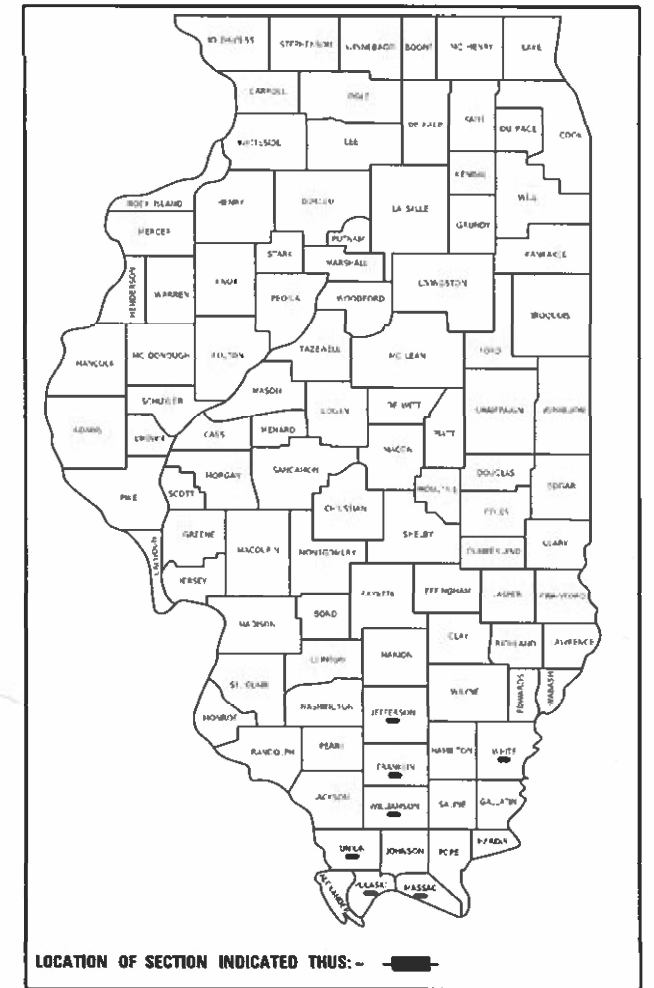


F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	STILL NO.
VAR	D9 HMLT 2023-1	VARIOUS	17	1
ILLINOIS FED. AID PROJECT			CONTRACT NO. 78983	

D-99-017-23



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

**PROPOSED
HIGHWAY PLANS**

FAP ROUTE VARIOUS
SECTION D9 HIGH MAST LIGHT TOWER 2023-1
PROJECT STP-7Y1X(425)
HIGH MAST LIGHTING LED RETROFIT
VARIOUS COUNTIES

C-99-028-23

INDEX OF SHEETS

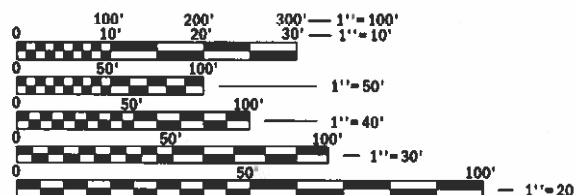
- 1 COVER SHEET
- 2 SIGNATURE SHEET
- 3 HIGHWAY STANDARDS AND GENERAL NOTES
- 4 SUMMARY OF QUANTITIES
- 5 LIGHTING INDEX OF SHEETS
- 6 SCHEDULE OF LUMINAIRE RETROFIT
- 7 - 9 LUMINAIRE AIMING DIAGRAMS
- 10 - 11 LUMINAIRE PERFORMANCE TABLES
- 12 - 17 LUMINAIRE RING PHOTOS



EXPIRATION DATE: 11-30-2023

William D. Steiner
SIGNATURE

3-17-2023
DATE

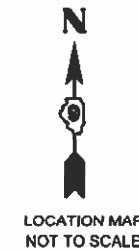
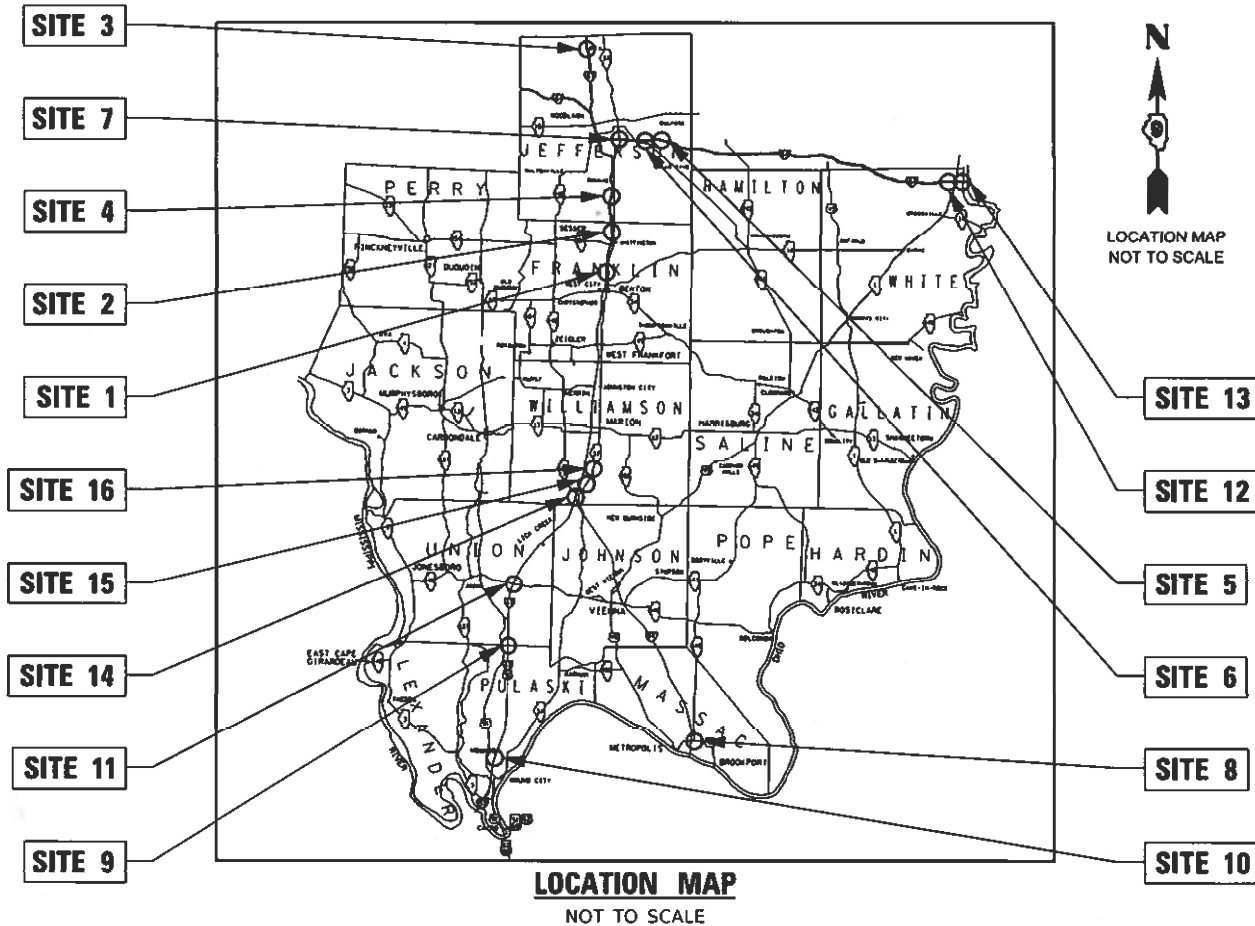


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

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

PROJECT ENGINEER: SUSAN POE

CONTRACT NO. 78983



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED March 29, 2023
Kirk H. Brown
REGIONAL ENGINEER

