GENERAL NOTES:

1. DO NOT SCALE THE DRAWINGS.
2. THE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATIONS, ALL RELATED ARCHITECTURAL, MECHANICAL, ELECTRICAL, PROCESS & CIVIL DRAWINGS, AND OTHER RELEVANT CONTRACT DOCUMENTS.
3. CONTRACTOR SHALL PROVIDE COMPLETE SET OF ARCHITECTURAL, MECHANICAL, ELECTRICAL, CIVIL & PROCESS DRAWINGS & APPLICABLE SPECIFICATION SECTIONS TO THE STRUCTURAL STEEL, JOIST & MISC. METAL CONTRACTORS PRIOR TO SUBMISSION OF ANY RELATED SHOP DRAWINGS.
4. THE DESIGN AND CONSTRUCTION OF ALL WORK ON THIS PROJECT IS TO CONFORM TO THE 2012 EDITION OF THE ONTARIO BUILDING CODE (REGULATION 350/06) AND NBC 2015 STRUCTURAL COMMENTARIES.
5. THE CONTRACTOR SHALL FIELD CHECK AND VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS AT THE SITE AND REPORT TO THE ENGINEER ANY DISCREPANCIES OR UNSATISFACTORY CONDITIONS WHICH MAY ADVERSELY AFFECT THE PROPER COMPLETION, COST, SCHEDULE OR QUALITY OF WORK. COMMENCEMENT OF WORK BY THE CONTRACTOR IMPLIES ACCEPTANCE OF THE EXISTING CONDITIONS.
6. PROTECT ALL EXISTING STRUCTURES, UNDERGROUND UTILITIES AND OTHER EXISTING SERVICES DURING CONSTRUCTION. MAKE GOOD ANY DAMAGE RESULTING FROM THE WORK ON THIS PROJECT TO THE SATISFACTION OF THE OWNER AND ENGINEER.
7. PROVIDE AND TAKE RESPONSIBILITY FOR ALL TEMPORARY BRACING AND SHORING.
8. TYPICAL DETAILS SHOWN ON DRAWINGS SHALL GOVERN THE WORK. IF DETAILS DIFFER ON OTHER DRAWINGS, THE MOST STRINGENT SHALL GOVERN.
9. WORK NOT INDICATED ON A PART OF THE DRAWING BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES SHALL BE REPEATED.

EXCAVATION NOTES:

1. THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATION OF ANY UNDERGROUND UTILITIES OR OTHER EXISTING SERVICES WHICH MAY INTERFERE WITH THE WORK OF THIS PROJECT AND COORDINATE WITH THE OWNER OR OTHER AUTHORITIES AS MAY BE REQUIRED FOR THEIR RELOCATION, REMOVAL OR TEMPORARY SUPPORT.
2. PROVIDE ADEQUATE MEANS OF DEWATERING TO ENSURE EXCAVATIONS ARE DRY AT ALL TIMES. PLACEMENT OF CONCRETE SHALL ONLY BE MADE IN DRY EXCAVATIONS. THE METHOD OF DEWATERING SHALL BE SUCH AS TO PREVENT SETTLEMENT OF, AND DAMAGE TO, ANY ADJACENT STRUCTURES.

FOUNDATION NOTES:

1. ALL FOUNDATIONS ARE SUPPORTED BY HELICAL PILES. SEE DRAWING 01-S10-00-01 FOR LOADING CAPACITY REQUIREMENT.
2. ALL EXCAVATIONS AND FOUNDING MATERIAL SHALL BE INSPECTED AND APPROVED BY A QUALIFIED SOILS ENGINEER PRIOR TO CONCRETE PLACEMENT.
3. ALL GEOTECHNICAL INFORMATION ARE BASED ON SOIL REPORT 1449-110 DATED MARCH 25 2013, BY SPL CONSULTANTS LIMITED.
4. PROTECT SOIL FROM WATER AND FREEZING ADJACENT TO AND BELOW ALL FOOTINGS, GRADE BEAMS AND OTHER CONCRETE POURS WITH MINIMUM 1200 mm SOIL COVER OR EQUIVALENT.
5. PROVIDE ALL SHORING WHERE REQUIRED DURING EXCAVATION TO PREVENT CAVE-IN.
6. EXCAVATION SHALL NOT EXTEND BELOW A LINE EXTENDING DOWN AND AWAY FROM ANY FOOTING EDGE/CORNER AT A RATIO OF 7 VERTICAL TO 10 HORIZONTAL.
7. ANY OVER EXCAVATION NECESSITATED BY LOCAL SOFT AREAS OR OTHER DELETERIOUS CONDITIONS SHALL BE MADE GOOD WITH 7.5 MPa LEAN CONCRETE FILL.
8. FOUNDATION WALL BACK FILL SHALL BE OPSS TYPE 1 GRANULAR 'B' OR APPROVED FREE-DRAINING, IN-SITU MATERIAL COMPACTED, IN LAYERS NOT TO EXCEED 200 mm, TO 98% STANDARD PROCTOR MAXIMUM DRY DENSITY.
9. BACKFILL TO PROCEED SIMULTANEOUSLY ON BOTH SIDES OF FOUNDATION WALLS UNLESS TEMPORARY SUPPORT IS PROVIDED. DO NOT BACKFILL UNTIL CONCRETE HAS ATTAINED 75% OF ITS 28-DAY COMPRESSIVE STRENGTH.
10. CONSTRUCTION JOINTS AND CONTROL JOINTS IN REINFORCED FOUNDATION WALLS SHALL BE LOCATED AT THE EDGE OF PIERS. MAXIMUM SPACING OF CONSTRUCTION JOINTS SHALL BE AS REQUIRED, BUT NOT GREATER THAN 20 m. MAXIMUM SPACING OF CONTROL JOINTS SHALL BE 8 m.
11. ALL EARTH-RETAINING WALLS HAVE BEEN DESIGNED ASSUMING FREE-DRAINING BACKFILL.
13. FOUNDATIONS SHALL BE CONSTRUCTED AS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL INCLUDE IN THEIR WORK ALL PROVISIONS, INCLUDING BUT NOT LIMITED TO EXCAVATION AND FORMING, AS REQUIRED TO CONSTRUCT FOUNDATIONS THUS.

SLAB ON GRADE & PAD NOTES:

1. SEE PLAN FOR SLAB ON GRADE & PAD THICKNESS.
2. PLACE SLAB ON GRADE ON MIN. 300 mm OPSS GRANULAR 'A' COMPACTED TO 98% STANDARD PROCTOR MAXIMUM DRY DENSITY. SUBGRADE MODULUS k = 20 MN/m³. REFER TO GEOTECHNICAL REPORT FOR SUB-BASE INFORMATION.
3. PRIOR TO PLACING GRANULAR FILL MATERIALS, PROOF-ROLL EXISTING SUB-GRADE TO IDENTIFY INCONSISTENCIES OR SOFT AREAS. PROCEED WITH GRANULAR PLACEMENT ONLY AFTER THESE AREAS HAVE BEEN REWORKED AND COMPACTED TO THE SATISFACTION OF THE SOILS ENGINEER.
4. DO NOT PLACE CONCRETE UNTIL ALL ELECTRICAL, MECHANICAL AND PROCESS CONDUITS, PIPING OR OTHER EMBEDDED SERVICES ARE INSTALLED AND VERIFIED.
5. AGREE ON LOCATION OF CONSTRUCTION JOINTS WITH ENGINEER PRIOR TO CONSTRUCTION.
6. PROVIDE SAWCUTS AND CONTROL JOINTS AS SHOWN ON PLANS.
7. PROVIDE COLUMN ISOLATION JOINTS AND SAWCUTTING AS PER DETAILS SHOWN.
8. PERFORM SAWCUTTING FOR CONTROL JOINTS USING DRY METHOD (SOFF-CUT SAW) AS SOON AS POSSIBLE AFTER CONCRETE PLACEMENT WITHOUT LEAVING TREAD MARKS, DISLODGING AGGREGATE AND BEFORE UNCONTROLLED SHRINKAGE OCCURS. FILL CONTROL JOINTS, AS SPECIFIED, NO SOONER THAN 120 DAYS AFTER CONCRETE PLACEMENT.
9. FLOOR FINISH: SEE SPECIFICATIONS.

CONCRETE NOTES:

1. THE DESIGN AND CONSTRUCTION OF ALL WORK ON THIS PROJECT SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING CSA STANDARDS:
   CSA-A23.1 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION";
   CSA-A23.2 "METHODS OF TEST AND PRACTICES FOR CONCRETE";
   CSA-A23.3 "DESIGN OF CONCRETE STRUCTURES";
   CAN/CSA-G30.18 "BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT (GRADE Fy=400 MPa)".
2. UNLESS NOTED OTHERWISE, MINIMUM CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE AS FOLLOWS:
   - LEAN CONCRETE FILL ..... 7.5 MPa
   - BUILDING FOOTINGS, PILE CAPS ..... 30 MPa (EXPOSURE CLASS F-2)
   - PIERS, WALLS & CURBS ..... 35 MPa (EXPOSURE CLASS C-1)
   - SLABS ON GRADE ..... 30 MPa
   - EXTERIOR PADS ..... 35 MPa (EXPOSURE CLASS C-1)
3. MINIMUM CONCRETE COVER TO REINFORCING BARS:

CLEAR CONCRETE COVER (CSA A23.1)		
EXPOSURE CONDITION	EXPOSED TO EARTH OR WEATHER	NOT EXPOSED TO EARTH OR WEATHER
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	75 mm	
BEAMS, GIRDERS, COLUMNS AND PILES PRINCIPAL REINFORCEMENT 35M AND OR SMALLER	50 mm	40 mm
TIES, STIRRUPS AND SPIRAL	40 mm	30 mm
SLABS, WALLS, JOISTS, SHELLS, AND FOLDED PLATES 20 mm AND SMALLER	30 mm	20 mm
FOR BARS DIAMETER db LARGER THAN LISTED ABOVE, THE COVER SHALL BE AT LEAST * NEED NOT BE MORE THAN 60 mm *	1.5 db	1.0 db
RATIO OF COVER TO NOMIMAL MAXIMUM AGGREGATE SIZE SHALL BE AT LEAST	1.5	1.0

4. DETAIL, BEND, PLACE AND SUPPORT REINFORCING STEEL IN CONFORMANCE WITH THE LATEST RSIC MANUAL OF STANDARD PRACTICE. UNLESS NOTED OTHERWISE.
5. ALL LAP SPLICES TO BE CLASS B TENSION SPLICES.
6. PLAIN (UNREINFORCED) CONCRETE EXPOSED TO DEICING CHEMICAL SHALL MEET EXPOSURE CLASS C-2 IN ACCORDANCE WITH LATEST EDITION OF CSA-A23.1.
7. CONCRETE EXPOSED TO CHLORIDES SHALL MEET EXPOSURE CLASSIFICATION C-1 IN ACCORDANCE WITH LATEST EDITION OF CSA-A23.1.
8. PROVIDE CORROSION INHIBITOR IN ALL CONCRETE OF EXPOSURE CLASS C-1.
9. USE TYPE GU PORTLAND CEMENT FOR ALL CONCRETE.
10. ALL FOUNDATION WALL AND GRADE BEAM REINFORCING SHALL BE CONTINUOUS THROUGH PIERS. SPLICE TOP BARS AT MID-SPAN AND BOTTOM BARS AT SUPPORTS FOR ALL GRADE BEAMS.
11. WHEREVER OPENINGS OCCUR, INTERRUPTING ONE OR MORE REINFORCING BARS, IN SLABS OR WALLS, PROVIDE ADDITIONAL REINFORCING STEEL EQUAL TO THE REINFORCING STEEL DISPLACED BY THE OPENING UNLESS OTHERWISE SHOWN. DISTRIBUTE REINFORCEMENT EQUALLY ON EACH SIDE OF THE OPENING AND EXTENDING THE FULL SPAN LENGTH.
12. NO SLEEVES, PIPES, HOLES OR NOTCHES SHALL BE PLACED THROUGH WALLS, GRADE BEAMS, PIERS OR SLABS EXCEPT AS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE ENGINEER.
13. DO NOT PLACE CONCRETE UNTIL ALL DESIGNATED REINFORCING STEEL HAS BEEN PLACED AND INSPECTED AND ANY CONDUITS, PIPING OR OTHER EMBEDDED ITEMS ARE INSTALLED AND VERIFIED.
14. MAXIMUM WATER TO CEMENT RATIO (w/cm) SHALL BE 0.55 FOR ALL CONCRETE FLOOR
15. ADD BARRIER ONE ADMIXTURE IN SLAB ON GRADE CONCRETE.
16. ALL TIES AND STIRRUPS SHALL HAVE SEISMIC HOOKS.
17. WHERE CONCRETE IS CAST OVER RIGID INSULATION, USE APPROPRIATE CHAIRS SUCH THAT INSULATION WILL NOT BE DAMAGED DURING REINFORCING STEEL PLACING, CONCRETING AND OTHER CONSTRUCTION ACTIVITIES.

STRUCTURAL STEEL NOTES:

1. THE DESIGN AND CONSTRUCTION OF ALL WORK IN THIS PROJECT SHALL CONFORM TO THE LATEST EDITION OF CAN/CSA-S16-09.
2. ALL SHOP CONNECTIONS SHALL BE WELDED. ALL FIELD CONNECTIONS SHALL BE WELDED OR BOLTED USING HIGH TENSILE-STRENGTH BOLTS, BEARING TYPE. CONNECTIONS SHALL BE CISC DOUBLE ANGLE BEAM CONNECTIONS FOR A325 BOLTS AND E49XX FILLET WELDS, MINIMUM SIZE OF BOLTS - M20 DIAMETER.

