Los Osos Wastewater Project
California Coastal Commission Response Documents
Jan- May 2010

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2 Overall Project Site Plan, Los Osos Wastewater Project 2010
3 Treatment Plant Site Plan, Los Osos Wastewater Project 2010
4 Delineation of Jurisdictional Waters and Wetlands for the Los Osos Wastewater Project, Attachment G of Appendix G of the Los Osos Wastewater Project Environmental Impact Report, Michal Brandman Associates November 14, 2008.
5 Los Osos Wastewater Disposal Project Lupine Street Pump Station Los Osos, California Wetland Delineation Report, Morro Group June 14, 2004.
6 Los Osos Wastewater Disposal Project Treatment Plant Area Los Osos, California Wetland Delineation Report, Morro Group September 8, 2004 Los Osos Wastewater Disposal Project Treatment Plant Area Los Osos, California Wetland Delineation Report, Morro Group 8/9/04
7 Los Osos Wastewater Disposal Project 4th Street at Pismo Avenue Area Los Osos, California Wetland Delineation Report, Morro Group June 7, 2005.
8 7th Through 13th Streets Pump Station Wetland Boundary Determination, Morro Group 7/1/04
9 February 16, 2010 Transmittal Letter
10 January 26, 2010 email from Dan Cark to Mark Hutchinson identifying County assistance tasks
11 Copy of January 27, 2010 Wetlands Information transmittal letter
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SAN LUIS OBISPO COUNTY
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January 27, 2010

Jonna Engel
California Coastal Commission
89 S. California Street, Suite 200
Ventura, CA 93001-2801

Subject: Wetland Delineation Materials for the Los Osos Wastewater Project

Dear Ms. Engel:

Pursuant to a request by Dan Carl of your Santa Cruz office, enclosed are the wetland delineation materials prepared for San Luis Obispo County's Los Osos Wastewater Project.

These materials consist of the following:

1. Overall Project Site Plan, Los Osos Wastewater Project 2010.
2. Treatment Plant Site Plan, Los Osos Wastewater Project 2010.
3. Delineation of Jurisdictional Waters and Wetlands for the Los Osos Wastewater Project, Attachment G of Appendix G of the Los Osos Wastewater Project Environmental Impact Report, Michal Brandman Associates November 14, 2008.
4. Los Osos Wastewater Disposal Project Lupine Street Pump Station Los Osos, California Wetland Delineation Report, Morro Group June 14, 2004.
5. Los Osos Wastewater Disposal Project Treatment Plant Area Los Osos, California Wetland Delineation Report, Morro Group September 8, 2004 (Includes Potential Wetlands Constraints mapping).
6. Los Osos Wastewater Disposal Project Treatment Plant Area Los Osos, California Wetland Delineation Report, Morro Group August 9, 2004.
7. Los Osos Wastewater Disposal Project 4th Street at Pismo Avenue Area Los Osos, California Wetland Delineation Report, Morro Group June 7, 2005.
8. 7th Through 13th Streets Pump Station Wetland Boundary Determination, Morro Group July 1, 2004.

Please note that these materials consist of wetland delineations prepared for the Los Osos Community Service's District's Wastewater Facilities Project in 2004/2005 along with

additional work prepared for the County's current Los Osos Wastewater Project. Work for the previous (2005) project was focused on areas within the urban reserve line of Los Osos. The County's current project efforts maintain the same collection system as the previous project, but evaluate out of town treatment plant sites.

Therefore, in order to produce the new EIR, the consultant's reviewed the 2004/2005 wetland work for current applicability, and performed new work for the new alternative sites. Our review of the 2004/2005 work found that conditions relative to wetland boundaries changed slightly at two locations: near the Lupine pump station at Donna/Lupine Streets, and near the East Paso pump station at Paso Robles/18th Street. While the project still meets the required setbacks (75 feet in the urban area per the LCP) we crafted condition 3 of the County issued CDP to ensure that the final project is modified if conditions change further before construction:

> 3. All development shall be consistent with the conditions contained herein. Prior to final design / layout of the East Paso Robles Avenue pump station and the Doris Avenue / Lupine Street pump station, the applicant shall provide verification to the satisfaction of the Planning Director, that the required 75 foot wetland setback will be met with the redesign / layout of said pump stations.

You will find extensive field work for the "Tonini" site east of Los Osos. Please be aware that the EIR performed a co-equal analysis of four project alternatives. However, in the final analysis, the proposed project has no facilities located on the Tonini site, or on the section of Turri Road leading to that site.

Also note that while the consultant's 2008 work produced delineation maps specific to the Corps of Engineers, Department of Fish and Game, and Regional Water Quality Control Board, for reasons that remain unclear they did not produce a coastal wetlands map. Consequently, our subsequent wetland setback map for the local CDP (Treatment Plant Site Plan) relied upon the field data sheets to properly locate coastal wetlands on the treatment plant site.

Thank you for you time and attention to this project. Please contact me a week or so ahead of any field visits to the Giacomazzi (treatment plant) site so that we may arrange access with the property owner. If you have any questions or need additional information from us, please feel free to contact me at (805) 781-5458.

Sincerely,

MARK HUTCHINSON
Environmental Programs Manager

c: Dan Carl, CA Coastal Commission (w/attachments)
Jonathan Bishop, CA Coastal Commission

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Septic Tank Decommissioning

Coastal Commission Staff Comment:

Septic tank plan. The Commission raised concerns that there was inadequate specificity with respect to the ultimate disposition of the approximately 5,000 septic tanks currently in operation in the project area. Clearly, the County commits to assisting private landowners to reuse such tanks to optimize groundwater recharge (condition 88), but it appears possible that this may not happen as part of the project at all. Please identify a plan that identifies specifically what will happen to existing septic tanks in this respect, how and when. If there are multiple possible outcomes based on site specific criteria, please identify all such criteria.

Response

1. There is no requirement to remove any existing septic tank from the ground as part of the LOWWP.

2. Implementing alternatives to abandoning septic tanks is encouraged by the project, but is ultimately a property owner decision.

3. Septage removed from existing tanks will be managed pursuant to existing regulatory requirements.

Discussion

1. Abandoning a Septic Tank

The methods required to "abandon" (formally discontinue use of) an existing underground septic tank are specified in the uniform plumbing code. The requirements are fairly straightforward:

a) Remove all contents for the tank by employing the services of a licensed pumper who can provide documentation that the tank was properly emptied.

b) Break or punch holes in the bottom of the tank. This will allow rainwater or irrigation return to flow through into the underlying groundwater, and prevent the tank from holding water and developing a subsurface sump. Depending on the tank, the top may also need to be broken (to facilitate filling), but tank lid materials are then typically placed into the abandoned tank.

c) Fill the tank with an inert material that will flow into any voids, convey percolating water, and remain relatively stable when saturated. Typically this means sand, gravel, or concrete slurry.

d) If the area where the tank is located is to be built over at a later date, special requirements to ensure proper soil compaction may apply.

There is no requirement to dig up the entire tank and remove it from the ground. There is also no requirement, and no need, to dig up existing leach fields or leach pits once their use is discontinued.

2. Alternative uses for septic tanks and leach fields

Conditions 87 and 88 (20 and 36 from the 2004 LOCSD CDP) require the project to encourage and assist property owners to re-purpose their existing septic systems to percolate storm water. Given that these measures are at the option of each landowner, it is not possible to predict how many will take advantage of project efforts to implement alternative uses for septic systems. However, repurposing an existing septic system may be less expensive, and less disrupting, than abandoning the system. Therefore, we expect that many homeowners would work with the project to convert leach fields for storm water percolation, and convert septic tanks to rainwater storage.

It should be noted that efforts to promote greywater systems have already begun in San Luis Obispo County, prompted by changes in state law and led by SLO Greenbuild. Our review of the requirements of a greywater system indicates that septic tanks could not be used for greywater storage because of a requirement to completely empty the storage tank after each dosing. Never-the-less, we will continue to include greywater systems as part of the larger overall water conservation effort in Los Osos and throughout the County.

3. Disposal of Septage

Current estimates show there are approximately 4,281 septic tanks in the wastewater service area, with an average capacity of 1,500 gallons each, for a total of 6.4 million gallons of septage that will need to removed from the community during and after the start-up of the wastewater system.

The typical smaller septic pumping truck can contain the contents of two full tanks, or 3,000 gallons; therefore, a total of 4,281 truck trips (empty/loaded) will be required to pump all of the tanks within the service area. In the worst case, if all homes were connected in the first six months and all septic tanks were pumped in that same time period, this would equate to 34 truck trips per day operating fives days per week for 26 weeks. It is evident then that truck traffic would not be the limiting factor in septage hauling.

More likely the limiting factor will be the capacity of receiving locations to process the added waste load at the facility. The two likely locations to receive and process the septage are the new Los Osos facility, and the existing operation at the City of Santa Maria. Because the majority of connections to the collection system can be made independent of the pumping and abandonment of the existing septic tank, the process of hauling septage to the two primary facilities can be timed to match the capacity of those facilities.

Three additional factors are also part of this equation:

a) Other facilities may also accept septage through special arrangements with the wastewater project,

b) At least 400 homes are currently connected to neighborhood septic systems, Septage from these systems can be held in the existing tanks until such time as it can be introduced into the receiving treatment locations.

c) Existing tanks are already generating pumping truck traffic at the rate of 3-4 truck trips per day (Applies the RWQCB average septic tank pumping rate of once every five years).

The following table illustrates the variables involved in pumping the 4,281 existing septic tanks in Los Osos:

LOWWP Septage Pumping Variables				
	6 Months	12 Months	18 Months	24 Months
Daily Truck Trips	33	16	11	8
Daily Volume (gallons)	49,396	24,698	16,465	12,349
Combined Plant Capacity (gallons)	10,600,000	10,600,000	10,600,000	10,600,000
% Daily Capacity	0.47	0.23	0.15	0.12

(1) A truck trip is a single direction movement; an empty truck entering and a full truck leaving equals 2 trips
(2) Average Daily Traffic on LOVR is 17,100 with a capacity of 35,900
(3) Santa Maria @ 9.5 mgd, Los Osos @ 1.1 mgd

As can be seen from the table, existing wastewater facilities have the capacity to accept and treat septage hauled from Los Osos. In addition, the roadways leaving the community have more than sufficient capacity to carry the temporary truck traffic that this part of the project will produce.

Hydrogeologic Impacts

Coastal Commission Staff Comment:

Hydrogeologic Impacts. Similar to the Willow Creek issue (see above) but on a broader scale, the Commission was concerned that there was a lack of impact identification and mitigation associated with the manner in which the project is going to alter groundwater flows, including with respect to adaptive management, over time. Although we all realize that at a broad scale the project concept is to enhance marine and groundwater resources (and associated resources, like wetlands, streams, riparian areas, etc.), the concern is that there is not enough specificity with respect to the manner in which this is to occur, when it is to occur, how it is to occur, and what contingencies are in place should certain features not work as well as planned and/or should certain components lead to adverse impacts (e.g. monitoring of Broderson disposal). It could be that the County intends the Groundwater Plan (condition 87) and related measures (i.e., condition 97) to be the vehicle for addressing this issue, but it appears clear that the Commission is looking for greater specificity than that vehicle, including in terms of identifying specific impacts and specific response now as part of the approval of the project to the degree possible. Please package together an analysis of this issue that includes a clear identification of existing and proposed flows, impacts and mitigations associated with changed flows, and a 'balance sheet' documenting benefits as well as adverse impacts and responses. Please send a copy of the materials to Mark Johnsson in our San Francisco office (45 Fremont Street, Suite 2000, San Francisco, CA 94105-2219) and a copy to us in Santa Cruz. Ultimately, we should work on identifying a specific, enforceable plan that ensures resources are protected as much as possible as the project modifies flows over time, and ideally the bulk of such plan could be packaged together now.

Response:

One of the key objectives of the Los Osos Wastewater Project involves moving beyond mitigating the project's potential seawater intrusion impacts by including project components and programs that maximize the beneficial reuse of recycled water. These project elements (Broderson, Bayridge, urban reuse and agricultural reuse) all serve to enhance groundwater resources in the basin. By design, these elements provide benefits to the groundwater basin and at the same time avoid negative impacts. Nevertheless, the manner in which the project will alter groundwater flows, with respect to short-term and long-term impacts, has received an extensive level of study, with a high level of specificity related to key issues of concern, such as wetlands and riparian areas, groundwater quality, water supply quantity, down-gradient effects of Broderson, and local water supply policies. Based on this analysis, the EIR concludes that groundwater impacts will be beneficial in many cases, adverse impacts will be less than significant in all cases, and no additional groundwater mitigation measures are needed.

The project EIR, in Section 5.2 "Groundwater Resources" and in Appendix D: "Groundwater Quality Resources," provides a detailed analysis of groundwater effects

associated with the project and contains the "Hydrogeological Impacts Study" completed in October, 2008, by Hopkins Groundwater Consultants for the project. The Hopkins study references the groundwater basin modeling completed for the project by Cleath and Associates, which is included as Appendix C to Section D-2. The groundwater modeling completed for the project is a continuation of ongoing efforts begun by Yates and Willams (2003) to evaluate nitrogen concentrations and further developed by Cleath and Associates (2005) to evaluate sea water intrusion.

The groundwater modeling completed for the project is summarized in a series of hydrologic budget tables and diagrams with estimated groundwater flows developed for each major area of the basin for the current condition and project condition. The corresponding changes in ground water elevations are also estimated and presented in tables and contour maps. Long term conditions with the proposed project include the following:

- The basin will continue to have a large excess of groundwater flowing out to surrounding surface waters.
- Sea water intrusion will be reduced as a result of the project.
- Well production is assumed to be maintained at the current demand level.
- Upper aquifer water levels will be affected by plus or minus one foot along the bayshore.
- Lower aquifer water levels will be raised up to two feet in the basin.

Regarding contingency plans for potential unforeseen groundwater impacts, they can be divided into three categories: wetlands, groundwater supply, and Broderson leachfields geology/hydrogeology.

<u>Wetlands</u>: The EIR analysis shows that impacts to wetlands will be less than significant. While groundwater outflow to surface water primarily to Morro Bay will be somewhat reduced, a significant amount of flows will be maintained, and more importantly, groundwater levels are expected to remain high. In approving the LOCSD project in 2004 the Coastal Commission conditioned a "Groundwater Level Monitoring and Management Plan" to be developed in order to ensure that no impacts did occur, and to provide a mechanism to respond to any issues that developed. The LOCSD version of this plan has already been prepared and was approved by Commission staff in January 2005. Even though the analysis shows that substantial impacts are not expected to occur, the County has adopted the same approach and included the same requirements in the current project as condition #87. Given the results of the impact analysis, developing specific contingencies to respond to unanticipated wetlands changes would be speculative at this time. However, in conversations with the community, the County has identified three potential strategies to address wetlands changes, should they occur:

1. Implement LID projects to capture stormwater and introduce back into the ground at strategic locations

2. Further promote septic system leach filed LID conversions in strategic areas

3. Introduce recycled water into strategic locations via the projects backbone purple pipe system

Groundwater supply: A primary benefit of the project is the remediation of the long standing water pollution problem caused septic tank discharges, which has led to high nitrates in the upper aquifer. With a significant source of nitrates removed from the basin, the water quality will increase over the long term and lead to an increase in useable water supply.

In the short term, however, the collection of septic tank discharges is expected to have a potential adverse impact on the existing sea water intrusion in the lower aquifer. The project, as designed and conditioned, will provide more than a 3:1 mitigation of the potential sea water intrusion impacts and result in a beneficial groundwater impact. The project also implements the foundation for long-term water sustainability in Los Osos.

As currently proposed, the conservation plan will reduce wastewater flows to an estimated 700 AFY for the current population. Recycled water will be directed in the following manner.

- Broderson leachfields: 448 AFY
- Bayridge Estates leachfields: 33 AFY
- Urban irrigation reuse program: 133 AFY
- Agricultural irrigation reuse program: 86 AFY

The conservation and irrigation reuse programs will result in an immediate and guaranteed reduction in groundwater pumping, thereby ensuring at least 2:1 mitigation of potential sea water intrusion impacts. The Bayridge Estates leachfields are not anticipated to mitigate sea water intrusion, so no contingencies are necessary. The Broderson leachfields are estimated to provide a 20% mitigation factor, resulting in 90 AFY of mitigation. If the mitigation factor is not fully realized, the project will still provide at least 2:1 mitigation through conservation, irrigation reuse, and some level from Broderson.

The project will mitigate its own potential sea water intrusion impacts and provide additional water supply benefits to both the upper and lower aquifers. However, there is no physical solution whereby the wastewater project can stop sea water intrusion. The ultimate solution for stopping sea water intrusion will require a number of measures beyond the control of the wastewater project. Recent analysis shows that the current pumping demand, including urban uses, is within the basin safe yield and concludes that water purveyor pumping patterns can be adjusted in order to stop the sea water intrusion problem. This can be done in parallel with the wastewater project and is aided by the project conditions for conservation, irrigation reuse, and Broderson leachfields. Regarding new development, project condition #86 requires that additional water supply

must be identified to sustainably meet build-out demand and incorporated into an Estero Area Plan amendment prior to any connection to the project by new construction.

Broderson leachfields geology/hydrogeology: Percolation of treated wastewater in the Broderson area has been included in every project description for the Los Osos wastewater project since its inception in the 1980's. Over the course of the last 25 years, there have been dozens of studies and reports, completed by over 20 agencies and technical consultants, which have included evaluation of the Broderson area for percolation of treated wastewater. As a result, the geology and hydrogeology have been extensively studied and the specific conditions and responses are relatively well known.

- The underground conditions of sand and clay layers have been documented with test hole drilling.
- Soil tests to determine liquefaction potential have been conducted.
- Groundwater flow conditions under Broderson, and down-gradient, have been modeled.
- Perhaps most importantly, extensive pilot testing of two different percolation methods have been conducted to document soil percolation rates and underground water level response.

The extensive testing and analysis has led to a project description that avoids all potential adverse impacts from the Broderson leachfields, and is expected to provide multiple beneficial impacts.

The proposed project includes the use of the Broderson leachfields at half the rate (448 AFY vs. 896 AFY) than previously approved by the Coastal Commission for the LOCSD project. This is because the LOCSD included plans for harvest wells in low lying areas down-gradient from Broderson to remove up to 448 AFY to prevent high groundwater levels. Due to the uncertainty and inefficiency of the disposal of harvest water, and that the County is not a water purveyor, the County did not include harvest wells in the project description and correspondingly reduced the disposal rate at Broderson. The design and capacity of the Broderson site remains unchanged, thereby doubling the redundancy and factor of safety of the leachfields.

Based on this conservative approach, the potential for adverse impacts is even less likely and specific contingencies to identify when, where and how to address potential impacts would be speculative. However, the County has adopted the approach previously approved by the Coastal Commission for the LOCSD project and included the same requirements for a "Groundwater Level Monitoring and Management Plan" in the current project permit as condition #87.

An additional benefit of the "Groundwater Level Monitoring and Management Plan" for the proposed project is to evaluate the ability to increase the disposal rates at Broderson. The sea water intrusion mitigation benefits of the Broderson leachfields, which are centrally located in the high demand urban area, are expected to be greater

than agricultural irrigation reuse on the eastern fringe of the groundwater basin. Conversely, if the monitoring indicates that disposal rates at Broderson must be reduced, there is adequate capacity for agricultural irrigation reuse within the groundwater basin limits.

For more detailed discussion of the Broderson site and potential impacts and mitigations, refer to the attached discussion, titled "Topical Response 8: The Broderson Leachfield." This discussion is from the "Response to Comments" section of the ~~Final EIR~~Final EIR, March, 2009.

Summary of Groundwater Flows: The following table is a summary of Table 2, "Hydrologic Budget Summary June 2008" in the Cleath and Associates memo, included as Appendix C to Section D-2. The table clearly identifies flows, potential impacts and mitigation for the following scenarios.

- Groundwater flows for the current conditions.
- Hypothetical "sprayfield only" scenario, which represents no groundwater impact mitigation.
- Project scenario "VPA 2b," which is most closely representative of the proposed project, as currently conditioned. The permit conditions, through the conservation and irrigation reuse programs, will reduce the overall "Well Production (OUT)" budget items for all aquifers by a total of 470 AFY, with a corresponding further reduction in sea water intrusion and beneficial water supply impacts.

From Table 2 "Hydrologic Budget Summary June 2008" by Cleath and Associates

Aquifer	Budget Item (Basin IN/OUT)	Current Condition (AFY)	Sprayfield Only (AFY)	Project Scenario VPA 2b (AFY)
Perched Aquifer	Septic return (IN)	631	36	36
	Percolation of precipitation/Irrigation return (IN)	736	736	736
	Leakage/subsurface outflow to upper aquifer	698	634	634
	Leakage/subsurface outflow to creek compartment	117	103	103
	Willow Creek outflow/evapotranspiration (OUT)	552	35	35
Upper Aquifer	Septic return (IN)	606	44	44
	Percolation of precipitation/Irrigation return (IN)	1489	1489	1489
	Subsurface inflow from creek compartment	187	255	182
	Subsurface inflow from Bayview Heights (IN)	112	120	107
	Broderson recharge (IN)	0	0	448
	Subsurface outflow to bay/ocean (OUT)	1310	871	1169
	Well production (OUT)	803	803	803
	Leakage to lower aquifer	882	771	835
Creek Compartment	Septic return (IN)	30	30	30
	Percolation of precipitation/Irrigation return (IN)	430	430	430
	Los Osos Creek inflow (IN)	665	714	665
	Subsurface inflow from bedrock (IN)	167	170	166
	Los Osos Creek Outflow (OUT)	77	32	60
	Warden drain (OUT)	6	2	9
	Well production (OUT)	870	870	870
	Subsurface flow to Urban Area upper aquifer	90	158	85
	Subsurface flow to Urban Area lower aquifer	366	385	370
Lower Aquifer	Sea water intrusion (IN)	469	561	352
	Well production (OUT)	1717	1717	1557

Attachments:

- Topical Response 8: The Broderson Leachfield
- EIR Appendix D

Opportunities for realizing beneficial basin results lie in the unique geology and soils in Los Osos, and especially at the Broderson site. These conditions were identified during development of the initial wastewater project proposal for Los Osos in 1985. Ancient dune sands overlie the Franciscan formation and create an effective water cleansing and storage condition. Water discharged to the perched and shallow aquifers in the central and northern portion of Los Osos is quickly lost to the Bay and to inaccessible portions of the subsurface aquifer; however, water discharged to the southern edge of the sand formations, like those at Broderson, that have more controlled connections to the upper and lower groundwater aquifers and greater distance to the Bay, has an opportunity to spread both downward and laterally through the subsurface formation, allowing for both filtration and unsaturated soil zone treatment (aerobic). A partial key to this effect is the presence of lamellae, which are thin clay layers (finer than a pencil) with a coating of iron oxides both above and below each layer. As water contacts these discontinuous layers, it tends to move laterally until reaching the edge of the lamella, then stair steps downward before reaching the next layer. This effect both slows and spreads the water, allowing more soil contact time with its accompanying filtering and cleansing effects, preventing over-rapid inflow of treated effluent into the deeper water bearing layers below.

An important aspect of disposing of treated water at Broderson is the timing and amount of effluent that will disposed of at the site. “Application rate” describes the amount of water applied as a ratio to the surface area of soils in contact with a leach field trench. “Hydraulic loading” describes the amount of water applied as a ratio to the overall area of the site. Although various scientific studies addressed the issue, work performed by Fugro Engineers in support of the County’s 1989 project involved the construction of subsurface infiltration drywells, essentially a large cylinder shaped excavation filled with gravels. Water was introduced at varying rates and subsurface monitoring devices were used to track the movement of the water. Because there was (and is) no readily available source of treated wastewater effluent, potable water was used for these tests. The maximum soil infiltration rate was measured at 180 gallons of water per day per square foot of area. However, the rate has been adjusted downward because the tests used water with a lower solids component than treated wastewater. The current project, in order avoid impacts not at Broderson but in areas closer to the Bay (see below) will use a maximum hydraulic loading of 3.1 gallons of water per day per square foot of area. This application rate is less than 2 percent of the observed infiltration rate and 12 percent of the maximum design application rate, which allows for operational considerations such as soil column drying and system maintenance.

The potential for treated wastewater to flow into the yards of residences on Highland Drive was investigated in two studies prepared by Cleath and

Associates and incorporated by reference into the draft EIR. The second study, *Hydrogeologic Investigation of the Broderson Site Phase 2 Impact Assessment,* November 2000, presents hydrogeologic modeling data compiled to determine the best way to introduce treated wastewater to the site in a manner that: 1) helps cleanse the upper aquifer and 2) avoids surfacing treated effluent down slope. Based on the analysis of subsurface geology and the amount of wastewater disposed at the site, the study computes horizontal subsurface travel times for treated effluent. The study concludes that a disposal leachfield located upslope of the Broderson site covering an area in excess of 7 acres (the LOWWP has an 8-acre leachfield) and with a maximum disposal rate of 800,000 gallons per day will not result in the surfacing of treated effluent along Highland Drive or in the Redfield Woods neighborhood in general. Over time, however, treated effluent will migrate down slope toward the Bay where groundwater levels are shallower in comparison to areas to the south. To provide further assurance that treated effluent will not surface in this area, the amount of wastewater proposed to be introduced at the Broderson Site has been reduced to 400,000 gallons per day.

Key background documents addressing the Broderson site include:

- Hydrogeological Evaluation of the Proposed Broderson Recharge Site, February 26, Metcalf & Eddy
- Final LOWW Project Tech Memos for Alt. Site, Treatment Process, Collection System, Pump Station, and Infiltration Basin Evaluation, August 30, 1996, Metcalf & Eddy
- Evaluation of Effluent Disposal at the Proposed Broderson Recharge Site, 1997, Metcalf & Eddy
- Hydrogeological Investigation of the Broderson Site, July 2009 Cleath & Assoc.
- Hydrogeological Investigation of the Broderson Site, Phase 2, Nov. 2000 Cleath & Associates

Willow Creek Impacts

Coastal Commission Staff Comment:

Willow Creek. The contention is that the project results in an unaddressed and unmitigated 400 afy reduction in flow to Willow Creek to the detriment of creek. We understand that the Bayridge leach field would be used to put back 33 afy as part of the project, and that the County apparently found that this 33 afy would be an equal offset to existing septic flows, but we would like a clearer explanation as to why the County found this to be the case, and how project flows will affect Willow Creek resources. Please provide an analysis with supporting documentation (again, new product and/or direction to information).

Response:

Detailed analysis of groundwater effects is included in Appendix D, Section D-2: Hydrogeological Impacts Study in the project EIR. The analysis includes a hydrologic budget summary of the groundwater basin. The data is presented by Hopkins Groundwater Consultants in Table 8 through Table 10 of Section D-2. The original analysis was completed by Cleath and Associates in a memorandum dated August 7, 2008 and is included as Appendix C to Section D-2. The data related to the perched aquifer, which underlies the Willow Creek area is summarized below.

From Table 2 "Hydrologic Budget Summary June 2008" by Cleath and Associates			
Aquifer	Budget Item (Basin IN/OUT)	Current Condition (AFY)	Project Scenario VPA 2b (AFY)
Perched Aquifer	Septic Return (IN)	631	36
	Percolation of precipitation/irrigation return (IN)	736	736
	Leakage/subsurface outflow to upper aquifer	698	634
	Leakage/subsurface outflow to creek compartment	117	103
	Willow Creek outflow/evapotranspiration (OUT)	552	35

A simple reading of the hydrologic budget tables in the EIR may result in concern for impacts to Willow Creek. However, the discussion in the analysis and an understanding of the source data demonstrate the following:

1. The line item for Willow Creek outflow/evapotranspiration (OUT) is the total of all leftover groundwater which flows out of the perched aquifer under the analyzed conditions. The title includes "Willow Creek" because it is a major component of the outflows, but the outflows are a calculation of the excess groundwater for the entire 1,326 acre area of the perched aquifer.

2. The volume of excess groundwater that is lost from the groundwater basin is calculated after accounting for rainfall, runoff, evapotranspiration, irrigation, and

septic returns needed to support existing vegetation. The amount of runoff, evapotranspiration, residual potential evapotranspiration, and irrigation remain constant for both current conditions and project conditions.

3. The maximum amount of septic leachate to be collected by the wastewater project that may currently be flowing to Willow Creek is approximately 150 AFY - 170 AFY (only portions of Zones 115, 117, and 118 can be assumed to flow to Willow Creek), of which 33 AFY is conditioned to be treated and returned to the existing Bayridge Estates leachfield. The claim that 400 - 500 AFY of flows will be removed from Willow Creek cannot be correct.

4. Septic leachate is a significantly smaller source of perched aquifer input than rainfall and irrigation, and there is no evidence that groundwater levels will be significantly reduced in the area of Willow Creek, where shallow clay layers will maintain relatively high groundwater levels. The shallow depth of the clay layers is also evidenced by the existence of Eto Lake and two upstream ponds along Willow Creek.

5. It is clear from the documentation in the analysis that only a portion of the change in flows between the current conditions and project conditions, as a result of removing septic tank discharges, can be associated with Willow Creek. After project development there will continue to be excess groundwater in the perched aquifer that is transported out of the basin, including outflow to Willow Creek

The comparison of aerial photographs from pre-development conditions is also a useful tool for predicting wetlands and riparian impacts. The attached figures show a comparison of pre-development (1949) and current conditions. The extent of wetland and riparian areas were much greater in pre-development conditions and demonstrate that the naturally occurring high groundwater levels in the perched aquifer are sufficient to support the existing habitat.

The Hydrogeological Impacts Study in the project EIR concludes that, while flow rates may be reduced, drainage will still occur in the Willow Creek area and that seasonal runoff and shallow groundwater are anticipated to provide sufficient water for use by the riparian vegetation established well before the Los Osos community was developed.

The EIR conclusion was reached prior to the addition of a project permit condition to place 33 AFY of recycled water at the Bayridge Estates leachfields. The nexus for the inclusion of the Bayridge Estates leachfields as a permit condition was the effort to find additional disposal capacity for the project, in order to eliminate the reliance on sprayfields. A secondary benefit of this condition is that it provides an additional level of protection for the Willow Creek drainage beyond that which was provided by the LOCSD project previously permitted by the Coastal Commission or that analyzed in the current project EIR, which found that there would not be any significant impacts to Willow Creek, even without the return of 33 AFY of recycled water to the Bayridge Estates leachfield.

Attachments:

- EIR Appendix D
- Historic Wetland Aerial Photos

Appendix D:
Groundwater Quality Resources

D-1: Expanded Groundwater Resources Analysis

Expanded Groundwater Resources Analysis
Prepared for the
Draft EIR
County of San Luis Obispo
Los Osos Wastewater Project

Prepared for:

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November 14, 2008

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PREFACE

This Expanded Groundwater Resources Analysis corresponds to Section 5.2, Groundwater Resources, of the Los Osos Wastewater Project Draft EIR. For readability and reference, the numbering system for headings and page numbers in the following environmental analysis uses the same section number as that used in the Draft EIR.