May 12, 2023 *[Signature]*
ENGINEER OF DESIGN AND ENVIRONMENT

May 12, 2023 *[Signature]*
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

**PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS**

HIGHWAY STANDARDS

- 00001-08 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 001006 DECIMAL OF AN INCH AND OF A FOOT
- 701001-02 OFF-ROAD OPERATIONS, 2L, 2W, MORE THAN 15' (4.5 M) AWAY
- 701006-05 OFF-ROAD OPERATIONS, 2L, 2W, 15' (4.5 M) TO 24" (600 MM) FROM PAVEMENT EDGE
- 701101-05 OFF-ROAD OPERATIONS, MULTILANE, 15' (4.5 M) TO 24" (600 MM) FROM PAVEMENT EDGE
- 701106-02 OFF-ROAD OPERATIONS, MULTILANE, MORE THAN 15' (4.5 M) AWAY
- 821101-02 LUMINAIRE WIRING IN POLE

GENERAL NOTES:

1. THE CONTRACTOR SHALL PLACE CONES AROUND THEIR EQUIPMENT. ALL WORK AT SITE NOS. 15 AND 16 MUST BE COMPLETED DURING DAYLIGHT HOURS AND NO EQUIPMENT SHALL BE LEFT IN PLACE OUTSIDE OF THESE DAYLIGHT HOURS. THE COST OF THESE TRAFFIC CONTROL ITEMS ARE INCLUDED IN THE COST OF THE ASSOCIATED WORK ITEMS.
2. THE CONTRACTOR SHALL FURNISH AND INSTALL 180 DEGREE HIGHMAST LUMINAIRE SHIELDS, WHERE SPECIFIED IN THE SCHEDULE ON SHEET 2, TO LIMIT LIGHT TRESPASS TO ADJACENT CULTIVATION FIELDS. THE COST OF THIS WORK IS INCLUDED IN THE ASSOCIATED LUMINAIRE PAY ITEM.
3. THE CONTRACTOR SHALL INSTALL HIGHMAST LUMINAIRES AT 0 DEGREES HORIZONTAL TO GRADE AND ORIENTED PERPENDICULAR TO THE ROADWAY, AS DEPICTED IN THE LUMINAIRE AIMING DIAGRAMS.
4. THE CONTRACTOR SHALL FIELD VERIFY EXISTING LUMINAIRE VOLTAGE AND MATCH ACCORDINGLY.

MODEL: D:\64bit
 FILE NAME: S:\projects\2218 - IDOT D9 Eng I II P18 203-49 - Orestis\project\work\2218.05\CADD\CADD_Sheets\0978983-std-gen.dgn

REV. - MS



USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
	DRAWN - B. BARR	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED - W. STERMER	REVISED -
PLOT DATE = 3/17/2023	DATE - 3/17/2023	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

HIGHWAY STANDARDS AND GENERAL NOTES

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	D9 HMLT 2023-1	VARIOUS	17	3
			CONTRACT NO. 78983	
ILLINOIS FED. AID PROJECT				

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE	
				80% FED 20% STATE	
				LIGHTING 0021	
67100100	MOBILIZATION	L SUM	1	1	
82110015	LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION H	EACH	148	148	
82110016	LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION I	EACH	60	60	
82110017	LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION J	EACH	14	14	
X1400273	REMOVAL OF EXISTING TOWER LUMINAIRE, NO SALVAGE	EACH	270	270	
X8210009	LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION H (SPECIAL)	EACH	48	48	

REV. - MS

MODEL: D:\64bit
 FILE NAME: S:\projects\2218 - IDOT D9 Eng I II P18 203-49 - Other\project\work\2218.05\CADD\CADD Sheets\0978983.dgn



USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
	DRAWN - B. BARR	REVISED -
PLOT SCALE = 0.1667 / in.	CHECKED - W. STERMER	REVISED -
PLOT DATE = 3/17/2023	DATE - 3/17/2023	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

SUMMARY OF QUANTITIES

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 HMLT 2023-1	VARIOUS	17	4
			CONTRACT NO. 78983	
ILLINOIS FED. AID PROJECT				

LIGHTING SUMMARY OF QUANTITIES

S.P.	PAY ITEM	DESCRIPTION	UNIT	QUANTITY
*	82110015	LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION H	EACH	148
*	82110016	LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION I	EACH	60
*	82110017	LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION J	EACH	14
*	X1400273	REMOVAL OF EXISTING TOWER LUMINAIRE, NO SALVAGE	EACH	270
*		LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION H, SPECIAL	EACH	48

S.P. COLUMN

- * SPECIAL PROVISION

LIGHTING INDEX OF SHEETS

- 1 LIGHTING INDEX OF SHEETS
- 2 SCHEDULE OF LUMINAIRE RETROFIT
- 3 TO 5 LUMINAIRE AIMING DIAGRAMS
- 6 TO 7 LUMINAIRE PERFORMANCE TABLES
- 8 TO 13 LUMINAIRE RING PHOTOS

MODEL: Default
FILE NAME: S:\projects\2023-18 - IDOT D9 Exp 1 II PTS 203-49 - Other\Project Work\2218.05\CADD\CADD Sheets\0978983-ph-lightcover.dgn



USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
	DRAWN - B. BARR	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED - W. STERMER	REVISED -
PLOT DATE = 3/17/2023	DATE - 3/17/2023	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

LIGHTING INDEX OF SHEETS

SCALE: NTS SHEET 1 OF 13 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 HMLT 2023-1	VARIOUS	17	5
			CONTRACT NO. 78983	
		ILLINOIS	FED. AID PROJECT	

SITE NO.	COUNTY	SITE LOCATION		AIMING DIAGRAM NO.	EX HMLT LOCATION (PER AIMING DIAGRAM)	EX HIGHMAST LUMINAIRES TO BE REPLACED WITH LED	LUMINAIRE PERFORMANCE TABLE	LUMINAIRE OUTPUT DESIGNATION	HOUSE SIDE SHIELDS TO BE INSTALLED	LUMINAIRE VOLTAGE	LUMINAIRE MOUNTING HEIGHT	LUMINAIRE RING PHOTOS (FOR INFORMATION ONLY)	EX HMLT IDENTIFICATION DECAL (FOR INFORMATION ONLY)	NOTES							
1	FRANKLIN	NB I-57 REST AREA	N. OF BENTON	5	TOWER A TOWER B	6 6	LPT 3	I	NO	240V	80'	A	- -								
2	FRANKLIN	SB I-57 REST AREA	N. OF BENTON	7	TOWER A TOWER B TOWER C	6 4 4	LPT 4	J	NO	240V	80'	A	- - -								
3	JEFFERSON	I-57 @ EXIT 103	DIX	2	TOWER A - See Notes TOWER B TOWER C TOWER D	- 4 4 4	LPT 2 LPT 1 LPT 2	H, SPL H H, SPL	YES NO YES	240V	80'	B	2 1 3 4	HMLT is missing at this location.							
4	JEFFERSON	I-57 @ EXIT 83	INA	1	TOWER A TOWER B TOWER C TOWER D	4 4 4 4	LPT 1	H	YES	240V	80'	C	1 2 4 3								
5	JEFFERSON	WB I-64 REST AREA	E. OF MT. VERNON	6	TOWER A TOWER B	6 6	LPT 3	I	NO	240V	80'	D	6 7								
6	JEFFERSON	EB I-64 REST AREA	E. OF MT. VERNON	4	TOWER A TOWER B	6 6	LPT 3	I	NO	240V	80'	E	6 7								
7	JEFFERSON	I-64 @ IL 37 EXIT 80	MT. VERNON	3	TOWER A TOWER B TOWER C TOWER D	4 4 4 4	LPT 1 LPT 2 LPT 1 LPT 2	H H, SPL H H, SPL	NO	240V	80'	F	3 2 5 4								
8	MASSAC	I-24 REST AREA	MASSAC CO R.A.	5	TOWER A TOWER B	6 6	LPT 3	I	NO	240V	110'	G	- -								
9	PULASKI	I-57 @ SHAWNEE COLLEGE RD.	ULLIN	1	TOWER A TOWER B TOWER C TOWER D	4 4 4 4	LPT 1	H	YES	240V	90' 100' 80' 90'	H	4 3 1 2								
10	PULASKI	I-57 @ MOUNDS RD.	MOUNDS	1	TOWER A TOWER B TOWER C TOWER D	4 4 4 4	LPT 1	H	YES	240V	90' 100' 80' 90'	I	4 3 1 2								
11	UNION	I-57 @ IL 146	E. OF ANNA	1	TOWER A TOWER B TOWER C TOWER D	4 4 4 4	LPT 1	H	NO	240V	90' 80'	J	4 3 1 2								
12	WHITE	I-64 @ EXIT 130	GRAYVILLE	3	TOWER A TOWER B TOWER C TOWER D	4 4 4 4	LPT 1 LPT 2 LPT 1 LPT 2	H H, SPL H H, SPL	YES NO	240V	80'	K	3 1 2 4								
13	WHITE	I-64 REST AREA	GRAYVILLE	5	TOWER A TOWER B	8 8	LPT 2	H, SPL	NO	240V	80'	L	11 10								
14	WILLIAMSON	I-57 @ I-24 WEST	N. OF PULLEYS MILL (I-57/I-24 INTERCHANGE)	9	TOWER A TOWER B TOWER C TOWER D TOWER E TOWER F TOWER G TOWER H TOWER I TOWER J TOWER K TOWER L	4 4 4 4 4 4 4 4 4 4 4 4	LPT 1	H	NO	480V	90' 80' 90' 80' 90' 80' 90'	M	14 13 10 11 12 18 9 8 7 17 16 1 2 3 4 15 6 5								
		I-57 @ IL 148	N. OF PULLEYS MILL (I-57 EXIT TO IL 148)		TOWER M TOWER N TOWER O TOWER P TOWER Q TOWER R	4 4 4 4 4 4							LPT 2 LPT 1 LPT 2	H, SPL H H, SPL					1 2 3 4 15 6 5		
15	WILLIAMSON	NB I-57 WEIGH STATION	S. OF MARION		8	TOWER A							6	LPT 3	I	NO	240V	80'	N	1	
16	WILLIAMSON	SB I-57 WEIGH STATION	S. OF MARION		8	TOWER A							6	LPT 3	I	NO	240V	80'	N	1	

