COPPERSMITH VILLAGE

75-109 Border Street, East Boston
ARTICLE 80 PROJECT NOTIFICATION FORM

Prepared for
Boston Redevelopment Authority

Submitted by
Neighborhood of Affordable Housing (NOAH)
143 Border Street
East Boston, MA 02128

September 2013

NOAH

September 24, 2013

Mr. Peter Meade, Executive Director
Boston Redevelopment Authority
Boston City Hall
Boston, MA 02201

Re: Article 80 PNF Application for Coppersmith Village

Dear Peter,

NOAH is very pleased to submit our **'Coppersmith Village'** PNF to the BRA. Coppersmith will be 73 units of mixed-income, mixed-market rental/ownership housing on a currently vacant industrial parcel on East Boston's emerging waterfront just off Central Square. Coppersmith is of modest scale on 57,000 sf lot with 15 fee-simple ownership units on the neighborhood facing side of Liverpool Street and 56 rental units with terrific views of the Charlestown waterfront on Border Street, only yards away from 'Boston East.' As the project is only a four minute walk to the Maverick 'T' station, this is a classic TOD site. We have been in regular contact with our elected officials and the City staff since project inception in January 2012. All parties seem to agree that Coppersmith has the bones to be a great project. We are now ready to begin the official permitting and review process. We are anxious to proceed to construction as soon as possible to help meet the Mayor's "2020" housing production goals.

NOAH celebrated its 25th anniversary in June with 160 friends and colleagues at a wonderful event honoring Citizens Bank at the Hyatt Harborside. We have a strong local history of housing redevelopment and community engagement/environmental programs. As Boston cannot accommodate all the housing needed for the Commonwealth, we also now build affordable housing in Boston's suburbs as far away as Central Massachusetts.

For Coppersmith, we have created a design and site layout that we believe blends very well with the neighborhood. We keep the neighborhood scale on Liverpool St by adding 15 new, three-story, but fee-simple, 1,200 sf properties with off-street parking. The units face the Vietnam Veterans Memorial Park and several other new three-family buildings on the block. (12 of the 15 units are market-rate). On the Border Street side, we go to five-stories in two mid-rise buildings to take advantage of the wonderful views of the Boston Harbor, in the same fashion as Boston East. (22 of the 56 units are proposed to be market-rate). Parking is underneath the buildings but at grade level with balconies for each unit. Bike storage is on site. We have a large community room with an outdoor patio, an artistic and attractive entry to show a bright, new face to the community. We favor the wonderful cuisine in our neighborhood so we have a local restaurateur who will take a 3,000 sf commercial space at the corner of Decatur and Border overlooking the Harbor. There will be outdoor seating, a unique dining opportunity for East

Boston. The entire Coppersmith complex will throw light and activity on Border Street making the area safer and more accessible. We are certain property values will increase, especially in some of the quite poorly maintained units nearly adjacent to the site. We are conscious of sea-levels rising so we have raised the buildings to better accommodate a storm surge which would impact East Boston. The total development cost will be approximately $27M.

Coppersmith could have achieved a higher density but we felt it appropriate to keep a mixture of types and size. We know the neighborhood wants more homeownership. We know the neighborhood wants market rate housing to blend with affordable units. We believe our proposals strikes a solid urban balance that recognizes neighborhood values and the need for a combination of housing forms.

While we have been assembling our plan, we have been in contact with local representatives and agency staff from both the BRA and DND. We are currently sharing more details with a variety of neighborhood residents and business people. We have performed the requisite studies and reached out to multiple regulatory agencies, including MEPA for Chapter 91. We will work closely with the BRA and DND to achieve additional community input. As we file this PNF, we are concurrently filing with ISD and the ZBA. We have a signed purchase and sale agreement with the owner of 50+ years and we will take ownership of the site once we are fully permitted. We look forward to more in-depth feedback from the City and interested parties. We are anxious to proceed. As you well know, there is a pressing need for the kinds of housing and expense levels we are proposing for Coppersmith Village.

Sincerely,

Philip Giffee,
Executive Director

Cc: Sheila Dillon, Director, DND

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1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

NOAH (Neighborhood of Affordable Housing) proposes to construct the Coppersmith Village Project on the block bounded by Border Street, Decatur Street, Liverpool Street, and Coppersmith Way, in East Boston. The dilapidated site is approximately 1.3 acres, and is currently occupied by a weed-strewn lot and vacant metal industrial buildings. Our mixed-income, mixed-use project will significantly revitalize a blighted, city block, helping to connect the existing residential community to the revitalizing waterfront and the planned public spaces at the recently approved, Boston East project. This area of the Maverick/Central Square triangle, quite proximate to the Maverick 'T
Station, will benefit from much more light, activity and economic investment.

The proposed project is comprised of 56 rental apartments, 15 for-sale townhomes, and approximately 3,000 square of ground floor retail space, planned for a restaurant use. The housing at Coppersmith Village will be a mix of affordable and market rate units, both rental and ownership: of the 56 apartments, 34 will be available to households at 60% AMI and below; of the 15 townhomes, three will be sold to households at 80% AMI or below. Of the rentals, the remaining 22 units, or 39%, will be market rate; of the townhomes, 12 homes, or 80%, will be market rate. This is a mix the neighborhood favors.

The project is conveniently located near a number of services and amenities. It is two blocks from the commercial hub of Central Square, and a quarter-mile of the Maverick station, which goes to downtown Boston in a matter of minutes. The area is well-served by a myriad of bus lines. Coppersmith Village is a true TOD, and its location and design will reduce the use of cars and promote greater neighborhood walkability. NOAH's own 20,000 sf office building was built 100 yards away on Border St. Central Square is being rebuilt by the City. Two properties on either side of NOAH have been sold in the past 4 months. NSTAR's ugly, 10,000 sf brownfield property is for sale. The area is on the move.

About NOAH

NOAH is a Greater Boston community development corporation (CDC) that has been in existence since 1987. We own, manage or are developing properties in East Boston, North Andover, Holliston, Webster, Carlisle, and Everett, with several other projects in the pipeline. NOAH has under construction a 26 unit senior housing apartment development in the Town of Carlisle. It involves new construction on 4.5 acres of a 45 acre site that requires its own wastewater treatment system and water supply. We are also in the process of closing on converting a former high school into a 66-unit, senior-residence and senior center located within the former historic Webster High School building which is physically attached to the Webster

Town Hall. NOAH does more than housing development We have long operated a City-funded senior homeowner services minor-repair program which serves 125 lower income senior homeowners per year. We manage 100 units in 17 buildings in East Boston; we have renovated and sold three dozen properties; we help locate housing for families and individuals. We also operate a very active Community Building and Environmental services department that works hand-in-glove with diverse neighborhood interests including youth programs, environmental advocacy, and community beautification. For example, we have worked closely with the City to renovate seven East Boston schoolyards and to build a 4 acre park on Chelsea Creek. We work well with the City to accomplish mutual goals.

1.2 PROPOSED PROJECT

1.2.1 PROJECT SITE AND CONTEXT

The site for Coppersmith Village is a 57,655 sf parcel (approximately 1.3 acres) at 75-109 Border Street, East Boston, well located less than a quarter mile from Maverick Square and facing the Inner Harbor.

The site is bounded by Decatur Street and Coppersmith Way to the north and south and Liverpool and Border Streets to the east and west, respectively. The site is relatively level and is located approximately 300 feet to the east of Boston Inner Harbor and just yards from the City owned, Boston East site. Given that this neighborhood was the location of varied maritime activities, this site may have been part of the former East Boston waterfront with wharf structures. There are ship rails just across Border St. from what will be the main entrance to Coppersmith.

About two-thirds of the site is occupied by rusting industrial metal buildings and a window-less brick and concrete commercial building, all of which will be demolished; much of the remaining area is covered with bituminous concrete. Review of City of Boston historic building permits indicates that at least some of the existing buildings are likely to be supported on piles. It is our understanding that the existing buildings do not have basements, except possibly the brick building at the southeastern corner. The site and its buildings are currently unoccupied, except by a few rodents

Note: The residential properties at 72 and 74 Liverpool Street are not part of the site and were recently sold to an unknown private party whose plans are unknown to us.

View on Liverpool Street

View on Decatur Street

View on Border Street, site on Left Side

View of buildings on Border Street

View of buildings on Coppersmith Way

Rear view of site

Figure 1: Coppersmith Village Street Views

Figure 2: Coppersmith Village Neighborhood Map

1.2.2 PROJECT DESCRIPTION

The proposed development consists of three structures:

1) The Border North rental building
2) The Border South rental building
3) The Liverpool, ownership, townhouse buildings

Please note that Border North and Border South are connected at the ground floor by a common lobby.

The Border buildings face on Border Street and are comprised of two 5-story residential structures, each with 28 dwelling units, linked by a shared ground floor, and parking at approximately existing grade. First floor areas not used for parking and lobby areas will be elevated about 2'-6" above grade to recognize that climate change mitigation is an increasing necessity. Common spaces and a proposed restaurant space at the corner of Liverpool and Decatur Streets will occupy additional areas. The unit mix in the multi-family rental building (s) is to be a mix of one, two, and some three bedroom units.

Overview of site along Border and Decatur Streets

View of townhouses along Liverpool Street

The proposed Liverpool streetscape is a row of 15 contiguous 3-story, single-family townhouse residences along Liverpool Street, with parking at grade beneath the rear half of the building and vehicle access from the interior rear driveway. The front portion of the Liverpool building,

as well as yards for about 10 feet in front of the building, will also be lifted about 2'-6" above existing grade. This elevation is currently understood to be accomplished by means of retaining walls and structural fill. Exterior site stairs from the sidewalk/street access the yards and front doors. The townhouses will be three bedroom units with a one car garage.

1.2.3 PROJECT DATA/APPROXIMATE DIMENSIONS

Table 1: Project Overview

Townhouses						
	GSF	**# Units**	**3 Bedroom**	**2 Bedroom**	**1 Bedroom**	**Parking**
Townhouse	1,735	15	15			1/unit
TOWNHOUSE TOTALS:	**26,025**	**15**	**15**			**15**
Rental Buildings						
	GSF	**# Units**	**3 Bedroom**	**2 Bedroom**	**1 Bedroom**	**Parking in Building**
North Building						
Floor 1 Commercial	2,888					
Floor 1 Community	1,932					
Floors 2-5 Residential	34,088	28	4	16	8	
Parking Garage	4,828					15
Total:	**43,736**	**28**	**4**	**16**	**8**	**15**
South Building						
Floor 1 Commercial	0					
Floor 1 Community	3,648					
Floors 2-5 Residential	33,472	28	4	12	12	
Parking Garage	6,000					12
Total:	**43,120**	**28**	**4**	**12**	**12**	**12**
North/South Link						
Floor 1 Community	**700**					
Internal Drive						
Parking Spaces						**10**
RENTAL TOTALS:	**87,556**	**56**	**8**	**28**	**20**	**37**

1.3 PROJECT TEAM

Neighborhood of Affordable Housing, Inc. (NOAH) will serve as the project developer. NOAH has assembled a seasoned and highly capable development team. Each of us has worked together on other projects of similar scope and scale. We have shared plans with the local elected officials from the early stages of developing our concept. We understand the City's and State's housing finance structures, and our team can reach the capital markets to support projects of this type. Long term operations and maintenance of our projects are of paramount importance to us.

The Narrow Gate Architecture, Ltd, Architect

The Narrow Gate Architecture is a collaborative dedicated to providing architectural services for people who are often underserved or marginalized in the community: the poor, homeless, and ill-housed; women, children, individuals in recovery, the elderly, and the disabled.

The firm's name reflects their commitment based on their biblical image of hospitality, social justice, and an alternative way of living. Their designs strive to complement and revitalize existing neighborhood contexts, to preserve and sustain the natural environment, to preserve the built environment, and to strengthen community life. The Narrow Gate has worked with NOAH on the creation of many new homeownership units in East Boston including the 14 Falcon-Border Street condos and five Meridian St condos developed by NOAH just before the Depression. All were purchased and occupied.

Icon Parks Design, Landscape Architect

ICON Parks Design (IPD) was created eleven years ago to provide responsive landscape design services to clients for signature, streetscape, bikeway, park, and playground design services. ICON parks design, directed by John Ryther, ASLA, seeks challenging projects whose implementation can make a difference in the public environment, and is committed to providing designs that are safe and accessible to all. John brings with him a tradition of seeking wide public involvement as a means to achieve consensus results. His philosophy of applying workable, cost-effective solutions to address problems and facilitate equal opportunity for all persons with disabilities is evident in all of his projects.

Pinck & Company, Development Consultant

Pinck & Co. provides planning, design and construction management consulting services to owners during all phases of capital projects. Their trademark is smoothly integrating the complicated, multi-faceted elements that exist in each project while consistently representing the owner's interests. Since its founding in 1998, Pinck & Co. has partnered with community development agencies, public schools, youth centers, health centers, private elementary and secondary schools, colleges, and other organizations, to build a better community.

As a specialist in serving non-profits, Pinck & Co. becomes an extension of the clients' organization, working seamlessly on their behalf. Their approach allows organizations to remain focused on achieving their key service mission while undertaking a building project.

Nitsch Engineering, Civil Engineer

Nitsch Engineering takes an integrated, sustainable, and collaborative approach to site design. Functional, permittable, and attractive building sites require close coordination with the design team and the owner. We advocate addressing layout, grading, drainage, utility, and permitting issues in the initial stages of the design process to investigate opportunities and to proactively identify and resolve problems before they become critical issues. We then design parking, roadways, walkways, utilities, and site features to blend stormwater management, grading, and drainage into the aesthetics of the project. Nitsch is the civil engineer for the Boston East project, across Border Street from Coppersmith Village.

Nelson\Nygaard Consulting Associates, Inc., Transportation Engineer

Nelson\Nygaard Consulting Associates, Inc. is a nationally recognized firm committed to developing transportation systems that build vibrant, sustainable communities. With seven offices covering North America, they have one of the largest groups of transportation planners that focuses entirely on planning for transit and non-auto modes.

A fully multimodal approach, drawn from the real world experiences of industry specialists, is a hallmark of every Nelson\Nygaard project. Covering all modes of transportation, their experts specialize in planning, operations, and implementation, balancing the goals of each community with the advantages provided by each mode including transit, paratransit, pedestrian, bicycle, auto, and parking.

TRC, Environmental Engineer and Chapter 91 Consultant

TRC conducted the Phase I and II environmental review and prepared the Chapter 91 submittals. A pioneer in groundbreaking scientific and engineering developments since the 1960s, TRC is a national engineering, consulting, and construction management firm that provides integrated services to the energy, environmental and infrastructure markets. TRC serves a broad range of clients in government and industry, implementing complex projects from initial concept to delivery and operation.

GZA, Geotechnical Engineer

GZA has been providing geotechnical and environmental engineering services to developers, institutions, public agencies and contractors in the Boston area for almost 50 years. Headquartered in Massachusetts, GZA employs almost 500 engineers and scientists working out of approximately 25 offices, including an office in downtown Boston. Since its founding in 1964, the firm has completed over 60,000 projects in all 50 states and 21 foreign

countries. GZA undertook the geotech investigation and prepared the recommendations on the foundation work for the project.

Jeffrey R. Drago, Permitting Attorney

Jeff Drago is an East Boston attorney with a great deal of experience in permitting processes with the City. He is leading the permitting process for NOAH in this project.

Bartlett Hackett and Feinberg, Corporate Attorney

Bartlett, Hackett, Feinberg has been NOAH's corporate and financing attorney for 10 years. They handle all forms of housing finance and know each of the affordable housing subsidy sources intimately. They will help structure the deal for Coppersmith. They will review all financing documents with lenders and investors. Their portfolio is replete with projects, large and small. They position themselves as a value-centered, non-hierarchical Boston Business Law firm.

1.4 PROJECT SCHEDULE

The anticipated schedule for the Coppersmith Village project is as follows:

Table 2: Project Schedule

Milestone	Date
Execute Purchase and Sale on Property	February 2013
Submit Article 80 PNF to BRA	September 2013
Submit Chapter 91 License Application	September 2013
Zoning Approval	November 2013
BRA Approval	Dec-Jan 2014
Close on Acquisition of Property	By February 2014
Submit DND Funding Application	March 2014
Submit DHCD Funding Application	May 2014
Funding awards	September 2014
Construction Start	March 2015
Construction Completion	September 2016

1.5 ZONING COMPLIANCE

1.5.1 CURRENT ZONING AND PROPOSED USES

The project is located in the East Boston Neighborhood District, governed by Boston Zoning Code Article 53. The site is located in a Waterfront Commercial Subdistrict (WC) that is also part of a Special Study Overlay District. It is also subject to M.G.L. Chapter 91 Waterways regulations because a small area lies within the historic high water line. It is bordered to the north by a Community Commercial Subdistrict, to the east by Residential and Parkland Open Space

Subdistricts, to the south by a Residential Subdistrict and to the west by the Waterfront Commercial Subdistrict of which it is a part.

The parcel will be subdivided into 16 lots: one for a multi-use building with 56 rental housing units and 15 fee-simple home ownership lots. The multi-use building facing Border St. and the waterfront will include a ground-floor restaurant, offices for property management, and a community room. The rental units are located on the upper floors. The 15 townhouses will blend neatly with other three-deckers homes on Liverpool St. and the residential subdistricts. (We tried townhouses on the whole site but it was not financially feasible). A common walkway, or plinth, raised above sidewalk level provides access to the townhouse units. The front yards of the townhouses extend up to the public sidewalk. The driveway behind, is owned and maintained by the rental building.

1.5.2 Required Zoning Relief

The project site is located in a Special Study Overlay Area (Central Square/ Old Boston East) established by Section 53-43. These are areas subject to comprehensive planning studies due to the importance of the location and the vacant or underutilized nature of the land use. The East Boston Municipal Harbor Plan is the planning study which governs development in this area. It includes among its general planning and design objectives the provision of affordable housing units on sites in the waterfront area that are sensitive to the scale of existing neighborhoods. This is the primary argument for inclusion of townhouse units adjacent to the existing 3-family neighborhood although “Forbidden” as a Residential Use in the WC Subdistrict. The project seeks zoning relief with respect to the Townhouse use.

Dimensional Regulations listed in Table H generally do not require setbacks in the Waterfront Commercial zone except when the lot is adjacent to a Residential Subdistrict, then a 35’ setback is called for on the front, side and rear yard lot lines. Conforming setbacks are not provided at the multi-use building, or at the townhouses. The townhouse lots face a 3F zone while the multi-use building is adjacent only at the southern property line. The project will require zoning relief with respect to setbacks, usable open space, FAR and the height of the multi-use building.

Boston Zoning Code Section 53-56 provides that the requirements for off-street parking and off-street loading are determined through the Article 80 Large Project Review process. The multi-use building includes 27 garage spaces and 9 spaces on the private road. Each townhouse has one garage space underneath their structure. If they have no vehicle, it can be storage

1.5.3 ZONING AND DIMENSIONAL REQUIREMENTS

Table 3: Zoning and Dimensional Requirements

	Rental Units		Townhouses (15 total)					
	56 Units		South End Unit		Typ. Unit		North End Unit	
	Zoning Code Requirement	Proposed	Zoning Code	Proposed	Zoning Code	Proposed	Zoning Code	Proposed
Lot Size		40,628 sf		1,406 sf		1,081 sf		1,574
Building Area GSF		88,066 sf		1,734 sf		1,734 sf		1,734
Max. Floor Area Ratio (FAR)	1.0	2.17	1.0	1.23	1.0	1.6	1.0	1.
Max. Building Height	55'	61'**	55'	30'	55'	30'	55'	3
Min. Lot Size (sf)	none		none		none		none	
Minimum Lot Area (per dwelling unit)	none		none		none		none	
Minimum Lot Width	none		none		none		none	
Minimum Lot Frontage	none		none		none		none	
Front Yard Setback*	35'	0'	35'	10'-0"	35'	10'-0"	35'	10'-0"
Side Yard Setback*	35'	4'-0"	35'	2'-0"	35'	0'	35'	5'-0"
Rear Yard Setback*	35'	28'-0"	35'	8'-0"	35'	8-0"	35'	8'-0"
Off-Street Parking	Determined through Article 80 Process (52 proposed)							
Min Open Space (50% of lot area- includes roof deck and balconies)	20,314 sf	17,144	703 sf	632 sf	541 sf	317 sf	787 sf	766 sf
Uses	Multi-family Residential, Office, Restaurant,	Allowed Uses	Town-house	Forbidden	Town-house	Forbidden	Town-house	Forbidden

1.6 ANTICIPATED PERMITS AND APPROVALS

1.6.1 List of Permits and Approvals Which May be Sought

Below is a list of permits and other approvals based on Project information currently available. It is possible that not all the permits or actions listed will be required, or that additional permits or actions may be introduced later in the process.

Table 4: Permits and Approvals

Agency Name	Permit or Action
State Department of Environmental Protection	Chapter 91 Regulations/ Permits Site remediation approvals Sewer Extension Permit
Massachusetts Water Resource Authority	Temporary Construction Dewatering Permit; Sewer Use Discharge
Mass Historical Commission	Determination of no adverse impact on Historic Resources
Local Boston Redevelopment Authority	Article 80 Large Project Review Certificate of Compliance, Linkage funding, Affordable Housing Compliance, Approval recommendation to the ZBA
Boston Zoning Board of Appeals	Variances and Conditional Use Permits including height, FAR, Off-street Parking, Front/Side/Rear setbacks, open space.
Boston Transportation Department	Transportation Access Plan Agreement Construction Management Plan Short-Term Parking
Boston Landmarks Commission	Article 85 Demolition Delay Review
Boston Water and Sewer Commission	Approval of proposed water, sewer, and stormwater design. NPDES, SWPPP review Utility Connection Permits General Services Application
Department of Neighborhood Development	Design Review
Boston Department of Public Works/ Pubic Improvements Commission	Review of curb cut/sidewalk improvements. Use of Premises Permit Line and grade approval Street trees
Fire Department	Life Safety; Fire Alarm Permit Fire Suppression Permit Test Reports
Department of Inspectional Services	Lot Subdivision; Building Permits; Certificates of Occupancy; Other construction-related permits

1.7 PUBLIC BENEFITS

The proposed project is in a less traveled area of East Boston, an emerging sub-neighborhood planned for mixed use development and vibrant waterfront living. The site and the neighborhood have sensational westerly views of Charlestown and some toward downtown Boston from the upper floors and roof of Coppersmith. Coppersmith Village, along with the proposed Boston East (directly across the street from the site will bring hundreds of new units into this TOD waterfront neighborhood, thereby supporting commercial spaces and nourishing a safer, well-lit, vibrant street life.

As called for in the East Boston Master Plan, pedestrian water front access will be created within the Boston East development and enhanced along Decatur Street and Border Street by the site design of Coppersmith Village. See Section 2.0 below for other aspects of urban design and pedestrian enhancement.

The Coppersmith Village project will result in a number of benefits for its immediate East Boston neighborhood, and for the City as a whole:

- Cleaning up a contaminated, vacant industrial site and transitioning to a new residential focus for the neighborhood. These structures have to depress adjacent home values! The new structures will most certainly add value to nearby properties and motivate others to repair some of the more aging residences.
- Creating a range of housing opportunities, for both market and income restricted households, renters and homebuyers. Ten percent of the rental units will be available to extremely low income households (30% AMI or below).
- Bringing highly desired retail activity to Border Street. The 3,000 square foot space is planned for restaurant use, and a local restaurateur has already expressed 'strong interest' in the location. Located at the corner of Decatur Street, planned for primary access to the waterfront from Meridian Street, and Border Street, a developing mixed-use corridor, the restaurant will create vibrancy at the corner and enhance vitality and activity within the neighborhood. The views will be unique to East Boston.
- Landscaping along Decatur Street to enhance the pedestrian corridor to the waterfront.
- Creating a community room at the ground floor, with separate entrance and outdoor terrace, available for use by residents and the surrounding community. Chapter 91 obligations will be easily met.
- Bringing a greatly enhanced pedestrian environment, with large windows and activity fronting along Border Street. An outdoor terrace for the planned restaurant at the corner of Border and Decatur Streets will further activate the street. Neighborhood-scaled townhouses and planting beds along Liverpool Street will enhance the residential nature of the street.

1.8 COMMUNITY SUPPORT AND PUBLIC REVIEW PROCESS

NOAH has been active in East Boston since its founding 25 years ago, with close ties to the community. There is strong interest from the neighborhood in the creation of new housing, especially some mix of homeownership units and mixed rental opportunities. With this perspective, 15 for-sale townhomes are an especially important part of our proposal. In East Boston, there is an increasing need for affordable rentals, coupled with a desire for more market-rate unit. Our proposal provides a mix of both. Coppersmith Village has also attracted the interest of a leading local restaurateur and has the support of elected officials, all of whom we have briefed and been in contact with since the earliest phase. Please see a letter of support from our local elected officials in Appendix A.

2.0 URBAN AND SUSTAINABLE DESIGN

2.1 SITE/NEIGHBORHOOD CONTEXT

The site, occupied by the now vacant American Architectural Iron Works, is a block long parcel located in an older, changing mixed use neighborhood between Maverick Square and Central Square facing the Inner Harbor. Development is happening at either end with a new Maverick 'T' station and waterfront development, while Central Square is about to undergo redevelopment of the entire Square. It is a mixed blessing, but new and local buyers are active throughout.

Border Street, running along the Inner Harbor in this part of East Boston, is a primary street stretching from the recently developed Maverick Landing, one block to the south, down to Central Square, a key retail center for this area of East Boston located 1/8 mile to the north of the site. Border Street had once been home to a thriving commercial area taking advantage of water transportation/delivery. Though once lined with wharves and multi-story masonry commercial structures, today only a remnant of this former fabric exist today along Border Street.

The Harbor from the Boston East Site on Border Street

Known as Boston East, the vacant site directly across Border Street to the west of Coppersmith Village is being proposed for residential and water related development. With magnificent views to Boston and direct water access, the planning for Boston East includes public waterfront uses and access.

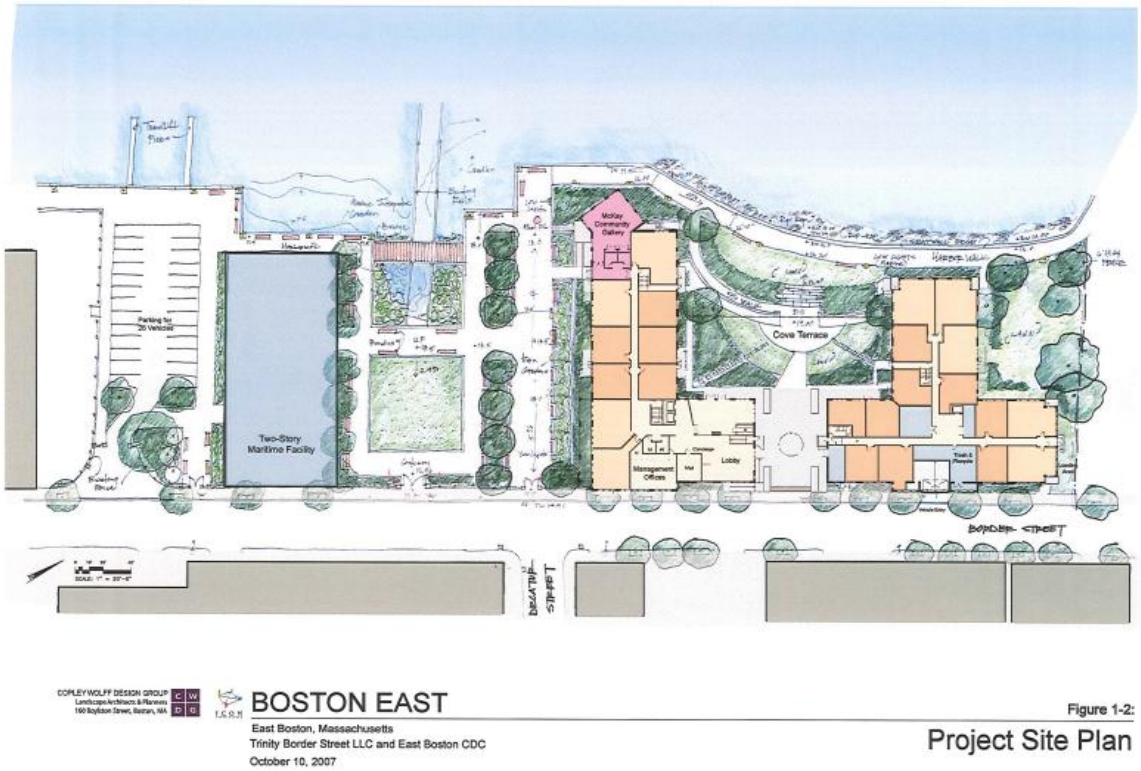


Figure 3: "Boston East" Project Site Plan

The existing neighborhood fabric to the east on east side of Liverpool Street is comprised of smaller scaled two and three story structures, some masonry, but most wood framed construction. The primary use is residential with the occasional exception of ground floor commercial use. An open space break in the residential street wall occurs mid-block for access to Veteran's Park, a neighborhood open space resource.

To the north of the site on Decatur Street is a two story non-descript concrete masonry building. Decatur Street runs from Meridian Street to the waterfront and thus serves as a prime access and view corridor to the Inner Harbor for this neighborhood. As waterfront development continues to flourish and draw people to the water's edge, the Decatur Street corridor will have growing opportunities for pedestrian oriented businesses.

Coppersmith Way, the project's namesake, is a narrow alley-like way used to access the residential homes to the south and parking spaces associated with these structures to the north.

A key aspect of the site design has been to keep street edges active by means of pedestrian access to building entries and ground floor commercial spaces. Parking for the development has been kept on the interior of the site by means of an internal drive feeding parking spaces for the rental buildings and townhouses.

The design responds to the growing concern about storm surge events for properties near the Harbor by raising most of the ground floor interior spaces approximately 2'-6" above grade, while parking remains at grade for all buildings. Additionally, all mechanical and electrical equipment will be located a minimum of five feet above grade (and xx feet above sea-level) as a protective measure against storm surge flooding.

2.2 BUILDING DESIGN

2.2.1 DESIGN CONCEPT

Townhouses

The proposed 15 homeownership townhouses on Liverpool Street are a fresh interpretation of the dense residential fabric characteristic of historic East Boston neighborhoods moderately reflective of Liverpool Street. The proposed three story townhouse design is raised on a plinth 2'-6" on average above the sidewalk to provide additional protection from storm surge events. A connecting walkway with planting beds on the plinth provides a public to private transition to the townhouse entries and a landscaped zone for greening the street edge. The connecting walkway will also be accessible, making all of the townhouses 'visitable'.

The ground floor of these three bedrooms units includes a flexible room which can be used as the third bedroom or, alternately, a home office or play room. A half bath is attached. The living space is located on the second floor and includes a rear balcony. Two bedrooms and a full bathroom are on Floor 3 on the townhouses and front bays alternate between Floor 2 and Floor 3 to provide a varying rhythm on the facade.

Mixed Use Rental Buildings

The 56 units and restaurant in the two mixed-use rental buildings facing the more active Border Street, respond to a different context of tall four story masonry warehouse-like buildings tight to the street with water views. Like the townhouses, the north and south rental buildings are raised 2.3-3 feet above the sidewalk elevation in response to our concern for potential storm surge events, thus providing protection to our ground floor commercial and community uses.

Entries to the ground floor uses (restaurant, management offices, community room), storefront glazing, lighting and signage, along with residential entries will help enliven the Border Street

streetscape with the interplay of people coming and going mixed with the active commercial and community uses facing directly onto the Border Street sidewalk. The restaurant space planned for the corner of Border and Decatur Streets is a key component of the project's urban design. It will help to activate that important corner, where Decatur Street meets the waterfront, throwing light and activity on the street. The quality of pedestrian life is further energized by a raised outdoor dining patio on the corner of Border and Decatur Streets and a raised patio at the other end of the site for the Community Room.

The residential units are a mix of one, two and three bedroom units arranged on a double loaded corridor that is served by an elevator and two egress stairs. All units are enhanced by a balcony, many of which will benefit from terrific water views. Laundry is located on every other floor and a trash/recycling room is located on each residential floor.

The south rental building will include a roof deck providing additional open space for the residents with exceptional views of the water and the city beyond. The roof deck will be available for all residents of both rental buildings.

2.2.2 HEIGHT AND MASSING

Townhouses

The site has a slight slope rising from the north to the south with the ground floor of all townhouses set uniformly on a raised plinth, thus resulting in the ground floors being 15"-30" above the sidewalk. The building height has been set 32 feet above the plinth elevation. The massing was designed to be representative of other neighborhood buildings; the parapet has been returned six feet to achieve a strong visual mass for the main front façade.

Rental Buildings

The five story rental buildings are approximately 58 feet high, making them similar in height to a four story brick warehouse building, 80 Border Street, just across the street. It will still be shorter than the proposed seven stories Boston East building diagonally across Border Street. The massing of these new buildings reflects the simple lines of the historic warehouse structures in the area. The link at the ground floor joins the buildings at grade and creates a unified, welcoming lobby, with a sitting area, landscaping, and art integrated into the design. The upper four floors have been separated into the North Building and South Building, which renders a more suitable massing for this neighborhood setting.

2.2.3 FAÇADE DESIGN, FENESTRATION, AND BUILDING MATERIALS

Townhouses

The rhythm and proportions of the townhouse front facades have been scaled to reflect the qualities of a traditional East Boston residential street, but bring a more contemporary expression. This is achieved by offsetting the main portion of each townhouse façade (which has the vertical proportions of a typical 2-3 story East Boston house on a narrow lot) with the narrower recessed slot that establishes the rhythm of the main portion of the façade and provides for a recessed entry area.

Bays are an integral part of the East Boston residential vocabulary and the bays on the front have been placed in an alternating fashion between Floor 2 and 3 to add visual rhythm and variety to the façade. A Juliet balcony is then located above or below the balcony in a similar alternating manner.

A fiber cement rain screen cladding system with variegated colors is provided for the skin of the building, except at the ground floor entry, where a natural wood siding is envisioned to bring warmth and a different texture to this area of daily experience.

The southern end unit has been treated uniquely by flipping the floor plan and adding an extra bay to the living space. It also becomes a transition zone to the simpler rear façade of the buildings, where each unit has a garage and deck off of the kitchen.

Rental Buildings

Though recalling the past, these new mixed-use buildings are an expression of a newly emerging East Boston waterfront with their lighter, more transparent ground floor design and street engaging uses. The ground floor is intended to be visually accessible to and from the street with storefront fenestration at the community spaces, masonry openings in-filled with a planted green-grow fence at the garage areas and folding operable window sash at the restaurant. The entry lobby façade is designed to be a continuation of this visually accessible ground floor and serve as a unifying element at the ground floor for the two buildings.

The façade of upper residential floors with their cadence of window patterns and balconies reveal the residential use within. Brick and fiber cement panels have been configured to render both variety of materials and a sense of scale to the façade that respects the neighborhood context on Border Street. Vertical elements near the combined center entry help to bring emphasis to the entry and balance the horizontal feel of the two buildings.

Some distinction was provided to the two similar buildings at the top of the facade by introducing a roof deck and stair access to the south building. Likewise the ground floor façade enjoys the variety provided the varying uses in each building.

2.3 SITE DESIGN

2.3.1 LANDSCAPED AREAS AND PEDESTRIAN CIRCULATION

Each townhouse will have its own planting bed directly in front of the unit and a shared planting bed along the edge of the raised plinth. An accessible continuous walkway on the plinth with small stoops for each unit will connect all of the townhouses and provide a semi-public zone for neighbors to interact. Veteran's Park, on Mass Pike land, directly across Liverpool Street from the site, provides green public open space for the neighborhood. There will be increasing reasons to take better care of it for local, residential use.

At the southern end of the site directly next to the ground floor Community Room will be a hard-scape patio with a raised planted area. This design allows for the containment of hazardous soils in place, while providing seasonal overflow space and direct entry for the Community Room. It will look welcoming and open to pedestrians and those passing by.

To the east of the entry lobby for the rental buildings is an intimate courtyard that has been created between the two buildings. This semi-private landscaped exterior environment flows into the landscaped entry lobby, while providing a sheltered sitting area graced with a wall sculpture. Pedestrian access to the building for tenants using the bike storage or alley parking at the rear will be provided by way of a courtyard entry.

Bike storage enclosures are located in the small dog leg at the southern end of the site. These bike storage areas, with direct access to Coppersmith Way, will be well lit, landscaped, secure, and connected to the buildings by means of landscaped walkways.

Border Street will include narrow planting strips along most of the building to soften the edges, but allow for more direct engagement by tight proximity to the sidewalk. More generous landscaping is planned for the glassed-encased entry area where seasonal plantings are anticipated as well as for the corner restaurant patio.

2.3.2 PARKING AND VEHICULAR CIRCULATION

Each townhouse unit includes a one car garage entered from a shared drive on the interior of the site.

Parking for the rental buildings is tucked under the buildings at grade and is also entered from the shared drive on the interior of the site. There are 15 spaces in the north building and 12 spaces in the south building. One-way entry to the shared drive is off of Decatur Street with an

exit on Liverpool Street. The shared drive also allows for 10 additional parallel parking spaces for residents and a loading area for the ground floor commercial space.

The parking strategy is also integrated into the planning for a storm surge event by building durable unfinished space at grade. Additionally, the design at the rental buildings allows for water to "flow through" the buildings at grade.

2.4 SUSTAINABLE DESIGN

The design for Coppersmith Village has many notable sustainable design features, including several that are a direct response to the formerly industrial water front site. The project is required to be certifiable at the Silver level under the LEED for Home Mid-rise program. At this preliminary point in the planning and design of the project, the design team has completed an initial checklist showing that the project is on track to achieve LEED Silver. See attached LEED Checklist in Appendix B.

2.4.1 Innovation and Design Process

NOAH, The Narrow Gate (including three LEED APs on the project) and other design team consultants have collaborated on sustainable strategies for the project. Further collaboration will happen by means of a strategic green design charrette with the design team, a Green Consultant, NOAH, a General Contractor and Property Management personnel.

Given the site is located adjacent to the Inner Harbor, the durability evaluation includes design strategies for storm surge events, which have been included in to the design by raising the majority of the first floor habitable spaces and locating HVAC equipment above the ground plane. Durability management process to be established by the builder and verified by a third party.

2.4.2 Location and Linkages

The project is the re-development of an inactive industrial site (steel fabrication) located in the block adjacent to the NOAH offices; an infill and brownfield site. The site is less than .25 mile from Maverick Square with a newly renovated stop on the Blue Line and a new Health Center, and less than .25 miles from Central Square, a major commercial shopping area for this area of East Boston and Meridian Street with innumerable businesses and civic services. The site is one block from Maverick Gardens, an affordable housing development and next door to Boston East, an affordable housing development with maritime uses directly on the water front. The site has direct access to existing utility infrastructure. Across the street from the site is Veteran's Park, a neighborhood green space.

2.4.3 Sustainable Elements

1. Erosion control measures will be implemented during construction.

2. The site has contaminated soils. The design strategy is to minimize the amount of exported soils by not constructing basements, capping soils under paving and constructing raised planting beds.

2. Plantings will be native and predominately drought tolerant. No use of turf on site.

4. Storm water will be managed by on site infiltration systems, permeable paving and landscaped areas.

5. High albedo roofing will be installed to reduce the heat island effect.

6. Foundations to be concrete, wood framing to be a minimum of 12" above finished grade and all exterior envelope penetrations to be sealed.

7. The density of the development entails 71 units on 1.32 acres resulting in 53.8 units/acre.

8. The site is within .5 miles of bus lines and the Maverick Station subway which provide in excess of 30 rides/weekday.

9. Bike storage sheds are being planned to encourage commuting and exercise.

10. The project is targeting mixed income, rental and home ownership families and will have one, two and three bedrooms units per DND City of Boston Standards.

Water Efficiency
Water reduction use will be achieved by low flow fixtures, water efficient appliances and a landscape design that included no turf and predominately drought tolerant plants.

Energy and Atmosphere
1. It is intended to design the roof to be solar ready.

2. Insulation will include R10-15 below slabs, R25-30 at exterior walls (includes 1-2 inches of continuous insulation at the exterior), R-40-50 at the roof.

2. Windows with a U-value of .30 or better, pan flashing and energy efficient glazing.

4. High efficiency boilers for the rental units and high efficiency HVAC units for the townhouses.

5. Energy Star rated lighting fixtures and appliances.

6. Highly detailed and managed air/vapor barrier to achieve an air infiltration rate of 2-3 ACH at 50 Pascals.

7. The building is being designed to optimize its energy performance to be significantly above ASHRAE 90.1; % to be determined by testing as-built conditions.

8. Smoke free buildings.

Materials and Resources

1. Construction to be panelized to reduce waste.

2. Tropical woods will not be used.

3. Carpet will not be used

4. No added urea formaldehyde products will be used.

5. Contractor will be required to divert a minimum of 85% of the materials taken off site from landfills and incinerators.

Indoor Air Quality

Indoor air quality for the dwelling units will be enhanced by means of unit compartmentalization, closed combustion or power vented exhaust, carbon monoxide detectors in the units, no smoking in the buildings, fresh air supply to all units, bath and kitchen ventilation to the exterior. Radon resistant construction details will be incorporated. Garages will be ventilated & all penetrations sealed between garages & living spaces. Use of low emitting materials, interior paints and sealants.

Awareness and Education

The builder will be required to provide the Owners with an Operations and Maintenance Manual and facilitate a training session on use of the buildings equipment, features and appliances.

2.5 URBAN DESIGN PROJECT DRAWINGS

See Appendix B for full set of Project Plans.

3.0 ENVIRONMENTAL PROTECTION

3.1 SHADOW

The height of the proposed buildings is similar to other structures facing onto the same street. Existing shadow patterns on and around the site will not be substantially affected by this project (see Appendix A for shadow studies).

3.2 WIND

Coppersmith Village is located across Border Street from the recently approved Boston East project. Our assessment of wind impacts builds on the wind information in Boston East's PNF. Based on the qualitative wind analysis contained in Boston East's PNF, which found that no resulting pedestrian level winds (PLWs) would exceed the BRA wind guidelines and that no areas studied would have PLWs higher than Category 3 (comfortable for walking), we expect that existing wind conditions will also *not* be substantially affected by the Coppersmith Village project. Boston East's study found that prevailing winds come across the Harbor from the Northwest in winter and the Southwest in summer. Therefore we can expect Southwest summer winds to run parallel to the proposed buildings along Border Street, similar to existing wind patterns. In the winter, the prevailing wind will be approximately perpendicular to the Border Street buildings, in which case the project will provide some wind buffering for the neighborhood along Liverpool Street, also similar to existing conditions. Similarly, Boston East will provide some buffering for Coppersmith Village.

3.3 SOLAR GLARE

Incidents of solar glare on and around the site are not expected to be substantially affected by this project because the Project is not utilizing highly reflective building materials. With the proposed height and massing being similar to other buildings facing onto the same street, daylight obstruction for this project is expected to be limited to that of other adjacent structures of the same context. The largest areas of glazing in the project are at the street level storefront, with smaller punched opening above, further reducing solar glare effects.

3.4 AIR QUALITY

Short term air quality impacts from fugitive dust may occur during the early stages of construction, but contractors will be required to follow LEED practices for this work to minimize the impact on air quality and erosion,. The proposed foundation system, aggregate piles, will also help minimize the excavation of unsuitable soils.

Given the small scale of this project, potential long term effects are limited to pollutant emissions from vehicular traffic generated by the development. The minor increase in vehicular trips and minor delay at intersections, along with access to public transit (bus and subway) and the promotion of bike use, will have a minimum impact on the air quality.

3.5 NOISE IMPACTS

Other than temporary noise during construction, the Project is not expected to result in adverse noise impacts. The proposed foundation system, which is based on aggregate piles, will minimize the construction noise that is often caused by pile driving.

3.6 FLOOD HAZARD ZONES/WETLANDS

As depicted on Flood Insurance Rate Map (#25025C0081G) the site is located outside of any designated Flood Zone. See Figure 4 for FEMA flood insurance rate map.

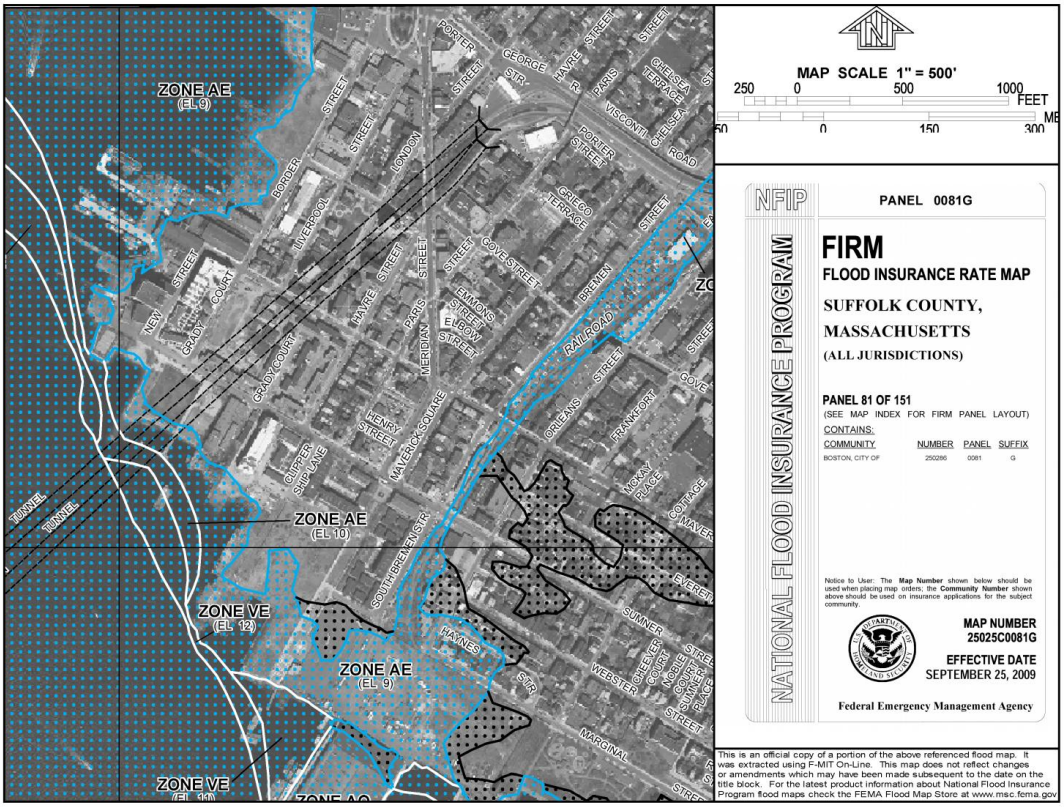


Figure 4: Flood Insurance Rate Map

3.6.1 WETLANDS

There are no wetlands or DEP resources on the site. Refer to Figure 5 for DEP map of site and surrounding area.

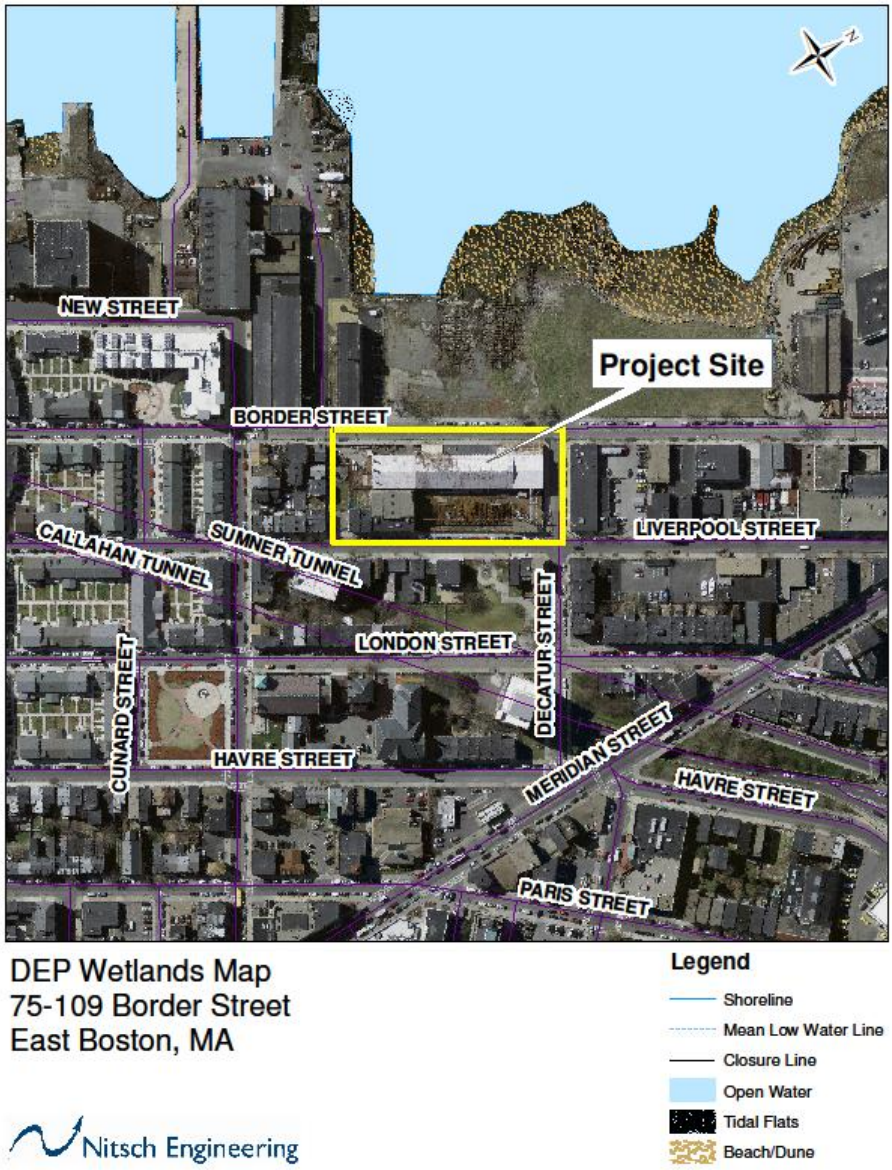


Figure 5: DEP Wetlands Map

3.7 GROUNDWATER

TRC created groundwater observation wells in March 2013 as part of their environmental testing and drilling. GZA took measurements within these observation wells in April 2013, which indicated a groundwater depth of about 8.5 to 13 feet bgs, corresponding to a groundwater elevation of about -2 to 0 feet. It should be noted that fluctuations in groundwater levels may occur due to tidal fluctuations or variations in season, rainfall, site features and other factors different from those existing at the time of the explorations and measurements.

3.8 GEOTECHNICAL IMPACT

3.8.1 PROJECT SITE AND SUBSURFACE CONDITIONS

In April 2013, GZA directed two soil borings on the site (GZ-1 and GZ-2) in order to make preliminary determinations of subsurface conditions. Subsurface soil conditions encountered in the explorations generally consisted of the following strata from the ground surface: fill, peat and sand with organics, natural fine-grained soils, natural clay and glacial till. The soil strata encountered in the explorations are described below in further detail. The depths, thicknesses, and elevations referenced herein should be considered approximate.

