

## GENERAL

- THIS IS A METRIC PROJECT. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN MILLIMETERS AND ALL FORCES ARE IN METRIC UNITS.
  - "WSP-S" REFERS TO WSP CANADA STRUCTURAL CONSULTANT.
  - PRIOR TO CONSTRUCTION, REVIEW STRUCTURAL DRAWINGS IN CONJUNCTION WITH DRAWINGS PROVIDED BY ALL OTHER CONSULTANTS.
  - REPORT ANY DISCREPANCIES OR CONFLICTS BEFORE PROCEEDING WITH THE WORK.
  - DO NOT CUT OR DRILL ANY OPENINGS IN STRUCTURAL MEMBERS WITHOUT WRITTEN PERMISSION FROM WSP-S.
  - EXISTING STRUCTURAL INFORMATION IS BASED UPON SEALED PREFABRICATED BUILDING MODEL 24X72-S1 STRUCTURAL ALUMINUM FRAME DRAWINGS PREPARED ON MAY 11, 2015.
  - VERIFY EXISTING DIMENSIONS AND CONDITIONS ON SITE PRIOR TO CONSTRUCTION.
  - USE THESE DRAWINGS ONLY FOR THE PURPOSE IDENTIFIED IN THE REVISIONS COLUMN. DO NOT CONSTRUCT FROM THESE DRAWINGS UNLESS MARKED "ISSUED FOR CONSTRUCTION".
  - DO NOT USE INFORMATION ON THESE DRAWINGS FOR ANY OTHER PROJECT OR WORKS.
  - DO NOT SCALE THESE DRAWINGS.
  - ALL SECTIONS, DETAILS AND STATEMENTS NOTED AS "TYPICAL" APPLY TO LIKE / SIMILAR CONDITIONS IN THE STRUCTURE.
  - REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR WATERPROOFING, SEALERS, ETC.
  - REFER TO GEOTECHNICAL LETTER AND ARCHITECTURAL / CIVIL DRAWINGS AND SPECIFICATIONS FOR ALL SOIL WORKS.
  - DRAWINGS SHOW COMPLETED FOUNDATION STRUCTURE ONLY. THEY DO NOT SHOW TEMPORARY WORKS FOR WHICH THE CONTRACTOR IS RESPONSIBLE AND WHICH MAY BE REQUIRED FOR EXECUTION OF THE PROJECT, INCLUDING TEMPORARY SHORING, BRACING, GUYS AND TIE DOWNS. THE CONTRACTOR TO ESTABLISH CONSTRUCTION PROCEDURE AND SEQUENCE TO ENSURE SAFETY OF THE WHOLE STRUCTURE AND ALL ITS COMPONENTS DURING ERECTION.
  - EXTENT OF ALL TEMPORARY SHORING FOR EXCAVATION WHICH MAY BE REQUIRED IS NOT NECESSARILY SHOWN ON STRUCTURAL DRAWINGS, CONTRACTOR TO DETERMINE.
  - DESIGN AND CONSTRUCTION REVIEW OF ALL TEMPORARY WORKS TO BE CARRIED OUT BY A PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR, LICENSED IN THE PLACE WHERE THE PROJECT IS LOCATED.
  - ANCHOR BOLTS AND OTHER EMBEDDED ITEMS ARE DESIGNED FOR LOADS ACTING ON THE COMPLETED STRUCTURE ONLY AND ARE NOT TO BE USED OR RELIED UPON FOR TEMPORARY SUPPORT OR BRACING DURING ERECTION UNLESS REVIEWED AND APPROVED BY THE CONTRACTOR'S ENGINEER RESPONSIBLE FOR THE ERECTION PROCEDURES.
  - CONSTRUCTION LOADS ON COMPLETED STRUCTURE NOT TO EXCEED DESIGN LOADS INDICATED ON DRAWINGS.
  - UNLESS SHOWN ON STRUCTURAL DRAWINGS, DESIGN OF NON STRUCTURAL AND SECONDARY STRUCTURAL ELEMENTS AND THEIR CONNECTIONS TO THE PRIMARY BUILDING STRUCTURE ARE NOT WITHIN THE SCOPE OF SERVICES PROVIDED BY WSP-S. SUCH ELEMENTS INCLUDE (BUT ARE NOT LIMITED TO) THE FOLLOWING:
    - MISCELLANEOUS STEEL ELEMENTS: STAIRS, RAILINGS, GUARDRAILS.
    - PARTITIONS: MASONRY, GLASS, WOOD AND STEEL STUDS, PREFABRICATED PANELS
    - ARCHITECTURAL PRECAST, PRECAST STAIRS.
    - EXTERIOR CLADDING: PRECAST PANELS, METAL WALL SYSTEMS, CURTAIN WALLS AND WINDOWS.
    - ROOF ANCHORS.
    - SUPPORTS FOR MECHANICAL AND ELECTRICAL EQUIPMENT: HANGERS, BRACES, POSTS, RACKS, SLEEPERS, SEISMIC RESTRAINTS, SUPPORT PLATFORMS AND PADS, SERVICE PLATFORMS.
    - SUPPORTS AND SEISMIC RESTRAINTS FOR OTHER EQUIPMENT, SUCH AS MEDICAL AND SPORTS EQUIPMENT.
    - STORAGE RACKS.
    - LANDSCAPING ELEMENTS: WALLS, CURBS, BENCHES, PLANTERS, WATER FEATURES.
    - LIGHT POLES, FLAG POLES, SIGNS AND THEIR FOUNDATIONS.
- WSP-S WILL NOT REVIEW DESIGN, DETAILING AND INSTALLATION OF THESE ELEMENTS, FOR WHICH SUPPLIERS AND / OR SPECIALTY PROFESSIONAL ENGINEERS ARE RESPONSIBLE. THE ONLY REVIEW PROVIDED (WHERE APPLICABLE) WILL BE FOR IMPACT ON THE BASE BUILDING STRUCTURE.
- MAINTAIN A QUALITY CONTROL PLAN FOR STRUCTURAL WORK, AND MAKE IT AVAILABLE TO THE CONSULTANT UPON REQUEST. AT A MINIMUM, THE PLAN TO INCLUDE:
    - NAMES OF PERSONNEL RESPONSIBLE FOR EXECUTION OF THE PLAN.
    - MEANS AND METHODS FOR CONFIRMING MATERIAL COMPLIANCE WITH SPECIFICATIONS AND ASSOCIATED DOCUMENTATION PROCEDURES.
    - PROGRAM FOR CONFIRMING AND DOCUMENTING COMPLIANCE WITH REQUIRED SUB-TRADE QUALIFICATIONS AND QUALIFICATIONS OF THEIR INDIVIDUAL EMPLOYEES AND SUB-CONTRACTORS.
    - PROCEDURES FOR REVIEWING FIELD COMPLIANCE WITH CONSTRUCTION DOCUMENTS, INCLUDING DOCUMENTATION OF LOCATIONS REVIEWED, PHOTOGRAPHS TAKEN AND TIMING OF REVIEW. THE CONTRACTOR'S REVIEW TO BE COMPLETED PRIOR TO REVIEW BY THE CONSULTANT.
    - PROCEDURES FOR RECTIFYING DEFICIENCIES NOTED BY THE CONTRACTOR, SUB-CONTRACTORS, CONSULTANTS AND INDEPENDENT INSPECTION AGENCIES.
  - FOR INSPECTION AND TESTING REQUIREMENTS, REFER TO SPECIFICATIONS.
  - IN CASE OF DISCREPANCY BETWEEN GENERAL NOTES, DRAWINGS AND SPECIFICATIONS, COMPLY WITH THE MOST STRINGENT REQUIREMENTS.

## DESIGN DATA

- STRUCTURAL DESIGN IS IN ACCORDANCE WITH THE 2015 NATIONAL BUILDING CODE (NBC), SUPPLEMENTED BY THE USER'S GUIDE - NBC 2015 STRUCTURAL COMMENTARIES.
- STEEL ELEMENTS ARE DESIGNED PER CSA S16-09 - LIMIT STATE DESIGN OF STEEL STRUCTURES.
- THE VALUES FOR CLIMATIC DATA USED IN THE DETERMINATION OF DESIGN LOADS HAVE BEEN OBTAINED FROM THE 2015 NBC FOR THE SPECIFIC LOCATION OF WEST VANCOUVER.
- BASED ON THE USE AND OCCUPANCY, THE BUILDING IS DESIGNED TO THE REQUIREMENTS OF A NORMAL IMPORTANCE CATEGORY.
- SELF WEIGHT (SWT) IS DUE TO THE WEIGHT OF THE STRUCTURE ITSELF. IT VARIES WITH THE STRUCTURAL SYSTEM.
- SUPERIMPOSED DEAD LOADS (SDL) ARE NON-STRUCTURAL DEAD LOADS DUE TO NON-STRUCTURAL TOPPING, FINISHES, PARTITIONS, ROOFING MATERIALS, SUSPENDED EQUIPMENT, PAVERS, SOIL, ETC.
- DEAD LOAD (DL) IS THE SELF WEIGHT OF THE STRUCTURE PLUS THE SUPERIMPOSED DEAD LOAD.
- LIVE LOAD (LL) REDUCTION HAS NOT BEEN USED.
- UNLESS OTHERWISE NOTED, DESIGN LOADS SHOWN ON DRAWINGS ARE SPECIFIED (UNFACTORED) LOADS, TO BE USED FOR ULS DESIGN. FOR SLS DESIGN, THESE LOADS CAN BE REDUCED BY MULTIPLYING WITH THE RATIO OF APPROPRIATE IMPORTANCE FACTORS  $\gamma_{f(SLS)}$  /  $\gamma_{f(ULS)}$  GIVEN BELOW.

