ATTACHMENT 3
6181 MAJOR MACKENZIE

STRUCTURAL CONDITION ASSESSMENT

Existing Heritage House

6181 Major Mackenzie Drive West, Kleinburg, Vaughan

Prepared for

U-Pak Disposal Ltd.

May 28, 2024

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APPENDIX

1. INTRODUCTION

1.1 Purpose of Report

Candevcon Group Inc. (Candevcon) has been retained by U-Pak Disposal Ltd. to assess and comment on the structural condition of the building envelop and structural components of the original house located at 6181 Major Mackenzie Drive W, Vaughan, Ontario. The house is identified in the City of Vaughan's Register of Property of Cultural Heritage Value under Part IV of the Ontario Heritage Act.

For the purpose of clarity and consistency, the term "Building" shall be used only as a reference description and not as a defined term of the structure type.

The site inspection was carried out on May 08, 2024, for the original T-Plan-shaped house, which consists of two sections referred here as Building 1A and Building 1B for ease of identification, as shown in the planned view. (Pic. 1).

The focus of our review was to assess the following:

- Review the condition of the existing *Building* envelope-structural components and provide an assessment report whether the building be demolished or relocated and provide recommendations.

The assessment was limited to areas and elements that were determined to be accessible and consisted of both internal and external reviews. A non-destructive approach was used throughout accessible areas. In addition, no structural drawings/information were available for the original Building construction. Assumption was made where necessary.

The structural condition assessment of the buildings was completed by visually reviewing the structural elements, that were accessible and viewed without disturbing

the finishes, to identify potential structural defects, signs of structural distress and deformation, and signs of material deterioration.

The Building Condition Assessment report has been prepared for the intended and exclusive use of the U-Pak Disposal Ltd. Candevcon does not assume any liability for the use of this report, or for the information included herein, or resulting in any damage from the use of this report by other parties.

2. BACKGROUND

The subject building is located on the west side of Regional Road 27, north of Rutherford Road, and on the south side of Major Mackenzie Drive in the community of Kleinburg in the City of Vaughan. Access to the building from Major Mackenzie Drive was blocked by the Concrete barriers installed across the long driveway. It is understood that the property on which the subject building is located is partly encroaching on the proposed street per the proposed Draft Plan of Subdivision.

Entry to Building 1A and Building 1B is locked; however, access to these Building is available from the side door to the later added part of the building on the back side of the original Building 1B. The T-shaped building appear vacant for a long time and surrounded by scattered bushes, vegetation, and small-sized trees (Pic. 2, Pic. 3, Pic. 6).

3. BUILDING INFORMATION

Based on our research, the building was constructed around 1865. Building 1B appears to be a later extension or renovation with the adjoining covered porch over the basement stairs; however, the construction year of the later addition or renovation was unknown.

Buildings 1A and 1B are connected and form a combined residential house. The roof of Building 1B is framed into Building 1A at approximately mid-height of the roof of adjoining Building 1A, and the load-bearing masonry walls of Building B are connected with the south façade, a gable end of Building 1A.

The focus of our investigation was the original house of Building 1A along with Building 1B. The building appears to be a Georgian-style house with a gable roof, T-Plan-shape, one-and-a-half stories, and cottage style. It has a centred front entrance door with windows on either side with an extension at the back, a covered porch on the front and sides, and chimney stacks on either side of the front section of the house

The ground floor of Building 1A includes living and other rooms, as well as a central corridor leading to Building 1B and a wooden staircase leads to the second floor. On the second floor, there are several rooms on either side of the stair hallway, and a finished bathroom.

The ground floor of Building 1B, with the main entrance on the east side and a small porch, consists of a kitchen and a small laundry area with a mono-pitched roof on the east side. The second floor has a room above the kitchen and an entrance from the upstairs of Building 1A.

Covered porch with a wooden deck on the north, east, and west sides of building 1A, featuring a mono-pitched roof supported by flat ornamental wooden posts on the exterior.