MODEL: D:\p\11...
 FILE NAME: S:\projects\2021-18 - IDOT D9 Exp 1 II P18 2024-09 - Onsite\Project Work\2218.05\CADD\CADD Sheets\0978983-11-Highway11.dgn



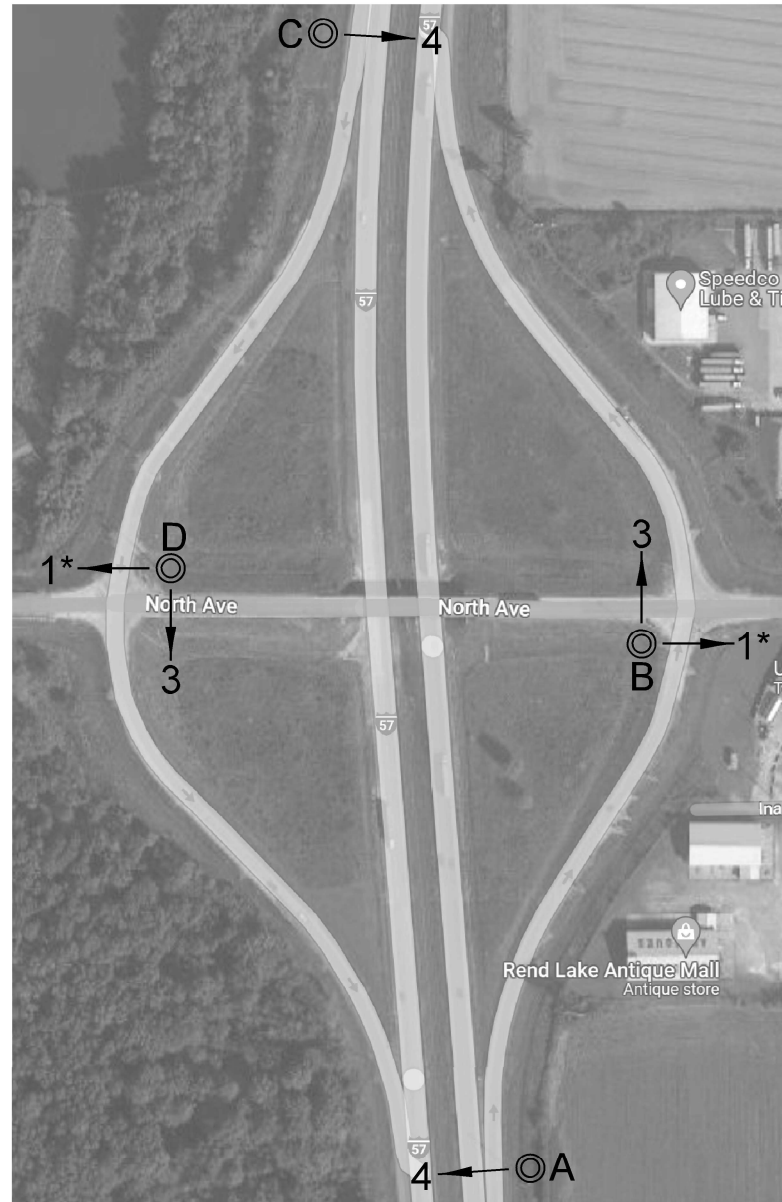
USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
DRAWN - B. BARR	REVISOR -	
PLOT SCALE = 100.0000' / in.	CHECKED - W. STERMER	REVISED -
PLOT DATE = 3/17/2023	DATE - 3/17/2023	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

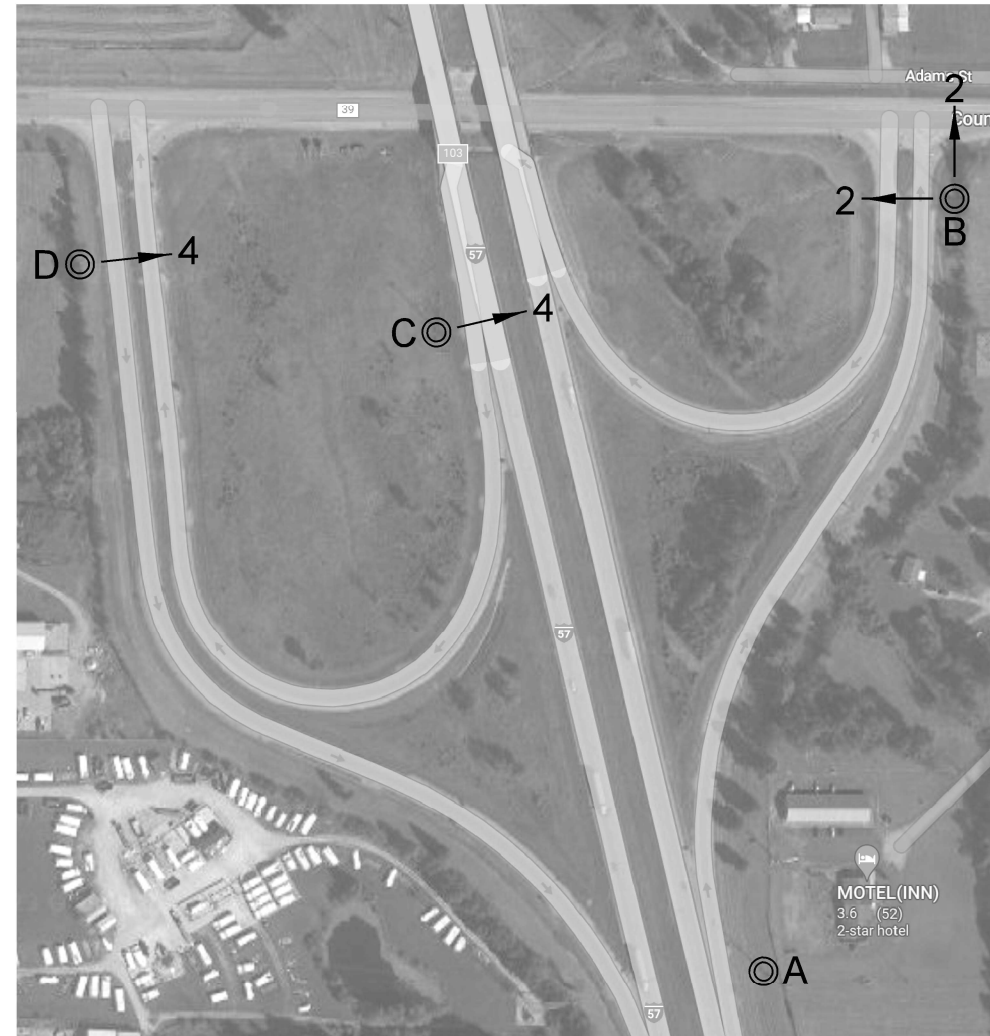
SCHEDULE OF LUMINAIRE RETROFIT	
SCALE: NTS	SHEET 2 OF 13 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 HMLT 2023-1	VARIOUS	17	6
CONTRACT NO. 78983				
ILLINOIS FED. AID PROJECT				

