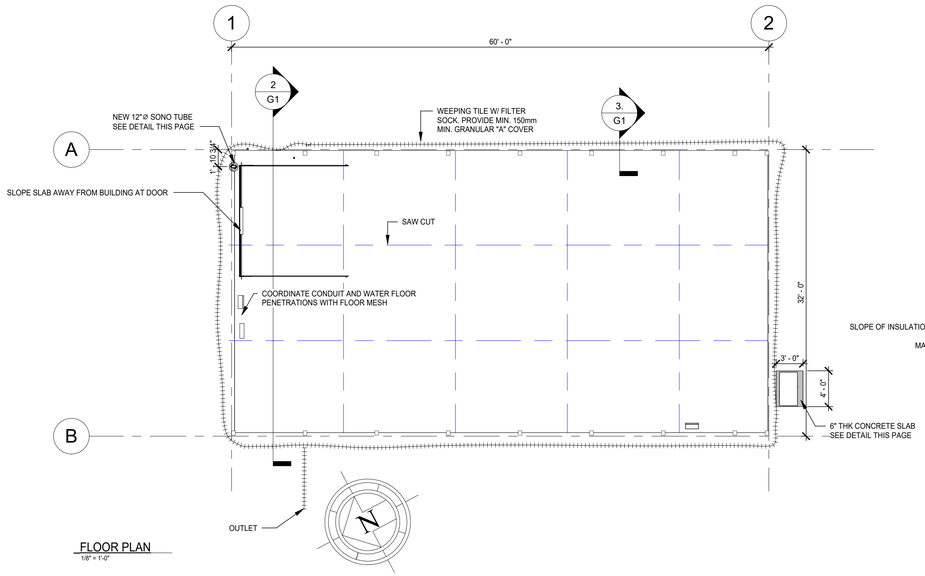
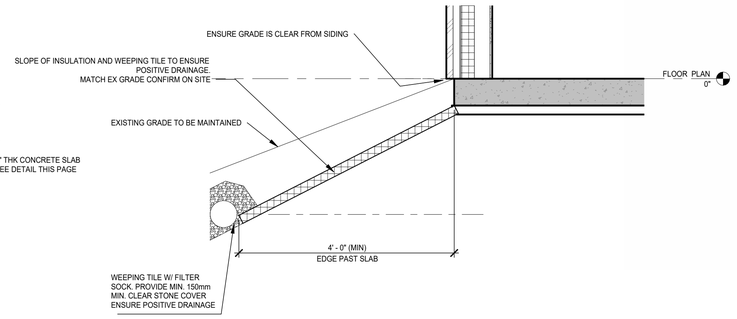
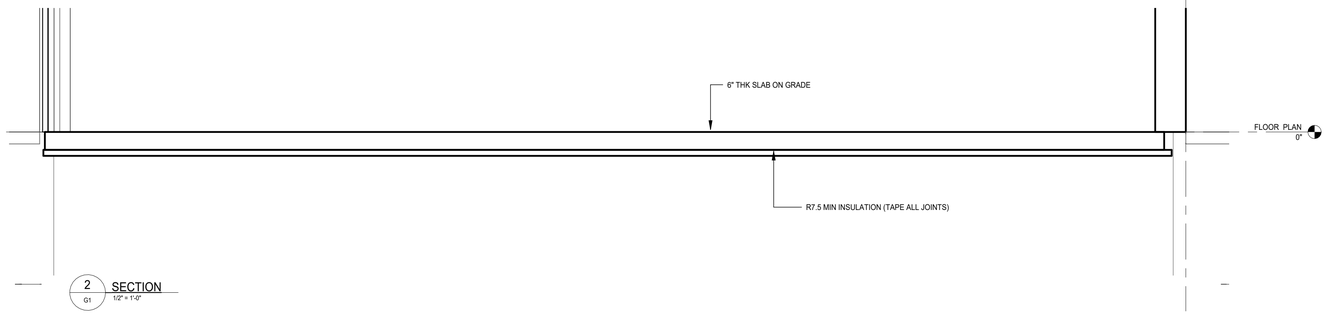


FLOOR PLAN
1/8" = 1'-0"

