

PARCEL H SUSTAINABILITY

Sustainable Design Narrative

Introduction

The Project team, with strong support from the project developer, is pursuing sustainable design and construction for the project, which will include review and evaluation of the requirements of Article 22 of the Cambridge Zoning ordinance relative to the City's Green Building policies and procedures. The City is actively promoting measures to encourage buildings to decrease energy and water use and cost, improve the efficiency and useful life of building systems and infrastructure, and reduce the burdens imposed by buildings on city services, the environment, and public health.

The Project architectural/engineering/construction team includes several LEED Accredited Professionals, including the Sustainability Consultants, Robert G. Andrews, Jr., PE, CEA, LEED AP BD+C, and Timothy Spencer, LEED AP BD+C, and Daniel Whittet, LEED AP BD+C, BEAP, along with several other lead architects, engineers and construction personnel. Mr. Andrews' responsibilities include meeting with the Proponent, Design Team and Construction Manager in a sustainable design charrette early in the Project, to identify the environmental design goals, motivations and issues, discuss the LEED program impact on the design, build consensus and included gaining LEED program buy-in from team members.

A LEED checklist for Northpoint Parcel H is provided at the end of this section to identify sustainability design objectives for this Project, highlights of which are included below. The project building has been registered with USGBC/GBCI to certify under the LEED for Core and Shell v4 program. Several of the site credits can be documented and applied to the building. System design solutions have been developed in an effort to achieve the targeted LEED credits. The final design and construction of the Project will create sustainable buildings to promote the internal building environmental quality for the occupants, enhance the surrounding neighborhood locally, and reduce environmental impacts globally.

LEED for Core and Shell v4 checklist summary:

Integrative Process	1 Point	0 Possible Point
Location and Transportation	11 Points	8 Possible Points
Sustainable Site	5 Points	6 Possible Points
Water Efficiency	6 Points	4 Possible Points
Energy and Atmosphere	11 Points	9 Possible Points
Materials and Resources	7 Points	4 Possible Points
Indoor Environmental Quality	4 Points	3 Possible Points
Innovation and Design Process	6 Points	0 Possible Points
Regional Priority	1 Points	3 Possible Points
Total Points	52 Points Expected	37 Possible Points

Parcel H Path to Net Zero

DIVCO West is committed to developing sites and constructing and operating buildings that apply current sustainability strategies and that are adaptable to future technologies in order to be Net-zero ready. Net zero ready is understood to be a building that has a low site energy consumption and uses no fossil fuels.

Although the Parcel H project will not be a net zero building when first completed, it is currently designed with the goal of dramatically reducing energy consumption by incorporating a high-performance envelope, high-efficiency condensing gas-fired boilers, high-efficiency chillers, low-flow hot water fixtures, LED lighting, and low-e windows. The project team will also perform energy analysis to evaluate the possibility of using advanced energy saving technologies, such as triple-pane windows, chilled beam cooling, and a dedicated outdoor air system utilizing a desiccant energy recovery wheel. In addition, allowance for future technologies has been taken into consideration in the design of the building systems such that later conversions are more easily facilitated.

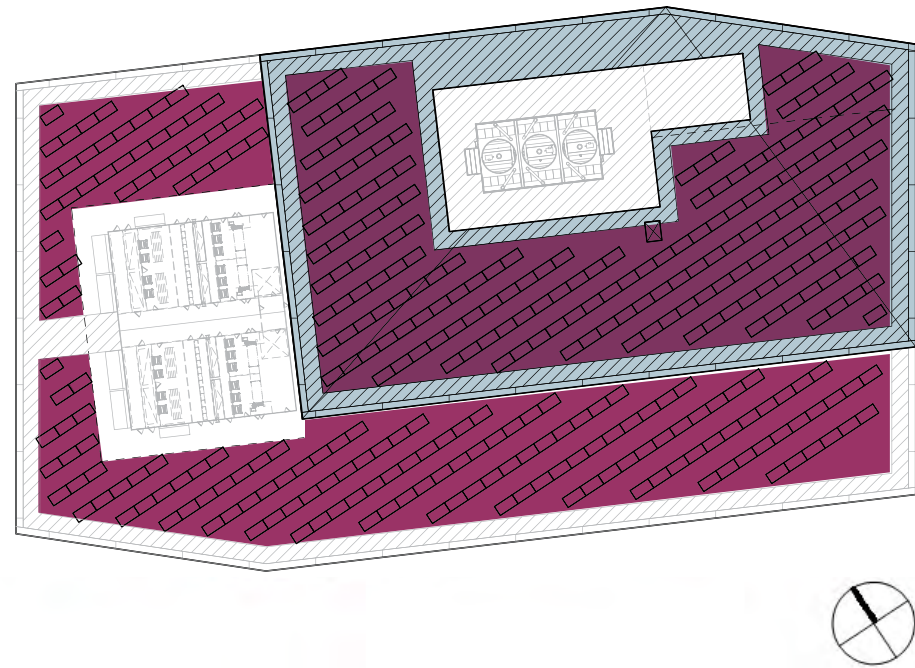
Finally, the current building systems are set up to be upgradable to net zero in the future by making changes to the system at the end of the systems' useful life, over the next 20 to 30 years. A path to achieving net-zero would include removal of the current natural gas burning equipment at the end of its useful life, to be replaced with an all-electric system. This would not require significant distribution changes and thus the costs would be comparable to normal equipment replacement costs. In addition, the building would reevaluate renewable generation technologies, and district utilities potential implementation at that time, which would further the goal of eliminating greenhouse gas emissions.

Solar-Ready Roof

An estimated 14,300 ft² of roof space is available for the future installation of solar photovoltaic panels for renewable energy generation. Based on this, an analysis has been conducted using NREL's PVWatts online tool to evaluate the potential solar energy generating capability of the project roof.

Based on an estimated EUI of 70 to 80 kBtu/ft²/year for similar office buildings in the Boston Cambridge area, and a conditioned square footage of 390,000 ft² at Parcel H, the building is estimated to be capable of producing between 3% and 4% of total energy use with roof-mounted solar panels. See the results below for more detail.

22,800 SF AVAILANLE ROOF SPACE



RESULTS

289,152 kWh/Year*

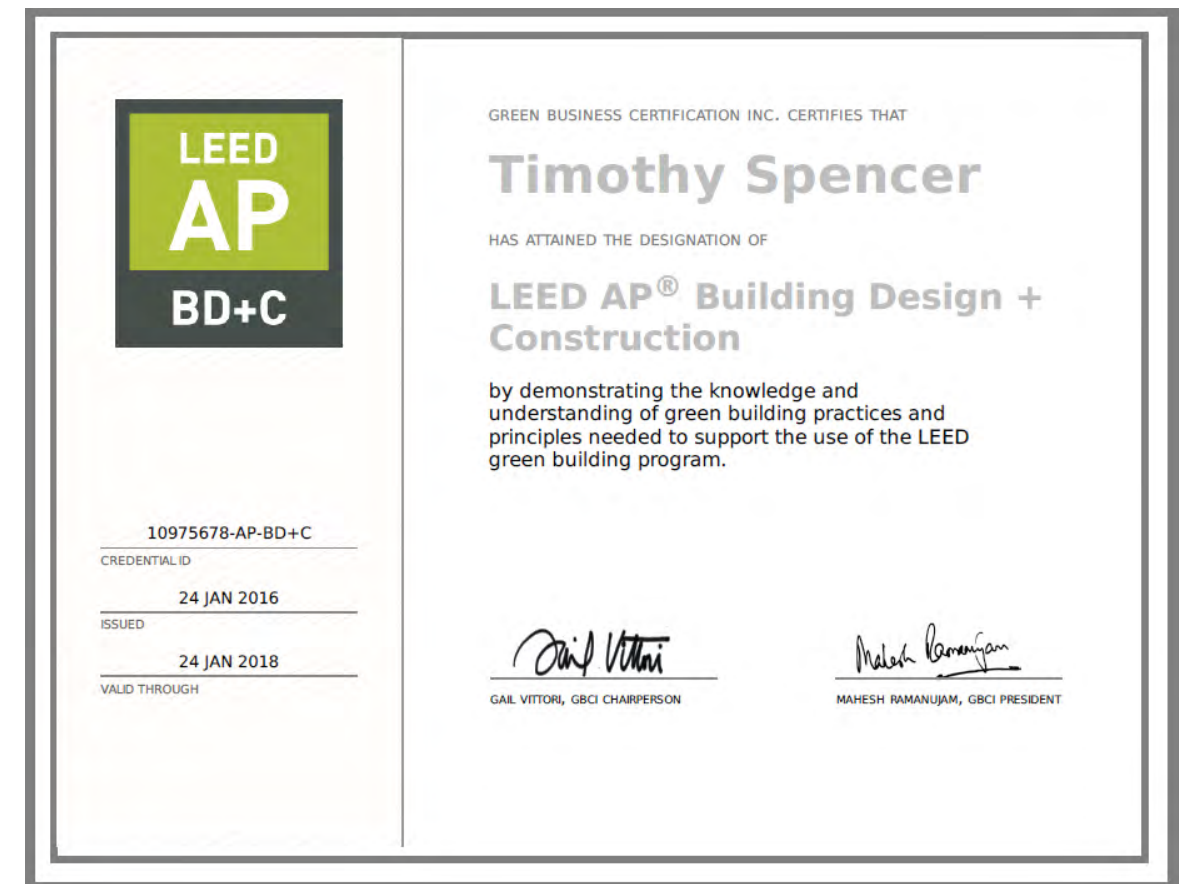
System output may range from 277,528 to 299,677kWh per year near this location.

Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)	Energy Value (\$)
January	1.85	11,912	1,787
February	2.79	16,584	2,488
March	3.79	24,705	3,706
April	4.61	28,810	4,322
May	5.58	34,947	5,242
June	6.03	35,701	5,355
July	6.03	36,683	5,502
August	5.43	33,144	4,972
September	4.25	25,368	3,805
October	3.15	19,745	2,962
November	1.89	11,586	1,738
December	1.58	9,967	1,495
Annual	3.92	289,152	\$ 43,374

Affidavit

As the lead Sustainability Consultant overseeing the planning, design and construction of the Northpoint Parcel H, I, Timothy Spencer, LEED AP BD+C, certify that I am knowledgeable of the project's green building strategies, designs, plans and details and to the best of my knowledge this project has been planned and designed so as to meet the prerequisites and earn the credits necessary to achieve 52 points (minimum for certification is 40 points) using the LEED for Core and Shell v4 Rating System. The referenced project has been designed to meet the Green Building requirements under Article 22 of the Cambridge Zoning Ordinance.

Timothy Spencer
LEED Administrator and Sustainability Consultant
AHA Consulting Engineers, Inc.



The following LEED Prerequisites and Credits are targeted for certification:

Integrative Process

1. Integrative Process (Credit)
Beginning in pre-design and continuing throughout the design phases, the design team will identify and use opportunities to achieve synergies across disciplines and building systems. Opportunities for energy and water savings will be assessed at each stage of the design. The design team will also assess site conditions, massing and orientation of the building and develop the owner's project requirements (OPR) and basis of design (BOD) based on assessments of energy and water saving opportunities.

Location and Transportation

1. Sensitive Land Protection (Credit)
The project is located on a previously developed site.
2. High Priority Site (Credit)
The project team expects to follow option 3 – Brownfield Remediation. The site will be assessed for pollutants and by following phases 1 and 2 of ASTM E1527-05 and measures will be taken for remediation, abatement and removal in accordance with regulations, and makes the project comply with the requirements of this credit. This credit is also a Regional priority credit.
3. Surrounding Density and Diverse Uses (Credit)
The project is a new building on a previously developed site; therefore, it meets the "Previously Developed" requirements. The Avalon Northpoint apartments will satisfy the surrounding density requirement. The project team will identify building sites and buildable land within required radius of the project site, collect information on density, and perform separate residential and non-residential density calculations, if applicable. To fulfill the diverse uses requirements, the development is located within ½ mile of a dense residential area and a number of amenities including:
 - North Point Common - Park
 - Tahaza Hummus Kitchen - Restaurant
 - Boston Convenience Store – Store
 - Little Lingo – Bar
 - Bunker Hill Community College – College
 - Cambridge Preschool of the Arts – Preschool
 - Museum Market – Restaurant
 - Cambridge Used Bicycles – StoreIt is expected that other amenities will be created through nearby development by the time of substantial completion of the project.
4. Access to quality Transit (Credit)
Public transportation access is included in the project. The project is located within ¼ mile of several MBTA bus lines and two (2) subway lines at Lechmere and Community College. The project team will identify transit stops

within ½ mile, classify transit based on vehicle types, and confirm the walkability of the neighborhood. This credit is expected to be achieved.

5. Bicycle Facilities (Credit)
The project will meet the credit requirements by providing short-term bicycle storage for at least 2.5% of all peak visitors, and long-term bicycle storage for at least 30% of all regular building occupants. The project team will identify bicycle network and eligible destinations, select bike-friendly project location, and gather occupant count information. This credit is expected to be achieved.
6. Green Vehicles (Credit)
The project will designate 5% of all parking spaces used by the project as preferred parking for green vehicles. These spaces will be clearly identified and enforced for sole use by green vehicles. Preferred parking spaces will be distributed proportionally among various parking sections (e.g. between short-term and long-term spaces). The project team will determine total vehicle parking capacity, calculate number of preferred parking spaces and alternative-fuel fueling stations, and incorporate preferred parking into design.

Sustainable Sites

4. Construction Activity Pollution Prevention (Prerequisite)
A management plan will enforce measures to protect adjacent areas from pollution from wind and water-borne soil and sedimentation. The civil design team prepared an erosion and sedimentation plan that meets the local codes and the EPA Construction General Permit of the National Pollution Discharge Elimination System (NPDES) program. The construction team will implement the erosion and sedimentation measures and will follow the requirements of stormwater pollution prevention plan during the construction.
5. Environmental Site Assessment (Prerequisite)
The project will conduct a Phase I Environmental Site Assessment as described in ASTM E1527-05 to determine whether environmental contamination exists at the site. If contamination is suspected, the project will conduct a Phase II Environmental Site Assessment as described in ASTM E1903-11. If the site is contaminated, it will be remediated to meet local City of Cambridge and City of Boston standards.
6. Site Assessment (Credit)
The project will complete and document a site survey or assessment that includes topography, hydrology, climate, vegetation, soils, human use, human health effects.
7. Open Space
The project will provide outdoor space greater than or equal to 30% of the total site area (including building footprint). A minimum of 25% of that outdoor space will be vegetated.
7. Rainwater Management (Credits)
The project will manage runoff from the developed site for the 95th percentile of regional or local rainfall events using low-impact development (LID) and green infrastructure. The project team will obtain rainfall data for project location using the methodology in the U.S. Environmental Protection Agency (EPA) Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy

Independence and Security Act to determine the 95th percentile amount. The project team will then calculate runoff volume to be managed on site and design strategies to manage runoff on site. This is also a Regional Priority Credit.

8. Heat Island Reduction (Credit)

The project will meet option 1 by using a white roof membrane over the entire roof surface. The project will meet option 2 by placing 100% of parking area under a green-roof.

9. Tenant Design and Construction Guidelines (Credit)

The proponent and the design team are in the process of developing a Tenant Design and Construction Guidelines for this C&S development. The document explains the sustainable aspects of the Core and Shell building design and construction, and also explains what steps are needed for tenants to achieve LEED CI Certification for their space fit-out design and construction.

LEED-CI is a decision for individual tenants in the building. Tenants are encouraged to have their interior space constructed in an environmentally friendly manner. The rating system is designed to help guide and measure green strategies under the control of the tenants. These strategies can range from the selection of non-toxic paint to Energy Star Computers and office equipment. It is important to understand that the tenant is encouraged to play an active role in the fitting out of their new space.

Water Efficiency

1. Outdoor Water Use Reduction (Prerequisite)

The project will reduce the project's landscape water requirement by at least 30% from the calculated baseline for the site's peak watering month. Reductions will be achieved through plant species selection and irrigation system efficiency, as calculated by the Environmental Protection Agency (EPA) WaterSense Water Budget Tool.

2. Indoor Water Use Reduction (Prerequisite)

Low Flush (1.28 GPF) toilets, 0.125 GPF Urinals, 0.35 GPM Metering lavatory faucets, 1.5 GPM tenant kitchenette faucets, and 1.5 GPM showerheads are specified and are calculated to achieve a reduction in water usage of at least 39% over the baseline.

3. Building-Level Water Metering (Prerequisite)

The project will install permanent water meters that measure the total potable water use for the building and associated grounds. Meter data must be compiled into monthly summaries.

