



Public Works
Government Services
Canada

Travaux publics
Services gouvernementaux
Canada



Environment and
Climate Change
Canada

Environnement et
Changement Climatique
Canada

Architectural and
Engineering Services

Services d'architecture
et de génie

Ontario Region

Région de l'Ontario

6248 8th LINE, EGBERT, ONTARIO.
CENTRE FOR ATMOSPHERIC RESEARCH EXPERIMENTS
CLEAN AIR BUILDING ROOF REPLACEMENT
PWGSC Proj. No.: CARE-007 (ID 2269)



Canada

LIST OF DRAWINGS

ARCHITECTURAL

- A0.0 COVER PAGE
- A1.1 SITE PLAN
- A2.1 ROOF DEMOLITION PLAN
- A2.2 ROOF RECONSTRUCTION PLAN AND DETAILS
- A3.1 INTERIOR PLANS AND DETAILS

STRUCTURAL

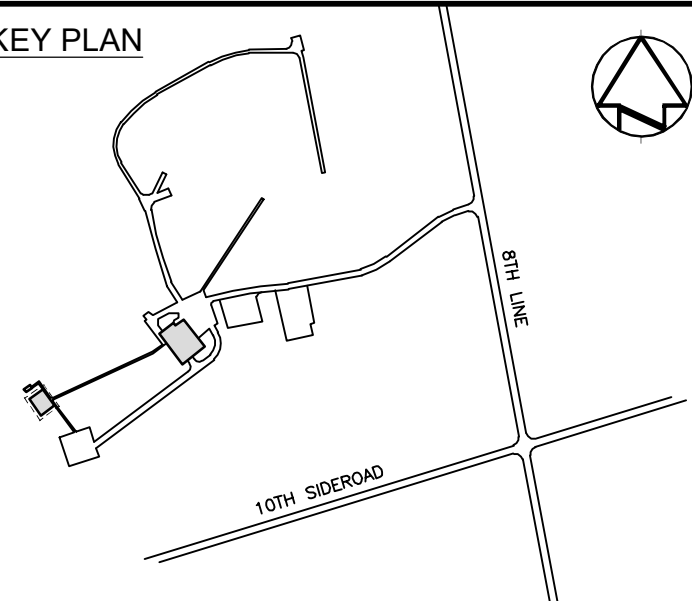
- S0.1 STRUCTURAL NOTES
- S1.1 STRUCTURAL ROOF PLAN
- S1.2 PLATFORM STRUCTURAL ROOF PLAN AND DETAILS

ELECTRICAL

- E1 ROOF DEMOLITION PLAN
- E2 ELECTRICAL ROOF PLAN

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06	RE-ISSUED FOR TENDER	OCT. 1/19
05	ISSUED FOR TENDER	JUL. 17/19
04	ISSUED FOR PERMIT	APR. 13/18
03	ISSUED FOR TENDER	MAR. 02/18
02	ISSUED FOR 99% DD	JAN. 29/18
01	ISSUED FOR 50% DD	OCT. 26/17
revision		date

Do not scale drawings.
Verify all dimensions and conditions on site and immediately
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A	Detail No.
B	drawing no. - where detail required
C	drawing no. - where detailed

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CENTRE FOR ATMOSPHERIC RESEARCH
EXPERIMENTS
6248 8TH LINE, EGBERT, ON, L0L 1N0
CLEAN AIR BUILDING
ROOF REPLACEMENT

drawing title
titre du dessin
LOCATION PLAN
AND LIST OF DRAWINGS

drawn by
dessiné par
R.C.

designed by
conçue par
J.D.

approved by
approuvé par

bid
offre
project manager
administrateur
de projets

project date
date du projet
2019-10-01

project no.
no. du projet
CARE-007 (ID2269)

drawing no.
dessiné no.
A0.0

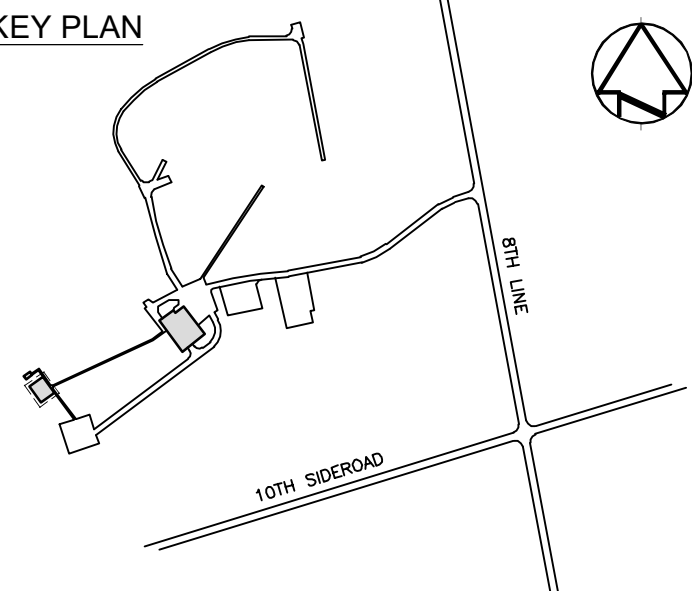
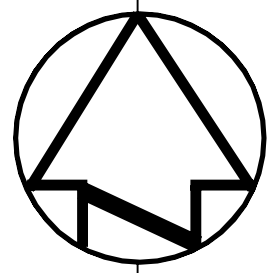
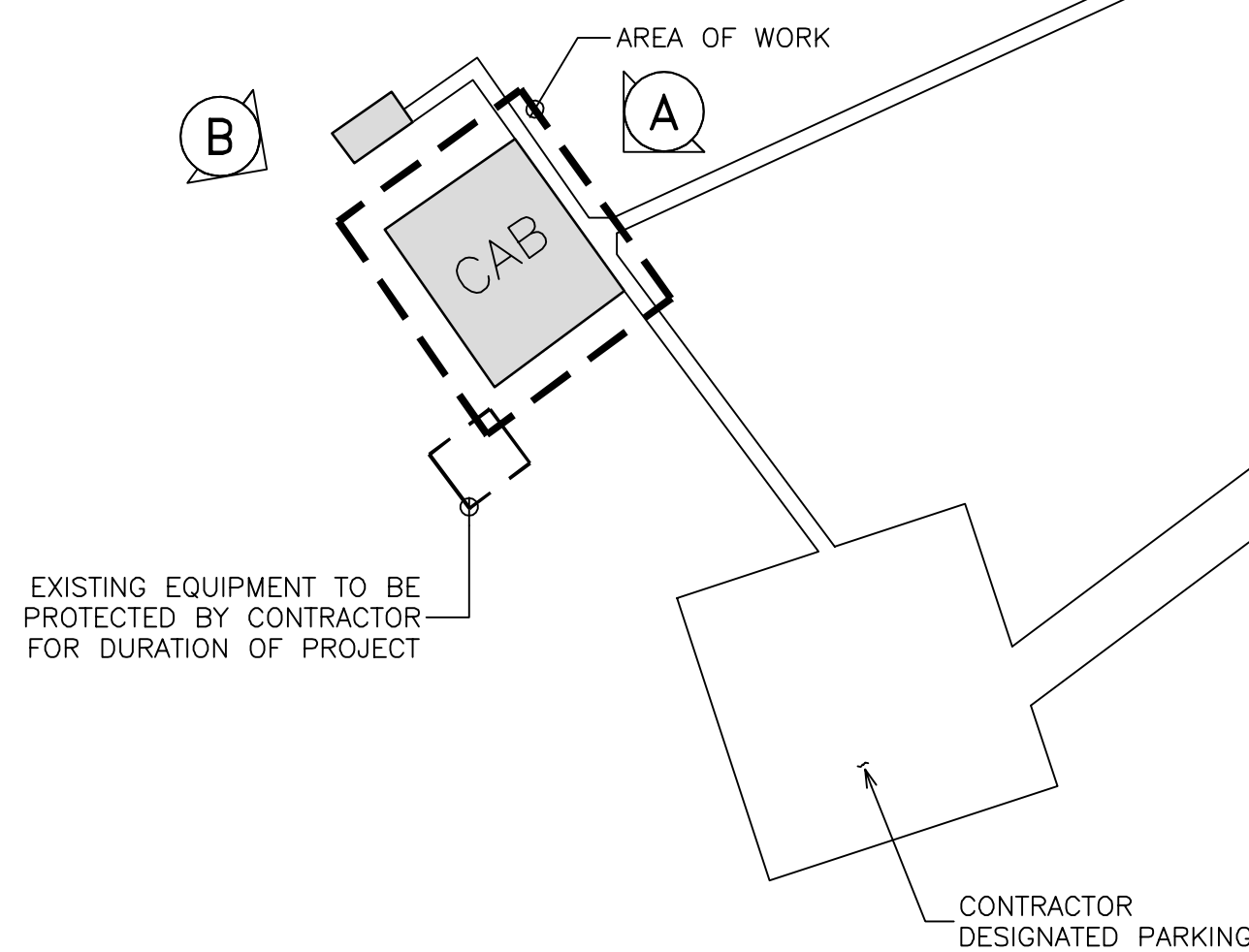




A FRONT ELEVATION



B REAR ELEVATION



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ROOF REPLACEMENT**

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SITE PLAN

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J.D.

approved by
approuvé par

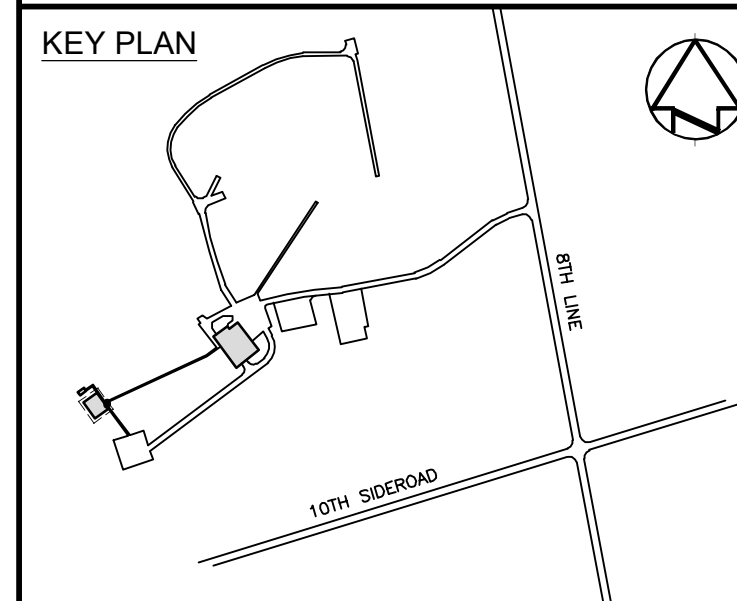
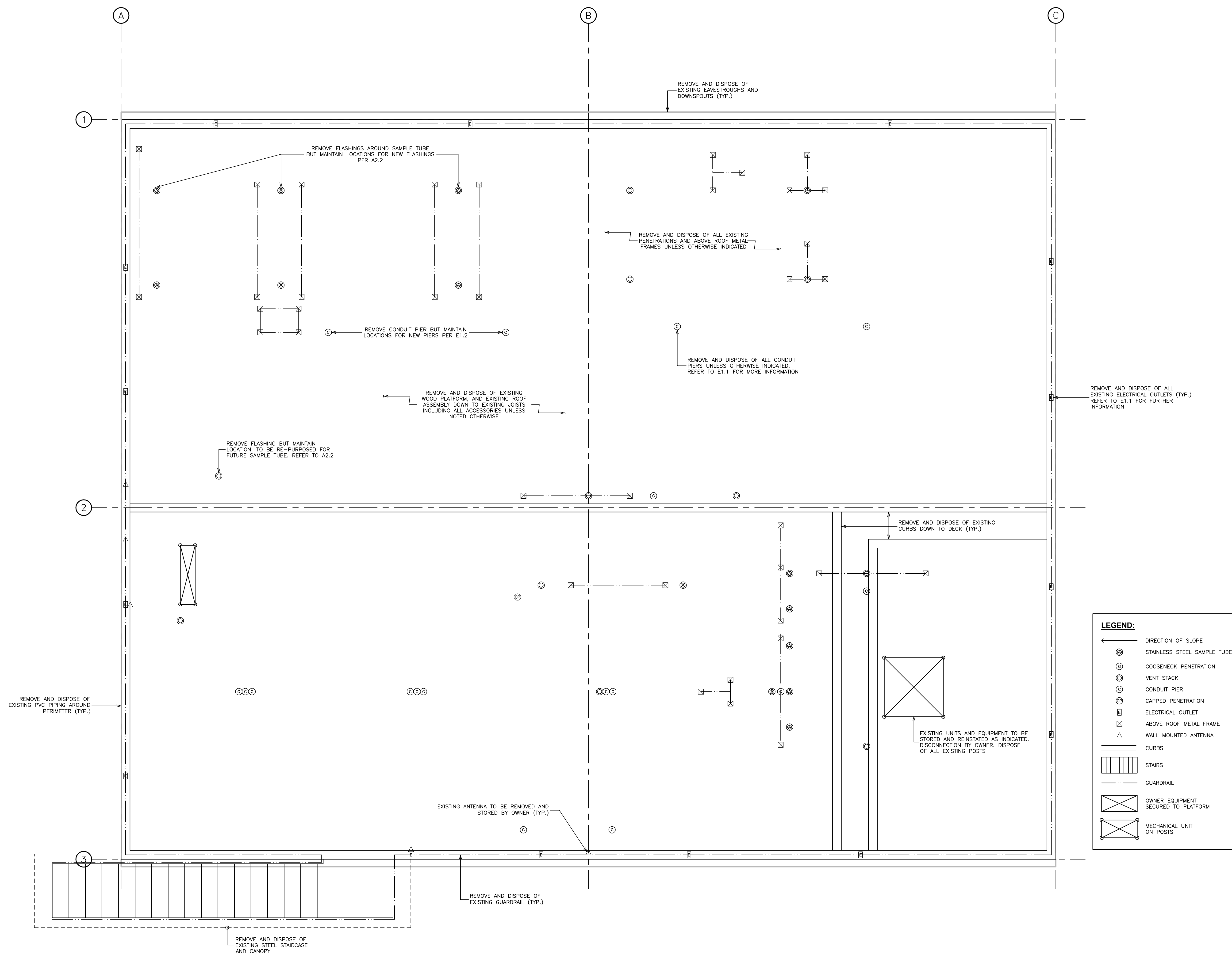
bid
offre
BID

project manager
administrateur
de projets

project date
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drawing no.
dessiné no.
A1.1



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EXPERIMENTS**
6248 8TH LINE, EGBERT, ON, L0L 1N0
**CLEAN AIR BUILDING
ROOF REPLACEMENT**

drawing title
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ROOF DEMOLITION PLAN

drawn by
dessiné par
R.C.

designed by
conçu par
J.D.

