
APPLICATION FOR SPECIAL PERMIT
Supplemental Application Materials Submission

87 – 101 Cambridgepark Drive

Project Address:

97 Cambridgepark Drive
Cambridge, Massachusetts

Applicant:

HCP | King 101 CPD LLC
c/o King Street Properties
800 Boylston Street | Suite 1570
Cambridge, MA 02199

Date:

February 11, 2020

**87-101 CAMBRIDGEPARK DRIVE
AMENDED SPECIAL PERMIT APPLICATION
TABLE OF CONTENTS**

COVER LETTER	3
APPLICATION	5
Revised Special Permit Application Cover Sheet.....	6
Revised Dimensional Form.....	7
Revised Dimensional Form Footnotes.....	8
SUPPLEMENTAL SPECIAL PERMIT APPLICATION NARRATIVE	10
1. Additional Special Permit Request.....	11
2. Supplemental Zoning Compliance Narrative.....	11
Summary of Project Design Changes.....	14
Site Plan.....	14
Building Design.....	16
Infrastructure.....	17
INFRASTRUCTURE	18
Revised Compensatory Flood Storage Certification.....	19
Revised Flood Report.....	22
SUSTAINABLE DESIGN AND DEVELOPMENT	45
Response to Sustainability Review Comments.....	46
Article 22 Sustainability Narrative.....	50
LEED v4 Integrative Process.....	64
Revised LEED v4 Core and Shell Scorecard – Gold Rating.....	73
TECHNICAL APPENDICES	
Revised Plans and Illustrations (Volume 2)	
Revised Tree Study	

February 11, 2020

Cambridge Planning Board
344 Broadway
Cambridge, MA 02139

HCP/King 101 CPD LLC
c/o King Street Properties
800 Boylston Street, Suite 1570
Boston, MA 20199

T 617.910.5500
www.ks-prop.com

Re: 87 - 101 CambridgePark Drive
Planning Board Case #PB 354

Dear Members of the Planning Board:

King Street Properties, on behalf of HCP/King 101 CPD LLC, is pleased to submit the enclosed supplement to our above referenced Special Permit application currently undergoing review by the Planning Board. Our first hearing with the Planning Board held on December 17, 2019 was very informative, and as recommended by the Board, our team has continued to refine the Project design to address the Board's comments. Since the hearing, we have worked closely with Community Development Department staff, including a meeting between the Project team, CDD staff, TP&T and DPW on January 8, 2020, and have responded to additional CDD staff comments raised on the draft supplemental application submitted for review on January 22, 2020.

Our design changes have resulted in many improvements to the Project including building façade enhancements, reduced parking, increased retail GFA and creation of additional retail-ready space, refinement of a dedicated multi-modal pedestrian and bicycle path through the site and abutting MBTA property, enrichment of the building's streetscape and main entrance pedestrian access, addition of a dedicated cycle-track along the front of the Project within CambridgePark Drive, a commitment for the Project to achieve LEED Gold, and an expanded tree replacement program that adds more trees within the Project limits. We have also included in our revised materials a special permit request for ground-floor retail space that was missing from the original special permit application.

We had our first hearing with the Conservation Commission on November 18, 2019 where the Commission commented favorably on the Flood Plain Special Permit application and accompanying Notice of Intent. The hearing was continued to January 27, 2020, at which time the Commission closed the hearing and granted approval of the Notice of Intent. We expect the Order of Conditions to be issued shortly.

The Planning Board and CDD staff encouraged us to separate the multi-use path from the driveway of 87 Cambridgepark Drive resulting in us securing an agreement with the MBTA to construct a portion of the multi-use path on the abutting MBTA land. The portion of the path which is on the MBTA land requires separate review and approval from the Conservation Commission as the property is under different ownership. In compliance with Commission protocol, we are undertaking a pre-application review meeting with Commission staff on February 13, 2020, and an informal design presentation and review with the Conservation Commission on February 24, 2020. The formal Notice of Intent for the off-site multi-use path will be submitted shortly after the informal presentation with the Commission is completed. The Conservation Commission provided preliminary feedback on the off-site path concept and have cited concerns regarding the off-site path crossing the MBTA land adjacent to the wetland resource areas. We have therefore included both the dedicated off-site, and shared on-site path segments in this application for Planning Board approval.

We have also continued to work with the City Traffic, Parking and Transportation Departments (TPT) as well as the PTDM officer to finalize the PTDM Plan, and we received conditional approval on the PTDM plan on January 14, 2020. Attached herein, we have agreed to all of the mitigation items suggested in TP&T's initial memo to the Planning Board.

We appreciate the opportunity to work with the Board and CDD staff on this important project and look forward to reviewing the revised proposal with the Board at the next scheduled hearing for the project.

Best regards,

A handwritten signature in blue ink, appearing to read 'Tyson Reynoso', written in a cursive style.

Tyson Reynoso
Senior Director

APPLICATION



REVISED DIMENSIONAL FORM

Project Address: 87/101 Cambridge Park Drive

Supplemental Date: February 11, 2020

	Existing	Allowed or required (max/min)	Proposed (101 CPD Only)	Proposed (Overall Site)	Permitted
Lot Area (sq ft)	132,745 sf	5,000 sf min	No change	No change	
Lot Width (ft)	316.52 ft	50 ft min	No change	No change	
Total Gross Floor Area (sq ft)	63,851 sf (87 CPD)	232,304 sf max (total 87&101)	141,834 sf	205,685 sf	
Residential Base	0	N/A	No change	No change	
Non-Residential Base	63,851 sf (87 CPD)	232,304 sf max (total 87&101)	141,834 sf	205,685 sf	
Inclusionary Housing Bonus	0	N/A	No change	No change	
Total Floor Area Ratio	0.48 (87 CPD)	1.25/1.5 max (O-2A) 1.75 max (AOD-6)	1.07	1.55	
Residential Base	0	N/A	No change	No change	
Non-Residential Base	0.48 (87 CPD)	N/A	1.07	1.55	
Inclusionary Housing Bonus	N/A	N/A	N/A	N/A	
Total Dwelling units	0	N/A	No change	No change	
Base Units	0	N/A	No change	No change	
Inclusionary Bonus Units	N/A	N/A	N/A	N/A	
Base Lot Area / Unit (sq ft)	N/A	N/A	N/A	N/A	
Total Lot Area / Unit (sq ft)	N/A	N/A	N/A	N/A	
Building Height(s) (ft)	28.1 ft (87 CPD)	60/70 max (O-2A) 85 max (AOD-6)	82 ft	28.1 ft (87 CPD) 82 ft (101 CPD)	
Front Yard Setback (ft)	229.0 ft (87 CPD)	65.8 (O-2A) 15 min (AOD-6)	15.1 ft (overhang)	229.0 ft (87 CPD) 15.1 ft (101 CPD)	
Side Yard Setback EAST (ft)	47.5 ft (87 CPD)	52.7 (O-2A) 10 min (AOD-6)	81.4 ft	47.5 ft (87 CPD) 81.4 ft (101 CPD)	
Side Yard Setback WEST (ft)	0.3 ft (87 CPD)	52.7 (O-2A) 10 min (AOD-6)	21.7 ft	0.3 ft (87 CPD) 21.7 ft (101 CPD)	
Rear Yard Setback (ft)	3.1 ft (87 CPD)	15 min (AOD-6)	74.6 ft (Bldg. to bldg.)	3.1 ft (87 CPD) 74.6 ft (101 CPD)	
Open Space (% of Lot Area)	36.2% (48,107 sf)	15% min	N/A	46,961 sf (35.4%)	
Private Open Space	N/A	N/A	N/A	N/A	
Permeable Open Space	28.5% (37,874 sf)	25% min	N/A	33,631 sf (25.3%)	
Other Open Space (Specify)	N/A	N/A	N/A	N/A	
Off-Street Parking Spaces	111 spaces (87 CPD)	Min 198 spaces Max 393 spaces (total 87&101) (i)	137 spaces (ii)	248 spaces (iii)	
Long-Term Bicycle Parking	0 spaces	47 spaces (total 87&101) (iv)	48 spaces	64 spaces (v)	
Short-Term Bicycle Parking	6 spaces	15 spaces (total 87&101) (vi)	22 spaces	28 spaces (vii)	
Loading Bays	1 bay (87 CPD)	1 for 98 CPD + 2 for 101 CPD (per Cat. F)	2 bays	1 for 87 CPD + 2 for 101 CPD = 3 bays	

Use space below and/or attached pages for additional notes:

CITY OF CAMBRIDGE, MA • PLANNING BOARD • SPECIAL PERMIT APPLICATION

REVISED DIMENSIONAL FORM FOOTNOTES

(i) Off-Street Parking Requirements (Per Building Under Existing Zoning)

Minimum Parking Required (87 CPD) = 1 per 1,050 sf (Office/Lab) per §6.36.4f.
= [63,851 sf x (1/1,050)]
= 61 spaces

Minimum Parking Required (101 CPD) = 1 per 1,050 sf (Office/Lab) per §6.36.4f.
1 per 700 sf (Retail) per §6.36.5a.2)
= [139,089 sf x (1/1,050)] + [2,745 sf x (1/700)]
= 133 + 4
= 137 spaces

Maximum Parking Allowed (87 CPD) = 1 per 525 sf (Office/Lab) per §6.36.4f.
= [63,851 sf x (1/525)]
= 122 spaces

Maximum Parking Allowed (101 CPD) = 1 per 525 sf (Office/Lab) per §6.36.4f.
1 per 500 sf (Retail) per §6.36.5a.2)
= [139,089 sf x (1/525)] + [2,745 sf x (1/500)]
= 265 + 6
= 271 spaces

Off-Street Parking Requirements (For Overall Site Under Existing Zoning)

Minimum Parking Required (Overall Site) = 1 per 1,050 sf (Office/Lab) per §6.36.4f.
1 per 700 sf (Retail) per §6.36.5a.2)
= [202,940 sf x (1/1,050)] + [2,745 sf x (1/700)]
= 194 + 4
= 198 spaces

Maximum Parking Allowed (Overall Site) = 1 per 525 sf (Office/Lab) per §6.36.4f.
1 per 500 sf (Retail) per §6.36.5a.2)
= [202,940 sf x (1/525)] + [2,745 sf x (1/500)]
= 387 + 6
= 393 spaces

- (ii) Denotes the maximum number of new parking spaces proposed for 101 Cambridgepark Drive building only, including surface and garage parking areas. Also denotes minimum requirement under current Zoning and is subject to potential reduction at the discretion of the Applicant in the event of future zoning changes, and as permitted under PTDM Plan.
- (iii) Denotes total maximum parking proposed for both 101 Cambridgepark Drive and 87 Cambridgepark Drive, including surface and garage parking areas. The number of parking spaces will be reduced over time as required under the PTDM plan (refer to PTDM Plan, *Employee and Patron Mode-Split Commitments*) ultimately to a total of 198 spaces. As outlined in the PTDM Decision issued on January 14, 2020, the Applicant is encouraged to pursue further reduction of the number of parking spaces below 198 parking spaces in the event of future zoning changes.

REVISED DIMENSIONAL FORM FOOTNOTES (CONTINUED)

(iv) Long-Term Bicycle Parking Requirements

Minimum Parking Required = 0.1 per 1,000 sf (Retail) and 0.22 per 1,000 sf (Office/Lab) per §6.107.2

87 Cambridgepark Drive = 63,851 sf x (0.22/1,000)
= 15 spaces

101 Cambridgepark Drive = [139,134 sf x (0.22/1,000)] + [2,700 sf x (0.1/1,000)]
= 31 + 1 = 32 spaces

Total Required Long-Term
Bicycle Parking = 15 + 32
= 47 spaces

(v) Proposed Long-Term Bicycle Parking = 16 spaces (87 CPD) + 48 spaces (101 CPD)
= 64 spaces

(vi) Short-Term Bicycle Parking Requirements

Minimum Parking Required = 0.6 per 1,000 sf (Retail) and 0.06 per 1,000 sf (Office/Lab) per §6.107.3

87 Cambridgepark Drive = 63,851 sf x (0.06/1,000) = 4 spaces

101 Cambridgepark Drive = [139,134 sf x (0.06/1,000)] + [2,700 sf x (0.6/1,000)]
= 9 + 2 = 11 spaces

Total Required Short-Term
Bicycle Parking = 4 + 11
= 15 spaces

(vii) Proposed Short-Term Bicycle Parking = 6 spaces (87 CPD) + 22 spaces (101 CPD)
= 28 spaces

SUPPLEMENTAL SPECIAL PERMIT APPLICATION NARRATIVE



Supplemental Special Permit Application

This Supplemental Special Permit Application submitted by HCP/King 101 CPD, LLC (the “Applicant”) amends and adds to the original Application for Special Permit dated October 4, 2019 submitted for the Project. This supplemental application includes an additional Special Permit request, and refinements to the Project site plan and building design, in response to recommendations by the Planning Board and Community Development Department staff.

In addition to the Special Permit Application, the Project has undergone concurrent review by the Cambridge Conservation Commission via the submission of a Notice of Intent. The Commission voted to approve the Notice of Intent application for Project work being conducted on-site at their January 27, 2020 hearing. The Applicant expects to receive the Order of Conditions shortly.

Regarding the multi-use path proposed to be located on the abutting MBTA property, the path construction and use falls under the Massachusetts Wetlands Protection Act regulations, and subject to separate review and approval by the Conservation Commission. In accordance with the Commission’s project review protocol, the Applicant has arranged for a pre-filing meeting with Commission staff on February 13, 2020, and an informal design presentation and review with the Conservation Commission on February 24, 2020. The Applicant intends to submit a formal Notice of Intent application with the Conservation Commission shortly thereafter. Given preliminary feedback from the Conservation Commission citing concerns with the multi-use path crossing the MBTA property, the Applicant has included both options for the alignment of the multi-use path for Planning Board approval in the following application materials.

1. Additional Special Permit Request

The following additional Special Permit approval is requested to allow for a retail business use given the site lies within a base office zoning district and also within the Alewife Overlay District (Sec. 20.90).

- Sec. 20.94.1 – Modifications to Permitted Uses | Additional Permitted Uses: Retail Business allowed as an additional permitted use in a base office or industrial district via Special Permit.

2. Supplemental Zoning Compliance Narrative

The following Supplemental Zoning Compliance Narrative amends and adds to the original Application, summarizing Project compliance with the criteria set forth in the Special Permit regulations.

20.90 ALEWIFE OVERLAY DISTRICT

20.92 General Purpose

It is the purpose of this Section 20.90 to augment existing base district zoning regulations to respond to the unique problems and pressures for change in the Alewife area. The regulations

contained in this Section 20.90 provide for more careful public scrutiny of future development proposals and provide an opportunity to shape the form and character of that development in ways that will benefit both individual property owners and the general interests of the larger commercial and residential neighborhood as a whole. These regulations are intended to harness the opportunities presented with the redevelopment of private property in ways that will:

- 1. Encourage forms of development, mix of uses, and range of improvements that will facilitate and encourage walking, biking and transit use and reduce the growth of auto trips in an area already burdened with regional vehicular traffic passing through to other destinations in the metropolitan region;***

The Applicant has proposed a mix of technical office and retail uses for the Project, and in an effort to reduce traffic and encourage alternative modes of transportation, the Applicant has proposed a maximum number of parking spaces for 101 Cambridgepark Drive equal to the current zoning minimum (137 spaces). Furthermore, the Applicant has received approval on a robust PTDM plan featuring a comprehensive strategy to reduce single-occupancy vehicle trips including charging market rate for parking directly to employees on a daily basis and a single occupancy vehicle (SOV) mode-split commitment of 40% to align with recommendations from the Envision Alewife Plan. The parking supply for the site will also be reduced over time as outlined in the approved PTDM plan. The frontage along Cambridgepark Drive will be improved for pedestrians, and the Project is a short walk to the Alewife MBTA Station. The property also has direct access to the Fitchburg Cutoff Bike Path to the north, along with its associated bike trail network, and has storage space for 92 bicycles including short- and long-term spaces for both the existing and proposed buildings. Additionally, the Applicant has committed to the installation of a 23 Bluebike station on the site.

- 2. Preserve and enhance the capacity to store floodwater, recharge groundwater and manage the collection and disposal of stormwater in ways that add to the quality and visual appeal of the built environment as well as to the quality of the water itself;***

The Project will meet all the new, enhanced requirements for storm water management and flood water storage on the Project site.

- 3. Minimize the negative impact of new development on the adjacent Cambridge Highlands residential neighborhood while introducing new amenities and services that will benefit the residents of that neighborhood;***

The Project is well removed from the Highlands neighborhood thus no negative impacts are anticipated. The Applicant has proposed retail use on the ground floor of the Project which will introduce new amenities to the area.

- 4. Integrate the entire area through the creation of new pedestrian paths, roadways, green spaces and bridges that will facilitate movement within the several Districts and beyond to***

the Cambridge Highlands, North Cambridge and Neighborhood Nine neighborhoods and the Fresh Pond Reservation;

The Applicant has proposed a new, multi-use connection from the Fitchburg Cutoff path to Cambridgepark Drive and has proposed to fund the cost of a new, 23-bike Bluebike station to enhance access to alternative modes of transportation.

5. Introduce a significant component of residential living and support retail services to enhance the area’s appeal for all persons who come to work, shop as well as live within the Districts; and

The Project proposes approximately 2,745 square feet of ground floor retail space directly adjacent to Cambridgepark Drive, including an additional “retail ready” flex space available depending on market demand.

6. Create an identity and sense of place for the Alewife Districts that parallels the development of the historic urban centers that characterize much of Cambridge.

The Project will replace existing paved parking areas with landscape, pedestrian and bicycle uses and amenities consistent with other urban areas in Cambridge. The Project will replace the existing private outdoor courtyard with a multi-tenant building with ground-floor retail space visible and accessible from Cambridgepark Drive. The Project will enhance the continuity of the urban streetscape along Cambridgepark Drive via ground-level retail space in the proposed building and activated landscape and hardscape areas. The proposed multi-use path along the east side of the Property will enhance the natural environment and encourage non-vehicular circulation to and from the Property, contributing to the creation of a more bikeable and walkable urban environment.

20.94 Modifications to Permitted Uses

20.94.1 | Additional Permitted Uses - Criteria for Approval of Special Permit for General Retail and Restaurant Use

In any base office or industrial district all uses listed in Section 4.35 – Retail Business and Consumer Service Establishments shall be permitted by special permit from the Planning Board (if not otherwise allowed as of right in the district), subject to the following limitations unless the limitations are specifically waived by the Planning Board upon its finding that the purposes set forth in Section 20.92 have been met:

1. No individual establishment may exceed 10,000 SF in area.

The proposed retail/restaurant uses do not meet or exceed 10,000 SF in area. The proposed retail uses measure approximately 2,745 SF with additional “retail-ready” flex space provided if market conditions dictate. Neither retail space will exceed 10,000 sf in area.

- 2. The retail use shall be located on the first floor or basement of the building in which it is located.**

The proposed retail restaurant uses are located on the ground floor.

- 3. The total Gross Floor Area devoted to retail uses may not exceed 10% of the Gross Floor Area of the buildings constructed or authorized on the lot.**

The total Gross Floor Area devoted to proposed retail/restaurant uses does not exceed 10%. The total GFA devoted to the proposed retail/restaurant uses is approximately 1.8% (2,745 SF/ 141,834 SF). Additional “retail-ready” flex space is also provided on the ground floor if market conditions dictate need. The combined designated retail space and retail-ready space does not exceed 10% of total GFA on the lot.

Summary of Project Design Changes

Site Plan

Streetscape and Building Entry Improvements

The continuity of the streetscape and building entry has been adjusted to improve the sense of neighborhood as one approaches the building along Cambridgepark Drive. The landscape and hardscape promote opportunities for public gathering spaces along the front of the building, with stairs and accessible walkways now incorporated into the building colonnade. The retail visibility has been enhanced by relocating the east entrance to face the street. The western tenant space has been made retail-ready by adding street facing doors. Finally, the garage vent areaway has been relocated making the colonnade accessible from both the western and eastern approach to the building.

Bicycle/Pedestrian Pathways and Neighborhood Connections

A 10'-6" wide raised cycle track has been added along the Project site within Cambridgepark Drive, adjacent to the existing curb line. The cycle track ride lane is 5' wide, with a 24" building side offset to protect from vertical obstructions such as trees, and a 42" street side offset to protect from on-street parking and door swings. The cycle track will connect to existing street-grade bicycle lanes along the front of abutting properties and proposed north-south multi-use bicycle/pedestrian path extending from Cambridgepark Drive to the Fitchburg Cut-Off Bike Path.

To address concerns regarding a portion of a 10' wide multi-use path being shared with the 87 CPD driveway, the Applicant has secured an agreement with the MBTA at its own expense to allow the path to extend over land owned by the MBTA. The off-site segment of the multi-use path is within jurisdiction of the Massachusetts Wetlands Protection Act, and subject to separate review and approval by the Cambridge Conservation Commission. The Applicant is currently undertaking informal review with the Commission and their staff which will be followed by a formal Notice of Intent filing. To summarize the design intent of the off-site path alignment, a portion of the path is designed as an elevated timber

boardwalk similar to the raised boardwalk pathways at the abutting Alewife Brook Reservation. This is being proposed in an effort to accommodate the grade transition and protect environmental resource areas. Once at grade, the path will extend on MBTA property adjacent to the Project site lot line, eventually connecting to the Fitchburg Cutoff Bike Path. The Applicant's original intent was to align the new, multi-use path to follow the alignment of the existing foot path located on the MBTA property, but after discovering that the existing foot path extends over a small land parcel not owned by the MBTA, the new path has been routed to avoid this non-MBTA owned parcel of land. The Applicant will be financially responsible for yearly license and path maintenance costs.

The Applicant has also re-designed the on-site option of the multi-use path to keep pedestrians separated from the 87 CPD driveway. This option includes a pedestrian-only path that separates from the multi-use path before the multi-use path meets the 87 CPD driveway. The proposed pedestrian-only path connects to the existing pedestrian path on the abutting MBTA property, ultimately leading pedestrians to the Fitchburg Cutoff Bike Path or the Alewife MBTA station.

While the Applicant recognizes that the off-site multi-use path option is the preferred design solution for CDD staff and the Planning Board, the on-site multi-use path option has been included in the attached application materials as a back-up alternative for consideration by the Planning Board in the event the Conservation Commission does not approve the off-site multi-use path location.

Landscape Refinement and Tree Replacement

The tree replacement program has been improved through refined landscape design and additional evaluation of existing site tree conditions. As a result, the number of trees identified for transplant has increased from 4 to 6 and the total number of newly planted trees has increased from 57 to 64. Whereas the Applicant had previously counted transplanted trees as removed trees, the Applicant is now committed to transplanting these trees. Therefore, the transplanted trees are no longer counted as removed trees in the caliper inch calculations. The corresponding on-site tree caliper inch deficit has improved from 118 DBH inches to 35 DBH inches.

The Project arborist has consulted with the City arborist regarding the existing street trees along the site frontage of Cambridgepark Drive. It was determined that the existing trees should remain, but with a more rigorous tree-care program including selective pruning and planned maintenance. Three additional trees are infilled within the street tree layout, with continuous tree pits implemented where practical to enhance tree root growth and visual appearance. Specifications for tree planting soil medium and surface covering to protect root systems will be incorporated as recommended by the City arborist.

Building Design

Exterior Façade Design

The building fenestration has been adjusted to reduce the amount of glazing along the south façade. Overall the window to wall ratio has been reduced from 55% to 38%. The architectural detailing of the brick panel, supporting banding, and glass projections has been refined to better reflect the choice of materials. The top of glass at the projected bays now aligns with the horizontal banding. The mechanical penthouse has been articulated and set back further from the roof edge at the southeast corner of the building to break up the visual scale and add texture.

Retail Program

The enhanced retail program provides a larger retail footprint and improved connectivity to the surrounding neighborhood, with increased visibility for the retail spaces as viewed from the street. A total of 2,745 square foot area is proposed for the retail tenant space east of the lobby. The space west of the lobby has been designed as retail-ready space, capable of supporting either retail or lab/office tenants. A dedicated entry off the front building colonnade encourages the potential as a retail use. The Applicant has also performed an assessment of the existing and planned retail space on Cambridgepark Drive to better frame the context of the Project's contribution to the retail amenities on the street.

Parking, Transportation and PTDM

The parking supply for the 101 Cambridge Park Drive building has been reduced from 143 spaces to 137 spaces which complies with the minimum allowable parking under the off-street parking regulations. The total parking supply proposed for the Project has been reduced from 254 spaces to 248 spaces. The Applicant received conditional approval on the PTDM plan on January 14, 2020. The PTDM plan includes robust measures to discourage single occupancy vehicle trips including charging building employees market rate parking on a daily basis and a single occupancy vehicle (SOV) mode split commitment of 40% which aligns with the goals of the Envision Alewife Plan. The PTDM plan also includes a mechanism to reduce the total parking supply from 248 spaces to 198 spaces by blocking off spaces in the proposed underground garage. In addition to reducing the parking supply and committing to a robust PTDM plan, the Applicant's Bluebike station commitment has increased from a 19-bicycle station to a 23-bicycle station.

The Applicant has agreed to all of the recommendations in TP&T's initial memorandum to the Planning Board, including the following:

1. As recommended in the Alewife District Plan, the Applicant should provide a one-time \$5 per square foot contribution to the City toward the Alewife Pedestrian Bicycle Bridge or other Transportation Improvements in the Alewife Area (example: 141,834 sf x \$5/sf = \$709,170. Contribution shall be due prior to the issuance of the Building Permit.
2. Contribute \$140,000 to the City towards planning, design and/or installation of transportation improvements in the Alewife District, such as advancing the redesign of Cambridgepark Drive

between Steel Place and Alewife Brook Parkway/Rindge Avenue. Contribution shall be due prior to the issuance of the Building Permit.

