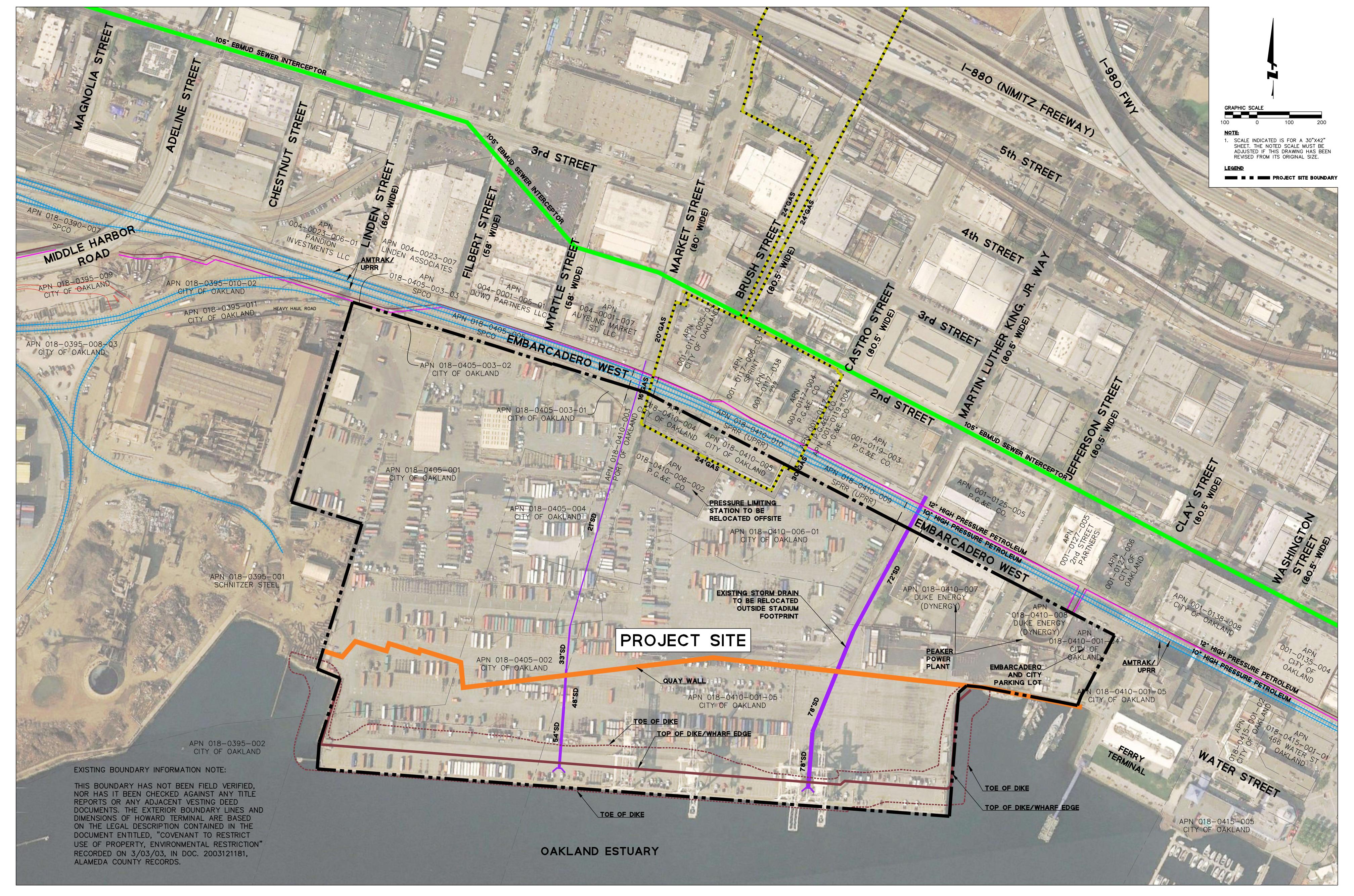
It is assumed that sub basin 64 is currently operating at capacity, and local sewer infrastructure improvements may be required in the City sewer mains to support the project. Due to the relatively short distance between the proposed project site and the existing EBMUD interceptor, it is assumed that new sewer mains from the site to the EBMUD interceptor would be feasible. The City of Oakland would permit this work within their right of way and EBMUD would permit modifications to the sewer connections at the interceptor, if required. Laterals to the EBMUD interceptor are permitted only by the City of Oakland.

This due diligence review assumes that the existing EBMUD waste water system treatment capacity can accommodate the proposed development within the existing EBMUD infrastructure. The proposed residential, commercial and retail uses will increase the demand over the existing site discharge. Sewer discharge estimates are included for the site development and the proposed ballpark.

## b. Collection System Improvements

Two existing sewer lines in Market Street and Martin Luther King Jr. Way discharge City sewer into the EBMUD interceptor. Both of these lines are situated on the eastern and western sides of the proposed ballpark, and likely have limited use, given the existing industrial use within the site. This due diligence review assumes that the location of these lines can remain, with new pipelines installed from the site beneath the railroad tracks, extending to the EBMUD interceptor in 2<sup>nd</sup> Street. This assumption will need to be verified with a more detailed review of the condition of existing infrastructure.











