SUN SHADOW STUDY

Delta - 1284 Main St E

Proposed Residential Development

1284 Main Street East

City of Hamilton

Prepared for:

Delta Joint Venture Inc.

Prepared by:

Ralph Bouwmeester, P. Eng.

RBA File: S22029

SEPTEMBER 30, 2022
(REVISED DECEMBER 13, 2022)

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1. This summary report should be read in conjunction with shadow study Drawings RH-1 and SS-1 to SS-13 all dated December 13, 2022.

2. Site latitude and longitude used for this study are based on the latitude and longitude of the subject site as follows:

   Latitude: 43° 14' 25" N (43.2403° N)

   Longitude: 79° 48' 51" W (79.8142° W)

3. Time Zone: Eastern

   Daylight Time: UT – 4 hours (applies on Mar 21, Jun 21 and Sep 21)

4. Site Orientation: South Limit Main Street East N75°32'50"W (grid)

The bearing of the site's north boundary (south limit of Main Street East) is shown as N75°32'50"W (grid) on a Topographic Survey dated March 16, 2022, by A.T. McLaren Limited Legal and Engineering Surveys. This survey is referenced to the UTM Zone 17 NAD 83 coordinate system. Based on the site's location, we have determined that True (Solar) North is 0.8123° west (i.e. CCW) of Grid North. See North Arrow on drawings.

Shadow lengths and directions relative to True North were calculated using proprietary software.

5. The base plan used in this analysis was obtained from the City of Hamilton's Open Data mapping portal; this mapping is also in the UTM Zone 17 NAD 83 coordinate system. The 3D massing model of the proposal was provided by Graziani + Corazza Architects.

6. The shadow analysis is based on an assumed flat ground plane.

7. The shadow study includes hourly test times from 10:00 AM to 4:00 PM, both inclusive, on each of Mar 21, Jun 21 and Sep 21 per Policies 6.1.4.34 through 6.1.4.38 of the City's Official Plan. In addition, we have included 10:30 AM for Mar and Sep 21 (see Dwg. SS-13).

8. Review of Shadow Drawings

Mar 21 – Proposed shadows cross over Graham Ave S and reach the backyards of 9 homes on the west side of the street at the 10:00 AM test time. By 11:00 AM the shadows no longer reach these backyards. It is worth noting that the 10:00 AM shadows affect only the rearmost areas of those backyards, not the living areas immediately behind the houses which are in existing shade due to those houses themselves. By 10:30 AM (see Dwg. SS-13) the proposed shadows are clear of the backyards. We have found that the proposed incremental shadows are off those backyards before 10:25 AM.

As-of-right shadows reach across the opposite sidewalk along Graham Ave S at 10:00 AM; however, there is no incremental shadowing at that time. At 11:00 AM incremental shadows reach about 40% of the length of the west sidewalk. We have determined that the west sidewalk is in full sun from about 11:20 AM to about 4:20 PM, a period of 5 hours.

Proposed shadows do not reach Main St E on Mar 21. Afternoon shadows are primarily contained within the site and just begin to reach Wexford Ave S to the east at 3:00 PM. By 4:00 PM they reach the west curb; they do not reach the opposite sidewalk of Wexford.

No adjacent public spaces have been identified.

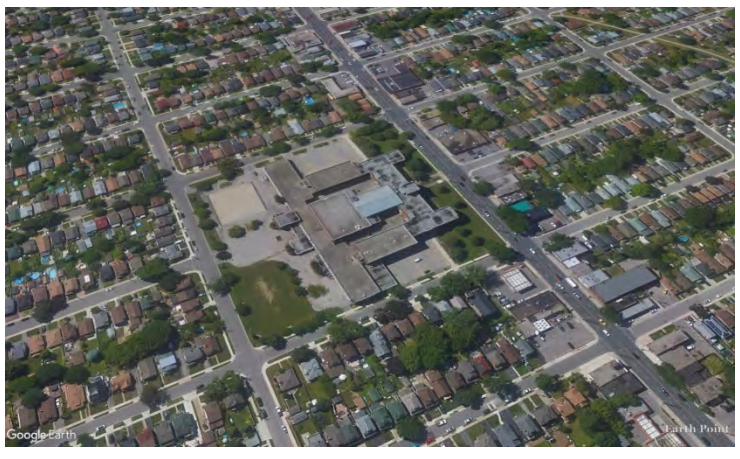
Jun 21 – The shadows are shortest on this date as evidenced by the drawings. They do not reach the opposite sidewalk along any of the abutting streets and they do not reach any other properties. No adjacent public spaces have been identified.

Sep 21 – Shadows on this date are quite similar to those on Mar 21. As a result, our Mar 21 comments generally apply to Sep 21. On this date, the west sidewalk of Graham Ave S is in full sun from about 11:05 AM to about 4:05 PM, again for 5 hours.

9. Conclusion:

OP Policy 6.1.4.35 states, "*Proposed development shall allow for a minimum of 3 hours of sun coverage between 10:00 a.m. and 4:00 p.m. as measured on March 21st to September 21st on public sidewalks, and public and private outdoor amenity areas such as patios, sitting areas, and other similar areas*", while Policy 4.12.3. of the City-Wide Corridor Planning Principles and Design Guidelines states, "*To minimize shadow impacts adjacent properties, adjacent public spaces and the public sidewalk on one side of the street should receive a minimum of 5 hours of sunlight throughout the day measured on March 21st*".

- The proposal meets both the 3-hour OP requirement for sun between 10:00 AM and 4:00 PM from Mar to Sep 21 and the 5-hour Corridor Design Guidelines requirement for sun throughout the day on Mar 21.

