

## 7.0 INFRASTRUCTURE

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### 7.1 Wastewater

#### *7.1.1 Existing Wastewater System*

The local wastewater collection system is owned and operated by the Boston Water and Sewer Commission (BWSC). The system conveys wastewater to the Massachusetts Water Resources Authority (MWRA) system which flows to the MWRA Deer Island Wastewater Treatment Plant.

Several existing gravity sewers serve the Project area. A 15-inch sewer in Northern Avenue runs in an easterly direction and connects to a gravity collection system in Seaport Boulevard. The system flows past the World Trade Center area and eventually to the BWSC Trilling Way pump station where wastewater flows are pumped in a southerly direction to a gravity sewer in E Street just south of Summer Street. The E Street sewer flows southerly to a connection with the North Branch of the South Boston Interceptor at West First Street.

A 10-inch sewer in Seaport Boulevard flows in a westerly direction in Seaport Boulevard to a gravity sewer in Sleeper Street. An additional 12-inch sewer was installed in Seaport Boulevard as part of the MBTA Silver Line Tunnel construction to allow a gravity connection from the Project area across the Tunnel to a sewer in Farnsworth Street. Both sewers flow by gravity to a 24-inch sewer in A Street and eventually connect to the North Branch of the South Boston Interceptor (NBSBI) at West First Street. Figure 7-1 shows the existing wastewater collection system.

#### *7.1.2 Proposed Wastewater Generation*

Using wastewater generation rates from Title V of the Massachusetts State Environmental Code (Title V), the Project at full build-out is estimated to generate approximately 770,000 gallons per day (gpd) of wastewater. Title V generation rates typically provide for conservative estimates and can be as much as twice actual rates. Peak daily flows from the Project area were estimated by applying a peaking factor of three to the average daily flows calculated using Title V generation rates to consider normal daily demand fluctuations and mechanical system discharges.

Planning level analysis has been performed to estimate the anticipated volume of wastewater that will be contributed to the system from cooling tower blow down. The analysis indicates that the “peak” wastewater discharge from cooling tower blow down will be approximately 250,000 gpd with an annual “average daily” discharge of 160,000 gpd. These projections represent conservative estimates based on planning level information and are likely to be reduced as design advances and planned water re-use strategies are further developed.



Given the size of the proposed Project and its mixed-use development program, the resulting Title V and Cooling Tower peak daily flows should provide a realistic yet conservative estimate of downstream impacts.

As identified in earlier sections, numerous projects of varying sizes are proposed in the vicinity of the proposed Seaport Square Project. Although these projects will add significant volume to the wastewater collection system as a whole, most of the projects will not utilize the same local sewers (A Street), and as such, should not impact the Seaport Square Project. Projects in close proximity to Seaport Square, such as Fan Pier and Waterside Place, as well as other projects in the Seaport will primarily utilize the Trilling Way Pump Station. The proposed Project contribution to the Trilling Way pump station is minimal, and is not expected to impact the operational ability of the station.

The Channel Center project, and the balance of projects comprising the 100 Acres Master Plan, has the potential to impact capacity availability in the A Street sewer for the Seaport Square Project. In consideration of this, the BWSC has requested a study of the current operation of the A Street sewer be performed to update current data prior to performing additional capacity analyses. The Seaport Square Project intends to perform the requested studies and perform the detailed capacity analysis as part of the BWSC Site Plan Review Process and application for a General Services Agreement. If the studies and subsequent capacity analysis indicate upgrades are required to portions of the A Street sewer in order to safely accommodate the Project, the Proponent will participate as appropriate on the design and construction of those improvements.

#### **7.1.2.1 Consistency with Model Assumptions**

The MWRA's System-Wide InfoWorks (2006 condition) sewer model and the BWSC's City-Wide (2008 Condition) sewer model were reviewed in an effort to determine if the Project's proposed flows fall within those anticipated in the models. Although neither model appears to include the dry weather flows anticipated from the proposed Seaport Square development, increases in dry weather flow typically have a negligible impact on combined sewer models due to their relatively small flows in comparison to those generated from stormwater inflow.

