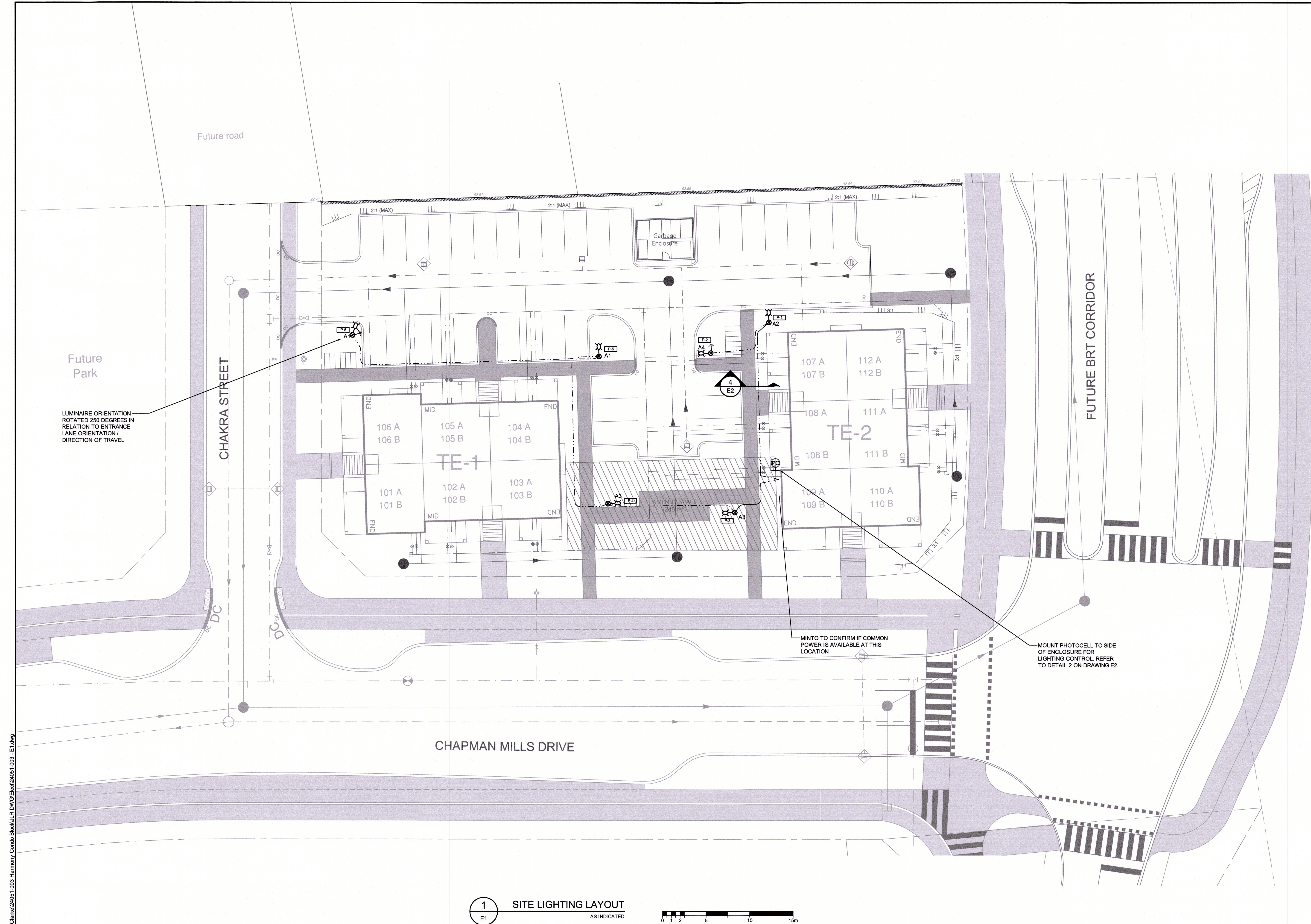
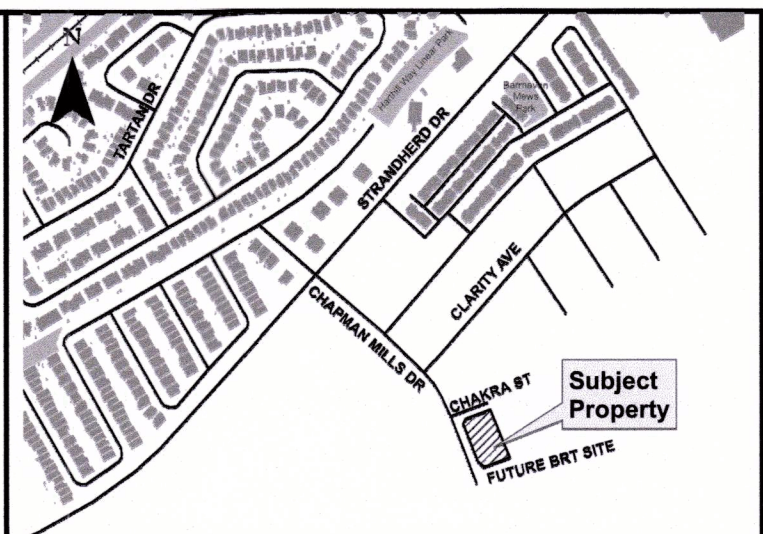
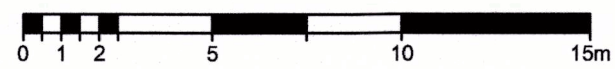


