TWC
tim welch
consulting inc

26 Colborne Street
Cambridge, Ontario N1R 1R2
office: 519.624.9271
toll free: 1.866.624.9271
fax: 519.624.5556

May 27, 2024
Attn: Taylor MacIntosh
Planning & Development

Dear Ms. MacIntosh:

Following our meeting on May 3, 2024, I am writing on behalf of our client, Adsum for Women & Children, in response to HRM's comments and questions regarding the application for non-substantive amendments to the development agreement for "Sunflower II".

I will note that development plans for Sunflower II closely parallel those of the existing "Sunflower I" which, as you know, is to be developed on the same site on 138 Greenhead Road, Lakeside, Nova Scotia. Therefore, our intention is to have this development application for Sunflower II considered within the broader context of the site and existing residential and amenity spaces offered by Sunflower I.

I have outlined responses below to the items requiring clarification and/or additional information.

Policy UR-10A(d): *"That open space, outdoor amenities and parking areas incorporate design features which provides accessibility for all abilities, such as wide walkways or the use of non-slip surfaces".*

- ***How will the described features be incorporated into the further development of this site?***

Policy UR-10A(g) requires consideration of the following: "*That there is sufficient indoor and outdoor common amenity space for residents".*

- ***Will additional indoor and outdoor common amenity space be provided to serve the expanded development area?***

Many of the amenity and accessibility features included in the development of Sunflower I will be mirrored in the development of Sunflower II. For example, s3.6 (Amenity Area) and s3.6.1 of the Sunflower I Development Agreement specify playground space, as well as a designated smoking area. Walk-ways will ensure interconnectivity between such spaces, ensuring Sunflower II residents' access to existing amenity spaces.

Will each building provide a minimum of 10 bedrooms?

Yes. Each building will provide a minimum of 10 bedrooms (and will likely exceed the minimum requirements).

TWC
tim welch
consulting inc

26 Colborne Street
Cambridge, Ontario N1R 1R2
office: 519.624.9271
toll free: 1.866.624.9271
fax: 519.624.5556

Policy UR-10B. The original development features a campus-style form however, the proposed further development seems to veer from this.

Please provide additional information regarding how a campus-style form is provided and revise if necessary.

As noted, the intention is to have a cohesive property between the existing "Sunflower I" and developing "Sunflower II". E.g. Ensuring interconnectivity between spaces using path-/walkways connecting outdoor common amenity spaces as well as the office space.

Parking

What is the expected demand for the expanded development area?

6-8 additional parking spaces will be developed (a portion of which will be designated as accessible parking; 1-2 parking spaces will include EV chargers).

Geotechnical Investigation

On April 23, 2024, *BME Engineering Ltd*. conducted a geotechnical investigation of the site (report attached).

In "Test Pit 5", BME identified the presence of bedrock. However, the location of "Test Pit 5" is intended for parking spaces. BME noted that the proposed site layout was suitable for the intended development.

Shared Housing for Special Care Classification

It is our understanding that in 2022, policy amendments were made to have the classification of "Shared Housing for Special Care" replace what were formerly referred to as "Residential Care Facilities" (amongst other care facility-types). While we understand these changes were made with the intention to better facilitate the development of affordable housing, we wish to briefly speak to our shared concern with our client regarding the use of the term "special care" in the context of affordable, non-profit housing.

When referring to affordable rental housing as housing requiring "special care", we suggest such terminology inaccurately and inappropriately reflects the nature and intention of affordable housing (such as the housing provided by Sunflower I and soon by Sunflower II).

We must respectfully relay our concern and that of Adsum for Women & Children that such language implicitly suggests that poverty and the unaffordability of housing, are individual, rather than systemic, issues. The implication that low-income individuals and families who rent affordable housing units require "special care", simply by virtue of experiencing poverty, is an

TWC
tim welch
consulting inc

26 Colborne Street
Cambridge, Ontario N1R 1R2
office: 519.624.9271
toll free: 1.866.624.9271
fax: 519.624.5556

inaccurate representation of the reality faced by many Nova Scotians struggling to secure housing in a deeply saturated and often unaffordable rental market.

Thank you, again, for your time and consideration of this application. If you require additional information, or have comments or concerns, please do not hesitate to contact me directly.

With my best,

Katie Brousseau

Tim Welch Consulting

BME Engineering Ltd.
61 Bluewater Road
Bedford, NS B4B 1G8
902-430-2830

April 23, 2024

Patrick Masterson
Senior Housing Consultant
Tim Welch Consulting Inc.
Via email

Dear Patrick,

Re: Geotechnical Investigation – Proposed Additional Buildings
Sunflower Property, Greenhead Road, Lakeside, NS

This provides the findings of our geotechnical investigation for the proposed additional buildings adjacent to the existing Sunflower buildings at Lakeside, NS. The conditions at the proposed building areas are generally favourable. Conventional spread footings and grade slab will be practical for the proposed development of this site.

The site is within an undeveloped treed area. The site is bordered on the north and south by existing buildings and to the west by Greenhead Road. The site has varied elevations and gently sloping downward to the northeast.

Recommendations are provided herein for foundation design and earthworks for the proposed development.

