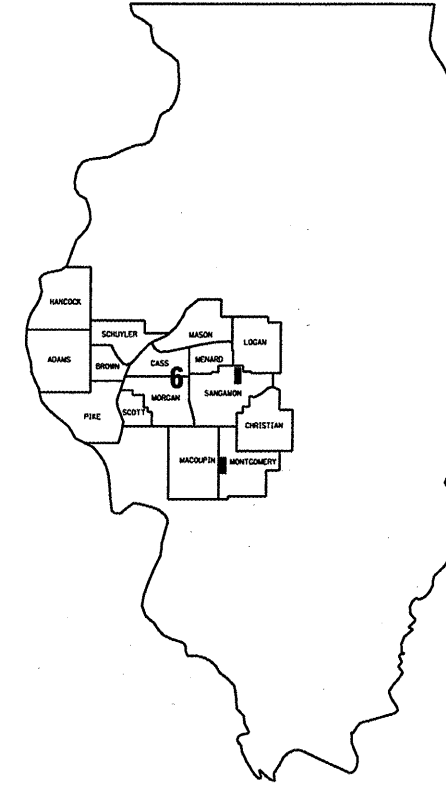


FOR INDEX OF SHEETS AND HIGHWAY
STANDARDS, SEE SHEET 2.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

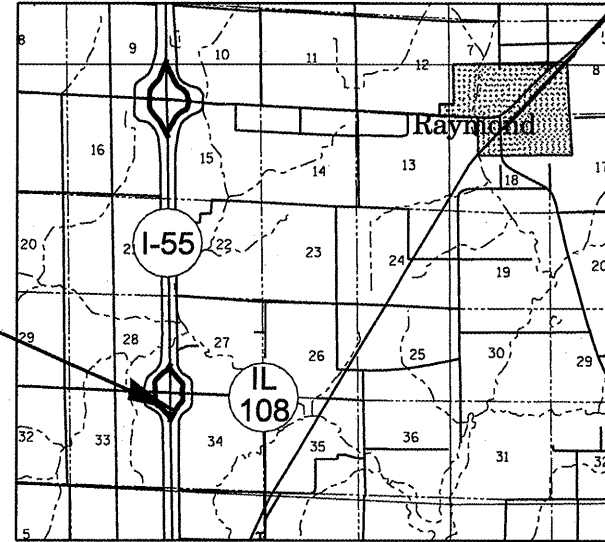
CONTRACT: 72B89
SHEET 1 OF 10

**PLANS FOR PROPOSED
CONTRACT MAINTENANCE
FAI ROUTE 55 (I-55)
SECTION D6 LIGHTING 2009
SANGAMON/MONTGOMERY COUNTY
C96-052-08 / D96-052-08**

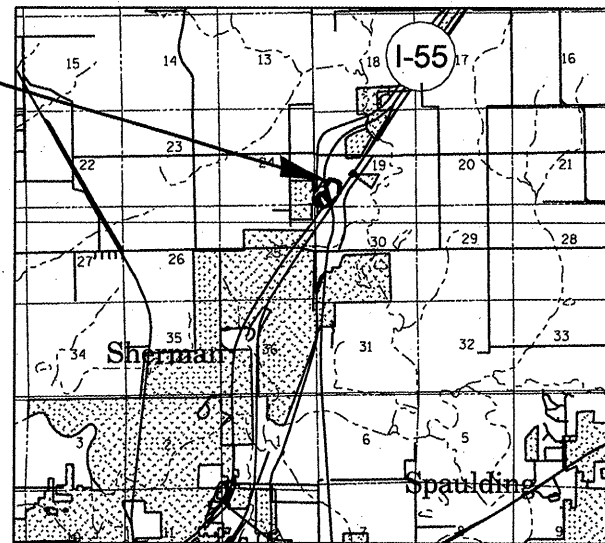


LOCATION OF SECTION INDICATED THUS: ■

LOCATION #1



LOCATION #2



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

PLANS & CONTRACT TECHNICIAN: TIMOTHY SHARP
PHONE: (217) 782-7743

CONTRACT NO. 72B89

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED July 16 20 08

Regan Z. Disher
DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

August 15, 20 08

Eric E. Harm
Interim ENGINEER OF DESIGN AND ENVIRONMENT

August 15, 20 08

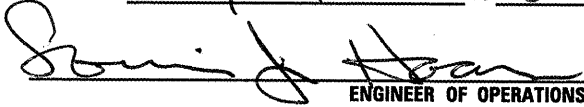
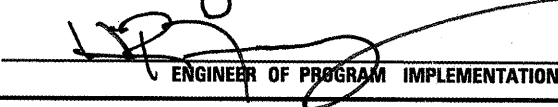
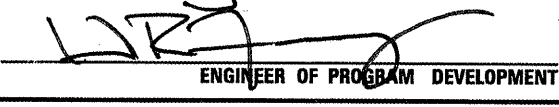
Christine M. Reed
DIRECTOR, DIVISION OF HIGHWAYS

INDEX

- 1 COVER
- 2 INDEX/STANDARDS/SIGNATURES
- 3 QUANTITIES
- 4 LOCATION MAP
- 5 LOCATION #1 PLAN
- 6 LOCATION #2 PLAN
- 7 SCHEDULES
- 8-10 LIGHTING DETAILS

STANDARDS

- 701001-01
- 701006-02
- 701101-01
- 701106-01
- 701901
- 780001-01

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS DISTRICT 6	
EXAMINED <u>July 14</u> 20 <u>08</u>	 ENGINEER OF OPERATIONS
EXAMINED <u>July 8</u> 20 <u>08</u>	 ENGINEER OF PROGRAM IMPLEMENTATION
EXAMINED <u>July 11</u> 20 <u>08</u>	 ENGINEER OF PROGRAM DEVELOPMENT