#### **B.** Domestic Water

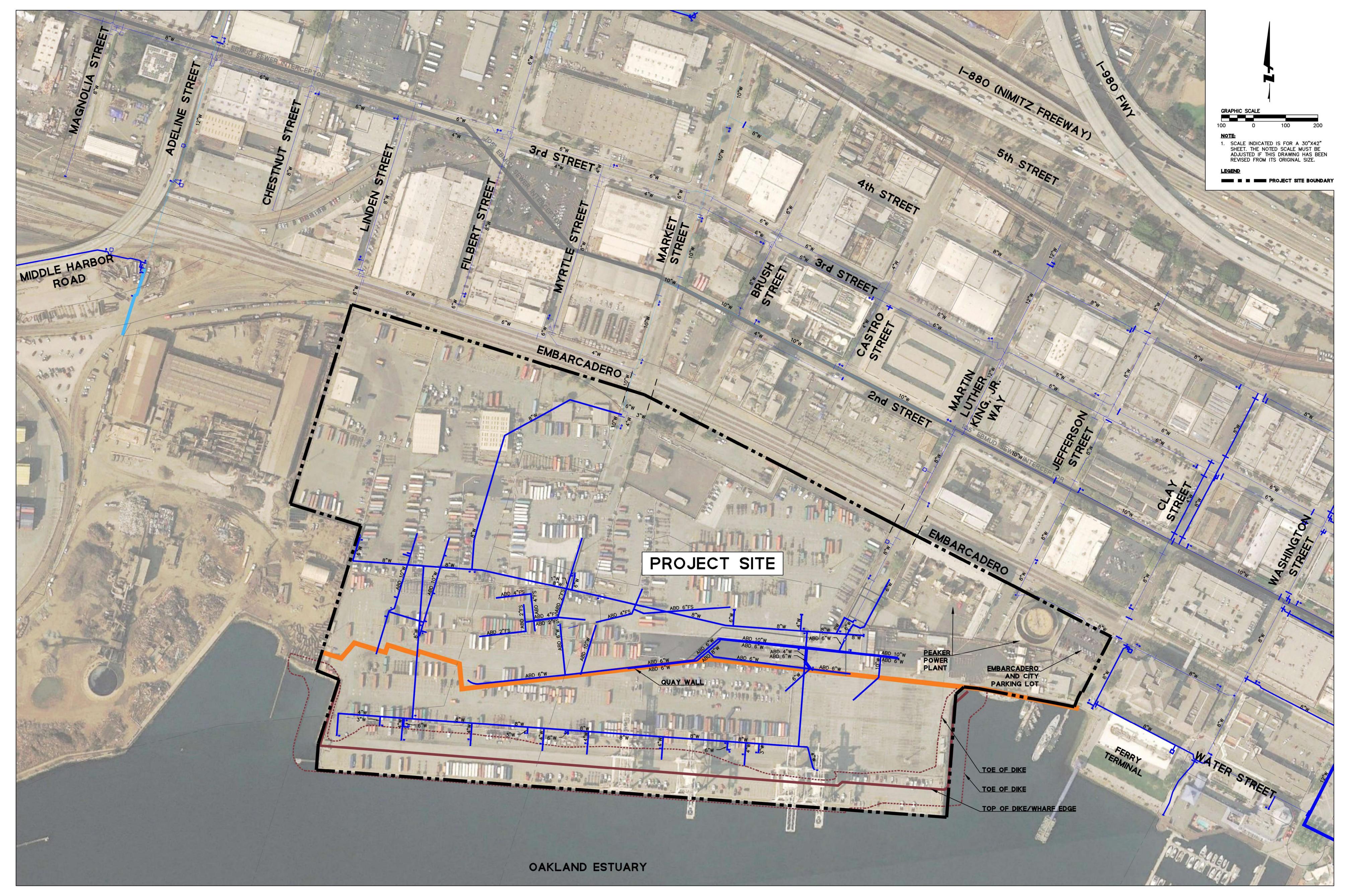
# 1. Existing Infrastructure

## a. Water Supply

Water service to the Project is provided by East Bay Municipal Utility District (EBMUD), which owns, operates and maintains the water transmission system within the City of Oakland. The project site is located within the proposed Downtown Oakland Specific Plan area, per a letter from EBMUD dated March 19, 2018. The Specific Plan area includes approximately 37 miles of existing EBMUD water distribution pipelines. According to EBMUD, portions of these pipelines may need to be replaced at the Project sponsor's expense, depending on site design proposal and estimated demands. However, it is assumed that EBMUD has available water supply to service the new ballpark, and proposed water infrastructure within the Project development will be designed per EMBUD standards. New water mains are assumed to range in size from 10 to 12 inches to serve the proposed development. A conceptual layout of proposed onsite domestic water infrastructure is shown in the following exhibits. Per EBMUD, proposed development projects within the Specific Plan area should plan to:

