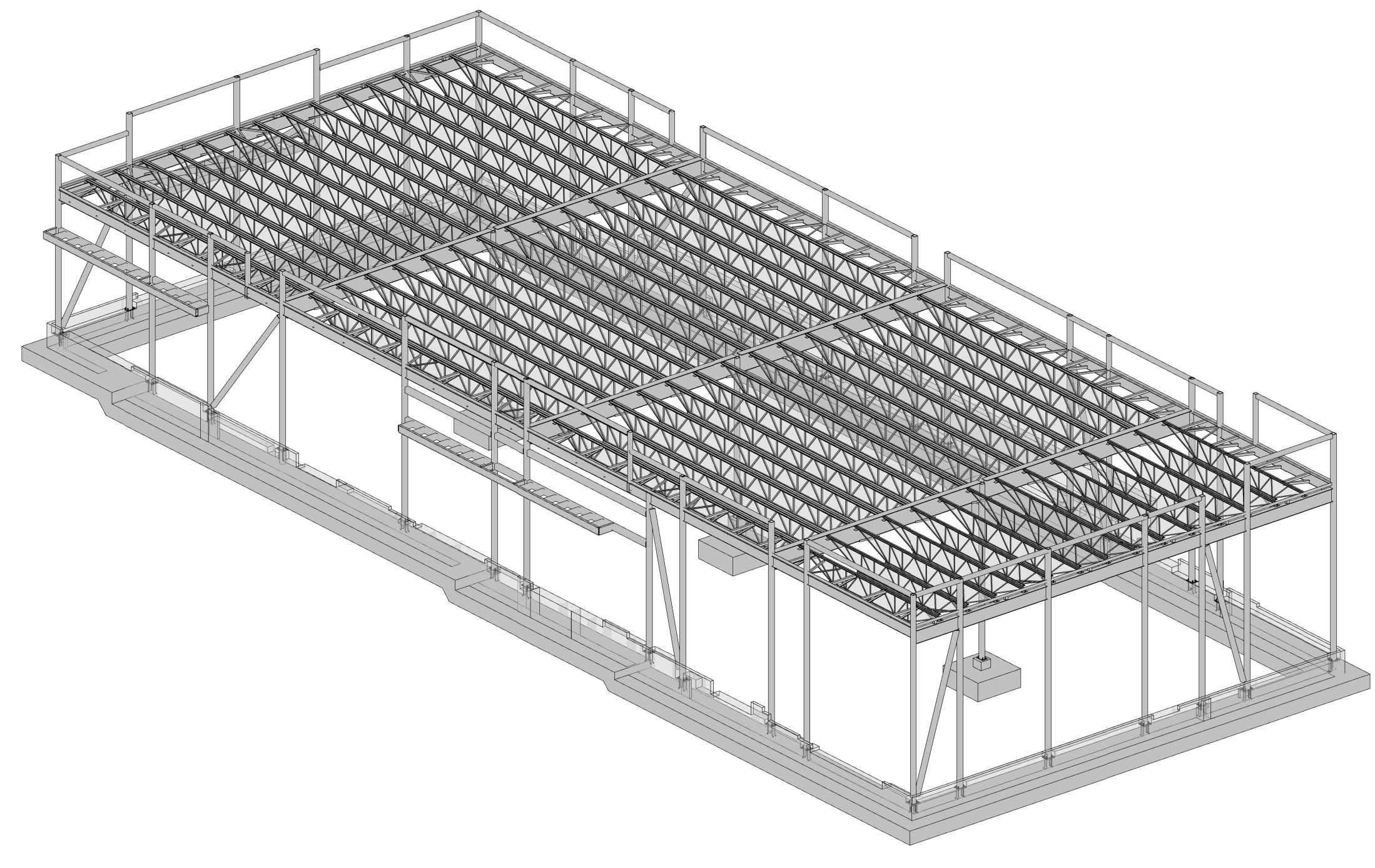
	DRAWING LIST
DRAWING NUMBER	DRAWING TITLE
S-0.0	COVER SHEET
S-0.1	SPECIFICATIONS I
S-0.2	SPECIFICATIONS II
S-1.0	FOUNDATION PLAN
S-1.1	ROOF FRAMING PLAN
S-1.2	SNOW DRIFT AND MECHANICAL PLAN
S-2.0	ELEVATIONS I
S-2.1	ELEVATIONS II
S-5.0	LOADING AND SCHEDULE
S-6.0	TYPICAL DETAILS I
S-6.1	TYPICAL DETAILS 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 #5 STRUCTURAL DRAWINGS PROJECT #2023-102

1300 FANSHAWE PARK RD. EAST. LONDON, ON.



## **3D STRUCTURAL (NOT FOR CONSTRUCTION)**

SCALE: NTS

CRU 1 FUTURE DEVELOPMENT CRU 3 CRU 4 CRU 4 CR
Site Plan: North Arrow:
Consultant:   Intelligent Engineering Design Ltd. Intelligent Engineering Design Ltd. Edesign@iedesign.ca Www.iedesign.ca 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 DÈSIGN 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 / OR 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 PRICIES 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.
2       APR 03, 2024       ISSUED FOR TENDER         1       FEB 27, 2024       ISSUED FOR COORDINATION         No.       Date       Revision         ISSUES/REVISION TABLE
Project: WESTEELL DEVELOPMENT CORP 1300 FANSHAWE PARK RD. EAST CRU #5 1300 FANSHAWE PARK RD. EAST. LONDON, ON.
COVER SHEET
Drawn By:S.D.Scale:AS INDICATEDChecked By:M.A.H./J.G./C.B.Plot Date:APR. 03-2023Project Date:NOV. 2023Project No:2023-102Drawing No:2023-102Revision2

Key Plan

#### **GENERAL NOTES**

- CO-ORDINATE ALL WORK AND DRAWINGS WITH THE STRUCTURAL, MECHANICAL, ARCHITECTURAL WITH AND ELECTRICAL WORK AND DRAWINGS.
- 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.
- ALL STRUCTURAL WORK TO BE IN ACCORDANCE WITH THE ONTARIO BUILDING CODE AND OTHER APPLICABLE STANDARDS AS NOTED BELOW (THE LATEST REVISIONS SHALL APPLY).
- ALL LOADS, FORCES AND REACTIONS SHOWN ON THE DRAWINGS OR NOTED IN THE SPECIFICATIONS ARE SERVICE 4 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 (ULS) GEOTECHNICAL BEARING RESISTANCE OF 260kPa (5430 psf). FOR A SERVICEABILITY LIMIT STATES (SLS) GEOTECHNICAL BEARING RESISTANCE OF 145kPa (3028 psf) - GEOTECHNICAL ENGINEER TO CONFIRM PRIOR CONSTRUCTION.
- BEFORE COMMENCING WORK VERIFY LOCATIONS OF BURIED SERVICES ON AND ADJACENT TO SITE. 1.3. 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:
- 2.2.1. 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 DAMAG
- 2.2.6. 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 NEATLY ALONG LIMITS OF PROPOSED EXCAVATION IN ORDER THAT SURFACE MAY BREAK EVENLY AND CLEANLY.
- PRODUCTS 3.
- GRANULAR A: TO OPSS 1010. 3.1.
- GRANULAR B: TYPE I TO OPSS 1010. 3.2
- IMPORTED FILL: GRANULAR MATERIALS, FREE OF ORGANIC MATTERS AND ANY DELETERIOUS MATERIALS 3.3. ACCOMPANIED WITH A CERTIFICATE STATING FILL MEETS CURRENT MOE STANDARDS FOR RESIDENTIAL LAND USE. 3.4. WATER: CLEAN, POTABLE.
- 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.
- PERFORM BLASTING IN ACCORDANCE WITH PROVINCIAL AND MUNICIPAL REGULATIONS: REPAIR DAMAGE. 4.2.1. DO NOT BLAST WITHIN 3 m (10'-0') OF BUILDING AND WHERE DAMAGE WOULD RESULT.
- 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.
- 4.7. KEEP EXCAVATION FREE FROM WATER.
- 4.8. EXCAVATION MUST NOT INTERFERE WITH BEARING CAPACITY OF ADJACENT FOUNDATIONS. 4.9. 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.
- FILL TYPES AND COMPACTION
- USE TYPES OF FILL AS INDICATED OR SPECIFIED BELOW. COMPACTION DENSITIES ARE PERCENTAGES OF MAXIMUM 5.1. 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% SPMDD. ANY OVERLY WET AND SOFT AREAS SHOULD BE SUB-EXCAVATED AND BACKFILLED WITH APPROVED FILL PLACED IN THIN LAYERS AND COMPACTED TO 100% SPMDD.
- 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% SPMDD.
- 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% SPMDD. 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% SPMDD. 5.1.2.4. PROVIDE 150 mm (6") COMPACTED THICKNESS BASE COURSE OF GRANULAR A FILL TO UNDERSIDE OF SLAB.
- COMPACT TO 100% SPMDD. 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% SPMDD. OVER-COMPACTION SHOULD BE AVOIDED.
- 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.
- PRIOR TO FORMING FOOTING, EXPOSED SUB-GRADE SHALL BE REVIEWED BY THE GEOTECHNICAL ENGINEER TO 6.2. 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. COMPACT EXISTING SUBGRADE UNDER WALKS, PAVING, AND SLABS ON GRADE TO SAME COMPACTION AS FILL.
- BACKFILLING ADJACENT TO OUTSIDE OF BUILDING: 7.3. 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.D. OVER 300MM (12") LAYER OF GRANULAR 'B' COMPACTED TO 98% S.P.M.D.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 V 1.2. REMOVE, CUT, AND PATCH WORK IN A MANNER TO MINIMIZE DAM
- PRODUCTS AND FINISHES TO SPECIFIED CONDITION. 1.3. WHERE NEW WORK ABUTS, OR ALIGNS WITH EXISTING, PROVIDE A SMOOTH AND EVEN TRANSITION. PATCH WORK TO
- MATCH EXISTING ADJACENT WORK IN TEXTURE AND APPEARANCE. 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. FINISH SURFACES AS SPECIFIED IN INDIVIDUAL PRODUCT SECTIONS.
- 1.6.
- 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

- 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. 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.
- 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 PATCHING SLEEVES, POCKETS
- 1.1.3 GROUTING OF COLUMN AND BEAM BEARING PLATES
- WORK INSTALLED UNDER THIS SECTION, SUPPLIED BY OTHERS: 2.1 SETTING OF ANCHORS AND SLEEVES FOR MECHANICAL AND ELECTRICAL TRADES.
- BUILDING IN OF IRON AND STEEL ITEMS. 2.2
- SETTING OF ANCHORS AND OTHER HARDWARE TO BE CAST INTO THE CONCRETE. 2.3
- CO-ORDINATION AND CO-OPERATION: 3.
- 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.
- INSTALL ANY ITEMS FURNISHED BY OTHERS, MISCELLANEOUS IRON WORK, ANCHORS, PIPE SLEEVES, HARDWARE,
- ETC., THAT ARE TO BE BUILT INTO THE CONCRETE WORK.
- 3.5 MAKE GOOD ALL OPENINGS LEFT IN CONSTRUCTION AROUND PIPES, OPENINGS FOR STRUTS AND ANCHORAGES.
- DESIGN CRITERIA

MATERIALS:

A23.1/A23.2.

6.2 AGGREGATES:

6.3 ADMIXTURES:

6.6

6.7

7.

6.12 FORM TIES:

6.1 CEMENT: IN ACCORDANCE WITH CSA A3000.

6.2.2 PIT RUN GRAVEL WILL IS NOT BE ACCEPTABLE.

REDUCED BELOW 50mm (2") MINIMUM THICKNESS.

ENTRAINING AGENTS AND CHEMICAL ADMIXTURES.

GUARANTEED YIELD STRESS OF 400 MPA.

ASTM A775/A775M AND MTO FORM 1443.

BY MEADOWS OR FLORSEAL BY SIKA CANADA INC.

6.9 EVAPORATION REDUCER: MASTER BUILDERS "CONFILM".

RESIN OVERLAY ON CONCRETE SIDE OF FORM.

6.12.2 HEAVY DUTY TIES FOR ONE SIDED FORM CONSTRUCTION.

DETAILS COMPLETE WITH SUITABLE PLUGS.

BITUMINOUS BINDER.

METAL IS WITHIN ONE INCH OF THE FINISHED SURFACE.

SIKA CANADA INC., OR INTRALOK BY W.R. MEADOWS.

PROPORTIONING OF CONCRETE - GENERAL:

OR HONEYCOMBED SURFACES.

THE FOLLOWING:

7.4.1 DATE AND TRUCK NUMBER

PREVENT TRANSFER OF SPIRAL MARKINGS TO CONCRETE.

- 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.
- 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 SUBJECTED. 5.1.3 ALL SUPPORTED LOADS INCLUDING RESHORED 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. 53
- SPECIFIED REQUIREMENTS.
- ETC. TO EQUIPMENT SUPPLIER'S REQUIREMENTS.

WORK.	
MAGE AND TO PROVIDE MEANS OF RESTORING	

- CO-OPERATE WITH OTHER SECTIONS TO ENSURE AN UNINTERRUPTED SEQUENCE OF CONSTRUCTION.
- FORM ALL HOLES AND OPENINGS SHOWN OR REQUIRED TO ACCOMMODATE THE WORK OF OTHER TRADES.
- REFER TO EQUIPMENT DRAWINGS FOR CRITICAL DIMENSIONS. DETAIL FORMS IN THESE AREAS TO PROVIDE THE
- TOLERANCES WITHIN CAN/CSA A23.1/A23.2 EXCEPT THAT TOLERANCES FOR EQUIPMENT ANCHORS, INSERTS,
- 6.2.1 FINE AND COURSE AGGREGATE MATERIALS AND GRADING IN ACCORDANCE WITH SECTION 5 OF CAN/CSA A23.1/A23.2. MAXIMUM SIZE OF COURSE AGGREGATE TO SUIT SPACING OF REINFORCING BARS IN ACCORDANCE WITH CAN/CSA
- 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 TOPPINGS WHERE THE TOPPING THICKNESS IS
- 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 6.3.2 CHEMICAL ADMIXTURES SHALL BE TYPE 1, WATER REDUCING ADMIXTURES BY GRACE.
- 6.3.3 ADMIXTURES TO BE COMPATIBLE WITH THE AIR ENTRAINING AGENT. 6.3.4 SUPERPLASTICIZER - WRDA SERIES BY GRACE, RECOMMENDED BY CONCRETE SUPPLIER.
- 6.4 REINFORCING STEEL (PLAIN) NEW DEFORMED BARS IN ACCORDANCE WITH CSA G30.14 WITH A
  - 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
  - WELDED WIRE FABRIC/MESH/REBAR: IN ACCORDANCE WITH MOST UPDATED ASTM A1064/A1064M AND CSA G30.5.
  - 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 CS309
- 6.10 LUMBER, PLYWOOD AND OTHER FORMWORK MATERIALS: IN ACCORDANCE WITH CAN/CSA 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
- 6.11 FORM OIL: COLOURLESS, NON-STAINING, MINERAL OIL, FREE OF KEROSENE. 6.12.1 FOR GENERAL WALL AREAS, REMOVABLE OR SNAP-OFF METAL TIES THAT AFTER REMOVAL OF FORMS, NO
- 6.12.3 ON EXPOSED SIDES OF WALLS, METAL TIES WITH PLASTIC CONE 'FORMERS' TO SUIT ARCHITECTURAL
- 6.13 GROUT: NON-SHRINK, NON FERROUS. M-BED STANDARD BY SIKA 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 6.16 CONTROL JOINT FILLER: AT SAWCUT CONTROL JOINTS IN ALL EXPOSED CONCRETE FLOORS AND BELOW
- RUBBER SHEET FLOORING: 'LOADFLEX' BY SIKA CANADA INC., OR 'BONFLEX' BY W.R. MEADOWS. 6.17 LATEX BONDING AGENT: FOR BONDING TOPPINGS TO CAST-IN-PLACE CONCRETE ITEMS: SURFACRETE BY
- 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
- 6.20 NON-METALLIC HARDENER: SEALTIGHT TYPE 'R' PREMIXED FLOOR HARDENER BY W.R. MEADOWS, OR
  - DIAMAG 7 BY SIKA CANADA INC., OR MASTERTOP 105 BY MASTERBUILDERS TECHNOLOGIES.
- JOB-MIXED CONCRETE WILL NOT BE ALLOWED ON THIS PROJECT. 7.2 PROVIDE MIXED-IN-TRANSIT, READY-MIXED CONCRETE IN ACCORDANCE WITH CAN/CSA 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
- 7.4 FURNISH TO THE SUB-CONTRACTOR, A "DELIVERY TICKET" FOR EACH BATCH OF CONCRETE DELIVERED TO

- 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 CAN/CSA A23.1/A23.2. 7.4.11 MINIMUM TRUCK LOAD TO BE 1 1/2 CUBIC METERS.

7.4.12	PROPORTION THE MATERIALS IN ACCORDANCE WITH THE MIX DESIGNS SPECIFIED ABOVE TO PROVIDE THE
	FOLLOWING:

LOCATION	MAX w/c RATIO	28 DAY COMP. STRENGTH	SLUMP (MM)	AIR CONTENT (%)	COMMENTS (CLASS)
INTERIOR		oncentori	1	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(02.00)
FOOTINGS	(BY SUPPLIER)	25 MPa	(B.O.)	(B.O)	Ν
FND. WALLS/WALLS	(BY SUPPLIER)	25 MPa	(B.O.)	(B.O)	N
COLUMNS/PIERS	(BY SUPPLIER)	25 MPa	(B.O.)	(B.O)	N
BEAMS	(BY SUPPLIER)	35 MPa	(B.O.)	(B.O)	N
SUSPENDED SLAB	(BY SUPPLIER)	35 MPa	(B.O.)	(B.O)	N
FLOOR TOPPING	(BY SUPPLIER)	25 MPa	(B.O.)	(B.O)	Ν
S.O.G.	(BY SUPPLIER)	25 MPa	(B.O.)	(B.O)	Ν
EXTERIOR					
RET./FND. WALLS/WALLS	(BY SUPPLIER)	25 MPa	75mm	5.5%	F2
CURBS/WALKS	(BY SUPPLIER)	35 MPa	75mm	6.5%	C2
COLUMNS/PIERS	(BY SUPPLIER)	25 MPa	75mm	5.5%	F2
BEAMS (CHLORIDES)	(BY SUPPLIER)	35 MPa	75mm	6.5%	C1
BEAMS (PLAIN)	(BY SUPPLIER)	35 MPa	75mm	5.5%	F2
SUSP. SLAB (CHLORIDES)	(BY SUPPLIER)	35 MPa	75mm	6.5%	C1
SUSP. SLAB (PLAIN)	(BY SUPPLIER)	35 MPa	75mm	5.5%	F2
S.O.G. (CHLORIDES)	(BY SUPPLIER)	35 MPa	75mm	6.5%	C1/C2
S.O.G. (PLAIN)	(BY SUPPLIER)	32 MPa	75mm	5.5%	F2

- 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.
- INTERIOR ASSUMES HEATED CONDITION, OTHERWISE USE EXTERIOR EXPOSURE AND STRENGTH
- INTERIOR AND EXTERIOR ASSUMES NON-CORROSIVE CONDITIONS, OTHERWISE USE C-1 AND C-XL CONCRETE CLASS SLUMP AND AGGREGATE SIZE ARE BY SUPPLIER AND TO MEET POURING, FINISHING, AND PLACEMENT REQUIREMENT
- WITHOUT SEGREGATION WHILE MEETING CSA STANDARDS SPECIFICATIONS.
- MAXIMUM W/C RATIO, AIR CONTENT, PLASTIC AND HARDENED MIX PROPERTIES, DOCUMENTATION, AND QUALITY CONTROL TO MEET THE REQUIREMENTS OF CSA A-23.1.
- WHERE THE ELEMENT OF DIFFERENT EXPOSURE CLASSIFICATIONS/STRENGTHS ARE TO MEET/CONNECT, USE THE MOST SEVERE CLASSIFICATION/STRENGTH
- PLANT QUALITY CONTROL:
- 8. 8.1 ALL MATERIALS, BATCHING AND MIXING PROCEDURES ARE SUBJECT TO TEST OR INSPECTION BY THE CONSULTANT OR HIS DESIGNED REPRESENTATIVES. 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. EXAMINATION: 9. EXAMINE AND OBTAIN ALL NECESSARY MEASUREMENTS OF PREVIOUSLY EXECUTED AND EXISTING WORK WHICH MAY AFFECT THE WORK OF THIS SECTION PRIOR TO COMMENCING OPERATIONS. 18. TREATMENT AND REPAIRS FOR FORMED SURFACES: REPORT ANY DISCOVERED DISCREPANCIES TO THE CONSULTANT SO THAT INSTRUCTIONS CAN BE GIVEN FOR THE 9.2 NECESSARY REMEDIAL ACTION. 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 SUBJECTED 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. FNGINFFR 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. 318. 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 CAN/CSA A23.1/A23.2. WHERE 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 20. CONTROL JOINTS: 10.9 TAKE SPECIAL CARE WHEN LOWERING PLASTIC LINED CIRCULAR FORMS OVER REINFORCING STEEL TO AVOID SCRATCHING PLASTIC LINER. 20.1. 11. REINFORCING STEEL: 11.1 PLACING, SPACING, SPLICING AND PROTECTION OF REINFORCEMENT IN ACCORDANCE WITH CAN/CSA A23.1/A23.2. 11.2 MAINTAIN THE COVER REQUIRED FOR REINFORCEMENT AS SHOWN ON THE DRAWINGS. WHERE NOT SPECIFICALLY SHOWN, REFER TO CAN/CSA A23.1/A23.2. 11.3 PULL UP MESH DURING CONCRETE POUR SO THAT REINFORCEMENT ENDS UP CENTERED IN THE SLAB. 11.4 TIE 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 SUBJECTED. IT IS THE RESPONSIBILITY OF G.C.,
- 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 AND VIBRATION IS TO BE DONE IN ACCORDANCE WITH CAN/CSA A23.1/A23.2. 12.3. MAXIMUM ELAPSE OF TIME BETWEEN CHARGING AND PLACING IS NOT TO EXCEED 11/2 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

SUPPLIER, AND INSTALLER TO ENSURE ABOVE ACHIEVED AND SHOP DRAWINGS TO INCLUDE RECOMMENDED

REINFORCEMENT TIES FOR DIFFERENT REINFORCEMENT IN DIFFERENT CONCRETE ELEMENTS.