- IF ONLY ONE VALUE IS GIVEN FOR A LOAD, CONSIDER IT LIVE LOAD.
- SNOW:  
 $S_s = 2.4 \text{ kPa}$        $S_r = 0.2 \text{ kPa}$        $I_s \text{ (ULS)} = 1.0$        $I_s \text{ (SLS)} = 0.9$   
 MINIMUM UNFACTORED SNOW LOAD =  $2.1 \text{ kPa} \times I_s$
- LATERAL LOADS ON THE FOUNDATION ARE DETERMINED BASED ON THE WIND AND SEISMIC DATA BELOW.
  - WIND:  
 $q_{50} = 0.48 \text{ kPa}$        $I_w \text{ (ULS)} = 1.0$        $I_w \text{ (SLS)} = 0.75$   
 BUILDING IS: LOW RISE  
 TERRAIN TYPE: OPEN  
 $C_e = 0.9$   
 INTERNAL PRESSURE CATEGORY: 2  
 WIND LOAD AT GRADE LEVEL FOR DESIGN OF OVERALL BUILDING LATERAL LOAD RESISTING SYSTEM:  
 $1.2 \text{ kPa}$   
 FACTORED BASE SHEARS & OVERTURNING MOMENTS:  
 $V \text{ (NS)} = 45 \text{ kN}$   
 $M \text{ (NS)} = 239 \text{ kNm}$   
 $V \text{ (EW)} = 45 \text{ kN}$   
 $M \text{ (EW)} = 239 \text{ kNm}$
  - $S_a(0.2) = 0.818$        $PGA = 0.356$        $I_e F_a S_a(0.2) = 0.79$   
 $S_a(0.5) = 0.721$        $R_d = 1.0$   
 $S_a(1.0) = 0.41$        $R_o = 1.0$       SITE CLASSIFICATION = D  
 $S_a(2.0) = 0.25$        $I_e = 1.0$   
 SEISMIC FORCE RESISTING SYSTEM (SFRS): ALUMINUM MOMENT FRAMES (ASSUMED)  
 FACTORED BASE SHEARS & OVERTURNING MOMENTS:  
 $V \text{ (NS)} = 133 \text{ kN}$   
 $M \text{ (NS)} = 615 \text{ kNm}$   
 $V \text{ (EW)} = 133 \text{ kN}$   
 $M \text{ (EW)} = 615 \text{ kNm}$

## SHOP DRAWINGS

- REFER TO SPECIFICATIONS FOR SHOP DRAWINGS WHICH NEED TO BE SUBMITTED FOR REVIEW.
- REVIEW OF SHOP DRAWINGS BY WSP-S IS ON A SAMPLING BASIS. FOR GENERAL CONFORMITY WITH STRUCTURAL CONTRACT DOCUMENTS, IT IS NOT A DETAILED CHECK AND MUST NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR OF HIS RESPONSIBILITY TO MAKE THE WORK ACCURATE AND IN CONFORMITY WITH ALL THE CONTRACT DOCUMENTS, TO REVIEW SHOP DRAWINGS AND TO COORDINATE WORK OF INTERFACING TRADES AND MANUFACTURE OF INTERFACING PRODUCTS.
- REVIEW OF SHOP DRAWINGS DOES NOT IMPLY ANY CHANGE IN ANY OTHER CONSULTANTS' OR PROFESSIONALS' RESPONSIBILITIES RELATED TO DESIGN OF SPECIFIC ITEMS AS OUTLINED BY THE SPECIFICATIONS.
- ALLOW A MINIMUM OF 10 WORKING DAYS FOR REVIEW OF EACH SUBMISSION OF SHOP DRAWINGS IN WSP-S OFFICE. ALLOW MORE TIME WHEN LARGE QUANTITIES OF SHOP DRAWINGS ARE SUBMITTED. SUBMIT IN GENERAL CONFORMITY WITH THE SEQUENCE OF CONSTRUCTION INTENDED.
- AFTER REVIEW, THE DRAWINGS WILL BE STAMPED AND RETURNED. DO NOT COMMENCE FABRICATION UNTIL RETURNED SHOP DRAWINGS HAVE BEEN EXAMINED.
- SHOP DRAWINGS MARKED "REVIEWED" CAN BE USED FOR FABRICATION. DO NOT MAKE ANY CHANGES OR ADDITIONS TO THESE DRAWINGS WITHOUT NOTIFYING THE CONSULTANT.
- SHOP DRAWINGS MARKED "REVIEWED AS NOTED" CAN BE USED FOR FABRICATION AFTER THE REVISIONS NOTED ARE IMPLEMENTED. DO NOT MAKE ANY FURTHER CHANGES OR ADDITIONS TO THESE DRAWINGS WITHOUT NOTIFYING THE CONSULTANT.
- SHOP DRAWINGS MARKED "REVISE AND RESUBMIT" REQUIRE SUBSTANTIAL REVISIONS AND MUST BE RESUBMITTED FOR ADDITIONAL REVIEW PRIOR TO FABRICATION. ALL CHANGES AND ADDITIONS TO THE PREVIOUS SUBMISSION TO BE CLEARLY IDENTIFIED ON THE RESUBMITTED DRAWINGS.
- SHOP DRAWINGS MARKED "REVIEWED FOR IMPACT ON BASE STRUCTURE ONLY" SHOW WORKS WHICH ARE NOT WITHIN THE SCOPE OF STRUCTURAL CONSULTING SERVICES BUT AFFECT BEHAVIOUR OF THE BASE STRUCTURE. WSP-S WILL NOT REVIEW DESIGN OF THESE WORKS AND ASSUMES THAT THE INDICATED WEIGHTS AND ALL OTHER LOADS IMPOSED ON THE BASE STRUCTURE ARE CORRECTLY IDENTIFIED BY THE DESIGNER / SUPPLIER OF THESE ELEMENTS.
- DRAWINGS MARKED "NOT REVIEWED" SHOW WORKS WHICH ARE NOT WITHIN THE SCOPE OF STRUCTURAL CONSULTING SERVICES AND DO NOT IMPACT THE BASE BUILDING STRUCTURE.
- EXCEPT FOR EXCAVATION SHORING (WHICH WILL BE REVIEWED FOR IMPACT ON THE BASE STRUCTURE ONLY), WSP-S WILL NOT REVIEW DESIGN AND IMPLEMENTATION OF ANY TEMPORARY WORKS, NOR ASSESS IMPACT OF THESE WORKS ON THE BASE STRUCTURE. THE CONTRACTOR AND / OR THE PROFESSIONAL ENGINEER ENGAGED BY THE CONTRACTOR MUST ENSURE THAT THE BASE STRUCTURE IS NOT ADVERSELY AFFECTED BY THE TEMPORARY WORKS AND CONSTRUCTION PROCESS AND THAT TEMPORARY LOADS DO NOT EXCEED THE DESIGN LOADS INDICATED ON STRUCTURAL DRAWINGS.
- DO NOT USE SHOP DRAWINGS AS A MEANS TO PROPOSE SUBSTITUTIONS OR ALTERNATIVES TO THE MATERIALS, PRODUCTS OR DETAILS INDICATED IN CONTRACT DOCUMENTS. SUCH SHOP DRAWINGS WILL BE MARKED "REVISE AND RESUBMIT".
- PROVIDE FINAL RECORD DRAWINGS AFTER ALL CORRECTIONS ARE MADE.

## FIELD REVIEW

- WSP-S WILL PROVIDE PERIODIC FIELD REVIEW OF A REPRESENTATIVE SAMPLE OF THE STRUCTURAL WORKS DETAILED ON THESE DRAWINGS FOR GENERAL CONFORMANCE WITH CONTRACT DOCUMENTS. THESE REVIEWS DO NOT REPLACE THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT AND MAINTAIN A QUALITY CONTROL PROGRAM, AND DO NOT MAKE WSP-S A GUARANTOR OF THE CONTRACTOR'S WORK.
- CONSTRUCTION REVIEW REPORTS WILL OUTLINE ANY DEFICIENCIES FOUND.
- ASSIST WSP-S DURING FIELD REVIEW, AND PROVIDE SAFE ACCESS TO WORK AREAS AS REQUIRED.
- CHECK THE WORK PRIOR TO FIELD REVIEW TO CONFIRM IT IS COMPLETED AND IN ACCORDANCE WITH CONTRACT DOCUMENTS.
- BRING TO THE ATTENTION OF WSP-S ANY DEFICIENCIES FOUND IN THE WORK TOGETHER WITH A PROPOSAL FOR REMEDY. WSP-S WILL DECIDE WHAT CORRECTIVE ACTION MAY BE TAKEN AND ISSUE THE NECESSARY INSTRUCTIONS.
- PROVIDE REASONABLE NOTICE (NOT LESS THAN 24 HOURS) TO ALLOW FOR THE FIELD REVIEW OF THE FOLLOWING:
  - STRUCTURAL STEEL BEFORE COVERING UP OR PLACING ALUMINUM BUILDING
- SCHEDULE REVIEW WORK TO OCCUR DURING NORMAL BUSINESS HOURS.
- ORGANIZE FOR FIELD REVIEW OF ALL PROPRIETARY PRODUCTS AND OTHER STRUCTURAL WORKS DESIGNED BY SPECIALTY ENGINEERS. THE REVIEW TO BE BY THE ENGINEERS RESPONSIBLE FOR THE DESIGN OR BY OTHER ENGINEERS DESIGNATED BY THE ENGINEERS RESPONSIBLE FOR THE DESIGN AND LICENSED IN THE PLACE WHERE THE PROJECT IS LOCATED. SUBMIT CONSTRUCTION REVIEW REPORTS FOR CONSULTANT'S RECORD.

