

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

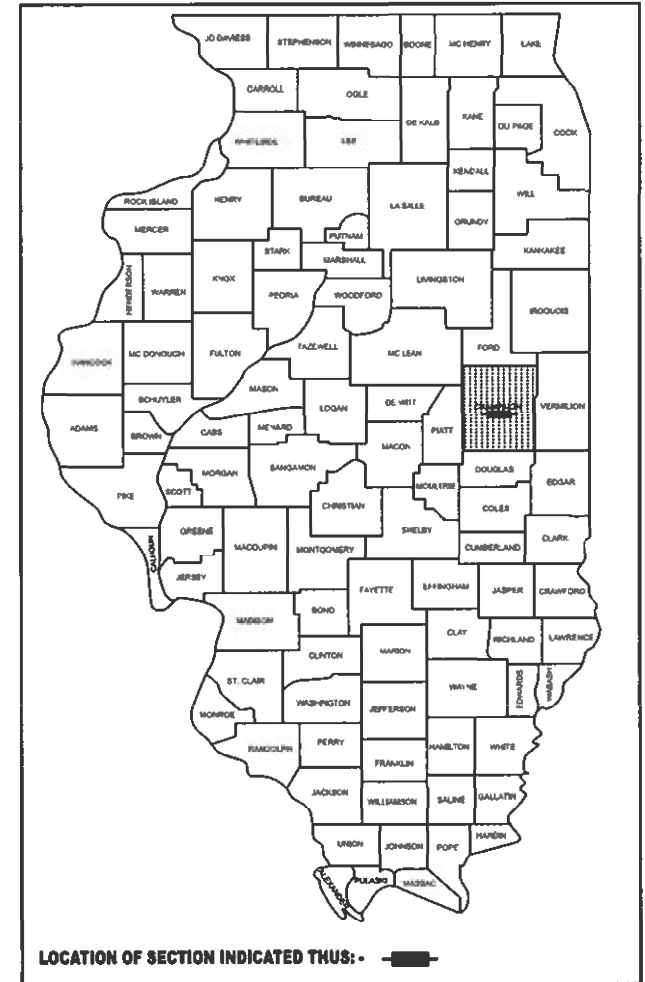
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	HMLT2024-1	CHAMPAIGN	11	1
		ILLINOIS	CONTRACT NO. 70H00	

FOR INDEX OF SHEETS, SEE SHEET NO. 2
FOR SUMMARY OF QUANTITIES SHEETS, SEE SHEET NO. 3

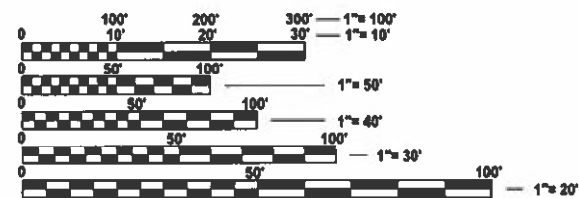
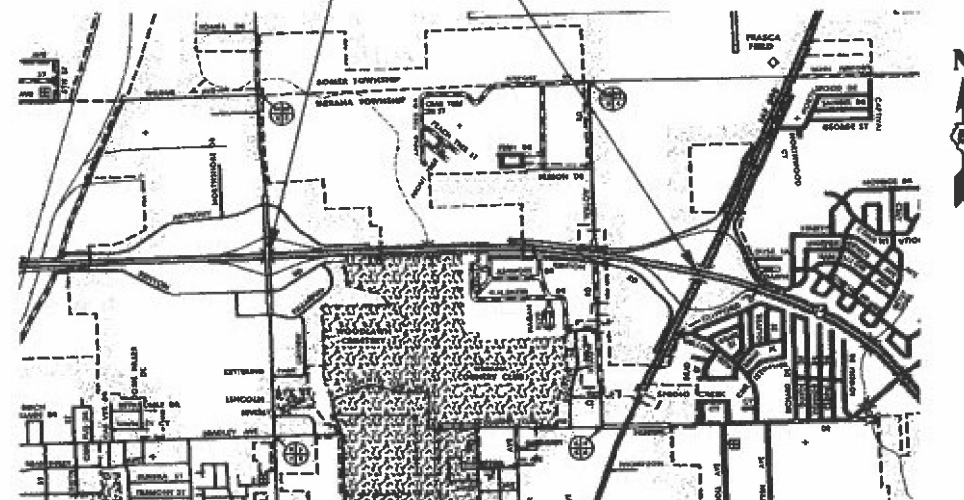
PROPOSED HIGHWAY PLANS

