

5 August 2025

Katherine F. Watkins, P.E.
Deputy City Manager
City of Cambridge
795 Massachusetts Avenue
Cambridge, MA 02139

Project 200609.04 – Drone Survey of Exterior Conditions, Riverview Condominiums,
221 Mt. Auburn Street, Cambridge, MA

Dear Ms. Watkins:

At your request, we performed a drone survey of the exterior conditions at Column Line E (North elevation) of the Riverview Condominiums (Riverview) structure at 221 Mt. Auburn Street. This letter summarizes our findings.

1. BACKGROUND

The City of Cambridge (City) and Riverview Board of Trustees (Riverview) are currently planning the controlled demolition of the Riverview structure. Current projections show that demolition will start in fall 2025. The City and Riverview requested that Simpson Gumpertz & Heger Inc. (SGH) monitor the building via drone survey every two weeks beginning in July 2025, to identify potential changes in the structure that may warrant immediate intervention. Our observations are limited to the readily visible exterior portions of the structure since interior structural conditions are concealed by finishes and due to access restrictions in the building. Exterior drone observations are an efficient method to document potential structural changes but are limited to only a small portion of the structure and will not identify potential structural changes within the building.

2. DATA COLLECTION

We used a small unmanned aerial vehicle (SUAV) to document the condition of the exterior slab edge, coating, and brick facade on the north elevation of the building. The SUAV used is a DJI Mavic 3E with two 20 megapixel cameras with up to 56x zoom capability. It weighs 2 lbs, measures roughly 14 by 11 by 4 in. unfolded, and has four propellers. The SUAV provides additional viewpoints to supplement our visual observations with binoculars from the ground, such as top-of-slab and overall photos. The specifications of the drone cameras are described in Table 1 below.

Table 1 – Drone Camera Specifications

Specifications	Wide Camera	Tele Camera
Image Sensor, Effective Pixels	4/3 CMOS, 20 MP	1/2 in. CMOS, 12 MP
Lens FOV	84°	15°
Aperture	f/2.8-f/11	f/4.4
Focus	1 m to ∞	3 m to ∞
Digital Zoom	-	8x (56x hybrid zoom)
Still Photography Mode	Single and Timed Shot: 20 MP	Single and Timed Shot: 12 MP

We conducted our drone survey on 24 July 2025 from 8:00 a.m. to 6:00 p.m. in sunny weather.

3. OBSERVATIONS

We compared photos of the north elevation to those from prior surveys. We did not note substantial changes between our previous April and July 2025 surveys and the 24 July 2025 survey. In general, we noted the following conditions:

- Typical distress is consistent with previous surveys and includes slab topside, edge, underside, and diagonal cracks visible through the coating. We did not note any new locations with potential cracks that were not present in our prior surveys.
- There are spalls and incipient spalls on the slab edge. We noted one location, where the crack surrounding an incipient spall appears to have widened since April 2025.
- We continue to monitor cracks throughout the north elevation of the building for signs of lengthening and widening. We noted one location, where a crack appears to have lengthened relative to our April 2025 survey.

We will continue to monitor the locations exhibiting the changes noted above, in addition to the previously identified cracks, spalls, and incipient spalls.

4. DISCUSSION

The objective of our drone survey is to identify potential changes in the readily visible exterior Riverview structure, to determine if intervention is warranted between now and the upcoming demolition. Drone observations allow us to perform close-up observations of the north face of the structure, where the concrete slab is exposed, without entering the building. Since our first drone survey of the north elevation in June 2024, we observed some of these cracks widening and lengthening. In addition to structural distress, changes that we documented may be due to one or more factors, including, but not limited to:

- Thermal cycles.
- Lighting, shadows, and moisture emphasizing crack extents.
- Relative distance and angle of the drone to the observation location.
- Aging or weathering of the architectural coating.

Our next drone survey is scheduled for 5 August 2025. We will compare the results to our prior surveys and provide you with an update regarding any changes to the building.

Sincerely yours,

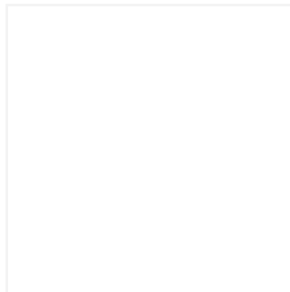


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