SCREEDING, SET ON ADEQUATE SUPPORTS. 12.12 NOTIFY THE CONSULTANT AT LEAST 24 HOURS IN ADVANCE OF ANY SCHEDULED POUR 22.1. AT THE COMPLETION OF THE WORK OF THIS SECTION, REMOVE FROM SITE EXCESS MATERIALS, DEBRIS AND EQUIPMENT.

CLEAN-UP

#### 13. CURING AND PROTECTION:

13.1

PROTECTION AND CURING OF CONCRETE FOR A MINIMUM OF 7 DAYS IN ACCORDANCE WITH SECTION 21 OF

CAN/CSA 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 PLACING 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 SPRAYAPPLIED 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 CAN/CSA

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 CAN/CSA A23.1/A23.2. 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.

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 UNTHINNED 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

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 6X6XMIN6/MIN6 WWF 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. FOR REVEAL AND TIE LOCATIONS, SEE ARCHITECTURAL DRAWINGS.

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 CAN/CSA A23.1/A23.2. 18.2 PATCH TIE HOLES AND OTHER DEFECTS. REMOVE FINS 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. 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

19.2 POUR CONSTRUCTION JOINTS TO THE ADJOINING WALL AS DETAILED ON THE DRAWINGS AND PER CSA A23.3 AND ACI

19.3 BEFORE PLACING ADJOINING CONCRETE AT CONSTRUCTION JOINTS, CLEAN THE EXISTING SURFACE OF DIRT,

LAITANCE 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.

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 45 00 - QUALITY CONTROL. 21.2. PROVIDE UNHINDERED 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. 21.4. ALL FIELD TESTS FOR CONCRETE QUALITY AND ALL CRITERIA RELATING TO FAILURE TO MEET TEST REQUIREMENTS IN CAN/CSA 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 CAN/CSA 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 TESTED 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. 21.7. 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.

Key Plan:
Bite Plan:     North Arrow:
Consultant:
Seal: Seal:
General Notes: ALL DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INTELLIGENT ENGINEERING DESIGN LTD. (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 / OR 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 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 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. ANY MATERIAL ALTERATIONS CARRIED OUT DURING CONSTRUCTION BY THE 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.
2       APR 03, 2024       ISSUED FOR TENDER         1       FEB 27, 2024       ISSUED FOR COORDINATION         No.       Date       Revision         ISSUES/REVISION TABLE         Project:
A STATE OF ANSHAWE PARK RD. EAST. ONDON, ON.
Drawing Title: SPECIFICATIONS I
Drawn By:       S.D.       Scale:       AS INDICATED         Checked By:       M.A.H./J.G./C.B.       Plot Date:       APR. 03-2023         Project Date:       NOV. 2023         Project No:       2022 102
Project No.         2023-102           Drawing No:         Revision           S-0.1         2

#### CAST-IN-PLACE CONCRETE AND CONCRETE REINFORCING PARKING STRUCTURE 23.

23.1 23.2	THE DESIGN COMPLIES WITH T SELECTED PROTECTION SYSTI		MENTS OF CAN/CSA-S413-14, PAF	RKING STRUCTURES.
	STRUCTURAL COMPONENT SUSPENDED SLABS/BEAMS	SYSTEM M (MEMBRANE)	CAN/CSA S413-14 REF. TABLE 1	

- ALL CONCRETE SHALL MEET THE REQUIREMENTS OF CAN/CSA S413, PARKING STRUCTURES. 23.3 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. ALL GUARDS, VEHICLE GUARDRAILS, EXPOSED HARDWARE AND EMBEDDED MATERIALS SHALL MEET THE 23.5
- REQUIREEMENTS OF CAN/CSA S413, PARKING STRUCTURES. ALL WELDED-WIRE REINFORCEMENT SHALL MEET THE REQUIREMENTS OF MOST UP TO DATE CAN/CSA S413 , PARKING 23.6 STRUCTURES AND ASTM A1064/A1064M.
- 237 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.
- ALL HEATING CABLES AND HEATING PIPES FOR SNOW MELTING SYSTEMS SHALL MEET THE REQUIREMENTS OF 23.9 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

- MASONRY DESIGN TO CAN/CSA S304-14 "DESIGN OF MASONRY STRUCTURES" (LIMIT STATES DESIGN) 11
- TOLERANCES TO LATEST CSA A371 "MASONRY CONSTRUCTION FOR BUILDINGS" 12 CONSULTANT AND G.C. WILL INSPECT INSTALLED MASONRY AND REJECT MASONRY THAT IS CHIPPED, CRACKED, OR 1.3. 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"
- HOLLOW CONCRETE MASONRY UNITS TO LATEST CAN/CSA A165 MIN. COMPRESSIVE STRENGTH = 25MPa, U.N.O. MASONRY MORTAR/GROUT FILL TO CAN/CAS A179 "FINE GROUT" MIN. 20MPa STRENGTH AT 28 DAYS AND NOT LESS THAN 2.3 MASONRY COMPRESSIVE STRENGTH, 175-200MM SLUMP TYPE S U.N.O.
- MASONRY CONNECTORS AND REINFORCEMENT TO LATEST CSA A370
- HOT DIP GALVANIZING: TO ASTM A123/A123M AND ASTM A153/A153M, CLASS B2, MINIMUM 458 G/M<sup>2</sup> ZINC COATING ON ALL 2.5. SURFACES
- MANUFACTURES HAVING PRODUCTS CONSIDERED ACCEPTABLE FOR USE: 26 2.6.1. BLOK-LOK.
- 2.6.2. FERO.
- 2.7. ALL LADDER STEEL TO BE HEAVY DUTY 4.76 mm (3/16") GUAGE SIDE WIRE

#### ERECTION

- CONSTRUCT MASONRY PLUMB, LEVEL AND TRUE TO LINE, WITH VERTICAL JOINTS IN ALIGNMENT. 32 LAY OUT COURSING AND BOND TO ACHIEVE CORRECT COURSING HEIGHTS, AND CONTINUITY OF BOND ABOVE AND BELOW OPENINGS, WITH MINIMUM OF CUTTING.
- LAY MASONRY IN FULL BED OF MOTOR, PROPERLY JOINTED WITH OTHER WORK.
- BUTTERING CORNERS OF JOINTS, AND DEEP OR EXCESSIVE FURROWING OF MORTAR JOINTS ARE NOT PERMITTED. DO NOT USE CHIPPED, CRACKED OR OTHERWISE DAMAGED UNITS.
- BUILD IN ITEMS REQUIRED TO BE BUILT INTO MASONRY. PREVENT DISPLACEMENT OF BUILT-IN ITEMS DURING 3.6. CONSTRUCTION
- CHECK PLUMB, LOCATION AND ALIGNMENT FREQUENTLY, AS WORK PROGRESSES.
- BRACE DOOR FRAMES TO MAINTAIN PLUMB. FILL SPACES BETWEEN FRAME JAMBS AND MASONRY WITH GROUT. 38 3.9. MAINTAIN MATERIALS AND SURROUNDING AIR TEMPERATURE TO MINIMUM 5 DEGREES CELSIUS AND MAXIMUM 50 DEGREES ELSIUS 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
- PROVIDE HEATED ENCLOSURES 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.
- JOINTING 4.
- MAKE VERTICAL AND HORIZONTAL JOINTS EQUAL AND UNIFORM THICKNESS.
- ALLOW JOINTS TO SET JUST ENOUGH TO REMOVE EXCESS WATER, THEN TOOL WITH ROUND JOINTER TO RESULT IN 4.2. 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, RESOILIENT 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.

- PROVISIONS FOR MOVEMENT
- LEAVE A 9.5 mm (3/8") SPACE BETWEEN MASONRY AND VERTICAL STRUCTURAL ELEMENTS FOR NON-LOADBEARING. 6.1. LEAVE A 11 mm (7/16") SPACE BETWEEN TOP OF NON-LOADBEARING WALLS AND PARTITIONS AND STRUCTURAL ELEMENTS. 6.2

### STRUCTURAL STEEL

#### 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. WHEN SHEARS ARE NOT INDICATED ON DRAWINGS, SELECT OR DESIGN CONNECTIONS TO SUPPORT THE MAXIMUM OF A) 1.2 REACTION FROM MAXIMUM UNIFORMLY DISTRIBUTED LOAD THAT CAN BE SAFELY SUPPORTED BY BEAM IN BENDING. PROVIDED 1.9.8. ALLOW FOR APPROPRIATE END ECCENTRICITIES IN THE DESIGN ( NO POINT LOADS ACT ON BEAM OR B) MAXIMUM SHEAR CAPACITY OF THE BEAM IF THE BEAM SUPPORTS ANY POINT LOADS OR 1.9.9. DESIGN INTERIOR AXIAL LOAD BEARING WALLS WITH NOMINAL LA CANTILEVER OVER COLUMNS.
- 1.9.10. PROVIDE LINTEL, SILL AND JAMB MEMBERS AND CONNECTIONS IN 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" 1.9.11. ANCHOR TOP AND BOTTOM TRACK TO THE STRUCTURE AT A MAX 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 JURSTRICTIONS.
- INDICATE PROFILES, SIZES, SPACING, LOCATIONS OF STRUCTURAL MEMBERS, OPENINGS, ATTACHMENTS, FASTENERS, FIELD 2.2. CONNECTIONS, AND CAMBERS.
- INDICATE ALL DETAILS AND INFORMATION NECESSARY FOR ASSEMBLY AND ERECTION PURPOSES, INCLUDING ANCHOR BOLT 2.3. 2.3. SETTING DIAGRAM FOR PROPER INSTALLATION.
- 3. QUALIFICATIONS
- FABRICATE STRUCTURAL STEEL MEMBERS TO CISC CODE OF STANDARD PRACTICE AND CSA-W59.
- MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE (3) YEARS EXPERIENCE.
- INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION WITH MINIMUM THREE (3) YEARS EXPERIENCE. WELDERS' CERTIFICATES: EMPLOY ONLY CERTIFIED WELDERS ON THE WORK, WITH VERIFIABLE QUALIFICATION TO CSA-W59 3.4. WITHIN THE PREVIOUS TWELVE (12) MONTHS.

#### MATERIALS 4.

- W-SHAPES AND CHANNELS: TO CSA-G40.20/G40.21, GRADE 350W, 4.1.
- 4.2 HOLLOW STRUCTURAL STEEL MEMBERS: TO CSA G40.20/G40.21, PLATES AND ANGLES: TO CSA G40.20/G40.21, GRADE 300W, UNLES 4.3
- ANCHOR BOLTS: TO ASTM 307. 44
- 4.5. BOLTS, NUTS AND WASHERS: TO ASTM A325M, INCLUDING SUITAB
- GALVANIZED FOR EXTERIOR MEMBERS. WELDING MATERIALS: TO CSA W48 SERIES, CSA W59 AND CERTIFI 46
- 4.7. GROUT: TO ASTM C1107/C1107M, NON-SHRINK TYPE, PREMIXED C WATER REDUCING AND PLASTICIZING ADDITIVES, CAPABLE OF DE
- DAYS. HOT DIP GALVANIZING: GALVANIZE STEEL, WHERE INDICATED AN 4.8.
- G/M2.
- 5. FABRICATION
- 5.1. FABRICATE STRUCTURAL STEEL IN ACCORDANCE WITH CAN/CSA-SHOP DRAWINGS.
- SPLICING WILL NOT BE ALLOWED WITHOUT THE APPROVAL OF TI 5.2. WILL THEN ONLY BE ALLOWED IF THE LENGTH OF THE FABRICATE PRODUCED AT THE MILL. IF A MEMBER IS SPLICED, THE FABRICAT THE FULL SECTION PROPERTIES ARE CONTINUOUS OVER THE SPI
- ALL MEMBERS SHALL BE TRUE TO LENGTH SUCH THAT ASSEMBLY 5.3. 5.4. CONTINUOUSLY SEAL JOINED MEMBERS WITH CONTINUOUS WELL SEAL IS NOT POSSIBLE, PROVIDE WEEP HOLES.
- MAKE GOOD WELDS WHICH SHOW INCLUSIONS, POROSITY, OR LA 5.5. IN CSA W59.
- 5.6. GRIND ALL EXPOSED WELDS SMOOTH IF NEEED. 5.7. UNLESS NOTED OTHERWISE, FABRICATE CONNECTIONS FOR BOL
- 5.8. TAKE CARE TO MINIMIZE DISTORTION DUE TO WELDING AND GAL
- TO MAINTAIN FABRICATION TOLERANCES OF CAN/CSA S-16. 5.9. PROVIDE HOLES FOR CONNECTING THE WORK OF OTHER TRADE
- FABRICATION, AND ONLY WHERE SUCH HOLES WILL NOT IMPAIR 1
- 5.10. UNLESS OTHERWISE SPECIFIED, MAKE HOLES 2 mm (3/32") LARGE BE PUNCHED, SUB-PUNCHED, DRILLED, OR REAMED AS PERMITT PROVIDE WELDED STRAP OR REINFORCING BAR ANCHORS FOR A 5.11.
- TYPICAL DETAILS. 5.12. BEAR ANGLE LINTELS AS INDICATED ON DRAWINGS, BUT NOT LES
- WHERE THE UPSTANDING LEGS ARE BACK TO BACK.
- 5.13. MARK MATERIALS IN ACCORDANCE WITH CSA G40.20/G40.21. DO N CONDITION, PLACE MARKING AT LOCATIONS NOT VISIBLE FROM I
- FINISH
- 6.1. CLEAN MEMBERS, REMOVE LOOSE MILL SCALE, RUST, OIL, DIRT / 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 I
- 6.2.4. CONFIRM PRIMER REQUIREMENTS WITH ARCHITECT FOR STEEL
- PROVIDE COPY OF APPROVED SPECS TO IE DESIGN.
- APPLY PRIMER AND TWO COATS OF COAL TAR EPOXY TO BASES ( 6.3. 6.4. HOT DIP GALVANIZING: WHERE INDICATED, GALVANIZE STEEL, TO
- 7 ERECTION

8.1.

1.9.1.

2.1

2.2.

- ERECT STRUCTURAL STEEL IN ACCORDANCE WITH CAN/CSA S16 7.1. 7.2. ALLOW FOR ERECTION LOADS, AND FOR SUFFICIENT TEMPORARY
- ALIGNMENT UNTIL COMPLETION OF PERMANENT BRACING.
- 7.3. FIELD WELD COMPONENTS AS INDICATED ON SHOP DRAWINGS. 7.4. FIELD CONNECT MEMBERS WITH THREADED FASTENERS: TORQUI
- 7.5. ASSEMBLE BOLTED PARTS TOGETHER SOLIDLY. DO NOT SEPARA MATERIAL
- DO NOT DISTORT OR ENLARGE HOLES. HOLES IN ADJACENT PART 7.6. BOLTS.
- FIELD CUTTING OR ALTERING OF STRUCTURAL MEMBERS IS NOT 77 SUPPLIER'S DESIGN ENGINEER.

