

6 PUBLIC UTILITIES ELEMENT

6.1 PURPOSE

The goal of the Public Utilities element is to identify the necessary utilities required to serve the Rio Del Oro Specific Plan (RDOSP). This section provides an overview of the existing system and identifies the “backbone” infrastructure necessary to serve the Plan Area. Phasing of infrastructure improvements, detailed in Appendix B, On-Site Infrastructure Phasing Plan, is preliminarily based on current standards and policies. Funding obligations, final improvements and phasing will be determined in conjunction with Tier 2 entitlements.

6.1.1 Utility Providers

The 3,828 acre Plan Area does not currently have the urban services and facilities which are required for development to occur. Utility service providers, as shown in Table 6-1, are able to supply the Plan Area with the necessary utilities as summarized herein.

Table 6-1 Utility Service Providers

Utility	Provider
Sanitary Sewer	Regional San/SASD
Water	SCWA/ Zone 40/ Zone 41/ Cal-Am
Drainage and Flood Control	SCWA/Zone 11/City of Rancho Cordova
Solid Waste Disposal	Allied Waste Services
Electric Service	SMUD
Natural Gas	P.G. & E.
Telephone & Communications	AT&T and/or other telecom companies

6.2 SANITARY SEWER

The following section summarizes the information contained within the “*Conceptual Sewer Study for Rio Del Oro, August 2014*” prepared by Wood Rodgers, Inc. This document is part of the technical studies on file prepared in support of the Specific Plan and EIR. The sewer system is designed to be consistent with the General Plan policies and District standards. Rio Del Oro is located within the Regional San and Sacramento Area Sewer District (SASD). Regional San is responsible for the interceptor collection (sanitary sewers which are designed to carry flows in excess of 10 million gallons per day) and treatment

of wastewater. SASD is responsible for the local collection facilities including trunk sewers with capacity of 1 million to 10 million gallons per day.

6.2.1 Existing Conditions

At the time the Specific Plan was prepared, the existing public sewer facilities adjacent to RDOSP are small sewer laterals ranging in size from 6" to 8" in diameter located along the western boundary and eastern boundary, an 18" trunk sewer located in White Rock Road approximately 300 feet west of the Rio Del Oro northwest boundary and 12" to 24" trunk sewers to the east and south in Americanos and Douglas Roads. The existing adjacent area served by public sewer is the Cordova/Sunrise Industrial Park located along the west boundary, North Douglas on the east and Sunrise/Douglas to the south of the Plan Area.

Private septic systems serve the following adjacent developed areas:

1. The Aerojet Industrial Park located on the north side of White Rock Road.
2. Security Park located southeast of the Plan Area.
3. Scattered existing residences outside the Plan Area on the east.

The existing adjacent trunk and collection facilities are not sized to convey flows from RDOSP. Two 8-inch diameter sewer pipes have been stubbed east from the Cordova/Sunrise Industrial Park along the west boundary of RDOSP (at White Rock Road and unnamed street stub 1,800 feet south of White Rock).

6.2.2 Planned Sewer Facilities

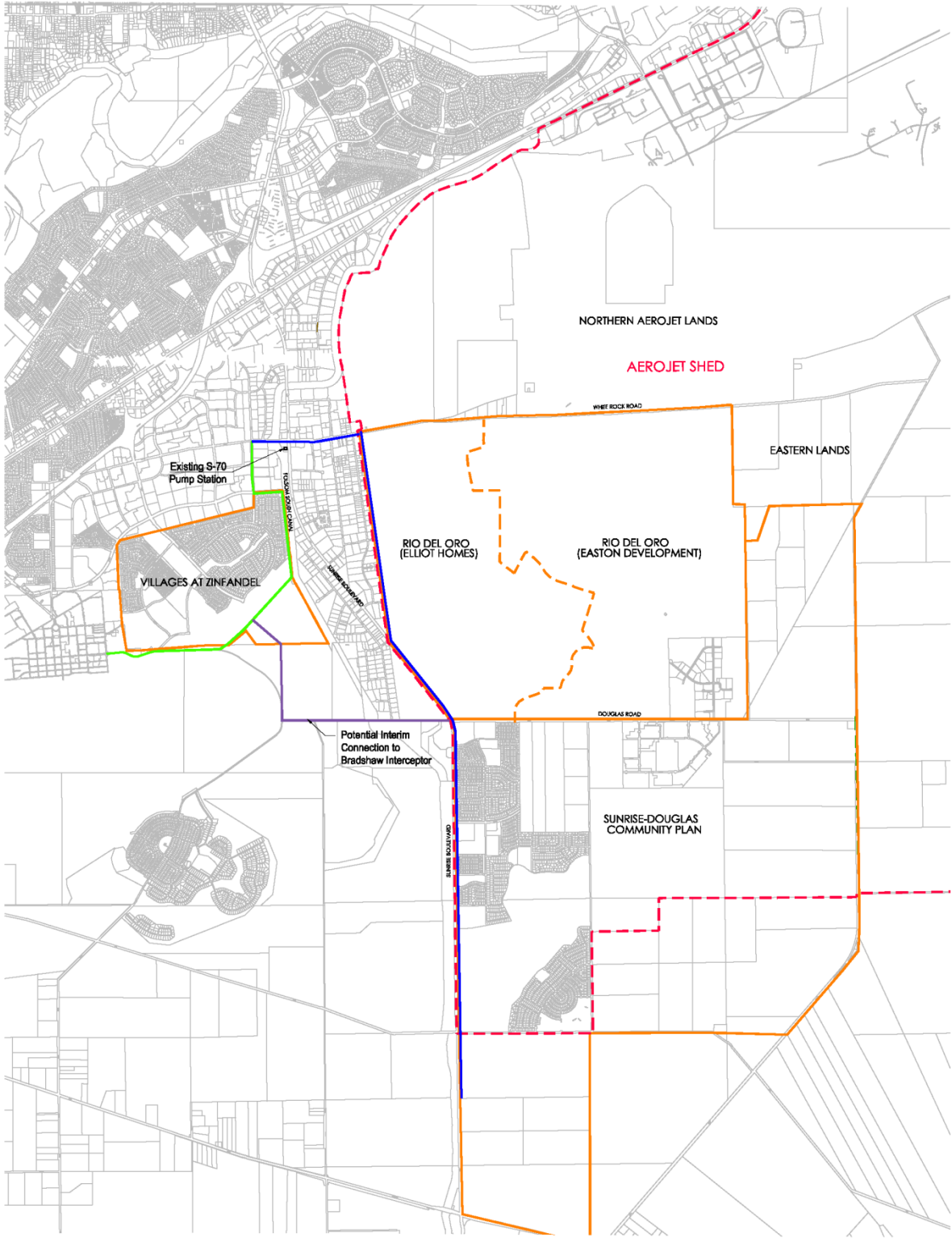
The 2013 Regional San Interceptor Sequencing Study (ISS) and 2010 SASD Sewer System Capacity Plan (SCP) indicated that the Aerojet-2 Interceptor will serve the RDOSP. The Aerojet-2 interceptor will flow north to the White Rock Interceptor, which will flow west to intersect the Bradshaw Interceptor (existing) west of the RDOSP.

