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D R A F T

8.0 INFRASTRUCTURE

8.1 OVERVIEW

Public utilities and community services will need to be expanded to support the development in the Specific Plan area. A strong framework of infrastructure, utilities, and amenities is critical to the development of the area. This chapter describes the infrastructure needed to efficiently integrate the new development with the services already provided by the City of Newark. It establishes the policies and describes the improvement projects necessary for upgrading and expanding public facilities.

This chapter also includes General Plan policies to reduce the demand placed on utility systems, thereby promoting environmental and economic sustainability. Private utilities, such as electrical transmission and distribution, are also discussed.

This Specific Plan will be used by preparers of development applications to understand the basic infrastructure and utility

elements of the plan, as well as aid the property owners in basic preliminary design decisions. This conceptual report is intended only to provide an initial overview of the conceptual project layout and the construction of basic infrastructure. It is not intended to be used for final design or construction.

Limitations of Study

This study is limited to brief discussions of existing conditions and identification of “backbone” utility infrastructure needed to support the proposed development of the project site. The initial calculations are estimates only based on APN maps and preliminary land use assumptions provided by the property owners and their consultants. All calculations used to determine sizes of the backbone infrastructure are for preliminary study purposes only. Final design calculations will be required as part of the design process leading to City approval for construction of the project’s infrastructure.

The following polices will be included as a part of the General Plan Amendment for the Specific Plan project.

Utilities and Public Service Principles

I-1: Meet or exceed City standards by providing high-quality, efficient public utilities, services, and facilities to serve the Specific Plan area.

I-2: Encourage sustainable building practices, operations, and maintenance.

I-3: Partner with private utility providers to limit disruptions to existing systems, and ensure comprehensive utility service for all future development.

I-4: Ensure that adequate emergency service facilities and staffing are in place to serve new residents and employees.

I-5: Design new development and public spaces with consideration for public safety.

8.2 STUDY AREA

Topography

The area is a generally flat, low-lying alluvial plain. Elevations in the area vary from approximately 4 to 15 feet above mean sea level (MSL), based on the National Geodetic Vertical Datum of 1927 (NGVD); There are two bedrock outcroppings located on the western portion of the site

Easements

Several rights-of-way and easements for transportation infrastructure and utilities exist within the Plan area that will affect the type and arrangement of development that can occur. (See Exhibit 8.1, Conceptual Utility Plan) These include the following:

- The Hetch-Hetchy Pipeline

The Hetch-Hetchy Pipeline is within a 110-foot right-of-way owned by the San Francisco Public Utilities Commission (SFPUC), which runs east/west through the northern portion of the Plan area controlled by the SFPUC. All crossing or other uses are tightly controlled by the San Francisco Public Utilities Commission (SFPUC) and land owner contract rights that run with the land. The Pipeline runs underground through the east half of the Plan area, transitioning to the surface after crossing to the north side of the rail right-of-way.

- The Dumbarton Rail Corridor (DRC)

The DRC also runs in an east/west direction through the northern portion of the Plan area, almost parallel to the Hetch-Hetchy Pipeline. The DRC is a 100-foot wide right-of-way owned by San Mateo County Transit. The DRC is a proposed commuter rail line.

- The East Bay Dischargers Authority (EBDA)

The EBDA owns and operates two 33-inch sanitary sewer force mains, serving the City of Newark, that run through the Plan area within an easement under the Hickory Street right-of-way. Special conditions