4.	MATERIALS	3.	QUALIFICATIONS	3.3.
4.1. 4.2. 4.3.	W-SHAPES AND CHANNELS: TO CSA-G40.20/G40.21, GRADE 350W, UNLESS NOTED OTHERWISE. HOLLOW STRUCTURAL STEEL MEMBERS: TO CSA G40.20/G40.21, GRADE 350 W, CLASS C, UNLESS NOTED OTHERWISE. PLATES AND ANGLES: TO CSA G40.20/G40.21, GRADE 300W, UNLESS NOTED OTHERWISE.	3.1.	FABRICATOR'S 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 PREFORM FIELD REVIEW. STAMPLED SHOP DRAWINGS TO SHOW BOTH DESIGN AND INSTALLATION REQUIREMENTS.	4.
4.4. 4.5.	ANCHOR BOLTS: TO ASTM 307. BOLTS, NUTS AND WASHERS: TO ASTM A325M, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS; HOT DIPPED GALVANIZED FOR EXTERIOR MEMBERS.	3.2. 3.3.	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) WELDERS: COMPANIES CERTIFIED BY THE CANADIAN WELDING BUREAU TO CSA W47.1, AND HAVING WELDERS QUALIFIED FOR THE BASE	4.1. 4.2.
4.6. 4.7.	WELDING MATERIALS: TO CSA W48 SERIES, CSA W59 AND CERTIFIED BY CANADIAN WELDING BUREAU. GROUT: TO ASTM C1107/C1107M, NON-SHRINK TYPE, PREMIXED COMPOUND CONSISTING OF NON-METALLIC AGGREGATE, CEMENT,		MATERIAL TYPES AND THICKNESSES THAT ARE TO BE WELDED.	5.
4.8.	WATER REDUCING AND PLASTICIZING ADDITIVES, CAPABLE OF DEVELOPING A MINIMUM COMPRESSIVE STRENGTH OF 50 MPa AT 28 DAYS. HOT DIP GALVANIZING: GALVANIZE STEEL, WHERE INDICATED AND EXTERIOR, TO CAN/CSA-G164, MINIMUM ZINC COATING OF 275	4. 4.1.	DELIVERY STORAGE AND HANDLING STORE PRODUCTS PROTECTED FROM CONDITIONS THAT MAY CAUSE PHYSICAL DAMAGE OR CORROSION.	5.1.
	G/M2.	4.2.	HANDLE AND LIFT PREFABRICATED PANELS CAREFULLY TO AVOID PERMANENT DISTORTION TO ANY MEMBER OR COLLATERAL MATERIAL.	5.2. 5.3.
5.		5.	MANUFACTURES HAVING PRODUCTS CONSIDERED ACCEPTABLE FOR USE:	6.
5.1. 5.2.	FABRICATE STRUCTURAL STEEL IN ACCORDANCE WITH CAN/CSA-S16, CAN/CSA-S136, AND IN ACCORDANCE WITH THE APPROVED SHOP DRAWINGS. SPLICING WILL NOT BE ALLOWED WITHOUT THE APPROVAL OF THE CONSULTANT AT THE SHOP DRAWING REVIEW STAGE. SPLICING	5.1. 5.2. 5.3.	BAILEY METAL PRODUCTS. DIETRICH METAL FRAMING. MITEK CANADA INC.	6.1.
J.Z.	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	7.	MATERIALS	6.2. 6.2.1. 6.2.2.
5.3.	THE FULL SECTION PROPERTIES ARE CONTINUOUS OVER THE SPLICE. ALL MEMBERS SHALL BE TRUE TO LENGTH SUCH THAT ASSEMBLY MAY BE DONE WITHOUT FILLERS.	7.1.	STEEL: TO CAN/CSA-S136; IDENTIFIED ON SHOP DRAWINGS AS TO SPECIFICATION, GRADE, MECHANICAL PROPERTIES AND COATING TYPE	6.3.
5.4.	CONTINUOUSLY SEAL JOINED MEMBERS WITH CONTINUOUS WELDS OR INTERMITTENT WELDS AND PLASTIC FILLER. WHERE FULL SEAL IS NOT POSSIBLE, PROVIDE WEEP HOLES.	7.2.	AND THICKNESS. BOLTS AND NUTS: TO ASTM A307 OR ASTM A325M; HOT-DIPPED GALVANIZED, C/W WASHERS.	7.
5.5. 5.6.	MAKE GOOD WELDS WHICH SHOW INCLUSIONS, POROSITY, OR LACK OF FUSION PENETRATION BEYOND THE TOLERANCES SET OUT IN CSA W59. GRIND ALL EXPOSED WELDS SMOOTH IF NEEED.	7.3. 7.4. 7.5.	SCREWS: GALVANIZED STEEL, SELF-TAPPING, TO ASTM C1513 WELDING MATERIALS: TO CSA W5 WELDING ELECTRODES: 480MPa MINIMUM TENSILE STRENGTH SERIES, E.G. E480XX OR ER480S-X	7.1. 7.2.
5.0. 5.7. 5.8.	UNLESS NOTED OTHERWISE, FABRICATE CONNECTIONS FOR BOLT, NUT AND WASHER CONNECTORS. TAKE CARE TO MINIMIZE DISTORTION DUE TO WELDING AND GALVANIZING PROCEDURES. STRAIGHTEN MEMBERS ARE REQUIRED	7.6.	TOUCH-UP PAINT: ZINC RICH PAINT FOR TOUCHING UP WELDS AND DAMAGED METALLIC COATINGS, TO CAN/SGSB-1.181.	8.
5.9.	TO MAINTAIN FABRICATION TOLERANCES OF CAN/CSA S-16. PROVIDE HOLES FOR CONNECTING THE WORK OF OTHER TRADES, WHERE HOLE LOCATIONS CAN BE DETERMINED PRIOR TO	8.	MANUFACTURED ITEMS	8.1. 8.2.
5.10.	FABRICATION, AND ONLY WHERE SUCH HOLES WILL NOT IMPAIR THE PERFORMANCE OF THE MEMBER. UNLESS OTHERWISE SPECIFIED, MAKE HOLES 2 mm (3/32") LARGER THAN THE NOMINAL DIAMETER OF THE FASTENER. HOLES MAY	8.1.	LOAD-BEARING STEEL STUDS, TRACKS AND BRACING: TO ASTM C955; FINISHES, SIZE AND THICKNESSES AS IDENTIFIED ON ACCEPTED SHOP DRAWINGS	8.3.
5.11.	BE PUNCHED, SUB-PUNCHED, DRILLED, OR REAMED AS PERMITTED IN CSA S16. PROVIDE WELDED STRAP OR REINFORCING BAR ANCHORS FOR ATTACHMENT TO CONCRETE OR MASONRY, AS SHOWN IN THE TYPICAL DETAILS.	9.	FABRICATION	9. 9.1.
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.	9.1.	EXCEPT AS NOTED HEREIN, FABRICATE WALL FRAMING COMPONENTS TO CAN/CGSB-7.1 AND IN ACCORDANCE WITH APPROVED SHOP DRAWINGS.	9.1. 9.2. 9.3.
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.	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	9.4. 9.5.
6.	FINISH	• •	MEMBER TO BE NOT LESS THAN 300 mm. THE EFFECT OF CUT-OUTS ON THE STRENGTH AND STIFFNESS OF THE MEMBER SHALL BE CONSIDERED.	9.6.
6.1.	CLEAN MEMBERS, REMOVE LOOSE MILL SCALE, RUST, OIL, DIRT AND FOREIGN MATTER. PREPARE SURFACES ACCORDING TO SSPC- SP-3.		LENGTH TOLERANCES OF MEMBERS: TRACKS: NONE AXIAL LOADBEARING STUDS: PLUS OR MINUS 1.5 mm	9.7.
6.2. 6.2.1.	SP-3. SHOP PRIME STRUCTURAL STEEL, EXCEPT FOR: SURFACES TO BE IN CONTACT WITH CONCRETE OR SOIL.	9.3.3.	CROSS SECTIONAL GEOMETRY TOLERANCES FOR MEMBERS SHALL CONFORM TO THE FOLLOWING: MEMBER DEPTH: MINUS 1 mm, PLUS 2 mm	9.8. 9.9.
6.2.2. 6.2.3.	SURFACES AND EDGES TO BE FIELD WELDED. STRIP PAINT FROM BOLTS, NUTS, CORNERS, AND SHARP EDGES BEFORE PRIME COAT IS DRY.	9.3.3.2.	FLANGE DEPTH: MINUS 1 mm, PLUS 2 mm; MINIMUM 31 mm WIDTH. LIP LENGTH: PLUS 4 mm	9.10.
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.	9.3.4.	THICKNESS: TO CSA S136 CORNER ANGLES: PLUS OR MINUS 3 DEGREES	10.
6.3. 6.4.	APPLY PRIMER AND TWO COATS OF COAL TAR EPOXY TO BASES OF EXTERIOR CANOPY COLUMNS OR AS SPECIFIED BY ARCHIECT. HOT DIP GALVANIZING: WHERE INDICATED, GALVANIZE STEEL, TO CAN/CSA-G164, MINIMUM ZINC COATING OF 600 G/M2.	9.3.5.	MARK THE STEEL THICKNESS, EXCLUSIVE OR COATING, ON EACH MEMBER BY EMBOSSING, STAMPING WITH INDELIBLE INK OR BY COLOUR CODING.	10.1
7.	ERECTION	10.	FINISHES	ME
7.1. 7.2.	ERECT STRUCTURAL STEEL IN ACCORDANCE WITH CAN/CSA S16 AND THE APPROVED ERECTION DRAWINGS. ALLOW FOR ERECTION LOADS, AND FOR SUFFICIENT TEMPORARY BRACING TO MAINTAIN STRUCTURE SAFE, PLUMB, AND IN TRUE	10.1.	STEEL: GALVANIZED TO ASTM A653/A653M, Z275 COATING DESIGNATION, OR ASTM A792/A792M, AZM150 COATING DESIGNATION.	1.
7.3.	ALIGNMENT UNTIL COMPLETION OF PERMANENT BRACING. FIELD WELD COMPONENTS AS INDICATED ON SHOP DRAWINGS.	11. 11.1.	FASTENERS AND WELDS ENSURE THAT CONNECTED PARTS ARE IN CONTACT. PROVIDE CLAMPING BEFORE WELDING OR INSTALLING SCREWS AS REQUIRED.	1.1.
7.4. 7.5.	FIELD CONNECT MEMBERS WITH THREADED FASTENERS; TORQUE TO REQUIRED RESISTANCE AS RECOMMENDED IN CAN/CSA S16. ASSEMBLE BOLTED PARTS TOGETHER SOLIDLY. DO NOT SEPARATE WITH GASKETS OR ANY OTHER INTERPOSED COMPRESSIBLE	11.1. 11.2. 11.3.	WELDS: TO CAN/CSA-S136, CSA W59 AND ANSI/AWS D1.3, AS APPLICABLE. SHEET METAL SCREWS SHALL BE OF THE MINIMUM DIAMETER INDICATED ON THE SHOP DRAWINGS BUT NOT LESS THAN #8.	1.2.
7.6.	MATERIAL. DO NOT DISTORT OR ENLARGE HOLES. HOLES IN ADJACENT PARTS SHALL MATCH SUFFICIENTLY WELL TO PERMIT EASY ENTRY OF BOLTS.	11.4. 11.5.	PENETRATION OF SHEET METAL SCREWS BEYOND JOINED MATERIALS TO BE NOT LESS THAN 3 EXPOSED THREADS. SHEET METAL SCREW THREAD TYPES, DRILLING CAPABILITY AND INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S	1.3. 1.3.1.
7.7.	FIELD CUTTING OR ALTERING OF STRUCTURAL MEMBERS IS NOT PERMITTED WITHOUT WRITTEN STAMPED APPROVAL FROM THE SUPPLIER'S DESIGN ENGINEER.	11.6.	RECOMMENDATIONS PROVIDE SHEET METAL SCREWS WITH LOW PROFILE HEADS WHERE COVERED BY SHEATHING MATERIALS.	1.3.2. 1.3.3.
7.8.	AFTER ERECTION, PRIME WELDS, ABRASIONS, AND SURFACES NOT SHOP PRIMED, EXCEPT SURFACES TO BE IN CONTACT WITH CONCRETE.	11.7. 12.	INSTALL CONCRETE ANCHORS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS ERECTION	2.
7.9.	GROUT UNDER BASE PLATES. TROWEL GROUTED SURFACE SMOOTH, SPLAY NEATLY TO 45 DEGREES.	12.1.	ERECT COLD-FORMED METAL FRAMING TO ASTM C1007.	2.1. 2.2.
8. 8.1. 8.1.	TOLERANCES AS PER MOST RECENT AND APPLICABLE CAN/CSA S16. MAXIMUM VARIATION FROM PLUMB: 6 mm (1/4") PER STOREY, NON-CUMULATIVE.	12.2. 12.3.	ERECT COLD-FORMED METAL FRAMING TRUE AND PLUMB WITHIN THE SPECIFIED TOLERANCES. EMPLOY TEMPORARY BRACING WHEREVER NECESSARY TO WITHSTAND ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECT DURING	2.3. 2.4.
8.2.	MAXIMUM VARIATION FROM TRUE ALIGNMENT: 6 mm (1/4").		ERECTION AND SUBSEQUENT CONSTRUCTION. LEAVE TEMPORARY BRACING IN PLACE AS LONG AS REQUIRED FOR THE SAFETY AND INTEGRITY OF THE STRUCTURE.	
9.	FIELD QUALITY CONTROL	12.4. 12.5. 12.6.	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. ALIGN ADJACENT OR ABUTTING MEMBERS IN THE SAME PLANE TO WITHIN PLUS OR MINUS 0.5 mm MAXIMUM. SPACE STUDS WITHIN 3 mm EITHER DIRECTION OF THE DESIGN SPACING. THE CUMULATIVE ERROR IN SPACING SHALL NOT EXCEED THE	3. 3.1.
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	12.0.	REQUIREMENTS OF THE FINISHING MATERIALS. ALIGN WEB CUT-OUTS IN STUDS AND JOISTS AS REQUIRED FOR THE INSTALLATION OF THROUGH-THE-KNOCKOUT STYLE BRIDGING AND	5.1.
	INTEGRITY. SUBMIT REPORTS TO CONSULTANT WITHIN 1 WEEK OF COMPLETION OF INSPECTION.	12.8.	SERVICES. TAKE FIELD MEASUREMENTS NECESSARY TO ENSURE THE PROPER FIT OF MEMBERS.	3.2.
LIG	HTWEIGHT STEEL FRAMING DESIGN	12.9. 12.10.	USE EITHER SAWS OR SHEARS TO CUT MEMBERS. DO NOT TORCH CUT. 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	3.3.
ı. 1.1.	BASE DESIGN ON LIMIT STATES DESIGN PRINCIPLES USING FACTORED LOADS AND RESISTANCES. DETERMINE RESISTANCES	12.11.	(12"). SUBMIT REINFORCING DETAIL TO CONSULTANT FOR APPROVAL. 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.	4.
1.2.	AND RESISTANCE FACTORS IN ACCORDANCE WITH THE MOST RECENT APPLICABLE ONTARIO BUILDING CODE AND CAN/CSA-S136. FOR WIND LOAD CALCULATIONS, THE REFERENCE VELOCITY PRESSURE, Q, SHALL BE BASED ON A 1 IN 50 PROBABILITY OF BEING		REPLACE MEMBERS WITH LOCALIZED DAMAGE. INSTALL ADDITIONAL STUDS AT ABUTTING WALLS, OPENINGS, TERMINATIONS AGAINST OTHER MATERIALS AND ON EACH SIDE AT	4.1.
1.3.	EXCEEDED IN ANY ONE YEAR. CONFORM TO THE REQUIREMENTS OF FIRE RATED ASSEMBLIES WHICH HAVE BEEN TESTED IN ACCORDANCE WITH CAN/ULC S101 AND		CORNERS UNLESS EXPLICITLY DETAILED OTHERWISE ON SHOP DRAWINGS. DO NOT SPLICE AXIAL LOADBEARING MEMBERS.	4.2. 4.3.
1.4. 1.5.	PROVIDE A FIRE RESISTANCE RATING AS INDICATED ON THE DRAWINGS. SPACE WALL STUDS AT 600 mm (24") MAXIMUM. 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	13.	TOLERANCES	5.
1. <del>5</del> . 1.6.	STUD/TRACK THICKNESS FOR STUDS AND TRACK SHALL BE 0.64 mm FOR 89 mm (3.5.) AND 152 mm (6.) WIDTHS. USE GREATER STUD/TRACK THICKNESSES IF REQUIRED BY THE DESIGN CRITERIA. FOR WALL STUDS SUPPORTING BRICK VENEER, THE MINIMUM DESIGN THICKNESS EXCLUSIVE OF COATING SHALL BE THE GREATER OF	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 IS MAJOR AXIS, AND SWEEP IS DEFINED AS THE DEVIATION FROM STRAIGHTNESS OF A MEMBER OR ANY	5.1.
1.7.	THE DESIGN THICKNESSES LISTED ABOVE OR 1.12 mm. THE MINIMUM DESIGN THICKNESS FOR BRIDGING CHANNEL SHALL BE 1.22 mm. USE GREATER BRIDGING CHANNEL DESIGN THICKNESS IF		PORTION OF A MEMBER WITH RESPECT TO IT MINOR AXIS. PLUMBNESS:	5.2. 5.3.
1.8.	REQUIRED BY THE DESIGN CRITERIA. THE MINIMUM DESIGN THICKNESS FOR CLIP ANGLES SHALL BE 1.52 mm. USE GREATER CLIP ANGLE THICKNESS IF REQUIRED BY THE DESIGN CRITERIA.	13.3.	AXIAL LOADBEARING MEMBERS: 1/1000TH OF THE MEMBER LENGTH OUT-OF-STRAIGHTNESS: INCLUDING CAMBER AND SWEEP:	5.4.
1.9. 1.9.1.	MAXIMUM FLEXURAL DEFLECTIONS UNDER SPECIFIED LIVE OR WIND LOADS SHALL CONFORM TO THE FOLLOWING: WALL STUDS SUPPORTING MASONRY VENEER SHALL MEET THE REQUIREMENTS OF CSA \$304.1 WITH STUD DELECTIONS LIMITED TO L/480		AXIAL LOADBEARING MEMBERS: 1/1000TH OF THE MEMBER LENGTH TRACK: CAMBER NOT TO EXCEED 1/1000TH OF THE MEMBER LENGTH	5.5. 6.
1.9.2. 1.9.3.	STUDS SUPPORTING OTHER FINISHES: L/180. BUILDING SWAY DUE TO ALL EFFECTS, 1/500 OF BUILDING HEIGHT OR 1/500 OF STOREY HEIGHT.	OPI	EN WEB STEEL JOISTS	ь. 6.1.
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	1.	DESIGN	6.1.1. 6.1.2.
1.9.5. 1.9.6.	RESTRAIN MEMBER ROTATION AND TRANSLATION PERPENDICULAR TO THE MINOR AXIS. DESIGN ANCHORAGE AND SPLICE DETAILS FOR BRIDGING DESIGN FOR LOCAL LOADING DUE TO ANCHORAGE OF CLADDING AND INTERIOR WALL MOUNTED FIXTURES WHERE SHOWN	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 AND CAN/CSA-S16.	6.1.3. 6.1.4.
1.9.0. 1.9.7. 1.9.8.	CONNECT COLD-FORMED METAL FRAMING MEMBERS BY BOLTING, WELDING OR SCREWING ALLOW FOR APPROPRIATE END ECCENTRICITIES IN THE DESIGN OF AXIAL LOADBEARING MEMBERS	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.	6.1.5. 6.2. 6.3.
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	1.3. 1.3.1. 1.3.2.	UNLESS OTHERWISE NOTED, MAXIMUM FLEXURAL DEFLECTIONS UNDER SPECIFIED LIVE OR WIND LOADS SHALL CONFORM TO THE FOLLOWING: ROOF JOIST DEFLECTIONS LIMITED TO L/240 FLOOR JOIST DEFLECTIONS LIMITED TO L/360	6.4.
	PROVIDE LINTEL, SILL AND JAMB MEMBERS AND CONNECTIONS IN STUD WALLS TO FRAME OPENINGS LARGER THAN 100 mm IN ANY DIRECTION.	1.3.2. 1.4. 1.5.	DESIGN BRIDGING TO PREVENT MEMBER ROTATION AND MEMBER TRANSLATION PERPENDICULAR TO THE MINOR AXIS. DESIGN ANCHORAGE AND SPLICE DETAILS FOR BRIDGING.	7.
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.	1.6.	DESIGN JOISTS TO CONSIDER LOAD EFFECTS DUE TO TRANSPORT, HANDLING, FABRICATION, AND ERECTION.	7.1.
2.	SHOP DRAWINGS	2.	SHOP DRAWINGS	7.2. 7.3. 7.4.
2.1. 2.2.	SUBMIT STAMPED SHOP DRAWINGS AS SPECIFIED IN REQUIRED SUBMITTALS ON STRUCTRUAL DRAWINGS. INCLUDE SHOP DETAILS AND ERECTION DIAGRAMS. INDICATE MEMBER SIZE, LOCATION, THICKNESSES EXCLUSIVE OF COATING,	2.1. 2.2.	INDICATE MATERIAL SPECIFICATIONS, CONFIGURATION, MEMBER SIZES AND DIMENSIONS, SPACING, COATING TYPE, SHOE DEPTH, AND CAMBERS. INDICATE DIMENSIONS, OPENINGS, REQUIREMENTS FOR RELATED WORK, AND CRITICAL INSTALLATION PROCEDURES. SHOW	1.4.
2.3.	COATINGS AND MATERIAL TYPES. INCLUDE CONNECTION DETAILS FOR ATTACHING FRAMING TO ITSELF AND FOR ATTACHMENT TO THE STRUCTURE. SHOW SPLICE	2.2.	TEMPORARY BRACING REQUIRED FOR ERECTION PURPOSES. INDICATE ATTACHMENTS, BRIDGING LOCATIONS AND CONNECTIONS.	7.5. 7.6.
2.4.	DETAILS WHERE PERMITTED. INDICATE DIMENSIONS, OPENINGS, REQUIREMENTS FOR RELATED WORK AND CRITICAL INSTALLATION PROCEDURES. SHOW TEMPORARY BRACING REQUIRED FOR ERECTION PURPOSES.	2.4. 2.5.	INDICATE DESIGN LOADS AND FACTORED MEMBER LOADS. EACH SHOP DRAWING SUBMITTED SHALL BEAR THE STAMP AND SIGNATURE OF A QUALIFIED PROFESSIONAL ENGINEER REGISTERED	
2.5. 2.6.	INDICATE DESIGN LOADS EACH SHOP DRAWING SUBMITTED SHALL BEAR THE STAMP AND SIGNATURE OF A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN	0	IN THE PLACE OF THE WORK.	7.7. 7.8.
2.7.	THE PLACE OF THE WORK. THE SHOP DRAWING ENGINEER WILL UNDERTAKE PERIODIC FIELD REVIEW DURING CONSTRUCTION AND SHALL SUBMIT REPORTS AS	3. 3.1.	QUALIFICATIONS	7.8.
2.8.	DESCRIBED BELOW. 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	3.1.	STEEL JOIST SYSTEM AND TO PREPARE, SEAL AND SIGN SHOP DRAWINGS; SHOP DRAWINGS TO SHOW BOTH DESIGN AND INSTALLATION REQUIREMENTS. INSTALLER: COMPANY SPECIALIZING IN INSTALLING STEEL JOIST SYSTEMS, WITH MINIMUM OF FIVE YEARS DOCUMENTED EXPERIENCE, AND APPROVED BY THE MANUFACTURER.	7.10.

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

STORE PRODUCTS PROTECTED FROM CONDITIONS THAT MAY CAUSE PHYSICAL DAMAGE OR CORROSION. HANDLE AND LIFT PREFABRICATED SECTIONS CAREFULLY TO AVOID PERMANENT DISTORTION TO ANY MEMBER OR COLLATERAL MATERIAL.

#### MATERIALS

STEEL: TO CAN/CSA S16 AND CAN/CSA-S136; IDENTIFIED ON SHOP DRAWINGS AS TO SPECIFICATION, GRADE, MECHANICAL PROPERTIES, COATING TYPE, AND THICKNESS. BOLTS AND NUTS: TO ASTM A307 OR ASTM A325M; HOT-DIPPED GALVANIZED, C/W WASHERS.

FABRICATION

PROVIDE BOTTOM AND TOP CHORD EXTENSIONS AS INDICATED.

6.2. FABRICATE TO ACHEIVE 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

PREPARE JOIST COMPONENT SURFACES IN ACCORDANCE WITH SSPC SP 2. SHOP PRIME JOISTS. DO NOT PRIME SURFACES THAT WILL BE FIREPROOFED, FIELD WELDED OR IN CONTACT WITH CONCRETE.

WELDING MATERIALS: TO CSA W59: TYPE REQUIRED FOR MATERIALS BEING WELDED.

#### PREPARATION

VERIFY THAT SITE CONDITIONS ARE READY TO RECEIVE WORK AND FIELD MEASUREMENTS ARE AS INDICATED ON SHOP DRAWINGS. VERIFY SUPPORTING STRUCTURE IS READY TO RECEIVE WORK. 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.