All of the RDOSP will flow into the Aerojet-2 Interceptor, with the exception of the industrial land use in the southeast corner adjacent Americanos Road which will flow to the Douglas Interceptor. The ISS indicates construction of the White Rock Interceptor is in 2020 and the Aerojet-2 Interceptor is 2030. The ultimate timing for construction of these facilities is dependent upon the generation of flow within the shed. The years identified for construction are based on the current ISS. The actual construction will be based upon development growth within the Rio Del Oro shed and development growth within adjacent sheds within the Regional San service area. A large portion of RDOSP will be ready for service prior to completion of the White Rock and Aerojet-2 Interceptors. Therefore, interim facilities for portions of the area to be served are necessary. These interim facilities will flow into the existing Bradshaw Interceptor. Exhibit 6-1 displays the Overall Sewer Shed Map for the RDOSP and upstream areas. This exhibit combines the information contained in the Regional San and SASDISS and SCP, the Sunrise Douglas Sewer Master Plan and information made

available by the SASD. This exhibit identifies the proposed interceptors within and around RDOSP. Exhibit 6-2 is the Onsite Sewer Plan for RDOSP.

Development in new areas often precedes construction of permanent facilities due to Regional San requirement to have sufficient flows in the system before bringing the system online, as well as for budgetary reasons. To the extent that development of RDOSP occurs prior to extension of ultimate facilities to the northwest corner, interim offsite facilities will be required. Similarly, interim on site facilities will be needed during initial development. These facilities would consist of gravity and/or force mains to convey flows to the nearest acceptable point of connection. The Bradshaw Interceptor has been completed to the intersection of Kilgore/White Rock Roads where the White Rock Interceptor will connect. Refer to Exhibit 6-1. Initial development of the RDOSP will require construction of onsite facilities to the westerly boundary of the RDOSP where two sewer lift stations are proposed.. From the sewer lift stations, offsite sewer force main facilities will be required to convey flows to the Bradshaw Interceptor. The south lift station sewer force main will follow an alignment south along Sunrise Boulevard, west on Douglas Road then north on Zinfandel Drive to the Bradshaw Interceptor at North Mather/Baroque Drives. The north sewer lift station force main will follow an alignment north to White Rock Road then west on White Rock Road to the Bradshaw Interceptor at Kilgore Road. SASD has approved a shed shift for the Elliott Phase 1 portion of the RDOSP to sewer to an existing 18" trunk sewer in White Rock Road and flow to the existing S-70 sewer lift station. Interim 18" and 21" trunk sewers are proposed onsite to connect to proposed trunk facilities until the Aerojet-2 interceptor is completed.