While neither model appears to include any Project-generated dry weather flow, each model includes an inflow/infiltration volume that is more than 10 times the projected peak wastewater flow from the Project. Completion of the Seaport Square Project will include the complete reconstruction of sewer and drainage infrastructure within the Project Blocks resulting in the elimination of most inflow and infiltration (I/I) from the area. Correspondingly, the net resulting flows from the Project area to the sewer system will be significantly reduced from those flows currently anticipated in each sewer model. Additionally, BWSC has recently completed sewer separation projects in the area between Seaport Boulevard and Congress Street that will further reduce the inflow burden on the sewer system.

Given the relatively large I/I considerations in the models, the proposed wastewater flows from the Project are not expected to negatively impact model forecasts, particularly given recent system improvements and those proposed as part of the Project.

### ***7.1.3 Sanitary Flow Routes***

The Proponent has corresponded with representatives from BWSC to discuss existing wastewater infrastructure. Because of the minimal operation and maintenance involved, BWSC prefers gravity sewers to pumped systems. As such, they have asked that all efforts be made to utilize the A Street gravity sewer to handle wastewater flows from the Project area rather than using the Trilling Way pump station and the E Street sewer which currently handle the majority of the flow from the South Boston Seaport area.

#### ***Flow to Trilling Way Station***

The Proponent anticipates being able to substantially accomplish this goal by limiting Project flow to the Trilling Way Station to that coming from Blocks G and F which are effectively cut off from southern wastewater pathways by the Silver Line tunnel and its supporting infrastructure. Combined, the Blocks are estimated to contribute approximately 59,000 gpd, or less than eight percent of total Project flow which represents a small fraction (less than 0.1%) of the capacity available at the Trilling Way Station.

Development of Block G anticipates the “squaring off” of the intersection of Northern Avenue and East Service Road which will require the relocation of an existing 15-inch gravity sewer. Wastewater from Blocks G and F will discharge to the relocated sewer via new service connections and flow east in Seaport Boulevard and eventually to the Trilling Way pump station. The proposed improvements and relocations are shown on Figure 7-2.

Although adequate capacity exists for the flows projected, all relocations and connections will be closely coordinated with BWSC throughout the design process to ensure flows are distributed in a manner consistent with the needs and available capacity of the system.

#### ***Flow to A Street Sewer***

The balance of the Project wastewater flows (710,000 gpd) will be directed to the 24-inch sewer in A Street via local sewers in Sleeper Street, Farnsworth Street and Summer Street and new wastewater infrastructure being proposed as part of the Project.

New sewers will be constructed throughout the development to convey wastewater to available collection points in the existing BWSC system (see Figure 7-2). The following table summarizes findings related to the anticipated Project flows at each collection point and their corresponding percentage of the system capacity.



**Table 7-1 Summary of Wastewater Capacity Impacts**

Location	Size	Slope	Sewer Capacity	Peak Flow From Site	Percent (%) of Capacity
Sleeper Street	10-inch	0.013	2.49 cfs	0.21 cfs	8.4%
Farnsworth Street	12-inch	0.007	2.98 cfs	0.88 cfs	29.5%
Congress Street (north side)	15-inch	0.003	3.54 cfs	1.68 cfs	47.5%
Congress Street (south side)	10-inch	0.006	1.69 cfs	0.51 cfs	30.2%
A Street	24-inch	0.001	7.15 cfs	3.27 cfs	45.7%

Generally, the Project offers multiple options for distributing wastewater to the local collection system. The distribution shown represents what the Proponent believes to be the best allocation given the available system capacities and specific direction provided by BWSC. Project flows will be introduced to the system over a period of several years. As specific elements of the Project develop, the Proponent will work closely with BWSC to understand potential impacts of other planned projects, as well as better define the existing flow conditions at the time of development. The Project is committed to providing BWSC the information it needs and necessary infrastructure upgrades in order to approve the requested connections as part of the General Services Agreement process.

The Project may include industrial tenants or owners that will require Industrial Use Discharge Permits from the MWRA. As specific development plans advance, the Proponent will coordinate closely with the MWRA to evaluate specific permitting needs on a case-by-case basis.