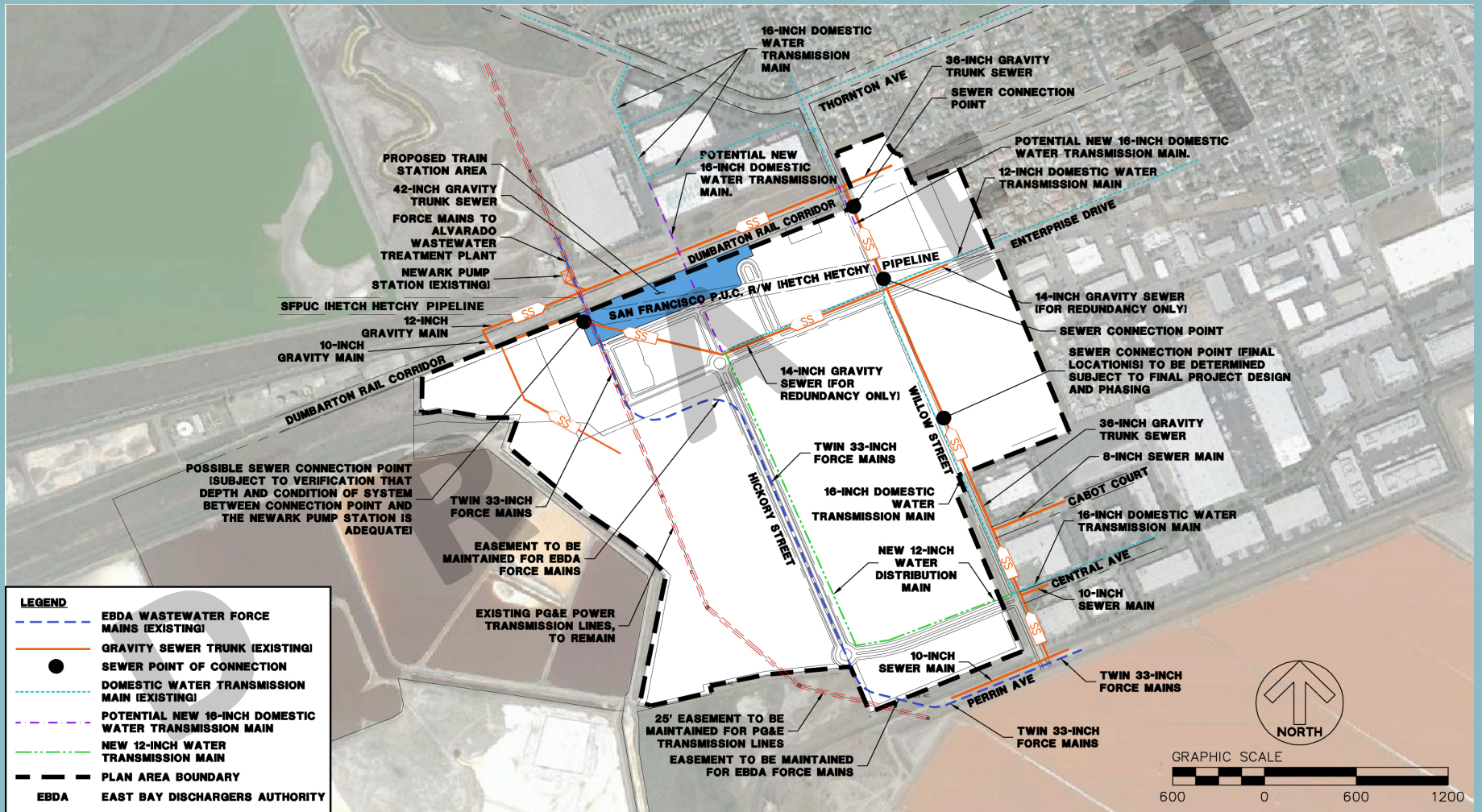


Exhibit 8.1 - Conceptual Utility Plan

on construction within this easement may need to be imposed to preserve the integrity of the mains.

- The Alameda County Flood Control F-1 Canal
The F-1 Canal flows from east to west along the Plan area's southerly boundary, providing the main drainage outlet to the San Francisco Bay for a large part of the City of Newark. A tributary to this canal, the F-6 ditch, runs north along the west side of Willow Street for a distance of about 1,300 feet.

- PG&E Transmission Lines
PG&E lines traverse the Plan area from north to south. PG&E maintains strict control regarding use of a 25-foot wide easement underneath the lines and surrounding the towers that support high-voltage lines. Buildings may not be constructed within the right-of-way, and the ground may not be filled if it reduces the existing line's clearance to less than 32-feet. A representative of PG&E reports that it should be possible to either relocate or raise the existing transmission lines and towers. It is not anticipated that they would be relocated or raised at this time.

Land Use Assumptions

Estimated (based on APN maps) proposed land uses are the following:

- 16.84-Acres Low Density Residential
- 67.86-Acres Medium Density Residential
- 59.34-Acres Medium High Density Residential

- 5.03-Acres High Density Residential
- 18.32-Acres Commercial (Retail, Office and Train Station)
- 16.26-Acres Parks and Open Space
- 23.06-Acres Miscellaneous Roads, Easements, etc.

8.3 PUBLIC UTILITIES

Storm Drainage

Existing Conditions

The Plan area contains various topographic and land use conditions that define existing drainage patterns:

- Willow Street and Enterprise Drive Area
These streets contain city-owned storm drainage lines that convey run-off from fronting developed parcels to the southern limit of the Plan area where they enter the Alameda County Flood Control and Water Conservation District (ACFC) Line F-1. These lines extend to the west in Enterprise Drive to receive runoff from an area outside the limits of ACFC's planned tributary drainage shed to Line F-1. Because the overall area is not built-out to the density that ACFC had planned for, this additional area is accommodated in the regional drainage system. However, as the area develops, designers must provide hydrologic and hydraulic calculations to the City of Newark that demonstrate that runoff to the F-1 channel does not exceed ACFC's design parameters or the capacity of the channel.

- Undeveloped Areas

The undeveloped areas are mostly low-lying and do not freely drain to the bay, but in large storm events, release to channels in the northwestern and southwestern corners of the Plan area. Areas in the west discharge predominantly to a ditch that flows south to an existing channel at the southwestern corner of the Specific Plan area. The northern portion of the undeveloped area discharges to a channel in the northwestern corner of the Specific Plan area.

The portion of this Plan area that sits north of the Dumbarton Rail Corridor is low lying and does not freely drain. During large storm events, it currently releases to the northwest into Willow Street, where it eventually enters the City's storm drainage system that serves the adjacent residential development area to the north. This system has been sized to accommodate drainage from the tributary Plan area in its developed condition.

Flood Zone

Federal Emergency Management Agency (FEMA) defines Zone AE as areas below the base flood elevation which is elevation 11 (NAVD 88) for this area which is equivalent to an elevation of 8.24 above MSL (NGVD29). Portions of the area west of the existing Hickory Street right-of-way reservation are below the base flood elevation and have been mapped as such by FEMA's National Flood Insurance Program (NFIP).

The City of Newark has adopted flood elevation standards for lands within special flood hazard areas as defined by FEMA (Section 15.40.51 Newark Municipal Code). Among other things, these standards require building pads of all occupied structures to be a minimum of 11.25-feet above MSL (NGVD29) with the finished floor being a minimum of 6-inches above the building pad. In addition, the City of Newark requires that the top of curb grades for residential streets must be no less than 10-feet above MSL throughout the City (Section 16.08.06 Newark Municipal Code). Existing Willow Street and Enterprise Drive would be exempt from this requirement as well as new streets that must be less than an elevation of 10-feet to conform to existing streets.

