

ELECTRICAL SPECIFICATIONS

ELECTRICAL DRAWING LIST

E001	ELECTRICAL SPECIFICATIONS, LEGEND, & DRAWING LIST
E100	SITE PLAN – PHOTOMETRIC
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GENERAL

- CONFORM TO THE GENERAL CONDITIONS OF THE CONTRACT.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE AND PAY FOR NECESSARY INSPECTION PERTAINING TO THE INSTALLATION OF THEIR WORK.
- WORK MUST BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE ONTARIO ELECTRICAL SAFETY CODE, OCCUPATIONAL HEALTH AND SAFETY ACT, AND LOCAL CODES. MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE CANADIAN STANDARDS ASSOCIATION, AND LOCAL CODES.
- DO NOT REDUCE THE STANDARDS ESTABLISHED BY THE DRAWINGS AND SPECIFICATIONS BY APPLYING ANY OF THE CODES REFERRED TO HEREIN.
- PROVIDE ALL MATERIALS AND DEVICES, ALL LABOUR AND TOOLS, AS WELL AS ANY MISCELLANEOUS MATERIALS REQUIRED TO COMPLETE THE WORK INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.
- ELECTRICAL EQUIPMENT IS SHOWN NOT TO SCALE (N.T.S.) ON DRAWINGS.
- ALL ELECTRICAL WORK SHALL BE PERFORMED BY LICENSED ELECTRICIANS HOLDING A VALID CERTIFICATE OF QUALIFICATION.
- CONTRACTOR SHALL MAKE A PERSONAL SITE VISIT TO CONFIRM ALL QUANTITIES, LOCATIONS, AND ARRANGEMENTS BEFORE PROCEEDING WITH THE WORK. CLAIMS FOR EXTRAS WILL NOT BE ACCEPTED FOR WORK RESULTING FROM CONDITIONS THAT WOULD HAVE BEEN EVIDENT UPON THOROUGH EXAMINATION OF THE SITE.
- REPAIR OR PAY FOR ALL DAMAGE TO THE BUILDING INCURRED BY THE WORK OF THIS DIVISION.
- THE OWNER'S PROPERTY MUST BE KEPT IN TIDY CONDITION. PROMPTLY REMOVE GARBAGE FROM THE SITE.
- COORDINATE THE INSTALLATION OF WORK WITH OTHER TRADES. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER LAYOUT OF EQUIPMENT AND MATERIALS AND ENSURING THERE ARE NO INTERFERENCES WITH OTHER SYSTEMS.
- THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR EXCAVATION AND BACK FILL REQUIRED FOR THE INSTALLATION OF UNDERGROUND WORK. BACK FILL MATERIAL MUST BE CLEAN AND PROPERLY COMPACTED.
- EQUIPMENT SHALL BE INSTALLED, TESTED, AND ADJUSTED AS PER THE MANUFACTURER'S INSTRUCTIONS, AND AS NECESSARY TO ENSURE OPTIMUM PERFORMANCE. EQUIPMENT SHALL BE INSTALLED TO ALLOW FOR EASY ACCESS AND MAINTENANCE.
- THE ELECTRICAL CONTRACTOR SHALL GUARANTEE WORK PERFORMED UNDER THIS CONTRACT FOR A PERIOD OF TWO (2) YEARS FROM THE DATE OF SUBSTANTIAL COMPLETION.
- MATERIALS AND EQUIPMENT SHALL BE NEW AND TOP QUALITY, EXCEPT WHERE NOTED OTHERWISE. THIS SPECIFICATION SHALL BE CONSIDERED TO BE THE BASE BID SPECIFICATION AND CONTRACTORS MUST CARRY THE BASE BID MANUFACTURER'S IN THEIR QUOTATION. ALTERNATE MANUFACTURER'S OF EQUIPMENT CAN ONLY BE OFFERED AS PROPOSED ALTERNATES WITH THE CORRESPONDING PRICE REDUCTIONS CLEARLY SHOWN ON A SEPARATE SHEET IF NECESSARY.
- THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM TO THE OWNER SUPPLIED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
- ERRORS OR OMISSIONS IN THE DRAWINGS OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACT ADMINISTRATOR IMMEDIATELY.
- ENSURE THAT ALL EQUIPMENT SUPPLIED IS SUITABLE FOR THE RESPECTIVE VOLTAGE.

TEMPORARY FACILITIES AND WASTE DISPOSAL

- PROVIDE TEMPORARY STORAGE AS REQUIRED FOR ELECTRICAL CONSTRUCTION EQUIPMENT AND MATERIALS. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR STORAGE AND SECURITY OF MATERIALS AND EQUIPMENT ON THE JOB SITE.
- REMOVE ALL CONSTRUCTION WASTE FROM SITE.
- APPLY WASTE MANAGEMENT FOR REDUCTION, RECYCLING AND REUSE.

SUBMITTALS

- SUBMIT SHOP DRAWINGS OR PRODUCT DATA SHEETS, AS APPROPRIATE, TO CONTRACT ADMINISTRATOR FOR ALL ELECTRICAL EQUIPMENT AND DEVICES.
- CHANGES TO THE CONTRACT RESULTING FROM UNFORESEEN SITE CONDITIONS, OR CHANGES REQUIRED BY ANY AND ALL AUTHORITIES HAVING JURISDICTION SHALL BE SUBMITTED TO THE CONSULTANT.
- ONE (1) FULL SIZE SET OF AS-BUILT DRAWINGS AND SPECIFICATIONS SHALL BE MARKED AND SUBMITTED TO THE CONTRACT ADMINISTRATOR.
- CERTIFICATE OF INSPECTION AND APPROVAL FROM THE ELECTRICAL SAFETY AUTHORITY SHALL BE SUBMITTED TO THE CONTRACT ADMINISTRATOR.
- PROVIDE OPERATION AND MAINTENANCE (O&M) MANUALS, TEST RESULTS, CERTIFICATES, AND WARRANTIES. CONTRACTOR SHALL CREATE FIRST PAGE WITH CHART CLEARLY SHOWING REQUIRED MAINTENANCE ACTIVITIES AND ASSOCIATED SCHEDULE PER MANUFACTURER'S RECOMMENDATIONS.

GENERAL PRODUCT REQUIREMENTS

- ALL MATERIAL SHALL BE COMMERCIAL GRADE, NEW, WITHOUT DEFECT, AND C.S.A. APPROVED INCLUDING CONTROL PANEL AND COMPONENT ASSEMBLIES UNLESS NOTED OTHERWISE.
- PROVIDE APPROPRIATE ACCESSORIES TO COMPLETE THE INSTALLATION INCLUDING, BUT NOT LIMITED TO FASTENINGS, SUPPORTS, CONNECTORS, SEALANTS.
- ALL CONDUCTORS SHALL BE COPPER UNLESS NOTED OTHERWISE.
- REMOVE BURRS AND SHARP EDGES.
- PROVIDE SPARE PARTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

PAINT, FINISHES LABELING AND SIGNAGE

- PROVIDE CERTIFICATION LABELS AND WARNING SIGNAGE IN ACCORDANCE WITH THE ELECTRICAL CODE.
- PROVIDE LABELS ON ELECTRICAL DISTRIBUTION EQUIPMENT TO WARN PERSONS OF POTENTIAL ELECTRIC SHOCK AND ARC FLASH HAZARDS. THE OWNER SHALL PROVIDE ARC FLASH RATINGS WHERE REQUIRED.
- CLEARLY IDENTIFY ALL DISTRIBUTION PANELS WITH LAMACOID LABELS.
- PROVIDE COMPLETE, CLEARLY LEGIBLE PANEL DIRECTORY MOUNTED INSIDE THE DOOR OF EACH DISTRIBUTION PANEL. DETERMINE ALL LOADS AND INCLUDE IN PANEL DIRECTORY.

ELECTRICAL EXECUTION REQUIREMENTS

- PROVIDE APPROPRIATE ACCESSORIES TO COMPLETE THE INSTALLATION INCLUDING, BUT NOT LIMITED TO FASTENINGS, SUPPORTS, CONNECTORS, SEALANTS.
- INSTALL ALL MATERIALS IN A NEAT WORKMAN LIKE MANNER, PLUMB, SQUARE AND STRAIGHT WITH RESPECT TO BUILDING LINES.
- MAINTAIN PHASE SEQUENCE AND COLOUR CODING.
- ENSURE THAT SLEEVES AND OPENINGS FOR THIS DIVISION ARE INSTALLED IN FOOTINGS, FOUNDATIONS, AND SLABS BEFORE CONCRETE IS POURED.
- BE PRESENT DURING EXCAVATING AND BACKFILLING WORK WHERE ELECTRICAL SERVICES ARE INSTALLED-ENSURE ROUTE, DEPTH, AND BACKFILL MATERIALS ARE AS SPECIFIED. PROVIDE MARKING TAPES. ARRANGE INSPECTIONS PRIOR TO BACKFILL.
- COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SET SLEEVES IN CAST-IN-PLACE CONCRETE, MASONRY WALLS, AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED.
- COORDINATE ARRANGEMENT, MOUNTING AND SUPPORT OF ELECTRICAL EQUIPMENT:
 - TO PROVIDE FOR EASE OF MAINTENANCE, OPERATION OF DOORS AND ACCESS POINTS OF THE EQUIPMENT WITH MINIMUM INTERFERENCE TO OTHER INSTALLATIONS;
 - SUCH THAT RACEWAYS, CABLES, WIREWAYS WILL BE CLEAR OF OBSTRUCTIONS AND OF THE WORKING AND ACCESS SPACE OF OTHER EQUIPMENT;
 - SUCH THAT NAMEPLATES AND LABELS ARE VISIBLE.