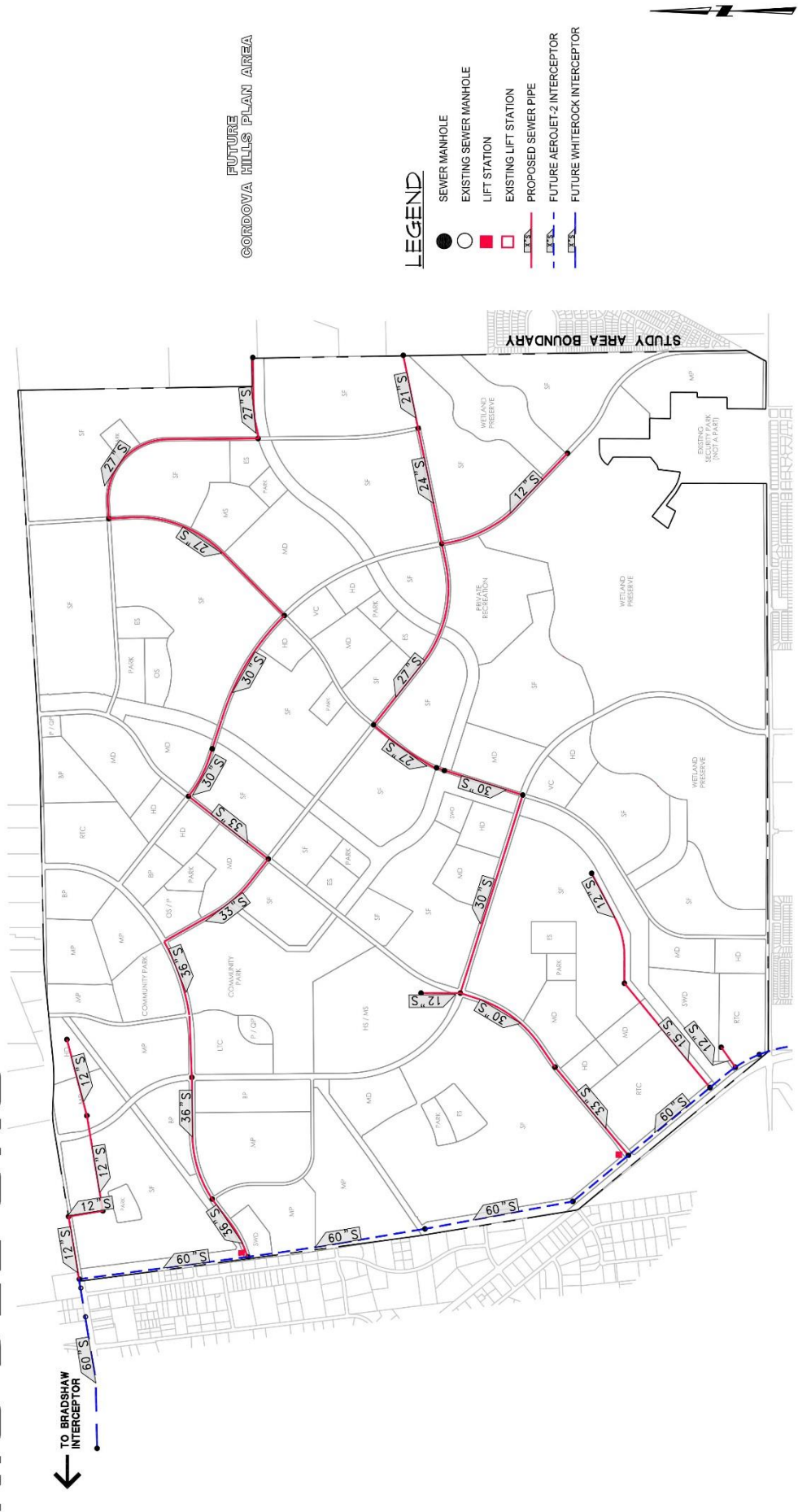
OVERALL SEWER SHED MAP RIO DEL ORO



- LEGEND:**
- BRADSHAW INTERCEPTOR
 - FUTURE AEROJET INTERCEPTOR (REGIONAL SAN MASTER PLAN)
 - - - SHED BOUNDARY (REGIONAL SAN MASTER PLAN)
 - PROJECT AREA BOUNDARIES
 - POTENTIAL INTERIM CONNECTION TO BRADSHAW INTERCEPTOR
 - EXISTING S-70 PUMP STATION

Exhibit 6-1
Overall Sewer Shed Map
Rio Del Oro Specific Plan

ON-SITE SEWER FACILITIES PLAN
RIO DEL ORO



6.3 WATER SUPPLY AND DISTRIBUTION

The following section summarizes the information contained within the “*Rio Del Oro Plan Area Water Supply Master Plan, March 2007*”, *Rio Del Oro Master Water Study Update, October 2014* prepared by Wood Rodgers, Inc. and Rio Del Oro Specific Plan Project Amended Water Supply Assessment, May 2006 prepared by EDAW. These documents are part of the technical studies on file prepared in support of the Specific Plan and EIR. The water system is designed to be consistent with the General Plan policies and water agencies’ standards. SCWA will serve as the water wholesaler and California American Water Company (Cal-Am) and Zone 41 will operate and maintain parts of the distribution system in the Plan Area. Proposed water transmission and distribution facilities must be developed in accordance with SCWA and Cal-Am standards for the water system improvements. Once constructed, the facilities are planned to be annexed into Zone 41 and Cal-Am.

6.3.1 Existing Conditions

Cal-Am’s Security Park service area and the SCWA Zone 41 facilities located west, south and east of the RDOSP are the only municipal water supply or distribution facility located within the vicinity of the Plan Area. Security Park is a small system fed by a single well and 1 MG storage tank located to the southeast of the RDOSP. SCWA operates the Anatolia groundwater treatment plant and wells at Mather along with storage, transmission and distribution facilities. The Cal-Am Security Park system is part of a larger franchise area contained within the Plan Area. The Cal-Am Security Park System is not capable of supplying or delivering water to the RDOSP and this area is not included as part of this report.

The SCWA Sunrise water system is located along Sunrise Boulevard north of Douglas Road west of the RDOSP. Primary demands are industrial and commercial customers. This system consists of groundwater wells, storage reservoirs, pumping stations, and a grid of 4-inch through 12-inch pipelines. The SCWA Mather Field water system is located west of the Sunrise water system and consists of the Main Base and Housing water systems. This system consists of distribution pipelines of 4-inch through 14-inch with a 16-inch transmission pipeline that was constructed to connect to the Sunrise System. Existing mains and supply facilities in the Sunrise and the Mather Field water systems are not adequately sized to wheel significant quantities of water to serve the RDOSP.

The American States/Golden State Water Company Arden Cordova Service Area (ASAC/GSWC) is north and east of the RDOSP project. The ASAC/GSWC has a connection to the Sunrise water system at Mercantile Drive and currently provides 1,700 gpm to the Sunrise system.

6.3.2 Planned Water Improvements

Montgomery Watson Harza (MWH), under contract to SCWA, prepared the Zone 40 Water System Infrastructure Plan (WSIP) (MWH, April 2006) to serve as a

steering document for both SCWA and the development community in the planning, design, and construction of major infrastructure within Zone 40. The SCWA is in the process of updating the 2006 WSIP and has provided draft information from the WSIP update for this report. The WSIP provides the water supply and major water infrastructure requirements to meet significant milestones in water supply development within Zone 40 and buildout conditions. In addition, the WSIP produced a water distribution model representative of different phases and the build-out condition that is used by adjusting the model to conditions representative for RDOSP. Lastly, the WSIP provides the assumptions needed for the water demand calculations and system design criteria used in designing the RDOSP water system.

Due to significant elevation differences across the entire RDOSP and the two service providers Cal-Am/SCWA, a preliminary pressure zone/service boundary was established that separates the RDOSP into two pressure/service areas. This pressure zone/service boundary was chosen to minimize the amount of parallel piping needed between the service districts and also neighboring customers being served by different agencies. The location of the pressure zone/service boundary line is shown in Exhibit 6-3.

The RDOSP water system has been laid out in a looping system following the major arterial street alignments for a transmission main grid that generally provides square mile loops. The transmission main sizes range from 12-inch to 36-inch diameter pipe. A 42-inch transmission main in Douglas Road has been sized to also convey demand for the Sunridge Specific Plan Area located south and east of the RDOSP. The distribution system for RDOSP will consist of 8-inch through 12-inch diameter pipes, with the 12-inch lines looping near sites that require higher fire flow requirements, such as commercial, industrial, and school sites. The size and location of the transmission mains and water supply infrastructure are shown in Exhibit 6-4.