Proposed Drainage

The Plan area will be graded to conform with the parameters set forth by the City of Newark and in the Alameda County Flood Control and Conservation District's Hydrology and Hydraulics Summary for Western Alameda County. The grading design should minimize the distance between any particular area and its outfall location. This will in turn serve to allow for the lowest possible elevations and minimize fill requirements at the northern and northeast portions of the Plan area. It is expected that approximately 500k - 1 million cubic yards of fill material will need to be imported to the site to comply with City requirements.

The Conceptual Grading and Drainage Plan presented in Exhibit 8.2 and described in the following sections illustrate one potential grading scheme that meets these criteria. Final grading and drainage patterns may vary from the concepts

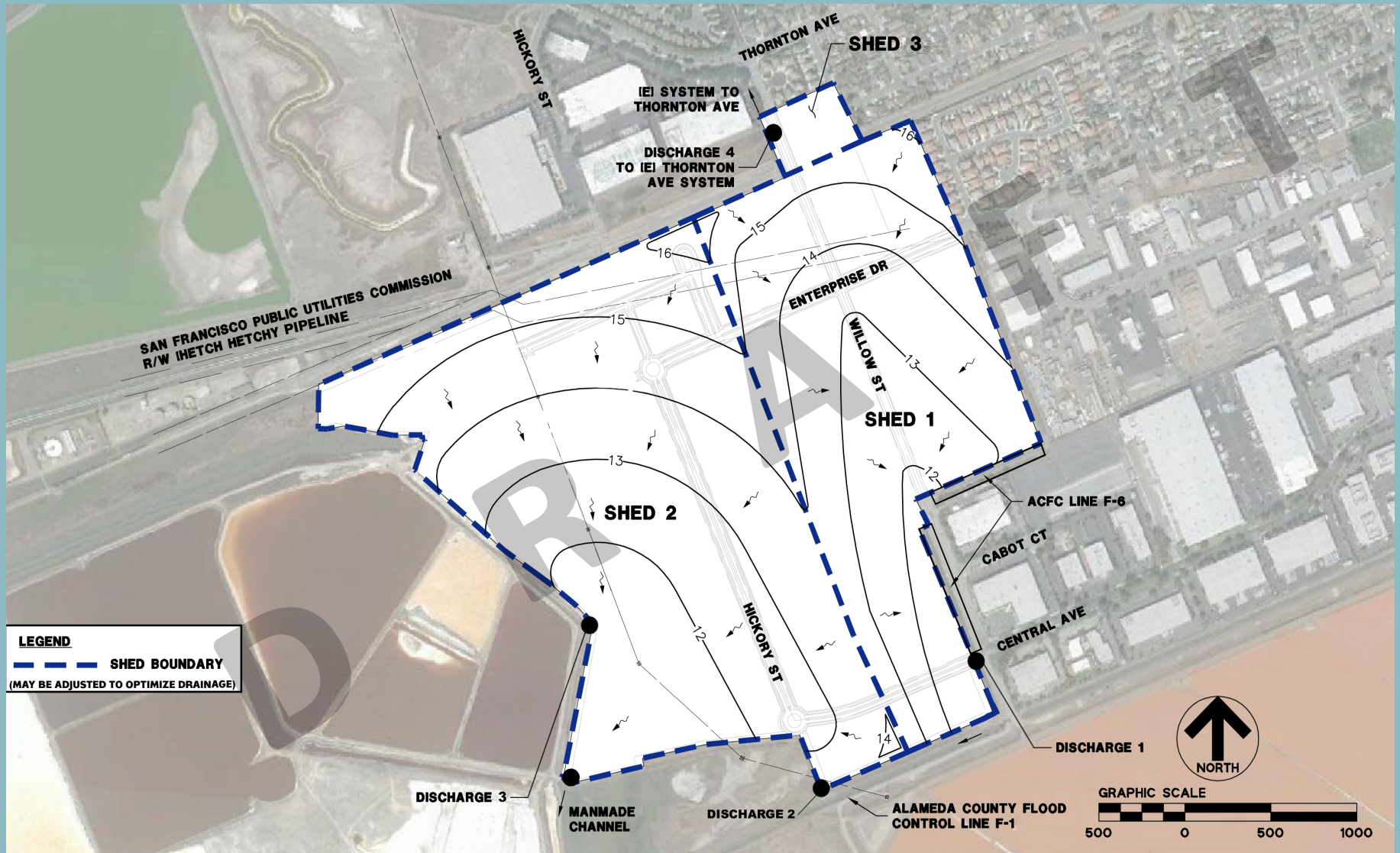


Exhibit 8.2 - Conceptual Grading / Drainage Plan

NOTE: Nothing in this Plan is intended to suggest that the Grades/Elevations of existing Willow Street and Enterprise Drive would change

presented here. Nothing in this plan is intended to suggest that the grades/elevations of existing Willow Street and Enterprise Drive would change.

Proposed Drainage Sheds

The Conceptual Grading and Drainage Plan would create three distinct drainage shed areas within the Plan area as follows (see Exhibit 8.3, Conceptual Drainage/Shed Plan):

Shed 1:

- F-1 East Drainage Area (South of DRC)

The conceptual grading plan anticipates that the drainage patterns in the eastern portion of the Plan area, south of the DRC, will generally match those planned for in ACFC's drainage map for Line F-1. The area is currently largely undeveloped and ACFC's planning anticipated a composite run-off coefficient of 0.64, so there may be available capacity within the Line F-1 channel. Actual available capacity within the channel should be confirmed during development of the final plans, and the existing outfall into Line F-1 should be assessed to verify that it is adequately sized and in adequate condition to serve the area at buildout. The exact location of the watershed boundary between the east and west drainage areas will be adjusted and designed to utilize all available capacity within the F-1 channel and to accommodate phasing within the Plan area. Areas that would produce storm water runoff that extends the capacity of the F-1 line will be included in Shed 2.

