

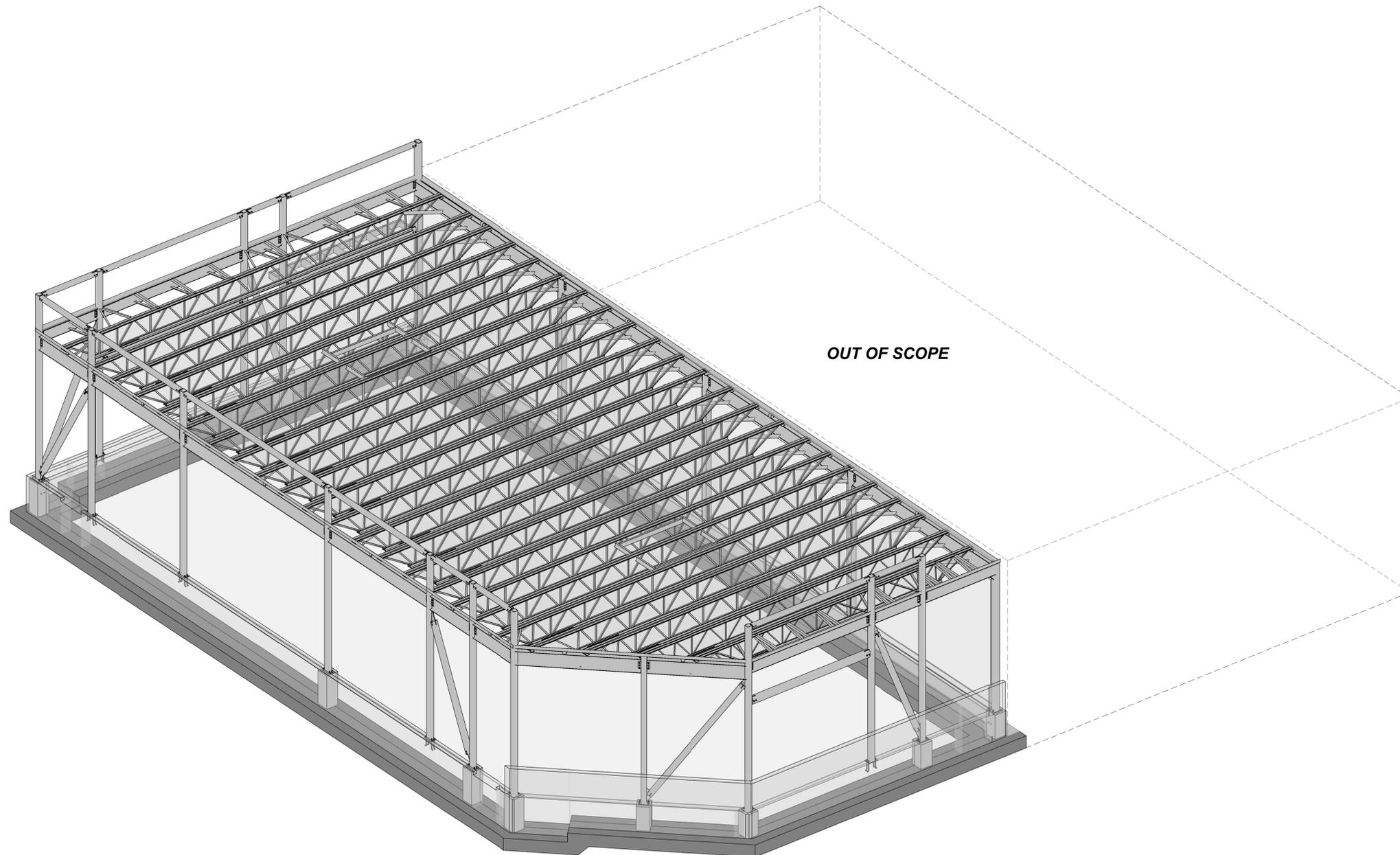
DRAWING LIST	
DRAWING NUMBER	DRAWING TITLE
S-0.0	COVER SHEET
S-0.1	SPECIFICATIONS I
S-0.2	SPECIFICATIONS II
S-1.0	FOUNDATION PLAN
S-1.1	ROOF FRAMING PLAN
S-1.2	SNOW DRIFT AND MECHANICAL PLAN
S-2.0	ELEVATIONS I
S-2.1	ELEVATIONS II
S-3.0	RETAINING WALL I
S-3.1	RETAINING WALL II
S-5.0	LOADING AND SCHEDULE
S-6.0	TYPICAL DETAILS I
S-6.1	TYPICAL DETAILS II
S-6.2	TYPICAL DETAILS III
S-6.3	TYPICAL DETAILS IV
S-6.4	TYPICAL DETAILS V
S-7.0	THREE-DIMENSIONAL SCHEMATICS I
S-7.1	THREE-DIMENSIONAL SCHEMATICS II

# 1300 FANSHAWE PARK RD. EAST. - CRU #3

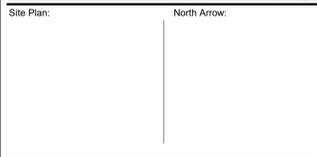
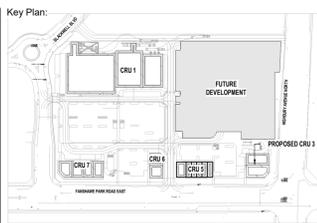
## STRUCTURAL DRAWINGS

### PROJECT #2023-102

#### 1300 FANSHAWE PARK RD. EAST. LONDON, ON.



**3D STRUCTURAL (NOT FOR CONSTRUCTION)**  
SCALE: NTS



Seal: \_\_\_\_\_ Seal: \_\_\_\_\_

**General Notes:**  
 ALL DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INTELLIGENT ENGINEERING DESIGN LTD. (IE DESIGN) AND ARE NOT TO BE DUPLICATED OR DISTRIBUTED WITHOUT IE DESIGN CONSENT AND MUST BE RETURNED UPON COMPLETION OF THIS PROJECT.  
 THESE DRAWINGS AND ALL DETAILS ARE FOR THIS PROJECT ONLY AND SHOULD NOT BE USED FOR ANY OTHER WORK.  
 IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ALL ERRORS AND OMISSIONS TO INTELLIGENT ENGINEERING DESIGN LTD. PRIOR TO COMMENCING WORK. ALL DIMENSIONS AND LEVELS ARE APPROXIMATE AND SHOULD BE CONFIRMED BY OWNER AND GENERAL CONTRACTOR AND ARCHITECT PRIOR CONSTRUCTION.  
 ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT BUILDING CODE REGULATIONS AND BYLAWS HAVING JURISDICTION.  
 THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNTIL IT HAS BEEN STAMPED BY INTELLIGENT ENGINEERING DESIGN LTD. AND A BUILDING PERMIT HAS BEEN ISSUED AND MARKED "ISSUED FOR CONSTRUCTION". THE DRAWINGS SHALL NOT BE USED FOR PRICING, COSTING, OR TENDER UNLESS INDICATED IN THE REVISION COLUMN AND THESE DRAWINGS ARE NOT COMPLETE AND ANY PRICES BASED ON THESE DRAWINGS MUST INCLUDE ALLOWANCES FOR THIS WITH NO LIABILITY ON INTELLIGENT ENGINEERING DESIGN LTD.  
 CONSTRUCTION TO BE ACCORDING TO BEST COMMON PRACTICE.  
 DO NOT SCALE DRAWINGS. WHEN REQUIRED REQUEST WRITTEN VERIFICATION OF DIMENSIONS FROM INTELLIGENT ENGINEERING DESIGN LTD. - USE LATEST REVISED DRAWINGS.  
 CONTRACTOR IS FULLY RESPONSIBLE FOR MATTERS AFFECTING CONSTRUCTION.  
 ANY MATERIAL ALTERATIONS CARRIED OUT DURING CONSTRUCTION BY THE CONTRACTOR OR ASSOCIATED SUB-CONTRACTOR SHALL BE CONFIRMED WITH THE ENGINEER PRIOR TO INSTALL. FAILURE TO DO SO RESULTS IN FULL CONTRACTOR RESPONSIBILITY FOR SYSTEMS AFFECTED.

No.	Date	Revision
1	APR 03, 2024	ISSUED FOR TENDER

**ISSUES/REVISION TABLE**

Project:  
**WESTDELL**  
 DEVELOPMENT CORP  
 1300 FANSHAWE PARK  
 RD. EAST. - CRU #3  
 1300 FANSHAWE PARK RD. EAST. LONDON, ON.

Drawing Title:  
**COVER SHEET**

Drawn By: D.K. Scale: AS INDICATED  
 Checked By: M.A.H., J.G. Plot Date: APR. 03-2024  
 Project Date: NOV. 2023  
 Project No: 2023-102

Drawing No: **S-0.0** | Revision: **1**

GENERAL NOTES:

- 1. CO-ORDINATE ALL WORK AND DRAWINGS WITH THE STRUCTURAL, MECHANICAL, ARCHITECTURAL WITH AND ELECTRICAL WORK AND DRAWINGS.
2. REPORT ANY DISCREPANCIES OR CONFLICTS IN DIMENSIONS AND/OR DETAILS TO THE ENGINEER AND IE DESIGN PRIOR TO COMMENCING THE WORK IN QUESTION FOR CLARIFICATION.
3. ALL STRUCTURAL WORK TO BE IN ACCORDANCE WITH THE ONTARIO BUILDING CODE AND OTHER APPLICABLE STANDARDS AS NOTED BELOW (THE LATEST REVISIONS SHALL APPLY).
4. ALL LOADS, FORCES AND REACTIONS SHOWN ON THE DRAWINGS OR NOTED IN THE SPECIFICATIONS ARE SERVICE LOADS (UNFACTORED), UNLESS NOTED OTHERWISE.

EARTHWORK:

- 1. EXAMINATION
1.1. GEOTECHNICAL INVESTIGATION REPORT #2382 BY GSPRIMO DESIGN INC. DATE JANUARY 12, 2024. INDICATE SPREAD FOOTING: ULTIMATE LIMIT STATE 345kPa (7205 psf). FOR A SERVICEABILITY LIMIT STATES (SLS) GEOTECHNICAL BEARING RESISTANCE OF 190kPa (3968 psf). FOR STRIP FOOTINGS ARE CONSIDERING A ULTIMATE LIMIT STATES (SLS) GEOTECHNICAL BEARING RESISTANCE OF 280kPa (5430 psf). FOR A SERVICEABILITY LIMIT STATES (SLS) GEOTECHNICAL BEARING RESISTANCE OF 145kPa (3028 psf) - GEOTECHNICAL ENGINEER TO CONFIRM PRIOR CONSTRUCTION.
1.2. BEFORE COMMENCING WORK VERIFY LOCATIONS OF BURIED SERVICES ON AND ADJACENT TO SITE. ARRANGE WITH APPROPRIATE AUTHORITY FOR RELOCATION OF BURIED SERVICES THAT INTERFERE WITH EXECUTION OF WORK. PAY COSTS FOR RELOCATING SERVICES.
2. PREPARATION
2.1. TEMPORARY EROSION AND SEDIMENTATION CONTROL: PROVIDE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES TO PREVENT SOIL EROSION AND DISCHARGE OF SOIL-BEARING WATER RUNOFF OR AIRBORNE DUST TO ADJACENT PROPERTIES AND WALKWAYS, ACCORDING TO SEDIMENT AND EROSION CONTROL DRAWINGS. PROTECTION OF IN-PLACE CONDITIONS.
2.2. PROTECT EXCAVATION FROM FREEZING.
2.2.1. PROTECT EXCAVATION FROM FREEZING.
2.2.2. PROTECT EXPOSED CONCRETE FOOTINGS FROM FREEZING.
2.2.3. KEEP EXCAVATION CLEAN, FREE OF STANDING WATER, AND LOOSE SOIL.
2.2.4. WHERE SOIL IS SUBJECT TO SIGNIFICANT VOLUME CHANGE DUE TO CHANGE IN MOISTURE CONTENT, COVER AND PROTECT.
2.2.5. PROTECT NATURAL AND MAN-MADE FEATURES REQUIRED TO REMAIN UNDISTURBED, UNLESS OTHERWISE INDICATED OR LOCATED IN AN AREA TO BE OCCUPIED BY NEW CONSTRUCTION, PROTECT EXISTING TREES FROM DAMAGE. PROTECT BURIED SERVICES THAT ARE REQUIRED TO REMAIN UNDISTURBED.

- 2.3. REMOVAL:
2.3.1. REMOVE TREES, STUMPS, LOGS, BRUSH, SHRUBS, BUSHES, VINES, UNDERGROWTH, ROTTEN WOOD, DEAD PLANT MATERIAL, EXPOSED BOULDERS AND DEBRIS WITHIN AREAS DESIGNATED ON DRAWINGS.
2.3.2. REMOVE STUMPS AND TREE ROOTS BELOW FOOTINGS, SLABS, AND PAVING.
2.3.3. REMOVE OBSOLETE BURIED SERVICES WITHIN 2 m (6'-6") OF FOUNDATIONS, CAP CUT-OFFS.
2.3.4. CUT EXISTING PAVEMENT OR SIDEWALK NEARLY ALONG LIMITS OF PROPOSED EXCAVATION IN ORDER THAT SURFACE MAY BREAK EVENLY AND CLEANLY.

- 3. PRODUCTS
3.1. GRANULAR A: TO OPSS 1010.
3.2. GRANULAR B: TYPE 1 TO OPSS 1010.
3.3. IMPORTED FILL GRANULAR MATERIALS, FREE OF ORGANIC MATTERS AND ANY DELETERIOUS MATERIALS, ACCOMPANIED WITH A CERTIFICATE STATING FILL MEETS CURRENT MOE STANDARDS FOR RESIDENTIAL LAND USE. WATER: CLEAN, POTABLE.

- 4. EXCAVATION
4.1. SHORE AND BRACE EXCAVATIONS, PROTECT SLOPES AND BANKS AND PERFORM WORK IN ACCORDANCE WITH PROVINCIAL AND MUNICIPAL REGULATIONS, WHICHEVER IS MORE STRINGENT.
4.2. PERFORM BRACING IN ACCORDANCE WITH PROVINCIAL AND MUNICIPAL REGULATIONS; REPAIR DAMAGE. DO NOT BLAST WITHIN 3 m (10'-0") OF BUILDING AND WHERE DAMAGE WOULD RESULT.
4.3. STRIP TOPSOIL, LOOSE SILTY SAND CONTAINING ORGANICS, AND ANY DELETERIOUS MATERIALS OVER AREAS TO BE COVERED BY NEW CONSTRUCTION, OVER AREAS WHERE GRADE CHANGES ARE REQUIRED, AND SO THAT EXCAVATED MATERIAL MAY BE STOCKPILED WITHOUT COVERING SAME.
4.4. EXCAVATE AS REQUIRED TO CARRY OUT WORK.
4.4.1. USE MEANS NECESSARY TO EXCAVATE FROZEN AND WATER SATURATED SOIL.
4.4.2. DO NOT DISTURB SOIL OR ROCK BELOW BEARING SURFACES.
4.4.3. NOTIFY CONSULTANT WHEN EXCAVATIONS ARE COMPLETE.
4.4.4. CORRECT UNAUTHORIZED OVER-EXCAVATION BY CONCRETE WITH COMPRESSIVE STRENGTH OF MIN. 25MPa BUT NOT LESS THAN THE COMPRESSIVE STRENGTH OF THE FOOTING.
4.5. ALL FOOTINGS ARE TO BE FOUNDED A MIN. 1200 mm (4'-0") BELOW FINISHED FLOOR, BUT NOT LESS THAN 1200 mm (4'-0") BELOW EXTERIOR FINISHED GRADE.
4.6. EXCAVATE FOR SLABS AND PAVING TO SUBGRADE LEVELS.
4.6.1. IN ADDITION, REMOVE ALL TOPSOIL, ORGANIC MATTER, DEBRIS AND OTHER LOOSE AND HARMFUL MATTER ENCOUNTERED AT SUBGRADE LEVEL.
4.6.2. KEEP EXCAVATION FREE FROM WATER.
4.7. EXCAVATION MUST NOT INTERFERE WITH BEARING CAPACITY OF ADJACENT FOUNDATIONS.
4.8. EXPOSED SUBGRADE TO BE THOROUGHLY RECOMPACTED AND INSPECTED BY QUALIFIED GEOTECHNICAL PERSONNEL. ANY LOOSE OR SOFT AREAS IDENTIFIED SHOULD BE FURTHER EXCAVATED TO THE LEVEL OF COMPETENT SOIL.
4.10. AVOID EXCAVATION BELOW GROUNDWATER TABLE IF QUICK CONDITION OR HEAVE IS LIKELY TO OCCUR.
4.11. DISPOSE OF WATER IN ACCORDANCE WITH OPSS 517 AND OPSS 518 IN MANNER NOT DETRIMENTAL TO PUBLIC AND PRIVATE PROPERTY, OR PORTION OF WORK COMPLETED OR UNDER CONSTRUCTION.

- 5. FILL TYPES AND COMPACTION
5.1. USE TYPES OF FILL AS INDICATED OR SPECIFIED BELOW. COMPACTION DENSITIES ARE PERCENTAGES OF MAXIMUM DENSITIES OBTAINED FROM ASTM D698.
5.1.1. BELOW FOOTINGS:
5.1.1.1. THE EXPOSED SUBGRADE SHALL BE RE-COMPACTED FROM THE SURFACE TO AT LEAST 100% SPMD. ANY OVERLY WET AND SOFT AREAS SHOULD BE SUB-EXCAVATED AND BACKFILLED WITH APPROVED FILL PLACED IN THIN LAYERS AND COMPACTED TO 100% SPMD.
5.1.1.2. ACHIEVE REQUIRED GRADES BELOW BUILDING FOUNDATIONS BY PLACING IMPORTED GRANULAR B TYPE I, IN MAXIMUM 300 mm (12") THICK LIFTS, COMPACTED TO NO LESS THAN 100% SPMD.
5.1.1.3. PLACE ENGINEERED FILL SUCH THAT THE FILL PAD EXTENDS HORIZONTALLY OUTWARDS FROM ALL FOOTINGS BY AT LEAST THE SAME DISTANCE AS HOW THICK THE ENGINEERED FILL PAD WILL EXIST BETWEEN THE UNDERSIDE OF FUTURE FOOTINGS AND THE APPROVED NATIVE EARTH SUBGRADE.
5.1.2. UNDER CONCRETE SLABS:
5.1.2.1. FLOOR SLABS MAY BE SUPPORTED ON SUITABLY STABLE NATIVE SOIL, SHALE, AND/OR ENGINEERED FILL.
5.1.2.2. PROOF-ROLL EXPOSED SUBGRADE WITH A HEAVY ROLLER, ANY SOFT/UNSTABLE AREAS DETECTED SHALL BE REPLACED WITH GRANULAR FILL COMPACTED TO AT LEAST 95% SPMD.
5.1.2.3. PLACE IMPORTED GRANULAR B TYPE I FILL, IN MAXIMUM 300 mm THICK LIFTS, TO THE REQUIRED FLOOR SUBGRADE LEVEL; COMPACT TO NO LESS THAN 95% SPMD.
5.1.2.4. PROVIDE 150 mm (6") COMPACTED THICKNESS BASE COURSE OF GRANULAR A FILL TO UNDERSIDE OF SLAB. COMPACT TO 100% SPMD.
5.1.2.5. EXTERIOR SIDE OF PERIMETER WALLS: USE FREE-DRAINING GRANULAR B FILL TO SUBGRADE LEVEL. PLACE IN THIN LAYERS AND COMPACT TO 95% SPMD. OVER-COMPACTION SHOULD BE AVOIDED.

- 6. FIELD QUALITY CONTROL
6.1. ALL FILL PLACEMENT AND COMPACTION OPERATIONS SHALL BE SUPERVISED ON A FULL-TIME BASIS BY QUALIFIED GEOTECHNICAL PERSONNEL TO APPROVE FILL MATERIAL AND ENSURE THE SPECIFIED DEGREE OF COMPACTION HAS BEEN ACHIEVED.
6.2. PRIOR TO FORMING FOOTING, EXPOSED SUB-GRADE SHALL BE REVIEWED BY THE GEOTECHNICAL ENGINEER TO CONFIRM THE SOIL PARAMETERS USED FOR DESIGN.
6.3. DO NOT BEGIN BACKFILLING OR FILLING OPERATIONS UNTIL MATERIAL HAS BEEN APPROVED FOR USE BY CONSULTANT.
6.4. NOT LATER THAN 48 HOURS BEFORE BACKFILLING OR FILLING WITH APPROVED MATERIAL, NOTIFY CONSULTANT TO ALLOW COMPACTION TESTS TO BE CARRIED OUT BY DESIGNATED TESTING AGENCY.
7. BACKFILLING
7.1. REMOVE SNOW, ICE, CONSTRUCTION DEBRIS, ORGANIC SOIL, LOOSE INCOMPETENT NATIVE SOILS AND STANDING WATER FROM SPACES TO BE FILLED.
7.2. COMPACT EXISTING SUBGRADE UNDER WALKS, PAVING, AND SLABS ON GRADE TO SAME COMPACTION AS FILL.
7.3. BACKFILLING ADJACENT TO OUTSIDE OF BUILDING:
7.3.1. ADJACENT TO FOUNDATION WALLS PLACE AND COMPACT APPROVED FREE-DRAINING GRANULAR FILL IN 200MM (8") LOOSE MEASURED LIFTS AND COMPACT TO 96% OF THE FILL MATERIALS STANDARD PROCTOR MAXIMUM DRY DENSITY.
7.3.2. BELOW SIDEWALKS ADJACENT TO BUILDING PROVIDE 150 MM (6") MIN GRANULAR 'A' LAYER COMPACTED TO 100% S.P.M.D. OVER 300MM (12") LAYER OF GRANULAR 'B' COMPACTED TO 98% S.P.M.D. OVER FREE DRAINING GRANULAR FILL MENTIONED ABOVE.
7.3.3. WHEN BACKFILLING AND COMPACTING EITHER INTERIOR OR EXTERIOR FOUNDATION WALLS, THE HEIGHT OF FILL ON EITHER SIDE OF THE WALL SHALL NOT EXCEED 300 mm (12").

SELECTIVE DEMOLITION

- 1. ALTERATION PROJECT PROCEDURES
1.1. EMPLOY SKILLED AND EXPERIENCED PERSONNEL ALTERATION WORK.
1.2. REMOVE, CUT, AND PATCH WORK IN A MANNER TO MINIMIZE DAMAGE AND TO PROVIDE MEANS OF RESTORING PRODUCTS AND FINISHES TO SPECIFIED CONDITION.
1.3. TIME OF BATCHING
1.4. WHEN FINISHED, SURFACES ARE CUT SO THAT A SMOOTH TRANSITION WITH NEW WORK IS NOT POSSIBLE. TERMINATE EXISTING SURFACE ALONG A STRAIGHT LINE AT A NATURAL LINE OF DIVISION AND SUBMIT RECOMMENDATION TO CONSULTANT FOR REVIEW.
1.5. PATCH OR REPLACE PORTIONS OF EXISTING SURFACES WHICH ARE DAMAGED, LIFTED, DISCOLORED, OR SHOWING OTHER IMPERFECTIONS.
1.6. FINISH SURFACES AS SPECIFIED IN INDIVIDUAL PRODUCT SECTIONS.
2. PROJECT CONDITIONS
2.1. CEASE OPERATIONS IMMEDIATELY IF STRUCTURE APPEARS TO BE IN DANGER AND NOTIFY CONSULTANT. DO NOT RESUME OPERATIONS UNTIL DIRECTED.

CAST-IN-PLACE CONCRETE AND CONCRETE REINFORCING

- 1. GENERAL:
1.1. ALL CONCRETE WORK INCLUDING BUT NOT LIMITED TO MATERIALS, MIXING, PLACING, CURING, PROTECTION AND FORMWORK IN ACCORDANCE WITH CSA STANDARD A23.1 AND A23.3, UNLESS NOTED OTHERWISE.
1.2. ALL CONCRETE REINFORCING INCLUDING MATERIALS, FABRICATION, DETAILING, LAP SPLICES, PLACEMENT, FIXING AND COVER IN ACCORDANCE WITH CSA STANDARD A23.1 AND A23.3, UNLESS NOTED OTHERWISE.
1.3. PROVIDE ALL PLANT, LABOUR, EQUIPMENT AND MATERIALS TO COMPLETE THE CAST-IN-PLACE CONCRETE WORK. THE WORK INCLUDES, BUT IS NOT LIMITED TO:
1.1.1. REINFORCED CONCRETE FOOTINGS, WALLS, BEAMS, AND SLABS
1.1.2. RATCHING SLEEVES, ROCKETS
1.1.3. GROUTING OF COLUMN AND BEAM BEARING PLATES
2. WORK INSTALLED UNDER THIS SECTION, SUPPLIED BY OTHERS:
2.1. SETTING OF ANCHORS AND SLEEVES FOR MECHANICAL AND ELECTRICAL TRADES.
2.2. BUILDING IN OF IRON AND STEEL ITEMS.
2.3. SETTING OF ANCHORS AND OTHER HARDWARE TO BE CAST INTO THE CONCRETE.

- 3. CO-ORDINATION AND CO-OPERATION:
3.1. CO-ORDINATE THE WORK OF THIS SECTION WITH THE WORK OF OTHER SECTIONS AND ADVISE OTHER TRADES WHEN MATERIALS TO BE BUILT INTO THE FORMS WILL BE REQUIRED.
3.2. CO-OPERATE WITH OTHER SECTIONS TO ENSURE AN UNINTERRUPTED SEQUENCE OF CONSTRUCTION.
3.3. INSTALL ANY ITEMS FURNISHED BY OTHERS, MISCELLANEOUS IRON WORK, ANCHORS, PIPE SLEEVES, HARDWARE, ETC., THAT ARE TO BE BUILT INTO THE CONCRETE WORK.
3.4. FORM ALL HOLES AND OPENINGS SHOWN OR REQUIRED TO ACCOMMODATE THE WORK OF OTHER TRADES. MAKE GOOD ALL OPENINGS LEFT IN CONSTRUCTION AROUND PIPES, OPENINGS FOR STRUTS AND ANCHORAGES.

- 4. DESIGN CRITERIA:
4.1. DESIGN ALL CONCRETE MIXES FOR THE COMPRESSIVE STRENGTH AND SLUMP REQUIREMENTS AS SPECIFIED IN CSA A23.3 AND A23.1 TO SATISFY REQUIRED COMPRESSIVE STRENGTH IN THIS SECTION. ALLOW FOR THE APPROPRIATE COEFFICIENT OF VARIATION FOR EACH STRENGTH CLASS FOR THE BATCH PLANT SUPPLYING THE CONCRETE. SUBMIT STAMPED MIX DESIGNS FOR EACH CLASS OF CONCRETE FOR REVIEW BY THE CONSULTANT AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF CONCRETING.
5. DESIGN CRITERIA - FORMWORK:

- 5.1. FORMWORK, FALSEWORK AND SHORING IS TO BE DESIGNED, ERECTED, BRACED AND MAINTAINED SO THAT IT WILL SAFELY SUPPORT:
5.1.1. THE LIQUID WEIGHT OF THE CONCRETE.
5.1.2. ALL APPLIED CONSTRUCTION LOADS, SUCH AS, BUT NOT LIMITED, EQUIPMENT, PERSONNEL, RUNWAYS, AND WIND LOADS TO WHICH THE SYSTEM MAY BE SUBJECT.
5.1.3. ALL SUPPORTED LOADS INCLUDING RESHEDD SLABS.
5.2. FOLLOW THE PROVISIONS OF THE CONSTRUCTION SAFETY ACT AS AMENDED TO-DATE AND THE RECOMMENDATIONS OF THE CURRENT A.C.I. STANDARD 347.
5.3. REFER TO EQUIPMENT DRAWINGS FOR CRITICAL DIMENSIONS, DETAIL FORMS IN THESE AREAS TO PROVIDE THE SPECIFIED REQUIREMENTS.
5.4. TOLERANCES WITHIN CANCSA A23.1/A23.2 EXCEPT THAT TOLERANCES FOR EQUIPMENT ANCHORS, INSERTS, ETC. TO EQUIPMENT SUPPLIERS REQUIREMENTS.

- 6. MATERIALS:
6.1. CEMENT: IN ACCORDANCE WITH CSA A3000.
6.2. AGGREGATES:
6.2.1. FINE AND COURSE AGGREGATE MATERIALS AND GRADING IN ACCORDANCE WITH SECTION 5 OF CANCSA A23.1/A23.2. MAXIMUM SIZE OF COURSE AGGREGATE TO SUIT SPACINGS OF REINFORCING BARS IN ACCORDANCE WITH CANCSA A23.1/A23.2.
6.2.2. PIT RUN GRAVEL WILL IS NOT BE ACCEPTABLE.
6.2.3. USE PEA GRAVEL 6.4mm TO 9.4mm (1/4" TO 3/8") WHERE CONCENTRATION OF REINFORCEMENT REQUIRES THE USE OF A SMALLER DIAMETER AGGREGATE AND IN TOPPING WHERE THE TOPPING THICKNESS IS REDUCED BELOW 50mm (2") MINIMUM THICKNESS.
6.3. ADMIXTURES:
6.3.1. USE ONLY THOSE CHEMICAL ADMIXTURES AND AIR ENTRAINING AGENTS CURRENTLY APPROVED FOR USE BY THE ONTARIO M.T.C. IN ACCORDANCE WITH O.P.S.S. FORM 1303, MATERIAL SPECIFICATIONS FOR AIR ENTRAINING AGENTS AND CHEMICAL ADMIXTURES.
6.3.2. CHEMICAL ADMIXTURES SHALL BE TYPE 1, WATER REDUCING ADMIXTURES BY GRADE.
6.3.3. ADMIXTURES TO BE COMPATIBLE WITH THE AIR ENTRAINING AGENT.
6.3.4. SUPERPLASTICIZER - WRDA SERIES BY SIKKA RECOMMENDED BY CONCRETE SUPPLIER.
6.4. REINFORCING STEEL (PLAIN) - NEW DEFORMED BARS IN ACCORDANCE WITH CSA G30.14 WITH A GUARANTEED YIELD STRESS OF 400 MPa.
6.5. REINFORCING STEEL (EPOXY COATED) - SAME AS FOR PLAIN REINFORCING STEEL BUT WITH EPOXY COATING TO ASTM A775/A775M. ALL SHOP OR FIELD CUT ENDS TO BE IMMEDIATELY COATED IN ACCORDANCE WITH ASTM A775/A775M AND MTO FORM 1443.
6.6. WELDED WIRE FABRIC MESHES SHALL BE IN ACCORDANCE WITH MOST UPDATED ASTM A1064/A1064M AND CSA G30.5.
6.7. REINFORCING STEEL SUPPORTS - IN ACCORDANCE WITH R.S.I.O. MANUAL OF STANDARD PRACTICE. ALL THE WIRES, CHAIRS AND OTHER BAR SUPPORTS TO BE PLASTIC OR PLASTIC COATED CONSTRUCTION COMPATIBLE WITH END USE. ALL CHAIRS ARE TO BE PLASTIC CONSTRUCTION.
6.8. SPRAY-APPLIED CURING AND SEALING COMPOUNDS: IN ACCORDANCE WITH ASTM C-309; SEALTIGHT C5309 BY MEADOWS OR FLORSEAL BY SIKKA CANADA INC.
6.9. EVAPORATION REDUCER: MASTER BUILDERS 'CONFILM'.
6.10. LUMBER, PLYWOOD AND OTHER FORMWORK MATERIALS: IN ACCORDANCE WITH CANCSA A23.1/A23.2, ARTICLE 11.3 EXCEPT THAT CONTACT SURFACES OF FORMS FOR CONCRETE WHICH WILL BE EXPOSED TO VIEW IN THE COMPLETED STRUCTURE TO BE NEW, DOUGLAS FIR PLYWOOD, WITH A HIGH DENSITY PHENOLIC RESIN OVERLAY ON CONCRETE SIDE OF FORM.
6.11. FORM OIL: COLOURLESS, NON-STAINING, MINERAL OIL, FREE OF KEROSENE.
6.12. FORM TIES:
6.12.1. FOR GENERAL WALL AREAS, REMOVABLE OR SNAP-OFF METAL TIES THAT AFTER REMOVAL OF FORMS, NO METAL IS WITHIN ONE INCH OF THE FINISHED SURFACE.
6.12.2. HEAVY DUTY TIES FOR ONE SIDED FORM CONSTRUCTION.
6.12.3. ON EXPOSED SIDES OF WALLS, METAL TIES WITH PLASTIC CONE 'FORMERS' TO SUIT ARCHITECTURAL DETAILS COMPLETE WITH SUITABLE PLUGS.

- 6.13. GROUT: NON-SHRINK, NON FERROUS, 14-BED STANDARD BY SIKKA CANADA INC., OR V-3 BY W.R. MEADOWS.
6.14. VAPOUR BARRIER: SEE SECTION 07 26 16 - BELOW GRADE VAPOUR RETARDERS.
6.15. ASPHALT IMPREGNATE FIBREBOARD: 12mm (1/2") THICK FIBREBOARD, UNIFORMLY SATURATED WITH A BITUMINOUS BINDER.
6.16. CONTROL JOINT FILLER: AT SAWCUT CONTROL JOINTS IN ALL EXPOSED CONCRETE FLOORS AND BELOW RUBBER SHEET FLOORING: LOADFLEX BY SIKKA CANADA INC., OR BONFLEX BY W.R. MEADOWS.
6.17. LATEX BONDING AGENT: FOR BONDING TOPPING TO CAST-IN-PLACE CONCRETE ITEMS: SURFACTARE BY SIKKA CANADA INC., OR INTRALOK BY W.R. MEADOWS.
6.18. WATERSTOP: 152mm (6") WIDE PVC WATERSTOP TYPE NO. 6316 BY W.R. MEADOWS.
6.19. CIRCULAR COLUMN FORMS: IF REQUIRED, ALL CIRCULAR FORMS TO HAVE PLASTIC LINER ON INNER PLY TO PREVENT TRANSFER OF SPIRAL MARKINGS TO CONCRETE.
6.20. NON-METALLIC HARDENER: SEALTIGHT TYPE 'R' PREMIXED FLOOR HARDENER BY W.R. MEADOWS, OR DIAMAG 7 BY SIKKA CANADA INC., OR MASTERTOP 105 BY MASTERBUILDERS TECHNOLOGIES.

- 7. PROPORTIONING OF CONCRETE - GENERAL:
7.1. JOB-MIXED CONCRETE WILL NOT BE ALLOWED ON THIS PROJECT.
7.2. PROVIDE MIXED-IN-TRANSIT, READY-MIXED CONCRETE IN ACCORDANCE WITH CANCSA A23.1/A23.2. OBTAIN FROM A SUPPLIER APPROVED BY THE CONSULTANT FOR USE ON THIS PROJECT.
7.3. MIX ALL CONCRETE WITH MATERIALS SO GRADED AND PROPORTIONED TO PRODUCE A PLASTIC MASS OF SUCH CONSISTENCY THAT IT WILL FLOW SLOWLY UNDER ITS OWN WEIGHT AND WHICH CAN BE READILY WORKED INTO CORNERS OF FORMS AND UNDER AND AROUND REINFORCING WITHOUT FORMING VOIDS OR HONEYCOMBED SURFACES. FURNISH TO THE SUB-CONTRACTOR, A 'DELIVERY TICKET' FOR EACH BATCH OF CONCRETE DELIVERED TO DATE AND TRUCK NUMBER

- 7.4.2. SUB-CONTRACTOR'S NAME
7.4.3. JOB DESIGNATION
7.4.4. SPECIFIED CONCRETE STRENGTH, SLUMP, AIR CONTENT AND ADMIXTURE
7.4.5. BATCH VOLUME
7.4.6. TIME OF BATCHING
7.4.7. FOR CONCRETE MIXES REQUIRING ENTRAINED AIR, DO NOT PRE-MIX THE AIR ENTRAINING AGENT WITH A CHEMICAL ADMIXTURE SOLUTION, WHERE BOTH AN AIR ENTRAINING AGENT AND CHEMICAL ADMIXTURE ARE USED, DISPENSE THE TWO MATERIALS SEPARATELY.
7.4.8. ACCELERATING OR RETARDING CHEMICAL ADMIXTURES SHALL ONLY BE USED WITH THE PRIOR APPROVAL OF THE CONSULTANT OR AT THE CONSULTANT'S WRITTEN REQUEST. DO NOT USE CALCIUM CHLORIDE OR PRODUCTS CONTAINING CALCIUM CHLORIDE.
7.4.9. CHEMICAL ADMIXTURES AND AIR ENTRAINING AGENTS SHALL BE SUPPLIED BY THE SAME MANUFACTURER AND BE COMPATIBLE. USE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS.
7.4.10. THE COMPRESSIVE STRENGTH OF ALL CONCRETE IS TO BE DETERMINED FROM TEST CYLINDERS MADE IN ACCORDANCE WITH CANCSA A23.1/A23.2.
7.4.11. MINIMUM TRUCK LOAD TO BE 11.2 CUBIC METERS.
7.4.12. PROPORTION THE MATERIALS IN ACCORDANCE WITH THE MIX DESIGNS SPECIFIED ABOVE TO PROVIDE THE FOLLOWING:

Table with columns: LOCATION, MAX w/c RATIO, 28 DAY COMP. STRENGTH, SLUMP (MM), AIR CONTENT (%), COMMENTS (CLASS). Rows include INTERIOR (FOOTINGS, FND. WALLS/WALLS, COLUMNS/PIERS, BEAMS, SUSPENDED SLAB, FLOOR TOPPING, S.O.G.) and EXTERIOR (RET./FND. WALLS/WALLS, CURBS/WALKS, COLUMNS/PIERS, BEAMS (CHLORIDES), BEAMS (PLAIN), SUSP. SLAB (CHLORIDES), SUSP. SLAB (PLAIN), S.O.G. (CHLORIDES), S.O.G. (PLAIN)).