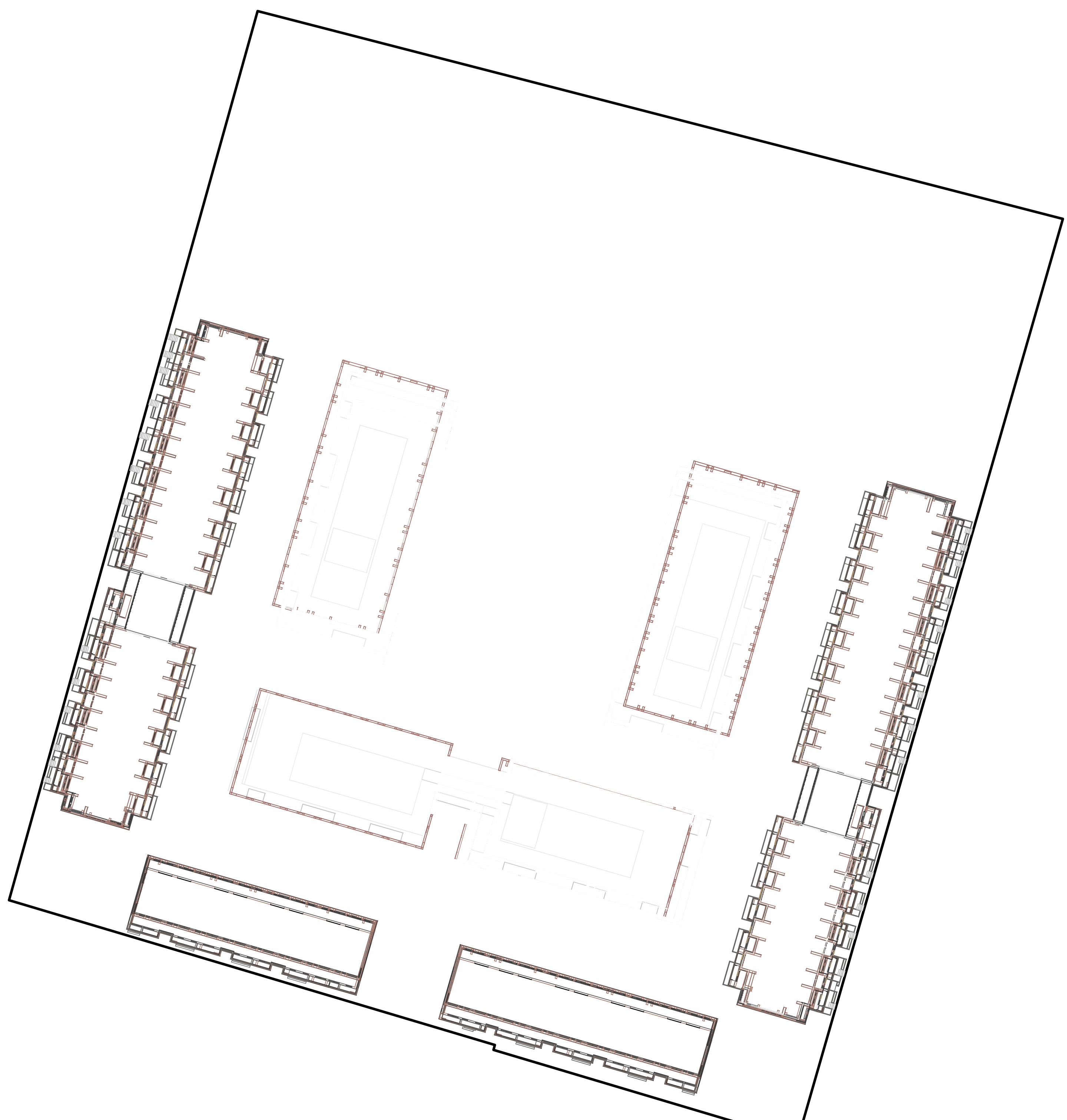


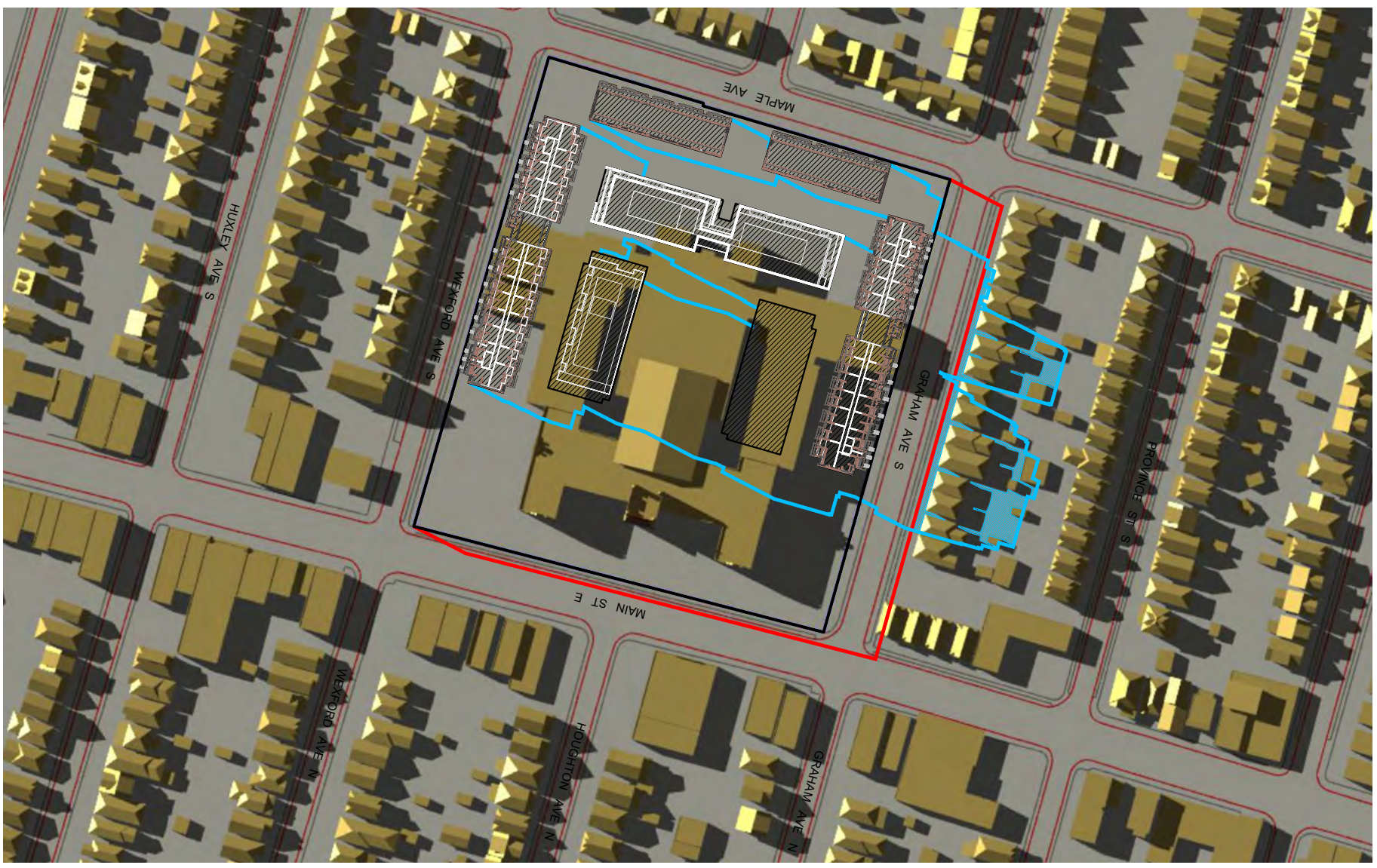
View of the area subject to morning and mid-day shadows