4. Outdoor Water Use Reduction (Credit)

The project will reduce the project's landscape water requirement by at least 50% from the calculated baseline for the site's peak watering month. Reductions will be achieved through plant species selection and irrigation system efficiency, as calculated by the Environmental Protection Agency (EPA) WaterSense Water Budget Tool.

5. Indoor Water Use Reduction (Credit)

Low Flush (1.28 GPF) toilets, 0.125 GPF Urinals, 0.35 GPM Metering lavatory faucets, 1.5 GPM tenant kitchenette faucets, and 1.5 GPM showerheads are specified and are calculated to achieve a reduction in water usage of at least 39% over the baseline. This is also a Regional Priority Credit.

6. Cooling Tower Water Use (Credit)

The project will conduct a one-time potable water analysis, measuring Ca (as CaCO₃), total alkalinity, SiO₂, Cl⁻, and Conductivity. The project will achieve a minimum 10 cycles by increasing the level of treatment in condenser or make-up water, and will study the potential for using a minimum 20% recycled nonpotable water through rainwater capture and reuse.

7. Water Metering (Credit)

The project will install permanent water meters to monitor water use for at least two water subsystems, including irrigation and cooling tower water use. The project team will prepare a narrative describing the subsystems metered, including the location and model of each installed submeter.

Energy and Atmosphere

1. Fundamental Commissioning (Prerequisite 1)

Commissioning of the Mechanical and Electric building systems is under contract and will be performed.

2. Minimum Energy Performance (Prerequisite 2)

The energy code utilized for the Project will be the Massachusetts Energy Stretch Code at a minimum, and ASHRAE Standard 90.1-2010 for LEED purposes. The energy model is developed by the energy consultants at AHA Consulting Engineers.

Energy Conservation measures will include: Low-E glazing, reduced lighting power density in the core areas, high-efficiency water-cooled centrifugal chillers with VFD, variable volume (VFD) based condenser and chilled water pumping, cooling towers with variable volume fans instead of two-speed fans, high-efficiency gas-fired condensing boilers supplying low temperature hot water to AHUs and reheat coils, variable volume hot water pumping, and reduced-flow hot water fixtures (lavatory, and shower) to reduce hot water demand. Other energy conservation measures such as triple pane windows, chilled beams, and enthalpy recovery wheels may also be employed.

3. Building-Level Energy Metering (Prerequisite)

All energy provided to the building will be supplied by utility meters. Energy consumption will be tracked and shared with the USGBC for a five-year period.

4. Refrigerant Management (Prerequisite)

No CFC-based refrigerants will be utilized for the Project.

5. Enhanced Commissioning (Credit)

An independent commissioning authority will be contracted to perform on-board design reviews and re-commission the building systems after occupancy in accordance with ASHRAE Guideline 0-2005 and ASHRAE Guideline 1.1-2007 for HVAC&R systems. This credit is expected to be achieved.

6. **Optimize Energy Performance (Credit)**
This development is planning to achieve at least 3 points under the Optimize Energy Performance credit. The Energy modeling team is performing the energy analysis in accordance with the ASHRAE 90.1-2010, Appendix G, protocols using eQuest v3.64 software. This is also a Regional Priority Credit.
7. **Advanced Energy Metering (Credit)**
The project will install meters for future tenant spaces so that tenants will be capable of independently metering energy consumption (electricity, chilled water, etc.) for all systems dedicated to their space. A sufficient number of meters will be provided to capture total tenant energy use with a minimum of one meter per energy source per floor.
8. **Demand Response (Credit)**
The project team will investigate what demand response programs are available and examine the feasibility of enrolling in a demand response program.
9. **Enhanced Refrigerant Management (Credit)**
The project team will conduct a refrigerant impact calculation to examine the global warming potential and ozone depletion potential of refrigerants used within the project scope. The refrigeration devices and cooling equipment installed within this building will have total impact per ton of less than 100.
10. **Green Power (Credit 6)**
The project will investigate the cost of purchasing renewable energy credits in the amount of at least 50% of the electricity used in the building, based on the results of the energy model, and may purchase 100% to achieve an innovation point for Exemplary Performance.

Materials and Resources

1. **Storage and Collection of Recyclables (Prerequisite)**
There will be a dedicated recyclable storage within the building. This area will be easily accessible to local recycling handlers for the collection of paper, corrugated cardboard, glass, plastics and metals. This will also include space for the storage and disposal of two of the following: batteries, mercury-containing lamps, and electronic waste.
2. **Construction and Demolition Waste Management Planning (Prerequisite)**
The project team will develop and implement a construction and demolition waste management plan establishing waste diversion goals and identify at least five materials targeted for diversion. The plan will specify materials that will be separated onsite, as well as comingled waste. A final report detailing all major waste streams generated, including disposal and diversion rates, will be provided.
3. **Building Life-Cycle Impact Reduction (Credit)**
The project will examine the feasibility of conducting a life-cycle assessment of the project's structure and enclosure that demonstrates a minimum of 10% reduction compared with a baseline building, in at least three of the six impact categories listed below, one of which must be global warming potential:

- global warming potential (greenhouse gases), in CO₂e;
- depletion of the stratospheric ozone layer, in kg CFC-11;
- acidification of land and water sources, in moles H⁺ or kg SO₂;
- eutrophication, in kg nitrogen or kg phosphate;
- formation of tropospheric ozone, in kg NO_x or kg ethene; and
- depletion of nonrenewable energy resources, in MJ.

4. **Building Product Disclosure and Optimization— Environmental Product Declarations (Credit)**
The project will specify at least 20 different products sourced from at least 5 manufacturers that either have industry-wide EPD's available or products that comply with 3rd party certifications for global warming potential for 50% by cost for the project.
5. **Building Product Disclosure and Optimization—Sourcing of Raw Materials (Credit)**
The project will use at least 20 different permanently installed products from at least five different manufacturers that have publicly released a report from their raw material suppliers which include raw material supplier extraction locations, a commitment to long-term ecologically responsible land use, a commitment to reducing environmental harms from extraction and/or manufacturing processes, and a commitment to meeting applicable standards or programs voluntarily that address responsible sourcing criteria.
6. **Building Product Disclosure and Optimization— Material Ingredients (Credit)**
The project will use at least 20 different permanently installed products from at least five different manufacturers that have either a manufacturer inventory, a health product declaration, cradle to cradle certification, or a USGC approved program.
7. **Construction and Demolition Waste Management (Credit)**
The project team will develop and implement a construction and demolition waste management plan to maximize diversion and reuse of material and identify at least five materials targeted for diversion. The project will divert at least 75% of the total construction and demolition material; diverted materials must include at least four material streams.

Indoor Environmental Quality

1. **Minimum IAQ Performance (Prerequisite)**
The ventilation code utilized for the Project will be ASHRAE Standard 62.1-2010, as required by the present Massachusetts Building Code. The mechanical systems are designed to provide superior ventilation throughout the building; therefore, the project will meet the minimum requirements of ASHRAE 62.01-2010, Minimum Ventilation Rate Procedure.
2. **Environmental Tobacco Smoke Control (Prerequisite)**
The entire building has a no-smoking policy to comply with the Massachusetts Workplace Smoking law and is a Smoke-Free building; smoking is prohibited anywhere in the building, and within 25' of main entries, operable windows and air intakes.
3. **Enhanced Indoor Air Quality Strategies (Credit)**

Permanent entryway systems will be provided at least 10 feet long in the primary direction of travel at all regularly used exterior entrances. Spaces where hazardous gases or chemicals may be present will be exhausted at a minimum of 0.50 cfm per square foot, to create negative pressure with respect to adjacent spaces when the doors to the room are closed. For each of these spaces, provide self-closing doors and deck-to-deck partitions or a hard-lid ceiling. All ventilation systems will be provided with MERV 13 filters or higher.

Carbon dioxide will be monitored in all densely occupied spaces. CO2 monitors will have an audible or visual indicator or alert the building automation system if the sensed CO2 concentration exceeds the setpoint by more than 10%. CO2 setpoints will be calculated using methods in ASHRAE 62.1–2010, Appendix C.

4. Low-Emitting Materials (Credit)

All categories of materials will be in compliance with emissions and contents standards, and will be specified with low-VOC content limits as prescribed by the respective applicable standards.

5. Construction IAQ Management Plan (Credit)

An Indoor Air Quality Management plans will be implemented during the construction phase in accordance with the SMACNA Indoor Air Quality for Buildings under Construction Guideline. This document defines procedures for maintaining good indoor air quality inside the building during construction and also addresses construction practices to allow the best possible indoor environment after occupancy. These practices include cleaning during construction, interrupting paths of odor and dust travel within the building, segregating odor and dust producing activities from absorbent materials, and scheduling similar odor or dust producing activities to occur at the same time. This will be done in accordance with Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2nd edition, 2007, ANSI/SMACNA 008–2008, Chapter 3.

6. Daylight (Credit)

The project will provide manual or automatic glare-control devices for all regularly occupied spaces. At least 75% of the regularly occupied spaces will achieve illuminance levels between 300 lux and 3,000 lux.

7. Quality Views (Credit)

The project team will study the feasibility of achieving a direct line of sight to the outdoors via vision glazing for 75% of all regularly occupied floor area. View glazing in the contributing area will provide a clear image of the exterior, not obstructed by frits, fibers, patterned glazing, or added tints that distort color balance.

Additionally, 75% of all regularly occupied floor area must have at least two of the following four kinds of views:

- multiple lines of sight to vision glazing in different directions at least 90 degrees apart;
- views that include at least two of the following: (1) flora, fauna, or sky; (2) movement; and (3) objects at least 25 feet from the exterior of the glazing;
- unobstructed views located within the distance of three times the head height of the vision glazing; and
- views with a view factor of 3 or greater, as defined in “Windows and Offices; A Study of Office Worker Performance and the Indoor Environment.”

Innovation and Design Process

Only two Innovation and Design Credits may be achieved by the Exemplary Performance path. These exemplary performance credits are listed as Maybe on the scorecard in case not all are achieved. The project team will identify innovative strategies, develop innovation point strategy, confirm credit eligibility, and develop documentation for each credit.

Innovation and Design Process

The project team expects to achieve Regional Priority credits for High Priority Site, Rainwater Management, Indoor Water Use Reduction, and Optimize Energy Performance, for a total of four (4) points.

END OF SUSTAINABLE DESIGN NARRATIVE

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LEED for Core and Shell v4

10 18 2017

Title: Northpoint Parcel H
 Project Address: Boston/Cambridge
 Owner: Divco

Goal: LEED Silver
 SF: 15 Stories 360,000 SF, multi-level entrance 5,300 SF w 2,000 SF retail space
 Parking: 5 levels of parking above and below ground, 452 spaces
 FTE: 3000 FTE

Phase	Project Information	Primary Responsibility	Secondary Responsibility	Notes	Status?
Yes	D PH1 Minimum Program Requirements	Required			
Yes	D PH2 Project Summary	Required			
Yes	D PH3 Occupant and Usage	Required			
Yes	D PH4 Schedule and Overview	Required			

Yes	?	No	Phase	Location and Transportation	20 Points	Primary Responsibility	Secondary Responsibility	Notes	Status?
1			D	Credit 1 Integrative Process	1	AHA	NBBJ	NBBJ, Divco interested in this point	

Yes	?	No	Phase	Location and Transportation	20 Points	Primary Responsibility	Secondary Responsibility	Notes	Status?
	11	8	1	D	Credit 1 LEED for Neighborhood Dev. location	1 to 20			
	2			D	Credit 2 Sensitive land protection	2	Civil		floodplain? Parcel was previously developed
	3			D	Credit 3 High Priority Site	3	Divco	AHA	Get this info from parcel J/k
	4	2		D	Credit 4 Surrounding Density & Diverse Uses	6	AHA		Existing uses will pop up by the time we go for this credit
	3	3		D	Credit 5 Access to Quality Transit	6	AHA		Two train stops, bus stop anticipated
	1			D	Credit 6 Bicycle Facilities	1	NBBJ		planning for bike/shower facilities
	1			D	Credit 7 Reduced Parking Footprint	1	NBBJ		Not possible
	1			D	Credit 8 Green Vehicles	1	NBBJ		yes

Yes	?	No	Phase	Sustainable Sites	11 Points	Primary Responsibility	Secondary Responsibility	Notes	Status?
	5	6	0	D	Prereq 1 Construction Activity Pollution Prevention	Required	Civil	CM	Copy of erosion plan and pictures
	1			D	Credit 1 Site Assessment	1	Civil		Find out cambridge site assessment requirements
	2			D	Credit 2 Site Development-Protect or Restore habitat	2	Civil		
	1			D	Credit 3 Open Space	1	Civil		
	3			D	Credit 4 Rainwater management	3	Civil		Likely, meet w NBBJ to plan options early
	2			D	Credit 5 Heat Island reduction	2	NBBJ		white roof is standard, per NBBJ
	1			D	Credit 6 Light Pollution Reduction	1	Lighting Designer	AHA	Unlikely
	1			D	Credit 7 Tenant Design and Construction Guidelines	1	AHA/Divco	NBBJ	Publish for tenants an illustrated document with sustainability recommendations

Yes	?	No	Phase	Water Efficiency	11 Points	Primary Responsibility	Secondary Responsibility	Notes	Status?
	6	4	1	D	Prereq 1	Required	Civil	CM	Copy of erosion plan and pictures

Yes			D	Prereq 1	Outdoor Water Use Reduction: Reduce by 20%	Required	Landscaping		
Yes			D	Prereq 2	Indoor Water Use Reduction: Reduce by 20%	Required	AHA		
Yes			D	Prereq 3	Building-level Water metering	Required	AHA		
1	1		D	Credit 1	Outdoor Water Use Reduction	2	Landscaping		50% Likely
3	2	1	D	Credit 2	Indoor Water Use Reduction	6	AHA		
1	1		D	Credit 3	Cooling Tower Water Use	2	AHA		20% very high
1			D	Credit 4	Water Metering	1	AHA		

Yes	?	No	Phase	Energy & Atmosphere	33 Points	Primary Responsibility	Secondary Responsibility	Notes	Status?
	11	9	13	C	Prereq 1 Fundamental Commissioning and Verification	Required	CxA		
				D	Prereq 2 Minimum Energy Performance	Required	AHA		
				D	Prereq 3 Building Level Energy Metering	Required	AHA		
				D	Prereq 4 Fundamental Refrigerant Management	Required	AHA		
	4	2		D	Credit 1 Enhanced Commissioning	6	CxA		Envelope commissioning needed for all 6 points
	6	3	9	D	Credit 2 Optimize Energy Performance	up to 18	AHA		Triple glazed windows possible, chilled beams anticipated, energy recovery
	1			D	Credit 3 Advanced Energy Metering	1	AHA		Would require smart meters for tenant spaces
	1			D	Credit 4 Demand Response	2	AHA		
	1			D	Credit 5 Renewable Energy Production	3	AHA		Building already going to be solar ready, energy model will spell out savings and payback
	1			D	Credit 6 Enhanced Refrigerant Management	1	AHA		Do calculation early
	2			C	Credit 7 Green Power and Carbon Offsets	2	Divco	AHA	Use for backup points if needed

Yes	?	No	Phase	Materials & Resources	14 Points	Primary Responsibility	Secondary Responsibility	Notes	Status?
	7	4	3	D	Prereq 1 Storage & Collection of Recyclables	Required	NBBJ		
				C	Prereq 2 Const and Demo Waste Mngmt Planning	Required	CM		No demo
	3	3		C	Credit 2 Building lifecycle Impact Reduction	up to 6	NBBJ		Whole building life cycle assessment will get 3 points
	2			C	Credit 3 Building Product Disclosure and Optimization: Env. Prod. Declarations	2	CM		Ensure specs have EPD products
	1			C	Credit 4 Building Product Disclosure and Optimization: Source of Raw Materials	2	CM		
	2			C	Credit 5 Building Product Disclosure and Optimization: Material Ingredients	2	CM		
	2			C	Credit 6 Construction Waste Management	2	CM		Waste must be sorted on site to be counted, multiple dumpsters will be necessary

