

Dear CVCA Board Members,

We have proposed a development of a 340sf cabin which includes an attached deck and floating dock system. The development is located on Block A Plan 1733 on Gunter Island (Gunter Lake) in Gilmour, Ontario.

We originally applied for a minor variance in April 2020 (TWP Tudor & Cashel) to locate the proposed cabin on the upland area that is located in the middle of the property on the eastern boundary adjacent to lot #9 & Block B this location met 15m setbacks from the shoreline. This building envelope was to encroach the side yard setbacks of the neighboring properties to allow a setback buffer from the delineated wetlands located on the property. The variance process was deferred by the TWP and the CVCA until appropriate studies were completed.

Oakridge Environmental was retained to complete a scoped EIS following the guidelines of the CVCA. Oakridge Environmental made a second site visit post variance deferral to investigate other potential building envelopes on the property. Oakridge Environmental using the least impactful approach selected an upland area bordering the northern shoreline that could allow for development with much less impact to the wetland areas by avoiding travel through the property via boardwalks that would be required to be installed to reach the original proposed building envelope. This location also allows the development not to encroach on neighboring properties as well with retaining mostly all existing vegetation in and around the cabin.

The proposed building envelope on the upland area requires the cabin to be erected on a concrete Sono Tube foundation that is well elevated off the existing granite / marble bedrock shelf and above the lakes flood levels to allow for future high water levels / flooding. The upland area is surrounded by trees at the shoreline and concrete bollards may be installed into the bedrock for possible ice protection.

Many of the existing cottages on the island are built inside the 15m setback from the lake. A Class 1 Outhouse / Privy with an incineration toilet will be used to keep the development smaller in scale.

We can mitigate disturbances to the wetland areas around the building envelopment area by installing sediment / silt fencing prior to the construction process. The development can be completed as far as 4m from the shoreline to the cabin. Erosion control should be inline as the bedrock is 6-12" under the organic topsoil but may be mitigated with engineering and a lot grading plan can be established.

There will be no concern for any pollution on the property or during the construction process as only man power will be used to complete the building process and there will be zero heavy equipment used on this development, to avoid damage to existing organic topsoil in and around the proposed building envelope. There will also be no fill required to complete this project. Having the cabin / deck / dock system attached and elevated will allow for little foot traffic through the vegetation around the development.

During the building process the shoreline / dynamic beach area will not be affected in any way shape or form as the proposal is using a floating dock system for access to the property and will mitigate any damages by using the least impactful approach to the access point at the shoreline area. Fish or fish habitat will not be harmed or altered during the development.

We are the second owner of this property as we purchased it from the original development company that built the subdivision on Gunter Island. We would be preserving mostly the entire wetland area on the property for the purpose of conservation of land. Our proposal is of a smaller scale (340 sf cabin) to attempt to minimize the required impact to the wetlands and surrounding areas by leaving them unaltered.

Our company currently has (2) waterfront developments under construction with similar foundation systems. The first (Log Cabin) being located at 1224 Buckshot Lake Rd in Denbigh, Ontario and the second (Shipping Container Cottage) being located at 745 Goose Gap Crescent on Gordon Barrie Island in Gore Bay, Manitoulin Island. We have a plethora of experience with waterfront / wetland developments around Ontario along with a proven track record of completing developments which have us following guidelines from local municipalities and conservation authorities. Examples are shown in attached pictures.

Sincerely,

Christopher Seguin
QS / PMP

Introduction

In response to the requirements of Crowe Valley Conservation Authority (CVCA), we have completed a brief investigation of the site conditions and determined the best location for a small cabin on the above referenced *lot of record* on Gunter Island, within Gunter Lake (Figure 1).

We attended the property in February and June 2020 to conduct inspections of the subject site and the surrounding area. According to the property owner, it is understood that the subject lot possesses an abundance of wetland vegetation and some minor upland areas. As such, the focus of our investigation was to determine whether a small recreational cabin could be constructed on one of the available small upland areas.

For each such area, the constraints were scrutinized and a “least impact” approach was considered, with the goal of discerning the best location for a small cabin (and deck, etc.). In the event that a suitable location could not be identified within the upland areas, our mandate was to inform the property owner that it may not be possible to construct a cabin on the property.

The following sections provide an outline of our findings and recommendations for establishing a seasonal cabin on the property.

2.0 Proposed Development and Investigation Approach

The subject site is a *lot of record* situated on an island lot (Block A - Gunter Island), Registered Plan 1733, Township of Tudor and Cashel (Cashel). Much of the property consists of unevaluated wetland and is surrounded by other recreational cabins/cottage lots. The wetland vegetation is typically inundated throughout the year in conjunction with the water levels of Gunter Lake. However, there are some small areas that occur higher than the normal water levels of the lake.

It is proposed that an approximately 300 sq. ft. cabin/cottage be constructed on an upland mini island on the lot (i.e., outside of the wetland vegetation and above the current lake level).

The lot owner contacted CVCA staff who advised the proponent to locate the proposed recreational cabin on whatever available upland area there is on the lot. In addition, it is understood that CVCA staff requested that the on-site wetland areas be delineated for the purpose of their Regulation.

3.0 Topography and Drainage

The subject site is a lot of record situated on an island within Gunter Lake in the former Cashel Township. Cashel (Geographic) Township occurs at the topographic high point between the Ottawa River and Lake Ontario watersheds, with the regional drainage divide occurring north of the subject site. As such, the regional (average) gradient is generally southward, although is highly variable on a local basis.