ALLOW FOR ERECTION LOADS. PROVIDE TEMPORARY BRACING TO MAINTAIN FRAMING SAFE, PLUMB, AND IN TRUE ALIGNMENT. COORDINATE PLACEMENT OF ANCHORS IN MASONRY AND CONCRETE CONSTRUCTION FOR SECURING BEARING PLATES AND ANGLES AFTER JOIST ALIGNMENT AND INSTALLATION OF FRAMING. FIELD WELD JOIST SEAT TO BEARING PLATES OR

ANGLES; WELD IN ACCORDANCE WITH CAN-CSA W59. FRAME ROOF AND FLOOR OPENINGS GREATER THAN 450 mm (18") WITH SUPPLEMENTARY FRAMING AS DETAILED ON DRAWINGS. DO NOT PERMIT ERECTION OF DECKING UNTIL JOISTS ARE BRACED AND SECURED, OR UNTIL INSTALLATION OF

PERMANENT BRIDGING AND BRACING IS COMPLETED. DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT APPROVAL OF JOIST MANUFACTURER. 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, CCBI 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.
- 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

PROVIDE DECK PROFILE, CHARACTERISTICS, DIMENSIONS, STRUCTURAL PROPERTIES, AND FINISHES. 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. INSTALLER: COMPANY SPECIALIZING IN INSTALLING METAL DECK SYSTEMS, WITH MINIMUM OF THREE YEARS DOCUMENTED EXPERIENCE, AND APPROVED BY THE MANUFACTURER. 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. CUT PLASTIC WRAP TO ENCOURAGE VENTILATION. 4.2. STORE DECK ON DRY WOOD SLEEPERS; SLOPE FOR POSITIVE DRAINAGE.

4.3. 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. WELDING MATERIALS: TO CSA W59, TYPE REQUIRED FOR MATERIALS BEING WELDED. 5.5. FLUTE CLOSURES: CLOSED CELL, PROFILED TO FIT TIGHT TO THE DECK.

#### 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. SIDE JOINTS: LAPPED, UNLESS NOTED OTHERWISE.

 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. WELD WASHERS: MILD STEEL, UNCOATED, 19 mm (3/4") OUTSIDE DIAMETER, 3 mm (1/8") THICK.

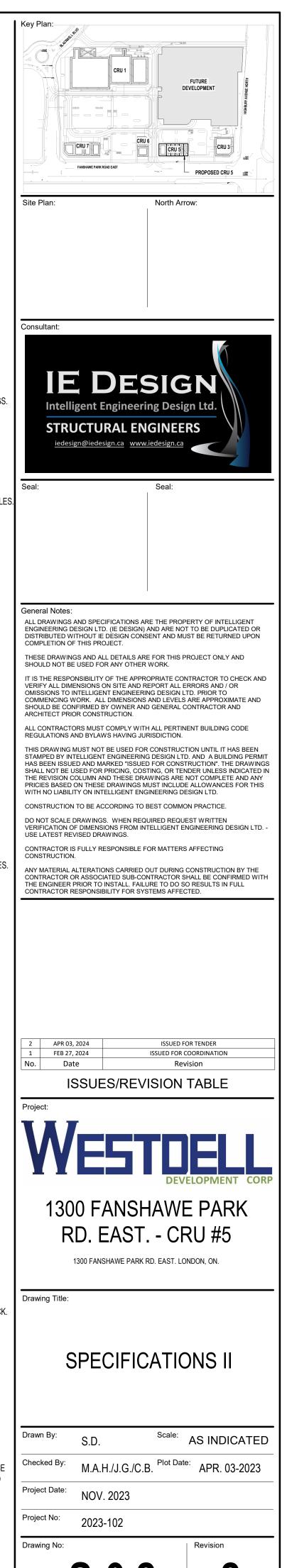
### INSTALLATION

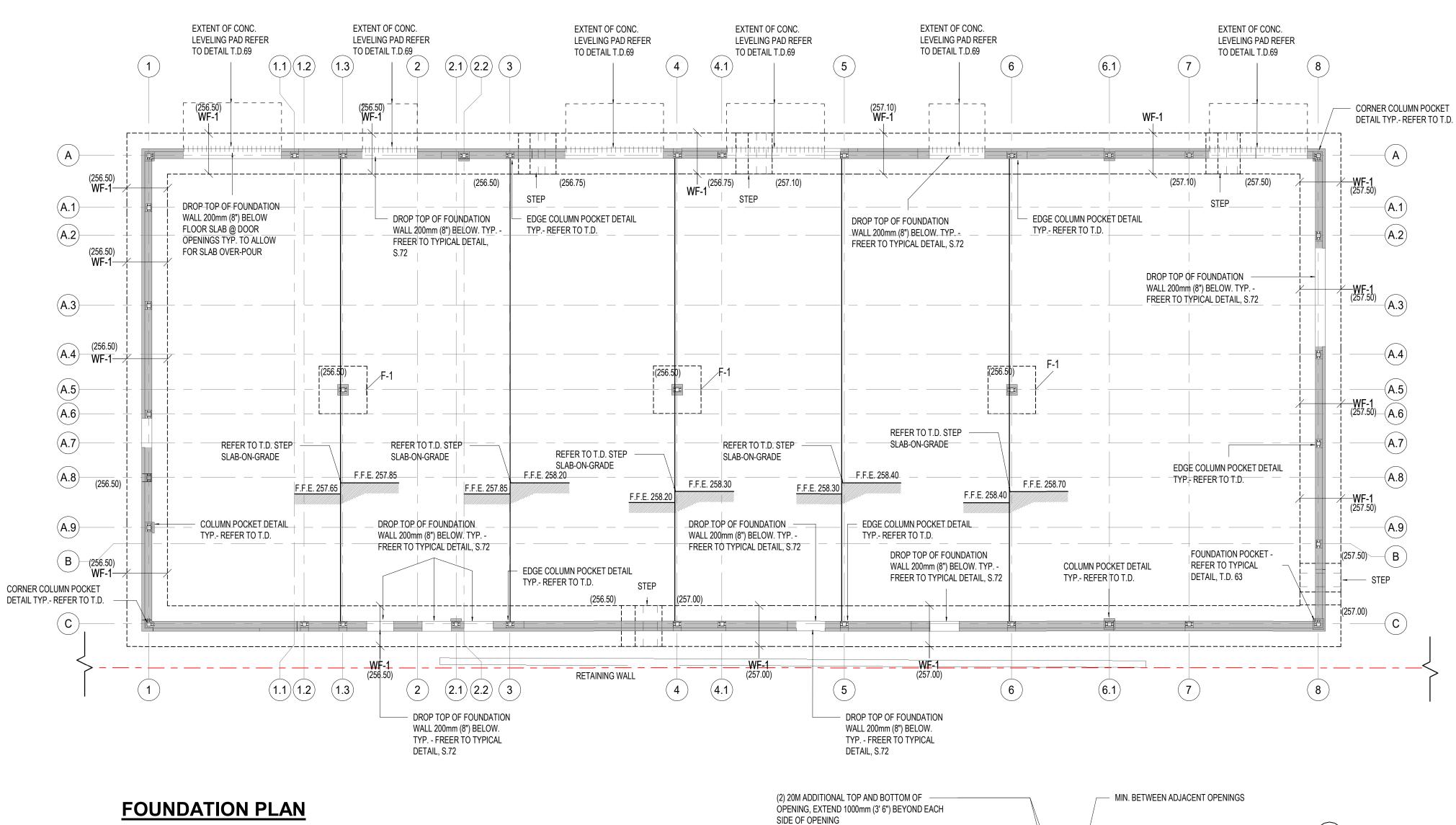
7.1. ERECT METAL DECK TO MANUFACTURERS WRITTEN INSTRUCTIONS, CCSBI 10M, AND SDI MANUAL. 7.2. BEAR DECK ON MASONRY OR CONCRETE SUPPORT SURFACES WITH MINIMUM 100 mm (4") BEARING. ALIGN AND LEVEL 7.3. BEAR DECK ON STEEL SUPPORTS WITH 75 mm (3") MINIMUM BEARING. ALIGN AND LEVEL. 7.4. FASTEN DECK TO STEEL 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. 7.5. MECHANICALLY CLINCH MALE/FEMAILE SIDE LAPS AT 600 mm (24") ON CENTER MAXIMUM. 7.6. REINFORCE STEEL DECK OPENINGS FROM150 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/6" 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 PLAN** 

SCALE: 1:100

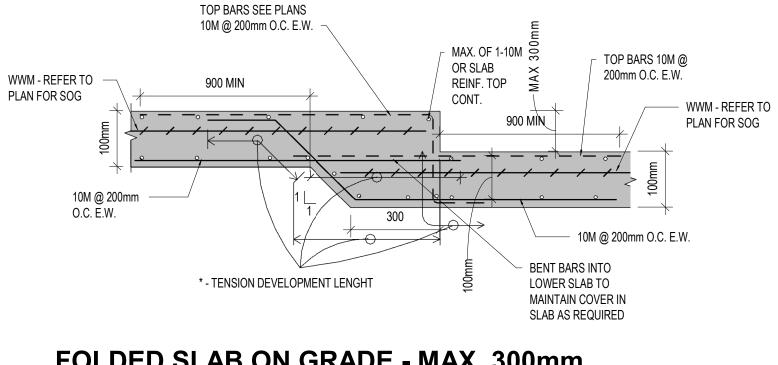
	FOUNDATION SCHEDULE				
MARK	WALL WIDTH/ PIER SIZE	WALL / PIER REINFORCING	STRIP /PAD FOOTING SIZE	FOOTING REINFORCING	DETAIL
WF-1	WALL SIZE 370mm (1' 3") - SEE PLAN AND ARCH. DRAWINGS PIER SIZE 400mm x 400mm (16"x16")	WALL REINF. (2) 20M CONT. TOP AND BOTTOM E.W. ENSURE FULL SPLICE AS PER REBAR DEVELOPMENT SCHEDULE. PIER REINF. (4) 15M VERT. + 10M TIES @ 200mm (8" O.C.)	1250mm x 350mm DP (5'x 1'-9" DP)	15M @ 250mm O.C. BOTTOM E.W.	ENSURE FULL SPLICE AS PER REBAR DEVELOPMENT SCHEDULE
F-1	PIER SIZE 400mm x 400mm (16"x16")	PIER. REINF. (4) 15M VERT. + 10M TIES @ 200mm (8" O.C.)	2000mm x 2000mm x 600mm DP (6'-6" x 6'-6" x 2'-5" DP)	FOOTING REINF. 20M @ 250mm O.C. BOTTOM E.W.	



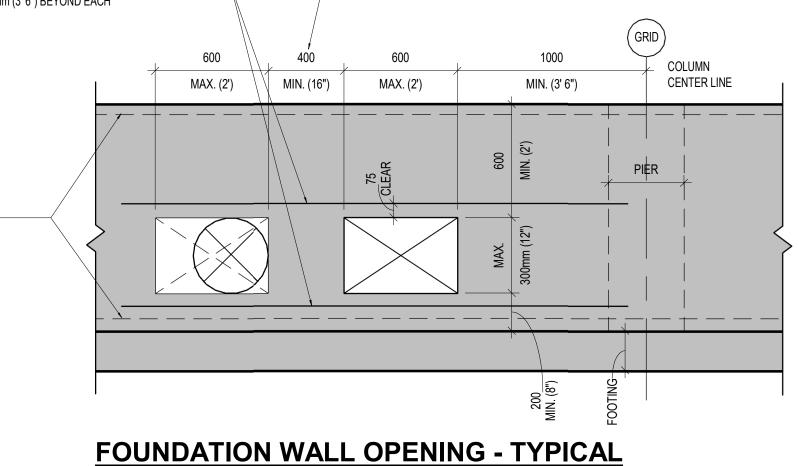
1.	PROVIDE 75mm (3") CLEAR CO
2.	REFER TO GENERAL NOTES F
3.	ALL FOOTINGS TO HAVE MIN.
	LATEST GEOTECHNICAL REP
4.	PROVIDE DOWELS FROM FOO
	AND SPACING/NUMBER. DOW
	EXTENSIONS ABOVE FOOTING
5.	PROVIDE DOWELS FROM FOU
	INTO MIDDLE OF UNREINFOR
	WITH THE REBAR LAP/HOOK
	FOUNDATION WALL INTO STR
	MIN., TYPICAL
6.	INSTALL (2)10M TIES IN THE T
	800mm (32") LONG, TYPICAL.
7.	REFER TO PLAN AND SCHEDU
	T/O SLAB TO TOP OF PAD FO
8.	REFER TO PLAN AND SCHEDU
	SLAB TO TOP OF STRIP/PAD F

#### FOUNDATION NOTES

- DESIGN CONSULTANT BEFORE PROCEEDING WITH CONSTRUCTION. LINES.
- SIMULTANEOUSLY ON BOTH SIDES TO EQUALIZE SOIL PRESSURE.



SCALE: NTS



SCALE: NTS

**REGULAR FONDATION** 

REINFORCING

OVER FOR REINFORCEMENT IN FOOTINGS AND PILES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH. FOR CONCRETE AND REINFORCING SPECIFICATIONS, TYPICAL. 1200mm (4'-0") FROST PROTECTION. G.C. TO CONFIRM THE UNDERSIDE OF FOUNDATIONS BASED ON THE PORT RECOMMENDATIONS OTINGS INTO CONCRETE WALLS/COLUMNS ABOVE. MATCH VERTICAL WALL/COLUMN REINFORCING BAR SIZE VELS SHALL HAVE STANDARD 90° HOOKS, BE TIED TO THE BOTTOM MAT IN FOOTING, AND HAVE BAR

IGS FOR A TYPICAL LAP SPLICE. UNDATION WALLS INTO STRIP FOOTINGS, MATCH VERT. WALL REINFORCING BAR SIZE AND SPACING. EXTEND CED FOOTING OR TO THE BOTTOM MAT OF REINFORCED FOOTING. HOOK REINFORCEMENT IN ACCORDANCE SCHEDULE. WHERE WALL ABOVE HAS NO VERTICAL REINFORCEMENT, PROVIDE PROVIDE 15M DOWELS FROM RIP FOOTING, 750mm (30") LONG W/ 200mm (8") HOOK @ 600mm (24") O.C. MAX. ENSURE 152mm (6") EMBEDMENT TOP 100mm (4") OF ALL PIERS. AROUND ALL DOOR OPENINGS INSTALL (2)10M DIAGONAL CORNER BARS (1 E.F.)

ULES FOR CONCRETE COLUMN REINFORCING INFORMATION, REINFORCING SPECIFIED IS TO EXTEND BELOW OTING, TYPICAL. ULES FOR CONCRETE WALL REINFORCING INFORMATION, REINFORCING SPECIFIED IS TO EXTEND BELOW T/O SLAB TO TOP OF STRIP/PAD FOOTINGS, TYPICAL

ALL FOOTINGS ARE TO BE FOUNDED AT AN ELEVATION OF MIN. 1200mm (3'-11") BELOW FINISHED EXTERIOR GRADE AND BELOW FINISHED MAIN FLOOR ELEVATION. AS PER CIVIL DRAWINGS STAMPED AND DATED SEPTEMBER 24, 2023, THE F.F.E. VARIES 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. GEOTHECNICAL 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 (ULS) GEOTECHNICAL BEARING RESISTANCE OF 260kPa (5430 psf), FOR A SERVICEABILITY LIMIT STATES (SLS) GEOTECHNICAL BEARING RESISTANCE OF 145kPa (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.-152x152XMW18.7/18.7 (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% SPMDD 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

10. 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

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

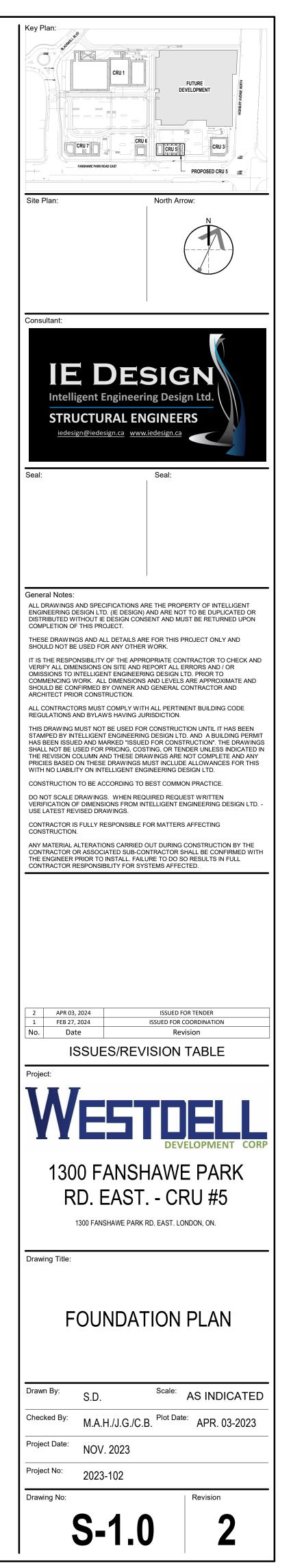
ELEVATION OF THE UNDERGROUND WATER TABLE IS AS PER GEOTECHNICAL REPORT. BUILDING FOUNDATIONS AND SLAB-ON-GRADE HAVE NOT BEEN DESIGNED FOR HYDROSTATIC PRESSURE AND UPLIFT FORCES.

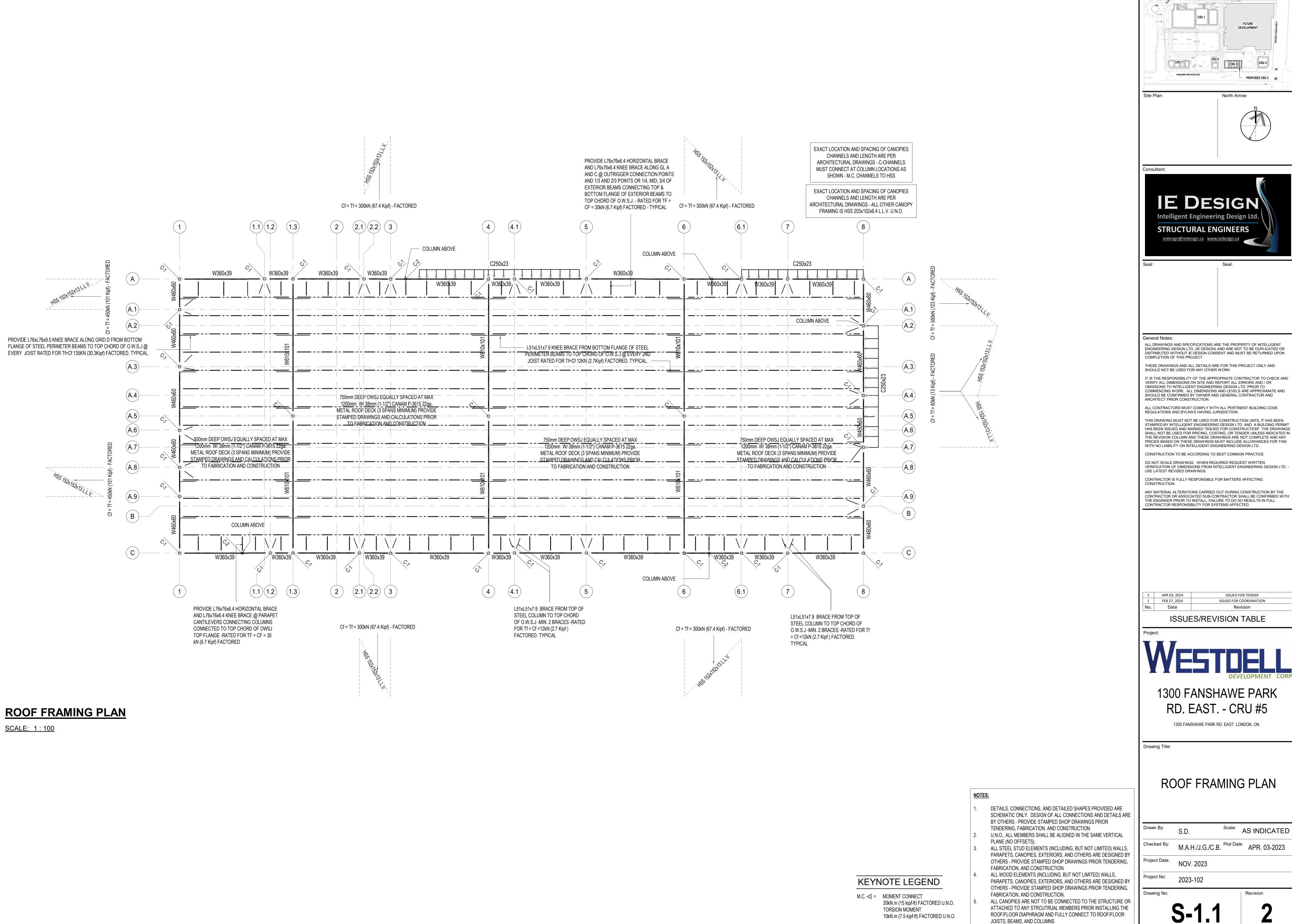
FOUNDATIONS AND FOOTINGS HAVE NOT BEEN DESIGNED BY CRANE LOADING - CONTACT IE DESIGN IF CRANE LOADING IS TO BE INCORPORATED. LOCATION OF CRANE TO BE DETERMINED BY G.C./ARCHITECT/OWNER.

