Maxwell Public Utility District

Incorporated February 23, 1934
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"This Institution Is An Equal Opportunity Provider"

January 4, 2022

Sites Project:

Re: Response to study provided by your project

From: Kurt Chambers, General Manager

In your study it states "the WWTP has capacity to service approximately 1,000 new connections."

The District was not contacted for information and I do not know where this information came from. At this time, the District is not capable of servicing that many more connections.
I have attached the Districts Engineering Report for the WWTP date November 2008. Please look it over and contact me if you have any further questions or concerns.

Please include the MPUD in any of your information ascertained in regard to the District. This information was brought to my attention by Maxwell's Fire Chief. I am willing to work with your project to the fullest.

Sincerely,

Kurt Chambers,
General Manager

SRP_RSD_0018

10187-08004

TITLE 22
ENGINEERING REPORT

Maxwell Wastewater Treatment & Disposal Facilities
Maxwell Public Utility District
Maxwell, California

November 2008

Prepared for:
Maxwell Public Utilities District
Maxwell, California 95955

Prepared by:

WINZLER & KELLY

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TITLE 22
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Wastewater Treatment & Disposal Facilities
Maxwell Public Utility District
Maxwell, California

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APPENDICES

EXECUTIVE SUMMARY

This Engineering Report has been prepared in conformance with Chapter 3, Section 60323 of Division 4 of Title 22 of the California Code of Regulations (CCR) to summarize how the proposed improvements to the Maxwell Public Utilities District Wastewater Treatment Facility (WWTF) are intended to produce treated effluent that meets the requirements for use of recycled water for irrigation as defined in Section 60304. The planned improvements to the existing facility include increasing capacity to treat anticipated wastewater flows based on a 20-year projected population growth, and providing a reclamation system that will allow treated effluent to be reused for irrigation in place of being discharged as surface water.

For the intended use to irrigate alfalfa, the recycled wastewater will be treated to the quality of disinfected secondary-23 recycled water, as defined by the CCR, which means that the concentration of total coliform bacteria shall not exceed a monthly average of 23 MPN/100 ml or a daily maximum of 240 MPN/100 ml. The proposed improvements to the WWTF are intended to meet this standard.

The treatment facility has been planned with operational reliability and protection against release of inadequately treated wastewater. Reliability features include backup power and pumps, electronic monitoring equipment, redundant piping for operational flexibility, freeboard within the ponds, and recirculation piping.

Strategies have been developed to appropriately manage recycled water used for irrigation. Irrigation water will be applied at a rate that does not exceed that required by the crop, and a tailwater collection system will be constructed to capture and recirculate any excess recycled water from the irrigation fields to prevent offsite runoff. Sufficient land is included to allow rotation of fields and the use of canal water for irrigation of fields, or for allowing fields to rest for a season. These and other design and operational strategies are intended to protect groundwater over the long term while enhancing soil fertility and agricultural production.

1.0 INTRODUCTION

The Maxwell Public Utility District (MPUD) owns and operates a wastewater conveyance, treatment, and disposal system that provides service to the community of Maxwell, California. The MPUD plans to improve the existing facilities in two major ways. The first is to increase the capacity of the existing facilities to accommodate the anticipated wastewater flows based on a 20-year projected population growth The second is to alter the treated effluent disposal practice from surface water discharge to land irrigation.

Prior to the direct reuse of reclaimed water from a wastewater treatment facility, an engineering report shall be filed with Department of Health Services that demonstrates compliance with the regulations associated with reclaimed water reuse, as required by Section 60323 in Article 7 of Chapter 3 of Division 4 of Title 22 of the California Code of Regulations (CCR). The purpose of this report is to show how the proposed wastewater reuse improvements are intended to comply with the requirements described above.

2.0 TREATMENT FACILITY

2.1 General

The MPUD wastewater treatment facility (WWTF) was constructed in 1973. In its present state, the WWTF consists of headworks, an aeration pond, three oxidation ponds, a chlorine contact basin, and a dechlorination system that provides disinfected secondary treatment and disinfection of the wastewater. The treated effluent from the facility is currently discharged into a small unnamed tributary of Lurline Creek, which is a tributary to the Colusa Basin Drainage.

The MPUD plans to upgrade the existing WWTF to increase its capacity and recycle the treated effluent for irrigation rather than discharge it to surface water. Figures of the existing and proposed facility are included in Appendix A.

2.2 Raw Wastewater Flows and Quality

As presented in the Report of Waste Discharge for the Maxwell Public Utilities District prepared by Winzler & Kelly (Appendix B), the majority of the wastewater in Maxwell is produced from residential sources, with only minimal contributions from commercial facilities. Existing average daily flows are estimated at 0.164 MGD, taken from daily inflow measurements between April 2004 and April 2007. Existing average dry weather flows (ADWF) are estimated at approximately 0.099 MGD. The peak wet weather flow (PWWF) recorded during this same time period was 0.740 MGD, indicating a peaking factor of approximately 7.5 compared to average dry weather flow.

The proposed treatment facility has been designed for average daily flows, while the hydraulic structures and conveyance systems of the facility have been sized for peak flows. The average daily flow used for design of the treatment system is 0.332 MGD. The peak wet weather flow is estimated to be 1.50 MGD, while the peak hourly wet weather flow is estimated to be 3.00 MGD.

It was noted in the Report of Waste Discharge that the wastewater influent to the WWTF was analyzed between April 2004 and April 2007 and found to have unusually low BOD and TSS levels as compared to typical domestic wastewater sources (105 mg/L and 117 mg/L respectively). As a factor of safety, the improvements to the WWTF were designed with the capacity to treat wastewater with 200 mg/L BOD_5 and 200 mg/L TSS, which are more typical for a domestic wastewater system.