- NOTES
a. CONCRETE STRENGTHS SHOWN ARE MINIMUMS. PROVIDE THE GREATER OF THE STRENGTH SHOWN ABOVE AND THE STRENGTHS SHOWN ON PLANS AND OTHER SCHEDULES OR SECTIONS OF DRAWINGS.
b. INTERIOR ASSUMES HEATED CONDITION, OTHERWISE USE EXTERIOR EXPOSURE AND STRENGTH
c. INTERIOR AND EXTERIOR ASSUMES NON-CORROSIVE CONDITIONS, OTHERWISE USE C-1 AND C-XL CONCRETE CLASS
d. SLUMP AND AGGREGATE SIZE ARE BY SUPPLIER AND TO MEET POURING, FINISHING, AND PLACEMENT REQUIREMENT WITHOUT SEGREGATION WHILE MEETING CSA STANDARDS SPECIFICATIONS.
e. MAXIMUM W/C RATIO, AIR CONTENT, PLASTIC AND HARDENED MIX PROPERTIES, DOCUMENTATION, AND QUALITY CONTROL TO MEET THE REQUIREMENTS OF CSA A-23.1.
f. WHERE THE ELEMENT OF DIFFERENT EXPOSURE CLASSIFICATIONS/STRENGTHS ARE TO MEET/CONNECT, USE THE MOST SEVERE CLASSIFICATION/STRENGTH

- 8. PLANT QUALITY CONTROL:
8.1. ALL MATERIALS, BATCHING AND MIXING PROCEDURES ARE SUBJECT TO TEST OR INSPECTION BY THE CONSULTANT OR HIS DESIGNATED REPRESENTATIVES.
8.2. PROVIDE SAMPLES OF MATERIALS AS MAY BE REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
8.3. PROVIDE ACCESS TO PITS, BATCH PLANTS, ETC., AS MAY BE REQUIRED BY THE CONSULTANT OR HIS DESIGNATED REPRESENTATIVES.
9. EXAMINATION:
9.1. EXAMINE AND OBTAIN ALL NECESSARY MEASUREMENTS OF PREVIOUSLY EXECUTED AND EXISTING WORK WHICH MAY AFFECT THE WORK OF THIS SECTION PRIOR TO COMMENCING OPERATIONS.
9.2. REPORT ANY DISCOVERED DISCREPANCIES TO THE CONSULTANT SO THAT INSTRUCTIONS CAN BE GIVEN FOR THE NECESSARY REMEDIAL ACTION.

- 10. ERECTION OF FORMS:
10.1. CONSTRUCT ALL FORMS TO HAVE SUFFICIENT STRENGTH, STABILITY AND RIGIDITY TO PREVENT BULGING OR DEFLECTION UNDER THE LIQUID WEIGHT OF CONCRETE AND TO SUPPORT IN ADDITION, ALL CONSTRUCTION LOADS TO WHICH THEY MAY BE SUBJECT INCLUDING EQUIPMENT, RUNWAYS AND WIND FORCES IN ACCORDANCE WITH A.C.I. STANDARD 347.
10.2. ERECT FORMS TO THE LINES, DIMENSIONS AND ELEVATIONS SHOWN ON THE DRAWINGS SUCH THAT THE COMPLETED WORK IS WITHIN THE TOLERANCE LIMITS FOR REINFORCED CONCRETE BUILDINGS.
10.3. PROVIDE FOR ALL OPENINGS, OFFSETS, RISERS, BRACKETS, HAUNCHES, DEPRESSIONS AND CURBS AS SHOWN OR REQUIRED IN THE FORMWORK.
10.4. FOR TYPICAL WALL SURFACES, ARRANGE FORM TIES SUCH THAT AFTER REMOVAL OF THE FORMS, NO METAL IS WITHIN 25mm (1") OF THE FINISHED SURFACE.
10.5. CLEAN FORMS OF ALL DEBRIS PRIOR TO CONCRETING. PROVIDE TEMPORARY OPENINGS AT THE BASE OF WALLS, COLUMN FORMS AND AT OTHER LOCATIONS WHERE NECESSARY TO FACILITATE CLEANING AND INSPECTION. PLACE OPENINGS SO THAT "WASH WATER" WILL HAVE A CLEAN RUN TO THE OUTSIDE OF THE FORMS.
10.6. PROVIDE 19mm X 19mm (3/4" X 3/4") CHAMFERS ON ALL EXPOSED CORNERS OF CONCRETE, EXPOSED TO VIEW IN THE FINISHED STRUCTURE.
10.7. COAT FORMS WITH A NON-STAINING MINERAL OIL PRIOR TO THE PLACING OF REINFORCING STEEL IN ACCORDANCE WITH CANCSA A23.1/A23.2. WHERE THESE CONCRETE SURFACES ARE TO RECEIVE A FINAL COAT OF PAINT OR PLASTER, OMIT THE FORM OIL AND WET DOWN THE FORMS JUST PRIOR TO CONCRETING.
10.8. REFER TO ARCHITECTURAL DRAWINGS FOR TIE AND REVEAL LOCATIONS IN EXPOSED CONCRETE WALLS, IF ANY TAKE SPECIAL CARE WHEN LOWERING PLASTIC LINED CIRCULAR FORMS OVER REINFORCING STEEL TO AVOID SCRATCHING PLASTIC LINER.
11. REINFORCING STEEL:
11.1. PLACING, SPACING, SPLICING AND PROTECTION OF REINFORCEMENT IN ACCORDANCE WITH CANCSA A23.1/A23.2.
11.2. MAINTAIN THE COVER REQUIRED FOR REINFORCEMENT AS SHOWN ON THE DRAWINGS, WHERE NOT SPECIFICALLY SHOWN, REFER TO CANCSA A23.1/A23.2.
11.3. PULL UP MESH DURING CONCRETE POUR SO THAT REINFORCEMENT ENDS UP CENTERED IN THE SLAB.
11.4. THE ALL REINFORCEMENT TO HAVE SUFFICIENT STRENGTH, STABILITY AND RIGIDITY TO PREVENT ANY MOVEMENTS AND/OR DEFLECTION BEFORE DURING/ AFTER CONCRETE POUR AND WITHSTAND THE LIQUID WEIGHT OF CONCRETE AND TO SUPPORT IN ADDITION, ALL CONSTRUCTION LOADS TO WHICH THEY MAY BE SUBJECT. IT IS THE RESPONSIBILITY OF G.C., SUPPLIER, AND INSTALLER TO ENSURE ABOVE ACHIEVED AND SHOP DRAWINGS TO INCLUDE RECOMMENDED REINFORCEMENT TIES FOR DIFFERENT REINFORCEMENT IN DIFFERENT CONCRETE ELEMENTS.

- 12. CONCRETE PLACING:
12.1. DO NOT START CONCRETE PLACING UNTIL THE CONSULTANT HAS REVIEWED AND APPROVED ALL PREPARATIONS INCLUDING FORMS, JOINTS, AND REINFORCING STEEL.
12.2. ALL CONVEYING, DEPOSITING, COMPACTION IS TO BE DONE IN ACCORDANCE WITH CANCSA A23.1/A23.2.
12.3. MAXIMUM ELAPSE OF TIME BETWEEN CHARGING AND PLACING IS NOT TO EXCEED 1 1/2 HOURS. REJECT CONCRETE WHICH EXCEEDS THIS LIMIT. IN HOT WEATHER, THIS TIME PERIOD MAY HAVE TO BE REDUCED AS DIRECTED BY THE CONSULTANT.
12.4. PLACE CONCRETE CAREFULLY AROUND ALL ACCESSORIES, SUCH AS PIPES, SLEEVES, AND CONDUITS.
12.5. WHEN CONCRETE IS TO BE PLACED IN RESTRICTED LOCATIONS, TAKE SPECIAL PRECAUTIONS TO ENSURE CLOSE CONTACT BETWEEN THE CONCRETE AND STEEL. TAKE CARE TO EXCLUDE AIR POCKETS AND HONEYCOMBED AREAS. USE OF A SUPERPLASTICIZER MAY BE REQUIRED FOR PROPER PLACEMENT.
12.6. WHEN BUGGIES ARE USED FOR PLACING CONCRETE IN SLABS ON SOIL, THEY ARE TO BE SUPPORTED ON RUNWAYS AND NOT DIRECTLY ON THE REINFORCING STEEL.
12.7. MAINTAIN A SUFFICIENT NUMBER OF INTERNAL MECHANICAL VIBRATORS ON SITE TO PROPERLY COMPACT THE CONCRETE WITHIN 15 MINUTES OF PLACING, BUT NOT LESS THAN TWO VIBRATORS FOR ANY POUR.
12.8. MECHANICAL VIBRATORS WHICH ARE APPLIED TO THE OUTSIDE OF THE FORMS ARE NOT PERMITTED WITHOUT PRIOR APPROVAL OF THE CONSULTANT.
12.9. THOROUGHLY COMPACT ALL CONCRETE DURING PLACING TO ENSURE THAT THE FINISHED CONCRETE IS FREE OF VOIDS OR OTHER DEFECTS.
12.10. ENSURE THAT REINFORCEMENT, HARDWARE, AND INSERTS ARE NOT DISTURBED DURING CONCRETE PLACEMENT.
12.11. STRIKE OFF-FLOOR SURFACES AT THE LEVEL SHOWN ON THE DRAWINGS BY MEANS OF PREVIOUSLY SET, CONTINUOUS PIPE SCREEDING, SET ON ADEQUATE SUPPORTS.
12.12. NOTIFY THE CONSULTANT AT LEAST 24 HOURS IN ADVANCE OF ANY SCHEDULED POUR.

- 13. CURING AND PROTECTION:
13.1. PROTECTION AND CURING OF CONCRETE FOR A MINIMUM OF 7 DAYS IN ACCORDANCE WITH SECTION 21 OF CANCSA A23.1/A23.2.
13.2. MAINTAIN ALL EQUIPMENT AND MATERIALS FOR THE PROTECTION AND CURING OF CONCRETE ON SITE, READY TO USE BEFORE CONCRETE WORKING IS STARTED.
13.3. COMPLETELY COVER FLOOR, ROOF, AND TOPPING SLABS WITH 6 MIL POLYETHYLENE SHEETING, PROPERLY LAPPED AT SIDE AND EDGE LAPS AND WEIGHTED DOWN IMMEDIATELY AFTER FINISHING.
13.4. A SPRAYED-ON MEMBRANE CURING COMPOUND MAY BE USED IN LIEU OF POLYETHYLENE SHEETING FOR CONCRETE, EXCEPT THAT FLOOR AREAS WHICH ARE TO HAVE TOPPING OR OTHER SURFACE TREATMENTS ARE NOT TO HAVE SPRAY-APPLIED COMPOUNDS EMPLOYED, BUT MUST BE POLYETHYLENE CURED.

- 13.5. FRESHLY FINISHED FLOORS ARE NOT TO BE USED FOR SEVEN (7) DAYS AFTER COMPLETION AND ONLY LIGHT USE IS PERMITTED FOR AN ADDITIONAL 7 DAYS.
14. COLD WEATHER CONCRETE:
14.1. ALL CONCRETING OPERATIONS DURING COLD WEATHER IN ACCORDANCE WITH SECTION 21 OF CANCSA A23.1/A23.2. CAREFULLY PROTECT ALL CORNERS AND EDGES.
14.2. EXERCISE PARTICULAR CARE TO ENSURE THAT PREVIOUSLY PLACED CONCRETE AND REINFORCING STEEL ARE ADEQUATELY HEATED TO PREVENT FREEZING OF NEW CONCRETE PLACED DIRECTLY AGAINST IT.
14.3. EXERCISE CARE TO AVOID RAPID TEMPERATURE CHANGES (THERMAL SHOCK) WHEN REMOVING AN AREA FROM TEMPORARY HEATING CONDITIONS.
14.4. REMOVE AND REPLACE ALL CONCRETE DAMAGED BY FROST OR FREEZING AT THE DIRECTION OF THE CONSULTANT AT NO COST TO THE OWNER.
14.5. ACCELERATING CHEMICAL ADMIXTURES SHALL NOT BE USED WITHOUT THE WRITTEN APPROVAL OF THE CONSULTANT.
15. HOT WEATHER CONCRETE:
15.1. ALL CONCRETING OPERATIONS DURING HOT WEATHER IN ACCORDANCE WITH SECTION 21 OF CANCSA A23.1/A23.2.
15.2. EXERCISE PARTICULAR CARE TO PREVENT SURFACE CRAZING OF FLOOR SLABS DUE TO COMBINED HIGH TEMPERATURES AND DRYING WINDS.
15.3. THE USE OF A WATER REDUCING-RETARDING CHEMICAL ADMIXTURE IN THE CONCRETE MIX MAY BE REQUIRED AT THE CONSULTANT'S DISCRETION.

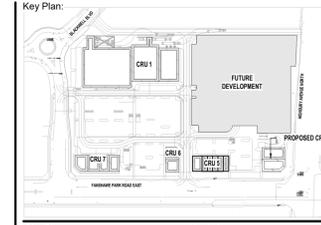
- 16. FINISHING OF HORIZONTAL SURFACES:
16.1. FLOORS:
16.1.1. REFER TO A.C.I. STANDARD 302 FOR RECOMMENDED PROCEDURE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION AND FINISHING.
16.1.2. REFER TO A.C.I. STANDARD 301, SPECIFICATION FOR STRUCTURAL CONCRETE, MAINTAIN SURFACE TOLERANCES FOR ALL SLABS IN ACCORDANCE WITH SECTION 11.9 OF THAT STANDARD FOR CLASS A TOLERANCE.
16.1.3. CONCRETE FLOORS SHALL BE STEEL FLOATED WITH A DISC TYPE POWER FLOATING MACHINE, HAVING A 600 DISC, AND WEIGHING AT LEAST 300 POUNDS; CONTINUE THE FLOATING OPERATION UNTIL SUFFICIENT MOISTURE IS BROUGHT TO THE SURFACE TO FILL ALL VOIDS, AFTER FLOATING WHEN THE FLOOR HAS HARDENED SUFFICIENTLY SO THAT EXCESS FINES WILL NOT BE BROUGHT TO THE SURFACE, TROWEL WITH A STEEL TROWEL TO A SURFACE FREE OF ALL PINHOLES AND TROWEL MARKS. SEE A.C.I. STANDARD 301, SECTION 11.7.
16.1.4. FOLLOWING FINISHING OPERATIONS FOR FLOORS NOTED IN THE ROOM FINISH SCHEDULE TO REMAIN AS, EXPOSED CONCRETE, FILL SAWCUT CONTROL JOINTS WITH JOINT FILLER AND SEAL WITH UNHINNED CURE AND SEAL COMPOUND, APPLIED IN STRICT CONFORMANCE WITH MANUFACTURERS INSTRUCTIONS.
16.1.5. IN ADDITION TO AREAS MENTIONED ABOVE, PROVIDE JOINT FILLER IN ALL CONTROL JOINTS BENEATH AREAS TO BE COVERED WITH RUBBER FLOORING, IF SCHEDULED.
16.1.6. JUST PRIOR TO TURN-OVER, CLEAN PLAIN CONCRETE FLOOR AREAS AND RESEAL WITH ONE COAT OF COMPATIBLE SEALER APPLIED IN STRICT CONFORMANCE WITH MANUFACTURERS INSTRUCTIONS.
16.1.7. PROVIDE FLOOR HARDENER TO EXPOSED CONCRETE FLOORS, APPLY HARDENER IN TWO EQUAL SHAKES IN ACCORDANCE WITH MANUFACTURES INSTRUCTIONS TO ACHIEVE A SURFACE HARDNESS FOR A MODERATE DUTY FLOOR.
16.1.8. CONFIRM WITH WATERPROOFING INSTALLER/MANUFACTURER ON PREFERRED FINISHING METHOD OF CONCRETE SLABS WHERE WATERPROOFING MEMBRANES ARE BEING PROVIDED.
16.1.9. FOLLOW ELEVATIONS SHOWN ON DRAWINGS WITH A MAXIMUM VERTICAL TOLERANCE OF +/- 6.35mm (1/4").
16.1.10. TYPICAL SLAB-ON-GRADE CONSTRUCTION SHALL BE A 125 mm (5") CONCRETE SLAB WITH 6X6XMIN/6MM W/WF ON COMPACTED GRANULAR 'A' ON COMPACTED GRANULAR 'B', UNLESS NOTED OTHERWISE.
16.1.11. VAPOUR BARRIER IS TO BE LAPPED 200mm (8") MINIMUM AT JOINTS AND TURNED UP AT SLAB EDGES, IMMEDIATELY PRIOR TO PLACING CONCRETE, INSPECT VAPOUR BARRIER AND PATCH ANY PUNCTURES.

- 17. FINISHING OF VERTICAL SURFACES:
17.1. IN AREAS WHERE CONCRETE WALLS WILL BE EXPOSED, TAKE EXTRA CARE TO AVOID 'BUGHOLES' AND HONEYCOMBING, WHEN PLACING CONCRETE, RE-VIBRATE CRITICAL AREAS TO ENSURE COMPLETE CONSOLIDATION OF CONCRETE NEAR FORM SURFACES.
17.2. FOR REVEAL AND TIE LOCATIONS, SEE ARCHITECTURAL DRAWINGS.
18. TREATMENT AND REPAIRS FOR FORMED SURFACES:
18.1. AFTER REMOVAL OF FORMS, THE SURFACES OF CONCRETE ARE TO BE GIVEN ONE OR MORE OF THE FINISHES SPECIFIED HEREAFTER. METHODS USED ARE TO BE IN ACCORDANCE WITH SECTION 24 OF CANCSA A23.1/A23.2.
18.2. PATCH THE HOLES AND OTHER DEFECTS. REMOVE FINIS EXCEEDING 4.5mm (3/16") IN HEIGHT.
18.3. WHEN, IN THE OPINION OF THE CONSULTANT, SATISFACTORY REPAIRS CANNOT BE MADE, THEN THE DEFECTIVE WORK IS TO BE CUT OUT AND REPLACED AS DIRECTED BY THE CONSULTANT.
18.4. TREATMENT OF HONEYCOMBED AREAS IS TO BE CARRIED OUT AS DIRECTED BY THE CONSULTANT. DO NOT TREAT SUCH AREAS PRIOR TO RECEIVING INSTRUCTIONS FROM THE CONSULTANT.

- 19. CONSTRUCTION JOINTS:
19.1. PLACE CONSTRUCTION JOINTS IN WALLS AND FLOORS IN LOCATIONS APPROVED BY THE ARCHITECT AND STRUCTURAL ENGINEER.
19.2. POUR CONSTRUCTION JOINTS TO THE ADJOINING WALL AS DETAILED ON THE DRAWINGS AND PER CSA A23.3 AND ACI 318.
19.3. BEFORE PLACING ADJOINING CONCRETE AT CONSTRUCTION JOINTS, CLEAN THE EXISTING SURFACE OF DIRT, LANTANCE AND LOOSE AGGREGATE.
19.4. ADDITIONAL RESISTANCE TO HORIZONTAL SHEAR IS REQUIRED IN STRUCTURAL ELEMENTS, FORM MORTISES OR KEYS IN CONCRETE. POURING SEQUENCE AND CONSTRUCTION JOINT LOCATION TO BE AS INDICATED OR AS APPROVED BY THE CONSULTANT.
19.5. INSTALL WATERSTOPS IN ALL CONSTRUCTION JOINTS EMPLOYING WIRE TIES TO ENSURE WATERSTOP STAYS IN POSITION WHEN POURING ADJOINING CONCRETE.
20. CONTROL JOINTS:
20.1. PROVIDE CONTROL JOINTS WHERE INDICATED IN FOUNDATION AND RETAINING WALLS AND IN FLOOR SLABS AND AS RECOMMENDED BY CSA A23.3 AND ACI 318. AT ALL LOCATIONS SHOWN ON FOUNDATION PLAN AND AT ALL POINTS WHERE THE SLAB PASSES OVER AN INTERIOR FOOTING OR DOORWAY, SAWCUT CONTROL JOINTS IN FLOOR SLABS TO THE DEPTH SHOWN AS SOON AFTER PLACING THE CONCRETE AS THE SURFACE WILL ALLOW WITHOUT CHIPPING, BUT NO LATER THAN 24 HOURS AFTER PLACING.

- 21. FIELD QUALITY CONTROL:
21.1. ALL MATERIALS AND WORKMANSHIP SPECIFIED IN THIS SECTION SHALL BE SUBJECT TO TESTING AND INSPECTION BY AN INDEPENDENT TESTING AND INSPECTION COMPANY APPOINTED BY THE OWNER. ENGAGE THE SERVICES OF THE TESTING COMPANY AND INCLUDE COSTS FOR THEIR SERVICES WITHIN THE CONTRACT. COMPLY WITH REQUIREMENTS OF SECTION 01 41 00 - QUALITY CONTROL.
21.2. PROVIDE UNRESTRICTED ACCESS TO THE PROJECT FOR PURPOSES OF INSPECTION AND TESTING. PROVIDE STORAGE SPACE AND THE NECESSARY PROTECTION FOR TEST SPECIMENS AGAINST DAMAGE OR LOSS WHILE ON SITE.
21.3. PROVIDE REPRESENTATIVE SAMPLES OF THE MATERIALS AS REQUESTED BY THE TESTING AND INSPECTION COMPANY. ALL FIELD TESTS FOR CONCRETE QUALITY AND ALL CRITERIA RELATING TO FAILURE TO MEET TEST REQUIREMENTS IN CANCSA A23.1/A23.2, SECTION 17, EXCEPT AS FOLLOWS:
21.4.1. EACH TEST SHALL CONSIST OF THREE STANDARD CYLINDERS, ACCOMPANIED BY A SLUMP TEST AND MEASUREMENT OF AIR CONTENT (WHERE APPLICABLE), UNLESS OTHERWISE DIRECTED BY THE CONSULTANT, ONE CYLINDER SHALL BE TESTED AT 7 DAYS AND THE REMAINING TWO AT 28 DAYS.
21.4.2. THE INSPECTION COMPANY SHALL TAKE CONCRETE TESTS FOR NOT LESS THAN ONE TEST FOR EACH CLASS OF CONCRETE PLACED EACH DAY, AND NOT LESS THAN ONE TEST FOR EACH 50 CUBIC METRES OR PORTION THEREOF PLACED IN ANY DAY.
21.4.3. TWO (2) ADDITIONAL CONCRETE TEST CYLINDERS SHALL BE TAKEN DURING COLD WEATHER CONCRETING, AS DEFINED IN CANCSA A23.1, AND CURED ON THE JOB SITE UNDER IDENTICAL CONDITIONS TO THE NEWLY PLACED CONCRETE, UNLESS OTHERWISE DIRECTED BY THE CONSULTANT, ONE (1) CYLINDER SHALL BE TESTED AT 7 DAYS OF AGE AND (1) CYLINDER DIRECTED AT 28 DAYS OF AGE.
21.5. THE COST OF ANY ADDITIONAL TESTING AND/OR THE COST OF REPLACEMENT OF ANY PART OF THE STRUCTURE RESULTING FROM FAILURE OF THE CONCRETE TO MEET THE TEST REQUIREMENTS SHALL BE BORNE BY G.C. AND THE SUB-CONTRACTOR.
21.6. NOTIFY THE TESTING COMPANY OF THE POURING SCHEDULE SUFFICIENTLY IN ADVANCE SO THAT TESTS MAY BE MADE. PROVIDE THE CONSULTANT WITH A DETAILED CONCRETE TEST REPORT SHOWING THE SLUMP, AIR CONTENT, TIME OF BATCH/PLACEMENT, BREAKING STRENGTH, AMBIENT TEMPERATURE AND AGE OF THE CONCRETE CYLINDER.
22. CLEAN-UP

- 22.1. AT THE COMPLETION OF THE WORK OF THIS SECTION, REMOVE FROM SITE EXCESS MATERIALS, DEBRIS AND EQUIPMENT.



## CAST-IN-PLACE CONCRETE AND CONCRETE REINFORCING

23. PARKING STRUCTURE
- 23.1 THE DESIGN COMPLIES WITH THE STRUCTURAL REQUIREMENTS OF CAN/CSA S413-14, PARKING STRUCTURES.
- 23.2 SELECTED PROTECTION SYSTEMS:
- | STRUCTURAL COMPONENT  | SYSTEM       | CAN/CSA S413-14 REF. |
|-----------------------|--------------|----------------------|
| SUSPENDED SLABS/BEAMS | M (MEMBRANE) | TABLE 1              |
- 23.3 ALL CONCRETE SHALL MEET THE REQUIREMENTS OF CAN/CSA S413, PARKING STRUCTURES.
- 23.4 MINIMUM CONCRETE COVER SHALL MEET THE REQUIREMENTS OF CAN/CSA S413, PARKING STRUCTURES, TABLE 1, AND CLAUSE 7.3.8, UNLESS NOTED OTHERWISE.
- 23.5 ALL GUARDS, VEHICLE GUARDRAILS, EXPOSED HARDWARE AND EMBEDDED MATERIALS SHALL MEET THE REQUIREMENTS OF CAN/CSA S413, PARKING STRUCTURES.
- 23.6 ALL WELDED REINFORCEMENT SHALL MEET THE REQUIREMENTS OF MOST UP TO DATE CAN/CSA S413, PARKING STRUCTURES AND ASTM A1064/1064M.
- 23.7 ALL MEMBRANES SHALL MEET THE REQUIREMENTS OF CAN/CSA S413, PARKING STRUCTURES.
- 23.8 ALL SERVICES SHALL MEET THE REQUIREMENTS OF CAN/CSA S413, PARKING STRUCTURES.
- 23.9 ALL HEATING CABLES AND HEATING PIPES FOR SNOW MELTING SYSTEMS SHALL MEET THE REQUIREMENTS OF CAN/CSA S413, PARKING STRUCTURES.
- 23.10 CURBS SHALL BE CAST AROUND STEEL COLUMNS AT SUSPENDED FLOORS AND AT GRADE LEVEL AND SHALL MEET THE ADDITIONAL REQUIREMENTS OF CAN/CSA S413, PARKING STRUCTURES.
- 23.11 STEEL COLUMN BASE PLATES, ANCHOR BOLTS, AND THE PORTION OF STEEL COLUMNS LOCATED BELOW SLABS ON GROUND SHALL BE PROTECTED AGAINST CORROSION.
- 23.12 ALL EXPOSED STRUCTURAL STEEL SHALL BE PAINTED AND SHALL MEET THE REQUIREMENTS OF CAN/CSA S413, PARKING STRUCTURES.
- 23.13 THE CONSTRUCTION OF THE PARKING STRUCTURE SHALL BE IN ACCORDANCE WITH CAN/CSA A23.1 AND CAN/CSA S16, EXCEPT AS ADDITIONALLY SPECIFIED IN CAN/CSA S413, PARKING STRUCTURES.
- 23.14 THE SLAB SURFACE SHALL NOT BE OVERWORKED DURING FINISHING. MULTIPLE PASSES OF POWER FLOATS OR TROWELS CAN CREATE A FINE PASTE THAT IS SUBJECT TO SCALING. A SINGLE PASS IS NOT DETRIMENTAL.
- 23.15 VEHICLES THAT CAN TRACK ROAD SALTS INTO THE STRUCTURE SHALL NOT BE ALLOWED IN THE STRUCTURE UNTIL THE MEMBRANE SYSTEM IS INSTALLED.

## MASONRY

1. DESIGN
- 1.1 MASONRY DESIGN TO CAN/CSA S304-14 "DESIGN OF MASONRY STRUCTURES" (LIMIT STATES DESIGN)
- 1.2 TOLERANCES TO LATEST CSA A371 "MASONRY CONSTRUCTION FOR BUILDINGS"
- 1.3 CONSULTANT AND G. C. WILL INSTALL MASONRY AND REJECT MASONRY THAT IS CHIPPED, CRACKED, OR BLEMISHED (STREAKED, STAINED OR OTHERWISE DAMAGED).
- 1.4 MAKE GOOD REJECTED MASONRY AS DIRECTED BY CONSULTANT
2. MATERIALS
- 2.1 ALL MATERIALS USED IN MASONRY CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF LATEST CAN/CSA A371 "MASONRY CONSTRUCTION FOR BUILDINGS"
- 2.2 HOLLOW CONCRETE MASONRY UNITS TO LATEST CAN/CSA A165 MIN. COMPRESSIVE STRENGTH = 25MPa U.N.O.
- 2.3 MASONRY MORTAR/GROUT FILL TO CAN/CSA A179 "FINE GROUT" MIN. 20MPa STRENGTH AT 28 DAYS AND NOT LESS THAN MASONRY COMPRESSIVE STRENGTH, 175-200MM SLUMP TYPE U.N.O.
- 2.4 MASONRY CONNECTORS AND REINFORCEMENT TO LATEST CSA A370
- 2.5 HOT DIP GALVANIZING: TO ASTM A123/A123M AND ASTM A153/A153M, CLASS B2, MINIMUM 458 G/M<sup>2</sup> ZINC COATING ON ALL SURFACES.
- 2.6 MANUFACTURES HAVING PRODUCTS CONSIDERED ACCEPTABLE FOR USE:
- 2.6.1 BLOK-LOK
- 2.6.2 FERRO
- 2.7 ALL LADDER STEEL TO BE HEAVY DUTY 4.76 mm (3/16") GAUGE SIDE WIRE
3. ERECTION
- 3.1 CONSTRUCT MASONRY PLUMB, LEVEL AND TRUE TO LINE, WITH VERTICAL JOINTS IN ALIGNMENT.
- 3.2 LAY OUT COURSES AND BOND TO ACHIEVE CORRECT COURSE HEIGHTS, AND CONTINUITY OF BOND ABOVE AND BELOW OPENINGS, WITH MINIMUM OF CUTTING.
- 3.3 LAY MASONRY IN FULL BED OF MOTOR, PROPERLY JOINTED WITH OTHER WORK.
- 3.4 BUTTERING CORNERS OF JOINTS, AND DEEP OR EXCESSIVE FURROWING OF MORTAR JOINTS ARE NOT PERMITTED.
- 3.5 DO NOT USE CHIPPED, CRACKED OR OTHERWISE DAMAGED UNITS.
- 3.6 BUILD IN ITEMS REQUIRED TO BE BUILT INTO MASONRY. PREVENT DISPLACEMENT OF BUILT-IN ITEMS DURING CONSTRUCTION.
- 3.7 CHECK PLUMB, LOCATION AND ALIGNMENT FREQUENTLY, AS WORK PROGRESSES.
- 3.8 BRACE DOOR FRAMES TO MAINTAIN PLUMB. FILL SPACES BETWEEN FRAME JAMBS AND MASONRY WITH GROUT.
- 3.9 MAINTAIN MATERIALS AND SURROUNDING AIR TEMPERATURE TO MINIMUM 5 DEGREES CELSIUS AND MAXIMUM 50 DEGREES CELSIUS PRIOR TO, DURING, AND 48 HOURS AFTER COMPLETION OF MASONRY WORK.
- 3.10 DO NOT USE ANTI-FREEZE, LIQUID SALTS, OR OTHER SUBSTANCES TO LOWER THE FREEZING POINT OF MORTAR OR GROUT. CONFORM TO LATEST CSA A179
- 3.11 PROVIDE HEATED ENCLOSED AND HEAT AS NECESSARY DURING COLD WEATHER CONSTRUCTION.
- 3.12 PREVENT FRESHLY LAID MASONRY FROM DRYING TOO RAPIDLY DURING HOT WEATHER BY MEANS OF WATERPROOF, NON-STAINING COVERINGS.
- 3.13 INSTALL ALL LOOSE STEEL LINTELS. CENTRE LINTEL OVER OPENING WIDTH
- 3.14 PROVIDE TEMPORARY BRACING FOR MASONRY WALLS TO RESIST WIND PRESSURE AND OTHER LATER LOADS DURING AND AFTER ERECTION UNTIL PERMANENT LATERAL SUPPORT IS IN PLACE
- 3.15 CONTACT CONSULTANT/ARCHITECT ABOUT SIZE AND LOCATION OF MASONRY MOVEMENT JOINTS PRIOR TO SITE FABRICATION.
- 3.16 SECURE WALL TIES TO STRUCTURAL BACK-UP AT MAXIMUM SPACING OF 400 mm X 600 mm (16" X 24") O.C. OR SMALLER IF SPECIFIED BY SUPPLIER.
- 3.17 SECURE WALL TIES TO STUDS USING A MINIMUM OF TWO FASTENERS OR MORE IF SPECIFIED BY SUPPLIER.
- 3.18 DOUBLE QUANTITY OF WALL TIES WITHIN 200 mm (8") OF WALL CORNERS, WALL OPENINGS AND ALONG PARAPET WALLS.
4. JOINTING
- 4.1 MAKE VERTICAL AND HORIZONTAL JOINTS EQUAL AND UNIFORM THICKNESS
- 4.2 ALLOW JOINTS TO SET JUST ENOUGH TO REMOVE EXCESS WATER, THEN TOOL WITH ROUND JOINTER TO RESULT IN SMOOTH, COMPRESSED, UNIFORMLY CONCAVE JOINTS.
- 4.3 STRIKE FLUSH JOINTS THAT WILL BE CONCEALED WITHIN THE WALL WHICH WILL RECEIVE A COATING OF PLASTER, TILE, INSULATION, RESILIENT BASE, BITUMINOUS FOUNDATION PROTECTION, OR OTHER JOINT-CONCEALING FINISH. DO NOT STRIKE FLUSH MORTAR JOINTS DESIGNATED TO RECEIVE PAINTED OR OTHER THIN FINISHES.
5. CUTTING
- 5.1 CUT OUT MASONRY NEATLY FOR RECESSED OR BUILT-IN OBJECTS. MAKE CUTS STRAIGHT, CLEAN AND FREE FROM UNEVEN EDGES. MAKE GOOD MASONRY WHICH HAS CRACKED OR BROKEN AS A RESULT OF CUTTING IN BUILT-IN OBJECTS.
6. PROVISIONS FOR MOVEMENT
- 6.1 LEAVE A 9.5 mm (3/8") SPACE BETWEEN MASONRY AND VERTICAL STRUCTURAL ELEMENTS FOR NON-LOADBEARING.
- 6.2 LEAVE A 11 mm (7/16") SPACE BETWEEN TOP OF NON-LOADBEARING WALLS AND PARTITIONS AND STRUCTURAL ELEMENTS.

