

CHAPTER 4: INFRASTRUCTURE AND UTILITIES



NORTHWEST SPECIFIC PLAN
CITY OF SAN RAMON

CHAPTER 4: INFRASTRUCTURE AND UTILITIES

This chapter addresses the provision of adequate infrastructure and facilities to serve development within the Northwest Specific Plan Area. The Plan Area will be served by multiple agencies and utility providers, consistent with the provisions laid out in other sections of this specific plan. Providers of services discussed in this document are listed below:

- Water – East Bay Municipal Utility District (EBMUD)
- Sanitary Sewer – Central Contra Costa Sanitary District (CCCSD)
- Storm Drainage – City of San Ramon (City)



View of the EBMUD water storage tank in the Plan Area

This chapter describes at a conceptual level how and where services will be extended, improved, and provided to serve development within the Plan Area.

This chapter of the Plan includes schematic sketches illustrating connection points, routing, and locations of facilities within the Plan Area. Exact sizing and location of the facilities will be determined and illustrated in tentative and final improvement maps.

INFRASTRUCTURE AND UTILITIES GOAL AND OBJECTIVES

The following goal and objective have been established to guide the implementation of the Plan Area's infrastructure and utilities.

GOAL 1. Accommodate the neighborhoods of the Plan Area with adequate infrastructure and utilities to serve them at buildout.

Objective A: Provide facilities and connections to extend water service, wastewater service, and storm drainage to the Plan Area.

WATER SERVICE

The Plan Area will be supplied with potable water from EBMUD. As shown in Figure 4-1, the Plan Area will be served by a connection to the existing San Ramon Reservoir and potential connections to existing water pipelines in Purdue Road and Bollinger Canyon Road. Development within the Plan Area will result in the average use of approximately 385 acre-feet of water per year, or approximately 343,871 gallons of water per day, as shown in Table 4-1.

Demands shown in Table 4-1 include all potable uses as well as landscaping irrigation requirements.

