

November 23, 2023

Jon Wilson
 Chief Building Official
 Municipality of Mississippi Mills
 14 Bridge St, PO Box 400
 Almonte, ON K0A 1A0

Dear Mr. Wilson,

RE: Heritage Masonry – 2nd Opinion - DRAFT
38 Main Street East, Almonte, Ontario

RJC No. TOR.137672.0001

1.0 INTRODUCTION

Read Jones Christoffersen Ltd. (RJC) was retained by the Municipality of Mississippi Mills to complete a heritage masonry second opinion assessment of emergency work required at the building located at 38 Main Street East, Almonte, Ontario. This assessment was prompted due to the letter provided by John G. Cooke and Associates Ltd., dated October 4, 2023.

Specifically, the scope of the assessment undertaken by RJC is as follows:

1. Review documentation supplied by the Municipality of Mississippi Mills.
2. Visual review of all exterior wall masonry across all elevations from the ground and where easily accessible, including exterior walls from the interior side.
3. Preparation of a letter including observations (with photographs). All recommendations will be based on findings of this visual review and document review.
4. Meet via telephone (Microsoft Teams call) with the representative of the Municipality of Mississippi Mills to discuss the contents of our letter.

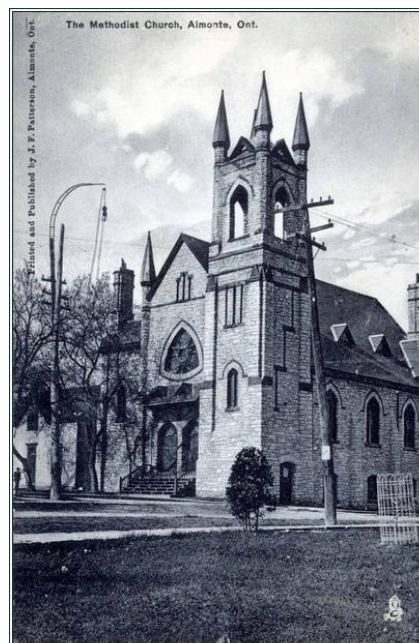


Figure 1: Methodist Church prior to being modified to the Dungarvon Building (millstonenews.com)

The date and weather condition at the time of our visit were as follows:

Visual Masonry Review: October 17, 2023
Partly Cloudy, 10°C

Matthew Kruczkowski, P.Eng., CAHP, performed the visual review for RJC.

Where existing wall and ceiling finishes prohibited an review of the condition and layout of the concealed framing members, the finishes were reviewed in order to identify any signs of distress or deterioration which could provide clues as to the condition of the concealed framing members.

This letter was prepared in accordance with generally accepted engineering practices. No other warranties, either expressed or implied are made as to the professional services provided under the terms of our contract and included in this letter.

Services performed and outlined in this letter were based, in part, upon visual observations of the site and attendant structures. Our opinion cannot be extended to portions of the building that were not reviewed by RJC.

This letter is exclusively for the use and benefit of the client identified on the first page of this letter and is not for the use and benefit of, nor may it be relied upon by, any other person or entity. The contents of this letter may not be quoted in whole or in part or distributed to any person or entity other than the client.

2.0 BACKGROUND

2.1 Site and Building Description

The building located at 38 Main Street East in Almonte, Ontario, was constructed circa 1887. The building is formerly known as Almonte Methodist Church, then Trinity United Church, and finally as the Dungarvon Building. From RJC's understanding is the building is now under the ownership of [REDACTED]. The current use of the structure is multi-unit residential.



Figure 2: Belltower Partially Removed (Google Street view 2012)



Figure 3: Another Partial Removal of Belltower (Google Street view 2016)



The former church is a single storey building constructed from what appears to be locally quarried limestone and bears on a limestone foundation. A belltower is located at the south west corner of the building. The gable roof is comprised of a prefinished metal roof on the south side and slate on the north side, and is supported by a combination of wood deck board, rafters, beams, purlins and trusses. The trusses span the width of the building. Limestone buttresses line the north and south faces of the building.