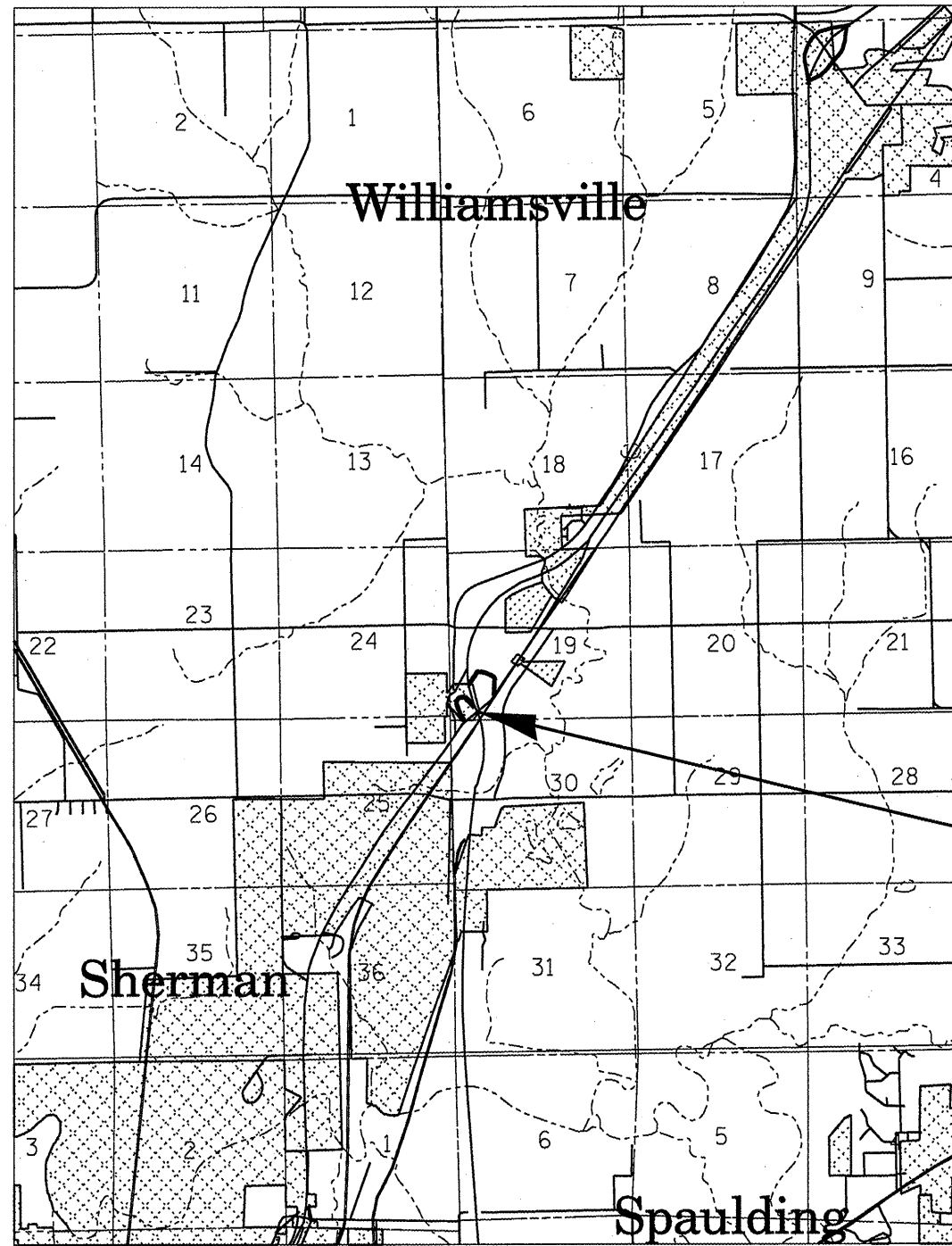
INDEX/STANDARDS/SIGNATURES
FAI 55 (I-55)
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SANGAMON/MONTGOMERY COUNTY

S U M M A R Y O F Q U A N T I T I E S

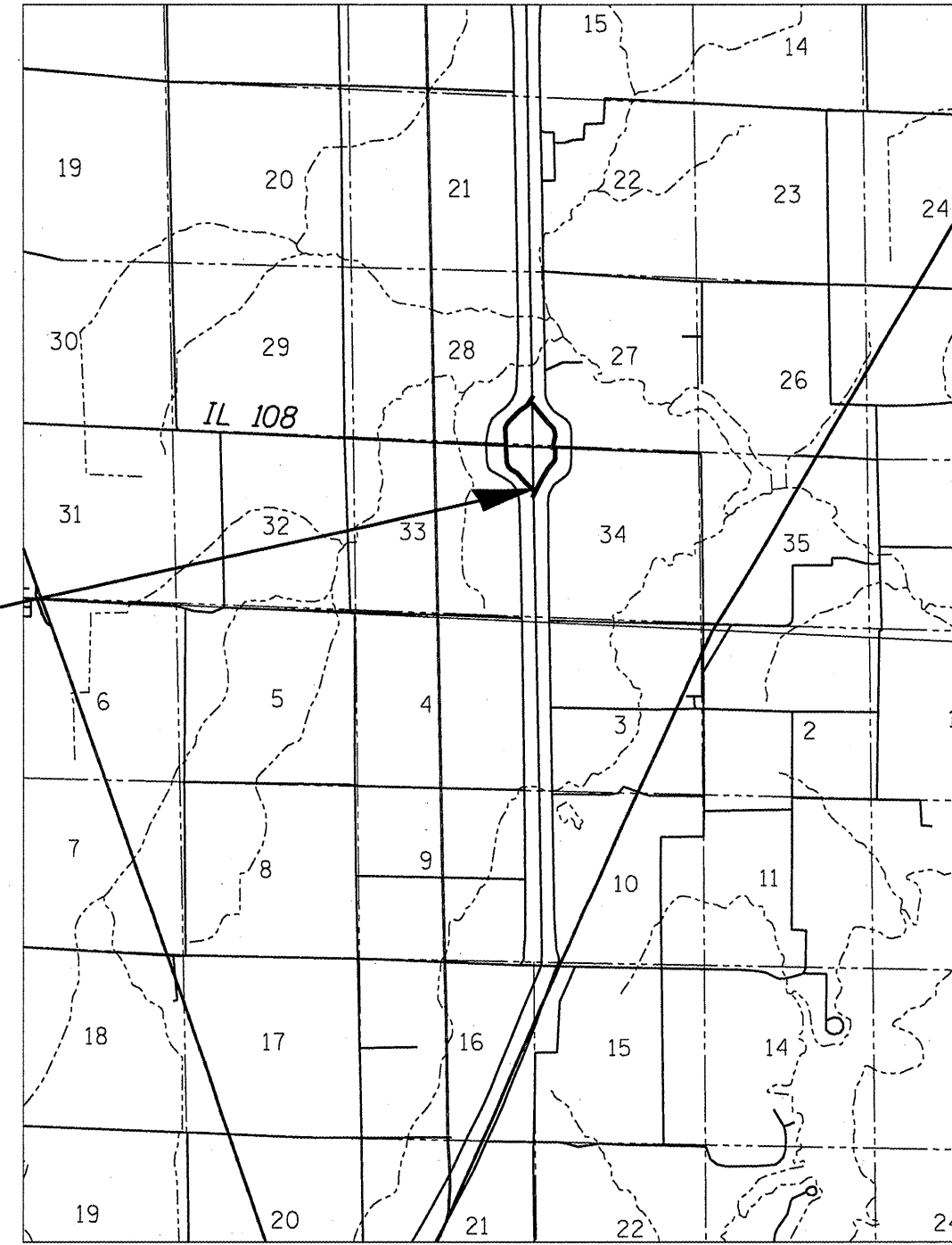
CODE NO.	ITEM	UNIT	MONTGOMERY CO	SANGAMON CO	100% STATE
					K000
					TOTAL QTY
67100100	MOBILIZATION	L SUM	0.5	0.5	1
81017510	CONDUIT IN TRENCH, 1" DIA., COILABLE NONMETALIC CONDUIT	FOOT	125	0	125
81018700	CONDUIT PUSHED, 3" DIA., GALVANIZED STEEL	FOOT	120	0	120
81702130	ELECTRIC CABLE IN CONDUIT, 600V. (XLP-TYPE USE) 1/C NO. 6	FOOT	125	0	125
82105400	LUMINAIRE, SODIUM VAPOR, HIGH MAST, MULTI-MOUNT, 400 WATT	EACH	6	0	6
83502400	LIGHT TOWER, 100 FT. MOUNTING HEIGHT, LUMINAIRE MT.-6	EACH	1	0	1
83700300	LIGHT TOWER FOUNDATION, 48" DIAMETER	FOOT	20	0	20
89502350	REMOVE AND REINSTALL ELECTRIC CABLE FROM CONDUIT	FOOT	250	0	250
X0325378	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS, WITH STAINLESS STEEL SCREENS	EACH	0	25	25
X8420210	REMOVE LIGHT TOWER FOUNDATION, PARTIAL	EACH	1	0	1

