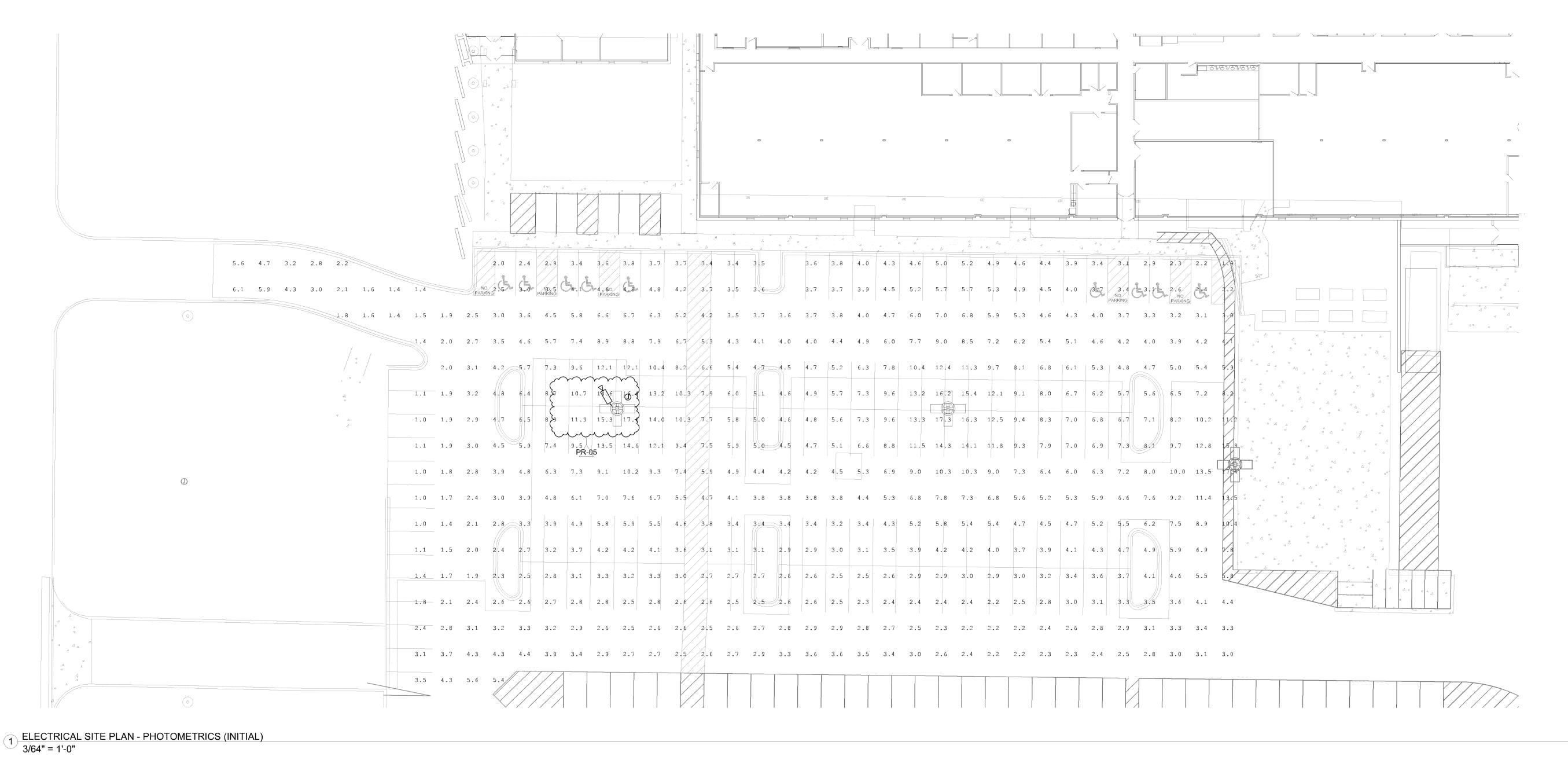
CASE #PL2021-255



LIGHTING PLAN APPROVED

SCITY OF BLOOMINGTON NMJ

OR/17/2022



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WAFER SOUTH



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consulting engineering

Dunham Project #: 0421037-000-00

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by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Name	Todd R. Grub	oe, P.I
Date	Reg. No.	4051

Issued For

	ltem	Date
	BP-03 GMP ISSUE	03/08/2022
	BP-02 PERMIT SET	05/24/2022
	BP-03 CD ISSUE	06/10/2022
	PR-05	TBD
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ELECTRICAL SITE PLAN
WEST - INITIAL
LIGHTING CALCS

IGHTING CALCS

CASE #PL2021-255 4.5 3.8 2.6 2.3 1.8 $0.8 \quad 1.5 \quad 2.4 \quad 3.1 \quad 4.1 \quad 5.4 \quad 6.9 \quad 8.9 \quad 9.0 \quad 8.2 \quad 6.5 \quad \boxed{5.3} \quad 4.3 \quad 3.9 \quad 3.7 \quad 3.7 \quad 3.9 \quad 4.7 \quad 6.1 \quad 7.9 \quad 9.0 \quad 9.0 \quad 7.9 \quad 6.4 \quad 5.6 \quad 5.2 \quad 5.5 \quad 6.2 \quad 7.0 \quad 8.6 \quad 11.7 \quad 9.0 \quad$ $0.8 \quad 1.4 \quad 2.1 \quad 2.6 \quad 3.3 \quad 4.3 \quad 5.5 \quad 6.6 \quad 6.6 \quad 6.0 \quad 4.9 \quad \cancel{\cancel{3}} \cancel{\cancel{9}} \quad 3.4 \quad 3.5 \quad 3.3 \quad 3.4 \quad 3.8 \quad 4.7 \quad 5.9 \quad 6.8 \quad 6.4 \quad 6.0 \quad 4.9 \quad 4.5 \quad 4.6 \quad 5.2 \quad 5.8 \quad 6.6 \quad 8.0 \quad 9.9 \quad \cancel{\cancel{1}} \cancel{\cancel{\cancel{3}}} \cancel{\cancel{\cancel{9}}} \cancel{\cancel{9}} \cancel{\cancel{\cancel{9}}} \cancel{\cancel{9}} \cancel{\cancel{\cancel{9}}} \cancel{$ 2.1 2.4 2.7 2.8 2.8 2.7 2.5 2.3 2.2 2.2 2.2 2.2 2.3 2.4 2.5 2.5 2.5 2.4 2.2 2.0 1.9 1.9 1.9 2.1 2.2 2.4 2.5 2.7 2.8 2.9 2.9 2.7 3.2 3.7 3.8 3.4 2.9 2.5 2.4 2.3 2.2 2.3 2.5 2.9 3.2 3.1 3.1 2.9 2.6 2.3 2.1 1.9 1.9 2.0 2.0 2.1 2.2 2.4 2.6 2.7 2.6 3.0 3.7 4.9 4.6// 1 ELECTRICAL SITE PLAN - PHOTOMETRICS (MAINTAINED) LIGHTING PLAN APPROVED