#### **7.1.4 Infiltration/Inflow**

The Project will be served completely by separate sanitary and storm drain systems. As mentioned in previous sections, the Project will be constructing new wastewater infrastructure throughout the development. Additionally, much of the existing wastewater infrastructure scheduled to remain has been installed as part of recent projects such as the Central/Artery Tunnel and MBTA Silver Line Tunnel, or has been recently upgraded by BWSC and should be in relatively good working order.

The BWSC has recently completed projects that have provided separated sanitary sewers and storm drains in Farnsworth, Thompson, and Stillings Streets, areas previously served by combined sewers. Collectively, these system improvements free up significant capacity that was previously required to handle stormwater flows.

As a result of the proposed improvements, I/I contribution from the post-development Project area should be minimal. However the Project is committed to working with BWSC to identify areas of concern and develop appropriate courses of action. Given the size of the proposed development, specific I/I mitigation commitments will be determined cooperatively with BWSC on a Block-by-Block basis as part of the completion of individual General Services Agreements with BWSC.

## 7.2 Water Supply

### 7.2.1 *Existing Water Supply System*

Potable water is supplied to the Project area by a series of low- and high-pressure distribution and transmission mains owned and operated by BWSC. Water is supplied to BWSC system by the MWRA.

Water systems are available along all sides of the Project area. Low-pressure service mains, typically used for domestic water supply, and high-pressure distribution mains, typically used for fire protection systems, are available in the roads surrounding the Project, including Northern Avenue, Seaport Boulevard, Sleeper Street Extension, East and West Service Roads, Boston Wharf Road, Farnsworth Street, Thomson Place, Congress Street, and Stillings Street. The local distribution mains are fed from a 30-inch cast iron transmission main in Sleeper Street and Northern Avenue. Hydrants for fire fighting are located along the streets throughout the Project. Available fire flow test data indicate that the pressures and flows in the high service system are adequate for fire fighting. Figure 7-3 shows the existing water distribution system.

### 7.2.2 *Proposed Water Supply System*

Water consumption can be estimated as a function of the anticipated wastewater generation rates calculated in earlier sections. Typically, water consumption can be estimated as wastewater generation plus a factor of ten percent to account for non-consumptive use. The Project's water demand is estimated at 847,000 gpd. As with the wastewater generation figures, domestic water use is based on values established in Title V, which provides a conservative estimate of actual usage.

Planning level analysis has been performed to estimate the anticipated water volume required to meet project cooling tower demands. The analysis indicates that the "peak" water demand will be 610,000 gpd with an annual "average daily" demand of 380,000 gpd. As with wastewater projections, these projections represent conservative estimates based on planning level information and are likely to be reduced as design advances and planned water re-use strategies are further developed.



Assuming a typical irrigation water application rate of one inch per week during the summer months, the Project estimates a peak water demand for irrigation of 15,000 gpd for the proposed four acres of landscaping and green roofs. The Project is actively pursuing creative ways to both limit need for irrigation through use of drought-tolerant species, as well as offset demand through the temporary storage and reuse of rain water. However, these programs lack the specific detail at this point in the development to adjust estimates accordingly.

The Proponent has met with BWSC representatives and found that there are no known capacity issues with either the local water distribution system or the transmission main. As such, the distribution system should have sufficient capacity to supply all phases of the Project, as well as those other projects currently planned within the area including but not limited to projects at Fan Pier, Pier 4, Russia Wharf, Summer Street, Melcher Street, Waterside Place, Congress Street and within the 100 Acre Plan. It is envisioned that building fire protection systems for high rise buildings will require internal pump systems to maintain adequate pressure for the building's fire protection system. The realignment of Northern Avenue will require relocating two water mains: a 16-inch main and a 30-inch transmission main. Relocating these water mains will require coordination with BWSC. In order to provide better service to the proposed buildings of Block L, a new 12-inch water main is proposed in Autumn Lane connecting the low and high service mains in East Service Road and Boston Wharf Road. The proposed connection and proposed building services are shown on Figure 7-4.

### **7.2.3**            *Water Conservation*

The Project is committed to implementing all practical measures to reduce its demand on the public water supply. The building program will include the latest technology in low-flow fixtures and other water conservation measures. The Project is currently investigating ways of offsetting its irrigation water demands through the capture and reuse of roof runoff which has the added benefit of further reducing the burden on the drainage system.