1

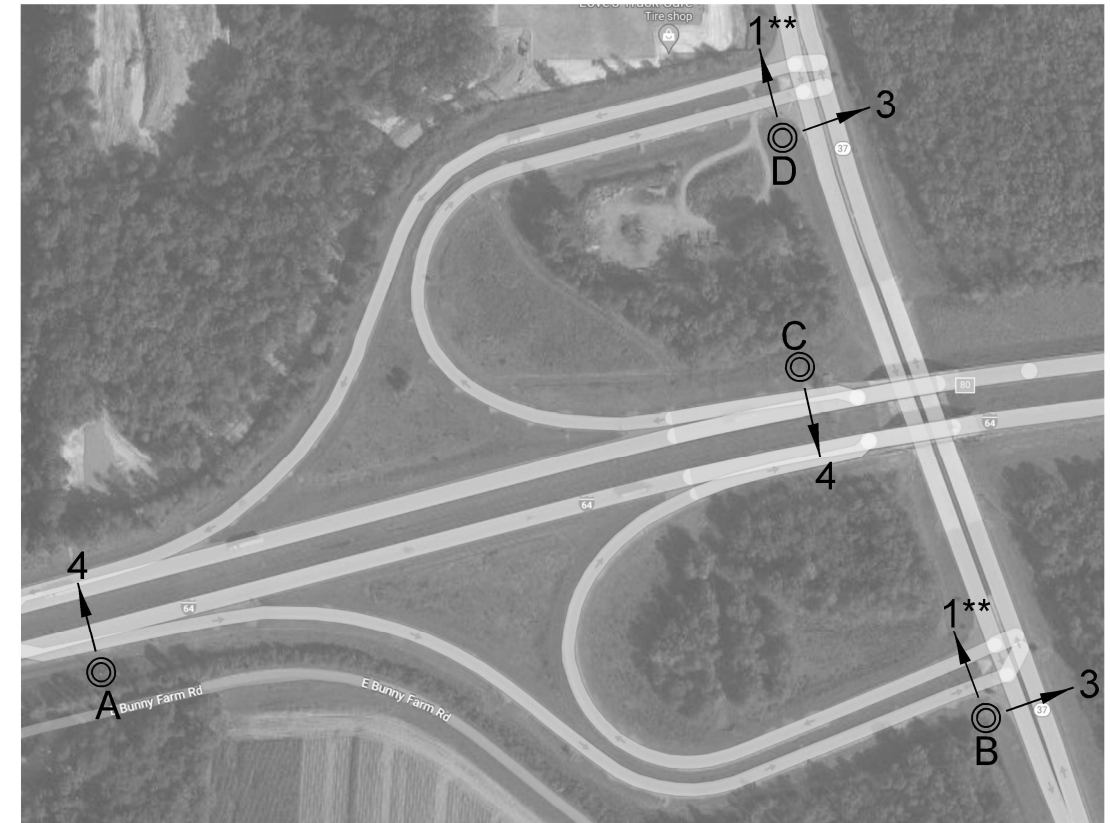


2



NOTES:
1. TOWER A IS MISSING AT THIS LOCATION.

3



NOTES:

1. LUMINAIRE AIMING DIAGRAMS ARE NOT SITE SPECIFIC AND ARE TO BE VIEWED AS TYPICAL FOR LOCATIONS REFERENCED IN THE SCHEDULE ON SHEET 2. HMLT LOCATIONS SHOWN ON LUMINAIRE AIMING DIAGRAMS ARE APPROXIMATE AND ARE NOT TO BE CONSTRUED AS AN EXACT REPRESENTATION OF EXISTING HMLT LOCATIONS.

- * HIGHMAST LUMINAIRE SHALL BE ORIENTED TOWARDS RAMP.
- ** HIGHMAST LUMINAIRE SHALL BE ORIENTED TOWARDS EXPRESSWAY ENTRANCE RAMP, WHEN HMLT IS LOCATED IN MEDIAN.

MODEL: D:\p1\11...
FILE NAME: S:\projects\2023-18 - IDOT D9 Exp 11 PTS 2023-49 - Oltres\Project Work\2218.05\CADD\CADD Sheets\0978983-11-HighMast.dgn

TranSmart
100 S. Wacker Drive Suite 400
Chicago, Illinois 60606

USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
PLOT SCALE = 100.0000' / in.	DRAWN - B. BARR	REVISED -
PLOT DATE = 3/17/2023	CHECKED - W. STERMER	REVISED -
	DATE - 3/17/2023	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LUMINAIRE AIMING DIAGRAMS

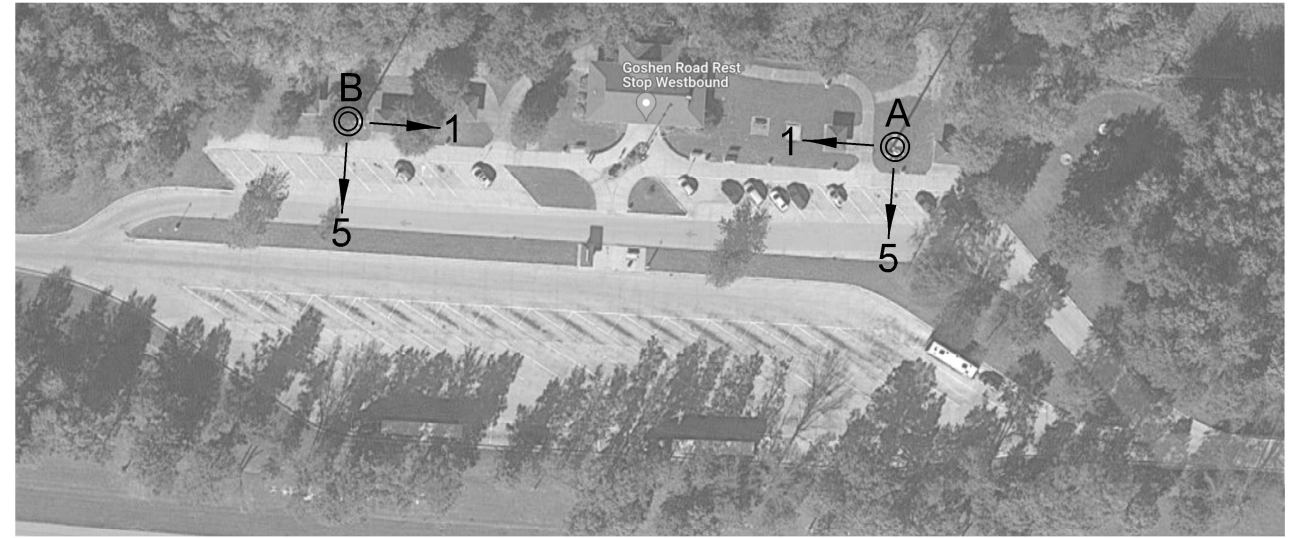
SCALE: NTS SHEET 3 OF 13 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 HMLT 2023-1	VARIOUS	17	7
			CONTRACT NO. 78983	
ILLINOIS FED. AID PROJECT				