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

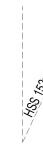
REFER TO GEOTECHNICAL REPORT FOR RECOMMENDED FOUNDATION FROST PROTECTION, FOUNDATION FROST DEPTH, AND BACKFILL - WHERE FOUNDATION NEED TO BE RAISED OR WHERE FOUNDATIONS FOR HEATED BUILDING DO NOT HAVE THE MINIMUM REQUIRED FROST DEPTH OF SOIL COVER FROST PROTECTION, FOOTINGS SHOULD BE PROTECTED FROM FROST WITH A COMBINATION OF SOIL COVER AND RIGID POLYSTYRENE INSULATION, SUCH AS DOW STYROFOAM OR APPROVED EQUIVALENT PRODUCT - TO BE REVIEWED AND APPROVED BY GEOTECHNICAL AND STRUCTURAL ENGINEER PRIOR TENDER AND CONSTRUCTION.

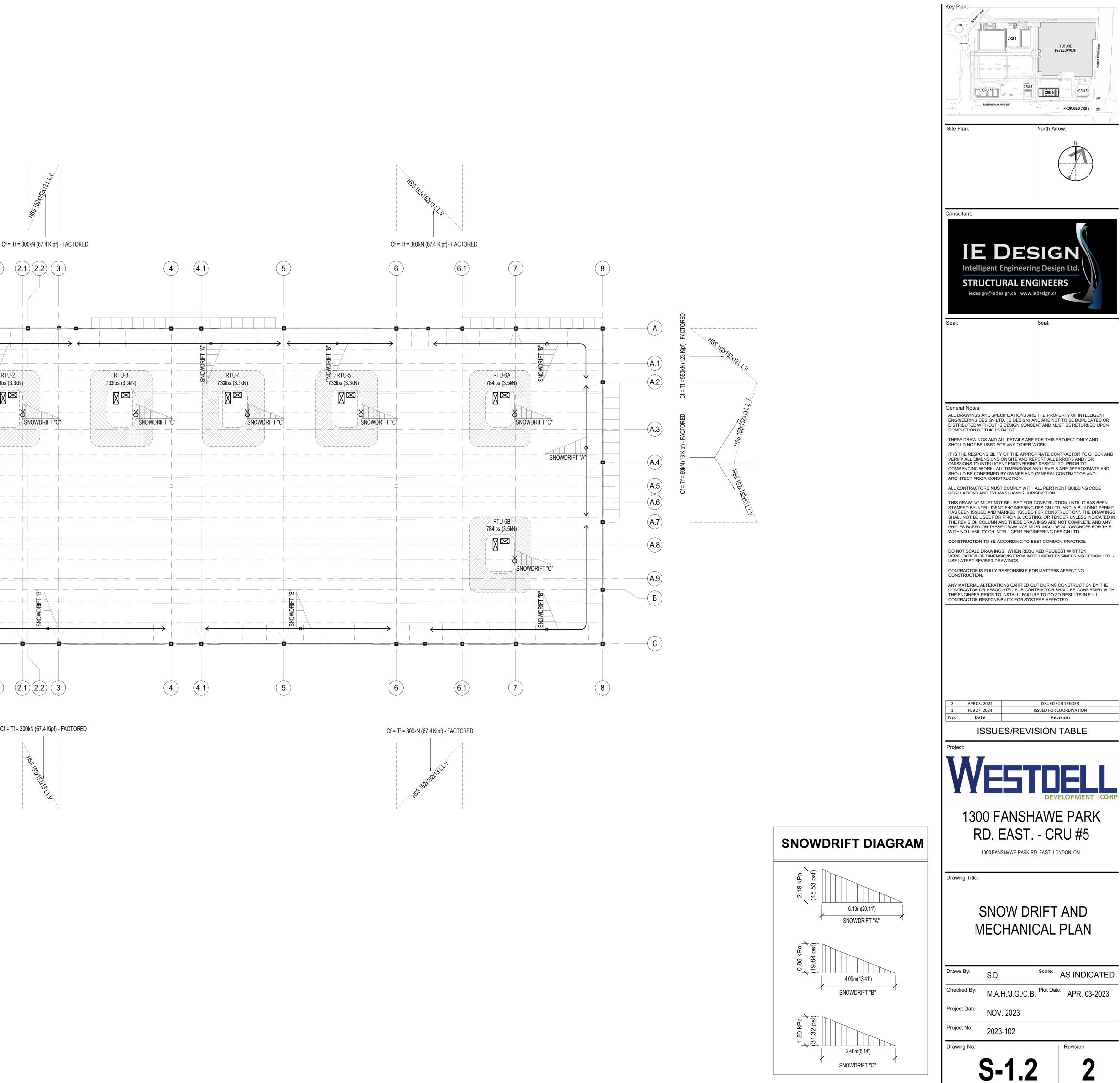
## FOLDED SLAB ON GRADE - MAX. 300mm

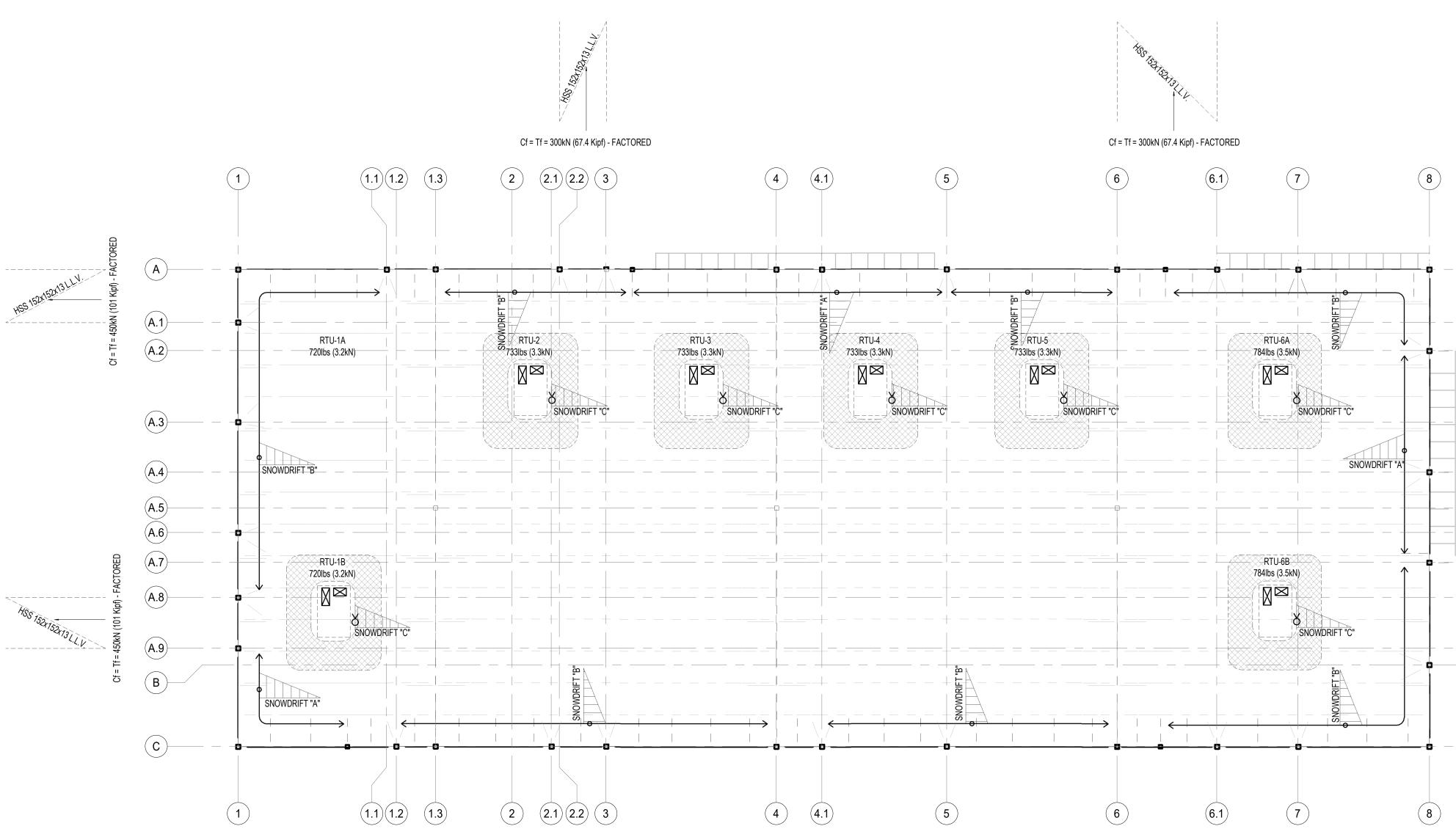




Key Plan:

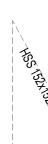




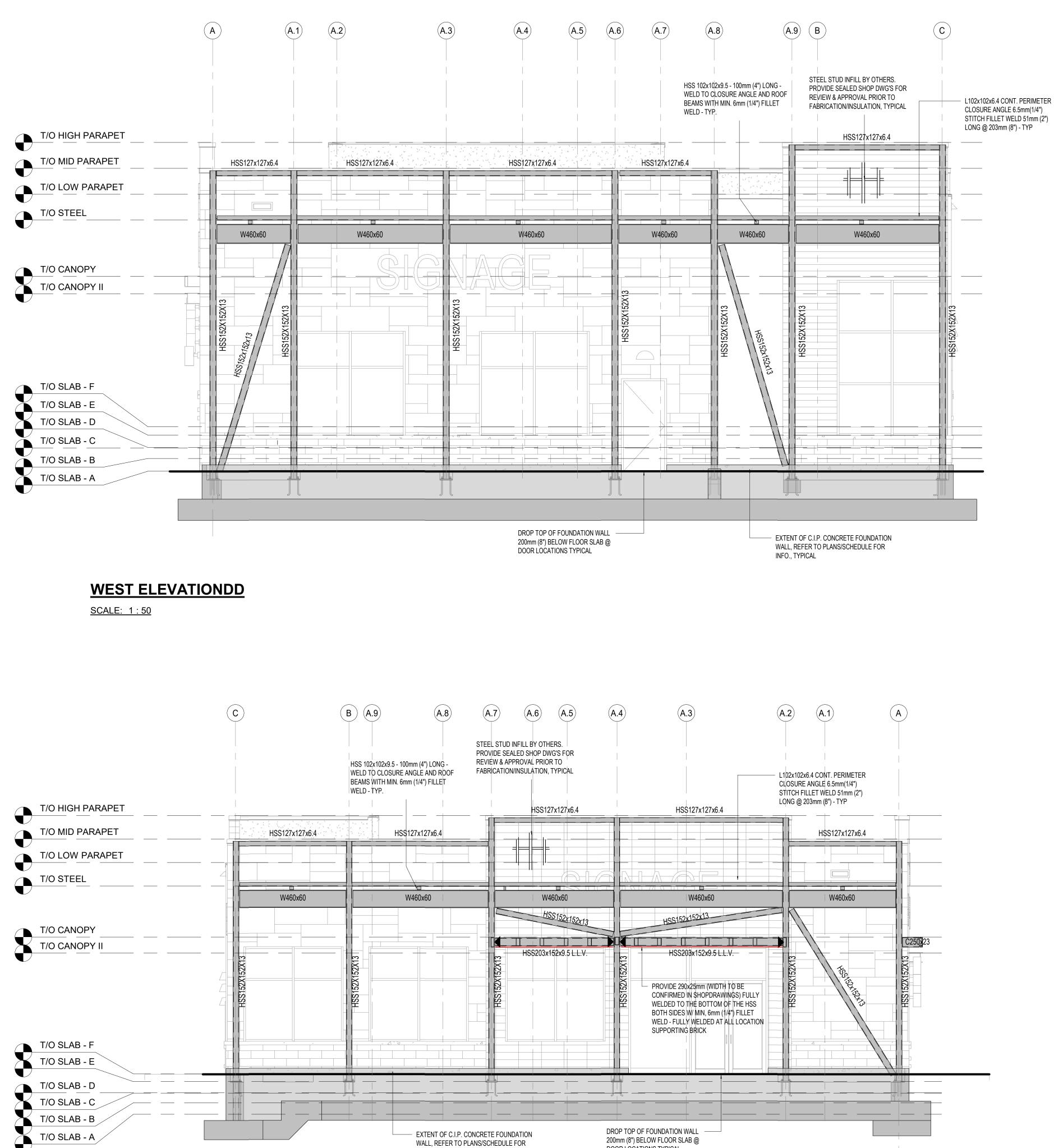


SNOWDRIFT AND MECHANICAL PLAN Cf = Tf = 300kN (67.4 Kipf) - FACTORED

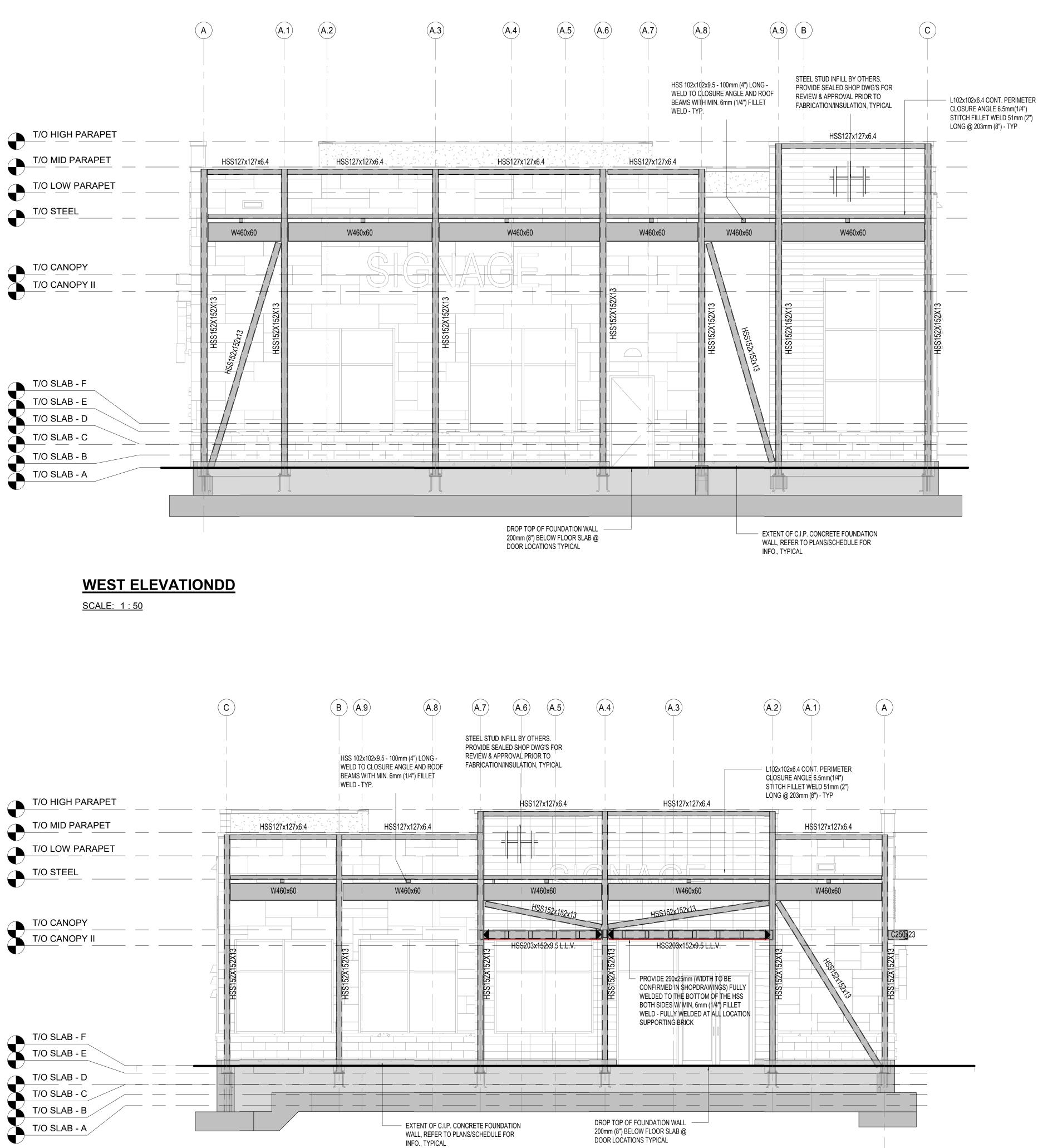
<u>SCALE: 1:100</u>











## EAST ELEVATION D

<u>SCALE: 1 : 55</u>

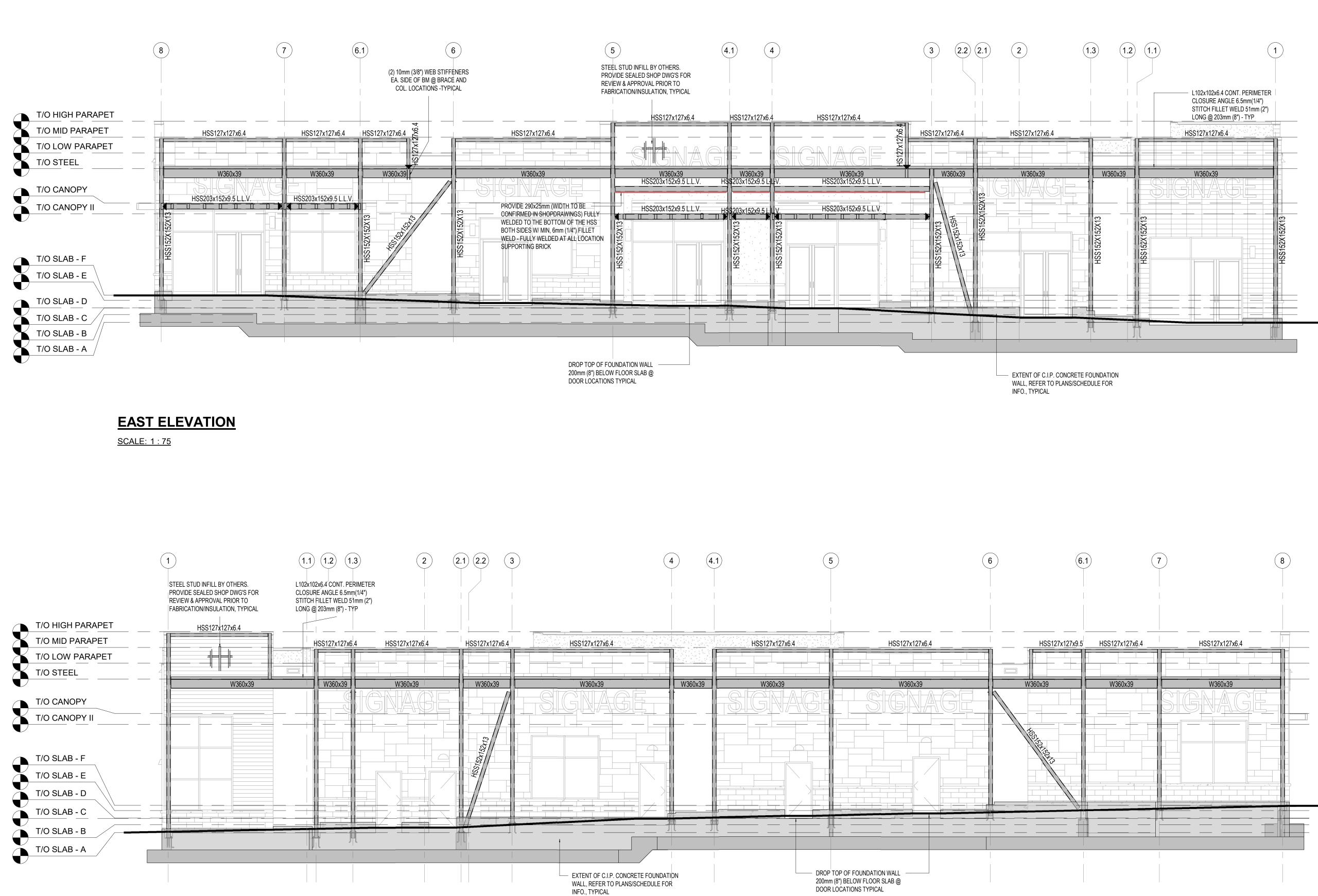
Key Plan:
Site Plan: North Arrow:
Intelligent Engineering Design Ltd. STRUCTURAL ENGINEERS iedesign@iedesign.ca www.iedesign.ca
Seal: Seal:
<ul> <li>ALL DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INTELLIGENT ENGINEERING DESIGN LTD. (IE DESIGN) AND ARE NOT TO BE DUPLICATED OR DISTRIBUTED WITHOUT IE DESIGN CONSENT AND MUST BE RETURNED UPON COMPLETION OF THIS PROJECT.</li> <li>THESE DRAWINGS AND ALL DETAILS ARE FOR THIS PROJECT ONLY AND SHOULD NOT BE USED FOR ANY OTHER WORK.</li> <li>IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ALL ERRORS AND / OR 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.</li> <li>ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT BUILDING CODE REGULATIONS AND BYLAWS HAVING JURISDICTION.</li> <li>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 CONSTRUCTION UNTIL SIDICATED IN THE REVISION COLUMN AND THESE DRAWINGS ARE NOT COMPLETE AND ANY PRICIES BASED ON THESE DRAWINGS MUST INCLUDE ALLOWANCES FOR THIS WITH NO LIABILITY ON INTELLIGENT ENGINEERING DESIGN LTD.</li> </ul>
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.
2       APR 03, 2024       ISSUED FOR TENDER         1       FEB 27, 2024       ISSUED FOR COORDINATION         No.       Date       Revision         ISSUES/REVISION TABLE         Project:
<b>WESTEELL</b> DEVELOPMENT CORP <b>1300 FANSHAWE PARK</b> <b>RD. EAST CRU #5</b> 1300 FANSHAWE PARK RD. EAST. LONDON, ON.
Drawing Title: ELEVATIONS I
Drawn By:S.D.Scale:AS INDICATEDChecked By:M.A.H./J.G./C.B.Plot Date:APR. 03-2023Project Date:NOV. 2023Project No:2023-102
Drawing No: Revision

#### 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) 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) 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

#### **KEYNOTE LEGEND**

M.C. = MOMENT CONNECT 25 kN.m (18.5 kipf-ft ) FACTORED U.N.O. TORSION MOMENT 15 kN.m (11 kipf-ft ) FACTORED U.N.O.