4. OBSERVATIONS AND STRUCTURAL ASSESSMENT

a. BUILDING 1A

Building 1A is a one-and-a-half-story house with a full, finished basement (Pic. 1, Pic. 2, Pic. 3, Pic. 39). The building structure is comprised of a multilayer brick masonry wall, with wooden floors and beams supported on the foundation. The exterior

foundation wall has been covered with wooden trellises over the deck wall of the porch. Where visible, in the basement window (Pic. 34) and in the basement part of Building 1B (Pic. 31, Pic. 32), the foundation appears to be an estimated 18 inches thick rubble stone masonry. The depth of the foundation wall is unknown, which will require destructive measures to get more information about the walls and footings. The high gable roof is unreachable; however, looking into the attic opening in the similar type of construction in Building 1B, the roof construction is comprised of stone-coated metal roofing over wooden planks on the wooden rafters (Pic. 49) and appears to be in good condition, except for decayed wood at the corner of the eaves return. The rafters are supported by load-bearing brick masonry walls. The chimney structures are seen in good condition.

The interior structure was buried under finishes, including load-bearing walls, floor beams, and roof framing (Pic. 16 to Pic. 22, Pic. 24 to Pic. 26).

The foundation walls, although hidden, appear in good condition, concluding from no cracks, settlement, or bulge on the finishes of the walls observed in the basement except evidence of few repair patches to a partly exposed rubble masonry wall (Pic. 29), which can be seen from the crawl room of Building 1B; however, some water marks and mold growth were seen in some localized area of the walls.

The basement floor consists of square vinyl tiles on wooden flooring, which are dirty, wet, stained, delaminated, damp, and showing mold growth in a few locations (Pic.36, Pic. 37); however, no cracking or settlement was observed.

The wooden porch, covered with a mono-pitched roof on wooden framing, appears to be structurally in poor to fair condition. Two decorative flat wooden posts supporting the porch are missing. The porch also shows signs of degradation and deterioration of the wooden elements, including wooden posts and decking boards at a few locations (Pic. 44, Pic. 47). The wooden posts at the bottom are deteriorated, and a few are

detached from the deck (Pic. 41, Pic. 42). The underside of the wooden structure is covered by a trellis on the wall, making it difficult to assess (Pic. 40, Pic. 41).

b. BUILDING 1B

Building 1B is a one-and-a-half story with a gable roof (Pic. 6 to Pic. 8). The ridge is framed in the roof at approximately mid-height of the adjoining Building 1A and appears to be an extension to Building 1A (Pic. 1) with an unfinished crawl room basement. The building structure comprised a multilayer brick masonry wall, with wooden floors and beams supported on the foundation wall. The perimeter foundation walls were hidden; however, it appears to be a partly concrete block and rubble stone wall visible in the unfinished crawl room basement (Pic. 30, Pic. 32). The depth and width of the foundations and footings were unknown, and destructive measures were required to get the information.

The exterior masonry walls seem to be in relatively good condition, except for signs of penetrating dampness at a few locations with watermarks on the gable end masonry wall on the south side. Evidence of previously repaired diagonal cracks was observed on the same brick masonry wall, which now appears to be dormant (Pic. 8). Decayed wood is also visible at the southeast roofing corner (Pic. 8).

The wooden deck structure of the porch located on the Eastside entrance, structurally, appears to be in poor to fair condition which displays signs of degradation and deterioration occurred over time at few locations (Pic. 45). Deck floors are observed broken, decayed, and deteriorated. Underside structure of the deck is obscured by dumped debris and vegetation growth. Hence, it could not be assessed.

On the 2nd floor, the roof construction seems to consist of stone-coated metal roofing over wooden planks on the wooden rafters while looking into the attic opening (Pic. 49). It appears to be in good condition. The rafters are supported on load-bearing brick masonry walls.

The interior structure was buried under finishes, including load-bearing walls, floor beams, and roof framing (Pic. 10 to Pic. 12, Pic. 15, Pic. 23). The interior side of the south and west walls in the kitchen exhibit substantial damp patches, discolouration, and peeled/flaked paints, which seem to result from the moisture caused by water ingress from the brick masonry wall (Pic. 10 to Pic. 12). Eastside wall and small laundry extension have water marks, discoloration, and peeled paints as well, which appears to be a result of moisture caused by water ingress (Pic. 13, Pic. 14); however, the brick masonry load-bearing wall elements appear in a stable and good condition structurally.