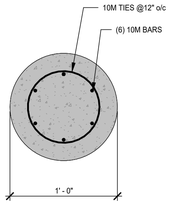


3. SECTION
G1 3/4" = 1'-0"

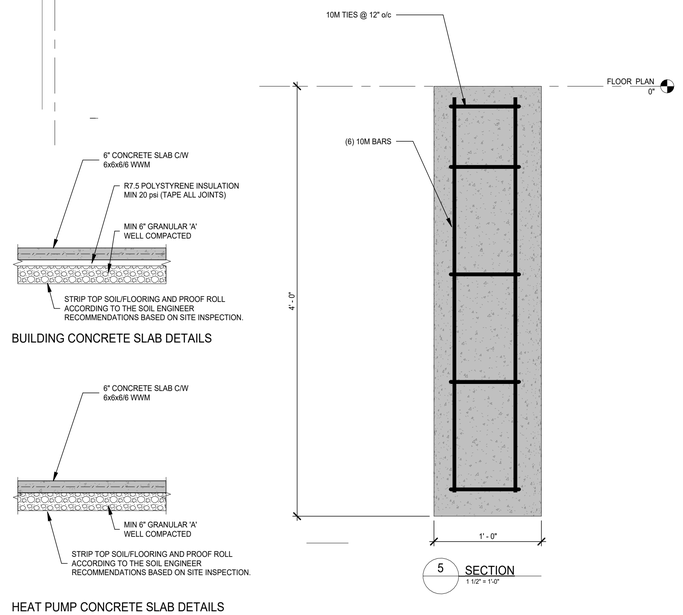


2 SECTION
G1 1/2" = 1'-0"

KEY PLAN IMAGE TAKEN FROM WOODSTOCK GLIMR



SONO TUBE PLAN
1 1/2" = 1'-0"



5 SECTION
1 1/2" = 1'-0"

BUILDING CONCRETE SLAB DETAILS

HEAT PUMP CONCRETE SLAB DETAILS

BAR LAP SPLICES UNLESS NOTED OTHERWISE			
BAR SIZE	CONCRETE STRENGTH		
	25Mpa	30Mpa	35Mpa
10M	23" (580mm)	20" (520mm)	16" (420mm)
15M	32" (810mm)	29" (730mm)	27" (685mm)
20M	39" (990mm)	35" (890mm)	34" (860mm)
25M	62" (1575mm)	57" (1440mm)	50" (1270mm)
30M	74" (1880mm)	68" (1730mm)	63" (1600mm)
35M	88" (2235mm)	81" (2060mm)	75" (1905mm)

CONCRETE COVER IN A NONCORROSIVE ENVIRONMENT		
(a) WHEN CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH (ie: FOOTINGS, FOUNDATION WALLS, PIERS)	3" (76mm)	
EXPOSURE TO EARTH OR WEATHER	EXPOSED	NOT EXPOSED
(b) ALL CONCRETE CAST IN CONCRETE FORMS FOR:		
(i) BEAMS, GIRDERS, COLUMNS, AND PILES PRINCIPAL REINFORCEMENT, No. 35 & SMALLER	2" (50mm)	1 9/16" (40mm)
TIES, STIRRUPS, AND SPIRALS	1 9/16" (40mm)	1 3/16" (30mm)
(ii) SLABS, WALLS, JOIST SHELLS AND FOLDED PLATES: No. 20 AND SMALLER	1 3/16" (30mm)	13/16" (20mm)
(c) FOR BARS WITH A DIAMETER d_b LARGER THAN LISTED ABOVE, THE COVER SHALL BE AT LEAST; BUT NOT BE MORE THAN 2 3/8" (60MM)	1.5 d_b	1.0 d_b
COVER TYPICAL AS PER THIS CHART UNLESS NOTED OTHERWISE ON PLANS & DETAILS		