**WEST ELEVATION** 

<u>SCALE: 1 : 75</u>

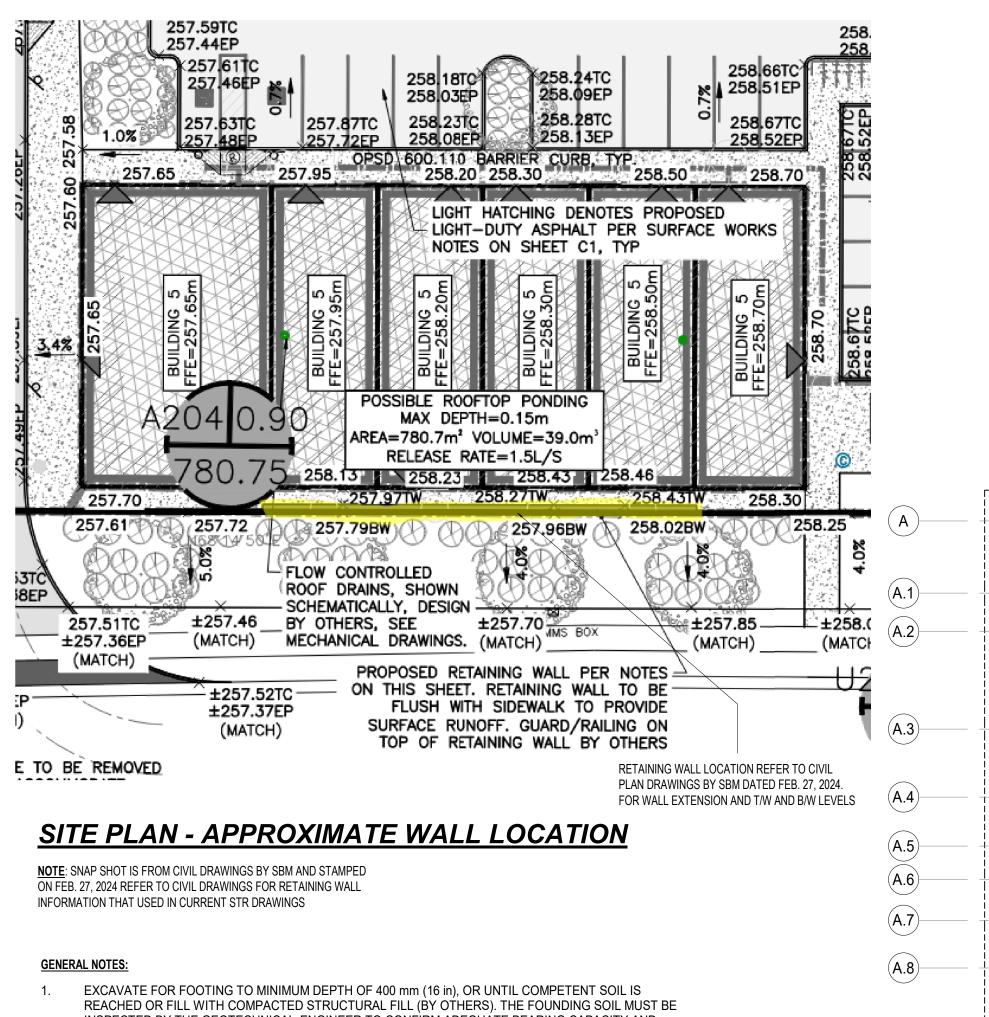
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Key Plan:
Site Plan: North Arrow:
Intelligent Engineering Design Ltd.         Structural Engineering Design Ltd.         www.iedesign.ca         www.iedesign.ca
General Notes: ALL DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INTELLIGENT
ENGINEERING 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 / OR 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
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2     APR 03, 2024     ISSUED FOR TENDER       1     FEB 27, 2024     ISSUED FOR COORDINATION       No.     Date     Revision
ISSUES/REVISION TABLE Project: WESTDELL DEVELOPMENT CORP
1300 FANSHAWE PARK RD. EAST CRU #5 1300 FANSHAWE PARK RD. EAST. LONDON, ON.
Drawing Title: ELEVATIONS II
Drawn By:S.D.Scale:AS INDICATEDChecked By:M.A.H./J.G./C.B.Plot Date:APR. 03-2023Project Date:NOV. 2023Project No:2023-102Drawing No:Revision



- **KEYNOTE LEGEND**
- M.C. = MOMENT CONNECT 25 kN.m (18.5 kipf-ft ) FACTORED U.N.O. TORSION MOMENT 15 kN.m (11 kipf-ft ) FACTORED U.N.O.



- 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.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 2 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 10. 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 11. THIS DRAWING, RETAINED SOIL: ANGLE OF FRICTION = 27 DEGREES, UNIT WEIGHT = 18 kN/M3 (115 pcf) RETAINING WALL IS TO BE BUILT WITH PRECAST BLOCKS AND TO BE INSTALLED ACCORDING TO 12. MANUFACTURER INSTRUCTIONS.
- PRECAST BLOCKS TO HAVE THE FOLLOWING DIMENSIONS: 2' x 2' x 4' OR EQUIVALENT DESIGNED BY 13. PROFESSIONAL ENGINEER
- 14. STRATAGRID TO CONFORM WITH THE REQUIREMENTS OF ASTM D 6637 METHOD A SINGLE-RIB, AND ASTM D 5262 D6992.
- STRATAGRID DESIGN LENGTH IS AS SHOWN ON RETAINING WALL SECTION 15. CONTINUOUS STRIPS OF STRATAGRID ARE TO BE PLACED ON TOP OF CONCRETE GROVE AND EXTEND 16.
- FULL LENGTH BACK INTO REINFORCED SOIL ZONE AND TIED FOR FULL NODE TO ANCHORS. 17. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ALL RETAINING WALLS FOR REVIEW AND APPROVAL BY OWNER AND ENGINEER IF DIFFERENT FROM STAMPED DRAWINGS.

NOTES	
1.	BACKFILL TO BE FREE DRAINING, WITH A ¾" MAX. DIMENSION
2.	OVERALL DEEP-SEATED STABILITY TO BE CHECKED BY GEOTECHNICAL ENGINEER
	AND PROVIDE CONFIRMATION PRIOR TO TENDER AND CONSTRUCTION
3.	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

NOTEO

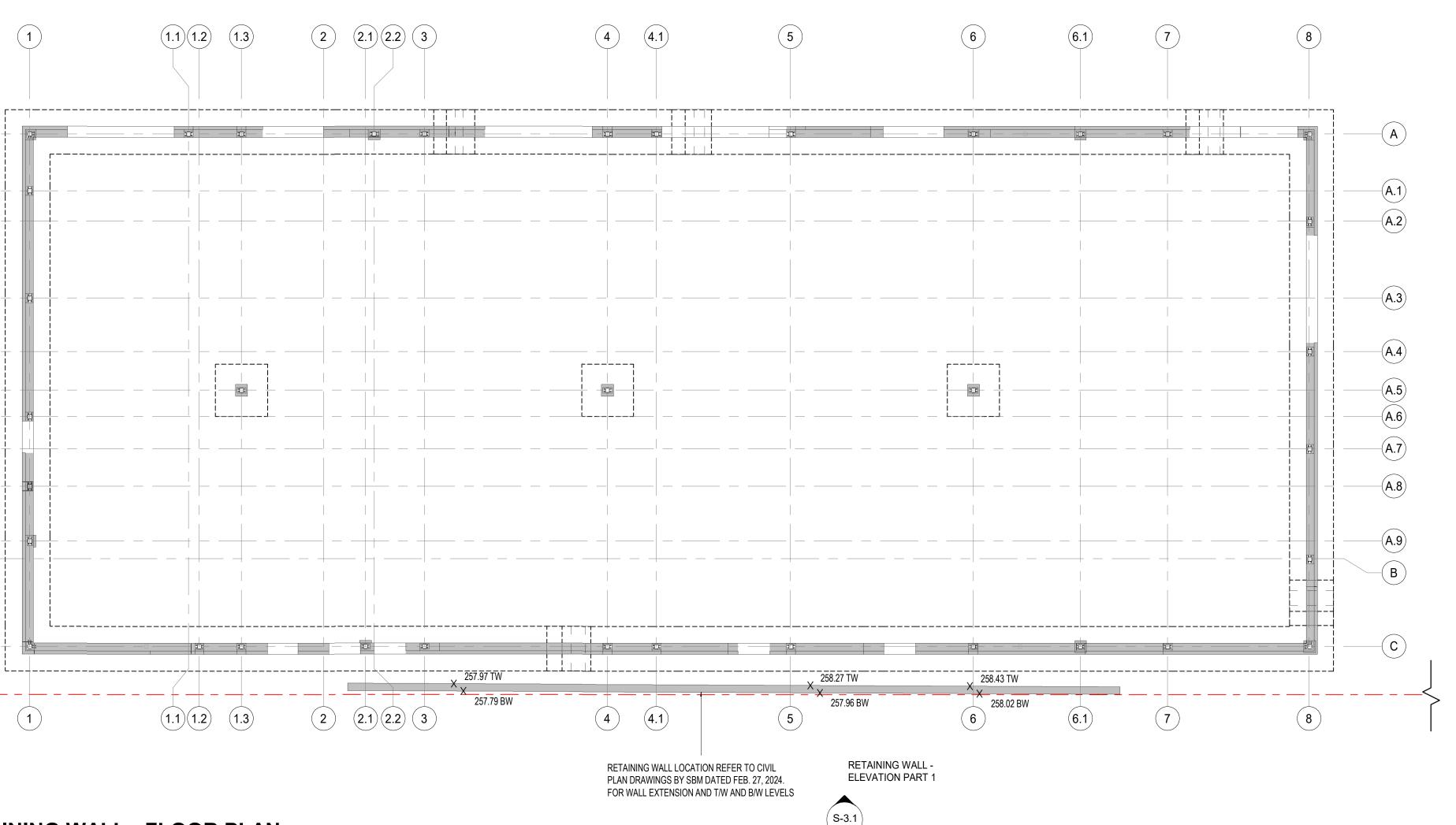
- TO IE DESIGN AS SOON AS AVAILABLE. ALL QUANTITIES ESTIMATION AND TENDER QUANTITIES ETC. ARE BY CONTRACTOR
- AND SITE CONDITIONS MIGHT VARY FROM DRAWINGS REFER TO GEOTECHNICAL REPORT AND GEOTECHNICAL ENGINEER FOR FLOODING
- MEASURES AND PROTECTION AND FOR DRAINAGE SWALES AND PRESENTATION OF STORM WATER RUN-OFF OVER TOPPING WALLS AND OTHER REQUIREMENTS

SCALE: 1:100

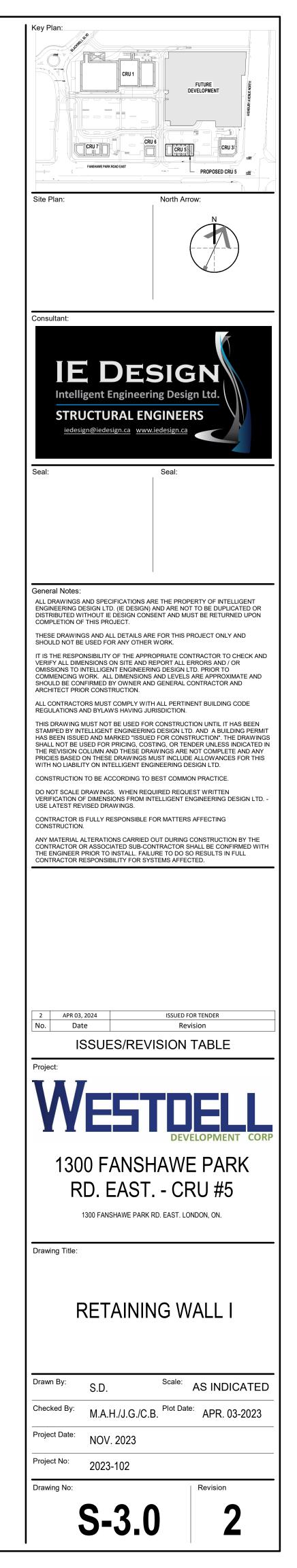
(A.9)-

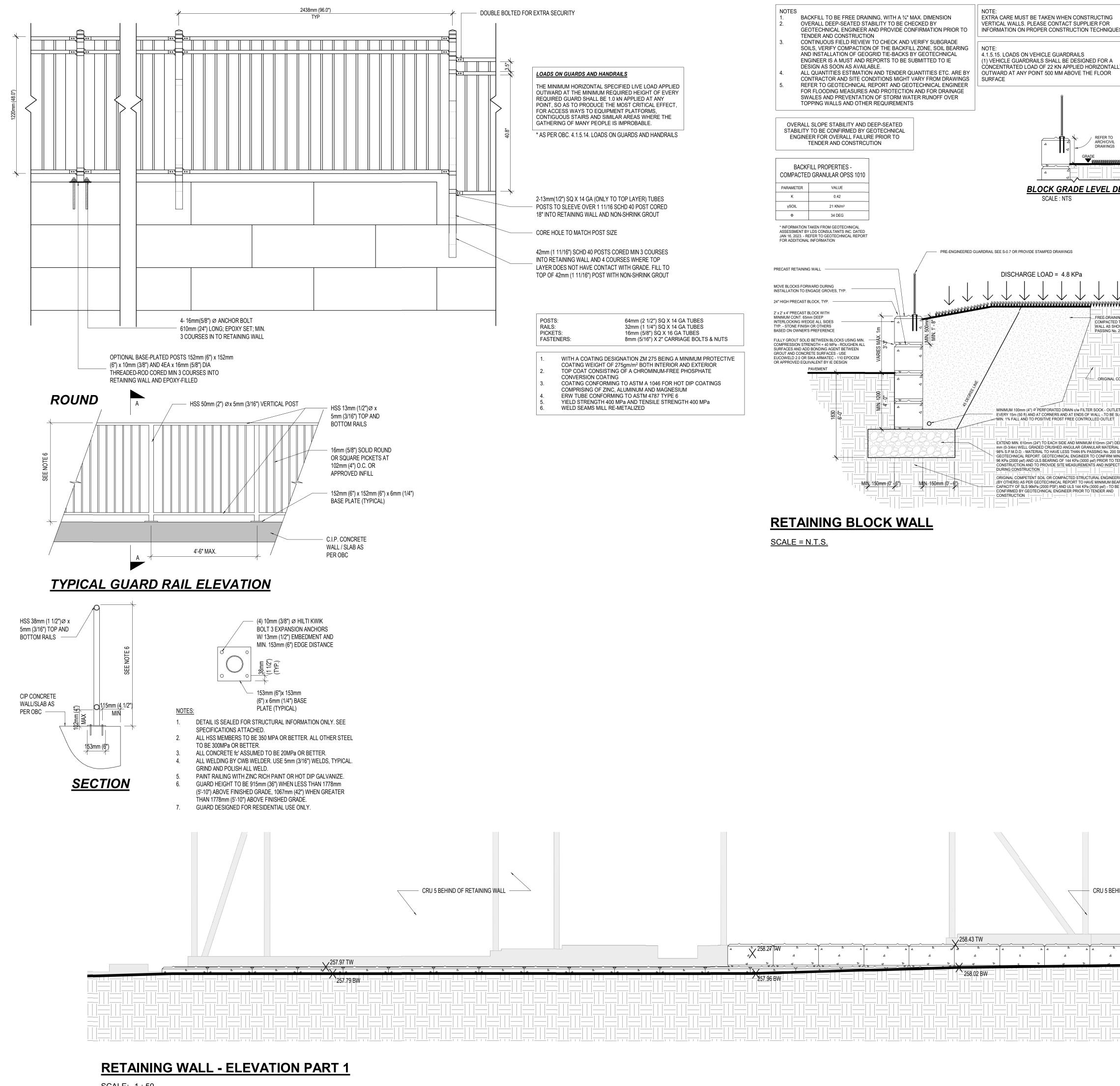
(B)

(C)



**RETAINING WALL - FLOOR PLAN** 





<u>SCALE: 1:50</u>

	Key Plan:
ES	
LY	
	Site Plan: North Arrow:
<u>ETAIL</u>	
	Consultant:
	Intelligent Engineering Design Ltd. STRUCTURAL ENGINEERS iedesign@iedesign.ca
ING SAND AND GRAVEL MATERIAL — TO 95% S.P.M.D.D. TO EXTEND BEHIND OWN MATERIAL TO HAVE LESS THAN 8%	Seal: Seal:
	General Notes:
ET -	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.
SIEVE - REFER TO                   N. SLS BEARING OF                 ENDER AND                 TION REPORTS	IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ALL ERRORS AND / OR OMISSIONS TO INTELLIGENT ENGINEERING DESIGN LTD. PRIOR TO
 RING FILL           ARING           E	COMMENCING WORK. ALL DIMENSIONS AND LEVELS ARE APPROXIMATE AND SHOULD BE CONFIRMED BY OWNER AND GENERAL CONTRACTOR AND ARCHITECT PRIOR CONSTRUCTION.
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	CONTRACTOR IS FULLY RESPONSIBLE FOR MATTERS AFFECTING CONSTRUCTION.
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	CONTRACTOR RESPONSIBILITY FOR SYSTEMS AFFECTED.
	2 APR 03, 2024 ISSUED FOR TENDER
	No.         Date         Revision           ISSUES/REVISION TABLE
	Project:
	WESTDELL
	DEVELOPMENT CORP
	1300 FANSHAWE PARK
	RD. EAST CRU #5
	1300 FANSHAWE PARK RD. EAST. LONDON, ON.
	Drawing Title:
	RETAINING WALL II
=      =    =    =    =    =    =	Drawn By: S.D. Scale: AS INDICATED
	Checked By: M.A.H./J.G./C.B. Plot Date: APR. 03-2023
	Project Date: NOV. 2023
	Project No: 2023-102
	Drawing No: Revision
	S-3.1 2

