

SUN SHADOW STUDY

48 FERGUSON

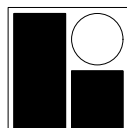
Proposed Mixed-Use Development
46-48 Ferguson Ave S
City of Hamilton

Prepared for:
The Hi-Rise Group Inc.

Prepared by:
Ralph Bouwmeester, P. Eng.

RBA File: S23008

JULY 7, 2023



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Sun & Shadow Position Specialists
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1. This summary report should be read in conjunction with shadow study Drawings RH-1 and SS-1 to SS-7 all dated July 7, 2023.
2. Site latitude and longitude used for this study are based on the latitude and longitude of the subject site as follows:
Latitude: 43° 15' 11" N (43.2531° N)
Longitude: 79° 51' 47" W (79.8631° W)
3. Time Zone: Eastern
Daylight Time: UT – 4 hours
4. Site Orientation: North Limit of Jackson St E - N 69°40'55" W (UTM grid)

The bearing of the site's south boundary (i.e. north limit of Jackson St E) is shown as N 69°40'55" W (UTM grid) on a Topographic Survey dated November 24, 2022, by A.T. McLaren Limited Legal and Engineering Surveys. This survey is referenced to the UTM Zone 17 NAD 83 coordinate system which matches the City of Hamilton's mapping coordinate system. Based on the site's location, we have determined that True (Solar) North is 0.7791° west (i.e. CCW) of UTM Grid North. See North Arrow on diagrams.

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. The 3D massing model of the proposal was provided by Graziani + Corazza Architects. Existing building heights were estimated from Google Earth Pro. See area context aerial photos below.



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



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

6. The shadow analysis is based on an assumed flat ground plane.
7. The shadow study includes hourly test times between 1.5 hours after sunrise to 1.5 hours before sunset on Mar 21 per "Development Application Guidelines - Sun Shadow Study" (Appendix "B31" to Report PED22112(d)). It also includes solar noon and the times marking 1.5 hours after sunrise and 1.5 hours before sunset as required.
8. The Impact Criteria specified in the Guidelines include the following:

A. Public Realm

This category includes public sidewalks, public/private outdoor amenity spaces such as patios, sitting areas, and other similar programs.

- Shadows from a 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.

B. Common Amenity Areas

This category includes public plazas, parks, open spaces, school yards, and playgrounds.

- Shadows from the proposed development shall allow for a minimum of 50% sun coverage at all times of the day, as measured on March 21st.

C. Primary Gathering Spaces in Downtown Hamilton

Downtown Hamilton contains a number of parks, squares, plazas and open space areas that serve as key civic gathering spaces in the Downtown area. The quality, image, and amenity of these spaces strongly affect how people perceive the Downtown.

- Development shall not cast any new net shadow between 10:00 a.m. and 4:00 p.m., as measured on March 21st on the following spaces:
 - a) Gore Park;
 - b) Prince's Square (50 Main Street East);
 - c) City Hall Forecourt (71 Main Street West);
 - d) Whitehern Museum (41 Jackson Street West); and,
 - e) Ferguson Station (244, 248 King Street East).

Of the above, only Prince's Square and Ferguson Station are in the vicinity of the subject site; they are shown on the shadow diagrams.

9. Review of Shadow Drawings

Mar 21 – Because of the permitted heights in this area of the downtown, there are no incremental shadows between 10:00 a.m. and noon. Between 1:00 p.m. and 4:00 p.m., there are minor incremental shadows as shown in diagrams SS-3 to SS-5 and described below.

At 1:00 p.m., incremental shadows reach north across Main Street and its north sidewalk and about 3m into an existing parking lot (at the NW corner of Main and Ferguson). By 2:00 p.m. incremental shadows no longer affect the north sidewalk along Main Street; minor shadowing continues on the parking lot. By 3:00 p.m. the shadows are east of Ferguson and reach a parking lot east of Ferguson Station; incremental shadows do not reach Ferguson Station. By 4:00 p.m. the shadows have moved further east and reach a parking lot between several commercial buildings.

Although proposed shadows reach the opposite sidewalks along Walnut, Main and Ferguson in various locations between 10:00 a.m. and 4:00 p.m., they do not linger in any one location for more than about one hour. These sidewalks will continue to receive at least 3 hours of sunlight between 10:00 a.m. and 4:00 p.m.

We have identified no public plazas, parks, open spaces, school yards, and playgrounds within the reach of the proposed shadows.

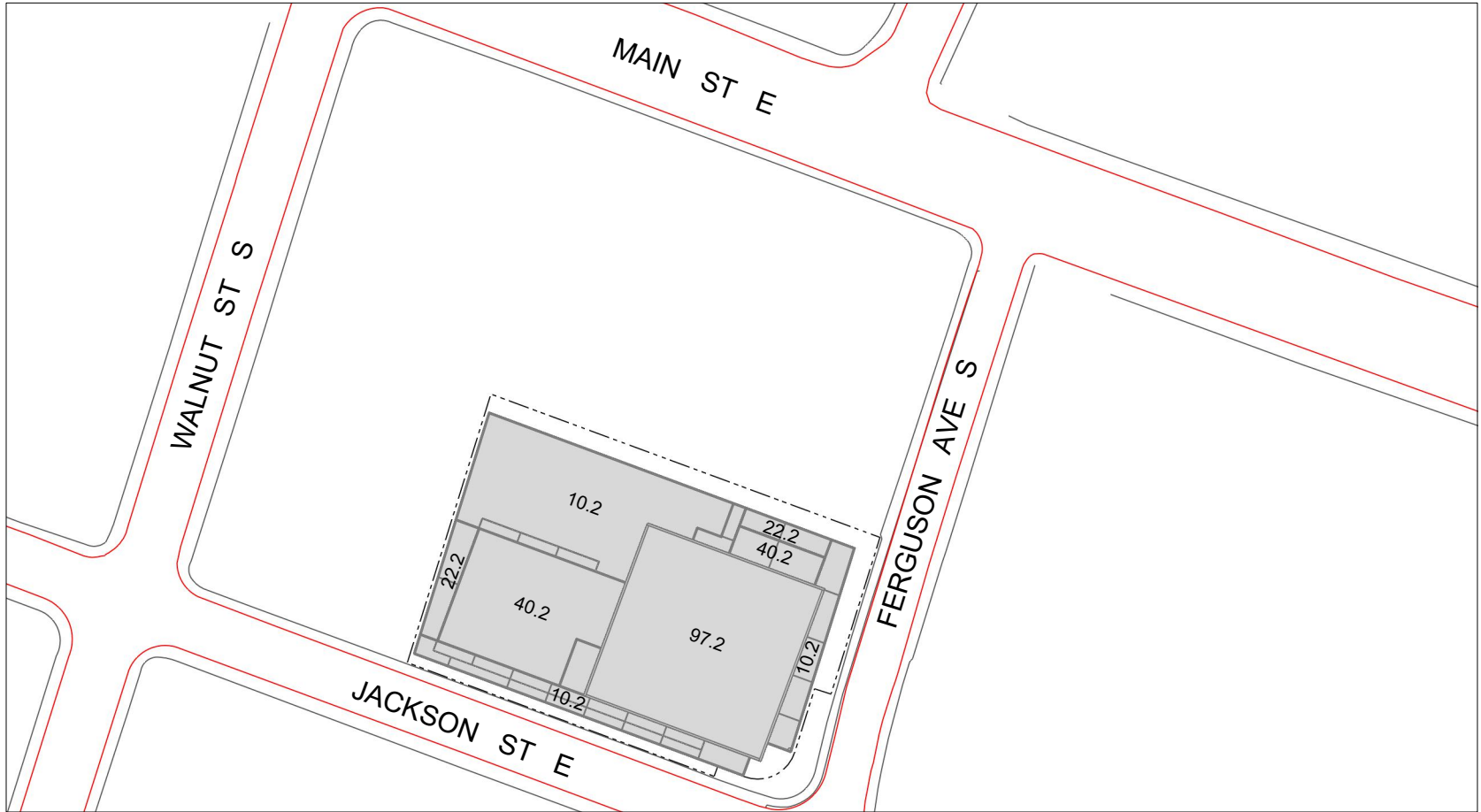
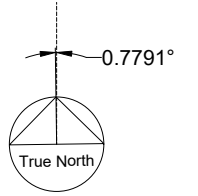
The proposed shadows also do not reach any of the protected gathering spaces (see Section 8.C.) between 10:00 a.m. and 4:00 p.m.

