

# **APPENDIX I**

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Phase 2—Site Assessment Report



*Phase 2 - Site Assessment Report*  
**Northern California Youth Correctional Center - Stockton**  
*June 3, 2008*



# CPR

CALIFORNIA  
PRISON HEALTH CARE  
RECEIVERSHIP CORP.



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## Introduction

The California Youth Corrections Authority (CYCA) was created in 1941 by an act of the State Legislature. The CYCA was overseen by a three person commission appointed by the Governor, and accepted wards under the age of 23. In 1943 the word “corrections” was dropped from the title, and Karl Holton was named the first Director. In 1965 the Northern California Youth Center (NCYC) was started near Stockton, with the O.H. Close School For Boys opening in 1966, the Karl Holton School For Boys opening in 1968, and the DeWitt Nelson School opening in 1971. The N.A. Chaderjian School opened in 1991 as one of the two maximum security youth facilities in the State. In 1994 the Karl Holton School was converted to the Karl Holton Drug and Alcohol Abuse Treatment Center, which then closed in 2003.

The California Youth Authority (CYA) became the California Division of Juvenile Justice (DJJ) under the California Department of Corrections and Rehabilitation (CDCR) in 2004. The DJJ provides services for juvenile offenders ranging in age from 12 to 25. The three remaining youth facilities were combined under the Northern California Youth Correctional Center (NCYCC), which provides centralized administrative services for the three facilities. The DeWitt Nelson Youth Correctional Facility (YCF) is scheduled to close in the summer of 2008 for temporary use as a custody staff training center, leaving only the O.H. Close YCF and the N.A. Chaderjian YCF fully operational. The Northern California Women’s Facility (NCWF), which is currently used as a training facility for corrections officers, is located adjacent to the closed Karl Holton facility to the northeast. It is schedule to be converted into an adult re-entry facility in 2009.

The NCYCC site is located southeast of the City of Stockton, just outside of the city limits, as shown in Figure 1. The existing NCYCC site covers approximately 674 acres. When all four facilities were operational, the site had a total population of almost 4,000 wards. The population as-of March 24, 2008 is 518 wards.

### *Scope of Work*

The California Prison Health Care Receivership Corporation (CPR) is responsible for constructing new prison health care facilities at one or more of the existing correctional facility sites in California. The URS/BLL Joint Venture (URS/BLL) is providing Program Management services to the CPR and is overseeing the planning, design, and construction of the health care facilities. Kimley-Horn and Associates (KHA) is providing technical support to URS/BLL for the site assessment of the NCYCC Stockton site. A proposed medical facility will occupy the Karl Holton facility area and the open agricultural land immediately east, as shown in Figure 2. The medical facility site covers an area of approximately 131 acres. The purpose of this study is to assess the utilities serving the existing facilities at the NCYCC. Each utility was analyzed to assess its capacity to serve the additional demand that a new correctional medical facility would put on the system. The goal is to identify utility issues that could impact or preclude the feasibility of constructing a correctional medical facility on the site.



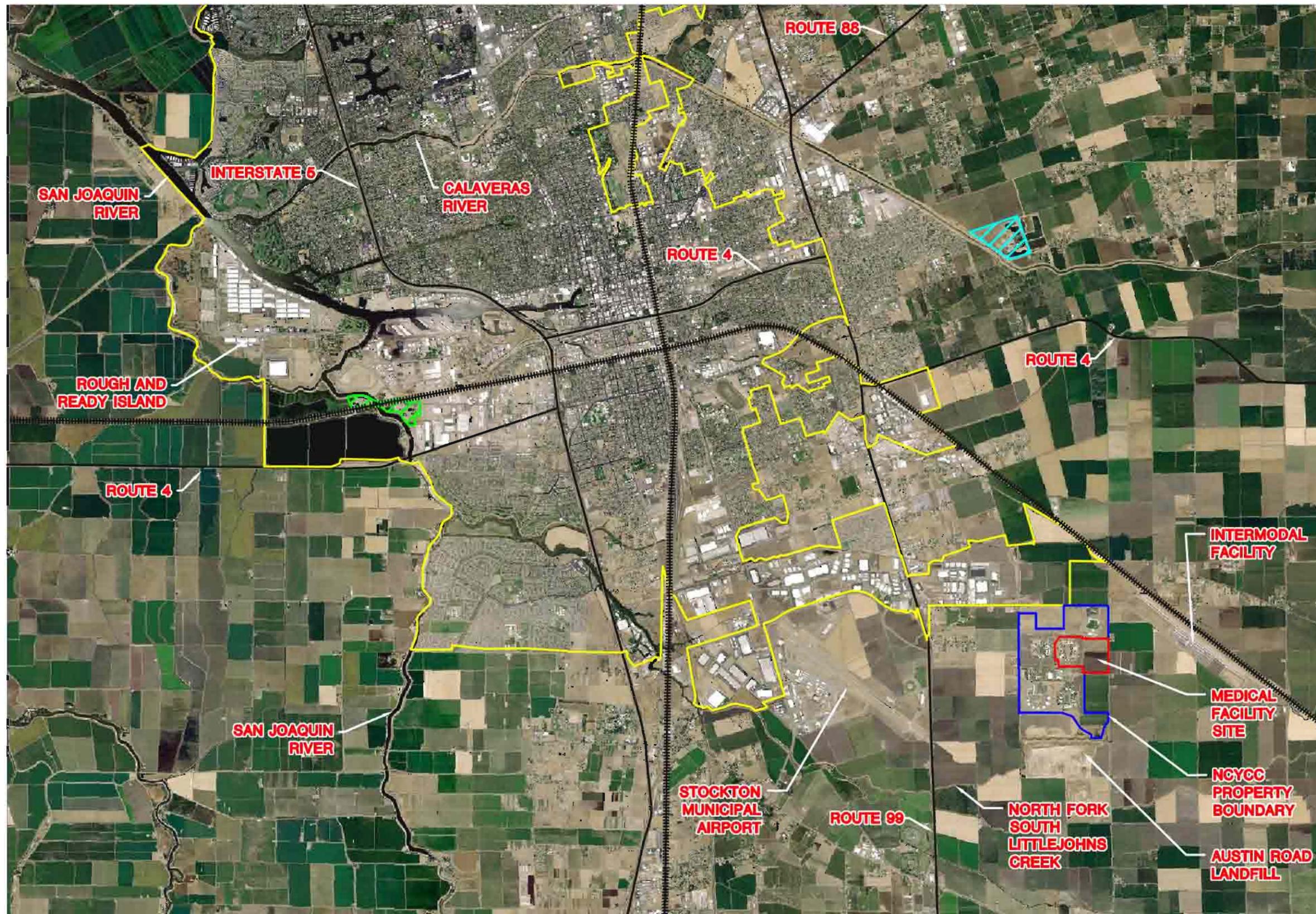
The NCYCC Plant Operations Department provided support in data gathering and answered questions relative to the utilities on the site. The Plant Operations Department provides operation and maintenance services for all of the structures, equipment, utility systems, and fire protection at the NCYCC site. The City of Stockton Department of Municipal Utilities provided information regarding existing utility infrastructure and future improvements in the vicinity of the project area.

The Scope of Work for the Site Assessment included the following four Tasks:

- Task 1: Data Collection
- Task 2: Data Research and Analysis
- Task 3: Site Reconnaissance
- Task 4: Coordination, Meetings, and Presentations

#### *Preliminary Site Plan*

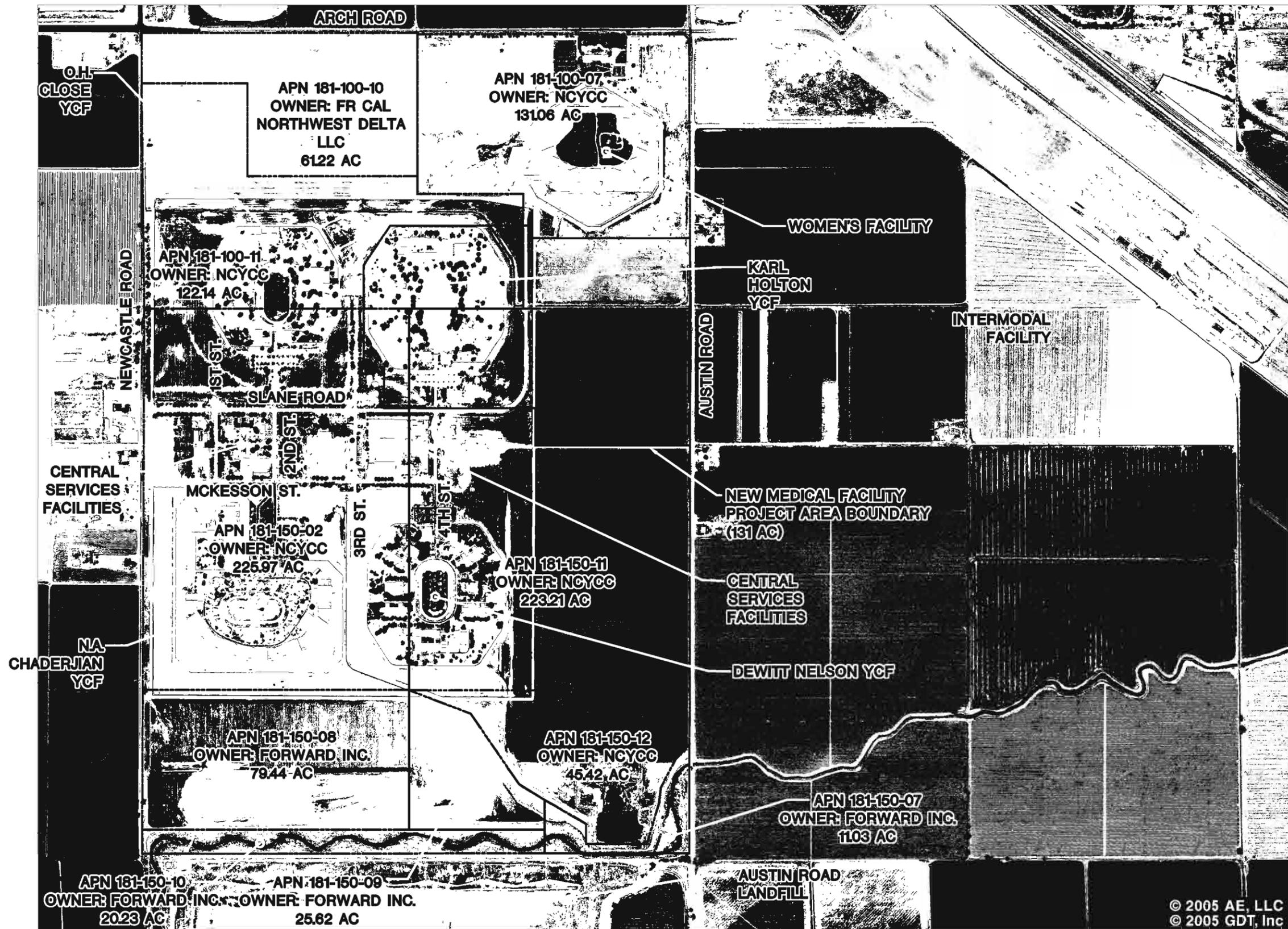
A draft preliminary site plan (see Figure 3) for the medical facility has been prepared by the CPR. The site plan shows building uses and locations, and conceptual building plan view layouts. Precise utility requirements specific to each proposed building have not been determined at this time.



**LEGEND**

-  NCYCC BOUNDARY
-  POTENTIAL MEDICAL FACILITY SITE
-  STOCKTON EAST WATER DISTRICT WATER TREATMENT PLANT
-  CITY OF STOCKTON REGIONAL WASTEWATER CONTROL FACILITY
-  HIGHWAY
-  CITY LIMITS
-  MAJOR RAILROAD

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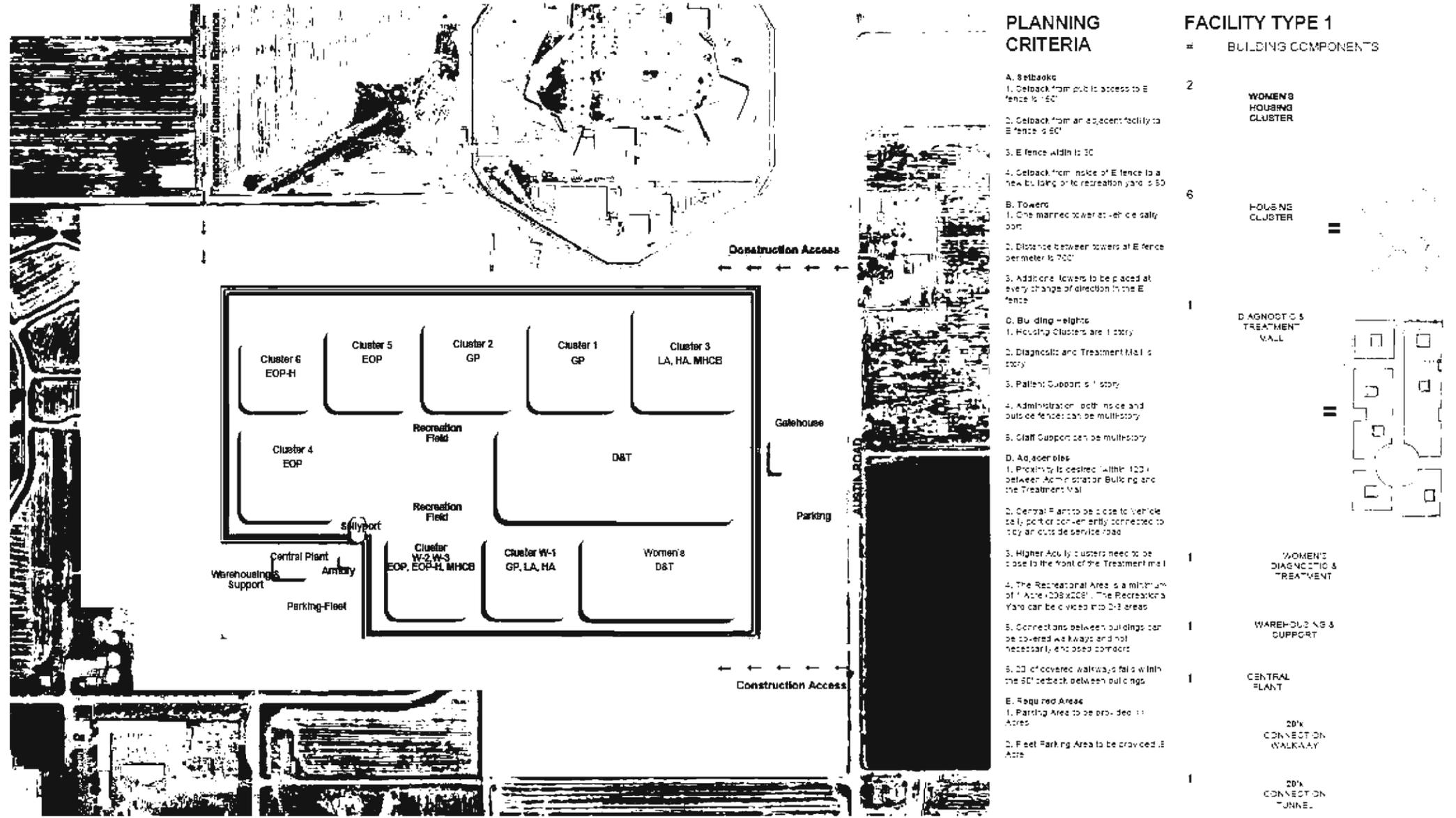
**LEGEND**

-  EXISTING PARCEL BOUNDARY
-  POTENTIAL MEDICAL FACILITY SITE

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**Figure 3: Draft Preliminary Site Plan Prepared by CPR**



**PLANNING CRITERIA**

- A. Setbacks**
1. Setback from public access to E fence is 50'
  2. Setback from an adjacent facility to E fence is 50'
  3. E fence width is 30'
  4. Setback from inside of E fence to a new building or to recreation yard is 50'
- B. Towers**
1. One manned tower at vehicle entry point
  2. Distance between towers at E fence perimeter is 700'
  3. Additional towers to be placed at every change of direction in the E fence
- C. Building Heights**
1. Housing clusters are 1 story
  2. Diagnostic and Treatment Mall is 2 story
  3. Patient Support is 1 story
  4. Administration (both inside and outside fence) can be multistory
  5. Staff Support can be multistory
- D. Adjacencies**
1. Proximity is desired within 100' between Administration Building and the Treatment Mall
  2. Central Plant to be close to vehicle entry point or conveniently connected to it by an outside service road
  3. Higher Activity clusters need to be close to the front of the Treatment Mall
  4. The Recreational Area is a minimum of 1 Acre (208x208'). The Recreation Yard can be divided into 2-3 areas
  5. Connections between buildings can be covered walkways and not necessarily enclosed corridors
  6. 20' of covered walkways falls within the 50' setback between buildings
- E. Required Areas**
1. Parking Area to be provided: 11 Acres
  2. Fleet Parking Area to be provided: 8 Acres

**FACILITY TYPE 1**

- # BUILDING COMPONENTS**
- 2 WOMEN'S HOUSING CLUSTER
  - 6 HOUSE CLUSTER
  - 1 DIAGNOSTIC & TREATMENT MALL
  - 1 WOMEN'S DIAGNOSTIC & TREATMENT
  - 1 WAREHOUSE & SUPPORT
  - 1 CENTRAL PLANT
  - 1 20% CONNECTION WALKWAY
  - 1 20% CONNECTION TUNNEL

**FACILITY TYPE 1 SITE CRITERIA**

Category	Area
Available Site	144.00 acres
Developed Area	82.50 acres
Area Inside Fence	83.00 acres
Building Pad	83.00 acres
Parking-Fleet	11.40 acres
Parking	11.00 acres
Construction Clipping	30.46 acres

**SITE PLAN COLOR LEGEND**

- AVAILABLE SITE
- DEVELOPED AREA
- SETBACK AREA
- PARKING & ROADS
- RECREATIONAL AREA
- HOUSING
- SUPPORT
- CONNECTING CORR CORC
- DIAGNOSTIC & TREATMENT
- CONSTRUCTION STAGING
- EXISTING BUILDINGS
- WOMEN'S





## Property Information

The NCYCC facility is situated on 5 different parcels, which can be found on County of San Joaquin Assessor's Maps 181-10 and 181-15. Parcel boundaries are shown on Figure 2. The proposed medical facility will be built within four different parcels, including APN# 181-100-07, 181-100-11, 181-150-02, and 181-150-11. The proposed medical facility will encompass what is now the Karl Holton YCF campus and an undeveloped portion of parcels APN# 181-100-07 and 181-150-11. According to the California Department of Conservation, this undeveloped land is classified as Farmland of Local Importance. The Department of Conservation (DOC) operates the Farmland Mapping and Monitoring Program. This program maps all land in the state and identifies land that has potential agricultural use. The DOC uses the following land classifications:

- Prime Farmland: Farmland with the best combination of physical and chemical features able to sustain long term agricultural production.
- Farmland of Statewide Importance: Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture.
- Unique Farmland: Farmland of lesser quality soils used for the production of the State's leading agricultural crops.
- Farmland of Local Importance: Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

The farmland categories in the vicinity of the project area are shown in Figure 4. All farmlands that fall within the four categories listed above are subject to the Farmland Protection Policy Act of 1981. This Act requires that any farmland that is proposed to be converted for other uses due to Federal projects be evaluated, and alternatives or mitigations to the conversion be considered to the maximum extent possible if the farmland is found to exceed a threshold rating of its general agricultural value. The CDCR must determine if this project falls under the jurisdiction of this Act based on its funding sources. If the Act applies, the lead agency (CDCR) proposing the farmland conversion must complete U.S. Department of Agriculture Form AD1006, which is used to evaluate the land in question. The land areas of the proposed project that are designated as "Farmland of Local Importance" must be evaluated using this form.

A Site Title Report was prepared by First American Title for the NCYCC facility which subdivides the NCYCC facility into 6 new parcels, as shown on Figure 5. The parcel of land just south of the proposed medical facility site was recently sold to the San Joaquin Unified School District, and is currently leased for farming use. Precise plans for the development of this parcel are not known at this time. It is possible that development of the medical facility may need to be coordinated with plans for this parcel. The parcel of land at the northwest corner of the NCYCC facility owned by FR Cal Northwest Delta LLC is the site of a proposed future service center for the California Conservation Corps. The progress of this project is also unknown at this time.

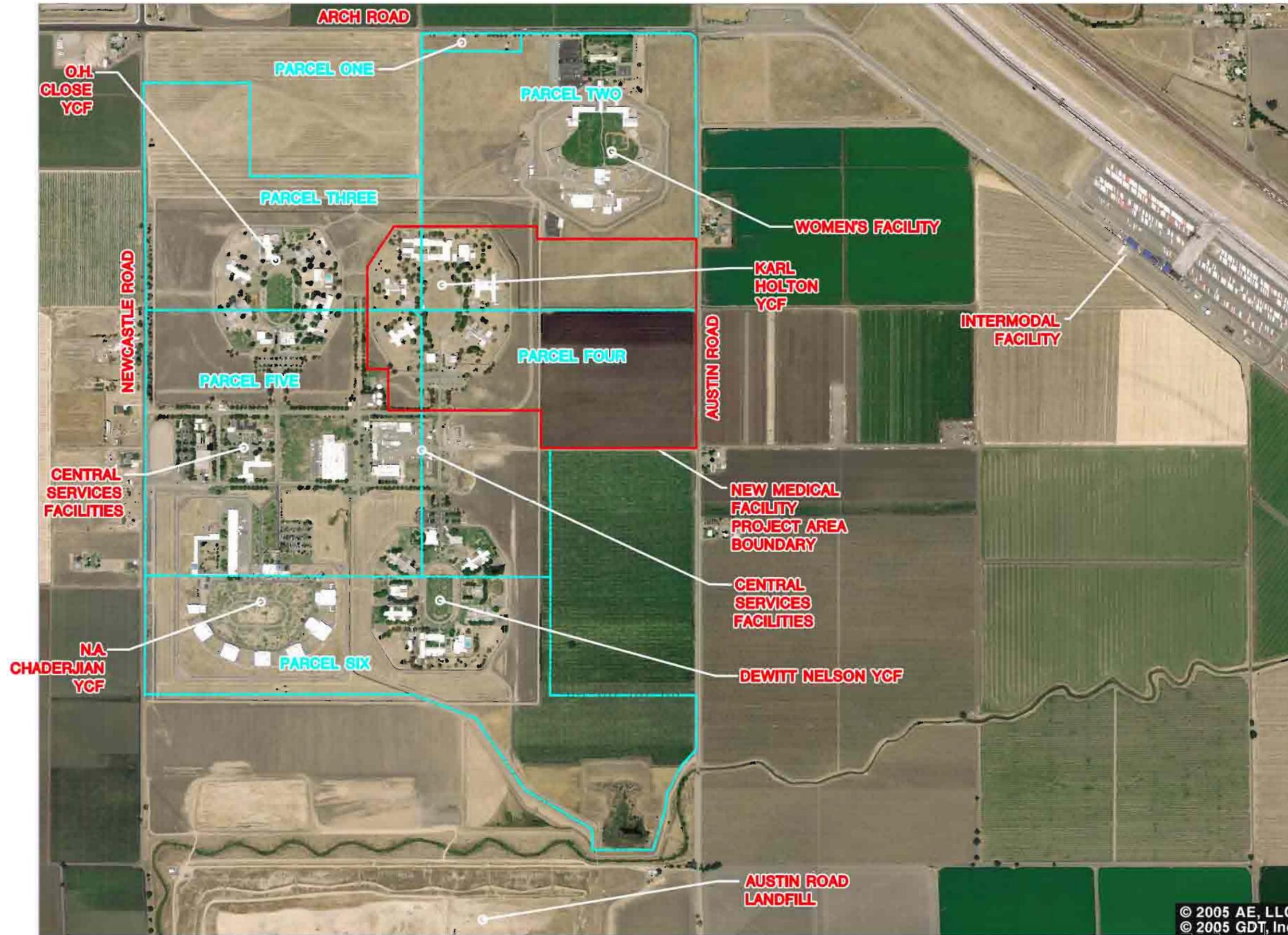


**LEGEND**

-  POTENTIAL MEDICAL FACILITY SITE
-  FARMLAND OF STATEWIDE IMPORTANCE
-  FARMLAND OF LOCAL IMPORTANCE
-  PRIME FARMLAND

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**LEGEND**

- TITLE REPORT PARCEL BOUNDARY
- POTENTIAL MEDICAL FACILITY SITE

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## Wastewater Collection System

The NCYCC facility collects sewage through a network of sewer pipes that flow into a wet well at the central sewer and storm drain pumping station. The sewer pumping station includes two Muffin Monster grinders and three vertical turbine pumps which discharge into a 20" gravity main that flows towards the Stockton Municipal Airport into the City of Stockton's collection system. The State originally constructed the 20" gravity main, but currently only owns the portion within NCYCC property boundaries, at which point it is under the ownership of the City as it travels towards the Stockton Regional Wastewater Control Facility (RWCF). The flow path that sewage from the NCYCC takes through the City collection system to the RWCF is shown in Figure 6.

The City of Stockton entered into an agreement with the NCYCC on June 10<sup>th</sup>, 1964 to accept a maximum of 1.20 million gallons per day (MGD) or 2,100 gallons per minute (gpm) of peak instantaneous sewage flow for treatment. On June 13<sup>th</sup>, 1973 the agreement was amended to 0.80 MGD maximum day or 1,400 gpm peak instantaneous flow. The agreement is valid for a period of 50 years from its original instatement, which will expire in 2014. The agreement required the facility to install a sewage meter for verification of discharge quantities, and a bar screen to prevent large solids from passing downstream. Since the construction of the sewer pump station, the mechanical bar screen was removed and the Muffin Monsters were installed. NCYCC staff replaced the mechanical bar screen because of the work that was required to collect solids, dewater them, and arrange for them to be disposed of with an outside contractor.

### *Current Wastewater Flow*

The Draft Wastewater Master Plan recently prepared by the City of Stockton (September 2007) lists the NCYCC facility as a special case discharger. The NCYCC is billed by the City based on monthly flow data. Monthly flow data from the NCYCC presented in the report is summarized as follows:

- Highest recent monthly flow: 14.55 million gallons (MG) in Summer 2004
- Average Winter monthly flow 2002-2005: 6.71 MG
- Average Summer monthly flow 2002-2005: 8.65 MG
- Average monthly flow 2002-2005: 7.82 MG

The contractual limit of 0.80 MGD is assumed to be a maximum daily flow rate. In a 30 day month, the daily flow rate during the highest monthly maximum flow of 14.55 MG would be 0.49 MGD (337 gpm). This recorded flow is less than the permitted maximum 0.80 MGD. During the maximum monthly flow in 2004, the prison population was 2,488. The average wastewater flow per person per day was approximately 196 gallons. The McGraw-Hill Handbook of Environmental Engineering Calculations (2000) suggests a per bed wastewater flow rate of 250 gpd for hospitals, which is more conservative and will be used for this analysis, because water usage for the medical facility may be higher than the existing correctional facility campuses.