## FOUNDATIONS

- STRUCTURAL DESIGN IS BASED ON THE GEOTECHNICAL LETTER PREPARED BY: THURBER ENGINEERING LTD. DATED: DECEMBER 11, 2017.
- REFER TO THE GEOTECHNICAL LETTER FOR DETAILED INFORMATION ON GEOTECHNICAL CONDITIONS, FOUNDATION RECOMMENDATIONS, AND FOR ALL EARTHWORK INCLUDING SUBGRADE PREPARATION.
- ASSUMED FOOTING BEARING RESISTANCE:  
 $70 \text{ kPa}$  AT ULS (ULTIMATE LIMIT STATES DESIGN)  
 $50 \text{ kPa}$  AT SLS (SERVICEABILITY LIMIT STATES DESIGN)
- CONSTRUCT ALL FOOTINGS ON STRATA CAPABLE TO PROVIDE THE BEARING RESISTANCE NOTED, BUT NOT ABOVE THE ELEVATIONS INDICATED ON DRAWINGS.
- STRUCTURAL DRAWINGS SHOW FOOTINGS AT ELEVATIONS WHERE THE REQUIRED BEARING RESISTANCE IS ANTICIPATED. GEOTECHNICAL CONSULTANT TO REVIEW AND APPROVE IN WRITING ALL BEARING SURFACES PRIOR TO CONSTRUCTING FOOTINGS.
- IF THE ASSUMED BEARING RESISTANCE IS NOT OBTAINED AT THE UNDERSIDE OF FOOTING ELEVATION INDICATED ON DRAWINGS, EXTEND EXCAVATION UNTIL COMPETENT SOIL IS REACHED, AND PROVIDE LEAN CONCRETE FILL TO UNDERSIDE OF FOOTING.
- PROVIDE MIN. 50 (2") DEEP MUD SLAB AS REQUIRED TO PROTECT BOTTOM OF EXCAVATION, AND IN ALL CASES WHERE RECOMMENDED IN GEOTECHNICAL REPORT OR SHOWN ON DRAWINGS.
- UNLESS OTHERWISE NOTED, THE LONGER DIMENSION OF BLOCK FOOTINGS TO BE PARALLEL TO THE LONGER COLUMN DIMENSION.
- UNLESS OTHERWISE NOTED, CENTRE FOOTINGS UNDER CENTROID OF COLUMNS.
- LOCATE ALL EXISTING UNDERGROUND SERVICES PRIOR TO EXCAVATION.
- KEEP EXCAVATION (IF REQUIRED) DRAINED AND FREE OF WATER AT ALL TIMES.
- PROTECT FOOTINGS AND ADJACENT SOIL AGAINST FREEZING AND FROST ACTION AT ALL TIMES DURING CONSTRUCTION.

## CAST-IN-PLACE CONCRETE

- CONCRETE IS SPECIFIED PER ALTERNATIVE 1 - PERFORMANCE SPECIFICATION, AS OUTLINED IN CSA A23.1. THE CONTRACTOR AND THE CONCRETE SUPPLIER TO MEET ALL CERTIFICATION, DOCUMENTATION, AND QUALITY CONTROL REQUIREMENTS.
- CONTRACTOR AND CONCRETE SUPPLIER TO ENSURE THAT PLASTIC AND HARDENED MIX PROPERTIES MEET SITE REQUIREMENTS FOR PLACING, FINISHING AND THE SPECIFIED PERFORMANCE REQUIREMENTS.
- CEMENT TO BE PORTLAND CEMENT TYPE GU UNLESS NOTED OTHERWISE OR REQUIRED BY EXPOSURE CLASS.
- CONCRETE TO BE NORMAL DENSITY (MIN.  $2300 \text{ kg/m}^3$ ) UNLESS NOTED OTHERWISE.
- NOMINAL MAXIMUM SIZE OF COARSE AGGREGATE TO BE 20 (3/4") UNLESS NOTED OTHERWISE.
- UNLESS NOTED OTHERWISE, CONCRETE TO BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

ELEMENT	COMPRESSIVE STRENGTH (MPa) AT 28 DAYS (SEE NOTE #3 BELOW)	EXPOSURE CLASS	SPECIAL REQUIREMENTS & REMARKS
LOCK BLOCK FOOTINGS	20 MPa	F-2	DESIGNED AND SUPPLIED BY OTHERS
LEAN CONCRETE, MUDSLABS	10	N	
UNSHRINKABLE FILL	0.4 MAX.		

- REFER TO CSA A23.1 FOR THE MAXIMUM WATER/CEMENT RATIO, MINIMUM COMPRESSIVE STRENGTH, AIR CONTENT, CURING REQUIREMENTS, CHLORIDE ION PENETRABILITY AND ALTERNATE CEMENT TYPES TO MEET THE REQUIREMENTS FOR THE NOTED EXPOSURE CLASS.
- WHERE REQUIRED BY SPECIFICATIONS, PROVIDE MINIMUM AMOUNT OF SUPPLEMENTAL CEMENTING MATERIALS SPECIFIED FOR THE OVERALL PROJECT.
- DO NOT ADD WATER TO CONCRETE ON SITE.
- CONVEY CONCRETE FROM TRUCK TO FINAL LOCATION BY METHODS WHICH WILL PREVENT SEPARATION OR LOSS OF MATERIAL. MAXIMUM FREE FALL NOT TO EXCEED 1.5m (5'-0"). CONSOLIDATE CONCRETE USING MECHANICAL VIBRATORS.
- PLACE CONCRETE AS CLOSE AS POSSIBLE TO FINAL LOCATION TO AVOID SEGREGATION. VIBRATE ALL CONCRETE.
- PROTECT CONCRETE FROM FREEZING. DO NOT PLACE CONCRETE AGAINST FROZEN GROUND. USE COLD WEATHER CONCRETING METHODS IN ACCORDANCE WITH CSA-A23.1.
- PROTECT CONCRETE FROM EXCESSIVE HEAT AND DRYING. USE HOT WEATHER CONCRETING METHODS IN ACCORDANCE WITH CSA-A23.1.

## POST-INSTALLED ANCHORS AND DOWELS

- ANCHORAGE TO CONCRETE TO BE AS NOTED ON DRAWINGS.
- ANCHORS LOCATED OUTSIDE THE BUILDING ENVELOPE'S VAPOUR BARRIER TO BE STAINLESS STEEL.
- CONCRETE TO BE MINIMUM 28 DAYS OLD AT THE TIME OF ANCHOR INSTALLATION.
- USE DRILLING AND INSTALLATION TOOLS AND PROCEDURES PER MANUFACTURER'S RECOMMENDATIONS. DO NOT CORE DRILL UNLESS SPECIFICALLY NOTED ON DRAWINGS. HOLE DIAMETERS NOT TO EXCEED THOSE REQUIRED BY MANUFACTURER.
- WHERE CORE DRILLING IS SPECIFIED, CLEAN AND ROUGHEN HOLES PER MANUFACTURER'S RECOMMENDATION.
- ARRANGE FOR THE ANCHOR MANUFACTURER TO CONDUCT ON SITE TRAINING FOR INSTALLATION OF ALL THE PRODUCTS SPECIFIED, AND FOR ALL CONDITIONS ENCOUNTERED.
- ARRANGE FOR A MANUFACTURER'S TECHNICAL REPRESENTATIVE TO BE PRESENT DURING INSTALLATION OF FIRST FEW ANCHORS. SUBMIT SITE REPORTS INDICATING ANCHOR TYPES AND SIZES INSTALLED, LOCATIONS AND INSTALLERS' NAMES.
- ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND THEIR PROXIMITY TO CONCRETE EDGES; THEREFORE, ALL ANCHORS MUST BE INSTALLED WITH CLEARANCES AND EDGE DISTANCES INDICATED ON DRAWINGS
- WHEN OBSTRUCTIONS PREVENT DRILLING HOLES IN SPECIFIED LOCATIONS TO THE REQUIRED DEPTH, RELOCATE AT NO EXTRA COST TO THE CONTRACT. OBTAIN WSP-S APPROVAL OF NEW LOCATIONS BEFORE DRILLING; MODIFICATIONS TO CONNECTED MEMBERS AND ADDITIONAL ANCHORS / DOWELS MAY BE REQUIRED. FILL ABANDONED HOLES WHICH ARE CLOSER THAN 3 TIMES THE HOLE DIAMETER FROM THE RELOCATED ANCHORS WITH HILTI HY-200 ADHESIVE. DO NOT TIGHTEN ANCHORS UNTIL THE ADHESIVE HAS FULLY CURED.
- DO NOT BEND POST INSTALLED DOWELS AND RODS AFTER INSTALLATION.
- DO NOT WELD TO PLATES FASTENED WITH ADHESIVE ANCHORS AFTER THE ADHESIVE IS PLACED.

## STRUCTURAL STEEL

- CONFORM TO CSA S16.
- MATERIALS: TO CSA G40.21 UNLESS OTHERWISE NOTED, WITH THE FOLLOWING GRADES:

- CHANNELS: 350W
- PLATES, BARS: 300W
- ANCHOR RODS: STAINLESS STEEL TO ASTM F993 GROUP 1 MIN 206 MPA YIELD STRENGTH  
STAINLESS STEEL
- DETAILS ON STRUCTURAL DRAWINGS SHOW DESIGN INTENT. REFER TO SPECIFICATIONS FOR DETAILING, FABRICATION, AND ERECTION REQUIREMENTS.
  - DO NOT CUT HOLES OR OTHERWISE MODIFY STRUCTURAL MEMBERS ON SITE.
  - IF STRUCTURAL STEEL IS IN DIRECT CONTACT WITH GROUND, PROTECT WITH EPOXY PAINT.
  - PROVIDE ALL ERECTION BRACING REQUIRED TO KEEP THE STRUCTURE STABLE AND IN ALIGNMENT DURING CONSTRUCTION.
  - DO NOT APPLY LATERAL LOADS TO MEMBERS UNLESS APPROVED BY THE CONSULTANT.