PLOT DATE: August 17, 2018 8:38:12 AM
File Location: V:\24000\24051 LD Minto Clarke\24051-003 Harmony Condo Block\JLR DWG\Elect\24051-003 - E1.dwg



1 SITE LIGHTING LAYOUT
E1 AS INDICATED



LEGEND:	
	STREET LIGHT CABLES AND DUCT
	GROUND WIRE
	LED STREET LIGHT
	PHOTOCELL

2	RE-ISSUED FOR SITE PLAN APPROVAL - 3rd SUBMISSION	17/08/18
1	ISSUED FOR CLIENT REVIEW	10/08/18
No.	ISSUE / REVISION	DDMMYY

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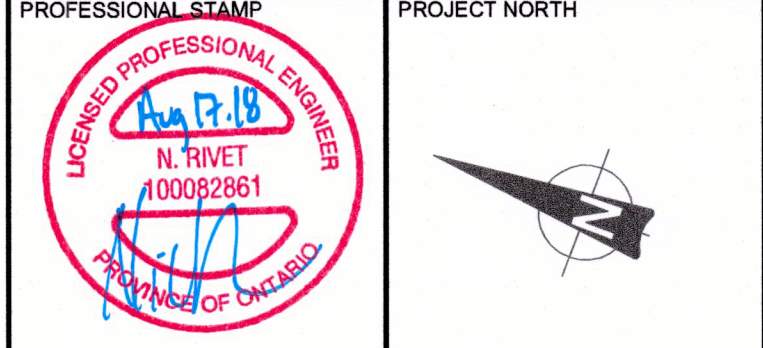
VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING.

SCALE: AS INDICATED

CLIENT:
 minto Communities
Minto Communities Inc.
200-180 Kent Street
Ottawa, ON K1P 0B6
Canada
1-877-751-2852

CONSULTANT:
 J.L. Richards
ENGINEERS - ARCHITECTS - PLANNERS

CONSULTANT:



PROJECT:
MINTO COMMUNITIES INC.
HARMONY STAGE 1
BLOCK 104
4025 STRANDHERD DRIVE

DRAWING:
ELECTRICAL
SITE LIGHTING LAYOUT

DESIGN: JP	DRAWING #: E1
DRAWN: JP	
CHECKED: NR	
JLR #: 24051-003	

PLOT DATE: August 17, 2018 7:07:55 AM
File Location: V:\24051\24051 LD Minto Clarks\24051-003 Harmony Condo Block\JLR DWG\Elect\24051-003 - E1.dwg