### *Future Wastewater Flow*

Assuming a maximum daily flow (MDF) of 250 gpd per person, the new 1,478 bed facility could be expected to produce 0.37 MGD of additional flow. The total of the existing daily flow rate during the maximum month and the additional daily flow produced by the proposed project would be 0.86 MGD. A new medical facility will include extensive water conservation devices that could significantly reduce the wastewater discharge compared to the current facility flows, which may result in lower average flows than those determined above. A more detailed study should be performed to determine if the 0.80 MGD maximum daily flow rate is not enough to accommodate existing facilities in addition to the proposed medical facility, as it appears the contractual limit may be exceeded. The existing agreement with the City may need to be updated.

The total land area of the parcels shown in the most recent Title Report is approximately 674 acres. Based solely on City planning criteria for flow factors per acre in the 2007 Draft Wastewater Master Plan of 1,600 gpd per acre for newly developed institutional land uses, the proposed medical facility (131 acres) would produce 0.21 MGD of flow. The total land area of the remainder of the existing NCYCC is 543 acres. The City design criteria specify a flow factor of 1,100 gpd/acre for existing institutional land uses. The existing facility would contribute 0.60 MGD. The total planning level wastewater flow for the NCYCC including the proposed medical facility will be 0.81 MGD. This estimate of total MDF is slightly less than that estimated using a per capita wastewater flow rate of 250 gpd. The more conservative MDF estimate of 0.86 MGD will be utilized in the analysis.

The maximum hourly flow rate for the future NCYCC facility is calculated according to the 2007 Wastewater Master Plan as the MDF plus infiltration and inflow (I/I) times a peaking factor. For pipelines less than 42" in diameter, the I/I rate is 700 gpd/acre. For the 674 acre site, I/I will total 0.47 MGD. The peaking factor (PF) and peak hourly flow (PHF) are calculated according to the Master Plan, utilizing the planning level MDF of 0.86 MGD is as follows:

$$PF = 2.5 \times (MDF)^{-0.216}$$

$$PF = 2.50 \times (0.86 MGD)^{-0.216} = 2.58$$

$$PHF = PF \times (MDF + I/I)$$

$$PHF = 2.58 \times (0.86 MGD + 0.47 MGD) = 3.43 MGD / 2382 gpm$$

Based on the above sewer flow rate calculations, it appears that the NCYCC will need to renegotiate its agreement with the City regarding peak hourly flow (current limit of 1,400 gpm) if the existing pumping station is to be used to transmit medical facility wastewater to the City's collection system.



*Existing Trunk Sewer Capacity*

The 20” trunk sewer that carries sewage from the NCYCC facility into the City collection system has a constant slope of .0013 ft/ft from the pump station to its point of connection at the Municipal Airport. A capacity analysis of this pipeline assuming a Manning’s roughness coefficient of .013 and the pipe flowing at 90% full indicates that the pipe can carry up to 5.35 cfs or 2400 gpm (calculation is in the appendix to this report), which is in excess of the maximum 1,400 gpm the NCYCC is permitted to discharge instantaneously and the 2,382 gpm the proposed facility has the potential to produce.

*Sewer Pumping Station*

The NCYCC sewer pumping station has one 7.5 hp and two 15 hp vertical turbine pumps contained in a dry well which collects wastewater from the wet well and discharges it through a short 12” diameter force main, which quickly transitions into the 20” gravity main. The 15 hp pumps run on electric power, and the 7.5 hp pump has a drive shaft directly connected to a natural gas engine that is used in the case of a power failure or emergency. The 15 hp pumps currently have no backup power if there is a failure. The capacity of the sewer pumps was estimated according to the pump power equation, shown below.

$$efficiency(\%) \times power(horsepower) = \gamma \left( \frac{lb}{ft^3} \right) Q \left( \frac{ft^3}{sec} \right) H(ft)$$

where

$$\gamma = 62.4 \frac{lb}{ft^3} \text{ (unit weight of water) , } H = \Delta Z \text{ , } Q = \text{pumping flow rate}$$

The pumping head was assumed to be equal to the change in elevation between the base of the wet well and the discharge elevation of the pumps, which according to as-built drawings is 19.83’. Dynamic head loss was assumed to be minimal and was ignored, and a conservative pump efficiency of 70% was assumed to compensate. Based on the above calculations, the approximate pump capacities are as follows:

Sewer Pump Station Pump Capacities (single pump in operation)			
Pump #	Power(hp)	H(ft)	Flow Capacity(gpm)
1	7.5	19.83	1,047
2	15	19.83	2,094
3	15	19.83	2,094

With both 15 hp pumps operating, the maximum peak hour flow of 2,382 gpm can be easily handled by the existing pumping station. It should be noted that the combined capacity of both 15 hp pumps will not be additive, or equal to approximately 4,188 gpm. When both 15 hp pumps are operating, flow rates in the 12” force main piping will



increase to the point where dynamic head losses may become significant, reducing pumping capacities. Pump curves for the existing pumps were not obtained from the manufacturers, but the combined capacity of both 15 hp pumps should be in excess of 3,000 gpm. Even with one of the 15 hp pumps out of operation, the second 15 hp and 7.5 hp pumps should be able to pump the maximum daily flow rate, including flow from the proposed medical facility. Pump curves for the existing pumps should be obtained to verify precise pumping capacity. Additionally, draw down tests should be performed to verify true operational pumping capacity for each pump separately and for the pumps operating simultaneously.

The pump station has two extra blind connections that can be used to easily install additional pumps with little modification to the existing pump station if it is determined later than additional pumps are desired or required.

It is recommended that a backup generator be installed at the pump station to supply backup power to the 15 hp pumps, as well as the stormwater pumps. NCYCC staff indicated that one of the 15 hp pumps was significantly rebuilt in the past 6 months and is essentially new, and that the other two pumps are in good condition and running smoothly. The sewer pump station utilizes a Venturi meter and pH meter to monitor flow and water quality conditions, which are reported to the City to ensure the sewage acceptance agreement is met at all times.

#### *Removal of Existing Sewer Collection System Facilities*

Sewer collection system piping serving the existing Karl Holton facility will be removed and replaced for the new medical facility. The existing sewer collection system is shown in Figure 7. The existing sewer collection system for the Karl Holton campus will be disconnected where the two 6" collectors serving the campus connect into the 12" collector running north and south between the Karl Holton and O.H. Close campuses along 3rd Street.

#### *Future Sewer Collection System Option 1 – Connection to Existing Sewer Pump Station*

The existing 12" collector running along the northern portion of 3rd Street has a slope of 0.002 ft/ft, according to as-built plans. At 90% full flow and a Manning's roughness coefficient of 0.013, the pipe has a maximum capacity of 1.7 cfs, or 1.09 MGD (calculation is in the appendix to this report). This pipeline already conveys wastewater flow from the O.H. Close and Women's Facility. If the decision is made to convey sewage from the proposed medical facility to the NCYCC's sewer pump station, it is recommended that new sanitary sewer collection system piping connect into the existing system at the 14" collector pipe that is currently serving the Dewitt Nelson campus. At an assumed minimum slope of .0015, this 14" pipe can convey 2.2 cfs or 1.38 MGD of flow (calculation is in the appendix to this report). Additionally, the Dewitt Nelson facility is scheduled to be decommissioned soon, and this pipeline is likely to have excess capacity.



*Future Sewer Collection System Option 2 – Connection to City System on Arch Road*

Peak hour flow estimates for the NCYCC including flow from the proposed medical facility show that peak flows (2,382 gpm) would nearly reach the capacity of the 20" line (2,400 gpm) that currently serves the facility. The capacity analysis does not include other potential flow carried by the 20" line from other connections, such as flow contributed through the 8" force main from the existing Arch Road Industrial Park pump station (see Figure 6). The City's Draft Wastewater Master Plan indicates that a 36" gravity main will be extended east along Arch Road to serve future expansions to the industrial park, including the Opus West industrial park. This 36" line is also shown on the Arch Road wastewater master plan (included in the appendix). The City's Draft Master Plan indicates that the Arch Road pump station will be completely reconstructed, the force main will be upsized to 30", and flow redirected north to a 42" gravity main to support the industrial park. The City's Master Plan also mentions the NCYCC facility, suggesting that the City abandon the existing 20" line and redirect flow to the Arch Road pump station. If more detailed studies show that the capacity of the existing 20" line would indeed be exceeded with the addition of the medical facility, it is recommended that sewage from the proposed medical facility be conveyed to the future 36" gravity line on Arch road. Unless requested by the City, the existing NCYCC sewer collection system and pumping station should not be modified, as the capacity appears adequate.

*Potential Issues for Further Investigation*

If the proposed medical facility is connected to the City's system on Arch road, the existing agreement with the City would remain adequate to serve the O.H. Close, N.A. Chaderjian, Dewitt-Nelson, and Women's Facility campuses. A new agreement with the City for acceptance of sewage from the medical facility would have to be reached. The City may require solids control in the form of a comminutor or mechanical bar screen. Antonio Tovar of the City of Stockton's Municipal Utilities Department indicated that if the proposed medical facility increases the existing flows from the NCYCC by 50-100%, efforts to negotiate a new agreement or re-negotiate the existing agreement could be somewhat extensive. Based on the preliminary estimations of this report, the medical facility may add 0.37 MGD of daily flow to the existing estimated 0.49MGD, which is an increase of about 75%.

According to Antonio Tovar, the 36" gravity line on Arch Road is scheduled to be completed by the end of 2008. Upgrades to the Arch Road pumping station, and realignment of the force main to discharge to a larger 42" line rather than the 20" line that serves the NCYCC is scheduled to be complete towards the end of 2009.



### *Regulatory Compliance*

A potential issue relative to wastewater discharges is the requirement to be in compliance with the Statewide General Waste Discharge Requirements (GWDR) for Sanitary Sewer Systems (Order No.2006-0003-DWQ), which was adopted by the State Water Resources Control Board (SWRCB) on May 2, 2006. The GWDR regulation applies to all state agencies that own and operate greater than one mile of pipe that collects and conveys untreated or partially treated wastewater to a publicly owned treatment facility, or is tributary to a system that does. The NCYCC facility owns and operates in excess of one mile of pipe and is required to comply with this order.

The goal of the GWDR is to reduce the number and frequency of sanitary sewer overflows (SSOs), and thus decrease the risks to human health and the environment. To accomplish this goal, the GWDR requires each public agency that owns or operates a sanitary sewer system to:

- Apply for coverage by submitting to the SWRCB an application package by November 2, 2006;
- Report all SSOs via the State's on-line SSO Database in accordance with the General Monitoring and Reporting Requirements; and
- Develop and implement a system-specific Sewer System Management Plan (SSMP)

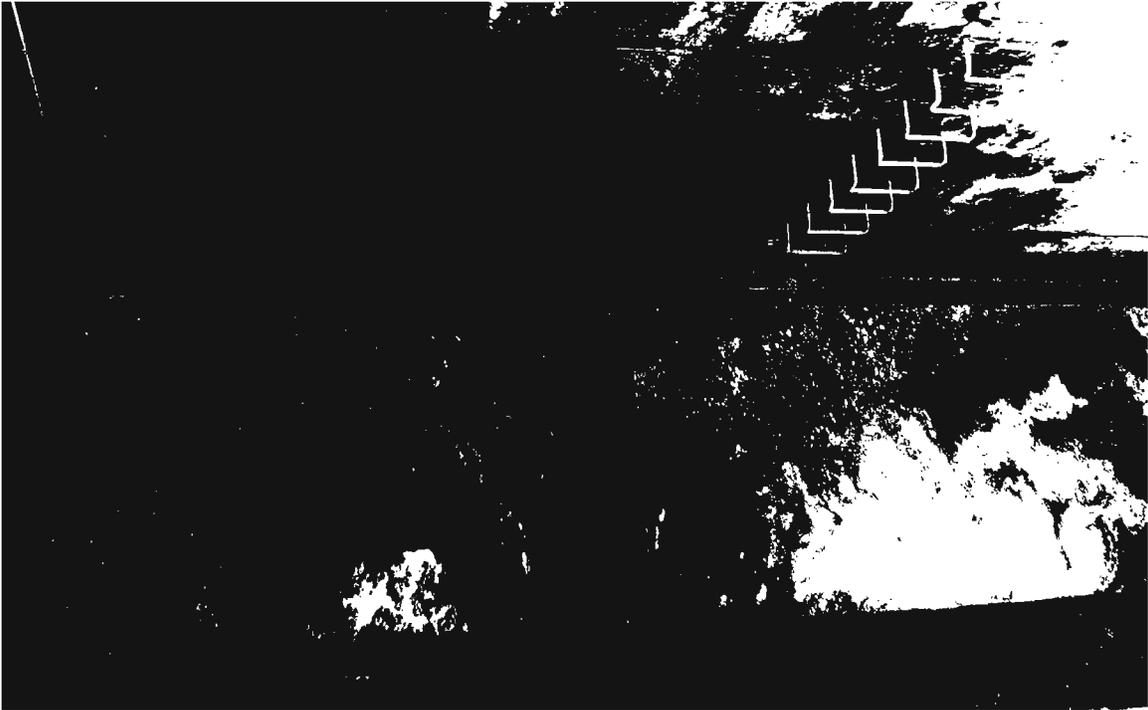
The NCYCC facility is required to have already begun on-line reporting and over the next 26 months develop a certified SSMP and submit portions of that SSMP to the SWRCB as outlined in the GWDR. The SWRCB has established a schedule for completing the SSMP in three phases. For communities with populations less than 2,500, the following schedule applies:

- Complete an SSMP Development Plan and Schedule by February 2<sup>nd</sup>, 2008
- Complete 2 of 11 required sections of the SSMP by May 2<sup>nd</sup>, 2008
- Complete an additional 4 of the 11 required sections of the SSMP by February 2<sup>nd</sup>, 2010
- Complete the final 5 of 11 required sections and certify completion of the SSMP by August 2<sup>nd</sup>, 2010

A new medical facility should be included within the NCYCC's SSMP. As a new facility, all provisions will have to be met at the time of commissioning should the facility open after the designated time schedule.



**Sewer Pump Station "Muffin Monster" Grinders, Bar Screen,  
and Venturi Meter at Wet Well Inlet**



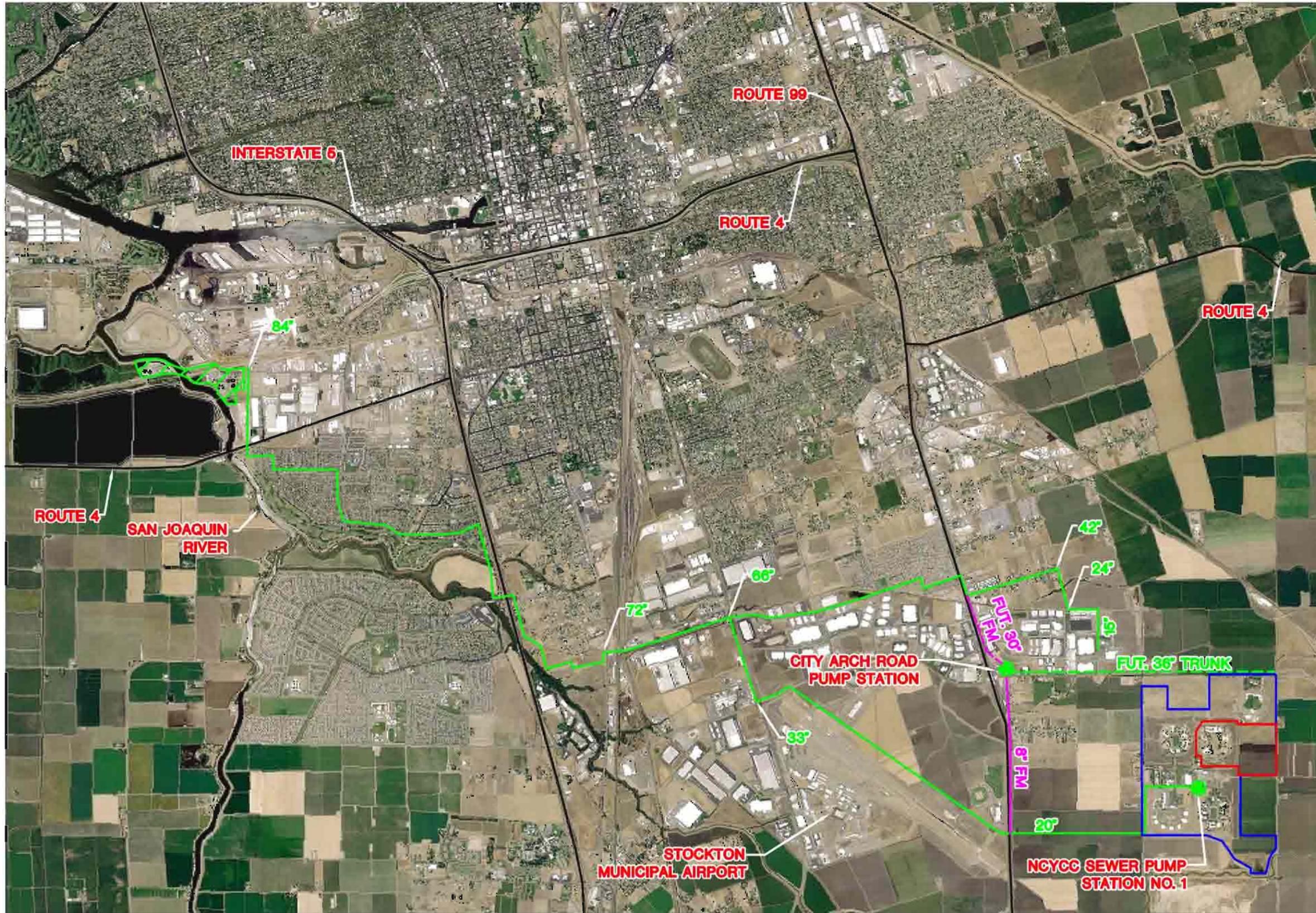
Sewer Pump Station Wet Well



Sewer Pump Station Vertical Turbine Pumps (3)



Sewer Pump Station Dry Well – Pump Shafts and Discharge Header

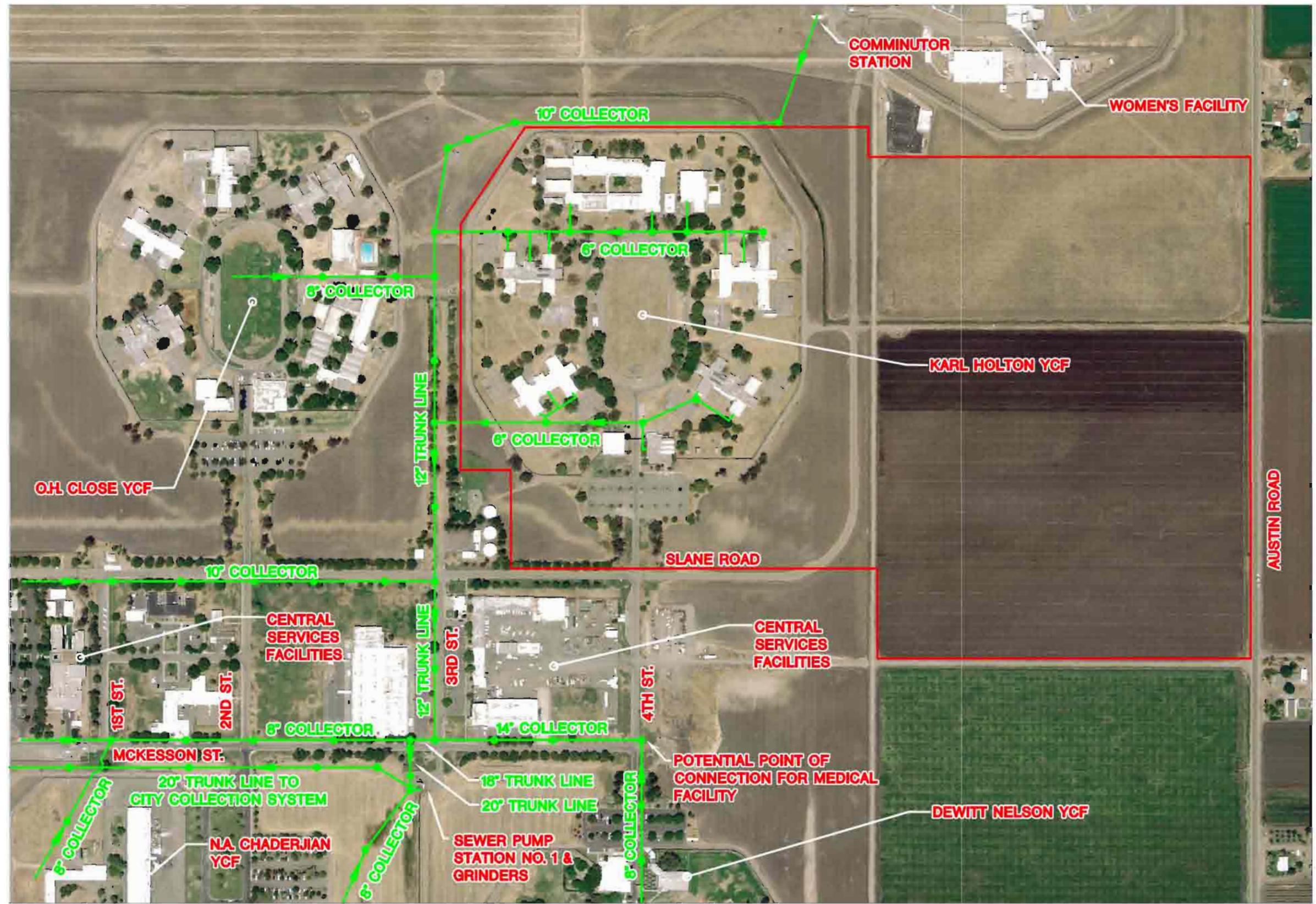


**LEGEND**

- YOUTH FACILITY BOUNDARY
- POTENTIAL MEDICAL FACILITY SITE
- CITY OF STOCKTON REGIONAL WASTEWATER CONTROL FACILITY
- ▲ SEWER PUMP STATION
- EXISTING FORCE MAIN
- FUTURE FORCE MAIN
- EXISTING TRUNK LINE
- FUTURE TRUNK LINE
- HIGHWAY

**NOTE:**  
 ONLY EXISTING DOWNSTREAM SEWER TRUNK LINES FROM THE PROJECT AREA ARE SHOWN ON THIS FIGURE

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**LEGEND**

- POTENTIAL MEDICAL FACILITY SITE
- SANITARY SEWER MANHOLE
- SANITARY SEWER PIPELINE

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## Water Distribution System

### *Water Supply Wells*

Potable water is supplied to the NCYCC campus from four groundwater wells, shown in the Figure 8. Each well house pumps water into a 10" supply line that runs north-south in between the O.H. Close and Karl Holton campuses along 3rd Street to three 0.25 MG storage tanks. Each well is equipped with a sand separator. Although the wells are not fitted with flow meters, each well has been estimated to provide a maximum of approximately 1,400 gallons per minute. Water is chlorinated by chemical feed pumps located in a vault just upstream of the inlet to the storage tanks. Well houses 1 and 2 were constructed in the 1960's along with the O.H. Close, Karl Holton, and Dewitt Nelson campuses. Well house 3 was constructed sometime later to provide additional water. Well house 4 was constructed in the late 1980's along with the addition of the N.A. Chaderjian campus to the NCYCC facility.

There is fifth well on the NCYCC property adjacent to Austin Road. Preliminary data indicate that the well has a 16" casing but no pump or power connection. The well capacity is approximately 1,300 gpm. This well could be used during construction for dust abatement, and later for landscape irrigation on the site.

In recent years, well water quality has begun to decline due to groundwater contamination caused by the landfill owned by Allied Waste Services located to the south of the NCYCC facility. A plume of contamination is travelling towards the wells from the south. Well 3 was recently placed on standby status by Plant Operations due to elevated levels of iron and manganese detected during regular water quality sampling, although the most recent water quality tests have shown that iron and manganese levels have again dropped below secondary maximum contaminant limits (MCLs). Additionally, recent sampling (BSK Analytical Laboratories, 2007) has detected elevated levels of volatile organic carbons (VOCs) in wells 1, 2, and 3, which is likely due to contamination from the landfill. Contaminants of concern include Tetrachloroethylene (PCE), Trichloroethylene (TCE), Dichloroethylene (DCE), and Dichloroethane (DCA). Some samples have shown VOC levels near or exceeding MCLs. Treatment may be required in the near future if groundwater will continue to be contaminated by the source of potable water for the facility.

According to NCYCC Plant Operations Staff, groundwater studies have been completed that investigated the cause and extent of the groundwater contamination. These studies show that the contamination has been caused by the landfill. According to NCYCC staff, Allied Waste Services (landfill owner) has tentatively agreed to pay for a water connection for the NCYCC to the City distribution system if the well water becomes contaminated to the point where treatment would be required. The status of this project is unknown at this point. Additional research will be necessary to verify the status of any claims against Allied Waste Services and the amount of funding that may be provided to connect the NCYCC to the City distribution system.



### *Existing Water Demands*

Water usage data was provided by Rick Jamie, head of Plant Operations at the NCYCC facility. The most recent data collected in 2006 shows yearly water consumption at 187 MG (0.51 MGD average day demand), with the maximum monthly demand at 37 MG (1.23 MGD per day in a 30 day month). A report produced by Carollo Engineers in December of 2006 estimated the maximum day demand of the existing NCYCC facility at 1.20 MGD. The largest building within the existing facility is approximately 90,000 square feet. According to the California Fire Code, adopted by the City of Stockton, a 90,000 square foot building of Type I construction (noncombustible materials) requires 3,250 gpm of fire flow for a duration of 3 hours. The City of Stockton's planning and design criteria require a fire flow of 4,500 gpm for 4 hrs for all institutions. The total of the more conservative maximum day demand (1.23 MGD / 855 gpm) and more conservative fire flow demand is approximately 7.71 MGD / 5,355 gpm.