Lands north of the San Francisco Public Utilities Commission (SFPUC) right-of-way will likely require crossings of the Hetch-Hetchy Pipeline. Prior to final design, the pipeline must be potholed at any proposed crossings to verify that they are at a sufficient depth to allow the storm drainage lines to pass over them. If they are not at sufficient depth, additional fill material may be required to raise the area.

Shed 2:

- West Drainage Area

The conceptual grading plan intends that the westerly portion of the Plan area drain to an existing man-made channel.

As in Shed 1, a portion of this shed lies north of the SFPUC right-of-way and any proposed crossings would have to be similarly investigated and potentially mitigated with fill material.

Shed 3:

- Willow Street Drainage Area

The portion of the Plan area that is north of the DRC will be tied into the existing City-owned lines in Willow Street. When the final plan is prepared, the City-owned lines will need to be analyzed to ensure that they can accommodate the increased run-off. Detention may be needed so that post-project peak flow rates to not exceed pre-project peak flow rates if the system is not capable of accommodating additional flows.

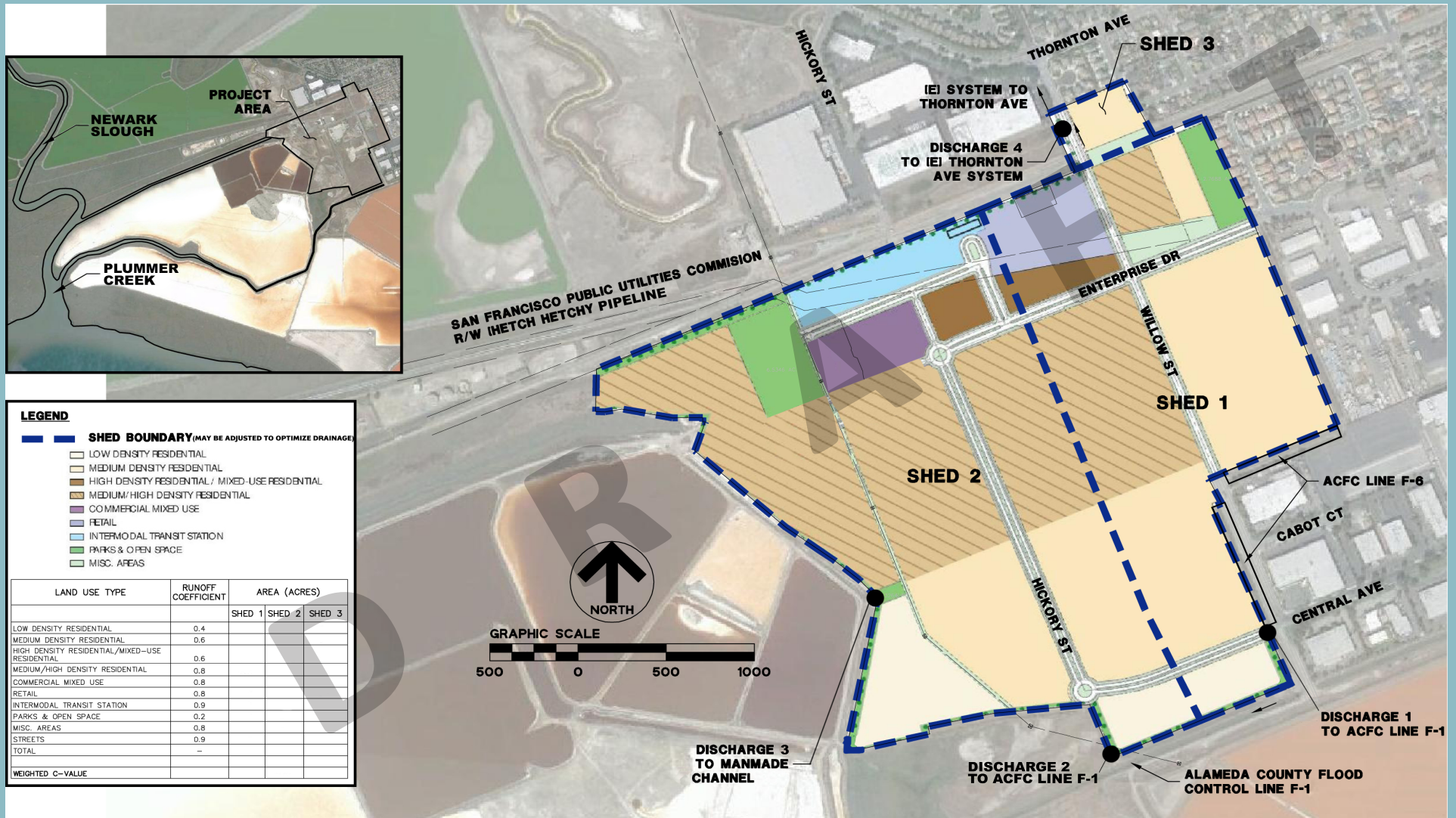


Exhibit 8.3 - Conceptual Drainage / Shed Plan

Outfalls and Detention Requirements

Shed 1 - F-1 East Drainage Area (South of DRC)

The F-1 East Drainage Area will generally connect to existing City of Newark facilities. One or two new outfalls may be required. An assessment will need to be done to determine if regulatory permitting would be required. Detention will not be needed within this area as long as peak discharge rates do not exceed those assumed by ACFC and the City of Newark when planning the receiving facilities.

Shed 2 - West Drainage Area

The Western Drainage Area will require an assessment be done to determine if regulatory permitting would be required.