2.2 Drawing and Document Review

The following documents were reviewed in preparation of this letter:

1. Structural Condition Letter by Moller Engineering Services Ltd., dated, June 4, 1991.
2. Road Closure Letter by John G. Cooke and Associates Ltd., dated April 25, 2012.
3. Building Condition Report by John G. Cooke and Associates Ltd., dated May 10, 2012.
4. Belltower Condition Assessment by John G. Cooke and Associates Ltd., dated December 22, 2022
5. Belltower: Existing Condition – Immediate Action Required Letter by John G. Cooke and Associates Ltd., dated October 4, 2023

Of the documents provided for this assignment, the following items were of note:

1. The 1991 Letter noted the following:
 - a. That exterior maintenance has been generally neglected.
 - b. There are exterior areas where mortar has entirely disappeared.
 - c. The interior was found to be in much better condition.
 - d. Cracking in the tower structure was noted.
 - e. Building was recommended to be repointed immediately.
 - f. Construction barriers around the building were present at the time.
2. The 2012 Letter noted the following:
 - a. Main street may be re-opened provided modifications to fencing.
3. The 2012 Building Condition Report noted the following:
 - a. The separation is occurring in the tower south buttress.
 - b. The mortar of the south west elevation is in poor condition.
 - c. The roofing of the tower is in poor condition.
 - d. Bowing of walls is the expected next step in the deterioration process.
 - e. The report recommended that a multi-million dollar conservation repair programme be put into place or that the building be demolished and salvaged.
4. The 2022 Belltower Condition Assessment noted the following:
 - a. Pre-finished sheet metal roofing was installed on the Main Street side of the roof.
 - b. Masonry repointing was complete at the two lower levels within the inside of the belltower. The top level has not been complete.
 - c. The top several feet of the belltower masonry walls were removed in 2012, as these walls were in extremely poor condition. The belltower roof is covered and waterproofed, all the way out and over the tops of the stone walls.



- d. Joints at the top of the southeast corner of the belltower have opened up since 2012.
 - e. Joints at the bottom of the southwest corner of the belltower have opened up since repointed in 2016.
 - f. The report recommended that jersey barriers be installed immediately, masonry restoration of the belltower start in March 2023 and within the next 5 years that south wall and entire belltower restoration is required.
5. The 2023 Belltower Letter noted the following:
- a. The following options were required prior to the Belltower being left through another winter season:
 - i. Provide permanent barriers and road closures
 - ii. Provide emergency repairs at critical locations or provide demolition of Belltower

2.3 Interview with Building Personnel

Mr. Jon Wilson, Chief Building Official of the Municipality of Mississippi Mills and [REDACTED] Owner, were on site at the time of visual review.

The following interview items of interest from Mr. Jon Wilson, Chief Building Official of the Municipality of Mississippi Mills, were recorded:

1. Circa 2012 a portion of tower was removed.
2. Approximately 75 years ago, the church was sold to a manufacturing company.
3. Slate roofing was removed and replaced with a steel roof of the south side of the building and at the east dormer.
4. Most buildings in town are on bedrock.

The following interview items of interest from [REDACTED] Owner, were recorded:

1. A flood originating at the Belltower, occurring from turning on municipal water, occurred circa 1997.
2. Three phases demolition had occurred on the Belltower.
3. The cracking in the southwest corner of the Belltower started prior to 2002.
4. A partial collapse of the southeast corner exterior wythe of the Belltower occurred prior to 2002 purchase of property. This area was subsequently repaired.
5. Circa 2012, a portion of Belltower was removed.

3.0 OBSERVATIONS

The Dungarvon Building is a mass masonry building constructed with a multi wythe limestone masonry wall with a rubble core. It was evident that multiple repairs of varying vintages have been completed around the exterior of the building. It was also observed that there are multiple areas in poor condition requiring immediate intervention. RJC was able to access the interior units of the building, a portion of the attic adjacent the west wall and the interior of the Belltower. Additionally, RJC conducted the exterior



review from ground. The areas in particular that were brought to RJC’s attention were the top southeast corner and bottom southwest corner of the Belltower.

