BOSTON COLLEGE
BRIGHTON ATHLETICS FIELDS

Application for Small Project Review

SUBMITTED TO

Boston Redevelopment Authority
Boston, Massachusetts

SUBMITTED BY

Boston College
140 Commonwealth Avenue
Chestnut Hill, Massachusetts

August 9, 2016

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

Chapter 1

Project Summary

CHAPTER 1: PROJECT SUMMARY

1.1 PROJECT IDENTIFICATION

Project Name:	Boston College Brighton Athletics Fields
Address/Location:	Boston College, Brighton Campus, Boston
Assessor's Parcel Number:	2205268080

1.2 PROJECT SUMMARY

The Trustees of Boston College (the "Proponent") are proposing to redevelop an approximately 14-acre site (the "Project Site") located on the northern portion of the Brighton Campus of Boston College (the "University"). The Project Site is bordered by Anselm Terrace, Thomas A. Edison K-8 School, and Glenmont Road to the north, Lane Park and campus land to the south, and Lake Street to the west. See Figure 1-1, Locus Map, and Figure 1-2, Aerial Map.

In 2005, the University became the 12th member of the Atlantic Coast Conference (ACC). The ACC, which now includes 15 institutions, is a highly competitive intercollegiate athletics conference. Since joining the conference, the Boston College Athletics Department (BCAD) has made a substantial financial commitment to the baseball and softball programs through additional athletic scholarships and funding for travel, staff, and recruiting.

The current baseball and softball facilities are inadequate and are well below the standards of the other ACC institutions. Currently, the baseball and softball teams share Shea Field with football and various recreational activities. This places the teams at a competitive disadvantage within the ACC. Given the need for improved baseball, softball, and recreational sport facilities, the University has selected the Brighton Campus as the site for the proposed Boston College Brighton Athletics Fields (the "Project").

1.2.1 PROJECT SITE

The goal of the Project is to develop facilities that meet the current needs of the University's varsity baseball, softball, and recreational programs, while seamlessly integrating the facilities into the current surroundings. The proposed location is open fields in the northern portion of the Brighton Campus. The Project Site has been used for intramural and club sports, and in the off-season for summer camp activities. An internal campus roadway on the Project Site provides access to Foster Street and to Lake Street.

1.2.2 PROPOSED DEVELOPMENT PROGRAM AND SITE USES

The proposed development program includes newly constructed baseball and softball fields, a recreation field, and a small support building. See Figure 1-3, Project Site Plan.

Both baseball and softball fields will be constructed with a synthetic turf infill system. A clay infield mix will be used on the softball infields and bullpens. The size of the baseball field is approximately 3.5 acres and the softball field is approximately 1.5 acres. The baseball field will be lit with NCAA broadcast level lighting that can be adjusted to lower levels depending on the type of event. The softball field will also be illuminated with NCAA broadcast level lighting and, as with the baseball field, lighting will be adjusted to lower levels as needed. The seating treads and risers will be aluminum planking on a structural steel frame. The baseball field will include fixed seating for 1,000 spectators, and the softball field will accommodate 300 spectators. There will be electronic scoreboards at the baseball and softball fields, each approximately 10 feet x 36 feet, with light emitting diode (LED) numbers. These facilities will primarily serve the baseball and softball programs at the University.

The recreation field will consist of amended topsoil with natural grass surface. The field will be illuminated with recreational level lighting. The field will support recreational and club sports along with summer camps and other recreational programs.

A small 3,000-square-foot support building will house men's and women's restrooms, a concessions storage room, a first aid room, and a ticket room to accommodate ticket sales if they are included in future programming. The restrooms will be designed to meet the requirements of the Massachusetts state plumbing code for 1,300 spectators.

More detail on the each facility can be found in Section 2.3, Project Overview.

1.2.3 PUBLIC REVIEW PROCESS

The University is committed to engaging in an open, transparent, and public review process. The Proponent is submitting the Project under Article 80E Small Project Review, and will welcome community review and input.

In the Institutional Master Plan (IMP), The University committed to forming an Athletics Advisory Committee (the "Committee") to provide advice and comment on the operational and management issues associated with these athletic facilities. The composition and size of the Committee will be determined collaboratively by the

City of Boston, the Proponent, and the Allston-Brighton Boston College Community Task Force (the "Task Force").

1.3 RELATIONSHIP TO INSTITUTIONAL MASTER PLAN

In the spring of 2004, the University embarked on a comprehensive strategic planning initiative to define its needs and establish institutional goals for the coming decade and beyond. After several years of planning, the Strategic Plan was adopted by the University's Board of Trustees in February, 2006. In December of 2007, after two years of working with the Task Force and the surrounding neighborhood, the University submitted an Institutional Master Plan Notification Form (IMPNF) outlining the institutional needs of the University, including the recently acquired Brighton Campus.

The IMPNF included the following components related to the Project:

- A baseball field that included stands with fixed seating to accommodate 1,500 spectators;
- A softball field that included stands with fixed seating to accommodate 500 spectators;
- Two intramural fields;
- A 100,000-square-foot field house for additional sports such as indoor tennis and track. The building also included an at-grade plaza level along the main roadway portion and second level below. The overall program included interior spaces for indoor track and tennis, team clubhouses, coaches' offices, sports medicine, an equipment room, ticketing and concessions, media and press, batting cages and storage.

Based on the Scoping Determination on the IMPNF issued by the BRA, the University submitted an Institutional Master Plan (IMP) in June 2008. As a result of further community input and project team analysis, the program for the athletics complex was modified as follows:

- The field house, including indoor tennis and track facilities was removed from the program, leaving a 60,000square-foot support building for the athletics complex. Six outdoor tennis courts would be constructed adjacent to the parking garage in place of the indoor courts.
- The second intramural field which was to have been located on top of the field house was eliminated.
- The orientation of the baseball field was rotated to allow for more spatial efficiency between the field and the support building. This also allowed for spectator seating and home plate to be situated farther away from the adjacent homes on Lane Park. Trees and other landscaping were integrated into the project design along the

perimeter of the baseball and softball fields to reduce potential visual, noise, and lighting impacts.

In subsequent IMP filings with the BRA and the Zoning Commission in January and March, 2009 respectively, the University made additional modifications to the planned athletics complex in response to community concerns. These changes included:

- Reduction in the seating capacity of the baseball field from 1,500 seats to 1,000 seats.
- Reduction in the seating capacity of the softball field from 500 seats to 300 seats.
- Creation of an Athletics Advisory Committee to provide advice and comment on operational and management issues related to the Brighton Athletics Fields.
- Commitment to limit nighttime lighting of athletic fields after 9:30 PM, except when varsity games are still underway.

This Application for Small Project Review (SPR) is consistent with the IMP as approved by the BRA and Zoning Commission, although the larger 60,000 square-foot support building has been deferred to a future filing, and is no longer part of the Project. A small (3,000-sf) support building has been included with restrooms, storage, first aid rooms, and a ticket room to support athletic events at the Project. The support building and playing fields have been described in this application to inform the Article 80E Small Project Review process in conformance with the guidelines related to the Design Component and the Site Plan Component.

1.4 ANTICIPATED REGULATORY PERMITS AND APPROVALS

Agency	Permit/Approval
Federal	
Environmental Protection Agency	• NPDES General Permit for Stormwater (Construction) • NPDES General Permit for Dewatering
State	
Department of Environmental Protection	• Notification of Construction
Local	
Boston Redevelopment Authority (BRA)	• Article 80 Small Project Review
Boston Transportation Department	• Construction Management Plan
Boston Water & Sewer Commission	• General Service Application • Easement Agreements • Site Plan Review • Backflow Preventer
Boston Inspectional Services Department	• Building Permit

1.5 CONSTRUCTION SCHEDULE

The University anticipates a twelve-month construction schedule. Currently, it is anticipated that construction will commence in March 2017 and will be completed in March 2018.

1.6 PROJECT TEAM

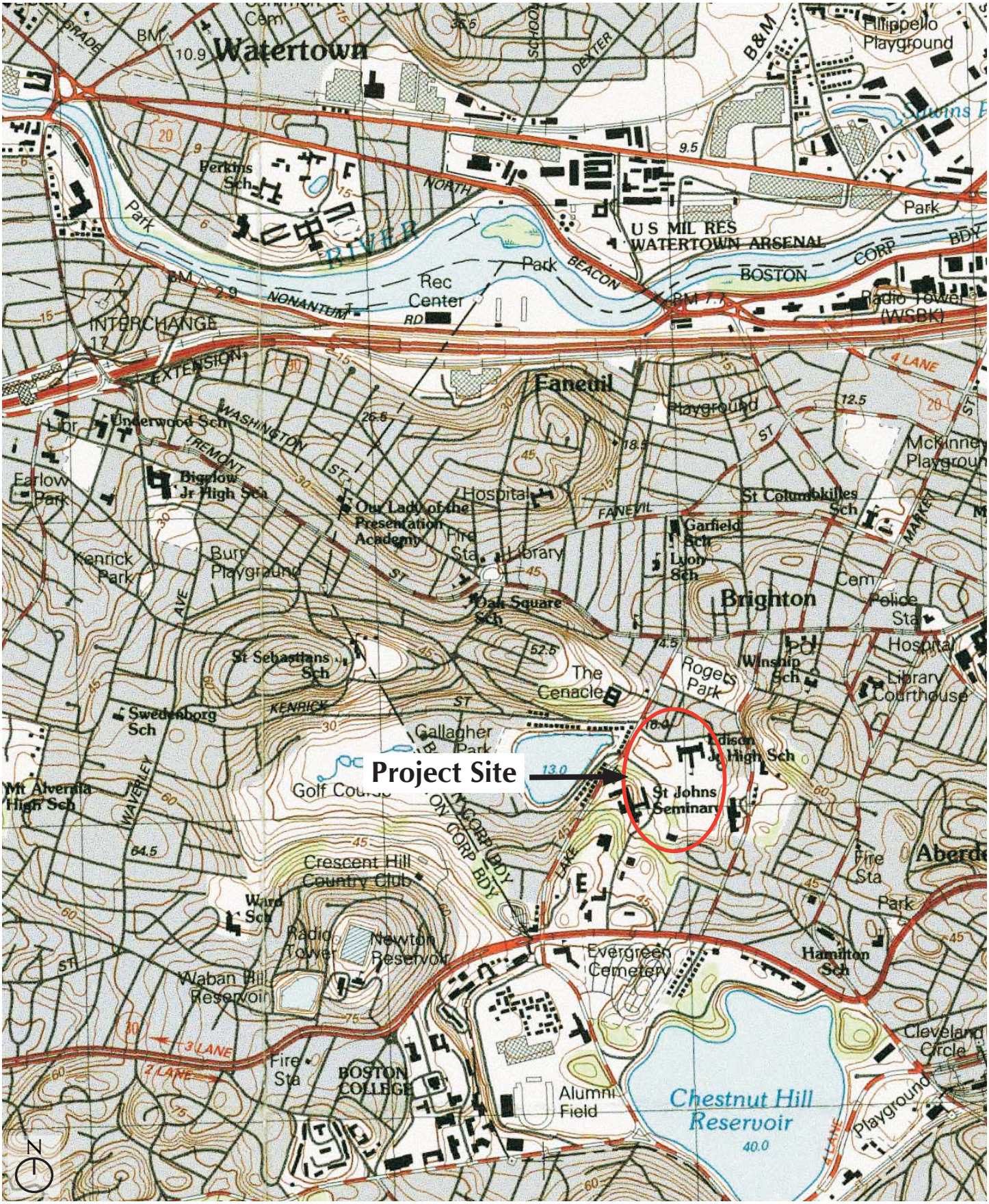
Proponent:	Trustees of Boston College Office of Government and Community Affairs 140 Commonwealth Avenue Chestnut Hill, MA 02467 Tel: 617-552-4787 Contact: Thomas J. Keady, VP Governmental and Community Affairs
Permits/Approvals:	FORT POINT ASSOCIATES, INC. 31 State Street, 3rd Floor Boston, MA 02109 Tel: 617-357-7044 Contact: Jamie Fay, Principal
Architects:	CHA CONSULTING, INC. 150 Baker Ave. Suite 205 Concord, MA 01742 Tel: 978-369-2890 Contact: Tim Whitney, AIA, Vice President DLR GROUP 7290 West 133rd Street Overland Park, KS 66213 Tel: 913-481-8925 Contact: Don Barnum, AIA, Principal
Civil Engineer:	NITSCH ENGINEERING 2 Center Plaza Suite 430 Boston, MA 02108 Tel: 617-338-0063 Contact: Josh Alston
Transportation/Parking:	VHB 99 High Street Boston, MA 02110 Tel: 617-607-2906 Contact: David Black, Associate

1.7 PUBLIC AND COMMUNITY BENEFITS

The IMP, approved in 2009, devoted two chapters to a review of the extensive economic benefits (Chapter 12) and community benefits and services (Chapter 13) provided by the University. These substantial benefits are provided by the University as an institution and thus, the individual projects proposed within the IMP do not necessarily identify individual project-related public and community benefits. In the case of the Project, however, there are a number of specific mitigation commitments to minimize the impact of the Project on the surrounding community.

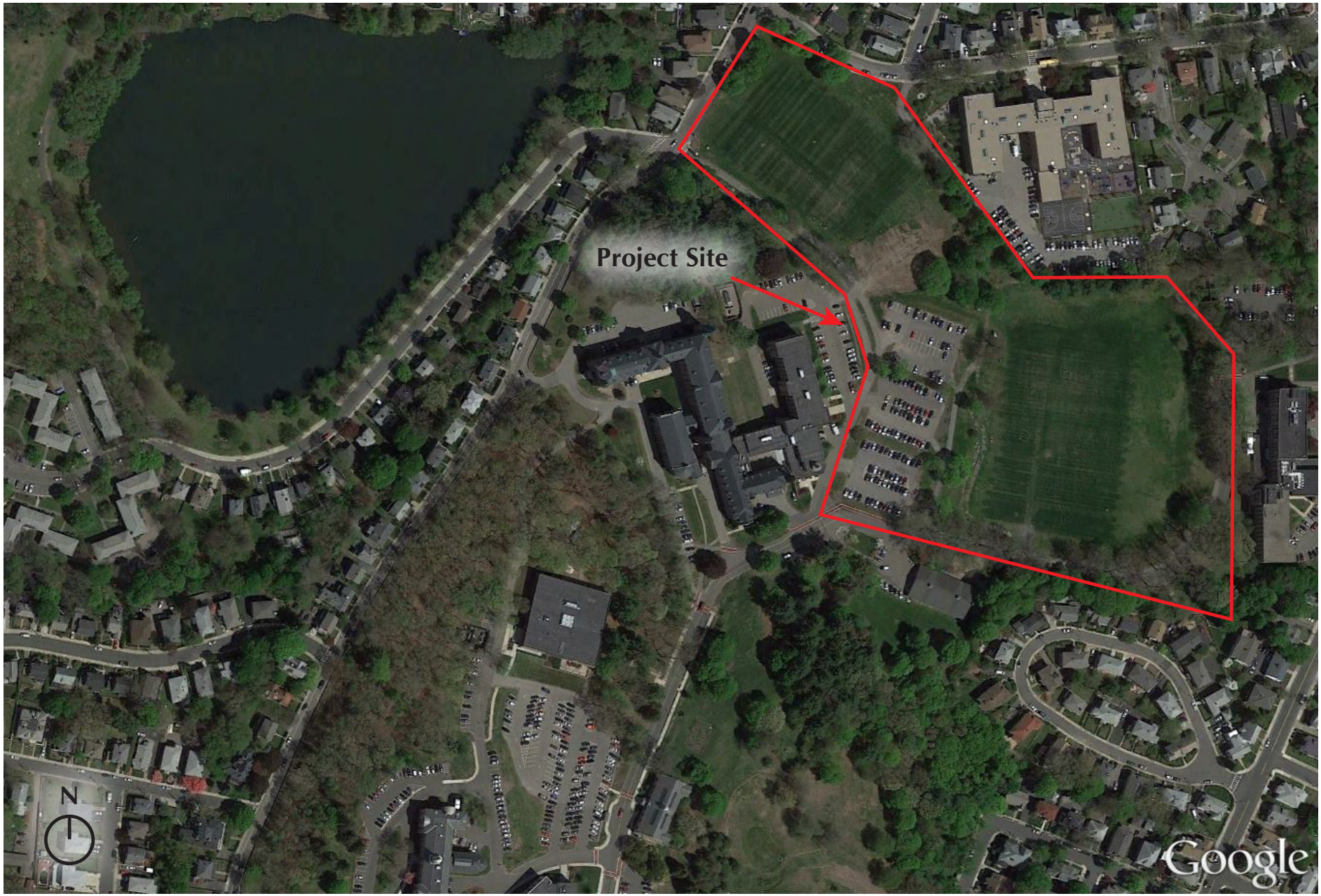
These mitigation measures include:

- Reduction in the seating capacity of the baseball field from 1,500 seats to 1,000 seats.
- Reduction in the seating capacity of the softball field from 500 seats to 300 seats.
- Reorienting the baseball field to minimize noise impact on Lane Park residences.
- Limits on nighttime game lighting as set forth in the IMP.
- The establishment of an Athletics Advisory Committee to provide advice and comment on the operational and management issues associated with the athletics complex.
- Facilities will be available for use by the local community and youth sports groups through University-sponsored camps and clinics.
- State-of-the-art lighting technologies will be used to minimize light spillage.
- All HVAC equipment will comply with City of Boston noise ordinance.
- Field maintenance will be conducted during daytime hours to minimize noise impacts.
- Public address system will use multiple speakers to focus sound on spectator seating area and minimize sound leaving the field.
- Underground stormwater management systems will be designed into the Project to recharge groundwater, improve water quality and limit off-site runoff.
- An Event Management Plan will be implemented to ensure that athletic events with large numbers of spectators will be adequately monitored, sufficient parking will be provided, traffic will be properly routed, and appropriate communication with the neighborhood will be provided.
- Design and construct the support building to a LEED Certifiable standard, ensuring waste reduction, energy conservation and sustainable design.



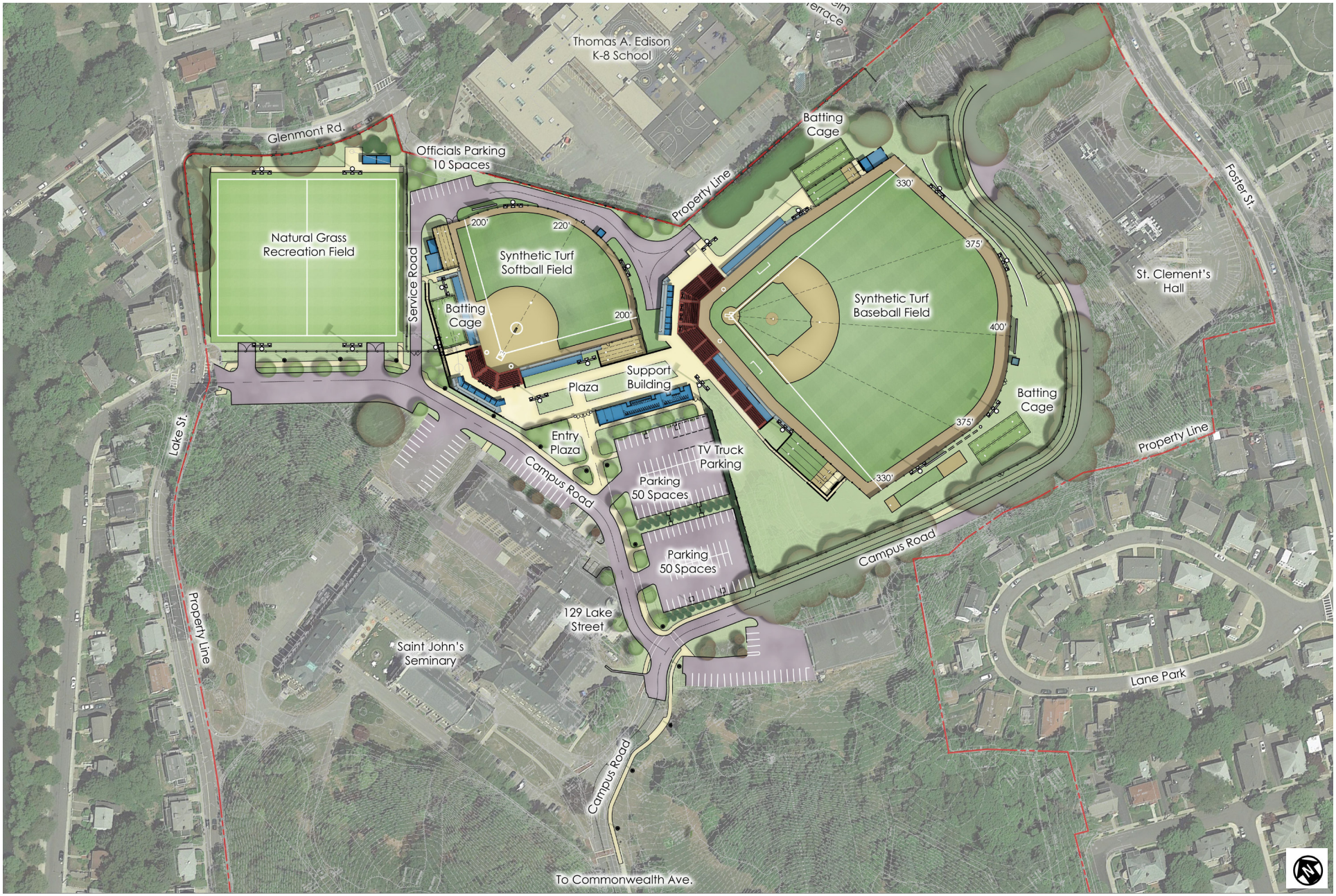
Boston College
Brighton, Massachusetts

Figure 1-1
Locus Map
Source: USGS



Boston College
Brighton, Massachusetts

Figure 1-2
Aerial Map
Source: Fort Point Associates, 2016



Boston College
Brighton, Massachusetts

Figure 1-3
Project Site Plan
Source: CHA, 2016

Chapter 2

Project Description

CHAPTER 2: PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The proposed 14-acre Project Site is located in the northern portion of the University's 65-acre Brighton Campus near a residential neighborhood to the south and northwest and by the Thomas A. Edison K-8 School. The Project Site is also located north of Commonwealth Avenue, a major arterial road. The Massachusetts Bay Transit Authority's (MBTA), Green Line runs along Commonwealth Avenue. See Figure 2-1, Area Map and Figure 2-2, Surrounding Neighborhood Photos.

