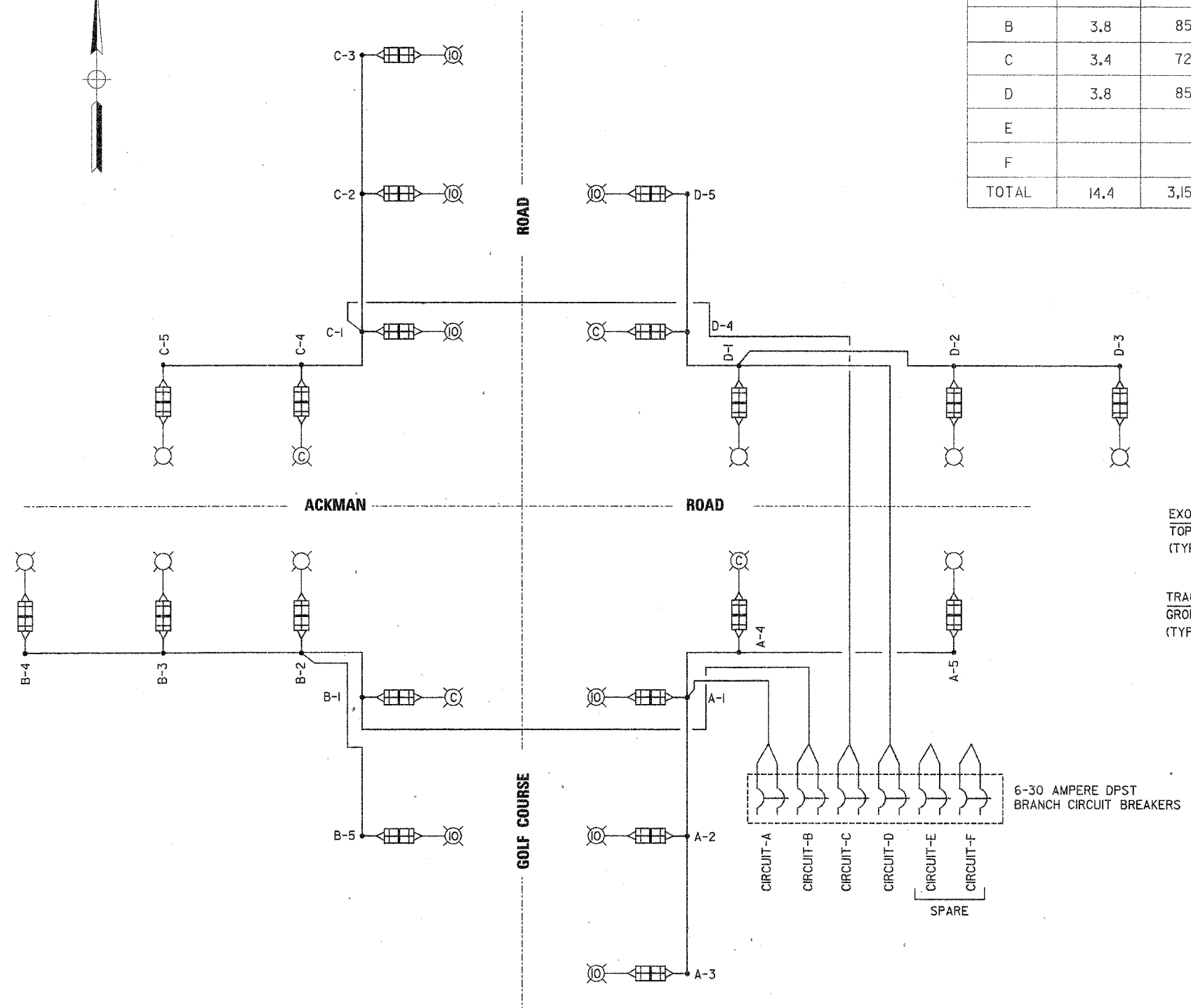
P.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*		McHENRY	22	16
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		
*04-00101-00-TL CONTRACT NO. 83844				

CONTROLLER CENTER  
CIRCUIT LOAD

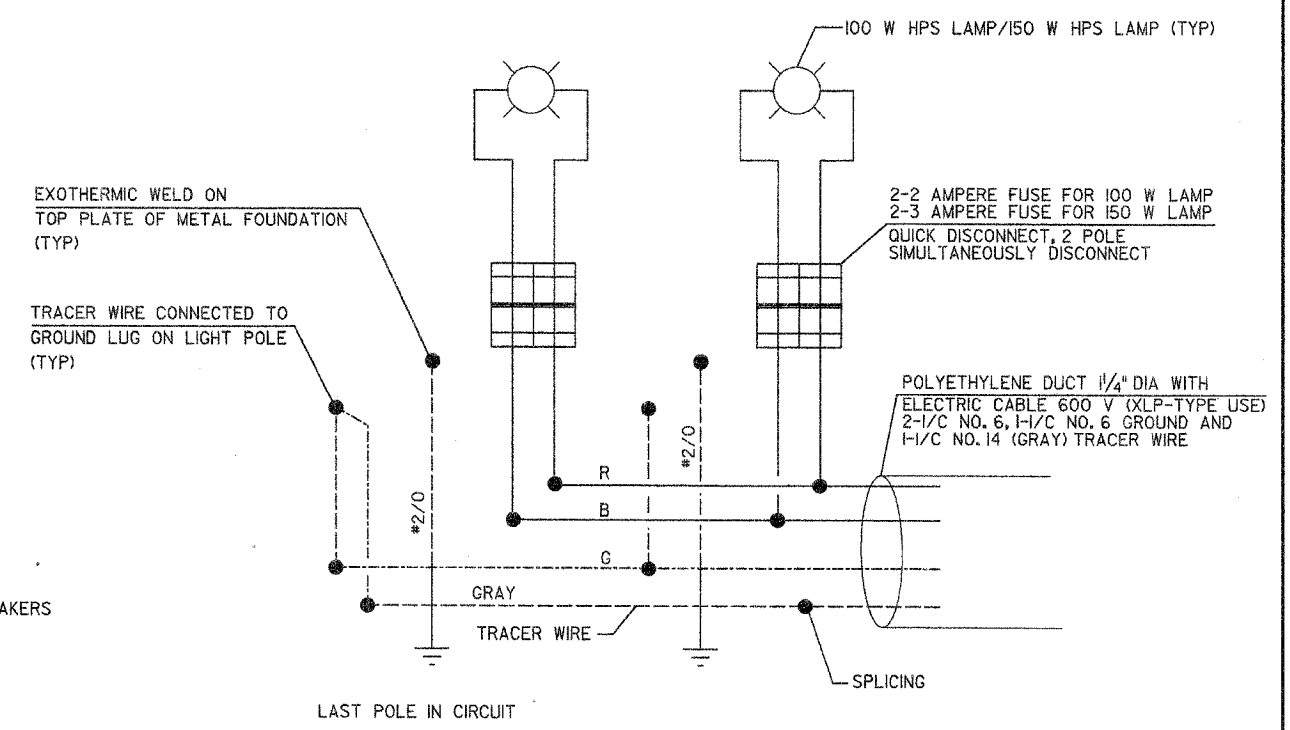
CIRCUIT	AMPERE LOAD	INPUT WATTS
A	3.4	726
B	3.8	852
C	3.4	726
D	3.8	852
E		
F		
TOTAL	14.4	3,156

SINGLE LINE LEGEND

- LUMINAIRE, 150W HPS LAMP
- LUMINAIRE, 100W HPS LAMP
- 2-2.0 AMPERE FUSE FOR 100 W HPS LAMP  
2-3.0 AMPERE FUSE FOR 150 W HPS LAMP
- CIRCUIT BREAKER
- 2 1/C #6, 1/C #6 GND & 11/C #14 TRACER WIRE IN UNIT DUCT
- CONNECTION