1. GENERAL

- THE WORK AS COVERED BY THESE SPECIFICATIONS AND PLANS IS INTENDED TO COMPLY WITH THE LATEST RULES AND REGULATIONS OF THE INSPECTION AUTHORITIES, APPLICABLE CODES AND BYLAWS. THE ACCOMPANYING DOCUMENTS DO NOT DETAIL EVERY ITEM REQUIRED, BUT ARE INTENDED TO PROVIDE GUIDELINES TO THE CONTRACTOR, SO THAT HE MAY COMPLETE THE REQUIRED SCOPE OF WORK. ALL CHANGES AND ALTERATIONS TO THE CONTRACTOR'S WORK REQUIRED BY AN AUTHORIZED INSPECTOR OR ANY AUTHORITY HAVING JURISDICTION TO BE CARRIED OUT AT NO EXPENSE TO THE OWNER. IF THE CONTRACT DOCUMENTS ARE SPECIFICALLY AT VARIANCE WITH A GOVERNMENT REGULATION, THE CONTRACTOR IS TO NOTIFY THE ENGINEER BEFORE INSTALLATION.
- ALL DRAWINGS, SPECIFICATIONS, AND THE DOCUMENTS PROVIDED BY THE OWNER AND / OR LANDSCAPE ARCHITECT ARE TO BE READ IN CONJUNCTION WITH THIS SET OF DOCUMENTS. THE GENERAL AND ELECTRICAL CONTRACTORS WILL BE FULLY RESPONSIBLE FOR COMPLIANCE WITH ALL RELATED DOCUMENTS OF THESE DISCIPLINES AND THE INSTRUCTIONS RELATED TO THE ELECTRICAL PORTION OF THE SCOPE OF WORK FOR THIS CONTRACT. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO DEFINE SUBCONTRACTORS' RESPONSIBILITIES UNDER THIS CONTRACT. EXTRAS FOR SUBCONTRACTORS DIFFERENCE OF OPINION OF RESPONSIBILITY WILL NOT BE CONSIDERED.
- ANY CONFLICTS OR QUESTIONS THAT ARISE DURING THE TENDER PERIOD TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER AT LEAST 48 HOURS PRIOR TO TENDER CLOSE. IF THIS PROCEDURE IS NOT FOLLOWED, MODIFICATIONS REQUIRED TO COMPLETE THE WORK WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- EXAMINE SITE AND LOCAL CONDITIONS AFFECTING WORK UNDER THIS DIVISION TO ENSURE THAT WORK UNDER THIS DIVISION CAN BE SATISFACTORILY CARRIED OUT WITHOUT CHANGES TO DRAWINGS. NO ALLOWANCES WILL BE MADE LATER FOR ANY EXPENSE INCURRED THROUGH FAILURE TO MAKE THIS EXAMINATION. START OF WORK WILL BE DEEMED EVIDENCE OF, ACCEPTANCE OF, AND SATISFACTION WITH, EXISTING CONDITIONS.
- GIVE ALL NOTICES, OBTAIN ALL PERMITS AND PAY ALL FEES AND INSPECTION COSTS AND DELIVER TO THE ENGINEER FINAL CERTIFICATES OF INSPECTION AND APPROVAL THAT ARE ISSUED BY AUTHORITIES HAVING JURISDICTION OVER WORK, AS EVIDENCE THAT WORK INSTALLED CONFORMS WITH LAWS AND REGULATIONS OF ALL GOVERNING AUTHORITIES, BEFORE FINAL CERTIFICATE OF PAYMENT MAY BE CONSIDERED DUE. NOTIFY INSPECTION AUTHORITIES IN SUFFICIENT TIME FOR THEM TO INSPECT WORK.
- THE CONTRACTOR WILL MAINTAIN NECESSARY INSURANCE COVERAGE TO COVER THIS CONTRACT, BE RESPONSIBLE FOR LAYING OUT HIS WORK AND THE COORDINATION OF HIS WORK WITH THE WORK OF OTHER TRADES.
- PERSONNEL AND EQUIPMENT PROTECTION: ENSURE THAT ALL PRECAUTIONS ARE TAKEN TO PROTECT ALL PERSONNEL FROM HAZARDS DURING THE WORK. PROTECT ALL EQUIPMENT FROM DAMAGE FROM ANY CAUSE, INCLUDING WEATHER.
- MATERIALS AND EQUIPMENT: USE ONLY NEW MATERIALS, FULLY CSA CERTIFIED FOR USE AS INSTALLED AND THAT MEET THIS SPECIFICATION IN ALL RESPECTS.
- STRICTLY FIRST-CLASS WORKMANSHIP BY EXPERIENCED WORKERS WILL BE RIGIDLY INSISTED UPON IN EVERY DETAIL.
- QUALIFICATIONS: TRADE WORKERS FOR THIS CONTRACT WILL BE QUALIFIED AS EITHER A REGISTERED JOURNEYMAN OR ELECTRICAL APPRENTICE WITHIN THE JURISDICTION GOVERNING THIS SITE. RATIO OF APPRENTICE TO JOURNEYMAN WILL MEET GOVERNING AUTHORITY STANDARDS. CONTRACTOR MAY BE REQUIRED TO LIST NAMES AND QUALIFICATIONS OF SUPERVISORY PERSONNEL ON TENDER FORM.
- TERMINOLOGY:
 - INSPECTION AUTHORITY (ESA): ELECTRICAL SAFETY AUTHORITY
 - DIVISION 16: THIS CONTRACTOR
 - REVIEWED: REVIEWED IN WRITING BY THE ENGINEER
 - PROVIDE: SUPPLY, INSTALL, WIRE, CONNECT AND COMMISSION FOR A COMPLETE AND PROPER INSTALLATION

