		ELECTRIC HEATER	RSCHEDULE			
TYPE	DESCRIPTION	MOUNTING	CONTROL	MANUFACTURER/MODEL NO.	WATTAGE VOLTAGE	REMARKS
EBB-2.5	ELECTRIC BASEBOARD HEATER	SURFACE	REMOTE T-STAT	OUELLET OFM2508	2500 208	C/W WHITE FINISH, PROVIDE REQUIRED RELAYS AND CONNECTIONS SUCH THAT UNITS SHUT DOWN UPON COOLING SIGNAL FROM LOCAL COOLING MECH EQUIPMENT.
NOTES:						

					WIRIN	G FOR	MECH	IANICAL	EQl	JIPMENT SCHEDULE							
LABEL	DESCRIPTION	LOCATION	VOLT	PH	HP	WATTS	FLA	ISO. SW.	Р	POWER WIRING	CTRL BY ELEC	SOURCE PNL	DISC AMP	FUSE	BRK	Р	REMARKS
UH-101	UNIT HEATER	STARBUCKS	208	1	-	6800	-	60	1	2-#8 CU + GND IN 3/4"C	RAT	2A	-	-	50	1	-
EF-101	EXHAUST FAN	MECH ROOM	120	1	1/60	-	-	15	1	2-#12 CU + GND IN 3/4"C	RAT	2H	-	-	15	1	-
EBB-2.5	ELECTRIC BASEBOARD HEATER	MECH ROOM	208	1	-	2500	-	30	1	2-#12 CU + GND IN 3/4"C	RAT	2H	-	-	20	1	-
ABBREVIATI	ONS:		OS RAT	-		ANCY SEN		OSTAT		NOTES: 1. INSTALL ALL WIRING II	N CONDUIT WITH	SHORT LENG	TH LIQUID TIG	HT FLEX T	ГО МОТОГ	R OR V	IBRATING

REMOTE PUSH BUTTON OFF

RELAY

RPB

	NOTES:	I CONDLIIT WITH	SHODT LENG			TO MOTO	> ∩P \	/IRDATING
1	2-#12 CU + GND IN 3/4"C	RAT	2H	1	-	20	1	-
1	2-#12 CU + GND IN 3/4"C	RAT	2H	-	-	15	1	-
1	2-#8 CU + GND IN 3/4"C	RAT	2A	-	-	50	1	-

INSTALL ALL WIRING IN CONDUIT WITH SHORT LENGTH LIQUID TIGHT FLEX TO MOTOR OR VIBRATING EQUIPMENT. WIRE THROUGH TC OR RAT SUPPLIED BY MECHANICAL/ CONTROLS CONTRACTOR

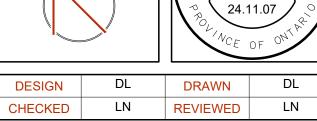
1385 North Routledge Park, Unit 9 London, ON N6H 5N5 P 519.472.7640 KINGSTON: 1471 John Counter Blvd. Unit 301 Kingston, ON K7M 8S8 P 613.900.0845 KITCHENER: 210-137 Glasgow Street, Office #141 Kitchener, ON N2G 4X8 P 519.472.7640 W www.callidus.ca E info@callidus.ca

_	KEYPLAN	<u> </u>
PRO	OPERTY	LINE
DINSON SIMEST		

188	KEYPLAN PROPERTY LINE
DIMISON SIMEET	AREA OF WORK

NO.	ISSUED FOR	DATI
110.	IOCOLD I OIX	DATE
00	90% COORDINATION	24.06.
01	100% COORDINATION	24.10.
02	PERMIT	24.11.





100183976

PROJECT
STARBUCKS

STARBUCKS COBOURG

ADDRESS

1030 DIVISION STREET, COBOURG, ON

PROJECT NO.

CE-5924

DRAWING TITLE ELECTRICAL LEGENDS,

SCHEDULES & SINGLE LINE

DIAGRAMS

DRAWING NUMBER

E1 OF 5

NOTE 1: INTERCONNECT THERMOSTAT WITH HEATING/COOLING SYSTEM TO TURN OFF HEATER WHEN COOLING SYSTEM IS ON.

DRAWING NOTES (INDICATED WITH HEXAGONS):

1 PROVIDE 3RD PARTY METERING APPURTENANCES AT SWITCHBOARD SWB-A FOR EACH TENANT.

2 PROVIDE 4" CONCRETE HOUSE KEEPING PAD FOR SWITCHBOARD SWB-A. MAINTAIN 1.0m CLEARANCE IN FRONT OF SWB AS PER OESC REQUIREMENTS.

(3) PROVIDE COMPRESSION LUGS IN JUNCTION BOX FOR PROPER CONNECTION BETWEEN NEW CABLES AND

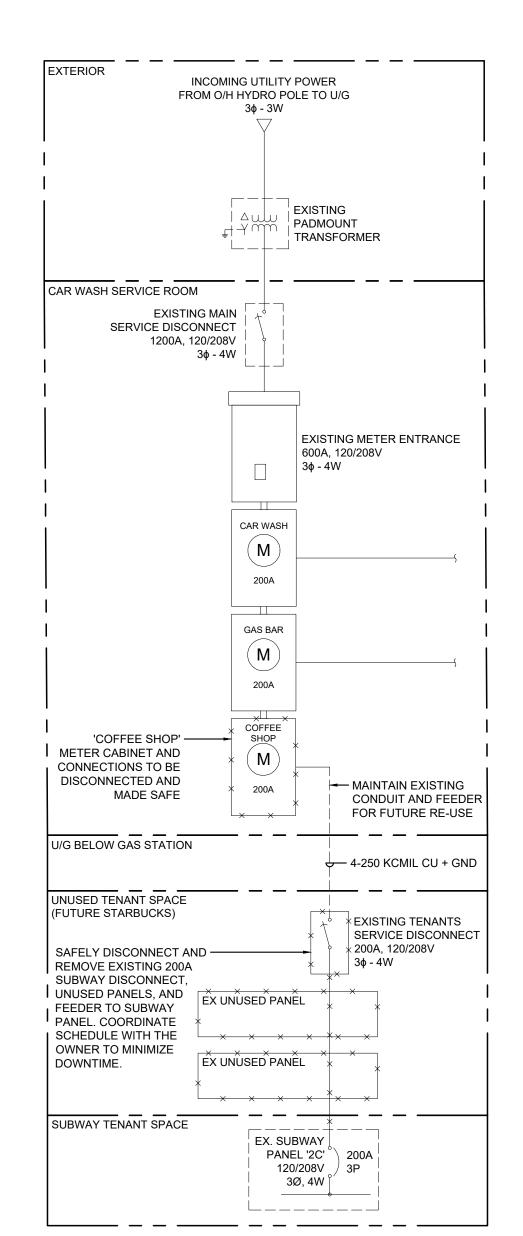
EXISTING. 4 UTILIZE EXISTING 4-WIRE 250kCMIL CABLE FOR THE NEW

CONNECTION BETWEEN TR-6A AND TR-2A. 5 PROVIDE 4'X4' METER CABINET WITH BACKPLATE, RECEPTACLE AND COMMUNICATION LINE TO HYDRO

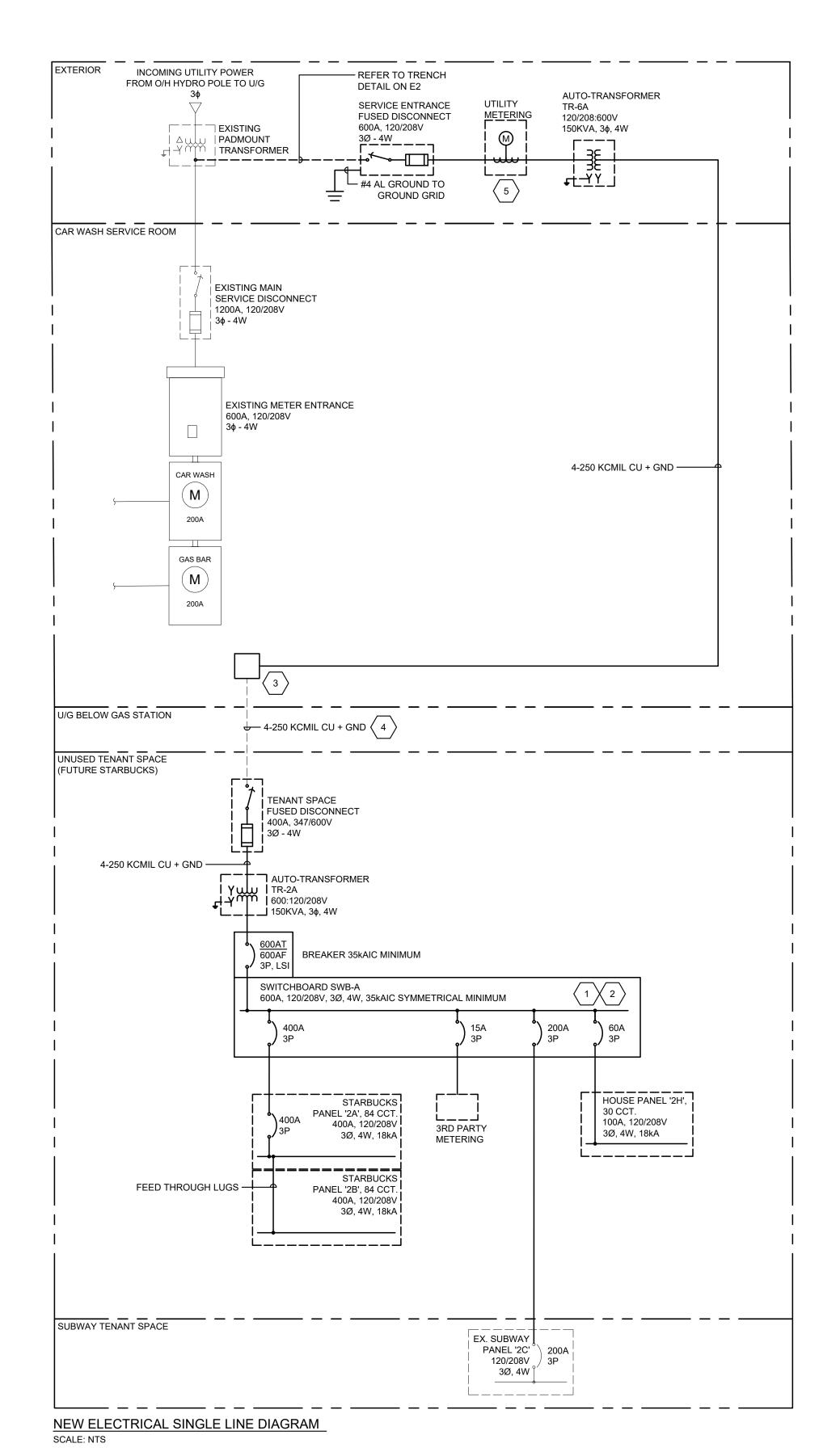
REQUIREMENT FOR UTILITY METERING.