   BEAM SHEAR CONNECTION DESIGN FORCE SHALL BE NO LESS THAN ITS REACTION OF THE MAXIMUM UNIFORMLY DISTRIBUTED FACTORED LOADS DERIVED FROM MOMENT CAPACITY OF THE BEAM.
3. ALL WELDING SHALL BE CARRIED OUT IN ACCORDANCE WITH LATEST EDITION OF FOLLOWING CSA SPECIFICATIONS:
   - W47.1-09 FOR QUALIFICATIONS OF WELDERS
   - W48.1 M1991(R1998), W48.2 TO W48.7 FOR ELECTRODES
   - W59-2003(R2008) FOR DESIGN AND WORKMANSHIP
4. ALL COLUMN ENDS SHALL BE SAWCUT AND WELDED TO BASE/CAP PLATES.
5. ALL COLUMNS TO HAVE ANGLES AT TOP TO SUPPORT STEEL DECK WHERE REQUIRED.
6. BRACING MEMBERS SHALL BE CONNECTED FOR THE FOLLOWING (WHICHEVER IS LARGER):
   - 50% OF THE NOMINAL TENSION CAPACITY OF THE MEMBER BASED ON GROSS AREA
   - FORCES AS SHOWN ON THE DRAWINGS
   - A MINIMUM OF TWO BOLTS
7. SUPPLY, INSTALL AND REMOVE ANY TEMPORARY BRACING REQUIRED DURING CONSTRUCTION.
8. FORCES ARE DESIGNATED BY (+) FOR TENSION AND (-) FOR COMPRESSION.
9. UNLESS NOTED OTHERWISE, DESIGN BEAM-TO-BEAM OR BEAM-TO-COLUMN SHEAR CONNECTION BASED ON THE BEAM'S UNIFORM DISTRIBUTED LOAD (UDL) CAPACITY.
10. CONNECTIONS FOR BEAMS, GIRDERS AND JOISTS SUBJECT TO AXIAL FORCES SHALL BE DESIGNED FOR THE AXIAL FORCES IN ADDITION TO THE SHEAR FORCES, MOMENT FORCES/EFFECTS AND TORSION FORCES/EFFECTS. FORCES INDICATED ARE FACTORED AND IN kN. MOMENTS AND TORSIONS INDICATED ARE FACTORED AND IN kN-m.
11. ALL EXTERIOR STEEL SHALL BE HOT-DIP GALVANIZED (BOTH STRUCTURAL AND MISCELLANEOUS). THIS INCLUDES NUTS, BOLTS, WASHERS, BASE PLATES, LEVELING PLATES, ANCHOR BOLTS AND ANCHORS.
11. FILLER BEAMS AND JOISTS SHALL BE PLACED EQUALLY BETWEEN ESTABLISHED DIMENSIONS, UNLESS NOTED OTHERWISE.
12. PROVIDE WELDED STIFFENER PLATES ON BOTH SIDES OF THE WEB OF BEAMS AT POINTS OF CONCENTRATED LOAD INCLUDING BEAMS SUPPORTING COLUMNS OR RUNNING OVER TOPS OF COLUMNS. MINIMUM STIFFENER PLATE THICKNESS SHALL BE 10 mm OR FLANGE THICKNESS OF COLUMNS ABOVE OR BELOW, WHICHEVER IS GREATER. MINIMUM SIZE OF WELD SHALL BE 5 mm DOUBLE FILLET WELD, OR SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE STIFFENER, WHICHEVER IS GREATER.
13. FOR LOCATIONS OF DOOR FRAMES, WALL OPENINGS, ROOF AND FLOOR OPENINGS, ETC., AND RELATED DETAILS, SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PROCESS & CIVIL DRAWINGS.
14. ±XXX SHOWN ON PLANS DENOTES AXIAL FORCE ALONG BEAMS DUE TO WIND OR EARTHQUAKE LOADS. DESIGN BEAM-TO-BEAM CONNECTIONS AND BEAM-TO-COLUMN CONNECTIONS FOR THESE FORCES IN COMBINATION WITH THE BEAM'S SHEAR FORCE.
15. PERIMETER ROOF ANGLE SHALL BE CONTINUOUS AND BUTT WELDED TOGETHER AT JOINTS. ENSURE CONNECTION OF PERIMETER ANGLE TO SUPPORTING STRUCTURE IS SUFFICIENT TO DEVELOP MAXIMUM UNIT SHEAR FROM DECK DIAPHRAGM. REFER TO ROOF-DIAPHRAGM SHEAR DIAGRAM ON DRAWING 02-S00-00-02.

JOIST NOTES:

1. BRIDGING DESIGN IS THE RESPONSIBILITY OF THE JOIST MANUFACTURER. BRIDGING SHOWN ON PLANS ARE MINIMUM AS REQUIRED FOR THE STABILITY OF THE STRUCTURAL STEEL MEMBERS. JOIST MANUFACTURER SHALL LOCATE AND SPACE THE BRIDGING BASED ON REQUIREMENTS OF LATEST EDITION OF CAN/CSA-S16-09, BUT NOT LESS THAN THAT SHOWN ON DRAWINGS.
2. >< DENOTES X-BRIDGING.
3. DENOTES TOP CHORD/FLANGE HORIZONTAL AND BOTTOM CHORD/FLANGE TO TOP OF MEMBER BRIDGING.
4. MANUFACTURED OPEN-WEB STEEL JOISTS SHALL CONFORM TO LATEST EDITION OF CAN/CSA-S16-09 AND CISC "RECOMMENDED PRACTICE".
5. JOIST FABRICATION DRAWINGS SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE PROVINCE OF ONTARIO.
6. JOISTS TO BE WELDED CONSTRUCTION. NO HOLES TO BE DRILLED FOR HANGERS OR OTHER ATTACHMENTS.
7. ALL JOISTS WHICH FRAME INTO COLUMNS SHALL BE TIE JOISTS UNLESS NOTED OTHERWISE.
8. ALL JOISTS TO BE DESIGNED FOR ALL LOADS SHOWN ON PLANS, ELEVATIONS, SECTIONS AND DETAILS.
9. JOIST SHOES SHALL BE 102 mm DEEP UNLESS NOTED OTHERWISE.
10. EXTEND JOIST TOP CHORDS TO SUPPORT DECK AND SIDING WHERE REQUIRED.
11. CAMBER JOISTS FOR 75% OF DEAD LOADS ONLY.
12. DESIGN JOISTS FOR MAXIMUM LIVE LOAD DEFLECTIONS OF L/300 AND MAXIMUM TOTAL LOAD (DEAD + LOAD) DEFLECTIONS OF L/240 FOR ROOFS UNLESS NOTED OTHERWISE.
13. ENSURE CONNECTION OF JOIST SHOE TO ROOF BEAM HAS SUFFICIENT CAPACITY TO TRANSFER DIAPHRAGM SHEAR INTO FRAMES AS NOTED IN ROOF DIAPHRAGM SHEAR DIAGRAM (SEE DWG. 02-S00-00-02).

METAL DECK NOTES:

1. ALL METAL DECK SHALL BE NEW AND SHALL BE DESIGNED, FABRICATED AND INSTALLED TO CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF CAN/CSA-S136 "COLD FORMED STEEL STRUCTURAL MEMBERS" AND THE REQUIREMENTS OF THE CANADIAN SHEET STEEL BUILDING INSTITUTE.
2. ALL ROOF DECK SHALL DESIGNED AND DETAILED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE PROVINCE OF ONTARIO, AND SHALL BE OF THICKNESS REQUIRED TO SUPPORT ALL LOADS AND EFFECTS SHOWN ON DRAWINGS BUT SHALL NOT BE LESS THAN THAT SHOWN ON DRAWINGS. AFOREMENTIONED DESIGN SHALL INCLUDE APPLICABLE SEISMIC LOADS & EFFECTS. REFER TO SPECIFICATION FOR COATING.
3. SPAN DECK UNITS OVER FOUR OR MORE SUPPORTS (MINIMUM 3 SPANS) FOR INCREASED RIGIDITY.
4. DESIGN AND CONNECT METAL EDGE AND CLOSURE STRIPS TO SAFELY RESIST CONSTRUCTION LOADS AND PREVENT THE LOSS OF CONCRETE/GROUT WHEN DECK IS CONCRETED.
5. PLACE DECK IN ACCORDANCE WITH MANUFACTURER'S SHOP DRAWINGS. END LAPS SHALL ALWAYS OCCUR OVER SUPPORTS. SIDE LAPS SHALL BE ON HALF CORRUGATION. MINIMUM ROOF DECK END LAP IS 50 mm FOR WELDED ATTACHMENT.
6. ALL CONNECTIONS OF ROOF DECK TO SUPPORTING STRUCTURE SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE PROVINCE OF ONTARIO TO RESIST ALL LOADS AND EFFECTS SHOWN ON DRAWINGS, BUT SHALL NOT BE LESS THAN THAT SHOWN ON DRAWINGS.
7. ATTACH DECK UNITS TO TOP OF SUPPORTS BY FUSION WELDS WITH A MINIMUM EFFECTIVE DIAMETER OF 19 mm. MAXIMUM SPACING OF FUSION WELDS AND SIDE LAP BUTTON CLINCH SHALL BE AS FOLLOWS:
   - WELDS AT 150 C/C (EACH FLUTE) TRANSVERSE TO SPAN OF DECK AND AROUND PERIMETER
   - LONGITUDINAL WELDS @ 600 C/C MAX.
   - SIDE LAP BUTTON CLINCH @ 300 C/C
8. FIELD CUTTING OF DECK UNITS SHALL BE DONE IN WORKMANLIKE MANNER. CUT OPENINGS AND REINFORCE EDGES AS REQUIRED FOR PIPES, DUCTS, ETC. THE MAXIMUM SIZE OF AN UNREINFORCED OPENING IS 150 mm SQUARE OR IN DIAMETER. ROOF OPENINGS LARGER THAN 450 mm WIDE AND FLOOR OPENINGS LARGER THAN 300 mm WIDE SHALL BE SUPPORTED BY STEEL FRAMING.
9. DESIGN METAL ROOF DECK FOR MAXIMUM LIVE LOAD DEFLECTION OF 1/300.

MASONRY NOTES:

1. THE DESIGN AND CONSTRUCTION OF ALL WORK ON THIS PROJECT IS TO CONFORM TO LATEST EDITION OF CSA STANDARDS CSA-S304.1, CSA-A371, CSA-A179 AND CAN/CSA-G30.18. PROVIDE TYPE S MORTAR IN ACCORDANCE WITH LATEST EDITION OF CSA STANDARD CSA-A179.
2. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION OF ALL MASONRY WALLS.
3. PROVIDE STANDARD, HOLLOW 15 MPa CONCRETE BLOCK UNITS UNLESS NOTED OTHERWISE.
4. FOR HIGH-LIFT GROUTING, PROVIDE CLEAN-OUT HOLES IN BOTTOM COURSE AND MINIMUM SLUMP OF 200 mm.
5. MASONRY GROUT SHALL BE COARSE GROUT FOR 240 mm & 190 mm BLOCK AND FINE GROUT FOR 140 mm & 90 mm BLOCK. MASONRY GROUT SHALL BE PROPORTIONED ACCORDING TO, AND MEET ALL REQUIREMENTS OF LATEST EDITION OF CSA-A179.
6. PROVIDE CONTINUOUS, HORIZONTAL, STANDARD LADDER-TYPE HORIZONTAL JOINT REINFORCEMENT @ 400 mm C/C, IN BOTTOM TWO BED JOINTS, TOP TWO BED JOINTS AND FIRST BED JOINT ABOVE AND BELOW ALL WALL OPENINGS, ALL SUCH REINF. SHALL BE SPLICED USING CLASS B TENSION LAP SPLICES (AS DEFINED IN LATEST EDITION OF CSA-S304.1). PREFABRICATED CORNER AND INTERSECTION JOINT REINFORCING PIECES SHALL BE USED.
7. PROVIDE 1-15M @ 800 C/C FULL-HEIGHT VERTICAL REINFORCING IN ALL INTERIOR 190 mm PARTITION BLOCK WALLS.

   PROVIDE 1-15M @ 800 C/C FULL-HEIGHT VERTICAL REINFORCING IN ALL EXTERIOR 190mm BLOCK WALLS AT PERIMETER OF BUILDING.

   PROVIDE 1-15M FULL HEIGHT AT EACH SIDE OF CONTROL JOINTS, AND AT CORNERS, INTERSECTIONS, ENDS OF WALLS AND TO EACH SIDE OF ALL OPENINGS, UNLESS NOTED OTHERWISE. PROVIDE MATCHING DOWELS TO FOOTING, SLAB OR SUPPORTING CONCRETE WALL FOR ALL VERTICAL WALL REINF. (TYP. U/N).
8. PROVIDE VERTICAL REINFORCING AT EACH LATERAL BRACING LOCATION.
9. LAP ALL 15M BARS 675 mm MINIMUM. LAP ALL 20M BARS 850 mm MINIMUM.

DESIGN CRITERIA:

1. THE STRUCTURE HAS BEEN DESIGNED TO RESIST A BASIC WIND PRESSURE OF 0.44 kPa AND SEISMIC FORCES IN ACCORDANCE WITH OBC 2012 (PART 4 OF DIVISION B) FOR Sa(0.2)=0.170, Sa(0.5)=0.120, Sa(1.0)=0.070, Sa(2.0)=0.023, I_E =1.0 (ULS), SITE CLASS D, Fa=1.3, Fv=1.4, I_EFa Sa(0.2)=0.221, Rd=1.5, Ro=1.3 (CONVENTIONAL CONSTRUCTION OF BRACE FRAMES AND MOMENT FRAMES), AND NO IRREGULARITIES, USING STATIC ANALYSIS IN BOTH DIRECTIONS.

   CLIMATIC AND SEISMIC DATA:

WIND	SEISMIC	SNOW	RAIN
q 1/50 = 0.44 kPa	Sa(0.2) = 0.170 Sa(0.5) = 0.120 Sa(1.0) = 0.070 Sa(2.0) = 0.023	Ss = 2.4 kPa Sr = 0.4 kPa	24 Hr. = 97 mm

2. LATERAL LOADS DUE TO WIND AND SEISMIC FORCES ACT THROUGH THE HORIZONTAL METAL ROOF DECK DIAPHRAGM, AND ARE RESISTED BY BRACED FRAMES IN BOTH DIRECTION.
3. ROOF ELEMENTS SUCH AS JOISTS, METAL DECK, TRUSSES, SHEATHING, ETC. AND THEIR CONNECTIONS TO THE STRUCTURE ARE TO BE DESIGNED FOR UPWARD SUCTION DUE TO WIND. GROSS UPWARD DESIGN PRESSURES ARE SHOWN ON ROOF LOADING PLANS.
4. ADDITIONAL SNOW ACCUMULATIONS ADJACENT TO HIGHER ROOF AND MECHANICAL EQUIPMENT ARE SHOWN ON THE ROOF.
5. ROOF STRUCTURE (INCLUDING JOISTS) IS TO BE DESIGNED FOR PONDING, INCLUDING PONDING INSTABILITY. MAXIMUM DESIGN PONDING DEPTH AT ROOF DRAINS TO BE 180 mm.
6. ALL LOADS SHOWN ON DRAWINGS ARE SPECIFIED (NO LOAD FACTOR APPLIED) LOADS UNLESS NOTED OTHERWISE. HOWEVER, (ULS) IMPORTANCE FACTORS ARE APPLIED UNLESS NOTED OTHERWISE.
7. ALL LOAD EFFECTS (AXIAL FORCES, SHEARS, MOMENTS AND TORSIONS) ARE FACTORED UNLESS NOTED OTHERWISE.
8. BUILDINGS ARE NOT STABLE UNTIL ALL COMPONENTS (INCLUDING BUT NOT LIMITED TO MOMENT CONNECTIONS, BRACING, FLOOR AND ROOF DECKS & SHEATHING) ARE CONSTRUCTED.
9. MATERIALS:

   STRUCTURAL STEEL: CAN/CSA-G40.20/G40.21. GRADE 350W FOR W-SECTIONS. GRADE 300W FOR OTHERS.

   COLD-FORMED STEEL: HOLLOW STRUCTURAL SECTIONS (HSS): YIELD STRENGTH = 350 MPa MIN. CONFORM TO CAN/CSA G40-20/G40.21-M GRADE 350W, CLASS C.