3. To prevent vehicles from stopping or parking in the existing bicycle lane in front of the site, the Project should replace the bicycle lane within frontage of the site with a raised protected cycle track as approved by TP&T, CDD, DPW and the Conservation Commission. The Permittee shall also be required to maintain the raised bicycle lane free of snow unless and until the Department of Public Works (DPW) relieves the Permittee of such obligation explicitly in writing. TP&T and DPW shall approve all final construction plans. Design shall be approved by the City prior to the issuance of a Building Permit and completed prior to issuance of an Occupancy Permit.
4. Fund a Bluebikes bikesharing station as required in the PTDM plan with location approved by the City. Due prior to the issuance of the Building Permit.

LEED Design

The Project has targeted additional building and site design elements to enable the project to achieve LEED Gold rating. See summary of sustainable design and LEED commitments in the Sustainability Section of this application.

Infrastructure

Compensatory Flood Storage

The compensatory flood storage design has been revised to ensure compensation for additional displaced flood storage volume associated with the streetscape and building entry improvements, new cycle track within Cambridgepark Drive, and realigned multi-use path. This is more fully described in the attached Flood Report.

Stormwater/Utility Infrastructure

Minor grading, drainage, and utility revisions are proposed to accommodate the referenced programmatic Project site changes such as the building entry landscape and hardscape areas, Cambridgepark Drive cycle track addition, and general Project landscape and bicycle parking refinements.

INFRASTRUCTURE





February 11, 2020

Mr. H. Theodore Cohen, Chairman
Cambridge Planning Board
City Hall Annex
344 Broadway
Cambridge, MA 02139

Re: 87/101 Cambridgepark Drive
Revised Compensatory Flood Storage Certification

Dear Mr. Cohen and Members of the Board:

As required by Section 20.75 of the Cambridge Zoning Ordinance and by the Massachusetts Wetlands Protection Act, the Project site's flood storage capacity was evaluated for storm events up to and including the 100-year storm to determine if the proposed Project would result in a net reduction in on-site flood storage capacity. Additionally, pursuant to the City of Cambridge Climate Change Vulnerability Assessment initial recommendations, the Project is designed with consideration of anticipated 100-year storm events and flood elevations associated with the Vulnerability Assessment's model for the Year 2070.

Highpoint hereby discloses that the flood storage capacity analysis has, since the initial submission thereof as part of a Special Permit application submission to the Cambridge Community Development Department, been expanded to include off-site areas affected by the proposed Project. Off-site improvements include construction of a raised cycle track within Cambridgepark Drive along the site frontage and construction of a multimodal pedestrian/bicycle path on MBTA property northeast of the Project site. The MBTA has granted the Project Applicant an access and maintenance easement over its property to construct a path connecting Cambridgepark Drive to the Fitchburg Cutoff Bike Path. Located within the Alewife Brook Reservation north of the Project site.

Per the City of Cambridge Department of Public Works, the Project implements the following design standards:

1. Building ground floor areas (with exception of some entry vestibules), loading doors, and garage entrance driveway will be located above the theoretical 2070 | 100-year precipitation El.=20.0.
2. Building main entry vestibules on the south and north sides of the building are designed to flood under, and recover from, the theoretical 2070 100-year Sea Level Rise/Storm Surge (SLR/SS) El. =22.5 without flooding the main first floor lobby or tenant areas.
3. Building garage entrance will be equipped with a Floodbreak™ passive deployment flood protection system at the garage entrance gate and trench drain inlet, to prevent flood waters from the theoretical 2070 100-year SLR/SS event from entering the below-grade garage.
4. The Project provides on-site and off-site compensatory flood storage exceeding the existing condition via site grading and at flood storage areas beneath a raised outdoor plaza and an

elevated section of an off-site multimodal path providing pedestrian and bicycle transportation connectivity between Cambridgepark Drive and the Fitchburg Cutoff Bike Path within the Alewife Brook Reservation north of the project site. No flood storage is provided within the proposed building footprint, and no actively deployed flood protection measures are necessary to protect the main building first floor from the theoretical 2070 100-year SLR/SS event.

Highpoint has determined that the construction of the Project as proposed will result in a loss of the site's available flood storage for certain incremental flood elevations due to building displacement within the flood plain. Therefore, in accordance with the Zoning Ordinance and the Massachusetts Wetlands Protection Act (310 CMR 14.00), the flood loss will be compensated for on an incremental elevation basis, within which the existing flood storage volume is displaced.

To compensate for the displaced flood storage on site, the proposed outdoor plaza between the two buildings will be elevated creating an interstitial space between the plaza structure and finished grade below dedicated to providing compensatory flood storage. The Project will be designed to enable free flow between the areas underlying the deck and other depressed landscape areas east of the existing 87 Cambridgepark drive building and west and southwest of the proposed 101 Cambridgepark Drive building. Additionally, the driveway and parking area at the southeast corner of the proposed building and the landscape and hardscape areas between the proposed building and Cambridgepark Drive will be graded to provide additional flood storage. The raised section of the multimodal path will provide at-grade flood storage below the deck. The overall flood storage on and off site is designed to be hydraulically contiguous to the existing, non-displaced flood plain within Cambridgepark Drive, eliminating the potential for isolated flood storage areas.

In conclusion the Project provides sufficient compensatory flood storage up the existing 100-year flood elevation (El. 18.4), on an incremental foot-by-foot basis, via site grading and below-outdoor-deck interstitial areas to compensate for the loss of flood storage volume due to development of the Project.

The Flood Report and associated design drawings summarize the evaluation results and the incremental and cumulative flood storage impacts and mitigation for the Project.



In accordance with Section 20.75 of the Zoning Ordinance and with the requirements of the Wetlands Protection Act, Highpoint hereby certifies that the Project and the associated site improvements (as presented in the Special Permit package) provide the required compensation for the flood storage losses due to the construction of the proposed building, associated vehicular and bicycle parking and circulation improvements, and site infrastructure. The site's flood storage capabilities will not be adversely affected by the construction of said improvements. Additionally, the project has been designed to meet the City of Cambridge Climate Change Vulnerability Assessment initial recommendations.

Best regards,

HIGHPOINT ENGINEERING

A handwritten signature in blue ink, appearing to read 'Douglas J. Hartnett', written over a faint, larger version of the signature.

Douglas J. Hartnett, P.E.

President, MA Registration Number 37796

REVISED FLOOD REPORT

A portion of the Project is located within Bordering Land Subject to Flooding (BLSF; the Flood Plain) as defined by the Massachusetts Wetlands Protection Act (the WPA). A Flood Insurance Study of the City of Cambridge was performed and published June 4, 2010. The Study established flood elevations for the 10-year, 50-year, 100-year, and 500-year floods adjacent to Little River north of Cambridgepark Drive.

Table 1 summarizes current FEMA flood elevations expressed in North American Vertical Datum 1988 (NAVD 1988) and City of Cambridge Base (CCB) elevations.

Table 1. – Present-Day FEMA Flood Elevations*

FLOOD FREQUENCY	FLOOD ELEVATION (NAVD 1988)	FLOOD ELEVATION (CCB)
10-Year	3.1 feet	14.7 feet
50-Year	4.9 feet	16.5 feet
100-Year	6.8 feet	18.4 feet
500-Year	10.7 feet	22.4 feet

The WPA requires that no project shall result in more flood volume displacement than that which exists on site under existing conditions and that any lost flood storage shall be compensated for under any project that results in loss of flood storage for each elevation increment in which the loss occurs. Under the proposed Project, compensatory flood storage will be provided through site grading, including storage provisions under a raised outdoor deck between the two buildings.

Calculations to determine the flood storage volume available under the proposed Project have been conducted for each elevation increment between the lowest existing grade within the Flood Plain adjacent to Old Alewife Brook on the MBTA property northeast of the Project site and the current flood elevation of 18.4 feet CCB. The available flood storage under the proposed Project was compared to the available storage under existing conditions for the same elevation increments. A multimodal path, a portion of which will be raised and supported on concrete Sonotube piers, is proposed to provide pedestrian and bicycle connectivity between Cambridgepark Drive and the Fitchburg Cutoff Bike Path north of the Project site across a portion of the MBTA property northeast of the Project site on which the Applicant has secured an access and maintenance easement agreement with the MBTA. The calculations also consider proposed pedestrian and bicycle transportation improvements within Cambridgepark Drive, including a raised pedestrian crossing and the site driveway entrance and a raised cycletrack at sidewalk grade.

The available flood storage volumes for the existing and proposed conditions were calculated using AutoDesk AutoCAD Civil 3D 2018 software and the results are summarized in this Report. The software compared the existing topographic data of the Project site to each one-foot incremental flood elevation up to the proposed 100-year flood elevation of 18.4 feet CCB. The total volume per increment was calculated and tabulated as provided in Table 2. The same methodology was applied to the proposed topographic data for the Project site, and the results thereof are provided in Table 3.

Table 2. – Existing Available Flood Storage

ELEVATION INCREMENT (FT)	EXISTING CUMULATIVE AVAILABLE FLOOD STORAGE (CY)	EXISTING INCREMENTAL AVAILABLE FLOOD STORAGE (CY)
Up to 14.0	23	23
14.0 to 15.0	91	68
15.0 to 16.0	205	114
16.0 to 17.0	395	190
17.0 to 18.0	756	361
18.0 to 18.4	1,252	496

Table 3. – Proposed Available Flood Storage

ELEVATION INCREMENT (FT)	PROPOSED CUMULATIVE AVAILABLE FLOOD STORAGE (CY)	PROPOSED INCREMENTAL AVAILABLE FLOOD STORAGE (CY)
Up to 14.0	23	23
14.0 to 15.0	93	70
15.0 to 16.0	226	133
16.0 to 17.0	423	197
17.0 to 18.0	891	468
18.0 to 18.4	1,396	505

To determine the total change in available flood storage for the post-development condition of the proposed Project, the total available post-development storage volume was compared to that of the pre-development condition for each one-foot elevation increment. Table 4 summarizes the net flood storage compensation for the Project.

Table 4. – Net Incremental Available Flood Storage

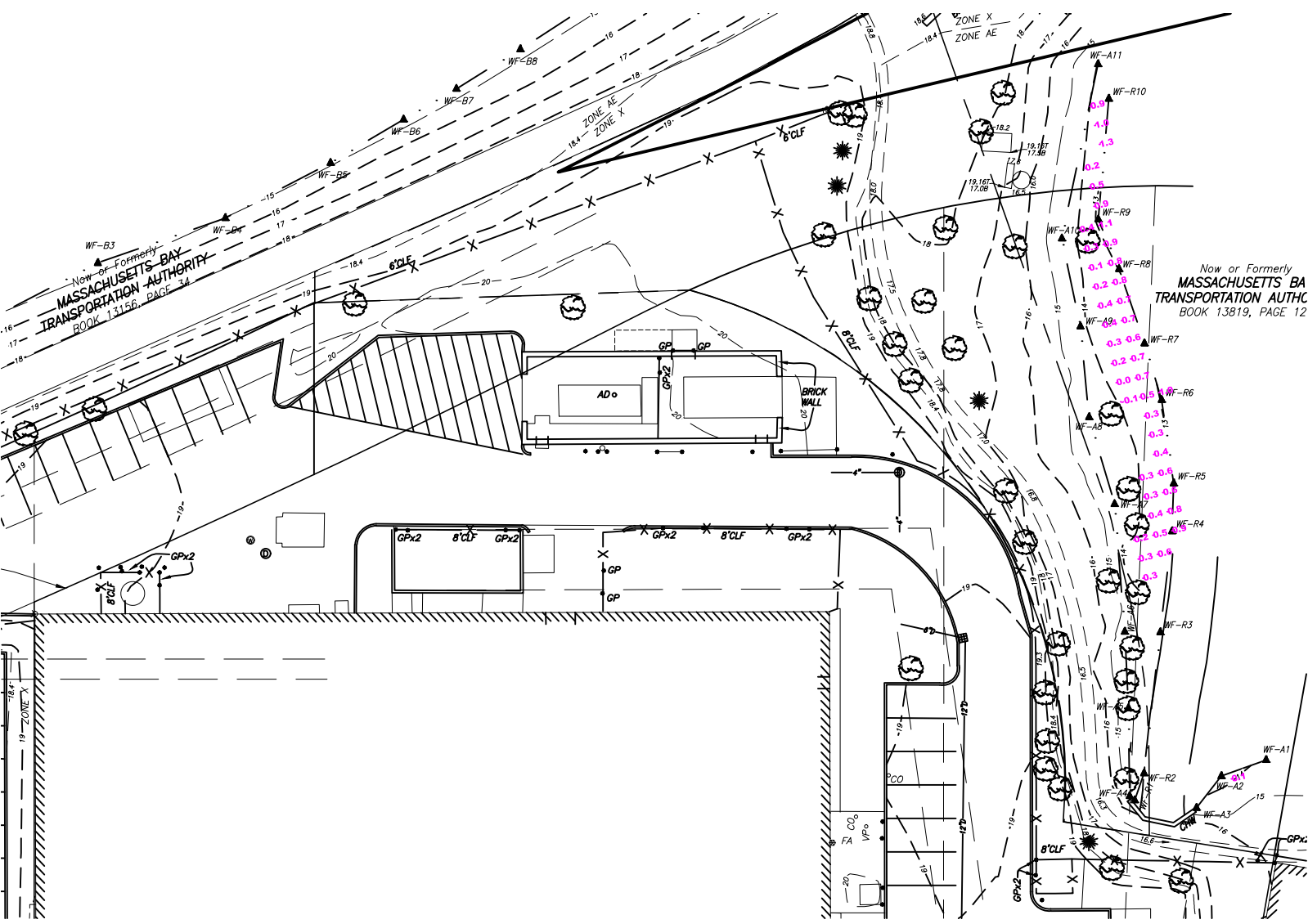
ELEVATION INCREMENT (FT)	EXISTING INCREMENTAL AVAILABLE FLOOD STORAGE (CY)	PROPOSED INCREMENTAL AVAILABLE FLOOD STORAGE (CY)	NET INCREMENTAL AVAILABLE FLOOD STORAGE (CY)
Up to 14.0	23	23	0
14.0 to 15.0	68	70	+2
15.0 to 16.0	114	133	+19
16.0 to 17.0	190	197	+7
17.0 to 18.0	361	468	+107
18.0 to 18.4	496	505	+9

As demonstrated in Table 4, the proposed Project will result in a net increase of 144 cubic yards in available flood storage for the Project. The increase in available flood storage is achieved via re-grading of pedestrian and parking areas and creation of contiguous depressions under the proposed outdoor raised deck and within expanded landscaped open space areas adjacent to the existing and proposed buildings.

The depressed areas under the raised deck and within the expanded landscaped open space areas are designed for hydraulic connectivity both between each other and with the overall Flood Plain within Cambridgepark Drive and adjacent to Little River to the north. Flood waters will be able to flow under the raised outdoor deck both under advancing and receding conditions through large-opening vertical grates to prevent restriction of free flow due to debris accumulation and to provide ease of maintenance and inspection when necessary. The proposed available flood storage calculations also account for volumetric loss due to a raised deck foundation system comprising square tube steel columns set on concrete Sonotube piers for the raised deck and elevated portion of the multimodal path within the license agreement area on MBTA property.

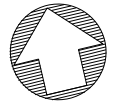
In accordance with the Wetlands Protection Act, the proposed Project incorporates site improvements provide the necessary flood storage provisions to compensate for flood storage displacement resulting from construction of the Project and provides connectivity of the on-site flood volumes to the overall Alewife Brook/Little River Flood Plain.

END



FLOOD VOLUME CALCULATION NOTES

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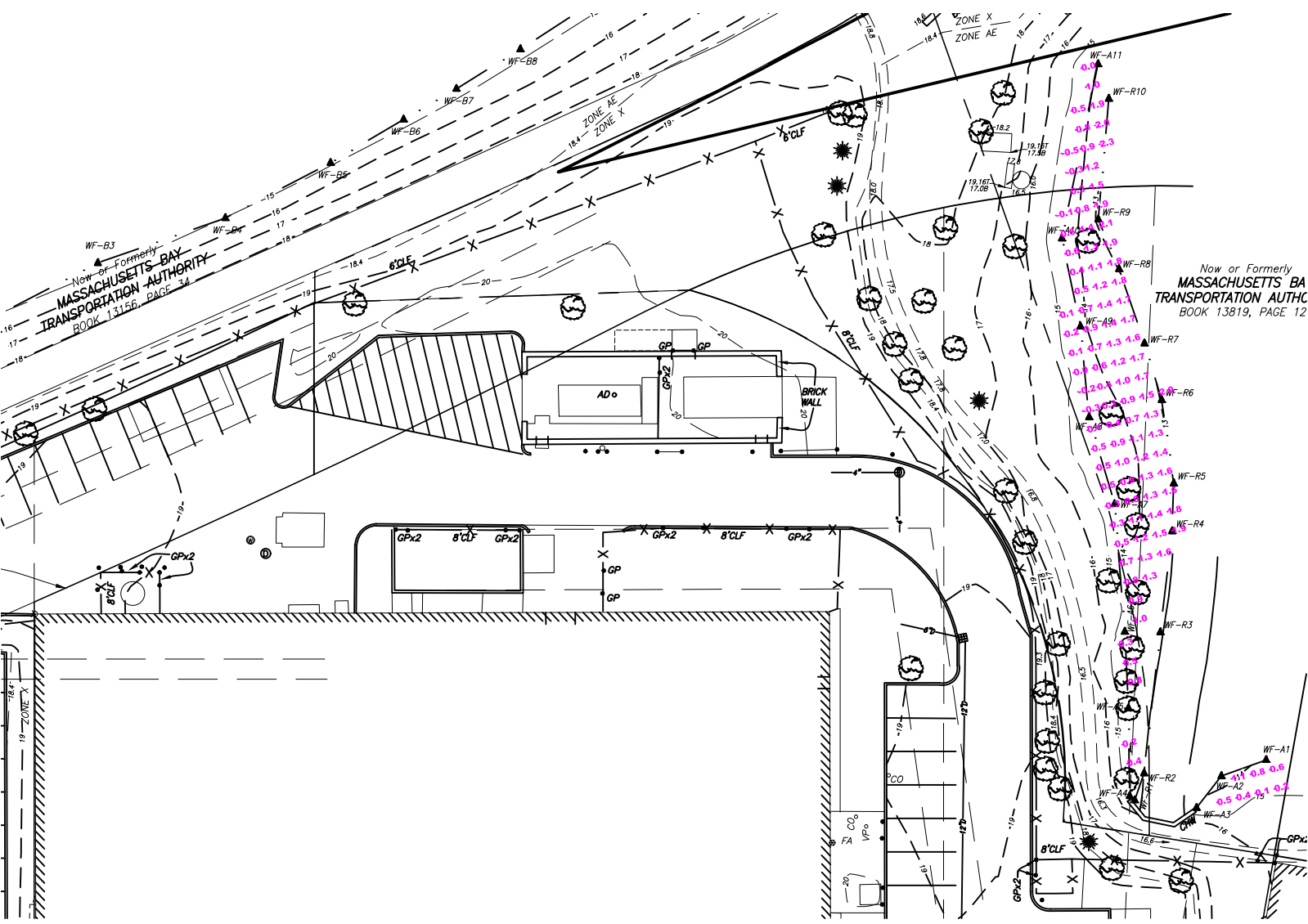


FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 14.0	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 13.0 TO 14.0	23 CY	23 CY

EXISTING AVAILABLE FLOOD STORAGE PLAN | BELOW ELEVATION 14.0



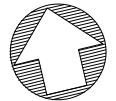
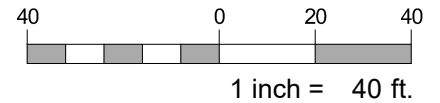
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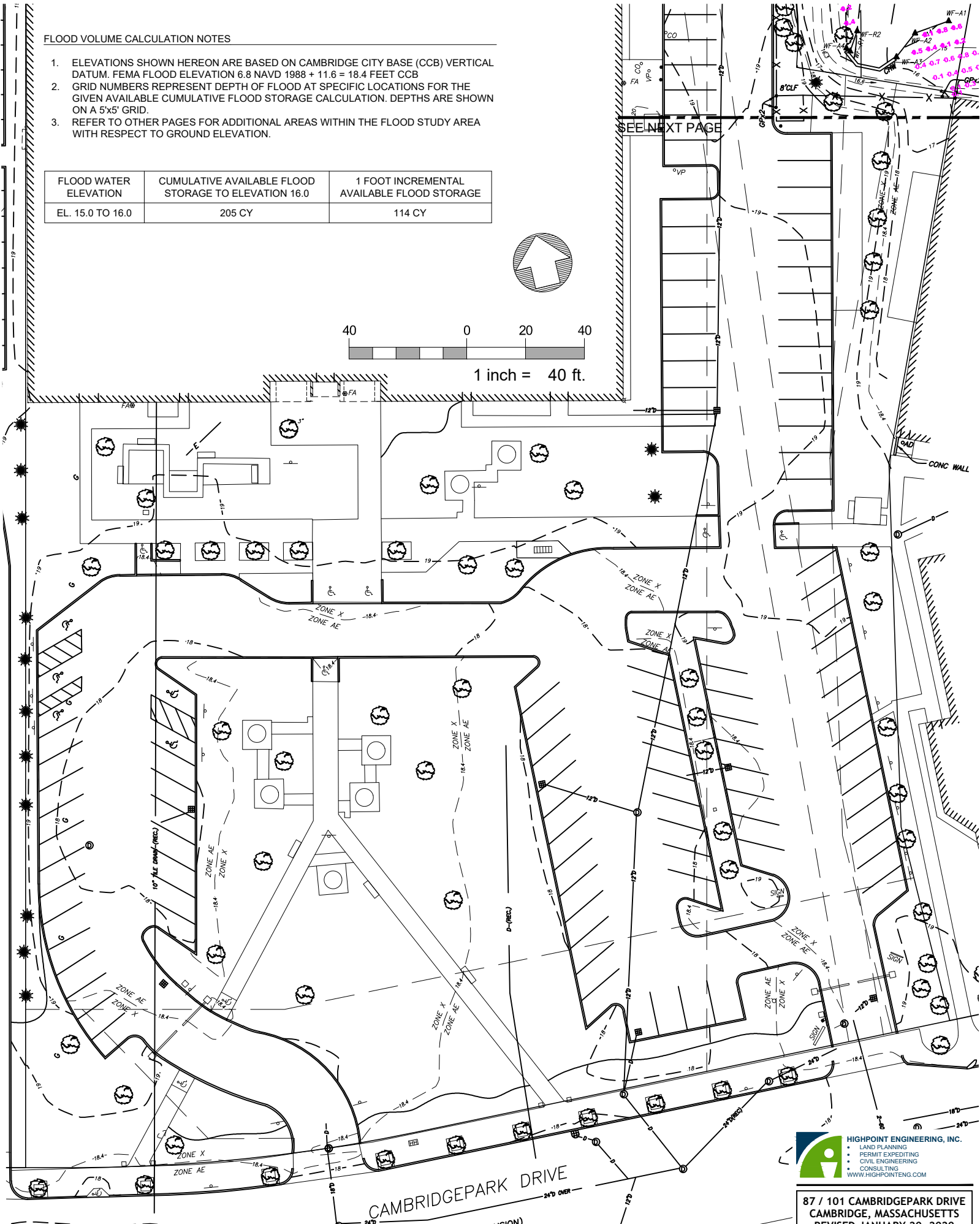
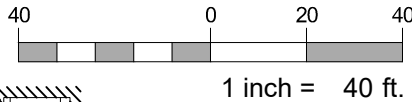
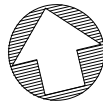
FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 15.0	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 14.0 TO 15.0	91 CY	68 CY



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FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 16.0	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 15.0 TO 16.0	205 CY	114 CY

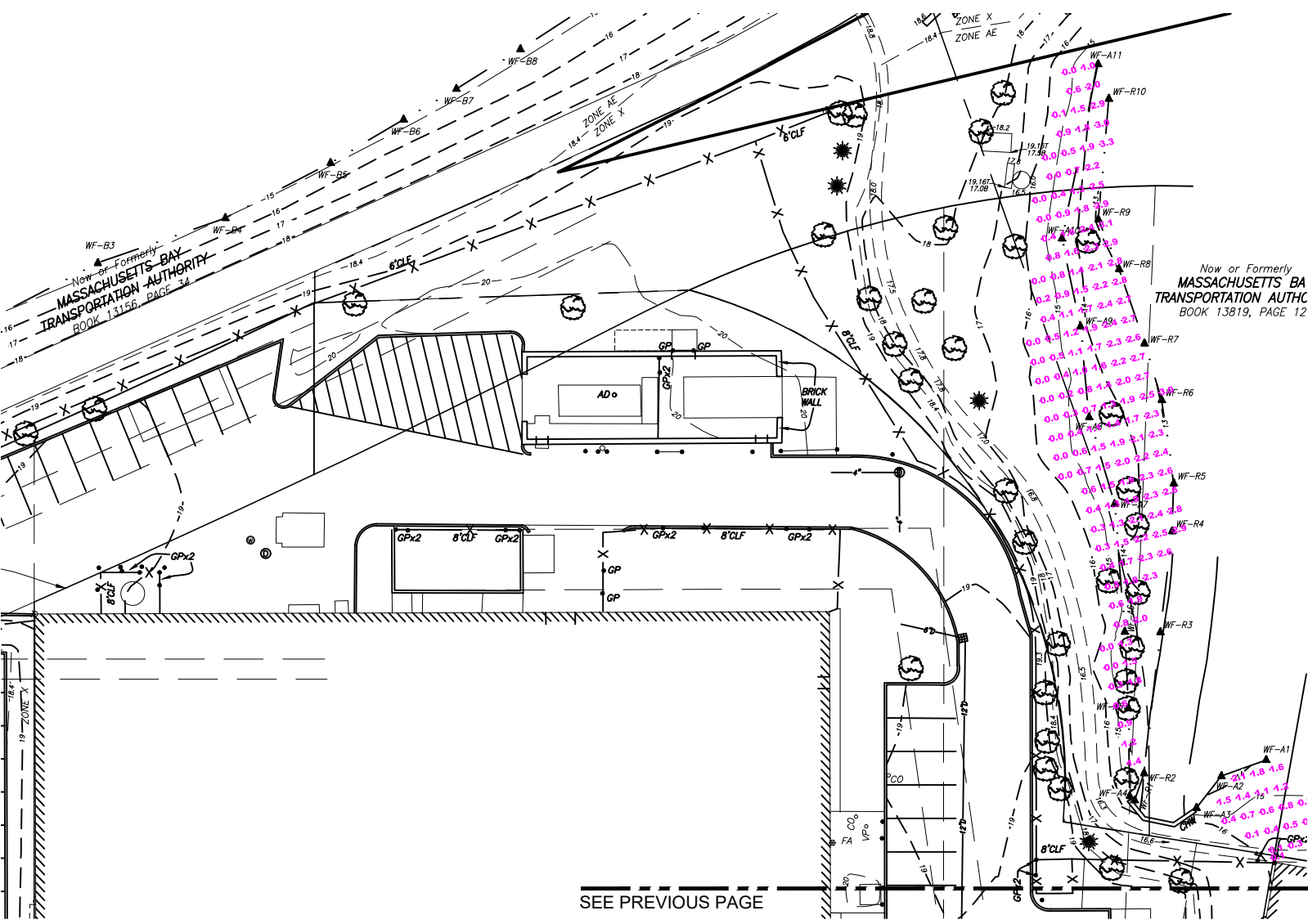


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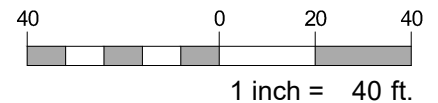
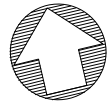
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FLOOD VOLUME CALCULATION NOTES

