

PATTERSON ENGINEERING

Structural Report



Prepared for: Mr. Mark Makowski

Address:

12960 Laforet Beach Road,

Tilbury, Ontario,



Project Number: 2024-015

June 18, 2024

## 1.0 Introduction

In May 2024, Patterson Engineering was contacted by Mr. Mark Makowski, the owner of 12960 Laforet Beach in Lakeshore, Ontario, to provide a structural assessment of the existing footings of an existing legal non-conforming building on the property. The existing building is a storage building (non-dwelling) with an original portion on the East side and a lean-to portion on the West side. The proposed works to the existing building include raising the existing walls and installing a new wood trussed roof while keeping the existing building footprint the same.

A site inspection was carried out by Mr. Christopher Patterson, P.Eng. on May 27, 2024 that included an inspection of the existing foundation walls and footings as well as a visual survey of the property. Attached to this report are the official correspondence from the Town of Lakeshore and with the Essex Region Conservation Authority as well as the wooden truss manufacturer calculations/printouts and drawings from Rivard Engineered Products Inc., the building drawing set by Dave Sherle dated August 23, 2023 (BCIN: 24711), and a photograph log detailing the conditions of the property on the day of the site inspection by Patterson Engineering.

## 2.0 Structural Assessment

The original portion of the building was a block masonry walled farm storage building with a stick framed roof, 6 metre wide by 12 m long with an approximately 400 mm thick by 500 mm wide poured concrete footing. The existing concrete footing was in fair to good condition with no signs of deterioration, damage or cracking. The block masonry foundation walls were in good condition with minimal signs of deterioration and damage. The proposed works for the original portion of the building include new 2.1 metre high 2x6 stud framed knee walls on top of the exterior (North, East and South) block masonry walls. The interior (West) block masonry wall will be removed for the top 1.2 metres and buried underneath a proposed concrete floor slab.

The lean-to portion of the building was built with a block masonry foundation wall and a poured concrete footing with stud walls and sloped roof rafters. The concrete footing was 400 mm thick by 450 mm wide and appeared to be in fair to good condition with no signs of deterioration or cracking. The proposed work for the lean-to portion at the property includes new block masonry units on top of the existing block masonry walls and 2x6 knee walls on top of the new concrete block units. The purpose of the new concrete block units are to bring the lean-to block masonry foundation walls above the proposed grade as the grade is proposed to be raised on the property to ensure flood and ground/storm waters are directed away from the building. The number of block units added to the existing lean-to block masonry foundation wall should be limited to the minimum number of blocks required to reach above the proposed grade – approximately 1.2 metres. This is to ensure the additional weight on the existing lean-to footings is equal to or less than the existing weight on the existing lean-to concrete footings. The proposed 2x6 knee wall height above the proposed block masonry units should be maximized (2.1 metres to 3.35 m) to reduce the additional wall loading. Additionally, any proposed grade raising should be discussed with your neighbours and retaining walls installed (if necessary) to ensure water does not drain onto the neighbouring properties.

Based on the structural assessment completed by Patterson Engineering and in carrying out loading calculations for the existing footings for the original and lean-to portion, it is our professional opinion that the existing footings are adequate of carrying the new loadings, granted the number of block unit courses on top of the existing lean-to block masonry units is limited to 1.2 metres.

### 3.0 Disclosures and Conditions

This report was prepared based on our professional opinion and the information available at the time of preparation. This report is to be read and used in its entirety.

This report was prepared solely for the use of our client, Mr. Mark Makowski. We are not responsible for damages as a result of third parties using this report, and only our client and

the respective government agencies relating to the approval of the building at the subject property shall use any part of this report. The contract for this report was for the work completed until the submission of this report. We are not responsible for any further work, investigation, or court proceedings that come in light of this report. This report shall not be used in court without the express written consent of the author.

If any other information is required regarding this project, building or property please contact us.



Chris Patterson, P.Eng.

Patterson Engineering





PATTERSON ENGINEERING

Structural Photo Log



12960 Laforet Beach Road,  
Lakeshore, Ontario



1.0 Photo Log – May 27, 2024



Figure 1 – Subject property, looking north.



Figure 2 – Exposed foundation hole on the West side of the building (lean-to portion).





Figure 3 – Exposed footing on the West wall of the lean-to portion.



Figure 4 – Footing depth below grade.





Figure 5 – Exposed foundation hole on the East side of the building (original portion).



Figure 6 – Exposed footing on the East side of the original portion of the building.





Figure 7 – Exposed footing on the East side of the building.



Figure 8 – Subject property, looking South.





Figure 9 – Inside of the lean-to portion of the building.



April 26, 2024

RE: Application for Minor Variance A/06/2024  
Brian and Katherine McGuinness  
Subject Property: 12960 Laforet Beach Road  
Roll: 740-02900

The Municipality of Lakeshore has received an application for permission to enlarge a legal non-conforming building under Subsection 45(2)(a)(i) of the Planning Act. The subject property is located on the north side of Laforet Beach Road, north of the VIA Rail Canada Inc. right-of-way, near the corner of Laforet Beach Road and Gracey Sideroad, known municipally as 12960 Laforet Beach Road. The subject property is zoned "Residential Waterfront – Lake St. Clair" (RW2) in the Lakeshore Zoning By-law and designated "Waterfront Residential" in the Lakeshore Official Plan.

The subject property is approximately 0.37 acres in area with approximately 16.2 metres of frontage along Laforet Beach Road. There is an existing building used for personal storage without a dwelling on the subject property, which is considered to be a legal non-conforming building/use.

The building is in poor condition and the applicant is seeking to renovate the building. As part of the renovation plans, the applicant is seeking permission from the Committee of Adjustment to enlarge the legal non-conforming building. The renovation includes new walls/new roof truss system that will result in the building having a height of 22 feet 1.25 inches (6.74 metres) from proposed grade to "top of gambrel truss". The existing building is 15 feet (4.57 metres) to "top of gambrel truss". The building will remain in the same building footprint on the property as it currently exists following the renovation. One of the four block foundation walls above proposed grade will be new. This is to eliminate the existing 10 feet by 40 feet lean-to in favour of the new walls/new roof truss system that will span over the entire 30 foot width of the building.

The applicant states that: the building is only used for storage for a cottage located on a different property. Due to the structure being below grade, snow melt and ground water runoff cause flooding in the spring when the existing sump pump is overloaded. Additionally, the existing roof system is in need of repair, as the lean-to portion of the roof is leaking and is not designed for snow load. A map showing the location of the subject property and sketches of the proposal are attached.

The application will be presented to the Committee of Adjustment on May 22, 2024. All comments are to be forwarded to Planning Services by the following date for inclusion in the Planning Report.

**May 3<sup>rd</sup>, 2024**

Yours truly,  
Ian Search, Planner I  
[isearch@lakeshore.ca](mailto:isearch@lakeshore.ca)



### Legend

- Tax Parcel
- Address Label
- WorkingParcel
- Street Centreline
- <all other values>
- CNTY
- LAK
- - - PRIV
- PROV

1:1,554

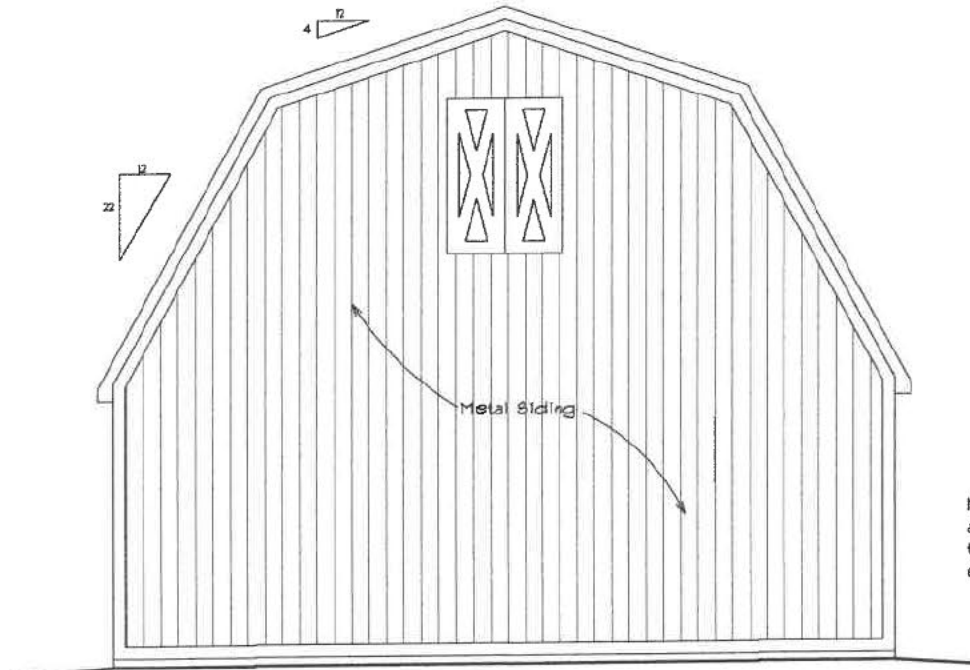


Notes:

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION

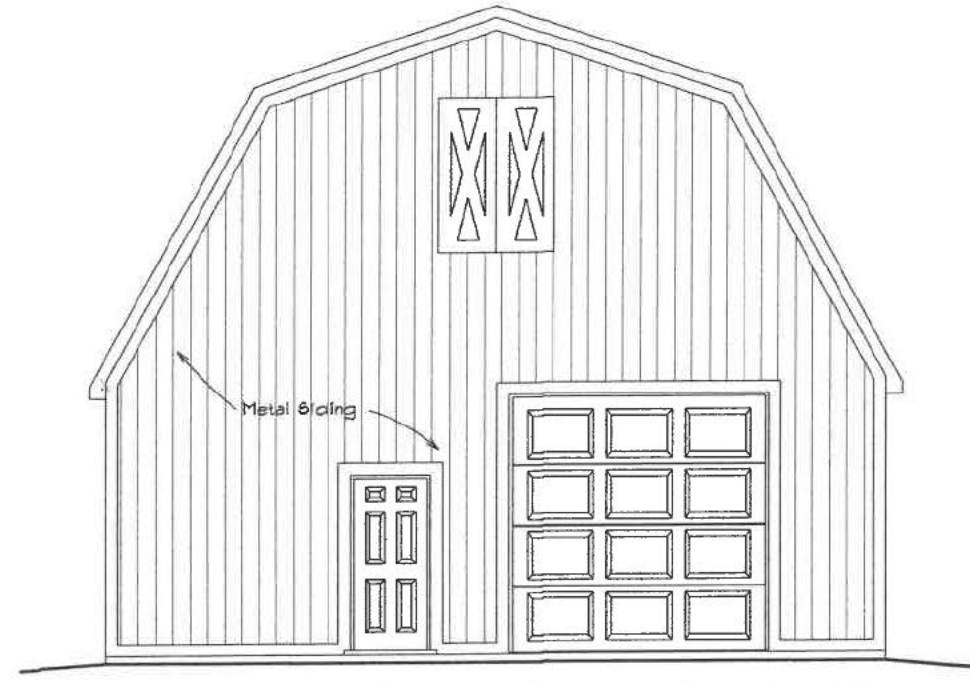


# Proposed Elevations for Renovation

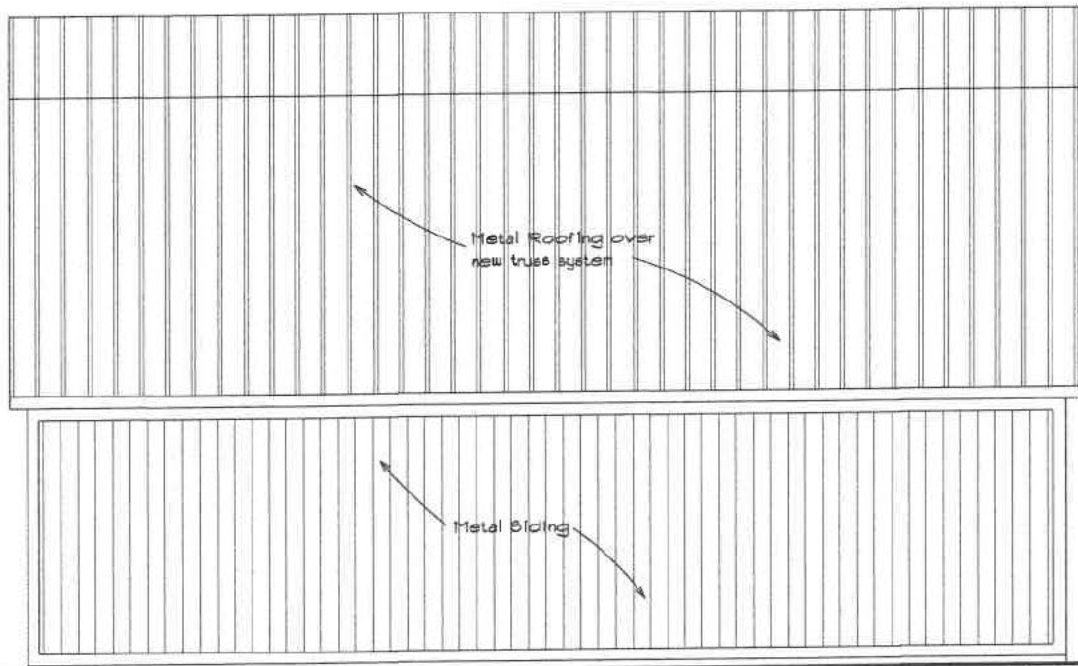


Proposed Rear Elevation (Lakeside)