Water storage tanks and booster pumping facility are planned as part of the WSIP for the RDOSP. The storage tanks are designed to supply the Plan Area with operational (peak flow), emergency, and fire flow demands. The storage required is calculated in MWH's WSIP. In addition to the facilities shown in the Zone 41 service area, storage tanks and booster pumping facilities are proposed at the Cal-Am service area point of connection. These tanks will supply the Cal-Am service area with peak and emergency flow. The draft WSIP identifies two (2) 1.5 MG tanks located south of White Rock Road on either Parcel 25-A or Parcel 25-D or two (2) 1.5 MG tanks to serve the Cal-Am service area. The tanks located south of White Rock Road are not exclusively sized for the RDOSP.

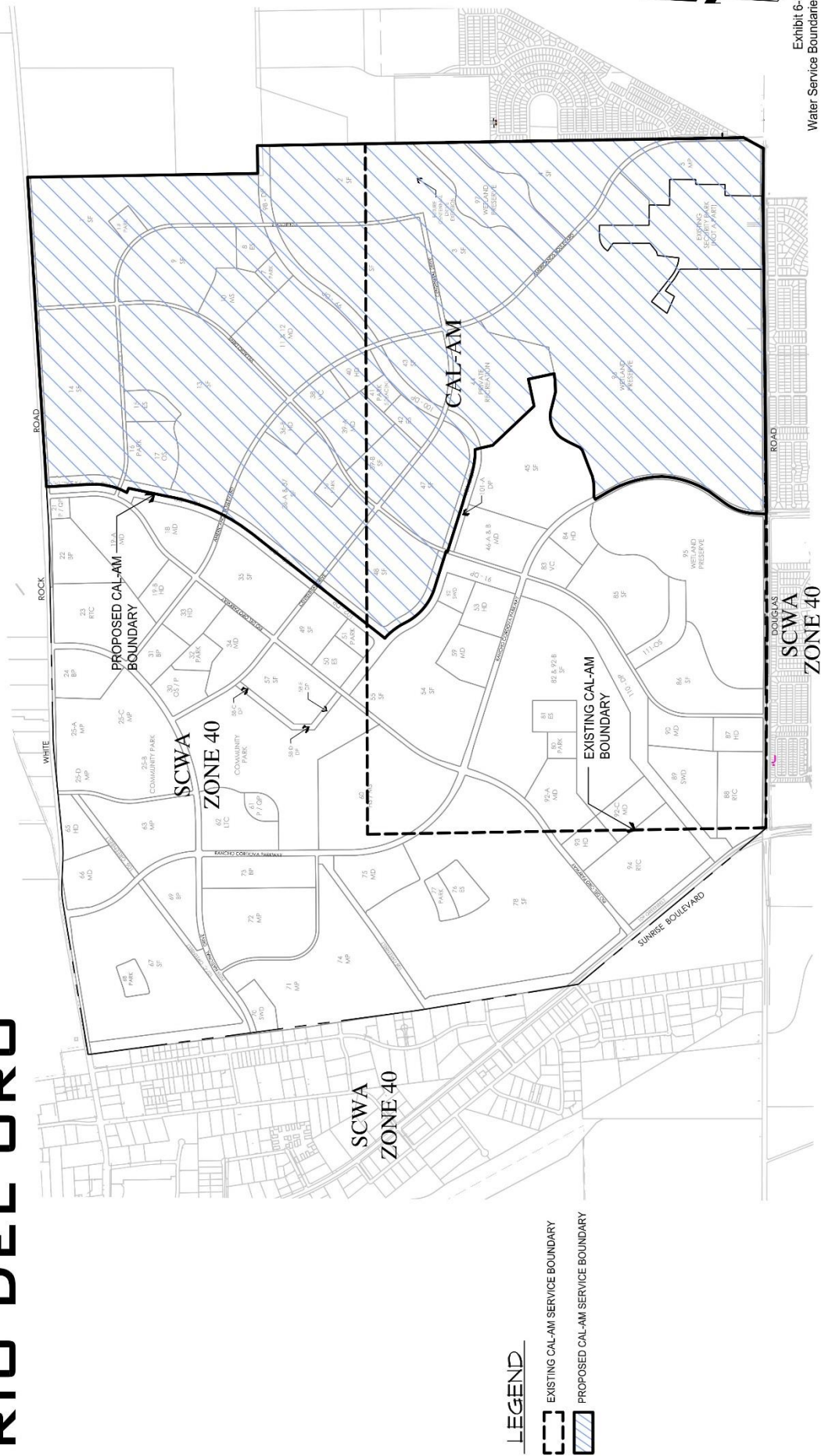
The long-term water supply source for the RDOSP will be Zone 40's Vineyard (surface) Water Treatment Plant (V-WTP). The V-WTP has multiple contracts for the supply of water. On an average year the V-WTP will have entitlements not exceeding 78,000 AF/year (48,360 gpm). Additionally, SCWA and Aerojet have entered into a 2010 Agreement under which Aerojet is transferring 8,900 afy of Groundwater Extraction and Treatment (GET) water to SCWA. Under the 2010

