



**LIGHTING DESIGNER'S DECLARATION**

THIS DRAWING INDICATES ALL PROPOSED OUTDOOR LIGHTING FIXTURES FOR THIS DEVELOPMENT. THE LIGHTING DESIGN IS IN ACCORDANCE WITH THE APPLICABLE MUNICIPAL LIGHTING ORDINANCE AS ESTABLISHED BY THE PLANNING DEPARTMENT, AND DESIGNED IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY (IES) GUIDELINES.

THE LIGHTING HAS BEEN DESIGNED USING ONLY FIXTURES THAT MEET THE CRITERIA FOR FULL CUT-OFF (SHARP CUT-OFF) CLASSIFICATION, AS RECOGNIZED BY THE ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA OR IES).

THE DESIGN RESULTS IN MINIMAL LIGHT SPILLAGE ONTO ADJACENT PROPERTIES, NOT EXCEEDING 0.5 FOOTCANDLES BEYOND THE PROPERTY LINE.

*Christopher Borcsok*  
SIGNATURE OF QUALIFIED DESIGNER

**LEGEND**

- □ ARM MOUNTED AREA LIGHT ON POLE
- □ WALL PACK
- AFG ABOVE FINISHED GRADE

**MUNICIPAL LIGHTING ORDINANCE**

- CITY OF OTTAWA PROPERTY STANDARDS BY-LAW NO. 2013-416  
PART II - RESIDENTIAL PROPERTY STANDARDS  
SECTION 6 - YARDS  
(11) IN RESPECT TO MULTIPLE DWELLINGS AND NON-RESIDENTIAL PROPERTIES, EVERY AREA OF A YARD WHICH IS USED FOR VEHICULAR TRAFFIC OR PARKING INCLUDING A LOADING AREA SHALL BE:
  - KEPT FREE FROM DIRT AND REFUSE;
  - ADEQUATELY LIGHTED; AND
  - MAINTAINED IN GOOD REPAIR.
- LIGHTS USED TO ILLUMINATE ANY AREA USED FOR VEHICULAR AND PEDESTRIAN TRAFFIC, OR PARKING SHALL BE ARRANGED, INSTALLED OR DESIGNED SO AS TO DEFLECT AWAY FROM ADJUTING RESIDENTIAL PROPERTIES.
- CITY OF OTTAWA OFFICIAL PLAN, VOLUME 1, SECTION 5 - IMPLEMENTATION  
5.2 - IMPLEMENTATION MECHANISMS, BY AUTHORITY UNDER THE PLANNING ACT  
AIR QUALITY  
8. [...] SUBMISSIONS MAY NEED TO INCLUDE INDICATION OF ANY OR ALL OF THE FOLLOWING:
  - LOCATION, SITE, COLOUR, AND TYPE OF ALL BUILDING EXTERIOR SIGNAGE AND LIGHTING;
- BEST PRACTICES (NOT CITED BY CITY OF OTTAWA BY-LAW)
  - IES RP-8-18, CHAPTER 17  
PARKING AREAS AND DRIVES MINIMUM 0.5 FC.
  - DARK SKY FRIENDLY LUMINAIRES  
- CCT OF MAX 3000 K CCT  
- MINIMIZE UPLIGHT
- CITY OF OTTAWA BIRD SAFE DESIGN GUIDELINES  
GUIDELINE 6: DESIGN EXTERIOR LIGHTING TO MINIMIZE LIGHT TRESPASS AT NIGHT.  
THE FOLLOWING RECOMMENDATIONS APPLY TO BOTH PERMANENT AND TEMPORARY OR EVENT-BASED EXTERIOR LIGHTING:
  - AVOID UP-LIGHTING.
  - SPECIFY DARK SKY COMPLIANT, FULL-CUTOFF EXTERIOR FIXTURES TO REDUCE LIGHT TRESPASS.
  - USE MOTION DETECTORS AND OTHER AUTOMATIC LIGHTING CONTROLS TO REDUCE OR EXTINGUISH NON-ESSENTIAL LIGHTING BETWEEN 11 PM AND 6 AM.
  - USE MINIMUM WATTAGE FIXTURES TO ACHIEVE APPROPRIATE LIGHTING LEVELS (NOTE: MINIMUM REQUIRED LIGHTING LEVELS ARE ESTABLISHED IN THE ONTARIO BUILDING CODE).
  - MINIMIZE AMOUNT AND VISUAL IMPACT OF PERIMETER LIGHTING.
  - AVOID USE OF FLOODLIGHTING.
- COMMENTS RECEIVED FROM THE CITY OF OTTAWA, "SITE PLAN CONTROL APPLICATION, DELEGATED AUTHORITY REPORT, PLANNING, REAL ESTATE AND ECONOMIC DEVELOPMENT DEPARTMENT"
23. SITE LIGHTING CERTIFICATE  
(a) IN ADDITION TO THE REQUIREMENTS CONTAINED IN CLAUSE 19 OF SCHEDULE "C" HERETO, THE OWNER ACKNOWLEDGES AND AGREES, PRIOR TO THE ISSUANCE OF A BUILDING PERMIT, TO PROVIDE THE CITY WITH A CERTIFICATE FROM AN ACCEPTABLE PROFESSIONAL ENGINEER, LICENSED IN THE PROVINCE OF ONTARIO, WHICH CERTIFICATE SHALL STATE THAT THE EXTERIOR SITE LIGHTING HAS BEEN DESIGNED TO MEET THE FOLLOWING CRITERIA:
  - IT MUST BE DESIGNED USING ONLY FIXTURES THAT MEET THE CRITERIA FOR FULL CUT-OFF (SHARP CUT-OFF) CLASSIFICATION, AS RECOGNIZED BY THE ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA OR IES); AND
  - IT MUST RESULT IN MINIMAL LIGHT SPILLAGE ONTO ADJACENT PROPERTIES, AS A GUIDELINE, 0.5 fc IS NORMALLY THE MAXIMUM ALLOWABLE SPILLAGE.
  - THE OWNER ACKNOWLEDGES AND AGREES THAT, UPON COMPLETION OF THE LIGHTING WORKS AND PRIOR TO THE CITY RELEASING ANY ASSOCIATED SECURITIES, THE OWNER SHALL PROVIDE CERTIFICATION SATISFACTORY TO THE GENERAL MANAGER, PLANNING, REAL ESTATE AND ECONOMIC DEVELOPMENT, FROM A PROFESSIONAL ENGINEER, LICENSED IN THE PROVINCE OF ONTARIO, THAT THE SITE LIGHTING HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE OWNER'S APPROVED DESIGN PLAN.