ROOF LOADING	<u>}:</u>						ST	EEL
LIVE LOAD:	SNOW WATER RETENTION (WATER RETENTION NOT TO AS PER O.B.C. 4.1.6.4(3))	ACT SIMULTANEOUSLY WITH SNO	1.92 kPa (40.10 psf ) (BASIC) + DRIFT 1.00 kPa (21 psf 100mm OF WATER) W	MAR	ĸ		SIZE	
	ROOF LIVE LOAD		1.0 kPa (21 psf) + MECHANICAL UNITS	W460x	60	W	V460x60	
DEAD LOAD:	SELF-WEIGHT METAL DECK		VARIES kPa 0.15 kPa (3 psf)	W610x	101	W	V610x101	
	STEEL BEAMS (ROOF) MECH/ELEC/PLUMBING SUPERIMPOSED / ROOF FINIS CEILING / FINISH	SH	0.35 kPa (7 psf) 0.25 kPa (5 psf) 0.50 kPa (10 psf) 0.25 kPa (5 psf)	W360x	39	W	V360x39	
WIND LOADING	q(1/50) OPEN TERRAIN TOPOGRAPHIC FACTOR TOTAL UPLIFT ON ROOF		0.47 kPa (9.81 psf) 1 1.04 kPa (21.7 psf) (INTERMEDIATE)	2. ALL S PROJ 3. ALL S (24") OF SI	STEEL TO ST JECT SPECIF STEEL BEAM O.C. + @ EA UPPORTED	DROPPED BE IEEL CONNE FICATIONS FC IS CONNECTI CH END. WE WALL TO MA PORTING COI	CTIONS AR OR REQUIR ED TO SLAI LD ALONG TCH CENTI	RE BY THE S REMENTS. .BS SHALL H THE CENTE 'ER LINE OF
	CLADDING/PARAPET WIND		1.31 kPa (27.4 psf) (EDGES) 2.54 kPa (53 psf) (CORNERS) 1.01 kPa (21 psf) INTERMEDIATE 1.21 kPa (25 psf) EDGES	DOW (REFI LINE BEAM	ELS TO MAT ER TO LAP S OF THE TOF /). /IDE (1) 9.5m	CH THE VER SPLICE LENG P FLANGE OF nm (3/8") STIF ALL STEEL C	RTICAL REIN GTH SCHEDI F BEAM (CE FFENER EA	NFORCEME OULE FOR DO INTER LINE
AN IM		OF THIS BUILDING IS ASSUMED TO .0 WAS USED IN THE DESIGN UNDE	BE NORMAL.	B. C.	ABOVE ABOVE	ALL COLUMN ALL BEARING NERS ARE AS	IS WHERE I G PLATES F	BEAM CAN
PRE-ENGINEEF		DING SUPPLIER TO PROVIDE LOAD D UPLIFT ANCHORS - PROVIDE STA	ING INFORMATION, DESIGN, SUPPLY, MPED DRAWINGS.	<	203mm	STIFFENER TH 6.4mm 9.5mm		
SEISMIC LOADI	<u>NG:</u>				610mm	13mm		
AS P	'ER OBC 2012 PART 4 (4.1.8.7) T	HE EQUIVALENT STATIC FORCE P	ROCEDURE CAN BE USED.				STE	EEL (
	SOIL CLASS BRACED FRAMES SFRS - COM	NVENTIONAL	D	MARK	S	IZE	ТОР	PLATE
	PGA Sa (0.2)		0.064 0.108					
	Sa (0.5) Sa (1.0)		0.070 0.041	C.1	HSS 152	2x152x13mm	NOTE	E: 1 AND 2
	Sa (2.0)		0.021		1100 102	2815281511111	NOTE	I. TAND 2
	Sa (5.0) Sa (10.0)		0.0052 0.0021					
	Rd Ro		1.5 1.3					
	F(0.2) = Fa		1.24 1.47	C.2	HSS 127x	127x6.4mm	NOTE	E: 1 AND 2
	F(0.5) F(1.0) = Fv		1.55			TES SHALL BE		
	F(2.0) F(5.0)		1.57 1.58	2. PRC	DVIDE 20mm (¾	4") THICK STEEL 4") THICK OF	TOP PLATE	(MIN.) = TO Lx
	F(10.0)		1.49	4. PRC	MRESSIVE STR DVIDE 9.5mm (3	RENÓTH OF 40N 8/8") TOP PLATE	/IPa. E EQUAL TO L:	
	I <sub>E</sub> F <sub>a</sub> S <sub>a</sub> (0.2) Tx =		0.134 < 0.35 0.244 SEC	5. BAS	SEPLATE BOLT	) FILLET, TYPIC ED OR WELDEE I BEARING LOC	D TO TOP FLA ATION. SEE B	BEAM SCHEDL
	Ty =		0.244 SEC	6. ALL	COLUMNS BE	ARING ON BEAN ESS GREATER 1 IAY BE SPLICED	MS SHALL HA THAN OR EQU	AVE A BASEPL UAL TO THE C
A		OF THIS BUILDING IS ASSUMED TO OF 1.0 WAS USED IN THE DESIGN L		FUL 8. SEE	L CAPACITY, P TYPICAL DET.	PLATES TO FIT V AILS FOR COLU END INTO FOOT	WITHIN WALL	. CAVITY, IF A G AND BEARIN
1. THE FOLLO AGENCY UN INSPECTIO		-	STRUCTURAL TESTING AND					
1. THE FOLLO AGENCY UN INSPECTION ITEM SOIL BEARING SOIL COMPAC ENGINEERED	WING ITEMS REQUIRE TESTING ( NLESS NOTED OTHERWISE. THE A N REPORTS TO THE ENGINEER F( CAPACITY	AGENCY SHALL SEND COPIES OF ALL						
1. THE FOLLO AGENCY UN INSPECTION ITEM SOIL BEARING SOIL COMPAC ENGINEERED REINFORCING CONCRETE CO CONCRETE SL	WING ITEMS REQUIRE TESTING ( NLESS NOTED OTHERWISE. THE A N REPORTS TO THE ENGINEER F( CAPACITY TION FILL STEEL PLACEMENT OMPRESSIVE TESTS LUMP	AGENCY SHALL SEND COPIES OF ALL OR REVIEW. YES YES YES YES YES YES YES YES YES	STRUCTURAL TESTING AND COMMENTS BY SOILS ENGINEER BY SOILS ENGINEER BY SOILS ENGINEER INSPECT FINAL PLACEMENT MIN 3 SETS/100m <sup>3</sup> MIN 3 SETS/100m <sup>3</sup>					
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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 INHIBITTING PRIMER BY OTHERS.

INHIBITTING PRIMER BY OTHERS. BASED ON BRICK HEIGHT, LOOSE LITNELS SHALL NOT BE INSTALLED WHERE HEIGHT OF SUPPORTED BRICK EXCEEDS 1800 mm (6') ABOVE OPENING. LINTELS MIN. Fy = 300 MPA U.N.O. ON DRAWINGS 4. 5.

## EAM SCHEDULE

### COMMENTS

3/8" (9.5mm) WEB STIFFENERS BOTH SIDES IF REQUIRED BY CONNECTION IGNER, AT COLUMNS ABOVE, AND AT JOIST CONNECTIONS -PROVIDE SHORING ING CONST. FOR STABILITY AND TO ELIMINATE TORSION

/8" (9.5mm) WEB STIFFENERS BOTH SIDES IF REQUIRED BY CONNECTION IGNER, AT COLUMNS ABOVE, AND AT JOIST CONNECTIONS -PROVIDE SHORING RING CONST. FOR STABILITY AND TO ELIMINATE TORSION

3/8" (9.5mm) WEB STIFFENERS BOTH SIDES IF REQUIRED BY CONNECTION IGNER, AT COLUMNS ABOVE, AND AT JOIST CONNECTIONS -PROVIDE SHORING ING CONST. FOR STABILITY AND TO ELIMINATE TORSION

LESS NOTED OTHERWISE. LIER, PROVIDE SEALED DRAWINGS, REFER TO

15M, 75mm (3" LONG WELDABLE BARS @ 600mm OF THE TOP FLANGE OF BEAM (CENTER LINE

NJ. ND CONCRETE FLOOR SHALL HAVE WELDED ND EXTEND LAP SPLICE LENGTH IN THE WALL \_S LENGTH). FULLY WELD ALONG THE CENTER UPPORTED WALL TO MATCH CENTER LINE OF

AM

## LUMN SCHEDULE

BOTTO	MPLATE	COMMENTS			
	200x300x20mm (8"x12"x3/4") (TYPICAL)	TYPICAL (4) 15mm(1/2") Ø 500mm(20") EMBED. + 51mm(2") HOOK ANCHOR BOLTS			
	250x250x20mm (10"x10"x3/4") (CORNER)	CORNER (4) 15mm(1/2") Ø 500mm (20") EMBED. + 51mm (2") HOOK ANCHOR BOLTS			
•         •           •         •           •         •	200x300x20mm (8"x12"x3/4") (BRACING)	TYPICAL (4) 15mm(1/2") Ø 500mm(20") EMBED. + 51mm(2") HOOK ANCHOR BOLTS			
REFER TO TYPIC	CAL DETAIL T.D.54	REFER TO TYPICAL DETAIL T.D.54			

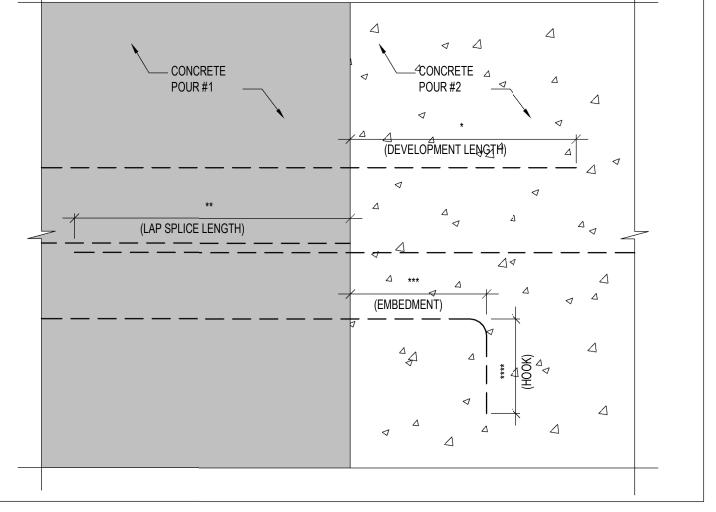
MIN. 6.0mm (1/4") FILLET WELDS, OR AS DEFINED BY SUPPLIER. DLUMN U.N.O., TÝPICAL.

DUT BELOW ALL COLUMN BASEPLATES. USE SIKAGROUT 212 OR EQUIVALENT W/ MIN AM CANTILEVERS OR BEARS ON TOP PLATE, FULLY WELD U/S OF BEAM TO PLATE W/ ECTION BY STEEL SUPPLIER, PROVIDE (1) 13mm (1/2") WEB STIFFENER EACH SIDE OF THICKNESS UAL TO THE WIDTH OF THE BEAM BY THE WIDTH OF THE COLUMN +76mm (3") EA. SIDE, EB THICKNESS. R EASE OF INSTALLATION. CONNECTION TO BE DESIGNED BY STEEL SUPPLIER FOR

SURE 75mm CONCERT COVER- TYPICAL ALL LOCATIONS FOR LONG ANCHOR BOLTS

## **REBAR DEVELOPMENT SCHEDULE**

0175	STRAIGHT REINFORCING		90° STANDARD HOOKS		
SIZE	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")	



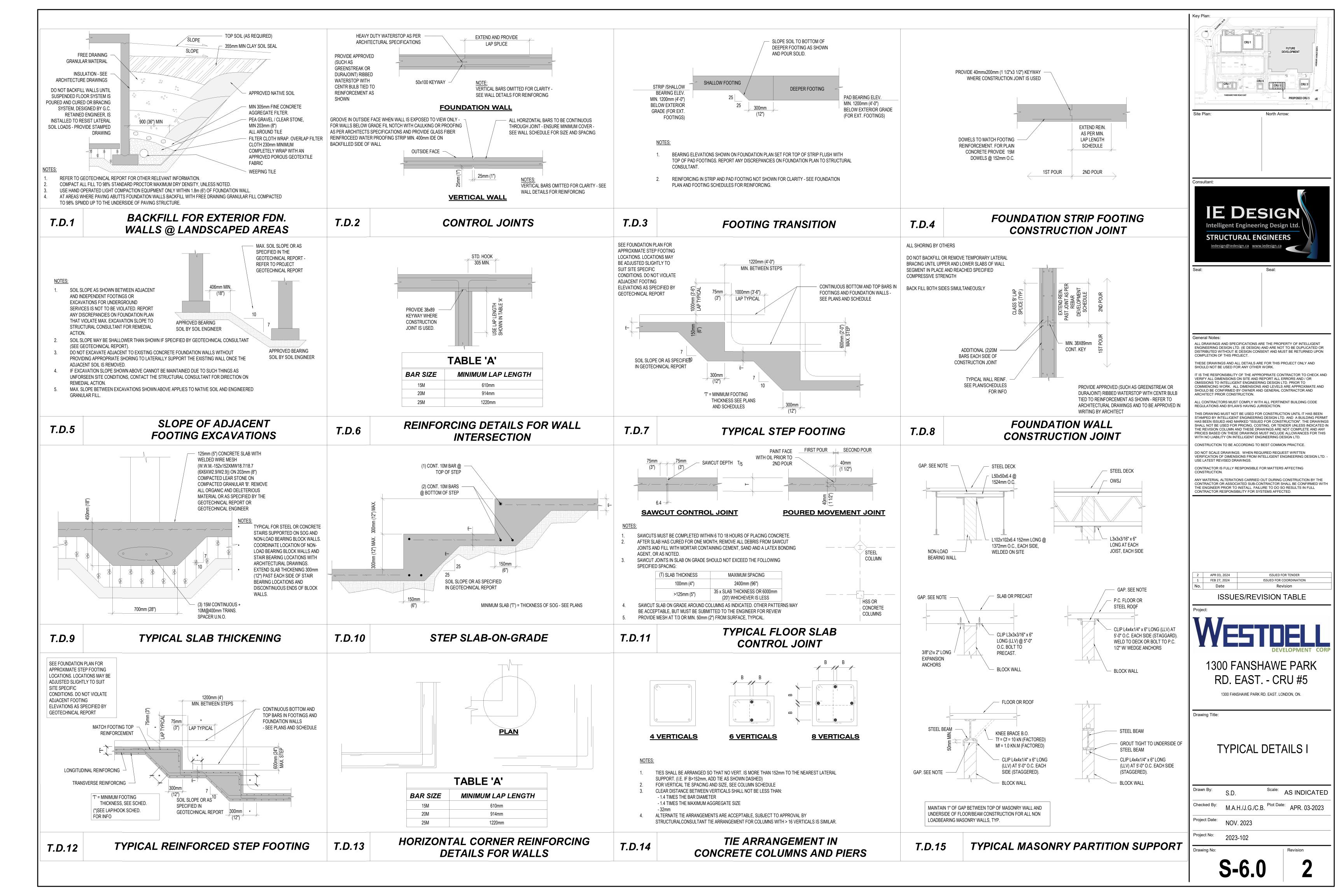
NOTES:

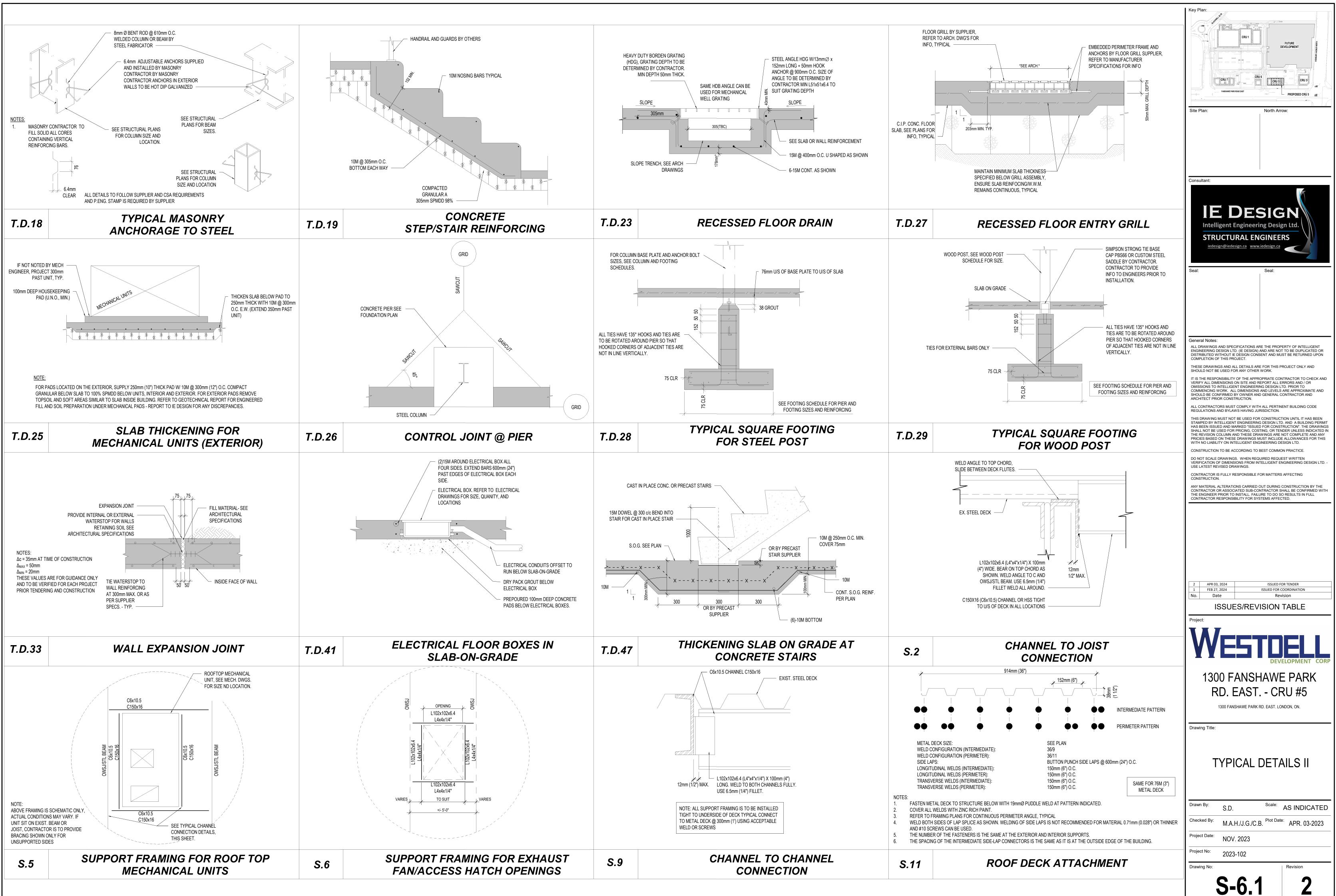
INCREASE ABOVE BY 1.5 TIMES FOR ALL EPOXY COATED REBARS. THESE NUMBERS ARE ONLY FOR NORMAL WEIGHT CONCRETE.

CONCRETE COVER MUST BE EQUAL OR MORE THAN 1.5 REBAR DIAMETER.

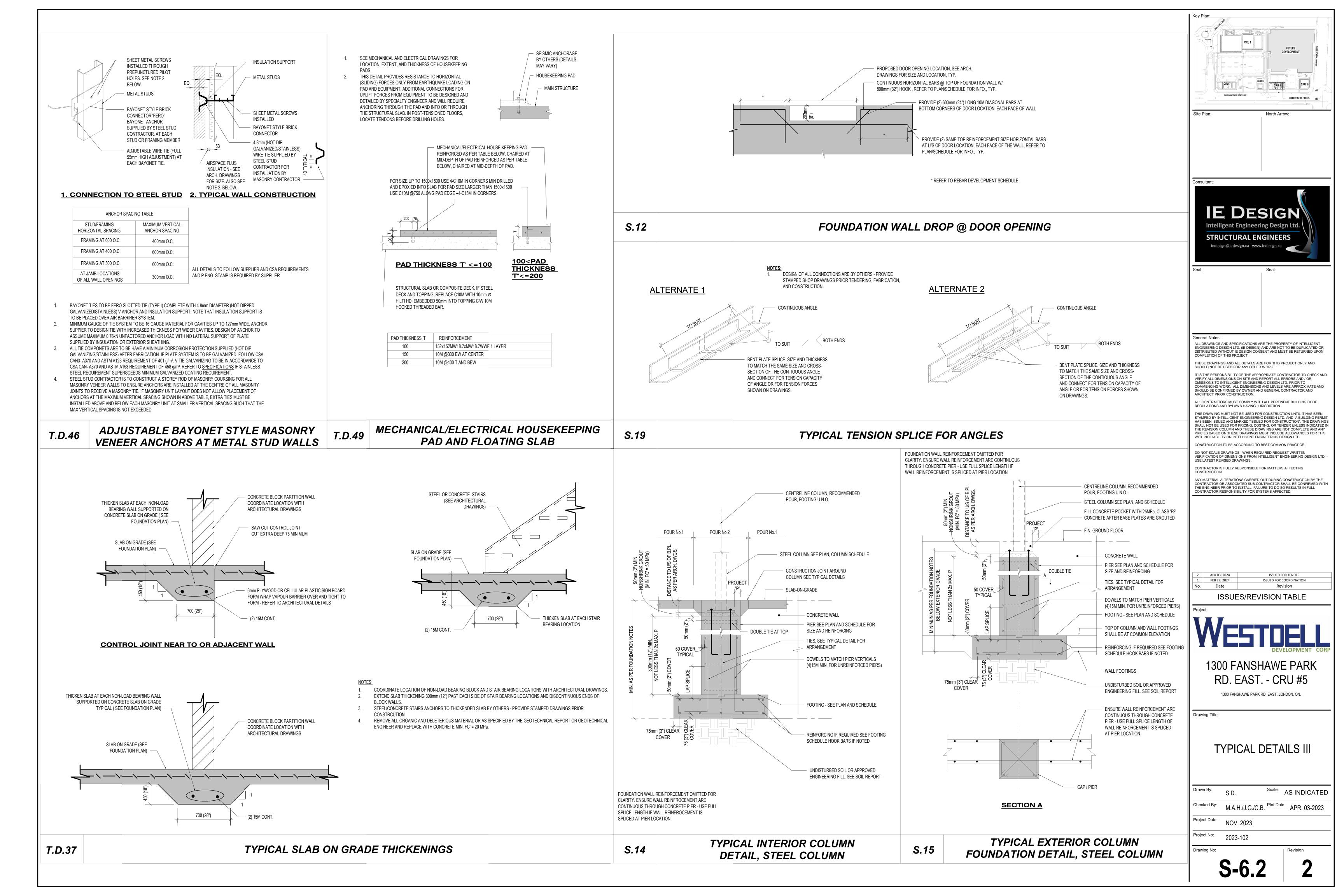
CLEAR SPACING NOT LESS THAN 2 REBAR DIAMETERS. YIELD STRESS FOR REBARS (FY) = 400 MPA.