This Groundwater Resources Analysis of the Los Osos Wastewater Project Draft EIR is a summary of a compendium of knowledge regarding groundwater resource issues statewide, as well as those issues applicable to San Luis Obispo County and specifically Los Osos. Since the body of knowledge is considerable and contained in numerous appendices, it would be difficult to present it entirely in this document and in a manner that is easily understood by the reader. In order to aid the reader in locating background information, this section is formatted to facilitate the retrieval of appended information by presenting the reader with references that address the issue at hand.

5.2 - GROUNDWATER RESOURCES

5.2.1 - Introduction

The Los Osos community has historically derived its entire water supply from groundwater sources. In the early 1970's groundwater was recognized as being impacted by seawater intrusion and elevated nitrate concentrations from overlying land uses (DWR, 1973). Over the last 30 years, substantial hydrogeological studies have been conducted on the natural water resources that occur in the vicinity of Los Osos. These published and unpublished sources derive substantial information from other historical studies and combine those findings with additional data to formulate the current understanding of the Los Osos Valley Groundwater Basin conditions. These sources were used to determine the potential impacts to groundwater resources associated with construction and operation of the Los Osos Wastewater Project and were used to prepare the following technical report which was used to prepare this section.

- Preliminary Hydrogeological Impacts Study, Los Osos Wastewater Project, Los Osos, California. Hopkins Groundwater Consultants, Inc. October 2008. This information is located in Appendix D-2 of the Draft EIR.
- The Land Use Element of the San Luis Obispo County General Plan - Estero Area Plan. November 2004 and last amended November 2006, County of San Luis Obispo. This document is not contained in the EIR appendices, but is instead available for review at the San Luis Obispo County Department of Planning and Building. Pursuant to CEQA Guidelines Section 15150, this document is hereby incorporated by reference.
- Local Coastal Program Policy Document, A Portion of the San Luis Obispo County Land Use Element of the General Plan - Coastal Plan Policies. March 1988. County of San Luis Obispo. This document is not contained in the EIR appendices, but is instead available for review at the San Luis Obispo County Department of Planning and Building. Pursuant to CEQA Guidelines Section 15150, this document is hereby incorporated by reference.

5.2.2 - Environmental Setting

5.2.2.1 - Los Osos Valley Groundwater Basin

The Los Osos Valley Groundwater Basin (Los Osos Basin) is an east/west trending syncline comprised of Tertiary and Quaternary age sediments that unconformably lie on top of Miocene and Jurassic age bedrock of the Pismo and Franciscan Formations, respectively. The Los Osos Basin is shown on Exhibit 5.2-1 in relation to the existing Regional Water Quality Control Board prohibition zone.

The onshore portion of the Los Osos Basin covers approximately 10 square miles, of which approximately 3.3 square miles underlie the bay and sand spit, and 6.7 square miles underlie Los Osos, Baywood Park, and the Los Osos Creek Valley. The groundwater basin is bounded to the

north, east, and south by relatively impermeable bedrock formations and to the west where the aquifers outcrop on the ocean floor. Basin sediments are believed to extend close to three miles offshore, however the fresh water portion of the basin is defined by the saltwater/fresh water interface which has moved onshore.

Permeable basin sediments that comprise the shallow and deep aquifer zones consist of alluvial deposits, sand dunes, the Paso Robles Formation, and the Careaga Formation. In the deepest portions of the basin the fresh water-bearing deposits extend to depths of approximately 700 feet below sea level. Previous studies have identified six aquifer zones in the Los Osos Basin which include the unconfined alluvial aquifer in the Los Osos Creek Valley, and 5 interbedded aquifer zones designated in previous reports as Zones A through E. The letter reference system previously used to delineate the aquifer zones in the Los Osos Basin is also utilized in the Preliminary Hydrogeological Impact Study. The aquifer zones include; 1) the unconfined perched aquifer (Zone A), 2) the upper transitional aquifer (Zone B), 3) the upper main supply aquifer (Zone C), and the lower aquifers (Zones D and E). The upper and lower aquifer systems are separated by a regional aquitard that averages approximately 50 feet in thickness.

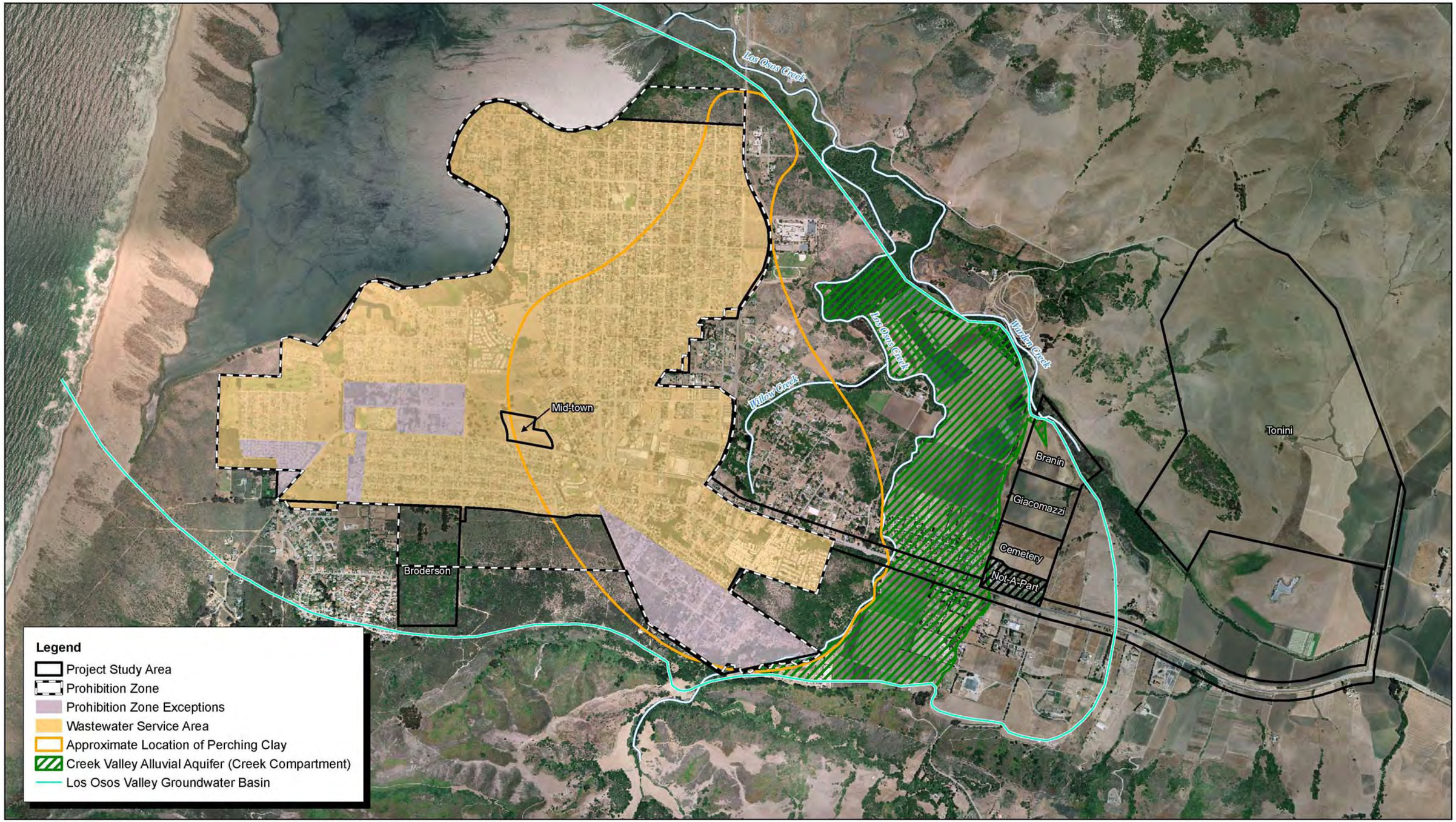
Historical interpretations of hydrogeological data lead to the inference that the Los Osos Basin was effectively partitioned by a splay of the Los Osos Fault designated as Strand B. Because of this interpretation, previous studies considered water budgets separately for basin areas east and west of the fault.

Recent studies have discovered that the aquitard is leaky enough to allow a substantial amount of groundwater to move between the upper and lower aquifer zones. Historical pumping patterns have created a head differential between the upper and lower system which has resulted in leakage from the upper aquifer becoming a substantial recharge component to the lower aquifer system. In addition, recent hydraulic testing of the aquifer system, correlation of well geophysical logs, water quality analyses, and model simulation results indicate that either the Los Osos Fault Strand B does not exist or it is not an effective barrier to groundwater flow. These findings are considered a refinement to the current understanding of the groundwater system and included in this evaluation of potential project-related impacts.

5.2.2.2 - Groundwater Occurrence and Movement

The majority of the recharge to the Los Osos Basin is derived from the following elements:

- Direct percolation of precipitation,
- Return flow from irrigation and septic system discharges,
- Stream seepage from Los Osos Creek,
- Subsurface inflow across basin boundaries.



Source: AirPhoto USA, Hopkins Groundwater Consultants, San Luis Obispo County GIS Data, and MBA GIS Data.

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Michael Brandman Associates

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Exhibit 5.2-1
Los Osos Groundwater Basin

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
GROUDWATER QUALITY AND WATER SUPPLY EXPANDED ANALYSIS SECTION

Within the basin, individual aquifer zones may receive recharge directly from the above sources, or indirectly from aquitard leakage that allows inflow from an overlying or underlying aquifer zone. Movement of groundwater within alluvial, perched, and upper aquifer zones has been inferred from the groundwater gradients obtained from contouring historical measurements of groundwater elevations across the basin. Historical seasonal and climatic water level changes are indicated by hydrographs of water level measurements from wells constructed in individual aquifer zones across the basin.

Alluvial Aquifer

The location of the Los Osos Creek Valley alluvial aquifer (also referenced as the creek compartment) is shown on Exhibit 5.2-1. Groundwater in the Los Osos Creek Valley alluvial aquifer moves down the alignment of the valley northward toward the Morro Bay Estuary. Alluvial aquifer recharge includes the elements listed above. Subsurface outflow from the alluvium into aquifer Zones C, D, and E occurs where these zones contact the alluvial fill beneath ground surface. Seasonal water level fluctuations within the alluvial aquifer have historically been on the order of 5 feet between the wet and dry seasons while water level declines during drought periods have exceeded 10 feet. Recharge to this aquifer is primarily provided by percolation of Los Osos Creek flows.

Zones A, B, and C

The perched aquifer (Zone A) is comprised primarily of dune sands that are deposited on a clay layer(s) that impedes vertical flow to underlying aquifer zones. Available data indicate the clay layer pinches out to the north and west where groundwater flows into the underlying transitional aquifer (Zone B) of the upper aquifer system. The westward boundary of the perching clay has been estimated to be roughly coincident with the inferred trace of the Los Osos Fault splay referenced by previous studies as Strand B. The approximate aerial extent of the perching clay layer is shown in Exhibit 5.2-1.

The perched aquifer receives recharge from percolation of precipitation and return flows from overlying land uses. The water table contours constructed from available data roughly parallel the ground surface. Groundwater movement in Zone A is generally northwest to northeast, with relatively steep hydraulic gradients of up to 0.06 ft/ft between Bayview Heights and downtown. Groundwater in the perched aquifer rises in Willow Creek and reportedly emerges as seeps in the Oaks Preserve and along the banks in the lower reach of Los Osos Creek. A groundwater mound between downtown Los Osos and eastern Baywood Park area creates a hydraulic divide between water moving to the east toward Los Osos Creek and water moving to the west toward the Morro Bay Estuary.

Beneath the shallow dune sand deposits are interbedded clay, silt, sand, and gravel layers of the Paso Robles Formation which form the upper aquifer comprised of Zones B and C. Water level data indicate the transitional aquifer (Zone B) receives recharge through leakage from Zone A in portions

of downtown Los Osos and areas to the east, and represents an intermediate hydraulic zone between the perched aquifer and the main water supply aquifer (Zone C).

Recharge to the upper aquifer (Zone C) occurs via the direct recharge sources itemized above as well as through leakage from Zones A and B. This leakage is evident in both water level and water quality data. Movement of groundwater in Zone C is variable and affected by groundwater production, but generally flows north and west toward the bay. A component of groundwater flows easterly from Baywood toward Los Osos Creek. Historical production from this aquifer has created a pumping depression which lies beneath downtown Los Osos. The hydraulic gradient in Zone C ranges from 0.004 to 0.025 (dimensionless), and averages approximately 0.009.

Groundwater levels in Zones A, B, and portions of Zone C were observed to rise during the 1970's as a result of increased recharge from irrigation and septic system return flows. Since the 1970's, water level data indicate that seasonal fluctuations and climatic cycle changes occur in the perched and upper aquifer zones, however, the system has generally stabilized and reached equilibrium between the existing sources of recharge and discharge.

Zones D and E

The lower aquifer Zone D is comprised of sand and gravel layers in the Paso Robles Formation that are separated from the upper aquifer (Zone C) by a relatively continuous clay layer. The confining clay forms an aquitard that is reportedly leaky and allows downward recharge from the upper aquifer. Beneath the Zone D aquifer is another confining clay layer that delineates the top of the lower most freshwater aquifer Zone E. Aquifer Zone E is comprised of sand and gravel zones contained in the lower portion of the Paso Robles Formation and the underlying Careaga Formation which unconformably lies on older bedrock materials.

Recharge and movement of groundwater in the lower aquifer system (Zones D and E) was recently studied in detail by the Los Osos Community Services District (LOCSD) as part of a seawater intrusion investigation. The results of the lower aquifer recharge investigation indicated sources of recharge may include subsurface inflow from the Los Osos Creek Valley alluvium, subsurface inflow from bedrock, seawater intrusion, and leakage from the upper aquifer through the regional aquitard. Since 1988 groundwater studies have concluded that a principal source of recharge to the basin is septic return flows and that the majority of recharge to the lower aquifer is coming from upper aquifer leakage through the regional aquitard.

The groundwater gradient in the lower aquifers is largely influenced by pumping patterns. Presently groundwater is generally moving toward downtown Los Osos from surrounding areas of the basin. The highest water levels in the lower aquifer system are located in the Los Osos Creek Valley. The hydraulic gradient between the upper creek valley and downtown Los Osos of up to 0.03 is relatively steep and suggests significant impedance to flow which may be fault-related as noted by the U.S.G.S.

Recent studies have documented that groundwater elevations in the lower aquifer zones are below sea level over a substantial portion of the basin. This condition has persisted for many years and has resulted in the onshore flow of seawater in both lower aquifer zones. Water level declines in Zones D and E largely took place during the 1970's and early 1980's and have generally reached equilibrium between sources of discharge and recharge (which includes seawater).

Aquifer Recharge

Within the Los Osos Creek Valley alluvial aquifer, there are four distinct aquifers which include the perched aquifer (Zone A), the Creek Valley aquifer (creek compartment), Upper Aquifer (Zones B and C), and Lower Aquifer (Zones D and E). Table 5.2-1 shows the current basin conditions of recharge to each aquifer as well as the outflow. As shown on Table 5.2-1, each aquifer has a balanced inflow and outflow.

Perched Aquifer Recharge

The perched aquifer, as described above, is Zone A. The main water supply to this aquifer includes: a) precipitation, b) irrigation, and c) septic system percolation as shown in Table 5.2-1. Based on groundwater modeling, the subsurface flow within the perched aquifer flows to Zones B and C as well as to surface water features such as Morro Bay and the features shown on Exhibit 5.2-2. The exact quantity and specific location of groundwater flow to surrounding surface water features is not known.

Creek Valley Aquifer Recharge

The main water supply to this aquifer includes: a) precipitation, b) irrigation return flows, c) septic system percolation, d) vertical leakage through the confining clay, and e) subsurface inflow from underlying bedrock as shown in Table 5.2-1.

Upper Aquifer Recharge

As described above, the upper aquifer is comprised of Zones B and C, and the main water supply zone is Zone C. The upper aquifer is recharged primarily by sources that include; a) precipitation, b) irrigation return flows, c) septic system percolation, d) vertical leakage through the confining clay, and e) subsurface inflow from the perched aquifer (Zone A), the creek valley alluvium, and underlying bedrock. The basin model utilized for the seawater intrusion study has been subsequently revised to include changes in basin conditions that have occurred since 2005 (i.e., shifts in pumping patterns). The hydrologic budget obtained from model simulation indicates that total annual recharge to the upper aquifer under present hydrogeological conditions is estimated to be approximately 3,100-acre-feet per year (AFY) (shown as 3,092 AFY on Table 5.2-1).

As shown on Table 5.2-1, direct percolation of precipitation and irrigation is estimated at approximately 1,490 AFY. Septage return flow is estimated to contribute approximately 600 AFY and groundwater leakage through the perching clay layer and subsurface inflow from the perched aquifer, the creek compartment, and underlying bedrock is approximately 997 AFY.

Lower Aquifer Recharge

When groundwater is extracted from the lower aquifers, four potential sources of recharge are available for replenishment. These sources are; a) subsurface inflow from underlying bedrock, and b) the Los Osos Creek Valley, c) leakage through the regional aquitard from the upper aquifer, and d) seawater. Recent study has combined the use of water quality characterization, water level information, metered and estimated groundwater production, and basin geometry and boundary conditions to investigate the sources of lower aquifer recharge. These studies have utilized both analytical and numerical methods of analysis.

Numerical groundwater models constructed for the groundwater basin have consistently shown that the main source of recharge to the lower aquifer was leakage from the upper aquifer through the regional aquitard. This conclusion has reportedly been supported by water quality characterization and radiocarbon age-dating of the groundwater. As shown in Table 5.2-1, under current basin conditions, recharge to the lower aquifers west of the Los Osos Creek Valley is estimated to include approximately 880 AFY of upper aquifer leakage through the regional aquitard, approximately 370 AFY subsurface inflow from the Creek Valley Alluvial Aquifer (creek compartment), approximately 470 AFY of seawater intrusion, and that recharge from underlying bedrock is negligible.

Table 5.2-1: Current Basin Balance Conditions

Component of Water Budget	Perched Aquifer	Creek Valley Aquifer	Upper Aquifer	Lower Aquifer
Aquifer Inflow				
Percolation from Precipitation and Irrigation	736	430	1,489	0
Septic Flow	631	30	606	0
Seawater Intrusion	0	0	0	469
Los Osos Creek Inflow	0	665	0	0
Subsurface Inflow and Leakage/Subsurface Cross Flow In	0	284	900	1,248
Total Aquifer Inflow	**1,367**	**1,409**	**2,995**	**1,717**
Aquifer Outflow				
Well Production	0	- 870	-803	-1,717
Subsurface Outflow and Leakage/Subsurface Cross Flow Out	-815	-456	-2,192	0
Los Osos Creek Outflow	0	- 77	0	0
Warden Drain	0	- 6	0	0
Willow Creek Outflow And Evapotranspiration	- 552	0	0	0
Total Aquifer Outflow	**-1,367**	**-1,409**	**-2,995**	**-1,717**
aquifer inflow/Outflow Balance	0	0	0	0
All table quantities are in-acre-feet per year				

Source: AirPhoto USA, Hopkins Groundwater Consultants, San Luis Obispo County GIS Data, and MBA GIS Data.

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Michael Brandman Associates

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Exhibit 5.2-2
Los Osos Surface Water Features

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
GROUDWATER QUALITY AND WATER SUPPLY EXPANDED ANALYSIS SECTION

Groundwater Discharge

Groundwater Production

Groundwater production by pumpers in the Los Osos Basin has averaged approximately 3,500 AFY since 1985 and has remained relatively constant since implementation of the 1983 building moratorium. While purveyor production can be provided by actual meter readings, private domestic and agricultural irrigation production has historically been estimated from land use information.

Recent revised groundwater production estimates include approximately 2,520 AFY produced from the upper and lower aquifers which includes 2,440 AFY produced by community purveyors (including the golf course) and 80 AFY from private domestic production within the urban area. There is also approximately 870 AFY produced for agricultural and domestic purposes within the creek valley,. The total annual groundwater production within the Los Osos Basin is approximately 3,390 AFY and is comparable to the 3,400 AFY production estimated for the year 2001 (the last year water purveyor records were made available).

Natural Groundwater Discharges

The Los Osos Basin groundwater system has been identified by previous studies as a source of contribution to surface water features that include springs, streams, lakes, and marshes. Natural groundwater discharges to these features has been observed but remains largely unquantified by historical monitoring programs. These features are also believed to be in part supported by groundwater recharge that is provided from rainfall runoff which is retained on-site and percolated into the groundwater system by recent developments that include the Williams Bros. Shopping Center, the commercial uses near the post office, Bayridge Estates, and Vista de Oro and Cabrillo Estates.

The surface water features that are believed to be at least partially supported by groundwater discharge from the Los Osos Basin include:

- Los Osos Creek
- Willow Creek
- Sweet Spring
- Sweet Spring Marsh
- Pecho Road Marsh
- Third Street Marsh
- Baywood Point Spring
- Baywood Marsh

The presence of these surface water features is an indication of existing shallow groundwater conditions around the Morro Bay.

5.2.2.3 - Sea Water Intrusion

The Los Osos Basin has been the subject of several studies that have evaluated seawater intrusion utilizing water levels and water quality as the primary criteria. The findings of the most recent assessment indicate that according to the Ghyben-Herzberg relation, a fresh water head of approximately 5.0 feet would be needed to prevent the seawater interface from moving onshore within the lowest zones of the upper aquifer. Similarly a fresh water head of approximately 9 and 17.5 feet would be required to prevent landward movement of the seawater interface in lower aquifer D Zone and E Zone, respectively. At the present time, only upper aquifer water level elevations are sufficient to prevent seawater intrusion.

The most recent study concluded that the upper aquifer fresh water/salt water interface is relatively stable and located beneath the Morro Bay sand spit, with a potential for active intrusion during extended drought periods. The study also found that seawater intrusion in the Lower Aquifer Zone D has advanced at an average rate of 60 feet per year between 1985 and 2005, and is approximately located between Pecho Road and Doris Avenue. Seawater intrusion in the Lower Aquifer Zone E was found to have advanced at an average rate of 54 feet per year between 1977 and 2005, and is approximately located between Broderson Avenue and Palisades Avenue.

5.2.2.4 - Groundwater Quality

The natural quality of groundwater in the Los Osos Basin has been of a sufficiently high quality to satisfy all overlying beneficial land uses. Since the beginning of land development, two primary sources have contributed to degradation of water quality; 1) seawater intrusion that has invaded the lower aquifer system as a result of over pumping, and 2) increasing nitrate concentrations that have resulted from the overlying land uses (i.e., septic system return flows, landscape fertilization, and domestic animal waste). Historical studies have documented the quality of groundwater in the Los Osos Basin that is delineated by aquifer zone. Following is a summary discussion of the existing total dissolved solids and nitrate concentrations in the Los Osos Wastewater Project (LOWWP) area.

Salts

Historical data indicate that the chemical character of water in the lower aquifers is predominantly magnesium-calcium/calcium-magnesium bicarbonate, with an average total dissolved solids (TDS) concentration of 340 milligrams per liter (mg/l). Seawater intrusion in the western coastal portion of the basin has changed the lower aquifer quality from bicarbonate to chloride anion dominance.

The Los Osos Creek Valley groundwater is characteristically magnesium-calcium bicarbonate with TDS concentrations on the order of 520 mg/l. The chemical character of groundwater in the upper aquifers is generally sodium magnesium chloride-bicarbonate water. The areas of the basin with higher TDS concentrations in shallow groundwater have been found to roughly correspond to some of the areas of higher NO_3-N ("Nitrate-Nitrogen", hereinafter referred to as 'nitrate' throughout this document) concentrations. This may result from brine reject from domestic water softeners or other

normal salt loading from domestic water use that is subsequently discharged from septic disposal systems. The range of TDS in the shallow groundwater is generally between 200 and 400 mg/l, with a low of 67 mg/l along South Bay Boulevard and a high of 1,100 mg/l beneath Sunset Terrace. Table 5.2-2 shows the TDS concentrations within the aquifers and the effluent from the existing septic system.

Table 5.2-2: Average Groundwater and LOWWP Effluent TDS Concentrations

Water source	Tds (mg/l)
Perched Aquifer	400
Creek Compartment	520
Upper Aquifer System	330
Effluent	620
Source: Hopkins Groundwater Consultants, Inc. August 2008.	

Nitrate

Sample results from a previous basin study prepared by Cleath and Associates show that NO_3-N (nitrate) concentrations measured in dedicated monitoring wells range from less than 1 mg/l to 28 mg/l with an overall average of 10 mg/l nitrate. The concentrations of nitrate contained in groundwater in the basin and the effluent from the proposed treatment plant are provided in Table 5.2-3

Table 5.2-3: Average Groundwater and Effluent Nitrate-Nitrogen Concentrations

Water source	NO_3-N (mg/l)
Perched Aquifer	NA
Creek Compartment	5 TO 10
Upper Aquifer System	10
Effluent	7
Source: Hopkins Groundwater Consultants, Inc. August 2008.	

There is an isolated area of low nitrate concentrations that is inferred to extend across the open space west of the South Bay Community Library where considerable surface runoff percolates to groundwater. The nitrate concentrations are inferred to decrease at the bay front and to the east, across South Bay Boulevard. Nitrates and other conservative constituents of basin return flows present in the upper aquifer that do not flow out into the bay or into other surface drainage courses will ultimately reach the lower aquifer. The total nitrogen in shallow groundwater samples often contained forms of nitrogen other than nitrate which included ammonia and organic nitrogen that are inferred to be contributed from septage return flows.

5.2.3 - Regulatory Setting

The major federal legislation governing the water quality aspects of the proposed project is the Clean Water Act, as amended by the Water Quality Act of 1987. The federal Environmental Protection Agency (EPA) is the federal agency responsible for water quality management nationwide.

The State of California's Porter-Cologne Water Quality Control Act provides the basis for water quality regulation within California. The State Water Resources Control Board (SWRCB) administers water rights, water pollution control, and water quality functions, while the Regional Water Quality Control Board (RWQCB) conducts planning, permitting, and enforcement activities. The Porter-Cologne Water Quality Control Act designates the SWRCB responsible for formulating and adopting state policy for water reclamation, while the California Department of Health Services (DHS) is responsible for establishing uniform statewide reclamation criteria to ensure that the use of recycled water would not be detrimental to public health.

Water Quality Control Plan

The most recent update of the Water Quality Control Plan for the Central Coast Region (Basin 3) was adopted by the RWQCB in September 1994. The Basin Plan establishes beneficial uses and water quality objectives for surface and ground water sources within the basin. To be consistent with this plan, the proposed wastewater facilities project (LOWWP) must comply with the water quality objectives described in RWQCB Order No. 97-8, Waste Discharge Requirements for San Luis Obispo County Services Area 9.

State Revolving Fund Requirements

In its Policy for Implementing the State Revolving Fund for Construction of Wastewater Treatment Facilities, the State Water Resources Control Board (SWRCB) requires compliance with all applicable federal environmental laws, including consistency with area-wide planning.

San Luis Obispo County General Plan Land Use Element and Local Coastal Program - Estero Area Plan

In San Luis Obispo County, the individual General Plan Elements provide broad policy guidance for land use decisions throughout the unincorporated County. To provide policies and programs for specific geographic sub-areas, the County has adopted fifteen Area Plans, which serve as the General Plan Land Use Element for the given area.

The Community of Los Osos is governed by the goals and policies set forth in the Estero Area Plan. The Estero Area Plan was adopted in 1980 and updated as the Local Coastal Plan in 1988. Subsequently, the Area Plan was last updated in November 2004 and amended in July 2006. The Estero Area Plan encompasses approximately 71.5 square miles, and the plan area is consistent with the California Coastal Zone Boundary established by the California Coastal Act of 1976. In general, the plan area extends from Point Estero to the north (approximately 16.5 miles north of Los Osos) and

Point Buchon to the south (approximately 3.3 miles south of Los Osos). Following are the programs related to groundwater that are applicable to the Los Osos Wastewater Project.

A. WATER

LOS OSOS

1. Water Management. Based on community initiation, the county Public Works Department should work with communities, property owners and the Regional Water Quality Control Board to develop and implement a basin-wide water management program for Los Osos which addresses population levels in relation to water availability, groundwater quality, and the need for alternative liquid waste disposal plans.
2. Alternative Water Sources. Supplementary water such as reclaimed sewage effluent and water from existing impounments should be used to prevent overdraft of groundwater. New impoundments for recharging underground basins should be carefully considered along with other alternatives.

County of San Luis Obispo Local Coastal Program Policy Document - Coastal Plan Policies

San Luis Obispo County has special tools available to implement the Local Coastal Program. The County adopted a Land Use Element and Land Use Ordinance system that has replaced typical general plan designations and zoning districts. The Coastal Plan Policies document states the policy commitment of San Luis Obispo County to implement the mandates of the Coastal Act. This policy document of the Local Coastal Plan is part of the Land Use Element of the County General Plan. Following is the groundwater policy under Policies for Coastal Watersheds that is applicable to the Los Osos Wastewater Project.

Policy 1: Preservation of Groundwater Basins

The long-term integrity of groundwater basins within the coastal zone shall be protected. The safe yield of the groundwater basin, including return and retained water shall not be exceeded except as part of a conjunctive use or resource management program which assures the biological productivity of aquatic habitats are not significantly adversely impacted.

5.2.4 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether impacts to water supply and groundwater quality are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a.) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted?

b.) Otherwise substantially degrade groundwater quality?

Other Thresholds

Would the project conflict with local programs or policies related to groundwater quality or water supply?

5.2.5 - Analysis

Groundwater Supply

Impact 5.2.A:	**The proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted.**

Project-Specific Impact Analysis

Proposed Project 1

Collection System

Short-term Construction Effects

Proposed Project 1 would utilize a Septic Tank Effluent (STE) Collection System that is comprised of both septic tank effluent pumps (STEP) and septic tank effluent gravity (STEG) collection lines. This is referred to as a STEP/STEG system. With this system, old septic tanks would be taken out of use and new STEP/STEG tanks, together with effluent pumps and controls, would be installed at each connection. A total of 4,679 new STEP/STEG tanks, together with associated pumps and controls, would be installed.