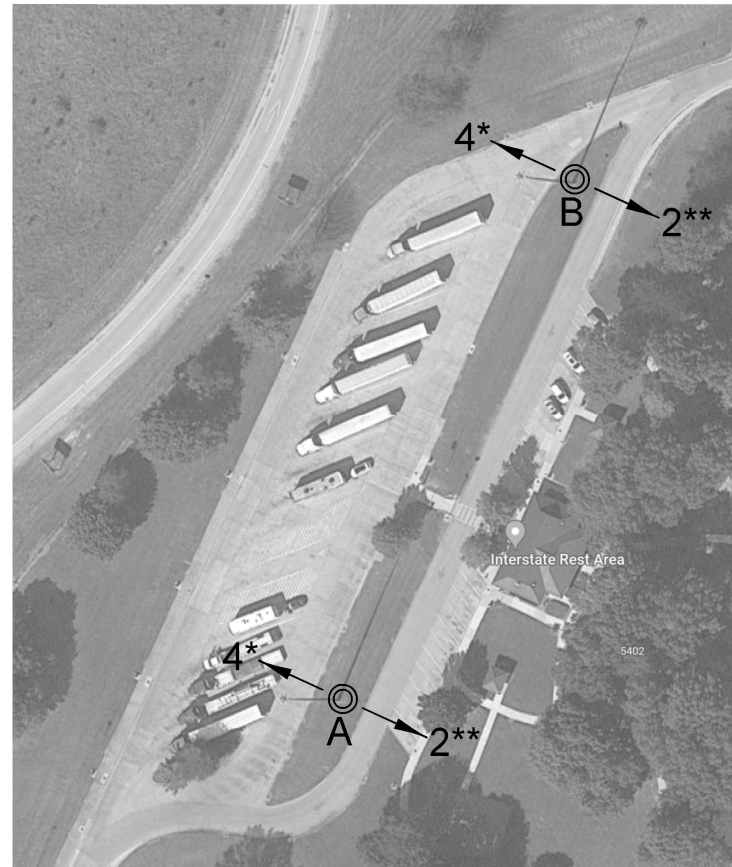
4



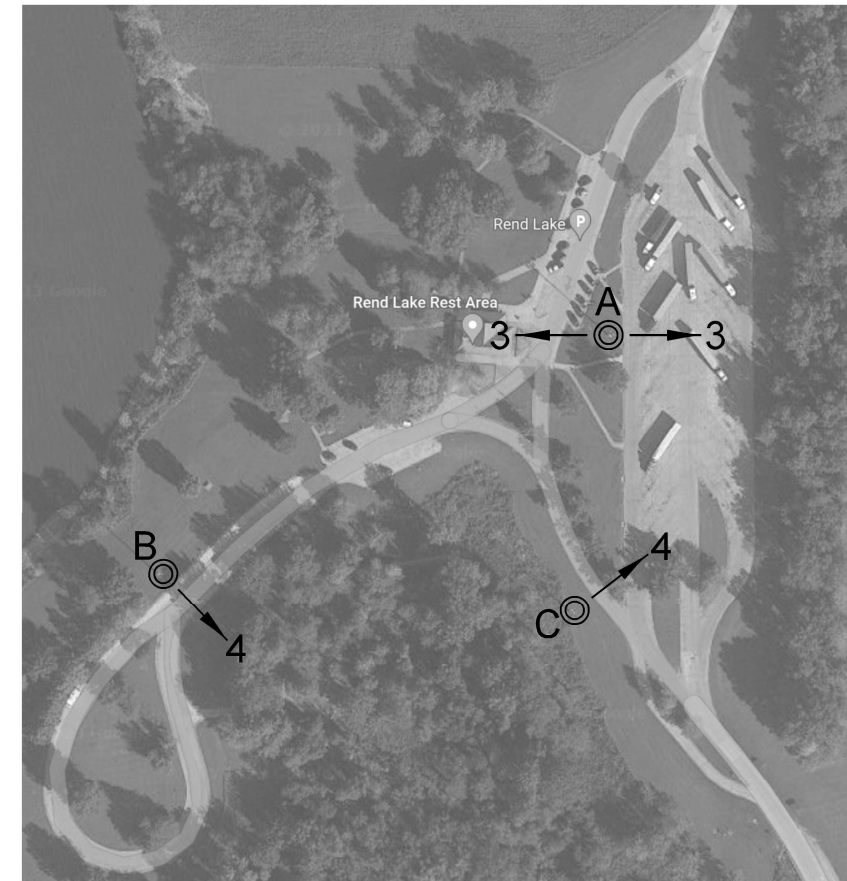
6



5



7



NOTES:

1. LUMINAIRE AIMING DIAGRAMS ARE NOT SITE SPECIFIC AND ARE TO BE VIEWED AS TYPICAL FOR LOCATIONS REFERENCED IN THE SCHEDULE ON SHEET 2. HMLT LOCATIONS SHOWN ON LUMINAIRE AIMING DIAGRAMS ARE APPROXIMATE AND ARE NOT TO BE CONSTRUED AS AN EXACT REPRESENTATION OF EXISTING HMLT LOCATIONS.

- * FIVE (5) HIGHMAST LUMINAIRES FOR SITE SPECIFYING EIGHT (8) HIGHMAST LUMINAIRES TO BE INSTALLED ON RING.
- ** THREE (3) HIGHMAST LUMINAIRES FOR SITE SPECIFYING EIGHT (8) HIGHMAST LUMINAIRES TO BE INSTALLED ON RING.

MODEL: Default
FILE NAME: S:\projects\2023\18 - IDOT D9 Eng II PTS 2023-49 - Other\Project Work\218.05\CADD\CADD Sheets\0978983-rt-Highmast.dgn

TranSmart
100 S. Wacker Drive Suite 400
Chicago, Illinois 60606

USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
	DRAWN - B. BARR	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED - W. STERMER	REVISED -
PLOT DATE = 3/17/2023	DATE - 3/17/2023	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

LUMINAIRE AIMING DIAGRAMS

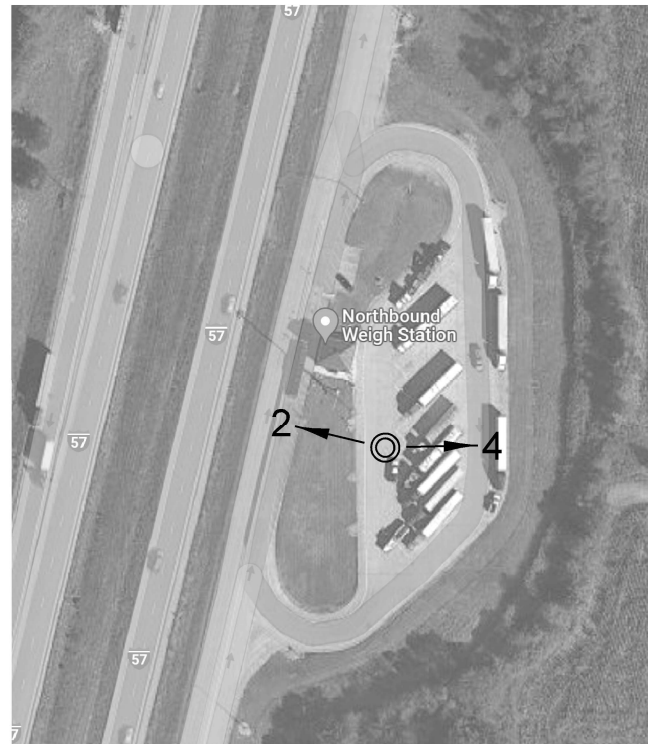
SCALE: NTS SHEET 4 OF 13 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 HMLT 2023-1		17	8
			CONTRACT NO. 78983	
		ILLINOIS	FED. AID PROJECT	