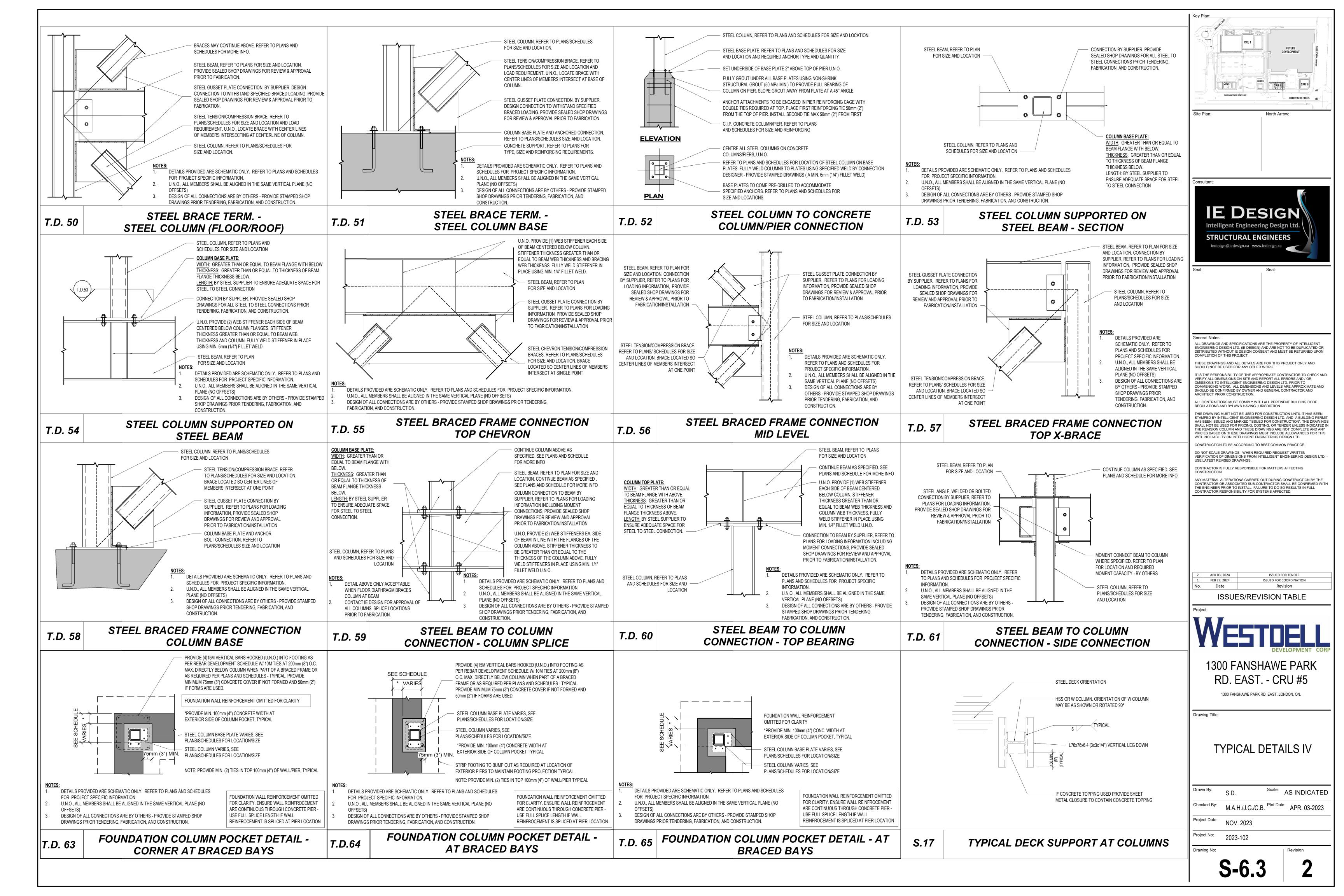
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Seal: Seal: Seal: General Notes: ALL DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INTELLIGENT ENGINEERING DESIGN LTD. (IE DESIGN) AND ARE NOT TO BE DUPLICATED OR
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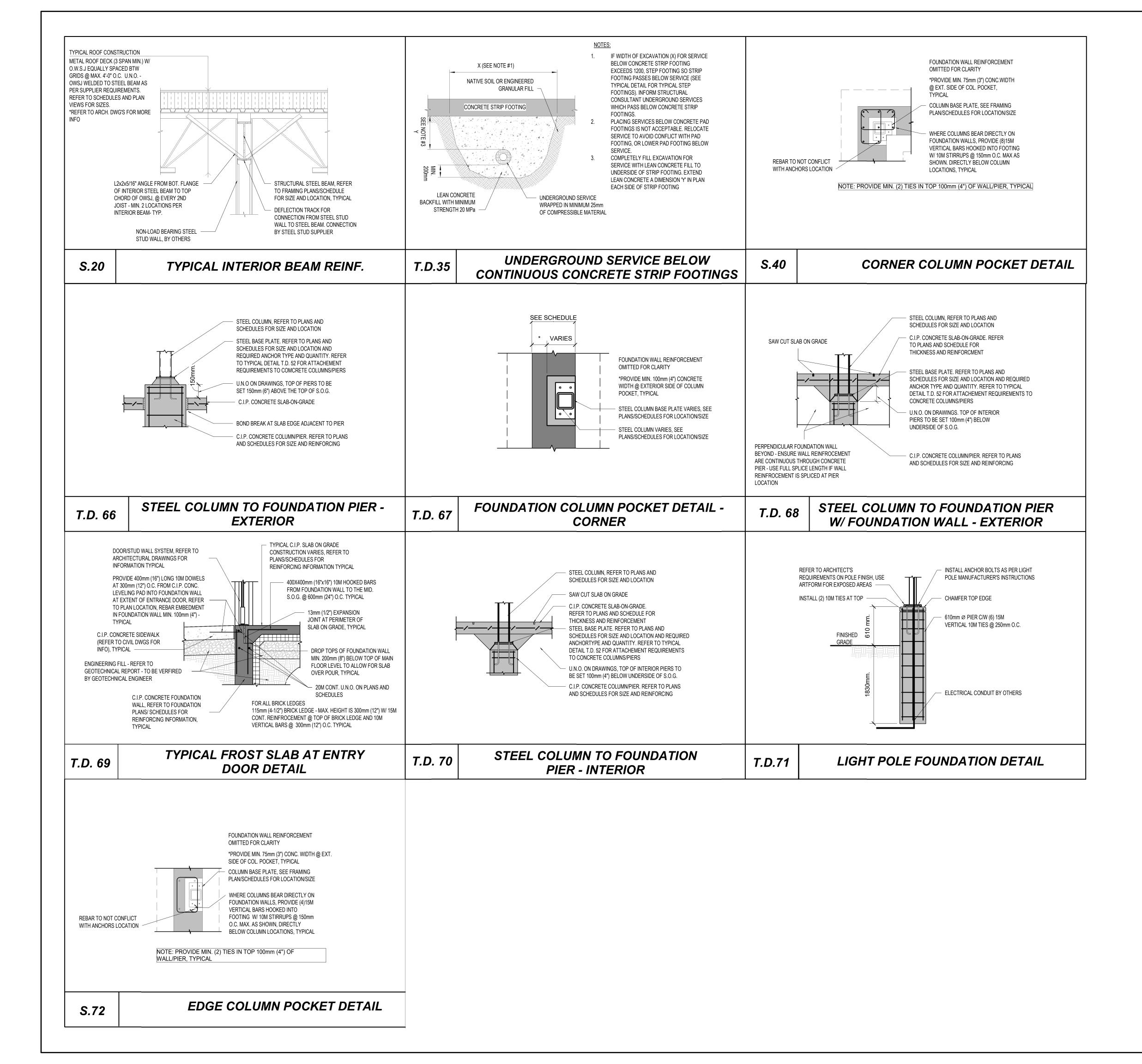




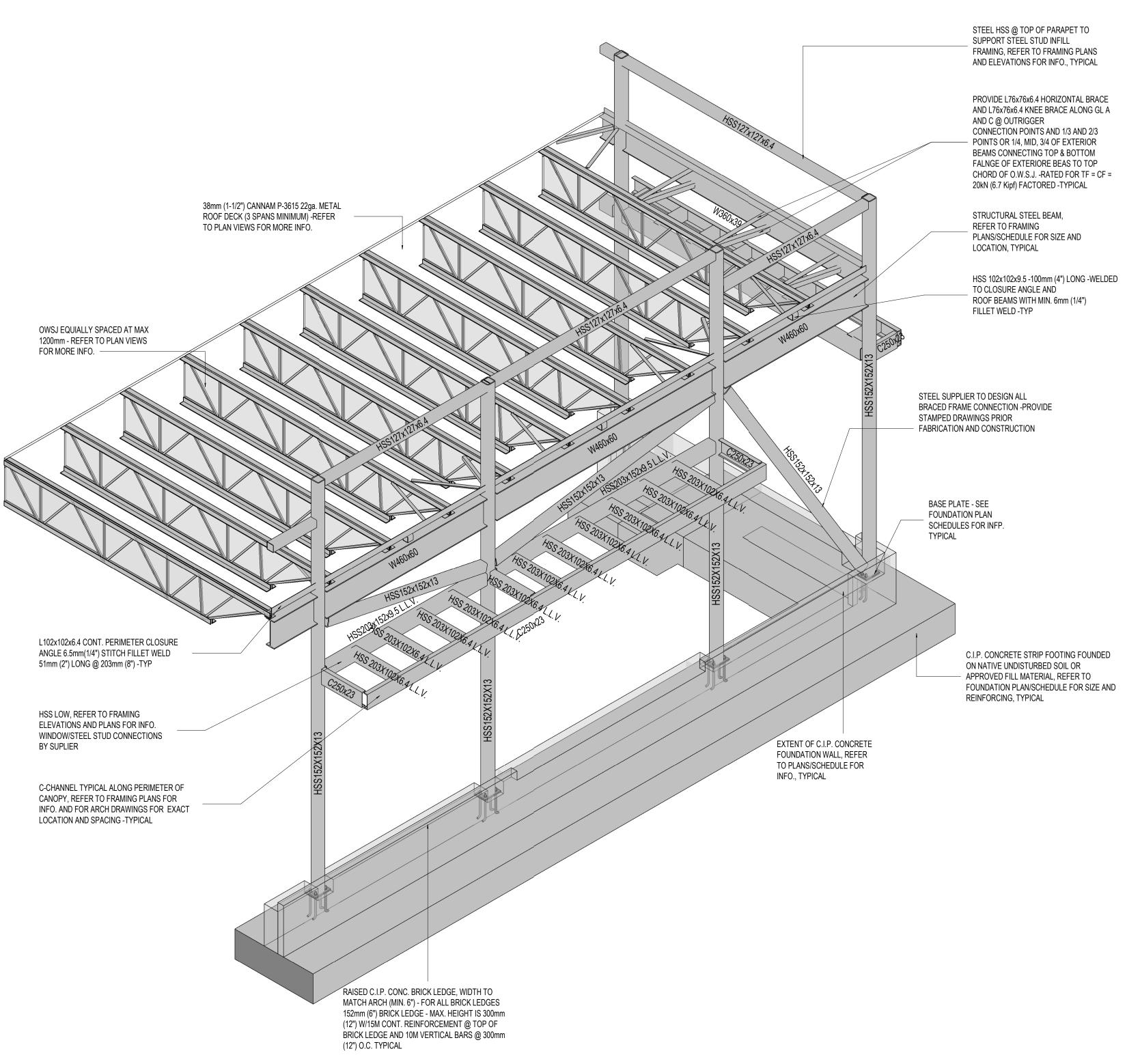








Key Plan:         Image: CRU 1         <
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<ul> <li>General Notes:</li> <li>ALL DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF INTELLIGENT ENGINEERRING DESIGN LTD. (IE DESIGN) AND ARE NOT TO BE DUPLICATED OR DISTRIBUTED WITHOUT IE DESIGN CONSENT AND MUST BE RETURNED UPON COMPLETION OF THIS PROJECT.</li> <li>THESE DRAWINGS AND ALL DETAILS ARE FOR THIS PROJECT ONLY AND SHOULD NOT BE USED FOR ANY OTHER WORK.</li> <li>IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ALL ERRORS AND / OR 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.</li> <li>ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT BUILDING CODE REGULATIONS AND BYLAWS HAVING JURISDICTION.</li> <li>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 PRICIES BASED ON THESE DRAWINGS MUST INCLUDE ALLOWANCES FOR THIS WITH NO LIABILITY ON INTELLIGENT ENGINEERING DESIGN LTD.</li> <li>CONSTRUCTION TO BE ACCORDING TO BEST COMMON PRACTICE.</li> <li>DO NOT SCALE DRAWINGS. WHEN REQUIRED REQUEST WRITTEN VERIFICATION OF DIMENSIONS FROM INTELLIGENT ENGINEERING DESIGN LTD USE LATEST REVISED DRAWINGS.</li> <li>MATARATOR IS FULLY RESPONSIBLE FOR MATTERS AFFECTING CONTRACTOR IS FULLY RESPONSIBLE FOR MATTERS AFFECTING CONTRACTOR IS FULLY RESPONSIBLE FOR MATTERS AFFECTING 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.</li> </ul>
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1300 FANSHAWE PARK RD. EAST. LONDON, ON.         Drawing Title:         TYPICAL DETAILS V         Drawn By:       S.D.         Scale:       AS INDICATED         Checked By:       M.A.H./J.G./C.B.         Project Date:       NOV. 2023         Project No:       2023-102
Drawing No: Revision 2



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

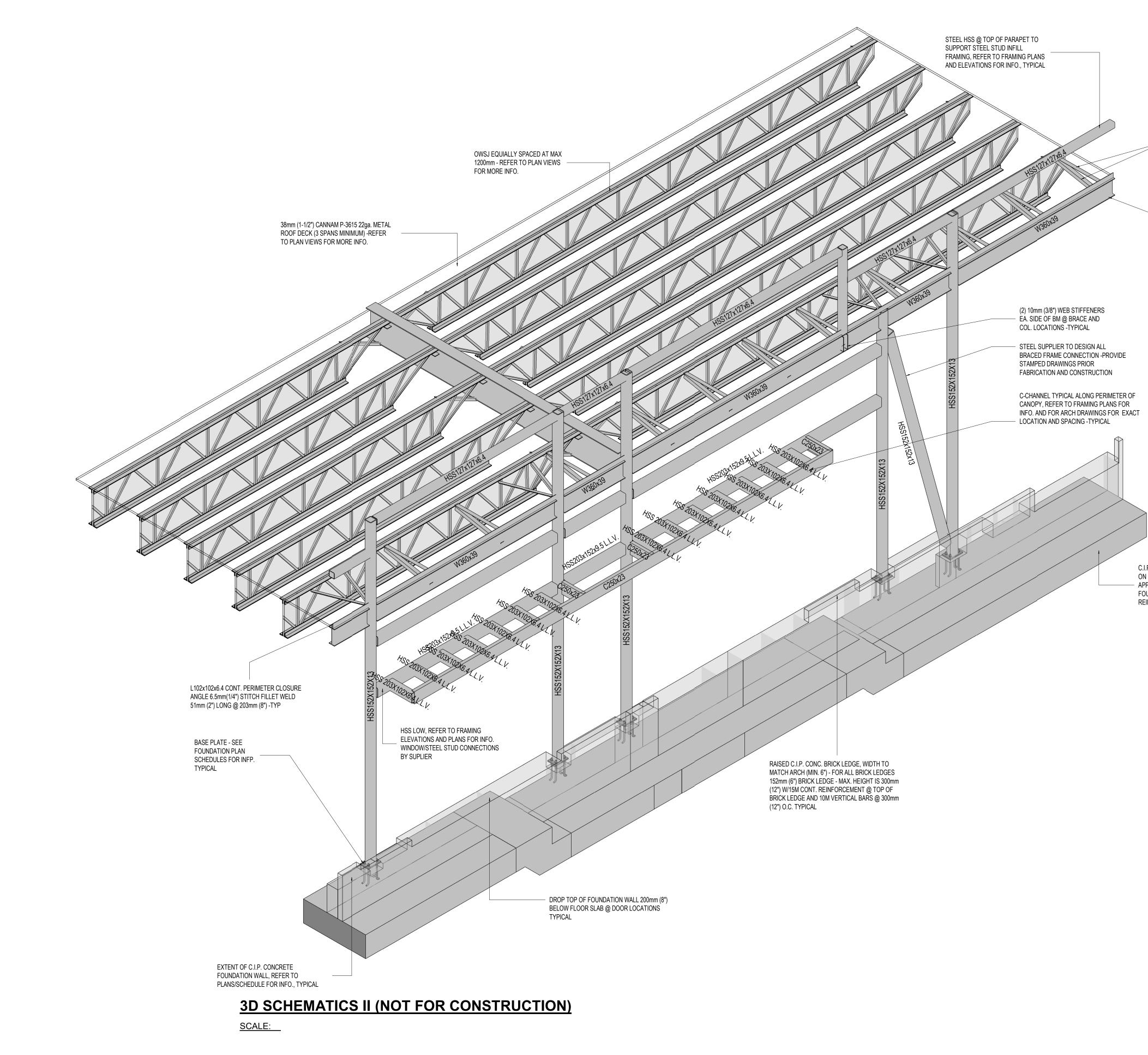
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NOTES:

- 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) WALLS, PARAPETS, CANOPIES, EXTERIORS, AND OTHERS ARE DESIGNED BY OTHERS - PROVIDE STAMPED SHOP DRAWINGS PRIOR TENDERING,
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- OTHERS PROVIDE STAMPED SHOP DRAWINGS PRIOR TENDERING, FABRICATION, AND CONSTRUCTION. ALL CANOPIES ARE NOT TO BE CONNECTED TO THE STRUCTURE OR ATTACHED TO ANY STRCUTRUAL MEMBERS PRIOR INSTALLING THE
- ROOF/FLOOR DIAPHRAGM AND FULLY CONNECT TO ROOF/FLOOR JOISTS, BEAMS, AND COLUMNS

Key Plan:         Image: CRU1	PROPOSED CRU 5
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IEEEESIC Intelligent Engineering Des STRUCTURAL ENGINE iedesign@iedesign.ca www.iedesign.ca	ign Ltd. ERS
General Notes: ALL DRAWINGS AND SPECIFICATIONS ARE THE PRO ENGINEERING DESIGN LTD. (IE DESIGN) AND ARE NO DISTRIBUTED WITHOUT IE DESIGN CONSENT AND NO DISTRIBUTED WITHOUT IE DESIGN CONSENT AND NO	OT TO BE DUPLICATED OR
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Drawn By:S.D.Scale:Checked By:M.A.H./J.G./C.B.Plot DateProject Date:NOV. 2023Project No:2023-102	APR. 03-2023
Drawing No:	Revision 2



PROVIDE L76x76x6.4 HORIZONTAL BRACE AND L76x76x6.4 KNEE BRACE ALONG GL A, B, C.1, G AND E @ OUTRIGGER CONNECTION POINTS AND 1/3 AND 2/3 POINTS OR 1/4, MID, 3/4 OF EXTERIOR BEAMS CONNECTING TOP & BOTTOM FALNGE OF EXTERIORE BEAS TO TOP CHORD OF O.W.S.J. -RATED FOR TF = CF = 20kN (6.7 Kipf) FACTORED -TYPICAL

STRUCTURAL STEEL BEAM, REFER TO FRAMING PLANS/SCHEDULE FOR SIZE AND LOCATION, TYPICAL

C.I.P. CONCRETE STRIP FOOTING FOUNDED ON NATIVE UNDISTURBED SOIL OR - APPROVED FILL MATERIAL, REFER TO FOUNDATION PLAN/SCHEDULE FOR SIZE AND REINFORCING, TYPICAL

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