- 1. Perform a Water Supply Assessment (WSA) for projects that exceed the threshold requirements of the California Environmental Quality Act (CEQA). EBMUD has performed a WSA in response to a request dated February 21, 2019, and summarized the results in a letter to the City of Oakland, dated May 14, 2019. As detailed in the EBMUD response, the City provided a water demand estimate of 1,616,200 gallons per day (gpd) based off the City's sanitary sewer flow estimate, which also included wet weather infiltration. EBMUD states that the City's projection overestimates the potable water demands, and provided its own estimate of 854,400 gpd for the increase in water demand at Project build-out. This estimate utilizes EBMUD's land-use demand approach, system capacity charge studies on similar projects, and various reference data. Based on water demand data from Oracle Park, the nearby ballpark for the San Francisco Giants, BKF anticipates a higher water demand for the Project than the EBMUD estimate.
- 2. Install main extensions to serve the project development to provide adequate domestic water supply, fire flow and system redundancy, which will be the Project sponsor's cost. EBMUD's New Business office should be contacted to request water service and to estimate costs of providing water service.

Currently, there is no recycled water available to the project site. However, EBMUD may require installation of a recycled water main (served by potable water) to facilitate future recycled water use, and may provide recycled water to the Project site area if there is a large demand for its use. EBMUD is currently evaluating the installation of recycled water mains in Martin Luther King Jr. Way and 3<sup>rd</sup> Street. If these mains are installed, the Project could connect at the intersection of Martin Luther King Jr. Way and 3<sup>rd</sup> Street and extend a recycled water main approximately three blocks to the site.









#### b. Distribution System

Existing water distribution within and surrounding the site is presented in the following exhibit. The site is currently serviced by 10-inch waterline from Market Street and 8-inch line from Martin Luther King Jr. Way. An 8-inch service line is also located along the frontage of the site in Embarcadero from Jefferson Street to Clay Street.

Existing pressure and flow data were provided by EBMUD at three locations in the vicinity of the site: at Market Street (10" main), at Martin Luther King Jr. Way (8" main), and at Jefferson Street (8" main). The pressure and flow data from EBMUD are included in Appendix C, along with conversion of the data to determine available flow at 20 psi residual pressure, per California Fire Code. At the 10" domestic water main in Market Street, 3,625 gallons per minute (gpm) is calculated at 20 psi residual pressure. At the 8" domestic water main in Martin Luther King Jr. Way, 2,608 gpm is calculated at 20 psi residual pressure. The Project will further evaluate existing water flow and pressure as specific uses are more defined. It is assumed that a fire protection engineer will evaluate the necessity of proposed fire pumps for the Project development parcels and ballpark.

#### c. System Capacity

The proposed ballpark is proposed to have a total capacity of 35,000 seats. This is 15,000 seats less than the existing stadium that has a total capacity of 50,000 seats. The proposed ballpark use will have a net decrease in water demand, and the residential, commercial and retail uses will be additional water demands for the site. It is assumed that EBMUD would allocate the existing water use to the proposed site, but further coordination and evaluation of proposed demands is required.

# d. Distribution System Improvements

It is assumed that multiple points of connection to the existing domestic water system will be required to deliver adequate pressure and flow throughout the site. The proposed connection points are listed below and shown on the following exhibits.

- 6" domestic water connection at Linden Street
- 12" domestic water connection at Market Street (bore and jack beneath railroad)
- 12" domestic water connection at Martin Luther King Jr. Way (bore and jack beneath railroad)
- 8" domestic water connection at Jefferson Street
- 8" domestic water connection at Clay Street

Multiple points of connection to the EBMUD water distributions system allow for a looped water system at the site. The looped system would provide greater water pressure and flow, including redundancy for the proposed site. Pressure and flow performance data from EBMUD indicates that there are no known local distribution system issues. It is expected that the multiple points of connection and pipe size upgrades of the mains in Market Street Martin Luther King, Jr. Way will result in improved performance of the system at the site. This data will need to be verified with a water system model analysis and review of fire flow requirements from the California Fire Code and City of Oakland Fire Department.

It is expected that the Market Street and Martin Luther King, Jr. Way connections will require upgrade of the existing water mains to 12" mains from the site to Embarcadero, requiring bore and jack installations where the proposed water lines cross the railroad tracks. Replacing the existing water lines beneath the railroad tracks will provide greater reliability of the water supply to the site, as the condition of the existing pipe infrastructure crossing beneath the railroad tracks is unknown. However, further discussion with EBMUD is required to determine the condition of the existing water infrastructure in this area.

#### e. Recycled Water

Based on our understanding of the publicly available EBMUD recycled water map, there is an identified recycled main extension that is planned to extend to Alameda via Martin Luther King, Jr. Way and 3rd Street. We understand this project is not in development, and recycled water is not available to the project at this time.