**GENERAL SHEET NOTES**

- PHOTOMETRIC DATA POINTS ARE PROVIDED IN FOOTCANDLES (fc). ANALYSIS PERFORMED BY OMNILUMEN TECHNICAL PRODUCTS IN AG32 SOFTWARE WITH 0.9 LIGHT LOSS FACTOR (LLF). CALCULATION GRID SPACING 3.0 m x 3.0 m (10 FOOT X 10 FOOT) GRID AT GROUND LEVEL.
- IES DEFINITIONS:  
FULL CUTOFF: ZERO INTENSITY AT OR ABOVE HORIZONTAL (90° ABOVE NADIR) AND LIMITED TO A VALUE NOT EXCEEDING 10% OF LAMP LUMENS AT OR ABOVE 80°.  
FULLY SHIELDED LUMINAIRE: A LUMINAIRE THAT ALLOWS NO EMISSION ABOVE A HORIZONTAL PLANE THROUGH THE FIXTURE.
- IES TECHNICAL MEMORANDUM TM-15-11 ESTABLISHED THE "BUG" RATING SYSTEM THAT DEFINES BACKLIGHT, UPLIGHT, AND GLARE RATINGS OF EXTERIOR LUMINAIRES AND REPLACED THE PREVIOUSLY USED TERMINOLOGY FOR CUTOFF, FULL CUTOFF, ETC. LATEST VERSION OF THIS STANDARD IS TM-15-20.  
A U0 RATING CORRESPONDS TO ZERO UPLIGHT (EQUAL TO FULL CUTOFF), AND A U1 RATING CORRESPONDS TO A MAXIMUM OF 10 LUMENS IN THE "UL" ZONE BETWEEN 90 DEGREES AND 100 DEGREES FROM NADIR, AND A MAXIMUM OF 10 LUMENS IN THE "UH" ZONE ABOVE 110 DEGREES ABOVE NADIR.
- DARKSKY INTERNATIONAL (FORMERLY THE INTERNATIONAL DARK SKY ASSOCIATION (IDA)) RECOMMENDS 3000 K CCT (OR WARMER) TO HELP REDUCE SKYGLOW AND IMPROVE NIGHTSCAPES. IDA DARK SKY APPROVED FIXTURE SEAL OF APPROVAL PERMITS A MAXIMUM OF 10 LUMENS IN THE 90-100 DEGREE UL ZONE.
- IES RP-8-18 "PRACTICE FOR DESIGN AND MAINTENANCE OF ROADWAY AND PARKING FACILITY LIGHTING", CHAPTER 17 FOR PARKING AREAS AND DRIVES ESTABLISHES A RECOMMENDED PRACTICE OF MINIMUM 5 LUX (0.5 FC) THROUGHOUT PARKING AREAS AND DRIVES.
- EXTERIOR LIGHTING MANUFACTURER TO SUBMIT PHOTOMETRIC ANALYSIS PLAN OF PROPOSED LUMINAIRES SHOWING DELIVERED LIGHT LEVELS (MEASURED IN FOOTCANDLES), AND DEMONSTRATING MUNICIPALLY COMPLIANT LIGHT TRESPASS.
- UNDERGROUND LIGHTING CONDUCTORS MINIMUM #6 AWG.
- WHERE AN INCOMPLETE MODEL CAT NO. IS LISTED, MANUFACTURERS/SUPPLIERS MUST CONFIRM THE PROPOSED FIXTURE WITH THE CONSULTANT A MINIMUM OF ONE WEEK PRIOR TO TENDER CLOSE. SUBSTITUTE MANUFACTURERS INCLUDE ACUITY BRANDS LIGHTING, COOPER LIGHTING SOLUTIONS, CREE LIGHTING, HUBBELL, LSI INDUSTRIES, SIGNIFY.
- WHERE NOTED ABOVE THAT FIXTURES ARE TO HAVE FINISH TO SUIT ARCHITECT THE FINISH WILL BE SELECTED FROM MANUFACTURER'S OPTIONAL COLOUR CHART (i.e. RAL COLOURS OR EQUAL). PROVIDE THIS COLOUR CHART WITH SHOP DRAWING SUBMITTAL.
- SUBMIT SHOP DRAWINGS FOR CONSULTANT'S REVIEW PRIOR TO PLACING ANY ORDER.
- SEQUENCE OF OPERATION  
EACH LUMINAIRE SHALL BE CONTROLLED BY A PHOTOCELL OR TIME CLOCK DEVICE THAT AUTOMATICALLY TURNS OFF THE LIGHTING WHEN SUFFICIENT DAYLIGHT IS AVAILABLE. (ASHRAE 90.1-2013 9.4.1.4.a.)