## **7.3**            **Stormwater Management**

### **7.3.1**            *Existing Conditions*

The storm drainage system serving the Project area is substantially owned and operated by BWSC. Private outfalls currently serve large portions of Project Blocks situated between Seaport Boulevard and Northern Avenue. The system is comprised of drainage infrastructure constructed by private landowners over the course of parcel history and several infrastructure improvements that have been made as part of recent projects such as the Federal Courthouse, the construction of Seaport Boulevard, the Central Artery/Tunnel project and the MBTA Transitway Tunnel project. Figure 7-5 shows the existing stormwater collection system.





The Project area is served by several storm drain outfalls which discharge runoff to the harbor.

A storm drain outfall at the end of Courthouse Road (SDO Courthouse) was installed as part of the construction of the Federal Courthouse. Further improvements to this part of the system have been designed for the City of Boston as part of the Fort Point Channel Streets-Phase I Roadway Reconstruction Project. Portions of this improvement are to be constructed as part of the development of the Fan Pier.

A 42-inch storm drain outfall, located near the east abutment of the Seaport Boulevard Bridge (SDO 196), handles stormwater flows from western portions of Seaport Boulevard and portions of the Project area.

A 30-inch storm drain located in Seaport Boulevard carries stormwater from eastern portions of Seaport Boulevard and the Project area east to an outfall near the World Trade Center (SDO 195).

The southern portion of the Project is served by storm water collection systems located in Boston Wharf Road, Congress Street, West Service Road, and B Street. A 48-inch storm drain in Congress Street carries stormwater flows from smaller lines located in Boston Wharf Road, West Service Road, and the southwestern Project areas to an outfall located near the abutment of Congress Street bridge (SDO 075). Additionally, a 36-inch storm drain in B Street carries stormwater from East Service Road, portions of Congress Street, and southeastern Project areas to a second outfall near the World Trade Center (SDO 202).

Existing stormwater treatment systems vary broadly across the Project Area and include new catch basins and storm drains installed in the public roadways as part of recent transportation infrastructure projects and a mixture of systems across the private development parcels. Treatment systems within the existing development Blocks are limited mostly to older catchbasins. Catchbasins are supplemented by grit separating chambers on Block L and by a small at-grade detention basin on Block M. It is anticipated that much of this infrastructure will be removed as part of the construction process. The storm drain infrastructure within the public right of ways appears to be adequate to accommodate the proposed Project.

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It should be noted that there is a proposed storm drain, to be installed by others, within Courthouse Way that would convey flows from a proposed storm drain in the northeast section of Northern Avenue to an existing 36-inch storm drain outfall.

### *7.3.2 Proposed Conditions*

Due to the inclusion of large open spaces, green roofs and site landscape improvements, the Project will result in an approximately 20% reduction in the amount of impervious coverage on the site, significantly reducing the peak runoff rates from the site. In developing the proposed drainage system, the Project has tried to direct stormwater flows to outfalls owned and operated by BWSC and away from private outfalls. In most cases the resulting increase in drainage area to the public outfall is substantially offset by the proposed increased site pervious coverage. The specifics of this approach will be developed cooperatively with BWSC and other potentially impacted outfall owners.

Significant infrastructure improvements will be required to connect the proposed buildings to the modified public drainage infrastructure. These improvements and the necessary modifications to the existing system are shown on Figure 7-6.

The realignment of Northern Avenue will require the relocation of a (private) 24-inch storm drain and at least two catchbasins located within the current street alignment. According to the proposed storm drain infrastructure plan for the Fan Pier project, the existing private 30-inch outfall on private property and the 24-inch storm drain will be removed and new private storm drain piping and four (private) outfalls will be built to replace the existing system. In addition, a proposed public storm drain system within the proposed realigned section of Northern Avenue is to be installed by others.

The Proponent has coordinated with BWSC regarding the status of the existing stormwater outfalls. Since the Project is reducing runoff generated from the Project, the Proponent does not anticipate significant stormwater infrastructure capacity issues. Future coordination will determine if improvements are required as part of this Project for the connection to the outfall in Courthouse Road.

