SECTION 3.0

PROJECT DESCRIPTION

CHAPTER 3.0

PROJECT DESCRIPTION

3.1 INTRODUCTION

This chapter provides a detailed description of the Proposed Project. This description serves as the basis for analysis of potential environmental impacts presented in this DEIR. This information includes the project location and objectives and components of the project. It also provides an overview of the construction methods associated with the Proposed Project.

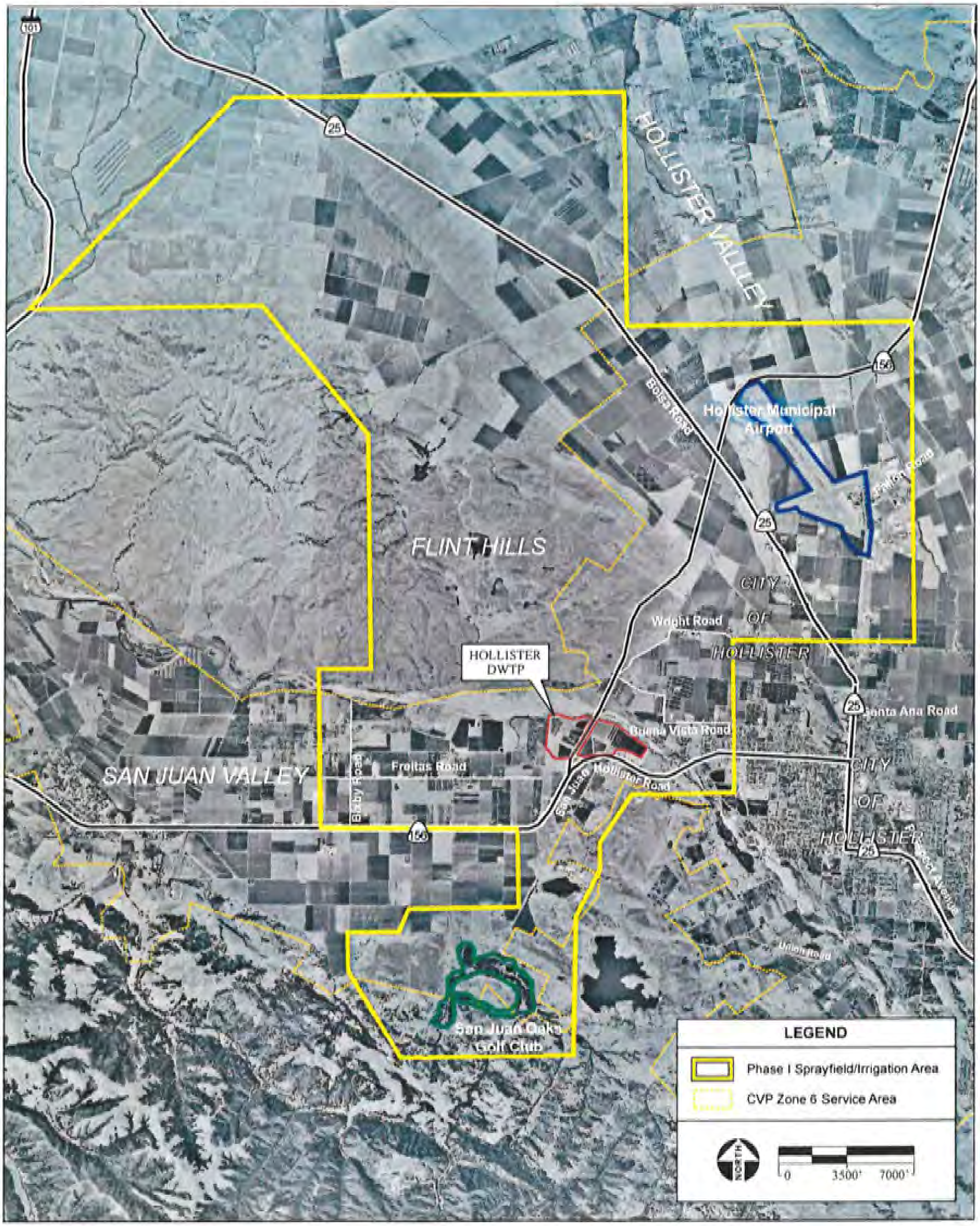
3.2 PROJECT LOCATION

The DWTP is located in the western portion of the City of Hollister and adjacent unincorporated land within San Benito County. The DWTP site is bisected by State Route 156 just north of the intersection with San Juan-Hollister Road. Project components of the DWSI Project that would occur on the existing DWTP site include the construction of an immersed membrane bioreactor (MBR) treatment facility, a septage receiving station, and a seasonal storage reservoir (**Figures 3-1** and **3-2**). The MBR facility would be located east of State Route 156 on an area currently developed with a storage reservoir. The septage receiving station would also be located east of State Route 156 on an area located in the vicinity of the plant entrance. The seasonal storage reservoir would be located west of State Route 156 on an area currently developed with disposal beds. Additional storage and percolation capacity would be provided by conveying treated effluent from the DWTP to the existing percolation beds at the Industrial Wastewater Treatment Plant (IWTP) located approximately one mile to the east (**Figure 2-2**).

The Proposed Project includes the development of disposal sprayfields that would utilize recycled water generated by the DWTP. **Figure 3-3** identifies the area where treated wastewater could be feasibly disposed of via sprayfields, during the initial phase of the Proposed Project. This area was chosen based on proximity to the DWTP, land uses, infrastructure costs, and regional groundwater management goals. The Proposed Project would result in the initial development of sprayfields at the Hollister Municipal Airport, and recycled water use at the San Juan Oaks Golf Club. Selection of additional sprayfield and recycled water projects would be based on landowner interest, infrastructure costs, feasibility, consistency with groundwater management plans, adherence to recycled water regulations, environmental constraints, and other concerns. This area may be expanded to include additional irrigation use in surrounding areas as phases of the project progress. **Figure 3-3** shows the Central Valley Project (CVP) Zone 6 Service Area. The boundary of this area defines where surface water from the CVP's San Felipe Project can be

SOURCE: Digital Globe Aerial Photograph; HydroScience Engineers, Inc., 2006; AES, 2006

Figure 3-1
Proposed DWTP Site Facilities



SOURCE: RMC Water and Environment, 2005; San Benito County Water District, 2005; City of Hollister, 2005; USGS Aerial Maps; AES, 2006

Figure 3-3
Proposed Phase I Sprayfield-Irrigation Area

utilized in the project area. Recycled water that is blended with CVP water to meet quality criteria would not be allowed to be used or disposed outside the Zone 6 boundary.

3.3 PROJECT OBJECTIVES

The Proposed Project has been planned in order to meet ~~the following~~ a range of objectives. These objectives are identified below. The phase which is expected to achieve each objective is illustrated below. In most cases, the objective would be partially met with implementation of Phase I improvements to the DWTP, but would not be fully met until demineralization is implemented in Phase II to meet water quality objectives.

Objective	Phase of Attainment
Implement specific projects and programs identified in the Groundwater Management Plan for the San Benito County Part of the Gilroy-Hollister Groundwater Basin (GWMP) in order to manage water resources in a manner consistent with regional goals;	Initiated in Phase I with DWSI project, completed in Phase II with demineralization and expansion of RWF project.
Provide sufficient wastewater treatment and disposal capacity to serve planned population growth to 2023 as identified in the City of Hollister 2005 General Plan;	Phase II - DWTP would be expanded from 4.0 MGD (Phase I) to 5.0 MGD to provide estimated wastewater flows for 2023.
Provide a wastewater treatment system that is capable of meeting existing discharge limitations and is well suited to meet future upgrades;	Phase I
Reduce the salinity of treated effluent to reduce salts entering the groundwater basin. The purpose of this objective is to protect beneficial uses of groundwater in the region;	Phase II
Reduce the amount of water entering the groundwater basin by reducing the amount of effluent currently disposed of by percolation at the DWTP. The purpose of this objective is to protect land uses in the region from high groundwater levels;	Initiated in Phase I through development of Sprayfields and recycled water projects, and maximized in Phase II with expansion of RWF project
Treat wastewater as a resource rather than a waste product by providing effluent that meets the Department of Health Services criteria for recycled water (Title 22, Division 4, Chapter 3 of the California Administrative Code);	Phase I
Assist in the attainment of regional groundwater management goals in a manner that is feasible;	Initiated in Phase I, completed in Phase II with demineralization and expansion of RWF project.
Comply with the City's obligations under the ACL Order No. R3-2002-0097 and CDO No. R-3-2002-0105, which require the City to fully implement the Long Term Wastewater Management Program (LTWMP);	Initiated in Phase I with DWSI project, completed in Phase II with demineralization and expansion of RWF project.
Make efficient use of existing public facilities in order to reduce infrastructure costs;	Phase I and Phase II
Make efficient use of infrastructure investments to facilitate long-term goals for water management in the region;	Phase I and Phase II

Objective	**Phase of Attainment**
Provide wastewater effluent that meets Regional Water Quality Control Board Basin Plan and Department of Health Services water quality objectives;	Phase I
Comply with the Memorandum of Understanding for the Development of the Hollister Urban Area Water and Wastewater Master Plan (Master Plan MOU) entered into between the City of Hollister, San Benito County, and the San Benito County Water District, including Section 2.2.3 establishing a target total dissolved solids concentration of 500 mg/L not to exceed concentration of 700 mg/L;	Attainment met in Phase II with implementation of demineralization
Implement project elements that avoid or minimize adverse impacts to biological and cultural resources, including riparian habitats, habitats supporting sensitive plan or animal species, and archaeological/historic sites;	Phase I and Phase II
Implement project elements that avoid or minimize adverse impacts to existing and planned land uses;	Phase I and Phase II
Identify project elements that are capable of being permitted and implemented; and	Phase I and Phase II
Identify project elements that are financially feasible for urban and agricultural interests to implement over a predictable time period consistent with regional planning efforts including the Groundwater Management Plan for the San Benito County Portion of the Gilroy-Hollister Groundwater Basin.	Initiated in Phase I and completed in Phase II with demineralization and expansion of RWF project.

3.4 DESCRIPTION OF THE PROPOSED PROJECT

The DWSI Project and the RWF Project comprise the two major components of the Proposed Project. Individually, these two projects include a number of component projects that would be implemented in two phases. As discussed in **Section 2.0**, certain components of the Proposed Project are near-term actions for which extensive information is currently available. These project elements are fully evaluated in this EIR on a project specific level. Other project elements would be developed in the future, and therefore less information is currently available. These future project elements are considered in this EIR on a program level. **Table 3-1** identifies phasing of the various project components and the level of analysis provided in this EIR. These components are described in more detail below.

3.4.1 DWSI PROJECT – PHASE I

Proposed improvements to the DWTP consist of constructing a new treatment system to provide a higher level of treatment, and increasing treatment capacity. Specific improvements include a MBR facility, septage receiving station, seasonal storage reservoirs, and sprayfields. Details of these components are provided below. Construction of the MBR facility, septage receiving station, a 1,500 acre-foot seasonal storage reservoir, and disposal sprayfields would occur during Phase I of the Proposed Project. These facilities are identified in the City of Hollister Long-Term Wastewater Management Program for the

DWTP and IWTP (LTWMP), which is included in this document as **Appendix D**. For a fuller description, please refer to Section 9 of the LTWMP.