QUANTITIES
FAI 55 (I-55)
SECTION D6 LIGHTING 2009
SANGAMON/MONTGOMERY COUNTY

Rev,



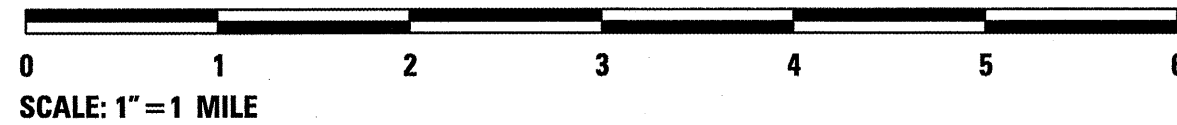
SANGAMON CO.



MONTGOMERY CO.

LOCATION #1



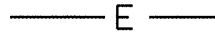
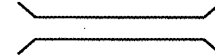
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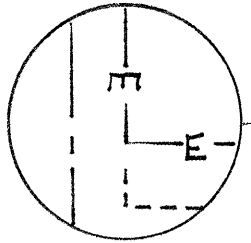
LOCATION MAP
FAI 55 (I-55)
SECTION D6 LIGHTING 2009
SANGAMON/MONTGOMERY COUNTY



LEGEND

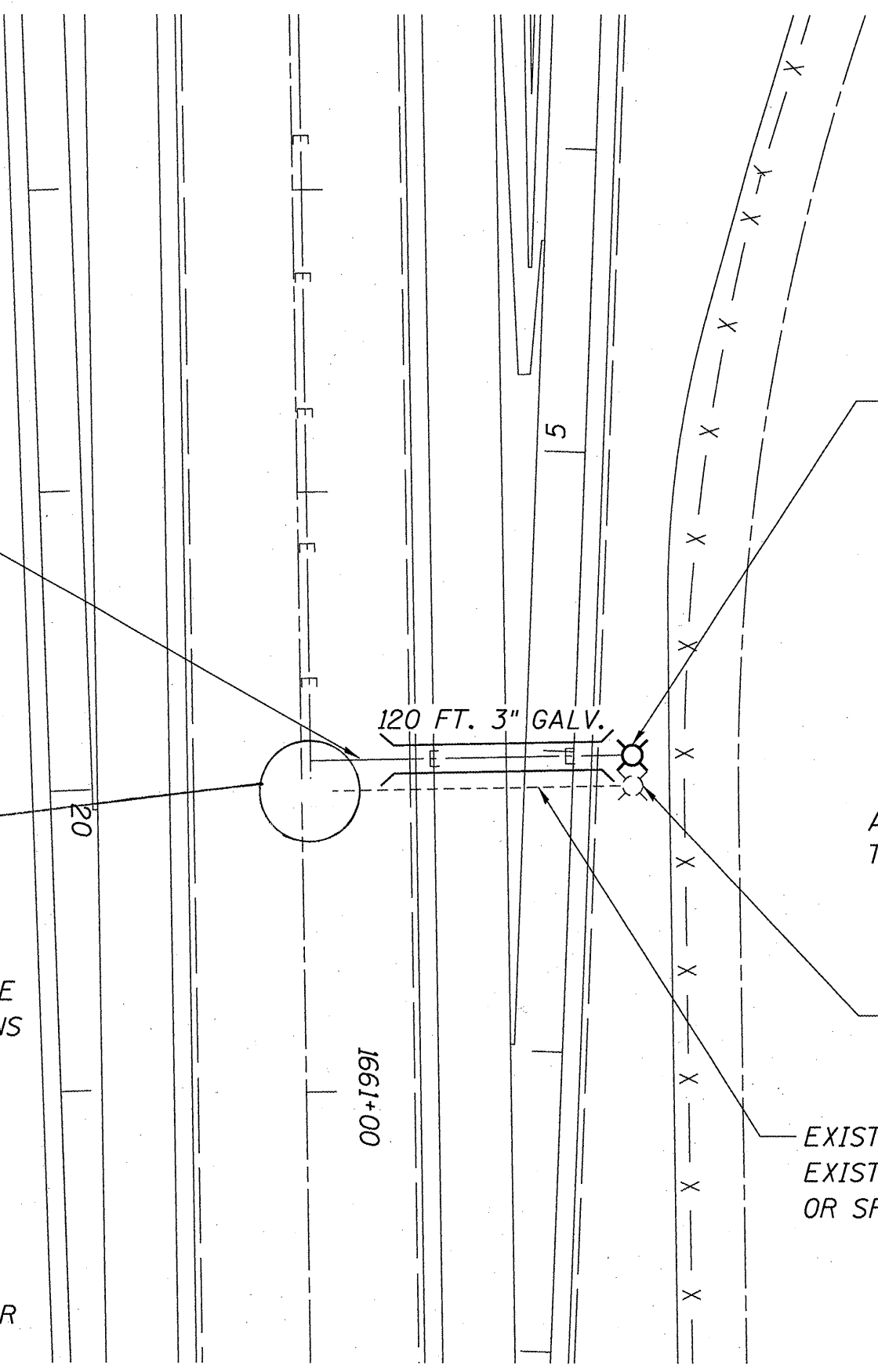
-  EXIST. 110 FT. HIGHMAST TOWER WITH 6-LUMINAIRE RING, 400W H.P.S.
-  PROP. 100 FT. HIGHMAST TOWER WITH 6-LUMINAIRE RING, 400W H.P.S.
-  ELECTRIC CABLE IN DUCT
-  CONDUIT PUSHED, SIZE AND LENGTH AS SHOWN

PULL EXIST. WIRES INTO NEW CONDUIT, SPLICE NEW CONDUIT TO EXIST. CONDUIT, SPLICE NEW GROUND TO EXIST. GROUND WIRE, AND INSTALL NEW GROUND ADJACENT TO NEW CONDUIT.

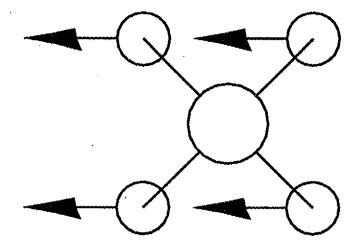


NOTES:

- 1) CONTRACTOR SHALL CAREFULLY HAND DIG AND LOCATE EXIST. CABLE. COST TO OPEN AND CLOSE EXCAVATIONS SHALL BE INCLUDED WITH CONDUIT PUSHED.
- 2) CONTRACTOR SHALL MEGGER TEST THE CONDUCTORS BEFORE AND AFTER WORK IS COMPLETED IN ORDER TO VERIFY THAT CONDUCTOR/CKT INSULATION IS NOT DEGRADED.
- 3) A GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE RUN FROM THE BARE GROUND WIRE TO THE NEW TOWER



PROP. FOUNDATION, LIGHT TOWER, BORE, AND CONDUIT.