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50 South Sixth Street / Suite 1100 Minneapolis, Minnesota 55402-1540 PHONE 612.465.7550 FAX 612.465.7551 weв dunhameng.com mechanical + electrical consulting engineering Dunham Project #: 0421037-000-00

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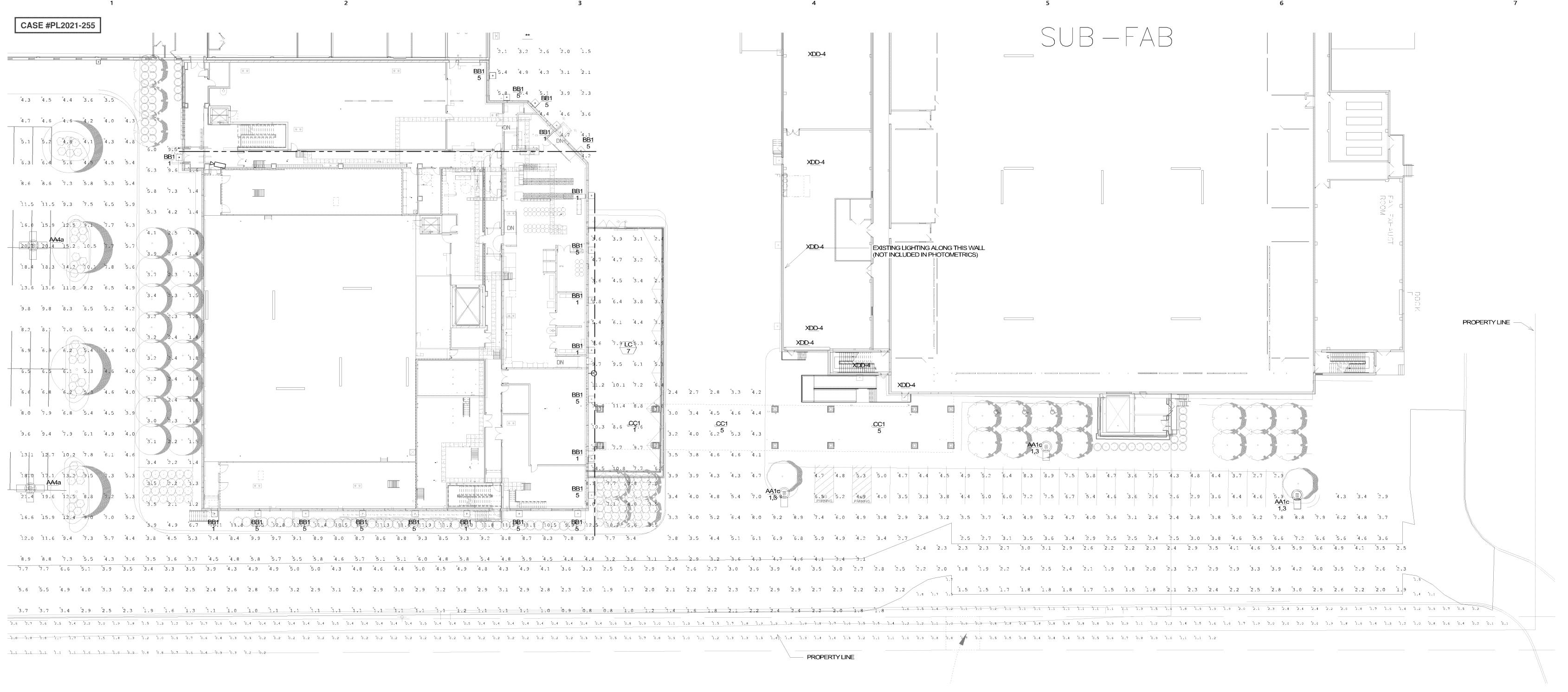
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Name	Todd R. Gr	ube, P
Date	Reg. No.	405

	item	Date
	BP-03 GMP ISSUE	03/08/202
	BP-02 PERMIT SET	05/24/202
	BP-03 CD ISSUE	06/10/202
	PR-05	TBD
E		

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ELECTRICAL SITE PLAN WEST - MAINTAINED LIGHTING CALCS



ELECTRICAL SITE PLAN - PHOTOMETRICS (INITIAL) [/] 3/64" = 1'-0"

LIGHTING PLAN APPROVED

GENERAL NOTES: A. FIXTURES UTILIZED IN THIS CALCULATION HAVE A 0.9 LIGHT LOSS

KEY NOTES: 1 NOTE NOT USED.

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Dock	Illuminance	Fc	3.78	5.8	1.5	2.52	3.87
Electrical Yard	Illuminance	Fc	6.67	14.5	2.4	2.78	6.04
Exit of Wafer East_Top	Illuminance	Fc	6.72	14.4	1.9	3.54	7.58
Landscaping	Illuminance	Fc	5.33	13.5	1.2	4.44	11.25
Landscaping_1	Illuminance	Fc	1.04	2.7	0.1	10.40	27.00
Parking Lot	Illuminance	Fc	6.18	21.4	2.4	2.58	8.92
Perimeter Calculation	Illuminance	Fc	2.80	7.7	0.8	3.50	9.63
Ramp_Top	Illuminance	Fc	9.89	11.9	6.4	1.55	1.86
Stair Landing_Top_1	Illuminance	Fc	11.20	13.1	8.9	1.26	1.47