ACFC requires that primary drainage systems (those serving a drainage area between 50-acres and 10-square miles) convey the 15-year storm, and secondary systems (those serving a drainage area less than 50-acres) convey the 10-year storm event. In addition, a number of different hydraulic conditions must be checked.

Shed 3 - Willow Street Drainage Area

The Willow Street Drainage Area will connect to existing City of Newark facilities and require no new outfalls. Detention will not be needed within this area as long as peak discharge rates do not exceed those assumed by ACFC and the City of Newark when planning the receiving facilities.

Grading

The drainage systems within the Plan area will be designed so that lots, streets and parks will be graded to convey surface runoff to new inlets within the development, which will then transport the storm water through underground piping networks to discharge outlets. All new public and private streets are to be designed to comply with the requirements of the City of Newark. The proposed grading must conform to FEMA and City of Newark requirements where applicable. Final grading plans will reflect final sizing and routing of primary and secondary drainage conveyance lines, which will in turn be a function of the final land plans. Parks or other open areas that are incorporated into the final plan may not need to be filled to the elevations depicted in the conceptual plan, but any depressed area may be subject to inundation during storm events. Final grading plans will be subject to review and approval by the City.

Due to the significant quantity of fill material required to raise elevations across the site, a long-term staged import fill operation may be needed, which may include the need for interim rough grading and stockpiling plans. The rough grading and stockpiling plans should be flexible enough to respond to changing conditions related to individual project identification and phasing, different property ownerships, access and material availability. The plan will thus need to be prepared in conjunction with geotechnical and environmental investigations and recommendations for fill materials, import sources, earthwork guidelines, settlement monitoring, on-site soil remediation and other criteria.

The following polices related to Stormwater Management Practices will be included as a part of the General Plan Amendment for the Specific Plan project.

Stormwater Management Policies

Prior to approval of Final Maps or development projects within the Specific Plan, a Drainage and Flood Management Master Plan shall be prepared for the Plan area or portions thereof if implementation is to be phased. The Master Plan shall be prepared in collaboration with Alameda County Flood Control and Water Conservation District, the City of Newark Public Works Department, the City of Newark Planning Department, and the City of Newark Parks and Recreation Department. The Plan shall:

I-6: Document the overall drainage and flood control concept to be employed within the Plan area to ensure adequate and safe storm flows and to minimize flooding.

I-7: Address funding and responsibility for long-term maintenance of the flood control improvements.

I-8: Demonstrate how the natural hydrologic functions of the site are integrated with the storm drainage system and the overall site design, to the maximum extent feasible.

I-9: Identify how improvements can be phased for each development area.

I-10: Continue the Alameda County Flood Control and Water Conservation District Drainage Area Fee Program to fund

flood control improvements in the Plan area.

I-11: Ensure that the new development provides needed drainage and flood protection improvements in proportion to a project's impacts, to assure an equitable distribution of costs to construct and maintain drainage infrastructure.

I-12: Minimize total impervious areas by allowing narrow road sections and shared driveways, and using pervious materials on driveways, gutters, and off-street parking areas, where appropriate to reduce runoff.

I-13: All new public facilities shall conform to the Plan area details.

I-14: The design of storm water collection and conveyance systems will minimize erosion and other potential problems for on-site and adjacent properties.

I-15: The residential design includes active and passive open spaces, thereby helping to minimize increases in impervious surfaces and associated site runoff.

I-16: Educational flyers and other materials will be supplied to the residential users to increase their understanding of water quality and best management practices.

I-17: The project will include storm drain system signs or stenciling with language to discourage illegal dumping of unwanted materials into the catch basins and field inlets.

I-18: The commercial uses will include on-site sediment and oil filtering devices for the pretreatment of the major paved areas.

Storm Water Quality

During Construction

The project will implement Best Management Practices (BMPs) to ensure that stormwater quality is protected during the construction period and to satisfy all requirements under Provision C.6 (Construction Site Control) of the City of Newark Municipal Regional Stormwater NPDES Permit (MRP) issued by the California Regional Water Quality Control Board – San Francisco Bay Region. Construction BMPs include the erosion control measures, sediment transfer reduction measures and dust control measures. Training protocols for the site contractor(s) and personnel will help ensure proper construction Best Management Practices prior to construction activity. In addition, the site developer will retain a construction manager familiar with National Pollutant Discharge Elimination System (NPDES) permit requirements to monitor construction activities. These measures would reduce potential construction impacts to water quality.

Post Construction Water Quality

Each development are within the Plan are will responsible to meet the requirements of Provision C.3 (New Development and Redevelopment) of the MRP, Alameda Countywide Clean Water Program and City of Newark design criteria, and other applicable local, state and federal requirements. Under Provision C.3, Low Impact Development (LID) standards require infiltration, storage, reuse, detainment,

and biotreatment of up to 100% of the project's stormwater runoff. LID practices to accomplish these requirements include the use green roofs, permeable pavement systems and other pervious surface treatments, rain barrels and cisterns, preservation of open space, and biotreatment through rain gardens, bioswales, and bioretention units. LID requirements apply to private property and public streets within the Plan area. Site design for each development area will be highly dependent on the treatment measures utilized

Implementing storm water treatment measures for run-off from backbone streets will be the responsibility of the project that installs the backbone street. In the event that phasing of projects within the Plan area requires some projects to install backbone improvements beyond their particular project frontage, additional right-of-way may be needed along those backbone streets to accommodate necessary storm water treatment measures. Additional right-of-way needs will be addressed with final phasing and backbone street designs.

The project will meet all requirements of the State of California Model Water Efficient Landscape Ordinance and be consistent with local Bay-Friendly Landscaping Practices and Principles. The project will need to use drought-tolerant landscaping wherever possible. The project will also install efficient irrigation systems, such as drip irrigation and automatic irrigation systems to minimize excess runoff.