As illustrated by Figure 2, the island's topography is somewhat dome-like, dominated by bedrock outcroppings, with an arcuate shaped central drainage divide that traverses the island from its southwest tip to its southeast tip. The topography also exhibits a "saddle-like" form, separating the island into western and eastern lobes. The subject lot occurs mostly within the "saddle" between the two lobes, in a low-lying area that contains wetland.

While the maximum relief on the island is approximately 4 m, relief on the subject lot is much less, perhaps about 2 m, straddling the central divide. Therefore, on-site runoff is split into a northeast flowing regime and a southwest flowing regime. Both ultimately convey overland flow to Gunter Lake.

4.0 Geology

The Gunter Lake area occurs within the Precambrian Shield terrain (Ecoregion 5E) and is characterized by thin soil cover and abundant bedrock outcroppings. Published geological

mapping (Figure 3) indicates that the island's overburden is minimal, consisting of ground moraine. Those deposits are composed of sandy and gravelly till.

Aggregate Resource mapping for the County of Hastings indicates that there are scattered sandy deposits throughout the area, most of little significance. These are a combination of glaciolacustrine and glaciofluvial deposits. While there are no major deposits in the immediate site area, small pockets of these sandy units (i.e., too small to appear on Aggregate Resource mapping) could occur around Gunter Lake and on the island, especially in local bedrock depressions. This type of sand and gravel deposit has been identified along the eastern and southern shores of the lake, and are identified in local well records, being up to about 2 m in thickness in some areas.

Gunter Lake and its island occur within an area dominated by bedrock composed of metamorphosed limestone, referred to as "marble". The marble occurs as a wide "belt" that traverses the Gunter Lake area from southwest to northeast and includes other intercalated metasedimentary rocks, such as pelitic schist. Narrow "dikes" of dark-coloured metagabbro also occur within the metasedimentary sequence, possibly representing intrusive "sills".

While the Precambrian bedrock geology is usually not particularly relevant to the ecological setting, the presence of marble on the island (and any soils derived from the marble) could affect the local vegetation communities, due to its carbonate content. The breakdown of marble has contributed to the local formation of "marl" deposits, one of the larger occurring in the southwestern bay of Gunter Lake.

Within the subject site, the water table is expected to occur within bedrock fractures. The water table will be at its maximum elevation below the centre of the island, declining radially toward the surrounding lake. In the near-shore area, the water table is expected to occur at or slightly above the lake level. Despite the somewhat isolated location, there are many recorded wells in the Gunter Lake area. These well records indicate that aquifers are typically encountered within 30 m of the surface and that high well yields can occur.

5.0 Site Inspections

Our initial site inspection was conducted in February 18th, 2020 with an Ontario Land Surveyor and again on June 29th, 2020. We observed the unevaluated wetland to be comprised of thicket swamp and minor organic tufts of wooded swamp. The wooded swamp tufts are characterized by a mixture of Red Maple (*Acer rubrum*), Eastern White Cedar (*Thuja occidentalis*) and Black Spruce (*Picea mariana*).

Around the perimeter of the small internal “islands” and organic tufts is a thicket swamp habitat consisting of dense White Meadow-sweet (*Spiraea alba*), Cranberry Viburnum (*Viburnum trilobum*), Paper Birch (*Betula papyrifera*), Pussy Willow (*Salix discolor*), Speckled Alder (*Alnus incana*) and Red-osier Dogwood (*Cornus sericea*). The small “islands” of upland terrain were observed to contain Sugar Maple (*Acer saccharum*), White Spruce (*Picea glauca*), Trembling Aspen (*Populus tremuloides*) and Eastern Hemlock (*Tsuga canadensis*), along with a variety of upland grasses such as Poverty Oatgrass (*Danthonia spicata*) and lichens such as Reindeer Lichen (*Cladonia rangiferina*). Some aquatic emergent species, such as White-water-lily (*Nymphaea odorata*), Pickerel Weed (*Pontederia cordata*), Watershield (*Brasenia schreberi*) and Large-leaved Pondweed (*Potamogeton amplifolius*) were also observed.

During the June site visit ORE staff reviewed the wetland boundaries/vegetation and fisheries within the littoral zone of the small islands on-site. The boundaries were determined following the standard protocols of the Ontario Wetland Evaluation System (OWES) and are illustrated on Figure 4.

At the adjacent existing lots situated east and west of the subject site, the vegetation has either been removed or filling has taken place along the shoreline riparian zones for the purpose of establishing vistas and/or creating openings to the shoreline. In contrast, the proposed cabin on the subject lot would take a much different approach and have a much smaller development footprint, restricted to the northern-most bedrock island while retaining the majority, if not all, of the shoreline vegetation.

The location of the proposed small cabin development footprint is indicated by the shaded area on Figure 4. By locating the development on this small internal “island”, all of the wetland vegetation to the south will remain intact and unaltered. The survey also confirms that this “island” is the highest point of land on the subject site, referring to the location as the “highest ground” (Appendix A).

Unfortunately, there does not appear to be a sufficiently large upland area on the subject lot for construction of a conventional sewage system while maintaining the Ontario Building Code setbacks to watercourses. Therefore, it would be necessary for the Township Building Department (or other applicable authority) to permit use of an *incinerating system* (or other Class 1 type system) to service the small cabin.