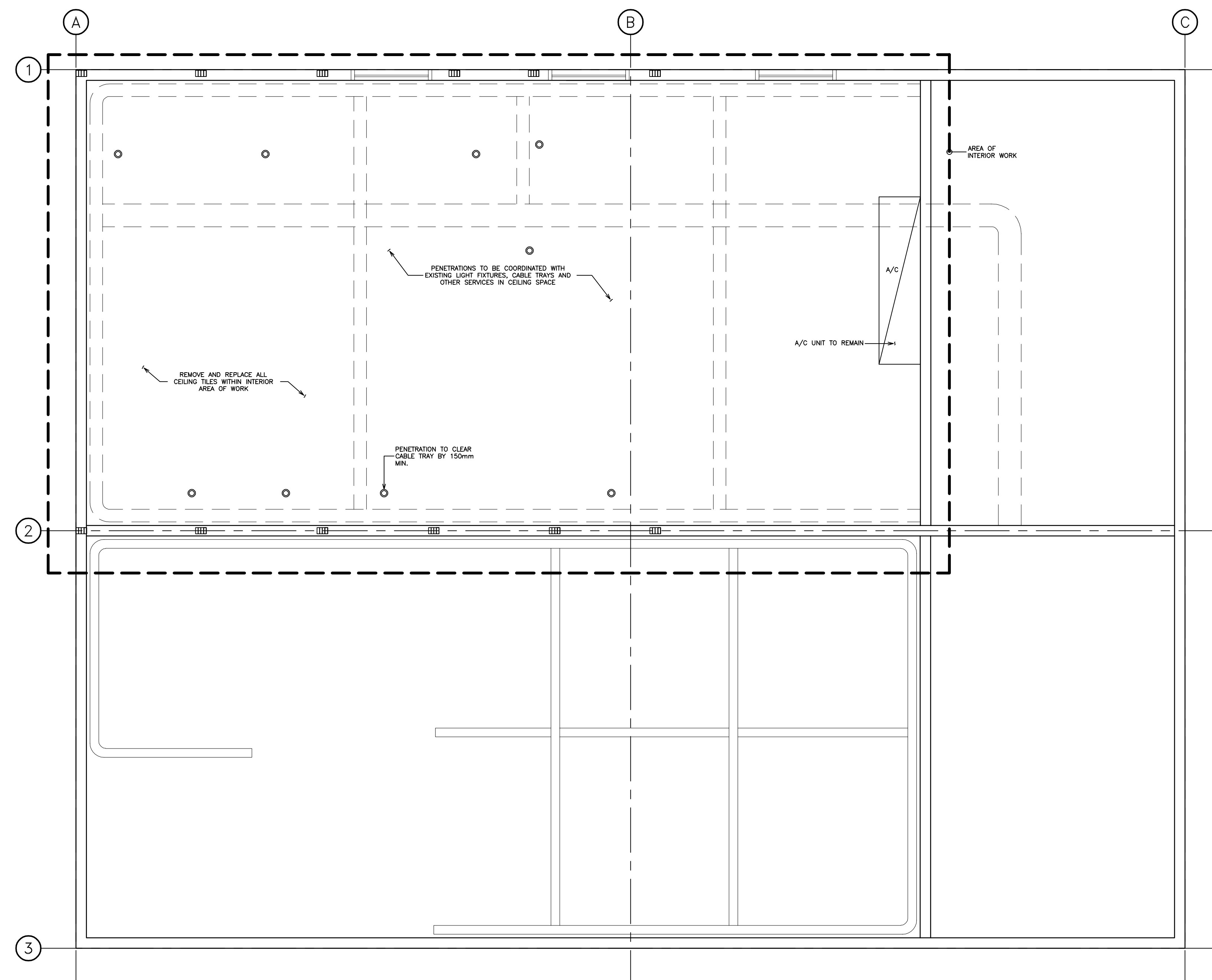
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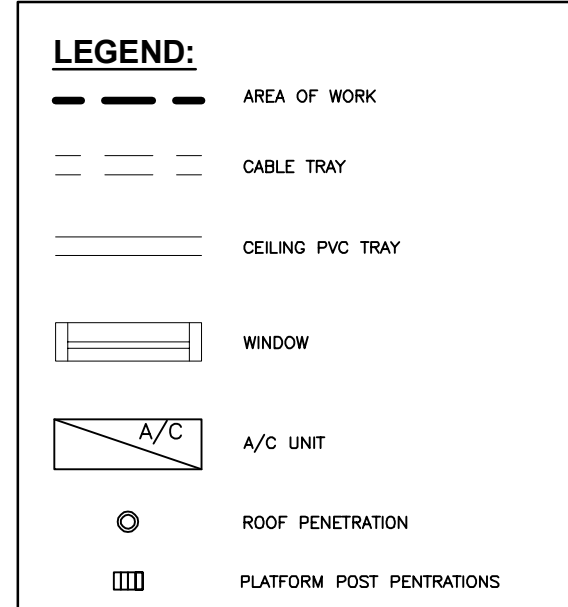
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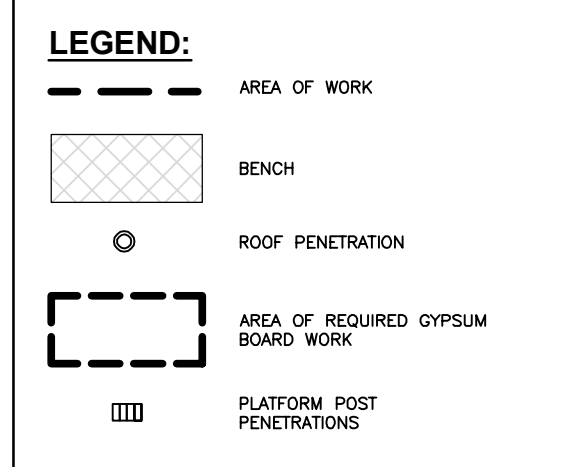
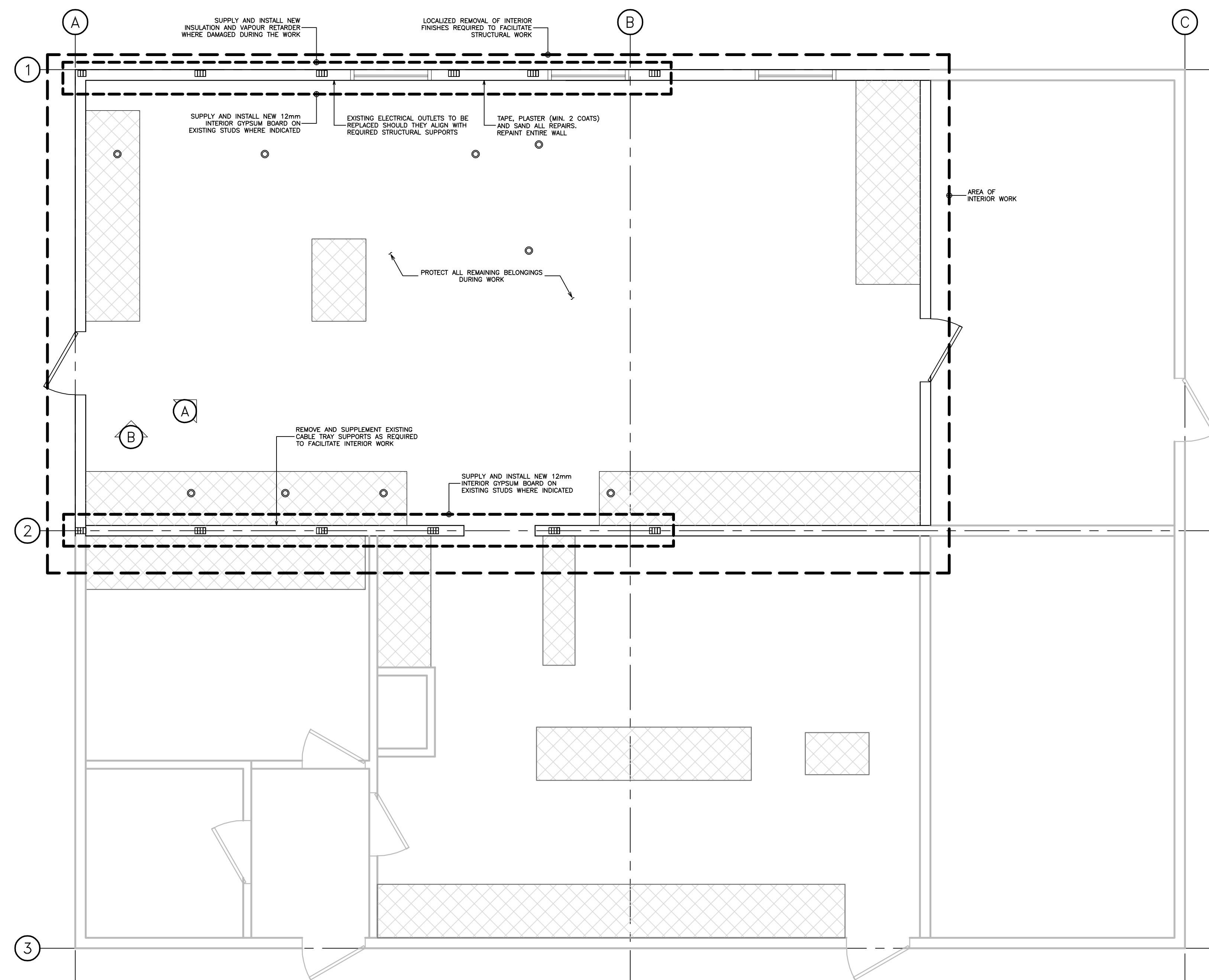
drawing no.
dessiné no.
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NOTES:
1. ROOF PENETRATIONS SHOWN FOR BENEFIT OF CONTRACTOR LOCATIONS MAY VARY SLIGHTLY BASED ON SITE CONDITIONS. IT IS CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL SITE CONDITIONS.



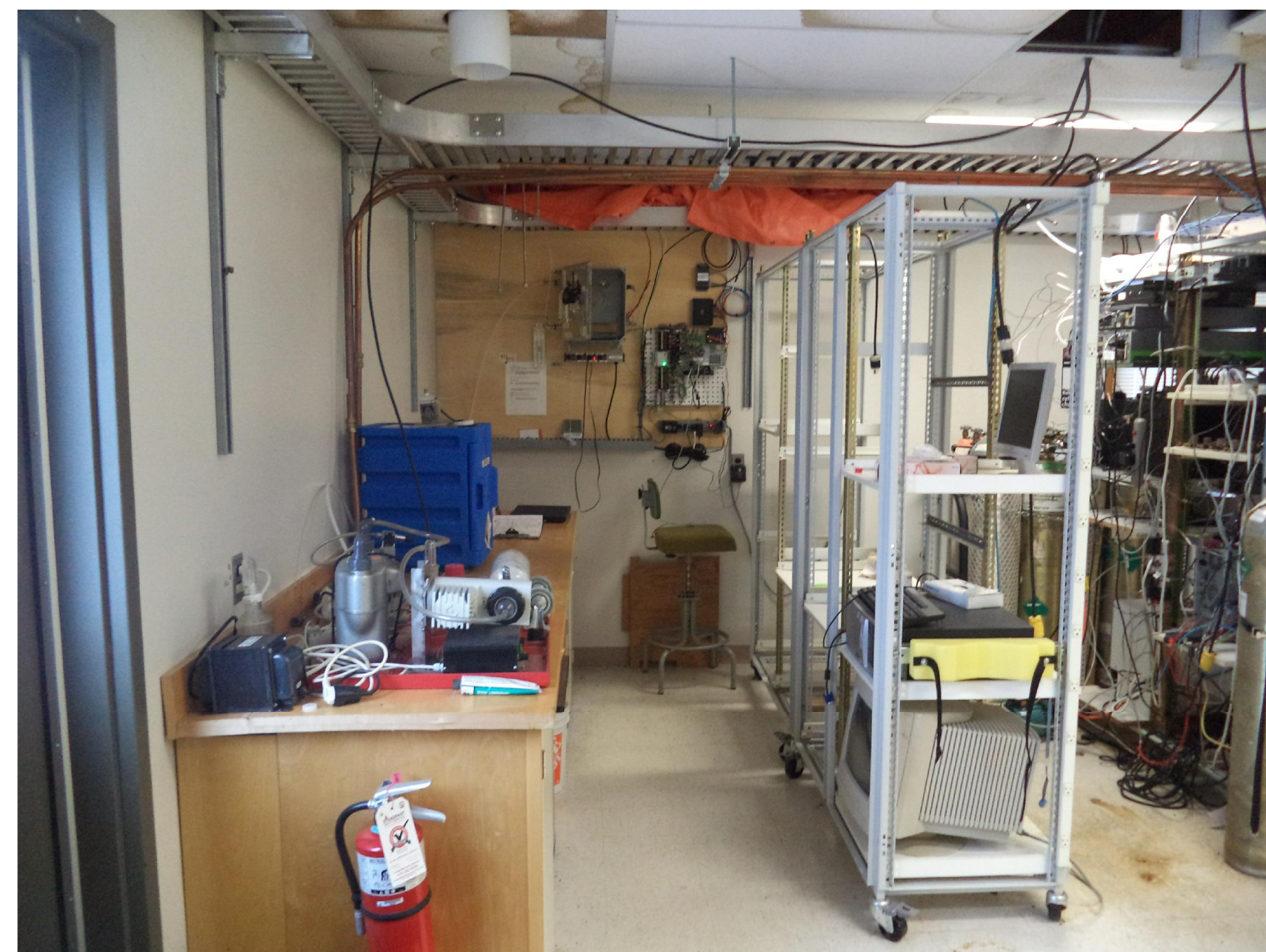
2 REFLECTED CEILING PLAN
A3.1 1:40



1 INTERIOR BENCH LAYOUT
A3.1 1:40

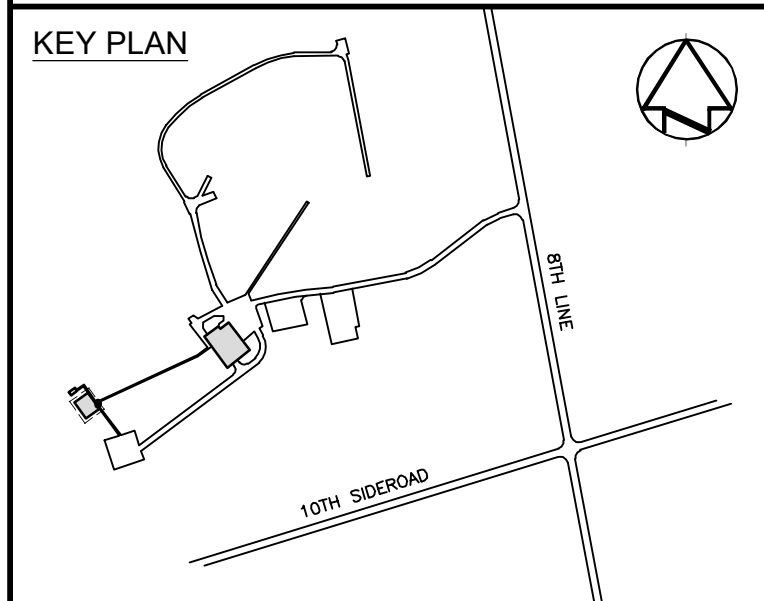


A



B

3 TYPICAL VIEWS OF INTERIOR AREA OF WORK
A3.1 1:2



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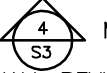
project no.
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drawing no.
dessiné no.
A3.1