12. GROUNDING AND BONDING:

- BOND ALL EQUIPMENT WITH APPROVED FITTINGS AND BONDING CONDUCTORS OF AMPLE CAPACITY AS REQUIRED BY THE ELECTRICAL SAFETY CODE. ALL BONDING CONDUCTORS TO BE GREEN INSULATION AND INSTALLED IN CONDUIT.
- GROUNDING CONDUCTOR FOR A/C SYSTEMS (WHEN NEUTRAL PRESENT) SIZED AS PER THE ELECTRICAL SAFETY CODE, USING APPROVED FITTINGS.
- GROUNDING CONDUCTOR FOR SERVICE RACEWAY AND SERVICE EQUIPMENT. 3-PHASE, 3-WIRE (NO NEUTRAL) SIZED AS PER THE ELECTRICAL SAFETY CODE, USING APPROVED FITTINGS.
- DURING THE COURSE OF CONSTRUCTION AND UPON COMPLETION REMOVE ALL RUBBISH AND WASTE RESULTING FROM THIS WORK, TO THE SATISFACTION OF THE ENGINEER. CHECK, CLEAN AND REPAINT WHERE NECESSARY, ALL ELECTRICAL EQUIPMENT AND LEAVE IN A FIRST-CLASS CONDITION.
- MANUFACTURER'S INSTRUCTIONS REGARDING THE HANDLING, INSTALLATION AND TESTING OF EQUIPMENT SPECIFIED HEREIN TO BE CONSIDERED PART OF THIS SPECIFICATION.
- GARANTEE: PROVIDE A TWELVE (12) MONTH WRITTEN GUARANTEE COVERING ALL EQUIPMENT INSTALLED AND ALL CONTRACTOR WORKMANSHIP, EFFECTIVE FROM THE DATE OF FINAL ACCEPTANCE BY THE ENGINEER. GUARANTEE TO BE INCLUDED IN MAINTENANCE MANUAL.
- COORDINATE ALL WORK WITH OTHER TRADES.
- EQUIPMENT IDENTIFICATION - LAMACOID PLATES: ALL PULL BOXES, TERMINAL CABINETS, PANELBOARDS, DISCONNECT SWITCHES, MOTOR STARTERS, OVERCURRENT DEVICES, CONTACTORS AND TRANSFORMERS, OR OTHER SIMILAR EQUIPMENT FURNISHED IN THIS SPECIFICATION, WILL BE PROVIDED WITH ENGRAVED LAMACOID NAMEPLATES IDENTIFYING THE FUNCTION OF EACH DEVICE.
- RECORD DRAWINGS: MAINTAIN A WORKING SET OF WHITE PRINTS ON SITE FOR THE PURPOSE OF RECORDING ALL CHANGES ON A DAILY BASIS. AT THE END OF CONSTRUCTION, TURN OVER THIS SET AS "RECORD DRAWINGS". THE SET IS TO INCLUDE ALL CHANGES TO THE CONTRACT, INCLUDING ANY ADDENDA, CIRCUIT NUMBERS FOR ALL AFFECTED CIRCUITS, CHANGE ORDER AND SUPPLEMENTAL INSTRUCTIONS AND UPDATED PANEL SCHEDULES TO REFLECT RECORD CIRCUITRY. DRAWINGS ARE TO BE SUBMITTED WITH MAINTENANCE MANUALS UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
- OPERATION AND MAINTENANCE MANUALS: PROVIDE THREE (3) SETS OF MAINTENANCE MANUALS UPON FINAL ACCEPTANCE OF THE ENGINEER. MANUALS TO BE IN THE FORM OF 3-RING BINDERS, SUITABLY SIZED FOR THE INFORMATION TO BE INCLUDED. MANUAL TO INCLUDE COVER PAGE LISTING PROJECT NAMES; J.L. RICHARDS & ASSOCIATED LIMITED'S NAME AND ADDRESS AND ELECTRICAL CONTRACTOR'S NAME, ADDRESS AND TELEPHONE NUMBER; SECOND PAGE INDEX; INCLUDE COPY OF ALL SHOP DRAWINGS, TESTING RESULTS, CERTIFICATES, APPLICABLE WARRANTIES AND TYPEWRITTEN COPY OF FINAL PANEL SCHEDULES. ON LAST PAGE, FURNISH CONTRACTOR'S GUARANTEE.

2. WIRE & CABLE

- ALL WIRING TO BE COPPER, MINIMUM SIZE AS INDICATED, AWG COPPER CONDUCTORS, WITH 600 V INSULATION OF CHEMICALLY CROSS-LINKED THERMOSETTING POLYETHYLENE MATERIAL RATED RW90.
- SIZE #14 AWG RW90 IS ACCEPTABLE FOR CONTROL WIRING.
- TYPE RWU90 FOR UNDERGROUND WIRING.
- PROVIDE A GREEN INSULATED BONDING CONDUCTOR IN ALL INSTALLED CONDUIT, MINIMUM SIZE #14 AWG.

3. CONDUITS AND FITTINGS

- USE PVC RIGID CONDUIT FOR UNDERGROUND WORK AND ALL WORK UNDER OR IN FLOOR SLAB WITH RIGID STEEL ELBOWS TO EXIT SLAB WHERE PVC IS UNPROTECTED.
- USE EMT:
 - IN ALL WORK EXCEPT WHERE SPECIFIED OTHERWISE.
 - FITTINGS TO BE WATERTIGHT COUPLINGS AND CONNECTORS.
- USE LIQUIDTIGHT, FLEXIBLE CONDUIT FOR FINAL CONNECTION TO EQUIPMENT IN DAMP, WET OR CORROSIVE LOCATIONS, TO ALL MOTORS, TRANSFORMERS, CONTACTORS, CONTROL DEVICES, AND ANY OTHER VIBRATING EQUIPMENT.
- PROVIDE A PULL CORD, POLYPROPYLENE, IN ALL CONDUITS.