Looking NW

View of the area subject to mid-day and afternoon shadows

Looking NE

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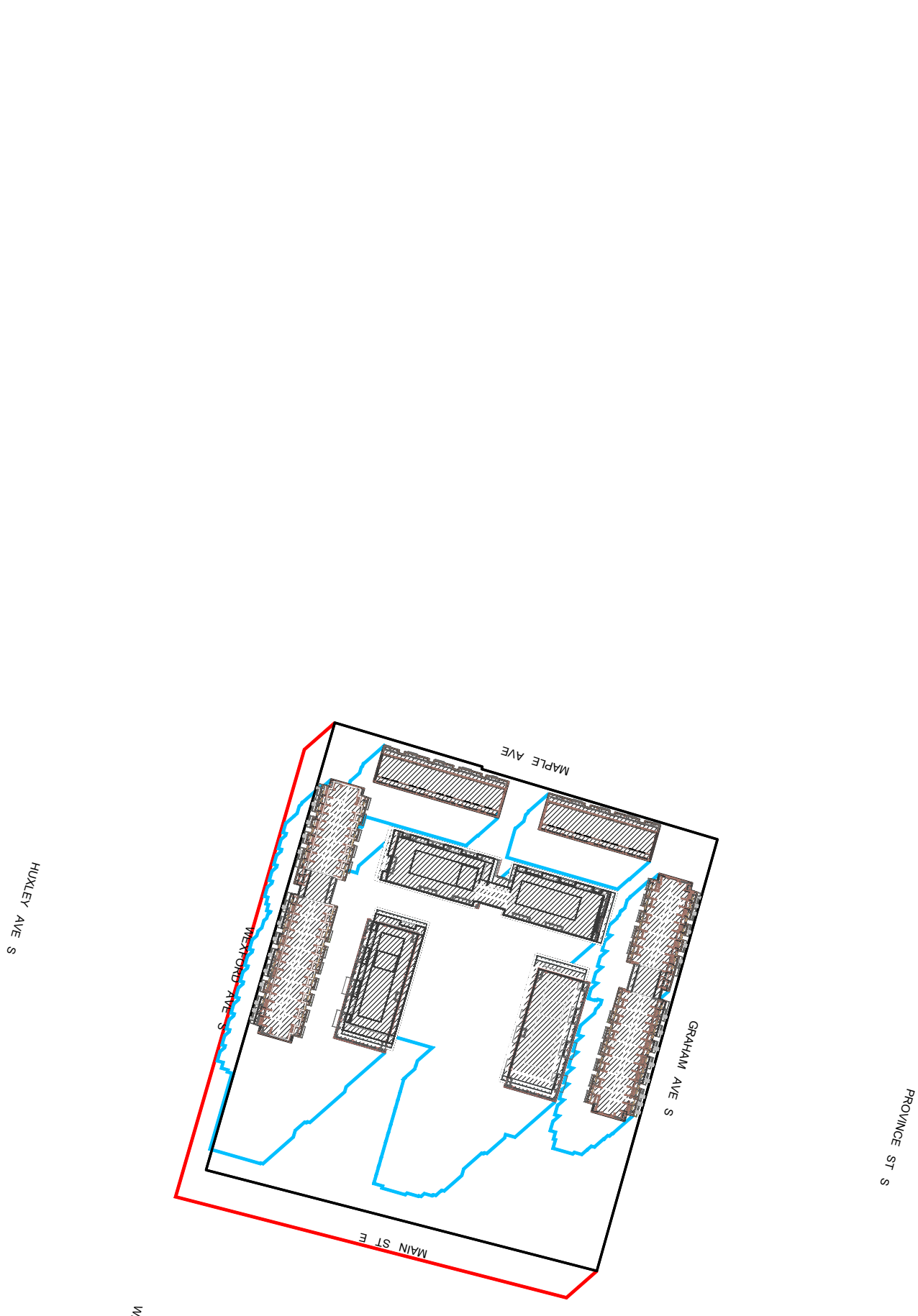
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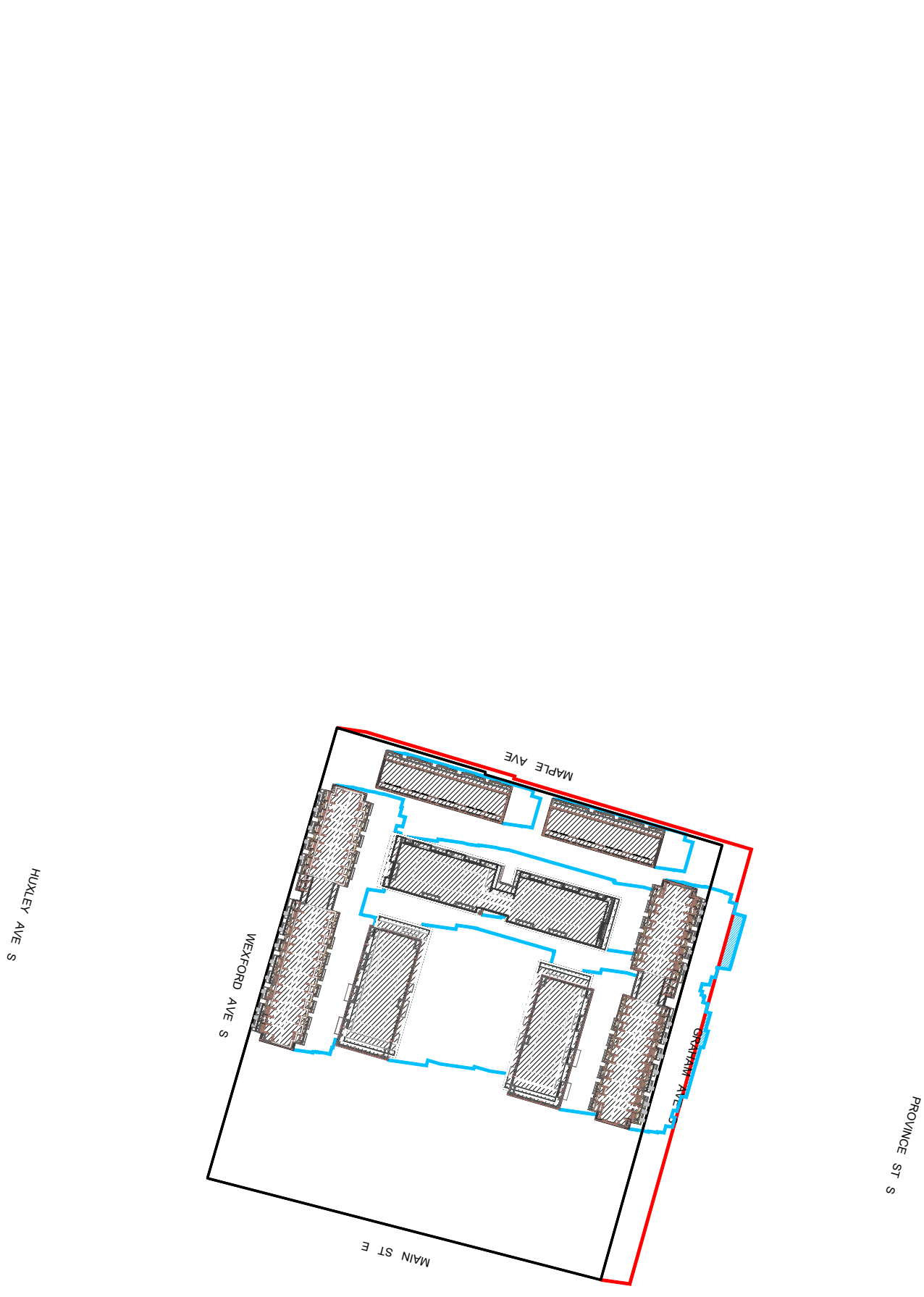