2.2 EXISTING CONDITIONS

In 2003, the Roman Catholic Archdiocese of Boston announced it was selling the majority of its 65-acre property on which St. John's Seminary was located. In a series of transactions that were completed in 2007, the University purchased the property from the Archdiocese.

The University's Brighton Campus sits north of Commonwealth Avenue and includes 10 institutional buildings. The primary site entrance is on Commonwealth Avenue. Secondary access is from Foster and Lake Street. The Project Site consists of open space currently used for University-sponsored intramurals, club sports, and summer camp activities. The proposed athletic fields are located on the lowest topographical area of the campus. See Figure 2-3, Existing Conditions Map and Figure 2-4, Existing Conditions Photos.

2.3 PROJECT OVERVIEW

The Proponent is proposing to develop athletics field located on its Brighton Campus. The University became a member of the Atlantic Coast Conference (ACC) in 2005. The current athletic facilities do not adequately support the varsity baseball and softball programs and do not compare to the facilities supporting other teams in the league, therefore, placing the University's teams at a competitive disadvantage. The Project will help to satisfy the needs of the baseball and softball teams with amenities such as dugouts, batting cages, synthetic turf fields, grandstand seating, and press boxes. The proposed program also includes a recreation field of natural grass to be used for University-sponsored recreational sports, along with summer camps.

Both the baseball and softball facilities will be accessed through an at-grade plaza, which will not only serve as an entry point, but will also provide space for concessions during athletic events. Directly adjacent to the plaza will be a support building, which will include men's and women's restrooms, a storage room, a first-aid room, and a ticketing room.

An interior campus road connects Foster Street, Commonwealth Avenue, and Lake Street and will be utilized by spectators, vans, and visiting team buses to access the Project Site for parking and drop off.

The number of parking spaces located in the three existing parking lot on the Project Site will be reduced from the current 234 to approximately 159 spaces. All parking will be managed on a campus-wide basis by the University. The Project will include a new service road and a parking area near the softball field to accommodate University Athletics staff and officials. Visiting teams and spectators will follow the parking and pedestrian guidelines outlined in the Event Management Plan. More information on the plan can be found in Section 5.4, Event Management and Appendix A, Event Management Plan. See Figure 1-3, Project Site Plan.

The Proponent will work with the Athletics Advisory Committee to ensure that the Project is well-managed and operated according to the Event Management Plan.

2.3.1 PROPOSED DEVELOPMENT PROGRAM

The proposed program for the Project includes baseball facilities, softball facilities, a recreation field and a support building. This program is described in Table 2-1: Program Summary.

Table 2-1: Program Summary

Baseball Field			
Size	Seating	Location	Surface
3.5 acres	1,000 spectators	Northeast section of Project Site	Synthetic Turf
Softball Field			
Size	Seating	Location	Surface
1.5 acres	300 spectators	West of baseball field	Synthetic Turf
Recreation Field			
Size	Seating	Location	Surface
220 x 255 feet	N/A	West of softball field along Lake St.	Natural Grass
Support Building			
Size	Seating	Location	Surface
Approx. 3,000 square feet	N/A	South of softball field, west of baseball field	N/A

The Project also includes site work elements for roads and utilities. Existing Boston Water and Sewer Commission (BWSC) 42-inch storm drain lines, and 12-inch to 30-inch sanitary sewer lines cross the baseball field site. These storm drain lines and sanitary sewer lines will be relocated to the perimeter of the field such that there will be no manholes in the baseball outfield and no conflicts with the proposed dugouts or bleacher seating. The Project plans include construction of a new closed drainage system, an underground infiltration/detention system, and a new connection to the adjacent BWSC storm drainage system. See Chapter 7, Infrastructure for more detail.

Minor improvements to the campus roadway system and parking areas serving the Project will also be made. The campus road to Foster Street will have a separate sidewalk for pedestrian use. New trees will be planted to replace existing trees.

A new service road will be created to the north of the softball field to provide for maintenance, servicing and access for emergency vehicles. Existing parking areas will be reconfigured and reduced in size to provide spaces for approximately 159 vehicles. TV truck parking will be accommodated in the reconfigured lots nearest to the support building.

2.3.2 BASEBALL FIELD

The proposed baseball field will have a synthetic turf surface with a sand and rubber infill system on an 8-inch stone base. The field will have a synthetic turf warning track with granular infill. The outfield will be fenced in with vinyl coated chain link with protective padding. Two bullpens will be constructed with 6-foot aluminum benches with backs. The home bullpen will include two synthetic turf pitcher's mounds and one clay mound. The visitor's bullpen will have two synthetic turf pitcher's mounds.

Two heavy-duty netted hitting tunnels (batting cages) will be built. Dugouts will consist of a concrete floor and walls with a cantilevered concrete roof. Each dugout will have a restroom and a storage room. In addition, the home dugout will have a replay room.

Seating areas will consist of 1,000 armchair seats on aluminum decking supported by a steel I-beam structure. A prefabricated press box will be mounted atop the grandstand area with areas for cameras. A 10-foot x 36-foot electronic scoreboard will be located in the outfield.

Field lighting will be state-of-the-art utilizing LED fixtures, innovative photometrics and advanced light control technologies. The lights will be mounted on eight 90-100-foot tall poles to provide NCAA broadcast lighting levels of 100 foot-candles of light in the infield and 70 foot-candles in the outfield. Lighting levels can be reduced for non-broadcast games and for post-game exiting and clean up. See Section 6-8 for more detail.

The baseball field will have one approximately 240-square-foot pre-engineered storage shed and an approximately 500-square foot pre-engineered roofed storage area with open sides. These structures will be used for storage of field and maintenance equipment and supplies.

2.3.3 SOFTBALL FIELD

The proposed softball field will have a synthetic turf surface with a sand and rubber infill system on an 8-inch stone base. The infield, pitcher's mound and bullpens will have a clay infield mix. The field will have a synthetic turf warning track with granular infill. The outfield will be fenced in with chain link with protective padding. Two bullpens will be constructed with 6-foot aluminum benches with backs. There will be two benches per side.

Two heavy-duty netted hitting tunnels (batting cages) will be located behind the visitor's dugout (third base side) between the softball field and the recreation field. Dugouts will consist of concrete floor and walls, with a cantilevered concrete roof.

Each dugout will have a restroom and a storage room. The home dugout will also have a replay room.

Seating areas will consist of 300 armchair seats on aluminum decking supported by a steel I-beam structure. A prefabricated press box will be mounted atop the grandstand area with areas for mounting cameras. A 10-foot x 36-foot electronic scoreboard will be located in the outfield.

Field lighting will be state-of-the-art utilizing LED fixtures, innovative photometrics and advanced light control technologies. The lights will be mounted on eight 70-80-foot tall poles to provide NCAA broadcast lighting levels of 100 foot-candles of light in the infield and 70-foot-candles in the outfield. Lighting levels can be reduced for non-broadcast games and for post-game exiting and clean up. See Section 6-8 for more detail. See Chapter 6 and Appendix B for a more detailed description.

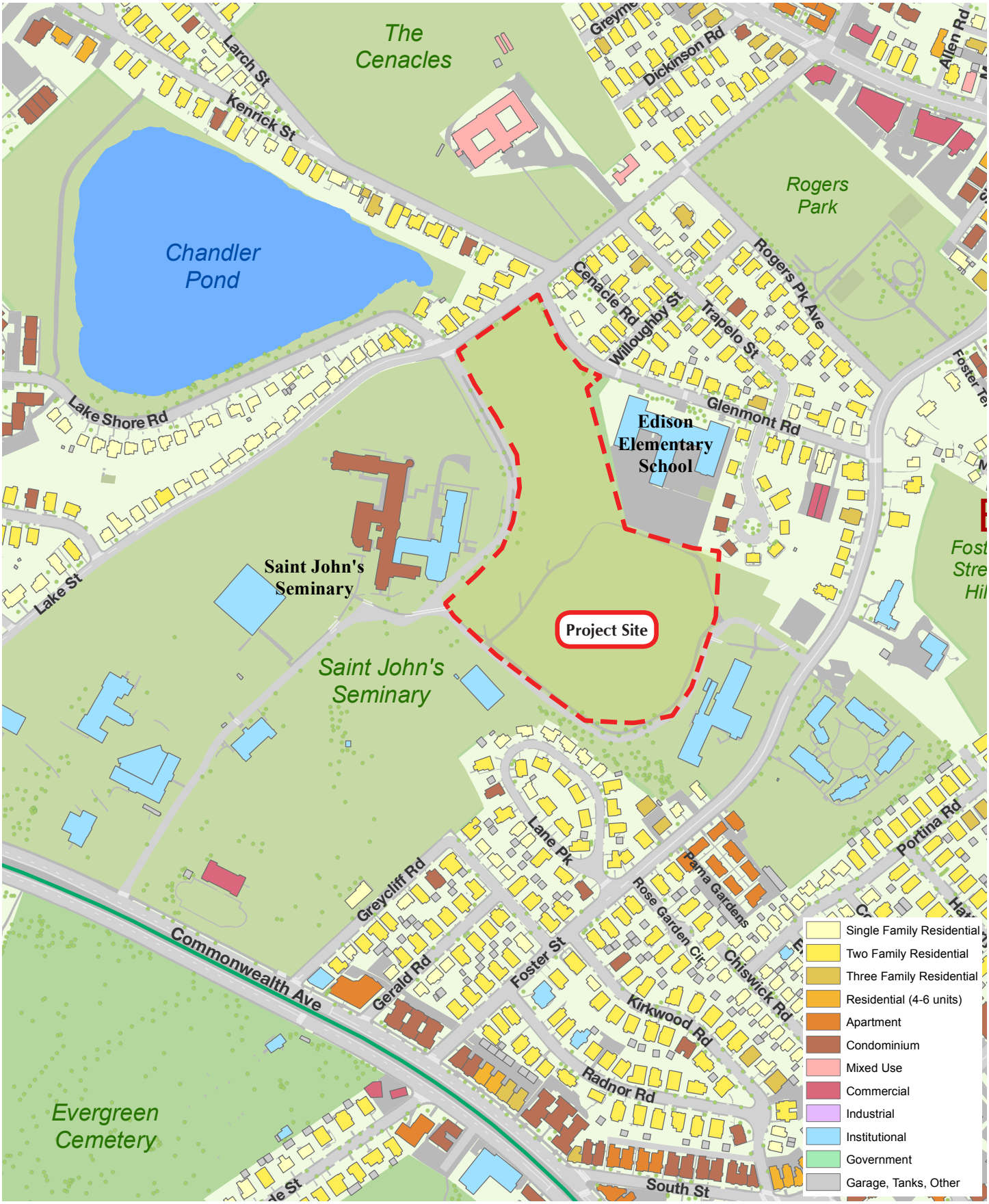
The softball field will have one approximately 240-square-foot pre-engineered storage shed and an approximately 500-square-foot pre-engineered roofed storage area with open sides. These structures will be used for storage of field and maintenance equipment and supplies.

2.3.4 RECREATION FIELD

The University is proposing to reconstruct the existing recreation field on the west side of the Project Site abutting Lake Street. The field will be comprised of natural grass on an amended topsoil base and will have an automatic irrigation system. The field will be partially surrounded by an 8-foot high ornamental metal fence along Lake Street and Glenmont Road. For safety, there will also be 25-foot to 30-foot high pole-mounted ball netting at both ends of the recreation field (i.e., along Lake Street and between the recreation and softball fields). Four light poles 70-feet high will provide a 30 foot-candle level of illumination, sufficient for recreational use. The recreation field will also have two approximately 240-square-foot pre-engineered storage sheds for use in storing intramural recreational equipment.

2.3.5 OPEN SPACE

The overall vision for the Brighton Campus includes a mix of academic, cultural, athletic and undergraduate housing in an open-space setting. The Project as outlined in the IMP maintains the existing use of the Project Site as athletic fields and calls for minimal building construction, leaving the Project Site as mainly open fields. The University will manage the Project Site in a way that is compatible with the natural resources of the area and the surrounding residential neighborhoods, while respecting the character of the existing buildings. The University intends to use native species in replanting and has carefully designed the Project to minimize the impact on existing shade trees.



Boston College
Brighton, Massachusetts

Figure 2-1
Area Map
Source: BRA

View Looking West towards Lake Street

View Looking North towards Glenmont Road

View Looking Northeast towards Glenmont Road

View Looking North towards Thomas Edison K-8 School

View Looking South of 129 Lake Street

View of Looking East of St. Clement's Hall

Boston College
Brighton, Massachusetts

Figure 2-2
Surrounding Neighborhood Photos
Source: CHA

Boston College
Brighton, Massachusetts

Figure 2-3
Existing Conditions Map
Source: CHA, 2016

View of Future Softball Field

View Looking East of Future Road

Future Baseball Outfield

View Looking Northwest of Future Baseball Outfield

View Looking East from Future Baseball Infield

View of Future Recreation Field

Chapter 3

URBAN DESIGN

CHAPTER 3: URBAN DESIGN

3.1 EXISTING URBAN FABRIC

The Project Site is located within Boston College's 65-acre Brighton Campus, which was acquired in phases by the University from the Archdiocese of Boston between 2004 and 2007. The campus abuts a residential area of Brighton, consisting primarily of single and multi-family wood-frame two and three story houses, most of which were built after 1900. The Project Site is an approximately 14-acre area situated at the north end of the Brighton Campus.

The Brighton Campus is located directly north of Commonwealth Avenue and is bordered by Lake Street to the west and Foster Street to the east. The Campus consists of administrative office buildings, a museum and conference center, library, and a dance studio. The buildings located in close proximity to the Project Site include St. John's Seminary, 129 Lake Street and St. Clement's Hall.

The Project Site is generally bounded by Lake Street to the west, St. John's Seminary and the 129 Lake Street building (on the campus) to the southwest, Glenmont Road and Anselm Terrace residential areas and the Thomas A. Edison K-8 School to the north, St. Clement's Hall (on the campus) to the east, and part of the Lane Park residential area to the south. St. John's Hall is noteworthy for its handsome masonry construction and ornate detailing. The 129 Lake Street building and adjacent St. Clement's Hall are much simpler masonry buildings with few remarkable architectural features.

The Project Site is situated at the lowest elevation of the Brighton Campus and is bordered on the east, south, and west sides by areas of higher grade elevation. The area where the fields are proposed is essentially flat in contour with surrounding higher topography that creates a natural bowl-like setting. The existing flat areas are currently used for recreational and intramural activities by the University. Numerous mature trees border the site, especially on the south and east sides along the campus road which connects to Foster Street and Lake Street.

Three existing parking lots are located at the south edge of the Project Site and are terraced into the topography.

3.2 DESIGN PRINCIPLES

Design principles for the Project are as follows:

- Situate the baseball, softball, and recreational fields to minimize changes to the existing topography and retain the natural bowl-like setting.
- Retain mature trees along the campus road and add additional trees.
- Situate the baseball and softball fields to ensure safe play and use proven field arrangements to minimize glare from the sun.
- Cluster support structures for spectators to minimize disturbance of the existing Project Site and maximize functional efficiencies.
- Allow spectators to enter baseball and softball seating from the rear on a raised plaza to maximize the spectator experience.
- Retain the overall existing pedestrian and vehicular circulation patterns wherever possible and allow for pedestrian access around the fields.
- Incorporate sustainability in the support building and site design.

3.3 DESIGN RESPONSE

3.3.1 SITE LAYOUT AND LANDSCAPE DESIGN

Baseball and Softball Fields – The two competition fields will be situated in the central and eastern portions of the Project and are oriented to utilize much of the existing flat areas of the Project Site (see Figure 3-1, Site Plan). The two fields are directly adjacent to one another and maximize efficiencies with minimum land use. In addition, they are oriented according to established sun angle requirements to minimize glare and maximize safety for the players. The baseball field occupies the larger existing open space area and the softball is west of baseball. Both fields will utilize synthetic turf to maximize play and practice time throughout the year. The topographic adjustments for the two fields will be kept to a minimum to maintain the existing bowl-like settings.

Recreation Field – The existing natural grass field at the west edge of the athletic site will remain in its current location and be rebuilt with under-drainage and improved base materials to ensure that the grass will be healthier and last longer during the year for recreational use.

Roads – The existing campus road from Lake Street will remain. A new service road off the existing campus road will run between the recreation field and softball field.

Parking – The two existing parking lots at the center of the Project Site will be retained and rebuilt. These lots will be terraced into the topography as they are now and will be surrounded by new fencing and lighting. The road and parking lot in front of 129 Lake Street will be reconfigured. The recreation field will be utilized to accommodate special events.

Walks – The proposed roadway improvements will include maintenance of existing sidewalks or provision of new sidewalks to ensure pedestrian safety.

Lighting – All roads and adjacent sidewalks will be illuminated with University standard light fixtures to ensure a safe pedestrian and vehicular environment. The Proponent is cognizant of not over-lighting the site and contributing to light pollution. In addition, the baseball, softball and recreation fields will be illuminated with pole-mounted sports lighting designed to minimize light spillage outside of the playing areas.

Landscaping – Most existing trees, especially the larger, more mature trees at the east and south edges of the site, will be retained. Topography will be adjusted as little as possible to minimize intrusions to existing land. Paving will be minimized to maximize lawn and planting areas.

Fencing – New 8-foot high ornamental metal fencing may be installed along Lake Street and Glenmont Road. New or replacement chain-link fencing will be installed along the northerly and easterly property lines.

3.3.2 ARCHITECTURAL DESIGN

The structures proposed for the Project site are as follows:

- 1,000-seat aluminum baseball grandstand structure
- 300-seat aluminum softball grandstand structure
- Two single-story press boxes; one for baseball and one for softball
- Four dugouts, two per field, including storage room and restroom in each dugout
- 3,000-square foot single-story support building
- Four approximately 240-square foot pre-engineered storage sheds

- Two approximately 500-square foot pre-engineered roofed storage areas with open sides

Baseball Grandstand Seating – The metal structure will have a rear public concourse where spectators will circulate down to their armchair seats. The structure will be kept as low as possible (approximately 10 feet off the ground) while providing appropriate sight lines for the 1000 spectators. The field side of the 3-foot high front wall that separates the seating from the field of play near home plate will be clad in brick.

Softball Grandstand Seating – The softball seating is similar to the baseball seating with the exception that there are 300 armchair seats and no serviceable areas under the seating. The softball seating structure is built into the topography and the concourse is approximately 11 feet above the field of play.

Press Boxes – The two press boxes for baseball and softball are similar modest pre-engineered one-story buildings with metal siding. The baseball press box is approximately 8 feet x 78 feet (624 square feet) and the softball press box is approximately 8 feet x 72 feet (576 square feet). Both structures are purposefully kept simple in design so as not to call attention to themselves and to be cost effective. The press boxes sit slightly elevated above the rear spectator concourse for the two fields to allow unobstructed views of the fields from all press and game management positions.

Dugouts - Dugouts will be depressed below grade with concrete walls with a cantilevered cast-in-place concrete roof structure. The interior dugout walls will be painted, as will the concrete masonry unit (CMU) walls of the restroom, storage rooms, and the replay rooms, both inside and out.

Support Building – The building structure is an approximately 21-foot x 141-foot one-story building accommodating a ticketing room, first aid room, storage room and men's and women's restrooms to serve the 1300 spectators per code requirements. The masonry building takes its architectural cues from the other older masonry buildings on the Brighton Campus. The form of the support building is kept intentionally simple to function as a back-drop building to the Project Site.

Storage Structures – The four storage sheds will be small, modest pre-engineered one-story buildings. Each storage shed will be approximately 12-feet x 20-feet. The sheds will be used for storage of field equipment and supplies. The approximately 500-square foot open storage areas for baseball and softball will be pre-engineered structures with pole-supported roofs and open sides that are enclosed with chain link fencing. These areas will be used for storage of field tarps and maintenance equipment.

3.3.3 PUBLIC REALM

While the baseball, softball, and recreation fields and immediate support areas will be secured to protect the fields and equipment, the remainder of the Project Site will be open to informal public access. Pedestrian public access will continue to be available from both Lake and Foster Streets with connections to the remainder of the Brighton Campus further south.

3.3.4 VIEW CORRIDORS AND PUBLIC ACCESS

Much of the existing view corridors will be maintained, as most of the Project consists of site improvements and not new structures.

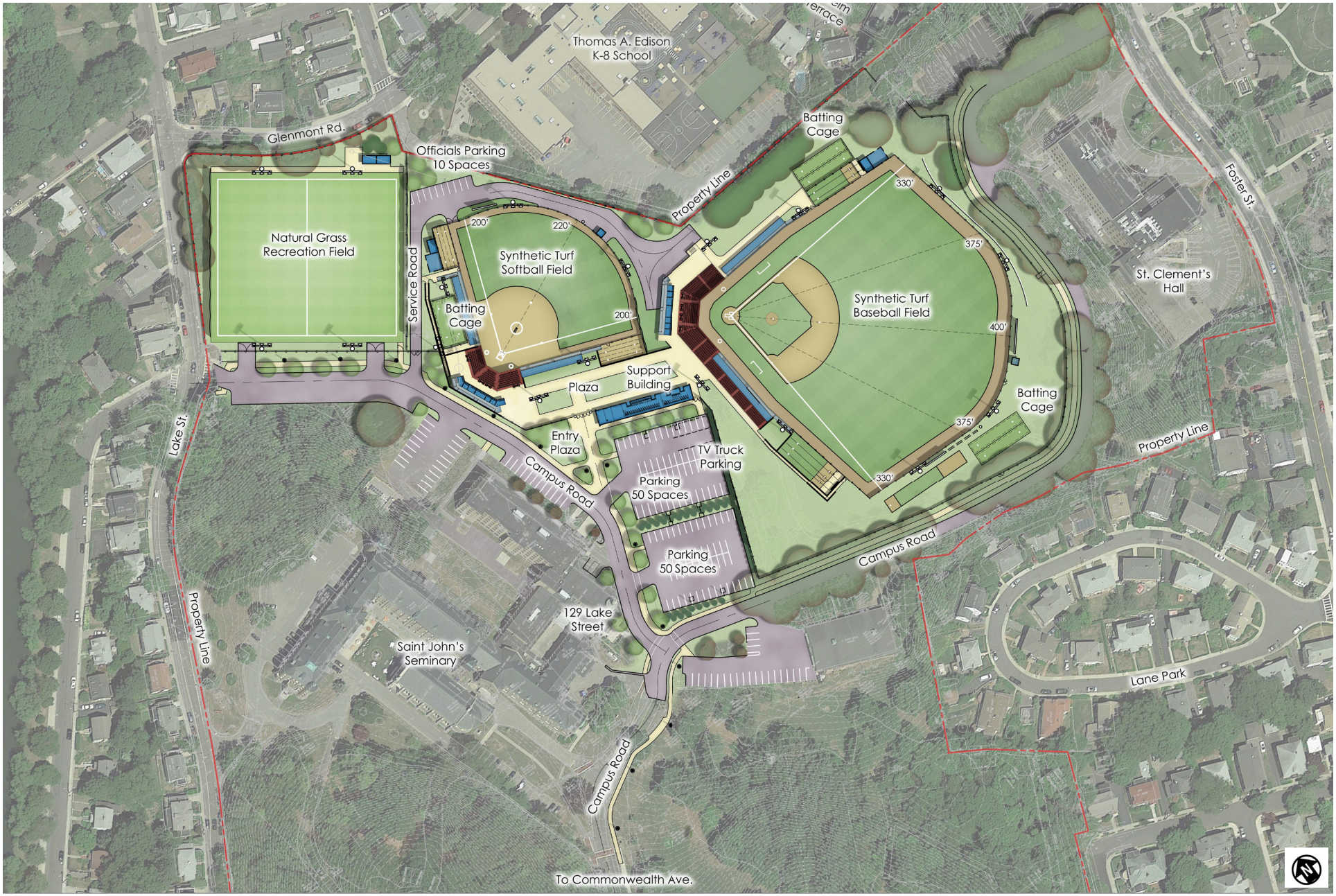
Views from Lake Street – Views will generally remain the same with the improved recreation field in the same location as the existing field. In the distance, the softball seating structure and the press box will be visible.