### *Future Water Demands*

The water usage data provided by Rick Jamie from 2006 indicates that the total population of the facility was 2,246 when the total yearly consumption was 187 MG. The average water consumption per person is therefore approximately 228 gallons per day. The total water consumption figures include irrigation demands. Currently there are no separate meters which can distinguish domestic consumption from irrigation uses. However, the estimated existing wastewater produced per bed was calculated previously at 196 gpd. The difference between the existing water use and wastewater production per day is 32 gpd per person, which may be assumed to represent an approximation of irrigation water use. To be conservative, potable water demands per bed for the proposed medical facility will be assumed equal to the average daily wastewater flow per bed of 250 gpd assumed in the analysis of the wastewater system. The total water demand per bed will be assumed to be 282 gpd, including estimated irrigation demands.

The proposed medical facility project will contain 1,478 beds. Using an average day demand per person of 282 gpd, the proposed facility will require 0.42 MGD (292 gpm) of potable water, including irrigation demands. If we assume that the water demands since 2006 will not decrease, the total average day demand for the NCYCC facility will increase to 0.93 MGD. The maximum day peaking factor for the existing facility is 2.4, as calculated by the ratio of the existing average day consumption to existing maximum day consumption. Assuming the peaking factor does not change with the addition of the proposed medical facility, the maximum day demand would increase from 1.23 MGD (855 gpm) to 2.23 MGD (1,550 gpm). Including fire flows of 4,500 gpm, the total maximum flow rate required for the improved NCYCC facility would be 6,050 gpm.



### *Water Storage*

Potable water is stored in three 0.25 MG steel tanks. Two of the tanks were built with the original facility in the 1960's along with well houses 1 and 2. A third tank was added when the N.A. Chaderjian campus was constructed. Figure 9 shows the piping layout in the vicinity of the storage tanks and booster pumping stations. All four of the wells have the ability to fill any of the storage tanks, and either booster pump station has the ability to pump water out of any of the three storage tanks.

The City of Stockton's planning and design criteria, presented in the City's Draft 2007 Water Master Plan, requires storage equivalent to 25% of the maximum day demand (0.31 MG), plus 4,500 gpm of fire flow for 4 hours (1.08 MG), plus the average day demand of emergency storage (0.51 MG). According to these criteria, the existing NCYCC requires 1.90 MG of equivalent storage. The above ground storage currently totals 0.75 MG. However, the design criteria allow a groundwater credit of 60% of reliable pumping capacity. A single groundwater well pumping at 1,400 gpm is equivalent to 1.21 MG of storage at 60% credit. The Master Plan defines "reliable" wells as those fitted with backup power generation. Currently, none of the existing well houses have backup power generation, and could not be considered "reliable" without being outfitted as such.

Water storage requirements including the proposed medical facility will increase. The required storage will be equivalent to 25% of maximum day demand (0.56MG), 1.08 MG of fire flow storage, and 0.93 MG of emergency storage, totaling 2.57 MG. If the NCYCC were to outfit two of their wells with backup power, the total equivalent storage would be 3.17 MG. If the wells are not outfitted with backup power, an additional 1.82 MG of storage will be required.

### *Booster Pump Stations*

Water is supplied to the distribution system by two booster pumping stations, located adjacent to the water storage tanks. Both pumping stations contain two duty pumps with electric motors, one fire pump with a natural gas motor, and a hydropneumatic tank to maintain system pressures and provide for periods of low flow. An on-site generator is in place adjacent to both pumping station buildings to provide power during outages, but it is not currently in operation.

Booster pump station 1 was constructed in the 1960s, and underwent an upgrade in 2003 to provide additional capacity and pressure. The total pump station capacity was increased from 3,950 gpm to 4,400 gpm, and pumping head was increased from 139' total dynamic head (TDH) (60 psi) to 170' TDH (73 psi). The upgrade included the following pump modifications shown in the table below. Booster pump station 1 has a 15,000 gallon hydropneumatic tank with an operating pressure of 100 psi.



Booster Pump Station No.1 Upgrades						
Pump No.	Original Operating Conditions			Improved Operating Conditions		
	Flow(gpm)	Pressure	Power(hp)	Flow(gpm)	Pressure	Power(hp)
1	1,200	139' TDH (60 psi)	75	1,200	170' TDH (73 psi)	75
2	750	160' TDH (69 psi)	50	1,200	170' TDH (73 psi)	75
3	2,000	160' TDH (69 psi)	100	2,000	170' TDH (73 psi)	125

Booster pump station 2 was constructed in conjunction with the N.A. Chaderjian campus in the 1980s. Booster pump station 2 can provide a total of approximately 5,300 gpm directly to the N.A. Chaderjian facility at 90 to 100 psi using two 75 hp (1150 gpm) duty pumps and a 200 hp (3000 gpm) fire pump. This pump station has a 10,000 gallon hydropneumatic tank. Booster pump station 2 can also provide water to the distribution system serving the rest of the NCYCC campuses through a pressure reducing valve located near the outlet of pump station 2, as shown in Figure 9.

The combined capacity of booster pump stations 1 and 2 is 9,700 gpm. The City’s design criteria require pumping capacity equal to the maximum day demand plus fire flow with the largest pump out of service. With the 3,000 gpm fire pump in station 2 out of service, total booster pump capacity is 6,700 gpm, which is more than the existing and potentially required maximum flow rates. A detailed analysis as to the adequacy of the existing hydropneumatic tanks was not performed, and will be required in the design phase if the existing system will be used to supply the proposed medical facility.

*Future City of Stockton Service Area Extension*

The City of Stockton is served potable water from the Sacramento East Water District (SEWD) water treatment plant (WTP) as well as ground water sources. The SEWD WTP has a capacity of 50 MGD, and treats surface water from the Calaveras and Stanislaus Rivers. The NCYCC facility is within the current City of Stockton water service area, although the existing distribution system does not currently reach the facility.

The City of Stockton has prepared a Draft Water Master Plan (August 2007), which details the expansion of the current City distribution system to the NCYCC facility. Figure 10 shows the location of the existing 42” transmission main from the SEWD WTP, and the furthest 18” and 16” extensions of the existing distribution system on Arch Road just to the west of Newcastle Road. At buildout (2035), the Master Plan anticipates that the existing 16” line on Arch Road will be extended further to the east for service to the NCYCC. The Master Plan also anticipates a new 24” transmission main extension along Mariposa Road south from the 42” transmission main to Austin Road. Water models performed as part of the Master Plan show pressures exceeding 60 psi in the new extensions of the distribution system, and assume service to the NCYCC facility as an “institutional” land use.



Antonio Tovar, Senior Civil Engineer with the City of Stockton Department of Municipal Utilities, indicated that the distribution system extensions will be completed by the end of 2008 due to the Opus Logistics Center industrial park that is currently in the process of being developed just to the north of the project site on the other side of Arch Road. Mr. Tovar provided Utility Master Plan drawings for the Opus Logistics Center that detail the extension of the City water distribution system (see appendix). The exact location and line sizes of the water system extensions to Arch Road are detailed on the Master Plan and included in Figure 10. Construction of the Opus Logistics Center will result in 16" and 24" City transmission mains running along Arch Road just north of the NCYCC facility. According to the Master Plan, the 16" line will run along the north side of Arch Road and the 24" line will run along the south side of Arch Road.

#### *Future Water Distribution System Option 1 – Use Existing Well System*

If the existing well system were to be used to supply water to the proposed medical facility, well treatment may be required in the future if well water quality continues to decline. Additionally, the existing wells would need to be outfitted with backup power to provide adequate storage credit. The medical facility would need to be connected directly to booster pump station 2, which serves the N.A. Chaderjian campus at a pressure of 90-100 psi to supply adequate pressure to a sprinkler fire suppression system. Booster pump station 2 would be required to serve the medical facility without flow from pump station 1 because the pressure from pump station 1 is inadequate for the sprinkler system. The flow required for the medical facility alone is equal to the maximum daily demand plus fire flow, or 5,200 gpm ( $292 \text{ gpm} \times 2.4 + 4,500 \text{ gpm} = 5,200 \text{ gpm}$ ). Pump station 2 can currently provide 5,300 gpm, but City design criteria require that the pump station provide this capacity with the largest pump out of service. If pump station 2 were used to provide water directly to the proposed medical facility, an additional 3,000 gpm pump would need to be installed.

#### *Future Water Distribution System Option 2 – Connect City Water to Existing System*

A second option is to disconnect the existing wells, use City water to fill the existing storage tanks, and use the existing pump stations to supply potable water to the existing campuses and the proposed medical facility. If this option were pursued, an additional 1.82 MG of storage would be needed as noted previously. Similar to option 1, the proposed medical facility would be served directly from booster pump station 2 and an additional 3,000 gpm pump would need to be installed to meet City requirements.

#### *Future Water Distribution System Option 2 – Separate Connection to City System*

A third option is to connect the proposed medical facility separately from the existing NCYCC distribution system to the future extensions of the City distribution system. This option would require the construction of a new booster pump station with a capacity of 5,200 gpm with the largest pump out of service. Previous studies completed for the conversion of the Women's Facility to a Men's Re-entry Facility (Kitchell 2007)



indicated that if building sprinklers are used for fire suppression, water pressure provided from the City's distribution system directly will not be adequate. Additionally, 1.75 MG of new storage would need to be constructed, which is equivalent to the total of 25% of maximum daily demand for the medical facility (0.25 MG), 4 hours of fire flow at 4,500 gpm (1.08 MG), and the average day flow of emergency storage (0.42 MG).

During design of the medical facility, a more detailed water model should be prepared to determine the exact pressure available to the facility from any extensions of the City's system if the existing wells will not continue to serve as the water supply source. The NCYCC will need to tie into the City system at two different points of connection (POCs) to create a loop. Two potential POCs into the City's future 16" and 24" distribution lines at the corner of Austin Road and Arch Road are shown in Figure 10.

#### *Relocation and Removal of Existing Water Distribution Facilities*

Distribution piping serving the existing Karl Holton facility will be removed and replaced for the new medical facility. Most of the existing distribution system is asbestos-cement pipe (ACP), with only the newest additions or repairs to the system made with PVC pipe. It is likely that most of the water pipe in the vicinity of the Karl Holton facility is asbestos-cement (transite) pipe.

Title 8, California Code of Regulations, Chapter 3.2, Subchapter 2, Article 2.5 requires contractors handling asbestos related materials to register with Cal/OSHA. During removal of ACP, it is possible to release asbestos fiber into the air, which is regulated by the National Emission Standard for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61, Subpart M. If the material becomes friable during removal, it is regulated under CFR 40 61.150 which requires special procedures for removal and disposal.

A 12" ductile iron main serving the Women's Facility currently runs north-south through the center of the proposed project area. This line will need to be relocated. The as-built plans for this line show approximately 4' of cover throughout the alignment, which may be compromised by new building foundations or other infrastructure. A new 12" main could be constructed with a point of connection on the current 12" line that connects into the main service loop at the northwest end of the Karl Holton campus. The 12" line could be extended northeast to the women's facility along a similar alignment as the existing storm drainage and sewer lines that serve the facility. A more detailed water model should be analyzed to determine if the relocation of this line results in deteriorated operating conditions at the O.H. Close campus or Women's Facility.

#### *California Regulatory and Statutory Requirements*

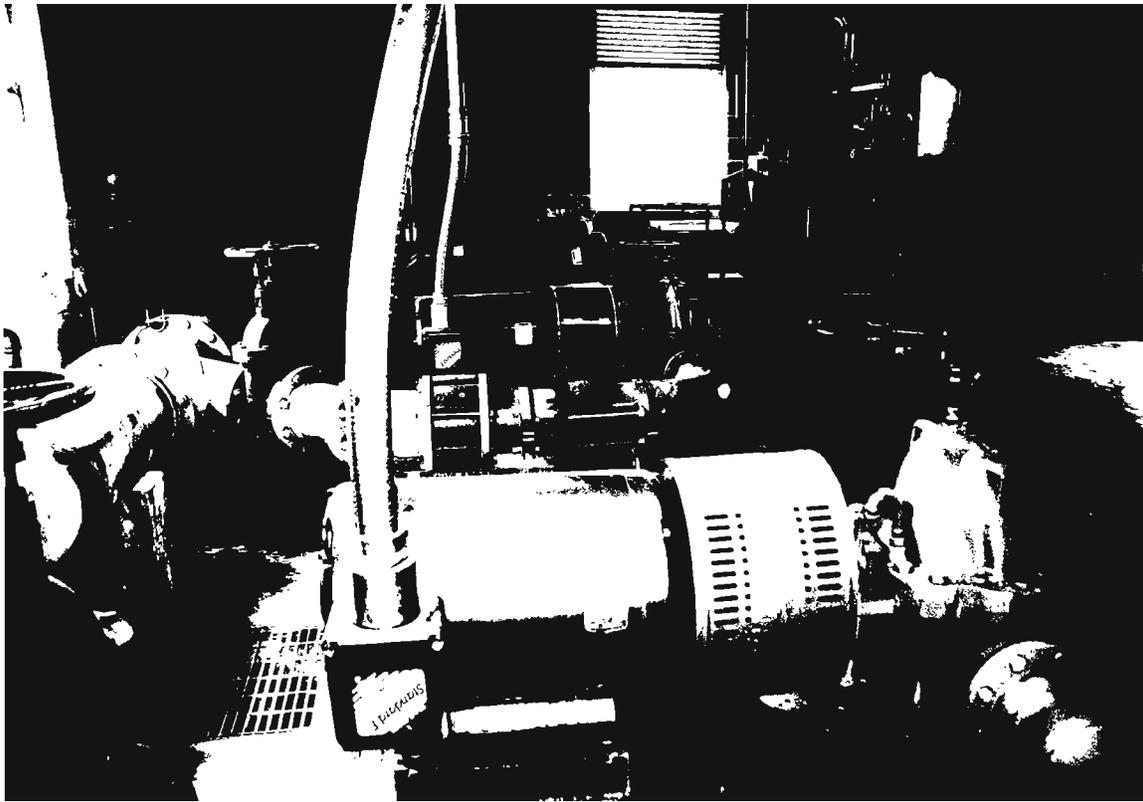
Title 24 of the California Administrative Code contains the California Building Standards, including the California Plumbing Code, which promotes water conservation. Title 20 addresses Public Utilities and Energy including appliance efficiency standards that promote water conservation. In addition, several other State laws and regulations



require water-efficient plumbing fixtures in structures and impose other requirements related to water supplies and conservation. These laws and regulations will apply to the design of the medical facility water supply infrastructure, and are summarized below:

- Title 24, California Administrative Code Sections 25352 (i) and (j) address pipe insulation requirements, which can reduce water used before hot water reaches equipment or fixtures. These requirements apply to steam and steam-condensate return piping and recirculating hot water piping in attics, garages, crawl spaces, or unheated spaces other than between floors or in interior walls. Insulation of water-heating systems is also required.
- Title 20, California Administrative Code Section 1604 (g) (Plumbing Fittings) establishes efficiency standards that give the maximum flow rate of all new showerheads, lavatory faucets, sink faucets, and tub spout diverters.
- Title 20, California Administrative Code Section 1606 (Appliance Efficiency Regulations-Certifications) prohibits the sale of fixtures that do not comply with regulations. No new appliance may be sold or offered for sale in California that is not certified by its manufacturer to be in compliance with the provisions of the regulations establishing applicable efficiency standards.
- Health and Safety Code Section 17921.3 requires low-flush toilets and urinals in virtually all buildings as follows:

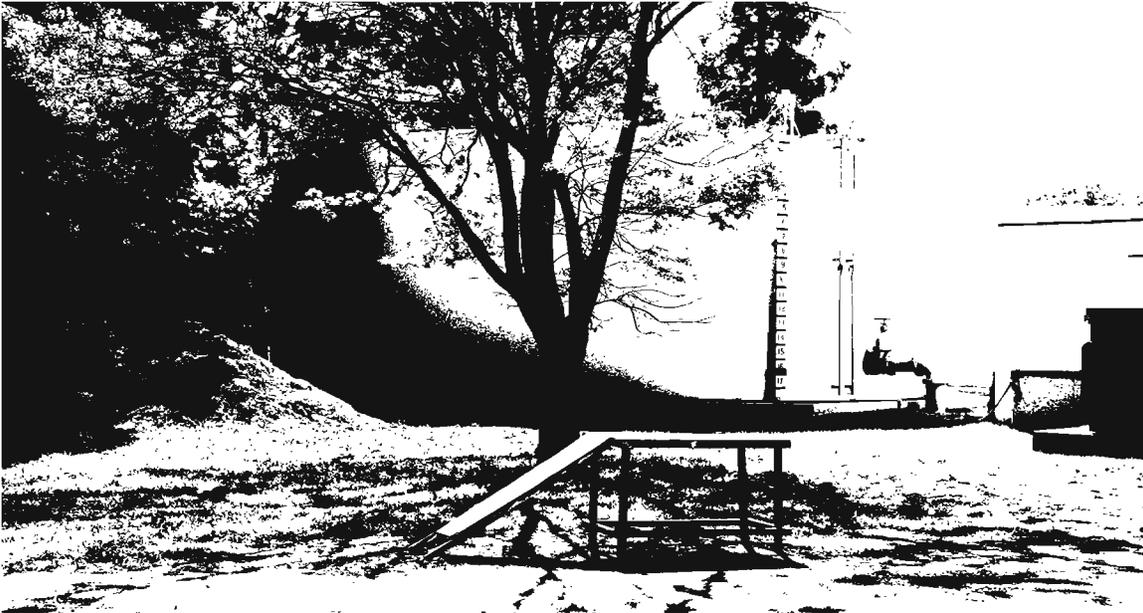
"All new buildings constructed in this state shall use water closets and associated flushometer valves, if any, that use less than an average of 1.6 gallons per flush and which meet the performance standards established by the American Society of Mechanical Engineers standards A112.19.2-1990 and A112.19.6-1990 and urinals and associated flushometer valves, if any, which use no more than an average of 1 gallon per flush and which meet performance standards established by the American Society of Mechanical Engineers standards A112.19.2- 1990 and A112.19.601990 ... ".
- Health and Safety Code Section 116785 prohibits installation of residential water softening or conditioning appliances unless certain conditions are satisfied. Included is the requirement that, in most instances, the installation of the appliance must be accompanied by water conservation devices on fixtures using softened or conditioned water.
- Government Code Section 65591 et seq. - Water Conservation in Landscaping Act states that the Department of Water Resources must prepare a model water efficient landscape ordinance for use by local agencies. The Act then calls for local agencies to adopt a water efficient landscape ordinance containing measures to reduce irrigation water usage
- California Water Code Section 10910 et seq. requires each public water system to determine that a new project's anticipated water demand is included as a part of the most recently adopted Urban Water Management Plan (UWMP). The Act adds consequences for water agencies that do not submit or update their UWMP and mandates that Water Supply Assessments be prepared for all projects subject to the California Environmental Quality Act.



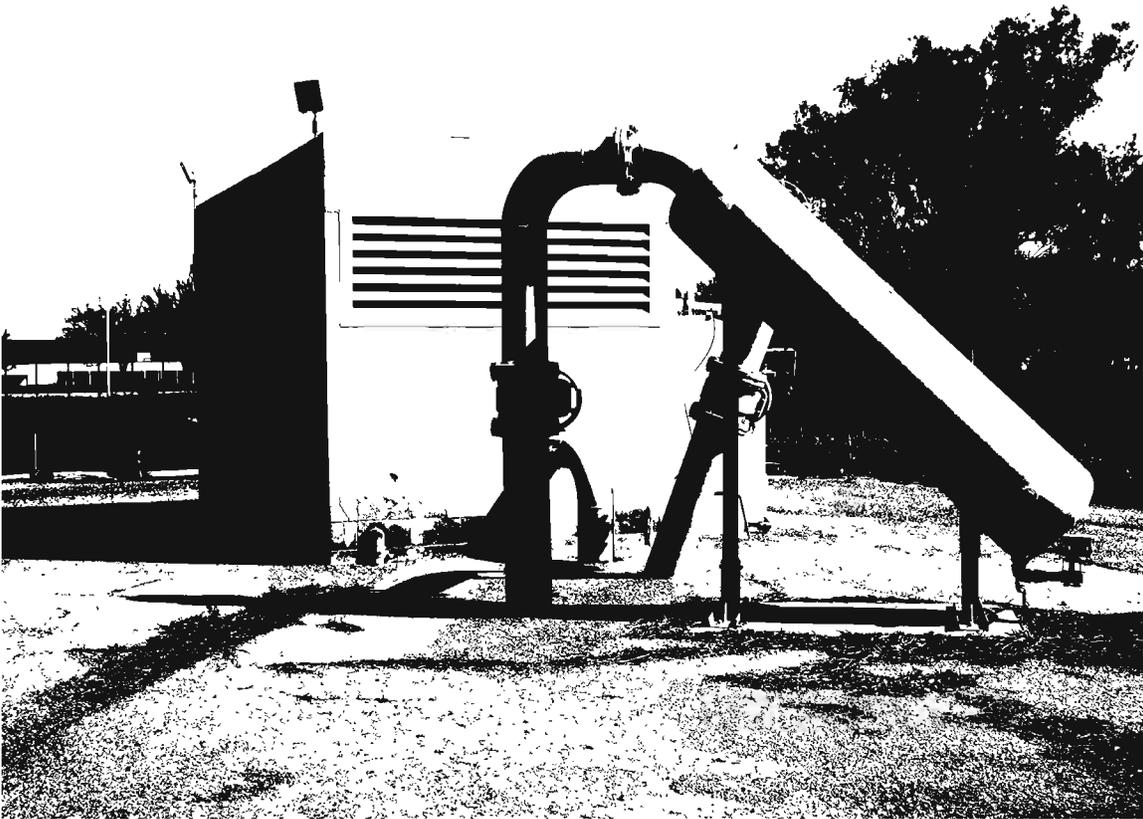
**Water Booster Pump Station No. 1**



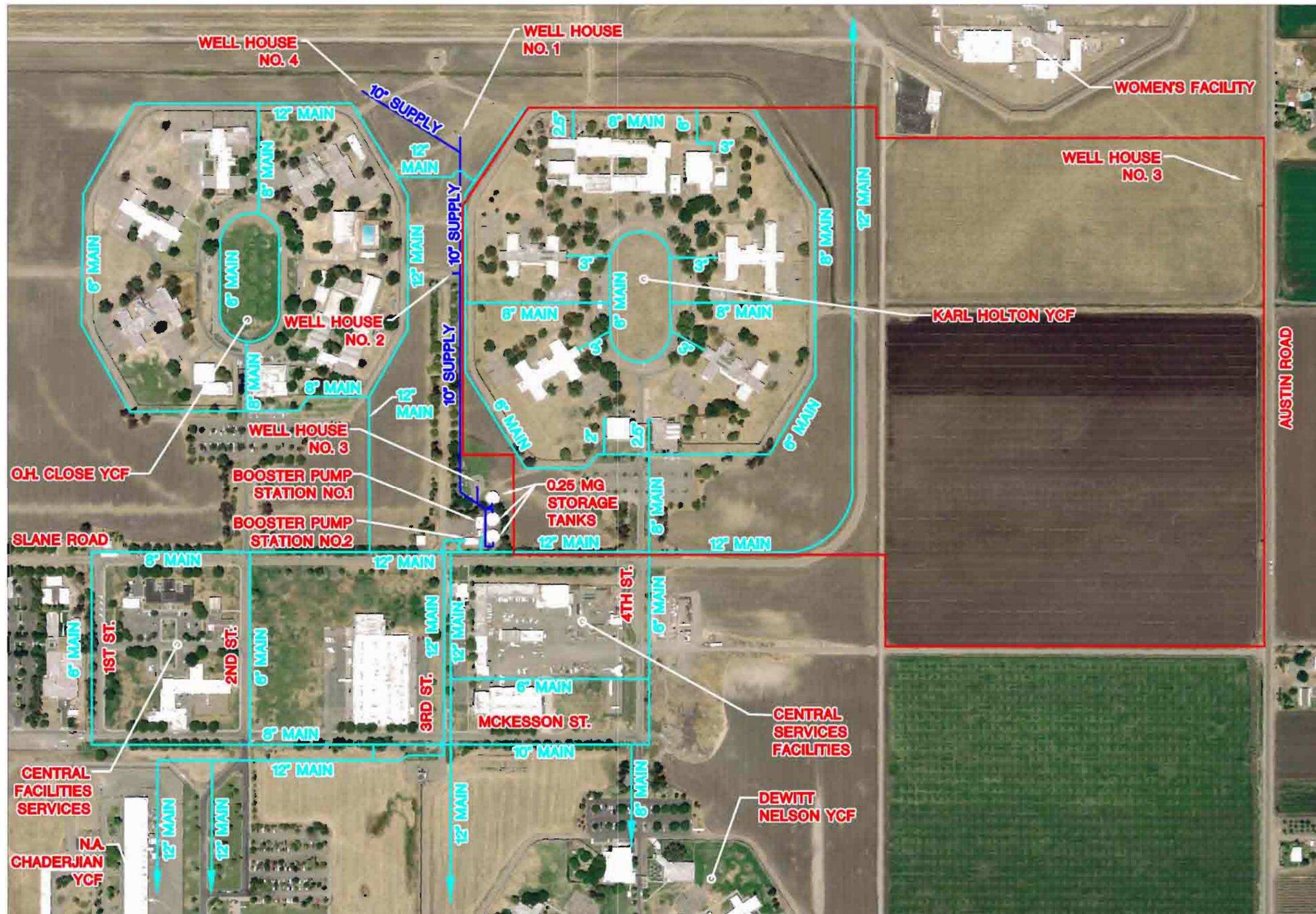
**Water Booster Pump Station No. 2 (Serves N.A. Chaderjian Campus Directly)**