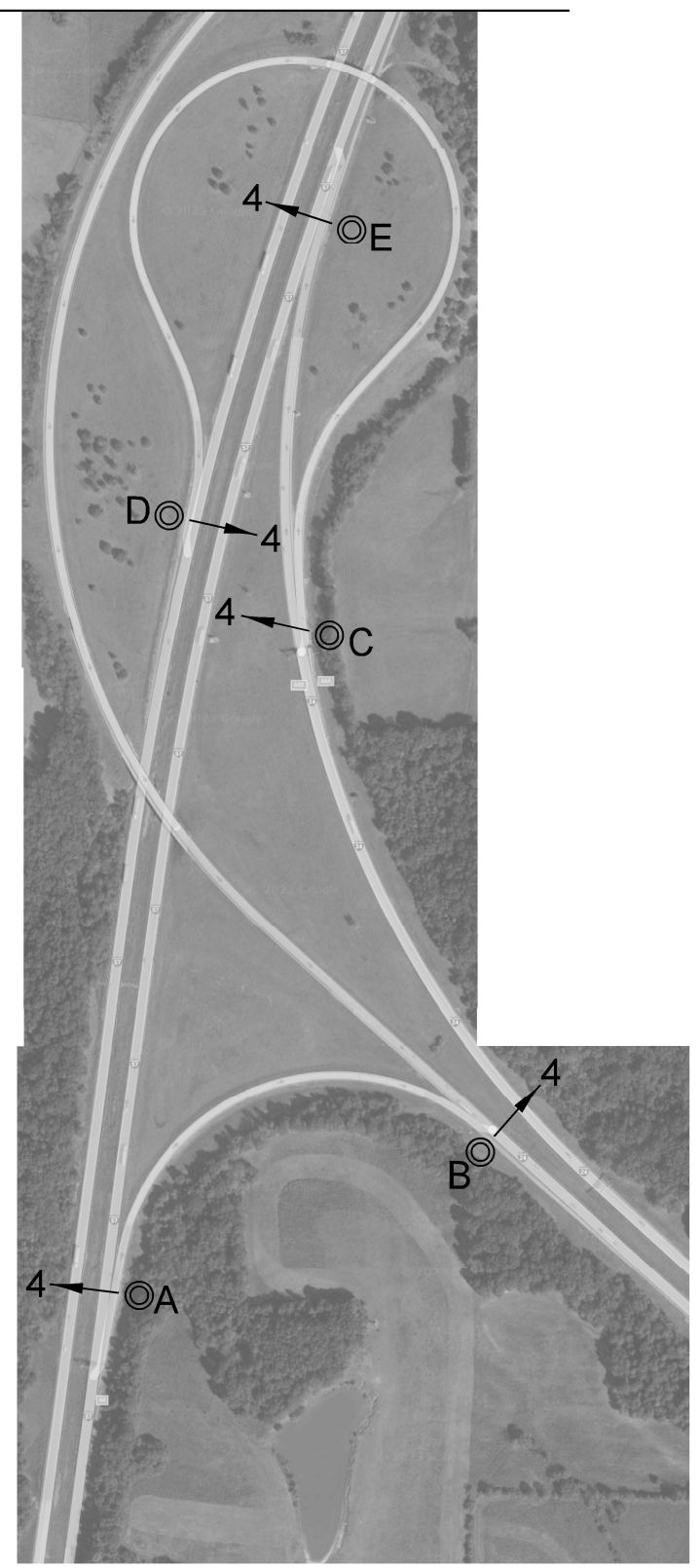
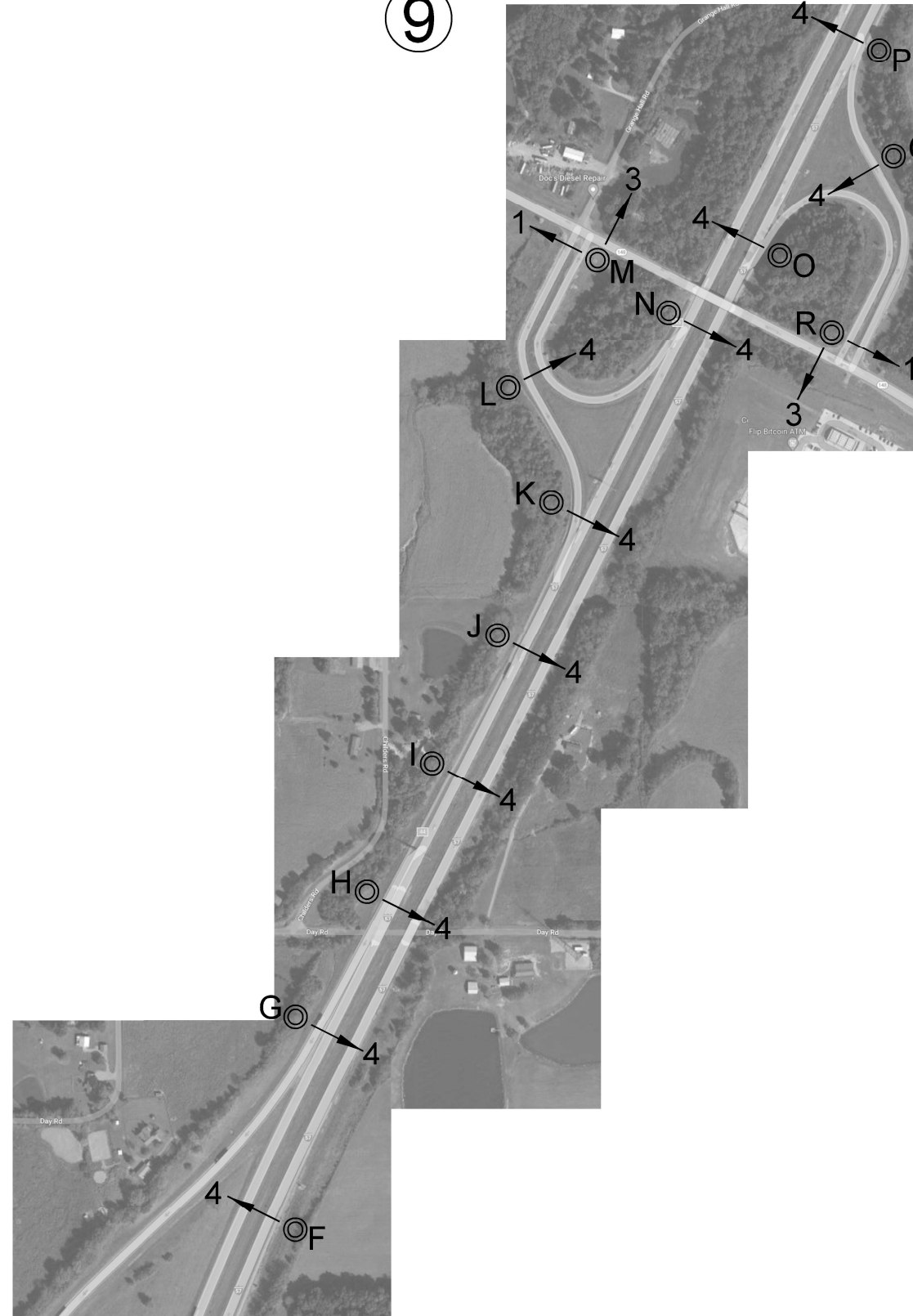
NOTES:

- LUMINAIRE AIMING DIAGRAMS ARE NOT SITE SPECIFIC AND ARE TO BE VIEWED AS TYPICAL FOR LOCATIONS REFERENCED IN THE SCHEDULE ON SHEET 2. HMLT LOCATIONS SHOWN ON LUMINAIRE AIMING DIAGRAMS ARE APPROXIMATE AND ARE NOT TO BE CONSTRUED AS AN EXACT REPRESENTATION OF EXISTING HMLT LOCATIONS.