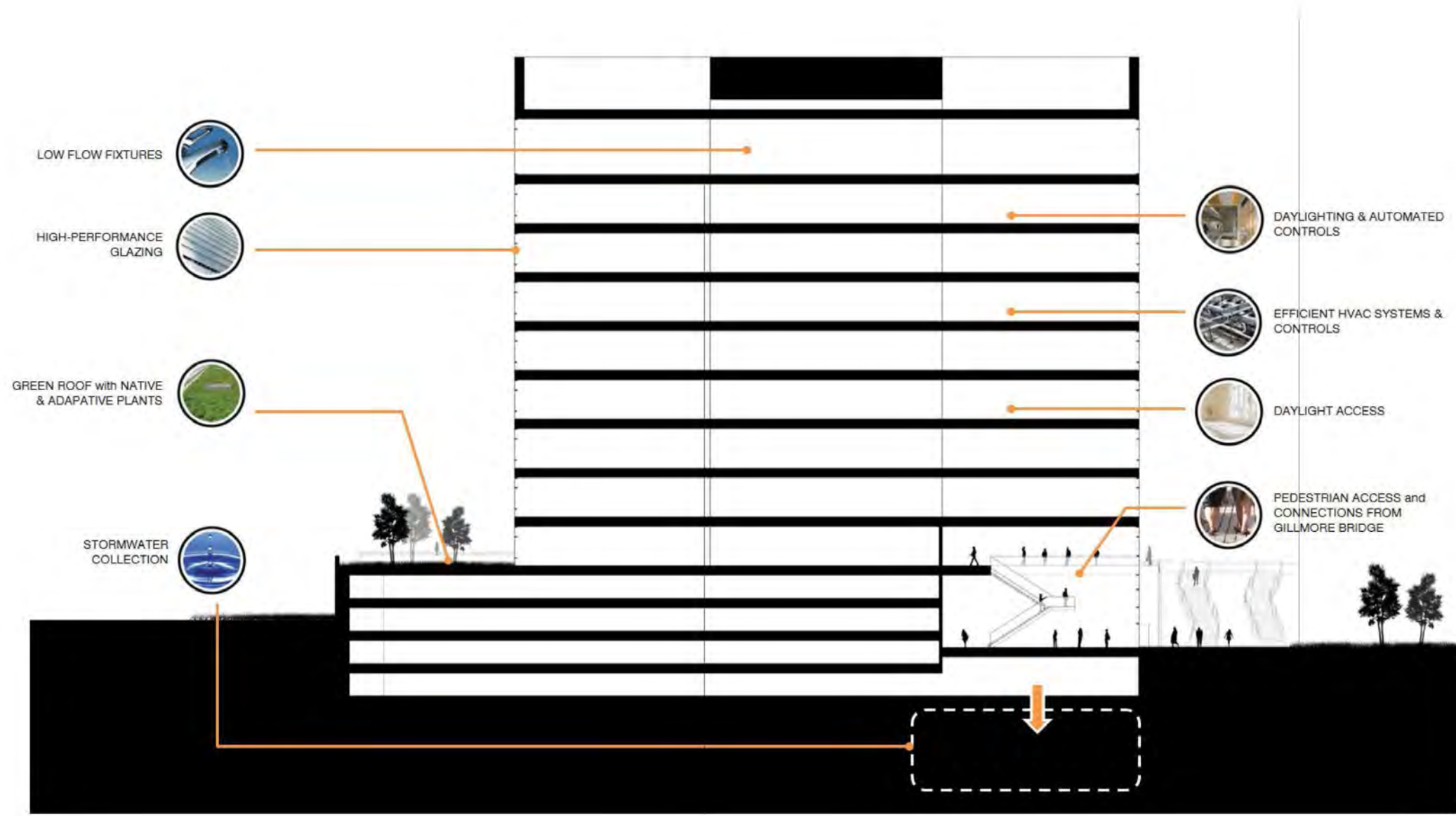
Yes	?	No	Phase	Indoor Environmental Quality	10 Points	Primary Responsibility	Secondary Responsibility	Notes	Status?
	4	3	3	D	Prereq 1 Minimum IAQ Performance	Required	AHA		
				D	Prereq 2 Environmental Tobacco Smoke (ETS) Control	Required	Divco	NBBJ	
	1	1		D	Credit 1 Enhanced Indoor Air Strategies	2	AHA		
	2	1		D	Credit 2 Low-Emitting Materials	3	NBBJ	CM	
	1			C	Credit 3 Construction IAQ Management Plan	1	CM		
	1			D	Credit 7 Daylight	3	NBBJ		Large floorplan, might not be possible
	1			D	Credit 8 Quality Views	1	NBBJ		

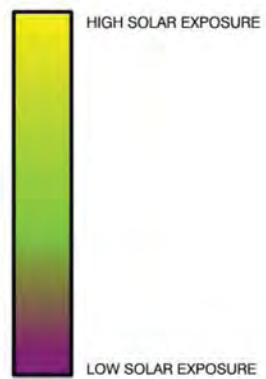
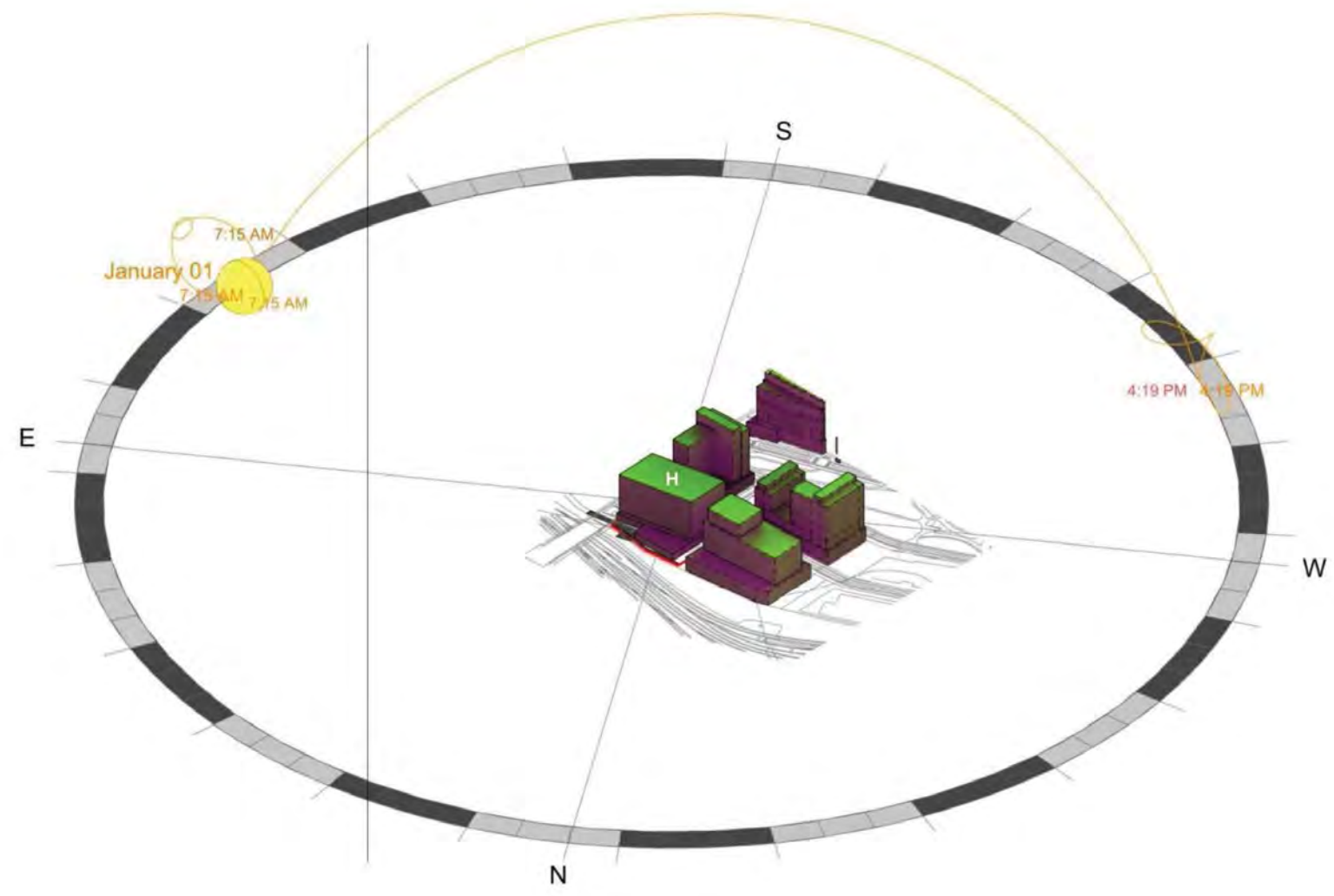
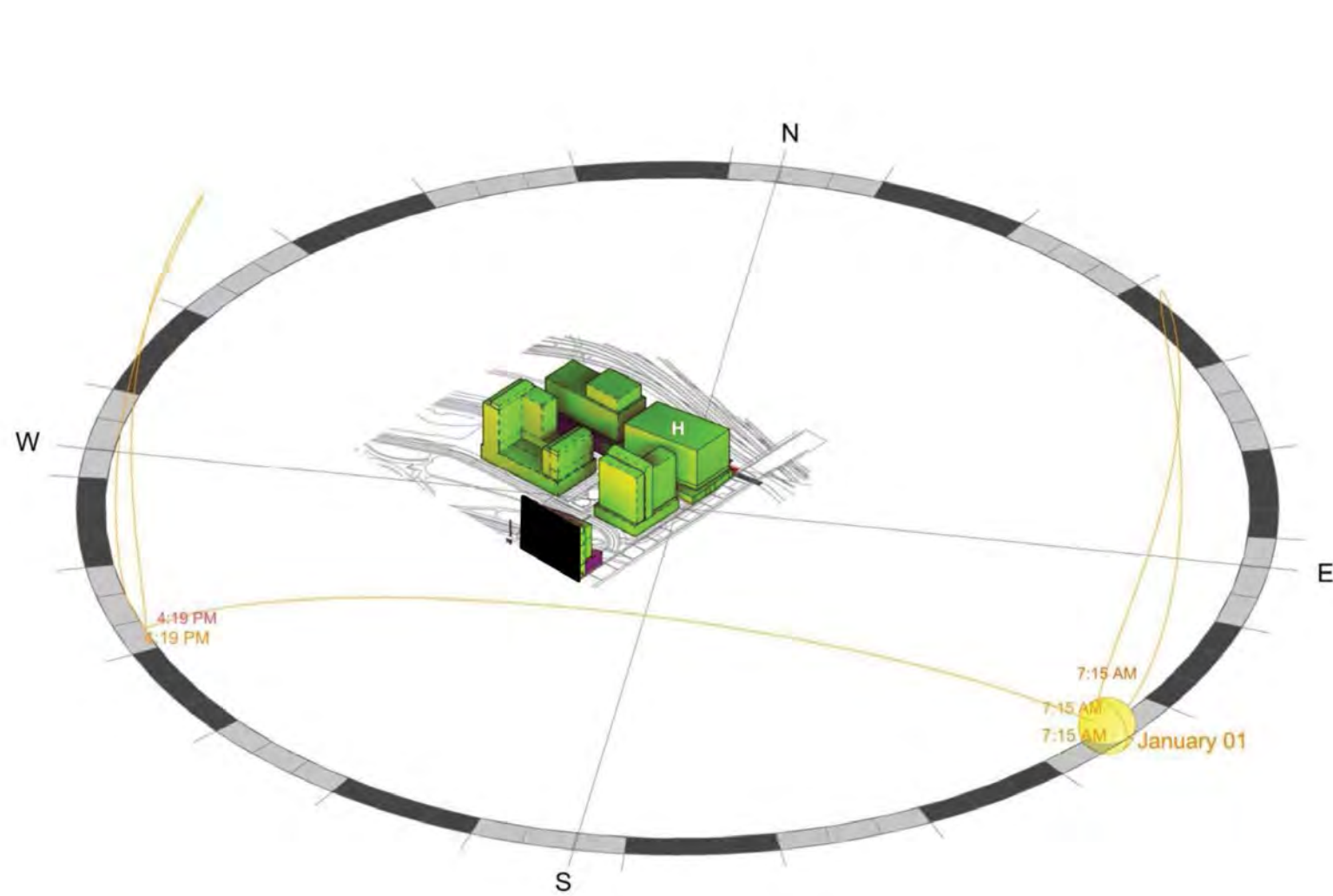
Yes	?	No	Phase	Innovation	6 Points	Primary Responsibility	Secondary Responsibility	Notes	Status?
	6	0	0	D or C	Credit 1 Innovation in Design: Green Housekeeping	1			
	1			D or C	Credit 2 Innovation in Design: Green Education	1			
	1			C	Credit 3 Innovation in Design: Exceed transit	1			
	1			D or C	Credit 4 Innovation in Design: TBD	1			
	1			D or C	Credit 5 Innovation in Design: TBD	1			
	1			C	Credit 6 LEED™ Accredited Professional	1			

Yes	?	No	Phase	Regional Priority	4 Points	Primary Responsibility	Secondary Responsibility	Notes	Status?
	1	3	0	D	Credit 1.1 Regionally Defined Credit Achieved: Renewable energy production, Optimize energy performance	1			exceed 5% renewable energy, exceed 17% optimized energy
	1			D or C	Credit 1.2 Regionally Defined Credit Achieved: High Priority site	1			Brownfield remediation?
	1			C	Credit 1.3 Regionally Defined Credit Achieved: rainwater management	1			98th percentile of regional or local rainfall events using low-impact development (LID) and green infrastructure.
	1			D	Credit 1.4 Regionally Defined Credit Achieved: indoor water use reduction	1			exceed 40% indoor water use reduction

Yes	?	No	Project Totals (Pre-Certification estimates)	110 Points	110	Well Enabled building, WiredScore, Solar Ready, narrative to prove almost net zero, want an energy model, check article 22 for applicability
52	37	21				

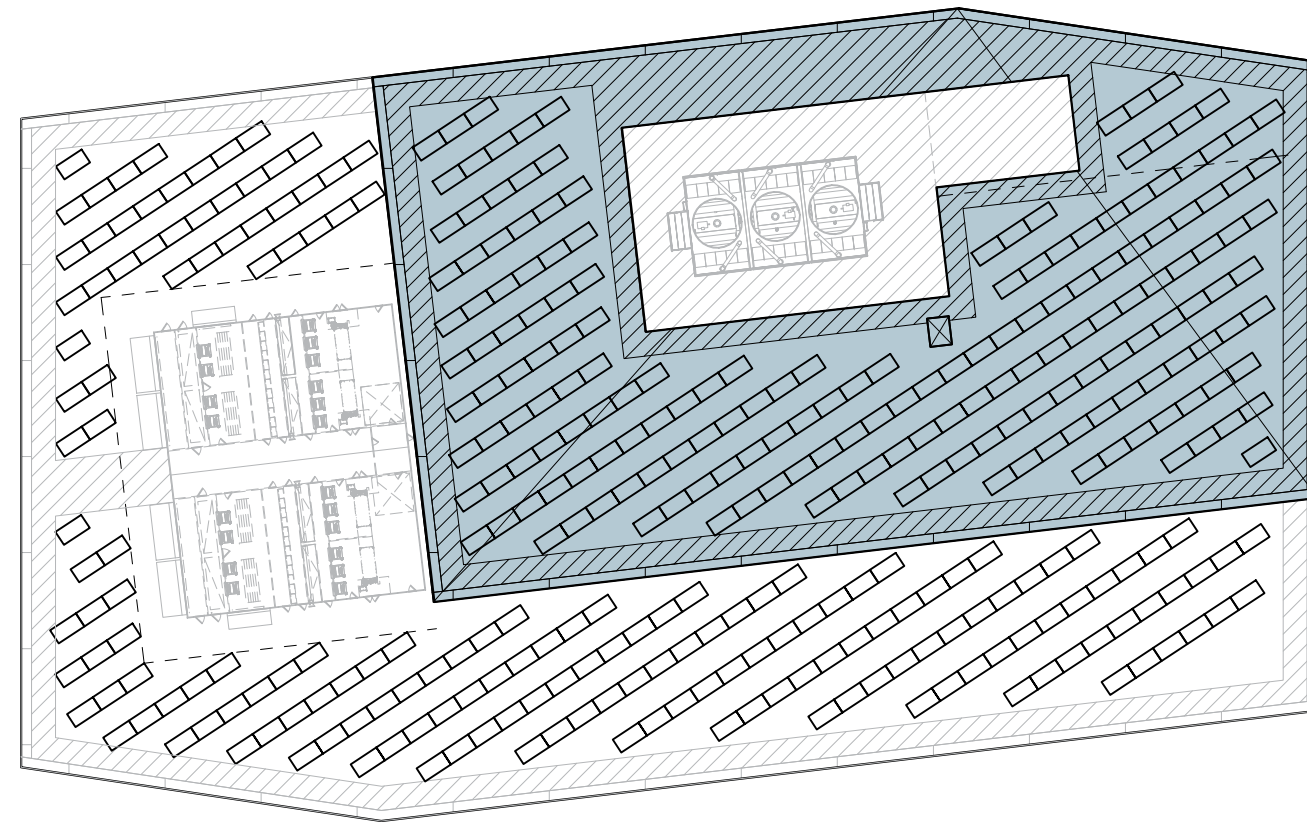
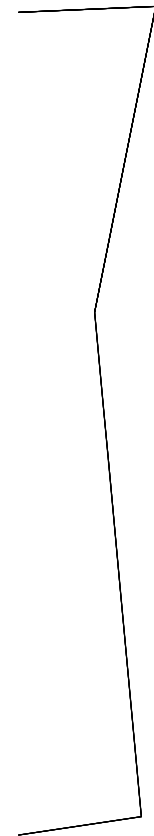
Certified: 40-49 points
 Silver: 50-59 points
 Gold: 60-79 points
 Platinum: 80+ points