0.25 MG Above Ground Steel Storage Tanks



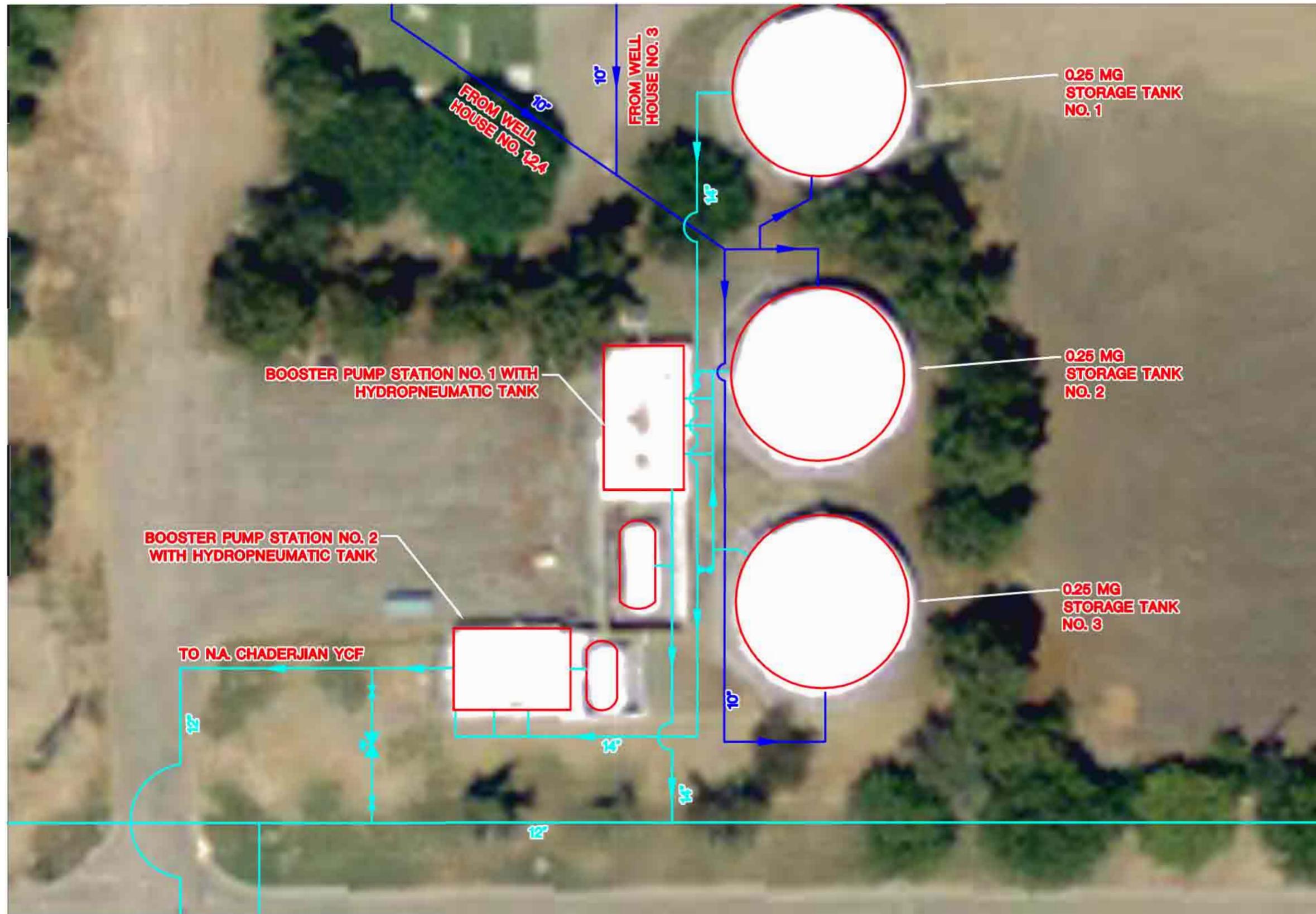
Sand Separator and Well House No. 2



**LEGEND**

- POTENTIAL MEDICAL FACILITY SITE
- WATER SUPPLY LINE
- WATER DISTRIBUTION LINE

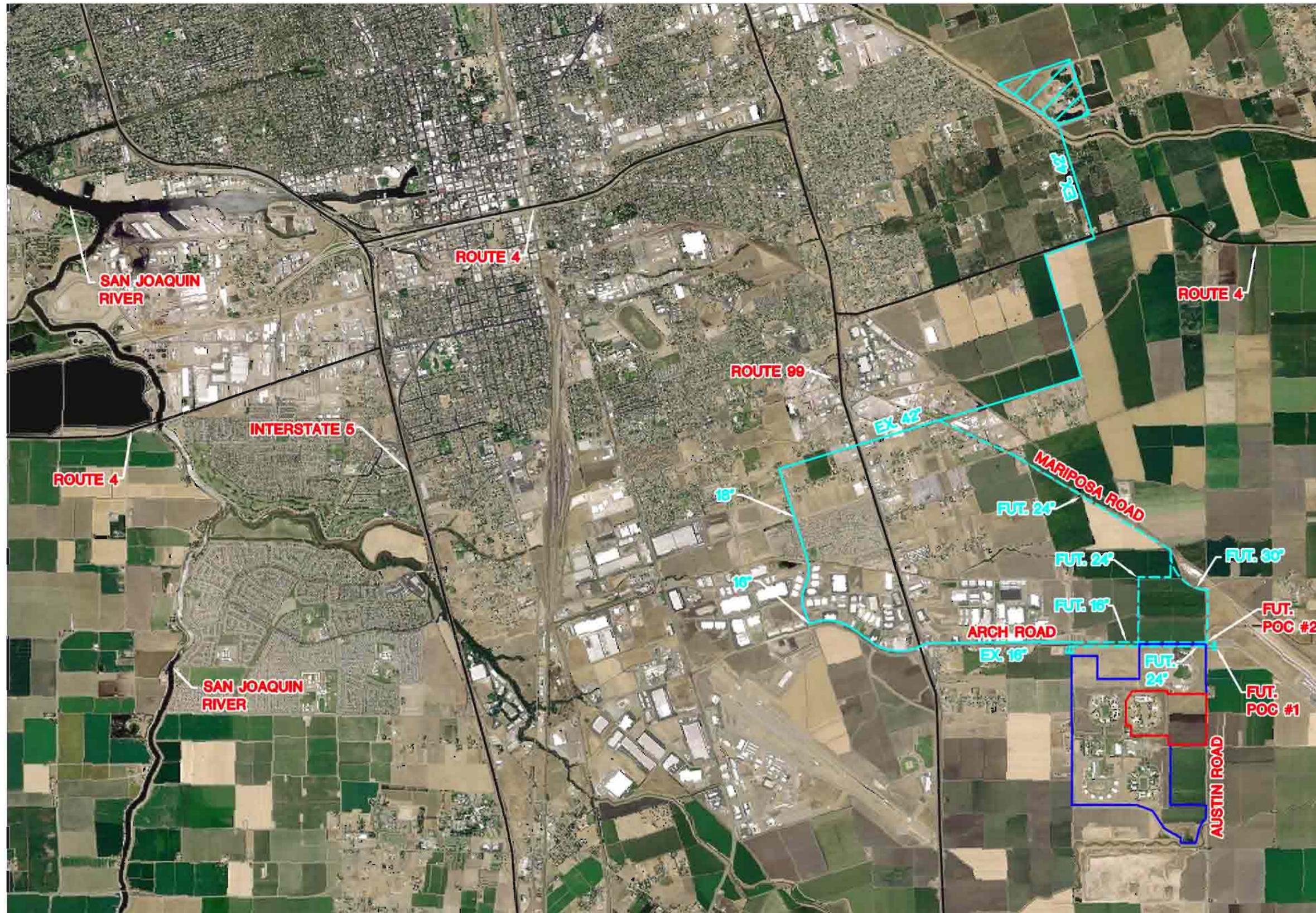
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**LEGEND**

-  PRESSURE REDUCING VALVE
-  WATER SUPPLY LINE
-  WATER DISTRIBUTION LINE
-  STRUCTURE OUTLINE
-  GATE VALVE

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**LEGEND**

-  YOUTH FACILITY BOUNDARY
-  POTENTIAL MEDICAL FACILITY SITE
-  STOCKTON EAST WATER DISTRICT WATER TREATMENT PLANT
-  EXISTING TRANSMISSION MAIN
-  FUTURE TRANSMISSION MAIN
-  CAPPED WATER LINE STUB

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## Stormwater Drainage System

The NCYCC site is located south east of the City of Stockton in a portion of the San Joaquin Valley characterized by flat topography that generally slopes from east to west towards the San Joaquin River and Delta. Most of the NCYCC site drains to the south into the North Fork South Littlejohns Creek. South Littlejohns Creek flows into French Camp Slough, which flows into the San Joaquin River. These stormwater drainage paths are shown in Figure 11. The land areas west of SR 99 tend to be low with much of the area in FEMA floodplains and many of the creeks and channels, including Littlejohns Creek, with levees. East of SR 99, the land tends to be higher without levees. The NCYCC site is not in the FEMA floodplain, but is surrounded by areas that are. The property just north of Arch Road and areas farther to the west of the site, along SR 99, are included in FEMA Zone AO.

### *Existing Stormwater Drainage System and Pumping Stations*

The existing stormwater drainage system is shown in Figure 12. It appears that the entire developed NCYCC site drains into this system. The main existing NCYCC drainage system includes a trunk line that collects runoff from the Women’s Facility in 30” storm drain that increases to 36” with the inflow from the O.H. Close Facility and to 42” with the inflow from the Karl Holton Facility. The 42” line flows into a sump at stormwater pump station 1 near the center of the site. Four stormwater pumps (three 40 hp pumps and one 15 hp pump) discharge into a concrete channel which conveys the flow south and south east to a 3.4 acre detention / retention basin adjacent to the North Fork South Littlejohns Creek. There are available connections and space for the addition of a fifth stormwater pump at station 1 if it is needed in the future. The discharge capacities for one of the 40 hp pumps was listed at 7,500 gpm at 16 feet of total dynamic head (TDH), according to its motor name-plate. The operating conditions of the other three 40 hp pumps was assumed to be the same. The capacity of the 15 hp pump was estimated based on the pump power equation below:

$$\text{efficiency}(\%)P(\text{horsepower}) = \gamma \left( \frac{\text{lb}}{\text{ft}^3} \right) Q \left( \frac{\text{ft}^3}{\text{sec}} \right) H(\text{ft})$$

where

$$\gamma = 62.4 \frac{\text{lb}}{\text{ft}^3}, H = 16', g = 32.2 \frac{\text{ft}}{\text{sec}^2}, Q = \text{pumping flow rate}$$

The total dynamic head of the 15 hp pump was assumed to be 16’, similar to the 40 hp pumps. Based on these calculations, the stormwater pumps have the following capacities:



Stormwater Pump Station No. 1 Pump Capacities			
Pump Number	Power(hp)	TDH(ft)	Q(cfs)/(gpm)
1	15	16'	6.00 / 2689
2	40	16'	16.71 / 7500
3	40	16'	16.71 / 7500
4	40	16'	16.71 / 7500

A stormwater pump station (no. 2) with two pumps can pump accumulated flows out of the detention / retention basin and into the North Branch of South Littlejohns Creek through separate 130' long force mains. The basin has not filled to the point that the pumps at stormwater pump station 2 have been required within the memory of current NCYCC staff. The only use the pumps currently receive is regular exercising to ensure that they remain operational. The capacities of these two pumps were estimated using equations similar to those used for pump station 1 with the exception that the pumping head was calculated based on the Darcy-Weisbach equation for head loss due to friction in the 130' long discharge pipelines:

$$H = f\left(\frac{L}{D}\right) \frac{v^2}{2g} + \Delta Z$$

where

$H = \text{head loss}(ft)$ ,  $f = \text{friction factor}$ ,  $L = \text{length}(ft)$ ,  $D = \text{diameter}(ft)$ ,

$v = \text{velocity}(ft/s)$ ,  $g = 32.2 \frac{ft}{sec^2}$ ,  $z = \text{static lift}(ft)$

Based on the calculations, the stormwater pumps at pump station 2 have the following capacities:

Stormwater Pump Station No. 2 Pump Capacities			
Pump Number	Power(hp)	TDH(ft)	Q(cfs)/(gpm)
1	15	14.6	4.5 / 2019
2	50	14.4	23.5 / 10,546

An unlined drainage channel runs through the NCYCC site just north of the O.H. Close and Karl Holton facilities. It collects runoff from the agricultural areas to the east of Austin Road and conveys them across the property. None of the developed areas at the NCYCC drain into this channel. This channel runs through the project area, and will likely need to be re-routed. This channel is under the jurisdiction of San Joaquin County Flood Control District. The Flood Control District requires submittal of a watercourse encroachment permit for the modification of drainage ditches. Flood Control District staff indicated permits are typically processed in two months. Modifications are typically approved provided the entry and exit points of the ditch from the property are not modified and the ditch maintains its current flow capacity.



*Stormwater Drainage Modifications to Support Proposed Medical Facility*

The proposed medical facility will cover some area that is already developed (Karl Holton), and some area that is currently agricultural. The undeveloped agricultural area currently drains to the unlined drainage channel, but with the construction of the medical facility on the site, stormwater will be diverted to the NCYCC system. Stormwater runoff from the proposed medical facility site will be collected in a new storm drain system and conveyed to the existing 42" storm drain on 3<sup>rd</sup> Street.

*Estimate of Increased Stormwater Runoff and Adequacy of Retention / Detention Pond*

A preliminary analysis was performed to generally evaluate the adequacy of the existing retention / detention pond to store stormwater from the existing NCYCC site and from the site if the proposed medical facility is constructed. The as-built plans for the basin show that it is roughly rectangular in plan view, measuring 400' by 375'. At its most shallow point, the pond is roughly 11.5' deep. To calculate a conservative volume of the pond, a 3' freeboard was assumed. The total estimated volume of the pond is therefore:

$$400' \times 375' \times 8.5' = 1,275,000 \text{ ft}^3 = 29.27 \text{ AF}$$

According to the San Joaquin County stormwater infrastructure design guidelines, retention ponds must be sized to retain a volume as calculated by the following equation:

$$V = 2xCxAxR/12$$

where

$$C = \text{runoff coefficient, } A = \text{contributing area (acres),}$$
$$R = \text{total 10-year, 48-hour storm rainfall depth of 3.03 inches}$$

The total land area of the parcels shown on the Title Report is 674 acres. A conservative estimate of the combined "C" value for the NCYCC property was determined based on the following assumptions:

- The total existing impervious land area within the NCYCC property was conservatively estimated as the land area enclosed by the perimeter roads for each campus, including the central facility service areas. The total existing impervious area is approximately 276 acres.
- The total proposed impervious land area within the NCYCC property was determined by assuming the entire project site would become impervious. The total proposed impervious area is approximately 374 acres.
- The impervious area was assumed to have a "C" value of 0.9, and the other open field areas were assumed to have a "C" value of 0.5.



- The combined “C” values were calculated according to the equations below:

$$C(\text{existing}) = \frac{276.0 \times 0.9 + 398.0 \times 0.5}{647.0} = 0.69$$

$$C(\text{proposed}) = \frac{374.0 \times 0.9 + 300.0 \times 0.5}{647.0} = 0.75$$

The total retention volumes required for the existing and proposed NCYCC sites are therefore:

$$V(\text{existing}) = \frac{2 \times 0.69 \times 674.0 \text{ ac} \times 0.253 \text{ feet}}{12} = 19.6 \text{ AF}$$

$$V(\text{proposed}) = \frac{2 \times 0.75 \times 674.0 \text{ ac} \times 0.253 \text{ feet}}{12} = 21.3 \text{ AF}$$

Both the existing and proposed NCYCC site produce significantly less design storm runoff volume than is provided by the existing retention / detention pond. It is unlikely that any modifications to the existing pond will be required to support the proposed medical facility.

#### *Future Analysis Required*

A more detailed hydrologic and hydraulic analysis will need to be prepared if a medical facility is constructed on the site. A peak flow analysis will be needed to evaluate the capacity of the stormwater pumps and existing pipelines. The County requires that the drainage system adequately convey the 10-year return period event. Stormwater quality control measures and best management practices (BMPs) that will minimize or mitigate adverse stormwater quality impacts from the project will be part of the site improvements. Since all of the runoff from the site is contained in the detention basin, with no runoff reaching the North Fork South Littlejohns Creek, the detention basin may be considered the only required BMP.

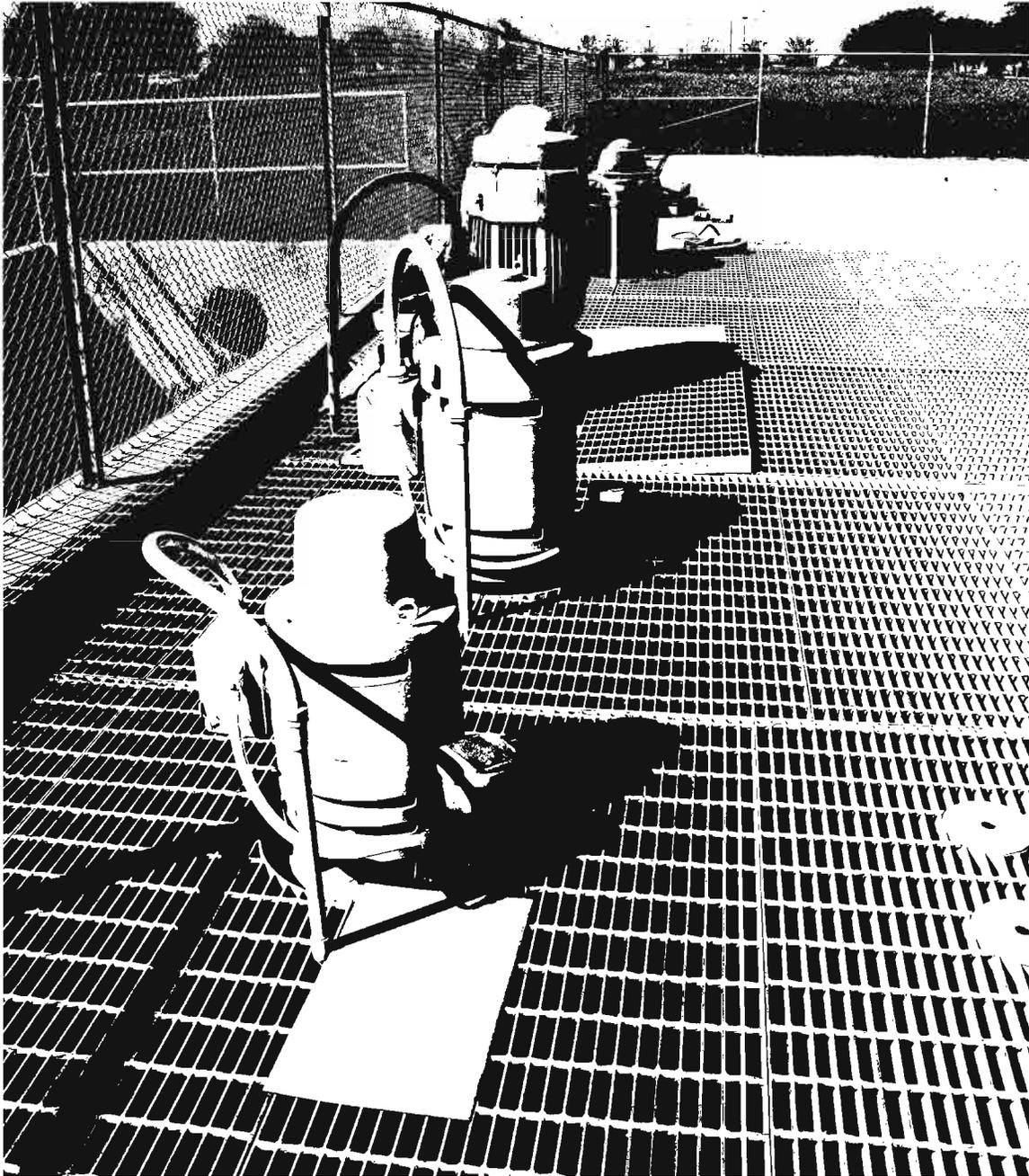
#### *Regulatory Considerations*

The NCYCC falls under the jurisdiction of one major stormwater regulatory document, which is the City of Stockton’s Draft Storm Drain Master Plan (February 2007). The project area is outside of the City’s “urbanized area” which is regulated under the City of Stockton’s and San Joaquin County’s Stormwater Management Plans (SWMPs) and the City’s Storm Water Quality Control Criteria Plan, which were prepared in compliance with the City’s NPDES permit. The NCYCC facility is outside of the permitted area for the joint NPDES permit, Order No. R5-2002-0181.

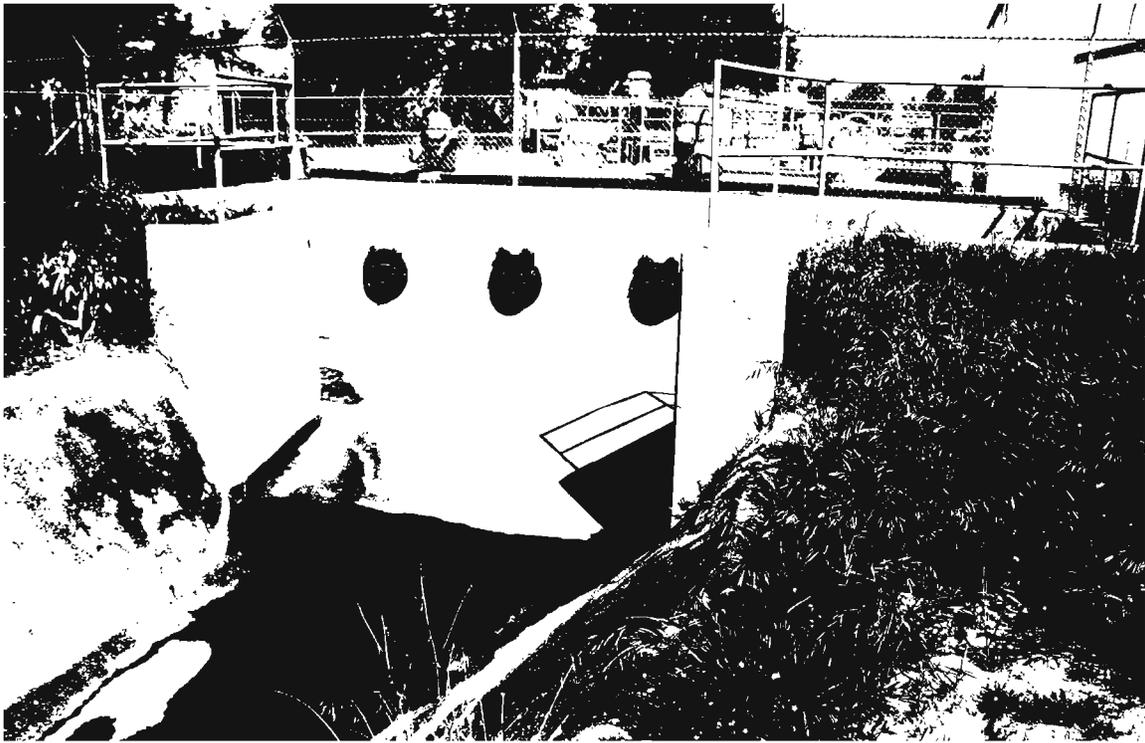


The City's Master Plan delineates specific sub-watersheds within what is considered the City's "sphere of influence". The plan establishes discharge limitations for the major waterways that drain each sub-watershed, and requires new developments within the sub-watersheds to produce a sub-watershed master plan to ensure stormwater infrastructure is coordinated to meet the discharge limitations set for the sub-watershed. The NCYCC facility lies within the "Tidewater" sub-watershed delineated by the Master Plan. The San Joaquin Area Flood Control Agency (SJAFC) produced hydraulic models that studied a number of other sub-watersheds north of the Tidewater sub-watershed, which were used in a recent 2006 FEMA flood insurance study. Discharge limitations for these watersheds have been set and are being enforced for future developments through the requirement of all developments to comply with the sub-watershed master plan.

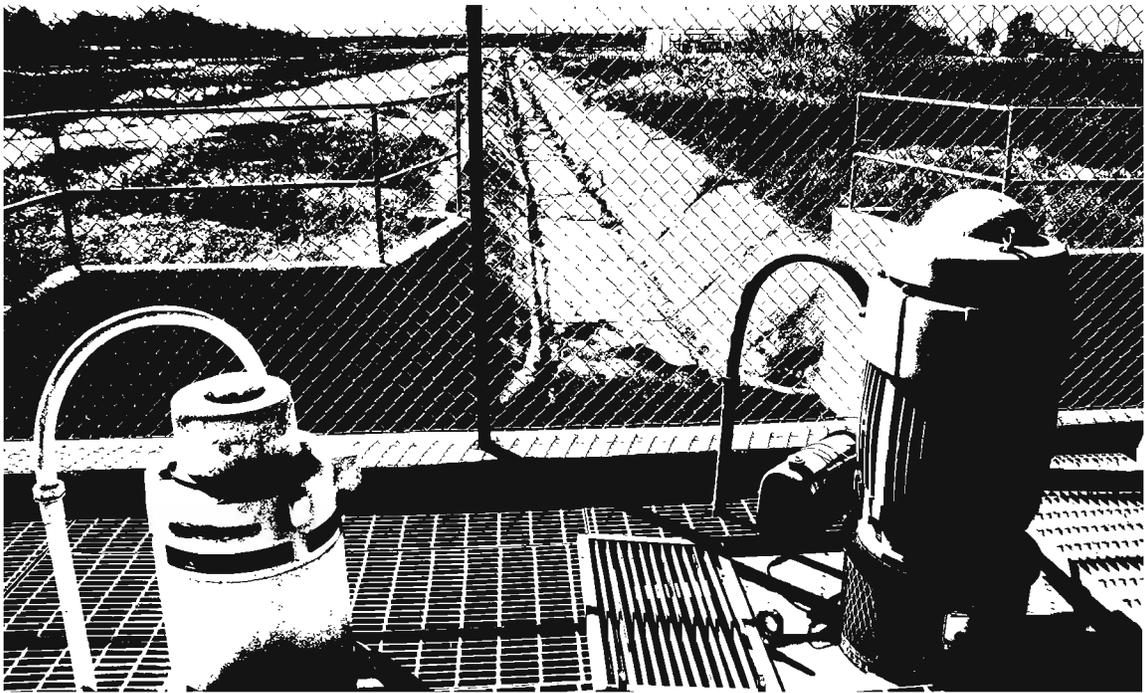
A study for the Tidewater Crossing Development was performed in 2006 entitled "The Tidewater Crossing Draft Hydrology/Hydraulic Analysis Pre-Design Report", which models conveyance capacities of waterways within close proximity to the NCYCC, namely South Littlejohns Creek. However, this study has not been approved by the City, SJAFC, or FEMA and has not been coordinated with other studies which overlap the study area. For this reason, official discharge limitations have not been set and are not currently being enforced in the Tidewater sub-watershed. Therefore, the proposed NCYCC medical facility project will not be required to comply with the requirement to coordinate stormwater improvements with a sub-watershed master plan. Design criteria for any improvements to stormwater infrastructure will be according to the County of San Joaquin Improvement Standards and the San Joaquin County Draft Hydrology Manual.