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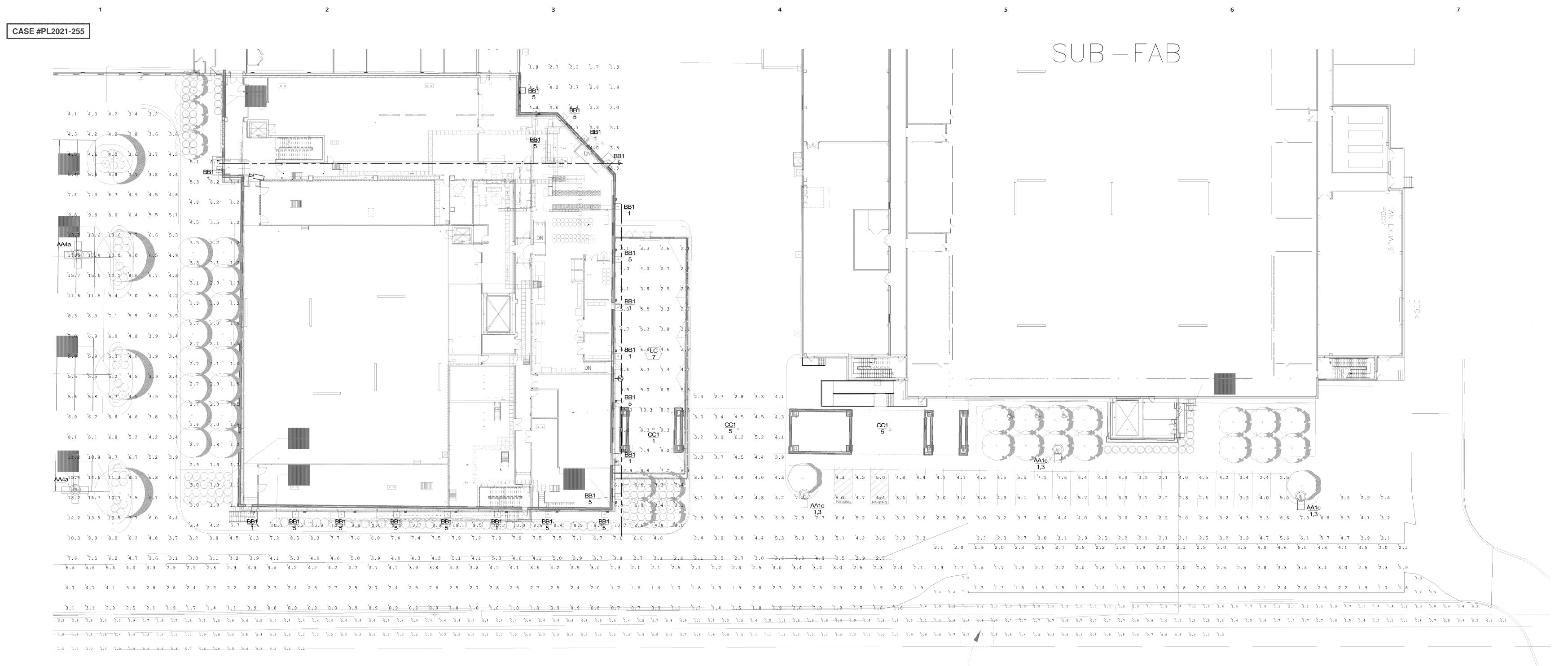
Todd R. Grube, P.E. Date **03/08/2022**

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Item CITY RESUBMITTAL BP-03 GMP ISSUE **BP-02 PERMIT SET**

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ELECTRICAL SITE PLAN -INITIAL LIGHTING CALCS



ELECTRICAL SITE PLAN - PHOTOMETRICS (MAINTAINED) [/] 3/64" = 1'-0"

GENERAL NOTES: A. FIXTURES UTILIZED IN THIS CALCULATION HAVE A 0.8 LIGHT LOSS

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Dock	Illuminance	Fc	3.21	4.9	1.3	2.47	3.77
Electrical Yard	Illuminance	Fc	5.92	12.9	2.1	2.82	6.14
Exit of Wafer East_Top	Illuminance	Fc	6.51	14.4	1.7	3.83	8.47
Landscaping	Illuminance	Fc	4.54	11.5	1.0	4.54	11.50
Landscaping_1	Illuminance	Fc	0.90	2.3	0.1	9.00	23.00
Parking Lot	Illuminance	Fc	5.34	18.2	2.0	2.67	9.10
Perimeter Calculation	Illuminance	Fc	2.39	6.6	0.7	3.41	9.43
Ramp_Top	Illuminance	Fc	8.43	10.1	5.5	1.53	1.84
Stair Landing_Top_1	Illuminance	Fc	9.54	11.1	7.6	1.26	1.46



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Todd R. Grube, P.E. Date **03/08/2022** Reg. No. 40518