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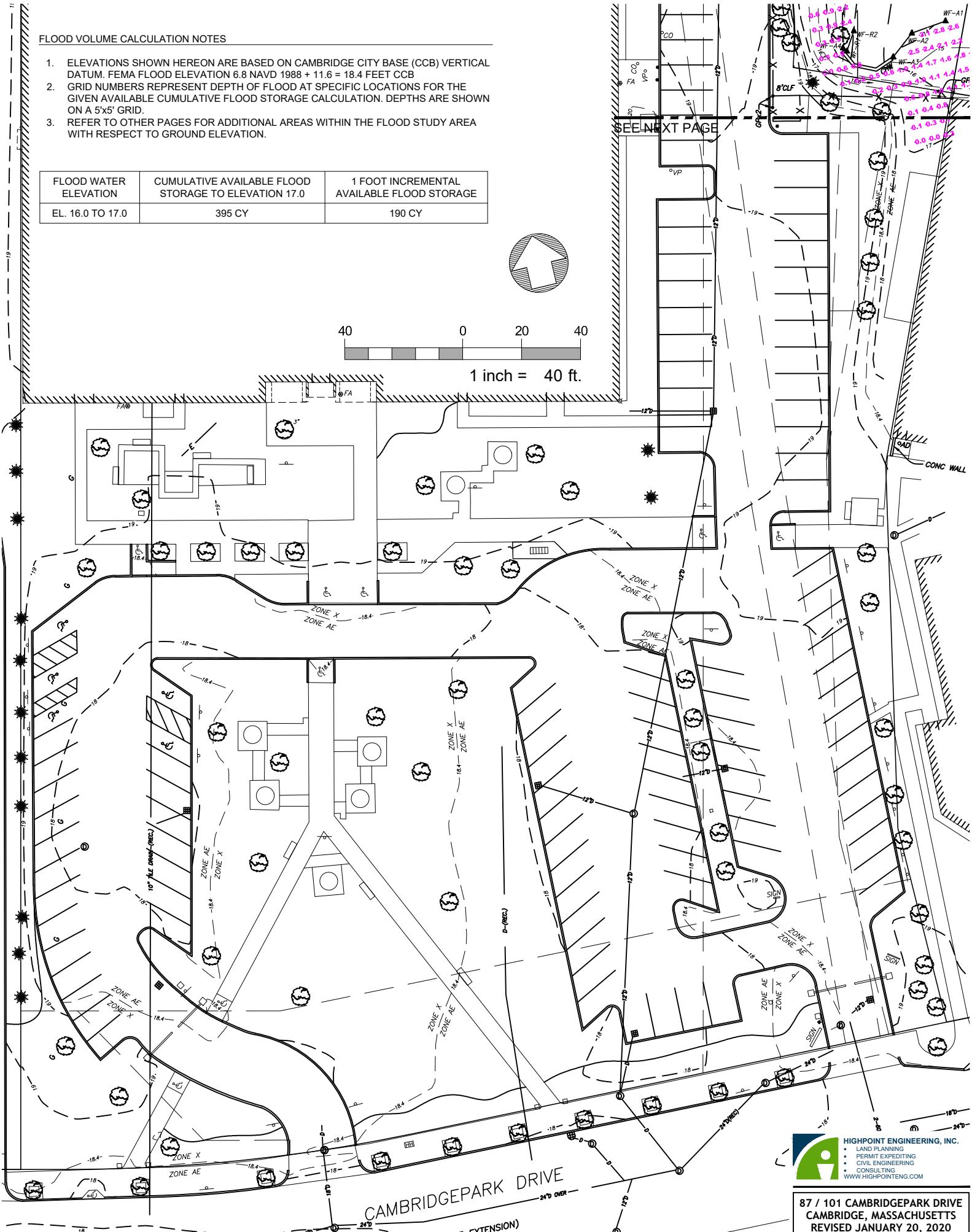
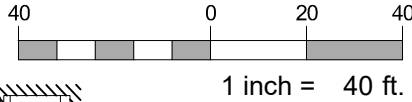
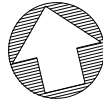
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EL. 15.0 TO 16.0	205 CY	114 CY

EXISTING AVAILABLE FLOOD STORAGE PLAN | BELOW ELEVATION 16.0

FLOOD VOLUME CALCULATION NOTES

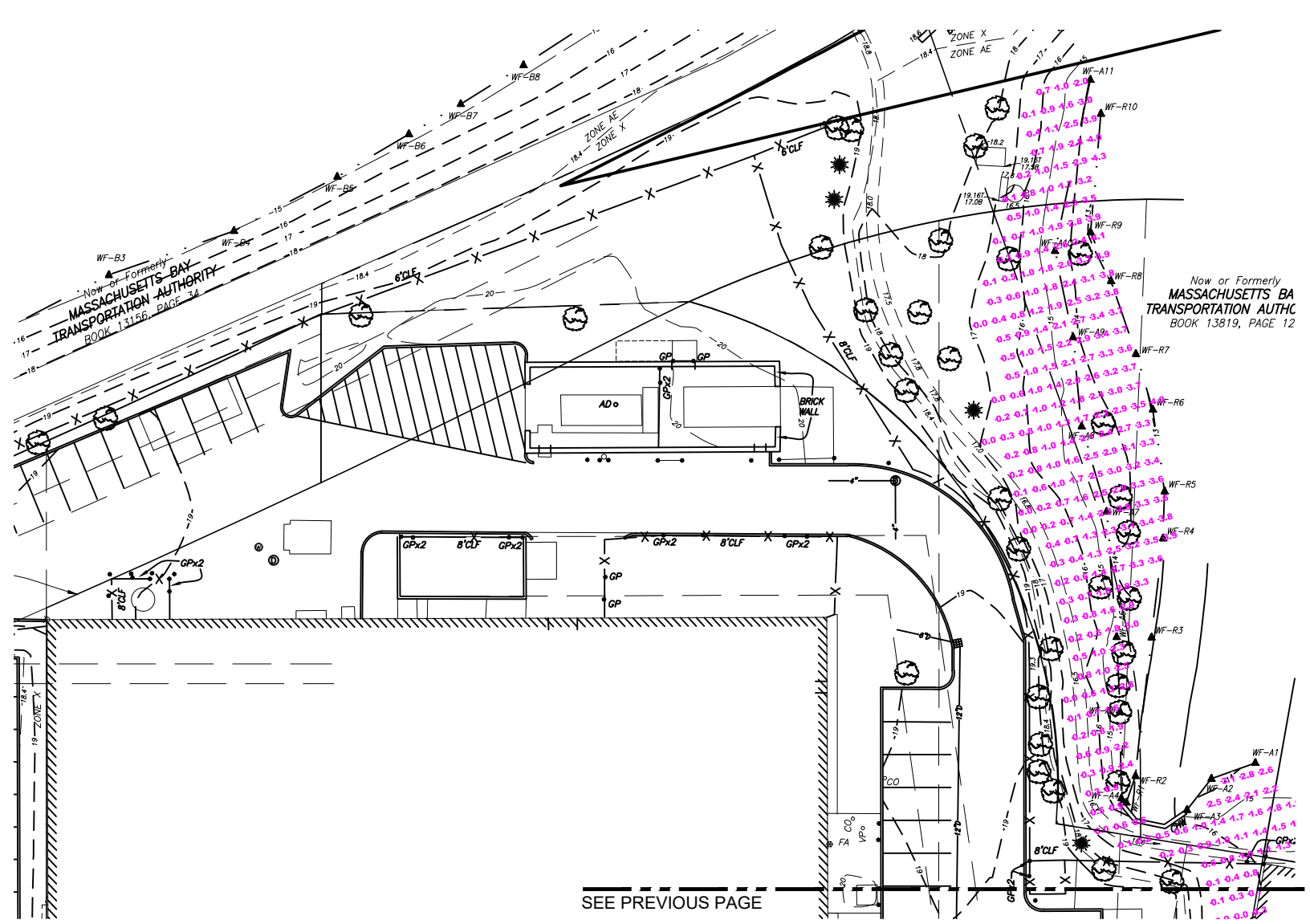
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FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 17.0	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 16.0 TO 17.0	395 CY	190 CY



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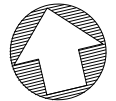
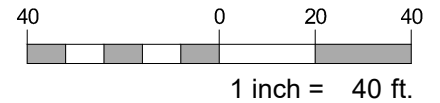
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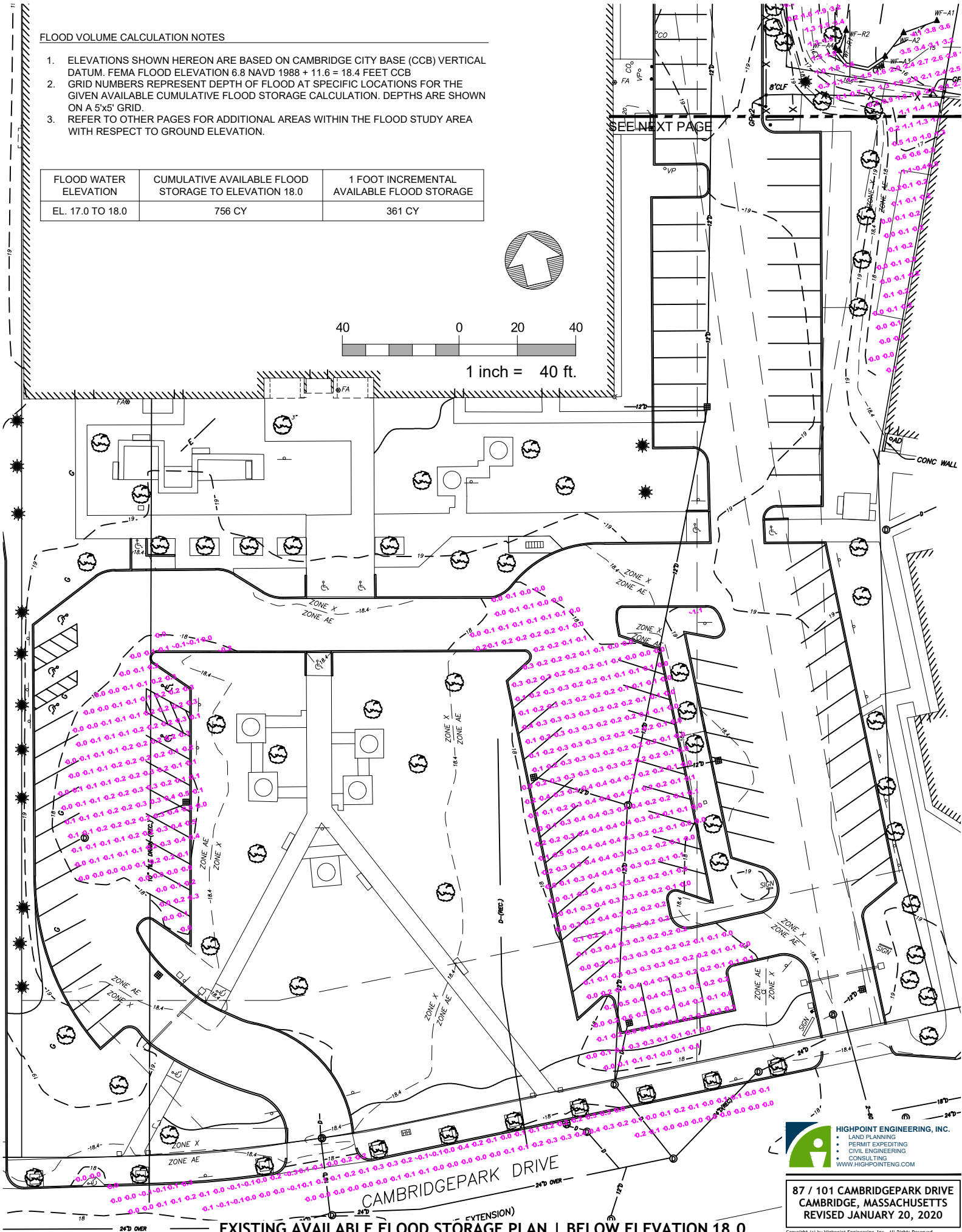
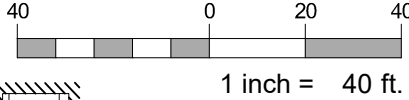
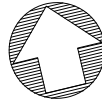


EXISTING AVAILABLE FLOOD STORAGE PLAN | BELOW ELEVATION 17.0

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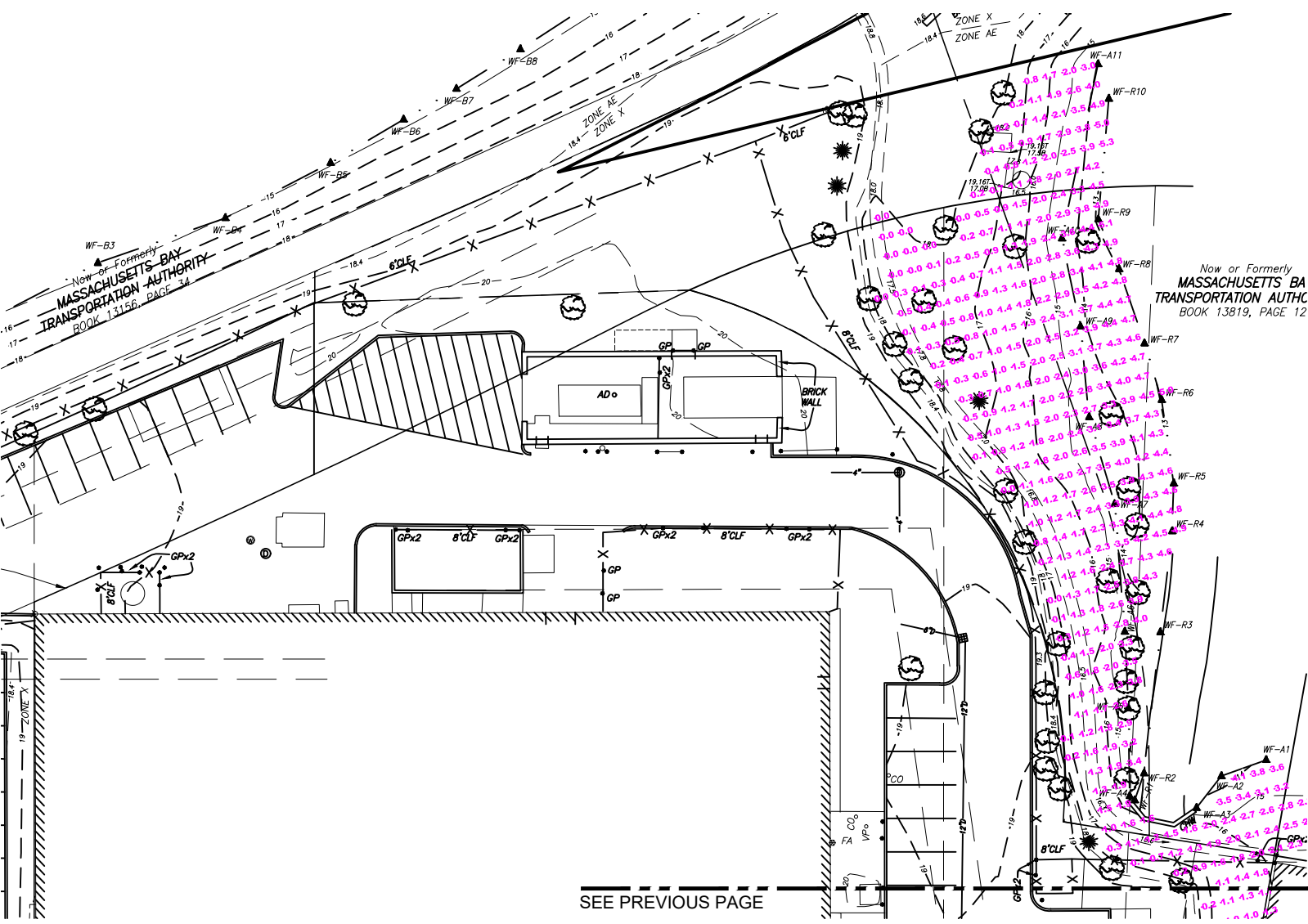
FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 18.0	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 17.0 TO 18.0	756 CY	361 CY



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EXISTING AVAILABLE FLOOD STORAGE PLAN | BELOW ELEVATION 18.0

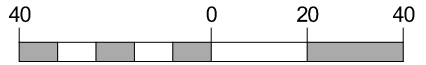
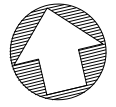


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TRANSPORTATION AUTHC
 BOOK 13819, PAGE 12

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1 inch = 40 ft.

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EL. 17.0 TO 18.0	756 CY	361 CY

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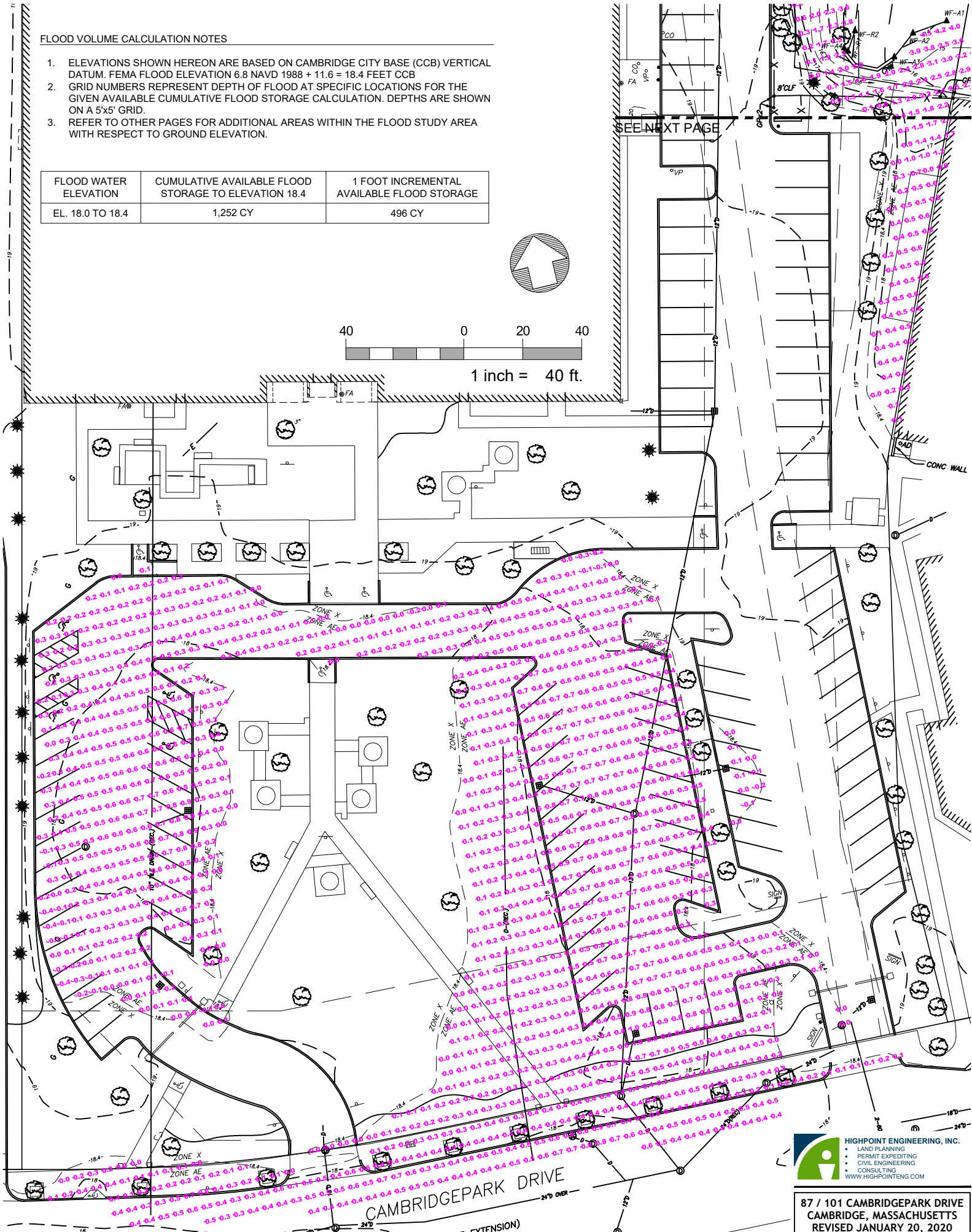
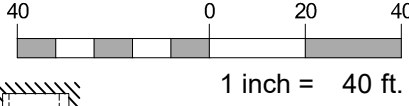
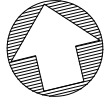
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EXISTING AVAILABLE FLOOD STORAGE PLAN | BELOW ELEVATION 18.0

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FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 18.4	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 18.0 TO 18.4	1,252 CY	496 CY