F.A.I. ROUTE 74 (I-74)
SECTION HMLT2024-1
PROJECT NHPP-KR3C(491)
INTERCHANGE LIGHTING IMPROVEMENTS
CHAMPAIGN COUNTY

C-95-023-24



I-74 AT FAU 7177 (LINCOLN AVE) I-74 AT FAP 800 (US RT 45/CUNNINGHAM AVE)



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: JEFF ALLEN
TELEPHONE: (217) 465-4181

CONTRACT NO. 70H00

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED 10/3 2023
Kenneth A. Barnettson
REGIONAL ENGINEER

December 8, 2023
Steph M. Smith
ENGINEER OF DESIGN AND ENVIRONMENT

December 8, 2023
Steph M. Smith
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

I-74 & LINCOLN AVE
CONTROLLER 53

EXISTING POLE NUMBER	STATION	LOCATION
27	248+40	RAMP
28	251+70	RAMP
29	253+80	RAMP
32	7+55	LINCOLN AVE
33	247+00	RAMP
34	250+67	RAMP
35	252+66	RAMP
36	13+70	LINCOLN AVE
39	11+35	LINCOLN AVE

CONTROLLER 54

EXISTING POLE NUMBER	STATION	LOCATION
15	261+40	RAMP
16	258+70	RAMP
17	256+00	RAMP
18	6+30	LINCOLN AVE
20	8+80	LINCOLN AVE
21	259+90	RAMP
22	256+63	RAMP
23	254+60	RAMP
27	12+60	LINCOLN AVE

LEGEND



EXISTING LIGHT POLE TO REMAIN.



EXISTING LIGHT POLE TO BE REPLACED WITH NEW LIGHT POLE, ALUMINUM, 45 FT M.H., 15 FT DAVIT ARM AND LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H. PROPOSED POLES SHOULD MATCH THE EXISTING BOLT PATTERN ON THE EXISTING FOUNDATIONS.



POLES ARE IDENTIFIED WITH POLYGON INDICATING CIRCUIT NUMBER OVER POLE NUMBER

Luminaire Performance Table

Project
Date

08/11/23	70H00	N/A	Champaign
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Marked Route Number

I-74	Champaign
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Roadway

Lane Width # of Lanes Median Width I.E.S. Surface Classification Q-Zero Value

12	3	N/A	R3	0.07
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Structure

Mounting Height Arm Length Set-Back Number of Luminaires (Highmast & Sign Lighting Only)

45 ft	15 ft	15 ft	N/A
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Luminaire

Description I.E.S. Lateral Distribution I.E.S. Vertical Distribution

Luminaire, LED, Roadway, Output H	Type III	Medium
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Total Light Loss Factor (LLF) B-U-G Rating Shields Dimming Protocol

0.7	U = 0	N/A	0-10V
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Layout

Spacing (to Nearest 5 ft) Configuration (Opposite, Staggered, 1 Sided, or Median)

165 ft	1 Side
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Performance

Average Illuminance, E_{AVE} (fc) Uniformity Ratio, E_{AVE}/E_{MIN}

0.8 to 1.4	less than or equal to 3.0:1
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Average Luminance, L_{AVE} (cd/m²) Uniformity Ratio, L_{AVE}/L_{MIN} Uniformity Ratio, L_{MAX}/L_{MIN} Veiling Luminance Ratio, L_V/L_{AVE}

0.6 to 0.9	less than or equal to 3.5:1	less than or equal to 6.0:1	less than or equal to 0.3:1
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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
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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 the 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 listed above.