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ELECTRICAL SITE PLAN -MAINTAINED LIGHTING CALC

ELECTI	RICAL																							
				LAM	PS			POLE DESCRIPTION							BASE DESCRIPTION									
FIXTURE LETTER	FIXTURE STYLE	VOLTAGE	MOUNTING	TYPE	COLOR	BALLAST/ DRIVER	CONTROL MEDIA (LENS, LOUVER, ETC.)	MANUFACTURER'S SERIES NUMBER	FIXTURE DESCRIPTION	POLE LENGTH	POLE SHAPE	POLE MATERIAL	POLE COLOR/ FINISH	FIXTURE MOUNTING	SUPPORTS CCTV CAMERA (EPA RATING)	SUPPORTS FLAG OR BANNER (EPA RATING)	INTEGRAL DUPLEX RECEPT.	VIBRATION DAMPERS	FOUNDATION	HEIGHT ABOVE	BASE DEPTH BELOW GRADE	BASE DIAMETER	VERTICAL REBARS	REBAR TIES
AA1c	POLE MOUNTED AREA LIGHT - 1 HEAD	480/1	POLE	40625 LUMENS	4000K	1A DRIVE CURRENT	TYPE 4 DISTRIBUTION	NLS LIGHTING NV-2 SERIES LITHONIA D-SERIES SIZE 2 HUBBELL AIRO ASL2 SERIES	DARK SKY COMPLIANT, DIE-CAST ALUMINUM CONSTRUCTION, TOOLESS OPENING, MATCH COLOR LISTED IN EXTERIOR LIGHT POLE SCHEDULE	25'	TAPERED ROUND	STEEL	BRONZE	ARM	YES	NO	NO	YES	CONCRETE	36"	120"	24"	#4 @ 18" O.C.	(6) #7
AA4a	POLE MOUNTED AREA LIGHT - 4 HEAD	277/1	POLE	30000 LUMENS	4000K	1A DRIVE CURRENT	TYPE 4 DISTRIBUTION	NLS LIGHTING NV-2 SERIES HUBBELL AIRO ASL2 SERIES COOPER MCGRAW EDISON GLEON	DARK SKY COMPLIANT, DIE-CAST ALUMINUM CONSTRUCTION, TOOLESS OPENING, MATCH COLOR LISTED IN EXTERIOR LIGHT POLE SCHEDULE	25'	TAPERED ROUND	STEEL	BRONZE	ARM	YES	NO	NO	YES	CONCRETE	36"	120"	24"	#4 @ 18" O.C.	(6) #7
BB1	WEATHER PROOF WALL PACK	277	WALL	9550 LUMENS	4000K	1A DRIVE CURRENT	TYPE 4 DISTRIBUTION	NLS LIGHTING NV-W SERIES COOPER MCGRAW EDISON GWC LITHONIA WPX SERIES HUBBELL AIRO ASL1 SERIES	DARK SKY COMPLIANT, WHITE FINISH, DIE-CAST ALUMINUM, MOUNT AT 14'															
CC1	14" WEATHER PROOF GARAGE LIGHT	277	SURFACE	12030 LUMENS	4000K	1A DRIVE CURRENT	TYPE 5WQ DISTRIBUTION	NLS VSR-S SERIES KIM LIGHTING PGL8 SERIES LITHONIA VCPG SERIES	WHITE FINISH, SPUN ALUMINUM, CORROSION RESISTANT EXTERNAL HARDWARE, GASKETED, IP65/67 RATED															
XBB-1	EXISTING TO REMAIN BOLLARD									-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CASE #PL2021-255

LIGHTING PLAN APPROVED

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DN: CN=Todd R Grube. OU=A01410D0000017314D3D24C00001962, O=Unaffiliated, Contact Info: todd,grube@dunhameng.com Date: 2022.06.09 13:33:47-05'00'

Date **06/10/2022**

Issued For BP-02 + BP-03 DD ISSUE BP-03 GMP ISSUE **BP-03 CD ISSUE**

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ELECTRICAL LIGHTING SCHEDULES

GENERAL ELECTRICAL NOTES: A. REFER TO SPECIFICATION SECTIONS 265100 AND 265600 FOR LIGHT FIXTURE REQUIREMENTS.

B. BRING CONFLICTS BETWEEN THE MANUFACTURER'S CATALOG NUMBER AND DESCRIPTIONS TO THE ATTENTION OF THE ENGINEER.

C. LIGHT SOURCE SHALL HAVE COLOR TEMPERATURE 4000K WITH MINIMUM CRI OF 80 UNLESS OTHERWISE NOTED. D. UNLESS A SPECIFIC CATALOG NUMBER OR SERIES IS NAMED, THE MANUFACTURER'S NAMED ALTERNATES MUST SUBMIT CATALOG CUT SHEETS AND IES FORMATTED PHOTOMETRIC REPORT

TO THE ENGINEER FOR APPROVAL AT LEAST 10 DAYS PRIOR TO BID DATE. THE ENGINEER MAY REQUEST SAMPLE OF LUMINAIRE TO BE SUPPLIED. MINIMUM LUMENS LISTED FOR LIGHT FIXTURES ARE DELIVERED LUMENS BASED ON PHOTOMETRIC TESTING COMPLETED IN ACCORDANCE WITH IES LM-79 STANDARDS. SUBSTITUTE LIGHT FIXTURE IS SUBJECT TO ARCHITECT/ENGINEER APPROVAL.

. VERIFY EXISTING POLE SHAPE, MATERIAL AND FINISH WITH EXISTING POLES ON SITE PRIOR TO PURCHASING.