Construction activities summarized above would include installation of sewer laterals with associated effluent pumps and controls at the tanks, force mains, collector lines, isolation valves conveyance lines, a stream crossing along Los Osos Valley Road. Construction activities that are located within the area of the community of Los Osos that is underlain by the perched aquifer (see Exhibit 5.2-1) may make contact with groundwater. If contact occurs, dewatering would be required during construction. Based on the depth of the proposed collection system facilities, no substantial dewatering of the existing groundwater supplies within the perched aquifer would occur; therefore, less than significant impacts to groundwater supplies would occur during construction activities.

Long-term Operational Effects

With the implementation of the STEP/STEG wastewater collection system, wastewater would no longer leach from the existing septic system into the Los Osos groundwater basin. Proposed Project 1 would eliminate the current leaching of approximately 997 AFY of which approximately 600 AFY

currently leaches directly into the upper aquifer (Zone C) which is the main water supply. The treated effluent disposal associated with Proposed Project 1, in combination with the proposed water conservation program, would balance the inflow and outflow to/from the upper aquifer as further described below under "Combined Project Effects."

Since existing septic return flow into the upper aquifer system partially contributes to leakage into the lower aquifers, the implementation of Proposed Project 1 would proportionally impact groundwater supplies within the lower aquifer. The loss of flow into the lower aquifers would be offset as further described below under "Combined Project Effects".

Treatment Plant Site

Short-term Construction Effects

The project would result in the construction of an approximately 20-acre facultative pond treatment facility on the Giacomazzi property, an approximately 8-acre storage facility on a portion of the Cemetery property, and approximately 4-acre appurtenant facility on the Branin property. Construction activities at the treatment plant site are not expected to extend further than 10 feet below grade. Given that the existing groundwater table is at approximately 15 feet below grade, construction activities associated with the proposed treatment facilities would not contact groundwater. Therefore, construction activities associated with the proposed treatment facilities would have no impact on groundwater supplies.

Long-term Operational Effects

The proposed treatment ponds and storage ponds that would be implemented under Proposed Project 1 would be lined to prevent leaching of septage from the treatment plant site to the groundwater. Since the facilities would be lined, the project would have no impact on groundwater supply under the treatment plant site.

Disposal Sites

Short-term Construction Effects

Proposed Project 1 would include the construction of sprayfields on the Tonini property and leach-fields on the Broderson property. The spray sites at Tonini would be located on an area of approximately 175-acres. The fields would include spray heads located three vertical feet above the earth, each having a spray radius of 15 feet. The proposed facilities at Tonini would be constructed at a depth of less than 5 feet. Since groundwater ranges in elevation from 7 to approximately 40 feet above the existing surface, construction of the facilities on the Tonini property would result in no impact on the existing groundwater supply beneath the proposed treatment plant site.

The proposed leachfields at Broderson are proposed to include trenches that would extend up to 6.5 feet below grade. Since groundwater levels under Broderson are more than 100 feet below ground surface, construction activities associated with the Broderson leachfields would have no impact on groundwater supply.

Long-term Operational Effects

Operation activities under Proposed Project 1 would include two types of disposal: sprayfield irrigation and sub-surface leachfield, as well as the implementation of water conservation measures. The proposed sprayfields would discharge approximately 549 AFY of treated effluent to the Tonini disposal site. Proposed Project 1 also results in the discharge of approximately 448 AFY at the proposed Broderson site as well as the proposed water conservation measures.

Implementation of the sprayfield irrigation at the Tonini site would result in a less than significant impact on groundwater quantities within the bedrock aquifer. The implementation of the Broderson leachfields would result in a beneficial impact on the Los Osos Valley Groundwater Basin. As part of operating the Broderson leachfields, the quantity and rate of disposal would be monitored to optimize the disposal operations. The net effect of the implementation of Proposed Project 1 is described below under "Combined Project Effect".

Water Conservation

As part of project construction, the project would include a component designated as water conservation. To achieve the desired 160 AFY reduction in LOWWP effluent, domestic and commercial water fixtures including toilets and shower heads will be replaced with low flow fixtures. The resulting conservation will be realized as a reduction of pumping from the overdrafted lower aquifer system. While historical production from the lower aquifer system has become a form of man-made recharge to the upper aquifer system through septic system recharge, the reduction in lower aquifer system production effectuated by conservation will result in less seawater intrusion. This impact is considered a beneficial impact to the Los Osos Basin, and would result in a less than significant impact associated with groundwater quality.

Combined Project Effects

Short-term Construction Effects

Based on the short-term project effects of each project component, all short-term effects on groundwater from the combined project are less than significant.

Long-term Operational Effects

During the fine screening study, effluent disposal methods were evaluated based on their ability to reduce the LOWWP impacts on seawater intrusion in the lower aquifer zones. The removal of septic recharge from the prohibition zone in the Los Osos Basin would reduce recharge to the upper aquifer zones, which in turn would reduce leakage from the upper aquifer Zone C that recharges the lower aquifer zones.

The proposed wastewater disposal methods are comprised of three components that include; a) sprayfield irrigation, b) Broderson percolation, and c) prohibition area conservation. A summary of the disposal capacity of each component is provided below in Table 5.2-4 along with the quantity of water provided that would reduce seawater intrusion in the lower aquifer zones.

Table 5.2-4: Disposal Capacity

Component	Disposal or Conservation Capacity (afy)		Seawater Intrusion Reduction (afy)	
	Buildout	Current	Buildout	Current
Sprayfields (175-acres)	842	549	0	0
Broderson Disposal	448	448	99	99
Conservation	160	160	88	88
Total LOWWP Disposal	**1,290**	**997**	**187**	**187**

The total treated effluent disposal volume from the LOWWP is anticipated to be 1,290 AFY at buildout. Under current conditions the disposal volume is anticipated to be 997 AFY. Groundwater inflow removed from the hydrologic budget (septic system percolation) by the LOWWP collection system will affect both the upper aquifer zones, which are directly recharged by this source, and the lower aquifer zones which receive leakage from the upper aquifers. However, the disposal component of the project would ensure that there would not be a net loss in groundwater recharge to the aquifers that support overlying beneficial land uses and associated impacts would be less than significant. Furthermore, the proposed disposal of treated effluent at Broderson would reduce the current rate of seawater intrusion into the lower aquifer, thus resulting in a beneficial impact.

Modeling results indicate that the impact of this operation will be to restore groundwater levels in the upper aquifer system (Zones B and C) to elevations that are comparable to existing conditions. The study results indicate that Broderson disposal will provide beneficial impacts that restore groundwater recharge and maintain a balance in the hydrologic budget that provides outflows for local well production and freshwater features (marshes and springs) around the bay. Implementation of the proposed project would reduce septic effluent discharge into the perched aquifer (Zone A). Therefore, the project would reduce the quantity of groundwater within the perched aquifer. However, the exact quantity of reduction within the perched aquifer is unknown, and the potential impact on groundwater flow to surrounding surface water features is speculative given that the amount of perched groundwater currently flowing to surface water features is not known.

Proposed Project 2

Project 2 includes a gravity sewerage collection system and an Oxidation Ditch/Biolac wastewater treatment facility at the Giacomazzi site that provides secondary level treatment. The raw wastewater conveyance system carries collected wastewater from the Mid-Town pump station to the Giacomazzi wastewater treatment plant site. Treated effluent can be sent directly through the treated effluent conveyance system to the Broderson leachfield. Alternatively, some or all of the treated effluent can be sent through the eastern end of the treated effluent conveyance system to the Tonini sprayfields or the seasonal storage pond on the Tonini site.

Collection System

Short-term Construction Effects

The short-term effects on ground water supplies from the construction of the collection system associated with Proposed Project 2 would be the same as the short-term effects associated with Proposed Project 1.

Long-term Operational Effects

Long-term effects on ground water supplies from the proposed collection system associated with Proposed Project 2 would be the same as the long-term effects associated with Proposed Project 1.

Treatment Plant Site

Short-term Construction Effects

The existing groundwater table is at approximately 15 feet below grade. As with Proposed Project 1, construction activities associated with the proposed treatment facilities in Proposed Project 2 would not contact groundwater. Therefore, construction activities associated with the proposed treatment facilities in Proposed Project 2 would have the same "no impact" on groundwater supplies as Proposed Project 1.

Long-term Operational Effects

As with Proposed Project 1, proposed treatment ponds and storage ponds that would be implemented under Proposed Project 2 would be lined to prevent leaching of septage from the treatment plant site to the groundwater. Since the facilities would be lined, Proposed Project 2 would have the same "no impact" on groundwater supply under the treatment plant site as Proposed Project 1.

Disposal Sites

Short-term Construction Effects

As with Proposed Project 1, the potential for groundwater impacts of the project disposal sites during construction of facilities for Proposed Project 2 would be the same less than significant impact as described above for Proposed Project 1.

Long-term Operational Effects

As with Proposed Project 1, the potential for groundwater impacts of the project disposal sites during operation of facilities for Proposed Project 2 would be the same less than significant impact as described above for Propose Project 1.

Combined Project Effects

Short-term Construction Effects

The potential for groundwater impacts of the combined project during construction of facilities for Propose Project 2 would be the same less than significant impact as described above for Proposed Project 1.

Long-term Operational Effects

The potential for groundwater impacts of the combined project during operation of facilities for Proposed Project 2 would be the same as described above for Propose Project 1. Impacts to the Zone B and C aquifer is considered less than significant. The potential impact on the exact quantity of groundwater in the perched aquifer is unknown and the potential impact on groundwater flow to

surrounding surface water features is speculative given that the amount of perched groundwater currently flowing to surface water features is not known. Furthermore, the proposed disposal of treated effluent at Broderson would reduce the current rate of seawater intrusion into the lower aquifer, thus resulting in a beneficial impact.

Proposed Project 3

Project 3 includes a gravity sewage collection system and an Oxidation Ditch/Biolac wastewater treatment facility at the Giacomazzi/Branin site that provides secondary level treatment. The wastewater conveyance system carries the collected raw wastewater from the Mid-Town pump station to the combined Giacomazzi/Branin wastewater treatment plant and spray field site at Tonini. Treated effluent can be stored in the seasonal storage pond on the combined Giacomazzi/Branin site or sent directly through the treated effluent conveyance system to the Broderson leachfield and/or the Tonini spray fields.

Collection System

Short-term Construction Effects

The short-term effects on ground water supplies from the construction of the collection system associated with proposed project 3 would be the same as the short-term effects associated with Proposed Project 1.

Long-term Operational Effects

Long-term effects on ground water supplies from the proposed collection system associated with Proposed Project 3 would be the same as the long-term effects associated with Proposed Project 1.

Treatment Plant Site

Short-term Construction Effects

The existing groundwater table is at approximately 15 feet below grade. As with Proposed Project 1, construction activities associated with the proposed treatment facilities in Proposed Project 3 would not contact groundwater. Therefore, construction activities associated with the proposed treatment facilities in Proposed Project 3 would have the same “no impact” on groundwater supplies as Proposed Project 1

Long-term Construction Effects

As with Proposed Project 1, proposed treatment ponds and storage ponds that would be implemented under Proposed Project 3 would be lined to prevent leaching of septage from the treatment plant site to the groundwater. Since the facilities would be lined, Proposed Project 3 would have the same “no impact” on groundwater supply under the treatment plant site as Proposed Project 1.

Disposal Sites

Short-term Construction Effects

As with Proposed Project 1, the potential for groundwater impacts of the project disposal sites during construction of facilities for Proposed Project 3 would be the same less than significant impact as described above for Proposed Project 1.

Long-term Operational Effects

As with Proposed Project 1, the potential for groundwater impacts of the project disposal sites during operation of facilities for Proposed Project 3 would be the same less than significant impact as described above for Propose Project 1.

Combined Project Effects

Short-term Construction Effects

The potential for groundwater impacts of the combined project during construction of facilities for Propose Project 3 would be the same less than significant impact as described above for Proposed Project 1.

Long-term Operational Effects

The potential for groundwater impacts of the combined project during operation of facilities for Proposed Project 3 would be the same as described above for Propose Project 1. Impacts to the Zone B and C aquifer is considered less than significant. The potential impact on the exact quantity of groundwater in the perched aquifer is unknown and the potential impact on groundwater flow to surrounding surface water features is speculative given that the amount of perched groundwater currently flowing to surface water features is not known. Furthermore, the proposed disposal of treated effluent at Broderson would reduce the current rate of seawater intrusion into the lower aquifer, thus resulting in a beneficial impact.

Proposed Project 4

Proposed Project 4 includes a gravity sewerage collection system and a facultative pond wastewater treatment facility at the Tonini site that provides secondary level treatment. The raw wastewater conveyance system carries the collected wastewater from the Mid-Town pump station to the combined Tonini wastewater treatment plant site. Treated effluent can be sent directly through the treated effluent conveyance system to the Broderson leachfield. Alternatively, some or all of the treated effluent can be sent to the nearby Tonini spray fields and or seasonal storage pond on the Tonini site

Collection System

Short-term Construction Effects

The short-term effects on ground water supplies from the construction of the collection system associated with proposed project 4 would be the same as the short-term effects associated with Proposed Project 1.

Long-term Operational Effects

Long-term effects on ground water supplies from the proposed collection system associated with Proposed Project 4 would be the same as the long-term effects associated with Proposed Project 1.

Treatment Plant Site

Short-term Construction Effects

The existing groundwater table is at 7 feet to approximately 40 feet below existing grade. Construction of the proposed treatment facilities will not extend to the groundwater table. As with Proposed Project 1, construction activities associated with the proposed treatment facilities in

Proposed Project 4 would not contact groundwater. Therefore, construction activities associated with the proposed treatment facilities in Proposed Project 4 would have the same "no impact" on groundwater supplies as Proposed Project 1

Long-term Construction Effects

As with Proposed Project 1, proposed treatment ponds and storage ponds that would be implemented under Proposed Project 4 would be lined to prevent leaching of septage from the treatment plant site to the groundwater. Since the facilities would be lined, Proposed Project 4 would have the same "no impact" on groundwater supply under the treatment plant site as Proposed Project 1..

Disposal Sites

Short-term Construction Effects

As with Proposed Project 1, the potential for groundwater impacts of the project disposal sites during construction of facilities for Proposed Project 4 would be the same less than significant impact as described above for Proposed Project 1.

Long-term Operational Effects

As with Proposed Project 1, the potential for groundwater impacts of the project disposal sites during operation of facilities for Proposed Project 4 would be the same less than significant impact as described above for Propose Project 1.

Combined Project Effects

Short-term Construction Effects

The potential for groundwater impacts of the combined project during construction of facilities for Propose Project 4 would be the same less than significant impact as described above for Proposed Project 1.

Long-term Operational Effects

The potential for groundwater impacts of the combined project during operation of facilities for Proposed Project 4 would be the same as described above for Propose Project 1. Impacts to the Zone B and C aquifers are considered less than significant. The potential impact on the exact quantity of groundwater in the perched aquifer is unknown and the potential impact on groundwater flow to surrounding surface water features is speculative given that the amount of perched groundwater currently flowing to surface water features is not known. Furthermore, the proposed disposal of treated effluent at Broderson would reduce the current rate of seawater intrusion into the lower aquifer, thus resulting in a beneficial impact.

Cumulative Impact Analysis

Proposed projects 1 through 4

Cumulative impacts consider the effects of past, present, and reasonably foreseeable projects with regard to groundwater supply and quality in the project vicinity. Since a moratorium on growth was imposed on the community of Los Osos in 1983, no additional structures have been constructed that would contribute to an effect on groundwater supply or would contribute to degradation of groundwater quality in the area. Groundwater supply and quality conditions have remained largely

unchanged since the moratorium was imposed. Related projects within the greater cumulative project area are detailed in Section 4.2 and Exhibit 4.2-1 in the Draft EIR. Three of the nine related projects (Los Osos CSD Waterline Replacement, Los Osos Valley Road Palisades Storm Drain, and AT&T Cable) physically overlap with the study area for the proposed project but are either completed or expected to be completed by the time that construction of the proposed project is anticipated to begin (2010). Six of the nine related projects (State Park Marina Renovation, Morro Bay Wastewater Treatment Plant, Dredging of Morro Bay, CMC Wastewater Treatment Plant, Phase II Steam Generator Replacement at Diablo, and Spent Fuel Storage Facility at Diablo) have no physical overlap with the proposed project. The two related Diablo projects are nearly 7 miles south of Los Osos. Therefore, since there are no related projects that would contribute to cumulative groundwater supply impacts, implementation of Proposed Projects 1 through 4 would not contribute to cumulative impacts related to groundwater supply.

Mitigation Measures

Project-Specific

Proposed Project 1

No mitigation measures are required.

Proposed Project 2

No mitigation measures are required.

Proposed Project 3

No mitigation measures are required.

Proposed Project 4

No mitigation measures are required.

Cumulative

Proposed Project 1 through Project 4

No mitigation measures are required.

Level of Significance After Mitigation

Project-Specific

Proposed Project 1

Less than significant.

Proposed Project 2

Less than significant.

Proposed Project 3

Less than significant.

Proposed Project 4

Less than significant.

Cumulative

Proposed Project 1 through Project 4

No impact.

Groundwater Quality

Impact 5.2.B: The proposed project would not degrade groundwater quality.

Project-Specific Impact Analysis

Proposed Project 1

Collection System

Short-term Construction Effects

Proposed Project 1 would utilize a Septic Tank Effluent (STE) Collection System that is comprised of both septic tank effluent pumps (STEP) and septic tank effluent gravity (STEG) collection lines. This is referred to as a STEP/STEG system. With this system, old septic tanks would be taken out of use and new STEP/STEG tanks, together with effluent pumps and controls, would be installed.

Construction activities would include approximately 40,600 linear feet of 6-, 8-, and 10-inch PVC force mains, 203,000 linear feet of pressure sewer collector, 630 isolation valves and air release valves, 240 flushing ports, 1,000 linear feet of creek crossings, and 4,679 new STEP/STEG tanks with accompanying effluent pumps and controls. Construction activities that are located within the area of the community of Los Osos that is underlain by the perched aquifer (see Exhibit 5.2-1) may make contact with groundwater. If contact occurs, dewatering would be required. Based on the depth of the proposed collection system facilities, no substantial dewatering of the existing groundwater supplies within the perched aquifer would occur. Since no substantial dewatering would be required, the quality of the groundwater would encounter less than significant impacts during construction activities.

Long-term Operational Effects

The project's collection system will result in the removal of wastewater conveyance to private septic systems and would install a conveyance system to direct wastewater flows to the proposed treatment plant. The construction of the collection system would remove septic recharge from private septic tank systems, resulting in the removal of a source of groundwater contamination. Accordingly, the construction and operation of the proposed collection system would result in a beneficial impact to groundwater quality.

Treatment Plant Site

Short-term Construction Effects

The project would result in the construction of an approximately 20-acre facultative pond treatment facility on the Giacomazzi property, an approximately 8-acre storage facility on a portion of the Cemetery property, and approximately 4-acre appurtenant facility on the Branin property. Construction activities at the treatment plant site are not expected to extend further than 10 feet below grade. Given that the existing groundwater table is at approximately 15 feet below grade, construction activities associated with the proposed treatment facilities would not contact groundwater. Therefore,

construction activities associated with the proposed treatment facilities would have no impact on groundwater quality

Long-term Operational Effects

The construction of the treatment plant would comply with all applicable regulations related to runoff, which would ensure that the project would not impact groundwater quality. The design and operation of the treatment plant site would provide measures that would ensure that untreated wastewater does not enter the groundwater supply, including the installation of impermeable linings for treatment ponds. As such, all wastewater treated at the treatment plant site would be conveyed to the disposal sites, ensuring that groundwater quality impacts at the proposed treatment plant would be less than significant.

Disposal Sites

Short-term Construction Effects

Proposed Project 1 would include the construction of sprayfields on the Tonini property and leach-fields on the Broderson property. The spray sites at Tonini would be located on an area of approximately 175-acres. The fields would include spray heads located three vertical feet above the earth, each having a spray radius of 15 feet. The proposed facilities at Tonini would be constructed at a depth of less than 5 feet. Since groundwater is anticipated to range from 7 feet to 40 feet in depth, construction of the facilities on the Tonini property would result in no impact on the existing groundwater quality beneath the proposed disposal site.

The proposed leachfields at Broderson are proposed to include trenches that would extend up to 6.5 feet below grade. Since groundwater levels under Broderson are more than 100 feet below ground surface, construction activities associated with the Broderson leachfields would have no impact on groundwater quality.

Long-term Operational Effects

During operation of the proposed sprayfields, potential impacts to groundwater from sprayfield irrigation will include a potential increase in TDS concentration, and nitrate loading of surface soils which can eventually percolate to groundwater. Geological conditions at the site indicate that percolation of applied irrigation water (approximately 210 AFY) in the sprayfields would contribute to groundwater recharge. Groundwater that rises in the Warden Lake drainage would flow downstream to Los Osos Creek and into Morro Bay. Groundwater emergence at lower elevations around the drainage channel would provide a beneficial impact to existing natural wetlands located adjacent Warden Creek.

Salt loading of the upper soils occurs when applied water is removed by evapotranspiration leaving the minerals not consumed by crops in the soil. These concentrated salts are subsequently leached to groundwater by excess irrigation and/or precipitation. Precipitation is essentially distilled water and acts as a diluting agent for the deposited salts. The net impact of water percolating to groundwater would likely have a higher or lower TDS concentration than the initial irrigation water depending on

the rainfall to evapotranspiration ratio. The spray irrigation effluent is anticipated to have a TDS concentration on the order of 620 mg/l.

The use of sprayfield disposal at the Tonini site has the potential for groundwater quality impacts beneath the site by raising the total dissolved solids (TDS) concentration. While the nitrogen in the effluent will be largely (if not completely) consumed by plant uptake and natural denitrification processes, the dissolved salts in the effluent will be concentrated in the soil as a function of the evapotranspiration process. Salt precipitation in the root zone of irrigated crops is typical of all farming operations and often requires overwatering to leach the salt downward and remove the deleterious effects on the plants being raised. Annual rainfall in the Los Osos area may be sufficient for leaching purposes and preclude the need for typical overwatering operations to achieve salt removal from shallow soils.

The quality of groundwater underlying the Tonini site is a function of the source water quality, mineralogy of the underlying bedrock, and the residence time during which the groundwater remains in the formation prior to discharge at downgradient locations. The underlying groundwater at the Tonini site is primarily contained in fractured bedrock that comprises an aquifer system whereby flow is likely controlled by the orientation of fractures that create secondary porosity. The aquifer is an open system and outflow is observed downgradient as seeps and springs on the land surface, as well as, inferred to contribute underflow into the channel alluvium along the Warden Lake drainage and into the Los Osos Creek Valley aquifer. Because it is not a closed basin (without outflow) the increase in salt concentrations in the groundwater from irrigation practices will reach equilibrium and not continue to increase over time.

The TDS concentration of treated effluent that would be used for sprayfield disposal at the Tonini Ranch is estimated at approximately 620 mg/l and is comparable to the groundwater that underlies the Tonini site which was measured and averaged 606 mg/l. Because of the similar TDS concentrations, the effects on groundwater from using the LOWWP effluent as an irrigation source versus pumping groundwater for crop irrigation are the same. Based on these conditions the salt loading impacts to groundwater from irrigating crops with effluent at the proposed Tonini sprayfield site are considered less than significant.

Laboratory test results for groundwater samples collected from three wells on the Tonini property indicate the groundwater has an average TDS concentration of 606 mg/l and a nitrate concentration of 7.2 mg/l. Although the estimated TDS concentration of percolating water from sprayfield operations may be higher than local groundwater, the infiltration will mix with native groundwater flowing beneath the site and proportionally reduce the salts concentration. It is anticipated that a substantial portion of the nitrate in the applied water will be removed by crop uptake and decrease the concentration from 7 mg/l to a concentration lower than the background concentration of 7.2 mg/l and not contribute to degradation of existing conditions. Therefore, impacts associated with salt concentrations would be less than significant.

The potential impacts of effluent disposal at Broderson on the underlying groundwater quality was assessed by the LOCSD who performed the water quality modeling study in 2003. Table 5.2-5 lists the anticipated limits of the effluent that will be discharged at the subsurface leachfield. The study simulated groundwater quality changes that would result from discharge of treated effluent with an average NO_3-N concentration of 7 mg/l. The study concluded that while change would be gradual over time, the removal of septic system recharge in the prohibition area and the return of treated effluent with a reduced nitrate concentration to the Broderson site would result in a beneficial impact that would improve water quality.

Table 5.2-5: Effluent Water Limitations from Previous Discharge Requirements (Order No. R3-2003-0007)

Effluent Limitations			
Constituent	**Units**	**Monthly Average**	**Daily Maximum**
Settleable Solids	MG/L	0.1	0.5
BOD*, 5-DAY	MG/L	60	100
Suspended Solids	MG/L	60	100
Total Nitrogen (AS N)	**MG/L**	**7**	**10**
*Biological Oxygen Demand			

Combined Project Effects

Short-term Construction Effects

Based on the short-term project effects of each project component, all short-term effects on groundwater quality from construction of the collection system and the facilities at the treatment plant site and disposal sites are less than significant

Long-term Operational Effects

A summary of the water quality mass balance calculation results is provided in Appendix D-2 of this Draft EIR. Combining the average effluent concentration of 7 mg/l with all the other nitrogen sources in the Los Osos Basin, the average nitrate concentrations in the upper aquifer after LOWWP completion would be approximately 8.3 mg/l, and is below the drinking water standard. The nitrate concentration calculation results are included in Table 5.2-6.

The resulting average TDS concentration calculated for the upper aquifer zones with the operation of the Broderson leachfieldand the removal of septic return flows is provided in Table 5.2-6. Both of these results indicate the combined project would provide a beneficial water quality impact on the Los Osos Basin. Accordingly, water quality impacts associated with the combined project disposal program would be less than significant or beneficial.

Table 5.2-6: Summary of Upper Aquifer Nitrate Loading and Average Concentrations

Basin Condition	Total Surface Recharge to Los Osos Basin (AFY)	Total Nitrogen Load (Tons)	Estimated Average Concentration (MG/L)
Current	3,525	52.1	10.9
Post development	3,337	37.9	8.3

Table 5.2-7: Summary of Upper Aquifer Average Total Dissolved Solids Concentration

Basin Condition	Total Salts Load (Tons)	Estimated Average Concentration (MG/L)
Current	1,378	352
Broderson 448 Afy	1,097	299

Proposed Project 2

Project 2 includes a gravity sewerage collection system and an Oxidation Ditch/Biolac wastewater treatment facility at the Giacomazzi site that provides secondary level treatment. The raw wastewater conveyance system carries collected wastewater from the Mid-Town pump station to the Giacomazzi wastewater treatment plant site. Treated effluent can be sent directly through the treated effluent conveyance system to the Broderson leachfield. Alternatively, some or all of the treated effluent can be sent through the eastern end of the treated effluent conveyance system to the Tonini sprayfields or the seasonal storage pond on the Tonini site.

Collection System

Short-term Construction Effects

The short-term effects on groundwater quality from the construction of the collection system associated with Proposed Project 2 would be the same as the short-term effects associated with Proposed Project 1.

Long-term Operational Effects

Long-term effects on groundwater quality from the proposed collection system associated with Proposed Project 2 would be the same as the long-term effects associated with Proposed Project 1

Treatment Plant Site

Short-term Construction Effects

The existing groundwater table is at approximately 15 feet below grade. As with Proposed Project 1 construction activities associated with the proposed treatment facilities in Proposed Project 2 would not contact groundwater. Therefore, construction activities associated with the proposed treatment facilities in Proposed Project 2 would have the same “no impact” on groundwater quality as Proposed Project 1.

Long-term Operational Effects

As with Proposed Project 1, proposed treatment ponds and storage ponds that would be implemented under Proposed Project 2 would be lined to prevent leaching of septage from the treatment plant site to the groundwater. Since the facilities would be lined, Proposed Project 2 would have the same "no impact" on groundwater quality under the treatment plant site.

Disposal Sites

Short-term Construction Effects

As with Proposed Project 1, the potential for groundwater quality impacts of the project disposal sites during construction of facilities for Proposed Project 2 would be the same less than significant impact as described above for Proposed Project 1.

Long-term Operational Effects

As with Proposed Project 1, the potential for groundwater quality impacts of the project disposal sites during operation of facilities for Proposed Project 2 would be the same less than significant impact as described above for Proposed Project 1.

Combined Project Effects

Short-term Construction Effects

The potential for groundwater quality impacts of the combined project during construction of facilities for Propose Project 2 would be the same less than significant impact as described above for Proposed Project 1.

Long-term Operational Effects

The potential for groundwater quality impacts of the combined project during operation of facilities for Proposed Project 2 would be the same less than significant impact as described above for Propose Project 1.

Proposed Project 3

Project 3 includes a gravity sewerage collection system and an Oxidation Ditch/Biolac wastewater treatment facility at the Giacomazzi/Branin site that provides secondary level treatment. The wastewater conveyance system carries the collected raw wastewater from the Mid-Town pump station to the combined Giacomazzi/Branin wastewater treatment plant and spray field site at Tonini. Treated effluent can be stored in the seasonal storage pond on the combined Giacomazzi/Branin site or sent directly through the treated effluent conveyance system to the Broderson leachfield and/or the Tonini spray fields.

Collection System

Short-term Construction Effects

The short-term effects on groundwater quality from the construction of the collection system associated with Proposed Project 3 would be the same as the short-term effects associated with Proposed Project 1.

Long-term Operational Effects

Long-term effects on groundwater quality from the proposed collection system associated with Proposed Project 3 would be the same as the long-term effects associated with Proposed Project 1.

Treatment Plant Site

Short-term Construction Effects

The existing groundwater table is at approximately 15 feet below grade. As with Proposed Project 1 construction activities associated with the proposed treatment facilities in Proposed Project 3 would not contact groundwater. Therefore, construction activities associated with the proposed treatment facilities in Proposed Project 3 would have the same "no impact" on groundwater quality as Proposed Project 1.

Long-term Operational Effects

As with Proposed Project 1, proposed treatment ponds and storage ponds that would be implemented under Proposed Project 3 would be lined to prevent leaching of septage from the treatment plant site to the groundwater. Since the facilities would be lined, Proposed Project 3 would have the same "no impact" on groundwater quality under the treatment plant site.

Disposal Sites

Short-term Construction Effects

As with Proposed Project 1, the potential for groundwater quality impacts of the project disposal sites during construction of facilities for Proposed Project 3 would be the same less than significant impact as described above for Proposed Project 1.

Long-term Operational Effects

As with Proposed Project 1, the potential for groundwater quality impacts of the project disposal sites during operation of facilities for Proposed Project 3 would be the same less than significant impact as described above for Proposed Project 1.

Combined Project Effects

Short-term Construction Effects

The potential for groundwater quality impacts of the combined project during construction of facilities for Propose Project 3 would be the same less than significant impact as described above for Proposed Project 1.

Long-term Operational Effects

The potential for groundwater impacts of the combined project during operation of facilities for Proposed Project 3 would be the same as described above for Propose Project 1. Less than significant impact or beneficial.