RACEWAY, JUNCTION BOXES AND ENCLOSURES

- CLEAN CONDUIT OF OBSTRUCTIONS BEFORE PULLING WIRE.
- PROVIDE KNOCK-OUT PLUGS AND COVER PLATES TO COVER ALL REMAINING OPENINGS ON PANELS AND JUNCTION BOXES.
- ENSURE WEATHERPROOF ENCLOSURES ARE SEALED TIGHT EXCEPT FOR ANY APPROPRIATE DRAIN HOLES OR VENTS.
- PROVIDE BUSHINGS FOR PIPE SLEEVES TO PROTECT EMERGING CONDUCTORS.
- PROVIDE SLEEVES FOR PENETRATIONS UNLESS CORE-DRILLED HOLES OR FRAMED OPENINGS ARE USED.
- SEAL SPACE OUTSIDE OF SLEEVES WITH GROUT. PROMPTLY PACK GROUT SOLIDLY BETWEEN SLEEVE AND WALL SO NO VOIDS REMAIN. TOOL EXPOSED SURFACES SMOOTH; PROTECT GROUT WHILE CURING. PROVIDE WEATHERPROOF SEALS FOR EXTERIOR PENETRATIONS.
- TEMPORARILY SEAL CONDUIT ENDS WHERE EXPOSED TO DIRT, FIBERS OR FLYINGS, WATER, OR FALLING DEBRIS DURING CONSTRUCTION.
- USE FITTINGS WITH EQUAL PROTECTION TO ENCLOSURE TYPE TO SEAL OUT WATER/OIL.

- PROTECT ENCLOSURES WITH SEALS/COVERS WHERE EXPOSED TO DIRT, FIBERS OR FLYINGS, WATER, FALLING DEBRIS, OR OTHER CONTAMINANTS DURING CONSTRUCTION.

PANELBOARDS

- COVER EXPOSED PANELS TO PROTECT FROM DUST, PAINT AND OTHER CONTAMINANTS DURING CONSTRUCTION. CLEAN OUT DUST AND DEBRIS BEFORE ENERGIZING.

WIRES AND CABLES

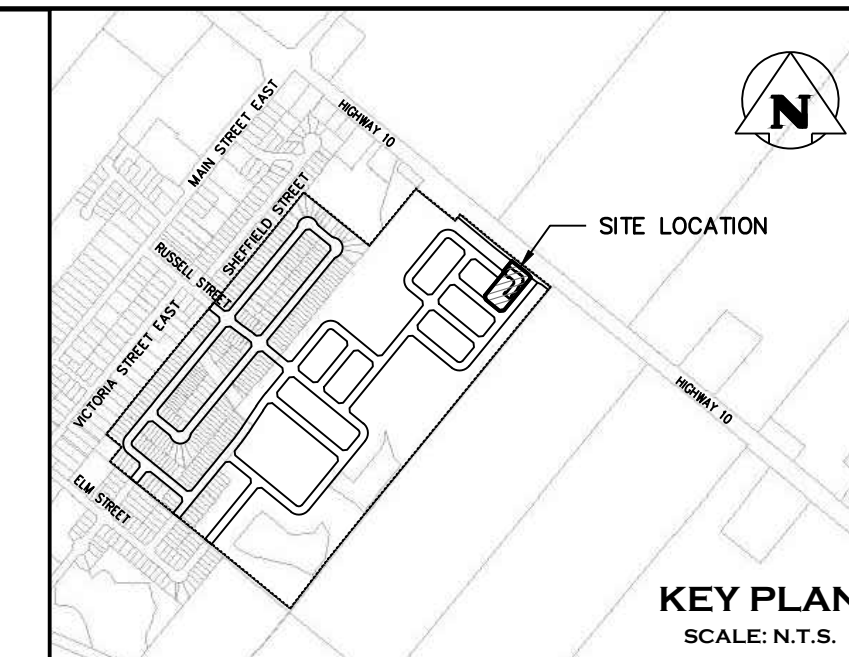
- DO NOT SPLICE.
- ALL CONDUCTORS: COPPER.
- CONDUCTORS #14AWG AND LARGER: STRANDED.
- PULL CABLE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, USING CABLE GRIPS AND LUBRICANT SUITABLE FOR THE TYPE OF CABLE.

GROUNDING AND BONDING

- GROUNDING REQUIREMENTS ARE GENERALLY NOT SHOWN ON THE DRAWINGS. PROVIDE ALL GROUNDING PER THE LATEST ONTARIO ELECTRIC SAFETY CODE (OESC), ELECTRICAL SAFETY AUTHORITY (ESA) OR ANY OTHER LOCAL AUTHORITY REGARDLESS OF WHETHER IT HAS BEEN SHOWN. THIS INCLUDES EQUIPMENT GROUNDING AS WELL AS SYSTEM (SERVICE) AND DISTRIBUTION GROUNDING. PROVIDE ADDITIONAL SPECIFIC PROVISIONS AS INDICATED, INCLUDING GROUND CONNECTIONS. PROVIDE THESE INSTALLATIONS TO ELECTRICAL SAFETY CODE REGULATIONS. COLLECT ALL GROUNDING CONNECTIONS AT A COMMON POINT WHICH IN TURN IS CONNECTED TO THE MAIN SERVICE GROUND.
- ARRANGE GROUNDS SUCH THAT UNDER NORMAL OPERATION CONDITIONS CURRENT FLOW IN ANY GROUND CONDUCTOR IS NOT OBJECTIONABLE AND WILL NOT HARM PERSONNEL OR EQUIPMENT. ARRANGE SERVICE GROUNDS AND DISTRIBUTIONS GROUND RESISTANCE READINGS WITHIN VALUES REQUIRED BY THE ELECTRICAL SAFETY CODE.

FIELD QUALITY CONTROL

- CAREFULLY CHECK WIRING FOR EACH SYSTEM TO ENSURE THAT THE SYSTEM WILL FUNCTION PROPERLY AS INDICATED BY WIRING AND SCHEMATIC DIAGRAMS AND DESCRIPTION OF OPERATION.
- TEST THE ELECTRICAL INSTALLATION FOR PROPER AND SAFE OPERATION IN ACCORDANCE WITH THE INTENT OF THE DRAWINGS AND SPECIFICATIONS.
- REPLACE COMPONENTS DAMAGED DURING TESTING AT NO ADDITIONAL COST TO THE OWNER.
- MEGGER ALL POWER CIRCUITS 600V AND ABOVE.
- INSTRUCT OWNER OR OWNER'S REPRESENTATIVE IN OPERATION OF SYSTEMS.



ELECTRICAL LEGEND	
LIGHTING	
	PROPOSED POLE MOUNTED LIGHT FIXTURE
	PROPOSED POLE MOUNTED LIGHT FIXTURES MOUNTED AT 180°
	PROPOSED WALL PACK
POWER & SYSTEMS	
	PAD-MOUNTED TRANSFORMER
	SWITCHGEAR
	GROUNDING RODS
	CONCRETE ENCASED DUCT BANK (X DENOTES NUMBER OF DUCTS)
	CCTV CAMERA
LINETYPES	
	PROPERTY LINE
	PRIMARY CABLE RED, WHITE, & BLUE
	SECONDARY CABLE
ABBREVIATIONS	
D.B.	DIRECT BURIED

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- THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.
- DO NOT SCALE THE DRAWINGS.
- ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

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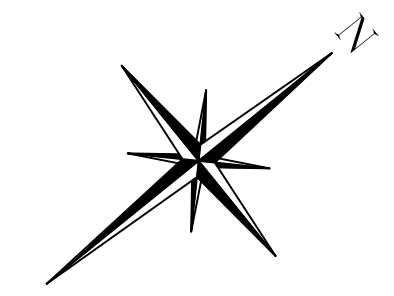
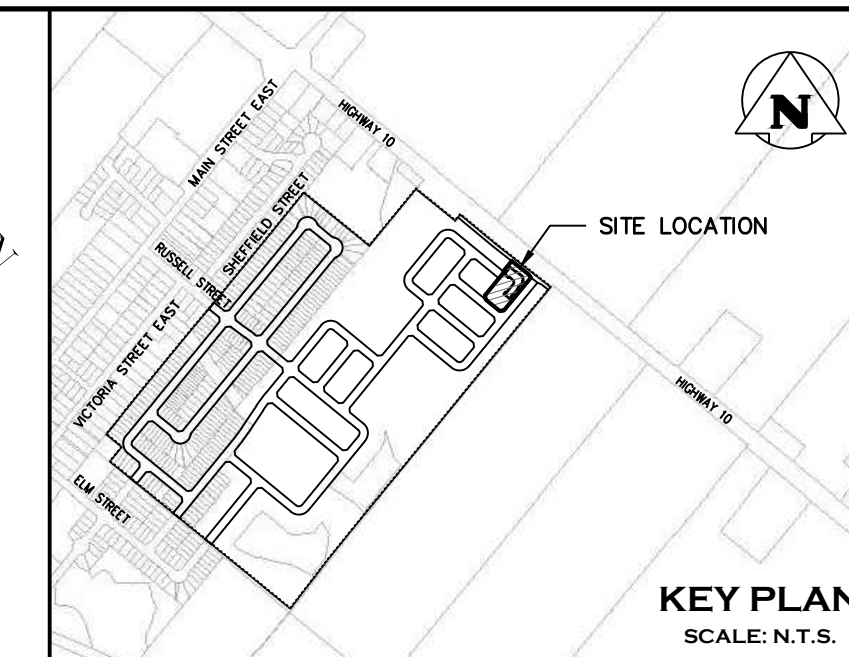
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**DUNDALK COMMERCIAL BLOCK
TOWNSHIP OF SOUTHGATE**