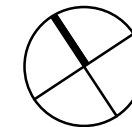


TOTAL FLOOR G.F.A. : 0 sf
 TOTAL BUILDING G.F.A. : 347,600 sf

- PARKING
 - MECHANICAL / CORE
 - BICYCLE STORAGE
 - OFFICE
 - ROOF
 - EGRESS STAIR
 - PENTHOUSE MECHANICAL ROOMS
 - SHAFT / ELEVATOR
 - SERVICE / BACK of HOUSE
 - MAIN BUILDING LOBBY
 - GARAGE LOBBY
 - FSAE LOBBY
 - TOILET ROOMS
- PROPERTY LINE



NEW SOLAR PANEL COUNT : 353



9 AM

12 PM

3 PM

SPRING & FALL EQUINOX



SUMMER SOLSTICE

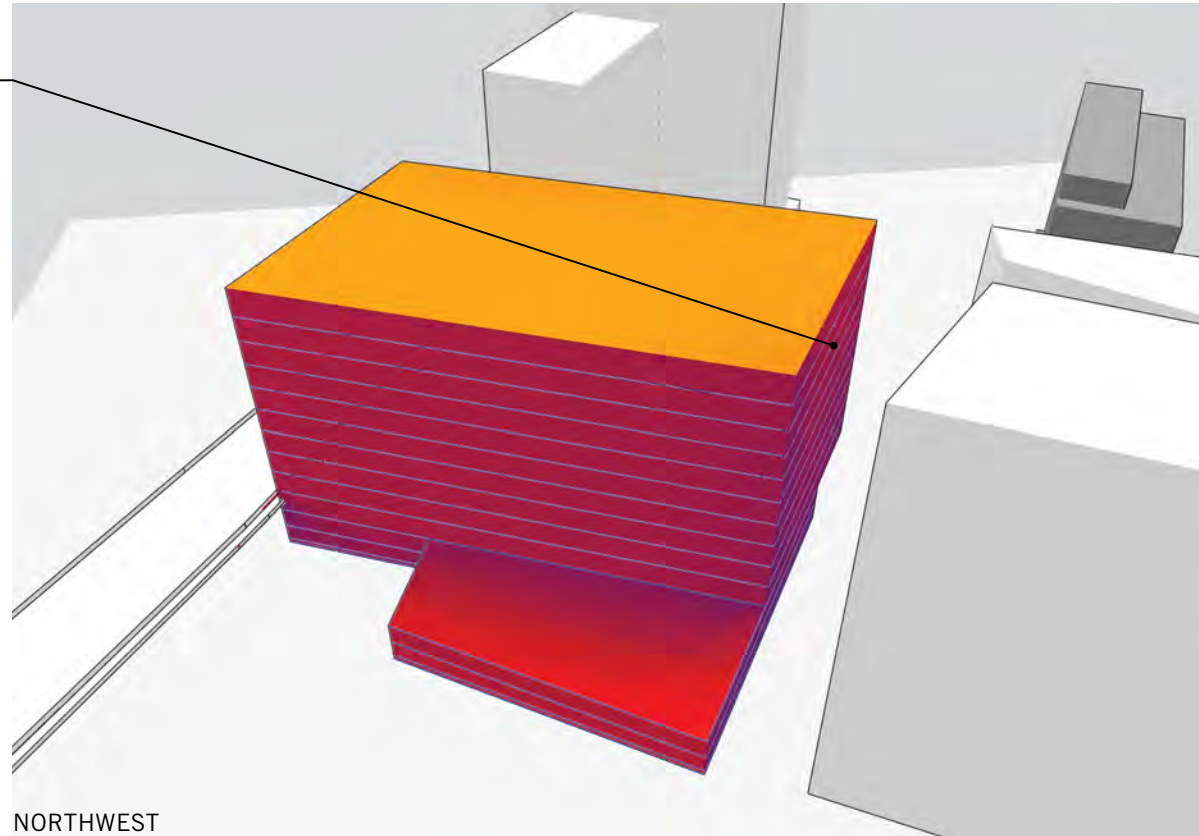


WINTER SOLSTICE



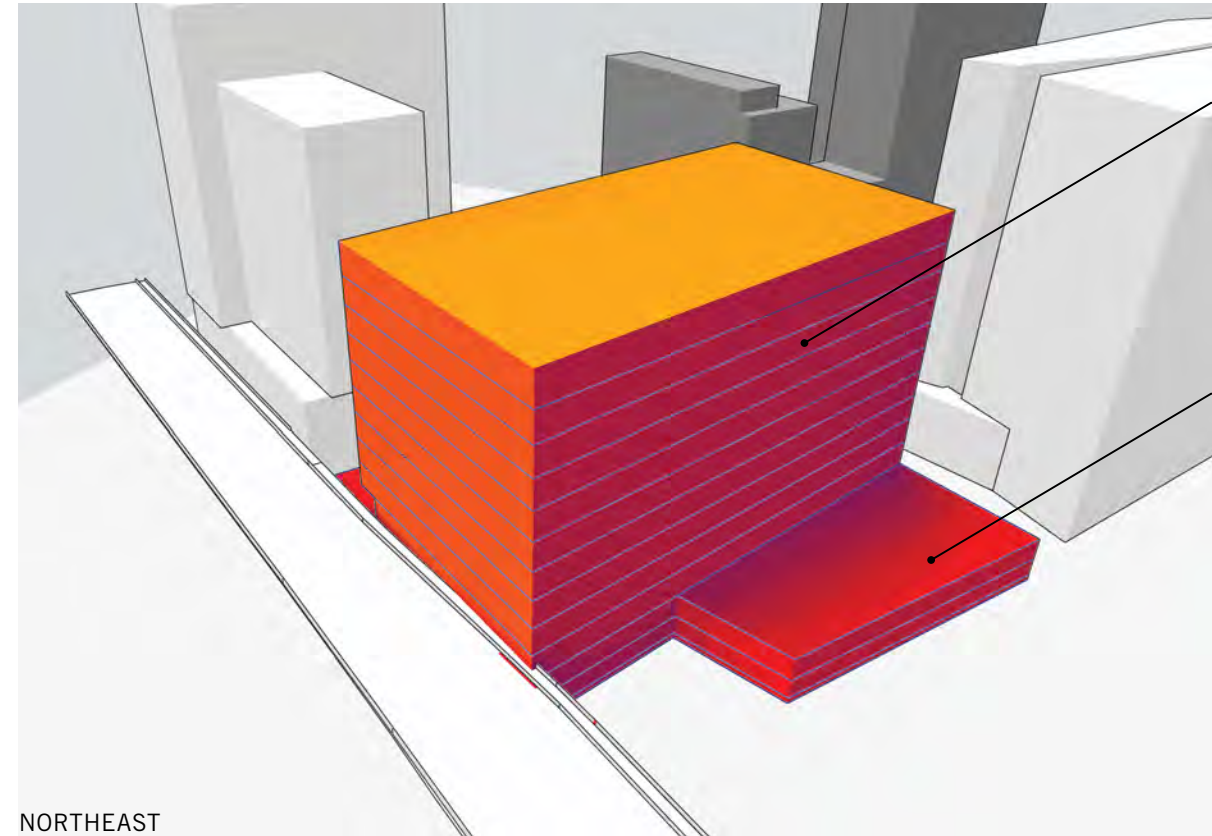
SHADOW STUDY

Western facade much cooler due to shading from adjacent buildings



NORTHWEST

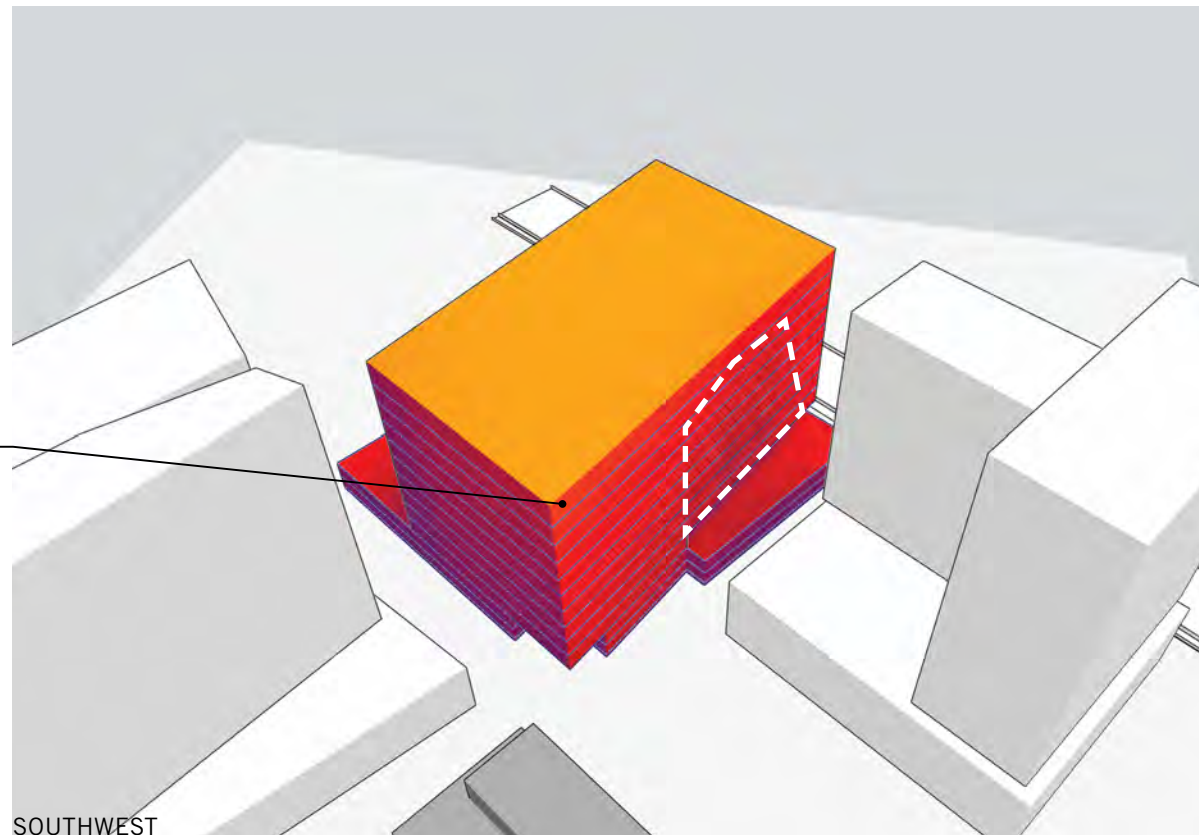
Northern facade much cooler than other facades



NORTHEAST

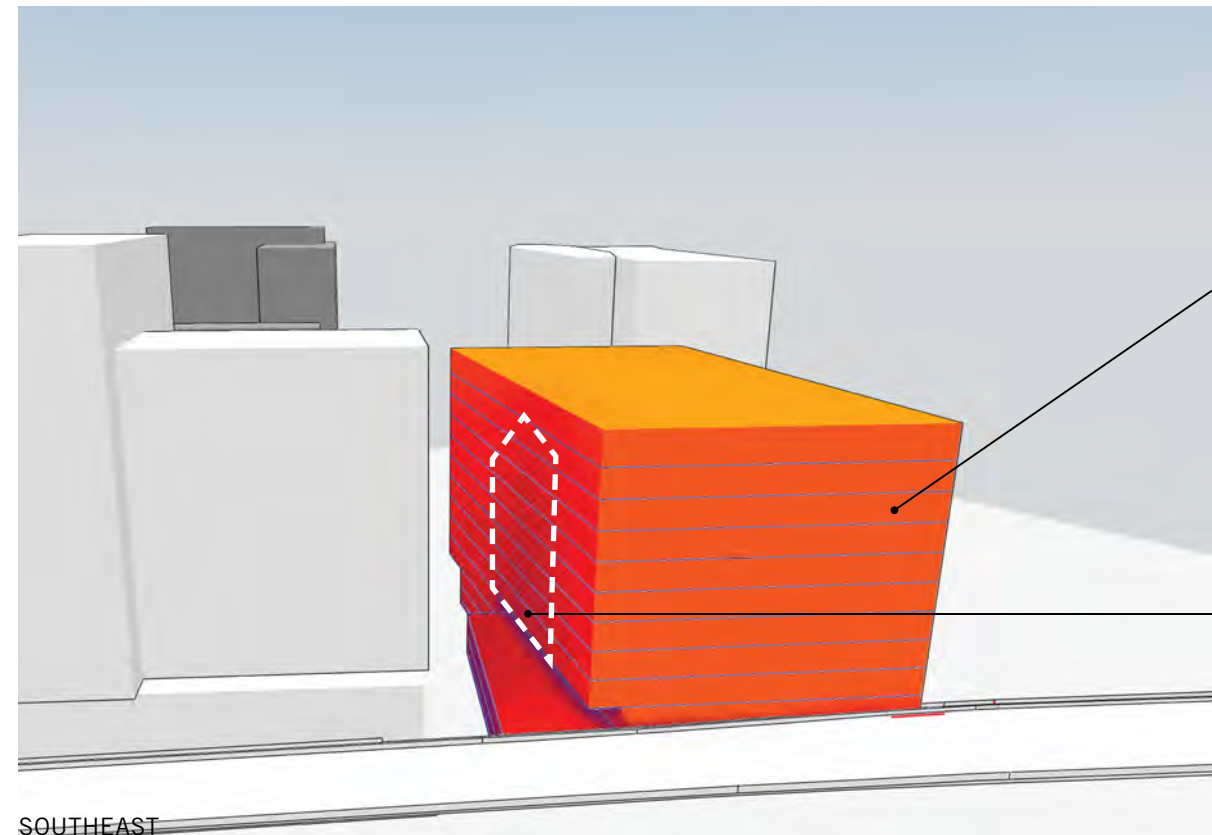
Although on the north, the terrace receives a good amount of sunlight throughout the year

Southwestern top corner is one of the warmest portions of the building



SOUTHWEST

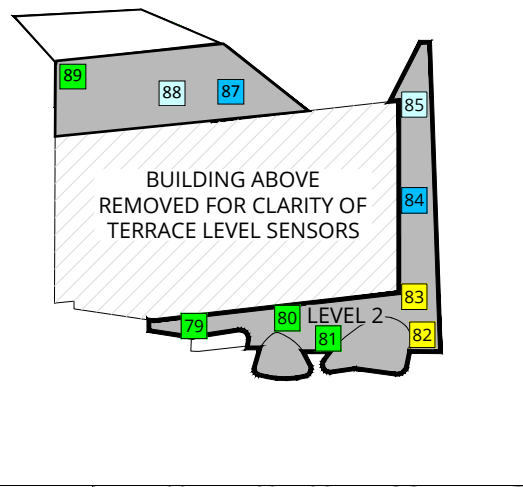
Eastern facade is completely unprotected and receives the most direct sunlight throughout the year