GENERAL NOTES (ALL DESIGN REFERENCE STANDARDS TO CURRENT EDITION)
GENERAL:
1. ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE, ONT. REG. 332/12.
2. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH APPLICABLE LEGISLATION AND REGULATIONS INCLUDING BUT NOT LIMITED TO, OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS.
3. THE CONTRACTOR SHALL AS PART OF HIS WORK CHECK AND VERIFY ALL DIMENSIONS AND ELEVATIONS AND REPORT ANY DISCREPANCIES TO THE CONSULTANT BEFORE PROCEEDING WITH CONSTRUCTION.
4. SAFEGUARD AND PROTECT ALL EXISTING STRUCTURES, SERVICES AND UTILITIES WHICH MAY BE AFFECTED BY THE WORK OF THIS CONTRACT.
5. OWNER/CONTRACTOR TO NOTIFY ENGINEER FOR INSPECTION DURING CONSTRUCTION. SPH ENGINEERING NOT RESPONSIBLE FOR INSPECTIONS NOT PERFORMED DUE TO NON-NOTIFICATION.
6. AS PART OF THIS DEMOLITION / CONSTRUCTION WORK, ANY ELECTRICAL & MECHANICAL SERVICES THAT WILL BE EFFECTED BY THE SCOPE OF THIS WORK IS REQUIRED TO BE REMOVED, REINSTALLED &/OR RELOCATED. THE CONTRACTOR IS TO CONFIRM ON SITE ALL REQUIREMENTS & COORDINATE WITH OWNER DURING ANY SCHEDULED SHUTDOWNS, IF REQUIRED. COORDINATE WITH ELECTRICAL & MECHANICAL DESIGN DRAWINGS.
7. LOCATION AND DEPTH OF ALL EXISTING UTILITIES TO BE DETERMINED BY THE CONTRACTOR. REPORT ANY CONFLICTS FOUND BETWEEN EXISTING UTILITIES AND PROPOSED SITE WORKS TO SPH ENGINEERING FOR REVIEW. ADDITIONAL INVESTIGATION MAY BE REQUIRED TO CONFIRM LOCATION/DEPTH OF EXISTING UTILITY.

EXCAVATION AND BACKFILL:
1. ALL FOUNDATIONS SHALL BEAR ON UNDISTURBED, NATIVE SOIL OR ENGINEERED FILL HAVING AN ALLOWABLE BEARING CAPACITY AS FOLLOWS:
   A. SPREAD & STRIP FOUNDATIONS:
      a. SLS = 3000 psf (ASSUMED)
      b. ULS = 4200 psf (ASSUMED)
      • SOIL CONDITIONS TO BE VERIFIED @ TIME OF CONSTRUCTION
2. ALL EXCAVATIONS SHALL BE COMPLETELY DEWATERED DURING CONSTRUCTION TO PREVENT UPLIFT OF THE STRUCTURE. KEEP EXCAVATION DEWATERED TO AT LEAST 12" (300mm) BELOW LOWEST ELEVATION OF EXCAVATION.
3. PLACE ALL CONCRETE IN THE DRY
4. CONTINUOUSLY PROTECT THE BOTTOM OF THE EXCAVATION & ALL FOUNDATIONS ON THE GROUND FROM DAMAGE DUE TO FROST & GROUNDWATER PRESSURE. MINIMUM FOOTING ELEVATION BELOW FINISHED GRADE TO BE 4'-0" U.N.O.
5. OWNER &/OR CONTRACTOR TO ARRANGE TO HAVE SOILS CONSULTANT TO REVIEW & CONFIRM BEARING CAPACITY @ ALL FOOTING LOCATIONS PRIOR TO PLACING CONCRETE.
6. PROVIDE 6" (150mm) MINIMUM GRANULAR 'A' UNDER SLAB ON GRADE & COMPACT TO 100% SPMDD U.N.O. IN SOILS REPORT.
7. BACKFILL EXCAVATION WITH GRANULAR 'B' & COMPACT MAXIMUM 8" (200mm) LAYERS TO 98% SPMDD U.N.O. IN SOILS REPORT.
8. DO NOT PLACE BACKFILL AGAINST WALLS RETAINING EARTH (OTHER THAN CANTILEVER WALLS) UNTIL FLOORS AT TOP AND BOTTOM OF WALLS ARE PLACED AND HAVE ATTAINED SPECIFIC DESIGN STRENGTH.
9. FILL REQUIRED ON BOTH SIDES OF FOUNDATION WALLS SHALL BE PLACED AND COMPACTED SIMULTANEOUSLY ON BOTH SIDES TO EQUALIZE SOIL PRESSURE.