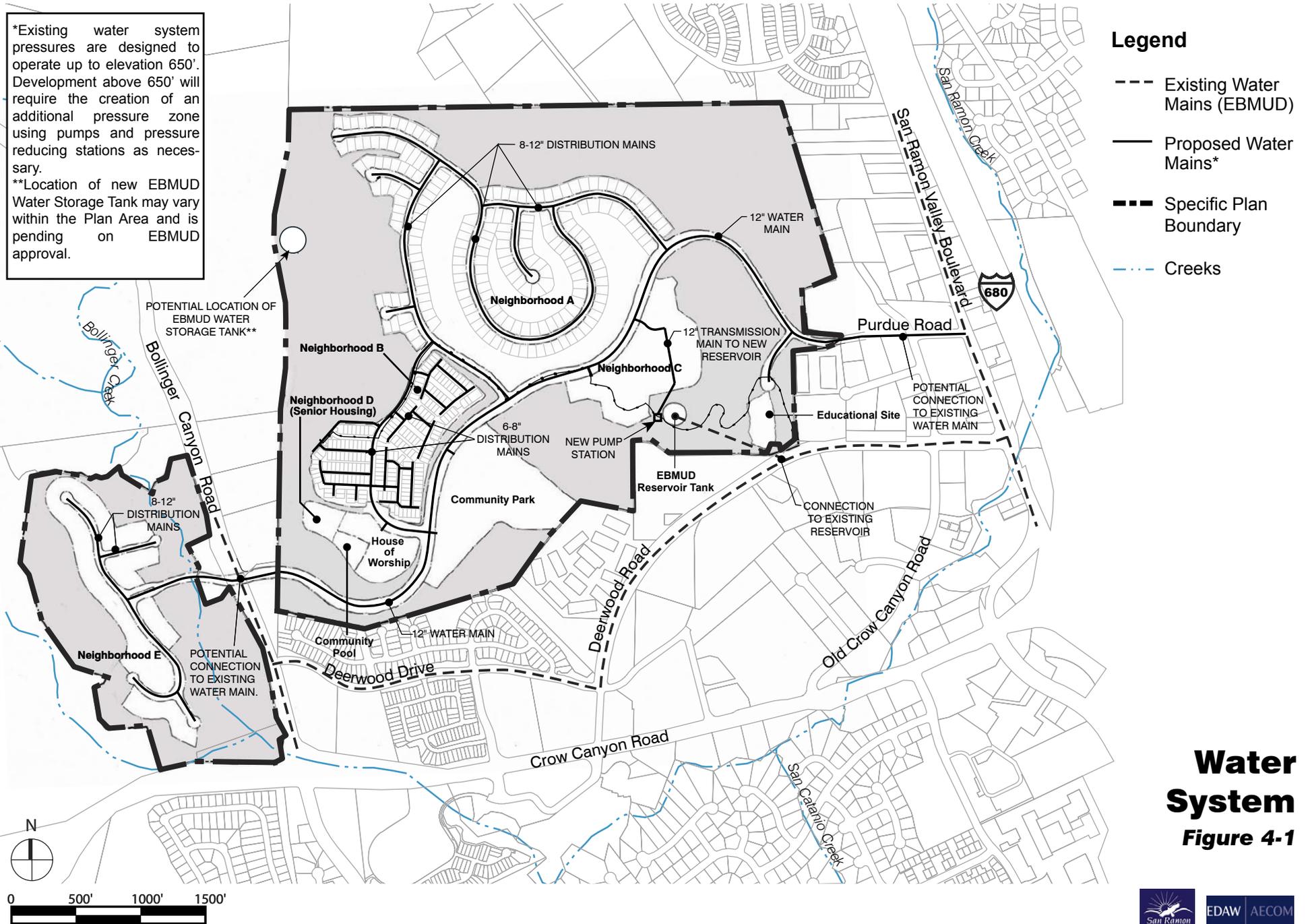
Table 4-1: Water Demand

LAND USE ¹	NUMBER OF UNITS (Includes hookups to non-residential units)	USE ³ (gpd/UNIT)	TOTAL USE (gpd)	TOTAL USE (ac-ft/Yr)
Neighborhood A (Hillside Residential)	200	247	49,400	55
Neighborhood B (Medium Density Residential)	200	214.5	42,900	48
Neighborhood C (Multifamily High Density Residential)	300	138	41,400	46
Neighborhood D (Multifamily Very High Density Residential)	86	120	10,440	12
House of Worship	1	1,500 ⁴	1,500	2
Community Park	1	500 ⁵	500	1
Educational Site	1	4,500 ⁶	4,500	5
Exterior Water Use²			150,429	168
TOTALS: PLAN AREA EAST OF BOLLINGER CANYON ROAD	789		301,069	337

Neighborhood E (Hillside Residential)	44	247	10,621	12
Exterior Water Use²			32,181	36
TOTALS: PLAN AREA WEST OF BOLLINGER CANYON ROAD	44		42,802	48

NORTHWEST SP TOTALS	833		343,871	385
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| <ol style="list-style-type: none"> 1. Land Use per Neighborhoods as shown in Figure 2-1 2. Exterior Water Use includes all areas of Northwest Specific Plan to be irrigated 3. Water Use factor as supplied by Maddaus Water Management, adjustments per Specific Land Use 4. Water Use factor as supplied by Maddaus Water Management, assumes daily occupancy of 100 and 15 gpd per occupant 5. Water Use factor as supplied by Maddaus Water Management, assumes daily occupancy of 50 and 10 gpd per occupant 6. Water Use factor as supplied by Maddaus Water Management, assumes daily occupancy of 300 and 15 gpd per occupant |
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The existing water supply infrastructure is part of the San Ramon Pressure Zone, which can provide water to a 450 to 650-foot elevation band. Development of housing and public facilities as described in this Plan will occur between elevations of 550 to 950 feet. Based on an initial analysis of servicing requirements by EBMUD, it has been determined that additional storage and distribution facilities will be required to support an additional water pressure zone to serve the Plan Area. The location of the water storage tanks, pumping facilities and distribution lines is shown in Figure 4-1. The location of the new water storage tank may vary within the general vicinity of the location illustrated on the graphic, pending approval by EBMUD. Detailed engineering design for these facilities and distribution lines will be completed by EBMUD concurrently with the civil engineering work for future development in the Plan Area.



Existing EBMUD water storage tank

The water distribution system for the Plan Area will be a public system, constructed to EBMUD standards. Preliminary engineering analysis shows that the on-site supply and distribution system will include 8-12 inch water mains in conjunction with the storage tanks and pump station, as shown in Figure 4-1. The final design of water infrastructure associated with the project will be determined by the EBMUD engineering department.