   WELDING: E49XX ELECTRODES.

   BOLTS, NUTS AND WASHERS: CONFORM TO ASTM A325.

   ANCHOR RODS: CONFORM TO ASTM F1554 GRADE 36 UNLESS NOTED OTHERWISE.

   PRIMER: SEE SPECIFICATION.

   WOOD: LUMBER: GRADED TO NLGA RULES NO.1/NO.2 S-DRY UNLESS NOTED OTHERWISE MSR GRADE FOR TRUSSES AS REQUIRED.
   GLULAM: CSA 0122 SP GRADE 20FE BENDING STRESS UNLESS NOTED OTHERWISE. 12CE COMPRESSION STRESS UNLESS NOTED OTHERWISE.
   PLYWOOD: CSA 0151 SOFTWOOD EXTERIOR GRADE.

10. NO STRUCTURES HAVE BEEN DESIGNED FOR FUTURE EXPANSION.
11. DESIGN LOADS:

    ROOF DEAD LOAD: ROOF ASSEMBLY 0.25 kPa; DECK 0.10 kPa; JOISTS 0.15 kPa; M/E 0.50 kPa; STRUC. STEEL 0.25 kPa

    (OTHER MECH UNIT LOADS, CRANE LOADS AND ADDITIONAL MECH/ELEC HANGING LOADS SPECIFIED IN THE DRAWING)

    ROOF SNOW LOAD 2.32 kPa + SNOW PILE-UP.

    ELECTRICAL ROOM FLOOR LIVE LOAD: 4.8 kPa.

    REPAIR BAY FLOOR LIVE LOAD: 12 kPa.

ROD Contract No.
T-1038-2019

DATE (mmm dd yyyy)	ISSUED FOR	REV
OCT 01 2018	TENDER	0

KEY PLAN

CONSULTANTS

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LICENSED PROFESSIONAL ENGINEER X. G. LIU 100144053 OCT-01-2018 PROVINCE OF ONTARIO

North Arrow

Detail Symbol: DETAIL NUMBER / LOCATION OR DETAIL SHEET

Project Manager	Architect/Engineer
A. VAN VEEN	S. LIU
Project Leader: S. LIU	Drawn: K. L.
Date: JAN 2013	Checked: K. ANGER

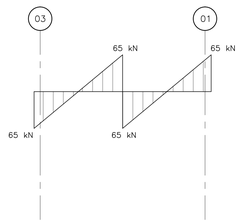
Client: THE REGIONAL MUNICIPALITY OF DURHAM
WORKS DEPARTMENT
WHITBY ONTARIO

Project:
EXPAND GARAGE
SCUGOG DEPOT
10 REGIONAL RD. 21, R.R.#14, PORT PERRY

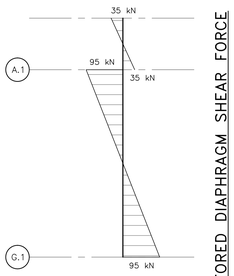
Drawing Title:
GENERAL NOTES

Check Scale (may be photo-reduced): 0 1 Inch; 0 10mm

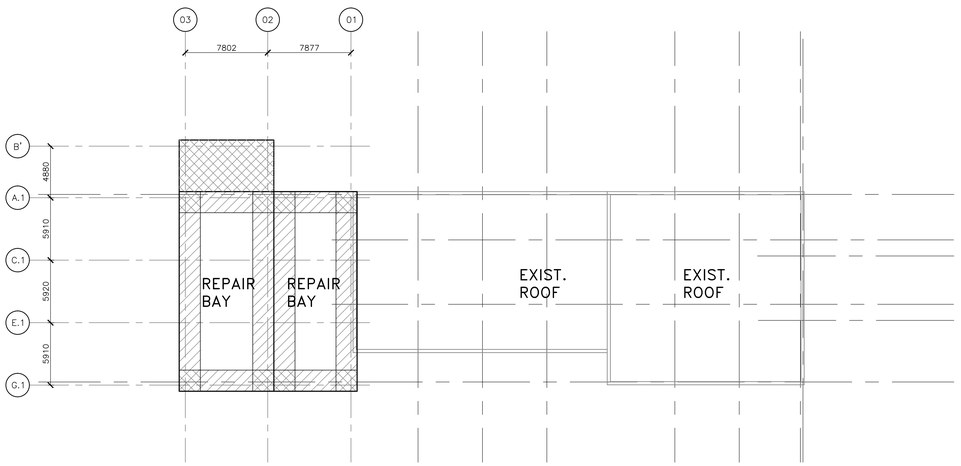
Project No.	Drawing No.
24RX12.0113	02-S00-00-01



FACTORED DIAPHRAGM SHEAR FORCE



FACTORED DIAPHRAGM SHEAR FORCE



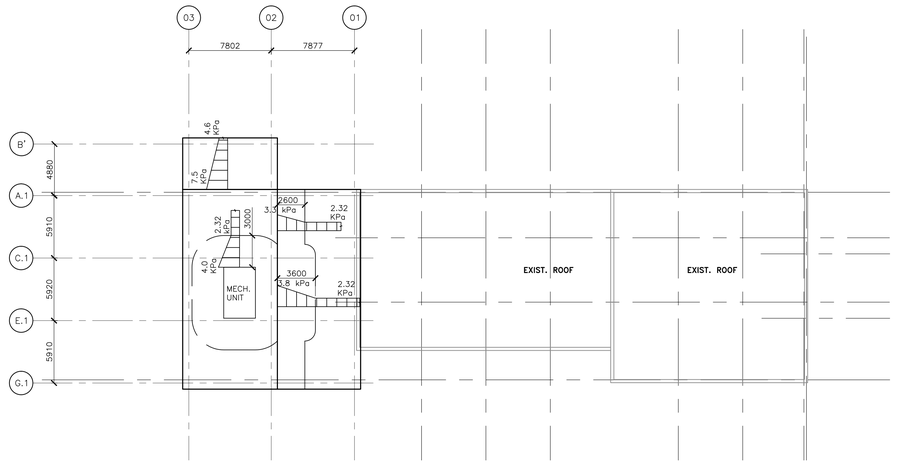
N

GROSS WIND UPLIFT DIAGRAM

SCALE 1:200

NOTES:

GROSS WIND UPLIFT (KPa) INCLUDING INTERIOR PRESSURE			
ZONE	DECK	JOIST	
	1.09	0.93	
	1.37	1.15	
	2.12	1.15	



N

SNOW PILING-UP DIAGRAM

SCALE 1:200

NOTES:

DATE (mm dd yyyy)	ISSUED FOR	REV
OCT 01 2018	TENDER	0

KEY PLAN

CONSULTANTS

IBI GROUP
100-175 Galaxy Boulevard
Toronto ON M9W 0C9 Canada
tel 416 679 1930 fax 416 675 4620
ibigroup.com

LICENSED PROFESSIONAL ENGINEER
K. D. LIU
100144053
OCT 01/2018
PROVINCE OF ONTARIO

North Arrow

True North

Detail Symbol

DETAIL NUMBER
LOCATION OR DETAIL SHEET

Project Manager	Architect/Engineer
A. VAN VEEN	S. LIU
Project Leader	Drawn
S. LIU	K. L.
Date	Checked
JAN 2013	K. ANGER

Client

THE REGIONAL MUNICIPALITY OF DURHAM
WORKS DEPARTMENT
WHITBY ONTARIO

Project

EXPAND GARAGE
SCUGOG DEPOT
10 REGIONAL RD. 21, R.R.#14, PORT PERRY

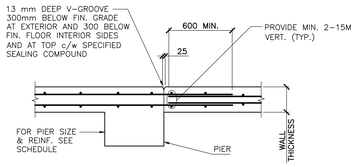
Drawing Title

ROOF SNOW AND WIND LOAD DIAGRAMS

Check Scale (may be photo-reduced)
0 1 inch 0 10mm

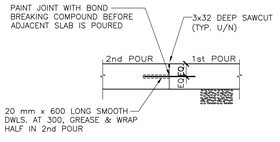
Project No.	Drawing No.
24RX12.0113	02-S00-00-02

ROD Contract No.
T-1038-2019



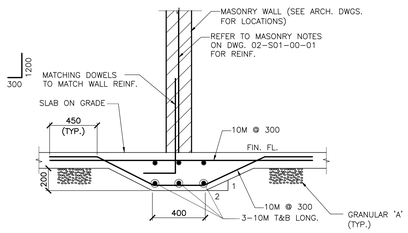
TYPICAL CONSTRUCTION JOINT IN REINFORCED WALL AT PIERS

N.T.S.



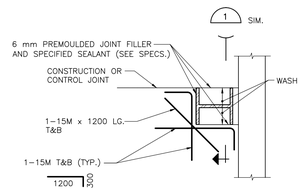
TYPICAL CONSTRUCTION JOINT IN SLAB ON GRADE

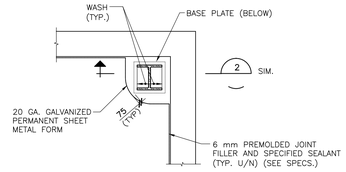
N.T.S.

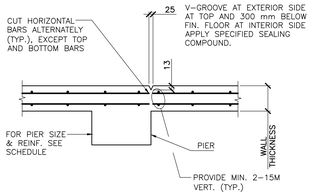


TYPICAL SLAB THICKENING AT INTERIOR MASONRY WALLS

SCALE: 1:20

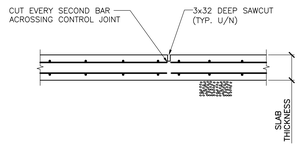






TYPICAL CONTROL JOINT IN REINFORCED WALL AT PIERS

N.T.S.



TYPICAL CONTROL JOINT IN SLAB ON GRADE

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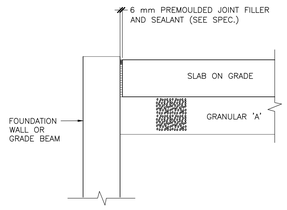
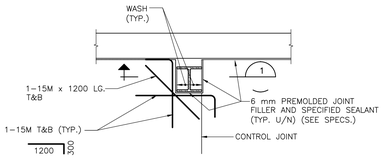
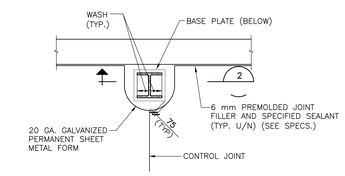
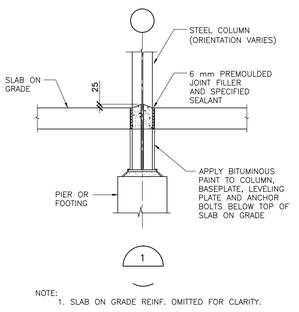


TYPICAL PERIMETER WALL ISOLATION JOINT

N.T.S.



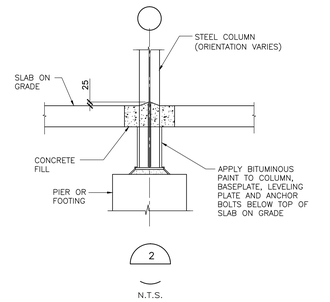




NOTE:
1. SLAB ON GRADE REINF. OMITTED FOR CLARITY.

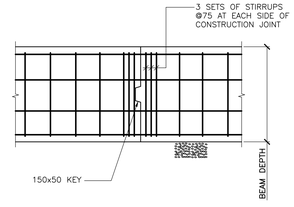
EXTERIOR COLUMN ISOLATION JOINT

N.T.S.



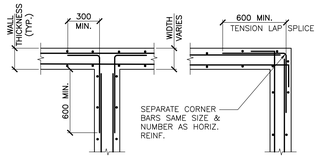
EXTERIOR COLUMN ISOLATION JOINT

N.T.S.



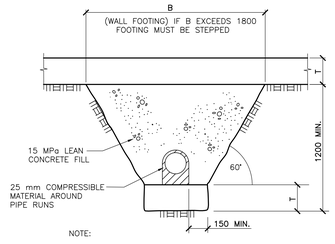
TYPICAL CONSTRUCTION JOINT IN GRADE BEAM

N.T.S.



TYPICAL DETAIL OF WALL INTERSECTION & CORNER

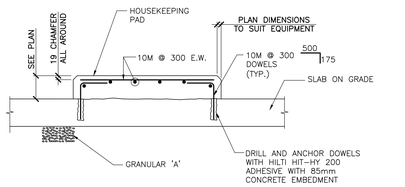
N.T.S.



NOTE:
1. "T" DENOTES THICKNESS OF WALL FOOTING.

TYPICAL DETAIL OF CONCRETE FILL AROUND PIPES BELOW WALL FOOTINGS

(IF REQUIRED) N.T.S.

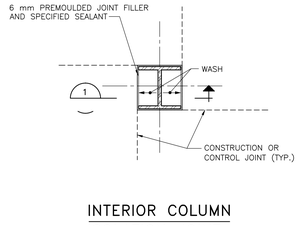


NOTE:

1. MINIMUM 28-DAY COMPRESSIVE STRENGTH OF HOUSEKEEPING PAD CONCRETE SHALL MEET REQUIREMENTS OF MANUFACTURER OF SUPPORTED EQUIPMENT AND THE SEISMIC RESTRAINT DESIGN ENGINEER FOR THE SUPPORTED EQUIPMENT, BUT SHALL NOT BE LESS THAN 30 MPa. INTERIOR HOUSEKEEPING PAD CONCRETE SHALL BE EXPOSURE CLASS C-4, WITH NO AIR ENTRAINMENT.

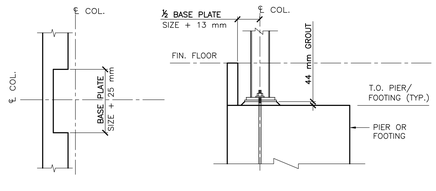
TYPICAL CONCRETE HOUSEKEEPING PAD DETAIL

N.T.S.



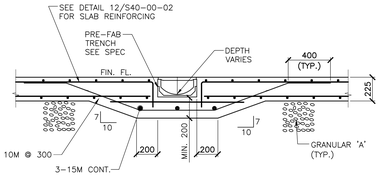
INTERIOR COLUMN ISOLATION JOINT

N.T.S.



TYPICAL WALL POCKET AT COLUMN (U/N)

N.T.S.