2.3 Treatment Process

The proposed wastewater treatment facility will provide secondary treatment and disinfection for the projected 20-year average daily design flow of 0.332 MGD (Appendix B). The major components of the treatment facility will consist of headworks, two aeration/settling ponds, two facultative lagoons, an effluent pump station, and a chlorine injection system.

2.3.1 Headworks

Wastewater will enter the treatment facility at the headworks of the plant. Within the headworks, flow will be routed through a Parshall Flume to measure the flow rate, and then directed to a comminutor for grinding of solids before entering a wet well. From the wet well, the flow will be lifted by submersible pumps to a manifold that discharges into the first of two aeration/settling ponds. The headworks will be equipped with two pumps, one duty and one standby, as well as a standby generator and automatic transfer switch to maintain functionality during power outages. Each pump in the headworks pump station was designed to handle the estimated peak hourly wet weather flow (PHWWF) of 3.00 MGD (2083 gpm).

2.3.2 Primary Treatment

Primary treatment of the wastewater will be provided by mechanical treatment in two aeration/settling ponds. These will be created by expanding the existing aeration pond and modifying one of the existing oxidation ponds. The upgrades will include control structures and piping to allow parallel or series treatment and will allow one to be taken out of service. The ponds will allow heavy solids to settle out of the influent. Due to the designed depth of the ponds, separate sludge handling facilities are not required, and it is anticipated that sludge will not need to be removed from the bottom of the ponds for at least ten years after completion of the improvements.

The aeration/settling ponds will be equipped with aerators that have anti-erosion plates to focus the aeration on the surface of the pond, which will allow the settling of heavy solids as well as assist with odor control. After primary aeration and settling, the effluent from these ponds will be conveyed by gravity to the facultative lagoons where the next stage of treatment will take place.

Based on the Report of Waste Discharge in Appendix B, on-site soil will serve as a low permeability earth liner for the treatment ponds. The Geotechnical Report prepared by Blackburn Consulting and included in Appendix B stated that a permeability of 10^{-7} cm/sec is appropriate for use as an earth liner, and the permeability values observed for the site range from 10^{-7} to 10^{-9} cm/sec.

2.3.3 Secondary Treatment

The two remaining oxidation ponds will be converted to facultative lagoons, which will provide secondary treatment of the wastewater. The facultative lagoons will have an anaerobic zone at the bottom, an oxygen-poor middle zone, and an aerobic upper zone. Within these various zones, organic matter in the wastewater will be removed and digested by algae, bacteria, and other microorganisms, and suspended solids will settle to the bottom of the lagoons. Following secondary treatment, the effluent from the facultative lagoons will be conveyed to a pump station, which will pump the treated effluent to a storage pond where it will be stored for irrigation.

2.3.4 Effluent Pump Station

An effluent pump station will be installed at the outfall of the second facultative lagoon to transmit the treated effluent to the irrigation storage pond, and to a recirculation line that will transfer a side stream of treated effluent back to the beginning of the primary treatment process to seed the influent with active biological organisms. The pump station will consist of a wet well and two submersible pumps, one duty and one standby. The pump station will be equipped with a standby generator and automatic transfer switch to maintain functionality during power outages. The effluent pump station will have the capacity to pump the estimated peak wet weather flow (PWWF) of 1.50 MGD (1042 gpm) to the storage pond with one pump on standby.

2.3.5 Disinfection

A chlorine injection system will be installed to provide disinfection of the wastewater by the injection of sodium hypochlorite into the effluent just downstream of the effluent pump station. The effluent will be in contact with the chlorine as it is pumped through approximately 7,500 feet of 10-inch and 16-inch pipe until it reaches the storage pond where it will be reserved for irrigation. Based on the anticipated peak flow rate, the chlorine contact time will be approximately 44.5 minutes.

3.0 RECLAMATION SYSTEM

3.1 General

The treated effluent from the WWTF is planned for reuse as irrigation for alfalfa fields. The land and facilities for the operation will be owned by MPUD, and include a reclaimed water storage pond, a canal irrigation water source, an irrigation distribution system, alfalfa fields, and a tailwater collection system. Figures of the proposed reclamation system are shown in Appendix A.

3.2 Storage System

To balance the year round generation of wastewater with the seasonal demand for irrigation, a storage pond is required and planned to be located at the irrigation area. The pond will be used to store the treated effluent from the WWTF until it is needed for irrigation. The storage pond, which will have a capacity of approximately 205 acre feet with two feet of freeboard, is used to balance the year round wastewater flow with the seasonal irrigation demand. As presented in the Report of Waste Discharge for the Maxwell Public Utilities District prepared by Winzler & Kelly (Appendix B), a detailed water balance was prepared to size the storage pond to

accommodate the projected treated effluent flow rates and the precipitation from a 100-year storm event.

Based on the Report of Waste Discharge in Appendix B, on-site soil will serve as a low permeability earth liner for the storage pond. The Geotechnical Report prepared by Blackburn Consulting and included in Appendix B stated that a permeability of 10^{-7} cm/sec is appropriate for use as an earth liner, and the permeability values observed for the site range from 10^{-7} to 10^{-9} cm/sec.

3.3 Irrigation Distribution System

The planned irrigation area is approximately 80 acres, consisting of two approximately 40-acre fields, with additional land included for field rotation and standby irrigation capacity. Irrigation will be supplied to the alfalfa fields by two sources, recycled wastewater from the storage pond, and water from an irrigation canal owned by the Glenn-Colusa Irrigation District that borders the alfalfa fields on the south side. The two irrigation sources will have separate irrigation distribution facilities to eliminate the potential for cross connections. The irrigation distribution facilities include piping, flow control structures, and alfalfa valves.