## STRUCTURAL STEEL

1. DESIGN
- 1.1 DESIGN DETAILS AND CONNECTIONS IN ACCORDANCE WITH REQUIREMENTS OF CAN/CSA-S16 AND CAN/CSA-S136 TO RESIST FORCES, MOMENTS, SHEARS, AND TO ALLOW FOR MOVEMENTS INDICATED.
- 1.2 WHEN SHEARS ARE NOT INDICATED ON DRAWINGS, SELECT OR DESIGN CONNECTIONS TO SUPPORT THE MAXIMUM OF A) REACTION FROM MASONRY UNIFORMLY DISTRIBUTED LOAD THAT CAN BE SAFELY SUPPORTED BY BEAM IN BENDING, PROVIDED NO POINT LOADS ACT ON BEAM OR B) MAXIMUM SHEAR CAPACITY OF THE BEAM IF THE BEAM SUPPORTS ANY POINT LOADS OR CANTILEVER OVER COLUMNS.
- 1.3 FOR COMPOSITE CONSTRUCTION, SELECT OR DESIGN MINIMUM END CONNECTION TO RESIST REACTION RESULTING FROM FACTORED MOMENT RESISTANCE AS TABULATED IN THE "HANDBOOK OF THE CANADIAN INSTITUTE OF STEEL CONSTRUCTION" ASSUMING 100% SHEAR CONNECTION WITH DEPTH OF STEEL DECK AND/OR SLAB SHOWN ON DRAWINGS.
2. SHOP DRAWINGS
- 2.1 SUBMIT DRAWINGS STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO OR PROJECT APPLICABLE JURISDICTIONS.
- 2.2 INDICATE PROFILES, SIZES, SPACING, LOCATIONS OF STRUCTURAL MEMBERS, OPENINGS, ATTACHMENTS, FASTENERS, FIELD CONNECTIONS, AND CAMBERS.
- 2.3 INDICATE ALL DETAILS AND INFORMATION NECESSARY FOR ASSEMBLY AND ERECTION PURPOSES, INCLUDING ANCHOR BOLT SETTING DIAGRAM FOR PROPER INSTALLATION.
3. QUALIFICATIONS
- 3.1 FABRICATE STRUCTURAL STEEL MEMBERS TO CISC CODE OF STANDARD PRACTICE AND CSA-W59
- 3.2 MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE (3) YEARS EXPERIENCE.
- 3.3 INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION WITH MINIMUM THREE (3) YEARS EXPERIENCE.
- 3.4 WELDERS CERTIFICATES: EMPLOY ONLY CERTIFIED WELDERS ON THE WORK, WITH VERIFIABLE QUALIFICATION TO CSA-W59 WITHIN THE PREVIOUS TWELVE (12) MONTHS.

4. MATERIALS
- 4.1 W-SHAPES AND CHANNELS: TO CSA-G40.20/G40.21, GRADE 350W, UNLESS NOTED OTHERWISE.
- 4.2 HOLLOW STRUCTURAL STEEL MEMBERS: TO CSA G40.20/G40.21, GRADE 350 W, CLASS C, UNLESS NOTED OTHERWISE.
- 4.3 PLATES AND ANGLES: TO CSA G40.20/G40.21, GRADE 300W, UNLESS NOTED OTHERWISE.
- 4.4 ANCHOR BOLTS: TO ASTM A307
- 4.5 BOLTS, NUTS AND WASHERS: TO ASTM A325M, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS, HOT DIPPED GALVANIZED FOR EXTERIOR MEMBERS.
- 4.6 WELDING MATERIALS: TO CSA W48 SERIES, CSA W59 AND CERTIFIED BY CANADIAN WELDING BUREAU.
- 4.7 GROUT: TO ASTM C1107/C1107M, NON-SHRINK TYPE, PREMIXED COMPOUND CONSISTING OF NON-METALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING ADDITIVES, CAPABLE OF DEVELOPING A MINIMUM COMPRESSIVE STRENGTH OF 50 MPa at 28 DAYS
- 4.8 HOT DIP GALVANIZING: GALVANIZE STEEL, WHERE INDICATED AND EXTERIOR, TO CAN/CSA-G164, MINIMUM ZINC COATING OF 275 G/M<sup>2</sup>.
5. FABRICATION
- 5.1 FABRICATE STRUCTURAL STEEL IN ACCORDANCE WITH CAN/CSA-S16, CAN/CSA-S136, AND IN ACCORDANCE WITH THE APPROVED SHOP DRAWINGS.
- 5.2 SPLICING WILL NOT BE ALLOWED WITHOUT THE APPROVAL OF THE CONSULTANT AT THE SHOP DRAWING REVIEW STAGE. SPLICING WILL THEN ONLY BE ALLOWED IF THE LENGTH OF THE FABRICATED MEMBER REQUIRED IS LONGER THAN THAT NORMALLY PRODUCED AT THE MILL. IF A MEMBER IS SPLICED, THE FABRICATOR AND SHOP DRAWING DESIGN ENGINEER SHALL ENSURE THAT THE FULL SECTION PROPERTIES ARE CONTINUOUS OVER THE SPLICE.
- 5.3 ALL MEMBERS SHALL BE TRUE TO LENGTH SUCH THAT ASSEMBLY MAY BE DONE WITHOUT FILLERS.
- 5.4 CONTINUOUSLY SEAL JOINED MEMBERS WITH CONTINUOUS WELDS OR INTERMITTENT WELDS AND PLASTIC FILLER, WHERE FULL SEAL IS NOT POSSIBLE, PROVIDE WELD HOLES.
- 5.5 MAKE GOOD WELDS WHICH SHOW INCLUSIONS, POROSITY, OR LACK OF FUSION PENETRATION BEYOND THE TOLERANCES SET OUT IN CSA W59.
- 5.6 GRIND ALL EXPOSED WELDS SMOOTH IF NEEDED.
- 5.7 UNLESS NOTED OTHERWISE, FABRICATE CONNECTIONS FOR BOLT, NUT AND WASHER CONNECTORS.
- 5.8 TAKE CARE TO MINIMIZE DISTORTION DUE TO WELDING AND GALVANIZING PROCEDURES. STRAIGHTEN MEMBERS ARE REQUIRED TO MAINTAIN FABRICATION TOLERANCES OF CAN/CSA S-16.
- 5.9 PROVIDE HOLES FOR CONNECTING THE WORK OF OTHER TRADES, WHERE HOLE LOCATIONS CAN BE DETERMINED PRIOR TO FABRICATION, AND ONLY WHERE SUCH HOLES WILL NOT IMPAIR THE PERFORMANCE OF THE MEMBER.
- 5.10 UNLESS OTHERWISE SPECIFIED, MAKE HOLES 2 mm (3/32") LARGER THAN THE NOMINAL DIAMETER OF THE FASTENER. HOLES MAY BE PUNCHED, SUB-PUNCHED, DRILLED, OR REAMED AS PERMITTED IN CSA S16.
- 5.11 PROVIDE WELDED STRAP OR REINFORCING BAR ANCHORS FOR ATTACHMENT TO CONCRETE OR MASONRY, AS SHOWN IN THE TYPICAL DETAILS.
- 5.12 BEAR ANGLE LINTELS AS INDICATED ON DRAWINGS, BUT NOT LESS THAN 200 mm (8") AT EACH END, WELD ANGLES TOGETHER WHERE THE UPSTANDING LEGS ARE BACK TO BACK.
- 5.13 MARK MATERIALS IN ACCORDANCE WITH CSA G40.20/G40.21. DO NOT USE DIE STAMPING, WHEN STEEL IS TO BE LEFT IN UNPAINTED CONDITION, PLACE MARKING AT LOCATIONS NOT VISIBLE FROM EXTERIOR AFTER ERECTION.
6. FINISH
- 6.1 CLEAN MEMBERS, REMOVE LOOSE MILL SCALE, RUST, OIL, DIRT AND FOREIGN MATTER. PREPARE SURFACES ACCORDING TO SSPC-SP-3
- 6.2 SHOP PRIME STRUCTURAL STEEL, EXCEPT FOR:
- 6.2.1 SURFACES TO BE IN CONTACT WITH CONCRETE OR SOIL.
- 6.2.2 SURFACES AND EDGES TO BE FIELD WELDED.
- 6.2.3 STRIP PAINT FROM BOLTS, NUTS, CORNERS, AND SHARP EDGES BEFORE PRIME COAT IS DRY.
- 6.2.4 CONFIRM PRIMER REQUIREMENTS WITH ARCHITECT FOR STEEL MEMBERS BEING FIRE-RATED (APPROVED BY CSA STANDARDS) AND PROVIDE COPY OF APPROVED SPECS TO IE DESIGN.
- 6.3 APPLY PRIMER AND TWO COATS OF COAL TAR EPOXY TO BASES OF EXTERIOR CANOPY COLUMNS OR AS SPECIFIED BY ARCHITECT.
- 6.4 HOT DIP GALVANIZING: WHERE INDICATED, GALVANIZE STEEL, TO CAN/CSA-G164, MINIMUM ZINC COATING OF 600 G/M<sup>2</sup>.

7. ERECTION
- 7.1 ERECT STRUCTURAL STEEL IN ACCORDANCE WITH CAN/CSA S16 AND THE APPROVED ERECTION DRAWINGS.
- 7.2 ALLOW FOR ERECTION LOADS, AND FOR SUFFICIENT TEMPORARY BRACING TO MAINTAIN STRUCTURE SAFE, PLUMB, AND IN TRUE ALIGNMENT UNTIL COMPLETION OF PERMANENT BRACING.
- 7.3 FIELD WELD COMPONENTS AS INDICATED ON SHOP DRAWINGS.
- 7.4 FIELD CONNECT MEMBERS WITH THREADED FASTENERS; TORQUE TO REQUIRED RESISTANCE AS RECOMMENDED IN CAN/CSA S16.
- 7.5 ASSEMBLE BOLTED PARTS TOGETHER SOLIDLY, DO NOT SEPARATE WITH GASKETS OR ANY OTHER INTERPOSED COMPRESSIBLE MATERIAL.
- 7.6 DO NOT DISTORT OR ENLARGE HOLES. HOLES IN ADJACENT PARTS SHALL MATCH SUFFICIENTLY WELL TO PERMIT EASY ENTRY OF BOLTS.
- 7.7 FIELD CUTTING OR ALTERING OF STRUCTURAL MEMBERS IS NOT PERMITTED WITHOUT WRITTEN STAMPED APPROVAL FROM THE SUPPLIER'S DESIGN ENGINEER.
- 7.8 AFTER ERECTION, PRIME WELDS, ABRASIONS, AND SURFACES NOT SHOP PRIMED, EXCEPT SURFACES TO BE IN CONTACT WITH CONCRETE.
- 7.9 GROUT UNDER BASE PLATES, TROWEL GROUTED SURFACE SMOOTH, SPLAY NEATLY TO 45 DEGREES.
8. TOLERANCES
- 8.1 AS PER MOST RECENT AND APPLICABLE CAN/CSA S16.
- 8.2 MAXIMUM VARIATION FROM PLUMB: 6 mm (1/4") PER STOREY, NON-CUMULATIVE.
- 8.3 MAXIMUM VARIATION FROM TRUE ALIGNMENT: 6 mm (1/4").
9. FIELD QUALITY CONTROL
- 9.1 FIELD INSPECTION AND TESTING OF MATERIALS AND WORKMANSHIP SHALL BE CARRIED OUT BY AN INDEPENDENT INSPECTION/TESTING AGENCY. INSPECT STEEL, WELDS, AND BOLTED CONNECTIONS FOR ALIGNMENT AND STRUCTURAL INTEGRITY. SUBMIT REPORTS TO CONSULTANT WITHIN 1 WEEK OF COMPLETION OF INSPECTION.

## LIGHTWEIGHT STEEL FRAMING

1. DESIGN
- 1.1 BASE DESIGN ON LIMIT STATES DESIGN PRINCIPLES USING FACTORED LOADS AND RESISTANCES. DETERMINE RESISTANCES AND RESISTANCE FACTORS IN ACCORDANCE WITH THE MOST RECENT APPLICABLE ONTARIO BUILDING CODE AND CAN/CSA-S16.
- 1.2 FOR WIND LOAD CALCULATIONS, THE REFERENCE VELOCITY PRESSURE, Q, SHALL BE BASED ON A 1 IN 50 PROBABILITY OF BEING EXCEEDED IN ANY ONE YEAR.
- 1.3 CONFORM TO THE REQUIREMENTS OF FIRE RATED ASSEMBLIES WHICH HAVE BEEN TESTED IN ACCORDANCE WITH CANULC S101 AND PROVIDE A FIRE RESISTANCE RATING AS INDICATED ON THE DRAWINGS.
- 1.4 SPACE WALL STUDS AT 600 mm (24") MAXIMUM.
- 1.5 THE MINIMUM DESIGN THICKNESS FOR STUDS AND TRACK SHALL BE 0.84 mm FOR 89 mm (3.5") AND 152 mm (6") WIDTHS. USE GREATER STUD/TRACK THICKNESS IF REQUIRED BY THE DESIGN CRITERIA.
- 1.6 FOR WALL STUDS SUPPORTING BRICK VENEER, THE MINIMUM DESIGN THICKNESS EXCLUSIVE OF COATING SHALL BE THE GREATER OF THE DESIGN THICKNESSES LISTED ABOVE OR 1.12 mm.
- 1.7 THE MINIMUM DESIGN THICKNESS FOR BRIDGING CHANNEL SHALL BE 1.22 mm. USE GREATER BRIDGING CHANNEL DESIGN THICKNESS IF REQUIRED BY THE DESIGN CRITERIA.
- 1.8 THE MINIMUM DESIGN THICKNESS FOR CLIP ANGLES SHALL BE 1.52 mm. USE GREATER CLIP ANGLE THICKNESS IF REQUIRED BY THE DESIGN CRITERIA.
- 1.9 MAXIMUM FLEXURAL DEFLECTIONS UNDER SPECIFIED LIVE OR WIND LOADS SHALL CONFORM TO THE FOLLOWING:
- 1.9.1 WALL STUDS SUPPORTING MASONRY VENEER SHALL MEET THE REQUIREMENTS OF CSA S304.1 WITH STUD DEFLECTIONS LIMITED TO L/480
- 1.9.2 STUDS SUPPORTING OTHER FINISHES: L/180
- 1.9.3 BUILDING SWAY DUE TO ALL EFFECTS, 1/500 OF BUILDING HEIGHT OR 1/500 OF STOREY HEIGHT.
- 1.9.4 DESIGN BRIDGING TO PREVENT MEMBER ROTATION AND MEMBER TRANSLATION PERPENDICULAR TO THE MINOR AXIS. PROVIDE SECONDARY STRESS EFFECTS DUE TO TORSION BETWEEN LINES OF BRIDGING. DO NOT RELY ON COLLATERAL SHEATHING TO HELP RESTRAIN MEMBER ROTATION AND TRANSLATION PERPENDICULAR TO THE MINOR AXIS.
- 1.9.5 DESIGN ANCHORAGE AND SPLICE DETAILS FOR BRIDGING.
- 1.9.6 ALLOW FOR POINT LOADS DUE TO ANCHORAGE OF CLADDING AND INTERIOR WALL MOUNTED FIXTURES WHERE SHOWN
- 1.9.7 CONNECT COLD-FORMED METAL FRAMING MEMBERS BY BOLTING, WELDING OR SCREWING
- 1.9.8 ALLOW FOR APPROPRIATE END ECENTRICITIES IN THE DESIGN OF AXIAL LOAD-BEARING MEMBERS
- 1.9.9 DESIGN INTERIOR AXIAL LOAD BEARING WALLS WITH NOMINAL LATERAL WIND LOAD OF 0.24 kPa IN COMBINATION WITH THE REQUIRED AXIAL LOADS
- 1.9.10 PROVIDE LINTEL, SILL AND JAMB MEMBERS AND CONNECTIONS IN STUD WALLS TO FRAME OPENINGS LARGER THAN 100 mm IN ANY DIRECTION.
- 1.9.11 ANCHOR TOP AND BOTTOM TRACK TO THE STRUCTURE AT A MAXIMUM SPACING OF 800 mm (32") O.C. CLOSER SPACING MAY BE REQUIRED TO SATISFY STRUCTURAL REQUIREMENTS.

2. SHOP DRAWINGS
- 2.1 SUBMIT STAMPED SHOP DRAWINGS AS SPECIFIED IN REQUIRED SUBMITTALS ON STRUCTURAL DRAWINGS.
- 2.2 INCLUDE SHOP DETAILS AND ERECTION DIAGRAMS. INDICATE MEMBER SIZE, LOCATION, THICKNESSES EXCLUSIVE OF COATING, COATINGS AND MATERIAL TYPES.
- 2.3 INCLUDE CONNECTION DETAILS FOR ATTACHING FRAMING TO ITSELF AND FOR ATTACHMENT TO THE STRUCTURE. SHOW SPLICE DETAILS WHERE PERMITTED.
- 2.4 INDICATE DIMENSIONS, OPENINGS, REQUIREMENTS FOR RELATED WORK AND CRITICAL INSTALLATION PROCEDURES. SHOW TEMPORARY BRACING REQUIRED FOR ERECTION PURPOSES.
- 2.5 INDICATE DESIGN LOADS
- 2.6 EACH SHOP DRAWING SUBMITTED SHALL BEAR THE STAMP AND SIGNATURE OF A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN THE PLACE OF THE WORK.
3. THE SHOP DRAWING ENGINEER WILL UNDERTAKE PERIODIC FIELD REVIEW DURING CONSTRUCTION AND SHALL SUBMIT REPORTS AS DESCRIBED BELOW:
- 3.1 INCLUDE REVIEW OF MILL TESTS REPORTS, WELDED AND SCREWED CONNECTIONS, CONNECTIONS TO THE MAIN STRUCTURE, MEMBER SIZES, LOCATION AND MATERIAL THICKNESS, COATING THICKNESS, ERECTION TOLERANCES, AND ALL FIELD CUTTING

3. QUALIFICATIONS
- 3.1 FABRICATORS DESIGN ENGINEER: A PROFESSIONAL ENGINEER REGISTERED IN THE PLACE OF THE WORK TO DESIGN THE COLD-FORMED METAL FRAMING SYSTEM; TO PREPARE, SEAL AND SIGN SHOP DRAWINGS; AND TO PERFORM FIELD REVIEW, STAMPED SHOP DRAWINGS TO SHOW BOTH DESIGN AND INSTALLATION REQUIREMENTS.
- 3.2 INSTALLERS: COMPANY SPECIALIZING IN INSTALLING COLD-FORMED METAL FRAMING SYSTEMS, WITH MINIMUM OF TEN YEARS EXPERIENCE AND A MEMBER IN GOOD STANDING OF THE CANADIAN SHEET STEEL BUILDINGS INSTITUTE (CSSBI)
- 3.3 WELDERS: COMPANIES CERTIFIED BY THE CANADIAN WELDING BUREAU TO CSA W47.1, AND HAVING WELDERS QUALIFIED FOR THE BASE MATERIAL TYPES AND THICKNESSES THAT ARE TO BE WELDED.
4. DELIVERY STORAGE AND HANDLING
- 4.1 STORE PRODUCTS PROTECTED FROM CONDITIONS THAT MAY CAUSE PHYSICAL DAMAGE OR CORROSION.
- 4.2 HANDLE AND LIFT PREFABRICATED PANELS CAREFULLY TO AVOID PERMANENT DISTORTION TO ANY MEMBER OR COLLATERAL MATERIAL.
5. MANUFACTURES HAVING PRODUCTS CONSIDERED ACCEPTABLE FOR USE:
- 5.1 BAILEY METAL PRODUCTS.
- 5.2 DIETRICH METAL FRAMING.
- 5.3 MITEK CANADA INC.
7. MATERIALS
- 7.1 STEEL: TO CAN/CSA-S136, IDENTIFIED ON SHOP DRAWINGS AS TO SPECIFICATION, GRADE, MECHANICAL PROPERTIES AND COATING TYPE AND THICKNESS.
- 7.2 BOLTS AND NUTS: TO ASTM A307 OR ASTM A325M; HOT-DIPPED GALVANIZED, CW WASHERS.
- 7.3 SCREWS: GALVANIZED STEEL, SELF-TAPPING, TO ASTM C1513
- 7.4 WELDING MATERIALS: TO CSA W59
- 7.5 WELDING ELECTRODES: 480MPa MINIMUM TENSILE STRENGTH SERIES, E.G. E480XX OR ER480X
- 7.6 TOUCH-UP PAINT: ZINC RICH PAINT FOR TOUCHING UP WELDS AND DAMAGED METALLIC COATINGS, TO CAN/CSG8-1.181.
8. MANUFACTURED ITEMS
- 8.1 LOAD-BEARING STEEL STUDS, TRACKS AND BRACING: TO ASTM C965, FINISHES, SIZE AND THICKNESSES AS IDENTIFIED ON ACCEPTED SHOP DRAWINGS
9. FABRICATION
- 9.1 EXCEPT AS NOTED HEREIN, FABRICATE WALL FRAMING COMPONENTS TO CAN/CSG8-7.1 AND IN ACCORDANCE WITH APPROVED SHOP DRAWINGS.
- 9.2 WHERE SPECIFIED, PROVIDE CUT-OUTS CENTRED IN THE WEBS OF MEMBERS TO ACCOMMODATE SERVICES AND THROUGH-THE-KNOCKOUT STYLE BRIDGING. LIMIT THE DISTANCE FROM THE CENTRELINE OF THE LAST UNREINFORCED CUT-OUT TO THE END OF THE MEMBER TO BE NOT LESS THAN 300 mm. THE EFFECT OF CUT-OUTS ON THE STRENGTH AND STIFFNESS OF THE MEMBER SHALL BE CONSIDERED.
- 9.3 LENGTH TOLERANCES OF MEMBERS:
- 9.3.1 TRACKS: NONE
- 9.3.2 AXIAL LOADBEARING STUDS: PLUS OR MINUS 1.5 mm
- 9.3.3 CROSS SECTIONAL GEOMETRY TOLERANCES FOR MEMBERS SHALL CONFORM TO THE FOLLOWING:
- 9.3.3.1 MEMBER DEPTH: MINUS 1 mm, PLUS 2 mm
- 9.3.3.2 FLANGE DEPTH: MINUS 1 mm, PLUS 2 mm; MINIMUM 31 mm WIDTH.
- 9.3.3.3 LIP LENGTH: PLUS 4 mm
- 9.3.3.4 THICKNESS: TO CSA S136
- 9.3.4 CORNER ANGLES: PLUS OR MINUS 3 DEGREES
- 9.3.5 MARK THE STEEL THICKNESS, EXCLUSIVE OR COATING, ON EACH MEMBER BY EMBOSsing, STAMPING WITH INDELIBLE INK OR BY COLOUR CODING.
10. FINISHES
- 10.1 STEEL: GALVANIZED TO ASTM A653/A653M, Z275 COATING DESIGNATION, OR ASTM A792/A792M, AZM150 COATING DESIGNATION.

11. FASTENERS AND WELDS
- 11.1 ENSURE THAT CONNECTED PARTS ARE IN CONTACT, PROVIDE CLAMPING BEFORE WELDING OR INSTALLING SCREWS AS REQUIRED.
- 11.2 WELDS: TO CAN/CSA-S136, CSA W59 AND ANSII/AWS D1.3, AS APPLICABLE.
- 11.3 SHEET METAL SCREWS SHALL BE OF THE MINIMUM DIAMETER INDICATED ON THE SHOP DRAWINGS BUT NOT LESS THAN #8.
- 11.4 PENETRATION OF SHEET METAL SCREWS BEYOND JOINED MATERIALS TO BE NOT LESS THAN 3 EXPRESSED THREADS.
- 11.5 SHEET METAL SCREW THREAD TYPES, DRILLING CAPABILITY AND INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS.
- 11.6 PROVIDE SHEET METAL SCREWS WITH LOW PROFILE HEADS WHERE COVERED BY SHEATHING MATERIALS.
- 11.7 INSTALL CONCRETE ANCHORS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
12. ERECTION
- 12.1 ERECT COLD-FORMED METAL FRAMING TO ASTM C107
- 12.2 ERECT COLD-FORMED METAL FRAMING TRUE AND PLUMB WITHIN THE SPECIFIED TOLERANCES.
- 12.3 EMPLOY TEMPORARY BRACING WHERE NECESSARY TO WITHSTAND ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECT DURING ERECTION AND SUBSEQUENT CONSTRUCTION. LEAVE TEMPORARY BRACING IN PLACE AS LONG AS REQUIRED FOR THE SAFETY AND INTEGRITY OF THE STRUCTURE.
- 12.4 DO NOT ALLOW GAP BETWEEN THE END OF THE STUD AND THE WEB OF THE TRACK TO EXCEED 1.5 mm IN TOP AND BOTTOM TRACKS.
- 12.5 ALIGN ADJACENT OR ABUTTING MEMBERS IN THE SAME PLANE TO WITHIN PLUS OR MINUS 0.5 mm MAXIMUM.
- 12.6 SPACE STUDS WITHIN 3 mm EITHER DIRECTION OF THE DESIGN SPACING. THE CUMULATIVE ERROR IN SPACING SHALL NOT EXCEED THE REQUIREMENTS OF THE FINISHING MATERIALS.
- 12.7 ALIGN WEB CUT-OUTS IN STUDS AND JOISTS AS REQUIRED FOR THE INSTALLATION OF THROUGH-THE-KNOCKOUT STYLE BRIDGING AND SERVICES.
- 12.8 TAKE FIELD MEASUREMENTS NECESSARY TO ENSURE THE PROPER FIT OF MEMBERS.
- 12.9 USE EITHER SAWS OR SHEARS TO CUT MEMBERS. DO NOT TORCH CUT.
- 12.10 REINFORCE CUT-OUTS WHEN THE DISTANCE FROM THE CENTRE LINE OF THE CUT-OUT TO THE END OF THE MEMBER IS LESS THAN 300 mm (12"). SUBMIT REINFORCING DETAIL TO CONSULTANT FOR APPROVAL.
- 12.11 LOCATE JOISTS, TRUSSES, AND THEIR END STIFFENERS, DIRECTLY OVER AXIAL LOAD BEARING MEMBERS. ALTERNATELY, PROVIDE A LOAD DISTRIBUTION MEMBER TO TRANSFER LOADS. DO NOT USE COLD-FORMED METAL TRACK AS A LOAD DISTRIBUTION MEMBER.
- 12.12 REPLACE MEMBERS WITH LOCALIZED DAMAGE.
- 12.13 INSTALL ADDITIONAL STUDS AT ABUTTING WALLS, OPENINGS, TERMINATIONS AGAINST OTHER MATERIALS AND ON EACH SIDE AT CORNERS UNLESS EXPLICITLY DETAILED OTHERWISE ON SHOP DRAWINGS.
- 12.14 DO NOT SPLICE AXIAL LOAD-BEARING MEMBERS.

13. TOLERANCES
- 13.1 FOR THE PURPOSE OF THIS SECTION, CAMBER IS DEFINED AS THE DEVIATION FROM STRAIGHTNESS OF A MEMBER OF ANY PORTION OF A MEMBER WITH RESPECT TO ITS MAJOR AXIS, AND SWEEP IS DEFINED AS THE DEVIATION FROM STRAIGHTNESS OF A MEMBER OR ANY PORTION OF A MEMBER WITH RESPECT TO ITS MINOR AXIS.
- 13.2 PLUMBNESS:
- 13.2.1 AXIAL LOADBEARING MEMBERS: 1/1000TH OF THE MEMBER LENGTH
- 13.3 OUT-OF-STRAIGHTNESS: INCLUDING CAMBER AND SWEEP:
- 13.3.1 AXIAL LOADBEARING MEMBERS: 1/1000TH OF THE MEMBER LENGTH
- 13.3.2 TRACK: CAMBER NOT TO EXCEED 1/1000TH OF THE MEMBER LENGTH

## OPEN WEB STEEL JOISTS

1. DESIGN
- 1.1 BASE DESIGN ON LIMIT STATES DESIGN PRINCIPLES USING FACTORED LOADS AND RESISTANCES. DETERMINE RESISTANCES AND RESISTANCE FACTORS IN ACCORDANCE WITH THE MOST CURRENT ONTARIO BUILDING CODE AND CAN/CSA-S16.
- 1.2 FOR WIND LOAD CALCULATIONS, THE REFERENCE VELOCITY PRESSURE, Q, SHALL BE BASED ON A 1 IN 50 PROBABILITY OF BEING EXCEEDED IN ANY ONE YEAR.
- 1.3 UNLESS OTHERWISE NOTED, MAXIMUM FLEXURAL DEFLECTIONS UNDER SPECIFIED LIVE OR WIND LOADS SHALL CONFORM TO THE FOLLOWING:
- 1.3.1 FLOOR JOIST DEFLECTIONS LIMITED TO L/240
- 1.3.2 FLOOR JOIST DEFLECTIONS LIMITED TO L/360
- 1.4 DESIGN BRIDGING TO PREVENT MEMBER ROTATION AND MEMBER TRANSLATION PERPENDICULAR TO THE MINOR AXIS.
- 1.5 DESIGN ANCHORAGE AND SPLICE DETAILS FOR BRIDGING.
- 1.6 DESIGN JOISTS TO CONSIDER LOAD EFFECTS DUE TO TRANSPORT, HANDLING, FABRICATION, AND ERECTION.
2. SHOP DRAWINGS
- 2.1 INDICATE MATERIAL SPECIFICATIONS, CONFIGURATION, MEMBER SIZES AND DIMENSIONS, SPACING, COATING TYPE, SHOE DEPTH, AND CAMBERS.
- 2.2 INDICATE DIMENSIONS, OPENINGS, REQUIREMENTS FOR RELATED WORK, AND CRITICAL INSTALLATION PROCEDURES. SHOW TEMPORARY BRACING REQUIRED FOR ERECTION PURPOSES.
- 2.3 INDICATE ATTACHMENTS, BRIDGING LOCATIONS AND CONNECTIONS.
- 2.4 INDICATE DESIGN LOADS AND FACTORED MEMBER LOADS.
- 2.5 EACH SHOP DRAWING SUBMITTED SHALL BEAR THE STAMP AND SIGNATURE OF A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN THE PLACE OF THE WORK.
3. QUALIFICATIONS
- 3.1 FABRICATORS DESIGN ENGINEER: A PROFESSIONAL ENGINEER REGISTERED IN THE PLACE OF THE WORK TO DESIGN THE STEEL JOIST SYSTEM AND TO PREPARE, SEAL AND SIGN SHOP DRAWINGS; SHOP DRAWINGS TO SHOW BOTH DESIGN AND INSTALLATION REQUIREMENTS.
- 3.2 INSTALLER: COMPANY SPECIALIZING IN INSTALLING STEEL JOIST SYSTEMS, WITH MINIMUM OF FIVE YEARS DOCUMENTED EXPERIENCE, AND APPROVED BY THE MANUFACTURER.

- 3.3 WELDERS: COMPANIES CERTIFIED BY THE CANADIAN WELDING BUREAU TO CAN/CSA W59, AND HAVING WELDERS QUALIFIED FOR THE BASE MATERIAL TYPES AND THICKNESSES THAT ARE TO BE WELDED.
4. DELIVERY, STORAGE, AND HANDLING
- 4.1 STORE PRODUCTS PROTECTED FROM CONDITIONS THAT MAY CAUSE PHYSICAL DAMAGE OR CORROSION.
- 4.2 HANDLE AND LIFT PREFABRICATED SECTIONS CAREFULLY TO AVOID PERMANENT DISTORTION TO ANY MEMBER OR COLLATERAL MATERIAL.
5. MATERIALS
- 5.1 STEEL: TO CAN/CSA S16 AND CAN/CSA-S136; IDENTIFIED ON SHOP DRAWINGS AS TO SPECIFICATION, GRADE, MECHANICAL PROPERTIES, COATING TYPE, AND THICKNESS.
- 5.2 BOLTS AND NUTS: TO ASTM A307 OR ASTM A325M; HOT-DIPPED GALVANIZED, CW WASHERS.
- 5.3 WELDING MATERIALS: TO CSA W59; TYPE REQUIRED FOR MATERIALS BEING WELDED.
6. FABRICATION
- 6.1 PROVIDE BOTTOM AND TOP CHORD EXTENSIONS AS INDICATED.
- 6.2 FABRICATE TO ACHIEVE END BEARING OF:
- 6.2.1 64 mm (2.5") ON STEEL.
- 6.2.2 100 mm (4") ON MASONRY.
- 6.3 FRAME SPECIAL SIZED OPENINGS IN JOIST WEB FRAMING AS DETAILED.
7. FINISHES
- 7.1 PREPARE JOIST COMPONENT SURFACES IN ACCORDANCE WITH SSPC SP 2.
- 7.2 SHOP PRIME JOISTS. DO NOT PRIME SURFACES THAT WILL BE FIREPROOFED, FIELD WELDED OR IN CONTACT WITH CONCRETE.
8. PREPARATION
- 8.1 VERIFY THAT SITE CONDITIONS ARE READY TO RECEIVE WORK AND FIELD MEASUREMENTS ARE AS INDICATED ON SHOP DRAWINGS.
- 8.2 VERIFY SUPPORTING STRUCTURE IS READY TO RECEIVE WORK.
- 8.3 PREPARE SUPPORT DEVICES FOR THE ERECTION PROCEDURE AND TEMPORARY BRACING.
9. ERECTION
- 9.1 ERECT JOIST MEMBERS TO CSA-S16
- 9.2 ERECT JOIST FRAMING TRUE AND PLUMB WITHIN THE SPECIFIED TOLERANCES.
- 9.3 ALLOW FOR ERECTION LOADS. PROVIDE TEMPORARY BRACING TO MAINTAIN FRAMING SAFE, PLUMB, AND IN TRUE ALIGNMENT.
- 9.4 COORDINATE PLACEMENT OF ANCHORS IN MASONRY AND CONCRETE CONSTRUCTION FOR SECURING BEARING PLATES AND ANGLES
- 9.5 AFTER JOIST ALIGNMENT AND INSTALLATION OF FRAMING, FIELD WELD JOIST SEAT TO BEARING PLATES OR ANGLES, WELD IN ACCORDANCE WITH CAN-CSA W59.
- 9.6 FRAME ROOF AND FLOOR OPENINGS GREATER THAN 450 mm (18") WITH SUPPLEMENTARY FRAMING AS DETAILED ON DRAWINGS.
- 9.7 DO NOT PERMIT ERECTION OF DECKING UNTIL JOISTS ARE BRACED AND SECURED, OR UNTIL INSTALLATION OF PERMANENT BRACING AND BRACING IS COMPLETE.
- 9.8 DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT APPROVAL OF JOIST MANUFACTURER.
- 9.9 AFTER ERECTION, PRIME WELDS, ABRASIONS, AND SURFACES NOT SHOP PRIMED, EXCEPT SURFACES TO BE IN CONTACT WITH CONCRETE.
- 9.10 REPLACE DAMAGED MEMBERS TO SATISFACTION OF THE JOIST DESIGN ENGINEER.