ORE staff explored other elevated parts of the lot, including along the hydro-electric corridor and the near shore area. The hydro-electric corridor would force the building into the wetland due to the 6 m hydro line setback rule. Alternatively, a building footprint could be established on the edge of the mainland. However, copious amounts of fill would need to be introduced into the wetland and a series of boardwalks/docks would be required, also to be constructed directly in the wetland, to provide access to the lakeshore (to the north). Neither of these would represent a “least impact” approach and less acceptable options.

In the preferred location illustrated on Figure 4, it may be possible to construct the cabin entirely on the bedrock island and elevate the unit well above the lake's flood level. It may also be possible to elevate the cabin above the vegetation on the bedrock island such that the majority of the natural vegetation is retained. The property owner could also construct an elevated deck around the perimeter of the cabin in a "u-shaped" fashion, overlooking the lake with an extension to the lakeshore. A dock could then be inserted into the lake, providing the appearance of a single continuous unit. Should that be acceptable, we would recommend that the dock be constructed as a pedestal type system that could be removed during the winter.

In the above scenario, it would not be necessary to fill any part of the island and this would prevent any portion of the structure from entering/interfering with the wetland. Therefore, the unevaluated wetland would remain unharmed, including in the post construction era.

Furthermore, no part of the structure would be constructed directly in the lake, other than if the lake level rose due to a significant flood event. If a flood elevation has been established for Gunter Lake, the cabin and deck could be raised above that elevation to flood-proof the building. In this manner, the structure (other than the dock) could be constructed without causing any alteration or disruption of the lake environment, thereby eliminating potential impacts to the fish or fish habitat of Gunter Lake.

A series of representative site photos is provided in Appendix B. One of the site photos identifies the conditions where the cabin could be situated without resulting in impacts to the wetland, flora and fauna. We did not review the soil conditions in this area as it was obvious that the bedrock occurs at or near surface. As such, the proponent should verify that the physical conditions are suitable for construction in this location.

In addition, the proponent should contact the Township Planning staff to determine whether the proposed cabin would be a legal use on the property.

6.0 Conclusions and Recommendations

- 6.1 Based on our site observations, the wetland occurs throughout the parcel. However, a small bedrock “island” is present in the most northern extent of the subject site at the location illustrated on Figure 4. It is our opinion that this small bedrock island represents the best available location to construct a small cabin, as this complies with the “least impact” approach with respect to environmental protection.
- 6.2 It will not be possible to achieve a 30 m setback for the seasonal cabin from the unevaluated wetland in this instance. Therefore, a 0 m setback is to be applied to the wetland boundary around the edge of the bedrock island. Notwithstanding, it would be possible to construct a small seasonal cabin entirely outside the wetland and lake environments, which are the most sensitive environmental receptors associated with the subject site.
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- 6.3 Fish will not be harmed and fish habitat will not be altered, disturbed or lost as a result of constructing the elevated cabin atop the bedrock island. However, it will be necessary to install a dock, in order for the property owner to access the property via the lake. If a pedestal type dock system is used, it will be possible to elevate the dock above the bottom vegetation and maintain any spawning areas that occur in the vicinity of the bedrock island. ORE staff prefers the pedestal type over a floating dock as the dock has a minimal footprint on the lake bottom and it will not block the natural flow of the lake and/or alter the bottom sediments.
- 6.4 We recommend that the seasonal cabin be constructed fully above-ground, as high water conditions are to be expected in Gunter Lake from time to time. If the flood elevation is known for Gunter Lake, it is recommended that the Builder incorporate any required flood controls into the design.

6.5 It is doubtful that a conventional sewage disposal system would be permitted on the property, considering the 15 m setback from a watercourse cannot be achieved. The property owner/builder should consult the Township Building Department (or applicable authority) to determine the best approach with respect to on-site servicing. If an incinerating type toilet (or other Class 1 system) is permissible, this would likely be the best option. While the small island possesses a thin veneer of soil in some areas, we expect that these would be insufficient to support a tile bed system.

6.6 The proposed cabin, deck, and docking system should be situated on the north side of the island to allow access to and from Gunter Lake. It would likely be beneficial to construct an elevated deck system directly off the small cabin as this would target foot traffic between the cabin and lakeshore, thereby maintaining the natural vegetation in these areas.