TABLE 3-1
PROJECT COMPONENTS AND PHASING

Phase I (2008-2013) **Project Level Analysis**	**Phase II (2014-2023)** **Program Level Analysis**
DWSI Project	
Treatment	
4.0 MGD[1] Membrane Bioreactor Facility New Septage Receiving Station	5.0 MGD Membrane Bioreactor Facility
Storage	
1,500 AF[2] Storage Reservoir	An additional 670 AF of seasonal storage capacity either at the existing DWTP site or at an undetermined off-site location.
Disposal	
Disposal sprayfields at the Hollister Municipal Airport Additional disposal sprayfields in the project area*	Additional disposal sprayfields (only as necessary to dispose of treated wastewater that cannot be recycled due to quality or market conditions - more likely phasing out of disposal sprayfields due to development and transition of recycled water use to high-value food crops).
Continued percolation at the DWTP with a maximum disposal quantity of 3,133 AF per year	Reduced percolation at the DWTP with an approximate disposal quantity of 1,150 AF per year by 2023
Storage and ~~disposal~~percolation of DWTP effluent at the IWTP with a maximum of disposal quantity of 796 AF per year.	Gradual elimination of storage and disposal at the IWTP by the year 2023
Salt Management Program	
Salinity education program Industrial salt control in municipal wastewater Water softener ordinance	Demineralization and concentrate disposal
RWF Project	
Recycled water use at San Juan Oaks Golf Club	Other irrigation projects (e.g. Ridgemark Golf Courses).
Recycled water demonstration project (40 to 100 acres) in the Freitas Road Area* Recycled water for existing irrigated areas*	Deliver recycled water (700 mg/L TDS[3]) to San Juan Valley, Freitas Road and Wright Road and/or Buena Vista Road areas for agricultural use.

Notes: [1] Million gallons per day; [2] Acre-feet, [3] Total dissolved solids (measure of salinity).
* As specific sites have not been selected for development, these components of Phase I are analyzed within this EIR on a program level.

Source: AES, 2006.

The average dry weather flow, peak wet weather flow, and peak hourly flow for Phases I and II are shown in **Table 3-2**.

Domestic Wastewater Treatment Plant

The existing wastewater treatment plant would be upgraded to a MBR system. This type of system would provide a higher level of treatment and increase treatment capacity. The DWTP design flow must allow for seasonal increase in flow due to wet weather inflow and infiltration. Historical wet weather flows at the DWTP can exceed the average dry weather flow by as much as 10 percent. A design treatment capacity of 5.0 MGD was therefore selected for the DWTP to allow for 10 percent inflow and infiltration above the projected 2023 average dry weather flow of 4.5 MGD. The full 5.0 MGD capacity would only be required after 2014. To provide for phased expansion, the MBR facility would be built to ultimately provide 5.0 MGD of capacity; however, for Phase I only 4.0 MGD of treatment membranes would be installed. This would effectively limit the capacity of the facility to 4.0 MGD during Phase I. When population growth makes it necessary to expand the treatment capacity to 5.0 MGD, additional membranes would be installed. Expansion of the treatment capacity would require a similar expansion in disposal capacity. Disposal capacity requirements for Phases I and II are discussed below.

TABLE 3-2
SUMMARY OF DESIGN WASTEWATER FLOW (MGD) FOR THE DWTP[a]

Flow Condition	Average Dry Weather Flow (ADWF)[a]	Peak Wet Weather Flow (PWWF)[b]	DWTP Design Capacity[c]	Peak Hourly Flow[d]
Phase I (2013)	3.4	3.8	4.0	8.0
Phase II (2023)	4.5	5.0	5.0	10.0

Notes: [a] City of Hollister and Sunnyslope County Water District combined wastewater flow for the year 2023.
[b] ADWF plus 10% inflow and infiltration.
[c] DWTP design capacity = PWWF.
[d] Assumed to be 2.0 times the DWTP Design Capacity.
Source: HydroScience Engineers, 2005.

The existing DPMC treatment system would remain in service until the new MBR facility is in operation to allow for the construction of the MBR system. Unessential portions of the existing treatment plant would be demolished. In addition to the MBR system, associated support facilities including new grit removal systems, new disinfection systems and additional ancillary facilities would also be constructed. The new facilities would be located at the existing DWTP site and are described as follows.

Pretreatment Facility

Raw wastewater would be pumped from the existing influent lift station to a new plant pretreatment facility. The new pretreatment facility would consist of a grit chamber followed by fine screens. The proposed pretreatment facility is elevated to allow gravity flow to the downstream processes. The pretreatment facility would include the following processes.

Grit Chamber Raw wastewater would be pumped through a new force main to a vortex-type grit chamber, which would remove fine, inorganic, inert, sand-like materials from the wastewater. Organic material would be washed out and returned to the process via a drain system.

Fine Screening MBR manufacturers require fine screening to remove coarse material as well as fine material that may result in physical damage to the immersed membranes. Collected screenings would be transported from the fine screens to a washer/compactor via an enclosed sluiceway.

Screenings Washer/Compactor A washer/compactor would be required to clean or wash out the organic matter collected in the screening and to compact the screenings to reduce volume. The cleaned and dried screenings must be able to pass a paint filter test and achieve a minimum percent solids concentration in order to be accepted at landfills for disposal.

Odor Control Biofilter The new pretreatment facility would be designed to be fully enclosed with all open channels covered with removable checkered plates or with a concrete decking to help contain odors inside the grit chamber and fine screen areas. Additionally, the grit washer and screenings washer/compactor areas, along with their associated dumpsters, would be enclosed in a building. Foul air would be collected from the airspace of the pretreatment structures and from the grit washer and screenings building. The odor control biofilter would consist of a packaged synthetic media biofilter.

MEMBRANE BIOREACTOR

The recommended secondary/tertiary process for the DWTP is a MBR facility. The MBR would provide high quality water for disposal and would best fit the City's needs for future water reuse. The MBR combines a suspended growth biological reactor for activated sludge treatment with submerged membranes for solids separation. The membranes are contained within the biological tanks and would replace the clarifiers used in conventional activated sludge plants. The proposed MBR process consists of anoxic zones for denitrification, an aeration zone for soluble BOD reduction and nitrification, a post-anoxic zone for further denitrification and a membrane zone for solids separation.

The Phase I design provides only enough membranes to handle 4.0 MGD average daily flow (ADF) conditions. However, additional space for membranes would be provided in each membrane tank. This will allow for the expansion of capacity to the full 5.0 MGD at Phase II. The MBR facility would include the following processes.

MBR Influent Distribution Screened wastewater would flow by gravity from the fine screens in the pretreatment facility to the MBR influent distribution structure that would be used to distribute the wastewater to the MBR process trains. This structure would be covered with checkered plates for odor control. The influent would flow through pipes to each individual process train.

Deox Zone A deoxygenation (deox) zone is located upstream of the anoxic zone. This deox zone preconditions the recirculated mixed liquor from the MBR tanks. The MBR tanks add oxygen to the mixed liquor. Because of the strict nitrate limit anticipated, the deox zone was added to reduce the dissolved oxygen recirculated to the anoxic zone.

Anoxic Zone

The anoxic zone is operated as a completely mixed basin without any aeration. The dissolved oxygen in the anoxic basin would be purposely kept low, typically in the 0.1-0.2 mg/L range, to promote the oxidation of dissolved nitrates into nitrogen gas, which is removed to the atmosphere. This process is called a process called denitrification.

Aeration Zone

The next stage of the MBR system is the aeration zone. Wastewater would flow by gravity from the anoxic basin to the aeration basin. The aeration zone would be equipped with fine bubble diffusers for mixing and oxygen transfer. The aeration zone is typically operated with a dissolved oxygen level of 2-3 mg/L. The aeration zone establishes an environment to promote a suspended biological growth that breaks down the soluble BOD by converting it into cellular biomass. The aeration zone is also designed to promote growth of nitrifying bacteria, which oxidize ammonia into nitrates. This process is called nitrification.

Post-Anoxic Zone

The aeration basins overflow into post-anoxic basins, which are designed to further enhance the denitrification process. A source of supplemental carbon, either methanol or ethanol, may be required during certain flow and loading conditions. An aboveground, fuel-type storage tank and gear pumps are used for storage and feed of the methanol. The denitrification process is highly dependent on wastewater temperatures and nitrogen loading. The supplemental carbon would probably not be required on a year-round basis.

Membrane Zone

The immersed membranes are located in a separate zone for each process train. The selected Zenon brand membrane configuration would consist of hollow fiber ultrafiltration membranes. These membranes have a nominal pore size of 0.04 microns. The process would have four membrane trains so that the plant flow could be maintained even with one membrane train out of service for cleaning or maintenance. The membrane basins would have inlet slide gates for isolation.

The immersed membranes separate the solids from the MBR effluent, called permeate. A slight vacuum would be applied to the permeate header by a centrifugal pump. Treated wastewater would then be drawn through the membrane and flow through the center of the membrane and through connecting tubing to the permeate header. In turn, the permeate would flow through the pump to the downstream processes.

The permeate flow is very high quality effluent. As a result of the small membrane pore sizes, ultrafiltration of the wastewater results in typical permeate turbidity values of less than 0.1 turbidity (NTU). The membranes also effectively filter out some bacteria and thus provide a degree of disinfection. Results at operating plants show permeate coliform counts typically less than 23 (MPN) per 100-mL without additional disinfection.

The membranes may need to be cleaned periodically through backwashing to prevent plugging or fouling of the membrane surfaces, which increases the transmembrane pressure through the membranes, resulting in diminished permeate production. The method of backwashing is operator-selected and is fully automated. Backwashing requires the use of permeate containing a high chlorine concentration to be pumped back through the membranes on a regular basis. Sodium hypochlorite would be used to dose stored permeate in a backwash tank. This solution would then be pumped back through the membranes in the reverse direction to the permeate flow. This backwash operation would occur approximately once or twice every day.

Solids would be retained in the membrane tank and would be continuously recycled back to the anoxic zone to maintain the biomass concentration in the system and also to undergo denitrification.

Disinfection

Effluent sent to the percolation beds would receive no additional disinfection as the ultrafiltration membranes remove a large portion of the bacteria present. Coliform levels in the MBR effluent are usually low. The EPA Design Manual for Land Treatment of Municipal Wastewater concludes that wastewater applied to rapid infiltration or percolation beds does not require disinfection. Chlorination may present a problem with formation of chlorinated organic compounds. As a result, while it is possible to chlorinate treated effluent that would be percolated, the treated effluent would be applied directly to the percolation beds without further disinfection to avoid the formation of chlorinated organic compounds.

Disinfection of the portion of the MBR effluent used for recycled water would be accomplished by chlorination. The chlorination system and contact basins would be designed to meet Title 22 disinfected tertiary recycled water requirements.

Chlorine Contact Basins (CCB)

Permeate destined for recycled water production would flow to the CCB, which would consist of a rapid-mix chamber, an inlet distribution channel, two chlorine contact basins, and an effluent wetwell.

Permeate would enter the rapid mix structure where sodium hypochlorite would be added. This structure would be equipped with an induction type chemical flash mixer. Flow would enter the mixing chamber through a pipe penetration. Sodium hypochlorite would then be injected into the flow stream through the mixer. After chlorine injection and mixing, the flow would continue through the CCB influent distribution channel. This channel would be equipped with slide gates to direct the flow to either one or both of the CCBs. The CCB would consist of a concrete basin with concrete baffle walls used to create a serpentine flow pattern. Each basin would be 8 feet wide with a side water depth of 9 feet with 2 feet of freeboard above the normal water level.

Sampling pumps would be used to withdraw samples from the CCB to the chlorine residual/oxidation-reduction potential (ORP) monitoring equipment. The chlorine residual and ORP would be monitored at the influent end of the basin. The influent chlorine residual and ORP would be monitored to insure adequate chlorine has been added and would also be used to detect a chlorination system failure. The effluent chlorine residual would be monitored to insure compliance with Title 22 CT requirements for recycled water disinfection. The chlorine residual analyzers would be mounted adjacent to the CCB. Signals from the analyzers would be incorporated into the plant control system and supervisory control and data acquisition (SCADA) system. These signals would be used to generate alarms to warn the operators of chlorination system failures or malfunctions.