CONCRETE:
1. DO CONCRETE WORK IN ACCORDANCE WITH CSA A23.1 AND TESTING TO CSA A23.2.
2. MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS TO BE:
   A. 32 MPa C - 2 FOR UNREINFORCED EXTERIOR CONCRETE
   B. 35 MPa C - 1 FOR REINFORCED EXTERIOR CONCRETE
   C. 30 MPa FOR FOOTINGS, PIERS, SLAB ON GRADE & FOUNDATION WALLS
3. CONCRETE FORM WORK AND FALSE WORK MATERIALS SHALL CONFORM TO CSA A23.1.
4. ALL CONCRETE SHALL BE PLACED IN THE DRY.
5. CONCRETE EXPOSED TO WEATHER SHALL HAVE 5-8% AIR ENTRAINMENT.
6. SLAB ON GRADE: PROVIDE 1/8" WIDE x 1/4 OF SLAB THICKNESS DEEP SAWCUTS. MAXIMUM SPACING TO BE [25 x SLAB THICKNESS] OR 15'(4.5m) GRID, WHICHEVER IS LESS, OR AS INDICATED ON FOUNDATION PLAN.
   A. NOTE: DO NOT SAWCUT SLAB ON COLUMN LINES FOR PRE-ENGINEERED TYPE BUILDINGS THAT HAVE TIE RODS PARALLEL TO THE COLUMN LINE CAST IN CONCRETE SLAB.
7. WINTER CONSTRUCTION PROTECTION PROCEDURES TO BE OBSERVED.
8. CONCRETE DESIGN TO CSA A23.3 - "DESIGN OF CONCRETE STRUCTURES"
9. ISOLATION JOINT MATERIAL SHALL BE MIN. 10mm THICK ASPHALT IMPREGNATED FIBREBOARD, STERNBOARD BY STERNSON OR EQUAL.
10. SLAB ON GRADE TO SLOPE TO DRAINS U.N.O.

REINFORCEMENT:
1. DO REINFORCEMENT WORK IN ACCORDANCE WITH CSA A23.1.
2. REINFORCEMENT STEEL SHALL CONFORM TO CAN/CSA G30.18, STRENGTH TO BE 400 MPa.
3. WELDED STEEL WIRE FABRIC SHALL CONFORM TO ASTM A1064/A1064M (6" SPACING) AND ASTM A497/A497M (12" SPACING). PROVIDE IN FLAT SHEETS ONLY.
4. CONTRACTOR TO CONTACT SPH ENGINEERING INC TO ARRANGE FOR INSPECTION OF REINFORCING BEFORE PLACING CONCRETE.

EPOXY SYSTEM NOTES:
1. EPOXY SYSTEM FOR DOWELS AND ANCHORS TO BE HILTI HIT HY 200 OR FOR WINTER CONDITIONS USE HILTI HIT-ICE. HILTI HIT HY 270 FOR CONCRETE BLOCK WALLS AND PRECAST CONCRETE SLABS. ANCHOR MATERIAL TO BE MINIMUM GRADE 36ksi AND TO MEET THE REQUIREMENTS OF CSA G40.20/G40.21. USE 316 STAINLESS ROD, GRADE F593G FOR EXTERIOR LOCATIONS.

SEISMIC DESIGN DATA:
Sa (0.2) = 0.251
Sa (0.5) = 0.242
Sa (1.0) = 0.143
Sa (2.0) = 0.0677
PGA = 0.147

SITE SOIL CONDITION - SITE CLASS D

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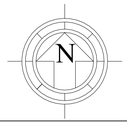
NORTH ARROW



REV.	BY	DESCRIPTION	DATE
REVISIONS			

2	TENDER	2026-05-28
1	90% CLIENT REVIEW	2025-09-19
No.	DESCRIPTION	DATE
ISSUED		

SPH ENGINEERING INC.
REAL WORLD ENGINEERING SOLUTIONS
485037 SWEABURG ROAD
WOODSTOCK, ONTARIO
N4S 7V6
TEL: 519-539-5700
www.spheng.com