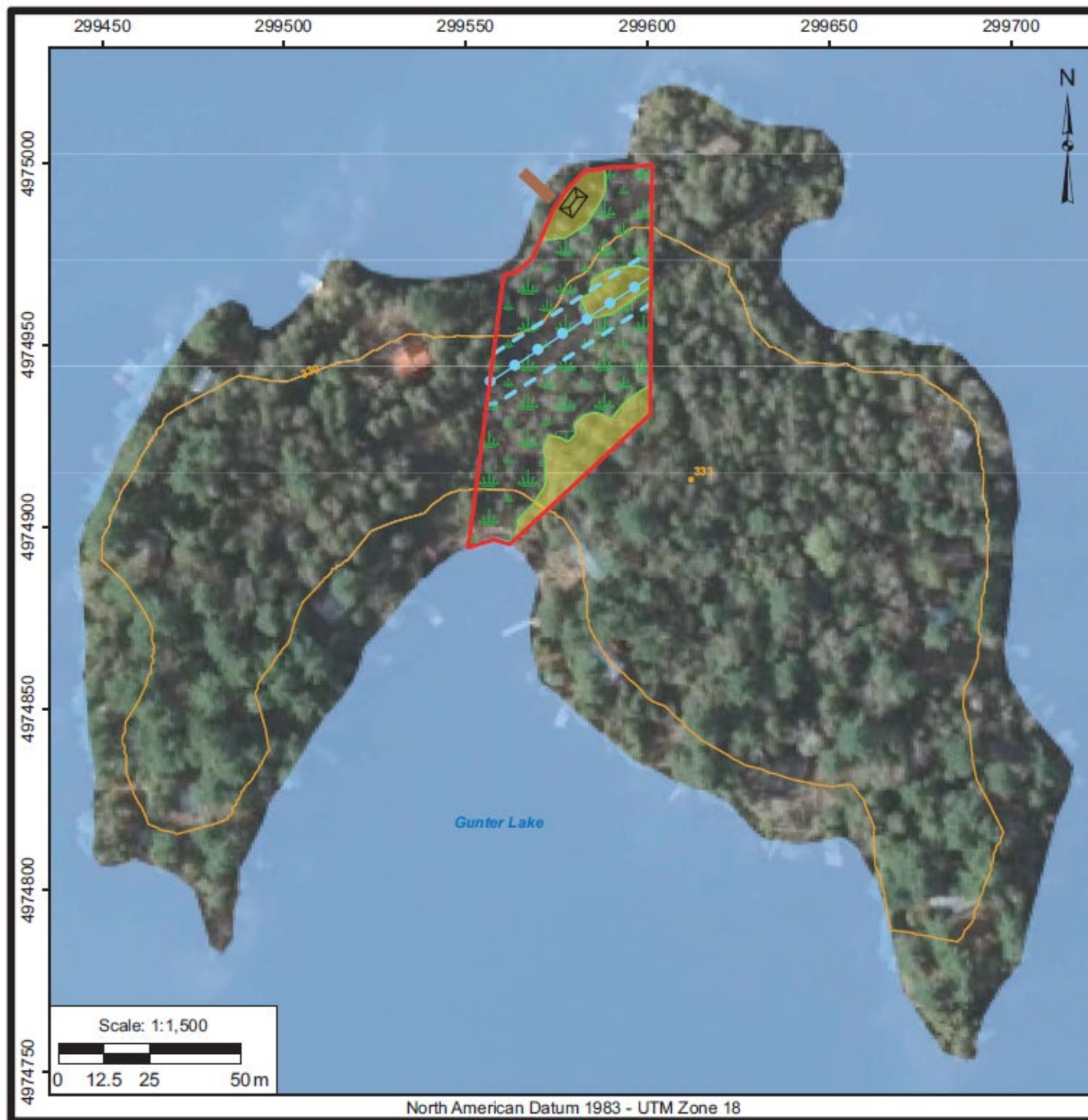
There is an existing opening off the north side of the island that possesses a hard bedrock surface, that would not be used for fish spawning purposes. The dock should be aligned to make use of the bedrock bottom in that area to avoid the sandy/gravelly materials that are suitable spawning bed materials. This area also corresponds to the deepest section of water and would be the best approach from the lakeside with respect to a watercraft.

6.7 Upon reviewing the majority of the existing lots around the edge of Gunter Lake, the proposed minor cabin development described herein would be far less intrusive to the wetlands and waterways, as compared to the majority of existing developments on Gunter

Lake. In contrast, the proposal outlined above would constitute the least harm a development could have on the lake. This simplified type development would allow people to enjoy the property without having a significant footprint on the lake, while coexisting with the flora and fauna on and adjacent to the lot, rather than displacing them.


7.0 Closure

We trust the above will be sufficient to address the wetland issues identified by CVCA. We are confident that potential impacts can be successfully mitigated by careful placement of the development elements within the “least impact” areas outlined herein.



Wetland Investigation Proposed Single Residential Development Block A, Registered Plan 1733 - Gunter Island, Gunter Lake Township of Tudor & Cashel (Cashel) County of Hastings

LEGEND

- Approximate Site Boundary
- Upland Area
- Unevaluated Wetland
-  Proposed Cabin (approximately 300 sq. ft.)
- Hydro Corridor
- Hydro Corridor Setback (6 m)
- Spot Height
- Contour (5 m interval)
- Waterbody
- Proposed Dock

Notes: Imagery provided by First Base Solutions (2008).

Base map provided by Land Information Ontario (2020).

Feature locations determined using a mapping-grade differential Global Positioning System (dGPS +/- 1.5 m).

Optimized for Oakridge Environmental Ltd. (ORE) printing.

TITLE

Constraints



PROJECT #
20-2741

DATE
October 2020

FIGURE NO.

4



Photo A (Left): This photo was taken looking east at the small island area where a small cottage is proposed to occur.