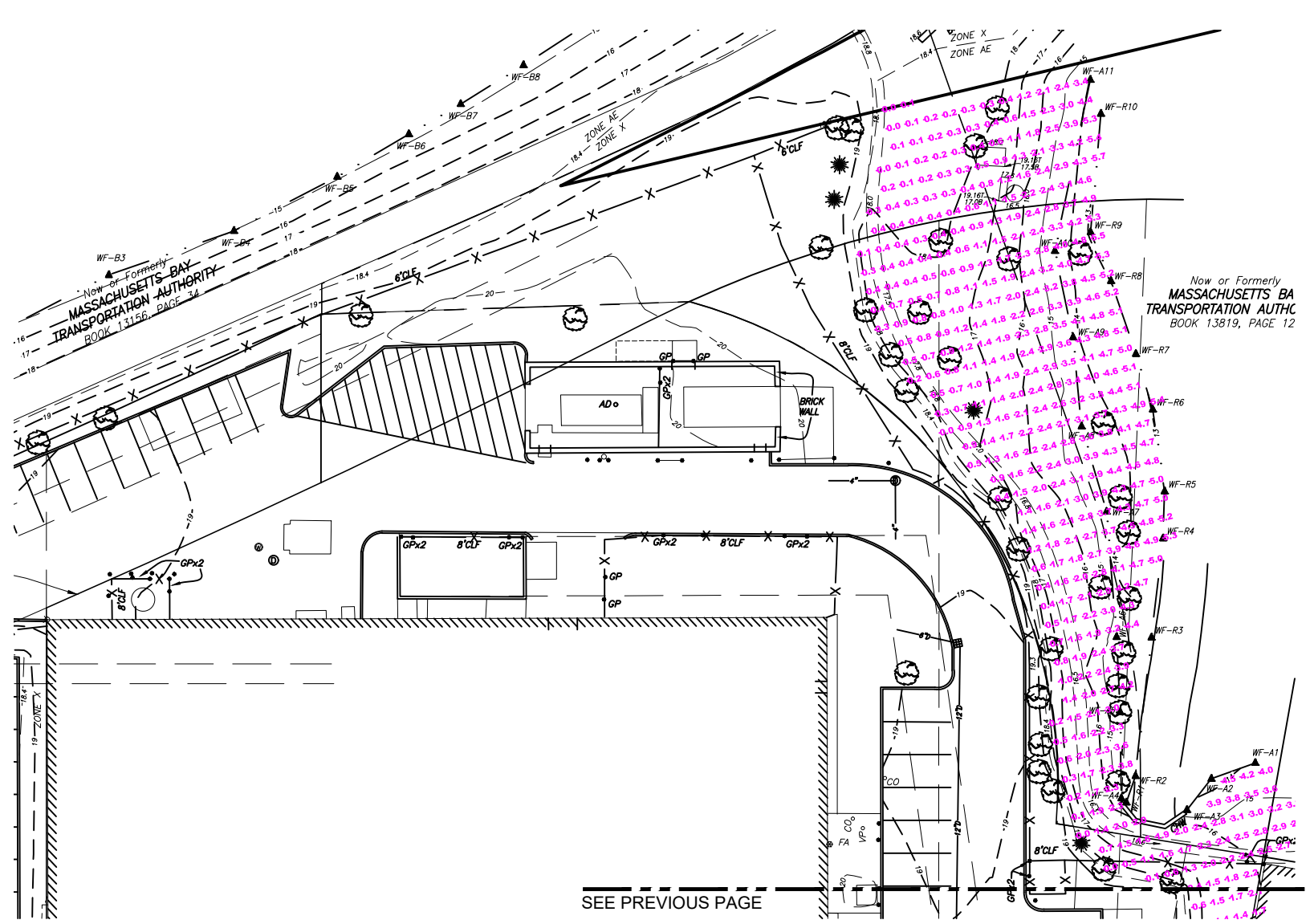


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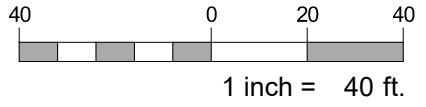
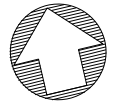
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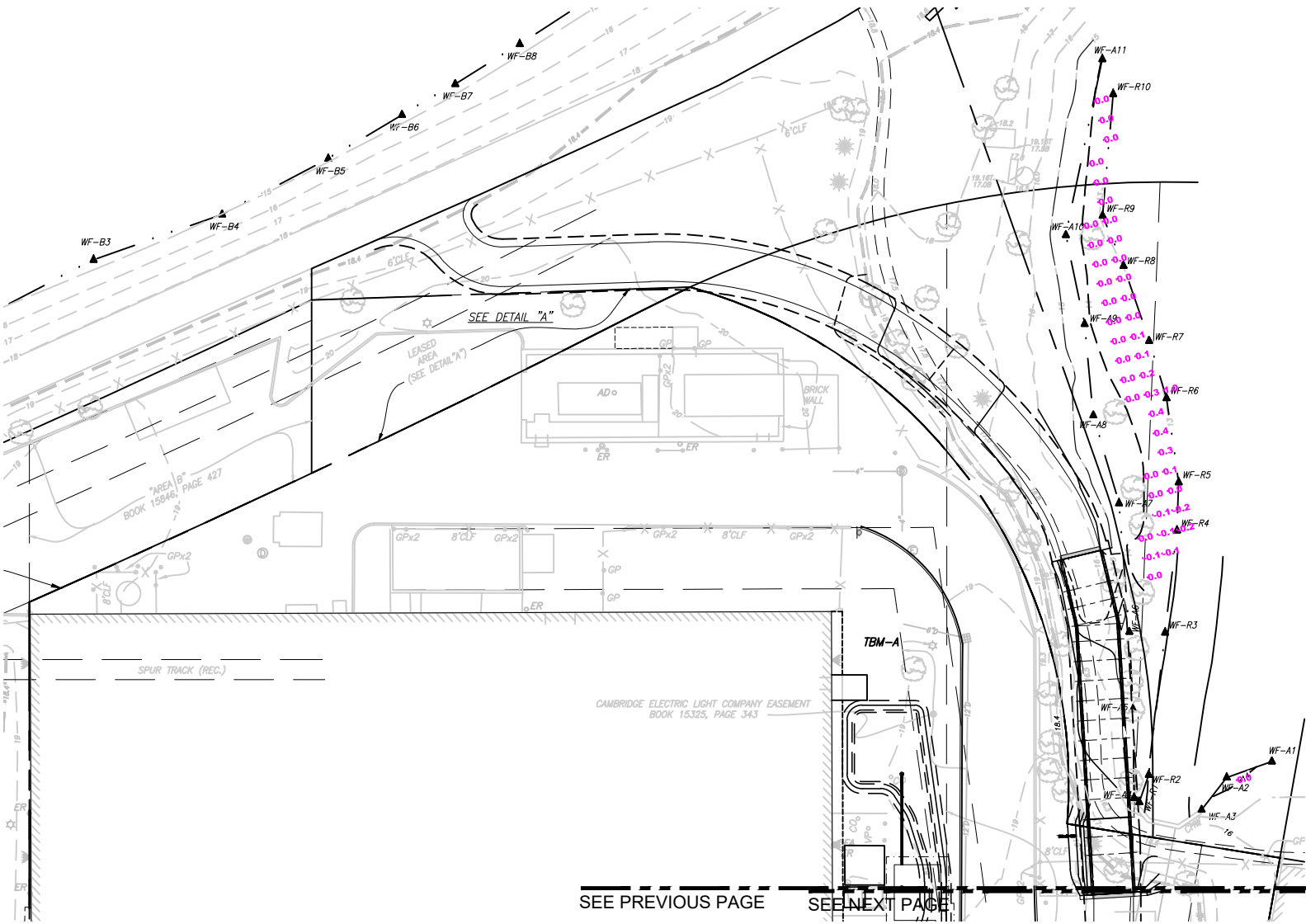
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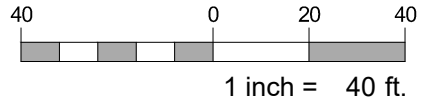
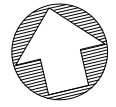
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EXISTING AVAILABLE FLOOD STORAGE PLAN | BELOW ELEVATION 18.4

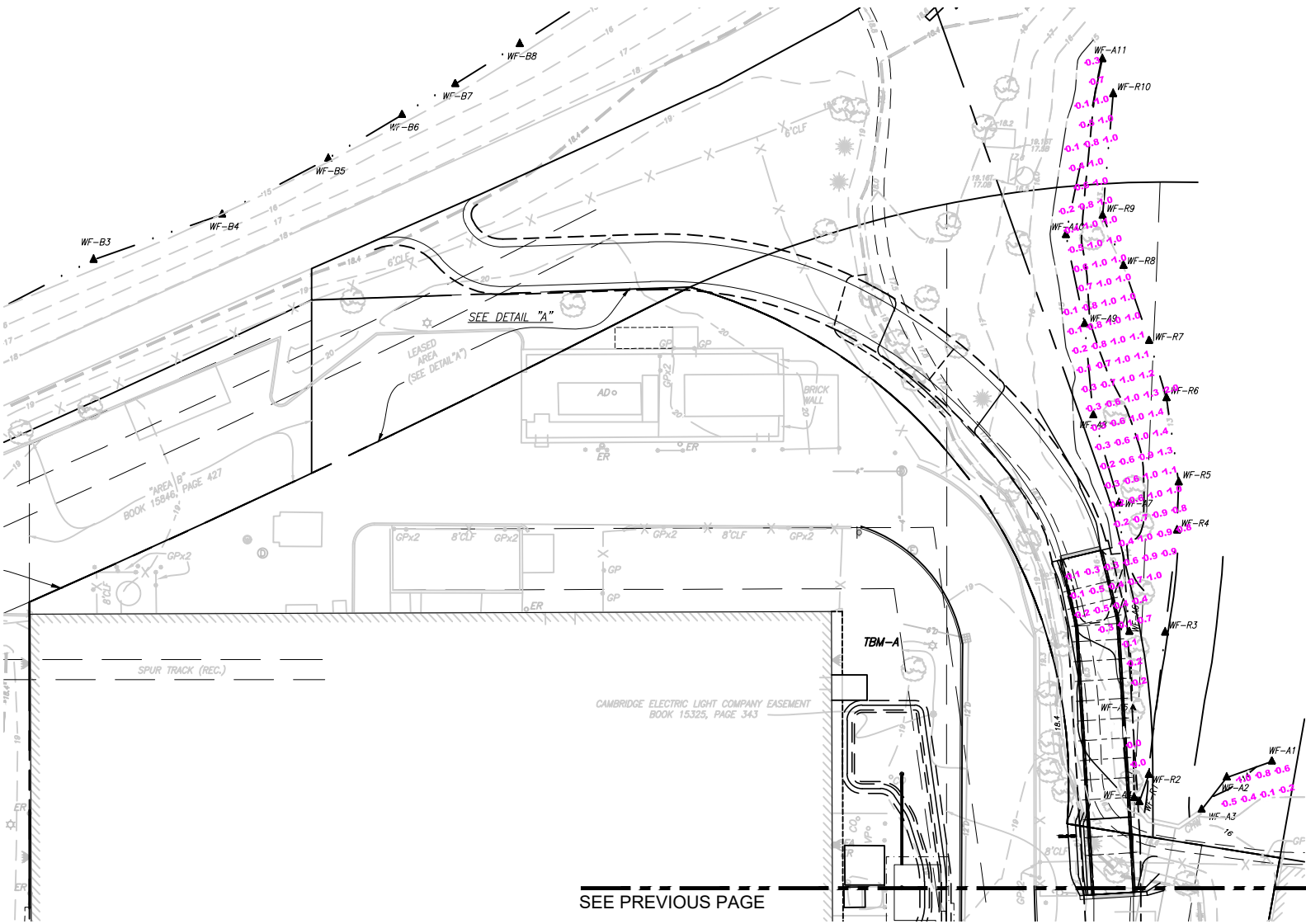


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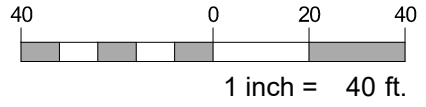
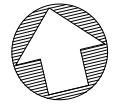
FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 14.0	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 13.0 TO 14.0	23 CY	23 CY



SEE PREVIOUS PAGE

FLOOD VOLUME CALCULATION NOTES

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3. REFER TO OTHER PAGES FOR ADDITIONAL AREAS WITHIN THE FLOOD STUDY AREA WITH RESPECT TO GROUND ELEVATION.



FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 15.0	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 14.0 TO 15.0	93 CY	70 CY

PROPOSED AVAILABLE FLOOD STORAGE PLAN | BELOW ELEVATION 15

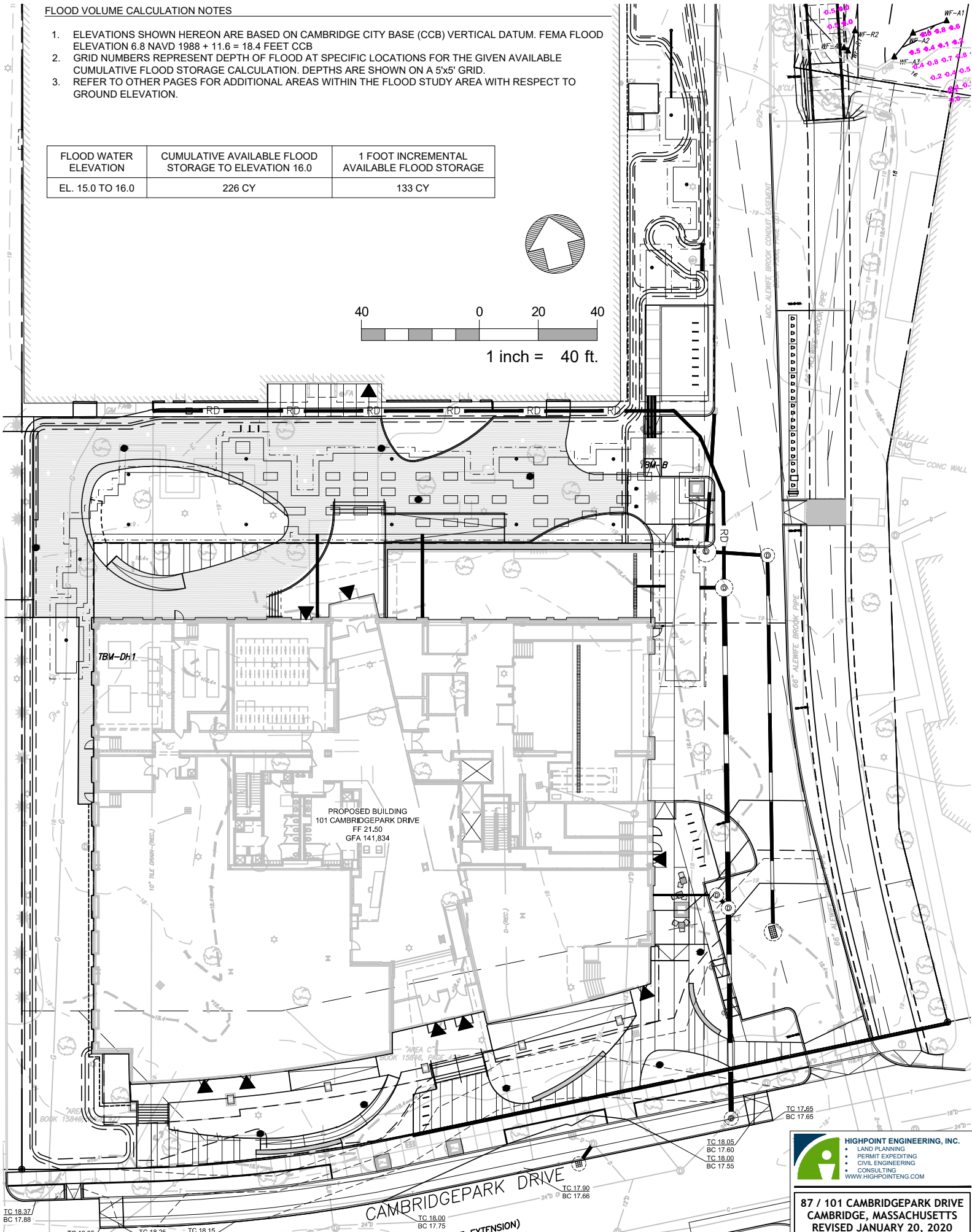
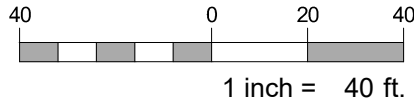
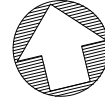


87 / 101 CAMBRIDGEPARK DRIVE
CAMBRIDGE, MASSACHUSETTS
REVISED JANUARY 20, 2020

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FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 16.0	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 15.0 TO 16.0	226 CY	133 CY



TC 18.37
BC 17.88

TC 18.05
BC 18.05

TC 18.25
BC 18.00

TC 18.15
BC 17.8

TC 18.00
BC 17.75

TC 17.90
BC 17.66

TC 18.05
BC 17.60

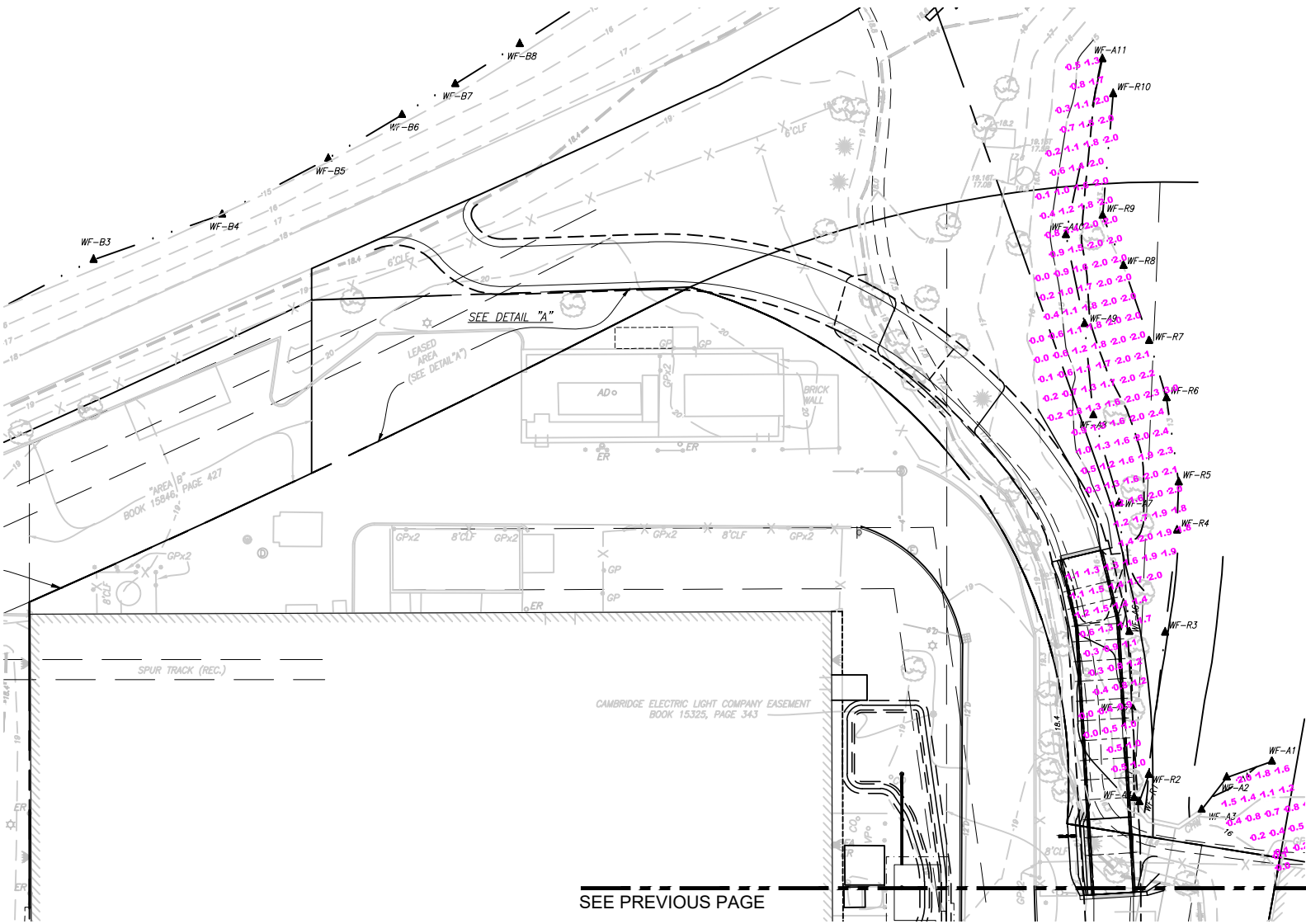
TC 18.00
BC 17.55

TC 17.65
BC 17.65

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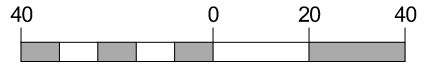
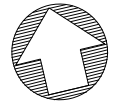
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3. REFER TO SUBSEQUENT PAGES FOR ADDITIONAL AREAS WITHIN THE FLOOD STUDY AREA WITH RESPECT TO GROUND ELEVATION.



1 inch = 40 ft.

FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 16.0	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 15.0 TO 16.0	226 CY	133 CY

PROPOSED AVAILABLE FLOOD STORAGE PLAN | BELOW ELEVATION 16

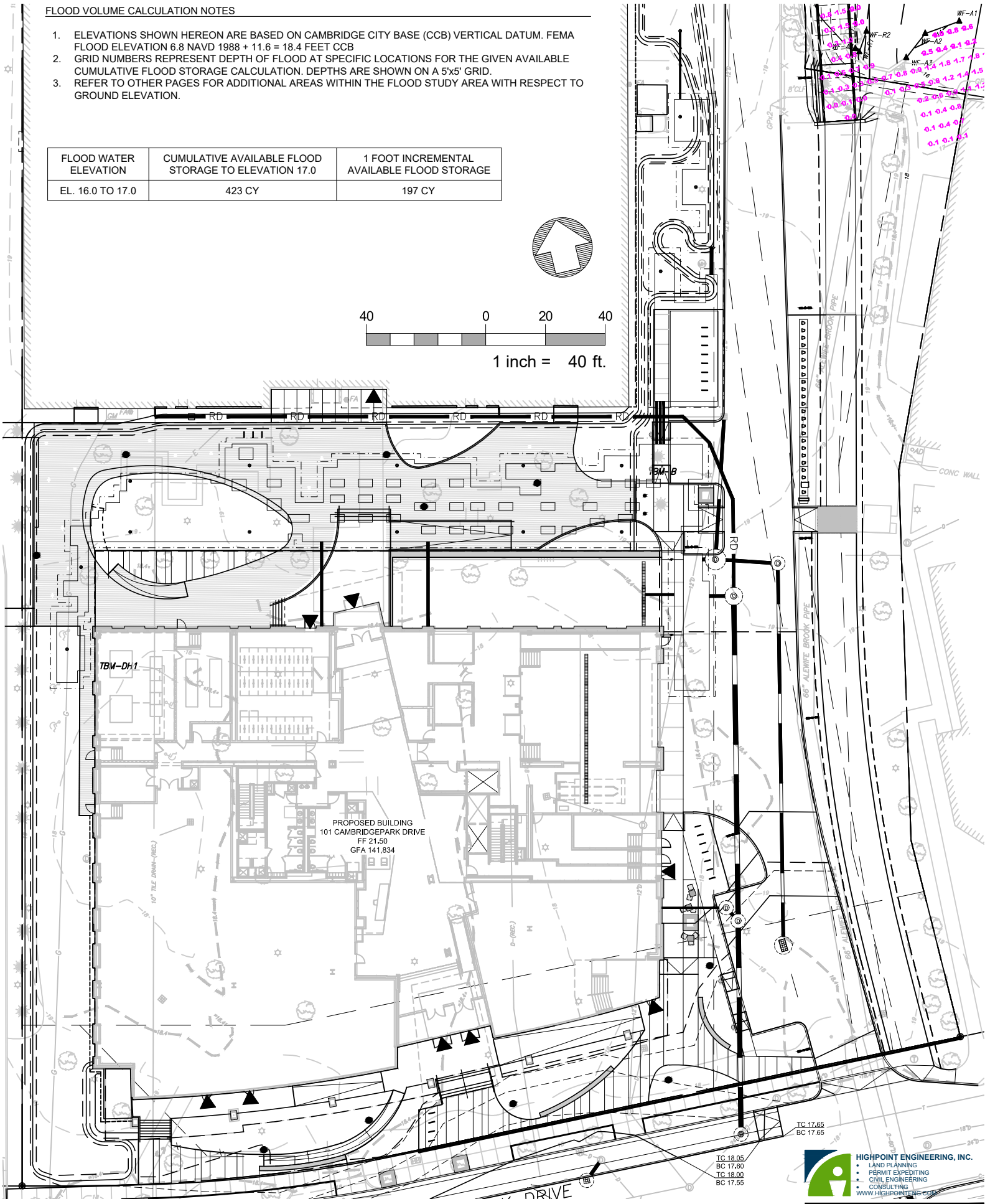
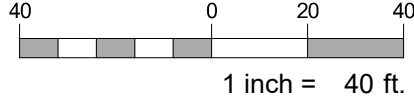
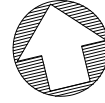


87 / 101 CAMBRIDGEPARK DRIVE
CAMBRIDGE, MASSACHUSETTS
REVISED JANUARY 20, 2020

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FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 17.0	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 16.0 TO 17.0	423 CY	197 CY



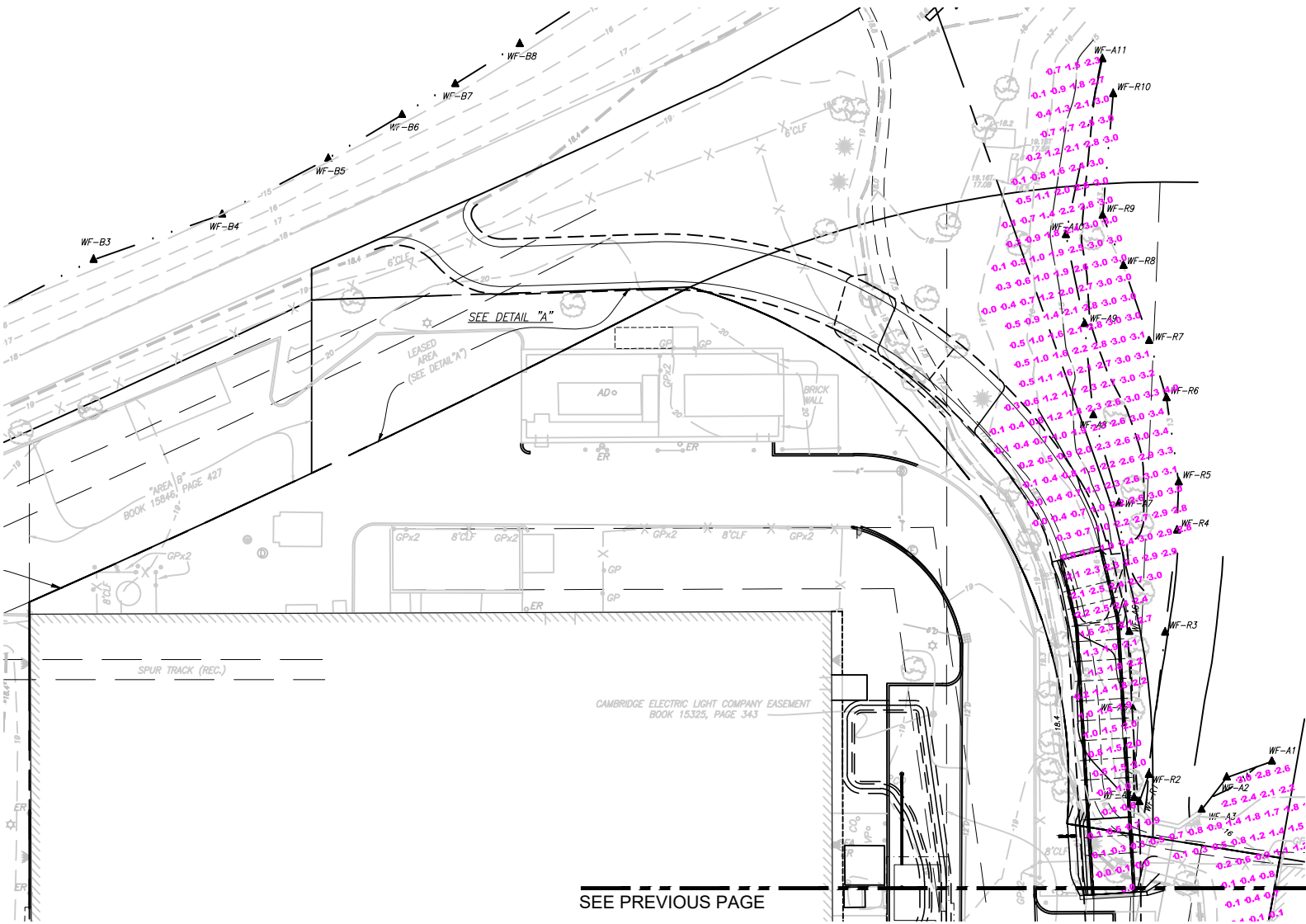
TC 17.65
BC 17.65

TC 18.05
BC 17.60
TC 18.00
BC 17.55

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 CAMBRIDGE, MASSACHUSETTS
 REVISED JANUARY 20, 2020**

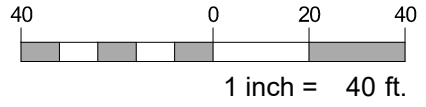
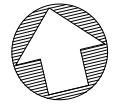
PROPOSED AVAILABLE FLOOD STORAGE PLAN | BELOW ELEVATION 17