Proposed Project 4

Proposed Project 4 includes a gravity sewerage collection system and a facultative pond wastewater treatment facility at the Tonini site that provides secondary level treatment. The raw wastewater conveyance system carries the collected wastewater from the Mid-Town pump station to the combined Tonini wastewater treatment plant site. Treated effluent can be sent directly through the

treated effluent conveyance system to the Broderson leachfield. Alternatively, some or all of the treated effluent can be sent to the nearby Tonini spray fields and or seasonal storage pond on the Tonini site

Collection System

Short-term Construction Effects

The short-term effects on groundwater quality from the construction of the collection system associated with Proposed Project 4 would be the same as the short-term effects associated with Proposed Project 1.

Long-term Operational Effects

Long-term effects on groundwater quality from the proposed collection system associated with Proposed Project 4 would be the same as the long-term effects associated with Proposed Project 1

Treatment Plant Site

Short-term Construction Effects

The existing groundwater table is 7 feet to approximately 40 feet below existing grade. Construction of the proposed treatment facilities will not extend to the groundwater table. As with Proposed Project 1, construction activities associated with the proposed treatment facilities in Proposed Project 4 would not contact groundwater. Therefore, construction activities associated with the proposed treatment facilities in Proposed Project 4 would have the same “no impact” on groundwater quality as Proposed Project 1.

Long-term Operational Effects

As with Proposed Project 1, proposed treatment ponds and storage ponds that would be implemented under Proposed Project 4 would be lined to prevent leaching of septage from the treatment plant site to the groundwater. Since the facilities would be lined, Proposed Project 4 would have the same “no impact” on groundwater quality under the treatment plant site.

Disposal Sites

Short-term Construction Effects

As with Proposed Project 1, the potential for groundwater quality impacts of the project disposal sites during construction of facilities for Proposed Project 4 would be the same less than significant impact as described above for Proposed Project 1.

Long-term Operational Effects

As with Proposed Project 1, the potential for groundwater quality impacts of the project disposal sites during operation of facilities for Proposed Project 4 would be the same less than significant impact as described above for Proposed Project 1.

Combined Project Effects

Short-term Construction Effects

The potential for groundwater quality impacts of the combined project during construction of facilities for Propose Project 4 would be the same less than significant impact as described above for Proposed Project 1.

Long-term Operational Effects

The potential for groundwater quality impacts of the combined project during operation of facilities for Proposed Project 4 would be the same less than significant impact as described above for Propose Project 1.

Cumulative Impact Analysis

Proposed Projects 1 through 4

Cumulative impacts consider the effects of past, present, and reasonably foreseeable projects with regard to groundwater supply and quality in the project vicinity. Since a moratorium on growth was imposed on the community of Los Osos in 1983, no additional structures have been constructed that would contribute to an effect on groundwater supply or would contribute to degradation of groundwater quality in the area. Groundwater supply and quality conditions have remained largely unchanged since the moratorium was imposed. Related projects within the greater cumulative project area are detailed in Section 4.2 and Exhibit 4.2-1 in the Draft EIR. Three of the nine related projects (Los Osos CSD Waterline Replacement, Los Osos Valley Road Palisades Storm Drain, and AT&T Cable) physically overlap with the study area for the proposed project but are either completed or expected to be completed by the time that construction of the proposed project is anticipated to begin (2010). Six of the nine related projects (State Park Marina Renovation, Morro Bay Wastewater Treatment Plant, Dredging of Morro Bay, CMC Wastewater Treatment Plant, Phase II Steam Generator Replacement at Diablo, and Spent Fuel Storage Facility at Diablo) have no physical overlap with the proposed project. The two related Diablo projects are nearly 7 miles south of Los Osos. Therefore, since there are no related projects that would contribute to cumulative groundwater quality impacts, implementation of Proposed Projects 1 through 4 would not contribute to cumulative impacts related to groundwater quality.

Mitigation Measures

Project-Specific

Proposed Project 1

No mitigation measures are required.

Proposed Project 2

No mitigation measures are required.

Proposed Project 3

No mitigation measures are required.

Proposed Project 4

No mitigation measures are required.

Cumulative

Proposed Project 1 through Project 4

No mitigation measures are required.

Level of Significance After Mitigation

Project-Specific

Proposed Project 1

Less than significant.

Proposed Project 2

Less than significant.

Proposed Project 3

Less than significant.

Proposed Project 4

Less than significant.

Cumulative

Proposed Project 1 through Project 4

No impact.

Local Programs and Policies Related to Groundwater Supply or Quality

Impact 5.2.C: The proposed project would not conflict with local programs or policies related to groundwater quality or water supply?

Project-Specific Impact Analysis

Proposed Projects 1 through 4

Projects 1 through 4 are in compliance with the County's applicable General Plan programs and policy related to groundwater quality or supply as described in Table 5.2-8 below.

Table 5.2-8: Consistency of the Proposed Projects with General Plan Programs and Policy

Groundwater Resources Programs and Policy	Proposed Project Consistency			
	Proposed Project 1	Proposed Project 2	Proposed Project 3	Proposed Project 4
Estero Area Plan Program A.1: Water Management. Based on community initiation, the County Public Works Department should work with communities, property owners and the Regional Water Quality Control Board to develop and implement a basin-wide water management program for Los Osos which addresses population levels in relation to water availability, groundwater quality, and the need for alternative liquid waste disposal plans.	The proposed projects are a plan for alternative liquid waste disposal; therefore, the projects would be consistent with this program.			

Table 5.2-8 (Cont.): Consistency of the Proposed Projects with General Plan Programs and Policy

Groundwater Resources Programs and Policy	Proposed Project Consistency			
	Proposed Project 1	Proposed Project 2	Proposed Project 3	Proposed Project 4
Program A.2: Alternative Water Sources. Supplementary water such as reclaimed sewage effluent and water from existing improvements should be used to prevent overdraft of groundwater, New impoundments for recharging underground basins should be carefully considered along with other alternatives.	The proposed projects include the discharge of treated effluent into the Los Osos Groundwater Basin. The proposed discharge would result in a balance of the groundwater supplies within the Zone C aquifer which is the main water source. Therefore, the proposed projects would be consistent with this program.			
Local Coastal Program Policy Document **Policy 1**: Preservation of Groundwater Basins. The long-term integrity of groundwater basins within the coastal zone shall be protected. The safe yield of the groundwater basin, including return and retained water shall not be exceeded except as part of a conjunctive use or resource management program which assures the biological productivity of aquatic habitats are not significantly adversely impacted	The proposed projects include a balance of groundwater levels in the main water source aquifer and therefore, the projects would be consistent with this policy.			

Cumulative Impact Analysis

Proposed Projects 1 through 4

Cumulative impacts consider the effects of past, present, and reasonably foreseeable projects with regard to groundwater supply and quality in the project vicinity. Since a moratorium on growth was imposed on the community of Los Osos in 1983, no additional structures have been constructed that would contribute to an effect on groundwater supply or would contribute to degradation of groundwater quality in the area. Groundwater supply and quality conditions have remained largely unchanged since the moratorium was imposed. Related projects within the greater cumulative project area are detailed in Section 4.2 and Exhibit 4.2-1 in the Draft EIR. Three of the nine related projects (Los Osos CSD Waterline Replacement, Los Osos Valley Road Palisades Storm Drain, and AT&T Cable) physically overlap with the study area for the proposed project but are either completed or expected to be completed by the time that construction of the proposed project is anticipated to begin (2010). Six of the nine related projects (State Park Marina Renovation, Morro Bay Wastewater

Treatment Plant, Dredging of Morro Bay, CMC Wastewater Treatment Plant, Phase II Steam Generator Replacement at Diablo, and Spent Fuel Storage Facility at Diablo) have no physical overlap with the proposed project. The two related Diablo projects are nearly 7 miles south of Los Osos. Therefore, since there are no related projects that would contribute to cumulative impacts to County groundwater supply and groundwater quality programs and policies, implementation of Proposed Projects 1 through 4 would not contribute to cumulative impacts on the County's groundwater supply and groundwater quality programs and policies.

Mitigation Measures

Project-Specific

Proposed Projects 1 through 4

No mitigation measures are required.

Cumulative

Proposed Projects 1 through 4

No mitigation measures are required.

Level of Significance After Mitigation

Project-Specific

Proposed Projects 1 through 4

Less than significant.

Cumulative

Proposed Projects 1 through 4

No impact.

D-2: Hydrogeological Impacts Study

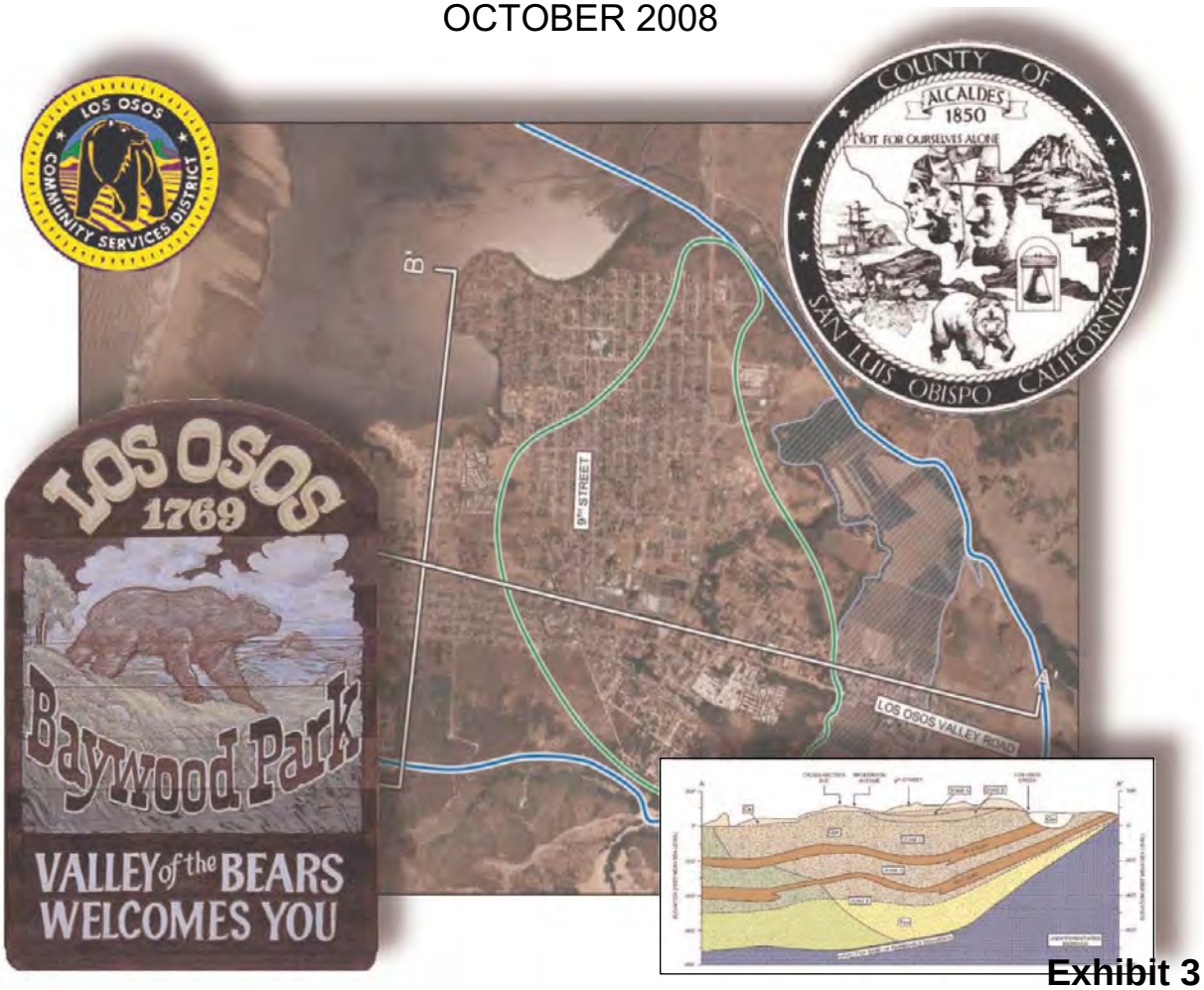
HOPKINS GROUNDWATER CONSULTANTS, INC.

PRELIMINARY HYDROGEOLOGICAL IMPACTS STUDY

LOS OSOS WASTEWATER PROJECT
LOS OSOS, CALIFORNIA

Prepared for:
COUNTY OF SAN LUIS OBISPO

OCTOBER 2008



HOPKINS
GROUNDWATER
CONSULTANTS, INC.
THE WATER RESOURCE SPECIALISTS

October 31, 2008
Project No. 07-016-01

Michael Brandman Associates
220 Commerce, Suite 200
Irvine, California 92602

Attention: Mr. Michael E. Houlihan
Manager of Environmental Services

Subject: Final Report of Preliminary Hydrogeological Impacts Study, Los Osos Wastewater Project, Los Osos, California, Prepared for: County of San Luis Obispo, October, 2008.

Dear Houlihan:

Hopkins Groundwater Consultants, Inc. (Hopkins) is pleased to provide this final report summarizing the findings, conclusions, and recommendations of the subject preliminary hydrogeological study which analyzed the potential impacts of the proposed Los Osos Wastewater Project.

We trust the information contained in this report sufficiently describes present groundwater basin conditions and the anticipated changes that will result from the project. If you have any questions or need any additional information, please give us a call.

REGISTERED GEOLOGIST
CURTIS J. HOPKINS
EG NO. 1800
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

Sincerely,

HOPKINS GROUNDWATER CONSULTANTS, INC.

Curtis J. Hopkins
Principal Hydrogeologist
Certified Engineering Geologist EG 1800
Certified Hydrogeologist HG 114

Brian M. Cosner
Staff Hydrogeologist

c:

G:\MBA\COVER LETTER.DOC

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INTRODUCTION

The purpose of this preliminary hydrogeological study is to compile available hydrogeological data and information that summarize the present level of understanding of the Los Osos Valley Groundwater Basin conditions for the purpose of assessing the potential impacts of the proposed Los Osos Wastewater Project (LOWWP). The groundwater conditions and potential impacts summarized herein will be subsequently utilized in the project Environmental Impact Report of the proposed LOWWP alternatives being considered by the County of San Luis Obispo (County). The study area is indicated on Plate 1 – Study Area Location Map.

Historical Studies

The Los Osos community has historically derived its entire water supply from groundwater sources. In the early 1970's groundwater was recognized as being impacted by seawater intrusion and elevated nitrate concentrations from overlying land uses (DWR, 1973). Over the last 30 years substantial hydrogeological studies have been conducted on the natural water resources that occur in the vicinity of Los Osos. The following list of studies indicates the primary sources of hydrogeological conditions that are summarized in this report.

- Freshwater Influences on Morro Bay, 1990
- Hydrogeological Investigation of the Broderson Site, 2000
- Simulated Effects of a Proposed Sewer Project on Nitrate Concentrations in the Los Osos Valley Groundwater Basin, 2003
- Geotechnical Report Los Osos Wastewater Project, 2004
- Los Osos Nitrate Monitoring Program, 2005
- Sea Water Intrusion Assessment and Lower Aquifer Source Investigation of the Los Osos Valley Groundwater Basin, 2005

These published sources derive substantial information from other historical studies and combine those findings with additional data to formulate our current understanding of the Los Osos Valley Groundwater Basin conditions. The hydrogeological understanding of the basin at the time of this study was utilized to assess potential project related impacts.

LOS OSOS VALLEY GROUNDWATER BASIN

The Los Osos Valley Groundwater Basin (Los Osos Basin) is an east/west trending syncline comprised of Tertiary and Quaternary age sediments that unconformably lie on top of Miocene and Jurassic age bedrock of the Pismo and Franciscan Formations, respectively. The approximate basin boundary is indicated on Plate 1.

Hydrogeology

The onshore portion of the Los Osos Basin covers approximately 10 square miles, of which approximately 3.3 square miles underlie the bay and sand spit, and 6.7 square miles underlie Los Osos, Baywood Park, and the Los Osos Creek Valley (C&A, 2005c). The groundwater basin is bounded to the north, east, and south by relatively impermeable bedrock formations and to the west where the aquifers outcrop on the ocean floor. Basin sediments are believed to extend close to three miles offshore, however the fresh water portion of the basin is defined by the saltwater/fresh water interface which has moved onshore.

Permeable basin sediments that comprise the shallow and deep aquifer zones consist of alluvial deposits, sand dunes, the Paso Robles Formation, and the Careaga Formation. The location of hydrogeological cross-sections that show the relationship of these formations is indicated on Plate 2 – Hydrogeological Cross-Section Location Map. An east-west and north-south subsurface profile of the Los Osos Basin is included as Plates 3 and 4 – Hydrogeological Cross-Section A to A' and B to B', respectively.

As shown on Plates 3 and 4, in the deepest portions of the basin the fresh water-bearing deposits extend to depths of approximately 700 feet below sea level. Previous studies have identified six aquifer zones in the Los Osos Basin which include the unconfined alluvial aquifer in the Los Osos Creek Valley, and 5 interbedded aquifer zones designated in previous reports as Zones A through E (C&A, 2005c). The letter reference system previously used to delineate the aquifer zones in the Los Osos Basin is also utilized by this study. The aquifer zones include; 1) the unconfined perched aquifer (Zone A), 2) the upper transitional aquifer (Zone B), 3) the upper main supply aquifer (Zone C), and the lower aquifers (Zones D and E). The upper and lower aquifer systems are separated by a regional aquitard that averages approximately 50 feet in thickness. Historical interpretations of hydrogeological data lead to the inference that the Los Osos Basin was effectively partitioned by a splay of the Los Osos Fault designated as Strand B. Because of this interpretation, previous studies considered water budgets separately for basin areas east and west of the fault.

Recent studies have discovered that the aquitard is leaky enough to allow a substantial amount of groundwater to move between the upper and lower aquifer zones.

Historical pumping patterns have created a head differential between the upper and lower system which has resulted in leakage from the upper aquifer becoming a substantial recharge component to the lower aquifer system. In addition, recent hydraulic testing of the aquifer system, correlation of well geophysical logs, water quality analyses, and model simulation results indicate that either the Los Osos Fault Strand B does not exist or it is not an effective barrier to groundwater flow. These findings are considered a refinement to our understanding of the groundwater system and are included in this study of potential project related impacts.

Groundwater Occurrence and Movement

The majority of the recharge to the Los Osos Basin is derived from the following elements:

- Direct percolation of precipitation,
- Return flow from irrigation and septic system discharges,
- Stream seepage from Los Osos Creek,
- Subsurface inflow across basin boundaries.

Within the basin, individual aquifer zones may receive recharge directly from the above sources, or indirectly from aquitard leakage that allows inflow from an overlying or underlying aquifer zone. Movement of groundwater within alluvial, perched, and upper aquifer zones can be inferred from the groundwater gradients indicated by historical groundwater elevation contour maps (see Appendix B in reference report C&A, 2005c). Historical seasonal and climatic water level changes are indicated by hydrographs for wells constructed in individual aquifer zones across the basin (see Appendix D in reference report C&A, 2005c).

Alluvial Aquifer

The location of the Los Osos Creek Valley alluvial aquifer (also referenced as the creek compartment) is shown on Plate 2. Groundwater in the Los Osos Creek Valley alluvial aquifer moves down the alignment of the valley northward toward the Morro Bay Estuary. Alluvial aquifer recharge includes the elements listed above. Subsurface outflow from the alluvium into aquifer Zones C, D, and E occurs where these zones contact the alluvial fill beneath ground surface. Seasonal water level fluctuations within the alluvial aquifer have historically been on the order of 5 feet between the wet and dry seasons while water level declines during drought periods have exceeded 10 feet. Recharge to this aquifer is primarily provided by percolation of Los Osos Creek flows.

Zones A, B, and C

The perched aquifer (Zone A) is comprised primarily of dune sands that are deposited on a clay layer(s) that impedes vertical flow to underlying aquifer zones. Available data indicate the clay layer pinches out to the north and west where groundwater flows into the underlying transitional aquifer (Zone B) of the upper aquifer system (C&A, 2005c). The westward boundary of the perching clay has been estimated to be roughly coincident with the inferred trace of the Los Osos Fault splay referenced by previous studies as Strand B (TMG, 1989). The approximate areal extent of the perching clay layer is shown in Plate 2.

The perched aquifer receives recharge from percolation of precipitation and return flows from overlying land uses. The water table contours constructed from available data roughly parallel the ground surface. Groundwater movement in Zone A is generally northwest to northeast, with relatively steep hydraulic gradients of up to 0.06 ft/ft between Bayview Heights and downtown. Groundwater in the perched aquifer rises in Willow Creek and emerges as seeps in the Oaks Preserve and along the banks in the lower reach of Los Osos Creek. A groundwater mound between downtown Los Osos and eastern Baywood Park area creates a hydraulic divide between water moving to the east toward Los Osos Creek and water moving to the west toward the Morro Bay Estuary (C&A, 2005c).

Beneath the shallow dune sand deposits are interbedded clay, silt, sand, and gravel layers of the Paso Robles Formation which form the upper aquifer comprised of Zones B and C. Water level data indicate the transitional aquifer (Zone B) receives recharge through leakage from Zone A in portions of downtown Los Osos and areas to the east, and represents an intermediate hydraulic zone between the perched aquifer and the main water supply aquifer (Zone C).

Recharge to the upper aquifer (Zone C), occurs via the direct recharge sources itemized above, as well as through leakage from Zones A and B. This leakage is evident in both water level and water quality data. Movement of groundwater in Zone C is variable and affected by groundwater production, but generally flows north and west toward the bay. A component of groundwater flows easterly from Baywood toward Los Osos Creek. Historical production from this aquifer has created a pumping depression which lies beneath downtown Los Osos. The hydraulic gradient in Zone C ranges from 0.004 to 0.025 (dimensionless), and averages approximately 0.009 (C&A, 2005c).

Groundwater levels in Zones A, B, and portions of Zone C were observed to rise during the 1970's as a result of increased recharge from irrigation and septic system return flows. Since the 1970's, water level data indicate that seasonal fluctuations and

climatic cycle changes occur in the perched and upper aquifer zones, however, the system has generally stabilized and reached equilibrium between the existing sources of recharge and discharge.

Zones D and E

The lower aquifer Zone D is comprised of sand and gravel layers in the Paso Robles Formation that are separated from the upper aquifer (Zone C) by a relatively continuous clay layer. The confining clay forms an aquitard that is reportedly leaky and allows downward recharge from the upper aquifer (Y&W, 2003, C&A, 2005c). Beneath the Zone D aquifer is another confining clay layer that delineates the lowermost freshwater aquifer Zone E. Aquifer Zone E is comprised of sand and gravel zones contained in the lower portion of the Paso Robles Formation and the underlying Careaga Formation which unconformably lies on older bedrock materials.

Recharge and movement of groundwater in the lower aquifer system (Zones D and E) was recently studied in detail by the Los Osos Community Services District (LOCSD) as part of a seawater intrusion investigation (C&A, 2005c). The results of the lower aquifer recharge investigation indicated sources of recharge may include subsurface inflow from the Los Osos Creek Valley alluvium, subsurface inflow from bedrock, seawater intrusion, and leakage from the upper aquifer through the regional aquitard. Since 1988 groundwater studies have concluded that a principal source of recharge to the basin is septic return flows and that the majority of recharge to the lower aquifer is coming from upper aquifer leakage through the regional aquitard (Y&W, 2003, C&A, 2005c).

The groundwater gradient in the lower aquifers is largely influenced by pumping patterns. Presently groundwater is generally moving toward downtown Los Osos from surrounding areas of the basin. The highest water levels in the lower aquifer system are located in the Los Osos Creek Valley. The hydraulic gradient between the upper creek valley and downtown Los Osos of up to 0.03 is relatively steep and suggests significant impedance to flow which may be fault-related as noted by the U.S. Geological Survey (U.S.G.S.) (Yates and Wiese, 1988).

Recent studies have documented that groundwater elevations in the lower aquifer zones are below sea level over a substantial portion of the basin. This condition has persisted for many years and has resulted in the onshore flow of seawater in both lower aquifer zones. Water level declines in Zones D and E largely took place during the 1970's and early 1980's and have generally reached equilibrium between sources of recharge (which includes seawater) and discharge.

PERENNIAL YIELD

Aquifer Recharge

Upper Aquifer Recharge

Historical groundwater study has identified that the main water supply aquifer zone (C Zone) is recharged primarily by sources that include; a) precipitation, b) irrigation return flows, c) septic system percolation, d) vertical leakage through the confining clay, and e) subsurface inflow from the A and B Zones, the creek valley alluvium, and underlying bedrock. The basin model utilized for the seawater intrusion study has been subsequently revised to include changes in basin conditions that have occurred since 2005 (i.e., shifts in pumping patterns). Model results were utilized for the development of the rough and fine screening studies and subsequently documented (C&A, 2008b) and utilized in this hydrogeological impacts study. The hydrologic budget obtained from model simulation indicates that total annual recharge to the upper main water supply aquifer under present hydrogeological conditions is estimated to be on the order of 3,100 acre-feet per year (AFY) (C&A, 2008b).

Direct percolation of precipitation and irrigation return flows is estimated at approximately 1,489 AFY. Septage return flow is estimated to contribute approximately 606 AFY and groundwater leakage through the perching clay layer is approximately 374 AFY. Subsurface inflow from the shallower A and B Zones aquifer, the creek compartment, and underlying bedrock is about 526 AFY (C&A, 2008b).

Lower Aquifer Recharge

When groundwater is extracted from the lower aquifers, four potential sources of recharge are available for replenishment. These sources are; a) subsurface inflow from underlying bedrock, b) the Los Osos Creek Valley, c) leakage through the regional aquitard from the upper aquifer, and d) seawater. Recent study has combined the use of water quality characterization, water level information, metered and estimated groundwater production, and basin geometry and boundary conditions to investigate the sources of lower aquifer recharge. These studies have utilized both analytical and numerical methods of analysis.

Numerical groundwater models constructed for the groundwater basin have consistently shown that the main source of recharge to the lower aquifer was leakage from the upper aquifer through the regional aquitard (C&A, 2005c). This conclusion has reportedly been supported by water quality characterization and radiocarbon age-dating of the groundwater. Under current basin conditions recharge to the lower aquifers west of the Los Osos Creek Valley is estimated to include 880 AFY of upper aquifer leakage through the regional aquitard, 370 AFY subsurface inflow from the Creek Valley Alluvial Aquifer

(creek compartment), and 470 AFY of seawater intrusion (C&A, 2008b). Past studies also indicate that recharge from bedrock is negligible.

Groundwater Discharge

Groundwater Production

Groundwater production by pumpers in the Los Osos Basin has averaged approximately 3,500 AFY since 1985 and has remained relatively constant since implementation of the 1983 building moratorium. Production from individual aquifer zones delineated by user group is summarized below in Table 1 - Los Osos Basin Groundwater Production Data. While purveyor production is based on actual meter readings, private domestic and agricultural irrigation production has historically been estimated from land use information.

Table 1 – Los Osos Basin Groundwater Production Data

AQUIFER ZONE	PURVEYORS			PRIVATE DOMESTIC	AGRICULTURAL IRRIGATION	1985-2001 AVERAGE	2001 PRODUCTION
	GOLDEN STATE WATER CO.	LOCSD	S&T				
A & B	0	0	0	40	0	40	40
C & ALLUVIUM	250	230	50	120	330	980	810
D	820	630	60	40	400	1,950	2,170
E	0	280	0	0	220	500	380
TOTAL	1,070	1,140	110	200	950	3,470	3,400

TABLE QUANTITIES IN ACRE-FEET PER YEAR (DATA FROM C&A, 2005C)

A comparison of the 1985-2001 average with the 2001 data indicate that the C Zone production has decreased by approximately 17 percent and is inferred to be a result of water quality degradation, while the E Zone production has decreased approximately 24 percent as a result of salt water encroachment. The reduction of groundwater from these aquifer zones has been accommodated by greater production in the D Zone and water conservation. Approximately two-thirds (67%) of the total groundwater production in the basin is conducted by the 3 main purveyors with the remainder produced by agricultural irrigation and domestic uses equal to approximately 27 percent and 6 percent, respectively.

Recent revised groundwater production estimates include 2,440 AFY produced by community purveyors (including the golf course), 870 AFY agricultural and domestic within the creek valley, and 80 AFY private domestic production within the urban area. The total annual groundwater production within the Los Osos Basin is estimated at 3,390 AFY (C&A, 2008b) and is comparable to the production estimated in the year 2001.

Natural Groundwater Discharges

The Los Osos Basin groundwater system has been identified by previous studies as a source of contribution to surface water features that include springs, streams, lakes, and marshes. Natural groundwater discharges to these features has been observed and largely unquantified by historical monitoring programs. These features are also believed to be supported by groundwater recharge that is provided from rainfall runoff which is retained onsite and percolated into the groundwater system by recent developments that include the Williams Bros. shopping center, the commercial uses near the post office, Bayridge Estates, and Vista de Oro and Cabrillo Estates. A listing of the local features of concern is provided in Table 2 – Summary of Local Surface Water Features. The approximate location of these features within the Los Osos Basin is identified in Appendix A – Los Osos Basin Surface Water Features (see Plate A1).

Los Osos Creek

Stream flow on Los Osos Creek at Los Osos Valley Road has been gauged by the County since 1976. The records from this gage are considered reasonably representative of inflow from the creek into Morro Bay approximately 1.5 miles downstream. Previous environmental studies documented observations of declining creek flows within various reaches of Los Osos Creek during the spring of 1985 and occasional observations in 1986 (TMG & TES, 1990). These observations indicated that the creek alluvium continued to drain downstream of the gauging station and resulted in minor surface flows into the estuary for approximately 4 to 6 weeks following cessation of flow in the creek at the gage (see Plate B1).

As outflow from the upper segments of the creek emerging from Clark Valley declined, surface flows in Los Osos Creek were observed to cease in the area near the equestrian ranch about 1/2 mile above Los Osos Valley Road. The limit of surface flow was speculated to migrate even further upstream to near the lower end of Clark Valley during very dry years (TMG & TES, 1990).

Willow Creek

Willow Creek (also known as Eto Creek) surfaces near Los Osos Valley Road, and flows northeasterly to Eto Lake which is located adjacent to Los Osos Creek. The

present Willow Creek conditions are shown in Appendix A (see Plate A2). The creek flows a small amount during most of the year that primarily supports dense riparian vegetation. Flows in Willow Creek are fed by rising groundwater but they do not reach the bay except when Los Osos Creek is flowing to the bay.

An unnamed drainage channel in the vicinity of the mobile home park, south of Los Osos Valley Road, reportedly flows seasonally through the oak preserve into Los Osos Creek in the vicinity of Los Osos Valley Road (TMG & TES, 1990).