**LUMINAIRE SCHEDULE**

**ZA1** ARM MOUNTED AREA LIGHT, TYPE 3 DISTRIBUTION  
BASIS OF DESIGN: HUBBELL AIRO MICRO STRIKE  
ASL-180L-50-3K7-3-U  
5981 LUMENS, 49.7 WATTS, 3000 K CCT, MIN 70 CRI, 120 VOLT  
MOUNTING 6000 mm AFG (5100 mm POLE ON 900 mm ARTFORMS KELLAMY 610R BASE)  
B1-U0-G2

**ZA2** ARM MOUNTED AREA LIGHT, TYPE 2 DISTRIBUTION  
BASIS OF DESIGN: HUBBELL AIRO MICRO STRIKE  
ASL-180L-25-3K7-2-BC  
1868 LUMENS, 25.59 WATTS, 3000 K CCT, MIN 70 CRI, 120 VOLT  
MOUNTING 6000 mm AFG (5100 mm POLE ON 900 mm ARTFORMS KELLAMY 610R BASE)  
B0-U0-G1

**ZW1** WALL MOUNT LUMINAIRE, TYPE 4 DISTRIBUTION  
BASIS OF DESIGN: HUBBELL GEOPAK SERIES 1, SIZE 1  
TRP1-24L-20-3K7-3  
MOUNTING HEIGHT 3700 mm AFG  
2489 LUMENS, 19.9 WATTS, 3000 K CCT, MIN 70 CRI, 120 VOLT  
B1-U0-G1

**ZW2** WALL MOUNT LUMINAIRE, TYPE 2 DISTRIBUTION  
BASIS OF DESIGN: HUBBELL GEOPAK SERIES 1, SIZE 1  
TRP1-24L-15-3K7-3  
MOUNTING HEIGHT 2700 mm AFG  
1805 LUMENS, 14.9 WATTS, 3000 K CCT, MIN 70 CRI, 120 VOLT  
B1-U0-G1

**ZW3** SAME AS ZW2, MOUNTING HEIGHT 3700 mm AFF.

**CALCULATION SUMMARY**

LABEL	CALC TYPE	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MIN
BARRIER FREE PARKING	ILLUMINANCE	FC	3.23	4.3	1.9	1.70	2.26
DRIVE LANES	ILLUMINANCE	FC	1.30	1.8	0.6	2.17	3.00
PARKINGS	ILLUMINANCE	FC	1.82	3.6	0.8	2.28	4.50
SITE	ILLUMINANCE	FC	1.80	5.5	0.0	N.A.	N.A.
SPILL OF LIGHT FENCE LINE	ILLUMINANCE	FC	0.01	0.4	0.0	N.A.	N.A.

No.	DATE	DESCRIPTION	CH'D
4	2023-DEC-15	RE-ISSUED FOR SITE PLAN APPROVAL	CB
3	2022-MAR-31	RE-ISSUED FOR SPA	TS
2	2021-MAY-27	ISSUED FOR SITE PLAN CONTROL	CB
1	2021-MAY-25	ISSUED FOR CLIENT REVIEW	CB

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BRIDOR DEVELOPMENTS

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PROJECT  
**2380 and 2396  
CLEROUX CRESCENT**  
OTTAWA, ON

TITLE  
**SITE LIGHTING PHOTOMETRIC PLAN**

CHECKED  
CB

SCALE  
1:250

PROJECT No.  
**NCR-21-RE-007**

DRAWING No.  
**E101**