# C. Storm Drainage

### 1. Existing Infrastructure

The Project site has two existing City of Oakland gravity storm drain outfalls draining from Market Street and Martin Luther King Jr. Way. The outfalls discharge approximately halfway between the Embarcadero and southern limit of the existing wharf, where the outfalls meet the shoreline beneath the wharf structure. It is understood that these storm drain mains convey storm water runoff from upland properties and public right of ways within the City of Oakland. Additionally, both of these existing mains convey storm drainage from several catch basins and laterals that collect local drainage within the Project site. It is assumed that existing Howard site storm drain catch basins and local storm drain infrastructure will be removed to facilitate proposed site improvements. It is likely that portions of the site also drain directly to the Oakland Inner Harbor, which was historically acceptable for storm drain discharge. However, Project development will be required to capture proposed storm water and treat it or re-use it prior to discharge into the two existing City of Oakland gravity storm drain mains.

### 2. Proposed Infrastructure

#### a. Storm Drain Collection System Improvements

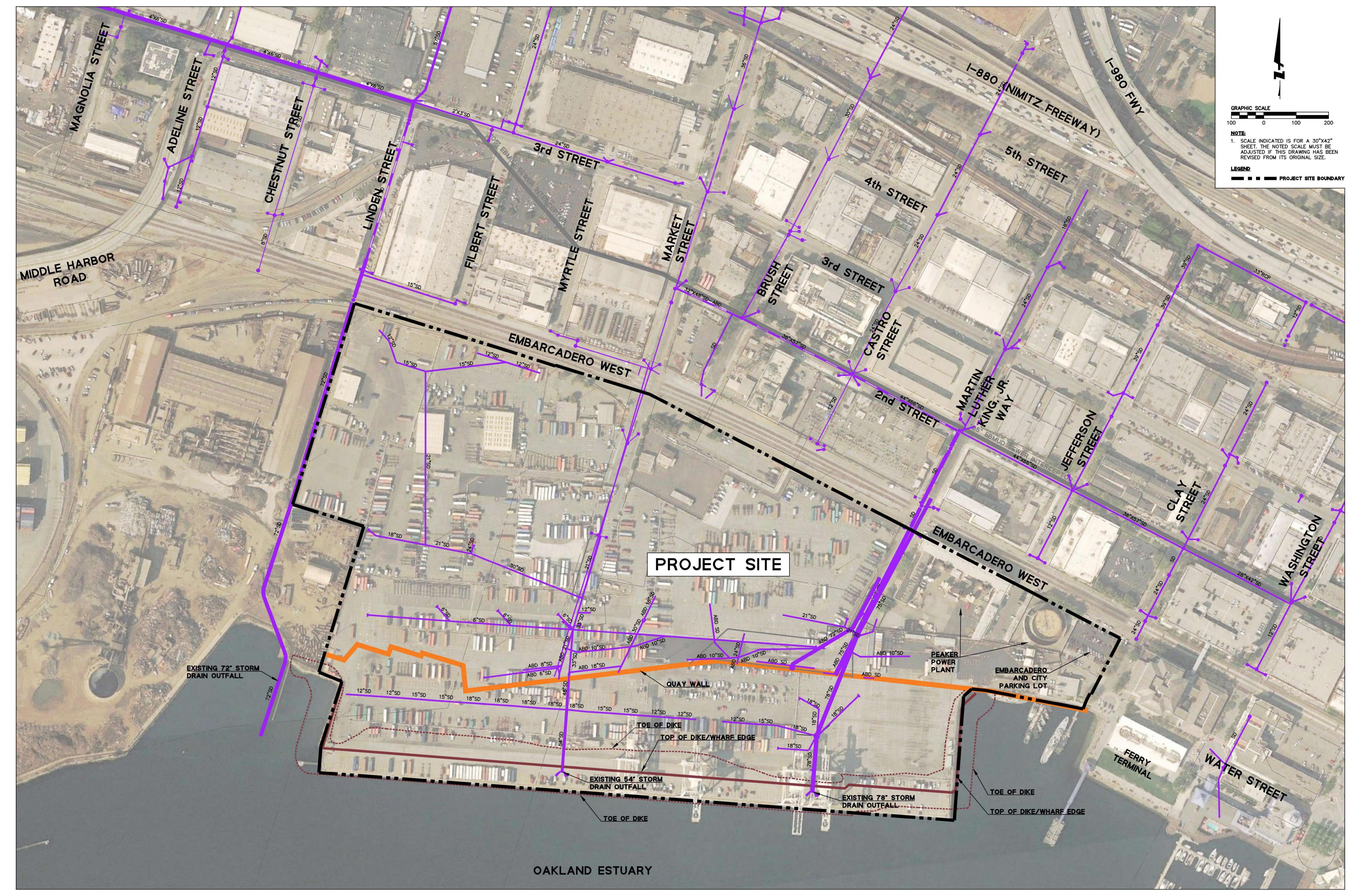
The existing site currently drains to the two existing City of Oakland Storm drain pipes that run through the site. Runoff from the proposed development will also be routed to these existing storm drain pipes. We understand that the Martin Luther King Jr. Way storm drain pipe and outfall may be impacted by the footprint of the new ballpark, and may need to be relocated. Additionally, the Market Street outfall, while maintained in place, may need to be upsized for a segment of the existing onsite storm drain pipe depending on proposed onsite stormwater routing. The project will decrease stormwater runoff below existing conditions and plans to connect to the existing storm drain pipe at multiple locations, possibly upstream of existing onsite connections where the existing line is 21-inches. Depending on the connection point, a section of the existing storm drain pipe may need to be upsized to accommodate this proposed stormwater routing.