AIM LUMINAIRES PERPENDICULAR TO THE ϕ OF ROADWAY

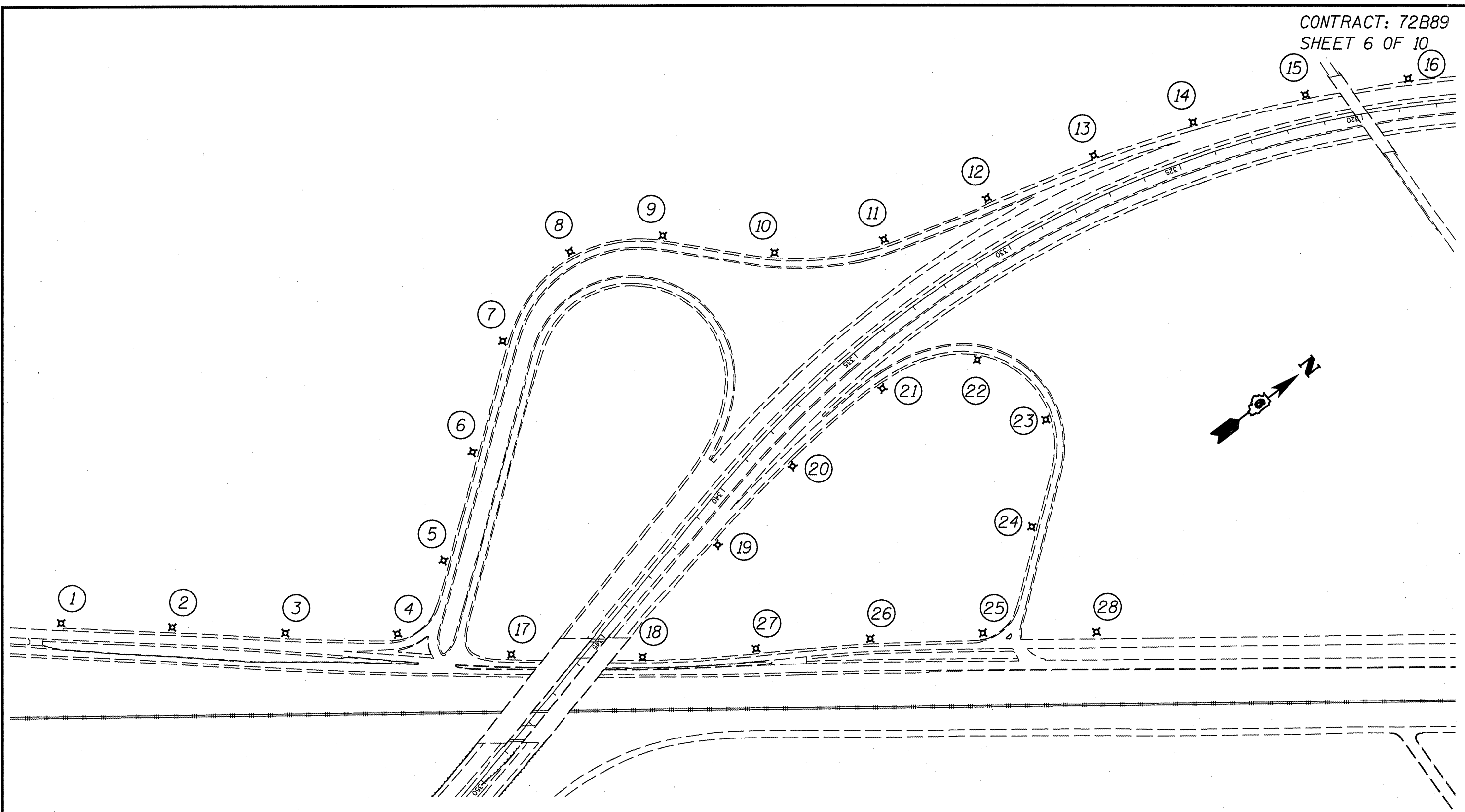
EXIST. FOUNDATION TO BE REMOVED TO 2.5 FT. BELOW GRADE.

EXIST. CONDUIT TO BE ABANDONED IN PLACE. EXIST. WIRES TO BE REUSED - DO NOT CUT OR SPLICE

LOCATION #1

LOCATION #1 PLAN
FAI 55 (I-55)
SECTION D6 LIGHTING 2009
SANGAMON/MONTGOMERY COUNTY

Rev.



LOCATION #2

NOTE:
SEE SHEET 7 OF 10 FOR STATIONS

LOCATION #2 PLAN
FAI 55 (I-55)
SECTION D6 LIGHTING 2009
SANGAMON/MONTGOMERY COUNTY

BREAKAWAY COUPLINGS REPLACEMENT SCHEDULE

POLE	STA.	FOUND. TY.	BREAKAWAY BOLT (ACTION TO BE TAKEN)
1	292+50	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
2	295+50	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
3	298+50	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
4	301+50	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
5	30+05	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
6	27+05	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
7	24+05	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
8	21+15	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
9	18+75	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
10	15+75	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
11	12+75	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
12	9+75	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
13	6+75	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
14	4+00	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
15	1+00	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
16	318+50	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
17	304+50	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
18	308+00	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
19	2+50	CONCRETE	NO ACTION TO BE TAKEN
20	5+35	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
21	8+50	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
22	11+35	CONCRETE	NO ACTION TO BE TAKEN
23	14+10	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
24	17+10	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
25	317+00	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
26	314+00	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN
27	311+00	CONCRETE	NO ACTION TO BE TAKEN
28	320+00	CONCRETE	REMOVE AND REINSTALL LIGHT POLE, COUPLINGS AND STAINLESS STEEL SCREEN

ILLINOIS DEPARTMENT OF TRANSPORTATION
LUMINAIRE PERFORMANCE TABLE
I-55 Carlinville Exit

GIVEN CONDITIONS

ROADWAY DATA:	Pavement Width	24 FT
	Number Of Lanes	2
	Median Width	94 FT
	IES Surface Classification	R3
	Q-Zero Value	.07
TOWER DATA:	Mounting Height	100 FT
	Luminaires on Ring	6 FT
	Tower Set-Back From Edge Of Pavmnt	See plans FT
LUMINAIRE DATA:	Lamp Type	HPS
	Lamp Lumens	50000
	IES Vertical Distribution	M
	IES Control Of Distribution	NC
	IES Lateral Distribution	3
	Total Light Loss Factor	0.684
LAYOUT DATA:	Spacing	N/A FT
	Configuration	See plans
	Luminaire Overhang Over Edge Of Pavement Lane	N/A FT

NOTE: Variations from the above specified IES distribution pattern may be requested and acceptance of variations will be subject to review by the Engineer based on how well the performance requirements are met.