SEE PREVIOUS PAGE

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FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 17.0	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 16.0 TO 17.0	423 CY	197 CY

PROPOSED AVAILABLE FLOOD STORAGE PLAN | BELOW ELEVATION 17



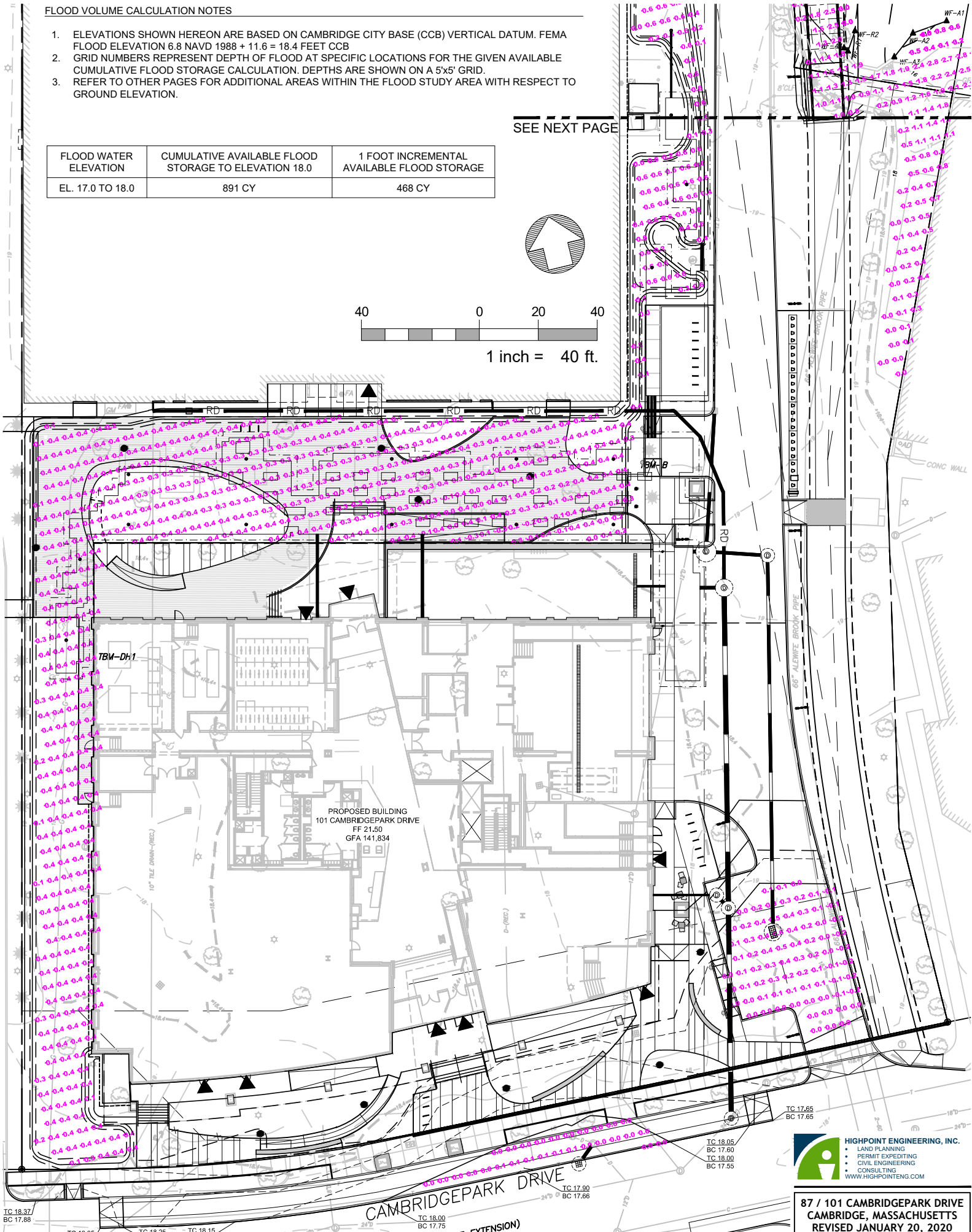
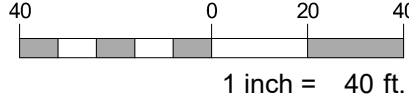
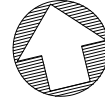
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CAMBRIDGE, MASSACHUSETTS
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SEE NEXT PAGE

FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 18.0	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 17.0 TO 18.0	891 CY	468 CY



PROPOSED BUILDING
101 CAMBRIDGEPARK DRIVE
FF 21.50
GFA 141,834

TC 17.65
BC 17.65

TC 18.05
BC 17.60
TC 18.00
BC 17.55

TC 18.37
BC 17.88

TC 18.05 BC 18.05 TC 18.25 BC 18.00 TC 18.15 BC 17.8

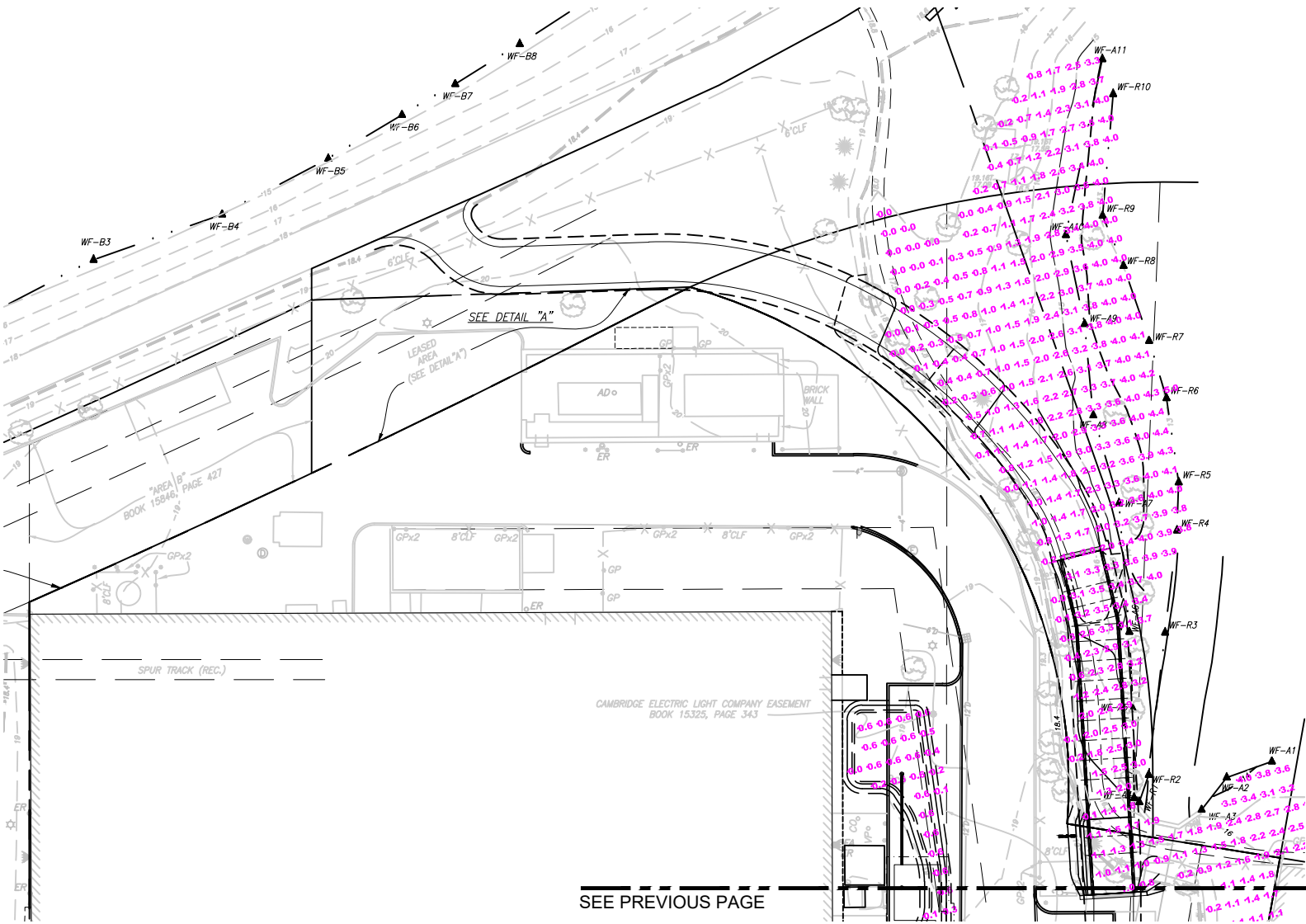
TC 18.00
BC 17.75

TC 17.90
BC 17.66

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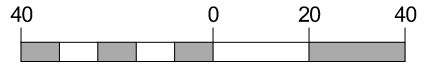
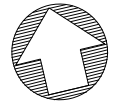
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1 inch = 40 ft.

FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 18.0	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 17.0 TO 18.0	891 CY	468 CY

PROPOSED AVAILABLE FLOOD STORAGE PLAN | BELOW ELEVATION 18



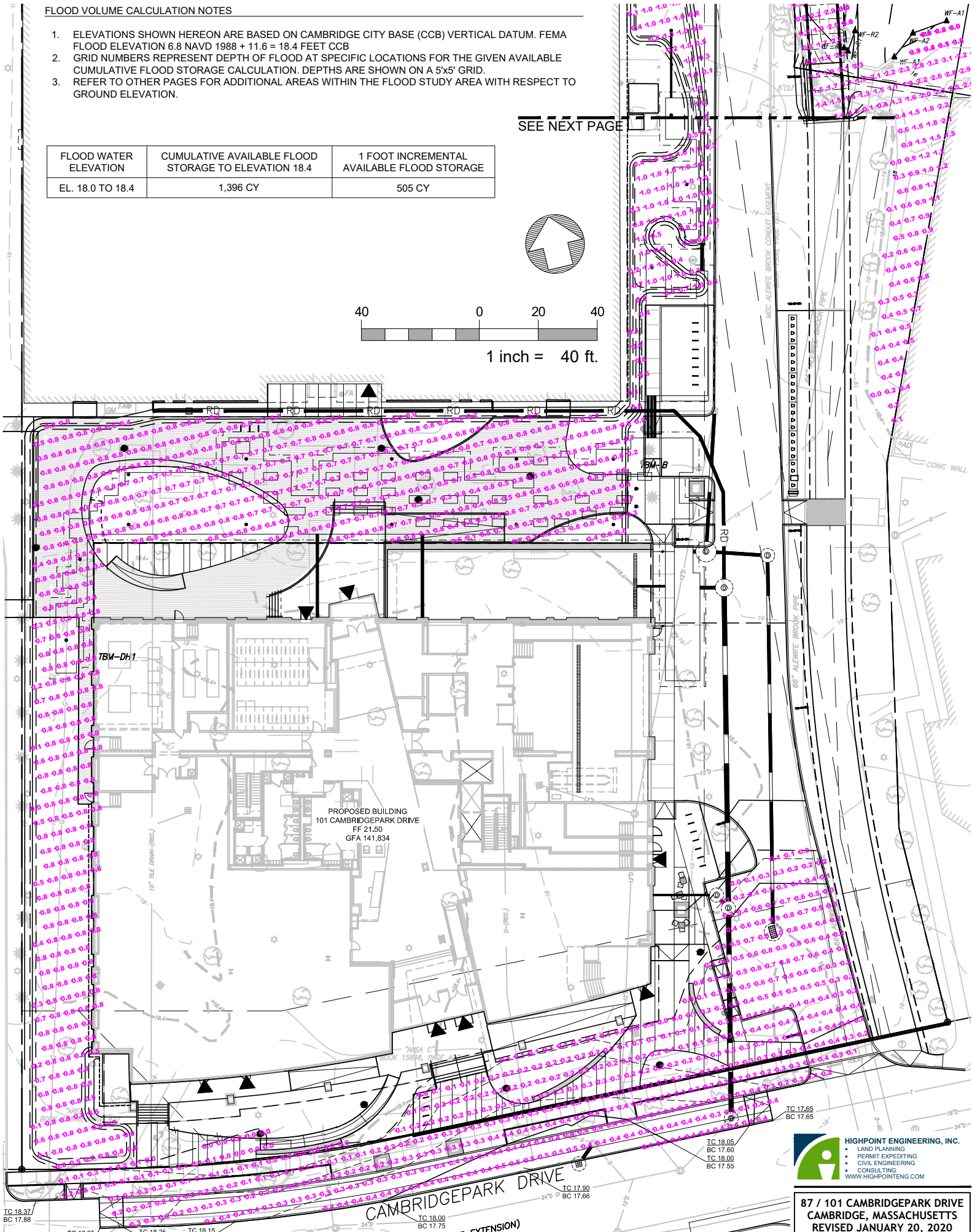
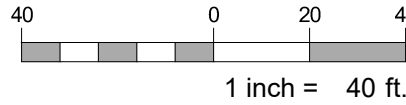
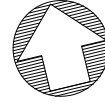
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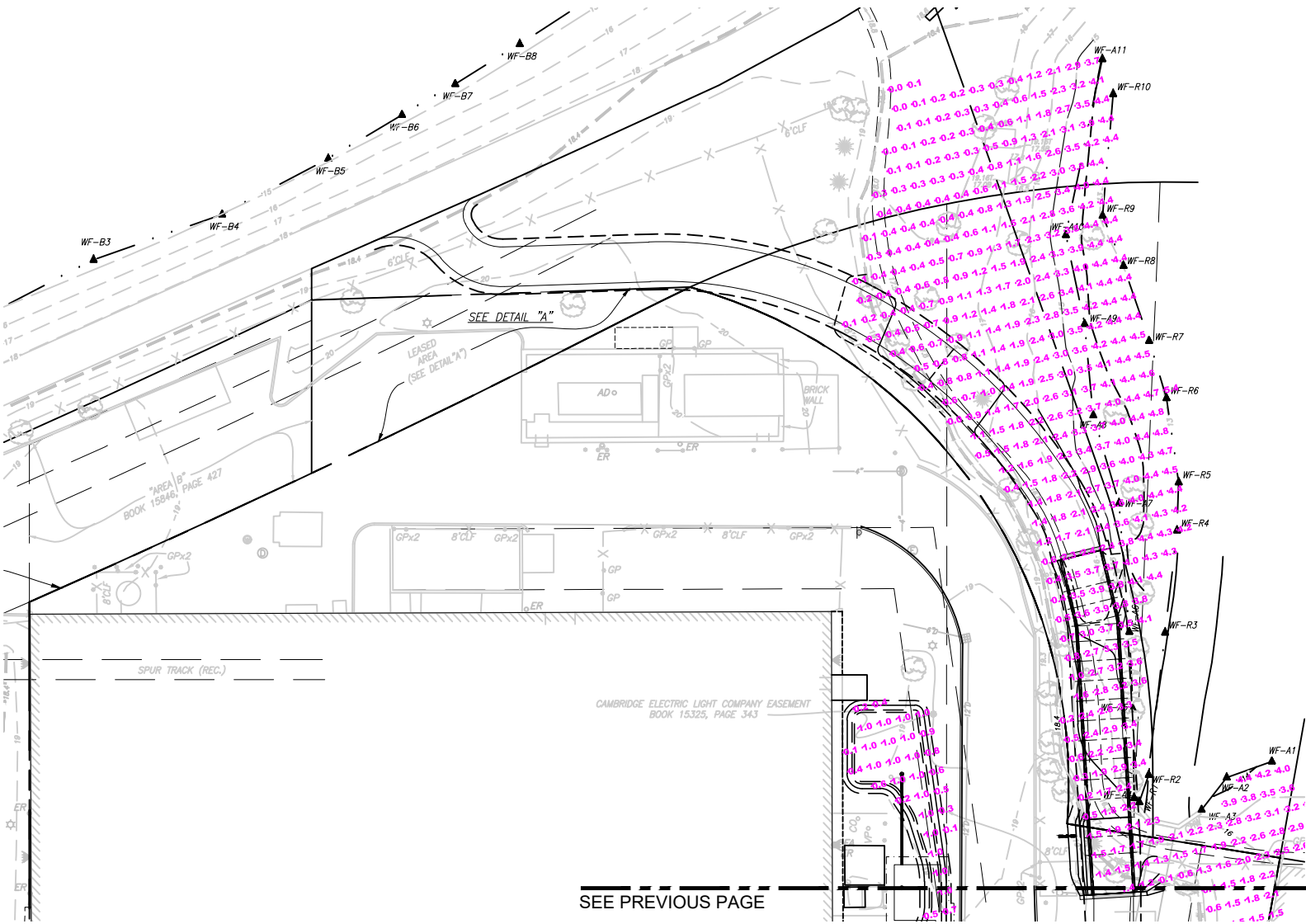
FLOOD WATER ELEVATION	CUMULATIVE AVAILABLE FLOOD STORAGE TO ELEVATION 18.4	1 FOOT INCREMENTAL AVAILABLE FLOOD STORAGE
EL. 18.0 TO 18.4	1,396 CY	505 CY



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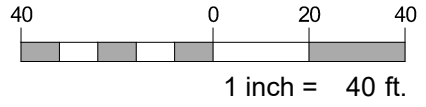
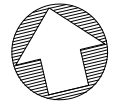
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EL. 18.0 TO 18.4	1,396 CY	505 CY

PROPOSED AVAILABLE FLOOD STORAGE PLAN | BELOW ELEVATION 18.4



87 / 101 CAMBRIDGEPARK DRIVE
CAMBRIDGE, MASSACHUSETTS
REVISED JANUARY 20, 2020

SUSTAINABLE DESIGN AND DEVELOPMENT



Subject: 87-101 Cambridgepark Drive
Response to Sustainability Review Comments

Date: February 7, 2020

To: Mr. Wendell Joseph
 Community Development Department, Cambridge, MA

From: Samira Ahmadi, BEMP, LEED AP, CPHC | enviENERGY Studio LLC

Dear Mr. Joseph:

Thank you for providing a detailed review and technical comments. This memo provides a response to CDD’s sustainability comments regarding the Article 22 report and building energy performance targets and analysis.

CDD Comment #1: 87-101 Cambridge Park Drive (the “Project”) is subject to the City’s Green Building Requirements (Section 22.20, Zoning Ordinance) which requires projects 25,000-50,000 GFA be designed to LEED Silver and projects over 50,000 GFA be designed to LEED Gold, at minimum. The Project is currently meeting the minimum requirement with 64 “Yes” credit points, targeting LEED Gold, under **LEED BD+C: Core and Shell v4**. An additional 8 points have been designated as “likely”. **Please submit a LEED Narrative that is consistent with the LEED Checklist (January 9, 2020).**

enviENERGY Response:

As noted in the comment, following the City’s Green Building Requirements, the project is pursuing LEED Gold certification. The Article 22 LEED Narrative has been updated so that it is consistent with the updated LEED scorecard from January 9, 2020. Please refer to the attached updated narrative, “101 CPD - LEED v4 Article 22 Sustainability Narrative 02072020.pdf.”

CDD Comment #2: The Project is currently pursuing LEED’s Integrative Design Process credit, which promotes high-performance, cost-effective project outcomes through the early analysis, synergies across disciplines and building systems, assembling and involving the Project Team early in the design and development process, and engaging in design charrettes and trades training sessions. We support this approach to the design and construction of green buildings, believing it to increase the opportunities for truly exceptional and higher performing green buildings. **A brief summary of these conversations including any key recommendations that had an impact on the building’s current design would be appreciated.**

enviENERGY Response:

Please refer to the attached Integrative Process WorkPlan document.

The project team is pursuing the Integrative Process credit for this project, and therefore, an energy model and energy performance targets were established pre-schematic design phase. enviENERGY Studio obtained the conceptual architectural drawings and generated the baseline and proposed case models to

investigate the project’s compliance with the LEED v4 Minimum and Optimize Energy Performance criteria and the Massachusetts Energy Code requirements. The energy analysis indicates that the project as designed complies with the Massachusetts Energy Code by showing a 28.7% reduction in the annual energy consumption as compared to ASHRAE 90-1-2013 Baseline case, and it shows approximately 15% energy cost savings, 25% source energy savings, and 34% GHG emissions savings as compared to LEED v4 Baseline Case model.

We have utilized the Lab21 Benchmarking Tool to establish an energy performance benchmark which is presented below. After narrowing down the building parameters in the benchmarking tool to reflect the current design, the outcomes are three peer buildings with an average source EUI of 414 kBtu/SF. This comparison shows that the current design with a source EUI of 253 kBTU/SF is low energy when compared to the benchmarking data. We have also graphed the project site energy performance against the Cambridge operating laboratory buildings which reported their site EUI from 2016 through 2019 as required by the City of Cambridge Building Energy Use Disclosure Ordinance (BEUDO). All graphs are included in the Integrative Process WorkPlan document.

The proposed design incorporates the following energy conservation measures:

- High-performance window system
- Increased roof insulation – R-40 c.i.
- Increased wall insulation – R-14 c.i + R-10 batt; approximately 40% of the exterior walls are insulated spandrel panels.
- Reduced interior lighting power density in the parking garage and core spaces
- High-efficiency gas-fired condensing boilers
- Energy recovery units
- High-efficiency air-cooled chillers
- Variable speed, premium efficiency pumping system
- Low-flow plumbing fixtures

After further review of the preliminary energy modeling results, the project team decided to make improvements to the building envelope and HVAC design including a significant reduction in the vision glass area (50% to 42% and then 38%), an improvement to the exterior wall insulation (U-0.17 to potentially U-0.15 for the spandrel panel), and an increase in the chiller part load efficiencies. We believe that these improvements result in additional energy and GHG emissions savings, approximately 4-6%.

CDD Comment #3: Regarding compliance with LEED, the Project is targeting a 21% improvement (10 points) in energy cost savings over the baseline building performance standard (ASHRAE 2010). Regarding compliance with the Massachusetts Stretch Energy Code, which requires projects over 100,00 GFA demonstrate a reduction of energy use per square foot of at least 10% below the standard, the Project is currently demonstrating a 29% energy use reduction (Site EUI 120 kBtu/sf/yr) (ASHRAE 2013).

We strongly recommend the study and assessment of available technical and financial incentive packages that can assist in achieving higher levels of building performance to better satisfy the City’s goals of

promoting environmentally sustainable and energy-efficient design and development practices. For more information, please contact CDD Staff.

enviENERGY Response:

On July 19, 2019, the project team met with the representatives from Eversource to review and discuss the project’s energy efficiency goals with respect to the Mass Save Integrated Design Path for Large Buildings. Representatives from KSP and DiMella Shaffer presented the project scope, goals and timeline and Kim Cullinane from Eversource presented the Mass Save Large Building program, including incentives for the proposed energy conservation measures and EV charging stations.

The following Energy Conservation Measures have been proposed and discussed:

- ECM1: Improved thermal properties for window assembly
- ECM2: Increased roof insulation
- ECM3: Increased exterior wall insulation
- ECM4: Reduced Core and Garage Lighting Power Density
- ECM5: Energy Recovery Unit with effectiveness higher than Baseline Code
- ECM6: High-efficiency air-cooled chillers
- ECM7: Advanced pumping system control exceeding Code (potential)
- ECM8: High efficiency gas-fired condensing boilers
- ECM9: Low-flow plumbing fixtures

The project team has recently received a letter of Approval from Eversource and enviENERGY Studio, the preferred Technical Assistance Vendor, is performing a DD energy analysis for the project and is going to evaluate the environmental and financial impact of the proposed ECMs and potentially additional measures.

CDD Comment #4: *According to the Transition to Net Zero Narrative, the pathway to net zero emissions would first entail increasing the current electric service (two, 3,000 Amp switchboards at 480 volts with a gas-heating plant) by an additional 8,000 Amps at 480 volts which would increase the building’s annual operating cost by 4.5 times. Given the size and use of this project, two key factors that render this infeasible currently are the inability of existing electric utility infrastructure to support this load increase and the significant premium cost for upgrading the utility infrastructure. Opportunities for further improvements includes tenant spaces designed to be 20% below code allowance for LPDs, reduction in venting and heating loads, and conversion to air source heat pumps at the end of the life cycle for the proposed system.*

Per Article 22, the Project will be subject to review prior to receiving its Building Permit and Certificate of Occupancy. We look forward to updates on design changes and/or projected building performance.

enviENERGY Response:

Sustainability is an important design and construction priority for King Street Properties and the project team, and therefore, we have been evaluating the environmental and financial impacts of additional energy conservation measures to reduce the building energy consumption and to improve the efficiency

and useful life of building systems and infrastructure. As noted in the response to Comment #2, the design team has made improvements to the building envelope design in order to reduce the building overall greenhouse gas emissions. The project energy performance report will be updated as design progresses and we will investigate the environmental and financial impacts of further improvements to the design. Since the future tenants of this building will be subject to compliance with the new Energy Code, IECC 2018 with Massachusetts Amendments which is stringent than IECC 2015, we believe that the future tenant spaces will be designed to be at least 20% below the current code allowance for LPDs. The office LPD allowance has been reduced from 0.82 W/SF to 0.71 W/SF and the Laboratory LPD allowance has been reduced from 1.81 W/SF to 1.45 W/SF.

Since this project is being designed and built as a Spec lab, the control strategies of the laboratory spaces, including fume hoods, depends on the future tenants of the building. Since tenants are going to be responsible for utility bills, we believe that they will implement energy efficiency measures in their design and operation of their space, including a reduction in the exhaust and ventilation loads while the space is unoccupied. King Street Properties will provide each future tenant with a Tenant Design and Construction Guidelines document, which explains the sustainable aspects of the Core and Shell building design and construction, and also includes suggestions for the future tenants to reduce their energy and environmental footprint as well as steps that should be taken to achieve LEED CI Certification if desired.