EFFLUENT FACILITIES

Plant Water Pump Station

Chlorinated water from the CCB would flow into the effluent wetwell where vertical turbine pumps would provide non-potable water for in-plant use. A wall would be used to divide the plant water pump station from the rest of the wetwell. The wetwell would be equipped with an overflow weir. This weir would be set up to overflow and direct water to effluent storage.

Effluent Pump Station

Effluent would be pumped by the permeate pumps from the MBR facility through the CCB to the effluent pump station. From here the effluent would be pumped to off-site disposal or directed to the seasonal storage reservoir. The permeate flow can also bypass the CCB and flow directly to the on-site percolation beds. The effluent pump station is part of the chlorine contact basin structure.

Effluent Storage

Existing Ponds 3A and 3B would be converted to provide approximately 11.0 MG of effluent storage. This storage would only serve as equalization or operational storage for use in situations where percolation or effluent disposal is not available. Further effluent storage would be provided in the seasonal storage reservoir (described below). Existing Pond 1B would also be designated as effluent storage. Water from Pond 1B can be sent to the existing on-site percolation beds by using the existing pump system. It is not anticipated that the sludge would be removed from Pond 1B at this time.

Ancillary Facilities

Emergency Storage

The MBR influent distribution structure would be designed to overflow to a sludge stabilization basin (described under solids handling below) in case of emergency. A minimum of 16 million gallons of storage capacity would be available in the sludge stabilization basin for emergency conditions. A decant pump station would be designed to allow pumping of the sludge stabilization basin contents back to the pretreatment facility for processing through the plant.

Plant Drain Pump Station

A plant drain pump station would be provided to collect water from all in-plant building drains, process drains, building sanitary sewers, and storm drains from the immediate plant site. The plant drain pump station would pump this collected water to the pretreatment facilities upstream of the fine screen channel. This pump station would be a circular wetwell equipped with three submersible sewage pumps. Foul air from the headspace of the wetwell would be contained and scrubbed through the odor control biofilter to remove odors. The wetwell would have an overflow to direct excess water to the sludge stabilization basin (SSB) in emergency conditions.

Septage Receiving Station

A septage receiving station would be included in the project. The septage station would be located in the vicinity of the plant entrance. The station would consist of a coarse screen and a concrete containment pad for washdown and dumping of non-hazardous, septic waste. The septage would be accumulated in two holding tanks with a volume of 14,000 gallons each. The holding tanks would be manually drained into the influent lift station for processing through the plant. The operator would have control of the timing of the holding tank draining cycle. The septage receiving station would be fenced and equipped with a cardlock system capable of preventing unauthorized dumping and providing billing information. Odors from the septage receiving station would be contained with the structures. A foul air line would be installed to send this air through the existing odor control biofilter located at the influent pump station to remove odors.

Emergency Generators

The two emergency standby engines would be provided at the DWTP to allow for continued service in the event of a power failure. One generator would be rated at 2500 kW/3,675 hp and the second at 1,500 kW /2,200 hp.

Solids Handling

Sludge Stabilization Basin

It is estimated that the MBR process would generate approximately 12,400 pounds dry weight of solids per day at the design flow of 5.0 MGD. This waste-activated sludge is at a concentration of approximately 1.0 percent dry solids by weight. This amount of sludge equates to approximately 150,000 gallons per day of sludge. The sludge would be placed into a sludge stabilization basin (SSB). Pond 1A would be converted into the SSB by removing the floating baffle curtains and adding solar circulators. The sludge entering the SSB settles to the bottom where stabilization occurs under anaerobic conditions. This stabilization reduces the volatile solids content and the volume of the sludge. The upper, clearer water is kept aerobic in order to prevent odors. The sludge, which settles to the bottom of the SSB, would be stabilized in the SSB through anaerobic and anoxic decomposition of the sludge. When the SSB eventually fills, the sludge would have to be removed, dewatered and hauled off site for disposal or beneficial reuse. This is generally undertaken by a contractor utilizing a floating dredge which pumps the sludge to a dewatering system prior to transferring to a truck for delivery to a landfill or other off-site disposal site.

An additional solids handling method included in the project is the use of a 3-belt filter press for sludge dewatering. This sludge would have to be removed from the site for disposal. The advantage of this method is the additional operational flexibility added to the project for solids handling. The disadvantage of this option is that the dewatered sludge may not meet Class B requirements and would need to be disposed of as solid waste.

Supernatant Pump Station

The SSB would be decanted on a periodic basis and the supernatant returned to the plant pretreatment for processing. The supernatant pump station would consist of two self-priming, non-clog centrifugal pumps with a capacity of 150 gpm each. The supernatant would be returned to the plant pretreatment upstream of the fine screens. The suction line for each pump would be equipped with a floating decanter on a suction hose to allow decanting to various levels of the SSB.

Buildings

Operations Center

A new operations building would be required to house the operations center, computer and SCADA areas, offices, laboratory, toilet and locker facilities, break room, storage and filing rooms, and maintenance areas. The building would be a one-story masonry structure with a standing seam metal roof. A combination of split-faced and plain block would be used.

MBR Equipment/ MCC/Blower Building

A building for MBR equipment, motor control centers (MCC), and blowers would be constructed. The MCC/electrical room would house the MCC for all of the plant mechanical equipment with electrical motors and other electrical loads. The MCC sections would include pretreatment screens, grit removal equipment, permeate pumps, blowers, MBR equipment, plant drain pumps, plant water pumps, chlorine mixers, effluent pumps, aerators, operations building and other miscellaneous equipment. The blowers would be positive displacement blowers housed in sound-attenuating enclosures. Acoustical louvers would be provided for air intakes and a roll-up door would provide access for blower and motor maintenance.

Chemical Feed and Storage

A building for the chemical feed systems and chemical storage area would be required. Sodium hypochlorite would be used for the MBR backpulse and membrane cleaning operation as well as for effluent disinfection. The MBR manufacturer also requires the use of citric acid for membrane cleaning because of the hardness of the water. Additionally, methanol or ethanol would be required for supplemental carbon addition in the post-anoxic zone. Chemical metering pumps would be provided for the effluent disinfection. The pumps would be housed inside a concrete block building.

Sodium hypochlorite would be stored in a high-density, linear polyethylene (HDLPE) chemical storage tank. The tanks would be sized to provide approximately 8 days of storage at peak daily flow chlorine dosage. The storage area would be located outdoors under a canopy. An emergency spill containment area would be provided. The emergency spill containment area would also be included at the chemical metering facilities.

Methanol or ethanol would be stored in a double-contained aboveground steel storage tank. Since methanol and ethanol are flammable, the storage and chemical pump area would be designated as a Class I, Division 2 area per NFPA 70 (National Electric Code). This would require special construction of electrical components to reduce the risk of fire and explosion. A containment area for the chemical pumps would be provided. All methanol/ethanol feed piping would be double-contained. The methanol/ethanol tank would store approximately 3,000 gallons of chemical. The feed pumps would be magnetically driven gear pumps with explosion-proof variable speed drives.

GEOTECHNICAL CONSIDERATIONS

Based on site-specific geotechnical report findings, it was determined that liquefaction during a seismic event was a potential of the underlying soils at the site. To address the soil stability, construction of the new treatment facilities would include vibro-replacement stone columns or driven piles below selected essential structures. These selected structures are the processes in the treatment system required to produce a fully treated effluent. The selected structures that would be supported on the stone columns are:

- Pretreatment facility (screens, grit chamber and building),
- MBR process tanks (influent flow split, anoxic basins, aeration basins and recirculation pumps),
- MBR tanks,
- MBR/electrical building,
- Chemical building, and
- Operations building.

It is cost prohibitive to provide stone columns under all structures. The structures not included in the list above either have sufficient backup or are facilities that the treatment plant can operate without and still meet effluent requirements. All structures would be designed with flexible pipe connections to minimize potential damage and differential settlement caused by a major earthquake. In the case of an emergency, the MBR influent distribution structure would be designed to overflow to a sludge stabilization basin that would provide approximately 16 million gallons of emergency storage capacity. When the facility is restored to operation, the contents of the sludge stabilization basin would be pumped back to the pretreatment facility for processing through the plant.

EFFLUENT QUALITY

MBR systems produce a high-quality effluent ideal for reclamation use. Specifically, the treated effluent is designed to meet the most stringent California Department of Health Services (DHS) requirements for recycled water, which define treatment processes, water quality criteria, and treatment reliability requirements for public use of recycled water. These regulations are contained in Title 22, Division 4, Chapter 3 of the California Administrative Code and are more commonly referred to as Title 22. The MBR facility would produce effluent meeting the category of disinfected tertiary recycled water. Allowable uses for disinfected tertiary recycled water include the following:

- Irrigation of food crops – including contact with edible portion of crop,
- Parks and playgrounds,
- Schoolyards,
- Residential landscaping,
- Unrestricted access golf courses,
- Cemeteries,
- Fodder crops,
- Pasture for milk animals,

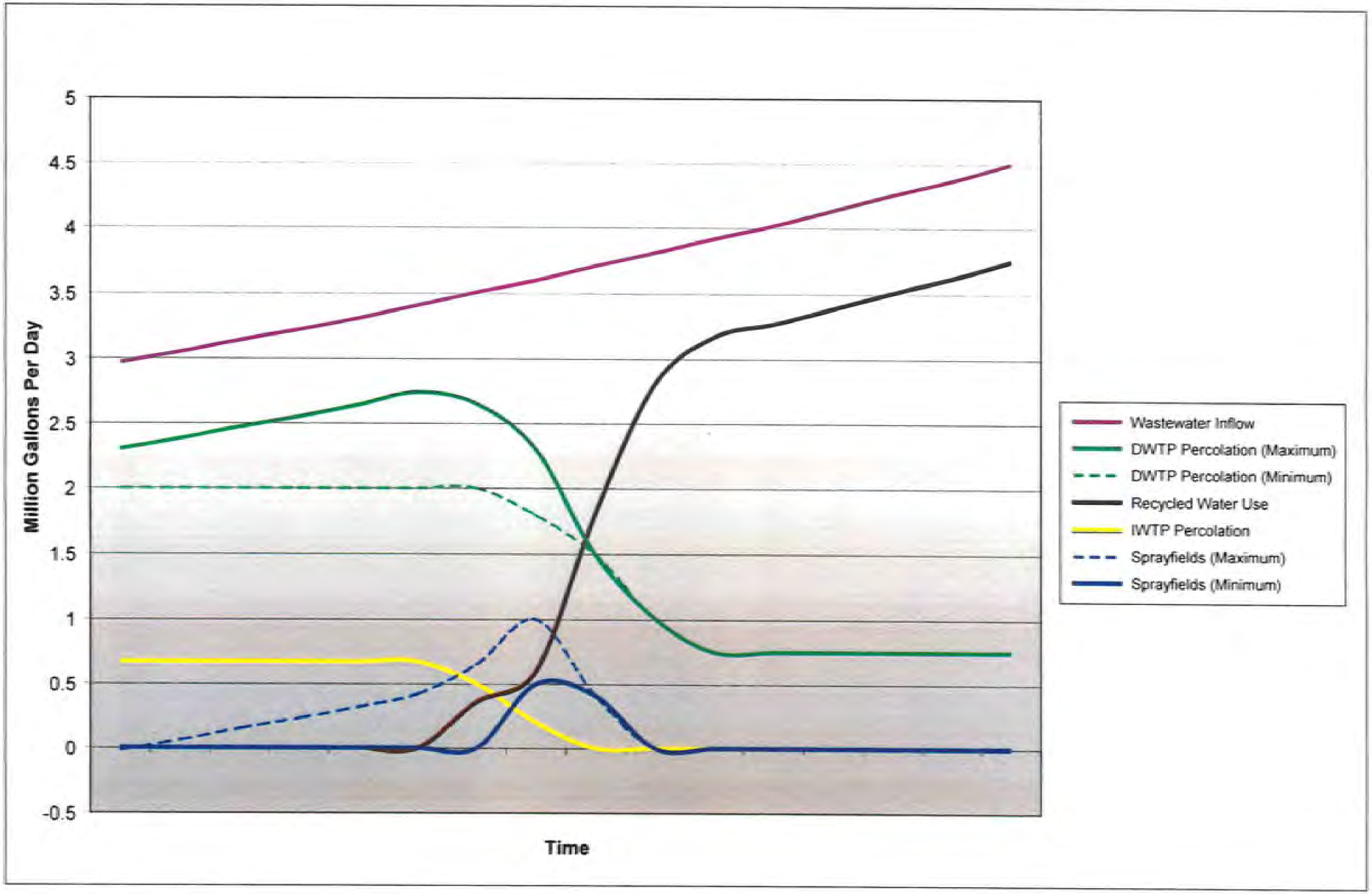
- Ornamental nursery stock and sod farms, and
- Industrial process water that may contact workers.