### ABBREVIATIONS

AB	-	ANCHOR BOLT
ALT	-	ALTERNATE
APPROX	-	APPROXIMATELY
ARCH	-	ARCHITECT
BOT	-	BOTTOM
BP	-	BASE PL
BS	-	BOTH SIDES
CP	-	COMPLETE PENETRATION WELD
CW	-	COMPLETE WITH
DWG	-	DRAWING
(E)	-	EXISTING
EF	-	EACH FACE
EL	-	ELEVATION
EW	-	EACH WAY
FS	-	FAR SIDE
GALV	-	GALVANIZED
HORIZ	-	HORIZONTAL
LG	-	LONG
MAX	-	MAXIMUM
MIN	-	MINIMUM
NS	-	NEAR SIDE
NTS	-	NOT TO SCALE
OC	-	ON CENTER
SS	-	STAINLESS STEEL
STD	-	STANDARD
TYP	-	TYPICAL
UN	-	UNLESS NOTED
US	-	UNDERSIDE
VERT	-	VERTICAL



2	TENDER	2018.08.16
1	REVIEW	2018.07.24

Revision/	Description/Description	Date/Date
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Client/client

## FISHERIES AND OCEANS, REAL PROPERTY, SAFETY AND SECURITY

VANCOUVER, BC  
200-401 BURRARD ST.

Project title/Titre du projet  
4160 Marine Dr., West Vancouver

MODULAR LABS

## CENTER FOR AQUACULTURE & ENVIRONMENTAL RESEARCH

Consultant Signature Only

Designed by/Concept par  
CP

Drawn by/Dessiné par  
RCM/2017.12.08

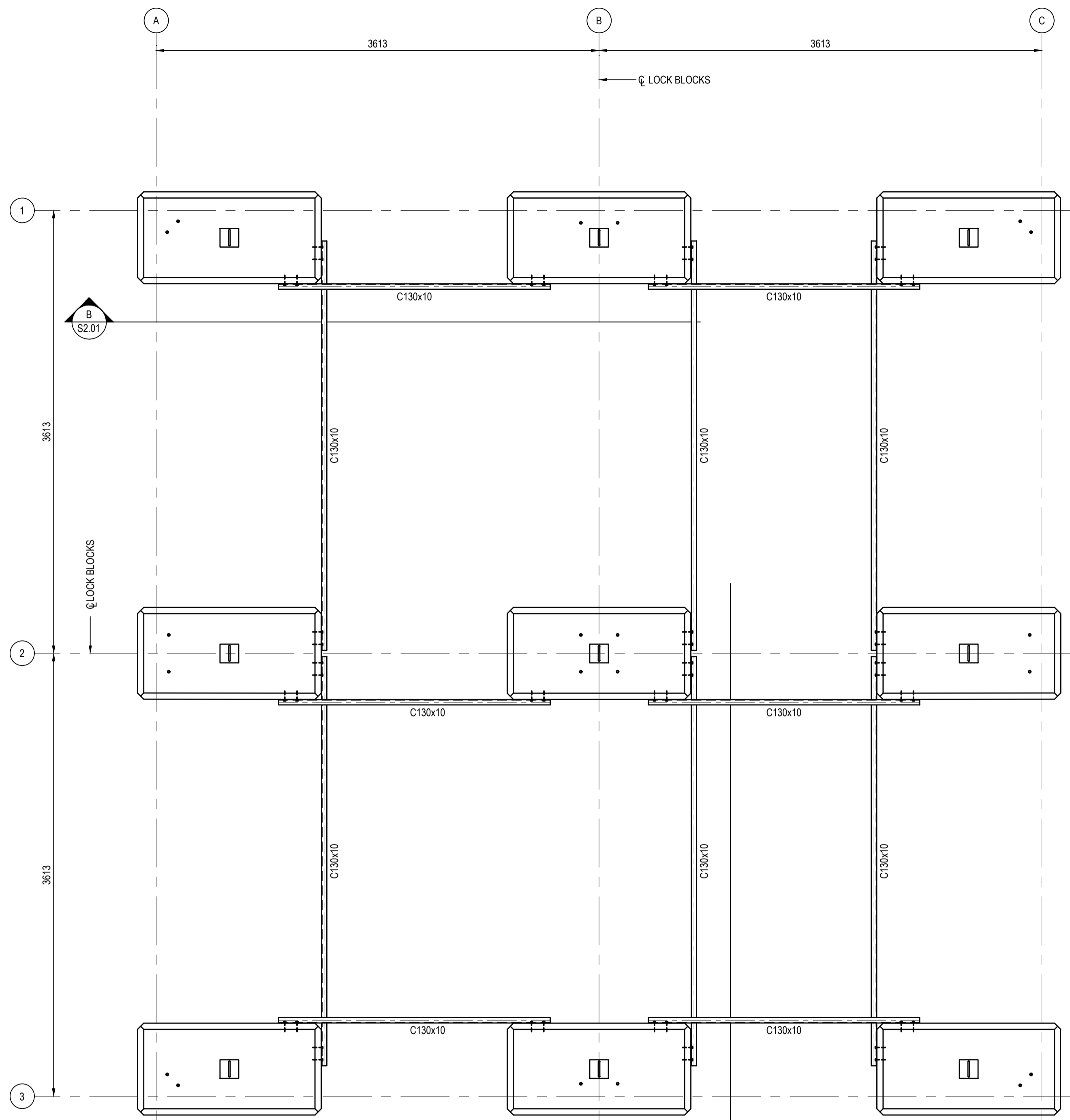
PWGSC Project Manager/Administrateur de Projets TPSSC  
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Regional Manager, Architectural and Engineering Services  
Gestionnaire régionale, Services d'architectural et de génie, TPSSC  
PRETIPAL FAUL