10. TOLERANCES
- 10.1 MAXIMUM OFFSET FROM TRUE ALIGNMENT: 6 mm (1/4").

## METAL FLOOR AND ROOF DECKING

1. DESIGN
- 1.1 BASE DESIGN ON LIMIT STATES DESIGN PRINCIPLES USING FACTORED LOADS AND RESISTANCES. DETERMINE REISTANCES AND RESISTANCE FACTORS IN ACCORDANCE WITH THE MOST CURRENT ONTARIO BUILDING CODE, COBI 12M, AND CAN/CSA-S136.
- 1.2 FOR WIND LOAD CALCULATIONS, THE REFERENCE VELOCITY PRESSURE, Q, SHALL BE BASED ON A 1 IN 50 PROBABILITY OF BEING EXCEEDED IN ANY ONE YEAR.
- 1.3 MAXIMUM FLEXURAL DEFLECTIONS UNDER SPECIFIED LIVE OR WIND LOADS SHALL CONFORM TO THE FOLLOWING:
- 1.3.1 STEEL FLOOR DECK VERTICAL DEFLECTIONS LIMITED TO L/360
- 1.3.2 STEEL ROOF DECK VERTICAL DEFLECTIONS LIMITED TO L/240
- 1.3.3 LATERAL DEFLECTION OF DIAPHRAGM SHALL NOT EXCEED, 1/400 OF BUILDING HEIGHT OR 1/500 OF STOREY HEIGHT
2. SHOP DRAWINGS
- 2.1 PROVIDE DECK PROFILE, CHARACTERISTICS, DIMENSIONS, STRUCTURAL PROPERTIES, AND FINISHES.
- 2.2 INDICATE DECK PLAN, SUPPORT LOCATIONS, PROJECTIONS, OPENINGS, REINFORCEMENT, PERTINENT DETAILS, AND ACCESSORIES.
- 2.3 INDICATE DESIGN LOADS.
- 2.4 EACH SHOP DRAWING SUBMITTED SHALL BEAR THE STAMP AND SIGNATURE OF A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN THE PLACE OF THE WORK.
3. QUALIFICATIONS
- 3.1 FABRICATOR'S DESIGN ENGINEER: A PROFESSIONAL ENGINEER REGISTERED IN THE PLACE OF THE WORK TO DESIGN THE STEEL DECK SYSTEM AND TO PREPARE, SEAL AND SIGN SHOP DRAWINGS; AND TO PERFORM FIELD REVIEW, SHOP DRAWINGS TO SHOW BOTH DESIGN AND INSTALLATION REQUIREMENTS.
- 3.2 INSTALLER: COMPANY SPECIALIZING IN INSTALLING METAL DECK SYSTEMS, WITH MINIMUM OF THREE YEARS DOCUMENTED EXPERIENCE, AND APPROVED BY THE MANUFACTURER.
- 3.3 WELDERS: COMPANIES CERTIFIED BY THE CANADIAN WELDING BUREAU TO CSA W59, AND HAVING WELDERS QUALIFIED FOR THE BASE MATERIAL TYPES AND THICKNESSES THAT ARE TO BE WELDED.
4. DELIVERY, STORAGE, AND HANDLING
- 4.1 STORE PRODUCTS PROTECTED FROM CONDITIONS THAT MAY CAUSE PHYSICAL DAMAGE OR CORROSION.
- 4.2 CUT PLASTIC WRAP TO ENCOURAGE VENTILATION.
- 4.3 STORE DECK ON DRY WOOD SLEEPERS, SLOPE FOR POSITIVE DRAINAGE.
- 4.4 HANDLE AND LIFT PREFABRICATED PANELS CAREFULLY TO AVOID PERMANENT DISTORTION OR COLLATERAL MATERIAL.
5. MATERIALS
- 5.1 SHEET STEEL: TO ASTM A653/A653M, STRUCTURAL QUALITY, IDENTIFIED ON SHOP DRAWINGS AS TO SPECIFICATION, GRADE, MECHANICAL PROPERTIES, COATING TYPE, AND THICKNESS.
- 5.2 BEARING ANGLES OR PLATES: ASTM A36/A36M STEEL, UNFINISHED.
- 5.3 SCREWS: SELF-TAPPING, TO ASTM C1513, SUITABLE FOR INTENDED EXPOSURE AND OF A MATERIAL FINISH TO PREVENT GALVANIC CORROSION WITH BASE MATERIALS.
- 5.4 WELDING MATERIALS: TO CSA W59, TYPE REQUIRED FOR MATERIALS BEING WELDED.
- 5.5 FLUTE CLOSURES: CLOSED CELL, PROFILED TO FIT TIGHT TO THE DECK.
6. FABRICATION
- 6.1 METAL DECK: CSSBI 10M, SHEET STEEL, CONFIGURED AS FOLLOWS:
- 6.1.1 SPAN DESIGN: TRIPLE, UNLESS NOTED OTHERWISE.
- 6.1.2 MINIMUM METAL THICKNESS EXCLUDING FINISH: 0.8MM/22 GAUGE.
- 6.1.3 NOMINAL HEIGHT: 38 mm (1.5") OR 75 mm (3") AS INDICATED ON DRAWINGS, FLUTED PROFILE.
- 6.1.4 FORMED SHEET WIDTH: 900 mm (36"), UNLESS NOTED OTHERWISE.
- 6.1.5 SLOPE: JOINTS: LAPPED, UNLESS NOTED OTHERWISE.
- 6.2 RELATED DECK ACCESSORIES: METAL CLOSURE STRIPS, WET CONCRETE STOPS, COVER PLATES, MINIMUM 0.8MM/22 GAUGE THICK. CANT STRIPS: FORMED SHEET STEEL, MINIMUM 0.8MM/22 GAUGE, 45 DEGREE SLOPE, 3.5" (89mm) NOMINAL WIDTH AND HEIGHT, FLANGE FOR ATTACHMENT.
- 6.4 WELDERS: MILD STEEL, UNCOATED, 19 mm (3/4") OUTSIDE DIAMETER, 3 mm (1/8") THICK.
7. INSTALLATION
- 7.1 ERECT METAL DECK TO MANUFACTURERS WRITTEN INSTRUCTIONS, CSSBI 10M, AND SDI MANUAL.
- 7.2 BEAR DECK ON MASONRY OR CONCRETE SUPPORT SURFACES WITH MINIMUM 100 mm (4") BEARING. ALIGN AND LEVEL.
- 7.3 BEAR DECK ON STEEL SUPPORTS WITH 19 mm (3/4") MINIMUM BEARING.
- 7.4 FASTEN DECK TO STEEL SUPPORT MEMBERS AT ENDS AND INTERMEDIATE SUPPORTS IN ACCORDANCE WITH DECK ATTACHMENT DETAILS PROVIDED ON DRAWINGS, UNLESS NOTED OTHERWISE. SPOT WELD DECK AT 300 mm (12") ON CENTRE MAX. PARALLEL WITH DECK FLUTES, AND AT EVERY OTHER TRANSVERSE FLUTE. WELD TO CSA-W59. MECHANICALLY CLINCH MALE/FEMALE SIDE LAPS AT 600 mm (24") ON CENTRE MAXIMUM.
- 7.5 REINFORCE STEEL DECK OPENINGS FROM 150 mm (6") TO 450 mm (18") IN SIZE WITH 50X50X6 mm (2X2X1/4") STEEL. ANGLES: PLACE FRAMING ANGLES PERPENDICULAR TO FLUTES; EXTEND MINIMUM TWO FLUTES BEYOND EACH SIDE OF OPENING AND WELD TO DECK AT EACH FLUTE.
- 7.7 INSTALL 150MM MINIMUM WIDE SHEET STEEL COVER PLATES, OF SAME THICKNESS AS DECK, WHERE DECK CHANGES DIRECTION. WELD AT 300 mm (12") ON CENTRE MAXIMUM.
- 7.8 INSTALL SHEET STEEL CLOSURE AND ANGLE FLASHINGS TO CLOSE OPENINGS BETWEEN DECK AND WALLS, COLUMNS, AND OPENINGS.
- 7.9 PLACE METAL CANT STRIPS IN POSITION AND ATTACH.
- 7.10 IMMEDIATELY AFTER WELDING DECK AND OTHER METAL COMPONENTS IN POSITION, COAT WELDS, BURNED AREAS, AND DAMAGED SURFACE COATING, WITH TOUCH-UP PRIME PAINT.

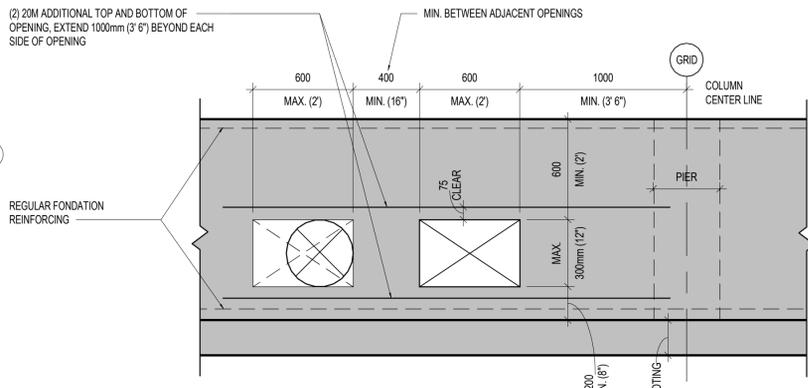
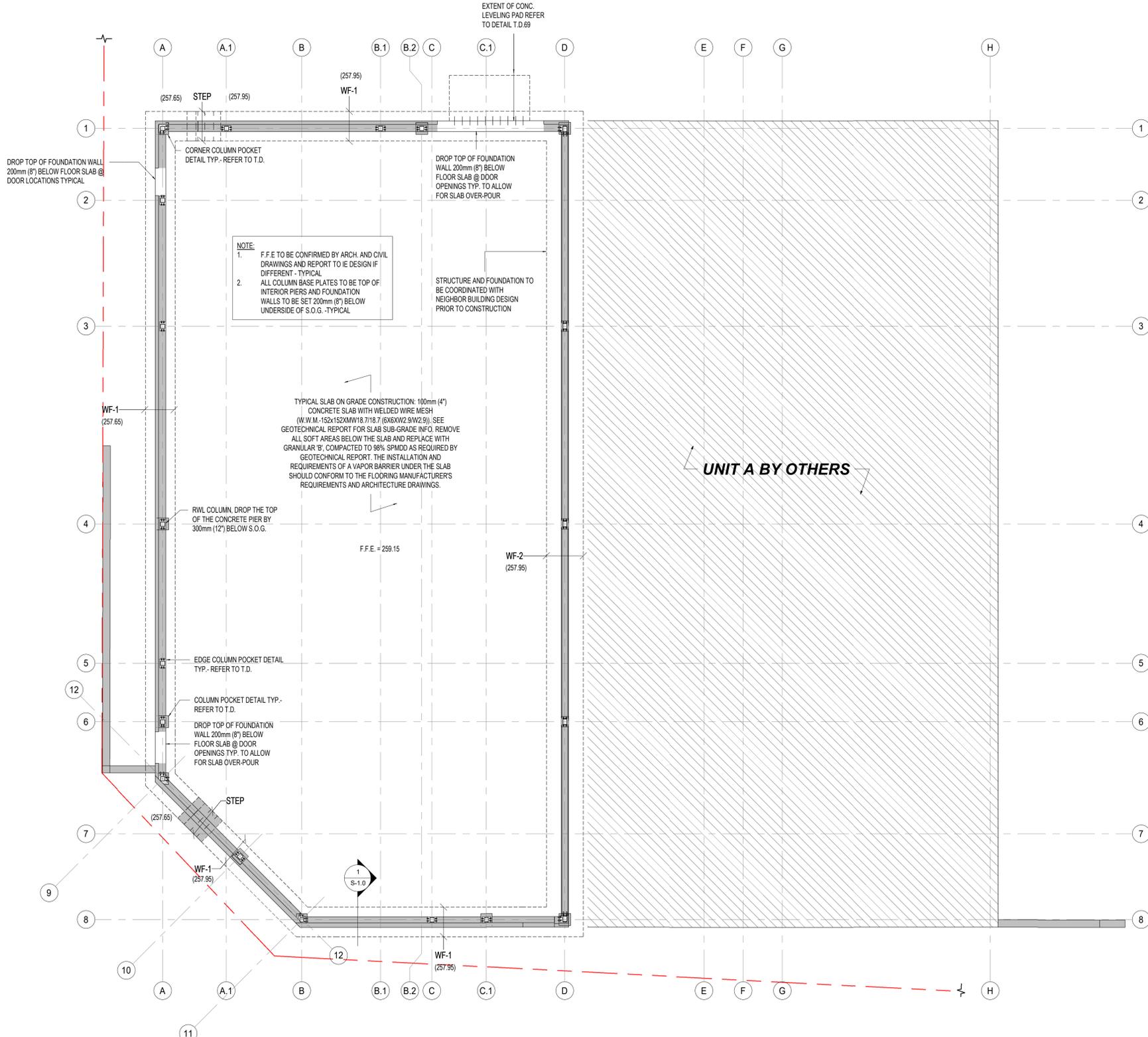
FOUNDATION SCHEDULE					
MARK	WALL WIDTH / PIER SIZE	WALL / PIER REINFORCING	STRIP / PAD FOOTING SIZE	FOOTING REINFORCING	DETAIL
WF-1	WALL SIZE 360mm (1'-2") - SEE PLAN AND ARCH. DRAWINGS PIER SIZE 400mm x 400mm (16"x16")	WALL REINF. (2) 20M CONT. TOP AND BOTTOM E.W. ENSURE FULL SPLICE AS PER REBAR DEVELOPMENT SCHEDULE. PIER REINF. (4) 15 VERT. + 10M TIES @ 200mm (8" O.C.)	1000mm x 300mm DP (3'-3" x 1' DP)	15M @ 300mm O.C. BOTTOM E.W. HOOKED	ENSURE FULL SPLICE AS PER REBAR DEVELOPMENT SCHEDULE
WF-2	WALL SIZE 250mm (10") - SEE PLAN AND ARCH. DRAWINGS PIER SIZE 400mm x 400mm (16"x16")	WALL REINF. (2) 20M CONT. TOP AND BOTTOM E.W. ENSURE FULL SPLICE AS PER REBAR DEVELOPMENT SCHEDULE. PIER REINF. (4) 15 VERT. + 10M TIES @ 200mm (8" O.C.)	1250mm x 350mm DP (4'-1" x 1'-1" DP)	15M @ 250mm O.C. BOTTOM E.W.	ENSURE FULL SPLICE AS PER REBAR DEVELOPMENT SCHEDULE

**NOTES:**

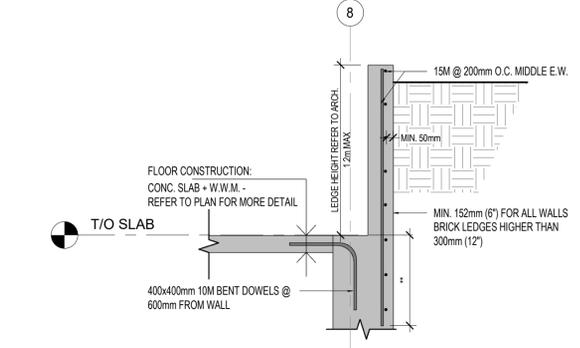
- PROVIDE 75mm (3") CLEAR COVER FOR REINFORCEMENT IN FOOTINGS AND PILES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH. REFER TO GENERAL NOTES FOR CONCRETE AND REINFORCING SPECIFICATIONS, TYPICAL.
- ALL FOOTINGS TO HAVE MIN. 1200mm (4'-0") FROST PROTECTION. G.C. TO CONFIRM THE UNDERSIDE OF FOUNDATIONS BASED ON THE LATEST GEOTECHNICAL REPORT RECOMMENDATIONS.
- PROVIDE DOWELS FROM FOOTINGS INTO CONCRETE WALLS/COLUMNS ABOVE. MATCH VERTICAL WALL/COLUMN REINFORCING BAR SIZE AND SPACING/NUMBER. DOWELS SHALL HAVE STANDARD 90° HOOKS, BE TIED TO THE BOTTOM MAT IN FOOTING, AND HAVE BAR EXTENSIONS ABOVE FOOTINGS FOR A TYPICAL LAP SPLICE.
- PROVIDE DOWELS FROM FOUNDATION WALLS INTO STRIP FOOTINGS. MATCH VERT. WALL REINFORCING BAR SIZE AND SPACING. EXTEND INTO MIDDLE OF UNREINFORCED FOOTING OR TO THE BOTTOM MAT OF REINFORCED FOOTING. HOOK REINFORCEMENT IN ACCORDANCE WITH THE REBAR LAP/HOOK SCHEDULE. WHERE WALL ABOVE HAS NO REINFORCEMENT, PROVIDE 15M DOWELS FROM FOUNDATION WALL INTO STRIP FOOTING. 75mm (3") LONG W/ 200mm (8") HOOK @ 600mm (24") O.C. MAX. ENSURE 152mm (6") EMBEDMENT MIN. TYPICAL.
- INSTALL (2)10M TIES IN THE TOP 100mm (4") OF ALL PIERS. AROUND ALL DOOR OPENINGS INSTALL (2)10M DIAGONAL CORNER BARS (1 E.F.) 800mm (32") LONG, TYPICAL.
- REFER TO PLAN AND SCHEDULES FOR CONCRETE COLUMN REINFORCING INFORMATION. REINFORCING SPECIFIED IS TO EXTEND BELOW T/O SLAB TO TOP OF PAD FOOTING, TYPICAL.
- REFER TO PLAN AND SCHEDULES FOR CONCRETE WALL REINFORCING INFORMATION. REINFORCING SPECIFIED IS TO EXTEND BELOW TO SLAB TO TOP OF STRIPPAD FOOTINGS, TYPICAL.

**FOUNDATION NOTES**

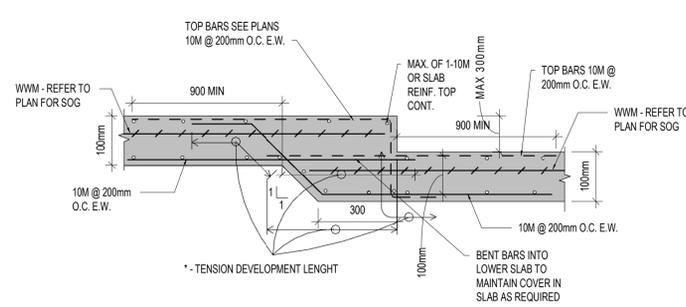
- ALL FOOTINGS ARE TO BE FOUNDED AT AN ELEVATION OF MIN. 1200mm (4') BELOW FINISHED EXTERIOR GRADE AND BELOW FINISHED MAIN FLOOR ELEVATION. AS PER CIVIL DRAWINGS STAMPED AND DATED FEBRUARY 27, 2023, THE F.F.E. IS 259.15 REFER TO PLAN. THE RECOMMENDED LEVEL OF THE UNDERSIDE OF FOUNDATIONS ARE SHOWN ON PLAN ( ).
- G.C. TO CONFIRM THE UNDERSIDE OF FOUNDATIONS BASED ON THE LATEST GEOTECHNICAL REPORT RECOMMENDATIONS AND REPORT TO IE DESIGN IF ANY DO NOT MEET THE MINIMUM FROST DEPTH RECOMMENDED BY GEOTECHNICAL ENGINEER.
- GEOTECHNICAL INVESTIGATION REPORT #2382 BY GSPRIMO DESIGN INC. DATE JANUARY 12, 2024. INDICATE SPREAD FOOTING: ULTIMATE LIMIT STATE 349kPa (7205 psf) FOR A SERVICEABILITY LIMIT STATES (SLS) GEOTECHNICAL BEARING RESISTANCE OF 190kPa (3968 psf). FOR STRIP FOOTINGS ARE CONSIDERING A ULTIMATE LIMIT STATES (ULS) GEOTECHNICAL BEARING RESISTANCE OF 260kPa (5430 psf). FOR A SERVICEABILITY LIMIT STATES (SLS) GEOTECHNICAL BEARING RESISTANCE OF 148kPa (3028 psf) - GEOTECHNICAL ENGINEER TO CONFIRM PRIOR CONSTRUCTION.
- FOUNDATION LEVELS ARE ON NATIVE SOIL AND AS PROVIDED BY THE GEOTECHNICAL REPORT. VERIFICATION OF SOIL CONDITIONS AND THE REQUIREMENT FOR CONCRETE REINFORCING STEEL PLACEMENT ARE BY GEOTECHNICAL ENGINEER AT THE TIME OF EXCAVATION. REMOVE ALL SOFT AREAS BELOW THE FOOTINGS AND REPLACE WITH CONCRETE GROUT SOLID (MIN. FC=20 MPa) BUT NOT LESS THE COMPRESSIVE STRENGTH OF FOOTINGS AND TO BE REVIEWED AND CONFIRMED BY GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION.
- ALL GROUND OR GRADE OR PARKING LEVEL CONCRETE WALLS, COLUMNS, AND PIERS EXTEND DOWN TO FOOTINGS.
- TYPICAL SLAB ON GRADE CONSTRUCTION: 100mm (4") CONCRETE SLAB WITH WELDED WIRE MESH (W.W.M.-152x152XMM18.7/18.7 (6X6XW2.9/W2.9)). SEE GEOTECHNICAL REPORT FOR SLAB SUB-GRADE INFO. REMOVE ALL SOFT AREAS BELOW THE SLAB AND REPLACE WITH GRANULAR B, COMPACTED TO 98% SPMD AS REQUIRED BY GEOTECHNICAL REPORT. THE INSTALLATION AND REQUIREMENTS OF A VAPOR BARRIER UNDER THE SLAB SHOULD CONFORM TO THE FLOORING MANUFACTURER'S REQUIREMENTS AND ARCHITECTURE DRAWINGS.
- PROVIDE CONCRETE CONTROL JOINTS IN CONCRETE SLAB AT 4.5mX4.5m (14' 5"X14' 5") INTERVALS OR BETTER OR AS SHOWN IN TYPICAL DETAILS. COORDINATE WITH THE TILE INSTALLER IF APPLICABLE. SEE TYPICAL DETAILS FOR DEPTH AND CONSTRUCTION PRACTICE.
- ALL DIMENSIONS AND LEVELS ARE APPROXIMATE AND SHOULD BE CONFIRMED BY OWNER AND ARCHITECT. REFER TO ARCHITECTURAL DRAWINGS FOR DEPRESSIONS AND FLOORING AND SLOPES TO DRAIN - MAINTAIN STRUCTURAL THICKNESS. SLOPE PARKING FLOOR AND SLAB AS REQUIRED BY ARCHITECTURAL DRAWINGS FOR DRAINAGE - MAINTAIN STRUCTURAL THICKNESS.
- CONSTRUCTION SEQUENCE ARE TO BE DISCUSSED WITH IE DESIGN DURING THE DESIGN STAGE WITH TYPICAL SIMILAR HEIGHTS STRUCTURES BUILT AT SAME TIME. ANY CHANGES TO CONSTRUCTION SEQUENCE DURING CONSTRUCTION ARE TO BE DISCUSSED AND APPROVED BY IE DESIGN.
- IN THE EVENT THE SITE SERVICES ENTER THE BUILDING BELOW THE FOOTING DEPTHS SHOWN ON THE DRAWING, THE CONTRACTOR MUST STEP THE WALL AND FOOTING (IN 600mm (2") HIGH INCREMENTS AS PER TYPICAL DETAILS) TO ENSURE THE SERVICES ENTER THROUGH THE FOUNDATION WALL. CONCRETE CONTRACTOR AND G.C. TO COORDINATE WITH ALL TRADES THE LOCATION OF ALL PIPES SLEEVES THROUGH CONCRETE FOUNDATION WALLS. PIPE SLEEVES MAY NOT BE PLACED WITHIN FOOTINGS. REPORT ANY DISCREPANCIES TO THE STRUCTURAL CONSULTANT BEFORE PROCEEDING WITH CONSTRUCTION.
- SEE ARCHITECTURAL DRAWINGS FOR SLOPES TO DRAINS IN FLOOR AREAS. MAINTAIN ALL STRUCTURAL THICKNESS SHOWN.
- CENTER ALL CONCRETE PIERS UNDER STEEL COLUMN BASE PLATES U.N.O. SEE ARCHITECTURAL DRAWINGS FOR COLUMN OFFSETS FROM GRID LINES.
- ELEVATION OF THE UNDERGROUND WATER TABLE IS AS PER GEOTECHNICAL REPORT. BUILDING FOUNDATIONS AND SLAB-ON-GRADE HAVE NOT BEEN DESIGNED FOR HYDROSTATIC PRESSURE AND UPLIFT FORCES.
- FOUNDATIONS AND FOOTINGS HAVE NOT BEEN DESIGNED BY CRANE LOADING - CONTACT IE DESIGN IF CRANE LOADING IS TO BE INCORPORATED. LOCATION OF CRANE TO BE DETERMINED BY G.C./ARCHITECT/OWNER.
- DO NOT PLACE BACKFILL AGAINST WALLS RETAINING EARTH UNTIL FLOORS AT TOP AND BOTTOM OF WALLS ARE PLACED AND HAVE ATTAINED SPECIFIED DESIGN STRENGTH CRITERIA U.N.O. FILL REQUIRED ON SIDES OF FOUNDATION WALL SHALL BE PLACED AND COMPACTED SIMULTANEOUSLY ON BOTH SIDES TO EQUALIZE SOIL PRESSURE.
- REFER TO GEOTECHNICAL REPORT FOR RECOMMENDED FOUNDATION FROST PROTECTION, FOUNDATION FROST DEPTH, AND BACKFILL - WHERE FOUNDATION NEED TO BE RAISED OR WHERE FOUNDATIONS FOR HEATED BUILDING DO NOT HAVE THE MINIMUM REQUIRED FROST DEPTH OF SOIL COVER FROST PROTECTION. FOOTINGS SHOULD BE PROTECTED FROM FROST WITH A COMBINATION OF SOIL COVER AND RIGID POLYSTYRENE INSULATION, SUCH AS DOW STRIP/FOAM OR APPROVED EQUIVALENT PRODUCT - TO BE REVIEWED AND APPROVED BY GEOTECHNICAL AND STRUCTURAL ENGINEER PRIOR TENDER AND CONSTRUCTION.



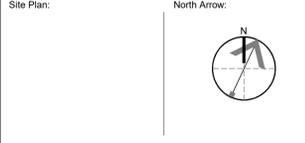
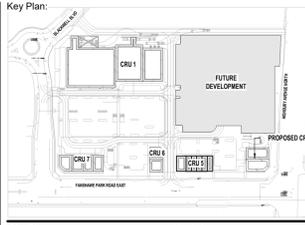
**FOUNDATION WALL OPENING - TYPICAL**  
SCALE: NTS



**TYP. LEDGE SECTION**  
1 : 20



**FOLDED SLAB ON GRADE - MAX. 300mm**  
SCALE: NTS



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Seal: Seal:

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THESE DRAWINGS AND ALL DETAILS ARE FOR THIS PROJECT ONLY AND SHOULD NOT BE USED FOR ANY OTHER WORK.  
IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ALL ERRORS AND OMISSIONS TO INTELLIGENT ENGINEERING DESIGN LTD. PRIOR TO COMMENCING WORK. ALL DIMENSIONS AND LEVELS ARE APPROXIMATE AND SHOULD BE CONFIRMED BY OWNER AND GENERAL CONTRACTOR AND ARCHITECT PRIOR CONSTRUCTION.  
ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT BUILDING CODE REGULATIONS AND BYLAWS HAVING JURISDICTION.  
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNTIL IT HAS BEEN STAMPED BY INTELLIGENT ENGINEERING DESIGN LTD. AND A BUILDING PERMIT HAS BEEN ISSUED AND MARKED 'ISSUED FOR CONSTRUCTION'. THE DRAWINGS SHALL NOT BE USED FOR PRICING, COSTING, OR TENDER UNLESS INDICATED IN THE REVISION COLUMN AND THESE DRAWINGS ARE NOT COMPLETE AND ANY PRICES BASED ON THESE DRAWINGS MUST INCLUDE ALLOWANCES FOR THIS WITH NO LIABILITY ON INTELLIGENT ENGINEERING DESIGN LTD.  
CONSTRUCTION TO BE ACCORDING TO BEST COMMON PRACTICE.  
DO NOT SCALE DRAWINGS. WHEN REQUIRED REQUEST WRITTEN VERIFICATION OF DIMENSIONS FROM INTELLIGENT ENGINEERING DESIGN LTD. - USE LATEST REVISED DRAWINGS.  
CONTRACTOR IS FULLY RESPONSIBLE FOR MATTERS AFFECTING CONSTRUCTION.  
ANY MATERIAL ALTERATIONS CARRIED OUT DURING CONSTRUCTION BY THE CONTRACTOR OR ASSOCIATED SUB-CONTRACTOR SHALL BE CONFIRMED WITH THE ENGINEER PRIOR TO INSTALL. FAILURE TO DO SO RESULTS IN FULL CONTRACTOR RESPONSIBILITY FOR SYSTEMS AFFECTED.

ISSUES/REVISION TABLE		
1	APR 03, 2024	ISSUED FOR TENDER
No.	Date	Revision

Project:

**WESTDELL**  
DEVELOPMENT CORP

**1300 FANSHAWE PARK RD. EAST. - CRU #3**

1300 FANSHAWE PARK RD. EAST. LONDON, ON

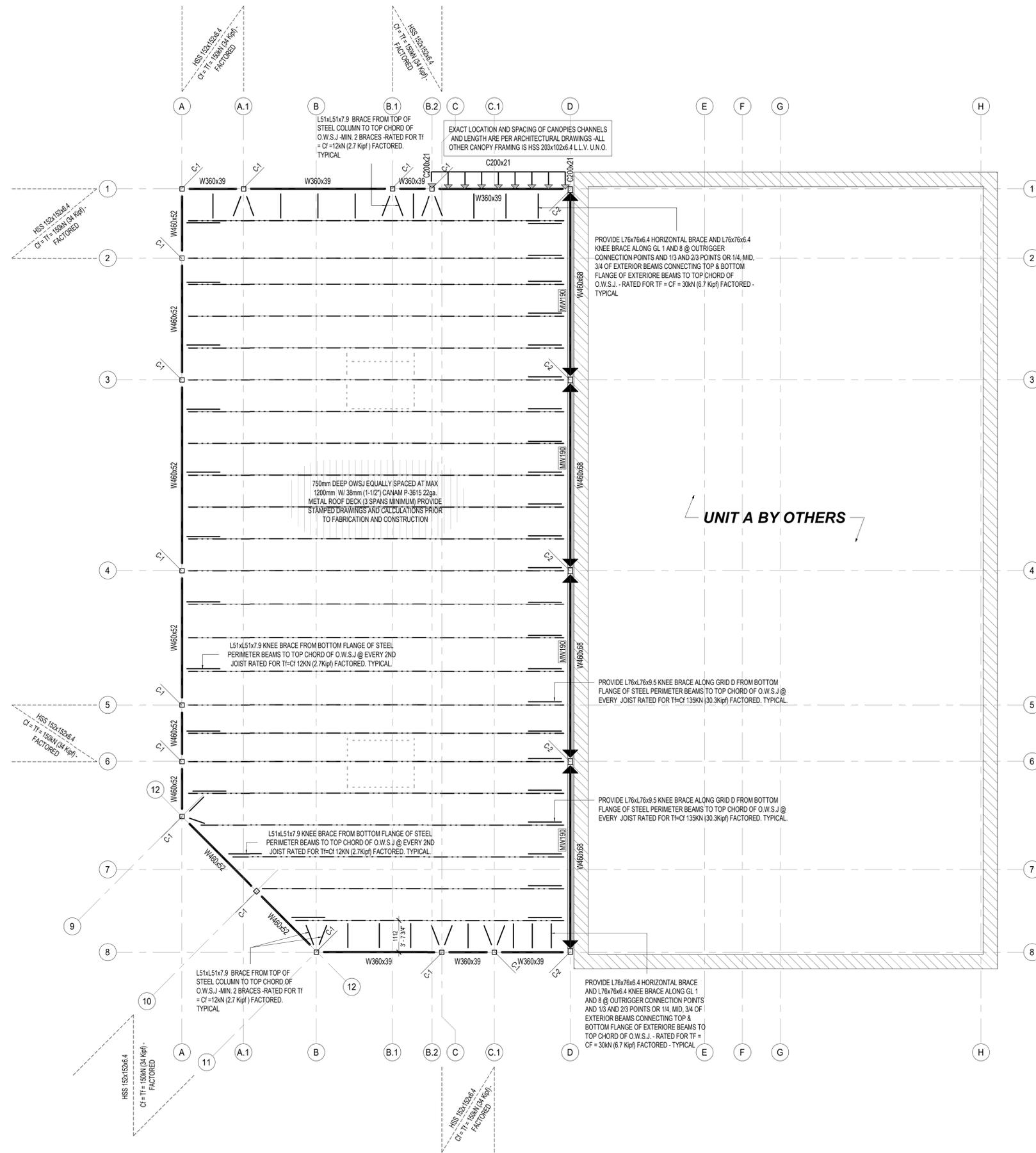
Drawing Title:

**FOUNDATION PLAN**

Drawn By:	D.K.	Scale:	AS INDICATED
Checked By:	M.A.H., J.G.	Plot Date:	APR. 03-2024
Project Date:	NOV. 2023		
Project No:	2023-102		
Drawn No:		Revision	

**S-1.0** **1**

**FOUNDATION PLAN**  
SCALE: 1 : 75



**ROOF FRAMING PLAN**

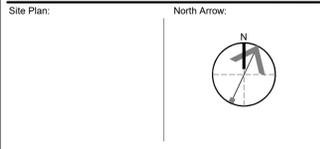
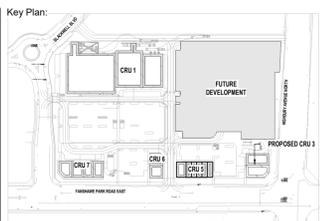
SCALE: 1 : 75

**KEYNOTE LEGEND**

- M.C. ◀ = MOMENT CONNECT  
460kN.m (339 kip-ft) FACTORED U.N.O.
- M.C. ◀◀ = MOMENT CONNECT  
25kN.m (18.5 kip-ft) FACTORED U.N.O.  
TORSION MOMENT  
10kN.m (7.5 kip-ft) FACTORED U.N.O.