A flood irrigation technique will by used by applying the irrigation at the western end of the fields through alfalfa valves and allowing it to flow toward the eastern end of the fields where a collection system will capture any excess recycled water. The irrigation will be applied to the fields as needed by the crop throughout the year to meet the agronomic demand. The agronomic demand is the amount of water needed for photosynthesis and cellular growth and accounts for soil water losses due to vegetative transpiration and evaporation, as well as proper soil fertility management. Typical frequency and depths of irrigation application for each month that irrigation will occur were developed in the MPUD Wastewater Facilities Plan prepared by Winzler & Kelly and approved by the Central Valley RWQCB in October 2007.

Treated wastewater will be used to irrigate only one field at a time for a period of one year, while the second field will be irrigated with canal water during that same time interval. The irrigation source will be alternated between fields each year such that every other year each field will be irrigated with canal water to help maintain soil fertility and protect groundwater quality. The two fields will be separated by a berm to help prevent migration of irrigation from one field to the other. Recycled wastewater will be used for irrigation when the crop needs water, which is determined by the weather conditions, the stage of growth, and effective rainfall.

Wastewater irrigation will cease prior to the wet season to allow the fields to dry before the fall rains begin. Precipitation that falls on the irrigation fields during non-irrigation periods will be allowed to either naturally infiltrate or enter existing surface water canals surrounding the fields as occurs now. The water balance developed by Winzler & Kelly in the approved Wastewater Facilities Plan for the irrigation area showing monthly water application rates is included in the ROWD, which is contained in Appendix B.

3.4 Tailwater Collection System

A tailwater collection system has been designed to capture any potential excess recycled irrigation water from the fields and recirculate it back to the storage pond. The system is composed of a collection ditch at the eastern edge of the fields, a tailwater pond to temporarily

store the captured runoff, and a pump station to pump the captured runoff back to the storage pond where it will be reused for irrigation. The pump station will consist of a wet well and several pumps. The pump station will be sized to meet the potential peak pumping demand with one pump as standby.

4.0 RELIABILITY FEATURES

4.1 Treatment Facility

There are various features within the proposed WWTF design that provide for reliability of the operation. Overall, the system was designed to be simple and efficient, which promotes overall reliability. With the exception of the headworks pumps and effluent pumps, the flow through the entire treatment process is by gravity, which promotes reliability within the system by eliminating complicated mechanisms and controls used to convey wastewater. In addition, the treatment ponds have been designed to digest and store the sludge produced from at least ten years of operation, which reduces maintenance requirements.

Along with a simple design, several features have been incorporated into the proposed WWTF upgrades to prevent overfilling and /or overflow. All pump stations will be outfitted with both duty and standby pumps. Electrical supply to the headworks pumps and effluent pumps will be backed up by a standby generator and an automatic transfer switch to keep the pumps functional during power outages. Power outages typically occur during the winter months when no irrigation is occurring, so standby power is not needed for the tailwater pump station. The wet wells at the headworks and effluent pump station will be equipped with high level alarms connected to automatic dialers that will be activated when the water level reaches high level set points. The proposed upgrades also incorporate transfer structures and pond piping to allow for routing of flows around any pond if necessary. In addition to these features, a minimum of two feet of freeboard has been designed into every pond, which will allow for emergency storage capacity within the system.

Additional reliability is achieved through features providing flexibility. At the headworks, for example, when the comminutor is out of service the flow can be routed through an auxiliary channel to a manually cleaned bar screen. At the treatment ponds, outlet structures will be adjustable to provide multiple outlet depths. At the end of the pond system, a recirculation loop is proposed to transfer a side stream of treated effluent back to the beginning of the primary treatment process to seed the influent with active biological organisms. Plant piping modifications associated with the proposed improvements will also provide the flexibility to take individual ponds off-line for periodic dewatering and sludge removal as required.

The chlorine injection system will be monitored by equipment that will activate an alarm connected to an automatic dialer in the event of low chlorine dosage.

4.2 Reclamation System

There are several features within the proposed reclamation system design that provide for reliability of the operation. The storage pond was designed to accommodate the anticipated recycled wastewater flows based on a 20-year projected population growth, the precipitation from a 100-year storm event, and has an additional two feet of freeboard. The storage pond has

also been designed with an overflow structure that, in the event of an extreme emergency would release water from the pond in a controlled manner to protect the pond embankments.

The storage pond outlet structure is designed with redundancy to include two slide gates that must both be opened to release water from the pond to the fields. The two gates will also allow for maintenance of the pond outlet structure. In addition, the fields have been designed with berms along their exteriors to prevent recycled wastewater from flowing off of the site. A berm will also be constructed between the two irrigation blocks to provide separation between the area irrigated with canal water from the area irrigated with reclaimed water. In the case of an extreme emergency, the berm system also provides the fields with the capacity to store approximately 160 acre feet of water.

The tailwater collection system will provide collection and the pump station will provide recirculation of excess recycled water from the fields, so it does not leave the site. The tailwater pump station has also been designed with an overflow structure that, in the event of an extreme emergency would release water from the pond in a controlled manner to protect the pond embankments.

5.0 RULES AND REGULATIONS

5.1 Treatment Requirements

For its intended use to irrigate alfalfa, the recycled wastewater will need to be treated to the quality of disinfected secondary-23 recycled water, as described in Section 60304 of Chapter 3 of Divisions 4 of Title 22 of the CCR. Section 60301.225 of the document defines disinfected secondary-23 recycled water as:

> "recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 23 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the total coliform bacteria does not exceed an MPN of 240 per 100 milliliters in more than one sample in any 30 day period"

The proposed treatment targets for the effluent from the Maxwell WWTF are as follows:

1. The BOD (5-day biochemical oxygen demand at 20°C) will not exceed a monthly average of 30 mg/L or a daily maximum of 90 mg/L.
2. The total settleable solids will not exceed a monthly average of 0.5 ml/L or a daily maximum of 1.0 ml/L.
3. The pH level will not be less than 6.5 or greater than 8.4.
4. The concentration of total coliform bacteria will not exceed a monthly average of 23 MPN/100 ml or a daily maximum of 240 MPN/100 ml.