GENERAL NOTES:

- PROVIDE SYSTEM GROUND TO THE MINIMUM REQUIREMENT OF O.E.S.C. SECTIONS 10-100 TO 10-118 WHERE APPLICABLE. ALL GROUNDING AND BONDING METHOD SHALL COMPLY WITH THE LATEST EDITION OF O.E.S.C. SECTION 10.
- ALL CONDUCTORS ARE COPPER UNLESS OTHERWISE NOTED.
- ALL DISTRIBUTION EQUIPMENT SHALL BE COMPLETE WITH SPRINKLER PROOF ENCLOSURES AND DRIPSHIELDS.
- FEEDER SIZES SHOWN ARE BASED ON CIRCUIT AMPACITY AND VOLTAGE DROP CALCULATIONS. ELECTRICAL CONTRACTOR SHALL PROVIDE VOLTAGE DROP CALCULATIONS TO ELECTRICAL CONSULTANT TO REVIEW FOR ANY PROPOSED CHANGES IN FEEDER SIZING.
- ALL BRANCH CIRCUIT CONDUCTORS FOR HOUSE LOADS SHALL BE SIZED AS PER TABLE D3 AND ASSOCIATED CLAUSES OF THE OESC TO ACCOUNT FOR VOLTAGE DROP.
- SIZE PROTECTIVE DEVICES AND FEEDERS OF ALL MOTOR/MECHANICAL EQUIPMENT IN ACCORDANCE TO FINAL NAMEPLATE RATING OF EQUIPMENT. COORDINATE WITH SHOP DRAWINGS FOR EXACT REQUIREMENT AND PROVIDE AT NO ADDITIONAL COST.READ ELECTRICAL DRAWINGS IN CONJUNCTION WITH MECHANICAL DRAWINGS AND PROVIDE INTERLOCKING, RELAYS ETC FOR MECHANICAL EQUIPMENT AS REQUIRED FOR A FULLY OPERATIONAL SYSTEM.







CONT

COMB

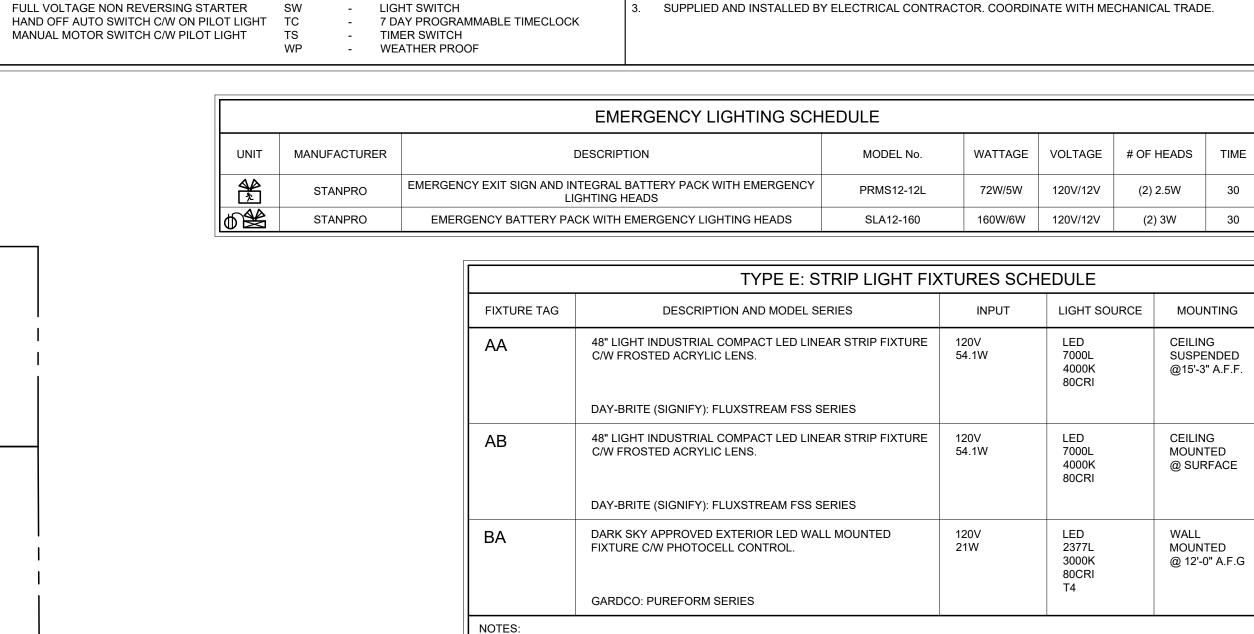
FVNR

HOA

MAN

CONTACTOR, SIZE AS INDICATED

COMBINATION DISCONNECT & STARTER



NOTES:
PROVIDE ALL NECESSARY MOUNTING HARDWARE FOR A COMPLETE INSTALLATION. COORDINATE WITH ARCHITECTURAL CEILING PLAN TO CONFIRM CEILING MATERIAL AND MOUNTING TYPE.

SYMBOL	DESCRIPTION
-××	DEMOLITION
	EXISTING
	NEW
<u> </u>	CIRCUIT WIRE
	BELOW GRADE OR SLAB RACEWAY OR FEEDER ROUTE AS NOTED

_		
		ELECTRICAL TAG/NAME LEGEND
	SYMBOL	DESCRIPTION
	EB#	EMERGENCY BATTERY UNIT #: 1,2,
	WP	WEATHERPROOF
	EX	EXISTING TO REMAIN
	REM	REMOVE EXISTING
	REL	RELOCATE EXISTING
	ER	EXISTING AS RELOCATED
	N	NEW FIXTURE OR DEVICE / EQUIPMENT

	RECEPTACLE LEGEND
SYMBOL	DESCRIPTION
Ф	DUPLEX RECEPTACLE
WP	WEATHER PROOF
	COMMUNICATION LEGEND

	COMMUNICATION LEGEND
SYMBOL	DESCRIPTION
•	TELEPHONE OUTLET
A	TELEPHONE/DATA OUTLET
∇	DATA OUTLET

	ELECTRIC HEATER
	LIGHTING LEGEND
SYMBOL	DESCRIPTION
	STRIP LIGHT FIXTURE
Ç	POLE LIGHT
Q	WALL MOUNT LIGHT FIXTURE
\$ \$ \$	SWITCH 1-GANG, 2-GANG, 3-GANG
(\$)	OCCUPANCY SENSOR SWITCH
(OCCUPANCY SENSOR DIMMER SWITCH
3	DENOTES 3-WAY SWITCHING
a,b,c	LIGHTING CONTROL ZONE