10. Conclusion:

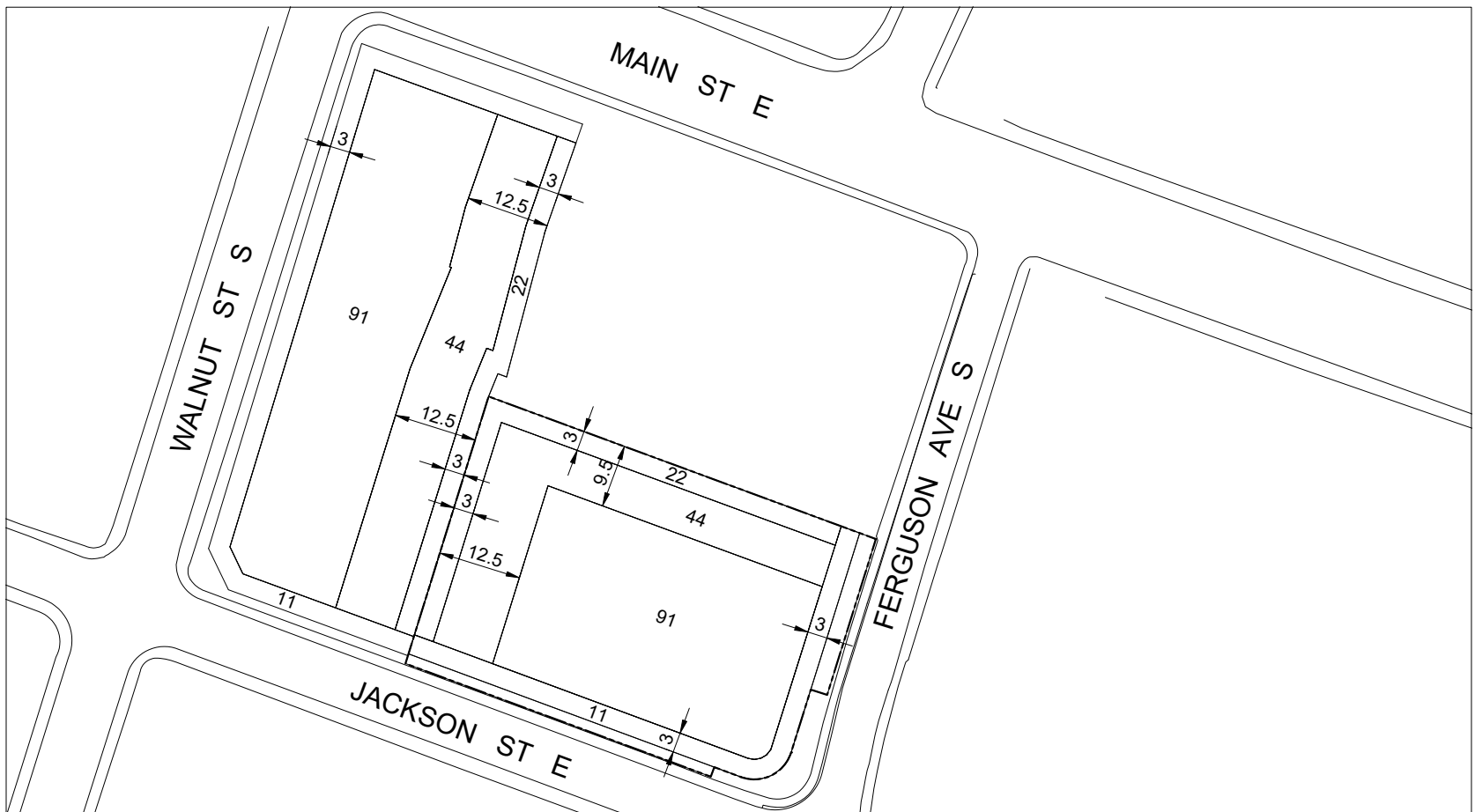
Based on our assessment, the proposal meets the City's requirements described in Section 8 above.

NOTES:

1. SHADOWS INCLUDE MPH, PARAPETS, BALCONY SLABS, RAILINGS (assumed solid), AND ROOF-TOP FEATURES, WHERE APPLICABLE.
2. PROPOSED BUILDING HEIGHTS ARE GIVEN IN METERS (to highest point e.g. top of parapet, top of railing, etc.).
3. PROPOSED BUILDING HEIGHTS WERE DERIVED FROM A 3D MODEL AND PLANS BY GRAZIANI + CORAZZA ARCHITECTS.
4. SHADOWS ARE SHOWN ON AN ASSUMED FLAT GROUND PLANE.
5. BASE MAPPING OBTAINED FROM CITY OF HAMILTON OPEN DATA PORTAL.
6. EXISTING BUILDING HEIGHTS ESTIMATED FROM GOOGLE EARTH.
7. SITE BOUNDARY SURVEY DATA PROVIDED BY A.T. McLAREN LIMITED.