Drawing title/Titre du dessin

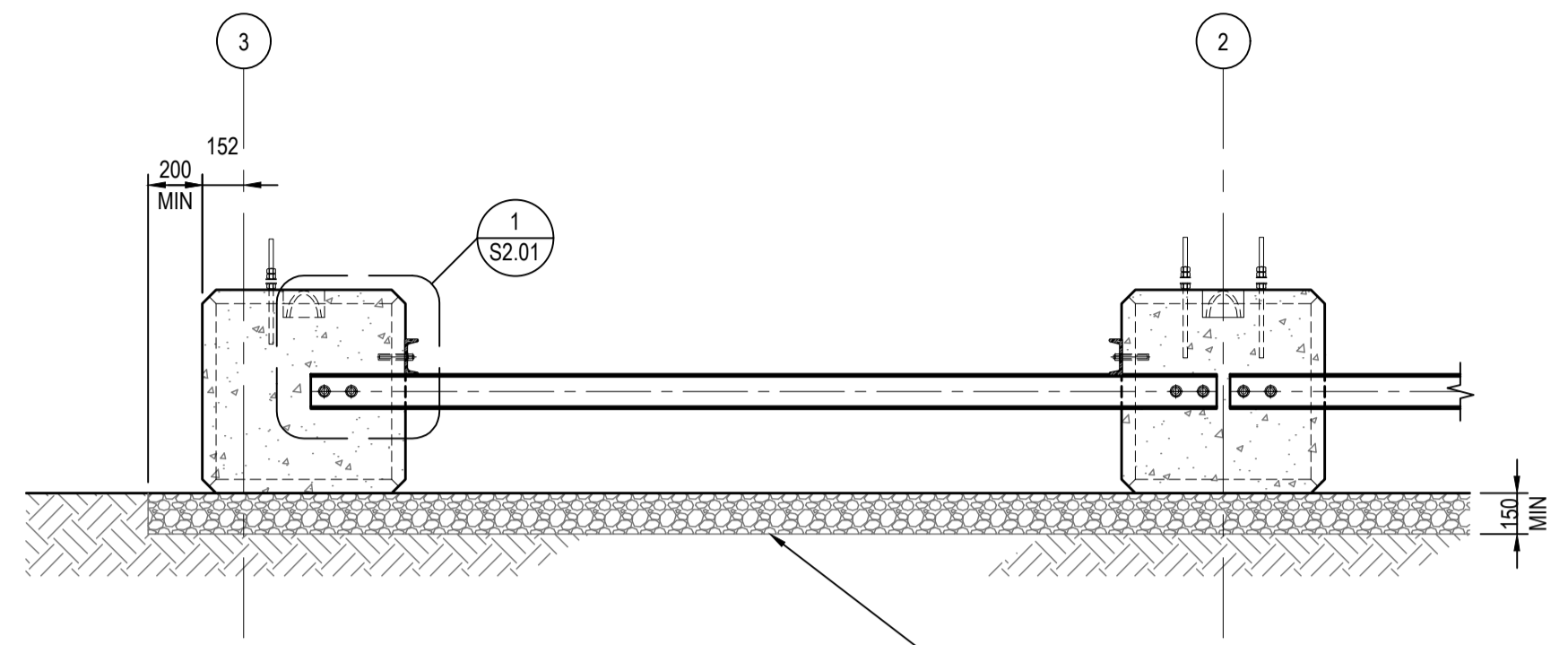
## STRUCTURAL NOTES

Project No./No. du projet <b>PROJECT_NO</b>	Sheet/Feuille <b>S1.01</b>	Revision no./La Révision no. <b>1</b>
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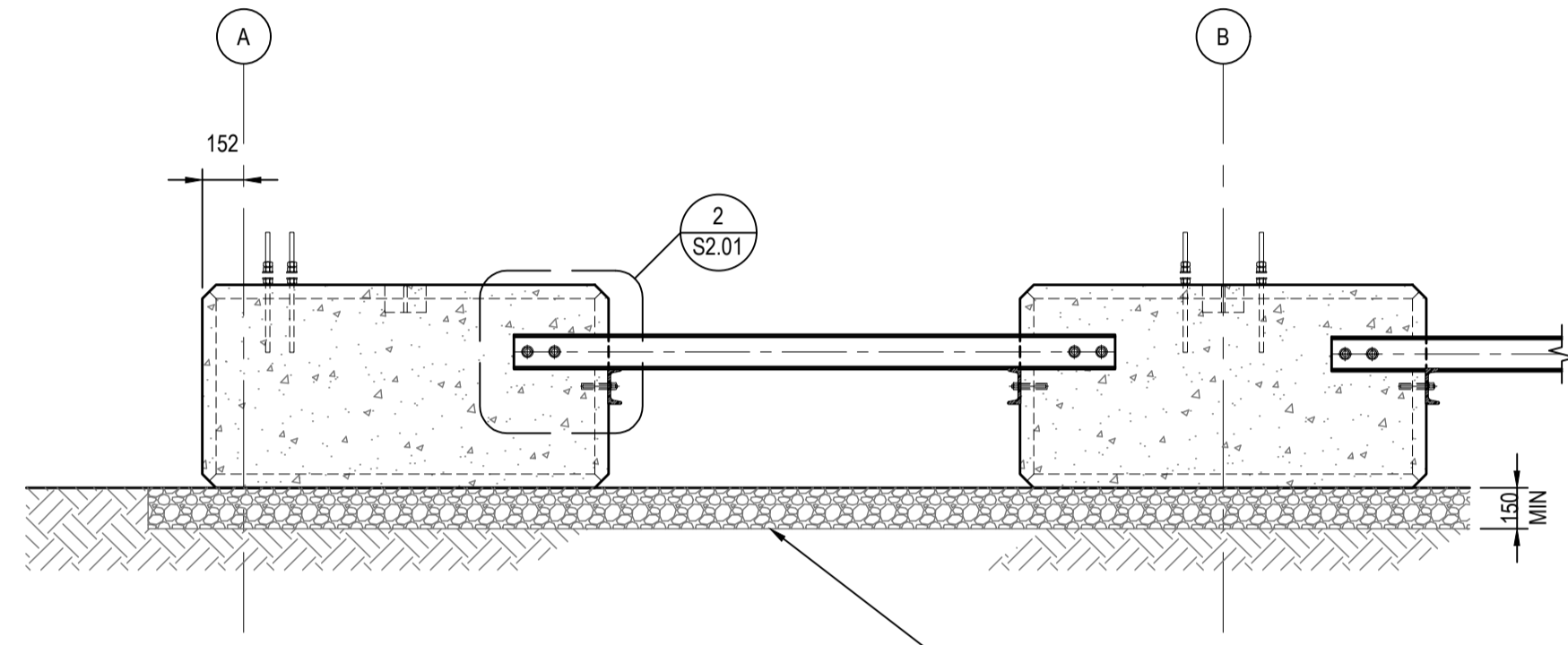
**FOUNDATION PLAN**  
SCALE: 1:25

NOTE:  
ALUMINUM FRAMING DESIGN BY OTHERS.  
THE SEISMIC TIES SHALL BE INSTALLED AFTER THE STRUCTURAL ALUMINUM FLOOR FRAMING HAS BEEN INSTALLED.



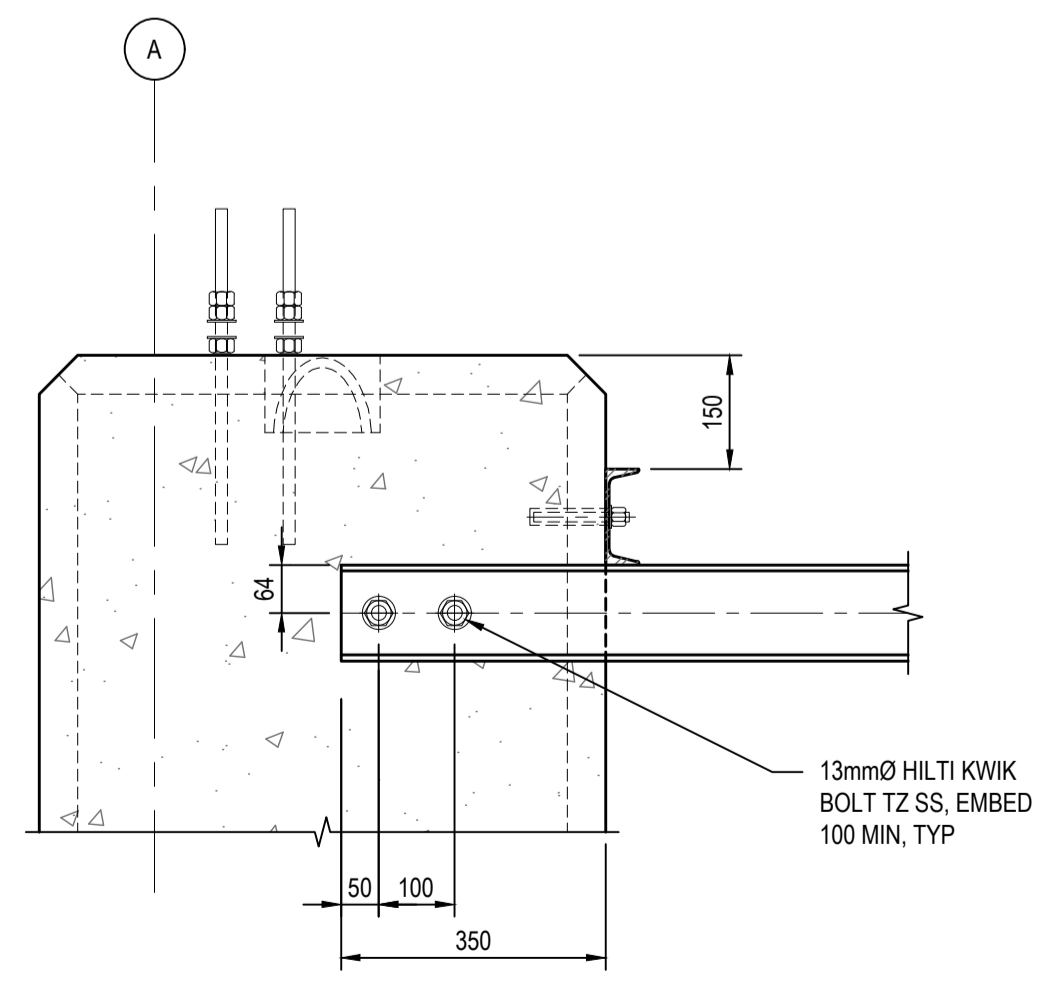
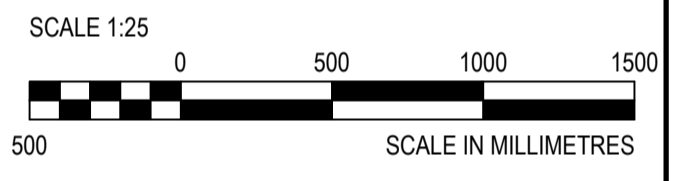
**A SECTION**  
S2.02 SCALE: 1:25

REMOVE ALL ORGANICS, LOOSE, WET OR ANY DELETERIOUS MATERIALS. PROVIDE 150mm LAYER OF WELL-GRADED 19mm CRUSHED SAND OR GRAVEL COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY. SEE GEOTECHNICAL LETTER.

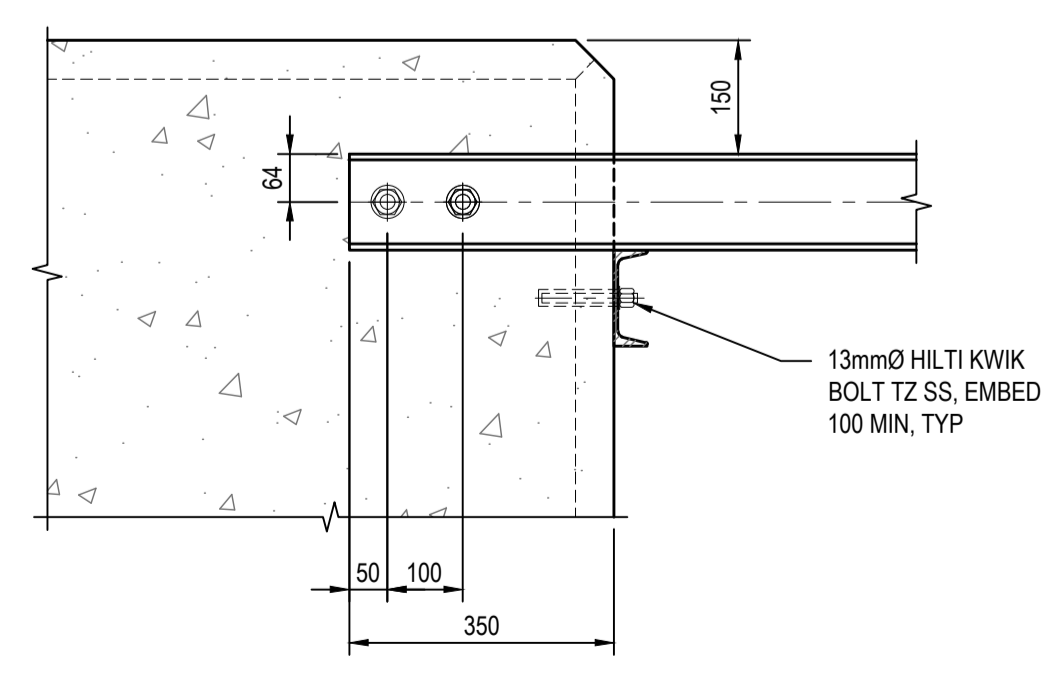


**B SECTION**  
S2.02 SCALE: 1:25

REMOVE ALL ORGANICS, LOOSE, WET OR ANY DELETERIOUS MATERIALS. PROVIDE 150mm LAYER OF WELL-GRADED 19mm CRUSHED SAND OR GRAVEL COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY. SEE GEOTECHNICAL LETTER.