ELECTRICAL SPECIFICATIONS, LEGEND, & DRAWING LIST

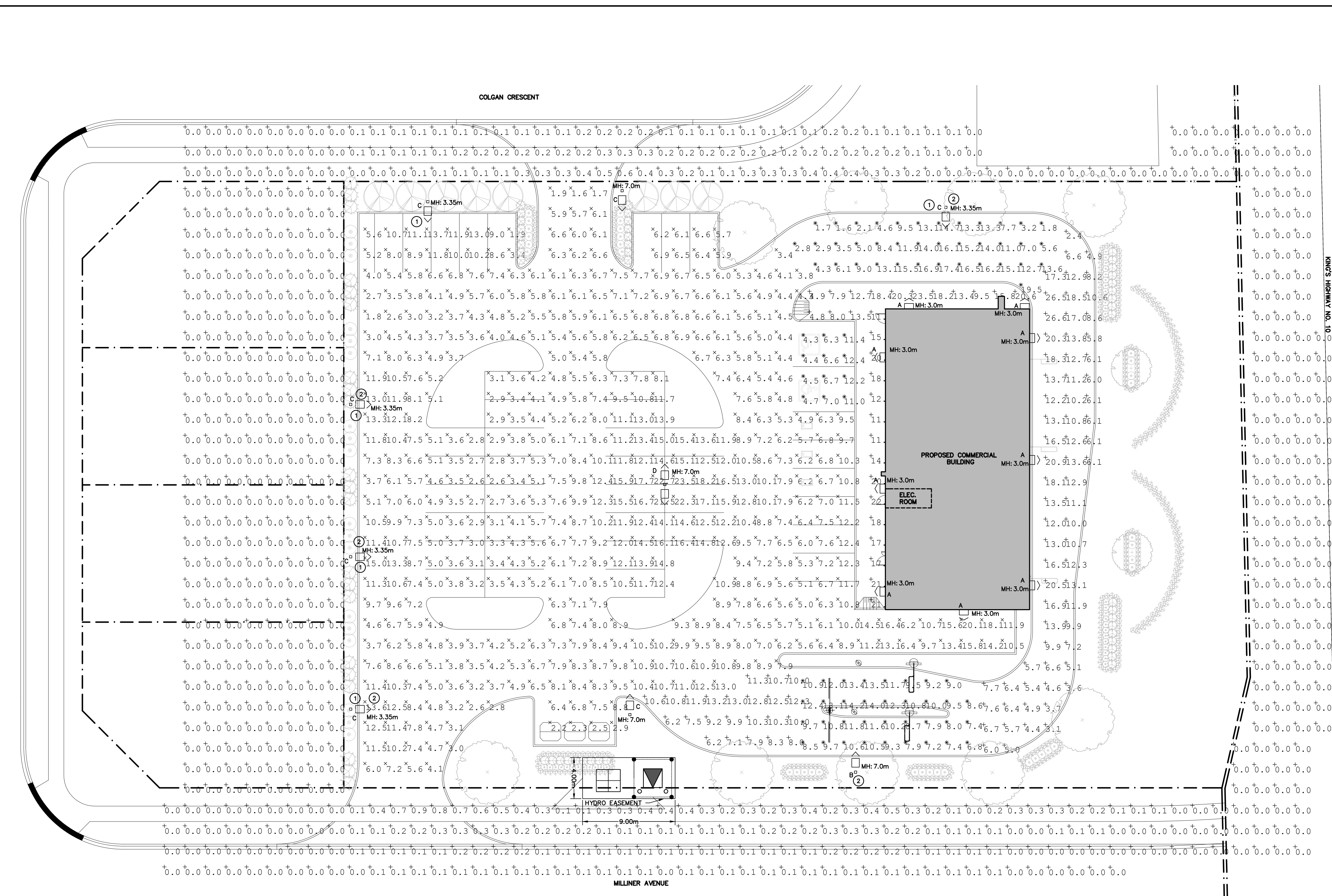
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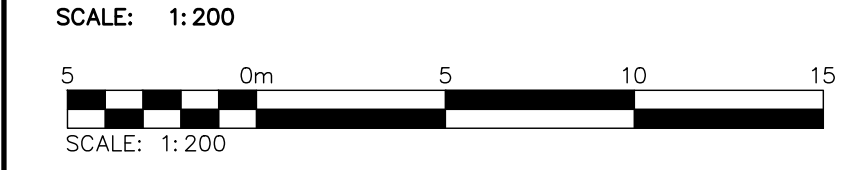


DRAWING NOTES:

- ① LIGHTING FIXTURE TO BE DIMMED TO 50% NOMINAL LEVELS USING DIMMER. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH LIGHTING SUPPLIER PRIOR TO INSTALLATION.
- ② TREES AND SHRUBS TO BE RELOCATED IN ORDER TO MEET LIGHTING AND POWER & SYSTEMS REQUIREMENTS.



SITE PLAN – PHOTOMETRIC



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- 4. DO NOT SCALE THE DRAWINGS.
- 5. ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

No.	ISSUE / REVISION	DATE: DD/MM/YYYY	Engineer
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DUNDALK COMMERCIAL BLOCK
TOWNSHIP OF SOUTHGATE

Drawing: **SITE PLAN – PHOTOMETRIC**

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STATISTICS SCHEDULE					
DESCRIPTION	SYMBOL	AVG(fc)	MAX(fc)	MIN(fc)	AVG/MIN
ACCESSIBLE PARKING	*	7.6	12.4	4.3	1.8:1
BUILDING WALKWAY	+	15.4	23.5	4.8	3.2:1
DRIVE THRU	+	10.6	26.6	2.4	4.4:1
DRIVE THRU ENTRANCE	+	10.0	13.2	6.2	1.6:1
DRIVE THRU EXIT	*	10.0	19.5	1.6	6.3:1
PARKING LOT	x	7.6	23.5	1.6	4.8:1
SPEAKER AREA	*	10.2	14.2	6.8	1.5:1

LUMINAIRE SCHEDULE								
SYMBOL	LABEL	MANUFACTURER	CATALOG NUMBER	LIGHT LOSS FACTOR	DIMMING LIGHT LOSS FACTOR	MOUNTING HEIGHT	WATTAGE	DESCRIPTION
☐	A	COOPER	GAW-SA2C-740-U-T3-BK-PR7	0.85	N/A	MOUNTED AT 3.0m (9.8')	113W	GAW GALLEON WALL PACK, 113W, WITH TYPE T3 DISTRIBUTION
☐☐>	B	COOPER	GLNA-AF-10-LED-E1-SL2-BK-PER7-HSS	0.85	N/A	MOUNTED ON 6.1m (20') POLE ON 0.9m (3') CONCRETE BASE	558W	GLNA GALLEON LED AREA FIXTURE, 501W, WITH TYPE SL2 DISTRIBUTION, C/W HOUSE SIDE SHIELD. MOUNTED ON A SQUARE STEEL POLE.
☐☐>	C	COOPER	GLNA-AF-06-LED-E1-SL4-BK-DIM-PER7-HSS	0.85	0.425	SEE SHEET E100 FOR MOUNTING HEIGHT	333W	GLNA GALLEON LED AREA FIXTURE, 333W, WITH TYPE SL4 DISTRIBUTION, C/W HOUSE SIDE SHIELD. MOUNTED ON A SQUARE STEEL POLE.
<☐☐☐>	D	COOPER	GLNA-AF-10-LED-E1-T4FT-BK-PER7-HSS	0.85	N/A	MOUNTED ON 6.1m (20') POLE ON 0.9m (3') CONCRETE BASE	2x558W	GLNA GALLEON LED AREA FIXTURE, 558W, WITH TYPE T4FT DISTRIBUTION. MOUNTED ON A SQUARE STEEL POLE AT 180°.

THE FOLLOWING NOTATIONS APPLY TO ALL LUMINAIRES IN SCHEDULE, UNLESS OTHERWISE NOTED:

- ALL LUMINAIRES SHALL UTILIZE HIGH POWER FACTOR.
- ALL LED LUMINAIRES SHALL HAVE AT LEAST 50,000 HOURS WARRANTY INCLUDING DRIVERS. ALL LUMINAIRES COLOUR TEMPERATURE SHALL BE 4000K, UNLESS OTHERWISE NOTED.