TYPICAL REPAIR BAY TRENCH SECTION

SCALE 1:20

DATE (mmm dd yyyy)	ISSUED FOR	REV
OCT 01 2018	TENDER	0

KEY PLAN

CONSULTANTS

IBI GROUP
100-175 Galaxy Boulevard
Toronto ON M9W 0C9 Canada
tel 416 679 1930 fax 416 675 4620
ibigroup.com

LICENSED PROFESSIONAL ENGINEER S. LIU X. Q. LIU 100144053 OCT 01 2018 PROVINCE OF ONTARIO

North Arrow: True North

Detail Symbol: DETAIL NUMBER / LOCATION OR DETAIL SHEET

Project Manager	Architect/Engineer
A. VAN VEEN	S. LIU
Project Leader: S. LIU	Drawn: K. L.
Date: JAN 2013	Checked: K. ANGER

Client: THE REGIONAL MUNICIPALITY OF DURHAM
WORKS DEPARTMENT
WHITBY ONTARIO

Project:
EXPAND GARAGE
SCUGOG DEPOT
10 REGIONAL RD. 21, R.R.#14, PORT PERRY

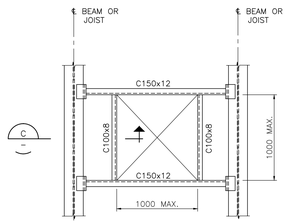
Drawing Title:
TYPICAL DETAILS

Check Scale (may be photo-reduced): 0 1 Inch 0 10mm

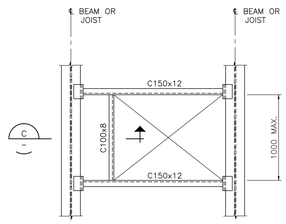
Project No.	Drawing No.
24RX12.0113	02-S00-00-03

ROD Contract No.
T-1038-2019

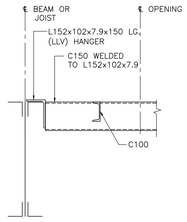
User Name: Ken Luk Plot Date\Time: Tuesday, March 19, 2019 10:00:24 AM Path and File Name: J:\24rx12.0113_durham region orono & scugog depots\5.9 drawing\5Bstruc\layouts\02-s00-00-03.dwg



A PLAN – TYPICAL ROOF OPENING FRAME – TYPE 'A'
N.T.S.



B PLAN – TYPICAL ROOF OPENING FRAME – TYPE 'B'
N.T.S.



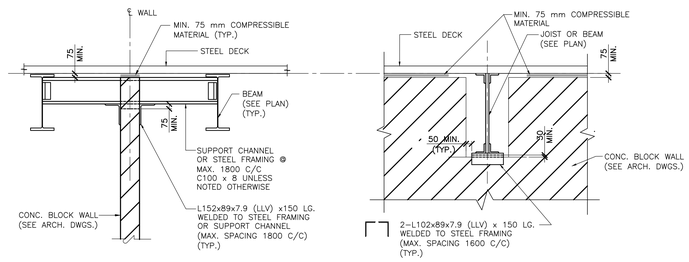
C SECTION
N.T.S.

CONCRETE BLOCK LINTEL SCHEDULE

CLEAR SPAN	90 WALL	140 WALL	190 WALL	240 WALL
190 DEEP LINTEL (1 – COURSE)				
UP TO 1200 (U/N)	1–10M BOT.	1–15M BOT.	2–10M BOT.	2–10M BOT.
390 DEEP LINTEL (2 – COURSE)				
1200 TO 1800 (U/N)		1–15M BOT.	(1200 TO 2000) 2–15M BOT.	(1200 TO 2000) 2–15M T&B (SEE NOTE 5)
590 DEEP LINTEL (3 – COURSE)				
2000 TO 3000 (U/N)			2–15M T&B (SEE NOTE 4 & 5)	2–15M T&B (SEE NOTE 5)

NOTES:

1. USE ONLY FOR NON–LOAD BEARING MASONRY WALLS.
2. USE LINTELS ON THIS TYPICAL DETAIL ONLY IF THE HEIGHT OF THE MASONRY ABOVE THE OPENING IS EQUAL TO OR GREATER THAN HALF THE CLEAR SPAN OF THE OPENING AND IF THERE ARE NO CONCENTRATED LOADS DIRECTLY ABOVE THE LINTEL.
3. FILL LINTELS SOLID WITH MASONRY GROUT. USE FINE GROUT FOR 90 mm & 140 mm BLOCK AND COARSE GROUT FOR 190 mm & 240 mm BLOCK.
4. PROVIDE 100 mm COVER BELOW BOTTOM BARS.
5. PROVIDE 10M @ 150 STIRRUPS. PROVIDE 10M @ 200 H.E.F. (IN BOND BEAMS).
6. LINTELS ARE TO BE CONSTRUCTED OF LINTEL BLOCK AT BOTTOM COURSE AND STANDARD BLOCKS ABOVE UNLESS NOTED OTHERWISE.
7. PROVIDE MIN. 200 mm BEARING AT BOTH ENDS OF ALL LINTELS.
8. PROVIDE HORIZONTAL JOINT REINF. IN EACH BED JOINT OF LINTELS AND EXTEND THIS REINF. MIN. 1200 TO EACH SIDE OF OPENING OR TO END OF WALL, WHICHEVER IS LESS.

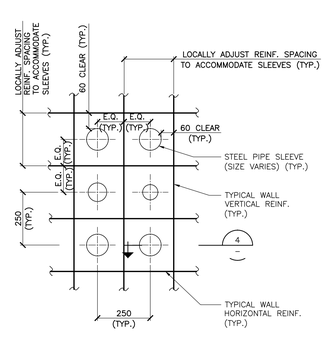


WALL BETWEEN BEAMS

AT PARTITION PERPENDICULAR TO JOISTS OR BEAMS

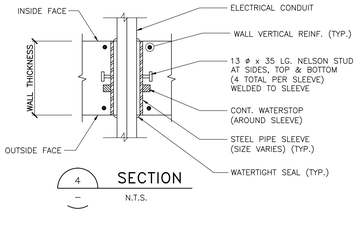
DETAILS FOR LATERAL BRACING OF INTERIOR PARTITION WALLS

N.T.S.



NOTE:

1. STEEL PIPE SLEEVE AND NELSON STUD ASSEMBLIES SHALL BE HOT–DIP GALVANIZED.

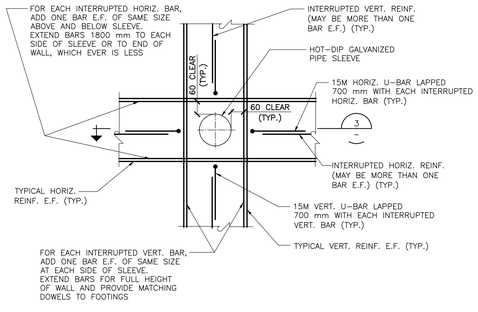


4 SECTION
N.T.S.

CONDUIT SLEEVE SCHEDULE	
CONDUIT I. D.	SLEEVE SIZE
51 mm	DN80x5.49
76 mm	DN100x6.02
102 mm	DN125x6.55

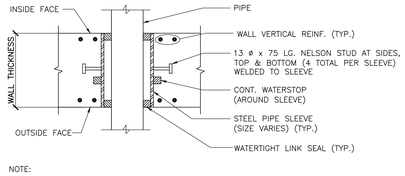
TYPICAL ELECTRICAL CONDUIT PENETRATION ELEVATION DETAIL AT FOUNDATION WALLS

(N.T.S.)



NOTE:

1. STEEL PIPE SLEEVE AND NELSON STUD ASSEMBLIES SHALL BE HOT–DIP GALVANIZED.



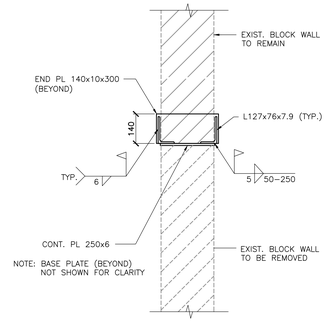
NOTE:

1. HORIZ. REINF. OMITTED FOR CLARITY.

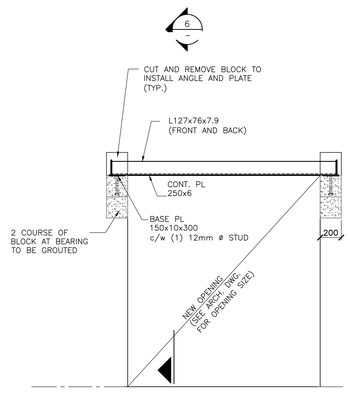
3 SECTION
N.T.S.

TYPICAL PIPE PENETRATION ELEVATION DETAIL AT FOUNDATION WALLS

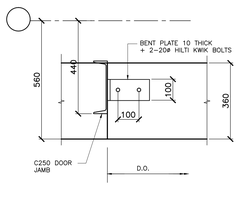
(N.T.S.)



6 SECTION
SCALE: 1:10



5 LINTEL FOR NEW OPENING ON EXISTING WALL @ GRID LINE '1'
N.T.S.



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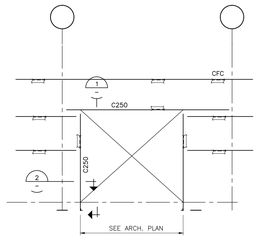
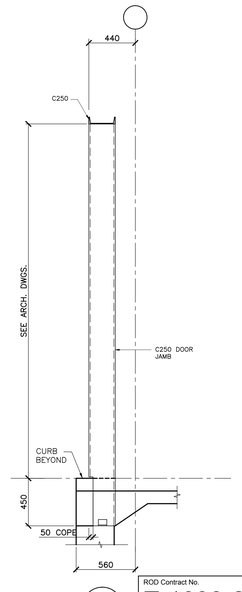
N.T.S



TYPICAL TRUCK DOOR
N.T.S



1

ROD Contract No. T-1038-2019

DATE (mmm dd yyyy)	ISSUED FOR	REV
OCT 01 2018	TENDER	0

KEY PLAN

CONSULTANTS

IBI GROUP
100-175 Galaxy Boulevard
Toronto ON M9W 0C9 Canada
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ibigroup.com

LICENSED PROFESSIONAL ENGINEER X. LIU 100140823 OCT 01/2018 PROVINCE OF ONTARIO

North Arrow

Detail Symbol: DETAIL NUMBER / LOCATION OR DETAIL SHEET

Project Manager	Architect/Engineer
A. VAN VEEN	S. LIU
Project Leader	Drawn
S. LIU	K. L.
Date	Checked
JAN 2013	K. ANGER

Client: THE REGIONAL MUNICIPALITY OF DURHAM, WORKS DEPARTMENT, WHITBY, ONTARIO

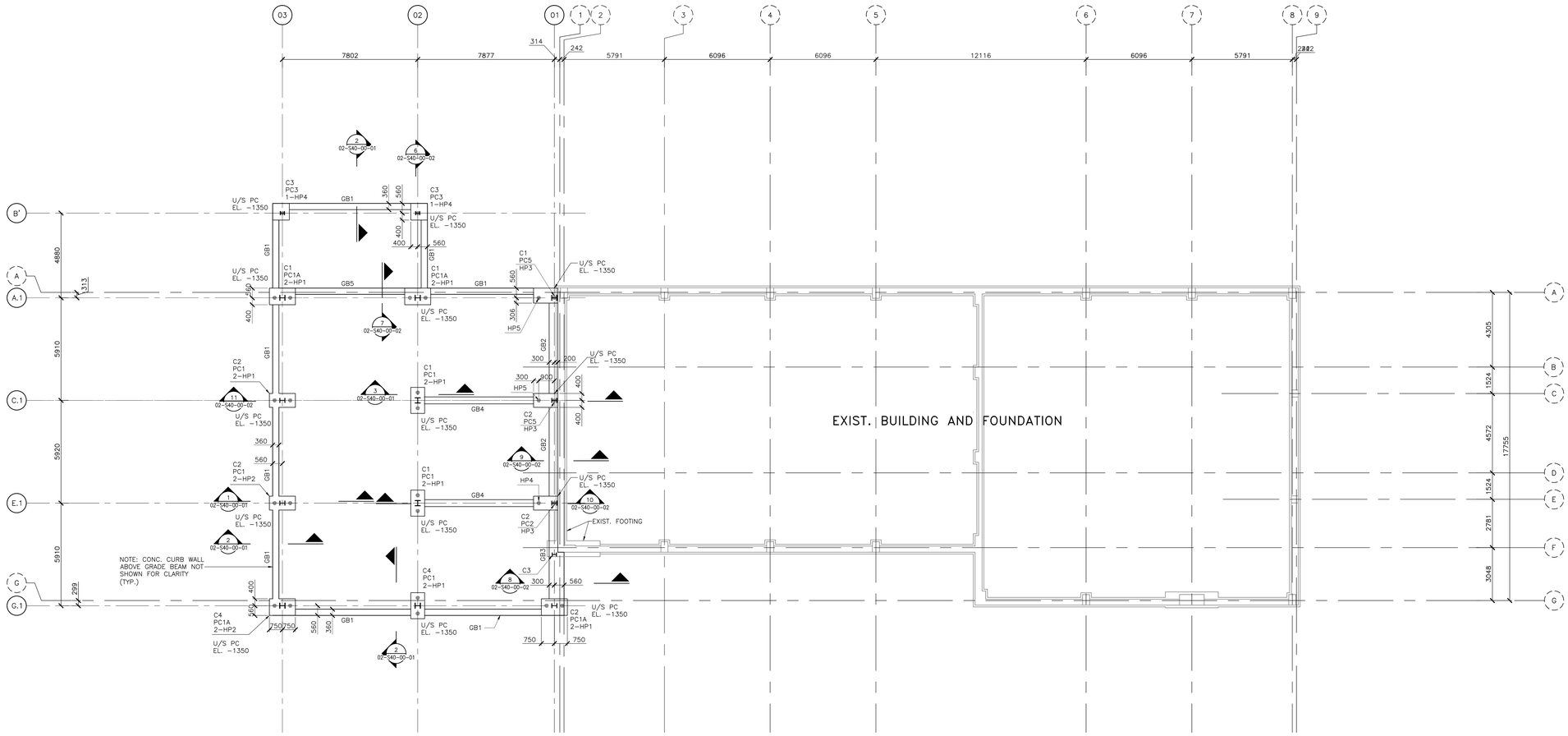
Project: EXPAND GARAGE SCUGOG DEPOT
10 REGIONAL RD. 21, R.R.#14, PORT PERRY

Drawing Title: TYPICAL DETAILS

Check Scale (may be photo-reduced): 0 1 Inch; 0 10mm

Project No.	Drawing No.
24RX12.0113	02–S00–00–04

User Name: Ken Luk Plot Date\Time: Tuesday, March 19, 2019 10:00:33 AM Path and File Name: j:\24rx12.0113_durham region oronо & scugog depots\5.0 drawing\3structure\layouts\02-s00-00-04.dwg



N

FOUNDATION PLAN

SCALE 1:100

NOTES:

1. PC, P AND C DENOTE PILE CAP, PIER AND COLUMN, RESPECTIVELY.
2. HP DENOTES HELICAL PILE. GB DENOTES GRADE BEAM.
3. HELICAL PILE SHALL BE DESIGNED AND INSTALLED TO MEET LOADING REQUIREMENT SHOWN IN THE TABLE ON THIS DRAWING.