DRAWINGS

1. THE USE OF THESE DRAWINGS IS LIMITED TO THAT IDENTIFIED IN THE REVISIONS COLUMN. DO NOT CONSTRUCT FROM THESE DRAWINGS UNLESS MARKED "ISSUED FOR CONSTRUCTION" IN THE REVISIONS COLUMN.
2. THE INFORMATION ON THESE DRAWINGS SHALL NOT BE USED FOR ANY OTHER PROJECT OR WORKS. THE INFORMATION ON THESE DRAWINGS APPLIES SOLELY TO THIS PROJECT.
3. THE DRAWINGS DO NOT SHOW COMPONENTS THAT MAY BE NECESSARY FOR CONSTRUCTION SAFETY. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR SAFETY AND ABOUT THE JOB SITE DURING CONSTRUCTION, AND THE DESIGN AND ERECTION OF ALL TEMPORARY STRUCTURES, FORMWORK, FALSE WORK, SHORING, ETC. REQUIRED TO COMPLETE THE WORK.

GENERAL

1. SECTION MARK SHOWN THUS  MEANS SECTION #4 ON DRAWING S-3.
2. THE GENERAL CONTRACTOR SHALL REVIEW ALL THE DRAWINGS AND CHECK DIMENSIONS BEFORE CONSTRUCTION. REPORT DISCREPANCIES BETWEEN STRUCTURAL AND OTHER DISCIPLINES DRAWINGS FOR CLARIFICATION.
3. **CONCRETE WORK**
SHALL CONFORM TO CAN/CSA-A23.1, CAN/CSA-A23.2, CAN/CSA-A23.3 AND REFERENCED DOCUMENTS.
4. **STRUCTURAL STEEL WORK**
SHALL CONFORM TO CAN/CSA-S16 AND REFERENCED DOCUMENTS.
5. DO NOT CUT OR DRILL ANY OPENINGS IN STRUCTURAL MEMBERS WITHOUT WRITTEN PERMISSION OF DEPARTMENT REPRESENTATIVE.
6. **ABBREVIATIONS:**

7.5	-----	MOMENT CONNECTION	J.T.	-----	JOINT
A.B.A.	-----	PAID THROUGH FLOOR [AN]	L.L.	-----	LONG LIVE LOAD
A.E.S.S.	-----	ARCHITECTURALLY EXPOSED	L.L.B.	-----	LONG LESS BACK TO BACK
ARCH.	-----	STRUCTURAL STEEL	L.L.H.	-----	LONG LESS HORIZONTAL
AL.T.	-----	ALTERNATE	L.S.H.	-----	LONG SIDE HORIZONTAL
ARCH.	-----	ARCHITECTURAL	L.S.V.	-----	LONG SIDE VERTICAL
B.C.E.	-----	BOTTOM CHORD EXTENSION	L.W.	-----	LONG WAY
B.E.	-----	BOTTOM EACH WAY	L.P.	-----	LONG POINT
B.L.L.	-----	BOTTOM LOWER LAYER	L.M.	-----	LONG MAXIMUM
B.W.	-----	BOTTOM LONG WAY	M.ECH.	-----	MECHANICAL
B.S.W.	-----	BOTTOM SHORT WAY	M.	-----	MINIMUM
B.U.R.T.	-----	BOTTOM UPPER LAYER	M.ECH.	-----	MECHANICAL
B.U.L.	-----	BOTTOM UPPER LAYER	M.	-----	MINIMUM
B.W.	-----	BOTTOM WAY	M.ECH.	-----	MECHANICAL
CANT.	-----	CANTILEVER	M.	-----	MINIMUM
CB	-----	COLUMN BELOW	M.ECH.	-----	MECHANICAL
CBM	-----	CORNER BEAM	N.I.C.	-----	NOT IN CONTACT
CF	-----	FACTORED COMPRESSION	N.EAR	-----	NEAR SIDE
C.I.P.	-----	CAST IN PLACE	N.T.S.	-----	NOT TO SCALE
CON.T.	-----	CONTROL JOINT	O.C.	-----	ON CENTRE
CL	-----	CENTER LINE	O.P.P.	-----	OPPOSITE
CLEAR	-----	CLEARANCE	O.S.J.	-----	OPEN WEB STEEL JOIST
CONC.	-----	CONCRETE	P.	-----	PARTIAL PENETRATION
CONT.	-----	CONTINUOUS	P/T	-----	POST-TENSIONING
C.T.R.	-----	COMPLETE PENETRATION	R/N	-----	RETURN
C/W	-----	COMPLETE WITH	R/W	-----	REINFORCED WITH
DBM	-----	DEBRIDED BEAM	S.I.L.	-----	STEEL INSULATED
DET.	-----	DETAIL	S.D.F.	-----	STEP DOWN FOOTING
D.L.	-----	DEAD LOAD	SM	-----	SMALLER
DO	-----	DO OVER = (DITTO)	S.L.	-----	SHOULDER
D.T.S.	-----	DEPTH TO SUIT	S.L.B.B.	-----	SHORT LESS BACK TO BACK
D.W.S.	-----	DRAWING	S.O.G.	-----	SLAB ON GRADE
D.W.S.	-----	DRAWING	S.P.	-----	SPECIFICATION
E.E.	-----	EACH END	SR	-----	STEEL RAIL
E.F.	-----	EACH FACE	ST	-----	STAGGER
EL.	-----	ELEVATION	STR.	-----	STRIP
ELEV.	-----	ELEVATION	SYN.	-----	SYMMETRICAL
ELEC.	-----	ELECTRICAL	TEW	-----	TOP EACH WAY
EXP.	-----	EXPANSION	TH	-----	THROUGH
E.WAY	-----	EACH WAY	THU	-----	THROUGH
EXT.	-----	EXISTING	THU	-----	THROUGH
EXT.	-----	EXTENDING	T.L.	-----	TOP LOWER LAYER
EXP. JT.	-----	EXPANSION JOINT	T & B	-----	TOP AND BOTTOM
F.	-----	FLOOR FINISH	T & C	-----	TENSION AND COMPRESSION
F.S.	-----	FAR SIDE	T & G	-----	TONGUE AND GROOVE
GALV.	-----	GALVANIZED	T.O.	-----	TOP OF
G.L.	-----	GROOVE	T.O.C.	-----	TOP OF CONCRETE
H.T.E.	-----	HOOK ONE END	T.O.S.	-----	TOP OF SLAB
H.T.E.	-----	HOOK TWO ENDS	T.O.S.	-----	TOP OF SLAB
H & V	-----	HORIZONTAL AND VERTICAL	T.U.L.	-----	TOP UPPER LAYER
H.U.R.	-----	HORIZONTAL	TYP.	-----	TYPICAL
HSC	-----	HORIZONTALLY SLOTTED	U.N.O.	-----	UNLESS NOTED OTHERWISE
CONNECTION	-----	CONNECTION	U.L.S.	-----	ULTIMATE LIMIT STATE
HF	-----	FACTORED HORIZONTAL	U/S	-----	UNDERSIDE
HORIZ.	-----	HORIZONTAL	U/S.WERT.	-----	UNDER SIDE WORK
HORIZ.	-----	HORIZONTAL	U/S	-----	UNDER SIDE
HP	-----	HIGH POINT	W	-----	WORK POINT
INT.	-----	INTERIOR	W.O.	-----	WORK POINT

DEFINITIONS:

- SPECIALTY STRUCTURAL ENGINEER:** A STRUCTURAL ENGINEER REGISTERED AND LICENSED TO PRACTICE BY THE PROFESSIONAL ENGINEERING ASSOCIATION HAVING JURISDICTION IN THE AREA WHERE THE STRUCTURE IS TO BE BUILT AND WHO IS RESPONSIBLE FOR THE DESIGN AND FIELD REVIEW OF:
 - STRUCTURAL ELEMENTS DESIGNED BY THE CONTRACTOR OR SUBCONTRACTORS, SUCH AS OPEN WEB STEEL JOISTS, PRECAST DOUBLE TEES, PRECAST PLANKS, STRUCTURAL STEEL CONNECTIONS, LIGHT WOOD FRAME ROOF TRUSSES, ETC.
 - SECONDARY STRUCTURAL ELEMENTS AND NON-STRUCTURAL ELEMENTS. SEE ALSO "NON-STRUCTURAL ELEMENTS" GENERAL NOTES.
- CONTINUOUS:** FULL TENSION SPICE AND TENSION DEVELOPMENT LENGTH.
- EMBEDMENT:** UNLESS NOTED OTHERWISE COMPRESSION EMBEDMENT MEANS A COMPRESSION DEVELOPMENT LENGTH AND TENSION EMBEDMENT MEANS A TENSION DEVELOPMENT LENGTH AS PER CAN/CSA-A23.3 AND AS SHOWN ON THESE GENERAL NOTES DRAWINGS.
- GENERAL CONTRACTOR:** FOR THE PURPOSES OF THESE DRAWINGS, THE USE OF THE TERM "CONTRACTOR" OR "GENERAL CONTRACTOR" SHALL REFER TO THE PRIME FIRM OR COMPANY RESPONSIBLE FOR THE CONSTRUCTION OF THE PROJECT AND THE COORDINATION TRADES AND SUBCONTRACTORS. THIS MAY BE THE GENERAL CONTRACTOR, OR A CONSTRUCTION MANAGER.

DESIGN LOADS

1. SPECIFIED UNIFORM LOADS kPa (SEE ALSO PLANS) **LIVE LOAD**
 - A. EQUIPMENT PLATFORM + STAIRS - BASED ON A GROUND SNOW LOAD OF ----- 2.5 PLUS A RAIN LOAD OF ----- 0.4 AND AN IMPORTANCE FACTOR OF $I_s = 1.0$ ULS, 0.9 SLS
 - B. EQUIPMENT PLATFORM + STAIRS ----- 3.6

CONTRACTORS CONSTRUCTION LOADS MUST NOT EXCEED THE ABOVE DESIGN LOADS. DESIGN LOADS MAY ONLY BE APPLIED AFTER CONCRETE REACHES ITS DESIGN STRENGTH.

SUPERIMPOSED DEAD LOADS (S.D.L.) ARE NON-STRUCTURE DEAD LOADS DUE TO ARCHITECTURAL TOPPING, FINISHES, PARTITIONS, ROOFING MATERIALS, FLOWERS, SILLS, ETC.

STRUCTURAL DEAD LOADS (D.L.) ARE DUE TO THE WEIGHT OF THE STRUCTURE ITSELF. THEY VARY WITH THE STRUCTURAL SYSTEM.

2. UNLESS NOTES OTHERWISE, SPECIFIED CONCENTRATED LOADS ARE:

- A. ROOFS - 1.3 kN

- B. WIND UPLIFT LOADS ON STEEL PLATFORM SHALL BE 1 kPa NET FACTORED UNLESS NOTED OTHERWISE.

- C. SEISMIC AND WIND DESIGN:

THE LATERAL SYSTEM FOR THIS PROJECT CONSISTS OF MOMENT FRAMES AND IS DESIGNED FOR THE FOLLOWING EARTHQUAKE FACTORS:

$$S_s (0.2) = 0.108 \quad F_{p1} = 0.063$$

$$S_s (0.5) = 0.077 \quad R_s = 1.0$$

$$S_s (1.0) = 0.047 \quad R_s = 1.5$$

$$S_s (2.0) = 0.029 \quad R_s = 1.3$$

AND THE FOLLOWING WIND LOADS AND FACTORS:

$$q_{50} = 0.36 \text{ kPa}, I_w = 1.0 \text{ ULS}, 0.75 \text{ SLS}$$

DESIGN CODE

1. THE COMPLETED EQUIPMENT PLATFORM AND STAIRS SHOWN ON THE STRUCTURAL DRAWINGS HAS BEEN DESIGNED IN SUBSTANTIAL ACCORDANCE WITH THE NATIONAL BUILDING CODE OF CANADA, 2015.