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- THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.
- DO NOT SCALE THE DRAWINGS.
- ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

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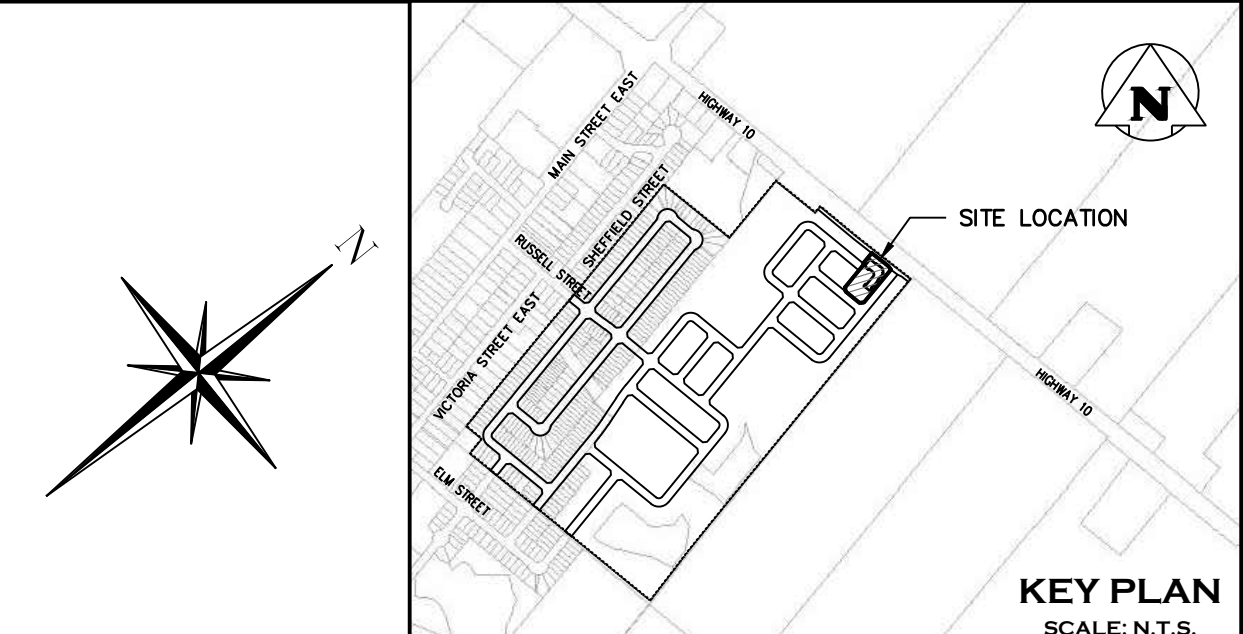
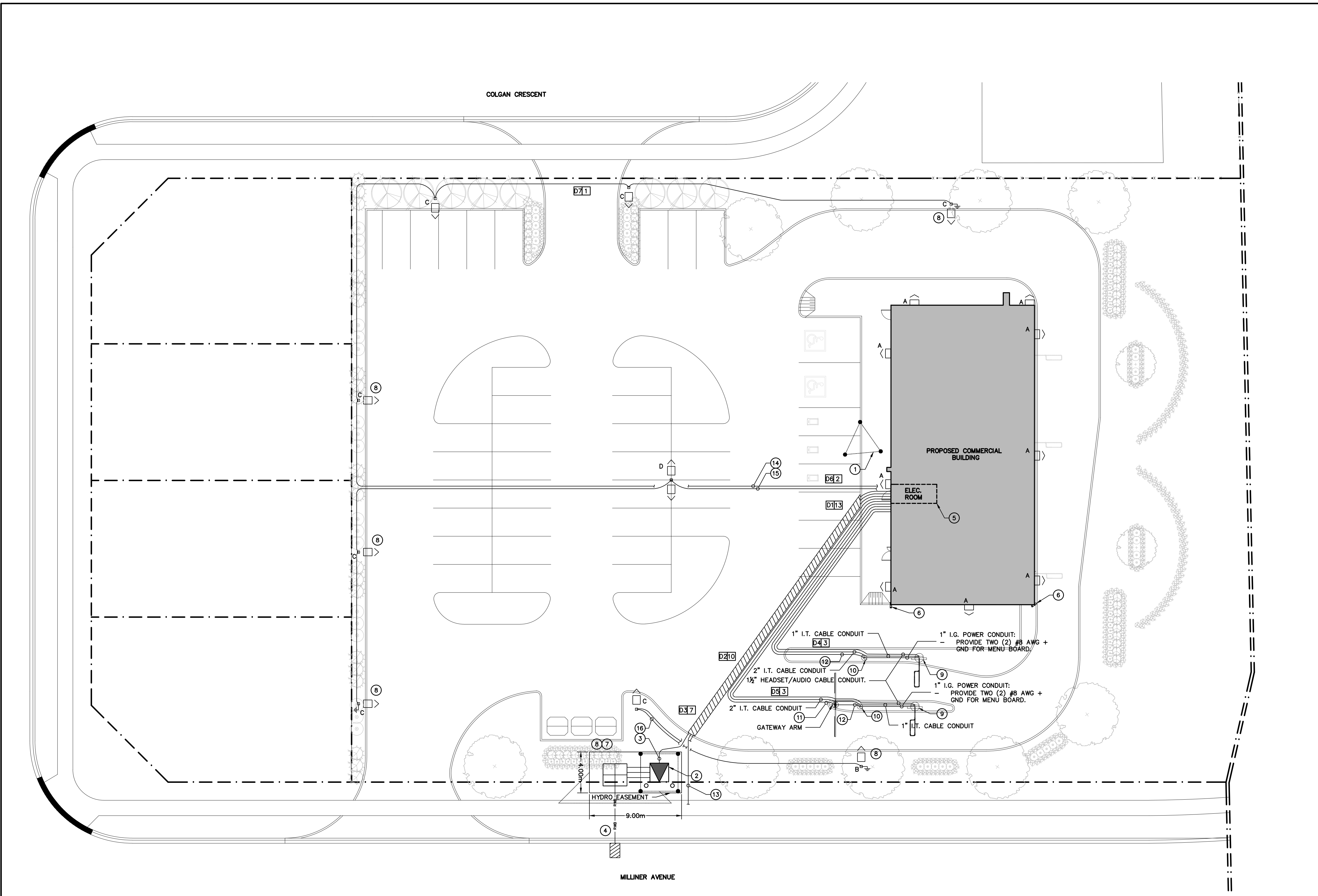
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Project	DUNDALK COMMERCIAL BLOCK TOWNSHIP OF SOUTHGATE		
Drawing	SITE LIGHTING DETAILS		

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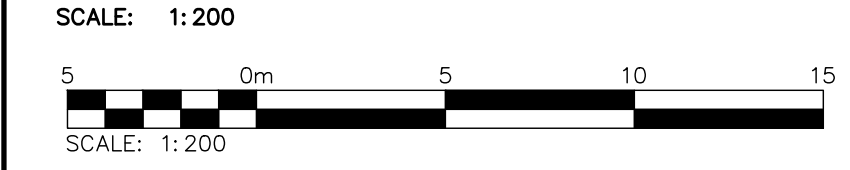
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Scale	N.T.S.	Check By	P.W.	Drawing	E102



- GENERAL NOTES:**
- SECONDARY FEEDS TO BE RUN UNDERGROUND THROUGH A SLEEVE INTO THE BUILDING TO THE POINT OF CONNECTION WITH 30 FEET COILED PER REQUIREMENTS
 - ELECTRICAL CONTRACTOR TO COORDINATE ELECTRICAL INSTALLATION INSPECTIONS AND PROVIDE ESA CERTIFICATE TO PROJECT OWNER UPON COMPLETION OF WORK.
 - ALL DATA CABLE RUNS MUST HAVE DEDICATED CONDUIT RUNS, NO SHARING WITH OTHER CABLEING.
 - ALL I.T. DATA RUNS SHOULD BE FIBRE OPTICS AND SHOULD NOT TRANSITION OUT OF THE CONDUIT RUN ON THE INSIDE (BY OTHERS).
 - ALL HEADSET & SPEAKER LINE RUNS FROM OUTSIDE IN A 1.5" CONDUIT WILL ENTER INTO A PULL BOX INSIDE BUILDING. LINES WILL THEN BE RUN TO THEIR SPECIFIC HEADSET/SPEAKER LOCATIONS (BY OTHERS).
 - ALL I.G. POWER RUNS FROM OUTSIDE IN A 1" CONDUIT WILL ENTER INTO A PULL BOX INSIDE BUILDING. I.G. POWER THEN WILL BE RUN TO AND TERMINATED ABOVE THE I.G. PANEL (BY OTHERS)
 - ALL I.T. DATA RUNS FROM OUTSIDE WILL ENTER INTO A PULL BOX INSIDE BUILDING. DATA LINES WILL THEN BE RUN TO AND TERMINATED ABOVE THE I.T. RACK (BY OTHERS).
 - ALL CONSTRUCTION TO BE COMPLETED AND COORDINATED PER LATEST STANDARDS AND REQUIREMENTS.
 - CONTRACTOR TO SUBMIT ALL SHOP DRAWINGS TO ELECTRICAL ENGINEER ON RECORD.
 - IT IS THE RESPONSIBILITY OF THE CONTRACTOR/SUB-CONTRACTOR TO IDENTIFY ANY ERRORS/CONTRADICTIONS/DISCREPANCIES BETWEEN DRAWINGS AND/OR SPECIFICATIONS DURING THE TENDER PERIOD. SHOULD CONTRACTOR/SUB-CONTRACTOR NOT IDENTIFY SAID ITEMS DURING THE TENDER PERIOD, THE OWNER/CONSULTANT SHALL ENFORCE SUCH DETAIL THAT IS MORE COSTLY OR ROBUST.
 - ELECTRICAL CONTRACTOR SHALL COORDINATE PRIOR TO THE DUCTBANK INSTALLATION WITH OTHER DISCIPLINES REQUIRING EMBEDDED SERVICES, SUCH AS SANITARY, DOMESTIC WATER, GAS, STORM, BELL, AND ROGERS.
 - ELECTRICAL CONTRACTOR TO INSTALL FOUR (4) VEHICLE DETECTION LOOPS AS SUPPLIED. COORDINATE EXACT REQUIREMENTS WITH PROJECT OWNER AND GENERAL CONTRACTOR.
 - ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL PROPOSED EXTERIOR WALL MOUNTED LUMINAIRE TYPE 'A'. CIRCUITING TO BE COMPLETED BY OTHERS.
 - PER REQUIREMENTS, SITE ELECTRICAL CONTRACTOR TO PROVIDE 3' CLEARANCE FROM PROPOSED FOUNDATION WALL AND CONDUIT ROUGH-INS PRIOR TO BUILDING CONSTRUCTION. EXACT REQUIREMENTS TO BE COORDINATED PRIOR TO ROUGH-INS.
 - HYDRO ONE TO PROVIDE 400A, 600V, 3PH, 4W SERVICE TO THE PROPOSED COMMERCIAL DEVELOPMENT.