The DHS recycled water regulations are intended to protect human health and are not the only criteria that apply to effluent quality. In addition to the DHS regulations, the Regional Water Quality Control Board (RWQCB) would set waste discharge requirements for the facility. The Waste Discharge Requirements would specify effluent quality limits and other conditions to protect water quality. The anticipated effluent quality is shown in **Table 3-3**. RWQCB criteria are discussed in **Section 3.7.1** below. For a complete list of DHS recycled water regulations please refer to Table 5-16 in the LTWMP (**Appendix D**).

DISPOSAL OF TREATED EFFLUENT

DISPOSAL STRATEGY

In addition to wastewater treatment improvements, the Proposed Project would change the way that treated effluent is disposed of. Currently, all of the treated effluent produced at the DWTP is disposed of by percolation beds located adjacent to the San Benito River. With development of the Proposed Project, percolation would continue at the DWTP, however treated effluent would also be disposed by percolation at the IWTP, sprayfields, and recycled water projects. The strategy for disposal is to reduce percolation at the DWTP and IWTP and to increase the quantity and quality of effluent for recycled use. **Figure 3-4** illustrates the disposal strategy. As shown, there are two distinct phases. The first phase is the continued use of percolation at the DWTP and IWTP. It is expected that approximately 2,240 AFY would be disposed by percolation at the DWTP (**Table 3-4**). However, based upon the existing percolation capacity, a maximum of 3,133 acre-feet per year (AFY) could be disposed by percolation at the DWTP. Percolation at the IWTP is based on existing volumes of domestic wastewater that are diverted to the IWTP for treatment and disposal. Under the Proposed Project all domestic wastewater would be treated at the DWTP, however up to 796 AFY would be percolated at the IWTP. These disposal methods would continue until improvements in effluent quality allow for an expansion of agricultural recycled water use as the second phase. As recycled water use expands, percolation of DWTP effluent at the IWTP percolation beds would be discontinued, followed by a reduction in the volume of effluent disposed at the DWTP. Sprayfields would also be utilized as an interim disposal method until agricultural recycled water use is expanded. The second phase shows that as flows increase over time recycled water use would increase by the same amount to dispose of the additional volume. Percolation at the DWTP however, would be held to a level that is less than half of the current volume.



SOURCE: AES, 2006

Figure 3-4
Disposal Strategy

TABLE 3-3
EXPECTED EFFLUENT QUALITY

Constituent	Expected Effluent Concentration
Biochemical Oxygen Demand[1]	<10 mg/L
Total Suspended Solids	<10 mg/L
Turbidity	<2 NTU[2] daily average
Nitrate	< 5 mg/L
Boron[3]	0.7 mg/L
Coliform	
Without disinfection[4]	<23 most probable number of colonies
With disinfection[5]	<2 most probable number of colonies
Salinity	
Prior to implementation of the Salt Management Program[6]	
Total Dissolved Solids (TDS)	1,200 mg/L
Chloride	285 mg/L
Sulfate	213 mg/L
Sodium	283 mg/L
After implementation of Phase I and Phase II of the Salt Management Program[7]	
Total Dissolved Solids (TDS)	500 mg/L
Chloride	121 mg/L
Sulfate	85 mg/L
Sodium	121 mg/L

Notes: 1. A measure of the pollution present in water, obtained by measuring the amount of oxygen absorbed from the water by the microorganisms present in it.
2. Nephelometric turbidity units.
3. Based on average boron levels reported for the Hollister water system (City of Hollister, 2006).
4. Disinfection would not be used for effluent disposed by percolation.
5. Disinfection would be used for all other disposal methods including sprayfields and irrigation projects.
6. Based on existing DWTP effluent quality; average 2005 levels.
7. Based on achievable reduction efficiencies of reverse osmosis process for a target TDS level of 500 mg/L.

Source: HydroScience Engineers, 2005; RMC, 2006; AES, 2006.

TABLE 3-4
ESTIMATED WASTEWATER DISPOSAL REQUIREMENTS (ACRE-FEET)

Year	Annual Wastewater Flows	Annual Percolation at DWTP Site	Maximum Annual Percolation at IWTP Site	Annual Off-Site Disposal
2008	3,327	~~2,255~~ 2,240 – 3,133	796	0 – 378
2013	~~4,133~~ 3,820	~~2,255~~ 2,240 – 3,133	796	0 – 893
2023	~~5,167~~ 5,041	~~1,150~~ 840	0	~~4,009~~ 4,201

Note: DWTP, IWTP and off-site disposal volumes do not total annual wastewater flows due to the impacts of evaporation and precipitation on the storage reservoir.
Source: HydroScience Engineers, 2005; City of Hollister, 2006.

OFF-SITE DISPOSAL

When the MBR facility comes online, up to 378 AFY of treated effluent would be disposed off-site (**Table 3-4**). As total dissolved solid (TDS) levels are lowered through the Salt Management Program allowing a greater range of crops to be irrigated, off-site disposal would increase up to a maximum of 893 AFY in 2013 and up to a maximum of ~~4,009~~ 4,201 AFY in 2023. Off-site disposal would be accomplished by sprayfields, which would entail development of new irrigated areas with the primary aim of disposing recycled water, or recycled water use to replace existing water use. The term "sprayfields" is used here to describe disposal sprayfields, such as those proposed at the Hollister Municipal Airport, as well as agricultural and urban irrigation as proposed at the San Juan Oaks Golf Club. Specific sprayfield sites proposed and irrigation methods used are described in the following sections.

To provide adequate disposal capacity for the 4.0 MGD MBR facility that would be constructed for Phase I, a minimum of 0.5 MGD would need to be disposed by sprayfields (**Table 3-5**).

TABLE 3-5
PHASE I MINIMUM SPRAYFIELD DISPOSAL CAPACITY REQUIREMENTS (MGD)[a]

DWTP Treatment Capacity [b]	Percolation at DWTP Site [c]	Percolation at IWTP Site	Minimum Sprayfield Disposal Capacity	Total Disposal Capacity
4.0	2.8	0.7	0.5	4.0

Note: a Expressed in MGD ~~with the exception of seasonal storage reservoir.~~
b Based on Peak Wet Weather Flow of 3.96 MGD
c Based on an annual percolation of 3,133 AFY
Source: HydroScience Engineers, 2006.

The general area where sprayfields projects would be developed in Phase I is identified in **Figure 3-3**. This area is generally bounded by high groundwater conditions to the north and northeast; irrigated agricultural land and the urban center of the City of Hollister to the east; topographical limitations to the south; and irrigated agricultural land, high groundwater and topographical limitations to the west. This area was also delineated by considering landowner interest, infrastructure costs, feasibility, adherence to recycled water regulations, environmental constraints, and other concerns. Within this general area, two specific areas, the Hollister Municipal Airport and San Juan Oaks Golf Course, have been identified for sprayfield development.

Hollister Municipal Airport

The City of Hollister Municipal Airport site is located approximately three miles northeast of the DWTP site and comprises approximately 375 acres. Of that total, 115 acres are used for buildings and runways and ~~40~~ 39 acres are currently farmed for vegetable crops. The area farmed for vegetable crops is leased from the City on an annual basis and could be converted to sprayfields. ~~However, excluding the area in vegetable crops,~~ Assuming this area is included, approximately ~~217~~ 234 acres ~~remain and are assumed to~~ would be available for irrigation during the Phase 1 project. For the purposes of this evaluation, ~~67~~ 73 acres of infields and area near runways are assumed to be used for turf and the remaining ~~150~~ 161 acres are to be used for pasture grasses. ~~Each of these areas would~~ These acreage assumptions include a 10% reduction for roads and other non-irrigated areas, ~~so that the total irrigated land would amount to 195 acres.~~ The total irrigated land is estimated to be between 195 to 234 acres depending on whether the area currently farmed is developed as a sprayfield. Development of sprayfields at the airport would require consultation with the Federal Aviation Administration (FAA) to ensure that the irrigation approach meets their criteria for safety and security. The use of treated effluent to irrigate these lands would need to be incorporated into an update of the airport's existing Airport Layout Plan for review and approval by the FAA.

The area identified as pasture grass area would be irrigated using hand-move sprinklers while the turf irrigation would be accomplished with permanent sprinkler systems. The existing drainage system at the airport, including ditches located between runways and taxiways, would be maintained. It is presumed that the turf irrigation would occur during the night time and be controlled by an automatic valving system. The airport site would require approximately seven turnouts due to the shape of the site in relation to the location of the distribution pipe.

Irrigation at the airport may include a storage reservoir that would be a circular concrete or steel tank and situated at the existing grade. An adjacent pump station would booster irrigation supply for use at the airport site. The storage reservoir tank height would be 15 feet above existing grade, which includes two feet of free board. The tank would occupy an approximately 10,000 square foot footprint and would have a capacity of approximately 700,000 gallons. A pump station would be situated on a square concrete slab (30 ft. by 30 ft) adjacent to the reservoir and could include up to three pumps and associated appurtenances. The storage tank and pump station would also include approximately 10 ft of access area around the facilities. The tank and pump station would be located at the southwestern edge of the airport site.

San Juan Oaks Golf Club

The San Juan Oaks Golf Club is an existing 18-hole golf course located approximately 2.5 miles southwest of the DWTP site (**Figure 3-3**). The existing 18-hole course occupies approximately 238 acres, however, San Juan Oaks owns approximately 1,993 ~~1,820~~ acres and has approved expansion plans to include a second 18-hole golf course, a 9-hole executive course, 200 residential units, and a 200-room resort hotel. As a condition of approval, San Juan Oaks is required to limit groundwater use to 15% of its landscaping irrigation demand. The intent of this limitation was to limit pumping and possible depletion of groundwater supplies in the area. To comply with this limitation, San Juan Oaks blends groundwater with CVP water in an onsite pond to supply the irrigation system. The current irrigated acreage is approximately 120 acres with an approximate water usage of 365 AFY. With the expansion of facilities, the water demand is expected to increase to 790 AFY.