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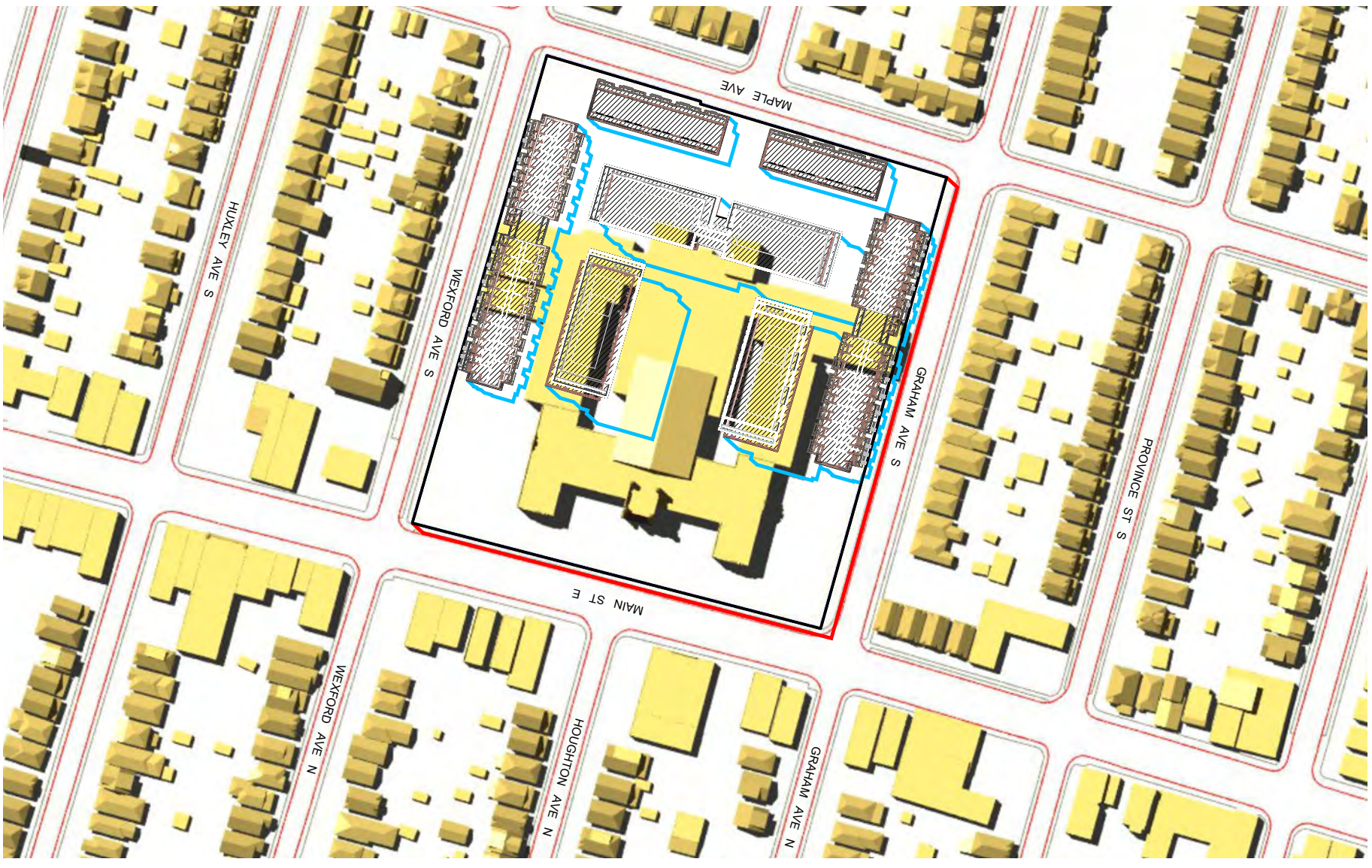
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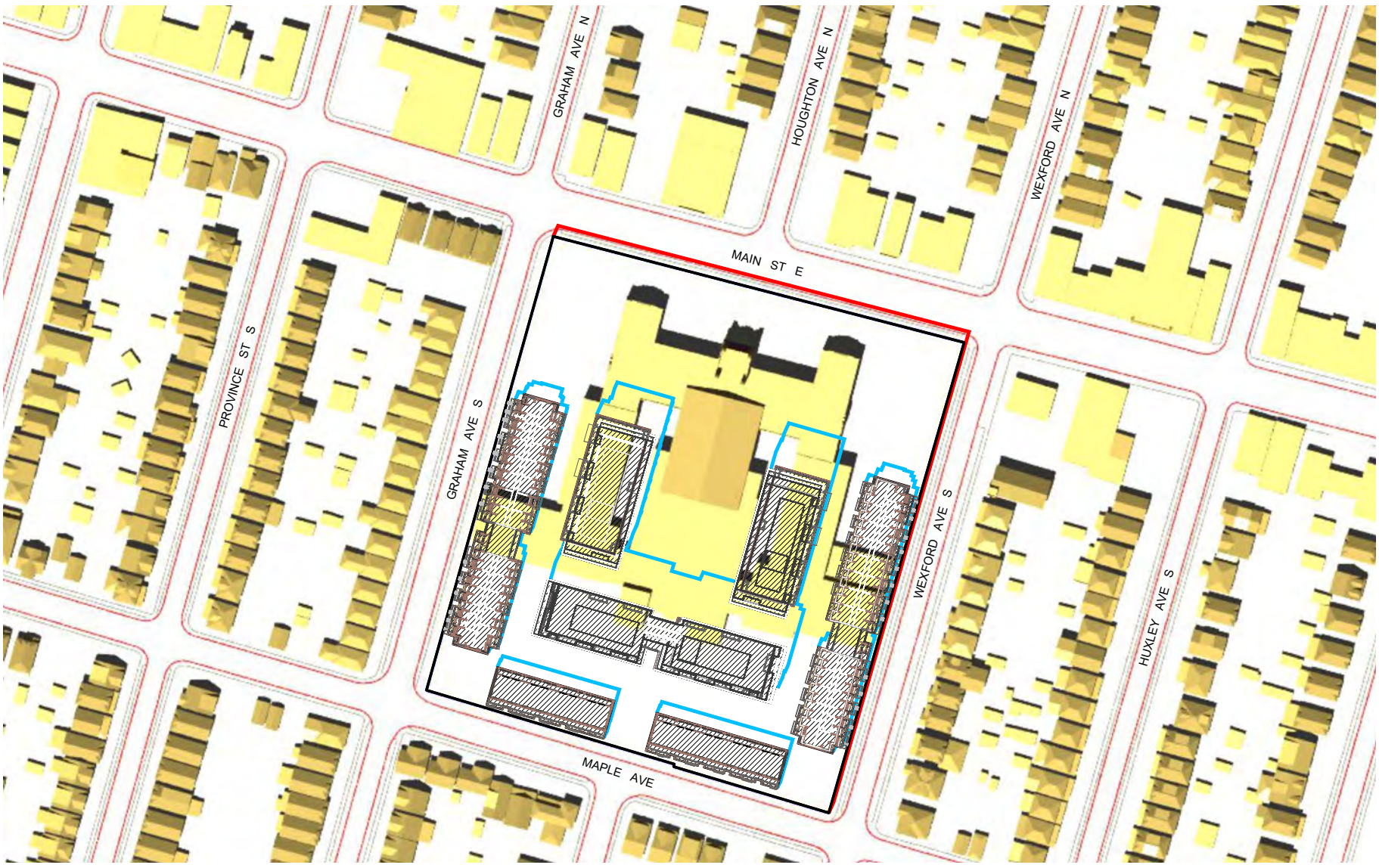