PERFORMANCE REQUIREMENTS

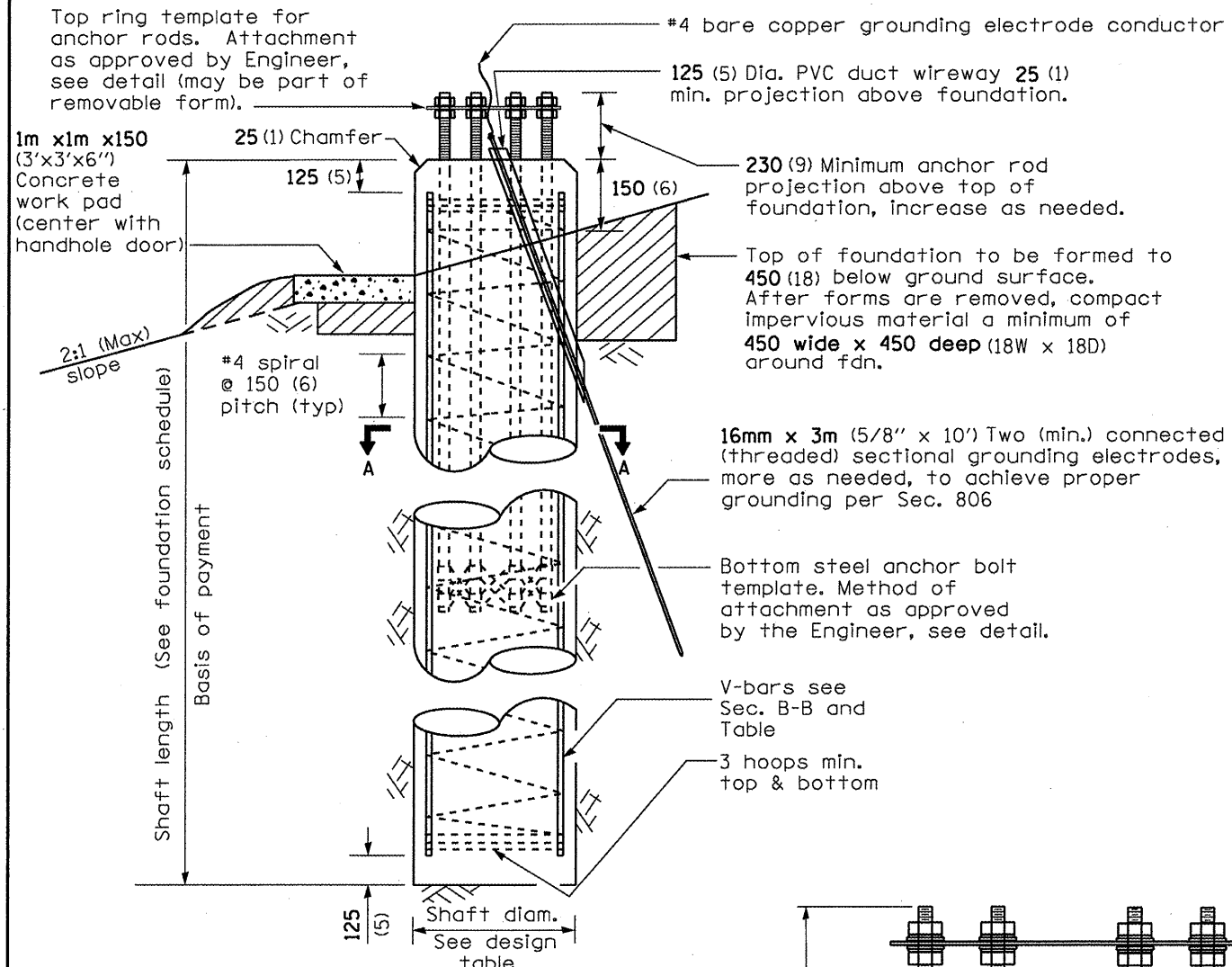
NOTE: These performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions listed above.

ILLUMINATION:	Average Horizontal Illumination, (E _{Ave})	0.9 Lux
	Uniformity Ratio, (E _{Ave} /E _{Min})	3.0
LUMINANCE:	Average Luminance: (L _{Ave})	0.6 Cd/m ²
	Uniformity Ratios: (L _{Ave} /L _{Min})	3.5
	(L _{Max} /L _{Min})	6.0
	Maximum Veiling Luminance Ratio: (L _v /L _{Ave})	0.3

NOTES:

1. STATIONS ARE APPROXIMATE.

SCHEDULES
FAI 55 (I-55)
SECTION D6 LIGHTING 2009
SANGAMON/MONTGOMERY COUNTY



ANCHOR ROD & SHAFT REINFORCEMENT DESIGN TABLE (METRIC)

TOWER HEIGHT (m)	ANCHOR ROD DIAM. (MIN) (mm)	ROD CIRCLE DIAM. (MIN) (mm)	TOWER BASE DIAM. (MIN) (mm)	DRILLED SHAFT DIAM. (m)	V Bar # 11 NUMBER (each)
25	450	760	610	1.2	14
27	450	760	610	1.2	14
30	450	760	610	1.2	14
34	450	760	610	1.2	14
37	525	915	660	1.4	18
40	525	915	710	1.4	18
43	525	915	710	1.4	18
46	675	965	760	1.5	22
49	675	965	810	1.5	22

ANCHOR ROD & SHAFT REINFORCEMENT DESIGN TABLE (ENGLISH)

TOWER HEIGHT (ft)	ANCHOR ROD DIAM. (MIN) (in)	ROD CIRCLE DIAM. (MIN) (in)	TOWER BASE DIAM. (MIN) (in)	DRILLED SHAFT DIAM. (ft)	V Bar # 11 NUMBER (each)
80	1.5	30	24	48	14
90	1.5	30	24	48	14
100	1.5	30	24	48	14
110	1.5	30	24	48	14
120	1.75	36	26	54	18
130	1.75	36	28	54	18
140	1.75	36	28	54	18
150	2.25	38	30	60	22
160	2.25	38	32	60	22

SHAFT LENGTH DESIGN TABLE (METRIC) (LENGTH IN METERS)

SOIL CONSISTENCY	AVERAGE STRENGTH (Qu in kPa)	LIGHT TOWER HEIGHT (meters)								
		24	27	30	34	37	40	43	46	49
Cohesive										
SOFT	< 50	6.2	6.5	6.9	7.2	7.6	8.0	8.3	8.7	9.1
MEDIUM	50 to 100	5.1	5.3	5.6	5.8	6.2	6.4	6.7	7.0	7.3
STIFF	100 to 200	4.4	4.5	4.7	4.8	5.2	5.4	5.5	5.9	6.1
VERY STIFF	200 to 400	3.8	3.9	4.1	4.2	4.5	4.6	4.7	5.1	5.2
HARD	> 400	3.5	3.5	3.6	3.7	4.0	4.1	4.2	4.5	4.6
Granular (N in BLOWS/0.3M)										
VERY LOOSE	< 5	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.3	6.5
LOOSE	5 to 10	4.6	4.8	4.9	5.1	5.3	5.5	5.6	5.7	5.9
MEDIUM	10 to 25	4.4	4.5	4.7	4.9	5.0	5.2	5.3	5.5	5.6
DENSE	25 to 50	4.1	4.3	4.5	4.6	4.7	4.9	5.0	5.2	5.3
VERY DENSE	> 50	3.9	4.1	4.2	4.4	4.5	4.7	4.8	4.9	5.1

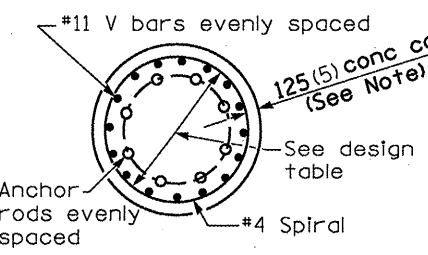
SHAFT LENGTH DESIGN TABLE (ENGLISH) (LENGTH IN FEET)