**NOTES:**

1. DETAILS, CONNECTIONS, AND DETAILED SHAPES PROVIDED ARE SCHEMATIC ONLY. DESIGN OF ALL CONNECTIONS AND DETAILS ARE BY OTHERS - PROVIDE STAMPED SHOP DRAWINGS PRIOR TENDERING, FABRICATION, AND CONSTRUCTION.
2. U.N.O. ALL MEMBERS SHALL BE ALIGNED IN THE SAME VERTICAL PLANE (NO OFFSETS).
3. ALL STEEL STUD ELEMENTS (INCLUDING, BUT NOT LIMITED TO) WALLS, PARAPETS, CANOPIES, EXTERIORS, AND OTHERS ARE DESIGNED BY OTHERS - PROVIDE STAMPED SHOP DRAWINGS PRIOR TENDERING, FABRICATION, AND CONSTRUCTION.
4. ALL WOOD ELEMENTS (INCLUDING, BUT NOT LIMITED TO) WALLS, PARAPETS, CANOPIES, EXTERIORS, AND OTHERS ARE DESIGNED BY OTHERS - PROVIDE STAMPED SHOP DRAWINGS PRIOR TENDERING, FABRICATION, AND CONSTRUCTION.
5. ALL CANOPIES ARE NOT TO BE CONNECTED TO THE STRUCTURE OR ATTACHED TO ANY STRUCTURAL MEMBERS PRIOR INSTALLING THE ROOF/FLOOR DIAPHRAGM AND FULLY CONNECT TO ROOF/FLOOR JOISTS, BEAMS, AND COLUMNS



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Seal: \_\_\_\_\_ Seal: \_\_\_\_\_

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CONSTRUCTION TO BE ACCORDING TO BEST COMMON PRACTICE.  
DO NOT SCALE DRAWINGS. WHEN REQUIRED REQUEST WRITTEN VERIFICATION OF DIMENSIONS FROM INTELLIGENT ENGINEERING DESIGN LTD. - USE LATEST REVISED DRAWINGS.  
CONTRACTOR IS FULLY RESPONSIBLE FOR MATTERS AFFECTING CONSTRUCTION.  
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No.	Date	Revision
1	APR 03, 2024	ISSUED FOR TENDER

**ISSUES/REVISION TABLE**

Project:

**WESTOELL**  
DEVELOPMENT CORP

**1300 FANSHAWE PARK RD. EAST. - CRU #3**

1300 FANSHAWE PARK RD. EAST. LONDON, ON

Drawing Title:

**ROOF FRAMING PLAN**

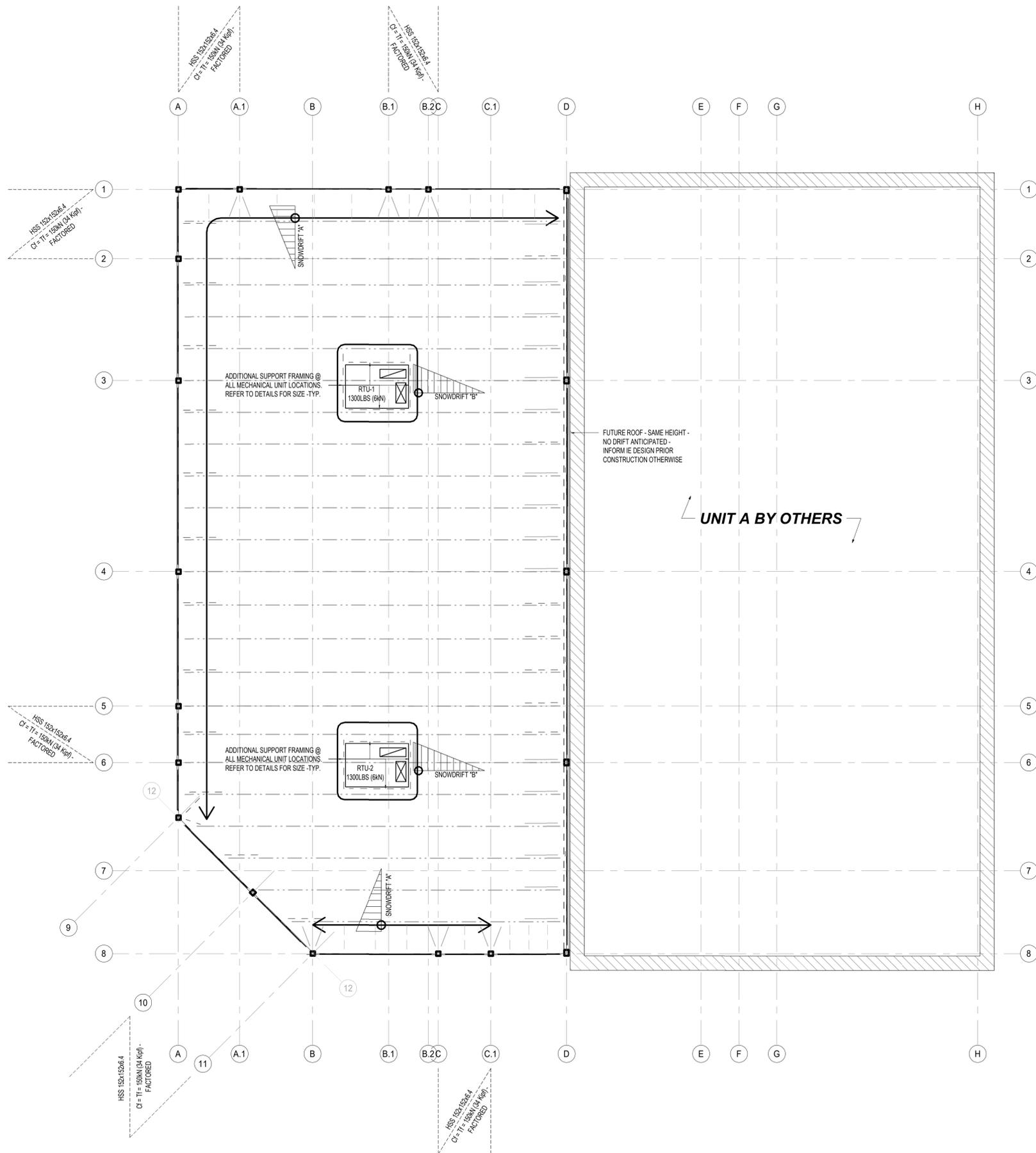
Drawn By: **D.K.** Scale: **AS INDICATED**

Checked By: **M.A.H., J.G.** Plot Date: **APR. 03-2024**

Project Date: **NOV. 2023**

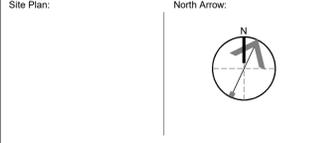
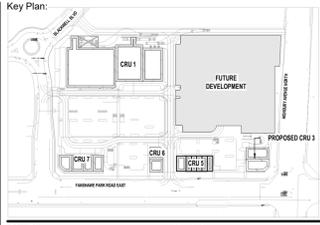
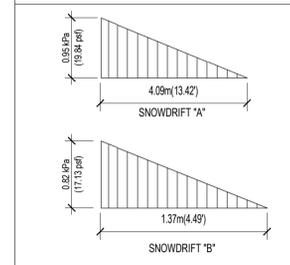
Project No: **2023-102**

Drawing No: **S-1.1** Revision: **1**



**SNOWDRIFT AND MECHANICAL PLAN**  
SCALE: 1 : 75

**SNOWDRIFT DIAGRAM**



Consultant:

**IE DESIGN**  
Intelligent Engineering Design Ltd.  
STRUCTURAL ENGINEERS  
iedesign@ie-design.ca www.ie-design.ca

Seal: \_\_\_\_\_ Seal: \_\_\_\_\_

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No.	Date	Revision
1	APR 03, 2024	ISSUED FOR TENDER

Project:

**WESTDELL**  
DEVELOPMENT CORP

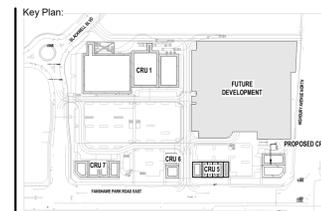
1300 FANSHAWE PARK RD. EAST. - CRU #3  
1300 FANSHAWE PARK RD. EAST. LONDON, ON

Drawing Title:

**SNOW DRIFT AND MECHANICAL PLAN**

Drawn By: D.K. Scale: AS INDICATED  
Checked By: M.A.H., J.G. Plot Date: APR. 03-2024  
Project Date: NOV. 2023  
Project No: 2023-102

Drawing No: **S-1.2** Revision: **1**



Site Plan: North Arrow:

Consultant:

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No.	Date	Revision
1	APR 03, 2024	ISSUED FOR TENDER

**ISSUES/REVISION TABLE**

Project:

**WESTDELL**  
DEVELOPMENT CORP

**1300 FANSHAWE PARK RD. EAST. - CRU #3**

1300 FANSHAWE PARK RD. EAST. LONDON, ON

Drawing Title:

**ELEVATIONS I**

Drawn By: D.K. Scale: AS INDICATED

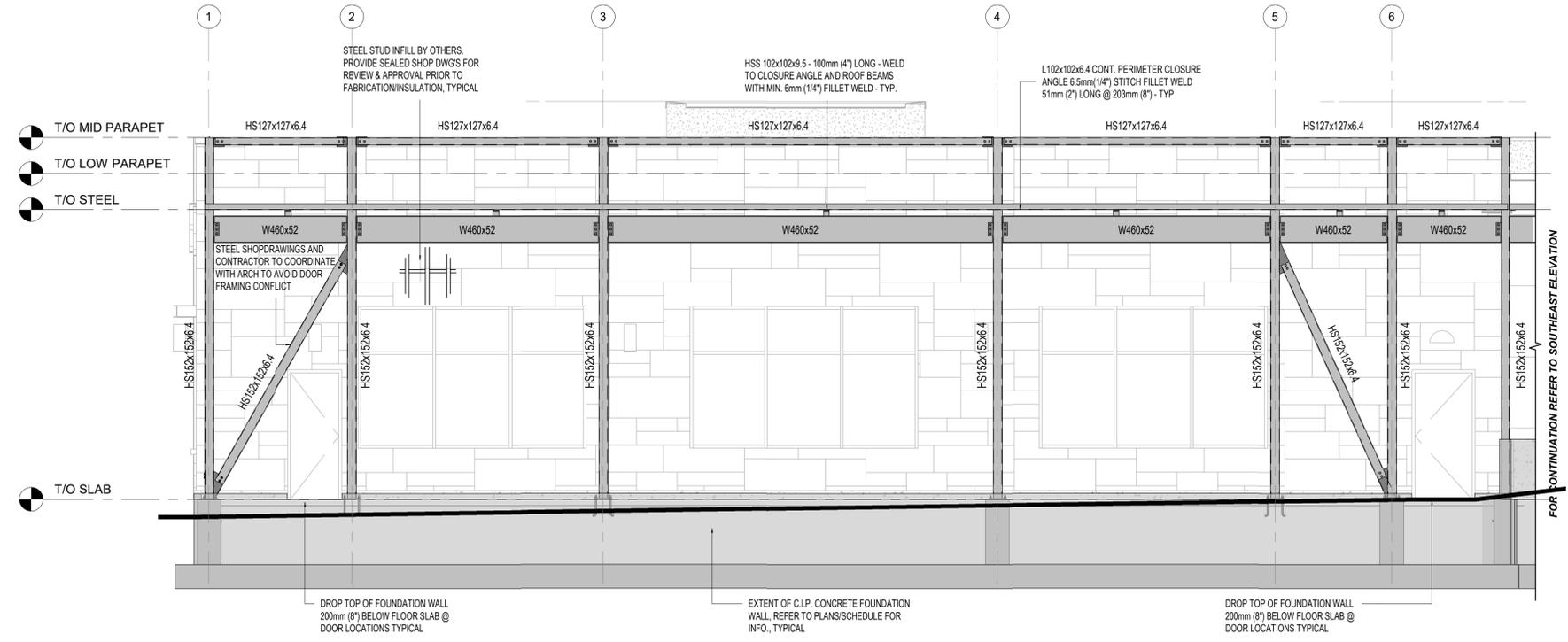
Checked By: M.A.H., J.G. Plot Date: APR. 03-2024

Project Date: NOV. 2023

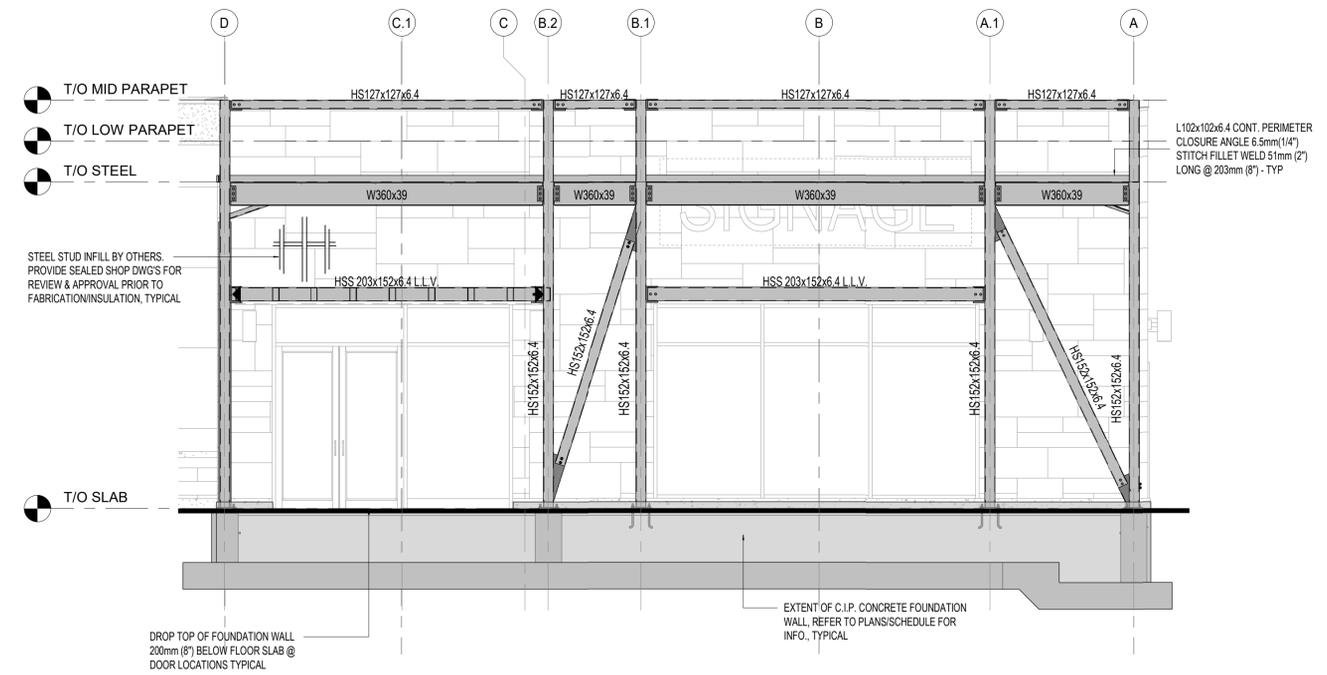
Project No: 2023-102

Drawn No: Revision

**S-2.0 1**



**SOUTH ELEVATION**  
SCALE: 1 : 50

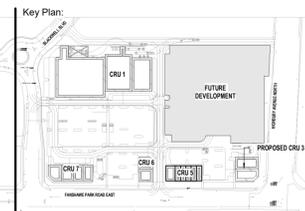


**WEST ELEVATION**  
SCALE: 1 : 50

**KEYNOTE LEGEND**

M.C. ◀ MOMENT FACTORED U.N.O.  
25 kN.m (18.5kip-ft)  
TORSION MOMENT  
15 kN.m (11 kip-ft) FACTORED U.N.O.

- NOTES:**
- DETAILS, CONNECTIONS, AND DETAILED SHAPES PROVIDED ARE SCHEMATIC ONLY. DESIGN OF ALL CONNECTIONS AND DETAILS ARE BY OTHERS - PROVIDE STAMPED SHOP DRAWINGS PRIOR TENDERING, FABRICATION, AND CONSTRUCTION. U.N.O., ALL MEMBERS SHALL BE ALIGNED IN THE SAME VERTICAL PLANE (NO OFFSETS).
  - ALL STEEL STUD ELEMENTS (INCLUDING, BUT NOT LIMITED TO) WALLS, PARAPETS, CANOPIES, EXTERIORS, AND OTHERS ARE DESIGNED BY OTHERS - PROVIDE STAMPED SHOP DRAWINGS PRIOR TENDERING, FABRICATION, AND CONSTRUCTION.
  - ALL WOOD ELEMENTS (INCLUDING, BUT NOT LIMITED TO) WALLS, PARAPETS, CANOPIES, EXTERIORS, AND OTHERS ARE DESIGNED BY OTHERS - PROVIDE STAMPED SHOP DRAWINGS PRIOR TENDERING, FABRICATION, AND CONSTRUCTION.
  - ALL CANOPIES ARE NOT TO BE CONNECTED TO THE STRUCTURE OR ATTACHED TO ANY STRUCTURAL MEMBERS PRIOR INSTALLING THE ROOF/FLOOR DIAPHRAGM AND FULLY CONNECT TO ROOF/FLOOR JOISTS, BEAMS, AND COLUMNS



Site Plan: North Arrow:

Consultant:

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No.	Date	Revision
1	APR 03, 2024	ISSUED FOR TENDER

**ISSUES/REVISION TABLE**

Project:

**WESTDELL**  
DEVELOPMENT CORP

**1300 FANSHAWE PARK RD. EAST. - CRU #3**

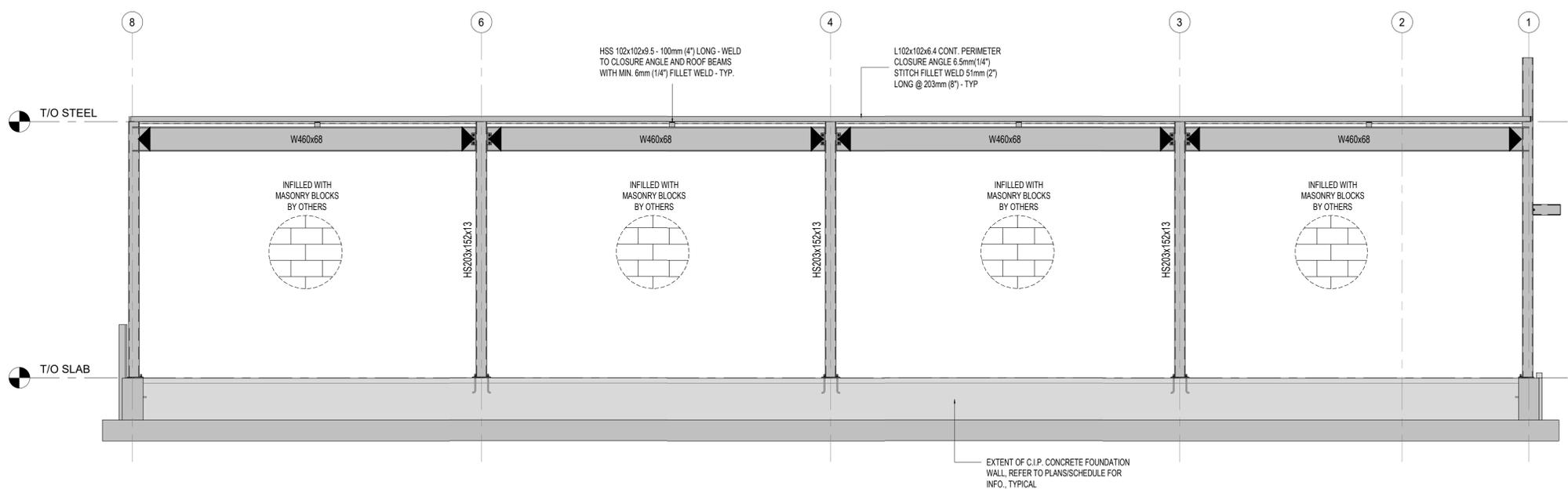
1300 FANSHAWE PARK RD. EAST. LONDON, ON

Drawing Title:

**ELEVATIONS II**

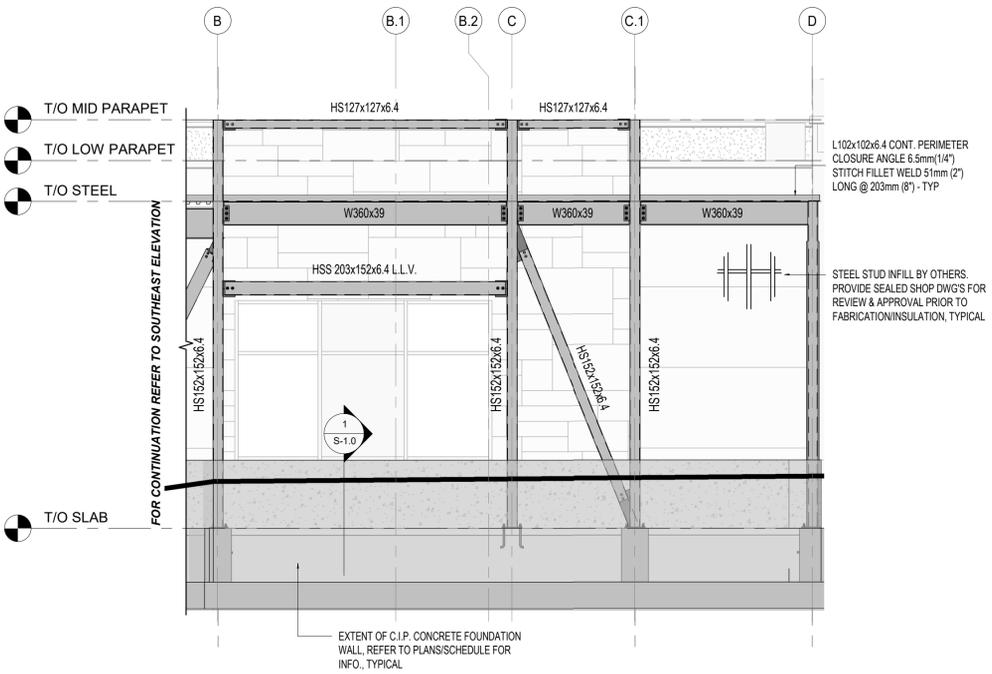
Drawn By: D.K. Scale: AS INDICATED  
Checked By: M.A.H., J.G. Plot Date: APR. 03-2024  
Project Date: NOV. 2023  
Project No: 2023-102  
Drawing No: Revision

**S-2.1 1**



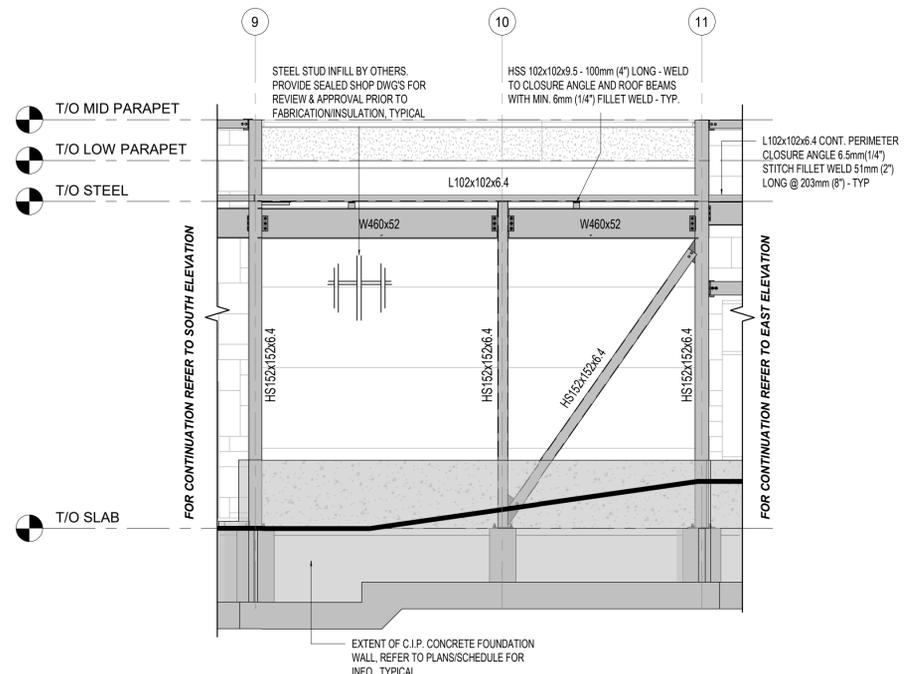
**DEMISING WALL ELEVATION**

SCALE: 1 : 50



**EAST ELEVATION**

SCALE: 1 : 50



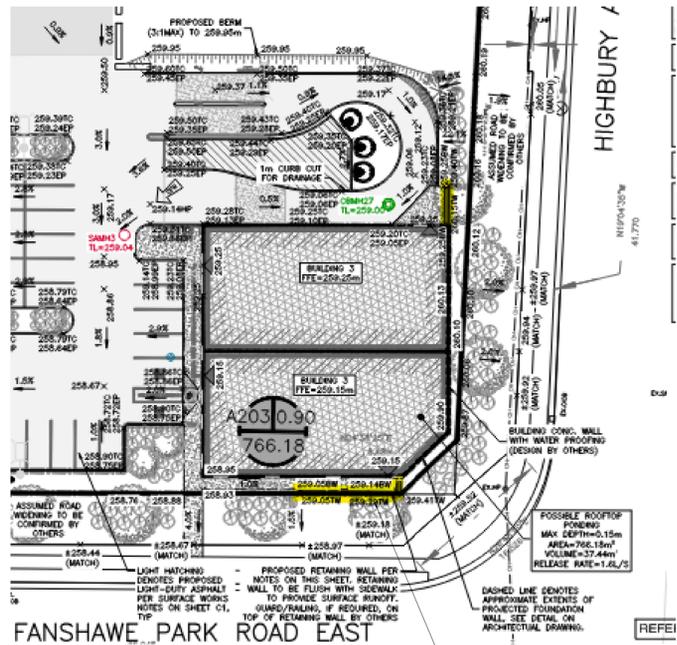
**SOUTHEAST ELEVATION**

SCALE: 1 : 50

**KEYNOTE LEGEND**

M.C. ◀ MOMENT CONNECT 460 kN.m (339 kip-ft) FACTORED U.N.O.

- NOTES:**
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**SITE PLAN - APPROXIMATE WALL LOCATION**

NOTE: SNAP SHOT IS FROM CIVIL DRAWINGS BY SBM AND STAMPED ON FEB. 27, 2024 REFER TO CIVIL DRAWINGS FOR RETAINING WALL INFORMATION THAT USED IN CURRENT STR DRAWINGS

**GENERAL NOTES:**

- EXCAVATE FOR FOOTING TO MINIMUM DEPTH OF 400 mm (16 in.) OR UNTIL COMPETENT SOIL IS REACHED OR FILL WITH COMPACTED STRUCTURAL FILL (BY OTHERS). THE FOUNDING SOIL MUST BE INSPECTED BY THE GEOTECHNICAL ENGINEER TO CONFIRM ADEQUATE BEARING CAPACITY AND SLOPE STABILITY. WHERE REQUIRED BY GEOTECHNICAL ENGINEER, PLACE ENGINEERED FILL COMPRISING OF APPROVED GRANULAR MATERIAL PLACED IN 200 mm (8") LIFTS AND COMPACTED TO 98% S.P.M.D. BACKFILLING AND COMPACTION TO BE CARRIED OUT UNDER GEOTECHNICAL SUPERVISION. IE DESIGN IS NOT RESPONSIBLE FOR RETAINING GEOTECHNICAL ENGINEER TO OVERSEE CONSTRUCTION OF RETAINING WALL.
- EXCAVATION TO ALLOW FOR THE THICKNESS OF THE WALL PLUS A SUFFICIENT DISTANCE TO ALLOW FOR COMPACTED GRANULAR BACKFILL BEHIND THE WALL. EXCAVATE ON A SUITABLE BACK ANGLE DEEP ENOUGH TO REACH ORIGINAL COMPETENT SOIL.
- LEVEL THE FIRST COURSE AND PLACE TOP FLUSH WITH THE DESIRED FINISHED GRADE IN FRONT OF THE WALL. SLOPES AT TOE OF WALL MAY REQUIRE MORE UNITS TO BE BURIED AS SHOWN ON DRAWINGS IF REQUIRED.
- WALL APPEARANCE AND COLOR TO BE DETERMINED BY OWNER.
- BACKFILL THE WALL AS PER GEOTECHNICAL REPORT AND ENGINEERING DRAWINGS AND ADDITIONAL SPECIFICATIONS AND RECOMMENDATIONS OF SUPPLIER. IT IS THE FULL RESPONSIBILITY OF CONTRACTOR TO FOLLOW ALL.
- ADJACENT ROLL WIDTHS SHALL BE BUTT TIGHT TOGETHER.
- ALL CONSTRUCTION OPERATIONS INCLUDING GEOGRID PLACEMENT, BACKFILLING AND COMPACTION TO BE COMPLETED UNDER GEOTECHNICAL ENGINEER SUPERVISION.
- TO ACHIEVE A 0° BATTER, DO NOT STEP BACK.
- THE TOP MUST BE LANDSCAPED TO PROMOTE SURFACE RUNOFF. NO UNUSUAL SURCHARGE LOADING SHOULD BE ADJACENT TO THE TOP OF THE WALL.
- APPROPRIATE RESTRAINT MUST BE PROVIDED TO ENSURE PEDESTRIANS CANNOT ACCESS THE TOP OF THE WALL, OTHERWISE AN ENGINEERED HANDRAIL SYSTEM WILL BE REQUIRED ON THE TOP OF THE WALL.
- FOR OTHER WALL HEIGHTS, SOIL PARAMETERS, AND SURCHARGE LOADING NOT REPRESENTED ON THIS DRAWING, RETAINED SOIL: ANGLE OF FRICTION = 27 DEGREES, UNIT WEIGHT = 18 kN/m<sup>3</sup> (115 pcf)
- RETAINING WALL IS TO BE BUILT WITH PRECAST BLOCKS AND TO BE INSTALLED ACCORDING TO MANUFACTURER INSTRUCTIONS.
- PRECAST BLOCKS TO HAVE THE FOLLOWING DIMENSIONS: 2' x 2' x 4' OR EQUIVALENT DESIGNED BY PROFESSIONAL ENGINEER
- STRATAGRID TO CONFORM WITH THE REQUIREMENTS OF ASTM D 6637 METHOD A SINGLE-RIB, AND ASTM D 5852 D6692.
- STRATAGRID DESIGN LENGTH IS AS SHOWN ON RETAINING WALL SECTION
- CONTINUOUS STRIPS OF STRATAGRID ARE TO BE PLACED ON TOP OF CONCRETE GROVE AND EXTEND FULL LENGTH BACK INTO REINFORCED SOIL ZONE AND TIED FOR FULL NODE TO ANCHORS.
- CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ALL RETAINING WALLS FOR REVIEW AND APPROVAL BY OWNER AND ENGINEER IF DIFFERENT FROM STAMPED DRAWINGS.

**NOTES**

- BACKFILL TO BE FREE DRAINING, WITH A 3/4" MAX. DIMENSION
- OVERALL DEEP-SEATED STABILITY TO BE CHECKED BY GEOTECHNICAL ENGINEER AND PROVIDE CONFIRMATION PRIOR TO TENDER AND CONSTRUCTION
- CONTINUOUS FIELD REVIEW TO CHECK AND VERIFY SUBGRADE SOILS. VERIFY COMPACTION OF THE BACKFILL ZONE, SOIL BEARING AND INSTALLATION OF GEOGRID TIE-BACKS BY GEOTECHNICAL ENGINEER IS A MUST AND REPORTS TO BE SUBMITTED TO IE DESIGN AS SOON AS AVAILABLE
- ALL QUANTITIES ESTIMATION AND TENDER QUANTITIES ETC. ARE BY CONTRACTOR AND SITE CONDITIONS MIGHT VARY FROM DRAWINGS
- REFER TO GEOTECHNICAL REPORT AND GEOTECHNICAL ENGINEER FOR FLOODING MEASURES AND PROTECTION AND FOR DRAINAGE SWALES AND PRESENTATION OF STORM WATER RUN-OFF OVER TOPPING WALLS AND OTHER REQUIREMENTS

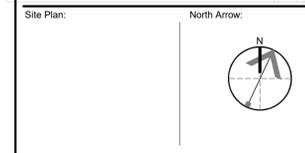
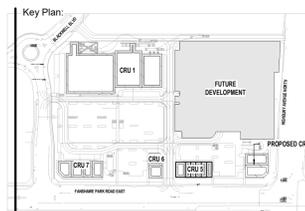
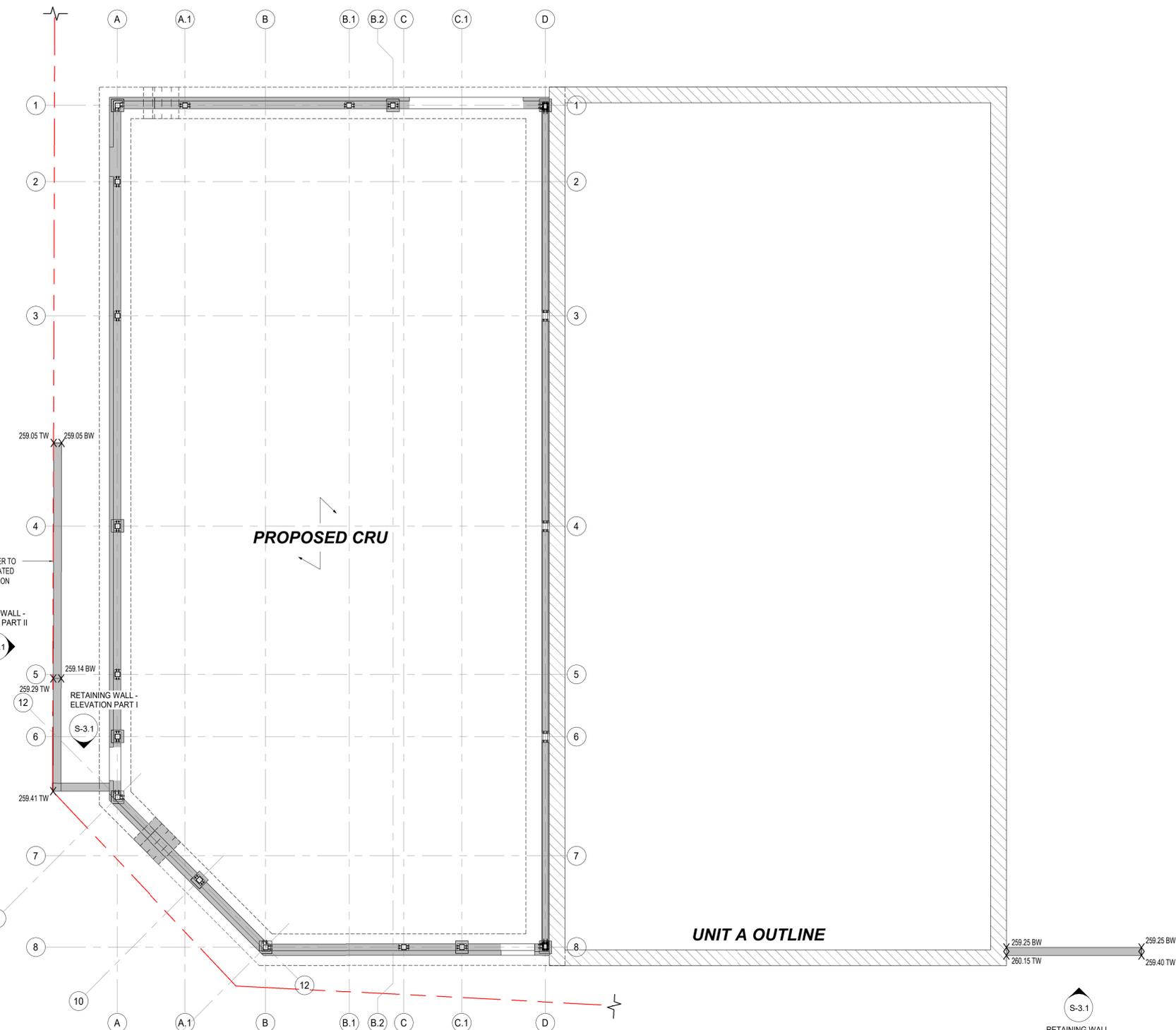
RETAINING WALL LOCATION REFER TO CIVIL PLAN DRAWINGS BY SBM DATED FEB. 27, 2024. FOR WALL EXTENSION AND TW AND BW LEVELS

RETAINING WALL - ELEVATION PART II

RETAINING WALL - ELEVATION PART I

**RETAINING WALL - FLOOR PLAN**

SCALE: 1 : 75



Consultant:

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Seal: \_\_\_\_\_ Seal: \_\_\_\_\_

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No.	Date	Revision
1	APR 03, 2024	ISSUED FOR TENDER

**ISSUES/REVISION TABLE**

Project:

**WESTDELL**  
DEVELOPMENT CORP

**1300 FANSHAWE PARK RD. EAST. - CRU #3**

1300 FANSHAWE PARK RD. EAST. LONDON, ON

Drawing Title:

**RETAINING WALL I**

Drawn By: D.K. Scale: AS INDICATED

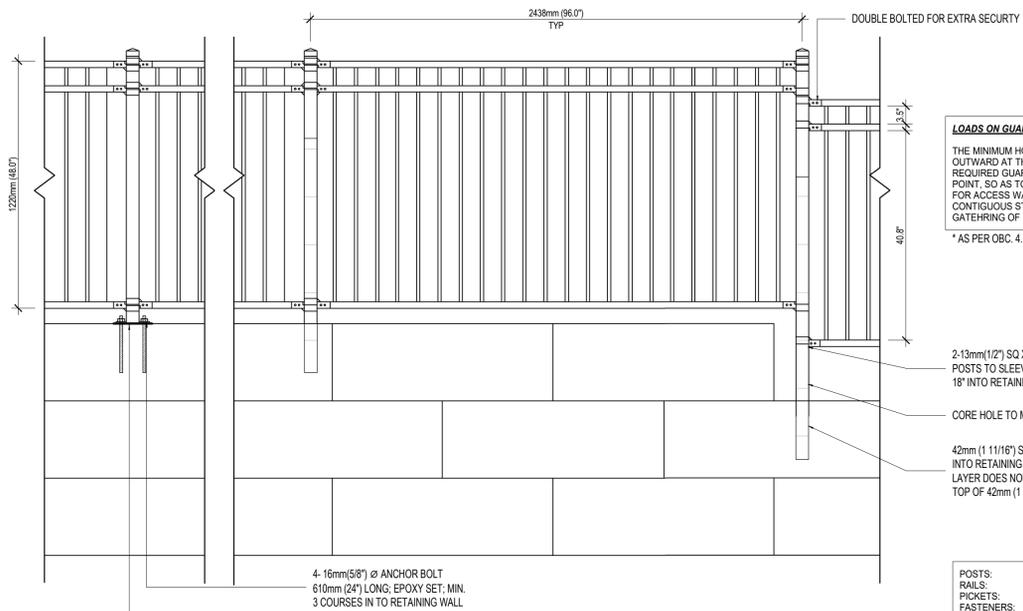
Checked By: M.A.H., J.G. Plot Date: APR. 03-2024

Project Date: NOV. 2023

Project No: 2023-102

Drawing No: \_\_\_\_\_ Revision

**S-3.0 1**



**LOADS ON GUARDS AND HANDRAILS**

THE MINIMUM HORIZONTAL SPECIFIED LIVE LOAD APPLIED OUTWARD AT THE MINIMUM REQUIRED HEIGHT OF EVERY REQUIRED GUARD SHALL BE 1.0 kN APPLIED AT ANY POINT, SO AS TO PRODUCE THE MOST CRITICAL EFFECT, FOR ACCESS WAYS TO EQUIPMENT PLATFORMS, CONTIGUOUS STAIRS AND SIMILAR AREAS WHERE THE GATHERING OF MANY PEOPLE IS IMPROBABLE.