5.2 Operational Requirements

The following rules are proposed for the delivery of reclaimed water:

1. No connections will be made from the reclaimed water system to the potable water system.
2. Irrigation will occur in a manner to minimize any contact with the public by minimizing ponding and runoff.
3. Adequate time will be provided between irrigation to allow soil to dry.
4. Three stranded barbed wire fencing is to be installed around the storage pond with warning signs every 200 feet.
5. Any quick couplers for reclaimed water system will differ from those used for the potable water system.
6. Any equipment used on the reclaimed water system will be cleaned prior to use with the potable water system.

6.0 FACILITY MANAGEMENT

6.1 Monitoring

Upon completion of the project, it is proposed that the MPUD monitor various aspects associated with the treatment and reclamation processes. The planned monitoring procedures are summarized below.

6.1.1 Influent Monitoring

Influent samples will be taken and be representative of the influent at the headworks prior to treatment. Influent monitoring will include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow	gpd	Continuous	Daily	Monthly
BOD[1]	mg/L	Grab	Monthly	Monthly

[1] 5-day biochemical oxygen demand

6.1.2 Effluent Monitoring

Effluent samples will be collected at the same frequency and at approximately the same time as influent samples. Effluent samples will be collected downstream from the last connection through which wastes can be admitted to the storage reservoir. Effluent monitoring will consist of the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
BOD[1]	mg/L	Grab	Weekly	Monthly
pH	Standard Units	Grab	Weekly	Monthly
Total Coliform Organisims[2]	MPN[3]/100 ml	Grab	Weekly	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Nitrate as Nitrogen	mg/L	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly	Monthly
Standard Minerals[4]	mg/L	Grab	Annually	Annually

[1] 5-day biochemical oxygen demand
[2] Effluent samples collected for Total Coliform Organisms analysis will be collected at a point after disinfection and prior to discharge to the agricultural fields.
[3] Most Probable Number
[4] Standard minerals will include, at a minimum, the following elements/compounds: boron, calcium, chloride, iron, magnesium, manganese, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.

6.1.3 Treatment Ponds and Storage Pond Monitoring

Samples will be collected from an established sampling station in an area that will provide a sample representative of the wastewater for each pond. Freeboard will be measured vertically from the surface of the pond water to the lowest elevation of the surrounding berm and will be measured to the nearest 0.1 feet. Monitoring of all four treatment ponds and the storage pond will include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Dissolved Oxygen[1]	mg/L	Grab	Weekly	Monthly
pH	Standard Units	Grab	Weekly	Monthly
Freeboard	0.1 Feet	Measurement	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Levee Condition[2]	--	Observation	Weekly	Monthly

[1] Samples will be collected at a depth of one foot, opposite the inlet. Samples will be collected between 0700 and 0900 hours.
[2] Containment levees shall be observed for signs of seepage or surfacing water along the exterior toe of the levees. If surfacing water is found, then a sample will be collected and tested for total dissolved solids and total coliform organisms.

6.1.4 Agricultural Fields Monitoring

Monitoring of the agricultural fields (including tailwater collection system) will be conducted daily when the areas are being irrigated with recycled water, and the results will be included in the monthly monitoring report. Evidence of erosion, field saturation, irrigation runoff, or the presence of nuisance conditions will be noted in the report. Effluent monitoring results will be used in calculations to ascertain loading rates at the agricultural fields. Monitoring of the agricultural fields will include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flows to agricultural fields	Gallons	Continuous	Daily	Monthly
Rainfall[1]	Inches	Observation	Daily	Monthly
Acreage Applied[2]	Acres	Calculated	Daily	Monthly
Water Application Rate[3]	Gal/Acre/Day	Calculated	Daily	Monthly
Total Nitrogen Loading Rate[3]	Lbs/Acre/Month	Calculated	Monthly	Monthly
TDS[4] Loading Rate[3]	Lbs/Acre/Month	Calculated	Monthly	Monthly

[1] Rainfall data to be collected from the weather station that is nearest to disposal fields.
[2] Specific agricultural fields shall be identified.
[3] Calculated average for each agricultural field.
[4] Total Dissolved Solids

6.1.5 Groundwater Monitoring

Prior to sampling, groundwater elevations will be measured and the wells will be purged at least three well volumes until pH and electrical conductivity have stabilized. Depth to groundwater will be measured to the nearest 0.01 feet. Water table elevations will be calculated and used to determine groundwater gradient and direction of flow. Samples will be collected using approved EPA methods. Groundwater monitoring will include the following:

Constituent	Units	Sampling Frequency	Reporting Frequency
Total Dissolved Solids	mg/L	Annually	Annually
pH	Standard Units	Annually	Annually
Standard Minerals[1]	mg/L	Annually	Annually

[1] Standard minerals will include, at a minimum, the following elements/compounds: boron, calcium, chloride, iron, magnesium, manganese, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.

6.1.6 Biosolids Monitoring

It is proposed that the MPUD keep records regarding the quantity of biosolids generated by the treatment processes, any sampling and analytical data, the quantity of biosolids stored on site, and the quantity removed for disposal. The records will also indicate the steps taken to reduce odor and other nuisance conditions. Records will be stored onsite and be available for review during inspections. If biosolids are transported off-site for disposal, then the MPUD will submit records identifying the hauling company, the amount of biosolids transported, the date removed from the facility, the location of disposal, and copies of all analytical data required by the entity accepting the waste. If biosolids are disposed of onsite, then the MPUD will submit the annual report information as contained in the Statewide General Order for the Discharge of Biosolids (Water Quality Order No. 2000-10-DWQ) (or any subsequent document which replaces Order No. 2000-10-DWQ). All records will be submitted as part of the Annual Monitoring Report.

