



# Cambridge Crossing

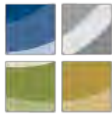
Cambridge, Massachusetts

## *Design Review Application – Parcel G*



*Presented by:*

**DW NP Property, LLC**  
c/o DivcoWest Real Estate Investments  
200 State Street, 12<sup>th</sup> Floor  
Boston, MA 02109



**BEALS + THOMAS**

*Prepared by:*

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144 Turnpike Road  
Southborough, MA 01772

*In collaboration with:*

**Perkins + Will**  
**Galluccio & Watson, LLP**  
**Goulston & Storrs PC**  
**Michael Van Valkenburgh Associates, Inc.**

*Submitted in Compliance with the City of Cambridge Zoning Ordinance and M.G.L. c.40A*

**November 7, 2017**



# BEALS + THOMAS

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November 7, 2017

Mr. H. Theodore Cohen, Chair  
Cambridge Planning Board  
344 Broadway  
Cambridge, MA 02139

Via: Hand Delivery

Reference: Cambridge Crossing (formerly known as NorthPoint) Parcel G  
Design Review Application  
PB #179  
Cambridge, Massachusetts  
B+T Project No. 2084.02

Dear Chairman Cohen and Members of the Board:

On behalf of the Applicant, DW NP Property, LLC (an affiliate of DivcoWest), Beals and Thomas, Inc., respectfully submits this Design Review Application for Parcel G (the Site), which is part of the larger Cambridge Crossing (formerly known as NorthPoint) development. The proposed development on Parcel G is proposed to contain an office and laboratory building containing approximately 451,000 sf of Gross Floor Area (GFA). Parcel G is located partially in Boston, with the majority of the Site in Cambridge.

As shown on the master plan included as part of this Application, the Site is bounded by the MBTA right of way to the north, open space to the west, Dawes Street to the south, and the shared driveway and Parcel H to the east.

The Site is currently undeveloped vacant land adjacent to the existing North Point Common. It is one of twenty (20) building parcels in the Cambridge Crossing mixed-use development. To date, condominium buildings on Lot S and Lot T, a rental residential building on Lot N, North Point Common, Child Street Park and related infrastructure and other public amenities (including the Brian P. Murphy Memorial Staircase) have been constructed at Cambridge Crossing. In addition, Parcel JK has obtained Design Review approval in Cambridge and Somerville, and building permit applications have been procured in both cities. The Parcel JK building is currently under construction. The surrounding roadway network was approved by the Planning Board on September 2, 2016, as part of Major Amendment #6, and is currently under construction.

The Parcel G building contains approximately 451,000 sf of GFA. The building is proposed to be 12 stories of occupied floors with two (2) stories of mechanical penthouse. The proposed building will be 220 feet in height, based on the Cambridge definition of building height. Approximately 406 parking spaces are proposed for Parcel G, all of which will be internal to the building. Approximately 136 long-term and 28 short-term bicycle parking spaces will be provided on-site.

As you are aware, a portion of Parcel G is located in Boston and is subject to the Large Project Review requirements of Article 80B of the City of Boston Zoning Ordinance as well as review and approval by the Boston Civic Design Committee. Both bodies studied the project in 2002-2003. The Applicant filed a Notice of Project Change with the Boston Planning and Development Agency on September 1, 2017, which was subsequently approved by the BPDA Board on October 12, 2017.

In addition, a portion of Parcel G's current configuration is to be subdivided as depicted on the enclosed draft Subdivision Plan prepared by Beals & Thomas, Inc., dated December 21, 2016, and last updated July 21, 2017, to create a portion of the open space lot identified as "Parcel 1-E" on the attached plan. As part of this Design Review Application for Parcel G, the Applicant requests the approval of the enclosed Subdivision Plan, and requests endorsement by the Planning Board.

As part of this application, we have included fifteen (15) copies, as well as a flash drive containing an electronic version, of the following materials for review by the Cambridge Planning Board:

- Site Plans;
- Floor Plans and Building Sections;
- Architectural Elevations;
- A Zoning Compliance Summary;
- LEED/Green Building Compliance Summary;
- Shadow Study;
- Wind Study;
- Acoustical Report and Noise Mitigation Narrative;
- Preliminary Signage Plan;
- Compliance Checklist – Zoning Ordinance and NorthPoint Design Guidelines;
- Materials showing the cross-sections of abutting streets;
- Subdivision Plan, previously approved by the Cambridge Planning Board; and
- Draft Subdivision Plan.

There are no changes proposed to the approved uses on the Site nor are there any changes to the layout of roads serving the Site from that shown on the approved 40-scale Roadway Network Schematic Plan.

Mr. H. Theodore Cohen, Chair  
Cambridge Planning Board  
November 7, 2017  
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The Cambridge Crossing team is excited to meet with the Planning Board to review and discuss the evolution of design of the proposed project. Thank you for your consideration of the enclosed.

Very truly yours,

BEALS AND THOMAS, INC.



John P. Gelcich, AICP  
Senior Planner

JPG/aak/208402PT031

**NORTHPOINT**  
**SUMMARY OF BUILDING TO DATE**  
**AS OF NOVEMBER 2017**

To date, the following building parcels in NorthPoint have been constructed and are occupied: S, T and N. All are residential buildings; Parcel N (also known as Twenty|20) has some retail space on the ground floor. S and T are condominium buildings, while N is a rental building. All are in Phase 1A of the Project. The chart below sets forth more specific details for each completed building.

<u>Parcel</u>	<u>Use</u>	<u>Gross Square Footage</u>	<u>Unit Count</u>	<u>Bedroom Count</u>	<u># of Inclusionary Units</u>
N	Rental Residential	386,000	Total – 355 Studio/Loft – 74 1 BR – 180 2 BR – 85 3 BR - 16	472	41
N	Retail	8,000	N/A	N/A	N/A
S	Condominium	112,398	Total – 99	104	12
T	Condominium	242,194	Total – 230	278	32

A building permit application has been granted for Parcel JK, also a Phase 1A project, and this building is under construction.





**DIVCOWEST  
CAMBRIDGE CROSSING**

**PARCEL G  
DESIGN SUBMISSION  
NOVEMBER 7, 2017**

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# DESIGN REVIEW NARRATIVE



## *Design Concept*

Parcel G is a 451,000 GFA commercial lab and office building that is sited on the north side of Dawes Street between Child Street and open space within the mixed-use Cambridge Crossing development. The 14-story building includes flexible lab and office space from levels 1-12 and two levels of mechanical penthouse. The height of the top of the highest occupied floor is approximately 190 feet. A two-story mechanical penthouse completes the program to accommodate base building and tenant equipment. The Project forms the edge between the growing Cambridge Crossing neighborhood to its south and the commuter and freight rail tracks to the north.

The building's primary entry is accessed from a lobby located at the south west corner of the Project Site on Dawes Street. The three-level below grade garage is accessed by a ramp which extends down the north side of the building and is accessed from a service drive that can be entered from the intersection of Child and Dawes Street. Elevators from the garage will give access to the public lobby. Bicycles have required indoor parking with direct access to the main building lobby. In addition there is a separate public garage entrance and elevator on the southeast corner of the building. A separate entry for bicycles is located off of the open space within visibility of the building security desk, this area has access to shower facilities and a bicycle repair area. The building's fully enclosed loading dock is accessed via a truck ramp from the Child Street entry drive at grade and connects directly to the buildings elevator core.

The Project will reinforce the scale and character of Dawes Street as described in the NorthPoint Design Guidelines. The new building is to have a two story base expressed by larger floor sizes that allow for visible and active high-bay research space. These floors align consistently with the two-story expression that is planned for the surrounding buildings. This pedestrian scaled base expression wraps around the edge of the tower to make an appropriately scaled pedestrian experience at the adjacent open space and connects the scale of the adjacent Building H. Entry into the building is located at the south-west corner of the building's base, making it visible from pedestrians approaching from Lechmere station as well as the Brian P. Murphy Memorial Staircase.

## *Height and Massing*

There are two primary strategies for the building, both forming an appropriately scaled public realm.

The first strategy governs the shape of the building in plan. The form of the building is inflected inward on its narrowest sides such that it loosely describes the shape of a bowtie when viewed from above. This bowtie form allows the floorplates to appear more slender and elegant when viewed from the side. This fits with the scale of more narrow residential and office buildings to the south and east.

The second strategy governs the section of the building and helps to form an open, vibrant landscape along Dawes Street. The tower mass of the building is pushed as far north on the property as possible, allowing direct light and sky-dome visibility to benefit the landscape and public spaces along Dawes Street. In addition to this stepping, the mechanical penthouse is located on the northern most half of the bowtie form. The resulting terracing of the building scale maximizes daylight on Dawes Street and gives the building a lower perceived height from the pedestrian side of the building. The upper ten stories facing south on Dawes Street rise from the two-story base and allow for a new tenant landscaped terrace to be accessed from the third level. This roof terrace, completed by the tenant, would be visible from the Gilmore Bridge and surrounding residential developments to the south. This southern lower volume of the building is further inflected at its corners to allow for more daylight access to the adjacent open space.

### *Character and Exterior Materials*

The exterior of Building G on the north, east and west sides will receive a horizontal cladding system with a variety of textures and depths to give interest and composition when seen from the highway and the Gilmore Bridge. The building's volume will be articulated to reflect the contrast between the rail-beds to the north and the pedestrian streetscape to the south.

From the south the building language will be primarily a curtainwall glazing system. The glazing will be shaded with the appropriate amount of horizontal exterior sun shades.

The two languages will use material differences to give hierarchy to the pedestrian facing facades and break down the scale of the building. The use of a dominantly horizontal language will unify the building. The lower two floors of the building as well as the landscape design will be articulated in a way to give interest and scale at the pedestrian level.

### *Open Space and Open Space Plan*

The open space on all four sides of Parcel G will be designed to create seamless connections between the building and the wider open space network at Cambridge Crossing. These connections will be particularly strong on the west side, where the adjacent open space in Cambridge and Somerville will abut the entrance plaza and planted base of the building. In this area landscape materials, planting and site furniture and outdoor exercise equipment will be chosen to extend the open space to the building. On the south side of the building on Dawes Street, the sidewalk materials will be extended towards the building and a plaza for food trucks and picnic tables is established as part of the streetscape, framed with shade planting running along the southern edge of the building to create a comfortable microclimate in this area.

On the building's east side the service drive, shared with Building H will be planted with shade trees and groundcover, protecting and defining the sidewalk. On the north side of the building the service drive will descend to parking at the building's lower level, with a planted buffer running along the northern edge of the Project Site screening the rail yards.