ONE LINE CIRCUIT DIAGRAM



TYPICAL CABLE SPLICING AT POLE'S HANDHOLE

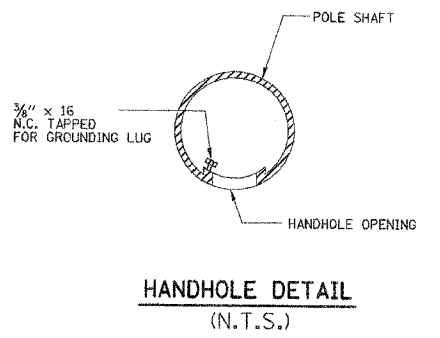
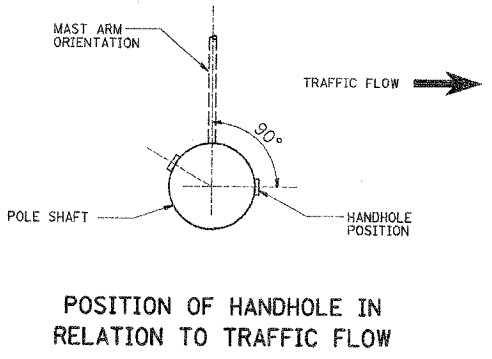
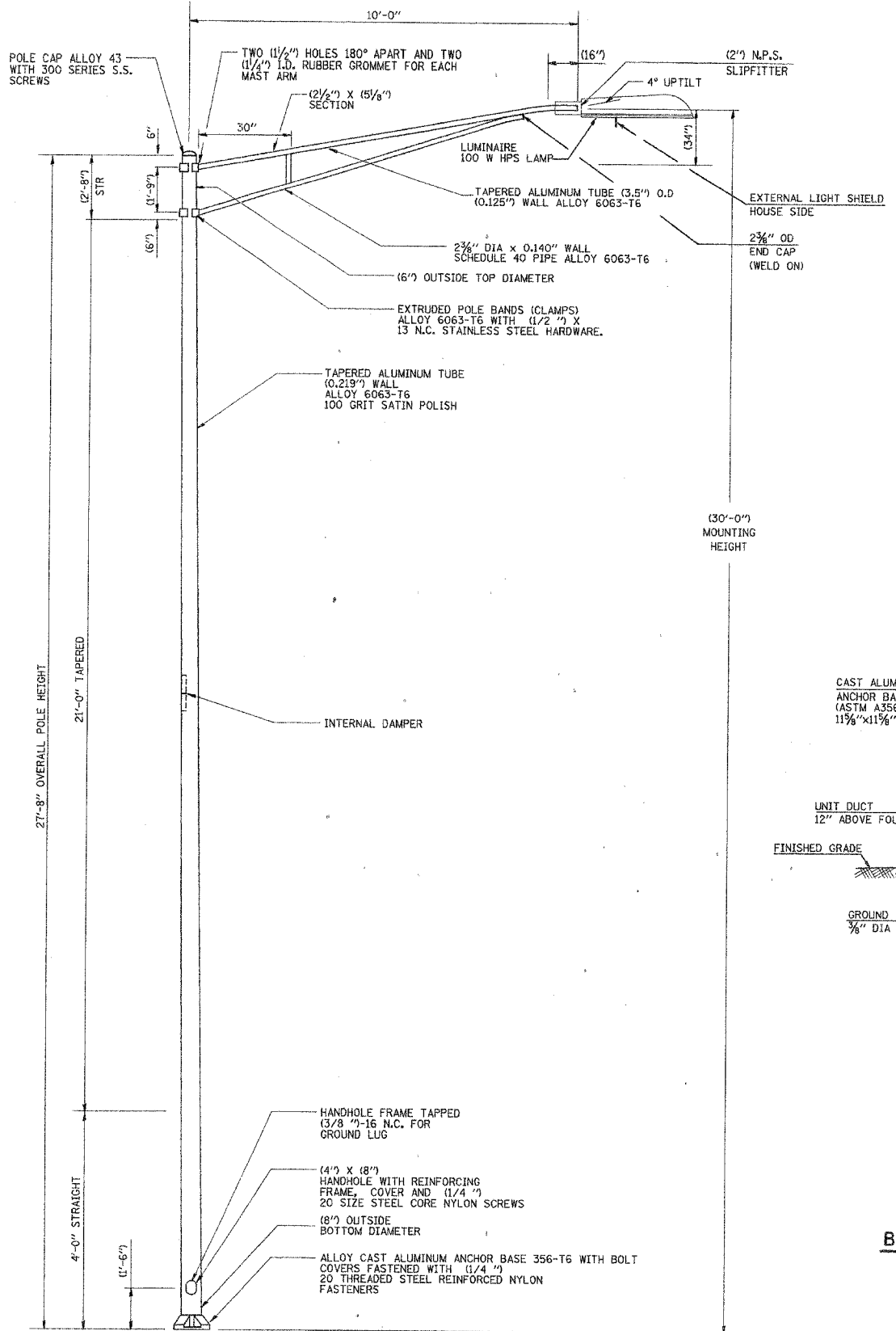


McHENRY COUNTY DIVISION OF TRANSPORTATION  
CITY OF CRYSTAL LAKE  
INTERSECTION OF GOLF COURSE ROAD  
WITH ACKMAN ROAD  
**ONE LINE CIRCUIT DIAGRAM**  
LIGHTING CONTROLLER

SCALE: NONE  
DATE: NOV. 23, 2005  
DRAWN BY: HKO  
CHECKED BY: JS

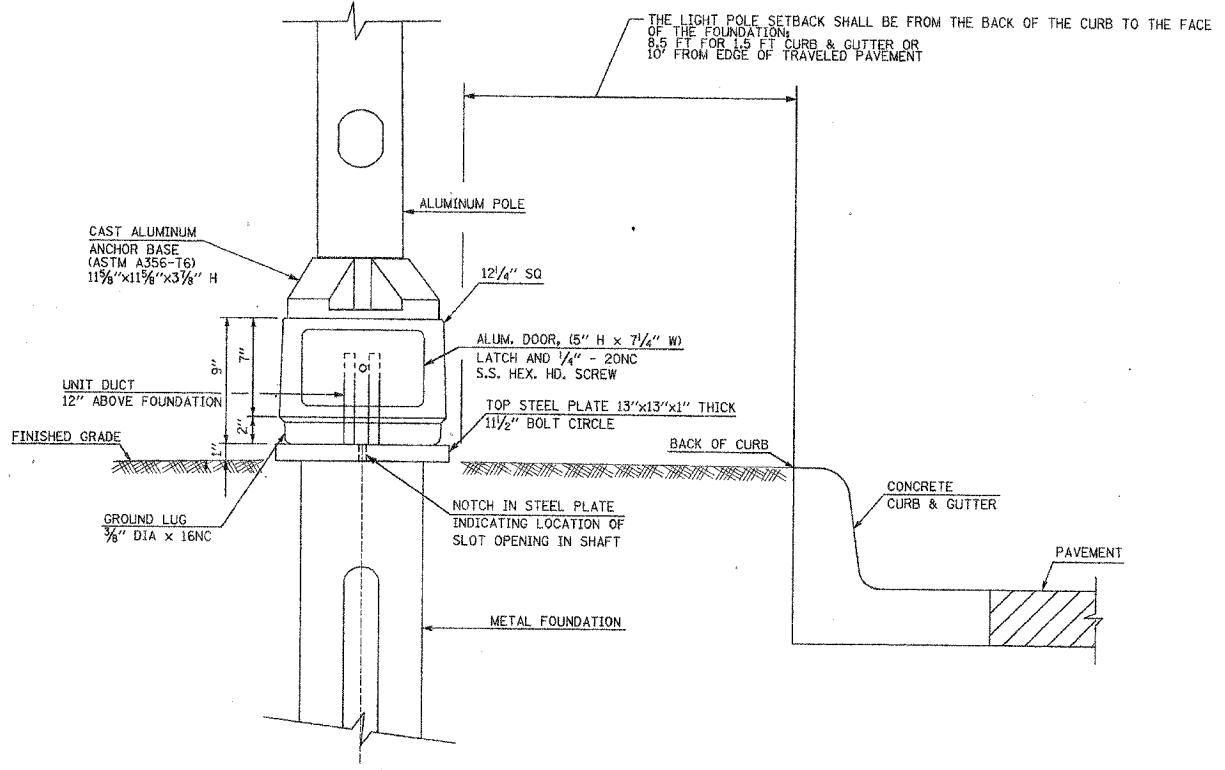
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*		McHENRY	22	17
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		
* 04-00101-00-TL CONTRACT NO. 83844				



**NOTES**

- BOLT SLOTS SHALL BE (1/2" DIA x 1/4" LG) 1 7/8" CENTERED ON BOLT CIRCLE.
- LUMINAIRES ARE TO BE INSTALLED AS SOON AS POSSIBLE AFTER POLE ERECTION. THE POLE WILL NOT BE PAID FOR UNTIL THE LUMINAIRE IS INSTALLED.
- THE LIGHT POLE WILL MEET AASHTO DESIGN CRITERIA.
- THE DUCT SHALL EXTEND INTO POLE A MINIMUM OF (12') ABOVE THE BASE.