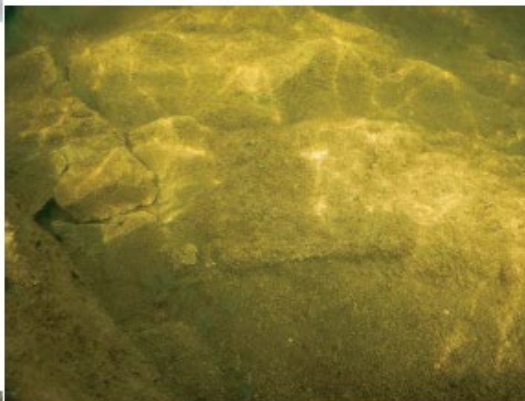

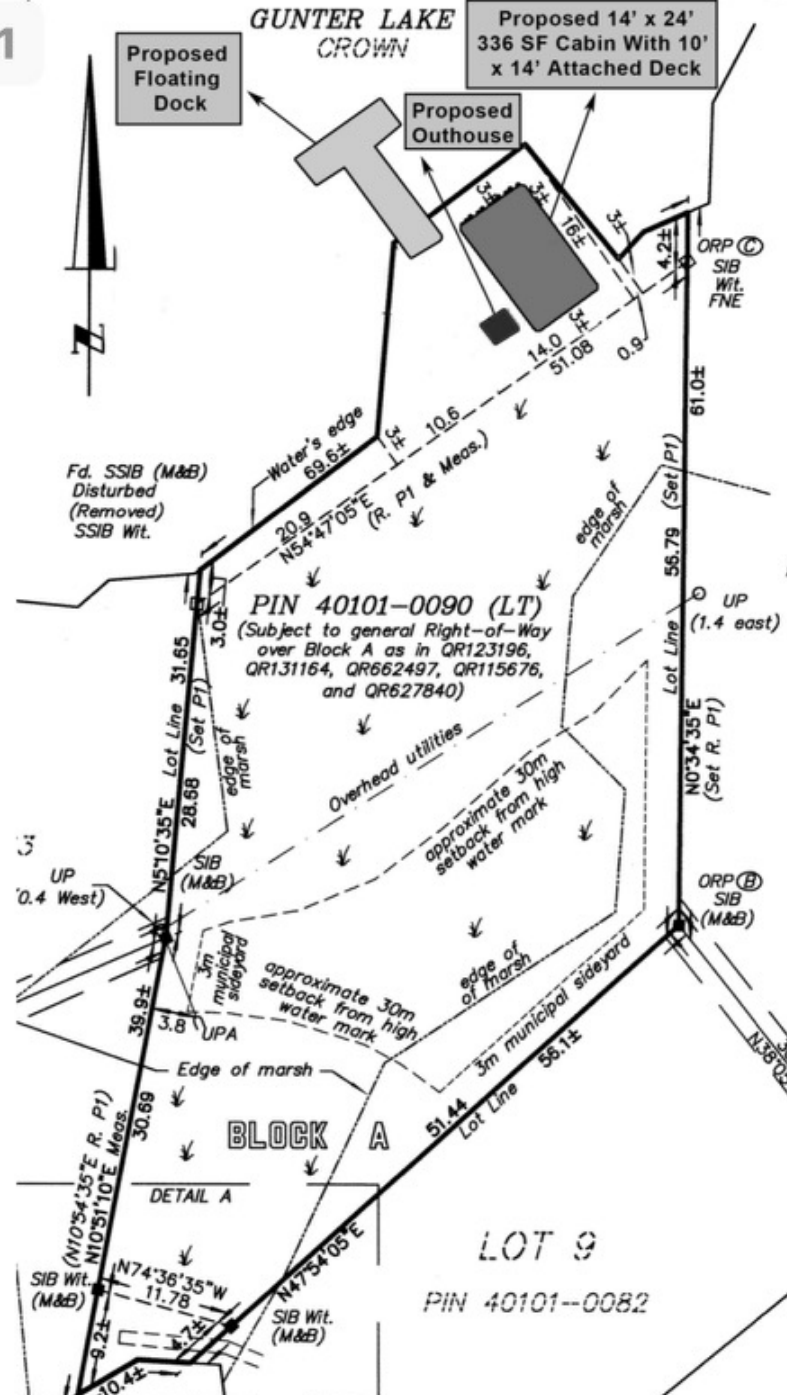


Photo B (Right): Shown here are the bedrock conditions beneath the waterline, associated with the upland island area. The skirts of sandy material would provide spawning materials for species such as Rock Bass, Pumpkinseed, Smallmouth Bass, etc.



Photo C (Left): This photo was taken looking east, illustrating the development footprint area atop the small island.

Site photos were taken on June 29, 2020.	Wetland Investigation Proposed Single Residential Development Block A, Registered Plan 1733 - Gunter Island, Gunter Lake Township of Tudor & Cashel (Cashel) County of Hastings	TITLE Site Photos	
	 ORE Oakridge Environmental Ltd. Environmental and Hydrogeological Services	PROJECT # 20-2741 DATE October 2020	APPENDIX B