# DESIGN REVIEW GRAPHICS









view from gilmore bridge



view from community college

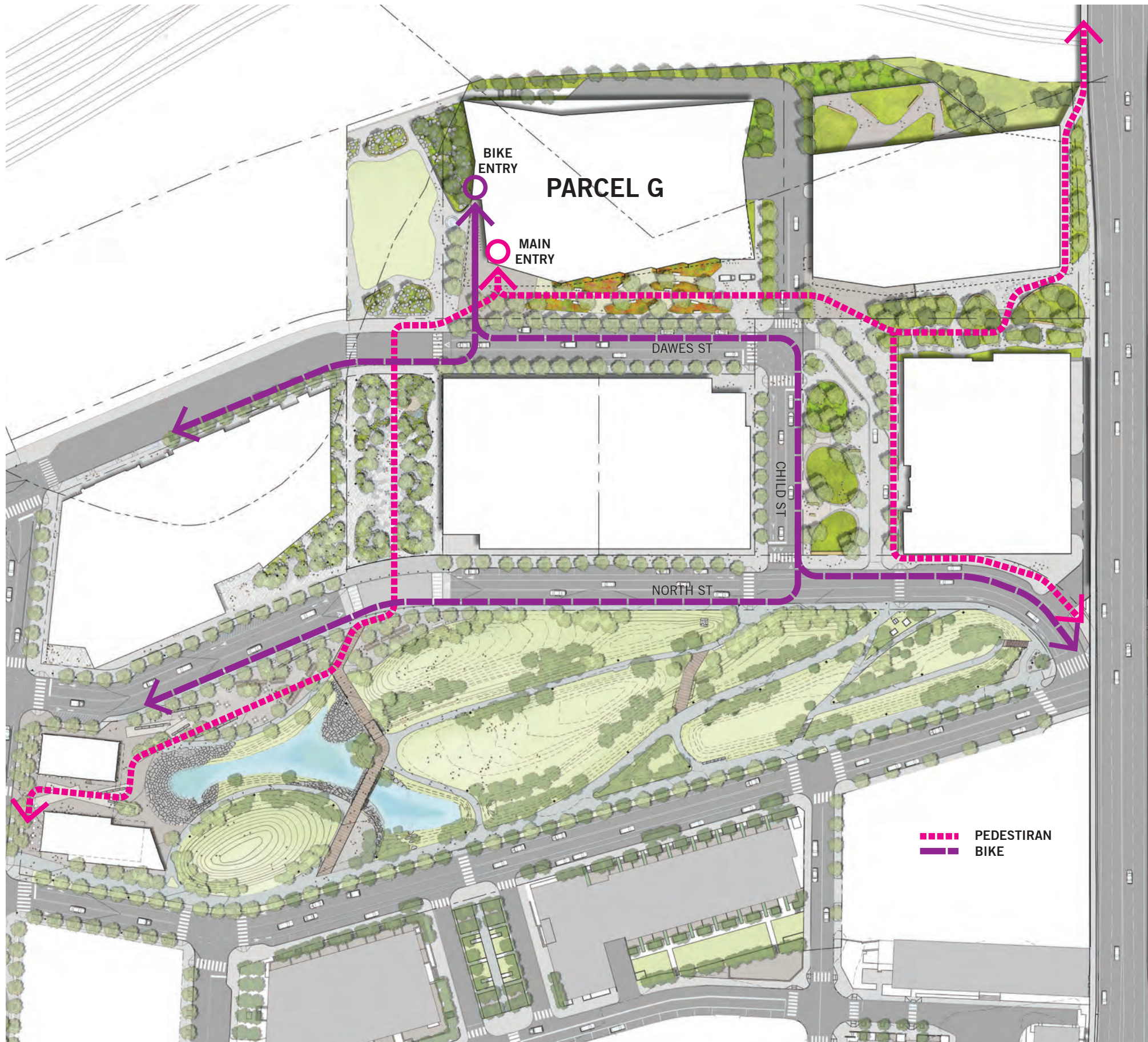


view towards murphy memorial stair

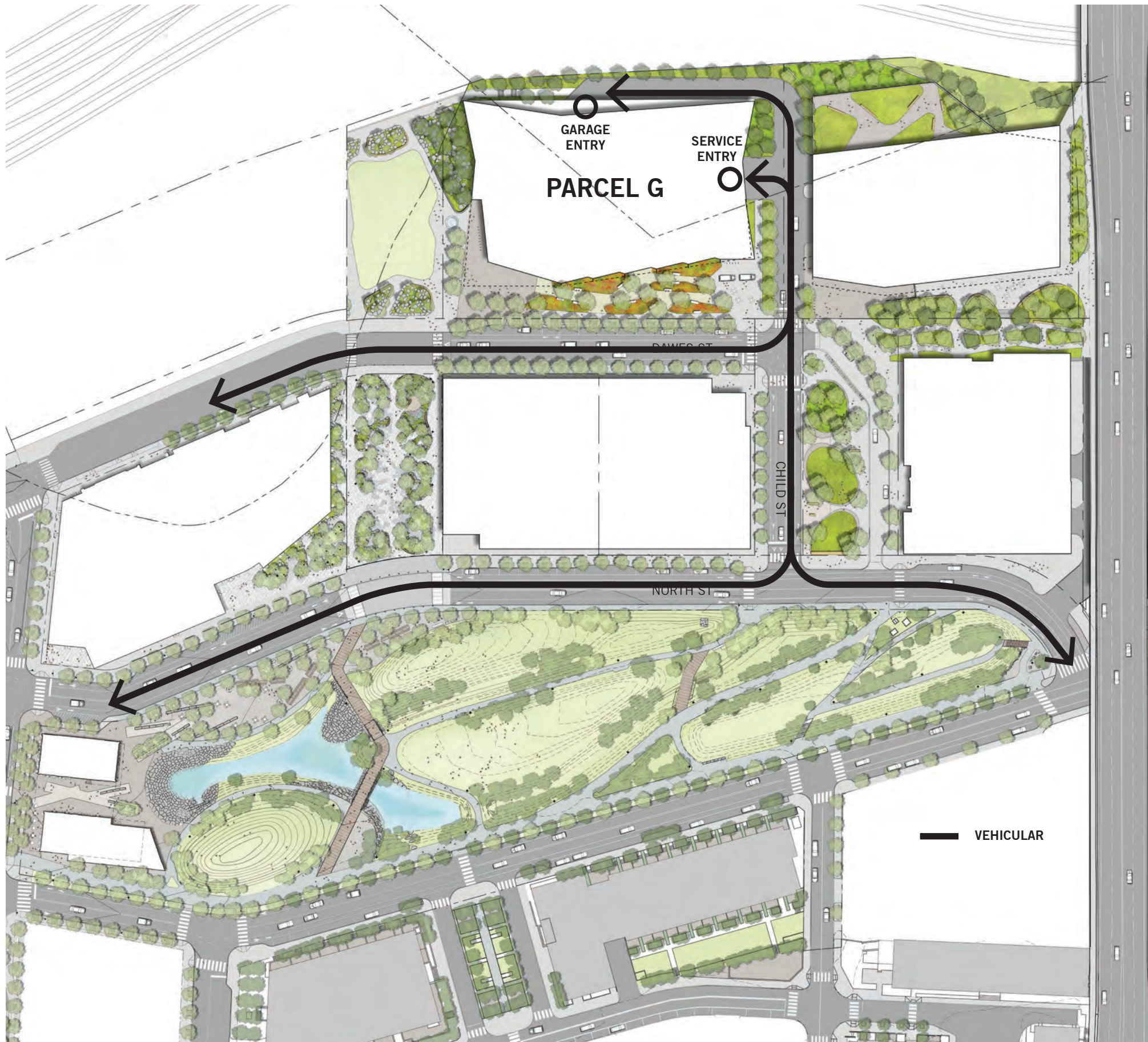


view from top of murphy memorial stair

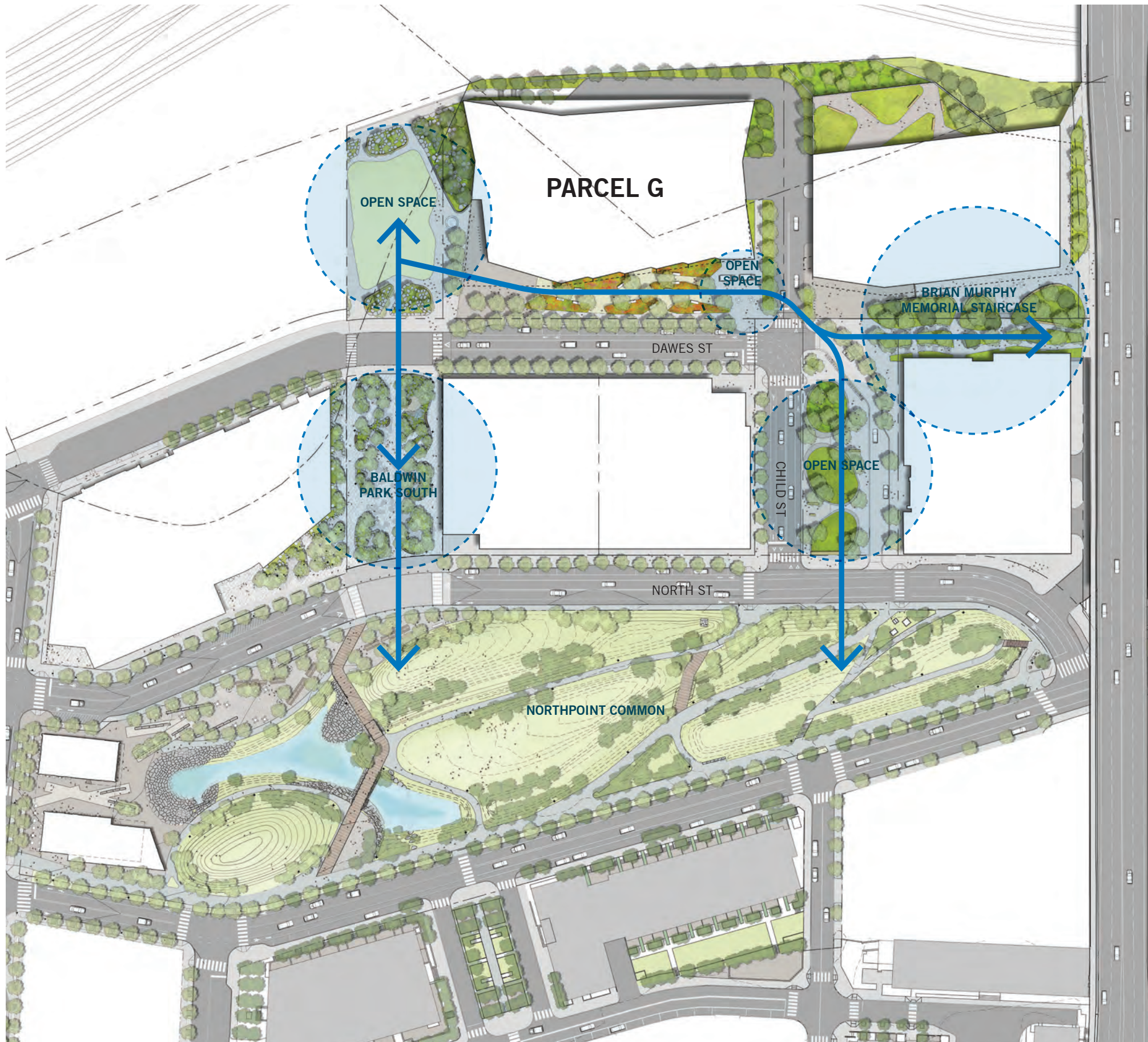




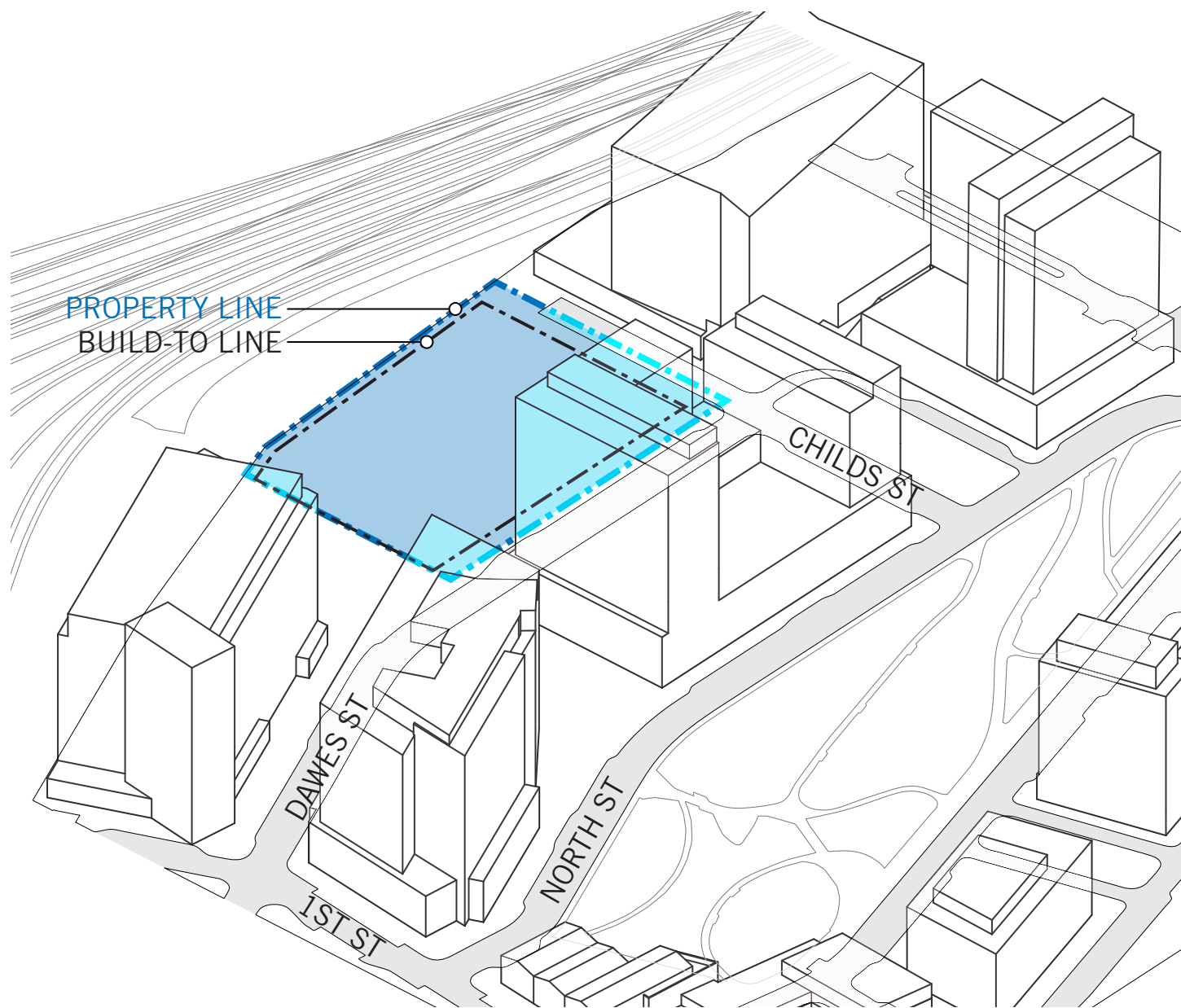




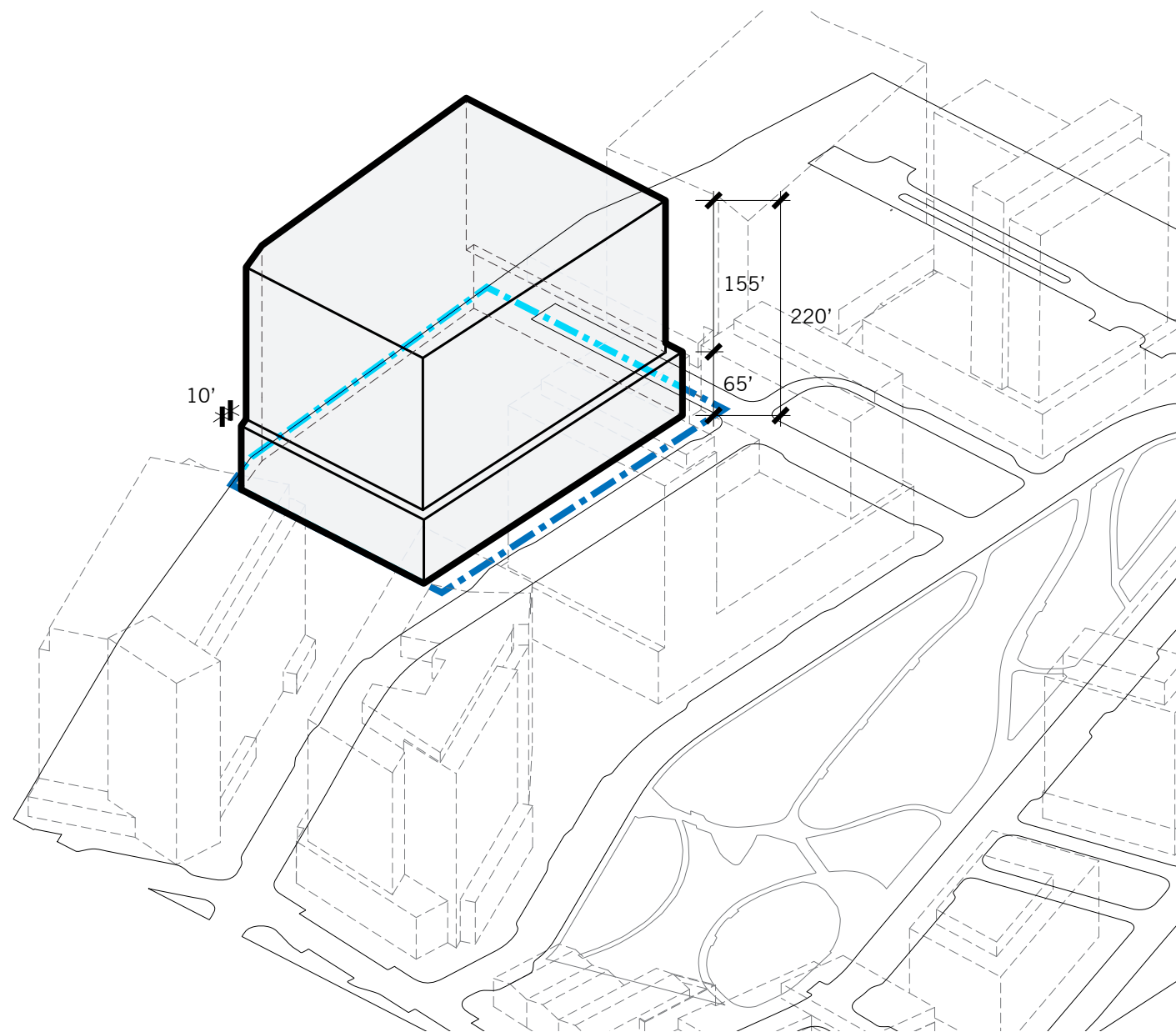




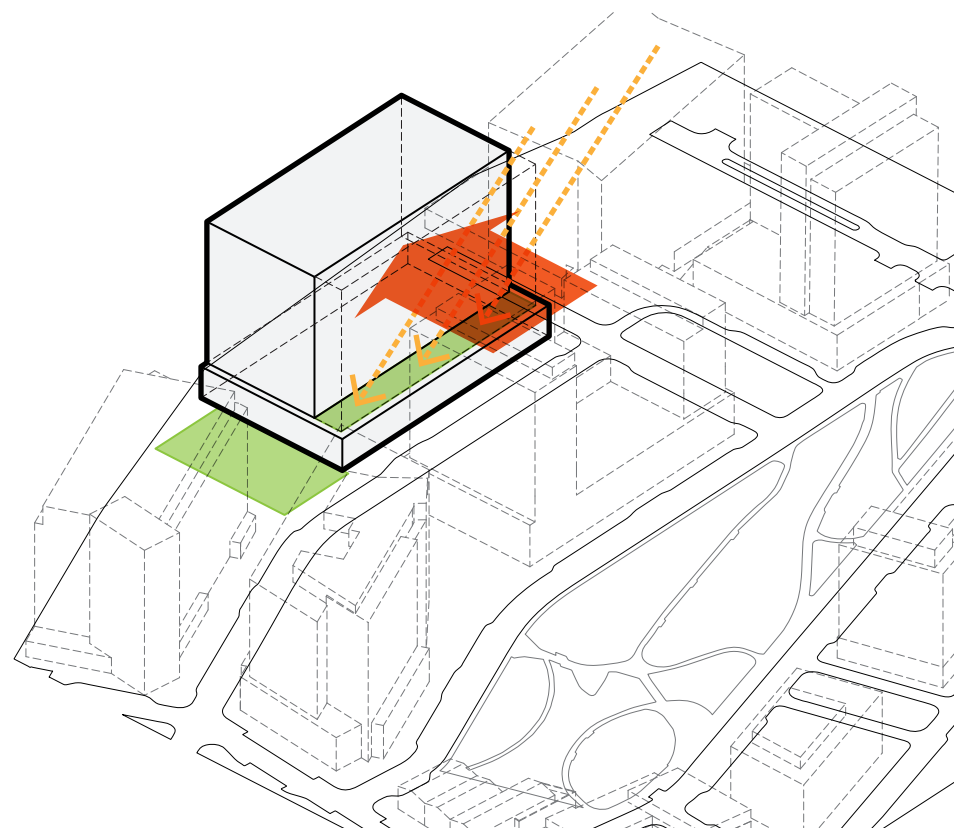