RENOVATIONS

1. THE CONTRACT DOCUMENTS ARE BASED ON ASSUMED AS-BUILT DIMENSIONS FOR THE EXISTING BUILDING STRUCTURE AND ASSUMPTIONS IN CONNECTION WITH THE EXISTING STRUCTURE. THESE ASSUMPTIONS MAY VARY FROM THE ACTUAL ON-SITE CONDITIONS. THE CONTRACTOR SHALL IMMEDIATELY INFORM THE DEPARTMENT REPRESENTATIVE OF ANY ACTUAL VARIATIONS FROM THE ASSUMED CONDITIONS.
2. MINOR MODIFICATIONS TO SUIT TOLERANCE OF $\pm 2 - 2"$ WILL BE REQUIRED TO THE WORK INDICATED ON THESE DRAWINGS TO REFLECT ACTUAL SITE CONDITIONS. THE CONTRACTOR WILL COORDINATE WITH THE DEPARTMENT REPRESENTATIVE IN THIS REGARD. MINOR MODIFICATIONS WILL BECOME THE RESPONSIBILITY OF THE CONTRACTOR AND WILL NOT RESULT IN A CHANGE IN THE CONTRACT PRICE.
3. ENSURE THAT ALL NECESSARY JOB DIMENSIONS ARE TAKEN AND ALL TRADES ARE COORDINATED FOR THE PROPER EXECUTION OF THE WORK. THE CONTRACTOR SHALL ASSUME COMPLETE RESPONSIBILITY FOR THE ACCURACY AND COMPLETENESS OF SUCH DIMENSIONS AND FOR COORDINATION.
4. PRIOR TO FABRICATION OF ANY STRUCTURAL MEMBERS, THE CONTRACTOR SHALL COMPLETE THIS SITE REVIEW TO DETERMINE "TIE-IN" DIMENSIONS AND CONFIRM ALL DIMENSIONS TO ENSURE PROPER FIT OF NEW WORK TO EXISTING. REPORT ANY DISCREPANCIES TO DEPARTMENT REPRESENTATIVE PRIOR TO STARTING WORK.
5. COMMENCEMENT OF CONSTRUCTION OR ANY PART THEREOF CONSTITUTES ACCEPTANCE OF EXISTING CONDITIONS AND MEANS DIMENSIONS AND ELEVATIONS HAVE BEEN CONSIDERED, VERIFIED AND ARE ACCEPTABLE.
6. ANY OPENINGS THAT ARE NOT SHOWN OR INDICATED ON THE STRUCTURAL DRAWINGS SHALL BE REPORTED TO DEPARTMENT REPRESENTATIVE FOR REVIEW. THESE OPENINGS MAY NOT BE ALLOWED, MAY HAVE TO BE MOVED, OR MAY REQUIRE ADDITIONAL STRUCTURAL WORK AND DETAILING. DO NOT PROCEED WITH THESE OPENINGS WITHOUT WRITTEN PERMISSION FROM DEPARTMENT REPRESENTATIVE.
7. UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS, THE CORING OR CUTTING OF OPENINGS AND HOLES SHOWN ON THE STRUCTURAL DRAWINGS THROUGH THE EXISTING STRUCTURE SHALL NOT CUT ANY REINFORCING BARS. THE CONTRACTOR SHALL LOCATION, SIZE, LENGTH, ORIENTATION AND POSITION OF EXISTING REINFORCING AND PROVIDE DEPARTMENT REPRESENTATIVE WITH HARD COPIES OF SUCH FOR HIS REVIEW IN THE WORTHY OF THE HOLES AND SLEEVES TO BE CUT OR CORED, AND THE HOLES AND SLEEVES SHALL BE LOCATED TO AVOID CUTTING OF REINFORCING BARS WHERE THIS IS NOT POSSIBLE. IT MAY BE REPORTED TO DEPARTMENT REPRESENTATIVE FOR REVIEW.
8. NEW OPENINGS TO BE CUT THROUGH EXISTING FLOOR SLAB OR WALLS SHALL BE CLEARLY MARKED OUT BY THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY DEPARTMENT REPRESENTATIVE ONCE THE MARKING OUT HAS BEEN COMPLETED SO THAT DEPARTMENT REPRESENTATIVE CAN REVIEW THE PROPOSED LOCATIONS OF ALL NEW OPENINGS. DO NOT PROCEED WITH CUTTING OF NEW OPENINGS WITHOUT THE APPROVAL OF THE DEPARTMENT REPRESENTATIVE.
9. UNLESS NOTED OTHERWISE ON THE DRAWINGS NEW STRAIGHT SIDED OPENINGS THROUGH EXISTING SLABS AND WALLS SHALL BE SAWED WITH NO OVERSIZE. USE CORED HOLES BY THE CORNERS. JACKING BRACING SHALL NOT BE PERMITTED. REFER TO THE DETAILS AND PROCEDURES INDICATED ON THE STRUCTURAL DRAWINGS FOR THE NEW OPENINGS. ALTERNATES TO THE ABOVE PROCEDURES WILL BE REVIEWED BY DEPARTMENT REPRESENTATIVE PRIOR TO THE START OF DEMOLITION OR CONSTRUCTION.
10. UNLESS NOTED OTHERWISE AT ALL LOCATIONS WHERE NEW CONCRETE WILL BE IN CONTACT WITH EXISTING CONCRETE SURFACES, THE EXISTING CONCRETE SURFACES IS TO BE COMPLETELY CLEANED, AND ROUGHENED BY HYDROBLASTING, BRUSH HAMMERING, (OR APPROVED EQUAL) TO AN AMPLITUDE OF λ .
11. CONTRACTOR TO ENSURE THAT UNDERGROUND OR IN-SLAB SERVICES ARE NOT DAMAGED THROUGH DEMOLITION, SAWCUTTING, HOLE AUGURING, OR OTHER CONSTRUCTION ACTIVITIES. SEE SPECIFICATION FOR TESTING/LOADING REQUIREMENTS.
12. FASTENING TO EXISTING MATERIALS:
UNLESS NOTED OTHERWISE, THE FOLLOWING REQUIREMENTS APPLY TO ALL CONNECTIONS BETWEEN EXISTING AND NEW MATERIALS:
 - A. USE ONLY PRODUCTS AS SPECIFIED UNLESS ALTERNATES HAVE BEEN PRE-APPROVED BY DEPARTMENT REPRESENTATIVE IN WRITING.

- B. ON SITE TRAINING - THE CONTRACTOR SHALL RETAIN A MANUFACTURER'S REPRESENTATIVE TO PROVIDE ON-SITE ANCHOR INSTALLATION TRAINING FOR ALL PROPRIETARY PRODUCTS SPECIFIED. THE CONTRACTORS PERSONNEL MUST BE TRAINED PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.
 - C. THE CONTRACTOR IS TO RETAIN A THIRD PARTY MATERIALS TESTING AGENCY EXPERIENCED WITH THE INSTALLATION OF ANCHORS TO PROVIDE AN ON-GOING SERVICE OF ON-SITE QUALITY CONTROL. REVIEWS TO ENSURE THAT ANCHORS ARE BEING INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED SPECIFICATIONS AND INSTALLATION PROCEDURES. QUALITY ASSURANCE REPORTS FROM THE TESTING AGENCY ARE TO BE SUBMITTED TO DEPARTMENT REPRESENTATIVE AFTER EACH SITE VISIT. AT THE END OF THE PROJECT, THE TESTING AGENCY IS TO PROVIDE A LETTER SIGNED BY A REGISTERED ENGINEER STATING THAT THE GENERAL INSTALLATION OF ANCHORS FOR THE PROJECT IS IN ACCORDANCE WITH THE RECOMMENDED INSTALLATION PRACTICE AS SPECIFIED BY THE MANUFACTURER.
 - D. A REPRESENTATIVE SAMPLE OF ANCHORS IS TO BE TESTED FOR EACH TYPE OF ANCHOR SPECIFIED. TESTING SHALL BE CARRIED OUT BY A TESTING AGENCY APPOINTED AND PAID FOR BY THE OWNER. ANCHORS WHICH FAIL THE LOAD TEST SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S COST. IF THE FAILURE RATE EXCEEDS 1 IN 10 FOR A TYPE OF ANCHOR, ALL ANCHORS ARE TO BE TESTED.
13. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY IN AND ABOUT THE JOB SITE DURING CONSTRUCTION, AND THE DESIGN AND ERECTION OF ALL TEMPORARY STRUCTURES, FORMWORK, FALSEWORK, SHORING, BRACING, ETC., REQUIRED TO COMPLETE THE WORK (SUBMIT SHORING DRAWINGS SEALED BY A SPECIALTY STRUCTURAL ENGINEER).
 14. SEAL, DRILL AND SITE MEASURE BOLT HOLES IN EXISTING STRUCTURE PRIOR TO FABRICATING STEEL CONNECTION PLATES. BOLT HOLES MAY HAVE TO BE MOVED FROM WHAT IS SHOWN ON THE DRAWINGS TO AVOID CUTTING EXISTING REINFORCING OR TO AVOID OTHER SITE CONDITIONS. SITE MODIFICATION OF STEEL CONNECTION PLATES WILL NOT BE ACCEPTED WITHOUT THE PRIOR APPROVAL OF DEPARTMENT REPRESENTATIVE.

EXCAVATIONS

1. DESIGN AND FIELD REVIEW OF EXCAVATION, SHORING, AND BACKFILL IS NOT DONE BY DEPARTMENT REPRESENTATIVE.

FOUNDATIONS

1. FOOTINGS ARE BEING DESIGNED FOR THE FOLLOWING BEARING RESISTANCE:

- A. STAR FOUNDATIONS: ULS: 150 kPa, SLS: 100 kPa
2. BEARING SURFACES MUST BE APPROVED BY THE SOILS ENGINEER IMMEDIATELY BEFORE FOOTING CONCRETE IS PLACED. THE DEPARTMENT REPRESENTATIVE IS NOT RESPONSIBLE FOR CONFIRMING BEARING CAPACITIES OF SOILS.
3. FOOTINGS MAY HAVE TO BE LOWERED TO ACCOMMODATE MECHANICAL OR ELECTRICAL SERVICES. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ELEVATIONS OF SAME. FOOTINGS ARE NOT TO BE UNDERMINED BY EXCAVATIONS FOR SERVICES, PITS, ETC.
4. FOOTING ELEVATIONS, IF SHOWN, ARE FOR PRICE ESTIMATING PURPOSES ONLY, ARE NOT FINAL, AND MAY VARY ACCORDING TO SITE CONDITIONS OR AS REQUIRED BY SERVICES. ALL FOOTING MUST BE TAKEN TO A BEARING LAYER APPROVED BY THE SOILS ENGINEER.
5. BEARING SURFACES MUST BE PROTECTED FROM BEING BEFORE AND AFTER FOOTINGS ARE POURED.

CONCRETE

1. CONCRETE PROPERTIES:

ELEMENT	COMPRESSION STRENGTH (MPa) AT 28 DAYS	EXPOSURE CLASS	COMMENT
STAR FOUNDATIONS	25 MPa	F-2	

CONCRETE CONSTRUCTION TOLERANCES

(TOLERANCES AS PER CAN/CSA-A23.1 CLAUSE 6.4.2, EXCEPT AS NOTED BELOW.)

CLOSER TOLERANCES SHALL BE MAINTAINED WHERE ARCHITECTURAL DETAILS OR OTHERS REQUIRE.

WHERE ANY DEVIATION OCCURS, AND IT IS ACCEPTABLE TO THE DEPARTMENT REPRESENTATIVE AND ARCHITECT, THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTMENT OF OTHER RELATED ELEMENTS TO ACCOMMODATE SUCH DEVIATION. COSTS FOR REMEDIAL WORK FOR DEVIATIONS NOT ACCEPTED SHALL BE BORNE BY THE CONTRACTOR.

1. VARIATION FROM THE PLUMB:

- A. IN THE LINES AND SURFACES OF COLUMNS, PIERS, WALLS AND IN ARRISSES: 0.25% OF HEIGHT (1 IN 400), MAXIMUM 40mm OVER THE ENTIRE HEIGHT OF THE STRUCTURE.

ONLY ONE CURVATURE ALLOWED PER 3000mm.

THE TOLERANCE GIVEN IS THE MAXIMUM VARIATION FROM A PLUMB LINE.

ALL MEASUREMENTS SHALL BE TO THE SAME SIDE OF THE PLUMB LINE.

- B. UNLESS SPECIFIED ELSEWHERE IN THE CONSTRUCTION DOCUMENTS - THE TOLERANCES FOR EXPOSED CORNER COLUMNS, CONTROL JOINT GROOVES, AND OTHER CONSPICUOUS LINES SHALL BE: (SEE ALSO ELEVATOR SHOP DRAWINGS ETC.)

$$0.125\% \text{ OF HEIGHT (1 IN 800), MAXIMUM 20mm.}$$

ONLY ONE CURVATURE ALLOWED PER 6000mm.

MAXIMUM VARIATION IN WINDOW BAYS 0.2% OF OPENING.

2. UNLESS SPECIFIED ELSEWHERE, FLOOR FINISHES SHALL BE CLASS A "INSTITUTIONAL AND COMMERCIAL FLOOR" + 8mm PER 3000mm.

ONLY ONE CURVATURE ALLOWED IN 3000mm.

CLOSER TOLERANCES MAY BE REQUIRED TO GIVE THE QUALITY OF FINISH FLOOR SURFACES CALLED FOR SPECIFIED IN THE CONTRACT DOCUMENTS.

3. VARIATIONS OF STRUCTURAL CONCRETE ELEMENTS RELATED TO EACH OTHER AND RELATIVE TO A REFERENCED GRID SYSTEM FOR PLAN DIMENSIONS TO GIVE CLAUSE 6.4.6 OF CAN/CSA-A23.1.

4. VARIATION IN CROSS-SECTIONAL DIMENSIONS OF COLUMNS AND BEAMS AND IN THE THICKNESS OF SLABS AND WALLS: AS IN CAN/CSA-A23.1.

ONLY ONE CURVATURE ALLOWED PER 3000mm.