   A SACRIFICIAL TEST PILE SHALL BE INSTALLED AND TESTED IN COMPRESSION IN ACCORDANCE WITH ASTM 1143. SEE SPEC FOR OTHER REQUIREMENTS.
4. SEE DRAWINGS 02−S40−00−01 & 02 FOR FOUNDATION DETAILS.
6. APPLY ASPHALT COATING ON STEEL COLUMN, BASE PLATE, LEVELING PLATE, ANCHOR BOLTS, NUTS AND WASHERS BELOW FIN. FLOOR.

	HELICAL PILE DESIGN LOADS				
	COMPRESSION		UPLIFT	SHEAR	
	SLS	ULS	SLS	SLS	REMARKS
HP1	160kN	240kN		15kN	14 TOTAL
HP2	160kN	240kN	38kN	15kN	4 TOTAL
HP3	200kN	300kN	38kN	15kN	3 TOTAL
HP4	120kN	180kN		15kN	3 TOTAL
HP5	120kN	180kN	38kN	15kN	2 TOTAL

Note: HPx only defines the load capacity requirement of helical piles. It does not imply the size and length of the helical piles, which are to be designed by the engineer of helical pile contractor. Submit helical pile shop drawing stamped by a P.eng licensed to practice in the province of Ontario for IBI review.

DATE (mmm dd yyyy)	ISSUED FOR	REV
OCT 01 2018	TENDER	0

KEY PLAN

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IBI GROUP
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ibigroup.com

LICENSED PROFESSIONAL ENGINEER
X. B. LIU
100144933
OCT 01 2018
PROVINCE OF ONTARIO

North Arrow

Detail Symbol
DETAIL NUMBER
LOCATION OR DETAIL SHEET

Project Manager: A. VAN VEEN	Architect/Engineer: S. LIU
Project Leader: S. LIU	Drawn: K. L.
Date: JAN 2013	Checked: K. ANGER

Client: THE REGIONAL MUNICIPALITY OF DURHAM
WORKS DEPARTMENT
WHITBY ONTARIO

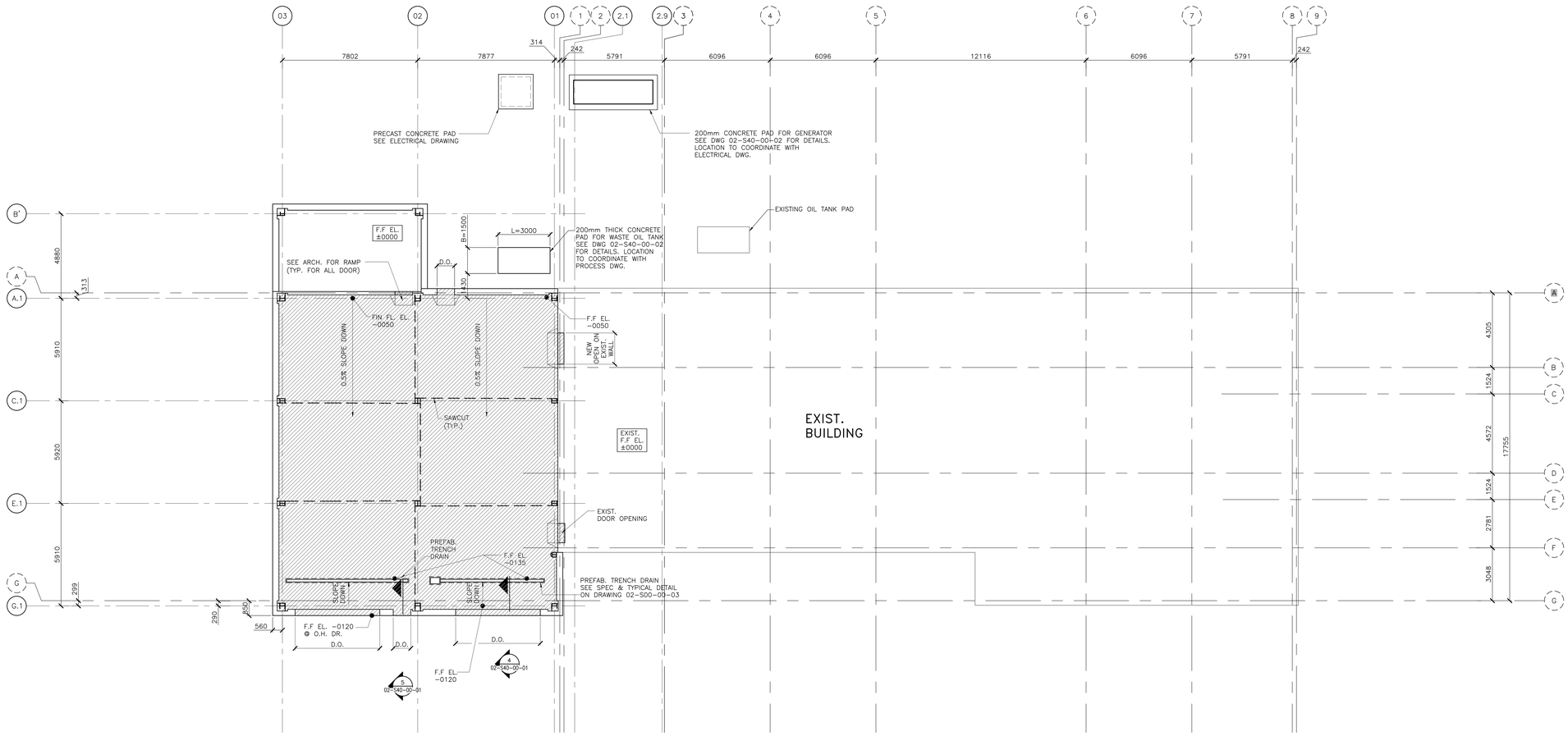
Project:
EXPAND GARAGE
SCUGOG DEPOT
10 REGIONAL RD. 21, R.R.#14, PORT PERRY

Drawing Title:
FOUNDATION PLAN

Check Scale (may be photo-reduced)
0 1 Inch 0 10mm

Project No.	Drawing No.
24RX12.0113	02−S10−00−01

ROD Contract No.
T-1038-2019



N

SLAB ON GRADE PLAN

SCALE 1:100

NOTES:

1. EL. ±0000 REPRESENTS ELEVATION 340.06m.
2. [ ] DENOTES 125 mm THICK SLAB ON GRADE (ELECTRICAL ROOM) REINFORCED WITH 10M @ 250 EACH WAY TOP (40mm FROM TOP OF SLAB) ON MINIMUM 300 mm THICK GRANULAR "A" SUB-BASE. STRENGTH OF CONCRETE TO BE 30 MPa @ 28 DAYS. ADD BARRIER ONE ADMIXTURE IN CONCRETE. PLACE MOISTURE BARRIER UNDER THE SLAB ON GRADE.
3. [////] DENOTES 225 mm THICK SLAB ON GRADE REINFORCED WITH 10M @ 250 EACH WAY TOP AND BOTTOM ON MIN. 300 mm THICK GRANULAR 'A' SUB-BASE. STRENGTH OF CONCRETE TO BE 30 MPa @ 28 DAYS. ADD BARRIER ONE ADMIXTURE IN CONCRETE. PLACE MOISTURE BARRIER UNDER THE SLAB ON GRADE.
   SLAB HAS BEEN DESIGNED FOR FLOOR MOUNTED 35 TON CAPACITY PANTOGRAPH LIFT. LIFT MANUFACTURER TO PROVIDE ANCHOR BOLTS (EMBEDDED OR POST-DRILLED) THAT ARE SUFFICIENT TO SUPPORT THE LIFT. G.C. SHALL LOCATE LIFT BASE PLATES BEFORE POUR SLAB AND ADD 4-15M x 1200 LG @ 250 EACH WAY BOTTOM ON THESE LOCATIONS.
4. — — — — DENOTES SAWCUT CONTROL JOINTS.
5. SEE GENERAL NOTES ON DRAWING 02-S00-00-01 FOR SUBGRADE REQUIREMENT.
6. D.O. DENOTES DOOR OPENING, FOR LOCATION AND SIZE SEE ARCH. DRAWINGS
7. REFER TO ARCH. DRAWINGS FOR INTERIOR BLOCK WALLS.
8. COORDINATE WITH MECHANICAL DRAWINGS FOR EMBEDED DRAINS, TRENCHES AND PITS.
9. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR HOUSEKEEPING PAD LOCATIONS AND SIZES, SEE DRAWING 02-S00-00-03 FOR DETAIL.

ROD Contract No.
T-1038-2019

DATE (mmm dd yyyy)	ISSUED FOR	REV
OCT 01 2018	TENDER	0

KEY PLAN

CONSULTANTS

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LICENSED PROFESSIONAL ENGINEER
X. D. LIU
10194853
OCT 01 2018
PROVINCE OF ONTARIO

North Arrow

Detail Symbol
DETAIL NUMBER
LOCATION OR DETAIL SHEET

Project Manager	Architect/Engineer
A. VAN VEEN	S. LIU
Project Leader	Drawn
S. LIU	K. L.
Date	Checked
JAN 2013	K. ANGER

Client
THE REGIONAL MUNICIPALITY OF DURHAM
WORKS DEPARTMENT
WHITBY ONTARIO

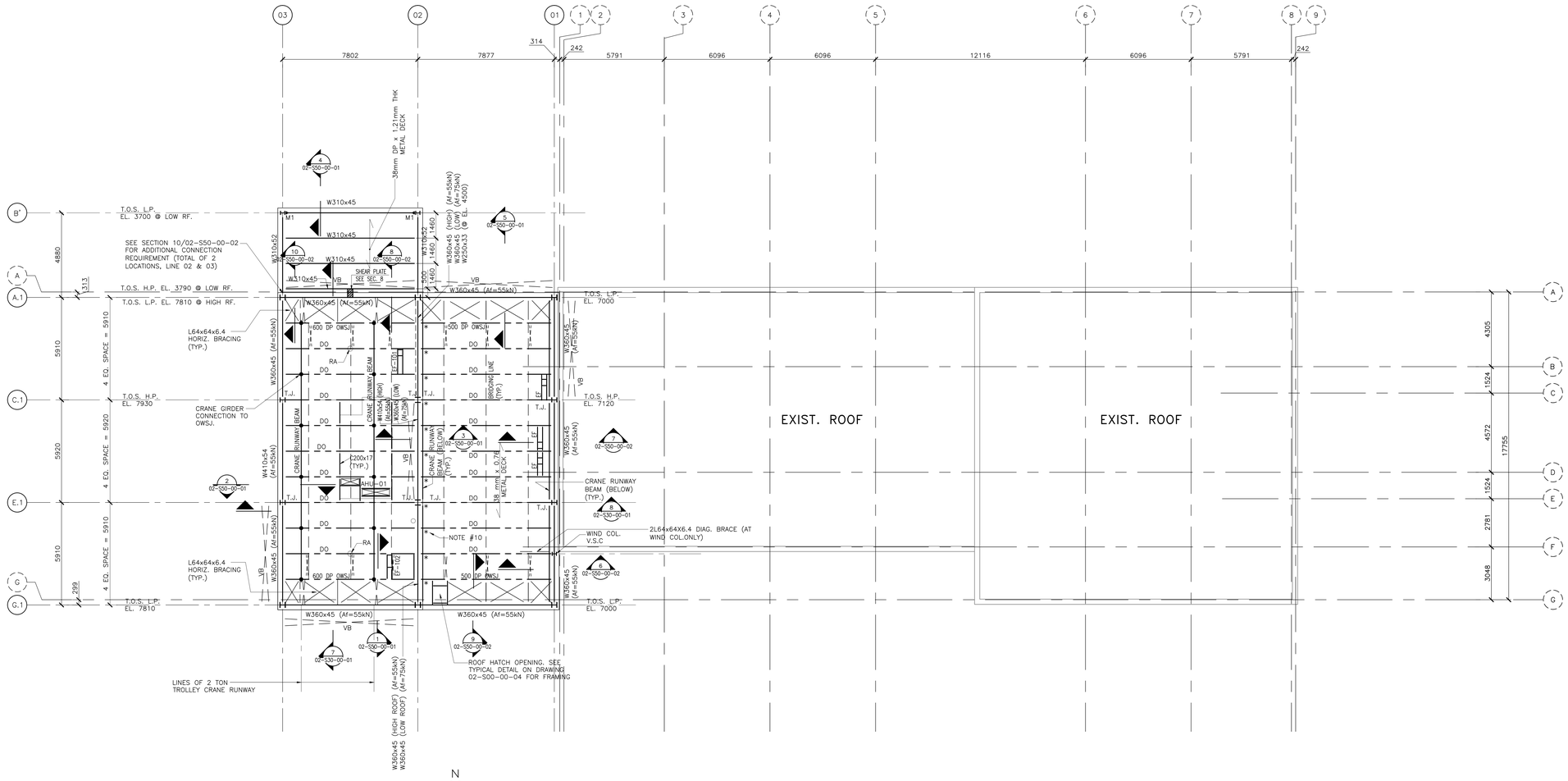
Project
EXPAND GARAGE
SCUGOG DEPOT
10 REGIONAL RD. 21, R.R.#14, PORT PERRY

Drawing Title
SLAB ON GRADE PLAN

Check Scale (may be photo-reduced)
0 1 Inch 0 10mm

Project No.	Drawing No.
24RX12.0113	02-S11-00-01

User Name: Ken Luk Plot Date\Time: Tuesday, March 19, 2019 10:00:55 AM Path and File Name: j:\24rx12.0113_durham region orono & scugog depots\5.9 drawing\5structural\layouts\02-s11-00-01.dwg



N

ROOF FRAMING PLAN

SCALE 1:100

NOTES:

1. T.J. DENOTES TIE JOIST.
2. JOIST SHOE DEPTH = 102 mm UNLESS NOTED OTHERWISE.
3. REFER TO DRAWING 02-S40-00-01 FOR COLUMN SCHEDULE.
4. ▶—— DENOTES MOMENT CONNECTION. FACTORED DESIGN MOMENT M1=150 kN.m
5. SEE TYPICAL DETAILS ON DRAWING 02-S-00-04 FOR ROOF OPENING FRAMING. CONTRACTOR SHALL COORDINATE ALL ROOF UNITS, OPENINGS AND PENETRATIONS WITH MECHANICAL DRAWING AND MANUFACTURER'S SHOP DRAWING.
6. MECHANICAL UNIT LOADS SHOWN ARE SPECIFIED (UNFACTORED).
7. UNLESS NOTED OTHERWISE, DESIGN BEAM TO COLUMN CONNECTIONS FOR AN ADDITIONAL BEAM AXIAL FORCE Af (FACTORED) SHOWN ON PLAN.
8. RA DENOTES ROOF ANCHORS. THE JOISTS SHALL BE DESIGNED TO RESIST FALL-ARREST IMPACT LOAD INDUCED BY ROOF ANCHORS. ADDITIONAL BRIDGING/BRACE SHALL BE ADDED TO JOISTS WHERE REQUIRED.
9. JOIST BRIDGING LINES SHOWN ON THIS DRAWING IS CONCEPTUAL ONLY AND WILL BE FINALLY DETERMINED AND DESIGNED BY JOIST SUPPLIER.
10. * INDICATES JOIST TOP CHORD TO BE REINFORCED FOR ADDITIONAL HORIZONTAL FORCE DUE TO DECK TERMINATED BEFORE BEAM. SEE SECTION 3 ON DRAWING 02-S50-00-01 FOR DETAIL.