The muddy crawl room's entrance is in the main basement hall of Building 1A, next to the main door. The wooden floor structure, including wooden beams (approximately 3" x 10" at about 24" centers on each side), is supported on the concrete block and rubble stone foundation walls and appears to be in good condition (Pic. 30, Pic. 32). No settlement or cracks were observed in the foundation walls.

5. CONCLUSIONS AND RECOMMENDATIONS

Based on our observation and structural assessment of Building 1A and Building 1B, the overall structural condition of the buildings appears to be relatively good, except for the porch. A few wooden posts supporting the porch and deck boards must be repaired or replaced as they are deteriorated or missing. It is recommended that Building 1A be relocated in a planned manner by carefully demolishing the adjoining Building 1B, as moving both buildings intact is a highly complex and impracticable task for the following reasons.

- The buildings are located within the road allowance owned by the Region.
- The load-bearing walls of each building are in opposite directions. Therefore, in our opinion, supporting, lifting, and transporting the combined large structure with right-angled load-bearing walls of the buildings situated at the same level having heavy mass is extreme difficult and impractical.

- Building 1A accommodates almost all and added heritage structure attributes than Building 1B

The preservation of the heritage attribute of Building 1A will be preserved while achieving the demolition of Building 1B. This can be accomplished by addressing necessary repairs, replacements, and additions as below without causing significant damage to the structural integrity of Building 1A.

- The roofing of Building 1B that is connected to Building 1A will be disassembled and replaced with new roofing that maintains the heritage character. The masonry walls of Building 1B, which are joined at right angles to Building 1A, will be disconnected and the connections will be patched to match the rest of the brick walls. Additionally, part of the south facade will have its finishing of Building 1B removed and repaired with the same exterior common bond brick pattern style.
- A few wooden posts supporting the pitched roof of the porch and several deck boards need repair or replacement because they are deteriorated or missing.

The building with a basement cannot be moved, but it can be moved by piercing the foundation walls with heavy steel beams and other necessary structural support from grade level while leaving the foundations. A new foundation with the same footprint as Building 1A will be constructed at a newly selected nearby site. The lifted buildings will then be positioned and levelled over the new foundations without compromising their structural integrity. The relocation of masonry buildings is complex and costly, requiring extensive preparatory work.

We advise engaging a firm with experience in moving historic structures to ensure the safe and successful relocation of a historic structure in coordination with engineering firms while obtaining the required permits from the City and other relevant agencies.

We also suggest a detailed investigation by exposing a few locations of the covered foundation walls, concealed floors, roof-supporting structural elements, and covered structure underneath the surrounding deck before relocation to examine and address hidden structural issues and keep the house in good condition during relocation.

We have made every effort to reasonably present the various areas of concern identified during our site visit. If there are perceived omissions or misstatements in this report regarding the observations made, we ask that they be brought to our attention as soon as possible so that we can fully address them in a timely manner.

We trust that the above is satisfactory for your requirements. Should you have any questions please do not hesitate to contact us.

Yours truly,

Inspection carried out by: Ashesh Patel, P. Eng.

Report Prepared by: **Ashesh Patel, P. Eng.**

APPENDIX A - PHOTOS

Pic. 1: Building Identification per ATA Architects Report

Pic. 2: Building 1A - Front Northside View

Pic. 3: Building 1A – Westside View

Pic. 4: Part of Building 1A, C and D - Northwest corner View

Pic. 5: Building E – Northside View

Pic. 6: Building 1A and Building 1B - Eastside View

Pic. 7: Building 1B abutting to Building 1A -Southeast View

Pic. 8: Southside View of Building 1B– Diagonal crack repairs, watermarks on Brick Masonry Wall, Broken Windows Pane and decayed wood at corner of the eave return.