SOIL CONSISTENCY	AVERAGE STRENGTH (Qu in tsf)	LIGHT TOWER HEIGHT (feet)									
		80	90	100	110	120	130	140	150	160	
Cohesive											
SOFT	< 0.5	20.4	21.5	22.5	23.6	25.0	26.1	27.2	28.5	29.8	
MEDIUM	0.5 to 1	16.8	17.5	18.3	19.0	20.3	21.1	21.8	23.1	24.0	
STIFF	1 to 2	14.3	14.8	15.4	15.9	17.1	17.6	18.1	19.3	19.9	
VERY STIFF	2 to 4	12.6	13.0	13.3	13.7	14.8	15.2	15.6	16.7	17.1	
HARD	> 4	11.4	11.6	11.9	12.2	13.2	13.5	13.8	14.9	15.2	
Granular (N in BLOWS/FT.)											
VERY LOOSE	< 5	16.4	17.1	17.8	18.5	18.9	19.6	20.2	20.7	21.4	
LOOSE	5 to 10	15.0	15.6	16.2	16.8	17.3	17.9	18.4	18.9	19.5	
MEDIUM	10 to 25	14.3	14.9	15.5	16.0	16.4	17.0	17.5	17.9	18.5	
DENSE	25 to 50	13.6	14.1	14.6	15.1	15.5	16.1	16.5	16.9	17.5	
VERY DENSE	> 50	12.9	13.4	13.9	14.4	14.8	15.3	15.7	16.1	16.6	