Views from Foster Street – There is a small view port adjacent to St. Clement's Hall looking down into the Project Site. The baseball seating structure will be visible in the distance looking through existing trees.

Views from Lane Park – All views from the residential areas on Lane Park are currently looking down on to the Project Site. No reduction in view corridors is anticipated with the proposed facilities as the structures are some distance away and not in the line of sight.

Views from the Thomas A. Edison K-8 School – The baseball seating structure will block some views into the baseball field, however most of the baseball field will remain visible. The softball outfield fence will block much of the view into the softball field.

Views from Existing Campus – As one approaches the Project from a southerly location along the campus road the views to softball and baseball are quite open, with most of both fields in view.



Boston College
Brighton, Massachusetts

Figure 3-1
Project Site Plan
Source: CHA, 2016

Chapter 4

SUSTAINABILITY

CHAPTER 4: SUSTAINABILITY

4.1 SUSTAINABLE DESIGN PRINCIPLES

The Project will incorporate sustainable design features including provisions for alternative transportation, innovative stormwater design, use of recycled materials, water efficient fixtures and low water use irrigation systems.

The Project Site is located adjacent to public transportation routes including the MBTA Green Line and the Boston College Shuttle Bus System. The Project will also include bike racks near the support building. The existing parking count will be reduced by 75 spaces, further encouraging the use of alternative transportation methods.

The stormwater system will be designed to minimize runoff, provide water quality treatment and maximize on-site infiltration. Stormwater will be collected through a system of swales and catch basins, and will be treated through water quality structures to help remove suspended solids. The stormwater will flow through an extensive underground detention and infiltration system that will recharge the groundwater and reduce the rate at which stormwater leaves the site.

As part of the specifications for the Project design, use of recycled materials will be encouraged, construction and demolition debris will be recycled or reused, and for operations, provisions will be made for recycling of waste materials.

Through the use of synthetic turf, the Project will significantly reduce the use of fertilizer, pesticides and other chemicals required to maintain high performance natural grass fields. In addition, the only landscaped areas proposed to be irrigated are the natural grass recreation field, and a few small landscaped areas adjacent to the support building and around the outside of the baseball field. All other areas will be landscaped with low maintenance grasses, plants and shrubs, and will not require permanent irrigation.

4.2 LEED RATING SYSTEM/LEED BUILDING DESIGN

The overall approach to sustainable design for the Project is to make responsible and environmentally friendly choices for materials, equipment and systems. The University has committed, through the IMP process, to construct LEED Certified buildings. As the Project is currently defined, the following analysis identifies the achievable credits per the USGBC's LEED® 2009 for New Construction and Major Renovations Checklist. Points to be achieved may be found in Table 4.1. A total of 42 points are attainable, exceeding the 40 points required to qualify as certifiable. With the limited amount of buildings and enclosed space

included in the project and the amount of open site that is inherent in playing fields, the sustainable site practices earn close to 50% of the LEED Credits toward Certification.

- Sustainable Sites

  The Project Site is particularly strong in the Sustainable Sites category. The Project Site has good connections to the community and to public transportation, gaining significant credits. Parking is limited to no more than the predevelopment parking counts. Careful selection of paving and roof materials will lessen the heat island effect. The impact of the field lighting on the surrounding neighborhood is of utmost concern for the Project. The careful design and control of the light levels at the property lines will result in Credit 8 for Light Pollution Reduction.

- Water Efficiency

  The use of irrigation systems will be limited to only the recreation field and a small landscaped area. Water-conserving irrigation systems will be installed to minimize overall water use. In addition, native species will be utilized, and will be specified according to the appropriate pH level of soil. The placement of plants will be adjusted to consider yearlong color, evaporation from the sun and wind, runoff, and water tolerance of the plants.

  The use of low flow flush toilets and low-flow urinals will result in a water use reduction of 35% and result in 3 credits for Water Use Reduction.

- Energy and Atmosphere

  A conservative approach to energy and atmosphere has been adopted because of the limited amount of interior conditioned space that is included in the Project. Additional credits could be realized once the final HVAC equipment is selected.

- Materials and Resources

  With aggressive specification writing, those credits determined to be achievable under Materials and Resources include Construction Waste Management (50% recycled or salvaged), and the use of recycled content and regional materials, particularly the playing fields (recycled rubber infill for the turf), concrete, aluminum (bleacher system), steel and asphalt.

- Indoor Environmental Quality

  Low-emitting materials including adhesives, sealants, paints, coatings and flooring systems will be specified. The nature of the press boxes allows daylighting in all spaces.

The use of light tubes in the restrooms will allow the rooms to use minimal artificial lights during daytime use.

- Innovation and Design Process

  Three credits can be obtained for Innovation and Design Process:

  1. Careful selection and specification of lamps with low mercury content.
  2. Exemplary performance for the daylighting design.

- Regional Priority Credits

  Because some environmental issues are particular to a locale, volunteers from USGBC chapters and the LEED International Roundtable have identified distinct environmental priorities within their areas and the credits that address those issues. These Regional Priority credits encourage project teams to focus on their local environmental priorities. Three of the Regional Priority Credits are viable for the Project:

  1. Stormwater Design Quantity Control: Implement a stormwater management plan that utilizes the underdrains of the playing fields to manage the post development peak discharge rate and quantity.
  2. Heat Island Effect Non-Roof: Evaluate the use of hardscape materials with a Solar Reflectance Index (SRI) of at least 29 to minimize heat island impacts on the microclimate.
  3. Heat Island Effect Roof: Evaluate the use of a roof with a SRI of a minimum of 29 for the support building and a minimum of 78 for the press boxes to minimize heat island impacts on the microclimate.

4.3 SUSTAINABLE PRACTICES

The Proponent has designed the Project to be consistent with the sustainable principles outlined in the IMP. As it relates to the Project, the Proponent will commit to the following practices:

- Noise - The Project will create a natural landscape interface to reduce the amount of noise emitted from the public address system and crowd noise. Field maintenance will be conducted during daytime hours. A public address (PA) system has been designed to minimize sound leaving the field and to use multiple small speakers to direct sound toward the spectators and players. For more detail on noise mitigation measures, see Section 6.7, Noise.

- Stormwater Management - Stormwater management techniques will be implemented to reduce peak runoff rates, provide water quality treatment and encourage infiltration for

LEED 2009 for New Construction and Major Renovations

Project Checklist

Project Name:

Date:

Y	?	N			
18	1	7	**Sustainable Sites**	Possible Points:	26
Y			Prereq 1	Construction Activity Pollution Prevention	
1			Credit 1	Site Selection	1
5			Credit 2	Development Density and Community Connectivity	5
		1	Credit 3	Brownfield Redevelopment	1
6			Credit 4.1	Alternative Transportation—Public Transportation Access	6
		1	Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
		3	Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
2			Credit 4.4	Alternative Transportation—Parking Capacity	2
		1	Credit 5.1	Site Development—Protect or Restore Habitat	1
		1	Credit 5.2	Site Development—Maximize Open Space	1
1			Credit 6.1	Stormwater Design—Quantity Control	1
	1		Credit 6.2	Stormwater Design—Quality Control	1
1			Credit 7.1	Heat Island Effect—Non-roof	1
1			Credit 7.2	Heat Island Effect—Roof	1
1			Credit 8	Light Pollution Reduction	1
3	5	2	**Water Efficiency**	Possible Points:	10
Y			Prereq 1	Water Use Reduction—20% Reduction	
	4		Credit 1	Water Efficient Landscaping	2 to 4
		2	Credit 2	Innovative Wastewater Technologies	2
3	1		Credit 3	Water Use Reduction	2 to 4
3	14	18	**Energy and Atmosphere**	Possible Points:	35
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
	9	10	Credit 1	Optimize Energy Performance	1 to 19
	1	6	Credit 2	On-Site Renewable Energy	1 to 7
	2		Credit 3	Enhanced Commissioning	2
2			Credit 4	Enhanced Refrigerant Management	2
1		2	Credit 5	Measurement and Verification	3
	2		Credit 6	Green Power	2
3	3	6	**Materials and Resources**	Possible Points:	14
Y			Prereq 1	Storage and Collection of Recyclables	
		3	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
1	1		Credit 2	Construction Waste Management	1 to 2
			Credit 3	Materials Reuse	1 to 2

Y	?	N			
			Materials and Resources, Continued		
1	1		Credit 4	Recycled Content	1 to 2
1	1		Credit 5	Regional Materials	1 to 2
		1	Credit 6	Rapidly Renewable Materials	1
		1	Credit 7	Certified Wood	1
9	5	1	**Indoor Environmental Quality**	Possible Points:	15
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
	1		Credit 1	Outdoor Air Delivery Monitoring	1
		1	Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
	1		Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
	1		Credit 5	Indoor Chemical and Pollutant Source Control	1
	1		Credit 6.1	Controllability of Systems—Lighting	1
	1		Credit 6.2	Controllability of Systems—Thermal Comfort	1
1			Credit 7.1	Thermal Comfort—Design	1
1			Credit 7.2	Thermal Comfort—Verification	1
1			Credit 8.1	Daylight and Views—Daylight	1
1			Credit 8.2	Daylight and Views—Views	1
3	3		**Innovation and Design Process**	Possible Points:	6
1			Credit 1.1	Low Mercury Lighting	1
	1		Credit 1.2	Building as a Teaching Tool	1
1			Credit 1.3	EP - Daylighting	1
	1		Credit 1.4	ID	1
	1		Credit 1.5	ID	1
1			Credit 2	LEED Accredited Professional	1
3	1		**Regional Priority Credits**	Possible Points:	4
	1		Credit 1.1	Regional Priority - EAc2 On-Site Renewable Energy	1
1			Credit 1.2	Regional Priority - SSc6.1 Stormwater Design Quantity Control	1
1			Credit 1.3	Regional Priority - SSc7.1 Heat Island Effect Non-Roof	1
1			Credit 1.4	Regional Priority - SSc7.2 Heat Island Effect Roof	1
42	32	41	**Total**	Possible Points:	110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

Chapter 5

TRANSPORTATION

CHAPTER 5: TRANSPORTATION

5.1 INTRODUCTION

The Proponent's overall transportation plan for the Project is based on a carefully developed Event Management Plan that will be tailored to address the specific needs of each individual event. As the construction of the proposed fields will not increase the numbers of students or staff at the University, there will be no significant change in existing levels of trips to and from the Brighton Campus. The relocation of athletic events from other parts of the University, in particular the Commander Shea Field on the Chestnut Hill Campus, to the Brighton Campus will result in a redistribution of some event-related trips, the majority of which will be pedestrian-based trips, as they are today. Visiting teams will arrive by bus. Spectators will arrive and depart through a variety of methods, primarily walking, public transportation and shuttle buses, but also some vehicular trips. The overall number of events and spectators is low by comparison to other athletic events on campus. See Appendix A, Event Management Plan.

5.2 TRANSPORTATION MODES

The Boston College Campus is well served by MBTA transit and bus services, as shown in Figure 5-1, Public Transportation. The University is located at the terminus of the MBTA's Green Line Boston College B Branch. The Boston College station is located on the north side of Commonwealth Avenue, just west of the Brighton Campus. There are three Green Line branches, as follows:

5.2.1 PUBLIC TRANSPORTATION

Boston College B Branch operates between Boston College and Government Center on 7-minute headways during rush hours and on 8-minute headways throughout the day on weekdays. Weekend service is provided with 7-minute headways throughout Saturday and 7-minute to 10-minute headways on Sunday. Service from the Boston College stop is provided between 5:01 a.m. and 12:10 a.m. during Monday through Thursday, between 5:01 a.m. and 1:30 a.m. Fridays, between 4:45 a.m. and 1:30 a.m. on Saturdays, and between 5:20 a.m. and 12:10 a.m. on Sundays.

Cleveland Circle C Branch operates between Cleveland Circle and North Station on 6-minute headways during rush hours and 7-minute to 8-minute headways throughout the day on weekdays. Weekend service is provided with 8-minute to 10 minute headways throughout Saturday and 10-minute headways on Sunday. The Cleveland Circle stop is located within one mile of the Brighton Campus. Service is

provided between 5:01 a.m. and 12:10 a.m. Monday through Thursday, between 5:01 a.m. and 1:10 a.m. Fridays, between 4:50 a.m. and 1:10 a.m. on Saturdays, and between 5:30 a.m. and 12:10 a.m. on Sundays.

Riverside D Branch operates between Riverside and Government Center on 7-minute headways during rush hours and on 8-minute headways throughout the day on the weekdays. Weekend service is provided with 8-minute to 10-minute headways throughout Saturday and 10-minute headways on Sunday. The Reservoir stop is located just east of the Cleveland Circle stop on the C Branch. Service is provided between 4:56 a.m. and 12:05 a.m. Monday through Thursday, between 4:56 a.m. and 1:05 a.m. Fridays, between 4:55 a.m. and 1:05 a.m. on Saturdays, and between 5:25 a.m. and 12:00 a.m. on Sundays.

The MBTA Green Line and local bus services are supplemented by University shuttles to the Cleveland Circle stop on the C Line, and the Reservoir stop on the D Line.

5.2.2 EXISTING BOSTON COLLEGE SHUTTLE SERVICE

The University provides shuttle bus services for students and employees of the Chestnut Hill, Brighton, and Newton Campuses, as shown in Figure 5-2, Boston College Shuttle Bus Service.

The **Brighton Shuttle** provides a van service between the Brighton Campus and the Chestnut Hill Campus Monday through Friday from 8:40 a.m. to 6:10 p.m. Service is provided every 30 minutes except on University holidays when classes are not in session.

The **Boston/Commonwealth Avenue** Shuttle service provides a Boston Direct Route and an All Stops Route that run every 10-15 minutes. The Brighton Campus is served by the Greycliff Hall stop. The Boston Direct Route stops at Conte Forum, Commonwealth Avenue opposite Greycliff Hall (outbound), 2000 Commonwealth Avenue, the Reservoir Green Line stop at Cleveland Circle, Bank of America on Chestnut Hill Avenue, Chiswick Road, the corner of Commonwealth Avenue and Chestnut Hill Avenue, South Street, Greycliff Hall, and Robsham Theater. The All Stops Route makes all of these stops plus McElroy Commons on Boylston Street, Donaldson House on College Road, and the Main Gate at the Chestnut Hill Campus. The various shuttle routes run from 7:00 a.m. to 2:00 a.m. on weekdays and 8:00 a.m. to 1:45 a.m. on weekends. Shuttle times and schedule are subject to change when school is out of session.

The **Newton Shuttle** transports students and employees between the Newton Campus and Chestnut Hill Campus via Commonwealth Avenue. Service is provided every 10-15 minutes from 7:00 a.m. to 2:00 a.m. on weekdays and from 8:00 a.m.

to 2:00 a.m. on weekends. Five distinct routes are provided depending on the day of the week and time of day.

The **Shopping Shuttle** provides a service connecting the Chestnut Hill Campus to retail facilities at Chestnut Hill Mall, Chestnut Hill Square and The Street (Chestnut Hill), with stops on-campus at Alumni Stadium, the Boston College Main Gate and the Robsham Theater. Service is provided Thursday through Sunday, with 6 trips per day between 4:00 p.m. and 10:00 p.m. on Thursday through Sunday, with 6 trips per day between 4:00 p.m. and 10:00 p.m. on Thursday and Friday, and 5 trips per day between 11:00 a.m. and 5:00 p.m. on Saturday and Sunday.

5.2.3 PEDESTRIANS

The IMP was designed to enhance the campus pedestrian experience. The Project Site plan allows for a pedestrian link from the Brighton Campus to the main campus through a series of pedestrian pathways and sidewalks along the Brighton Campus roadway. Pedestrian trips are expected to be the primary form of access to the Project, including game day events.

Fans wishing to access the Brighton Campus on foot, including those arriving by public transportation or Boston College shuttle bus, will be directed by A-frame signage to access the campus through the entrance located at 3 Lake Street. Event spectator pedestrian traffic down Lake Street beyond the pedestrian entrance at 3 Lake Street will be prohibited, and signage will be posted notifying fans of the policy. As necessary, and based upon expected attendance, event staff will be posted to assist in the enforcement of the pedestrian traffic policy at the intersection of Lake Street and Commonwealth Avenue.

5.2.4 BICYCLES

The University offers many services to bicyclists and supports initiatives to make the campus bike-friendly. Bicycles are a convenient and energy efficient mode of transportation, particularly for short distance trips. The Proponent participates in the MassRIDES Bike to Work Week (BTWW) Challenge to promote bicycling as a viable commute option.

The University has numerous safe, clean and strategically located bicycle racks throughout its properties. On the Brighton Campus, bicycle racks are provided at Simboli Hall and the Cadigan Alumni Center. Showers are located on the ground level of 129 Lake Street. As part of the Project, the University will be adding bicycle parking for the fields.

5.2.5 VEHICULAR ACCESS

For servicing, vendors, deliveries and general vehicular access, including visiting buses, the access route will be from the main entrance on Commonwealth Avenue. Overall levels of vehicular traffic to the Project Site are expected to be low. Team buses and media trucks will be directed to use the Commonwealth Avenue entrance to access the site. Parking for media trucks will be provided in the existing parking lots on the Project Site. Visiting team buses will drop off players and be parked on the campus road near the recreation field. The 3 Lake Street entrance will remain closed to vehicular access during scheduled intercollegiate events.

Game activity associated with use of the fields will be seasonal, generally limited to the spring months. The activity also varies by day-of-week, with Friday, Saturday and Sunday being the busiest game days. Table 5-1 presents a summary of historical game-related activity averages. Note that the number of games played could change based on NCAA or ACC schedule changes.

Table 5-1: Average Numbers of Games per Year and Associated Trip Generation

	Weekday	**Friday**	**Saturday**	**Sunday**
Baseball				
Games Per Season	8	5	6	6
Visiting Team Parking	1 Bus	1 Bus	1 Bus	1 Bus
Boston College Team Parking	3 Vans	3 Vans	3 Vans	3 Vans
Umpire Parking	2-3 Cars	1-2 Cars	1-2 Cars	1-2 Cars
Estimated Student Attendance	25	200	250	175
Estimated Public Attendance	125	650	850	500
Estimated Total Attendance	150	850	1100	675
Estimated Vehicles	40	210	274	161
Softball				
Games Per Season	5	3	4	4
Visiting Team Parking	1 Bus	1 Bus	1 Bus	1 Bus
Boston College Team Parking	2 Vans	2 Vans	2 Vans	2 Vans
Umpire Parking	2-3 Cars	1-2 Cars	1-2 Cars	1-2 Cars
Estimated Student Attendance	15	25	35	15
Estimated Public Attendance	80	125	175	100
Estimated Total Attendance	95	150	210	115
Estimated Vehicles	26	40	56	32
Baseball and Softball Played Together				

	Weekday	Friday	Saturday	Sunday
Games Per Season	4	3	4	4
Visiting Team Parking	2 Buses	2 Buses	2 Buses	2 Buses
Boston College Team Parking	5 Vans	5 Vans	5 Vans	5 Vans
Umpire Parking	5-6 Cars	2-4 Cars	2-4 Cars	2-4 Cars
Estimated Student Attendance	40	225	285	190
Estimated Public Attendance	205	775	1025	600
Estimated Total Attendance	245	1000	1310	790
Estimated Vehicles	66	250	331	194

Notes: 1. There is no parking demand for student attendees
2. No of vehicles based on average demand of 3.1 public attendees per car

As shown in Table 5-1, on weekdays, an average of eight baseball games and five softball games occurred, an could be expected per year, plus four occasions when both events are on the same day. For weekdays when both baseball and softball games occur, the total vehicle generation is limited to two buses, five vans, and 72 cars. Although the same level of bus and van occurs on other days of the week, the generation of cars increases to 254 on a Friday, 335 on a Saturday and 198 on a Sunday.

The arrival and departure of vehicle trips occurs over a period of several hours, so this level of vehicle trip generation has minimal impact today, and will continue to have minimal impact when the Project is built. The Event Management Plan successfully manages game activity on the Chestnut Hill Campus today, and will continue to do so when the games are moved to the Brighton Campus.

5.3 PARKING

Currently there are 234 parking spaces at the Project Site. The proposed development of the Project will result in a decrease in immediately adjacent parking. There will be approximately 159 surface parking spaces, which will be distributed over four parking lots, rather than the existing 234 spaces (see Figure 1-3, Project Site Plan). However, there are approximately 750 parking spaces in total on the Brighton Campus which can be utilized to meet any parking demand for events. In addition, cars will be able to park on the recreation field, which has a capacity of approximately 260 spaces, for special events and football parking. The available parking will therefore be more than adequate to accommodate the maximum parking demand of 331 cars on a Saturday combined game day as shown in Table 5-1.