**BREAKAWAY DEVICE, TRANSFORMER BASE MOUNTED ON A METAL FOUNDATION**

**ALUMINUM LIGHT POLE DETAILS**

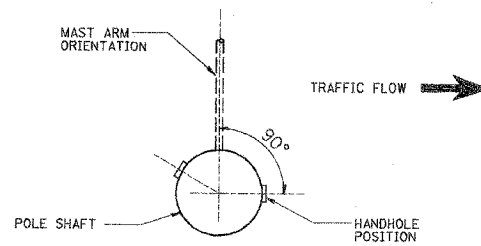
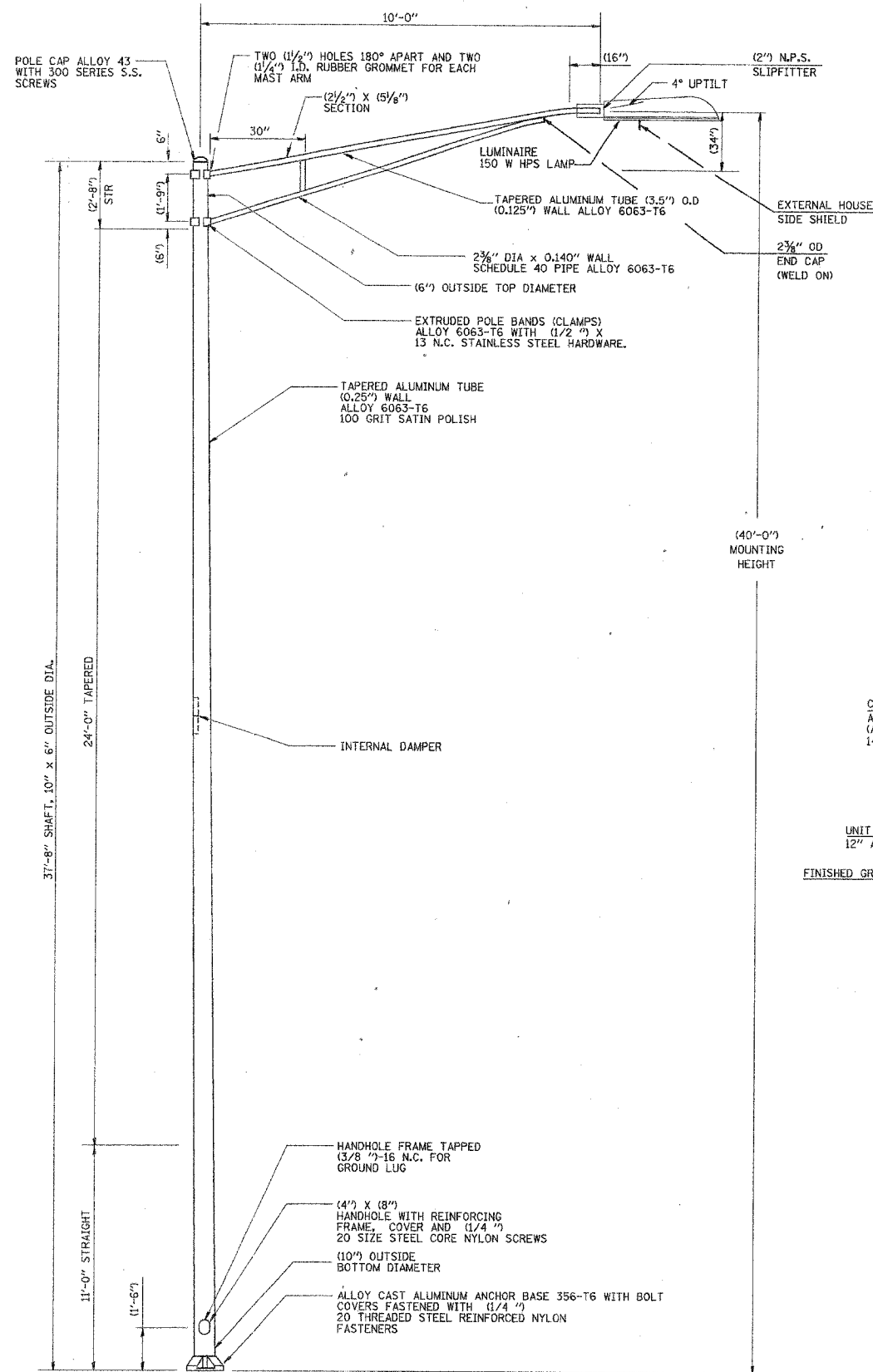


McHENRY COUNTY DIVISION OF TRANSPORTATION  
CITY OF CRYSTAL LAKE  
INTERSECTION OF GOLF COURSE ROAD  
WITH ACKMAN ROAD  
**LIGHT POLE, ALUMINUM 30 FT MOUNTING HEIGHT  
10 FT TRUSS ARM,  
BREAKAWAY DEVICE, TRANSFORMER BASE**

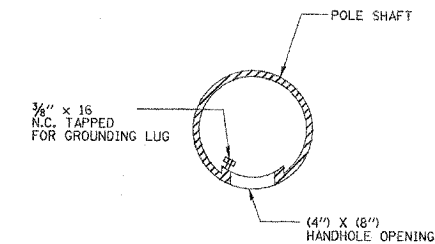
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DATE: NOV. 23, 2005  
DRAWN BY: HKQ  
CHECKED BY: JS

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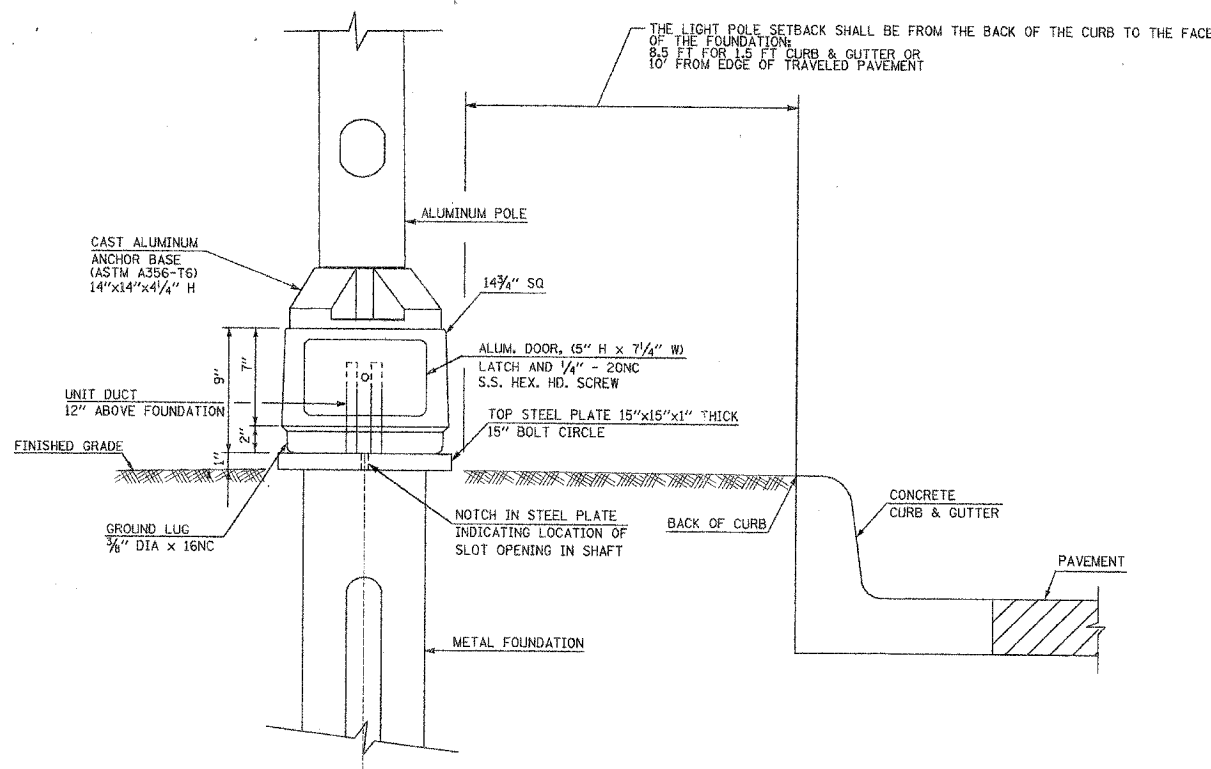
F.A. RT.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	*	McHENRY	22	18
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			
* 04-00101-00-TL CONTRACT NO. 83844				