SPECIFIED JOIST DESIGN LOADS:

DEAD LOADS:

1. ROOF DEAD LOAD AS PER DRAWING 02-S00-00-01 DESIGN CRITERIA, NOTE #11.
2. GRAVITY LOADS OF MECHANICAL UNITS: AHU-01 = 42 kN (9360 LBS)
   EF-101 = 2.3 kN (500 LBS)
   EF-102 = 2.3 kN (500 LBS)
   EF = 0.9 kN (200 LBS) (RELOCATE EXISTING)
3. 4 KN CONCENTRATED LOAD ON ANY ONE OF PANEL POINTS OF BOTTOM CHORD, ACCOUNTED FOR ADDITIONAL HANGING THAT MAY BE REQUIRED BY MECH/PROCESS/ELEC. (DO NOT TAKE INTO ACCOUNT THIS LOAD TO RESIST WIND UPLIFT) (UNLESS SHOWN ON THE STRUCTURAL DRAWINGS, ALL HANGING SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.)

LIVE LOADS:

1. SNOW LOAD SEE DRAWING 02-S00-00-02. (SNOW PILE-UP AROUND MECHANICAL UNITS AND ADJACENT TO HIGHER ROOF.)
2. TROLLEY CRANE RUNWAY BEAM HANGING LOAD (WHERE APPLICABLE) ACCORDING TO DRAWING 02-S30-00-01 SECTION 7 AND 8.

ROD Contract No.
T-1038-2019

DATE (mm dd yyyy)	ISSUED FOR	REV
OCT 01 2018	TENDER	0

KEY PLAN

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LICENSED PROFESSIONAL ENGINEER
X. LIU
100140923
2018-01-04
PROVINCE OF ONTARIO

North Arrow

Detail Symbol
DETAIL NUMBER
LOCATION OR DETAIL SHEET

Project Manager	Architect/Engineer
A. VAN VEEN	S. LIU
Project Leader	Drawn
S. LIU	K. L.
Date	Checked
JAN 2013	K. ANGER

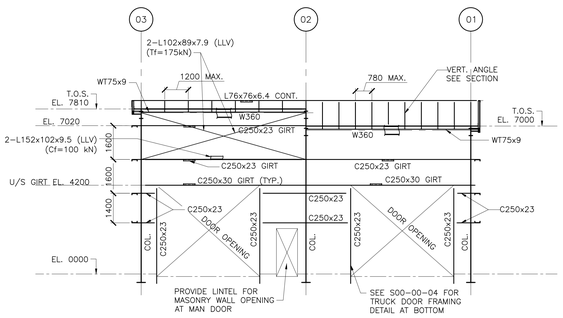
Client
THE REGIONAL MUNICIPALITY OF DURHAM
WORKS DEPARTMENT
WHITBY ONTARIO

Project
EXPAND GARAGE
SCUGOG DEPOT
10 REGIONAL RD. 21, R.R.#14, PORT PERRY

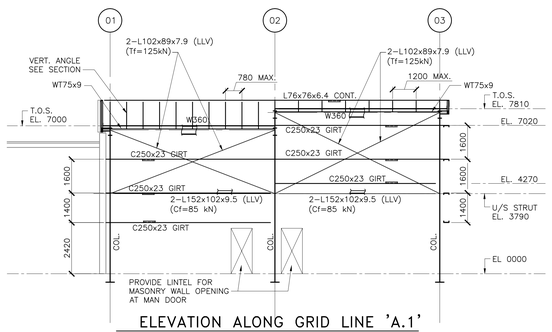
Drawing Title
ROOF FRAMING PLAN

Check Scale (may be photo-reduced)
0 1 Inch 0 10mm

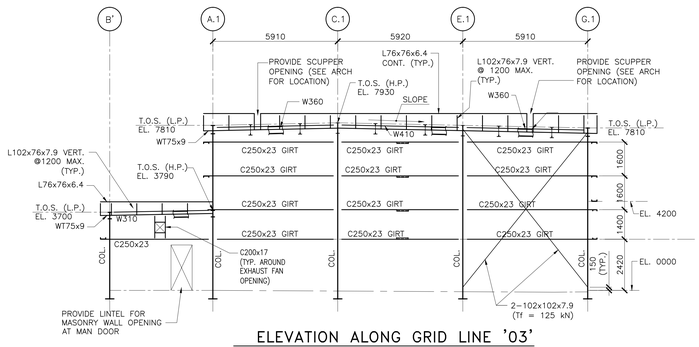
Project No.	Drawing No.
24RX12.0113	02-S20-00-01



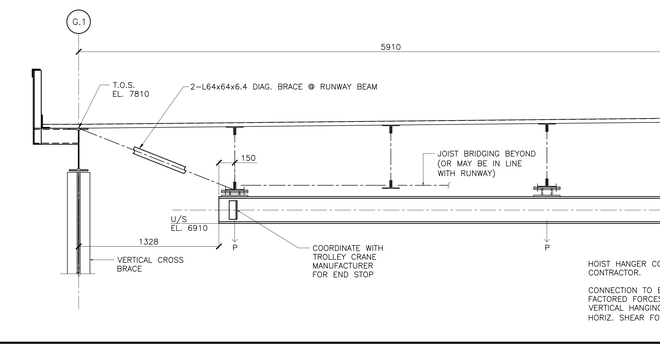
ELEVATION ALONG GRID LINE 'G.1'



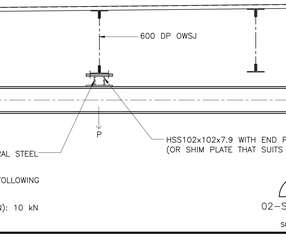
ELEVATION ALONG GRID LINE 'A.1'



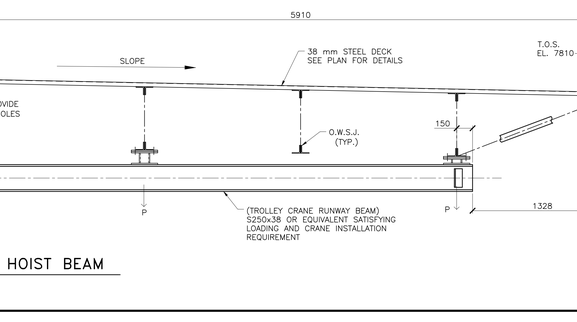
ELEVATION ALONG GRID LINE '03'



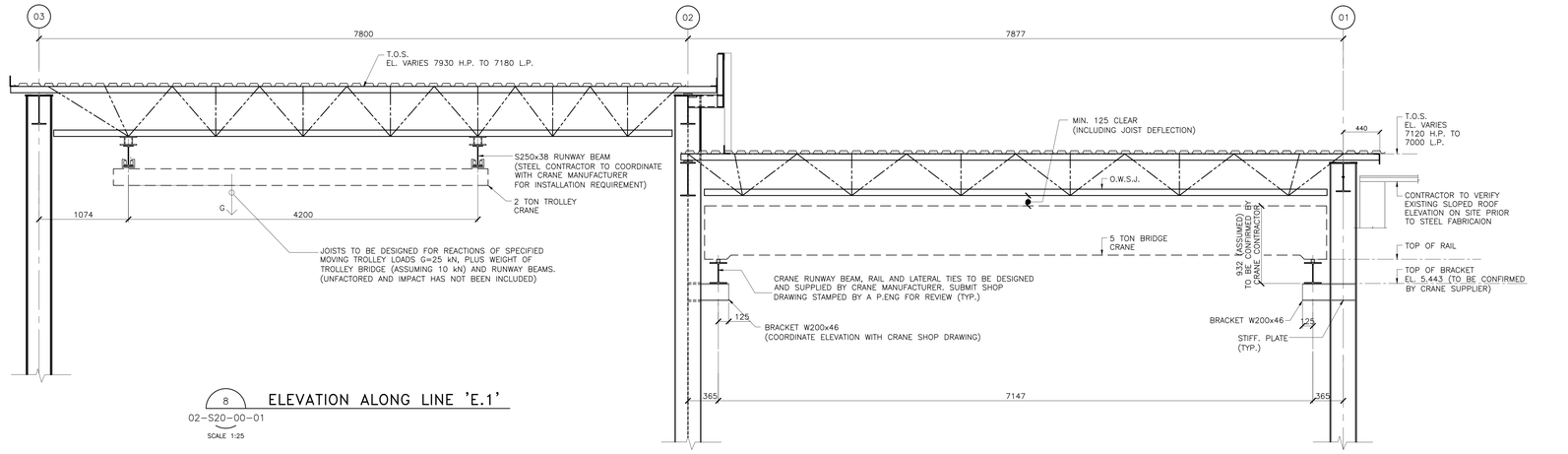
ELEVATION ALONG GRID LINE '02'



ELEVATION ALONG GRID LINE 'B''



ELEVATION ALONG GRID LINE '01'



8 02-S20-00-01 ELEVATION ALONG LINE 'E.1'

SCALE 1:25

7 02-S20-00-01 ELEVATION ALONG MONORAIL HOIST BEAM

SCALE 1:20

ROD Contract No.
T-1038-2019

DATE (mmm dd yyyy)	ISSUED FOR	REV
OCT 01 2018	TENDER	0

KEY PLAN

CONSULTANTS

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LICENSED PROFESSIONAL ENGINEER X. D. LIU 100144923 OCT 01/2018 PROVINCE OF ONTARIO

North Arrow

Detail Symbol: DETAIL NUMBER / LOCATION OR DETAIL SHEET

Project Manager	Architect/Engineer
A. VAN VEEN	S. LIU
Project Leader: S. LIU	Drawn: K. L.
Date: JAN 2013	Checked: K. ANGER

Client: THE REGIONAL MUNICIPALITY OF DURHAM — WORKS DEPARTMENT — WHITBY — ONTARIO

Project
EXPAND GARAGE
SCUGOG DEPOT
10 REGIONAL RD. 21, R.R.#14, PORT PERRY

Drawing Title
ELEVATIONS

Check Scale (may be photo-reduced): 0 1 Inch 0 10mm

Project No.	Drawing No.
24RX12.0113	02-S30-00-01

User Name: Ken Luk Plot Date\Time: Tuesday, March 19, 2019 10:01:23 AM Path and File Name: j:\24rx12.0113_durham region orono & scugog depots\5.9 drawing\5$struc\layouts\02-s30-00-01.dwg

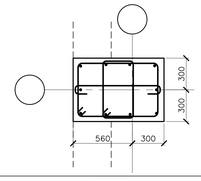
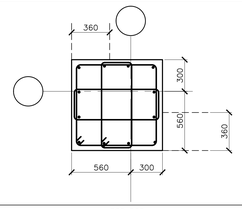
PILE CAP SCHEDULE

MARKS	PILE CAP		REMARKS
	SIZE	REINFORCING DETAIL	
PC1	1500x800x900 DP	SEC. 1 ON S40-00-01	TOTAL 5 LOCATIONS
PC1A	1500x960x900 DP	SAME AS PC1	TOTAL 4 LOCATIONS
PC2	1600x960x900 DP	SEC. 10 ON S40-00-02	TOTAL 3 LOCATIONS
PC3	960x960x900 DP	SEC. 10 ON S40-00-02	TOTAL 2 LOCATIONS

COLUMN SCHEDULE

DATA \ MARK	C1	C2	C3	C4
SIZE	W310x118	W310x79	W250x67	W310x158
U/S BASE PLATE EL. (U/N) (m)	-0.400	-0.400	-0.400	-0.400
BASE PLATE SIZE (a x t x b)	400x25x420	400x25x420	320x20x320	400x25x420
BASE PLATE TYPE	BPL1	BPL1	BPL2	BPL1
ANCHOR BOLTS	4-32 ø	4-32 ø	4-25 ø	4-32 ø
REMARKS				

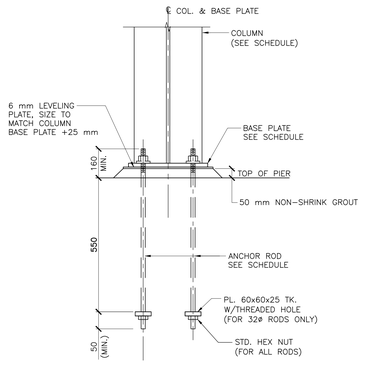
PIER SCHEDULE

DATA \ MARK		P2	P3	
PIER SHAPE				
PIER SIZE		860x600	860x860	
REINF.	VERT.	10-20M	12-20M	
	TIES	10M @ 200 TIES (3-TIES PER SET) PROVIDE 3-SETS OF TIES @ 75 C/C AT TOP OF PIER	10M @ 200 TIES (3-TIES PER SET) PROVIDE 3-SETS OF TIES @ 75 C/C AT TOP OF PIER	
REMARKS		- DETAIL TIES TO ACCOMMODATE ANCHOR BOLTS	DETAIL TIES TO ACCOMMODATE ANCHOR BOLTS	

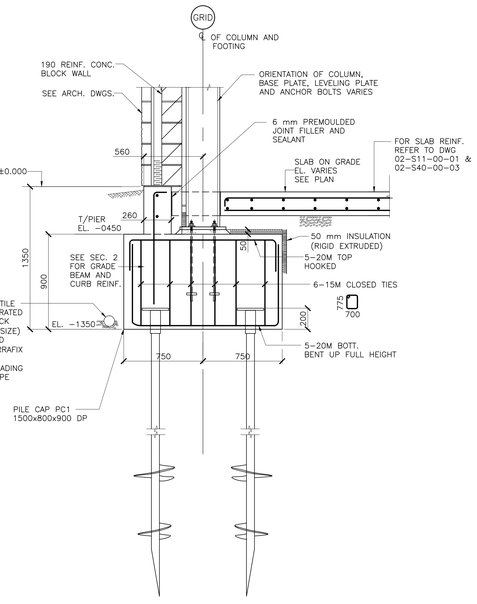
GRADE BEAM SCHEDULE

MARKS	GRADE BEAM		REMARKS
	SECTION SIZE	REINFORCING DETAIL	
GB1	360 x 900 DP	DET. 2 ON S40-00-01	
GB2	360 x 650 DP	DET. 9 ON S40-00-02	
GB3	500 x 900 DP	DET. 8 ON S40-00-02	
GB4	400 x 500 DP	DET. 11 ON S40-00-02	
GB5	360 x 650 DP	DET. 7 ON S40-00-02	

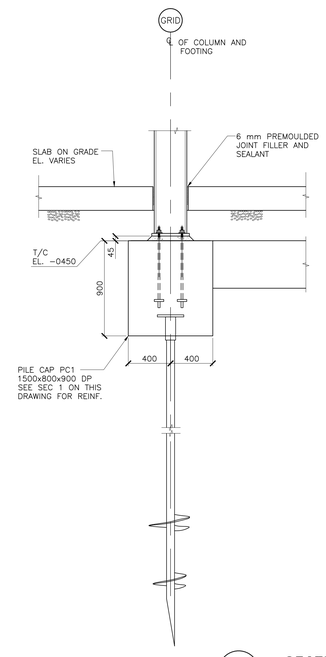
NOTE:
1. ALL GRADE BEAM LONGITUDINAL REINF. SHALL BE CONTINUOUS AND EXTENDED INTO FAR SIDE OF PILE CAPS (OR PIERS) AND HOOKED. THE CONTINUOUS REBAR MAY BE SPLICED USING TENSION LAP SPLICE LENGTH.
2. BEAM STIRRUPS OR TIES SHALL BE CLOSED WITH 135° HOOKS.