6.1.7 Water Supply Monitoring

It is proposed that a sampling station be established where a representative sample of the municipal water supply can be obtained. Water supply monitoring will include the following for each water source used during the previous year. As an alternative to annual water supply

monitoring, the MPUD might submit results of the most current DHS water supply monitoring data.

Constituent	Units	Sampling Frequency	Reporting Frequency
Total Dissolved Solids	mg/L	Annually	Annually
pH	Standard Units	Annually	Annually
Standard Minerals[1]	mg/L	Annually	Annually

[1] Standard minerals will include, at a minimum, the following elements/compounds: boron, calcium, chloride, iron, magnesium, manganese, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.

6.2 Reporting

In reporting monitoring data, it is proposed that the MPUD arrange the data in tabular form so that the date, sample type (e.g., effluent, reservoir, etc.), and reported analytical result for each sample are readily discernible. The results of any monitoring done more frequently than planned at the locations specified above will be reported in the next scheduled monitoring report.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports will be prepared under the direct supervision of a Registered Engineer or Geologist and signed by the registered professional.

6.2.1 Monthly Monitoring Reports

It is proposed that monthly reports be submitted to the Regional Board by the 1st day of the second month following the end of the reporting period (i.e. the January monthly report is due by 1 March). The reports will include:

1. Results of the influent, effluent, treatment ponds and storage pond, agricultural fields, and biosolids monitoring;
2. Copies of inspection logs;
3. A comparison of the monitoring data to the discharge specifications and an explanation of any violation of those requirements;
4. If requested by staff, copies of laboratory analytical report(s); and
5. A calibration log verifying calibration of all hand-held monitoring instruments and devices used to comply with the prescribed monitoring program.

6.2.2 Quarterly Reports

It is proposed that the MPUD establish a quarterly sampling schedule for groundwater monitoring such that samples are obtained approximately every three months. Quarterly monitoring reports will be submitted to the Regional Board by the 1st day of the second month after the quarter (i.e. the January-March quarter is due by May 1st) and may be combined with the monthly report. The Quarterly Report will include the following:

1. Results of groundwater monitoring;
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with Waste Discharge Requirements, the Monitoring and Reporting Program, and the Standard Provisions and Reporting Requirements. The narrative will be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;
3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any;
4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal tends, with reference to summary data tables, graphs, and appended analytical reports (as applicable);
5. A comparison of the monitoring data to the groundwater limitations and an explanation of any violation of those requirements;
6. Summary data tables of historical and current water table elevations and analytical results;
7. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and
8. Copies of laboratory analytical report(s) for groundwater monitoring.

6.2.3 Annual Reports

It is proposed that an Annual Report be prepared by the MPUD as the fourth quarter monitoring report. The Annual Report will include all monitoring data required in the monthly/quarterly schedule, and will be submitted to the Regional Board by February 1st each year. In addition to the data normally presented, the Annual Report will include the following:

1. The contents of the regular December monitoring report for the last sampling event of the year;
2. If requested by staff, tabular and graphical summaries of all data collected during the year;
3. An evaluation of the performance of the domestic wastewater treatment system the groundwater quality beneath the wastewater treatment facility;
4. Summary of information on the disposal of biosolids as described in the "Biosolids Monitoring" section;
5. A discussion of whether the MPUD anticipates removing biosolids in the coming year, and if so, the anticipated schedule for cleaning, drying, and disposal;

6. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements;
7. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program;
8. A copy of the certification for each certified wastewater treatment plant operator working at the facility and a statement about whether the MPUD is in compliance with Title 23, CCR, Division 3, Chapter 26.
9. The results from annual monitoring of the effluent, groundwater, and water supply;
10. The number of will-serve letters issued resulting in increased wastewater flows;
11. A forecast of influent flows;
12. A statement of when the O&M Manual was last reviewed for adequacy, and a description of any changes made during the year;
13. Copies of equipment maintenance and calibration records (including influent flow meter)

6.3 Contingency Plan

A contingency plan is proposed in order to help prevent inadequately treated wastewater from being delivered to the agricultural fields. The contingency plan is based on addressing the following conditions:

Power Outage: Standby generators and automatic transfer switches will be installed to keep the headworks pumps and effluent pumps functional during power outages.

High Water Level in Wet Wells: The wet wells at the headworks, effluent pump station, and tailwater collection system will be equipped with high level alarms connected to automatic dialers that will be activated when the water levels within the wet wells reach the high level set points.

Low Chlorine Residual: A chlorine residual analyzer will be provided downstream of the injection point at the effluent pump station. In the event of low chlorine dosage, an electronic monitoring system will activate an alarm connected to an automatic dialer.

6.4 Employee Certification and Training

According to Section 3675, "Classification of Wastewater and Water Recycling Treatment Plants" in Article 2 of Chapter 26 of Division 3 of Title 23 of the CCR, the Maxwell WWTF is classified as a Class I Integrated Pond Wastewater Treatment Plant. Due to this classification, Section 3680 of Article 3 requires that the chief plant operator possess a valid operator certificate of at least Grade I. The MPUD currently has an arrangement with the operator of the Colusa WWTF, who possesses a Grade II operator certificate.

The certified operator will oversee the treatment and reuse areas and will coordinate with those handling the farming operations.

The District will provide training for all personnel working with recycled water. The training will address topics such as the Department of Health Services guidelines for use of recycled water, hazards and potential health implications of using recycled water, safe procedures for working with recycled water, an overview of the methods used for a shut-down test, and a general description of cross-connection and backflow preventers.