KEY PROPOSED HEIGHTS



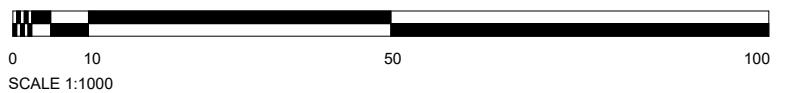
AS-OF-RIGHT HEIGHTS

GEOGRAPHIC SITE LOCATION:

LATITUDE: 43° 15' 11" N
 LONGITUDE: 79° 51' 47" W

TIME ZONE:

EASTERN
 - STANDARD TIME (EST) (UT - 5 hrs)
 - DAYLIGHT TIME (EDT) (UT - 4 hrs)



**KEY ROOF HEIGHTS
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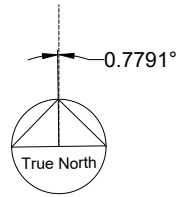
RH-1



8:51 AM^{EDT}



- PROPOSED SHADOW
- AS-OF-RIGHT SHADOW
- INCREMENTAL GROUND LEVEL SHADOW
(BEYOND SUBJECT SITE AND EXISTING AND AS-OF-RIGHT SHADOWS)



9:00 AM^{EDT}

MAR 21

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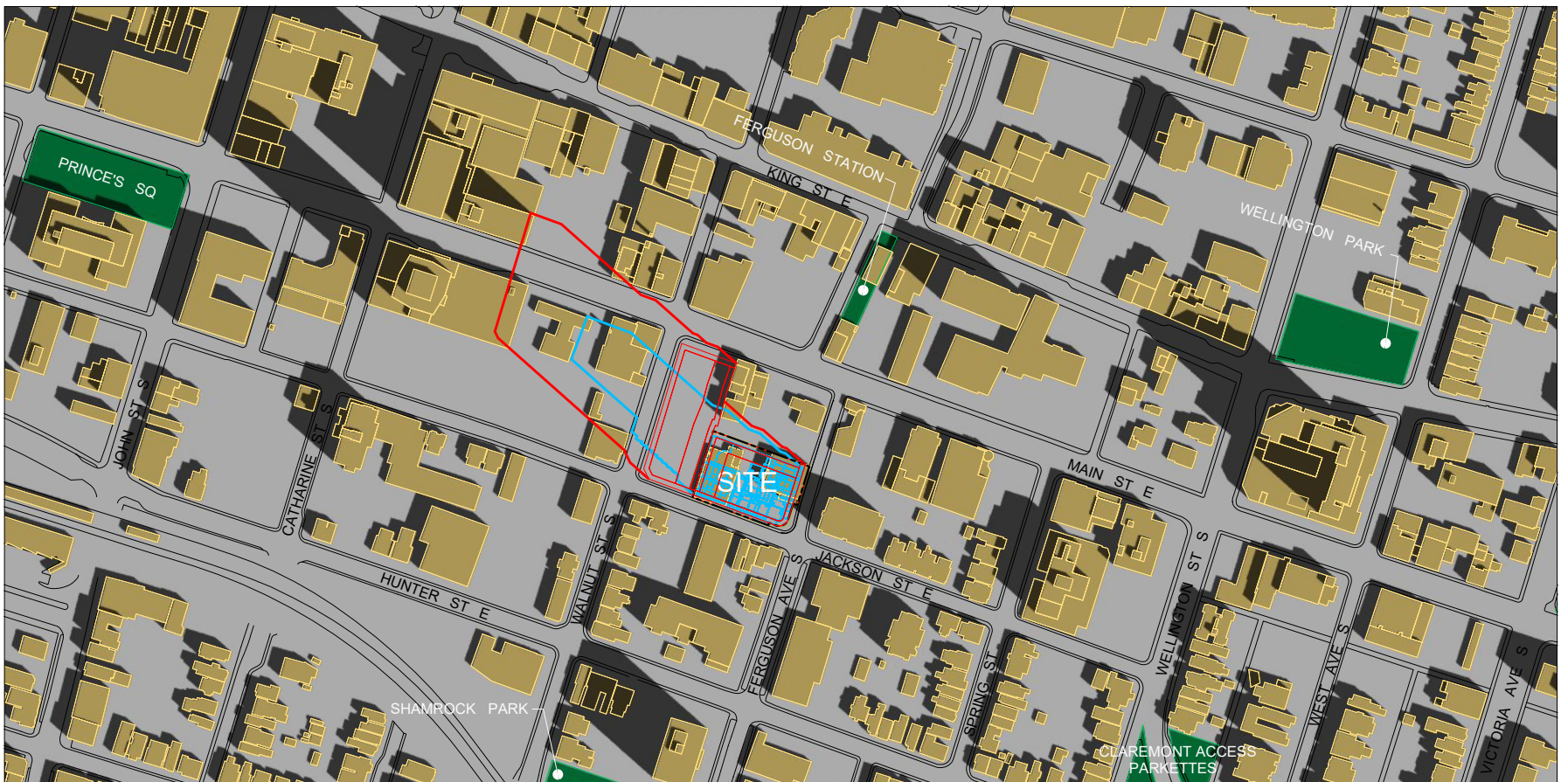
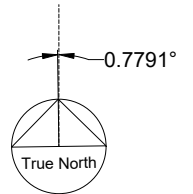
SS-1



10:00 AM^{EDT}



- PROPOSED SHADOW
- AS-OF-RIGHT SHADOW
- INCREMENTAL GROUND LEVEL SHADOW
(BEYOND SUBJECT SITE AND EXISTING AND AS-OF-RIGHT SHADOWS)



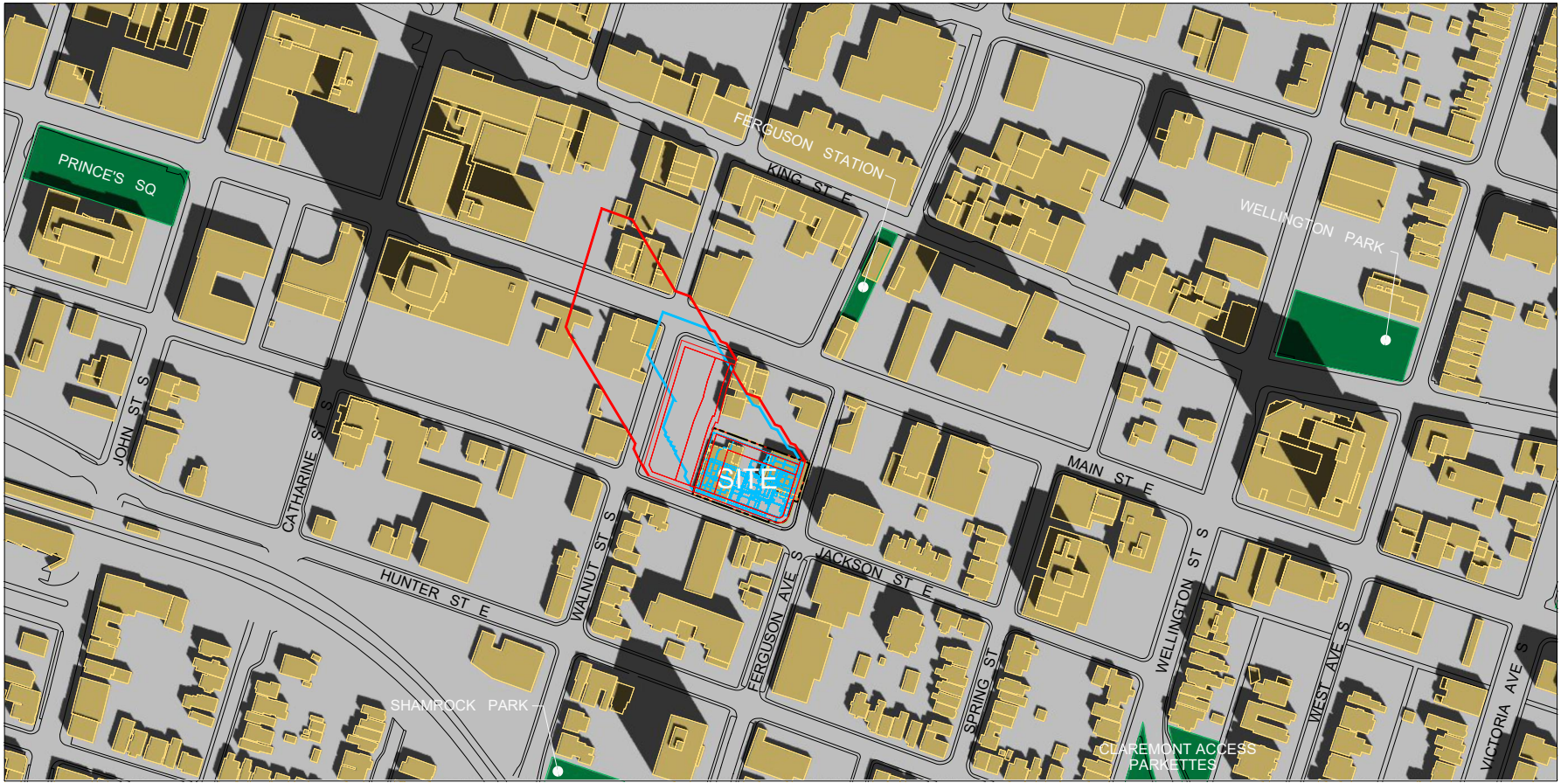
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MAR 21