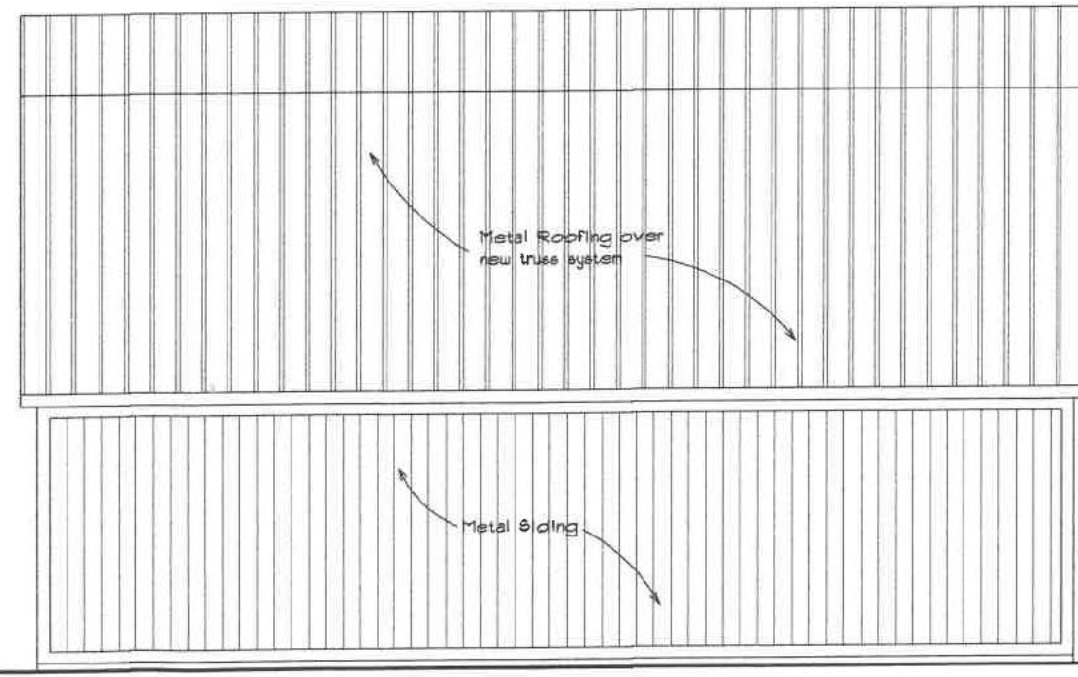
Note: grade line and lowest opening to structure to suit ERCA requirements



Proposed Front Elevation (Road Side)



Proposed Left Elevation



Proposed Right Elevation



- General Notes:**
- DO NOT SCALE DRAWINGS.
  - VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO BIDDING AND COMMENCEMENT OF WORK.
  - CO-ORDINATE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL TRADES PRIOR TO CONSTRUCTION.
  - SHOULD CONFLICTS AND/OR DISCREPANCIES ARISE REGARDING THESE DRAWINGS, NOTIFY THIS OFFICE IN WRITING PRIOR TO PROCEEDING WITH FURTHER CONSTRUCTION.
  - ALL WORK SHALL COMPLY WITH THE ONTARIO BUILDING CODE, FIRE CODE, ELECTRICAL CODE, PLUMBING CODE AND LOCAL BY-LAWS.
  - ENGINEERED WOOD PRODUCTS AND ROOF TRUSS COMPONENTS SUPPLIED FOR THIS PROJECT TO BE PROVIDED WITH SUPPORTING ENGINEERED DOCUMENTATION.
  - THESE DRAWINGS ARE COPYRIGHT PROTECTED AND ARE THE PROPERTY OF 1967102 ONTARIO LIMITED. THEY ARE NOT TO BE REPRODUCED BY ANY MEANS WITHOUT WRITTEN AUTHORIZATION.



Review and responsibility for the design work on behalf of the firm registered under subsection 2.17.4 of the Building Code. I am qualified and the firm is registered in the appropriate classes/categories.  
 Individual BCIN # 24711  
 Firm BCIN # 109094  
 Date: August 23, 2023  
 Signature: Dave Scherle

Date	No	Issued For

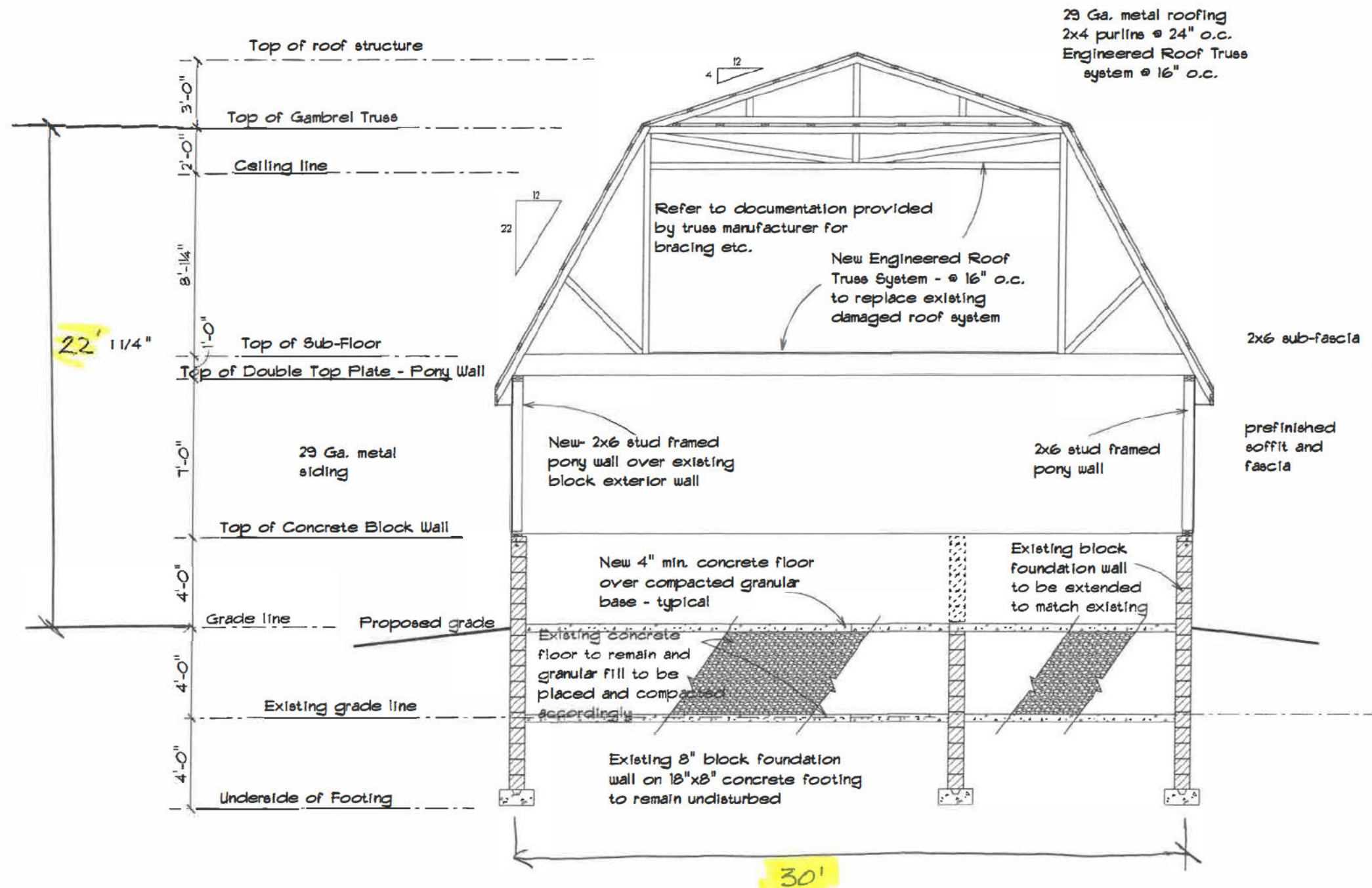
Project:  
**Proposed modifications and truss roof system for**  
**Mr. Mark Makowski**  
 12960 Lafone, Beach Rd. Lakeshore, ON

Drawing: **Proposed Elevations**

Date: July, 2023	Scale: 3/16" = 1'-0"
drawn by: ds	checked by:
Project #	Sheet #
	1   5



# Proposed Cross Section for Renovation



- General Notes:**
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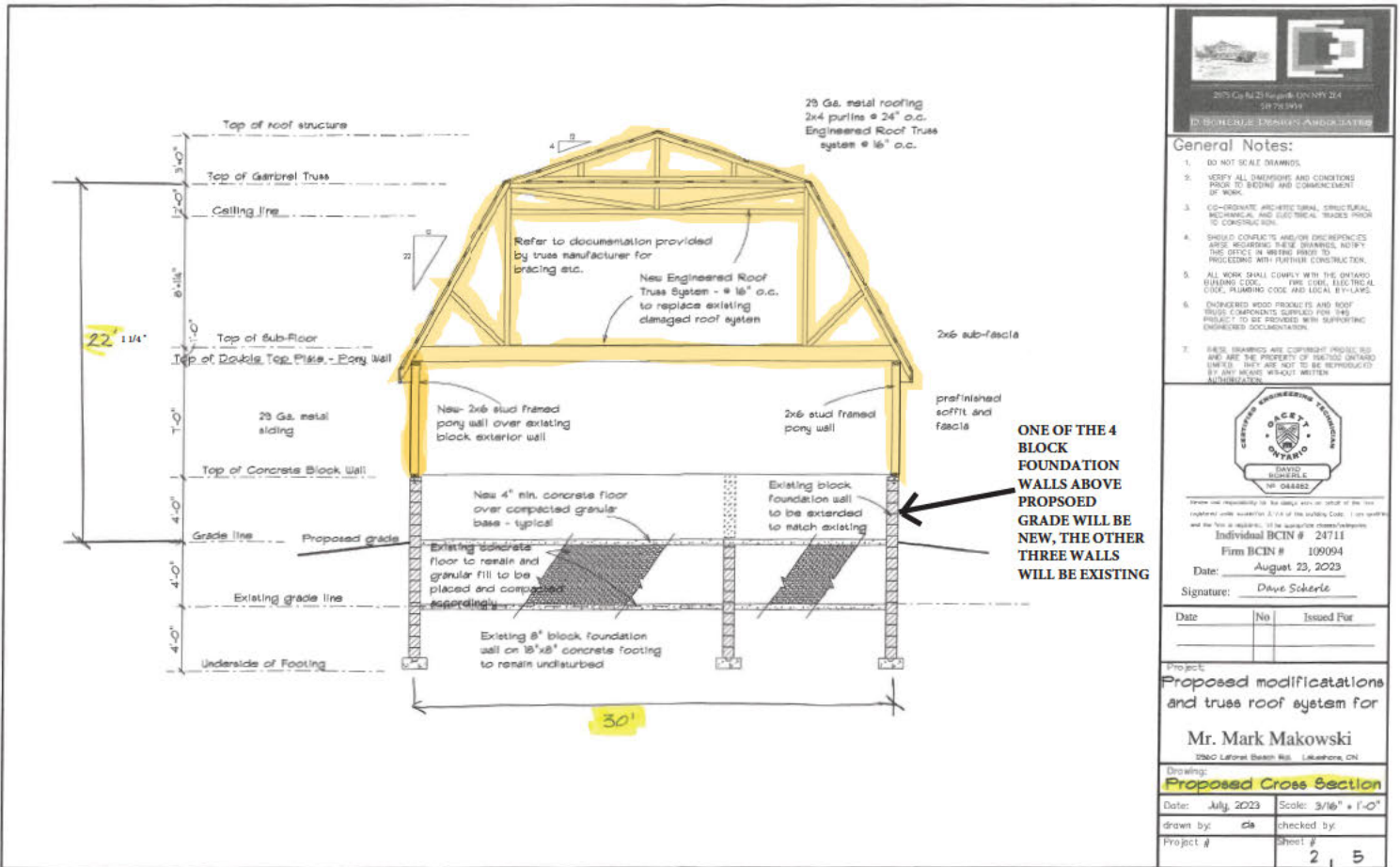
Review and responsibility for the design work on behalf of the firm registered under subsection 2.7.4 of the Building Code. I am qualified and the firm is registered in the appropriate classes/categories.  
 Individual BCIN # 24711  
 Firm BCIN # 109094  
 Date: August 23, 2023  
 Signature: Dave Scherle