Pic. 9: Entrance to Kitchen of Building 1B on Westside and Basement entrance with wooden stairs at the Southside (back) of Building A from Building C

Pic. 10: Kitchen in Building 1B; Penetration Damp on the Walls

Pic. 11: Westside Wall in Kitchen; Penetration Damp-Building 1B

Pic. 12: Eastside Wall in Building B; Watermarks on the Wall-Building 1B

Pic. 13: Laundry in Building B; Debris, Peeling/flaking of Paint and Damaged Wall-Building 1B

Pic. 14: Peeling/Flaking of Paint in Ceiling due to Moisture Penetration in Laundry room of Building 1B

Pic. 15: Central corridor from Kitchen Building 1B loading to Building 1A Front Entrance

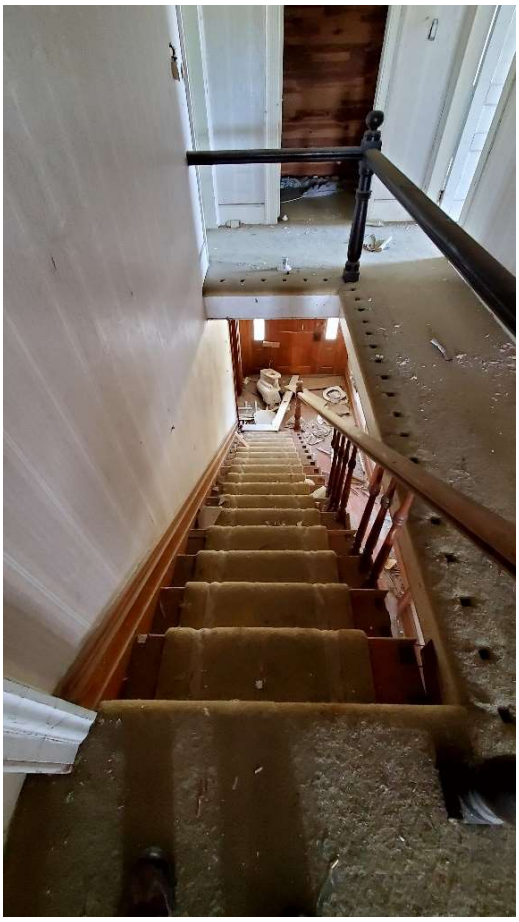
Pic. 16: GF Room Building 1A, Interior Condition, Hidden Structural Elements by Finishes

Pic. 17: GF Room Building 1A, Decorative Wall Papers with Ceiling, Hardwood Floor and Baseboards

Pic. 18: GF Room Building 1A, Decorative Wall Papers with Ceiling, Hardwood Floor and Baseboards

Pic. 19: GF Living Room Entrance Building 1A, Interior Condition, Hidden Structural Elements by Finishes

Pic. 20: GF Front Living Room with Fireplace and Wainscoting, Interior Condition, Hidden Structural Elements by Finishes-Building 1A



Pic. 21, Pic. 22: Central Corridor with Front Entrance, Stairs leading to the SF with Missing Balustrades-1A

Pic. 23: SF Room in Building 1B, Interior Condition, Hidden Structural Elements by Finishes

Pic. 24 Room 1 Interior Finishes - Hidden Structural Elements-1A

Pic. 24 Room 2 Interior Finishes - Hidden Structural Elements-1A

Pic. 26 Room Interior Finishes-

Hidden Structural Elements-1A

Pic. 27 Wooden Stairway to Building 1A Basement Entrance

Pic. 28: Wooden Stairway to Basement Entrance-Southside of Building 1A

Pic. 29: Patch Work on Rubble Masonry Foundation Wall-Building 1B Basement

Pic. 30: Muddy, Crawl Space in Basement of Building 1B

Pic. 31, Pic. 32: Wooden Floor Beam Supported on Rubble Stone Masonry in Basement Crawl Space room-Building 1B

Pic. 32

Pic. 33

Basement Hall-Building 1A showing Concealed Walls, Posts and Square Sheet Tiles on Wooden Flooring