POSITION OF HANDHOLE IN RELATION TO TRAFFIC FLOW



HANDHOLE DETAIL  
(N.T.S.)



BREAKAWAY DEVICE, TRANSFORMER BASE  
MOUNTED ON A METAL FOUNDATION

NOTES

1. BOLT SLOTS SHALL BE (1/2" DIA x 1 1/8" LG) CENTERED ON BOLT CIRCLE.
2. TWO PIECE SHAFT WILL BE MATCH MARKED AND INTERCHANGEABLE BETWEEN DIFFERENT UNITS. STUD BOLT WILL BE (5/8" DIA. WITH NUT, FLATWASHER, AND LOCK WASHER. THERE WILL BE NO THREADS ON THE BOLT INSIDE THE POLE SHAFT.
3. LUMINAIRES ARE TO BE INSTALLED AS SOON AS POSSIBLE AFTER POLE ERECTION. THE POLE WILL NOT BE PAID FOR UNTIL THE LUMINAIRE IS INSTALLED.
4. THE LIGHT POLE WILL MEET AASHTO DESIGN CRITERIA.
5. THE DUCT SHALL EXTEND INTO POLE A MINIMUM OF (12") ABOVE THE BASE.

**Sunjoy Inc.**  
Area Lighting

212 TIMBERCREST DRIVE  
SCHAUMBURG, ILLINOIS  
60193-1572

McHENRY COUNTY DIVISION OF TRANSPORTATION  
CITY OF CRYSTAL LAKE  
INTERSECTION OF GOLF COURSE ROAD  
WITH ACKMAN ROAD

**LIGHT POLE, ALUMINUM 40 FT MOUNTING HEIGHT  
10 FT TRUSS ARM,  
BREAKAWAY DEVICE TRANSFORMER BASE**

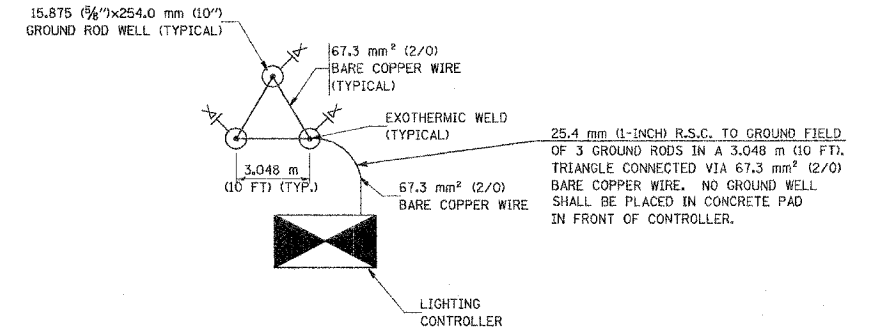
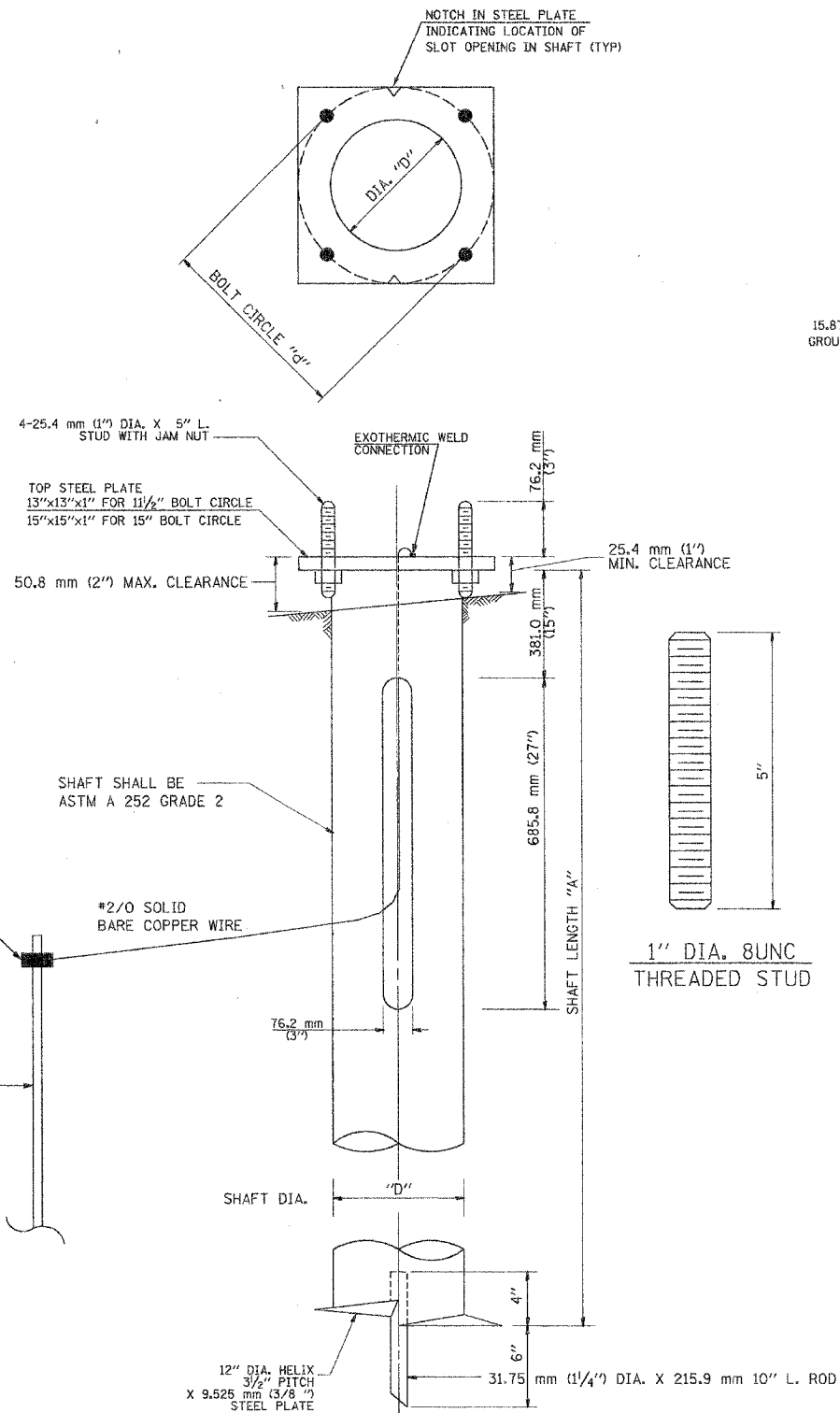
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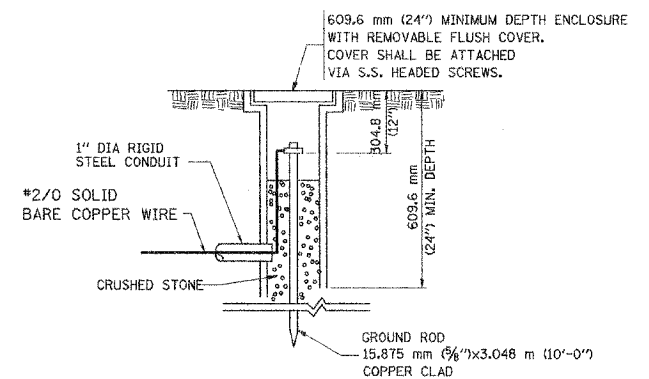