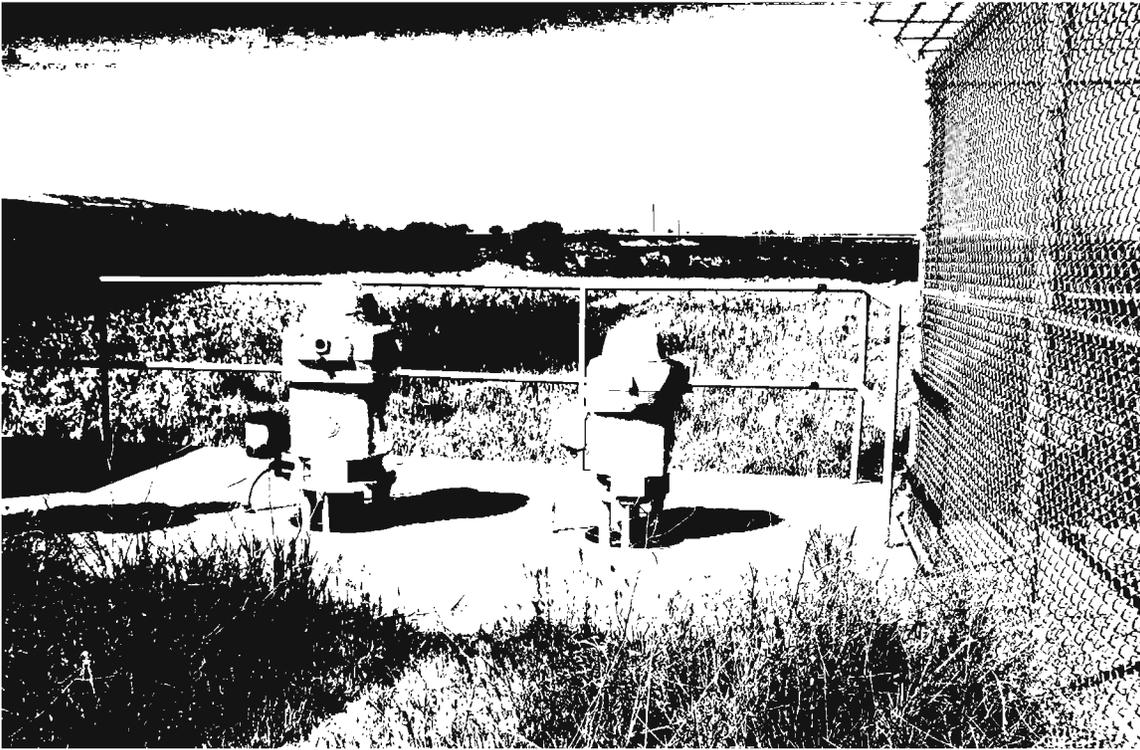
**Stormwater Pump Station No. 1 Vertical Turbine Pumps (4)**



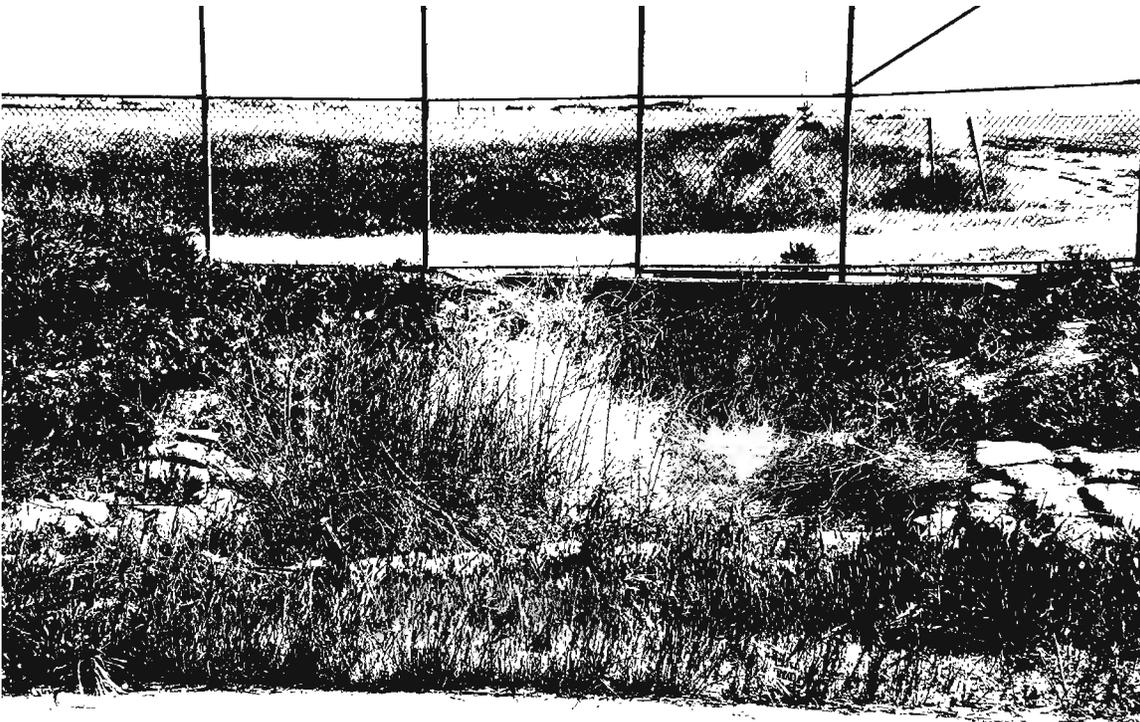
**Stormwater Pump Station No. 1 Outlet to Concrete-Lined Discharge Channel**



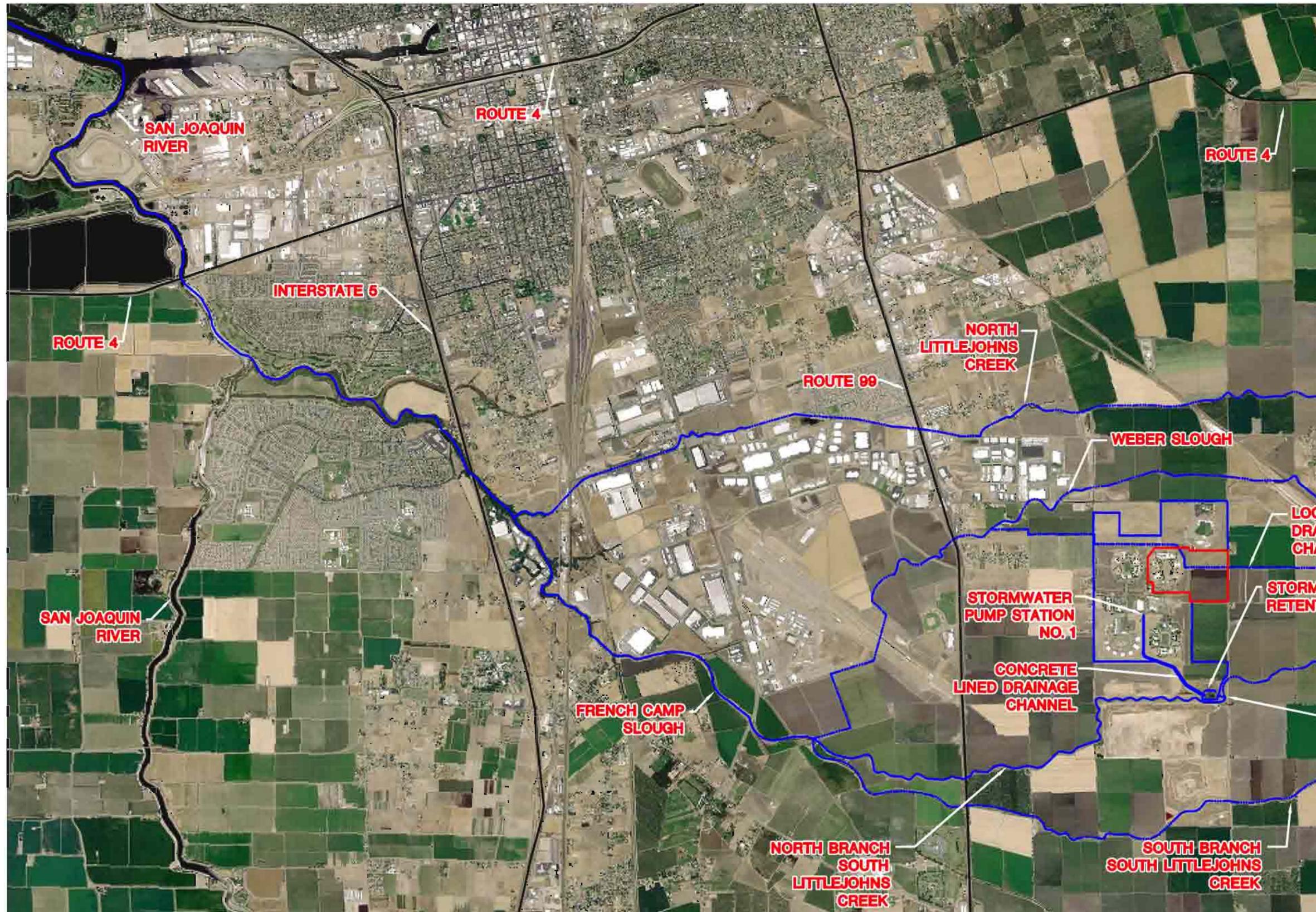
**View Along Concrete-Lined Discharge Channel**



**Stormwater Pump Station No. 2 and Detention / Retention Pond**

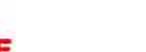


**Unlined Drainage Channel Entrance into Project Site**

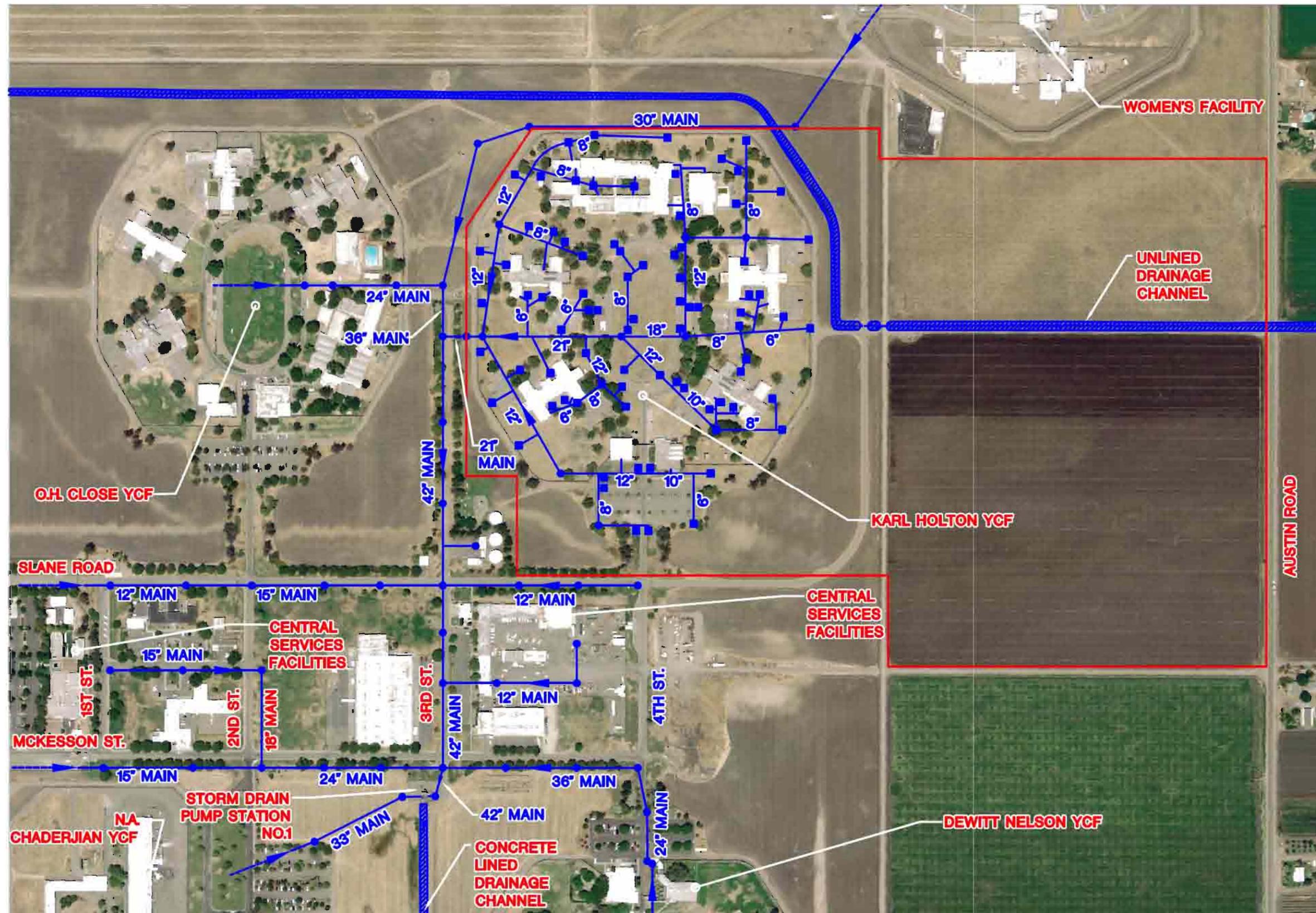


**LEGEND**

-  YOUTH FACILITY BOUNDARY
-  POTENTIAL MEDICAL FACILITY SITE
-  STORMWATER DRAINAGE PATH

-  LOCAL DRAINAGE CHANNEL
-  STORMWATER DETENTION / RETENTION BASIN
-  STORMWATER PUMP STATION NO. 2

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**LEGEND**

- POTENTIAL MEDICAL FACILITY SITE
- STORM DRAIN MANHOLE
- STORM DRAIN INLET
- STORM DRAIN PIPELINE
- STORMWATER DRAINAGE CHANNEL

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**Roads and Traffic**

Main access to the NCYCC is from State Highway 99, from the Arch Road Exit heading eastbound. The NCYCC is located south of Arch Road, bound by Newcastle Road to the west, and Austin Road to the east. The current NCYCC main entrance is on Newcastle Road. Access for the proposed medical facility will likely be provided by the addition of a new driveway located on Austin Road approximately one half to two thirds of a mile south of Arch Road, as shown in Figure 13.

Austin Road is currently a two lane rural road with the bulk of the volume produced by garbage trucks and other traffic associated with the Austin Road Landfill to the south of the NCYCC site. The Highway 99 Interchange onto Arch road has recently been upgraded. Arch Road has four lanes until approximately 500 feet east of Newcastle Road (a newly improved signalized intersection), where it reduces down to a two lane road. It continues as a two lane road until approximately one half mile before Austin Road, where it shifts into two lanes in the eastbound direction, and one lane in the westbound direction. The intersection at Arch Road and Austin Road is a four way stop and does not currently have a signal. Existing turn-lane geometry for this intersection is shown in Figure 13. The majority of the existing volume on Arch Road is likely truck traffic accessing the Intermodal Center located east of the prison site on Arch Road. The Intermodal Center transfers containers from trains onto semi-trucks. Arch Road east of Austin Road has already been upgraded to a four lane road to accommodate truck traffic to the Intermodal Facility.

*Additional Medical Facility Traffic*

Traffic that will be generated by the potential medical facility will generally consist of medical staff that will be entering or leaving the facility during shift changes. Current anticipated number of trips for the peak parking condition that will be generated by the medical facility will be 711 cars, which represents traffic generated from the 8-5 shift, and the #2 and #3 shifts. The single largest shift, which is the 8-5 shift, will have 333 cars. The following table shows the anticipated number of cars per shift.

Anticipated Traffic Generation	
Shift	Cars
Shift 8-5	333
Shift 1	103
Shift 2	223
Shift 3	155
Parking Peak (8-5, 2&3)	711



### *Recent Traffic Studies and Findings*

A traffic impact analysis (TIA) was recently performed by DKS Associates in February 2008 to evaluate the potential impact of converting the Women's Facility into a Men's Reentry Facility. This study projected the addition of 76 AM peak hour trips and 42 PM peak hour trips due to the facility conversion. The study concluded that a signal would be required at the existing site driveway located on Arch Road in the future as other projects continue to develop with close proximity to the NCYCC facility, because of the difficulty that would be encountered by vehicles attempting left turns out of the driveway onto Arch Road. Volumes on Arch Road are projected to increase significantly, from directional peak hour volumes around 150 vehicles to nearly 1200 vehicles in the future as projects such as the Opus West industrial park and Mariposa Lakes development build out.

A TIA was also performed for the Mariposa Lakes development as part of the environmental impact report. Mariposa Lakes is a large 3800+ acre residential and industrial project located just north of the NCYCC site on the north side of Mariposa Road. This study concluded that Arch Road between Newcastle and Austin would be widened to four lanes, Austin Road north of Arch Road would be widened to six lanes, and a signal would be installed at the intersection of Arch Road and Austin Road as part of the first phase of the development. These improvements are scheduled to be paid for by the developers of the project. The EIR was submitted in March of 2007, and the first phase of construction is scheduled to begin at the end of 2008, according to the City Department of Municipal Utilities. The exact timing of the roadway improvements under this first phase of construction is unknown.

### *Future Improvements on Arch Road and Austin Road*

The DKS TIA assumed that Arch Road would be fully improved to a four-lane road and that a signal would be in place at the intersection of Arch Road and Austin Road without consideration of the changes to the Women's Facility as part of its "Background Conditions Analysis", which included the Mariposa Lakes development. This analysis assumed that a dedicated right turn lane would be added to the southbound approach to the Arch Road and Austin Road intersection, and that a second dedicated left turn lane would be added to the eastbound approach (see future lane geometry in Figure 13). The "Background Conditions Analysis" did not assume any intersection geometry changes to the northbound approach of Austin Road to the intersection with Arch Road. The northbound approach volumes did not increase significantly from the "Existing Conditions" scenario to the "Background" scenario in the study, indicating that no significant projects are expected to add additional volume to Austin Road in the near future.



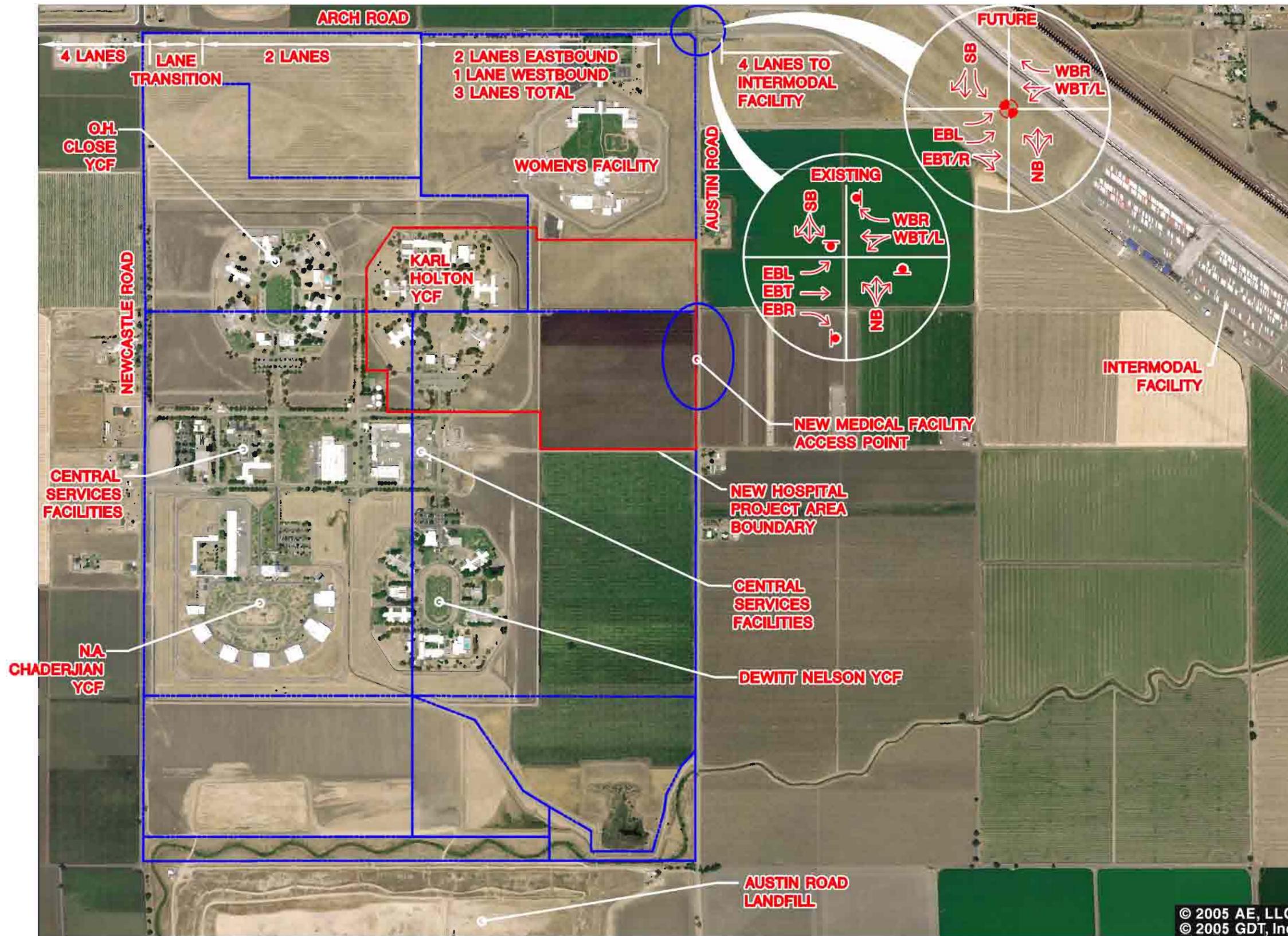
Rosa Alvarez of the City of Stockton's Public Works Department indicated that the roadway segment of westbound Arch road between Austin Road and Newcastle road that is currently only one lane will be improved to two lanes within the next year as part of the Opus West Development. Rosa also confirmed that plans for the complete widening of eastbound Arch road to two lanes and the installation of the signal at Arch and Austin have not been submitted at this time, and that the schedule for these projects is undecided.

#### *Potential Medical Facility Traffic Impacts*

The addition of the medical facility driveway to Austin Road is not likely to require widening of the road to four lanes. The addition of approximately 330 peak hour trips to Austin Road is not expected to greatly affect the level of service of the roadway segment, because low volumes are currently present. Also, the driveway is not expected to require signalized traffic control. With peak hour volumes outbound from the driveway of about 300 vehicles per hour and combined through volumes on Austin Road of approximately 200 vehicles per hour (per the TIA), signal warrants would not be met according to Figure 4C-3 "Warrant 3, Peak Hour" of the California Manual on Uniform Traffic Control Devices (MUTCD), included as an appendix.

The additional traffic volume due to the medical facility may have a significant impact on the intersection of Arch Road and Austin Road, especially in the PM peak hour when as many as 300 vehicles may be making the left turn from Austin Road westbound onto Arch Road to access Highway 99. It is possible that the medical facility project may create a need to install a traffic signal at the intersection of Arch Road and Austin road before the improvement is triggered by the Mariposa Lakes development. If this were the case, it is likely that the NCYCC project would need to pay a "fair share" of the cost, which would be partially shared with the Mariposa Lakes project and other local projects that impact the intersection. Additionally, both the Mariposa Lakes and DSK TIAs indicate that no improvements to the northbound approach at the intersection are required. The addition of up to 300 vehicles attempting a northbound left at this intersection may require the addition of a dedicated northbound left turn, which may be the sole responsibility of the NCYCC project to fund.

A detailed TIA specific to the medical facility project must be prepared to determine the exact impacts the project will have, and research in more detail both the timing of previously planned improvements to the Arch Road at Austin Road intersection and cost sharing mechanisms.



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## **Power Supply**

### *Existing Supply*

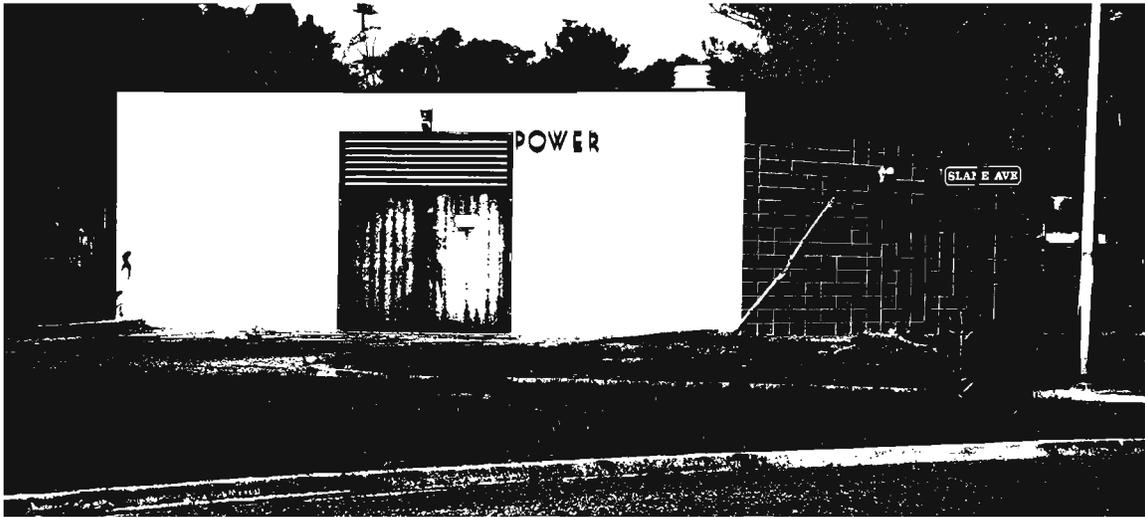
The current NCYCC site is supplied from two different locations by overhead PG&E power lines, shown in Figure 14. The first source is a 12 kV line connected to overhead lines on Arch Road and runs south through the site, paralleling Second Street until it reaches the 15 kV electrical switchgear house on Slane Road and Second Street. This is the primary power source that is derived from the Werner PGE substation. The second source is a 12 kV line that is connected to the overhead lines on Austin Road and heads west through the property parallel to Slane Road until it enters the switchgear house. This second source is derived from Norman PGE substation and provides standby power.