Table 2 – Summary of Local Surface Water Features

SURFACE WATER FEATURE	SEASONALITY	SIZE OR RATE OF FLOW	SOURCE
LOS OSOS CREEK (AT LOS OSOS ROAD BRIDGE)	EPHEMERAL	1,630 TO 4,110 AFY	MORRO GROUP, 1990
WILLOW CREEK (ETO CREEK)	EPHEMERAL	438 AFY (DISCHARGE FROM PERCHED AQUIFER)	YATES & WILLIAMS, 2003
ETO LAKE	PERENNIAL	NA	NA
SWEET SPRING	PERENNIAL	292 AFY	MORRO GROUP, 1990
SWEET SPRING MARSH	EPHEMERAL	NA	MORRO GROUP, 1990
PECHO ROAD MARSH	EPHEMERAL	NA	MORRO GROUP, 1990
THIRD STREET MARSH	NA	APPROX. 2-5 GPM OBSERVED	MORRO GROUP, 1990
BAYWOOD POINT SPRING	NA	APPROX. 5 GPM	MORRO GROUP, 1990
BAYWOOD MARSH	NA	NA	MORRO GROUP, 1990
LOS OSOS CREEK ESTUARY	NA	SEVERAL SMALL OUTFLOW CHANNELS AT APPROX. 0.5 GPM	MORRO GROUP, 1990

Sweet Spring

Sweet Spring is identified as the largest freshwater spring at the fringe of the bay during historical mapping of freshwater seepages and vegetation. The spring is located at the easterly end of two manmade ponds that contain the freshwater until it flows out the westerly end of the westerly pond. The spring flow is augmented by the flow from an old artesian well that is located at the south edge of the larger pond. The location of the artesian well, ponds, and Sweet Spring are shown in Appendix A (see Plate A3). Reportedly the flow from this well appears substantially less than the flow into the west end of the pond from the spring, however, the flow rate is undocumented.

The estimated flow from Sweet Spring was documented as approximately 0.4 cfs (180 gpm) or 290 AFY (TMG & TES, 1990). The water quality in the ponds is reportedly dominated by the fresh water from the spring until salt water from the bay flows into the ponds during high tides. We recognize that the tidal influence in the ponds likely makes it difficult to accurately estimate the flow emanating from the well and the spring.

Sweet Spring Marsh

The salt marsh that receives flow from Sweet Spring also appears to receive flow from freshwater springs located in the marsh (TMG & TES, 1990) (see Plate B3). These apparent springs were identified from aerial photographs and distinguished from salt pans in the marsh based on a rounded shape feature with "dark spots" near the center. These features reportedly have defined outflow channels through the salt marsh to the open water of the bay. Groundwater outflow rates from these apparent features are undocumented. Sweet Spring has been recognized as the area having the most pronounced development of major freshwater springs at the bay fringe and is considered the most sensitive of any area along the southerly fringe of the bay because it includes Sweet Spring and is believed the most likely to be significantly affected by the South Bay sewer project (TMG & TES, 1990).

Sweet Spring reportedly appears to flow at a relatively uniform rate, while the springs in the salt marsh appear to be ephemeral. This observation may suggest a hydrologic separation between the springs. Explanations for this occurrence include the potential that Sweet Spring may be fed by groundwater from the eastern side of the Los Osos Fault Strand B, while the springs in the marsh are fed by groundwater on the western side. This previous hydrogeological interpretation was based on shallow water levels which are higher on the eastern side of the inferred Strand B Fault location by about 10 feet near the bay fringe. Groundwater levels are moderately higher near the inferred Strand B Fault, but they decline significantly to the west. An alternative explanation is that Sweet Spring is fed by rising groundwater from the shallow B Zone which is being fed by A Zone recharge that is flowing off of the clay layer. The further

from the clay layer, the less effect the recharge source will have on the shallow groundwater levels. Current hydrologic interpretation indicates that Sweet Spring was developed (a man-made excavation) and lies at the base of a larger watershed than any of the other springs around the bay (C&A, 2005c).

Pecho Road Marsh

A similar ephemeral freshwater spring may exist at the westerly end of the local salt marsh in the area of Pecho Road. This possible spring reportedly has similar characteristics to those in the Sweet Spring area, but is much smaller. The freshwater outflow from this possible spring is believed relatively small in comparison to the postulated freshwater springs at Sweet Spring. An aerial photograph with the approximate marsh boundary is shown in Appendix A (see Plate A4).

Third Street Marsh

The area to the east of Sweet Spring and generally west of 3rd Street supports a freshwater marsh composed of bulrushes boardered by willows. During low tide a small amount of seepage estimated at approximately 2-5 gallons per minute (gpm) was observed emanating from the banks to the bay. The measured conductivity of the water was in the range of 3,800-4,600 µmhos/cm indicating that it is comprised of a freshwater component. The marsh reportedly extends southeast along Pismo Avenue and west of 4th Street. The location of the Third Street Marsh is shown in Appendix A (see Plate A5).

Baywood Point Spring

The Baywood Point Spring is reportedly an ephemeral freshwater spring that was flowing a small amount of water during the Morro Group study in 1989. The conductivity in the spring pool was measured at approximately 42,000 µmhos/cm (a little lower than seawater). Reportedly the spring is inundated by seawater much of the time (see Plate A1).

Baywood Marsh

Baywood Marsh as documented begins near the north end of 4th Street and extends easterly and northeasterly for a distance of approximately 3,500 feet. The bay shore is vegetated by bulrush stands which reportedly extend down to levels of +1 to +2 feet mean low level water, and are inundated daily by saltwater during medium and high tides. The bulrushes appear to be supported by an underlying source of rising fresh water in this zone. Conductivity measurements of surface waters at the inner fringe of the marsh are as low as 550 µmhos/cm (fresh). In the central portion of the marsh the conductivity of the water was measured at about 4,000± µmhos/cm, and increased to a

range of 32,000-44,000 µmhos/cm at the outer fringe of the bulrushes. Included in the Baywood Marsh area is a freshwater spring known locally as Hidden Spring. The conductivity of this spring was measured at 420 µmhos/cm. The spring was estimated to be flowing at approximately 5 gpm during observations in November 1989, (TMG, 1990). The marsh zone terminates at a point approximately 1,800 feet west of the South Bay Boulevard Bridge where the width of the bulrushes narrows and the more typical sequence of freshwater vegetation begins and continues into the estuary of Los Osos Creek. The approximate boundaries of the Baywood Marsh are shown in Appendix A (see Plate A6).

Annual Basin Yield Estimates

The annual yield of a groundwater basin is the average annual amount of groundwater that can be produced without creating detrimental water levels or water quality effects. The Los Osos Basin has been studied since the early 1970's to estimate the annual basin yield.

The 1988 Estero Area Plan reported safe yield estimates of between 1,300 to 1,800 AFY derived from computer model simulations from a 1974 groundwater basin study. The updated 2004 Estero Area Plan continues to utilize this estimate as the most recent estimate of safe yield of this basin. The resulting safe yield estimate of 1,800 AFY was reportedly a net water consumption value and the actual groundwater production value was estimated to be closer to 3,750 AFY (C&A, 2005c) when considering the (gross) production value of actual pumping by purveyors and growers.

Basin yield was subsequently evaluated by the Department of Water Resources (DWR) in 1989. The DWR study relied heavily on a groundwater model developed by the U.S.G.S. (Yates and Wiese, 1988). The DWR estimated the safe basin yield under current (septic tank) conditions at 2,190 AFY. This yield estimate is presented by their study as a production yield, not a net consumptive yield, and therefore the study estimated a substantially lower annual basin yield. As indicated by subsequent study the DWR study likely underestimated the actual basin yield (C&A, 2005c).

The U.S.G.S. model was subsequently revised by URS and Team Engineering as part of an effort to provide basin yield estimates for wastewater project conditions which were under evaluation in 2000. URS modeled several proposed management scenarios which reportedly showed that seawater intrusion would not likely occur in any model layer, based on simulated water levels that remained above sea level. Assuming seawater intrusion is an indicator of overdraft, then the basin was reportedly not in overdraft for these scenarios. The final management scenario report for that study included a table of recommended production for the basin purveyors that totals 3,150

AFY, with a total basin yield of 3,900 AFY given the wastewater project conditions being considered.

The 2000 study estimates were updated for the LOCSD Water Master Plan (WMP) (Wallace & Cleath, 2002). The 2002 safe yield analysis contained in the LOCSD WMP included both analytical and numerical approaches. The analytical approach compartmentalized the basin and utilized the Hill method of approximation and average annual recharge methods to estimate the sustainable yield. The numerical approach utilized a revised version of the URS basin model. Both approaches in the LOCSD WMP maintained the assumption that water levels must be maintained above sea level to avoid salt water intrusion. The WMP estimated the safe yield of the basin at 3,560 AFY under current conditions with septic tank return flows and 3,940 AFY under wastewater project disposal recharge conditions.

In 2003 a modeling effort was conducted by the community water purveyors to simulate the effects of the proposed sewer project on nitrate concentrations in groundwater. In the model groundwater recharge was estimated using a recharge preprocessor which simulates deep percolation of infiltrated rainfall, applied irrigation water, and percolation of septic system leachate. The preprocessor simulates the soil moisture budget on a daily basis using a time series of daily rainfall and reference evapotranspiration. The results of the simulation indicated an average recharge of 9.1 in/yr occurs over a basin area of approximately 4,658 acres. The estimated annual recharge was 3,525 AFY; however, there was no attempt to utilize the model to estimate an annual basin yield.

In 2007 the County completed a Rough Screening Report of wastewater project alternatives that was conducted to evaluate the feasibility of alternatives to remove septage from the Regional Water Quality Control Board (RWQCB) designated prohibition area. As part of the rough screening study the County utilized the present understanding of the groundwater system to determine the feasibility of treated effluent disposal. It was recognized that groundwater production at buildout should be a sustainable condition with respect to water resources that does not exceed the basin safe yield. The rough screening study considered multiple alternatives that optimized distribution of wastewater disposal, reuse, and well production to satisfactorily approach safe yield development.

For the rough screening study the County estimated that with current groundwater production in the basin at 3,350 AFY and a basin safe yield (under current conditions) of approximately 3,250 AFY that the basin is currently in overdraft. The study also recognized that although the estimated difference between the developed yield and the safe yield is 100 acre-feet overall, there is 500 to 600 AFY of seawater intrusion occurring since the overdraft is entirely in the lower aquifer, which is evidenced by the presence of salt water.

Safe basin yield with a wastewater project (combined with significant changes in pumping practices) is projected to reach an estimated 3,630 AFY (C&A, 2005b). This indicates that even with the basin yield fully developed, there is a 370 AFY deficit in meeting the buildout demand of approximately 4,000 AFY (Estero Area Plan, 2006).

The subsequent fine screening study focused on basin safe yield by comparing the assets developed by each alternative wastewater disposal/reuse project as a means of seawater mitigation. As previously discussed, there is more than one optimized distribution of wastewater disposal, reuse, and well production that satisfactorily approaches safe yield development. In the fine screening study the assets of each project disposal/reuse alternative was broken down by cost and compared with the benefits gained with respect to restoring the basin water balance (seawater intrusion mitigation) and to water quality impacts (salt loading and nitrate loading). The pros and cons of developing basin safe yield under the various wastewater disposal/reuse projects was reviewed and compared to provide a basis for selecting the viable projects that have the best cost-benefit ratio and that provide a suitable foundation toward operating the basin at safe yield.

Plans originally developed during the late 1980's for treated effluent disposal at higher elevations on the west side of the basin provide a reasonable alternative for incidental recharge to the lower aquifer zones (through aquitard leakage) which will serve to abate seawater intrusion and bolster the perennial yield of the basin.

SEAWATER INTRUSION

The Los Osos Basin has been the subject of several studies that have evaluated seawater intrusion utilizing water levels and water quality as the primary criteria. The findings of the most recent assessment indicate that according to the Ghyben-Herzberg relation, a fresh water head of approximately 5 feet would be needed to prevent the seawater interface from moving onshore within the lowest zones of the upper aquifer (C&A, 2005c). Similarly a fresh water head of approximately 9 and 17.5 feet would be required to prevent landward movement of the seawater interface in lower aquifer D Zone and E Zone, respectively. At the present time, only upper aquifer water level elevations are sufficient to prevent seawater intrusion.

The most recent study concluded that the upper aquifer fresh water/salt water interface is relatively stable and located beneath the Morro Bay sand spit, with a potential for active intrusion during extended drought periods. The study also found that seawater intrusion in lower aquifer D Zone has advanced at an average rate of 60 feet per year between 1985 and 2005, and is approximately located between Pecho Road and Doris Avenue (C&A, 2005c). Seawater intrusion in lower aquifer E Zone was found to have

advanced at an average rate of 54 feet per year between 1977 and 2005, and is approximately located between Broderson Avenue and Palisades Avenue.

GROUNDWATER QUALITY

The natural quality of groundwater in the Los Osos Basin has been of a sufficiently high quality to satisfy all overlying beneficial land uses. Since the beginning of land development, two primary sources have contributed to degradation of water quality; 1) seawater intrusion that has invaded the lower aquifer system as a result of over pumping, and 2) increasing nitrate concentrations that have resulted from the overlying land uses (i.e., septic system return flows, landscape fertilization, and domestic animal waste). Historical studies have documented the quality of groundwater in the Los Osos Basin that is delineated by aquifer zone. The following sections provide a summary of the existing total dissolved solids and nitrate concentrations in the LOWWP area.

Salts

Historical data indicate that the chemical character of water in the lower aquifers is predominantly magnesium-calcium bicarbonate and calcium-magnesium bicarbonate, with an average total dissolved solids (TDS) of 340 milligrams per liter (mg/l). Seawater intrusion in the western coastal portion of the basin has changed the lower aquifer quality from bicarbonate to chloride anion dominance.

The Los Osos Creek Valley groundwater is characteristically magnesium-calcium bicarbonate with TDS concentrations on the order of 520 mg/l. Historical groundwater quality from bedrock sources is generally magnesium-calcium bicarbonate with a median TDS concentration of 470 mg/l (C&A, 2005c).

The chemical character of groundwater in the upper aquifers is generally sodium magnesium chloride-bicarbonate water. The areas of the basin with higher TDS concentrations in shallow groundwater have been found to roughly correspond to some of the areas of higher NO_3-N concentrations. This may result from brine reject from domestic water softeners or other normal salt loading from domestic water use that is subsequently discharged from septic disposal systems. The range of TDS in the shallow groundwater is generally between 200 and 400 mg/l, with a low of 67 mg/l along South Bay Boulevard and a high of 1,100 mg/l beneath Sunset Terrace (C&A, 2005a). Table 3 – Average Groundwater and LOWWP Effluent TDS Concentrations lists the current TDS in the Los Osos Basin.

Table 3 – Average Groundwater and LOWWP Effluent TDS Concentrations

WATER SOURCE	TDS (MG/L)
PERCHED AQUIFER	400[1]
CREEK COMPARTMENT	520[2]
UPPER AQUIFER SYSTEM	330[3]
EFFLUENT	620[4]

[1] - MASS BALANCE CALCULATION BASED ON PRECIPITATION, IRRIGATION AND SEPTIC RETURN FLOWS
[2] - C&A, 2005c, PART 2, PAGE 55, PAR. 2
[3] - C&A, 2005a, TABLE 5 - AVERAGE CONCENTRATION FOR MONTH OF APRIL, 2005
[4] - FINE SCREENING REPORT, SECTION 2.3.1.1

Nitrate

Sample results from previous basin study show that NO_3-N concentrations measured in dedicated monitoring wells range from less than 1 mg/l to 28 mg/l with an overall average of 10 mg/l (NO_3-N) (C&A, 2005a). The concentrations of NO_3-N contained in groundwater in the basin and the proposed effluent to be used for disposal within the basin are listed in Table 4 – Average Groundwater and LOWWP Effluent Nitrate Concentrations.

Table 4 – Average Groundwater and LOWWP Effluent Nitrate Concentrations

WATER SOURCE	NO_3-N (MG/L)
PERCHED AQUIFER	NA
CREEK COMPARTMENT	5 TO 10[1]
UPPER AQUIFER SYSTEM	10[2]
EFFLUENT	7[3]

[1] – YEATS AND WILLIAMS, 2003
[2] - C&A 2005a, TABLE 5,
[3] - FINE SCREENING REPORT, SECTION 2.3.1.1

There is an isolated area of low NO_3-N concentrations that is inferred to extend across the open space west of the South Bay Community Library where considerable

surface runoff percolates to groundwater. The NO_3-N concentrations are inferred to decrease at the bay front and to the east, across South Bay Boulevard (C&A, 2005a). Nitrates and other conservative constituents of basin return flows present in the upper aquifer that do not flow out into the bay or into other surface drainage courses will ultimately reach the lower aquifer (C&A, 2005c). The total nitrogen in shallow groundwater samples often contained forms of nitrogen other than nitrate which included ammonia and organic nitrogen that are inferred to be contributed from septage return flows (C&A, 2005a).

PROJECT DISPOSAL ALTERNATIVES

During the rough screening study, effluent disposal/reuse alternatives with fatal flaws along with alternatives that were clearly inferior to other alternatives were eliminated. However, because multiple disposal alternatives can be used simultaneously, and because a single alternative may not have sufficient capacity to accommodate all of the effluent flow and/or mitigate potential project impacts, redundant alternatives were not necessarily eliminated. A description of the disposal alternatives that were utilized by the Fine Screening Analysis and presented in the final project design memorandum is provided in the following section.

Disposal Methods

A wastewater collection system will be constructed to collect wastewater from properties less than one acre in size within the RWQCB Prohibition Zone. Wastewater will be conveyed to the newly constructed Wastewater Treatment Plant (WWTP) located east of the Los Osos Creek. The treatment plant will be designed to process an average dry weather flow of 1.2 million gallons per day (mgd) and a peak wet weather flow of 1.5 mgd. Implementation of conservation measures is anticipated to reduce consumption and subsequent disposal volume by 160 AFY. The total treated effluent disposal volume from the LOWWP is anticipated to be 1,290 AFY at buildout. Disposal strategies under consideration include;

- Spray fields
- Sub-surface leach field or percolation ponds
- Agricultural reuse
- Urban/landscaping reuse

Spray Fields

Spray field disposal will consist of distributing treated effluent on sufficient area for disposal through evapotranspiration and if possible percolation. Maximum disposal volume utilizing spray fields is anticipated to be 842 AFY placed primarily during dry weather months over an area of 175 acres (see Table 2). The spray field disposal site is located outside of the Los Osos Basin on the Tonini Ranch property. A County memorandum that summarizes pertinent hydrogeological data from the ranch are included in Appendix B – Tonini Ranch Data.

Subsurface Leach Field

A sub-surface leach field located east of Broderson Avenue will be utilized throughout most of the year for effluent disposal. The Broderson disposal facilities will be the primary source of disposal during the wet weather months. During the rainy season, treated wastewater passing through the treatment process could reach as high as 1.5 mgd for short periods (60 days or less) and require storage and disposal. When surface irrigation is unnecessary during the rainy season, a portion of the treated wastewater will be disposed of through the sub-surface leach field. The remainder will be contained onsite in a holding pond(s) for future disposal. Over time, the reintroduction of treated wastewater, together with the elimination of individual septic leach fields within the collection area will the lower nitrate concentration in the shallow aquifer zones. In addition, the Broderson disposal alternative will provide the benefit of replacing a component of the groundwater recharge to the upper aquifer system that is exported for treatment. The maximum disposal rate at the Broderson site is anticipated to be as high as 800,000 gallons per day (gpd) but not to exceed an annual rate of 448 acre-feet.

The most recent available study of hydrogeologic conditions in the vicinity of the Broderson property was conducted by Cleath and Associates (C&A, 2000a and b). Based on test hole data from the site, the regional aquitard designated the AT2 Clay, has been determined to underlie the site at depths of between 190 - 235 feet below ground surface (bgs). Groundwater measured at the north end of the site was found at a depth of 150 feet bgs, and approximately 210 feet below surface in the center of the site.

Agricultural Reuse

Agricultural reuse would entail providing secondary or tertiary treated wastewater to local farmers for crop irrigation. The required level of treatment will depend on the crop type being raised. Agricultural reuse would have the dual positive impact of effluent disposal and reduction of groundwater usage. Potential sites for agricultural reuse are located throughout the Los Osos Creek Valley. Potential effluent disposal from agricultural reuse could be as high as 690 AFY over an area of 230 acres (Carollo,

2008); however this intensive application of water would require growing forage crops rather than food crops.

Urban/landscaping Reuse

Urban/landscaping reuse disposal could be as high as 70 AFY as included in Level 2a and 2c alternatives. During dry weather, treated wastewater will be recycled by irrigating the Cemetery and the landscaping at the WWTP. Urban/landscaping reuse would require tertiary treatment of effluent before distribution.

Feasible Project Disposal Alternatives

During the fine screening study, effluent disposal methods were further evaluated based on their ability to mitigate the LOWWP impacts on seawater intrusion in the lower aquifer zones. The removal of septic recharge from the prohibition zone in the Los Osos Basin will reduce recharge to the upper aquifer zones which in turn will reduce leakage from the upper aquifer C Zone that recharges the lower aquifer zones. Project disposal/reuse methods were combined to form feasible project disposal alternatives and evaluated based on their ability to mitigate the additional seawater intrusion.

The Fine Screening Report states that one of the goals of the wastewater project was that it must mitigate seawater intrusion at least to current levels. Because of this goal, combined project alternatives rated with a Level 0 were identified as alternatives that provided no mitigation of seawater intrusion and were eliminated from further evaluation. Project benefit levels 1 through 4 were rated as having progressively increasing benefit for mitigating seawater intrusion. However Levels 3 and 4 require the participation of agencies (water purveyors) outside the control of the County and are considered infeasible as part of the wastewater project. This study evaluates the combined project alternatives that are; a) based on the conclusions presented in the Fine Screening Report, b) designed to handle plant effluent capacities at buildout, c) estimated to provide the greatest seawater intrusion mitigation measures (i.e., Level 2 projects), and d) don't require other agency involvement for implementation (Carollo, 2008).

The final LOWWP will consist of a collection system, treatment plant, storage facility, and disposal system that can be evaluated independently with regard to potential impacts. Regardless of the type of collection system, the type of treatment utilized at a central treatment plant, or the location and size of the storage facilities, the potential environmental impacts of each combined disposal/reuse alternative can be evaluated independently. The following sections describe the three final project alternatives proposed by the County that combine disposal/reuse components that together achieve the total treated effluent disposal volume from the LOWWP at buildout. The remaining

proposed combined disposal projects are designated as Viable Project Alternatives (VPA) 2a, 2b, and 2c (Carollo, 2008).

Viable Project Alternative 2a

As developed by the fine screening study VPA 2a is comprised of disposal and reuse methods that include; a) spray field irrigation, b) Broderson subsurface percolation, c) agricultural irrigation maintaining current cropping patterns, d) cemetery irrigation, e) prohibition area conservation, and f) plant site irrigation. A summary of the disposal capacity of these alternative components is provided in Table 5 – Viable Project Alternative 2a along with the mitigation factor and the estimated quantity of water provided that would mitigate seawater intrusion in the lower aquifer zones.

Table 5 – Viable Project Alternative 2a

ALTERNATIVE COMPONENT	DISPOSAL OR CONSERVATION CAPACITY (AFY)		MITIGATION FACTOR	SEAWATER INTRUSION MITIGATION (AFY)	
	BUILDOUT	CURRENT		BUILDOUT	CURRENT
SPRAY FIELDS (65 ACRES)	312	69	0	0	0
BRODERSON DISPOSAL	448	448	0.22	99	99
AGRICULTURAL REUSE	460	480	0.1	46	46(1)
CONSERVATION	160	160	0.55	88	88
CEMETERY REUSE	50	0	0.1	5	0
PLANT SITE IRRIGATION	20	0	0	0	0
TOTAL LOWWP DISPOSAL OR MITIGATION	**1,290**	**997**	**0**	**238**	**233**

(1) THE SEAWATER MITIGATION IS BASED ON PRESENT USE IN CREEK COMPARTMENT THAT IS OFFSET BY THE PROJECT WHICH IS THE SAME UNDER CURRENT CONDITIONS AND AT BUILDOUT

Viable Project Alternative 2b

VPA 2b is the most basic feasible alternative which is comprised of three components that include; a) spray field irrigation, b) Broderson percolation, and c) prohibition area conservation. A summary of the disposal capacity of each alternative component is provided in Table 6 – Viable Project Alternative 2b along with the mitigation factor and the quantity of water provided that would mitigate seawater intrusion in the lower aquifer zones. This potential alternative level will achieve the required LOWWP disposal and mitigation measures without agricultural reuse. This alternative does not require the cooperation and participation of existing land owners nor does it require the County obtain land and maintain farming operations on the land necessary for agricultural reuse.

Table 6 – Viable Project Alternative 2b

ALTERNATIVE COMPONENT	DISPOSAL OR CONSERVATION CAPACITY (AFY)		MITIGATION FACTOR	SEAWATER INTRUSION MITIGATION (AFY)	
	BUILDOUT	CURRENT		BUILDOUT	CURRENT
SPRAY FIELDS (175 ACRES)	842	549	0	0	0
BRODERSON DISPOSAL	448	448	0.22	99	99
CONSERVATION	160	160	0.55	88	88
TOTAL LOWWP DISPOSAL OR MITIGATION	**1,290**	**997**	**0**	**187**	**187**

Viable Project Alternative 2c

VPA 2c is comprised of the same disposal and reuse alternatives that are included in VPA 2a however, the agricultural irrigation would be managed to maximize disposal. This type of irrigation management would require a change in cropping intensity and/or crop type to a variety of plant(s) that could tolerate the additional water. A summary of the disposal capacity of the alternative components is provided in Table 7 – Viable Project Alternative 2c along with the mitigation factor and the quantity of water provided that would mitigate seawater intrusion in the lower aquifer zones.

Table 7 – Viable Project Alternative 2c

ALTERNATIVE COMPONENT	DISPOSAL OR CONSERVATION CAPACITY (AFY)		MITIGATION FACTOR	SEAWATER INTRUSION MITIGATION (AFY)	
	BUILDOUT	CURRENT		BUILDOUT	CURRENT
SPRAY FIELDS (17 ACRES)	82	0	0	0	0
BRODERSON DISPOSAL	448	448	0.22	99	99
AGRICULTURAL REUSE	690	549	0.1	46(1)	46(1)
CONSERVATION	160	160	0.55	88	88
CEMETERY REUSE	50	0	0.1	5	0
PLANT SITE IRRIGATION	20	0	0	0	0
TOTAL LOWWP DISPOSAL OR MITIGATION	**1,290**	**997**	**0**	**238**	**233**

(1) THE SEAWATER MITIGATION IS BASED ON PRESENT USE IN CREEK COMPARTMENT THAT IS OFFSET BY THE PROJECT WHICH IS THE SAME AS LEVEL 2A

DISPOSAL ALTERNATIVES IMPACTS

Description of Project Disposal/Reuse Alternatives

A gravity or STEP/STEG wastewater collection system will be constructed to collect wastewater from properties less than one acre in size within the RWQCB Prohibition Zone (see Plate 1). Wastewater will be conveyed to the newly constructed WWTP located east of the Los Osos Creek at the Branin, Giacomazzi, or Tonini sites (depending on final project alternative selection). Effluent will be treated by means of oxidation ditch, BIOLAC© wastewater treatment system, or facultative ponds. The treatment plant will be designed to process an average dry weather flow of 1.2 mgd and a peak wet weather flow of 1.5 mgd. Implementation of conservation measures throughout the prohibition area is anticipated to reduce consumption and subsequently disposal volume by 160 AFY. The total treated effluent disposal volume from the LOWWP is anticipated to be 1,290 AFY at buildout. Under current conditions the disposal volume is anticipated to be 997 AFY.

All the viable LOWWP alternatives being assessed by the County will have the same types of potential impacts to local groundwater and surface water. Each alternative includes construction of pipelines, pump stations, a treatment facility, storage

facility, and spray disposal facility. To mitigate the potential for seawater intrusion that could be caused by the LOWWP, the Broderson leach field disposal facilities is also included as a project component with all treatment plant and conveyance facility alternatives. Because all the treatment facilities alternatives being considered for the project have common potential groundwater and surface water impacts the following impacts analysis is believed representative regardless of treatment plant location.

The potential impacts of the disposal/reuse alternatives considered for the final LOWWP are analyzed using available data. Because factors that will influence impacts of the LOWWP at buildout include additional groundwater pumping and we can not assess or control where the pumping will occur, this study is assessing the project related impacts based on current Los Osos Basin conditions. The steady-state groundwater model utilized for the seawater intrusion study (C&A, 2005c) was refined and utilized during the development of the rough screening and fine screening studies to develop the viable project alternatives that are identified for the LOWWP. Subsequent modifications were made to the model, which include an estimate of the inland shift in lower aquifer pumping, to provide the simulations that are used by this study to identify the potential impacts of the LOWWP on the Los Osos Basin (C&A, 2008b). A copy of the project memorandum that summarizes the results of the equivalent freshwater head steady-state basin model hydrologic budgets and the accompanying groundwater elevation contours is included as Appendix C – Groundwater Model Hydrologic Budget Results.

The hydrologic budget calculated by the model to reflect existing conditions is summarized below in Table 8 – Current Basin Balance Conditions. Subsequent model simulations for the VPA 2a and 2b are included as Tables 9 and 10 – Viable Project Alternative 2a and 2b Basin Balance Conditions, respectively. Because VPA 2c is comprised of the same disposal/reuse components as VPA 2a and there is no further reduction to groundwater pumping, the hydrologic budget remains the same and is represented by the summary provided in Table 9.

The model simulated estimations of the changes to the inflow and outflow components of the groundwater system are subsequently used to identify the potential impacts of the LOWWP, which are described in the following sections of this report. As shown in Table 7, seawater inflow recharging the over pumped lower aquifer zones is estimated at approximately 470 AFY under present basin conditions. The LOWWP viable project alternatives have been designed with a primary goal of mitigating the impacts of the project to a level that maintains or reduces the quantity of seawater inflow and provides system infrastructure that may be utilized by the community to further abate seawater intrusion in the future.