CLIENT

BEACHVILLE DISTRICT MUSEUM

PROJECT

BARN INSULATING AND HEATING

DRAWING

PLAN VIEW SECTIONS AND DETAILS

SCALE	DRAWN	CHECKED
AS NOTED	AA	LH
DATE	PROJECT NUMBER	DRAWING
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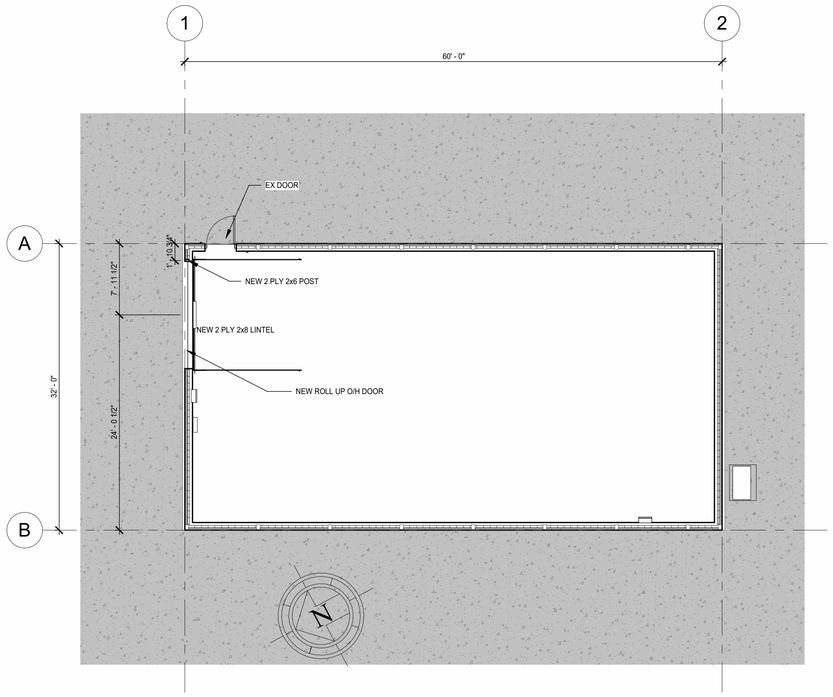
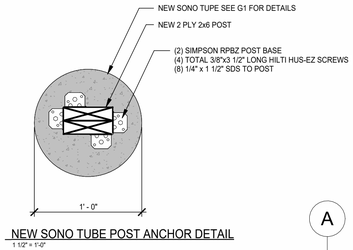
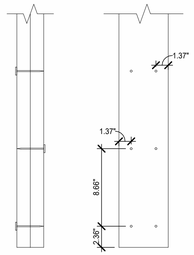


FLOOR PLAN
1/8" = 1'-0"

KEY PLAN IMAGE TAKEN FROM WOODSTOCK GLIMR



NEW SONO TUBE POST ANCHOR DETAIL
1 1/2" = 1'-0"



2x6 POST
(2) 2x6'S - 3" NAILS

MULTI-PLY BEAMS (TOP LOADED) AND LINTELS:
INDIVIDUAL MEMBERS SHALL BE NAILED TOGETHER WITH DOUBLE ROW OF NAILS NOT LESS THAN 3 1/2" IN LENGTH, SPACED NOT MORE THAN 17 3/4" APART IN EACH ROW WITH THE END NAILS LOCATED 4" TO 5 7/8" FROM THE END OF EACH PIECE UNLESS NOTED OTHERWISE. ALTERNATE NAILS EACH SIDE OF MEMBERS.
(2) PLY MEMBERS - 3 1/2" NAILS, CLINCH ENDS
(3) PLY MEMBERS - 4 1/2" NAILS
(4) PLY MEMBERS - 6" NAILS