For Phase 1, treated effluent would be delivered via pipeline to San Juan Oaks's existing and planned blending ponds. Treated effluent would be blended with their existing CVP water and groundwater to achieve an applied TDS concentration of 500 mg/L. This would result in a blend of 22% recycled water and 78% CVP water/groundwater. Both treated effluent and CVP water would be used to fill the ponds and provide a blended supply meeting golf course needs. Based on planned water use and the required blend ratios treated effluent use at the site is estimated at 135 AFY. It is assumed that San Juan Oaks would offset CVP water use in the amount of treated effluent used at the site. Facilities required to serve San Juan Oaks would consist of pipelines and a turnout (valved pipe connection). No change in the total area or location of existing or planned irrigation is assumed.

Additional Sprayfield Development

As shown in **Table 3-6**, the development of sprayfields at the Hollister Municipal Airport and San Juan Oaks Golf Club would provide disposal capacity of approximately ~~745~~ 878-1,025 AFY or ~~0.66~~ 0.77-0.89 MGD. This volume exceeds the minimum sprayfield disposal capacity required to meet disposal requirements for Phase I of 0.5 MGD identified in **Table 3-5**.

While no additional sprayfields would be required to provide adequate disposal capacity, additional sprayfields may be developed to provide for beneficial reuse of treated effluent and to reduce the percolation of treated effluent at the DWTP and IWTP. The City in cooperation with the SBCWD has identified two locations that could utilize recycled water in the future.

The Pacific Sod Farm is located north of Freitas Road at the end of Flint Road. The Pacific Sod Farm comprises approximately 275 acres and could utilize approximately 616 AFY of recycled water to replace existing groundwater use. Based on the quality of the groundwater currently used for irrigation at the farm, it is expected that the Phase I recycled water quality would be suitable for irrigation of grasses grown on the farm. Recycled water irrigation would utilize the existing hand-move irrigation system. Recycled water would be provided by approximately two turnouts supplied from a pipeline along Flint

Road. Providing recycled water to the Pacific Sod Farm would be dependent on the interest of the owners and operators of the sod farm.

TABLE 3-6
PLANNED PHASE I SPRAYFIELD CAPACITY

Sprayfield Location	Irrigated Acres	Recycled Water Demand [a]	
		AFY	MGD
Hollister Municipal Airport	195 – 240	~~610~~ 743 – 890	~~0.54~~ 0.77 – 0.89
San Juan Oaks Golf Club [b]	260 [c]	135	0.12
Total	**455 - 500**	**~~745~~ 878 – 1,025**	**~~0.66~~ 0.89 – 1.01**

Notes: a Recycled water demands are estimated for the 100-year Rainfall Year. During lower rainfall years recycled water demands would be higher and additional disposal can be accommodated.

b San Juan Oaks Golf Club demand is based on planned demand and a blend ratio of 22% recycled water and 78% CVP water or groundwater. Lower salinity recycled water and/or adjustments to the blend ratio would allow for additional recycled water use.

c Acreage estimated from irrigation demand of 790 AFY supplied by San Juan Oaks Golf Club and assumes 36.7 inches of water per year.

Source: RMC, 2006; AES, 2006.

The second additional area that has been preliminarily identified is the eastern portion of the Flint Hills. This area has been identified as a feasible area based on its proximity to the DWTP and the ability to beneficially reuse water for pasture irrigation in the area. It is expected that currently un-irrigated areas could be developed as sprayfields that would support pasture crops. As identified above, the quality of effluent would meet Title 22 standards for disinfected tertiary recycled water. These standards specifically allow for irrigation of fodder crops and pasture for milk animals. No specific sites in the Flint Hills have been identified. Development of sprayfields in this area would be dependent on landowner interest.

Other additional specific sprayfield sites that may be identified are expected to be located within the general Phase I disposal area identified in **Figure 3-3**. The location of additional sprayfields would depend on landowner interest, infrastructure costs, feasibility, consistency with groundwater management plans, adherence to recycled water regulations, environmental constraints, and other concerns.

The construction of sprayfields would require a network of pipelines located beneath or along existing roadways. The sprayfields would consist of networks of pipelines and sprinklers similar to existing agricultural and urban irrigation practices used in the region.

Irrigation Methods

The irrigation of sprayfields developed under the DWSI project and irrigation projects developed under the RWF Project (described below) would use one of three irrigation methods: 1) surface irrigation, 2) hand-move sprinkler irrigation, or 3) permanent sprinkler irrigation. For additional details on irrigation methods please refer to Section 2.4 of the Phase I Effluent Management Project Preliminary Design TM included in **Appendix E**.

Surface Irrigation

Surface irrigation is one method of water application that can be applied to a wide variety of crops. The proposed method would divide each overall site into smaller sections separated by small berms. These smaller sections would have areas less than 40 acres each to optimize water application. Each section would be graded to provide a slope of 0.5% to 1.0% in one direction with minimal cross slopes. The water would be delivered via a buried pipeline with risers and attachments for the gated distribution pipe. The gated pipe would be located at the top of the slope allowing for a relatively equal distribution of water across the section. As the soil is wetted and the infiltration of water decreases, the water flows down the slope until the entire field is wetted. Any excess water is collected in a tail-water collection system and pumped back to the top of the slope to minimize wasted water.

Surface irrigation is presumed to be feasible when minimal site work is required. On parcels with large slopes, grading to a slope between 0.5% and 1.0% becomes cost-prohibitive and very difficult, therefore surface irrigation would generally not be considered for these sites.

For the sites where this irrigation method is used, surface irrigation would be limited to agronomic rates (the rates at which crops would utilize water), to reduce the amount of water percolating into the groundwater basin. Appropriate application rates would be identified in the Waste Discharge Requirements set by the Regional Water Quality Control Board.

Hand-Move Sprinkler Irrigation

A second alternative for water application is the hand-move sprinkler system. This system works by having a main header pipe with a series of valved connections for laterals. The sprinklers are left in one place for a period of time, then are moved to irrigate an adjacent section.

Permanent Sprinkler Irrigation

The final irrigation method identified is a permanent, buried sprinkler system. This type of system is commonly used in locations where there is frequent access and use, such as golf courses or athletic fields, or places where access is limited for operation of a hand-move irrigation system. These systems are typically installed in zones so that only a portion of the overall area is being irrigated at any one time. Changing between zones is typically done with an automated control system and valves.

Selection of sprayfield sites would require consideration of the plant types grown on the property. Initially, recycled irrigation water would be limited to crops that are tolerant of the anticipated TDS levels. High TDS levels in irrigation water could result in growth problems for salt-sensitive crops. However, there are numerous grasses and crops that can tolerate the expected TDS level of the treated effluent. Research by the University of California Division of Agriculture and Natural Resources has identified grasses that tolerate irrigation salinity above 2,000 mg/L on soils with good drainage (Harivandi, 1999). Sprayfields would be planted with grasses that are proven to be salt tolerant and which have proven successful at sprayfields irrigated with recycled water. Grasses would also be selected to minimize the risk of introducing invasive species to surrounding habitat.

Recycled Water Distribution Pipelines

To serve recycled water to the potential users, a network of dedicated distribution pipelines, laterals and turnouts would be required. It is assumed that these pipelines would generally follow existing roadways and would be installed just off the road surface to minimize disruption to traffic. **Figure 3-4** shows the proposed pipeline corridors used to distribute the recycled water. Once the specific sites to be served are identified, the extent of the infrastructure could be refined to reflect those specific sites. Most pipelines installed along roadways are assumed to be installed in easements outside of the roadway next to the existing agricultural land. A 20-foot-wide permanent easement and an additional 40-foot-wide temporary right-of-way construction easement are assumed to be required for 50% of the length of each pipeline segment. The easements for the remaining 50% of the pipeline length are assumed to be located in existing County easements. The pipeline following the Union Pacific Railroad tracks is assumed to require easements for the entire length. The proposed pipeline routes have been divided into five sections for discussion and analysis purposes.

Freitas Road Route The proposed pipeline routed along Freitas Road would be approximately 3.7 miles long. From the DWTP the pipeline is routed south along State Route 156 for approximately half a mile, then briefly west along a dirt road, then very briefly south along Mitchell Road, then west along Freitas Road approximately 1.8 miles. The pipeline branches north approximately three quarters of a mile onto Freitas Road, to north along Flint Road. The pipeline finishes going south from Freitas Road along Bixby Road for approximately half a mile.

San Juan Oaks Route The proposed pipeline routed to the San Juan Oaks Golf Club would be approximately 3 miles long. From the DWTP the pipeline is routed south along State Route 156 for just over one mile, then south along Union Road for just under half a mile, then briefly south along a dirt road that turns into San Juan Oaks Drive. San Juan Oaks Drive continues south for approximately 1.4 miles to the San Juan Oaks Golf Course where the pipeline ends. Immediately prior to entering the San Juan Oaks Golf Course property, the pipeline route (along Nothing Road) crosses an unnamed, intermittent drainage.

Airport Route The proposed pipeline routed to the airport would be approximately 7.2 miles long. From the DWTP the pipeline is routed north along State Route 156 for approximately half a mile. The pipeline immediately crosses the San Benito River, where an existing pipe located in the bridge would be utilized for crossing the river. The pipeline continues very briefly east along Buena Vista Road, then very briefly north along a dirt road, then east along Wright Road for approximately 1.4 miles, then north for approximately 1.1 miles along the road that begins as Briggs Drive and continues for about a third of the distance. The road becomes a dirt road for another third of the distance, and becomes Aerostar Way for the final third. The pipeline continues briefly west along Aerostar Way around the perimeter of the airport, then briefly northwest continuing along the perimeter, then approximately 1.1 miles northwest further along the perimeter, and finally ending approximately 0.8 miles northeast along State Route 156.

Northwest Route The proposed pipeline routed to the northwest region of the project area would be approximately 7.1 miles long. From the DWTP, the pipeline is routed north along State Route 156 for approximately half a mile. The pipeline immediately crosses the San Benito River, where an existing pipe located in the bridge would be utilized for crossing the river. The pipeline continues very briefly east along Buena Vista Road, then very briefly north along a dirt road, then very briefly east along Wright Road, then north along a dirt road for approximately 0.8 miles, then northwest along the Union Pacific Railroad tracks for approximately 4.5 miles where it ends.

IWTP Route

The proposed pipeline routed to the IWTP would be approximately 1 miles long. From the DWTP, the pipeline would travel east and then south to the frontage road along San Juan-Hollister Road. It would follow this frontage road toward the east for approximately 4,400 feet to the San Benito River. The pipeline would cross the river either by modifying an existing pipeline located under the channel, hanging a new pipe from the existing bridge, or by installing a new pipe under the channel. After the bridge crossing, the pipe would connect with one of two existing pipes located along the perimeter of the IWTP.