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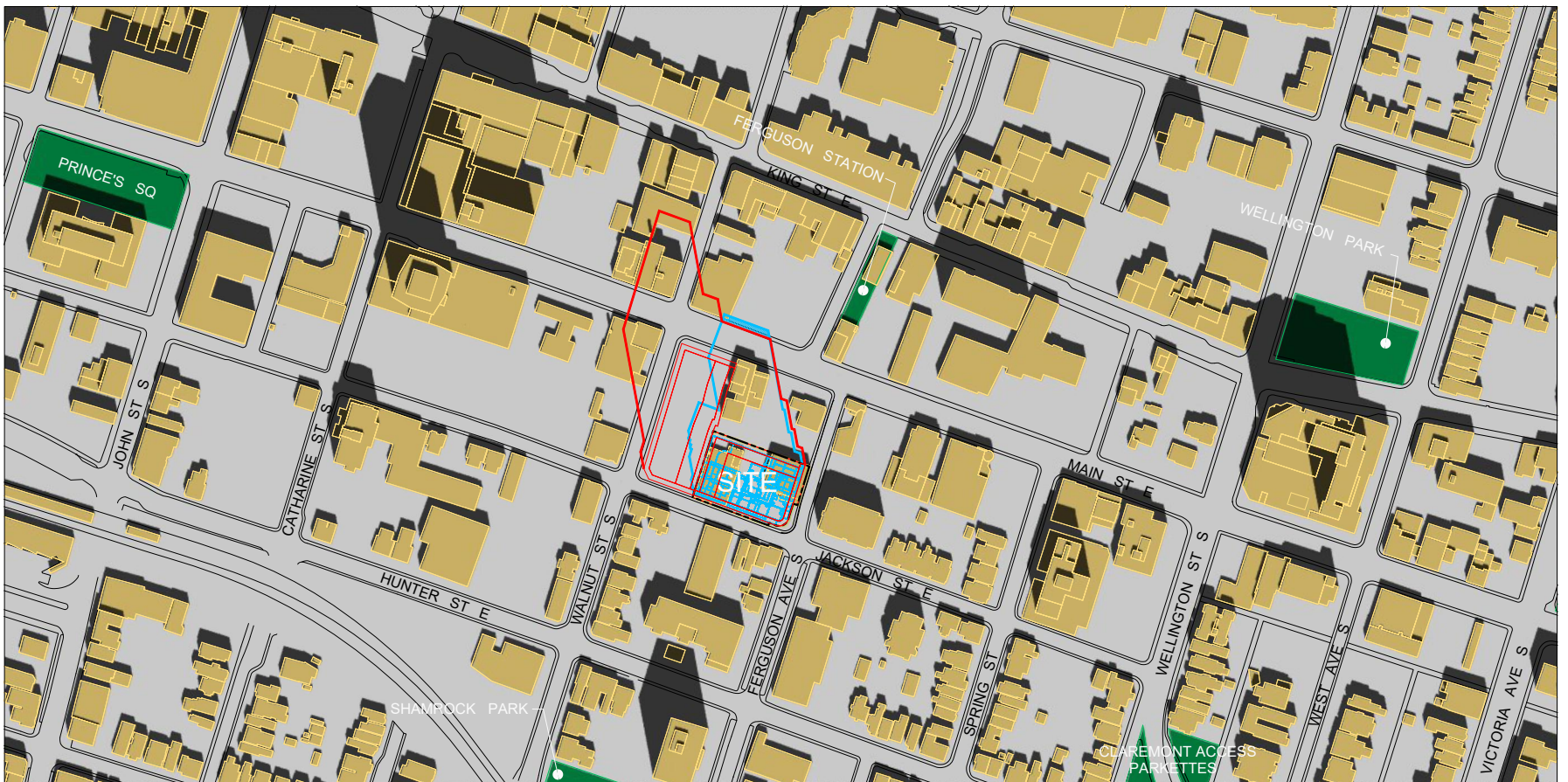
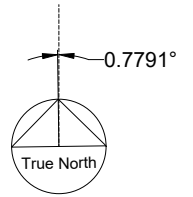
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12:00 PM^{EDT}



- PROPOSED SHADOW
- AS-OF-RIGHT SHADOW
- INCREMENTAL GROUND LEVEL SHADOW
(BEYOND SUBJECT SITE AND EXISTING AND AS-OF-RIGHT SHADOWS)