- DRAWING NOTES:**
- GROUNDING RODS (3) REFER TO MAIN GROUNDING SYSTEM IN DWG. E111 FOR DETAILS. PROVIDE A COMPLETE INSTALLATION IN ACCORDANCE WITH ALL APPLICABLE LATEST CODES. SUBMIT SHOP DRAWINGS TO ENGINEER FOR REVIEW.
 - PROPOSED PAD MOUNTED TRANSFORMER C/W GROUNDING GRID FOR PROPOSED RESTAURANT. ELECTRICAL CONTRACTOR TO PROVIDE HY-GRADE PRECAST TYPE TP-48-103D TRANSFORMER PAD COMPLETE WITH ALL ACCESSORIES FOR A COMPLETE INSTALLATION. COORDINATE REQUIREMENTS WITH HYDRO ONE. MAINTAIN MIN. 1m HORIZONTAL CLEARANCE FROM SECONDARY CABLES.
 - PROVIDE SECONDARY UNDERGROUND FEEDER FROM TRANSFORMER. PROVIDE TWO (2) SETS OF 3#250 MCM PHASE CONDUCTOR + #250 MCM NEUTRAL CONDUCTOR + GND IN 4" PVC CONDUIT SAND ENCASED SECONDARY DUCTBANK AS SHOWN ON DWG. E111 DETAIL. ALL CONDUCTORS SHALL BE COPPER. PROVIDE GROUNDING CONDUCTORS IN CONFORMANCE WITH THE LATEST ONTARIO ELECTRICAL SAFETY CODE.
 - PROPOSED HYDRO SERVICE LOCATION FOR PROPOSED COMMERCIAL BUILDING. PENDING CONFIRMATION FROM HYDRO ONE. ELECTRICAL CONTRACTOR TO PROVIDE PRIMARY SERVICE DUCTBANK AS REQUIRED BY HYDRO ONE. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH HYDRO ONE PRIOR TO ROUGH-IN.
 - ESTIMATED LOCATION FOR ELECTRICAL ROOM FOR PROPOSED COMMERCIAL BUILDING. COORDINATE EXACT LOCATION WITH OWNER. COORDINATE REQUIREMENTS WITH HYDRO ONE.
 - ELECTRICAL CONTRACTOR TO COORDINATE EXACT LOCATION AND REQUIREMENTS FOR CCTV CAMERAS WITH PROJECT OWNER PRIOR TO ROUGH-IN. DETAIL DESIGN BY OTHERS.
 - PROPOSED SWITCHGEAR LOCATION.
 - TREES AND SHRUBS TO BE RELOCATED IN ORDER TO MEET LIGHTING AND POWER & SYSTEMS REQUIREMENTS.
 - MENU BOARD C/W VEHICLE DETECTOR LOOP (FED FROM BLDG. ELEC. ROOM):
- 1 1/2" CONDUIT REQUIRED FROM MENU BOARD BASE TO VEHICLE DETECTOR LOOP. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH PROJECT OWNER PRIOR TO ROUGH-IN.
 - PRE-SALE BOARD (FED FROM MENU BOARD).
 - I.G. POWER CONDUIT:
- PROVIDE TWO (2) #8 AWG + GND FOR MENU BOARD.
- PROVIDE TWO (2) #8 AWG + GND FOR PRE-SALE BOARD.
- PROVIDE TWO (2) #8 AWG + GND FOR GATEWAY ARM
 - I.G. POWER CONDUIT:
- PROVIDE TWO (2) #8 AWG + GND FOR MENU BOARD.
- PROVIDE TWO (2) #8 AWG + GND FOR PRE-SALE BOARD.
 - PROVIDE TWO (2) - FOUR (4") DIAMETER CONDUIT AND FISH WIRE FOR TELECOMMUNICATIONS SERVICE TERMINATED WITH PROPOSED BUILDING AT REQUIRED LOCATION. CAPPED ENDS OF TELECOMMUNICATION ROUGH-INS SHALL BE CLEARLY STAKED AND IDENTIFIED ON SITE TO TENANTS REPRESENTATIVE WHEN BUILDING CONSTRUCTION COMMENCES. CONTRACTOR TO VERIFY EXACT REQUIREMENTS WITH LOCAL UTILITIES PRIOR TO ROUGH-INS. ALL FINAL CHANGES TO BE APPROVED BY ENGINEER OF RECORD AND PROJECT OWNER.
 - PROVIDE UNDERGROUND FEEDER FOR SITE LIGHTING. PROVIDE ONE (1) 20-AMP BREAKER ON PANEL FOR SITE LIGHTING. PROVIDE TWO (2) #4 AWG + GND IN 53mm (2") PVC CONDUIT. INSTALLATION TO BE IN CONFORMANCE WITH ALL APPLICABLE ONTARIO ELECTRICAL SAFETY CODES. PROVIDE UNDERGROUND FEEDER FROM PANEL IN COMMERCIAL BUILDING ELECTRICAL ROOM.
 - PROVIDE UNDERGROUND FEEDER FOR SITE LIGHTING. PROVIDE ONE (1) 20-AMP BREAKER ON PANEL FOR SITE LIGHTING. PROVIDE TWO (2) #6 AWG + GND IN 53mm (2") PVC CONDUIT. INSTALLATION TO BE IN CONFORMANCE WITH ALL APPLICABLE ONTARIO ELECTRICAL SAFETY CODES. PROVIDE UNDERGROUND FEEDER FROM PANEL IN COMMERCIAL BUILDING ELECTRICAL ROOM.
 - PROVIDE UNDERGROUND FEEDER FOR SITE LIGHTING. PROVIDE ONE (1) 20-AMP BREAKER ON PANEL FOR SITE LIGHTING. PROVIDE TWO (2) #8 AWG + GND IN 53mm (2") PVC CONDUIT. INSTALLATION TO BE IN CONFORMANCE WITH ALL APPLICABLE ONTARIO ELECTRICAL SAFETY CODES. PROVIDE UNDERGROUND FEEDER FROM PANEL IN COMMERCIAL BUILDING ELECTRICAL ROOM.

SITE PLAN - POWER & SYSTEMS



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3. THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.