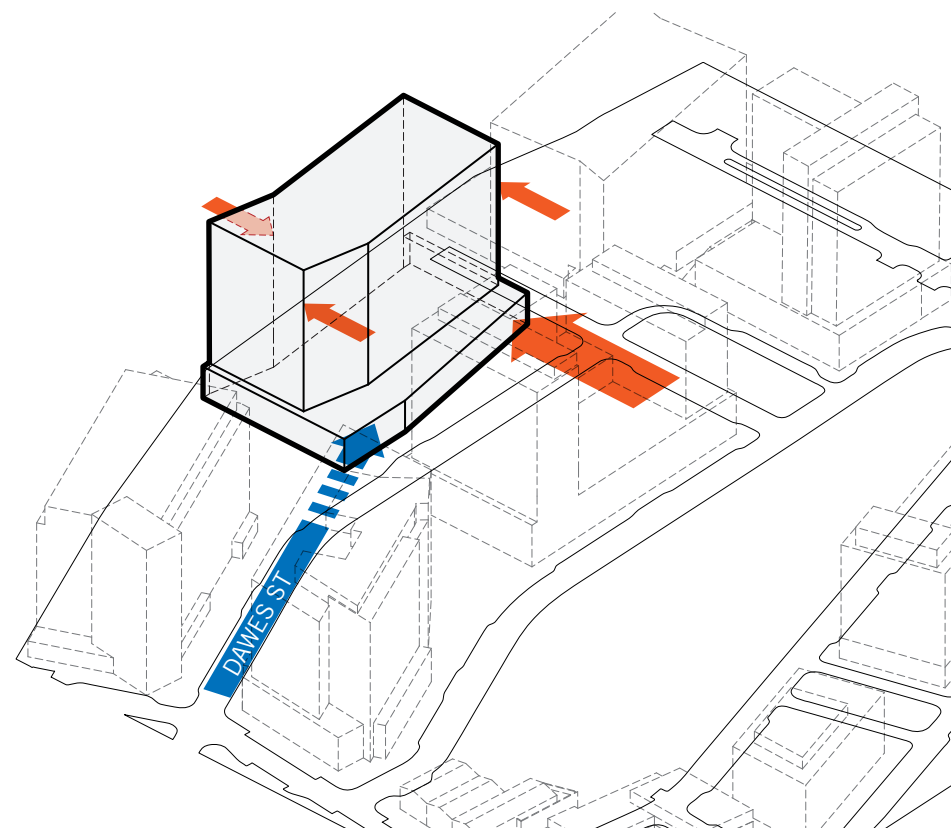
site boundary



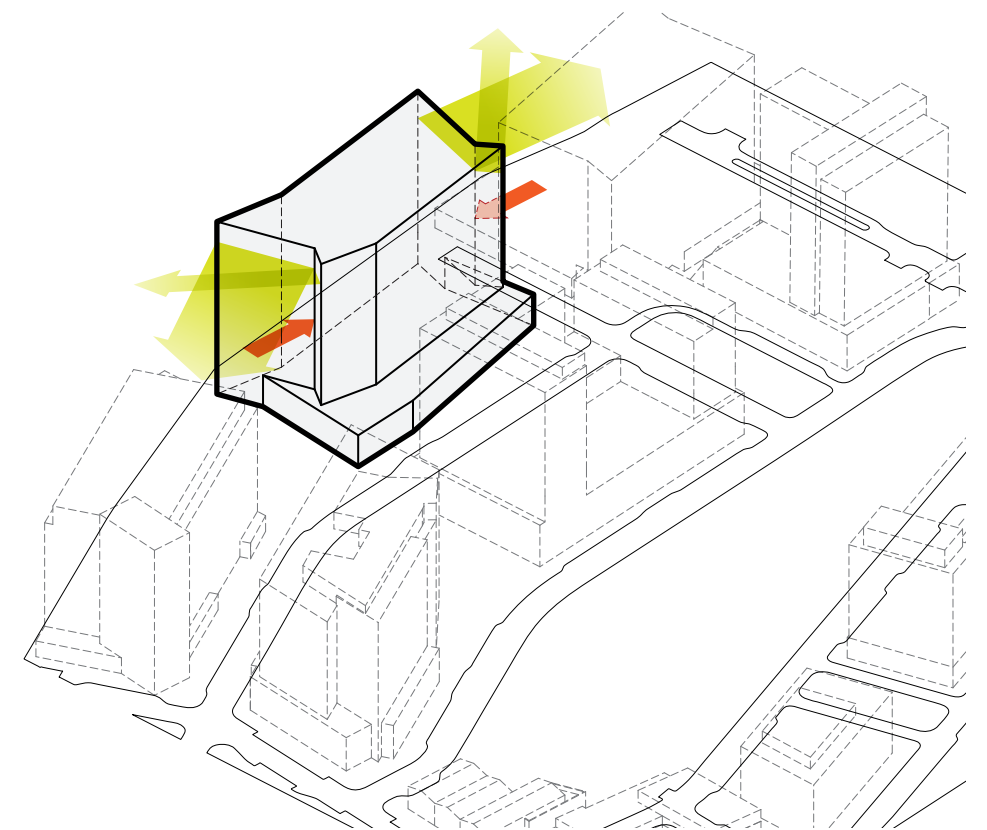
height boundary



maximizing sky view

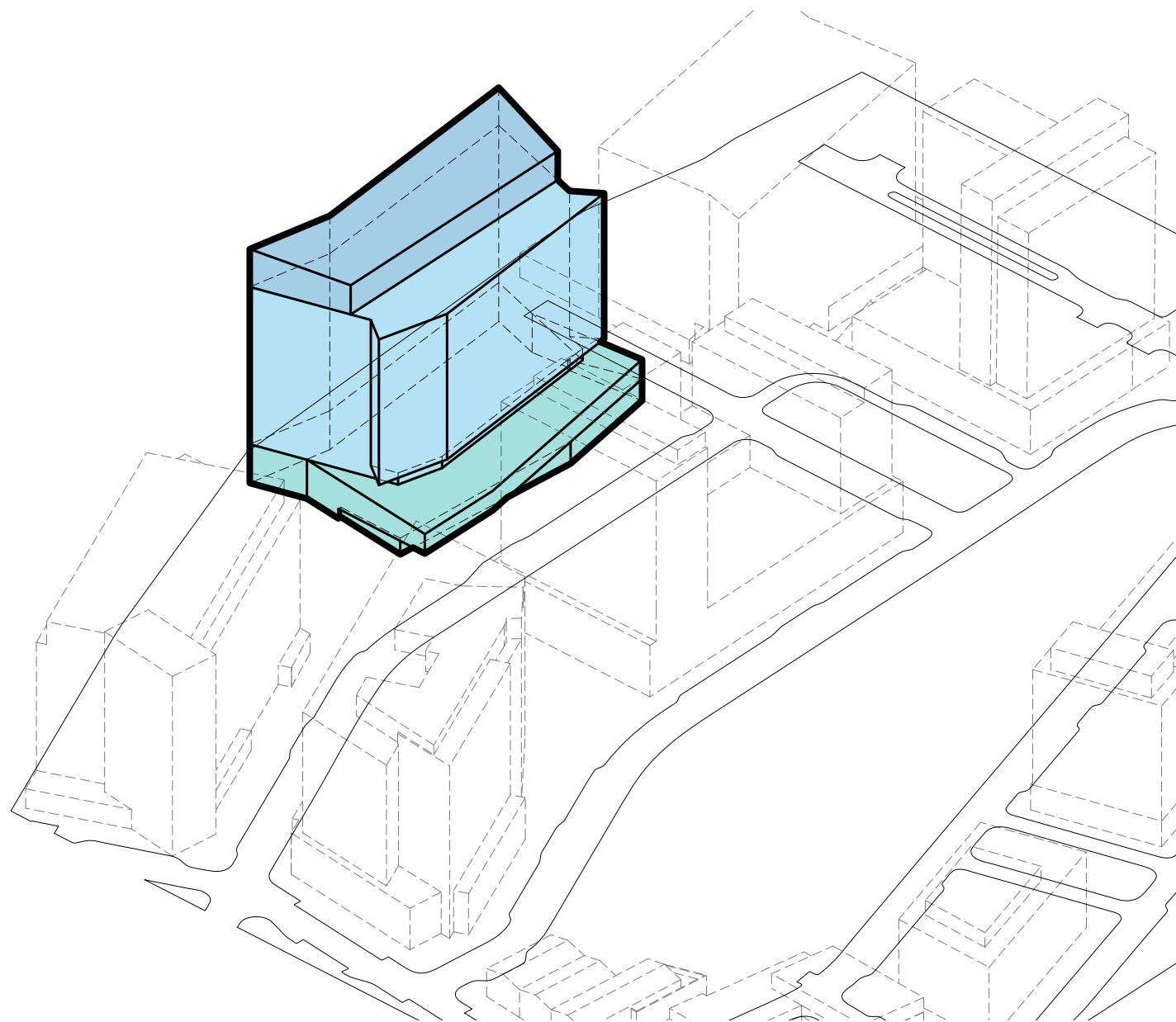


responding to site connection points

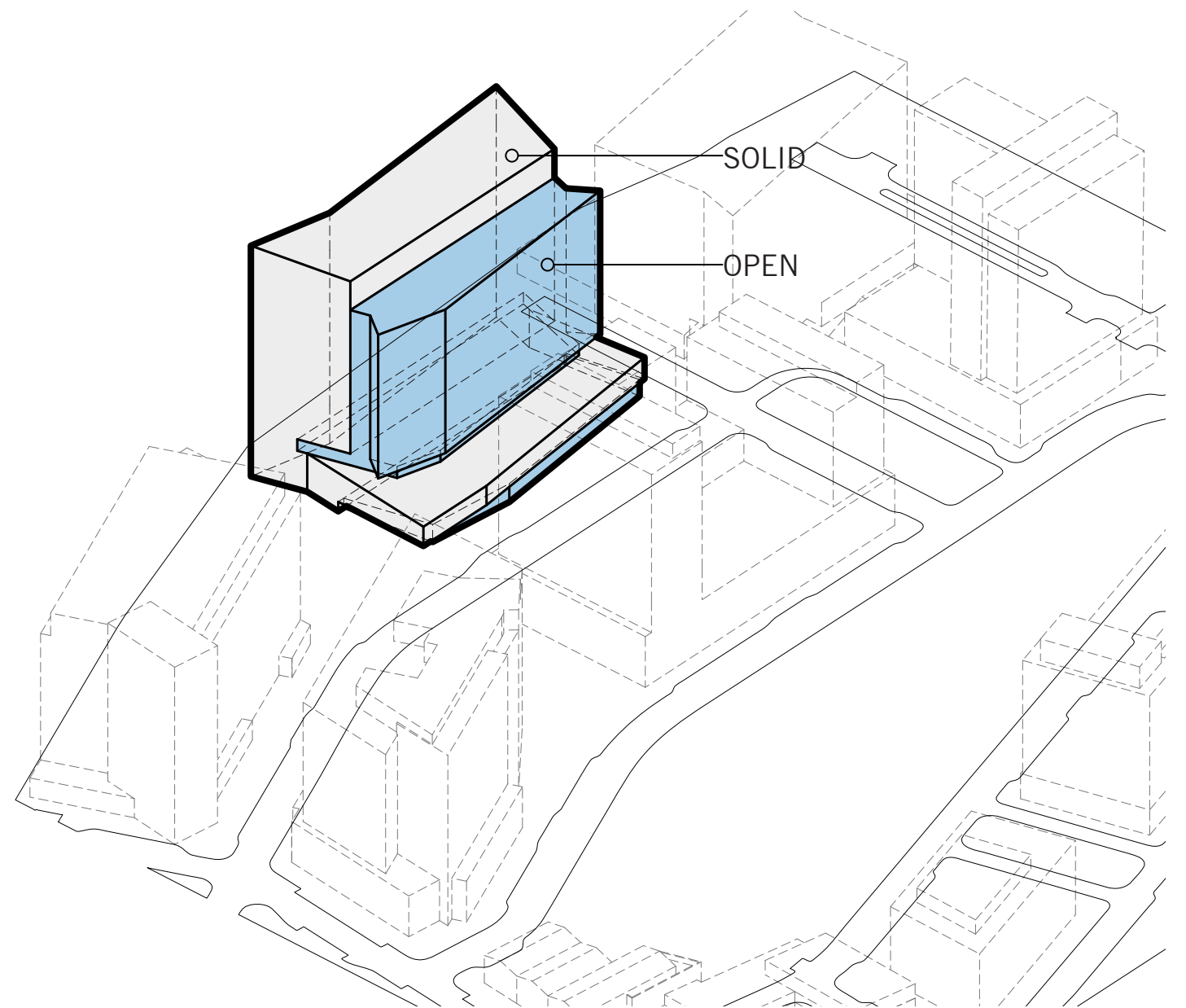


view towards cambridge+charlestown





identifying base-middle-top



contrast in materiality



















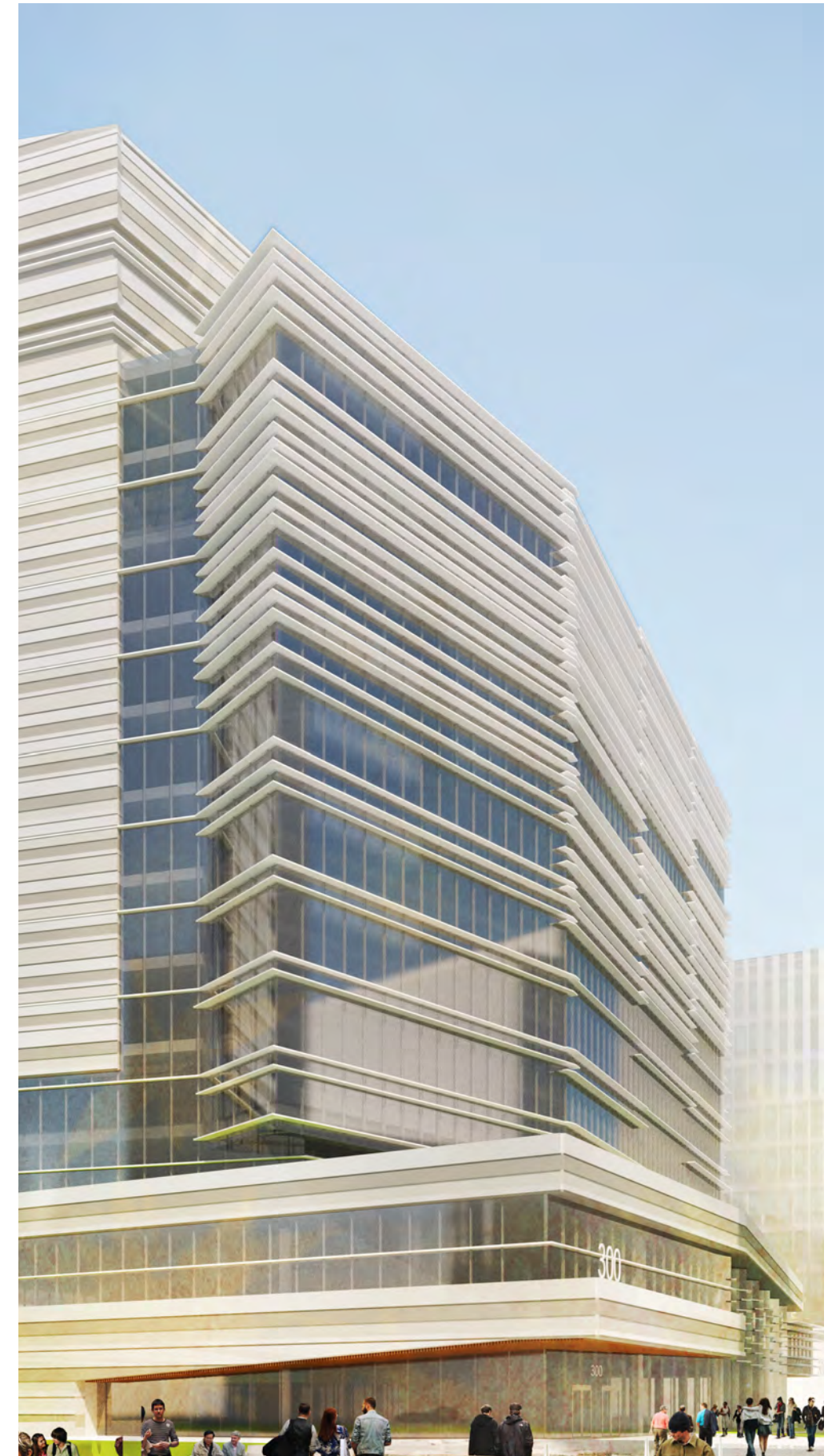
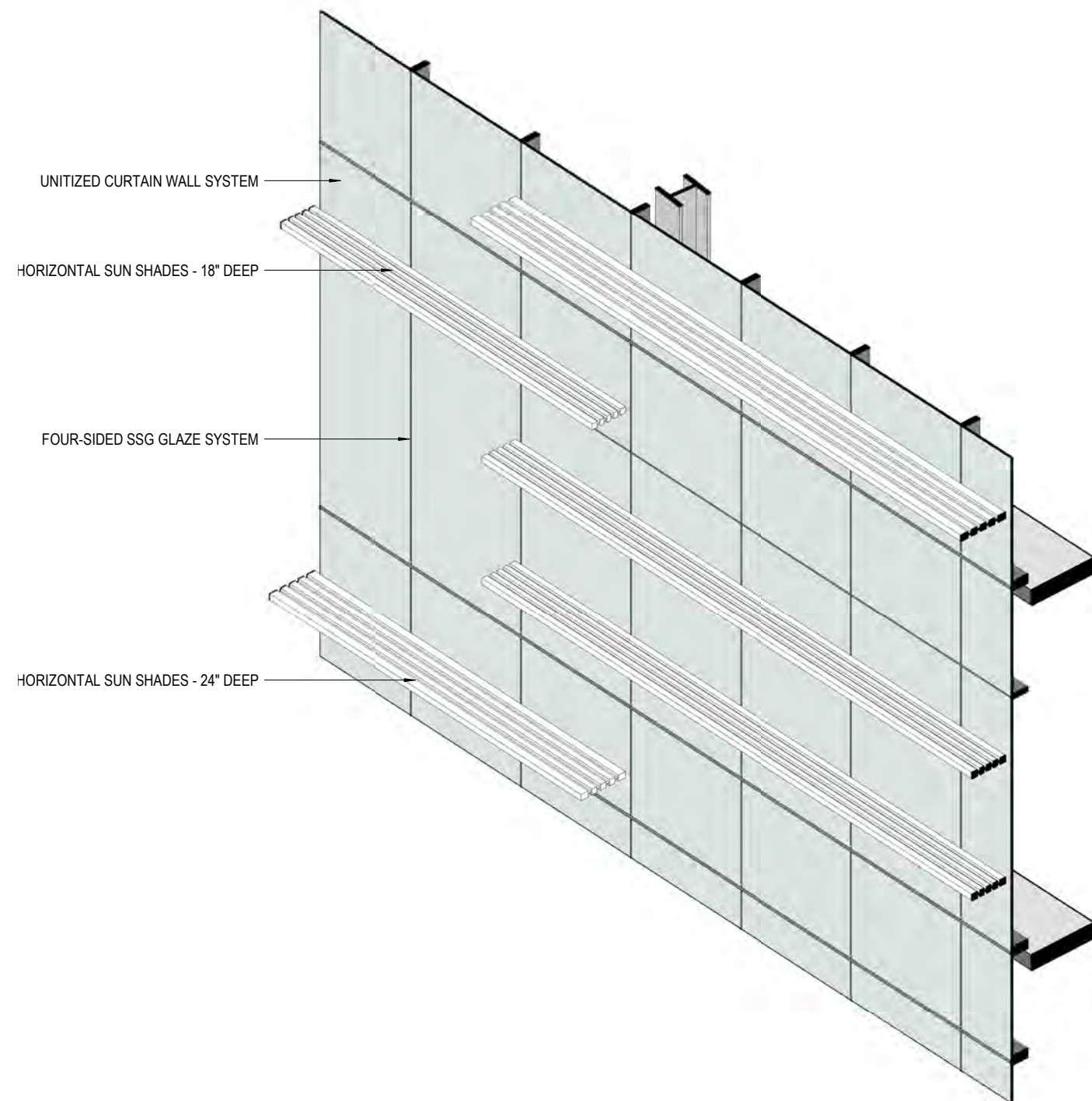