EQUIPMENT AND CONNECTION LEGEND

CONNECTION TO MOTOR OR MOTORIZED PIECE OF

SYMBOL DESCRIPTION

JB

PB

TC

Ŧ

₽

ELECTRICAL PANEL

TRANSFORMER

DISCONNECT

EMPTY BOX

PULL BOX

TIME CLOCK

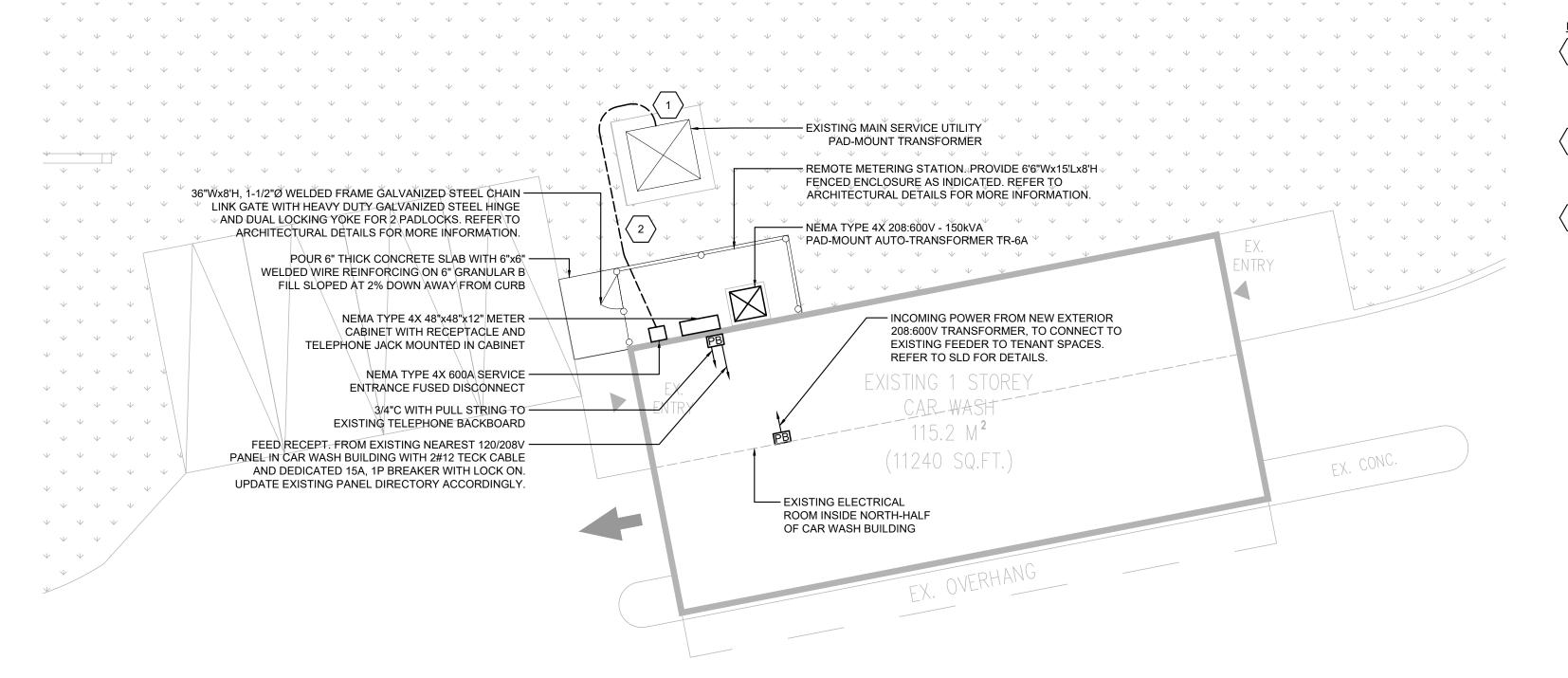
PUSH BUTTON

ELECTRICAL THERMOSTAT

JUNCTION BOX

ENCLOSED BREAKER

DIRECT CONNECTION



DRAWING NOTES (INDICATED WITH HEXAGONS):

- 1 COORDINATE WITH LAKEFRONT UTILITIES FOR TRANSFORMER SECONDARY SPADE-EXTENSION CONNECTIONS AND PROVIDE ACCORDINGLY. SUBMIT SPADE-EXTENSION SHOP DRAWINGS FOR UTILITIES REVIEW. INSTALLATION OF CONTRACTOR SUPPLIED SPADE-EXTENSION TO BE INSTALLED BY LAKEFRONT
- 2 PROVIDE X-RAY SCAN OF EXISTING UNDERGROUND SERVICES PRIOR TO TRENCHING OF THE NEW UNDERGROUND SERVICE TO AVOID DAMAGES TO EXISTING UNDERGROUND SERVICES. ADJUST LOCATION OF NEW UNDERGROUND SERVICE AS
- 3 MAKE ALL PROVISIONS TO RELOCATE EXISTING LIGHT STANDARD. EXTEND EXISTING WIRING, AND CONDUIT CONNECTION FOR A FULLY OPERATIONAL SYSTEM.

GENERAL NOTES:

- FINISHED GRADE, PAVEMENT

AREA. SEE ARCHITECTURAL

NATIVE BACKFILL AND RESOD TO

AND CABLE MARKER AT VEHICLE

CROSSING TRAFFIC AREAS ONLY.

- 2 II RUNS OF 4-#500 KCMIL RWU90 AL

IN MINIMUM 103mm(4") RIGID PVC CONDUITS COMPLETE WITH DUCT

MATCH EXISTING GRADE IN GRASSED

OR SIDEWALK

SPECIFICATIONS.

- WARNING TAPE

2"x6" PRESSURE TREATED PLANK

- BRICK SAND

SPACERS

NOTES: INSTALL AS PER OESC DIAGRAM D11 DETAIL 2 AND TABLE D11B

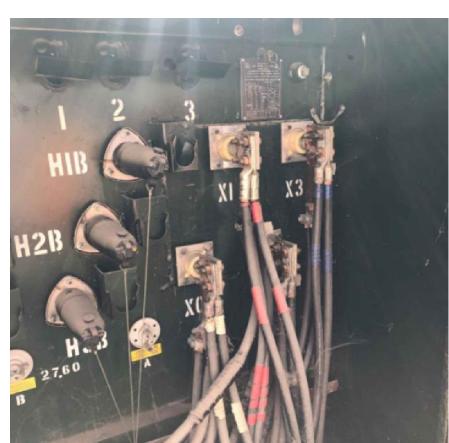
DETAIL #1 - SECONDARY FEEDER TRENCH DETAIL

- PROVIDE PULLSTRINGS IN ALL EMPTY CONDUITS. STAKE AND CAP AT BOTH ENDS. PROVIDE LABEL.
- COORDINATE EXACT LOCATIONS OF EXTERIOR OWNER SUPPLIED EQUIPMENT PRIOR TO INSTALLATION OF CONDUITS.
- PROVIDE 2"x6" PRESSURE TREATED WOODEN PLANKS OVER THE ENTIRE LENGTH OF UNDERGROUND CONDUITS IN VEHICULAR AREAS.

PROVIDE PROPER PULL STRINGS IN ALL EMPTY CONDUITS. STAKE AND CAP OFF CONDUIT ENDS AND LABEL FOR FUTURE CONNECTIONS OF STARBUCKS' SITE EQUIPMENT REQUIRING POWER.



DETAIL #2 - EXISTING SECONDARY SPADE AT UTILITY PADMOUNT TRANSFORMER



REVISIONS ISSUED FOR DATE 24.06.26 90% COORDINATION 100% COORDINATION 24.10.15 PERMIT

1385 North Routledge Park, Unit 9

KINGSTON: 1471 John Counter Blvd. Unit 301

KITCHENER: 210-137 Glasgow Street, Office #141

W www.callidus.ca E info@callidus.ca

KEYPLAN

PROPERTY LINE

London, ON N6H 5N5 P 519.472.7640

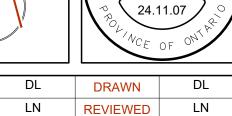
Kingston, ON K7M 8S8 P 613.900.0845

Kitchener, ON N2G 4X8 P 519.472.7640

AREA OF WORK



CHECKED



L. T. A. NGUYEN 100183976

PROJECT

STARBUCKS COBOURG

ADDRESS

1030 DIVISION STREET, COBOURG, ON

PROJECT NO.