**NOTES:**

1. THE HELIX FOUNDATION SHAFT BASE PLATES, HELICAL PLATE, HELIX SCREW, PILOT POINT, AND STOCK BAR SHALL BE ASTM A36 STRUCTURAL STEEL OR BETTER.
2. ALL WELDS SHALL BE CONTINUOUS AND NOT LESS THAN 6.35 mm (1/4") FILLET WELDS. THE WELDED FOUNDATION SHALL BE CAPABLE OF WITHSTANDING 13558.18 n.m (10,000 FT/LBS) OF INSTALLATION TORQUE APPLIED ABOUT THE AXIS OF THE FOUNDATION.
3. THE ENTIRE HELIX FOUNDATION SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123, GRADE B. NO TOUCH-UP WILL BE PERMITTED.
4. THE HARDWARE, STUDS, JAM NUTS, AND HEX NUTS SHALL BE ASTM A325 STEEL OR BETTER FLAT AND LOCK WASHERS SHALL BE OF STEEL. THE ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153. HEX NUTS SHALL BE IN CONFORMANCE WITH ASTM A563, GRADE A AND WASHERS SHALL BE IN CONFORMANCE WITH ASTM F436.
5. THE HELIX FOUNDATION SHAFT SHALL BE INSTALLED VERTICAL AND THE BASE PLATE SHALL BE IN LEVEL. THE BREAKAWAY COUPLINGS AND HARDWARE SHALL NOT BE USED TO ALIGN THE POLE INSTALLATION.
6. THE CABLE TRENCH SHALL BE BACKFILLED AND FIRMLY COMPACTED BEFORE THE INSTALLATION OF THE LIGHT POLE.
7. ANCHOR BOLTS (THREADED STUD) SHALL BE 25.4 mm (1-INCH) DIAMETER AND SHALL COMPLY WITH THE REQUIREMENTS OF ASTM DESIGNATION A687.
8. THE CONTRACTOR SHALL COORDINATE EXTENSION OF ANCHOR BOLTS ABOVE TOP OF FOUNDATION WITH THE BREAKAWAY DEVICE MANUFACTURER'S REQUIREMENTS.
9. CONTRACTOR SHALL FILL HOLLOW FOUNDATION WITH DENSELY PACKED SAND AS SPECIFIED.
10. WIRING SLOTS SHALL BE ORIENTED TO BE PARALLEL TO THE ROADWAY
11. METAL FOUNDATION THAT ARE NOT INSTALLED TO FULL INSTALLATION DEPTH OR DO NOT ACHIEVE THE MAXIMUM INSTALLATION TORQUE SHALL BE REMOVED AND REPLACED WITH THE CONCRETE FOUNDATION WITHOUT ANY ADDITIONAL COST.



**GROUND FIELD DETAIL**  
(N.T.S.)  
THE CONTRACTOR SHALL VERIFY EXACT LOCATION WITH THE ENGINEER



**GROUND WELL DETAIL**  
(N.T.S.)

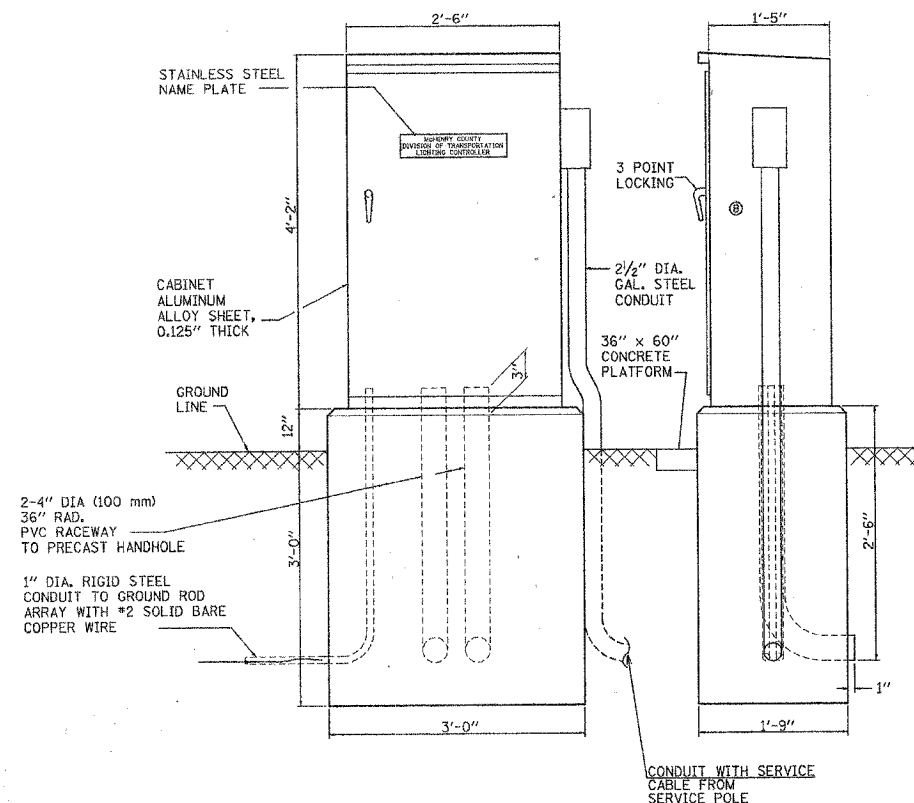
**GROUND ROD ARRAY**

**HELIX FOUNDATION SIZE**

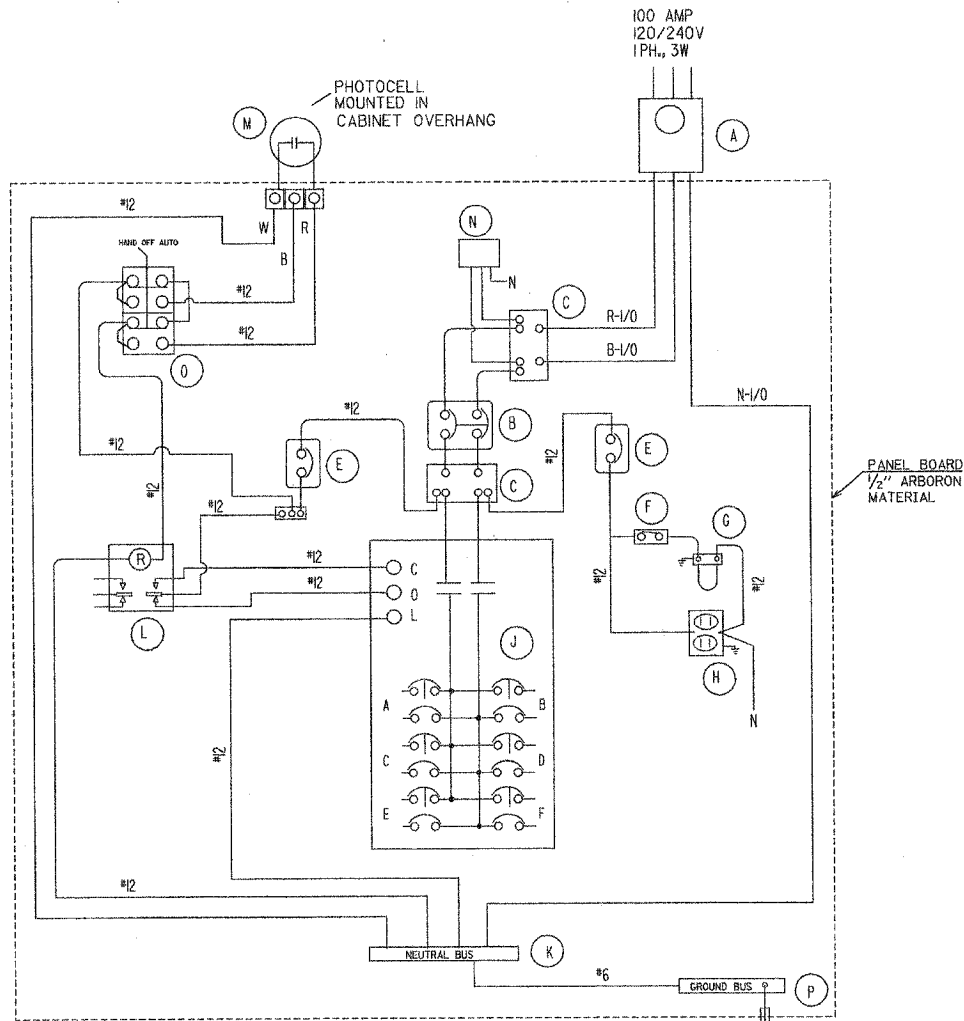
POLE MOUNTING HEIGHT	BOLT CIRCLE "d"	SHAFT LENGTH "A"		SHAFT DIA. "D"
		ON FLAT GROUND	ON 2:1 OR STEEP SLOPE	
30'	11.5"	8'-0"		8"
40'	15"	8'-0"		8"

