

CHAPTER 13: WASTEWATER COLLECTION AND TREATMENT

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CHAPTER THIRTEEN: WASTEWATER COLLECTION AND TREATMENT

13.1 INTRODUCTION

This chapter discusses Specific Plan I details relating to wastewater generation, treatment, collection system, and design criteria. Objectives, policies and general implementation measures are included in the Master Plan.

Three residential neighborhoods and a complement of industrial and commercial development are included in this Specific Plan. The treatment processes and facilities will be constructed in three increments including proportionate capacity for industrial, commercial and public facilities demands.

13.2 WASTEWATER GENERATION

The total wastewater flow that will be generated by the full buildout of Specific Plan I is equal to 30.9% of the total projected community generation at buildout of all land uses proposed in the Master Plan. Table 13.1 shows the estimated wastewater flows expected for Specific Plan I broken down by land use and subarea. These flows are the totals expected when water conservation measures are implemented.

It is not possible to predict the specific types of industry that will locate in Mountain House during Specific Plan I. However, all industrial discharges will be regulated by standards, and a pretreatment program, which will be prepared and implemented upon the determination of specific discharge requirements. Therefore, the quality of the industrial discharges should be similar to that of the domestic/commercial discharges.

Determination of specific discharge requirements will be determined by the CSD at the time of application to the CSD for wastewater hookups. Compliance will be a condition of hookup and will require conditions sufficient to meet Water Quality Board standards and operating procedure reliability.

Table 13.1 Wastewater Generation Specific Plan I Revised 6/2003I					
Land Use	DU's or acres	gpd/DU's or acres	With Conservation		
			gpd/DU's or acres	Total gpd	
Neighborhood E					
Low Density Residential	455	312	250	113,568	
Medium Density	645	270	225	145,125	
Medium-High Density Residential	272	200	171	46,629	
Neighborhood E Total	1,372			305,322	
Neighborhood F					
Low Density Residential	640	312	250	159,744	
Medium Density	398	270	225	89,550	
High Density	480	200	171	82,286	
Neighborhood F Total	1,518			331,580	
Neighborhood G					
Low Density Residential	376	213	250	93,850	
Medium Density	529	270	225	119,025	
Medium-High Density Residential	312	200	171	53,486	
Neighborhood G Total	1,217			271,361	
Total Residential	4,107			908,263	
	Acre	gpd/ac	gpd/ac	gpd/ac	
Other Land Uses					
Neighborhood Commercial	5.3	2,000	1,733	9,187	
Community Commercial	17.8	2,000	1,733	30,853	
Office Commercial	30.3	2,000	1,733	52,520	
Light Industrial	35.4	1,600	1,387	49,088	
K-8 Schools	48	3,000	2,700	129,600	
High Schools	46.5	4,500	4,050	188,325	
Institutional	5.9	2,000	1,733	10,227	
Other Land Use Total	189.2			469,800	
Central Mountain House Total				1,378,063	
Old River Industrial Park					
Limited Industrial	48.1	1,600	1,387	66,699	
General Industrial	55.3	1,600	1,387	76,683	
Utility Area	26.3	1,600	1,387	36,469	
Old River Industrial Park Total	129.7	N/A		179,851	
Mountain House Business Park					
Freeway Service Commercial	30	2,000	1,733	51,200	
Office Commercial	9.7	2,000	1,733	16,813	
Institutional	4.4	2,000	1,733	7,625	
Business Park	71	2,000	1,733	123,067	
Mountain House Business Park Total	115.1			198,705	
Non-Wastewater Generators		173.5			N/A
SPECIFIC PLAN TOTAL				1,756,619	

Note: Dwelling units are within the permitted density ranges, between the minimum and maximum densities.

13.3 BACKBONE WASTEWATER COLLECTION SYSTEM

Figure 13.1: Wastewater Backbone Collection System shows the proposed trunk pipeline collection system that will serve the Specific Plan Area. This proposed design is in conformance with the requirements of the Master Plan and County standards.