Calculations shall be performed in one direction only.
Compliance with performance criteria shall be held to one significant digit.
Initial lumens of the proposed luminaire may vary from the values specified in the table given in Article 1067.06 of the BDE Special Provision for Luminaire, LED.

MODEL: \\MODELNAME; FILE NAME: \\PROJECTNAME; PROJECT: \\PROJECTNAME; PROJECT DATE: 11/13/2023; PROJECT LOCATION: I-74 & LINCOLN AVE; PROJECT SHEET: 74; PROJECT COUNTY: CHAMPAIGN; PROJECT CONTRACT NO.: 70H00

USER NAME = Justin.Cearlock	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 0.16666633 / in.	CHECKED -	REVISED -
PLOT DATE = 11/13/2023	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

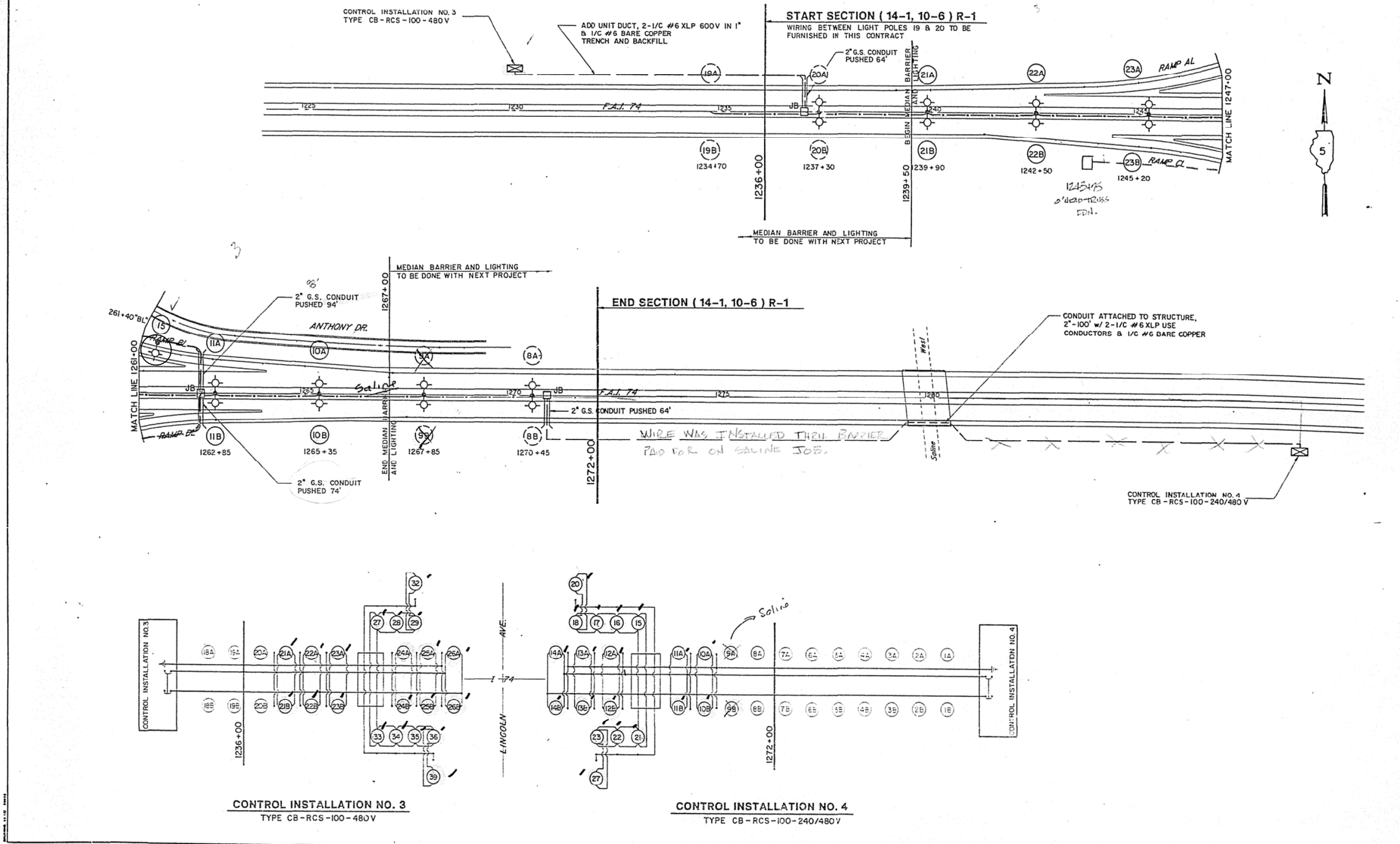
I-74 & LINCOLN AVE
CONTROLLER 53 & 54

SCALE: 1"=20' SHEET 1 OF 3 SHEETS STA. ___+___ TO STA. ___+___

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	HMLT2024-1	CHAMPAIGN	11	4
CONTRACT NO. 70H00				
ILLINOIS FED. AID PROJECT				

THIS SHEET FOR
INFORMATION PURPOSES ONLY.

ROUTE NO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 74	*	CHAMPAIGN	166	69
STA.	TO STA.			
FED. ROAD DIST. NO. 7	ILLINOIS PROJECT			
* (14HB-3) BRK				



BRIGHTON ENGINEERING COMPANY CONSULTING ENGINEERS

LIGHTING

MODEL: HMODELNAME
 FILE NAME: P:\PROJECTS\Documents\DOT Office\District 5\ORD Project\14-1\10-6\14-1-10-6-53-54-69-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000