**METAL FOUNDATION METAL**

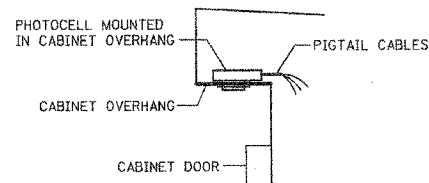
<p>Sunjoy Inc. Area Lighting</p> <p>212 TIMBERCREST DRIVE SCHAUMBURG, ILLINOIS 60193-1572</p>	<p>McHENRY COUNTY DIVISION OF TRANSPORTATION CITY OF CRYSTAL LAKE INTERSECTION OF GOLF COURSE ROAD WITH ACKMAN ROAD</p> <p><b>POLE FOUNDATION, METAL AND GROUND ROD ARRAY DETAILS</b></p> <p>SCALE: NONE</p> <p>DRAWN BY: HKO CHECKED BY: JS</p>
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**CONTROL CABINET - SPECIAL**



**100 AMPERE - 120/240 VOLT. WIRING DIAGRAM**

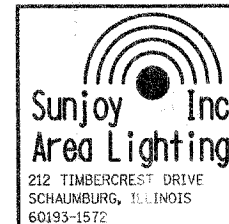


**PHOTOCELL IN CABINET OVERHANG DETAIL**  
NOT TO SCALE

DEVICE SCHEDULE		
ITEM	QUANT.	DESCRIPTION
(A)	1	METER FITTING
(B)	1	CIRCUIT BREAKER, MOLDED CASE, THERMAL MAGNETIC BOLT-ON TYPE, 2- POLE-100 AMPERE, 225 A FRAME, 240Vcc, NON INTERCHANGABLE TRIP, INTERRUPTING CAPACITY OF NOT LESS THAN 25,000 RMS SYMMETRICAL AMPERES AT 480 VOLT.
(C)	2	SPLICE BLOCK
(D)		RESERVED
(E)	2	CIRCUIT BREAKER, MOLDED CASE, THERMAL MAGNETIC, 1-POLE, 240 V., BOLT-ON TYPE, 15 A. WITH AN INTERRUPTING RATING OF NOT LESS THAN 14,000 RMS SYMMETRICAL AMPERES AT 277 V.
(F)	1	20 A. SPST MICRO SWITCH MOUNTED ON A DOOR.
(G)	1	60 WATT LIGHT FIXTURE, VAPOR TIGHT, WITH GLOBE AND GUARD AND MOUNTING BOX
(H)	1	GFI RECEPTACLE, 120 V., 20 A., PREMIUM SPEC. GRADE, NEMA REFERENCE 5-20R IN WEATHER-PROOF BOX WITH FLAP-TYPE COVER.
(I)		RESERVED
(J)	1	100 A CONTACTOR PANEL BOARD INTERIOR, 12 CKT, 1 PH, 3 WIRE, 6-2P/40 A BREAKERS, MOLDED CASE, THERMAL MAGNETIC BOLT-ON TYPE, 40 A, 480 A FRAME, 240Vcc, NON INTERCHANGABLE TRIP, INTERRUPTING CAPACITY OF NOT LESS THAN 14,000 RMS SYMMETRICAL AMPERES AT 480 VOLT.
(K)	1	NEUTRAL, COPPER BUSS BAR, PAINTED IN WHITE
(L)	1	POWER RELAY, 120 VOLT COIL
(M)	1	PHOTO ELECTRIC CELL, MOUNTED IN CABINET OVERHANG
(N)	1	SURGE ARRESTOR
(O)	1	SELECTOR SWITCH, 3 POSITION, ON-OFF-AUTO
(P)	1	GROUND COPPER BUSS BAR, PAINTED IN GREEN

**NOTES**

- THE CABINET SHALL BE FABRICATED FROM 0.125" THICK ALUMINUM ALLOY SHEET AND SHALL BE REINFORCED WITH ALUMINUM ANGLES. THE CABINET DOOR SHALL BE NEMA TYPE 3R CONSTRUCTION WITH NEOPRENE GASKET. THE DOOR SHALL HAVE STAINLESS STEEL HINGES AND THREE POINT LOCKING SYSTEM.
- THE CONTRACTOR SHALL REMOVE VEGETATION AND TOPSOIL. LEVEL THE AREA IN FRONT OF THE CONTROL CABINET DOOR AND PLACE LENGTH WISE, PARALLEL TO CONTROL CABINET. A PRECAST PAD, 36"x36"x3" MINIMUM SIZE. THE COST OF LABOR AND MATERIALS SHALL BE INCIDENTAL TO THE CONTROL CABINET.
- CONTROL WIRE SHALL BE #12 AWG, 600V, TYPE "MTW" STRANDED COPPER GRAY SWITCH BOARD WIRE. THE ENDS OF ALL CONTROL WIRES SHALL BE IDENTIFIED.
- THE ELECTRIC METER BOX SHALL BE MOUNTED ON THE SIDE OF THE CONTROL CABINET, NEAR TO THE SERVICE POLE AND/OR AS DIRECTED BY THE ENGINEER.
- ALL CONTROL CABINET ITEMS SHALL HAVE SUITABLE IDENTIFICATION. OPEN CIRCUIT BREAKERS, CONTACTORS AND OTHER OPEN DEVICES SHALL HAVE PERMANENT SELF STICKING TAGS. DEVICES IN ENCLOSURES SHALL HAVE ENGRAVED 2-COLOR LAMINATED PLASTIC NAMEPLATES ATTACHED TO ENCLOSURES WITH SCREWS. NAMEPLATES SHALL BE ENGRAVED TO CORRESPOND TO DESIGNATIONS ON THE DRAWINGS. INTERNAL CABINET WIRING SHALL BE IDENTIFIED AS INDICATED OR AS DIRECTED BY THE ENGINEER BY MEANS OF SELF-STICKING TAGS APPLIED AT EACH CONNECTED END. IDENTIFICATION SHALL BE MADE BY THE CABINET MANUFACTURER.
- ALL WIRING WITHIN THE CABINET SHALL BE COLOR CODED AS INDICATED.  
R = RED BL = BLUE W = WHITE  
B = BLACK Y = YELLOW G = GREEN
- PROVIDE SEALING GROMMETS FOR ALL OPEN WIRING EXTENDED FROM DEVICES IN BOXES OR CABINETS WITHIN THE CONTROL CABINET.
- THE CABINET SHALL BE PRIMED AND PAINTED IN COLOR AS DIRECTED BY THE VILLAGE ENGINEER
- THE HEADS OF CONNECTOR SCREWS SHALL BE PAINTED WHITE FOR NEUTRAL BUSS CONNECTION AND GREEN FOR GROUND BUSS CONNECTORS.
- ALL WIRING SHALL BE NEATLY DRESSED AND SUPPORTED.
- THE CONTROLLER SHALL BE CONSTRUCTED TO U.L. STD. 508 AND BEAR THE U.L. LABEL "ENCLOSED INDUSTRIAL CONTROL PANEL".
- PROVIDE A HOLDER AND WATERPROOF POUCH ON THE INNER SIDE OF THE CONTROLLER DOOR. THE HOLDER AND POUCH SHALL BE MOUNTED SO THAT RAIN WATER OR CONDENSED WATER CANNOT ENTER THE POUCH WITH THE CABINET DOOR OPEN. FURNISH A LAMINATED COPY OF THE "CONTROL CABINET WIRING DIAGRAM".
- THE FABRICATION OF CONCRETE FOUNDATION FOR CONTROLLER SHALL COMPLY TO ARTICLE 836 OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL OBTAIN ANCHOR BOLTS LOCATION TEMPLATE FROM THE FABRICATOR OF LIGHTING CONTROLLER
- THE CONTROLLER FABRICATION SHALL COMPLY TO ARTICLE 1068.01 OF THE STANDARD SPECIFICATIONS
- THE CONTROLLER CABINET DOOR SHOULD OPEN AWAY FROM THE STREET