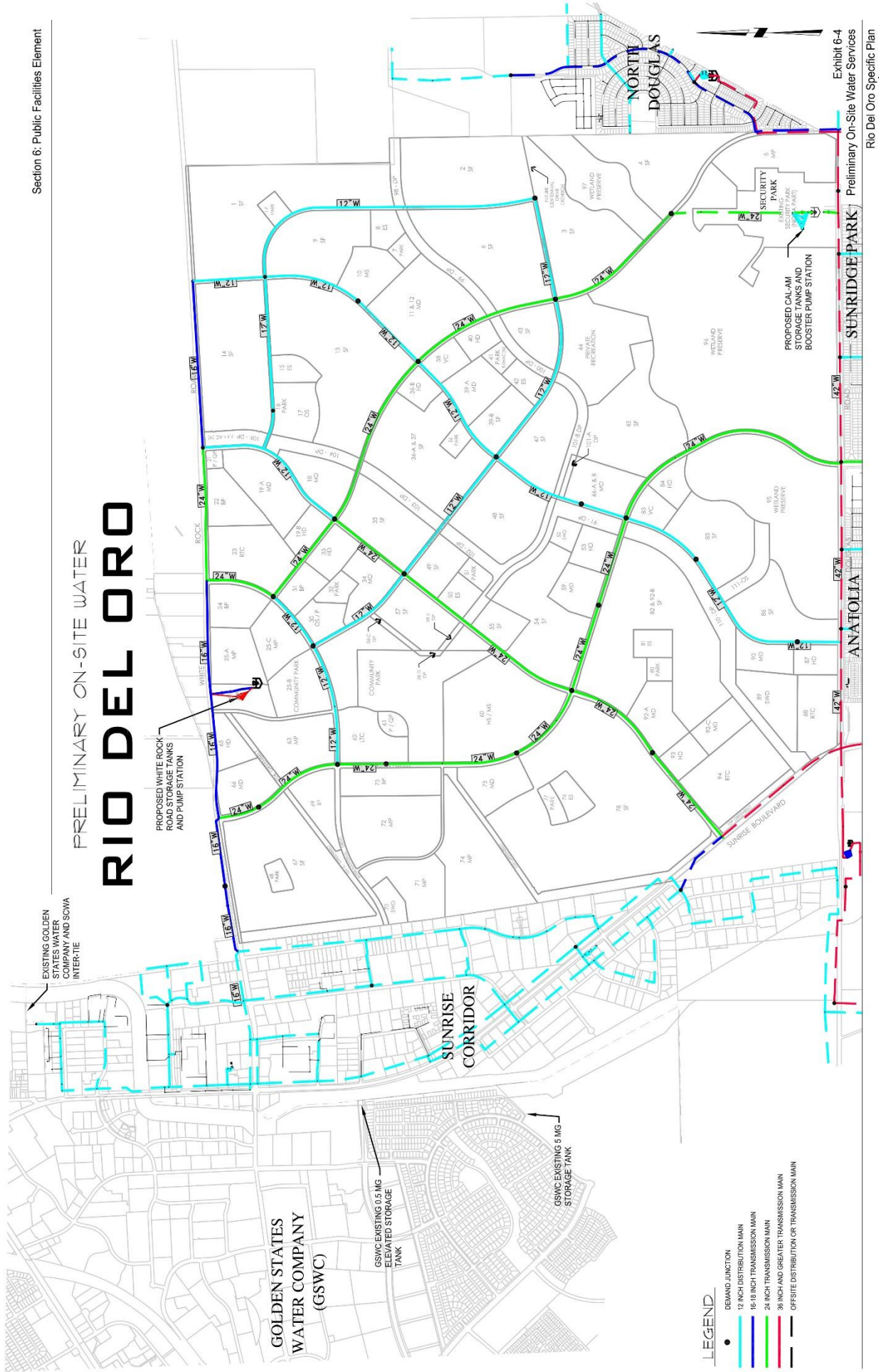
Agreement, SCWA acknowledges that the 8,900 afy will provide SCWA with sufficient available water to supply the RDOSP. The 8,900 afy, along with other available Zone 40 water, is sufficient to meet the RDOSP demand of 8,891 afy.

The SCWA has identified the Interim North Area Service Pipeline (INASP) project to deliver surface water from the V-WTP to their North Service Area which includes the RDOSP. The INASP is currently in engineering design and environmental review with planned construction in 2016. The INASP will provide an initial source of surface water until the North Area Service Pipeline (NASP) can be constructed. When the NASP is constructed SCWA will be able to serve the North Service Area with a conjunctive use water system (both groundwater and surface water). The off-site water infrastructure is shown in Exhibit 6-5.