Spectators driving to games on the Brighton Campus will be directed, via printed directions and on-line, to utilize the main entrance to the Brighton Campus from Commonwealth Avenue. Secondary vehicle access by game officials, event staff, and working personnel will be permitted either via the main entrance or via the secondary entrance at Foster Street. When athletic events are occurring, entrance to the Project Site from Lake Street will be prohibited for traffic. Once on the Brighton Campus, spectators will be directed to utilize specific parking areas designated in the Event Management Plan. Visitor parking will be prohibited on Lake Street.

Visiting team buses will be directed to access the fields via the main entrance to the Brighton Campus off Commonwealth Avenue and will not be permitted to utilize Lake Street or Foster Street.

5.4 EVENT MANAGEMENT

The University has developed Event Management Plans for a number of athletic events held on the Boston College Campus. These plans have proven to be valuable in tailoring the level of management required for specific types of events. With substantial experience in managing large athletic events, the University is confident that the small events to be held at the Project Site can be easily managed to ensure minimal impact on neighbors.

The Event Management Plan can be found in Appendix A. The basic elements of the plan include the following;

- Basic expectations of the University regarding the conduct of participants, fans and event staff while on the campus
- Times and methods of making deliveries to the facilities
- Staffing levels to be provided for events of various sizes
- Parking facilities
- Vehicular traffic management
- Pedestrian access routes; and,
- Management of noise and lighting levels during and after events.

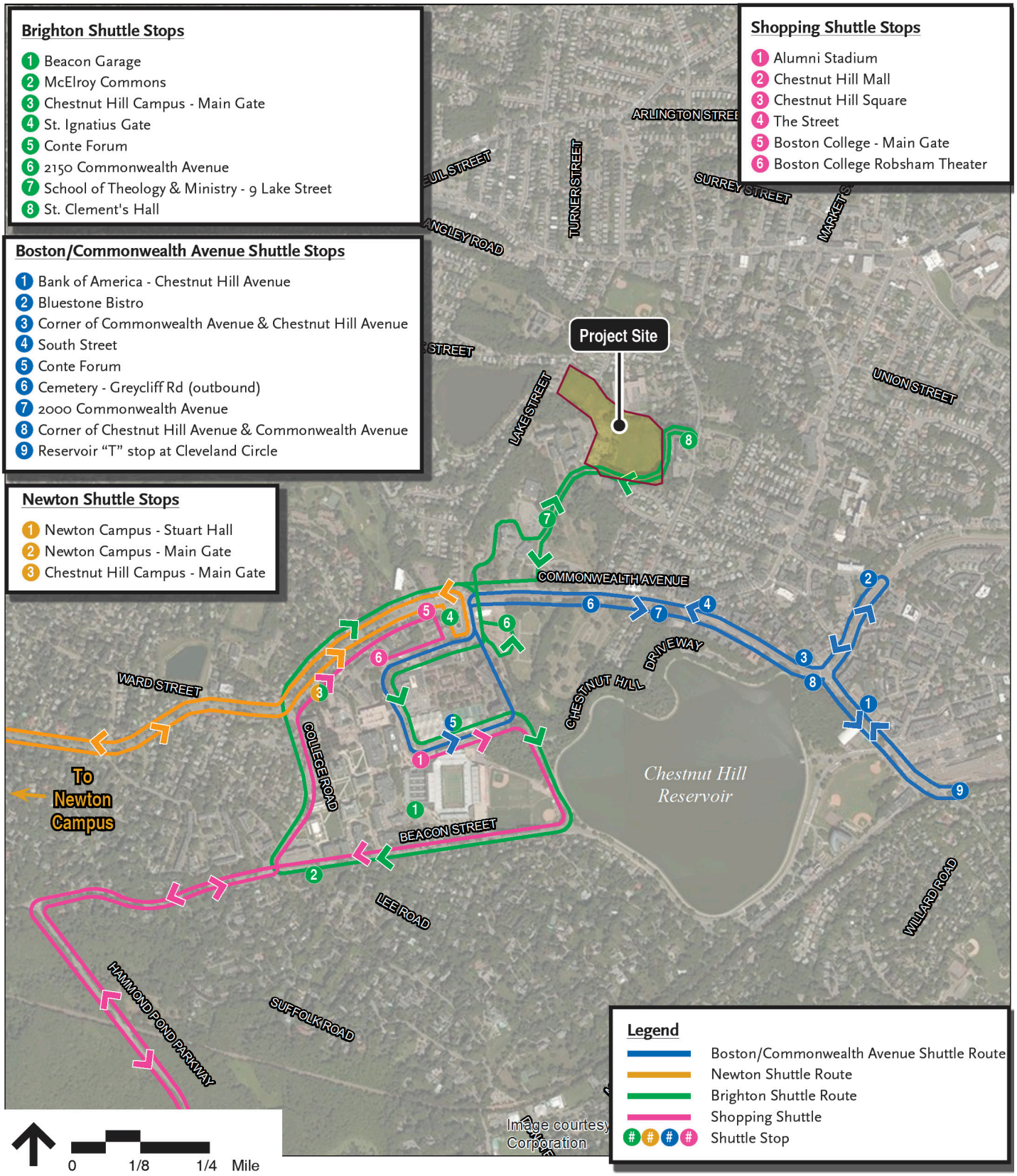
Source: MBTA

Green Line

Bus Route

Boston College
Brighton, Massachusetts

Figure 5-1
Public Transportation
Source: Fort Point Associates, 2016



Boston College
Brighton, Massachusetts

Figure 5-2
Boston College Shuttle Bus Service
Source: Boston College Institutional Master Plan, 2009

Chapter 6

Environmental

CHAPTER 6: ENVIRONMENTAL

6.1 INTRODUCTION

Below is a summary of potential environmental issues on the Project Site, and the Proponent's intended plan for mitigation.

6.2 AIR QUALITY

Long-term air quality impacts associated with the Project are expected to be minimal. The public restrooms, janitor's closet and storage room in the support building will be heated and ventilated. Heat will be provided by a high-efficiency forced-air gas furnace and ventilation will be provided by roof-mounted exhaust fans. Make-up air will be drawn into the facility through wall-mounted intake louvers. The support building will not be air-conditioned with the exception of the first aid room, which will be heated and cooled by a ductless split-system.

The Project will not create any appreciable difference in air quality due to traffic concerns with the implementation of a comprehensive Event Management Plan that addresses traffic and parking to and from the site for events.

Short-term air quality impacts from construction activities are discussed in Section 6.10.6 Air Quality During Construction.

6.3 WATER QUALITY

The Project Site is occupied primarily by playing fields and small parking lots. Much of the rainwater and snow melt will percolate into the groundwater and the stormwater runoff from impervious areas will be collected and discharged into an on-site stormwater management system. The on-site stormwater management system includes an underground detention and infiltration system for groundwater recharge. A portion of the collected stormwater runoff will discharge into adjacent stormwater collection systems that are owned and operated by the Boston Water and Sewer Commission. There will be no direct runoff from the Project into nearby water bodies, such as Chandler's Pond, which is upgradient from the Project Site. There are no wetland resources located on Project Site.

There is an existing closed stormwater drainage system that travels through the Project Site. The existing system will be relocated during the start of construction and the proposed stormwater system for the Project will be integrated with the existing system in accordance with all applicable regulations and best management practices. Any potential increase in stormwater runoff due to the proposed improvements will be offset by constructing best management practices to infiltrate in the stormwater into the ground.

6.4 FLOOD HAZARD DISTRICT/WETLANDS

The Project is not located in a flood hazard district. The nearest wetland resource area, Chandler's Pond, is more than 200 feet upgradient of the Project Site.

6.5 GROUNDWATER AND GEOTECHNICAL

Subsurface investigations conducted at the Project Site consist of soil test borings and installation of groundwater observation wells. The subsurface explorations indicate that the existing ground surface is underlain by a 4-foot to 8.5-foot thick layer of fill deposit that varies from brown to dark gray sand and gravel containing some silt to a well-graded mixture of silt, sand and gravel. Beneath the fill deposit, soil borings encountered an alluvial deposit which varied from a compact to dense brown silt containing a trace of fine sand to a silty fine sand containing a trace of medium sand.

Groundwater observation wells installed within completed boreholes near the proposed athletic fields indicate relatively shallow groundwater conditions. Groundwater measurements were collected four times during the month of April 2009, and during that time was observed within the wells at depths varying from 2.4 to 7.8 feet below the existing ground surface.

The Project design will incorporate the above soils and groundwater observations into the design of structural foundations, field subgrade and the subgrade of walkways and pavements.

6.6 SOLID AND HAZARDOUS WASTE

The Proponent is committed to recycling 75% of all construction and demolition waste materials generated during the construction of this Project. The Proponent has also committed to recycling at least half of non-construction and demolition waste and will implement an on-going recycling program tailored to the needs and users of the athletics complex.

6.7 NOISE

The baseball and softball fields spectator seating areas each will have a Public Address (PA) amplified electronic sound system to be used only for announcements prior to (warm-up) and during intercollegiate games. Each field (baseball and softball) will be controlled separately. The proposed system will be a state-of-the-art system designed to minimize impact on the surrounding properties. No PA system is proposed for the recreation field.

6.7.1 DESCRIPTION OF PROPOSED PUBLIC ADDRESS SYSTEM

The PA sound systems for baseball and the softball will primarily cover all public spectator seating areas for the two fields. Secondarily, smaller speakers will cover concessions areas, batting cages, dugouts, and press boxes. These smaller spaces are directly adjacent to the seating areas of the two fields. The systems will cover the spectator seating areas with good uniformity and a very good degree of speech intelligibility.

To provide consistent coverage at spectators' seating and to minimize sound propagation to neighboring community areas, the Project will utilize a state-of-the-art distributed loudspeaker sound system. This type of system presents several advantages over other types of systems, including point source (single speaker or single speaker cluster) systems. The system will consist of a series of small directional weatherproof loudspeakers positioned near the spectators, mounted on the backstop netting poles (4 poles and speaker locations per field) located between the spectators and home plate for each field. Placing the loudspeakers near the spectators effectively reduces the atmospheric effects on the sound propagation and decreases the required sound power of the loudspeaker. Loudspeakers positioned on the netting poles in front of the spectators will be approximately 40 feet from the most distant spectators. The proximity of loudspeakers to spectators allows the sound system to provide a consistent quality of coverage, frequency response, and sound pressure level at the spectators' seats.

The sound pressure level on the playing field will be approximately 80 – 85dBA. The speakers covering the stands will be delayed so that the sound coming in from the loudspeakers on the light poles will match with the closer stand loudspeakers.

The PA systems will have an automatic compensation system that will reduce the necessary level of sound as the crowd level reduces, either because of less spectator noise during a game or a smaller, quieter spectator crowd. This will further reduce the impact on the surrounding areas.

Smaller speakers will provide PA for the press box areas (enclosed), training room (enclosed), restrooms (enclosed), dugouts (partially enclosed), batting cages (partially enclosed) and a small outdoor concessions area adjacent to the support building. These smaller speakers are not anticipated to have an impact on the surrounding properties.

6.7.2 ANTICIPATED DECIBEL LEVELS

Because of the highly directional nature of the loudspeakers, areas located behind the loudspeakers – such as residential areas overlooking the baseball outfield – will experience levels that are as much as 15 to 20 dBA lower than levels heard on the

field due to the directionality of the loudspeakers. It is expected that sound from the loudspeakers will be clearly audible in some of the surrounding neighborhoods.

Figure 6-1 illustrates the projected decibel levels from sound system loudspeakers for both fields and surrounding areas during a typical baseball and softball game day.

For comparison, example decibel levels are as follows:

- Existing site at midday dBA: 50 to 70 dBA (measured June 21-24, 2016)
- Normal conversation dBA: 55 to 65 dBA
- Automobile passing at 20 feet dBA: 65 to 70 dBA
- Train passing at 200 feet dBA: 70 to 85 dBA

6.7.3 ANTICIPATED SCHEDULE AND USE

The PA systems will only be used for warm-up before and during intercollegiate baseball and softball games. Baseball and softball games combined result in approximately 41 home games per year of which 15 could take place on the same day. The nature of baseball and softball games PA sound is intermittent for announcing hitters or scores. There will not be a uniform commentary during games. During warm-up for intercollegiate games the teams will use the PA systems for music.

Table 5-1 shows the approximate anticipated game days for a typical year.

6.7.4 BASEBALL AND SOFTBALL GAME DAY SPECTATOR NOISE

SPECTATOR NOISE

The attendance of spectators for baseball and softball games will vary. Therefore, the spectator noise will vary from game to game. In general baseball and softball spectator noise is less than many other team sports because of the nature of the game. Baseball and softball crowd participation is often tied to specific game events, for example a home run, rather than a more sustained crowd noise for a team sport such as lacrosse or hockey where the game action and excitement is often sustained and continuous.

The spectator seating for both softball and baseball has been located as far from residential areas as possible given the limitations of the Project Site, which will lessen the impact on surrounding areas. In addition most of the large existing trees

at the perimeter of the property are being maintained and supplemented with new trees, which will help reduce the spectator noise impact.

6.7.5 GENERAL SITE NOISE

VEHICULAR NOISE

The existing campus roadway on the Project Site will be improved, however the overall traffic volume is not expected to increase. Athletes and intramural participants will arrive by foot, bicycle, and car much as they do now. Vehicles to 129 Lake Street and St. Clement's Hall will continue in the same volume as they do now. Service vehicle noise is not expected to increase.

RECREATION NOISE

The existing recreation field adjacent to Lake Street is currently used for a variety of non-intercollegiate sports activities by the general student population. This type of use will continue in the same manner after the field quality is upgraded. No increase from existing noise levels from student activities is anticipated for this field.

MECHANICAL SYSTEMS NOISE

The mechanical systems for the new small structures are minor in nature given the small size of the facilities they are servicing. The noise from these systems will meet City of Boston noise regulations and is not anticipated to have an impact on the surrounding properties.

6.8 LIGHTING

Athletic field sports lighting technology has dramatically improved over the last 20 years. In the last five years alone, the ability to reduce light spill on abutting properties and to lower energy consumption has nearly doubled. One system for advanced athletic field lighting system is the Light Structure Green System by Musco Lighting. This system utilizes innovative photometrics and advanced light control technology to redirect potential spill light back onto field. Musco and other vendors and similar lighting systems will be considered by the University for the Project. The Light Structure Green system reduces the number of fixtures required to meet the specified light levels, and greatly reduces energy consumption. Figure 6-2, Proposed Lighting and Spill Diagram, illustrates the proposed lighting system.

The athletic field lighting proposed at the Project Site will include lighting at the natural grass recreation field and the synthetic turf baseball and softball fields. The University is committed to lighting the fields with the most advanced light technology available at the lowest levels possible to minimize impacts on surrounding neighbors. The lighting systems

at the baseball and softball fields will have the ability to light the fields at the NCAA minimum play level as well as at a higher level to allow for occasional regional broadcasts, and will include a reduced light level for facility exiting and clean up (See Table 6-2). Providing multiple light levels allows the University to save money on energy costs and reduce light impacts on the surrounding properties.

Table 6-2. Proposed Lighting Levels

(fc = foot-candles)	**NCAA min. Play Level**	**NCAA min. Broadcast Level**	**Exiting/Clean Up Level**	**Number of Poles/Heights**
Baseball	70 fc – infield 50 fc - outfield	100 fc – infield 70 fc - outfield	10 fc	8 poles/90'-100' tall
Softball	70 fc – infield 50 fc - outfield	100 fc – infield 70 fc - outfield	10 fc	6 poles/70'-80' tall
Recreation Field	30 fc	NA	NA	4 poles/70' tall

The number of light poles at each field varies between four (4) and eight (8) poles as noted above. Each tapered steel pole will be mounted with a bank of LED light fixtures, ranging from 12 to 20 fixtures per pole. Pole heights for the facilities will range from 70' tall to 100' tall (as noted above) depending on location and required aiming angles. The height of the poles allows for steeper aiming angles which concentrate light on the playing surface, and minimize spill beyond the limits of the field. The light pole locations have been carefully located to minimize light spillage beyond the property line (See Figure 6-2).

6.8.1 EXISTING LIGHTING LEVELS ON SITE

In order to develop a baseline for facility lighting, existing light readings were taken on site and along adjacent neighborhood streets. The readings were taken between 8:30 PM and 10:00 PM on April 28th using a digital light meter. Light readings were measured in foot-candles, which is measurement of light intensity at a specific location. A typical street light for example emits between 1 and 5 foot-candles depending on how close one is to the light source.

Light reading in the middle of the existing fields measured 0 foot-candles, while readings along the interior roads and adjacent to existing buildings measured between 1 and 5 foot-candles. Foot-candle readings were also measured at surrounding neighborhood streets, including Foster Street, Lake Street, Lane Park, Anselm Terrace and Glenmont Road. At these locations foot-candle readings generally ranged between 3 and 5 foot-candles at street lights, and ranged between 0 and 1 foot-candle at locations between street light locations.

6.8.2 PROPOSED LIGHT LEVELS ON SITE

As noted above, the light level proposed at the recreation field is 30 foot-candles, and the light levels proposed at the baseball and softball fields range between 70 and 50 foot-candles. For broadcast games, light levels for baseball and softball would range between 100 and 70 foot-candles. These light levels are the lowest acceptable ranges for collegiate sports for competition and for televising. By utilizing state-of-the-art lighting technology, light spill off the proposed playing fields will be minimal. Figure 6-2, Proposed Light Spillage, illustrates the proposed levels and associated spill levels around the site and at the adjacent property lines.

In addition to the proposed sports field lighting, pedestrian lighting will be located along the existing sidewalk from Foster Street to 129 Lake Street, and from 129 Lake Street out to Lake Street. The pedestrian lighting will provide between 1 and 5 foot-candles along the sidewalk to allow safe access through the site, and will not spill light beyond the limits of the property line.

6.8.3 IMPACT OF TREE SHADE

The spill calculations for the proposed field lighting assume zero tree cover on the Project Site or at any location beyond the limits of the property line. However, a good portion of the baseball and softball season falls after the leaves have opened in May. The exact impact of tree cover is difficult to measure, however large trees along the perimeter of the property will help significantly reduce light spill. A fully grown deciduous tree is likely to reduce spill by 50% or more. As such, significant care has been taken to position the fields in such a way to preserve the existing large trees.

6.8.4 SCHEDULE OF USE

The athletic field lighting will be used as necessary to support evening/nighttime baseball and softball games and practices, as well as recreational activities on the fields. Note, this projected schedule of use is weather dependent and may vary due to the start of the academic year and changes in ACC or NCAA rules and regulations.

- Baseball – September-November and late January - May
- Softball – August - November and late January - May
- Recreation – August -November and February - May

6.8.5 CONCLUSION

The addition of field lighting at the Project will improve the University's ability to play and practice during short spring and fall days. The lighting systems proposed are designed to have the smallest effect possible on the community while maintaining a level of light appropriate for collegiate play.

6.9 SYNTHETIC TURF

Synthetic turf has been in existence since the late 1960's, when it was first developed by the Ford Foundation as an alternative to asphalt playgrounds. Synthetic turf was further popularized when "Astro Turf" was introduced as the futuristic playing surface at the Houston Astro Dome. The nylon based product became the surface of choice at many indoor and outdoor stadiums, as it provided a consistent playing surface with little to no maintenance. Knitted nylon "Astro Turf" is still considered the surface of choice for field hockey, and is currently used by many Division One institutions including Boston College.

The second major generation of turf, known as "Infill Turf," was first introduced in the United States by Field Turf in 1997 at Ringgold High School in Pennsylvania. The new style turf is comprised of grass like polypropylene fibers tufted into a urethane backing, and generally filled with a mixture of sand and rubber infill. Because infill turf is softer and more resilient than nylon turf, it has solved many of the issues associated with nylon including turf burn, ankle injuries, leg fatigue and concussions. Today, there are over 10,000 infill turf fields installed in the United States, including at least 15 infill turf fields in use in the City of Boston, including Boston University, Northeastern University, Harvard University, UMass Boston, Boston English High School and Charlestown High School.

The proposed baseball and softball fields will be constructed of an infill-style synthetic turf. The turf system proposed will include polypropylene fibers approximately 1 ½" to 2" in height tufted into a urethane backing, and filled with a mixture of sand and rubber infill. The turf will be laid over an 8-inch deep crushed stone base, which includes a network of drain pipes to collect rainwater that drains vertically through the field. The softball field will include a clay infield area and synthetic turf outfield area, while the baseball field will be entirely synthetic turf.

6.9.1 PROJECT BENEFITS

The proposed synthetic turf baseball and softball fields will greatly improve the University's ability to compete in the ACC, a conference which is made up of other schools, with many located in the temperate South. This geographic advantage allows these schools to begin outdoor practice nearly 6 weeks earlier than the

University. Because synthetic turf can be plowed of snow, the University will now be able to begin spring practice at the same time as its competition. The synthetic turf surface will provide a reliable, safe playing surface even in the adverse weather conditions common to spring in New England. Northeastern University, Salem State College, the University of Rhode Island and Dartmouth College all now play baseball on synthetic turf baseball fields. This is a trend which continues to grow, especially in the Northeast.

In addition to the playing benefits, synthetic turf offers several environmental benefits. Synthetic turf requires minimal maintenance when compared to natural grass, requiring minimal water and zero pesticides or fertilizer. Approximately 4.5 million gallons[1] of water, and 3,000 pounds[2] of fertilizer and pesticides will be saved each year with the use of the synthetic surfaces at the proposed baseball and softball fields. The proposed turf system will also utilize recycled rubber infill which will help qualify the Project for LEED certification.

6.9.2 PERCEIVED ISSUES

Over the past few years, synthetic turf has been the focus of some controversy as it relates to perceived health and environmental issues. To date, hundreds of studies have been completed on synthetic turf by a wide range of interest groups, reflecting conflicting information on both sides of the issues. As a nationally recognized sports design firm of both natural and synthetic fields, CHA, the Proponent's outdoor field designers and specialists, puts its faith in the most recent non-biased studies, including those completed by University researchers and independent scientists. Those studies are referenced in Section 6.9.3.