.1 Southwest Corner of Belltower

The Belltower showed signs of previous repair and subsequent localized deterioration. The interior of the Belltower base showed signs of cracking at the interior southwest corner (Refer to Photos 1 and 2).



Photo 1: Separation between Inner and Outer Wythe



Photo 2: Cracking in Interior Wythe

At the southwest corner of the belltower, the core was easily raked and consisted of soft sandy material (Refer to Photos 3 and 4). Large cracking was observed, with the wall bowing in southwest corner of Belltower (Refer to Photos 5 and 6).



Photo 3: Core Being Raked Out



Photo 4: Soft Sandy Core



Photo 5: Large Vertical Cracking



Photo 6: Significant Bow in Exterior Wythe

.2 Upper Interior of Belltower and Southeast Corner of Belltower

In the interior of the Belltower was exhibiting signs of moisture ingress in the form a rotting wood nailers (Refer to Photo 7). Cracked or missing joints in the interior wythe of the upper most portion of the Belltower was observed (Refer to Photos 8 and 9). At the top of the southeast corner of the Belltower, joints contained voids and stone units appear to have translated. (Refer to Photo 10).



Photo 7: Rotting Wood Nailer in Belltower

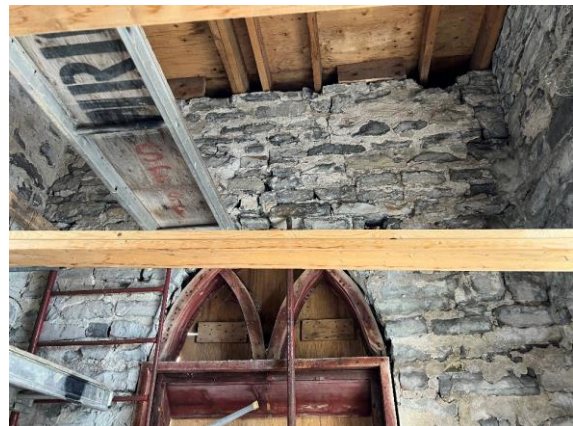


Photo 8: Overall Interior of Belltower



Photo 9: Interior Condition of Southeast Corner



Photo 10: Southeast Corner in Poor Condition

.3 Interior Units

The interior windows jambs showed signs of moisture damage and cracking in the interior finishes (Refer to Photos 11, 12 and 13). Localized water staining was noted in roof. Natural light was observed through the roof structure (Refer to Photo 14).



Photo 11: Moisture Damage



Photo 12: Cracking in East Wall Plaster Finish above Nave



Photo 13: Cracking in Plaster Finish at Window



Photo 14: Water Staining and Natural Light

.4 Perimeter Exterior Walls

Interior attic west wall was observed to be in poor condition with displaced stones (*Refer to Photos 15 and 16*). Several stones were noted to be on the ceiling of the common space below.



Photo 15: West Wall in Poor Condition with Voids and Stone on Ceiling Below



Photo 16: Displaced Stone in West Wall

Exterior west wall and south wall were in various stages of condition. Overall the walls were in poor condition. Localized voids in mortar joints were noted throughout. (*Refer to Photos 17 and 18*).



Photo 17: Localized Voids in Mortar joints in West Wall



Photo 18: Localized Voids in Mortar joints in South Wall

Around the perimeter of the building, eavestroughs were noted to be in poor condition or missing (*Refer to Photo 19*). On the North wall, voids in masonry joints were noted along with a localized missing stone unit (*Refer to Photo 20*). A stone unit was observed to be on grade. In several areas, the North wall exterior masonry joints may be raked by hand (*Refer to Photo 21*). The East wall exterior appeared to be well pointed throughout. (*Refer to Photo 22*).



Photo 19: Missing Eavestroughs



Photo 20: Missing Stone Unit in Buttress



Photo 21: Joint being Raked with a Pen



Photo 22: Representative Pointing on the East End

4.0 DISCUSSION AND RECOMMENDATIONS

As we understand, the Municipality of Mississippi Mills wishes to complete work in the immediate term to keep safe the public with respect to the observed condition the Dungarvon Building. For the purpose of this letter, the following items should be considered in the Immediate Term.