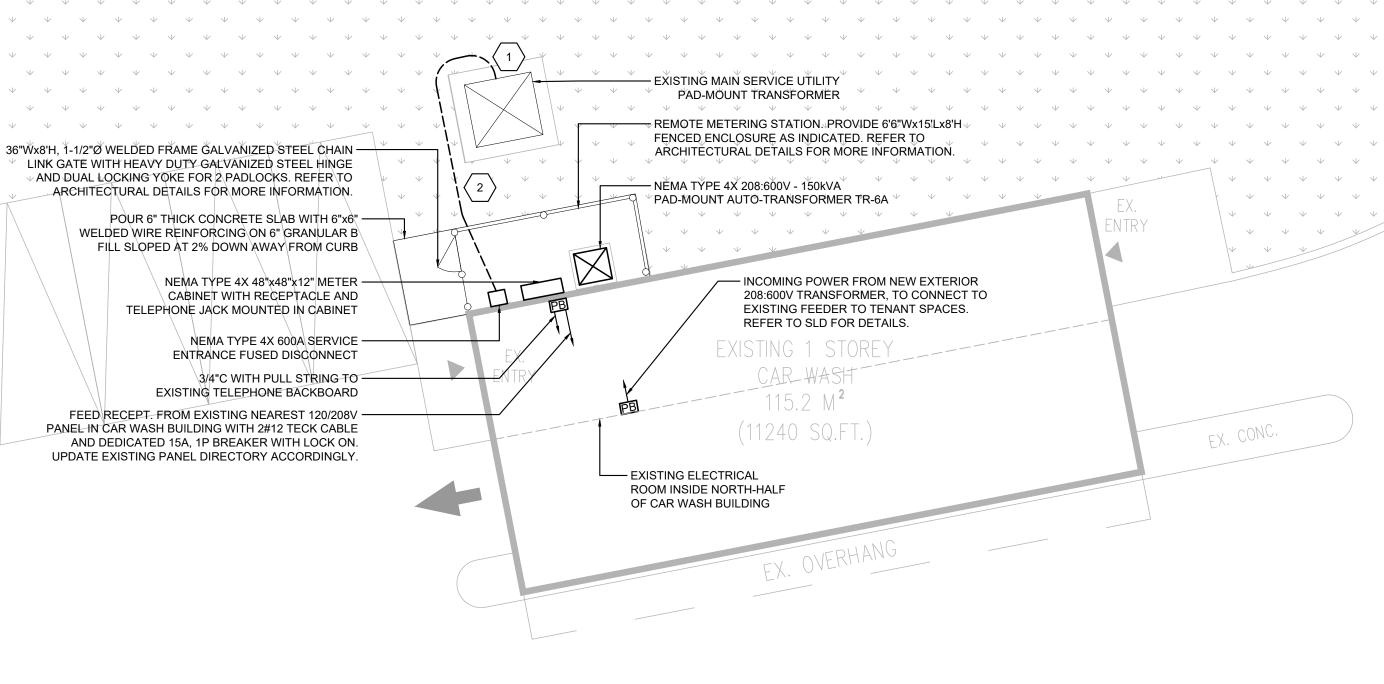
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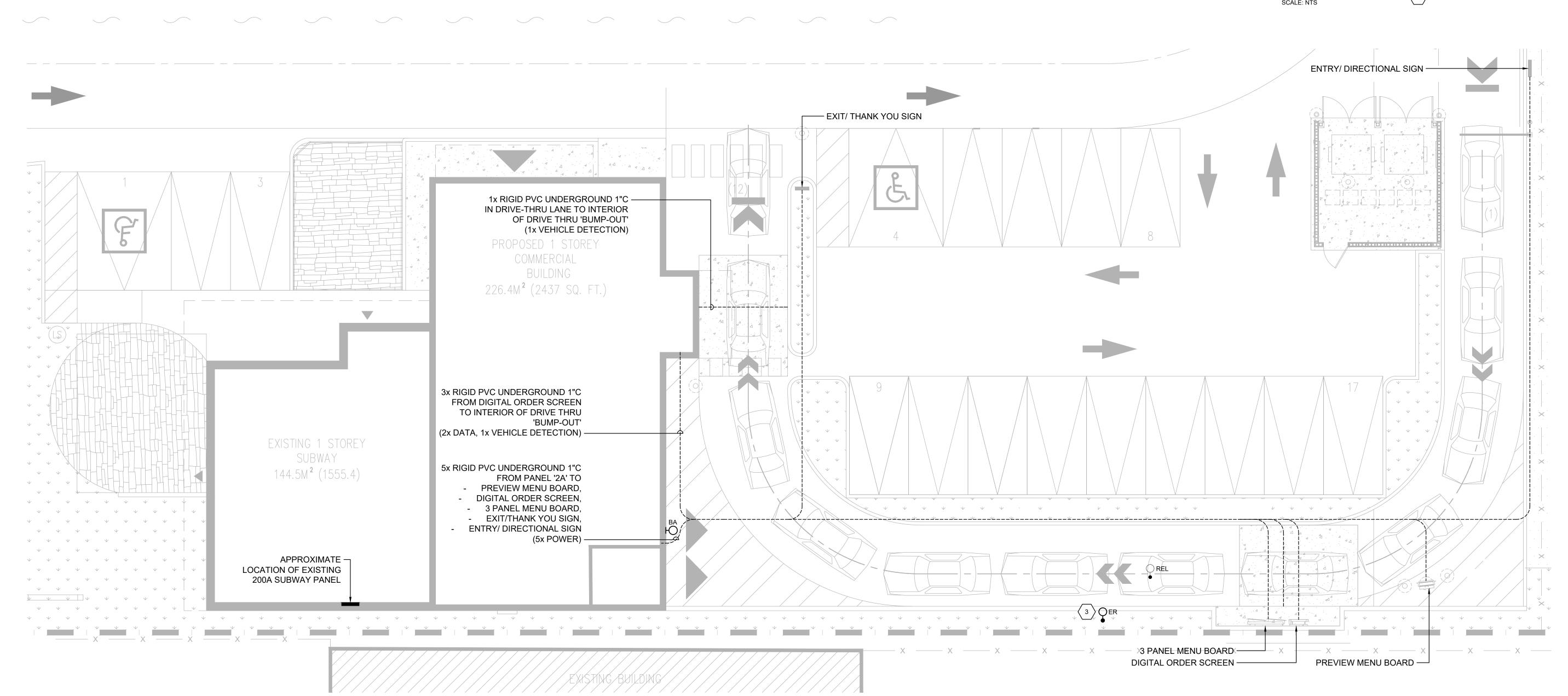
DRAWING TITLE

ELECTRICAL SITE PLAN & DETAILS

DRAWING NUMBER

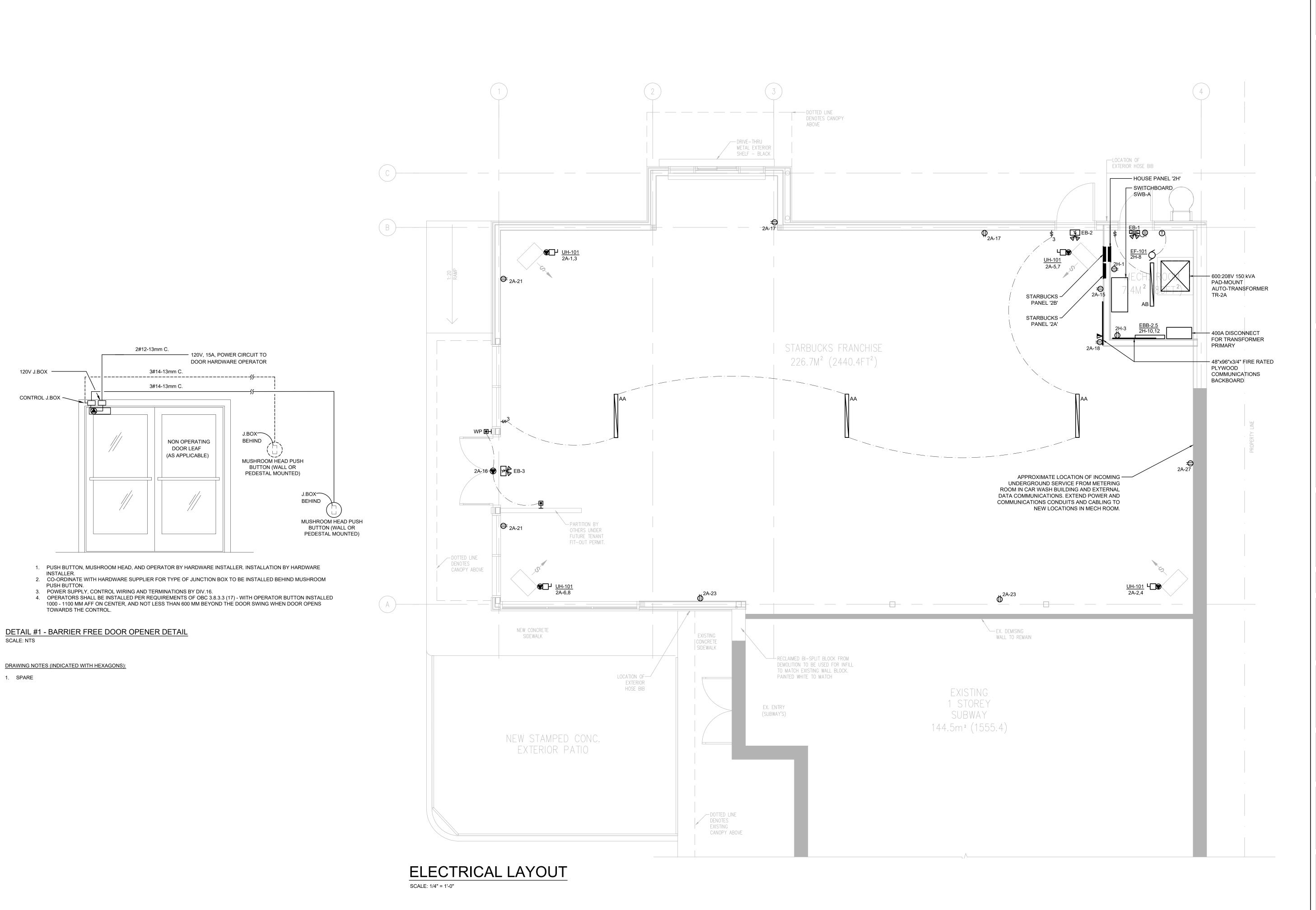
E2 OF 5





ELECTRICAL SITE PLAN

SCALE: 1/8" = 1'-0"



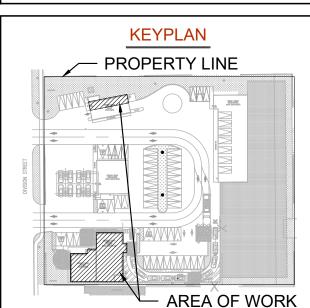
120V J.BOX ——

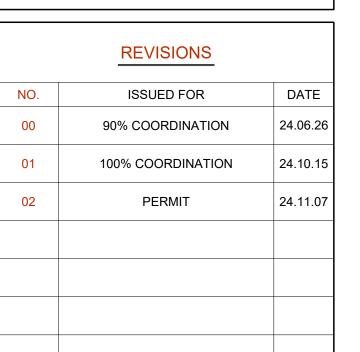
CONTROL J.BOX —

SPARE

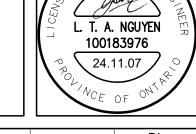


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PROJECT

STARBUCKS COBOURG

ADDRESS

1030 DIVISION STREET, COBOURG, ON

PROJECT NO.