FOOTINGS:

- A. VARIATION IN DIMENSIONS IN PLAN:

$$\text{MINUS} \text{-----} 10\text{mm}$$

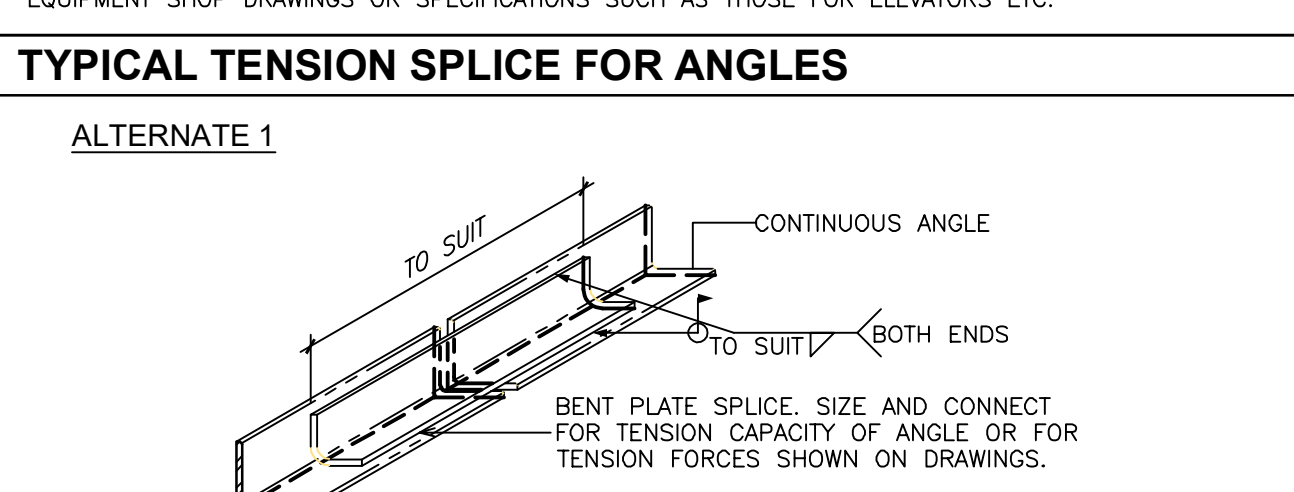
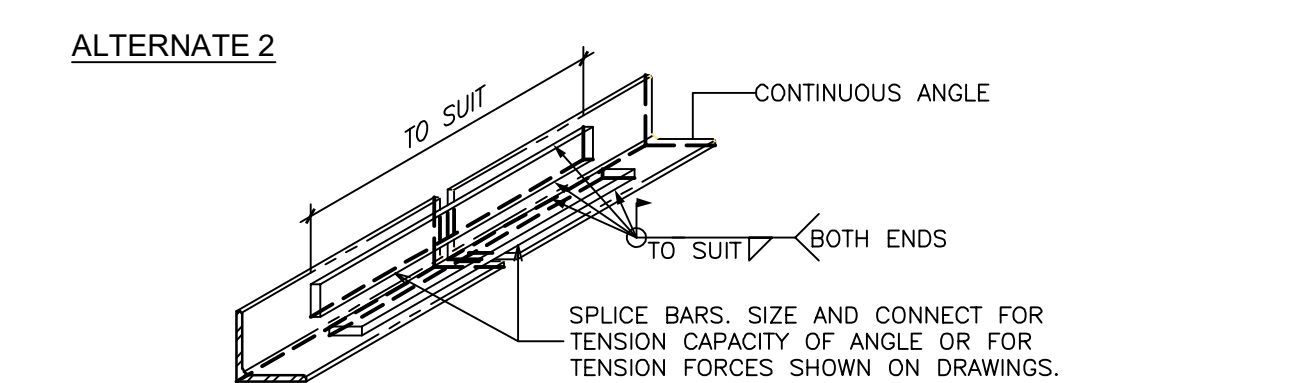
$$\text{PLUS} \text{-----} 50\text{mm}$$

- B. MISPLACEMENT OR ECCENTRICITY:

$$\text{MINUS} \text{-----} 5\% \text{ OF SPECIFIED THICKNESS}$$

$$\text{PLUS} \text{-----} 50\text{mm}$$

6. THE ABOVE REQUIREMENTS DO NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY OF MEETING MORE RIGOROUS REQUIREMENTS SPECIFIED ELSEWHERE IN THE CONSTRUCTION DOCUMENTS OR AS REQUIRED BY EQUIPMENT SHOP DRAWINGS OR SPECIFICATIONS SUCH AS THOSE FOR ELEVATORS ETC.

TYPICAL TENSION SPICE FOR ANGLES**ALTERNATE 1****ALTERNATE 2****EMBEDMENT / DEVELOPMENT LENGTHS AND SPICE LENGTHS**

BASED ON CAN/CSA-A23.3

WHERE EMBEDMENT OR SPICES ARE DIMENSIONED ON THE DRAWINGS, SUCH DIMENSION SHALL APPLY.

WHERE THE DRAWINGS INDICATE A COMPRESSION EMBEDMENT, IT IS A COMPRESSION EMBEDMENT LENGTH AND IT SHALL BE AS NOTED BELOW.

WHERE THE DRAWINGS INDICATE A TENSION EMBEDMENT, IT IS A TENSION EMBEDMENT LENGTH AND SHALL BE AS NOTED BELOW.

WHERE NO EMBEDMENT OR EMBEDMENT TYPE IS CALLED FOR ON THESE DRAWINGS, IT SHALL BE A TENSION EMBEDMENT, EXCEPT FOR COLUMNS WHICH SHALL BE A COMPRESSION EMBEDMENT.

WHERE NO SPICE OR SPICE TYPE IS CALLED FOR ON THESE DRAWINGS, IT SHALL BE A TENSION SPICE, EXCEPT FOR COLUMNS WHICH SHALL BE A COMPRESSION SPICE.

IN TABLES BELOW, EMBEDMENT LENGTHS ARE SHOWN WITHOUT BRACKETS, AND SPICE LENGTHS ARE SHOWN IN BRACKETS.

ALL LENGTHS ARE FOR $f_y = 400$ MPa REBAR.

ALL TENSION SPICE LENGTHS ARE CLASS "B" (1.3x).

COMPRESSION EMBEDMENT AND SPICE LENGTHS

- COMPRESSION EMBEDMENT REFERS TO THE LENGTH REQUIRED TO PROVIDE THE "COMPRESSION DEVELOPMENT LENGTH" AS DEFINED IN CAN/CSA-A23.3-04 CLAUSE 12.3.2.

- SPICE LENGTH REFERS TO THE MINIMUM LAP LENGTH REQUIRED FOR A COMPRESSION SPICE AS DEFINED IN CAN/CSA-A23.3-04 CLAUSE 12.16.1.

CONCRETE STRENGTH	FUNCTION	REBAR DESIGNATION					
		10M	15M	20M	25M	30M	35M
20 MPa	EMBEDMENT	215	325	430	430	645	755
	(SPICE)	(300)	(440)	(585)	(585)	(880)	(1025)
25 MPa	EMBEDMENT	200	290	385	385	580	675
	(SPICE)	(300)	(440)	(585)	(585)	(880)	(1025)
30 MPa & GREATER	EMBEDMENT	200	285	355	355	530	620
	(SPICE)	(300)	(440)	(585)	(585)	(880)	(1025)

TENSION EMBEDMENT AND SPICE LENGTHS

- TENSION EMBEDMENT REFERS TO THE LENGTH REQUIRED TO PROVIDE A "TENSION DEVELOPMENT LENGTH" AS DEFINED IN CAN/CSA-A23.3-04 CLAUSE 12.3.3.

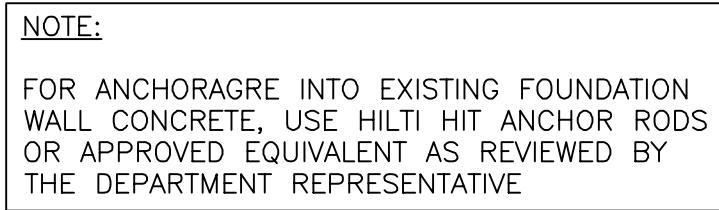
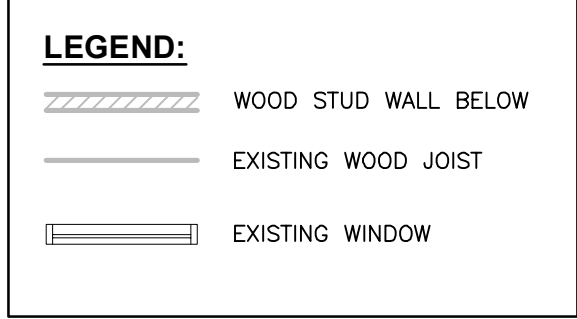
- SPICE LENGTH REFERS TO THE MINIMUM LAP LENGTH REQUIRED FOR A CLASS "B" TENSION SPICE (1.3x) AS PER CAN/CSA-A23.3-04 CLAUSE 12.15.

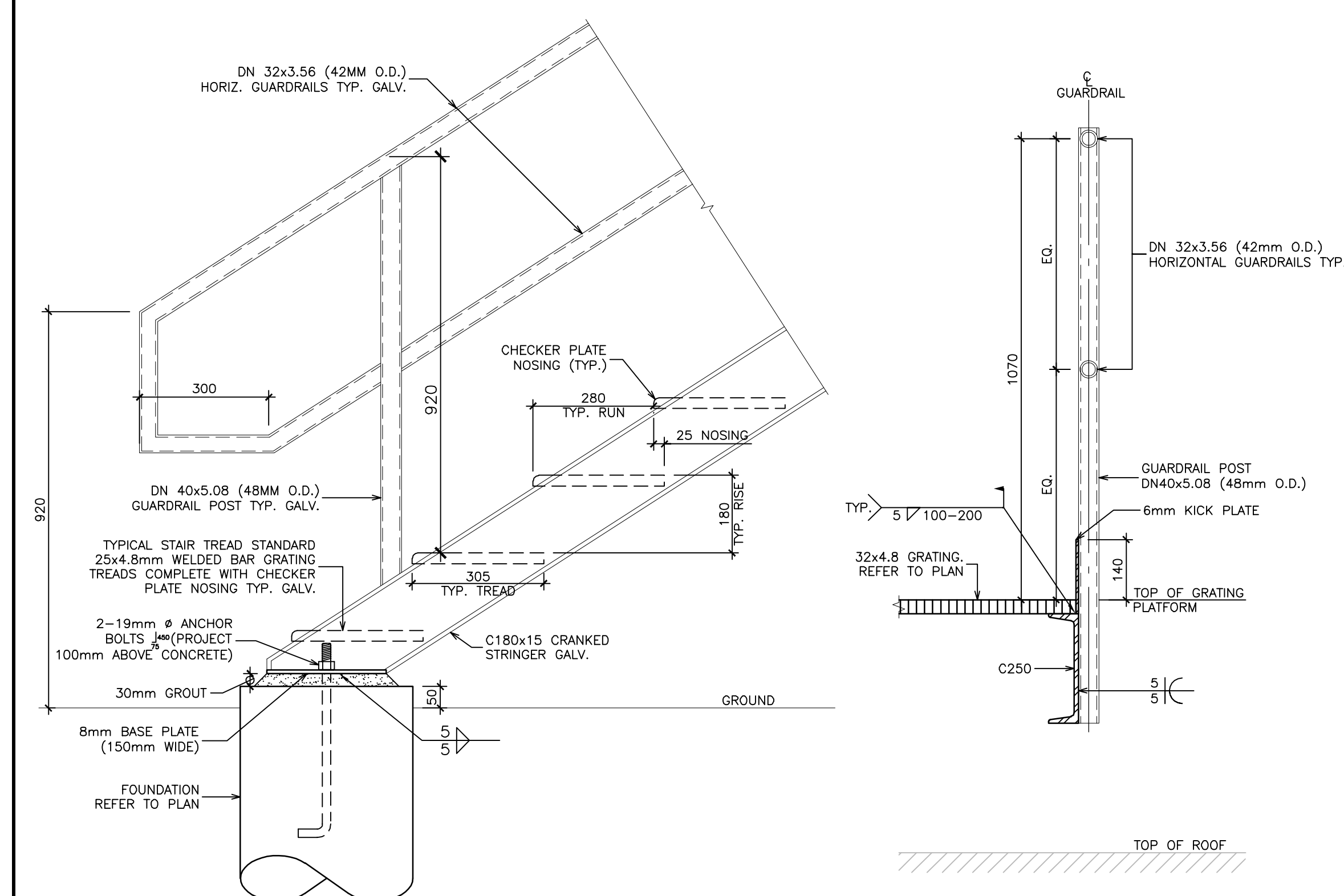
TENSION EMBEDMENT AND SPICE CONDITIONS

TENSION EMBEDMENT AND SPICE LENGTHS CONFORMING TO CAN/CSA-A23.3-04 TABLE 12.1 (0.45 $\sqrt{f_c}$ $\sqrt{f_y}$ $\sqrt{f_c}$) ARE TO BE AS PER THE FOLLOWING TABLE FOR:

- COLUMNS
- BEAM AND GIRDER TOP AND BOTTOM BARS
- SLAB BAND TOP BARS
- TWO WAY SLAB TOP AND BOTTOM BARS
- ONE WAY SLAB BOTTOM BARS
- HORIZONTAL AND VERTICAL DISTRIBUTED REINFORCING.
- SEE ALSO NOTES ON TOP BARS AND EPOXY COATED REINFORCEMENT.
- MEMBERS WHICH DO NOT SATISFY THE ABOVE CONDITIONS SHALL HAVE TENSION EMBEDMENTS AND SPICES AS PER CASE 2 TABLE BELOW.