**1 DETAIL**  
S2.01 SCALE: 1:10



**2 DETAIL**  
S2.01 SCALE: 1:10

2	TENDER	2018.08.16
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Revision/	Description/Description	Date/Date

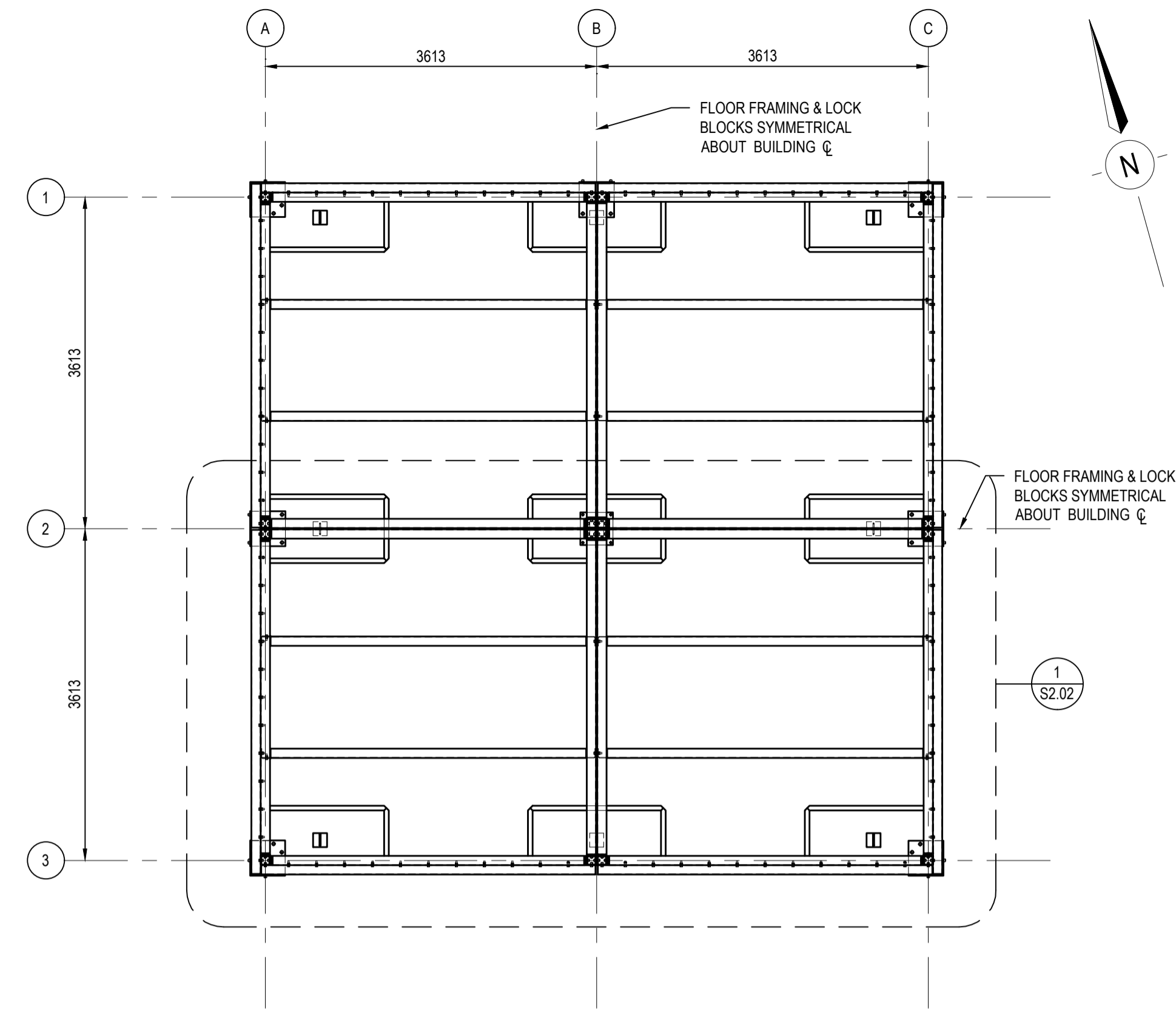
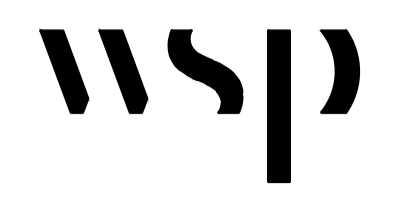
Client/client  
**FISHERIES AND OCEANS, REAL PROPERTY, SAFETY AND SECURITY**  
VANCOUVER, BC  
200-401 BURRARD ST.

Project title/Titre du projet  
4160 Marine Dr., West Vancouver  
**MODULAR LABS**  
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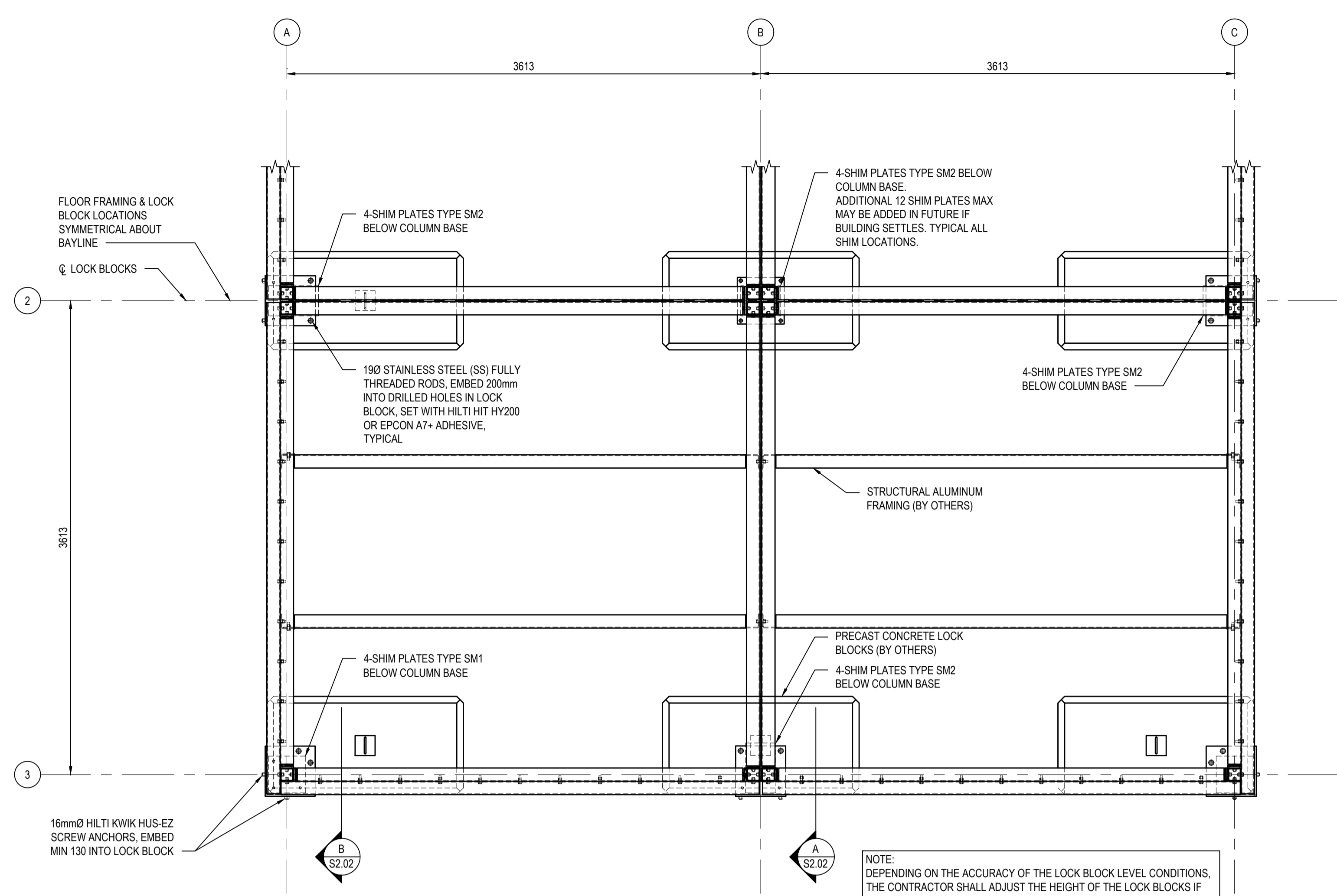
Consultant Signature Only  
Designed by/Concept par  
CP  
Drawn by/Dessiné par  
RCM/2017.12.08  
PWGSC Project Manager/Administrateur de Projets TPSGC  
Regional Manager, Architectural and Engineering Services  
Gestionnaire régionale, Services d'architectural et de génie, TPSGC  
PREETIPAL FAUL