ווכו	HT FIXTURE SCHEDULE									
	TRICAL									
FIXTURE				LAMPS						
LETTER A4A		VOLTAGE 120/277	MOUNTING LAY-IN GRID INVERTED TEE	TYPE LED 4500 LUM MIN	COLOR AMBER	BALLAST/ DRIVER DIMMING 0-10V (10%)	CONTROL MEDIA (LENS, LOUVER, ETC.) ACRYLIC OVERLAY, UPPER REFLECTOR PAINTED WHITE	MANUFACTURER'S SERIES NUMBER KURTZON TL SERIES CETROLUX CRUI RED/AMBER SERIES	FIXTURE DESCRIPTION POST PAINTED STEEL HOUSING	NOTE
A4C	2X4 LED TROFFER, ISO-5 RATED	120/277	LAY-IN GRID INVERTED TEE	LED 9000 LUM MIN	4000K	DIMMING 0-10V (10%)	WHITE ACRYLIC OVERLAY, UPPER REFLECTOR PAINTED WHITE	KURTZON TL SERIES LITHONIA SRTL SERIES COOPER CLP LD4 SERIES	POST PAINTED STEEL HOUSING	
A5C	1X4 LED TROFFER, ISO-5 RATED	120/277	LAY-IN GRID INVERTED TEE	LED 9000 LUM MIN	4000K	DIMMING 0-10V (10%)	WHITE ACRYLIC OVERLAY, UPPER REFLECTOR PAINTED WHITE	KURTZON TL SERIES LITHONIA SRTL SERIES COOPER CLP LD4 SERIES	POST PAINTED STEEL HOUSING	
A6	2X4 LED VOLUMETRIC TROFFER	120/277	LAY-IN GRID INVERTED TEE	LED 4800 LUM MIN	4000K	DIMMING 0-10V (10%)	WHITE ACRYLIC OVERLAY, UPPER REFLECTOR PAINTED WHITE	LITHONIA 2BLT SERIES COOPER-METALUX CZ SERIES COLUMBIA LCAT SERIES	POST PAINTED STEEL HOUSING	
A6D	2X4 LED VOLUMETRIC TROFFER	120/277	RECESSED GYP-BOARD	LED 4800 LUM MIN	4000K	DIMMING 0-10V (10%)	WHITE ACRYLIC OVERLAY, UPPER REFLECTOR PAINTED WHITE	LITHONIA 2BLT SERIES COOPER-METALUX CZ SERIES COLUMBIA LCAT SERIES	POST PAINTED STEEL HOUSING. DRYWALL FRAME KIT.	
В6	2X2 LED VOLUMETRIC TROFFER	120/277	LAY-IN GRID INVERTED TEE	LED 4000 LUM MIN	4000K	DIMMING 0-10V (10%)	SMOOTH, FROSTED ACRYLIC LENS	COOPER-METALUX CZ SERIES COLUMBIA LCAT SERIES LITHONIA 2BLT SERIES	SPRING LATCHES, POST PAINTED STEEL HOUSING, FLUSH WHITE ALUM. MITERED CORNERED DOOR FRAME, GASKETED	
C4 D4	24" VANITY SCONCE LED 4" ROUND DOWNLIGHT	120/277 120/277	WALL RECESSED GYP-BOARD AND/OR LAY-IN GRID INVERTED TEE	LED XXX LUM MIN LED 1000 LUM MIN	3500K 3500K	DIMMING 0-10V (10%) DIMMING 0-10V (1%)	TO BE DETERMINED SEMI-SPECULAR CLEAR SELF FLANGED MEDIUM DISTRIBUTION	TO BE DETERMINED HALO COMMERCIAL HC4 SERIES PRESCOLITE LF4 SERIES LITHONIA LDN4 SERIES	TO BE DETERMINED PRE-PAINTED WHITE ALUMINUM HOUSING, PRE-WIRED J-BOX, TWO 27 HANGER BARS	
D6	6" ROUND DOWNLIGHT	120/277	RECESSED GYP-BOARD AND/OR LAY-IN GRID INVERTED TEE	LED 1500 LUM MIN	3500K	DIMMING 0-10V (1%)	SEMI-SPECULAR CLEAR SELF FLANGED MEDIUM DISTRIBUTION	LITHONIA LDN6 SERIES HALO COMMERCIAL HC6 SERIES PRESCOLITE LF6 SERIES	PRE-PAINTED WHITE ALUMINUM HOUSING, PRE-WIRED J-BOX, TWO 27" HANGER BARS	
E1	EXIT SIGN, SINGLE FACE, EDGE LIT, AC ONLY	120/277	RECESSED	LED	RED	N/A	RED LETTERS	ISOLITE ELT SERIES DUAL LITE LE SERIES EVENLITE SOV SERIES	BRUSHED ALUMINUM BASE, CLEAR FACE, MIRROR BACK, UNIVERSAL FACEPLATE KIT, MOUNTING PER FLOOR PLAN. AC ONLY UL924	
E1E	EXIT SIGN, SINGLE FACE, CLASS 1 DIV.2, AC ONLY	120/277	RECESSED	LED	RED	N/A	RED LETTERS	LIGHTING SOURCE #SVX SERIES OR APPROVED EQUAL	ALUMINUM BASE, MOUNTING PER FLOOR PLAN. AC ONLY UL924	
E2	EXIT SIGN, DOUBLE FACE, EDGE LIT, AC ONLY	120/277	RECESSED	LED	RED	N/A	RED LETTERS	ISOLITE ELT SERIES DUAL LITE LE SERIES EVENLITE SOV SERIES	BRUSHED ALUMINUM BASE, CLEAR FACE, MIRROR BACK, UNIVERSAL FACEPLATE KIT, MOUNTING PER FLOOR PLAN. AC ONLY UL924	
E5	EXIT SIGN, SINGLE FACE, POLYCARBONATE, AC ONLY	120/277	RECESSED	LED	RED	N/A	RED LETTERS, STENCIL	ISOLITE RL SERIES DUAL LITE EVE SERIES LITHONIA LOM SERIES	WHITE FINISH, POLYCARBONATE CONSTRUCTION, UNIVERSAL FACEPLATE KIT, MOUNTING PER FLOOR PLAN. AC ONLY UL924	
F4	4' INDUSTRIAL	120/277	SURFACE/ CHAIN HUNG	LED 6000 LUM MIN	4000K	DIMMING 0-10V (10%)	FROSTED ACRYLIC LENS, WIDE DISTRIBUTION	COOPER-METALUX SNLED SERIES COLUMBIA MPS SERIES LITHONIA ZL1N SERIES	STEEL CHANNEL, WHITE POWDER COAT	
F6	4' INDUSTRIAL, GASKETED VAPORTITE	120/277	SURFACE/ CHAIN HUNG	LED 6000 LUM MIN	4000K	DIMMING 0-10V (10%)	ACRYLIC, FROSTED LENS	LITHONIA FEM LED SERIES COOPER-METALUX 4VT2-LD4 SERIES COLUMBIA LXEM SERIES	WET LOCATION, IP-65	
F8	8' INDUSTRIAL, GASKETED VAPORTITE	120/277	SURFACE/ CHAIN HUNG	LED 9000 LUM MIN	4000K	DIMMING 0-10V (10%)	ACRYLIC, FROSTED LENS	LITHONIA FEM LED SERIES COOPER-METALUX 4VT2-LD4 SERIES COLUMBIA LXEM SERIES	WET LOCATION, IP-65	
FE	4' INDUSTRIAL CLASS 1, DIV.2	120/277	SURFACE/ CHAIN HUNG	LED 8200 LUM MIN	4000K	DIMMING 0-10V (10%)	FROSTED ACRYLIC LENS, WIDE DISTRIBUTION	AZZ #XP LED SERIES PETROLUX EMXH SERIES LIGHTLOGIX LL-I SERIES OR ENGINEER APPROVED EQUAL	STEEL CHANNEL, WHITE POWDER COAT	
J4	4' LENSED WALL BRACKET FOR STAIRWAY	120/277	SURFACE MOUNTED	LED 4000 LUM MIN	3500K	DIMMING 0-10V (10%)	CLEAR ACRYLIC LENS	COOPER-METALUX 4SWLED SERIES COLUMBIA LBIL SERIES LITHONIA CLX SERIES	POST PAINTED STEEL HOUSING, ONE ELECTRONIC DRIVER, INTEGRAL 360 DEGREE MOTION SENSOR TO REDUCE LIGHTING OUTPUT TO 50% WITHIN 30 MINUTES OF INACTIVITY	
L2B	1" X 8' BAFFLE LINEAR	120/277	INTEGRAL BAFFLE	LED 210 LUM/FT	3500K	DIMMING 0-10V (10%)	FLUSH, SNAP-IN SATIN LENS	TURF SLAB LED OR EQUAL	CONTINUOUS WHITE ALUMINUM HOUSING	
L4	4" X 4' RECESSED LINEAR	120/277	LAY-IN GRID INVERTED TEE	LED 600 LUM/FT	3500K	DIMMING 0-10V (10%)	FLUSH, SNAP-IN SATIN LENS	NULITE RG4 SERIES AXIS BEAM 4 SERIES MARK SL4L SERIES	CONTINUOUS WHITE ALUMINUM HOUSING	
L4A	4' LINEAR TEARDROP - AMBER LIGHT	120/277	SURFACE	LED 1600 LUM MIN	AMBER	DIMMING 0-10V (10%)	ACRYLIC AMBER LENS. SMOOTH EXTERIOR.	KURTZON KL SERIES CERTOLUX CRTD SERIES COOPER CFA SERIES	EXTRUDED ALUMINUM HOUSING, STEEL END PLATE. ANTI-MICROBIAL MATT WHITE FINISH. ONE PIECE GASKET BETWEEN LENS AND ENDPLATE. AMBER OUTPUT.	1,2
L5	4" X 6' RECESSED LINEAR	120/277	LAY-IN GRID INVERTED TEE	LED 400 LUM/FT	3500K	DIMMING 0-10V (10%)	FLUSH, SNAP-IN SATIN LENS	NULITE RG4 SERIES AXIS BEAM 4 SERIES MARK SL4L SERIES FOCAL POINT FSM4 SERIES	CONTINUOUS WHITE ALUMINUM HOUSING	
L8A	8' LINEAR TEARDROP - AMBER LIGHT	120/277	SURFACE	LED 3200 LUM MIN	AMBER	DIMMING 0-10V (10%)	ACRYLIC AMBER LENS. SMOOTH EXTERIOR.	KURTZON KL SERIES CERTOLUX CRTD SERIES COOPER CFA SERIES	EXTRUDED ALUMINUM HOUSING, STEEL END PLATE. ANTI-MICROBIAL MATT WHITE FINISH. ONE PIECE GASKET BETWEEN LENS AND ENDPLATE. AMBER OUTPUT.	1,2
R1	WEATHER PROOF WALL PACK - QUARTER SPHERE	120/277	WALL	LED XXX LUM MIN	3500K	DIMMING 0-10V	CLEAR TEMPERED GLASS, TYPE III DISTRIBUTION	COOPER-MCGRAW-EDISON ISS SERIES HUBBELL QSP SERIES LITHONIA WSQ SERIES	BRONZE, INTEGRAL PHOTOCELL	
T4	TAPE LIGHT	120	SURFACE/CHANNEL	LED 100 LUM/FT	3500K	DIMMING 0-10V (10%)	LENSED CHANNEL (110°)	ACCLAIM LIGHTING FLEX ONE HO SERIES KELVIX PQ SERIES NOVA FLEX SERIES JUNO IO414 SERIES	THIN FLEXIBLE LED STRIP, ANODIZED ALUMINUM CHANNEL, PROVIDE CONTINUOUS LENGTH AS INDICATED	