### *Potential Future Infrastructure Improvements Required*

Currently, there is no facility plan for the proposed medical facility and required electrical loads have not been estimated. A report prepared by Boyle Engineering (2007) that looked at converting the existing Karl Holton campus into a Core Treatment Facility with 280 beds performed a detailed analysis of the existing available electric utilities and concluded that the existing 15 kV switchgear would be insufficient. This report suggested the construction of a new secondary 15 kV substation to serve the proposed Core Treatment Facility, separate pad-mounted transformers to serve each new building cluster, as well as additional backup power generation. Another report prepared by Kitchell CEM (2007) looked at converting the existing Women's Facility (currently used as a corrections officer training center) to an adult male "Reentry Facility" which included adding two 190 bed buildings to the campus, bringing the total bed count to 1,140. This report concluded that the substation which serves the existing Women's Facility was inadequate to support the increased electrical loads and suggested the construction of new substation switchgear, transformers, and backup power generators. Based on the results of these two studies, it is highly likely that new switchgear, transformers, and backup power generators will be required for the proposed medical facility considering it will have more beds than the other two projects that were studied, is likely to have a higher concentration of equipment that will require power. It is recommended that power for the medical facility be provided through a new connection to the PGE power grid. Any existing overhead lines that interfere with the proposed project site must be rerouted in underground conduits.

## **Communications**

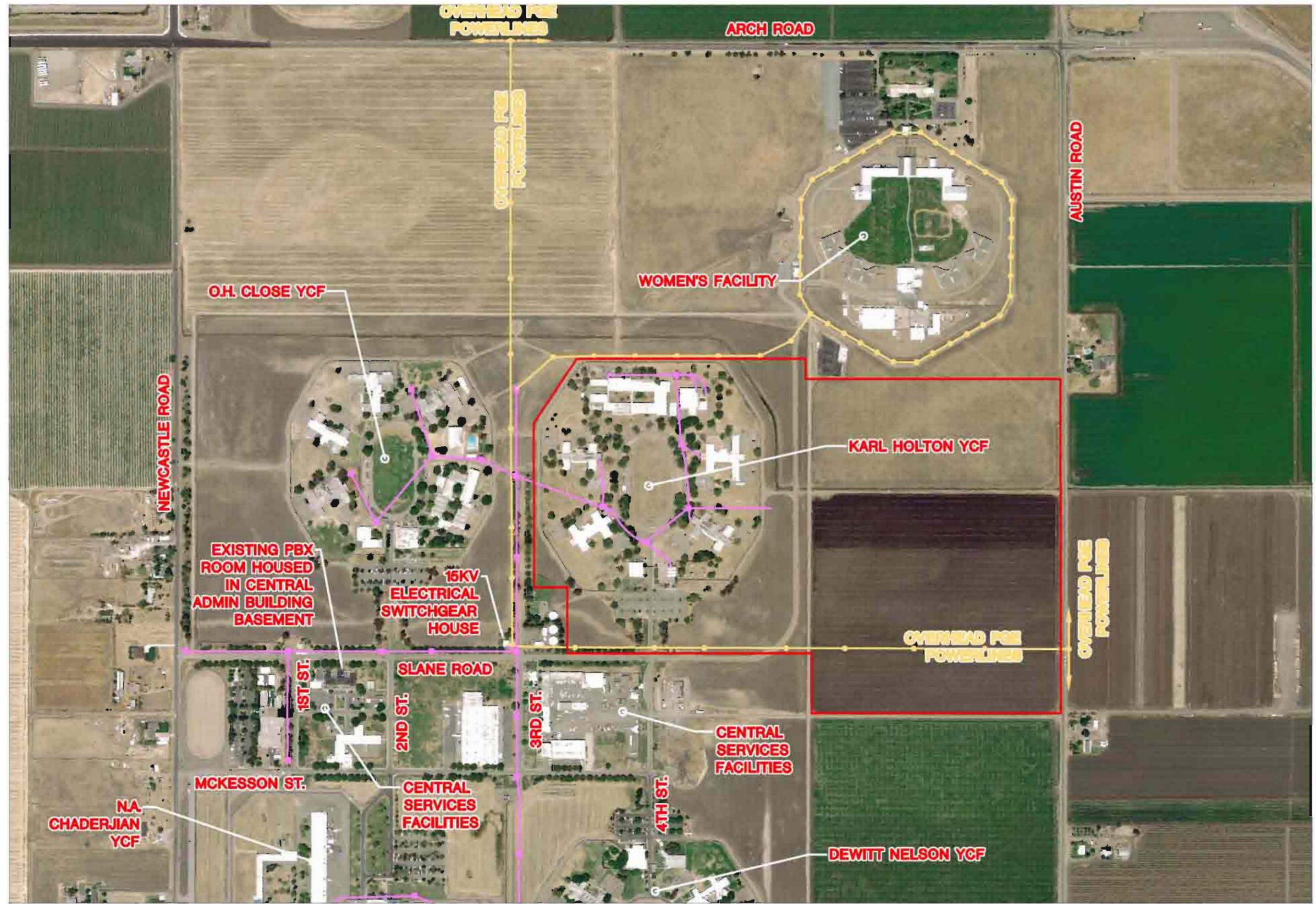
Currently, telephone service is provided from the existing overhead telephone lines on Newcastle Road and Slane Road to the private branch exchange (PBX) room located in the basement of the central administration building (see Figure 14). It is likely that a new service to the proposed medical facility will need to extend from the existing PBX room east to the project site. There appear to be no potential issues involved with connecting the proposed medical facility to the existing PBX equipment.



15 kV Switchgear House



PBX Room Equipment



**LEGEND**

- POTENTIAL MEDICAL FACILITY SITE
- OVERHEAD POWER LINE
- UNDERGROUND ELECTRICAL CONDUIT
- ELECTRICAL MANHOLE
- POWER POLE

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## Natural Gas

Pacific Gas and Electric (PG&E) currently provides natural gas service to the NCYCC site. PG&E has a gas service main on Newcastle Road. Gas service enters the site from Newcastle Road at McKesson Street. This line runs east and feeds the metered natural gas pressure regulating station housed in the steam plant on the corner of Second Street. The pressure regulating station also has an 8-inch main that connects it to the standby fuel system to the east of the station. The standby fuel system stores gaseous and liquid petroleum gas (LPG) in the event that PG&E gas service is interrupted. The existing natural gas distribution system is shown in Figure 15.

From the metered natural gas pressure regulating station at the steam plant, the gas line leaving the station extends into Second Street where it tees into an 8-inch main which feeds facilities to the north, and a 6-inch main which feeds facilities to the south. The line that feeds to the north supplies gas to the water booster pump station, the Plant Operations Building, the O.H. Close YCF, and the Karl Holton YCF. This line reduces down to a 6-inch line after it serves the administration building to the south of the Karl Holton YCF. The line that supplies the southern end of the NCYCC supplies the Dewitt Nelson YCF and the central sewer and stormwater pumping station. Neither of these gas lines are looped.

In addition, there is also a PG&E service that extends from Arch Road to another metered natural gas pressure regulating station north of the Women's Facility. From this pressure reducing station, an 8-inch main extends south and branches into a 6-inch main which loops around the Women's Facility and serves several buildings within the campus.

### *Option 1 - Natural Gas Service to Proposed Medical Facility from Women's Facility*

One option to provide gas service for the proposed medical facility is to tap into the gas system that serves the Women's Facility. Since the Women's Facility has no permanent residents and is only used for training, the gas demand on the system serving the Women's Facility has probably decreased and is a possible source for gas service to the new medical facility since it is close to the new medical facility area. The existing supply of gas and demand required for the new medical facility will require further analysis to determine if this gas supply is adequate. If this option is pursued, future natural gas demands of the Women's Facility considering conversion to an adult re-entry facility should be determined and accounted for.

### *Option 2 - Natural Gas Service to Proposed Medical Facility from Central NCYCC*

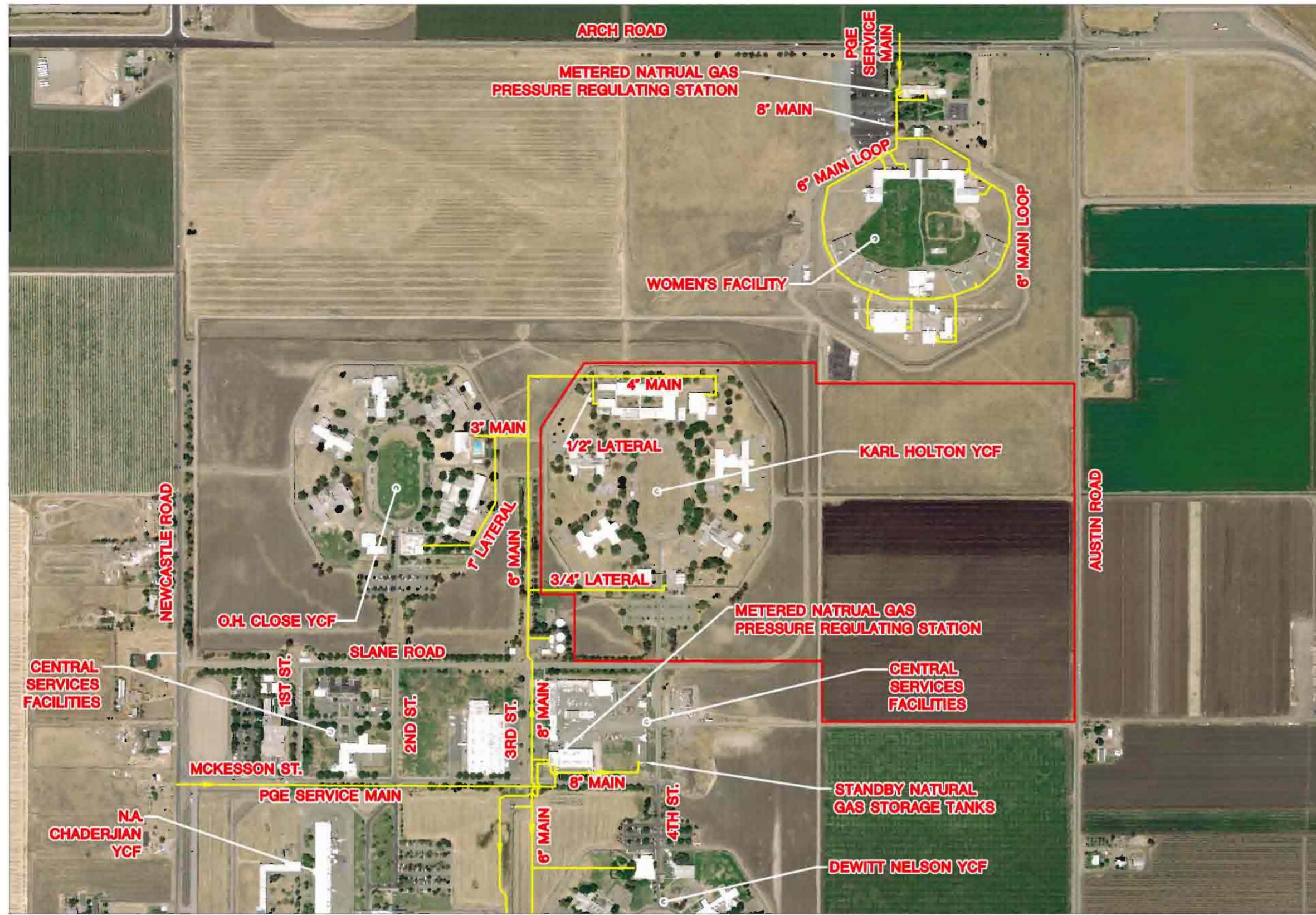
Another option is to provide gas service from the 8-inch main that feeds the buildings to the north of Slane Road. A connection would most likely be made somewhere near the intersection of Slane Road and 3<sup>rd</sup> Street and travel east to the new medical facility. This existing gas system previously provided gas service to all of the NCYCC campuses except the Women's Facility, as described above.



A summary of the number of beds for each of the old facilities in the NCYCC that were fed by the gas pressure regulation station on Second Street are as follows:

Number of Available Beds Per Each Existing Facility	
Facility Name	Number of Beds
O.H. Close YCF	400
Karl Holton YCF	400
Dewitt Nelson YCF	400
N.A. Chaderjian YCF	600

The Karl Holton YCF is shut down and the Dewitt Nelson YCF is scheduled to be shut down in the near future and will be decommissioned before the new medical facility is opened. The total number of beds for the decommissioned facilities is 800 beds. The new facility will add a total of 1,478 beds to the NCYCC. Since over two times the amount of beds are being added than have been decommissioned, the medical facility may require more gas than previously was provided to the old facilities. Existing gas supply and current demands for both the Women's Facility and the remainder of the NCYCC will need to be verified upon further analysis of the system.



**LEGEND**

- POTENTIAL MEDICAL FACILITY SITE
- NATURAL GAS DISTRIBUTION LINE

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**Figure 15**  
**Existing Natural Gas Distribution System**  
June 2008



## References

Predesign Engineering Report, Northern California Core Treatment Facility, NCYCC, CDCR; Boyle Engineering Corporation, September 28, 2007

Initial Study/Proposed Mitigated Negative Declaration, Northern California Women's Facility Conversion to Northern California Re-Entry Facility, CDCR; EDAW/AECOM, February 2008

Final Geotechnical Investigation Report, Karl Holton State Youth Facility, KMD Architects; Fugo West Inc., September 2007

Final Hazardous Materials Investigation Report, Karl Holton State Youth Facility, KMD Architects; Fugo West Inc., September 2007

Population Management Site and Infrastructure Survey, Northern California Women's Facility Conversion; Kitchell CEM, August 2007

Sizing Data For Use By Site Engineers In Developing Utility Distribution Designs, CDC; Kitchell, August 9, 1995

City of Stockton Storm Drain Master Plan; Peterson, Brustad, Piretti Inc., February, 2007

Stormwater Quality Control Criteria Plan, City of Stockton; Larry Walker Associates, January 2008

Stormwater Management Plan, City of Stockton; Larry Walker Associates, September 2003

Draft Wastewater Master Plan, City of Stockton; West Yost Associates, September 2007

Draft Water Master Plan, City of Stockton; West Yost Associates, August 2007

Alternative Water Source, Northern California Youth Correctional Center, Stockton, CA, Draft Budget Package No. 3270B4; Carollo Engineers, December 2006.

Northern California Women's Facility Inmate Re-Entry Facility Conversion Transportation Impact Analysis, CDCR; DSK Associates, February 19, 2008.

Draft Environmental Impact Report, Mariposa Lakes Specific Plan, City of Stockton; EDAW|AECOM, March, 2007.

Handbook of Environmental Engineering Calculations; C.C. Lee, McGraw-Hill, 2000.



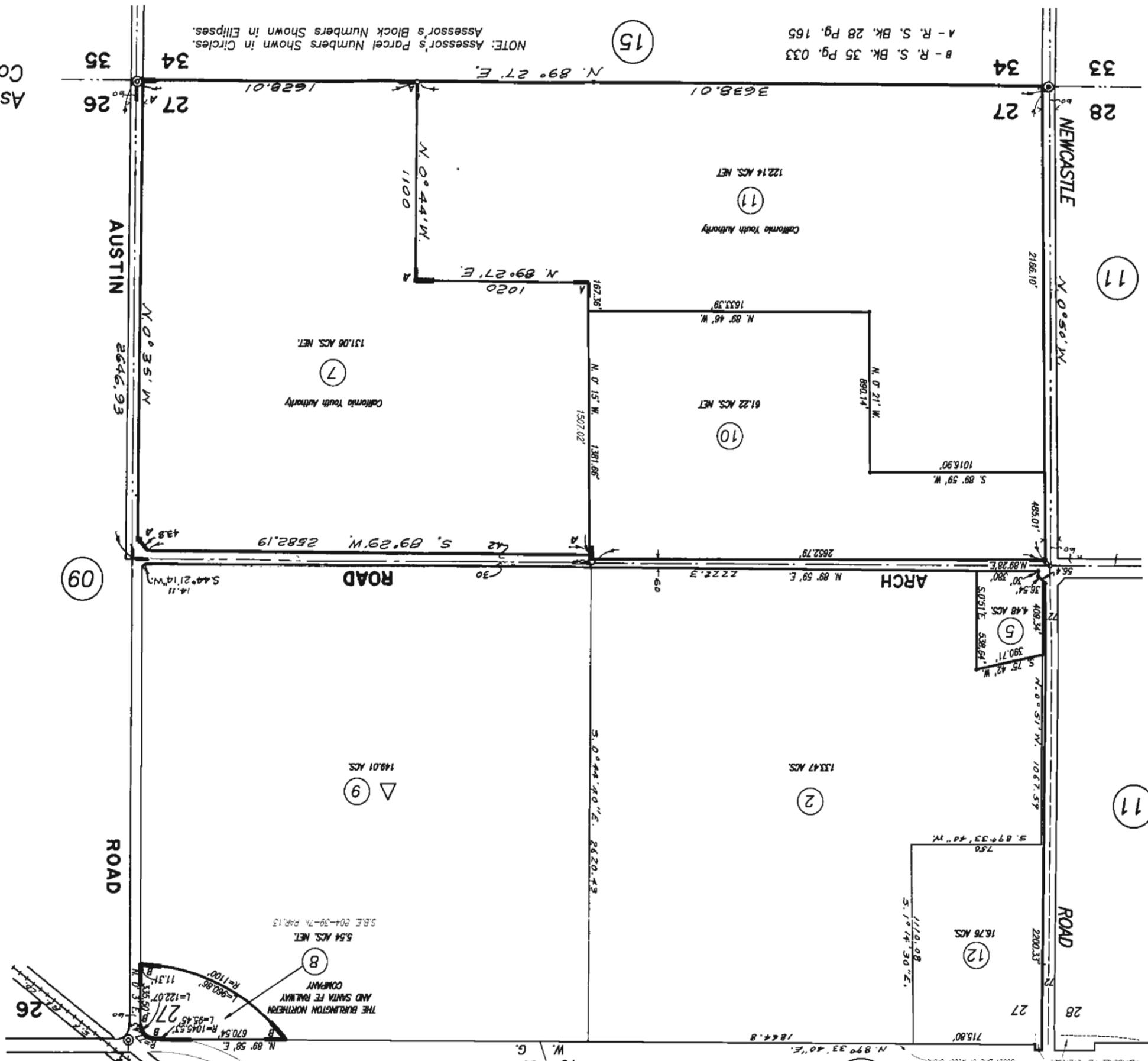
Kimley-Horn  
and Associates, Inc.

# Appendices

## Property Information

SEC. 27 T.1N. R7E., M.D.B.&M.

Bk. 179



NOTE: Assessor's Parcel Numbers Shown in Circles.  
Assessor's Block Numbers Shown in Ellipses.

B - R. S. Bk. 35 Pg. 033  
A - R. S. Bk. 28 Pg. 165

CITY OF STOCKTON  
Assessor's Map Bk. 181 Pg. 10  
County of San Joaquin, Calif.

YEAR	PAR. #	PAR. #	HIGHEST A.P.N. USED
86-87	7		
04-05	9		
06-07	11		
08-09	12		

▽ - WILLIAMSON ACT PARCELS



181-10

THIS MAP IS FOR  
ASSESSMENT USE ONLY

23

ABANDONED PER 07210835

SOUTH LINE OF WATER FRONT

THE BURLINGTON NORTHERN  
AND SANTA FE RAILWAY  
COMPANY  
5.54 ACS. NET.  
S.B.E. 804-39-74 PAR. 13

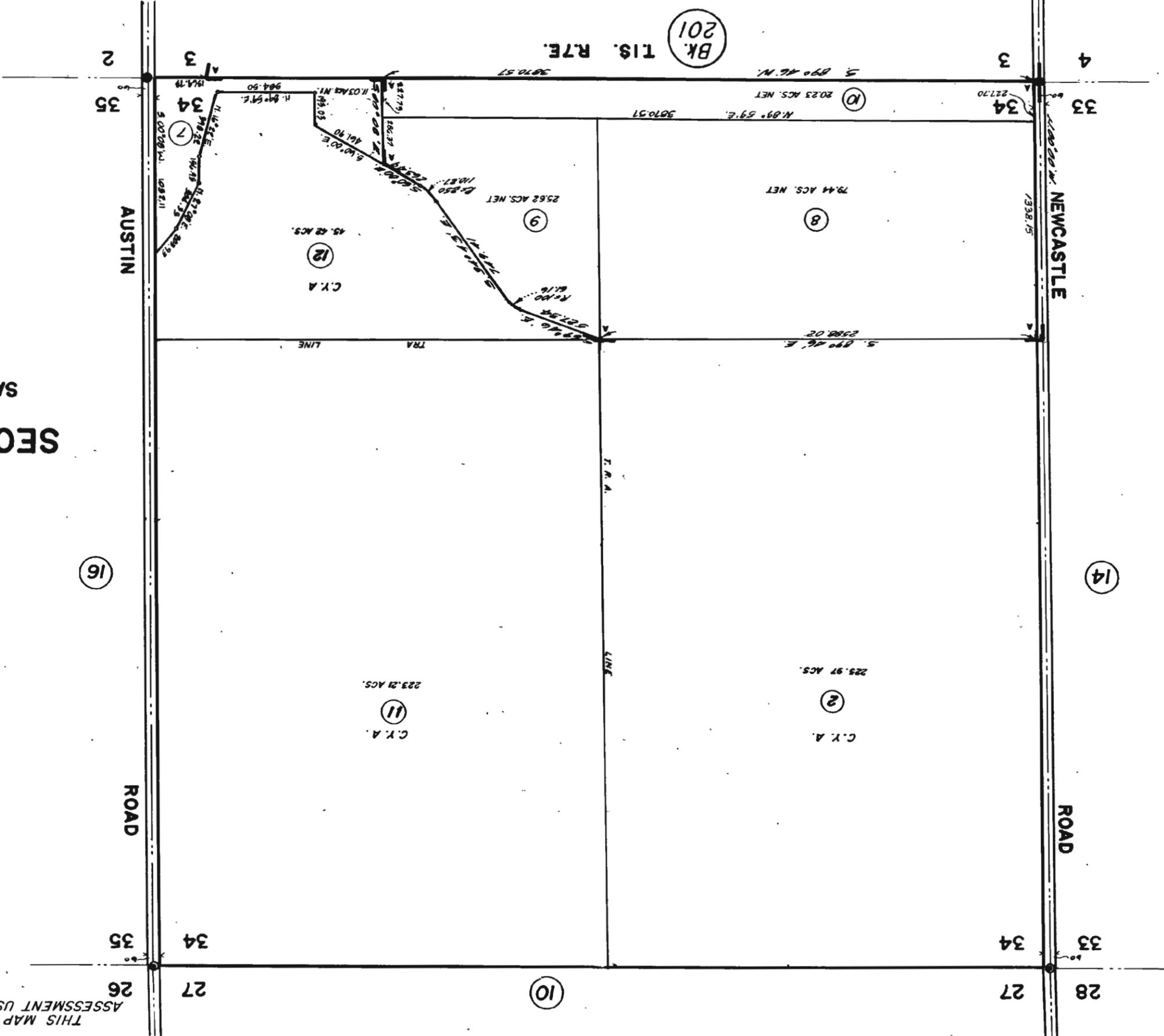
670.54' R=1045.53'  
L=92.45'  
11.31'  
R=1100'  
L=902.86'  
L=122.07'  
R=1033.81'

SEC. 34 T1N. R7E  
SCALE 1"=600'  
SAN JOAQUIN COUNTY  
ASSESSORS MAPS



181-15

THIS MAP FOR  
ASSESSMENT USE ONLY



16

14

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BK. 201

T1S. R7E.

AUSTIN ROAD

NEWCASTLE ROAD

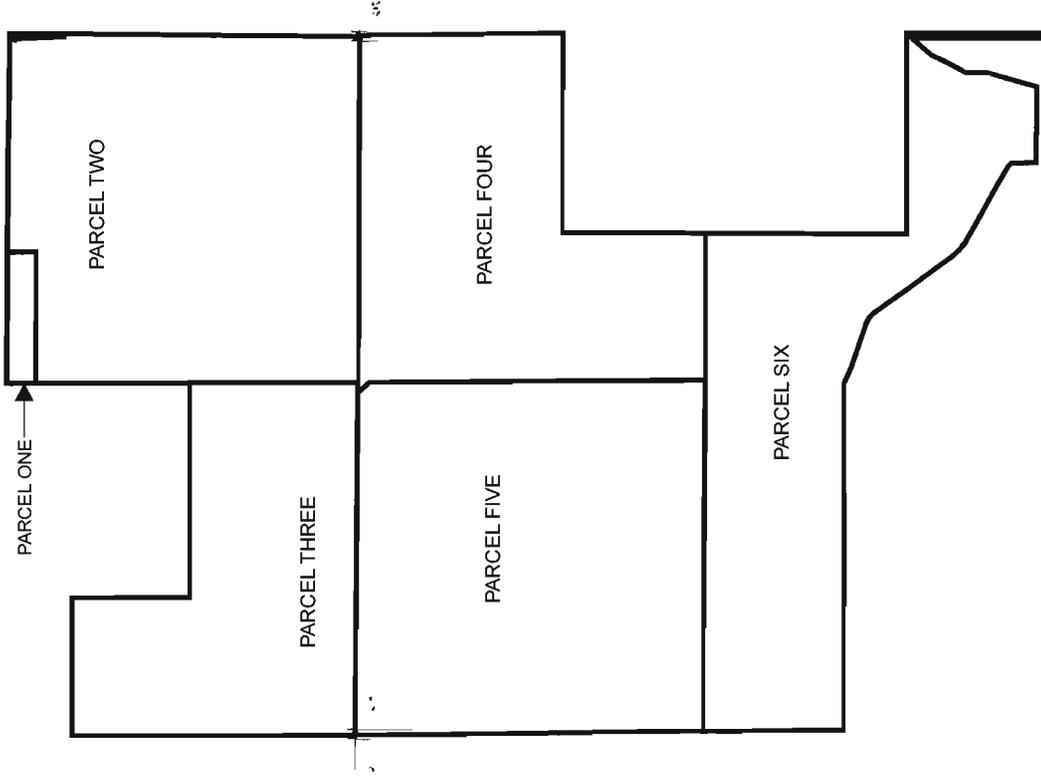






**First American  
Title Company**

Reference No.: 346221  
County: San Joaquin



**Plotted Easements**

**Legend**

-  PARCEL ONE
-  PARCEL TWO
-  PARCEL THREE
-  PARCEL FOUR
-  PARCEL FIVE
-  PARCEL SIX

08/05/1992 #92089830  
(Drainages Channel-  
Not Plotted-Aff.App.Ease)

02/25/1955 Bk1720 Pg306  
(ROW-Not Plottable)

02/24/1957 Bk1965 Pg113  
(Access Road-Not Plottable)

01/29/1962 Bk2505 Pg519  
(Drilling,Mining & Removing Oil  
-Not Plottable)

 10/11/1966 Bk3080 Pg547(Road)

03/01/1989 #89017661(Road)

05/06/1996 #96047204  
(Public Road & Drainage-  
Not Plotted-Aff.App.ease)

Tax ID: 181-100-07, 181-100-11, 181-150-02, 181-150-11 AND 181-150-12

Short Legal: A Portion of County of San Joaquin

Map Not  
To Scale

This map may or may not be a survey of the land depicted hereon. You should not rely upon it for any purpose other than orientation to the general location of the parcel or parcels depicted. First American Title expressly disclaims any liability for alleged loss or damage which may result from reliance upon this map.