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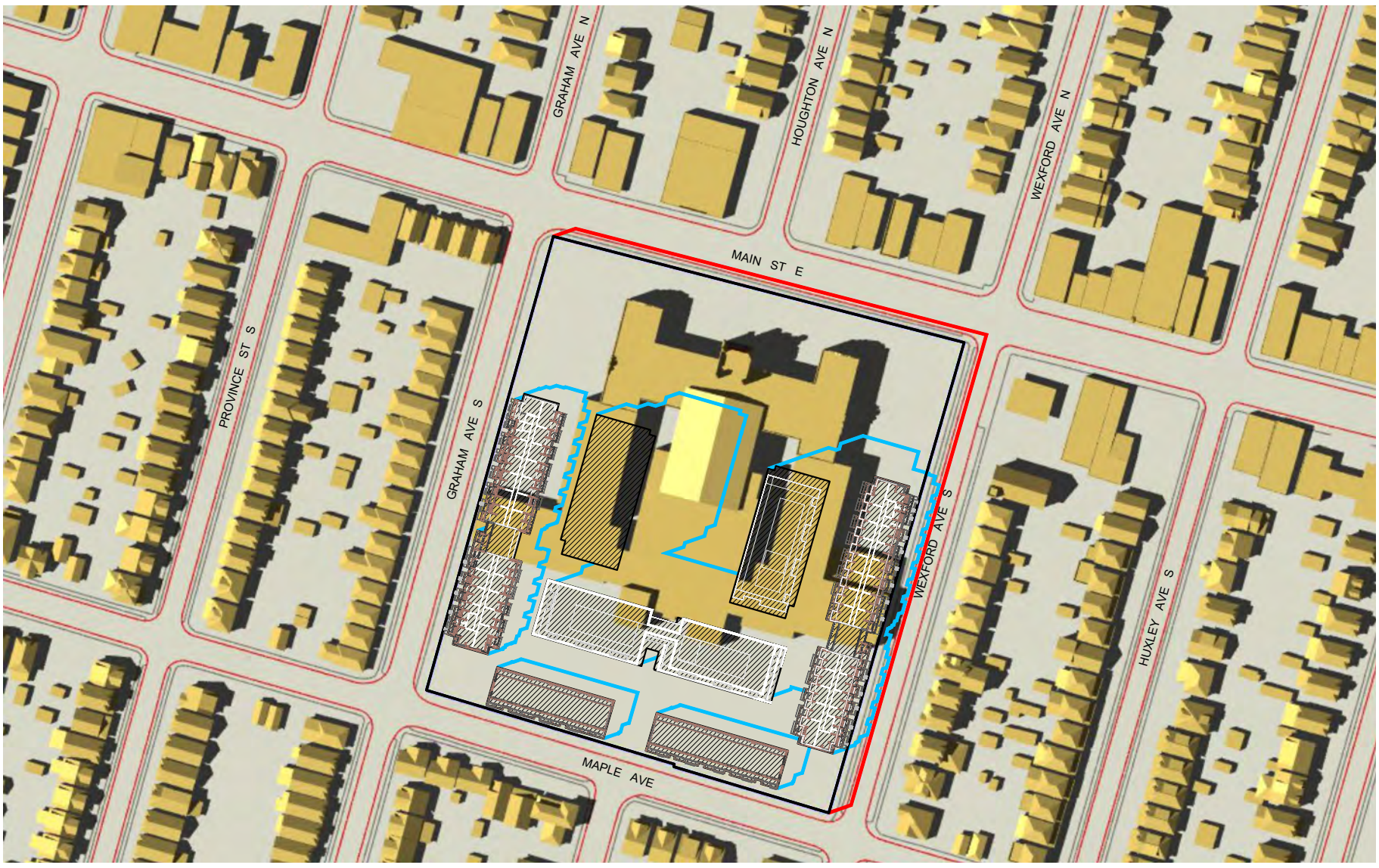
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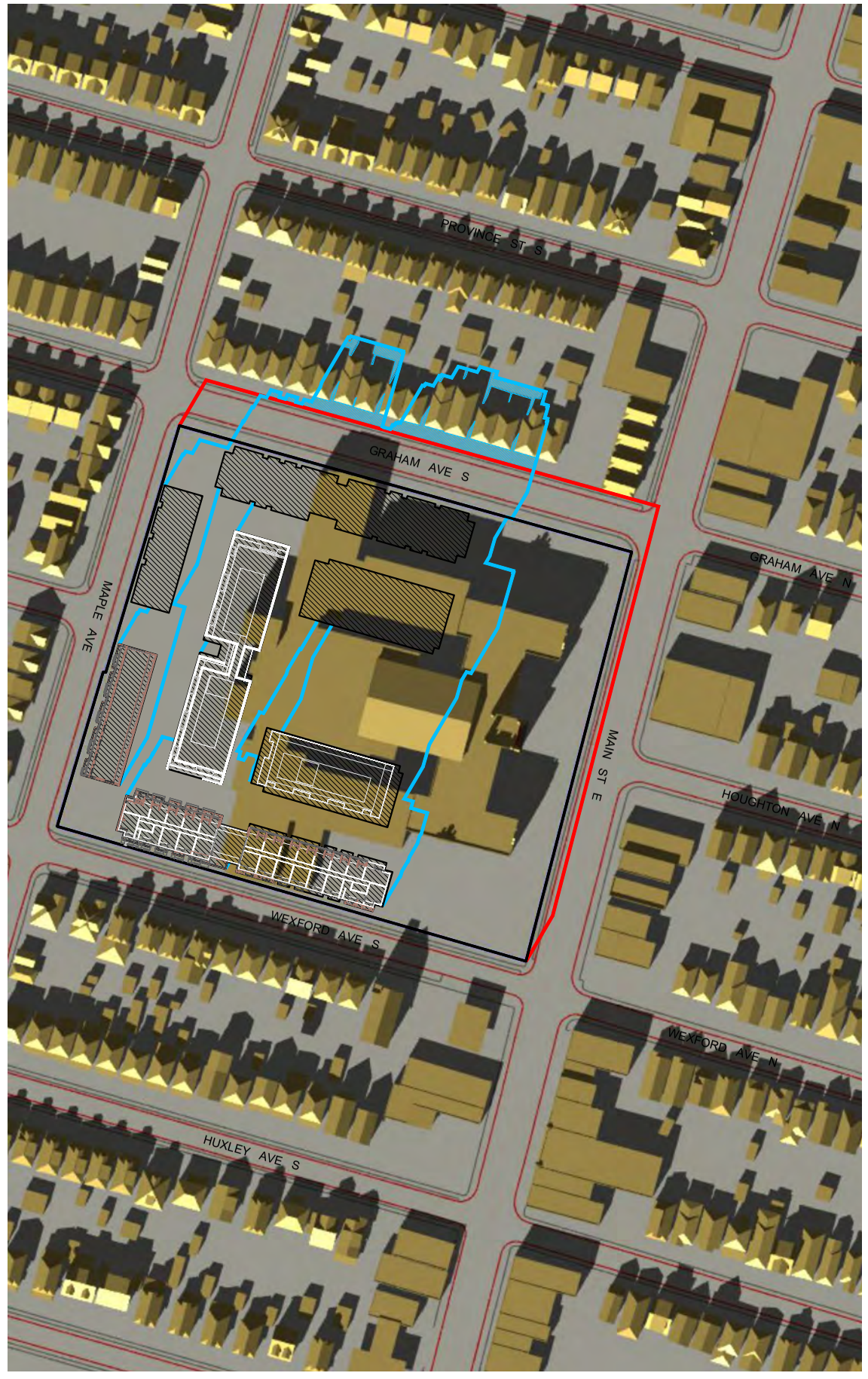
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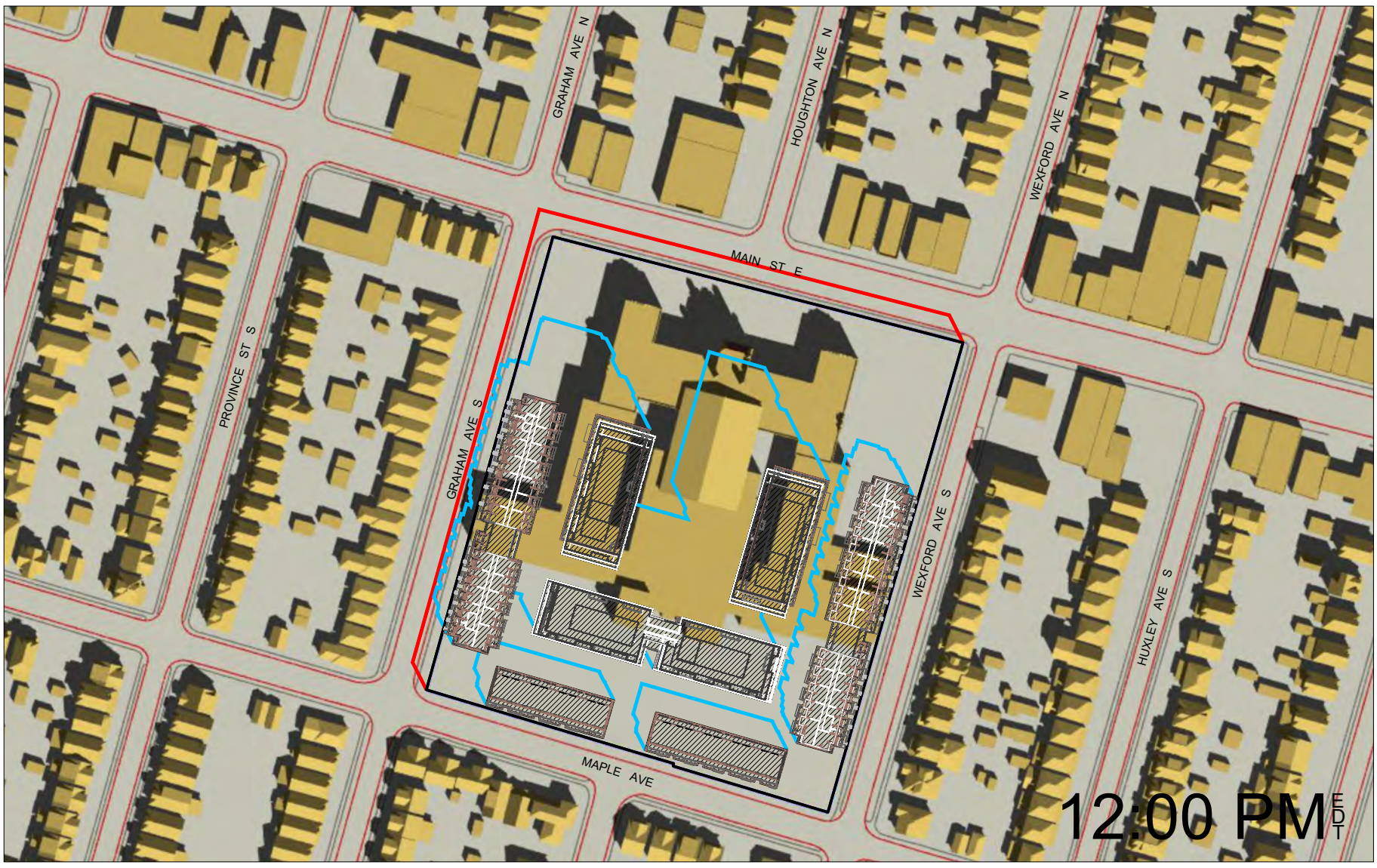

