# Building Structural Assessments – Base 31 Properties, Prince Edward County – August 2023

James Horne, P.Eng of James Horne Engineering was engaged to review and provide structural assessments on the buildings currently located on the former military base known variously as Picton Heights, Picton Airbase, Loch Sloy, or Base 31. The properties are located on the bluff overlooking the town of Picton in Prince Edward County, Ontario.

As a long time resident of the area I have a knowledge of the property and the buildings present. I have visited the site many times over a span of decades.

The buildings have been examined from the exterior and where possible the interior, with an eye to their suitability for keeping the original structures either with minor repair or with a repurposing of the building and possibly with additional work/renovation.

Due to the nature of their construction most were designed and build by the military under the supervision of the Corps of Engineers and as such provided the structures are in reasonably good repair the structures will likely be safe, its only in the case of extreme disrepair or damage that they would be unsafe.

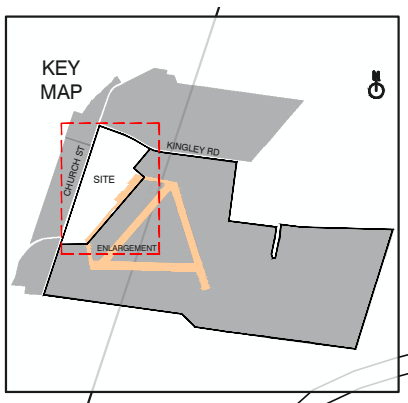
Many of the original building drawings exist as blueprints, this may allow reconstruction of buildings lost to time and neglect.

Most buildings are in remarkably good shape given their age, and speaks to the efforts of various owners of the past years. Most however will need some minor repair and replacement of the odd structural element such as a floor joist or stud. Mainly these are due to water damage causing rot of the underlying wood structure.

While the replacement work of various structural elements is being undertaken I recommend temporary supports be used according to construction best practices. This may mean temporary ground supports, jack posts, beams and/or stud framed temporary walls as needed to ensure the structure does not shift while elements are replaced.

In general the decay of all the buildings is due to water, or moisture present from the ground below or from rain or snow entering the building from above. To minimize progression of degeneration, the outer envelope, especially roof, siding and windows should be maintained at a reasonably high level. Roof condition would be the highest priority.

All assessments are based on my professional experience, knowledge and extensive site visits and examinations of the buildings. They represent my professional opinion at the date of the report as signified by my seal, and signature present on the document(s). The status of buildings may change over time if repair work is not undertaken in a timely manner. Sept 11/2023




MAIN ACCESS 1

KINGSLEY RD

SECONDARY ACCESS 2

CHURCH ST

TEMPORARY PARKING

WASHROOM TRAILER

WASHROOM TRAILER

SECONDARY ACCESS 3 (SOUTH GATE - TRUCKS / LARGER VEHICLES)

AIR STRIPS

CONCRETE TARGET

TYP. PARKING

6.00

2.70

# LEGEND

3. Officer's Quarters
5. Quarters & Offices
6. Men's Quarters
7. Sergeant's Mess Hall
8. The Commissary - Former Sergeant's Quarters
9. Men's Quarters
10. Men's Quarters
11. Men's Quarters
12. Men's Quarters and Offices
13. Men's Quarters and Offices
15. Original Hospital
16. Flying Clubhouse
17. MT Section
18. Men's Quarters
19. Royal Canadian Engineers (RCE)
20. Drill Hall / Gymnasium
21. Theatre / Dance Hall / Lecture Hall
22. Turret Training / Parachute Building
23. 8 Bay Garage
24. Storage / Workshop
25. Gas Mask Training Chamber
26. Guard House / Holding
27. Gas Truck Storage for RCE
28. Quarter Master's Store
31. Dental Clinic
32. Maintenance Shop
33. Paint Shop
40. Garage / Storage
42. Hostess House / Fire Chief Cottage
43. Quonset 3: Maintenance Shop
44. Fire Department
49. Nurse's Quarters
50. Second Hospital
51. Parachute Shop
53. Quonset 1
54. Quonset 2

H1: Hangar 1
H2: Hangar 2
H3: Hangar 3
H4: Hangar 4
H5: Hangar 5
H6: Hangar 6

Public Program Building
Event/Activation Space
Event Space Fencing
Airport Boundary
Hoarding with Art Mural
Property Line
Fire Access Route

**SITE & BUILDING LOCATION PLAN**

ADDRESS:
343 COUNTY ROAD 22,
PICTON, ON

Project No:
21730

September 11, 2023

Drawn By:
MP

BIGLIERI GROUP

The first section of this document provides a summary list of the buildings and their current condition and of known plans underway.