USER NAME = Justin.Cearlock	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 0.16666633' / in.	CHECKED -	REVISED -
PLOT DATE = 8/7/2023	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

I-74 & LINCOLN AVE CONTROLLER 53 & 54	
SCALE: 1"=20'	SHEET 3 OF 3 SHEETS
STA. ___+___	TO STA. ___+___

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	HMLT2024-1	CHAMPAIGN	11	6
CONTRACT NO. 70H00				
ILLINOIS FED. AID PROJECT				

I-74 & US 45 (CUNNINGHAM AVE)
CONTROLLER 55

EXISTING POLE NUMBER	STATION	LOCATION
1	320+95	RAMP
2	318+15	RAMP
3	315+35	RAMP
4	312+40	RAMP
5	309+60	RAMP
6	33+00	CUNNINGHAM AVE
7	37+00	CUNNINGHAM AVE
8	41+00	CUNNINGHAM AVE
9	323+50	OMIT REPLACED IN 2020
10	320+75	RAMP
11	318+00	RAMP
12	315+30	RAMP
13	312+60	RAMP
14	45+10	CUNNINGHAM AVE
15	49+40	CUNNINGHAM AVE
16	54+60	CUNNINGHAM AVE
17	28+60	CUNNINGHAM AVE
18	31+00	RAMP
19	26+00	OMIT REPLACED IN 2021
20	319+80	RAMP
21	35+00	CUNNINGHAM AVE
22	39+00	CUNNINGHAM AVE
23	43+00	CUNNINGHAM AVE
24	320+75	RAMP
25	47+00	CUNNINGHAM AVE
26	51+85	CUNNINGHAM AVE
27	56+80	CUNNINGHAM AVE
28	323+60	RAMP
29	326+30	RAMP
30	329+05	RAMP
31	331+80	RAMP
32	322+40	OMIT REPLACED IN 2021
33	325+10	RAMP
34	327+85	RAMP
43	1343+20	INTERSTATE 74
44	1343+20	INTERSTATE 74
45	1345+90	INTERSTATE 74
46	1345+90	INTERSTATE 74
47	1348+60	INTERSTATE 74
48	1348+60	INTERSTATE 74

LEGEND



EXISTING LIGHT POLE TO REMAIN.