Fill

Fill was encountered from the ground surface in the GZA and TRC explorations. The fill extended to about 6 and 8 feet bgs in borings GZ-1 and GZ-2, respectively, corresponding to elevations 4 and 1 foot. The fill generally consisted of very loose to dense, light to dark brown/black, fine to coarse sand containing up to 50 percent gravel, clay and silt, clayey silt, sand-sized slag and decayed wood, up to 35 percent silt, and up to about 10 percent roots, fibrous peat and wood. SPT N-Values within the fill ranged from 2 to 35 blows per foot (bpf). Fill depth at the TRC borings varied from approximately 4 to 11 feet.

Peat and Sand with Organics

Organic soils were encountered below the fill at depths of 6 and 8 feet bgs in borings GZ-1 and GZ-2, respectively, corresponding to elevations 4 and 1 foot. The organic soils were 3.5 and 5 feet thick at the GZA boring locations and generally consisted of very soft to stiff, brown, fine-grained and/or fibrous peat, up to 50 percent fine to coarse sand, and up to 10 percent fine to medium sand, gravel and fibers. SPT N-Values within the organics/sand with organics ranged from “weight of hammer” to 6 bpf. Organic soils were encountered in 10 of the 12 TRC borings varying from 0.5 to 4 feet thick. It should be noted that the fill and organic soils may have been removed from below some of the existing buildings on site.

Silt/Sand

Natural silt and sand was encountered in both the GZA borings at depths 9.5 and 13 feet bgs, corresponding to elevations ranging 0.5 and -4 feet. These soils generally ranged from clayey silt to fine to coarse sand with up to 10 percent gravel. This layer was 5 feet in thickness. On occasion this stratum was layered. SPT N-Values ranged from 6 to 18 bpf.

Marine Deposits

Marine silty clay was encountered beneath the silt/sand at depths of 21 and 18 feet in borings GZ-1 and GZ-2, respectively, corresponding to elevations -11 and -9 feet. As is typical in Boston, this clay layer decreased in stiffness with depth, as indicated by the relative field measurements of shear

strength by Torvane and Pocket Penetrometer. Up to 10 percent gravel was observed in some samples. SPT N-Values in the Marine Clay, ranged from 5 to 11 bpf, indicating the deposit is medium stiff to stiff. The Marine Clay was not fully penetrated in boring GZ-2 when drilling was terminated at a depth of 36 feet. This substratum was 31 feet in thickness in boring GZ-1.

Field torvane and pocket penetrometer data on disturbed SPT samples of the fine-grained layer indicated relative undrained shear strength range between about 400 to 4,000 psf, and generally about 1,200 psf. The shear strengths indicated by the field tests are considered to be lower bound (conservative) estimates of the fine-grained deposits' actual shear strength as the field tests were performed on disturbed SPT samples.

Marine Sand/Gravel was encountered at a depth of about 52 feet in boring GZ-1, corresponding to elevation -42 feet. The sand/gravel consisted of medium dense to dense, gray to orange/brown to brown, fine to coarse sand and gravel, with to 20 percent silt. SPT N-Values in the Marine Sand/Gravel ranged from 11 to 42 bpf. This substratum was about 30 feet thick.

Marine Silty Clay was also encountered below the sand/gravel in boring GZ-1 at a depth of about 82 feet (corresponding to elevation -72 feet) and consisted of very stiff, gray silty clay, with up to 35 percent sand and up to 20 percent gravel. SPT N-Values in the lower Marine Clay ranged from 19 to 28 bpf, and was stiffer than the upper Marine clay. The substratum was about 11 feet thick.

Field torvane and pocket penetrometer data on disturbed SPT samples of the lower silty clay layer indicated relative undrained shear strengths up to about 800 to 4,000 psf with an average of 2,000 psf.

Glacial Till

Glacial till was encountered in borings GZ-1 at a depth of 92.5 feet bgs, corresponding to elevation -82.5 feet. Only one sample was taken in this stratum and consisted of very dense, gray, fine to coarse sand and gravel containing up to about 35 percent silt. The glacial till stratum was not fully penetrated when boring GZ-1 terminated at a depth of 95 feet with split spoon refusal.

3.8.2 GEOTECH CONCLUSIONS & RECOMMENDATIONS

Building Foundation

The design of the building foundations will take into consideration both the condition of the soil and the overall goal minimizing the disturbance and removal of as little of the subsoil as possible due to the contaminated material found in the environmental investigation described in Section 3.9.

GZA's Preliminary Geotechnical Engineering Report, dated May 21, 2013, evaluated three foundation options. Based on cost considerations and discussions with the Project Team, it was decided that ground improvement with aggregate piers is the preferred foundation construction

option. Aggregate piers improve the ground by stiffening the soil matrix and distributing the building loads into the improved soil mass. The other two options evaluated were replacing unsuitable soils (that is, fill and organic soils) with structural fill or carrying loads through unsuitable soils using piles. Limiting the amount of soil disposal is an important factor for this site due to the existing environmental concerns. Aggregate pier construction will limit the amount of soil disposal required, compared to replacing unsuitable soils, and may limit workers' potential exposure to the existing contaminants.

Building Slab

A slab-on-grade is recommended after improving the fill and organic soils with aggregate piers. We recommend at least 12 inches of Sand-Gravel Fill be provided as a base course below the slab. The top of the aggregate piers should be at least 2 feet below the bottom of slab. Granular Fill or Sand-Gravel Fill should be used between the bottom of the base course and top of the aggregate piers. Subgrade preparation recommendations are presented later in this report.

Settlement Total and differential post-construction building settlements are anticipated to be less than 1½ and 1 inch, respectively, provided foundations are designed and constructed as recommended herein, and proposed grades are within 1 foot of existing grades.

Seismic

Soils encountered in the building area are not considered susceptible to liquefaction based on criteria set forth in Section 1806.4 of the MSBC. In accordance with Section 1613.5.2 of the IBC, we recommend that Site Class D be used for seismic design assuming that building foundations are designed and constructed as recommended.

3.9 ENVIRONMENTAL SITE ASSESSMENT

3.9.1 SITE HISTORY

The existing Site is comprised of approximately 57,665 sf and has four buildings ranging in size from 742 sf to 15,980 sf. The 1½-story metal frame building was formerly used for custom steel products manufacturing. The two-story brick building was formerly used for storage on the ground floor and office space on the second floor. The 1½-story concrete building was formerly used for storage. The single-story spray booth was formerly used for product painting. Past uses of the property from 1888 to the present include industrial woodworking, metal machining, blacksmithing, coppersmithing and copper refinishing, and iron working. The related industrial activities included or likely included the combustion of coal, painting of wood and metal products, and possible storage of oil and hazardous materials.

3.9.2 SOLID AND HAZARDOUS WASTE

NOAH hired TRC Environmental Corporation (TRC) to perform a Phase I and Phase II Environmental Site Assessment (ESA) of the Site. Phase I was conducted in connection with NOAH's planned purchase of the Site, and to determine whether Recognized Environmental Conditions (REC's) existed that would need to be addressed in conjunction with the proposed development. Phase II was conducted to document current soil conditions associated with historical releases of oil and hazardous materials (OHM) to the environment at the Site, and to assess whether additional remedial activities to the soil would be required for the proposed residential use.

An Activity and Use Limitation (AUL) has been implemented on an approximately 0.2 acre portion of the Site associated with MassDEP Release Tracking Number (RTN) 3-16751 for concentrations of trivalent and hexavalent chromium, lead, petroleum hydrocarbons, and 1,1,2,2-tetrachlorethane remaining in soils in excess of applicable Massachusetts Contingency Plan (MCP) S-1 criteria after soil removal activities were completed in 1999. This release achieved regulatory closure in 2003 with submittal of a Class A-3 Response Action Outcome (RAO).

A second release (RTN 3-16738) is associated with the Site due to a potential oil release from a historic underground storage tank (UST) at the Site. The tank was removed in 1998 and soil conditions were assessed as documented in a UST closure assessment report. Investigation results did not identify evidence of a release associated with this tank. The release was closed in June 1998 with the submittal of a Class A-1 RAO. The AUL restricts uses to commercial/industrial on the designated portion of the site. Further documentation and remediation is required for future use of the site for residential uses. The following provides more details about the REC's identified in the Phase I and II reports. A summary all Environmental Reports can be found in Appendix F

3.9.2.1 PHASE I ESA – RECOGNIZED ENVIRONMENTAL CONDITIONS (REC's)

As a result of the Phase I ESA, the following RECs as defined by ASTM E 1527-05 standard were identified:

REC 1: Impacts from Historic Industrial Site Use and Petroleum Storage

Between at least 1888 and approximately 1950, the Site was used for multiple commercial and industrial purposes including a machine shop, offices, lumber milling and storage, drug retail, dry-cleaning, blacksmithing, cabinet manufacturing and retail, woodworking, and warehouse storage. By 1964, the Site was operated by AAIC for manufacturing and spray painting of custom steel products for building construction and renovation. These documented former Site tenants likely utilized various types of petroleum and hazardous materials including but not limited to engine oils, heating oils, cutting oils, solvents and thinners, cleaners and degreasers, hydraulic

fluid, lubricants, and lacquers. Because the disposal of resulting waste byproducts was largely unregulated during the documented period of historic industrial use, TRC was unable to obtain detailed information pertaining to the Site's waste management history. Furthermore, although neither records of historic tank closure(s) or evidence suggesting existing on-Site USTs was identified during this assessment, based on the long-term past industrial use of the Site; the potential exists for abandoned USTs to remain at the Site The Site was listed in state agency databases for two separate releases of materials including oil, chromium (hexavalent and trivalent), lead, petroleum hydrocarbons and 1,1,2,2-tetracholorethane (RTNs 3-16751 and 3-16738), both which have since achieved regulatory closure. Although no open releases associated with the Site were identified, based on the industrial use, TRC considers the likelihood of adverse impacts to Site soil and groundwater from former industrial Site uses to represent a REC in connection with the Site.

REC 2: Impacts to Soil from Documented On-Site Release

The Site address was listed in state agency databases for a 1998 release of hazardous material associated with MassDEP RTN 3-16751. Following remedial response actions, the release incident achieved regulatory closure through the submittal of a Class A-3 Response Action Outcome (RAO) indicating levels of oil and hazardous materials have not been reduced to background and an AUL is required to maintain a level of No Significant Risk. Based on the level of remedial response actions conducted in relation to RTN 3-16751 and the current regulatory status, impacted soils related to RTN 3-16571 have been adequately assessed and remediated for the commercial/industrial use of the Site as permitted by the AUL. However, the documented impacts to soil have not been adequately assessed and remediated for the proposed future residential use of the Site, which is restricted by the AUL. As such, TRC considers this past release to represent a REC in connection with the Site.

REC 3: Impacts to Site from Historic Fill Material

Historical sources indicate that the Site may have been filled to create level or consistently sloped surfaces for paving and/or building construction. Urban fill materials are fairly ubiquitous in the Greater Boston area and other urban developments throughout Massachusetts and may contain low to moderate levels of contaminants such as semi-volatile organic compounds (SCOVs) and metals resulting from a long history of commercial and industrial uses. If present, urban fill may not require regulatory action with respect to remediation; however, urban fill may require special management or disposal during site redevelopment and often results in the need to establish activity and use restrictions on a property. Based on a review of historical sources, TRC considers the likely widespread presence of historic fill material at the Site to represent a REC in connection with the Site.

REC 4: Impacts to Site Soil and Groundwater from Former Dry-cleaning Facilities

TRC's review of the EDR database report and Sanborn Maps identified one former onsite dry-cleaning facility and one nearby offsite historic dry-cleaning facility. The former onsite facility was identified on a 1950 Sanborn Map on the northern portion of the Site along Border Street, and the former offsite dry-cleaning facility listed in EDR's database report was identified as JB Cleaning Service at 65 Maverick Street located approximately 340 feet upgradient of the Site.

Dry-cleaning facilities require routine use of chlorinated solvents which are denser than water and, therefore, sink in a typical aqueous environment. In addition, they are mobile and persistent, and have an ability to migrate via groundwater. Although no spills or releases of chlorinated solvents associated with these facilities have been reported, soil and groundwater contamination at dry-cleaning facilities is common due to the physical characteristics and chemical nature of these solvents. As such, TRC considers likely soil and groundwater impacts at the Site resulting from historic on-site and nearby off-site dry-cleaning operations a REC in connection with the Site.

REC 5: Impacts to Site Soil and Groundwater from Historic Oil Spillage

Multiple large areas of prominent oil staining, ranging in size from approximately 100 to 800 square feet, were observed on the concrete floor within the 1½-story metal frame building. Based on the nature of the staining and due to cracks, gaps, and utility chases observed in the floor, TRC considers the observed staining to be environmentally significant. As such, the staining observed within the 1½-story metal frame building resulting from long-term oil spillage to represent a REC in connection with the Site.

3.9.2.2 PHASE II ESA – POTENTIAL FOR AUL AMENDMENT OR REMOVAL

The Phase II ESA and an Addendum was conducted by TRC on behalf of the DND and funded by EPA Brownfield funds. A site wide investigation of current soil conditions in 2013 indicated the Site is comprised of historical fill material made of coal slag, ash, wood, leather, and other miscellaneous material. The depth below grade and the thickness of the fill layer varied throughout the Site. The data collected from this sampling event was compared to residential standards to determine if the site could be re-developed for residential use as it stands currently. It was determined that the metal contamination is site wide and not limited to the AUL area. The contamination appears to be limited to the top four to six feet of soil at the site. To re-develop this site for residential use additional soil remedial activities will be required as follows.

3.9.3 CONSTRUCTION PERIOD WASTE AND REC REMEDIATION

During site work for the construction of multi-family housing, the impacted soil removed for subsurface utility and foundation construction will be managed on-site and disposed of off-site under a Soil Management Plan consistent with the MCP under the direction of a Licensed Site Professional. Best management practices including covered stockpiles, erosion controls, dust

suppression, and air monitoring will be implemented to prevent potential migration or exposure to impacted soils. Hazardous materials from the existing building site will also be disposed of in compliance with all State regulations for contaminated material. Once construction is complete, access to impacted soils remaining on site will be controlled with a cap and an AUL. The site will be capped with a combination of parking lot paving, building foundation and the placement of three feet of certified clean fill in areas of "green space". The project will be developed without a basement to mitigate soil disturbance beyond what occurs during foundation construction, and to prevent potential long-term exposure of the building interior to legacy soils. The current AUL will be amended to allow multi-family residential use but will restrict certain other sensitive uses such as a school or growing produce in site soils. NOAH will work with the BRA and other relevant parties to ensure that best practices for remediating REC's are realized. Funding for the remediation will be through EPA grants and possible Brownfield Tax Credits for the cost of removing and replacing the contaminated soils.

3.9.4 OPERATIONAL SOLID WASTE

All trash and recycling pickup for the project will be provided privately. The rental apartment buildings will include garbage disposals in all units, and a trash chute with a compactor in both the North and South buildings. Trash and recycling will be collected separately, and recycling will be actively encouraged for all residents. The restaurant will have its own dumpster and loading area. The townhomes will include garbage disposals, and a private service will collect trash and recycling from along the internal drive weekly.

3.9.5 SNOW REMOVAL AND STORAGE PLAN

Snow removal for the project will be provided by the manager of the rental buildings. This will ensure that the shared driveway and all sidewalks remain clear. Excess snow will be piled at the south end of the site and removed as required.

3.10 CONSTRUCTION IMPACTS

A Construction Management Plan (CMP) will be submitted to the Boston Transportation Department for review and approval prior to issuance of building permits. Construction management and scheduling will minimize the impact on the surrounding environments. Removal of hazardous materials will also be addressed in the CMP. The CMP will define truck routes to help minimize the impact of trucks on the neighborhood streets, address construction worker commuting and parking, protection of existing utilities and control of dust, erosion and noise.

3.10.1 WILDLIFE HABITAT

Currently, according to the National Heritage and Endangered Species Program (NHESP), Mass GIS data layer, no federally listed or proposed threatened or endangered species exist on this site and thus the project is not expected to have any impact on wildlife.

3.10.2 RODENT CONTROL

The project will include rodent control programs consistent with the requirements of the City of Boston, the Massachusetts Sanitary Code and the National Pest Control Association.

4.0 HISTORIC RESOURCES

4.1 SITE HISTORY AND EXISTING BUILDINGS

The Coppersmith Village site has historically been occupied by industrial uses. In the 1880s, the site was home to lumber sheds, mills, blacksmiths, and cabinet shops, supporting the neighboring ship building and construction industries. The existing brick and concrete building at 80 Liverpool Street, inscribed "I.Young & Co," was built in 1919, according to building permits (see Figure 6). This building was later used for steel manufacturing and subdivided into offices.

Although building permits are not available in the City's record for 75 Border Street, historic Sandborn maps show the current buildings as built between 1950 and 1964 (see Figure 6). These buildings are comprised of a series of steel sheds and a gantry crane frame, used for architectural steel manufacturing by the American Architectural Iron Works Company (AAIC). The AAIC also used the building at 80 Liverpool Street for manufacturing and offices. The entire site has been vacant since the AAIC moved out several years ago.

The East Boston Inner Harbor Industrial Area report (on the MACRIS database) describes the site as a collection of steel frame sheds and traveling cranes used by the American Architectural Iron Works Company. The buildings are described as, "an undistinguished accumulation of recent structures."

Figure 6: 80 Liverpool Street

Figure 7: 75 Liverpool Street

4.2 HISTORIC STRUCTURES AND DISTRICTS

There are no National Register of Historic Places structures or districts in or near the site. Refer to Table 5 for National Registry of Historic Places in East Boston and their proximity to the proposed project. There are also no designated Boston Landmarks (BLC) on or near the Coppersmith site (refer to Table 6). Many non-designated historic buildings were identified in

the Boston East Project Notification Form (2007), based upon a 1989 survey of industrial properties in East Boston by the BLC. This list notably included the Atlantic Works building across from the Coppersmith site at 80 Border Street.

No adverse impacts to the surrounding historic structures will result from the proposed project.

4.3 MASSACHUSETTS HISTORICAL COMMISSION

NOAH submitted a PNF to the Massachusetts Historic Commission (MHC) in May 2013 for the Coppersmith Village project. The project proposes demolition of all existing structures, not including the brick apartment buildings at 72 and 74 Liverpool Street, which are not part of the project. MHC requested additional information on the history of the site and buildings in early July, which was provided by NOAH in mid-July. MHC is currently reviewing the project, and we are awaiting a letter confirming no adverse impact and MHC has not responded to our inquiries.

Table 5: National Registry of Historic Places in East Boston

Name	Address	Distance from Site
Baker Congregational Church	760 Saratoga Street	1.4 miles
Bennington Street Burying Ground	Bennington Street, between Swift and Harmony Streets	1.1 miles
Eagle Hill Historic District	Roughly bounded by Border, Lexington, Trenton, and Falcon Streets	0.3 miles
Old East Boston High School	127 Marion Street	0.3 miles
Donald McKay House	78-80 White Street	0.6 miles
Trinity Neighborhood House	406 Meridian Street	0.5 miles

Table 6: Designated Boston Landmarks in East Boston

Name	Address	Distance from Site
Donald McKay House	78-80 White Street	0.6 miles
39 Princeton Street	39 Princeton Street	0.3 miles
41 Princeton Street	41 Princeton Street	0.3 miles

5.0 TRANSPORTATION

5.1 PROJECT DESCRIPTION

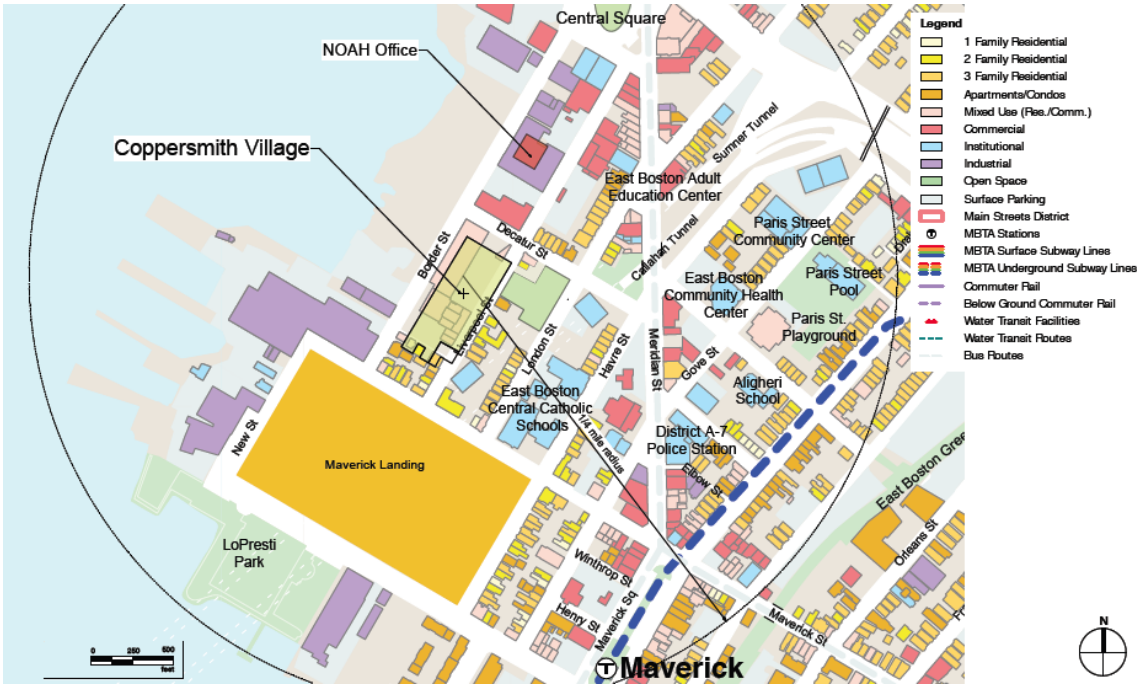
Coppersmith Village includes approximately 109,000 square feet (sf) of space, which is comprised of approximately 3,000 sf of ground floor restaurant space, 56 rental apartments, and 15 for-sale townhomes. Approximately 37 parking spaces for the rental apartments will be located within two at-grade garages underneath each apartment building and along an internal

driveway "street." Each townhome will have its own one-car garage. The project proposes the construction of a 14 foot entrance driveway to provide one-way site access through the development from Decatur to Liverpool Street. This driveway will provide direct access to parking facilities located on ground level for the apartment complex and private parking garages underneath each townhouse. This driveway will provide exiting access directly from the project site onto Liverpool Street. Table 7 provides the Project program.

Table 7: Coppersmith Village Project Program

Project Component	Units/Square Feet
Total Residential	71 units
Townhomes	15 units
Apartments	56 units
Retail (Restaurant)	3,000 square feet
Parking	52 spaces (15 in townhouse garages, 27 in rental building garages, 10 along internal driveway)
Street Parking	94 spaces on four bordering streets

Figure 8: Coppersmith Village Area Map



5.2 EXISTING CONDITIONS

5.2.1 SITE LAYOUT

The site is well situated within close proximity to public transportation, restaurants, commercial space, retail areas, and LoPresti Waterfront Park. The urban and dense nature of East Boston will allow for easy and walkable access to East Boston's commercial districts and open space. Central Square located 150 yards to the north, and Meridian Street 150 yards to the west comprises the retail and commercial district within the area. Meanwhile, Maverick Square serves as a transportation hub for residents of East Boston, in addition to providing retail shops, restaurants and services. The MBTA's Maverick Station provides convenient, direct Blue Line transit service to downtown Boston and is the direct center for five MBTA bus connections that provide access to the neighboring cities surrounding East Boston.

5.2.2 STUDY AREA ROADWAYS

The Coppersmith Village site is bounded by Border, Decatur, and Maverick Street, all of which are local connectors that provide low volumes and little thru traffic to this corner of East Boston. Because the site is located in a residential neighborhood, the streets surrounding the development carry relatively low volumes of thru traffic. Although the streets adjacent to the development do not provide regional connectivity, they do feed traffic into larger neighborhood collectors such as Meridian Street. Nearby access to Logan Airport and to Boston via Route 1A/ Sumner Tunnel and Callahan Tunnel provide additional regional connections. The following is a brief description of the principal study area roadways and intersections evaluated as part of this analysis.

Border Street is a two-way urban minor arterial that runs north to south from Condor Street to Sumner Street. Within the project study area, Border Street carries one lane of northbound and southbound traffic and sidewalks are provided on both sides of the road. The project site is located on the eastern side of Border Street between Decatur Street and Maverick Street and across from the proposed Boston East project. Parking is generally allowed on both sides of the roadway from Central Square to Sumner Street, however between Maverick and Decatur, there is no parking allowed along the south western segment of the street. Border Street has a right-of-way of 50 feet, with eight foot sidewalks on both sides of the road. The curb-to-curb width is approximately 34 feet wide which accommodates a parking lane and travel lane in each direction, with a double yellow lane line down the center of the roadway.

Decatur Street is a two way local street that runs east-west from Border Street to Meridian Street. Decatur Street intersects with Meridian Street at an angle, at a complex stop controlled intersection that also includes Havre Street and Gove Streets. Generally, Decatur provides a single lane of traffic in each direction and parking on both sides of the roadway. Parking is generally unrestricted; however between Liverpool and London Street, parking is restricted to

residential permits only. Adequate eight foot sidewalks are provided along both sides of the roadway. The curb to curb width is approximately 31 feet which includes parking and travel ways, but with no distinguishing pavement markings.

Liverpool Street is a local street that runs north-south from Central Square down to Sumner Street. Between Sumner and Maverick Street, Liverpool Street is exclusively one way northbound. However within the study area, Liverpool carries two lanes of traffic, one in each direction from Maverick Street to Central Square. The overall right-of-way is 50 feet, with 10 foot sidewalks on both sides of the road. Parking is allowed on both sides of the roadway, and is generally limited to 2-hour/ residential permit parking near the Site. Opposite the Coppersmith Village frontage, Liverpool Street hosts a combination of multi-family residential dwellings and small industrial properties.

Maverick Street is an urban minor arterial that runs west from Jeffries Street through Jeffries Point and Maverick Square to its termination to the west at New Street. Maverick Street is generally characterized as a one-way street that runs in a westbound direction. There are two segments of the street that accommodate two-way traffic, between Frankfort Street and Havre Street as well as the segment of Maverick between New Street and Border Street. Within the study area Maverick Street is exclusively one-way westbound from Liverpool Street to Border Street. Maverick Street is has a public right-of-way of approximately 50 feet, with a curb to curb width of 30 feet, with 10 foot sidewalks on both side of the road. Although parking is permitted along both sides of the road, regulations vary by block. Within the study area, parking is restricted to 2-hour/ residential parking along Maverick.

Coppersmith Way is a private way that runs east to west from Border to Liverpool Street. This private way serves as the southern boundary of the existing and proposed development site. The roadway is approximately 13 feet wide, and there is no parking allowed on either sides of the road. The street provides access to the homes that abut the private way. Because of the narrow width of the road, there are no sidewalks present.

5.2.3 STUDY AREA INTERSECTIONS

A summary of the area intersections is provided with the formal transportation analysis, listed in Appendix D.

5.2.4 PARKING

Parking was evaluated within a quarter mile radius, or five-minute walk from the project site, per the Transportation Access Plan guidelines. There is ample on-street parking in the surrounding area with varying regulations based on street locations as shown in

Figure 9. In general, a majority of the on-street parking in the vicinity of the study area has been regulated, especially in the areas closer to Meridian Street and Maverick Station. Parking

regulations in Maverick Square and along Meridian Street have a mix of time restricted regulations. South of Maverick Street between Maverick Square and New Street, all streets have been designated as either 2 Hour Parking, except for Residential Permit and or Residential Permit Parking Only. Parts of London, Decatur, and most of Border Street are unregulated within the parking study area.

More detailed measurements of on-street parking regulations were recorded on the streets directly adjacent to the proposed project site, as shown in Figure 10. There are approximately 94 spaces on the four streets that bound site. Spaces located on both Maverick and Liverpool Streets are restricted to 2-hour/ residential permit parking only, while Border and Decatur Street contain unregulated parking. During a weekday peak hour count, observations showed that many of these spaces were unused, especially on Border Street.

Figure 9: On-Street Parking Regulations - Study Area

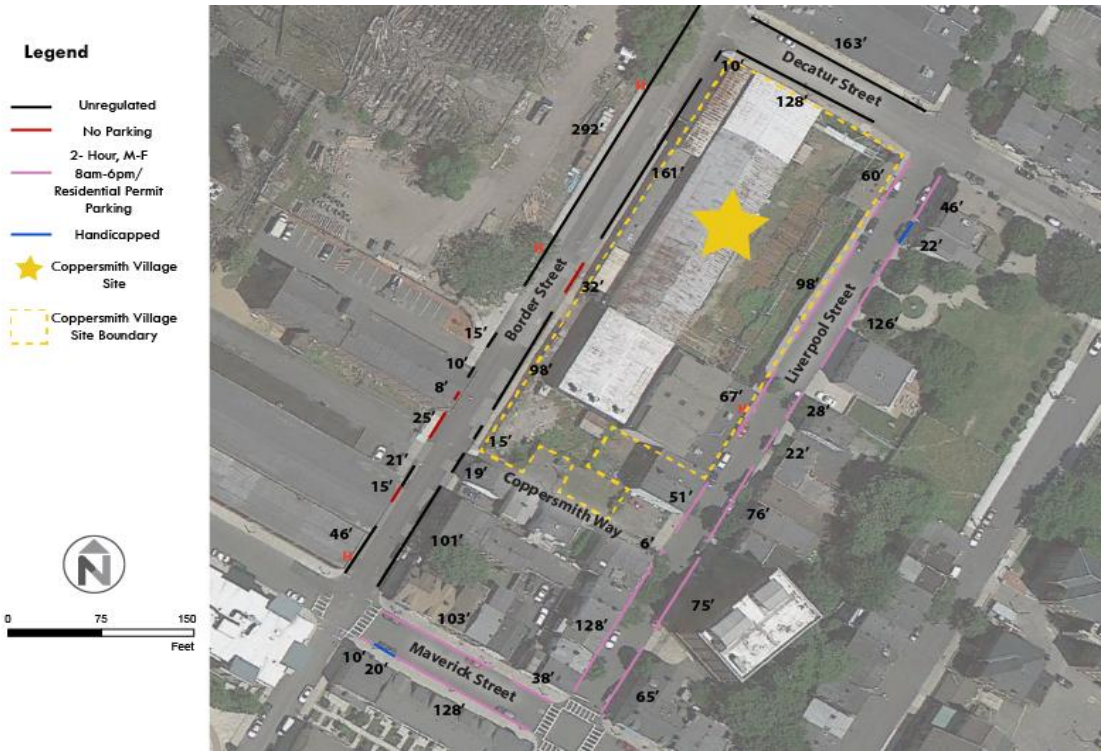


Figure 10: Adjacent Street Parking Regulations

Generally, there are no public off-street lots within a quarter mile from the study area. Most off-street parking is accessory parking for businesses along and in Maverick and Central Square. Two of the largest off-street lots are owned by the Liberty Plaza shopping center, which contains about 300 parking spaces and located in Central Square and the Walgreens parking lot on Meridian Street that contains about 40 spaces. There is one public parking lot located in Maverick Square adjacent to Maverick Station that has a capacity of about 25 cars. This lot is generally used by commuters, as the owner provides a flat fee of $7.00 for all day parking. An initial observation showed this lot was well used at the mid-day peak hour.

5.2.5 PUBLIC TRANSPORTATION

The East Boston area around Coppersmith Village is dense with public transportation, with two types of public transit within walking distance of the proposed project site, as seen in Figure 11. The MBTA Blue Line subway provides frequent, direct and fast access to downtown Boston at the nearby Maverick Square Station. Local bus service provides local and regional access from the project site connecting throughout East Boston and to the neighboring cities of Revere and Chelsea. A detailed description of public transportation options is provided with the full transportation study, listed in Appendix D.

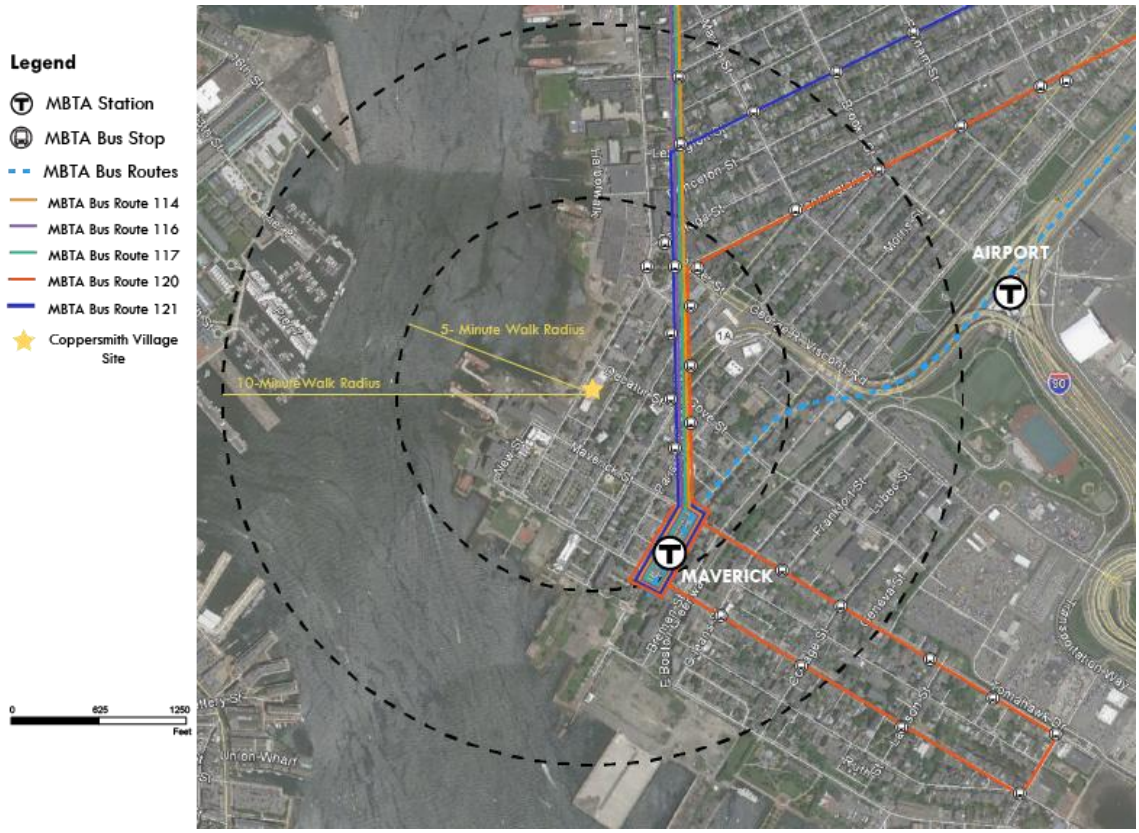


Figure 11: Coppersmith Village Area Public Transportation

MBTA Buses

Maverick Station also serves as the terminus for five MBTA bus routes that provide both local and regional access. These routes also run and provide stops along Meridian Street, which is even closer to the Project site than Maverick Square, about a 5-minute walk from the project site. Most MBTA bus routes run at frequencies that range from 10-15 minutes during weekday peaks hours, while off-peak headways range from 30-35 minutes.

Table 8: Maverick Station MBTA Bus Routes

Bus Route	Origin- Destination	Weekday Peak/ Off Peak	Weekend
Route 114	Maverick Square (East Boston)- Bellingham Square (Chelsea)	Limited service/ 50 minutes	No service
Route 116	Maverick Square– Wonderland Station via Revere Street;	10-15 minutes/20-30 minutes	30-35 minutes
Route 117	Wonderland Station - Maverick Station via Beach St	20 minutes/ 30 minutes	30- 35 minutes
Route 120	Orient Heights Station - Maverick Station via Bennington St., Jeffries Point & Waldemar Loop	15-20 minutes/ 20 minutes	30-55 minutes
Route 121	Wood Island Station- Maverick Station via Lexington Street	15-20 minutes/20 minutes	30-50 minutes

Water Transportation

Water transportation services are currently limited to a small section in East Boston. The MBTA provides Harbor Express commuter boat/ ferry service from the Boston Harbor to Logan Airport. Similarly water taxis provided by City Water Taxi provide various stops around the harbor including Logan Airport as well as East Boston's Harbor's Shipyard and Marina. There are no direct waterborne services near the proposed project site.

5.2.6 PEDESTRIAN CONNECTIONS

Generally, the public streets directly adjacent and in the vicinity of the Coppersmith Village site are in good condition. These provide well suited connections that create and enable a safe and comfortable walking environment for pedestrians. However, owing to the formerly industrial nature of the area, many of the sidewalks retain numerous driveways and curb cuts. These can be a barrier to accessibility and disrupt the pedestrian environment.

Many of the curb cut locations surrounding the project site once served as driveways for the former industrial building, which is no longer in use. The length of these curb cuts can run up to 50 feet, making the sidewalk inconsistent and an unpleasant place for pedestrians to walk. Moreover the curb cuts contribute to safety and accessibility deficiencies. The driveway from the former site located at the southeast corner of the Decatur and Liverpool intersection does not allow for a proper and accessible curb ramp for pedestrians and the handicapped.

Generally, most streets within a quarter mile radius provide continuous sidewalks on both sides of the road with adequate pedestrian curb ramps and crossings. At the intersection of Liverpool and Decatur, there are no crosswalks or accessible curb ramps. Sidewalks on Border are unevenly maintained and can be overgrown with weeds and plantings emerging from the vacant waterfront parcel directly across from the proposed site. The newly renovated Veterans Park on Liverpool Street across from the proposed site has newly renovated sidewalks.

New streetscape improvements from the recent Maverick Landing development have both enhanced the pedestrian environment and access to Maverick Square and the waterfront. Noted improvements include wide sidewalks, curb extensions, improved pedestrian crossings, and ADA accessible curb ramps. Existing sidewalk and streetscape conditions help support easy and direct access to the major destinations surrounding the site, which include Central Square, Maverick Square, including Maverick Station, and the East Boston Greenway. Proposed plans for the expansion of the Harborwalk along East Boston's waterfront will help provide both pedestrian and bicycle connections throughout East Boston.

5.2.7 BICYCLE CONNECTIONS

There are no on-street bicycle facilities on the streets directly surrounding the project site. However, the street conditions allow for shared travel space on the road for both vehicles and cyclist. The nearest bicycle lanes are within a quarter mile of the Site on Chelsea Street between Maverick Square and Prescott Street. The nearby East Boston Greenway provides an important corridor for cyclists connecting from the East Boston Waterfront on Marginal Street north to Day Square through the Bremen Street Park. Planned connections to Constitution Beach and Orient Heights are also in the works. Additionally, the proposed expansion plans for the Boston Harborwalk will extend a shared pedestrian and bicycle pathway along the entirety of the East Boston waterfront including the area directly across from the Site.

There are currently no on-street bicycle racks in the vicinity of the Site. Bicycle racks do exist in the commercial areas of Maverick and Central Squares as well as on Meridian Street. While Hubway, Boston's bicycle sharing program, does not presently have any stations in East Boston, NOAH is exploring partnership strategies to bring new service to the area.

5.2.8 LOADING AND SERVICE USES

The existing buildings on the site are vacant and there are is no active loading or service at the existing site. The area however still retains some of its industrial character and use, with Border Street also serving as a popular route for trucks. New traffic volumes were taken on Border Street for this analysis, and are included in Appendix D. The volumes indicate that Border Street carries 15% heavy vehicle traffic during the AM peak.

5.2.9 EXISTING TRAFFIC VOLUMES

Vehicles

All of the streets in the study area carry relatively low volumes of vehicular traffic. Border Street carries higher volumes than Liverpool Street, and up to 15% of Border Street volumes are heavy vehicles. The higher volumes on Border come from Central Square during peak morning and evening hours and continue down Border Street to Sumner. Maverick Street traffic approaching the study area feeds both Liverpool and Border Street with few vehicles continuing through past Border Street. In both the AM & PM peak hours Decatur Street volumes are higher eastbound - towards Meridian Street - than westbound. Southbound approaching traffic is primarily on Border Street, rather than Liverpool Street. Lastly, note that Border Street which is a one-way southbound after the Maverick Street intersection shows minor illegal vehicle movements northbound at that intersection.

Bicycles

Peak hour bicycle volumes were also observed ad recorded as described above. The counts showed relatively low overall bicycle activity within the study area. The small number of bicycle volumes are mainly concentrated along Border and Liverpool Street moving southbound during peak evening hours. Currently there are no existing bicycle facilities within a 5- minute walk radius from the site.

Pedestrians

Peak hour pedestrian counts were recorded as part of the transportation observations conducted on May 30$^{th.}$ Pedestrian volumes in the area adjacent to the Site indicate that PM peak activity is consistently higher than the AM peak hour. The most active pedestrian route appears to be north to south direction along Liverpool Street, as the street is more residential. The lack of existing development and activity on Border Street likely contributes to the low observed pedestrian volumes during peak hours.

5.3 EVALUATION OF LONG TERM IMPACTS

5.3.1 FUTURE NO BUILD CONDITIONS (2018)

To provide a baseline comparison for the project impacts of the proposed Coppersmith Village development, a future “no-build” analysis was conducted.

Adjacent Developments

As a transitioning area, the East Boston Waterfront has seen the permitting or completion recently of several developments, such as Maverick Landing and Beal Related on Massport land. Other projects that are in the process of obtaining their permitting that have projected traffic

volumes on study area roadways were added directly to this network. For the Future No Build Conditions analysis, these projects are:

Boston East: The Boston East development is located on 102-148 Border Street along the East Boston waterfront on Boston Inner Harbor. The project consists of redeveloping a 14.2 acre property into two proposed developments. The first will contain a residential building with 196 housing units, faculties for public accommodation, and open areas on the west side of the site. The second will be a marine facility and maritime area on the north side of the site. The residential component of the building will contain 141 underground garage parking spaces and 26 spaces will be designated for visitors and employees of the marine building in an on-site surface lot. The North Driveway from Boston East serves the residential area and larger parking facility and is on Border Street between Decatur Street and Central Square, just outside our Study Area. The South Driveway serves the other parts of the development and is located within the Study Area and included in the analysis. All Site generated trips touching the Study Area are incorporated.

6-26 New Street Development: The 6-26 New Street development project consists of the redevelopment of a four acre site located on East Boston's Waterfront located across from Maverick Landing. The proposed development will consist of a five and eleven storied building containing 123 residential units, with 126 residential parking spaces located in a two-level parking garage, with two levels of underground parking, and 13 outdoor public parking spaces.

Infrastructure Projects

Besides development plans, East Boston is also seeing significant planning for and construction of infrastructure projects. The MBTA's Maverick Station was recently upgraded, along with the surface roads above it that serve the Square. In coordination with BTD, two additional efforts were identified that may influence the Study Area.

Central Square Reconstruction: Located just north of the Coppersmith Village site along Border and Liverpool Streets. The redesigned square will reclaim much of the pavement for pedestrian use by narrowing the streets, expanding the park, and widening the sidewalks to create spaces for outdoor seating, cafes, and greenscape elements. Traffic will be better organized and bike lanes will be added where possible to improve traffic flow and create a safer environment for cyclists. The design and construction of this project is funded by the City of Boston with a budget of $3.5 million. Project is funded by the BTD.

Meridian Street/Havre Street/Gove Street/Decatur Street Improvements: The city of Boston is developing plans to improve and signalize this complex intersection. Each of these streets combine at an offset point on Meridian Street in a currently unsignalized configuration. Current plans call for the signalization of this location and include an exclusive pedestrian phase. Several of the approaches to this intersection (Gove Street, Havre Street north, and Decatur Street) will be converted from two-way to one-way away from the intersection to simplify operations.

Expanded curbs will shorten pedestrian crossings, narrow turning radii and provide for greatly improved accessibility at all corners. This improvement will enhance Decatur Street as a pedestrian connection between Meridian Street and the waterfront. Coppersmith Village's proposed restaurant/retail space will be located on the corner of Decatur Street and Border Street further enhancing this connection. The change in street directions at Meridian Street is expected to have minimal impact on surrounding streets, as Decatur Street will remain two-way west of London Street.

5.3.1.1 FUTURE NO-BUILD (2018) VOLUMES

Expected project generated trips from the developments described above were added to create the Future No-Build volumes. In addition the proposed south driveway from the Boston East project was added to the Future No-Build Network, as it will generate some a small number of entering and exiting vehicle trips onto Border Street adjacent to the proposed project site. Table 9 indicates peak hour vehicle traffic volumes for the forecasted 2018 No Build. Volume growth from Boston East is primarily concentrated on Border Street, with some additional turning volumes onto Decatur Street. Most other volume growth in the No Build is associated with the background growth rate, which reflects this area's growing activity.

5.3.1.2 FUTURE NO-BUILD (2018) TRAFFIC CAPACITY

The future No Build vehicle volumes were added to the Existing Conditions network, and again analyzed to assess the expected transportation system for the No Build scenario. Each intersection was again within the study area was analyzed for level-of-service (LOS), reporting the quality of traffic with a letter grade A to F, volume to capacity ratio (V/C), the stop time delay in seconds and the 95th percentile queue lengths. A summary chart of the results of this analysis is shown in Table 9 below. Traffic operations in the existing conditions at study area intersections operate at LOS A, with minimal delay and queue lengths. The Future No Build includes an analysis of the Boston East Driveway (South) as it intersects Border Street opposite the Site. The Boston East Driveway is shown to operate at LOS B in both the AM & PM peak hours, well within accepted BTD standards for an urban intersection.

Table 9: Future No-Build (2018) Traffic Operations Summary

Intersection	AM Peak Hour				PM Peak Hour			
	LOS	Delay	V/C	Queue 95th	LOS	Delay	V/C	Queue 95th
Unsignalized Intersections								
Border Street/ Decatur								
SB thru	A	0	-	-	A	0	-	-
SB left	A	7.6	0.045	0.143	A	7.7	0.03	0.091
WB left/right	A	9.8	0.045	0.14	A	9.9	0.083	0.272
Border Street/ Maverick								
EB left/right	A	7.9	0.081	0.3	A	8.2	0.107	0.4
WB left/thru/right	A	7.4	0.116	0.4	A	8.1	0.201	0.7
SB thru/ right	A	7.8	0.14	0.5	A	8.5	0.194	0.7
Liverpool Street/ Maverick								
WB thru/right	A	7.5	0.158	0.6	A	7.9	0.195	0.7
NB left/thru	A	7.6	0.057	0.2	A	7.7	0.074	0.2
SB right	A	6.7	0.008	0	A	6.8	0.017	0.1
Liverpool Street/ Decatur								
NB left/ thru/ right	A	7.5	0.107	0.4	A	7.5	0.087	0.3
SB left/ thru/ right	A	7.4	0.028	0.1	A	7.5	0.033	0.1
EB left/ thru/ right	A	7.7	0.093	0.3	A	7.6	0.088	0.3
WB left/ thru/ right	A	7.3	0.052	0.2	A	7.5	0.084	0.3
Boston East Driveway/ Border								
NB left	A	7.5	0.004	0.011	A	0	-	0
NB thru	A	0	-	-	-	-	-	-
EB left/right	B	10.1	0.002	0.005	B	10.3	0.022	0.067

5.3.2 BUILD CONDITIONS

5.3.2.1 SITE ACCESS AND CIRCULATION

The existing site is occupied by vacant buildings which are fenced off from public access, making it an uninviting environment for pedestrians to walk. There are a number of curb cuts fronting the site that interrupt the sidewalk network, which will all be closed and replaced with an accessible, city standard sidewalk.

Between the rental buildings and townhomes there will be a new internal "street," with a loading zone for the restaurant, access to garages, and parking for approximately 10 cars. This internal driveway will be privately owned and paved. This driveway will serve the parking, access and service needs of the development. It will also provide a sidewalk and pedestrian connections through the Site along this internal driveway and connecting to Coppersmith Way. The internal driveway will operate as a one-way connector, with access from Decatur Street and all egress on Liverpool Street. It will be stop controlled at its exit and will include pavement markings and signage as appropriate and preliminarily shown on the Site Plan.

Pedestrians and bicyclists will be able to enter the site through a number of access points including vehicular driveways, individual townhouse main entrances on Liverpool Street, and an entrance on Coppersmith Way which provides direct access to a secure bicycle storage facility. Pedestrians are also able to access the main apartment complex through various entrances on Border Street which include a main lobby entrances, an adjacent mailroom entrance, a restaurant entrance, and a paved pedestrian path Border Street near Coppersmith Way. These proposed access improvements help to shift the area into a more pedestrian and bicycle friendly environment.

5.3.2.2 TRIP GENERATION

To estimate the number of vehicle, transit, walk, and bicycle trips associated with the proposed Coppersmith Village, trip generation analysis and estimates were developed based on the most recent data presented in the ITE Trip Generation Manual, 8th Edition to determine trip generation rates for the proposed development. Because the project consists of three components including the 71 residential units that is broken up into 15 townhouses and 56 apartments, and a 3,000 square foot restaurant space, trip estimates were based on the ITE trip rates for Land Use 220 (Apartment), Land Use 230 (Residential Townhouse), and Land Use 932 (High-Turnover Site-Down Restaurant). The three ITE land use categories and their corresponding trip rates used for analysis are shown in Table 10 below:

Table 10: ITE Trip Generation Rates

ITE Class	Apartment (220)	Townhouse (230)	High Turnover (Sit-Down) Restaurant (932)
	Trips per Dwelling Unit	Trips per Dwelling Unit	Trips per 1000 SF GFA
Weekday	6.65	5.81	127.15
Saturday	6.39	5.67	158.37
AM Peak Hour*	0.51	0.44	11.52
PM Peak Hour*	0.62	0.52	11.15

As compared to the standard development used in ITE analyses, the study area has a very low driving rate. Thus the following analysis uses Boston Transportation Department Area 7 mode split assumptions to accurately reflect the number of trips amongst the various modes of travel. Furthermore, the analysis also uses the 2010 average vehicle occupancy for Boston per the 2010 American Community Survey to convert vehicle trips to person trips.

5.3.2.3 FUTURE BUILD CAPACITY ANALYSIS

The 2018 Future Build network was completed by adding the Site generated vehicle trips to the 2018 No Build network described above. Each intersection within the study area was again analyzed for level-of-service (LOS), reporting the quality of traffic with a letter grade A to F, volume to capacity ratio (V/C), the stop time delay in seconds and the 95th percentile queue lengths. The intersection capacity analysis worksheets are provided in Appendix D. A summary chart of the results of this analysis is shown in

Traffic operations in the existing conditions at study area intersections operate at LOS A, with minimal delay and queue lengths. The Future Build analysis includes the proposed internal driveway and its intersections with Decatur Street (entry only) and Liverpool Street (exit only). The Boston East Driveway (South) as it intersects Border Street opposite the Site is also included. All intersections and approaches continue to operate at LOS B or better, which is well within typically accepted BTD standards. The existing internal driveway operates at LOS A as it intersects with Liverpool Street, due to the relatively low volumes on both approaches. Only the westbound Decatur Street approach to Border Street shows a change (from LOS A to LOS B), but with a change in delay of only 0.1 second.