4. DISTRIBUTION AND CONTROL

- PANELBOARDS
 - EXISTING PANELBOARD(S) TO REMAIN UNLESS NOTED OTHERWISE.
 - PROVIDE NEW BREAKERS IN EXISTING PANELBOARD TO SUIT.
 - COORDINATE SERVICE INTERRUPTIONS WITH OWNER.
 - PROVIDE ASTRONOMICAL TIME CLOCK, PHOTOCCELL, AND ASSOCIATED RELAYS / CONTACTORS TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
 - ASTRONOMICAL TIME CLOCK TO BE TORK ASTRO DIGITAL 1CH 20A PART # DGLC100A-NC.
 - PHOTOCCELL TO BE ACUTY BRANDS SBOR PC SERIES.

5. LIGHTING

- PROVIDE FIXTURE COMPLETE WITH ASSOCIATED EQUIPMENT AS SHOWN IN FIXTURE SCHEDULE AND/OR AS INDICATED ON DRAWING.

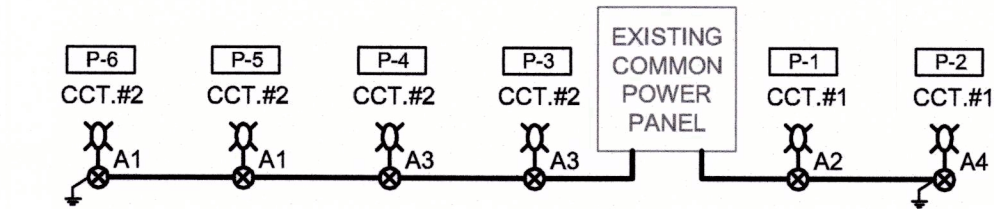
6. SHOP DRAWINGS

- SUBMIT SHOP DRAWINGS / DATA SHEETS FOR EQUIPMENT SPECIFIED UNDER THIS CONTRACT FOR ENGINEER'S REVIEW PRIOR TO PLACING PURCHASE ORDERS. SHOP DRAWINGS ARE REQUIRED FOR LIGHTING FIXTURES AND LIGHTING CONTROL AS NOTED. SUBMIT COPIES OF REQUIRED SHOP DRAWINGS **IN ELECTRONIC PDF FORMAT**.
- SHOP DRAWINGS REQUIRED FOR:
 - LIGHTING FIXTURES
 - LIGHTING POLES
 - LIGHTING CONTROL