GENERAL ELECTRICAL NOTES: FIXTURE MUST FILTER UV SPECTRUM UP TO 500nm.
 AMBER LIGHT FIXTURE MUST BE SILICONE FREE. . REFER TO SPECIFICATION SECTIONS 265100 AND 265600 FOR LIGHT FIXTURE REQUIREMENTS.

B. BRING CONFLICTS BETWEEN THE MANUFACTURER'S CATALOG NUMBER AND DESCRIPTIONS TO THE ATTENTION OF THE ENGINEER. : LIGHT SOURCE SHALL HAVE COLOR TEMPERATURE 4000K WITH MINIMUM CRI OF 80 UNLESS OTHERWISE NOTED. . UNLESS A SPECIFIC CATALOG NUMBER OR SERIES IS NAMED, THE MANUFACTURER'S NAMED ALTERNATES MUST SUBMIT CATALOG CUT SHEETS AND IES FORMATTED PHOTOMETRIC REPORT

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⟨LC⟩ #	LIGHTING CONTRO	L SEQUENCE S	SYMBOL FOUND	ON LIGHTING F	PLAN(S).										
LIGHTING CONTROL SEQUENC	_ EMS/BAS	NETWORK CONTROL SYSTEM	TIME CLOCK	VACANCY SENSOR	OCCUPANCY SENSOR	AUTO OFF TIME (MINUTES)	LIGHT REDUCTION % SWITCHING (MIN 50%)	DIMMING TYPE	DIMMING LEVEL	SIDELIGHT DAYLIGHT HARVEST (AUTOMATIC/ SWITCHED)	TOPLIGHT DAYLIGHT HARVEST (AUTOMATIC/ SWITCHED)	AFTERHOURS OVERRIDE	OVERRIDE DURATION	MANUAL ON/OFF	NOTES
LC 1				DT		20		0-10V	0.01					YES	
LC 2	X	X	X					0-10V	0.01			X	2 HOURS		1,2
LC 3				PIR		5								YES	
LC 4					DT	20								YES	
LC 5														YES	4
LC 6								0-10V	0.01					YES	4
LC 7	X	Х	X					0-10V	0.01						
LC 8	Х	Х	Х		DT	20		0-10V	0.01						5,6
LC 9															7
LC 10	X	X	X					0-10V	0.01			X	2 HOURS	YES	1,2

A. PROVIDE ALL PARTS AND PIECES NECESSARY TO MAKE A FUNCTIONAL LIGHTING CONTROL SYSTEM WITH ALL CONTROLS AS MARKED ABOVE.
B. SUPPLIER TO PROVIDE COMPLETE WIRING DIAGRAM PRIOR TO INSTALLATION.
C. IF DIMMING IS CALLED FOR IN SCHEDULE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND PROVIDE ALL NECESSARY PARTS, BALLASTS, DRIVERS, ETC. TO PROVIDE THE DIMMING FUNCTION.
D. CONTRACTOR TO PROVIDE ALL WIRING NECESSARY INCLUDING ANY 0-10V CONTROL WIRING AS REQUIRED.
E. CONTRACTOR MUST COMPLY WITH THE CONTROLS INTENT AS INDICATED ON THE DRAWINGS.
F. AT MINIMUM, CONTRACTOR SHALL HOLD TWO PRE CONSTRUCTION MEETINGS, PRIOR TO BID, WITH THEIR SELECTED LIGHTING CONTROLS VENDOR OR SUPPLIER.
G. THE INTENT OF (2) PRE CONSTRUCTION MEETINGS IS TO DEVELOP AN UNDERSTANDING OF THE CONTROLS SYSTEM TO ACCURATELY ACCOUNT FOR ALL POWER, CONTROLS, CABLING, EQUIPMENT AND CONNECTION REQUIREMENTS.
H. CONTRACTOR SHALL PROVIDE ALL NECESSARY COMPONENTS, ACCESSORIES AND ASSOCIATED LABOR FOR THEIR SELECTED LIGHTING CONTROLS SYSTEM.