Table 11: Site-generated Person and Vehicle Trips

	Entering			Exiting			
	Home	Other (Retail)	Total Person Trips	Home	Other (Retail)	Total Person Trips	Total Person Trips by Mode
Daily Avg. Mode Shares							
Auto	136	85	201	136	85	201	402
Transit	43	12	55	43	12	55	110
Walk	73	105	179	73	105	179	357
AM Peak Mode Shares							
Auto	4	7	10		6	18	28
Transit	1	1	2		2	9	11
Walk	3	11	14		10	19	33
PM Peak Mode Shares							
Auto	14	6	18	8	6	13	31
Transit	8	1	9	2	1	3	12
Walk	9	9	18	6	9	15	33
Saturday Mode Shares							
Auto	132	109	218	146	106	229	447
Transit	41	15	57	29	15	44	101
Walk	71	129	199	68	131	199	399

* Note that Auto trips show the number of vehicle trips, derived by converting person trips to vehicle trips utilizing the average vehicle occupancy in Boston from the most recent American Community Survey.

Table 12: Future Build Capacity Analysis

Intersection	AM Peak Hour				PM Peak Hour			
	LOS	Delay	V/C	Queue 95th	LOS	Delay	V/C	Queue 95th
Unsignalized Intersections								
Border Street/ Decatur								
SB thru	A	0	-	-	A	0	-	-
SB left	A	7.598	0.048	0.151	A	7.754	0.035	0.107
WB left/right	A	9.9	0.046	0.145	B	10	0.085	0.279
Border Street/ Maverick								
EB left/right	A	7.9	0.081	0.3	A	8.2	0.107	0.4
WB left/thru/right	A	7.4	0.122	0.4	A	8.2	0.21	0.8
SB thru/ right	A	7.8	0.141	0.5	A	8.5	0.195	0.7
Liverpool Street/ Maverick								
WB thru/right	A	7.5	0.161	0.6	A	8	0.196	0.7
NB left/thru	A	7.6	0.057	0.2	A	7.7	0.074	0.2
SB right	A	6.7	0.01	0	A	6.9	0.019	0.1
Liverpool Street/ Decatur								
NB left/ thru/ right	A	7.6	0.126	0.4	A	7.6	0.101	0.3
SB left/ thru/ right	A	7.4	0.031	0.1	A	7.4	0.04	0.1
EB left/ thru/ right	A	7.7	0.094	0.3	A	7.6	0.089	0.3
WB left/ thru/ right	A	7.4	0.054	0.2	A	7.6	0.086	0.3
Boston East Driveway/ Border								
NB left	A	7.497	0.004	0.011	A	0	-	0
NB thru	A	0	-	-	-	-	-	-
EB left/right	B	10.1	0.002	0.005	B	10.3	0.022	0.067
Decatur Street Driveway Entrance/ Decatur								
EB thru/left*	-	0	0.05	0	-	0	0.05	0
WB thru/right*	A	0.7	0	0	A	0.8	0.01	0
Liverpool Street Driveway Exit/ Liverpool								
EB left/right	A	9	0.021	0.065	A	9	0.015	0.047

*Decatur Street Driveway utilizes 2000 Highway Capacity Manual methodology for traffic analysis results

5.3.2.4 PARKING SUPPLY AND DEMAND

The proposed Coppersmith Village is mostly residential, providing both townhouse and apartment units. Overall, the Project will have a total of 52 off-street parking spaces with 37 spaces for the 56 residential apartment units. Of the 56 apartment units, six will be affordable to

30% AMI while 22 are proposed market rate units. Similarly, three of the fifteen townhomes will be affordable to 80% AMI, while 12 will be market rate units. The proposed parking supply is intended to provide an adequate amount of parking and help minimize automobile ownership within an already dense and walkable neighborhood. The overall goal is to encourage alternative modes of transportation within this district that is well supported by a connected sidewalk network and nearby transit.

Approximately 37 parking spaces for the rental apartments will be located within an at-grade garage under the buildings and along an internal "street." The internal driveway will have a sidewalk along the area designated for parking. Each townhome will have its own one-car garage. Parking spaces for the apartment units will be available to rent for residents only. The garage parking spaces are accessible through one entrance and exit in the first apartment complex building with the attached restaurant. There will be two entrances and exits for the garage located in the second building.

The 15 townhouses will each contain a separate and private parking garage on the ground floor of their complex which is accessible only through the entrance driveway on Decatur Street. There will be no parking associated with the retail restaurant space located within the building. However, three parking spaces have been removed to create a loading and delivery zone for the restaurant, and rest of the Site, in the rear of the apartment complex.

BTD's off-street parking guidelines recommend a maximum parking ratio of 0.75 spaces per residential unit or 1,000 sq ft of non-residential development. The Project is proposing a transportation demand management program, which also includes the "unbundling" of parking from residential rents, to lower the demand for parking. There is also a significant affordability component of the Project which further lowers expected demand. The proposed Coppersmith Village development corresponds to about 0.66 spaces per unit for the 56 apartment complex and a one to one parking space ratio for the 15 townhouses, with no parking for retail on site but over 90 spaces on the street off-site. Combined this amounts to a parking ratio of about 0.73 for all residential units within the development as shown in Table 13 below.

Table 13: Parking Ratio

Use	Dimension	Number of On-Site Parking Spaces	Effective Project Parking Ratio
Residential	71	52	0.73 space/ unit
Townhomes	15	15	1.0 spaces/ unit
Apartments	56	37	0.66 spaces/ unit
Retail	3	0	0.0 spaces/ ksf

5.3.2.5 SERVICE AND LOADING

The proposed development will provide for an off-street loading area in the rear of the restaurant, located in the internal driveway. Three potential parking spaces have been removed to create a loading and delivery zone which will also be available for the rest of the Project. For the two apartments buildings and the restaurants, a trash room is provided in each building. Trash pickup for the restaurant and apartments will occur by private hauler through the internal driveway. The townhouse units will also utilize trash pickup by private hauler through the internal driveway.

5.3.2.6 BICYCLE ACCOMMODATIONS

The Coppersmith Village project supports multi-modal alternatives throughout this East Boston neighborhood. With the site's close proximity to the retail and commercial district, access to jobs and transit, bicycling has the potential to become an important component of this area's mobility needs. With proposed Harborwalk and the East Boston Greenway extensions in the near future, there are opportunities to help support non-auto transportation options in a neighborhood that is well-suited to benefit from these initiatives.

The Project is committed to providing storage and other accommodations for bicyclists to meet the level of demand. Secure, protected bicycles space is being created for all uses in two adjacent, secure, storage units. The storage units will have easy access to the internal circulation network on the Site. The townhouses will have the capability for in-unit storage either in the garage or the units themselves. Additionally, elevators in the apartment buildings are being designed to allow for bicycles and hooks or other in-unit storage devices can be provided upon request in individual apartments.

Coppersmith Village is committed to meeting the city of Boston's Bicycle Parking Requirements, shown in Table 14, which are intended to encourage bicycling, promote physical exercise, and reduce energy use and emissions in keeping with overall City bicycling goals. On street bicycle spaces, located near the restaurant, will also be made available and consistent with current City standards. Coppersmith Village further supports Hubway, the city of Boston's bicycle sharing program and will advocate for its expansion to East Boston.

Table 14: City of Boston Bicycle Parking Requirements

Use	BTD Requirement	Estimated Bicycle Parking Required
Townhomes	n/a	n/a
Apartments	1 secure/covered space per unit 1 outdoor/covered or outdoor/open space per 5 units	56 secure/covered 12 outdoor
Retail	0.3 secure/covered spaces per ksf (min. 2 spaces) for employees 1 outdoor/covered or outdoor/open space per 5,000 sq ft (min. 2 spaces) for patrons	2 secure/covered 2 outdoor
TOTAL		72

5.4 TRANSPORTATION MITIGATION MEASURES

The Coppersmith Village project will continue the transformation of the East Boston waterfront into a vibrant neighborhood that is primarily residential, but contains a mix of complementary uses. The project will add to this evolving district by replacing vacant, formerly industrial space, with a lively pedestrian oriented mostly residential development with multiple front doors. Coppersmith Village's residential space is being developed in a walkable format that greatly enhances the neighborhood's current streets and sidewalks. It will take advantage of and contribute to the neighborhood's walkability, superior transit access, and nearby shops, restaurants and services. Specific on-site improvements include:

- Closure of the (seven) existing curb cuts and driveways abutting the formerly industrial property;
- Creating a new internal driveway that will serve the parking and service needs of the development;
- Providing a sidewalk and pedestrian connections through the Site along this internal driveway and connecting to Coppersmith Way;
- Adding 15 townhomes with separate front door access on Liverpool Street to complement the residential character on the street;
- Providing separate in-unit parking for the townhomes with access off the internal driveway (rather than Liverpool Street) and maintaining pedestrian continuity on this important pedestrian corridor;
- Providing for off-street loading and trash service for the apartments and restaurant space;
- Creating on-site secure, weather protected bicycle parking and outdoor parking for use by visitors;

- Locating the restaurant, with outdoor seating space, at the corner of Decatur and Border Streets, which enhances Decatur Street as the pedestrian connection between Meridian Street and the waterfront;
- Improving the character of Border Street, by removing all curb cuts along the Site frontage while providing an address and entry for the apartments, retail space and community space on this important harbor side frontage.

While minimally adding to the expected vehicular traffic in the surrounding neighborhood, the Project nevertheless is supportive of proposed City changes and recommends additional improvements that should be completed even before the Project's development. These improvements include:

- Supporting the City's proposed reconstruction of Central Square, which will reclaim much of the pavement for pedestrian use by narrowing the streets, adding bicycle facilities, expand the park, and widen sidewalks to create spaces for outdoor seating, cafes, and greenscape elements;
- Support proposed plans for the Meridian Street/Havre Street/Gove Street/Decatur Street Improvements, which incorporate adding a traffic signal, conversion of several approaches from two-way to one-way, expanding curbs to shorten pedestrian crossings, narrow turning radii and provide for greatly improved accessibility at all corners;
- Adding a stop sign to the westbound Decatur approach to Border Street, as it typically operates in this manner today, but is not currently signed.
- Adding a stop sign to the eastbound New Street approach to Border Street. This typically operates as if it was stop controlled, but is not currently signed. All eastbound New Street traffic must turn right or left onto Border Street as the westbound Maverick Street approach is a one-way street. New Street becomes Maverick Street once it crosses Border Street.

Travel Demand Management (TDM) comprises a variety of strategies designed to reduce single-occupancy vehicle (SOV) travel and encourage "alternate modes" of transportation (public transit, walking, bicycling). As a primarily residential Project with units targeted a mix of potential tenants and owners, the Project is likely to attract residents and tenants who can rely primarily on non-auto travel for work, errands, and recreation. Nevertheless, the implementation of TDM programs is critical to helping ensure that residents, visitors and customers can meet their mobility needs using the variety of transportation options available in the surrounding neighborhood. The Project intends to adopt the following measures and programs to benefit their residents, and the surrounding neighborhood, while reducing vehicular traffic and potential environmental impacts.

Programmatic

- Provide information on travel alternatives onsite and with lease information;
- Designate an on-site transportation coordinator;
- Encourage the use of non-auto modes for residents, employees and visitors;
- Work with area developments on transportation issues including investigating joining the Transportation Management Association (TMA); and
- Post signs and enforce idling laws at loading facility and in the internal driveway.

Parking

- Providing one dedicated in-unit space per townhome
- "Unbundle" the cost of parking spaces from residential lease rates to reduce parking demand;
- Encourage tenants to carpool/vanpool; and

Public Transportation

- Work with the MBTA to enroll tenants and employees in monthly pass programs.

Pedestrian/Bicycle

- Provide free, secure, weather protected, on-site bicycle parking for residents, employees and visitors;
- Provide an attractive sidewalk along all Site frontages to improve and enhance the area's walkability
- Support Hubway, the city of Boston's bicycle sharing program and advocate for its expansion to East Boston.
- Provide on street bicycle spaces, located near the restaurant, consistent with current City standards.

6.0 INFRASTRUCTURE

6.1 INTRODUCTION

This chapter of the Expanded PNF outlines the existing utilities surrounding the Proposed Project site, the proposed connections required to provide service to the new structure, and any impacts on the existing utility systems that may result from the construction of the Proposed Project. The following utility systems include:

- Sewer
- Domestic water
- Fire protection
- Drainage

6.2 SEWER INFRASTRUCTURE

There are existing Boston Water and Sewer Commission (BWSC) sanitary sewer mains located in Coppersmith Way, Border Street and Liverpool Street adjacent to the project site. There is a BWSC combined sewer beneath Decatur Street. There is also a Massachusetts Water Resources Authority (MWRA) sanitary sewer main in Border Street:

- A 10-inch BWSC sanitary sewer in Coppersmith Street which flows northwesterly into a 15-inch BWSC sanitary sewer main in Border Street.
- A 15-inch BWSC sanitary sewer main which connects to a 30-inch x 48-inch combined sewer flowing northeasterly beneath Border Street. The 30-inch x 48-inch combined sewer then flows into a 32-inch x 48-inch combined sewer.
- A 16-inch MWRA sewer main beneath Border Street which flows in a northeasterly direction.
- A 30-inch by 48-inch BWSC combined sewer beneath Decatur Street which flows in a northwesterly direction and connects through a 36-inch pipe to the 32-inch by 48-inch combined sewer in Border Street.
- A 10-inch BWSC sanitary sewer main which increases to a 15-inch main and flows northeasterly beneath Liverpool Street. The main becomes a combined sewer before connecting to the 32-inch by 48-inch main beneath Decatur Street. There are currently no sewer services at the Project Site. The existing sewer system is illustrated in Figure 12.

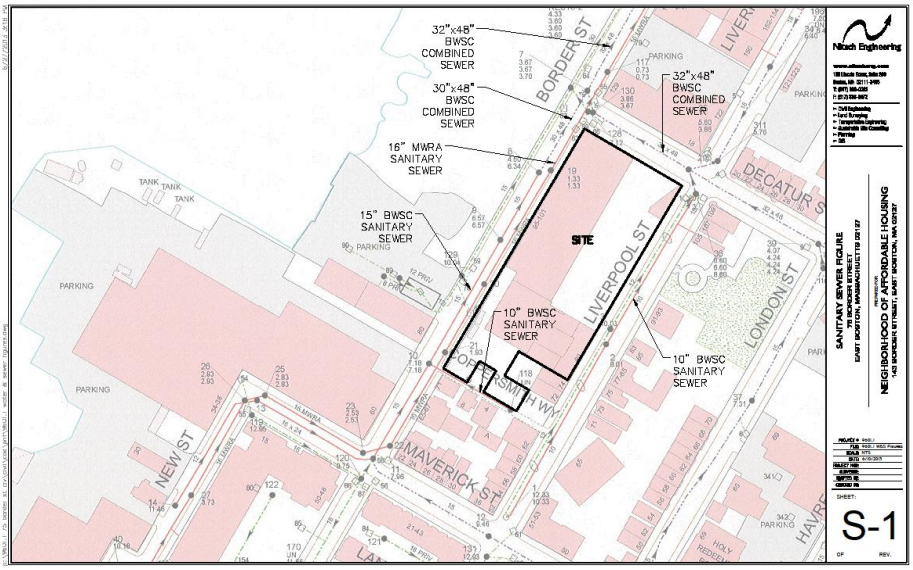


Figure 12: Sanitary Sewer

WASTEWATER GENERATION

The Proposed Project's sewage generation rates were estimated using the Massachusetts Division of Water Pollution Control Sewer System Extension and Connection Permit Program at 314 CMR 07.00. 314 CMR 07.00 lists typical generation values for the sources listed in Table 15 for Proposed Project. Typical generation values are generally conservative values for estimating the sewage flows from new construction. 314 CMR 07.00 sewage generation values are used to evaluate new sewage flows or the increase in flows to existing connections. Table 15 describes the increased sewage generation due to the Proposed Project.

Table 15: Proposed Project Wastewater Generation

Room Use		Size		314 CMR Value (gpd/unit)		Total Flow (gpd)
Residential		145	bedrooms	110	/bedroom	15,950
	Townhouses	45	bedrooms			
	Apartments	100	bedrooms			
Food Service-		138	seats	35	/seat	4,830
	Restaurant					
Community Room						
	Laundry	8	machines	400	/machine	3,200
	Proposed Sewer Flows (gpd):					**23,980**

6.2.1 SEWAGE CAPACITY & IMPACTS

The Proposed Project's impact to the existing BWSC systems in Liverpool Street, Decatur Street, Border Street, and Coppersmith Way was analyzed. The existing sewer system capacity calculations are presented in Table 16.

Table 16: Sewer Hydraulic Capacity Analysis

Manhole (BWSC Number)	Distance (feet)	Invert Elevation (up)	Invert Elevation (down)	Slope (%)	Diameter (inches)	Manning's Number	Flow Capacity (cfs)	Flow Capacity (MGD)
1 to 2	280	10.33	8.01	0.8%	10	0.013	1.99	1.29
2 to 36	250	8.01	6.60	0.6%	10	0.013	1.65	1.06
11 to 10	160	7.96	7.18	0.5%	15	0.013	4.51	2.92
10 to 9	200	7.18	6.57	0.3%	15	0.013	3.57	2.31
9 to 8	110	6.57	6.34	0.2%	15	0.013	2.95	1.91
8 to 7	130	4.60	3.70	0.7%	30	0.013	34.13	22.06
118 to 10	10	7.31	7.18	0.1%	10	0.013	0.69	0.45
35 to 130	160	3.86	3.68	0.1%	32	0.013	16.34	10.56

Note:
1. Manhole numbers taken from BWSC Sewer System Map
2. Flow Calculations based on Manning Equation
3. All pipes assumed to be vitrified clay, to be conservative
4. A conservative slope of 0.1% was assumed for Manhole 118 to 10 and Manhole 35 to 130.

6.2.2 PROPOSED CONDITIONS

The Proponent will coordinate with the BWSC on the design and capacity of the proposed connections to the sewer system. The Proposed Project is expected to generate new wastewater flows of approximately 23,980 gallons per day. Because the net sanitary flow is greater than 15,000 gpd, but less than 50,000 gpd, a one-time MassDEP sewer extension permit is required.

The sewer services for the restaurant are proposed to tie into either the 32-inch x 48-inch combined sewer located in Decatur Street or the 30-inch x 48-inch combined sewer in Border Street. The sewer services for the apartment building are expected to tie into either the 10-inch sanitary sewer system in Coppersmith Way or the 15-inch sanitary sewer in Border Street. The sewer services for the condominiums are expected to tie into either the 10-inch sanitary sewer in Liverpool Street or the 32-inch x 48 combined sewer in Decatur Street.

All improvements and connections to BWSC infrastructure will be reviewed as part of the BWSC's site plan review process for the Proposed Project. This process includes a

comprehensive design review of the proposed service connections, an assessment of project demands and system capacity, and the establishment of service accounts.

6.2.3 PROPOSED IMPACTS

The adjacent roadway sewer system in Border Street, Decatur Street, Coppersmith Way, and Liverpool Street and potential building service connection to the sewer system was analyzed.

Results shown in Table 16 indicate the hydraulic capacity of the 10-inch sanitary sewer system within Liverpool Street, the 32-inch x 48-inch combined sewer system in Decatur Street, the 10-inch sanitary sewer in Coppersmith Way, and the 15-inch sanitary sewer system in Border Street. The minimum hydraulic capacity is 1.06 million gallons per day (MGD) or 1.65 cfs for the sanitary sewer in Liverpool Street. The minimum hydraulic capacity is 10.56 MGD or 16.34 cfs for the combined sewer in Decatur Street. The minimum hydraulic capacity is 1.91 MGD or 2.95 cfs for the sanitary sewer in Border Street. The minimum hydraulic capacity is 0.45 MGD or 0.69 cfs for the sanitary sewer in Coppersmith Way. Based on the average daily flow estimate for the Proposed Project of 23,980 GPD or 0.024MGD; and with a factor of safety of 10 (total estimate=0.024MGD x 10 = 0.24 MGD), no capacity problems are expected within the Liverpool Street, Decatur Street, Border Street, or Coppersmith Way sewer systems.

6.3 WATER INFRASTRUCTURE

Water for the Proposed Project site will be provided by the BWSC. There are five different water systems within the city, and these provide service to portions of the city based on ground surface elevation. The five systems are southern low (commonly known as low service), southern high (commonly known as high service), southern extra high, northern low, and northern high. There is a 12-inch BWSC Northern Low main and a 20-inch BWSC Northern Low main beneath Border Street, a 8-inch BWSC Northern Low main beneath Decatur Street, a 8-inch BWSC Northern Low main beneath Liverpool Street, and a 2-inch BWSC Northern Low main beneath Coppersmith Way. The existing water system is illustrated in Figure 13.

The existing building's domestic water service connects to the 8-inch Northern Low BWSC water main in Liverpool Street.

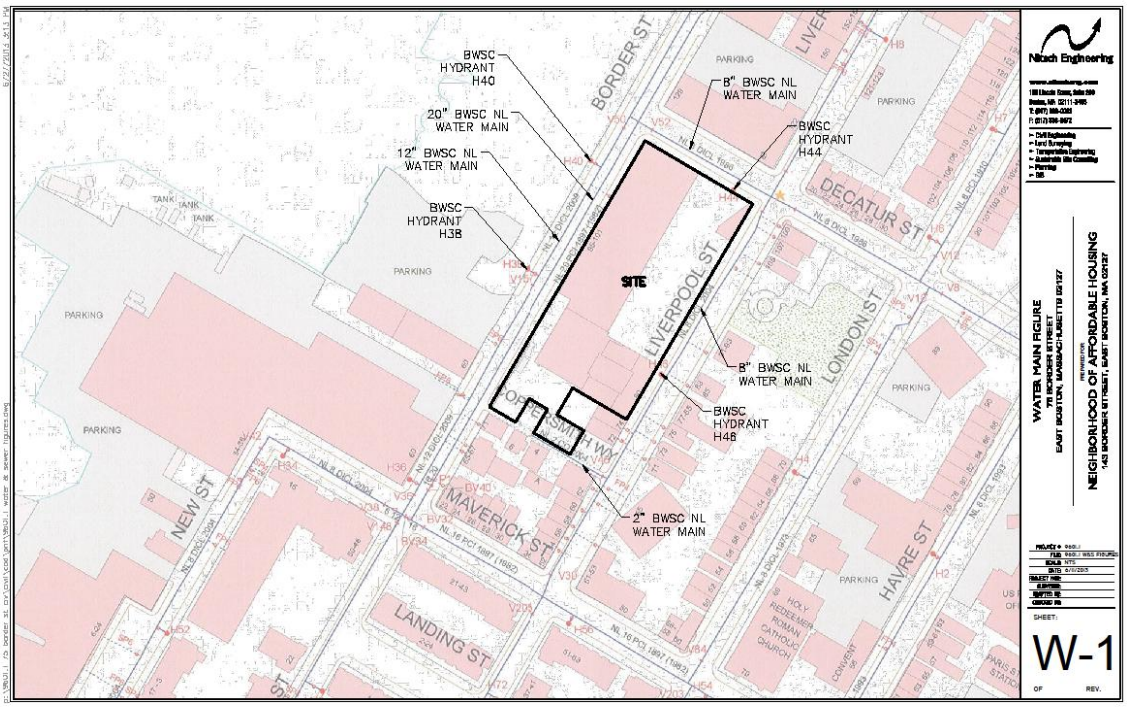


Figure 13: Water Main

6.3.1 WATER CONSUMPTION

The Proposed Project's water demand estimate for domestic services is based on the Proposed Project's estimated sewage generation, described above. A conservative factor of 1.1 (10%) is applied to the estimated average daily wastewater flows calculated with 314 CMR 07.00 values to account for consumption, system losses and other usages to estimate an average daily water demand. The Proposed Project, which includes the demolition of the existing building and construction of a new building, will require approximately 26,378 gpd of domestic water. The water for the Proposed Project will be supplied by the BWSC system.

All efforts to reduce water consumption will be made. Aeration fixtures and appliances will be chosen for water conservation qualities.

All new water services will be installed in accordance with the latest Local, State, and Federal codes and standards. Backflow preventers will be installed at both domestic and fire protection service connections. New meters will be installed with Meter Transmitter Units (MTU's) as part of the Boston Water and Sewer Commission's Automatic Meter Reading (AMR) system.

6.3.2 EXISTING WATER CAPACITY & IMPACTS

BWSC record flow test data containing actual flow and pressure for a hydrant within the vicinity of the Proposed Project site was available. Additional testing has been requested, as hydrant

flow data should be less than a year old to be used as a design tool. The results of the BWSC testing near the Proposed Project site are indicated in Table 17.

Table 17: Existing Hydrant Flow Data

Flow Hydrant Number	Date of Test	Static Pressure (psi)	Residual Pressure (psi)	Total Flow (gpm)	Flow (gpm) at 20 psi	Flow (gpm) at 10 psi
H42 12-inch Northern Low	4/29/2013	70	62	1,876	5,047	5,569
H46 8-inch Northern Low	3/05/2013	72	69	2,004	9,352	10,284

6.3.3 FIRE PROTECTION

The domestic and fire services for the condominium building will connect to the 8-inch Northern Low service in Liverpool Street. The domestic and fire services for the apartment building will connect to either the 12-inch Northern Low or 20-inch Northern Low services in Border Street. The domestic and fire services for the restaurant will connect to either the 8-inch Northern Low service in Decatur Street or the 12-inch Northern Low service in Border Street.

The domestic and fire protection water service connections required by the Proposed Project will meet the applicable City and State codes and standards, including cross-connection backflow prevention. Compliance with the standards for the domestic water system service connection will be reviewed as part of BWSC's Site Plan Review Process. This review includes, but is not limited to, sizing of domestic water and fire protection services, calculation of meter sizing, backflow prevention design, and location of hydrants and siamese connections that conform to BWSC and Boston Fire Department requirements.

6.3.4 PROPOSED IMPACTS

No water capacity problems are anticipated within this system as a result of the Proposed Project's construction.

6.4 STORMWATER

There are BWSC storm drains in Border Street and Liverpool Street. There is also a combined sewer beneath Decatur Street and Border Street as described in the Sewer Infrastructure section above.

There is a 15-inch BWSC storm drain beneath the north side of Border Street which flows in the northeasterly direction into a 32-inch x 48-inch combined sewer in Border Street. There is a 12-inch storm drain located beneath Liverpool Street, which connects to the 32-inch x 48-inch combines sewer beneath Decatur Street. The combined sewer beneath Decatur Street then

flows into the 32-inch x 48-inch combined sewer beneath Border Street, which flows in the northerly direction.

There are currently no surface water collection structures on the site and it is not clear where the runoff from the warehouse flows to. The existing BWSC storm drain system is illustrated in Figure 13.

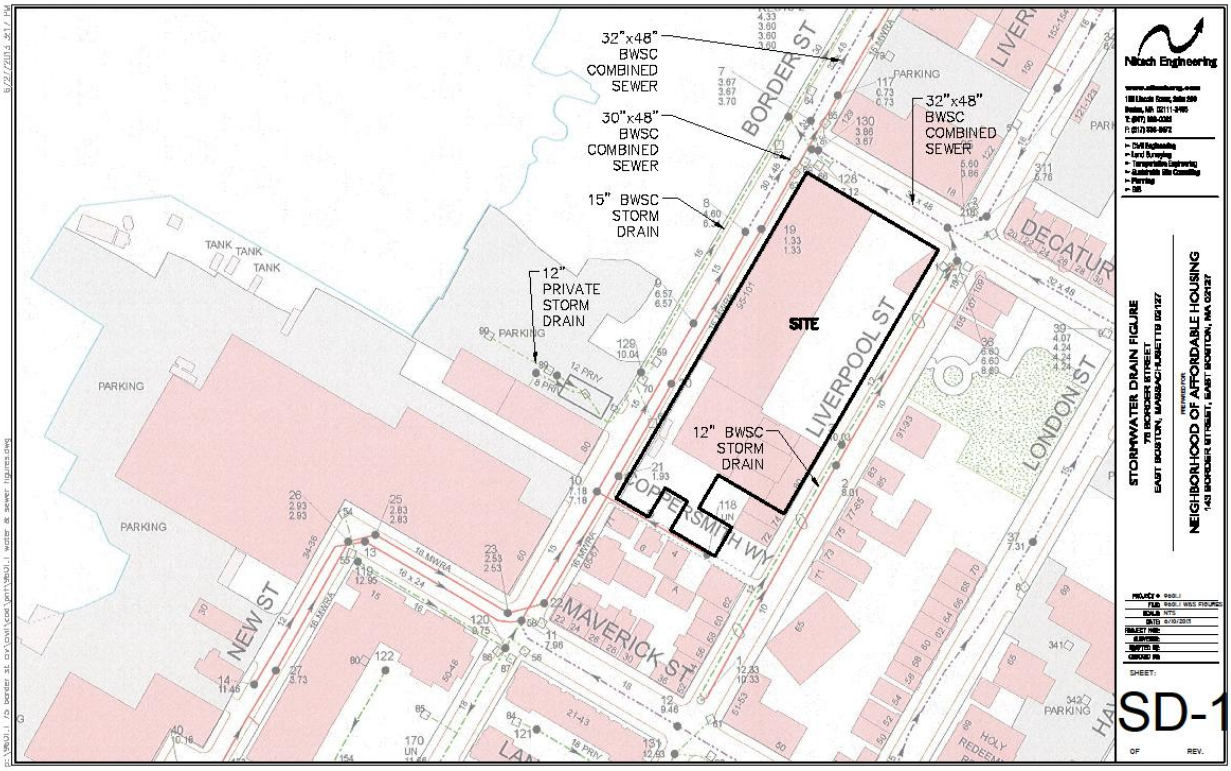


Figure 14: Stormwater Drain

6.4.1 STORMWATER IMPACT

The Proposed Project will increase the amount of impervious area at the site compared to the existing condition. The project will maintain the existing peak rates and volumes of runoff. No significant stormwater rate or volume mitigation is anticipated. BWSC will require recharging the first inch of runoff over the site impervious area. This project will comply with this requirement.

All improvements and connections to BWSC infrastructure will be reviewed as part of the Commission's site plan review process. This process includes a comprehensive design review of the proposed service connections, assessment of project demands and system capacity, and establishment of service accounts.

6.4.2 WATER QUALITY IMPACT

The Proposed Project will not affect the water quality of nearby water bodies. Erosion and sediment control measures will be implemented during construction to minimize the transport of site soils to off-site areas and BWSC storm drain systems. During construction, existing catch basins will be protected with filter fabric, hay bales and/or crushed stone, to provide for sediment removal from runoff. These controls will be inspected and maintained throughout the construction phase until all areas of disturbance have been stabilized through the placement of pavement, structure, or vegetative cover.

All necessary dewatering will be conducted in accordance with applicable MWRA and BWSC discharge permits. Once construction is complete, the Proposed Project will each be in compliance with all local and state stormwater management policies. See below for additional information.

6.4.3 DEP STORMWATER MANAGEMENT POLICY STANDARDS

In March 1997, the Department of Environmental Protection DEP adopted a new Stormwater Management Policy to address non-point source pollution. A brief explanation of each Policy Standard and the system compliance is provided below:

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 proposed design will comply with this Standard. No new untreated stormwater will be directly discharged to, nor will erosion be caused to wetlands or waters of the Commonwealth as a result of stormwater discharges related to the Proposed Project.

Standard #2: *Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*

Compliance: The proposed design will comply with this Standard. The existing discharge rate will be met or decreased as a result of the improvements associated with the Proposed Project.

Standard #3: *Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to the maximum extent practicable. The annual recharge from the post development site should approximate the annual recharge from the pre-development or existing site conditions, based on soil types.*

Compliance: The Proposed Project will comply with this standard to the maximum extent practicable.

Standard #4: *For new development, stormwater management systems must be designed to remove 80% of the average annual load (post-development conditions) of Total Suspended Solids*

(TSS). It is presumed that this standard is met when: Suitable nonstructural practices for source control and pollution prevention are implemented; Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and Stormwater management BMPs are maintained as designed.

Compliance: The proposed design will comply with this standard. Within the Proposed Project's limit of work, there will be mostly roof, landscaping, parking and pedestrian areas. Any paved areas that would contribute unwanted sediments or pollutants to the existing storm drain system will be collected by deep sump, hooded catch basins and conveyed through water quality units before discharging into the BWSC system.

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, all 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: The proposed design will comply with this standard. The Proposed Project is not associated with Higher Potential Pollutant Loads (per the Policy, Volume I, page 1-6). The project complies with this standard.

Standard #6: *Stormwater discharge to critical areas must utilize certain stormwater management BMPs approved for critical areas. Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold-water fisheries and recharge areas for public water supplies.*

Compliance: The proposed design will comply with this Standard. The Proposed Project will not discharge untreated stormwater to a sensitive area or any other 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 proposed design will comply with this Standard. The Proposed Project complies with the Stormwater Management Standards as applicable to the development.

Standard #8: *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.*

Compliance: The Proposed Project will comply with this standard. Sedimentation and erosion controls will be incorporated as part of the design of these projects and employed during construction.

Standard 9: *A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

Compliance: The Proposed Project will comply with this standard. An O&M Plan including long-term BMP operation requirements will be prepared for the Proposed Project and will assure proper maintenance and functioning of the stormwater management system.

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

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

6.4.4 PROTECTION PROPOSED DURING CONSTRUCTION

Existing public and private infrastructure located within nearby public rights-of-way will be protected during construction of each component of the Proposed Project. The installation of proposed utility connections within public ways will be undertaken in accordance with BWSC, Boston Public Works Department, the Dig-Safe Program, and applicable utility company requirements. Specific methods for constructing proposed utilities where they are near to, or connect with, existing water, sewer, and drain facilities will be reviewed by the BWSC as part of its Site Plan Review process. All necessary permits will be obtained before the commencement of work.

The Proponent will continue to work and coordinate with the BWSC and the utility companies to ensure safe and coordinated utility operations in connection with the Proposed Project.

7.0 TIDELANDS

7.1 APPLICABILITY OF MGL CHAPTER 91

The project's Chapter 91 consultant, TRC, has been in contact with Chris Busch at the BRA, Ben Lynch at MA DEP, and officials at MEPA to determine the applicability of Chapter 91 to the project. Following research on historical tidelands filling by TRC and review and discussion with Ben Lynch at MA DEP, it was determined that the project falls within the jurisdiction of Chapter 91.

The requirement of filing for a Chapter 91 Waterways License also triggers filing a MEPA Environmental Notification Form (ENF) with the Massachusetts Office of Energy and Environmental Affairs per 301 CMR 11:03 (3)(b)(5) for non-water dependent projects on tidelands (inclusive of filled tidelands) that require a Chapter 91 license.

TRC filed the MEPA ENF on September 6, 2013 as well as the Chapter 91 license application. Once the MEPA review is complete, MA DEP can deem the Chapter 91 application complete. TRC's initial review of the MEPA thresholds indicates that the proposed project is unlikely to trigger further environmental review via an environmental impact report.

7.2 PROPOSED MITIGATION

The proposed Coppersmith buildings occupy approximately 1,600 square feet of filled tidelands (subject to Chapter 91 requirements) for a non-water dependent purpose. To comply with Chapter 91, the small area of the site subject to Chapter 91 regulations (1600SF) will be mitigated via construction of a public access restaurant (2,800 SF) on the ocean side of the building that includes an outdoor terrace.

THE GENERAL COURT OF MASSACHUSETTS
STATE HOUSE, BOSTON 02133-1053

August 1, 2013

Mr. Peter Meade, Director
Boston Redevelopment Authority
Boston City Hall
Boston, MA 02201

Dear Mr. Meade,

We are writing as the East Boston legislative delegation in support of the Neighborhood of Affordable Housing's (NOAH) application for the project notification form (PNF) filed to establish Coppersmith Village. It is our belief that the Coppersmith Village proposal will continue to revitalize the East Boston waterfront and community as a whole, in particular the Maverick/Central Square triangle.

This proposal provides a mixture of housing and commercial opportunities intended to redevelop a community blight into a positive asset. Specifically, 12 units of homeownership out of 15 are proposed as fee-simple market rate sales, and two buildings fronting Border Street will total 58 units with a blend of market rentals. In addition, a 3,000 square foot commercial space is proposed for a potential restaurant at the corner of Border and Decatur Streets.

NOAH's plans fit well with those recently re-approved by the Boston Redevelopment Authority Board for Boston East. As proposed, the homeownership units keep the right scale on Liverpool Street, where no large structures would be appropriate. On Border Street, they maximize the waterfront views of Boston Harbor without blocking any other views. It is of modest scale and is nicely designed. Furthermore, we feel that the community will support this imitative and view it as a positive addition to East Boston.

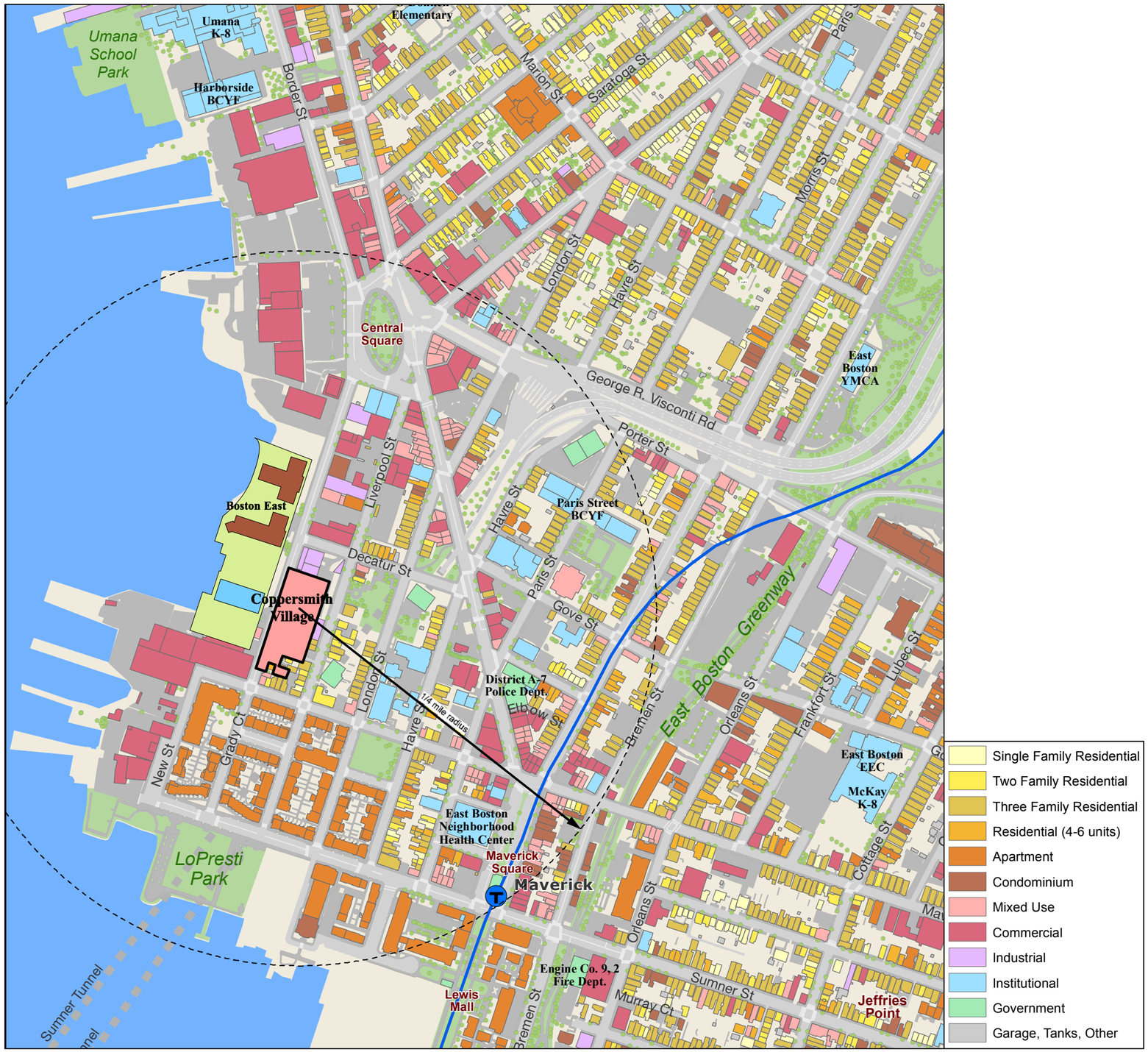
In closing, we respectfully request that the PNF be awarded.

Respectfully,

ANTHONY PETRUCCELLI
State Senator

CARLO BASILE
State Representative

SALVATORE LAMATTINA
City Councilor



COPPERSMITH VILLAGE

BORDER STREET APARTMENTS & LIVERPOOL STREET TOWNHOUSES

NOAH

THE NARROW GATE architecture LTD

COPPERSMITH VILLAGE

BORDER STREET APARTMENTS & LIVERPOOL STREET TOWNHOUSES

NOAH

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BORDER STREET

HONEY LOCUST

MIXED NATIVE DECIDUOUS & EVERGREEN SHRUBS

YEW HEDGE

MAHONIA

LOW BAMBOO CLUMPS

MIXED NATIVE SHRUBS

YEW

HONEY LOCUST

HONEY LOCUST, AZALEAS, MAHONIA RHODODENDRONS LIROPE

SEATING WALL

YEW HEDGE

INTERIOR TROPICAL PLANTINGS

BAMBOO

GREEN WALL BOSTON IVY W/ DECORATIVE GRASS

MAHONIA

FLOWERING GRASS

RED MAPLE

INKBERRY

RAMP UP

HARDY BAMBOO UNDERPLANTED W/ LIROPE

STONE BENCH

WALL ART SCULPTURE

RED JAPANESE MAPLE UNDER PLANTED W/ VARIEGATED HAKONE

GREEN WALL BOSTON IVY

BOSTON IVY GREEN WALL & TRUMPET VINE

DECORATIVE GRASS

RED MAPLE

REP-OSIER DOGWOOD

FORSYTHIA

LILAC

LOW JUNIPERS

BOSTON IVY GREEN WALL DECORATIVE GRASS

YEW HEDGE FLOWERING PEAR

COPPERSMITH WAY

BIKE STORAGE

RED MAPLE

RED OAKS

INKBERRY HEDGE

DECATUR STREET

RED MAPLE

VINCA

MAHONIA

LIRIOPE, SEASONAL BULBS W/ CENTRAL SPECIMENS PLANT. (TYP.)

GRAY BIRCH

UPRIGHT FLOWERING CHERRY

VINCA

INKBERRY

UPRIGHT FLOWERING CHERRY

PIN CHERRY POTENTILLA, COTONEASTER H.

GRAY BIRCH NATIVE GROUND COVERS POTENTILLA AND DAYLILY

TALL DECORATIVE GRASS SURROUNDED BY BLUE FESCUE (TYPICAL)

GRAY BIRCH VINCA, POTENTILLA

PIN CHERRY, COTONEASTER H.

FLOWERING PEAR VINCA, POTENTILLA

LIVERPOOL STREET

1 LANDSCAPE PLAN
Scale: 1" = 30 ft

0 30 60 FT

COPPERSMITH VILLAGE

BORDER STREET APARTMENTS & LIVERPOOL STREET TOWNHOUSES

NOAH

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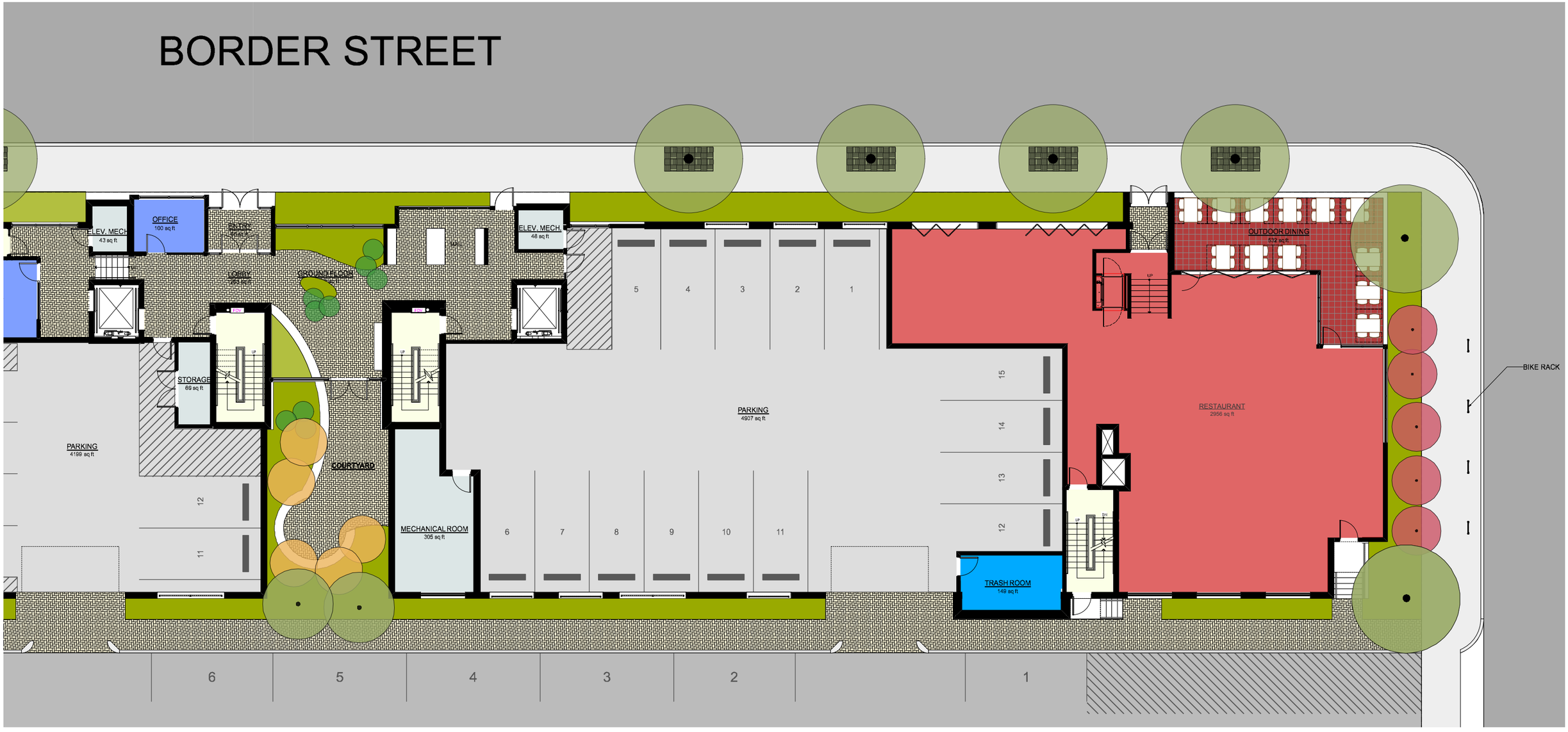

1 FIRST FLOOR PLAN - NORTH BUILDING
Scale: 1/16" = 1'-0"

0 5 10 15 20 FT

COPPERSMITH VILLAGE
BORDER STREET APARTMENTS

NOAH

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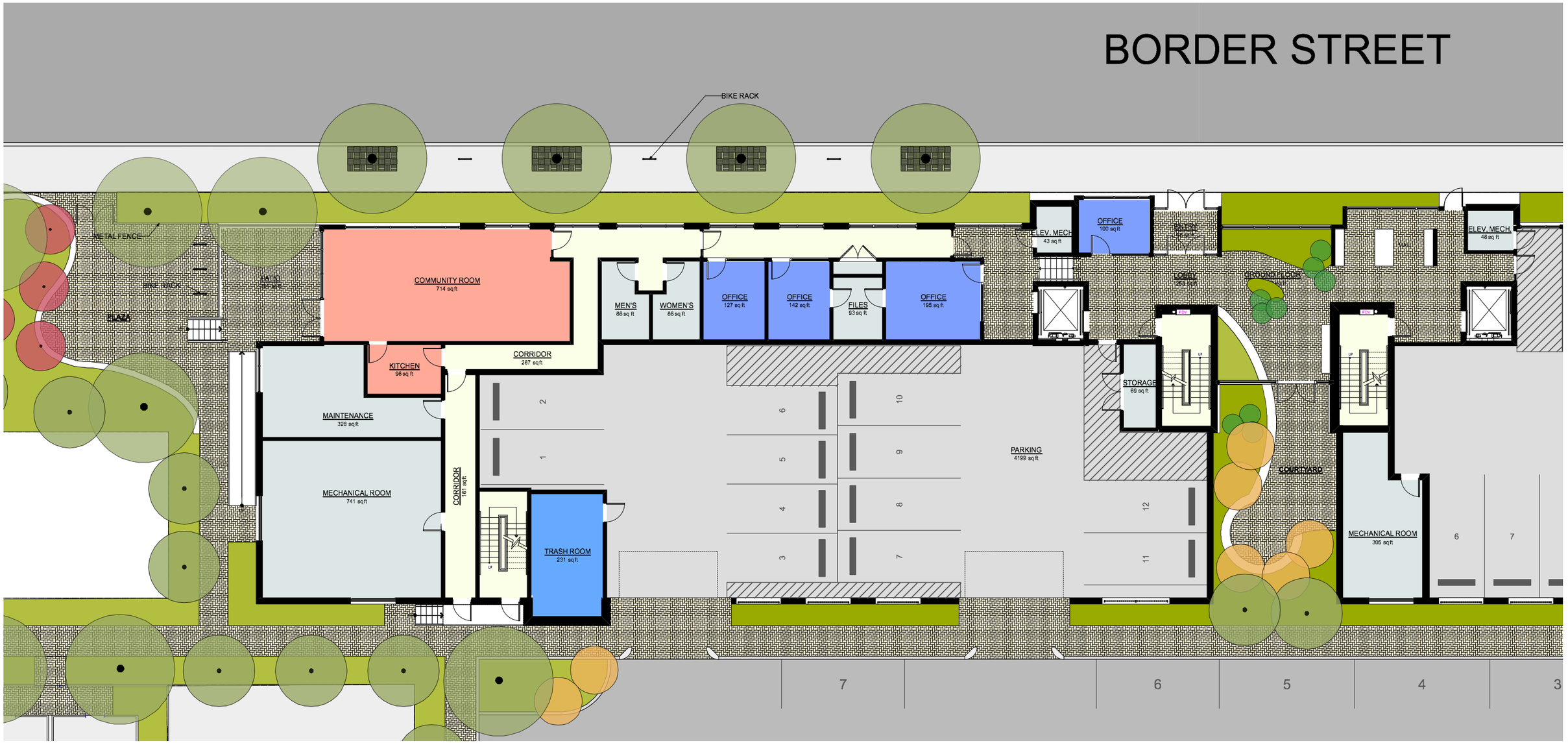