As design progresses, we will update our Transition to Net Zero narrative and will reinvestigate the feasibility of the partial building electrification and will submit to CDD for review.

We hope this memo and associated reports satisfy the requirements of Article 22. If there are any questions or if additional information is needed, please feel free to contact me at samira.ahmadi@envien-studio.com.

Sincerely yours,

Samira Ahmadi, BEMP, LEED AP BD+C, ID+C, Homes, CPHC
Founding Principal
617-446-3114

101 Cambridgepark Drive

Cambridge, MA

Article 22 Sustainability Narrative

February 7, 2020



Prepared for: King Street Properties

Prepared by: enviENERGY Studio

Contents

Introduction	3
Affidavit.....	4
LEED Project Scope and Strategy	5
Integrative Process.....	5
Location and Transportation.....	5
Sustainable Site.....	9
Water Efficiency	10
Energy and Atmosphere	11
Material and Resources	12
Indoor Environmental Quality	13
Innovation and Design LEED Strategy	14
Regional Priority.....	14

Introduction

The 101 Cambridgepark Drive (101 CPD) project is being designed to be a first-class research and development facility in Cambridge, Massachusetts. The project is a 5-story core and shell building, approximately 160,000 SF including a mechanical penthouse, with three levels of underground parking. Sustainability is an important design and construction priority for King Street Properties and the project team, and therefore, they will evaluate and implement measures to reduce energy and water consumption to improve the efficiency and useful life of building systems and infrastructure, and to reduce the burdens imposed by buildings on city services, the environment, and the public health.

The Project team includes several LEED Accredited Professionals and the sustainability efforts will be overseen by Samira Ahmadi, BEMP, LEED AP, the project LEED and Energy Consultant. The project team participated in a sustainable design charrette early in the design process to identify the environmental design goals and discussed the LEED program impact on the design and build consensus.

A LEED checklist is provided at the end of this section to identify credits that are going to be pursued for this project, highlights of which are included below. The 101 Cambridgepark Drive project will be registered with USGBC and will follow the requirements of LEED BD+C: Core and Shell v4 program, including substitution of LEED v4.1 for some credits. The project team is currently targeting a minimum of LEED Gold certification with a total of 64 out of a possible 110 points in the LEED BD+C rating system. An additional 11 points are undergoing study to determine the feasibility of attainment.

LEED checklist summary:

Integrative Process	1 Point	
Location and Transportation	13 Points	
Sustainable Site	8 Points	1 Possible Points
Water Efficiency	7 Points	1 Possible Points
Energy and Atmosphere	15 Points	3 Possible Points
Materials and Resources	5 Points	5 Possible Points
Indoor Environmental Quality	5 Points	1 Possible Points
Innovation and Design Process	6 Points	
Regional Priority	4 Point	
Total Points	64 Points	11 Possible Points

Affidavit

As the lead Sustainability Consultant overseeing the planning, design and construction of the 101 Cambridgepark Drive, I, Samira Ahmadi, 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 Gold level at minimum (minimum for Gold level is 60 points) using the LEED BD+C 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.



Samira Ahmadi, BEMP, LEED AP BD+C, ID+C, Homes, CPHC
LEED Administrator and Sustainability Consultant



LEED Project Scope and Strategy

General Project Information

<i>Building Area</i>	141,834 GSF + Mechanical Penthouse: 19,434 SF + Parking: 103,941 SF
<i>Occupancy - FTE (LEED v4 C&S Default Occupancy)</i>	50% Laboratory + 50% Office 536 (Office: 250 SF/person, Lab: 400 SF/person)
<i>Parking Spaces</i>	247 spaces in underground garage + 22 surface 158 spaces are dedicated to 101 CPD
<i>Site Area</i>	132,745 SF
<i>Open Space</i>	45,597 SF
<i>Long-Term Bike Storage</i>	LEED Requirements: 48 spaces
<i>Short-Term Bike Storage</i>	LEED Requirements: 20
<i>Public Transportation</i>	Access to Alewife Station and Bus Routes 62, 76, 67, 79, 78, 350

Integrative Process

The project team includes several LEED Accredited Professionals, who will lead the sustainability efforts and initiatives throughout the design and construction process. Sustainable design and energy efficiency goals were established early and strategies associated with the building envelope attributes, lighting design, thermal comfort ranges, plug and process loads, and operational parameters and their impact on the building energy performance will be explored and discussed throughout the design process. An early design energy model will be developed and used as an interactive and dynamic platform to evaluate systems synergies and the various pathways for achieving the targeted energy savings and required performance improvements in the most cost-effective manner.

Location and Transportation

Credit 2 – Sensitive Land Protection:

2 Yes Points

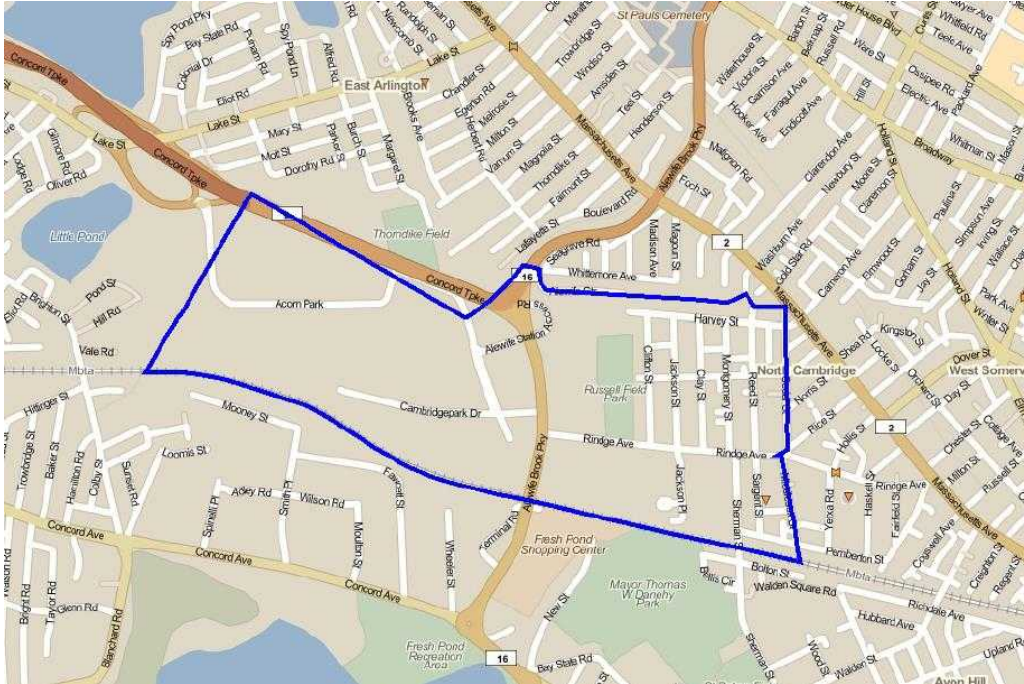
The Project Site has been previously developed and is located in an urban area of filled land. This site is located in the flood plain but since it's a previously developed land, it will meet the credit requirements.

Credit 3 – High Priority Site:

2 Yes Points

The project site is not a brownfield but it is located in the US Department of Housing and Urban Development's 2020 Qualified Census Tracts (QCTs) and Difficult Development Areas (DDAs) which are the federally recognized high-priority sites. Also, the land is within an Opportunity Zone, Census Tract 3549. The Opportunity Zones program was created by the Tax Cuts and Jobs Act (TCJA) to increase investment in economically distressed communities. The program provides preferential capital gains treatment for investments within designated low-income census tracts. Policymakers hope opportunity zones will unleash investment in low-income communities throughout the country.¹

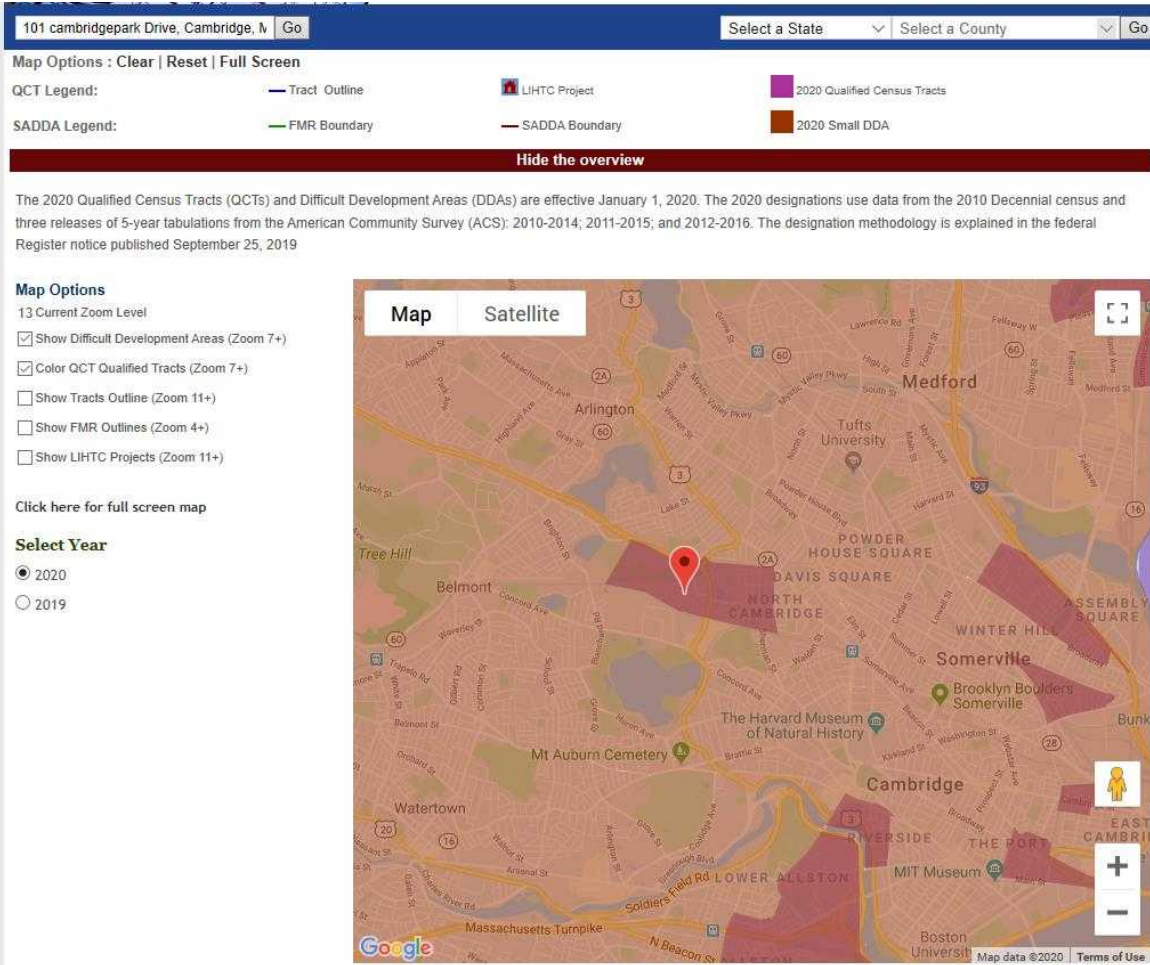
¹ <https://taxfoundation.org/opportunity-zones-what-we-know-and-what-we-dont/>



From: Enterprise Opportunity360 Measurement Report

What Does Opportunity Look Like for People Living in This Community?





The 2020 Qualified Census Tracts (QTCs) and Difficult Development Areas (DDAs) are effective January 1, 2020.

Credit 4: Surrounding Density and Diverse Uses:

4 Yes Points

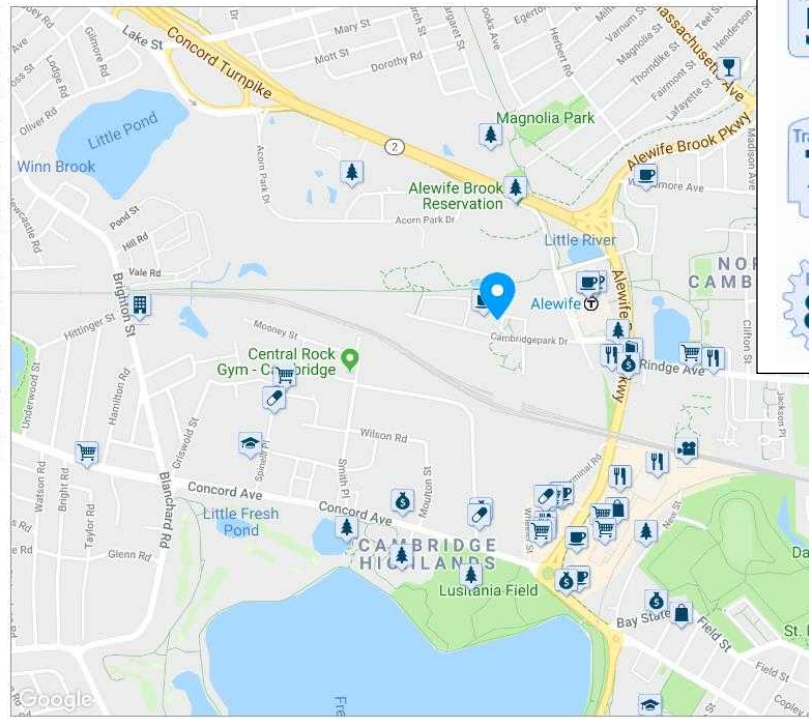
The building is located in an area with an average density greater than 22,000 sf/acre and is within a ½ mile walking distance of at least 8 basic services.

Category	Use Type	Business Name and Distance
Food Retail	Grocery	Foodtown Market - 0.3 mile
Services	Restaurant	Summer Shack – 0.2 mile
	Restaurant	Bertucci’s - 0.2 mile
	Bank	Eastern Bank - 0.2 mile
Community	Other Retail	Newbury Comics – 0.2 mile
Civic and Community Facilities	Place of Worship	Church in Cambridge
	Public Park	Alewife Brook Parkway – 0.2 mile
	Child Care	Sunrise Learning Academy

8 Basic Services within ½ Walking Distance from the Project

What's Nearby

- Restaurants:**
Bertucci's Italian Restaurant .2mi >
- Coffee:**
Revival Cafe & Kitchen .06mi >
- Bars:**
Menotomy Grill & Tavern .6mi >
- Groceries:**
Trader Joe's .3mi >
- Parks:**
Alewife Brook Parkway .2mi >
- Schools:**
Fayerweather Street School .5mi >
- Shopping:**
Newbury Comics .2mi >
- Entertainment:**
Apple Cinemas Cambridge .4mi >
- Errands:**
Eastern Bank .2mi >
- Search Nearby:** >



Credit 5 – Access to Quality Transit (LEED v4.1):

3 Yes Points

The project location provides access to quality transit and encourages alternative transportation. The occupants of 101 CPD will have access to several nearby transit lines, including Alewife Station and bus routes 62, 76, 67, 79, 78, 350, which gives them the opportunity to travel through Cambridge, Boston, and close-by towns. These transit services provide more than 240 “weekday” and over 114 “weekend” trips.



Alewife Station:
MBTA Red Line
Buses:
62, 76, 67, 79, 78,
350

Access to Quality Transit Map

Credit 6 – Bicycle Facility:

1 Yes Point

The bicycle storages and racks will be provided throughout the project and the development site; 48 long-term bike storage, 20 short-term bike storage, and 7 showers-changing rooms. with a Bike Score of 85, the immediate neighborhood provides a direct connection between the project site and a variety of basic services.

Credit Requirements	LEED v4 Requirements	Facilities in 101 CPD
Long-term Bike Storage	5% FTE = 27	48 Bicycle Parking
Short-term Bike Storage	At least 4	20 Bicycle Parking
Shower and Changing Rooms	1 per 100 + 1 per 150 occ. = 4	7 showers and changing rooms

Credit 7 -Reduced Parking Footprint:

The project does not meet the requirements.

Credit 8 – Electric Vehicles (LEED v4.1):

1 Yes Point

There are 269 parking spaces on the site, including the handicap accessible spaces; Electrical vehicle supply equipment (EVSE), level-2 charging capacity, will be provided in at least 6 parking spaces (2.2%).

Sustainable Site

Prerequisite 1 – Construction Activity Pollution Prevention:

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.

Credit 1 – Site Assessment:

1 Yes Point

The project team will conduct a comprehensive site assessment and will study topography, hydrology, climate, vegetation, soils, human use, and human health effects specific to 101 CPD project.

Credit 3 – Open Space:

1 Yes Point

Approximately 34% of the site area, including the building footprint, will be allocated to outdoor space, partially vegetated.

Credit 4 – Rainwater Management (LEED v4.1):

3 Yes Points

The project will implement a stormwater management plan with a goal of decreasing the volume of stormwater runoff and managing 100% of stormwater for at least 90th percentile of local rainfall events on-site and will captures and treats runoff using best management practices (BMP’s). The project will comply with the Mass DEP Stormwater Management Policy, as well as reduce the peak rate and total volume of runoff for the 25-year design storm in the post-development condition to meet the requirements of Cambridge Department of Public Work (CDPW).

Credit 5 – Heat Island Reduction:

2 Yes Points

More than 75% of parking spaces are located in an underground parking garage. The roof will be white TPO and the hardscape area consists of open-grid pavement system and paving materials with a three-year aged solar reflectance (SR) value of at least 0.28.

Credit 6 – Light Pollution Reduction:

1 Maybe Point

Per the current site lighting design, the project contains only two types of light fixtures: columns and poles. The design team is evaluating the feasibility of using BUG compliant fixtures and comply with the requirements of this credit.

Credit 7 – Tenant Design and Construction Guidelines:

1 Yes Point

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, if desired.

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

Prerequisite 1 and Credit 1 – Outdoor Water Use Reduction:

1 Yes Point

Landscape plantings will be selected to be climate appropriate, native and adapted and the irrigation system will be designed to target at least a 50% reduction in the potable water use.

Prerequisite 2 and Credit 2 - Indoor Water Use Reduction:

3 Yes Points

The project team anticipates reducing the use of potable water inside the building by at least 35% by installing low-flow and low-flush plumbing fixtures in core restrooms.

Flush Fixture Family	Baseline Flush Rate (GPF)	Design Flush Rate (GPF)	Baseline Annual Water Use (gal)	Design Annual Water Use (gal)	% Reduction
Water Closet	1.6	1.1	428,800	294,800	
Urinal	1.0	0.125	134,000	16,750	
Annual Flush Volume (gallons/ yr)			562,800	311,550	44.64%
Flow Fixture Family	Baseline Flow Rate (GPM)	Design Flow Rate (GPM)	Baseline Annual Water Use (gal)	Design Annual Water Use (gal)	% Reduction
Public Lavatory	0.5	0.35	100,500	70,350	
Showerhead	2.5	1.5	167,500	100,500	
Kitchen Faucet	2.2	2.2	73,700	73,700	
Annual Flow Volume (gallons/ yr)			341,700	244,500	28.4%
Total Annual Water Use and Savings			904,500	556,100	38.52%

Indoor Water Use Calculations

Prerequisite 3 and Credit 4– Building-level Water Metering and Water Metering: 1 Yes Point

The building will be equipped with a main water meter and the project team is planning to install additional water meters for at least two of water subsystems: irrigation and domestic hot water.

Credit 3 – Cooling Tower Water Use: 2 Yes Points

The project uses air-cooled chillers and meets the following requirements:

- Per ASHRAE 90.1-2010, Appendix G Table G3.1.1, the baseline system for the building is systems 7, which utilizes water-cooled chillers.
- There are no cooling towers in the design case.
- The project does not receive any cooling from a District System.

Energy and Atmosphere

Prerequisite 1 and Credit 1– Fundamental and Enhanced Commissioning and Verification:

5 Yes Points

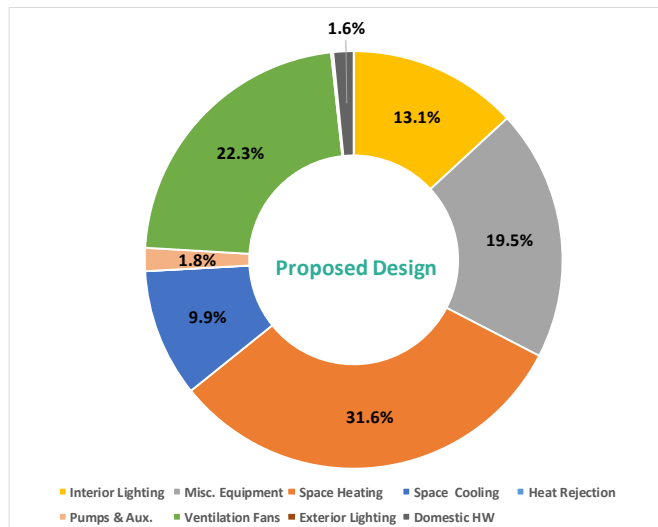
Commissioning of the Mechanical and Electric building systems is under contract and will be performed. The base building Core and Shell HVAC systems will be commissioned by a third-party commissioning agent to ensure correct operation. Commissioning activities include verification of system and equipment installation in accordance with the construction documents and manufacturer’s instructions, and confirmation that equipment start, test and check also meet manufacturer’s requirements. The project is pursuing enhanced commissioning for the building mechanical and electrical systems as well as the building envelope.

Prerequisite 2 and Credit 2 – Minimum and Optimize Energy Performance:

8 Yes and 2 Maybe Points

The project will be designed to comply with the Massachusetts Building Energy Code and to exceed the energy performance requirements of the Massachusetts Stretch Energy Code. Building energy models have been developed and used to evaluate various pathways for achieving the targeted energy savings and required performance improvements. The preliminary energy analysis shows that the project as designed – utilizing schematic design drawings and specifications – is anticipated to result in an annual energy cost savings of 15% to 18% compared to the ASHRAE 90.1-2010 baseline, depending on the energy conservation measures (ECMs) that are going to be incorporated into the final project design. Following LEED v4 Alternative Compliance Path, which looks at the annual source energy and GHG savings, the preliminary energy model shows a performance savings of up to 25%, due to a significant reduction in the source energy use. The following Energy Conservation Measures have been proposed:

- High-performance window system
- Increased roof insulation
- Increased wall insulation
- Reduced interior lighting power density in parking garage and core spaces
- High-efficiency gas-fired condensing boilers
- Energy recovery units
- High-efficiency air-cooled chillers
- Variable speed, premium efficiency pumping system
- Low-flow plumbing fixtures



Prerequisite 3 – Building-level Energy Metering:

The project is equipped with permanent electricity and gas utility meters.

Prerequisite 4 and Credit 6 – Fundamental and Enhanced Refrigerant Management: 1 Maybe Point

No CFC-based refrigerants will be utilized for the Project. The selected equipment will use only refrigerant that minimize or eliminate the emission of compounds that contribute to ozone depletion and climate change

Credit 7 – Green Power and Carbon Offset:

2 Yes Points

The owner will purchase carbon offset through a 5-year contract to offset 100% of the building’s energy use with renewable source.

Material and Resources

The materials selected for the building will be evaluated using a variety of criteria including a preference for materials extracted, processed and manufactured locally. This reduces the energy consumption and emissions associated with transportation and helps local economies.

Prerequisite 1 – Storage and Collection of Recyclables

A central area for sorting and collection of recyclables before removal from the site will be provided. Recyclable materials collected will include mixed paper, corrugated cardboard, glass, plastics, and metals, and the disposal of batteries and electronic waste.

Prerequisite 2 – Construction and Demolition Waste Management Planning

The project will have a Construction and Demolition Waste Management plan and will meet the requirements of this prerequisite by establishing waste diversion goals and identifying at least five material streams to be diverted.

Credit 1 – Building Life-Cycle Impact Reduction (LEED v4.1): **2 Yes and 1 Maybe Points**

The project team is planning to conduct a whole-building life-cycle assessment of the building structure and enclosure. The target is at least a 5% reduction in the global warming potential, acidification of land and water sources, and depletion of nonrenewable energy sources when compared with a baseline building.

Credit 2, 3, and 4 – Building Product Disclosure and Optimization (LEED v4.1): **2-3 Yes Points**

The project team, including the construction manager and their sub-contractors, will target the specification and use of at least 20 different permanently installed products and materials that have lower environmental impacts and comply with Environmental Product Declaration (EPD), and that conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930. The project team is also targeting the Material Ingredients credit and will specify materials and products with known chemical make-up. Documentation for at least 20 different permanently installed products will be provided, confirming the applicable certification which may be the Health Product Declaration (HPD), Cradle-to-Cradle or Declare.

Credit 5 – Construction and Demolition Waste Management: **1 Yes Points**

The waste generated by the construction and demolition process will be recycled, rather than land-filled, and the ultimate goal is for at least 50% (by weight) of the construction waste, targeting at least 4 waste streams, to be recycled. The project team will use the ReEnergy facility, which is the only certified comingling facility in Massachusetts, and will track comingled waste for at least a 50% diversion rate.

Indoor Environmental Quality

Prerequisite 1 – Minimum Indoor Air Quality Performance

The mechanical systems will be designed to comply with the ASHRAE 55-2010, the indoor temperature, and humidity conditions standard, and to provide superior ventilation throughout the building, following the requirements of ASHRAE 62.1-2010 sections 4 through 7. The future lab spaces will be served by 100% OA air-handling units, which will provide OA to office fan coil unit systems. The current design meets and exceeds the minimum requirements of ASHRAE 62.1-2010.

Prerequisite 2 – Environmental Tobacco Smoke Control (LEED v4.1)

The building will have a no-smoking policy to comply with the Massachusetts Workplace Smoking law, and smoking will be prohibited outside within 25 feet of doors and outside air intakes.