1:00 PM^{EDT}

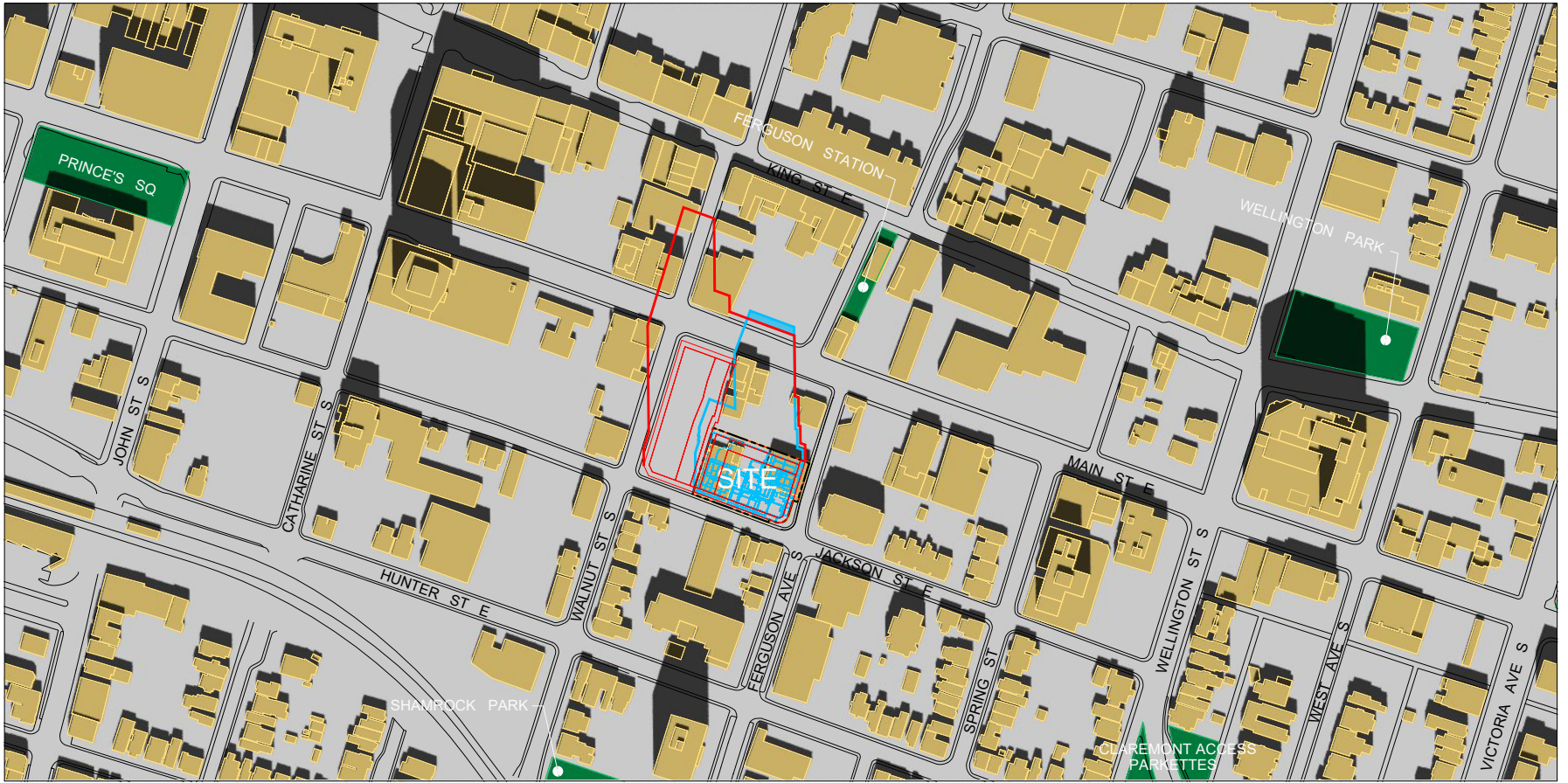
MAR 21

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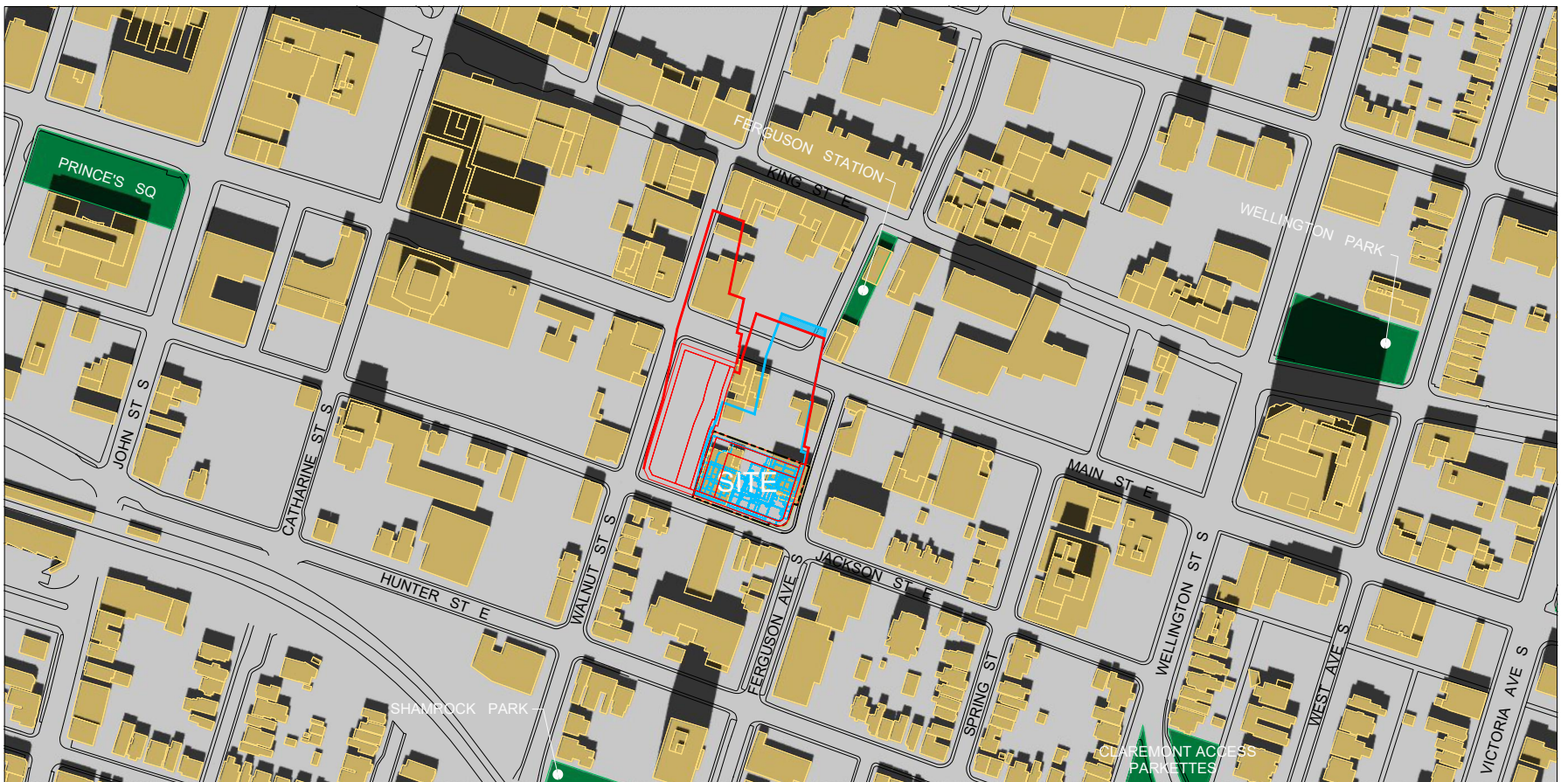
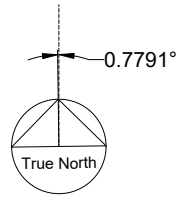
SS-3



1:27 PM^{EDT}



- PROPOSED SHADOW
- AS-OF-RIGHT SHADOW
- INCREMENTAL GROUND LEVEL SHADOW
(BEYOND SUBJECT SITE AND EXISTING AND AS-OF-RIGHT SHADOWS)