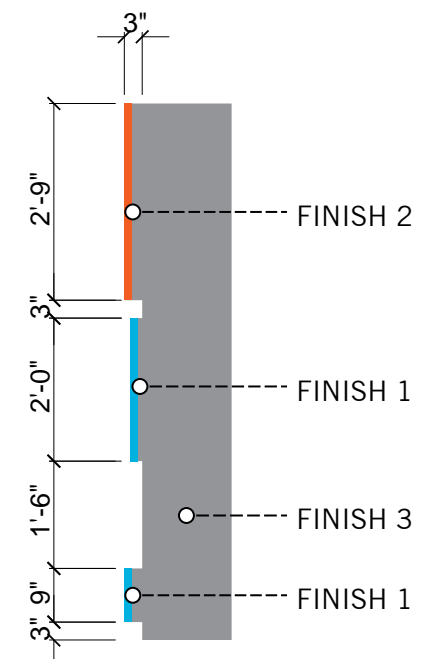
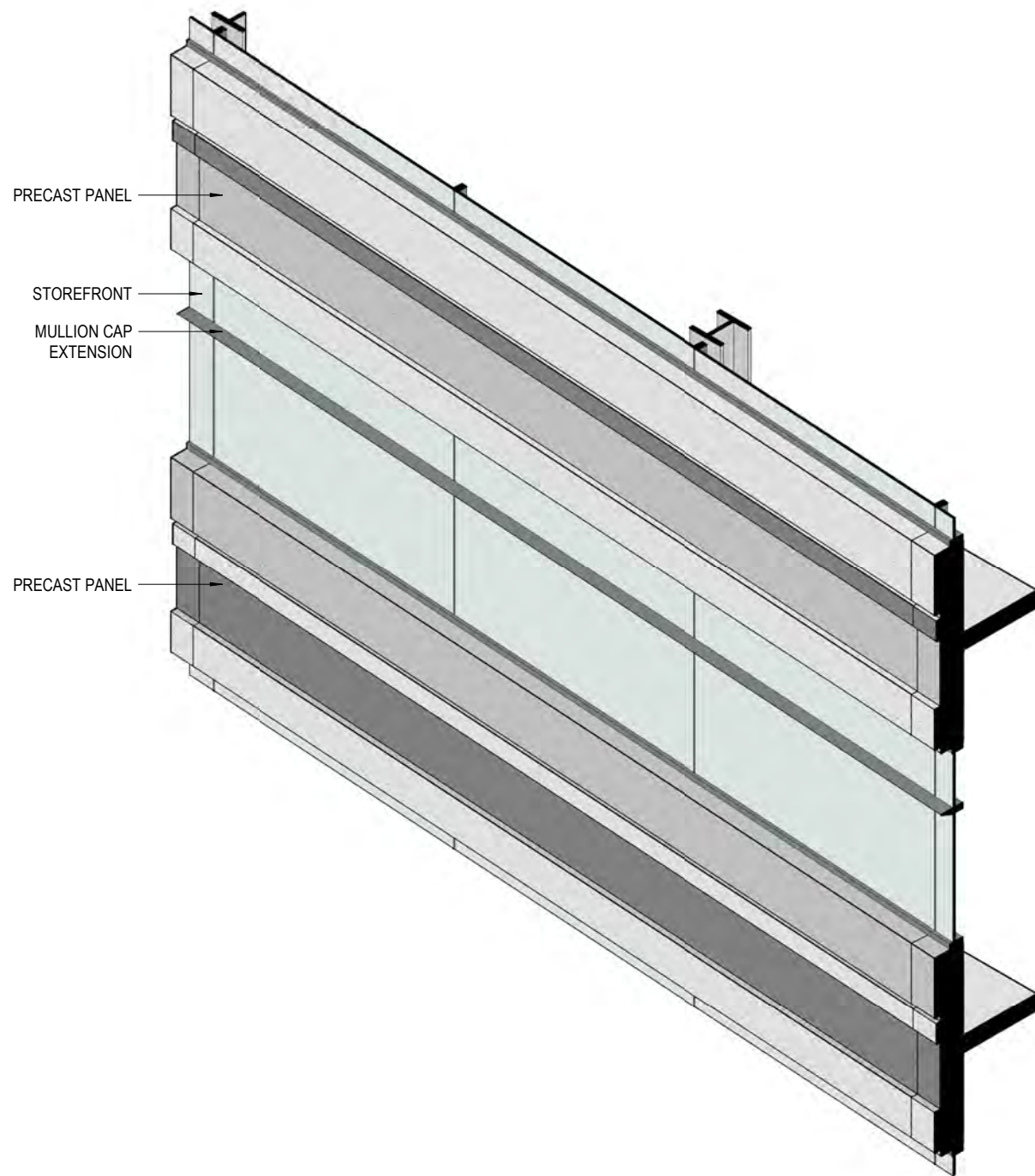