#### b. Storm Water Treatment Requirements & Strategies

Developments are subject to the requirements of the Clean Water Act through the National Pollutant Discharge Elimination System (NPDES) Municipal Regional Storm Water Permit (MRP) issued to the Alameda County Clean Water Program (ACCWP) by the San Francisco Bay Regional Water Quality Control Board (RWQCB). Provision C.3 of the MRP is the section of the permit containing storm water pollution management requirements for new development and redevelopment projects. Provision C.3 requires treatment of storm water prior to discharge into the municipal storm drain system. Developments with over 10,000 square feet of impervious surfaces are required to treat storm water discharge. Storm water treatment requirements can be met through on site storm water reuse, infiltration or bio-retention treatment areas.

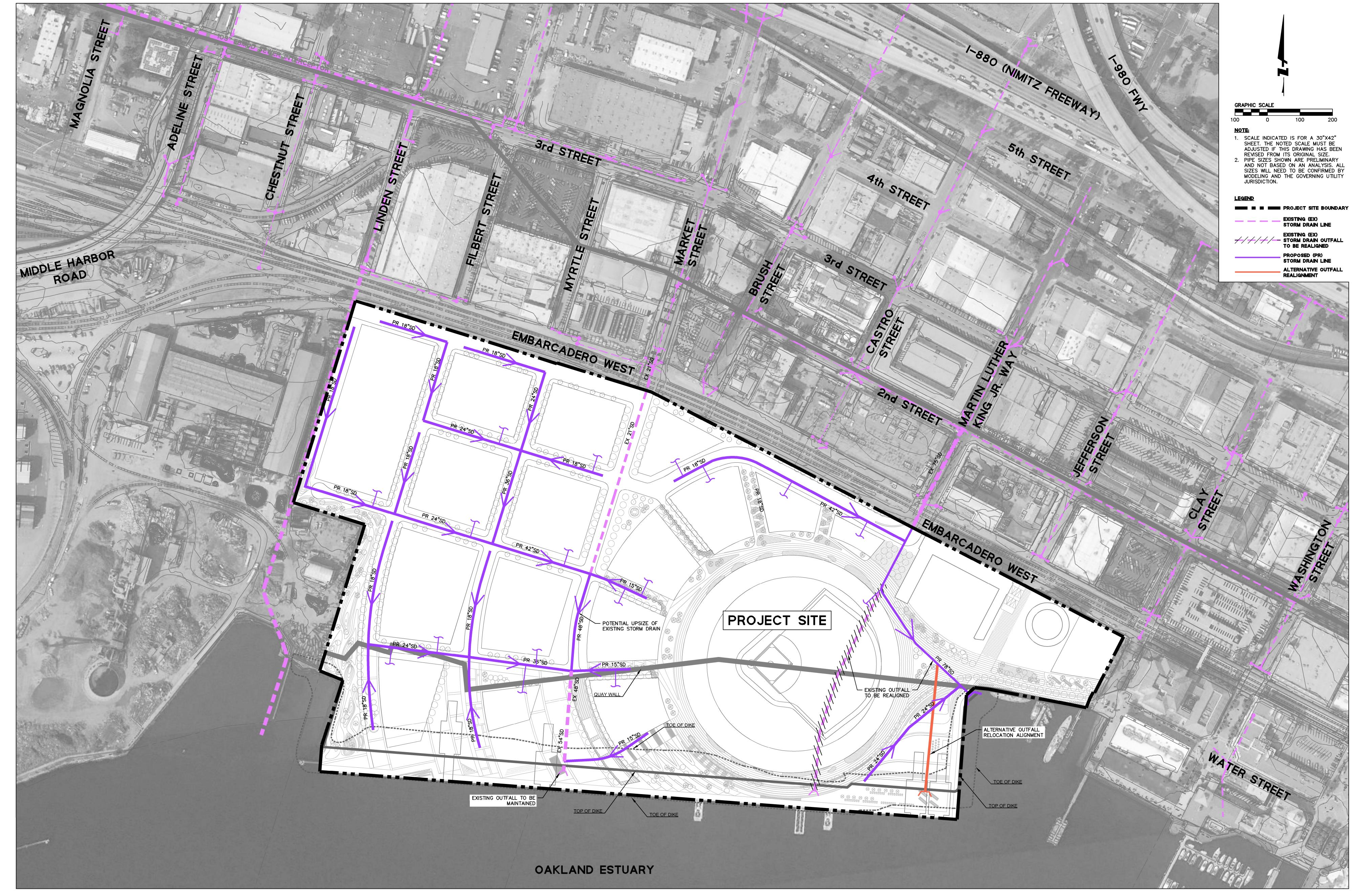
A combination of treatment measures including minimizing impervious surfaces, incorporation of storm water reuse into the project design, incorporation of source control measures, landscape based treatment, site design measures, grading, permeable pavements or capture and re-use systems will be considered for this Project. The final layout and type of treatment will depend on the site plan, grading, landscape designs and building systems.