Subsequent sections will have detailed breakdown building by building of their condition and recommended disposition particularly in the case of buildings that are unsafe/structurally unsound.

## Section 1: BASE 31- high level summary of building status

**Building 3 - Structurally sound - updated new portions – currently in use**

**Building 5 – Structurally sound – currently occupied – some repair required**

**Building 6- Structurally sound, needs minor repairs**

**Building 7 - Structurally sound -updated – currently in use**

**Building 9 – Structurally sound – currently occupied – some minor repair required**

**Building 10 - Structurally sound – currently occupied – some minor repair required**

**Building 11 - Structurally sound – currently occupied – some minor repair required**

**Building 12 - Structurally sound – new roof – some minor repair required**

Building 13- Unsafe should be demolished

Building 15 – Rapid deterioration due to lack of roofing, should be demolished

**Building 16 – Structurally sound, -updated – currently in use Flying Club**

**Building 17 – Structurally sound, -updated – currently in use**

**Building 18 – Structurally sound, currently occupied.**

**Building 19 – Structurally sound, minor repair, currently occupied.**

**Building 20 – Structurally sound - updated – currently in use as "Drill Hall" event venue**

**Building 21- Structurally sound, updated - currently in use**

**Building 22 - Structurally sound, currently occupied.**

**Building 23 - Structurally sound, currently occupied.**

**Building 24 - Structurally sound, some minor repair.**

**Building 25 - Structurally sound, currently occupied.**

**Building 26- Structurally sound, -updated – currently in use**

**Building 27- Structurally sound, some minor repair, currently occupied.**

**Building 28- Structurally sound, currently occupied.**

**Building 31 - Structurally sound, currently occupied.**

**Building 32 - Structurally sound, currently occupied.**

**Building 33 - Structurally sound, currently occupied.**

**Building 40- new small hangar built in last 10-15 yrs, structurally sound, currently occupied.**

**Building 42 – Guest cottage—Structurally sound, minor repair**

**Building 43 –To be Demo'ed.**

**Building 44 – Demo permit issued.**

**Building 49- hospital - Structurally unsound, south walls have collapsed, should be demolished**

**Building 50 - 90% Structurally sound, needs some repair of rot in east stairs and repair of fire damage on southwest quarter. Has had temporary repairs done to keep elements out. Roof work needed to slow decay**

**Building 51 – Structurally sound, minor repair. Currently occupied.**

**Buildings 53, 54 - Quonset huts, Structures have been altered over years, degenerating, to be demolished.**

**Hangars H1- repurposing proposal underway with creation of interior Museum, gallery and rental spaces.**

**Hangars H2, H5, H6 Structurally sound, some minor repair, largely occupied**

**Hanger H3- Structurally sound, looks rough on exterior, needs moderate roof repairs. Attached lean-to in fair condition**

**Hangar H4- Structurally sound, better exterior appearance, roof needs fewer repairs, attached lean-to in good condition**

**Building xx – Shed at south end of runway access road between Hangar 6 and building 40 - Structurally sound, needs minor repairs**

**204 Kingsley-High level summary of building status**

*Westernmost building – Needs remedial work, steel repairs, asbestos abatement, roof repairs, but is salvageable structurally.

*Dining hall/cafeteria – structurally sound, needs some repair

*Final buildings (3-4) – structurally sound, some minor repair relatively little needed to occupy, some in very good condition.

## Section 2: Individual Building Reports

## Building 3

W. James Horne, P.Eng.
130 Cty Rd 28, RR7,
Belleville, ON
K8N 4Z7

Aug 10, 2022

RE: Building 3, , Loch Sloy structural review and recommendation

To Whom It May Concern:

I have attended the site and examined Building 3 at Base 31 Loch Sloy on more than one occasion and find the structure to be sound, with some minor remedial work required if the building is to be used for commercial occupancy to current standards.