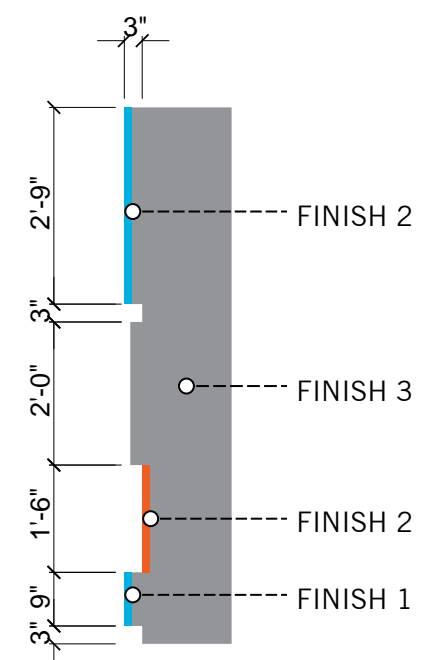




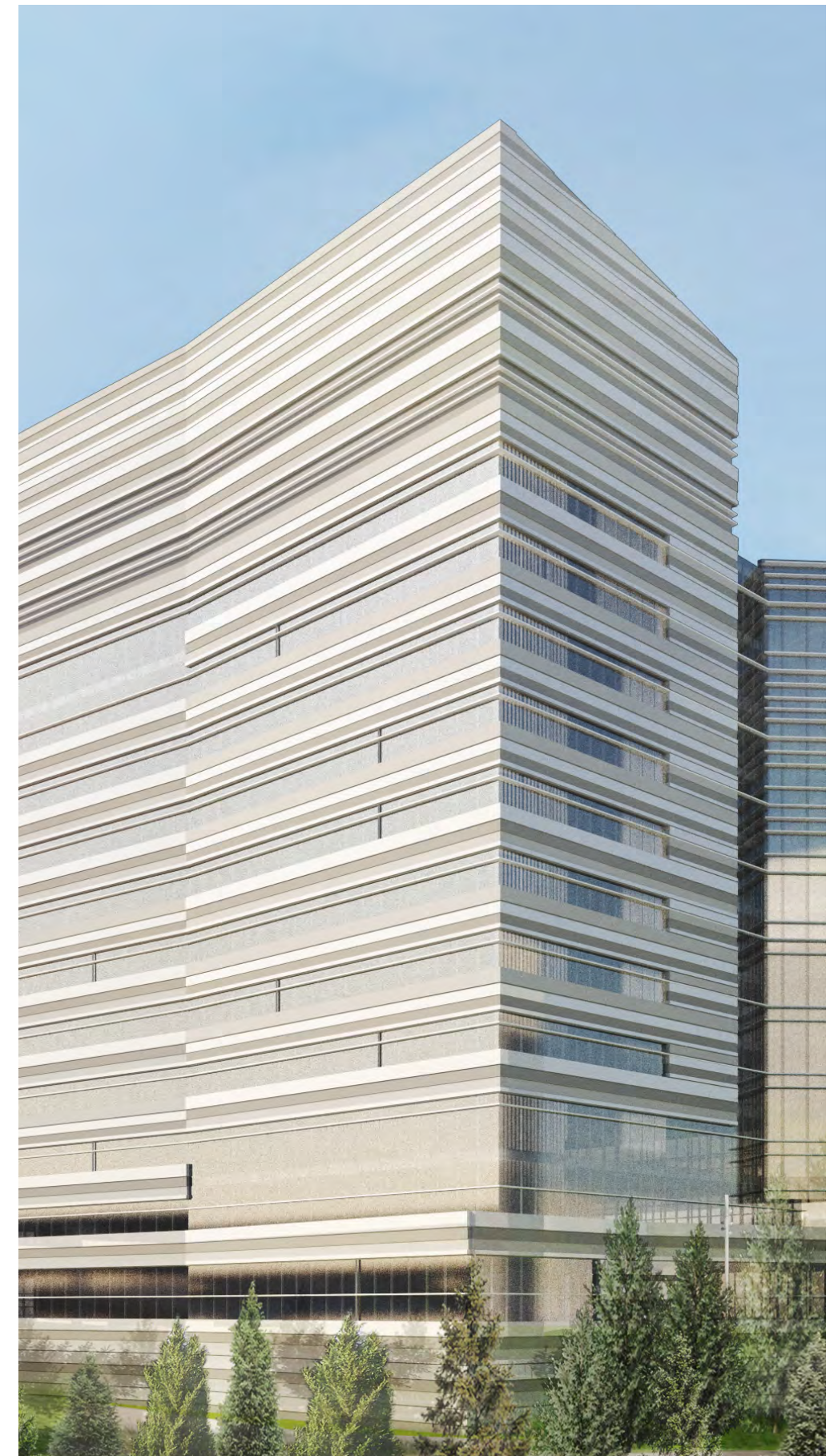




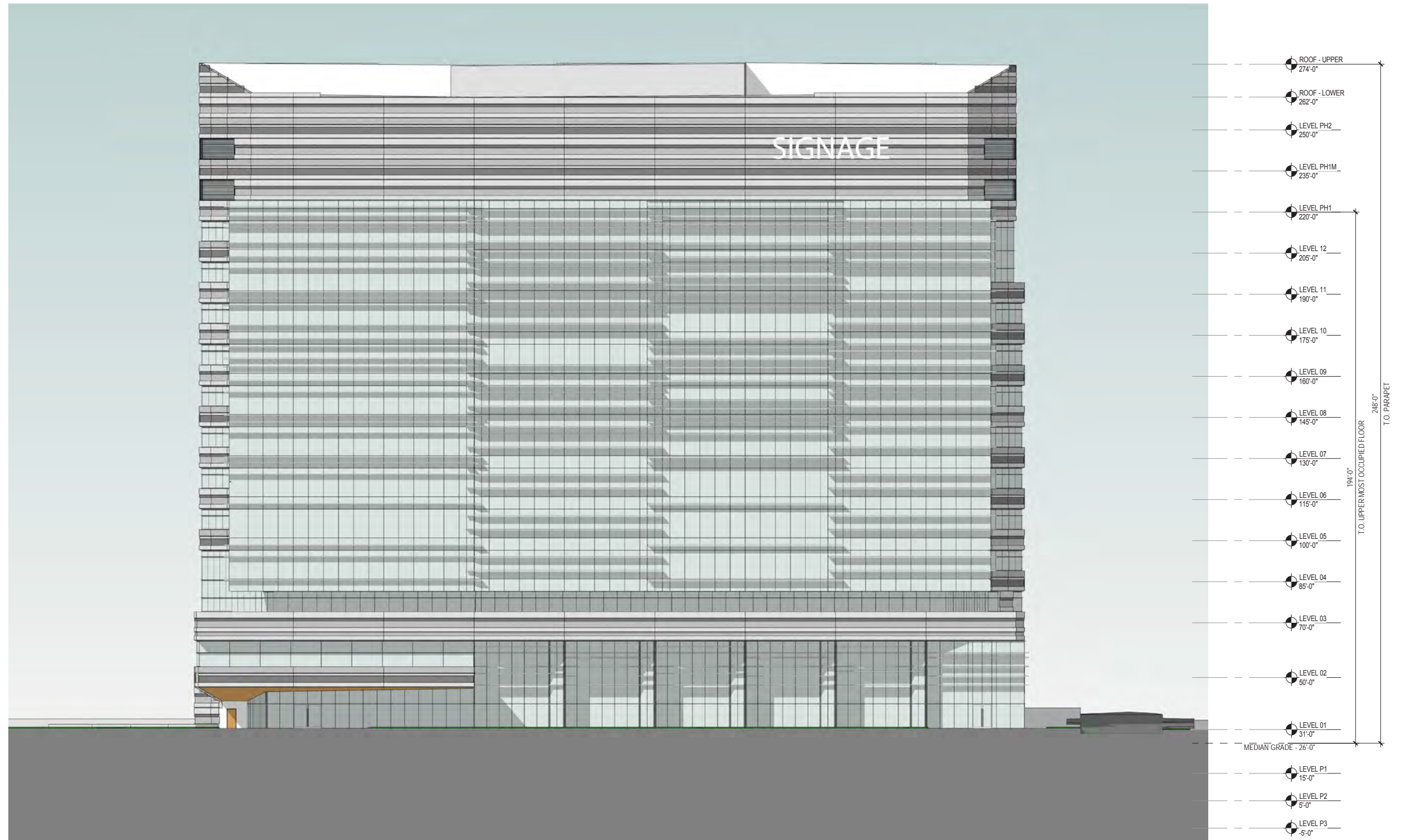
PRECAST PANEL TYPE A



PRECAST PANEL TYPE B

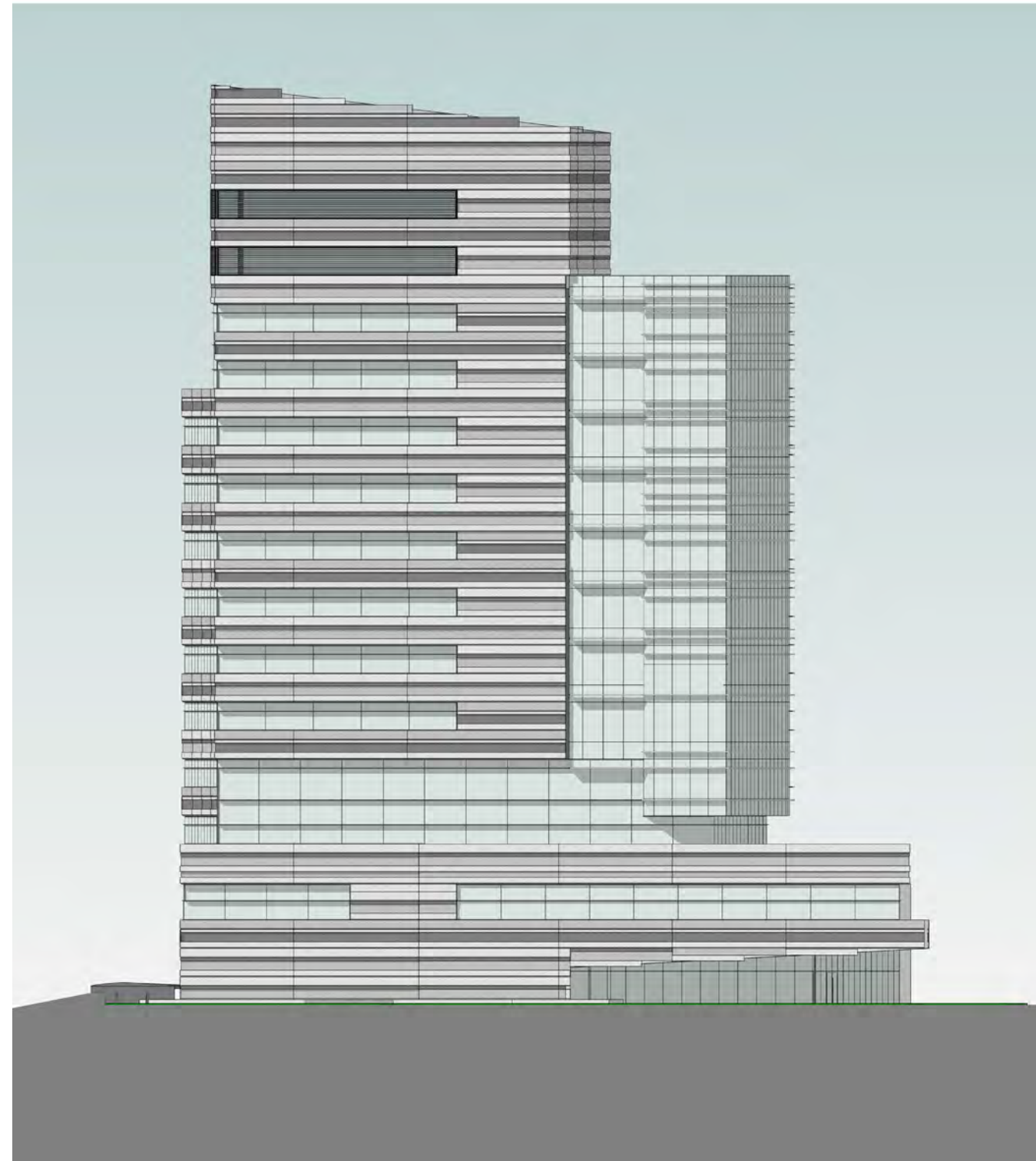






ELEVATION - SOUTH

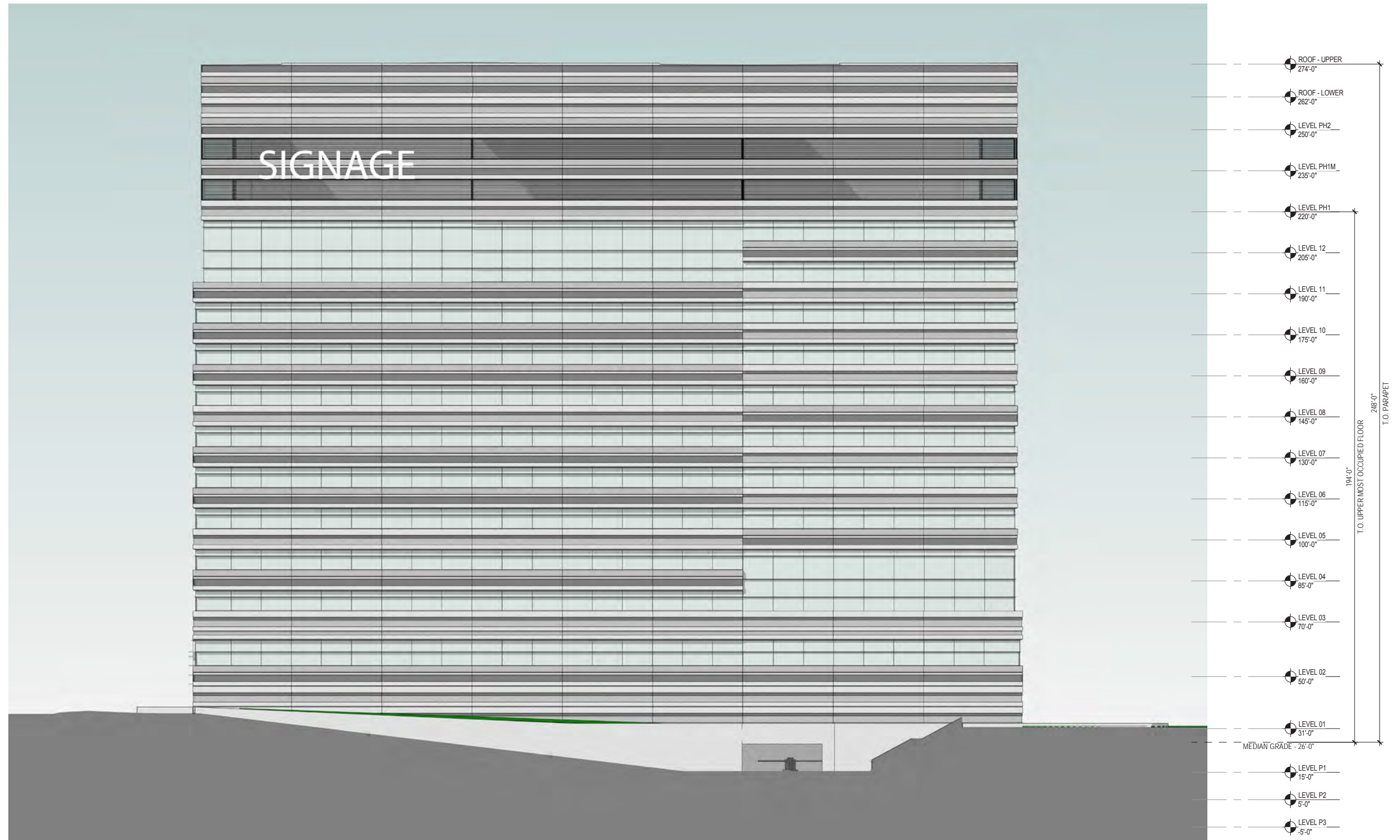




ROOF - UPPER	274'-0"
ROOF - LOWER	262'-0"
LEVEL PH2	250'-0"
LEVEL PH1M	235'-0"
LEVEL PH1	220'-0"
LEVEL 12	205'-0"
LEVEL 11	190'-0"
LEVEL 10	175'-0"
LEVEL 09	160'-0"
LEVEL 08	145'-0"
LEVEL 07	130'-0"
LEVEL 06	115'-0"
LEVEL 05	100'-0"
LEVEL 04	85'-0"
LEVEL 03	70'-0"
LEVEL 02	50'-0"
LEVEL 01	31'-0"
MEDIAN GRADE	-26'-0"
LEVEL P1	15'-0"
LEVEL P2	5'-0"
LEVEL P3	-5'-0"