Records of these trainings will be kept, along with the other monitoring and training records, by the MPUD in a 3-ring binder. The binder will be maintained at the treatment plant and be available for inspection at anytime. The District will provide a refresher course be given at least once every six (6) months on the requirements for reclamation of the plant's wastewater to document compliance with applicable regulations and update personnel on any regulatory changes.

7.0 GROUNDWATER PROTECTION

Protection of groundwater quality is a fundamental goal of the proposed upgrades to the WWTF. A groundwater impacts analysis was prepared to address treatment and irrigation operations and protection of groundwater quality, which is included with the Report of Waste Discharge in Appendix B. The analysis concluded that the historical WWTF operations do not appear to be a dominant factor influencing the regional groundwater quality, and the system upgrades and future operations are not anticipated to significantly affect groundwater quality.

8.0 CONCLUSION

The proposed improvements to the Maxwell WWTF are intended to comply with the regulations associated with reclaimed water reuse as required by Title 22 of the California Code of Regulations. The facility has been designed with the intention to treat wastewater to disinfected secondary-23 standards, which meets the requirement of the CCR for use of recycled water for irrigation.

In addition to the required treatment standards, the treatment facility has been designed with operational reliability and protection against the release of inadequately treated wastewater. Precautions have also been taken to keep recycled water on the irrigation site through the tailwater collection and recirculation system and to protect the surrounding areas.