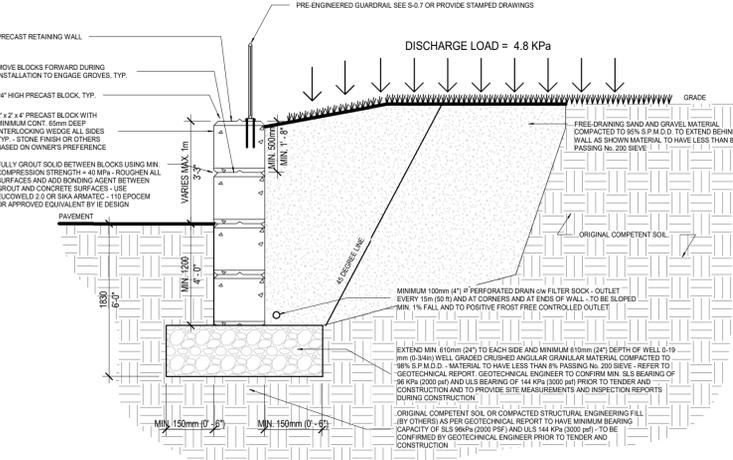
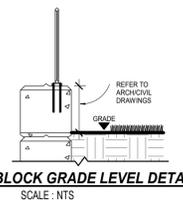
\* AS PER OBC, 4.1.5.14. LOADS ON GUARDS AND HANDRAILS

- NOTES**
- BACKFILL TO BE FREE DRAINING, WITH A 1/2" MAX. DIMENSION OVERALL DEEP-SEATED STABILITY TO BE CHECKED BY GEOTECHNICAL ENGINEER AND PROVIDE CONFIRMATION PRIOR TO TENDER AND CONSTRUCTION
  - CONTINUOUS FIELD REVIEW TO CHECK AND VERIFY SUBGRADE SOILS. VERIFY COMPACTION OF THE BACKFILL ZONE, SOIL BEARING AND INSTALLATION OF GEOGRID TIE-BACKS BY GEOTECHNICAL ENGINEER IS A MUST AND REPORTS TO BE SUBMITTED TO IE DESIGN AS SOON AS AVAILABLE.
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- NOTE:**  
EXTRA CARE MUST BE TAKEN WHEN CONSTRUCTING VERTICAL WALLS. PLEASE CONTACT SUPPLIER FOR INFORMATION ON PROPER CONSTRUCTION TECHNIQUES.
- NOTE:**  
4.1.5.15. LOADS ON VEHICLE GUARDRAILS  
(1) VEHICLE GUARDRAILS SHALL BE DESIGNED FOR A CONCENTRATED LOAD OF 22 kN APPLIED HORIZONTALLY OUTWARD AT ANY POINT 500 MM ABOVE THE FLOOR SURFACE

OVERALL SLOPE STABILITY AND DEEP-SEATED STABILITY TO BE CONFIRMED BY GEOTECHNICAL ENGINEER FOR OVERALL FAILURE PRIOR TO TENDER AND CONSTRUCTION

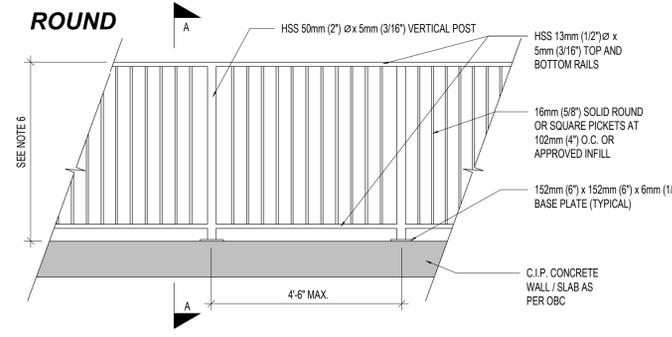
**BACKFILL PROPERTIES - COMPACTED GRANULAR OPS5 1010**

PARAMETER	VALUE
K	0.42
γ <sub>SOIL</sub>	21 kN/m <sup>3</sup>
φ	34 DEG

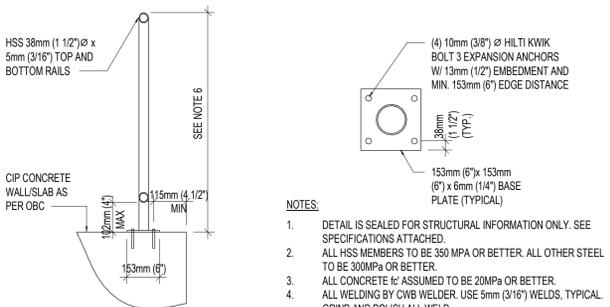


- POSTS:** 64mm (2 1/2") SQ X 14 GA TUBES  
**RAILS:** 32mm (1 1/4") SQ X 14 GA TUBES  
**PICKETS:** 16mm (5/8") SQ X 16 GA TUBES  
**FASTENERS:** 8mm (5/16") X 2" CARRIAGE BOLTS & NUTS

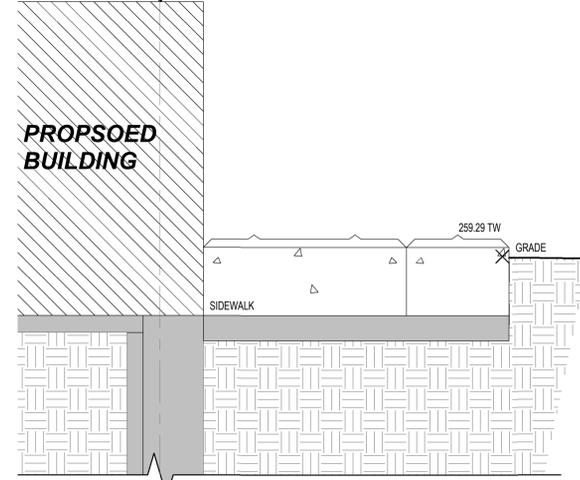
- WITH A COATING DESIGNATION ZM 275 BEING A MINIMUM PROTECTIVE COATING WEIGHT OF 275g/m<sup>2</sup> BOTH INTERIOR AND EXTERIOR TOP COAT CONSISTING OF A CHROMIUM-FREE PHOSPHATE CONVERSION COATING
- COATING CONFORMING TO ASTM A 1046 FOR HOT DIP COATINGS COMPRISING OF ZINC, ALUMINUM AND MAGNESIUM
- ERW TUBE CONFORMING TO ASTM 4787 TYPE 6
- YIELD STRENGTH 400 MPa AND TENSILE STRENGTH 400 MPa
- WELD SEAMS MILL RE-METALIZED



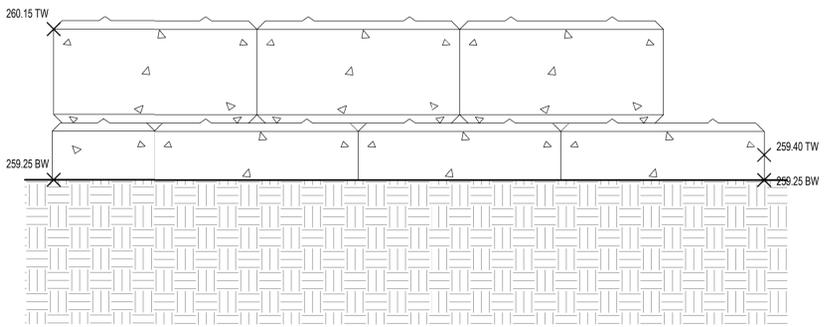
**TYPICAL GUARD RAIL ELEVATION**



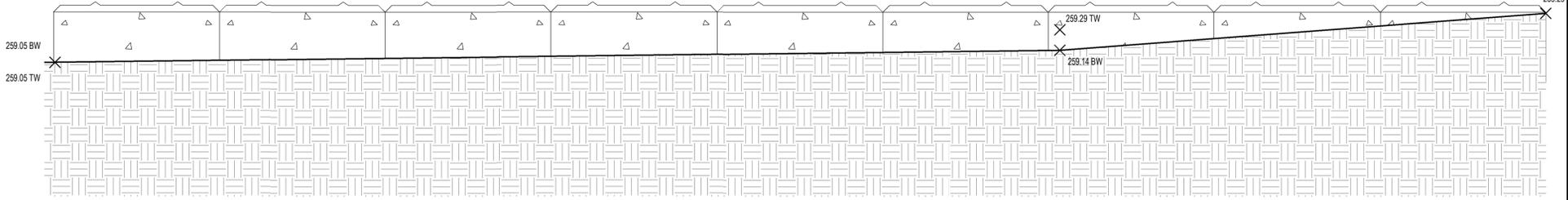
- NOTES:**
- DETAIL IS SEALED FOR STRUCTURAL INFORMATION ONLY. SEE SPECIFICATIONS ATTACHED.
  - ALL HSS MEMBERS TO BE 350 MPa OR BETTER. ALL OTHER STEEL TO BE 300MPa OR BETTER.
  - ALL CONCRETE f' ASSUMED TO BE 20MPa OR BETTER.
  - ALL WELDING BY CWB WELDER. USE 5mm (3/16") WELDS, TYPICAL GRIND AND POLISH ALL WELD.
  - PAIN RAILING WITH ZINC RICH PAINT OR HOT DIP GALVANIZE.
  - GUARD HEIGHT TO BE 915mm (36") WHEN LESS THAN 1778mm (5'-10") ABOVE FINISHED GRADE, 1067mm (42") WHEN GREATER THAN 1778mm (5'-10") ABOVE FINISHED GRADE.
  - GUARD DESIGNED FOR RESIDENTIAL USE ONLY.



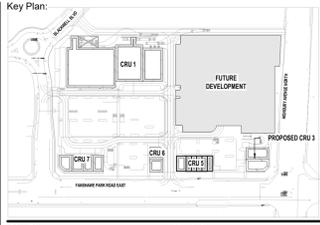
**RETAINING WALL - ELEVATION PART 1**  
SCALE: 1:20



**RETAINING WALL - ELEVATION PART 3**  
SCALE: 1:20



**RETAINING WALL - ELEVATION PART 2**  
SCALE: 1:20



Site Plan: North Arrow:

Consultant:

**IE DESIGN**  
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Seal: Seal:

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No.	Date	Revision
1	APR 03, 2024	ISSUED FOR TENDER

**ISSUES/REVISION TABLE**

Project:

**WESTDELL**  
DEVELOPMENT CORP

1300 FANSHAWE PARK RD. EAST. - CRU #3

1300 FANSHAWE PARK RD. EAST. LONDON, ON

Drawing Title:

**RETAINING WALL II**

Drawn By: D.K. Scale: AS INDICATED

Checked By: M.A.H., J.G. Plot Date: APR. 03-2024

Project Date: NOV. 2023

Project No: 2023-102

Drawing No: Revision

**S-3.1** **1**

**LOADING INFORMATION**

**ROOF LOADING:**

**LIVE LOAD:** SNOW 1.92 kPa(40psf) (BASIC) + DRIFT  
 WATER RETENTION 1.00 kPa (21 psf 100mm OF WATER)  
 (WATER RETENTION NOT TO ACT SIMULTANEOUSLY WITH SNOW AS PER O.B.C. 4.1.6.4(3))

ROOF LIVE LOAD 1.0 kPa (21 psf) + MECHANICAL UNITS

**DEAD LOAD:** SELF-WEIGHT VARIES kPa  
 METAL DECK 0.15 kPa (3 psf)  
 STEEL BEAMS (ROOF) 0.35 kPa (7 psf)  
 MECH/ELEC/PLUMBING 0.25 kPa (5 psf)  
 SUPERIMPOSED / ROOF FINISH 0.50 kPa (10 psf)  
 CEILING / FINISH 0.25 kPa (5 psf)

**WIND LOADING:**

(1/150) 0.47 kPa (9.8 psf)  
 OPEN TERRAIN  
 TOPOGRAPHIC FACTOR 1  
 TOTAL UPLIFT ON ROOF 1.04 kPa (21.7 psf) (INTERMEDIATE)  
 1.31 kPa (27.4 psf) (EDGES)  
 2.54 kPa (53 psf) (CORNERS)  
 CLADDING/PARAPET WIND 1.01 kPa (21 psf) INTERMEDIATE  
 1.21 kPa (25 psf) EDGES

THE CLASSIFICATION OF THIS BUILDING IS ASSUMED TO BE NORMAL AN IMPORTANCE COEFFICIENT OF 1.0 WAS USED IN THE DESIGN UNDER SNOW AND WIND LOADS.

PRE-ENGINEERED ROOF/FLOOR JOIST/CLADDING SUPPLIER TO PROVIDE LOADING INFORMATION, DESIGN, SUPPLY, AND INSTALL ALL REQUIRED UPLIFT ANCHORS - PROVIDE STAMPED DRAWINGS.

**SEISMIC LOADING:**

AS PER OBC 2012 PART 4 (4.1.8.7) THE EQUIVALENT STATIC FORCE PROCEDURE CAN BE USED

SOIL CLASS	D
BRACED FRAMES SFRS - CONVENTIONAL	
PGA	0.064
Sa (0.2)	0.108
Sa (0.5)	0.070
Sa (1.0)	0.041
Sa (2.0)	0.021
Sa (5.0)	0.0052
Sa (10.0)	0.0021
Rd	1.5
Ro	1.3
F(0.2) = Fa	1.24
F(0.5)	1.47
F(1.0) = Fv	1.55
F(2.0)	1.57
F(5.0)	1.58
F(10.0)	1.49
I <sub>e</sub> F <sub>s</sub> (0.2)	0.1339 < 0.35
Tx =	0.244 SEC
Ty =	0.244 SEC

THE CLASSIFICATION OF THIS BUILDING IS ASSUMED TO BE NORMAL AN IMPORTANCE COEFFICIENT OF 1.0 WAS USED IN THE DESIGN UNDER SEISMIC LOADS.

**REQUIRED SUBMITTALS**

1. THE FOLLOWING ITEMS REQUIRE TESTING OR INSPECTION BY A CERTIFIED INDEPENDENT TESTING OR INSPECTION AGENCY UNLESS NOTED OTHERWISE. THE AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS TO THE ENGINEER FOR REVIEW.

ITEM	REQUIRED	COMMENTS
SOIL BEARING CAPACITY	YES	BY SOILS ENGINEER
SOIL COMPACTION	YES	BY SOILS ENGINEER
ENGINEERED FILL	YES	BY SOILS ENGINEER
REINFORCING STEEL PLACEMENT	YES	INSPECT FINAL PLACEMENT
CONCRETE COMPRESSIVE TESTS	YES	MIN 3 SETS/100m <sup>3</sup>
CONCRETE SLUMP	YES	MIN 3 SETS/100m <sup>3</sup>
STRUCTURAL STEEL BOLTING	YES	INSPECT ALL BOLTS
STRUCTURAL STEEL WELDING	YES	INSPECT ALL FIELD WELDS

2. THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. SUBMIT ONE DIGITAL COPY UNLESS NOTED OTHERWISE

ITEM	REQUIRED SUBMITTAL	P. ENG. STAMP REQUIRED
REBAR SHOP DRAWINGS	YES	NO
CONCRETE MIX DESIGNS	YES	YES
STRUCTURAL STEEL SHOP DRAWINGS	YES	YES (CONNECTIONS)
JOIST/TRUSS SHOP DRAWINGS	YES	YES
JOIST/HAMBRO SHOP DRAWINGS	YES	YES
MISC. STEEL HAND/GUARD RAILS/LADDER	YES	YES
PRECAST STAIRS	YES	YES
STAIRS	YES	YES
EXTERIOR DOORS/WINDOWS/GLASS/CLADDING	YES	YES
GLASS OVER CANOPY	YES	YES
STEEL SERVICE PLATFORM	YES	YES
PRECAST ERECTION AND SHOP DRAWINGS	YES	YES
STEEL STUD SHOP DRAWINGS	YES	YES
ACCESS LADDER	YES	YES

**EXTERIOR BRICK LOOSE LINTEL SCHEDULE**

WALL TYPE	MAX MASONRY R/O	MATERIAL	COMMENTS
102mm BRICK	150mm TO 900mm	L8x8x6.4 HOT DIP GALV.	SEE NOTES
102mm BRICK	900mm TO 1372mm	L127x89x6.4 L.L.V. HOT DIP GALV.	SEE NOTES
102mm BRICK	1379mm TO 2286mm	L152x102x9.5 L.L.V. HOT DIP GALV.	SEE NOTES
102mm BRICK	2311mm TO 3048mm	L203x102x11 L.L.V. HOT DIP GALV.	SEE NOTES
102mm BRICK	3048mm TO 3500mm	L203x102x13 or L178x102x15 L.L.V. HOT DIP GALV.	SEE NOTES

- NOTES:**
- ALL LINTELS TO HAVE A MINIMUM BEARING LENGTH OF 150mm (6") EACH SIDE.
  - REFER TO PLANS FOR LINTEL SIZES FOR OPENINGS LARGER THAN THOSE INDICATED ABOVE.
  - ALL EXTERIOR BRICK LINTELS ARE TO BE HOT DIP GALVANIZED OR COATED WITH A CORROSION INHIBITING PRIMER BY OTHERS.
  - BASED ON BRICK HEIGHT, LOOSE LINTELS SHALL NOT BE INSTALLED WHERE HEIGHT OF SUPPORTED BRICK EXCEEDS 1800 mm (6') ABOVE OPENING.
  - LINTELS MIN. F<sub>y</sub> = 300 MPA U.N.O. ON DRAWINGS

**MASONRY WALL SCHEDULE**

MARK	SIZE	REINFORCING AND NOTES	COMMENTS
MW190	190mm (7.5") BLOCK	15MPa 10M BARS @ 400mm O.C. HORIZ. LADDER STEEL (2-WIRES - 4.76mm) @ 400mm O.C. (2)10M TOP HORIZONTAL FULL LENGTH OF WALL AT TOP OF WALL - GROUT SOLID TOP 3 COURSES (600mm) (2)10M VERT. AT EACH END AND CORNERS OF WALLS (1)15M VERT. BOTH SIDES OF OPENINGS WHERE BEARING PLATE IS ON END, MIDDLE, AND/OR CORNER OF WALL, ADD ADDITIONAL SIMILAR VERT. REINFORCEMENT OFFSET 1 CORE FOR FULL SPLICE LENGTHS BELOW AND ABOVE STEEL BEAM - SEE TYPICAL DETAIL - GROUT SOLID FULL HEIGHT OF BUILDING	

- NOTES:**
- ALL MW140 AND MW190 MASONRY WALLS SHOWN ON PLAN ARE NON LOAD BEARING. REFER TO TYPICAL DETAILS FOR CONNECTION WITH SLABS/BEAMS/WALLS.
  - PROVIDE (1)15M VERTICAL IN CORE ADJACENT TO EACH SIDE OF ROUGH OPENING OR ADJACENT TO OUTSIDE OF STEEL LINTEL BEARING PLATE FOR ALL LOAD BEARING AND NON-LOAD BEARING MASONRY WALLS.
  - GROUT ALL REINFORCED CORES SOLID WITH 25 MPa GROUT MIN. AND NOT LESS MASONRY COMPRESSIVE STRENGTH.
  - DO NOT LOCATE A VERTICAL CONTROL JOINT WITHIN 400mm (16") (HORIZ.) OF ANY WALL OPENING.
  - FILL ALL PIERS BETWEEN OPENINGS LESS THAN 600mm (2'-0") IN WIDTH SOLID WITH MORTAR IN ADDITION TO REINFORCING SPECIFIED IN NOTE #2.
  - LAP ALL MASONRY REINFORCING BARS A MINIMUM 600mm (2'-0") FOR 10M BARS, MINIMUM 800mm (32") FOR 15M BARS, AND MINIMUM 1000mm (40") FOR 20M BARS TYPICAL.
  - GROUT ALL CORES BELOW BEARING PLATES/LINTEL BEARING LOCATIONS SOLID WITH 25 MPa GROUT MIN. AND NOT LESS MASONRY COMPRESSIVE STRENGTH.
  - AT EACH FLOOR/ROOF DIAPHRAGM GROUT MIN. 3 BLOCK COURSES GROUTED SOLID WITH 25 MPa GROUT MIN. AND NOT LESS MASONRY COMPRESSIVE STRENGTH.
  - PROVIDE LATERAL SUPPORT AT THE TOP AND BOTTOM OF ALL LOAD BEARING AND NON-LOAD BEARING MASONRY WALL - SEE TYPICAL DETAILS FOR MORE INFO.

**STEEL BEAM SCHEDULE**

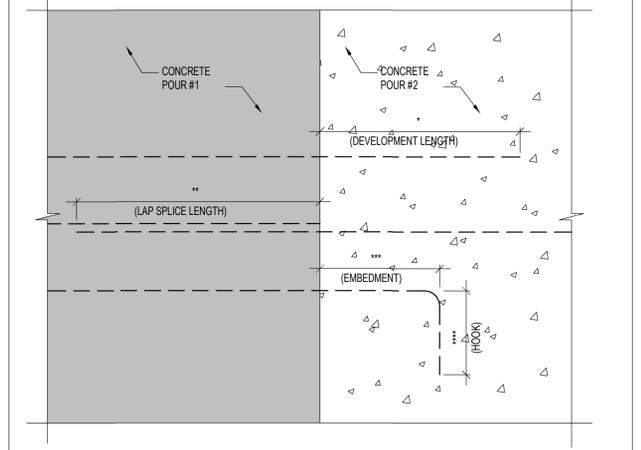
MARK	SIZE	COMMENTS
W360X39	W360X39	(2) 3/8" (9.5mm) WEB STIFFENERS BOTH SIDES IF REQUIRED BY CONNECTION DESIGNER, AT COLUMNS ABOVE, AND AT JOIST CONNECTIONS - PROVIDE SHORING DURING CONST. FOR STABILITY AND TO ELIMINATE TORSION
W460X52	W460X52	(2) 3/8" (9.5mm) WEB STIFFENERS BOTH SIDES IF REQUIRED BY CONNECTION DESIGNER, AT COLUMNS ABOVE, AND AT JOIST CONNECTIONS - PROVIDE SHORING DURING CONST. FOR STABILITY AND TO ELIMINATE TORSION
W460X68	W460X68	(2) 3/8" (9.5mm) WEB STIFFENERS BOTH SIDES IF REQUIRED BY CONNECTION DESIGNER, AT COLUMNS ABOVE, AND AT JOIST CONNECTIONS - PROVIDE SHORING DURING CONST. FOR STABILITY AND TO ELIMINATE TORSION

- NOTES:**
- ALL BEAMS ARE DROPPED BELOW FLOOR FRAMING UNLESS NOTED OTHERWISE.
  - ALL STEEL TO STEEL CONNECTIONS ARE BY THE SUPPLIER, PROVIDE SEALED DRAWINGS, REFER TO PROJECT SPECIFICATIONS FOR REQUIREMENTS.
  - PROVIDE (1) 9.5mm (3/8") STIFFENER EACH SIDE OF BEAM:
    - A. BELOW ALL STEEL COLUMNS SUPPORTED ON BEAM
    - B. ABOVE ALL COLUMNS WHERE BEAM CANTILEVERS
    - C. ABOVE ALL BEARING PLATES FOR BEAMS
 ALL WEB STIFFENERS ARE AS FOLLOWS:
 

BEAM DEPTH	STIFFENER THICKNESS
<203mm	6.4mm
<610mm	9.5mm
>610mm	13mm

**REBAR DEVELOPMENT SCHEDULE**

SIZE	STRAIGHT REINFORCING		90° STANDARD HOOKS	
	DEVELOPMENT LENGTH (")	LAP SPLICE LENGTH (")	EMBEDMENT (")	HOOK (")
10M	380mm (15")	500mm (20")	200mm (8")	150mm (6")
15M	580mm (23")	750mm (30")	300mm (12")	210mm (8 1/2")
20M	760mm (30")	1000mm (40")	400mm (16")	260mm (10 1/2")
25M	1200mm (48")	1560mm (62")	500mm (20")	340mm (13 1/2")
30M	1440mm (57")	1875mm (74")	600mm (24")	410mm (16 1/2")
35M	1680mm (66")	2185mm (86")	700mm (28")	490mm (19 1/2")

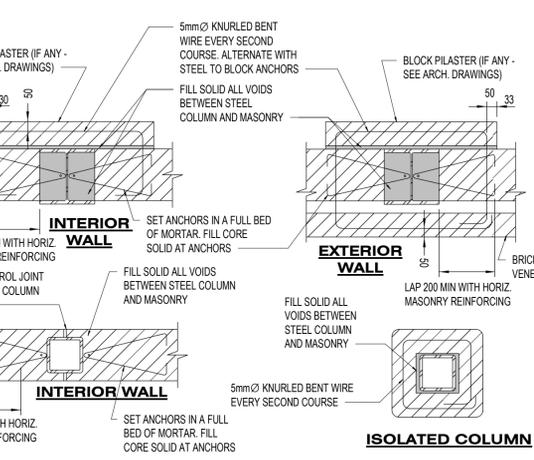
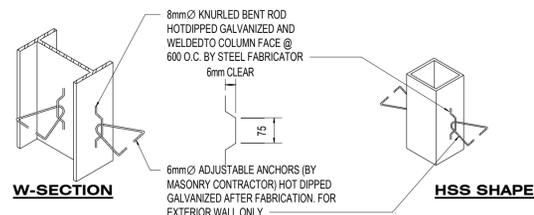


- NOTES:**
- INCREASE ABOVE BY 1.5 TIMES FOR ALL EPOXY COATED REBARS.
  - THESE NUMBERS ARE ONLY FOR NORMAL WEIGHT CONCRETE.
  - CONCRETE COVER MUST BE EQUAL OR MORE THAN 1.5 REBAR DIAMETER.
  - CLEAR SPACING NOT LESS THAN 2 REBAR DIAMETERS.
  - YIELD STRESS FOR REBARS (F<sub>y</sub>) = 400 MPA.

**STEEL COLUMN SCHEDULE**

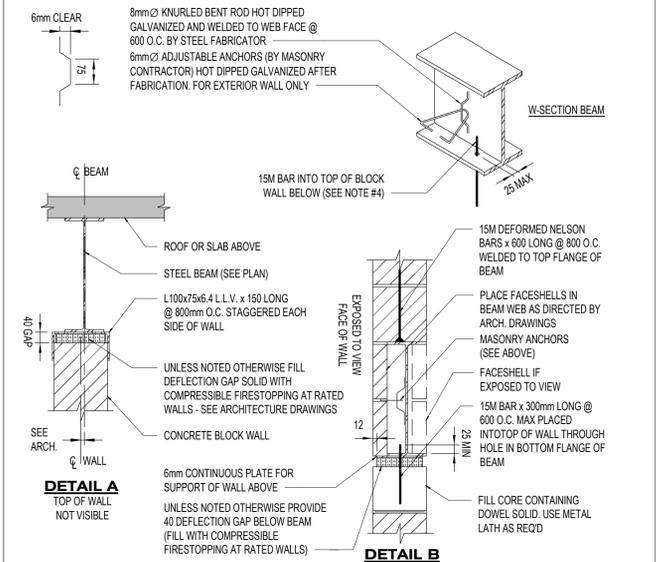
MARK	SIZE	TOP PLATE	BOTTOM PLATE	COMMENTS
C-1	HSS 152x152x6.4mm		200x300x20mm (8"x12"x3/4") (TYPICAL) 250x250x20mm (10"x10"x3/4") (CORNER)	TYPICAL (4) 15mm(1/2") Ø 500mm(20") EMBED. + 51mm(2") HOOK ANCHOR BOLTS CORNER (4) 15mm(1/2") Ø 500mm (20") EMBED. + 51mm (2") HOOK ANCHOR BOLTS
C-2	HSS 203x152x13mm		200x350x20mm (8"x13 3/4"x3/4") (TYPICAL) 250x300x20mm (10"x12"x3/4") (CORNER)	TYPICAL (4) 15mm(1/2") Ø 500mm(20") EMBED. + 51mm(2") HOOK ANCHOR BOLTS CORNER (4) 15mm(1/2") Ø 500mm (20") EMBED. + 51mm (2") HOOK ANCHOR BOLTS

- NOTES:**
- TOP/BOTTOM PLATES SHALL BE FULLY WELDED TO COLUMN USING MIN. 6.0mm (1/2") FILLET WELDS, OR AS DEFINED BY SUPPLIER.
  - PROVIDE 20mm (5/8") THICK STEEL TOP PLATE (MIN.) + TO LW OF COLUMN U.N.O. TYPICAL.
  - PROVIDE 40mm (1-1/2") THICK OF HIGH STRENGTH NON-SHRINK GROUT BELOW ALL COLUMN BASEPLATES. USE SIKAGROUT 212 OR EQUIVALENT W/ MIN COMPRESSIVE STRENGTH OF 40MPa.
  - PROVIDE 9.5mm (3/8") TOP PLATE EQUAL TO LW OF COLUMN, IF BEAM CANTILEVERS OR BEARS ON TOP PLATE. FULLY WELD UDS OF BEAM TO PLATE W/ CONT' 6.4mm (1/4") FILLET, TYPICAL.
  - BASEPLATE BOLTED OR WELDED TO TOP FLANGE OF BEAM. CONNECTION BY STEEL SUPPLIER. PROVIDE (1) 13mm (1/2") WEB STIFFENER EACH SIDE OF BEAM AT COLUMN BEARING LOCATION. SEE BEAM SCHEDULE FOR THICKNESS.
  - ALL COLUMNS BEARING ON BEAMS SHALL HAVE A BASEPLATE EQUAL TO THE WIDTH OF THE BEAM BY THE WIDTH OF THE COLUMN - 76mm (3") EA. SIDE, AND THE THICKNESS GREATER THAN OR EQUAL TO THE COLUMN WEB THICKNESS.
  - STEEL COLUMN MAY BE SPLICED @ FLOOR LEVEL IF REQUIRED FOR EASE OF INSTALLATION. CONNECTION TO BE DESIGNED BY STEEL SUPPLIER FOR FULL CAPACITY. PLATES TO FIT WITHIN WALL CAVITY, IF APPLICABLE.
  - SEE TYPICAL DETAILS FOR COLUMN BRACING AND BEARING.
  - ALL ANCHOR EXTEND INTO FOOTINGS AND HOOK IF NEEDED - ENSURE 75mm CONCRETE COVER. TYPICAL ALL LOCATIONS FOR LONG ANCHOR BOLTS



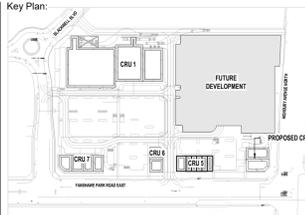
- NOTES:**
- STEEL FABRICATOR TO COORDINATE LOCATION OF MASONRY ANCHORS WITH BLOCK COURSING ON ARCH. DWGS.
  - BLOCK PILASTERS MAY BE REQUIRED TO FIRE RATE THE STEEL COLUMN - REFER TO ARCH. DRAWINGS FOR COLUMN PLAN DETAILS
  - SEE PLANS FOR COLUMN SIZES. SEE ARCH. DRAWINGS FOR WALL LOCATION RELATIVE TO COLUMN.
  - REFER TO ARCHITECTURE DRAWINGS FOR ALL BRICK LOCATIONS AND ADDITIONAL DETAILS AND RATING DETAILS
  - ALL EXTERIOR METAL TO BE RUST PROTECTED

T.D.43 MASONRY ANCHORAGE TO STEEL COLUMNS



- NOTES:**
- STEEL FABRICATOR TO REFER TO ARCH. DRAWINGS TO DETERMINE POSITION OF CONCRETE BLOCK WALL IN RELATION TO BEAM CENTRELINE FOR PLACEMENT OF LATERAL SUPPORT ANGLES ON BOTTOM FLANGE. (SEE DETAIL 'A' ABOVE)
  - REFER TO DETAIL 'A' ABOVE - STEEL BEAMS WHICH SUPPORT TOP OF BLOCK WALLS AT THE EXTERIOR OF THE BUILDING REQUIRE THE BOTTOM FLANGE TO BE LATERALLY SUPPORTED TO THE STRUCTURE ABOVE - SEE PLAN FOR DETAILS.
  - MASONRY CONTRACTOR TO FILL SOLID ALL CORES CONTAINING VERTICAL REINFORCING BARS MIN. COMPRESSIVE STRENGTH OF 20 MPa BUT NOT LESS THAN MASONRY COMPRESSIVE STRENGTH.
  - STEEL FABRICATOR TO PROVIDE SHOP DRILLED HOLES IN BOTTOM FLANGE OF BEAM FOR PLACEMENT OF BARS AS SHOWN IN DETAIL 'B' ABOVE.
  - REFER TO DETAIL 'B' ABOVE - SEE ARCHITECTS DRAWINGS FOR TREATMENT OF DEFLECTION GAP ON FACE OF WALL EXPOSED TO VIEW

T.D.44 MASONRY ANCHORAGE TO STEEL BEAMS



Site Plan: North Arrow:

Consultant:

**IE DESIGN**  
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**STRUCTURAL ENGINEERS**  
 iedesign@iedesign.ca www.iedesign.ca

Seal: Seal:

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No.	Date	ISSUED FOR TENDER	Revision
1	APR 03, 2024		

**ISSUES/REVISION TABLE**

Project:

**WESTDELL**  
 DEVELOPMENT CORP

1300 FANSHAWE PARK RD. EAST. - CRU #3

1300 FANSHAWE PARK RD. EAST. LONDON, ON

Drawing Title:

**LOADING AND SCHEDULE**

Drawn By: D.K. Scale: AS INDICATED

Checked By: M.A.H., J.G. Plot Date: APR. 03-2024

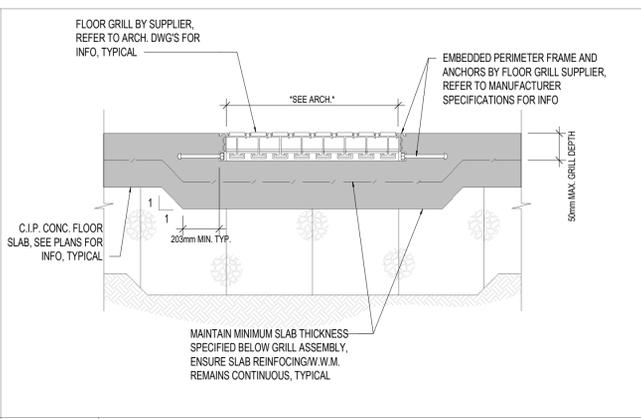
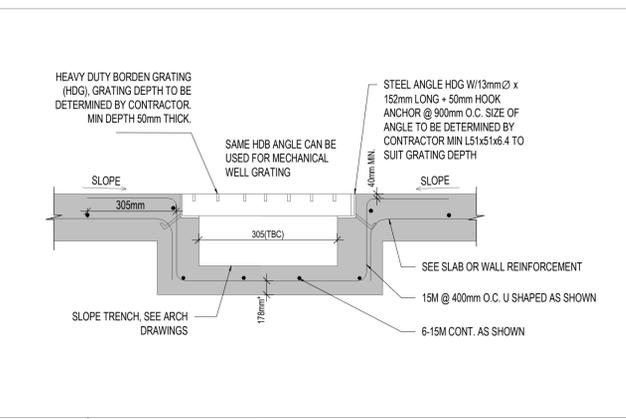
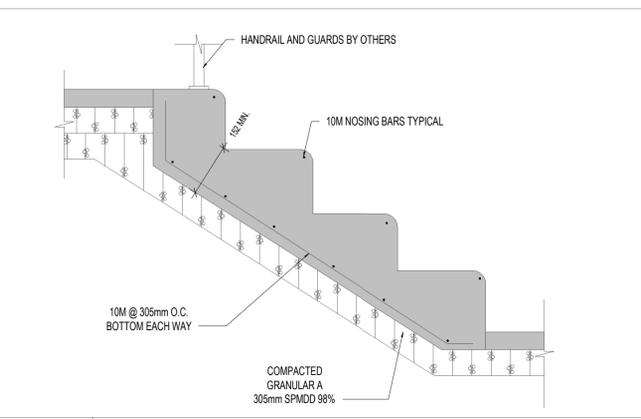
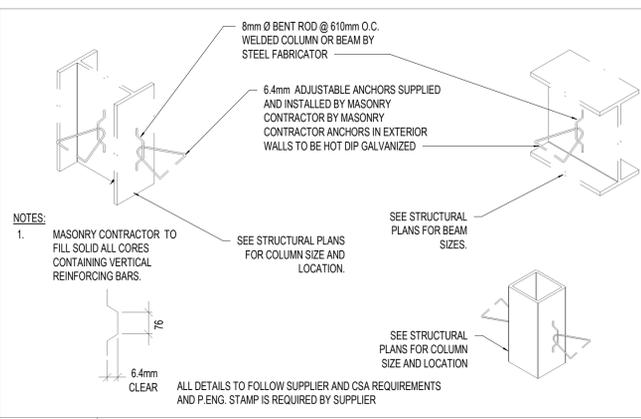
Project Date: NOV. 2023