4. DO NOT SCALE THE DRAWINGS.

5. ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

No.	ISSUE / REVISION	DATE: DD/MM/YYYY
1	DRAFT FOR REVIEW	13/01/2022

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

DUNDALK COMMERCIAL BLOCK
TOWNSHIP OF SOUTHGATE

Project

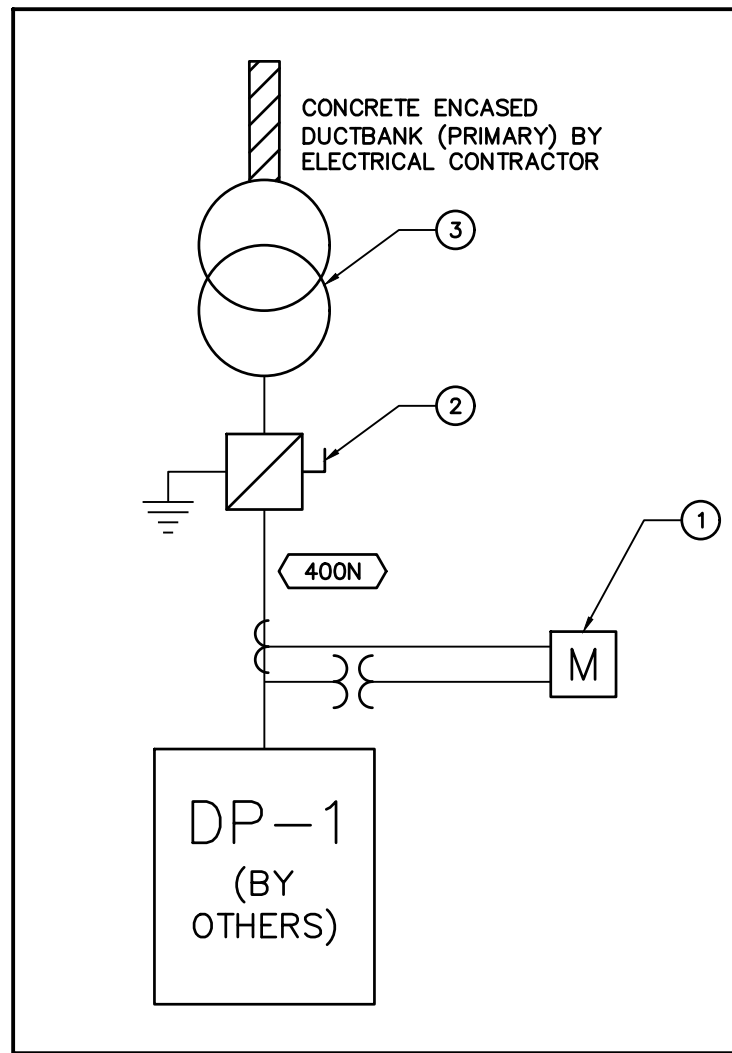
Drawing

SITE PLAN - POWER & SYSTEMS

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CONSULTING ENGINEERS

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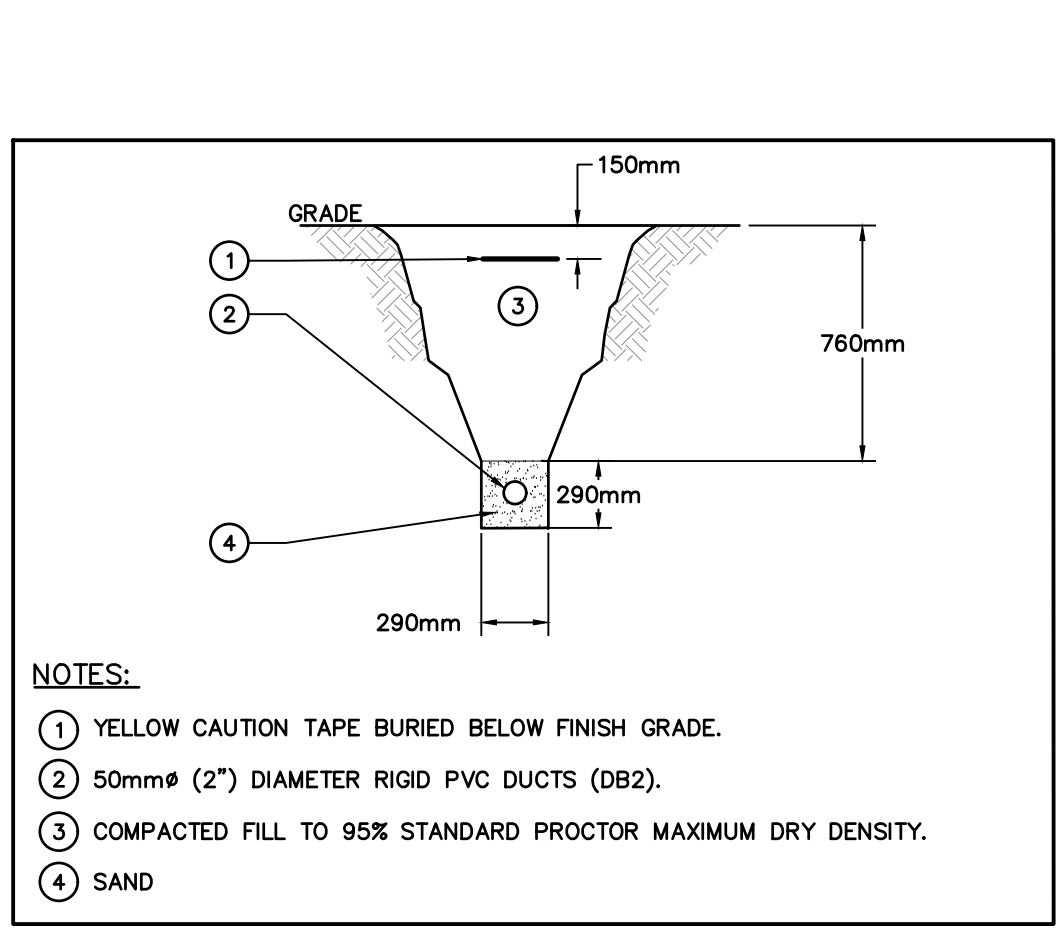


FEEDER SCHEDULE					
FEEDER	AMPACITY	SET(S)	PHASE CONDUCTOR	NEUTRAL	CONDUIT (INCH)
400N	400	2	3#250	1#250	103mm (4")

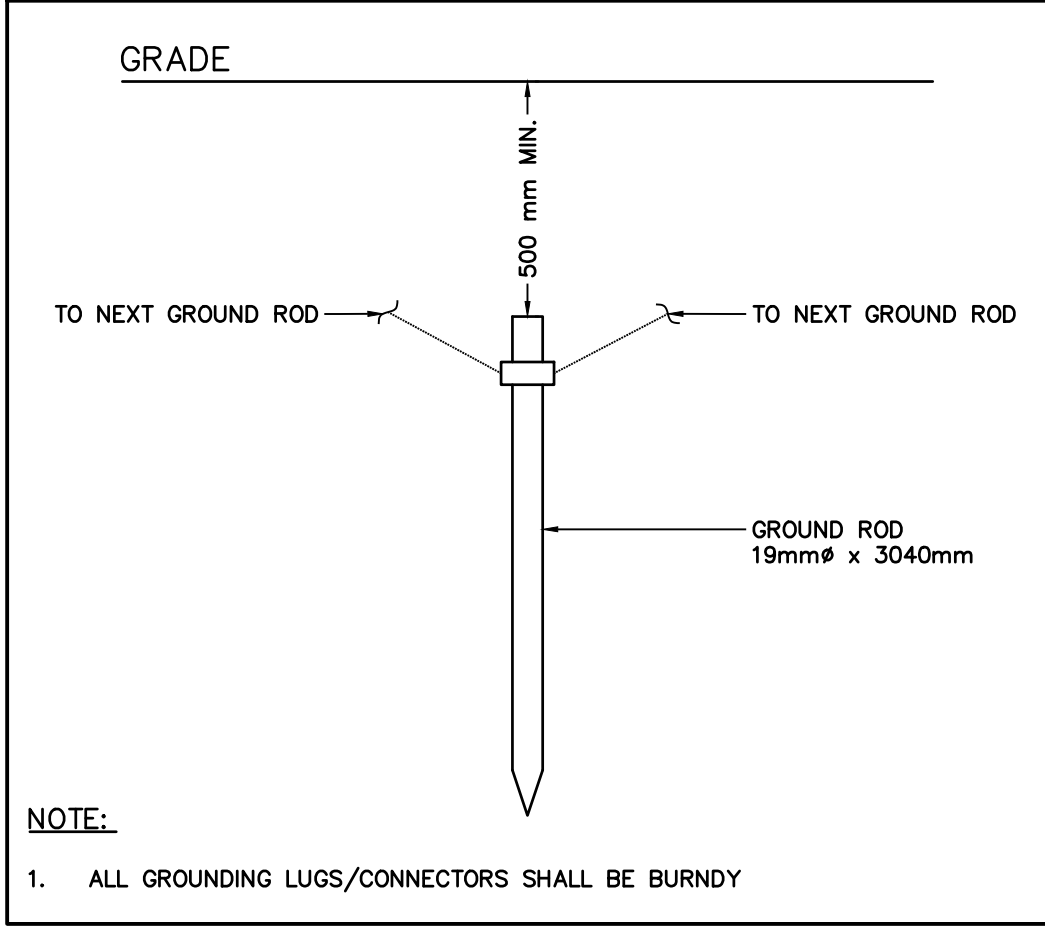
FEEDER SCHEDULE NOTE:
1. ALL CONDUCTORS SHALL BE COPPER.

- SINGLE LINE DIAGRAM NOTES:**
- ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL BULK METERING CABINET. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH HYDRO ONE.
 - 400A, 347/600V, 3ø, 4W, SERVICE RATED MAIN DISCONNECT SWITCH FUSED AT 400A WITH 50KAIC RATING.
 - HYDRO ONE PAD-MOUNTED TRANSFORMER. ELECTRICAL CONTRACTOR TO SUPPLY NEMA COMPRESSION SPADES FOR THE SECONDARY CONDUCTORS INSTALLED INTO THE TRANSFORMER VAULT, FOR INSTALLATION BY HYDRO ONE. COORDINATE EXACT LOCATION, REQUIREMENTS AND INSTALLATION WITH HYDRO ONE.