DWTP Percolation

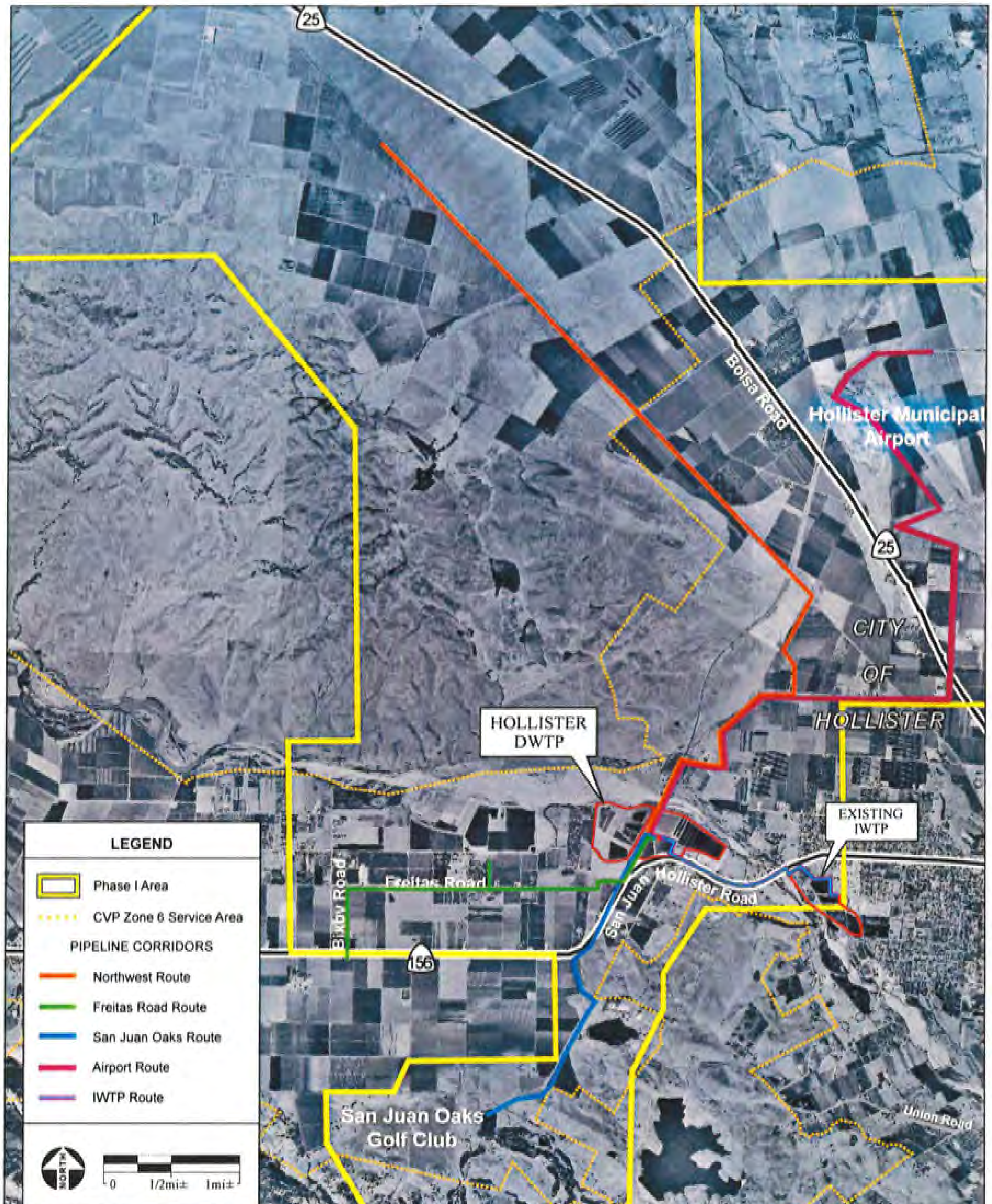
Currently, treated wastewater from the DWTP is disposed of in percolation beds located to the east and west of the main DWTP treatment ponds. The City utilizes seven percolation beds on the west side of State Route 156 and eight percolation beds on the east side of State Route 156. **Figure 2-3** identifies the location of the existing percolation beds.

With completion of the MBR facility, the City of Hollister would continue to dispose of treated effluent at the eastern disposal beds and in the area west of State Route 156 via an unlined seasonal storage reservoir. Disposal volumes would range from approximately 0.6 MGD in winter months when high water tables limit percolation capacity, to approximately 4.6 MGD in the summer months. The percolation rate at the DWTP would exceed the average daily wastewater flow from June through September allowing for the disposal of excess effluent stored through the winter months. Percolation rates were estimated based on monthly rates observed by the City staff for all the percolation beds. For a detailed explanation of how the percolation rates were determined, please see Section 8.2 of the LTWMP (**Appendix D**).

IWTP Percolation

Currently, the City diverts some of the domestic wastewater flow to the IWTP for treatment and disposal. The IWTP, which primarily serves the San Benito Foods tomato cannery, currently has excess percolation capacity that the City could utilize. Excess capacity at the IWTP varies over the course of the year based on the annual hydrological cycle and the canning season. Excess capacity is greatest in late spring but diminishes significantly during the canning season.

Under the Proposed Project, diversions of flow to the IWTP for treatment would cease; instead, effluent from the DWTP would be pumped through a pipeline to the IWTP for disposal (**Figure 3-5**). Volumes of treated effluent from the DWTP that would be disposed by percolation at the IWTP would range from 0.1 MGD during the canning season to 1.6 MGD during the early spring. A new pipeline would be required to convey treated effluent to the IWTP. The route of the pipeline is described above under the section on Recycled Water Distribution Pipelines.



SOURCE: RMC Water and Environment, 2005; San Benito County Water District, 2005; City of Hollister, 2005; USGS Aerial Maps; AES, 2006

Figure 3-5
Proposed Phase I Pipeline Alignments

SEASONAL STORAGE

DWTP Storage Reservoir

The City's goal is to ultimately dispose of 100% of its effluent through some form of recycled water irrigation. This could include crop irrigation, turf irrigation or spray field irrigation. The RWQCB would generally not allow the application of recycled water for irrigation when saturated soil conditions exist that would result in potential co-mingling of treated effluent with stormwater runoff. Therefore, because of local meteorological conditions, plant physiology, and RWQCB permitting constraints, the disposal of effluent by irrigation can be assumed to be limited to the warmer and drier months. Generally, these months run from about April until about October. Because the City would only be able to dispose of its effluent on spray fields during the dry months, it would construct reservoirs to store its effluent during the wet season when it cannot dispose of water.

To accommodate winter storage, a 1,500 acre-foot seasonal storage reservoir would be constructed to provide sufficient storage for Phase I through the year 2013. The reservoir would be constructed west of State Route 156 on the site of existing percolation beds and would encompass an area of approximately 77 acres. The reservoir would be unlined to allow percolation of treated effluent. The reservoir would be divided with internal berms into three to four cells that would be used independently for percolation beds, storage of excess effluent, or percolation bed maintenance. Continued percolation is assumed for cells that are being used for storage. The divided reservoir would allow for maintenance of the individual cells including disking and other maintenance activities. The reservoir would have perimeter berms approximately 10 feet above the existing grade. The bottom of the reservoir would be constructed at approximately 13 feet below the existing grade. The reservoir would have an average depth of 22 feet with approximately 3 feet of freeboard. The final reservoir elevations would be set based upon local groundwater elevations and final soil balance. See **Figure 3-1** for the site plan of the reservoir and **Figure 3-6** for a typical reservoir section. Soil excavated for reservoir construction may be used as fill material in Pond 2 for the construction of the DWTP.

A pump station at the seasonal storage reservoir would pump the stored effluent to the DWTP for distribution. The reservoir effluent would be directed either to the DWTP on-site percolation beds or to the effluent pump station, which would pump the effluent to the recycled water distribution system. The City's existing dissolved air flotation (DAF) unit may be installed in line from the reservoir pump station to the effluent pump station to remove algae, if required. Piping would be routed from the DWTP to the reservoir to provide the City with the means to drain and fill the reservoir. A paved levee road would provide the City with access around the reservoir.

Based upon final design that incorporates a detailed analysis of groundwater elevations and soil balance, the reservoir may fall under the jurisdiction and requirements of the California Division of Safety of Dams (DSOD). Under the California Water Code, wastewater ponds less than 15 feet high (above grade) and which have a maximum capacity of 1,500 acre-feet or less are exempt from State jurisdiction. The final dam design may exceed 15 feet in height above grade in order to reduce the amount of soil excavated. If the reservoir does exceed the classifications for exemption, the City would need to apply for and obtain DSOD approval of plans and specifications. DSOD would require the City to comply with certain requirements for design and construction of the reservoir including DSOD certification of the treated wastewater impoundment. Once constructed, DSOD would inspect the final dam specifications and the completed dam. DSOD will issue a certificate only if it finds that the dam or reservoir is safe to impound water within the limitations prescribed in the certificate.

If the reservoir is exempt from State jurisdiction, construction of the reservoir would still need to comply with provisions of the California Water Code. Specifically, California Water Code, Division 3, Part 1, Chapter 2, Section 6025 contains the following conditions:

- Section 6025.5(b) – Requires the City to adopt a resolution which finds that the ponds have been constructed and operated to standards adequate to protect life and property, and provides that the City shall supervise and regulate the design, construction, operation, enlargement, replacement, and removal of the ponds after the effective date of the resolution.
- Section 6025.5(c) – Requires that the seasonal storage reservoirs be designed by, and constructed under the supervision of a registered civil engineer, and that the location of the reservoirs not cross a stream channel or watercourse.
- Section 6025.6 – Requires the City to comply with the requirements of Section 8589.5 of the California Government Code, preparation of inundation maps, and to employ a civil engineer registered in California to supervise the reservoirs for the protection of life and property for the full operating life of the reservoirs. The City is required to submit the name, business address, and telephone number of the reservoir supervising civil engineer to the Department of Water Resources.

Additional Storage Infrastructure

In addition to the storage tank and pump station identified for the Airport, an elevated storage tank in the Flint Hills may be developed. An elevated storage tank would provide supply reliability and reduce the size of the distribution pump station as peak demands could be attenuated through variation in the tank water level. Depending on the elevation of the tank, a booster pump station may be required to provide additional pressure to the customers. Conceptually, this storage tank would be located north of the DWTP on the west side of State Route 156, in the Flint Hills. This location is a preferred location for the storage as the hills would provide additional water head to get the water to use sites and to assist in mitigation of pressure surge in the distribution system. It is expected that a 1.5 to 2.5 million gallon storage tank would be required. The exact size and location have not been determined at this time.

SALT MANAGEMENT PROGRAM

Because of high levels of salts and minerals in the treated DWTP effluent, agricultural and urban irrigation would be limited. To broaden the range of crops that could be irrigated with the treated effluent and to reduce the amount of salts and minerals entering the groundwater basin, a Salt Management Program would be implemented. The GWMP identified a range of programs to manage and reduce salinity levels in the groundwater basin. Several of these programs have been incorporated into the proposed Salt Management Program. The objective of the Salt Management Program is to reduce TDS levels in DWTP effluent from the existing average level of 1,200 mg/L to a target level of 500 mg/L, and not to exceed a level of 700 mg/L. During Phase I, reductions would be achieved by instituting source control programs for municipal and industrial users including the elimination of on-site regenerating water softeners. These programs are expected to reduce salinity levels, but not to Master Plan MOU target levels. To achieve the target levels, demineralization of groundwater or DWTP effluent through reverse osmosis treatment or electro-dialysis reversal is identified as Phase II of the Salt Management Program (described in **Section 3.4.2** below). These components were first identified in the GWMP. Because the specific details of these programs have not been fully developed at this time, the EIR address these programs at a programmatic level.

SALINITY EDUCATION PROGRAM

A salinity education program for agricultural, municipal and industrial users would be implemented to manage salt loads to the groundwater basin. It is estimated that Central Valley Project (CVP) water, fertilizers from agricultural and urban users, and concentration from water softeners from municipal and industrial users account for 53% of all salts entering the groundwater basin (SBCWD & WRASBC, 2004a). The salinity education program consists of assisting agricultural water users in reducing salt infiltration to the local groundwater basin. Salinity education for municipal and industrial users would occur primarily through implementation of a water softener ordinance. This program is incorporated from Section 5.3.3 of the GWMP.

INDUSTRIAL SALT CONTROL IN MUNICIPAL WASTEWATER

This program is intended to work cooperatively with food processors and other industrial dischargers whose operations contribute elevated levels of salts to municipal wastewater treatment plants. Salts could be reduced through operational changes that reduce the use of salts, or pretreatment processes that remove salts prior to discharging wastewater into the sewer system. This program is incorporated from Section 5.3.5 of the GWMP.