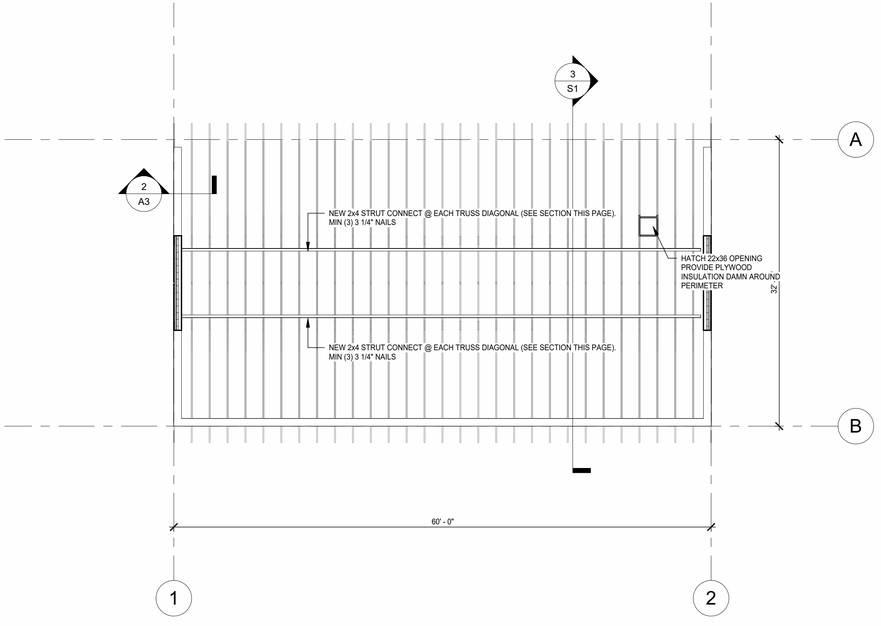
WOOD CONSTRUCTION GENERAL NOTES:
- **ALL LOAD BEARING MEMBERS TO BE SPF #1 OR 2 OR BETTER.**
- ALL WOOD FRAMING TO BE DONE IN ACCORDANCE WITH OBC.
- ALL EXTERIOR WOOD TO BE PRESSURE TREATED LUMBER WITHOUT INCISING. PAINT ALL CUT ENDS WITH TREATMENT PAINT
- ALL HANGERS AND TIE DOWN CLIPS TO BE GALVANIZED.
- PROVIDE JOIST BRIDGING TO OBC REQUIREMENTS.
- PROVIDE STUD BRIDGING TO OBC REQUIREMENTS.
- PROVIDE MINIMUM (2) STUDS FOR LINTEL TO BEAR ON UNLESS NOTED OTHERWISE.
- S.S.T. DENOTES: SIMPSON STRONG TIE.
- WOOD FRAMING CONNECTIONS AS PER OBC TABLE 9.23.3.4 NAILING FOR FRAMING.

BUILDING ROOF LOADS
DEAD LOAD: BUILDING SELF WEIGHT 15PSF +5 PSF COLLATERAL

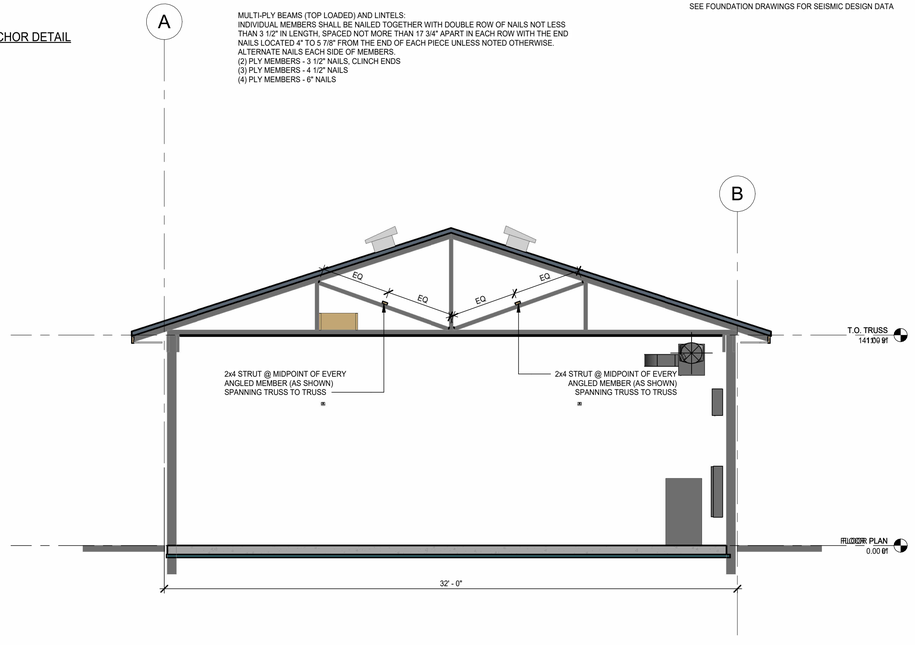
CITY BEACHVILLE GROUND SNOW LOAD: 40 PSF
RAIN LOAD: 8.35 PSF
SNOW LOAD: 0.55x40 + 8.35 = 30 PSF

q(1/50) = 9.2 PSF

SEE FOUNDATION DRAWINGS FOR SEISMIC DESIGN DATA



JOIST FRAMING PLAN
1/8" = 1'-0"



3 / S1 SECTION
1/4" = 1'-0"

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LICENSED PROFESSIONAL ENGINEER
2026-05-28
L. D. W. HEATHER
100570968
PROVINCE OF ONTARIO

NORTH ARROW

REV.	BY	DESCRIPTION	DATE
REVISIONS			
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