I have performed structural analysis and the roof truss structure as originally built is adequate to support up to 65lbs/sqft well in excess of local snow loads requirements for the roof. Floor structure as originally built exceeds current building code requirements significantly for load bearing capacity. (80lb/sqft vs 50 lb/sqft). The lengthways walls are not required structurally to support the roof loads although some longitudinal stringers will be required to keep the trusses aligned correctly. These should be added before the removal of any walls that are currently in place. 2x6's attached flat-wise to the top surface of the lower truss chords at approx.7.5' on center would be the recommended spacing.

Overall the walls, floor, roof and truss structures are sound and in reasonably good condition. The building will need some remedial work. Specifically related to replacing some wooden structural elements that have been damaged due to moisture and leakage, largely from roof leaks and ground moisture.

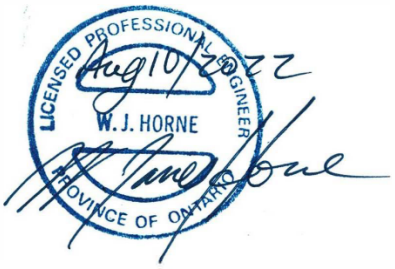
Any floor joists and build up beams bearing on concrete that have been damaged or rotted due to exposure to moisture, shall be replaced with current pressure treated spf lumber of equivalent sizing.

Truss elements that have been damaged or rotted due to water exposure should be replaced with current spf lumber equivalents and fastened as originally fastened.

Tongue in groove sheathing, whether on the floor, walls or roof should be replaced with either equivalent tongue in groove or plywood or OSB of equivalent thickness. Once this work is complete then the building should be as sound as when originally constructed.

While the replacement work of various structural elements is being undertaken I recommend temporary supports be used according to construction best practices. This may mean temporary ground supports, jack posts, beams and/or stud framed walls as needed to ensure the structure does not shift while elements are replaced.

Regards,




W. James Horne, P. Eng
613 847 7251

## Building 5

Building 5, has the same basic structure as a number of the buildings, using common design elements such as main floor plan widths, and truss designs so the basic plan is a pair of lengthwise buildings joined by a cross hall.

Structural analysis of the roof truss structure as originally built, shows it is adequate to support up to 65lbs/sqft well in excess of local snow loads requirements for the roof. Floor structure as originally built exceeds current building code requirements significantly for load bearing capacity. (80lb/sqft vs 50 lb/sqft). The lengthways internal walls are not required structurally to support the roof loads although some longitudinal stringers (bracing) will be required to keep the trusses aligned correctly if walls are removed. These stringers should be added before the removal of any walls that are currently in place. 2x6's attached flat-wise to the top surface of the lower truss chords at approx.7.5' on center would be the recommended spacing.

Overall the walls, floor, roof and truss structures are sound and in very good condition. The building will need some repair work. Specifically related to replacing some wooden structural elements that have been damaged due to moisture and leakage, largely from roof leaks and ground moisture.

Any floor joists and build up beams bearing on concrete that have been damaged or rotted due to exposure to moisture, shall be replaced with current pressure treated spf lumber of equivalent sizing.

Truss elements that have been damaged or rotted due to water exposure should be replaced with current spf lumber equivalents and fastened as originally fastened.

Tongue in groove sheathing, whether on the floor, walls or roof should be replaced with either equivalent tongue in groove or plywood or OSB of equivalent thickness. Once this work is complete then the building can be expected to be as sound as when originally constructed.

## Building 6

Building 6, has the same basic structure as a number of the buildings, using common design elements such as main floor plan widths, and truss designs so the basic plan is a pair of lengthwise buildings joined by a cross hall.

Structural analysis of the roof truss structure as originally built, shows it is adequate to support up to 65lbs/sqft well in excess of local snow loads requirements for the roof. Floor structure as originally built exceeds current building code requirements significantly for load bearing capacity. (80lb/sqft vs 50 lb/sqft). The lengthways internal walls are not required structurally to support the roof loads although some longitudinal stringers (bracing) will be required to keep the trusses aligned correctly if walls are removed.

Overall the walls, floor, roof and truss structures are sound and in very good condition. The building will need some repair work. Specifically related to replacing some wooden structural elements that have been damaged due to moisture and leakage, largely from roof leaks and ground moisture.

Any floor joists and build up beams bearing on concrete that have been damaged or rotted due to exposure to moisture, shall be replaced with current pressure treated spf lumber of equivalent sizing.

Truss elements that have been damaged or rotted due to water exposure should be replaced with current spf lumber equivalents and fastened as originally fastened.