Date	No	Issued For

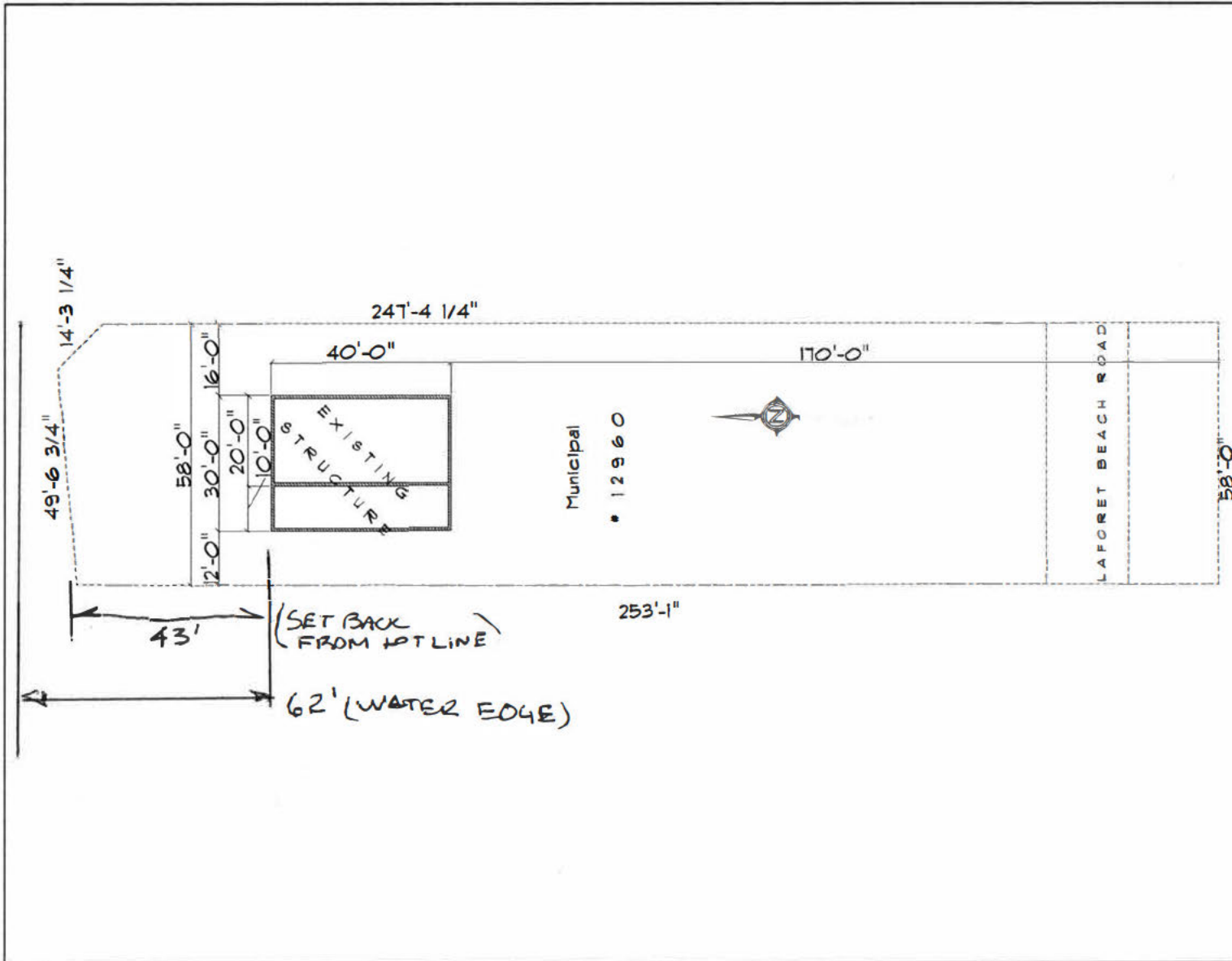
Project: Proposed modifications and truss roof system for  
**Mr. Mark Makowski**  
 12360 Lakeshore Beach Rd. Lakeshore, ON

Drawing: **Proposed Cross Section**  
 Date: July 2023 Scale: 3/16" = 1'-0"  
 drawn by: ds checked by:  
 Project # Sheet #  
 2 | 5

# Cross Section Drawing showing proposed new walls and new roof truss system highlighted in orange



Renovated building to be located in the same footprint of the existing building on the lot



- General Notes:**
- DO NOT SCALE DRAWINGS
  - VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO BEGINNING AND COMMENCEMENT OF WORK.
  - COORDINATE ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND ELECTRICAL TRADES PRIOR TO CONSTRUCTION.
  - SHOULD CONFLICTS ARISE BETWEEN MEMBERS OF THE DESIGN TEAM, THE ARCHITECT SHALL BE RESPONSIBLE FOR RESOLVING THEM. NOTIFY THE ARCHITECT IMMEDIATELY UPON DISCOVERY TO PREVENT FURTHER CONSTRUCTION.
  - ALL WORK SHALL COMPLY WITH THE CURRENT BUILDING CODE, FIRE CODE, ELECTRICAL CODE, PLUMBING CODE AND LOCAL BY-LAWS.
  - ENGINEERED WOOD PRODUCTS AND ROOF BRUSS CLAMPING'S SUPPLIES FOR THIS PROJECT TO BE PROVIDED WITH SUPPORTING INFLUENCED DOCUMENTATION.
  - THESE DRAWINGS ARE COPYRIGHT PROTECTED AND ARE THE PROPERTY OF DSD&P DESIGN LIMITED. THEY ARE NOT TO BE REPRODUCED BY ANY MEANS WITHOUT WRITTEN AUTHORIZATION.

**CERTIFIED ENGINEERING TECHNICIAN**  
**ONCE**  
**ONTARIO**  
**DAVID SCHELLE**  
**NO. 044462**

I hereby accept responsibility for the design work on behalf of the firm.  
 I am a member of the Ontario Association of Certified Engineering Technicians (OACETT) and the Professional Engineers and Geoscientists of Ontario (PEGO).  
 I am a member of the Ontario Association of Professional Technicians (OAPT).

Individual HCIN # 24711  
 Firm HCIN # 109094  
 Date: August 23, 2023  
 Signature: David Schelle

Date	No	Issued For

Project:  
**Proposed modifications and truss roof system for**  
**Mr. Mark Makowski**  
 1780 LaForet Beach Rd., Lakeshore, ON

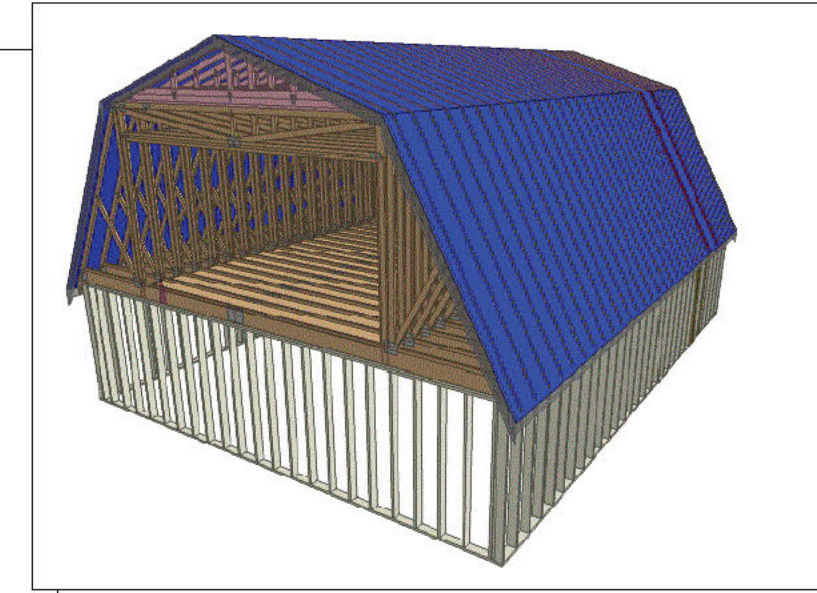
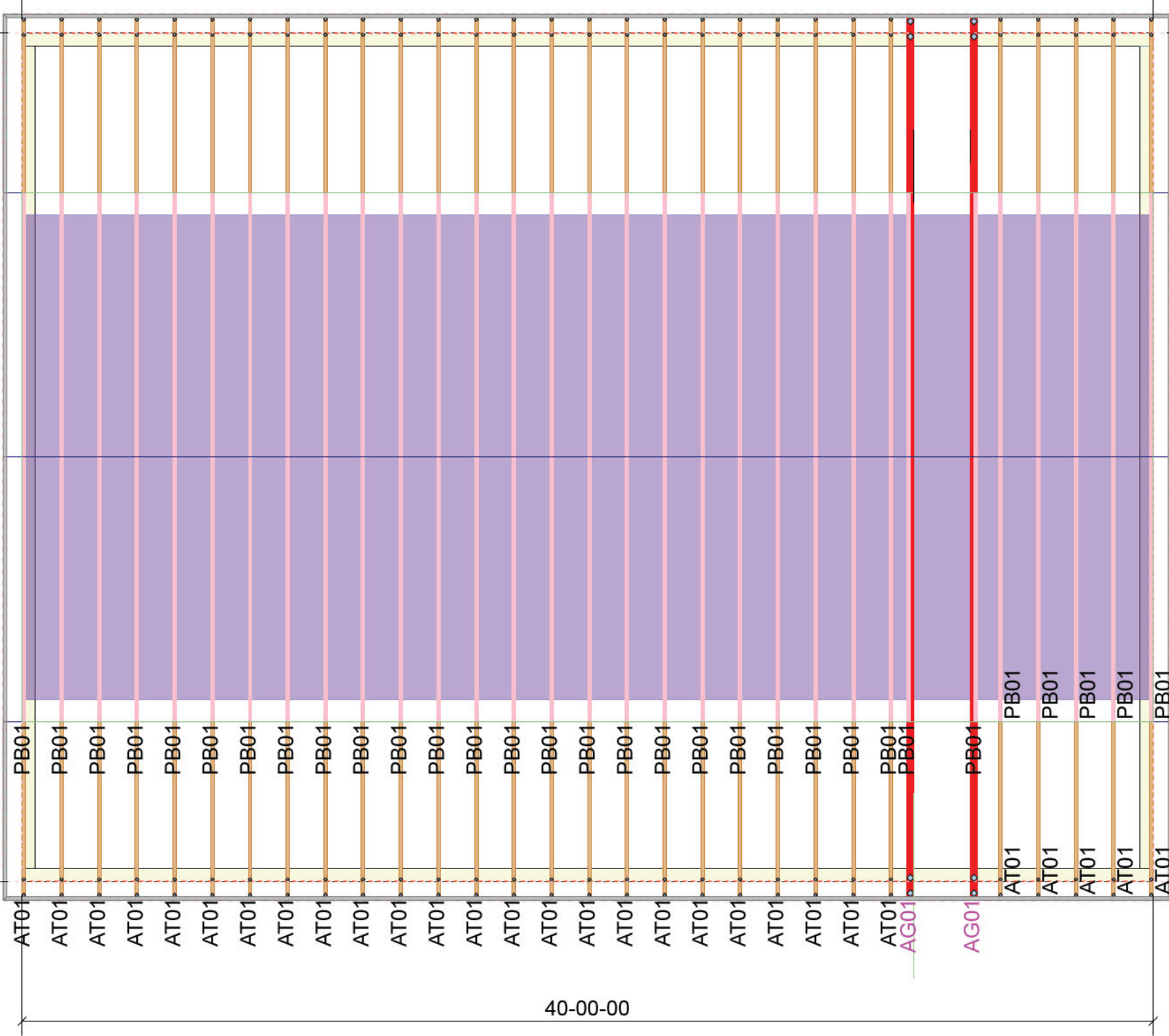
Drawing: **Site Plan**

Date: <b>July 2023</b>	Scale: <b>3/16" = 1'-0"</b>
drawn by: <b>ds</b>	checked by:
Project #	Sheet #
	<b>5   5</b>

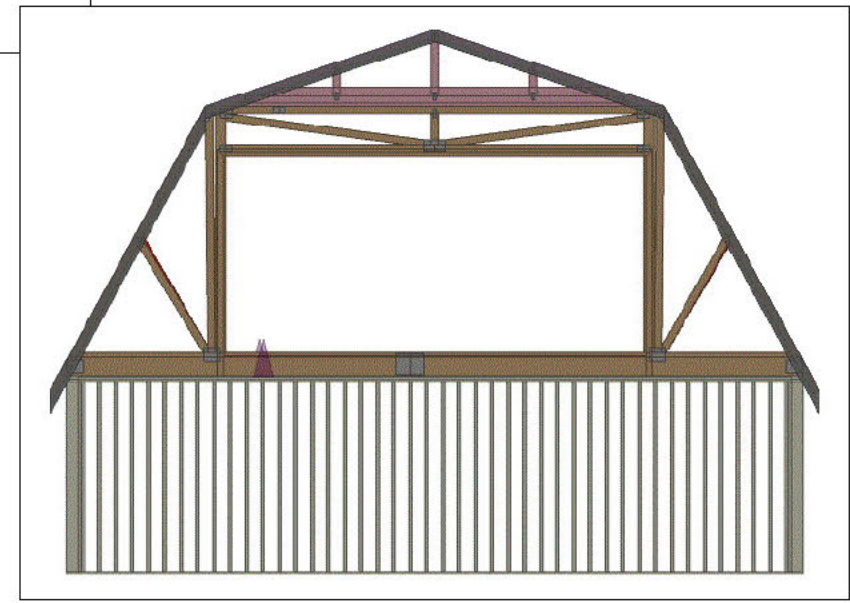


**General Notes:** \*\* CUTTING OR DRILLING OF COMPONENTS SHOULD NOT BE DONE WITHOUT CONTACTING SUPPLIER FIRST. CUSTOMER TAKES FULL RESPONSIBILITY FOR COMPONENTS IF CUT BEFORE AUTHORIZATION. \*\*\* GIRDERS MUST BE FULLY CONNECTED TOGETHER PRIOR TO ADDING LOADS. \*\*\* DIMENSIONS ARE READ AS: FOOT-INCH-SIXTEENTH

FRAMER MUST REFER TO PLANS WHILE SETTING COMPONENTS. DAMAGED COMPONENTS SHOULD NOT BE INSTALLED UNLESS TOLD TO BY THE COMPONENT MANUFACTURER.



30-00-00



THIS PLACEMENT PLAN HAS BEEN DEVELOPED FOR THE SPECIFICATION OF PRODUCTS BASED ON PROJECT INFORMATION PROVIDED. THE DESIGNER OF RECORD AND/OR BUILDER/FRAMER IS RESPONSIBLE TO ASSURE THESE DRAWINGS ARE COMPATIBLE WITH THE OVERALL PROJECT. FILL ALL NAIL HOLES IN HANGERS WITH PROPER SIZE NAILS(SEE HANGER SPECIFICATION SHEET IN PACKAGE)

TRUSS TO TRUSS CONNECTIONS ARE TOE-NAILED UNLESS NOTED OTHERWISE. REFER TO FINAL TRUSS ENGINEERING SHEETS FOR PLY TO PLY CONNECTIONS. PROVIDE ADEQUATE BEARING AND COLUMNS UNDER ALL GIRDERS.

**THIS IS A TRUSS PLACEMENT DIAGRAM ONLY.** These trusses are designed as individual components to be incorporated into the building design at the specification of the building designer. See individual design sheets for each truss designated on the placement plan drawing. The building designer is responsible for temporary and permanent bracing of the roof and floor systems and for the overall structure, the design of the truss support structure including headers beams walls and columns is the responsibility of the building designer.