EXISTING LIGHT POLE TO BE REPLACED WITH NEW LIGHT POLE, ALUMINUM, 45 FT M.H., 15 FT DAVIT ARM AND LUMINAIRE, LED, ROADWAY, OUTPUT DESIGNATION H. PROPOSED POLES SHOULD MATCH THE EXISTING BOLT PATTERN ON THE EXISTING FOUNDATIONS.



POLES ARE IDENTIFIED WITH POLYGON INDICATING CIRCUIT NUMBER OVER POLE NUMBER

Luminaire Performance Table

Project

Date	Contract Number	Section Number	County
08/11/23	70H00	N/A	Champaign
Marked Route Number	Municipality		
I-74	Champaign		

Roadway

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

Structure

Mounting Height	Arm Length	Set-Back	Number of Luminaires (Highmast & Sign Lighting Only)
45 ft	15 ft	15 ft	N/A

Luminaire

Description	I.E.S. Lateral Distribution	I.E.S. Vertical Distribution	
Luminaire, LED, Roadway, Output H	Type III	Medium	
Total Light Loss Factor (LLF)	B-U-G 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)
165 ft	1 Side

Performance

Average Illuminance, E_{AVE} (fc)	Uniformity Ratio, E_{AVE}/E_{MIN}		
0.8 to 1.4	less than or equal to 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_{AVE}
0.6 to 0.9	less than or equal to 3.5:1	less than or equal to 6.0:1	less than or equal to 0.3:1

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 the 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 listed above.

Calculations shall be performed in one direction only.
Compliance with performance criteria shall be held to one significant digit.
Initial lumens of the proposed luminaire may vary from the values specified in the table given in Article 1067.06 of the BDE Special Provision for Luminaire, LED.

MODEL: R:\MODEL\NAMES
FILE NAME: P:\Bids\2024\70H00\Documents\DOT Office\District 5\ORD Project\0570H00\CADD\0570H00-55-01-01.dwg

USER NAME = Justin.Cearlock	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 0.16666633' / in.	CHECKED -	REVISED -
PLOT DATE = 11/13/2023	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