Details for the on-site stormwater collection system will be designed in accordance with BWSC and MassDEP requirements and regulations.

Table 7-2 provides a summary of the post-development runoff characteristics. The results are presented by outfall to allow a more detailed comparison and as a total Project to illustrate the total net impact of the proposed improvements.



**Table 7-2 Summary of Post-Development Runoff Characteristics**

Outfall		Impervious Coverage	Area Acres	Peak Runoff Rate (cfs)			
				2-Year	10-Year	25-Year	100-Year
SDO 075	PRE	98%	8.1	26.8	38.9	46.4	56.0
	POST	77%	8.3	19.6	29.6	36.0	43.7
	NET		0.2	-7.2	-9.3	-10.6	-12.3
SDO 195	PRE	98%	7.3	23.4	33.8	40.5	48.7
	POST	74%	10.9	25.9	39.1	47.5	57.8
	NET		3.6	2.5	5.3	7.0	9.1
SDO 196	PRE	89%	1.5	4.8	7.0	8.4	10.1
	POST	89%	2.5	6.4	9.5	11.4	13.8
	NET		1.0	1.6	2.5	3.0	3.7
SDO Court House	PRE	74%	2.9	9.0	13.1	15.8	19.0
	POST	62%	1.5	3.4	5.3	6.5	7.9
	NET		-1.4	-5.6	-7.8	-9.3	-11.1
SDO 015	PRE	99%	3.5	11.6	16.8	20.2	24.2
	POST	NA	0.0	0.0	0.0	0.0	0.0
	NET		-3.5	-11.6	-16.8	-20.2	-24.2
Project Total	PRE	95%	23	75.6	109.6	131.5	158.0
	POST	76%	23	55.3	83.5	101.4	123.2
	NET		0.0	-20.3	-26.1	-30.1	-34.8

**7.3.3 Low Impact Design**

Because of the Project’s urban location opportunities for Low Impact Development (LID) measures are limited. However, the Project is committed to the general principles and will look to measures such as green roofs, rain gardens and water reuse to offset Project impacts.

Green roofs are an effective LID technique that is beneficial to the environment. They reduce stormwater runoff volumes through rainwater storage and evapotranspiration, in addition to reducing peak runoff discharge rates. The reduction in impervious coverage also reduces the heat island effect which improves local air quality. Green roofs also may provide long-term cost savings to the facility owner. The up-front construction costs are generally more expensive, however they have a longer life span than conventional roofs and the added insulation reduces heating and cooling costs. Green roofs will be considered on several of the buildings in the proposed development.

Rain gardens are also an effective LID technique that provides groundwater recharge in addition to the environmental benefits provided by green roofs. Typically they are less costly to install and maintain than conventional stormwater treatment technologies and they provide the added benefit of enhancing the landscape. Rain gardens will be considered in the proposed areas of open space throughout the proposed development.

As a subset of Low Impact Design we have investigated the likely impacts associated with the potential rise in sea levels that may result from a continued rise in global temperatures. Current FEMA mapping indicates a 100-year flood plain elevation of 10.0 NGVD in the area of the site. Finish grade of the site generally ranges between elevation 15.0 and 17.0, several feet above the flood plain elevation. Although the buildings are expected to be substantially above the current flood plain, and therefore protected from potential rises in sea level, entrances to below-grade parking will be reviewed closely so as to provide an additional one foot clearance above current requirements.

#### ***7.3.4 On-site Stormwater Retention***

The Project will result in a significant reduction in peak rates of runoff from the Project area. As such, retention is not required to offset any increased rates. As part of the Project's commitment to water saving measures, systems are being considered that will store runoff for irrigation use or reduce potable water consumption in other areas. However, these systems are not being designed for the purposes of retaining stormwater to mitigate peak runoff rates.

#### ***7.3.5 Compliance with MassDEP's Stormwater Management Policy Standards***

The Project will comply with MassDEP's current Stormwater Management Policy Standards. The Project is located entirely within the BWSC service area and will have to prove compliance with MassDEP Stormwater Regulations during the BWSC Site Plan Review process.