MAIN FINDINGS

The subsurface conditions encountered within the proposed development area consist of rootmat/topsoil overlying glacial till in all the test pits. The glacial till consisted of silty sand with gravel. Boulders were encountered at the surface at all the test pits (except Test Pit 4). Slight seepage was observed in all test pits (except Test Pit 6). The test pits were excavated to varying depths up to 4.7 m. The test pits were terminated in the glacial till on probable large boulders except for Test Pit 5, where excavator refusal on inferred granite bedrock was encountered at a shallow depth. However, we noted bedrock outcrops at the west side of the site, so it is possible that bedrock is shallow in various areas of the site. Some work will be required to prepare the site, as outlined below and in this report.

Based on our investigation, our recommendations are as follows:

- A foundation system with spread footings or slab on grade are practical for this site following earthworks as outlined herein. The site is moderately sloping, so some cuts and/or fill will be required. Inspection and testing will be needed during earthworks.

- The existing rootmat/topsoil will have to be excavated from the entire building area to native soils and/or bedrock. Approved structural fill will have to be placed to achieve the desired design grades, if needed from the grading plan. Fill material required to achieve design grades should consist of well-graded granular material such as quarried rockfill or gravel.

- Seepage was noted in two test pits and surface water inflow at other test pit locations. Diverting surface water and directing groundwater around the proposed development will be required.

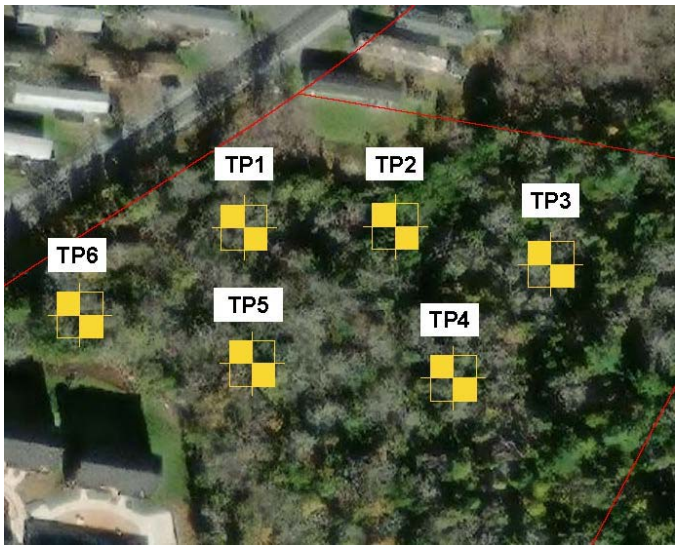
- Asphalt paved driveway and parking areas would be practical for this site following site grading as discussed in this report.

- Bedrock removal (if necessary) will require blasting or the use of hydraulic breakers. The western portion of the site has a higher ground surface elevation, so it is possible that bedrock is high in that area.

- Geotechnical inspection and testing will be necessary during earthworks.

FIELD INVESTIGATION

The field program consisted of six test pits (TP1 to TP6) completed on April 04, 2024. The test pit locations are shown in Figure A and on the appended Drawing 1.



The test pits were conducted using an excavator. Representative samples were taken during the field work and the conditions at the test pits were logged in detail. The soil conditions encountered at the site are summarized in the following paragraph and Table A.

The subsurface conditions encountered generally consist of rootmat/topsoil overlying glacial till overlying boulders or possible bedrock in the proposed building area. The glacial till consisted of silty sand with gravel. Boulders were encountered at the surface of the Test Pits. Slight seepage was observed in the two of the test pits. The test pits were excavated to depths up to 4.7 m.

Grain size testing was conducted on three samples of the silty sand glacial till from the investigation. The results from the sample show 42% to 47% gravel, 36% to 42% sand, and 13% to 20% fines. The moisture contents of the samples were 9% to 18%. The grain size distribution curve is shown in Figure 1 in the Appendix.

Table A: Summary of Findings – Test Pits

Location	Elevation, m	Thickness of Rootmat/Topsoil, m	Depth to Glacial Till (Elev.), m	Groundwater Seepage Depth, m	Refusal on Boulders/Possible Bedrock (Elev.), m
TP1	76.4	0.3	0.3 (76.1)	0.8	2.1 (74.3)
TP2	74.5	0.2	0.2 (74.3)	*	2.1 (72.4)
TP3	74.6	0.4	0.4 (74.2)	*	4.7 (69.9)
TP4	79.0	0.2	0.2 (78.8)	*	2.0 (77.0)
TP5	81.6	0.5	0.5 (81.1)	2.0	2.0 (79.6)
TP6	82.7	0.3	0.3 (82.4)	No seepage	2.2 (80.5)

Notes: Elevations based on Geodetic Datum.

* inflow from surface water

DISCUSSION AND RECOMMENDATION

The subsurface conditions are relatively good, consisting of rootmat/topsoil and then glacial till. Boulders or possible bedrock were encountered, and slight water seepage was noted occasionally. The site is moderately sloping, so some cuts and/or fills will be required for the development. The following recommendations should be reviewed as your plans advance.

Earthworks

Earthworks for this project will involve excavations of existing rootmat/topsoil from the building and parking areas down to the native brown silty sand glacial till, and placement of approved structural fill to design grades as required. The footings should have a minimum 200 mm thick layer of Type 1 Gravel if within the glacial till, to protect the layer from disturbance during construction.