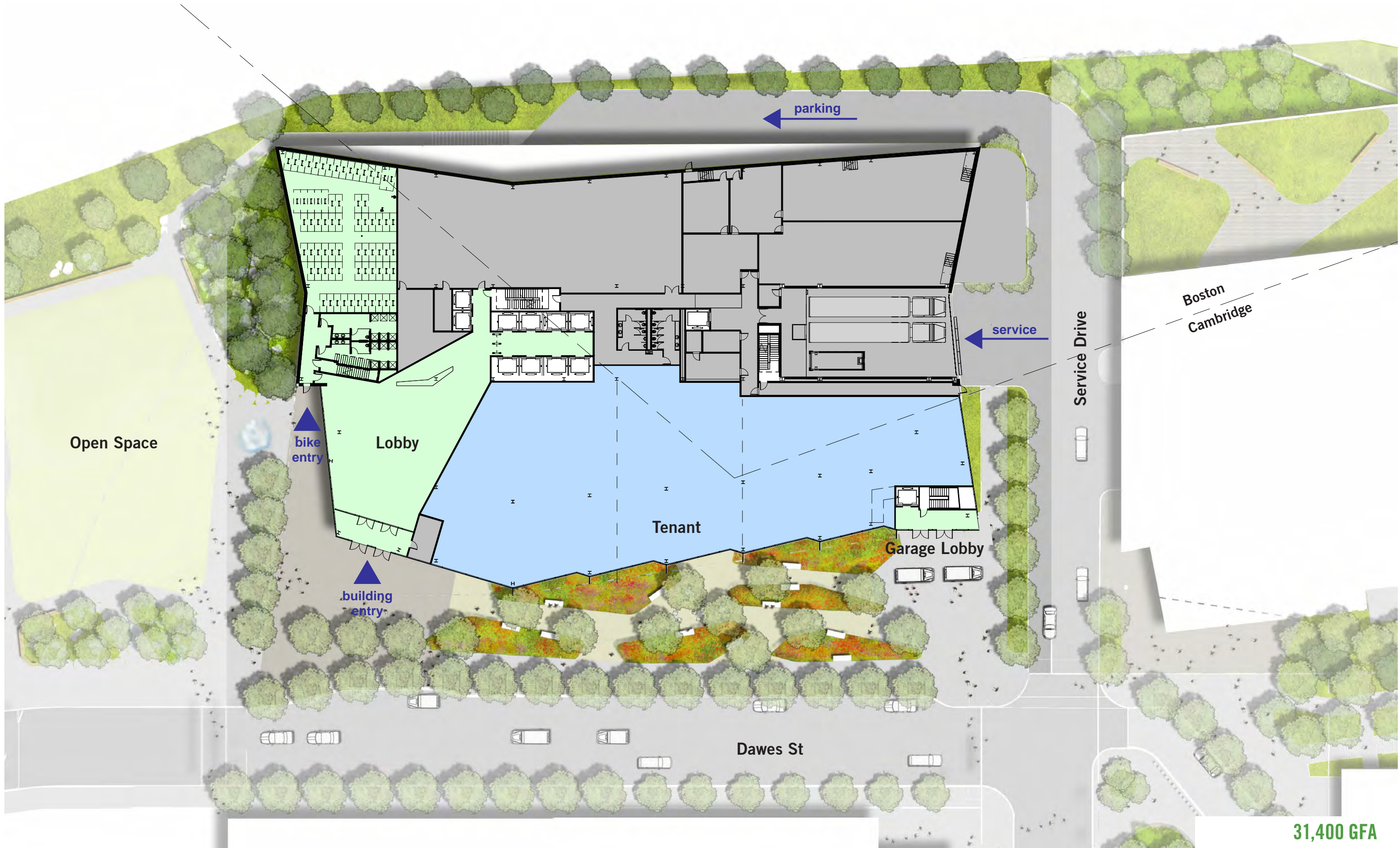
194'-0" T.O. UPPER MOST OCCUPIED FLOOR  
 248'-0" T.O. PARAPET





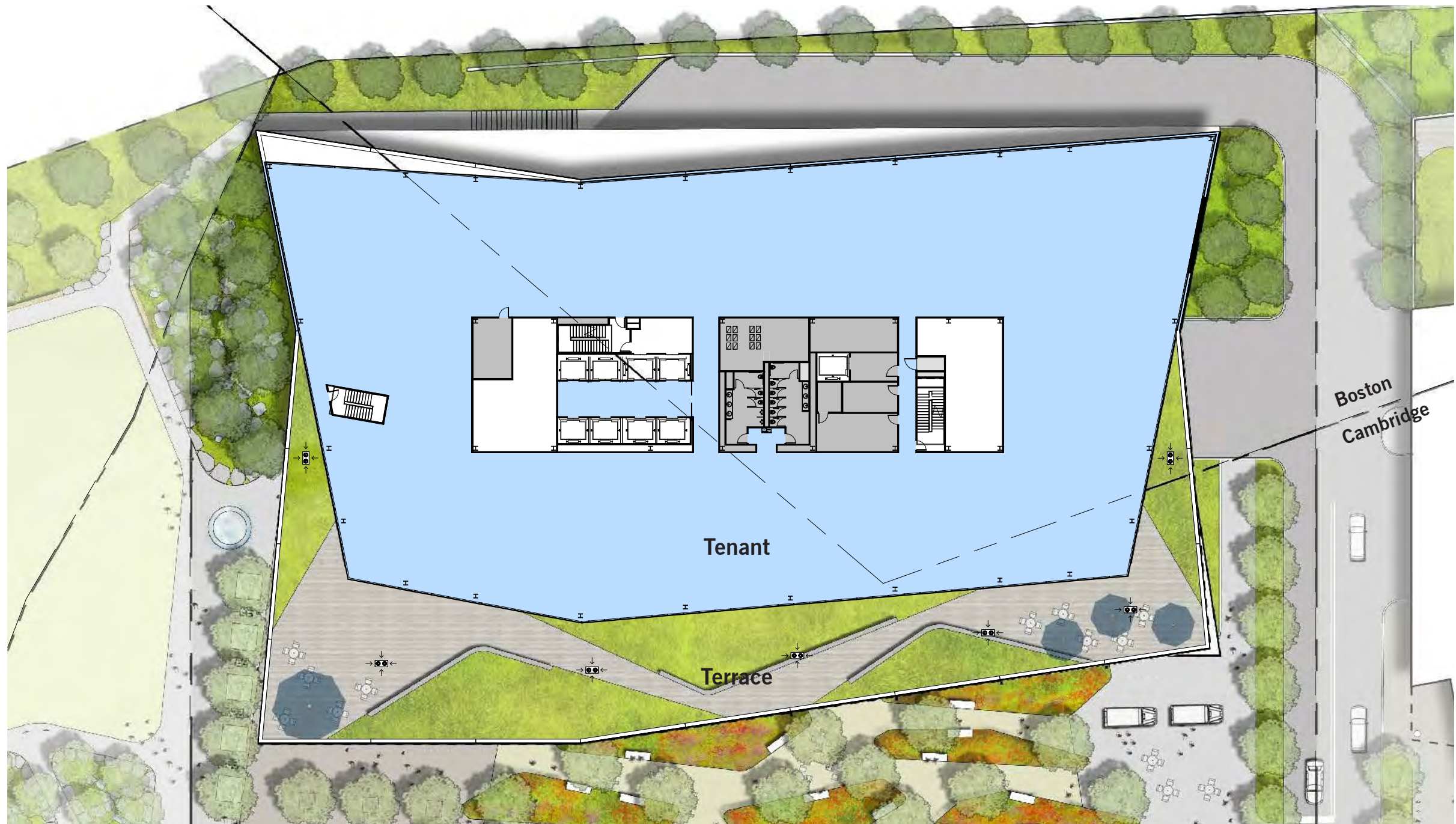
ELEVATION - NORTH





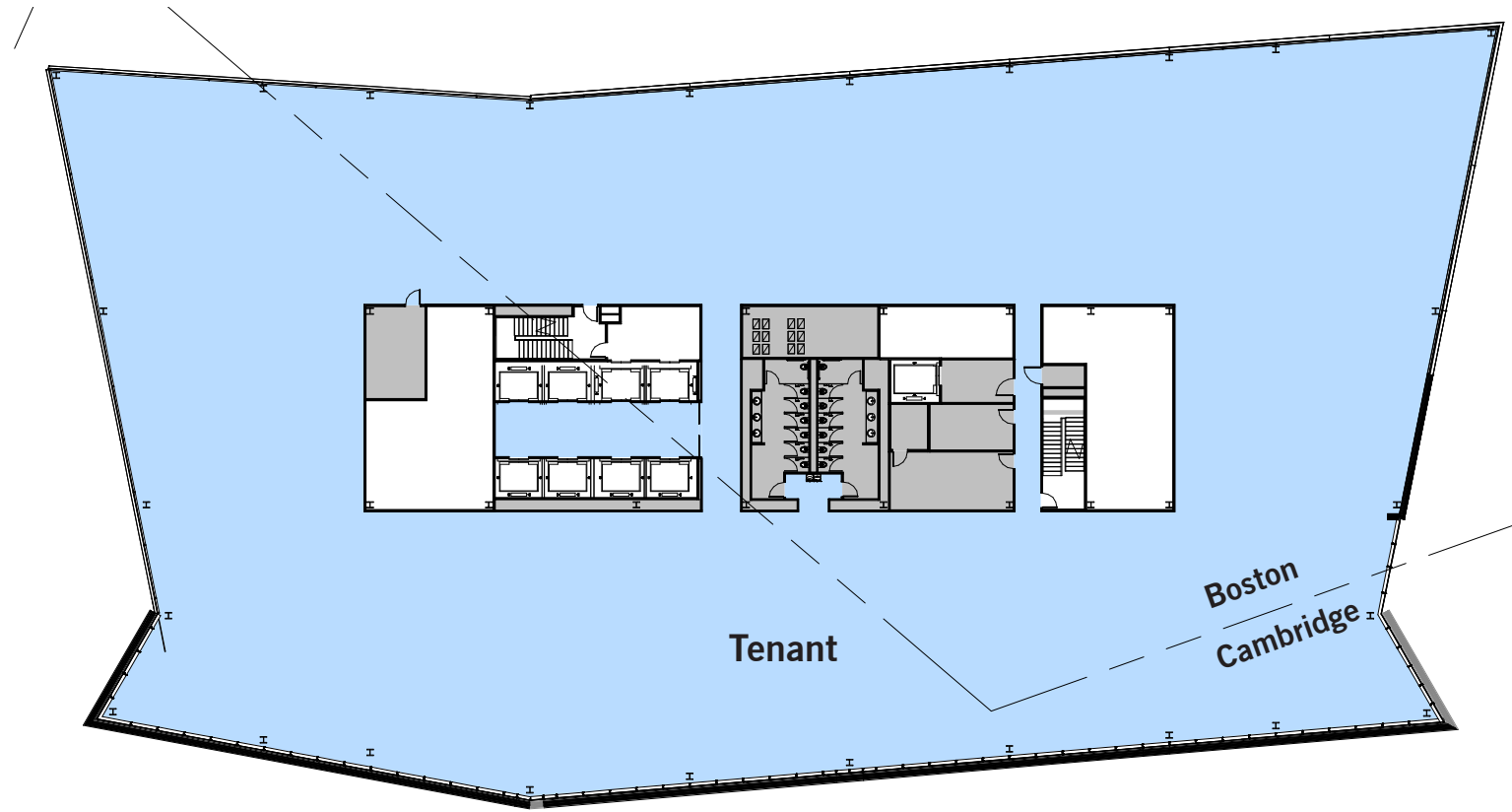
31,400 GFA





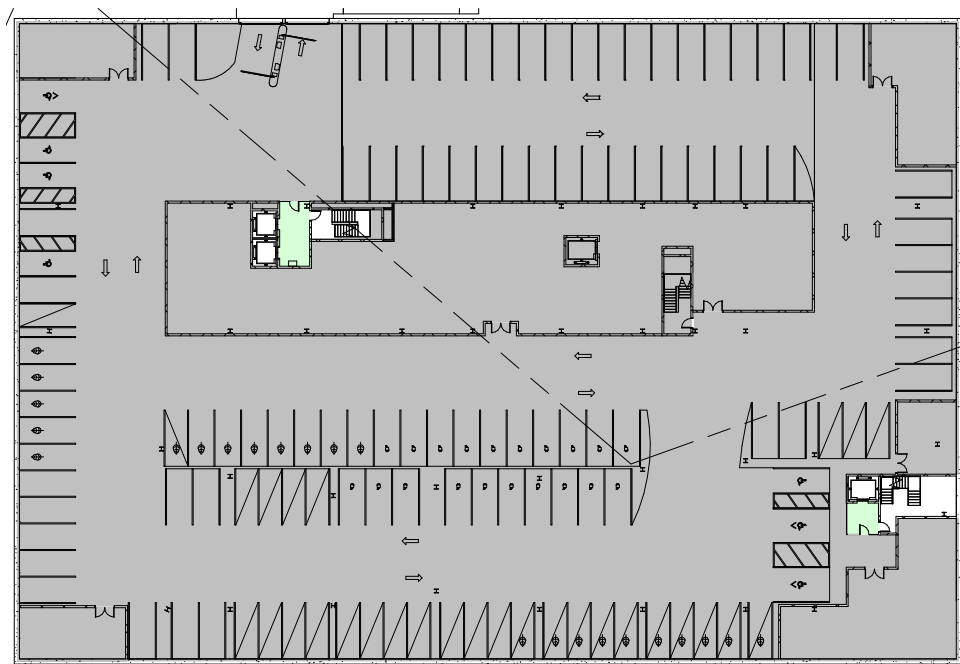
34,150 GFA



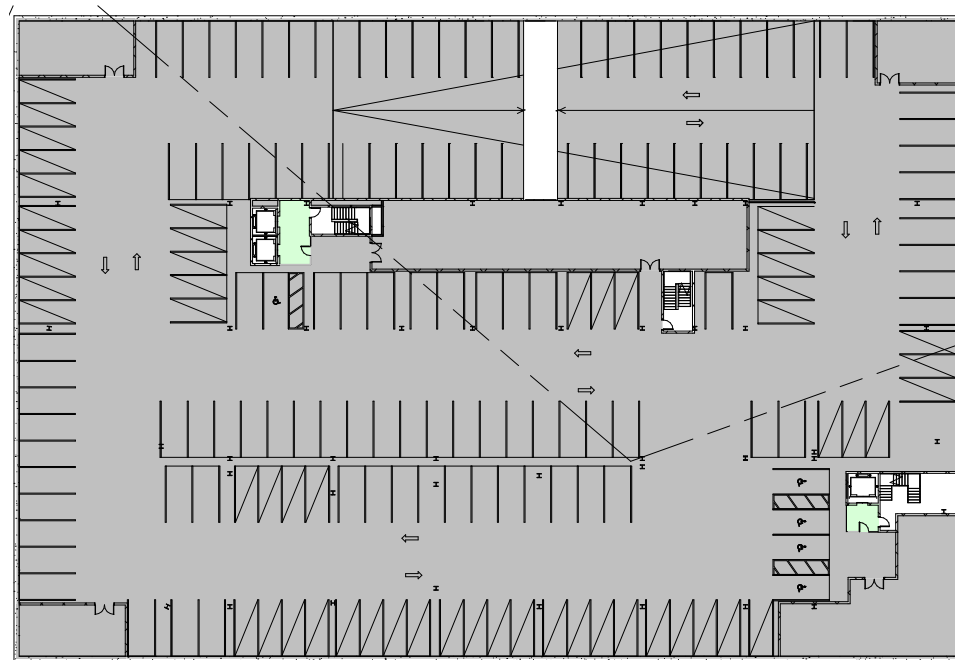


36,455 GFA





p1 level plan



p2 level plan



p3 level plan







# **SUSTAINABILITY NARRATIVE**





**LEED v4 BD+C: Core and Shell**  
Project Checklist

Y	M	N			
<b>1</b>	<b>0</b>	<b>0</b>	<b>Integrative Process</b>		<b>1</b>
1			Credit 1	Integrative Process	1
<b>20</b>	<b>0</b>	<b>0</b>	<b>Location and Transportation</b>		<b>20</b>
		<b>N</b>	Credit 1	LEED for Neighborhood Development Location	20
2			Credit 2	Sensitive Land Protection	2
3			Credit 3	High Priority Site	3
6			Credit 4	Surrounding Density and Diverse Uses	6
6			Credit 5	Access to Quality Transit	6
1			Credit 6	Bicycle Facilities	1
1			Credit 7	Reduced Parking Footprint	1
1			Credit 8	Green Vehicles	1
<b>5</b>	<b>5</b>	<b>1</b>	<b>Sustainable Sites</b>		<b>11</b>
Y			Prereq 1	Construction Activity Pollution Prevention	Required
	1		Credit 1	Site Assessment	1
	1	1	Credit 2	Site Development - Protect or Restore Habitat	2
1			Credit 3	Open Space	1
	3		Credit 4	Rainwater Management	3
2			Credit 5	Heat Island Reduction	2
1			Credit 6	Light Pollution Reduction	1
1			Credit 7	Tenant Design and Construction Guidelines	1
<b>5</b>	<b>2</b>	<b>4</b>	<b>Water Efficiency</b>		<b>11</b>
Y			Prereq 1	Outdoor Water Use Reduction	Required
Y			Prereq 2	Indoor Water Use Reduction	Required
Y			Prereq 3	Building-Level Water Metering	Required
1	1		Credit 1	Outdoor Water Use Reduction	2
2	1	3	Credit 2	Indoor Water Use Reduction	6
1		1	Credit 3	Cooling Tower Water Use	2
1			Credit 4	Water Metering	1
<b>9</b>	<b>6</b>	<b>18</b>	<b>Energy and Atmosphere</b>		<b>33</b>
Y			Prereq 1	Fundamental Commissioning and Verification	Required
Y			Prereq 2	Minimum Energy Performance	Required
Y			Prereq 3	Building-Level Energy Metering	Required
Y			Prereq 4	Fundamental Refrigerant Management	Required
3		3	Credit 1	Enhanced Commissioning	6
6	3	9	Credit 2	Optimize Energy Performance	18
		1	Credit 3	Advanced Energy Metering	1
		2	Credit 4	Demand Response	2
		3	Credit 5	Renewable Energy Production	3
	1		Credit 6	Enhanced Refrigerant Management	1
	2		Credit 7	Green Power and Carbon Offsets	2

Project Name: **NorthPoint - Parcel G**  
Date: **10.12.17**

Y	M	N			
<b>4</b>	<b>5</b>	<b>5</b>	<b>Materials and Resources</b>		<b>14</b>
Y			Prereq 1	Storage and Collection of Recyclables	Required
Y			Prereq 2	Construction and Demolition Waste Management Planning	Required
	3	3	Credit 1	Building Life-Cycle Impact Reduction	6
1	1		Credit 2	Building Product Disclosure and Optimization - EPD	2
	1	1	Credit 3	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1		1	Credit 4	Building Product Disclosure and Optimization - Material Ingredients	2
2			Credit 5	Construction and Demolition Waste Management	2
<b>5</b>	<b>4</b>	<b>1</b>	<b>Indoor Environmental Quality</b>		<b>10</b>
Y			Prereq 1	Minimum Indoor Air Quality Performance	Required
Y			Prereq 2	Environmental Tobacco Smoke Control	Required
2			Credit 1	Enhanced Indoor Air Quality Strategies	2
1	1	1	Credit 2	Low-Emitting Materials	3
1			Credit 3	Construction Indoor Air Quality Management Plan	1
	3		Credit 4	Daylight	3
1			Credit 5	Quality Views	1
<b>3</b>	<b>3</b>	<b>0</b>	<b>Innovation</b>		<b>6</b>
1			Credit 1	Innovation in Design: OM Starter Kit	1
1			Credit 2	Innovation in Design: Organic Landscape Maintenance	1
	1		Credit 3	Innovation in Design: TBD	1
	1		Credit 4	Innovation in Design: TBD	1
	1		Credit 5	Innovation in Design: Pilot Credit	1
1			Credit 6	LEED Accredited Professional	1
<b>1</b>	<b>3</b>	<b>0</b>	<b>Regional Priority (earn up to 4 points)</b>		<b>4</b>
	1		Credit 1	Regional Priority Credit: MRc1 (2 pts)	1
	1		Credit 2	Regional Priority Credit: EAc2 17% (8 points)	1
1			Credit 3	Regional Priority Credit: LTc3	1
	1		Credit 4	Regional Priority Credit: SSc4	1
<b>53</b>	<b>28</b>	<b>29</b>	<b>TOTALS</b>		<b>Possible Points: 110</b>

Certified: 40-49 points  
Silver: 50-59 points  
Gold: 60-79 Points  
Platinum: 80+ points



### III. LEEDv4 CORE AND SHELL SCORECARD SUMMARY

- A. Please refer to the LEED credit summary below and attached LEEDv4 Core and Shell (CS) Project Scorecard in Appendix A.
- B. The Project is not pursuing formal LEED certification but it's committed to meeting the minimum requirements to be LEED-CS v4 **Silver certifiable** (50 credit points) by attempting **53 'Yes'** credit points. Additionally the project has earmarked **28 'Maybe'** credit points that require further research. These credits will remain under consideration as the design continues to evolve.

LEED CREDIT SUMMARY	Yes	Maybe
Integrative Process	1 point	0 possible points
Location and Transportation	20 points	0 possible points
Sustainable Sites (SS)	5 points	5 possible points
Water Efficiency (WE)	5 points	2 possible points
Energy & Atmosphere (EA)	9 points	6 possible points
Materials & Resources (MR)	4 points	5 possible points
Indoor Environmental Quality (EQ)	5 points	4 possible points
Innovation in Design (ID)	3 points	3 possible points
Regional Priority (RP)	1 points	3 possible points
<b>Total Points</b>	<b>53 points</b>	<b>28 possible points</b>

### IV. LEED Credit Narrative

The project meets the LEED v4 Core and Shell Minimum Program Requirements and each of the required Prerequisites.

#### General Project Information

SITE AND BUILDING AREA	
Total Site Area within the LEED Project Boundary (LPB)	89,624 sf
Total Gross Square Feet <sup>1</sup>	450,773 gsf
Commercial Office	172,467 sf
Lease Lab/R + D	258,701 sf
Retail	19,605 sf
TRANSPORTATION	
Parking Spaces	746
Bike Racks	128
OCCUPANCY (Per LEED BD+C Reference Guide, Core & Shell Appendix 1)	
Commercial Office FTE (250sf/FTE)	690
Lab/R+D space FTE	647

(400sf/FTE)	
Retail FTE (550sf/FTE)	36
Retail Transients (130sf/vis)	151

#### A. Integrative Process (IP)

IP Credit 1 Integrative Process 1 credit point  
 The Project will meet the intent of this credit through identification of cross discipline opportunities to design a sustainable building project. Sustainable design focused meetings will be ongoing throughout the design process to assist the team in establishing shared sustainable design and energy efficiency goals for the Project. Early design phase energy modeling will be conducted to review systems synergies and assess areas where energy loads may be significantly reduced. A water use analysis will be conducted to aid in establishing water use reduction targets.

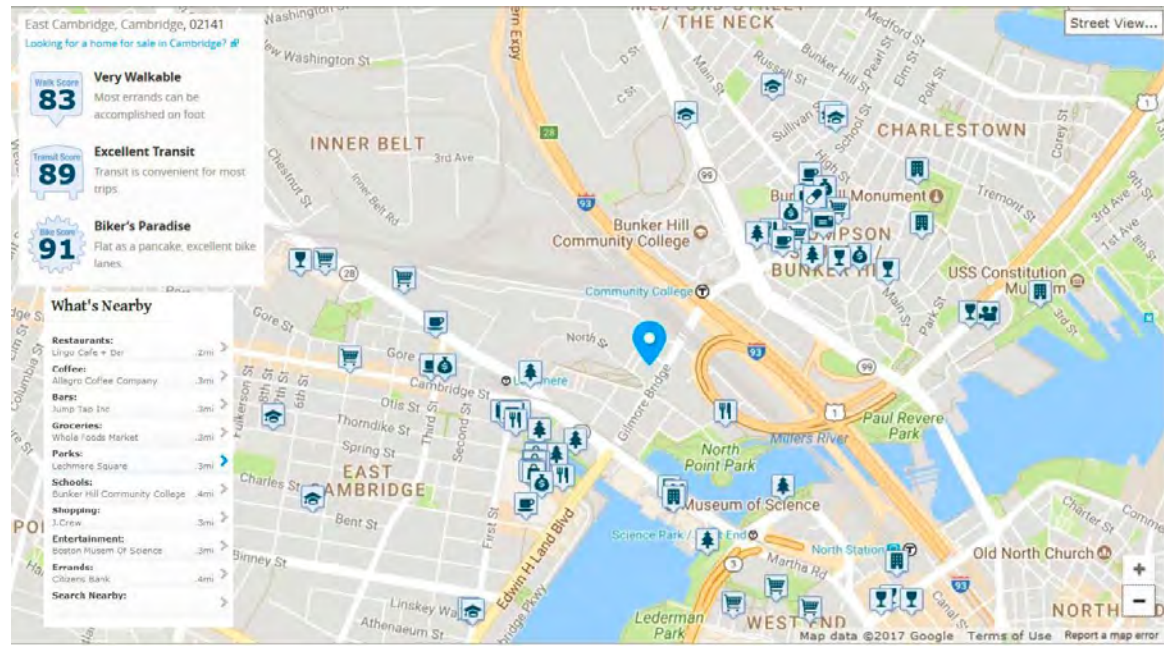
#### B. Location and Transportation (LT)

LT Credit 2 Sensitive Land Protection 2 credit points  
 The Project meets the credit requirements; it is located on land that has been previously developed.

LT Credit 3 High Priority Site 3 credit points  
 The development area contains contaminated soils and/or groundwater; it will be appropriately remediated in accordance with MassDEP regulations.

LT Credit 4 Surrounding Density and Diverse Uses 6 credit points  
 The Project will meet Option 1 for Surrounding Density by being located in an area with an average density greater than 35,000 sf/acre. Additionally, the Project will meet Option 2 for Diverse Uses by being located within one-half mile walking distance of at least eight publically available diverse uses in at least three separate use categories.

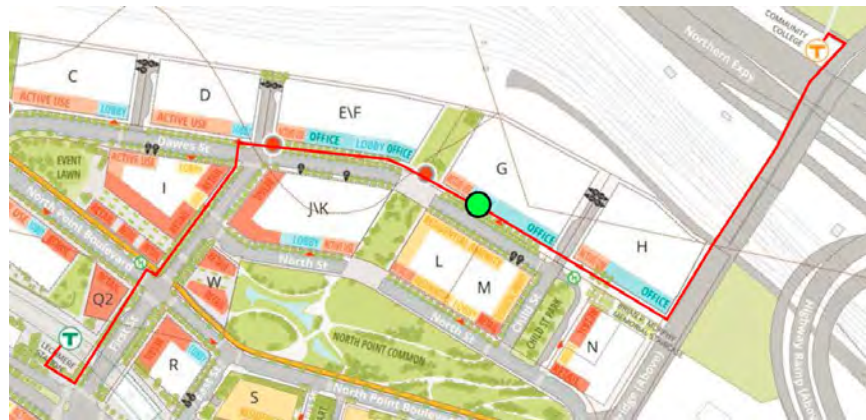




**LT Credit 5 Access to Quality Transit**

6 credit points

The project is located within one half mile walking distance to Lechmere Station which provides access to various bus routes and MBTA Green Line E service and the Community College MBTA Station, with access to MBTA Orange Line service. In combination employees of the tenants at Parcel G will have access to more than 483 weekday rides and 348 weekend transit rides.



	Total Rides Per Day		Percent of Total Rides Per Line	
	Weekday	Weekend	Weekday	Weekend
Green Line E	153	109	32%	31%
Orange Line	138	105	28%	30%
Bus 69	47	37	10%	10%
Bus 80	43	29	9%	8%
Bus 87	48	33	10%	9%
Bus 88	54	37	11%	10%
<b>Total:</b>	<b>483</b>	<b>348</b>		

**LT Credit 6 Bicycle Facilities**

1 credit point

Exterior short-term and covered long-term bicycle storage is planned for visitors and regular occupants of the project. The immediate neighborhood provides a direct connection to a local bicycle network that links to a variety of services with pedestrian and cyclist access.

Based on the current design, the Project is planning to provide long-term bike spaces for >5% of regular building occupants on the first floor and short-term bike spaces for 2.5% of all peak visitors throughout the project site within 100 feet of the main building entrance. In addition to the bike racks, showers with changing facilities will be provided for 0.5% of regular building occupants on the first floor adjacent to the long-term bicycle storage.

**LT Credit 7 Reduced Parking Footprint**

1 credit point

Approximately 746 parking spaces will be provided within the underground parking structure, resulting in more than a 40% reduction in base-ratios as recommended by the Parking Consultants Council. Additionally, carpool spaces will be provided for at least 38 vehicles (5% of the total parking capacity) in preferred locations throughout the garage.

**LT Credit 8 Green Vehicles**

1 credit point

Approximately 746 parking spaces will be provided for tenants and visitors to the building within the underground parking structure. The two compliance paths will be followed in support of the credit requirements:

- 64 LEFE spaces (38 required to meet 5% of total parking capacity) will be allocated within the parking garage and will be placed in preferred locations.
- 20 electric vehicle charging stations (15 required to meet 2% of total parking capacity) will be provided and be made available to Project occupants.

**C. Sustainable Sites (SS)**

**SS Prerequisite 1: Construction Activity Pollution Prevention**

Required

The construction manager will be required to submit and implement an appropriate SWPPP/Erosion and Sedimentation Control (ESC) Plan for construction activities related to the construction of the project. The ESC Plan will conform to the erosion and sedimentation requirements of the applicable NPDES regulations and specific municipal requirements for the City of Cambridge. Additionally, the ESC Plan will address management and containment of



dust and particulate matter generated by on site demolition and construction activities. Civil design drawings will include measures for the implementation of the ESC plan.

SS Credit 1: Site Assessment

1 maybe point

A comprehensive site assessment was completed as part of the development master plan effort and the Northpoint Development Concept Plan. The design team will continue to study topography, hydrology, climate, vegetation, soils, human use, and human health effects specific to Parcel G to inform the design.

SS Credit 3 Open Space

1 credit point

The open space on all four sides of Parcel G will be designed to create seamless connections between the building and the wider open space network at NorthPoint. These connections will be particularly strong on the west side, where the adjacent open space of Park 4 in Cambridge and Somerville will abut the entrance plaza and planted base of the building. In this area landscape materials, planting and site furniture and outdoor exercise equipment will be chosen to extend the open space of the park to the building. On the south side of the building on Dawes Street the sidewalk materials will be extended towards the building and a plaza for food trucks and picnic tables is established as part of the streetscape, framed with shade planting running along the southern edge of the building to create a comfortable microclimate in this area. On the building's east side the service road, shared with Building H will be planted with shade trees and groundcover, protecting and defining the sidewalk. On the north side of the building the service road will descend to parking at the building's lower level, with a planted buffer running along the northern edge of the site screening the rail yards.

Large plant beds and street trees will maximize vegetation, and minimize the extent of paving within both the Parcel G landscape. The plant beds will create a welcoming, comfortable, human-scaled environment at the base of the buildings to encourage social interaction and use of the public realm. The vegetation and its soil will contribute to localized carbon sequestration and enhanced air quality. Imported horticultural planting soil specifically designed to support this urban landscape condition will have continuous, shared volumes in the beds and under pavements to encourage self-sustaining root growth that will produce health, mature trees at a goal of 1,000 cf per tree.

Through the inclusion of the landscaped spaces and pedestrian friendly streetscape improvements explained above, it is anticipated the project will incorporate enough vegetated and pedestrian-friendly open space to meet the credit requirements.

SS Credit 4 Rainwater Management

3 maybe points

In a manner best replicating natural site hydrology processes, on site the runoff from the developed site shall be managed to target the 95<sup>th</sup> – 98<sup>th</sup> percentile of regional or local rainfall events using low-impact development (LID) and green infrastructure.