Appendix A
Figures

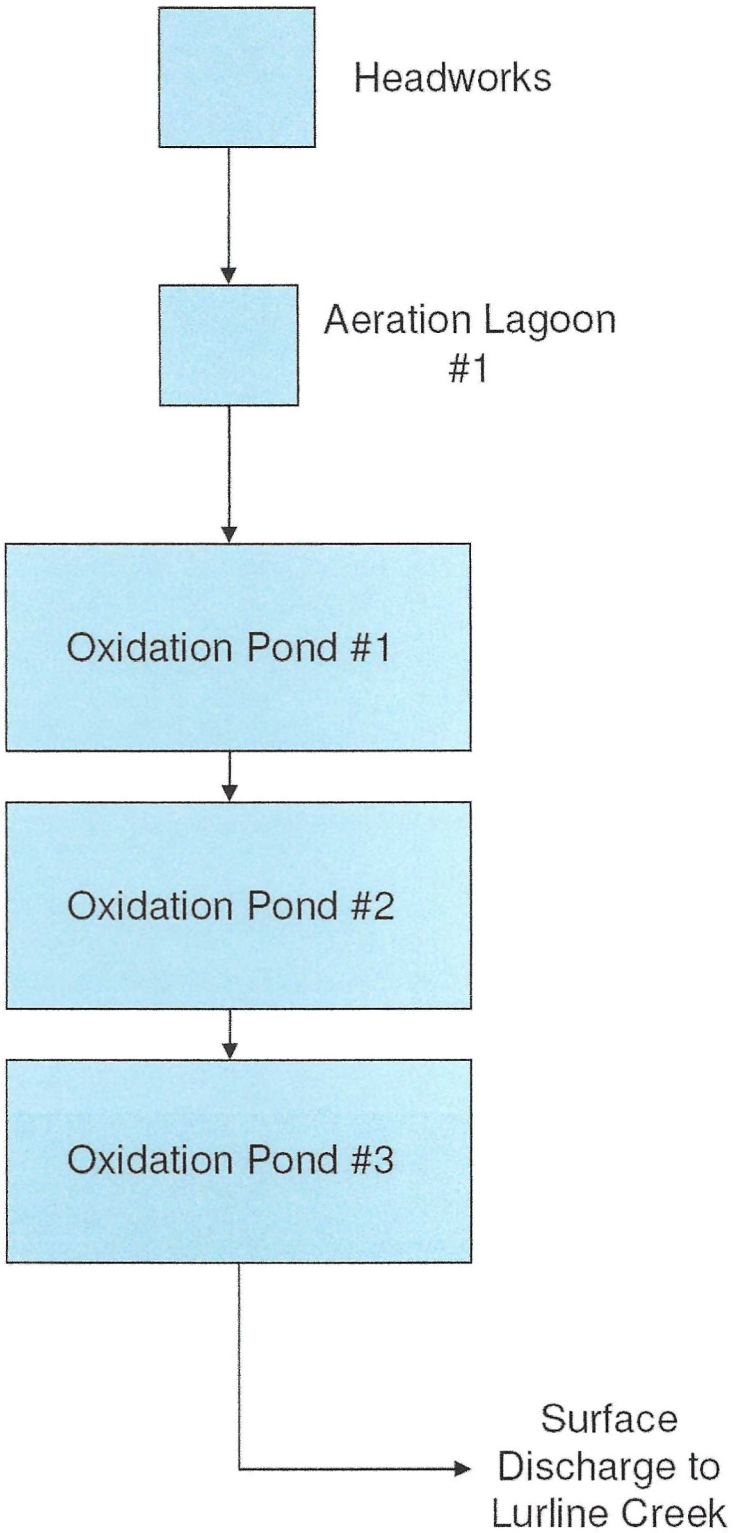

Figure 1a: Process Flow Diagram of Existing WWTF

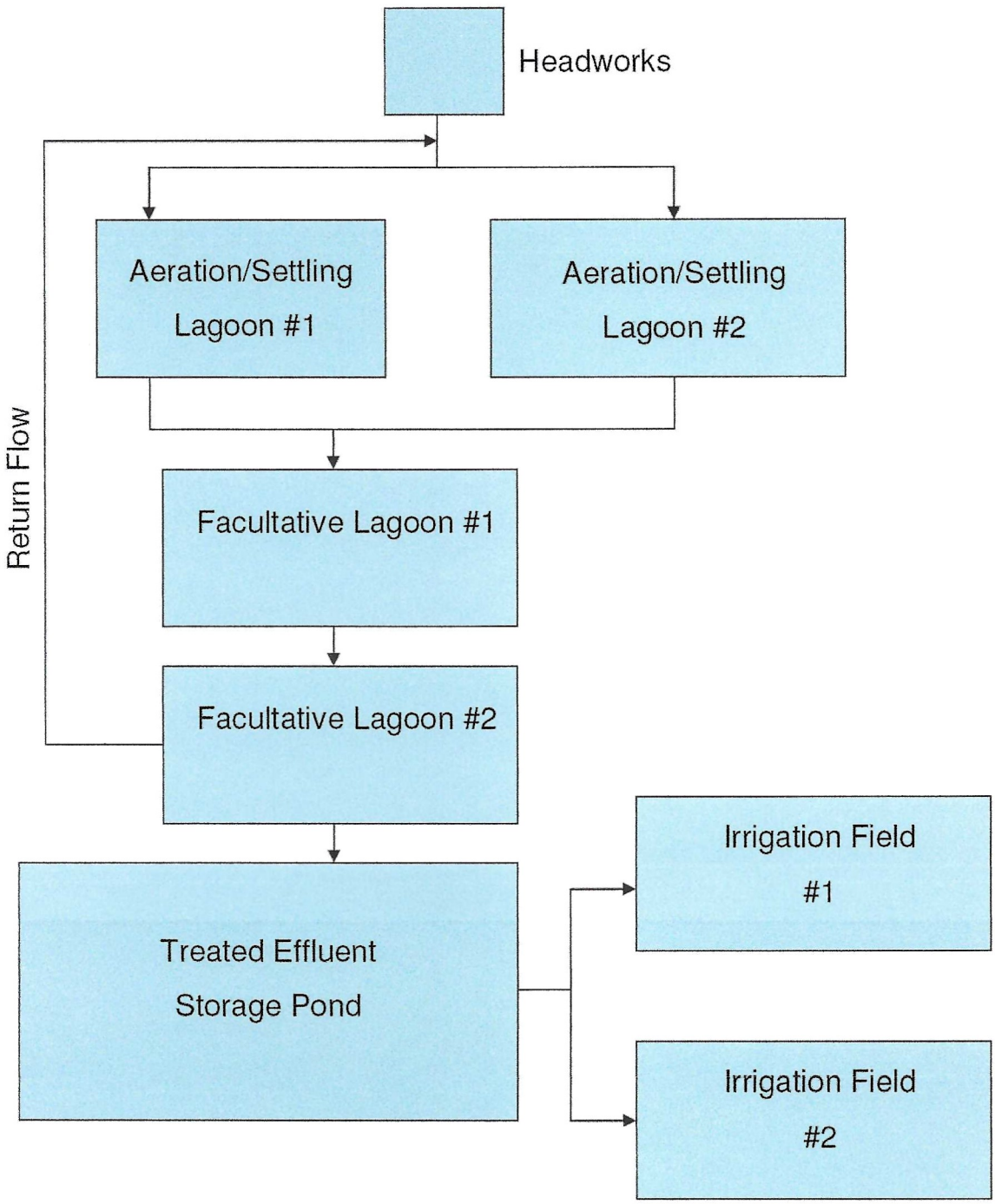

Figure 1b: Process Flow Diagram of Proposed WWTF

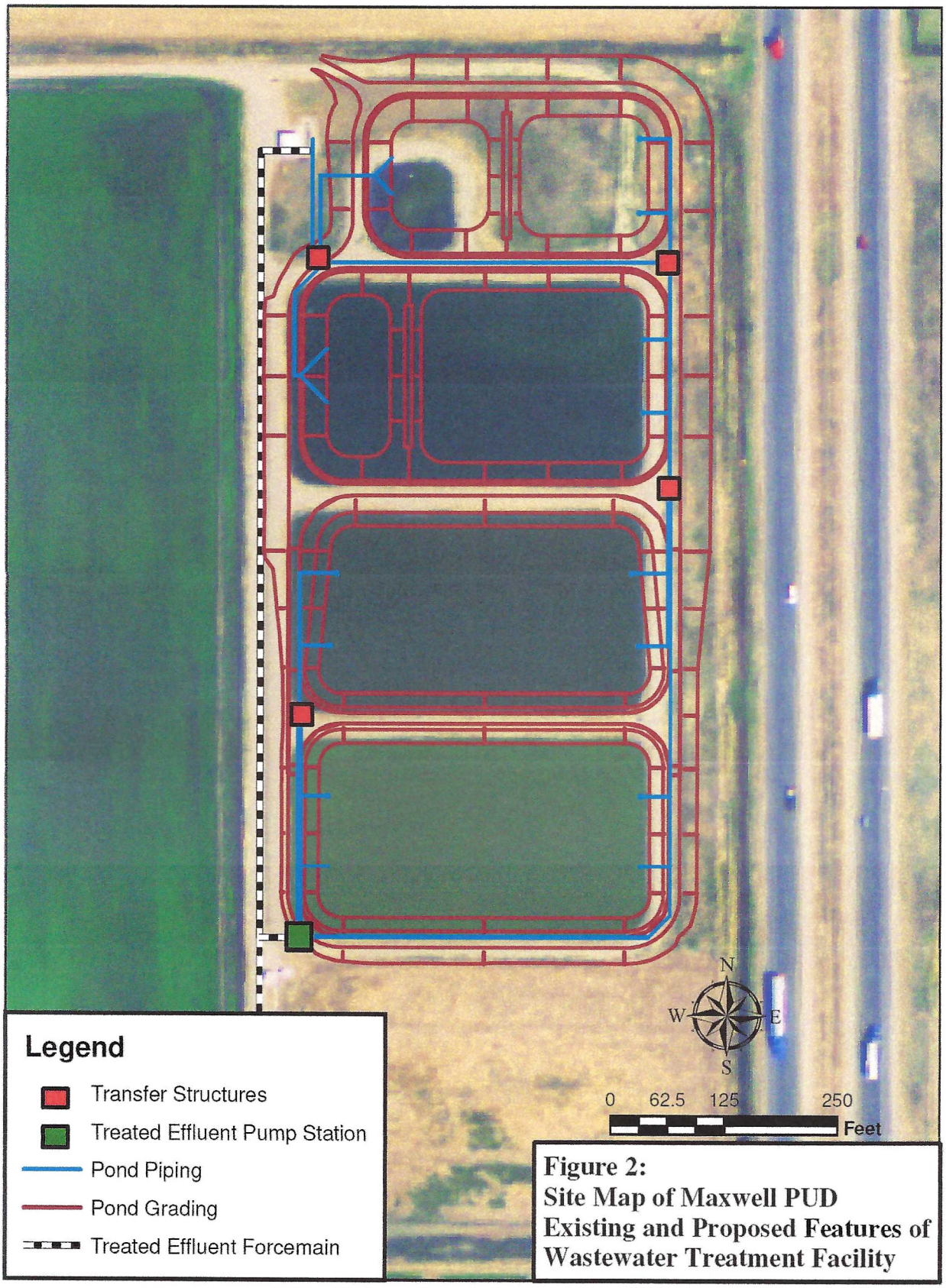

Figure 2:
Site Map of Maxwell PUD
Existing and Proposed Features of