Pic. 34

Basement Hall Window Well and foundation wall – Building 1A

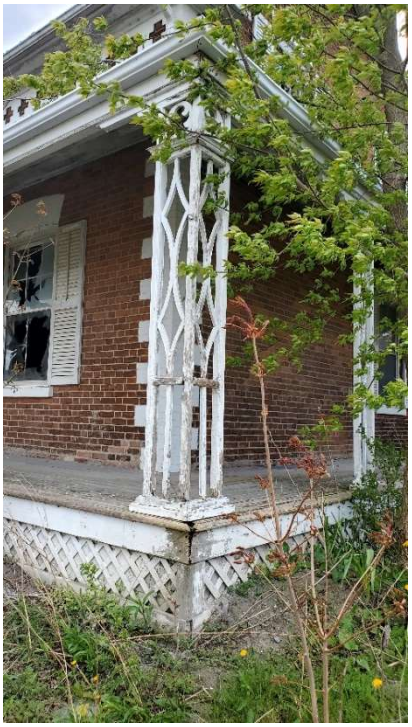
Pic 35: Basement Utility Room, Window, Damp Patches on Exterior Wall-Building 1A

Pic. 37: Water Damaged Stained Flooring over Wooden Floor in Basement of Building 1A

Pic. 36: Wooden Floor underneath Water Damaged Delaminated Square Tiles in Basement-Building 1A

Pic. 38: Previously Repaired Diagonal Crack on Masonary Wall Southside of Building B and Rotten wood at the Eave Corner-Building 1B

Pic. 39: Degraded Decorative Flat Wooden Posts Supporting Porch and Degraded wood at the Eaves Corner of Roof on Eastside-Building 1A.



Pic. 40: Deteriorated Wooden Decorative Flat Post Supporting Deck – Building 1A

Pic. 41: Compromised Post End, Degraded Perimeter Deck Board of Porch, Covered Deck Floor Structure – Building 1A

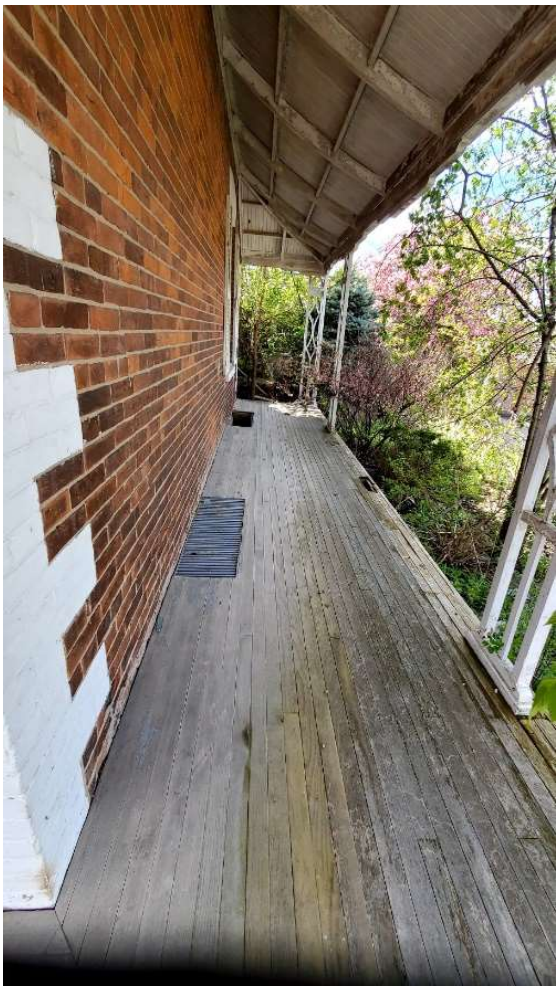
Pic. 42: Compromised Wooden Post at Top and Bottom-Building 1A

Pic. 43: Deteriorated Deck Floor

Pic. 44: Missing Post on Porch-Northside- 1A

Pic. 45: Degraded Deck-Building 1B

Pic. 46: Damaged Porch Post at Top-Building 1A



Pic. 47: Missing Post Supporting Porch – Westside 1A

Pic. 48: Degraded Deck-1A

Pic. 49: Wooden Planks on Wooden Rafter – Building 1B