Surface Water Control and Erosion Control

Prior to excavations, surface water drainage controls should be provided on the up-gradient side of the site to minimize run-off onto exposed soils. Suitable erosion and sedimentation control measures should be employed. These may include silt fences, check dams in ditches, and granular working pads.

Excavation

Excavation into the site soil will be practical with conventional earth-moving equipment. Bedrock removal, if needed based on the design grades, will require blasting or hydraulic breakers

Temporary excavation side slopes in soil should be stable at one horizontal to one vertical (1H:1V). Temporary slopes in bedrock can be 1H:4V pending review at the time of the work.

Existing native till could be considered for reuse depending on the moisture content at the time of the work and weather conditions.

Material that is planned for re-use should be placed directly in the intended areas or compacted in stockpiles for later use. Unsuitable materials should be used in landscaped areas or wasted off-site. Excavated material containing organics will not be suitable for reuse.

Dewatering of Excavations

With proper surface water controls, dewatering of excavations using ditches and swales draining to sumps would be practical. Water inflow was noted from the ground surface in test pits.

Fill Placement and Compaction

Fill required for the building and pavement areas should consist of the following:

- approved on-site soils, depending on moisture content, or
- imported, quarried rockfill or gravel.

Excavated material containing organics and/or debris will not be suitable for re-use. Selected portions of excavated till can be considered for reuse. This should be reviewed at the time of construction.

The lift thickness used during placement of fills must be compatible with the compaction equipment and the material type to ensure the specified density throughout. The lift thickness should not exceed approximately 450 mm for mass filling and 200 mm for backfilling of foundations and services. The maximum particle size should be no larger than ⅔ of the lift thickness.

Fill materials should be compacted to the following percentage of maximum Standard Proctor dry density:

- Fill in building areas 100%
- Fill within 300 mm of driveway/parking subgrade 98%
- Fill below 300 mm of driveway/parking subgrade 95%
- Landscaped areas 93%

Where fill is needed below footings, the fill must be extended laterally beyond the edges of the footings to include a 300 mm bench and the conventional 1H:1V splay down to native glacial till. Also, footings will have to be at least 5 m from fill slopes.

Slopes and Toe Drainage

Permanent fill slopes should be 2H:1V, or lower. Permanent cut slopes should be stable at 3H:1V for slope heights of less than 2 m. Cutting slopes of greater heights will require a 300 mm thick granular blanket or deep rooting vegetation to reinforce the slope. A toe drain or swale should be provided for drainage at the base of cut slopes.

Building and Parking Area Subgrade

The contractor must take precautions to avoid disturbance to the site's soil or reinstate the material to the required condition. The condition of the subgrade should be reviewed prior to placement of base gravel.

Inspection and Testing

It is recommended that inspection of all footing bearing surfaces be conducted by experienced geotechnical personnel prior to placement of concrete. Inspection and testing are also recommended during site grading and backfilling operations.

Foundations

A foundation system consisting of spread footings and a grade slab founded on native till and/or structural fill or bedrock is favourable for the proposed buildings.

Shallow Foundations

For analysis using Limit States Design, we calculated bearing capacities for square and strip footings up to 2.5 m for a settlement tolerance of 25 mm. Other bearing capacities for other footing sizes (or settlement tolerances) can be provided at your request. Bearing resistance values for square and strip footings found on glacial till or structural fill are plotted on Figures 2 and 3 in the Appendix. Bearing values for foundations on bedrock would be much higher and can be provided if necessary.

Exterior footings should be found a minimum of 1.2 m below grade for frost protection, or equivalent insulation provided.

The site classification for seismic site response was based on our local experience in the area and our geotechnical investigation. The recommended site classification for seismic site response is Site Class C.

Slab on Grade and Exterior Slabs

A conventional grade slab founded on approved structural fill or glacial till is practical for this site. A 150 mm layer of DTIR Type 1 Gravel is recommended below the floor slab for levelling and support purposes. The gravel should be compacted to 100% Standard Proctor. The subgrade will have to consist of well-graded material to allow for placement of base gravel over it.

A perimeter foundation drainage system would not be necessary if the finished floor elevation is above exterior finished grades and the exterior grades slope away from the building. A proper cut-off ditch should be planned on the southern (high) side of the site.

Pavement Areas

The driveway and parking areas should be cut to subgrade elevation and proof-rolled. Any soft or wet material should be replaced with approved, granular material.

The following pavement structure is recommended for preliminary design and planning. This should be reviewed as your plans advanced. The use of a geotextile is recommended depending on design elevations and the time of year of construction.

Material	Light Duty	Driveway and Heavy Duty
Asphalt, Mix Type C-HF Mix Type B-HF	 65 mm -	 40 mm 50 mm
Type 1 Gravel Type 2 Gravel	150 mm 150 mm	150 mm 300 mm
Geotextile	-	Terratrack 400 should be considered
Subgrade	As approved by BME Eng.	As approved by BME Eng.

All aggregate should meet the NSPW Standard Specifications. The gravels should be compacted to 100% of Standard Proctor maximum dry density. The asphalt should be compacted to 92% Marshall density.

Please contact us if you have any questions.