Tongue in groove sheathing, whether on the floor, walls or roof should be replaced with either equivalent tongue in groove or plywood or OSB of equivalent thickness. Once this work is complete then the building can be expected to be as sound as when originally constructed.

## Building 7

Building 7 -The Sergeants Mess Hall – has been subjected to engineering review, and has been updated and is currently used as an entertainment venue.

## Building 9

Building 9, has the same basic structure as a number of the buildings, using common design elements such as main floor plan widths, and truss designs so the basic plan is a pair of lengthwise buildings joined by a cross hall.

Structural analysis of the roof truss structure as originally built, shows it is adequate to support up to 65lbs/sqft well in excess of local snow loads requirements for the roof. Floor structure as originally built exceeds current building code requirements significantly for load bearing capacity. (80lb/sqft vs 50 lb/sqft). The lengthways internal walls are not required structurally to support the roof loads although some longitudinal stringers (bracing) will be required to keep the trusses aligned correctly if walls are removed.

This building is sound, currently occupied and in good to very good condition. Minor repair work and maintenance to the exterior envelope should be the main focus.

## Building 10

Building 10, has the same basic structure as a number of the buildings using common design elements such as main floor plan widths, and truss designs so the basic plan is a pair of lengthwise buildings joined by a cross hall.

Structural analysis of the roof truss structure as originally built, shows it is adequate to support up to 65lbs/sqft well in excess of local snow loads requirements for the roof. Floor structure as originally built exceeds current building code requirements significantly for load bearing capacity. (80lb/sqft vs 50 lb/sqft). The lengthways internal walls are not required structurally to support the roof loads although some longitudinal stringers (bracing) will be required to keep the trusses aligned correctly if walls are removed.

This building is sound, currently occupied and in good to very good condition.

## Building 11

Building 11, has the same basic structure as a number of the buildings, using common design elements such as main floor plan widths, and truss designs so the basic plan is a pair of lengthwise buildings joined by a cross hall.

Structural analysis of the roof truss structure as originally built, shows it is adequate to support up to 65lbs/sqft well in excess of local snow loads requirements for the roof. Floor structure as originally built exceeds current building code requirements significantly for load bearing capacity. (80lb/sqft vs 50 lb/sqft). The lengthways internal walls are not required structurally to support the roof loads although some longitudinal stringers (bracing) will be required to keep the trusses aligned correctly if walls are removed.

This building is sound, currently occupied and in good condition.

## Building 12

Building 12, has the same basic structure as a number of the buildings, using common design elements such as main floor plan widths, and truss designs so the basic plan is a pair of lengthwise buildings joined by a cross hall.
This building has new roof and is in reasonable condition. Minor repair of some elements may be required.

## Building 13

Building 13, has the same basic structure as a number of the buildings, using common design elements such as main floor plan widths, and truss designs so the basic plan is a pair of lengthwise buildings joined by a cross hall.

There has been significant loss of underlying support due to rot of the joists and rimboards of the whole structure. This has caused partial collapse of most of the main structure leading to more water ingress and accelerated decomposition of the structure. As of August 2023 the section shown below has collapsed.

At this point the whole building is unsafe and should be demolished.

## Building 15

Building 15 is in very poor condition. Floors are largely rotted, but walls still sound, roof is in poor repair but doesn't yet show signs of significant rot of trusses. However there is a lot of internal damage as well as near total loss of roof making safe repair problematic. There is risk the building will hinge sideways as the roof is so compromised and the floors mainly gone. Should be demolished in the interest of safety.

## Building 17

Used and occupied recently, in very good condition, examination shows no signs of any reason for concern structurally. Has had recent updates.

## Building 16

Currently occupied by the Flying Club. In good condition.

## Building 18

Building 18, has the same basic structure as a number of the buildings, using common design elements such as main floor plan widths, and truss designs so the basic plan is a pair of lengthwise buildings joined by a cross hall.

Structural analysis of the roof truss structure as originally built, shows it is adequate to support up to 65lbs/sqft well in excess of local snow loads requirements for the roof. Floor structure as originally built exceeds current building code requirements significantly for load bearing capacity. (80lb/sqft vs 50 lb/sqft). The lengthways internal walls are not required structurally to support the roof loads although some longitudinal stringers (bracing) will be required to keep the trusses aligned correctly if walls are removed.