Drawing title/Titre du dessin  
**FOUNDATION PLAN**  
**SECTIONS AND DETAILS**

Project No./No. du projet <b>PROJECT_NO</b>	Sheet/Feuille <b>S2.01</b> XX	Revision no./La Révision no. <b>1</b>
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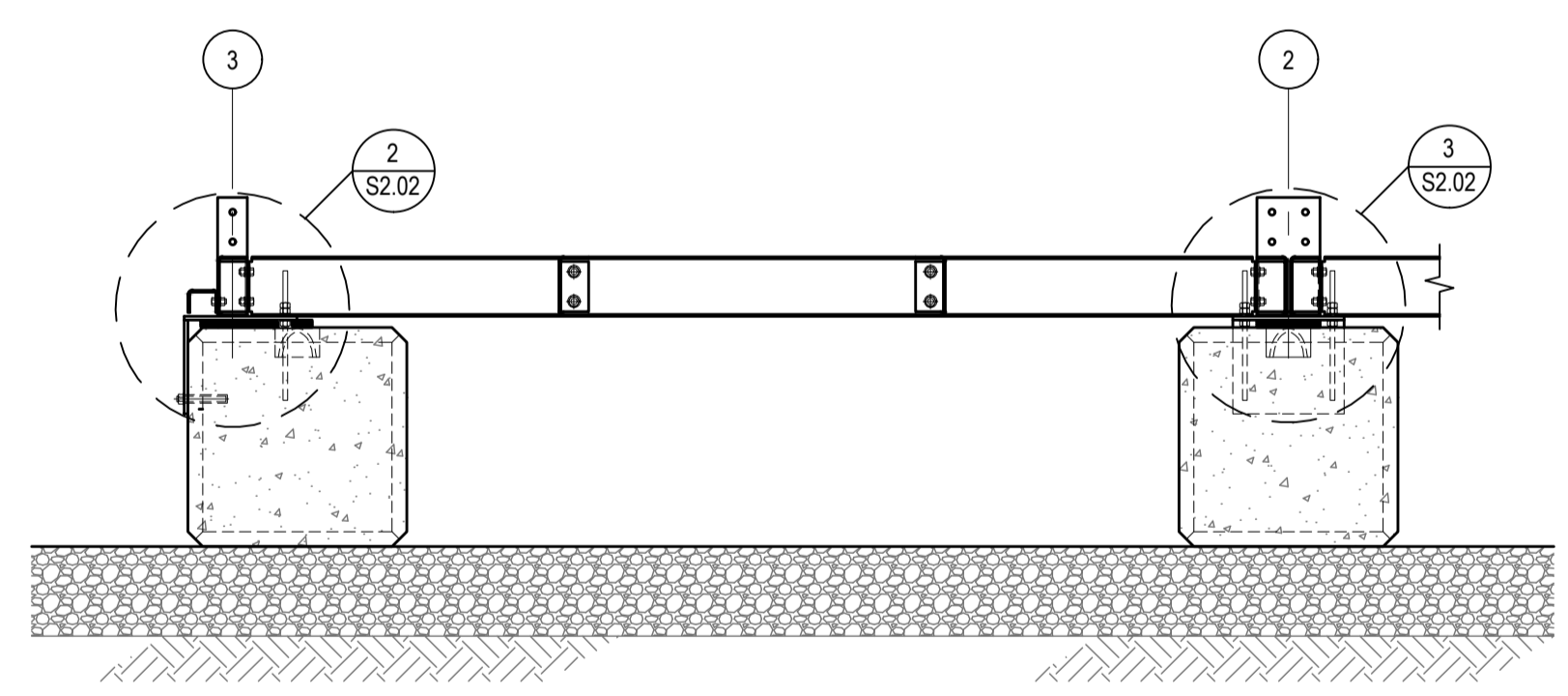
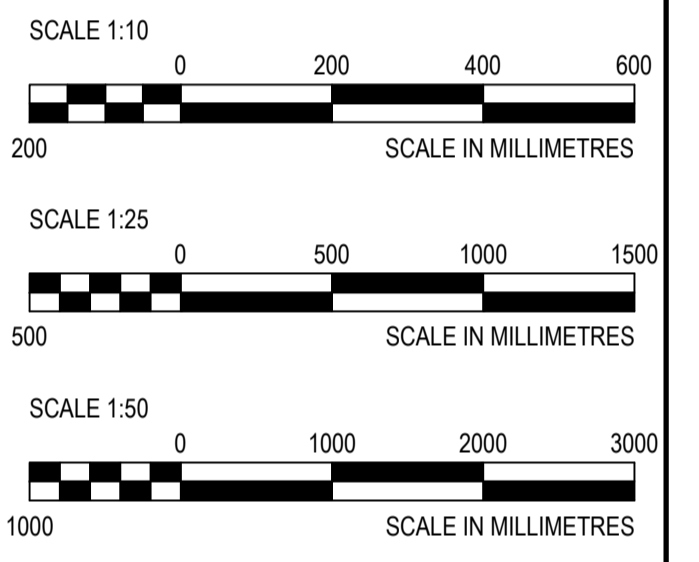


**FOUNDATION & FLOOR FRAMING PLAN**  
SCALE: 1:50

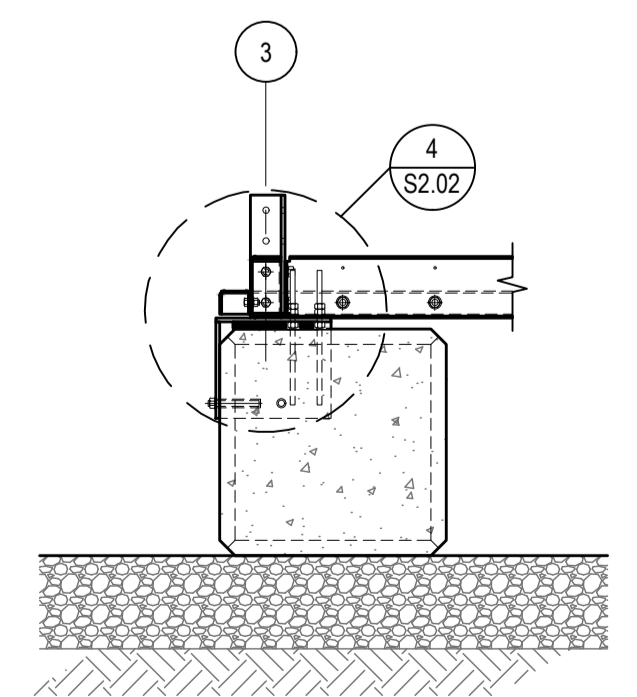


**1 DETAIL**  
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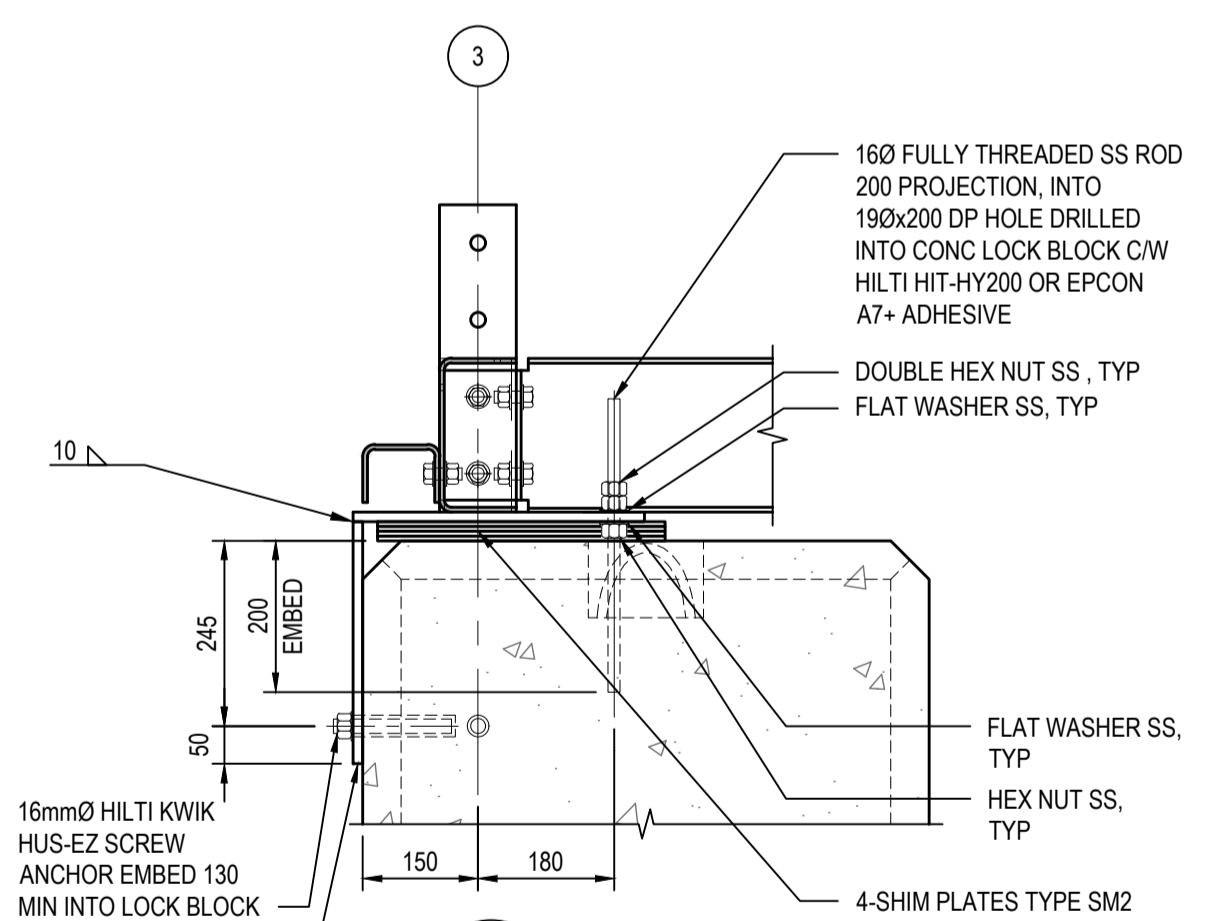
NOTE: DEPENDING ON THE ACCURACY OF THE LOCK BLOCK LEVEL CONDITIONS, THE CONTRACTOR SHALL ADJUST THE HEIGHT OF THE LOCK BLOCKS IF NECESSARY BY CONSOLIDATING EXTRA GRAVEL FILL BELOW THE BLOCKS AS REQUIRED AND PREPARE THE NON-SHRINK GROUT USED BELOW EACH COLUMN BASE TO MAINTAIN FLOOR LEVEL. THE CONTRACTOR SHALL ALSO FINE ADJUST THE HORIZONTAL POSITION OF THE LOCK BLOCKS AS REQUIRED TO ACCURATELY INSTALL THE STRUCTURAL FLOOR FRAMING.