Project No: 2023-102

Drawing No: Revision

**S-5.0** **1**



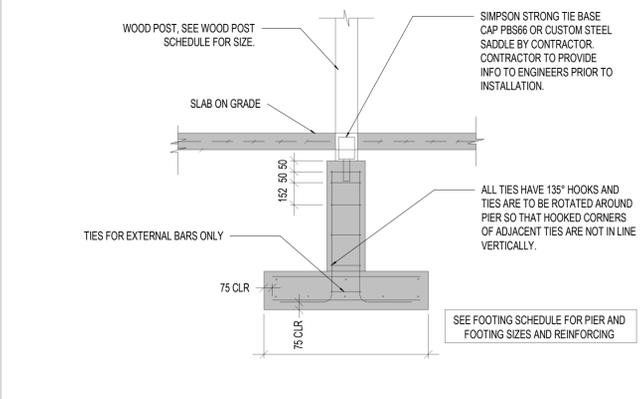
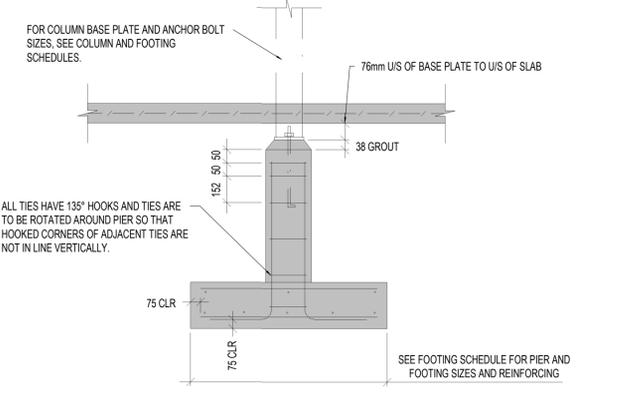
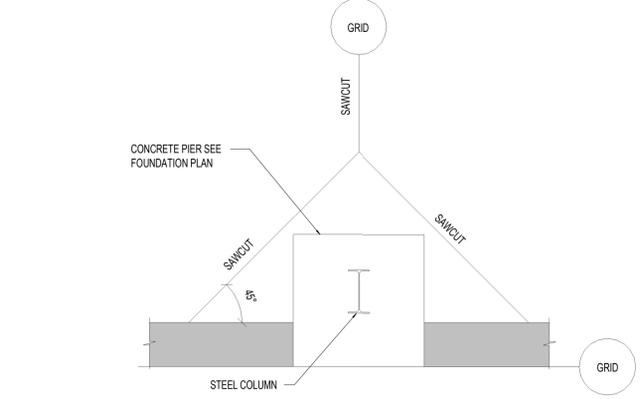
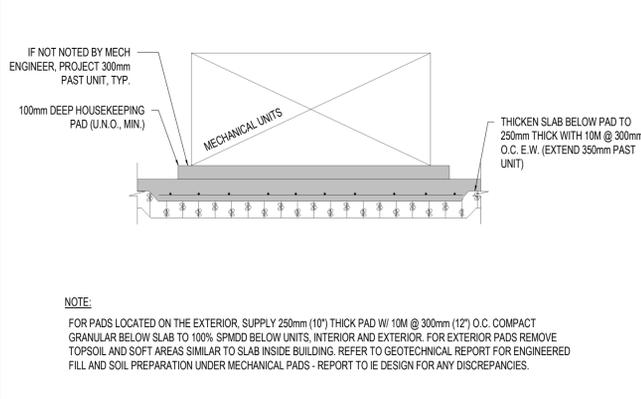


**T.D.18** **TYPICAL MASONRY ANCHORAGE TO STEEL**

**T.D.19** **CONCRETE STEP/STAIR REINFORCING**

**T.D.23** **RECESSED FLOOR DRAIN**

**T.D.27** **RECESSED FLOOR ENTRY GRILL**

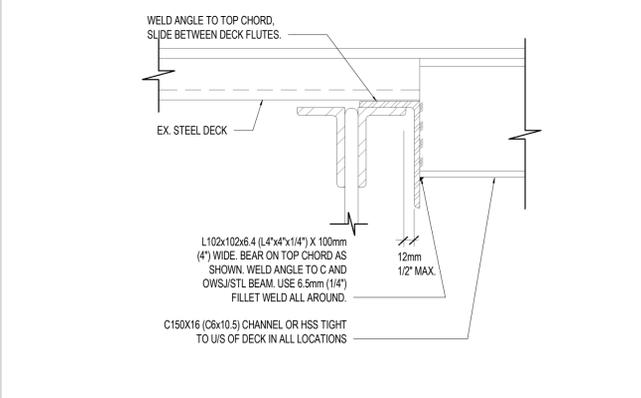
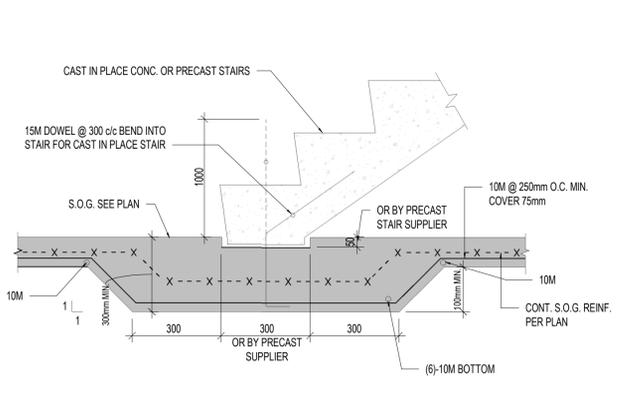
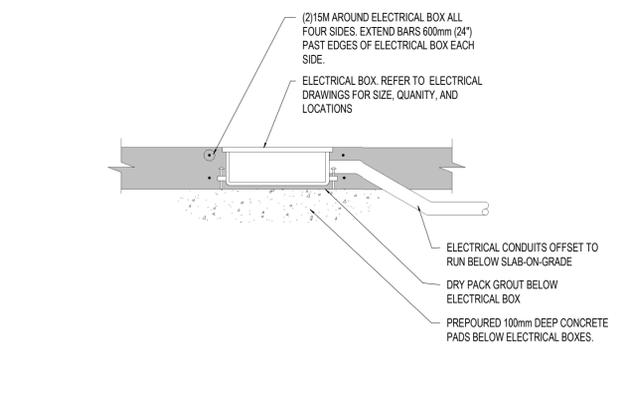
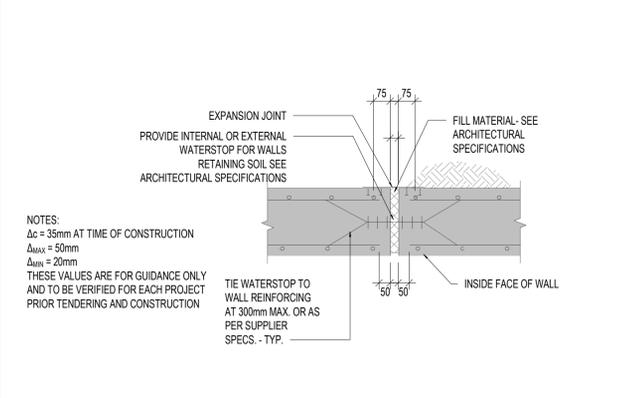


**T.D.25** **SLAB THICKENING FOR MECHANICAL UNITS (EXTERIOR)**

**T.D.26** **CONTROL JOINT @ PIER**

**T.D.28** **TYPICAL SQUARE FOOTING FOR STEEL POST**

**T.D.29** **TYPICAL SQUARE FOOTING FOR WOOD POST**

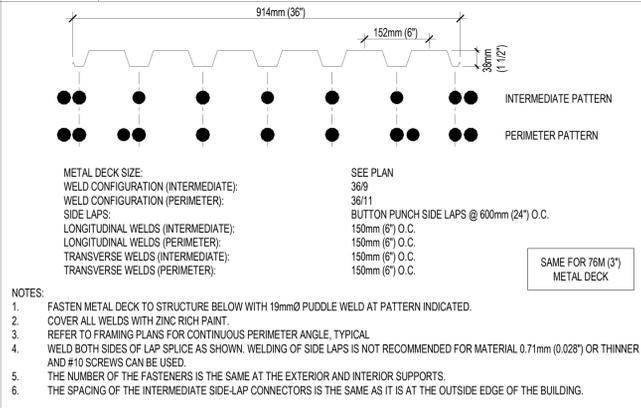
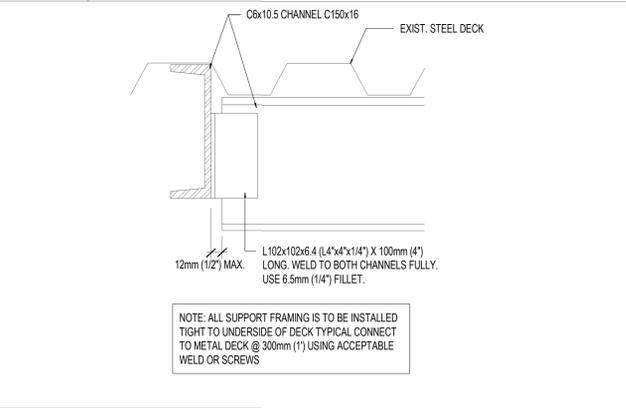
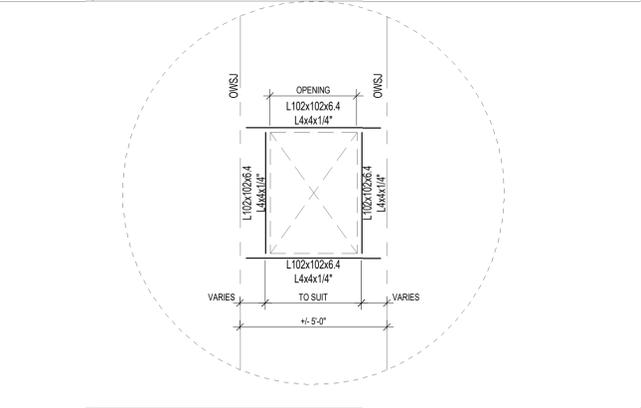
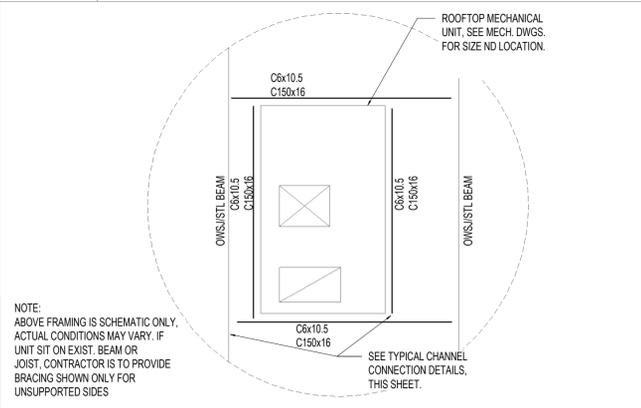


**T.D.33** **WALL EXPANSION JOINT**

**T.D.41** **ELECTRICAL FLOOR BOXES IN SLAB-ON-GRADE**

**T.D.47** **THICKENING SLAB ON GRADE AT CONCRETE STAIRS**

**S.2** **CHANNEL TO JOIST CONNECTION**

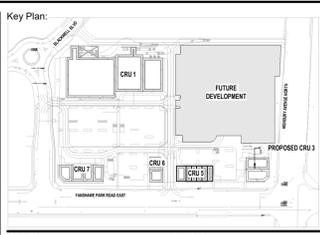


**S.5** **SUPPORT FRAMING FOR ROOF TOP MECHANICAL UNITS**

**S.6** **SUPPORT FRAMING FOR EXHAUST FAN/ACCESS HATCH OPENINGS**

**S.9** **CHANNEL TO CHANNEL CONNECTION**

**S.11** **ROOF DECK ATTACHMENT**



Consultant:

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Seal: Seal:

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No.	Date	Revision
1	APR 03, 2024	ISSUED FOR TENDER

**ISSUES/REVISION TABLE**

Project:

**WESTDELL**  
DEVELOPMENT CORP

**1300 FANSHAWE PARK RD. EAST. - CRU #3**

1300 FANSHAWE PARK RD. EAST. LONDON, ON.

Drawing Title:

**TYPICAL DETAILS II**

Drawn By: D.K. Scale: AS INDICATED

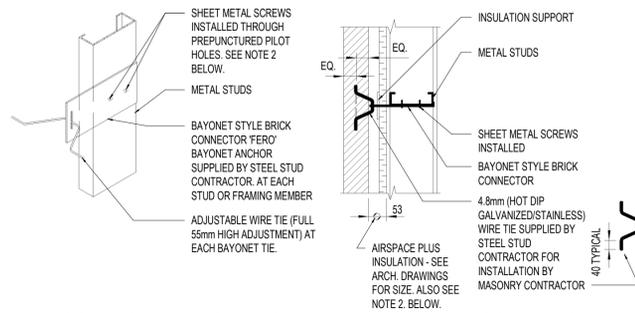
Checked By: M.A.H., J.G. Plot Date: APR. 03-2024

Project Date: NOV. 2023

Project No: 2023-102

Drawing No: Revision

**S-6.1** **1**



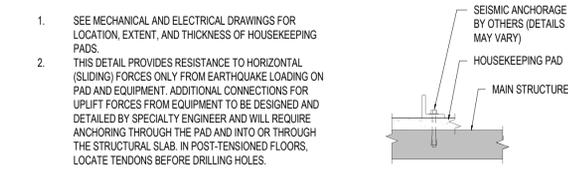
**1. CONNECTION TO STEEL STUD 2. TYPICAL WALL CONSTRUCTION**

ANCHOR SPACING TABLE	
STUD FRAMING HORIZONTAL SPACING	MAXIMUM VERTICAL ANCHOR SPACING
FRAMING AT 600 O.C.	400mm O.C.
FRAMING AT 400 O.C.	600mm O.C.
FRAMING AT 300 O.C.	600mm O.C.
AT JAMB LOCATIONS OF ALL WALL OPENINGS	300mm O.C.

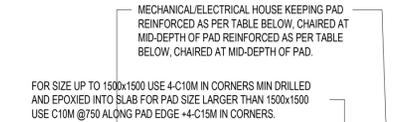
ALL DETAILS TO FOLLOW SUPPLIER AND CSA REQUIREMENTS AND P. ENG. STAMP IS REQUIRED BY SUPPLIER

- BAYONET TIES TO BE FERRO SLOTTED TIE (TYPE I) COMPLETE WITH 4.8mm DIAMETER (HOT DIPPED GALVANIZED/STAINLESS) V-ANCHOR AND INSULATION SUPPORT. NOTE THAT INSULATION SUPPORT IS TO BE PLACED OVER AIR BARRIER SYSTEM.
- MINIMUM GAUGE OF TIE SYSTEM TO BE 16 GAUGE MATERIAL FOR CAVITIES UP TO 127mm WIDE. ANCHOR SUPPLIER TO DESIGN TIE WITH INCREASED THICKNESS FOR WIDER CAVITIES. DESIGN OF ANCHOR TO ASSUME MAXIMUM 0.78kN UNFACTORED ANCHOR LOAD WITH NO LATERAL SUPPORT OF PLATE SUPPLIED BY INSULATION OR EXTERIOR SHEATHING.
- ALL TIE COMPONENTS ARE TO BE HAVE A MINIMUM CORROSION PROTECTION SUPPLIED (HOT DIP GALVANIZING/STAINLESS) AFTER FABRICATION. IF PLATE SYSTEM IS TO BE GALVANIZED, FOLLOW CSA-CAN3-A370 AND ASTM A123 REQUIREMENT OF 401 g/m<sup>2</sup>. V TIE GALVANIZING TO BE IN ACCORDANCE TO CSA CAN-A370 AND ASTM A153 REQUIREMENT OF 458 g/m<sup>2</sup>. REFER TO SPECIFICATIONS IF STAINLESS STEEL REQUIREMENT SUPERSEDES MINIMUM GALVANIZED COATING REQUIREMENT.
- STEEL STUD CONTRACTOR IS TO CONSTRUCT A STOREY ROD OF MASONRY COURSING FOR ALL MASONRY VENEER WALLS TO ENSURE ANCHORS ARE INSTALLED AT THE CENTRE OF ALL MASONRY JOINTS TO RECEIVE A MASONRY TIE. IF MASONRY UNIT LAYOUT DOES NOT ALLOW PLACEMENT OF ANCHORS AT THE MAXIMUM VERTICAL SPACING SHOWN IN ABOVE TABLE, EXTRA TIES MUST BE INSTALLED ABOVE AND BELOW EACH MASONRY UNIT AT SMALLER VERTICAL SPACING SUCH THAT THE MAX VERTICAL SPACING IS NOT EXCEEDED.

**T.D.46 ADJUSTABLE BAYONET STYLE MASONRY VENEER ANCHORS AT METAL STUD WALLS**



- SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION, EXTENT, AND THICKNESS OF HOUSEKEEPING PADS.
- THIS DETAIL PROVIDES RESISTANCE TO HORIZONTAL (SLIDING) FORCES ONLY FROM EARTHQUAKE LOADING ON PAD AND EQUIPMENT. ADDITIONAL CONNECTIONS FOR UPLIFT FORCES FROM EQUIPMENT TO BE DESIGNED AND DETAILED BY SPECIALTY ENGINEER AND WILL REQUIRE ANCHORING THROUGH THE PAD AND INTO OR THROUGH THE STRUCTURAL SLAB. IN POST-TENSIONED FLOORS, LOCATE TENDONS BEFORE DRILLING HOLES.



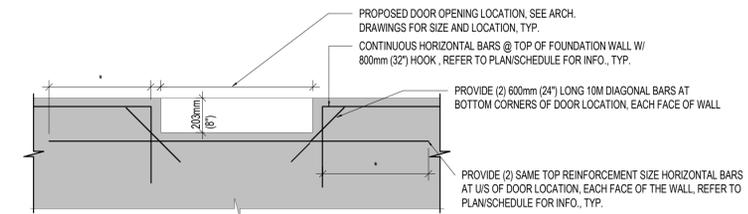
FOR SIZE UP TO 1500x1500 USE 4-C10M IN CORNERS MIN DRILLED AND EPOXIED INTO SLAB FOR PAD SIZE LARGER THAN 1500x1500 USE C10M @750 ALONG PAD EDGE +4-C15M IN CORNERS.

PAD THICKNESS 'T'	REINFORCEMENT
100	152x152MM/18.7MM/18.7MM/1 LAYER
150	10M @300 EW AT CENTER
200	10M @400 T AND BEW

**T.D.49 MECHANICAL/ELECTRICAL HOUSEKEEPING PAD AND FLOATING SLAB**

**S.12**

**FOUNDATION WALL DROP @ DOOR OPENING**



PROVIDE (2) 600mm (24") LONG 10M DIAGONAL BARS AT BOTTOM CORNERS OF DOOR LOCATION, EACH FACE OF WALL

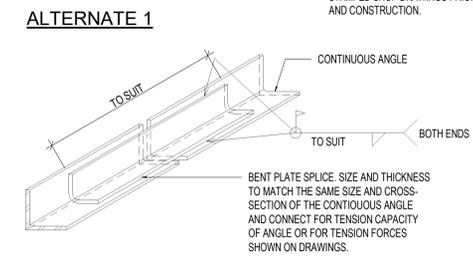
PROVIDE (2) SAME TOP REINFORCEMENT SIZE HORIZONTAL BARS AT US OF DOOR LOCATION, EACH FACE OF THE WALL, REFER TO PLANSCHEDULE FOR INFO, TYP.

\* REFER TO REBAR DEVELOPMENT SCHEDULE

**S.19**

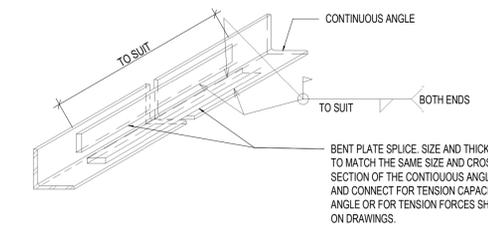
**TYPICAL TENSION SPLICE FOR ANGLES**

**ALTERNATE 1**

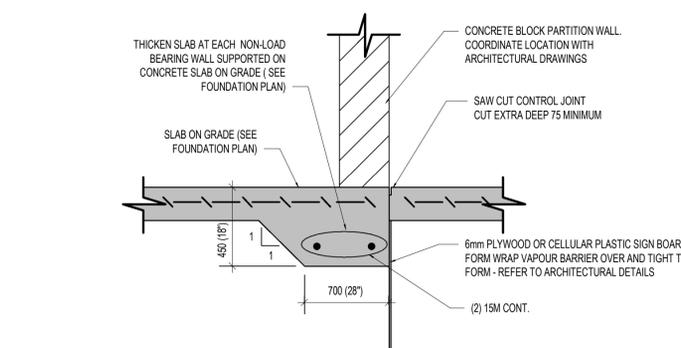


NOTES:  
1. DESIGN OF ALL CONNECTIONS ARE BY OTHERS - PROVIDE STAMPED SHOP DRAWINGS PRIOR TENDERING, FABRICATION, AND CONSTRUCTION.

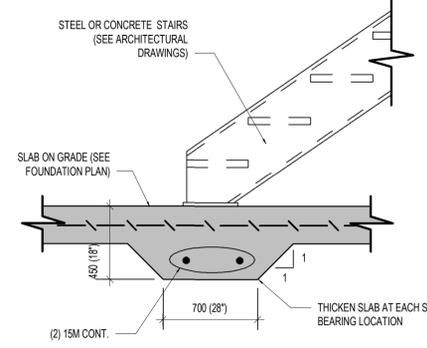
**ALTERNATE 2**



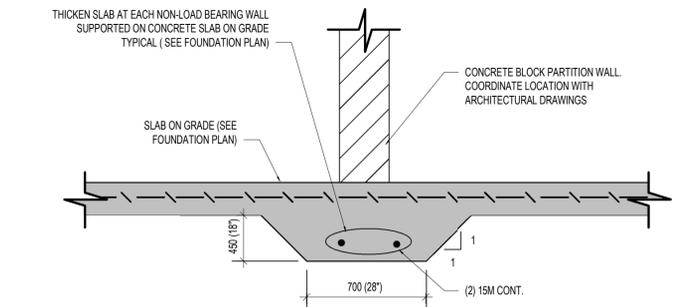
BENT PLATE SPLICE, SIZE AND THICKNESS TO MATCH THE SAME SIZE AND CROSS-SECTION OF THE CONTIGUOUS ANGLE AND CONNECT FOR TENSION CAPACITY OF ANGLE OR FOR TENSION FORCES SHOWN ON DRAWINGS.



**CONTROL JOINT NEAR TO OR ADJACENT WALL**



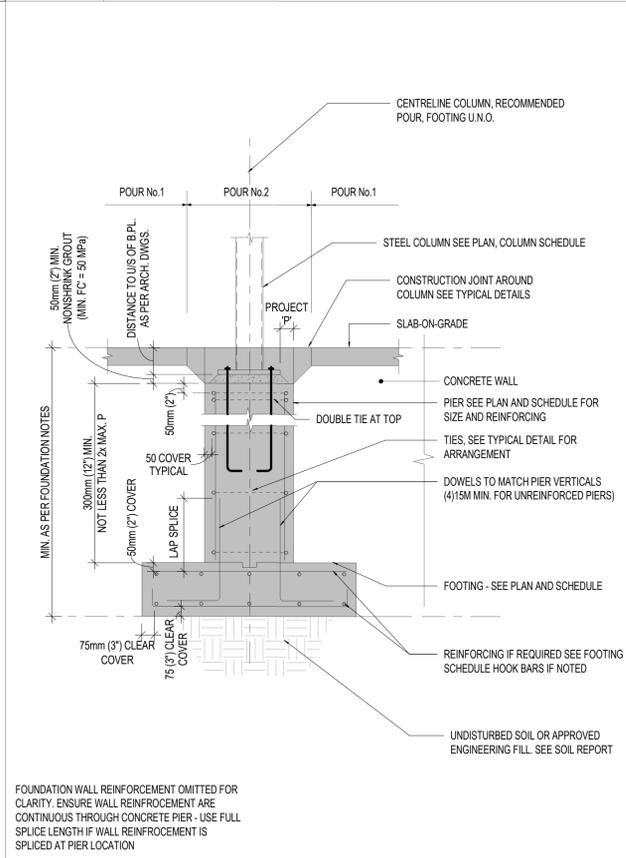
- NOTES:
- COORDINATE LOCATION OF NON-LOAD BEARING BLOCK AND STAIR BEARING LOCATIONS WITH ARCHITECTURAL DRAWINGS. EXTEND SLAB THICKENING 300mm (12") PAST EACH SIDE OF STAIR BEARING LOCATIONS AND DISCONTINUOUS ENDS OF BLOCK WALLS.
  - STEEL/CONCRETE STAIRS ANCHORS TO THICKENED SLAB BY OTHERS - PROVIDE STAMPED DRAWINGS PRIOR CONSTRUCTION.
  - REMOVE ALL ORGANIC AND DELETERIOUS MATERIAL OR AS SPECIFIED BY THE GEOTECHNICAL REPORT OR GEOTECHNICAL ENGINEER AND REPLACE WITH CONCRETE MIN. FC = 20 MPa.



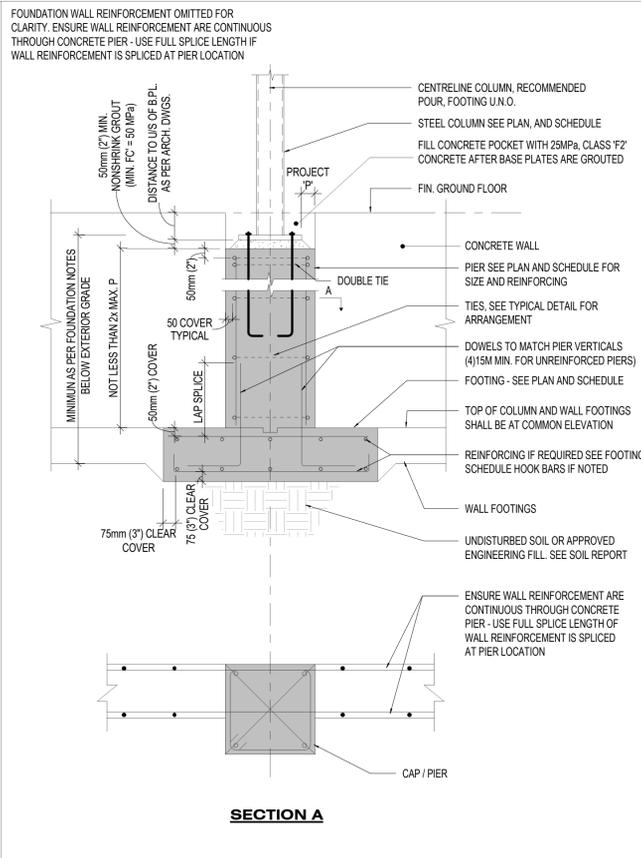
**T.D.37 TYPICAL SLAB ON GRADE THICKENINGS**

**S.14**

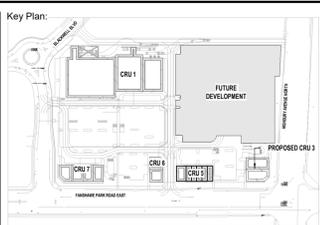
**TYPICAL INTERIOR COLUMN DETAIL, STEEL COLUMN**



FOUNDATION WALL REINFORCEMENT OMITTED FOR CLARITY. ENSURE WALL REINFORCEMENT ARE CONTINUOUS THROUGH CONCRETE PIER - USE FULL SPLICE LENGTH IF WALL REINFORCEMENT IS SPLICED AT PIER LOCATION



**S.15 TYPICAL EXTERIOR COLUMN FOUNDATION DETAIL, STEEL COLUMN**



Site Plan: North Arrow:

Consultant:

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No.	Date	Revision
1	APR 03, 2024	ISSUED FOR TENDER

**ISSUES/REVISION TABLE**

Project:

**WESTDELL**  
DEVELOPMENT CORP

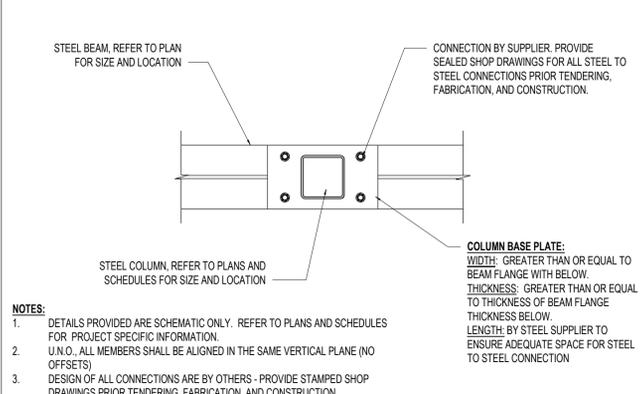
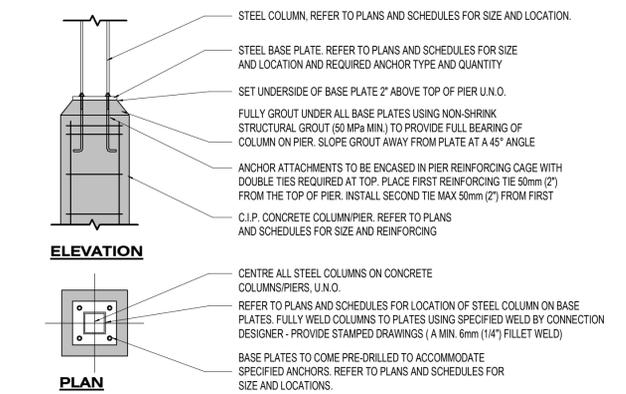
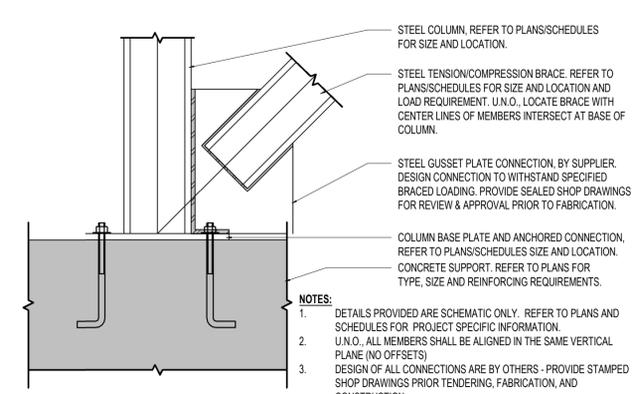
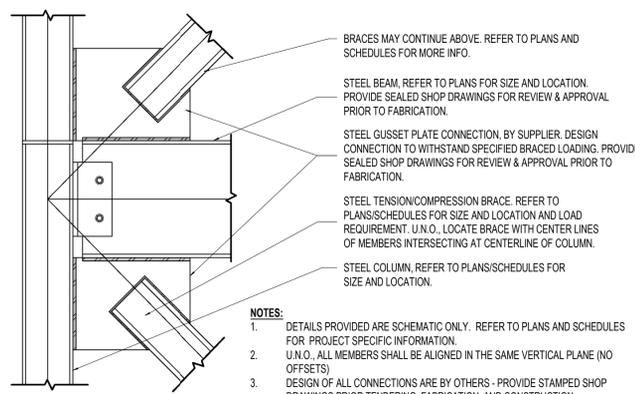
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Drawing Title:

**TYPICAL DETAILS III**

Drawn By:	D.K.	Scale:	AS INDICATED
Checked By:	M.A.H., J.G.	Plot Date:	APR. 03-2024
Project Date:	NOV. 2023		
Project No:	2023-102		
Drawn No:		Revision	

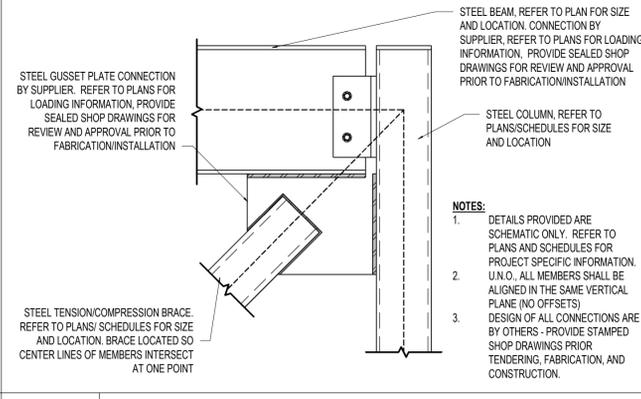
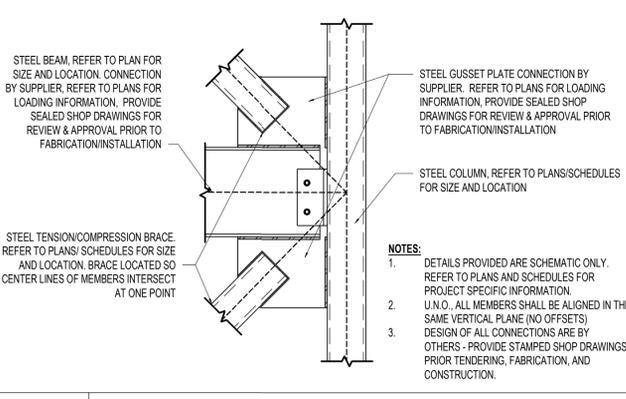
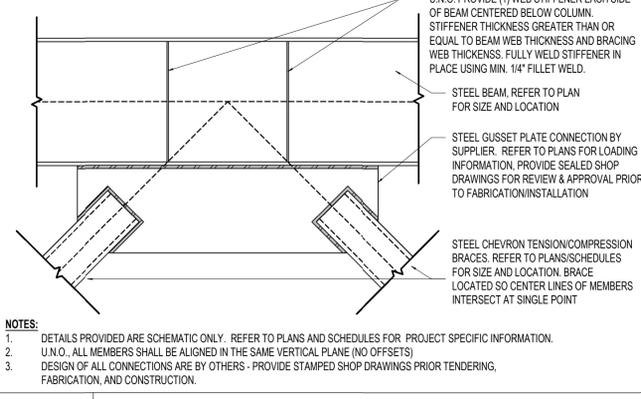
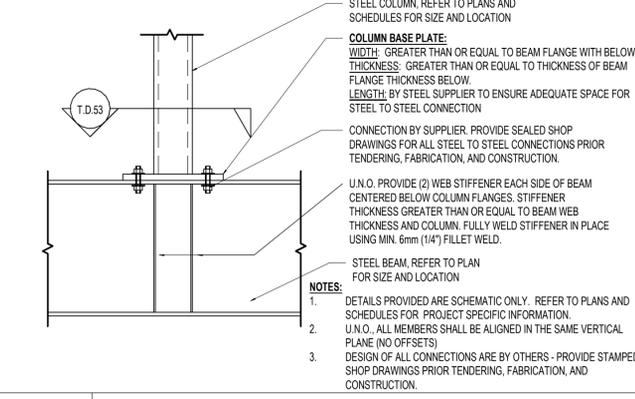