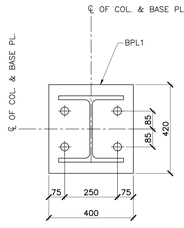
A — TYPICAL COLUMN BASE PLATE ELEVATION DETAIL
02-S40-00-01 — SCALE 1:10



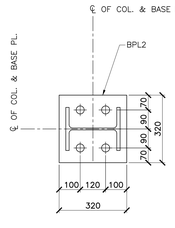
1 — SECTION
02-S10-00-01 — SCALE: 1:20



3 — SECTION
02-S10-00-01 — SCALE: 1:20



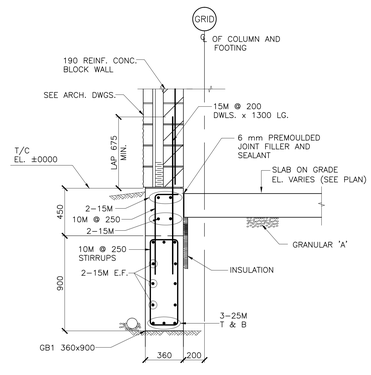
COLUMN BASE PLATE BPL1 PLAN DETAIL
SCALE 1:10



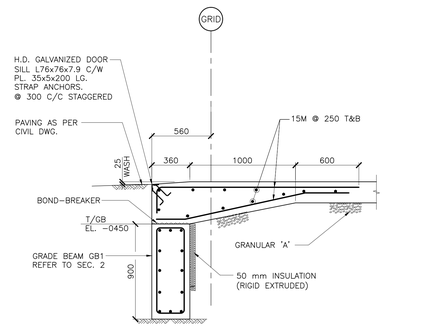
COLUMN BASE PLATE BPL2 PLAN DETAIL

NOTE:

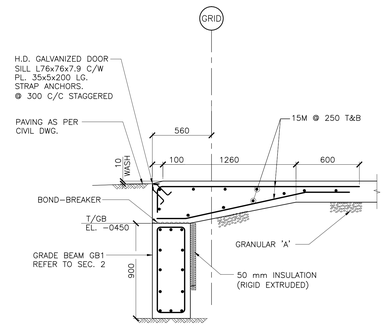
PRIOR TO FABRICATION, CONTRACTOR SHALL VERIFY EXISTING WALL LOCATION ADJACENT TO GRID LINE 01 TO ENSURE THE BASEPLATE AND ANCHOR RODS CAN BE PROPERLY INSTALLED



2 — SECTION
02-S10-00-01 — SCALE: 1:20



4 — SECTION AT OVERHEAD DOOR
02-S11-00-01 — SCALE: 1:20



5 — SECTION AT MAN DOOR
02-S11-00-01 — SCALE: 1:20

ROD Contract No.
T-1038-2019

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OCT 01 2018	TENDER	0

KEY PLAN

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LICENSED PROFESSIONAL ENGINEER X. D. LIU 100144923 OCT 01/2018 PROVINCE OF ONTARIO

North Arrow — TRUE NORTH

Detail Symbol — DETAIL NUMBER / LOCATION OR DETAIL SHEET

Project Manager	Architect/Engineer
A. VAN VEEN	S. LIU
Project Leader	Drawn
S. LIU	K. L.
Date	Checked
JAN 2013	K. ANGER

Client
THE REGIONAL MUNICIPALITY OF DURHAM
WORKS DEPARTMENT
WHITBY ONTARIO

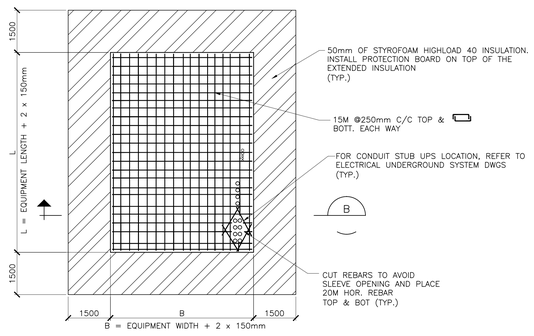
Project
EXPAND GARAGE
SCUGOG DEPOT
10 REGIONAL RD. 21, R.R.#14, PORT PERRY

Drawing Title
SECTIONS AND DETAILS. FOOTING, PIER & COLUMN SCHEDULES

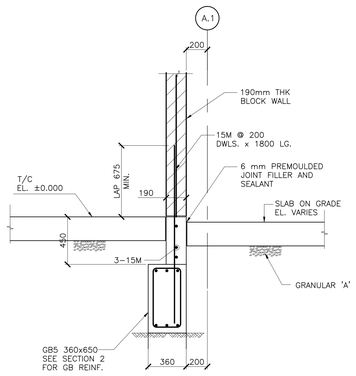
Check Scale (may be photo-reduced)
0 1 Inch 0 10mm

Project No.	Drawing No.
24RX12.0113	02-S40-00-01

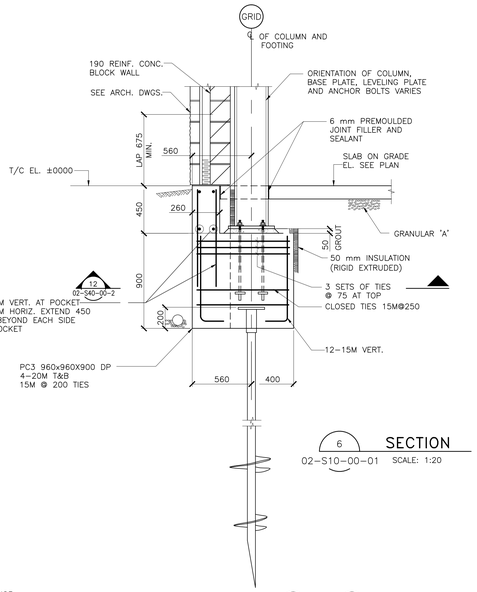
User Name: Ken Luk Plot Date\Time: Tuesday, March 19, 2019 10:01:35 AM Path and File Name: j:\24rx12.0113_durham region orono & scugog depots\5.9 drawing\5$struc\layouts\02-s40-00-01.dwg



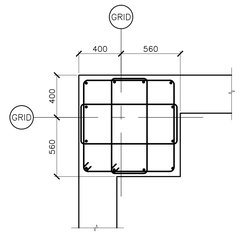
TYPICAL EXTERIOR EQUIPMENT FOUNDATION DETAILS
(FOR GENERATOR, OIL TANK AND MECH. UNITS.)
(SEE ELEC., PROCESS AND MECH. DRAWINGS FOR LOCATION AND SIZE REQUIREMENT)



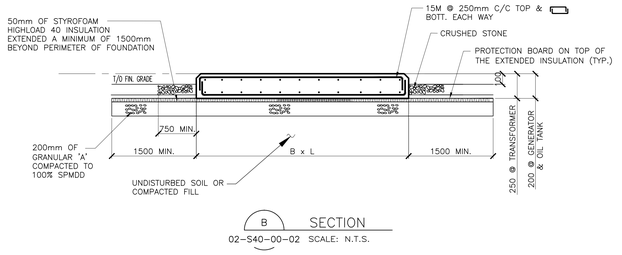
7 SECTION
02-S10-00-01 SCALE: 1:20



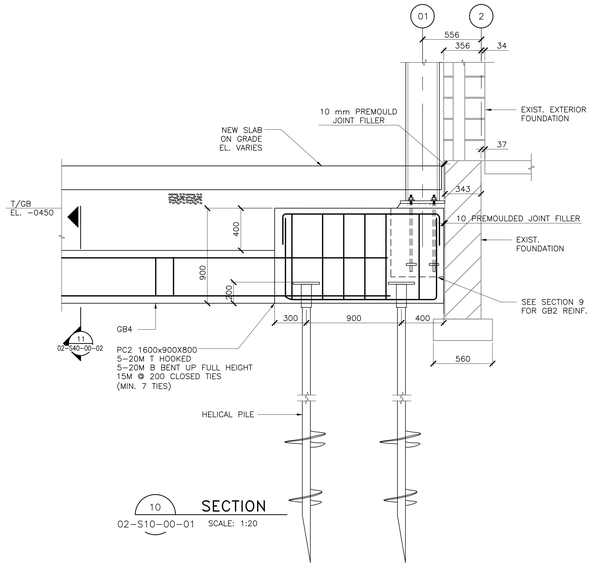
6 SECTION
02-S10-00-01 SCALE: 1:20



12 SECTION
02-S10-00-01 SCALE: 1:20



B SECTION
02-S40-00-02 SCALE: N.T.S.



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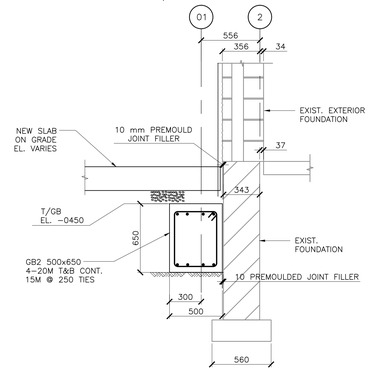
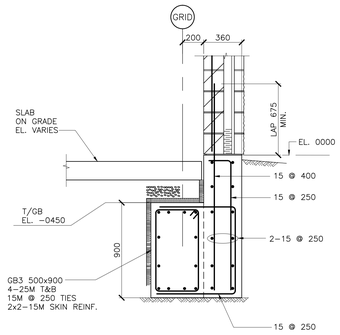
02-S10-00-01 SCALE: 1:20



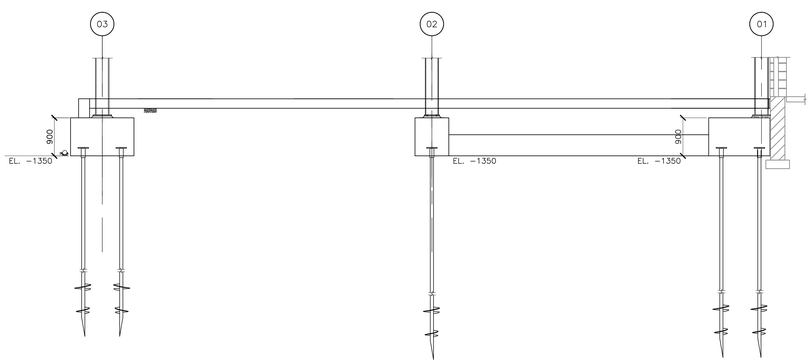
9 SECTION
02-S10-00-01 SCALE: 1:20



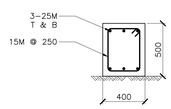
8 SECTION
02-S10-00-01 SCALE: 1:20

NOTE:

1. SITE VERIFY ALL EXISTING WALL AND FOOTING DIMENSIONS WHERE NEW CONSTRUCTION MAY BE AFFECTED.
2. ALL ELEVATIONS ARE IN METERS AND RELATED TO THE FLOOR ELEVATION 0.000 (GRID LINE A1, SEE SLAB ON GRADE DRAWING)



11 SECTION
02-S10-00-01 SCALE: 1:50



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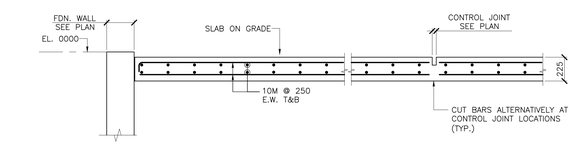


12 TYPICAL SLAB ON GRADE DETAIL
02-S40-00-02 SCALE: 1:20

ROD Contract No.
T-1038-2019

DATE (mmm dd yyyy)	ISSUED FOR	REV
OCT 01 2018	TENDER	0

KEY PLAN

CONSULTANTS

IBI GROUP
100-175 Galaxy Boulevard
Toronto ON M9W 0C9 Canada
tel 416 679 1930 fax 416 675 4620
ibigroup.com

LICENSED PROFESSIONAL ENGINEER X. Q. LIU 100144953 OCT 01 2018 PROVINCE OF ONTARIO

North Arrow

Detail Symbol
DETAIL NUMBER
LOCATION OR DETAIL SHEET

Project Manager	Architect/Engineer
A. VAN VEEN	S. LIU
Project Leader	Drawn
S. LIU	K. L.
Date	Checked
JAN 2013	K. ANGER

Client
THE REGIONAL MUNICIPALITY OF DURHAM
WORKS DEPARTMENT
WHITBY ONTARIO

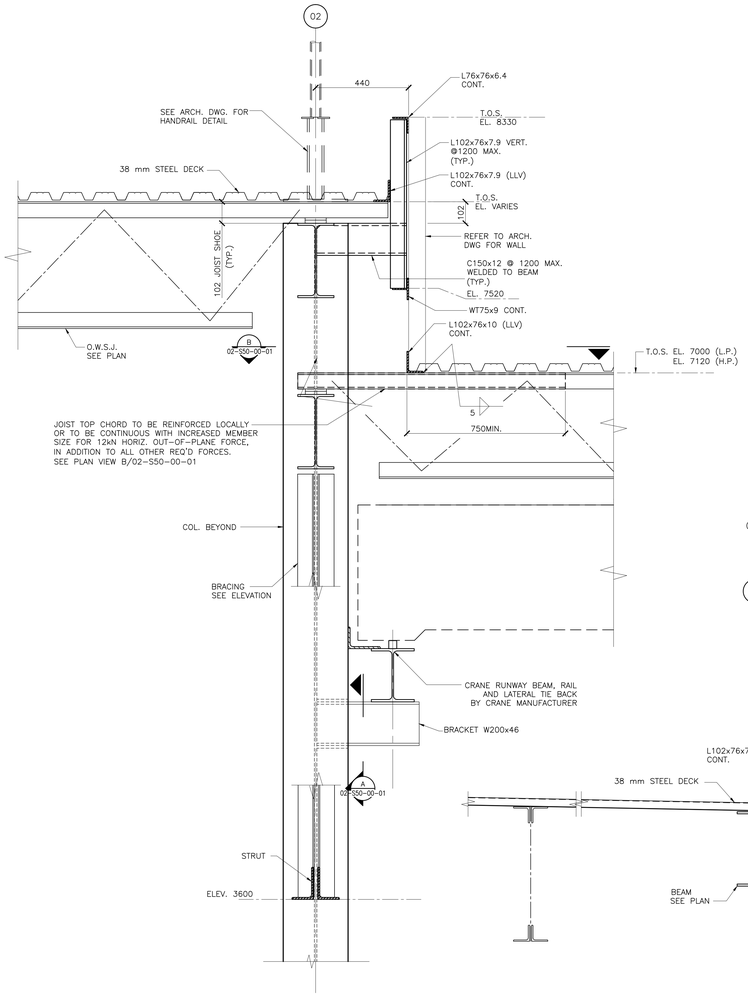
Project
EXPAND GARAGE
SCUGOG DEPOT
10 REGIONAL RD. 21, R.R.#14, PORT PERRY