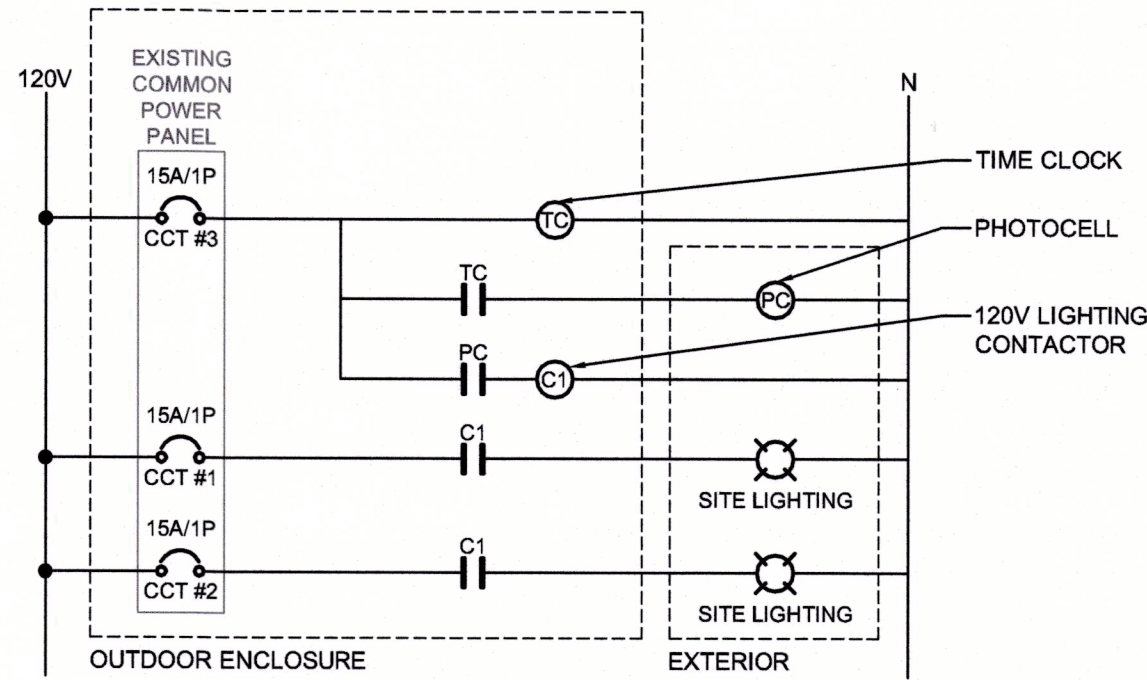
7. TESTING

- TEST ALL SYSTEM EQUIPMENT AND DEVICES AS REQUIRED BY THESE SPECIFICATIONS OR GOVERNING AUTHORITIES. COORDINATE TIME FOR TESTING WITH OWNER'S REPRESENTATIVE, AUTHORITIES AND ENGINEER AS REQUIRED. NOTICE IS REQUIRED TO BE GIVEN, IN WRITING, 48 HOURS IN ADVANCE OF ANY TESTING, TO ALL PARTIES CONCERNED. ALLOW FOR FIRE ALARM TESTING TO BE COMPLETED OUTSIDE OF NORMAL WORKING HOURS.
- PROVIDE ALL TESTING EQUIPMENT, METERS, ETC., AND PERSONNEL AS REQUIRED TO COMPLETE TESTING. TURN OVER TEST RESULTS AT THE END OF THE CONTRACT.
- SYSTEMS REQUIRING TESTING FOR PROPER OPERATION INCLUDE:
 - LIGHTING SYSTEMS - FIXTURES AND RELATED CONTROLS.

CIRCUIT (phase)	LOAD (watts)	FEEDER (AWG)
CCT#1	110	#10
CCT#2	220	#10



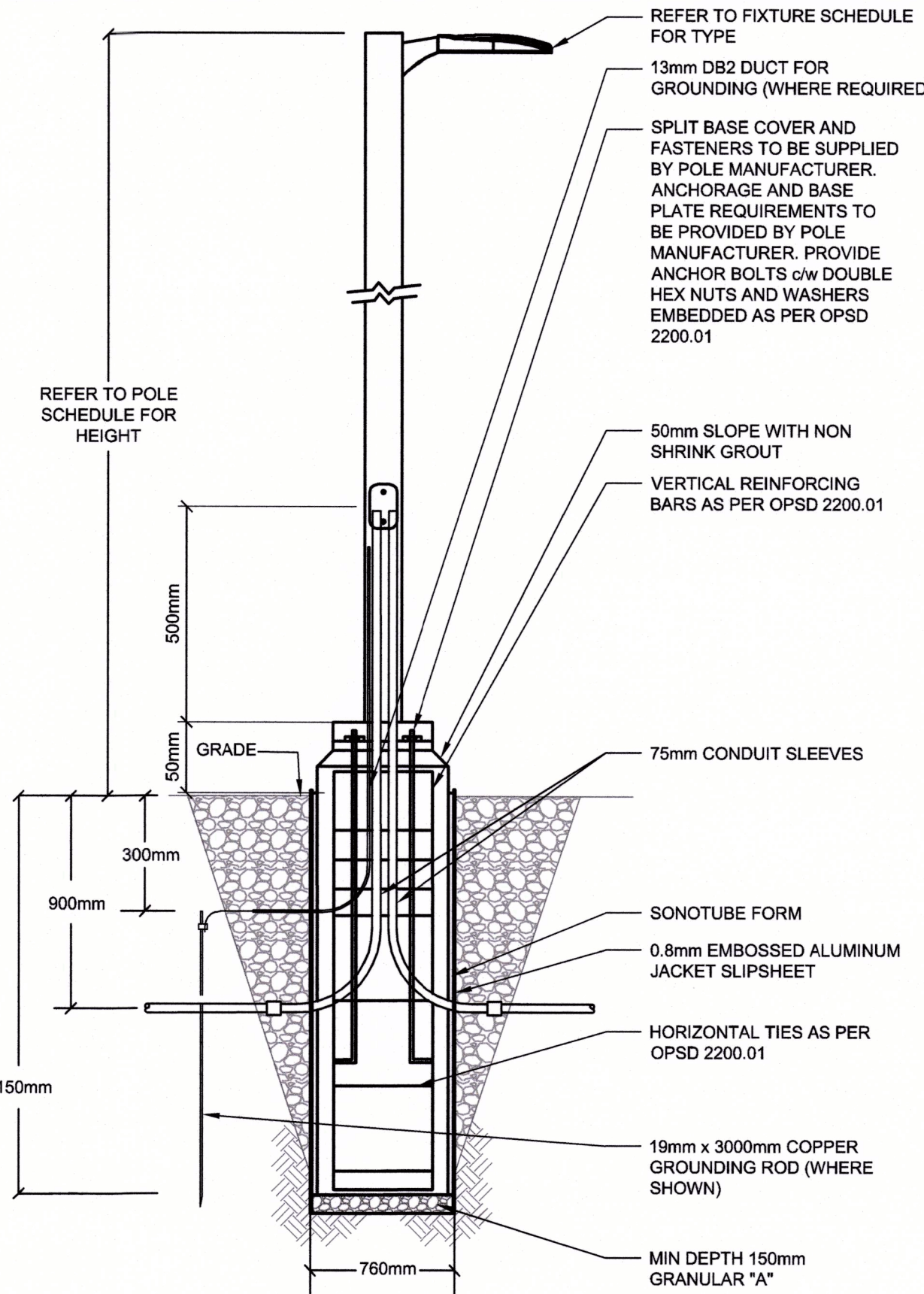
1 VOLTAGE DROP CALCULATIONS
N.T.S.