Some trunk facilities will be required to be installed outside the boundary of the Specific Plan. These facilities will be those needed to adequately convey wastewater to the wastewater treatment plant located within the Old River Industrial Park through connecting areas not within the Specific Plan Area. In addition, as each neighborhood, commercial or industrial area of the Specific Plan develops, sufficient trunk facilities will be installed through the phase under development to adequately serve future upstream phases of the project.

13.4 WASTEWATER TREATMENT

The wastewater treatment facilities will be located adjacent to the West Side Irrigation District Intake Channel, north of Bethany Road, along the east side of the project. Secondary treatment of wastewater will be provided in two phases of different methods during Specific Plan buildout.

Wastewater from the early phases of the community's development will be treated in aerated lagoons with additional treatment (including disinfection) depending on how the treated wastewater is disposed of, or used. It is anticipated that the aerated lagoons would not be used for treatment longer than at 10% buildout of the community. Later phases of development will utilize processes such as activated sludge which are more suitable for larger volumes of wastewater.

The level of treatment may vary over the buildout of the community depending on the changes in community needs, regulations and advances in treatment technology. It is presently contemplated that tertiary treatment may be used at the outset. The planned treatment level at buildout shall be tertiary, suitable for regulatory approved reuse and river discharge.

Possible wastewater treatment plant site layouts for the initial aerated lagoon system and for the Master Plan system are shown in Figures 13.2 and 13.3, respectively. Figure 13.3 shows all anticipated Master Plan facilities, including features for tertiary treatment, if required.

All wastewater treatment facilities will be designed in accordance with State requirements for wastewater reclamation plants, including various reliability and alarm features.

The various plant components are discussed further below.

13.4.1 Initial Treatment Plant

- a) Capacity. The treatment facilities shall have the capacity to handle peak flows.