. TIME OF DAY SCHEDULE AS DIRECTED BY OWNER. OVERRIDE SWITCH FOR AFTERHOURS.
. CONTROL VIA LIGHTING CONTROL SYSTEM. SEE LIGHTING CONTROL OVERRIDE SWITCH SCHEDULE FOR ADDITIONAL INFORMATION.
. DAY OF THE PROPERTY OF THE PRO

TOGGLE ON/OFF.
OPERATIONAL HOURS: FIXTURES' ZONE INCREASES TO 100% OUTPUT UPON OCCUPANCY AND REDUCES TO 20% WHEN UNOCCUPIED. WHEN ALL ZONES IN LIGHTING CONTROL AREA ARE UNOCCUPIED, REDUCE OUTPUT TO 0% (OFF).
AFTERHOURS: FIXTURES' ZONE INCREASES TO 100% OUTPUT UPON OCCUPANCY AND TURNS OFF WHEN UNOCCUPIED. FIXTURES TO BE CONTROLLED VIA SWITCH RATED CIRCUIT BREAKER.

LIGHTING CONTROL DEVICE SCHEDULE LIGHTING DEVICE OPERATION LIGHTING DEVICE DESCRIPTION CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR TO WORK WITH LIGHTING CONTROL SYSTEM DUAL TECHNOLOGY TO CONTROL DIMMER SWITCH D1S OR TO BE OVERRIDE CONTROL FOR LIGHTING AND TO BE COMPATIBLE WITH DIMMER D1S. CONTROL SYSTEM. TIME OUT AT 30 MINUTES. CEILING MOUNTED DUAL TECHNOLOGY VACANCY SENSOR TO WORK WITH LIGHTING CONTROL SYSTEM DUAL TECHNOLOGY TO CONTROL DIMMER SWITCH D1SV OR TO BE OVERRIDE CONTROL FOR LIGHTING AND TO BE COMPATIBLE WITH DIMMER D1SV. CONTROL SYSTEM. TIME OUT AT 30 MINUTES. STANDARD 0-10V DIMMER SWITCH. 0-10V DIMMING. DIMMER TO BE CAPABLE OF DIMMING TO 1%. 0-10V DIMMER SWITCH. DIMMER TO WORK WITH CEILING MOUNTED SENSOR COS1S. 0-10V DIMMING. DIMMER TO BE CAPABLE OF DIMMING TO 1%. DIMMER TO WORK WITH CEILING MOUNTED SENSOR COS1S. 0-10V DIMMER SWITCH. DIMMER TO WORK WITH CEILING MOUNTED SENSOR CVS1S. 0-10V DIMMING. DIMMER TO BE CAPABLE OF DIMMING TO 1%. DIMMER TO WORK WITH CEILING MOUNTED SENSOR CVS1S. 0-10V DIMMING. DIMMER TO BE CAPABLE OF DIMMING TO 1%. CAPABLE OF DIMMING FROM ALL STANDARD 3-WAY, 0-10V DIMMER SWITCH. LOCATIONS. TWO BUTTON PROGRAMMABLE OVERRIDE SWITCH WITH DIMMING CAPABILITY. DIMMABLE TO 1% EACH BUTTON IS TO BE PRESET WITH LIGHTING LEVELS AS INDICATED ON THE OVERRIDE CONTROL SCHDULE. DIMMER TO BE ABLE TO CONTROL ZONES INDEPENDANTLY. FOUR BUTTON PROGRAMMABLE OVERRIDE SWITCH WITH DIMMING CAPABILITY. DIMMABLE TO 1% EACH BUTTON IS TO BE PRESET WITH LIGHTING LEVELS AS INDICATED ON THE OVERRIDE CONTROL SCHDULE. DIMMER TO BE ABLE TO CONTROL ZONES INDEPENDANTLY. TOGGLE SWITCH, ILLUMINATED WHEN THE LOAD IS ON BASIC ON/OFF CONTROL PHOTO SENSOR TO BE UTILIZED FOR ON/OFF CONTROL. WALL MOUNTED PHOTO SENSOR TO WORK WITH LIGHTING CONTROL. TOGGLE SWITCH BASIC ON/OFF CONTROL 3-WAY TOGGLE SWITCH BASIC ON/OFF CONTROL 4-WAY TOGGLE SWITCH BASIC ON/OFF CONTROL EXPLOSION PROOF TOGGLE SWITCH BASIC ON/OFF CONTROL EXPLOSION PROOF 3-WAY TOGGLE SWITCH BASIC ON/OFF CONTROL **EXPLOSION PROOF 4-WAY TOGGLE SWITCH** BASIC ON/OFF CONTROL

GENERAL NOTES: A. ALL LIGHTING CONTROLS NOT INDICATED AS STAND ALONE SHALL BE PART OF THE LIGHTING CONTROL SYSTEM. SYSTEM IS DESIGNED AROUND A WATTSTOPPER DLM SERIES SYSTEM. DOCUMENTS INDICATE CONTROL DEVICES, SEQUENCE OF OPERATION, AND OVERRIDE CONTROL LOCATIONS. CONTRACTOR SHALL PROVIDE ALL REQUIRED POWER PACKS, DIMMING POWER PACKS, BRIDGES, GATEWAYS, AND PROGRAMMING AS REQUIRED TO ACCOMPLISH THE CONTROL SEQUENCES INDICATED. NOT ALL PARTS AND PIECES ARE SHOWN ON PLAN. CONTRACTOR TO PROVIDE ALL PIECES THAT ARE REQUIRED.