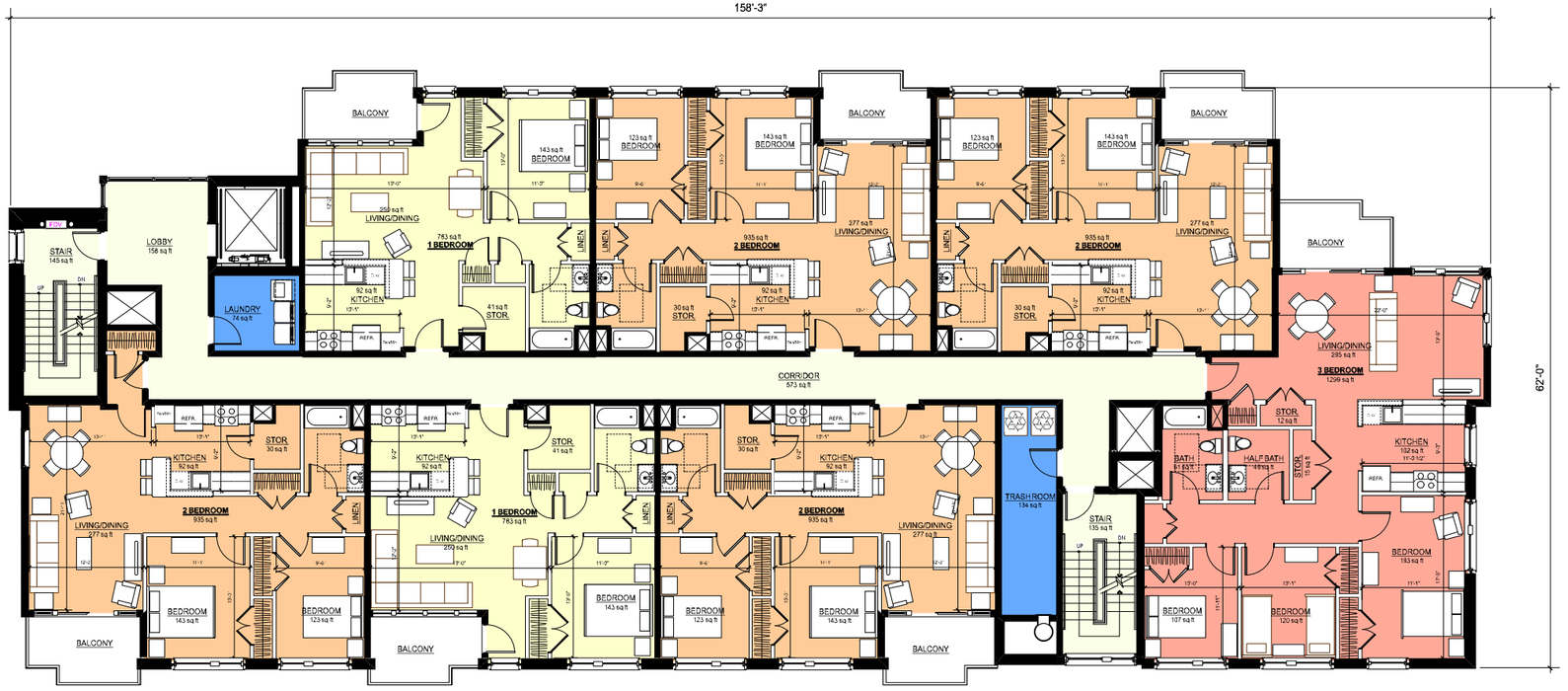
1 FIRST FLOOR PLAN - SOUTH BUILDING
Scale: 1/16" = 1'-0"

0 5 10 15 20 FT

COPPERSMITH VILLAGE
BORDER STREET APARTMENTS

NOAH

THE NARROW GATE architecture LTD



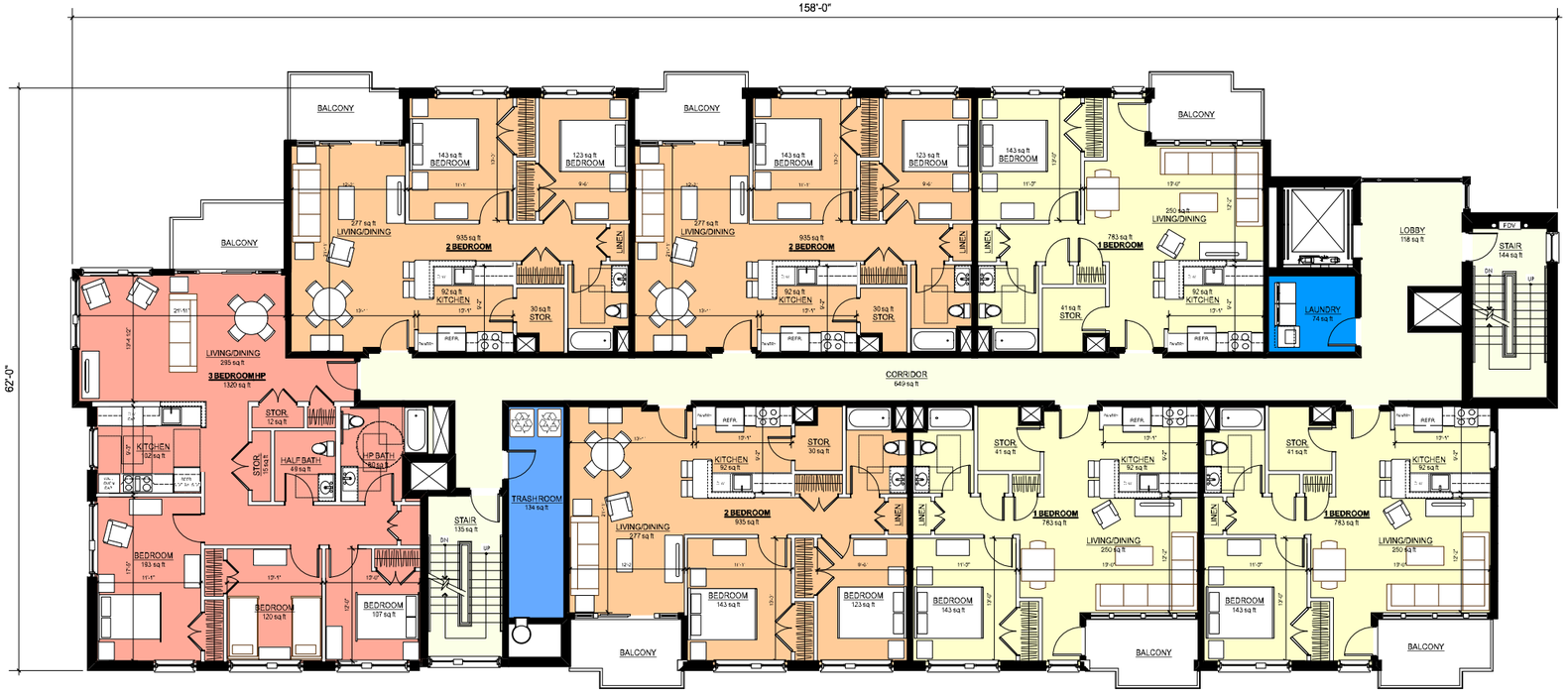
1 UPPER FLOOR PLAN - NORTH BUILDING
Scale: 1/16" = 1'-0" (TYPICAL FOR FLOORS 2 - 5)

0 5 10 15 20 FT

COPPERSMITH VILLAGE
BORDER STREET APARTMENTS

NOAH

THE NARROW GATE architecture LTD



1 UPPER FLOOR PLAN - SOUTH BUILDING
Scale: 1/16" = 1'-0" (TYPICAL FOR FLOORS 2 - 5)

0 5 10 15 20 FT

COPPERSMITH VILLAGE
BORDER STREET APARTMENTS

NOAH

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1 WEST ELEVATION - BORDER STREET
Scale: 1" = 30 ft

2 EAST ELEVATION
Scale: 1" = 30 ft

COPPERSMITH VILLAGE
BORDER STREET APARTMENTS

NOAH

THE NARROW GATE architecture LTD

1 NORTH BUILDING- WEST ELEVATION- BORDER STREET
Scale: 1/16" = 1'-0"

2 SOUTH BUILDING WEST ELEVATION- BORDER STREET
Scale: 1/16" = 1'-0"

1 NORTH BUILDING - EAST ELEVATION
Scale: 1/16" = 1'-0"

2 SOUTH BUILDING- EAST ELEVATION
Scale: 1/16" = 1'-0"

COPPERSMITH VILLAGE
BORDER STREET APARTMENTS

NOAH

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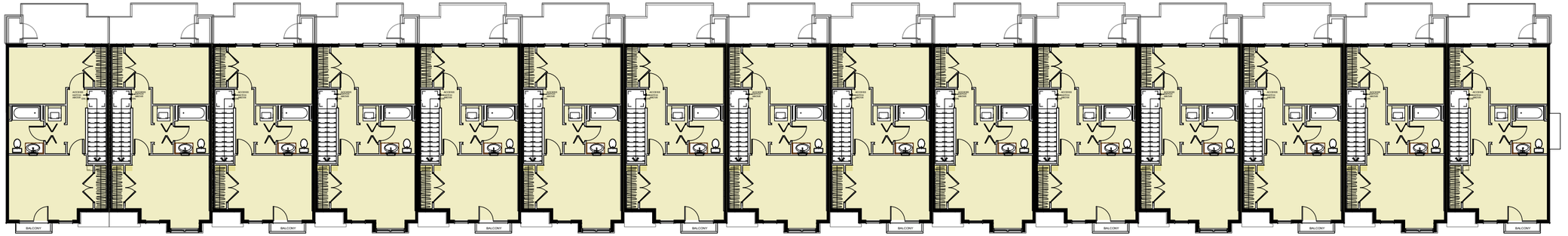
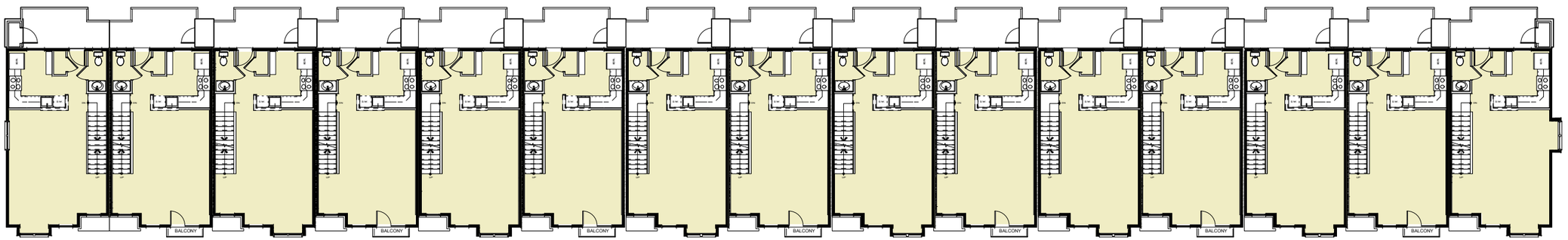
1 NORTH BUILDING- NORTH ELEVATION
Scale: 1/16" = 1'-0"

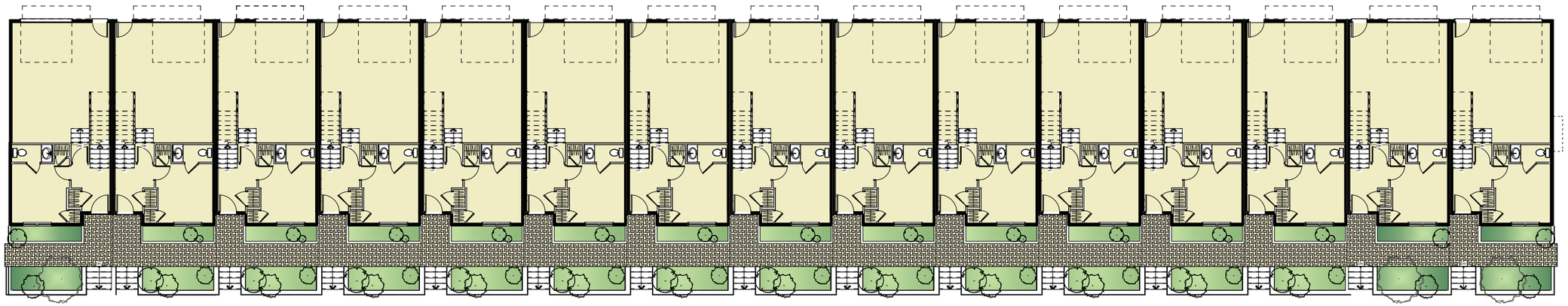
2 SOUTH BUILDING- SOUTH ELEVATION
Scale: 1/16" = 1'-0"



3 THIRD FLOOR PLAN
Scale: 1" = 20 ft



2 SECOND FLOOR PLAN
Scale: 1" = 20 ft



1 FIRST FLOOR PLAN
Scale: 1" = 20 ft

0 20 30 40 50 FT

COPPERSMITH VILLAGE
LIVERPOOL STREET APARTMENTS

NOAH

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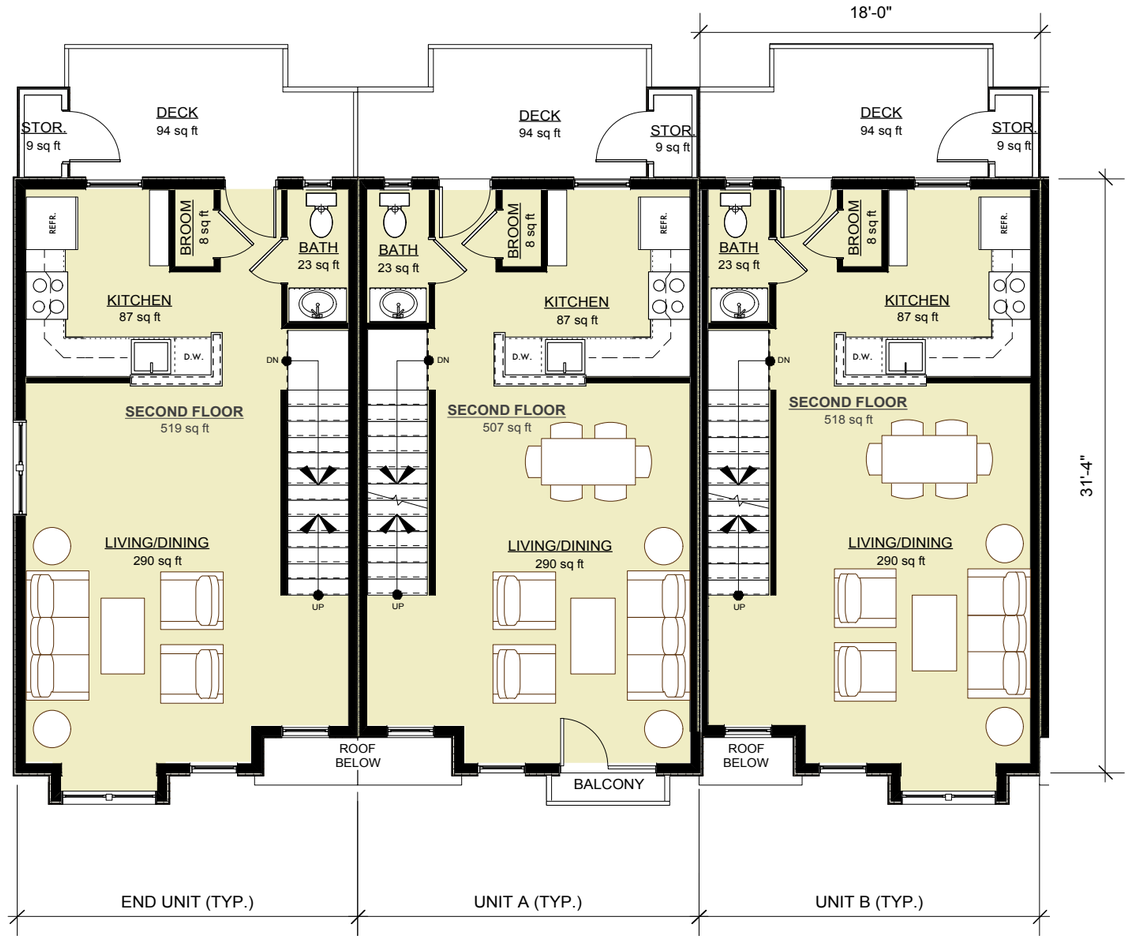
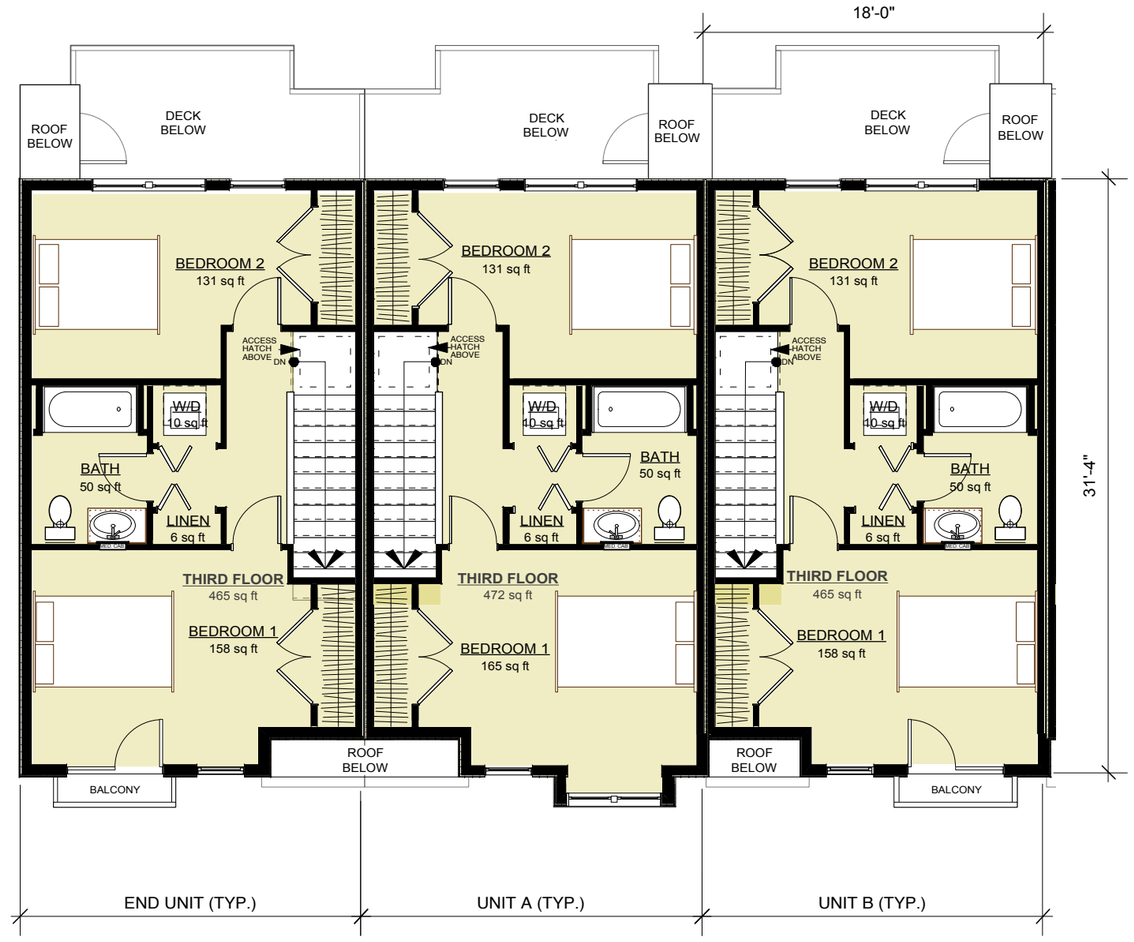
1 FIRST FLOOR PLAN
Scale: 1/8" = 1'-0"

0 5 10 FT



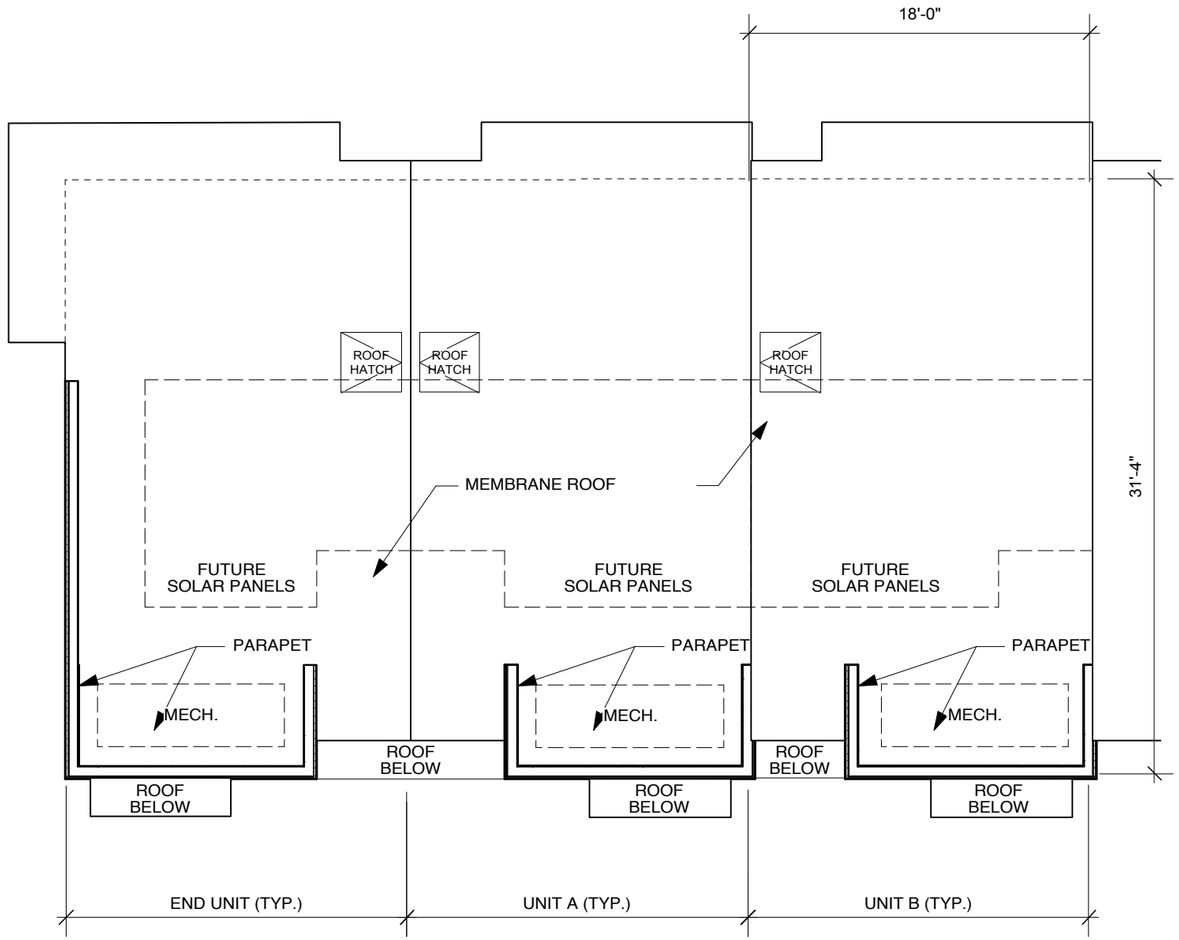
1 SECOND FLOOR PLAN
Scale: 1/8" = 1'-0"

0 5 10 FT



1 THIRD FLOOR PLAN
Scale: 1/8" = 1'-0"

0 5 10 FT



1 ROOF PLAN
Scale: 1/8" = 1'-0"

0 5 10 FT

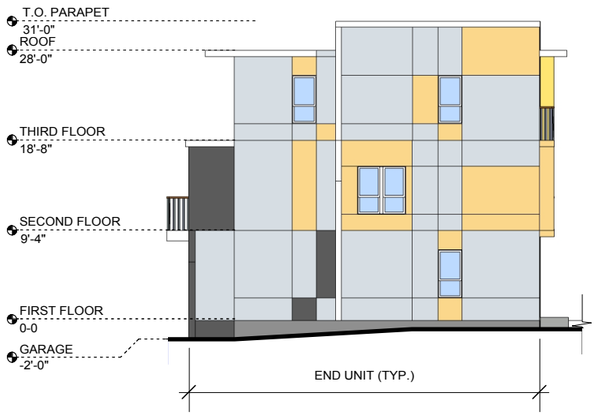
1 NTS
FRONT ELEVATION

2 NTS
REAR ELEVATION

COPPERSMITH VILLAGE
LIVERPOOL STREET APARTMENTS

NOAH

THE NARROW GATE architecture LTD



1 SIDE ELEVATION

2 FRONT ELEVATION

3 REAR ELEVATION

LIVERPOOL STREET ELEVATION

COPPERSMITH VILLAGE

LIVERPOOL STREET APARTMENTS

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COPPERSMITH VILLAGE

BORDER STREET APARTMENTS & LIVERPOOL STREET TOWNHOUSES

NOAH

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COPPERSMITH VILLAGE

BORDER STREET APARTMENTS & LIVERPOOL STREET TOWNHOUSES

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COPPERSMITH VILLAGE

BORDER STREET APARTMENTS & LIVERPOOL STREET TOWNHOUSES

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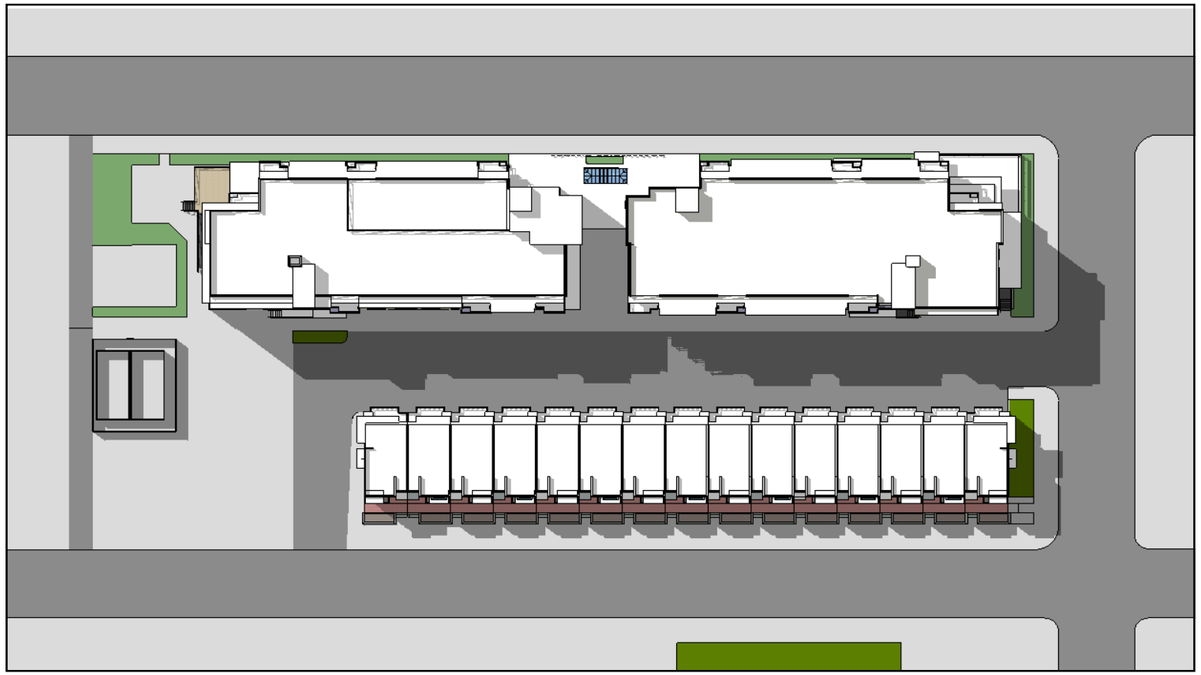
1 SUMMER SOLSTICE - 9:00 AM

2 SUMMER SOLSTICE - 12:00 PM



3 SUMMER SOLSTICE - 3:00 PM

4 SUMMER SOLSTICE - 6:00 PM

0 30 FT 60 FT

COPPERSMITH VILLAGE

BORDER STREET APARTMENTS & LIVERPOOL STREET TOWNHOUSES

NOAH

THE NARROW GATE architecture

1 SPRING & FALL EQUINOX - 9:00 AM

2 SPRING & FALL EQUINOX - 12:00 PM

3 SPRING & FALL EQUINOX - 3:00 PM

4 SPRING & FALL EQUINOX - 6:00 PM

0 30 FT 60 FT

COPPERSMITH VILLAGE

BORDER STREET APARTMENTS & LIVERPOOL STREET TOWNHOUSES

NOAH

THE NARROW GATE architecture

1 WINTER SOLSTICE - 9:00 AM

2 WINTER SOLSTICE - 12:00 PM

3 WINTER SOLSTICE - 3:00 PM

4 WINTER SOLSTICE - 6:00 PM

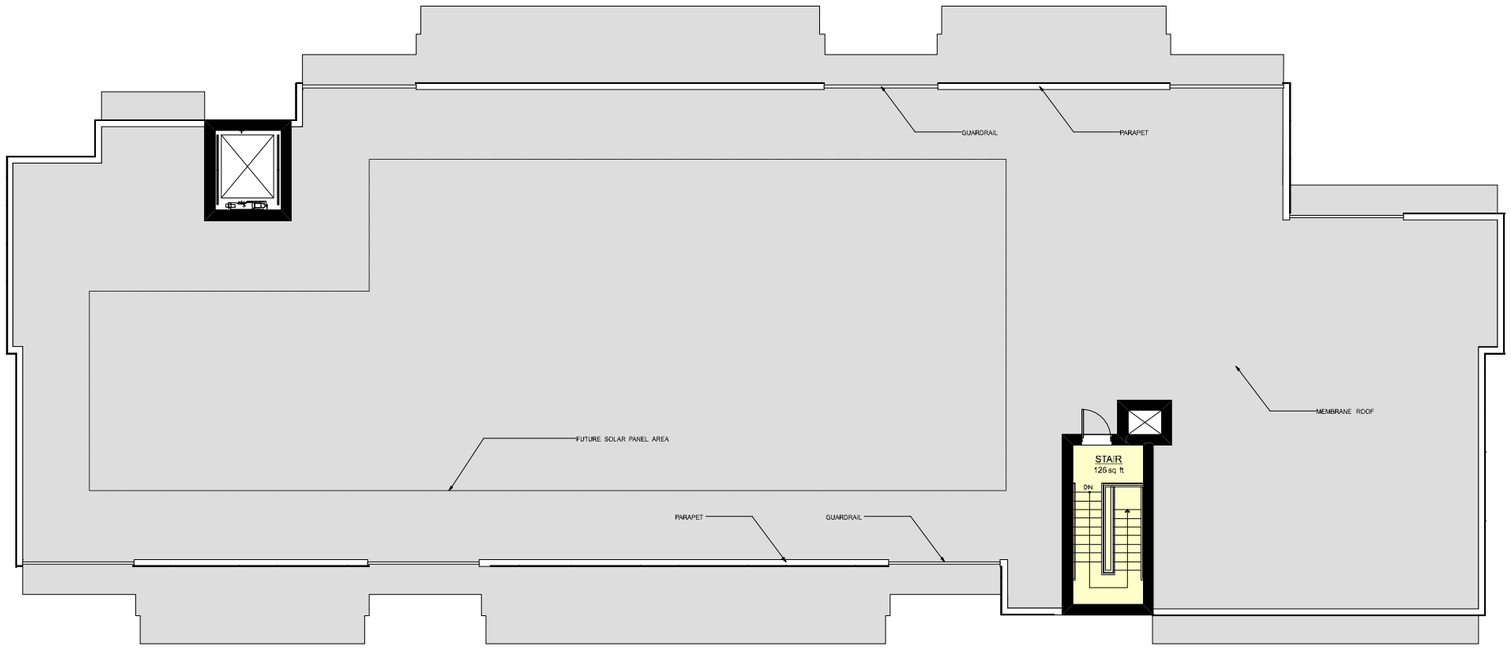
0 30 FT 60 FT

COPPERSMITH VILLAGE

BORDER STREET APARTMENTS & LIVERPOOL STREET TOWNHOUSES

NOAH

THE NARROW GATE architecture



1 ROOF PLAN - NORTH BUILDING
Scale: 1/16" = 1'-0"

0 5 10 15 20 FT

COPPERSMITH VILLAGE
BORDER STREET APARTMENTS

NOAH

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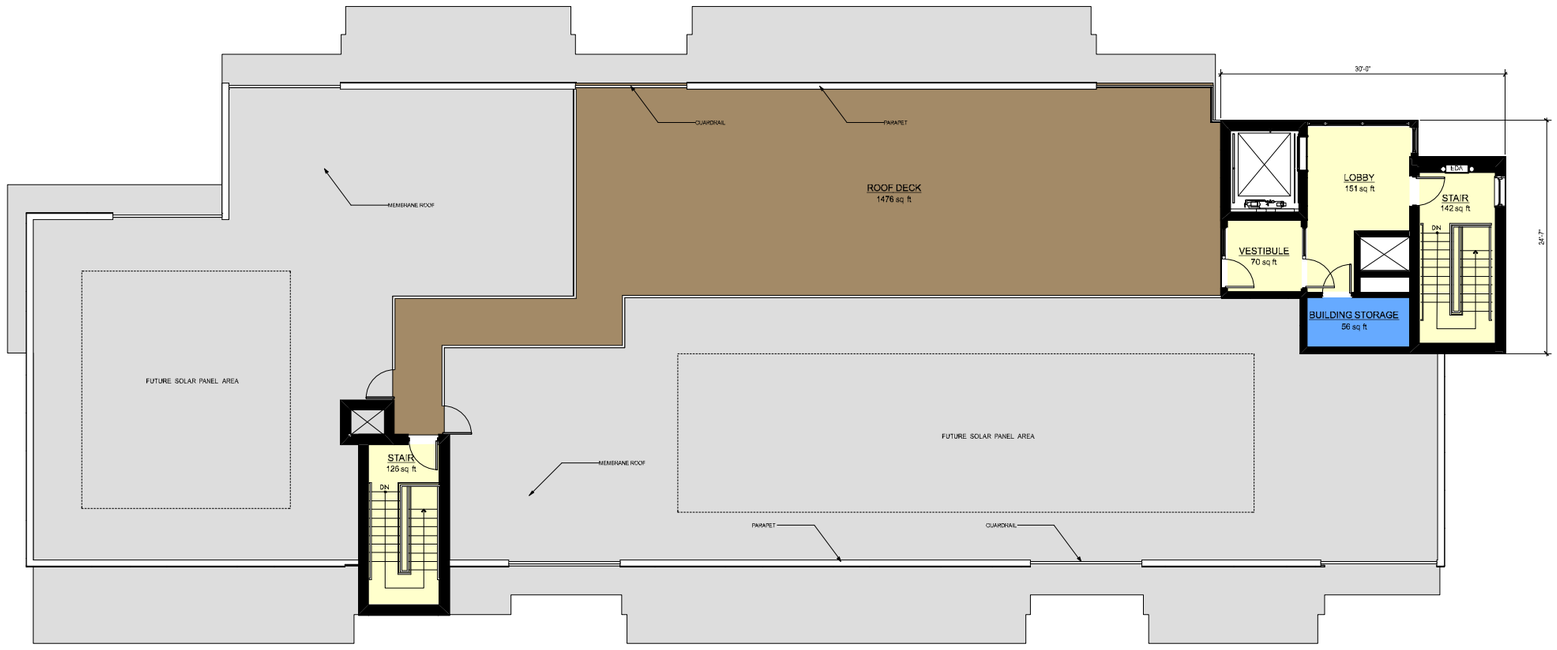
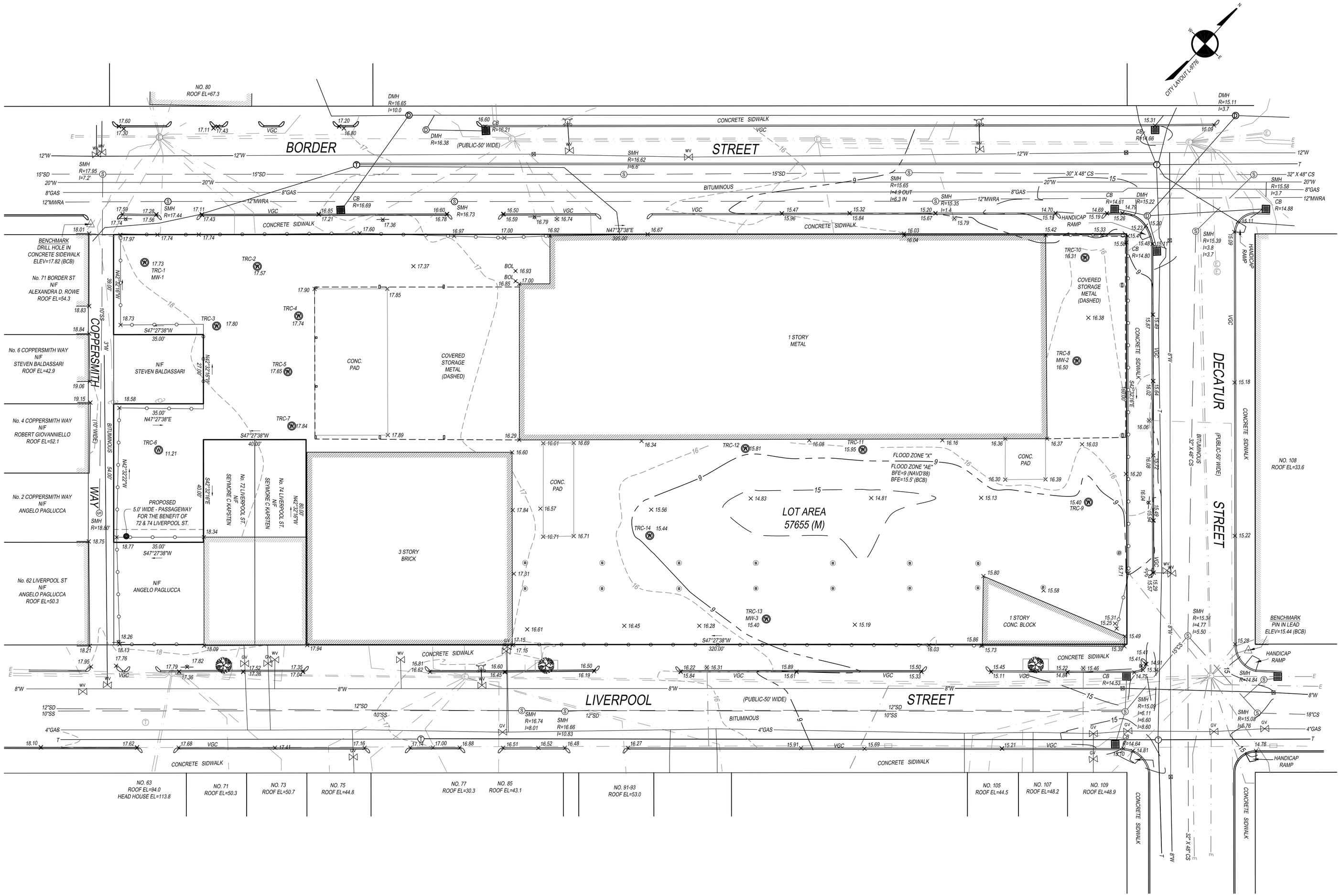


1 ROOF PLAN- SOUTH BUILDING
Scale: 1/16" = 1'-0"

0 5 10 15 20 FT



LEGEND:

⊠	BWSC HANDHOLE
■	CATCH BASIN
Ⓓ	DRAIN MANHOLE
Ⓔ	ELECTRIC MANHOLE
□	ELECTRIC HANDHOLE
GV	GAS GATE
	HYDRANT
☼	LIGHT POLE
Ⓢ	SEWER MANHOLE
UP	UTILITY POLE
WV	WATER GATE
BB	BOTTOM BELL
DH	DRILL HOLE
FND	FOUND
I	INVERT
M	MAPLE
O	OAK
R	RIM
SB	STONE BOUND
VGC	VERTICAL GRANITE CURB

NOTE:

1.) VERTICAL DATUM IS BOSTON CITY BASE (BCB).

DATE: MARCH 25, 2013

REVISION	DATE

SCALE: 1 INCH = 20 FEET

20 0 20 40 60

I CERTIFY THAT THIS PLAN WAS MADE FROM AN INSTRUMENT SURVEY ON THE GROUND BETWEEN THE DATES OF MARCH 12 AND APRIL 1, 2013 AND ALL STRUCTURES ARE LOCATED AS SHOWN HEREON.

ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A.) MAPS, THE MAJOR IMPROVEMENTS ON THIS PROPERTY FALL IN AN AREA DESIGNATED AS ZONE "X" AND ZONE "AE" (AREA DETERMINED TO BE OUTSIDE O.2% ANNUAL CHANCE FLOODPLAIN AND SPECIAL FLOOD HAZARD AREA SUBJECT TO INNUNDATION BY THE 1% ANNUAL CHANCE FLOOD, RESPECTIVELY).
MAP NO. 25025C0081G
EFFECTIVE DATE: SEPTEMBER 25, 2009

SITE PLAN

LOCATED AT

75-109 BORDER STREET
EAST BOSTON, MA

PREPARED FOR:

NOAH
143 BORDER STREET
EAST BOSTON, MA 02128

BOSTON SURVEY, INC.
UNIT C-4 SHIPWAYS PLACE
CHARLESTOWN, MA. 02129
(617) 242-1313
www.bostonsurveyinc.com

JOB # 13-00102 FILE # 13-00102.dwg

LEED for Homes Mid-rise Pilot Simplified Project Checklist

for Homes

Builder Name:	
Project Team Leader (if different):	
Home Address (Street/City/State):	

Project Description:

Building type: ***Mid-rise MF*** Project type: ***Custom*** # of bedrooms: ***0*** Floor area: ***0***

Adjusted Certification Thresholds

Certified: ***45.0*** Silver: ***60.0*** Gold: ***75.0*** Platinum: ***90.0***

Project Point Total

Prelim: ***69.5 + 0 maybe pts*** Final: ***8.5***

Certification Level

Prelim: ***Silver*** Final: ***Silver***

Final Credit Category Total Points

ID: 6 ***SS: 15.5*** ***EA: 17*** ***EQ: 9***

LL: 8 ***WE: 6*** ***MR: 7*** ***AE: 1***

date last updated : ***9/23/2013*** ***Coppersmith Village***

last updated by : ***The Narrow Gate***

					Max Pts	Project Points Preliminary Y/Pts	Maybe	No	Final Y/Pts
Innovation and Design Process		**(ID)**	(No Minimum Points Required)		Max				
1. Integrated Project Planning		1.1	Preliminary Rating		Prereq	*Y*			
		1.2	Energy Expertise for MID-RISE		Prereq	*Y*			
		1.3	Professional Credentialed with Respect to LEED for Homes		1	*1*	*0*		***1***
		1.4	Design Charrette		1	*1*	*0*		***1***
		1.5	Building Orientation for Solar Design		1	*0*	*0*		***0***
		1.6	Trades Training for MID-RISE		1	*1*	*0*		***1***
2. Durability Management Process		2.1	Durability Planning		Prereq	*Y*			
		2.2	Durability Management		Prereq	*Y*			
		2.3	Third-Party Durability Management Verification		3	*3*	*0*		***3***
3.Innovative or Regional Design		3.1	Innovation #1 _____		1	*0*	*0*		***0***
		3.2	Innovation #2 _____		1	*0*	*0*		***0***
		3.3	Innovation #3 _____		1	*0*	*0*		***0***
		3.4	Innovation #4		1	*0*	*0*		***0***
				Sub-Total for ID Category:	***11***	*6*	*0*		***6***
Location and Linkages (LL)			(No Minimum Points Required)	*OR*	Max	Y/Pts	Maybe	No	Y/Pts
1. LEED ND		1	LEED for Neighborhood Development	**LL2-6**	10	*0*	*0*		***0***
2. Site Selection		2	Site Selection		2	*0*	*0*		***0***
3. Preferred Locations		3.1	Edge Development		1	*0*	*0*		***0***
		3.2	Infill	**LL 3.1**	2	*2*	*0*		***2***
		3.3	Brownfield Redevelopment for MID-RISE		1	*1*	*0*		***1***
4. Infrastructure		4	Existing Infrastructure		1	*1*	*0*		***1***
5. Community Resources/ Transit		5.1	Basic Community Resources for MID-RISE		1	*0*	*0*		***0***
		5.2	Extensive Community Resources for MID-RISE	**LL 5.1, 5.3**	2	*0*	*0*		***0***
		5.3	Outstanding Community Resources for MID-RISE	**LL 5.1, 5.2**	3	*3*	*0*		***3***
6. Access to Open Space		6	Access to Open Space		1	*1*	*0*		***1***
				Sub-Total for LL Category:	***10***	*8*	*0*		***8***
Sustainable Sites (SS)			(Minimum of 5 SS Points Required)	*OR*	Max	Y/Pts	Maybe	No	Y/Pts
1. Site Stewardship		1.1	Erosion Controls During Construction		Prerequisite	*Y*			
		1.2	Minimize Disturbed Area of Site for MID-RISE		1	*1*	*0*		***1***
2. Landscaping		2.1	No Invasive Plants		Prerequisite	*Y*			
		2.2	Basic Landscape Design		1	*1*	*0*		***1***
		2.3	Limit Conventional Turf for MID-RISE	**SS 2.4**	2	*2*	*0*		***2***
		2.4	Drought Tolerant Plants for MID-RISE	**SS 2.4**	1	*1*	*0*		***1***
		2.5	Reduce Overall Irrigation Demand by at Least 20% for MID-RISE		3	*0*	*0*		***0***
3. Local Heat Island Effects		3.1	Reduce Site Heat Island Effects for MID-RISE		1	*0*	*1*		***0***
		3.2	Reduce Roof Heat Island Effects for MID-RISE		1	*1*	*0*		***1***
4. Surface Water Management		4.1	Permeable Lot for MID-RISE		2	*2*	*0*		***2***
		4.2	Permanent Erosion Controls		1	*0*	*0*		***0***
		4.3	Stormwater Quality Control for MID-RISE		2	*0*	*0*		***0***
5. Nontoxic Pest Control		5	Pest Control Alternatives		2	*1.5*	*0*		***1.5***
6. Compact Development		6.1	Moderate Density for MID-RISE		2	*0*	*0*		***0***
		6.2	High Density for MID-RISE	**SS 6.1, 6.3**	3	*0*	*0*		***0***
		6.3	Very High Density for MID-RISE	**SS 6.1, 6.2**	4	*4*	*0*		***4***
7. Alternative Transportation		7.1	Public Transit for MID-RISE		2	*2*	*0*		***2***
		7.2	Bicycle Storage for MID-RISE		1	*0*	*1*		***0***
		7.3	Parking Capacity/Low-Emitting Vehicles for MID-RISE		1	*0*	*1*		***0***
				Sub-Total for SS Category:	***22***	*15.5*	*3*		***15.5***

LEED for Homes Mid-rise Pilot Simplified Project Checklist (continued)

					Max Pts	Project Points Preliminary			Final
Water Efficiency (WE)			(Minimum of 3 WE Points Required)	*OR*	Max	Y/Pts	Maybe	No	Y/Pts
1. Water Reuse		1	Water Reuse for MID-RISE		5	*0*	*0*		*0*
2. Irrigation System		2.1	High Efficiency Irrigation System for MID-RISE	**WE 2.2**	2	*0*	*0*		*0*
		2.2	Reduce Overall Irrigation Demand by at Least 45% for MID-RISE		2	*0*	*0*		*0*
3. Indoor Water Use		3.1	High-Efficiency Fixtures and Fittings		3	*1*	*0*		*1*
		3.2	Very High Efficiency Fixtures and Fittings		6	*4*	*0*		*4*
		3.3	Water Efficient Appliances for MID-RISE		2	*1*	*0*		*1*
				Sub-Total for WE Category:	***15***	*6*	*0*		*6*
Energy and Atmosphere (EA)			(Minimum of 0 EA Points Required)	*OR*	Max	Y/Pts	Maybe	No	Y/Pts
1. Optimize Energy Performance		1.1	Minimum Energy Performance for MID-RISE		Prereq	*Y*			
		1.2	Reduced Envelope Leakage for MID-RISE		Prereq	*Y*			
		1.3	Optimize Energy Performance for MID-RISE		34	*15*	*0*		*15*
7. Water Heating		7.1	Efficient Hot Water Distribution		2	*0*	*0*		*0*
		7.2	Pipe Insulation		1	*1*	*0*		*1*
11. Residential Refrigerant Management		11.1	Refrigerant Charge Test		Prereq	*Y*			
		11.2	Appropriate HVAC Refrigerants		1	*1*	*0*		*1*
				Sub-Total for EA Category:	***38***	*17*	*0*		*17*
Materials and Resources (MR)			(Minimum of 2 MR Points Required)	*OR*	Max	Y/Pts	Maybe	No	Y/Pts
1. Material-Efficient Framing		1.1	Framing Order Waste Factor Limit		Prereq	*Y*			
		1.2	Detailed Framing Documents	**MR 1.5**	1	*0*	*0*		*0*
		1.3	Detailed Cut List and Lumber Order	**MR 1.5**	1	*0*	*0*		*0*
		1.4	Framing Efficiencies	**MR 1.5**	3	*0*	*0*		*0*
		1.5	Off-site Fabrication		4	*4*	*0*		*4*
2. Environmentally Preferable Products		2.1	FSC Certified Tropical Wood		Prereq	*Y*			
		2.2	Environmentally Preferable Products		8	*1*	*0*		*1*
3. Waste Management		3.1	Construction Waste Management Planning		Prereq	*Y*			
		3.2	Construction Waste Reduction		3	*2*	*0*		*2*
				Sub-Total for MR Category:	***16***	*7*	*0*		*7*
Indoor Environmental Quality (EQ)			(Minimum of 6 EQ Points Required)	*OR*	Max	Y/Pts	Maybe	No	Y/Pts
1. ENERGY STAR with IAP		1	ENERGY STAR with Indoor Air Package		13	*0*	*0*		*0*
2. Combustion Venting		2	Basic Combustion Venting Measures	**EQ 1**	Prereq	*Y*			
3. Moisture Control		3	Moisture Load Control	**EQ 1**	1	*0*	*1*		*0*
4. Outdoor Air Ventilation		4.1	Basic Outdoor Air Ventilation for MID-RISE	**EQ 1**	Prereq	*Y*			
		4.2	Enhanced Outdoor Air Ventilation for MID-RISE		2	*0*	*1*		*0*
		4.3	Third-Party Performance Testing for MID-RISE	**EQ 1**	1	*0*	*0*		*0*
5. Local Exhaust		5.1	Basic Local Exhaust	**EQ 1**	Prerequisite	*Y*			
		5.2	Enhanced Local Exhaust		1	*1*	*0*		*1*
		5.3	Third-Party Performance Testing		1	*0*	*1*		*0*
6. Distribution of Space Heating and Cooling		6.1	Room-by-Room Load Calculations	**EQ 1**	Prereq	*Y*			
		6.2	Return Air Flow / Room by Room Controls	**EQ 1**	1	*1*	*0*		*1*
		6.3	Third-Party Performance Test / Multiple Zones	**EQ 1**	2	*0*	*1*		*0*
7. Air Filtering		7.1	Good Filters	**EQ 1**	Prereq	*Y*			
		7.2	Better Filters	**EQ 7.3**	1	*0*	*0*		*0*
		7.3	Best Filters		2	*0*	*0*		*0*
8. Contaminant Control		8.1	Indoor Contaminant Control during Construction	**EQ 1**	1	*1*	*0*		*1*
		8.2	Indoor Contaminant Control for MID-RISE		2	*1*	*0*		*1*
		8.3	Preoccupancy Flush	**EQ 1**	1	*0*	*1*		*0*
9. Radon Protection		9.1	Radon-Resistant Construction in High-Risk Areas	**EQ 1**	Prereq	*Y*			
		9.2	Radon-Resistant Construction in Moderate-Risk Areas	**EQ 1**	1	*0*	*0*		*0*
10. Garage Pollutant Protection		10.1	No HVAC in Garage for MID-RISE	**EQ 1**	Prereq	*Y*			
		10.2	Minimize Pollutants from Garage for MID-RISE	**EQ 1, 10.4**	2	*2*	*0*		*2*
		10.3	Exhaust Fan in Garage for MID-RISE	**EQ 1, 10.4**	1	*1*	*0*		*1*
		10.4	Detached Garage or No Garage for MID-RISE	**EQ 1**	3	*0*	*0*		*0*
11. Environmental Tobacco Smoke Control		11.1	Environnmental Tobacco Smoke Reduction for MID-RISE	**EQ 1, 11.2**	2	*0*	*0*		*0*
		11.2	Environnmental Tobacco Smoke Prohibition for MID-RISE	**EQ 1**	2	*2*	*0*		*2*
				Sub-Total for EQ Category:	***21***	*9*	*5*		*9*
Awareness and Education (AE)			(Minimum of 0 AE Points Required)		Max	Y/Pts	Maybe	No	Y/Pts
1. Education of the Homeowner or Tenant		1.1	Basic Operations Training		Prereq	*Y*			
		1.2	Enhanced Training		1	*0*	*0*		*0*
		1.3	Public Awareness		1	*0*	*1*		*0*
2. Education of Building Manager		2	Education of Building Manager		1	*1*	*0*		*1*
				Sub-Total for AE Category:	***3***	*1*	*1*		*1*

NELSON
NYGAARD

MEMORANDUM

To: **NOAH**

From: Nelson\Nygaard

Date: July 8, 2013

Subject: Coppersmith Village

Transportation Analysis for BRA's Article 80 Approval Process

1 INTRODUCTION

The purpose of this report is to evaluate the transportation impacts of the proposed Coppersmith Village mixed-use development in East Boston per the requirements of the Boston Redevelopment Authority's (BRA) Article 80 zoning process. Coppersmith Village is located along the East Boston waterfront, on Border Street, just south of Central Square. This development will contain 3,000 sf of ground floor restaurant space, 56 rental apartments, and 15 for-sale townhomes.