CE-5924

DRAWING TITLE

ELECTRICAL FLOOR PLANS & DETAILS

DRAWING NUMBER

E3 OF 5

PANEL:		<u>2H</u>	VOLTS	OLTS:		1	120			MAINS:	100 Amps, Lugs Only					
			PH/Wi	re:	3 / 4 BCP					A.I.C.:	Refer to Single Line					
FED FROM: SWB-A			TYPE:						MOU	NTING:						
		0	CD	CCT Ph		ССТ	OCD			LOAD						
kW	Type	DESCRIPTION / LOCATION	Α	Р	NO.		NO.	Р	Α	Type	DESCRIPTION / LOCATION					
1.00	REC	RECEPTACLE	15	1	1	а	2	1	20	LTG	LIGHTING	0.10				
1.00	EQU	COMMS. BACKBOARD	15	1	3	b	4	1	20	LTG	EMERGENCY LIGHTING	0.10				
					5	С	6									
					7	а	8	1	15	MEI	MECH RM. EXHAUST	0.20				
					9	b	10	2	20	ELH	EBB-2.5 BASEBOARD HEATER	1.25				
					11	С	12	2	20	ELH	EDD-2.3 DASEDUARU HEATER	1.25				
					13	a	14									
					15	b	16									
					17	С	18									
					19	а	20									
					21	b	22									
					23	С	24									
		SPARE	15	1	25	a	26	1	20		SPARE					
		SPARE	15	1	27	b	28	1	20		SPARE					
		SPARE	15	1	29	С	30	1	20		SPARE					

PANEL:		<u>2A</u>	VOLT	S:	208	3 /	120		(MAINS:	400 Amps, Main Breaker Amps	,	PANEL:		<u>2B</u>	VOLT	S:	20	08 /	120			MAINS	: 400 Amps, Lugs Only	
			PH/Wi	ire:	3	3 /	4				Refer to Single Line					PH/Wi			3 /	4				: Refer to Single Line	
ED FRO	М:	SWB-A	TYPE:	:	BCP				MOUI	NTING:	Flush		FED FRO	OM:	SWB-A	TYPE:		BCP					INTING	Flush	
		LOAD	C	OCD	ССТ	Ph	ССТ		OCD		LOAD	•			LOAD	0	CD	CC	T Ph	ССТ		OCD		LOAD	
kW	Type	DESCRIPTION / LOCATION	Α	P	NO.	┖	NO.	Р	Α		DESCRIPTION / LOCATION	kW	kW	Type	DESCRIPTION / LOCATION	A	Р	NO).	NO.	Р	Α	Туре	DESCRIPTION / LOCATION	kW
3.40 3.40	ELH ELH	UH-101	50	2	3	a b	2	2	50	ELH ELH	UH-101	3.40 3.40						3	a b	2	-				
3.40	ELH		1		5	С	6		1	ELH		3.40				1		5	_	6					+
3.40	ELH	UH-101	50	2	7	а	8	2	50	ELH	UH-101	3.40						7	а	8					
1.00	REC	RECEPTACLE	15	1	9	b	10	1	20	LTG	LIGHTING	1.00						9	b	10					\perp
1.00	REC	RECEPTACLE	15	1	11	С	12	1	15	LTG	EMERGENCY LIGHTING	0.25						11	_	12					
					13	а	14											13	-	14					
1.00	REC	RECEPTACLE	15	1	15	b	16	1	15	EQU	AUTO-DOOR OPERATOR	0.25						15	_	16					
1.00	REC	RECEPTACLE	15	1	17	С	18	1	15	EQU	COMM. BACKBOARD	1.00						17	_	18					
					19	a	20	1	20	EQU	STARBUCKS ENCLOSURE	1.00						19	a	20					
1.00	REC	RECEPTACLE	15	1	21	b	22	1	20	LTG	EXTERIOR LIGHTING	0.25						21	_	22					\perp
1.00	REC	RECEPTACLE	15	1	23	С	24	1	20	EQU	DIGITAL ORDER SCREEN	1.00						23	С	24					\perp
					25	а	26	1	20	EQU	PREVIEW MENU BOARD	1.00						25	a	26					\perp
1.00	REC	RECEPTACLE	15	1	27	b	28	1	20	EQU	THANK YOU/ EXIT SIGN	1.00						27	b	28					\perp
					29	С	30	1	20	EQU	5 PANEL MENU BOARD	1.00						29	С	30					
					31	а	32											31	a	32					
					33	b	34	1	20	EQU	ENTRY/ DIRECTIONAL SIGN	1.00						33	b	34					
					35	С	36											35	С	36					
		SPARE	15	1	37	а	38	1	20		SPARE				SPARE	15	1	37	a	38	1	20		SPARE	
		SPARE	15	1	39	b	40	1	20		SPARE				SPARE	15	1	39	b	40	1	20		SPARE	
		SPARE	15	1	41	С	42	1	20		SPARE				SPARE	15	1	41	С	42	1	20		SPARE	
					43	а	44											43	а	44					
					45	b	46											45	b	46					
					47	С	48											47	С	48					
					49	а	50											49	a	50					
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					63	b	64											63	b	64					
					65	С	66											65	С	66					\Box
					67	a	68											67	а	68					\Box
					69	b	70											69	b	70					
					71	-	72		1									71	С	72					
					73	+	74											73	а	74			1		\top
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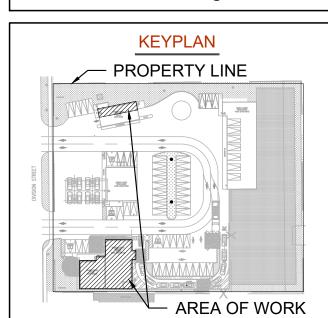


LONDON: 1385 North Routledge Park, Unit 9
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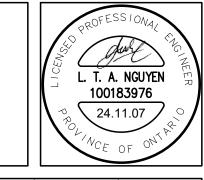
KITCHENER: 210-137 Glasgow Street, Office #141
Kitchener, ON N2G 4X8 P 519.472.7640

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	REVISIONS	
NO.	ISSUED FOR	DATE
00	90% COORDINATION	24.06.26
01	100% COORDINATION	24.10.15
02	PERMIT	24.11.07





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PROJECT
STARBUCKS

STARBUCKS COBOURG

ADDRESS

1030 DIVISION STREET, COBOURG, ON

PROJECT NO.