# WASTEWATER SYSTEM

AMENDMENT NO. 1  
TO  
AGREEMENT FOR SEWAGE DISPOSAL  
-----

THIS AMENDMENT TO AGREEMENT, made and entered into this  
13th day of June, 1973, by and between the STATE OF  
CALIFORNIA, by and through its duly appointed, qualified and  
acting Director of Youth Authority, hereinafter referred to as  
"State", and the CITY OF STOCKTON, a Municipal Corporation, herein-  
after referred to as "City".

W I T N E S S E T H:

WHEREAS, the State of California, acting by and through  
its duly appointed, qualified and acting Director of Youth Authority,  
hereinafter referred as "State" and the City of Stockton, a Municipal  
Corporation, hereinafter referred to as "City", entered into an  
agreement on the 10th day of June 1964, whereby the City agreed to  
provide sewage capacity rights to the State on terms and conditions  
and for consideration therein set forth, and

WHEREAS, terms of said agreement anticipated a greater  
expected capacity than that now experienced and forecast for the  
future, due to decreased construction plans, and

WHEREAS, State desires to reduce the maximum capacity  
and eliminate the final payment, and

WHEREAS, City, in consideration of State's dedication  
to the City of a certain portion of the sewer line, has agreed to  
waive final payment.

NOW THEREFORE, the parties hereto do mutually agree to  
amend said agreement as follows:

A portion of the first sentence of Article 1, page two,  
now reading "for the transportation, treatment and dis-  
posal of one million two hundred thousand (1,200,000)  
gallons of sewage daily flow from said property of State

or any addition thereto or portions thereof" shall be amended to read "for the transportation, treatment and disposal of eight hundred thousand (800,000) gallons of sewage daily flow from said property of State or any addition thereto or portions thereof".

Article 2, page two, now reading "State shall pay to City the sum of \$423,100.00, which parties agree is an equitable portion of the cost of existing improvements to City's Sewage Facility to provide the sewage capacity for the use of the State as set forth above" shall be amended to read "State shall pay to the City the sum of \$282,100.00, which parties agree is an equitable portion of the cost of existing improvements to City's Sewage Facility to provide the sewage capacity for the use of the State as set forth above".

Article 3(a), on page 2, now reading "(a) City shall adequately accept, transport, treat and dispose of all sewage emanating from the said property of the State, or any addition thereto or portion thereof, in the City's Sewage Facility, in an amount not to exceed 1,200,000 gallons per day, nor 2,100 gallons per minute." shall be amended to read "(a) City shall adequately accept, transport, treat and dispose of all sewage emanating from the said property of State, or any additions thereto or portion thereof, in the City's Sewage Facility, in an amount not to exceed 800,000 gallons per day nor 1,400 gallons per minute." *peak flow (not all day) 2.5 fact line*

Article 3(e), on page 3, now reading "(3) The third payment in the sum of \$141,000.00 to be paid at the time the State first disposes of eight hundred thousand (800,000) gallons

of sewage, daily flow, in the City's Sewage Facility or on January 1, 1975, whichever is sooner." shall be deleted in its entirety.

In consideration of the amended articles hereinbefore mentioned, State agrees to initiate separate documents whereby ownership of said sewer line shall be vested in the City to operate and maintain, from the entry point of State property to the connection with the City's sewer line, and to assign State's perpetual easement rights for the sewer line for its crossing certain private and county property to the City.

All other terms of the agreement shall remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed by their respective officers thereunto duly authorized the day and year first above written.

CITY OF STOCKTON, a Municipal Corporation,

By Charles E. Beck  
Mayor

"CITY"

ATTEST: JOHN M. JARRETT

BY: Mary D. Head  
Asst. City Clerk

Approved as to form:

Marion H. Kugler  
City Attorney

STATE OF CALIFORNIA  
DEPARTMENT OF YOUTH AUTHORITY

By R. H. Mabbitt

"STATE"

Stamp: APPROVED, INC. 04 1975, with handwritten initials and signatures.

I hereby certify that all conditions for exemption set forth in State Administrative Manual Section 12J1.13 have been complied with and this document is exempt from review by the Department of Finance.

James V. Becker  
73-74

6-4-64

AGREEMENT FOR SEWAGE DISPOSAL

THIS AGREEMENT, made and entered into this 10<sup>th</sup> day of June, 1964, by and between the STATE OF CALIFORNIA, by and through its duly appointed, qualified and acting Director of Youth Authority, hereinafter referred to as "State", and the CITY OF STOCKTON, a Municipal Corporation, hereinafter referred to as "City".

W I T N E S S E T H:

WHEREAS, City owns and operates certain sewage treatment and disposal systems, with sewage lines and other facilities used in connection therewith, the same being hereinafter referred to as "City's Sewage Facility", and

WHEREAS, City is agreeable to provide facilities to dispose of the sewage emanating from State property and is agreeable to constructing other facilities as may be required to provide sewage capacity rights in its sewage facilities for the use of the State as hereinafter set forth, and

WHEREAS, State owns and operates certain premises known as The Northern California Youth Center, located in San Joaquin County, California, and more particularly described as follows:

The south half of Section 27 and all of Section 34, Township 1 North, Range 7 East, M.D.B. & M., containing approximately 960 acres, more or less,

and

WHEREAS, State is in need of sewage facilities to serve the said Youth Center and desires to obtain sewage capacity rights in the City's Sewage Facility, and

WHEREAS, it is to the mutual benefit of the parties that City provide sewage facilities to process and dispose of the State's sewage, that City reserve capacity for State, and that State pay the equitable cost of this reserved capacity in the City's Sewage Facility, and

WHEREAS, the within agreement is in the mutual best interests of the parties;

NOW, THEREFORE, IT IS MUTUALLY AGREED that City will provide sewage capacity rights to State on the terms and conditions, and for the consideration herein set forth, to wit:

1. City has constructed, or shall within a reasonable time hereafter construct, such improvements to City's Sewage Facility as will provide sewage capacity for the use of State; its successors or assigns, for the transportation, treatment, and disposal of one million two hundred thousand (1,200,000) gallons of sewage daily flow from the said property of State or any additions thereto or portions thereof, but in no event to exceed a maximum hourly rate of flow of 2,100 gallons per minute.

2. State shall pay to City the sum of \$423,100.00, which the parties agree is an equitable portion of the cost of existing improvements to City's Sewage Facility to provide the sewage capacity for the use of the State as set forth above.

3. City hereby grants to State the herein described sewage capacity rights in its sewage facilities for a continual period of fifty (50) years, commencing on the date the State first disposes of any sewage in the City's Sewage Facility, on the terms and conditions hereinafter set forth:

(a) City shall adequately accept, transport, treat, and dispose of all sewage emanating from the said property of State, or any additions thereto or portion thereof, in the City's Sewage Facility, in an amount not to exceed 1,200,000 gallons per day, nor 2,100 gallons per minute.

(b) The point of acceptance of said sewage by City shall be at the intersection of Airport Way and

Sperry Road, near the northwesterly corner of the Stockton Metropolitan Airport at a manhole to be constructed by State (City of Stockton datum 88.0 feet), at an invert elevation of 3.40 feet (U.S.G.S. datum).

(c) State shall construct at its expense the necessary sewage collection system on State property and the outfall sewer from the State property to said connection point as set forth above.

(d) City agrees to operate and maintain its Sewage Facility, during the said 50-year term, in accordance with all applicable laws, ordinances and regulations.

(e) On condition that City will have constructed by January 1, 1965, the necessary improvements to its Sewage Facility to dispose of sewage emanating from the State property, State shall make payment to the City for capacity in the City's Sewage Facility in the following manner:

(1) The first payment in the sum of \$141,100.00 to be paid on January 1, 1965.

(2) The second payment in the sum of \$141,000.00 to be paid at the time the State first disposes of sewage waste into the City's sewage facility.

(3) The third payment in the sum of \$141,000.00 to be paid at the time the State first disposes of eight hundred thousand (800,000) gallons of sewage, daily flow, in the City's Sewage Facility, or on January 1, 1975, whichever is sooner.

(f) In addition to the payments to be made by State to City as hereinabove set forth, and in the event that City hereafter adopts a sewer service charge applicable throughout the City of Stockton, State agrees to pay said sewer service charge to City upon the same basis

as other connections of like size and character.

(g) State shall, at its cost, install a bar rack and measuring and metering device at an appropriate location on the State's property, and shall maintain periodic or continuous recordings and records of the average daily flow of sewage emanating from State property. Such measuring and metering device shall be accessible to the City. State shall make available to the City the recordings thereof sufficient to determine total monthly volume and rate of average daily and peak flow of sewage emanating from the said State property. Said bar rack and measuring and metering device shall be constructed and in operation at the time the State first disposes of its sewage in the City's Sewage Facility and shall be of a type and design approved by the City.

(h) Each party shall have the right from time to time to inspect the measuring and recording methods and records of the other party.

(i) The City and State shall each independently maintain, manage, operate, and control their respectively owned sewage facilities. It is agreed that neither party shall be considered the agent of the other, but that the parties shall bear the relationship to one another of independent contractors. City will indemnify and hold State harmless from any and all claims, demands, or causes of action of any person or entity which may arise or be alleged to arise as a result of City's transportation, treatment, or disposal of sewage emanating from State, except that City shall have no responsibility for any such claims, demands, or causes of action resulting from transportation of sewage to said hook-up point at the Stockton Metropolitan Airport.

4. In the event the State should desire disposal of sewage from State at a rate in excess of the quantity herein provided, State shall have the right from time to time to acquire additional capacity rights in the City's Sewage Facility based on the same terms and conditions as set forth in this agreement.

5. City anticipates that the normal strength sewage emanating from State's facility will not exceed an average five-day B.O.D. (Biochemical Oxygen Demand) of more than four hundred parts per million. In the event that the quality of the sewage from the State facility exceeds the above normal strength, the quality of which shall be determined by sewage samples average from ten random samples taken over a 30 day period; an extra charge, to be determined by City may be imposed upon State, or pretreatment of sewage originating from the State may be required by City.

6. State shall have the right to terminate this agreement upon one year's written notice to City. City shall be required to honor this entire agreement and the capacity rights granted hereunder to State for the entire term of this agreement. In the event of termination of this agreement by State, City shall not be required to return any money paid to City by State pursuant to Section 3 hereof.

7. The City shall maintain accurate, complete, and current cost records concerning the City's Sewage Facility, and such records shall be available for the inspection and copying by State at all reasonable times.

8. All capacity rights, or other rights of State under the terms and conditions of this agreement, shall be for the benefit of the said above described State property known as The Northern California Youth Center, and all such rights shall extend to such property, or any additions thereto or any portions thereof, subject to flow

limitations as in this agreement set forth. This agreement shall inure to the benefit of, and bind, the successors or assigns of the parties hereto.

9. Annexation of the hereinbefore described State property to the City of Stockton may become possible in the future. In the event that City desires in the future to annex said property to the City of Stockton, State agrees that it will express no opposition to said annexation.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed by their respective officers thereunto duly authorized the day and year first above written.

CITY OF STOCKTON, a Municipal Corporation,

By Raymond M. Nickerson  
Mayor

ATTEST:

Janet M. Miller  
City Clerk

"City"

Approved as to form:

Monroe M. Lacydon  
City Attorney

APPROVED BY  
James B. [unclear]  
FOR ASSISTANT CLERK

STATE OF CALIFORNIA  
DEPARTMENT OF YOUTH AUTHORITY

By George R. [unclear]  
"State"

John H. [unclear]  
DEPUTY DIRECTOR

AMENDMENT NO. 1  
TO  
AGREEMENT FOR SEWAGE DISPOSAL  
-----

THIS AMENDMENT TO AGREEMENT, made and entered into this  
13th day of June, 1973, by and between the STATE OF  
CALIFORNIA, by and through its duly appointed, qualified and  
acting Director of Youth Authority, hereinafter referred to as  
"State", and the CITY OF STOCKTON, a Municipal Corporation, herein-  
after referred to as "City".

W I T N E S S E T H:

WHEREAS, the State of California, acting by and through  
its duly appointed, qualified and acting Director of Youth Authority,  
hereinafter referred as "State" and the City of Stockton, a Municipal  
Corporation, hereinafter referred to as "City", entered into an  
agreement on the 10th day of June 1964, whereby the City agreed to  
provide sewage capacity rights to the State on terms and conditions  
and for consideration therein set forth, and

WHEREAS, terms of said agreement anticipated a greater  
expected capacity than that now experienced and forecast for the  
future, due to decreased construction plans, and

WHEREAS, State desires to reduce the maximum capacity  
and eliminate the final payment, and

WHEREAS, City, in consideration of State's dedication  
to the City of a certain portion of the sewer line, has agreed to  
waive final payment.

NOW THEREFORE, the parties hereto do mutually agree to  
amend said agreement as follows:

A portion of the first sentence of Article 1, page two,  
now reading "for the transportation, treatment and dis-  
posal of one million two hundred thousand (1,200,000)  
gallons of sewage daily flow from said property of State

or any addition thereto or portions thereof" shall be amended to read "for the transportation, treatment and disposal of eight hundred thousand (800,000) gallons of sewage daily flow from said property of State or any addition thereto or portions thereof".

Article 2, page two, now reading "State shall pay to City the sum of \$423,100.00, which parties agree is an equitable portion of the cost of existing improvements to City's Sewage Facility to provide the sewage capacity for the use of the State as set forth above" shall be amended to read "State shall pay to the City the sum of \$282,100.00, which parties agree is an equitable portion of the cost of existing improvements to City's Sewage Facility to provide the sewage capacity for the use of the State as set forth above".

Article 3(a), on page 2, now reading "(a) City shall adequately accept, transport, treat and dispose of all sewage emanating from the said property of the State, or any addition thereto or portion thereof, in the City's Sewage Facility, in an amount not to exceed 1,200,000 gallons per day, nor 2,100 gallons per minute." shall be amended to read "(a) City shall adequately accept, transport, treat and dispose of all sewage emanating from the said property of State, or any additions thereto or portion thereof, in the City's Sewage Facility, in an amount not to exceed 800,000 gallons per day nor 1,400 gallons per minute." *peak flow (not all day)* *2.5 factor*

Article 3(e), on page 3, now reading "(3) The third payment in the sum of \$141,000.00 to be paid at the time the State first disposes of eight hundred thousand (800,000) gallons

of sewage, daily flow, in the City's Sewage Facility or on January 1, 1975, whichever is sooner." shall be deleted in its entirety.

In consideration of the amended articles hereinbefore mentioned, State agrees to initiate separate documents whereby ownership of said sewer line shall be vested in the City to operate and maintain, from the entry point of State property to the connection with the City's sewer line, and to assign State's perpetual easement rights for the sewer line for its crossing certain private and county property to the City.

All other terms of the agreement shall remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed by their respective officers thereunto duly authorized the day and year first above written.

CITY OF STOCKTON, a Municipal Corporation,

By Charles E. Beck  
Mayor

"CITY"

ATTEST: JOHN M. JARRETT

BY: Mary D. Reed  
Asst. City Clerk

Approved as to form:

Marion H. Ferguson  
City Attorney

STATE OF CALIFORNIA  
DEPARTMENT OF YOUTH AUTHORITY

By R. H. Abbott

"STATE"

Stamp: "as" "cos" "RECEIVED" "FEB 24 1975" "Frank K. Oliver" "cy" "to the" "1"

I hereby certify that all conditions for exemption set forth in State Administrative Manual section 1201.13 have been complied with and this document is exempt from review by the Department of Finance.

James H. Becker M.F.F.A. 73-74

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## Worksheet for Circular Pipe - 1

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### Project Description

Friction Method	Manning Formula
Solve For	Discharge

### Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00130	ft/ft
Normal Depth	1.50	ft
Diameter	1.67	ft

### Results

Discharge	5.35	ft <sup>3</sup> /s
Flow Area	2.07	ft <sup>2</sup>
Wetted Perimeter	4.16	ft
Top Width	1.00	ft
Critical Depth	0.86	ft
Percent Full	90.0	%
Critical Slope	0.00526	ft/ft
Velocity	2.58	ft/s
Velocity Head	0.10	ft
Specific Energy	1.60	ft
Froude Number	0.32	
Maximum Discharge	5.39	ft <sup>3</sup> /s
Discharge Full	5.02	ft <sup>3</sup> /s
Slope Full	0.00148	ft/ft
Flow Type	SubCritical	

### GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

### GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	90.00	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s

---

## Worksheet for Circular Pipe - 1

---

GVF Output Data

Normal Depth	1.50	ft
Critical Depth	0.86	ft
Channel Slope	0.00130	ft/ft
Critical Slope	0.00526	ft/ft

---

## Worksheet for Circular Pipe - 1

---

### Project Description

Friction Method	Manning Formula
Solve For	Discharge

### Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00200	ft/ft
Normal Depth	0.90	ft
Diameter	1.00	ft

### Results

Discharge	1.70	ft <sup>3</sup> /s
Flow Area	0.74	ft <sup>2</sup>
Wetted Perimeter	2.50	ft
Top Width	0.60	ft
Critical Depth	0.55	ft
Percent Full	90.0	%
Critical Slope	0.00647	ft/ft
Velocity	2.28	ft/s
Velocity Head	0.08	ft
Specific Energy	0.98	ft
Froude Number	0.36	
Maximum Discharge	1.71	ft <sup>3</sup> /s
Discharge Full	1.59	ft <sup>3</sup> /s
Slope Full	0.00227	ft/ft
Flow Type	SubCritical	

### GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

### GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	90.00	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s

---

**Worksheet for Circular Pipe - 1**

---

GVF Output Data

Normal Depth	0.90	ft
Critical Depth	0.55	ft
Channel Slope	0.00200	ft/ft
Critical Slope	0.00647	ft/ft

---

## Worksheet for Circular Pipe - 1

---

### Project Description

Friction Method	Manning Formula
Solve For	Discharge

### Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00150	ft/ft
Normal Depth	1.05	ft
Diameter	1.17	ft

### Results

Discharge	2.22	ft <sup>3</sup> /s
Flow Area	1.01	ft <sup>2</sup>
Wetted Perimeter	2.91	ft
Top Width	0.70	ft
Critical Depth	0.61	ft
Percent Full	90.0	%
Critical Slope	0.00595	ft/ft
Velocity	2.19	ft/s
Velocity Head	0.07	ft
Specific Energy	1.12	ft
Froude Number	0.32	
Maximum Discharge	2.24	ft <sup>3</sup> /s
Discharge Full	2.08	ft <sup>3</sup> /s
Slope Full	0.00170	ft/ft
Flow Type	SubCritical	

### GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

### GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	90.00	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s

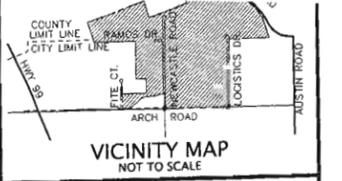
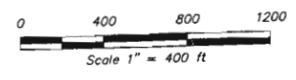
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## Worksheet for Circular Pipe - 1

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GVF Output Data

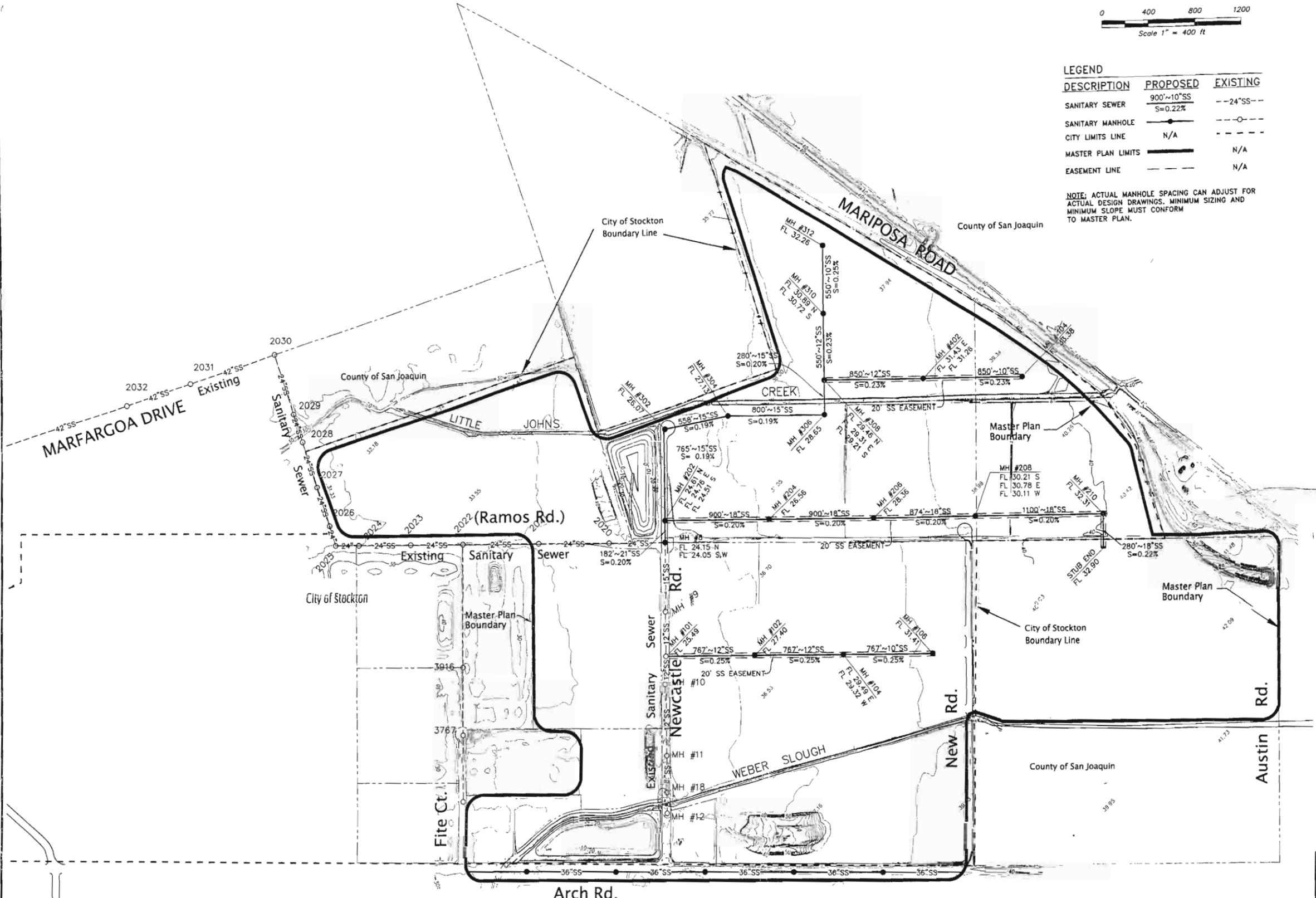
Normal Depth	1.05	ft
Critical Depth	0.61	ft
Channel Slope	0.00150	ft/ft
Critical Slope	0.00595	ft/ft



**LEGEND**

DESCRIPTION	PROPOSED	EXISTING
SANITARY SEWER	900'~10"SS S=0.22%	--24"SS--
SANITARY MANHOLE	○	○
CITY LIMITS LINE	N/A	---
MASTER PLAN LIMITS	---	N/A
EASEMENT LINE	---	N/A

NOTE: ACTUAL MANHOLE SPACING CAN ADJUST FOR ACTUAL DESIGN DRAWINGS. MINIMUM SIZING AND MINIMUM SLOPE MUST CONFORM TO MASTER PLAN.