WATER SOFTENER ORDINANCE

It has been estimated that water softeners add 2,270 tons per year or 6% of the total salt input to the groundwater basin (SBCWD & WRASBC, 2004a). Although this is a relatively small percentage, it is substantial and easily controllable. This program would establish an ordinance requiring new home water softeners to be regenerated off site to prevent the introduction of salts into the sewer system. Additional components of this program could include a retrofit ordinance applicable to the resale of homes, and a grant program to assist existing homeowners in achieving conversion at lower cost. This program is incorporated from Section 5.3.4 of the GWMP.

3.4.2 DWSI PROJECT – PHASE II

Phase II of the proposed DWSI Project consists of implementing demineralization of groundwater or DWTP effluent to meet target TDS levels, and the expansion of DWTP facilities to accommodate growth.

DEMINERALIZATION

As a strategy for improving water quality in San Benito County, the GWMP Update (SBCWD & WRASBC, 2004a) proposes demineralization of groundwater through reverse osmosis treatment or electro-dialysis reversal. To meet the objective of the Master Plan MOU to reduce TDS to a target level of 500 mg/L (not to exceed 700 mg/L) by 2015, demineralization would be provided as Phase II of the Salt Management Program. Demineralization of groundwater would reduce salinity and hardness of the municipal and industrial supply, which would also result in lower salinity in wastewater effluent. Groundwater treatment would involve connection of existing municipal groundwater wells to a demineralization system. With the implementation of the groundwater demineralization, the supply of high quality potable water would eliminate the need for water softening. As an alternative, this EIR also considers reverse osmosis treatment or electro-dialysis reversal of treated wastewater at the DWTP. Demineralization at the DWTP would not address the TDS levels in the potable water supply, but would result in meeting the recycled wastewater quality objectives. The demineralization alternative selected would be implemented by 2015 to reduce TDS levels of the recycled water to between 500 and 700 mg/L to meet the objective of the Master Plan MOU. As stated above, specific demineralization projects have not been identified at this time, therefore the EIR will address demineralization at a programmatic level.

As discussed in the GWMP, a major issue associated with the demineralization is disposal of the concentrated brine that is produced. The GWMP assumes that implementation of the demineralization process will require demineralization of 7.5 MGD (8,365 AFY) of groundwater in order to provide a water supply source for municipal and industrial users. Approximately 1.5 MGD (1,680 AFY) of brine would be produced in order to achieve this output of treated groundwater. Several methods for disposal of brine were considered in the GWMP Update and the GWMP Update EIR (SBCWD & WRASBC, 2004b). These include land evaporation, fueled evaporation, out of basin export through construction of an export pipeline that would transport brine to the City of Watsonville's ocean outfall, or deep well injection. Construction of an export pipeline for ocean disposal and deep well injection would require extensive permitting and lengthy future studies to assess potential environmental impacts of such actions. Therefore, due to feasibility issues and costs associated with the export pipeline and deep well injection, it is assumed that evaporation methods would be used for the disposal of brine.

Land evaporation of concentrate would require a large land area for the development of evaporation ponds. It is estimated that approximately 400 acres of ponds would be required for the evaporation of the concentrate produced during the demineralization process. The pond area may be reduced if DWTP effluent is demineralized, as a smaller amount of water would require demineralization. It is likely that some ponds would provide seasonal storage capacity while others would be shallow to maximize evaporation rates. All ponds would be lined with an impermeable barrier that would prevent percolation of the saline concentrate into the groundwater. Adequate freeboard would be provided in the ponds to contain a 100-year storm event. The location of the ponds would be determined in the future based upon proximity to the water treatment facility, which would be located at the DWTP or in proximity to supply wells. Brine would be transported from water treatment facilities to the storage pond through pipelines. Brine from the reservoir would then be transferred to the evaporation pans as necessary. The land evaporation process would produce a highly concentrated solution that could then be transported by tanker trucks to the City of Watsonville Wastewater Treatment Plant for discharge through their ocean outfall. As an alternative, fueled evaporation could be used that would produce a brine "cake," or zero liquid solids. These solids would be trucked out of the basin and disposed of at a landfill or salt processor. A smaller area for evaporation ponds could be used if fueled evaporation techniques are employed; however, a large amount of energy would be required.

Domestic Wastewater Treatment Plant Expansion

During Phase I, the MBR facility would be constructed with biological and membrane process trains to treat 4.0 MGD. During Phase II, the MBR facility would be expanded to a treatment capacity of 5.0 MGD. A design treatment capacity of 5.0 MGD was selected for the DWTP to allow for 10 percent inflow and infiltration above the projected 2023 average dry weather flow of 4.5 MGD (**Table 2-1**). Expansion of the MBR facility would require the installation of additional treatment membranes. This expansion would not require additional building space or expansion of other treatment plant facilities. However, to provide for the additional treatment capacity, additional effluent storage and disposal capacity would be required prior to operation of the expanded plant.

Disposal Sprayfields

Disposal sprayfields are intended to be utilized only until improvements in water quality enable the expanded use of treated effluent to irrigate a wider variety of crops. However, depending on when recycled water objectives are met, it is possible that additional sprayfields would be developed at a later phase to provide adequate disposal capacity. Based on the approximately 4,009 acre-feet of treated effluent that would be disposed of off site (i.e. not by percolation at the DWTP site) per year, approximately 1,200 acres of sprayfields would be required by 2023. This does not take into account RWF irrigation projects that would be developed in Phases I and II. The figure of 1,200 acres is therefore used only to indicate the maximum extent of sprayfield development. It is expected that sprayfields developed in Phase II would be located within the general Phase I disposal area identified in **Figure 3-3**. The location of sprayfields would depend on landowner interest, infrastructure costs, feasibility, consistency with groundwater management plans, adherence to recycled water regulations, environmental constraints, and other concerns.

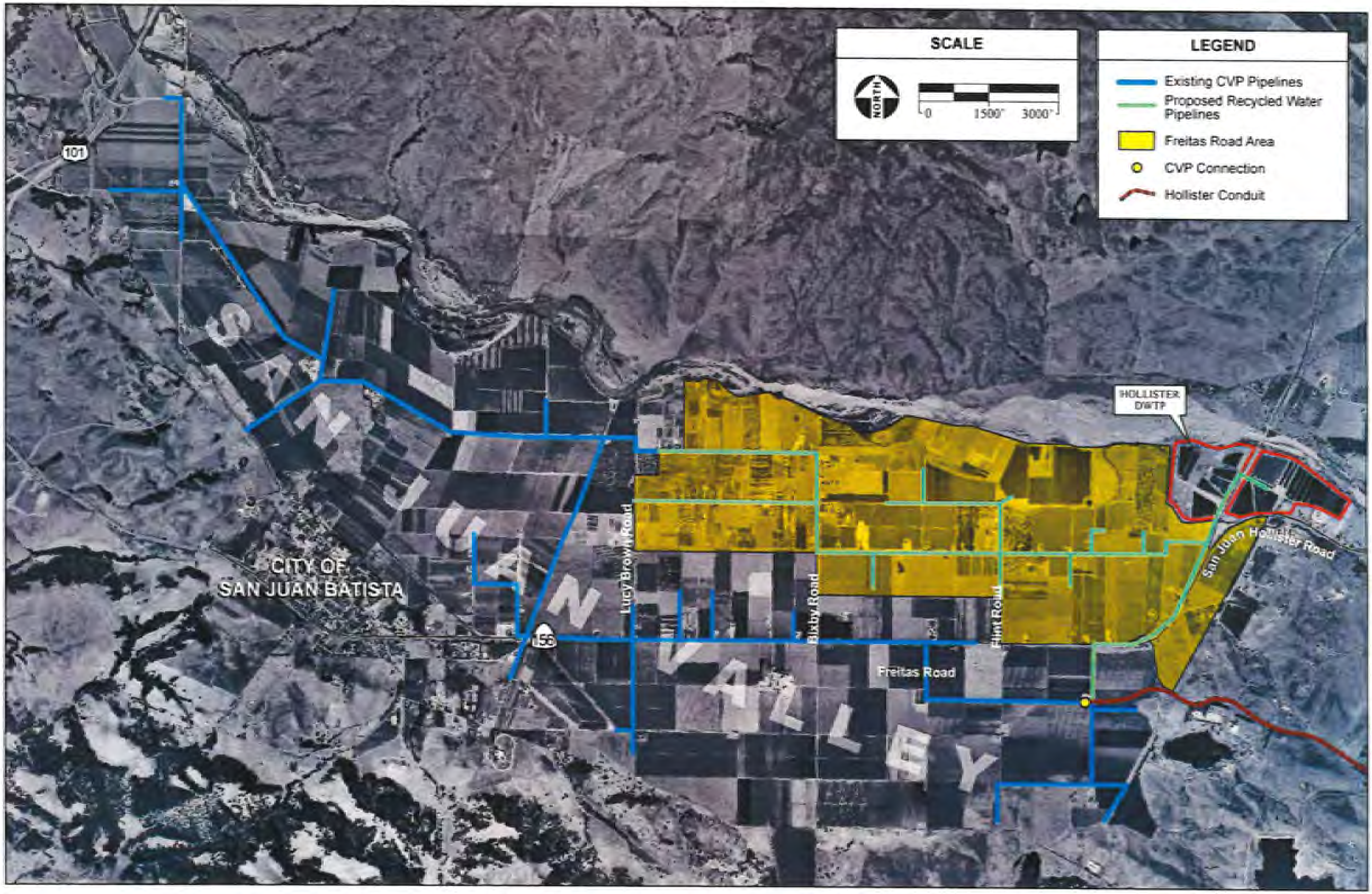
SEASONAL STORAGE

The unlined seasonal storage reservoir constructed during Phase I at the DWTP would be lined to reduce the amount of percolation occurring at the DWTP and to increase the volume of treated effluent stored through the wet season. This would increase the amount of treated effluent available for recycled water use. Based on wastewater flow projections, it is estimated that an additional 670 AF of seasonal storage would be required by 2023. The location of the additional storage reservoir has not been determined at this time. Expansion of the City's storage capacity may be accomplished at the DWTP site or by developing additional off-site storage facilities.

3.4.3 RECYCLED WATER FACILITY PROJECT – PHASE I

A *Draft Regional Recycled Water Project Feasibility Study Report* (RMC Water and Environment, 2006 was prepared for the Water Resource Association of San Benito County (WRASBC). The WRASBC consists of the City of Hollister, SBCWD, Sunnyslope County Water District, and the City of San Juan Bautista. The Feasibility Study developed and recommended a Phase I project and a Phase II project. The Phase I project would initially consist of distributing recycled wastewater for irrigation purposes to users located in Freitas Road area (shown in **Figure 3-7**). However, due to initial TDS levels of approximately 1,200 mg/L, recycled water would only be suitable for uses that can tolerate elevated salt levels. Until 2015, the date when the MOU requires TDS levels to be 700 mg/L or less, blending with CVP water may be used to achieve the TDS objective of 700 mg/L. The types of crops irrigated and the locations of projects would be dependent on the interest of property owners and the feasibility of construction and operation at specific locations. Recycled water would be distributed to irrigation projects by Freitas Road pipeline route shown in **Figure 3-5**.

The development of sprayfields at the Hollister Municipal Airport and San Juan Oaks Golf Club (described in **Section 3.4.1** above) would provide disposal capacity of approximately 745 AFY or 0.66 MGD. This volume exceeds the minimum sprayfield disposal capacity required to meet disposal requirements for Phase I of 0.5 MGD. While no irrigation projects would be required to provide adequate disposal capacity, irrigation projects would be developed to provide for beneficial reuse of treated effluent and to reduce the percolation of treated effluent at the DWTP and IWTP. No specific additional areas have been identified at this time, but they would be expected to be located within the Freitas Road Area. The location of additional irrigation projects would depend on landowner interest, infrastructure costs, feasibility, consistency with groundwater management plans, adherence to recycled water regulations, environmental constraints, and other concerns.