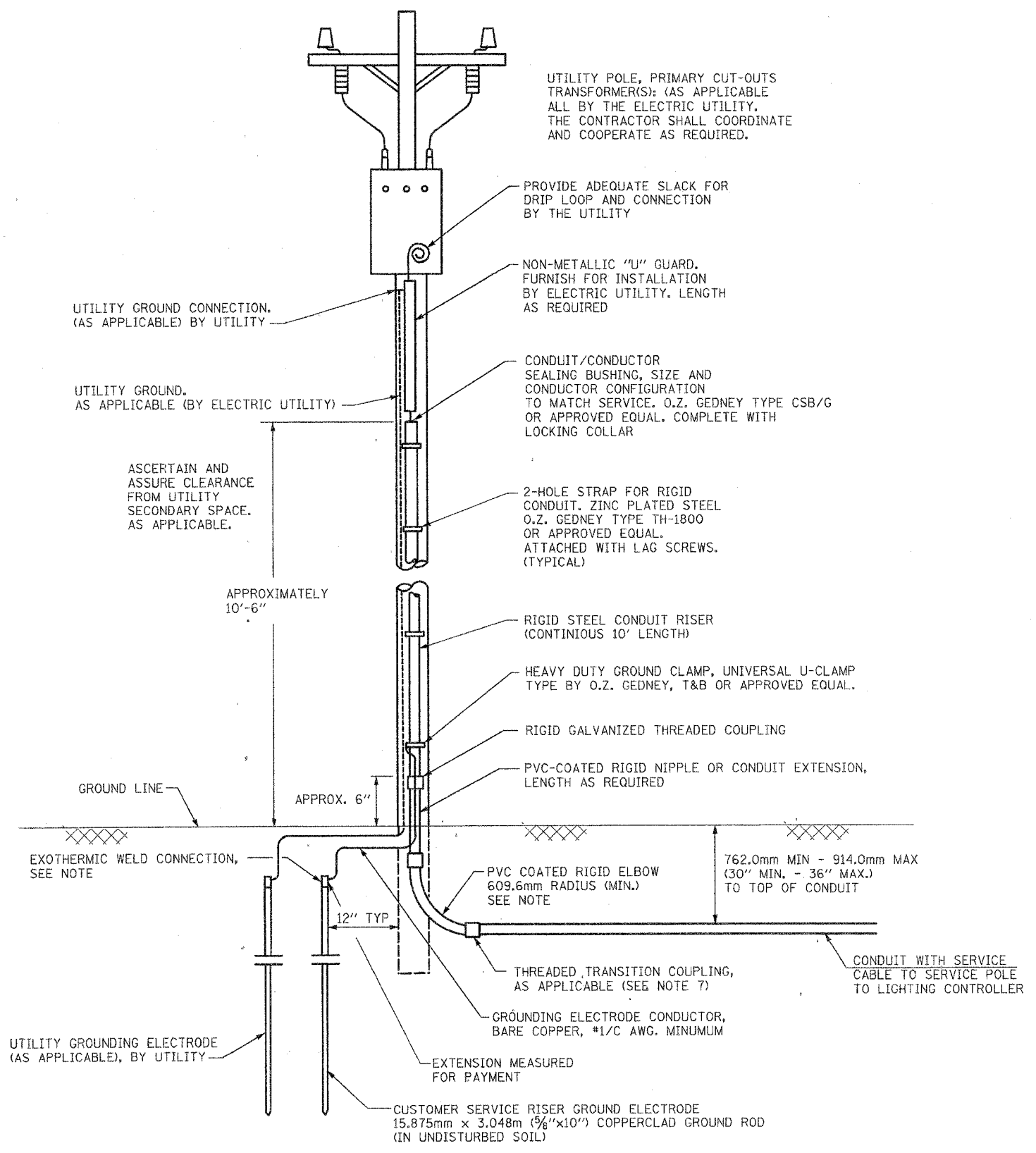


McHENRY COUNTY DIVISION OF TRANSPORTATION  
CITY OF CRYSTAL LAKE  
INTERSECTION OF GOLF COURSE ROAD  
WITH ACKMAN ROAD

**LIGHTING CONTROLLER, SPECIAL**


SCALE: \_\_\_\_\_ DRAWN BY HKQ  
DATE: NOV. 23, 2006 CHECKED BY JS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	*	McHENRY	22	21
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		
*04-C0101-00-TL CONTRACT NO. 83844				



- NOTES:**
- SERVICE VOLTAGE SHALL BE AS INDICATED ELSEWHERE IN THE DRAWINGS.
  - UNLESS OTHERWISE INDICATED, ITEMS AND WORK SHALL BE INCLUDED AND PAID AS PART OF ELECTRIC UTILITY SERVICE INSTALLATION.
  - CONDUIT AND CONNECTOR DIAMETER SHALL MATCH THE DIAMETER OF SERVICE CONDUCTOR RACEWAY AS INDICATED.
  - PVC COATED RACEWAY AND ACCESSORIES SHALL BE CAREFULLY INSTALLED WITH MFR RECOMMENDED TOOLS AND PROCEDURES TO AVOID DAMAGE. ANY DAMAGE SHALL BE REPAIRED WITH COMPATIBLE PVC TOUCH-UP MATERIAL TO THE SATISFACTION OF THE ENGINEER OR THE DAMAGED MATERIAL SHALL BE REPLACED AT NO ADDITIONAL COST.
  - THE CONTRACTOR SHALL OBTAIN INSPECTION AND APPROVAL BY THE ENGINEER OF SERVICE RISER GROUND ELECTRODE, RISER ELBOW, NIPPLE AND CONNECTION TO SERVICE CONDUCTOR RACEWAY EXTENSION BEFORE BACKFILL AND SHALL ALSO OBTAIN INSPECTION OF SERVICE RISER AND SEALING BUSHING BEFORE UTILITY  $\frac{1}{32}$ " U"  $\frac{3}{32}$ " GUARD INSTALLATION AND SERVICE CONNECTION.
  - THE SERVICE METER SOCKET, AS APPLICABLE, MOUNTED ELSEWHERE AS INDICATED SHALL BE INCLUDED AND PAID AS PART OF THE ELECTRICAL UTILITY SERVICE INSTALLATION PAY ITEM.
  - THE SERVICE CONDUCTOR RACEWAY SHALL BE AS INDICATED AND SHALL BE MEASURED SEPARATELY FOR PAYMENT. WHEN THE RACEWAY IS PVC-COATED RIGID GALVANIZED STEEL, THE COUPLING SHALL BE THE SAME. WHEN THE RACEWAY IS PVC CONDUIT (IN CONCRETE), THE COUPLING SHALL BE A METALIC TO NON METALIC ADAPTER. WHEN THE RACEWAY IS ENCASED IN CONCRETE, THE CONCRETE SHALL EXTEND TO COVER THE COUPLING.
  - PLANS AND DETAILS INDICATE THE GENERAL NATURE AND REQUIREMENTS. THEY DO NOT SHOW EVERY ACCESSORY AND ATTACHMENT. AND THEY DO NOT RELIEVE THE CONTRACTOR OF THE REQUIREMENTS OF THE SPECIFICATIONS AND SPECIAL PROVISIONS TO ASCERTAIN UTILITY REQUIREMENTS AND TO COORDINATE ACCORDINGLY. FURNISHING ALL ITEMS AND WORK NOT PROVIDED BY THIS UTILITY. BUT NECESSARY FOR A COMPLETE SERVICE INSTALLATION.