Table 8 – Current Basin Balance Conditions

COMPONENT OF WATER BUDGET	PERCHED AQUIFER	CREEK VALLEY AQUIFER	UPPER AQUIFER	LOWER AQUIFER
PERCOLATION FROM PRECIPITATION AND IRRIGATION	736	430	1,489	0
SEPTIC RETURN FLOW	631	30	606	0
SUBSURFACE OUTFLOW	0	0	- 1,310	0
SUBSURFACE INFLOW	0	167	112	0
LEAKAGE OR SUBSURFACE CROSS FLOW IN	0	117	788	1,248
LEAKAGE OR SUBSURFACE CROSS FLOW OUT	- 815	- 456	- 882	0
SEAWATER INTRUSION	0	0	0	469
LOS OSOS CREEK INFLOW	0	665	0	0
LOS OSOS CREEK OUTFLOW	0	- 77	0	0
WELL PRODUCTION	0	- 870	-803	-1,717
WARDEN DRAIN	0	- 6	0	0
WILLOW CREEK OUTFLOW AND EVAPOTRANSPIRATION	- 552	0	0	0
AQUIFER INFLOW	**1,367**	**1,409**	**2,995**	**1,717**
AQUIFER OUTFLOW	**- 1,367**	**- 1,409**	**- 2,995**	**- 1,717**

ALL TABLE QUANTITIES ARE IN ACRE-FEET PER YEAR

A comparison of the septic return flow volumes in Tables 8 and 9 shows the reduction in this component in the hydrologic budget that is effectuated by the LOWWP. Roughly half of the recharge from septic system percolation is located over the perching clay layer while the remainder is located over the upper aquifer in areas not confined by the clay layer. As indicated by the reduction in this recharge component (see Table 9) the LOWWP effectively captures over 90 percent of the septage return flows within the Los Osos Basin.

Table 9 – Viable Project Alternative 2a Basin Balance Conditions

COMPONENT OF WATER BUDGET	PERCHED AQUIFER	CREEK VALLEY AQUIFER	UPPER AQUIFER	LOWER AQUIFER
PERCOLATION FROM PRECIPITATION AND IRRIGATION	736	430	1,489	0
SEPTIC RETURN FLOW	36	30	44	0
SUBSURFACE OUTFLOW	0	0	- 1,209	0
SUBSURFACE INFLOW	0	137	100	0
LEAKAGE OR SUBSURFACE CROSS FLOW IN		103	685	1,249
LEAKAGE OR SUBSURFACE CROSS FLOW OUT	- 737	- 546	- 754	0
SEAWATER INTRUSION	0	0	0	308
LOS OSOS CREEK INFLOW	0	492	0	0
LOS OSOS CREEK OUTFLOW	0	- 168	0	0
WELL PRODUCTION (INCLUDES CONSERVATION)	0	- 390	- 803	- 1,557
WARDEN DRAIN	0	- 88	0	
WILLOW CREEK OUTFLOW AND EVAPOTRANSPIRATION	- 35	0	0	0
BRODERSON INFLOW	0	0	448	
AQUIFER INFLOW	**772**	**1,192**	**2,766**	**1,460**
AQUIFER OUTFLOW	**- 772**	**- 1,192**	**- 2,766**	**- 1,460**

ALL TABLE QUANTITIES ARE IN ACRE-FEET PER YEAR

As shown in both Tables 9 and 10 the LOWWP effectively reduces the seawater intrusion component of the lower aquifer system recharge by greater than 100 AFY. This is achieved in combination by the offsetting recharge provided by disposal at the Broderson subsurface percolation facilities and water supply conservation. As indicated both VPA 2a and 2b achieve the seawater intrusion mitigation goal. However, the main change in the hydrologic budget under these alternatives is the decrease in outflow from the perched aquifer to evapotranspiration and surface flow in the Willow Creek Drainage area.

Table 10 – Viable Project Alternative 2b Basin Balance Conditions

COMPONENT OF WATER BUDGET	PERCHED AQUIFER	CREEK VALLEY AQUIFER	UPPER AQUIFER	LOWER AQUIFER
PERCOLATION FROM PRECIPITATION AND IRRIGATION	736	430	1,489	0
SEPTIC RETURN FLOW	36	30	44	0
SUBSURFACE OUTFLOW	0	0	- 1,169	0
SUBSURFACE INFLOW	0	166	107	0
LEAKAGE OR SUBSURFACE CROSS FLOW IN	0	103	719	1,205
LEAKAGE OR SUBSURFACE CROSS FLOW OUT	- 737	- 455	- 835	0
SEAWATER INTRUSION	0	0	0	352
LOS OSOS CREEK INFLOW	0	665	0	0
LOS OSOS CREEK OUTFLOW	0	- 60	0	0
WELL PRODUCTION (INCLUDES CONSERVATION)	0	- 870	- 803	- 1,557
WARDEN DRAIN	0	- 9	0	0
WILLOW CREEK OUTFLOW AND EVAPOTRANSPIRATION	- 35	0	0	0
BRODERSON INFLOW	0	0	448	0
AQUIFER INFLOW	**772**	**1,394**	**2,807**	**1,557**
AQUIFER OUTFLOW	**- 772**	**- 1,394**	**- 2,807**	**- 1,557**

ALL TABLE QUANTITIES ARE IN ACRE-FEET PER YEAR

Analysis of Water Supply Impacts

LOWWP Facilities Construction Impacts

The sewage collection system for each alternative is effectively the same with the exception of sewage pipeline route to the final location of the LOWWP. Each collection system alternative removes septic system effluent discharges from within the prohibition zone. After treatment to a secondary level, the effluent will be conveyed to spray fields proposed for location at the Tonini site and a leach field proposed for location at the Broderson property. During construction of pipelines, pump station, and treatment facilities shallow groundwater may be encountered that requires disposal.

Disposal alternatives include discharge to surface water drainages, discharge to storm water sedimentation and percolation basins, or reuse during project construction for dust control or soil moisture conditioning of the backfill materials prior to compaction.

Inflows to groundwater (septic system percolation) that will be removed from the hydrologic budget by the LOWWP collection system will no longer recharge the upper aquifer zones, which are directly recharged by this source, and the lower aquifer zones which receive leakage from the upper aquifers. Removal of this recharge source without returning a significant portion of the treated effluent from the LOWWP will create a hydrologic imbalance in the groundwater system. Effluent disposal at Broderson is designed to rebalance the hydrologic budget in the aquifer zones that provide a supply to the overlying beneficial uses.

Construction of facilities that require soil excavation creates a potential for soil erosion to occur during rainfall events. This potential impact can be mitigated through preparation and implementation of an erosion control plan. Erosion control through best management practices (BMPs) (i.e., sand bagging, straw wadding, plastic sheet covering, etc.) will be required during all phases of construction to prevent soil erosion and sediment loading of rainfall runoff.

Water Conservation Impacts

As part of project construction all viable project alternatives include a component designated as water conservation. To achieve the desired 160 AFY reduction in LOWWP effluent, domestic and commercial water fixtures including toilets and shower heads will be replaced with low flow fixtures. The resulting conservation will be realized as a reduction of pumping from the overdrafted lower aquifer system. While historical production from the lower aquifer system has become a form of man-made recharge to the upper aquifer system through septage recharge, the reduction in lower aquifer system production effectuated by conservation will result in less seawater intrusion. This impact is considered a beneficial impact to the Los Osos Basin.

Analysis of Disposal/Reuse Methods Impacts

Spray Fields

Spray field disposal will be conducted at the Tonini site and will consist of distributing treated effluent on sufficient area for disposal through evapotranspiration (Et) and percolation. Current viable project alternatives under consideration include the disposal of 69 AFY on spray fields covering an area of 17 acres (see Table 5), 549 AFY on 175 acres (see Table 6), and no spray field disposal if heavy agricultural reuse is implemented (see Table 7) (C&A, 2008a). These numbers represent current

conditions. The wide margin of difference is attributable to the amount, if any, of agricultural use of recycled water. Spray field disposal capacity for the balance of buildout flows is available and is anticipated to be up to 312, 842, and 72 AFY, for VPA's 2a, 2b, and 2c, respectively.

Short-term Construction Impacts

Spray field disposal would likely require secondary treatment with disinfection. Spray field operations would be conducted during the daytime to maximize Et and require night time and seasonal storage facilities. The Tonini property has been identified as the primary site for spray field disposal. Water from the treatment facility would be pumped to the Tonini property through a pressurized pipeline. The irrigation lines to spray heads would be buried less than two feet below grade. A catch basin(s) would be constructed at the bottom of the spray fields to collect any irrigation runoff and allow redistribution into the spray system. Because the effluent disposed at the spray fields would likely not meet Title 22 tertiary treatment standards, the spray field area would be fenced off to prevent public contact with the water. Spray field sites will be located on property with underlying groundwater at a depth that was measured to range between approximately 7 and 42 feet bgs (C&A, 2008a). These recent observations indicated that several bedrock springs were present on the property but are located well outside of the spray field areas. Based on recent observations, spray field construction is not anticipated to impact groundwater. As with other construction related components of the project, erosion control will be required to stabilize soils during seasonal runoff.

Long-term Operation Impacts

This analysis indicates potential impacts to groundwater from spray field irrigation will include a potential increase in TDS concentration, and nitrate loading of surface soils which can eventually percolate to groundwater. Geological conditions at the site indicate that percolation of applied irrigation water (approximately 210 AFY, VPA 2b) in the spray fields will contribute to groundwater inflow (C&A, 2008b and C&A, 2007). Groundwater that rises in the Warden Lake drainage will flow downstream to the Morro Bay. Groundwater emergence at lower elevations around the drainage channel would provide a beneficial impact to existing natural wetlands located adjacent Warden Creek.

Salt Loading

Salt loading of the upper soils occurs when applied water is removed by evapotranspiration leaving the minerals not consumed by crops in the soil. These concentrated salts are subsequently leached to groundwater by excess irrigation and/or

precipitation. Precipitation is essentially distilled water and acts as a diluting agent for the deposited salts. The net impact of water percolating to groundwater would likely have a higher or lower TDS concentration than the initial irrigation water depending on the rainfall to evapotranspiration ratio. The spray irrigation effluent is anticipated to have a TDS concentration on the order of 620 mg/l.

The use of sprayfield disposal at the Tonini site has the potential for groundwater quality impacts beneath the site by raising the TDS concentration. While the nitrogen in the effluent will be largely (if not completely) consumed by plant uptake and natural denitrification processes, the dissolved salts in the effluent will be concentrated in the soil as a function of the evapotranspiration process. Salt precipitation in the root zone of irrigated crops is typical of all farming operations and often requires overwatering to leach the salt downward and remove the deleterious effects on the plants being raised. Annual rainfall in the Los Osos area may be sufficient for leaching purposes and preclude the need for typical overwatering operations to achieve salt removal from shallow soils.

The quality of groundwater underlying the Tonini site is a function of the source water quality, mineralogy of the underlying bedrock, and the residence time during which the groundwater remains in the formation prior to discharge at downgradient locations. The underlying groundwater at the Tonini site is primarily contained in fractured bedrock that comprises an aquifer system whereby flow is likely controlled by the orientation of fractures that create secondary porosity. The aquifer is an open system and outflow is observed downgradient as seeps and springs on the land surface, as well as, inferred to contribute underflow into the channel alluvium along the Warden Lake drainage and into the Los Osos Creek Valley aquifer. Because it is not a closed basin (without outflow) the increase in salt concentrations in the groundwater from irrigation practices will reach equilibrium and not continue to increase over time.

Laboratory test results for groundwater samples collected from three wells on the Tonini property indicate the groundwater has an average TDS concentration of 606 mg/l and a nitrate concentration of 7.2 mg/l. Although the estimated TDS concentration of percolating water from sprayfield operations may be higher than local groundwater, the infiltration will mix with native groundwater flowing beneath the site and proportionally reduce the salts concentration. The TDS concentration of treated effluent that would be used for sprayfield disposal at the Tonini Ranch is estimated at approximately 620 mg/l and is comparable to the groundwater that underlies the Tonini site. Because of the similar TDS concentrations, the effects on groundwater from using the LOWWP effluent as an irrigation source versus pumping groundwater for crop irrigation are the same. Based on these conditions the salt loading impacts to groundwater from irrigating crops with effluent at the proposed Tonini sprayfield site are considered less than significant.

It is anticipated that a substantial portion of the nitrate in the applied water will be removed by crop uptake and decrease the concentration from 7 mg/l to a concentration lower than the background concentration of 7.2 mg/l and not contribute to degradation of existing conditions. Therefore, impacts associated with salt concentrations would be less than significant.

Broderson Subsurface Percolation

The LOWWP will initially remove approximately 997 AFY of septage recharge from the Los Osos Basin and ultimately remove approximately 1,290 AFY at buildout. This number includes anticipated conservation plans that will reduce water usage in the area by 160 AFY and wet weather infiltration into the collection system. The viable disposal methods developed to offset the net deficit in groundwater recharge to the basin include the Broderson leach field, agricultural reuse in the Los Osos Creek Valley, and urban irrigation with recycled water within the Los Osos Basin.

As preliminarily designed, a subsurface leach field located on property west of Broderson Avenue will be utilized throughout the year for effluent disposal with the heaviest usage occurring during the wet weather months. During the rainy season, treated wastewater passing through the treatment process could reach as high as 1.5 mgd for short periods (60 days or less) and require disposal. During wet weather when surface irrigation is unnecessary, a portion of the treated wastewater will be disposed of through the sub-surface leach field. The remainder will be contained onsite in a holding pond(s) for future disposal at the spray field or for reuse by agriculture. Over time, the reintroduction of treated wastewater, together with the elimination of individual septic leach fields within the collection area, is expected to contribute to the flushing and dilution of the shallow aquifer and lower the nitrate concentrations.

Maximum disposal rates at the Broderson site are initially anticipated to be as high as 800,000 gpd but not to exceed 448 AFY unless groundwater monitoring indicates higher percolation rates can be achieved without developing adverse conditions. Periodic rehabilitation of leach fields will be required to maintain the minimum design disposal rates.

Substantial study has been conducted at the Broderson disposal site by the County and the LOCSD to determine subsurface conditions and estimate the ability of the site to be used for various rates of disposal and identify potential impacts of this disposal method. These studies include;

- Metcalf & Eddy (1997), Evaluation of Effluent Disposal at the Proposed Broderson Recharge site, Los Osos, California, Draft Report, Prepared for County of San Luis Obispo, Dated November 21.

- Cleath & Associates (2000a), Hydrogeologic Investigation of the Broderson Site, Prepared for the Los Osos Community Services District, Dated July.

- Cleath & Associates (2000b), *Hydrogeologic Investigation of the Broderson Site, Phase 2 – Impacts Assessment,* Prepared for the Los Osos Community Services District, Dated November.

- Yates, Gus and Williams, Derrik (2003), *Simulated Effects of a Proposed Sewer Project on Nitrate Concentrations in the Los Osos Valley Groundwater Basin*, Prepared for Los Osos Community Services District and Cleath & Associates, Dated November 6.

- Fugro West, Inc (2004), *Geotechnical Report Los Osos Wastewater Project, Los Osos Community Services District, San Luis Obispo County, California,* Prepared for Montgomery Watson Harza, Dated March 9.

In 1997 Metcalf & Eddy performed pilot infiltration testing for the County at the Broderson site using 2 dry wells for disposal testing and downgradient monitoring points (neutron probe access tubes) to observe moisture movement. The study procedures and findings were summarized in a report dated November 21, 1997. Subsequent review of the dry well pilot test data indicated that the hydraulic testing alone may be insufficient to characterize the adequacy of the site for disposal. In 2000 the LOCSD conducted a second investigation of the site which included drilling an additional 5 test holes and conducting downhole geophysical surveys to better define subsurface conditions beneath the site (C&A, 2000a). Based the test hole data, the study determined that the regional aquitard (designated the AT2 Clay) which separates the upper and lower aquifer zones, underlies the site at depths of between 190 - 235 feet bgs. Groundwater measured at the north end of the site was found at a depth of 150 feet bgs, and approximately 210 feet bgs in the center of the site.

The Phase II portion of the LOCSD investigation included the modification of the existing Los Osos Basin groundwater flow model (USGS, URS) to reflect conditions that would likely occur during the operation of facilities at the Broderson disposal site for the purpose of identifying potential disposal project impacts. The results of the LOCSD investigation indicate that disposal at a rate of 896 AFY could be conducted without excessive mounding beneath the site. This indicates that there is a low potential for groundwater 'daylighting' out the slope face downgradient of the site due to leach field operation at the proposed rate.

Based on model results, a more conservative disposal rate of 448 AFY was identified as an initial start-up rate for disposal to prevent rising groundwater at lower

elevations along the bay (C&A, 2000b). The lower rate would allow disposal that would restore shallow groundwater conditions but not require harvest wells to be used to drawdown the water table along the bay. A series of groundwater monitoring wells on the site and downgradient of the site will be installed to measure groundwater levels for the purpose of reducing the rate of disposal if necessary. However, the study speculated that at any discharge rate, there may be increased potential for liquefaction beneath residences immediately downgradient of the disposal area (C&A, 2000b).

To assess the potential for liquefaction impacts to occur, the LOCSD conducted another subsurface investigation in 2004. The study conducted cone penetrometer testing to obtain site specific subsurface data around the area of proposed effluent spreading and downgradient into the adjacent community. The results of the study indicated that the potentially liquefiable soils in the vicinity of the site consisted of unconsolidated loose dune sand deposits contained within the upper 5 to 10 feet bgs. The underlying Paso Robles Formation is weakly indurated and forms a dense soil that has a low potential for liquefaction or seismic settlement to occur as a result of the effluent disposal system and the estimated groundwater mounding beneath Broderson (Fugro, 2004). The LOCSD 2004 study also conducted confirmatory field percolation testing and a prototype percolation line pilot test to provide infiltration data for correlation with the previous 1997 County study, and conducted additional laboratory soil tests to provide data for a preliminary disposal system design.

To assess the potential impacts of effluent disposal at Broderson on the underlying groundwater quality, the LOCSD performed a water quality modeling study in 2003 (Y&W, 2003). The study simulated groundwater quality changes that would result from discharge of treated effluent with an average NO3-N concentration of 7 mg/l. The study concluded that while change would be gradual over time, the removal of septic system recharge in the prohibition area and the return of treated effluent with a reduced nitrate concentration to the Broderson site would result in a beneficial impact that will improve water quality.

Short-term Construction Impacts

The entire Broderson site consists of approximately 75 acres. The leach field area as designed would occupy a rectangular area covering approximately 8 acres and the remainder would be preserved as open-space. The leach field design includes excavation of leach line trenches to an average depth of 6.5 feet during construction and subsequently re-graded. The leach fields would consist of a 4-foot depth of gravel for drainage, covered by a geotextile fabric, and then there would be at least 2.5 feet of native soil backfill. The percolation piping would consist of 4-inch perforated PVC pipe laid with the perforations facing upwards, one foot below the geotextile fabric layer. If

the pores beneath the leach field become clogged over time, the leach field will need to be excavated and the ground beneath it ripped, disked, or otherwise treated to restore percolation rates. The estimated frequency of leach field rehabilitation is once every 5 to 10 years (Carollo, 2008b). As previously mentioned, groundwater is currently over 150 feet bgs at the site. Construction and subsequent rehabilitation of the leach fields will have no impact on groundwater. As with other construction activities, erosion control measures will be required during site excavation to prevent sediment transport offsite by surface runoff.

Long-term Operation Impacts

Potential impacts of the Broderson disposal site include impacts associated with water quality degradation and local high groundwater levels. The design studies conducted for this alternative indicate that a disposal rate of 448 AFY can be achieved without inducing adverse water level conditions beneath the site or downgradient in the community. With the initial proposed disposal capacity it is anticipated that at least 100 AFY will percolate through the regional aquitard into the lower aquifer system. The remaining 348 AFY will be a component of annual recharge to the upper aquifer system.

Modeling results indicate that the impact of this operation will be to restore groundwater levels in the upper aquifer system (B and C Zones) to elevations that are comparable to existing conditions (C&A, 2008b). The study results indicate that Broderson will provide beneficial impacts that restore groundwater recharge and maintain a balance in the hydrologic budget that provides outflows for local well production and freshwater features (marshes and springs) around the bay. The restoration of water level elevations beneath the bay and along the shoreline will mitigate the potential for seawater intrusion into the upper aquifer zones. Broderson recharge is not anticipated to impact water levels in the A Zone aquifer that lies above the perching clay layer.

Groundwater Quality Impacts

The RWQCB issued "Waste Discharge/Recycled Water Requirements Order No. R3-20030007" when LOCSD was moving forward with the previously abandoned wastewater project. The EIR for that project was completed in 2001 and the LOCSD proceeded with obtaining all the requisite permits including the Coastal Development Permit and the RWQCB order referenced above. The effluent and recycled water limitations from that order have been included here in Table 11 - Effluent Water Limitations from Previous Discharge Requirements (KJC, 2008).

Table 11 - Effluent Water Limitations from Previous Discharge Requirements (Order No. R3-2003-0007)

EFFLUENT LIMITATIONS			
CONSTITUENT	UNITS	MONTHLY AVERAGE	DAILY MAXIMUM
SETTLEABLE SOLIDS	MG/L	0.1	0.5
BOD*, 5-DAY	MG/L	60	100
SUSPENDED SOLIDS	MG/L	60	100
TOTAL NITROGEN (AS N)	MG/L	7	10

*Biological Oxygen Demand

The treatment facilities are being designed to produce an effluent that will have an average NO_3-N concentration of 7 mg/l and an estimated TDS concentration of 620 mg/l (Carollo, 2007b). The average nitrate concentration presently in the Los Osos Basin in the proximity of the prohibition zone groundwater is on the order of 10 mg/l (NO_3-N) (Y&W, 2003) and the average TDS concentration is approximately 330 mg/l (C&A, 2005c).

Effluent disposed at Broderson would have a positive affect on slowing the current conditions of seawater intrusion in the lower aquifer zones and flushing nitrate laden water from upper aquifer zones. The slow turnover rate of groundwater has been identified as the single most important basin characteristic affecting water-quality trends in the Los Osos Basin (Y&W, 2003). This occurs because the volume of groundwater in storage is relatively large compared to annual inflows and outflows. The result is that any action to decrease nitrogen loading (i.e., the LOWWP) will take a relatively long time to have an effect. As a result, nitrate concentrations in some deep wells may continue to increase for many years before the effect of septage removal reaches the lower aquifer system. Recent study has concluded that the shallow aquifer system may take on the order of three decades to equilibrate to a change in nitrate loading (Y&W, 2003). Regardless of the time frame required to realize a reduction in nitrate concentrations across the Los Osos Basin this impact is considered a beneficial impact to the basin.

To assess the impacts of TDS and NO3-N concentrations in the Los Osos Basin caused by effluent disposal at Broderson, a mass balance calculation was performed using septic return flows, precipitation, irrigation, subsurface cross flows and effluent disposed at Broderson at a rate of 448 AFY. The hydrologic budget

summarized in Appendix C of this study was utilized for the purpose of comparing current conditions and conditions estimated for the viable project alternatives (C&A, 2008b). A summary of the mass balance calculation results is provided in Appendix D – Water Quality Mass Balance Summary. Combining the average effluent concentration of 7 mg/l with all the other nitrogen sources in the Los Osos Basin the average NO3-N concentrations in the upper aquifer after LOWWP completion will be approximately 8.3 mg/l, and is below the drinking water standard. The nitrate concentration calculation results are included in Table 12 – Summary of Upper Aquifer Nitrate Loading and Average Concentrations.

The resulting average TDS concentration calculated for the upper aquifer zones with the operation of Broderson is provided in Table 13 – Summary of Upper Aquifer Average Total Dissolved Solids Concentration. Both of these results indicate Broderson will provide a beneficial water quality impact on the Los Osos Basin.

Table 12 – Summary of Upper Aquifer Nitrate Loading and Average Concentrations

BASIN CONDITION	TOTAL SURFACE RECHARGE TO LOS OSOS BASIN (AFY)	TOTAL NITROGEN LOAD (TONS)	ESTIMATED AVERAGE CONCENTRATION (MG/L)
CURRENT	3,525	52.1	10.9
BRODERSON 448 AFY	3,337	37.9	8.3
BRODERSON 896 AFY	3,785	42.1	8.2

CONCENTRATION ESTIMATE WITH NO SUBSURFACE DENITRIFICATION FOLLOWING WASTEWATER DISPOSAL

Table 13 – Summary of Upper Aquifer Average Total Dissolved Solids Concentration

BASIN CONDITION	BRODERSON DISCHARGE (AFY)	TOTAL SALTS LOAD (TONS)	ESTIMATED AVERAGE CONCENTRATION (MG/L)
CURRENT	0	1,378	352
VPA 2a	448	1,073	296
VPA 2b	448	1,097	299
VPA 2a	896	1,450	343
VPA 2b	896	1,475	345

Agricultural Reuse

Agricultural reuse would entail providing secondary or tertiary treated wastewater (depending on the crop) to local farmers for crop irrigation. Agricultural reuse would have the dual benefit of allowing effluent disposal and a reduction of local groundwater usage. Potential sites for agricultural reuse are located throughout the Los Osos Creek Valley. Potential effluent disposal from agricultural reuse could be as high as 690 AFY over a surface area of 230 acres.

Short-term Construction Impacts

Agricultural reuse would require the installation of conveyance piping to farms participating in the use of recycled water for irrigation. Depth to groundwater along the anticipated pipeline routes are currently below a depth of approximately 10 feet bgs. Trenching required to install water supply piping to the agricultural reuse sites would likely not exceed a depth 5 feet bgs and would not impact groundwater.

Long-term Operation Impacts

The revised groundwater model indicates a reduction in groundwater production from the creek valley aquifer on the order of 480 AFY would likely increase recharge to the lower aquifer zones from the creek compartment. The model indicated the increase could be in the range of approximately 5 to 145 AFY.

The water quality analysis of the creek compartment (alluvial aquifer) was calculated separately using the average existing groundwater TDS concentration of 520 mg/l (see Appendix D). A summary of the mass balance calculation for TDS concentrations in the creek compartment under the current conditions and alternative VPA 2a is provided as Tables D3 and D4, respectively. As indicated by the mass balance calculations (see Appendix D), the application of treated effluent would result in a salt balance that is comparable to current conditions and would not impact groundwater.

Urban Landscaping Reuse

Urban landscaping reuse disposal was estimated by previous study to have the potential for disposal as high as 133 AFY. During dry weather conditions treated wastewater would be recycled by irrigating play fields and landscaping within the community. Among the sites that were considered are the four public schools; Bayview Elementary, Monarch Grove Elementary, Sunnyside Elementary and Los Osos Middle Schools. Additional sites included; landscape at the WWTP, the Los Osos Valley Memorial Park, the South Bay Community Center, and a portion of the Sea Pines Golf Course. Urban/landscaping reuse would require tertiary treatment

before distribution and a separate conveyance system to each area of application. The impact of this project reuse alternative would result from a reduction of groundwater supply required by local purveyors and be beneficial toward reducing groundwater overdraft by the amount of offset demand (up to 113 AFY). The viable project alternatives VPA 2a and VPA 2c identified by the fine screening study contain landscape irrigation of approximately 20 AFY irrigation at the WWTP and 50 AFY at the Cemetery.

MITIGATION MEASURES FOR VIABLE PROJECT DISPOSAL ALTERNATIVES

As discussed in the previous sections of this report, the viable project alternatives for effluent disposal and reuse were developed through the County screening process and considered various combinations of disposal/reuse methods that could accommodate the estimated rates of effluent discharge and minimize impacts and/or provide feasible mitigations. Because no single disposal method could provide both disposal capacity and complete mitigation of the related impacts, the impacts identified in the previous section of this report are combined to evaluate the potential mitigation measures for the viable project alternatives. As previously defined in the fine screening study, all viable project alternatives that are still being considered for disposal and reuse will sufficiently mitigate seawater intrusion impacts through use of the Broderson facilities. Mitigation measures for additional potential groundwater supply and water quality impacts are discussed in the following report sections.

Viable Project Alternative 2a

The potential impacts identified for VPA 2a include;

a) **Facilities construction** – disposal of shallow groundwater and erosion of exposed soil,

b) **Spray field disposal** – groundwater quality, surface runoff from disposal area, and removal of groundwater recharge from the Los Osos Basin,

c) **Urban irrigation reuse** – groundwater quality,

d) **Agricultural irrigation reuse** – groundwater quality,

e) **Broderson subsurface percolation** – groundwater quality, liquefaction, rising groundwater, and groundwater seeps emerging down slope of the project site.

Impacts that occur during the LOWWP construction will be relatively short in duration and mitigable primarily through BMP's. As previously indicated the potential impacts of the shallow groundwater discharge that is anticipated to be removed during

installation of pipelines and pump stations can be mitigated by compliance with discharge requirements for surface water release, storm water detention basin release, or beneficial reuse for dust control or soil moisture conditioning of backfill prior to compaction. If additional disposal capacity is required and water quality conditions including high nitrate or settleable solids concentrations (or turbidity) preclude compliance with permitted discharge standards, spray irrigation of pasture grasses at the Tonini spray fields may conducted with a water truck as a fallback mitigation during project construction. Surface water runoff impacts can be mitigated with standard BMP's for erosion control to minimize the sediment load in offsite runoff.

Water Quality

The potential water quality impacts of VPA 2a include the potential increased concentration of salts or nutrients in groundwater beneath the Tonini spray field disposal site, the agricultural reuse area, and the Broderson disposal area. As summarized in the previous report sections, analyses indicates that disposal at Broderson will reduce nitrate loading and result in a beneficial impact on nutrient concentrations in the basin (Y&W, 2003). The salinity of the upper aquifer recharge from the VPA 2a discharge at Broderson is the same as the current conditions of recharge from domestic septic recharge. The return of a component of this source of recharge to the basin will have an insignificant impact to existing salt balance conditions in the basin and will require no mitigation.

Urban irrigation reuse within the basin is small (at buildout only) and will have virtually the same insignificant water quality impacts as Broderson because it would use water with a reduced nitrate concentration (7 mg/l) and the same TDS that is presently returned through septage infiltration. The impacts of agricultural irrigation reuse that is included in VPA 2a are insignificant and require no mitigation. This determination is based on the agronomic uptake of nitrogen that will be introduced during irrigation at lower concentrations than the standard agricultural practices. The results of a mass balance calculation of the resulting TDS concentration in groundwater within the Creek Valley alluvial aquifer (creek compartment) indicate that average cumulative TDS concentration of inflow sources to the creek compartment under current conditions is 458 mg/l which is comparable to the VPA 2a conditions that are estimated to result in an inflow concentration of 455 mg/l.

Laboratory test results for groundwater samples collected from three wells on the Tonini property indicate the groundwater has an average TDS concentration of 606 mg/l and a nitrate concentration of 7.2 mg/l. Although the estimated TDS concentration of percolating water from sprayfield operations may be higher than local groundwater, the infiltration will mix with native groundwater flowing beneath the site and proportionally reduce the salts concentration. The TDS concentration of treated effluent that would be used for sprayfield disposal at the Tonini Ranch is estimated at approximately 620 mg/l

and is comparable to the groundwater that underlies the Tonini site. Because of the similar TDS concentrations, the effects on groundwater from using the LOWWP effluent as an irrigation source versus pumping groundwater for crop irrigation are the same. Based on these conditions the salt loading impacts to groundwater from irrigating crops with effluent at the proposed Tonini sprayfield site are considered less than significant.