Revisions	
00/00/00	Name
00/00/00	Name
00/00/00	Name
00/00/00	Name

Roof Area 1906 ft<sup>2</sup> sq.ft  
 Fascia Length 174.9 ft ft  
 Valley Length 0 ft ft  
 Hip Length 0 ft ft  
 Ridge Length 124 ft

**CUSTOMER:** Cash customer  
**TAG:**  
**MODEL:**  
**SITE ADDRESS:**  
 Ontario

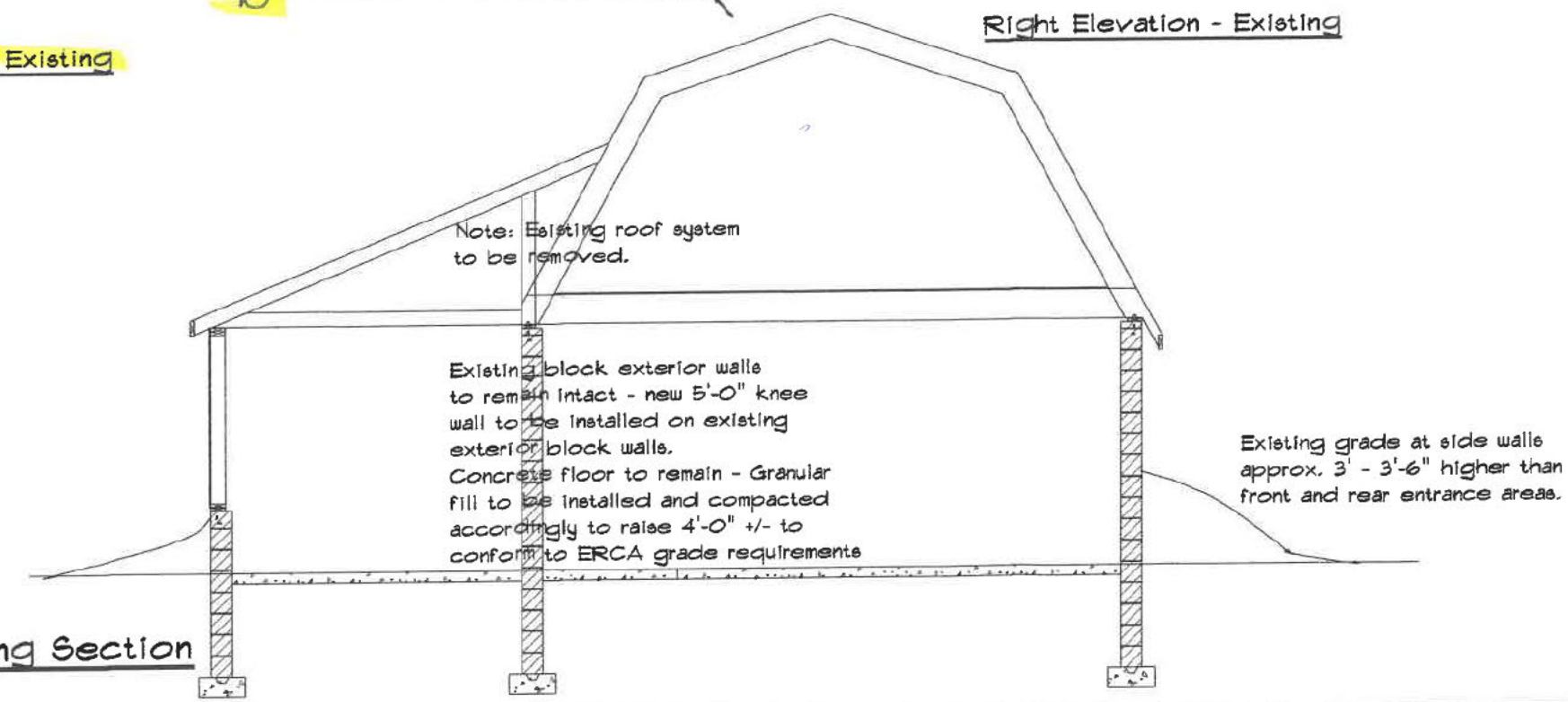
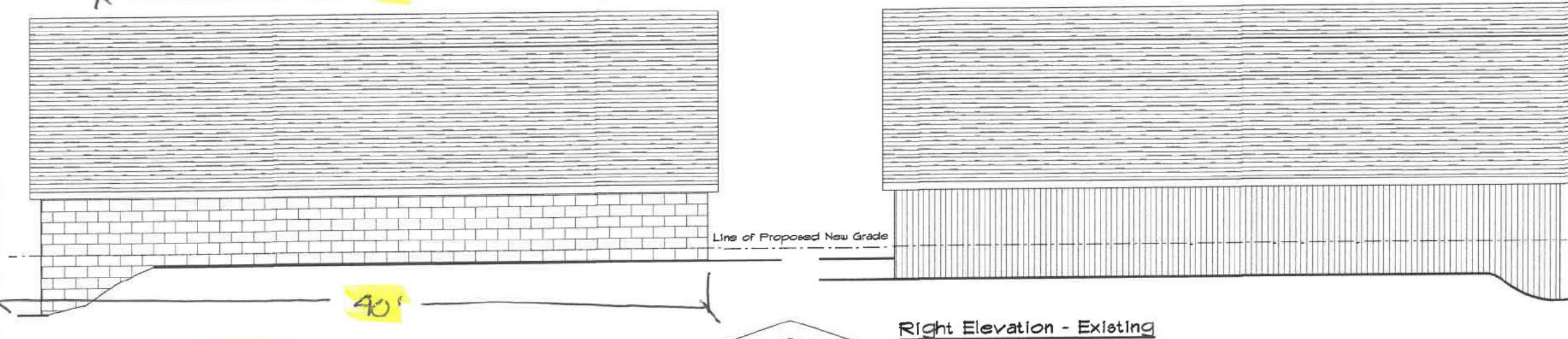
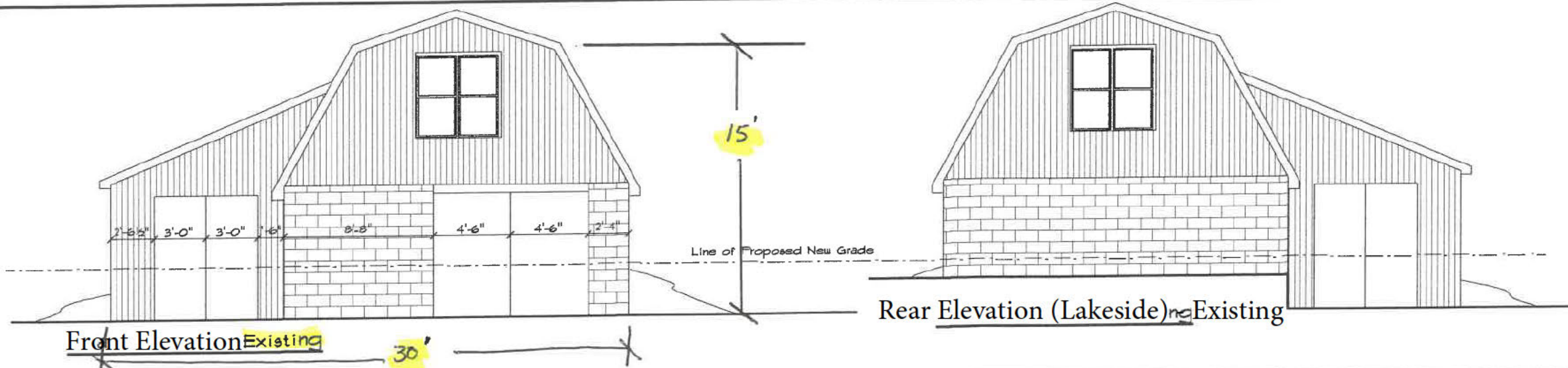


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**DATE:** 8/18/2023  
**DRAWN BY:**  
**JOB #:** 231034

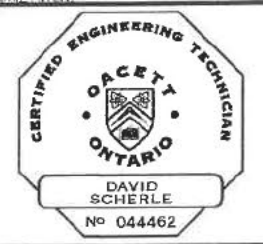
**ROOF PLACEMENT PLAN**



Existing Building - Information



- General Notes:**
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Review our responsibility for the design work on behalf of the firm registered under subsection 2.17.4 of the Building Code. I am qualified and the firm is registered in the appropriate classes/categories.  
 Individual BCIN # 24711  
 Firm BCIN # 109094  
 Date: August 23, 2023  
 Signature: Dave Scherle

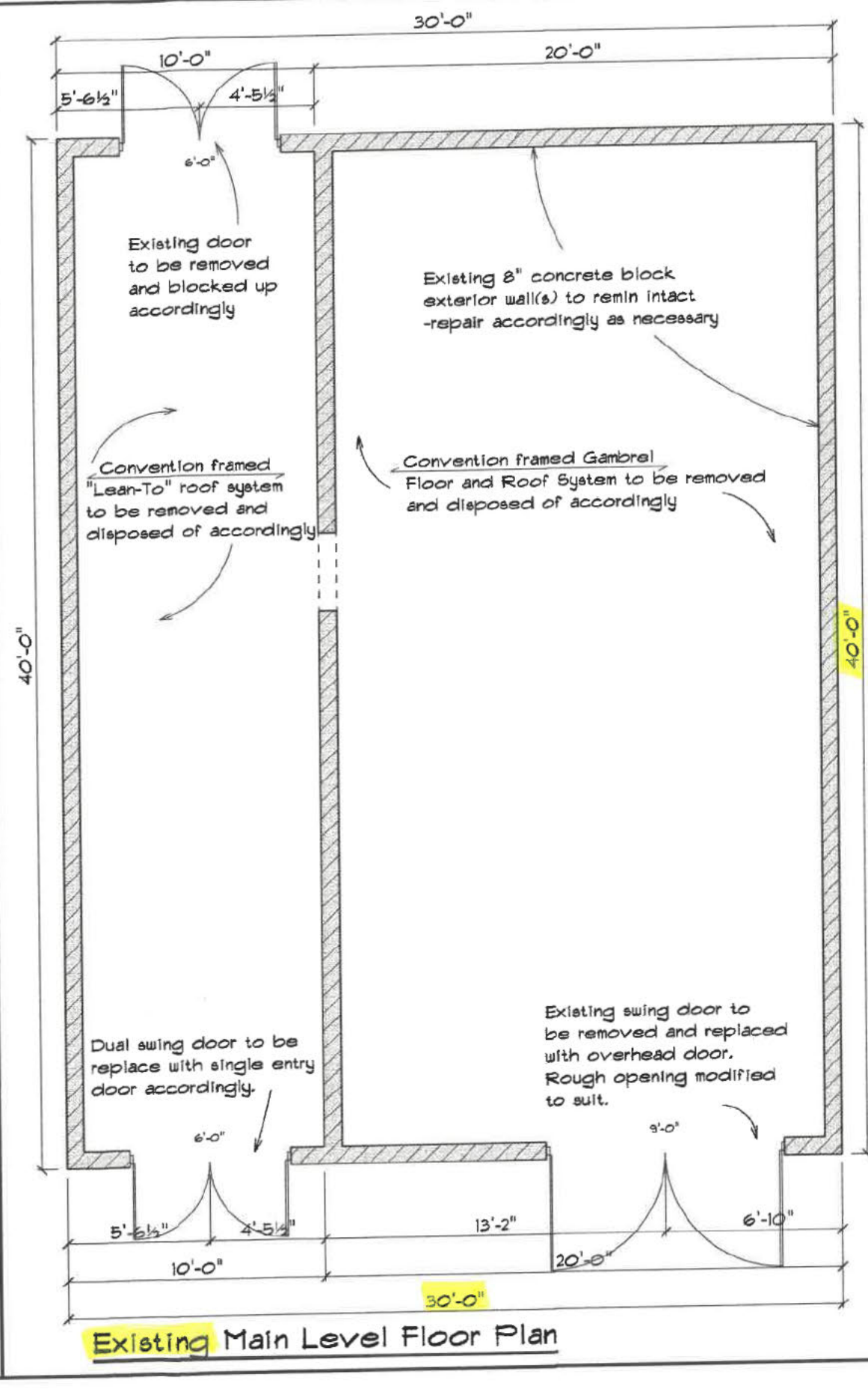
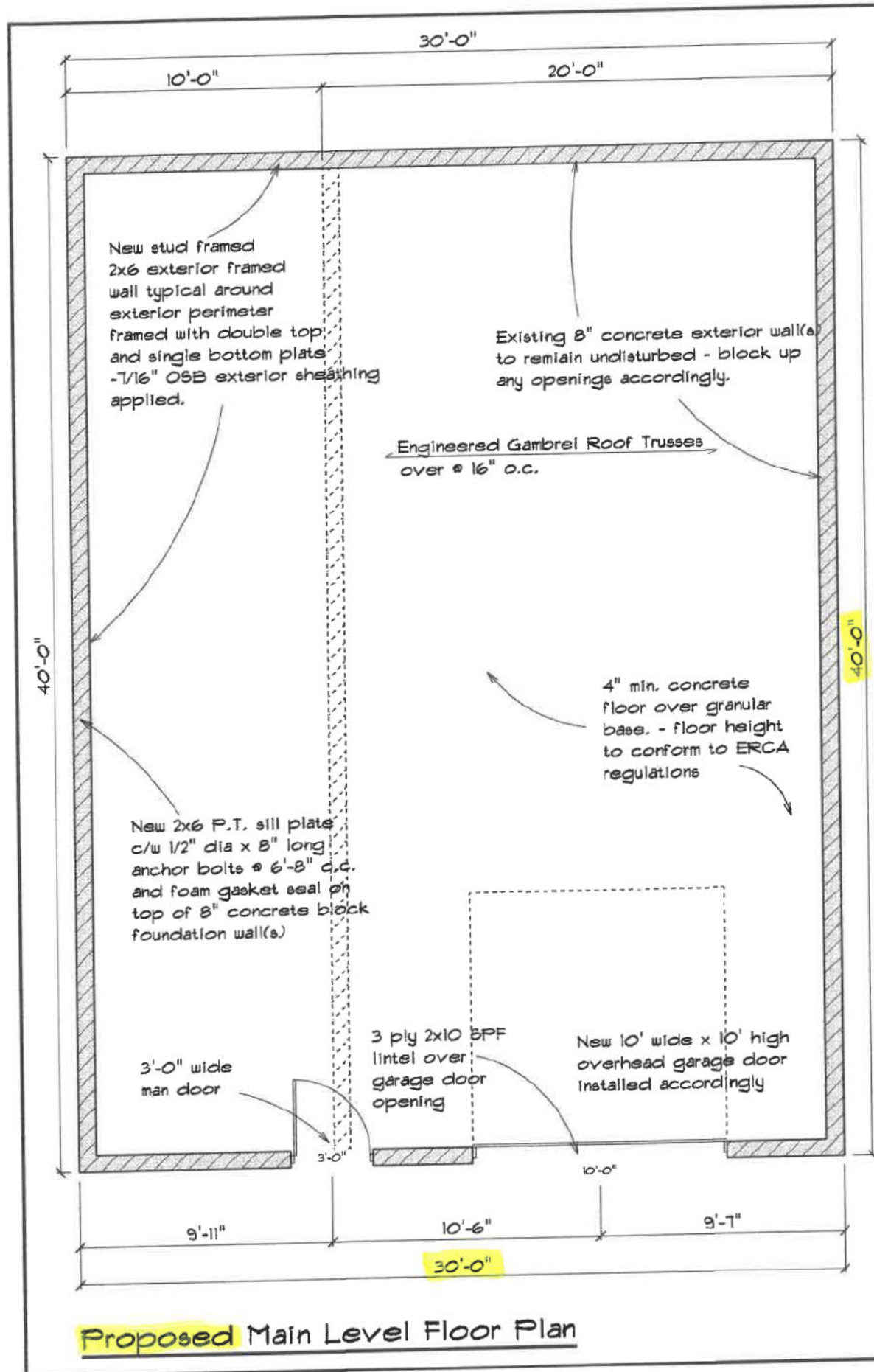
Date	No	Issued For