**KIER & WRIGHT**  
 CIVIL ENGINEERS & SURVEYORS, INC.  
 1233 Quarry Lane, Suite 145  
 Pleasanton, California 94566  
 (925) 249-6555  
 Fax (925) 249-6563



CALIFORNIA  
**MASTER SANITARY SEWER PLAN**  
 OF  
**ARCH ROAD INDUSTRIAL PARK NORTH**  
 (OPUS LOGISTICS CENTER)

STOCKTON

**ARCH ROAD INDUSTRIAL PARK NORTH**  
 (OPUS LOGISTICS CENTER)  
 STOCKTON, CALIFORNIA  
**MASTER SANITARY SEWER PLAN**  
 DEPARTMENT OF PUBLIC WORKS  
 CITY OF STOCKTON, CALIFORNIA



PREPARED BY OR UNDER THE SUPERVISION OF  
 CHARLES R. MCCALLUM PE 53447  
 LICENSE EXPIRES: 6-30-09

REVISION NO.	DATE	BY	APPROVED	SCALE: 1"=500'	APPROVED BY:	SHEET NO.
				DESIGNED BY: CM	<i>Charles R. McCallum</i> DIRECTOR OF MUNICIPAL UTILITIES STOCKTON, CA DATE: 2-1-08	1
				DRAWN BY: RPS		OF 1
				CHECKED BY: CKM		JOB NO.
				RECORD DWG: -		A07567

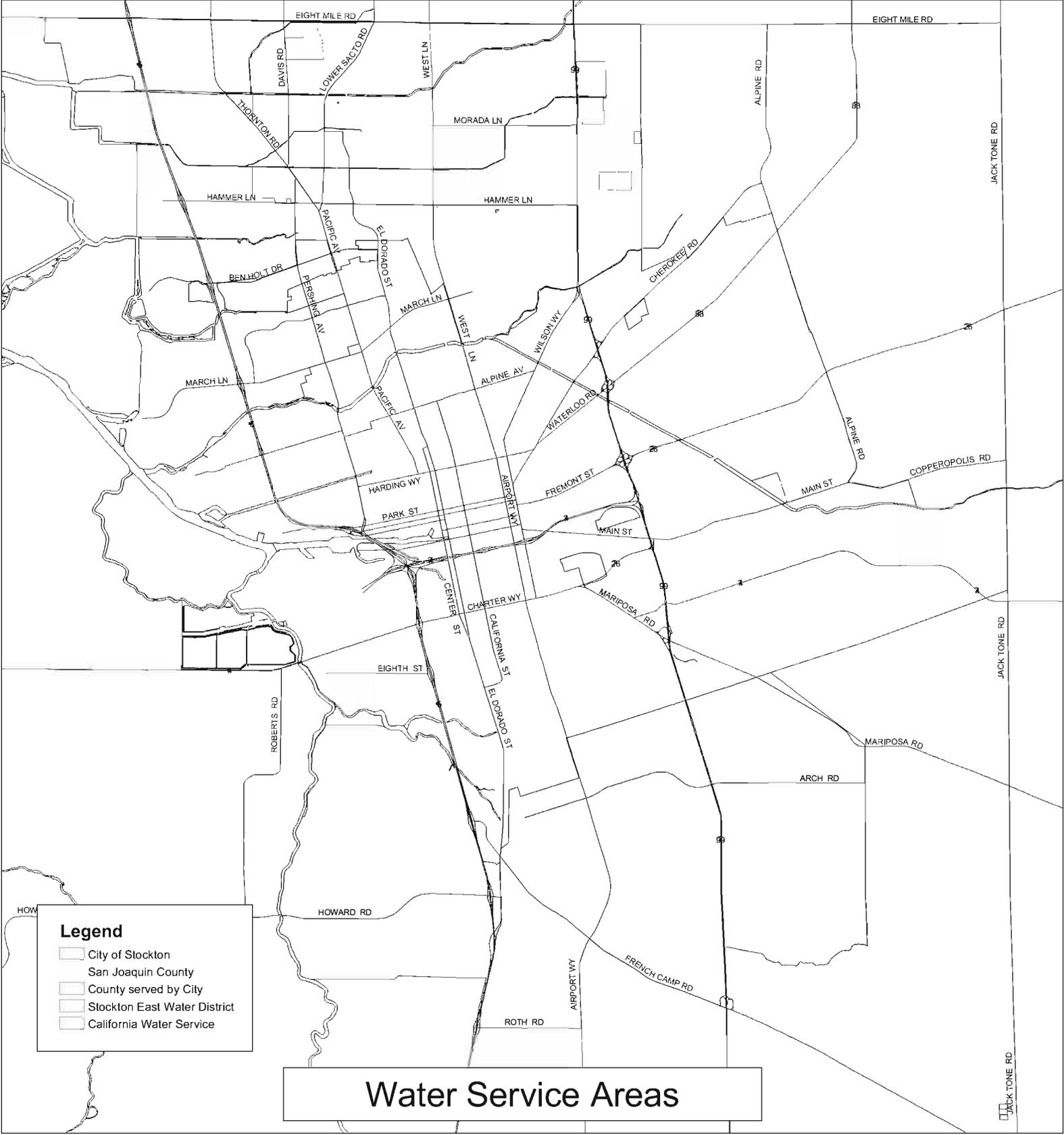
# WATER SYSTEM

**NCYCC Annual Water Usage History  
1995 through 2008**

Year	Gallons Used	NCYCC Population	NCWF Population	NCWF Staff	max mo MG
2008		518*			
2007			400**	150	
2006	187,064,000	2,125	121		37
2005	172,250,000	2,013			29
2004	289,320,000	2,488			37
2003	289,320,000	2,621	closed 7/1		38
2002	338,560,000	2,852	901		40
2001	304,040,000	2,861	998		38
2000	345,460,000	3,337	1,003		41
1999	305,500,000	3,186	1,005		42
1998	308,600,000	3,549	853		43
1997	364,350,000	3,836	998		52
1996	443,900,000	3,960	950		61
1995	309,000,000	3,787	1,006		43

\* as of 3/24/08

\*\* cadets



**Legend**

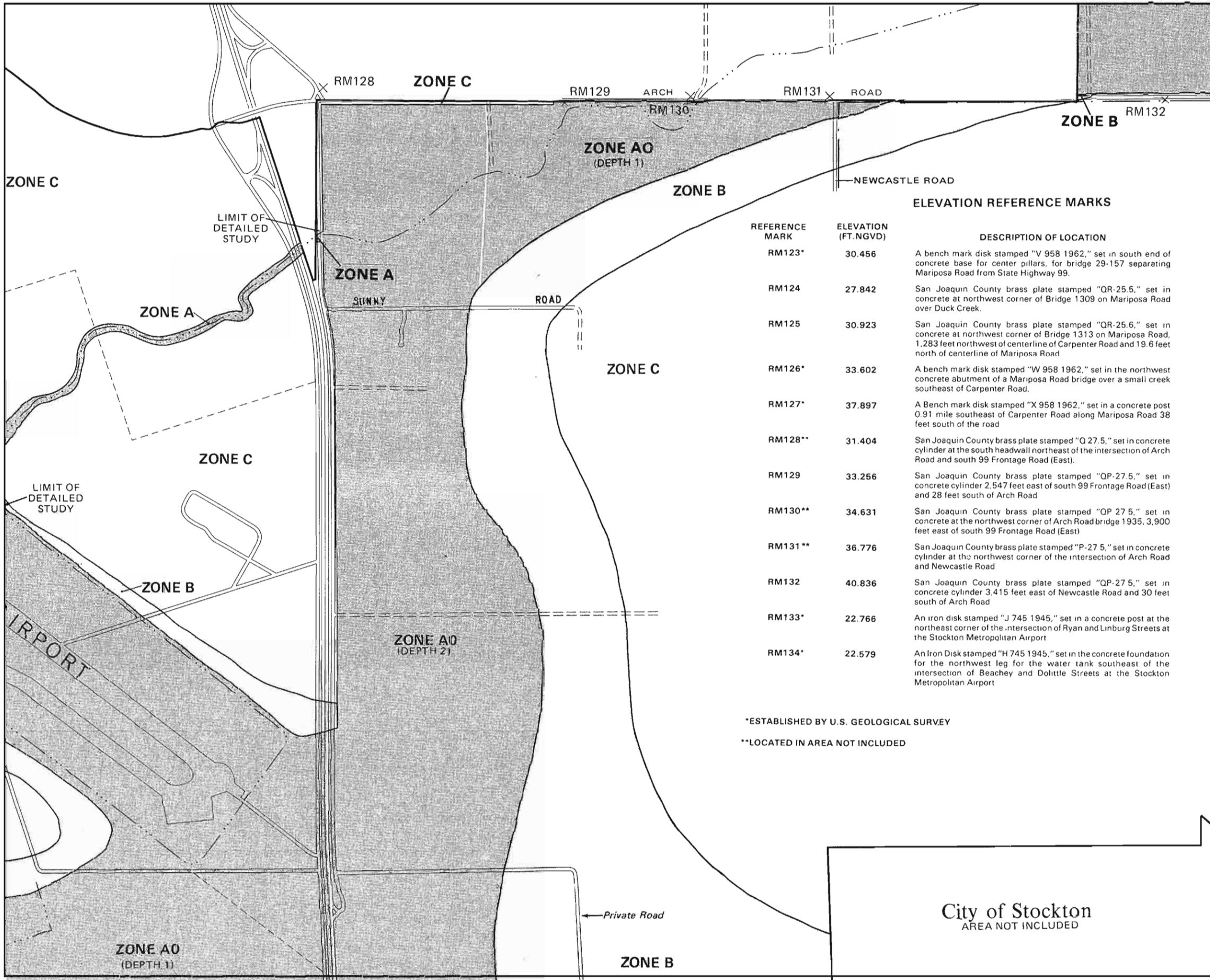
- City of Stockton
- San Joaquin County
- County served by City
- Stockton East Water District
- California Water Service

**Water Service Areas**

JACK TONE RD



# STORMWATER SYSTEM



JOINS PANEL 0470



REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM123*	30.456	A bench mark disk stamped "V 958 1962," set in south end of concrete base for center pillars, for bridge 29-157 separating Mariposa Road from State Highway 99.
RM124	27.842	San Joaquin County brass plate stamped "QR-25.5," set in concrete at northwest corner of Bridge 1309 on Mariposa Road over Duck Creek.
RM125	30.923	San Joaquin County brass plate stamped "QR-25.6," set in concrete at northwest corner of Bridge 1313 on Mariposa Road, 1,283 feet northwest of centerline of Carpenter Road and 19.6 feet north of centerline of Mariposa Road.
RM126*	33.602	A bench mark disk stamped "W 958 1962," set in the northwest concrete abutment of a Mariposa Road bridge over a small creek southeast of Carpenter Road.
RM127*	37.897	A Bench mark disk stamped "X 958 1962," set in a concrete post 0.91 mile southeast of Carpenter Road along Mariposa Road 38 feet south of the road.
RM128**	31.404	San Joaquin County brass plate stamped "Q 27.5," set in concrete cylinder at the south headwall northeast of the intersection of Arch Road and south 99 Frontage Road (East).
RM129	33.256	San Joaquin County brass plate stamped "QP-27.5," set in concrete cylinder 2,547 feet east of south 99 Frontage Road (East) and 28 feet south of Arch Road.
RM130**	34.631	San Joaquin County brass plate stamped "QP 27.5," set in concrete at the northwest corner of Arch Road bridge 1935, 3,900 feet east of south 99 Frontage Road (East).
RM131**	36.776	San Joaquin County brass plate stamped "P-27.5," set in concrete cylinder at the northwest corner of the intersection of Arch Road and Newcastle Road.
RM132	40.836	San Joaquin County brass plate stamped "QP-27.5," set in concrete cylinder 3,415 feet east of Newcastle Road and 30 feet south of Arch Road.
RM133*	22.766	An iron disk stamped "J 745 1945," set in a concrete post at the northeast corner of the intersection of Ryan and Linburg Streets at the Stockton Metropolitan Airport.
RM134*	22.579	An Iron Disk stamped "H 745 1945," set in the concrete foundation for the northwest leg for the water tank southeast of the intersection of Beachey and Dolittle Streets at the Stockton Metropolitan Airport.

\*ESTABLISHED BY U.S. GEOLOGICAL SURVEY  
 \*\*LOCATED IN AREA NOT INCLUDED

**ELEVATION REFERENCE MARKS**

**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM FLOOD INSURANCE RATE MAP**

**SAN JOAQUIN COUNTY, CALIFORNIA (UNINCORPORATED AREAS)**

**PANEL 465 OF 925**  
 (SEE MAP INDEX FOR PANELS NOT PRINTED)

**COMMUNITY-PANEL NUMBER 0602990465 C**

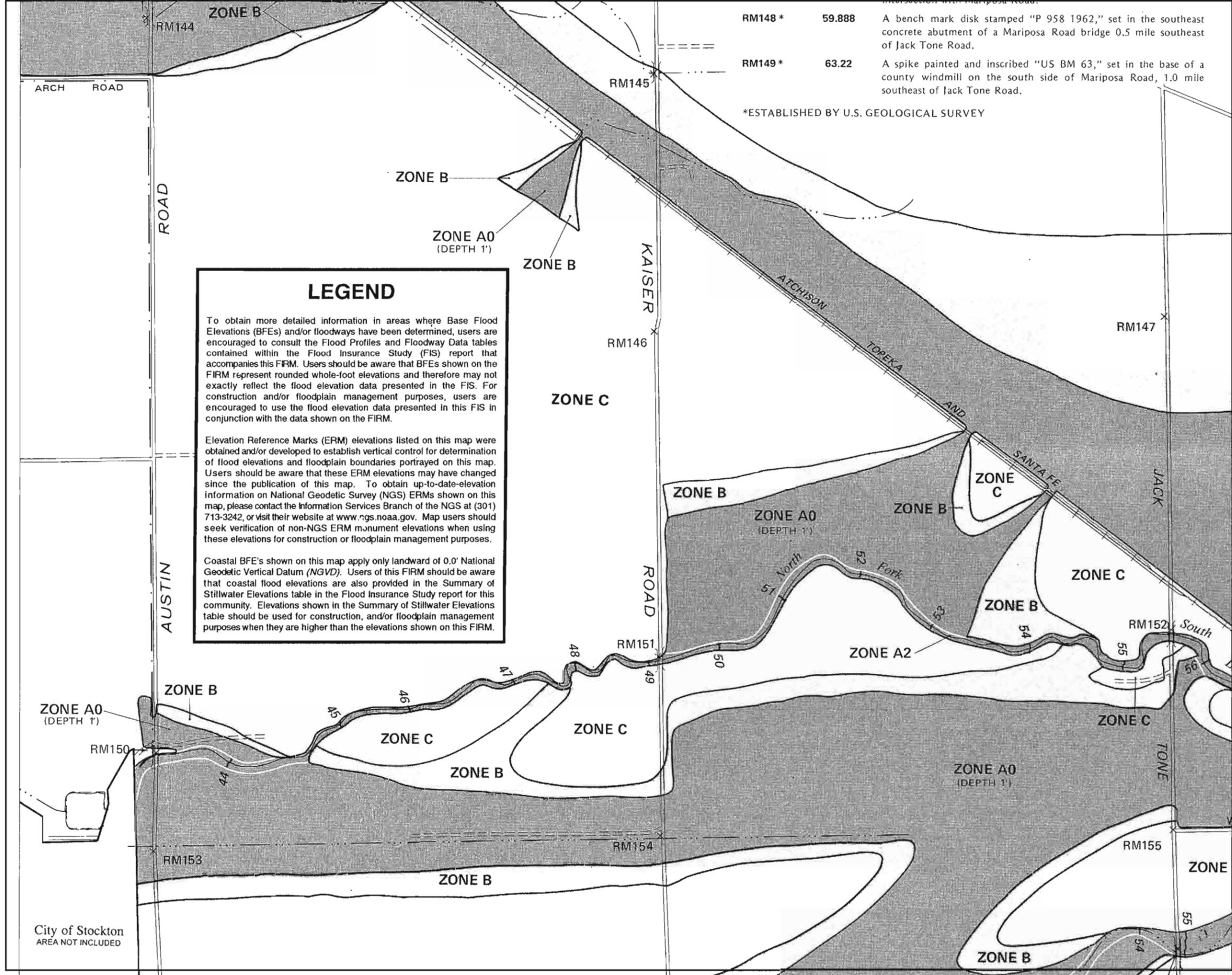
**MAP REVISED: APRIL 2, 2002**



Federal Emergency Management Agency

City of Stockton  
 AREA NOT INCLUDED

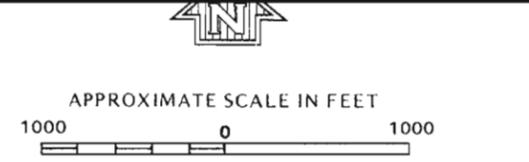
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



RM148 \* 59.888 A bench mark disk stamped "P 958 1962," set in the southeast concrete abutment of a Mariposa Road bridge 0.5 mile southeast of Jack Tone Road.

RM149 \* 63.22 A spike painted and inscribed "US BM 63," set in the base of a county windmill on the south side of Mariposa Road, 1.0 mile southeast of Jack Tone Road.

\*ESTABLISHED BY U.S. GEOLOGICAL SURVEY



**LEGEND**

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations and therefore may not exactly reflect the flood elevation data presented in the FIS. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

Elevation Reference Marks (ERM) elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these ERM elevations may have changed since the publication of this map. To obtain up-to-date-elevation information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at [www.ngs.noaa.gov](http://www.ngs.noaa.gov). Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Coastal BFE's shown on this map apply only landward of 0.0' National Geodetic Vertical Datum (NGVD). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
FLOOD INSURANCE RATE MAP

SAN JOAQUIN COUNTY,  
CALIFORNIA  
(UNINCORPORATED AREAS)

PANEL 470 OF 925  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER  
0602990470 B

MAP REVISED:  
APRIL 2, 2002



Federal Emergency Management Agency

City of Stockton  
AREA NOT INCLUDED

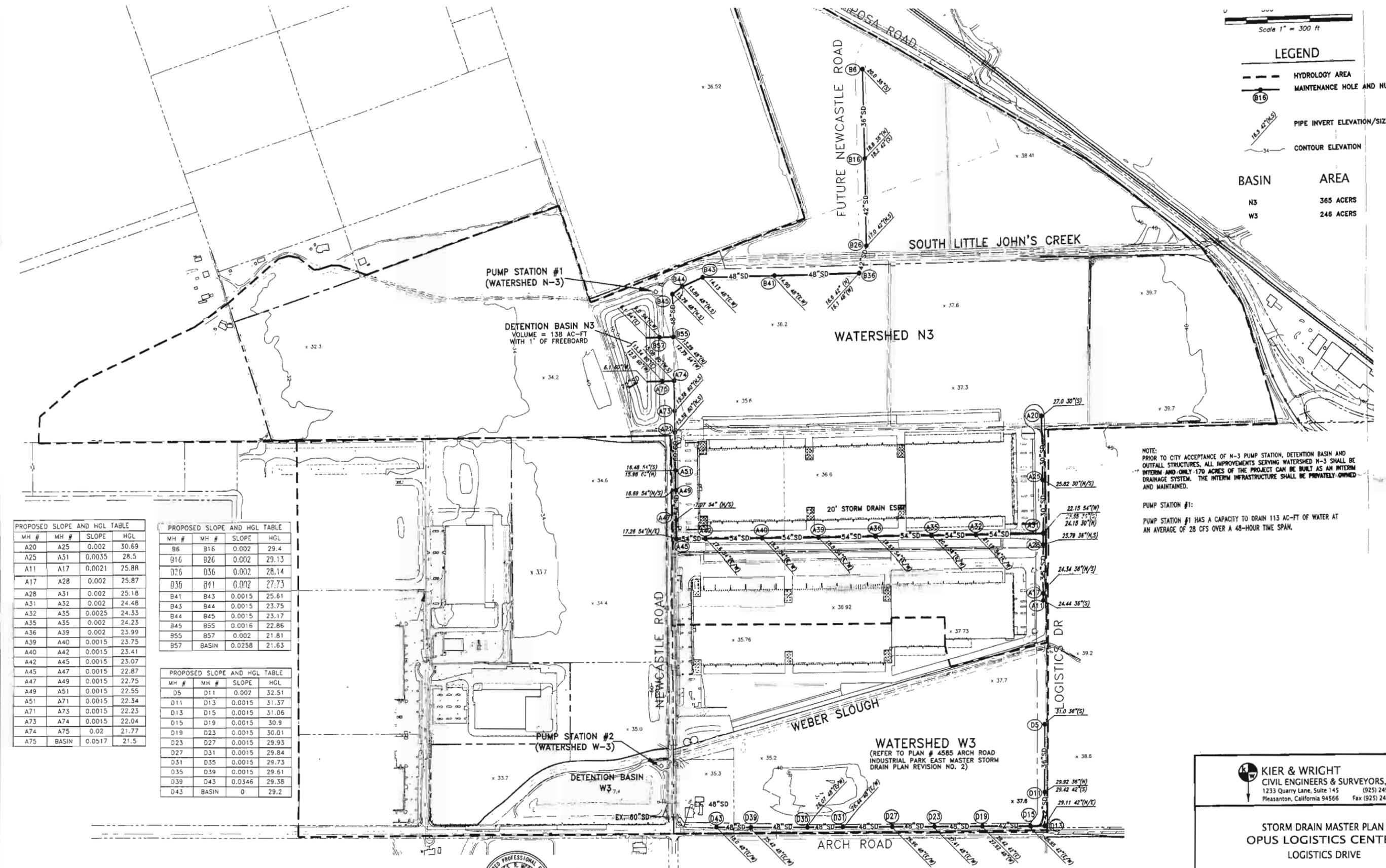
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Scale 1" = 300 ft

**LEGEND**

- HYDROLOGY AREA
- MAINTENANCE HOLE AND NUMBER
- PIPE INVERT ELEVATION/SIZE/DIRECTION
- CONTOUR ELEVATION

BASIN	AREA
N3	365 ACERS
W3	246 ACERS



PROPOSED SLOPE AND HGL TABLE

MH #	MH #	SLOPE	HGL
A20	A25	0.002	30.69
A25	A31	0.0035	28.5
A11	A17	0.0021	25.88
A17	A28	0.002	25.87
A28	A31	0.002	25.18
A31	A32	0.002	24.48
A32	A35	0.0025	24.33
A35	A35	0.002	24.23
A36	A39	0.002	23.99
A39	A40	0.0015	23.75
A40	A42	0.0015	23.41
A42	A45	0.0015	23.07
A45	A47	0.0015	22.87
A47	A49	0.0015	22.75
A49	A51	0.0015	22.55
A51	A71	0.0015	22.34
A71	A73	0.0015	22.23
A73	A74	0.0015	22.04
A74	A75	0.02	21.77
A75	BASIN	0.0517	21.5

PROPOSED SLOPE AND HGL TABLE

MH #	MH #	SLOPE	HGL
B96	B16	0.002	29.4
B26	B36	0.002	28.14
B36	B41	0.002	27.73
B41	B43	0.0015	25.61
B43	B44	0.0015	23.75
B44	B45	0.0015	23.17
B45	B55	0.0016	22.86
B55	B57	0.002	21.81
B57	BASIN	0.0258	21.63

PROPOSED SLOPE AND HGL TABLE

MH #	MH #	SLOPE	HGL
D5	D11	0.002	32.51
D11	D13	0.0015	31.37
D13	D15	0.0015	31.06
D15	D19	0.0015	30.9
D19	D23	0.0015	30.01
D23	D27	0.0015	29.93
D27	D31	0.0015	29.84
D31	D35	0.0015	29.73
D35	D39	0.0015	29.61
D39	D43	0.0346	29.38
D43	BASIN	0	29.2

NOTE:  
PRIOR TO CITY ACCEPTANCE OF N-3 PUMP STATION, DETENTION BASIN AND  
OUTFALL STRUCTURES, ALL IMPROVEMENTS SERVING WATERSHED N-3 SHALL BE  
INTERIM AND ONLY 170 ACRES OF THE PROJECT CAN BE BUILT AS AN INTERIM  
DRAINAGE SYSTEM. THE INTERIM INFRASTRUCTURE SHALL BE PRIVATELY OWNED  
AND MAINTAINED.

PUMP STATION #1:  
PUMP STATION #1 HAS A CAPACITY TO DRAIN 113 AC-FT OF WATER AT  
AN AVERAGE OF 28 CFS OVER A 48-HOUR TIME SPAN.



PREPARED BY OR UNDER THE SUPERVISION OF  
CHARLES R. MCCALLUM PE 63447  
LICENSE EXPIRES: 6-30-09

**KIER & WRIGHT**  
CIVIL ENGINEERS & SURVEYORS, INC.  
1233 Quarry Lane, Suite 145 (925) 249-6555  
Pleasanton, California 94566 Fax (925) 249-6563

**STORM DRAIN MASTER PLAN**  
OPUS LOGISTICS CENTER  
LOGISTICS DRIVE

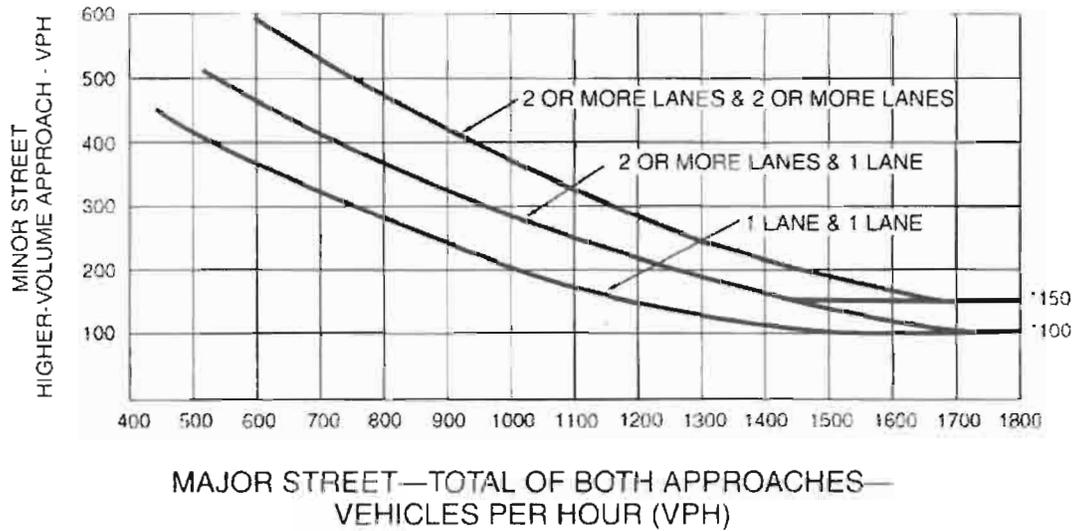
DEPARTMENT OF PUBLIC WORKS  
CITY OF STOCKTON, CALIFORNIA

REVISION NO.	DATE	BY	APPROVED	SCALE: 1"=300'	APPROVED BY:	DATE: 2-1-08	SHEET NO.
DESIGNED BY:							1
DRAWN BY:							OF 1 SHEETS
CHECKED BY:							PROJECT NO.
RECORD DWG:							A07567

0976X

# ROADS AND TRAFFIC

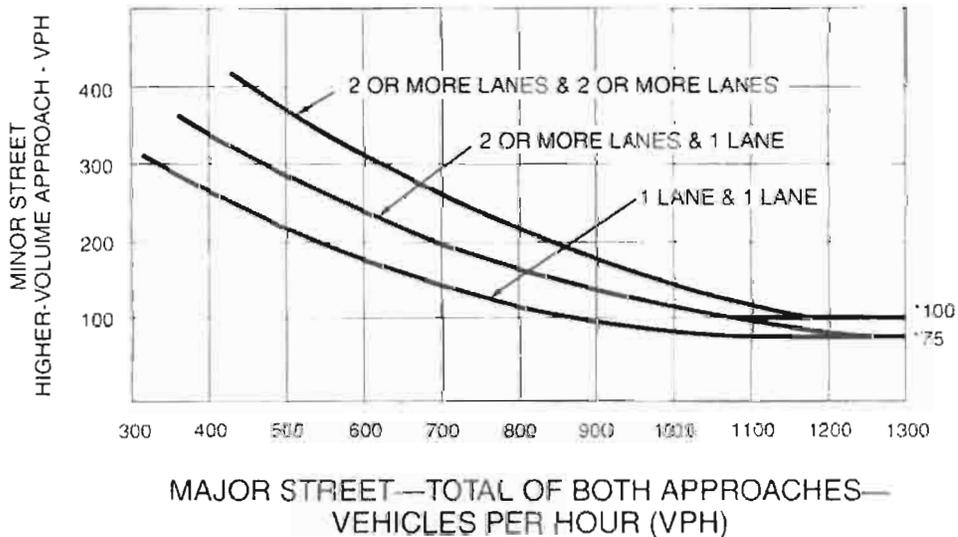
**Figure 4C-3. Warrant 3, Peak Hour**



\*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

**Figure 4C-4. Warrant 3, Peak Hour (70% Factor)**

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 64 km/h OR ABOVE 40 mph ON MAJOR STREET)



\*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.