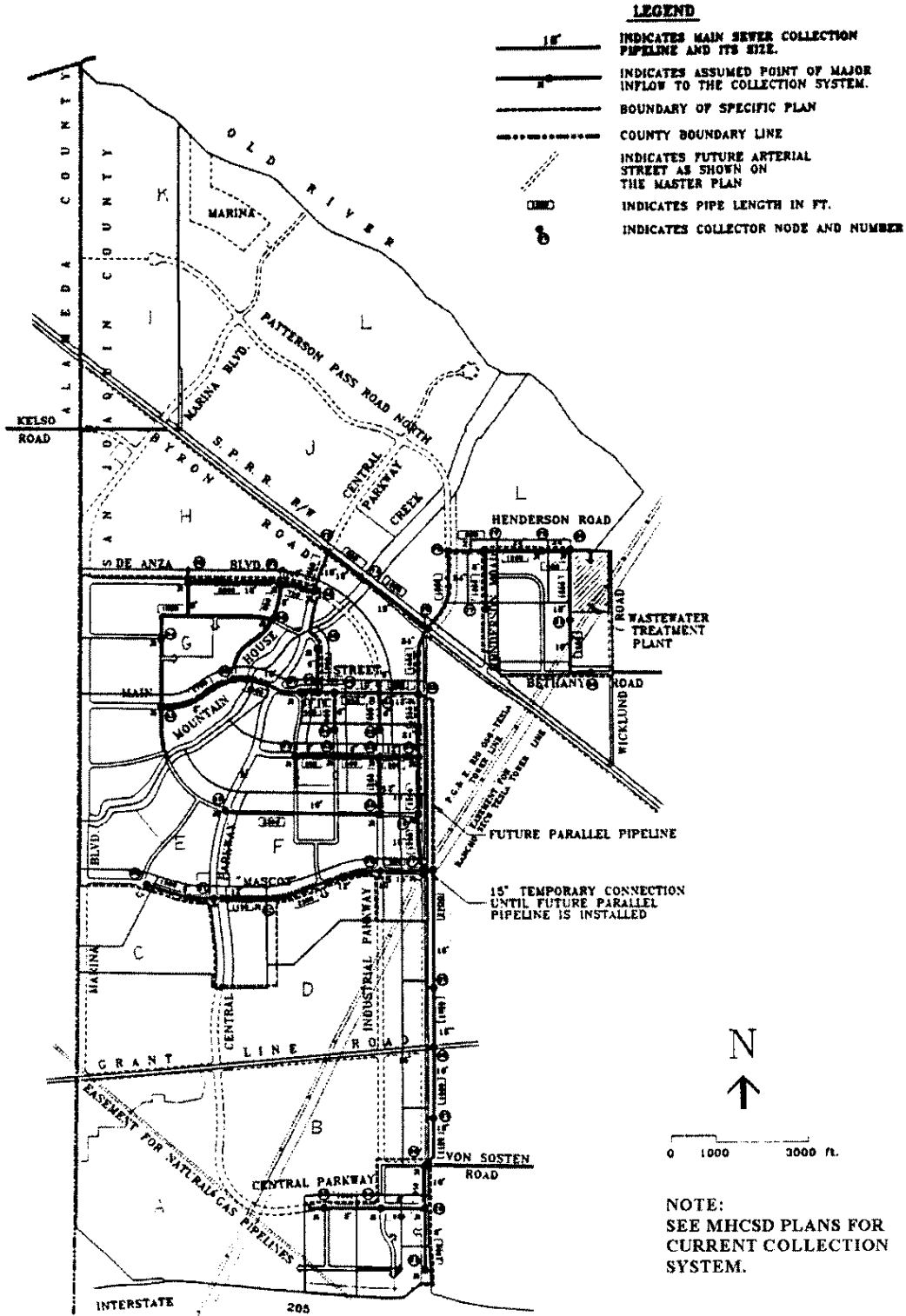


FIGURE 13.1 – WASTEWATER BACKBONE COLLECTION SYSTEM

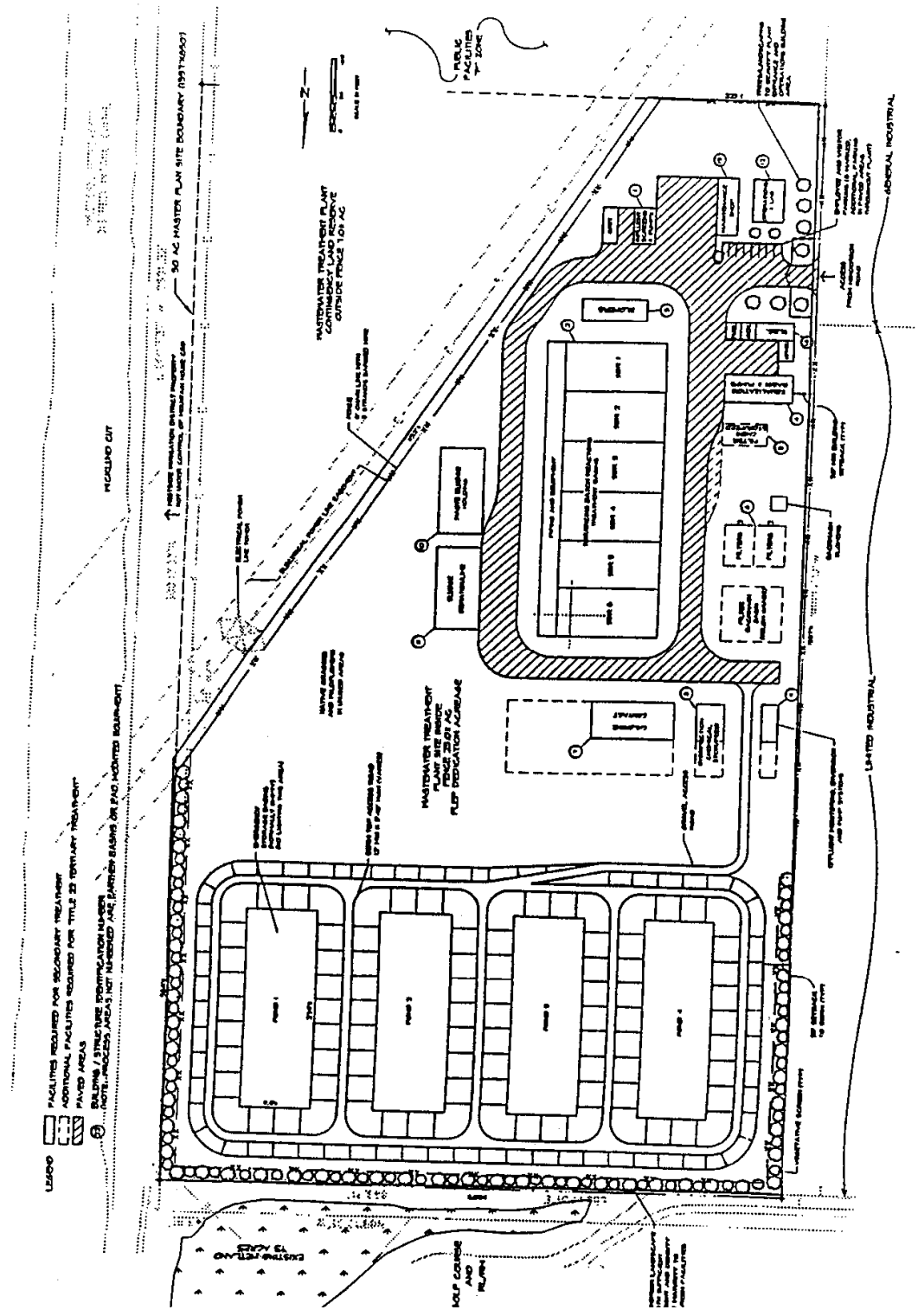


FIGURE 13.2 – WASTEWATER TREATMENT PLANT SITE LAYOUT

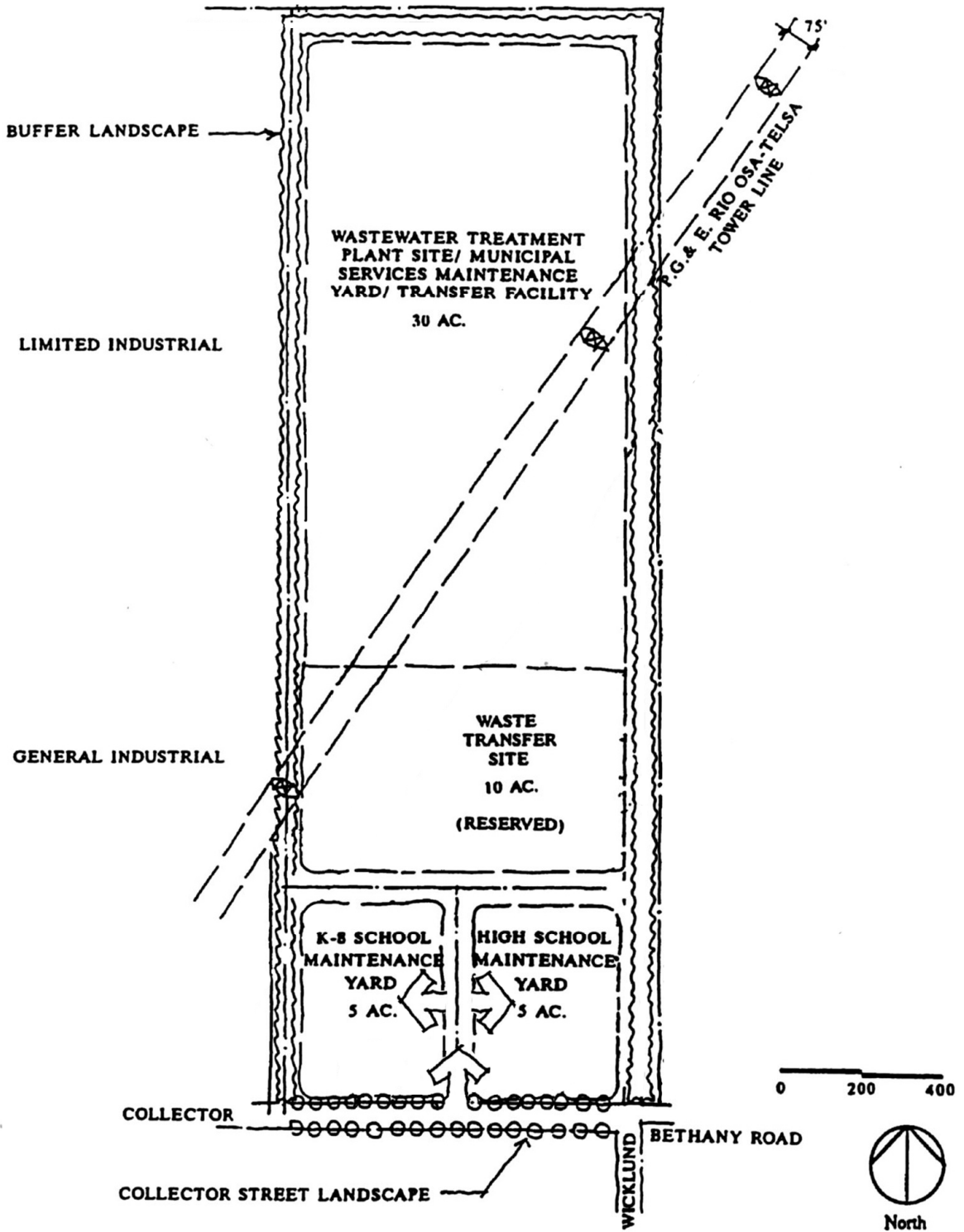


FIGURE 13.3 – WASTEWATER TREATMENT AND PUBLIC USE SITE AREA

The initial wastewater treatment plant will include an influent pump station, aerated lagoons, a disinfection system, and ancillary facilities including tertiary facilities if needed. Disinfection shall be provided by use of liquid sodium hypochlorite.

The layout shown in Figure 13.2 is based on the construction of 1) the first phase of the influent pump station, 2) the aerated lagoons, 3) the first phase of the disinfection system, and 4) ancillary facilities, including tertiary facilities if needed initially. These facilities will be expanded or placed into alternative uses when the SBRs are constructed to serve development beyond the first neighborhood.