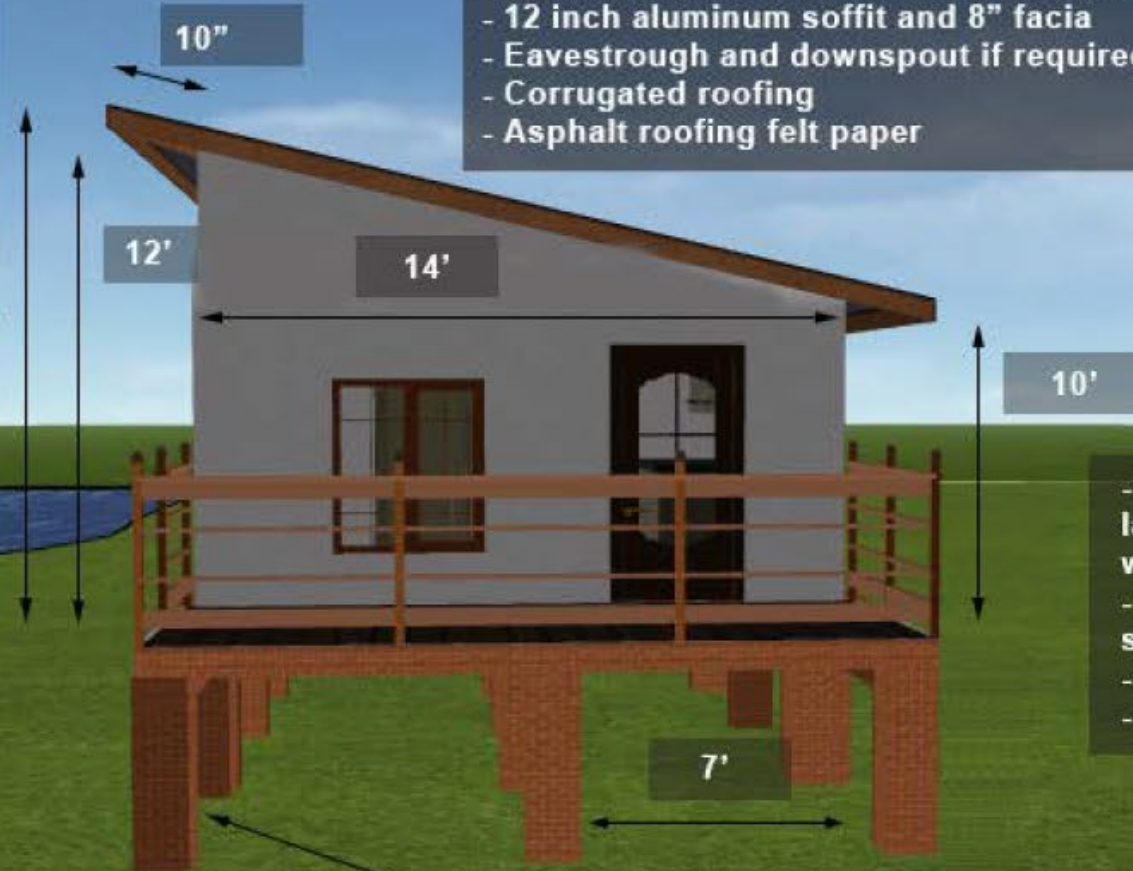
Renderings

- 2 x 6 walls (midpoint blocking)
- balloon frame
- r20 insulation in wall
- 6mm poly air barrier
- 1/2" drywall
- 7/16" OSB sheathing
- Vinyl siding or equivalent
- Typar building wrap

- 2-12 roof pitch
- 2 x 8 roof rafters
- 1/2 inch plywood or OSB - 1 x 4 strapping
- 12 inch aluminum soffit and 8" fascia
- Eavestrough and downspout if required
- Corrugated roofing
- Asphalt roofing felt paper

Window and Door Schedule

Window - 24"x44"
Door - 36"x80"



- 2 x 8 floor joists fastened to triple 2x10 laminated beam notched into 6x6 P.T posts with 1/2" lag bolts at 12" O/C
- 5/8" plywood or OSB T&G glued and screwed
- r20 insulation
- midpoint blocking X bracing

- 2 x 8 deck joists @ 12" O/C with hangers fastened to rim board with 1/2" lag bolts
- 5/4 P.T deck boards
- Typical railing

- 6 x 6 ground contact pressure treated posts
- Blueskin or equivalent wrap around posts
- Fully concreted in 12" hole with sono tube
- 4' depth for frost unless at bedrock
- If bedrock < 24", fasten each sono tube with (3) 12" 15m pins with 6" embedment

- 2-12 roof pitch
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Window and Door Schedule