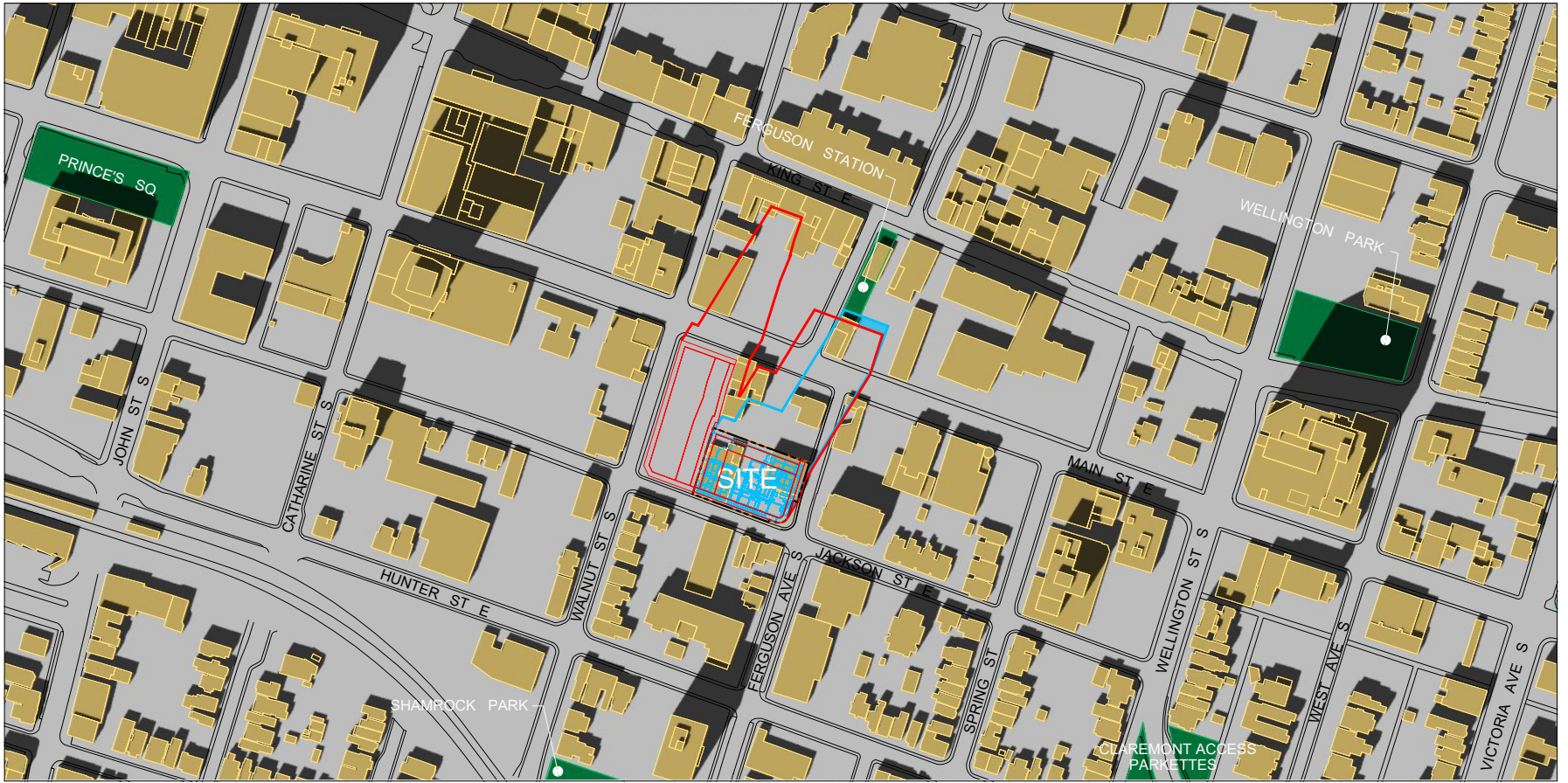


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MAR 21

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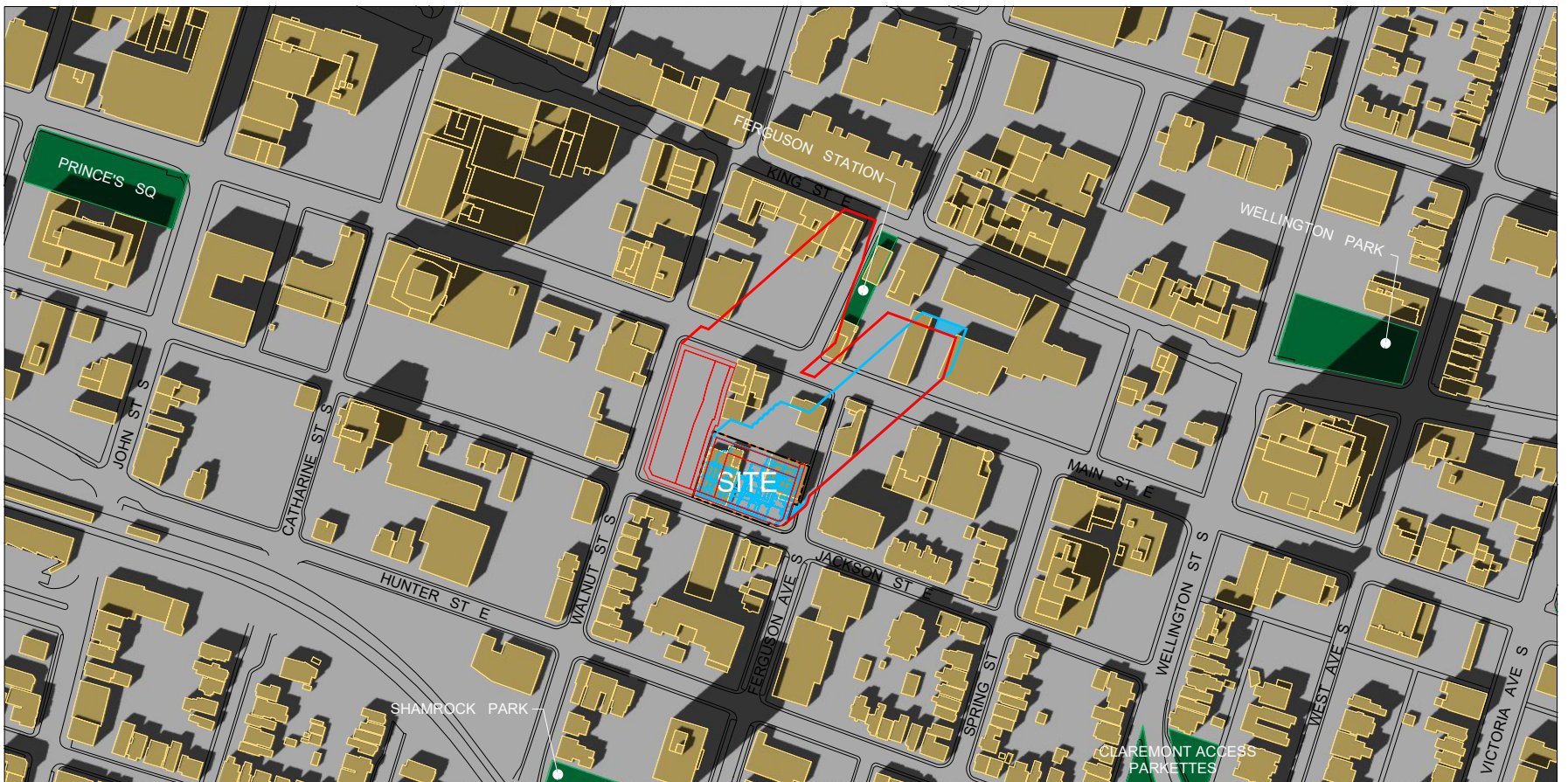
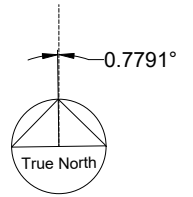
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3:00 PM^{EDT}