The project developer shall provide information and instructions to future residents before moving into their new homes regarding water quality, Best Management

Practices, and pollution prevention. Each project should include requirements for the Homeowners Association and Commercial users to implement the following measures within any common landscaping and open space areas:

- Material Use Controls, which include good housekeeping practices (storage, use and cleanup) when handling potentially harmful materials, such as cleaning materials, fertilizers, paint, and where possible using safer alternative products.
- Material Exposure Controls, which prevent and reduce pollutant discharge to storm water by minimizing the storage of hazardous materials (such as pesticides) on site, storing materials in a designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors.
- Material Disposal and Recycling, which includes storm drain system signs and stenciling with language to discourage illegal dumping of unwanted materials.

The project shall include a prohibition on the dumping of waste (solid waste, liquid, and yard waste) into storm drain systems, open space areas, and creeks.

The project shall include provisions for private street, parking lot and storm drain maintenance activities. These activities control the movement of pollutants and removal of them from the pavement through catch basin cleaning, storm

drain flushing, street sweeping, and by regularly removing illegally dumped material from the project site.

The commercial operators shall be responsible for the inspection, maintenance and repair of sediment and oil filtering devices for the pretreatment of the major paved areas.

Potable Water

Water Supply and Demand

Water to the Plan area is supplied by the Alameda County Water District (ACWD), which also serves water to the Cities of Fremont and Union City. ACWD's three primary sources of water supply are: 1) the State Water Project (SWP); 2) San Francisco's Regional Water System; and 3) local supplies. The SWP and San Francisco Regional Water Supplies are imported into the District service area through the South Bay Aqueduct and Hetch-Hetchy Water System, respectively. Local supplies include fresh groundwater from the Niles Cone Groundwater Basin (underlying the District service area), desalinated brackish groundwater from portions of the groundwater basin previously impacted by seawater intrusion, and surface water from the Del Valle Reservoir south of Livermore. The primary source of recharge for the Niles Cone Groundwater Basin is percolation of runoff from the Alameda Creek watershed. To a lesser degree, a portion of ACWD's SWP supplies are also used for local groundwater percolation. Infiltration of rainfall and applied water within the ACWD service area also contribute to local groundwater recharge.

Fifteen million gallons of storage is provided by an existing potable water reservoir located in the Coyote Hills at approximately elevation 200 for the City of Newark and Union City portions of the District's lower pressure zone ("Zone 1"). The District expects that this volume, together with other existing and planned Zone 1 water storage will be sufficient to accommodate all projected growth within Zone 1.

To comply with the provisions of Senate Bills 610 and 221, which both passed the California State Senate in 2001, ACWD has prepared a Water Service Assessment that verifies that the project is consistent with their planning assumptions and is included in ACWD's forecast and water supply planning.

Water Treatment and Distribution System

ACWD operates two treatment facilities with a capacity totaling nearly thirty (30) million gallons per day (MGD), a Blending Facility with a capacity of fifty (50) MGD, and a Desalination Plant with a capacity of five (5) MGD. The water received directly from the State Water Project, which comes from the Sacramento/San Joaquin River Delta via the South Bay Aqueduct, is treated at these plants before being delivered to customers, primarily in Central and Eastern Fremont. Most of the water purchased from the San Francisco Water Department that is taken directly out of the Hetch-Hetchy System is blended at the District's Blending Facility with water from local groundwater aquifers, though some customers receive San Francisco Regional water directly. San Francisco Regional Water and water recovered from local groundwater aquifers requires no treatment.

Water for the Specific Plan is delivered through a 16-inch transmission main in Central Avenue at the south end of the site that creates a loop by extending up Willow Street and connecting to an existing 12-inch main in Enterprise Drive. There are also 16-inch transmission mains stubbed at the south end of Hickory Street and at Willow Street, just north of the DRC tracks. The existing looped system in Central Avenue and Enterprise Drive will be extended westerly to include Hickory Street. In order to serve the planning area, a 16-inch connection between the transmission mains south and north of the tracks may be required to maintain adequate pressure and redundancy in the system.

Within the Specific Plan, new projects will be required to install distribution mains within the street network to serve fire and domestic water needs. Final sizing of any particular line will be subject to modeling of the system that must rely on water use parameters of any particular project or group of projects. It is expected that new distribution mains in backbone streets will be 10-inch or 12-inch in diameter and distribution mains in local streets will be 8-inch or 10-inch in diameter. A water model will need to be performed based on final land plans, building types, water demands, fire flow requirement, and phasing, to establish final, actual line sizes in each street and to determine whether the 16-inch connection between mains south and north of the railroad tracks describe above will be required.

The following policies related to Potable Water will be included as a part of the General Plan Amendment for the Specific Plan project.

Potable Water Policies

I-19: Expand the water distribution system such that it is adequate to serve new development in the Plan area.

I-20: Work with the Alameda County Fire Protection District to determine required fire flow.

Water Conservation Policies

To reduce water consumption, require the installation of:

I-21: Low-flow showerheads, faucets, and toilets.

I-22: Low-flow irrigation systems in public rights-of-way, public parks, and recreation areas.

I-23: Drought-tolerant plant palettes in all new streetscape areas.

To reduce water consumption, recommend the installation of:

I-24: Low-flow irrigation systems in private landscaped areas.

I-25: Drought-tolerant plant palettes in private landscaped areas.