**T.D. 50 STEEL BRACE TERM. - STEEL COLUMN (FLOOR/ROOF)**

**T.D. 51 STEEL BRACE TERM. - STEEL COLUMN BASE**

**T.D. 52 STEEL COLUMN TO CONCRETE COLUMN/PIER CONNECTION**

**T.D. 53 STEEL COLUMN SUPPORTED ON STEEL BEAM - SECTION**

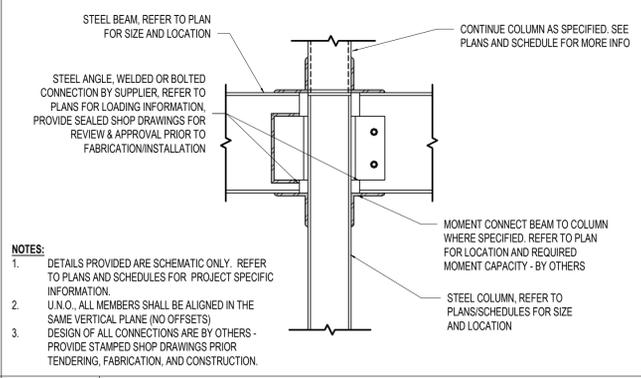
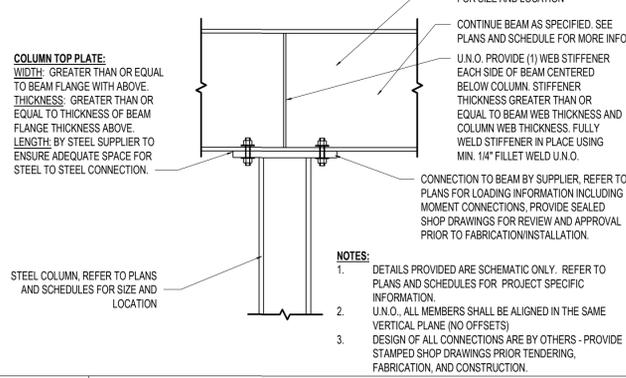
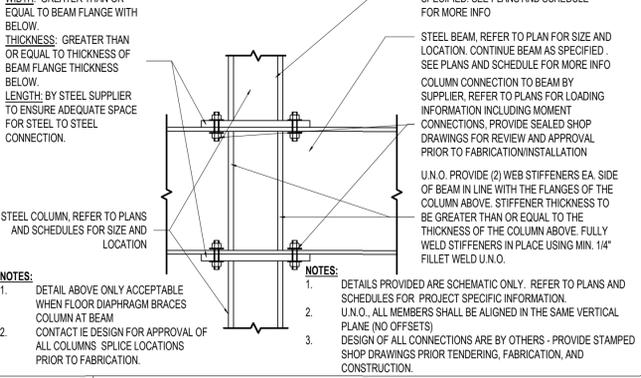
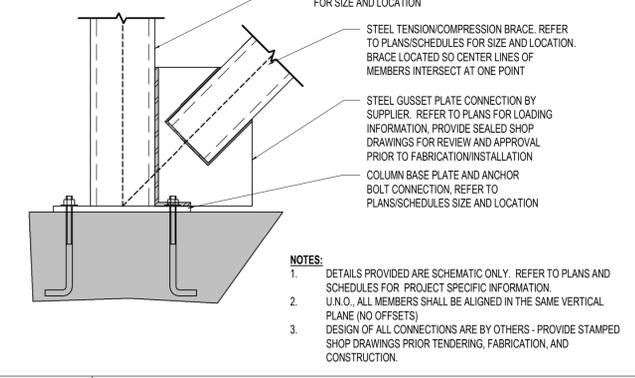


**T.D. 54 STEEL COLUMN SUPPORTED ON STEEL BEAM**

**T.D. 55 STEEL BRACED FRAME CONNECTION TOP CHEVRON**

**T.D. 56 STEEL BRACED FRAME CONNECTION MID LEVEL**

**T.D. 57 STEEL BRACED FRAME CONNECTION TOP X-BRACE**

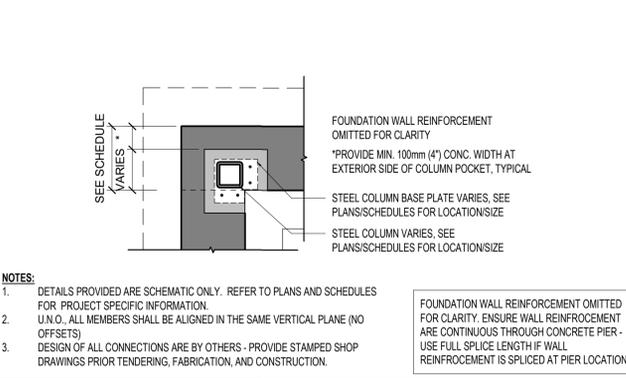
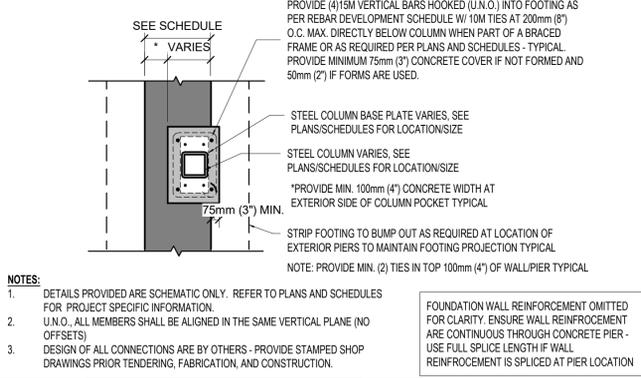
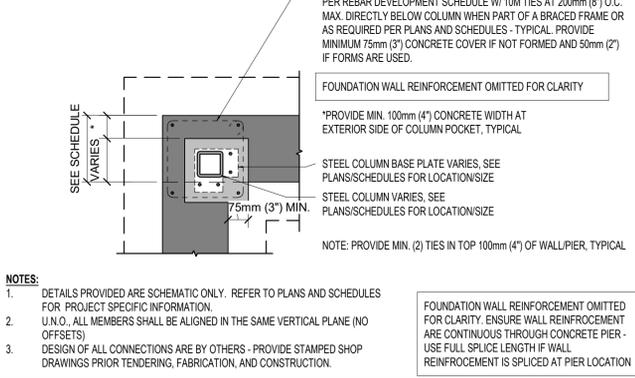


**T.D. 58 STEEL BRACED FRAME CONNECTION COLUMN BASE**

**T.D. 59 STEEL BEAM TO COLUMN CONNECTION - COLUMN SPLICE**

**T.D. 60 STEEL BEAM TO COLUMN CONNECTION - TOP BEARING**

**T.D. 61 STEEL BEAM TO COLUMN CONNECTION - SIDE CONNECTION**

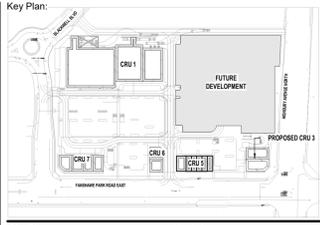


**T.D. 63 FOUNDATION COLUMN POCKET DETAIL - CORNER AT BRACED BAYS**

**T.D. 64 FOUNDATION COLUMN POCKET DETAIL - AT BRACED BAYS**

**T.D. 65 FOUNDATION COLUMN POCKET DETAIL - AT BRACED BAYS**

**S.17 TYPICAL DECK SUPPORT AT COLUMNS**



Site Plan: North Arrow:  
Consultant:

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4. ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT BUILDING CODE REGULATIONS AND BYLAWS HAVING JURISDICTION.  
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6. CONSTRUCTION TO BE ACCORDING TO BEST COMMON PRACTICE.  
7. DO NOT SCALE DRAWINGS. WHEN REQUIRED REQUEST WRITTEN VERIFICATION OF DIMENSIONS FROM INTELLIGENT ENGINEERING DESIGN LTD. - USE LATEST REVISED DRAWINGS.  
8. CONTRACTOR IS FULLY RESPONSIBLE FOR MATTERS AFFECTING CONSTRUCTION.  
9. ANY MATERIAL ALTERATIONS CARRIED OUT DURING CONSTRUCTION BY THE CONTRACTOR OR ASSOCIATED SUB-CRONTACTOR SHALL BE CONFIRMED WITH THE ENGINEER PRIOR TO INSTALL. FAILURE TO DO SO RESULTS IN FULL CONTRACTOR RESPONSIBILITY FOR SYSTEMS AFFECTED.

No.	Date	Revision
1	APR 03, 2024	ISSUED FOR TENDER

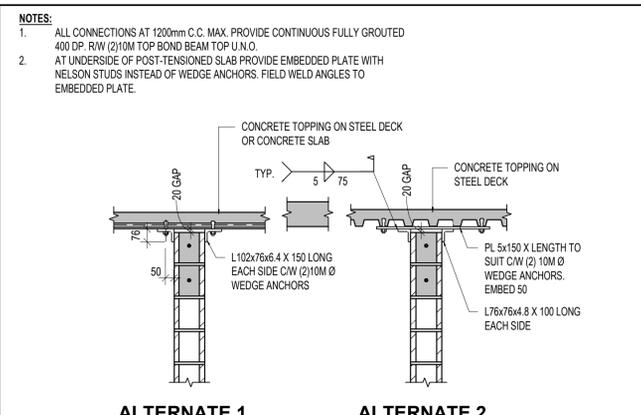
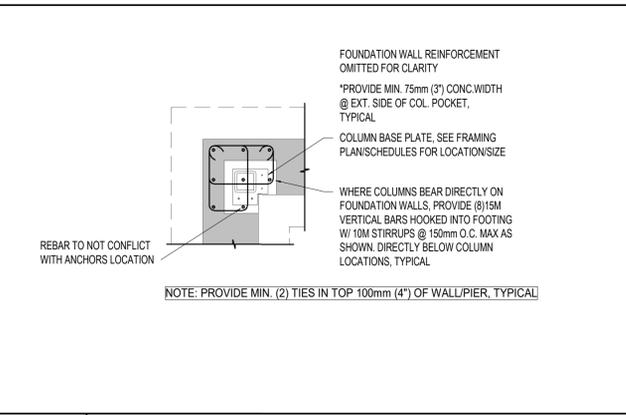
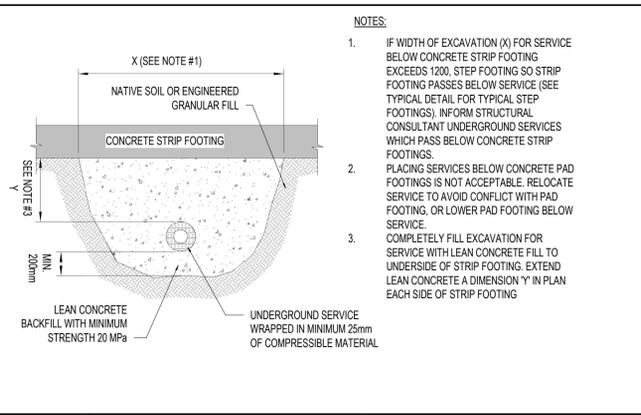
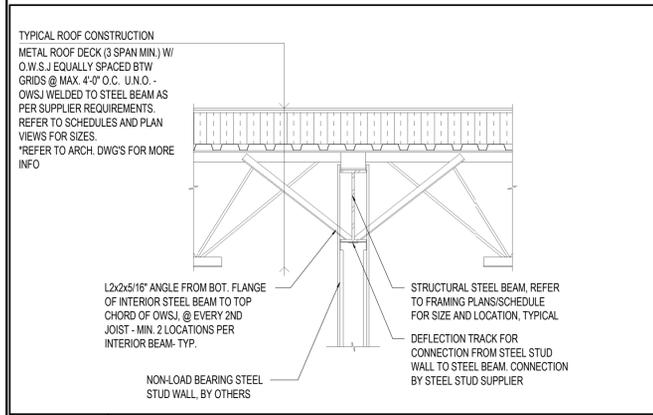
**ISSUES/REVISION TABLE**

No.	Date	Revision
1	APR 03, 2024	ISSUED FOR TENDER

**WESTDELL**  
DEVELOPMENT CORP

1300 FANSHAWE PARK RD. EAST. - CRU #3  
1300 FANSHAWE PARK RD. EAST, LONDON, ON

Drawing Title:  
**TYPICAL DETAILS IV**  
Drawn By: D.K. Scale: AS INDICATED  
Checked By: M.A.H., J.G. Plot Date: APR. 03-2024  
Project Date: NOV. 2023  
Project No: 2023-102  
Drawing No: Revision

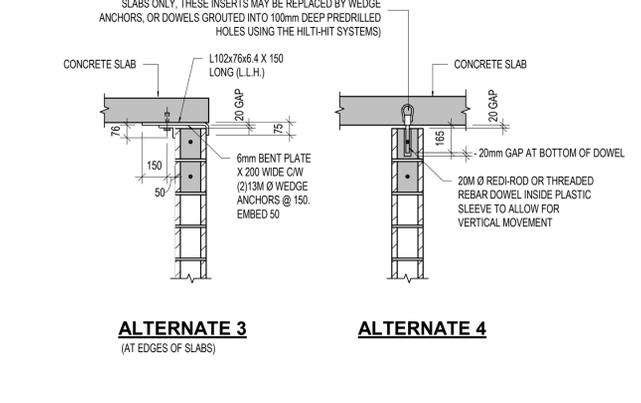
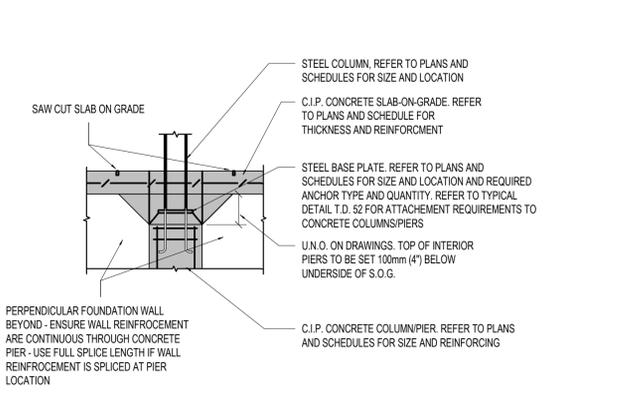
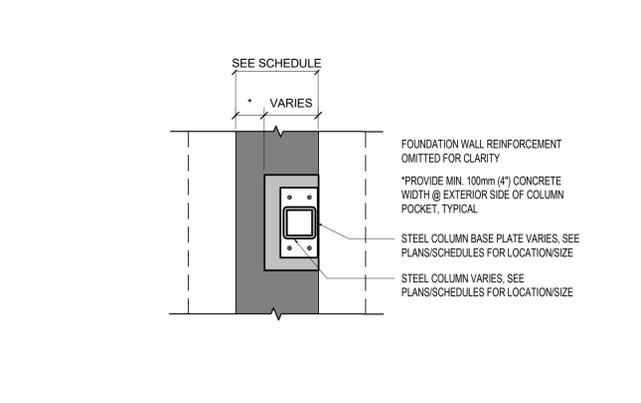
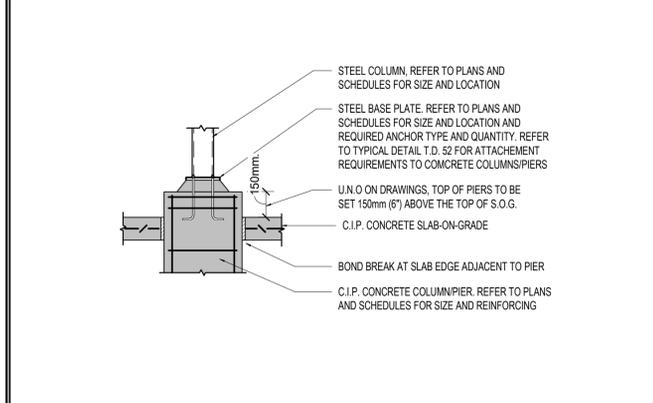


**S.20 TYPICAL INTERIOR BEAM REINF.**

**T.D.35 UNDERGROUND SERVICE BELOW CONTINUOUS CONCRETE STRIP FOOTINGS**

**S.40 CORNER COLUMN POCKET DETAIL**

**T.D.78 SUPPORT AT TOP OF BLOCK WALLS - FOR CONC. SLAB & TOPPING ON STEEL DECK**

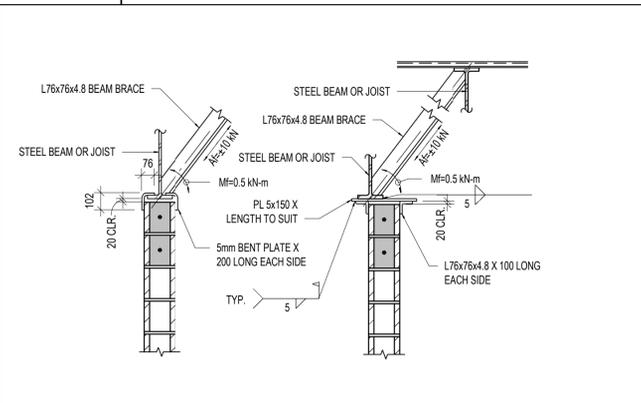
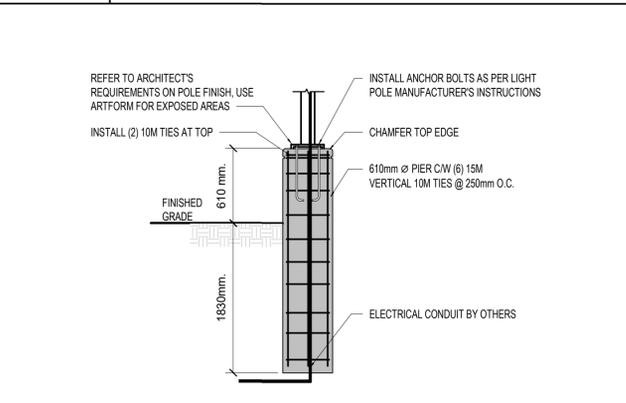
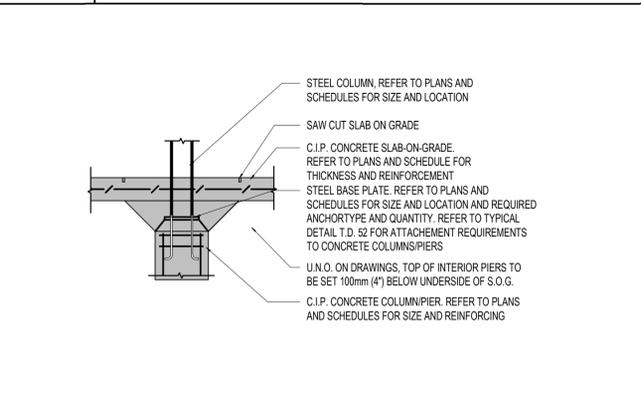
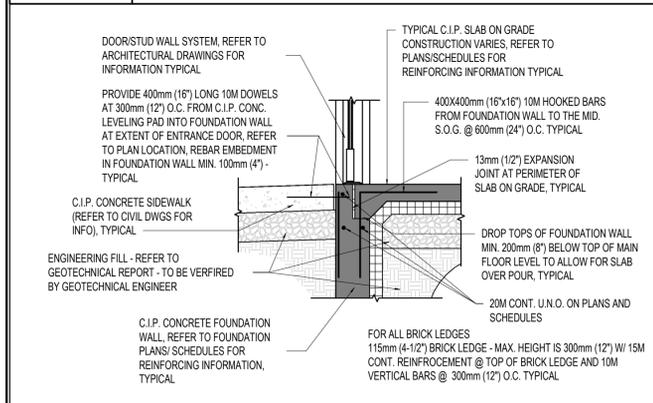


**T.D. 66 STEEL COLUMN TO FOUNDATION PIER - EXTERIOR**

**T.D. 67 FOUNDATION COLUMN POCKET DETAIL - CORNER**

**T.D. 68 STEEL COLUMN TO FOUNDATION PIER W/ FOUNDATION WALL - EXTERIOR**

**T.D. 78 SUPPORT AT TOP OF BLOCK WALLS - FOR CONC. SLAB & TOPPING ON STEEL DECK**

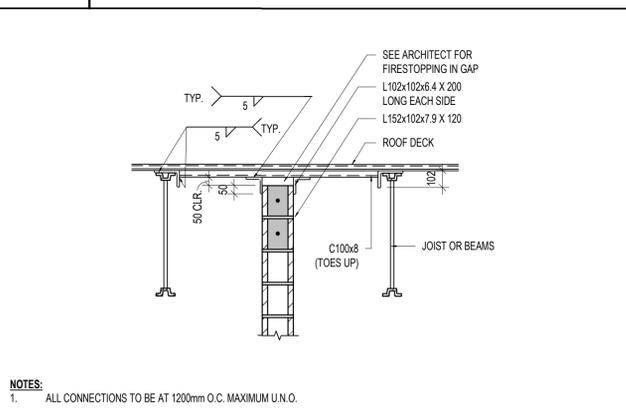
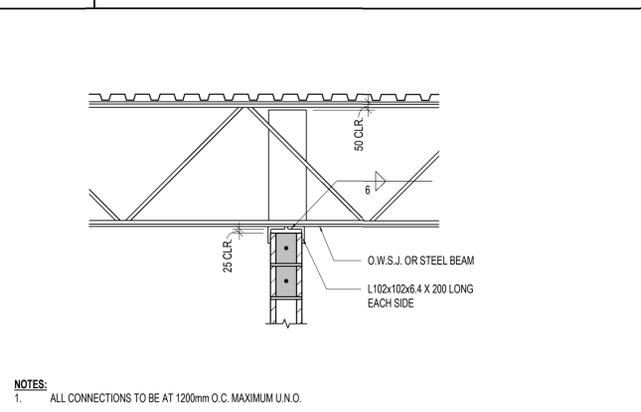
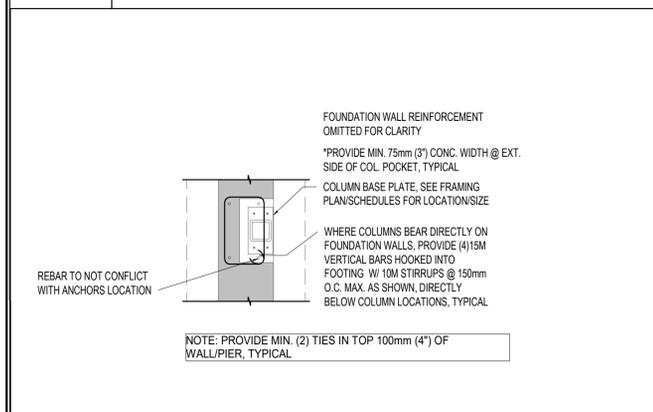


**T.D. 69 TYPICAL FROST SLAB AT ENTRY DOOR DETAIL**

**T.D. 70 STEEL COLUMN TO FOUNDATION PIER - INTERIOR**

**T.D.71 LIGHT POLE FOUNDATION DETAIL**

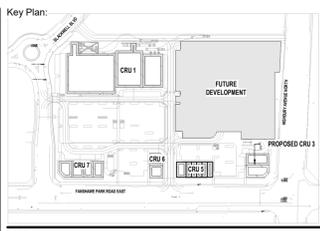
**T.D. 79 SUPPORT AT TOP OF BLOCK WALLS - FOR STEEL BEAMS**



**S.72 EDGE COLUMN POCKET DETAIL**

**T.D. 80 SUPPORT AT TOP OF BLOCK WALLS - FOR O.W.S.J. OR STEEL BEAMS (PERPENDICULAR)**

**T.D. 81 SUPPORT AT TOP OF BLOCK WALLS - FOR O.W.S.J. OR STEEL BEAMS (PARALLEL)**



Site Plan: North Arrow:

Consultant:

**IE DESIGN**  
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iedesign@iedesign.co.uk www.iedesign.co.uk

Seal: Seal:

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No.	Date	ISSUED FOR TENDER	Revision
1	APR 03, 2024		

ISSUES/REVISION TABLE

Project:

**WESTDELL**  
DEVELOPMENT CORP

1300 FANSHAWE PARK RD. EAST. - CRU #3

1300 FANSHAWE PARK RD. EAST. LONDON, ON

Drawing Title:

**TYPICAL DETAILS V**

Drawn By: D.K. Scale: AS INDICATED

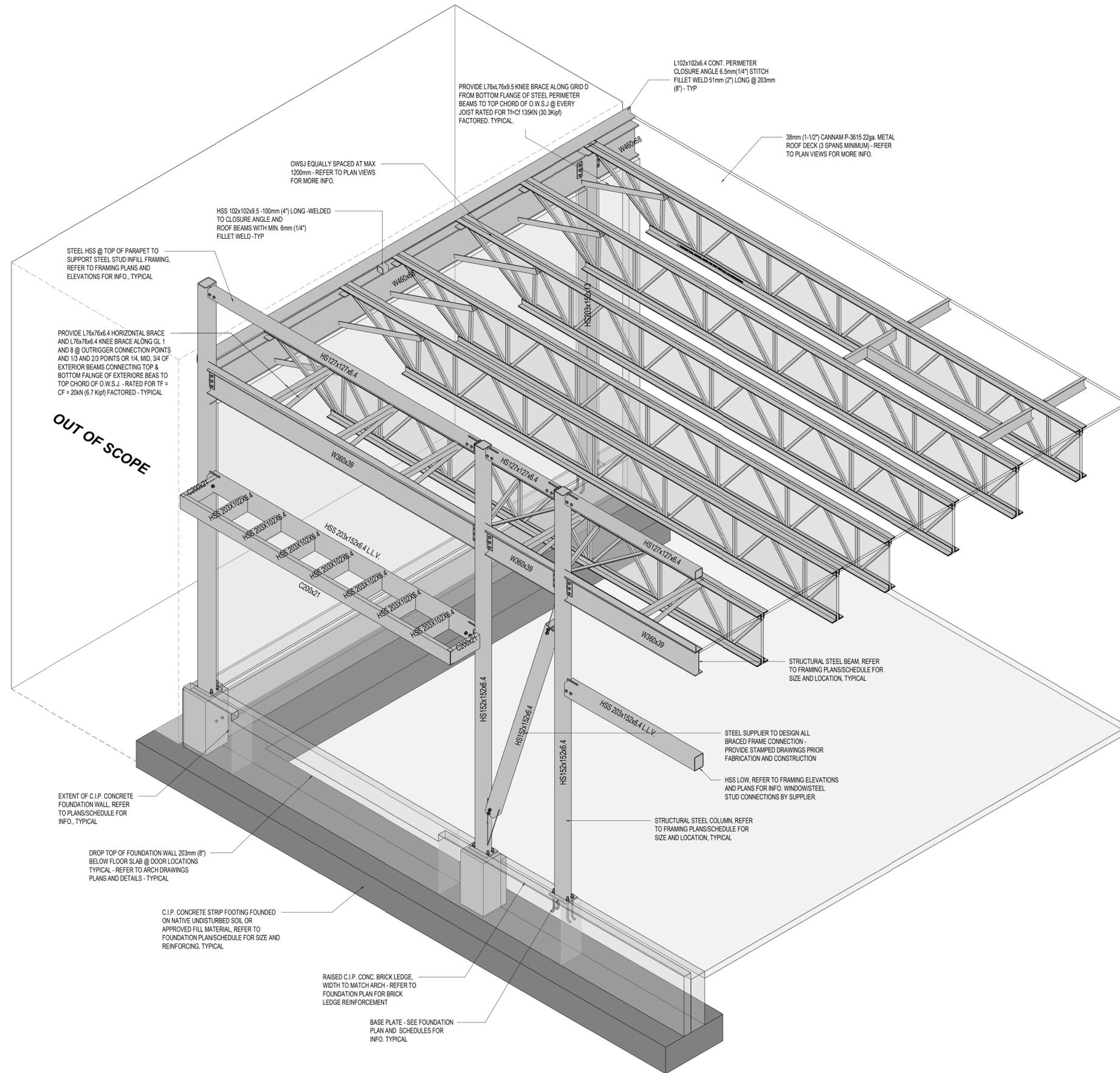
Checked By: M.A.H., J.G. Plot Date: APR. 03-2024

Project Date: NOV. 2023

Project No: 2023-102

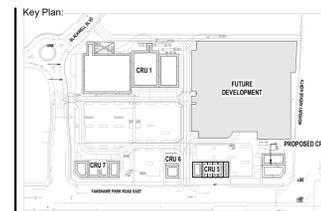
Drawing No: Revision

**S-6.4** **1**



**3D SCHEMATICS I (NOT FOR CONSTRUCTION)**

SCALE: NTS



Site Plan: North Arrow:

Consultant:

**IE DESIGN**  
Intelligent Engineering Design Ltd.  
**STRUCTURAL ENGINEERS**  
iedesign@iedesign.co.uk www.iedesign.co.uk

Seal: Seal:

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No.	Date	Revision
1	APR 03, 2024	ISSUED FOR TENDER

**ISSUES/REVISION TABLE**

Project:

**WESTDELL**  
DEVELOPMENT CORP

**1300 FANSHAWE PARK RD. EAST. - CRU #3**

1300 FANSHAWE PARK RD. EAST. LONDON, ON

Drawing Title:

**THREE-DIMENSIONAL SCHEMATICS I**

Drawn By: D.K. Scale: AS INDICATED

Checked By: M.A.H., J.G. Plot Date: APR. 03-2024

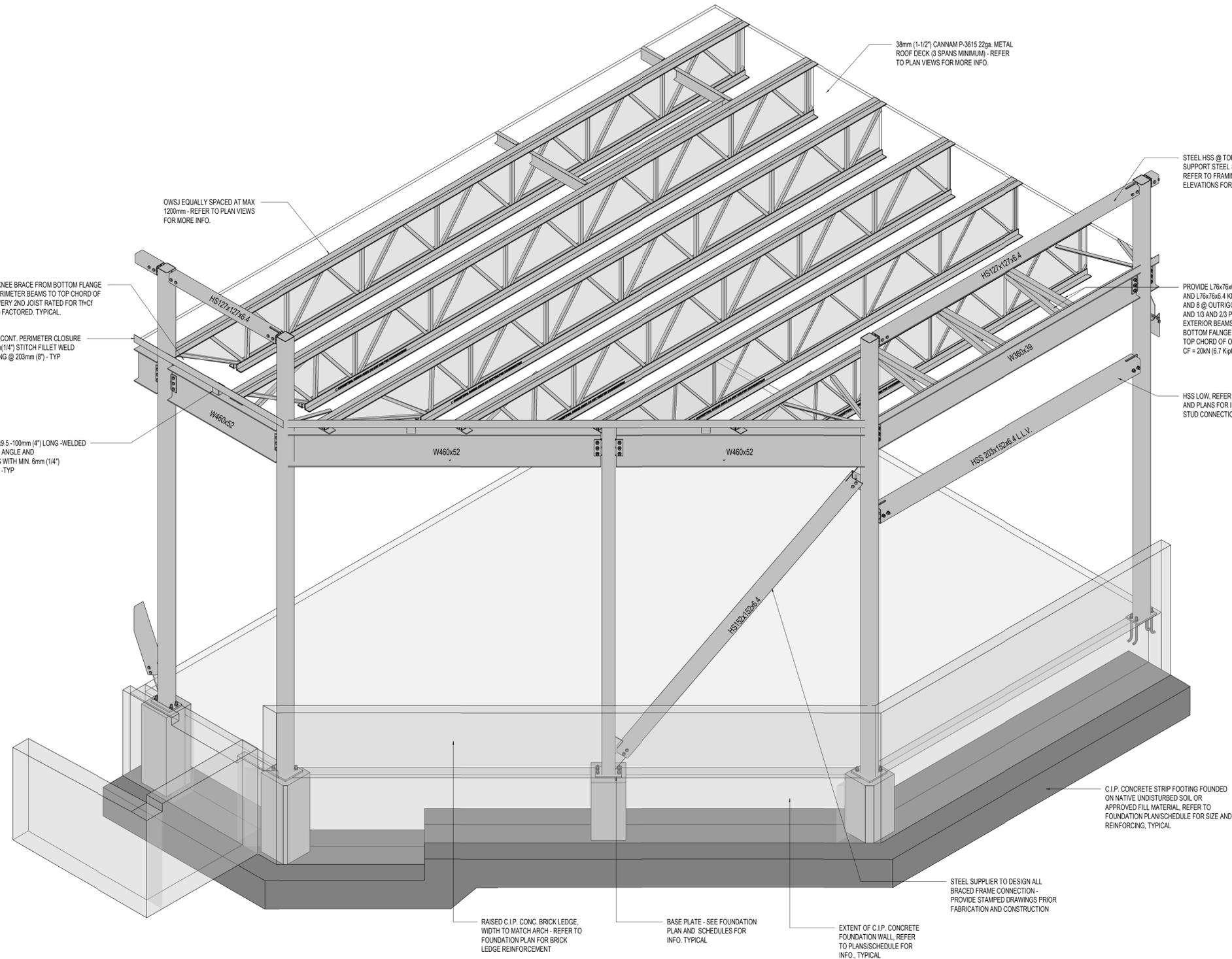
Project Date: NOV. 2023

Project No: 2023-102

Drawn No: Revision

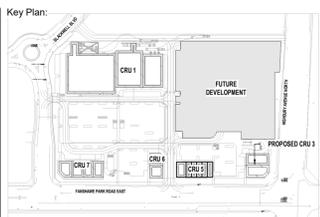
- NOTES:**
1. DETAILS, CONNECTIONS, AND DETAILED SHAPES PROVIDED ARE SCHEMATIC ONLY. DESIGN OF ALL CONNECTIONS AND DETAILS ARE BY OTHERS - PROVIDE STAMPED SHOP DRAWINGS PRIOR TENDERING, FABRICATION, AND CONSTRUCTION. U.N.O., ALL MEMBERS SHALL BE ALIGNED IN THE SAME VERTICAL PLANE (NO OFFSETS).
  2. ALL STEEL STUD ELEMENTS (INCLUDING, BUT NOT LIMITED) WALLS, PARAPETS, CANOPIES, EXTERIORS, AND OTHERS ARE DESIGNED BY OTHERS - PROVIDE STAMPED SHOP DRAWINGS PRIOR TENDERING, FABRICATION, AND CONSTRUCTION.
  3. ALL WOOD ELEMENTS (INCLUDING, BUT NOT LIMITED) WALLS, PARAPETS, CANOPIES, EXTERIORS, AND OTHERS ARE DESIGNED BY OTHERS - PROVIDE STAMPED SHOP DRAWINGS PRIOR TENDERING, FABRICATION, AND CONSTRUCTION.
  4. ALL CANOPIES ARE NOT TO BE CONNECTED TO THE STRUCTURE OR ATTACHED TO ANY STRUCTURAL MEMBERS PRIOR INSTALLING THE ROOF/FLOOR DIAPHRAGM AND FULLY CONNECT TO ROOF/FLOOR JOISTS, BEAMS, AND COLUMNS.

**S-7.0 1**



**3D SCHEMATICS II (NOT FOR CONSTRUCTION)**  
SCALE: NTS

- NOTES:**
1. DETAILS, CONNECTIONS, AND DETAILED SHAPES PROVIDED ARE SCHEMATIC ONLY. DESIGN OF ALL CONNECTIONS AND DETAILS ARE BY OTHERS - PROVIDE STAMPED SHOP DRAWINGS PRIOR TENDERING, FABRICATION, AND CONSTRUCTION. U.N.O., ALL MEMBERS SHALL BE ALIGNED IN THE SAME VERTICAL PLANE (NO OFFSETS).
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Site Plan: North Arrow:

Consultant:

**IE DESIGN**  
Intelligent Engineering Design Ltd.  
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iedesign@iedesign.ca www.iedesign.ca

Seal: Seal:

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No.	Date	Revision
1	APR 03, 2024	ISSUED FOR TENDER

**ISSUES/REVISION TABLE**

Project:

**WESTDELL**  
DEVELOPMENT CORP

**1300 FANSHAWE PARK RD. EAST. - CRU #3**  
1300 FANSHAWE PARK RD. EAST. LONDON, ON

Drawing Title:

**THREE-DIMENSIONAL SCHEMATICS II**

Drawn By: D.K. Scale: AS INDICATED  
Checked By: M.A.H., J.G. Plot Date: APR. 03-2024  
Project Date: NOV. 2023  
Project No: 2023-102

Drawing No: **S-7.1** Revision: **1**