The Belltower is in very poor condition, namely the southwest corner adjacent grade and the southeast corner at the top of the Belltower and requires immediate intervention. Water is infiltrating the tower and has damaged the core, joints and stone of the structure. The joints and core are in very poor condition. There is translation in the exterior wythe and stone. Cracking was noted through the interior of the Belltower. If left unattended, deterioration is expected to continue at an accelerated rate. As proposed in the 2023 Belltower Letter by John G. Cooke and Associates Ltd., RJC agrees that immediate intervention is required, before winter.

The Belltower is in very poor condition. Unless emergency repairs, stabilization, or demolition of the Belltower occurs, there is high risk to public safety. Should repairs and stabilization be considered, a monitoring program over the winter should also be put into place to ensure the efficacy of these



temporary measures. Regular monitoring reports over the course of the winter will advise the future actions required to keep safe the property and public. Should the emergency repairs, stabilization, or demolition not take place, then permanent barriers and closures of the area, including the sidewalks and road, will provide distance to keep the public safe. As recommended in the 2023 Belltower Letter by John G. Cooke and Associates Ltd., no one shall live in the units in the Belltower end of the building.

Portions of the west wall within the attic are in very poor condition and requires immediate

intervention. The interior wythe has displaced stones, voids in joints, and stone units laying on the ceiling of the common space below. The exterior wythe contains voids in joints. If left unattended, deterioration is expected to continue at an accelerated rate.

At the interior wythe of the west wall in the attic, it is recommended that immediate repairs be undertaken to stabilize the interior wythe and to ensure that stones do not pass through the ceiling and into the common space below. Should immediate repairs not be undertaken, the closure of the common area is recommended to keep safe the public. This will block egress to the tenant spaces beyond, requiring that tenants vacate this end of the building.

A risk of falling stone was observed in North Wall and requires immediate intervention. At the North exterior wall, a stone unit was observed to be on grade. It is unknown if this was done purposefully or not. The joints are locally in very poor condition. This area may be closed off to public access without serious intervention, and is recommended until further repair may be completed. Regular monitoring reports will advise the future actions required to keep safe the property and public.

To maintain and ensure safety of the public, it would be in the interest of the Municipality of Mississippi Mills, to conduct a comprehensive condition assessment to determine the baseline condition of the Dungarvon Building structure and envelope, to implement annual monitoring and adjust the actions based on the findings on the regular monitoring reports. As stated in the 1991 Letter (over 20 years ago) by Moller Engineering Services Ltd., *“Exterior maintenance has generally been neglected, resulting in various types of deterioration”* and as stated as one of the optional recommendations in the 2012 Building Condition Report (over 10 years ago) by John G. Cooke and Associates Ltd. *“Demolish the building and sell the stone (and anything with historic relevance) to an interested party.”* The Dungarvon Building is in varying states of repair and has various envelope related deficiencies. It is expected that deterioration will continue to accelerate, if left unattended. A previous partial collapse has been reported, and partial demolition of the structure has been conducted. Throughout the history of the structure and envelope, it is clear that restoration of the structure and envelope has not kept pace with the level of deterioration.

Immediate intervention is required prior to winter. The Belltower and other areas will continue to deteriorate at an accelerated rate. Freeze thaw cycles will continue throughout the coming months, which will cause movement, larger cracking, stones loosening, further bowing and eventual collapse.



5.0 CLOSING REMARKS

Thank you for selectin Read Jones Christoffersen Ltd. for this assignment. Should you have any questions or concerns, please do not hesitate to contact this office.

Yours truly,

READ JONES CHRISTOFFERSEN LTD.



Matthew Kruczkowski, BSc, P.Eng., CAHP
Project Engineer
Building Science and Restoration

Reviewed by:

A handwritten signature in black ink that reads 'M. Park'.

Michael Park, CET, CAHP, BSS
Principal
Building Science and Restoration