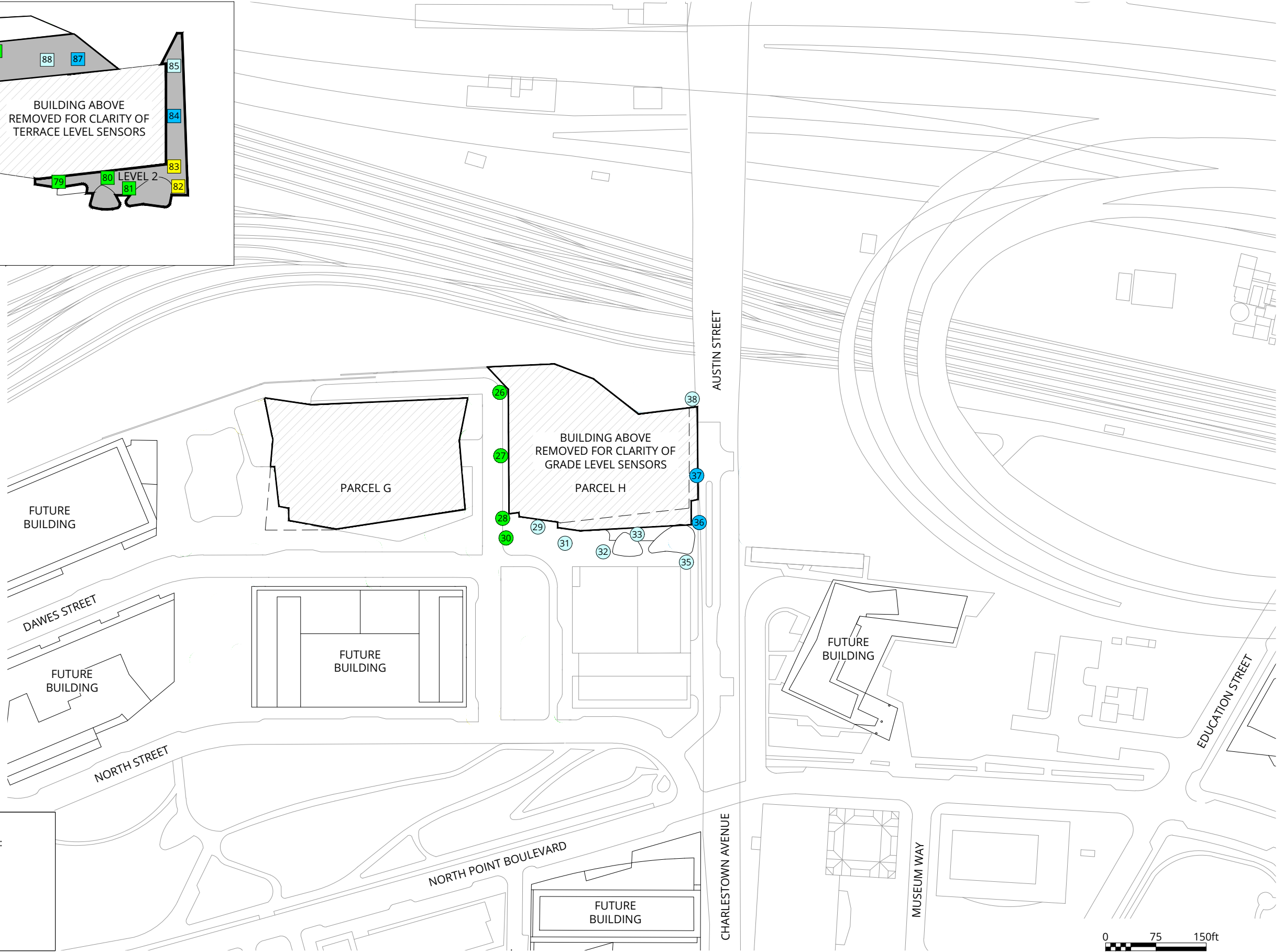
SOUTHEAST

20 Twenty provides some shade during the year on the southern facade





Plaza Levels
Approx Scale: 1"=150'



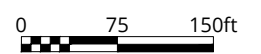
LEGEND:

COMFORT CATEGORIES:

- Sitting
- Standing
- Strolling
- Walking
- Uncomfortable

SENSOR LOCATION:

- Grade Level
- Podium Level





33 Moulton Street
Cambridge MA 02138
617 499 8000
acentech.com



October 15, 2017

Mr. Jorge A Gomez
NBBJ
One Beacon Street, Suite 5200
Boston, MA 02108

Subject: Northpoint Site – Parcel H,
Acoustical Report and Noise Mitigation Narrative
Acentech Project No. 629643

Dear Jorge:

As you requested, we have assessed exterior noise emissions and control for the design of the Northpoint Parcel H project as this impacts the nearby community. In particular, we have assessed conditions for the building that is planned to be just (nominally) south of the subject building, which is the most critical neighboring condition. This critical receiver building is residential in use, so noise from the subject building needs to be controlled to be no more than 50 dBA at nighttime hours and no more than 60 dBA during daytime hours for this receiver. If acceptable noise conditions are achieved for this receiver, acceptable noise conditions will be achieved for all other nearby community receiver locations. There are three primary source groups of concern from the Parcel H building relative to noise emission to the community – 1. the outside air intakes and reliefs for the rooftop air handling units that serve the building, 2. the emergency generator at the roof, and 3. the cooling towers at the roof.

Cooling towers

The cooling towers are located in a well at the roof level that is carved out of other penthouse mechanical space. This roof well is on the far side of the penthouse relative to the critical receiver property. The installation condition in the mechanical well also creates a degree of sound barrier effect that helps block sound propagation to the critical neighbor. The towers are provided with low noise fans to minimize noise emissions. The cooling towers will be specified to have a sound power level no greater than 92 dBA for the entire 3 - cell tower configuration. This noise emission level is expected to be consistent with achieving a sound level no greater than 50 dBA at the adjacent critical receiver building together with the noise emissions from other building mechanical sources. Note that the above noise assessment is for the tower operating at peak capacity and full speed on the fans. With the tower fans operating on their VFD controls, noise emissions to the nearby community will be substantially lower at off-peak times since the tower noise emissions are a very strong function of fan speed.

Outside air intakes

The project includes four large air handling units that are outdoor units on the roof adjacent to the mechanical penthouse. It is anticipated that the units will be provided with intake and discharge noise mitigation, within the units or as accessories to the units, in the form of internal plenum lining and/or silencers, to control outdoor noise emissions. Each unit will be limited to produce a noise level no greater than 46 dBA at a distance of 50 ft in any direction from the unit as measured in a free field condition. This emission level includes noise from both the intake and the discharge combined. This noise emission level is expected to be consistent with achieving a sound level no greater than 50 dBA at the adjacent critical receiver building together with the noise emissions from other building sources.

Generator

The generator is located outdoors on the roof and will be provided with a weatherproof / noise reduction housing to control its noise emissions to the nearby community. The generator, together with its housing, will be specified to have a noise emission level no greater than 63 dBA at a distance of 50 ft, as measured in a

free field condition in any horizontal direction from the unit at an elevation approximately equal to the top of the unit. This noise emission level is to be achieved assessing all paths of noise emission from the unit, especially including the ventilation air intake and discharge, the unit casing, and the engine exhaust. Based on this, the generator installation is expected to produce a noise level no greater than 60 dBA at the critical receiver location which is the daytime noise limit, at which time of day the generator will be tested. The generator will not be tested during nighttime hours and will only run during nighttime hours in the event of a true emergency, which condition is expected to be very rare.

* * * * *

I trust this summary of the noise emissions and noise control features planned in connection with the building mechanical equipment/systems is consistent with your needs relative to community noise issues. If you have any questions, please let me know.