Regards,
(Original Signed)

Bruce MacNeil, P.Eng.
Senior Geotechnical Engineer
bmacneil@macneileng.com

APPENDIX A

Bruce MacNeil Engineering Ltd.

SYMBOLS AND TERMS USED ON BOREHOLE AND TEST PIT RECORDS

SOIL DESCRIPTION

Terminology describing common soil genesis:

Topsoil - mixture of soil and humus capable of supporting good vegetative growth
Peat - fibrous aggregate of visible and invisible fragments of decayed organic matter
Till - unstratified glacial deposit which may range from clay to boulders
Fill - any materials below the surface identified as placed by humans (excluding buried services)

Terminology describing soil structure:

Desiccated - having visible signs of weathering by oxidation of clay minerals, shrinkage cracks, etc.
Fissured - having cracks, and hence a blocky structure
Varved - composed of regular alternating layers of silt and clay
Stratified - composed of alternating successions of different soil types, e.g. silt and sand
Layer - >75 mm
Seam - 2 mm to 75 mm
Parting - < 2 mm
Well Graded - having wide range in grain sizes and substantial amounts of all intermediate particle sizes
Uniformly Graded - predominantly of one grain size

Terminology describing soils on the basis of grain size and plasticity is based on the Unified Soil Classification System (USCS) (ASTM D-2488). The classification excludes particles larger than 76 mm (3 inches). This system provides a group symbol (e.g. SM) and group name (e.g. silty sand) for identification.

Terminology describing materials outside the USCS, (e.g. particles larger than 76 mm, visible organic matter, construction debris) is based upon the proportion of these materials present:

Trace, or occasional	Less than 10%
Some	10-20%
Frequent	Greater than 20%

The standard terminology to describe cohesionless soils includes the compactness (formerly “relative density”), as determined by laboratory test or by the Standard Penetration Test ‘N’ – value.

Relative Density	‘N’ Value	Compactness %
Very Loose	<4	<15
Loose	4-10	15-35
Compact	10-30	35-65
Dense	30-50	65-85
Very Dense	>50	>85

The standard terminology to describe cohesive soils includes the consistency, which is based on undrained shear strength as measured by insitu vane tests, penetrometer tests, unconfined compression tests, or occasionally by standard penetration tests.

BME

Consistency	Undrained Shear Strength (Su)		'N' Value
	Kips/sq.ft.	KPa	
Very Soft	< 0.25	< 12.5	< 2
Soft	0.25 – 0.5	12.5 – 25	2 – 4
Firm	0.5 – 1.0	25 – 50	4 – 8
Stiff	1.0 – 2.0	50 – 100	8 – 15
Very Stiff	2.0 – 4.0	100 – 200	15 – 30
Hard	> 4.0	> 200	> 30

ROCK DESCRIPTION

Rock Quality Designation (RQD)

The classification is based on a modified core recovery percentage in which all pieces of sound core over 100 mm long are counted as recovery. The smaller pieces are considered to be due to close shearing, jointing, faulting, or weathering in the rock mass and are not counted. RQD was originally intended to be done on N-size (45 mm) core; however, it can be used on different core sizes if the bulk of the fractures caused by drilling stresses are easily distinguishable from in situ fractures.

RQD	ROCK QUALITY
90 – 100	Excellent, intact, very sound
75 – 90	Good, massive, moderately jointed or sound
50 – 75	Fair, blocky and seamy, fractured
25 – 50	Poor, shattered and very seamy or blocky, severely fractured
0 – 25	Very poor, crushed, very severely fractured

Terminology describing rock mass:

Spacing (mm)	Bedding, Laminations, Bands	Discontinuities
2000 – 6000	*Very Thick*	*Very Wide*
600 – 2000	*Thick*	*Wide*
200 – 600	*Medium*	*Moderate*
60 – 200	*Thin*	*Close*
20 – 60	*Very Thin*	*Very Close*
< 20	*Laminated*	*Extremely Close*
< 6	*Thinly Laminated*	

Strength Classification	Uniaxial Compressive Strength (MPa)
Very Weak	1 – 5
Weak	5 – 25
Medium Strong	25 – 50
Strong	50 – 100
Very Strong	100 – 250
Extremely Strong	> 250

Terminology describing weathering:

Slight - Weathering limited to the surface of major discontinuities. Typically iron stained.
Moderate - Weathering extends throughout rock mass. Rock is not friable.
High - Weathering extends throughout rock mass. Rock is friable.

BME

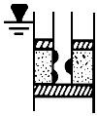
STRATA PLOT

Strata plots symbolize the soil or bedrock description. They are combinations of the following basic symbols:

Boulders, Cobbles, Gravel | Sand | Silt | Clay | Organics | Asphalt | Concrete | Fill | Igneous Bedrock | Metamorphic Bedrock | Sedimentary

WATER LEVEL MEASUREMENT

Borehole or Standpipe



Piezometer

SAMPLE TYPE AND/OR FIELD TESTS

SS	Split Spoon Sample (obtained by performing the Standard Penetration Test)	AS	Auger Sample
		BS	Bulk Sample
		WS	Wash Sample
ST	Shelby Tube or Thin Wall Tube	HQ, NQ, BQ, etc. Rock Core Samples (obtained with the use of standard size diamond drilling bits)	
PS	Piston sample		
DC	Dynamic Cone Penetration		
FSV	Field Shear Vane		

N- VALUE

Numbers in this column are the results of the SPT (Standard Penetration Test): the number of blows of a 140 pound (64kg) hammer falling 30 inches (760 mm), required to drive a 2 inch (50.8 mm) O.D. split spoon sampler one foot (305 mm) into the soil. For split spoon samples where insufficient penetration was achieved and 'N' values cannot be presented, the abbreviation SSR (Split Spoon Refusal) will appear in place of a numerical value.