2 SITE LIGHTING CONTROLS
N.T.S.

FIXTURE AND POLE SCHEDULE:

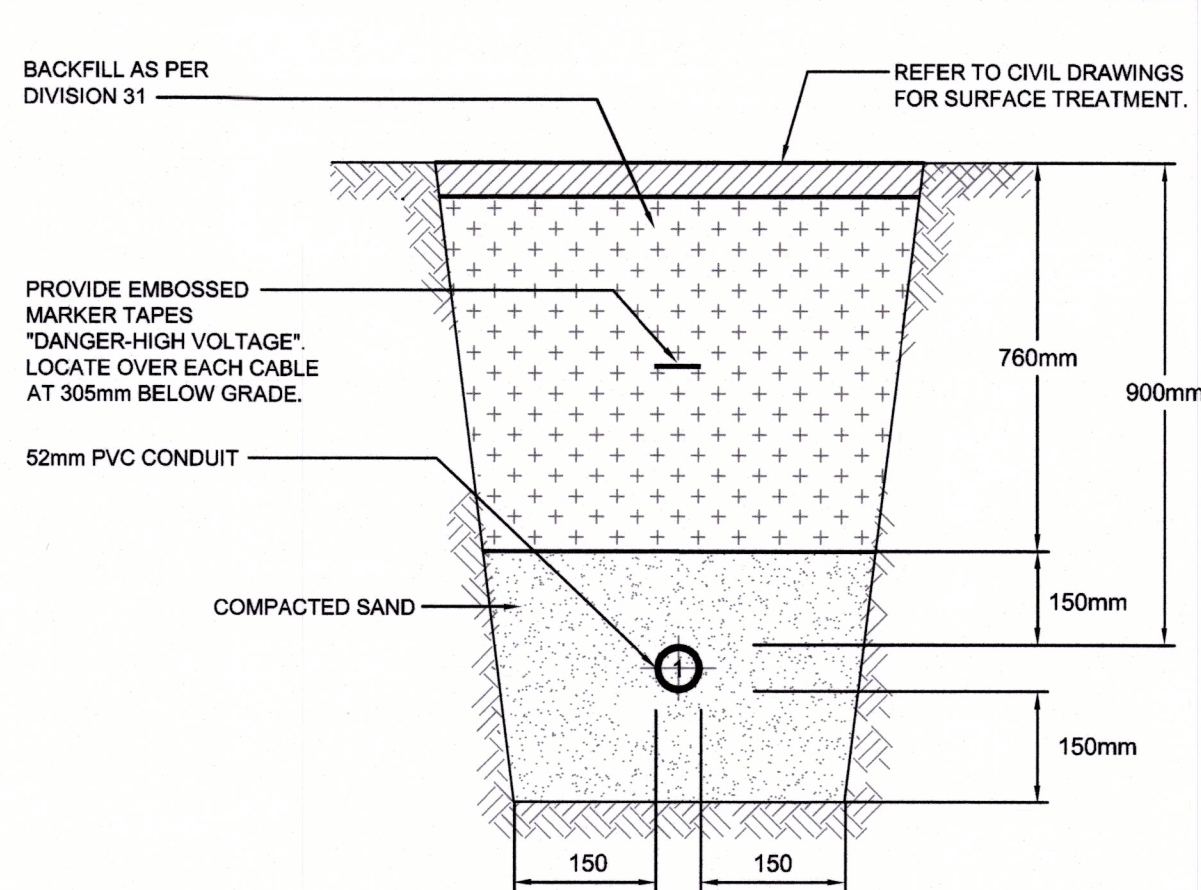
TYPE	FIXTURE:	POLE:
A1	LITHONIA LED AREA LUMINAIRE 70W POLE MOUNT LED - DSX SERIES SIZE 0 - 3000K - TYPE 4 DSX0 LED P3 30K T4M MVOLT RPA	ROUND STRAIGHT ALUMIMUM ANCHOR BASE POLE 6.1m MANUFACTURED BY LITHONIA LIGHTING RSA 20 4C DM19AS DBLXD
A2	LITHONIA LED AREA LUMINAIRE c/w HOUSE SIDE SHIELD 70W POLE MOUNT LED - DSX SERIES SIZE 0 - 3000K - TYPE 4 DSX0 LED P3 30K T4M MVOLT RPA HS	ROUND STRAIGHT ALUMIMUM ANCHOR BASE POLE 6.1m MANUFACTURED BY LITHONIA LIGHTING RSA 20 4C DM19AS DBLXD
A3	LITHONIA LED AREA LUMINAIRE c/w HOUSE SIDE SHIELD 40W POLE MOUNT LED - DSX SERIES SIZE 0 - 3000K - TYPE 5 DSX0 LED P1 30K T5W MVOLT RPA HS	ROUND STRAIGHT ALUMIMUM ANCHOR BASE POLE 4.57m MANUFACTURED BY LITHONIA LIGHTING RSA 15 4C DM19AS DBLXD
A4	LITHONIA LED AREA LUMINAIRE c/w HOUSE SIDE SHIELD 40W POLE MOUNT LED - DSX SERIES SIZE 0 - 3000K - TYPE 5 DSX0 LED P1 30K T5W MVOLT RPA HS	ROUND STRAIGHT ALUMIMUM ANCHOR BASE POLE 6.1m MANUFACTURED BY LITHONIA LIGHTING RSA 15 4C DM19AS DBLXD