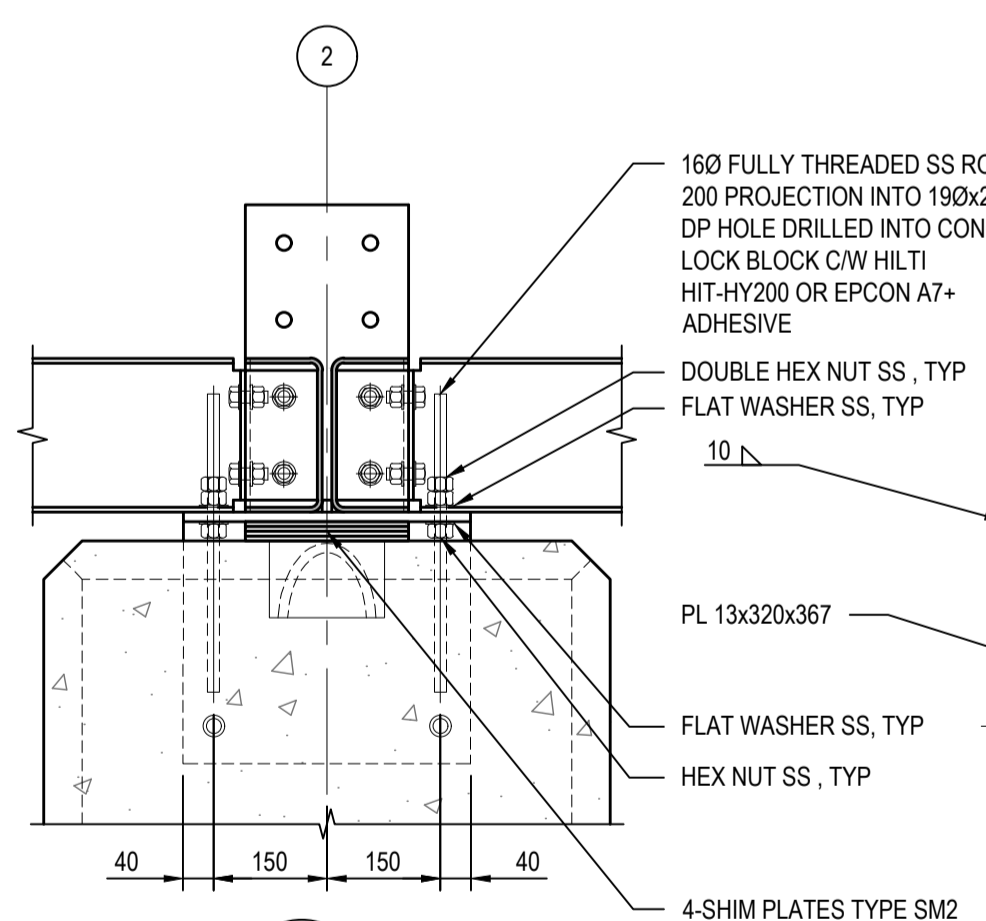
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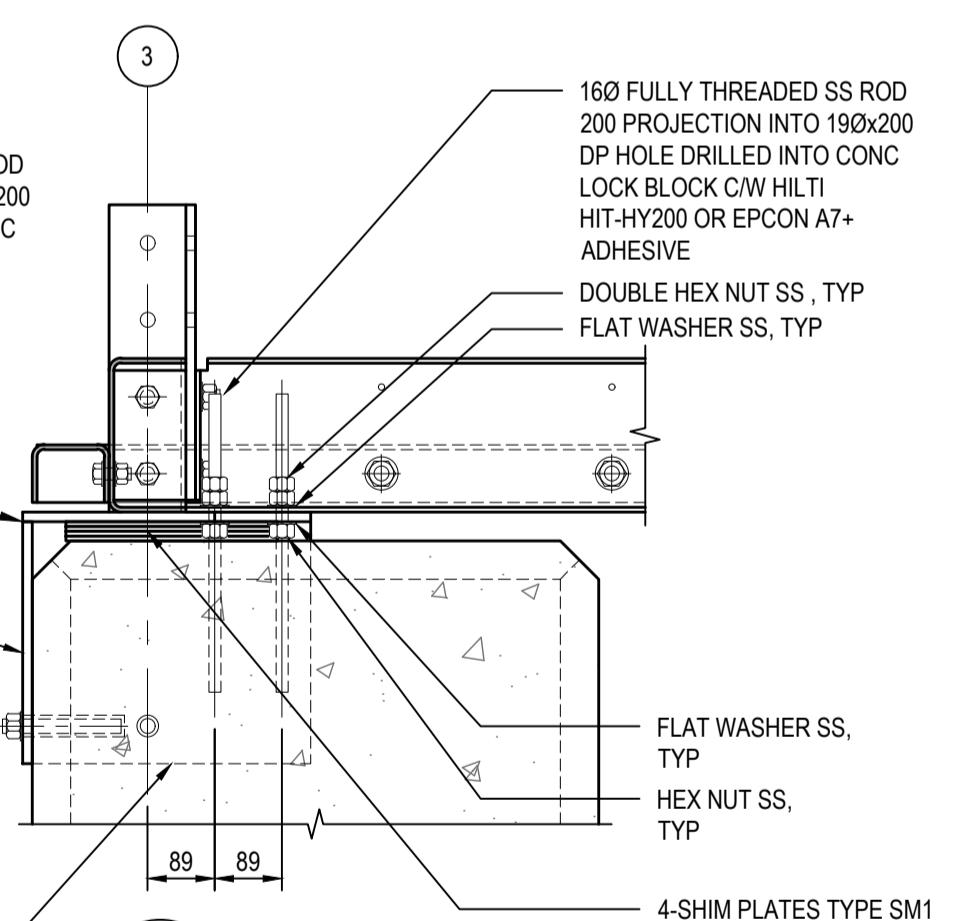
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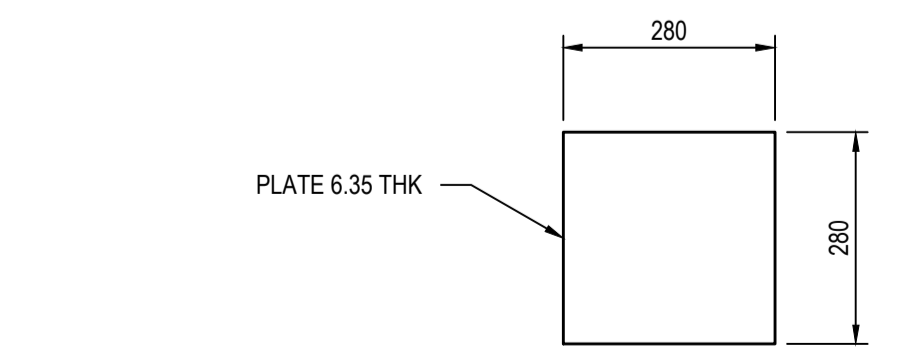
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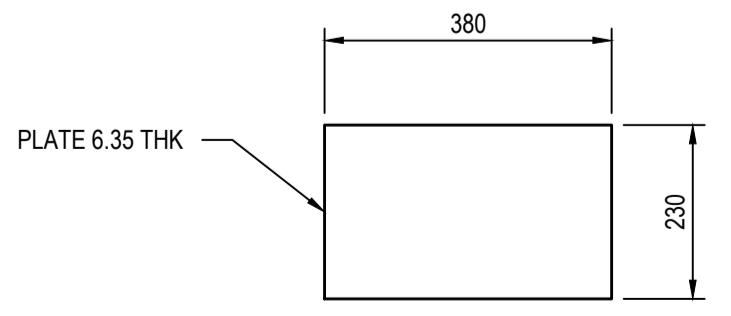
**3 DETAIL**  
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**4 DETAIL**  
SCALE: 1:10



**5 SHIM PLATE TYPE SM1**  
SCALE: 1:10



**6 SHIM PLATE TYPE SM2**  
SCALE: 1:10

2	TENDER	2018.08.16
1	REVIEW	2018.07.24

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**4160 Marine Dr., West Vancouver**  
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CP  
Drawn by/Dessiné par  
RCM/2017.12.08  
PWGSC Project Manager/Administrateur de Projets TPSGC  
Regional Manager, Architectural and Engineering Services  
Gestionnaire régionale, Services d'architectural et de génie, TPSGC  
PREETIPAL FAUL

Drawing Title/Titre du dessin  
**FLOOR FRAMING PLAN  
DETAILS AND SECTIONS**

Project No./No. du projet <b>PROJECT_NO</b>	Sheet/Feuille <b>S2.02</b>	Revision no./La Révision no. <b>1</b>
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