OTHER TESTS

Symbols in this column indicate that the following laboratory tests have been carried out and the results are presented separately.

S	Sieve analysis	H	Hydrometer analysis
G_s	Specific gravity of soil particles	□	Unit weight
k	Permeability	C	Consolidation
	Single packer permeability test; test interval from depth shown to bottom of borehole	CD	Consolidated drained triaxial
		CU	Consolidated undrained triaxial with pore pressure measurements
	Double packer permeability test; Test interval as indicated	UU	Unconsolidated undrained triaxial
		DS	Direct shear
	Falling head permeability; using casing	Q_u	Unconfined compression
		I_p	Point Load Index (I_p on Borehole Records equals I_p (50); the index corrected to a reference diameter of 50 mm)
	Falling head permeability test using well point or piezometer	MSV	Laboratory Miniature Shear Vane

BME

BME Engineering Ltd.

TEST PIT RECORD

Project Name: Addl Bldgs, Greenhead Road

Project No.: 382-002 | **Test Pit:** TP1

Client: Tim Welch Consult | **Sheet:** 1 of 1

Location: 158 Greenhead Road, NS | **Date Drilled:** April 04, 2024

Water Level Date: April 04, 2024 | **Datum:** Geodetic

SUBSURFACE PROFILE				SAMPLE			
Depth (m)	Symbols	SOIL AND/OR ROCK DESCRIPTION	Elevation (m)	Water Level (m)	Type	Number	Comments
0		**Ground Surface**	**76.4**				
		ROOTMAT/TOPSOIL -large boulders at the surface	**76.1**				
		TILL: Compact reddish to light brown silty sand with gravel -some large boulders			**BS**	**1**	
1					**BS**	**2**	
2			**74.3**				
		End of Test Pit -EXCAVATOR REFUSAL ON INFERRED BEDROCK -Groundwater seepage encountered at 0.8 m below ground surface					
3							
4							
5							

BME Engineering Ltd.

TEST PIT RECORD

Project Name: Addl Bldgs, Greenhead Road
Project No.: 382-002 | **Test Pit:** TP2
Client: Tim Welch Consult | **Sheet:** 1 of 1
Location: 158 Greenhead Road, NS | **Date Drilled:** April 04, 2024
Water Level Date: April 04, 2024* | **Datum:** Geodetic

SUBSURFACE PROFILE				SAMPLE			
Depth (m)	Symbols	SOIL AND/OR ROCK DESCRIPTION	Elevation (m)	Water Level (m)	Type	Number	Comments
0		**Ground Surface**	**74.5**				
		ROOTMAT/TOPSOIL -large boulders at the surface	**74.3**				
		TILL: Compact brown silty sand with gravel -some boulders					
1							
					BS	**1**	
2			**72.4**				
		End of Test Pit - EXCAVATOR REFUSAL ON INFERRED BEDROCK *No seepage, but inflow from surface water					
3							
4							
5							

BME Engineering Ltd.

TEST PIT RECORD

Project Name: Addl Bldgs, Greenhead Road
Project No.: 382-002 | **Test Pit:** TP3
Client: Tim Welch Consult | **Sheet:** 1 of 1
Location: 158 Greenhead Road, NS | **Date Drilled:** April 04, 2024
Water Level Date: April 04, 2024* | **Datum:** Geodetic

SUBSURFACE PROFILE				SAMPLE			
Depth (m)	Symbols	SOIL AND/OR ROCK DESCRIPTION	Elevation (m)	Water Level (m)	Type	Number	Comments
0		**Ground Surface**	**74.6**				
		ROOTMAT/TOPSOIL -large boulders at the surface	**74.2**				
		TILL: Compact brown silty sand with gravel -some boulders					
1							
					BS	**1**	
2							
3							
4			**69.9**				
		End of Test Pit - EXCAVATOR REFUSAL ON INFERRED BEDROCK *No seepage, but inflow from surface water					
5							

BME Engineering Ltd.

TEST PIT RECORD

Project Name: Addl Bldgs, Greenhead Road
Project No.: 382-002 | **Test Pit:** TP4
Client: Tim Welch Consult | **Sheet:** 1 of 1
Location: 158 Greenhead Road, NS | **Date Drilled:** April 04, 2024
Water Level Date: April 04, 2024* | **Datum:** Geodetic

SUBSURFACE PROFILE				SAMPLE			
Depth (m)	Symbols	SOIL AND/OR ROCK DESCRIPTION	Elevation (m)	Water Level (m)	Type	Number	Comments
0		**Ground Surface**	**79.0**				
		ROOTMAT/TOPSOIL	**78.8**				
		TILL: Compact brown silty sand with gravel -some cobbles -some boulders					
1							
2			**77.0**				
		End of Test Pit - EXCAVATOR REFUSAL ON INFERRED BEDROCK *No seepage, but inflow from surface water					
3							
4							
5							

BME Engineering Ltd.