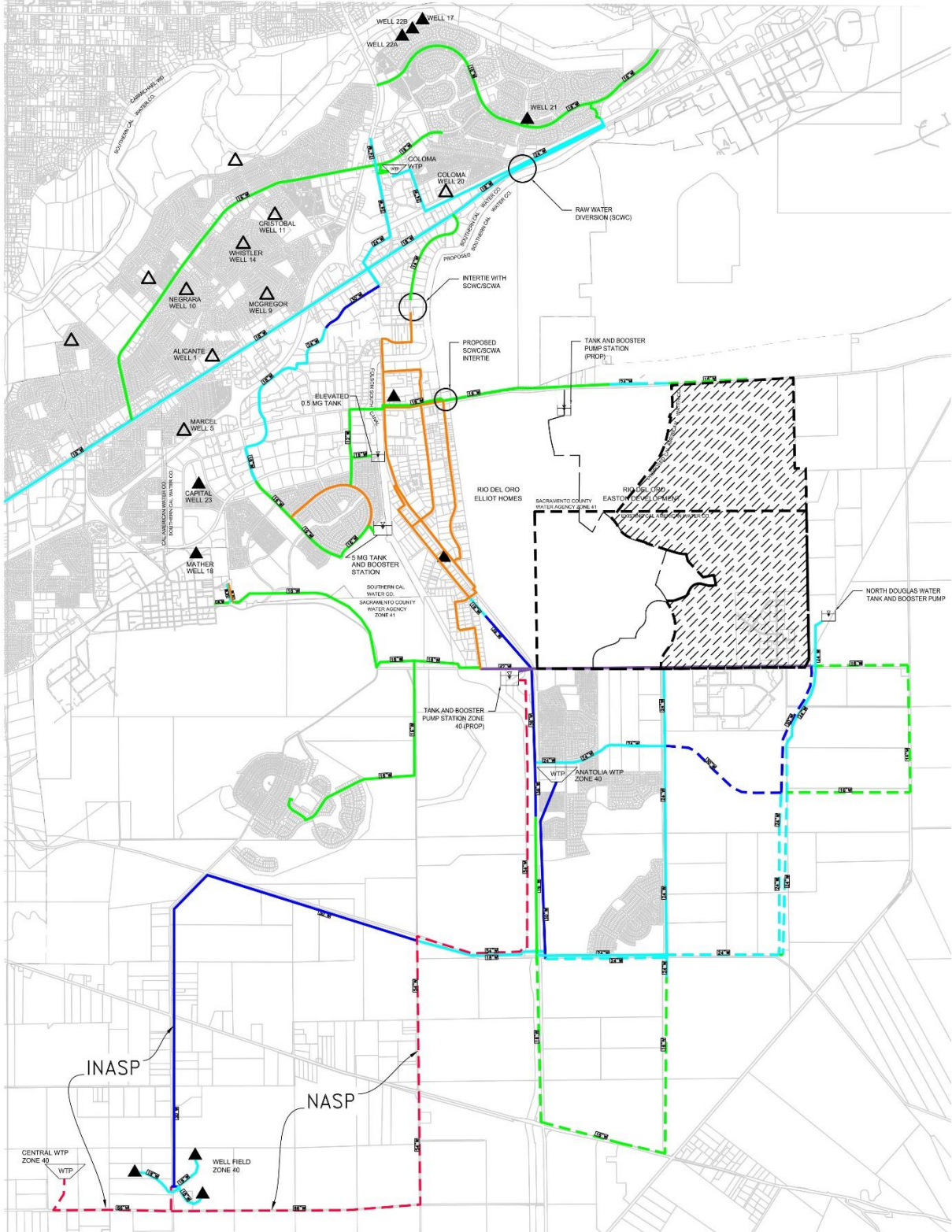
WATER SERVICE BOUNDARIES

RIO DEL ORO





PRELIMINARY OFFSITE WATER INFRASTRUCTURE RIO DEL ORO



LEGEND:

- | | | | | | |
|--|--------------------------------------|------|--|--|---|
| | EXISTING DISTRIBUTION LINE | | FUTURE TRANSMISSION LINE (14" - 16") | | TANK AND/OR BOOSTER PUMP STATION |
| | EXIST. TRANSMISSION LINE (12" - 16") | | FUTURE TRANSMISSION LINE (18" - 24") | | WATER TREATMENT PLANT |
| | EXIST. TRANSMISSION LINE (18" - 24") | | EXIST. TRANSMISSION LINE (30" - 36") | | WELL |
| | EXIST. TRANSMISSION LINE (30" - 36") | | EXIST. TRANSMISSION LINE (42" - 48") | | WELL - NO LONGER IN SERVICE |
| | EXIST. TRANSMISSION LINE (42" - 48") | | EXIST. 60" TRANSMISSION LINE | | "INASP" INTERIM NORTH AREA SERVICE PIPELINE |
| | EXIST. 60" TRANSMISSION LINE | (F): | FUTURE BUILDOUT SCWA SYSTEM NOT REQUIRED FOR RDO | | "NASP" NORTH AREA SERVICE PIPELINE |
| | | (P): | PROPOSED PHASE 1 | | |

SCALE: 1" = 4,000'

Exhibit 6-5
Preliminary Offsite Water Infrastructure

6.4 DRAINAGE AND FLOOD CONTROL

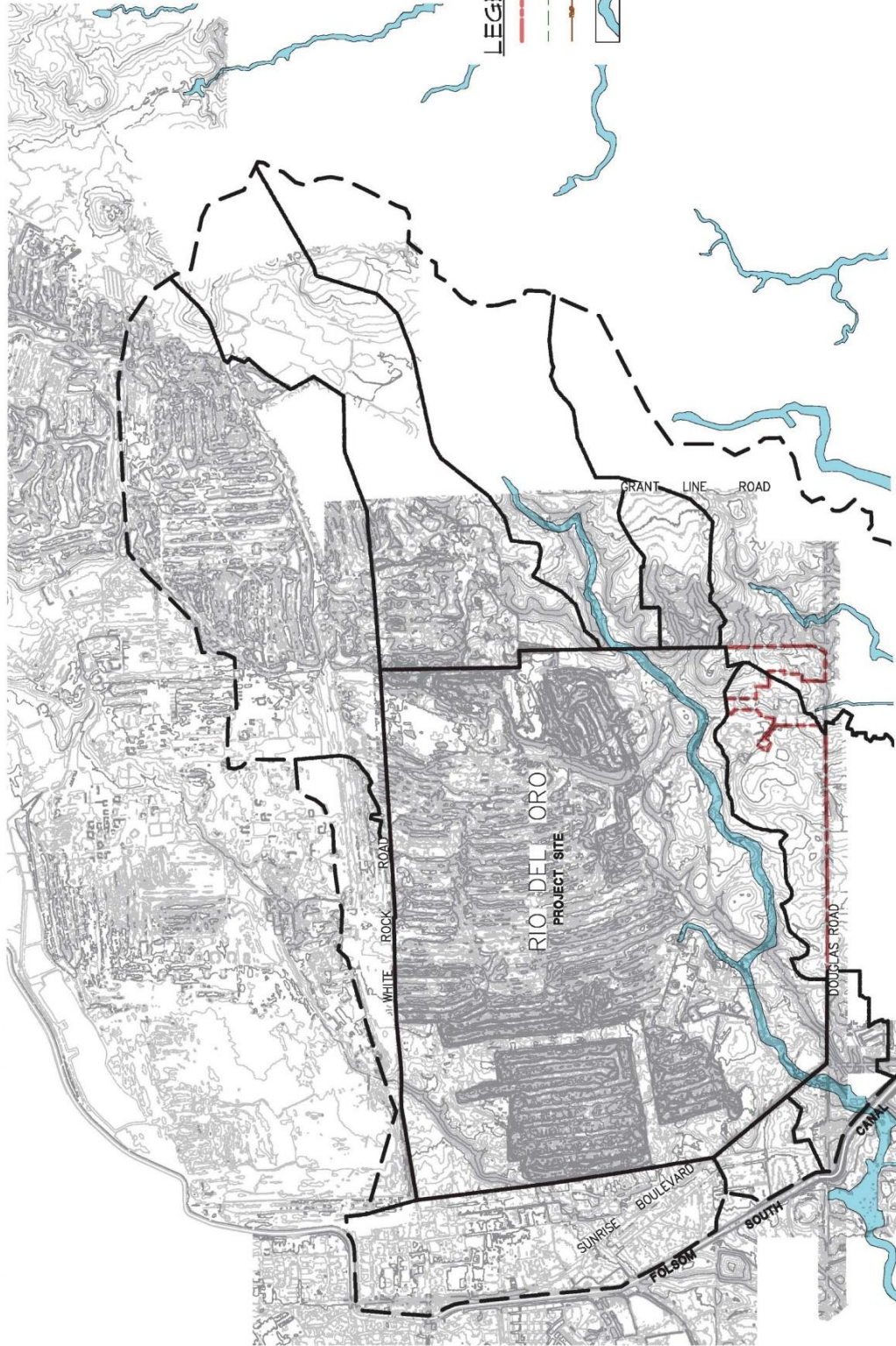
The following section summarizes the information contained within the “*Master Drainage Study Rio Del Oro, August 2005*”, the “Addendum”, October 2005, the “*Rio Del Oro: North Offsite Channel Analysis, April 2006*” and the *Rio Del Oro Master Drainage Study Update, June 2014* prepared by Wood Rodgers, Inc. These documents are part of the technical studies on file prepared in support of the Specific Plan and EIR. The drainage system is designed to be consistent with the General Plan policies, improvement standards and Agency standards.