Project;  
**Proposed modifications and truss roof system for**  
**Mr. Mark Makowski**  
 12960 Laforest Beach Rd. Lakeshore, ON

Drawing:	<b>Existing</b>	
Date:	July, 2023	Scale: 3/16" = 1'-0"
drawn by:	ds	checked by:
Project #	3	Sheet # 5



Existing vs. Proposed Main Level Floor Plan



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Review and responsibility for the design work on behalf of the firm registered under subsection 2.17.4 of the Building Code, is assumed and the firm is registered, in the appropriate classes/categories.

Individual BCIN # 24711  
 Firm BCIN # 109094  
 Date: August 23, 2023  
 Signature: Dave Scherle

Date	No	Issued For

Project: Proposed modifications and truss roof system for Mr. Mark Makowski  
 12560 L'Arrest Beach Rd. Lakeshore, ON

Drawing: Main Level Floor Plan(s)

Date: July, 2023	Scale: 3/16" = 1'-0"
drawn by: ds	checked by:
Project #	Sheet #
	4   5





planning@erca.org

P.519.776.5209

F.519.776.8688

360 Fairview Avenue West  
Suite 311, Essex, ON N8M 1Y6

May 2, 2024

## Ian Search

Corporation of the Municipality of Lakeshore  
Development Services, Planning Division  
419 Notre Dame Street  
Belle River, ON N0R 1A0

Dear Mr. Ian Search:

RE: Application for Minor Variance A-06-2024 12960 LAFORET BEACH RD

ARN 375174000002900; PIN: 750710190

Applicant: Mark Makowski

The Municipality of Lakeshore has received Application for Minor Variance A-06-2024 for the above noted subject property, which proposes to enlarge a legal non-conforming building under Subsection 45(2)(a)(i) of the Planning Act. The subject property is zoned "Residential Waterfront - Lake St. Clair: (RW2) in the Lakeshore Zoning By-law and designated "Waterfront Residential" in the Lakeshore Official Plan.

We understand that the subject property is approximately 0.37 acres in area with approximately 16.2 metres of frontage along Laforet Beach Road. There is an existing building used for personal storage without a dwelling on the subject property, which is considered to be a legal non-conforming building/use.

We understand that the building is in poor condition and the applicant is seeking to renovate the building. As part of the renovation plans, the applicant is seeking permission from the Committee of Adjustment to enlarge the legal non-conforming building. The renovation includes new walls and a new roof truss system that will result in the building having a height of 22 feet 1.25 inches (6.74 metres) from the proposed grade to "top of gambrel truss". The existing building is 15 feet (4.57 metres) to the "top of gambrel truss". The building will remain in the same building footprint on the property as it currently exists following the renovation. One of the four block foundation walls above proposed grade will be new. This is to eliminate the existing 10 feet by 40 feet lean-to in favour of the new walls/new roof truss system that will span over the entire 30 foot width of the building.

The applicant states that the building is only used for storage for a cottage located on a different property. Due to the structure being below grade, snow melt and groundwater runoff causes flooding in the spring when the existing sump pump is overloaded. Additionally, the existing roof system is in need of repair, as the lean-to portion of the roof is leaking and is not designed for snow load.

The following is provided as a result of our review of Application for Minor Variance A-06-2024.



Essex Region  
Conservation Authority  
sustaining the place for life



Mr. Ian Search  
April 30, 2024

**NATURAL HAZARDS AND REGULATORY RESPONSIBILITIES UNDER THE CONSERVATION AUTHORITIES ACT, O. REG 686/21, PPS**

The following comments reflect ERCA's role in protecting people and property from the threats of natural hazards and regulating development hazards lands under Section 28 of the *Conservation Authorities Act*.

The above noted lands are subject to our Regulation under the *Conservation Authorities Act* (Ontario Regulation No. 41/24). The parcel falls within the regulated area of Lake St. Clair. The property owner will be required to obtain a Permit from the Essex Region Conservation Authority prior to any development.

We note that the works propose a significant change to the structure and could act as a precursor to a change in use of the structure. The Conservation Authority cannot support a change in use to a habitable structure unless the structure satisfies the current development requirements, which is not possible due to the existing structure's setback from the hazard (Lake St. Clair).

The Conservation Authority has concerns that the proposed works may require reconstruction of the existing structure. The applicant will need to demonstrate to the Conservation Authority that the proposed works constitute a renovation of the structure and are not a reconstruction of the structure. The structure must be in adequate condition to support the works without requiring reconstruction. The applicant will be required to engage a professional engineer to review the structural adequacy of the building and confirm that the existing structure can support the proposed alterations.

If reconstruction of the existing structure is required to support the proposed alterations, the structure must satisfy all current development requirements for hazard lands. This would require extensive engineering and modifications to the existing structure, including relocation to a greater setback.

Mr. Ian Search  
April 30, 2024

**FINAL RECOMMENDATION**

Our office requests that A-06-2024 be deferred until the applicant submits information from a professional engineer demonstrating that the structure does not require reconstruction to support the proposed alterations.

Our office would be happy to engage in pre-consultation with the applicant to review and address the above noted concerns.

If you have any questions or require any additional information, please contact the undersigned.

Sincerely,



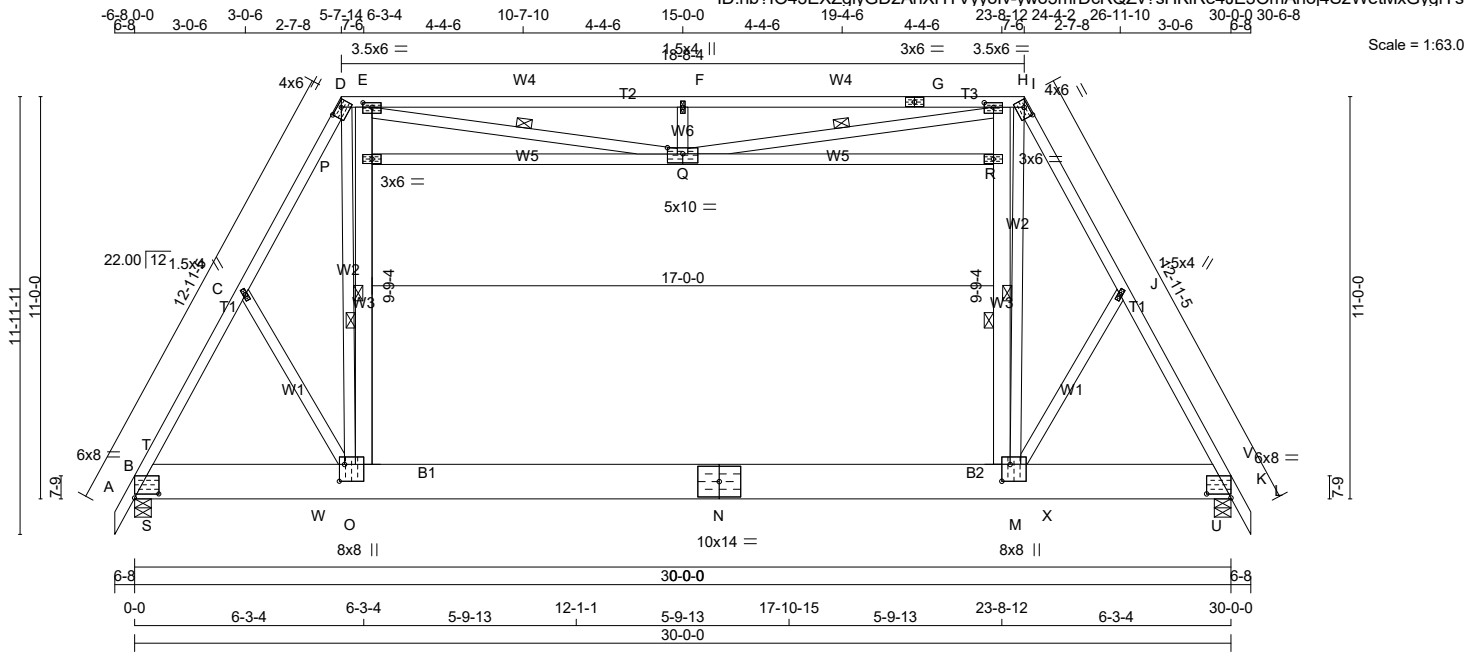
Alicia Good  
Watershed Planner  
/ag

JOB NAME	TRUSS NAME	QUANTITY	PLY	JOB DESC.	DRWG NO.
231034-A	AG01	2	2	TRUSS DESC.	

Rivard Engineered Products Inc., Essex, ON, N8M 2X5

Version 8.630 S Jan 26 2023 MiTek Industries, Inc. Tue Sep 5 15:06:47 2023 Page 1