6.9.3 SUMMARY OF PERCEIVED ISSUES

The following summary outlines the major perceived issues associated with synthetic turf fields, studies relevant to the issue, and conclusions as they relate to the Project.

EXPOSURE TO LEAD

The issue of lead in synthetic fields was brought to the public's notice in 2006 when several New Jersey fields were closed due to concern over lead content identified in the fields. The fields in question were primarily nylon fiber fields, and not the infill type fields proposed for this Project. Following the New Jersey incident, the US Consumer Products Safety Commission (CPSC) launched an independent study to

[1] lead free designation requires lead levels to be significantly lower than national standards for consumer products

[2] assumes 13,000 gal. of water per week for 36 weeks

evaluate the lead issue. In July 2008, the CPSC concluded that synthetic turf fields, both new and old, were safe for both children and adults due to the fact that the lead content found in nearly all fields tested was below the accepted level. They did, however, recommend that the Turf industry work to reduce the lead content in their products. As of today, nearly all turf manufacturers have gone lead free[3]. The Proponent is committed to only using turf products which meet the 'lead-free' designation.

EXPOSURE TO HARMFUL CHEMICALS

Synthetic turf fields utilize crumb rubber as an infill material to create a safe, resilient surface on which to play. The majority of this rubber is the made from recycled car tires. This rubber contains chemicals which have been categorized as VOH's (Volatile Organic Hydrocarbons) and PAH's (Polycyclic Aromatic Hydrocarbons), which, under certain conditions, can be harmful to humans. The concern as it relates to the synthetic turf fields is that continued exposure via inhalation, ingestion or skin absorption poses a health risk.

In March 2009, a study by TRC Environmental for the NYC Department of Health concluded that none of the detected air measurements were at a level to cause any type of adverse health effects. In 2008, a study by Milone & MacBroom found that these chemicals were virtually undetectable at a height 4' above the field. This study reinforced independent studies completed in 2006 by the Norwegian Institute of Public Health and the French National Institute for Industrial Environmental Risks which concluded that adverse health effects resulting from contact with crumb rubber or inhalation of VOH's was extremely unlikely.

The most recent concern has come from University of Washington soccer coach Amy Griffin with news reports of possibly elevated rates of cancer in soccer players. The press release, publicized by Environment and Human Health, Inc. in February 2015, cited a total of 126 athletes with cancer, 109 of them being soccer players with various forms of cancer. The issue with this particular report is that it lacks a solid quantitative analysis. Current government studies by the Environmental Protection Agency (EPA), the Consumer Product Safety Commission (CPSC) and the Agency for Toxic Substances and Disease Registry (ATSDR) are attempting to fill any known research gaps, but since the Amy Griffin report, a number of additional studies have been performed. The Centers for Disease Control has investigated 108 cancer clusters since 1961 and no clear cause was found for any cluster. Other studies by Simcox et al. (2011), Ginsber et al. (2011), and Pavilonis et al. (2014) all

[3] Assumes 17 lbs. of fertilizer and pesticides per 1,000 SF of turf. Total 300,000 lbs. per year

came to the conclusion that the risks of playing on infill type synthetic turf are negligible.

LEACHING OF HEAVY METALS

Concerns have been raised over the potential for synthetic turf fields to leach heavy metals (zinc, selenium, chromium, nickel, etc.) into the soil and water sources such as lakes and rivers. The concern is that leaching of these chemicals could pollute soil, threaten plants and wildlife, and contaminate drinking water resources. In 2007 the State of California Integrated Waste Management Board concluded that it was doubtful that recycled tire rubber utilized in outdoor applications was a threat to animal or plants. A similar study completed last year by Milone & MacBroom noted that the concentration of metals in the drainage water from synthetic turf fields was within standards outlined by the EPA, and were typical of leaching rates through native soils. CHA's own independent testing mirrors these results.

INCREASED RISK OF MRSA (STAPH INFECTIONS)

The concern related to an increased risk of MRSA (Staph infections) has been proven unfounded. Some researchers questioned whether the increased instances of infection among athletes might be attributed to an increased use of synthetic turf. Dr. Andy McNitt of Penn State University concluded that this is not the case. His research showed that there are generally lower numbers of total microbes present in synthetic turf than found in natural grass, and found no instances of staph. Dr. McNitt noted that changes in light, temperature and moisture make it difficult for MRSA to grow. The Centers for Disease Control (CDC) noted that there is no existing data to suggest synthetic turf increases the risk for MRSA.

ELEVATED HEAT LEVELS ON SYNTHETIC TURF

Of all the issues associated with synthetic turf, the concerns associated with elevated heat levels are probably the most relevant. Research completed by Dr. McNitt and others has shown that temperature directly on the synthetic surface can be 40-50 degrees above the air temperature on a sunny day. The research has also shown however, that temperatures just 12 inches above the playing surface drop back dramatically. A study completed in 2008 by the environmental firm Milone & MacBroom, showed that air temperatures 4 feet above the field were comparable to temperatures over a natural grass field. In addition, the proposed baseball and softball fields will be most heavily utilized during the spring and fall months, when the average air temperatures are relatively low.

6.9.4 CONCLUSIONS

In conclusion, the proposed synthetic turf baseball and softball fields at the Project will be a benefit to both Boston College Athletics and the community. The technology associated with synthetic turf has been greatly improved since it was introduced in 1966. In addition, several independent and comprehensive studies have now been completed on potential health and safety risk associate with synthetic turf. These studies have concluded that synthetic turf is a safe and beneficial surface for both users and the environment.

6.10 CONSTRUCTION IMPACTS

Construction-related impacts associated with the Project are temporary in nature and typically related to truck access and routing, dust, noise, stormwater runoff and vibration. As the design of the Project progresses, a construction manager will prepare a Construction Management Plan (CMP) for the Project in compliance with the City of Boston's Construction Management Program to address and mitigate construction-related impacts. The final plan will reflect the input and feedback from the Boston Transportation Department (BTD) and other city agencies. The CMP will include detailed information on construction activities, schedule and mitigation measures that will be implemented to minimize impacts on the surrounding neighborhood. The following sections generally describe elements that will be included in a CMP and methods to mitigate potential construction impacts.

6.10.1 CONSTRUCTION SCHEDULE AND HOURS

The duration of construction for the Project is estimated to last approximately 12 months, commencing in spring of 2017 and ending in spring of 2018. Typical hours of construction are from 7:00 am until 6:00 p.m. Monday through Friday. There may be occasions where work on Saturdays is necessary. These specific instances will be identified and the necessary permits will be obtained from the City of Boston Inspectional Services Department.

6.10.2 CONSTRUCTION TRUCK ROUTES

The entrance and egress for all construction truck traffic to the site will be restricted to the Commonwealth Avenue entrance to minimize impacts on neighboring streets. Best efforts will be made to schedule major deliveries during non-peak traffic hours. Signage will be posted on the Project Site directing construction truck traffic to the construction entrance. As needed, a Boston police detail will utilized to safely direct and manage construction-related traffic on City of Boston streets. Boston College Police will be utilized as needed to direct campus traffic at the Project Site.

6.10.3 CONSTRUCTION STAGING AREAS

The material storage and laydown areas will be located onsite in an appropriate area as close to the point of use as practical. Materials will be off-loaded within the Project Site and will be scheduled to avoid peak traffic hours to minimize the impacts of additional traffic.

6.10.4 CONSTRUCTION WORKER PARKING

No on-site construction parking will be made available to sub-contractors and all trade workers will be encouraged to utilize public transit or carpool. Limited parking for construction management staff will be provided on-campus.

6.10.5 AIR QUALITY/DUST

Short-term air quality impact from dust may be expected during site preparation activities. The construction contract for the Project will require the contractor to reduce potential emissions and minimize air quality impacts. Mitigation measures are expected to include wetting agents where needed on a scheduled basis, covered trucks, minimizing exposed construction debris stored on-site, monitoring construction practices to ensure that unnecessary transfers of loose materials are minimized, locating aggregate storage piles away from areas having the greatest pedestrian activity where and when possible, and periodic cleaning of streets and sidewalks to reduce dust accumulations. Additionally, the state's anti-idling law will be enforced during construction of the Project.

6.10.6 STORMWATER RUNOFF/EROSION CONTROL

During construction, the contractor will work to minimize the potential impacts to the water quality of the surrounding surface waters by providing erosion control devices on-site. The measures taken will minimize potential erosion, sedimentation, contamination and debris from discharging offsite.

6.10.7 NOISE/VIBRATION

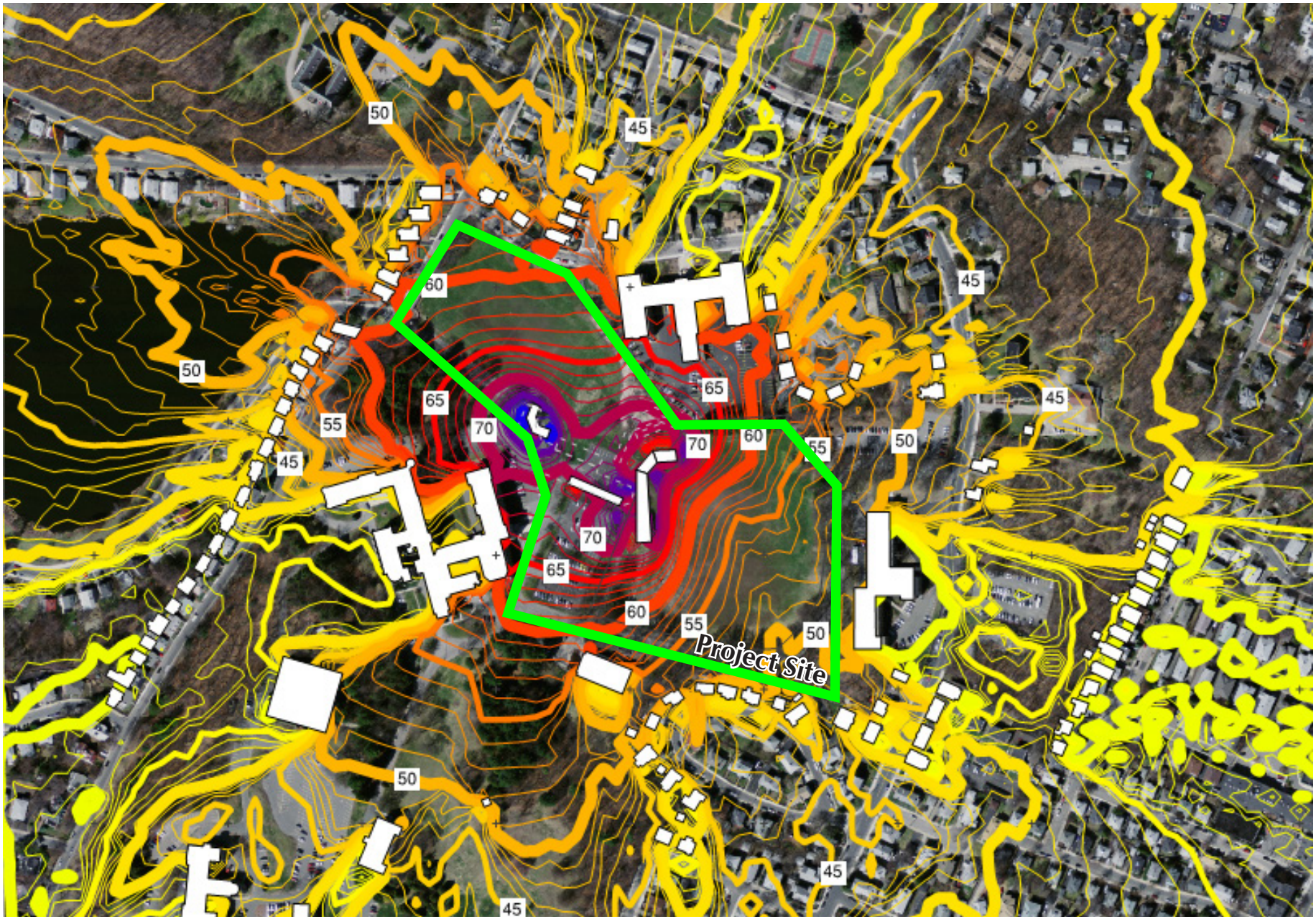
While intermittent increases in noise levels will occur during the construction of the Project, the work will comply with the requirements of the City of Boston noise ordinance. Efforts will be made to minimize the noise impact of construction activities, including use of appropriate mufflers on all equipment, such as air compressors and welding generators, proper maintenance of intake and exhaust mufflers, turning off idling equipment, replacing specific operations with less-noisy ones and scheduling equipment operations to synchronize the noisiest operations with the times of highest ambient noise levels.

6.10.8 PEDESTRIAN SAFETY AND ACCESS

Public safety is the primary consideration in our construction planning and building processes. Construction management and scheduling will be coordinated to minimize the impacts of the Project on the University, surrounding community and the environment. Specific pedestrian crosswalks, vehicle barricades and re-routing measures will be implemented to provide for safe navigation around the Project Site.

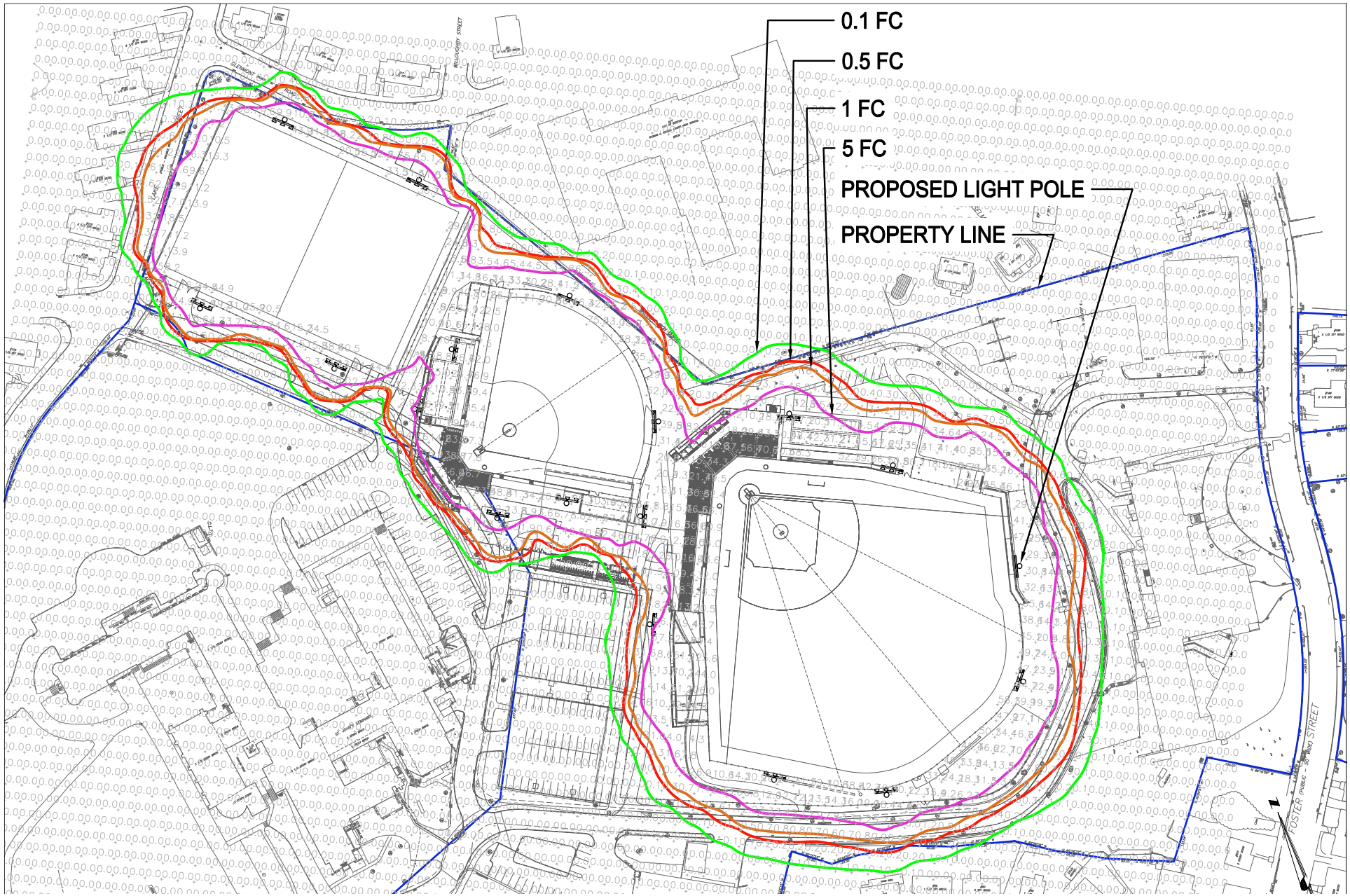
6.10.9 RODENT CONTROL

The contractor will file a rodent extermination certificate along with the building permit application. Rodent inspection, monitoring and treatment will be carried out before, during and at the completion of the construction work in compliance with City of Boston requirements. Rodent extermination prior to work start-up will consist of treatment of areas prior to any substantial construction activity or earthwork disturbance. During construction, regular site visits will be made to maintain effective rodent control levels.



Boston College
Brighton, Massachusetts

Figure 6-1
Proposed Sound Level Map
Source: ACHENTECH, 2016



Boston College
Brighton, Massachusetts

Figure 6-2
Proposed Lighting and Spill Diagram
Source: CHA, 2016

Chapter 7

INFRASTRUCTURE

CHAPTER 7: INFRASTRUCTURE

7.1 INTRODUCTION

The following analysis describes the existing utility systems in the vicinity of the Project Site, and their ability to provide service to the Project. Also discussed are the probable impacts this Project could have on the existing utility systems and the ways these potential impacts could be mitigated. Best management practices and sustainable design will be incorporated into the Project wherever practical and applicable.

The Project's Civil and MEP Engineers will coordinate with the City of Boston agencies and utility companies responsible for the area's utility systems as the design progresses. Utility connections will be designed to minimize impacts to the surrounding area and appropriate permits and approvals will be acquired prior to construction. The following sections describe the existing and proposed conditions of the domestic water, fire protection, sanitary sewer, storm drain, electrical, and communication systems.

7.2 WATER SYSTEM

7.2.1 EXISTING WATER SERVICE

Lake Street contains 2 12-inch water mains and borders the Project Site. The Boston Water and Sewer Commission (BWSC) owns, operates, and maintains the 12-inch ductile iron Southern High water main service constructed in 1890 and reconstructed in 1972. The Massachusetts Water Resource Authority (MWRA) owns, operates, and maintains the other 12-inch water distribution system in Lake Street.

The water distribution system for the Brighton Campus has been incrementally upgraded over the past 7 years. These upgrades include replacing the entirety of a 10-inch private water main in the campus roadway, which runs adjacent to the proposed Project Site, and connects a loop to Lake Street with two master water meters. These master water meters and meter pits have also been replaced at the connections to the 12-inch BWSC main in Lake Street. The existing water distribution system is illustrated on Figure 7-1, Existing Water Distribution System.

Hydrant flow testing will be performed to evaluate water capacity in the vicinity of the Project Site. There are no expected water capacity problems from the BWSC system feeding the private water main.

7.2.2 PROPOSED WATER SERVICE

The proposed domestic water services from the baseball and softball fields and the support building will connect to the private water main in the campus road. The size and location(s) of proposed domestic water service(s) will be coordinated with the plumbing engineer. Domestic water service to the proposed fields and building will be metered by the new master meter connected to the BWSC water main in Lake Street, unless the University determines that the Project requires sub-metering for its own records. Gate valves will be installed on the new domestic water service to minimize public hazard or to be used for maintenance. A valve box and cover will be installed over the gate valve to provide shut-off access. If required, internal booster pumps will be included in the design by the plumbing engineer to provide adequate domestic water pressure to the upper floor spaces.

Proposed fire protection service will connect to the private water main in the campus road. The size and location(s) of proposed fire protection service(s) will be coordinated with the fire protection engineer. As with the domestic water service, gate valves will be installed on the new fire protection line(s) to minimize public hazard or to be used for maintenance. A valve box and cover will be installed over the gate valve to provide shut-off access. If required, internal booster pumps will be included in the design by the fire protection engineer to provide adequate water pressure to standpipes and sprinkler systems. A double-check valve assembly or reduced pressure backflow preventer will be provided on fire protection services as they enter the building to protect the municipal water supply.

Proposed domestic water and fire protection services will be shown on the site plans and submitted to the BWSC for review (see Figure 7-3, Proposed Utility Relocation).

7.2.3 ANTICIPATED WATER CONSUMPTION

The Project's estimated proposed water demand for domestic sources is based on the estimated sanitary flow. A conservative factor of 1.10 is applied to the estimated sanitary flow to account for consumption and other miscellaneous losses. The Project's estimated peak daily water demand for domestic sources is 8,900 gallons per day (gpd). This water will be supplied by the private water main on site, which is ultimately supplied by the BWSC.

7.3 SANITARY SEWER SYSTEM

7.3.1 EXISTING SEWER SYSTEM

Public BWSC sewer systems run adjacent and through the Project Site. An existing private sewer also runs through the Brighton Campus, but not the Project Site. The

existing sewer and drain system is illustrated on Figure 7-2, Existing Sewer and Drain System.

The BWSC owns, operates, and maintains the sewer systems bounding the Project Site, including the 24-inch separated sewer main in Lake Street, the 10-inch separated sewer main in Glenmont Road, and the 10-inch separated sewer main in Foster Street. BWSC also owns, operates, and maintains the 12-inch and 30-inch separated sewer lines that run northerly through the proposed baseball field and then turn to run northwesterly along the property line to connect into the sewer system in Glenmont Road.

A private 12-inch sewer service runs through the Brighton Campus, but is not within the limit of work for the Project. The 12-inch private sewer runs on the western side of the campus, northwesterly to connect to the 24-inch BWSC sewer line in Lake Street.

The BWSC sewer lines flow into the MWRA sewer lines. Regional sewer service and treatment are provided by the MWRA system, which ultimately connects to the Deer Island Wastewater Treatment Plant. From here, sanitary sewer flow is treated and discharged to the Boston Harbor.

7.3.2 PROPOSED SEWER FLOWS

The Massachusetts Department of Environmental Protection (DEP) sets forth estimated sewage generation rates for specific establishments and building uses. These values can be related to the number of bedrooms, square footage of a building, number of seats, number of participants, or various other factors.