WASTEWATER

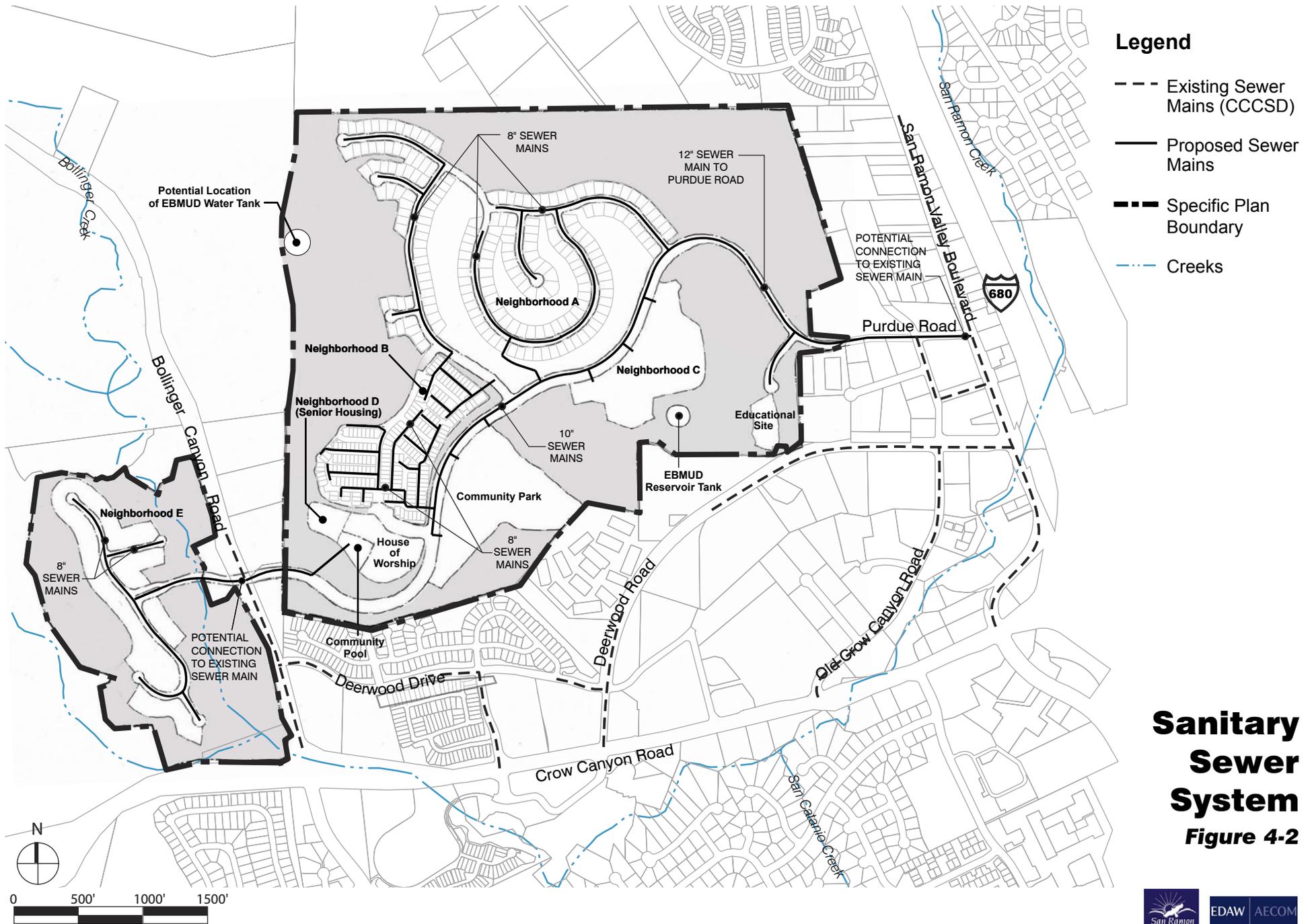
Wastewater generated by the proposed development in the Plan Area will be sewered to existing sanitary sewer infrastructure in Purdue Road and Bollinger Canyon Road, as shown in Figure 4-2. The existing sewer infrastructure is part of the CCCSD's existing collection system that abuts the development area boundaries. Connection to CCCSD's existing sewer collection system will require annexation of the subject property into their District boundaries. The Plan Area would result in an average wastewater contribution of approximately 185,447 gallons per day of sewage to the existing system, as shown in Table 4-2. Contributions shown in Table 4-2 include rainfall infiltration and inflow to the entire piping infrastructure.