Used and occupied recently, in good condition. Minor areas of repair, particularly around

base/rimjoists. Specifically replacing some wooden structural elements that have been damaged due to moisture and leakage, largely from ground moisture. Any floor joists and build up beams bearing on concrete, or without adequate clearance to grade that have been damaged or rotted due to exposure to moisture, should be replaced with current pressure treated spf lumber of equivalent sizing.

## Building 19

Building 19, is occupied by a car repair shop. The building is in reasonably good condition with no evidence of structural degradation. They are however the envelope is in poor condition, and will need some repair and updates in that area. The building is shed style with a low slope roof.

Care should be taken to ensure roof and walls, remain watertight.

## Building 20 – Drill Hall Event Venue

This building has been the subject of extensive engineering review, analysis and updates. Currently in use as the Drill Hall event venue.

## Building 21

This building has been updated. Currently in use as workshop(s). Very good condition.

## Building 22

Currently occupied, in very good condition.

## Building 23

Building 19, is occupied by a car repair shop. The building is in reasonably good condition with no evidence of structural degradation. They are however the envelope is in poor condition, and will need some repair and updates in that area. The building is shed style with a low slope roof.

Care should be taken to ensure roof and walls, remain watertight.

## Building 24

Currently occupied, in very good condition.

## Building 25

Building 19, is occupied by a car repair shop. The building is in reasonably good condition with no evidence of structural degradation. They are however the envelope is in poor condition, and will need some repair and updates in that area. The building is shed style with a low slope roof.

Care should be taken to ensure roof and walls, remain watertight.

## Building 26

Currently occupied, in very good condition. Updated, and in use as Base 31 Main office.

## Building 27

Building 27, is occupied by a car repair shop. The building is in reasonably good condition with no evidence of structural degradation. They are however the envelope is in poor condition, and will need some repair and updates in that area. The building is shed style with a low slope roof.

Care should be taken to ensure roof and walls, remain watertight.

**Building 28**

Currently occupied, in good condition.

**Building 31**

Currently occupied, good condition structurally, in need of minor repair, mainly cosmetically.

**Building 32**

Currently occupied, good condition structurally, in need of minor repair, mainly cosmetically.

**Building 33**

Currently occupied, new roof, good condition structurally, in need of minor repair.

**Building 40**

Small Hangar for Picton Flying Club. Recent construction (10-15 yrs) Currently occupied, in very good condition.

**Building 42**

Cottage, close to road. Currently in good condition structurally. New roof and some repairs to trusses made in recent past. It will need additional minor repairs in the floor at the North door.

**Building 43**

Demo planned.

**Building 44**

Demo permit issued.

**Building 49**

Hospital, south side walls have collapsed due to water ingress from roof and ensuing rot as a result of roof loss of shingles on south side. Significant deterioration in the last year. Lost south walls over the winter/spring. Building is unstable at this point, and should be demolished

## Building 50

Hospital Wards in good condition with some damage due to fire, the fire damage has been closed up temporarily. Will need some work with repair due to areas of water damage from fire area and roof leakage. Building envelope maintenance will be needed to keep elements out.

Structurally sound at this time, will need roof repair to maintain current condition.

**Building 51**
Currently occupied, in good condition.

**Building 53**
Quonset hut, Structure has been altered over years, to be demolished.

**Building 54**
Quonset hut, Structure has been altered over years, to be demolished.

**Building XX**
Store shed/garage, reasonably good condition, minor repair and cosmetic updates are all that would be needed.

**Hangar 1**
Structurally sound, and in very good condition, engineering review in process, updates and repurpose to Museum, Gallery and commercial rental spaces.

**Hangar 2,**
Structurally sound, and in very good condition, currently largely occupied. Minor repairs particularly roof infill.

**Hangar 3,**
Structurally sound, and in moderately good condition. Repairs required to roof infill, and building envelope. Worst appearance. Lean to needs repairs.

**Hangar 4**
Structurally sound, and in good condition. Repairs required to roof infill, and building envelope. Somewhat better than Hangar 3, some exterior repair completes. Lean to in good condition

**Hangar 5**
Structurally sound, and in very good condition, currently in use. Minor repairs particularly roof infill.

**Hangar 6**
Structurally sound, and in very good condition, currently in use. Minor repairs particularly roof infill.

Sept 11, 2023


**This is the final page of this report.**