Credit 1 – Enhanced Indoor Air Quality Strategies: **1 Yes Point**

Building entrances will be provided with walk-off mats to remove dirt and debris from the shoes of people entering the building and will be cleaned and maintained by house-keeping weekly while space is vacant. High-efficiency MERV 13 filters will be provided in the main outside air handling unit for superior air particulate filtration. All spaces where hazardous gases or chemicals may be present or used, i.e. housekeeping closets, will be designed with full height walls, exhaust ventilation and door closer.

Credit 2 – Low-emitting Materials: **2 Yes Points & 1 Maybe Point**

The project will target low-emitting materials for 4 categories: Adhesives, sealants, and paints used inside the building will be selected to be low-VOC (Volatile Organic Compound) products and will meet the

emission testing requirements; specified wood products will have no added urea-formaldehyde; the flooring systems in the lobby and core areas will meet the credit requirements.

Credit 3 – Construction Indoor Air Quality Management Plan:

1 Yes Point

The base building will be constructed in accordance with the SMACNA Indoor Air Quality for Buildings under Construction Guideline. This guideline 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.

Credit 5 – Quality Views:

1 Yes Point

At least 75% of the regularly occupied area will have a direct line of sight and quality views to the outdoors, which includes landscaped area, sky, pedestrian walkways and bike lanes, and streetscape. The project team will use the tenant test fit drawings to demonstrate compliance with this credit.

Innovation and Design LEED Strategy

The project team will evaluate and implement measures and strategies in the design and construction of 101 CPD to exceed the performance criteria of some of the base credits and will introduce innovative building features, technologies, and policies that are not addressed by existing prerequisites and credits in the BD+C rating system. The innovative strategies may include development and implementation of OM Starter Kit, including green cleaning policies, establishing a purchasing policy for low-mercury lamps, verified construction and demolition recycling rates, and integrative analysis of building materials.

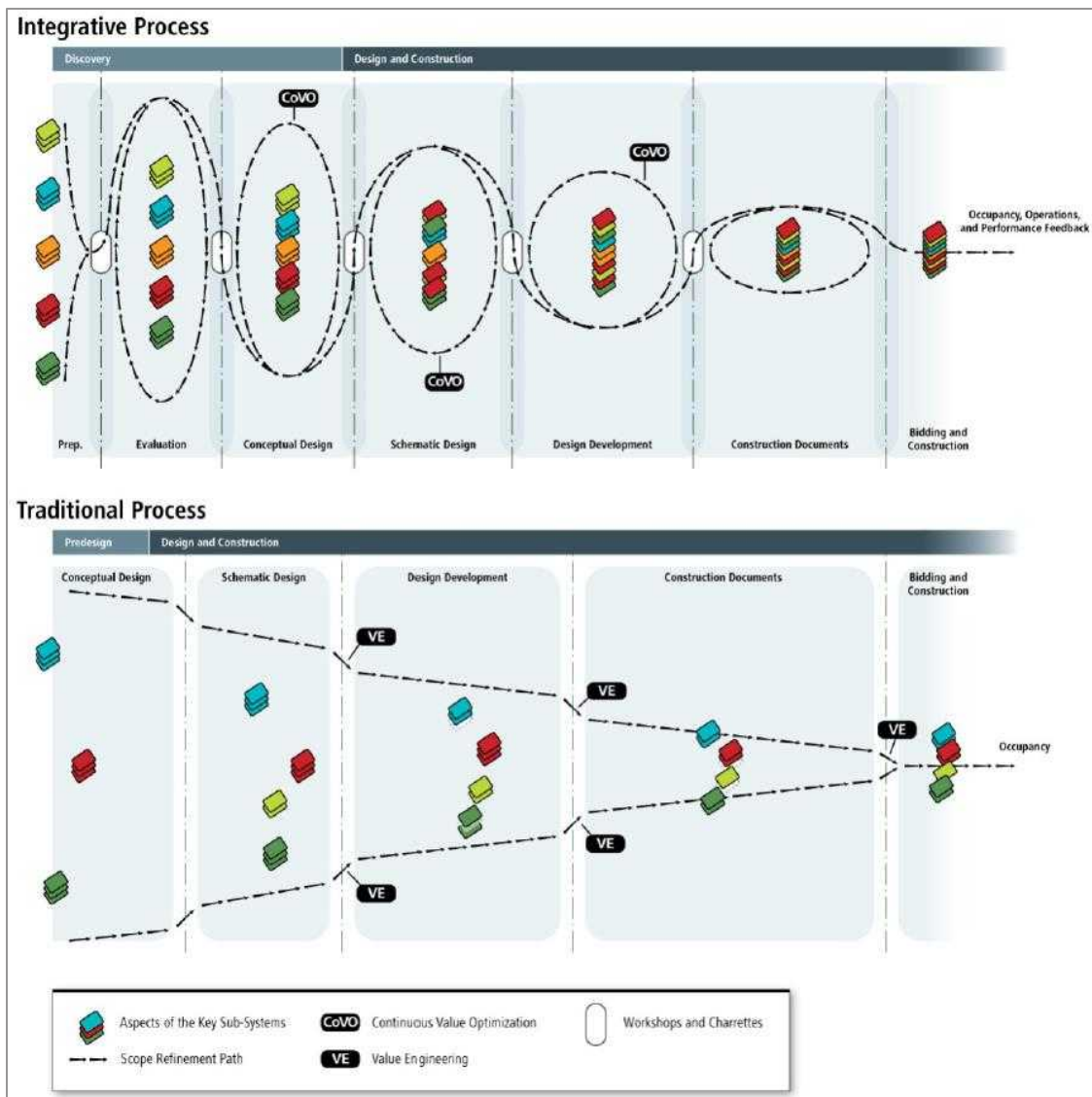
Regional Priority

Regional Priority credits were established with a focus on environmental issues and priorities at a local level. There are six (6) possibilities specific to the project location and the project team has targeted 4 points related to the following strategies: High-priority Site, Building Life-Cycle Impact Reduction, Rainwater Management, and Cooling Tower Water Use.

END OF ARTICLE 22 SUSTAINABILITY NARRATIVE

101 Cambridgepark Drive | Cambridge, MA

LEED v4 Integrative Process



Integrative vs traditional process, “ANSI Consensus National Standard Guide© 2.0 for Design and Construction of Sustainable Buildings and Communities.”

- Building area and space type:** 141,834 GSF Lab/Office + 19,434 SF MPH + 103,941 SF Parking Garage
- Estimated Occupancy:** LEED Default for 50%/50% Lab/ Office: 536
- Building and space operation schedule:** 7 AM – 6 PM; 24/7 HVAC Operation
- Exiting envelope thermal properties:** Refer to the Assumption Table
- Window to wall ratio:** 50% to 42% to 38%

Energy-Related Systems

<i>Local Climate:</i>	Boston, MA <u>TMY3</u> weather file
<i>Site Condition:</i>	Previously Developed site in an urban setting; >30% Open Space
<i>Energy Sources:</i>	Gas and electricity
<i>Transportation options:</i>	Access to Alewife Station and Bus Routes 62, 76, 67, 79, 78, 350
<i>Potential building features:</i>	50% Laboratory and 50% office
<i>Energy Performance benchmark:</i>	Lab21: We used the Lab21 Benchmarking tool to compare the current proposed design to a range of laboratory buildings in the climate zone 5A. After narrowing down the building parameters in the benchmarking tool to reflect the current design, the outcomes are three peer buildings with an average source EUI of 414 kBtu/SF
<i>Energy Modeling Software:</i>	eQuest 3.65

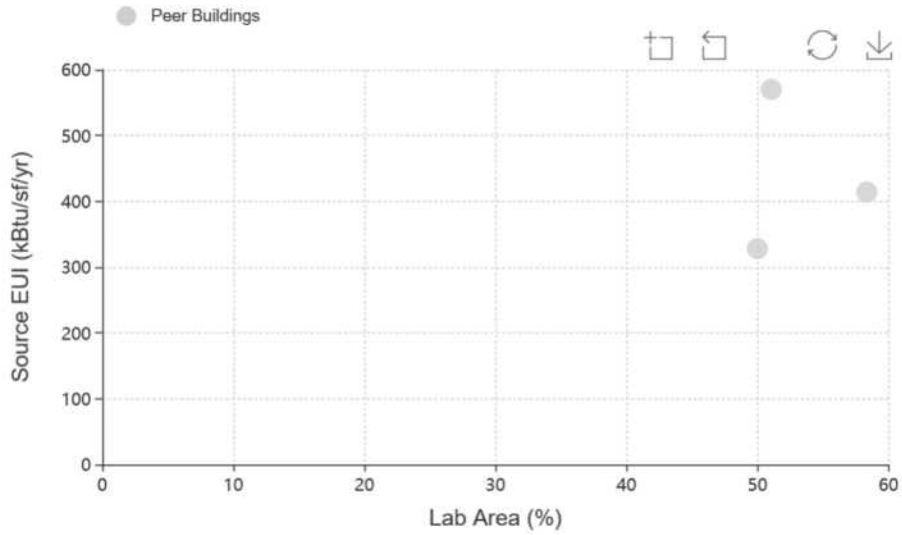
Introduction:

101 Cambridgepark Drive is a 5-story core and shell building, which is being designed as a first-class speculative research and development facility. Approximately 50% of the building will be allocated to laboratory spaces which results in a much higher energy demand and consumption when compared to a typical office building.

The project team is pursuing the Integrative Process credit for this project, and therefore, an energy model and energy performance targets were established pre-schematic design phase. enviENERGY Studio obtained the conceptual architectural drawings and generated the baseline and proposed case models to investigate the project's compliance with the LEED v4 Minimum and Optimize Energy Performance criteria and the Massachusetts Energy Code requirements. The energy analysis indicates that the project as designed complies with the Massachusetts Energy Code by showing a 28.7% reduction in the annual energy consumption as compared to ASHRAE 90-1-2013 Baseline case, and it shows approximately 15% energy cost savings, 25% source energy savings, and 34% GHG emissions savings as compared to LEED v4 Baseline Case model.

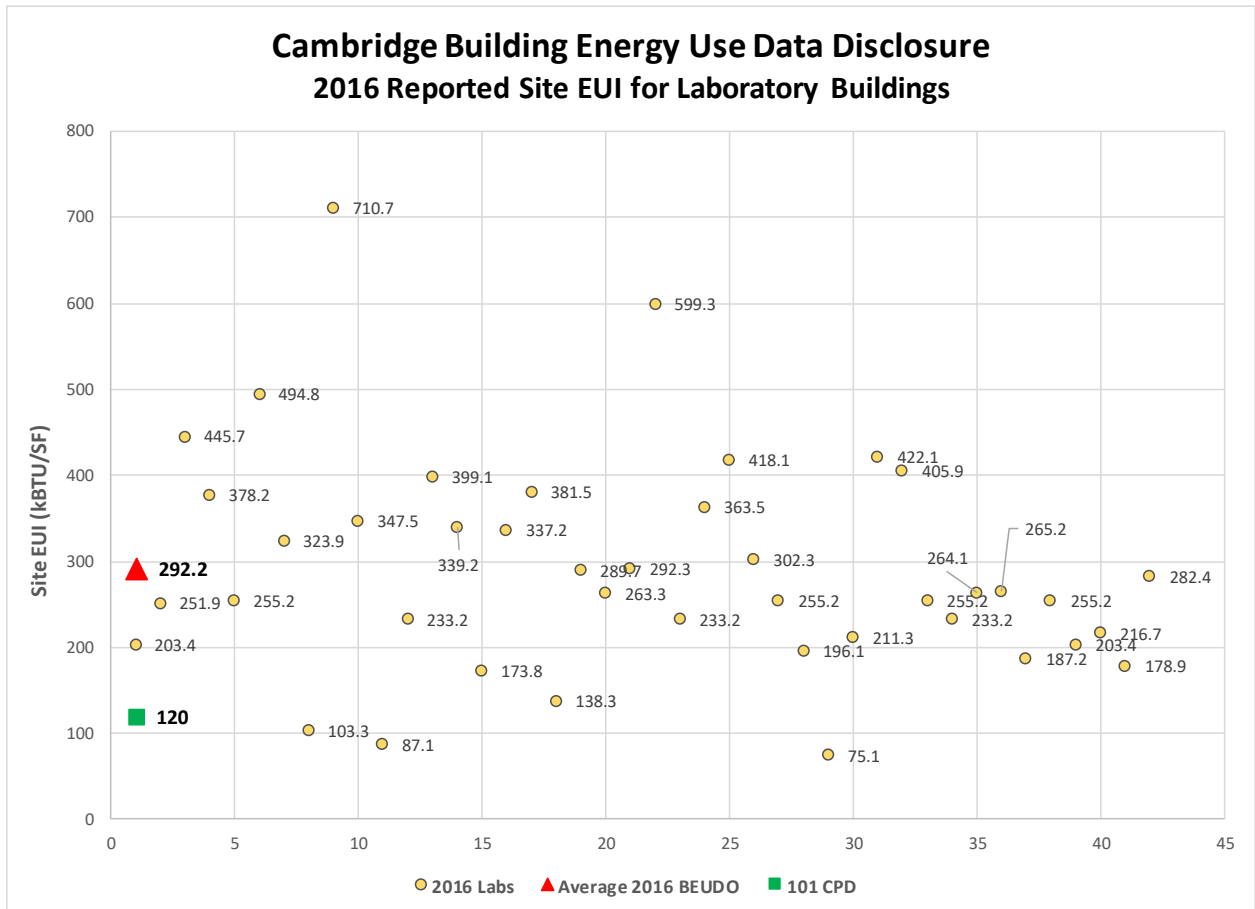
We have utilized the Lab21 Benchmarking Tool to establish an energy performance benchmark which is presented below. After narrowing down the building parameters in the benchmarking tool to reflect the current design, the outcomes are three peer buildings with an average source EUI of 414 kBtu/SF. This comparison shows that the current design with a source EUI of 253 kBtu/SF is low energy when compared to the benchmarking data.

We have also graphed the project site energy performance against the Cambridge operating laboratory buildings which reported their site EUI from 2016 through 2019 as required by the City of Cambridge Building Energy Use Disclosure Ordinance (BEUDO). The results are presented in the following graphs.

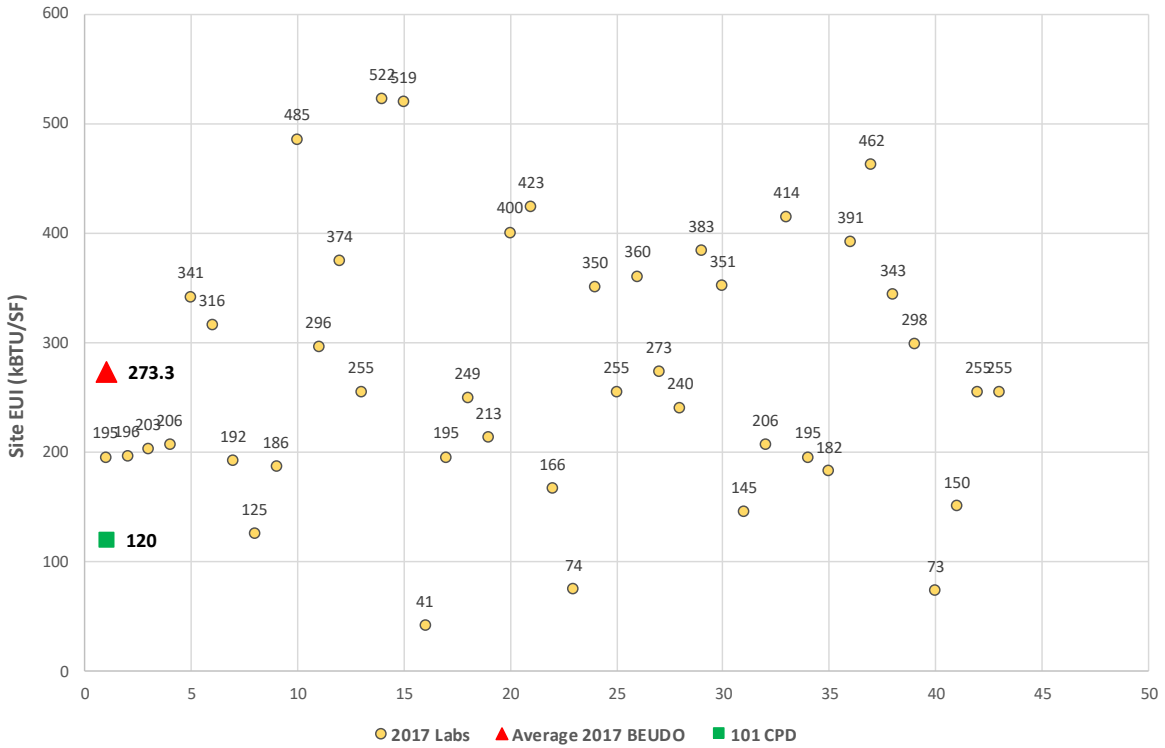


Summary Statistics for Selected Peer Group Buildings

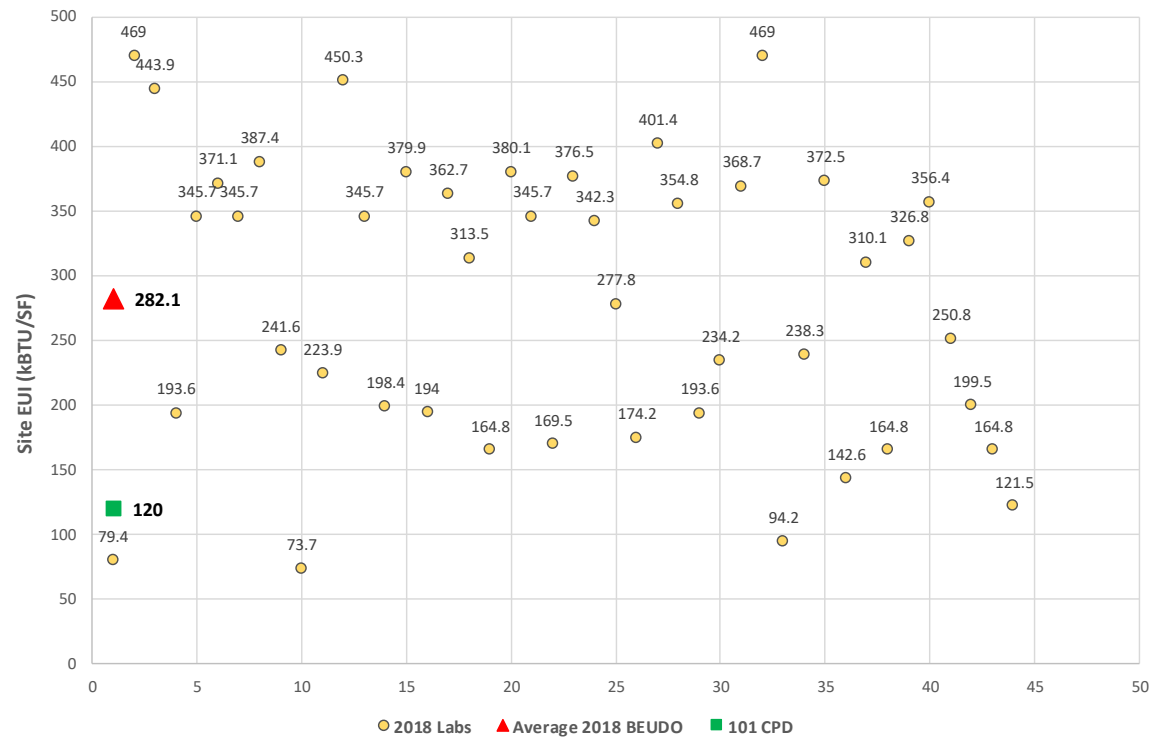
Lab Area: mean 53 % | median 51 %
 Source EUI: mean 437 kBtu/sf/yr | median 414 kBtu/sf/yr
 Number of Matching Buildings: 3/757



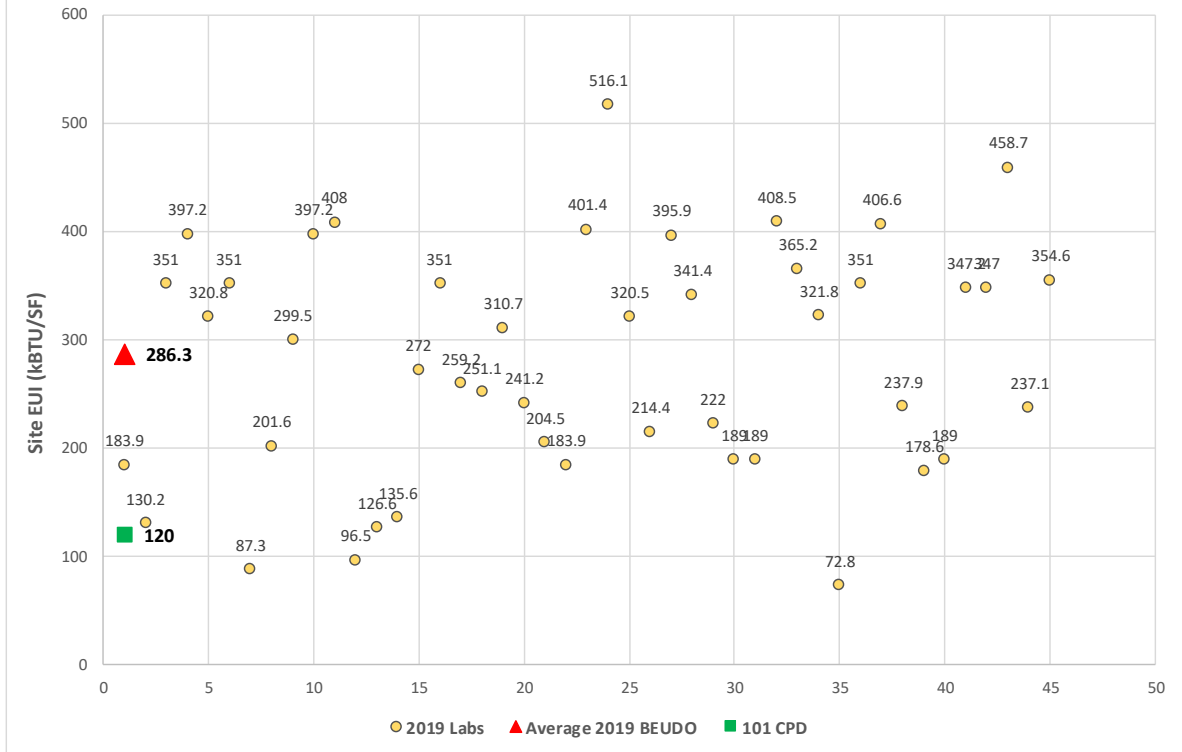
Cambridge Building Energy Use Data Disclosure 2017 Reported Site EUI for Laboratory Buildings



Cambridge Building Energy Use Data Disclosure 2018 Reported Site EUI for Laboratory Buildings



Cambridge Building Energy Use Data Disclosure 2019 Reported Site EUI for Laboratory Buildings



101 CPD | Energy Modeling Inputs | Baseline Requirements & Proposed Assumptions

Components		LEED v4 Baseline ASHRAE 90.1-2010	Energy Code Baseline ASHRAE 90.1-2013	Proposed Design & Alternatives
Envelope	Windows	Metal Framing (Curtainwall System): U-0.45 and SHGC-0.40	All Metal Framing, fixed windows: U-0.42 and SHGC-0.40	Overall U-value of 0.35 and SHGC-0.30
	Window-To-Wall Ratio	40%	Office >50,000 SF: 40%	50.0%
	Roof	Insulation entirely above deck: R-20 continuous insulation; U-0.048	Insulation entirely above deck: R-30 continuous insulation; U-0.032	R-40 c.i.; U-0.025
	Slab-on-grade	6-inch concrete with no insulation	R-15 for 24 inch	R-15 for 24 inch
	Exterior Walls	Steel framed walls: R-13 + R-7.5 c.i. U-0.064	Steel framed walls: R-13 + R-10 c.i. U-0.055	Spandrel Panel: U-0.15 Steel-framed with 4" mineral wool ci (R-14) + 3" Batt insulation (R-10); U-0.046 Assumption: 50% spandrel panel + 50% steel-framed =
Interior Loads	Occupancy	Office: 250 GSF/ Person Lab: 400 GSF/ Person Retail: 105 SF/ Person (FTE + Transients)	Office: 250 GSF/ Person Lab: 400 GSF/ Person Retail: 105 SF/ Person (FTE + Transients)	Office: 250 GSF/ Person Lab: 400 GSF/ Person Retail: 105 SF/ Person (FTE + Transients)
	Interior Lighting	Building Area Method: 0.90 W/SF Office 1.81 W/SF Lab 1.40 W/SF Retail 0.25 W/SF Parking	10% LPD Savings required by MA Energy Code 0.82 (0.738) W/SF Office 1.81 (1.629) W/SF Lab 1.26 (1.134) W/SF Retail 0.21 (0.189) W/SF Parking	No Lease Agreement 0.82 W/SF Office 1.81 W/SF Lab 1.26 W/SF Retail 0.12 W/SF Parking
	Plug Load	Office: 0.90 W/SF Lab: 4 W/SF Retail: 0.2 W/SF Misc Convention Oven - 2 kW Fryer - 1.05 kW Griddle - 1.2 kW Rack Oven - 65 kbtu Dishwasher - 2.6 kW Freezer - 4.1 kWh/Day	Office: 0.90 W/SF Lab: 4 W/SF Retail: 0.2 W/SF Misc Convention Oven - 2 kW Fryer - 1.05 kW Griddle - 1.2 kW Rack Oven - 65 kbtu Dishwasher - 2.6 kW Freezer - 4.1 kWh/Day	Office: 0.90 W/SF Lab: 4 W/SF Retail: 0.2 W/SF Misc Convention Oven - 2 kW Fryer - 1.05 kW Griddle - 1.2 kW Rack Oven - 65 kbtu Dishwasher - 2.6 kW Freezer - 4.1 kWh/Day
	Elevator Load	3 cars (15 kW per car)	3 cars (15 kW per car)	3 cars (15 kW per car)