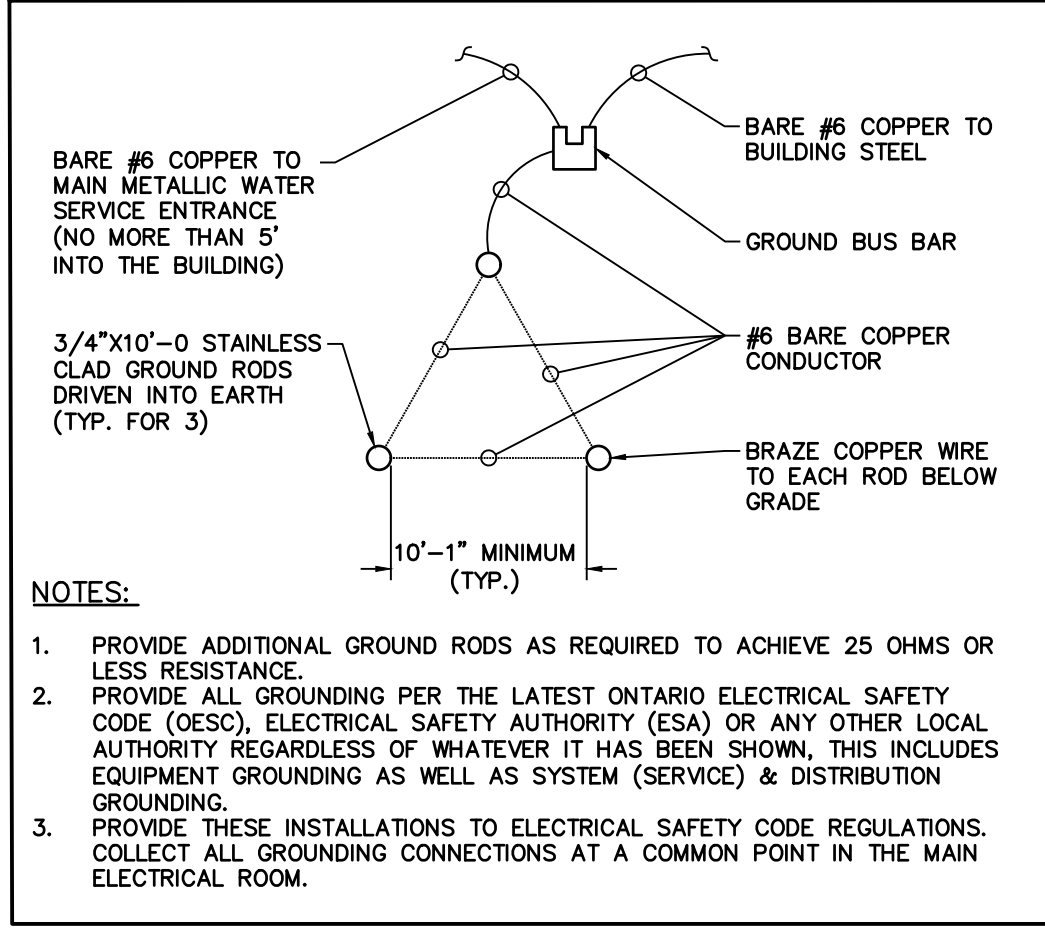
SINGLE LINE DIAGRAM
SCALE: N.T.S.



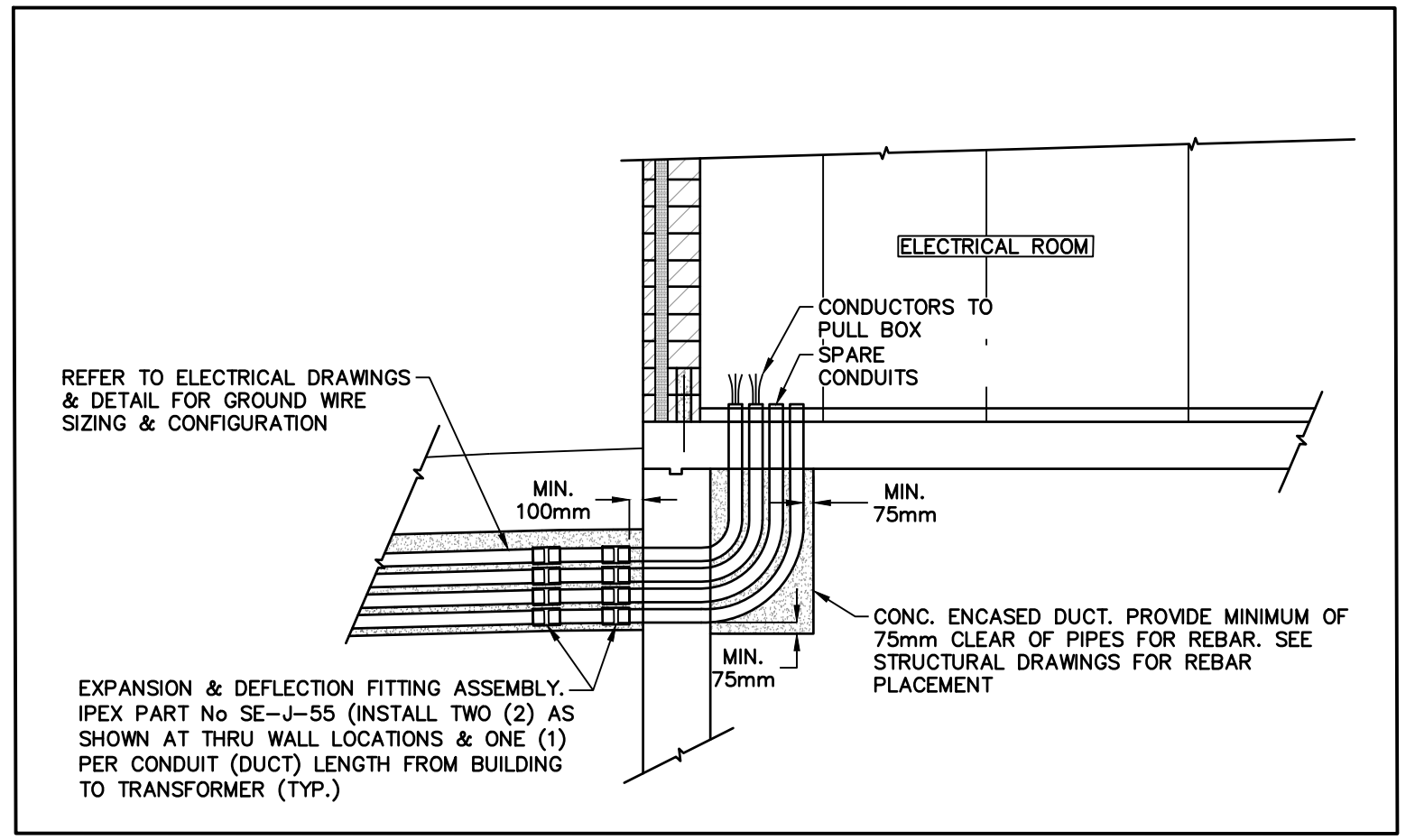
TYPICAL DUCT BANK DETAIL FOR LIGHTING CABLES
SCALE: N.T.S.