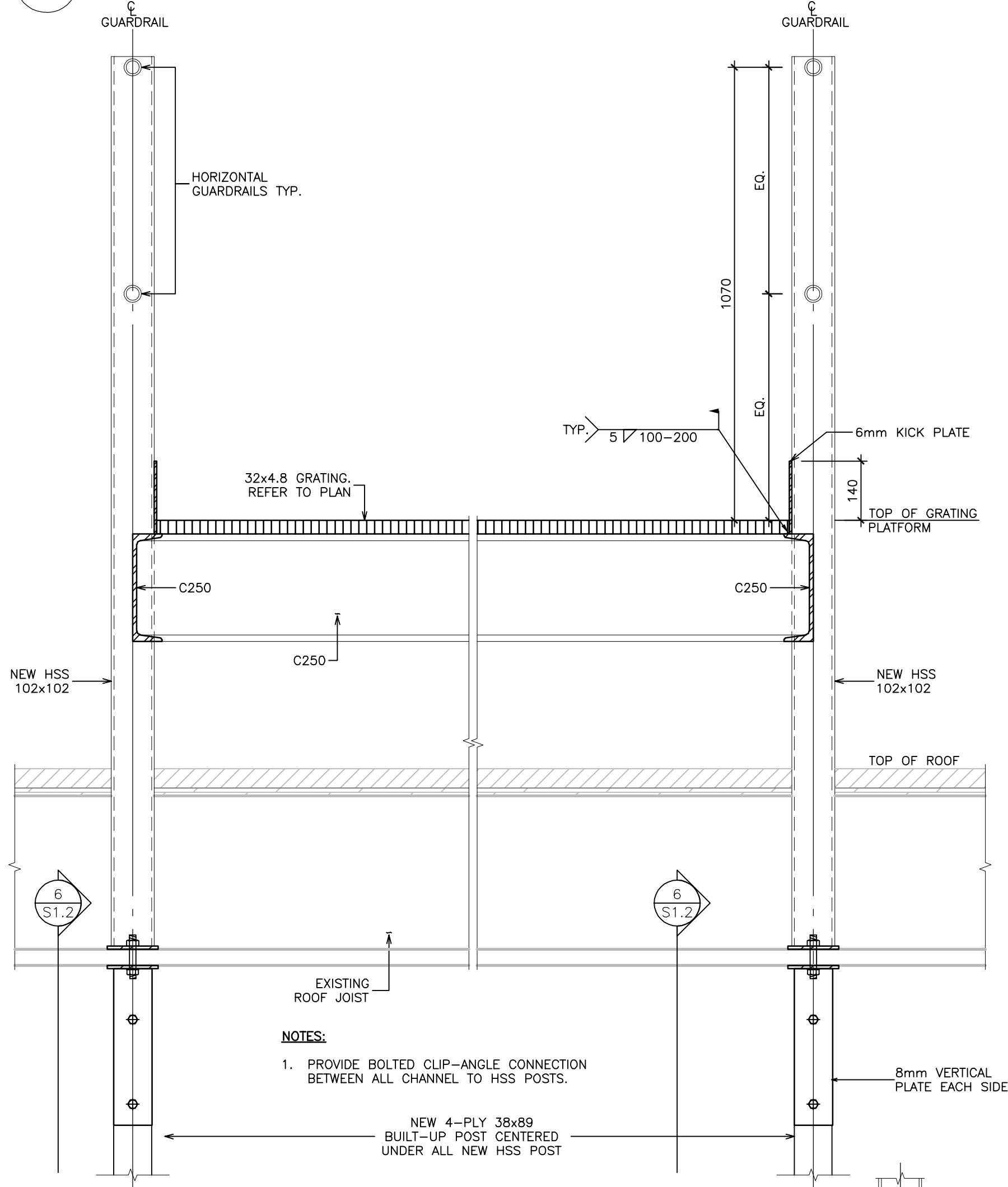
CONCRETE STRENGTH	FUNCTION	REBAR DESIGNATION					
		10M	15M	20M	25M	30M	35M
20 MPa	EMBEDMENT	325	485	645	1010	1210	1410
	(SPICE)	(420)	(630)	(845)	(1310)	(1570)	(1835)
25 MPa	EMBEDMENT	300	435	580	900	1080	1260
	(SPICE)	(390)	(565)	(750)	(1170)	(1405)	(1640)
30 MPa	EMBEDMENT	300	395	530	825	990	1155
	(SPICE)	(390)	(515)	(685)	(1070)	(1285)	(1500)
35 MPa	EMBEDMENT	300	370	490	765	915	1065
	(SPICE)	(390)	(475)	(635)	(990)	(1190)	(1385)
40 MPa	EMBEDMENT	300	345	460	715	855	1000
	(SPICE)	(390)	(445)	(595)	(925)	(1110)	(1295)
45 MPa	EMBEDMENT	300	325	430	675	805	940
	(SPICE)	(390)	(420)	(560)	(875)	(1050)	(1225)
50 MPa	EMBEDMENT	300	310	410	640	765	895
	(SPICE)	(390)	(400)	(530)	(830)	(995)	(1160)
55 MPa	EMBEDMENT	300	300	390	610	730	850
	(SPICE)	(390)	(390)	(505)	(790)	(950)	(1105)
60 MPa	EMBEDMENT	300	300	375	585	700	815
	(SPICE)	(390)	(390)	(485)	(760)	(910)	(1060)
65 MPa & GREATER	EMBEDMENT	300	300	360	565	675	790
	(SPICE)	(390)	(390)	(470)	(735)	(880)	(1025)





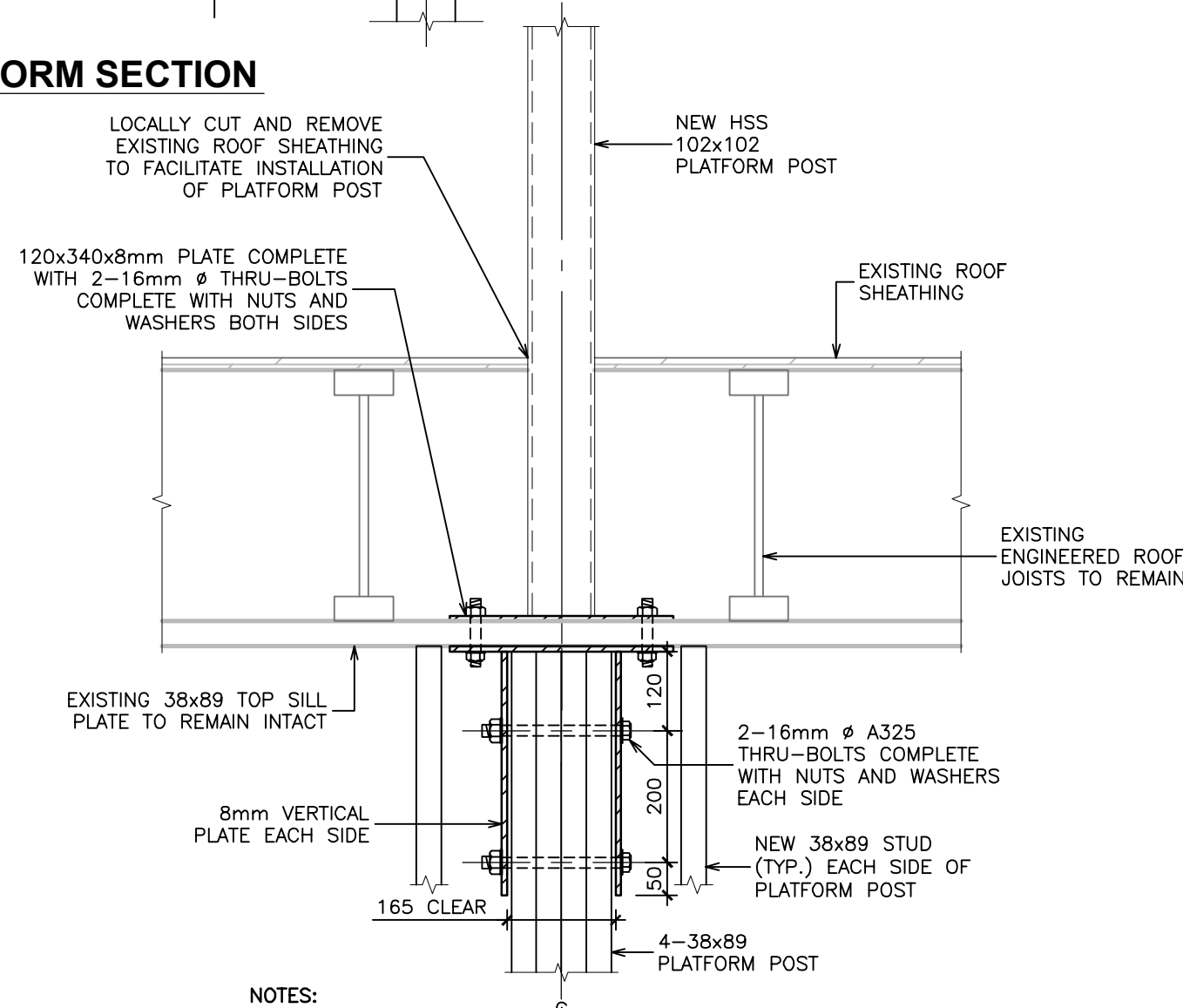
3
S1.2
1:10
TYPICAL STAIR DETAIL

2
S1.2
1:10
TYPICAL GUARDRAIL



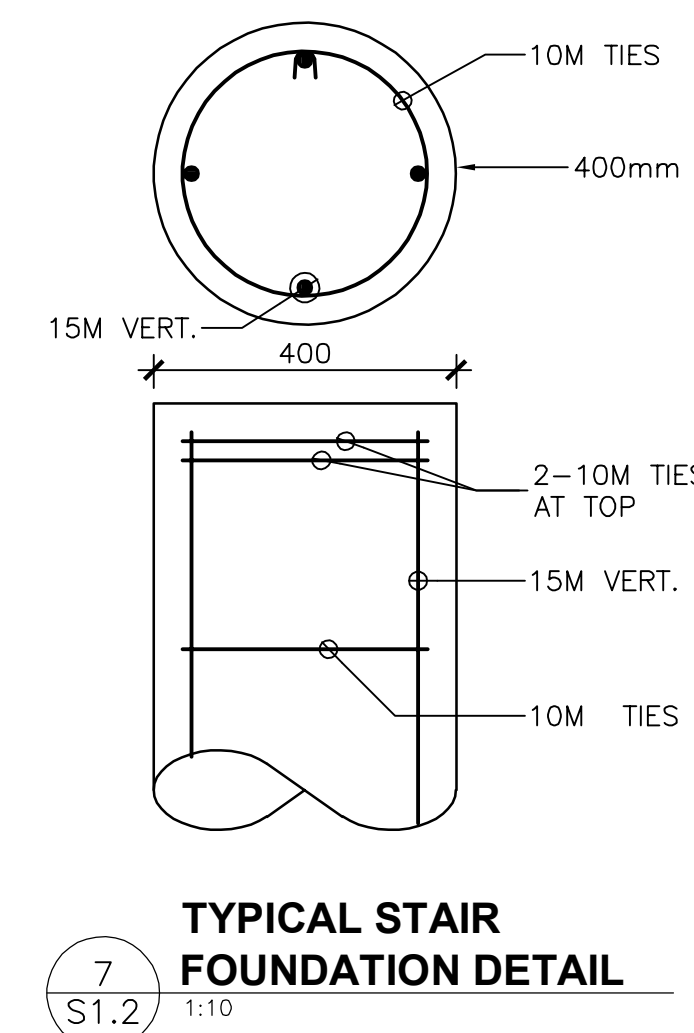
NOTES:
1. PROVIDE BOLTED CLIP-ANGLE CONNECTION BETWEEN ALL CHANNEL TO HSS POSTS.

4
S1.2
1:10
TYPICAL PLATFORM SECTION

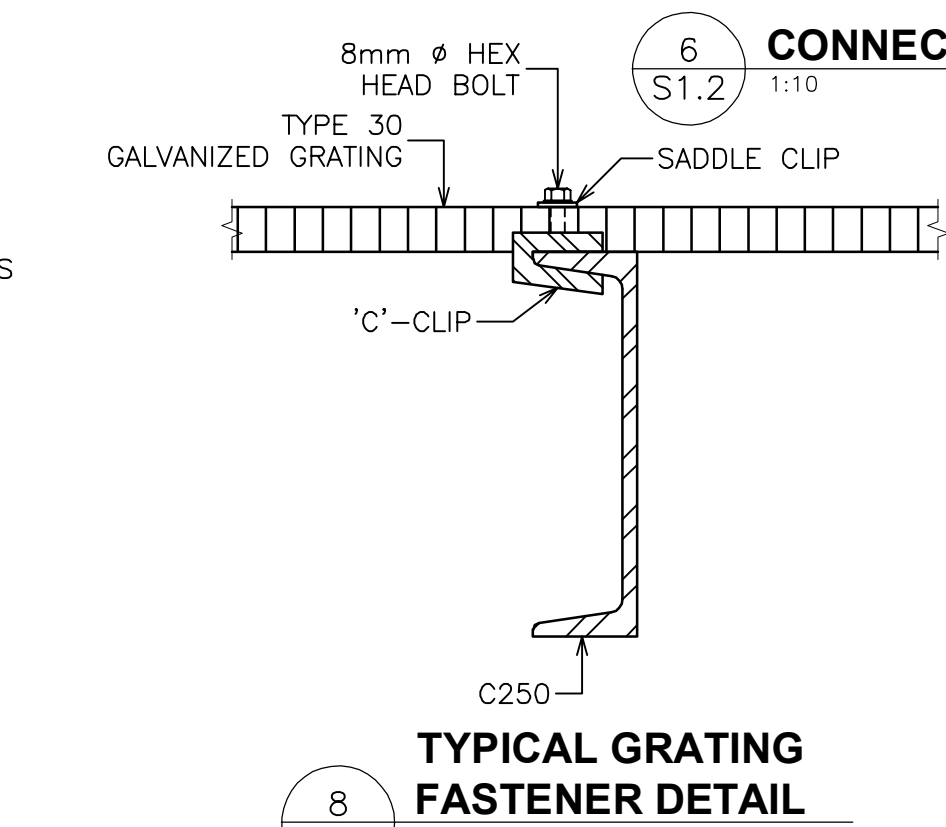


NOTES:
1. CONTRACTOR TO CONFIRM EXISTING ROOF JOIST SIZES/SPACING AT EACH NEW PLATFORM POST LOCATION AND PROPOSE RELOCATING POSTS AS REQUIRED IN ORDER TO AVOID INTERFERING WITH EXISTING ROOF JOISTS. TO BE REFLECTED ON STEEL SHOP DRAWINGS.