- PROPOSED SHADOW
- AS-OF-RIGHT SHADOW
- INCREMENTAL GROUND LEVEL SHADOW
(BEYOND SUBJECT SITE AND EXISTING AND AS-OF-RIGHT SHADOWS)

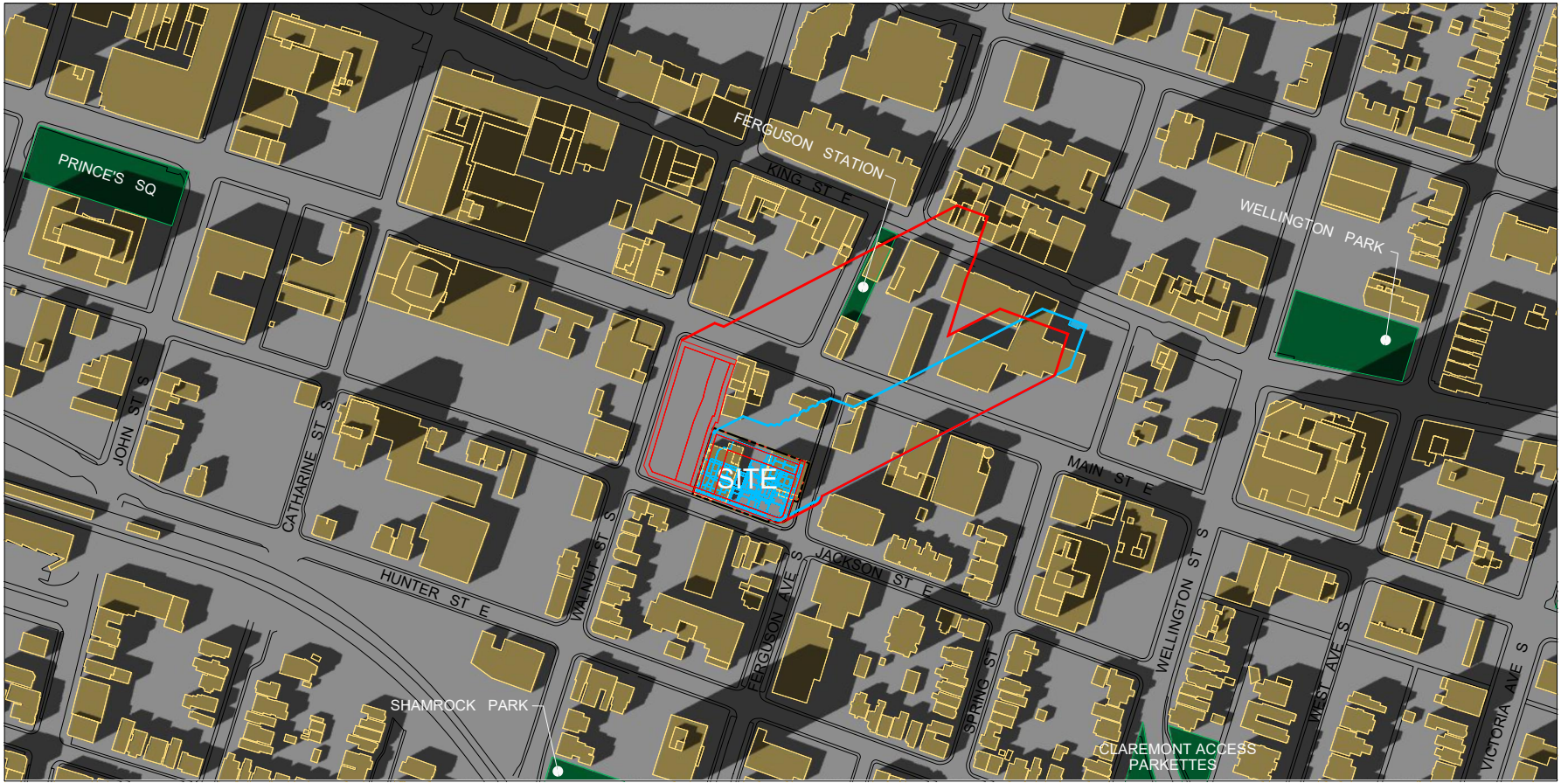


4:00 PM^{EDT}

MAR 21

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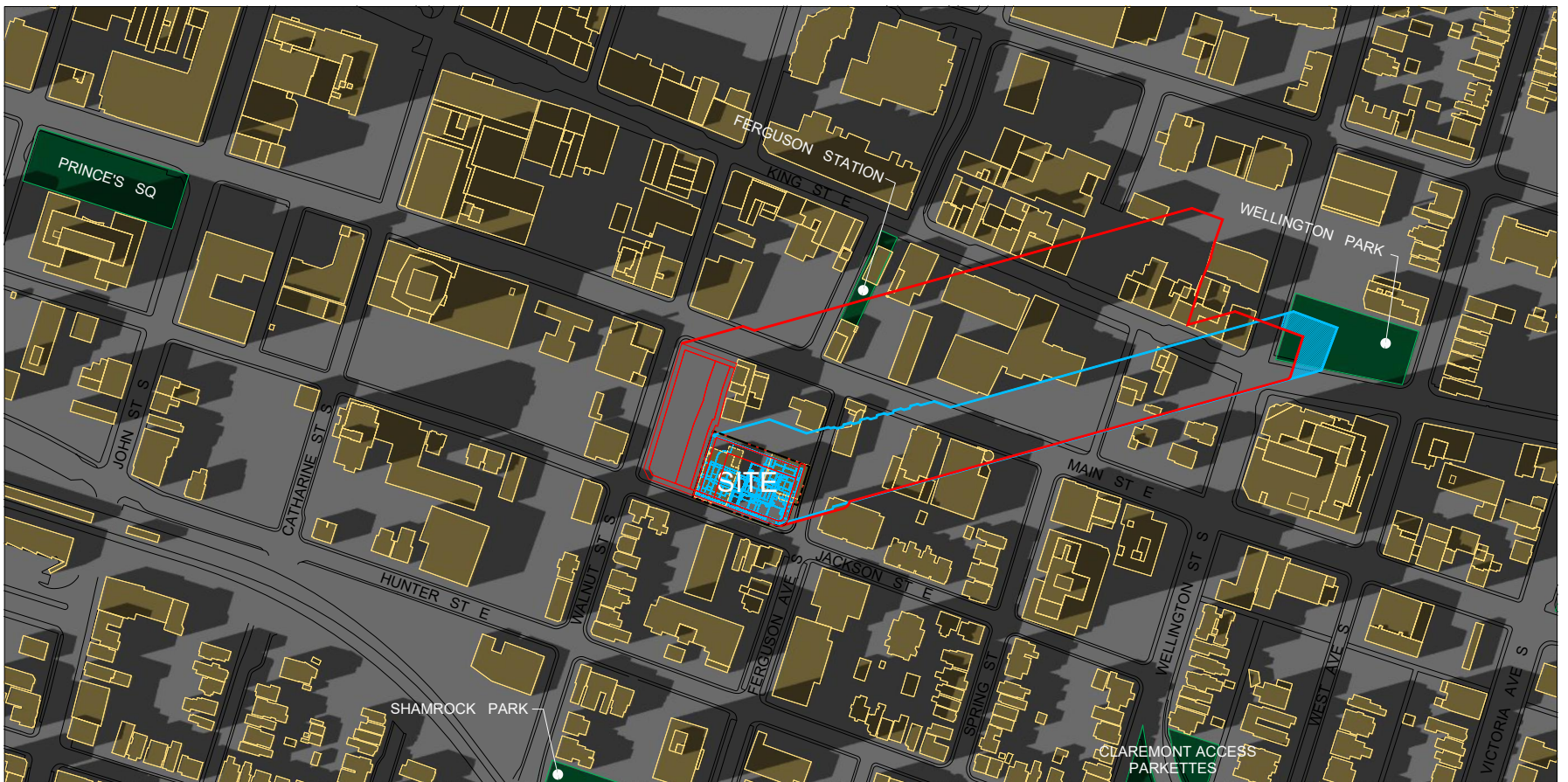
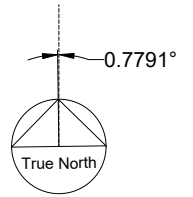
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5:00 PM^{EDT}




- PROPOSED SHADOW
- AS-OF-RIGHT SHADOW
- INCREMENTAL GROUND LEVEL SHADOW
(BEYOND SUBJECT SITE AND EXISTING AND AS-OF-RIGHT SHADOWS)