The East Boston waterfront continues its evolution and growth towards a primarily residential, but still mixed-use district with multimodal connections. With proposed developments such as Boston East and the New Street Development directly north and southwest, and the recently developed Maverick Landing to the south, the Coppersmith Village development will help contribute to the revitalization of this section of the East Boston waterfront. In addition to nearby proposed developments, recent initiatives such as the proposed Central Square reconstruction, the recently completed Maverick Station renovations, and the City's proposed improvements at the Meridian Street/Decatur Street intersection continue to transform East Boston's infrastructure. Meanwhile, the East Boston Greenway initiative, and the proposed Harborwalk extension plans will help broaden multimodal connections and enliven the streets and paths around East Boston's waterfront for all users.

1.1 Project Description

Coppersmith Village includes approximately 109,000 square feet (sf) of space, which is comprised of approximately 3,000 sf of ground floor restaurant space, 56 rental apartments, and 15 for-sale townhomes. Approximately 37 parking spaces for the rental apartments will be located within two at-grade garage underneath each apartment building and along an internal driveway "street." Each townhome will have its own one-car garage.

The 56 rental apartments will be located in two five-story buildings facing Border Street. The buildings are joined by a central lobby at street level which also provides an additional rear entrance to a landscaped courtyard and on-site parking. The 3,000 sf restaurant space will be located at the corner of Border Street and Decatur Street, and will have an outdoor seating terrace at the corner. The main entrance to the restaurant will be on Border Street. A community room will be located at the corner of Border Street and Coppersmith Alley, adjoining a small terrace and landscaped outdoor space. The remaining ground floor level will contain offices, utility spaces, and an at-grade parking garage for approximately 27 cars. The ground floor will be raised approximately two and a half feet above grade to protect against storm surge. Levels two through five of the rental buildings will include one-, two-, and three-bedroom apartments, and each unit will have a small balcony. A roof deck will be located on the south building, with access for residents. Of the 56 apartment units, six are affordable to 30% AMI and 22 are market rate units.

The fifteen for-sale townhomes will face Liverpool Street. Between the rental buildings and townhomes there will be a new internal "street," with a loading zone for the restaurant, access to garages, and parking for approximately 10 cars. The townhouses will be three floors, with a one-car garage, rear and front entries, and a flexible space (which can be used as bedroom, home office, or playroom) on the ground floor. The second floor of each unit will contain the living spaces and a deck, and the third floor will have two bedrooms and one bath. Of the 15 townhouses, three are affordable to 80% AMI, and 12 are market rate units.

The project proposes the construction of a 14 foot entrance driveway to provide one-way site access through the development from Decatur to Liverpool Street. This driveway will provide direct access to parking facilities located on ground level for the apartment complex and private parking garages underneath each townhouse. This driveway will provide exiting access directly from the project site onto Liverpool Street. Table 1 provides the Project program.

Table 1- Coppersmith Village Project Program

Project Component	Units/Square Feet
Total Residential	71 units
Townhomes	15 units
Apartments	56 units
Retail (Restaurant)	3,000 square feet
Parking	52 spaces

1.2 Study Area and Methodology

As Figure 1 highlights, the site is located adjacent to East Boston's waterfront on the Boston Harbor. It is situated on formerly industrial land and will help expand the primarily residential neighborhood around it. The Site is in close proximity to both Central and Maverick Squares, and will continue the pattern of this dense, walkable neighborhood. The Coppersmith Village Site is well situated near commercial and retail districts and well-served by multiple transit options. The range of travel alternatives available will help to significantly reduce the vehicular traffic impacts from the proposed development. As a primarily residential project with ground level, neighborhood oriented retail space, overall impacts on the surrounding neighborhood will be minimized.

This report presents an overview and evaluation of the transportation issues and analysis related to the proposed Coppersmith Village development. This analysis looks primarily at adjacent intersections and streets, but also includes a broader evaluation of existing conditions within the area surrounding the Site. The Scope of the analysis completed herein was developed in coordination with the Boston Transportation Department and follows the guidelines for the completion of a Transportation Access Plan under the Article 80 review process. The specific intersections included for capacity analysis include:

- Border Street/ Decatur Street
- Border Street/ Maverick Street
- Liverpool Street/ Decatur Street
- Liverpool Street/ Maverick Street
- Border Street/Boston East Driveway South (No Build and Build)
- Site Driveway/ Decatur Street (Build only)
- Site Driveway/ Liverpool Street (Build only)

1.3 Transportation Analysis Summary

Overall, the Coppersmith Village project will continue the transformation of the East Boston waterfront into a vibrant neighborhood that is primarily residential, but contains a mix of complementary uses. The project will add to the multi-modal character and enlivening nature of the surrounding neighborhood by:

- Replacing the vacant, formerly industrial space, with a lively, pedestrian oriented, mostly residential development with multiple front doors;
- Closing (seven) existing curb cuts and driveways, and improving sidewalk conditions;
- Creating a new internal driveway, with a sidewalk and pedestrian connections that will serve the parking and service needs of the development;
- Adding 15 townhomes with separate front door access on Liverpool Street to complement the residential character on the street;
- Creating on-site secure, weather protected bicycle parking and outdoor parking for use by visitors;
- Adding a restaurant, with outdoor seating space, at the corner of Decatur and Border Streets, which enhances Decatur Street as the pedestrian connection between Meridian Street and the waterfront;
- Improving the character of Border Street, by removing all curb cuts along the Site frontage while providing an address and entry for the apartments, retail space and community space on this important harborside frontage;
- Providing “unbundled” on-site parking for the apartment units, reducing demand;
- Showing that the majority of site generated trips for all uses and time periods are pedestrian, bicycle or transit trips.
- Demonstrating minimal impact or change in vehicular traffic operations from the proposed No Build condition, as all approaches and intersections operate at LOS B or better.

Figure 1- Coppersmith Village Area Map

2 EXISTING CONDITIONS

2.1 Site Layout

The Coppersmith project site is located in the southwestern part of East Boston, with a primary frontage on Border Street, which faces the East Boston Waterfront. The 57,655 square foot site encompasses the greater part of the city block bounded by Decatur Street to the north, Maverick Street to the south, Border Street to the west and Liverpool Street to the east. Presently, the site is occupied by vacant, formerly industrial buildings. However the perimeter of the site is fenced off from public access and has been for some time.

The site is well situated within close proximity to public transportation, restaurants, commercial space, retail areas, and waterfront parks. The urban and dense nature of East Boston will allow for easy and walkable access to East Boston's commercial districts and open space. Central Square located to the north, and Meridian Street to the west comprises the retail and commercial district within the area. Meanwhile, Maverick Square serves as a transportation hub for residents of East Boston, in addition to providing retail shops, restaurants and services. The MBTA Maverick Station provides direct Blue Line rapid transit service to downtown Boston and is the direct center for five MBTA bus connections that provide access to the neighboring cities surrounding East Boston.

2.2 Study Area Roadways

The Coppersmith Village site is bounded by Border, Decatur, and Maverick Street, all of which are local connectors that provide low volumes and little thru traffic to this corner of East Boston. Because the site is located in a residential neighborhood, the streets surrounding the development carry relatively low volumes of thru traffic. Although the streets adjacent to the development do not provide regional connectivity, they do feed traffic into larger neighborhood collectors such as Meridian Street. Nearby access to Logan Airport and to Boston via Route 1A/ Sumner Tunnel and Callahan Tunnel provide additional regional connections. The following is a brief description of the principal study area roadways and intersections evaluated as part of this analysis.

Border Street

Border Street is a two-way urban minor arterial that runs north to south from Condor Street to Sumner Street. Within the project study area, Border Street carries one lane of northbound and southbound traffic and sidewalks are provided on both sides of the road. The project site is located on the eastern side of Border Street between Decatur Street and Maverick Street and across from the proposed Boston East project. Parking is generally allowed on both sides of the roadway from Central Square to Sumner Street, however between Maverick and Decatur, there is no parking allowed along the south western segment of the street. Border Street has a right-of-way of 50 feet, with eight foot sidewalks on both sides of the road. The curb-to-curb width is approximately 34 feet wide which accommodates a parking lane and travel lane in each direction, with a double yellow lane line down the center of the roadway.

Decatur Street

Decatur Street is a two way local street that runs east-west from Border Street to Meridian Street. Decatur Street intersects with Meridian Street at an angle, at a complex stop controlled intersection that also includes Havre Street and Gove Streets. Generally, Decatur provides a single lane of traffic in each direction and parking on both sides of the roadway. Parking is generally unrestricted; however between Liverpool and London Street, parking is restricted to residential permits only. Adequate eight foot sidewalks are provided along both sides of the roadway. The curb to curb width is approximately 31 feet which includes parking and travelways, but with no distinguishing pavement markings.

Liverpool Street

Liverpool Street is local street that runs north-south from Central Square down to Sumner Street. Between Sumner and Maverick Street, Liverpool Street is exclusively one way northbound. However within the study area, Liverpool carries two lanes of traffic, one in each direction from Maverick Street to Central Square. The overall right-of-way is 50 feet, with 10 foot sidewalks on both sides of the road. Parking is allowed on both sides of the roadway, and is generally limited to 2-hour/ residential permit parking near the Site. Opposite the Coppersmith Village frontage, Liverpool Street hosts a combination of multi-family residential dwellings and small industrial properties.

Maverick Street

Maverick Street is an urban minor arterial that runs west from Jeffries Street through Jeffries Point and Maverick Square to its termination to the west at New Street. Maverick Street is generally characterized as a one-way street that runs in a westbound direction. There are two segments of the street that accommodate two-way traffic, between Frankfort Street and Havre Street as well as the segment of Maverick between New Street and Border Street. Within the study area Maverick Street is exclusively one-way westbound from Liverpool Street to Border Street. Maverick Street is has a public right-of-way of approximately 50 feet, with a curb to curb width of 30 feet, with 10 foot sidewalks on both side of the road. Although parking is permitted along both sides of the road, regulations vary by block. Within the study area, parking is restricted to 2-hour/ residential parking along Maverick.

Coppersmith Way

Coppersmith Way is a private way that runs east to west from Border to Liverpool Street. This private way serves as the southern boundary of the existing and proposed development site. The roadway is approximately 13 feet wide, and there is no parking allowed on either sides of the road. The street provides access to the homes that abut the private way. Because of the narrow width of the road, there are no sidewalks present.

2.3 Study Area Intersections

Border Street/Decatur Street

The intersection of Border and Decatur Street is an unsignalized T intersection with Decatur Street terminating at Border Street. Both Border and Decatur Street permit two-way travel with one lane in each direction. Both the north and southbound Border Street approaches allow for

uncontrolled movements. Westbound movements on Decatur are also uncontrolled, however field observations indicate that the westbound Decatur approach typically functions as a one way stop as vehicles stop before turning left or right on Border from Decatur. Sidewalks are provided along all sides of the intersection and there is one crosswalk present across Decatur Street. There are ADA compliant curb ramps with rumble strips on the Decatur Street legs of the intersection.

Border Street/Maverick Street

The intersection of Border and Maverick Street is an unsignalized four leg intersection with vehicle traffic entering from three approaches. The southbound Border Street approach is stop controlled, and this section also allows for two-way travel. South of Maverick Street, Border Street is restricted to one lane of southbound traffic through to Sumner Street. The eastbound Maverick Street approach is restricted to one-way travel, while the westbound Maverick Street approach permits two-way movement. The westbound Maverick Street approach is stop controlled however there is no stop sign on the eastbound Maverick approach. Field observations indicate that this approach typically functions as a stop controlled movement for cars turning both left and right onto Border Street from Maverick. Sidewalks and curb ramps are present on all legs of the intersection, however existing crosswalks are beginning to fade. The southern corners of the intersection contain curb extensions provided as part of the new Maverick Landing development. Parking is prohibited on the northwestern edge of the intersection on Maverick Street and the north west side of Border Street.

Liverpool Street/Maverick Street

The intersection of Liverpool and Maverick Street is an unsignalized four leg intersection with three approaches. The Maverick westbound approach is restricted to one-way travel through the intersection towards Border Street. The northbound Liverpool approach is restricted to one way, but north of the intersection, Liverpool permits two way traffic flow. The southbound, eastbound, and northbound approaches to the intersection are stop sign controlled. Sidewalks and crosswalks are present on all legs of the intersection and parking is permitting on all sides of the road. The curb ramp provided on the northeast corner of the intersection is small and not well suited for ADA accessible travel across Liverpool Street.

Liverpool Street/Decatur Street

The intersection of Liverpool and Decatur Street consists of an unsignalized four leg intersection with four approaches. Both Liverpool and Decatur Street permit two-way travel with one lane in each direction. All approaches to this intersection are stop sign controlled. Sidewalks are present along all sides of the intersection, however there are no crosswalks present. There is also a pedestrian ramp missing on the northwest corner of the intersection, and instead there is a driveway from the existing site that spans to the corner of the intersection.

2.4 Parking

Parking was evaluated within a quarter mile radius, or five-minute walk from the project site, per the Transportation Access Plan guidelines. There is ample on-street parking in the surrounding area with varying regulations based on street locations as shown in Figure 2. In general, a majority of the on-street parking in the vicinity of the study area has been regulated, especially in the areas closer to Meridian Street and Maverick Station. Parking regulations in Maverick Square and along Meridian Street have a mix of time restricted regulations. South of Maverick Street

between Maverick Square and New Street, all streets have been designated as either 2 Hour Parking, except for Residential Permit and or Residential Permit Parking Only. Parts of London, Decatur, and most of Border Street are unregulated within the parking study area.

More detailed measurements of on-street parking regulations were recorded on the streets directly adjacent to the proposed project site, as shown in Figure 3. There are approximately 94 spaces on the four streets that bound site. Spaces located on both Maverick and Liverpool Streets are restricted to 2-hour/ residential permit parking only, while Border and Decatur Street contain unregulated parking. During a weekday peak hour count, observations showed that many of these spaces were unused, especially on Border Street.

Generally, there are no public off-street lots within a quarter mile from the study area. Most off-street parking is accessory parking for businesses along and in Maverick and Central Square. Two of the largest off-street lots are owned by the Liberty Plaza shopping center, which contains about 300 parking spaces and located in Central Square and the Walgreens parking lot on Meridian Street that contains about 40 spaces. There is one public parking lot located in Maverick Square adjacent to Maverick Station that has a capacity of about 25 cars. This lot is generally used by commuters, as the owner provides a flat fee of $7.00 for all day parking. An initial observation showed this lot was well used at the mid-day peak hour.

2.5 Public Transportation

The East Boston area around Coppersmith Village is dense with public transportation, with two types of public transit within walking distance of the proposed project site, as seen in Figure 4. The MBTA Blue Line subway provides frequent, direct and fast access to downtown Boston at the nearby Maverick Square Station. Local bus service provides local and regional access from the project site connecting throughout East Boston and to the neighboring cities of Revere and Chelsea. A detailed description of public transportation options are provided below.

MBTA Blue Line Rapid Transit

The MBTA Blue Line subway provides frequent, direct and fast rapid transit service from East Boston to downtown Boston destinations and employment centers. The Blue Line provides direct access and several stops within downtown at the Aquarium, State Street, Government, and Bowdoin Station. These stations also help to provide transfers to other subway lines such as the Green Line from Government Center and Orange Line from State Streets Station. To the north, the Blue Line provides direct connections to Logan Airport and the neighboring community of Revere. The Blue Line provides high frequency service, with approximately four minute headways during weekday peak-hours, mid-day headways of approximately nine minutes, late night headways of about 13 minutes, and weekend frequency of about 10 minutes.

Recently completed initiatives to reconstruct Maverick Station and the Blue Line Modernization project have significantly improved service throughout the Blue Line and for Maverick Station. The Blue Line Modernization project has renovated stations to increase the length of trains from four to six cars, allowing larger passenger capacity and accessibility improvements for wheelchairs. Renovations at Maverick Station have improved accessibility and aesthetics for station users. In addition to constructing a new head-house that provides on-street access, the station has upgraded elevators and escalators to provide on-street access. Overall the pedestrian environment and connections to and between bus service have also improved greatly throughout the square.

Figure 2- On-Street Parking Regulations - Study Area

Figure 3- On-Street Parking Regulations - Adjacent Blocks

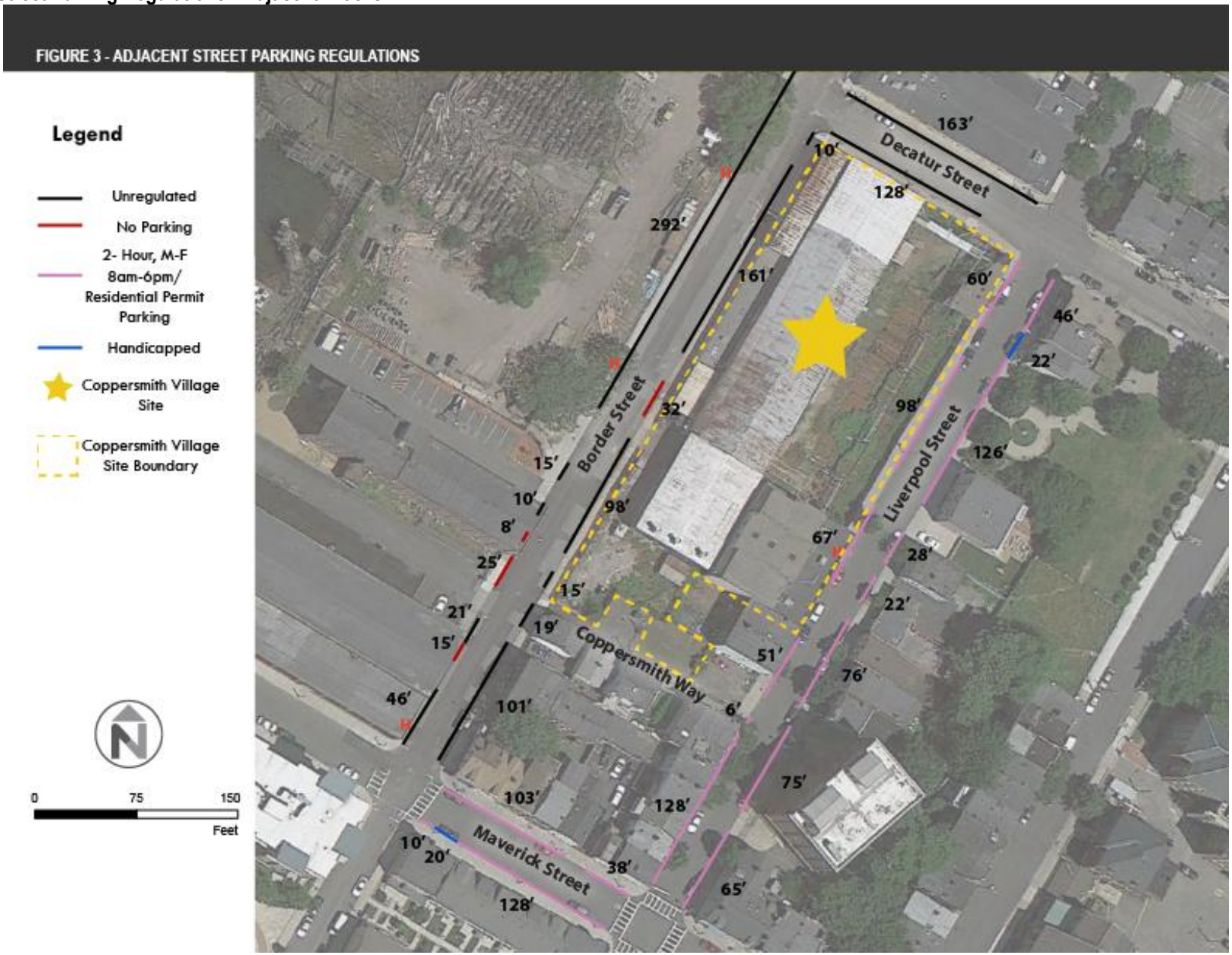
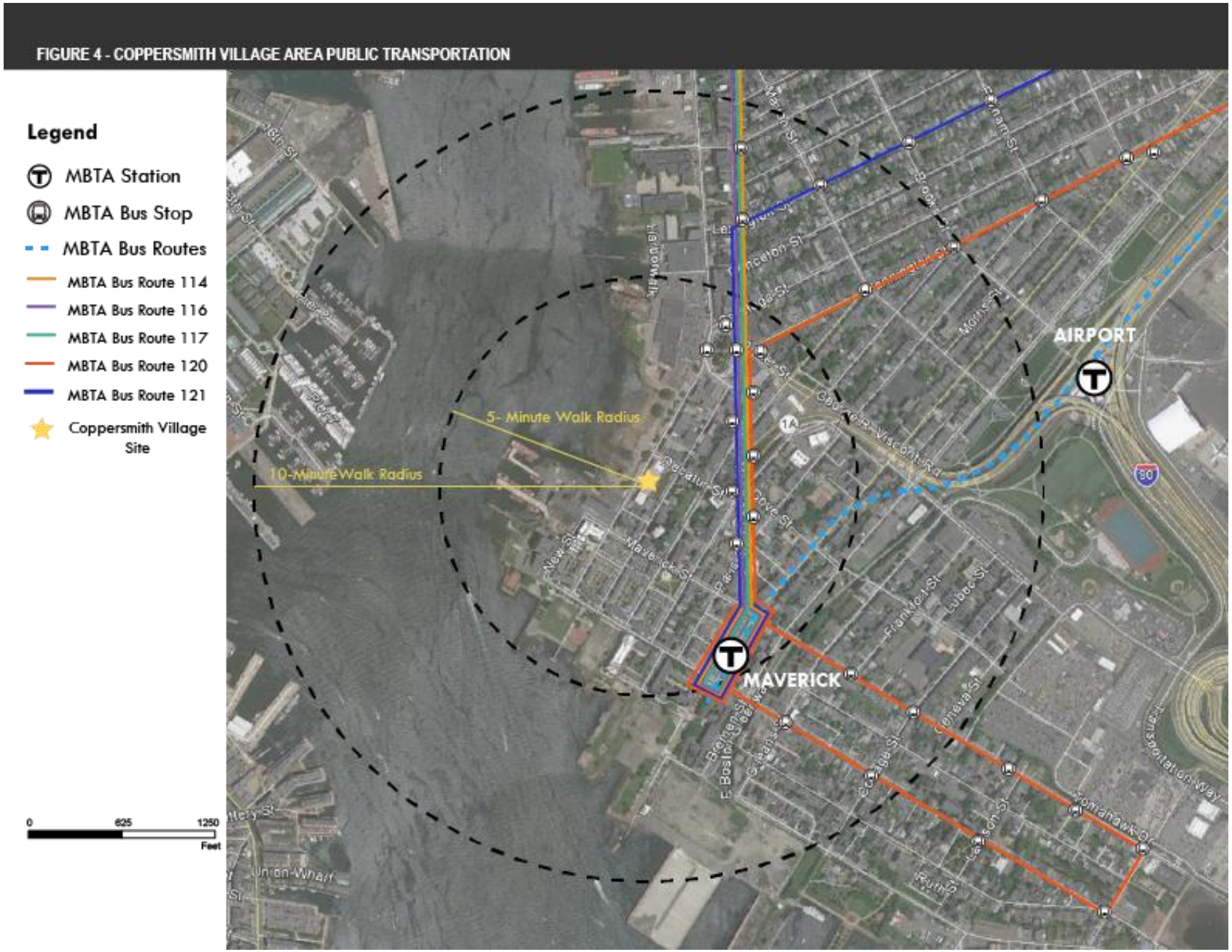


Figure 4- Coppersmith Village Area Public Transportation



MBTA Buses

Maverick Station also serves as the terminus for five MBTA bus routes that provide both local and regional access. These routes also run and provide stops along Meridian Street, which is even closer to the Project site than Maverick Square, about a 5-minute walk from the project site. Most MBTA bus routes run at frequencies that range from 10-15 minutes during weekday peaks hours, while off-peak headways range from 30-35 minutes.

Table 2- Maverick Station MBTA Bus Routes

Bus Route	Origin- Destination	Weekday Peak/ Off Peak	Weekend
Route 114	Maverick Square (East Boston)- Bellingham Square (Chelsea)	Limited service/ 50 minutes	No service
Route 116	Maverick Square– Wonderland Station via Revere Street;	10-15 minutes/20-30 minutes	30-35 minutes
Route 117	Wonderland Station - Maverick Station via Beach St	20 minutes/ 30 minutes	30- 35 minutes
Route 120	Orient Heights Station - Maverick Station via Bennington St., Jeffries Point & Waldemar Loop	15-20 minutes/ 20 minutes	30-55 minutes
Route 121	Wood Island Station- Maverick Station via Lexington Street	15-20 minutes/20 minutes	30-50 minutes

Water Transportation

Water transportation services are currently limited to a small section in East Boston. The MBTA provides Harbor Express commuter boat/ ferry service from the Boston Harbor to Logan Airport. Similarly water taxis provided by City Water Taxi provide various stops around the harbor including Logan Airport as well as East Boston's Harbor's Shipyard and Marina. There are no direct waterborne services near the proposed project site.

2.6 Pedestrian Connections

Generally, the public streets directly adjacent and in the vicinity of the Coppersmith Village site are in good condition. These provide well suited connections that create and enable a safe and comfortable walking environment for pedestrians. However, owing to the formerly industrial nature of the area, many of the sidewalks retain numerous driveways and curb cuts. These can be a barrier to accessibility and disrupt the pedestrian environment.

As shown in Figure 5, many of these curb cut locations surrounding the project site once served as driveways for the former industrial building, which is no longer in use. The length of these curb cuts can run up to 50 feet, making the sidewalk inconsistent and an unpleasant place for pedestrians to walk. Moreover the curb cuts contribute to safety and accessibility deficiencies.. The driveway from the former site located at the southeast corner of the Decatur and Liverpool

intersection does not allow for a proper and accessible curb ramp for pedestrians and the handicapped.

Generally, most streets within a quarter mile radius provide continuous sidewalks on both sides of the road with adequate pedestrian curb ramps and crossings. At the intersection of Liverpool and Decatur, there are no crosswalks or accessible curb ramps. Sidewalks on Border are unevenly maintained and can be overgrown with weeds and plantings emerging from the vacant waterfront parcel directly across from the proposed site. The newly renovated Veterans Park on Liverpool Street across from the proposed site has newly renovated sidewalks.

New streetscape improvements from the recent Maverick Landing development have both enhanced the pedestrian environment and access to Maverick Square and the waterfront. Noted improvements include wide sidewalks, curb extensions, improved pedestrian crossings, and ADA accessible curb ramps. Existing sidewalk and streetscape conditions help support easy and direct access to the major destinations surrounding the site, which include Central Square, Maverick Square, including Maverick Station, and the East Boston Greenway. Proposed plans for the expansion of the Harborwalk along East Boston's waterfront will help provide both pedestrian and bicycle connections throughout East Boston.

2.7 Bicycle Connections

There are no on-street bicycle facilities on the streets directly surrounding the project site. However, given the relatively light existing traffic volumes, the street conditions allow for shared travel space on the road for both vehicles and cyclist, which has been documented during field visits. The nearest bicycle lanes are within a quarter mile of the Site on Chelsea Street between Maverick Square and Prescott Street. The nearby East Boston Greenway serves as an important corridor for cyclists connecting from the East Boston Waterfront on Marginal Street north to Day Square through the Bremen Street Park. Planned connections to Constitution Beach and Orient Heights are also in the works. Additionally, the proposed expansion plans for the Boston Harborwalk will extend a shared pedestrian and bicycle pathway along the entirety of the East Boston waterfront including the area directly across from the Site.

As a largely vacant industrial area, surrounded by residential space, there are no on-street bicycle racks in the vicinity of the Site. Bicycle racks, which are well used, do exist in the commercial areas of Maverick and Central Squares as well as on Meridian Street. Hubway, Boston's bicycle sharing program, does not presently have any stations in East Boston.

2.8 Loading and Service Uses

The existing buildings on the site are vacant and there are is no active loading or service at the existing site. The area however still retains some of its industrial character and use, with Border Street also serving as a popular route for trucks. New traffic volumes were taken on Border Street for this analysis, and are included in the appendix of this filing. The volumes indicate that Border Street carries 15% heavy vehicle traffic during the AM peak.

Figure 5- Existing Site Curb Cuts

3 TRAFFIC CAPACITY ANALYSIS

3.1 EXISTING CONDITIONS ANALYSIS

In order to document existing traffic patterns and levels, vehicle, pedestrian, and bicycle turning movement counts (TMC's) were conducted on Thursday May 30th, 2013 at the four study area intersections surrounding the proposed Coppersmith Village site in East Boston. Counts included heavy vehicles and cars, pedestrians and bicyclists. Turning movement counts and volumes were collected from 7:00 to 9:00am and 4:00 to 6:00pm, and results determined that the generally the morning peak hour was between 7:15 and 8:15am, and the evening peak hour was from 4:30 to 5:30pm. These volumes are depicted in Figure 6 and 7. The counts are also included in the Transportation Appendix of this report. The analysis herein documents patterns in volumes and turning movement counts on at study intersections directly adjacent to the project site. The existing conditions network was then used as baseline to create the 2018 No-Build scenario and Build scenarios also documented herein.

3.2 Existing Traffic Volumes

Vehicles

All of the streets in the study area carry relatively low volumes of vehicular traffic. Border Street carries higher volumes than Liverpool Street, and up to 15% of Border Street volumes are heavy vehicles. As shown in Figure 6, the higher volumes on Border come from Central Square during peak morning and evening hours and continue down Border Street to Sumner. Maverick Street traffic approaching the study area feeds both Liverpool and Border Street with few vehicles continuing through past Border Street. In both the AM & PM peak hours Decatur Street volumes are higher eastbound - towards Meridian Street - than westbound. Southbound approaching traffic is primarily on Border Street, rather than Liverpool Street. Lastly, note that Border Street which is a one-way southbound after the Maverick Street intersection shows minor illegal vehicle movements northbound at that intersection.

Bicycles

Peak hour bicycle volumes were also observed ad recorded as described above. The counts showed relatively low overall bicycle activity within the study area. The small number of bicycle volumes are mainly concentrated along Border and Liverpool Street moving southbound during peak evening hours. Currently there are no existing bicycle facilities within a 5- minute walk radius from the site. Figure 7 shows bicycle volumes by intersection for the morning and evening peak hours in the Existing Condition.

Pedestrians

Peak hour pedestrian counts were recorded as part of the transportation observations conducted on May 30th. Pedestrian volumes in the area adjacent to the Site indicate that PM peak activity is

consistently higher than the AM peak hour. The most active pedestrian route appears to be north to south direction along Liverpool Street, as the street is more residential. The lack of existing development and activity on Border Street likely contributes to the low observed pedestrian volumes during peak hours. Figure 7 shows pedestrian volumes by intersection for the AM and PM peak hours in the Existing Condition.

3.3 Existing Traffic Capacity

To assess the quality of existing traffic flow at intersections, turning movement counts and volumes were compiled and evaluated utilizing the procedures outlined by the 2010 Highway Capacity Manual (HCM). Each intersection within the study area was analyzed for level-of-service (LOS), reporting the quality of traffic with a letter grade A to F, volume to capacity ratio (V/C), the stop time delay in seconds and the 95th percentile queue lengths. The intersection capacity analysis worksheets are provided in Appendix of this report. A summary chart of the results of this analysis is shown in Table 3 below. Traffic operations[1] in the existing conditions at all study area intersections operate at LOS A, with minimal delay and queue lengths.

[1] Note that in all scenarios, the Decatur Street westbound approach to Border, and the eastbound New Street approach to Border Street were coded as stop controlled since observations showed that they typically function as such, even though they are not signed. This analysis further recommends that both approaches should be stop controlled.

Figure 6- Existing Peak Hour Vehicle Volumes

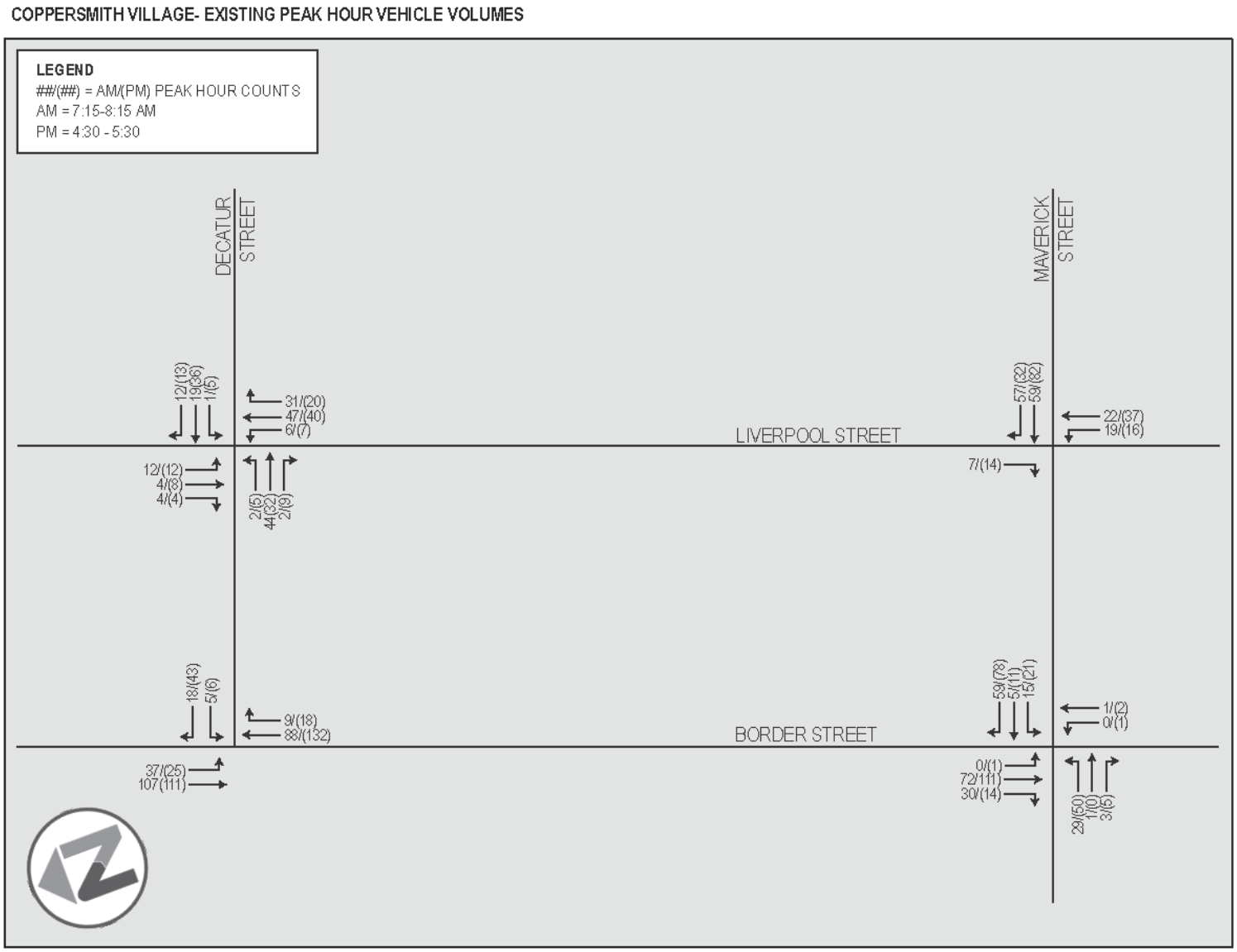


Figure 7- Existing Peak Hour Pedestrian and Bicycle Volumes

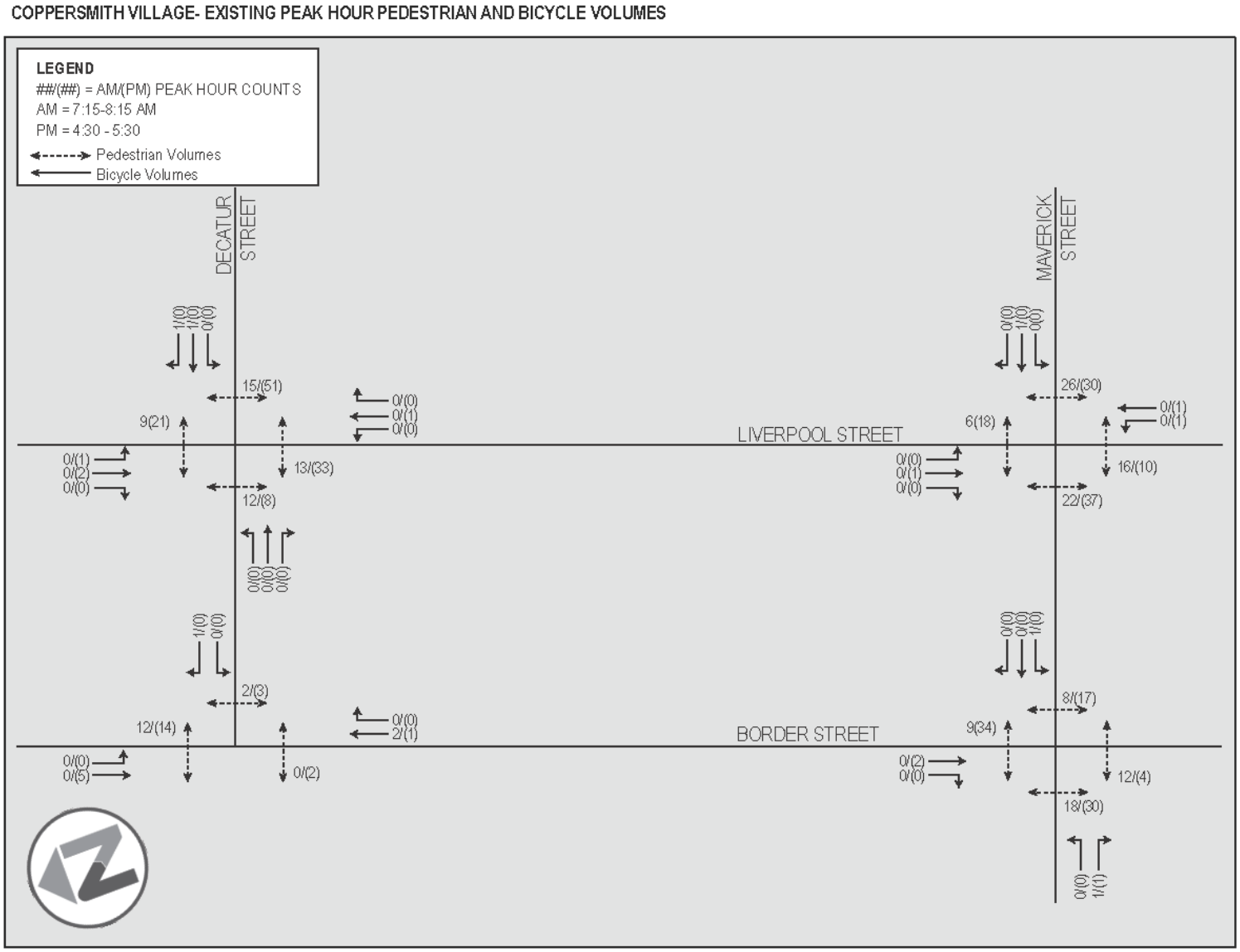


Table 3- Existing Level of Service Summary

Intersection	AM Peak Hour				PM Peak Hour			
	LOS	Delay	V/C	Queue 95th	LOS	Delay	V/C	Queue 95th
Unsignalized Intersections								
Border Street/ Decatur								
SB thru	A	0	-	-	A	0	-	-
SB left	A	7.516	0.027	0.084	A	7.624	0.019	0.059
WB left/right	A	9.4	0.029	0.091	A	9.6	0.064	0.206
Border Street/ Maverick								
EB left/right	A	7.6	0.043	0.1	A	7.8	0.075	0.2
WB left/thru/right	A	7.2	0.091	0.3	A	7.5	0.131	0.4
SB thru/ right	A	7.6	0.123	0.4	A	8	0.16	0.6
Liverpool Street/ Maverick								
WB thru/right	A	7.3	0.131	0.5	A	7.5	0.135	0.5
NB left/thru	A	7.5	0.054	0.2	A	7.6	0.069	0.2
SB right	A	6.7	0.008	0	A	6.7	0.015	0
Liverpool Street/ Decatur								
NB left/ thru/ right	A	7.4	0.099	0.3	A	7.4	0.082	0.3
SB left/ thru/ right	A	7.3	0.026	0.1	A	7.4	0.031	0.1
EB left/ thru/ right	A	7.5	0.061	0.2	A	7.4	0.057	0.2
WB left/ thru/ right	A	7.2	0.039	0.1	A	7.4	0.067	0.2

4 EVALUATION OF LONG-TERM IMPACTS

4.1 Future No Build Conditions (2018)

To provide a baseline comparison for the project impacts of the proposed Coppersmith Village development, a future "no-build" analysis was conducted. This process entailed creating a forecast network for the year 2018 that builds upon the existing traffic conditions as outlined previously. Following BTD's guidelines for the development of a No Build scenario, this analysis takes into account other permitted area developments, planned infrastructure changes and a background growth rate.

Adjacent Developments

As a transitioning area, the East Boston Waterfront has seen the completion recently of several developments, such as Maverick Landing. Other projects that are in the process of obtaining their permitting that have projected traffic volumes on study area roadways were added directly to this network. For this analysis, these projects are:

Boston East: The Boston East development is located on 102-148 Border Street along the East Boston waterfront on Boston Inner Harbor. The project consists of redeveloping a 14.2 acre property into two proposed developments. The first will contain a residential building with 196 housing units, faculties for public accommodation, and open areas on the west side of the site. The second will be a marine facility and maritime area on the north side of the site. The residential component of the building will contain 141 underground garage parking spaces and 26 spaces will be designated for visitors and employees of the marine building in an on-site surface lot. The North Driveway from Boston East serves the residential area and larger parking facility and is on Border Street between Decatur Street and Central Square, just outside our Study Area. The South Driveway serves the other parts of the development and is located within the Study Area and included in the analysis. All Site generated trips touching the Study Area are incorporated.

6-26 New Street Development: The 6-26 New Street development project consists of the redevelopment of a four acre site located on East Boston's Waterfront located across from Maverick Landing. The proposed development will consist of a five and eleven storied building containing 123 residential units, with 126 residential parking spaces located in a two-level parking garage, with two levels of underground parking, and 13 outdoor public parking spaces.

Infrastructure Projects

Besides development plans, East Boston is also seeing significant planning for and construction of infrastructure projects. The MBTA's Maverick Station was recently upgraded, along with the surface roads above it that serve the Square. In coordination with BTD, two additional efforts were identified that may influence the Study Area.

Central Square Reconstruction: Located just north of the Coppersmith Village site along Border and Liverpool Streets. The redesigned square will reclaim much of the pavement for pedestrian use by narrowing the streets, expanding the park, and widening the sidewalks to create spaces for outdoor seating, cafes, and greenscape elements. Traffic will be better organized and bike lanes will be added where possible to improve traffic flow and create a safer environment for cyclists. The design and construction of this project is funded by the City of Boston with a budget of $3.5 million. Project is funded by the Boston Transportation Department[2].

Meridian Street/Havre Street/Gove Street/Decatur Street Improvements: The city of Boston is developing plans to improve and signalize this complex intersection. Each of these streets combine at an offset point on Meridian Street in a currently unsignalized configuration. Current plans call for the signalization of this location and include an exclusive pedestrian phase. Several of the approaches to this intersection (Gove Street, Havre Street north, and Decatur Street) will be converted from two-way to one-way away from the intersection to simplify operations. Expanded curbs will shorten pedestrian crossings, narrow turning radii and provide for greatly improved accessibility at all corners. This improvement will enhance Decatur Street as a pedestrian connection between Meridian Street and the waterfront. Coppersmith Village's proposed restaurant/retail space will be located on the corner of Decatur Street and Border Street further enhancing this connection. The change in street directions at Meridian Street is expected to have minimal impact on surrounding streets, as Decatur Street will remain two-way west of London Street.

Analysis

In addition to the developments and changes described above, the No Build analysis included an annual compound growth rate of 1%, which was consistent with similar proposed project developments nearby. For the No Build (2018) condition, traffic impacts were evaluated at the following unsignalized intersections:

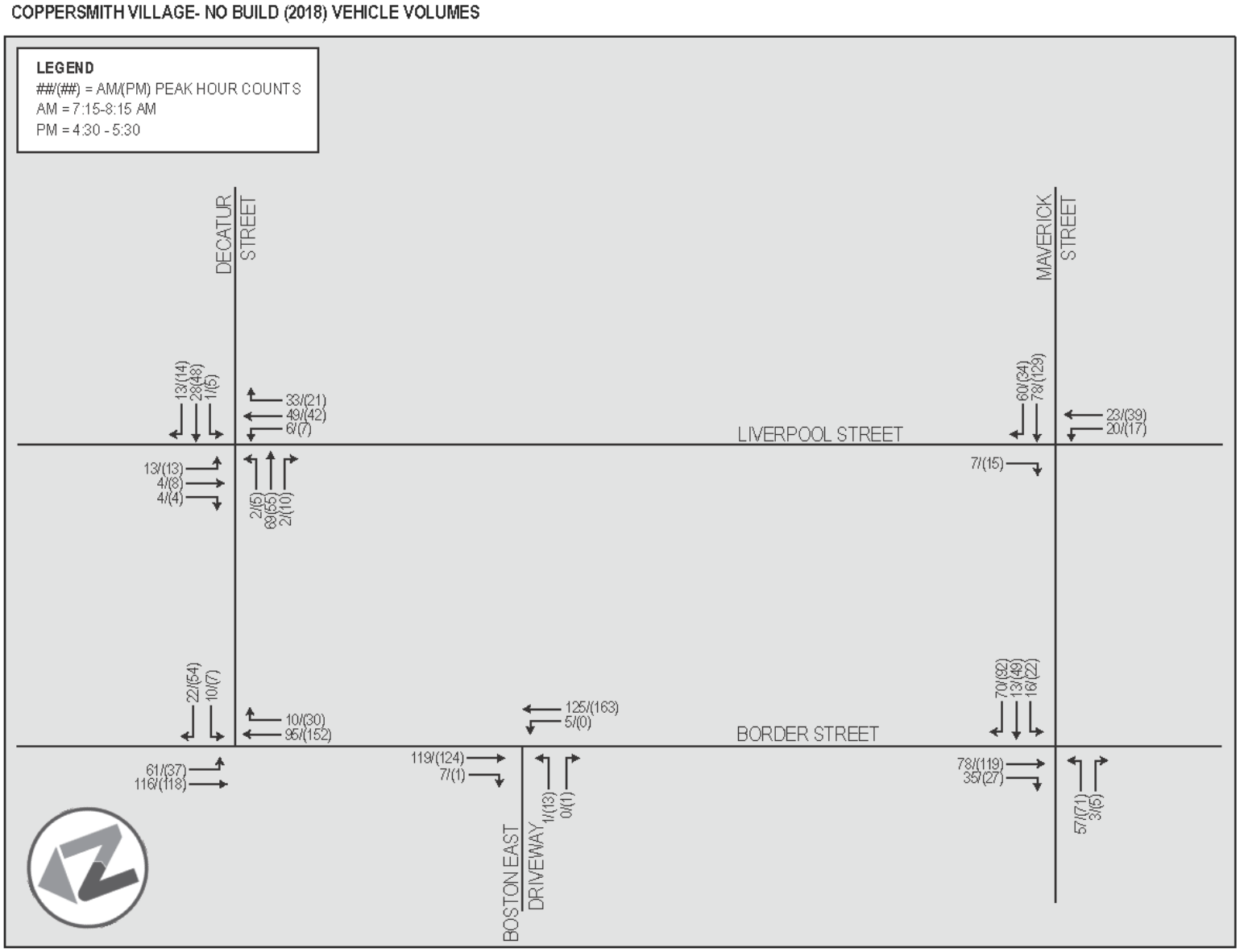
- Border Street/Decatur Street
- Border Street/Maverick Street
- Liverpool Street/Decatur Street
- Liverpool Street/Maverick Street
- Border Street/Boston East Driveway (South)

4.1.1 Future No-Build (2018) Volumes

Expected project generated trips from the developments described above were added to create the Future No-Build volumes. In addition the proposed south driveway from the Boston East project was added to the Future No-Build Network, as it will generate some a small number of entering and exiting vehicle trips onto Border Street adjacent to the proposed project site. Figure 8 indicates peak hour vehicle traffic volumes for the forecasted 2018 No Build. Volume growth from Boston East is primarily concentrated on Border Street, with some additional turning volumes onto Decatur Street. Most other volume growth in the No Build is associated with the background growth rate, which reflects this area's growing activity.