LIGH	TING CON	ITROL OVERRIDE S'	WITCH SCHEDULE			
OVERRID	E		OVERRID BUTTO	N CONTROL DESCRIPTION		
SWITCH NA	ME SWITCH TYPE	BUTTON 1	BUTTON 2	BUTTON 3	BUTTON 4	NOTES
PB-2.1	PB2D	TOUR LIGHTING, DIMMING	TYPICAL LIGHTING LEVEL, DIMMING			1,2
PB-4.1	PB4D	ZONE 'a' ON/OFF, DIMMING	ZONE 'b' ON/OFF, DIMMING	ZONE 'c' ON/OFF, DIMMING	ON/OFF	
PB-4.2	PB4D	ZONE 'a' ON/OFF, DIMMING	ZONE 'b' ON/OFF, DIMMING	ZONE 'c' ON/OFF, DIMMING	ON/OFF	

0-10V DIMMING. MANUAL ON, AUTO OFF AFTER 20 MINUTES. DIMMER TO BE CAPABLE OF DIMMING TO 1%.

A. ALL LIGHTING CONTROLS NOT INDICATED AS STAND ALONE SHALL BE PART OF THE LIGHTING CONTROL SYSTEM. SYSTEM IS DESIGNED AROUND A WATTSTOPPER DLM SERIES SYSTEM. DOCUMENTS INDICATE CONTROL DEVICES, SEQUENCE OF OPERATION, AND OVERRIDE CONTROL LOCATIONS. CONTRACTOR SHALL PROVIDE ALL REQUIRED POWER PACKS, DIMMING POWER PACKS, BRIDGES, GATEWAYS, AND PROGRAMMING AS REQUIRED TO ACCOMPLISH THE CONTROL SEQUENCES INDICATED. NOT ALL PARTS AND PIECES ARE SHOWN ON PLAN. CONTRACTOR TO PROVIDE ALL PIECES THAT ARE REQUIRED.

ELECTRICAL NOTES:

WALL MOUNTED 0-10V DIMMER SWITCH WITH INTEGRAL VANCANCY SENSOR.

ELECTRICAL NOTES: COORDINATE TOUR LIGHTING LEVEL AND DURATION WITH OWNER DURING INSTALLATION. COORDINATE TYPICAL LIGHTING LEVEL WITH OWNER DURING INSTALLATION.

JUNO IO414 SERIES

CASE #PL2021-255

Johnson, Nick M

From: John Wuollet < John. Wuollet@dunhameng.com>

Sent: Monday, June 13, 2022 6:30 AM **To:** 'Nagel, Peter'; Johnson, Nick M

Subject: RE: Seagate Full Permit - #PRBD202205931 - 7801 Computer Ave S and 7850 Nord Ave S

Nick,

Yes, both maintained sheets have a LLF of 0.8.

Thanks,

John Wuollet

Associate | Electrical D: 612-465-7651

50 South Sixth Street \ Suite 1100 Minneapolis Minnesota 55402

DUNHAM

From: Nagel, Peter [mailto:PNagel@bwbr.com]

Sent: Friday, June 10, 2022 2:25 PM

To: Johnson, Nick M <nmjohnson@BloomingtonMN.gov> **Cc:** John Wuollet <John.Wuollet@dunhameng.com>

Subject: RE: Seagate Full Permit - #PRBD202205931 - 7801 Computer Ave S and 7850 Nord Ave S

Nick,

We do have that information but it wasn't included in the package I sent you. I only sent you the photometric calcs – all of the lighting details and schedules will be in Bid Package #3 with all of the other electrical stuff. I've attached the relevant sheets with the information you need that will be in said bid package. Sheet 950 has a site lighting schedule and Sheet 980 has a light pole base detail.

John – can you please address Nick's other question that I highlighted below regarding the light loss factor?

Thanks,

Peter Nagel AIA, ALA

Pronouns: He/Him/His
P 608.829.3290 M 414.517.5064 bwbr.com

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From: Johnson, Nick M <nmjohnson@BloomingtonMN.gov>

Sent: Friday, June 10, 2022 2:03 PM **To:** Nagel, Peter < <u>PNagel@bwbr.com</u>>

Subject: RE: Seagate Full Permit - #PRBD202205931 - 7801 Computer Ave S and 7850 Nord Ave S

Peter,

CASE #PL2021-255

Regarding the lighting plan, I do not see specs or details on the type of light fixtures and proposed height? Am I missing that detail? If it is not included, can you provide me that information? Also, the maintained sheets should be calculated at 0.81 Light Loss Factor (LLF). I see one sheet says a LLF of 0.9 and one states LLF of 0.8. Can you confirm with the designer that both maintained sheets are calculated at this level?

Otherwise the lighting plan looks good. The light levels do meet the minimum requirements.

The screening and trash requirements appear to meet City Code requirements. Thanks for that information.

Let me know if you have any questions.



NICK M. JOHNSON (he/him) Planner, Planning Division

PH: 952-563-8925 EMAIL: nmjohnson@bloomingtonmn.gov 1800 West Old Shakopee Road, Bloomington, MN 55431

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From: Nagel, Peter < PNagel@bwbr.com > Sent: Thursday, June 9, 2022 2:53 PM

To: Johnson, Nick M <nmjohnson@BloomingtonMN.gov>; kari.davis@mcgough.com; Roisen, Nathan

<NRoisen@bwbr.com>

Subject: RE: Seagate Full Permit - #PRBD202205931 - 7801 Computer Ave S and 7850 Nord Ave S

Nick,

- 1. Yes, we did prepare updated photometric plans. They were a part of the building plans uploaded but I have reattached for your convenience.
- 2. The view you're seeing is kind of misleading...from a straight on elevation, it looks like the equipment is not that tall, but we actually raised the parapet there 15' above the roof deck (to the maximum allowable building height of 55'-0") solely to screen that equipment see snip below which is looking southeast from the roof. Even with that 15' parapet, it does still pop up a little bit in a straight-on view, because as the design has evolved we have found that some of the equipment requires platforms, but we are confident that nothing (other than the stacks) would be visible from ground level. Below are views from the right-of-way from the southeast, and from W 78Th St to the south.
- 3. The trash/recycling is calculated on sheet 101.CO in the "CODE SUMMARY" under the "MISCELLANEOUS" box...kind of hard to find sorry. It is indicated graphically on sheet 101.RF.

Let me know if you need anything else, happy to help.