Drawing Title
FOUNDATION DETAILS

Check Scale (may be photo-reduced)
0 1 Inch 0 10mm

Project No.	Drawing No.
24RX12.0113	02-S40-00-02

User Name: Ken Luk Plot Date\Time: Tuesday, March 19, 2019 10:01:46 AM Path and File Name: j:\24rx12.0113_durham region orono & scugog depots\5.9 drawing\59struc\layouts\02-s40-00-02.dwg



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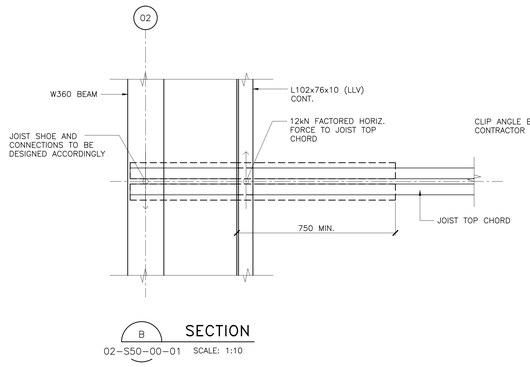
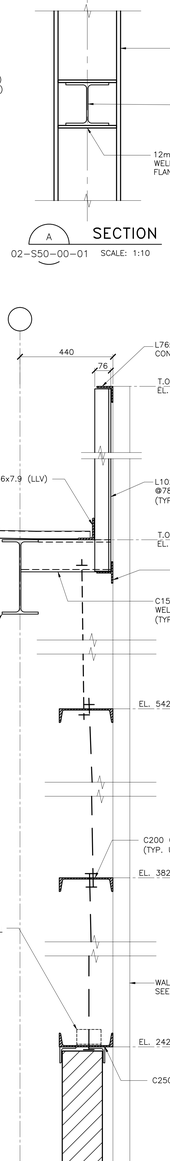
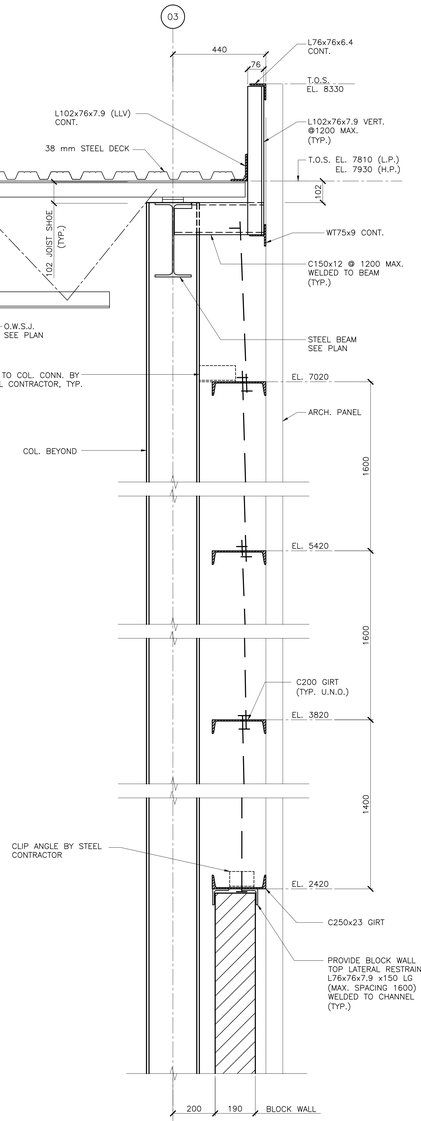


B SECTION
02-S50-00-01 SCALE: 1:10

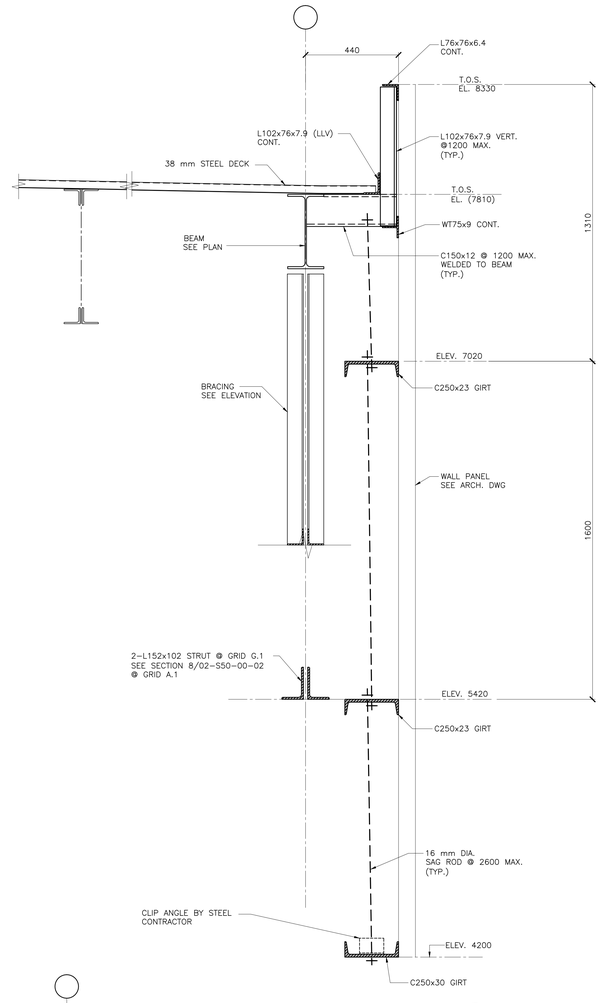


A SECTION
02-S50-00-01 SCALE: 1:10

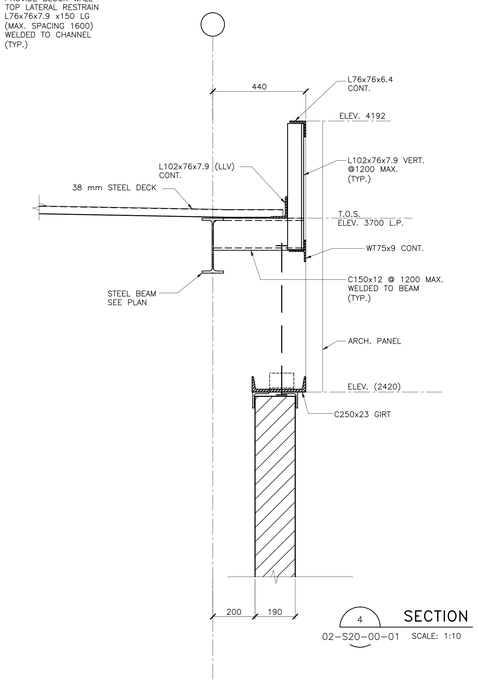
5 SECTION
02-S20-00-01 SCALE: 1:10



2 SECTION
02-S20-00-01 SCALE: 1:10



1 SECTION
02-S20-00-01 SCALE: 1:10



4 SECTION
02-S20-00-01 SCALE: 1:10

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KEY PLAN

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LICENSED PROFESSIONAL ENGINEER
X. Q. LIU
100140553
OCT 01 2018
PROVINCE OF ONTARIO

North Arrow: TRUE NORTH

Detail Symbol: DETAIL NUMBER / LOCATION OR DETAIL SHEET

Project Manager	Architect/Engineer
A. VAN VEEN	S. LIU
Project Leader	Drawn
S. LIU	K. L.
Date	Checked
JAN 2013	K. ANGER

Client
THE REGIONAL MUNICIPALITY OF DURHAM
WORKS DEPARTMENT
WHITBY ONTARIO

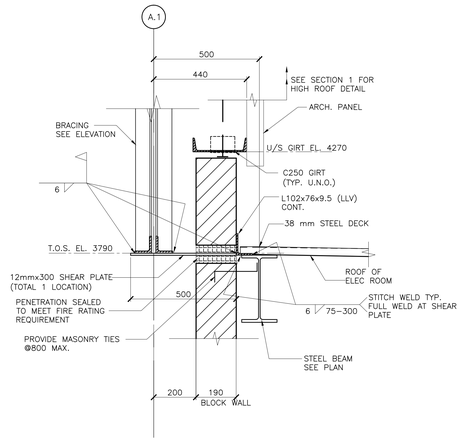
Project
EXPAND GARAGE
SCUGOG DEPOT
10 REGIONAL RD. 21, R.R.#14, PORT PERRY

Drawing Title
SECTIONS AND DETAILS

Check Scale (may be photo-reduced)
0 1 Inch 0 10mm

Project No.	Drawing No.
24RX12.0113	02-S50-00-01

User Name: Ken Luk Plot Date\Time: Tuesday, March 19, 2019 10:01:53 AM Path and File Name: j:\24rx12.0113_durham region orono & scugog depots\5.9 drawing\5.9struc\layouts\02-s50-00-01.dwg



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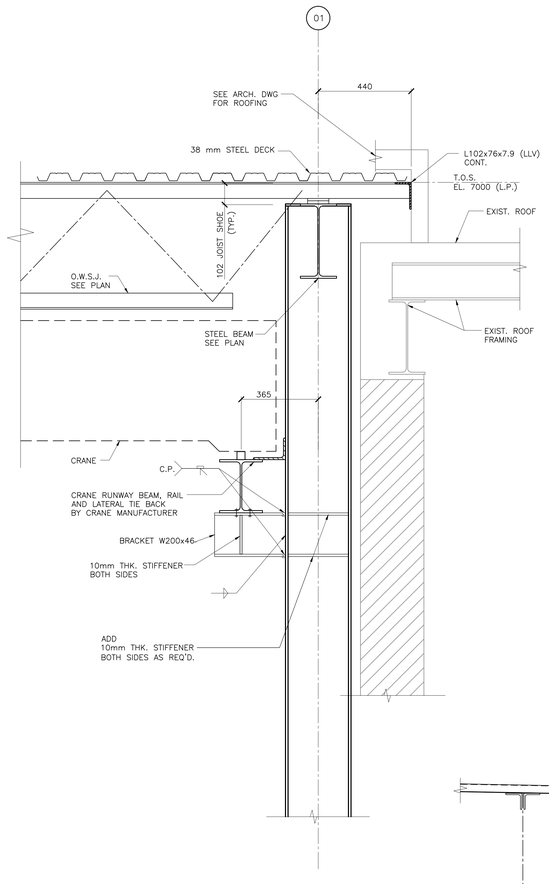
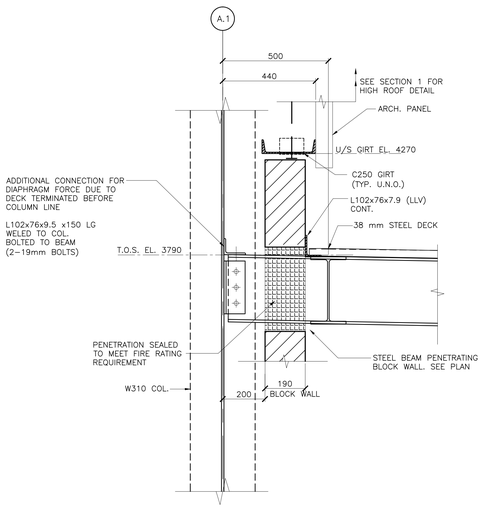
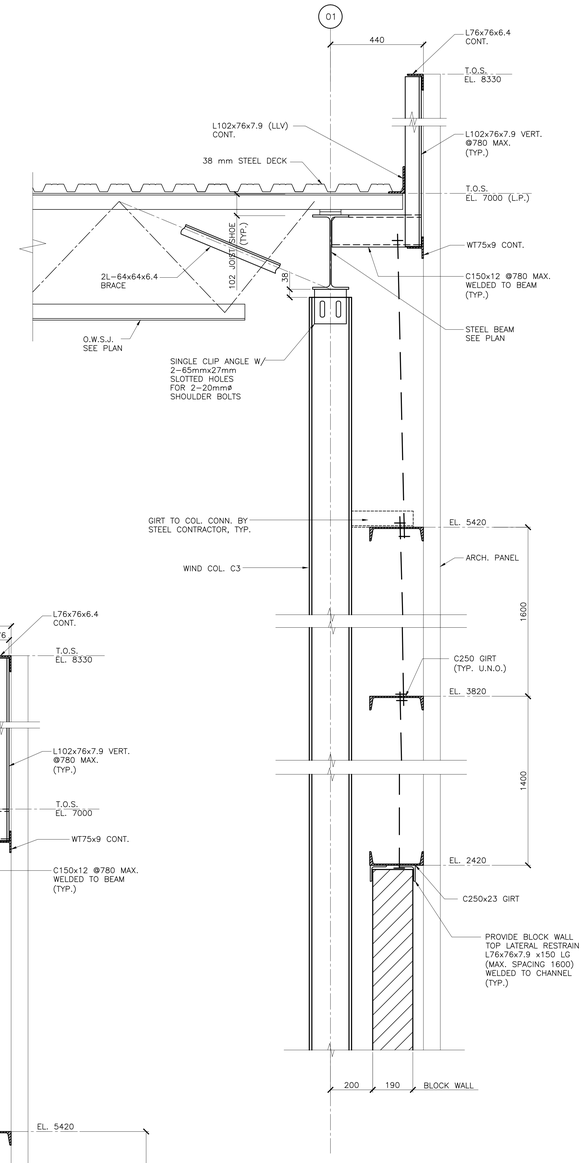
02-S20-00-01 SCALE: 1:10



7 SECTION
02-S20-00-01 SCALE: 1:10



10 SECTION
02-S20-00-01 SCALE: 1:10



6 SECTION
02-S20-00-01 SCALE: 1:10

9 SECTION
02-S20-00-01 SCALE: 1:10

DATE (mmm dd yyyy)	ISSUED FOR	REV
OCT 01 2018	TENDER	0

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LICENSED PROFESSIONAL ENGINEER
X. G. LIU
100144053
OCT 01 2018
PROVINCE OF ONTARIO

North Arrow

Detail Symbol
DETAIL NUMBER
LOCATION OR DETAIL SHEET

Project Manager	Architect/Engineer
A. VAN VEEN	S. LIU
Project Leader	Drawn
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Date	Checked
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EXPAND GARAGE
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Drawing Title
SECTIONS AND DETAILS

Check Scale (may be photo-reduced)
0 1 Inch 0 10mm

Project No.	Drawing No.
24RX12.0113	02-S50-00-02

ROD Contract No.
T-1038-2019