PROPOSED GROUND LEVEL SHADOW

AS-OF-RIGHT SHADOW

INCREMENTAL GROUND LEVEL SHADOW
(BEYOND EXISTING AND AS-OF-RIGHT)

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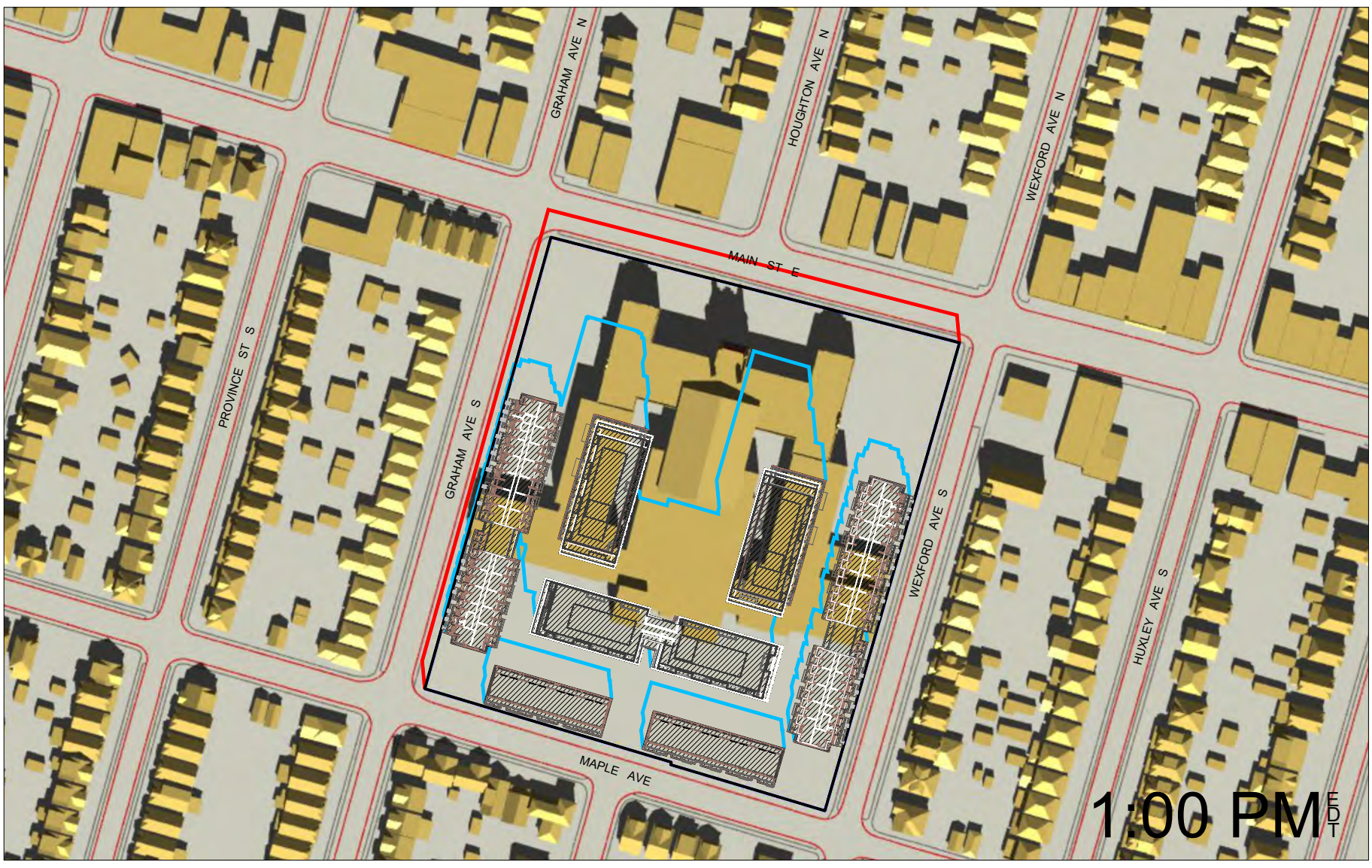

0.8123°
True North

SEP 21

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REV. DEC 13/22

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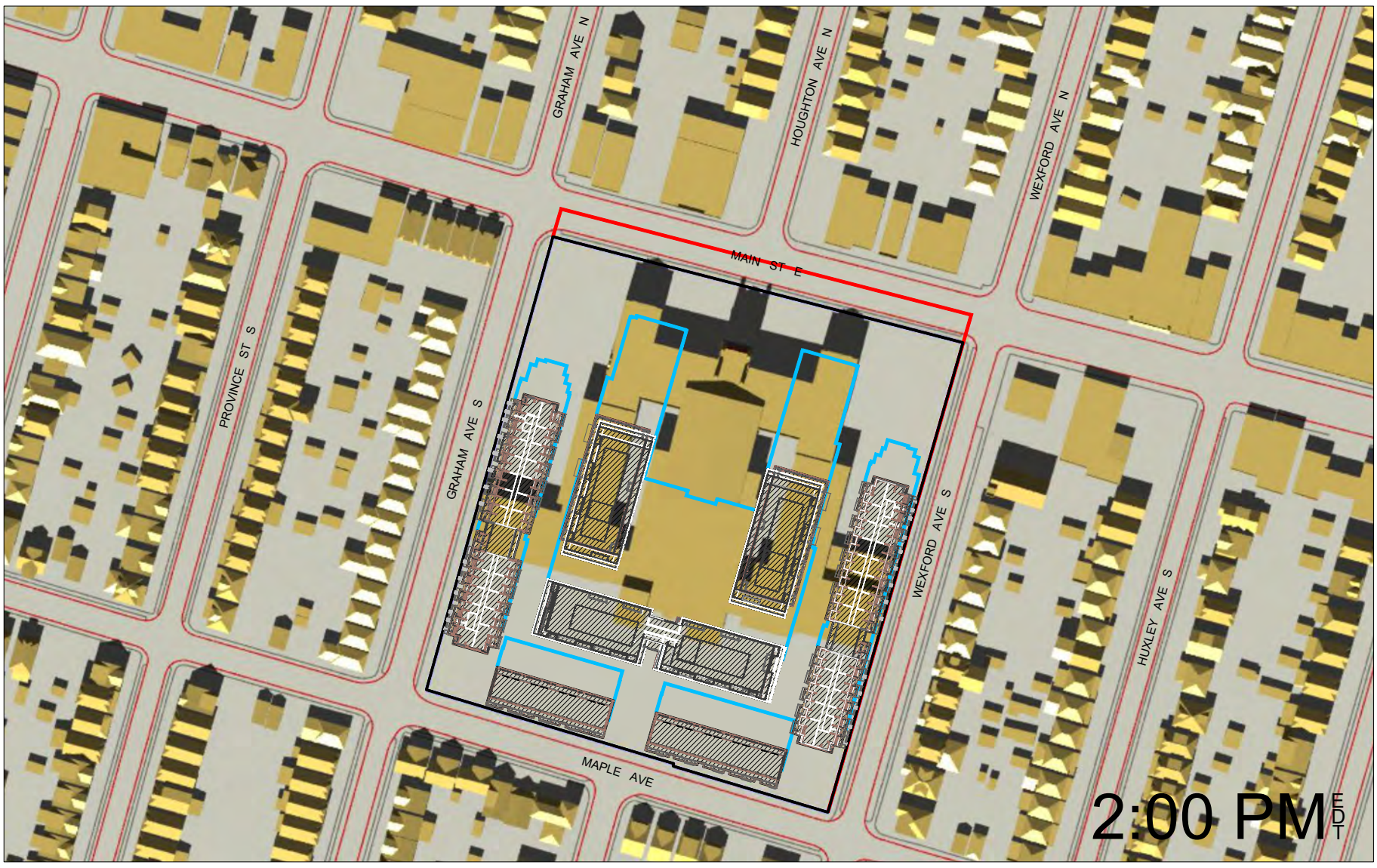