The proposed stormwater management system will be designed using the revised MassDEP Stormwater Handbook as a guideline. The standards have been recently revised to promote increased stormwater recharge, the treatment of more runoff from polluting land uses, Low Impact Development techniques, pollution prevention, the removal of illicit discharges to stormwater management systems, and improved operation and maintenance of stormwater best management practices (BMPs). The following is a summary of the ten Stormwater Management Standards and the mitigation measures that will be included as part of the proposed stormwater management system to ensure compliance.

**Standard #1:** Untreated Stormwater. No point discharges of untreated stormwater to regulated resource areas are proposed. Stormwater quality controls for the Project will include street sweeping, deep sump/hooded catch basins, particle separators, and LID techniques such as rain gardens and green roofs wherever possible.

**Standard #2:** Post-Development Peak Discharge Rates. As a result of the decrease in net impervious area from existing to proposed conditions, peak flow attenuation BMPs will not be incorporated into the drainage design to mitigate the peak discharge rates for the 2, 10, 25 and 100-year, 24-hour storm events.

**Standard #3:** Recharge to Groundwater. The Project Site is located on Urban Fill, which is considered a Hydrologic Soil Group (HSG) "D" classified soil. Per the Stormwater Handbook, sites comprised solely of "D" classified soils are required to infiltrate the required recharge volume only to the maximum extent practical. In addition, the Project is considered a redevelopment which also requires this standard be met only to the maximum extent practical. The Project will incorporate rain gardens within the proposed open space to infiltrate the required recharge volume to the maximum extent practical.

**Standard #4:** TSS Removal. Based on the proposed stormwater management system design, BMPs will remove in excess of 80% of the Total Suspended Solids (TSS) from the stormwater runoff discharging from the site. This will be achieved through the use of BMPs that are sized to capture and treat the required water quality volume. The site design will achieve this result through the use of street sweeping, deep sump/hooded catch basins, particle separators, and possibly rain gardens.

**Standard #5:** Higher Potential Pollutant Loads. A portion of the Project Site, specifically the high intensity-use parking lots, will be treated as potentially contributing higher pollutant loads based on the estimated vehicle trips per day exceeding 1,000. Stormwater discharges from areas with higher potential pollutant loads typically require the use of specific stormwater management BMPs, and at least 44 percent TSS removal prior to discharging to an infiltration device. This standard will be met by the incorporation of BMPs including deep sump catch basins and particle separators.

**Standard #6:** Protection of Critical Areas. The Project Site is not located in or near to a critical area. Therefore, Standard #6 is not applicable to this Project.

**Standard #7:** Redevelopment. The proposed Project is considered a redevelopment because it is comprised of a previously developed site and will result in no net increase in impervious area. As such, it is required to meet Standard #2, Standard #3, and the pretreatment and structural stormwater best management practice requirements of Standards #4, #5, and #6 only to the maximum extent practical.

**Standard #8:** Erosion/Sediment Control. Erosion and sediment controls will be incorporated into the Project design to prevent erosion, control sediment movement, and stabilize exposed soils during construction. During construction, control measures such as the placement of hay bale barriers, silt fencing, sedimentation basins, and the implementation of soil stabilization practices will be utilized. These control measures will be periodically checked and maintained as necessary throughout the duration of construction.

**Standard #9:** Operation and Maintenance Plan. An Operation and Maintenance Plan will be prepared for the site that complies with federal NPDES stormwater permit requirements.

**Standard #10:** Illicit Discharges to Drainage System. There will be no illicit discharges to the proposed stormwater management system.

### ***7.3.6 Consistency with NPDES General Permit***

In accordance with EPA CGP, effective June 30, 2008, construction activities that result in a total land disturbance of equal to or greater than one acre, where those discharges enter surface waters of the U.S. are subject to the conditions of the EPA CGP. Coverage under the EPA CGP requires the preparation of a Stormwater Pollution Prevention Plan (SWPPP). Since the Project will result in the disturbance of approximately 23 acres of land and stormwater runoff discharges to Boston Harbor, coverage under the CGP will be required. A Project specific SWPPP will be prepared and a Notice of Intent will be filed with the EPA to obtain authorization to discharge under the CGP.