**PROPOSED SERVICE INSTALLATION  
POLE TOP MOUNTED TRANSFORMER**



**Sunjoy Inc.**  
Area Lighting

212 TIMBERCREST DRIVE  
SCHAUMBURG, ILLINOIS  
60193-1572

McHENRY COUNTY DIVISION OF TRANSPORTATION  
CITY OF CRYSTAL LAKE  
INTERSECTION OF GOLF COURSE ROAD  
WITH ACKMAN ROAD

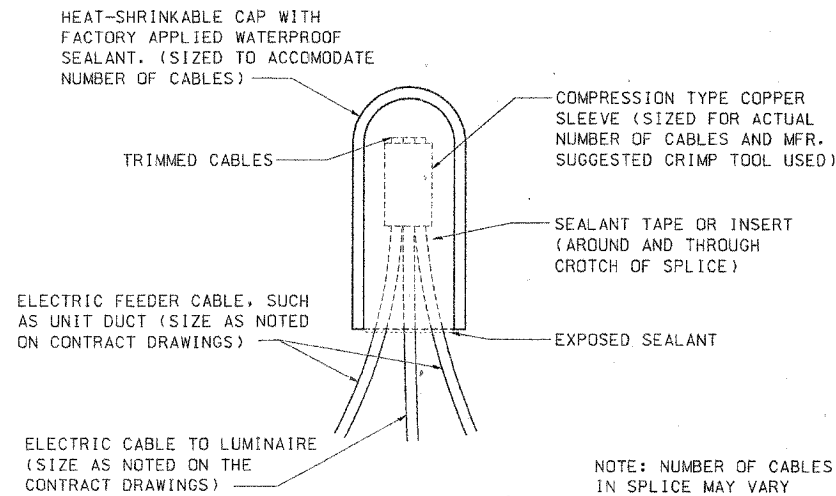
**ELECTRIC SERVICE INSTALLATION  
ABOVE GROUND**

SCALE: DATE: NOV. 23, 2005

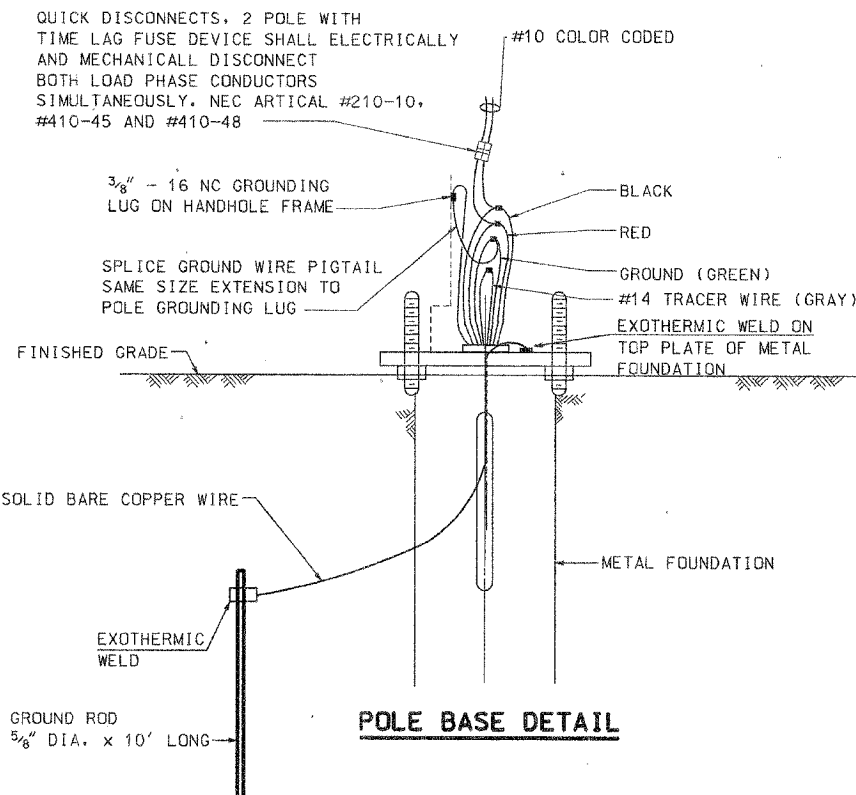
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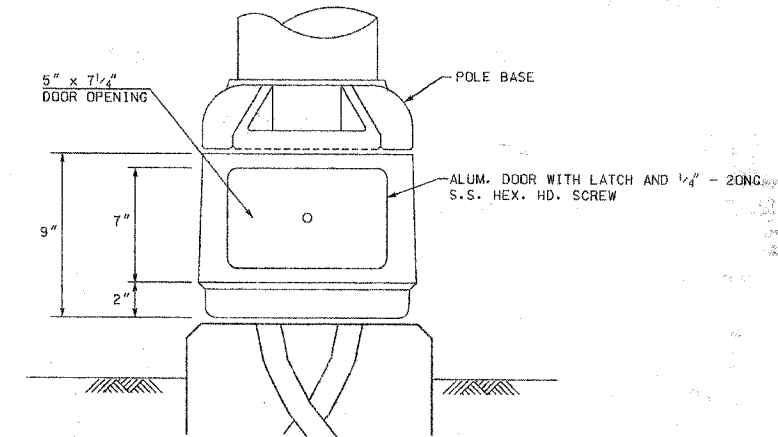
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*		McHENRY	22	22
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			
* D1-00101-00-TL				
CONTRACT NO. 83844				



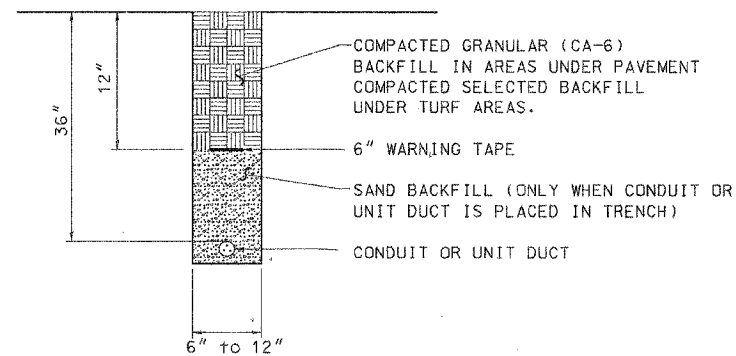
**SPLICING ELECTRIC CABLE**



**POLE BASE DETAIL**



**BREAKAWAY DEVICE, TRANSFORMER BASE**  
THE BREAKAWAY TRANSFORMER BASE SHALL HAVE A LISTING OF APPROVAL BY FHWA COMPLIANCE TO 1985 AASHTO REQUIREMENTS.



**TRENCH AND BACKFILL**

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<p><b>Sunjoy Inc.</b> Area Lighting 212 TIMBERCREST DRIVE SCHALMBURG, ILLINOIS 60193-1572</p>	<p>McHENRY COUNTY DIVISION OF TRANSPORTATION CITY OF CRYSTAL LAKE INTERSECTION OF GOLF COURSE ROAD WITH ACKMAN ROAD</p>
	<p><b>LIGHT POLE FOUNDATION AND ELECTRICAL DETAILS</b></p>
	<p>SCALE: NONE DATE: NOV. 23, 2005</p>
	<p>DRAWN BY HKQ CHECKED BY JS</p>