[2] City of Boston website, http://bostoncompletestreets.org/projects/central-square-east-boston/

Figure 8- Future No-Build (2018) Vehicle Volumes



4.1.2 Future No-Build (2018) Traffic Capacity

The future No Build vehicle volumes were added to the Existing Conditions network, and again analyzed to assess the expected transportation system for the No Build scenario. Each intersection was again within the study area was analyzed for level-of-service (LOS), reporting the quality of traffic with a letter grade A to F, volume to capacity ratio (V/C), the stop time delay in seconds and the 95th percentile queue lengths. The intersection capacity analysis worksheets are provided in Appendix of this report. A summary chart of the results of this analysis is shown in Table 4 below. Traffic operations in the existing conditions at study area intersections operate at LOS A, with minimal delay and queue lengths. The Future No Build includes an analysis of the Boston East Driveway (South) as it intersects Border Street opposite the Site. The Boston East Driveway is shown to operate at LOS B in both the AM & PM peak hours, well within accepted BTD standards for an urban intersection.

Table 4- Future No Build (2018) Traffic Operations Summary

Intersection	AM Peak Hour				PM Peak Hour			
	LOS	Delay	V/C	Queue 95th	LOS	Delay	V/C	Queue 95th
Unsignalized Intersections								
Border Street/ Decatur								
SB thru	A	0	-	-	A	0	-	-
SB left	A	7.6	0.045	0.143	A	7.7	0.03	0.091
WB left/right	A	9.8	0.045	0.14	A	9.9	0.083	0.272
Border Street/ Maverick								
EB left/right	A	7.9	0.081	0.3	A	8.2	0.107	0.4
WB left/thru/right	A	7.4	0.116	0.4	A	8.1	0.201	0.7
SB thru/ right	A	7.8	0.14	0.5	A	8.5	0.194	0.7
Liverpool Street/ Maverick								
WB thru/right	A	7.5	0.158	0.6	A	7.9	0.195	0.7
NB left/thru	A	7.6	0.057	0.2	A	7.7	0.074	0.2
SB right	A	6.7	0.008	0	A	6.8	0.017	0.1

Table 4- Future No Build (2018) Traffic Operations Summary Cont.

Intersection	AM Peak Hour				PM Peak Hour			
	LOS	Delay	V/C	Queue 95th	LOS	Delay	V/C	Queue 95th
Liverpool Street/ Decatur								
NB left/ thru/ right	A	7.5	0.107	0.4	A	7.5	0.087	0.3
SB left/ thru/ right	A	7.4	0.028	0.1	A	7.5	0.033	0.1
EB left/ thru/ right	A	7.7	0.093	0.3	A	7.6	0.088	0.3
WB left/ thru/ right	A	7.3	0.052	0.2	A	7.5	0.084	0.3
Boston East Driveway/ Border								
NB left	A	7.5	0.004	0.011	A	0	-	0
NB thru	A	0	-	-	-	-	-	-
EB left/right	B	10.1	0.002	0.005	B	10.3	0.022	0.067

4.2 Build Conditions

4.2.1 Site Access and Circulation

Proposed site conditions for the development will help to transform the existing site and surrounding neighborhood street conditions, by enhancing the aesthetics, safety, and access to the site. The existing site is occupied by vacant buildings which are fenced off from public access, making it an uninviting environment for pedestrians to walk. There are a number of curb cuts fronting the site that interrupt the sidewalk network, which will all be closed and replaced with an accessible, city standard sidewalk.

The 56 rental apartments will be located in two five-story buildings facing Border Street. The buildings are joined by a central lobby at street level which also provides an additional rear entrance to a landscaped courtyard and on-site parking. The 3,000 sf restaurant space will be located at the corner of Border Street and Decatur Street, and will have an outdoor seating terrace at the corner, and a main entrance on Border Street. A community room will be located at the corner of Border Street and Coppersmith Alley, adjoining a small terrace and landscaped outdoor space. The remaining ground floor level will contain offices, utility spaces, and an at grade parking garage for approximately 27 cars. The ground floor will be raised approximately two and a half feet above grade to protect against storm surge. The fifteen for-sale townhomes will face Liverpool Street. The townhouses will be three floors, with a one-car garage, and rear and front (on Liverpool Street) entries.

Between the rental buildings and townhomes there will be a new internal “street,” with a loading zone for the restaurant, access to garages, and parking for approximately 10 cars. This internal driveway will be privately owned and paved. This driveway will serve the parking, access and

service needs of the development. It will also provide a sidewalk and pedestrian connections through the Site along this internal driveway and connecting to Coppersmith Way. The internal driveway will operate as a one-way connector, with access from Decatur Street and all egress on Liverpool Street. It will be stop controlled at its exit and will include pavement markings and signage as appropriate and preliminarily shown on the Site Plan.

Pedestrians and bicyclists will be able to enter the site through a number of access points including vehicular driveways, individual townhouse main entrances on Liverpool Street, and an entrance on Coppersmith Way which provides direct access to a secure bicycle storage facility. Pedestrians are also able to access the main apartment complex through various entrances on Border Street which include a main lobby entrances, an adjacent mailroom entrance, a restaurant entrance, and a paved pedestrian path Border Street near Coppersmith Way. These proposed access improvements help to shift the area into a more pedestrian and bicycle friendly environment.

4.2.2 Trip Generation

To estimate the number of vehicle, transit, walk, and bicycle trips associated with the proposed Coppersmith Village, trip generation analysis and estimates were developed based on the most recent data presented in the ITE Trip Generation Manual, 8th Edition to determine trip generation rates for the proposed development. Because the project consists of three components including the 71 residential units that is broken up into 15 townhouses and 56 apartments, and a 3,000 square foot restaurant space, trip estimates were based on the ITE trip rates for Land Use 220 (Apartment), Land Use 230 (Residential Townhouse), and Land Use 932 (High-Turnover Site-Down Restaurant). The three ITE land use categories and their corresponding trip rates used for analysis are shown in Table 5 below:

Table 5- ITE Trip Generation Rates

ITE Class	Apartment (220)	Townhouse (230)	High Turnover (Sit-Down) Restaurant (932)
	Trips per Dwelling Unit	Trips per Dwelling Unit	Trips per 1000 SF GFA
Weekday	6.65	5.81	127.15
Saturday	6.39	5.67	158.37
AM Peak Hour*	0.51	0.44	11.52
PM Peak Hour*	0.62	0.52	11.15

*Peak hour of adjacent street traffic

As compared to the standard development used in ITE analyses, the study area has a very low driving rate. Thus the following analysis uses Boston Transportation Department Area 7 mode split assumptions to accurately reflect the number of trips amongst the various modes of travel. Furthermore, the analysis also uses the 2010 average vehicle occupancy for Boston per the 2010 American Community Survey to convert vehicle trips to person trips.

4.3 Trip Distribution and Assignment

A Trip Distribution was developed - characterizing the overall split of person trips by mode and then assigning the vehicle trips to the network. As shown in Table 6, the majority of site generated trips for all uses and time periods are essentially person trips (including bicycle trips as the BTD mode share data assumes both categories). A significant number of trips are transit trips, which also within the Study Area are essentially pedestrian trips, as people would need to walk to access nearby bus stop locations or Maverick Station.

To determine auto trips, person trips by automobile were re-calculated into vehicle trips using the same vehicle occupancy rate used to derive overall person trips. These auto trips were then assigned to the network using the directional distribution shown in Figure 9 This vehicle distribution was derived from BTD's mode share guidelines for Area 7 (East Boston) and show vehicle trip percentages between East Boston and the Boston region. All site generated exiting trips for Coppersmith Village are assumed to use the one way exit drive located on Liverpool Street. From here, a majority of vehicles would be heading northbound on Liverpool to the Callahan Tunnel or eastbound on Decatur 1A North or I-90. Vehicles entering the site are assumed to be utilizing the one-way entrance driveway on Decatur Street, with a majority of trips entering the network from the Callahan Tunnel through Maverick Street onto Border Street from the south and from the Mass Pike and cities north such as Chelsea onto Border Street and Liverpool from the north. Figure 10 displays these proposed trips on the network.

4.3.1 Future Build Volumes

Using the 2018 No Build as a basis, the 2018 Build network incorporates the proposed site plan and resulting project generated traffic volumes into a new network for the AM and PM peak hours. Figure 11 highlights the resulting traffic volumes on the network for the 2018 build year. All project trips are assumed to be using the site driveway located on Decatur Street and exit the site using the Liverpool Street driveway. However, the concentration of trips on Liverpool Street may be overstated as on-street parking is generally available on Border Street which may provide greater dispersion of the traffic volume changes than is shown.

4.3.2 Future Build Capacity Analysis

The 2018 Future Build network was completed by adding the Site generated vehicle trips to the 2018 No Build network described above. Each intersection within the study area was again analyzed for level-of-service (LOS), reporting the quality of traffic with a letter grade A to F, volume to capacity ratio (V/C), the stop time delay in seconds and the 95th percentile queue lengths. The intersection capacity analysis worksheets are provided in Appendix of this report. A summary chart of the results of this analysis is shown in Table 6 below. Traffic operations in the existing conditions at study area intersections operate at LOS A, with minimal delay and queue lengths. The Future Build analysis includes the proposed internal driveway and its intersections with Decatur Street (entry only) and Liverpool Street (exit only). The Boston East Driveway (South) as it intersects Border Street opposite the Site is also included. All intersections and approaches continue to operate at LOS B or better, which is well within typically accepted BTD standards. The existing internal driveway operates at LOS A as it intersects with Liverpool Street, due to the relatively low volumes on both approaches. Only the westbound Decatur Street approach to Border Street shows a change (from LOS A to LOS B), but with a change in delay of only 0.1 second.

Table 6- Site Generated Person and Vehicle Trips

	Entering			Exiting			
	Home	Other (Retail)	Total Person Trips	Home	Other (Retail)	Total Person Trips	Total Person Trips by Mode
Daily Avg. Mode Shares							
Auto	136	85	201	136	85	201	402
Transit	43	12	55	43	12	55	110
Walk	73	105	179	73	105	179	357
AM Peak Mode Shares							
Auto	4	7	10	14	6	18	28
Transit	1	1	2	8	2	9	11
Walk	3	11	14	9	10	19	33
PM Peak Mode Shares							
Auto	14	6	18	8	6	13	31
Transit	8	1	9	2	1	3	12
Walk	9	9	18	6	9	15	33
Saturday Mode Shares							
Auto	132	109	218	146	106	229	447
Transit	41	15	57	29	15	44	101
Walk	71	129	199	68	131	199	399

* Note that Auto trips show the number of vehicle trips, derived by converting person trips to vehicle trips utilizing the average vehicle occupancy in Boston from the most recent American Community Survey.

Figure 9- Vehicles Entering and Exiting by Percentage

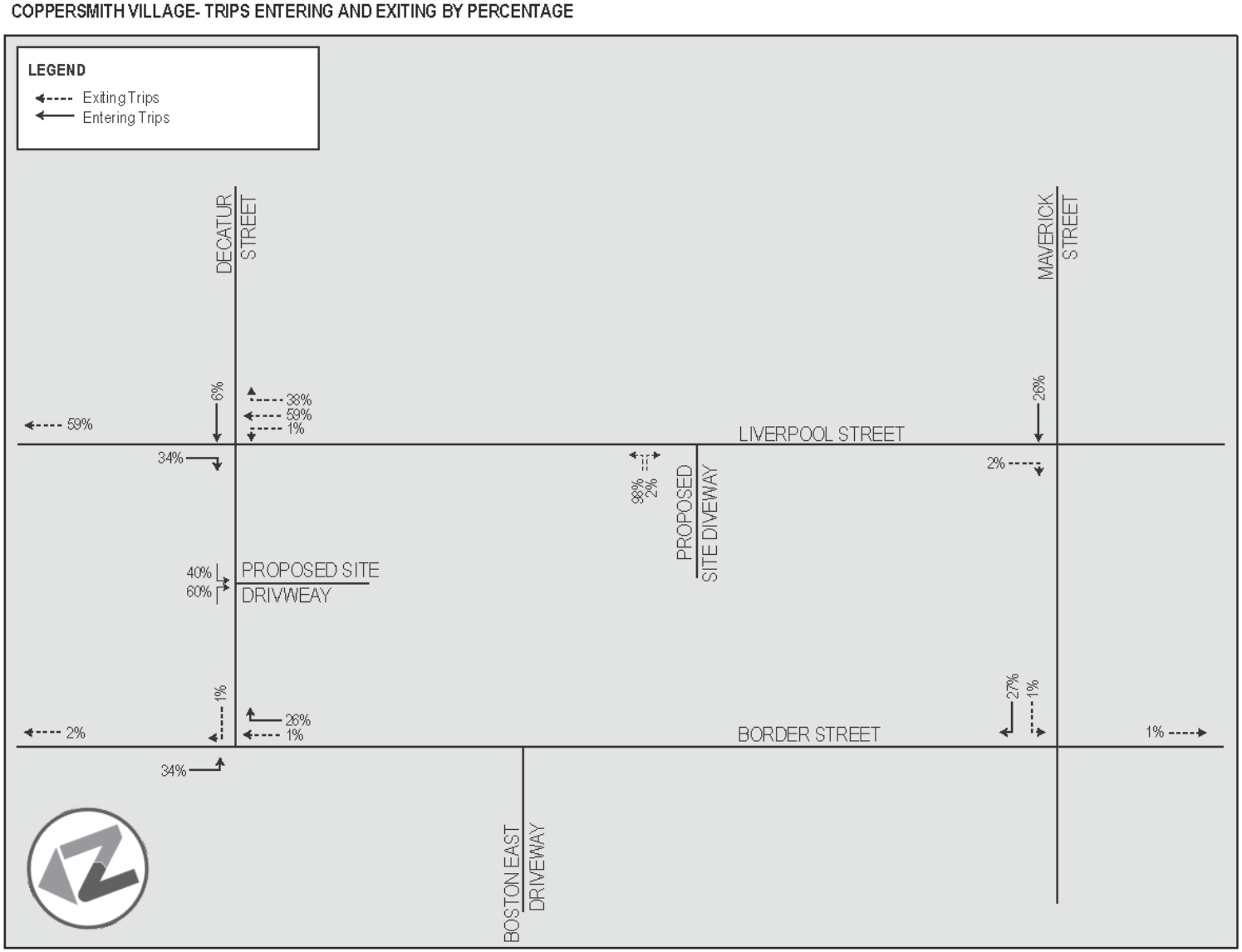


Figure 10- Site Generated Trips

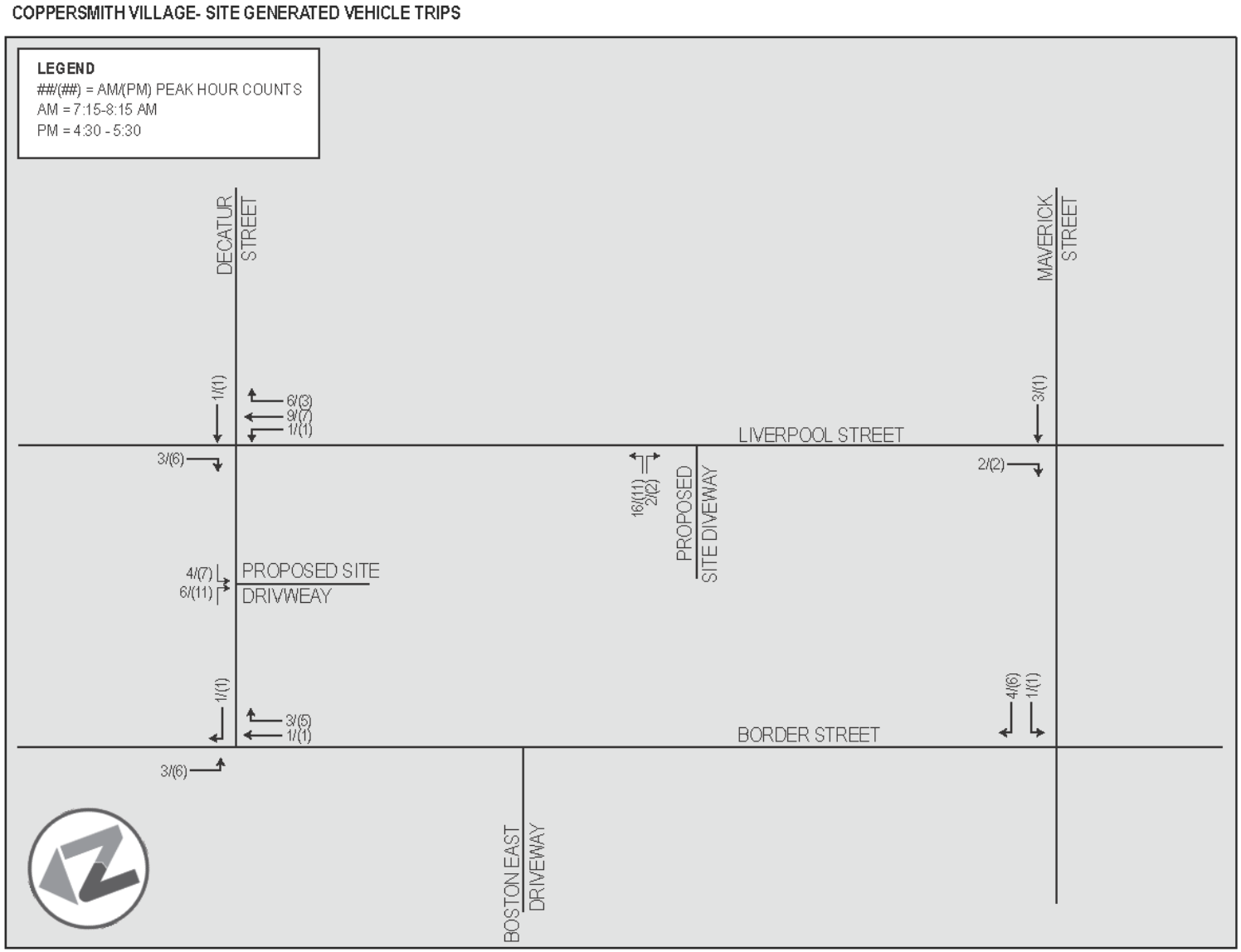


Figure 11- Future Build Vehicle Volumes

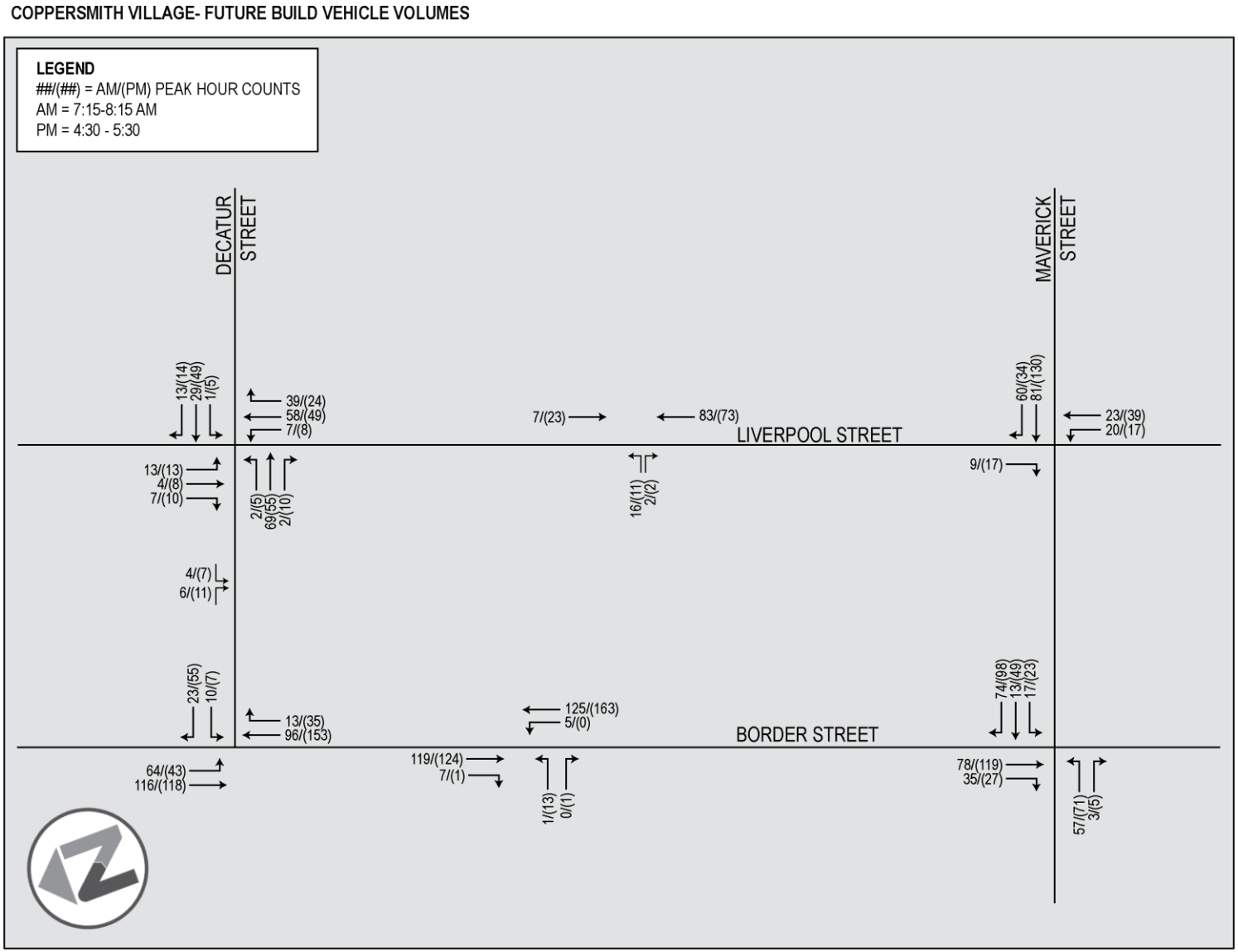


Table 7- Future Build Capacity Analysis

Intersection	AM Peak Hour				PM Peak Hour			
	LOS	Delay	V/C	Queue 95th	LOS	Delay	V/C	Queue 95th
Unsignalized Intersections								
Border Street/ Decatur								
SB thru	A	0	-	-	A	0	-	-
SB left	A	7.598	0.048	0.151	A	7.754	0.035	0.107
WB left/right	A	9.9	0.046	0.145	B	10	0.085	0.279
Border Street/ Maverick								
EB left/right	A	7.9	0.081	0.3	A	8.2	0.107	0.4
WB left/thru/right	A	7.4	0.122	0.4	A	8.2	0.21	0.8
SB thru/ right	A	7.8	0.141	0.5	A	8.5	0.195	0.7
Liverpool Street/ Maverick								
WB thru/right	A	7.5	0.161	0.6	A	8	0.196	0.7
NB left/thru	A	7.6	0.057	0.2	A	7.7	0.074	0.2
SB right	A	6.7	0.01	0	A	6.9	0.019	0.1
Liverpool Street/ Decatur								
NB left/ thru/ right	A	7.6	0.126	0.4	A	7.6	0.101	0.3
SB left/ thru/ right	A	7.4	0.031	0.1	A	7.4	0.04	0.1
EB left/ thru/ right	A	7.7	0.094	0.3	A	7.6	0.089	0.3
WB left/ thru/ right	A	7.4	0.054	0.2	A	7.6	0.086	0.3

Table 7- Future Build Capacity Analysis Cont.

Intersection	AM Peak Hour				PM Peak Hour			
	LOS	Delay	V/C	Queue 95th	LOS	Delay	V/C	Queue 95th
Boston East Driveway/ Border								
NB left	A	7.497	0.004	0.011	A	0	-	0
NB thru	A	0	-	-	-	-	-	-
EB left/right	B	10.1	0.002	0.005	B	10.3	0.022	0.067
Decatur Street Driveway Entrance/ Decatur								
EB thru/left*	-	0	0.05	0	-	0	0.05	0
WB thru/right*	A	0.7	0	0	A	0.8	0.01	0
Liverpool Street Driveway Exit/ Liverpool								
EB left/right	A	9	0.021	0.065	A	9	0.015	0.047

*Decatur Street Driveway utilizes 2000 Highway Capacity Manual methodology for traffic analysis results

4.3.3 Parking Supply and Demand

The proposed Coppersmith Village is mostly residential, providing both townhouse and apartment units. Overall, the Project will have a total of 52 off-street parking spaces with 37 spaces for the 56 residential apartment units. Of the 56 apartment units, six will be affordable to 30% AMI while 22 are proposed market rate units. Similarly, three of the fifteen townhomes will be affordable to 80% AMI, while 12 will be market rate units. The proposed parking supply is intended to provide an adequate amount of parking and help minimize automobile ownership within an already dense and walkable neighborhood. The overall goal is to encourage alternative modes of transportation within this district that is well supported by a connected sidewalk network and nearby transit.

Approximately 37 parking spaces for the rental apartments will be located within an at-grade garage under the buildings and along an internal "street." The internal driveway will have a sidewalk along the area designated for parking. Each townhome will have its own one-car garage. Parking spaces for the apartment units will be available to rent for residents only. The garage parking spaces are accessible through one entrance and exit in the first apartment complex building with the attached restaurant. There will be two entrances and exits for the garage located in the second building.

The 15 townhouses will each contain a separate and private parking garage on the ground floor of their complex which is accessible only through the entrance driveway on Decatur Street. There will be no parking associated with the retail restaurant space located within the building. However, three parking spaces have been removed to create a loading and delivery zone for the restaurant, and rest of the Site, in the rear of the apartment complex.

BTD's off-street parking guidelines recommend a maximum parking ratio of 0.75 spaces per residential unit or 1,000 sq ft of non-residential development. The Project is proposing a transportation demand management program, which also includes the "unbundling" of parking

from residential rents, to lower the demand for parking. There is also a significant affordability component of the Project which further lowers expected demand. The proposed Coppersmith Village development corresponds to about 0.66 spaces per unit for the 56 apartment complex and a one to one parking space ratio for the 15 townhouses, with no parking for retail. Combined this amounts to a parking ratio of about 0.73 for all residential units within the development as shown in Table 8 below.

Table 8- Parking Ratio

Use	Dimension	Number of On-Site Parking Spaces	Effective Project Parking Ratio
Residential	71	52	0.73 space/ unit
Townhomes	15	15	1.0 spaces/ unit
Apartments	56	37	0.66 spaces/ unit
Retail	3	0	0.0 spaces/ ksf

4.3.4 Service and Loading

The proposed development will provide for an off-street loading area in the rear of the restaurant, located in the internal driveway. Three potential parking spaces have been removed to create a this loading and delivery zone which will also be available for the rest of the Project. For the two apartments buildings and the restaurants, a trash room is provided in each building. Trash pickup for the restaurant and apartments will occur by private hauler through the internal driveway. The townhouse units will front on Liverpool Street, and will utilize on-street trash pickup through regularly scheduled City of Boston pickup.

4.3.5 Bicycle Accommodations

The Coppersmith Village project is dedicated to supporting multi-modal alternatives throughout this East Boston neighborhood. With the site's close proximity to the retail and commercial district, access to jobs and transit, bicycling has the potential to become an important component of this area's mobility needs. With proposed Harborwalk and the East Boston Greenway extensions in the near future, there are opportunities to help support non-auto transportation options in a neighborhood that is well-suited to benefit from these initiatives.

The Project is committed to providing storage and other accommodations for bicyclists to meet the level of demand. Secure, protected bicycles space is being created for all uses in two adjacent, secure, storage units. The storage units will have easy access to the internal circulation network on the Site. The townhouses will have the capability for in-unit storage either in the garage or the units themselves. Additionally, bicycles will be allowed on building elevators for in-unit storage if desired for the apartments.

Coppersmith Village is committed to meeting the city of Boston's Bicycle Parking Requirements, shown in Table 9, which are intended to encourage bicycling, promote physical exercise, and reduce energy use and emissions in keeping with overall City bicycling goals. On street bicycle spaces, located near the restaurant, will also be made available and consistent with current City standards. Coppersmith Village further supports Hubway, the city of Boston's bicycle sharing program and will advocate for its expansion to East Boston.

Table 9- City of Boston Bicycle Parking Requirements

Use	BTD Requirement	Estimated Bicycle Parking Required
Townhomes	n/a	n/a
Apartments	1 secure/covered space per unit 1 outdoor/covered or outdoor/open space per 5 units	56 secure/covered 12 outdoor
Retail	0.3 secure/covered spaces per ksf (min. 2 spaces) for employees 1 outdoor/covered or outdoor/open space per 5,000 sq ft (min. 2 spaces) for patrons	2 secure/covered 2 outdoor
TOTAL		72

5 TRANSPORTATION MITIGATION MEASURES

The Coppersmith Village project will continue the transformation of the East Boston waterfront into a vibrant neighborhood that is primarily residential, but contains a mix of complementary uses. The project will add to this evolving district by replacing vacant, formerly industrial space, with a lively pedestrian oriented mostly residential development with multiple front doors. Coppersmith Village's residential space is being developed in a walkable format that greatly enhances the neighborhood's current streets and sidewalks. It will take advantage of and contribute to the neighborhood's walkability, superior transit access, and nearby shops, restaurants and services. Specific on-site improvements include:

- Closure of the (seven) existing curb cuts and driveways abutting the formerly industrial property;
- Creating a new internal driveway that will serve the parking and service needs of the development;
- Providing a sidewalk and pedestrian connections through the Site along this internal driveway and connecting to Coppersmith Way;
- Adding 15 townhomes with separate front door access on Liverpool Street to complement the residential character on the street;
- Providing separate in-unit parking for the townhomes with access off the internal driveway (rather than Liverpool Street) and maintaining pedestrian continuity on this important pedestrian corridor;
- Providing for off-street loading and trash service for the apartments and restaurant space;

- Creating on-site secure, weather protected bicycle parking and outdoor parking for use by visitors;
- Locating the restaurant, with outdoor seating space, at the corner of Decatur and Border Streets, which enhances Decatur Street as the pedestrian connection between Meridian Street and the waterfront;
- Improving the character of Border Street, by removing all curb cuts along the Site frontage while providing an address and entry for the apartments, retail space and community space on this important harborside frontage.

While minimally adding to the expected vehicular traffic in the surrounding neighborhood, the Project nevertheless is supportive of proposed City changes and recommends additional improvements that should be completed even before the Project's development. These improvements include:

- Supporting the City's proposed reconstruction of Central Square, which will reclaim much of the pavement for pedestrian use by narrowing the streets, adding bicycle facilities, expand the park, and widen sidewalks to create spaces for outdoor seating, cafes, and greenscape elements;
- Support proposed plans for the Meridian Street/Havre Street/Gove Street/Decatur Street Improvements, which incorporate adding a traffic signal, conversion of several approaches from two-way to one-way, expanding curbs to shorten pedestrian crossings, narrow turning radii and provide for greatly improved accessibility at all corners;
- Adding a stop sign to the westbound Decatur approach to Border Street, as it typically operates in this manner today, but is not currently signed.
- Adding a stop sign to the eastbound New Street approach to Border Street. This typically operates as if it was stop controlled, but is not currently signed. All eastbound New Street traffic must turn right or left onto Border Street as the westbound Maverick Street approach is a one-way street. New Street becomes Maverick Street once it crosses Border Street.

Travel Demand Management (TDM) comprises a variety of strategies designed to reduce single-occupancy vehicle (SOV) travel and encourage "alternate modes" of transportation (public transit, walking, bicycling). As a primarily residential Project with units targeted a mix of potential tenants and owners, the Project is likely to attract residents and tenants who can rely primarily on non-auto travel for work, errands, and recreation. Nevertheless, the implementation of TDM programs is critical to helping ensure that residents, visitors and customers can meet their mobility needs using the variety of transportation options available in the surrounding neighborhood. The Project intends to adopt the following measures and programs to benefit their residents, and the surrounding neighborhood, while reducing vehicular traffic and potential environmental impacts.

Programmatic

- Provide information on travel alternatives onsite and with lease information;
- Designate an on-site transportation coordinator;
- Encourage the use of non-auto modes for residents, employees and visitors;

- Work with area developments on transportation issues including investigating joining the Transportation Management Association (TMA); and
- Post signs and enforce idling laws at loading facility and in the internal driveway.

Parking

- Providing one dedicated in-unit space per townhome
- "Unbundle" the cost of parking spaces from residential lease rates to reduce parking demand;
- Provide space for an electric vehicle charging station in the garage as needed;
- Encourage tenants to carpool/vanpool; and

Public Transportation

- Provide a free monthly MBTA pass for the first month for each new lease; and
- Work with the MBTA to enroll tenants and employees in monthly pass programs.

Pedestrian/Bicycle

- Provide free, secure, weather protected, on-site bicycle parking for residents, employees and visitors;
- Provide an attractive sidewalk along all Site frontages to improve and enhance the area's walkability
- Support Hubway, the city of Boston's bicycle sharing program and advocate for its expansion to East Boston.
- Provide on street bicycle spaces, located near the restaurant, consistent with current City standards.

CONCLUSIONS

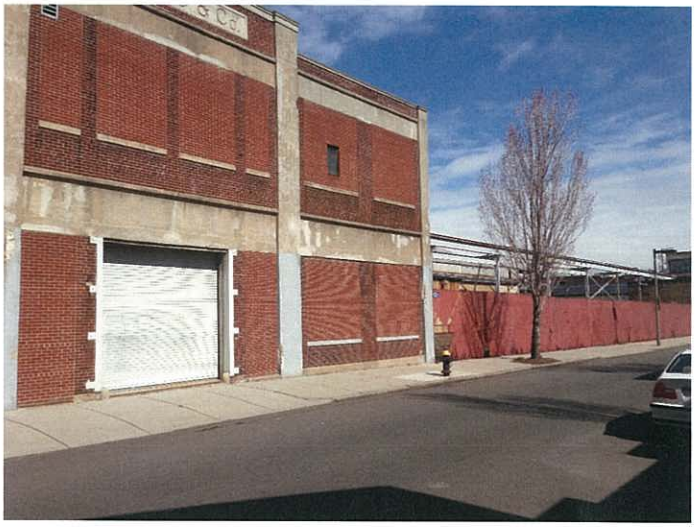
Overall, the Coppersmith Village project will continue the transformation of the East Boston waterfront into a vibrant neighborhood that is primarily residential, but contains a mix of complementary uses. The project will add to the multi-modal character and enlivening nature of the surrounding neighborhood by:

- Replacing the vacant, formerly industrial space, with a lively, pedestrian oriented, mostly residential development with multiple front doors;
- Closing (seven) existing curb cuts and driveways, and improving sidewalk conditions;
- Creating a new internal driveway, with a sidewalk and pedestrian connections that will serve the parking and service needs of the development;
- Adding 15 townhomes with separate front door access on Liverpool Street to complement the residential character on the street;
- Creating on-site secure, weather protected bicycle parking and outdoor parking for use by visitors;
- Adding a restaurant, with outdoor seating space, at the corner of Decatur and Border Streets, which enhances Decatur Street as the pedestrian connection between Meridian Street and the waterfront;

- Improving the character of Border Street, by removing all curb cuts along the Site frontage while providing an address and entry for the apartments, retail space and community space on this important harborside frontage;
- Providing "unbundled" on-site parking for the apartment units, reducing demand;
- Demonstrating minimal impact or change in vehicular traffic operations from the proposed No Build condition, as all approaches and intersections operate at LOS B or better.

PHASE I
ENVIRONMENTAL SITE ASSESSMENT

Former American
Architectural Iron Co.
80 Liverpool Street
East Boston, Massachusetts



April 2013

TRC Project No: 202448

Prepared For:

Neighborhood of Affordable Housing
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East Boston, Massachusetts 02128

Prepared By:

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EXECUTIVE SUMMARY

Subject to the qualifications and limitations stated in Section 1 of this report, TRC Environmental Corporation (TRC) was retained by Neighborhood of Affordable Housing (NOAH) (also known as "Client" or "User") to perform a Phase I Environmental Site Assessment (ESA) of Former American Architectural Iron Co. located at 80 Liverpool Street in East Boston, Suffolk County, Massachusetts (herein referred to as the "Site"). TRC's assessment was conducted in connection with the Client's planned purchase of the Site. The Phase I ESA described in this report was performed in accordance with the scope and limitations of the American Society of Testing and Materials Practice E 1527-05 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-05). Limitations and/or deviations from the ASTM E 1527-05 sstandard are described in Section 1.3 of this report.

The Site is comprised of approximately 56,745 square feet (sf) and is developed with four buildings ranging in size from 742 sf to 15,980 sf. The 1½-story metal frame building was formerly used for custom steel products manufacturing. The two-story brick building was formerly used for storage on the ground floor and office space on the second floor. The 1½-story concrete building was formerly used for storage. The single-story spray booth was formerly used for product painting.

Past uses of the property from 1888 to the present include industrial woodworking, metal machining, blacksmithing, coppersmithing and copper refinishing, and iron working. The related industrial activities included or likely included the combustion of coal, painting of wood and metal products, and possible storage of oil and hazardous materials.

An Activity and Use Limitation (AUL) for the Site has been implemented due to a release associated with Release Tracking Number (RTN) 3-16751; concentrations of trivalent and hexavalent chromium, lead, petroleum hydrocarbons, and 1,1,2,2-tetrachlorethane in soils in excess of applicable RCS-1 criteria.

A second release (RTN 3-16738) is associated with the Site due to a potential oil release from a historic underground storage tank (UST) at the Site. The tank was removed and soil conditions were assessed as documented in a UST closure assessment report. Investigation results did not identify evidence of release. The site was closed in June 1998 with the submittal of a Class A-1 Response Action Outcome (RAO).

As a result of the Phase I ESA, including but not limited to our visual observation of the Site; review of historical information, environmental databases, and information provided by the User; interviews with current Site representative(s); and TRC's professional judgment, the following *recognized environmental conditions* (RECs) associated with the Site, as defined by the ASTM E 1527-05 standard were identified:

Recognized Environmental Conditions

The conditions identified as RECs are shown on Figure 2, as applicable:

REC 1: Impacts from Historic Industrial Site Use and Petroleum Storage:

Between at least 1888 and approximately 1950, the Site was used for multiple commercial and industrial purposes including a machine shop, offices, lumber milling and storage, drug retail, dry-cleaning, blacksmithing, cabinet manufacturing and retail, woodworking, and warehouse storage. By 1964, the Site was operated by AAIC for manufacturing and spray painting of custom steel products for building construction and renovation. These documented former Site tenants likely utilized various types of petroleum and hazardous materials including but not limited to engine oils, heating oils, cutting oils, solvents and thinners, cleaners and degreasers, hydraulic fluid, lubricants, and lacquers. Because the disposal of resulting waste byproducts was largely unregulated during the documented period of historic industrial use, TRC was unable to obtain detailed information pertaining to the Site's waste management history. Furthermore, although neither records of historic tank closure(s) nor evidence suggesting existing on-Site USTs was identified during this assessment, based on the long-term past industrial use of the Site, the potential exists for abandoned USTs to remain at the Site. The Site was listed in state agency databases for two separate releases of materials including oil, chromium (hexavalent and trivalent), lead, petroleum hydrocarbons and 1,1,2,2-tetracbloroetbane (RTNs 3-16751 and 3-16738), both which have since achieved regulatory closure. Although no open releases associated with the Site were identified, based on the industrial use, TRC considers the likelihood of adverse impacts to Site soil and groundwater from former industrial Site uses to represent a REC in connection with the Site.

***REC 2: Impacts to Soil from Documented On-Site Release*:**

The Site address was listed in state agency databases for a 1998 release of hazardous material associated with MassDEP RTN 3-16751. Following remedial response actions, the release incident achieved regulatory closure through the submittal of a Class A-3 Response Action Outcome (RAO) indicating levels of oil and hazardous materials have not been reduced to background and an Activity and Use Limitation (AUL) is required to maintain a level of No Significant Risk. Based upon the level of remedial response actions conducted in relation to RTN 3-16751 and the current regulatory status, impacted soils related to RTN 3-16751 have been adequately assessed and remediated for the commercial/industrial use of the Site as permitted by the AUL. However, the documented impacts to soil have not been adequately assessed and remediated for the proposed future residential use of the Site, which is restricted by the AUL. As such, TRC considers this past release to represent a REC in connection with the Site.

REC 3: Impacts to Site from Historic Fill Material:

Historical sources indicate that the Site may have been filled to create level or consistently sloped surfaces for paving and/or building construction. Urban fill materials are fairly ubiquitous in the Greater Boston area and other urban developments throughout Massachusetts

and may contain low to moderate levels of contaminants such as semi-volatile organic compounds (SVOCs) and metals resulting from a long history of industrial and commercial uses. If present, urban fill may not require regulatory action with respect to remediation; however, urban fill may require special management or disposal during site redevelopment and often results in the need to establish activity and use restrictions on a property. Based on a review of historical sources, TRC considers the likely widespread presence of historic fill material at the Site to represent a REC in connection with the Site.

REC 4: Impacts to Site Soil and Groundwater from Former Dry-cleaning Facilities:

TRC's review of the EDR database report and Sanborn Maps identified one former onsite dry-cleaning facility and one nearby offsite historic dry-cleaning facility. The former onsite facility was identified on a 1950 Sanborn Map on the northern portion of the Site along Border Street, and the former offsite dry-cleaning facility listed in EDR's database report was identified as JB Cleaning Service at 65 Maverick Street located approximately 340 feet upgradient of the Site.

Dry-cleaning facilities require routine use of chlorinated solvents which are denser than water and, therefore, sink in a typical aqueous environment. In addition, they are mobile and persistent, and have an ability to migrate via groundwater. Although no spills or releases of chlorinated solvents associated with these facilities have been reported, soil and groundwater contamination at dry-cleaning facilities is common due to the physical characteristics and chemical nature of these solvents. As such, TRC considers likely soil and groundwater impacts at the Site resulting from historic on-site and nearby off-site dry-cleaning operations a REC in connection with the Site.

REC 5: Impacts to Site Soil and Groundwater From Historic Oil Spillage

Multiple large areas of prominent oil staining, ranging in size from approximately 100 to 800 square feet, were observed on the concrete floor within the 1 ½ story metal frame building. Based on the nature of the staining and due to cracks, gaps, and utility chases observed in the floor, TRC considers the observed staining to be environmentally significant. As such, the staining observed within the 1 ½ story metal frame building resulting from long-term oil spillage to represent a REC in connection with the Site.

This Executive Summary is part of this complete report; any findings, opinions or conclusions in this Executive Summary are made in context with the complete report. TRC recommends that the User read the entire report for all supporting information related to findings, opinions and conclusions.

Legal Notice

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1.0 INTRODUCTION

TRC Environmental Corporation (TRC) has prepared this Phase I Environmental Site Assessment (ESA) for Neighborhood of Affordable Housing (NOAH) (hereinafter "Client" or "User").

This report was prepared for and may be relied upon by Client for the purposes set forth herein; it may not be relied on by any party other than the Client and reliance may not be assigned without the express approval of TRC. Authorization for third party reliance on this report will be considered by TRC if requested by the Client. TRC reserves the right to deny reliance on this report by third parties.

1.1 Purpose and Scope of Services

The following Phase I ESA was performed for the property located at 80 Liverpool Street, East Boston, Suffolk County, Massachusetts (hereinafter the "Site"). A Site location map is included as **Figure 1**. This Phase I ESA has been prepared by TRC in accordance with the American Society for Testing and Materials E 1527-05 *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM E 1527-05) and is intended for the sole use of NOAH (hereinafter the "Client" or "User." Services performed during this assessment were completed in accordance with TRC's Proposal dated March 18, 2013.

The purpose of this assessment is to identify *Recognized Environmental Conditions* (RECs) at the Site, as defined by the ASTM E 1527-05 standard. The completion of this Phase I ESA report may be used to satisfy one of the requirements for the User to qualify for the *innocent landowner*, *contiguous property owner*, or *bona fide prospective purchaser* limitations pursuant to Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), thereby constituting *all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice* as defined by 42 U.S.C. §9601(35)(B) of CERCLA.

TRC understands that this assessment is not funded with a federal grant awarded under the U.S. EPA Brownfields Assessment and Characterization program.

The Scope of Services for this Phase I ESA included the following tasks:

- Site and vicinity reconnaissance;
- Site and vicinity description and physical setting;
- Historical source review and description of historical Site conditions;
- Interviews with owners, operators, and/or occupants of the Site, and/or local officials;
- Review of environmental databases and regulatory agency records;
- Review of previous environmental reports/documentation, as applicable;
- Review of environmental liens, if requested by the User; and
- Preparation of a report summarizing findings, opinions and conclusions.

Pursuant to the ASTM E 1527-05 standard, recommendations to conduct Phase II sampling or other assessment activities are not required to be included in this report. TRC can provide such recommendations upon request.

1.2 Additional Services

Items outside the scope of the ASTM E 1527-05 standard include, but are not limited to:

· Asbestos · Radon · Lead-based paint · Lead in drinking water · Wetlands · Regulatory compliance · Cultural and historic resources	· Industrial hygiene · Health and safety · Ecological resources · Endangered species · Indoor air quality including vapor intrusion · Biological agents · Mold

No additional services were performed outside the scope of the ASTM E 1527-05 standard.

1.3 Limitations and Deviations

1.3.1 Accuracy and Completeness

The ASTM E 1527-05 standard recognizes inherent limitations for Phase I ESAs that apply to this report, including:

- Uncertainty Not Eliminated – No Phase I ESA can wholly eliminate uncertainty regarding the potential for RECs in connection with a property. Data gaps identified during this Phase I ESA are listed in Section 7.4.

- Not Exhaustive – A Phase I ESA is not an exhaustive investigation.

- Past Uses of the Property – A review of standard historical sources at intervals less than five years is not required.

The Client is advised that the Phase I ESA conducted at the Site is a limited inquiry into a property's environmental status, cannot wholly eliminate uncertainty, and is not an exhaustive assessment to discover every potential source of environmental liability at the Site. Therefore, TRC does not make a statement i) of warranty or guarantee, express or implied for any specific use; ii) that the Site is free of RECs or environmental impairment; iii) that the Site is "clean"; or iv) that impairments, if any, are limited to those that were discovered while TRC was performing the Phase I ESA. This limiting statement is not meant to compromise the findings of this report; rather, it is meant as a statement of limitations within the ASTM standard and intended scope of this assessment. Specific limitations identified during the Site reconnaissance are described in Section 5.1. Subsurface conditions may differ from the conditions implied by surface observations, and can be evaluated more thoroughly through intrusive techniques that are beyond

the scope of this assessment. Information in this report is not intended to be used as a construction document and should not be used for demolition, renovation, or other construction purposes.

This report presents TRC's site reconnaissance observation, findings, and conclusions as they existed at the time of the Site reconnaissance. TRC makes no representation or warranty that the past or current operations at the property are, or have been, in compliance with all applicable federal, state and local laws, regulations and codes. TRC makes no guarantees as to the accuracy or completeness of information obtained from others during the course of this Phase I ESA report. It is possible that information exists beyond the scope of this assessment, or that information was not provided to TRC. Additional information subsequently provided, discovered, or produced may alter findings or conclusions made in this Phase I ESA report. TRC is under no obligation to update this report to reflect such subsequent information. The findings presented in this report are based upon reasonably ascertainable information and observed Site conditions at the time of the assessment.

This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not assessed. Regardless of the findings stated in this report, TRC is not responsible for consequences or conditions arising from facts that were not fully disclosed to TRC during the assessment.

An independent data research company provided the government agency database referenced in this report. Information regarding surrounding area properties was requested for approximate minimum search distances and was assumed to be correct and complete unless obviously contradicted by TRC's observations or other credible referenced sources reviewed during the assessment.

TRC is not a professional title insurance or land surveyor firm and makes no guarantee, explicit or implied, that any land title records acquired or reviewed, or any physical descriptions or depictions of the property in this report, represent a comprehensive definition or precise delineation of property ownership or boundaries.

1.3.2 Warranties and Representations

This report does not warrant against: (1) operations or conditions which were not evident from visual observations or historical information provided; (2) conditions which could only be determined by physical sampling or other intrusive investigation techniques; (3) locations other than the client-provided addresses and/or legal parcel description; or (4) information regarding off-site location(s) (with possible impact to the Site) not published in publicly available records.

1.3.3 Continued Validity/User Reliance

This report is presumed to be valid, in accordance with, and subject to, the limitations specified in the ASTM E 1527-05 standard, for a period of 180 days from completion, or until the Client obtains specific information that may materially alter a finding, opinion, or conclusion in this report, or until the Client is notified by TRC that it has obtained specific information that may

materially alter a finding, opinion, or conclusion in this report. Additionally, pursuant to the ASTM E 1527-05 standard, this report is presumed valid if completed less than 180 days prior to the date of acquisition of the property or (for transactions not involving an acquisition) the date of the intended transaction.

1.3.4 Deviations to ASTM E 1527-05 Standard

Notwithstanding additions to the ASTM E 1527-05 standard, as listed in Sections 1.2 and 9, if applicable, no significant deviations or deletions to the ASTM standard were made during this Phase I ESA.

1.3.5 Significant Assumptions

During this Phase I ESA, TRC relied on database information; interviews with Site representatives, regulatory officials, and other individuals having knowledge of Site operations; and information provided by the User as requested in our authorized Scope of Work. TRC has assumed that the information provided is true and accurate. Reliance on electronic database search reports is subject to the limitations set forth in those reports. TRC did not independently verify the information provided. TRC found no reason to question the validity of the information received unless explicitly noted elsewhere in this report. If other information is discovered and/or if previous reports exist that were not provided to TRC, our conclusions may not be valid.

2.0 SITE DESCRIPTION

2.1 Site Location and Legal Description

The Site is located at 80 Liverpool Street, East Boston, Suffolk County, Massachusetts, in a mixed commercial/industrial and residential area. The Site is described by the Boston tax assessor as Parcel Number 0105590000 and is currently owned by Sisson Realty Trust. A Site location map is included as **Figure 1**.

2.2 Site Improvements

The Site is comprised of approximately 56,745 square feet (sf) and is developed with four buildings ranging in size from 742 sf to 15,980 sf as summarized in the following table.

Site Feature	Description
Buildings (stories)	One 1½-story metal frame building, one 2-story brick building, one 1½-story concrete building, and one single-story spray booth.
Construction date	Between 1950 and 1989
Exterior areas	Paved/Unpaved/Vegetated
On-site roads/rail lines	N/A
Other large equipment	N/A
Potable water supply	Municipal/ MWRA
Sewage disposal system	Municipal/ MWRA

Site Feature	Description
Heating/Cooling system fuel source	Heating oil/Natural Gas
Back-Up fuel source	N/A
Storm water system	Municipal sanitary/storm water sewer system

The 1½-story metal frame building was formerly used for custom steel products manufacturing. The two-story brick building was formerly used for storage on the ground floor and office space on the second floor. The 1½-story concrete building was formerly used for storage. The single-story spray booth was formerly used for product painting. A Site layout plan is included as **Figure 2**.

2.3 Current and Historical Site Use

2.3.1 Current Site Use(s)

The approximately 1.3-acre Site is currently developed with four separate out-of-service buildings. No commercial or industrial operations currently take place.

2.3.2 Previous Owner and Operator Information

Based on information provided by the User (Section 3), the historical record review (Section 4), and/or interviews conducted during this Phase I (Section 6), historical Site ownership and operator information is provided in the tables below.