Rainwater control measures will continue to be investigated, engineered and refined as the Project continues the design process. Measures that will be considered include, but are not limited to, the following:

- Subsurface infiltration systems/recharge wells
- Green roof(s)
- Permeable paving
- Rain gardens
- Rainwater harvesting

A stormwater management system has been developed for the proposed development site that meets the goal of improving the quality of discharge now being released from the wastewater systems serving the North Point Property. As elements of the proposed development are constructed, the existing storm drainage system(s) will be abandoned or removed and the new stormwater management system will be extended to collect and treat stormwater runoff. This stormwater management system will discharge flows to the Charles River Basin through an outfall constructed at the Lechmere Canal.

The North Point Stormwater Management Master Plan includes the following features:

- Utilizing Miller's pond within North Point Common (a wet pond that provides sediment removal and nutrient removal) to allow the open space areas to provide natural treatment of stormwater.
- Separating site storm drainage from the Combined Sewer System.
- A closed storm drainage system consisting of deep sump hooded catch basins (6-foot sumps) to collect and convey runoff via closed drain pipes located within the Project roadways to the Lechmere Canal. This system was sized to manage stormwater flows from the site plus contiguous areas including the Charles E. Smith Development and parcels located between the North Point Property and the Monsignor O'Brien Highway which previously discharged to the combined sewer system in Monsignor O'Brien Highway. The Project storm drainage system will be sized to manage peak flows from the 25-Year 1-hour storm and to manage flood flows from the 25-year 24-hour storm design as required by the City of Cambridge DPW standards.
- Proprietary water quality inlets (oil/sediment separators) that are designed to treat the first 0.5 inch of runoff from the 25-year, 24-hour design storm and remove 80% Total Suspended Solids ("TSS") prior to discharge to the Lechmere Canal.
- Subsurface infiltration systems within Child Street Park, Baldwin Park, and North Point Common to recharge groundwater and provide phosphorus removal in accordance with the TMDL for the Charles River.
- A Site Owner's Manual identifying measures for the long-term operation and maintenance of the stormwater management system as well as a long-term pollution prevention plan including:
  - Street sweeping twice per year on all project roadways.
  - Cleaning project catch basins twice per year — just before the onset of winter and immediately following the spring snowmelt.
  - Inspecting and maintaining proprietary water quality inlets in accordance with manufacturer's recommendations.
  - Inspecting, cleaning, and maintaining sediment forebays and grass swales to prevent sediment accumulation and erosion.
  - Removing accumulated sediment and invasive species in Miller's pond, inspecting embankments and outlet controls annually
  - Inspecting subsurface infiltration systems annually to prevent clogging.
  - Non-structural good housekeeping such as source control and pollution prevention measures

In compliance with the Total Maximum Daily Load (TMDL) issued by the Massachusetts Department of Environmental Protection for the Charles River, fertilizers, herbicides, and pesticides that contain phosphorus are prohibited and cannot be used on-site.

SS Credit 5 Heat Island Reduction

2 credit points



Light-colored concrete pavements will have high albedo values to reduce the heat island effect. Densely planted beds with canopy and understory trees will create shade on the adjacent pavements and provide ambient cooling. Street trees lining Dawes Street and the Gilmore Bridge will reach out with their high canopies and produce shadows on the surrounding streets. The paved entry plazas be shaded by the building overhangs to reduce direct sunlight. The roof membrane will be a high albedo roof material with an initial SRI value of 82 minimum.

SS Credit 6 Light Pollution Reduction 1 credit point

The project plans to meet the upright and light trespass requirements by complying with the LEED v4 BUG Rating method. The project site is classified under Lighting Zone 3 as per the Illuminating Engineering Society and International Darky Sky Association (IES/IDA) Model Lighting Ordinance User Guide. To meet the credit requirements, the site lighting will not exceed the LEED v4 allowable luminaire backlight, upright and glare ratings for this lighting zone.

SS Credit 7 Tenant Design and Construction Guidelines 1 credit point

The project will provide Tenant Design and Construction Guidelines for distribution and review will potential building tenants. The guidelines will outline the sustainable design and energy efficiency measures implemented in the core and shell building and provide detailed guidance for the Tenants to design and build in alignment with the project sustainability goals.

**D. Water Efficiency (WE)**

WE Prerequisite 1 Outdoor Water Use Reduction, 30% Required

Strategies to reduce the amount of potable water used for irrigation will include using native or adapted plant species and efficient irrigation systems with soil moisture sensors. Porous pavements will be used at the street trees pits and an innovative stormwater collection system will collect and divert stormwater run-off at the sidewalk to an integrated aeration and irrigation system feeding the structural soil under the sidewalk pavement to support healthy plant growth. Through the implementation of these measures, the Project will use 30% less potable water for irrigation (as calculated using the EPA WaterSense Water Budget Tool) when compared to the calculated baseline for the site's peak watering month.

WE Prerequisite 1 Water Use Reduction, 20% Reduction Required

Through the specification of low flush and flow and high efficiency plumbing fixtures, the Project will reduce potable water consumption by a minimum of 20% over the baseline calculated for the building (not including irrigation) after meeting Energy Policy Act of 1992 fixture performance requirements. Preliminary water use calculations were run; the Project is currently targeting a 30% water use reduction over the baseline, with aspirations for additional savings.

Flush Fixture Type	Baseline GPF	Design GPF	Uses/Day	Baseline Daily Use (Gallons)	Design Daily Use (Gallons)	% Savings
Water Closet	1.6gpf	1.28gpf	2,767.6	4,428.16	3,542.53	20%
Urinal	1.0gpf	.125gpf	1,381.6	1,381.6	172.7	88%
Sub-TOTAL annual water savings				<b>5,809.76</b>	<b>3,715.23</b>	<b>36.06%</b>
Flow Fixture Type	Baseline GPM/GPC	Design GPM/GP	Uses/Day	Baseline Daily Use	Design Daily Use	% Savings

		C		(Gallons)	(Gallons)	
Public Lavatory	.5gpm	0.35 gpm	4,149.2	1,037.3	736.475	30%
Shower for FTEs	2.5gpm	1.5 gpm	137.3	1,716.25	1,047.75	40%
FTE Kitchen Sink	2.2gpm	2.2 gpm	1,373	755.15	755.15	0%
Sub-TOTAL annual water savings				<b>3,508.7</b>	<b>2,539.38</b>	<b>27.63%</b>
<b>TOTAL annual water savings</b>				<b>2,422,799.6</b>	<b>1,643,986.5</b>	<b>32.15%</b>

WE Prerequisite 3 Building Level Water Metering Required

The Project will meet the requirements of this prerequisite by installing permanent water meters that measure the total potable water use for the building and associated grounds. In addition to installing the meters, the Project will commit to sharing water usage data with the USGBC for a five-year period beginning on the date the Project accepts LEED certification or typical occupancy, whichever comes first.

WE Credit 1 Outdoor Water Use Reduction 50% 1 credit point; 1 maybe point

The landscape design will incorporate native and adaptive plantings, and the design of the irrigation system will target a 50% reduction, minimum, in potable water use when compared to a mid-summer baseline. The systems will incorporate high controller efficiency and moisture sensors.

WE Credit 2 Indoor Water Use Reduction 2 credit points

Through the specification of low flow and high efficiency plumbing fixtures, the Project will implement water use reduction strategies that target 30% less potable water use annually when compared to EPA baseline fixtures for the building (not including irrigation) after meeting Energy Policy Act of 1992 fixture performance requirements. Toilet fixtures planned for use include 1.1 GPF water closets, 0.125 GPF urinals, 0.35 GPM sensor faucet lavatories, and 1.5 GPM showers. As the design progresses, the team will continue to identify ways to further reduce potable water use. See target water use savings table included above.

WE Credit 3 Cooling Tower Water Use 1 credit point

The Project will conduct a one-time potable water analysis for the cooling tower water and calculate the cycles of concentration. Through increasing the level of treatment in the make-up and/or condenser water, the Project will achieve the maximum cycles of concentration calculated before any of the parameters analyzed exceed their maximum allowable levels of concentration. A minimum, the following five control parameters will be assessed: Ca, Total alkalinity, SiO<sub>2</sub>, Ci, and Conductivity.

WE Credit 4 Water Metering 1 credit point

The Project is planning to install permanent water meters for at least two of the following water subsystems: irrigation, indoor plumbing fixtures and fittings, domestic hot water boilers with a projected annual use of 100,000 gallons or more than 500,000 BtuH, reclaimed water, or other process water.

**E. Energy and Atmosphere (EA)**



EA Prerequisite 1 Fundamental Commissioning and Verification Required  
A third party Commissioning Agent (CxA) will be engaged by the owner for purposes of providing fundamental commissioning services for the building energy related systems including HVAC, lighting, domestic hot water systems and potentially the building envelope. The CxA will be required to perform the scope of work required to comply with the prerequisite in accordance with ASHRAE Guideline 0-2005 and ASHRAE Guideline 1.1-2007 for HVAC & R systems. Owner's Project Requirements (OPR) and Basis of Design (BoD) documents will be developed.

EA Prerequisite 2 Minimum Energy Performance Required  
To meet the prerequisite, the building performance rating will demonstrate, at a minimum, a 2% improvement in energy use by cost when compared to a baseline building performance as calculated using the rating method in Appendix G of ANSI/ASHRAE/IESNA Standard 90.1-2010. A whole building energy model will estimate the expected performance rating of the designed building systems. The Project will also meet the 9<sup>th</sup> Edition of the MA Energy Code and stretch code requirements.

These requirements are met by the selection of efficient building mechanical systems and a high-performance envelope. The proposed design incorporates a large number of energy efficiency measures including high efficiency HVAC equipment, low lighting power density, low flow water fixtures, and an improved building envelope. Lighting power density requirements will be included in the tenant lease agreement.

Other energy conservation measures (ECMs) that are being considered and evaluated as the design progresses include but are not limited to the following:

- Greater interior lighting power density reductions
- Energy efficient exterior lighting
- CO2 based demand control ventilation for applicable spaces
- High performance variable speed chillers
- High-efficiency Condensing gas-fired hot water boilers
- Variable flow HW and CHW pumping
- High-efficiency heat recovery with evaporative cooled exhaust

EA Prerequisite 3 Building Level Energy Metering Required  
To meet the requirements of this prerequisite, the project will install whole building energy meters for gas and electricity use by the core and shell project. In addition to installing the meters, the project will commit to sharing energy use data with the USGBC for a five-year period beginning on the date the project accepts LEED certification or typical occupancy, whichever comes first.

EA Prerequisite 4 Fundamental Refrigerant Management Required  
CFC based refrigerants will not be used in the building HVAC & R systems. Additionally, depending on use of leasable space, equipment such as walk in freezers and coolers installed by future tenants will be required to meet prerequisite requirements.

EA Credit 1 Enhanced Commissioning 3 credit points  
A Commissioning Agent, (CxA), will be engaged by the Project Owner and the commissioning scope of work will include the enhanced commissioning requirements for the building systems. The CxA's role will include reviewing the owner's project requirements (OPR), and the basis of design (BoD), creating, distributing and implementing a commissioning plan, performing a

design review of the project documents to confirm the building systems will be installed and function as intended and desired, witnessing on-site installations and testing and performing commissioning of installed HVAC, lighting, lighting controls and domestic hot water systems.

EA Credit 2 Optimize Energy Performance 6 credit points  
The Project will be designed to meet IECC 2015/ASHRAE 90.1-2013 energy efficiency requirements to comply with the requirements of the Massachusetts "Stretch" Energy Code. It is expected that the Project will achieve at least a 13% annual energy cost savings (6 points) when compared to the LEED-CS v4 ASHARE 90.1-2010 Appendix G baseline. This project is planning to achieve these savings by investing in high efficiency mechanical, electrical, and plumbing systems while also optimizing the building envelope performance. The building geometry, materials, and HVAC systems included in the design model will be based on the design documents for this project.

EA Credit 6 Enhanced Refrigerant Management 1 maybe point  
The HVAC equipment installed in the base building will use refrigerants that have low global warming and ozone depletion potential. Additionally, equipment installed by future tenants will be required to meet the credit requirements. Once the systems design has advanced and the equipment has been identified, calculations will be run to confirm if the credit requirements will be met. The HVAC chillers will be designed to meet the requirements of this credit.

EA Credit 7 Green Power and Carbon Offsets 2 maybe points  
The Owner is considering the option to purchase green power, RECs or carbon offsets through a 5-year contract to offset 100% of the building's energy use with renewable sources.

## **F. Materials and Resources (MR)**

MR Prerequisite 1 Storage and Collection of Recyclables Required  
Storage of collected recyclables will be accommodated on the ground floor of the Project in a designated recycling area. Recyclable materials collected will include mixed paper, corrugated cardboard, glass, plastics, and metals, and the safe disposal of two of the following: batteries, mercury-containing lamps, and/or electronic waste. The building maintenance staff and/or the lease tenants will bring recyclables to a central storage room. A contracted waste management company will collect the recyclables on a regular basis.

MR Prerequisite 2 Construction and Demolition Waste Management Planning Required  
The Project will meet the requirements of this prerequisite by including a Construction Waste Management section in Division 1 of the Project manual. The specification will include direction for the construction manager to submit and implement a compliant waste management plan for the duration of construction. Waste diversion goals for the Project will include at least five materials (both structural and nonstructural) targeted for diversion.

MR Credit 1 Building Life Cycle Impact Reduction 3 maybe points  
The Project team is considering pursuing a whole-building life-cycle assessment of the Project's structure and enclosure to demonstrate a minimum of a 10% reduction, compared with a baseline building, in at least three of the six impact categories, one of which must be global warming potential. The six impact categories are: global warming potential, depletion of the stratospheric ozone layer, acidification, eutrophication, formation of tropospheric ozone and depletion of nonrenewable energy resources.



MR Credit 2 Building Product Disclosure and Optimization: Environmental Product Declarations 1 credit point

The Project will pursue this credit via Option 1. The technical specifications will include direction for the construction manager and their sub-contractors to provide and submit materials and products Environmental Product Declarations that conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930, and have at least a cradle to gate scope. The Project will work to provide documentation for 20 different permanently installed products sourced from at least five different manufacturers.

MR Credit 3 Building Product Disclosure and Optimization: Sourcing of Raw Materials 1 maybe point

The project will pursue this credit via Option 2. The technical specification will include information for applicable products and materials to meet at least one of the following extraction criteria: Extended producer responsibility, Bio-Based materials, FSC wood, Materials reuse, Recycled Content, or regionally extracted and manufactured (within 100 miles of the project site).

MR Credit 4 Building Product Disclosure and Optimization: Material Ingredients 1 credit point

The project will pursue this credit via Option 1. The project manual will include the information and direction for the construction manager and their sub-contractors to provide and submit materials and products documentation identifying the chemical make-up. The documentation may be the manufacturer's inventory, Health Product Declarations or Cradle-to-Cradle certification. The project team will work to provide documentation for 20 different permanently installed products sourced from at least five different manufacturers.

MR Credit 5 Construction and Demolition Waste Management 2 credit points

The Project will meet the requirements of this credit by including a Construction Waste Management section in Division 1 of the Project manual. The specification will include direction for the construction manager to divert a minimum of 75% of the demolition and construction waste generated on site from area landfills. Diverted material must include and separately track at least four different material streams.

## **G. Indoor Environmental Quality (IEQ)**

IEQ Prerequisite 1 Minimum IAQ Performance Required

The building mechanical systems will be designed to meet or exceed the requirements of ASHRAE Standard 62.1-2010 sections 4 through 7 and/or applicable building codes. The mechanical engineer will complete a ventilation rate procedure (VRP) calculator to verify compliance. Outdoor airflow monitors will be included in the Project. The main building HVAC system will deliver heated and cooled 100% outside air to the tenant areas using a VAV system.

IEQ Prerequisite 2 Environmental Tobacco Smoke (ETS) Control Required

Smoking is prohibited inside the building and within 25' of building entrances, operable windows, and outdoor air intakes. Signage will be posted within 10' of all building entrances to indicate exterior no-smoking policy.

IEQ Credit 1 Enhanced Indoor Air Quality Strategies 2 credit points

The project will attempt this credit through compliance with Option 1 for mechanical ventilation. The project will incorporate permanent entryway systems, properly enclosed and ventilated chemical use/storage areas and compliant filtration media.

Additionally, the project will implement one or more of the following indoor air quality measures: exterior contamination prevention, increased ventilation, carbon dioxide monitoring or additional source control and monitoring.

IEQ Credit 2 Low Emitting Materials 1 credit point; 1 maybe point

The Project will pursue this credit through meeting the compliance criteria for a minimum of two of the possible six compliant categories: interior paints and coatings; interior adhesives and sealants; flooring; composite wood; ceilings, walls, thermal and acoustic insulation; furniture.

IEQ Credit 3 Construction Indoor Air Quality Management Plan 1 credit point

The Project manual will include direction for the construction manager to develop and implement an Indoor Air Quality Management plan in compliance with applicable control measures as stated in the SMACNA IAQ Guidelines for Occupied Buildings under construction 2<sup>nd</sup> Edition, 2007 ANSI/SMACNA 008-2008 Chapter 3. Additional measures will be implemented to ensure absorptive materials will be protected from moisture damage.

IEQ Credit 5 Daylight 3 maybe points

The Project is considering performing daylight modeling to optimize the introduction of daylight into the occupied floor area in order to further connect building occupants with the outdoors, reinforce circadian rhythms, and reduce the demand for electrical lighting.

IEQ Credit 6 Quality Views 1 credit point

A direct line of sight to the outdoors will be provided for 75% of the regularly occupied floor area. 75% of the regularly occupied floor area will have quality views to the outdoors which may include multiple lines of sight; unobstructed views; views to landscaped areas, sky, pedestrian walkways, and streetscapes. The Project will use a test-fit tenant layout plan to demonstrate compliance.

## **H. Innovation (IN)**

INc1 Innovation: O&M Starter Kit 1 credit point

The Owner will implement a green cleaning policy that utilizes green cleaning products and equipment in the common areas. Tenants will be required to comply with the requirements outlined in the base-building green cleaning program.