ID:hb?IO43EXZgqyGD2AhXHTVyyolv-wo5mrDorRQZv?sHkiRe4JE3OmAhoj4S2WetMxGyqfYs



TOTAL WEIGHT = 4 X 272 = 1088 lb

LUMBER				***PLATING OVERRIDE - REVIEW REQ'D***							DESIGN CRITERIA	
N. L. G. A. RULES				DIMENSIONS, SUPPORTS AND LOADINGS SPECIFIED BY FABRICATOR TO BE VERIFIED BY BUILDING DESIGNER							SPECIFIED LOADS:	
CHORDS	SIZE	DRY	LUMBER	BEARINGS							TOP CH.	LL
DESCR.				FACTORED GROSS REACTION							DL	
				FACTORED	MAXIMUM FACTORED	INPUT	REQRD					
				GROSS REACTION	GROSS REACTION	BRG	BRG					
				VERT	HORZ	DOWN	HORZ	UPLIFT	IN-SX	IN-SX		
				JT	B	K						
				3660	0	3947	-586	-680	5-8	2-2		
				3660	0	3947	0	-680	5-8	2-2		
ALL WEBS EXCEPT O - E, M - H				PROVIDE ANCHORAGE AT BEARING JOINT B FOR 680 LBS FACTORED UPLIFT							ATTIC FLOOR	
				PROVIDE ANCHORAGE AT BEARING JOINT K FOR 680 LBS FACTORED UPLIFT							DL	
				PROVIDE FOR 586 LBS FACTORED HORIZONTAL REACTION AT JOINT B							DL	
				UNFACTORED REACTIONS							CEILING	DL
				1ST LCASE MAX /MIN. COMPONENT REACTIONS							SPACING = 24.0 IN. C/C	
				JT	COMBINED	SNOW	LIVE	PERM.LIVE	WIND	DEAD	SOIL	
				B	3043	831 / 0	1406 / 0	0 / 0	160 / -934	806 / 0	0 / 0	
				K	3043	831 / 0	1406 / 0	0 / 0	220 / -934	806 / 0	0 / 0	
DRY: SEASONED LUMBER.				HORIZONTAL REACTIONS							LOADING IN FLAT SECTION BASED ON A SLOPE OF 2.00/12	
DESIGN CONSISTS OF 2 TRUSSES BUILT SEPARATELY THEN FASTENED TOGETHER AS FOLLOWS:				B							GIRDER TYPE: CStdGirder	
CHORDS #ROWS SURFACE SPACING (IN) LOAD(PLF)				0 / 0							START DISTANCE = 5-0-0	
TOP CHORDS : (0.122"x3") SPIRAL NAILS				0 / 0							START SPAN CARRIED = 4-0-0	
A-D 1 12 TOP				0 / 0							END DISTANCE = 25-0-0	
D-G 1 12 TOP				0 / 0							END SPAN CARRIED = 4-0-0	
G-I 1 12 TOP				0 / 0							END WALL WIDTH = 5-8	
I-L 1 12 TOP				0 / 0							APPLIED TO FRONT SIDE OF BOTTOM CHORD.	
BOTTOM CHORDS : (0.122"x3") SPIRAL NAILS				0 / 0							- ADD'L LOADS BASED ON 75 % OF GSL.	
B-N 3 12 SIDE(47.6)				0 / 0							THIS TRUSS IS DESIGNED FOR COMMERCIAL OR INDUSTRIAL BUILDING REQUIREMENTS OF PART 4, NBC 2015	
N-K 3 12 SIDE(47.6)				0 / 0							THIS DESIGN COMPLIES WITH:	
WEBS : (0.122"x3") SPIRAL NAILS				0 / 0							- PART 4 OF CBC 2018 , NBC-2019AE	
2x4 1 6				0 / 0							- PART 4 OF OBC 2012 (2019 AMENDMENT)	
2x6 2 6				0 / 0							- CSA 086-14	
NAILS TO BE DRIVEN FROM ONE SIDE ONLY.				0 / 0							- TPIC 2014	
TOP - COMPONENTS ARE LOADED FROM THE TOP AND MUST BE PLACED ON TOP EDGE OF ALL PLYS FOR THE LOAD TO BE TRANSFERRED TO EACH PLY.				0 / 0							DESIGN ASSUMPTIONS	
CHORDS				0 / 0							- SLOPE REDUCTION FACTOR USED	
MAX. FACTORED				0 / 0							- OVERHANG NOT TO BE ALTERED OR CUT OFF.	
MEMB. FORCE (LBS)				0 / 0							(75 % OF 16.7 P.S.F. G.S.L. PLUS 8.4 P.S.F. RAIN LOAD) TIMES IMPORTANCE FACTOR EQUALS 20.9 P.S.F. SPECIFIED ROOF LIVE LOAD	
FACTORED				0 / 0							ALLOWABLE DEFL.(LL) = L/360 (1.00")	
VERT. LOAD LC1 MAX				0 / 0							CALCULATED VERT. DEFL.(LL) = L/999 (0.30")	
CSI (LC)				0 / 0							ALLOWABLE DEFL.(TL) = L/180 (2.00")	
UNBRAC				0 / 0							CALCULATED VERT. DEFL.(TL) = L/845 (0.43")	
LENGTH FR-TO				0 / 0							CSI: TC=0.78/1.00 (F-H:1) , BC=0.79/1.00 (M-O:5) , WB=0.40/1.00 (D-O:4) , SS=0.54/1.00 (M-O:5)	
FR-TO				0 / 0							DOL LUMBER=1.00 NAIL=1.00 LS BEND=1.00 COMP=1.00 SHEAR=1.00 TENS=1.00	
A-B 0 / 22				0 / 0							SNOW LOAD IMPORTANCE FACTOR = 1.00	
B-T -4938 / 496				0 / 0							WIND LOAD IMPORTANCE FACTOR = 1.00	
T-C -5317 / 695				0 / 0							LIVE LOAD IMPORTANCE FACTOR = 1.00	
C-D -5226 / 891				0 / 0							COMPANION LIVE LOAD FACTOR = 1.00	
D-E -2558 / 514				0 / 0							TRUSS MANUFACTURER IS NOT RESPONSIBLE FOR QUALITY CONTROL IN THE TRUSS MANUFACTURING PLANT .	
E-F -4898 / 1910				0 / 0								
F-G -4898 / 1910				0 / 0								
G-H -4898 / 1910				0 / 0								
H-I -2558 / 509				0 / 0								
I-J -5226 / 900				0 / 0								
J-V -5317 / 704				0 / 0								
V-K -4938 / 381				0 / 0								
K-L 0 / 22				0 / 0								
B-S -256 / 2477				0 / 0								
S-W -429 / 2514				0 / 0								
W-O -429 / 2514				0 / 0								
O-N -278 / 2651				0 / 0								
N-M -278 / 2651				0 / 0								
M-X -179 / 2514				0 / 0								
X-U -179 / 2514				0 / 0								
U-K -190 / 2477				0 / 0								
P-Q -239 / 222				0 / 0								
Q-R -239 / 179				0 / 0								

CONTINUED ON PAGE 2

JOB NAME	TRUSS NAME	QUANTITY	PLY	JOB DESC.	DRWG NO.
231034-A	AG01	2	2	TRUSS DESC.	

Rivard Engineered Products Inc., Essex, ON, N8M 2X5

ID:hb?IO43EXZgiyGD2AhXHTVyyolv-ywo5mrDcRQZy?sHKiRe4JE3OmAhoj4S2WetMxGygfYs

**PLATES (table is in inches)**

JT	TYPE	PLATES	W	LEN	Y	X
B	TMB1-l	MT20	6.0	8.0	1.25	8.00
C, F, J						
C	TMW+w	MT20	1.5	4.0		
D	TMTW-h	MT20	4.0	6.0	1.25	3.50
E	TMWW-t	MT20	3.5	6.0	1.50	3.00
G	TS-t	MT20	3.0	6.0		
H	TMWW-t	MT20	3.5	6.0	1.50	3.00
I	TMTW-h	MT20	4.0	6.0	1.25	3.50
K	TMB1-l	MT20	6.0	8.0	1.25	8.00
M	BMWWW+t	MT20	8.0	8.0	5.50	2.75
N	BS-t	MT20	10.0	14.0		
O	BMWWW+t	MT20	8.0	8.0	5.50	1.75
P	WMW+w	MT20	3.0	6.0		
Q	WSWWW+l	MT20	5.0	10.0	5.00	2.00
R	WMW+w	MT20	3.0	6.0		

TRUSS HAS BEEN CHECKED FOR UNBALANCED LOADING  
AS PER NBCC 4.1.6.2.(8)

WIND LOAD APPLIED IS DERIVED FROM REFERENCE VELOCITY PRESSURE OF ( 9.8) PSF AT (40-0-0) FT-IN-SX REFERENCE HEIGHT ABOVE GRADE AND USING EXTERNAL PEAK COEFFICIENTS, CpCg, BASED ON THE (MAIN WIND FORCE RESISTING SYSTEM).INTERNAL WIND PRESSURE IS BASED ON DESIGN (CATEGORY 2). BUILDING MAY BE LOCATED ON (OPEN TERRAIN), AND TRUSS IS DESIGNED TO BE LOCATED AT LEAST (0-0) FT-IN-SX AWAY FROM EAVE.TRUSS UPLIFT IS BASED ON TOP AND BOTTOM CHORD DEAD LOADS OF 5.0 PSF AND 5.0 PSF RESPECTIVELY.

**NAIL VALUES**

PLATE	GRIP(DRY)	SHEAR	SECTION
	(PSI)	(PLI)	(PLI)
	MAX MIN	MAX MIN	MAX MIN
MT20	650 371	1747 788	1987 1873

PLATE PLACEMENT TOL. = 0.250 inches

PLATE ROTATION TOL. = 5.0 Deg.

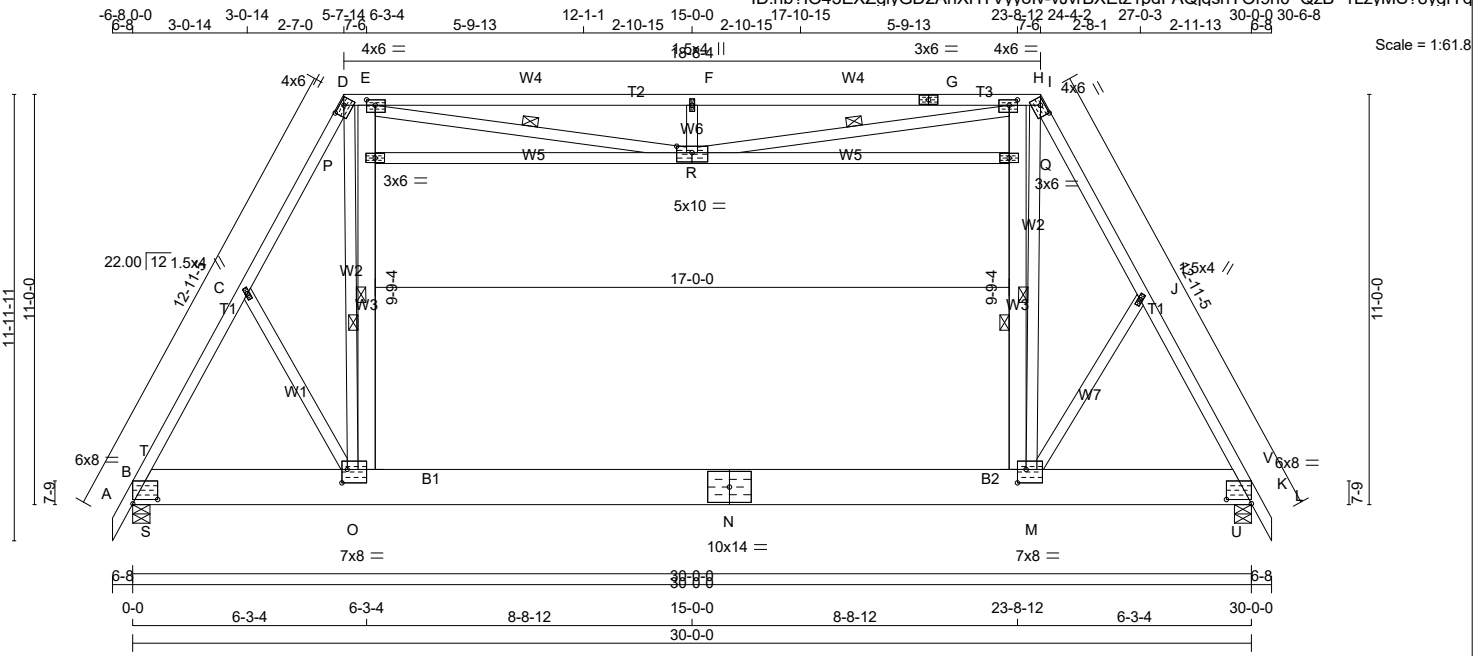
JSI GRIP= 0.89 (D) (INPUT = 0.90 )  
 JSI METAL= 0.83 (K) (INPUT = 1.00 )

JOB NAME	TRUSS NAME	QUANTITY	PLY	JOB DESC.	DRWG NO.
231034-A	AT01	29	1	TRUSS DESC.	

Rivard Engineered Products Inc., Essex, ON, N8M 2X5

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ID:hb?IO43EXZqivGD2AhXHTVyyolv-vJrBXEtz1pdFAQiqshYOf9h0 QzB 1LzYMS?8yqfYq



TOTAL WEIGHT = 29 X 272 = 7884 lb

**\*\*\*PLATING OVERRIDE - REVIEW REQ'D\*\*\***

**LUMBER**

N. L. G. A. RULES

CHORDS	SIZE	LUMBER	DESCR.
A - D	2x4	DRY No.2	SPF
D - G	2x4	DRY No.2	SPF
G - I	2x4	DRY No.2	SPF
I - L	2x4	DRY No.2	SPF
B - N	2x12	DRY No.2	SPF
N - K	2x12	DRY No.2	SPF
P - R	2x4	DRY 2100F 1.8E	SPF
R - Q	2x4	DRY 2100F 1.8E	SPF

ALL WEBS EXCEPT

O - E	2x6	DRY No.2	SPF
M - H	2x6	DRY No.2	SPF

DRY: SEASONED LUMBER.

**PLATES (table is in inches)**

JT TYPE	PLATES	W	LEN	Y	X
B	TMB1-I	MT20	6.0	8.0	1.25 8.00
C, F, J					
D	TMW+w	MT20	1.5	4.0	
C	TMTW-h	MT20	4.0	6.0	1.25 3.50
E	TMWW-t	MT20	4.0	6.0	1.75 2.75
G	TS-t	MT20	3.0	6.0	
H	TMWW-t	MT20	4.0	6.0	1.75 2.75
I	TMTW-h	MT20	4.0	6.0	1.25 3.50
K	TMB1-I	MT20	6.0	8.0	1.25 8.00
M	BMWWW-t	MT20	7.0	8.0	4.25 2.75
N	BS-t	MT20	10.0	14.0	
O	BMWWW-t	MT20	7.0	8.0	4.25 1.75
P	WMW+w	MT20	3.0	6.0	
Q	WMW+w	MT20	3.0	6.0	
R	WSWWW+I	MT20	5.0	10.0	5.00 2.00

**DIMENSIONS, SUPPORTS AND LOADINGS SPECIFIED BY FABRICATOR TO BE VERIFIED BY BUILDING DESIGNER**

**BEARINGS**

JT	VERT	HORZ	DOWN	HORZ	UPLIFT	IN-SX	IN-SX
B	1881	0	1997	-391	-379	5-8	2-3
K	1881	0	1997	0	-379	5-8	2-3

PROVIDE ANCHORAGE AT BEARING JOINT B FOR 379 LBS FACTORED UPLIFT  
 PROVIDE ANCHORAGE AT BEARING JOINT K FOR 379 LBS FACTORED UPLIFT

PROVIDE FOR 391 LBS FACTORED HORIZONTAL REACTION AT JOINT B

**UNFACTORED REACTIONS**

JT	COMBINED	SNOW	LIVE	PERM.LIVE	WIND	DEAD	SOIL
B	1551	447 / 0	680 / 0	0 / 0	18 / -518	424 / 0	0 / 0
K	1551	447 / 0	680 / 0	0 / 0	58 / -518	424 / 0	0 / 0

HORIZONTAL REACTIONS

B	---	0 / 0	0 / 0	0 / 0	279 / -279	0 / 0	0 / 0
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BEARING MATERIAL TO BE SPF NO.2 OR BETTER AT JOINT(S) B, K

**BRACING**

MAX. UNBRACED TOP CHORD LENGTH = 3.56 FT.  
 MAX. UNBRACED BOTTOM CHORD LENGTH = 6.25 FT OR RIGID CEILING DIRECTLY APPLIED.