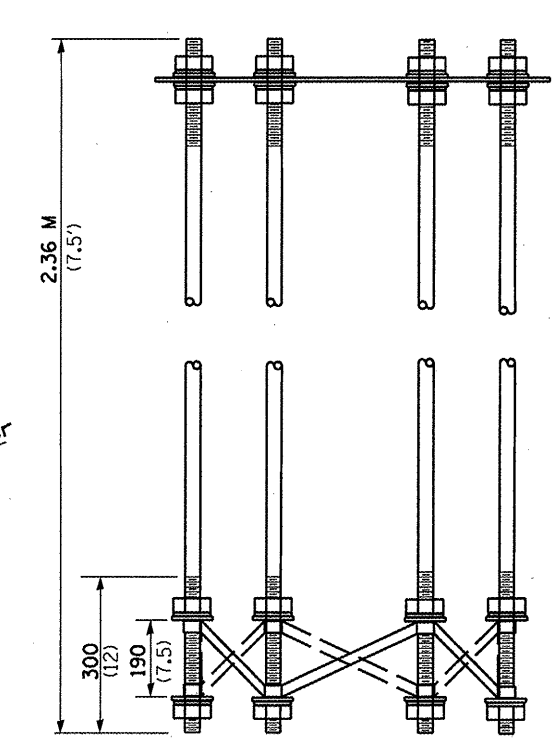
FOUNDATION SCHEDULE

TOWER NUMBER	STATION	OFFSET	SHAFT LENGTH

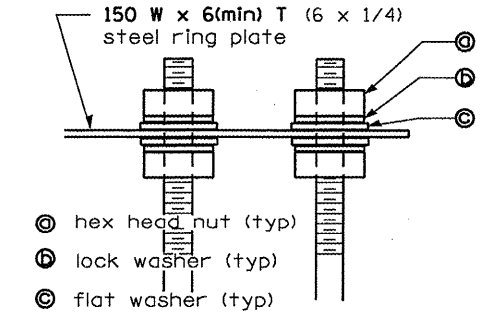
FOUNDATION ELEVATION



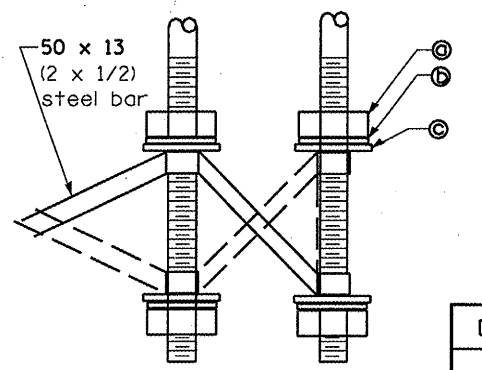
SECTION A-A



ANCHOR ROD CAGE



ANCHOR ROD CAGE TOP



ANCHOR ROD CAGE BOTTOM

GENERAL NOTES

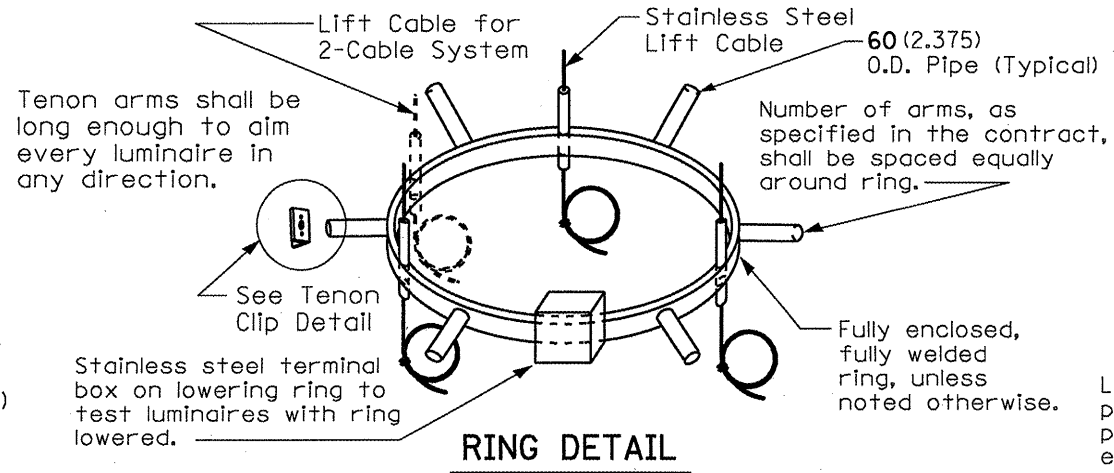
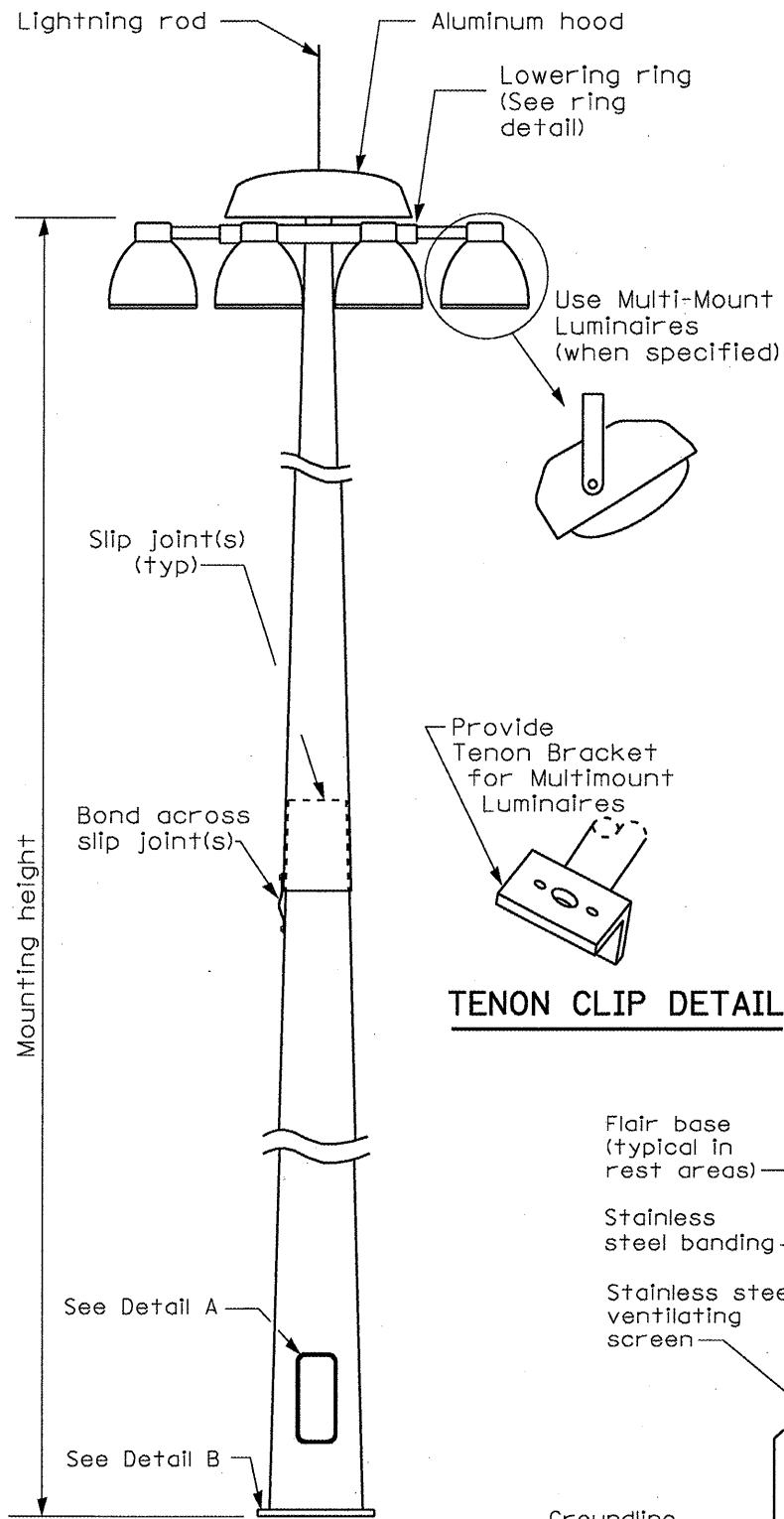
- 1) The shaft length(s) provided in the foundation schedule are based on the soil borings included in the plans. If different soils are encountered, the engineer shall be notified to provide a revised length.
- 2) Use 8 rods min., see design table for minimum anchor rod diameter. Anchor rod quantity, diameter, and length shall be determined by the approved drawings furnished by pole manufacturer.
- 3) All foundation reinforcement steel to be epoxy coated. Use #11 vertical bars and #4 spiral reinforcement - see design table.
- 4) The cost of reinforcing is incidental to the foundation.
- 5) Steel anchor bolt forms shall not be removed for a minimum of 3 days after concrete is poured and the tower shall not be set for a minimum of 7 days or as approved by the Engineer.
- 6) Coordinate bolt circle diameter of the tower with the bolt circle diameter of the anchor bolt cage.
- 7) Foundation shall be in accordance with applicable portions of Section 516 and 837 of the Standard Specifications.
- 8) Foundation shall be poured monolithically with no construction joints allowed.
- 9) Place grounding electrodes in an access well, if there is a conflict in using the wireway window.
- 10) Diameters listed in the tables are based upon a 125 (5") concrete cover. The minimum cover is 75 (3") in a dry shaft excavation or 100 (4") in a wet hole. When rock is encountered, a 125 (5") cover is required against soil to allow a 50 (2") cover against rock.

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

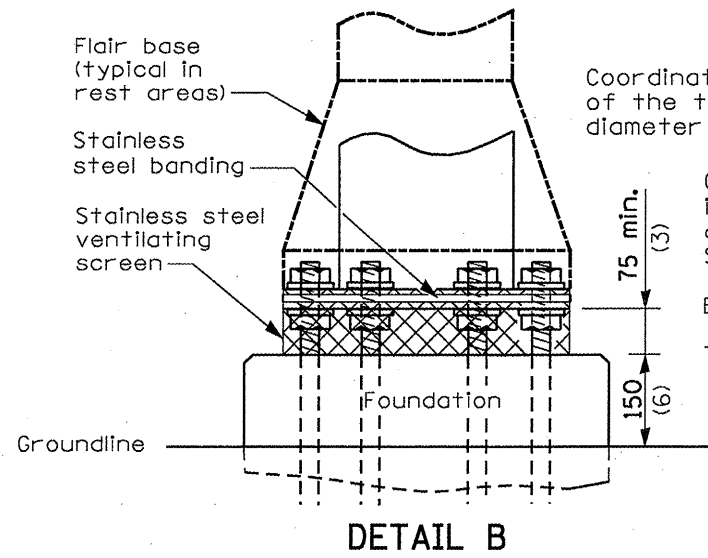
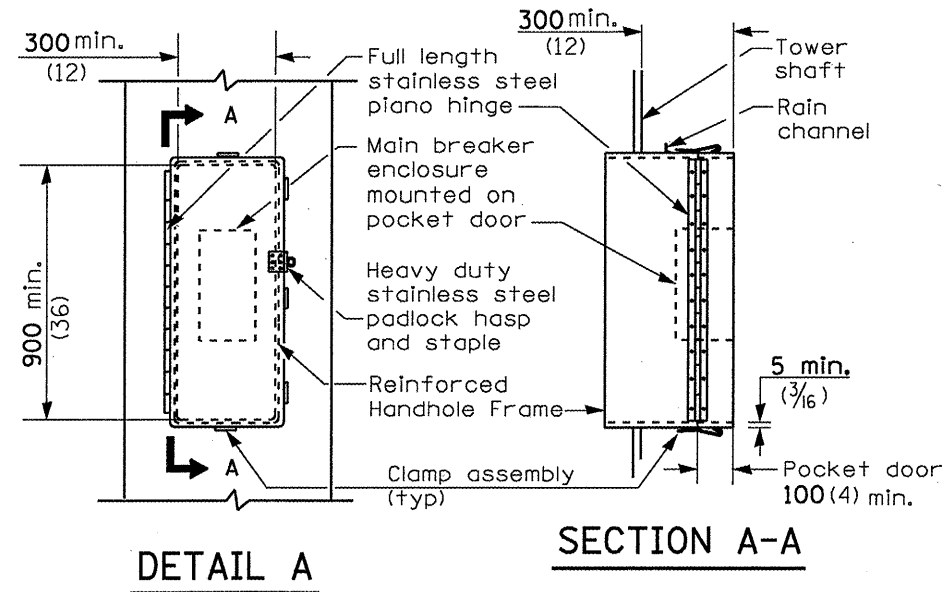
DATE	REVISIONS
	Corrected 4/12/06