During the time that the aerated lagoons are in service, wastewater solids will accumulate and decompose at the bottom of the aerated lagoons, but will be so small as to not require disposal off-site.

13.4.2 SBR Treatment Plant

The SBR treatment plant to be constructed during Specific Plan I will be the first phase of the Master Plan build-out system. The SBR plant will include a headworks (influent screens, pumps and grit removal), the SBR system, disinfection system, sludge handling facilities and ancillary facilities, including tertiary treatment facilities if needed, consistent with RWQCB permitting requirements.

Two SBR basins will be constructed prior to development of the second neighborhood.

Disinfection using sodium hypochlorite will be continued when the SBR system is installed.

The SBR system will produce sludge that will have to be dewatered and disposed of off-site. Dewatering could be by use of felt filter presses to attain a solids content of a level consistent with disposal requirements. After the process is established and the sludge can be tested and characterized, agricultural land application by contract operations may be practiced. If this is done, the sludge would have to be further stabilized, probably by lime treatment.

The tertiary treatment system, if needed, will consist of chemical coagulation facilities, flocculation basins, filters, enhanced sodium hypochlorite disinfection facilities, and ancillary facilities.

A control building with suitable laboratory facilities and a maintenance building will be constructed as required by RWQCB and the CSD to support the operation of the wastewater treatment plant with SBRs.

13.5 ODORS

Odors resulting from wastewater treatment operations are addressed in the Master Plan.

13.6 HAZARDOUS MATERIALS MANAGEMENT

Hazardous materials are addressed in the Master Plan.