MAX. UNBRACED INTERIOR CHORD LENGTH = 6.25 FT OR RIGID SHEATHING TO ATTIC FLOOR AND CEILING.

ALL PITCH BREAKS AND PERIMETER CORNER JOINTS MUST BE Laterally RESTRAINED.

COMPRESSIVE EDGE OF 2x12 CHORDS TO BE HELD IN LINE BY DIRECT CONNECTION OF SHEATHING OR PURLINS SPACED NOT MORE THAN 2.00 ft APART. ADEQUATE BRIDGING OR BLOCKING REQUIRED AT 7.50 ft INTERVALS.

1 LATERAL BRACE(S) AT 1/2 LENGTH OF O-P, M-Q, D-O, I-M, E-R, H-R.

**DESIGN CRITERIA**

**SPECIFIED LOADS:**

TOP CH. LL = 20.9 PSF  
 DL = 5.0 PSF

BOT CH. LL = 10.0 PSF  
 DL = 7.0 PSF

TOTAL LOAD = 42.9 PSF

ATTIC FLOOR = 40.0 PSF  
 DL = 10.0 PSF

CEILING = 5.0 PSF

**SPACING = 16.0 IN. C/C**

LOADING IN FLAT SECTION BASED ON A SLOPE OF 2.00/12

THIS TRUSS IS DESIGNED FOR COMMERCIAL OR INDUSTRIAL BUILDING REQUIREMENTS OF PART 4, NBCC 2015

THIS DESIGN COMPLIES WITH:  
 - PART 4 OF CBC 2018, NBC-2019AE  
 - PART 4 OF OBC 2012 (2019 AMENDMENT)  
 - CSA 086-14  
 - TPIC 2014

DESIGN ASSUMPTIONS  
 - SLOPE REDUCTION FACTOR USED  
 - OVERHANG NOT TO BE ALTERED OR CUT OFF.

(75 % OF 16.7 P.S.F. G.S.L. PLUS 8.4 P.S.F. RAIN LOAD) TIMES IMPORTANCE FACTOR EQUALS 20.9 P.S.F. SPECIFIED ROOF LIVE LOAD

ALLOWABLE DEFL.(LL)= L/360 (1.00")  
 CALCULATED VERT. DEFL.(LL) = L/999 (0.27")  
 ALLOWABLE DEFL.(TL)= L/180 (2.00")  
 CALCULATED VERT. DEFL.(TL) = L/941 (0.38")

CSI: TC=0.98/1.00 (F-H:1), BC=0.62/1.00 (M-O:5), WB=0.40/1.00 (D-O:14), SSI=0.41/1.00 (M-O:5)

DOL LUMBER=1.00 NAIL=1.00 LS BEND=1.10 COMP=1.10 SHEAR=1.10 TENS=1.10

SNOW LOAD IMPORTANCE FACTOR = 1.00  
 WIND LOAD IMPORTANCE FACTOR = 1.00  
 LIVE LOAD IMPORTANCE FACTOR = 1.00  
 COMPANION LIVE LOAD FACTOR = 1.00

TRUSS PLATE MANUFACTURER IS NOT RESPONSIBLE FOR QUALITY CONTROL IN THE TRUSS MANUFACTURING PLANT.

NAIL VALUES  
 PLATE GRIP(DRY) SHEAR SECTION (PSI) (PLI) (PLI)  
 MAX MIN MAX MIN MAX MIN  
 MT20 650 371 1747 788 1987 1873

PLATE PLACEMENT TOL. = 0.250 inches  
 PLATE ROTATION TOL. = 5.0 Deg.

**LOADING**

TOTAL LOAD CASES: (35)

CHORDS		MEMB.		FR-TO		FR-TO		FR-TO	
MAX. FACTORED	FORCE (LBS)	VERT. LOAD (PLF)	FACTORED VERT. LOAD (PLF)	FROM	TO	MEMB.	MAX. FACTORED FORCE (LBS)	MAX. UNBRACED LENGTH	FR-TO
A-B	0 / 15	-50.1	-50.1	0.04	(13)	10.00	O-P	-989 / 796	0.17 (11)
B-T	-2380 / 226	-50.1	-50.1	0.15	(4)	4.33	P-E	-893 / 821	0.17 (11)
T-C	-2548 / 346	-50.1	-50.1	0.23	(13)	4.19	M-Q	-989 / 740	0.17 (2)
C-D	-2492 / 480	-50.1	-50.1	0.26	(13)	4.28	Q-H	-893 / 765	0.14 (13)
D-E	-1206 / 284	-51.8	-51.8	0.40	(3)	5.47	D-O	-772 / 2281	0.40 (14)
E-F	-2822 / 1215	-51.8	-51.8	0.98	(1)	3.56	M-I	-772 / 2279	0.40 (13)
F-G	-2822 / 1215	-51.8	-51.8	0.98	(1)	3.56	E-R	-1023 / 1852	0.37 (11)
G-H	-2822 / 1215	-51.8	-51.8	0.98	(1)	3.56	R-F	-455 / 383	0.05 (13)
H-I	-1206 / 281	-51.8	-51.8	0.40	(2)	5.47	R-H	-988 / 1852	0.36 (13)
I-J	-2492 / 481	-50.1	-50.1	0.26	(14)	4.28	C-O	-157 / 376	0.06 (7)
J-V	-2550 / 353	-50.1	-50.1	0.23	(14)	4.19	M-J	-156 / 374	0.06 (8)
V-K	-2383 / 160	-50.1	-50.1	0.15	(4)	4.32	S-T	-252 / 335	0.00 (1)
K-L	0 / 15	-50.1	-50.1	0.04	(14)	10.00	U-V	-248 / 285	0.00 (1)

CHORDS		MEMB.		FR-TO		FR-TO		FR-TO	
MAX. FACTORED	FORCE (LBS)	VERT. LOAD (PLF)	FACTORED VERT. LOAD (PLF)	FROM	TO	MEMB.	MAX. FACTORED FORCE (LBS)	MAX. UNBRACED LENGTH	FR-TO
B-S	-105 / 1160	-25.0	-25.0	0.12	(4)	6.25			
S-O	-229 / 1207	-25.0	-25.0	0.61	(6)	6.25			
O-N	-128 / 1279	-81.7	-81.7	0.62	(5)	6.25			
N-M	-128 / 1279	-81.7	-81.7	0.62	(5)	6.25			
M-U	-65 / 1207	-25.0	-25.0	0.61	(5)	6.25			
U-K	-68 / 1162	-25.0	-25.0	0.12	(4)	6.25			
P-R	-151 / 148	-21.7	-21.7	0.25	(6)	6.25			
R-Q	-151 / 119	-21.7	-21.7	0.25	(5)	6.25			

JOB NAME	TRUSS NAME	QUANTITY	PLY	JOB DESC.	DRWG NO.
231034-A	AT01	29	1	TRUSS DESC.	

Rivard Engineered Products Inc., Essex, ON, N8M 2X5

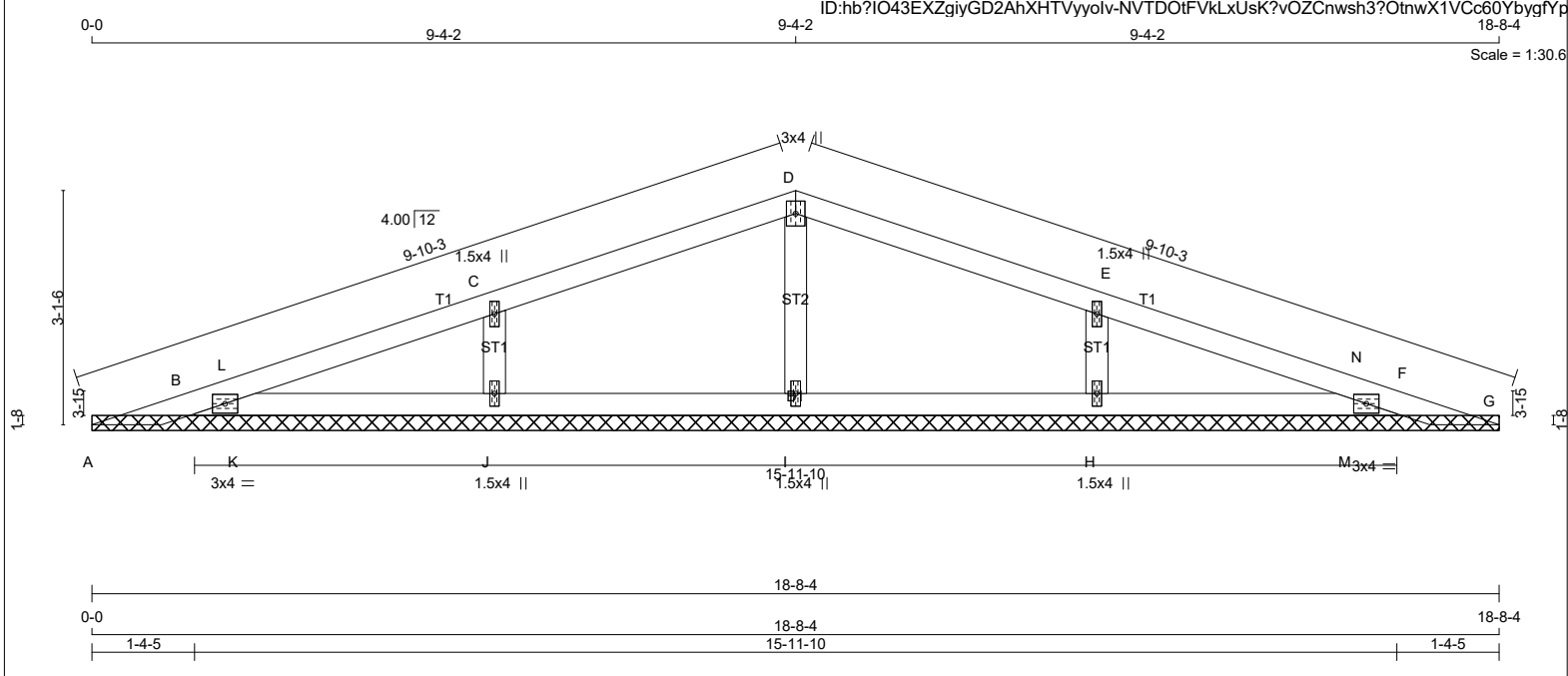
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ID:hb?IO43EXZgiyGD2AhXHTVyyolv-vJvrBXEtz1pdFAQjqshYOf9h0\_QzB\_1LzyMS?8ygfYc

	<p>TRUSS HAS BEEN CHECKED FOR UNBALANCED LOADING AS PER NBCC 4.1.6.2.(8)</p> <p>WIND LOAD APPLIED IS DERIVED FROM REFERENCE VELOCITY PRESSURE OF ( 9.8) PSF AT (40-0-0) FT-IN-SX REFERENCE HEIGHT ABOVE GRADE AND USING EXTERNAL PEAK COEFFICIENTS, CpCg, BASED ON THE (MAIN WIND FORCE RESISTING SYSTEM).INTERNAL WIND PRESSURE IS BASED ON DESIGN (CATEGORY 2). BUILDING MAY BE LOCATED ON (OPEN TERRAIN), AND TRUSS IS DESIGNED TO BE LOCATED AT LEAST (0-0) FT-IN-SX AWAY FROM EAVE.TRUSS UPLIFT IS BASED ON TOP AND BOTTOM CHORD DEAD LOADS OF 5.0 PSF AND 5.0 PSF RESPECTIVELY.</p>	<p>JSI GRIP= 0.89 (D) (INPUT = 0.90 ) JSI METAL= 0.80 (K) (INPUT = 1.00 )</p>
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JOB NAME <b>231034-A</b>	TRUSS NAME <b>PB01</b>	QUANTITY <b>31</b>	PLY <b>1</b>	JOB DESC. <b>TRUSS DESC.</b>	DRWG NO.
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TOTAL WEIGHT = 31 X 46 = 1423 lb