The proposed field construction and support facilities will increase the effluent discharged to the existing sanitary sewer system. The Project will consist of a 1,000-seat baseball field, a 300-seat softball field, a recreation field, and a support building. Other Project elements include site and roadway improvements and the construction of parking lots, which will not produce sewage. Table 7-1 includes a detailed breakdown of the proposed building program, the respective sewage generation rate for each building use, the total flow for each building use, and the total proposed sanitary flow for the Project. Sewage generation rates were taken from the Massachusetts Department of Environmental Protection, 310 CMR 15.00, The State Environmental Code, Title 5, Section 15.203: Sewage System Design Flow Criteria.

Per the regulations of 314 CMR 7.00, any proposed development with a new sewer connection that does not include wastewater discharges from industrial uses will only need BWSC approvals and is not required to file any forms with the DEP. The Project's building program results in an estimated sewage discharge of 8,050 gpd

and does not include an industrial sewer connection. Therefore, the Project will not need to file any forms with the DEP to meet sewer extension and connection regulations.

Table 7-1: Estimated Proposed Sewer Discharge

Type of Establishment[1]	Number	Sewage Generation Rate	Total Flow (gpd)
Gymnasium (Baseball-spectator/fan)	1,000 fans	3 gpd/fan	3,000
Gymnasium (Baseball-player)	50 players	25 gpd/player	1,250
Gymnasium (Softball-spectator)	300 fans	3 gpd/fan	900
Gymnasium (Softball-player)	50 players	25 gpd/player	1,250
Gymnasium (Rec. Field-spectator)	50 fans	3 gpd/fan	150
Gymnasium (Rec. Field-player)	60 players	25 gpd/player	1,500
Total			**8,050**

The proposed sanitary sewer line from the new support building will collect other sewer laterals from the dugout restrooms and connect to the 30-inch BWSC sewer line running northwesterly along the northern property line. The proposed sanitary sewer connection for the Project will be kept separate from proposed storm drain connections in compliance with BWSC requirements. Also, required approvals and permits for new sewer connections will be obtained prior to construction.

No existing sanitary sewer connections will be modified as part of the Project and existing connections to the BWSC sewer main will be maintained. Based on the peak sewage flow estimate there is sufficient capacity in the existing adjacent sewer mains and the Deer Island treatment facility for the proposed sewage generation from the site.

As part of the Project, the existing 30-inch BWSC sewer system that runs northwesterly through the proposed baseball field will need to be removed and relocated. See Figure 7-3, Proposed Utility Relocation. The proposed realignment will be 700 linear feet of 30-inch pipe with four new manhole structures. The existing BWSC sanitary sewer to be abandoned under the proposed baseball field

[1] Note: 310 CMR 15.00 does not include a stadium use. Gymnasium use is applied to account for a sporting event with spectators.

shall be cut, capped, and abandoned in place. The sewer line shall be removed and disposed of as required to complete the work. The contractor will be required to provide bypass pumping during the relocation of the existing BWSC sewer line. The Project team will work closely with the BWSC to determine a realigned sewer service that will meet their needs and allow for the construction of the new baseball field

7.4 STORM DRAINAGE SYSTEM

7.4.1 EXISTING STORM DRAINAGE SYSTEM

The existing site soils consist of Udorthents, wet substratum as classified by the National Resource Conservation Service (NRCS) soil survey. Additional geotechnical investigations are being conducted to determine the seasonally high groundwater level and permeability of the soils within the Project Site. The majority of the Project Site is grassy area, parking lots, walkways, and roadways. The Project Site is about 22% impervious cover.

There are public BWSC storm drainage systems running adjacent and through the Project Site. There is also an existing closed storm drainage system onsite. The existing storm drainage system is illustrated on Figure 7-2.

The BWSC owns, operates, and maintains the storm sewer systems bounding the site, including the 36-inch drain in Lake Street, the 12-inch drain in Glenmont Road, and the 12-inch drain in Foster Street. BWSC also owns, operates, and maintains the 42-inch storm drainage system that runs northerly through the proposed baseball field, collects drainage from another 30-inch BWSC drain onsite, and then turns to run northwesterly along the property line to connect into the drainage system in Glenmont Road.

Stormwater runoff flows through the Project Site until it is collected by the private closed drainage system (catch basin to manhole system) onsite or is recharged into the ground. The closed drainage system onsite ultimately discharges into the adjacent BWSC storm drainage systems.

7.4.2 PROPOSED STORM DRAINAGE

The Project plans include construction of a new closed drainage system, an underground infiltration/detention system, and a new connection to the adjacent BWSC storm drainage system. Stormwater runoff from the Project will be collected via a closed drainage system, treated as required using Best Management Practices and ultimately discharged into the BWSC system. The Project will increase the impervious area on Project Site from 23% to approximately 35% and will include an underground infiltration/detention system to promote infiltration. As such there

will be no increase in the peak stormwater runoff rates for the 2-, 10-, 25-, and 100-year storm events after construction. The Project will incorporate stormwater Best Management Practices (BMPs) as directed by the Department of Environmental Protection (DEP) designed to reduce Total Suspended Solids (TSS) from the stormwater runoff before connecting to the BWSC system. Mitigation measures to be incorporated include oil/grease separators, and the implementation of a Long Term Pollution Prevention Plan. The Project will also comply with the National Pollution Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction Activity, which includes the design of a Stormwater Pollution Prevention Plan (SWPPP).

As part of the Project, the existing 42-inch BWSC storm drainage system that runs northwesterly through the proposed baseball field will be removed and relocated. The proposed realignment will be 700 linear feet of 42-inch reinforced concrete pipe (RCP) and 100 linear feet of 18-inch RCP with 8 new manhole structures. In addition to the 42-inch storm drainage relocation, there is the proposed realignment of 54-inch BWSC drain line on the northwestern side of the project, near Lake Street. The proposed realignment will be 400 linear feet of 54-inch pipe with three new manhole structures. The BWSC existing drain line to be abandoned under the proposed baseball field shall be cut, capped, and abandoned in place. The sewer line shall be removed and disposed of as required to complete the work. The contractor will be required to provide bypass pumping during the relocation of the existing BWSC drain lines. The Project team will work closely with the BWSC to determine a realigned storm drainage service that will meet their needs and allow for the construction of the new baseball field.

During construction, existing catch basins and area drains will be protected with filter fabric, silt sacks, and/or hay bales to prevent sediment from entering the structures. These controls will be inspected and maintained throughout the construction phase until the areas of disturbance have been stabilized through the placement of pavement, structure, or vegetative cover.

The design objective for the stormwater management system proposed for the site is to meet the DEP Stormwater Management Standards to the greatest extent possible. These standards have been specifically addressed in the Project design in the following manner:

Standard 1: No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

Compliance: The Project will comply with this standard. There will be no untreated stormwater discharge. Discharges will be treated prior to connection to the BWSC system.

Standard 2: Stormwater management systems shall be designed so that the post-development peak discharge rates do not exceed pre-development peak discharge rates. This standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

Compliance: The Project will comply with this standard. The proposed design will not increase peak discharge rates for 2-, 10-, 25-, and 100-year storm events. The drainage system will include an underground infiltration system which will utilize onsite soil infiltration to reduce the peak discharge.

Standard 3: Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater BMPs, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

Compliance: The Project will comply with this standard. The Project will only slightly increase the impervious area onsite and includes the construction of a large underground infiltration system to recharge groundwater. The proposed design will not decrease annual recharge.

Standard 4: Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This standard is met when:

- Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;

- Structural stormwater BMPs are sized to capture the required water quality volume as determined in accordance with the Massachusetts Stormwater Handbook; and

- Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

Compliance: The Project will comply with this standard. Deep sump hooded catch basins, water quality structures, and an infiltration basin have been incorporated into the design and sized to provide a minimum of 80% TSS removal. An Operation and Maintenance (O&M) Plan for the storm drainage system will also be designed for the Project.

Standard 5: For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If, through source control and/or pollution prevention, land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt and stormwater runoff, the Proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L.C. 21, §§ 26-53 and the regulations promulgated there under at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

Compliance: This standard does not apply. The Project is not associated with Higher Potential Pollutant Loads (per the Policy, Volume I, page 1-8).

Standard 6: Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2) (a) 1. or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of the public water supply.

Compliance: This standard does not apply. The Project does not contain areas of Sensitive Resources and will not discharge untreated stormwater to a sensitive resource area.

Standard 7: A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

Compliance: The Project is a new development and will fully comply with all of the Stormwater Management Standards.

Standard 8: A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

Compliance: The Project will comply with this standard. The Project will also comply with the National Pollution Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction Activity, which includes the design of a Stormwater Pollution Prevention Plan (SWPPP). The erosion control measures incorporated into the Project include the placement of hay bale/siltation barriers and the installation of silt sacks in catch basins. Erosion control measures will be placed around stockpiles of loose materials. The measures will be inspected and maintained until the disturbed areas are stabilized.

Standard 9: A Long Term Pollution Prevention Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

Compliance: A Long Term Pollution Prevention Plan including long-term BMP operation requirements will be prepared to ensure proper maintenance and functioning of the system. The Long Term Pollution Prevention Plan will ensure that the facility provides adequate preventative maintenance to minimize discharge of contaminants to the BWSC systems. Facility personnel will inspect the stormwater management system on a routine basis not less than once per month for the first six months of operation and annually thereafter. A typical maintenance schedule is provided below:

1. Catch basins and manholes shall be inspected for accumulation of silt, sediment or debris on a monthly basis. Cleaning will be performed whenever the sediment level rises to within one foot of invert elevation of the outlet pipe. Removed sediment will be disposed off-site by a qualified waste disposal contractor in accordance with state and federal regulations.

2. Mechanical separators shall be inspected and maintained in accordance with the manufacturer's recommendations. During the first year of operation, the units shall be inspected monthly to determine an appropriate maintenance schedule based on actual site conditions. Mechanical separators shall be inspected annually at the end of the winter season and cleaned as necessary. Accumulated sediment will be removed by means of a vacuum truck and disposed off-site by a qualified waste disposal contractor in accordance with state and federal regulations.

3. Street sweeping of the Project Site shall be performed on an as-needed basis. At a minimum, street sweeping will be performed once per year during the spring to remove salt and sand from snow removal and de-icing.

Standard 10: All illicit discharges to the stormwater management system are prohibited.

Compliance: The Project will comply with this standard. There will be no illicit connections associated with this project.

7.5 ELECTRIC SYSTEMS

Eversource provides electric service to the Brighton Campus. Electrical service exists at St. Clement's Hall located on Foster Street. New electrical services for each new structure will be required to service the Project. It is anticipated that new underground electric services for the proposed Project will be provided from an existing Eversource manhole located adjacent to the north-west side of St. Clement's Hall. Electrical systems have not been designed, yet, however, electrical power supply design will be coordinated with Eversource.

7.6 TELEPHONE SYSTEMS

The telephone service in the project area will be extended from the existing telephone backboard in the Saint Clement's Hall located on Foster Street. It will run underground and will be an extension of the telecommunication duct bank to be located at the Project Site.

7.7 MECHANICAL AND PLUMBING SYSTEMS

7.7.1 HVAC

Support Building - The restrooms, janitor's closet and storage room in the will be heated and ventilated. Heat will be provided by a high efficiency (90%+) forced air gas furnace. Each room will have a roof mounted exhaust fan. The first aid room will be heated and cooled by a mini-split system with 1-ton heat pump.

Press Boxes – Both press boxes will be heated and ventilated. Heat will be provided by a high efficiency (90%+) forced air gas furnace. Ventilation will be provided naturally through operable windows.

Dugouts – All dugouts will be heated with electric resistance heaters mounted beneath the benches. Heaters will have outside temperature interlocks and be controlled with a timer. Storage, restrooms, and the replay room adjacent to the dugout will have wall-mounted, electric, unit heaters.

7.7.2 PLUMBING

The plumbing systems within the support building, official's changing rooms, training room and dugouts will consist of domestic hot and cold water, sanitary and vent piping. Domestic hot water will be provided by a gas-fired, instantaneous condensing type water heater at the support building, official's changing rooms and training room. A hot water recirculation system will be provided for these systems. At the four dugouts, electric instantaneous water heaters will be provided. The fixtures will utilize low flow flush toilets low flow urinals to minimize water usage. Drinking fountains will be provided. Accessible fixtures will be installed to meet state and federal accessibility requirements.

The toilet fixture counts will meet the code requirements for the facility to have concurrent baseball and softball games. An occupancy rating of 1,300 people will be used (1,000 seats in baseball and 300 seats in softball).

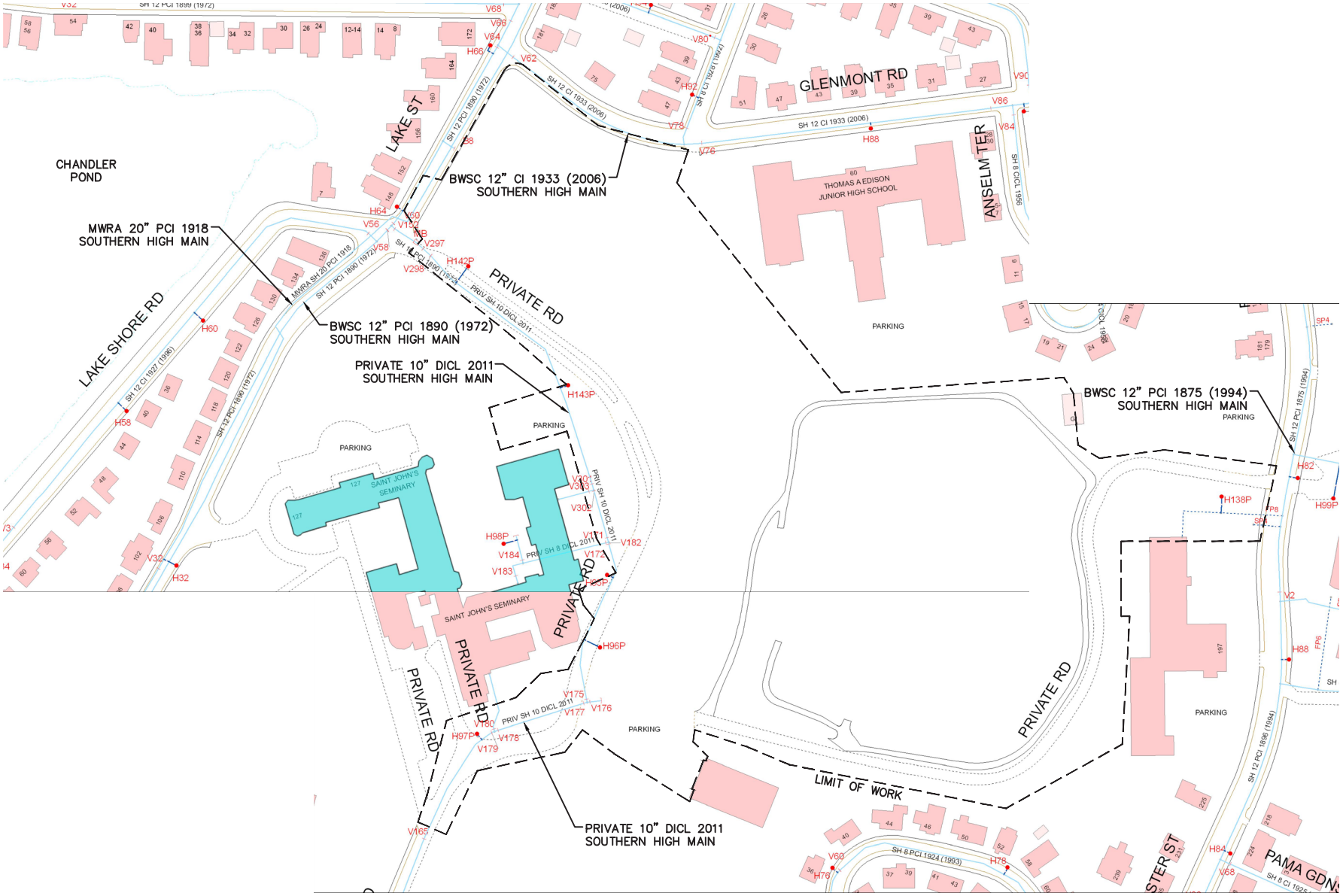
There are no plumbing fixtures in the Press Boxes, Storage Sheds, or under the softball grandstands.

7.7.3 FIRE PROTECTION

No fire protection is required by code due to the small size of the buildings.

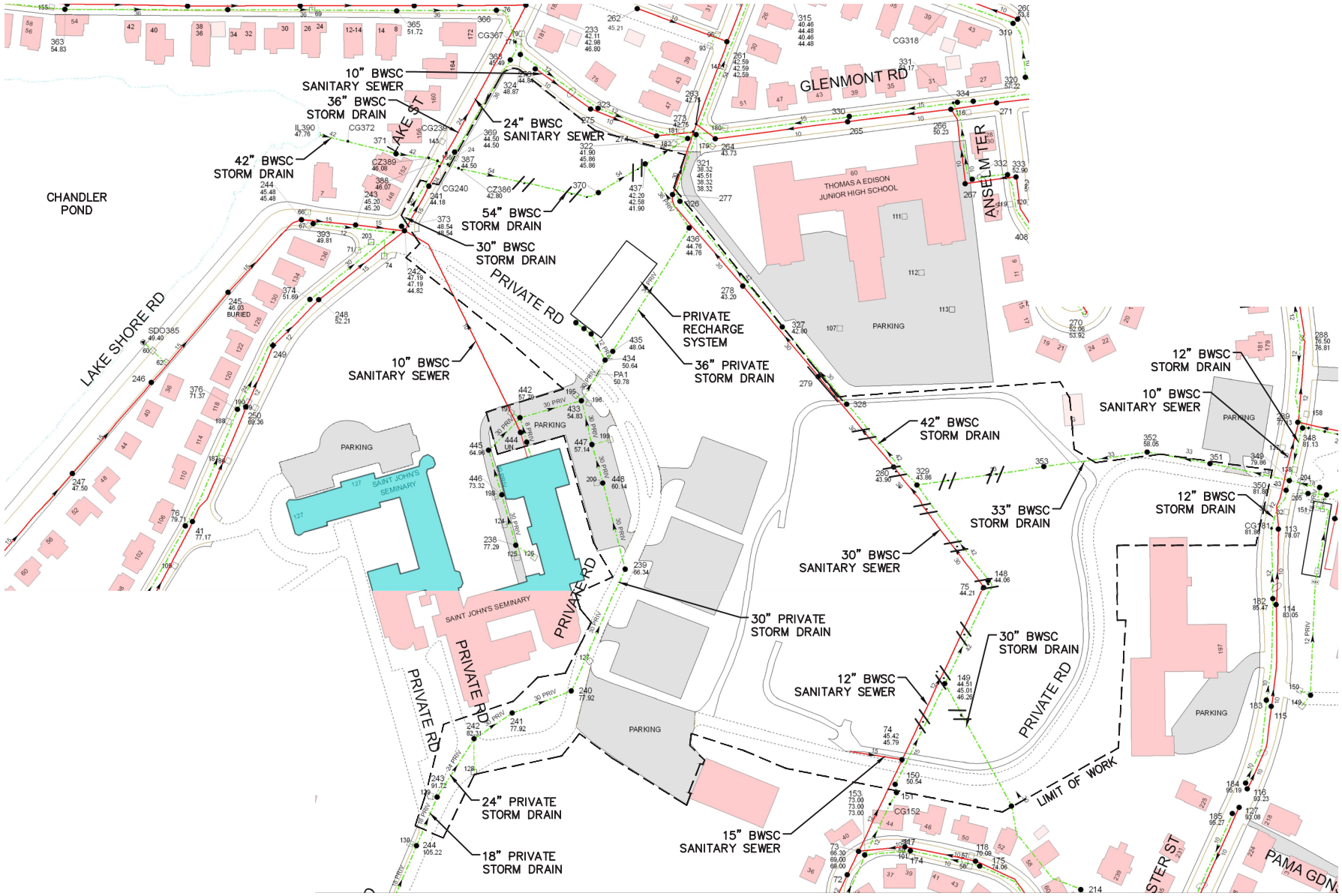
7.8 UTILITY PROTECTION DURING CONSTRUCTION

During construction, existing utilities to remain will be disturbed as little as possible. As required, temporary bypassing, temporary utility support, and utility relocations will be utilized. The contractor will coordinate construction near existing utilities with the utility company or agency, to ensure the existing utilities are protected. In the event that a utility is disrupted, the repair of the utility shall be made as soon as possible to prevent any disruption of service and to prevent further damage.