CE-5924

DRAWING TITLE

ELECTRICAL PANEL SCHEDULES

DRAWING NUMBER

E4 OF 5

ELECTRICAL GENERAL REQUIREMENTS **GENERAL CONDITIONS:** ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE ONTARIO ELECTRICAL SAFETY CODE, THE LOCAL ELECTRICAL SAFETY AUTHORITY INSPECTION OFFICE, THE ONTARIO BUILDING CODE, THE ONTARIO FIRE CODE AND ANY OTHER LOCAL REGULATIONS HAVING JURISDICTION OVER THE WORK OF THIS TRADE. BEFORE TENDERING, EXAMINE THE SITE AND ALL DRAWINGS AND SPECIFICATIONS OF ALL TRADES AND BE FAMILIAR WITH THE WORK OF THIS TRADE. NO EXTRAS WILL BE ALLOWED FOR THE FAILURE TO DO SO. ALL ELECTRICAL WORK SHALL COMPLY WITH CSA ELECTRICAL BULLETIN APPLICABLE AT TENDER CLOSE. WHERE SPECIFIC BULLETINS ARE NOT NAMED THEY ARE STILL CONSIDERED AN INTEGRAL PART OF THIS SPECIFICATION. PROVIDE ALL GROUNDING AND BONDING TO GROUND REQUIRED, REGARDLESS IF NOT SHOWN ON THE DRAWINGS. GROUNDING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ONTARIO ELECTRICAL SAFETY CODE. PROVIDE ALL NEW MATERIALS HAVING CSA, CUL, WARNOCK HERSEY OR OTHER APPROVAL AGENCY LABEL AND LISTING. ALL WORKMANSHIP BY THIS TRADE SHALL BE FIRST CLASS. CONFORMING TO INDUSTRY STANDARD PRACTICES FOR SAFETY, ACCESSIBILITY, DURABILITY AND NEATNESS FOR ACCEPTANCE BY THE OWNERS' REPRESENTATIVES. ARRANGE AND PAY FOR ALL PERMITS AND INSPECTION FEES REQUIRED FOR THE WORK OF THIS TRADE. SUBMIT TO THE LOCAL ELECTRICAL INSPECTION DEPARTMENT AND/OR ELECTRICAL SUPPLY AUTHORITY ANY AND ALL DRAWINGS REQUIRED FOR PERMITS, FEES, APPROVALS, EXAMINATIONS AND SERVICES. PROVIDE ALL CUTTING AND PATCHING REQUIRED FOR THE WORK OF THIS TRADE. ALL CUTTING AND PATCHING SHALL BE PERFORMED BY QUALIFIED TRADES PERSONS. INCLUDE ALL COSTS FOR CUTTING AND PATCHING RELATED TO THE WORK OF THIS TRADE IN THE TENDER PRICE. PROVIDE ALL SLEEVES, INSERTS AND HANGERS REQUIRED FOR THE ELECTRICAL WORK. TREAT ALL SLEEVES OR HOLES PIERCING ACOUSTICAL SEPARATIONS FOR INSTALLATIONS OF THE DIVISION TO MAINTAIN ACOUSTICAL RATING. ALL GAPS SHALL BE PACKED WITH ACOUSTICAL INSULATION AND SEALED AT BOTH ENDS WITH ACOUSTICAL CAULKING. PATCH ALL OPENINGS AROUND INSTALLATIONS OF THIS DIVISION PIERCING FIRE OR SMOKE SEPARATIONS WITH AN APPROVED WATERTIGHT SMOKE AND FIRE STOP SEALANT. PROVIDE ACCESS PANELS AS FOLLOWS: SHEET STEEL CONSTRUCTION WITH FACTORY APPLIED PRIME COAT OF PAINT. POSITIVE LATCHING SYSTEM. MINIMUM 18 GAUGE STEEL. PROVIDE HINGED DOORS FOR ALL ACCESS PANELS WITH A SIZE OF 450mm x 450mm (18" x 18") OR LARGER. WHERE THE ACCESS DOOR IS LOCATED IN A FIRE RATED ASSEMBLY OR A FIRE SEPARATION HAVING A FIRE RESISTANCE RATING, PROVIDE ACCESS DOORS WHICH ARE ULC LISTED FOR THE REQUIRED FIRE RESISTANCE RATING ALLOWED BY THE ONTARIO BUILDING CODE. TOUCH-UP ALL SHOP PAINTED EQUIPMENT DAMAGED IN TRANSIT OR DURING INSTALLATION TO MATCH ORIGINAL SHOP FINISH. AVOID ACCUMULATION OF DEBRIS AS THE WORK PROGRESSES. ON COMPLETION OF THE CONSTRUCTION AND PRIOR TO THE FINAL INSPECTION AND ACCEPTANCE BY THE OWNER, CLEAN UP AND REMOVE FROM THE SITE ALL SCRAP MATERIALS RESULTING FROM THE WORK OF THIS TRADE CO-ORDINATE THE WORK OF THIS TRADE WITH ALL OTHER TRADES ON THE JOB SO THAT THE WORK MAY PROGRESS WITHOUT ANY DELAY. SCHEDULE AND PHASE DEMOLITION AND NEW WORK TO REDUCE INTERFERENCE AND DOWNTIME OF EXISTING SYSTEMS. NOTIFY OWNER'S REPRESENTATIVE OF ALL DOWNTIME PRIOR TO PROCEEDING WITH WORK IN AREAS WHERE SPACE IS LIMITED AND MULTIPLE TRADES ARE INSTALLING SERVICES, COORDINATE INSTALLATION OF SERVICES. PREPARE INTERFERENCE DRAWINGS PRIOR TO CONSTRUCTION TO ENSURE INSTALLATION OF ALL SERVICES IS COORDINATED. PRIOR TO THE FINAL INSPECTION, CLEAN ALL ELECTRICAL EQUIPMENT. CLEAN ALL CONSTRUCTION DUST AND DIRT FROM INSTALLED EQUIPMENT AT THE END OF THE JOB. REPAIR ANY DAMAGE CAUSED BY THE ELECTRICAL TRADE TO EXISTING BUILDINGS OR EQUIPMENT, ETC TO THE CONSULTANTS SATISFACTION. UPON COMPLETION OF THE WORK, PROVIDE THE FINAL UNCONDITIONAL CERTIFICATE OF ACCEPTANCE FROM THE LOCAL ELECTRICAL SAFETY AUTHORITY INSPECTION OFFICE PROVIDE A ONE YEAR GUARANTEE ON ALL MATERIALS. AND LABOUR FROM THE DATE OF ACCEPTANCE BY THE OWNER. COMPLETE ALL WARRANTY REGISTRATION DOCUMENTATION ON BEHALF OF THE BUILDING OWNER. SUBMIT COPIES OF COMPLETED DOCUMENTATION IN OPERATIONS AND MAINTENANCE MANUALS. ON MULTI-PHASE FEEDERS AND PANELS. ADJUST THE PHASE LOADING SO AS NOT TO EXCEED A PHASE IMBALANCE OF 10%, LINE TO LINE, UNDER NORMAL OPERATING CONDITIONS OF THE FEEDER OR PANEL. SUBMIT SHOP DRAWINGS IN ELECTRONIC PDF FORMAT FOR THE FOLLOWING EQUIPMENT: BREAKERS, FIRE ALARM DEVICES, EXIT AND EMERGENCY LIGHTING UNITS, ETC. THE SHOP DRAWINGS SHALL BEAR THE NAME OF THE MANUFACTURER. THE MANUFACTURER'S CATALOGUE NUMBER, AND THE CONSULTANT'S DESIGNATION, ALONG WITH ALL PERTINENT INFORMATION PERTAINING TO THAT SPECIFIC PIECE OF FQUIPMENT ALL ELECTRICAL EQUIPMENT SHALL BE MOUNTED PLUMBED TRUE. DEVICE BOXES SHOWN BACK TO BACK SHALL BE OFFSET A MINIMUM OF 305mm (12") TO REDUCE SOUND TRANSMISSION BETWEEN ROOMS. AS-BUILT DRAWINGS: MAINTAIN AN ACCURATE RECORD OF DEVIATIONS AND CHANGES FROM CONTRACT DRAWINGS WITH RED LINE MARKINGS. TRASNFER AS-BUILT MARK-UPS TO DIGITAL DRAWING FORMAT. THIS PROCESS SHOULD BE COMPLETED BEFORE THE FINAL INSPECTION BY THE CONSULTANT. SUBMIT TO THE CONSULTANT WITH THE O&M MANUALS AT COMPLETION OF THE PROJECT. FORMAT FILES TO MATCH EXACTLY THE LAYERING SYSTEM AND SYMBOLOGY OF THE CONSULTANT. BIND ALL EXTERNAL REFERENCES. 21.3. THE AS-BUILT DRAWINGS SHALL HAVE A VALUE OF \$5,000 UNLESS THE ELECTRICAL CONTRACT VALUE IS LESS THAN \$100,000 WHICH SHALL HAVE A \$3,000 VALUE. ONCE AS-BUILT DRAWINGS HAVE BEEN COMPLETED, SUBMITTED AND REVIEWED. PAYMENT WILL BE RELEASED. THIS VALUE IS NOT INCLUDED IN THE AMOUNT REQUIRED BY THE CONSTRUCTION LIEN ACT. 21.4. THIS PROJECT UTILIZED THE FOLLOWING DIGITAL FORMAT(S): AUTOCAD/PDF. OPERATION AND MAINTENANCE INSTRUCTION MANUALS: PROVIDE PDF COPIES OF COMPLETE OPERATION AND MAINTENANCE INSTRUCTIONS FOR EQUIPMENT FURNISHED UNDER THIS CONTRACT. MANUAL TO BE ORGANIZED WITH BOOKMARKS IN A FORMAT TO MATCH THE SPECIFICATION SECTIONS. ONCE MANUAL IS REVIEWED AND ACCEPTED, PROVIDE PDF VERSION ON ELECTRONIC MEDIA (USB DEVICE OR AS REQUIRED BY OWNER). PROVIDE ONE HARD COPY VERSION IN THREE RING BINDERS. COMPLETE WITH INDEX PAGES. INDEXING TABS AND COVER IDENTIFICATION AT FRONT AND SIDE.

22.2. MANUALS SHALL INCLUDE THE FOLLOWING INFORMATION:

CERTIFICATE OF SUBSTANTIAL COMPLETION, MANUFACTURER'S INSTALLATION INSTRUCTIONS,

ASSOCIATED MOUNTING HARDWARE AND CONNECTIONS".

MANUFACTURERS MAINTENANCE INSTRUCTIONS

MANUFACTURER'S WARRANTIES AND GUARANTEES, AND COPIES OF ALL TEST DATA AND VERIFICATION CERTIFICATES.

WHERE THE WORD PROVIDE IS USED IN THESE SPECIFICATIONS OR ON THE

DRAWINGS, IT HAS THE MEANING "PROVIDE AND INSTALL COMPLETE WITH ALL

CHANGES TO THE CONTRACT REQUIRING ADDITIONS TO OR DELETIONS FROM THE WORK OF THIS DIVISION SHALL BE CARRIED OUT UPON WRITTEN REQUEST OF THE CONSULTANT. EXTRAS TO THE CONTRACT OR CREDITS SHALL BE SUBMITTED WITH A COMPLETE COST BREAKDOWN AS FOLLOWS: MATERIALS, QUANTITIES AND UNIT PRICES FOR ALL EQUIPMENT REQUIRED OR DELETED. UNIT MAN HOURS TOTAL MATERIAL COST, TOTAL MAN HOURS, HOURLY RATE, (REFER

TO SUPPLEMENTARY CONDITIONS AND GENERAL CONTRACT). TOTAL OVERHEAD

AND PROFIT. (REFER TO SUPPLEMENTARY CONDITIONS AND GENERAL

ESA LETTER OF COMPLIANCE.