It is anticipated that a substantial portion of the nitrate in the applied water will be removed by crop uptake and decrease the concentration from 7 mg/l to a concentration lower than the background concentration of 7.2 mg/l and not contribute to degradation of existing conditions. Therefore, impacts associated with nitrate concentrations would be less than significant.

During urban and agricultural irrigation, best management practices can be utilized to prevent and mitigate offsite runoff of recycled water. Runoff of irrigation water from spray field disposal is potentially significant but can be mitigated through the use of catch basins that impound the water and allow it to percolate and be reintroduced into the irrigation system. As indicated by this analysis the VPA 2a discharge scenario will not have any significant water quality impacts that require mitigation.

Water Supply

Collection of septage will remove a source of groundwater recharge in the Los Osos Basin. Disposal of the LOWWP effluent outside the Los Osos Basin will result in removal of groundwater recharge (inflow) and proportionally affect some component of groundwater outflow from the upper aquifer zones. As previously indicated in this report, the County considered the reduced outflow impact to the over drafted lower aquifer system and determined measures to mitigate this impact were crucial. The VPA 2a alternative contains water supply conservation, agricultural reuse, and Broderson disposal which are all anticipated to provide mitigation to the seawater intruded the lower aquifer system. As shown in Table 5, conservation (160 AFY) is perceived as a mitigation that can be directly applied as a reduction in groundwater production from lower aquifer zone. Based on the mitigation factor developed for this project component (Carollo, 2007), the resulting mitigation is equal to 88 AFY (see Table 5). As previously indicated, groundwater recharge caused by disposal at the Broderson site is estimated to result in recharge to the lower aquifer zones that will further contribute approximately 99 AFY (see Table 5). The mitigation to lower aquifer recharge provided by the agricultural reuse component is estimated at 46 AFY (see Table 5). The total seawater intrusion mitigation to the lower aquifer system from the VPA 2a is 233 AFY (Carollo, 2008).

As indicated by the hydrologic budget shown in Table 9, the VPA 2a change in basin water supply conditions primarily impacts evapotranspiration and Willow Creek flows that emanate from the upper aquifer system A zone. The model simulated groundwater

elevations (see Appendix C) were enlarged on plates that are included in Appendix E – Water Level Contour Maps, to show the area of primary impact to the upper aquifer B and C zones. The resulting impacts of individual VPA components are tabulated in Table 14 – Los Osos Basin Water Level Impacts. The values listed in Table 14 consist of existing conditions and a comparison of simulated conditions upon project startup.

Table 14 - Los Osos Basin Water Level Impacts

PROJECT COMPONENT	UPPER AQUIFER WATER LEVEL ELEVATIONS (FEET)		LOWER AQUIFER WATER LEVEL ELEVATIONS (FEET)		UPPER AQUIFER WATER LEVEL CHANGE (FEET)		LOWER AQUIFER WATER LEVEL CHANGE (FEET)	
	ALONG THE BAY SHORE	MID BASIN	ALONG THE BAY SHORE	MID BASIN	ALONG THE BAY SHORE	MID BASIN	ALONG THE BAY SHORE	MID BASIN
EXISTING CONDITION	5	15 TO 20	-2	-5	NA	NA	NA	NA
SPRAY FIELDS ONLY	0 TO 5	5 TO 10	-5	-5	-2	-8	-2	-3
CONSERVATION ONLY	5	10 TO 15	0 TO -5	-5	-2	-6	-1	-1
BRODERSON ONLY	5	15 TO 20	0 TO -5	-5	0 TO -5	0	0 TO -1	0
AG REUSE ONLY	5	10 TO 15	0 TO -5	-3	-2	-5	-1	-1
VPA 2A	5	15 TO 20	0	0	1 TO -1	0	2	4
VPA 2B	5	15 TO 20	0	0	1 TO -1	0	0 TO 2	2

These results indicate that because Broderson discharge effectively replenishes the B and C zones beneath the perching clay, the upper aquifer water levels are virtually restored to the current condition (C&A, 2008b) (see Appendix E, Plates E1 and E2) from the 448 AFY discharge scenario. Without the Broderson disposal alternative the removal of the upper aquifer system recharge from septic system percolation (i.e., complete disposal of effluent to the Tonini spray fields) would imbalance the hydraulic equation and allow water levels to decline to near or below sea level along the bay shoreline (see Appendix E, Plate E3). The potential impact to fresh water features around the bay (i.e., springs, marshes, etc.) would be significant. In addition, the low water levels in the upper aquifer would create a vulnerability to seawater intrusion and would be a significant impact. As indicated, the potential VPA 2a water supply impacts are less than significant because of the hydrologic budget balance created by the combined project that includes the Broderson disposal site.

The Broderson disposal recharge can not mitigate potential impacts of reduced groundwater outflow that drains out of the upper aquifer A zone toward the Willow Creek drainage or directly into the bay. The annual drainage in the Willow Creek area will be reduced by the LOWWP to natural or above natural conditions prior to the Los Osos community development. Drainage will still occur, however the flow rates may be reduced to the present ephemeral surface flows. The potential impacts of the reduced groundwater discharge in this area of the Los Osos Basin could be realized along the riparian corridors of the drainage features. However, seasonal runoff and shallow groundwater are anticipated to provide sufficient water for use by the riparian vegetation established well before the Los Osos community was developed.

Hydrogeologic Hazards

Potential hydrogeological hazards identified by this study are focused around the Broderson disposal site. Potential hazards include increased rising groundwater in the community at lower elevations around the bay, groundwater seepage from slope faces below the leach field, or liquefaction of soils between the site and the points of onshore and offshore discharge. Specific studies have been conducted to assess the potential for each of these impacts to occur.

As previously mentioned, water level elevation changes in the vicinity of the site and across the Los Osos Basin in the upper aquifer zones were modeled as part of the project design study. The design capacity of 448 AFY was selected based on the ability of the aquifer system to receive this annual quantity of water without developing adverse conditions. The reduced design capacity alleviates hazards that could be caused by discharge at a higher rate. This rate reduces mounding beneath the site to eliminate the potential for groundwater to flow laterally and exacerbate saturated soil hazards near the bay. The design rate minimizes the potential for additional rising groundwater around the bay at lower elevations. While this condition presently exists in many low lying areas around the bay, the proposed disposal capacity at startup is designed to maintain existing conditions and not exacerbate this potential hazard. Liquefaction is a hazard that was specifically studied by the LOCSD to understand the potential for its occurrence (Fugro, 2004). The result of the field tests indicated that the potential was low because of the nature of the underlying geologic formation which was comprised of dense soils beneath the dune sands.

While project studies indicate that potential risk for these hazards is low, the occurrence of these potential impacts would be controlled during operation by the installation of a monitoring network at the Broderson site and downgradient within the residential community prior to initiating discharge. The groundwater monitoring network would allow direct observation of the changes in groundwater conditions and appropriate adjustments to the disposal operations can be made. In addition, if

monitoring indicates additional groundwater disposal can occur without creating adverse conditions, the future benefit to aquifer supply and sea water intrusion mitigation provided by this disposal option can be increased.

Viable Project Alternative 2b

VPA 2b contains three of the same project discharge/reuse components as VPA 2a but does not include agricultural reuse, cemetery reuse, or plant irrigation (see Table 6). Of the remaining project discharge components the impacts of Broderson and water supply conservation are the same for VPA 2b as those identified in VPA 2a. The primary difference is the elimination of effluent reuse components and reliance on disposal at the Tonini spray fields for the entire amount of effluent not disposed at Broderson.

The VPA 2b alternative contains water supply conservation and Broderson disposal which are both anticipated to provide mitigation to the seawater intruded lower aquifer system. The seawater intrusion mitigation is 51 AFY less in VPA 2b than provided by VPA 2a and provides a total mitigation of 187 AFY, (Carollo, 2008). This amount is sufficient to offset groundwater supply reduction created by removal of the septic system discharges.

The potential water quality, water quantity, and groundwater induced geologic hazard impacts are comparable to the VPA 2b for the Broderson and Tonini disposal sites as those described in VPA 2a and are controlled by the combined project design.

Viable Project Alternative 2c

VPA 2c disposal/reuse components are identical to the components in VPA 2a with a change in the disposal quantity at the Tonini spray fields (from 69 to 0 AFY) and a change in the agricultural reuse quantity (from 480 to 549 AFY) (see Table 7). The resulting impact from this relatively minor increase in use is insignificant to the water quality of irrigation return flows that percolate to groundwater and will require no mitigation.

CONCLUSIONS

Groundwater inflow removed from the hydrologic budget (septic system percolation) by the LOWWP collection system will affect both the upper aquifer zones, which are directly recharged by this source, and the lower aquifer zones which receive leakage from the upper aquifers. However, the disposal component of the project is designed to ensure that there would not be a net loss in groundwater recharge to the aquifers that support overlying beneficial land uses and associated impacts would be less than significant. Furthermore, the proposed disposal of treated effluent at Broderson would reduce the current rate of seawater intrusion into the lower aquifer, thus resulting in a beneficial impact.

Modeling results indicate that the impact of this operation will be to restore groundwater levels in the upper aquifer system (Zones B and C) to elevations that are comparable to existing conditions. The study results indicate that Broderson disposal will provide beneficial impacts that restore groundwater recharge and maintain a balance in the hydrologic budget that provides outflows for local well production and freshwater features (marshes and springs) around the bay. Implementation of the proposed project would reduce septic effluent discharge into the perched aquifer (Zone A). Therefore, the project would reduce the quantity of groundwater within the perched aquifer. However, the exact quantity of reduction within the perched aquifer (while estimated) is unknown, and the potential impact on groundwater flow to surrounding surface water features is speculative given that the amount of perched groundwater currently flowing to surface water features is not known.

The findings of this study conclude the following:

- The impacts of shallow groundwater disposal during project construction would be less than significant if beneficially reused during construction (i.e., dust control and soil moisture conditioning of backfill soils) and/or disposed to storm drains or storm water percolation basins in accordance with RWQCB permit conditions, and/or spray disposed at Tonini site utilizing a water truck.

- Surface water runoff impacts during project construction can be mitigated with standard BMP's for erosion control to minimize the sediment load in offsite runoff.

- Runoff of irrigation water from spray field disposal would be less than significant if captured by the use of catch basins that impound the water and allow it to percolate and be reintroduced into the irrigation system.

Onsite runoff can be minimized by diverting runoff from surrounding areas outside the spray field parcels around the disposal site.

- The designed operation of the Broderson disposal alternative at the approximate capacity of 448 AFY (or greater) would reduce the potential impact of groundwater recharge losses that will result from the LOWWP elimination of septic system recharge to the main aquifers that provide water for overlying beneficial uses in the Los Osos Basin to less than significant.

- Potential geologic hazards arising from groundwater conditions created by operation of the Broderson leach field disposal will be controlled through the proper design and use of a monitoring network to track the occurrence and movement of water beneath the site and downgradient of the site. This monitoring component of the Broderson disposal alternative would allow verification that these potential impacts remain less than significant.

- The potential impact on the exact quantity of groundwater in the perched aquifer is unknown and the potential impact on groundwater flow to surrounding surface water features is speculative given that the amount of perched groundwater currently flowing to surface water features is not known.

- The proposed disposal of treated effluent at Broderson would reduce the current rate of seawater intrusion into the lower aquifer, thus resulting in a beneficial impact.

- Analyses indicates that disposal at Broderson will reduce nitrate loading and result in a beneficial impact on nutrient concentrations in the basin.

- The salinity of the upper aquifer recharge from septic system effluent is the same as the treated effluent discharge proposed at Broderson and the groundwater replenishment resulting from this discharge will have a less than insignificant impact to existing salt balance conditions in the basin.

- The TDS concentration of treated effluent that would be used for sprayfield disposal at the Tonini Ranch is estimated at approximately 620 mg/l and is comparable to the groundwater that underlies the Tonini site. Because of the similar TDS concentrations, the effects on groundwater from using the LOWWP effluent as an irrigation source versus pumping groundwater for crop irrigation are the same. Based on these conditions

the salt loading impacts to groundwater from irrigating crops with effluent at the proposed Tonini sprayfield site are considered less than significant.

- It is anticipated that a substantial portion of the nitrate in the applied water will be removed by crop uptake and decrease the concentration from 7 mg/l to a concentration lower than the background concentration of 7.2 mg/l and not contribute to degradation of existing conditions. Therefore, impacts associated with nitrate concentrations would be less than significant.

- The combined components of VPA2a, VPA2b, and VPA2c provide a sufficient design to reduce potential hydrogeological impacts to less than significant.

CLOSURE

This report has been prepared for the exclusive use of San Luis Obispo County and its agents for specific application to the understanding of the potential environmental impacts that would result from the construction and operation of the Los Osos Wastewater Project, located in the City of Los Osos, California. The findings, conclusions, and recommendations presented herein were prepared in accordance with generally accepted hydrogeological engineering planning practices. No other warranty, express or implied, is made

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PLATES

- RWQCB PROHIBITION ZONE

- LOS OSOS VALLEY GROUNDWATER BASIN BOUNDARY

NORTH

0 1000 2000

FEET

STUDY AREA LOCATION MAP
Hydrogeological Impacts Analysis
LOWWP Draft EIR
San Luis Obispo County
Los Osos, California

PLATE 1

A A' - CROSS-SECTION LOCATION

- APPROXIMATE LOCATION OF PERCHING CLAY

- LOS OSOS VALLEY GROUNDWATER BASIN BOUNDARY

- CREEK VALLEY ALLUVIAL AQUIFER BOUNDARY (CREEK COMPARTMENT)

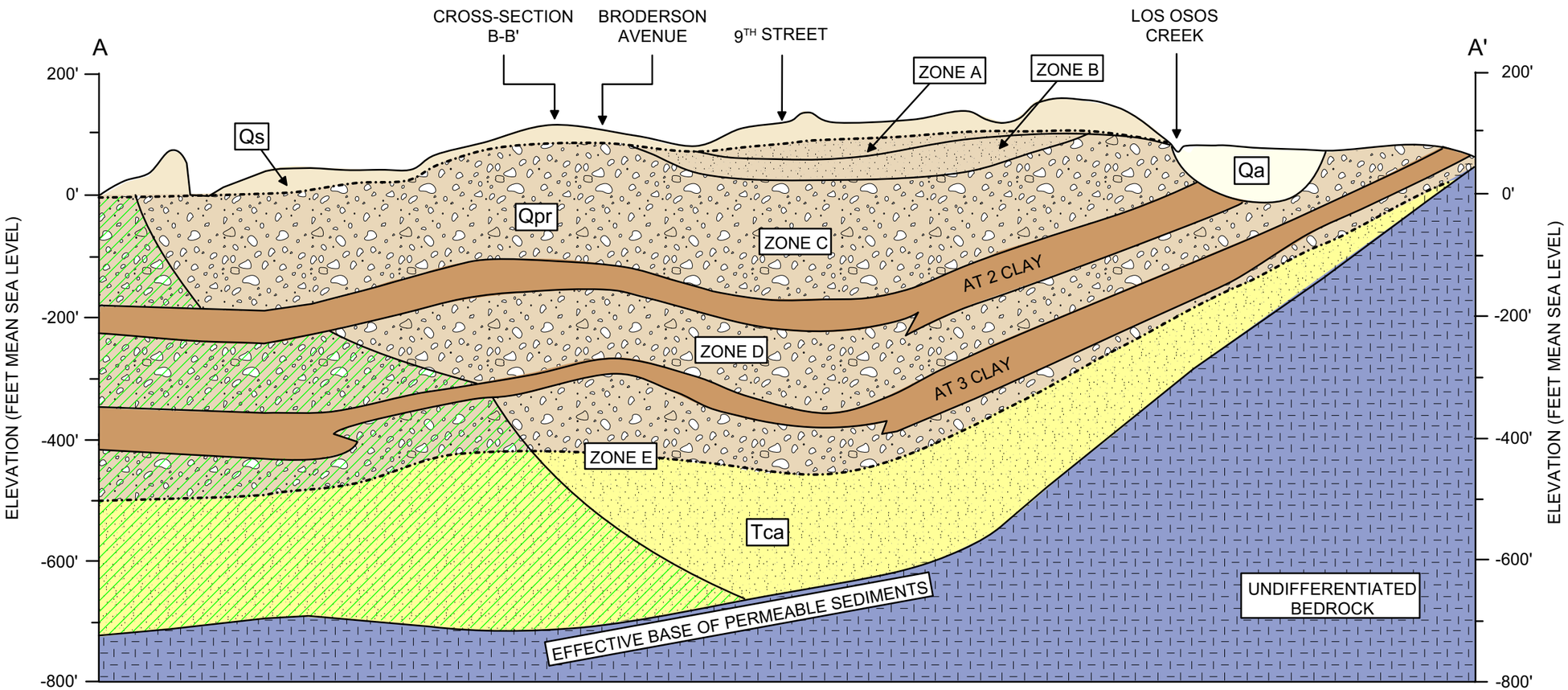
NORTH

0 1000 2000

FEET

HYDROGEOLOGICAL CROSS-SECTION LOCATION MAP
Hydrogeological Impacts Analysis
LOWWP Draft EIR
San Luis Obispo County
Los Osos, California

PLATE 2

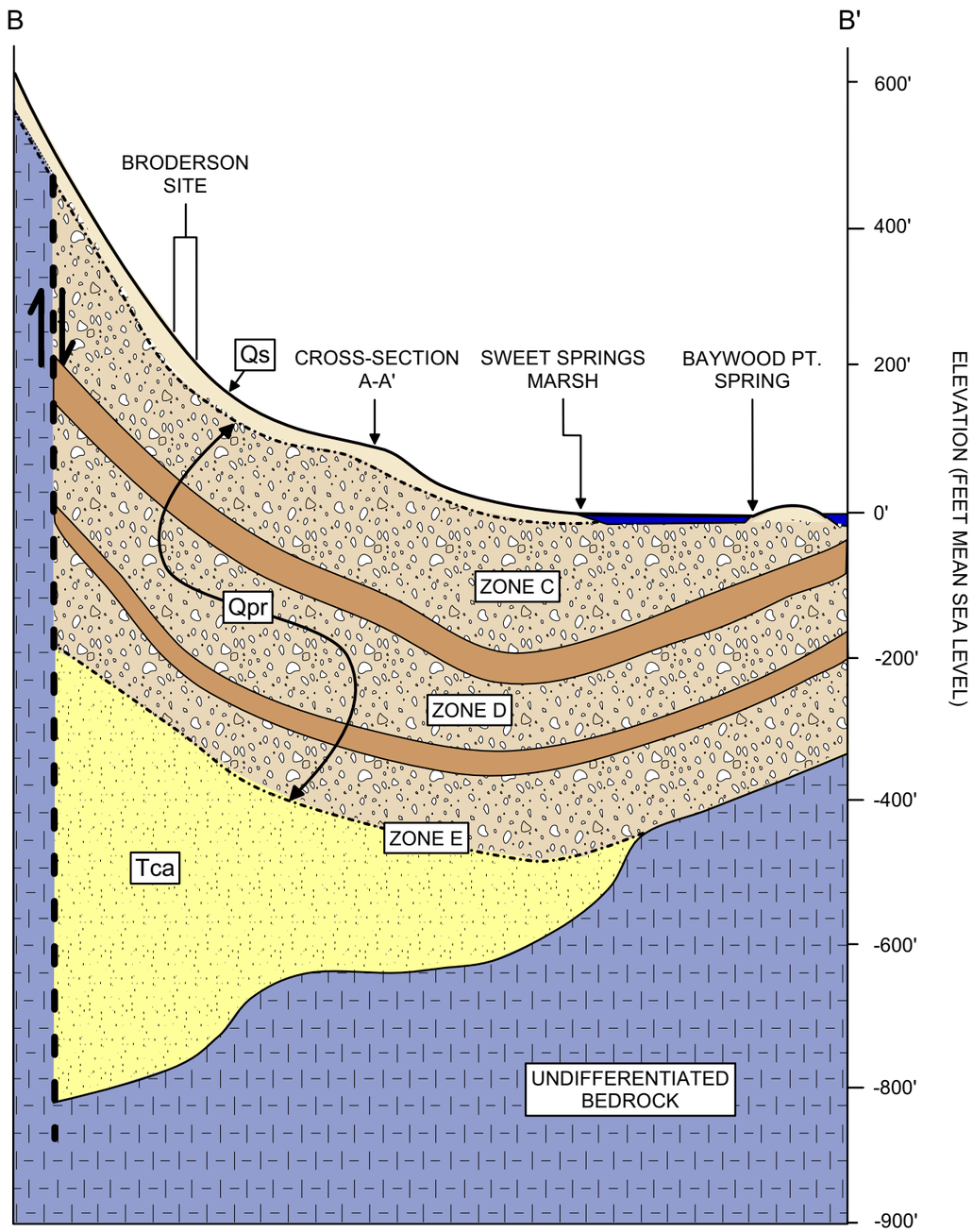


- APPROXIMATE AREA OF AQUIFER INTRUDED BY SEA WATER (CLEATH, 2005c)

VERTICAL EXAGGERATION = 10/1
GEOLOGY BASED ON C&A 2005c

HYDROGEOLOGICAL CROSS-SECTION A-A'
Hydrogeological Impacts Analysis
LOWWP Draft EIR
San Luis Obispo County
Los Osos, California

PLATE 3



Qa	- ALLUVIAL GRAVEL, SAND AND CLAY
Qs	- DUNE SAND
Qpr	- PASO ROBLES FORMATION
Tca	- CAREAGA FORMATION
ZONE C	- AQUIFER DESIGNATION
	- LOS OSOS FAULT

VERTICAL EXAGGERATION = 10/1
GEOLOGY BASED ON C&A 2005c

SEA WATER INTRUSION ZONE
NOT SHOWN IN B - B'

HYDROGEOLOGICAL CROSS-SECTION B-B'
Hydrogeological Impacts Analysis
LOWWP Draft EIR
San Luis Obispo County
Los Osos, California

PLATE 4

APPENDIX A
LOS OSOS BASIN
SURFACE WATER FEATURES

- CREEKS

- SURFACE WATER FEATURE

NORTH

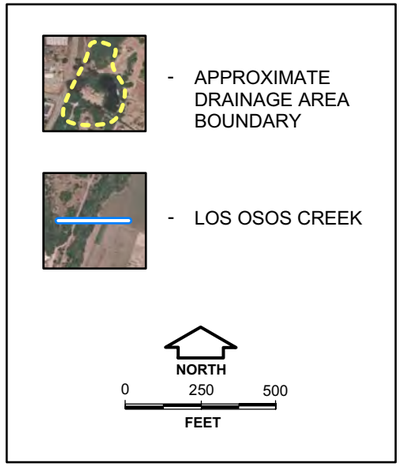
0 1000 2000

FEET

MARSH LOCATION BASED ON FRESHWATER INFLUENCES ON MORRO BAY, TMG, TES, 1990

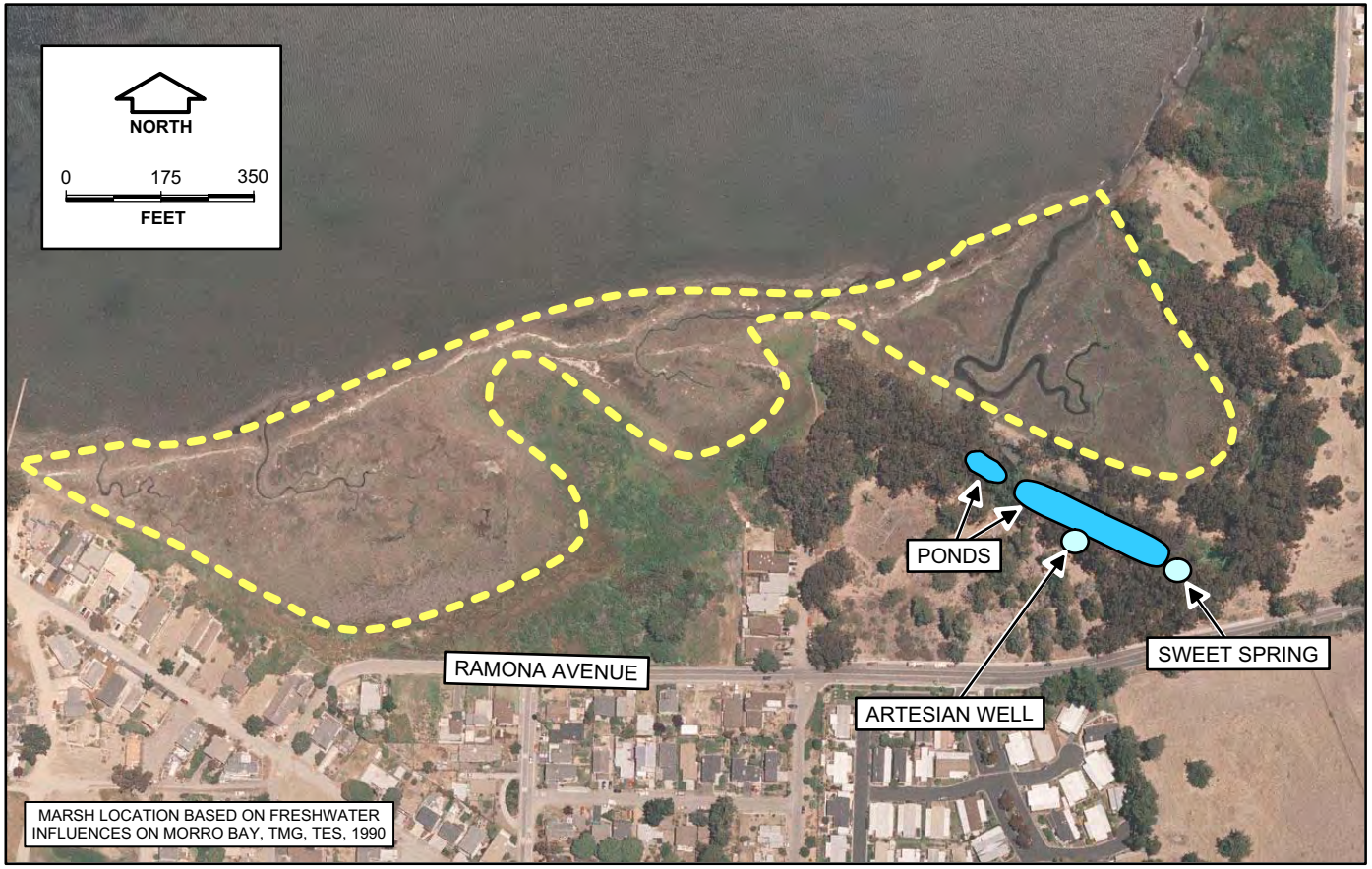
SURFACE WATER FEATURES LOCATION MAP
Hydrogeological Impacts Analysis
LOWWP Draft EIR
San Luis Obispo County
Los Osos, California

PLATE A1



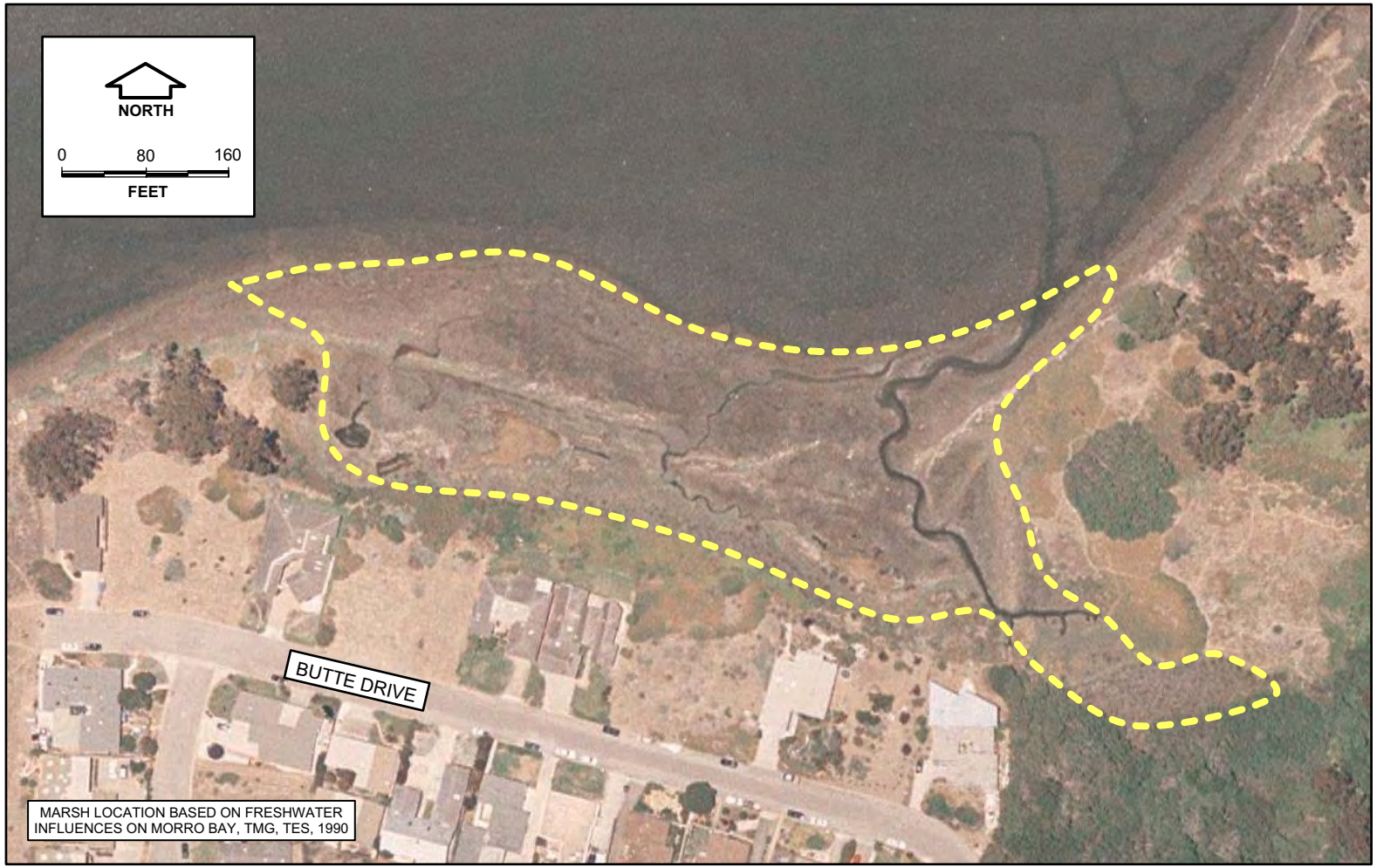
WILLOW CREEK DRAINAGE
Hydrogeological Impacts Analysis
LOWWP Draft EIR
San Luis Obispo County
Los Osos, California

PLATE A2



SWEET SPRINGS MARSH
Hydrogeological Impacts Analysis
LOWWP Draft EIR
San Luis Obispo County
Los Osos, California

PLATE A3



PECHO MARSH
Hydrogeological Impacts Analysis
LOWWP Draft EIR
San Luis Obispo County
Los Osos, California

PLATE A4

THIRD STREET MARSH
Hydrogeological Impacts Analysis
LOWWP Draft EIR
San Luis Obispo County
Los Osos, California

PLATE A5

BAYWOOD MARSH
Hydrogeological Impacts Analysis
LOWWP Draft EIR
San Luis Obispo County
Los Osos, California

PLATE A6

APPENDIX B
TONINI RANCH DATA

Cleath & Associates
Engineering Geologists
Ground Water
1390 Oceanaire Drive
San Luis Obispo, CA 93405
805-543-1413
FAX: 805-543-1755

Memorandum

Date: March 15, 2007
From: Spencer Harris, Cleath & Associates
To: LOWWP Team

Subject: **Support documentation for LOWWP Disposal Memo dated March 13, 2007**

This memorandum documents the reservoir storage calculations, slow-rate percolation documentation, and ET disposal capacity estimates used for the March 13th disposal costing memo.