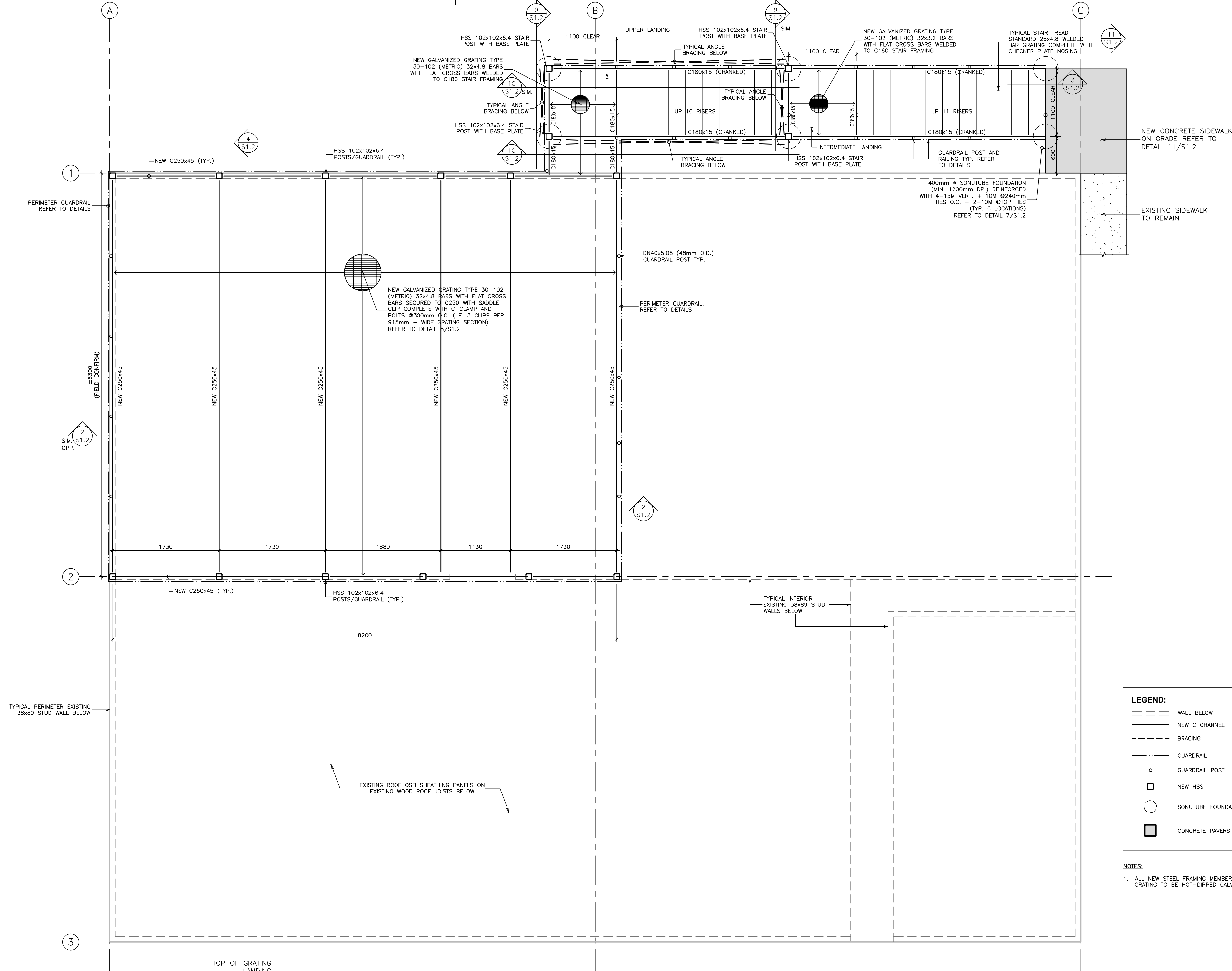
6
S1.2
1:10
CONNECTION DETAIL



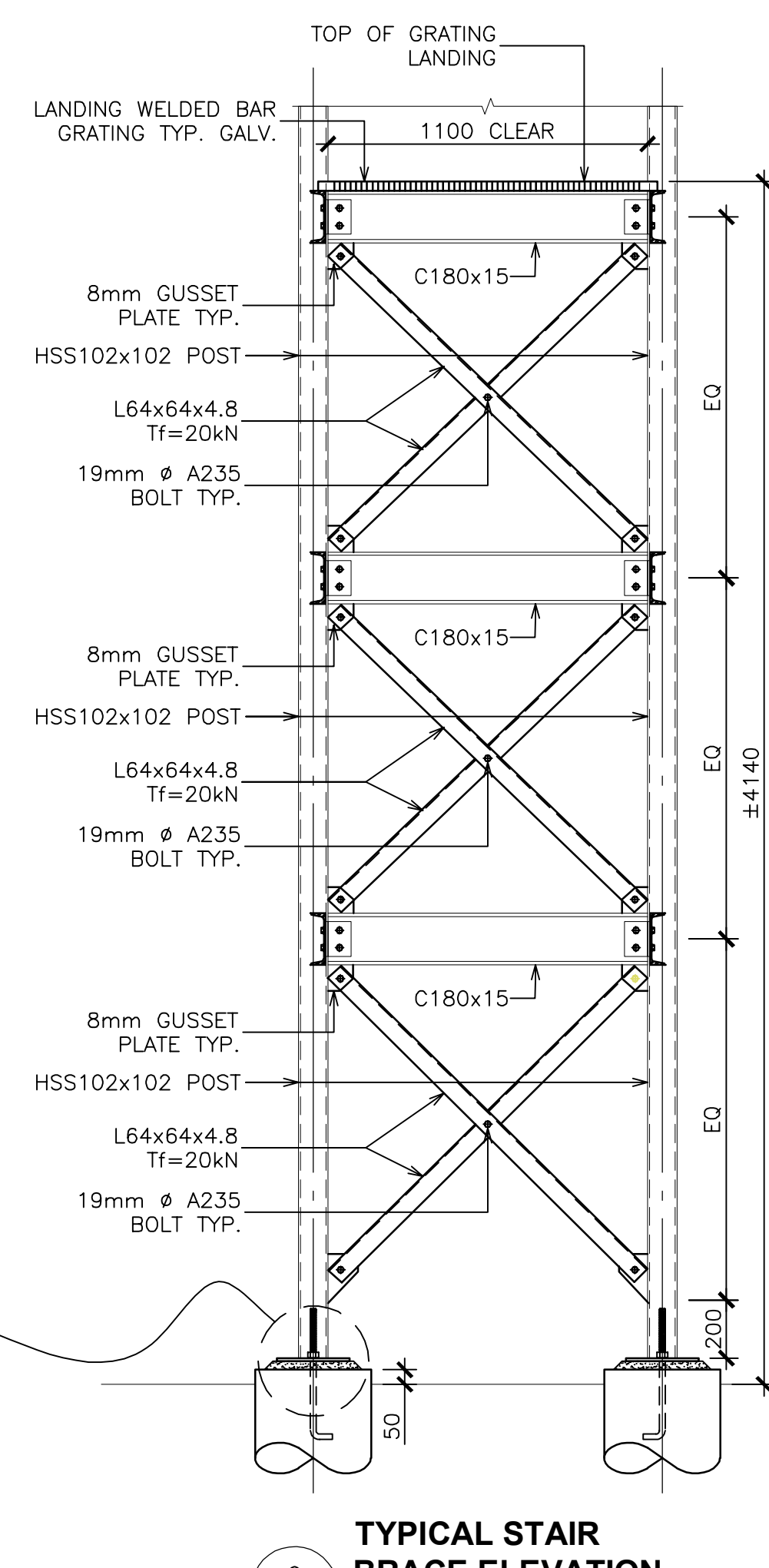
7
S1.2
1:10
TYPICAL STAIR FOUNDATION DETAIL



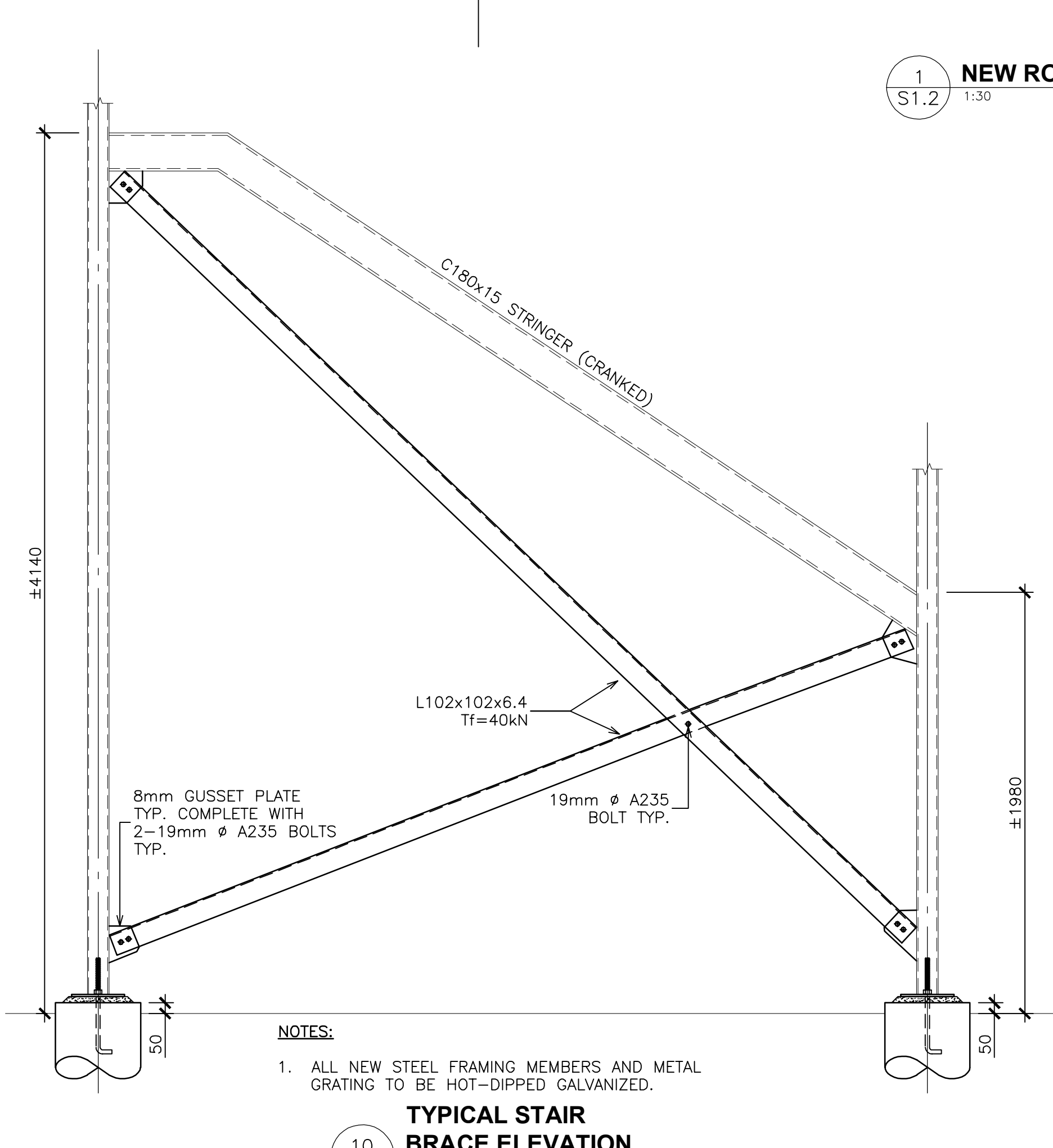
8
S1.2
1:5
TYPICAL GRATING FASTENER DETAIL



1
S1.2
1:30
NEW ROOF EQUIPMENT PLATFORM FRAMING PLAN

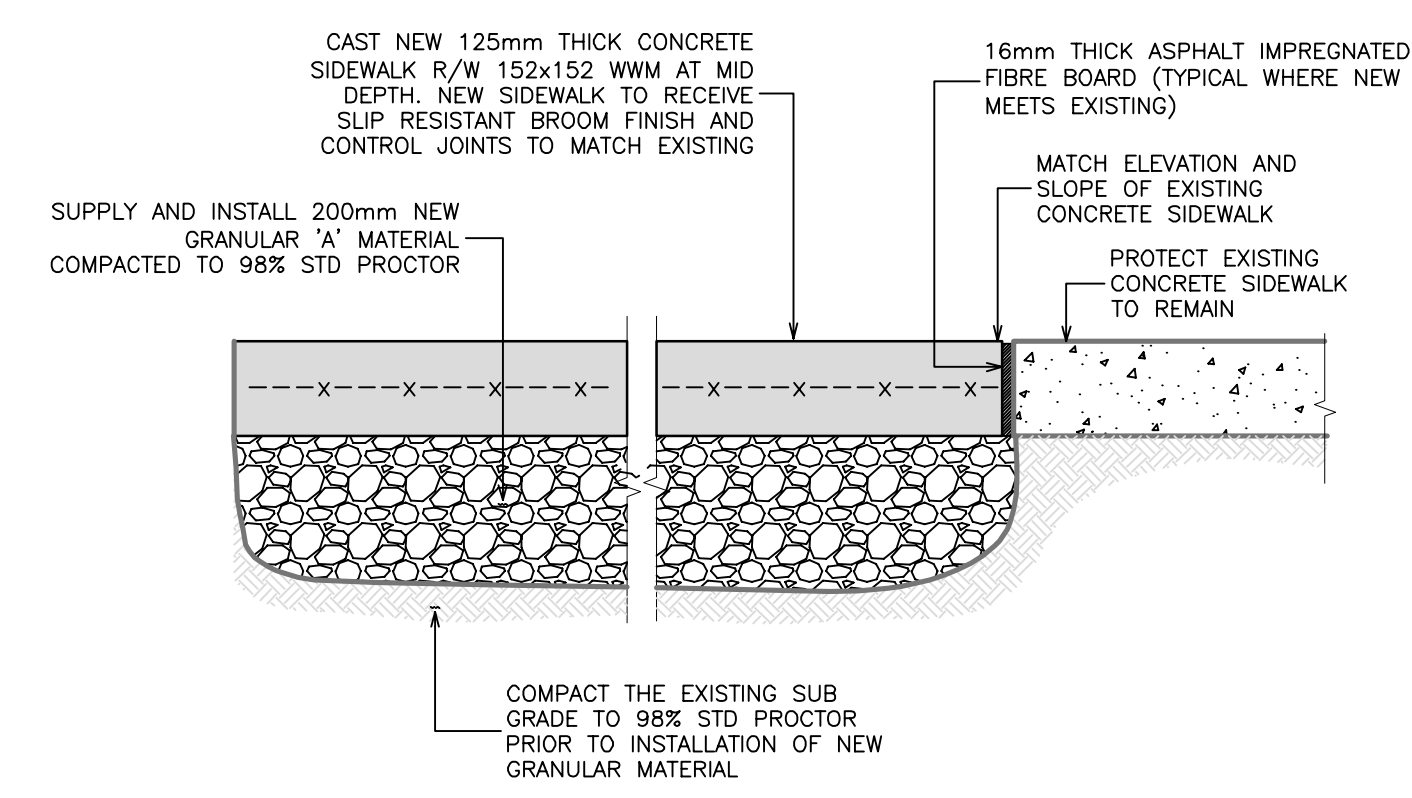


9
S1.2
1:20
TYPICAL STAIR BRACE ELEVATION



NOTES:
1. ALL NEW STEEL FRAMING MEMBERS AND METAL GRATING TO BE HOT-DIPPED GALVANIZED.