Site Owner	From	To
Sisson Realty Trust	Unknown	Present
American Architectural Iron Company	After 1970	Unknown
I Young & Co. Inc. / Young I & Co. Coppersmiths	Before 1930	After 1970

2.4 Physical Setting

According to the United States Geological Survey (USGS) topographic map, Boston South, Massachusetts quadrangle dated 1987, (**Figure 1**), the Site is located approximately 450 feet and northwest from Boston Inner Harbor and the Site topographic elevation is approximately 10 feet above mean sea level (MSL). The topography of the Site is generally flat however, local topography slopes gently to the west. Based on local topography, the assumed direction of shallow ground water flow is to the west/northwest, towards Boston Inner Harbor. However, a subsurface investigation would be required to determine actual ground water flow direction.

The database radius report supplied by Environmental Data Resources, Inc. (EDR) of Milford, Connecticut was reviewed to obtain information regarding the dominant soil composition in the Site vicinity. This information is summarized below:

Hydric Status: Soil does not meet the requirements for a hydric soil.
Soil Surface Texture: Silt loam

Soil Component Name: Urban land
Deeper Soil Types: Silt loam, unweathered bedrock, fine sandy loam, clay, silt, sand

Please refer to the Geocheck Physical Setting Source Summary of the EDR report presented in **Appendix A** for further information regarding the soil composition in the Site vicinity. According to EDR, the Site is not located in a Federal Emergency Management Agency (FEMA) flood zone.

3.0 USER PROVIDED INFORMATION

According to the ASTM E 1527-05 standard, certain tasks that may help identify the presence of RECs associated with the Site are generally conducted by the Phase I ESA User. These tasks include: reviewing title records for environmental liens or activity and land use limitations; providing specialized knowledge related to RECs at the Site (e.g., information about previous ownership or environmental litigation); and providing explanations for significant reduction in the Site purchase price. A list of requested information was included in TRC's signed proposal (see Section 1.1). Information provided by the User pursuant to that request is provided below.

TRC did not receive a completed User Questionnaire from the User. As such, this report may not satisfy the requirements to qualify for one of the Landowners Liability Protections. A copy of the User questionnaire is included in **Appendix B**. Specific documents provided by the user include:

- Brownfields QAPP Addendum City of Boston DND-E (Revisions 0), prepared by TRC, dated March 11, 2013.
- Response Action Outcome Statement – Class A-3, Release Tracking No. 3-16751, prepared by Earth Tech Inc., date April 2003.
- Notice of Activity and Use Limitation, DEP Release Tracking No. 3-16751, prepared by Seyfarth Shaw LLP, dated September 27, 2002.
- Report on Phase I Initial Site Investigation, Release Tracking Number 3-16751, prepared by Earth Tech Inc., dated May 1999.

3.1 Title & Judicial Records for Environmental Liens or Activity and Use Limitations

Activities at the Site are currently restricted under an Activity and Use Limitation (AUL) recorded at the Suffolk County Registry of Deeds (Deed Reference: Book 29450, Page 076).

In general the AUL permits commercial/industrial use of the property and excavation and management of impacted soil within the AUL area so long as appropriate environmental and health and safety procedures are implemented under the direction of a Licensed Site Professional. In general, the AUL prohibits use of the portion of the property within the AUL as a residence, school, nursery, day care, and/or recreational facility or other use where children would be present frequently. The AUL also restricts disturbance and/or relocation of impacted

soil within the AUL area without prior development and implementation of appropriate environmental and health and safety procedures, excavation and disposal of soil inconsistent with federal, state, and local laws and regulations, and removal of asphalt and the concrete spray booth floor. A copy of the AUL is provided in Appendix E.

3.2 Specialized Knowledge

The User was not aware of specialized knowledge related to RECs at the Site.

3.3 Property Value Reduction Issues

The User was not aware of property valuation reduction issues regarding the Site.

3.4 Commonly Known or Reasonably Ascertainable Information

TRC was supplied with commonly known and/or reasonably ascertainable information regarding the Site by NOAH. This information was used during this Phase I ESA and has been incorporated in this report as applicable.

3.5 Reason for Conducting Phase I

It is TRC's understanding that the User requires a Phase I for due diligence purposes.

4.0 RECORDS REVIEW

4.1 Sources of Information

Information regarding Site and vicinity historical uses was obtained from various publicly available and practically reviewable sources including: aerial photographs; Sanborn fire insurance maps; topographic maps; city directories; local municipal records; an environmental database report; and interviews with Site representative(s) and regulatory agency official(s), as necessary. TRC obtained aerial photographs, Sanborn fire insurance maps, topographic maps, city directories, and an environmental database report from EDR. Historical research documentation is included in **Appendix C**.

4.2 Historical Use Information

Historical use information regarding the Site and surrounding properties was obtained from aerial photographs dated 1938, 1946, 1955, 1960, 1969, 1978, 1980, 1985, 1995, 2008, and 2010; Sanborn fire insurance maps dated 1888, 1900, 1927, 1950, 1964, 1989, 1990, 1993, 1994, 1995, 1996, 1998, and 2002; topographic maps dated 1893, 1903, 1946, 1950, 1956, 1958, 1970, 1971, 1979, 1985, and 1987; and city directories dated 1930, 1935, 1945, 1950, 1960, 1965, 1970, 1975, 1985, 1990, 1995, 2000, and 2005.

4.2.1 Site History

Operational History

Year	Site History
After 2005 - Present	Site operations cease and the facility remains vacant.
1989-2005	No significant changes in Site operations or facility infrastructure are apparent.
1964-1989	The small shed no longer is depicted on the Site; the metal canopy appears to cover the area of the Site on this map. The Site is primarily used for steel working purposes.
1950-1964	The Site is developed with two of the current onsite structures, one identified as "Iron Works" along Border Street, and one identified as "Coppersmith" along Liverpool Street. The commercial service and retail structures along Border Street are no longer depicted.
1927-1950	The storage structure appears to no longer exist, but a smaller shed appears on the Site adjacent to Border Street. The majority of the Site consisted of parking areas. Former onsite commercial service and retail structures along Border Street include an auto body shop, an electrical repairs shop, storage, and a dry cleaning facility. The property no longer appears to be used for woodworking trades.
1900-1927	A structure labeled "storage" appears to have been constructed at the Site. The surrounding uses of the property appear to be consistent with woodworking trades. The area near Decatur Street is labeled "paint factory".
1888-1900	The Site appears to be fully developed; however, none of the structures presently located on the property existed. The property was indicated as "Manson Brothers Property", which apparently was used by various carpentry trades. The facilities are described as using wood shavings and coal as fuel for steam heat, and the property had gas and electric lights. The parcel corresponding to the Site was apparently used as a machine shop and blacksmith shop. An apparent blacksmith's hearth and chimney was located at the center of the Site.

It does not appear that topographic contours in the Site area have significantly changed during the time period reviewed.

Hazardous Substances

Hazardous substances including raw materials; finished products and formulations; hazardous wastes; hazardous constituents and pollutants including intermediates and byproducts that were historically present at the Site include various paints, primers and mineral spirits for surface coating structural steel products. The paint related materials were stored in drums and cans in flammable cabinets and walk-in exterior storage containers. Additional substances included various lubricating oils, a naphtha solvent parts washer, kerosene, and No. 2 fuel oil in aboveground storage tanks (ASTs). Two of the tanks are currently located adjacent to the Border Street building at the northern limit of the painting yard area.

Current hazardous substances and petroleum products observed during the Site reconnaissance - including unidentified substance containers (when open or damaged, and containing unidentified substances suspected of being hazardous or petroleum products) - are discussed in Section 5.2.

4.2.2 Adjoining Property History

Since at least 1888, adjoining properties appear to have primarily consisted of commercial retail properties, light industrial properties, residential dwellings, and several other facilities including religious and educational institutions and municipal buildings.

4.3 Database Report

A database search report that identifies properties listed on state and federal databases within the ASTM-required radii of the Site was obtained from EDR and is included in **Appendix A**. The environmental database report identified hundreds of properties/listings including the Site. These properties included those that could be mapped and those that could not (i.e., orphan properties).

Subject Site

Site information included in the database search report is summarized in the following table:

Site Facility Name and/or Listed Address	American Architectural Iron Co. 80 Liverpool Street, East Boston, MA
EDR Map No.	A1 and A2
Databases	SHWS, Release, INST Control
Description/ID Number	S106511762
Database Review Summary	In April 1998, a Release Notification Form (RNF) was submitted to the Massachusetts Department of Environmental Protection (MassDEP) to report concentrations of chromium (hexavalent and trivalent), lead, petroleum hydrocarbons and 1,1,2,2-tetracbloroetbane in soil in excess of applicable RCS-1 standards. The RNF was accompanied by a Release Abatement Measure (RAM) Plan detailing proposed soil excavation. The release was subsequently assigned release tracking number (RTN) 3-16751 by MassDEP. In September 1998 and March 1999, pre-excavation sampling and chemical analysis was performed as part of a Phase I Limited Site Investigation. The sampling program included the collection of various interim and post-excavation soil samples as well as groundwater samples. Sample media were analyzed for metals, petroleum, and volatile organic compounds (VOCs). Analysis results identified the presence of contaminated soils in: 1) the paint yard area; 2) the area to the west of the paint yard area toward Border Street; and 3) an area to the south of the paint yard area. RAM activities included the excavation and removal of approximately 624 tons of soil which was transported off site for disposal at licensed facilities. Following the completion of post-excavation confirmatory soil sampling, the excavated areas were backfilled with clean fill and paved.

	In April 2003, a Class A-3 Response Action Outcome (RAO) was submitted for the Site indicating levels of oil and hazardous materials have not been reduced to background and an Activity and Use Limitation (AUL) is required to maintain a level of No Significant Risk. A second release (RTN 3-16738) is associated with the Site due to a potential oil release from a historic underground storage tank (UST) at the Site. The tank was removed and soil conditions were assessed as documented in a UST closure assessment report. Investigation results did not identify evidence of release. The site was closed in June 1998 with the submittal of a Class A-1 RAO.

Adjacent and Surrounding Properties

TRC evaluated the following factors to determine whether additional environmental records with respect to the adjoining and/or surrounding properties should be reviewed:

(1) Whether the property is up-gradient or down-gradient of the Site based on the local topography and the assumed southeast shallow ground water flow direction;

(2) Property case status (i.e., whether the MADEC has issued a No Further Action letter);

(3) Type of database and whether the presence of contamination is known; and

(4) The distance between the listed property and the Site.

Based on this evaluation, TRC limited the review of additional environmental records to the property listed below, since the potential for contamination to be migrating to the Site from the other properties identified by the database search is considered low.

Facility Name and/or Address	None
Approximate Location Relative to Site	340 feet SSW
EDR Map No.	E10
Databases	EDR US Hist Cleaners
Description/ID Number	1015084667
Presumed Hydrogeologic Setting	Upgradient
Database Review Summary	The property is listed as a historic dry-cleaning facility. No documented releases are identified.

4.4 Previous Reports

The following environmental reports regarding the Site were provided for TRC's review by NOAH:

- Brownfields QAPP Addendum City of Boston DND-E (Revisions 0), prepared by TRC, dated March 11, 2013.
- Response Action Outcome Statement – Class A-3, Release Tracking No. 3-16751, prepared by Earth Tech Inc., date April 2003.
- Notice of Activity and Use Limitation, DEP Release Tracking No. 3-16751, prepared by Seyfarth Shaw LLP, dated September 27, 2002.
- Report on Phase I Initial Site Investigation, Release Tracking Number 3-16751, prepared by Earth Tech Inc., dated May 1999.

Information provided in these reports are summarized throughout this report.

4.5 Other Environmental Record Sources

Per the ASTM standard, local or additional state records were reviewed to enhance and supplement the ASTM-required federal and state records reviewed and discussed earlier in this report. These additional records include state agency lists of: waste disposal facilities; brownfield properties; hazardous waste/contaminated facilities; registered storage tanks; records of emergency release reports; and records of contaminated public wells. Local sources that were contacted to obtain this information include: Department of Health/Environmental Division; Fire Department; Planning Department; Building Permit/Inspection Department; land records (for AULs); Local/Regional Pollution Control Agency; Local/Regional Water Quality Agency; and Local Electric Utility Companies (for records relating to polychlorinated biphenyls [PCBs]). Information from these sources is discussed in this report, as applicable

5.0 SITE RECONNAISSANCE

5.1 Methodology and Limiting Conditions

Mr. John McRobbie, TRC Geologist, conducted a Site reconnaissance of accessible areas on and around the Site on April 10, 2013 for the purpose of identifying potential RECs, and was accompanied by Mr. Roberto Rodriguez, maintenance operator of NOAH Site operations who provided access to the property during the reconnaissance. Mr. Rodriguez was not familiar with the historic uses of the Site. Photographs taken during the reconnaissance are provided in **Appendix D**. A Site layout plan is included as **Figure 2**.

5.2 Interior and Exterior Site Observations

Unless otherwise noted, the items listed in the table below appeared in good condition with no visual evidence of staining, deterioration or a discharge of hazardous materials; and there are no records of a release in these areas. Items where further description is warranted are discussed in the section(s) following the table.

Item	Present (Yes/Yes-Historic/ No)	Description
Hazardous material storage or handling areas	Yes	(see Section 5.2.1)
Aboveground storage tanks (ASTs) and associated piping	Yes	(see Section 5.2.3)
Underground storage tanks (USTs) and associated piping	Historic	As discussed in Section 4.3, a historic UST previously existed at the Site and was removed in 1998.
Drums & containers (≥5 gallons)	Yes	(see Section 5.2.1)
Odors	No	
Pools of liquid, including surface water bodies and sumps (handling hazardous substances or substances likely to be hazardous only)	No	
Polychlorinated Biphenyls (PCBs) / Transformers	No	
Stains or corrosion	Yes	Multiple large areas of prominent oil staining were observed on the concrete floor within the 1 ½ story metal frame building (See Figure 2).
Drains & sumps	No	
Pits, ponds & lagoons	No	
Stressed vegetation	No	
Historic fill or any other fill material	Yes	Urban land (See Section 2.4)
Waste water (including storm water or any discharge into a drain, ditch, underground injection system, or stream on or adjacent to the Site)	No	
Wells (including dry wells, irrigation wells, injection wells, abandoned wells, or other wells)	Yes	Three onsite groundwater monitoring wells were observed as well as one offsite well located approximately 50 feet to the north, beyond Decatur Street (See Figure 2).
Septic systems or cesspools	No	

5.2.1 Hazardous Substances

Hazardous substances including raw materials; finished products and formulations; hazardous wastes; hazardous constituents and pollutants including intermediates and byproducts that are currently present at the Site; and unidentified substance containers (when open or damaged, and containing unidentified substances suspected of being hazardous or petroleum products) are listed in the following table:

Material Name	Approximate Quantity On-Site During Reconnaissance (gallons/lbs.)	Storage Containers & Conditions
Antifreeze	1 gallon	Plastic Container / Fair
Waste Oil	3 gallons	Plastic Container / Fair
Unlabeled Containers	Empty	(5) 5-gallon Containers / Fair
Unlabeled Containers	15 gallons	5-gallon Containers / Fair
Driveway Sealer	15 gallons	5-gallon Containers / Fair
Unlabeled Blue Drum	Empty	55-gallon Drum / Poor
Unlabeled Black Drum	Empty	(2) 55-gallon Drums / Poor

5.2.2 Aboveground Storage Tanks

NOAH currently maintains two ASTs at the Site, as summarized in the table below.

Aboveground Storage Tanks (ASTs)				
Tank ID	Contents	Capacity (gallons)	Location	Status
NA	Heating Oil	275	Adjacent to Canopy along Border Street	Out of service
NA	Kerosene	330	Adjacent to Canopy along Border Street	Out of service

TRC observed two outdoor storage tanks to the immediate north of the canopy structure along Border Street. Neither tank was equipped with secondary containment. The tanks appeared to be in fair condition with no visual evidence of surface spills or staining.

5.3 Adjoining and Surrounding Properties Reconnaissance

5.3.1 Adjoining Properties

During the Site reconnaissance, TRC viewed the adjoining properties from the Site and publicly accessible areas (e.g., public roadways, etc.). Decatur Street, Liverpool Street, Coppersmith Way, and Border Street border the parcel to the north, east, south, and west, respectively. Residential properties abut the property to the south/southeast along Liverpool Street and Coppersmith Way. Commercial/industrial properties exist opposite the Site on Decatur Street and Border Street. The former industrial land opposite the Site along the Border Street wharves is currently vacant.

5.3.2 Surrounding Properties

Surrounding properties generally include mixed commercial and residential structures to the north, south, east, and west. No indication of off-Site releases was evident during the TRC's visual inspection of surrounding properties.

6.0 INTERVIEWS

The following persons were interviewed to obtain historically and/or environmentally-pertinent information regarding RECs associated with the Site. Interview documentation is included in **Appendix E**.

- Mr. Roberto Rodriguez, property maintenance representative of NOAH Site operations – *Key Site Manager* (as defined by the ASTM standard and identified by the property owner/User)

The information provided by each is discussed and referenced in the text or provided below. Other references and sources of information are included in **Appendix E**.

7.0 FINDINGS, OPINIONS AND CONCLUSIONS

Potential findings can include RECs, historical RECs (HRECs), and *de minimis* conditions, pursuant to the ASTM E 1527-05 standard.

RECs are defined as the presence or likely presence of any *hazardous substances* or *petroleum products* on a property under conditions that indicate an existing release, a past release, or a *material threat* of a release of any *hazardous substances* or *petroleum products* into structures on the property or into the ground, ground water, or surface water of the property. The term includes *hazardous substances* or *petroleum products* even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

HRECs are defined as an environmental condition which in the past would have been considered a REC, but which may or may not be considered a REC currently.

TRC has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-05 at the property located at 80 Liverpool Street, East Boston, Suffolk County, and Massachusetts (Site), see **Appendices F and G**. Deviations from this practice are described in Section 1.3 of this report.

Based upon the results of this Phase I ESA, TRC has concluded that RECs, as defined under ASTM E1527-05, do currently exist or have a reasonable potential to exist as indicated by the history and use of the Site as well as a review of the EDR database. The extent of potential impacts to the Site associated with the RECs is not well-defined at this time. As such, TRC

recommends additional investigation be performed to evaluate the RECs identified above and provide information regarding potential Site conditions that may require notification to the MassDEP consistent with the MCP; 310 CMR 40.0000.

7.1 RECs

This assessment has revealed no evidence of RECs in connection with the Site, except for the following:

Impacts from Historic Industrial Site Use and Petroleum Storage:

Between at least 1888 and approximately 1950, the Site was used for multiple commercial and industrial purposes including a machine shop, offices, lumber milling and storage, drug retail, dry-cleaning, blacksmithing, cabinet manufacturing and retail, woodworking, and warehouse storage. By 1964, the Site was operated by AAIC for manufacturing and spray painting of custom steel products for building construction and renovation. These documented former Site tenants likely utilized various types of petroleum and hazardous materials including but not limited to engine oils, heating oils, cutting oils, solvents and thinners, cleaners and degreasers, hydraulic fluid, lubricants, and lacquers. Because the disposal of resulting waste byproducts was largely unregulated during the documented period of historic industrial use, TRC was unable to obtain detailed information pertaining to the Site's waste management history. Furthermore, although neither records of historic tank closure(s) nor evidence suggesting existing on-Site USTs was identified during this assessment, based on the long-term past industrial use of the Site, the potential exists for abandoned USTs to remain at the Site. The Site was listed in state agency databases for two separate releases of materials including oil, chromium (hexavalent and trivalent), lead, petroleum hydrocarbons and 1,1,2,2-tetracbloroetbane (RTNs 3-16751 and 3-16738), both which have since achieved regulatory closure. Although no open releases associated with the Site were identified, based on the industrial use, TRC considers the likelihood of adverse impacts to Site soil and groundwater from former industrial Site uses to represent a REC in connection with the Site.

***Impacts to Soil from Documented On-Site Release*:**

The Site address was listed in state agency databases for a 1998 release of hazardous material associated with MassDEP RTN 3-16751. Following remedial response actions, the release incident achieved regulatory closure through the submittal of a Class A-3 Response Action Outcome (RAO) indicating levels of oil and hazardous materials have not been reduced to background and an Activity and Use Limitation (AUL) is required to maintain a level of No Significant Risk. Based upon the level of remedial response actions conducted in relation to RTN 3-16751 and the current regulatory status, impacted soils related to RTN 3-16751 have been adequately assessed and remediated for the commercial/industrial use of the Site as permitted by the AUL. However, the documented impacts to soil have not been adequately assessed and remediated for the proposed future residential use of the Site, which is restricted by the AUL. As such, TRC considers this past release to represent a REC in connection with the Site.

Impacts to Site from Historic Fill Material:

Historical sources indicate that the Site may have been filled to create level or consistently sloped surfaces for paving and/or building construction. Urban fill materials are fairly ubiquitous in the Greater Boston area and other urban developments throughout Massachusetts and may contain low to moderate levels of contaminants such as semi-volatile organic compounds (SVOCs) and metals resulting from a long history of industrial and commercial uses. If present, urban fill may not require regulatory action with respect to remediation; however, urban fill may require special management or disposal during site redevelopment and often results in the need to establish activity and use restrictions on a property. Based on a review of historical sources, TRC considers the likely widespread presence of historic fill material at the Site to represent a REC in connection with the Site.

Impacts to Site Soil and Groundwater from Former Dry-cleaning Facilities:

TRC's review of the EDR database report and Sanborn Maps identified one former onsite dry-cleaning facility and one nearby offsite historic dry-cleaning facility. The former onsite facility was identified on a 1950 Sanborn Map on the northern portion of the Site along Border Street, and the former offsite dry-cleaning facility listed in EDR's database report was identified as JB Cleaning Service at 65 Maverick Street located approximately 340 feet upgradient of the Site.

Dry-cleaning facilities require routine use of chlorinated solvents which are denser than water and, therefore, sink in a typical aqueous environment. In addition, they are mobile and persistent, and have an ability to migrate via groundwater. Although no spills or releases of chlorinated solvents associated with these facilities have been reported, soil and groundwater contamination at dry-cleaning facilities is common due to the physical characteristics and chemical nature of these solvents. As such, TRC considers likely soil and groundwater impacts at the Site resulting from historic on-site and nearby off-site dry-cleaning operations a REC in connection with the Site.

Impacts to Site Soil and Groundwater From Historic Oil Spillage

Multiple large areas of prominent oil staining, ranging in size from approximately 100 to 800 square feet, were observed on the concrete floor within the 1 ½ story metal frame building. Based on the nature of the staining and due to cracks, gaps, and utility chases observed in the floor, TRC considers the observed staining to be environmentally significant. As such, the staining observed within the 1 ½ story metal frame building resulting from long-term oil spillage to represent a REC in connection with the Site.

7.2 HRECs

This assessment has revealed no evidence of HRECs in connection with the Site, except for the following:

***Impacts to Soil from Documented On-Site Release*:** The Site address was listed in state agency databases due to a potential release of oil from a historic on-Site UST associated with RTN 3-

16738. The tank was removed and soil conditions were assessed as documented in a UST closure assessment report. Investigation results did not identify evidence of release. The site was closed in June 1998 with the submittal of a Class A-1 RAO. Based upon the level of remedial response actions conducted in relation to RTN 3-16738 and the current regulatory status, impacted soils related to RTN 3-16738 have been adequately assessed and remediated. As such, TRC considers this past release to represent an HREC in connection with the Site.

7.3 *De Minimis* Conditions

This assessment has revealed no evidence of *de minimis* conditions in connection with the Site.

7.4 Data Gaps

TRC has made an appropriate inquiry into the commonly known and reasonably ascertainable resources concerning the historical ownership and use of the Site back to the first development per 40 CFR Part 312.24 (*Reviews of Historical Sources of Information*). Data gaps identified during this assessment include the following:

1. The Boston Fire Department did not respond to TRC's requests for records pertaining to historic uses and storage of oil and hazardous substances.
2. TRC did not receive a completed User Questionnaire from NOAH.

Based on other historical sources reviewed, Data Gap Nos. 1-2 are not considered *significant*. TRC does not anticipate Data Gap No. 1 to alter the conclusions presented within this report; however, this report may not satisfy the requirements to qualify for one of the Landowners Liability Protections.

8.0 REFERENCES

Description/Title of document(s) received or agency contacted	Date information request filled/date of agency contact	Information Updated	Reference source
Radius Map Report	4/8/13	Current	EDR
Aerial Photos	4/8/13	Current	EDR
Sanborn Maps	4/8/13	Current	EDR
City Directories	4/8/13	Current	EDR
Historical Topo Maps	4/8/13	Current	EDR

9.0 ADDITIONAL SERVICES

No additional services were performed during this Phase I ESA.

FIGURES

Approximate Site Boundary

0 1,000 2,000 Feet

N

MASSACHUSETTS

Base map: USGS 7.5 Minute Topographic Quadrangles: Boston North and Boston South, dated 1987

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

SITE LOCATION MAP

80 LIVERPOOL STREET
EAST BOSTON, MA

FIGURE 1	JANUARY 2013

Path: R:\Projects\GIS_2012\178226_BorderSt_EastBoston\mxd\Fig1_SiteLocus_EBoston_2013_01_28.mxd

Approximate Location of Observed Monitoring Well

AUL Boundary/RTN 3-16751

Approximate Site Boundary

Approximate Location of Prominent Oil Staining on Interior Floor

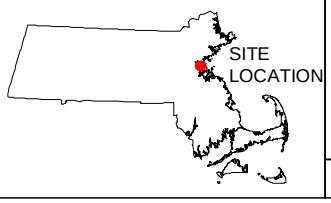
Approximate location of former UST/RTN 3-16738

Base map: 15cm Orthoimagery, MassGIS 2009

0 20 40 Feet

N

MASSACHUSETTS



TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

SITE PLAN

80 LIVERPOOL STREET EAST BOSTON, MA

FIGURE 2 | **APRIL 2013**

Path: R:\Projects\GIS_2012\178226_BorderSt_EastBoston\mxd\Fig2_SitePlan_EBoston_2013_04_29.mxd

PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT

Former American Architectural Iron Co.
80 Liverpool Street
East Boston, Massachusetts

Prepared for:

City of Boston
Department of Neighborhood Development
26 Court Street
Boston, Massachusetts 02109

Prepared by:

TRC Environmental Corporation
650 Suffolk Street
Lowell, Massachusetts 01854
(978) 970-5600

May 2013

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Prepared for:

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Prepared by:

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SR. PROJECT MANAGER

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EXECUTIVE SUMMARY

This Phase II Environmental Site Assessment (ESA) has been prepared on behalf of the City of Boston, Department of Neighborhood Development (DND) to document current soil conditions associated with historical releases of oil and hazardous materials (OHM) to the environment at the property located at 80 Liverpool Street, East Boston, Massachusetts (the Site). The Site, as defined in this report, is listed by the Massachusetts Department of Environmental Protection (MassDEP) under Release Tracking Numbers (RTN) 3-16751. RTN 3-16751 was closed with a Class A-3 Response Action Outcome (RAO) Statement and Activity and Use Limitation (AUL) submitted on September 27, 2002.

The Phase II ESA is being funded through the Environmental Protection Agency's (EPA) Brownfields Program. TRC understands that DND's objective is to re-evaluate current site conditions to determine if the AUL could be amended or removed to facilitate re-development of the Site property.

Sampling activities were conducted in accordance with the EPA-approved Quality Assurance Project Plan (QAPP) Addendum DND-E for the Site (TRC, 2013). Soil borings were sampled continuously at two foot intervals and screened using a X-Ray Fluorescence (XRF) in the field for concentrations of metals. One metals sample from each boring was sent to the lab for confirmation purposes. Samples chosen for lab analysis varied in lead concentrations.

The data collected from this sampling event was compared to residential standards to determine if the site could be re-developed for residential use as it stands currently. It was determined that the metal contamination is site wide and not limited to the AUL area. The contamination appears to be limited to the top four to six feet of soil at the site. To re-develop this site for residential use additional soil remedial activities will be required.

The borings indicated the Site is comprised of historical fill material made of coal slag, ash, wood, leather, and other miscellaneous material. The depth below grade and the thickness of the fill layer varied throughout the Site. Comparing the metals results to the boring logs it appears that the majority of the higher metals concentrations are in areas identified as fill on the boring logs.

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APPENDICES

1.0 INTRODUCTION

1.1 Objective

TRC Environmental Corporation (TRC) performed an ASTM Phase II Environmental Site Assessment (ESA) for the Former American Architectural Iron Co. (AAIC), located at 80 Liverpool Street, in East Boston, Massachusetts (the "Site"). This Phase II ESA was performed for The City of Boston's Department of Neighborhood Development (DND) under Boston's Brownfield's Assessment Grant Program funded by the United States Environmental Protection Agency (EPA).

This Phase II ESA was performed to evaluate current site conditions. Anticipated future reuse of the Site is currently unknown; however, the potential exists for the Site to be utilized as mixed commercial and affordable residential housing. In completing investigation activities proposed herein, TRC intends to re-evaluate past MCP cleanup exceedances of lead in the soil. TRC's goal was to better delineate the extent of lead contamination in the soil and attempt to determine the potential amount of soil to be excavated to amend the Remedial Action Outcome statement (RAO) and the Activities and Use Limitations (AUL) facilitating residential use of the site.

1.2 Site Location and Description

The 80 Liverpool Street property (the "Site"), formerly the American Architectural Iron Co. (AAIC), is approximately 56,745 square feet (sf) and currently has four buildings ranging in size from 742 to 15,980 sf. The approximate UTM coordinates for the Site are 422219 meters North and 710231 meters East. A site location map is provided in Figure 1. Site and property features are also shown on Figure 2. Current Site buildings are identified as the following:

- The 1½-story metal frame building was used for custom steel products manufacturing.
- The 2-story brick building was used for storage on the ground floor and office space on the second floor.
- The 1½-story concrete building was used for storage.
- The 1-story spray booth is used for product painting.

Past uses of the property, from 1888 to the present, include industrial woodworking, metal machining, blacksmithing, coppersmithing and copper refinishing, and iron working. The related industrial activities included or likely included the combustion of coal, painting of wood and metal products, and possible storage of oil and hazardous materials.

The area of the release, described in Section 1.5 below, includes the former spray painting area, which was covered by a steel roof/canopy which was removed during excavation activities conducted as part of new construction of an updated spraying area. Spray painting was performed on a bed of approximately one-half foot of gravel/crushed stone that overlaid fill material.

The Site is currently owned by the Sisson Reality Trust of Gloucester, Massachusetts and is currently unoccupied.

1.3 Surrounding Area Description

The Site is located in a mixed commercial/industrial and residential area. Decatur Street, Liverpool Street, Coppersmith Way, and Border Street border the parcel to the north, east, south, and west, respectively. Residential properties adjoin the property to the south/southeast along Liverpool Street and Coppersmith Way. Commercial/industrial properties exist opposite the Site on Decatur Street and Border Street. The former industrial property opposite the Site along the Border Street wharves is currently vacant. The Boston Inner Harbor is located less than 500 feet west of the Site. Residential population within one-half mile of the Site is estimated to be greater than 1,000 (based on 2010 census). There are no institutions (facilities with overnight housing such as a hospital, health care facility, orphanage, nursing home, convalescent home, educational facility, or correctional institution) located within 500 feet of the Site.

No known private drinking water wells are located within 500 feet of the Disposal Site. According to the Massachusetts Geographic Information Systems (MassGIS) *MassDEP Priority Resource Map*, provided as Figure 3, no Areas of Critical Environmental Concern, Threatened or Endangered Species Habitats are within 500 feet of the Disposal Site. There is a Protected Open Space (Veterans Park) located within the 500 feet radius of the Site to the east.

1.4 Geologic and Hydrologic Conditions

According to the United States Geological Survey (USGS) topographic map, Boston South, Massachusetts quadrangle dated 1987 (Figure 1), the Site is located approximately 450 feet and northwest from Boston Inner Harbor and Site elevation is approximately 10 feet above mean sea level (MSL). The topography of the Site is generally flat however, local topography slopes gently towards the west. Based on local topography, the assumed direction of shallow ground water flow is to the west/northwest, towards Boston Inner Harbor. However, a subsurface investigation would be required to determine actual ground water flow direction.

The database radius report supplied by Environmental Data Resources, Inc. (EDR) of Milford, Connecticut was reviewed to obtain information regarding the dominant soil composition in the Site vicinity. This information is summarized below:

Hydric Status:	Soil does not meet the requirements for a hydric soil.
Soil Surface Texture:	Silt loam
Soil Component Name:	Urban land
Deeper Soil Types:	Silt loam, unweathered bedrock, fine sandy loam, clay, silt, sand

1.5 Release Tracking Numbers

In April 1998, a Release Notification Form (RNF) was submitted to the Massachusetts Department of Environmental Protection (MassDEP) to report concentrations of chromium

(hexavalent and trivalent), lead, petroleum hydrocarbons, and 1,1,2,2-tetrachloroethane in soil in excess of applicable RCS-1 standards. The RNF was accompanied by a Release Abatement Measure (RAM) Plan detailing proposed soil excavation. The release was subsequently assigned release tracking number (RTN) 3-16751 by MassDEP.

In September 1998 and March 1999, pre-excavation sampling and chemical analysis was performed as part of a Phase I Limited Site Investigation. The sampling program included the collection of various interim and post-excavation soil samples as well as groundwater samples. Sample media were analyzed for metals, petroleum by-products, and volatile organic compounds (VOCs). Analytical results identified the presence of contaminated soils in: 1) the paint yard area; 2) the area to the west of the paint yard area toward Border Street; and 3) an area to the south of the paint yard area. RAM activities included the excavation and removal of approximately 624 tons of soil which was transported off site for disposal at licensed facilities. Following the completion of post-excavation confirmatory soil sampling, the excavated areas were backfilled with clean fill and paved at the surface.

In April 2003, a Class A-3 Response Action Outcome (RAO) was submitted for the Site indicating levels of oil and hazardous materials have not been reduced to background and an Activity and Use Limitation (AUL) is required to maintain a level of No Significant Risk.

A second release (RTN 3-16738) is associated with the Site due to a potential oil release from a historic underground storage tank (UST) at the Site. The tank was removed and soil conditions were assessed as documented in a UST closure assessment report. Investigation results did not identify evidence of release. RTN 3-16738 was closed in June 1998 with the submittal of a Class A-1 RAO.

2.0 SITE HISTORY

2.1 Historic Site Use

City of Boston Assessor's Office records and Sanborn Map Company fire insurance maps were reviewed to document the history of the Site and surrounding properties as part of TRC's ASTM Phase I ESA dated May 2013.

Year	Site History
After 2005 - Present	Site operations cease and the facility remains vacant.
1989-2005	No significant changes in Site operations or facility infrastructure are apparent.
1964-1989	The small shed no longer is depicted on the Site; the metal canopy appears to cover the area of the Site on this map. The Site is primarily used for steel working purposes.
1950-1964	The Site is developed with two of the current onsite structures, one identified as "Iron Works" along Border Street, and one identified as "Coppersmith" along Liverpool Street. The commercial service and retail structures along Border Street are no longer depicted.
1927-1950	The storage structure appears to no longer exist, but a smaller shed appears on the Site adjacent to Border Street. The majority of the Site consisted of parking areas. Former onsite commercial service and retail structures along Border Street include an auto body shop, an electrical repairs shop, storage, and a dry cleaning facility. The property no longer appears to be used for woodworking trades.
1900-1927	A structure labeled "storage" appears to have been constructed at the Site. The surrounding uses of the property appear to be consistent with woodworking trades. The area near Decatur Street is labeled "paint factory".
1888-1900	The Site appears to be fully developed; however, none of the structures presently located on the property existed. The property was indicated as "Manson Brothers Property", which apparently was used by various carpentry trades. The facilities are described as using wood shavings and coal as fuel for steam heat, and the property had gas and electric lights. The parcel corresponding to the Site was apparently used as a machine shop and blacksmith shop. An apparent blacksmith's hearth and chimney was located at the center of the Site.

It does not appear that topographic contours in the Site area have significantly changed during the time period reviewed.

2.2 Previous Environmental Site Investigations

2.2.1 Rust Environmental and Infrastructure, Release Notification and Release Abatement Measure Plan - April 1998

Release Abatement Measure (RAM) plan was written to cover the removal of soil contaminated by painting operations. It was expected to remove soil from an area of 80 feet by 70 feet by one foot (aprox. 210 cubic yards).

2.2.2 Earth Tech Inc., Release Abatement Measure Plan - December 1998

RAM activities were completed as stated in the first RAM plan. 212.07 tons of soil was shipped and disposed of at City Environmental, Inc., of Detroit Michigan, which is a hazardous waste treatment, storage, and disposal facility. Confirmatory sampling following the excavation indicated that the soil lead concentrations appear to be exceeding the UCL. The other contaminates of concern initially discovered at the site do not appear to be present at levels exceeding Method 1 S-2/GW-2 or S-2/GW-3 standards.

The objectives of this RAM are remove additional contaminated soil and install an engineered barrier.

2.2.3 Earth Tech Inc., Report on Phase I Initial Site Investigation - May 1999

Approximately 300 additional cubic yards of soil was excavated under the second RAM. The soil was stockpiled on site at the time of this report and was waiting lab analysis to determine its proper disposal plan.

The conclusion from the Phase I report is that there is no imminent hazard associated with this site. With the bulk of contaminated soils removed and the excavation has been filled with clean soils and paved with asphalt. A concrete slab for the new painting booth structure was constructed.

The potential human exposures to oil and hazardous materials associated with the Site through the primary routes of exposure, including ingestion, direct dermal contact, and inhalation, have been eliminated. The potential exists for intrusive activity, such as utility work, to take place at the Site in the future. Residual contamination was addressed during a risk characterization, and an AUL was placed on the property deed that establishes appropriate restrictions and conditions on intrusive work.

2.2.4 Earth Tech Inc., Response Action Outcome Statement with Activities and Use Limitations - April 2003

Remedial response actions have been completed by AAIC to address the elevated levels of OHM in soil at the Site. Approximately 624tons of soil have been removed from the Site. The majority of the Site has been paved or is now under the concrete floor of the spray booth.

A Method 3 Risk Characterization was completed for the most likely exposure scenarios (construction worker, utility worker, on-site employee, and trespasser/ visitor). The risk characterization indicates that a condition of "No Significant Risk" to human health, safety, public welfare and the environment exists for the Site.

Because response actions have been completed and a condition of "No Significant Risk" has been achieved at the Site for current site uses, a Class A Response Action Outcome is appropriate. A Class A-3 RAO, as outlined in the MCP, has been achieved for the Site because the levels of OHM at the Site have not been reduced to background and an Activity and Use Limitation is required to maintain a level of "No Significant Risk". Therefore, further Remedial Response Actions are not required.

A Notice of Activity and Use Limitation was recorded with the Suffolk County Registry of Deeds September 27, 2002.

2.3 Compliance History

Reviewing the MassDEP files identified the site as being currently in compliance with the MCP. RTN 3-16738 was closed in June of 1998 with Class A-1 RAO. RTN 3-16751 was closed in April of 2003 with a Class A-3 RAO with an AUL.

The RAO for RTN 3-16751 is based on the implementation of an AUL to restrict that portion of the Site property to non-residential uses and to prevent disturbance of the pavement without the involvement of an LSP and appropriate health and safety precautions.

3.0 SITE INVESTIGATION

TRC conducted Phase II ESA activities at the Site on March 19 and 20, 2013. TRC's Site investigative activities included the advancement of 14 soil borings, from which, 14 samples were collected for laboratory analysis. The locations of the soil borings are provided on Figure 2.

The following summarizes activities performed as part TRC's Phase II ESA. Unless otherwise specified, work was performed in accordance with the EPA-approved Quality Assurance Project Plan (QAPP) Addendum DND-E, dated March 2013 under the City of Boston's Brownfields Assessment Grant Program.

3.1 Soil Borings and Soil Sampling

TRC's Phase II ESA soil boring program was performed on March 19 and 20, 2013. The locations of the soil borings are depicted on Figure 2. Soil samples submitted to the laboratory and the requested analyses are provided on Table 1.

Investigation activities consisted of the advancement of 14 soil borings (B-1 through B-14) using GeoProbe® direct-push drilling methods (model 6610DT track rig). Continuous soil samples were collected during drilling activities using 60-inch acetate-lined macro-core sleeves. Soil borings were completed to depths of approximately 14 feet below grade. Soil boring logs are provided in Appendix A.

Soil samples were screened in the field using portable X-Ray Fluorescence (XRF) equipment to evaluate the concentration of lead and other metals in the soil samples collected for laboratory analysis and to determine the horizontal and vertical extent of lead and metal contamination on Site. XRF screening results at several locations and depths indicated lead, cadmium, nickel, and arsenic levels above MCP Method 1 S-1/GW-2 and S-1/GW-3 standards. Other metals (barium, antimony, zinc, and chromium) were also detected above MCP standards but scattered thorough out the Site. Laboratory samples were submitted to an off-Site analytical laboratory for testing as set forth in the EPA-approved QAPP Addendum DND-E. Based on XRF screening results, one soil sample from each boring (14 soil samples total) was sent to Con-Test Analytical of East Longmeadow, Massachusetts for confirmatory analysis. A summary of analytical soil samples and analytical methods is presented in Table 1. A summary of XRF screening results is presented in Table 2.

Soil borings were also screened in the field for the presence of VOCs using a photo ionization detector (PID). No positive PID responses were observed in the field.

The rationale for each of the soil borings installed at the Site is provided in the EPA-approved QAPP Addendum DND-E for the Site.

3.2 Applicable Soil Reporting and Cleanup Categories

Analytical data obtained as part of TRC's Phase II ESA were compared to applicable MCP reporting standards. Because of preliminary discussion on possible uses for the Site as part of this Phase II ESA, analytical data were also compared to the applicable MCP Method 1 cleanup standards for future evaluations of potential cleanup requirements.

Soil Criteria

Reporting – Per 310 CMR 40.0361(1)(a)(1) of the MCP, the applicable reporting category for soils collected at the Site is RCS-1 because soil samples were generally collected within 500 feet of residential dwellings.

Cleanup – The Site was compared to MCP Method 1 S-1 standards to evaluate the potential for future residential use because the Site currently has restricted access and is subject to an Activity Use Limitation (AUL) pursuant to 310 CMR 40.0933 of the MCP. Other soil standards may be applicable depending on Site uses and activities. Sample results were also compared to MCP Upper Concentration Limits (UCLs)

4.0 ANALYTICAL RESULTS

A summary of the soil samples collected and the analytical methods are provided in Table 1. Field screening results from the XRF is located in Table 2 and the analytical results are presented in Table 3. Copies of soil boring logs are provided in Appendix A. The analytical lab results are provided in Appendix B.

4.1 Soil Boring Observations

All borings were advanced to the desired depth of fourteen feet. Bedrock was not encountered during soil boring activities. Borings in the historical work area of the Site was comprised of up to one foot of a fine to course gravel and sand. This is typical to allow drainage in these work areas. The top foot of the borings advanced along the edges of the property was comprised of top soil.

Fill was encountered throughout the Site in nine of the 14 borings at depths ranging from surface (TRC-5 and TRC-13 only) up to 11 feet below grade. However, the majority of fill materials is limited to two to four below grade at most boring locations. The fill material is comprised of brick, metal, leather, coal, ash, slag, and glass. Soils below the fill material are primarily comprised of peat mixed with silt and clay.

4.2 Soil Screening Results (XRF)

Continuous soil samples were collected during drilling activities using 60-inch acetate-lined macro-core sleeves. Soil borings were screened in the field for the presence of VOCs with a PID. PID screening results from the Site boring locations were generally non-detect to 1.4 parts per million (ppm), indicating little to no presence of VOCs in Site soils.

Following the sampling procedure in the EPA-approved QAPP Addendum DND-E soil samples were analyzed in the field with the portable XRF. Results from the screening are provided in Table 2.

Lead and nickel was detected above the RCS-1 and Method 1 S-1/GW-2 and S-1/GW-3 standards of 300 and 20 mg/kg, respectively, in every boring with the exception of TRC-8 at levels ranging from 12 to 3732 mg/kg for lead and “non detect” to 208 mg/kg for nickel. Lead exceedances appear to be limited to the top two to four feet below grade in each boring. The nickel exceedances are not layer dependent. There are exceedances throughout the boring. Several boring locations (TRC-2, TRC-5, and TRC-14) also indicated detections of lead greater than the RCS-1 and Method 1 S-1/GW-2 and S-1/GW-3 at depths of eight to ten feet below grade.

Chromium levels measured with the XRF were considered total chromium because data was not collected to distinguish chromium species. There were several samples that exceed RCS-1 and Method 1 S-1/GW-2 and S-1/GW-3 for total chromium. The samples varied in depth but all borings exhibited exceedances ranging from 80 to 5383 mg/kg.

Other metals (cadmium, zinc, arsenic, antimony, and barium) measured at levels greater than Method 1 standards; however, the elevated levels were more spread out throughout Site. Again, exceedances were limited to the top two to four feet below grade in each boring.

Boring TRC-9 did have exceedances of the UCL for chromium and zinc in the top two feet of soil. There were also lead exceedances of the UCL in samples TRC-2 (4'-6') and TRC-3 (2'-4').

4.3 Soil Analytical Results

Laboratory analytical results of soil samples collected from the Site were compared to MCP RCS-1 soil criteria and also Method 1 S-1/GW-2 and S-1/GW-3 cleanup standards. A summary of the soil analytical results from the soil samples collected at the Site are presented in Table 3. A copy of the associated laboratory analytical report is provided in Appendix B.

The samples sent to Con-Test were selected as a range of lead values based on the XRF results. An equal part of the three MCP lead criteria were selected.

- Less than the RCS-1 Standard (<300 ppm)
- Greater than the RCS-1 Standard but less than the UCL (>300 ppm <3000 ppm)
- Greater than the UCL (>3000 ppm)

The lead results confirmed that eight (TRC-2 [4'-6'], TRC-3 [2'-4'], TRC4 [4'-6'], TRC-6 [0'-2'], TRC-9 [4'-6'], TRC-11 [2'-4'], TRC-12 [2'-4'], and TRC-13 [0'-2']) of the fourteen samples were above the RCS-1 and Method 1 S-1/GW-2 and S-1/GW-3 standard. Lead values ranged from 5.4 ppm to 3,800 ppm. Again the samples with the highest values were in the shallower soils (2-4 feet).

Six soil samples (TRC-2 [4'-6'], TRC-3 [2'-4'], TRC4 [4'-6'], TRC-6 [0'-2'], TRC-12 [2'-4'], and TRC-13 [0'-2']) exceeded the cadmium MCP RCS-1 and Method 1 S-1/GW-2 and S-1/GW-3 standard.

Five soil samples (TRC-3 [2'-4'], TRC-6 [0'-2'], TRC-11 [2'-4'], TRC-12 [2'-4'], and TRC-13 [0'-2']) exceeded the nickel MCP RCS-1 and Method 1 S-1/GW-2 and S-1/GW-3 standard.

There was also an exceedance of the arsenic standard in one sample (TRC-12 [0'-2']). Chromium had four samples (TRC-3 [2'-4'], TRC-6 [0'-2'], TRC-12 [2'-4'], and TRC-13 [0'-2']) exceed the MCP RCS-1 and Method 1 S-1/GW-2 and S-1/GW-3 standard of 30 mg/kg.

4.4 Data Usability Assessment

The data associated with soil samples collected on March 19 and 20, 2013 were reviewed. In general, the data are usable for MCP decisions based on a review of accuracy, precision, and sensitivity of the data. Although there were select quality control (QC) nonconformances, the data are valid as reported and may be used for decision-making purposes with the following caution.

- Caution should be used with the lead result in sample TRC-9/4-6 due to field duplicate variability. The result in the original sample exceeded the project action level while the corresponding field duplicate result fell below the project action level. In order to remain conservative, the higher lead result should be used for this location.

Details on the data usability assessment are provided in Appendix C.

5.0 CONCLUSIONS

The following conclusions are based on TRC's Phase II ESA:

- **Installation of Borings** – 14 borings were advanced to a total depth of 14 feet below grade. Groundwater was encountered between nine and twelve feet.

- **Historical Fill –** Fill consisting of coal slag, ash, bricks, wood, and miscellaneous materials was found throughout the site at depths ranging from at the surface (TRC-5 and TRC-13 only) up to 11 feet below grade. However, the majority of fill materials is limited to two to four below grade at most boring locations.

- **Metals Contamination** – The lead contamination extends past the AUL area of the site. Results of the XRF screening indicate that lead-impacted soils appear to be limited to the upper two to four feet of soil at the Site. Additionally, (cadmium, zinc, arsenic, antimony, and barium) also exceeded MCP RCS-1 and S-1 cleanup standards in the upper two to four feet in Site soils. Nickel and chromium appear not to be limited to the upper levels of soil. Their exceedances of the MCP standards range through the total boring (0'-14').UCL exceedances for lead were found in samples TRC-2 (4-6') and TRC-3 (2-4'). TRC-9 (0-2') had UCL exceedances for total chromium and zinc.

- **Additional Remedial Activities** – Additional remedial activities will be required for re-development of this site for residential usage. The current AUL on the property forbids the property as it stands to be used for residential use. With the metals exceedances and open exposure to the current surface soils there would be a risk to human health and safety under the residential scenario.

- **Additional Investigations** – Additional assessment work including soil and groundwater was performed on this site by TRC under a separate contract and Scope of Work on behalf of the prospective buyer. The results from this additional work can be found in a Phase II ESA Addendum dated May 2013.

6.0 LIMITATIONS

1. TRC's study was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area, and TRC observed that degree of care and skill was generally exercised by other consultants under similar circumstances and conditions. TRC's findings and conclusions must be considered not as scientific certainties, but rather as professional opinion concerning the significance of the limited data gathered during the course of the study. No other warranty, express or implied, is made. Specifically, TRC does not and cannot represent that the subject property contains no hazardous material, oil, or other latent condition beyond that observed by TRC during its study. Additionally, TRC makes no warranty that any response action or recommended action will achieve all of its objectives or that the findings of this study will be upheld by a MassDEP audit.

2. This study and report have been prepared on behalf of and for the exclusive use of the **Owner and the Client,** solely for use in a Phase II ESA for the commercial properties located at 80 Liverpool Street in East Boston, Massachusetts (subject property). This submittal and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party in whole or in part, without the prior written consent of TRC or the Client.

3. The observations described in this report were made under the conditions stated therein. The conclusions presented in the report were based solely upon the services described therein, and not on scientific tasks or procedures beyond the scope of described services or the time and budgetary constraints imposed by Client. The work described in this report was carried out in accordance with the Terms and Conditions referenced in our proposal to the Client.

4. In the event that the Client or others authorized to use this report obtain information on environmental or hazardous waste issues at the subject property not contained in this report, such information shall be brought to TRC's attention forthwith. TRC will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this report.

5. The purpose of this report was to re-evaluate and update the current environmental conditions for the site based on the soil sampling for metals for the subject property. No specific attempt was made to check on the compliance of present or past owners or operators of the Site with federal, state, or local laws and regulations, environmental or otherwise.