8



9



MODEL: Default
FILE NAME: S:\projects\2023\18 - IDOT D9 Exp 1 II PTS 203-49 - Onsite\Project Work\2218.05\CADD\CADD Sheets\0978983-rt-Highway11.dgn

TranSmart
100 S. Wacker Drive Suite 400
Chicago, Illinois 60606

USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
	DRAWN - B. BARR	REVISED -
PLOT SCALE = 100,0000' / in.	CHECKED - W. STERMER	REVISED -
PLOT DATE = 3/17/2023	DATE - 3/17/2023	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

LUMINAIRE AIMING DIAGRAMS

SCALE: NTS SHEET 5 OF 13 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 HMLT 2023-1	VARIOUS	17	9
CONTRACT NO. 78983				
ILLINOIS FED. AID PROJECT				

LUMINAIRE PERFORMANCE TABLE 1 (LPT 1)
LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION H

Project

Date	Contract Number	Section Number	County
02-14-2023	78983	D9 HMLT 2023-1	VARIOUS

Marked Route Number	Municipality

Roadway

Lane Width	*of Lanes	Median Width	I.E.S Surface Classification	O-Zero Value
12 ft	3	N/A	R3	0.07

Structure

Mounting Height	Arm Length	Set Back	Number of Luminaires (Highmast & Sign Lighting Only)
80 ft	4 ft	45 ft	4 @ 90 degrees, same direction

Luminaire

Description	I.E.S. Transverse Distribution	I.E.S. Lateral Distribution
LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION H	TYPE II	SHORT/MEDIUM

Total Light Loss Factor (LLF)	BUG Rating	Shields	Dimming Protocol
0.7	U = 0	180 degree shields, where specified	0-10V

Layout

Spacing (to Nearest 5 Ft) Configuration (Opposite, Staggered, 1 Sided, or Median)
390 ft SINGLE SIDED

• Performance

Average Illuminance, E_{AVE} (fc)	Uniformity Ratio, E_{AVE}/E_{MIN}		
≥ 1.3	$\leq 3.0:1$		
Average Luminance, L_{AVE} (cd/m ²)	Uniformity Ratio, L_{AVE}/L_{MIN}	Uniformity Ratio, L_{MAX}/L_{MIN}	Veiling Luminance Ratio, L_V/L_{MIN}
N/A	N/A	N/A	≤ 0.3

•• Light Trespass

Distance to ROW (behind pole)	Max. Horizontal Illuminance at ROW, E_H	Max. Vertical Illuminance at ROW, E_V
55 ft	0.2 fc @ LLF = 1.0	0.2 fc @ LLF = 1.0 and 3 ft above grade

Notes

- Set Back is from Edge of Pavement (white line) except for sign luminaires when it is vertical and horizontal distance from the sign to the luminaire.
- Lighting calculations shall be performed with all luminaires oriented toward and perpendicular to roadway.
- Total Light Loss Factor (LLF) = the product of "Lumen Maintenance" (LLD) = 0.9, "Dirt Depreciation" (LDD) = 0.8, and "Equipment Factors" (EF) = 0.95.
- Performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions above.
- Lighting calculations shall be performed in one direction only.
- Compliance with performance criteria shall be held to one significant digit.
- Nominal lumen output of 30,000.

- Unshielded photometry to be used to perform lighting calculations.
- Shielded photometry to be used to perform lighting calculations.

LUMINAIRE PERFORMANCE TABLE 2 (LPT 2)
LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION H (SPECIAL)

Project

Date	Contract Number	Section Number	County
02-14-2023	78983	D9 HMLT 2023-1	VARIOUS

Marked Route Number	Municipality

Roadway

Lane Width	*of Lanes	Median Width	I.E.S Surface Classification	O-Zero Value
12 ft	5	N/A	R3	0.07

Structure

Mounting Height	Arm Length	Set Back	Number of Luminaires (Highmast & Sign Lighting Only)
80 ft	4 ft	30 ft	4 @ 90 degrees, same direction

Luminaire

Description	I.E.S. Transverse Distribution	I.E.S. Lateral Distribution
LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION H, SPECIAL	TYPE III	SHORT/MEDIUM

Total Light Loss Factor (LLF)	BUG Rating	Shields	Dimming Protocol
0.7	U = 0	180 degree shields, where specified	0-10V

Layout

Spacing (to Nearest 5 Ft) Configuration (Opposite, Staggered, 1 Sided, or Median)
300 ft SINGLE SIDED

• Performance

Average Illuminance, E_{AVE} (fc)	Uniformity Ratio, E_{AVE}/E_{MIN}		
≥ 1.5	$\leq 3.0:1$		
Average Luminance, L_{AVE} (cd/m ²)	Uniformity Ratio, L_{AVE}/L_{MIN}	Uniformity Ratio, L_{MAX}/L_{MIN}	Veiling Luminance Ratio, L_V/L_{MIN}
≥ 0.9	$\leq 3.0:1$	N/A	≤ 0.3

•• Light Trespass

Distance to ROW (behind pole)	Max. Horizontal Illuminance at ROW, E_H	Max. Vertical Illuminance at ROW, E_V
55 ft	0.2 fc @ LLF = 1.0	0.2 fc @ LLF = 1.0 and 3 ft above grade

Notes

- Set Back is from Edge of Pavement (white line) except for sign luminaires when it is vertical and horizontal distance from the sign to the luminaire.
- Lighting calculations shall be performed with all luminaires oriented toward and perpendicular to roadway.
- Total Light Loss Factor (LLF) = the product of "Lumen Maintenance" (LLD) = 0.9, "Dirt Depreciation" (LDD) = 0.8, and "Equipment Factors" (EF) = 0.95.
- Performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions above.
- Lighting calculations shall be performed in one direction only.
- Compliance with performance criteria shall be held to one significant digit.
- Nominal lumen output of 30,000.

- Unshielded photometry to be used to perform lighting calculations.
- Shielded photometry to be used to perform lighting calculations.

REV. - MS

MODEL: D:\p\18... IDOT D9 Eng I II #18 2023-18 - OnestProject: W:\A\2118\05\CADD\CADD_Sheets\0978983\LightTables.dgn



USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
PLOT SCALE = 100.0000' / in.	DRAWN - B. BARR	REVISED -
PLOT DATE = 3/17/2023	CHECKED - W. STERMER	REVISED -
	DATE - 3/17/2023	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LUMINAIRE PERFORMANCE TABLES

SCALE: NTS SHEET 6 OF 13 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 HMLT 2023-1	VARIOUS	17	10
			CONTRACT NO. 78983	
ILLINOIS FED. AID PROJECT				

LUMINAIRE PERFORMANCE TABLE 3 (LPT 3)
LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION I

Project

Date	Contract Number	Section Number	County
02-14-2023	78983	D9 HMLT 2023-1	VARIOUS

Marked Route Number	Municipality

Roadway

Lane Width	#of Lanes	Median Width	I.E.S Surface Classification	O-Zero Value
13 ft	14	N/A	R3	0.07

Structure

Mounting Height	Arm Length	Set Back	Number of Luminaires (Highmast & Sign Lighting Only)
80 ft	4 ft	20 ft	4 @ 90 degrees, same direction

Luminaire

Description	I.E.S. Transverse Distribution	I.E.S. Lateral Distribution	
LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION I	TYPE IV	SHORT/MEDIUM	
Total Light Loss Factor (LLF)	BUG Rating	Shields	Dimming Protocol
0.7	U = 0	N/A	0-10V

Layout

Spacing (to Nearest 5 Ft) Configuration (Opposite, Staggered, 1 Sided, or Median)
350 ft SINGLE SIDED

Performance

Average Illuminance, E_{AVE} (fc)	Uniformity Ratio, E_{AVE}/E_{MIN}		
≥ 1.0	$\leq 4.0:1$		
Average Luminance, L_{AVE} (cd/m ²)	Uniformity Ratio, L_{AVE}/L_{MIN}	Uniformity Ratio, L_{MAX}/L_{MIN}	Veiling Luminance Ratio, L_V/L_{MIN}
N/A	N/A	N/A	≤ 0.4

Light Trespass

Distance to ROW (behind pole)	Max. Horizontal Illuminance at ROW, E_H	Max. Vertical Illuminance at ROW, E_V
N/A	N/A	N/A

Notes

- Set Back is from Edge of Pavement (white line) except for sign luminaires when it is vertical and horizontal distance from the sign to the luminaire.
- Lighting calculations shall be performed with all luminaires oriented toward and perpendicular to roadway.
- Total Light Loss Factor (LLF) = the product of "Lumen Maintenance" (LLD) = 0.9, "Dirt Depreciation" (LDD) = 0.8, and "Equipment Factors" (EF) = 0.95.
- Performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions above.
- Lighting calculations shall be performed in one direction only.
- Compliance with performance criteria shall be held to one significant digit.
- Nominal lumen output of 40,000.