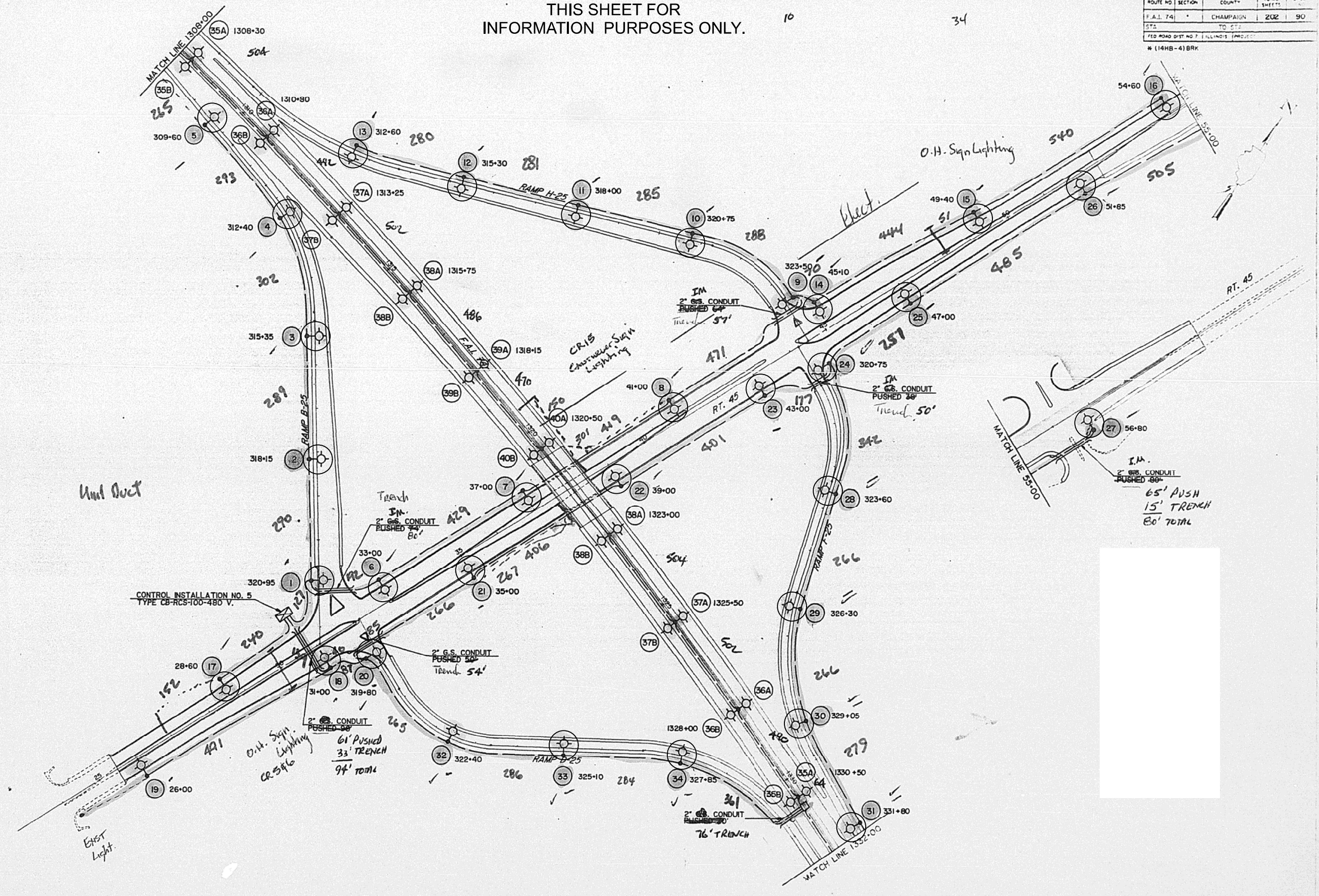
I-74 & US RT 45 / CUNNINGHAM AVE
CONTROLLER 55

SCALE: 1"=20' SHEET 1 OF 4 SHEETS STA. ___+___ TO STA. ___+___

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	HMLT2024-1	CHAMPAIGN	11	7
CONTRACT NO. 70H00				
ILLINOIS FED. AID PROJECT				

THIS SHEET FOR INFORMATION PURPOSES ONLY.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 74		CHAMPAIGN	202	90
STA.	TO STA.			
FED. ROAD DIST. NO. 7	ILLINOIS (PROJECT)			
* (14HB-4) BRK.				



Unduct

CONTROL INSTALLATION NO. 5
TYPE CB-RCS-100-480 V.



BRIGHTON ENGINEERING COMPANY CONSULTING ENGINEERS

LIGHTING

MODEL: HML2024-1
FILE NAME: P:\HML2024-1\DOT Office\Direct\50RD Project\DOT\HML2024-1\CAD\Drawings\50RD\HML2024-1\Lighting.dwg

USER NAME = Justin.Cearlock	DESIGNED -	REVISED -
	DRAWN -	REVISED -
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PLOT DATE = 8/7/2023	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

I-74 & US RT 45 / CUNNINGHAM AVE
CONTROLLER 55

SCALE: 1"=20' SHEET 3 OF 4 SHEETS STA. ___+___ TO STA. ___+___

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
74	HML2024-1	CHAMPAIGN	11	9
CONTRACT NO. 70H00				
ILLINOIS FED. AID PROJECT				