### ***7.3.7 Stormwater Management Plans***

Stormwater Management Plans will be required for submissions to the City of Boston Conservation Commission and the BWSC, and are also required for compliance with NPDES Permit Requirements.

A comprehensive stormwater management plan will be developed which identifies the best management practices for controlling erosion and preventing the discharge of sediment to the BWSC's drainage system. The plan will be required by the BWSC and must be in compliance with the requirements of the ten MassDEP Stormwater Management Standards as mentioned above, and will detail the operation and required maintenance of the proposed stormwater BMP's to ensure long term environmental compliance of the drainage system.

Section 4.6.1.2 discusses the use of rainwater for groundwater recharge and irrigation.

## **7.4 Anticipated Energy Needs**

### ***7.4.1 Natural Gas Service***

The gas infrastructure in the Project area is adequate for the proposed development. It may be necessary to extend existing gas lines further down Boston Wharf Road in order to provide tie-in points for Block Q and portions of Block L. An extension of the distribution system in Congress Street to Boston Wharf Road may also be required in order to supply Block N. Other Blocks have gas lines in immediately adjacent streets and will require typical connections from each building and/or Block. Correspondence with National Grid has yielded that they would need to install connections and loop the existing distribution

infrastructure to accommodate the proposed Fan Pier project. The preferred conceptual alignment would be within the realigned section of Northern Avenue. Further coordination with National Grid is ongoing.

#### **7.4.2        *Electrical Service***

The electric infrastructure in the Project area is adequate for the proposed development. The Blocks in the proposed development should be able to access an existing electrical conduit, although portions of Block L may require extended connections to the electric lines because no electrical conduit exists in East Service Road. Recent coordination with NSTAR was undertaken and they are currently evaluating the projected loads for the Project.

As part of the Northern Avenue realignment, it will be necessary to move the 115-kV transmission line located within the right of way. Meetings have been held with NSTAR regarding this work and they have indicated that moving a transmission line requires a minimum of 18-24 months lead-time. Further coordination with NSTAR is ongoing regarding this work.

Based on conversations with the Boston Water and Sewer Commission (BWSC), National Grid, NSTAR Electric, etc., there will be a need to upgrade distribution in the immediate area to serve the needs of the new neighborhood and other currently planned projects listed in earlier sections. Currently it is anticipated that some of this infrastructure will be funded by the Proponent and some will be funded by the utility company. Also, a feasibility study is underway to explore the viability of various types of co-generation and central energy plant alternatives. Final determination on energy systems and distribution methods will be developed as potential solutions are refined.

#### **7.4.3        *Telecommunications***

Local improvements will be required to connect individual Blocks within the proposed development to the existing telecommunications infrastructure serving the Project area. The Proponent has not identified any critical capacity issues related to the ability to meet the development's general telecommunications needs. However, further detail will be developed as design advances allowing more thorough coordination with available service providers.

### **7.5        Protection of Utilities**

All work proposed as part of the Project will be closely coordinated with the local utility companies and BWSC, and all work within public rights-of-way will be coordinated through the City of Boston Public Improvements Commission. The Project and its contractors will take all necessary measures to avoid impacts to existing utility infrastructure and to minimize potential disruptions of service.

## **7.6 Sustainable Design/Energy Conservation**

The Project will address issues of sustainable design and energy conservation in the infrastructure by minimizing the additional burdens placed on existing and new infrastructure service.

Green roofs and vegetated areas within the Project will reduce stormwater runoff, resulting in a decreased stress on storm sewers during rain events. Buildings will be designed to operate in an energy-efficient manner year-round, reducing anticipated peak electrical demand and reducing overall stress on the electrical grid compared to a “baseline” build-out.

More information about sustainable design and energy conservation can be found in Sections 4.6 and 4.13.

## **7.7 Conclusion**

Due to the sites urban location and recent major infrastructure investments in the area as part of the Central Artery/Tunnel and Silver Line Tunnel, the area is generally well served by public and private utility infrastructure. As with any project this size, there are challenges to meeting the specific needs of the Project, but those challenges are relatively modest and manageable. Continued coordination with the City of Boston, BWSC, private utility companies and other Project stakeholders is required and anticipated.