Recycled Water

Although ACWD does not currently have a recycled water supply, the District's long-term supply strategy includes a recycled water program to be implemented by 2020, which will serve non-potable demands (e.g. landscape irrigation and industrial process water). A potential source of recycled water is from a joint project with Union Sanitary District (USD), which currently discharges the majority of wastewater it treats to the San Francisco Bay via the East Bay Dischargers Authority pipeline facilities. Potentially, recycled wastewater would originate at either the Alvarado Wastewater Treatment Plant, approximately 5-miles north of the Specific Plan, or at a newly constructed satellite recycled water treatment facility in southern Fremont at USD's Irvington Pump Station. Given the lack of any definitive plans to bring recycled water mains to the area, the high density nature of the project, and the lack of large, concentrated open space areas, it is uncertain if recycled water will be available for the project. However, landscape irrigation systems should be designed and installed to purple-pipe standards, and initially connected to the potable system so that they may be switched over if recycled water becomes available.

Sanitary Sewer and Wastewater Management

Wastewater Collection System

The City of Newark is within the service boundaries of the Union Sanitary District (USD), which also serves the Cities of Fremont and Union City. The District owns and maintains a system that consists of gravity and pressure pipes, pumping facilities, detention facilities and the Alvarado Treatment Plant, which is located at the west end of Benson Road in

Union City, north of the Plan area.

The Specific Plan area is primarily served by a 36-inch trunk gravity main in Willow Street (Willow Street 36-inch), which carries wastewater flows from the southwest portion of Newark, north through the Plan area, across (beneath) the Hetch-Hetchy Pipeline and SPRR and into parallel 36-inch and 42-inch trunk gravity main that flows to the west in the Southern Pacific Railroad right-of-way (SPRR Mains). The SPRR Mains combine into a single 48-inch gravity sewer main that continues to the Newark Pump Station near the northwest corner of the Plan area. Wastewater is pumped from the station through twin 33-inch force mains to the Alvarado Treatment Plant, approximately 5-miles to the north. USD last updated their Master Plan in 2000 and it indicated capacity deficiency in the 42-inch trunk main in the Plan area, just east and west of Willow Street for build-out conditions.

The Newark Pump Station recently underwent an \$11-Million expansion and upgrade project and consists of six submersible pumps. The station is expected to be able to accommodate any increases in flow rates that might occur within the District for the foreseeable future. USD owns land adjacent to the station that it can utilize to construct a wastewater detention facility, in the event that wastewater flows ever exceed the capacity of the pump station. The long term plan is to add a third force main between the Newark Pump Station and the Alvarado Treatment Plant.

In addition to the Willow Street 36-inch, there is a 14-inch

gravity line in Enterprise Drive (Enterprise Drive 14-inch) that flows from east to west before turning to the northwest to run diagonally across the FMC property. It then continues to the west adjacent to the south edge of the Hetch-Hetchy easement before turning north to cross under the Hetch-Hetchy Pipeline and enter the Newark Pump Station. This line is in disrepair, is shallow and only serves as a redundant line to the Willow Street 36-inch and the SPRR 42-inch, in the event of excessive surcharging in those lines. The Enterprise Drive 14-inch and the Willow Street 36-inch are the only two sewer lines near the Plan Area to cross the Hetch-Hetchy Pipeline.

Dual 33-inch force mains, owned and operated by the East Bay Dischargers Authority (EBDA), traverse the site generally from south to north. They are at a depth of approximately 5-feet of cover and are located within the existing right-of-way for Hickory Street between the Torian and Ashland holdings to the east and the Cargill property to the west, then follow FMC's property southern boundary before heading northerly again. The force mains do not serve the Plan area but rather carry wastewater from the Irvington Pump Station, near the Fremont Boulevard Interchange at Interstate 880 to the Newark Pump Station. These pipes are sensitive to movement and its joints are subject to failure should heavy construction occur over or in the vicinity of the pipeline. Because they are a critical backbone infrastructure element serving areas upstream (notably the City of Fremont) and due to their condition, care must be taken so that the implementation of the Specific Plan does not compromise their structural integrity, both in the long term and in the short term during construction. In general, additional structural

mitigation measures may need to be installed at selected locations to accommodate any crossings of the pipes by heavy equipment that might be needed during construction, or traffic crossings in the long term. Roadways should be planned to run parallel with an offset that would protect the pipes or designed to mitigate the effects of traffic loads. Pipes should be field surveyed to verify their exact location before final alignments of streets are established. It is anticipated that an average of 5-feet of fill material will need to be placed over the pipes to raise adjacent development areas out of the flood plain and to comply with City of Newark Flood Elevation and minimum street elevation standards.

The City of Newark may consider reducing their standards in this area to lessen impacts to the pipes. For planning purposes, this amount of fill is not expected to be a problem, but no fill should be placed over the pipes without detailed study and recommendations from a qualified geotechnical engineer. Similarly parking lots should be installed directly over the pipes only with recommendations from a qualified geotechnical engineer.

Alternately, the project proponents can explore the option of replacing the EBDA lines in a new alignment within Hickory Street. This option would require detailed study and proponents would need to demonstrate to the Union Sanitary District and EBDA that the risks inherent in making new connections to active, non-redundant, major wastewater force mains will be adequately mitigated.

The Specific Plan proposes to rezone the area to allow for the

development of up to 2,500 residential units, 20 gross acres of commercial space (including the Transit Station area) and approximately 16-gross acres of parks and open space. USD must plan for approximately a 50% increase in wastewater flows from the planning area under the new zoning than they had been planning for with the land as zoned in the City of Newark General Plan. Coupled with the line deficiencies identified in the 2000 USD Master Plan, it is anticipated that improvements may be required to both the 36-inch gravity trunk sewer in Willow Street and possibly the 42-inch gravity trunk sewer in the SPRR.