LIGHT TOWER FOUNDATION

LIGHTING DETAILS
 FAI 55 (1-55)
 SECTION D6 LIGHTING 2009
 SANGMON/MONTGOMERY COUNTY



TENON CLIP DETAIL



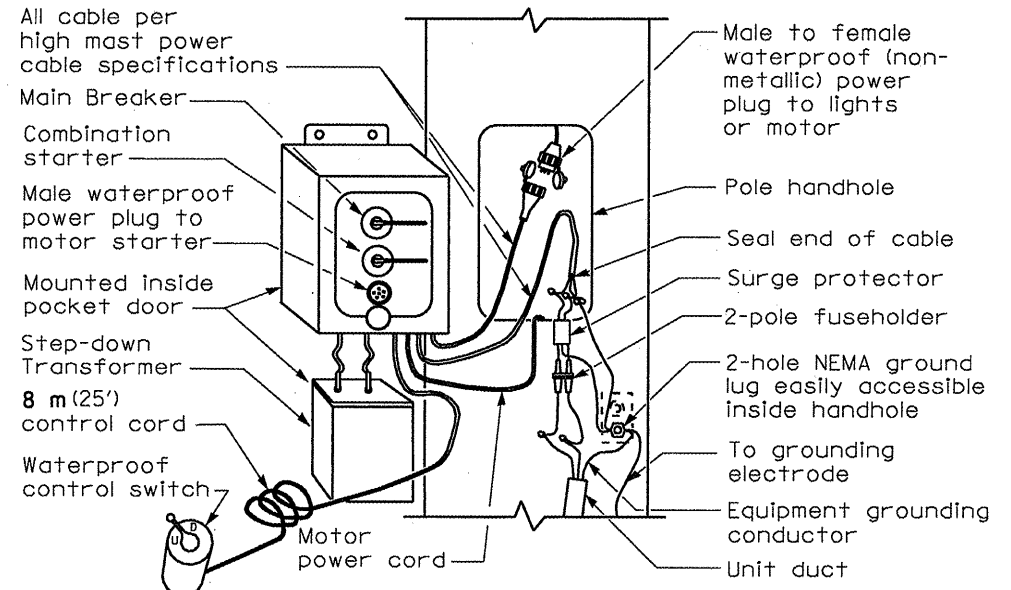
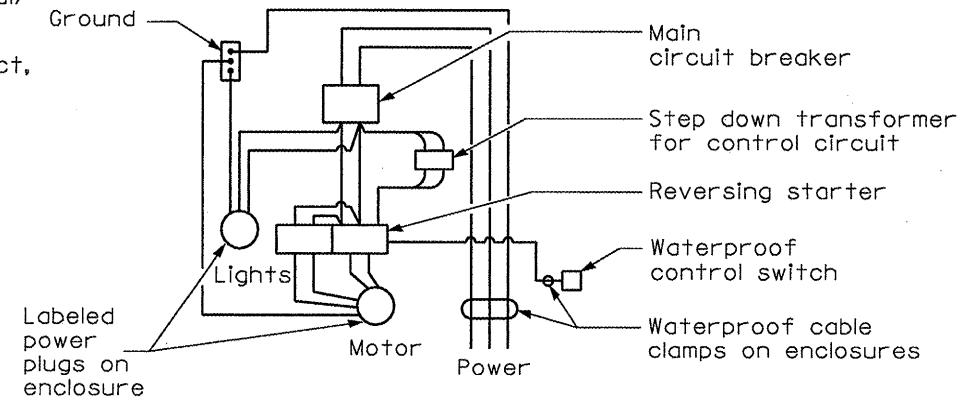
Coordinate bolt circle diameter of the tower with the bolt circle diameter of the anchor bolt cage.

Grounding electrode shall be installed at each tower in an access well according to the Standard Specifications

Bottom of baseplate

Top of foundation

HIGH MAST TOWER SCHEDULE								
TOWER*	LOCATION	STATION	OFFSET	HEIGHT	TYPE	* LUMS	WATTAGE	REMARKS



GENERAL NOTES

- 1) Luminaires shall be aimed as shown on the aiming schedule in the plans and as directed by the Engineer.
- 2) Handhole door shall have a minimum of one clamp assembly on top and bottom and a minimum of three clamp assemblies on the non-hinged side of the door.
- 3) Provide racks to house all wiring so cables are neatly stored and the handhole door is not closing against a random lay of cables.
- 4) Verify adequate clearance exists to open and close the handhole door with no conflict of the main breaker panel which is mounted to the inside of the door.
- 5) The luminaire ring shall be balanced so it lowers evenly.
- 6) Manufacturer of lowering device shall factory wire the winch drive electrical control system. Cable attachment to plugs and polarity must be observed to prevent faults to ground when plugs are changed between lights and motor circuits. Alternate schemes shall be approved by the Engineer.

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

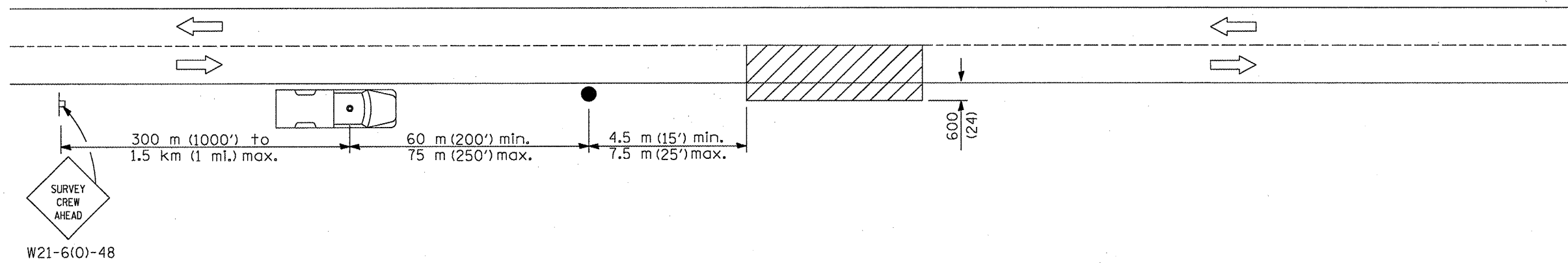
DATE	REVISIONS
	Corrected 4/4/06

HIGH MAST LIGHT TOWER

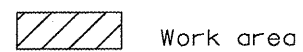
LGT010

LIGHTING DETAILS
 FAI 55 (I-55)
 SECTION D6 LIGHTING 2009
 SANGAMON/MONTGOMERY COUNTY

Not to scale

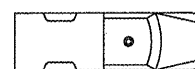


SYMBOLS



Work area

Sign on portable or permanent support



Truck with flashing amber light and dual emergency flashers

Flagger with traffic control sign

TYPICAL APPLICATIONS
Utility operations

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

LIGHTING DETAILS
FAI 55 (I-55)
SECTION D6 LIGHTING 2009
SANGAMON/MONTGOMERY COUNTY

DATE	REVISIONS

DETAIL FOR
NIGHTTIME LIGHTING
INSPECTION