22.2.2.

22.2.3.

22.2.4.

22.2.6.

22.2.7.

22.2.9.

CHANGES IN THE WORK

CONTRACT).

CONTACT INFORMATION OF CONSULTANTS AND CONTRACTORS,

COMPLETE SET OF FINAL PROJECT SHOP DRAWINGS, EMERGENCY LIGHTING TEST FORM AND LETTER,

ELECTRICAL PROJECT COMPLIANCE

- 25.1. PROVIDE THE FOLLOWING DOCUMENTS TO THE CONSULTANT TO ISSUE THE LETTER OF GENERAL REVIEW:
- ESA INSPECTION REPORT A SIGNED VERIFICATION LETTER FROM THE ELECTRICAL CONTRACTOR
- CONFIRMING THE FOLLOWING:
 - LIGHTING AND LIGHTING CONTROLS OPERATIONAL EXIT SIGNS AND EMERGENCY LIGHTING VERIFIED AS OPERATING
 - PROPERLY FOR THE DURATION OF 30 MINUTES UNDER EMERGENCY
 - BARRIER FREE DOOR OPERATORS ARE TESTED AND VERIFIED OPERATIONAL.

CONDUCTORS & RACEWAYS:

- USE RW90 COPPER CONDUCTORS CSA APPROVED FOR THE APPLICATION. CONDUCTORS IN UNDERGROUND RACEWAYS TO BE RWU90. SIZE THE CONDUCTORS SO THAT THE MAXIMUM BRANCH CIRCUIT VOLTAGE DROP DOES NOT EXCEED 3%. MINIMUM CONDUCTOR SIZE IS #12 AWG UNLESS OTHERWISE INDICATED.
- DESIGN IS BASED ON COPPER CONDUCTORS EXCEPT WHERE SHOWN ON THE DRAWINGS. ALUMINUM CONDUCTORS MAY BE USED ONLY FOR FEEDERS #6 AWG OR LARGER. SIZE THE ALUMINUM CONDUCTORS TO THE EQUIVALENT AMPACITY OF COPPER CONDUCTORS.
- TERMINATE ALUMINUM FEEDER CONDUCTORS WITH PRESSURE CONNECTORS, AND UTILIZE AN OXIDE PREVENTATIVE SOLUTION "PENETROX" ON ALL BARE SURFACES. LUGS TO BE ALUMINUM OR ALUMINUM/COPPER ALLOY ONLY.
 - ALL CONDUCTORS ARE TO BE INSTALLED IN RACEWAYS AS DESCRIBED BELOW:
- 4.1. PVC CONDUIT: IN CONCRETE SLAB, UNDERGROUND BURIED, BELOW SLAB ON

GRADE OR EXTERIOR EXPOSED SURFACE RACEWAYS.

- EMT RACEWAYS: INTERIOR SURFACE RACEWAYS, BRANCH CIRCUIT WIRING FROM PANELS, CONCEALED IN ACCESSIBLE CEILINGS AND INTERIOR WALLS OR IN INTERIOR CONCRETE BLOCK CONSTRUCTION.
- ARMOURED CABLE (BX): IN METAL STUD PARTITION WALLS, BRANCH CIRCUIT WIRING FROM PANELS IN SUITE OR TENANT OCCUPANCIES, IN INTERIOR CONCRETE BLOCK WALLS, FOR FINAL DROPS TO FIXTURES IN CEILING SPACES. (LENGTH NOT TO EXCEED 3M IN THIS APPLICATION).
- IN WOOD STUD CONSTRUCTION: NMD-7 COPPER CONDUCTORS ARE PERMITTED FOR BRANCH CIRCUIT WIRING AS DIRECTED BY THE ENGINEER.
- SURFACE METAL RACEWAYS (SMR): FOR EXISTING CONSTRUCTION WHERE 4.5. EXISTING WALLS AND FINISHES ARE TO REMAIN.
- OBTAIN PERMISSION FROM THE CONSULTANT PRIOR TO INSTALLATION. COLOUR AND SIZE OF RACEWAYS TO BE CONFIRMED WITH CONSULTANT FOR THE SPECIFIC APPLICATION.
- MINIMUM RACEWAY SIZE FOR EXTERIOR U/G BURIED APPLICATION IS 3/4" (19MM). MINIMUM BURIED DEPTH IS 36" (900MM) BELOW FINISHED GRADE.
- ALL CONDUIT AND WIRING IS TO BE CONCEALED IN ALL FINISHED AREAS.

DEVICES:

- SPECIFICATION GRADE RATED 15 AMP, 125 VAC, SINGLE POLE, SINGLE THROW. (3-WAY OR 4-WAY AS NOTED ON DRAWINGS.)
- 1.2. SPEC GRADE, RATED 20 AMP, 125 VAC, SINGLE POLE, SINGLE THROW. (3-WAY OR 4-WAY AS NOTED ON DRAWINGS.)
- MANUFACTURERS: SMITH AND STONE, HARVEY HUBBEL, LEVITON, PASS AND 1.3. SEYMOUR, LUTRON.

RECEPTACLES:

- SPEC GRADE, DUPLEX, RATED 15 AMP, 125 VAC, EEMAC 5-15R CONFIGURATION,
- GROUND FAULT INTERRUPTING, CLASS A DUPLEX, RATED 15 AMP, 125 VAC, EEMAC 5-15R FIG.,TRIP RATED FOR 4-6 MA LEAKAGE CURRENT. C/W PUSH TO TEST AND RESET BUTTONS.
- SPEC GRADE, DUPLEX, RATED 20 AMP, 125 VAC, T-SLOT EEMAC 5-20R CONFIGURATION, U-GROUND.
- GROUND FAULT INTERRUPTING, CLASS A DUPLEX, RATED 20 AMP, 125 VAC, T-SLOT EEMAC 5-20R FIG., TRIP RATED FOR 4-6 MA LEAKAGE CURRENT. C/W PUSH TO TEST AND RESET BUTTONS.
- 2.5. EXTERIOR GROUND FAULT INTERRUPTING, CLASS A DUPLEX, RATED 15 AMP, 125 VAC, EEMAC 5-15R FIG.,TRIP RATED FOR 4-6 MA LEAKAGE CURRENT. C/W PUSH TO TEST AND RESET BUTTONS, NEMA 3R WEATHERPROOF C/W WHILE IN USE COVER PLATE. HUBBELL RW57300 OR APPROVED EQUAL.

COVER PLATES:

- SMOOTHLINE BAKELITE, COLOUR TO MATCH SWITCHES AND RECEPTACLES.
- BRUSHED STAINLESS STEEL, NUMBER 430, IN OFFICES AND KITCHENS.

COLOUR OF DEVICES: WHITE

- TIME CLOCK: CHARACTERISTICS AS SPECIFIED ON THE DRAWINGS.
- MANUFACTURERS: TORK, PRECISION, AMF PARAGON, INTERMATIC.
- PHOTO CELL: CHARACTERISTICS AS SPECIFIED ON THE DRAWINGS.
- MANUFACTURERS: TORK, PRECISION, INTERMATIC, AMF PARAGON.
- ALL DEVICES OF THE SAME TYPE, SIZE AND RATING ARE TO BE OF THE SAME MANUFACTURER THROUGHOUT THE PROJECT.
- MOUNTING HEIGHTS BARRIER FREE DESIGN (OBC LATEST)
- PULL STATIONS AND THERMOSTATS SHALL BE MOUNTED AT 1200MM ABOVE THE FINISHED FLOOR
- ALL OTHER CONTROLS (INCLUDING ELECTRICAL SWITCHES, INTERCOM SWITCHES, ETC.) SHALL BE MOUNTED NOT LESS THAN 900MM AND NOT MORE THAN 1100MM ABOVE THE FINISHED FLOOR.

SERVICE AND DISTRIBUTION:

- CONSULT WITH THE LOCAL P.U.C. OR HYDRO ELECTRIC COMMISSION REGARDING ELECTRICAL SERVICES TO THE MODIFIED EXISTING BUILDING. INCLUDE ALL COSTS LEVIED BY THE SUPPLY AUTHORITY TO PROVIDE ELECTRICAL SERVICES TO THE PROPERTY, IN THE CONTRACT PRICE.
- THE LOCAL P.U.C. OR HYDRO ELECTRIC COMMISSION WILL PROVIDE PRIMARY SERVICE, TRANSFORMER, TRANSFORMER GROUNDING AND METERING. REFER TO DRAWINGS FOR ADDITIONAL DETAILS AND REQUIREMENTS.
- PROVIDE AND INSTALL THE SECONDARY CONDUCTORS FROM THE TRANSFORMER VAULT TO THE MAIN SERVICE DISCONNECT
- PROVIDE CIRCUIT BREAKER PANELS OF THE TYPE, WITH AMPERE CAPACITY, NUMBER OF POLES, BRANCH BREAKER CAPACITY, ETC., AS SPECIFIED IN PANEL SCHEDULE.
- MOUNTING TO BE AS INDICATED. FUSES SHALL BE BUSS OR APPROVED EQUAL, OF THE CLASS, TYPE AND AMPERE
- PROVIDE MECHANICALLY FASTENED LABEL FOR ALL DISCONNECT SWITCHES, STARTERS, AND PANELS TO CLEARLY INDICATE EQUIPMENT CONTROLLED OR AREA SERVED. INDICATE FUSE SIZE AND TYPE ON ALL FUSED DISCONNECTS.