6.4.1 Existing Conditions

The project is located within the Morrison Creek drainage watershed. All of the tributary watersheds within the study area must cross the Folsom South Canal. Four canal crossings convey the project area runoff. Three of the crossings are over chutes of varying size, while the fourth crossing is a siphon composed of three circular culverts. The Morrison Creek stream group in the vicinity of the RDOSP has not previously received detailed study for flood insurance purposes. The County of Sacramento has studied the local hydrology and has previously developed hydrology and hydraulic models of the system. The California DWR, under the Awareness Flood Mapping program, has recently prepared area floodplain maps. Existing floodplains mapped under the Awareness program approximate possible flood conditions since they lack detailed study of stream topography. Area floodplains and project watersheds are depicted in Exhibit 6-6.

Large areas of the site have historically been mined. Mining was conducted during two periods of intense activity and was concluded in the 1950's. Both natural and improved drainage conveyances exist within the project boundaries. Offsite flows entering the site are conveyed overland and through a handful of pipe culverts that lie beneath White Rock Road. There are several intermittent drainage watercourses onsite. These are mostly present in those parts of the site that have not been disturbed by mining activity. The intermittent drainage creeks include Morrison Creek, and an adjacent overflow area to the north where flow across the site may have historically bifurcated during large flood events. A non-engineered berm along this length of the creek helps confine the majority of creek flow to the south where it feeds several small wetlands and seasonal depressions. North of Morrison Creek, there are short runs of seasonally active gullies and ditches – however the majority of overland watercourses that may have been present historically have disappeared due to mining activity.

FLOODPLAIN & WATER SHED EXHIBIT RIO DEL ORO



6.4.2 Planned Drainage Improvements

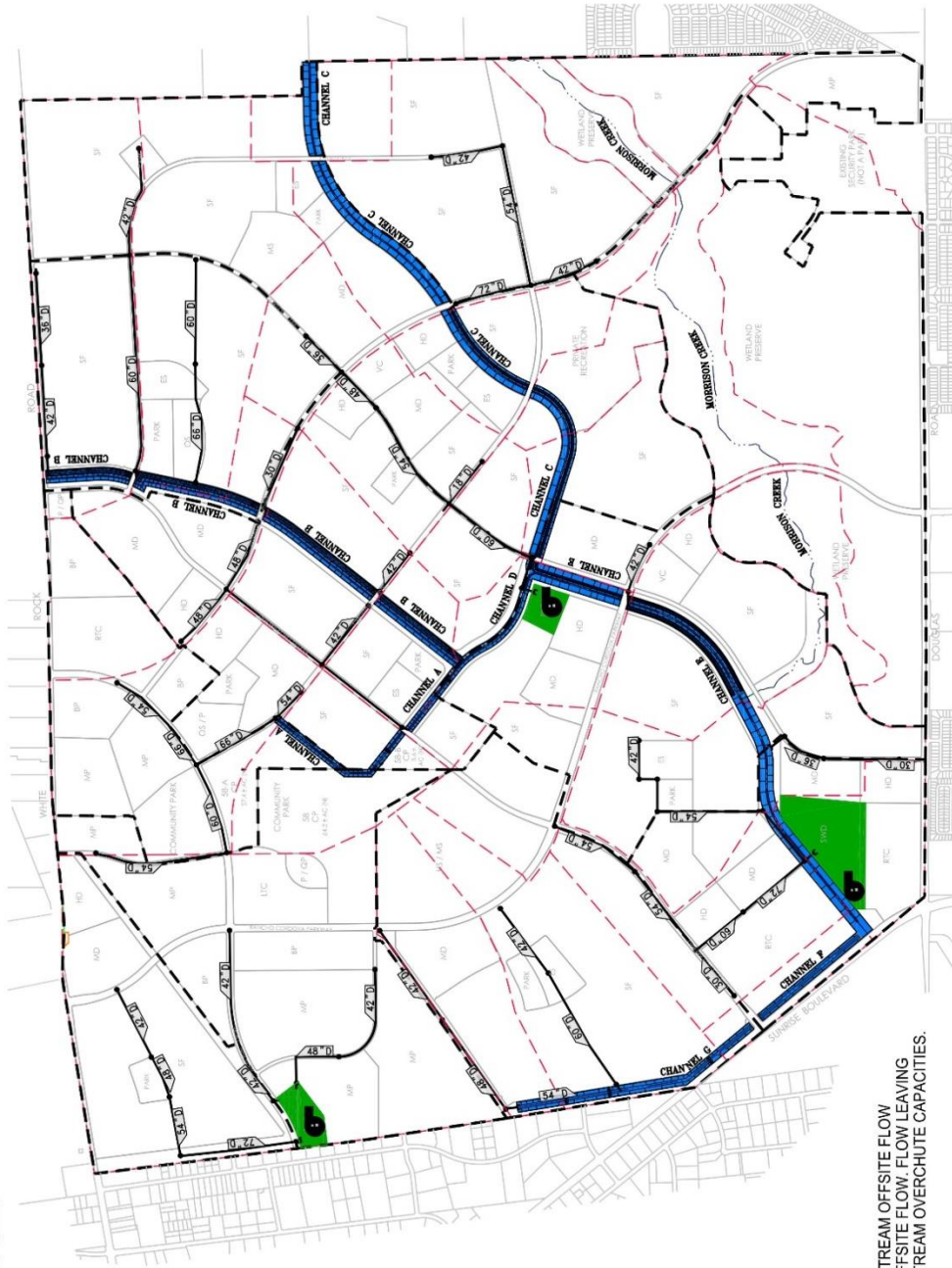
The onsite drainage system will include trunk storm drains, drainage parkways including water quality facilities and channels, detention/water quality basins, pump stations and local collection and conveyance infrastructure, Exhibit 6-7. In general, the site grading plan proposes roadway grades and land contours that facilitate effective drainage throughout the site. A network of storm drains will convey runoff either to drainage parkways, or directly to one of the proposed detention basins.