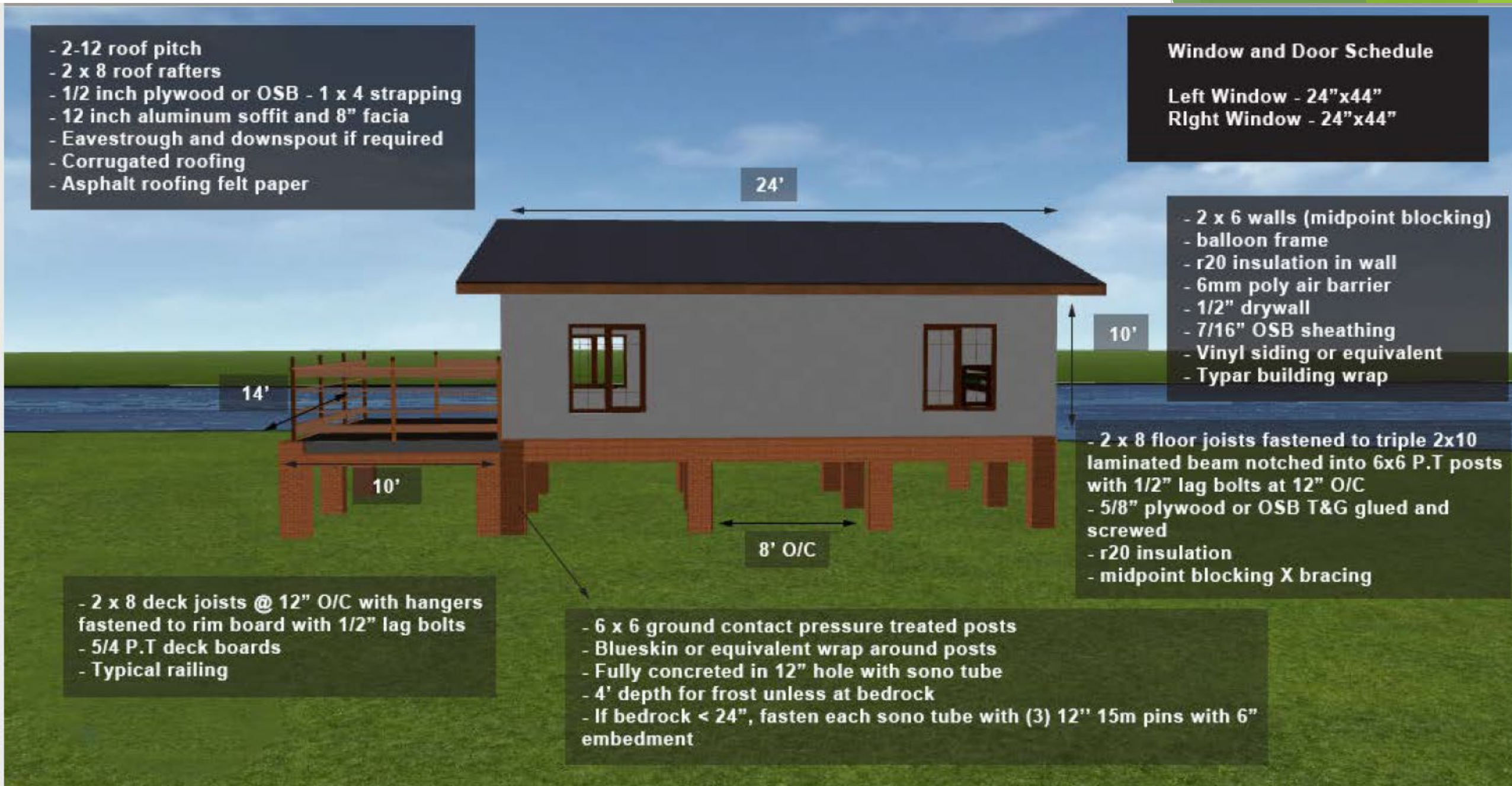
Left Window - 24"x44"
Right Window - 24"x44"

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- 2-12 roof pitch
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- Asphalt roofing felt paper

Window and Door Schedule

Window - 24"x44"

10'

14'

12'

7' O/C

- 2 x 6 walls (midpoint blocking)
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Window and Door Schedule

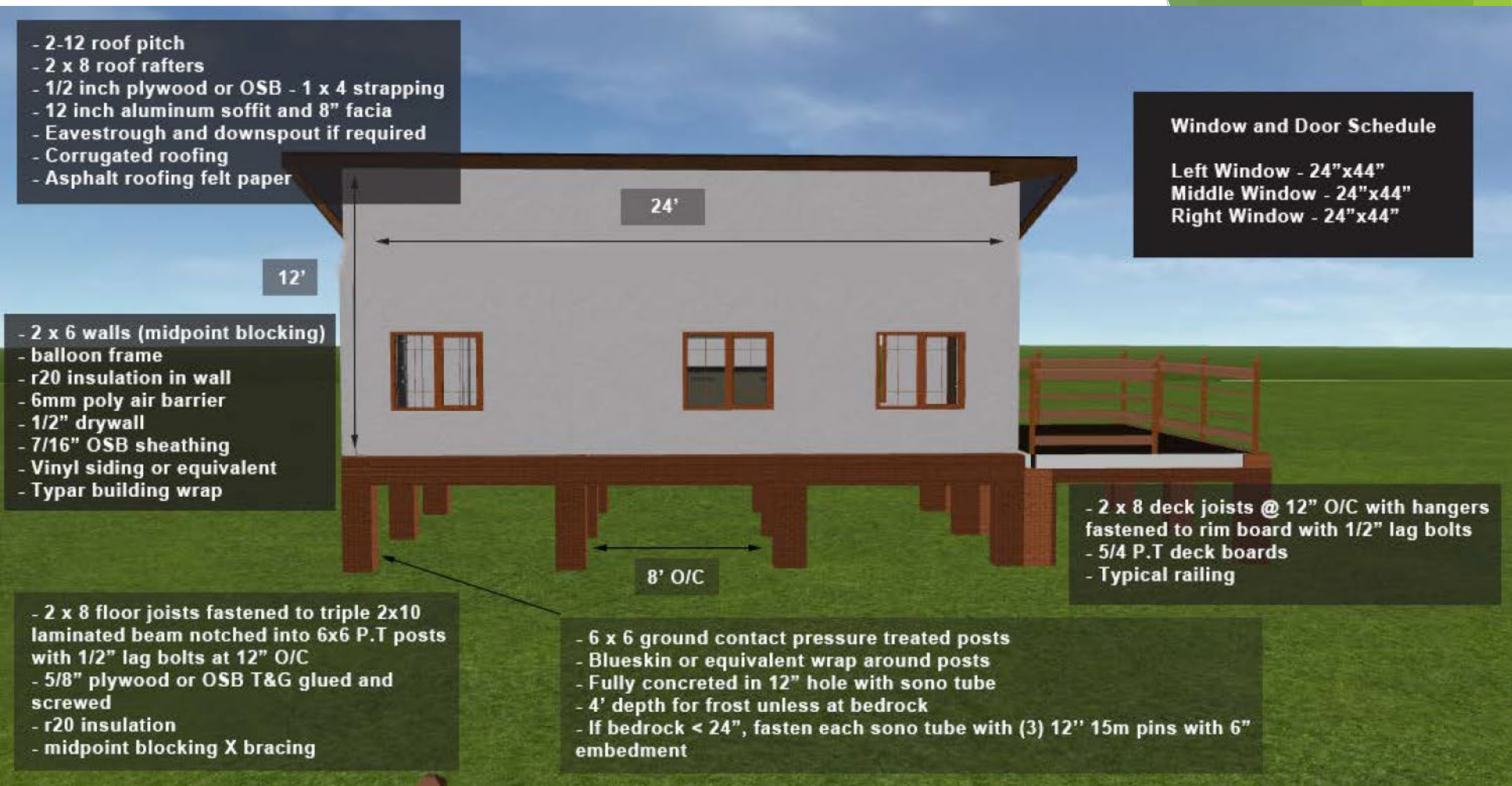
Left Window - 24"x44"
 Middle Window - 24"x44"
 Right Window - 24"x44"