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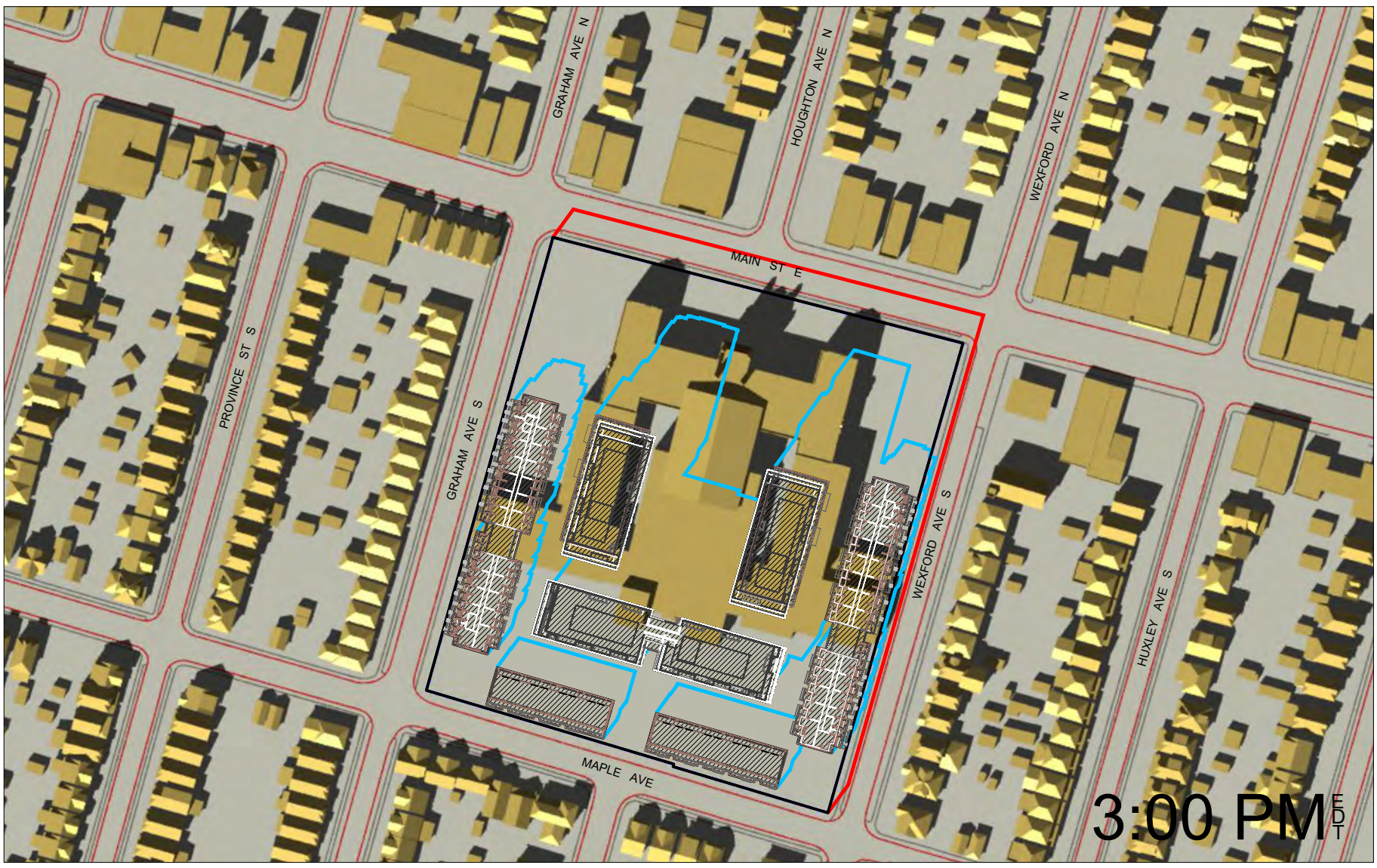

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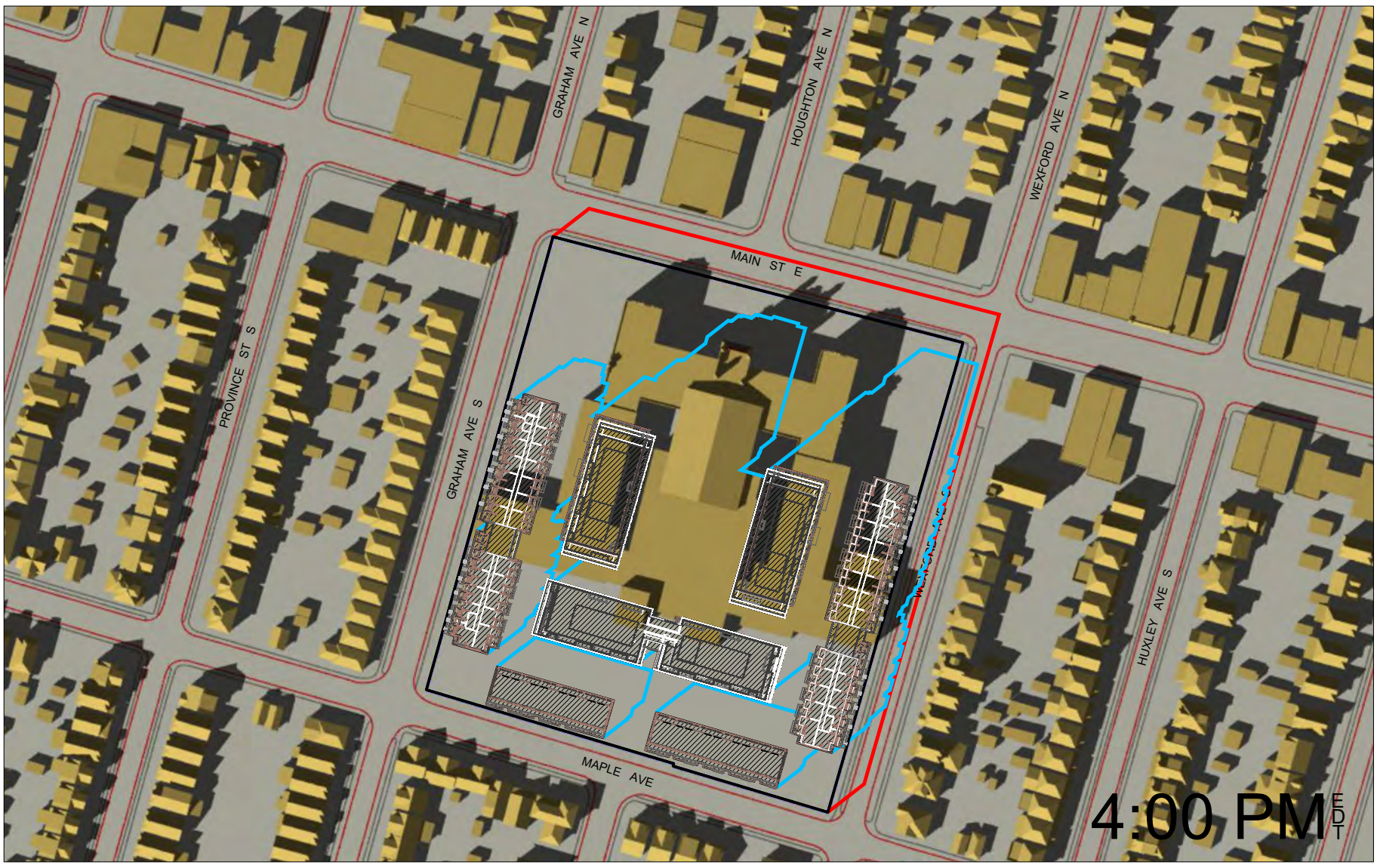