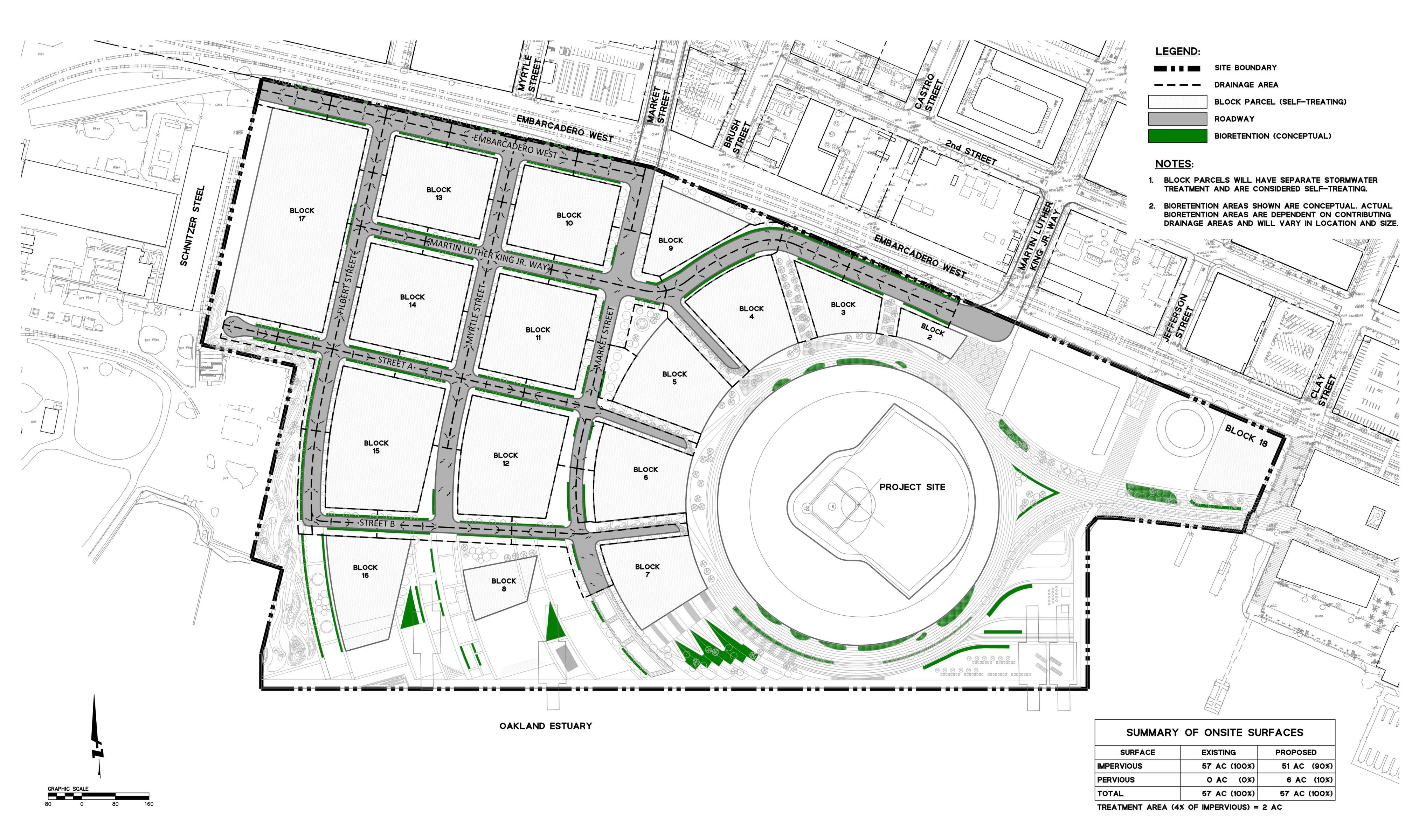
The required storm water treatment area for the impervious runoff from the Project site will be located within the streets, parks and development areas near the source of the runoff. Each development parcel will be responsible for treating the required storm water treatment volume within the parcel, to treat the required flow and volume as defined by the MRP provision C.3. The ballpark and surrounding walkways, landscape and ancillary development will meet provision C.3 through either capture and re-use, landscape based treatment, bio-retention or flow through planters. The grass field is anticipated to meet the standard for a self-treating area because it is a permeable surface on grade. The parks and open space within the development will be treated in landscape-based treatment areas within, or adjacent to, the footprint of the parks and open space. The streets within the development will also be treated with landscape-based treatment in the adjacent streetscape and open space areas. Permeable materials may be utilized to offset the treatment requirements.