Boston College
Brighton, Massachusetts

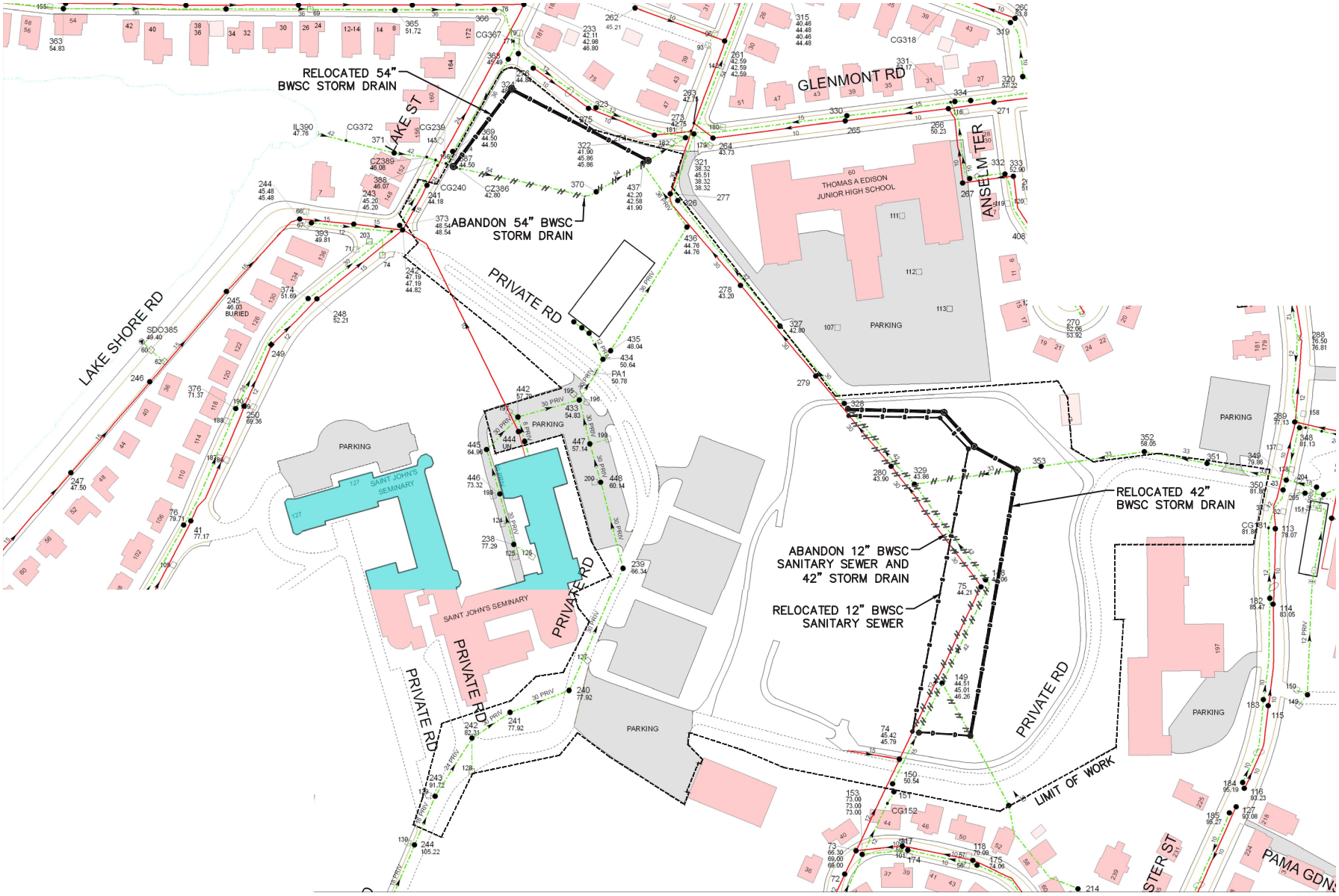
Figure 7-1
Existing Water Distribution System
Source: Nitsch Engineering, 2016



NOT TO SCALE

Boston College
Brighton, Massachusetts

Figure 7-2
Existing Sewer and Drain System
Source: Nitsch Engineering, 2016



Boston College
Brighton, Massachusetts

Figure 7-3
Proposed Utility Relocation
Source: Nitsch Engineering, 2016

Chapter 8

HISTORIC RESOURCES

CHAPTER 8: HISTORIC RESOURCES

8.1 HISTORIC AND ARCHAEOLOGIC RESOURCES ON THE PROJECT SITE

8.1.1 HISTORIC RESOURCES

The Project Site is located within Boston College's Brighton Campus. This area, which has been identified by the Massachusetts Historical Commission (MHC) as the Saint John's Roman Catholic Seminary Complex/Boston Archdiocese Chancery has been recommended by MHC as a potential National Register Historic District. This recommendation is identified in the National Register of Historic Places Criteria Statement Form appended to MHC Area Form BOS.JW. Within this form, the area is described by MHC as "among the most architecturally significant institutional complexes in the Boston area." This area includes 19th and 20th century buildings situated on 50 acres within the 65-acre Brighton Campus. Its layout was largely influenced by the 19th century estate that preceded the seminary. The rolling hills and open lawns of the campus provide a pastoral landscape setting.

The Project Site is an area that has been altered from its original landscape design, and includes athletic fields and surface parking lots. The buildings in closest proximity to the Project Site, the one-story, 1960s vintage, garage and maintenance building and 129 Lake Street constructed in 1957 are not among the more notable buildings on the Brighton Campus.

8.1.2 ARCHAEOLOGIC RESOURCES

According to the Boston College 2009 IMP, the Brighton Campus, which includes the Project Site, has not been subject to any archaeological investigations and does not contain any previously recorded archaeological sites.

8.2 HISTORIC RESOURCES IN THE VICINITY OF THE PROJECT SITE

An area of potential effect (APE) of one-quarter mile has been analyzed for the purposes of identifying historic resources and assessing potential project-related impacts. In addition to the above-mentioned area, the MHC Massachusetts Cultural Resource Information System (MACRIS) lists nine inventoried areas and 2 districts within the APE; including Evergreen Cemetery District, St. John's Seminary District, Faneuil West, Lake Street/Chandler Pond Area, Commonwealth Avenue Area, Upper Foster Street, Foster Street, Hatherly-Portina Roads, Pama Gardens, and Upper Chestnut Hill areas. Evergreen Cemetery is listed in the

National Register of Historic Places. This district is separated from the Project Site by nearly a quarter-mile.

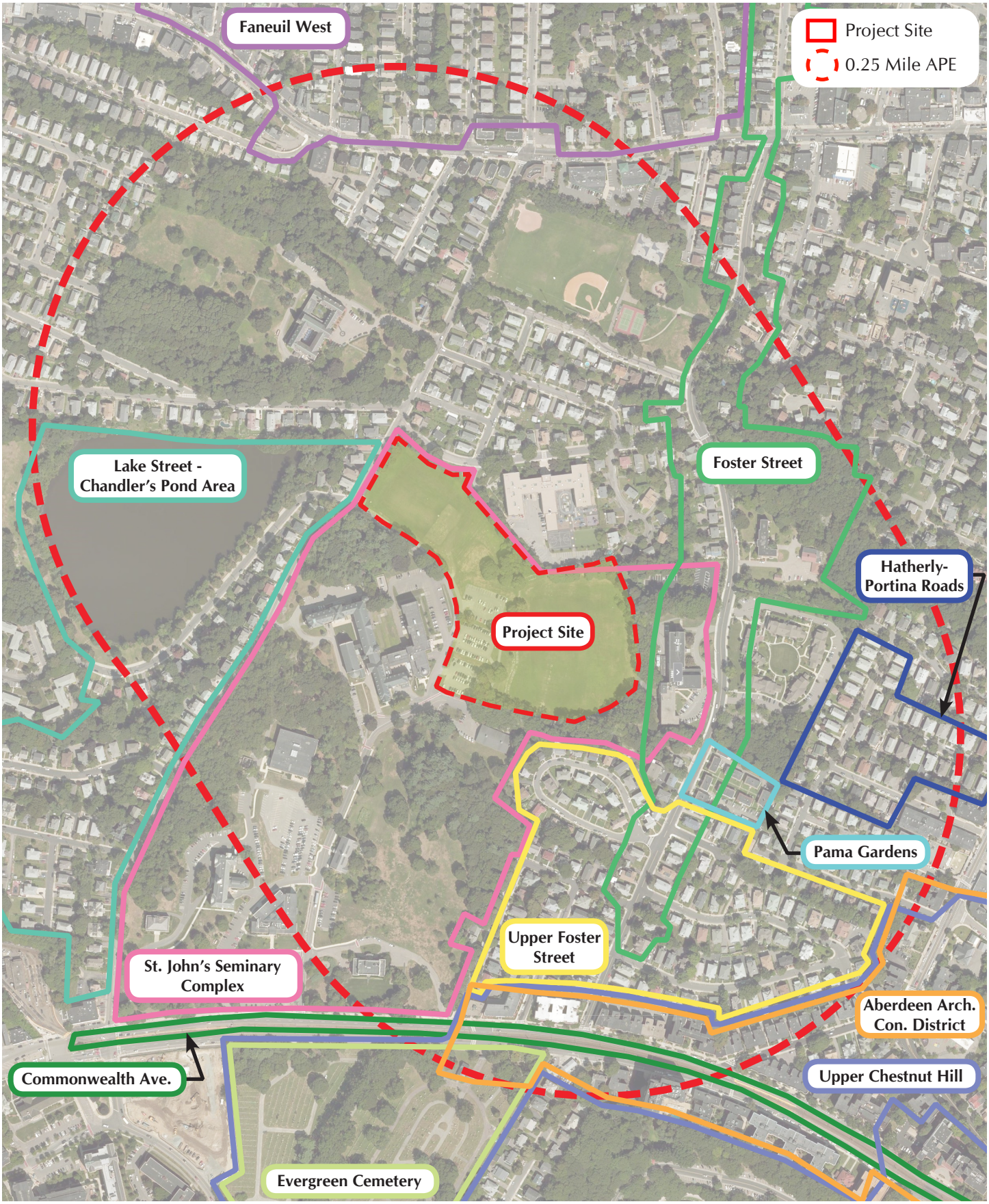
The Project Site is proximate to the Boston Landmarks Commission Aberdeen Architectural Conservation District. This district is also nearly a quarter-mile away and is separated visually by topographic features. Due to the distance from the districts and topography, the Project is not anticipated to impact these two historic districts.

Among the remaining areas within the APE, only the Lake Street, Foster Street, and Upper Foster Street areas are directly adjacent to the Project Site. These inventoried areas are characterized mainly by neighborhoods of mid-19th to early-20th century single family houses. The Project will not directly impact these areas, but views from some of the adjacent portions of the districts may be slightly affected by the presence of field lighting. See Figure 8-1, Listed and Inventoried Historic Properties Near the Project Site.

8.3 CONCLUSIONS

The Project is not a change in use from existing conditions and will improve current and ongoing institutional athletic functions. It will replace the existing athletic fields with updated athletic fields, and add associated support structures. One of the design goals of the Project is to integrate components and materials compatibly into the campus landscape. The Project includes the retention and addition of landscaping and trees that will assist in the integration of the Project within the historic campus setting.

No original landscape features, including stone walls, existing drive layouts, or substantial plantings will be altered. The Project's impact on the campus and viewsheds will be mitigated by the reduction of surface parking on the Project Site, retention and replacement of trees, and the low-height of the proposed structural additions. In addition, the stepped or terraced nature of the topography and landscape features, which will be retained, serves to shield and soften views from adjacent structures within the fields. Due to the Project's composition of improved sports fields and a low height building, no undue impacts to the Saint John's Seminary are expected. Likewise, the Project will have no adverse impacts to adjacent historic structures or districts.



Boston College
Brighton, Massachusetts

Figure 8-1
Listed and Inventoried Historic Properties Near the Project Site
Source: Fort Point Associates, Inc. 2016

Appendix A

Event Management Plan

PURPOSE

The purpose of this plan is to establish the operational action that will be taken by the Boston College Athletic administration, coaches and staff prior to, during, and subsequent to a designated scheduled event hosted at the Brighton Campus Athletics Fields. The procedures set forth in this plan are to be followed in order to provide a positive experience for all individuals participating in and attending athletic events on the Brighton Campus while respecting the surrounding neighborhood.

SCOPE

It shall be the responsibility of all administrators and staff, including their respective employees, to be familiar with all procedures and regulations associated with the Brighton Athletics Fields Event Management Plan. The Brighton Athletics Fields will host varsity athletic events for baseball and softball. The Fields will also serve as a site for intramurals, club sports and open recreation.

GENERAL POLICIES

In order to create an environment that is safe for those working, participating in or attending events hosted at the Brighton Athletics Fields, certain guidelines must be strictly enforced by Boston College prior to, during and following the completion of the event. The following actions will be prohibited; consumption of alcoholic beverages, smoking, disorderly conduct (including use of profanity), use of artificial noise makers and general spectator rowdiness. Proper behavior is expected from all of our guests in accordance with the Atlantic Coast Conference sportsmanship policies.

For the safety and security of the participants and guests the following items will be prohibited from the Brighton Athletics Fields:

- Audio or Video Recording equipment and Cameras with lenses larger than 4"
- Beach Balls, Canes, Chains or Sticks of any length (non-medical use canes)
- Cans, Glass or Metal Containers
- Coolers (unless containing medical supplies)
- Fireworks or any Explosive
- Food and Beverage
- Helium Balloons
- Illegal Drugs
- Laser Pointers
- Pets (except service animals for the disabled)
- Promotional items with commercial identification
- Tape Recorders
- Umbrellas
- Weapons of any description (weapons carried with a permit are also prohibited)
- Signs, banners, flags or any items that would either obstruct the view of a patron or serve as a dangerous projectile or security risk.

Concessions will be sold by representatives of Boston College Dining Services and Athletic Concessions staff from designated locations within the Brighton Athletics Fields.

DELIVERIES

All deliveries made to the Brighton Athletics Fields by both on-campus and off-campus vendors will be required to be made during normal working business hours 7:00 a.m. to 6:00 p.m. Monday through Friday and 9:00 a.m. to 6:00 p.m. Saturday and Sunday. All vendors will be made aware of the facility delivery policies and will be required to access campus via the main entrance off Commonwealth Avenue.

EVENT STAFFING

Events and varsity competitions at the Brighton Athletics Fields will be staffed based on projected event attendance figures, scheduled opponent and date/time of competition in accordance with standard venue management practices. A combination of the following staff will be utilized at athletic events on the Brighton Campus:

- **Event Manager –** One (1) per event
  - A full time member of the Boston College Athletics Department administrative staff serves as the designated event manager and will be present at all Brighton Campus athletic events.
  - The event/game manager is responsible for control of the entire game operation and the facility. This individual provides supervision prior to and during each contest, and continues supervision until all participants, spectators and guests have dispersed.

- **Sport Administrator –** One (1) per event.
  - A member of the Boston College Athletics Department administrative staff serves as the designated sport administrator and will be present at all Brighton Campus athletic events. The sport administrator is on site to assist the event/game management with overall coordination of the event as it relates to Atlantic Coast Conference Policies.

- **Athletic Trainer –** One (1) per event.
  - A member of the Boston College Athletics Department Sports Medicine staff will be on site to serve as the Athletic Trainer for all varsity competitions. The role of this individual is to provide emergency medical care for all Boston College student athletes and visiting event participants.

- **Facilities Maintenance Staff –** One (1) to Four (4) per event.
  - On site representatives of the facility maintenance staff including university Housekeeping and Athletic Maintenance will be onsite to provide facility support for the general operation of spectator areas such as rest rooms, general seating areas and concourses.
  - Athletic Maintenance staff will also be responsible for completing the grooming, lining and preparation of athletic competition fields based on Atlantic Coast Conference and NCAA rules and regulations.

- **Boston College Police Officer(s)** – One (1) to Four (4) Officer(s) per event.
  - All game day security and law enforcement will be provided by members of the Boston College Police Department.
  - Responsibilities include but are not limited to the enforcement of event vehicle and pedestrian traffic control plans, the enforcement of facility policies and the assisting of TeamOps event staff in the overall implementation of crowd control procedures.

- At least one (1) Boston College EMS will be present at all Brighton Athletics Fields events to provide emergency medical care for guests attending the event.

- **TeamOps Event Staff** – Zero (0) to Six (6) Staff Members per event.
  - Members of TeamOps event staffing will be on site to provide ticket takers, ushers and assist Boston College Police with crowd control.
  - Event staff members have the primary responsibility for the enforcement of complex policy and for the removal of items that are prohibited by policy at the gates and once patrons have entered the stadium.

- **LAZ Parking** – Zero (0) to Four (4) Attendants per event.
  - In addition to Boston College Police, event(s) with an expected attendance greater than 1000 people will require additional parking attendants supplied by LAZ Parking.
  - Attendants will be responsible for the implementation of the large event parking plans and procedures including the assisting in the direction of guests to overflow parking locations designated on the main campus.

PARKING

Fans, game officials and event staff driving to games on the Brighton Campus will be accommodated as follows:

- **BC Teams Fall and Spring Practices and Games:**
  - Varsity baseball and softball teams will use BC vans and shuttle to and from practices.
  - The teams will access Brighton Campus via the main entrance via Commonwealth Avenue or the secondary entrance at Foster Street.
  - Parking for game officials is located on-site off the service road between the Recreation Field and Softball Field.

- **Visiting Teams:**
  - The visiting teams will bus to and from games and will park in designated locations on the Brighton Campus or Chestnut Hill Campus as determined by Athletic Event Management Staff.
  - The visiting team buses will access Brighton Campus via the main entrance at Commonwealth Avenue.

- **Fans:**
  - Weekdays:
    - Fans will be directed, via temporary "A" frame event signage, to enter the main campus via the Saint Ignatius Gate and park in the Commonwealth Avenue Garage.
    - A Shuttle service will be utilized from Campanella Way to the Brighton Athletic Fields.
      - Fans will be shuttled from in front of Maloney Hall and dropped off adjacent to 129 Lake Street.
      - Fans will be picked up at 129 Lake Street and returned to the Commonwealth Avenue garage post game.
      - The shuttle service will be available during games for return service (schedule TBD).

- Weekends:
  - Fans will be directed to park on the Brighton Campus during weekend games.
  - Fans will be directed via temporary "A" frame event signage, to use the main access road to Brighton Campus via Commonwealth Avenue.
  - There are approximately 750 parking spaces on Brighton Campus which can adequately accommodate the maximum projected vehicle needs for athletic events.

Boston College will communicate all parking plans to visiting teams, visiting fans and Boston College fans via the BC Athletics website, social media and by emailing fans accounts on file with the ticket office. Parking lots will open for all Brighton Campus Athletic Events 1 hour and 30 minutes (1.5) hours prior to the scheduled start of the game(s). The consumption of alcoholic beverages will be prohibited in all Boston College Brighton Campus parking lots. As necessary, Boston College Police **will take affirmative action to enforce University Transportation and Parking lot rules and** regulations in conjunction with LAZ Parking attendants and event staff at designated games.

VEHICULAR TRAFFIC

Fans, spectators and visiting teams driving to games on the Brighton Campus will be directed via printed directions and the BC Athletics website to utilize the main Commonwealth Avenue entrance to access the Brighton Campus. Secondary vehicle access by game officials, event staff and working personnel will be permitted either via the main entrance or via the secondary Foster Street entrance. Vehicular access to the Brighton Athletics Fields will be prohibited via the 3 Lake Street entrance.

Visiting Team busses will be directed to access campus via the main entrance to the Brighton Campus on Commonwealth Avenue. Visiting Team busses will not be permitted to utilize the 3 Lake Street entrance. Communication of such policies will be included in all pre-season and event visiting team guides issued to all visiting teams.

PEDESTRIAN TRAFFIC

Guests wishing to access the Brighton Campus on foot will be directed by temporary "A" frame event signage to access campus through the main entrance at 3 Lake Street, or the entrance off of Foster Street. Event spectator pedestrian traffic down Lake Street beyond the pedestrian entrance at 3 Lake Street will be prohibited and signage will be posted notifying fans of the policy. As necessary and based upon expected attendance, event staff will be posted to assist in the enforcement of the pedestrian traffic policy at the intersection of Lake Street and Commonwealth Avenue.

MUSIC/PUBLIC ADDRESS

The Brighton Campus Athletic Fields baseball and softball fields will be equipped with public address systems for the purpose of conducting pre-game and in game protocol in accordance with ACC policies and procedures. Both systems will be used during varsity competitions only and for the purpose of pre-game announcements of starting line ups and in game announcements of batters, pitching changes and promotional items in between innings.

Each sound system will have the ability to play music centralized to the spectator seating areas during varsity competitions only. Music is currently played during batting practice pre-game, in between innings and prior to each at bat for Boston College batters at both baseball and softball.

LIGHTS

The number of night baseball and softball varsity competitions is undetermined at this time, and will vary from year to year. It is anticipated that the teams will schedule to play night games with a start time between 5:00 p.m. and 7:00 p.m. In addition, lights may be necessary in order to complete additional games and practices that have been scheduled for a start time of 3:00 p.m. to 7:00 p.m. based on daylight savings or class restrictions. In the case of a varsity competition the lights will be turned off 30 minutes after the completion of the event.

SAMPLE BASEBALL AND SOFTBALL GAMEDAY TIMELINES

Attached please find examples of event timelines for daytime baseball and softball games that provide information on the timing and types of activities taking place on the fields prior to first pitch.

BOSTON COLLEGE

BASEBALL TIMING SHEET

Tuesday, April 26, 2016

Boston College

VS

UMass-Lowell

3:00 PM

START TIME	END TIME	ACTIVITY
	12:00 PM	Field Prep Complete
12:35 PM	**1:20 PM**	**Boston College Batting Practice**
1:20 PM	**2:05 PM**	**UMass-Lowell Batting Practice**
2:05 PM	2:15 PM	Drag Infield
2:15 PM	**2:25 PM**	**Boston College Infield/Outfield Practice**
2:25 PM	**2:35 PM**	**UMass-Lowell Infield/Outfield Practice**
2:35 PM	2:50 PM	Field Prep
2:50 PM	**2:55 PM**	**Ground Rules w/ Umpires & Coaches @ Home Plate** Informal Player Intros
2:55 PM	**2:58 PM**	**National Anthem**
2:58 PM	**2:59 PM**	**Boston College Takes The Field**
3:00 PM		**FIRST PITCH**

- Both teams will be asked to line up in front of their dugout for the playing of the National Anthem followed immediately by Boston College taking the field to warm up.
- The infield drag will take place between the 3rd and 4th innings and between the 6th and 7th innings.