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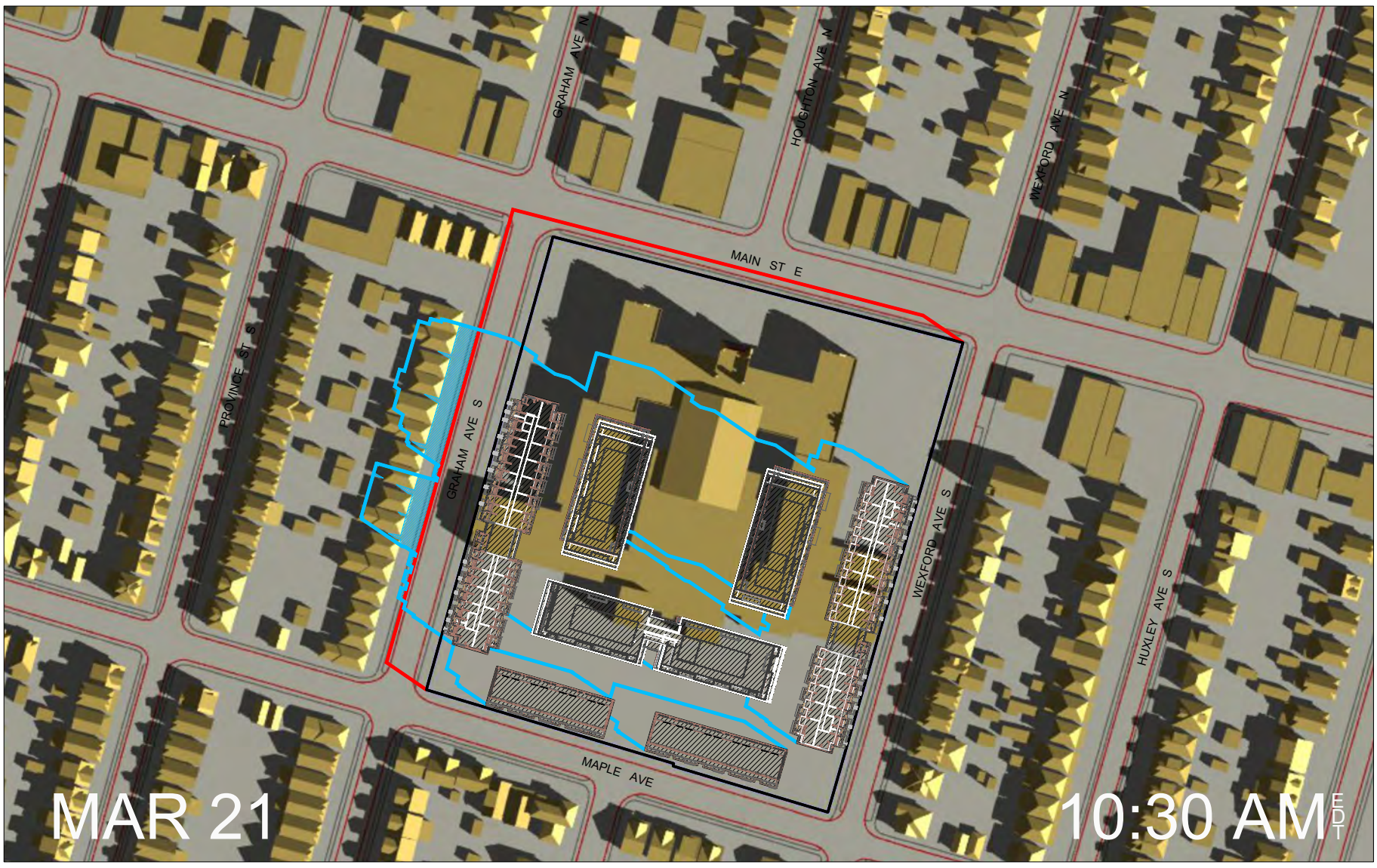

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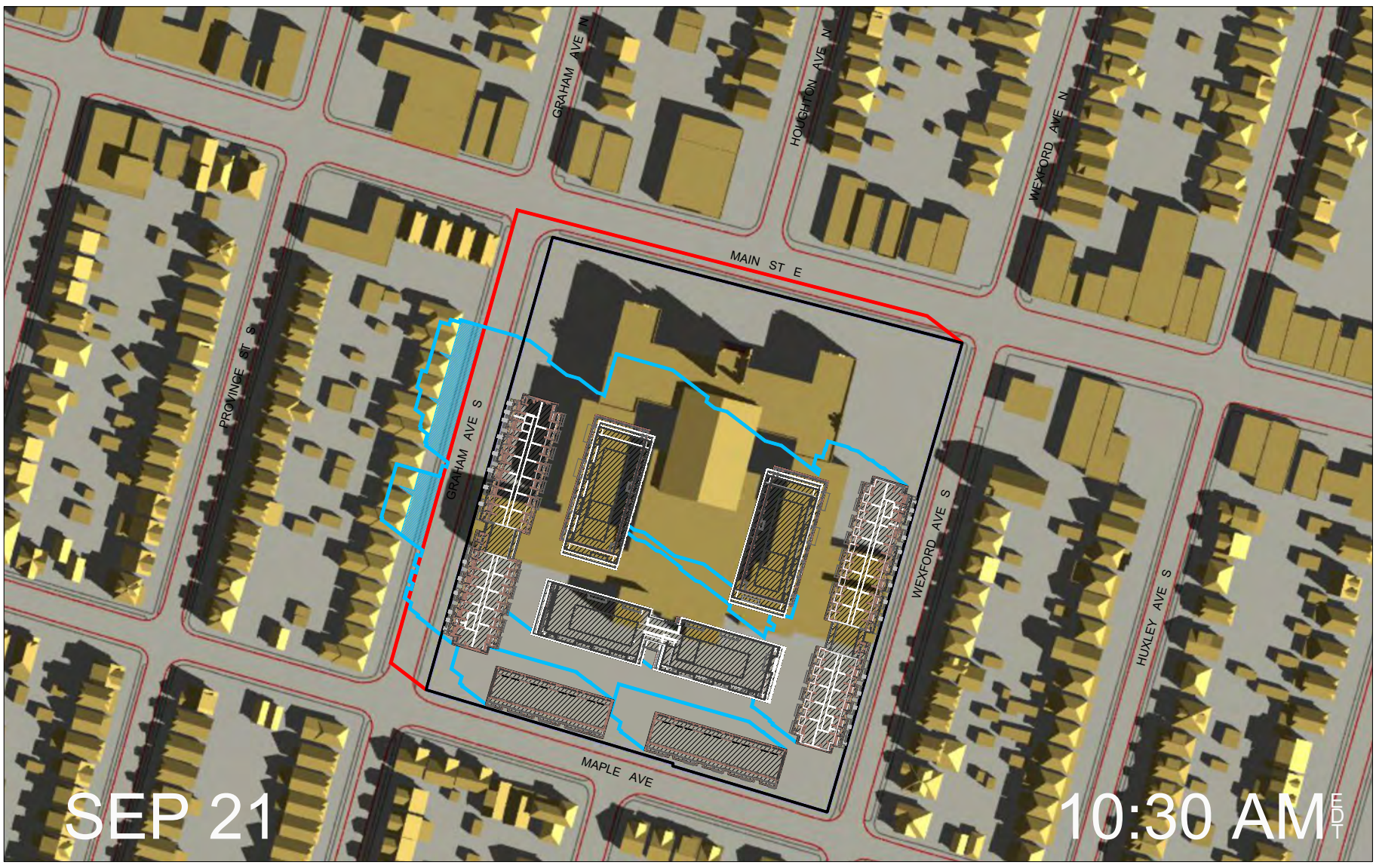

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