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- 5/4 P.T deck boards
- Typical railing





9' (inside room)

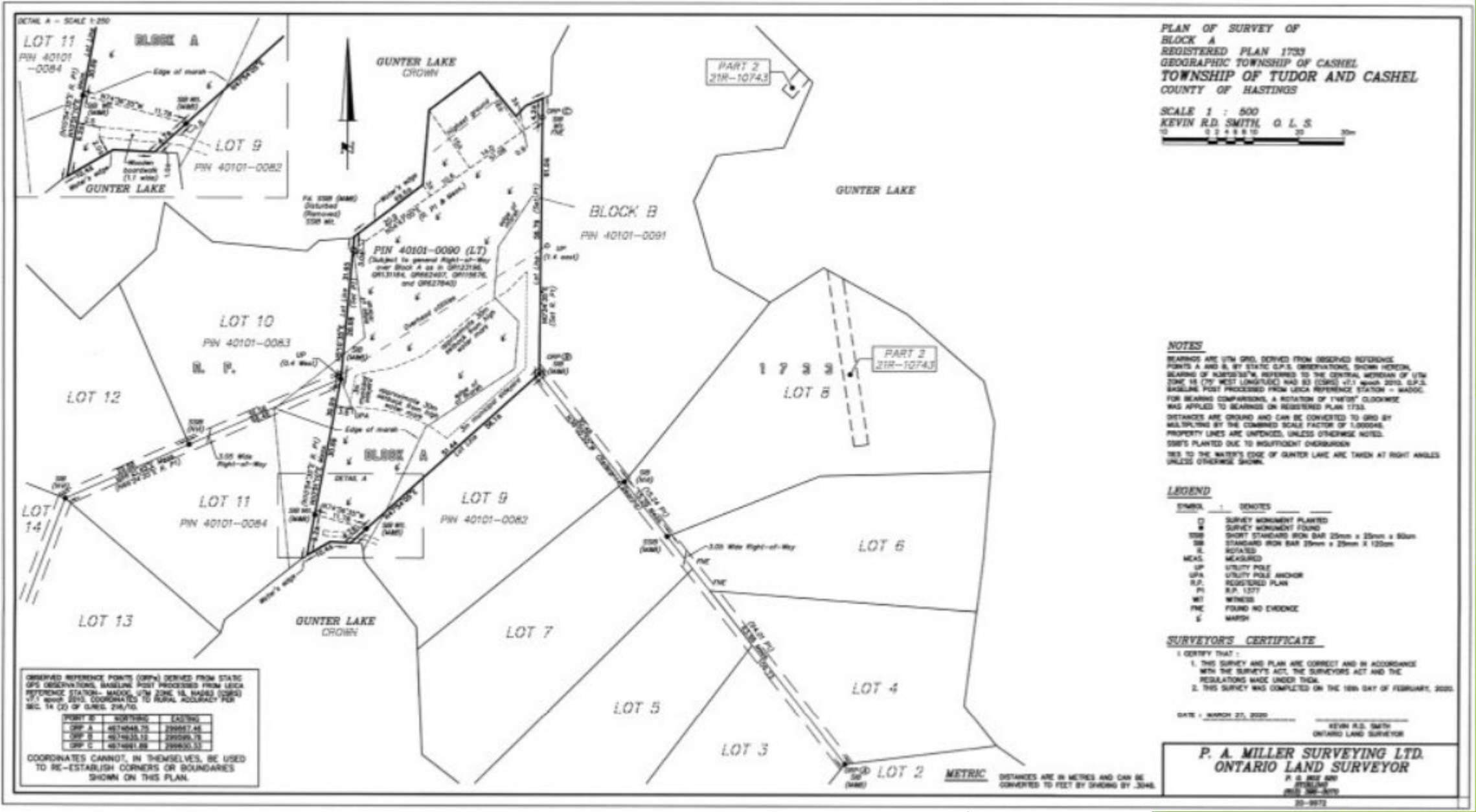
24'

6.5' (inside room)

14'

5.5' (inside room)

Survey



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Sample Photos