The redundancy that is provided by the Enterprise Drive 14-inch sewer should be maintained after development of the Specific Plan. This could be done either by saving the Enterprise 14-inch sewer or providing for an auxiliary redundant line that might better fit the proposed Specific Plan street network. The Enterprise 14-inch crossing of the Hetch-Hetchy Pipeline should be utilized in any case. Furthermore, any new or upgraded crossing of the Hetch-Hetchy Pipeline will require a permit from the San Francisco Public Utilities Commission.

The Newark Pump Station recently underwent an \$11 Million upgrade and it is anticipated that no further upgrades will be needed to serve the proposed Plan. The force mains that convey flow from the station to the Alvarado Treatment Plant may be undersized for the built-out plan. An additional line may be needed or, alternatively, an equalization basin near the pump station may be constructed and utilized to detain wastewater during peak times. The District has land

near the Newark Pump Station for this purpose, but has not constructed a basin. Required improvements, schedules for their implementation, and funding options will be addressed in the Union Sanitary Master Plan, which is scheduled for publication in June, 2011.

In general most new connections to the existing wastewater collection system are anticipated to be made to the Willow Street 36-inch gravity main. A new 12-inch gravity sewer main may be required to provide service to the areas located west of the FDBA mains to avoid potential conflict. There will be at least one connection made north of the Hetch-Hetchy Pipeline before the line crosses the Dumbarton Rail Corridor. Connection points south of the Pipeline will be a function of final project designs and phasing. There is no particular limit to the number of connections that can be made, but because of inherent expense associated with connecting to trunk sewer mains, project proponents will want to plan projects so as to minimize the total number of connections.

The 10-inch line that crosses both the DRC and the Hetch-Hetchy Pipeline at the northwest corner of the Planning Area, as mentioned above, will need to be maintained for redundancy. Direct connections to this line or a new trunk sewer in this location may be necessary to service the Western most portions of the Plan area to avoid potential crossing conflicts with the existing EBDA lines and to minimize the elevation of the finished grades. Project proponents considering direct connections to this line will need to verify its depth and its condition with a video survey.

Treatment and Discharge

The treatment plant is rated to treat and discharge 30 Million Gallons per Day (MGD) and is currently treating an average peak flow of 25.3 MGD in dry weather. Infiltration and inflow is not a significant issue within the District. The District has a National Pollutants Discharge Elimination System (NPDES) permit with the California State Water Board that allows discharges of up to 33 MGD.

The following polices related to Wastewater Management Practices will be included as a part of the General Plan Amendment for the Specific Plan project.

Wastewater Management Policies

I-26: Expand the wastewater collection system such that it is adequate to serve the new development in the Plan area.

I-27: The Union Sanitary District is scheduled to begin updating their Sewer Master Plan in the Fall of 2010, with a document available by June of 2011. As part of the updating process, USD will gather information on planning activities at each City within its District (Fremont, Newark and Union City) to help guide the Master Plan. It is important that the City of Newark continues to engage in this process and is forthright with respect to the Specific Plan, so that the Sewer Master Plan can provide concrete documentation of the upgrades required to implement the Specific Plan.

The following polices related to Solid Waste Management Practices will be included as a part of the General Plan Amendment for the Specific Plan project.

Solid Waste Management Policies

I-28: All new developments shall participate in all solid waste source reduction and diversion programs in effect at the time of the issuance of building permits.

I-29: All projects in the Plan area shall comply with the City's Construction and Demolition Debris recycling regulations by preparing a Waste Management Plan and diverting at least 50 percent of all construction and demolition debris.

I-30: Restaurants should use on-site composting systems if a food waste recycling program is not available.

I-31: Trees, stumps, vegetation, and soils associated with excavation and land clearing shall be composted, recycled, or reused, except when soils may be contaminated with hazardous materials, or where other conditions make this infeasible as determined by the City.

8.4 NON-MUNICIPAL UTILITIES

Natural Gas and Electricity

Existing power lines extend throughout the Plan area. These lines have been installed to serve the mix of industrial uses that first located in this area of Newark. As a result, the existing power grid consists of 21 kilovolt lines that have sufficient capacity to serve all likely development scenarios.

For natural gas supply, it is likely that new development within the Plan area will be served by an existing low-pressure two-inch line that runs along Willow Street from Central Avenue to just south of Enterprise Drive.

Telecommunications

Communications within the Plan area are currently served by overhead AT&T lines on Enterprise Drive and underground lines on Central Avenue. In addition, fiber-optic cable exists along part of Willow Street. AT&T anticipates that it will continue to expand its fiber-optic network on an as-needed basis, so it can be anticipated that full "high-end" phone and data services should be available to meet the needs of future development within the Plan area.

There are no existing Comcast facilities within or immediately adjacent to the Plan area. However, according to a company representative, Comcast is very interested in providing new development in this part of Newark with a full range of entertainment and communications services.

The following polices related to Non-Municipal Utilities will be included as a part of the General Plan Amendment for the Specific Plan project.

Non-municipal Utilities Policies

I-32: Construction/Improvement Plans should show all existing service corridor and utility easements to ensure proper inter-agency coordination prior to issuing any grading permits. Plans should show the location and dimensions of each pipeline within the easement or right-of-way. Coordinate with:

- Chevron to map all active and abandoned petroleum product pipelines.
- PG&E to map all active natural gas pipelines.
- City of Newark Public Works Department to map all stormwater pipelines.
- Union Sanitation District to map all sewer pipelines.
- Alameda County Water District to map all water pipelines.
- Work with Alameda County Water District to provide appropriate levels of environmental review, if the U.S. Bureau of Reclamation water laterals will be impacted by proposed development.
- Coordinate with PG&E to minimize impacts on the natural gas pipelines, electrical transmission towers and power lines in and near the Plan area.