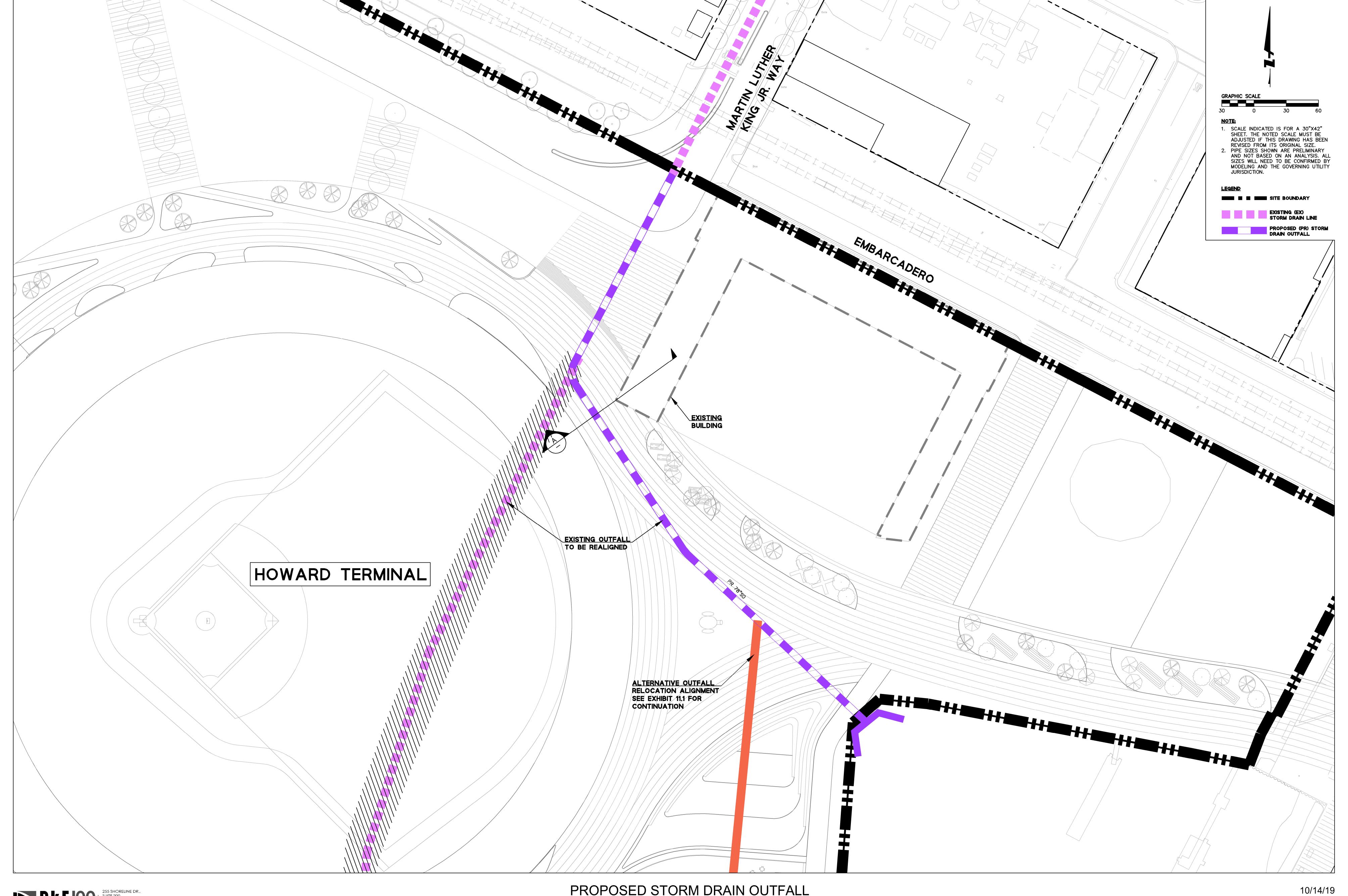


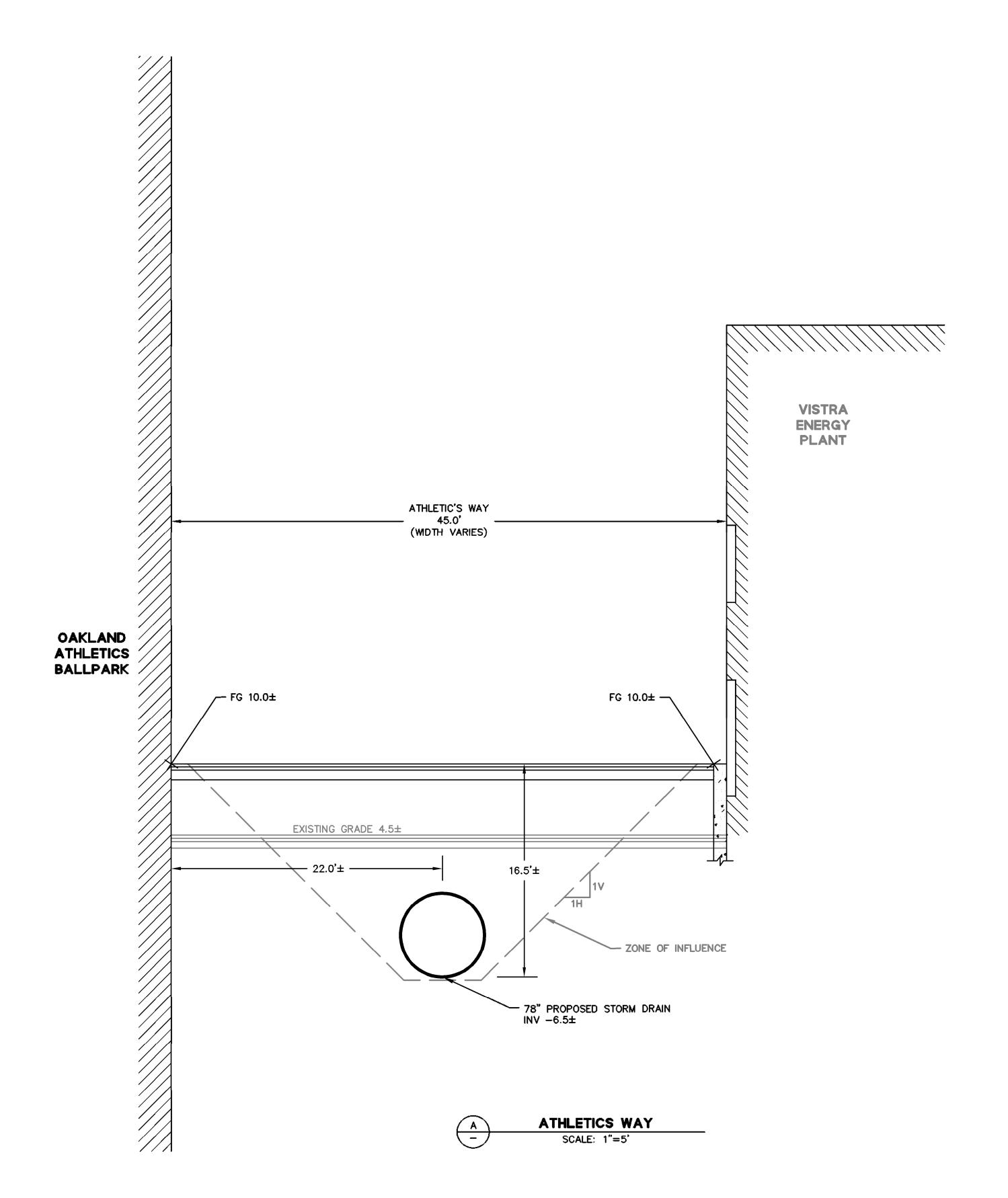


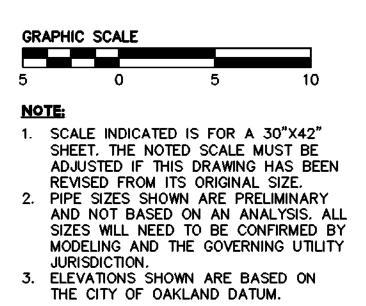
HOWARD TERMINAL











### D. Gas and Electric (PG&E)

Gas and electric service in the City of Oakland is provided by Pacific Gas and Electric (PG&E), the owner and operator of the systems. Electric service is transmitted through overhead and underground distribution/transmission lines in the Project area. Existing gas and electrical distribution within the Project site is presented in the following exhibits.

### 1. Electric Infrastructure

# a. Existing Electrical Distribution System

Electrical distribution is currently provided above and below ground within the streets adjacent to the project site. The site currently has both overhead and underground 12-kilovolt (kV) service within Embarcadero road on the northern limits of the project.

# b. Proposed Electrical Distribution System

It is assumed that the existing 12-kV electric service adjacent to the site will serve as the primary source of power to the stadium. The Project electrical engineer has also suggested that the Project request an additional 12-kV service from PG&E so that the cost and feasibility of redundant power from PG&E can be evaluated. PG&E has stated that the substation serving the Project site is reliable. They will provide reliability statistics once a PG&E application is received for the Project site. The following exhibits show the known existing electrical infrastructure, as well as the one option for proposed electrical infrastructure in the vicinity of the site. Electric service points of connection and onsite joint trench layout will need to be determined by a dry utility consultant.

#### 2. Gas Infrastructure

## a. Existing Gas Distribution System

As noted in Section 2, a PG&E high pressure limiting station is located adjacent to the site. This facility is serviced by two separate high pressure transmission lines that feed from Market Street (20" and 16" pipes) and Castro Street (30" and 24" pipes). Local gas distribution is provided by 2-inch gas service from Embarcadero at Jefferson Street that currently services the existing property owned by Dynergy. Services are also provided to the project site from the existing PG&E pressure limiting station.

# b. Proposed Gas Distribution System

PG&E currently has plans to relocate the existing pressure limiting station to a site at the corner of 3<sup>rd</sup> Street and Market Street. Based on correspondence with PG&E, this new pressure limiting facility is currently in the design phase. Once the pressure limiting station is relocated, that portion of the site could be included as part of the overall site