LUMINAIRE PERFORMANCE TABLE 4 (LPT 4)
LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION J

Project

Date	Contract Number	Section Number	County
02-14-2023	78983	D9 HMLT 2023-1	VARIOUS

Marked Route Number	Municipality

Roadway

Lane Width	#of Lanes	Median Width	I.E.S Surface Classification	O-Zero Value
12 ft	4	N/A	R3	0.07

Structure

Mounting Height	Arm Length	Set Back	Number of Luminaires (Highmast & Sign Lighting Only)
80 ft	4 ft	60 ft	4 @ 90 degrees, same direction

Luminaire

Description	I.E.S. Transverse Distribution	I.E.S. Lateral Distribution	
LUMINAIRE, LED, HIGHMAST, OUTPUT DESIGNATION J	TYPE V	SHORT/MEDIUM	
Total Light Loss Factor (LLF)	BUG Rating	Shields	Dimming Protocol
0.7	U = 0	N/A	0-10V

Layout

Spacing (to Nearest 5 Ft) Configuration (Opposite, Staggered, 1 Sided, or Median)
600 ft SINGLE SIDED

Performance

Average Illuminance, E_{AVE} (fc)	Uniformity Ratio, E_{AVE}/E_{MIN}		
≥ 0.5	$\leq 4.0:1$		
Average Luminance, L_{AVE} (cd/m ²)	Uniformity Ratio, L_{AVE}/L_{MIN}	Uniformity Ratio, L_{MAX}/L_{MIN}	Veiling Luminance Ratio, L_V/L_{MIN}
N/A	N/A	N/A	N/A

Light Trespass

Distance to ROW (behind pole)	Max. Horizontal Illuminance at ROW, E_H	Max. Vertical Illuminance at ROW, E_V
N/A	N/A	N/A

Notes

- Set Back is from Edge of Pavement (white line) except for sign luminaires when it is vertical and horizontal distance from the sign to the luminaire.
- Lighting calculations shall be performed with all luminaires oriented toward and perpendicular to roadway.
- Total Light Loss Factor (LLF) = the product of "Lumen Maintenance" (LLD) = 0.9, "Dirt Depreciation" (LDD) = 0.8, and "Equipment Factors" (EF) = 0.95.
- Performance requirements shall be the minimum acceptable standards of photometric performance for the luminaire, based on the given conditions above.
- Lighting calculations shall be performed in one direction only.
- Compliance with performance criteria shall be held to one significant digit.
- Nominal lumen output of 50,000.

MODEL: D:\p\h\l... FILE NAME: S:\projects\2023-18 - IDOT D9 Emp 1 II P18 2023-49 - Onsite\Project Work\2218_05\CADD\CADD Sheets\0978983-1-Highmast.dgn



USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
	DRAWN - B. BARR	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED - W. STERMER	REVISED -
PLOT DATE = 3/17/2023	DATE - 3/17/2023	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LUMINAIRE PERFORMANCE TABLES

SCALE: NTS SHEET 7 OF 13 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 HMLT 2023-1	VARIOUS	17	11
CONTRACT NO. 78983			ILLINOIS FED. AID PROJECT	

A



B



MODEL: Default
 FILE NAME: S:\projects\2218 - IDOT D9 Exp II PTB 203-49 - Onsite\Project Work\2218_05\CADD\CADD Sheets\0978983-ph-Highcut.dgn

TranSmart
 100 S. Wacker Drive Suite 400
 Chicago, Illinois 60606

USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
	DRAWN - B. BARR	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED - W. STERMER	REVISED -
PLOT DATE = 3/17/2023	DATE - 3/17/2023	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

LUMINAIRE RING PHOTOS

SCALE: NTS SHEET 8 OF 13 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 HMLT 2023-1	VARIOUS	17	12
				CONTRACT NO. 78983
		ILLINOIS	FED. AID PROJECT	

C



D



E



MODEL: D:\d9\11\PTB_203-49 - Onsite\Project Work\2218_05\CADD\CADD_Sheets\0978983-ph-High\018.dgn
FILE NAME: S:\projects\2218 - IDOT D9 Exp 11\PTB_203-49 - Onsite\Project Work\2218_05\CADD\CADD_Sheets\0978983-ph-High\018.dgn

TranSmart
100 S. Wacker Drive Suite 400
Chicago, Illinois 60606

USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
	DRAWN - B. BARR	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED - W. STERMER	REVISED -
PLOT DATE = 3/17/2023	DATE - 3/17/2023	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LUMINAIRE RING PHOTOS

SCALE: NTS SHEET 9 OF 13 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 HMLT 2023-1	VARIOUS	17	13
			CONTRACT NO. 78983	
		ILLINOIS	FED. AID PROJECT	

F



G



MODEL: Default
 FILE NAME: S:\projects\2218 - IDOT D9 Exp 1 II P18 203-49 - Streets\Project Work\2218_05\CADD\CADD Sheets\0978983-ph-lighting.dgn

TranSmart
 100 S. Wacker Drive Suite 400
 Chicago, Illinois 60606

USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
	DRAWN - B. BARR	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED - W. STERMER	REVISED -
PLOT DATE = 3/17/2023	DATE - 3/17/2023	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

LUMINAIRE RING PHOTOS

SCALE: NTS SHEET 10 OF 13 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 HMLT 2023-1	VARIOUS	17	14
			CONTRACT NO. 78983	
		ILLINOIS	FED. AID PROJECT	

H



I



MODEL: Default
FILE NAME: S:\projects\2218 - IDOT D9 Exp 1 II PTS 203-49 - Otrac\Project Work\2218.05.CADD\CADD Sheets\078983-ph-light\010.dwg

TranSmart
100 S. Wacker Drive Suite 400
Chicago, Illinois 60606

USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
	DRAWN - B. BARR	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED - W. STERMER	REVISED -
PLOT DATE = 3/17/2023	DATE - 3/17/2023	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LUMINAIRE RING PHOTOS

SCALE: NTS SHEET 11 OF 13 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 HMLT 2023-1	VARIOUS	17	15
CONTRACT NO. 78983			ILLINOIS FED. AID PROJECT	

J



K



L



MODEL: Default
FILE NAME: S:\projects\2218 - IDOT D9 Exp 1 II P18 203-49 - Onsite\Project Work\2218.05\CADD\CADD Sheets\0978983-ph-High\011.dwg

TranSmart
100 S. Wacker Drive Suite 400
Chicago, Illinois 60606

USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
	DRAWN - B. BARR	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED - W. STERMER	REVISED -
PLOT DATE = 3/17/2023	DATE - 3/17/2023	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LUMINAIRE RING PHOTOS

SCALE: NTS SHEET 12 OF 13 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 HMLT 2023-1	VARIOUS	17	16
			CONTRACT NO. 78983	
		ILLINOIS	FED. AID PROJECT	

M



N



MODEL: Default
FILE NAME: S:\projects\2218 - IDOT D9 Exp 1 II PTS 203-49 - Other\Project Work\2218_05\CADD\CADD Sheets\0978983-ph-High\0112.dwg

TranSmart
100 S. Wacker Drive Suite 400
Chicago, Illinois 60606

USER NAME = bbarr	DESIGNED - B. BARR	REVISED -
	DRAWN - B. BARR	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED - W. STERMER	REVISED -
PLOT DATE = 3/17/2023	DATE - 3/17/2023	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LUMINAIRE RING PHOTOS

SCALE: NTS SHEET 13 OF 13 SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D9 HMLT 2023-1	VARIOUS	17	17
			CONTRACT NO. 78983	
		ILLINOIS	FED. AID PROJECT	