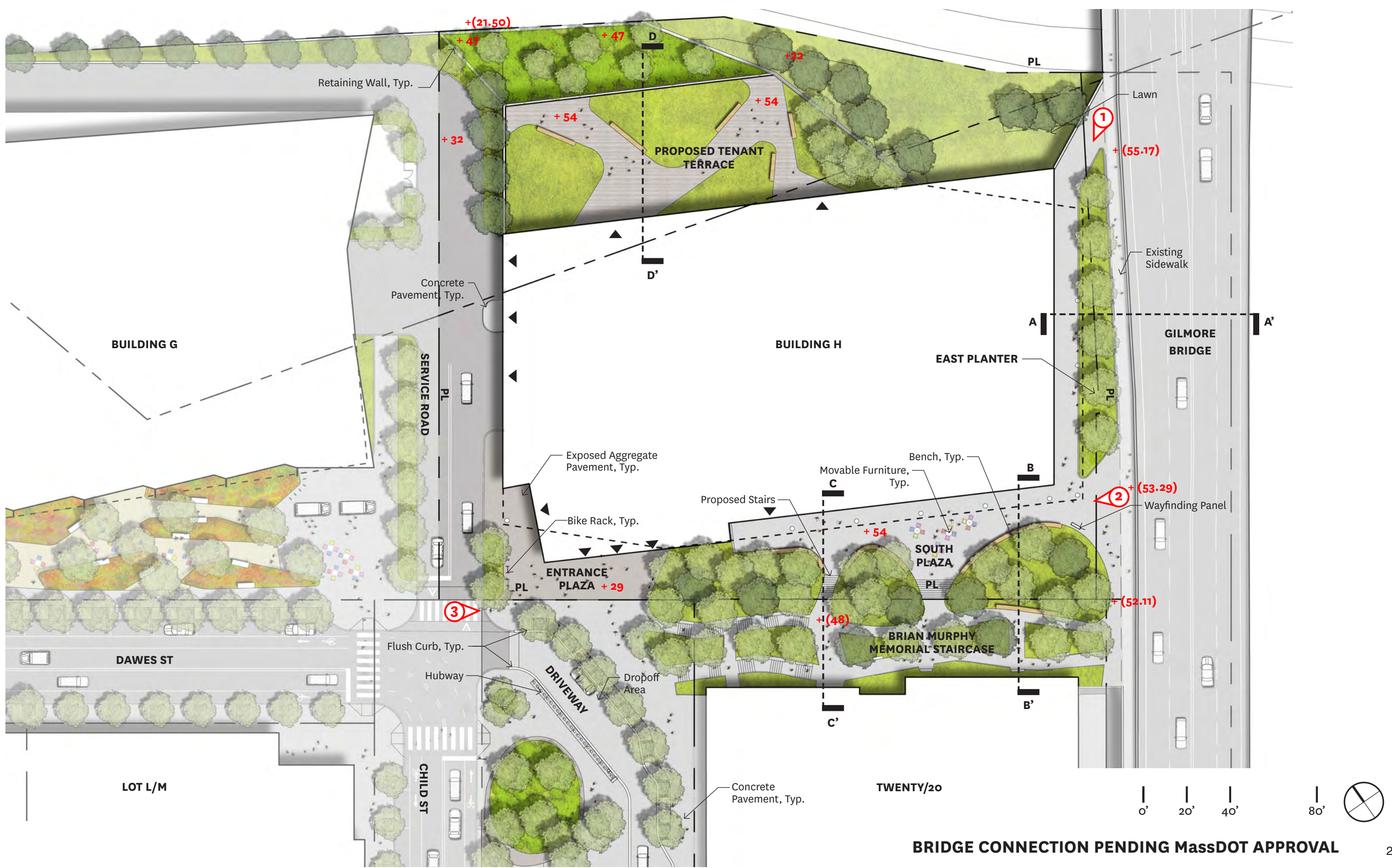
Sincerely Yours,

ACENTECH INCORPORATED

Douglas H. Sturz

Site Noise Control Assessment

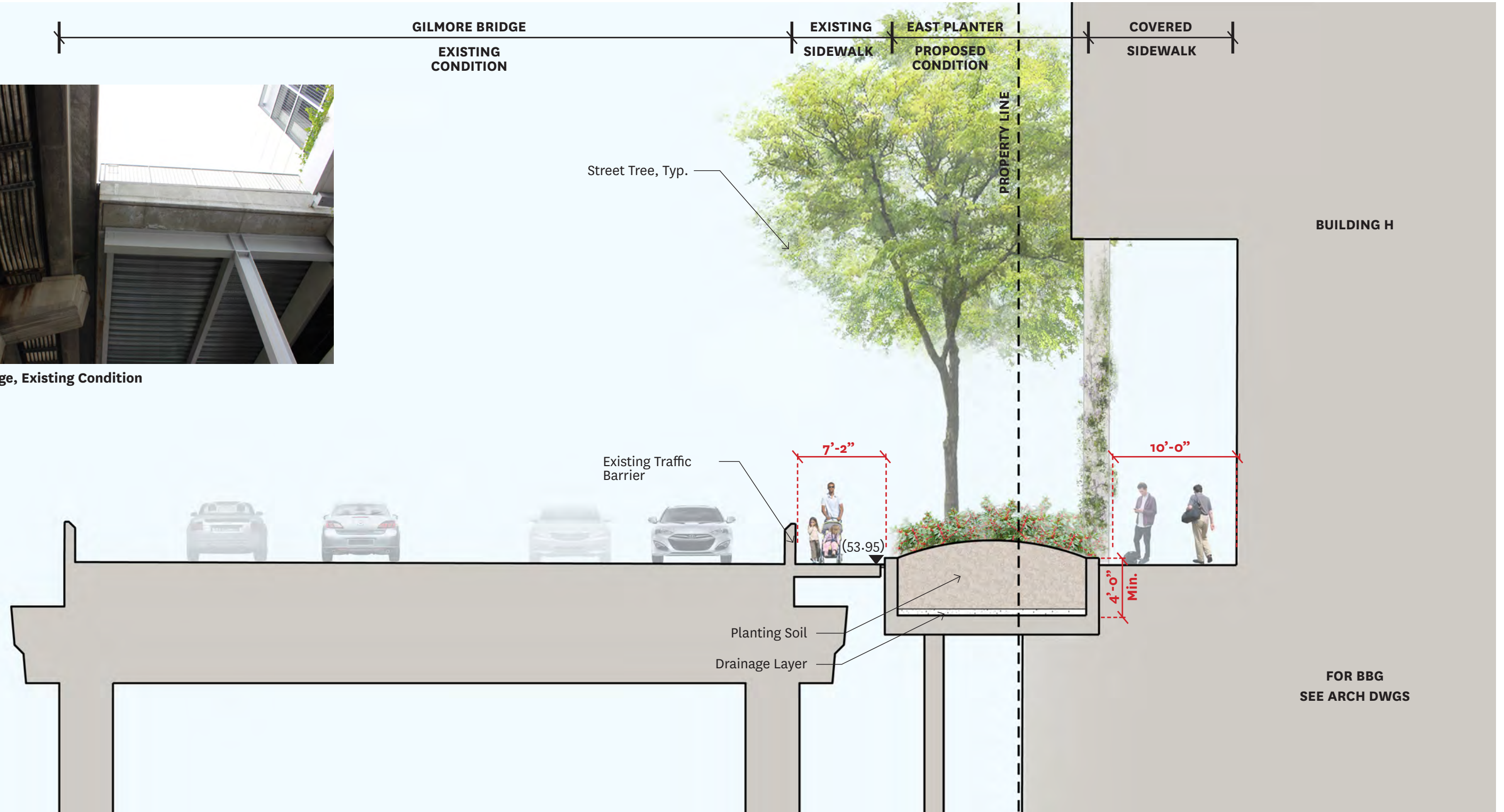




BRIDGE CONNECTION PENDING MassDOT APPROVAL



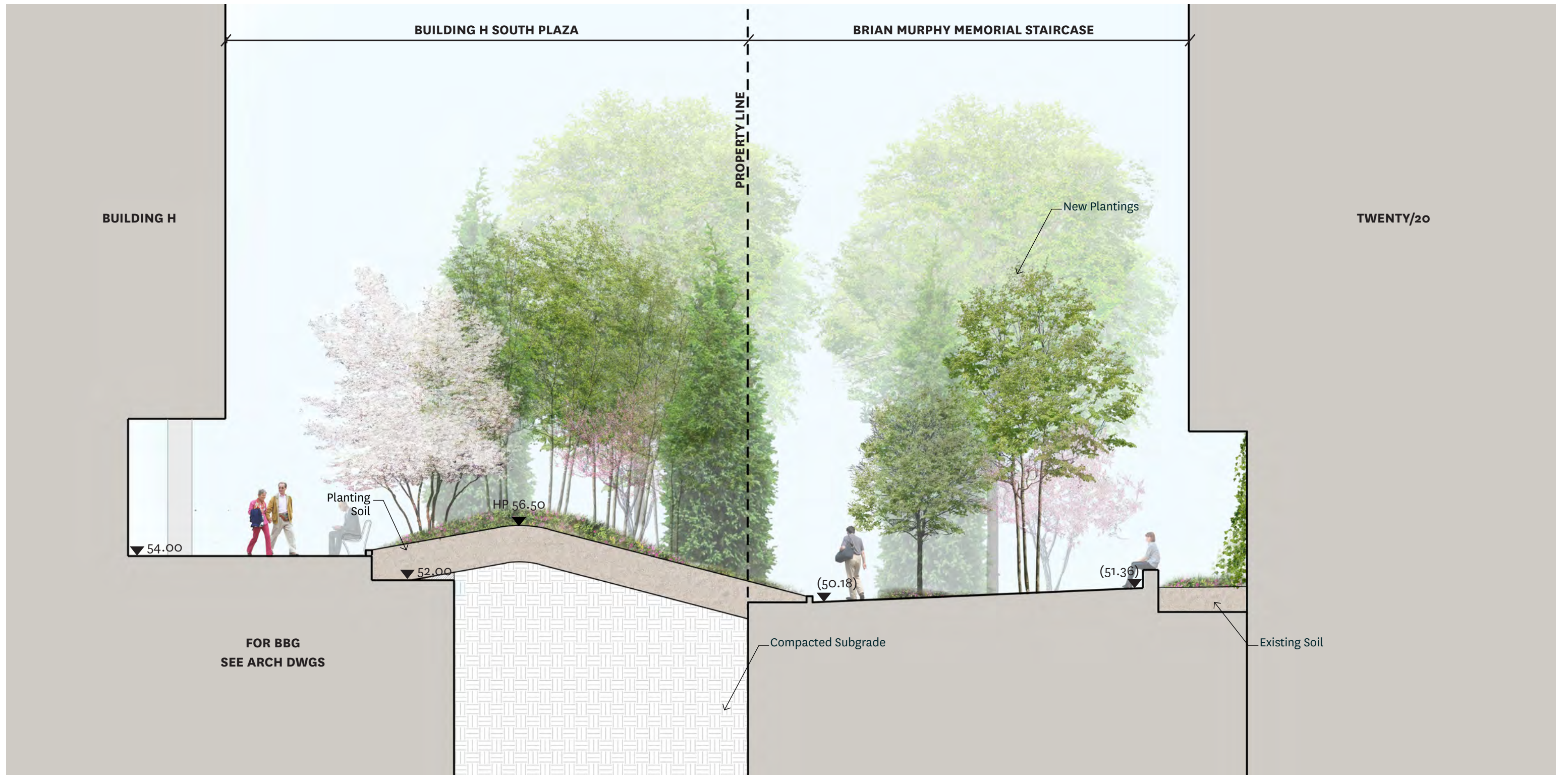
Gilmore Bridge, Existing Condition



BRIDGE CONNECTION PENDING MassDOT APPROVAL

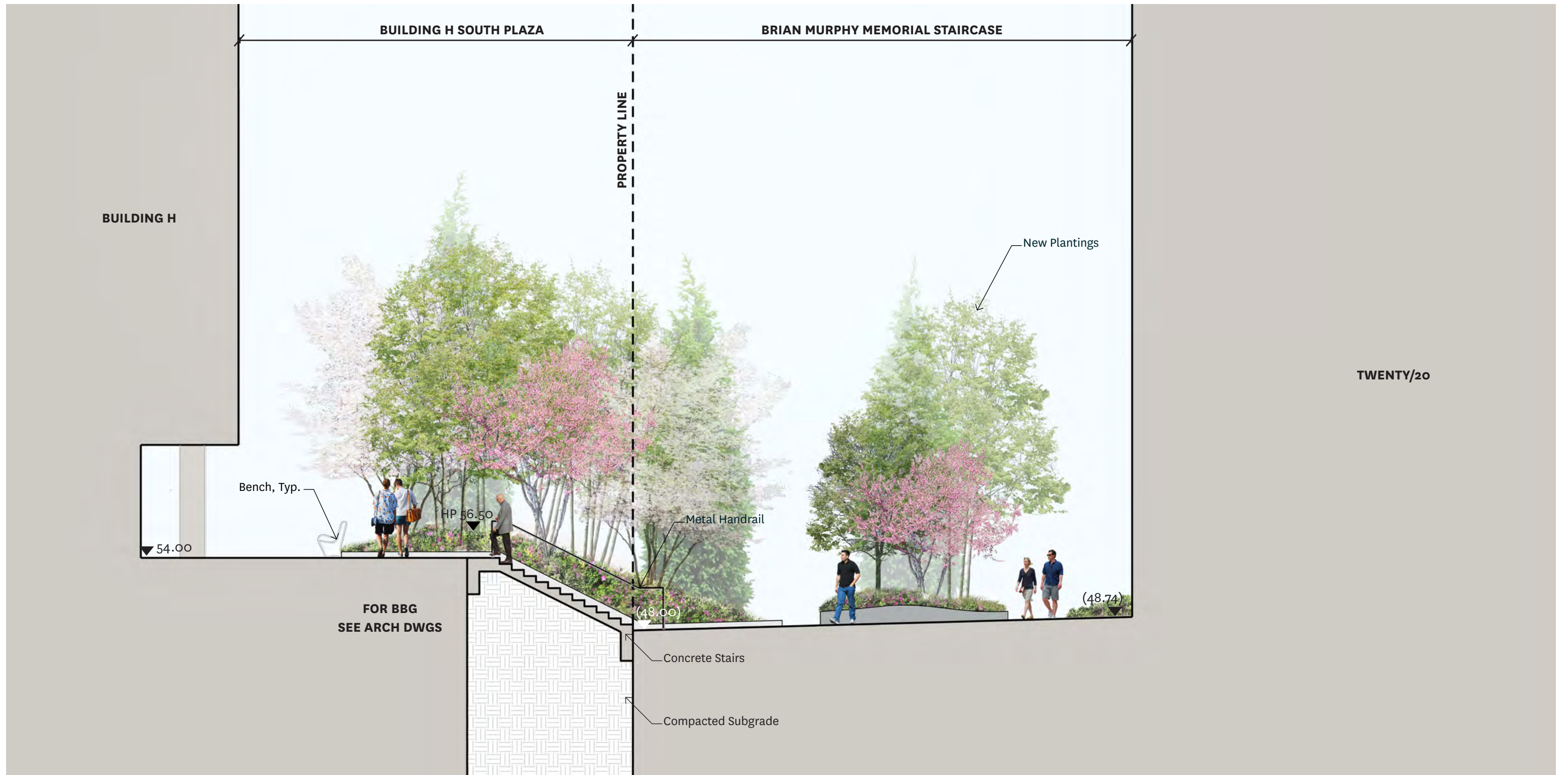
SECTION A - A'





SECTION B - B'

4

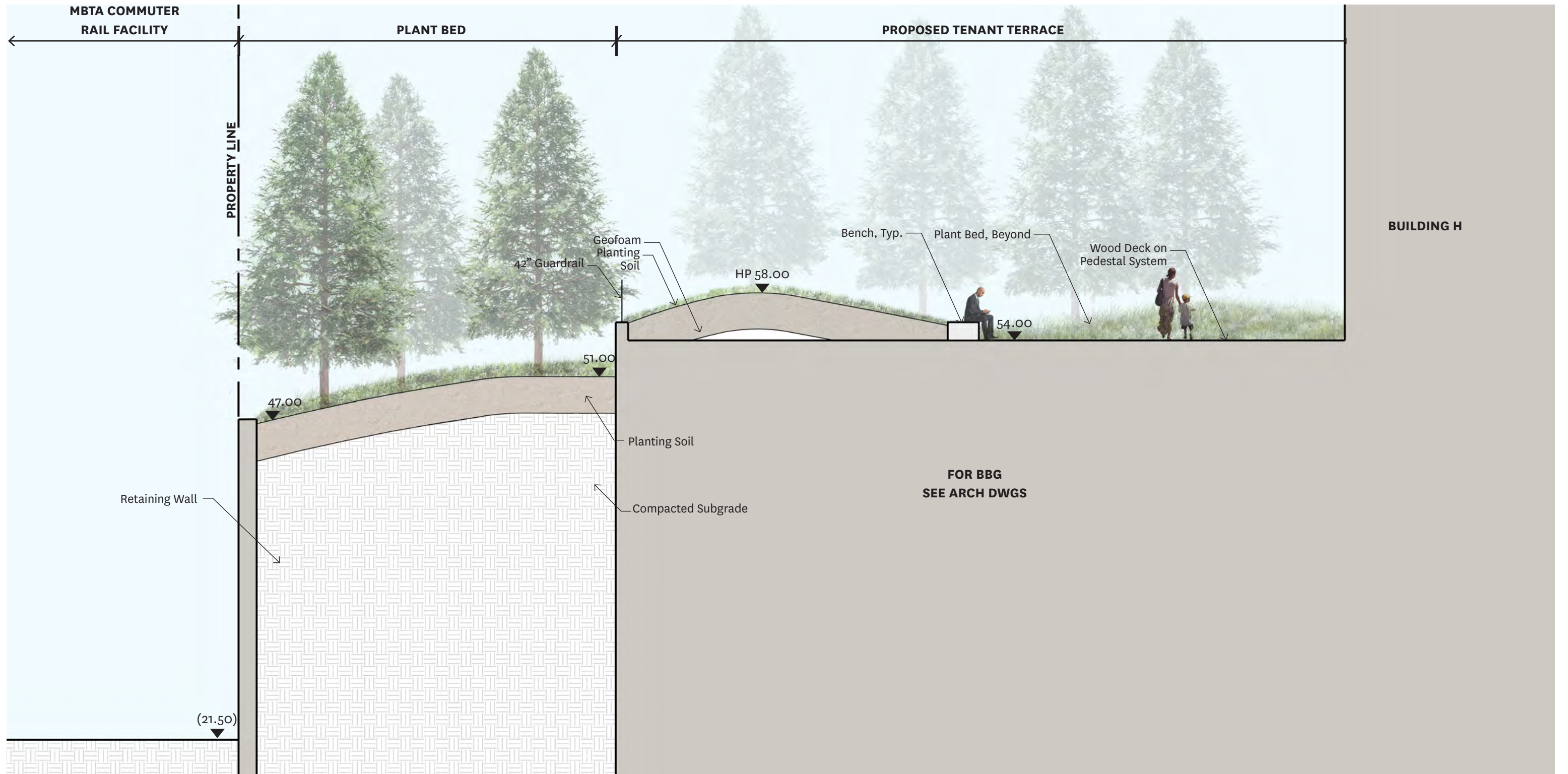


TWENTY/20



SECTION C - C'

5



SECTION D - D'

6



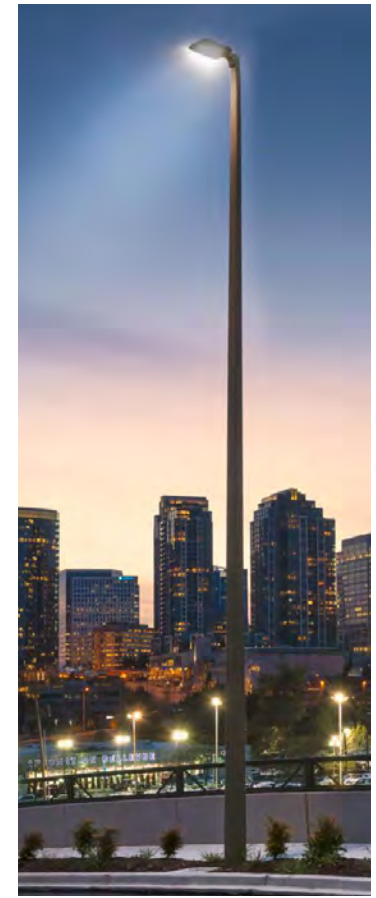
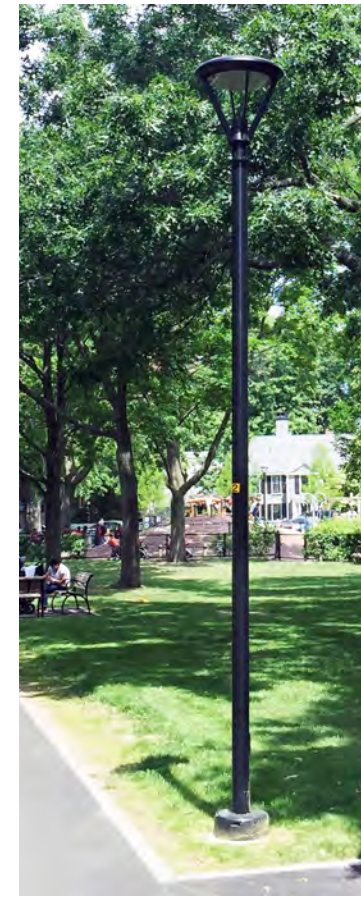
PARCEL H VIEW FROM GILMORE BRIDGE SIDEWALK