Table 4-2: Wastewater Contribution

LAND USE ¹	NUMBER OF UNITS (Includes hookups to non-residential units)	WWGR ³ (gpd/EDU)	AVERAGE DAILY FLOW (gpd)	AVERAGE DAILY FLOW (MGD)
Neighborhood A (Hillside Residential)	200	250	50,000	0.050
Neighborhood B (Medium Density Residential)	200	225	45,000	0.045
Neighborhood C (Multifamily High Density Residential)	300	150	45,000	0.045
Neighborhood D (Multifamily Very High Density Residential)	86	150	13,050	0.013
House of Worship	1	1,000	1,000	0.001
Community Park	1	250 ⁴	250	0.000
Educational Site	1	3,300 ⁵	3,300	0.003
RDI/I² (Entire Site)			15,511	0.016
TOTALS: PLAN AREA EAST OF BOLLINGER CANYON ROAD	789		173,111	0.173
Neighborhood E (Hillside Residential)	44	250	10,750	0.011
RDI/I² (Entire Site)			1,586	0.002
TOTALS: PLAN AREA WEST OF BOLLINGER CANYON ROAD	43		12,336	0.012
NORTHWEST SP TOTALS	833		185,447	0.185
<ol style="list-style-type: none"> 1. Land Use per Neighborhood as shown in Figure 2-1 2. RDI/I = Rainfall Dependent Infiltration and Inflow per CCCSD design standards applied to total lineal feet of sewer piping infrastructure 3. Wastewater Generation Rate per CCCSD design standards, adjustments per Specific Land Use 4. Wastewater Generation Rate per CCCSD design standards, assumes an occupancy of 50 and 5 gpd per occupant 5. Wastewater Generation Rate per CCCSD design standards, assumes an occupancy of 300 and 11 gpd per occupant 				

Currently, CCCSD has the available treatment capacity to accommodate the expected wastewater from the Plan Area. However, studies by CCCSD indicate that capacity in the existing collection system between the point of connection and the treatment plant may need to be improved in the future, through system upgrades to be paid for by fees collected from projects on a system-wide basis.

The sanitary sewer collection system for the Plan Area will be a public system, constructed to CCCSD standards. The layout of the system lies primarily within the development area and flows northeast to Purdue Road (Figure 4-2).



Collectors within the main access loop located east of Bollinger Canyon Road will be 8-inch minimum diameter pipes with manholes at angle points and required grade breaks. Sewer mains of 10 to 12 inches will convey wastewater from future development within the Plan Area to the existing collection system as stated above.

The sanitary sewer system for Neighborhood E (west of Bollinger Canyon Road) will be finalized depending on the final design of the neighborhood, which will be determined through the development application process. The sewer system may require pump facilities, depending on the final design of the neighborhood. Additionally, the proposed bridge crossing over Bollinger Creek may or may not be able to house a sewer line. If it is unsuitable for housing a sewer line, the sewer must cross under a creek. Further design and environmental analysis will be required for the sewer infrastructure serving Neighborhood E.

STORM DRAINAGE

A “Master Plan Hydrology Report”, (prepared in November, 2004, and revised in February, 2005) was prepared for the Northwest Specific Plan by Kimley-Horn and Associates. The purpose of the report was to summarize calculations made to assess the existing and future developed hydrology characteristics of the Plan Area. This report summarized the analysis of the necessary drainage infrastructure required to collect and convey storm water generated from the preliminary layout and land use for the developed area. A summary of this report is included as an appendix to the Specific Plan (Appendix C).



Bollinger Creek

The hydrology report concludes that the proposed system of interconnected storm water detention basins, as shown in Figure 4-3, would be adequate to reduce the peak storm water discharge from the portion of the Plan Area east of Bollinger Canyon Road to a level equal to or below that of pre-development conditions. Storm runoff generated from the Plan Area east of Bollinger Canyon Road will be conveyed through piped storm drain systems and drainage channels to three detention basins, as shown in Figure 4-3. These basins can be described as an existing pond north of the community park and two ponds upstream of an existing creek located near Purdue Road.

Storm discharge generated from the Plan Area west of Bollinger Canyon Road will be conveyed through a piped storm drain system, though appropriately

sized detention and water quality facilities and outfall to Bollinger Creek. It is assumed that the additional constraints posed by the Contra Costa Clean Water Program (commonly called the C3 provisions) will result in the requirement that runoff from the land west of Bollinger Canyon Road to be detained prior to discharge to the creek. Specific sizes and locations of detention and quality facilities (which may be combined facilities) will be determined through the development application process.

Additionally, future developments within the Plan Area will be required to follow Storm Water Pollution Prevention Plans (SWPPPs), prepared by the developer and/or contractors and specific to each project. The SWPPPs will address both construction and post construction Best Management Practices (BMPs) needed to reduce erosion from graded surfaces and minimize water quality degradation from sediment and construction materials to surrounding drainage basins. Project improvement plans will also address storm water management, in order to assure continued water quality in the post-development condition.