The Owner will also develop and implement an indoor integrated pest management (IPM) program. The plan will require routine inspection and monitoring, along with the incorporation of integrated methods, specification of emergency application measures for pesticides, and communication strategies to building occupants. All cleaning products included in the IPM plan will adhere to the requirements listed in the green cleaning plan for the project. Tenants will be required to comply with the requirements outlined in the base-building IPM program.

INc2 Innovation: Organic Landscape Maintenance 1 credit point



The Owner will develop and implement a low impact exterior maintenance policy to meet the requirements of this credit

INc3 Innovation: To be determined 1 maybe point

INc4 Innovation: To be determined 1 maybe point

INc5 Innovation: To be determined (Pilot) 1 maybe point

INc6 LEED Accredited Professional 1 credit point

Many members of the team are LEED Accredited Professionals (APs).

### I. Regional Priority (RP)

Regional Priority Credits (RPCs) are established by the USGBC to have priority for a particular area of the country. When a project team achieves one of the designated RPCs and additional credit is awarded to the project. LEED v4 RPCs applicable to the Cambridge area include: EAc Renewable Energy Production (3%/2 points), EAc Optimize Energy Performance (17%/8 points), LTc High Priority Site (2 points), MRc Building Life Cycle Impact Reduction (2 points), SSc Rainwater Management (2 points), and WEc Indoor Water Use Reduction (4 points). This project is tracking the following RPCs:

RPc1 MRc1 Building Life-Cycle Impact Reduction (2 points) 1 maybe point

RPc2 EAc2 Optimize Energy Performance (17%/8 points) 1 maybe point

RPc3 LTc3 High Priority Site (2 points) 1 credit point

RPc3 SSc4 Rainwater Management (2 points) 1 maybe point

**END OF DOCUMENT**

## Strategies for Transitioning to Net-Zero

The project team has researched possible pathways to be “net zero ready” for the NorthPoint Parcel G project. This means a building designed for low site energy consumption and no fossil fuel use. Even though Parcel G relies on high-efficiency, condensing type natural gas boilers for heating, the mechanical equipment has the ability to be transitioned to an all-electric system in the future since the project design does not rely on infrastructure outside the building.

Best practice for designing a net-zero building includes reducing building loads first, then adding renewable resources such as solar PV, wind turbines, etc. to “offset” the total energy consumption of the project. Building loads for the project are reduced by a combination of the following: high-efficiency water-cooled chillers, condensing boilers and control sequences; LED lighting in core areas; reduced heating hot water demand and low-flow fixtures; and enhanced heat recovery with evaporative cooling. In the case of Parcel G, the building program poses a challenge for reaching net-zero due to the high-energy nature of research laboratory projects. In addition, being located in a dense-urban site limits the amount of space available to incorporate on-site renewables and which would likely provide a fraction of the energy demand needed to operate the building.

Future improvement in lab equipment performance and/or any major shifts in the way research and laboratory science is structured will have the most significant potential for greenhouse gas emission and energy consumption reduction. A prime example of this is the shift from previously biology/chemistry-dominated research labs to a significant growth in computerized research. As a result, the energy use intensity of research laboratory projects may shift more towards the likes of an office building rather than the high energy consumption laboratories we see today.

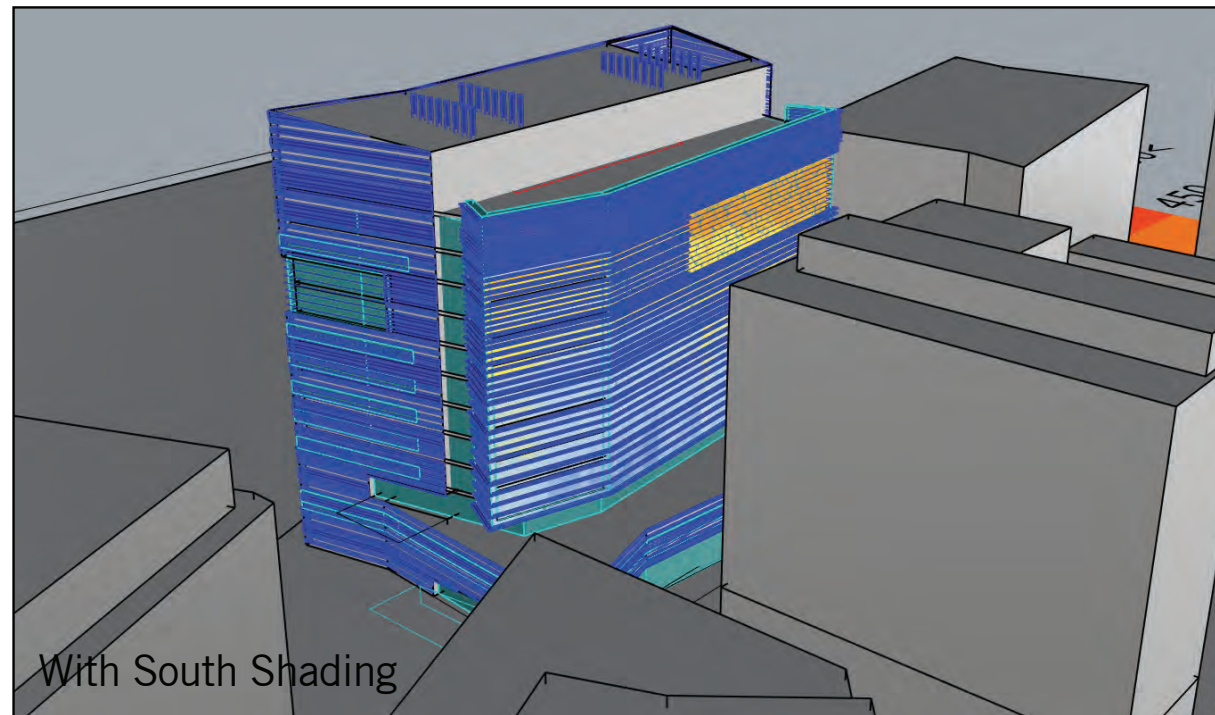
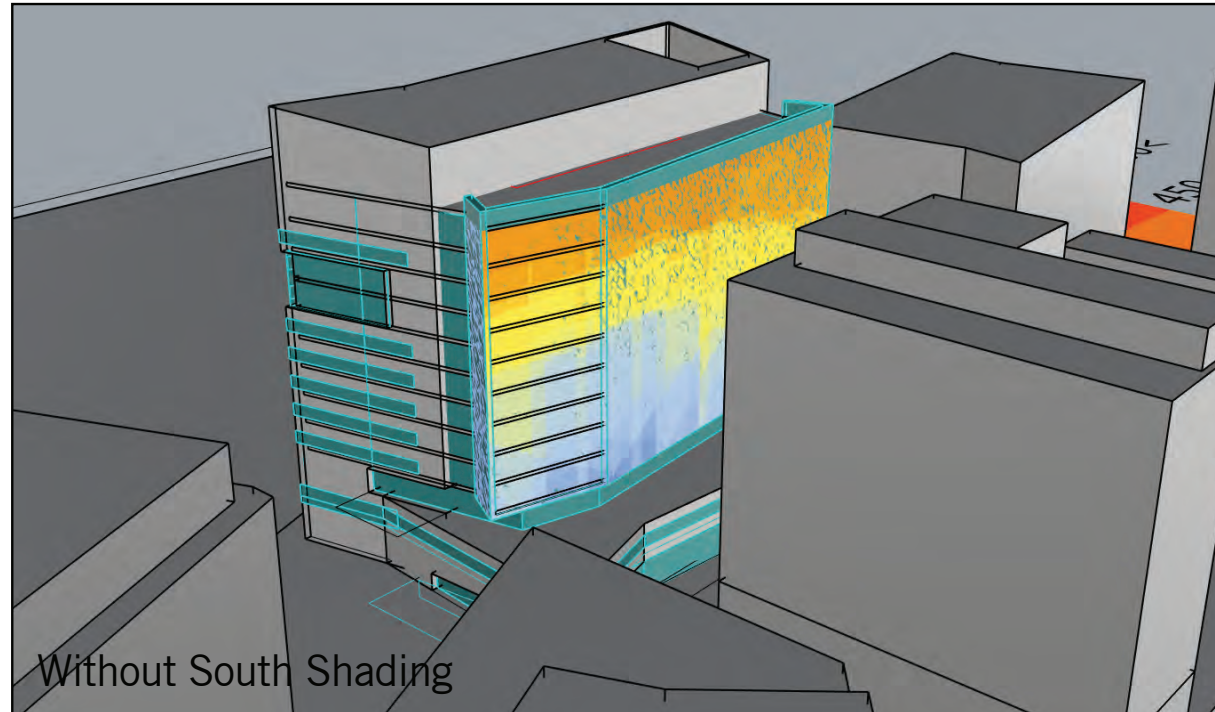
Although the program and the technology that is implemented will be up to the tenant, the design will provide ample access to network infrastructure to accommodate the anticipated future shift to laboratory computing dependence.

Currently, the proposed design will incorporate state of the art new construction measures that includes the highest efficiencies and best available technology given market and program restraints. That being said, the design team continues to assess opportunities to reduce overall energy consumption and the resulting greenhouse gas emissions as we strive toward a net-zero future.



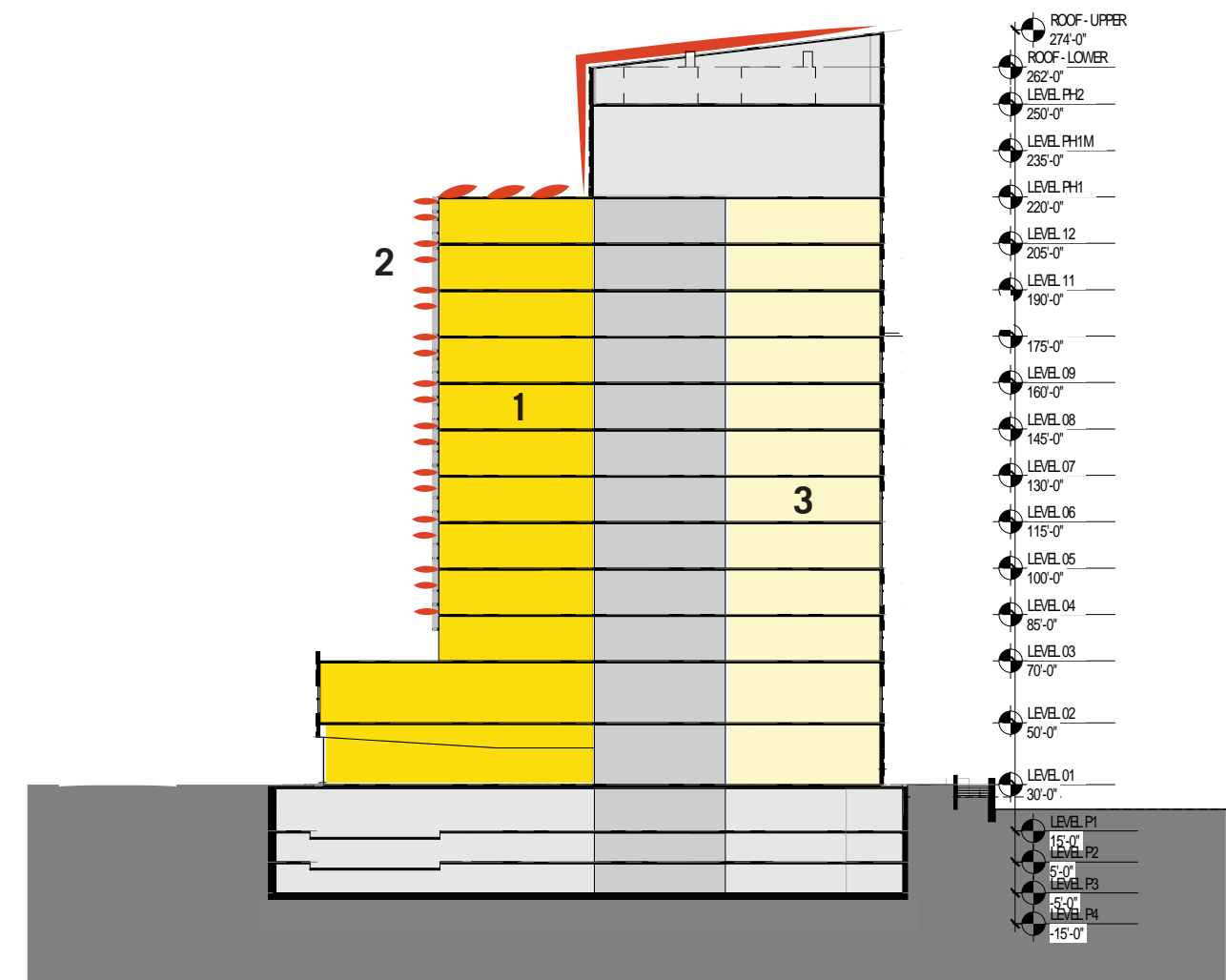
# SOLAR INCIDENT RADIATION ANALYSIS

## AVERAGE DAILY DIRECT IRRADIANCE



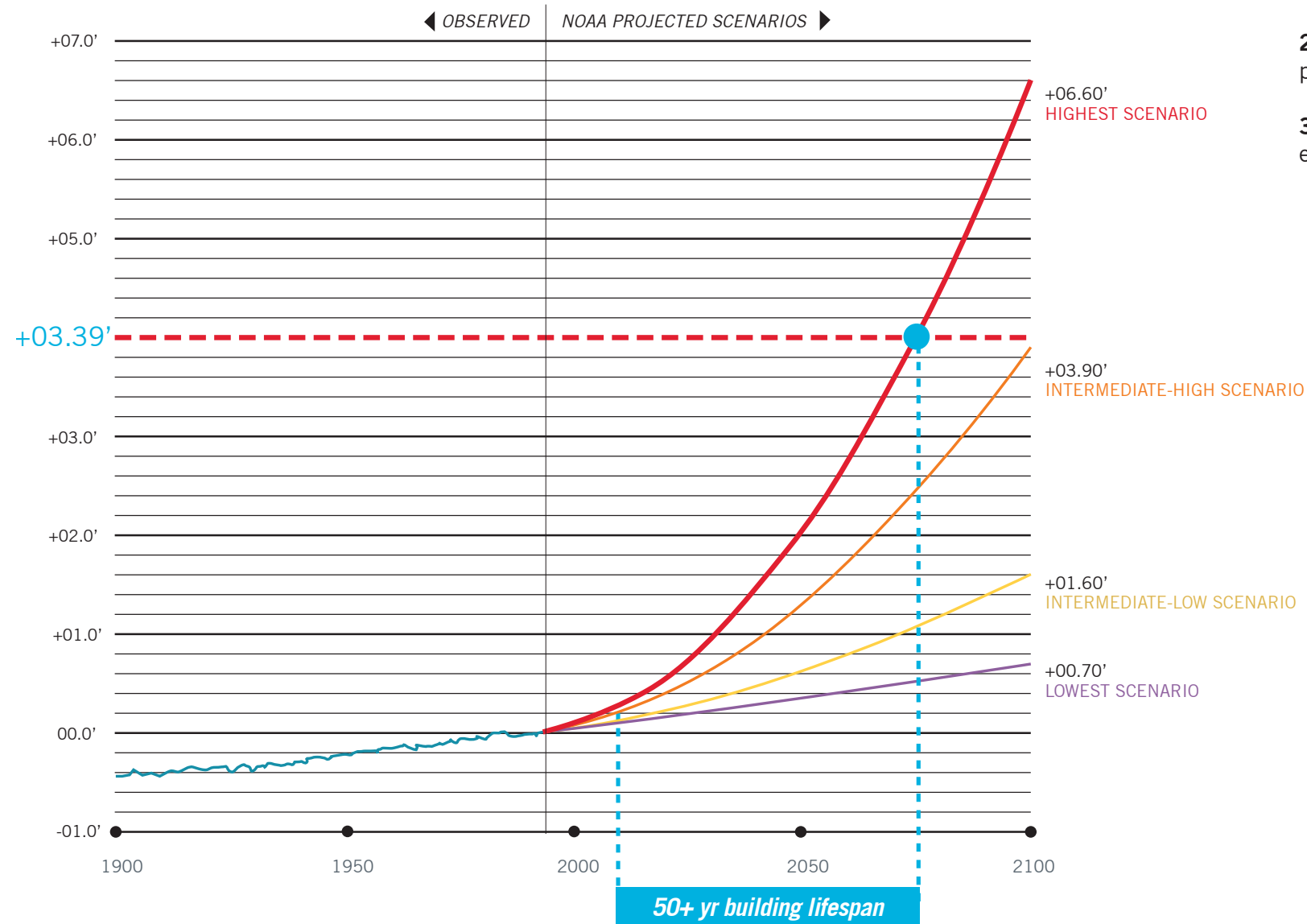
### Solar Strategies

1. Highly occupied spaces are expected to be zoned to the south and will get maximized usable daylighting
2. Solar shading will limit heat gain and minimize glare
3. The north facade glazing ration is reduced to improve the overall average R Value
4. The roofs, penthouse facades and solar shading could receive PV arrays in the future





# RESILIENCY



NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION GLOBAL SEA LEVEL RISE SCENARIOS

**CAMBRIDGE CCVA PREDICTED FLOOD ELEVATION OF 24'**  
**2070 SLR/SS 1% PROBABILITY**

# RESILIENCE STRATEGIES

1. The site' will be designed to withstand rises in sea level over the expected lifespan of the building. Overall development has been raised roughly 12' from existing grade.
2. All of the building's critical mechanical equipment is located above the 50 year projected highest SLR scenario.
3. The building's ground level is raised 6' above the 2070 SLR/SS 1% probability elevation of 24'