7.0 REFERENCES

MassDEP, 2002d. Characterizing Risks Posed by petroleum Contaminated Sites: Implementations of the MADEP VPH/EPH Approach. Final Policy #WSC-02-411. Bureau of Waste Site Cleanup. October 31, 2002.

Massachusetts Department of Environmental Protection (MassDEP), *Massachusetts Contingency Plan*, 310 CMR 40.0000, effective date, June 26, 2009.

Rust Environmental and Infrastructure, *Release Notification and Release Abatement Measure Plan, 80 Liverpool Street East Boston, Massachusetts* dated April, 1998.

Rust Environmental and Infrastructure, *Release Abatement Measure Status Report, 80 Liverpool Street East Boston, Massachusetts*, dated September 3, 1998

Earth Tech Inc., *Release Abatement Measure Plan, 80 Liverpool Street East Boston, Massachusetts* dated December 10, 1998.

Earth Tech Inc., *Release Abatement Measure Status Report, 80 Liverpool Street East Boston, Massachusetts* dated March 22, 1999.

Earth Tech Inc., *Report on Phase I Initial Site Investigation, 80 Liverpool Street East Boston, Massachusetts* dated May 1999.

Earth Tech Inc., *Response Action Outcome Statement with Activities and Use Limitations, 80 Liverpool Street East Boston, Massachusetts* dated April 24, 2003.

TRC Environmental Corporation, *Brownfields Quality Assurance Project Plan, Addendum DND-E for American Architectural Iron Co. Site at 80 Liverpool Street, East Boston, Massachusetts*, dated March 2013.

TRC Environmental Corporation, *ASTM Phase I ESA for American Architectural Iron Co. Site at 80 Liverpool Street, East Boston, Massachusetts*, dated May 2013.

TABLES

Table 1
Summary of Analytical Soil Samples with Analysis Method -- March 2013
80 Liverpool Street
East Boston, Massachusetts

Boring ID	Sample Depth	Analysis (Method)
TRC-1	8-10'	% Solids (SM2540G), Metals (SW-846 6010C), Hg (SW-846 7471B)
TRC-2	4-6'	% Solids (SM2540G), Metals (SW-846 6010C), Hg (SW-846 7471B)
TRC-3	2-4'	% Solids (SM2540G), Metals (SW-846 6010C), Hg (SW-846 7471B)
TRC-4	4-6'	% Solids (SM2540G), Metals (SW-846 6010C), Hg (SW-846 7471B)
TRC-5	10-12'	% Solids (SM2540G), Metals (SW-846 6010C), Hg (SW-846 7471B)
TRC-6	0-2'	% Solids (SM2540G), Metals (SW-846 6010C), Hg (SW-846 7471B)
TRC-7	6-8'	% Solids (SM2540G), Metals (SW-846 6010C), Hg (SW-846 7471B)
TRC-8	8-10'	% Solids (SM2540G), Metals (SW-846 6010C), Hg (SW-846 7471B)
TRC-9	4-6'	% Solids (SM2540G), Metals (SW-846 6010C), Hg (SW-846 7471B)
TRC-10	2-4'	% Solids (SM2540G), Metals (SW-846 6010C), Hg (SW-846 7471B)
TRC-11	2-4'	% Solids (SM2540G), Metals (SW-846 6010C), Hg (SW-846 7471B)
TRC-12	2-4'	% Solids (SM2540G), Metals (SW-846 6010C), Hg (SW-846 7471B)
TRC-13	0-2'	% Solids (SM2540G), Metals (SW-846 6010C), Hg (SW-846 7471B)
TRC-14	10-12'	% Solids (SM2540G), Metals (SW-846 6010C), Hg (SW-846 7471B)

Table 2
Summary of Field Results for Soil Samples -- March 2013
80 Liverpool Street
East Boston, Massachusetts

		Date	Time	Lead - Pb XRF (ppm)	Cadmium - Cd XRF (ppm)	Chromium - Cr (tot) XRF (ppm)	Nickel - Ni XRF (ppm)	Zinc - Zn XRF (ppm)	Arsenic - As XRF (ppm)	Selenium - Se XRF (ppm)	Silver - Ag XRF (ppm)	Antimony - Sb XRF (ppm)	Barium - Ba XRF (ppm)
MCP Standards (ppm)		RCS-1, S-1/GW-2,3		*300*	*2*	*30*	*20*	*2500*	*20*	*400*	*100*	*20*	*1000*
			UCL	*3000*	*300*	*2000*	*7000*	*10000*	*200*	*8000*	*2000*	*300*	*10000*
TRC-1	0-2'	3/19/2013	8:24:02	2228	ND	633	85	1341	ND	ND	ND	ND	ND
	2-4'	3/19/2013	8:32:10	396	12	ND	ND	2231	14	ND	18	ND	ND
	4-6'	3/19/2013	8:41:58	30	ND	92	81	52	7	ND	ND	ND	685
	6-8'	3/19/2013	8:44:24	16	ND	93	144	63	6.2	ND	ND	ND	949
	8-10'	3/19/2013	8:47:48	12	ND	ND	104	19	ND	ND	ND	ND	472
	10-12'	3/19/2013	8:59:25	46	ND	ND	67	127	ND	ND	ND	ND	476
	12-14'	3/19/2013	9:04:50	20	ND	112	95	29	ND	ND	ND	ND	638
TRC-2	0-2'	3/19/2013	10:19:45	22	ND	ND	66	48	ND	ND	ND	ND	ND
	2-4'	3/19/2013	10:22:29	863	ND	154	97	453	ND	ND	ND	ND	525
	DUP-1(2-4')	3/19/2013	10:23:31	724	ND	106	70	379	ND	ND	ND	ND	638
	4-6'	3/19/2013	10:37:46	3200	ND	ND	64	3815	148	ND	ND	ND	ND
	4-6'	3/19/2013	10:40:47	1051	ND	90	61	892	42	ND	ND	ND	ND
	4-6'	3/19/2013	10:52:53	2249	ND	ND	93	1831	179	ND	ND	ND	ND
	6-8'	3/19/2013	10:43:25	269	ND	ND	38	328	ND	ND	ND	ND	ND
	REPLICATE (6-8')	3/19/2013	10:44:20	323	ND	ND	68	390	ND	ND	ND	ND	ND
	8-10'	3/19/2013	10:46:51	14	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10-12'	3/19/2013	10:56:13	19.6	ND	ND	75	ND	ND	ND	ND	ND	429
	12-14'	3/19/2013	10:57:41	16	ND	ND	48	ND	ND	ND	ND	ND	ND
TRC-3	0-2'	3/19/2013	11:31:19	27	ND	ND	87	25	ND	ND	ND	ND	479
	2-4'	3/19/2013	11:34:45	3271	16	197	133	1620	ND	ND	ND	ND	542
	DUP-2(2-4')	3/19/2013	11:36:15	3732	ND	147	196	1831	ND	20	ND	ND	803
	4-6'	3/19/2013	11:43:07	753	ND	ND	76	573	34	ND	ND	ND	716
	6-8'	3/19/2013	11:53:03	72	ND	ND	ND	53	ND	ND	ND	ND	ND
	8-10'	3/19/2013	11:57:58	15.1	ND	ND	35	31	6.5	ND	ND	ND	ND
	10-12'	3/19/2013	12:05:19	92	ND	83	75	46	ND	ND	ND	ND	585
	12-14'	3/19/2013	12:06:37	16.5	ND	79	87	ND	ND	ND	ND	ND	548
TRC-4	0-2'	3/19/2013	12:23:57	815	ND	118	69	954	58	ND	ND	ND	863
	2-4'	3/19/2013	12:28:04	764	ND	ND	67	718	30	ND	ND	ND	734
	REPLICATE (2-4')	3/19/2013	12:29:13	851	ND	ND	40	797	ND	ND	ND	ND	971
	4-6'	3/19/2013	12:39:54	1768	ND	ND	37	863	ND	ND	ND	ND	ND
	6-8'	3/19/2013	12:43:36	48	ND	ND	ND	59	ND	ND	ND	ND	ND
	8-10'	3/19/2013	12:45:37	ND	ND	ND	ND	ND	3.9	ND	ND	ND	ND
	10-14'	3/19/2013	12:50:06	17.6	ND	107	92	ND	ND	ND	ND	ND	586
TRC-5	0-2'	3/19/2013	13:28:32	325	ND	ND	93	278	ND	ND	ND	ND	449
	2-4'	3/19/2013	13:30:19	271	ND	114	89	353	25	ND	ND	ND	954
	4-6'	3/19/2013	13:31:41	1421	ND	ND	93	833	ND	ND	ND	ND	ND
	6-8'	3/19/2013	13:41:27	76	ND	ND	ND	38	11	ND	ND	ND	ND
	8-10'	3/19/2013	13:43:47	787	ND	ND	119	175	ND	ND	ND	ND	659
	10-12'	3/19/2013	13:46:38	19.9	ND	ND	90	ND	ND	ND	ND	ND	433
	12-14'	3/19/2013	13:48:17	18.1	ND	ND	69	ND	ND	ND	ND	ND	664
TRC-6	0-2'	3/19/2013	14:03:53	1731	12	ND	ND	715	ND	ND	ND	25	ND
	DUP-3(0-2')	3/19/2013	14:04:43	1794	ND	ND	74	926	ND	ND	ND	ND	688
	2-4'	3/19/2013	14:10:13	1882	ND	77	111	1676	ND	ND	ND	ND	483
	4-6'	3/19/2013	14:12:19	647	ND	ND	57	391	43	ND	ND	ND	536
	6-8'	3/19/2013	14:21:37	21	ND	ND	ND	52	6	ND	ND	ND	ND
	8-10'	3/19/2013	14:23:00	20	ND	ND	60	ND	ND	ND	ND	ND	588
	10-12'	3/19/2013	14:27:34	17.3	ND	88	84	ND	ND	ND	ND	ND	356
	12-14'	3/19/2013	14:28:45	15.2	ND	145	81	ND	ND	ND	ND	ND	764
TRC-7	0-2'	3/19/2013	14:59:01	1935	ND	88	76	1096	56	ND	ND	ND	ND
	2-4'	3/19/2013	15:01:24	1109	ND	79	ND	654	41	ND	ND	ND	ND
	4-6'	3/19/2013	15:03:36	158	ND	132	132	218	ND	ND	ND	ND	846
	6-8'	3/19/2013	15:05:18	107	ND	ND	78	425	ND	ND	ND	ND	542
	8-10'	3/19/2013	15:06:53	10	ND	ND	ND	29	ND	ND	ND	ND	ND
	10-12'	3/19/2013	15:14:07	14	ND	ND	65	ND	ND	ND	ND	ND	755
	12-14'	3/19/2013	15:16:52	215	ND	ND	55	194	27	ND	ND	ND	ND
TRC-8	0-2'	3/20/2013	8:40:28	200	ND	ND	47	169	ND	ND	ND	ND	ND
	2-4'	3/20/2013	8:41:47	15.2	ND	78	63	26	ND	ND	ND	ND	ND
	4-6'	3/20/2013	8:43:32	205	ND	84	120	237	ND	ND	ND	ND	609
	6-8'	3/20/2013	8:45:39	53	ND	ND	29	68	ND	ND	ND	ND	ND
	8-10'	3/20/2013	8:47:09	16	ND	ND	ND	25	ND	ND	ND	ND	ND
	10-12'	3/20/2013	8:59:42	11.5	ND	ND	65	36	ND	ND	ND	ND	ND
	12-14'	3/20/2013	9:00:50	20.3	ND	ND	114	38	ND	ND	ND	ND	682
TRC-9	0-2'	3/20/2013	9:38:48	99	ND	5383	208	11777	ND	ND	ND	ND	ND
	2-4'	3/20/2013	9:40:39	20	ND	ND	112	27	ND	ND	ND	ND	399
	4-6'	3/20/2013	9:43:08	340	ND	ND	ND	281	ND	ND	ND	ND	ND
	REPLICATE (4-6')	3/20/2013	9:44:08	352	ND	72	71	549	25	ND	ND	ND	ND
	6-8'	3/20/2013	9:51:15	245	ND	ND	77	258	38	ND	ND	ND	ND
	8-10'	3/20/2013	9:55:01	16	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10-12'	3/20/2013	10:08:51	ND	11	ND	ND	ND	ND	ND	12	ND	ND
	12-14'	3/20/2013	10:11:58	17.8	ND	ND	57	21	ND	ND	ND	ND	526
TRC-10	0-2'	3/20/2013	10:31:09	292	ND	720	164	1852	ND	ND	ND	ND	682
	2-4'	3/20/2013	10:32:45	174	ND	105	42	133	23	ND	ND	ND	ND
	4-6'	3/20/2013	10:34:12	246	ND	109	92	144	ND	ND	ND	ND	547
	6-8'	3/20/2013	10:36:44	37	ND	204	171	68	ND	ND	ND	ND	1488
	8-10'	3/20/2013	10:39:20	21	ND	ND	55	58	ND	ND	ND	ND	635
	10-12'	3/20/2013	10:41:23	306	ND	305	77	611	ND	ND	ND	ND	ND
	12-14'	3/20/2013	10:44:39	15.2	ND	ND	77	40	ND	ND	ND	ND	ND
TRC-11	0-2'	3/20/2013	11:26:41	752	ND	ND	97	882	ND	ND	ND	ND	578
	DUP-4(0-2')	3/20/2013	11:28:15	841	ND	172	133	1174	ND	ND	ND	27	1032
	2-4'	3/20/2013	11:30:08	603	ND	ND	94	351	25	ND	ND	ND	716
	4-6'	3/20/2013	11:32:28	98	ND	ND	71	94	ND	ND	ND	ND	ND
	6-8'	3/20/2013	11:41:05	152	ND	101	93	151	ND	ND	ND	ND	533
	8-10'	3/20/2013	11:43:37	20	ND	ND	78	276	ND	ND	ND	ND	1001
	10-12'	3/20/2013	11:49:41	ND	ND	ND	ND	13	3.4	ND	9	ND	ND
	12-14'	3/20/2013	11:50:52	15.5	ND	87	100	21	ND	ND	ND	ND	580
TRC-12	0-2'	3/20/2013	12:33:30	753	ND	94	77	689	36	ND	ND	ND	ND
	2-4'	3/20/2013	12:34:57	2558	ND	113	199	434	ND	14	ND	ND	946
	4-6'	3/20/2013	12:39:02	85	ND	ND	ND	5383	11	ND	11	ND	ND
	6-8'	3/20/2013	12:44:32	22	ND	119	128	35	ND	ND	ND	ND	749
	8-10'	3/20/2013	12:45:51	17	ND	ND	91	113	ND	ND	ND	ND	868
	10-12'	3/20/2013	12:46:58	14.6	ND	ND	103	ND	ND	ND	ND	ND	553
	12-14'	3/20/2013	12:49:20	16	ND	96	121	ND	ND	ND	ND	ND	625
TRC-13	0-2'	3/20/2013	13:16:04	2299	ND	ND	ND	423	ND	ND	ND	ND	616
	2-4'	3/20/2013	13:17:58	142	ND	ND	123	98	17	ND	ND	ND	717
	4-6'	3/20/2013	13:19:38	41	ND	83	93	72	13	ND	ND	ND	593
	6-8'	3/20/2013	13:21:08	61	ND	88	143	77	11	ND	ND	ND	768
	8-10'	3/20/2013	13:22:26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10-12'	3/20/2013	13:25:30	13.7	ND	ND	85	ND	ND	ND	ND	ND	697
	12-14'	3/20/2013	13:32:21	23	ND	103	100	58	ND	ND	ND	ND	547
TRC-14	0-2'	3/20/2013	14:32:11	1093	ND	ND	ND	135	166	ND	ND	ND	ND
	2-4'	3/20/2013	14:34:41	264	ND	ND	ND	108	ND	ND	ND	ND	ND
	8-10'	3/20/2013	14:39:59	96	ND	ND	104	88	ND	ND	ND	ND	482
	10-12'	3/20/2013	14:43:21	22	ND	113	86	47	ND	ND	ND	ND	610
	4-6'	3/20/2013	14:45:16	430	ND	ND	54	273	ND	ND	ND	ND	ND
	6-8'	3/20/2013	14:46:28	328	ND	ND	122	258	ND	ND	ND	ND	ND
	12-14'	3/20/2013	14:47:45	13.7	ND	ND	54	41	5.3	ND	ND	ND	471

Yellow - Above MCP S1-GW2/3 standard
Red - Above MCP UCL

Table 3
Summary of Analytical Results for Soil Samples -- March 2013
80 Liverpool Street
East Boston, Massachusetts

Analysis	Analyte	Sample ID:	TRC-1	TRC-2	TRC-3	TRC-4	TRC-5	TRC-6	TRC-7	TRC-8	TRC-9		TRC-10	TRC-11	TRC-12	TRC-13	TRC-14
		Sample Depth (ft.):	8-10	4-6	2-4	4-6	10-12	0-2	6-8	8-10	4-6	4-6	2-4	2-4	2-4	0-2	10-12
		Sample Date:	3/19/2013	3/19/2013	3/19/2013	3/19/2013	3/19/2013	3/19/2013	3/19/2013	3/20/2013	3/20/2013	3/20/2013 Field Dup	3/20/2013	3/20/2013	3/20/2013	3/20/2013	3/20/2013
		S-1/GW-2															
Metals, total																	
(mg/kg)	Antimony	20	3.3 U	3.0 U	**4.2**	2.7 U	2.8 U	**12**	2.9 U	6.4 U	**7.3**	3.2 U	2.7 U	**3.3**	**4.5**	**4.7**	2.9 U
	Arsenic	20	**3.3**	**5.7**	**12**	**14**	2.8 U	**18**	2.9 U	6.4 U	**6.3**	**5.5**	**5.5**	**9.9**	**30**	**15**	2.9 U
	Barium	1,000	**9.4**	**120**	**480**	**360**	**7.8**	**680**	**61**	**55**	**300**	**210**	**80**	**220**	**190**	**130**	**9.6**
	Beryllium	100	0.33 U	0.30 U	0.28 U	0.27 U	0.28 U	0.32 U	1.4 U	1.3 U	0.32 U	0.32 U	0.27 U	0.28 U	0.29 U	0.30 U	1.5 U
	Cadmium	2	0.33 U	**2.8**	**5.5**	**2.8**	0.28 U	**4.6**	**0.68**	0.64 U	**0.82**	**0.66**	**0.95**	**1.4**	**2.6**	**2.6**	**0.37**
	Chromium	30	**14**	**22**	**110**	**19**	**7.5**	**31**	**22**	**28**	**7.3**	**5.1**	**30**	**16**	**51**	**36**	**12**
	Lead	300	**5.4**	**820**	**3,800**	**1,900**	**6.0**	**2,500**	**44**	**6.0**	**360**	**180**	**140**	**480**	**1,900**	**550**	**9.0**
	Mercury	20	0.034 U	**1.3**	**0.93**	**1.3**	0.028 U	**2.3**	**0.26**	0.068 U	**0.20**	**0.23**	**0.38**	**1.8**	**5.3**	**1.4**	0.030 U
	Nickel	20	**9.3**	**19**	**81**	**14**	**8.1**	**26**	**19**	**14**	**13**	**9.3**	**11**	**24**	**23**	**24**	**7.5**
	Selenium	400	6.5 U	6.0 U	5.7 U	5.4 U	5.6 U	6.4 U	5.8 U	13 U	6.5 U	6.4 U	5.5 U	5.7 U	5.8 U	6.0 U	5.8 U
	Silver	100	0.65 U	0.60 U	**4.9**	**1.0**	0.56 U	0.64 U	0.58 U	1.3 U	0.65 U	0.64 U	0.55 U	0.57 U	0.58 U	0.60 U	0.58 U
	Thallium	8	3.3 U	3.0 U	2.8 U	2.7 U	2.8 U	3.2 U	2.9 U	6.4 U	3.2 U	3.2 U	2.7 U	2.8 U	2.9 U	3.0 U	2.9 U
	Vanadium	600	**23**	**40**	**34**	**27**	**13**	**54**	**34**	**43**	**14**	**11**	**29**	**25**	**29**	**39**	**17**
	Zinc	2,500	**22**	**1,000**	**2,000**	**1,100**	**16**	**1,600**	**470**	**72**	**390**	**300**	**200**	**430**	**510**	**440**	**17**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

NA - Sample not analyzed for the listed analyte.

U - Compound was not detected at specified quantitation limit.

Values in **Bold** indicate the compound was detected.

Values shown in Bold and shaded type exceed MassDEP Method 1 S-1/GW-2 standard.

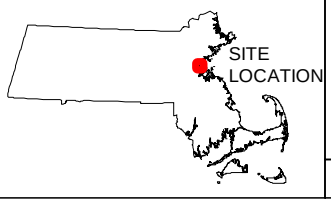
FIGURES

Approximate Site Boundary

0 1,000 2,000 Feet

N

MASSACHUSETTS



Base map: USGS 7.5 Minute Topographic Quadrangles: Boston North and Boston South, dated 1987

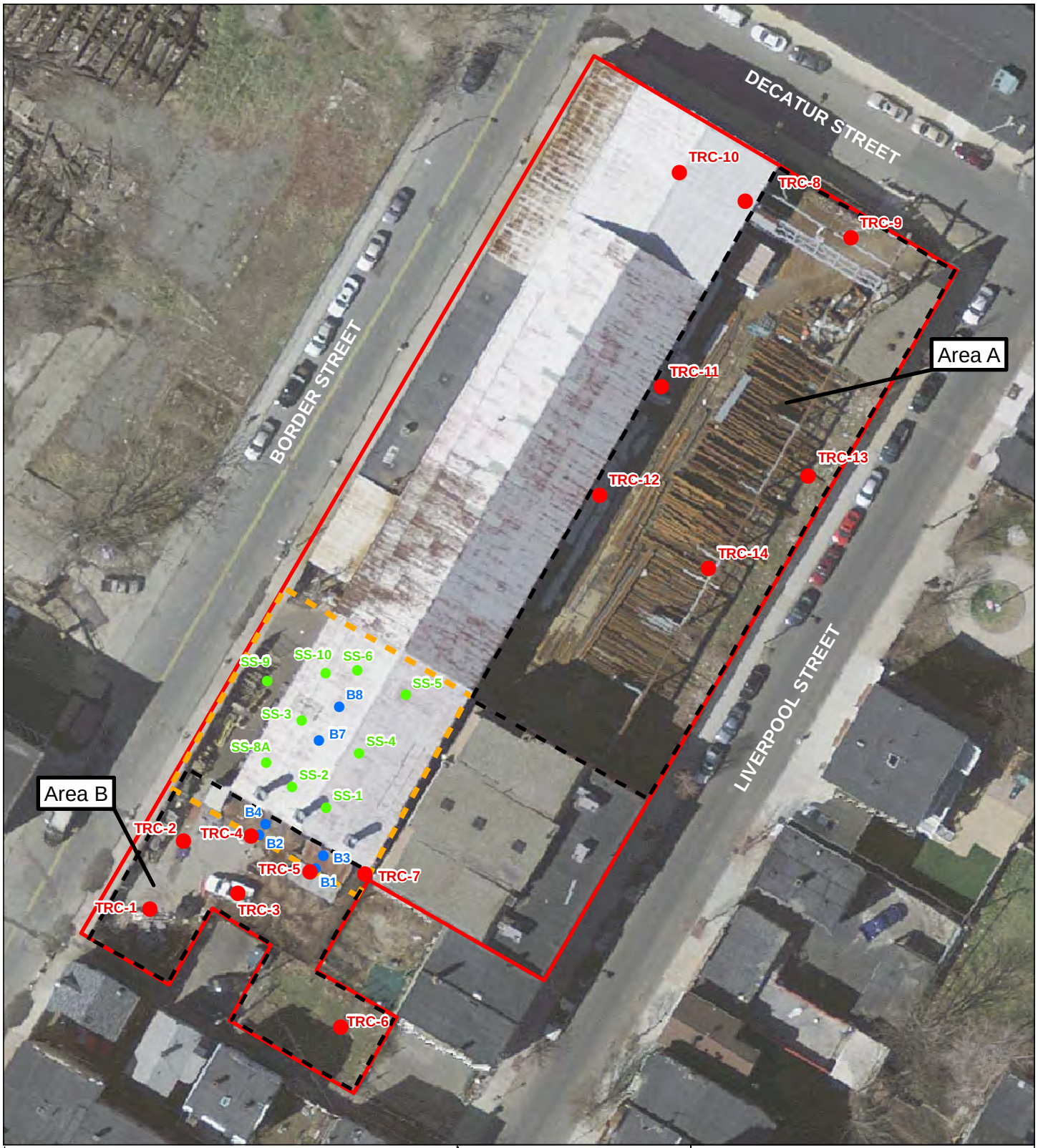
TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

SITE LOCATION MAP

80 LIVERPOOL STREET
EAST BOSTON, MA

FIGURE 1	MAY 2013

Path: R:\Projects\GIS_2012\178226_BorderSt_EastBoston\mxd\Fig1_SiteLocus_EBoston_2013_05_07.mxd



TRC Boring Location

Boring Location (Historical)

Soil Sample Location (Historical)

Proposed Investigation Area

AUL Boundary

Approximate Site Boundary

Base map: 15cm Orthoimagery, MassGIS 2009

0 20 40 Feet

N

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SITE LOCATION

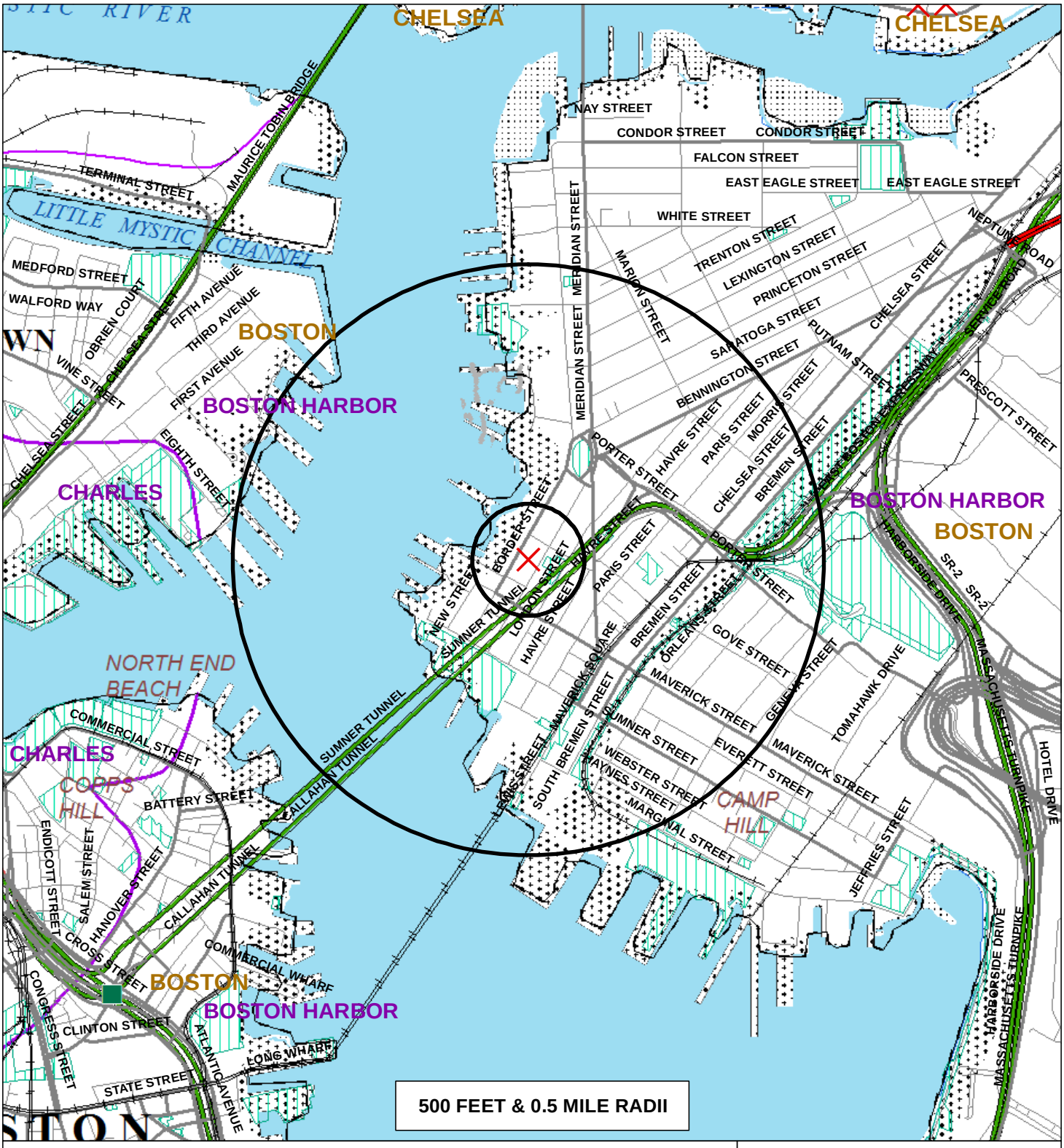
TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

SITE PLAN

80 LIVERPOOL STREET
EAST BOSTON, MA

FIGURE 2 | **MAY 2013**

Path: R:\Projects\GIS_2012\178226_BorderSt_EastBoston\mxd\Fig2_SitePlan_EBoston_2013_05_07.mxd



Roads: Limited Access, Multi-Lane, Major/Minor, Track, Trail
Railroad, Pipline, Powerline
Major Basin, Sub Basin, Perennial Stream, Intermittent Stream, Shoreline, Man made Shore, Dam, Aqueduct
Wetland, Salt Wetland, Submerged Wetland, Open Water, Reservoir, Tidal Flat/Shoal
Potentially Productive Aquifers: Medium, High Yield
Non-Potential Drinking Water Source Area: Medium, High Yield
EPA Sole Source Aquifer, FEMA 100 Yr. Floodplain, DEP Solid Waste Facility
Approved Zone II, IWPA, Surface Water Supply Zone A
Protected Open Space, ACEC
Priority Habitat, Certified Vernal Pool
Boundaries: County and Town
Public Water Supplies: Ground, Surface, Non-Community (NTNC, TNC)
Source: MassGIS/EOEA

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

FIGURE 3

MASSDEP PRIORITY RESOURCES MAP
80 LIVERPOOL ST.
EAST BOSTON, MA

0 500 1,000 1,500
Feet

MAY 2013

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June 5, 2013

Mrs. Kristin Carlson
Neighborhood of Affordable Housing, Inc (NOAH)
143 Border Street
East Boston, Massachusetts 02128

RE: Phase II Environmental Site Assessment Report Addendum
80 Liverpool Street
East Boston, Massachusetts

Dear Mrs. Carlson:

TRC Environmental Corporation (TRC) is pleased to submit this addendum to the Phase II Environmental Site Assessment (ESA) Report for the Former American Architectural Iron Co., which was prepared for the City of Boston's Department of Neighborhood Development, for the property located at 80 Liverpool Street in East Boston, Massachusetts (the "Site"). This addendum includes the additional assessment work performed on the Site in March 2013 on behalf of the Neighborhood of Affordable Housing, Inc. (NOAH).

Additional Analytical Soil Samples

Five additional soil samples were collected for volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and petroleum hydrocarbons (EPH) analysis from five of fourteen soil borings drilled at the Site on March 20, 2013. Table 1 identifies soil samples that were collected and the analytical methods performed. Soil boring locations are shown on Figure 1. These samples were analyzed by Con-Test Analytical of East Longmeadow, Massachusetts.

The selection of soil samples for these additional analyses was based on the following criteria:

- Areas of concern identified by TRC's ASTM Phase I Environmental Site Assessment (ESA) report; and

- VOC screening conducted in the field during boring advancement where the samples with the highest VOC readings observed in the field were selected for additional lab analysis.

The Phase I ESA indicated staining on the floor near the east wall of the manufacturing building with the possibility of the stain causing material to migrate to the exterior of the building. Soil boring TRC-11 was placed in this area to investigate possible soil contamination. Borings TRC-8 and TRC-9 were placed in the area just north of the manufacturing building. This area consisted of crushed stone at the surface and had been used as a staging area for steel prior to entering the manufacturing building. There was staining observed on the surface soil in these areas.

Boring TRC-3 was chosen for additional sampling due to its proximity to the Activity and Use Limitation (AUL) area associated with past metals contaminated soil and the property boundary. TRC-14 is located to the east of the building and in the former steel storage area.

Table 1
Summary of Analytical Soil Samples with Analysis Method – March 2013
80 Liverpool Street
East Boston, Massachusetts

Boring ID	Sample Depth	Analysis (Methods)
TRC-3	6-8'	% Solids (SM2540G), VOCs by GC/MS (SW-846 8260C), PCBs by GC/ECD (SW-846 8082A), EPH (MADEP-EPH-04-1.1
TRC-8	5-7'	% Solids (SM2540G), VOCs by GC/MS (SW-846 8260C), PCBs by GC/ECD (SW-846 8082A), EPH (MADEP-EPH-04-1.1
TRC-9	2-4'	% Solids (SM2540G), VOCs by GC/MS (SW-846 8260C), PCBs by GC/ECD (SW-846 8082A), EPH (MADEP-EPH-04-1.1
TRC-11	0-2'	% Solids (SM2540G), VOCs by GC/MS (SW-846 260C), PCBs by GC/ECD (SW-846 8082A), EPH (MADEP-EPH4-1.1
TRC-14	4-6'	% Solids (SM2540G), VOCs by GC/MS (SW-846 8260C), PCBs by GC/ECD (SW-846 8082A), EPH (MADEP-EPH-04-1.1

Table 2 is a summary of the analytical results for the additional sampling. Only two VOC compounds (1,1-dichloropropene and methylene chloride) were detected at concentrations above laboratory reporting limits in sample TRC-14(4-6'). PCBs were non-detected in all samples.

Several EPH target compounds in the polycyclic aromatic hydrocarbon (PAH) class were detected in all samples analyzed except TRC-3(6-8'). The PAH compounds benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene exceeded Massachusetts Contingency Plan (MCP) RCS-1 and Method 1 S-1/GW-2 and S-1/GW-3 standards. These compounds were also compared to

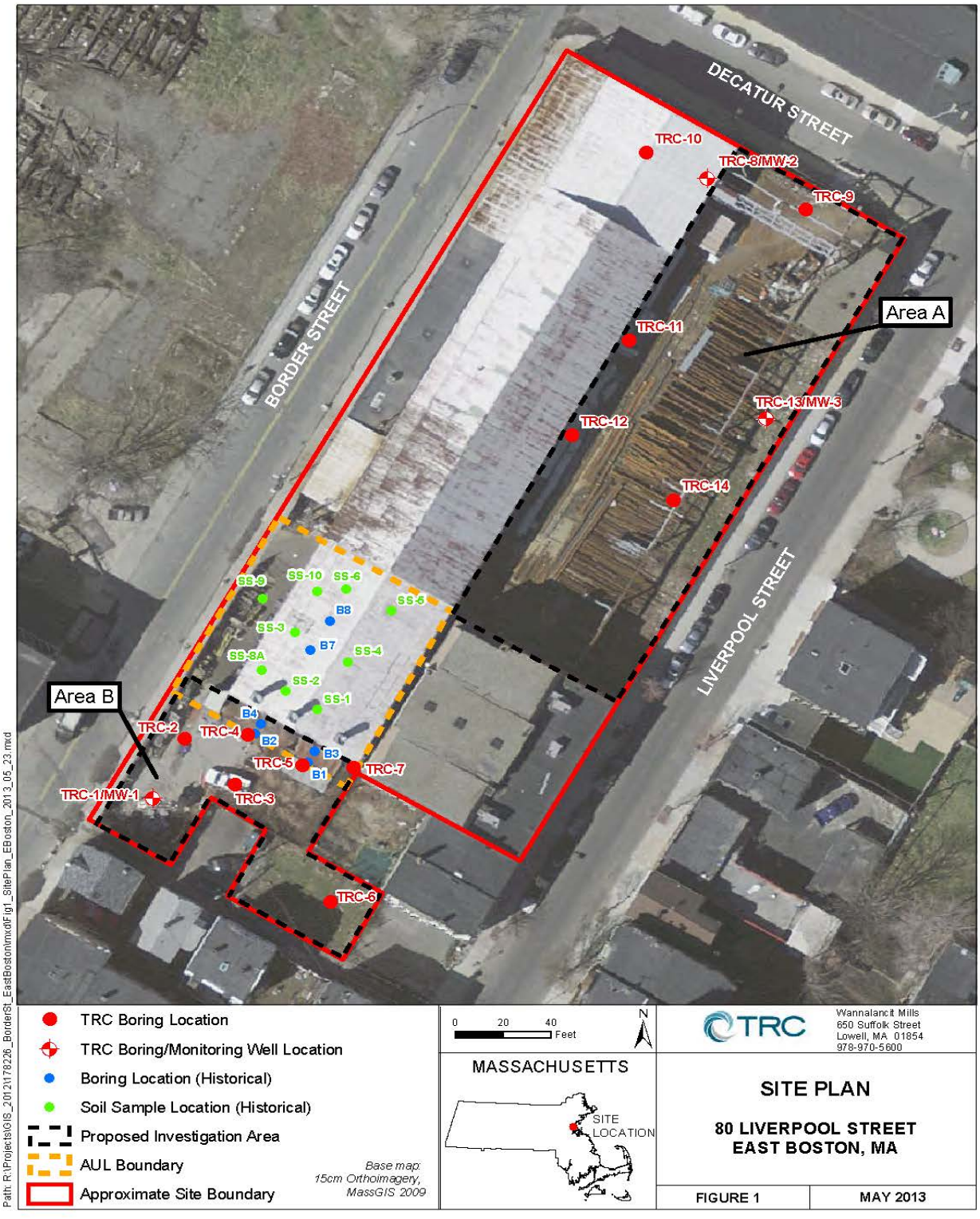
the MADEP identified background levels in soil containing coal or wood ash associated with historic fill. The results still exceeded the acceptable levels for historic fill. The soil borings have identified this fill layer as the top five to six feet with the identification of ash, wood, brick, coal, and other materials associated with historical fill in the urban setting.

The laboratory data report is provided as Attachment A.

Table 2 - Summary of Analytical Results for Soil Samples -- March 2013
80 Liverpool Street
East Boston, Massachusetts

Analysis	Analyte	Sample ID	TRC-3	TRC-8	TRC-9	TRC-11		TRC-14
		Sample Depth (ft.)	6-8/7.5	5-7/6	2-4/3	0-2/1	0-2/1	4-6/5
		Sample Date	3/19/2013	3/20/2013	3/20/2013	3/20/2013	3/20/2013 Field Dup	3/20/2013
		S-1/GW-2						
VOCs (mg/kg)	Acetone	50	0.30 U	0.099 U	0.12 U	0.056 U	0.070 U	0.075 U
	tert-Amyl Methyl Ether (TAME)	NS	0.0030 U	0.00099 U	0.0012 U	0.00056 U	0.00070 U	0.00075 U
	Benzene	30	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Bromobenzene	NS	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Bromochloromethane	NS	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Bromodichloromethane	0.1	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Bromoform	1	0.030 U	0.0099 U	0.012 U	0.0056 U	0.0070 U	0.0075 U
	Bromomethane	0.5	0.030 U	0.0099 U	0.012 U	0.0056 U	0.0070 U	0.0075 U
	2-Butanone (MEK)	50	0.12 U	0.040 U	0.050 U	0.022 U	0.028 U	0.030 U
	n-Butylbenzene	100(1)	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	sec-Butylbenzene	100(1)	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	tert-Butylbenzene	100(1)	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	tert-Butyl Ethyl Ether (TBEE)	NS	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Carbon Disulfide	NS	0.018 U	0.0060 U	0.0075 U	0.0033 U	0.0042 U	0.0045 U
	Carbon Tetrachloride	5	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Chlorobenzene	3	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Chlorodibromomethane	0.03	0.030 U	0.0099 U	0.012 U	0.0056 U	0.0070 U	0.0075 U
	Chloroethane	NS	0.030 U	0.0099 U	0.012 U	0.0056 U	0.0070 U	0.0075 U
	Chloroform	0.3	0.012 U	0.0040 U	0.0050 U	0.0022 U	0.0028 U	0.0030 U
	Chloromethane	NS	0.030 U	0.0099 U	0.012 U	0.0056 U	0.0070 U	0.0075 U
	2-Chlorotoluene	NS	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	4-Chlorotoluene	NS	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,2-Dibromo-3-chloropropane (DBCP)	NS	0.012 U	0.0040 U	0.0050 U	0.0022 U	0.0028 U	0.0030 U
	1,2-Dibromoethane (EDB)	0.1	0.0030 U	0.00099 U	0.0012 U	0.00056 U	0.00070 U	0.00075 U
	Dibromomethane	NS	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,2-Dichlorobenzene	30	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,3-Dichlorobenzene	40	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,4-Dichlorobenzene	4	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Dichlorodifluoromethane (Freon 12)	NS	0.030 U	0.0099 U	0.012 U	0.0056 U	0.0070 U	0.0075 U
	1,1-Dichloroethane	5	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,2-Dichloroethene	0.1	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,1-Dichloroethylene	40	0.012 U	0.0040 U	0.0050 U	0.0022 U	0.0028 U	0.0030 U
	cis-1,2-Dichloroethylene	0.4	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	trans-1,2-Dichloroethylene	1	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,2-Dichloropropane	0.1	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,3-Dichloropropane	NS	0.0030 U	0.00099 U	0.0012 U	0.00056 U	0.00070 U	0.00075 U
	2,2-Dichloropropane	NS	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,1-Dichloropropene	NS	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	**0.0048**
	cis-1,3-Dichloropropene	0.4(2)	0.030 U	0.0099 U	0.012 U	0.0056 U	0.0070 U	0.0075 U
	trans-1,3-Dichloropropene	0.4(2)	0.030 U	0.0099 U	0.012 U	0.0056 U	0.0070 U	0.0075 U
	Diethyl Ether	NS	0.030 U	0.0099 U	0.012 U	0.0056 U	0.0070 U	0.0075 U
	Diisopropyl Ether (DIPE)	NS	0.0030 U	0.00099 U	0.0012 U	0.00056 U	0.00070 U	0.00075 U
	1,4-Dioxane	6	0.30 U	0.099 U	0.12 U	0.056 U	0.070 U	0.075 U
	Ethylbenzene	500	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Hexachlorobutadiene	6	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	2-Hexanone (MBK)	NS	0.060 U	0.020 U	0.025 U	0.011 U	0.014 U	0.015 U
	Isopropylbenzene (Cumene)	100(1)	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	p-Isopropyltoluene (p-Cymene)	100(1)	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Methyl tert-Butyl Ether (MTBE)	100	0.012 U	0.0040 U	0.0050 U	0.0022 U	0.0028 U	0.0030 U
	Methylene Chloride	20	0.030 U	0.0099 U	0.012 U	0.0056 U	0.0070 U	**0.021**
	4-Methyl-2-pentanone (MIBK)	50	0.060 U	0.020 U	0.025 U	0.011 U	0.014 U	0.015 U
	Naphthalene	40	0.012 U	0.0040 U	0.0050 U	0.0022 U	0.0028 U	0.0030 U
	n-Propylbenzene	100(1)	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Styrene	4	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,1,1,2-Tetrachloroethane	0.1	0.030 U	0.0099 U	0.012 U	0.0056 U	0.0070 U	0.0075 U
	1,1,2,2-Tetrachloroethane	0.02	0.0030 U	0.00099 U	0.0012 U	0.00056 U	0.00070 U	0.00075 U
	Tetrachloroethylene	10	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Tetrahydrofuran	NS	0.030 U	0.0099 U	0.012 U	0.0056 U	0.0070 U	0.0075 U
	Toluene	500	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,2,3-Trichlorobenzene	NS	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,2,4-Trichlorobenzene	70	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,1,1-Trichloroethane	500	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,1,2-Trichloroethane	2	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Trichloroethylene	2	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Trichlorofluoromethane (Freon 11)	NS	0.030 U	0.0099 U	0.012 U	0.0056 U	0.0070 U	0.0075 U
	1,2,3-Trichloropropane	NS	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,2,4-Trimethylbenzene	100(1)	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	1,3,5-Trimethylbenzene	100(1)	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
	Vinyl Chloride	0.6	0.030 U	0.0099 U	0.012 U	0.0056 U	0.0070 U	0.0075 U
	m+p Xylene	300	0.012 U	0.0040 U	0.0050 U	0.0022 U	0.0028 U	0.0030 U
	o-Xylene	300	0.0060 U	0.0020 U	0.0025 U	0.0011 U	0.0014 U	0.0015 U
EPH (mg/kg)	C9-C18 Aliphatics	1,000	14 U	13 U	13 U	**28**	11 U	**560**
	C19-C36 Aliphatics	3,000	14 U	37	**31**	**78**	**40**	**21**
	C11-C22 Aromatics	1,000	14 U	**240**	**580**	**810**	**370**	**92**
	Acenaphthene	1,000	0.14 U	**1.9**	3.5	7.2	2.5	**0.23**
	Acenaphthylene	600	0.14 U	**0.15**	**0.19**	0.12 U	0.11 U	0.14 U
	Anthracene	1,000	0.14 U	**4.1**	**7.1**	**14**	**5.5**	**0.40**
*	Benzo(a)anthracene	9	0.14 U	**8.2**	**15**	**29**	**12**	**0.50**
*	Benzo(a)pyrene	7	0.14 U	**6.3**	**13**	**21**	**11**	**0.42**
*	Benzo(b)fluoranthene	8	0.14 U	**8.5**	**18**	**33**	**17**	**0.57**
	Benzo(g,h,i)perylene	1,000	0.14 U	**3.4**	**6.0**	**10**	**6.4**	**0.46**
	Benzo(k)fluoranthene	70	0.14 U	**3.1**	5.7	**11**	**5.8**	**0.21**
	Chrysene	70	0.14 U	**5.4**	**16**	**31**	**13**	**0.43**
*	Dibenz(a,h)anthracene	1	0.14 U	**1.1**	**2.0**	**3.3**	**1.9**	0.14 U
	Fluoranthene	1,000	0.14 U	**18**	**43**	**80**	**33**	**1.5**
	Fluorene	1,000	0.14 U	**2.3**	**3.5**	**6.0**	**2.4**	**0.54**
*	Indeno(1,2,3-cd)pyrene	7	0.14 U	**4.0**	**7.3**	**13**	**7.6**	**0.26**
	2-Methylnaphthalene	80	0.14 U	**0.56**	**0.84**	**1.3**	**0.40**	**7.6**
	Naphthalene	40	0.14 U	**0.78**	**1.1**	**1.2**	**0.39**	**16**
	Phenanthrene	500	0.14 U	**19**	**39**	**70**	**26**	**1.7**
	Pyrene	1,000	0.14 U	**19**	**47**	**82**	**33**	**1.4**
PCBs (mg/kg)	Aroclor-1016	2	0.14 U	0.14 U	0.13 U	0.12 U	0.12 U	0.13 U
	Aroclor-1221	2	0.14 U	0.14 U	0.13 U	0.12 U	0.12 U	0.13 U
	Aroclor-1232	2	0.14 U	0.14 U	0.13 U	0.12 U	0.12 U	0.13 U
	Aroclor-1242	2	0.14 U	0.14 U	0.13 U	0.12 U	0.12 U	0.13 U
	Aroclor-1248	2	0.14 U	0.14 U	0.13 U	0.12 U	0.12 U	0.13 U
	Aroclor-1254	2	0.14 U	0.14 U	0.13 U	0.12 U	0.12 U	0.13 U
	Aroclor-1260	2	0.14 U	0.14 U	0.13 U	0.12 U	0.12 U	0.13 U
	Aroclor-1262	2	0.14 U	0.14 U	0.13 U	0.12 U	0.12 U	0.13 U
	Aroclor-1268	2	0.14 U	0.14 U	0.13 U	0.12 U	0.12 U	0.13 U
	Total PCBs	2	0.14 U	0.14 U	0.13 U	0.12 U	0.12 U	0.13 U

Notes:
mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).
NS - No MassDEP standards exist for this analyte.
U - Compound was not detected at specified quantitation limit.
Values in **Bold** indicate the compound was detected.
Values shown in Bold and shaded type exceed MassDEP Method 1 S-1/GW-2 standard.
VOCs - Volatile Organic Compounds.
EPH - Extractable Petroleum Hydrocarbons.
PCBs - Polychlorinated Biphenyls
(1) - MassDEP Method 1 standards for C9-C10 aromatics used.
(2) - MassDEP Method 1 standards for 1,3-Dichloropropene used.
*** Historic fill background levels**


DECATUR STREET
BORDER STREET
LIVERPOOL STREET
Area A
Area B
TRC-10
TRC-8/MW-2
TRC-9
TRC-11
TRC-12
TRC-13/MW-3
TRC-14
TRC-2
TRC-4
TRC-5
TRC-7
TRC-1/MW-1
TRC-3
TRC-6
SS-9
SS-10
SS-6
SS-5
SS-3
SS-4
SS-8A
SS-2
SS-1
B8
B7
B4
B2
B3
B1
TRC Boring Location
TRC Boring/Monitoring Well Location
Boring Location (Historical)
Soil Sample Location (Historical)
Proposed Investigation Area
AUL Boundary
Approximate Site Boundary
Base map:
15cm Orthoimagery,
MassGIS 2009
0 20 40
Feet
N
MASSACHUSETTS
SITE LOCATION
TRC
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600
SITE PLAN
80 LIVERPOOL STREET
EAST BOSTON, MA
FIGURE 1
MAY 2013
Path: R:\Projects\GIS_2012\178226_BorderSt_EastBoston\mxd\Fig1_SitePlan_EBoston_2013_05_23.mxd

Monitoring Well Installation

Installation of three temporary groundwater monitoring wells was conducted on the Site on March 19 and March 20, 2013. With the final redevelopment plans and construction details not known, it was decided to finish three borings (TRC-1[MW-1], TRC-8[MW-2] and TRC-13[MW-3]) as temporary groundwater monitoring wells. These wells can be used to determine groundwater flow direction on the Site when well elevation survey data are available. Figure 1 identifies the location of the newly installed temporary monitoring wells. Boring and well construction logs are provided as Attachment B.

Results of the March 20, 2013 gauging event are as follows:

- MW-1 – depth to water – 13.0'
- MW-2 – depth to water – 11.0'
- MW-3 – depth to water – 12.0'

Conclusion

This additional investigation demonstrates that VOCs and PCBs are not present above applicable Massachusetts Contingency Plan (MCP) unrestricted use cleanup standards at this Site in the samples collected. The EPH results confirm the presence of historical fill at concentrations greater than MCP unrestricted use cleanup standards within the upper five to six feet of soil at the Site. However, these EPH results are typical for urban fill often observed in the city of Boston and are greater than MassDEP urban fill Background Concentrations. Therefore, soil generated during construction activities must be managed on-Site in accordance with a Soil Management Plan and/or or taken to an acceptable disposal or recycling facility for off-Site management.

If you have any questions regarding this addendum, please do not hesitate to call me at (978) 656-3529. We look forward to continuing work with you on this project.

Sincerely,
TRC ENVIRONMENTAL CORPORATION

David Gill
Project Manager/Engineer

Cc: Matthew Robbins, LSP, PG (TRC)
Project File