BACK VIEW OF PARCEL G/H FROM GILMORE BRIDGE

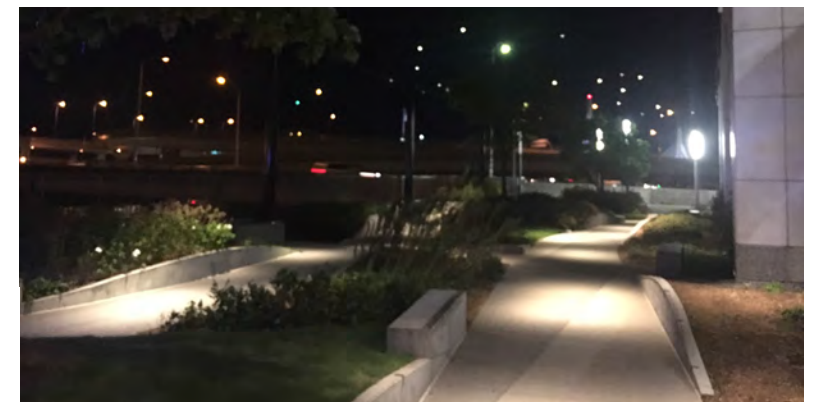


1 LP-P: Pedestrian Scale Light Pole

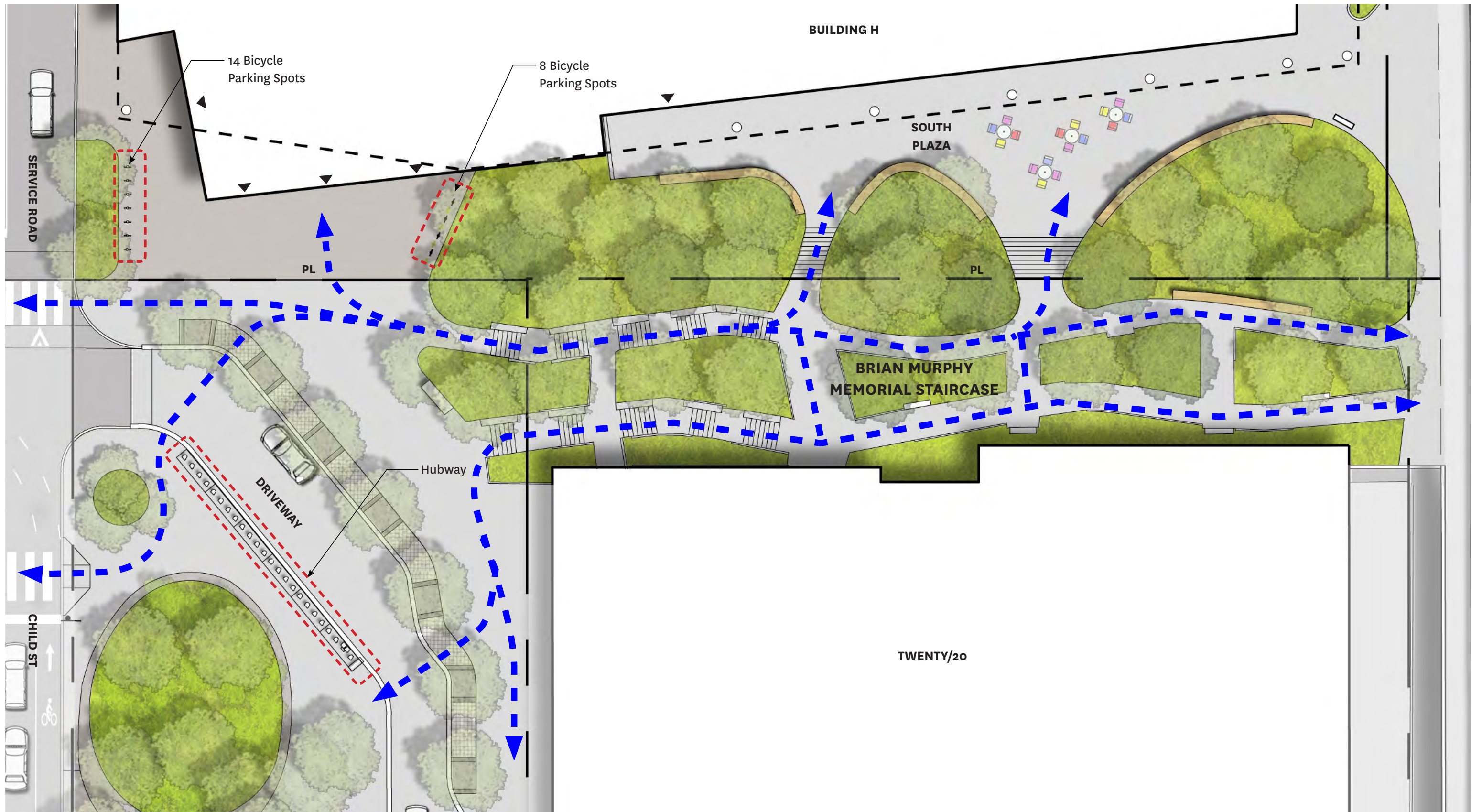
2 LP-S: Cambridge Crossing Street Light



3 Existing Murphy Staircase Handrail Lighting Fixtures



4 Existing Catenary Lighting at Murphy Staircase





Stone Setts Pavement



Exposed Aggregate Concrete Pavement



Decomposed Granite Pavement



Concrete Pavement



Bike Rack



Trash Receptacle



Planter, Clustered



Planter, Linear



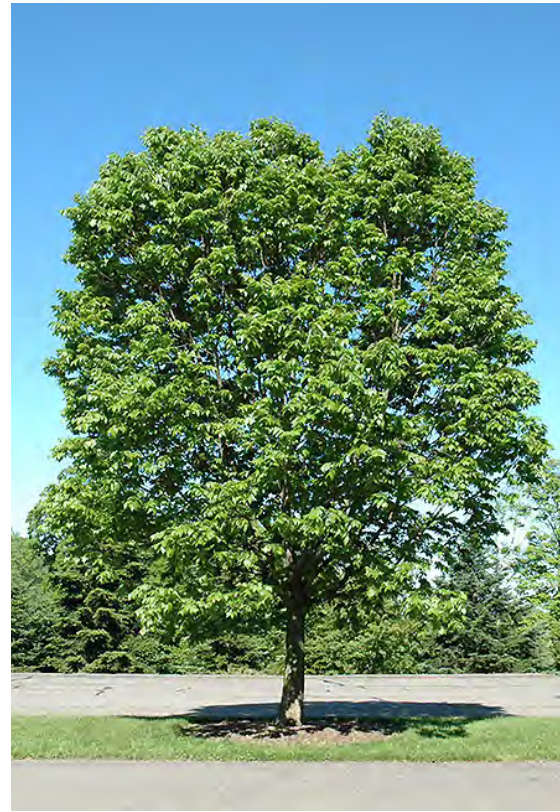
Bench



Granite Bench



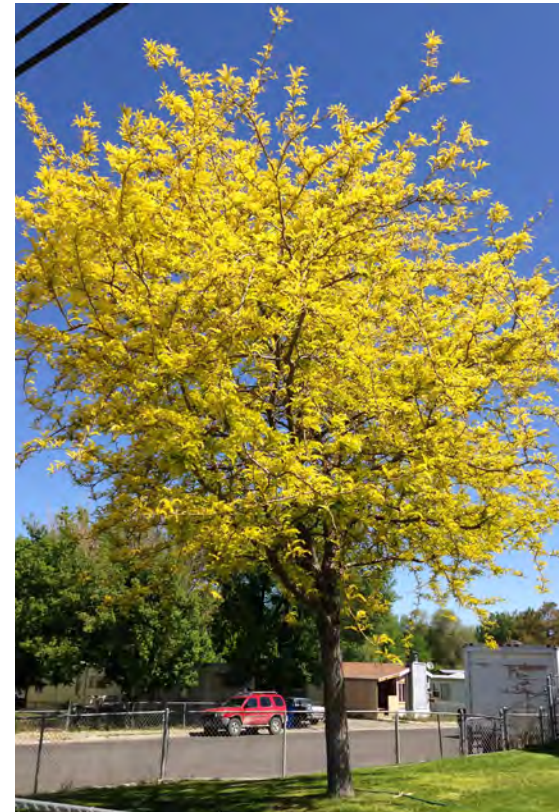
Movable Tables and Chairs



Celtis occidentalis
Common Hackberry



Styphnolobium japonicum
Japanese Pagoda Tree



Gleditsia triacanthos var. inermis
Honey Locust "Skyline"

All trees are included in the City of Cambridge recommended species list.



Magnolia x soulangiana
Saucer Magnolia



Cercis Canadensis
Eastern Redbud



Abies concolor
White Fir



Picea glauca
White Spruce



Thuja plicata
Western Red Cedar



Amelanchia arborea
Serviceberry



Juniperus virginiana
Red Cedar



Ceanothus americanus
New Jersey Tea



Comptonia peregrina
Sweet Fern



Hydrangea arborescens
Smooth Hydrangea



Neviusia alabamensis
Alabama snow wreath



Pieris floribunda
Mountain fetterbush



Spirea latifolia
Broadleaf meadowsweet



Rosa rugosa
Rugosa Rose (Pink)



Rosa rugosa
Rugosa Rose (White)

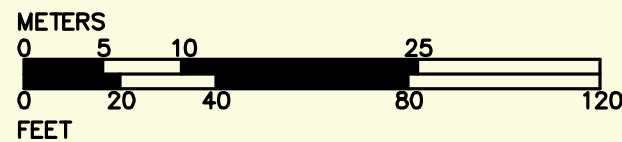
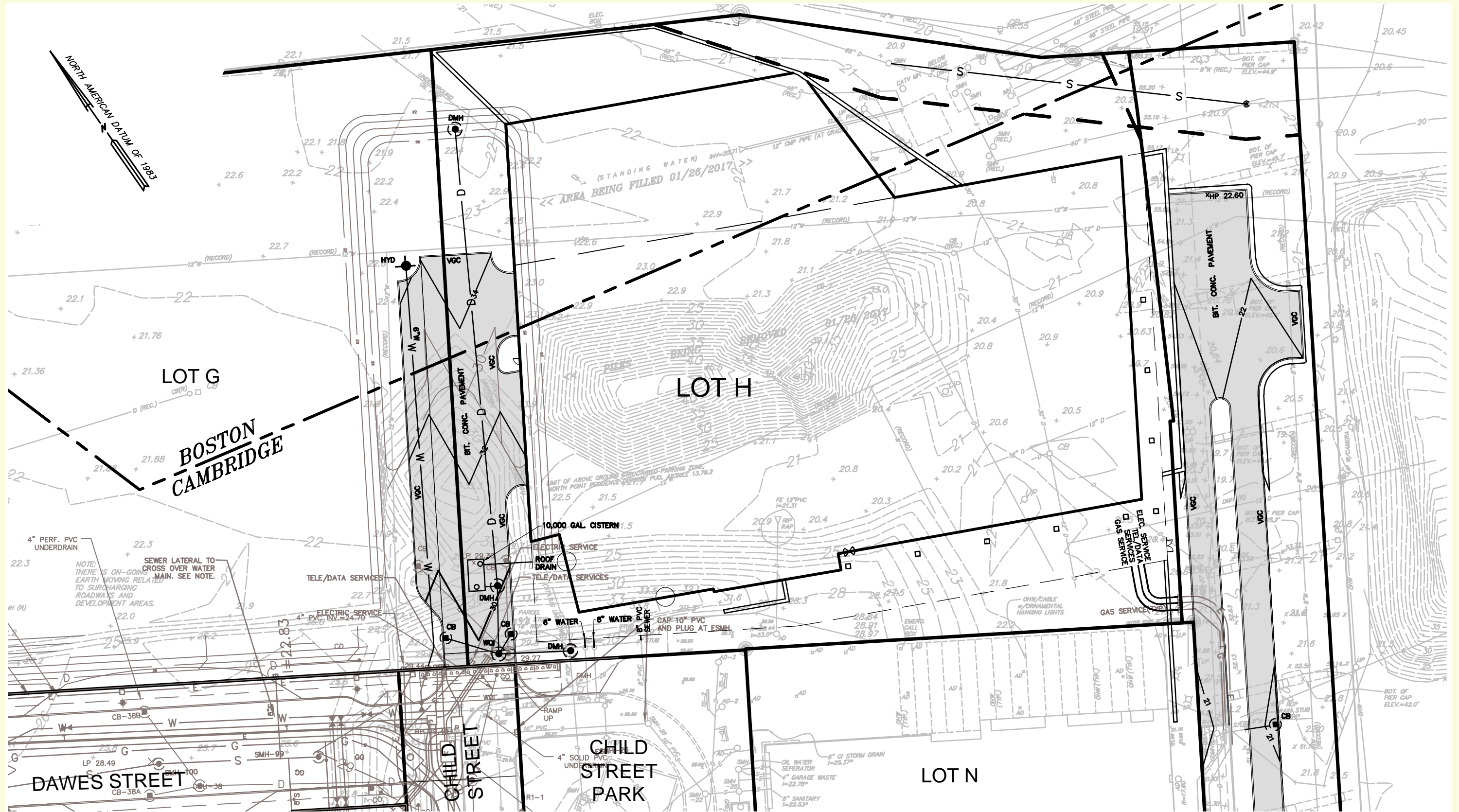


Fothergilla gardenia
Dwarf fothergilla

Page	Section	Guideline Description	Compliance	Check
47	3.2A Character	Use streetscape elements such as trees, benches, signage, and lighting to support active pedestrian uses and to reinforce the character and identity of each area.	The aim of the streetscape at Parcel H is to create a contiguous pedestrian experience on the Gilmore Bridge, down the Murphy Staircase, and connecting to Dawes Street. At the upper level on the Gilmore Bridge sidewalk high canopy trees are introduced along with a plant bed, providing a sense of welcome and a buffer between the building and the vehicular traffic. The landscape at the Murphy Staircase is expanded with signage, benches and pedestrian scale lighting. At the bottom of the Murphy Staircase, trees, street furniture and bicycle parking create a welcoming Entrance Plaza to the building and a threshold to the Cambridge Crossing neighborhood.	✓
47	3.2A Character	Where appropriate, establish, preserve and highlight views from public streets and spaces to important civic landmarks such as the Zakim Bridge and NorthPoint Common.	The widening of the Murphy Staircase allows for views towards the Zakim Bridge and the Boston skyline.	✓
50	3.2.2 Dawes Street	Dawes Street is an important east-west connector running between Water Street and the Brian Murphy Staircase. Street trees will be planted on both sides of the street, and an additional landscape area will be provided on the north side of Dawes, between First Street and the Murphy Staircase, to improve the pedestrian experience on this sunnier side of the street. The widened sidewalk area provides opportunities for seating, play, art. LID swales etc. to be incorporated into the public realm.	The widened Murphy Staircase enhances the eastern terminus of Dawes Street, particularly the richly planted landscape areas that run along the north side of Dawes. The enhanced planting on the stairs creates an attractive transition to the Gilmore Bridge. Seating, lighting and other street furniture consistent with the rest of Cambridge Crossing improves the pedestrian experience.	✓

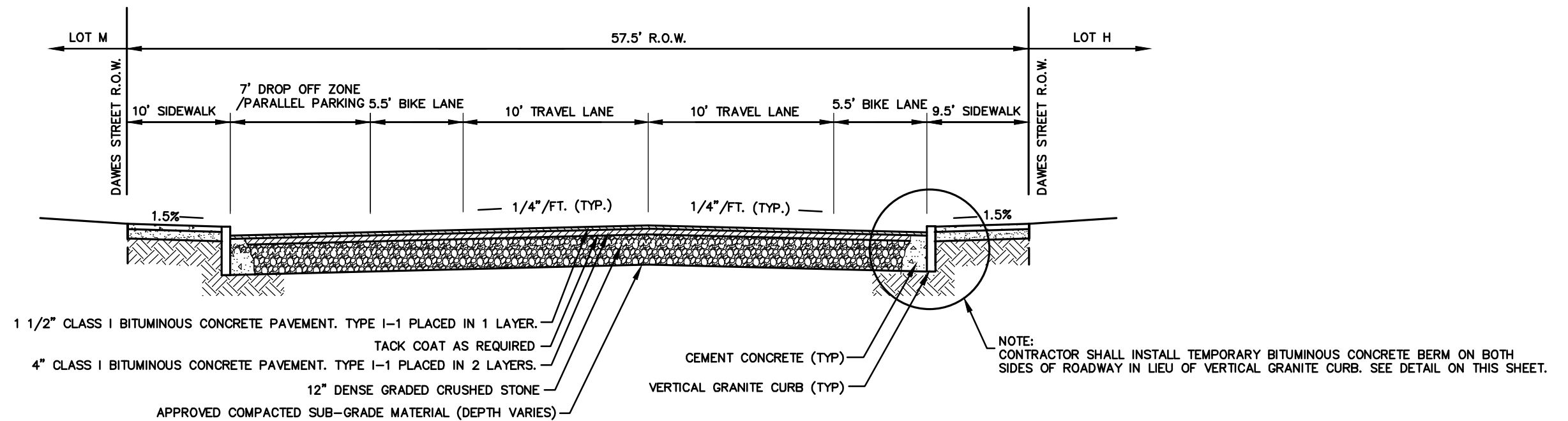
Cambridge Crossing (formerly known as NorthPoint)

Boston/Cambridge, Massachusetts



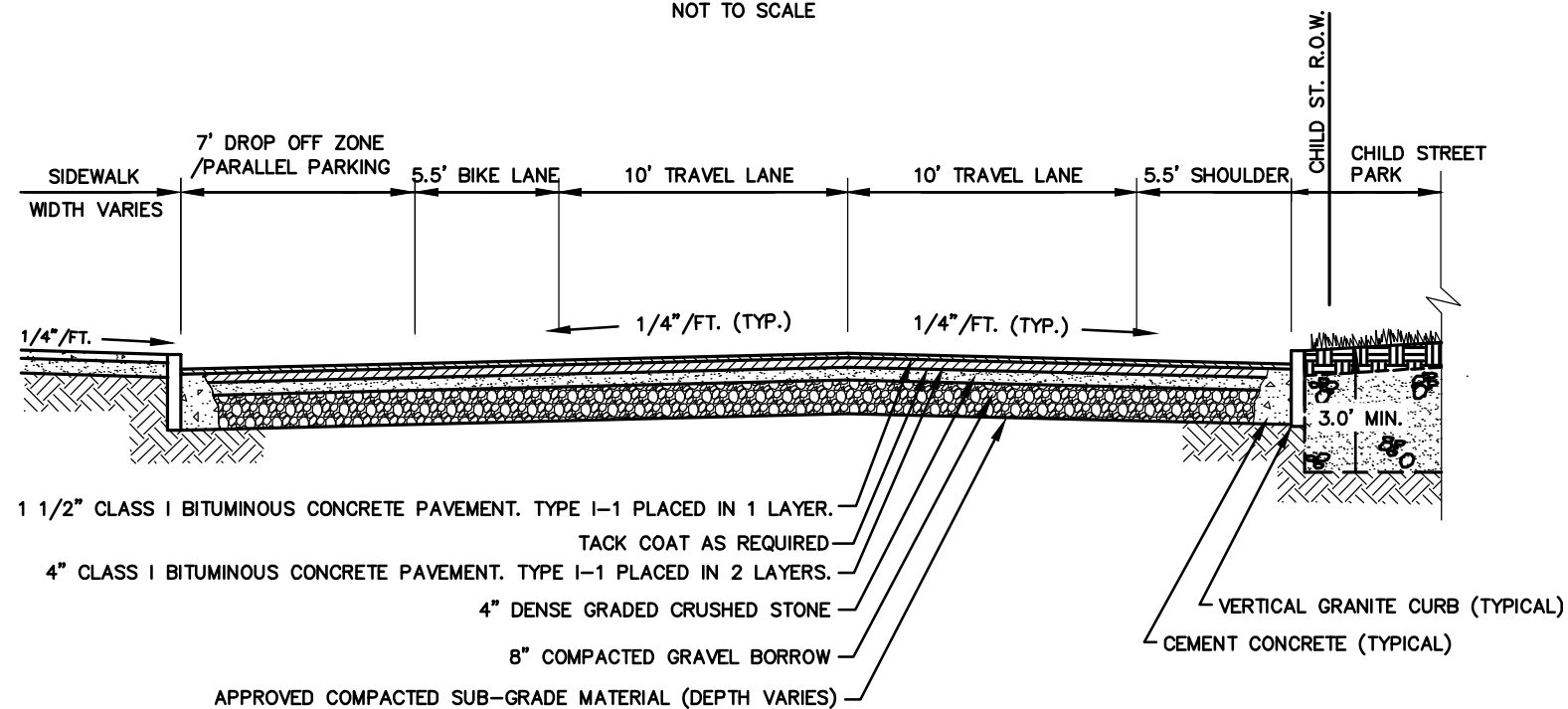
Cambridge Crossing (formerly known as NorthPoint)