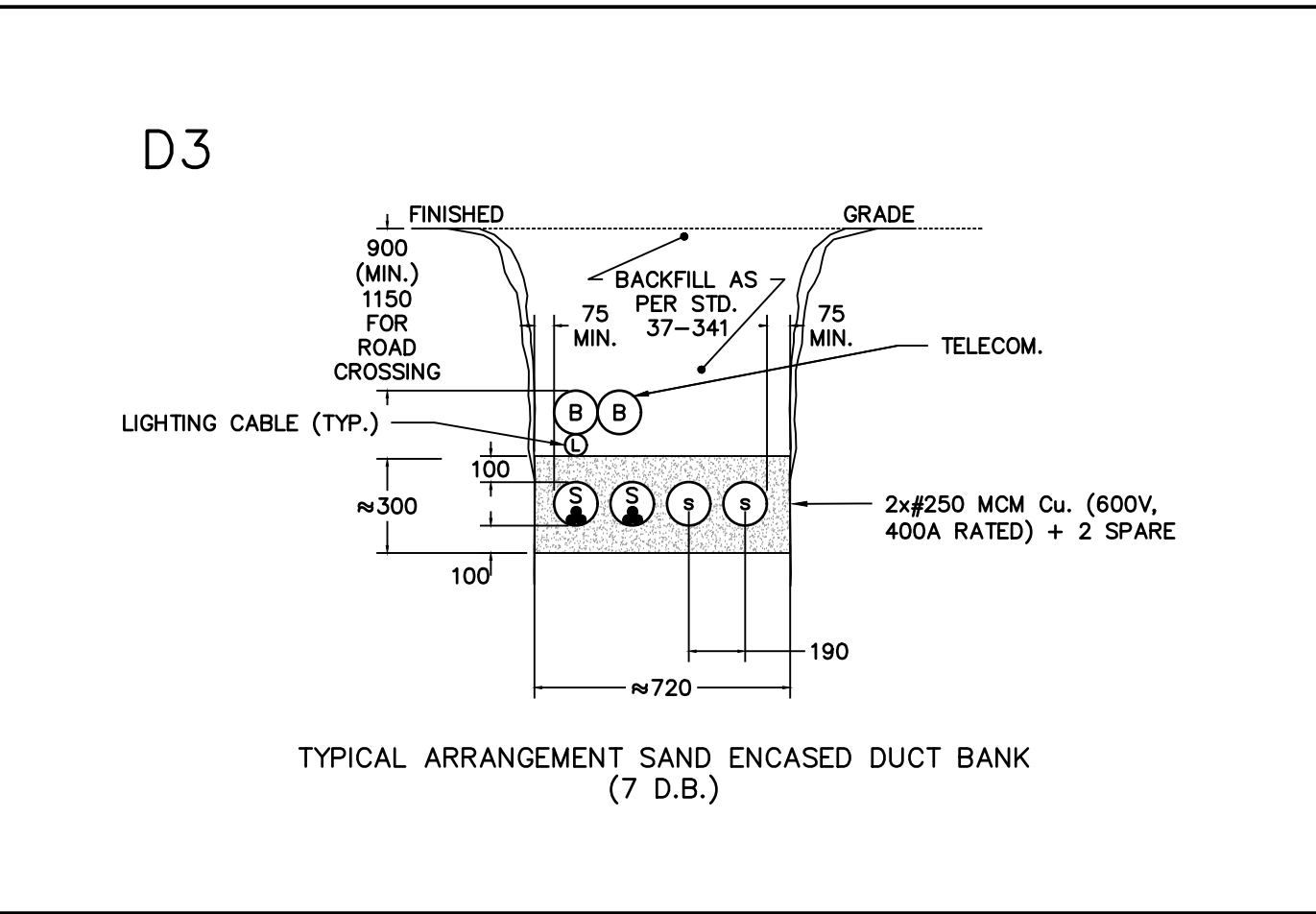
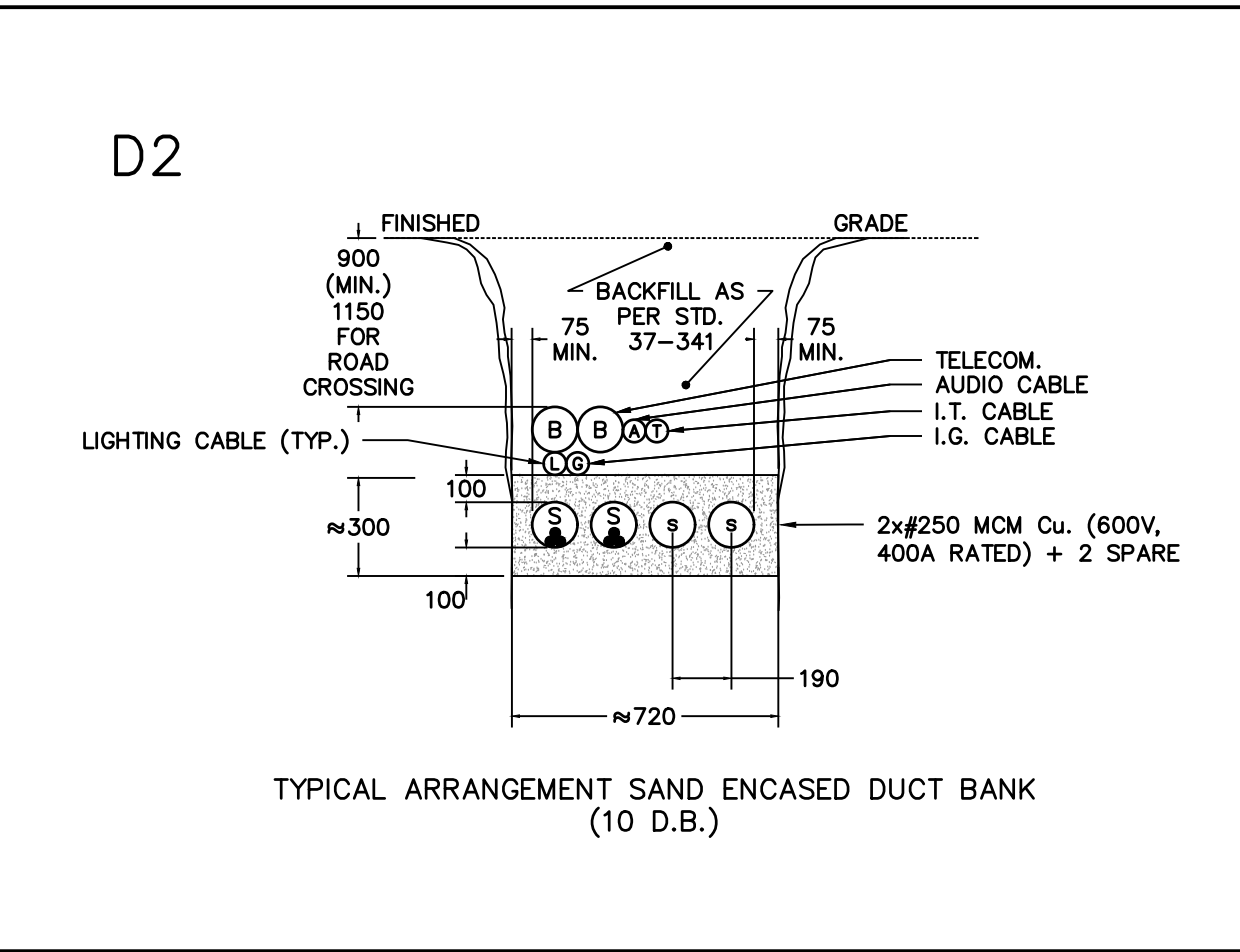
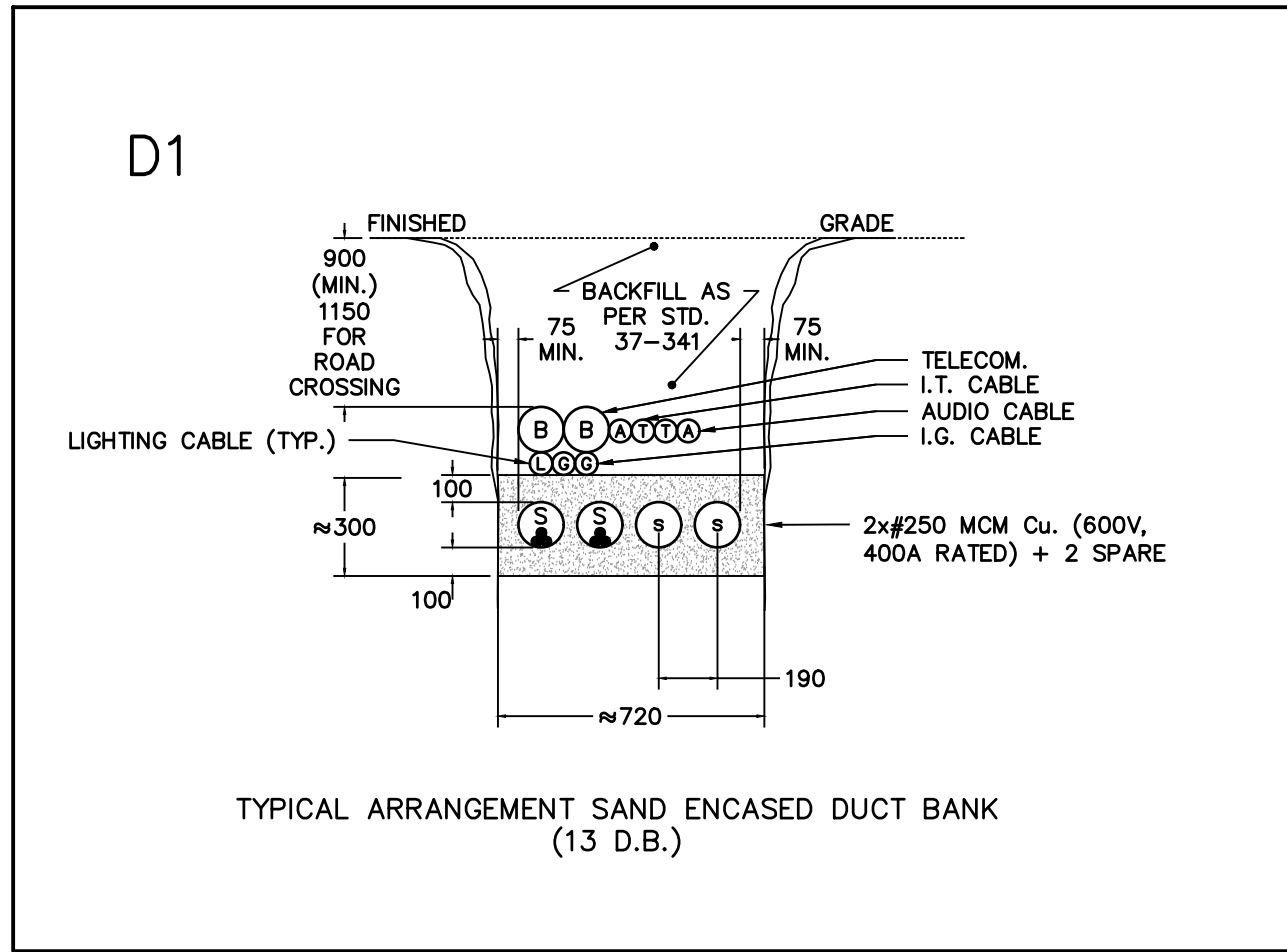
GROUND ROD DETAIL
SCALE: N.T.S.



MAIN GROUNDING SYSTEM
SCALE: N.T.S.



ELECTRICAL DUCTS & BUILDING DETAIL
SCALE: N.T.S.



DUCT BANK DETAILS
SCALE: N.T.S.

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Project: **DUNDALK COMMERCIAL BLOCK TOWNSHIP OF SOUTHGATE**
Drawing: **SINGLE LINE DIAGRAM & SITE POWER & SYSTEMS DETAILS**

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Scale: N.T.S.	Check By: P.W.	Drawing: E110