There are five drainage channels proposed for construction within the project. The channels vary in length from 4,200 feet to 7,600 feet. The channels will be constructed within drainage parkways. The width of the parkways varies from 120 feet to 300 feet depending upon the conveyance requirement. The goal of these channels is to provide an aesthetically and environmentally preferable alternative to enclosed drainage systems while maintaining effective site drainage and providing water quality facilities. The majority of historical Morrison Creek streambed through the project will be preserved as part of the site development plan. Grading and realignment is required in the eastern open space preserve to contain seasonal flows to an active channel and define the 100-year floodplain in this area. As Morrison Creek approaches the western boundary of the project, a large (26 acre) detention basin will be constructed. During smaller events, runoff will be conveyed within the channel banks while larger flows will utilize the detention basin area up to the design depth of the basin. Two smaller detention basins will be constructed, one in the central area (6 acres) and one in the northwest area (7 acres). The detention basins will be depressed below the gravity outfall elevation and require pump stations to drain the detention basin. The pump stations will have the following peak capacity in cubic feet per second (cfs); northwest=20 cfs, central=5 cfs and southwest 33 cfs.

The project proposes to include three storm water detention/water quality facilities and online BMP facilities within the drainage parkways. All runoff from the project will flow through a water quality facility prior to discharge from the site. Exhibit 6-8 depicts a conceptual illustration of the central (6 acre) storm water detention basin which is situated along the primary east – west drainage parkway. Exhibit 6-9 depicts a conceptual illustration of the large (26 acre) storm water detention located in the southwest portion of the Plan Area.

Developed watersheds will take advantage of existing downstream capacities at the Folsom South Canal crossings. Site grading will establish the proposed watershed boundaries in this manner.

PRELIMINARY ON-SITE DRAINAGE SYSTEM RIO DEL ORO



LEGEND

- - - PROPOSED PHASE/PROPERTY BOUNDARY
- PROPOSED TRUNK DRAIN PIPE W/ MANHOLE
- - - PROPOSED ON-SITE SUB-WATERSHED
- PROPOSED DRAIN PIPE SIZE & DIRECTION
- Ⓟ PUMP STATION
- DRAINAGE PARKWAYS
- STORMWATER DETENTION BASIN LOCATION

NOTES:

- 10 YR MODAL PEAK FLOWS APPROXIMATE
- TRUNK LINE LOCATIONS APPROXIMATE
- LAND USE BY WOOD RODGERS
- * PEAK OUTFLOW AT NORTHWEST BASIN DOES NOT INCLUDE UPSTREAM OFFSITE FLOW
- * PEAK OUTFLOW AT SOUTHWEST BASIN INCLUDES UPSTREAM OFFSITE FLOW. FLOW LEAVING RIO DEL ORO BORDER IS SPLIT TO ACCOMMODATE BOTH DOWNSTREAM OVERCHUTE CAPACITIES.

CONCEPTUAL STORM WATER DETENTION BASIN - CENTRAL

RIO DEL ORO



CONCEPTUAL STORM WATER DETENTION BASIN - SOUTH
RIO DEL ORO



The grading plan allows runoff to be collected throughout the site, minimizing the need for lengthy trunk pipe systems to deliver storm water to detention and water quality treatment facilities. The capacity of Folsom South Canal crossings and upstream conveyances governs the hydraulic design of the project. The project proposes to direct site runoff to the four Folsom South Canal crossings corresponding to each of the project watersheds. Detention facilities along each of these four watersheds will detain flows to the capacity of the Folsom South Canal crossing.

6.5 SOLID WASTE DISPOSAL

6.5.1 Existing Conditions

Allied Waste Services provides pickup and disposal of solid waste in the Rancho Cordova area. Services include refuse transfer, residential refuse collection, refuse disposal, and resource recovery. The City of Rancho Cordova and Allied Waste Services encourage diversion from the Kiefer landfill as a key method of extending the life of the landfill.

6.5.2 Planned Solid Waste Disposal Program

Solid waste is generated at an average per capita rate of six pounds per day. Under the direction of AB 939, the county-wide County Integrated Waste Management Board (CIWMB) requires recycling programs, which are expected to result in a 50 percent diversion away from landfills, thereby extending the life of the landfill.

Based on the CIWMB's generation rates, the total residential and business solid waste generation for the RDOSP would be approximately 29,720 tons per year at buildout. Much lower generation rates would occur at project initiation, with gradual increases in the rate as development progressed. The Kiefer Road Landfill has approximately 117 million cubic yards of available capacity, which is estimated to last for 40 years. This landfill has sufficient permitted capacity to accommodate solid waste disposal needs for the RDOSP.

6.6 DRY UTILITIES

The following section describes the existing public or "dry" utilities in the vicinity of the RDOSP area, including electricity, natural gas, and telecommunications (i.e. telephone and cable). Each of the utility service providers listed has indicated that adequate infrastructure exists or can readily be extended to serve the RDOSP area.

6.6.1 Electrical Power

Sacramento Municipal Utility District (SMUD) currently provides electricity to the area and operates existing substations and overhead power lines in the area. New 69 kilovolt (Kv) power lines will be extended to serve the RDO area and 2 additional substations will be constructed in the RDO area. Additional power

lines and facilities will be installed by SMUD as demand requires. See Exhibit 6-10 for the anticipated locations of the substations and 69 Kv lines.

6.6.2 Natural Gas

Pacific Gas & Electric (PG&E) currently provides natural gas in the vicinity of the RDO plan area. PG&E will extend gas pipelines and construct facilities to serve the RDO plan area as the development occurs.

6.6.3 Telecommunications

AT&T has existing underground and overhead telephone service in the vicinity of the RDO plan area. AT&T will extend lines and construct facilities to serve the RDO plan area as the development occurs. One or more private cable television companies may provide service to the Plan Area. The appropriate providers will review delivery of telecommunication and cable television services to individual projects.

ELECTRICAL FACILITIES RIO DEL ORO