LIGHTING POLE GENERAL NOTES:

- ALL FIXTURE POLES TO HAVE INTEGRAL FUSING
- PROVIDE GROUND RODS ON POLES AS INDICATED.
- CONCRETE BASE TO MEET OR EXCEED THE REQUIREMENTS OF OPSP 2200.01.

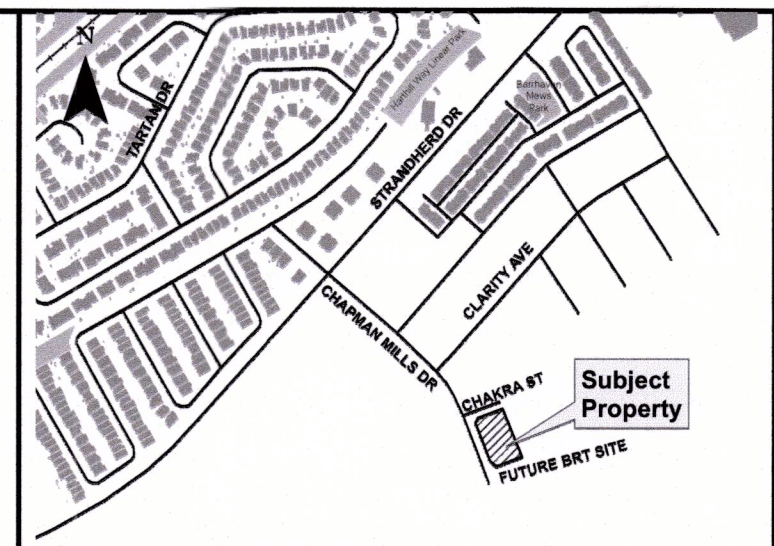
3 TYPICAL POLE MOUNTED LIGHT FIXTURE DETAIL
N.T.S.



4 TYPICAL 1 CONDUIT TRENCH DETAIL
N.T.S.

Statistics					
Description	Symbol	Avg	Max	Min	Max/Min
AMENITY SPACE	+	14.6 lux	18.0 lux	8.3 lux	2.2:1
VEHICLE PARKING LOT	+	13.4 lux	27.6 lux	5.1 lux	5.4:1

5 LIGHTING CALCULATION STATISTICS
SCALE: N.T.S.



KEYPLAN	
LEGEND:	
STREET LIGHT CABLES AND DUCT	
GROUND WIRE	
LED STREET LIGHT	
PHOTOCCELL	

1 VOLTAGE DROP CALCULATIONS
N.T.S.

2 SITE LIGHTING CONTROLS
N.T.S.

FIXTURE AND POLE SCHEDULE:

LIGHTING POLE GENERAL NOTES:

TYPICAL POLE MOUNTED LIGHT FIXTURE DETAIL
N.T.S.

TYPICAL 1 CONDUIT TRENCH DETAIL
N.T.S.

LIGHTING CALCULATION STATISTICS
SCALE: N.T.S.

2	RE-ISSUED FOR SITE PLAN APPROVAL - 3rd SUBMISSION	17/08/18
1	ISSUED FOR CLIENT REVIEW	10/08/18

No.	ISSUE / REVISION	DD/MM/YY
2	RE-ISSUED FOR SITE PLAN APPROVAL - 3rd SUBMISSION	17/08/18
1	ISSUED FOR CLIENT REVIEW	10/08/18

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