TEST PIT RECORD

Project Name: Addl Bldgs, Greenhead Road
Project No.: 382-002 | **Test Pit:** TP5
Client: Tim Welch Consult | **Sheet:** 1 of 1
Location: 158 Greenhead Road, NS | **Date Drilled:** April 04, 2024
Water Level Date: April 04, 2024 | **Datum:** Geodetic

SUBSURFACE PROFILE				SAMPLE			
Depth (m)	Symbols	SOIL AND/OR ROCK DESCRIPTION	Elevation (m)	Water Level (m)	Type	Number	Comments
0		**Ground Surface**	**81.6**				
		ROOTMAT/TOPSOIL -some large boulders	**81.1**				
		TILL: Compact reddish to light brown silty sand with gravel			**BS**	**1**	
1							
					BS	**2**	
2			**79.6**				
		End of Test Pit - EXCAVATOR REFUSAL ON INFERRED GRANITE BEDROCK -Slight seepage observed at the bottom of the test pit					
3							
4							
5							

BME Engineering Ltd.

TEST PIT RECORD

Project Name: Addl Bldgs, Greenhead Road

Project No.: 382-002 | **Test Pit:** TP6

Client: Tim Welch Consult | **Sheet:** 1 of 1

Location: 158 Greenhead Road, NS | **Date Drilled:** April 04, 2024

Water Level Date: April 04, 2024* | **Datum:** Geodetic

SUBSURFACE PROFILE				SAMPLE			
Depth (m)	Symbols	SOIL AND/OR ROCK DESCRIPTION	Elevation (m)	Water Level (m)	Type	Number	Comments
0		**Ground Surface**	**82.7**				
		ROOTMAT/TOPSOIL -some large boulders	**82.4**				
		TILL: Compact reddish to light brown silty sand with gravel -some boulders			**BS**	**1**	
1							
					BS	**2**	
2			**80.5**				
		End of Test Pit - EXCAVATOR REFUSAL ON INFERRED BEDROCK *No seepage observed					
3							
4							
5							

Photograph 1: Test pit 1. April 04, 2024.

Photograph 2: Test pit 2. April 04, 2024.

Photograph 3: Test pit 3. April 04, 2024.

Photograph 4: Test pit 4. April 04, 2024.

Photograph 5: Test pit 5. April 04, 2024.

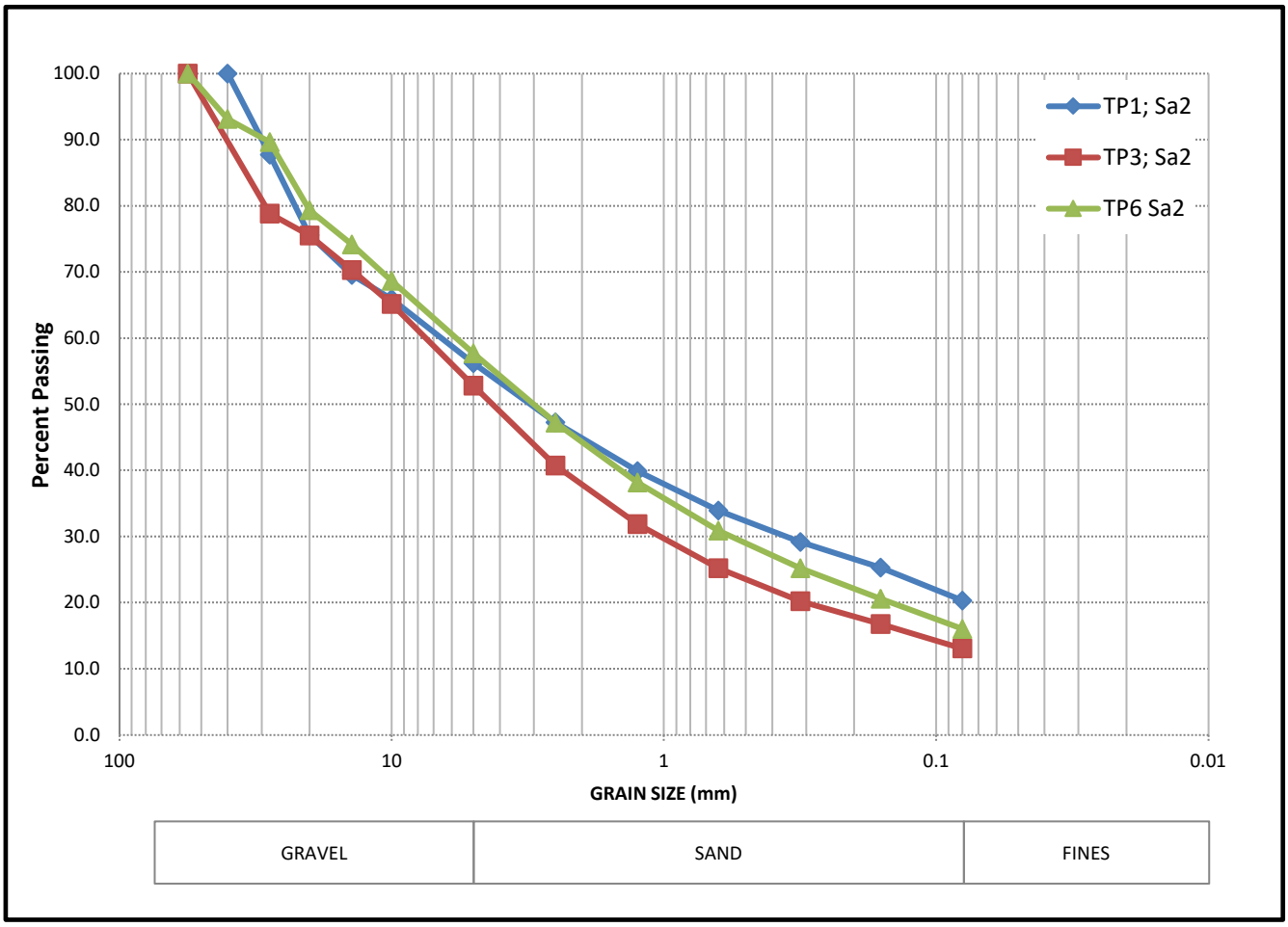
Photograph 6: Test pit 6. April 04, 2024.