SOURCE: City of Hollister, 2006; AES, 2006

Figure 3-7
Phase II RWF Project

AGRICULTURAL DEMONSTRATION PROJECT

To show the suitability of recycled water for irrigating edible food crops, an agricultural demonstration project may be developed during Phase I of the RWF. The demonstration project would consist of providing a volunteer grower with recycled water that is blended with CVP water to achieve TDS levels of approximately 700 mg/L. The demonstration project would be limited to approximately 40 to 100 acres in an area currently served by CVP water. A specific grower has not been identified at this time, but the grower would likely be located within the Freitas Road area.

3.4.4 RECYCLED WATER FACILITY PROJECT – PHASE II

When the treated DWTP effluent TDS levels are 700 mg/L or less, Phase II of the RWF Project would be implemented, providing for expanded recycled water use for agricultural and urban irrigation use. The Feasibility Study identified a Phase II project to deliver recycled water to the entire San Juan Valley (**Figure 3-7**). Recycled water would be provided by connection to the existing CVP pipeline network. Connection with the CVP pipelines would be made in the eastern portion of the valley near the connection with the Hollister Conduit. From this point recycled water would be distributed throughout the entire San Juan Valley CVP area. Prior to serving the entire CVP area, it is expected that early implementation of Phase II would consist of extending service throughout the Freitas Road area, which is not currently served by CVP water. The *San Benito County Regional Recycled Water Project Facility Plan-Draft Report* (RMC Water and Environment, 2006) evaluated three alternatives for supplying recycled water to users in the Freitas Road area for the Phase II project. The recommended alternative is to serve the Freitas Road area through the construction of pipelines as shown in **Figure 3-7**.

The Freitas Road area encompasses approximately 1,890 acres and has a total estimated irrigation demand of 4,600 AFY. Currently irrigation demand is met solely by groundwater. The total irrigation demand of 4,600 AFY of the Freitas Road area equates to 100% of the projected wastewater flow at the DWTP for the year 2020. The projected wastewater flow through 2023 is 5,041 AFY (**Table 3-4**). Percolation at the DWTP would provide approximately 1,150 AFY of disposal capacity. By combining these two disposal options, the City's effluent management/disposal capacity would total approximately 5,750 AFY by 2023. This exceeds the 4,009 AFY of effluent that would need to be disposed in 2023[1]. Including the remainder of the San Juan Valley would expand the estimated irrigation demand by 11,720 AFY to a total of 16,320 AFY, significantly more demand than the DWTP could supply.

Approximately 60% of the Freitas Road area produces vegetable row crops. Deciduous tree crops take up approximately 25% of the remaining land. Within the San Juan Valley CVP service area, approximately 90% of the area produces vegetable row crops with the remaining 10% in deciduous tree crops.

[1] The 2004 GWMP estimates that 3,000 to 3,557 AFY per year of recycled water would be recharged or reused (Table 3-2), a smaller volume than identified in the LTWMP. However, the GWMP utilized 1998-2001 water supply data and acknowledged that the recycled water supply is a function of population and that additional recycled water will be available in the future (pg. 11).

Agricultural irrigation would occur by one of three methods – surface irrigation, hand-move sprinkler irrigation, or permanent sprinkler irrigation. These irrigation methods are described in **Section 3.5.1** above.

The Phase II RWF Project is addressed in this Draft EIR at a programmatic level. Subsequent environmental review would be required prior to implementation of specific projects that would extend service to the entire San Juan Valley.

URBAN USES

In the future it may become feasible to serve a greater variety of urban uses such as golf courses, parks, schoolyards, and cemeteries. The Ridgemark Golf and Country Club, located directly southeast of Hollister, is the largest single urban water demand that could be converted to recycled water. In addition, there are industrial operations that could potentially use recycled water. Recycled water at industrial facilities is typically used in cooling towers, boilers, manufacturing processes, and facility wash down. Potential industrial customers in the region include Granite Rock Quarry, Leatherback Industries, and several concrete companies. Future development may also offer opportunity to increase recycled water use.

3.5 PROJECT CONSTRUCTION AND OPERATION

3.5.1 <u>PHASE I DWSI</u> PROJECT CONSTRUCTION

Construction of the Proposed Project is planned to occur without extended interruption to the DWTP operations. The MBR facility would require only part of the available space on site. Consequently, construction of the MBR facility can occur concurrent with existing wastewater treatment operations. In order to maintain the effluent disposal capacity of the DWTP during construction of the new treatment facilities and the seasonal storage reservoir, the City would implement a construction sequence that minimizes the impact of construction on the existing storage and percolation capacity. The new seasonal storage reservoir would be constructed sequentially into discrete cells. The construction plan requires the use of the two existing emergency storage basins to replace existing percolation and storage lost due to construction. Currently the emergency storage basins, located in the area of the western percolation beds, are not used. Additionally, the City will consult with the RWQCB to allow diversions of domestic wastewater to the IWTP, as required to maintain the water balance.

The general construction sequence for the seasonal storage reservoir is as follows:

FALL 2006 – SPRING 2007

- Plant staff will prepare the existing Emergency Storage Basin 1 (ESB 1) for use. The location of ESB 1 is shown in **Figure 2-3**.

- Plant staff will dewater Pond 2 prior to start of the DWTP construction.
- ESB 1 will be used for percolation and storage. Use of ESB 1 will increase the overall percolation capacity of the DWTP.
- Wastewater will be diverted to the IWTP, if necessary.
- ESB 2 will be utilized by the DWTP contractor for borrow material for filling Pond 2 prior to construction of the new DWTP.

Spring 2007 – Fall 2007

- A portion of the western percolation beds will be taken out of service to construct the first cell of the seasonal storage reservoir. The loss of percolation from this area will be offset by the continued percolation in ESB 1.
- Percolation will continue in all remaining percolation beds.
- Wastewater will continue to be diverted to the IWTP, if necessary.
- When the first cell of the seasonal storage reservoir is completed, it will be placed into service for percolation as well as storage.
- Another portion of the western beds will be taken out of service in order to construct the next cell of the seasonal storage reservoir. The new seasonal storage reservoir cell will allow for continued percolation.
- Once the second cell of the seasonal storage pond is complete, construction of a third cell will begin, and so forth, until all cells of the seasonal storage reservoir are completed.
- During this period DWTP percolation capacity will be maintained by continued use of the existing eastern beds, the remaining western beds, ESB 1 and the new seasonal storage reservoir cells as they become available.

Fall 2007 – Spring 2008

- Percolation, storage and diversions to the IWTP will continue as described above.
- Adequate disposal at the DWTP site and sprayfields will become available and the diversion of untreated wastewater to the IWTP will cease.

Spring 2008 – Fall 2008

- If the seasonal storage pond construction cannot be completed during the summer of 2007, the remaining cell(s) will be completed during spring/summer 2008 using the same sequential construction schedule.

Construction of the recycled water distribution pipelines, sprayfields would occur after the work has been started on the treatment facilities at the DWTP. The pipeline is scheduled for completion at the same time that the new treatment plant is ready to begin testing and start-up. This time lag would keep the pipeline construction from interfering with the soils operations at the DWTP. When the MBR facility is on line, conversion of the existing treatment system would begin.

3.5.2 PROJECT OPERATION

The DWTP would continue to be operated by City of Hollister personnel. As required by law, all wastewater treatment plant operators are licensed by the State Water Resources Control Board. Typical plant operation involves routing flows; starting, stopping, and adjusting pumps, blowers, and other equipment; hosing down basins and equipment; reading flow meters and taking water samples for testing; performing laboratory tests and documenting results; and maintaining and repairing equipment.

3.6 REGULATORY REQUIREMENTS, PERMITS AND APPROVALS

3.6.1 WASTE DISCHARGE REQUIREMENTS

The owner or operator of any facility or activity that discharges, or proposes to discharge waste that may affect groundwater quality, must first obtain waste discharge requirements (WDRs) from the RWQCB. When adopting WDRs, the RWQCB sets effluent limitations as a condition of approval. The limitations ensure that the discharge would not harm beneficial uses, such as public water supplies or agricultural and industrial water use. In addition to effluent limitations, WDRs include receiving water limitations, monitoring and reporting requirements, and operational requirements. The DWTP is currently permitted by the RWQCB through WDR permits. These permits would have to be amended when the Proposed Project is implemented due to the modifications in wastewater treatment and disposal.

DISCHARGE BY PERCOLATION

Discharge requirements for percolation generally require controls for groundwater protection. Effluent limits would likely be established for nitrogen, specifically nitrate; biodegradable organic material, as measured by BOD (biological oxygen demand); and fine particulate matter, as measured by TSS (total suspended solids). Possible WDR conditions for subsurface discharge would be based on beneficial use designations outlined in the Basin Plan for this groundwater basin. The DWTP lies at the boundary between the San Juan Valley sub-basin and the Hollister West sub-basin of the Gilroy Hollister Groundwater Basin.

Subsurface dischargers are required to submit a Report of Waste Discharge (ROWD) to the RWQCB prior to any major modifications to a treatment process or capacity. Upon receipt of the ROWD, the RWQCB will revise and reissue the subject WDR. The RWQCB is required to consider all applicable regulatory requirements in setting new effluent standards in the revised WDR. As a result, the City can expect that a new WDR for discharge through infiltration will incorporate any new requirements set forth in the 1994 Basin Plan related to protection of groundwater quality.

Sprayfield Discharge

Potential discharge requirements for land discharge by sprayfield differ somewhat from discharge by percolation requirements. Unlike the discharge requirements for discharge by percolation, nitrogen limits might be less stringent. Potential impacts to the underlying groundwater by nitrified effluent could be mitigated by irrigation at crop-specific agronomic rates to avoid leaching nitrate to the groundwater. Possible WDR conditions for overland discharge of treated wastewater would be based on protection of the groundwater as outlined in the Basin Plan groundwater objectives for the Hollister sub-area in the Pajaro River sub-basin and California Code of Regulations Title 22.

The Central Coast RWQCB has not adopted a specific order outlining the requirements for discharge of treated wastewater over land. However, based on the San Francisco Bay RWQCB order on water reuse requirements for municipal wastewater and water agencies, the following types of discharge limitations can be expected:

- Recycled water cannot be applied to irrigation areas during periods when soils are saturated.
- Recycled water cannot be allowed to escape from the designated use areas as surface flow that would either pond and/or enter waters of the State.
- Spray or runoff cannot enter a dwelling or food handling facility.

3.6.2 Recycled Water Regulations

As identified in **Section 3.5.1** above, the treated effluent is designed to meet the most stringent California Department of Health Services (DHS) requirements for recycled water, which define treatment processes, water quality criteria, and treatment reliability requirements for public use of recycled water. These regulations are contained in Title 22, Division 4, Chapter 3 of the California Administrative Code and are more commonly referred to as Title 22. The MBR facility would produce effluent meeting the category of disinfected tertiary recycled water. The water quality requirements ensure that the water supplied is appropriately treated and poses negligible health risks for the intended use. The system design requirements ensure that the treatment system is capable of consistently providing water meeting the necessary water quality requirements.

In addition to existing regulations, it is anticipated that additional regulations may be adopted in the future to address compounds from pharmaceutical and personal care product present in wastewater treatment plant effluent. The proposed MBR facility is a state-of-the-art wastewater treatment process that would put the City in a strategic position to meet future regulations. The City would need to continue active monitoring of regulatory trends in order to comply with future regulations.