Wastewater Treatment Facility

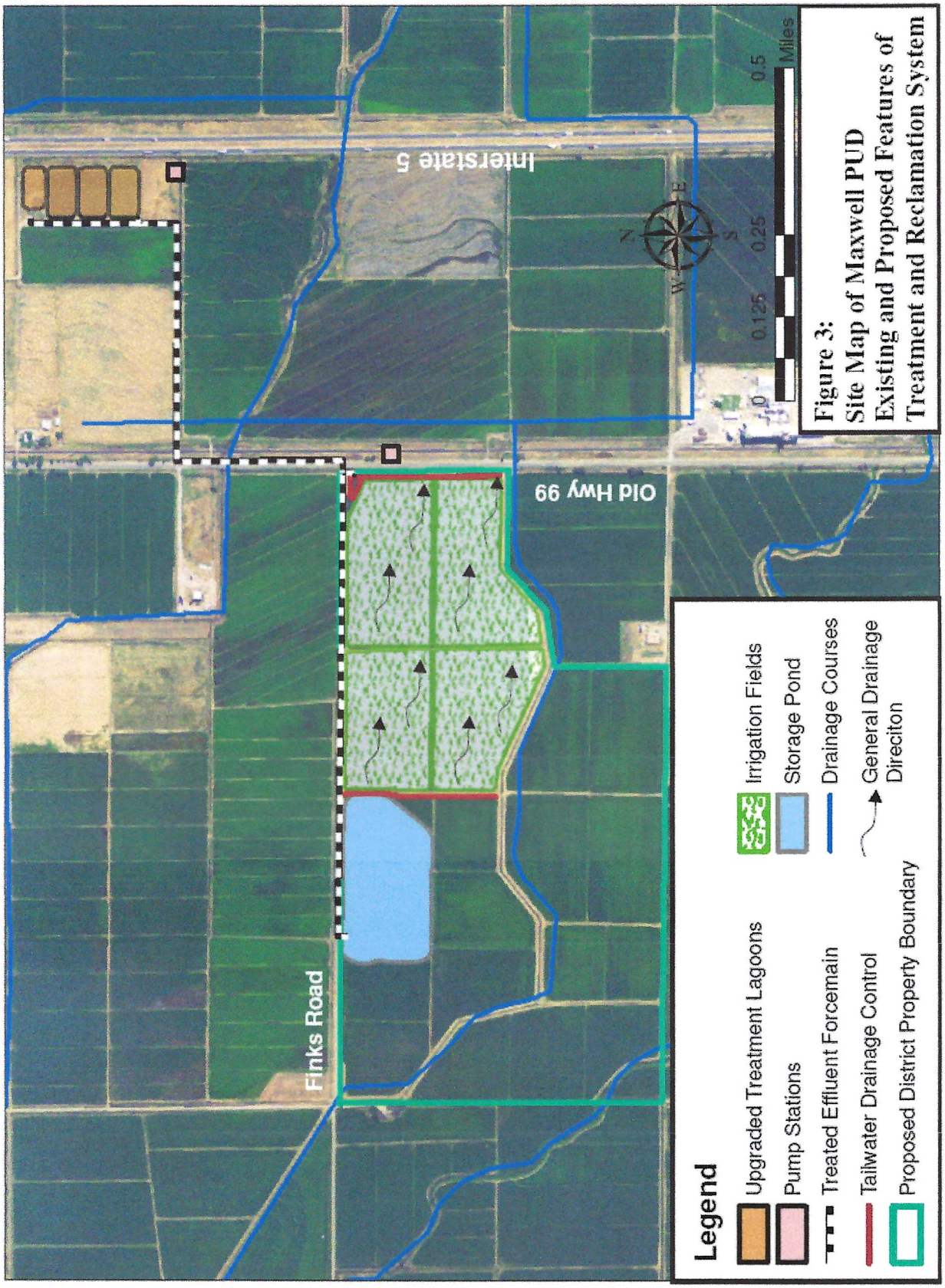

Figure 3:
Site Map of Maxwell PUD
Existing and Proposed Features of Treatment and Reclamation System

Appendix B
Report of Waste Discharge for Maxwell Public Utilities District

Appendix C
Treatment Plant Modifications & Reuse Drawings