Boston/Cambridge, Massachusetts



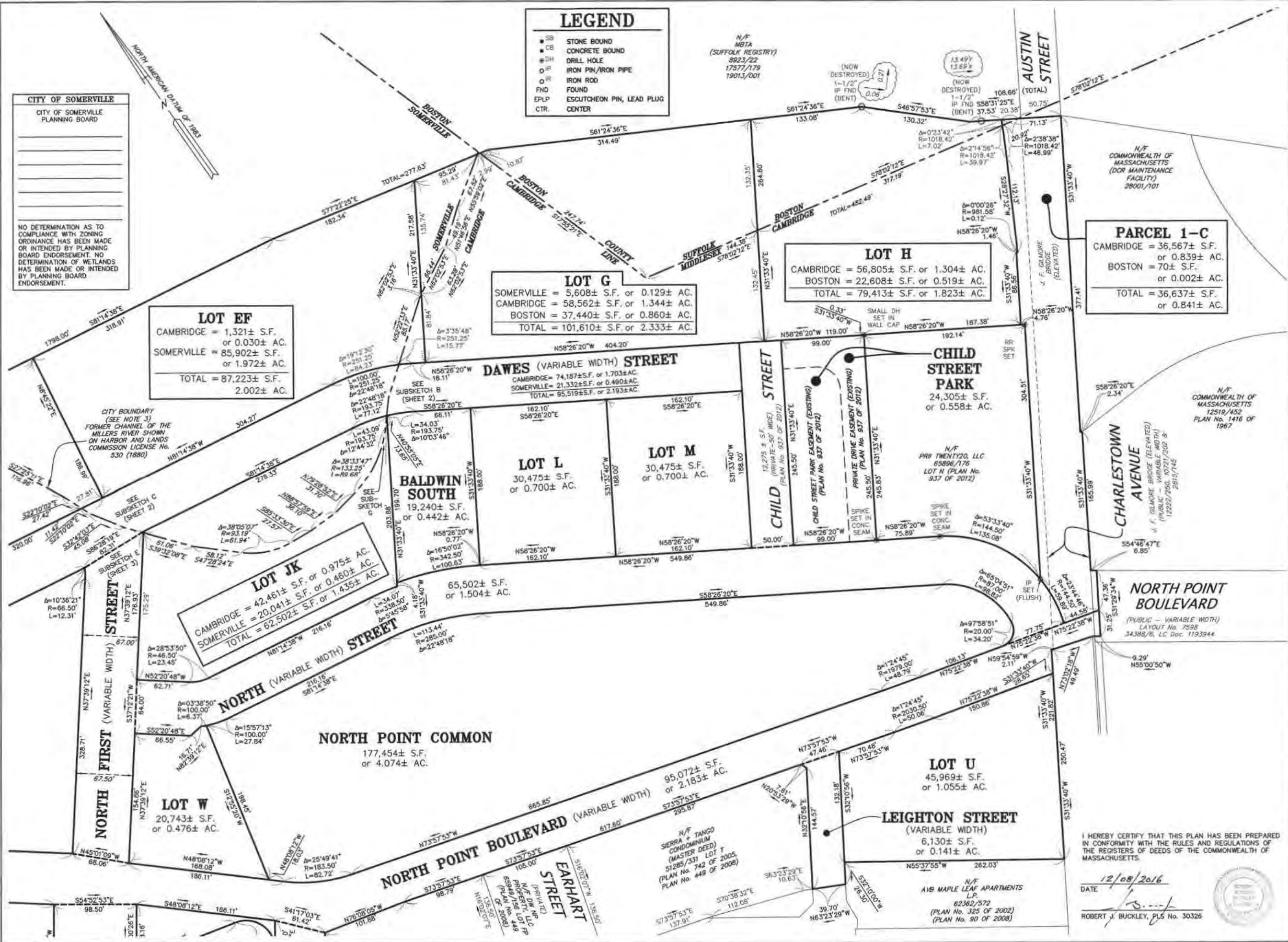
DAWES STREET CROSS SECTION

NOT TO SCALE



CHILD STREET CROSS SECTION

NOT TO SCALE



LEGEND

- SB STONE BOUND
- CB CONCRETE BOUND
- DH DRILL HOLE
- IP IRON PIN/IRON PIPE
- IR IRON ROD
- FND FOUND
- EPLP ESCUTCHEON PIN, LEAD PLUG
- CTR. CENTER

CITY OF SOMERVILLE
CITY OF SOMERVILLE
PLANNING BOARD

NO DETERMINATION AS TO COMPLIANCE WITH ZONING ORDINANCE HAS BEEN MADE OR INTENDED BY PLANNING BOARD ENDORSEMENT. NO DETERMINATION OF WETLANDS HAS BEEN MADE OR INTENDED BY PLANNING BOARD ENDORSEMENT.

LOT EF
CAMBRIDGE = 1,321± S.F. or 0.030± AC.
SOMERVILLE = 85,902± S.F. or 1.972± AC.
TOTAL = 87,223± S.F. 2.002± AC.

LOT G
SOMERVILLE = 5,608± S.F. or 0.129± AC.
CAMBRIDGE = 58,562± S.F. or 1.344± AC.
BOSTON = 37,440± S.F. or 0.860± AC.
TOTAL = 101,610± S.F. or 2.333± AC.

LOT H
CAMBRIDGE = 56,805± S.F. or 1.304± AC.
BOSTON = 22,608± S.F. or 0.519± AC.
TOTAL = 79,413± S.F. or 1.823± AC.

PARCEL 1-C
CAMBRIDGE = 36,567± S.F. or 0.839± AC.
BOSTON = 70± S.F. or 0.002± AC.
TOTAL = 36,637± S.F. or 0.841± AC.

LOT L
30,475± S.F. or 0.700± AC.

LOT M
30,475± S.F. or 0.700± AC.

LOT JK
CAMBRIDGE = 42,461± S.F. or 0.975± AC.
SOMERVILLE = 20,041± S.F. or 0.460± AC.
TOTAL = 62,502± S.F. or 1.435± AC.

NORTH POINT COMMON
177,454± S.F. or 4.074± AC.

LOT W
20,743± S.F. or 0.476± AC.

LOT U
45,969± S.F. or 1.055± AC.

PREPARED FOR:
DW NP PROPERTY, LLC
c/o DIVCO WEST REAL ESTATE SERVICES, LLC
575 MARKET STREET
35th FLOOR
SAN FRANCISCO, CA 94105

RECORD OWNERS:
DW NP PROPERTY, LLC
65949/156
PARCEL 1
PARCEL 2
"CENTRAL PARK" PARCEL (PLAN NO. 597 OF 2010) (MIDDLESEX COUNTY)

54949/293
PARCEL 1
PARCEL 2
(PLAN BOOK 2010 PAGES 270, 271) (SUFFOLK COUNTY)

5			
4			
3			
2			
1			
0	12/08/2016	INITIAL ISSUE	
	ISSUE DATE	DESCRIPTION	
ATL	MEB	MEB	RJB
FLD	CALC	DWN	CHK'D

PLAN OF LAND
NORTHPOINT IN CAMBRIDGE AND SOMERVILLE, MA (MIDDLESEX COUNTY) AND BOSTON, MA (SUFFOLK COUNTY)

PREPARED BY:
BEALS + THOMAS
Civil Engineers + Landscape Architects + Land Surveyors + Planners + Environmental Specialists

BEALS AND THOMAS, INC.
Reservoir Corporate Center
144 Turnpike Road
Southborough, Massachusetts 01772-2104
T.508.366.0560 | www.bealsandthomas.com

DATE: DECEMBER 8, 2016 METERS
SCALE: 1"=50' FEET

BTL JOB NO. 2084.02
BTL PLAN NO. 208402P244B-005
SHEET 5 OF 5

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

12/08/2016
DATE
ROBERT J. BUCKLEY, PLS No. 30326

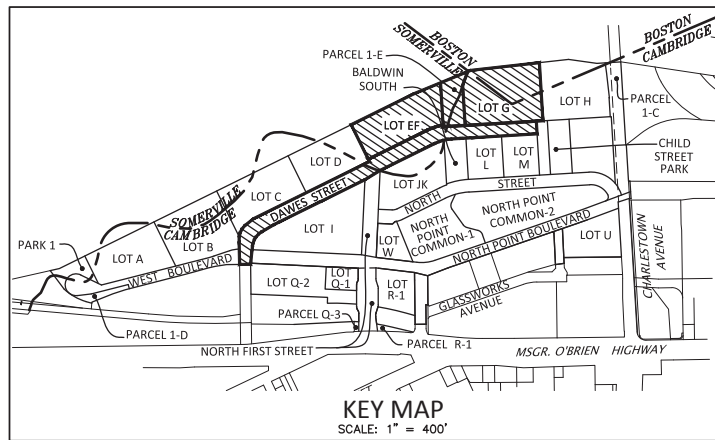


NOTES

- THIS PLAN WAS PREPARED FROM AN ACTUAL SURVEY MADE ON THE GROUND USING A ZEISS ELTA TOTAL STATION AND SUBCENTIMETER GPS.
- NAD83 HORIZONTAL COORDINATE SYSTEM ESTABLISHED BY COORDINATES SHOWN ON PLANS BY GUNTER ENGINEERING, A DIVISION OF DIGITAL GEOGRAPHIC TECHNOLOGIES, INC. ENTITLED "NORTH POINT, SUBDIVISION PLAN OF LAND IN BOSTON, CAMBRIDGE, AND SOMERVILLE, MASSACHUSETTS..." DATED MARCH 14, 2008, REVISED AUGUST 4, 2010; AND A PLAN ENTITLED "NORTHPOINT-CENTRAL PARK" PARCEL, SUBDIVISION PLAN OF LAND IN BOSTON, CAMBRIDGE, AND SOMERVILLE, MASSACHUSETTS..." DATED AUGUST 16, 2010; SAID PLANS RECORDED AT MIDDLESEX COUNTY REGISTRY OF DEEDS, SOUTHERN DISTRICT, AS PLAN No. 597 OF 2010.
- SOMERVILLE - CAMBRIDGE CITY BOUNDARY LINE ESTABLISHED BY BEALS AND THOMAS, INC. BY DIGITIZING HISTORIC EDGE OF MILLERS RIVER AS SHOWN ON A PLAN ENTITLED "NOS. 530 & 531, APPROVED BY HARBOR AND LAND COMMISSION", DATED MAY 6, 1880, RECORDED IN SUFFOLK COUNTY AS PLAN BOOK 1505 PAGE 640; AND CALCULATING A BEST-FIT CENTERLINE OF THE HISTORIC RIVER. THE END OF THE CENTERLINE WAS ADJUSTED TO HOLD 250.00' FROM THE ANGLE POINT IN THE BOSTON - CAMBRIDGE CITY LINE AS DESCRIBED IN CHAPTER 312 OF THE ACTS OF 1910.
- FOR ADDITIONAL MONUMENTATION SEE PLANS BY BEALS AND THOMAS, INC. RECORDED AS PLAN No. 90 OF 2008, PLAN No. 937 OF 2012, AND PLAN No. 1151 OF 2016.
- THIS PLAN IS A RE-DIVISION OF LOT EF, LOT G AND DAWES STREET SHOWN ON A PLAN RECORDED AT THE MIDDLESEX SOUTH REGISTRY AS PLAN No. 1151 OF 2016 AND PLAN BOOK 2016, PAGE 566 AT THE SUFFOLK REGISTRY.
- THE PARCELS SHOWN HEREON HAVE THE BENEFIT OF AND ARE SUBJECT TO RIGHTS, RESTRICTIONS, AND EASEMENTS NOT SHOWN.

LEGEND

- SB STONE BOUND
- CB CONCRETE BOUND
- OH DRILL HOLE
- IP IRON PIN/IRON PIPE
- IR IRON ROD
- END FOUND
- EPLP ESCUTCHEON PIN, LEAD PLUG
- CTR. CENTER



PARCEL 1-E
 CAMBRIDGE = 7,699± S.F. or 0.177± AC.
 SOMERVILLE = 14,755± S.F. or 0.339± AC.
 TOTAL = 22,454± S.F. or 0.516± AC.

LOT G
 CAMBRIDGE = 52,184± S.F. or 1.198± AC.
 BOSTON = 37,440± S.F. or 0.860± AC.
 TOTAL = 89,624± S.F. or 2.057± AC.

LOT EF
 72,282± S.F. or 1.659± AC.

DAWES STREET
 (PRIVATE-VARIABLE WIDTH)

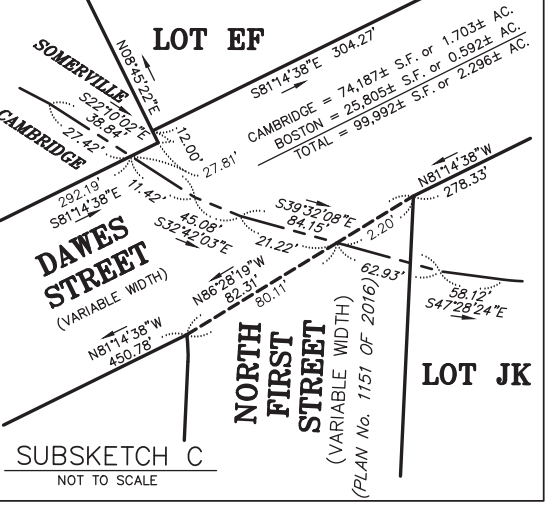
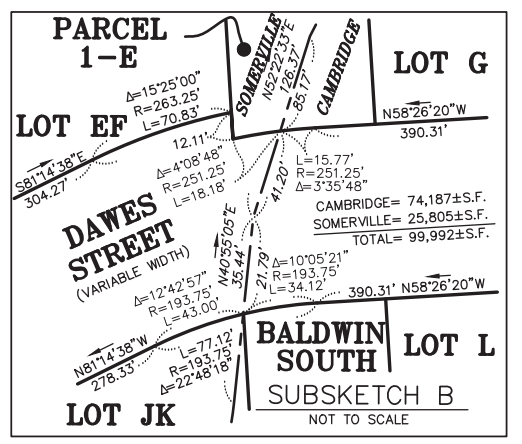
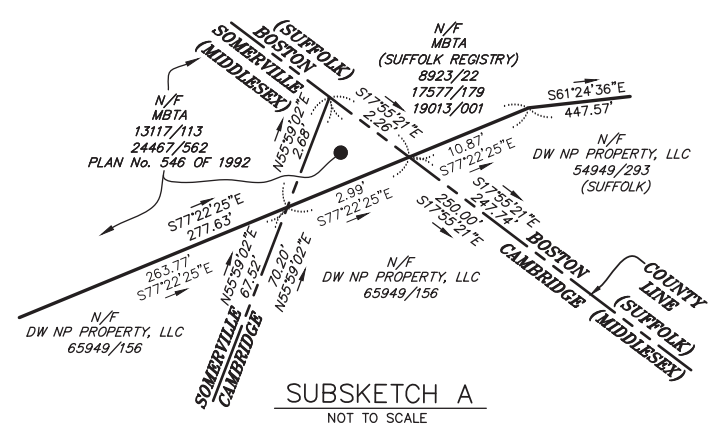
BALDWIN SOUTH
 N/F DW NP PROPERTY, LLC 65949/156 (PLAN No. 1151 OF 2016)

LOT L
 N/F DW NP PROPERTY, LLC 65949/156 (PLAN No. 1151 OF 2016)

LOT M
 N/F DW NP PROPERTY, LLC 65949/156 (PLAN No. 1151 OF 2016)

LOT JK
 N/F DW PROPCO JK, LLC 69231/108 (PLAN No. 1151 OF 2016)

NORTH STREET
 (PRIVATE-VARIABLE WIDTH) (PLAN No. 1151 OF 2016)



CITY OF SOMERVILLE

GEORGE PROAKIS _____ DATE _____
 CITY OF SOMERVILLE DIRECTOR OF PLANNING

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

DATE 10/4/2017
 ROBERT J. BUCKLEY, PLS No. 30326

PREPARED FOR:
DW NP PROPERTY, LLC
 c/o DIVCOWEST REAL ESTATE INVESTMENTS
 200 STATE STREET,
 12TH FLOOR
 BOSTON, MA 02109

RECORD OWNERS:
DW NP PROPERTY, LLC
 65949/156
 LOT EF
 LOT G
 PLAN No. 1151 OF 2016 (MIDDLESEX COUNTY)
 54949/293
 LOT EF
 LOT G
 PLAN BOOK 2016, PAGE 566 (SUFFOLK COUNTY)

DATE	DESCRIPTION		
10/04/2017	REVISE DAWES STREET AND LOTS EF AND G. CREATE PARCEL 1-E.		
12/21/2016	INITIAL ISSUE		
ATL	MEB	MEB	RJB
FLD	CALC	DWN	CHK'D

PLAN OF LAND
 NORTHPOINT IN CAMBRIDGE AND SOMERVILLE, MA (MIDDLESEX COUNTY) AND BOSTON, MA (SUFFOLK COUNTY)

PREPARED BY:
BEALS + THOMAS
 Civil Engineers + Landscape Architects + Land Surveyors + Planners + Environmental Specialists

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DATE: DECEMBER 21, 2016
 SCALE: 1" = 50'
 BTI JOB NO. 2084.02
 BTI PLAN NO. 208402P305B-001
 SHEET 1 OF 1

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