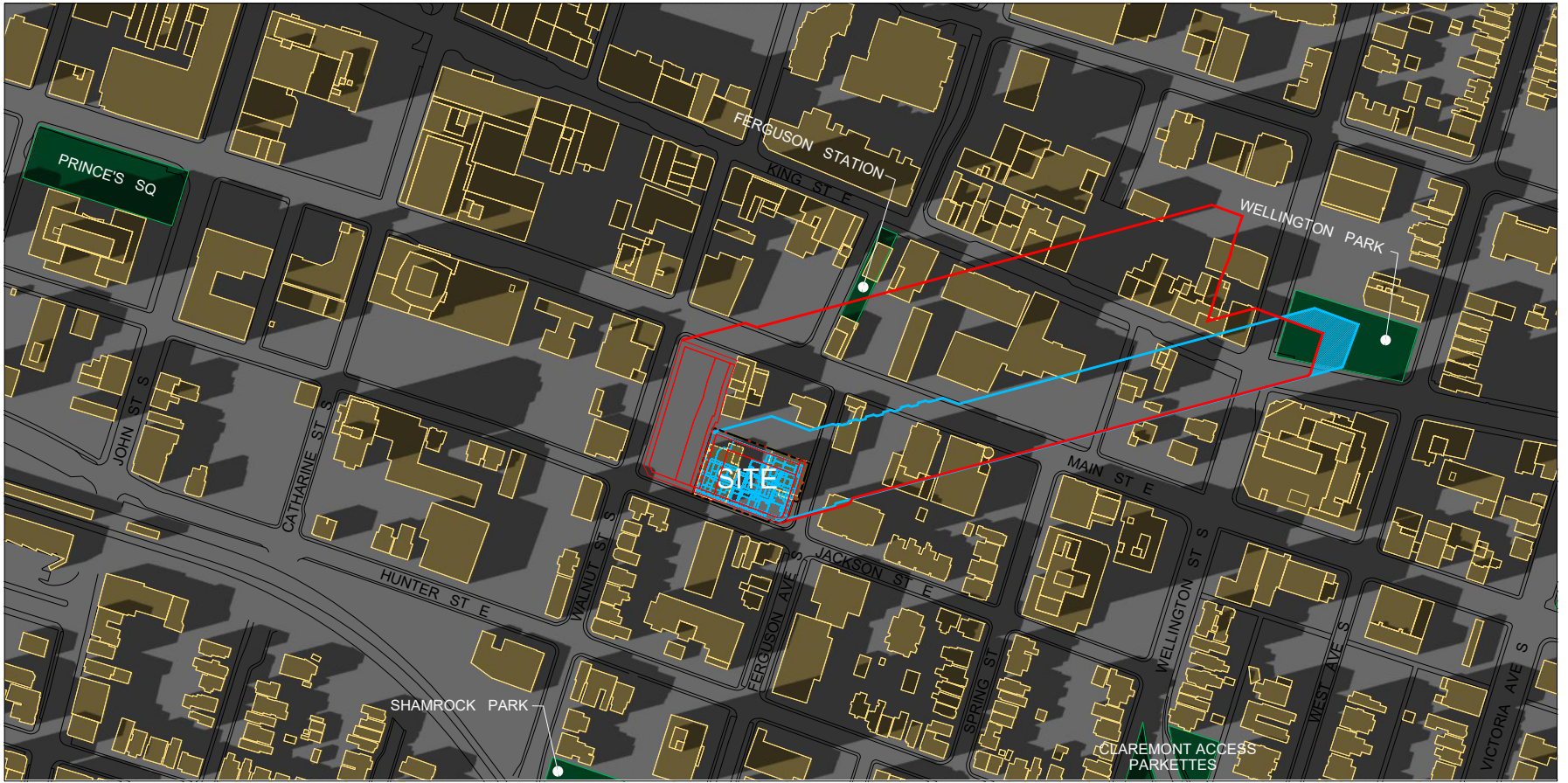


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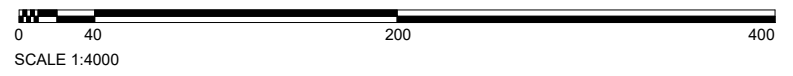
MAR 21

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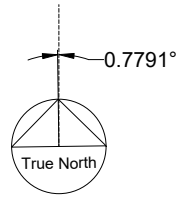
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6:03 PM^{EDT}



- PROPOSED SHADOW
- AS-OF-RIGHT SHADOW
- INCREMENTAL GROUND LEVEL SHADOW
(BEYOND SUBJECT SITE AND EXISTING AND AS-OF-RIGHT SHADOWS)



MAR 21

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