10
S1.2
1:20
TYPICAL STAIR BRACE ELEVATION



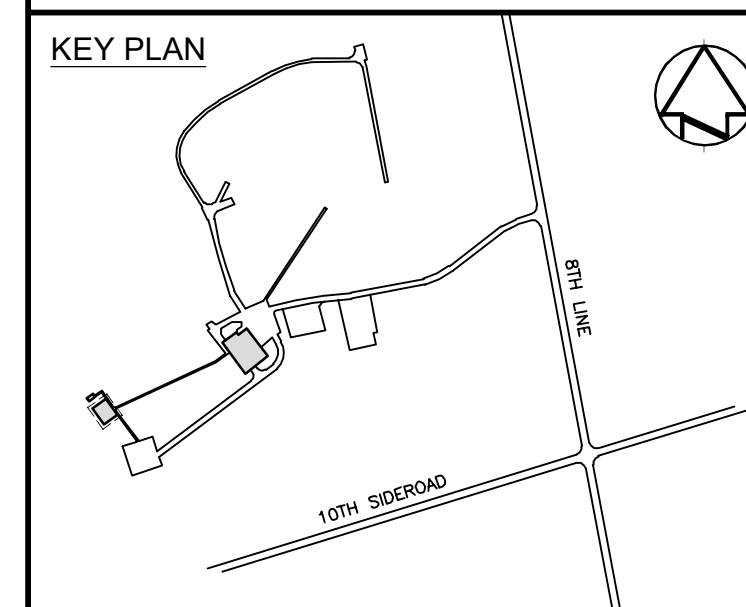
NOTES:
1. ENSURE NEW CONCRETE SIDEWALK IS PROPERLY SLOPED SUCH THAT NO LOW POINTS FOR WATER PONDING ARE CREATED.
2. SIDEWALK TO HAVE TOOLED OR SAWCUT CONTROL JOINTS AT MAX. 1500mm c.c.

11
S1.2
1:10
CONCRETE SIDEWALK RESTORATION DETAIL

LEGEND:

---	WALL BELOW
---	NEW C CHANNEL
---	BRACING
---	GUARDRAIL
○	GUARDRAIL POST
□	NEW HSS
○	SONOTUBE FOUNDATION
■	CONCRETE PAVERS

NOTES:
1. ALL NEW STEEL FRAMING MEMBERS AND METAL GRATING TO BE HOT-DIPPED GALVANIZED.



06	RE-ISSUED FOR TENDER	OCT. 1/19
05	ISSUED FOR TENDER	JUL. 17/19
04	ISSUED FOR PERMIT	APR. 13/18
03	ISSUED FOR TENDER	MAR. 02/18
02	ISSUED FOR 99% DD	JAN. 29/18
01	ISSUED FOR 50% DD	OCT. 26/17
revision		date

Do not scale drawings.
Verify all dimensions and conditions on site and immediately
notify the Departmental Representative of all discrepancies

A	Detail No. No. du détail
B	drawing no. - where detail required dessin no. - où détail exigé
C	drawing no. - where detailed dessin no. - où détaillé

project title
titre du projet
EGBERT CENTRE FOR ATMOSPHERIC RESEARCH EXPERIMENTS
6248 8TH LINE, EGBERT, ON, L0L 1N0
CLEAN AIR BUILDING ROOF REPLACEMENT

drawing title
titre du dessin
PLATFORM STRUCTURAL ROOF PLAN AND DETAILS

drawn by
dessiné par
R.C.

designed by
conçu par
J.D.

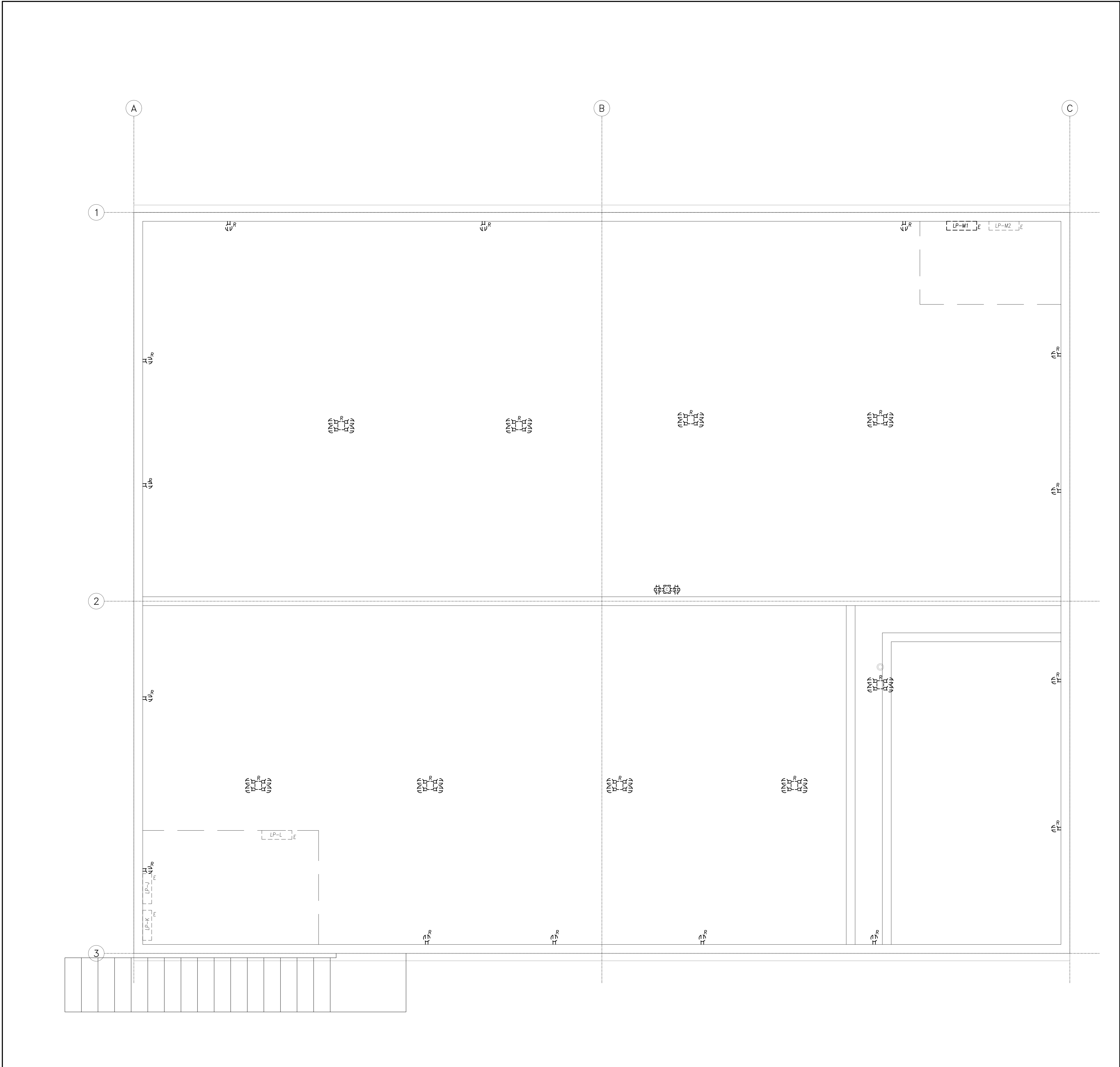
approved by
approuvé par

bid
offre
BID

project manager
administrateur de projets
2019-10-01

project no.
no. du projet
CARE-007 (ID2269)

drawing no.
dessin no.
S1.2



1
E-2
ROOF PLAN-DEMOLITION ELECTRICAL LAYOUT
SCALE: 1:30

LEGEND

POWER POLE O/M #1 15A, 120V DUPLEX RECEPTACLES TO BE REMOVED BACK TO THE SOURCE FEEDING PANEL (ELECTRICAL CONTRACTOR TO VERIFY)

15A, 120V SPLIT DUPLEX RECEPTACLES TO BE REMOVED BACK TO THE SOURCE FEEDING PANEL (ELECTRICAL CONTRACTOR TO VERIFY)

EXISTING ELECTRICAL PANEL, LOCATED INSIDE THE BUILDING

DENOTE EXISTING DEVICE TO REMAIN

DENOTE EXISTING DEVICE TO BE REMOVED, INCLUDING ASSOCIATED CONDUITS WIRING BACK TO THE SOURCE ELECTRICAL PANEL

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

Environment and Climate Change Canada
Environnement et Changement Climatique Canada

Creative Thinking Practical Results

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Engineers
P.Eng.
144 Forest Street West, Suite 500
Toronto, ON M5J 2L7 Canada
Tel: 416-577-5300
Fax: 416-577-1427

KEY PLAN

M/E The drawings are property of M&E Engineering Ltd. and may not be used without the expressed consent of owner. The contractor shall check and verify all dimensions, locations, elevations, and clearances before starting any work. All assumptions shall be reported to the Architect within 10 days prior to proceeding with any work. The user shall be responsible for the accuracy of the information provided. The user shall be responsible for the accuracy of the information provided.

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ME17603.DES-AM

02	ISSUED FOR PERMIT	APR. 03/18
01	ISSUED FOR REVIEW	JAN. 23/18
revision		date

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Verify all dimensions and conditions on site and immediately notify the Departmental Representative of all discrepancies.

A Detail No.
B drawing no. - where detail required
C drawing no. - where detailed

project title
titre du projet

CENTRE FOR ATMOSPHERIC RESEARCH EXPERIMENTS
6248 8TH LINE, EGBERT, ON, L0L 1N0
CLEAN AIR BUILDING
ROOF REPLACEMENT

drawing title
titre du dessin

ROOF DEMOLITION PLAN

drawn by
dessiné par

A.S.

designed by
conc par

A.M.

approved by
approuvé par

APPROVED

bid
offre

BID

project manager
administrateur de projets

project date
date du projet

2018-01-19

project no.
no. du projet

CARE-007 (ID2269)

drawing no.
dessiné no.

E-1



NEW 44" POWER POLE 'AC DANDY' MOD.
 #1-DPP-44-SP C/W 4# DUPLEX WEATHERPROOF
 GF1 15A, 120V RECEPTACLES AND HEAVY DUTY
 WEATHERPROOF COVERS. FEED EACH NEW POWER
 POLE FROM THE NEW 15A, 2-POLE CIRCUIT
 BREAKER INSTALLED IN SPARE SPACES OF PANEL
 "L-P-1" (ELECTRICAL CONTRACTOR TO VERIFY).
 PROVIDE NEW 10 AWG RW90 FEEDERS IN RIGID
 GALVANIZED STEEL CONDUITS TO SUIT. EACH SIDE
 OF THE POWER POLE TO BE FED FROM SEPARATE
 CIRCUIT.

2# NEW DUPLEX WEATHERPROOF GFI 15A, 120V, RECEPTABLES IN DIE-CAST ALUMINUM BOXES C/W "HUBBELL-TAYMAC" EXTRA-HEAVY DUTY METAL WHILE-IN-USE COVER BUBBLE-TYPE, FEED EACH GFI SPLIT RECEPTABLE FROM SEPARATE CIRCUIT OF THE EXISTING 15A, 2-POLE CIRCUIT BREAKERS OF THE EXISTING PANEL "LP-M1" (ELECTRICAL CONTRACTOR TO VERIFY). PROVIDE NEW 10 AWG RW90 FEEDERS IN RIGID GALVANIZED STEEL CONDUITS TO SUIT.

[] - EXISTING ELECTRICAL PANEL, LOCATED INSIDE THE BUILDING.

- DENOTE EXISTING DEVICE TO REMAIN.

N - DENOTE PROVIDE NEW DEVICE

— DENOTE GROUND-FAULT INTERRUPTING
DEVICE

WP - DENOTE WEATHERPROOF DEVICE

COORDINATE MOUNTING OF THE NEW GUARD RAIL
RECEPTACLES WITH THE STRUCTURAL ENGINEER BEFORE
INSTALLATION. (USE WEATHER PROOF MOUNTING HARDWARE,
(TYPICAL))

FEED ALL NEW RECEPTACLES FROM SPARE CIRCUIT BREAKERS OF PANEL "LP-M1" (ELECTRICAL CONTRACTOR TO VERIFY). NOTE THAT THE CIRCUIT NUMBERS INDICATED ON THE DRAWING ARE NOT MATCHING TRUE CIRCUIT NUMBERS AND ARE PROVIDED FOR INFORMATION PURPOSE ONLY. EXACT CIRCUIT NUMBERS TO BE VERIFIED AND ARRANGED BY THE ELECTRICAL CONTRACTOR.

GUARDRAIL RECEPTACLES SHALL BE FED BY THE EXTERIOR
CONDUITS MOUNTED ALONG THE EXTERIOR WALLS.

POLE RECEPTACLES SHALL BE FED BY INTERIOR CONDUITS,
FOLLOWING ROUTES OF THE EXISTING INTERIOR CONDUITS.

RECEPTACLES EXPOSED TO THE WEATHER SHALL BE INSTALLED
ACCORDING WITH REQUIREMENTS OF RULE 26-702 AND APPENDIX B
OF THE ONTARIO ELECTRICAL SAFETY CODE.

1. RECEPTACLES EXPOSED TO THE WEATHER SHALL BE PROVIDED WITH MET LOCATION COVER PLATES.
2. RECEPTACLES OF CSA
CONFIGURATIONS 5-15R, 5-20R, 5-30R, 5-40R, 6-15R, 6-20R, AND 6-30R SHALL BE PROVIDED WITH COVER PLATES SUITABLE FOR MET LOCATIONS, WHETHER OR NOT A PLUG IS INSERTED INTO THE RECEPTACLE, AND MARKED "EXTRA DUTY".
3. WHERE RECEPTACLES EXPOSED TO THE WEATHER ARE INSTALLED IN SURFACE-MOUNTED OUTLET BOXES, THE COVER PLATES SHALL BE IN PLACE BY FOUR SCREWS OR BY SOME OTHER EQUIVALENT MEANS.
4. WHERE RECEPTACLES EXPOSED TO THE WEATHER ARE INSTALLED IN FLUSH-MOUNTED OUTLET BOXES, THE BOXES SHALL BE INSTALLED IN ACCORDANCE WITH RULE 12-1016 AND THE COVER PLATES SHALL BE FITTED TO MAKE A PROPER WEATHERPROOF.

(TYPICAL)