	Components	LEED v4 Baseline ASHRAE 90.1-2010	Energy Code Baseline ASHRAE 90.1-2013	Proposed Design & Alternatives
DHW	Low-Flow Hot Water Fixtures	LEED v4 Baseline	LEED v4 Baseline	34.9% reduction in indoor water use
	Water Heater type & Efficiency	Same energy source as design	Electric	Electric Heaters
Cooling / Heating System	Primary System Type	System #7; VAV with CHW & HW coils	System #7; VAV with CHW & HW coils	VAV Air Handling Units + ERU + FCUs in office spaces
	Colling Type & Efficiency	Water-cooled centrifugal chillers 0.600 kW/ton FL; 0.590 kW/ton IPLV	Water-cooled centrifugal chillers 0.560 kW/ton FL; 0.500 kW/ton IPLV 10% increase in efficiency is required by MA Energy Code: 0.504 kW/ton FL	(4) 350-ton Air-cooled screw chillers; Assumption: 12 EER Full Load Efficiency
	Heating Type & Efficiency	Gas-fired Boiler; 80% efficiency	Gas-fired Boiler; 82% efficiency 10% increase in efficiency is required by MA Energy Code: 90% EFF	Five (5) 4,000 MBH gas-fired condensing boilers; 90% EFF at return water temperature of 120° F
	HW/ CHW Supply Temperature & Control	HW: 180° F; OA Temperature Control CHW: 44° F; OA Temperature Control	HW: 180° F; OA Temperature Control CHW: 44° F; OA Temperature Control	HW: 150° F; OA Temp Reset Control CHW: 42° F; OA Reset Temp Control
	Hot Water / CHW ΔT	HW: 50° F CHW: 12° F	HW: 50° F CHW: 12° F	HW: 30° F CHW: 14° F
	HW/ CHW Pump Control	HW: Variable Speed; 19 W/GPM CHW primary: Constant Volume CHW secondary: Variable Speed	HW: Variable Speed; 19 W/GPM CHW primary: Constant Volume CHW secondary: Variable Speed	HW: Variable Speed CHW: Variable Speed
	Heat Rejection	Two Speed Fans; ≥ 38.2 gpm/hp	Variable Speed Fans; ≥ 40.2 gpm/hp	N/A
Secondary System	System Type	System #3; Packaged Single Zone	System #3; Packaged Single Zone	Considering that the retail HVAC systems are not in the base building scope of work, they are modeled identically between the Baseline and Proposed case models.
	Cooling Type & Efficiency	DX Cooling; 13 SEER	DX Cooling; 14 SEER	Retail
	Heating Type & Efficiency	Gas-Furnace; 80%	Gas-Furnace; 80%	
	Supply Fan Control	Constant Volume	Constant Volume	
	Areas Served	Retail	Retail	
Air-Side HVAC	Ventilation	ASHRAE 62.1-2010 min. rates in office & retail 17 CFM/ person in Office; 100% OA in lab	ASHRAE 62.1-2013 min. rates in office & retail 17 CFM/ person in Office; 100% OA in lab	ASHRAE 62.1-2013 min. rates for the retail; 100% OA
	Supply Fan Control	Variable Air Volume with ASHRAE VAV Fan Part Load Performance Curve	Variable Air Volume with ASHRAE VAV Fan Part Load Performance Curve	Variable Air Volume with ASHRAE VAV Fan Part Load Performance Curve

The proposed design incorporates the following energy conservation measures:

- High-performance window system
- Increased roof insulation – R-40 c.i.
- Increased wall insulation – R-14 c.i + R-10 batt; approximately 40% of the exterior walls are insulated spandrel panels.
- Reduced interior lighting power density in parking garage and core spaces
- High-efficiency gas-fired condensing boilers
- Energy recovery units
- High-efficiency air-cooled chillers
- Variable speed, premium efficiency pumping system
- Low-flow plumbing fixtures

Potential load reduction strategies:

- Site Condition:
- **Shading:** The shading impact from adjacent buildings was evaluated.
- **Exterior lighting:** The use of LED exterior lighting was modeled to assess how the reduced exterior lighting power density has a positive impact on the building annual energy consumption.
- Hardscape
- Landscaping: ***The green roof has minimal impact on the overall energy savings.***
- Adjacent site conditions:

1- Massing and orientation:

- **HVAC sizing**
- **Energy consumption**
- Lighting
- Renewable energy opportunities

Rotating the building increased the annual energy consumption of the building and therefore, the proposed orientation of the building was chosen as an optimum option. Also, as noted earlier, the orientation of the building is mostly dictated by the site shape and orientation.

- 90-degree rotation: 3.51% increase in the building annual energy use
- 180-degree rotation: 0.32% increase in the building annual energy use
- 270-degree rotation: 4.60% increase in the building annual energy use

2- Basic envelope attributes: Please refer to the energy modeling report for further information.

- **Insulation values:**
 - o Spandrel Panel: U-0.17
 - o Steel-framed with 4" mineral wool ci (R-14)+ 3" Batt insulation (R-10); U-0.046
- **Window-to-wall ratio:** 50% in the preliminary design which was later reduced to 38% to make the building more energy efficient and reduce the GHG emissions.
- **Glazing characteristics:**
 - o Double-pane clear glass; U-0.35 and SHG-0.30
- Shading
- Window operability

UPDATE: After further review of the preliminary energy modeling results, the project team decided to make improvements to the building envelope design including a significant reduction in the vision glass area (50% to 42% and then 38%) and an improvement to the exterior wall insulation (U-0.17 to U-0.15 for the spandrel panel). The design team has divided the building elements into passive – building envelope - and active – MEP systems – and implemented measures so that the overall building envelope meets and exceeds the energy Code requirements before introducing any active energy efficiency measures. The following tables show that the current design meets the envelope performance requirements of the upcoming energy Code – IECC 2018:

(REQUIRED) C402.1.5 Component Performance Alternative					
	Proposed Design			IECC 2018 Baseline	
	<i>Area (SF)</i>	<i>U-Value</i>	<i>WWR</i>	<i>Area (SF)</i>	<i>U-Value</i>
Window + Wall	51,776.8		42%	51,776.8	from Tables
Window	21,746	0.35	UV (Glass+Frame)	20,711	0.38
Wall	30,031	0.08	U Wall	31,066	0.064
Roof	36,804	0.025		36,804	0.032
A Calculations					
A = Sum of the (UA Dif) values for each distinct assembly type of the building thermal envelope, other than slabs on grade and below-grade walls.					
	UA Proposed	UA Table			
Window	7,611	8,264			
Wall	2,252	1,922			
Roof	920	1,178			
	10,784	11,363			
A		-580			
D Calculations					
D = (DA * UV) – (DA * U Wall), but not less than zero					
DA	1,036				
D		285			
A + B + C + D + E ≤ Zero					
-295			Passed		

3- Lighting levels:

- Assess interior surface reflectance values: Responsible party?
- Assess lighting levels in occupied spaces:
 - o Targeted an interior lighting density equivalent to the maximum allowed by ASHRAE 90.1-2013.
 - o 20% reduction in the parking garage LPD

4- Thermal comfort ranges:

- Assess thermal comfort range options: The mechanical design team worked together with the owner to determine what the ideal thermal conditions would be for occupant comfort and energy efficiency while taking into account the energy savings predicted from the model.
 - o The setback strategy was included to reduce energy while not affecting the occupant comfort because these setbacks occurred during unoccupied hours.
 - o A greater range between the cooling and heating setpoints was included to reduce the energy consumption of the building.

5- Plug and process load needs:

- Assess reducing plug and process loads through programmatic solutions (e.g. equipment and purchasing policies, layout options):

ASHRAE requirements: **8.4.2 Automatic Receptacle Control**. The following shall be automatically controlled:

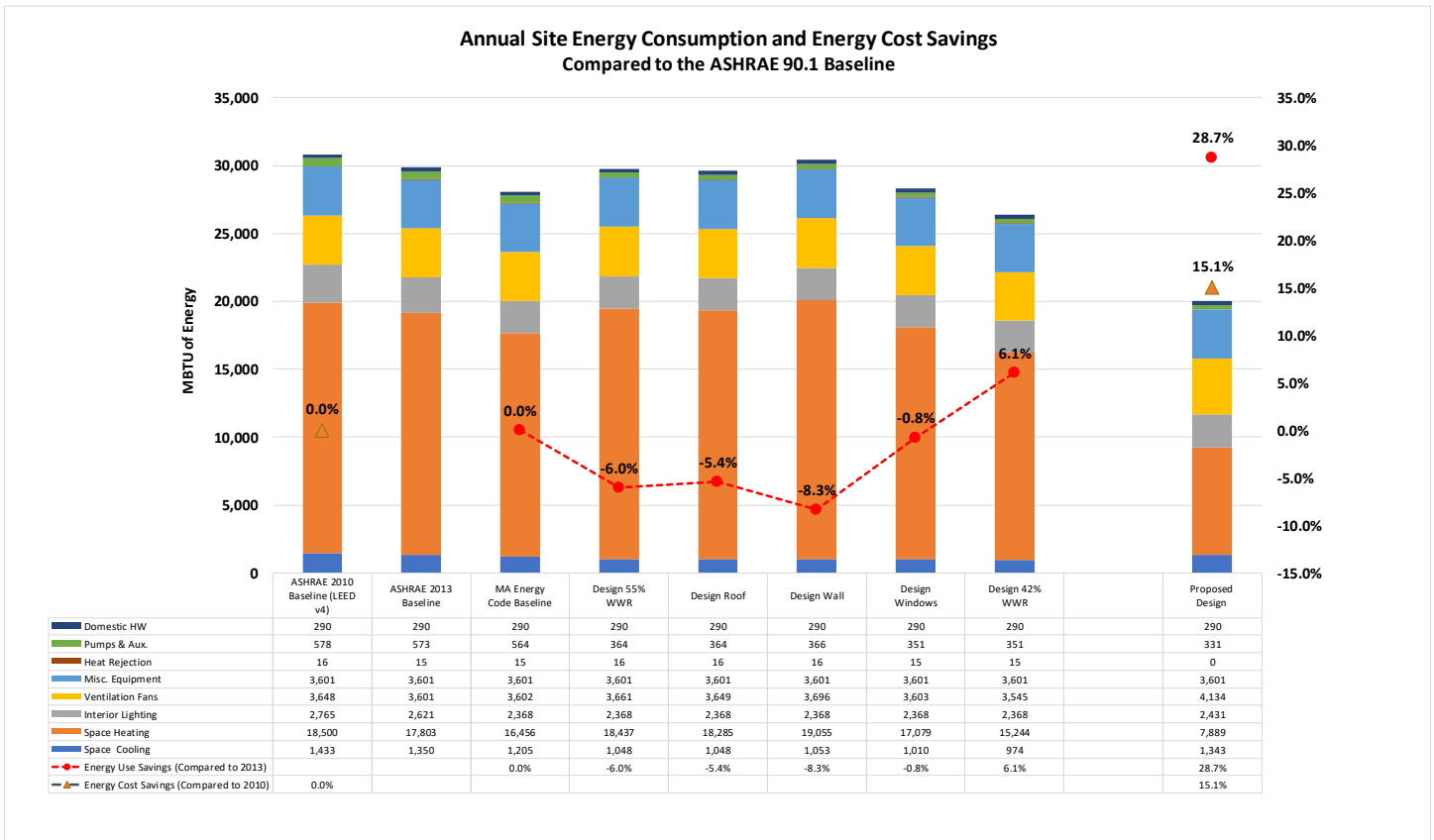
a. At least 50% of all 125-volt 15- and 20-amp receptacles in all private offices, conference rooms, rooms used primarily for printing and/or copying functions, break rooms, classrooms, and individual workstations.

Option 1: Consider 50% turndown in the baseline model and 60-70% in the proposed case.

Option 2: Over 50% Energy Star rated equipment for future office spaces.

6- Programmatic and operational parameters: Assess

- Multifunctioning spaces
- Operating schedule
- Space allotment per person
- Teleworking
- Reduction of building area
- Anticipated operations and maintenance





LEED BD + C: Core and Shell v4

Project Name: 101 Cambridgepark Drive
Project Address: 101 Cambridgepark Drive, Cambridge, MA 02140
Owner: King Street Properties

[OPTION TO PURSUE LEED v4.1: Blue Text](#)

January 9, 2020

50% Office and 50% Lab
 FTE: 536(250/ 400 GSF/person in office/ lab)
 GSF: 165,000
 # Parking Spaces: 247 in garage + 22 surface parking. 158 allocated to 101.CPD

	Yes	?+	?	No
1	0			0
1				



Integrative Process (IP) Notes & Required Documentation

Phase	Integrative Process	Points	Primary Responsibility	Notes & Required Documentation
D	Credit	1	Design Team	Beginning in pre-design and continuing throughout the design phases, identify and use opportunities to achieve synergies across disciplines and building systems: Energy and Water.

	Yes	?+	?	No
13	0	0	0	7



Location & Transportation (LT) Notes & Required Documentation

Phase	Location & Transportation (LT)	Points	Primary Responsibility	Notes & Required Documentation
D	Credit 1	LEED for Neighborhood Development Location (Up to 20 Points)		
D	Credit 2	Sensitive Land Protection	envi	Choose a previously developed land or a land which is not a prime farmland, on floodplains, considered habitat for endangered species, or wetland. The selected site has been previously developed.
D	Credit 3	High Priority Site		Locate the project in historic district, or on priority designation by federal or local entity (2 p), or brownfield remediation (3 p). It is not an empowerment zone; The project site is in US Department of Housing and Urban Development's QCT and DDA.
D	Credit 4	Surrounding Density and Diverse Uses	envi	Surrounding Density (2-4 points): At least 22,000 sf/acre density exists. Diverse Uses: Locate the project within 1/2 mile walking distance of publicly available diverse uses; 4-7 services (1 point), more than 8 services (2 points), Church in Cambridge, Summer Shack restaurant, Ferro's Foodtown, Laundry Town. The Fresh Pond Mall is within 0.6 miles. Should be reevaluated.
D	Credit 5	Access to Quality Transit (LEED v4.1)	envi	Multiple transit stops within 1/4 and 1/2 mile of building entry: 72 WD/40 WEH trips (1 point); 144 WD/ 108 WEH trips (3 points); 360 WD/ 216 WEH trips (6 points). Within 1/4 mile of Alewife Station: 276 WD & 112 WEH LEED v4.1: 250 WD and 160 WEH trips (4 points); 360 WD and 216 WEH trips (6 points). For weekend trips, only trips on the day with the higher number of trips are counted towards the threshold
D	Credit 6	Bicycle Facilities	envi/ DiMella Shaffer	Bicycle Network connecting the building entry or the bike storage to the bus stop and 10 basic services within 3 miles. Bicycle Storage needs: 5% of building occupants = 27 bikes + 4 racks outside Shower needs: 1 per 100 occupants + 1 per each 150 afterward = 4
D	Credit 7	Reduced Parking Footprint		40% reduction in parking capacity from the minimum local code

1				Green Vehicles (LEED v4.1: Electric Vehicles)	1	LEED v4.1: Install electrical vehicle supply equipment (EVSE) in 2% of all parking spaces used by the project or at least two spaces, whichever is greater. Clearly identify and reserve these spaces for the sole use by plug-in electric vehicles.
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Yes	7+	?	No
8	0	1	2



Sustainable Site (ST) Notes & Required Documentation

Phase	Points	Primary Responsibility	Notes & Required Documentation
C	P	Highpoint/ Consigli	Civil: Create and implement an erosion and sedimentation control plan for all construction activities associated with the project. Plan should be based on 2012 EPA Construction General Permit (CGP) or stringent local program. CM: Implement and document.
D	1	Highpoint	Submit a site survey or assessment which includes: topography, Hydrology, Climate, vegetation, soils, human use, and human health.
D	2	DiMella Shaffer	Option 1: Preserve and protect from all development and construction activity 40% of the greenfield area on the site AND Using native or adapted vegetation, restore 30% (including the building footprint) of all portions of the site identified as previously disturbed. Option2: financial support equivalent to \$0.40 per Sf of total site area, to land trust or conservation organization.
D	1	DiMella Shaffer	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 must be vegetated (turf grass does not count as vegetation) or have overhead vegetated canopy.
D	3	Highpoint	LEED v4.1: Manage on site runoff from the developed site for the 80th percentile of regional or local rainfall events using low-impact development (LID) and green infrastructure. (1 point); 85th percentile (2 points); 90th percentile (3 points)
D	2	DiMella Shaffer	Roof + Non-roof (2 points): weighted SRI; use of open-grid pavement. OR Covered parking: at least 75% of spaces should be covered. (1 points)
D	1	Lighting Designer	
D	1	envi/ KSP	

Yes	7+	?	No
7	1	0	3



Water Efficiency (WE) Notes & Required Documentation

Phase	Points	Primary Responsibility	Notes & Required Documentation
D	P	LA	No Irrigation or reduce the water use by 30%.
D	P	MEP	20% water use reduction is required: 1- select WaterSense -labeled products for WC, Urinal, and showerheads; 2- Select 1.28 GPF toilet, 0.125 GPF urinal, 0.35 GPM public lav, 1.5 GPM kitchen faucet, 1.5 showerheads ; 3- Install Energy Star or equivalent ice-machine; 4- No once-through cooling with potable water for any equipment or appliances that reject heat; 5- equip cooling towers and evaporative condensers with makeup water meters , conductivity controllers and overflow alarms, and efficient drift eliminators.
D	P	MEP	Install permanent water meters that measure the total potable water use for the building and associated grounds.

1	1						
3							3
2							
1							

D	Credit 1	Outdoor Water Use Reduction	2	LA	No Irrigation or 100% water use reduction (2 points); 50% water use reduction (1 point) - 1 additional point can be achieved by using reclaimed water for irrigation. Feasibility of rainwater collection is being evaluated.
D	Credit 4	Indoor Water Use Reduction	6	MEP/envi	Water use reduction threshold: 25%, 30%, 35%, 40%, 45%, 50%
D	Credit 5	Cooling Tower Water Use	2	MEP	Projects without Cooling Towers or Evaporative Condensers: Projects may earn full credit if all conditions are met: - The baseline system designated for the building using ASHRAE 90.1-2010 Appendix G Table G3.1.1 includes a cooling tower (systems 7 & 8) - The project design case does not include a cooling tower - The design case mechanical system does not use the latent heat of the evaporative cooling of water. - The project does not receive any cooling from a District cooling system
D	Credit 6	Water Metering	1	MEP	Install permanent water meters for two or more water subsystems: Irrigation, indoor plumbing, DHW, boilers, reclaimed and process water.



Energy & Atmosphere (EA) **Points** **Primary Responsibility** **Notes & Required Documentation**

Phase	Points	Primary Responsibility	Notes & Required Documentation
C	P	CxA	Changes from LEED v2009: LEED v4 now requires the CxA to be engaged before the design development phase is complete. The electrical and plumbing scopes have been expanded. Elements of envelope commissioning are now incorporated in the OPR and BOD. One design review and one operations and maintenance plan are now required.
D	P	envi	ASHRAE 90.1-2010 baseline; 2% energy cost reduction for Core and Shell.
D	P	MEP	Install permanent electricity and gas utility meters.
D	P	MEP	No CFC type refrigerant
C	6	CxA	Enhanced Commissioning (3 points); OR Enhanced and Monitoring-based Commissioning (4 Points); AND/OR Envelope Commissioning (2 Points)
D	18	envi	21% is targeted for 10 points.
D	1		Install advanced energy metering for all whole-building energy sources, and any individual energy end uses that represent 10% or more of the total annual energy use. Electric meters must record consumption and demand, data collection connected to BAS, capable of storing data for at least 36 hours, all meters must be capable of reporting hourly, daily, monthly and annual energy use.
D	2		Demand Response
D	3		Renewable Energy Production
D	1	MEP	Enhanced Refrigerant Management
C	2	envi/ KSP	Green Power and Carbon Offset

Yes	?+	?	No
15	2	1	15

YES							
YES							
YES							
5						1	
8	1	1	8				
						1	
						2	
						3	
	1						
2							

Yes		?+		?-		No		Phase	Materials and Resources (MIR)	Points	Primary Responsibility	Notes & Required Documentation
5	4	1	4									
YES								D	Storage and Collection of Recyclables	P	DiMella Shaffer	Changes from LEED v2009: Materials that require dedicated storage now include batteries, mercury-containing lamps, and e-waste; project teams may choose two of the three. Develop and implement a construction and demolition waste management plan: Establish waste diversion goals for the project by identifying at least five materials (both structural and nonstructural) targeted for diversion. Specify whether materials will be separated or commingled and describe the diversion strategies planned for the project. Describe where the materials will be taken and how the recycling facility will process the material.
YES								C	Construction and Demolition Waste Management Planning	P	Consigli	LEED v4.1: Whole-building LCA (1-4 points) Conduct LCA (1 point); Conduct LCA and show at least 5% reduction in at least 3 of the 6 impact categories (2 points); Conduct LCA and show at least 10% reduction (3 points). DiMella Shaffer will look into using Tally in Revit. Use at least 20 different permanently installed products sourced from at least five different manufacturers that meet one of the disclosure criteria: Product-specific declaration OR Environmental Product Declarations OR USGBC approved program. LEED v4.1 changes: 10 different permanently installed products from three different manufacturers for CS and Warehouses & Distribution Centers.
2	1						3	C	Building Life-Cycle Impact Reduction (LEED v4.1)	6	DiMella Shaffer	LEED v4.1 changes: 20% compliant criteria (1 pt); 40% compliant criteria (2pts) LEED v4.1 changes: 10 different permanently installed products from three different manufacturers for CS and Warehouses & Distribution Centers.
1	1							C	Building product disclosure and optimization - environmental product declarations (LEED v4.1)	2	Consigli/ DiMella Shaffer	LEED v4.1 changes: 10 different permanently installed products from three different manufacturers for CS and Warehouses & Distribution Centers.
1	1							C	Building product disclosure and optimization - sourcing of raw materials (LEED v4.1)	2	Consigli/ DiMella Shaffer	LEED v4.1 changes: 10 different permanently installed products from three different manufacturers for CS and Warehouses & Distribution Centers.
1	1							C	Building product disclosure and optimization - material ingredients (LEED v4.1)	2	Consigli/ DiMella Shaffer	LEED v4.1: The number of waste streams can be reduced if a certified commingling facility is used. ReEnergy will be used. 1: 50% diversion and 2 material streams (1pt); 2: 50% diversion using Certified Commingled Recycling Facility (1 point); 3: Divert 75% and 3 streams (2pts); 4: Divert 75% using Certified Commingled Facility and 1 more stream (2pt)
1							1	C	Construction and Demolition Waste Management (LEED v4.1)	2	Consigli	

Yes		?+		?-		No		Phase	Indoor Environmental Quality (IEQ)	Points	Primary Responsibility	Notes & Required Documentation
5	1	0	4									
YES								D	Minimum Indoor Air Quality Performance	P	MEP	Meet the requirements of ASHRAE 62.1-2010: install air-flow monitoring station with an accuracy of +/-10%, an alarm should be generated when the OA value varies by 15% or more from the OA setpoint.
YES								D	Environmental tobacco smoke control (LEED v4.1)	P	KSP/ envi	No Smoking inside the building and within 25 feet of the building + No Smoking Signs. LEED v4.1: Communicate the no-smoking policy to occupants. Have in place provisions for enforcement or no-smoking signage.

1							
2	1						
1							
1							

Phase	Credit 1	Enhanced indoor air quality strategies	Points	DiMella Shaffer/ MEP	Notes & Required Documentation
D	Credit 1	Enhanced indoor air quality strategies	2	DiMella Shaffer/ MEP	Entryway systems; interior cross-contamination prevention; and MERV 13 filtration (1 point) Additional Strategies (one strategy for 1 point): exterior contamination prevention; increased ventilation; carbon dioxide monitoring; or additional source control and monitoring.
C	Credit 2	Low-emitting Materials	3	DiMella Shaffer/ Consigli	Low VOC materials; paint and coating; adhesive and sealant; flooring; composite wood; ceiling, walls, thermal and acoustic insulations. 2 points for 4 categories and 3 points for 5 categories.
C	Credit 3	Construction indoor air quality management plan	1	Consigli	Changes from LEED v2009: The use of tobacco products during construction is now explicitly prohibited inside the building and within 25 feet of the building entrance.
D	Credit 5	Daylight	3		
D	Credit 6	Quality Views	1	DiMella Shaffer	Changes from LEED v2009: The exemplary performance requirements from LEED 2009 are now the basis for the credit requirements. Glazing must provide a clear view to the outdoors. The glazing does not have to be located between 30 and 90 inches above the finished floor. Atriums now qualify for up to 30% of the total area.

Yes	?+	?-	No
6	0	0	0

Phase	Credit 1	Innovation (IN)	Points	Primary Responsibility	Notes & Required Documentation
D/C	Credit 1	IN: Green Building Education	1		
D/C	Credit 2	Pilot: Verified Construction & Demolition Recycling Rates	1		Recycle and/or salvage nonhazardous construction and demolition materials by sending the project's total commingled waste materials to a mixed-recovery facility that has achieved third party verification of facility-average recycling rates. ReEnergy is qualified.
D/C	Credit 3	Other IN or Pilot	1		
D/C	Credit 4	IN: LEED O+M Starter Kit or Other IN	1		
D/C	Credit 5	IN: Walkable Site or other IN	1		
C	Credit 6	LEED Accredited Professional	1		

Yes	?+	?-	No
4	0	0	0

Phase	Credit 1	Regional Priority (RP)	Points	Primary Responsibility	Notes & Required Documentation
D	Credit 1	Regional Priority: High priority Site/ Rainwater Management	1		Rainwater Management requires 3 points.
D	Credit 2	Regional Priority: Cooling tower water use	1		
D	Credit 3	Regional Priority: Renewable Energy/ Optimize Energy performance	1		8 points from the energy model is required
C	Credit 4	Regional Priority: Building Life-Cycle impact reduction	1		2 points from LCA.

Yes	?+	?-	No
64	8	3	35

Project Total (Pre-certification estimate) 110