<b>LUMBER</b>				<b>DESIGN CRITERIA</b>																																																																			
<p><b>N. L. G. A. RULES</b></p> <table border="1"> <tr> <th>CHORDS</th> <th>SIZE</th> <th>LUMBER</th> <th>DESCR.</th> </tr> <tr> <td>A - D</td> <td>2x4</td> <td>DRY</td> <td>No.2</td> </tr> <tr> <td>D - G</td> <td>2x4</td> <td>DRY</td> <td>No.2</td> </tr> <tr> <td>B - F</td> <td>2x4</td> <td>DRY</td> <td>No.2</td> </tr> <tr> <td>ALL WEBS</td> <td>2x4</td> <td>DRY</td> <td>No.2</td> </tr> </table> <p>DRY: SEASONED LUMBER.</p>				CHORDS	SIZE	LUMBER	DESCR.	A - D	2x4	DRY	No.2	D - G	2x4	DRY	No.2	B - F	2x4	DRY	No.2	ALL WEBS	2x4	DRY	No.2	<p><b>DESIGNED LOADS:</b></p> <p>TOP CH. LL = 21.7 PSF DL = 5.0 PSF</p> <p>BOT CH. LL = 10.0 PSF DL = 7.0 PSF</p> <p>TOTAL LOAD = 43.7 PSF</p>																																															
CHORDS	SIZE	LUMBER	DESCR.																																																																				
A - D	2x4	DRY	No.2																																																																				
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<p><b>PLATES (table is in inches)</b></p> <table border="1"> <tr> <th>JT</th> <th>TYPE</th> <th>PLATES</th> <th>W</th> <th>LEN</th> <th>Y</th> <th>X</th> </tr> <tr> <td>B</td> <td>TMB1-I</td> <td>MT20</td> <td>3.0</td> <td>4.0</td> <td></td> <td></td> </tr> <tr> <td>C</td> <td>TMW+w</td> <td>MT20</td> <td>1.5</td> <td>4.0</td> <td></td> <td></td> </tr> <tr> <td>D</td> <td>TTW+p</td> <td>MT20</td> <td>3.0</td> <td>4.0</td> <td></td> <td></td> </tr> <tr> <td>E</td> <td>TMW+w</td> <td>MT20</td> <td>1.5</td> <td>4.0</td> <td></td> <td></td> </tr> <tr> <td>F</td> <td>TMB1-I</td> <td>MT20</td> <td>3.0</td> <td>4.0</td> <td></td> <td></td> </tr> <tr> <td>H, I, J</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>H</td> <td>BMW1+w</td> <td>MT20</td> <td>1.5</td> <td>4.0</td> <td></td> <td></td> </tr> </table>				JT	TYPE	PLATES	W	LEN	Y	X	B	TMB1-I	MT20	3.0	4.0			C	TMW+w	MT20	1.5	4.0			D	TTW+p	MT20	3.0	4.0			E	TMW+w	MT20	1.5	4.0			F	TMB1-I	MT20	3.0	4.0			H, I, J							H	BMW1+w	MT20	1.5	4.0			<p><b>SPACING = 16.0 IN. C/C</b></p> <p>THIS TRUSS IS DESIGNED FOR COMMERCIAL OR INDUSTRIAL BUILDING REQUIREMENTS OF PART 4, NBCC 2015</p> <p>THIS DESIGN COMPLIES WITH: - PART 4 OF BCBC 2018, NBC-2019AE - PART 4 OF OBC 2012 (2019 AMENDMENT) - CSA 086-14 - TPIC 2014</p> <p>DESIGN ASSUMPTIONS - SLOPE REDUCTION FACTOR USED</p> <p>(80 % OF 16.7 P.S.F. G.S.L. PLUS 8.4 P.S.F. RAIN LOAD) TIMES IMPORTANCE FACTOR EQUALS 21.7 P.S.F. SPECIFIED ROOF LIVE LOAD</p>											
JT	TYPE	PLATES	W	LEN	Y	X																																																																	
B	TMB1-I	MT20	3.0	4.0																																																																			
C	TMW+w	MT20	1.5	4.0																																																																			
D	TTW+p	MT20	3.0	4.0																																																																			
E	TMW+w	MT20	1.5	4.0																																																																			
F	TMB1-I	MT20	3.0	4.0																																																																			
H, I, J																																																																							
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<p><b>BEARINGS</b></p> <table border="1"> <tr> <th>JT</th> <th>VERT</th> <th>HORZ</th> <th>DOWN</th> <th>HORZ</th> <th>UPLIFT</th> <th>IN-SX</th> <th>IN-SX</th> </tr> <tr> <td>A</td> <td>3</td> <td>0</td> <td>13</td> <td>59</td> <td>-23</td> <td>18-8-4 (15-11#8)</td> <td></td> </tr> <tr> <td>G</td> <td>3</td> <td>0</td> <td>11</td> <td>0</td> <td>-9</td> <td>18-8-4 (15-11#8)</td> <td></td> </tr> <tr> <td>B</td> <td>217</td> <td>0</td> <td>229</td> <td>0</td> <td>-114</td> <td>18-8-4 (15-11#8)</td> <td></td> </tr> <tr> <td>F</td> <td>217</td> <td>0</td> <td>229</td> <td>0</td> <td>-105</td> <td>18-8-4 (15-11#8)</td> <td></td> </tr> <tr> <td>I</td> <td>253</td> <td>0</td> <td>253</td> <td>0</td> <td>-48</td> <td>18-8-4 (15-11#8)</td> <td></td> </tr> <tr> <td>J</td> <td>350</td> <td>0</td> <td>371</td> <td>0</td> <td>-207</td> <td>18-8-4 (15-11#8)</td> <td></td> </tr> <tr> <td>H</td> <td>350</td> <td>0</td> <td>371</td> <td>0</td> <td>-207</td> <td>18-8-4 (15-11#8)</td> <td></td> </tr> </table> <p>VALUE IN PARENTHESIS INDICATES EFFECTIVE BEARING LENGTH</p>				JT	VERT	HORZ	DOWN	HORZ	UPLIFT	IN-SX	IN-SX	A	3	0	13	59	-23	18-8-4 (15-11#8)		G	3	0	11	0	-9	18-8-4 (15-11#8)		B	217	0	229	0	-114	18-8-4 (15-11#8)		F	217	0	229	0	-105	18-8-4 (15-11#8)		I	253	0	253	0	-48	18-8-4 (15-11#8)		J	350	0	371	0	-207	18-8-4 (15-11#8)		H	350	0	371	0	-207	18-8-4 (15-11#8)		<p>THIS TRUSS IS DESIGNED FOR COMMERCIAL OR INDUSTRIAL BUILDING REQUIREMENTS OF PART 4, NBCC 2015</p> <p>THIS DESIGN COMPLIES WITH: - PART 4 OF BCBC 2018, NBC-2019AE - PART 4 OF OBC 2012 (2019 AMENDMENT) - CSA 086-14 - TPIC 2014</p> <p>DESIGN ASSUMPTIONS - SLOPE REDUCTION FACTOR USED</p> <p>(80 % OF 16.7 P.S.F. G.S.L. PLUS 8.4 P.S.F. RAIN LOAD) TIMES IMPORTANCE FACTOR EQUALS 21.7 P.S.F. SPECIFIED ROOF LIVE LOAD</p> <p>CS: TC=0.14/1.00 (D-E:3), BC=0.07/1.00 (J-K:17), WB=0.03/1.00 (C-J:13), SSI=0.10/1.00 (C-D:2)</p> <p>DOL LUMBER=1.00 NAIL=1.00 LS BEND=1.10 COMP=1.10 SHEAR=1.10 TENS=1.10</p> <p>SNOW LOAD IMPORTANCE FACTOR = 1.00 WIND LOAD IMPORTANCE FACTOR = 1.00 LIVE LOAD IMPORTANCE FACTOR = 1.00 COMPANION LIVE LOAD FACTOR = 1.00</p>			
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<p><b>UNFACTORED REACTIONS</b></p> <table border="1"> <tr> <th>JT</th> <th>COMBINED</th> <th>SNOW</th> <th>LIVE</th> <th>PERM.LIVE</th> <th>WIND</th> <th>DEAD</th> <th>SOIL</th> </tr> <tr> <td>A</td> <td>0</td> <td>6/0</td> <td>0/-7</td> <td>0/0</td> <td>7/-18</td> <td>2/0</td> <td>0/0</td> </tr> <tr> <td>G</td> <td>0</td> <td>6/0</td> <td>0/-7</td> <td>0/0</td> <td>0/-7</td> <td>2/0</td> <td>0/0</td> </tr> <tr> <td>B</td> <td>163</td> <td>92/0</td> <td>31/0</td> <td>0/0</td> <td>0/-107</td> <td>48/0</td> <td>0/0</td> </tr> <tr> <td>F</td> <td>163</td> <td>92/0</td> <td>31/0</td> <td>0/0</td> <td>0/-100</td> <td>48/0</td> <td>0/0</td> </tr> <tr> <td>I</td> <td>195</td> <td>87/0</td> <td>52/0</td> <td>0/0</td> <td>0/-64</td> <td>56/0</td> <td>0/0</td> </tr> <tr> <td>J</td> <td>264</td> <td>151/0</td> <td>56/0</td> <td>0/0</td> <td>0/-186</td> <td>71/0</td> <td>0/0</td> </tr> <tr> <td>H</td> <td>264</td> <td>151/0</td> <td>56/0</td> <td>0/0</td> <td>0/-186</td> <td>71/0</td> <td>0/0</td> </tr> </table>				JT	COMBINED	SNOW	LIVE	PERM.LIVE	WIND	DEAD	SOIL	A	0	6/0	0/-7	0/0	7/-18	2/0	0/0	G	0	6/0	0/-7	0/0	0/-7	2/0	0/0	B	163	92/0	31/0	0/0	0/-107	48/0	0/0	F	163	92/0	31/0	0/0	0/-100	48/0	0/0	I	195	87/0	52/0	0/0	0/-64	56/0	0/0	J	264	151/0	56/0	0/0	0/-186	71/0	0/0	H	264	151/0	56/0	0/0	0/-186	71/0	0/0	<p>BEARING MATERIAL TO BE SPF NO.2 OR BETTER AT JOINT(S) A, G, B, F, I, J, H</p>			
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<p><b>BRACING</b></p> <p>MAX. UNBRACED TOP CHORD LENGTH = 6.25 FT. MAX. UNBRACED BOTTOM CHORD LENGTH = 10.00 FT OR RIGID CEILING DIRECTLY APPLIED.</p> <p>ALL PITCH BREAKS AND PERIMETER CORNER JOINTS MUST BE Laterally RESTRAINED.</p>				<p>TRUSS PLATE MANUFACTURER IS NOT RESPONSIBLE FOR QUALITY CONTROL IN THE TRUSS MANUFACTURING PLANT.</p>																																																																			
<p><b>LOADING</b></p> <p>TOTAL LOAD CASES: (18)</p> <table border="1"> <tr> <th colspan="2">CHORDS</th> <th colspan="2">WEBS</th> </tr> <tr> <th>MEMB.</th> <th>FORCE (LBS)</th> <th>MEMB.</th> <th>FORCE (LBS)</th> </tr> <tr> <td>FR-TO</td> <td></td> <td>FR-TO</td> <td></td> </tr> <tr> <td>A-B</td> <td>-57 / 66</td> <td>I-D</td> <td>-157 / 76</td> </tr> <tr> <td>B-L</td> <td>-51 / 32</td> <td>J-C</td> <td>-262 / 222</td> </tr> <tr> <td>L-C</td> <td>-19 / 46</td> <td>H-E</td> <td>-262 / 222</td> </tr> <tr> <td>C-D</td> <td>-17 / 89</td> <td>K-L</td> <td>-11 / 66</td> </tr> <tr> <td>D-E</td> <td>-17 / 81</td> <td>M-N</td> <td>-11 / 66</td> </tr> <tr> <td>E-N</td> <td>-9 / 19</td> <td></td> <td></td> </tr> <tr> <td>N-F</td> <td>-51 / 5</td> <td></td> <td></td> </tr> <tr> <td>F-G</td> <td>0 / 12</td> <td></td> <td></td> </tr> </table>				CHORDS		WEBS		MEMB.	FORCE (LBS)	MEMB.	FORCE (LBS)	FR-TO		FR-TO		A-B	-57 / 66	I-D	-157 / 76	B-L	-51 / 32	J-C	-262 / 222	L-C	-19 / 46	H-E	-262 / 222	C-D	-17 / 89	K-L	-11 / 66	D-E	-17 / 81	M-N	-11 / 66	E-N	-9 / 19			N-F	-51 / 5			F-G	0 / 12			<p>NAIL VALUES</p> <table border="1"> <tr> <th>PLATE</th> <th>GRIP(DRY)</th> <th>SHEAR</th> <th>SECTION</th> </tr> <tr> <td></td> <td>(PSI)</td> <td>(PLI)</td> <td>(PLI)</td> </tr> <tr> <td>MT20</td> <td>650</td> <td>371</td> <td>1747</td> </tr> <tr> <td></td> <td>MAX</td> <td>MIN</td> <td>MAX</td> </tr> <tr> <td></td> <td>788</td> <td>1987</td> <td>1873</td> </tr> </table> <p>PLATE PLACEMENT TOL. = 0.250 inches</p> <p>PLATE ROTATION TOL. = 5.0 Deg.</p> <p>JSI GRIP= 0.27 (E) (INPUT = 0.90) JSI METAL= 0.13 (C) (INPUT = 1.00)</p>				PLATE	GRIP(DRY)	SHEAR	SECTION		(PSI)	(PLI)	(PLI)	MT20	650	371	1747		MAX	MIN	MAX		788	1987	1873
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JOB NAME	TRUSS NAME	QUANTITY	PLY	JOB DESC.	DRWG NO.
231034-A	PB01	31	1	TRUSS DESC.	

Rivard Engineered Products Inc., Essex, ON, N8M 2X5

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ID:hb?IO43EXZgIyGD2AhXHTVyyolv-NVTDOIFVklxUsK?vOZCnwsh3?OtnwX1VCc60YbygfYp

**LOADING**

TOTAL LOAD CASES: (18)

C H O R D S				W E B S			
MEMB.	MAX. FACTORED FORCE (LBS)	FACTORED VERT. LOAD (PLF)	LC1 MAX. CSI (LC)	MAX. UNBRAC LENGTH	MEMB. FR-TO	MAX. FACTORED FORCE (LBS)	MAX. CSI (LC)
H-M	0 / 45	-25.0	-25.0	0.07 (17)	10.00		
M-F	0 / 45	-25.0	-25.0	0.03 (14)	10.00		

**TRUSS HAS BEEN CHECKED FOR UNBALANCED LOADING AS PER NBCC 4.1.6.2.(8)**

WIND LOAD APPLIED IS DERIVED FROM REFERENCE VELOCITY PRESSURE OF { 9.8} PSF AT {40-0-0} FT-IN-SX REFERENCE HEIGHT ABOVE GRADE AND USING EXTERNAL PEAK COEFFICIENTS, CpCg, BASED ON THE {MAIN WIND FORCE RESISTING SYSTEM}. INTERNAL WIND PRESSURE IS BASED ON DESIGN {CATEGORY 2}. BUILDING MAY BE LOCATED ON {OPEN TERRAIN}, AND TRUSS IS DESIGNED TO BE LOCATED AT LEAST {0-0} FT-IN-SX AWAY FROM EAVE. TRUSS UPLIFT IS BASED ON TOP AND BOTTOM CHORD DEAD LOADS OF 5.0 PSF AND 5.0 PSF RESPECTIVELY.