RATING AS SHOWN ON THE DRAWINGS.

- ALL BUSBARS TO BE TIN PLATED COPPER. PROVIDE COPPER GROUND BUS IN EACH PANELBOARD.
- PROVIDE A TYPEWRITTEN DIRECTORY CARD ON THE INSIDE OF THE PANEL DOOR IN A METAL FRAME WITH CLEAR PLASTIC COVER.
- ALL BRANCH BREAKERS SHALL BE THERMAL-MAGNETIC TRIP INDICATED, AMBIENT TEMPERATURE COMPENSATED AND BOLTED TO THE BUS BAR.
- ALL SURFACE MOUNTED EQUIPMENT SHALL BE MOUNTED ON 19 MM (3/4"), FIRE RATED, PLYWOOD BACKBOARD.
- ACCEPTABLE MANUFACTURERS FOR DISTRIBUTION EQUIPMENT INCLUDE: EATON-CUTLER HAMMER, SCHNEIDER CANADA, GENERAL ELECTRIC AND SIEMENS.

EMERGENCY LIGHTING:

- PROVIDE A COMPLETE EMERGENCY LIGHTING SYSTEM CAPABLE OF XX MINUTES OF CONTINUOUS OPERATION IN A POWER FAILURE AS SHOWN ON THE DRAWINGS.
- EMERGENCY BATTERY UNITS:
- ALL EMERGENCY BATTERY UNITS TO BE CSA C22.2-141 APPROVED AND COMPLY WITH OBC 3.2.7.3 AND CAN/CSA C860-07.
- ALL UNITS TO BE COMPLETE WITH LONG LIFE, SEALED LEAD ACID BATTERIES. BATTERY CHARGER, HIGH CHARGE INDICATOR, TEST BUTTON, A.C. "ON" INDICATOR, 120 VAC CORD SET, MOUNTING BRACKETS AND AUTOMATIC TRANSFER TO EMERGENCY POWER SUPPLY ON NORMAL POWER FAILURE. D.C. VOLTAGE TO BE AS INDICATED ON THE DRAWINGS. MINIMUM BATTERY CAPACITY TO BE 125% OF THE TOTAL CONNECTED D.C. LOAD.
- MANUFACTURERS: EMERGI-LITE, LUMACELL, STANPRO, DUAL-LITE, BELUCE,
- COMBINATION EMERGENCY BATTERY UNIT/EXIT FIXTURE: SEALED LEAD ACID MEDIUM LIFE BATTERIES, BATTERY CHARGER, TRANSFER SWITCH, EXTRUDED ALUMINUM HOUSING. SINGLE OR DOUBLE FACE AS REQUIRED AND 2 MICRO TYPE, LED HEADS. BATTERY RATED 18 WATT HOURS MINIMUM. REFER TO EMERGENCY LIGHTING
- EMERGENCY LIGHTING HEADS: TO BE OF THE SAME MANUFACTURER AS THE EMERGENCY BATTERY UNITS. REFER TO EMERGENCY LIGHTING SCHEDULE.
- MOUNT BATTERY UNITS AND LIGHTING HEADS AS HIGH AS POSSIBLE TO THE FINISHED CEILING, UNLESS SPECIFIED OTHERWISE, SO AS NOT TO OBSTRUCT THE HEAD
- SIZE CONDUCTORS FOR A MAXIMUM VOLTAGE DROP OF 5% AT THE LAST CONNECTION POINTS FROM THE UNIT.
- PROVIDE LETTER OF VERIFICATION OF EMERGENCY LIGHTING SYSTEM TO ENGINEER ON COMPLETION OF WORK. PROVIDE CERTIFICATION OF INSTALLATION TO ENGINEERED DRAWINGS AND ONTARIO BUILDING CODE

- PROVIDE EXIT SIGNS AND WIRE FROM THE MAIN SERVICE PANEL FROM A SEPARATE CIRCUIT BREAKER USING A SEPARATE RACEWAY SYSTEM USED FOR NO OTHER PURPOSE. PROVIDE LOCK-ON DEVICE ON CIRCUIT BREAKER.
- CONNECT THE EMERGENCY SOCKET TO THE NEAREST EMERGENCY LIGHTING BATTERY UNIT.
- EXIT FIXTURES TO CONSIST OF GREEN PICTOGRAM AND WHITE GRAPHIC SYMBOL MEETING THE VISIBILITY AND DIMENSION SPECIFICATIONS AS PER ONTARIO BUILDING CODE 2012, SECTION 3.4.5.1. DC OPERATING VOLTAGE TO MATCH EMERGENCY BATTERY VOLTAGE.
- ACCEPTABLE MANUFACTURERS INCLUDE: DUALLITE, EMERGI-LITE, LUMACELL, LITHONIA, BELUCE, AIMLITE, STANPRO.

RENOVATIONS ON EXISTING BUILDING:

- RENOVATIONS SHALL BE MADE ON THE EXISTING BUILDING AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN. REMOVE ALL EXISTING LUMINARIES, OUTLET BOXES, SWITCHES, RECEPTACLES, ETC. AS INDICATED ON DRAWINGS, ALL EQUIPMENT REMOVED AND NOT REUSED SHALL REMAIN THE PROPERTY OF THE OWNER UNLESS SPECIFICALLY NOTED OTHERWISE. ALL FOUIPMENT INSTALLED IN RENOVATED AREAS SHALL BE NEW. ELECTRICAL TRADE WILL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED FOR FLECTRICAL INSTALLATION, ALL CONDUIT SHALL BE INSTALLED CONCEALED IN FINISHED AREAS UNLESS SPECIFICALLY NOTED OTHERWISE.
- NEW CONDUCTORS SHALL BE INSTALLED TO THE NEAREST OUTLET AS REQUIRED FOR EQUIPMENT THAT IS RELOCATED. INSTALLATION OF JUNCTION BOXES FOR SPLICING PURPOSES SHALL NOT BE PERMITTED UNLESS SPECIFICALLY CALLED FOR.
- PROVIDE ALL CONDUCTORS REQUIRED TO RECONNECT EXISTING CIRCUITS WHERE REQUIRED THAT MAY BE DISRUPTED DUE TO RENOVATIONS ON THE EXISTING FLOOR.
- PROVIDE NEW BREAKERS WHERE REQUIRED IN EXISTING PANELS TO PICK-UP

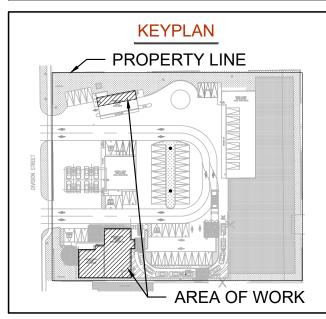
ADDITIONAL CIRCUITS INDICATED ON THE DRAWINGS

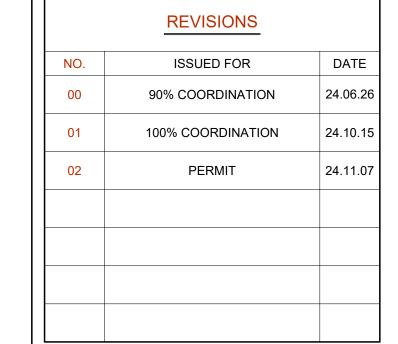
- ALL EXISTING LUMINARIES THAT ARE RELOCATED SHALL BE REMOVED, CHECKED, SERVICED, CLEANED, AND RE-LAMPED PRIOR TO RE-INSTALLATION. ALL UNITS NOT REUSED SHALL BE TURNED OVER TO THE OWNER, COMPLETE WITH LAMPS.
- COORDINATE WITH MECHANICAL DRAWINGS AND SAFELY DISCONNECT AND REMOVE ALL MOTOR/MECHANICAL EQUIPMENT BEING DEMOLISHED. REMOVE UNUSED WIRING/CONNECTION BACK TO SOURCE PANEL. EXTEND WIRING/CONNECTION OF ALL MOTOR/MECHANICAL EQUIPMENT BEING RELOCATED. PROVIDE PROPER JUNCTION BOX AT EACH POINT OF EXTENSION.

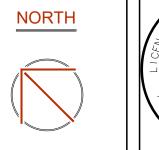


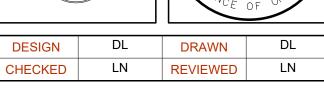
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L. T. A. NGUYEN

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24.11.07

PROJECT

STARBUCKS COBOURG

ADDRESS

1030 DIVISION STREET COBOURG, ON

PROJECT NO.

CE-5924

DRAWING TITLE

ELECTRICAL SPECIFICATIONS

DRAWING NUMBER