UMPIRES:

Home plate: **Tim Rosso** 1st base: **Rob Healey** 3rd base: **Daniel Collins**

GAME OPERATIONS PHONE NUMBERS:

Baseball (press 1):617-552-0530
Baseball (ramp): 617-552-0527
Softball (press 1): 617-552-0488
Softball (press 2): 617-552-0489

BCPD Emergency : 617-552-4444
BCPD Non-emergency : 617-552-4440
Alan Fioravanti: 401-575-1337

BOSTON COLLEGE Baseball Timing Sheet

Boston College vs. Virginia Tech

Friday, April 29, 2016			2:30 PM
Start Time	End Time	Activity	
	11:30 AM	Field Prep Complete	
		Batting cages/screens and field covers set by athletic maintenance	
12:05 PM	**12:50 PM**	**Virginia Tech Batting Practice**	
12:50 PM	**1:35 PM**	**Boston College Batting Practice**	
1:35 PM	1:45 PM	Drag Infield	
1:45 PM	**1:55 PM**	**Virginia Tech Infield/Outfield Practice**	
1:55 PM	**2:05 PM**	**Boston College Infield/Outfield Practice**	
2:05 PM	2:20 PM	Field Prep	
2:20 PM	**2:25 PM**	**Ground Rules Umpires & Coaches at Home Plate**	
		Informal Player Intros	
2:25 PM	**2:28 PM**	**National Anthem**	
2:28 PM	**2:29 PM**	**Boston College Takes the Field**	
2:30 PM		**FIRST PITCH**	

***UMPIRES** : Home plate: **Gregory Street,** 1st base: Rick Darby, 2nd base: Michael Cerra 3rd base: Junior Creech*

Saturday, April 30, 2016			1:30 PM
Start Time	End Time	Activity	
	10:30 AM	Field Prep Complete	
11:05 AM	**11:50 AM**	**Boston College Batting Practice**	
11:50 AM	**12:35 PM**	**Virginia Tech Batting Practice**	
12:35 PM	12:45 PM	Drag Infield	
12:45 PM	**12:55 PM**	**Boston College Infield/Outfield Practice**	
12:55 PM	**1:05 PM**	**Virginia Tech Infield/Outfield Practice**	
1:05 PM	1:18 PM	Field Prep	
1:18 PM	**1:20 PM**	**Ceremonial First Pitch by Wounded Warrior Project**	
1:20 PM	**1:25 PM**	**Ground Rules Umpires & Coaches at Home Plate**	
		Informal Player Intros	
1:25 PM	**1:28 PM**	**National Anthem**	
1:28 PM	**1:29 PM**	**Boston College Takes the Field**	
1:30 PM		**FIRST PITCH**	

UMPIRES** : Home plate: Rick Darby, 1st base: Michael Cerra, 2nd base: Junior Creech, 3rd base: **Gregory Street

Sunday, May 01, 2016			1:00 PM
Start Time	End Time	Activity	
	10:00 AM	Field Prep Complete	
10:35 AM	**11:20 AM**	**Boston College Batting Practice**	
11:20 AM	**12:05 PM**	**Virginia Tech Batting Practice**	
12:05 PM	12:15 PM	Drag Infield	
12:15 PM	**12:25 PM**	**Boston College Infield/Outfield Practice**	
12:25 PM	**12:35 PM**	**Virginia Tech Infield/Outfield Practice**	
12:35 PM	12:50 PM	Field Prep	
12:50 PM	**12:55 PM**	**Ground Rules Umpires & Coaches at Home Plate**	
		Informal Player Intros	
12:55 PM	**12:58 PM**	**National Anthem**	
12:58 PM	**12:59 PM**	**Boston College Takes the Field**	
1:00 PM		**FIRST PITCH**	
	6:10 PM	**LAST INNING START TIME**	

***UMPIRES** : Home plate: Michael Cerra, 1st base: Junior Creech , 2nd base : **Gregory Street,** 3rd base: Rick Darby*

NOTES

- Both teams will be asked to line up in front of their dugout for the playing of the National Anthem followed immediately by Boston College taking the field to warm up.
- The infield drag will take place between the 3rd and 4th innings and between the 6th and 7th innings.

GAME OPERATIONS PHONE NUMBERS:

Baseball (press 1):617-552-0530	BCPD Emergency: 617-552-4444
Baseball (ramp): 617-552-0527	BCPD Non-emergency: 617-552-4440
Softball (press 1): 617-552-0488	Alan Fioravanti: 401-575-1337
Softball (press 2): 617-552-0489	Nick LaMarca: 201-403-7971

BOSTON COLLEGE

SOFTBALL TIMING SHEET

Wednesday, April 20, 2016

Boston College

VS

UConn

4:00 PM

START TIME	END TIME	ACTIVITY
	2:00 PM	Field Prep Complete
2:20 PM	**2:55 PM**	**Boston College Batting Practice**
2:55 PM	**3:30 PM**	**UConn Batting Practice**
3:30 PM	**3:37 PM**	**Boston College has full Infield (if desired)**
3:37 PM	**3:44 PM**	**UConn has full Infield (if desired)**
3:40 PM		Teams submit line up card to official scorer and opponent
3:44 PM	3:54 PM	Field Prep (drag infield) Umpires and Coaches Meet
3:54 PM		Ceremonial First Pitch-Faculty & Staff Day
3:56 PM		Starting Lineups Announced (after field prep)
		Boston College Takes The Field
3:58 PM		**National Anthem**
4:00 PM		**FIRST PITCH**

PREGAME:
If full infield is not desired, Boston College is allowed to use the right-side of the infield and right field and the visiting team is allowed to use the left-side of the infield and left field.

UMPIRES: Home Plate:
Wade Ireland; 1st Base: Joe Alfonse; 3rd Base: Brett McCrea

NOTES:
- BC will occupy the 3rd base dugout. Visiting team will occupy the 1st base dugout.
- BC will provide T's, front toss nets, and balls.

GAME OPERATIONS PHONE NUMBERS:

Softball (press 1): 617-552-0488
Softball (press 2): 617-552-0489
Baseball (press 1):617-552-0530
Baseball (ramp): 617-552-0527

BCPD Emergency : 617-552-4444
BCPD Non-emergency : 617-552-4440
Carson Brown: 857-218-9575
Nick LaMarca: 201-403-7971

BOSTON COLLEGE Softball Timing Sheet

Boston College vs. North Carolina

Saturday, April 9, 2016		1:00 PM
Start Time	End Time	Activity
	11:00 AM	Field Prep Complete Bat Testing (At the Field)
11:20 AM	**11:55 AM**	**Boston College Batting Practice**
11:55 AM	**12:30 PM**	**North Carolina Batting Practice**
12:30 PM	**12:37 PM**	**Boston College Has Full Infield (If Desired)**
12:37 PM	**12:44 PM**	**North Carolina Has Full Infield (If Desired)**
12:40 PM		Teams Submit Line Up Card To Official Scorer and Opponent
12:44 PM	12:54 PM	Field Prep (Drag Infield) Umpires and Coaches Meet
12:54 PM		Ceremonial First Pitch-Autism Awareness
12:56 PM		**ACC Sportsmanship Week Recognition** Teams line up on base path for Sportsmanship announcement then shake hands.
12:57 PM		Starting Lineups Announced (After Field Prep) **Boston College Takes the Field**
12:58 PM		**National Anthem**
1:00 PM		**FIRST PITCH**

PREGAME:
If full infield is not desired, Boston College is allowed to use the left-side of the infield and left field and the visiting team is allowed to use the right-side of the infield and right field. ***Game 2 will start no later than 30 minutes following conclusion of game 1***

UMPIRES:
GAME 1: Home Plate: Chris Tehonica 1st Base: John Kurnat , 3rd Base: Randall McLamb
GAME 2: Home Plate: John Kurnat 1st Base: Randall McLamb, 3rd Base: Chris Tehonica

Sunday, April 10, 2016		12:00 PM
Start Time	End Time	Activity
	10:00 AM	Field Prep Complete
10:20 AM	**10:55 AM**	**Boston College Batting Practice**
10:55 AM	**11:30 AM**	**North Carolina Batting Practice**
11:30 AM	**11:37 AM**	**Boston College Has Full Infield (If Desired)**
11:37 AM	**11:44 AM**	**North Carolina Has Full Infield (If Desired)**
11:40 AM		Teams Submit Line Up Card To Official Scorer and Opponent
11:44 AM	11:54 AM	Field Prep (Drag Infield) Umpires and Coaches Meet
11:56 AM		Starting Lineups Announced **Boston College Takes the Field**
11:58 AM		**National Anthem**
12:00 PM		**FIRST PITCH**

PREGAME:
If full infield is not desired, Boston College is allowed to use the left-side of the infield and left field and the visiting team is allowed to use the right-side of the infield and right field.

UMPIRES: Home plate: Randall McLamb, 1st Base: Chris Tehonica, 3rd Base: John Kurnat

NOTES:
- BC will occupy the 3rd base dugout. Visiting team will occupy the 1st base dugout.
- BC will provide T's, front toss nets, and balls.

GAME OPERATIONS PHONE NUMBERS:

Softball (press 1): 617-552-0488
Softball (press 2): 617-552-0489
Baseball (press 1):617-552-0530
Baseball (ramp): 617-552-0527

BCPD Emergency: 617-552-4444
BCPD Non-emergency: 617-552-4440
Carson Brown: 857-218-9575, Nick LaMarca: 201-403-7971

Appendix B

Ambient Noise

ACENTECH

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

July 26, 2016

Patrick N. Graham
CHA
150 Baker Avenue Extension, Suite 205
Concord, MA 01742
By email: pgraham@chacompanies.com

Subject: **Site Environmental Noise Survey**
Boston College Brighton Athletic Complex, Boston, MA
Acentech Project 627684

Dear Patrick:

This letter presents the results of our existing site noise survey at the site of the Boston College Brighton Athletic Complex (BAC). This survey may be used to inform considerations and discussions of community noise related to future BAC operations.

MEASUREMENT PROCEDURE

We placed three calibrated sound level monitors to collect sound levels continuously from June 21 to June 24, 2016. The monitor locations are described below and shown in Figure 1 on the next page:

- Location A: Northwest corner of site, at Glenmont Road and Lake Street
- Location B: North side of existing football field, at rear of Edison School
- Location C: South side of existing football field, closest to Lane Park

MEASUREMENT RESULTS

All data collected are reported in terms of A-weighted decibels (dBA), a weighted average of the sound spectrum based on the sensitivity of human hearing. The monitors collected data in 10-minute intervals, and recorded statistical metrics of sound levels measured during each interval. We report here two statistical metrics: the 10-percent exceedance level (L_{10}) and the 90-percent exceedance level (L_{90}). The L_{10} represents the sound level, in dBA, that was exceeded 10% of the time over the 10-minute interval, and represents the sound level of typical peak events, such as vehicles passing on nearby roads. The L_{90} represents the sound level exceeded 90% of the time over the 10-minute interval, and represents the background sound level occurring between events. These levels are reported in the attached time history graphs, Figures 2 and 3. Figure 3 presents the L_{90} as a rolling one-hour average level.

The typical peak (L_{10}) sound levels during daytime and early evening hours were between 50 dBA and 70 dBA. Typical peak levels at Location A, near Glenmont Road and Lake Street, were at the upper end of this range. Typical peak levels at Locations B and C, which are farther from roads, were generally in the 50 dBA to 60 dBA range.

The background (L_{90}) sound levels during daytime and early evening hours were generally between 45 dBA and 55 dBA. Again, quieter levels occurred at Locations B and C, though Location C experienced sustained levels in the mid 60s dBA on the afternoon of June 23, 2016.

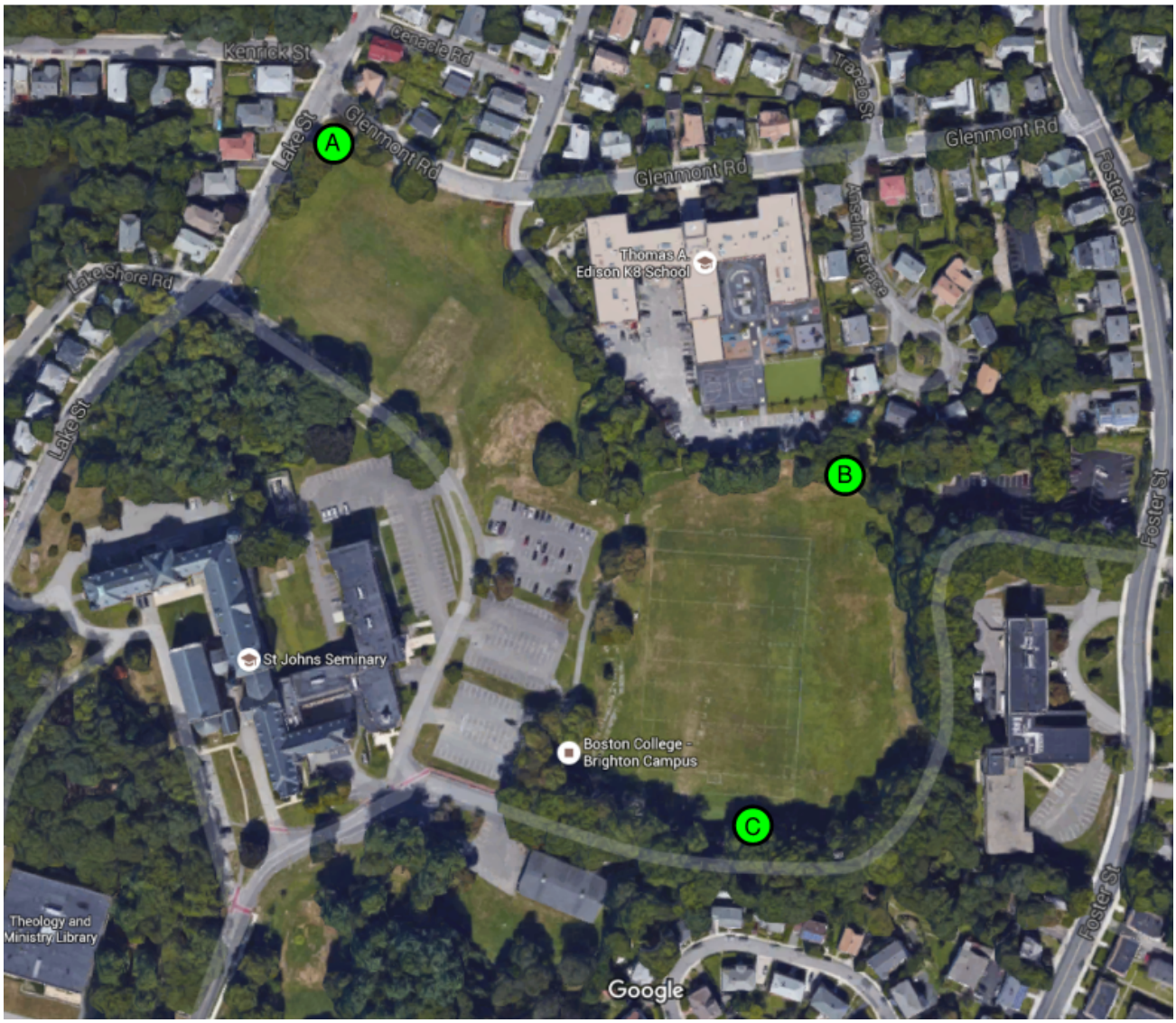


Figure 1. Sound level meter locations

I trust this letter provides the information you need at this time. Please contact me with questions at 617-499-8079 or jsacks@acentech.com.

Sincerely,
ACENTECH INCORPORATED

Jonah Sacks
Senior Consultant in Acoustics

Enc: Figures 2 and 3 – Time History Graphs of Measured Site Noise Levels
CC: Richard Closs (Acentech)

Figure 2.

Boston College Baseball and Softball

Typical peak sound levels measured June 21-24, 2016

L_{10} 10-minute measurement period

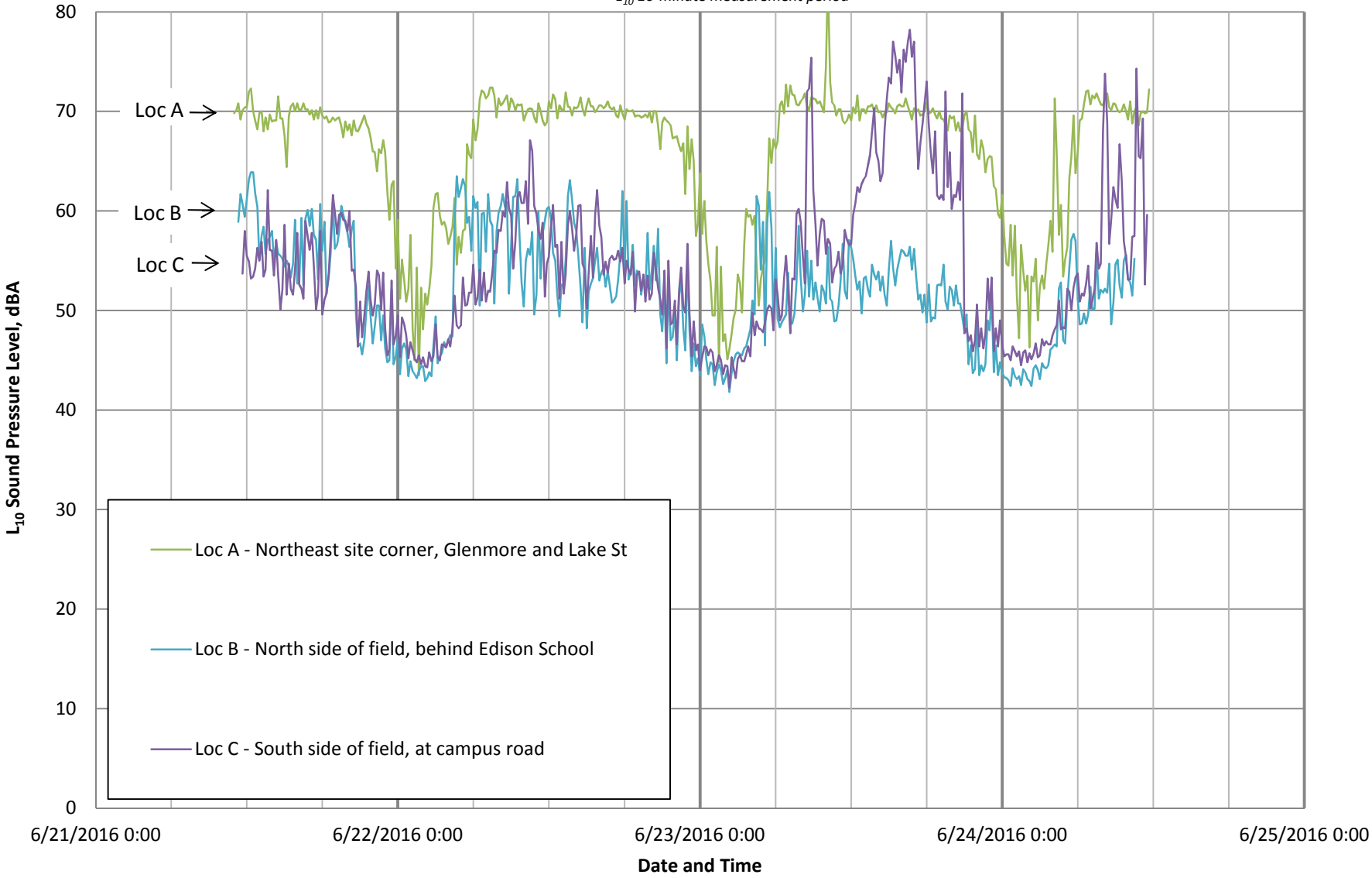
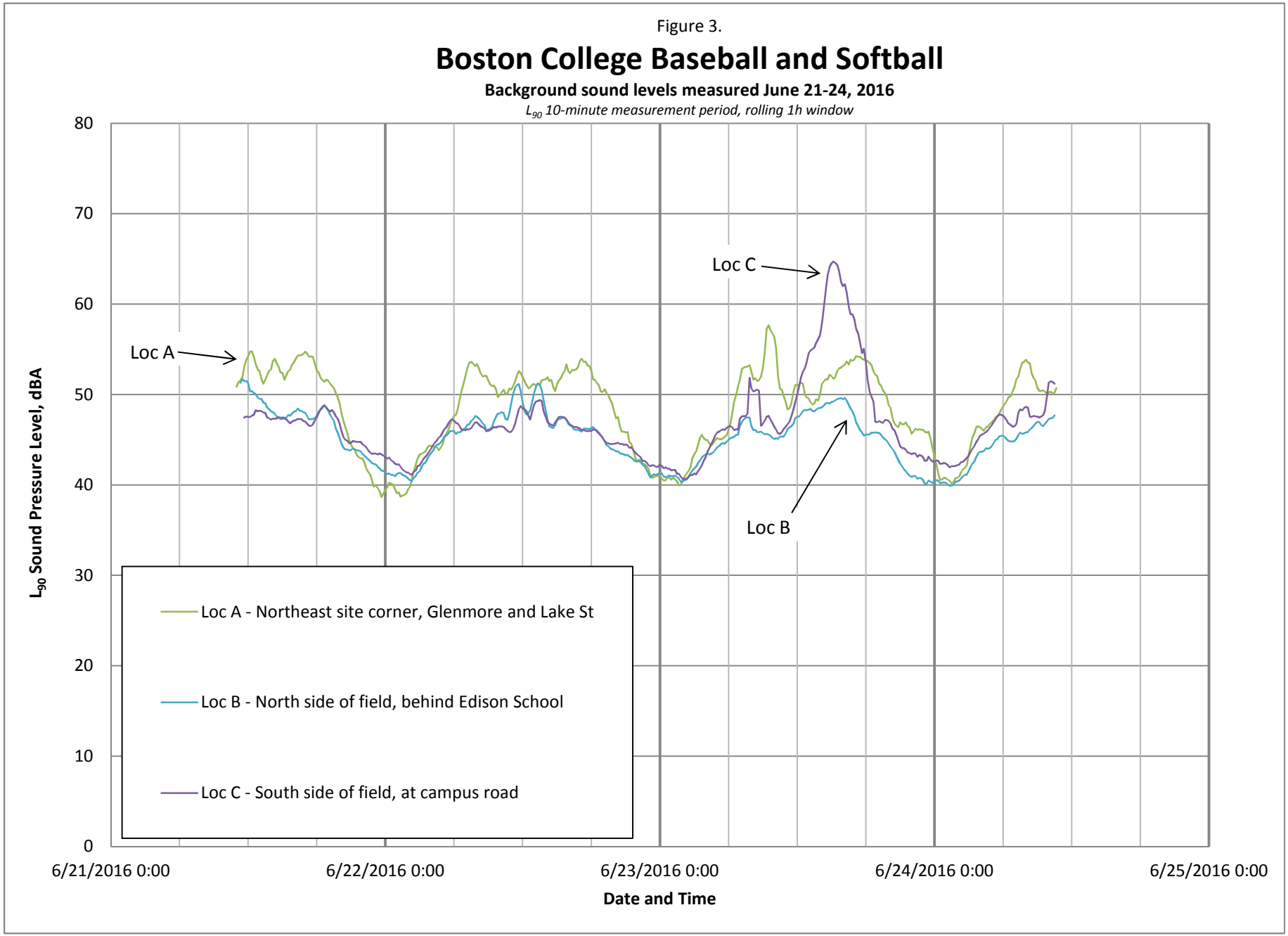


Figure 3.


Boston College Baseball and Softball
Background sound levels measured June 21-24, 2016
L_{90} 10-minute measurement period, rolling 1h window
L_{90} Sound Pressure Level, dBA
80
70
60
50
40
30
20
10
0
Loc A
Loc C
Loc B
Loc A - Northeast site corner, Glenmore and Lake St
Loc B - North side of field, behind Edison School
Loc C - South side of field, at campus road
6/21/2016 0:00
6/22/2016 0:00
6/23/2016 0:00
6/24/2016 0:00
6/25/2016 0:00
Date and Time