BME Engineering Ltd.

GRAIN SIZE REPORT

Project: Greenhead Rd
Client: Tim Welch Consulting
Project No: 382-002

GRAIN SIZE DISTRIBUTION PLOT



SOIL CLASSIFICATION

Sample No	Depth	Classification	Moisture Content (%)	Gravel (%)	Sand (%)	Silt and Clay (%)
TP1; Sa2	1.5 m	Silty sand with gravel	18.0	44	36	20
TP3; Sa2	3.7 m	Silty sand with gravel	9.4	47	40	13
TP6 Sa2	1.6 m	Silty sand with gravel	14.9	42	42	16

BME Engineering Ltd.
61 Bluewater Road, Bedford, NS B4B 1G8
Phone (902) 430-2830

Comments: Samples were taken from test pits on April 4, 2024

Figure 1

FACTORED ULS BEARING RESISTANCE (Glacial Till or Approved Fill)

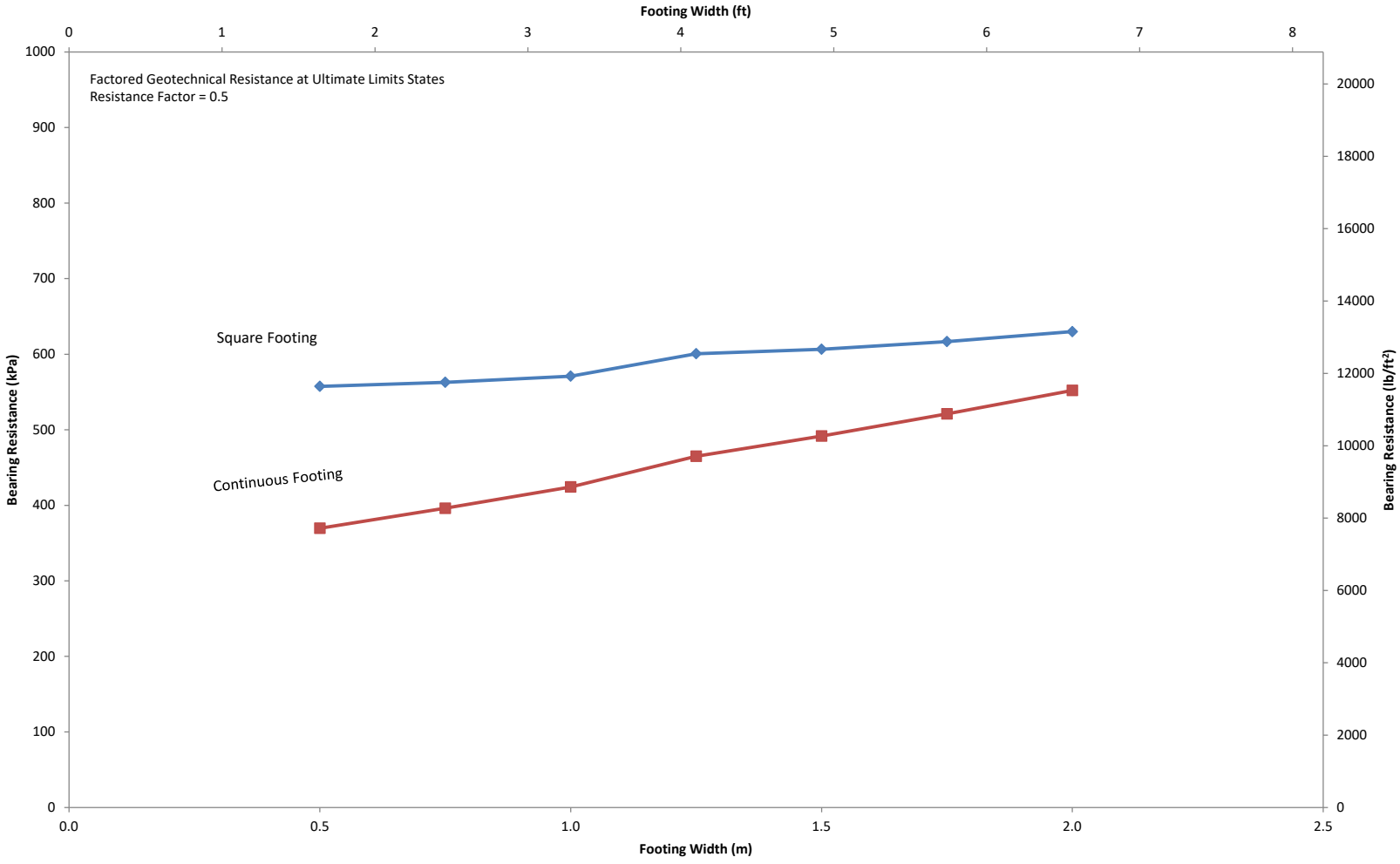


Figure 1

Project # 382-002

SLS BEARING RESISTANCE (Glacial Till or Approved Fill)

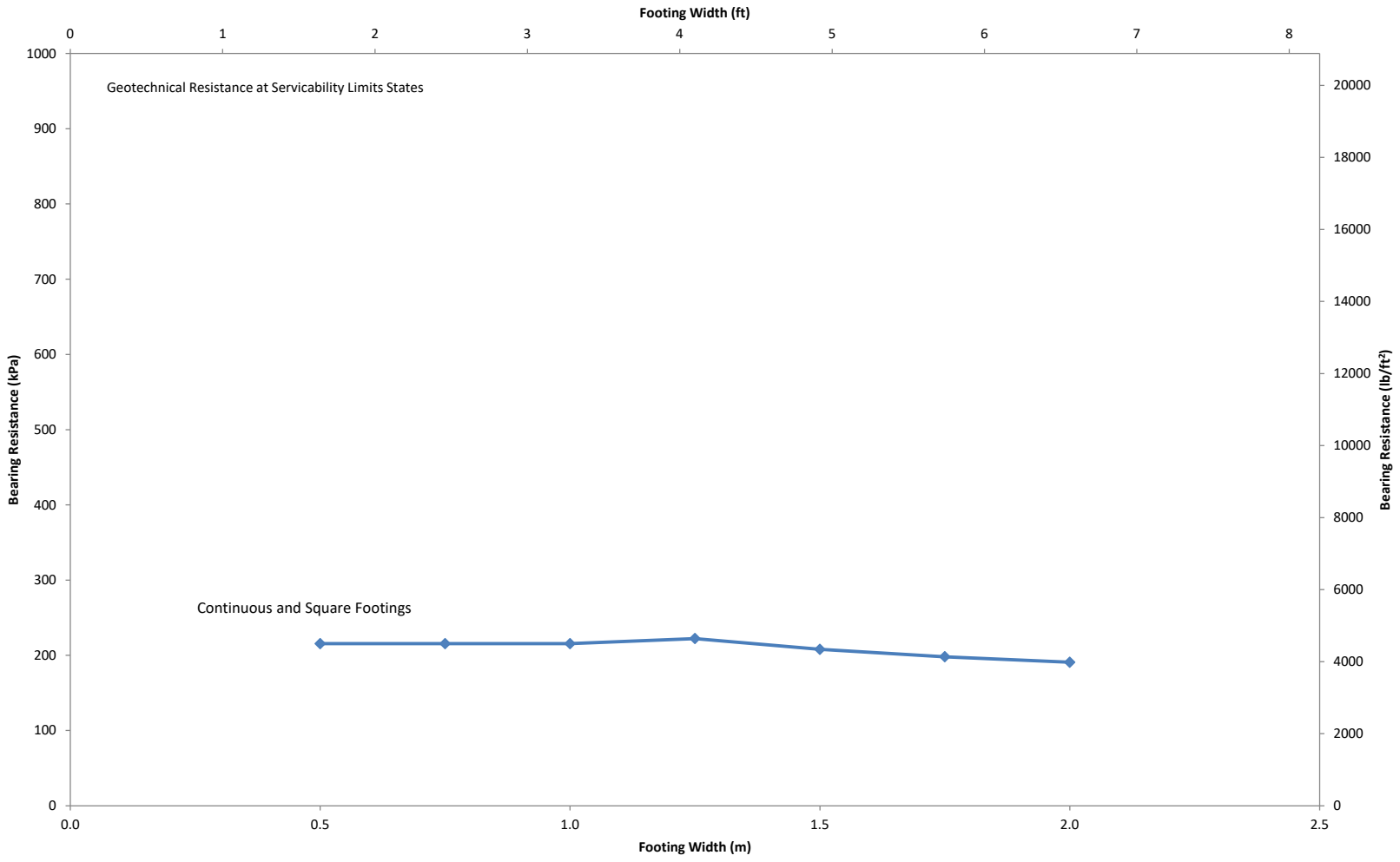


Figure 2

Project # 382-002

TP1-TP6 BME Test Pits (April 2024)

BME Engineering Ltd.
61 Bluewater Road
Bedford, NS
B4B 1G8

Proposed Building

Test Pit Locations
Tim Welch Consult
158 Greenhead Rd.
Spryfield, NS

JOB #:	382-002
SCALE:	NTS
DATE:	April 16, 2024
DRAWN BY:	AMZ
CHECKED BY:	RBM

Drawing No.: 1

REV: 0