Irrigation Water Demand

The basic equation for calculating irrigation water demand for a crop is:
D (AFY) = Crop area * (ET-Pe)/((1-LR)*IE)
D = demand
ET = crop evapotranspiration potential
Pe = effective precipitation
LR = leaching ratio
IE - Irrigation efficiency

and where
ET = Kc * ETo
Kc = crop coefficient
ETo = reference ET

and
LR = ECi / ((5*ECe)-ECi
ECi = irrigation water EC (dS/m)
ECe = soil extract EC (dS/m)

This methodology has been used to estimate annual crop water demand for different water planning areas in the county (August 1998 Water Master Plan Update) and monthly demand by Ripley Pacific (Appendix TM 5-A). For fine screening, the Water Master Plan estimates for annual water demand are used, based on the average historical cropping pattern for ag land use in the Los Osos Creek valley. This annual use is distributed into monthly demand based on Ripley's calculations.

ETo values used by Ripley look a little high, based on a review of DWR values for the coastal zones. The creek valley does get some fog, so ETo Zone 2 (light fog; 39 inches ET per year) is probably a conservative match, although the actual DWR state ETo map puts the creek valley at the edge of Zone

6 (coastal uplands - no fog; 49.7 inches ET per year), which is closer to what Ripley used. Crop demand includes adjustments for effective rainfall, irrigation efficiency, leaching requirement, and individual crop coefficients. Again, Ripley's crop demand appears a little high (intensive), so only the monthly distribution from Appendix TM 5-A is applied. The monthly ETo and ag irrigation demand distribution from Appendix TM-5A is provided for reference below:

Ripley Pacific ETo Distribution

	Inches	Percent
Jan	2.01	4.18
Feb	2.42	5.04
Mar	3.63	7.56
Apr	4.32	8.99
May	5.73	11.93
Jun	5.97	12.43
Jul	6	12.49
Aug	5.41	11.26
Sep	4.6	9.58
Oct	3.52	7.33
Nov	2.44	5.08
Dec	1.98	4.12
	48.03	100

Ripley Pacific Crop Demand

	Inches	Percent
Jan	0	0
Feb	0	0
Mar	1.67	4.08
Apr	3.7	9.05
May	5.82	14.23
Jun	6.94	16.97
Jul	7	17.11
Aug	6.3	15.4
Sep	5.35	13.08
Oct	2.94	7.19
Nov	1.18	2.89
Dec	0	0
TOTAL	40.9	100

As mentioned in the March 13 disposal memo text, the actual historical crop water demand in the Los Osos Creek valley is estimated at 2 feet per year, rather than the 3.4 feet per year of potential demand estimated by Ripley Pacific for intensive agriculture. Both the ET monthly distribution and the annual demand estimates can be refined when assessing the viable projects.

Spray Field Evapotranspiration

The ET distribution used for spray fields is based on the unadjusted reference ETo, for two reasons. ETo is the ET for a reference crop, which is either turfgrass (ETo) or alfalfa (ETr). Spray fields are basically intensive irrigated pasture, which can approach or even exceed the ETo. The other reason is that spray fields can still be used in the winter months (at a lower application rate) when no irrigation would normally be needed to support pasture. Spray fields maximize both the evaporation component and the transpiration component of ET.

The nominal value of 3 feet per year ET for spray fields used for fine screening is less than the 3.4 feet per year (ET-Pe) listed by Ripley, but keep in mind that Ripley's ETo may be a little high for the area, so 3 feet for fine screening purposes is more conservative.

Spray Field Slow-Rate Percolation

Slow-rate percolation capacity was estimated by taking the published permeability rates for the soils at Tonini Ranch (from USDA Soil Conservation Service report) and multiplying by 4 percent, as suggested by the EPA process design manual on Land Treatment of Municipal Wastewater (1981). Specifically, in section 4.5.1, the water balance equation given for monthly loading is:

$$Lw = ET - Pr + Pw$$

Lw = wastewater hydraulic loading rate
ET = evapotranspiration rate
Pr = Pe (effective precipitation)
Pw = percolation rate

The ET-Pe value is 3 feet per year, as discussed above, and the monthly distribution is proportioned to the reference ETo to reflect year-round hydraulic loading at the spray field. Pw, which is the slow-rate percolation component, is not to exceed 4% to 10% of the minimum soil permeability. Table 1 below lists the various soils and acreage (by planimeter) for Tonini Ranch on slopes less than 30%. The soils map is attached (Figure 1).

Table 1
Soil permeability at Spray Field site
(with acreage for slopes below 30 percent)

Soil Number - Type (area)	Listed Permeability (SCS -1984)
128 - Cropley clay (155 acres)	0.06-0.2 in/hr
131 - Diablo and Cibo clays (70 acres)	0.06-0.2 in/hr
191 - Pismo-Tierra complex (70 acres)	6.0 - 20 in/hr
121 - Conception loam (50 acres)	Variable (use 0.06-0.2 in/hr)
216 - Tierra sandy loam (40 acres)	Variable (use 0.06-0.2 in/hr)
169 - Marimel sandy clay loam, occ. flooded (15 acres)	0.2-0.6 in/hr

The lowest permeability listed in most cases is 0.06 in/hr. Using the most conservative slow-rate factor of 4 percent, the resulting percolation rate would be 0.0024 inches per hour, equivalent to 1.8 feet per year (assuming year-round operations). Spray fields ET (3 ft./yr) and slow-rate capacity (1.8 ft/yr) total 4.8 feet per year. Note that the total area of slopes less than 30 percent is 400 acres. Only 270 acres have been proposed for spray fields, with 190 acres of generally flat topography, and 80 acres with slopes up to 20 percent. If spray field operations are manageable on slopes between 20 and 30 percent, then more area would be available at the site.

Reservoir Storage Calculations

The required reservoir storage to accommodate spray fields at 1,120 AFY disposal was estimated at 170 AFY. The calculations (in AFY) are as follows:

Calculation 1 - Spray Field at 1,120 AFY

	Capacity	Flows	Storage
Oct	87.86	86	0
Nov	69.65	108	38.35
Dec	61.89	108	84.46
Jan	62.4	108	130.06
Feb	69.31	108	168.75
Mar	89.72	86	165.03
Apr	101.35	86	149.68
May	125.13	86	110.55
Jun	129.18	86	67.37
Jul	129.69	86	23.68
Aug	119.74	86	0
Sep	106.08	86	0
TOTAL	1152	1120	

Capacity for the Spray fields are determined by taking the nominal annual capacity of 1,152 AFY ((4.8 ft/yr * 190 acres) + (3 ft/yr * 80 acres)) and proportioning it according to the reference ETo distribution. The ET component of spray field capacity is 3 ft/yr * 270 acres = 810 AFY, and the slow-rate percolation component is 1.8 ft/yr * 190 acres = 342 AFY.

For example, in April the reference ETo listed by Ripley Pacific (Appendix TM 5-A) is 4.32 inches, which is 9% of the 48.03 inch annual total. The spray field capacity in April would be 9% of the annual ET capacity (810 AFY * 0.09 = 72.9 acre-feet) plus an equal monthly share of the slow-rate percolation capacity (342 AFY/12 months = 28.5 acre-feet), for a total capacity of 101.4 acre feet. As can be seen above, the maximum required storage is close to 170 acre-feet in February.

Ag reuse storage requirements are based on the crop demand. Flows to the ag areas are assumed to be constant year round (up to 460 AFY). The resulting storage calculations in AFY are:

Calculation 2 - Ag Resue at 460 AFY

	Flows	Demand	Storage
Oct	38.33	33	5.33
Nov	38.33	13	30.66
Dec	38.33	0	68.99
Jan	38.33	0	107.32
Feb	38.33	0	145.65
Mar	38.33	19	164.98
Apr	38.33	42	161.31
May	38.33	65	134.64
Jun	38.33	78	94.97
Jul	38.33	79	54.3
Aug	38.33	71	21.63
Sep	38.33	60	-0.04
TOTAL	460	460	

In this case, demand is proportioned using the Ripley Pacific distribution in Appendix TM 5-A, but adjusted to the nominal rate of 2 feet per year (which means we are talking about 230 acres of ag land to cover the demand listed above). For example, in April, the listed demand in Appendix TM 5-A is 3.70 inches (0.308 ft), which is 9.05 percent of the total annual demand of 40.9 inches. The corresponding water demand in April (adjusted to 2 ft/yr) would be 0.181 feet (2ft * 0.0905), and over 230 acres, the demand in April would be 41.6 acre-feet. Note that no water is applied from December through February, which is why the maximum storage requirement of 165 acre-feet in March is almost as much as the spray fields needs, even though the ag disposal capacity is less than half of the spray fields. The storage requirements for spray fields and ag reuse are redundant, such that only the greater value (not the sum) is actually needed.

At buildout, if ag reuse is assumed to be 460 AFY, and the balance (996 AFY) in spray fields, the actual required reservoir capacity will decline from 170 AFY to 165 AFY. This is because in the initial flows

(1,120 AFY) analysis, spray fields have the option to take all the flow. If, however, spray fields are needed to take all the flow at buildout, the needed reservoir capacity will go up. With expansion to handle full capacity (on an annual basis), the reservoir storage calculations in AFY are as follows:

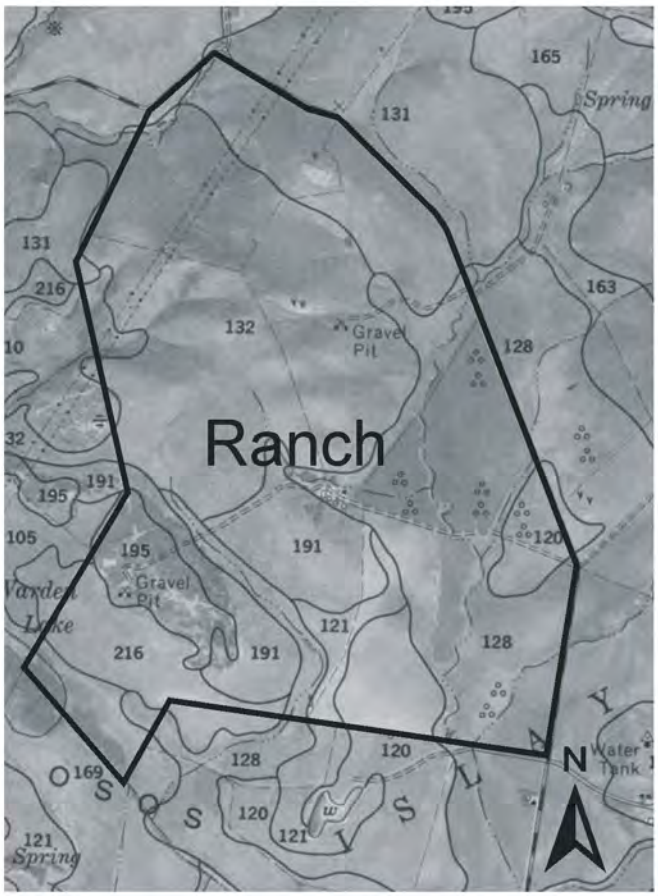
Calculation 3 - Spray Field at 1456 AFY

	Capacity	Flows	Storage
Oct	111.3	111.8	0.5
Nov	88.8	140.4	52.1
Dec	79.22	140.4	113.28
Jan	79.85	140.4	173.83
Feb	88.38	140.4	225.85
Mar	113.58	111.8	224.07
Apr	127.94	111.8	207.93
May	157.3	111.8	162.43
Jun	162.3	111.8	111.93
Jul	162.92	111.8	60.81
Aug	150.64	111.8	21.97
Sep	133.77	111.8	0
TOTAL	1456	1456	

Maximum storage would be 226 acre-feet in February, an increase of **56 acre-feet** over the 170 acre-feet initial requirement. *The disposal memo dated March 13, 2007 incorrectly states that the expansion to buildout would require an increase of 120 acre-feet in storage (total of 290 acre-feet). The 120 acre-feet value was actually the amount of storage required by the spray field for 996 AFY disposal rate at buildout (assuming 460 AFY to ag reuse), and inadvertently got mixed up with the other value.*

Revise cost items 8 and 9 to reflect expansion to 225 acre-feet, not 290 acre-feet.

Wet years would limit ET and ag demand, and increase inflow to the reservoir. Once viable projects are identified, a wet year analysis would be warranted. Credit for reservoir evaporation has also not been factored in, which is cumulative from year to year and likely significant. The cumulative reservoir evaporation could offset some or all of the wet year impacts.



Map Source: SCS Soil Survey of San Luis Obispo County - Coastal Part September 1984

Map Scale: 1 inch = 2,000 feet

Legend:

128 - Cropley clay
131, 132 - Diablo and Cibo clays
191 - Pismo-Tierra complex
120, 121 - Conception loam
216 - Tierra sandy loam
169 - Marimel sandy clay loam

Figure 1
Soils Map
Tonini Ranch
Los Osos Wastewater Project

Cleath & Associates

Cleath & Associates
Engineering Geologists
Ground Water
1390 Oceanaire Drive
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805-543-1413
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Memorandum

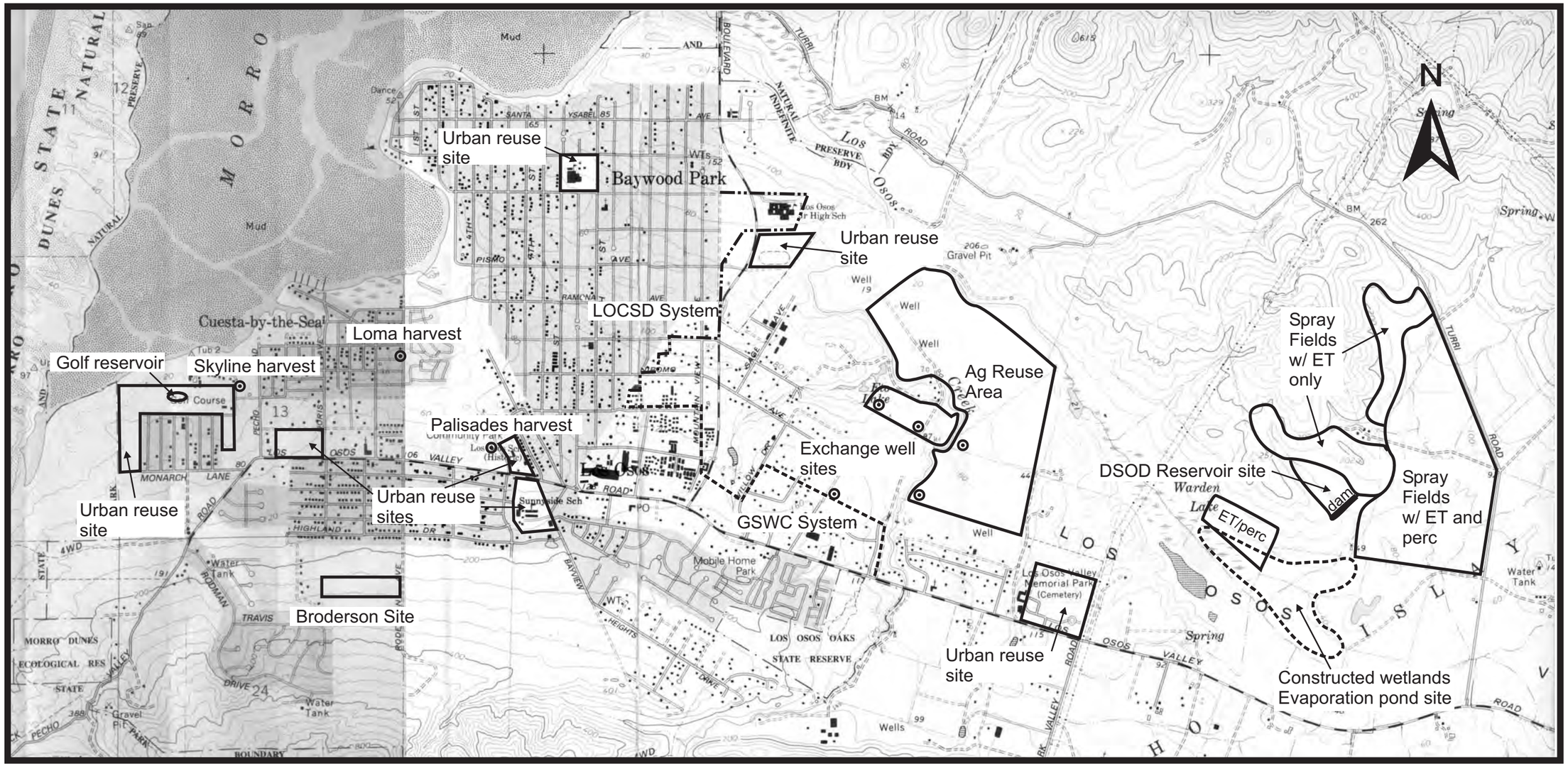
Date: February 7, 2008
From: Spencer Harris, Cleath & Associates
To: Mark Hutchinson, SLO County

Subject: **Disposal Options Summary (DRAFT)**

This memo summarizes disposal option parameters that have been requested by the EIR Team for use in upcoming discussions. Two figures are attached.

Fine Screening Disposal Options:

Location	Area for wastewater applications	Disposal Capacity	Slope
Spray Fields - Tonini Ranch			
w/ET and percolation	190 acres	910 AFY	0-10%
ET only	80 acres	240 AFY	<25%
Constructed terminal wetlands (ET)	60 acres	180 AFY	flat
Ag reuse areas (irrigation):			
west of Los Osos Creek	20 acres	40 AFY	flat
east of Los Osos Creek	210 acres	420 AFY	flat
Urban reuse sites (irrigation):			
Cemetery	20 acres	50 AFY	flat
Los Osos Middle School	10 acres	25 AFY	flat
Baywood Elementary	3 acres	7 AFY	flat
Sunnyside Elementary	2 acres	5 AFY	flat
Monarch Grove Elementary	2 acres	5 AFY	flat
South Bay Community Center	2 acres	5 AFY	flat
Sea Pines Golf (portion only)	7 acres	16 AFY	<10%
Broderson site (high-rate percolation):			
with harvest well pumping	7 acres	896 AFY	<10%
without harvest well pumping	7 acres	448 AFY	<10%



Base Map: USGS topographic map: Morro Bay South, revised 1994
Base Map Scale: 1 inch = 2000 feet

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FEBRUARY 2008

Figure 1A
Disposal Options (Topo Base)
Los Osos Wastewater Project
San Luis Obispo County

Cleath & Associates

Base Map: Orthophotograph from County Archives, August 1999
Base Map Scale: 1 inch = 2000 feet

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FEBRUARY 2008

Figure 1B
Disposal Options (Aerial Base)
Los Osos Wastewater Project
San Luis Obispo County

Cleath & Associates

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Memorandum

Date: June 4, 2008
From: Spencer Harris, Cleath & Associates
To: County Staff, LOWWP Consultants

Subject: **Tonini Site Reconnaissance**

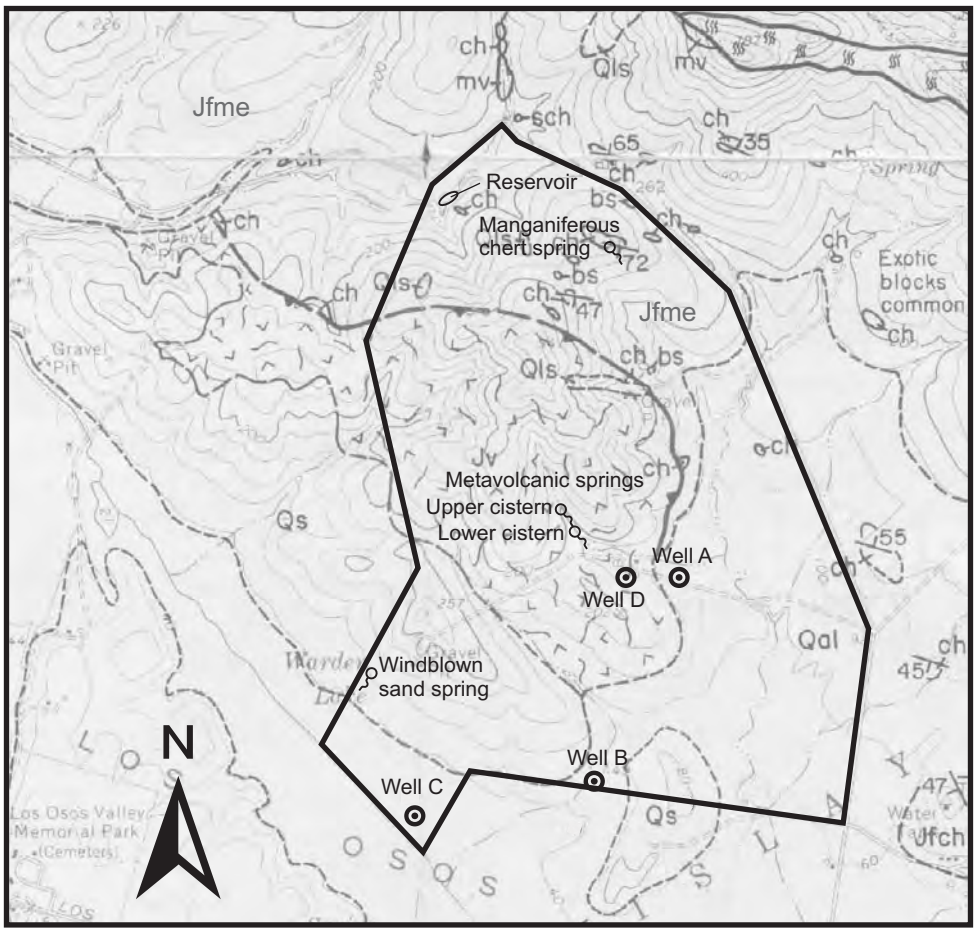
This memorandum presents information gathered during hydrogeologic site reconnaissance at Tonini Ranch on May 20, 2008. Photographs of selected features and laboratory analytical results of water samples are attached.

Water Well/Spring Locations

Four wells were found on the property. Three of the wells were equipped and operational. The fourth well (Well D) was disconnected and out of service, although the adjacent pressure tank had been reconnected to another source, presumably Well A. Four springs were found in the property, three of which had been developed for stock water. The approximate locations of these features are given in Table 1 and Figure 1.

Table 1
Approximate Well and Spring Coordinates
Tonini Ranch

Well/Spring ID	Latitude	Longitude	Elevation
Well A (entry road):	N 35° 18' 48.5"	W 120° 46' 53.3"	109 ft.
Well B (south property line)	N 35° 18' 27.5"	W 120° 47' 03.8"	49 ft.
Well C (Warden Lake area)	N 35° 18' 24.2"	W 120° 47' 26.8"	23 ft.
Well D (barn well)	N 35° 18' 48.7"	W 120° 46' 58.8"	150 ft.
Upper cistern metavolcanics spring	N 35° 18' 55.9"	W 120° 47' 07.9"	225 ft.
Lower cistern metavolcanics spring	N 35° 18' 53.4"	W 120° 47' 05.9"	190 ft.
Manganiferous chert spring	N 35° 19' 21.9"	W 120° 46' 59.4"	355 ft.
Windblown sand spring	N 35° 18' 39.8"	W 120° 47' 31.1"	80 ft.



Geology: C.A. Hall, 1973, Geologic Map of the Morro Bay
South and Port San Luis Quadrangles

Map Scale: 1 inch = 2000 feet

Legend

Well
Spring

Qal - alluvial deposits
Qs - sand dune deposits, including older stabilized dune deposits. Portions possibly Paso Robles Fm.
Qls - landslide deposits
Jv - Franciscan Fm. metavolcanics
Jfme - Franciscan Fm. Mélange with ch (chert), mv (metavolcanics) and bs (blue schist)

Figure 1

Tonini Geology
and Water Features
Los Osos Wastewater Project

Cleath & Associates

Well Information

Three of the water wells were sampled for general mineral analyses (attached). Some construction information was available on these wells from in-house files. The available wells information is summarized in Table 2.

Table 2
Well Information
Tonini Ranch

Well ID	Casing Diameter	Perforations (depth in ft)	Depth to Water (ft)	Air Lift (gpm)	Temp (F)	Field EC (µmhos/cm)	Discharge Pipe Diameter
Well A	8" PVC	20-60	19.5	75	67.8	830	2.5"
Well B	6" PVC	35-65	7.1	50	--	--	2.5"
Well C	8" PVC	35-95	7.5	150+	63.3	1086	3"
Well D	--	--	42	--	--	--	--

Notes: Depth to water measured 5/20/08
Air lift gpm is from initial driller reports which are typically greater than pump discharge rates
ft = feet; gpm = gallons per minute; F = Fahrenheit
µmhos/cm = micromhos per centimeter

Metavolcanics Springs

Two springs issuing from Franciscan Formation metavolcanics have been developed into rock-lined cisterns along the drainage channel northwest of the ranch compound. Flow from a one-inch diameter pipe leading from the upper cistern was measured at 80 seconds for one quart (0.2 gpm) with a temperature of 65.5^{O} Fahrenheit (F) and a field electrical conductivity (EC) of 545 micromhos per centimeter (µmhos/cm). The upper cistern flow was sampled for analytical testing. The lower cistern is connected to a stock water trough. Water from the lower cistern measured 68° F with a field EC of 581 µmhos/cm.

Manganiferous Chert Spring

A spring draining manganese-bearing chert was visited at a relatively high elevation on the property. The spring is located inside a small rock hollow, where a cement dam pools the flow, which is then connected to a nearby stock water trough. The spring water was 66.5^{O} F, with a field EC of 280 µmhos/cm. The manganiferous chert zone extends to a lower elevation on the property where it has been mined.

Windblown Sand Spring Zone

A linear exposure of spring seeps was observed mid-slope in the area of stabilized sand dune deposits on the southern portion of the property. One of the seeps had pooled in a small depression, where water temperature was 70° F with a field EC of 574 µmhos/cm. The spring zone extends onto the adjacent property to the west. An impermeable layer such as bedrock is interpreted to be present at a relatively shallow depth beneath the spring zone, causing water within the dune sands to surface along the slope.

Other Information

The drillers log for the entry road well indicates alluvial deposits in that area (between Turri Road and the ranch compound) are close to 20 feet thick, underlain by another 20 feet of weathered bedrock, and then hard bedrock. The alluvium increases in thickness to the south, toward the Los Osos Valley. Field notes from drilling in the late 1980's indicates the on-site alluvial deposits reach depths of approximately 50-70 feet in the Warden Lake area. Ground water wells produce water from both the alluvium and underlying fractured/weathered bedrock.

A small reservoir is located on the property in a drainage along the northern property boundary. This reservoir is fed by runoff supplemented by spring flow. The reservoir and nearby spring(s) were not visited during site reconnaissance.

There are two gravel pit symbols on the U.S.G.S. topographic map for the ranch. The pit shown on an east-facing slope in the northeast portion of the property is an inactive manganese mine which is cut into the manganiferous chert body. The pit shown on a southwest-facing slope near the Warden Lake area was probably used as a source of sand. The area is now vegetated with some topographic depressions that may have been former excavations.

Peas are being grown on the ranch using drip irrigation. Cattle were grazing on areas of the ranch near Warden Lake during the site inspection. Nothing was observed from a hydrogeologic perspective that would preclude using portions of the site for spray fields as identified in previous work.

Attachments:

Photographs from site visit on May 20, 2008
Water quality results

Tonini Ranch Wells

Image 1: Well A (Entry road)

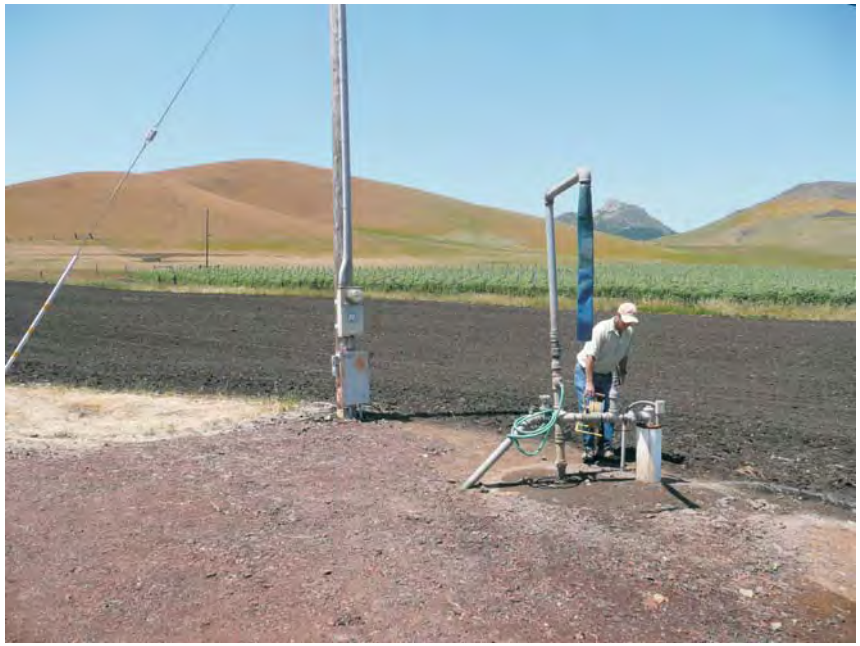


Image 2: Well B (Southern property line)

Image 3: Well C (Warden Lake)

Image 4: Well D (Old barn)

Tonini Ranch Springs and Mine

Image 5: Metavolcanics springs

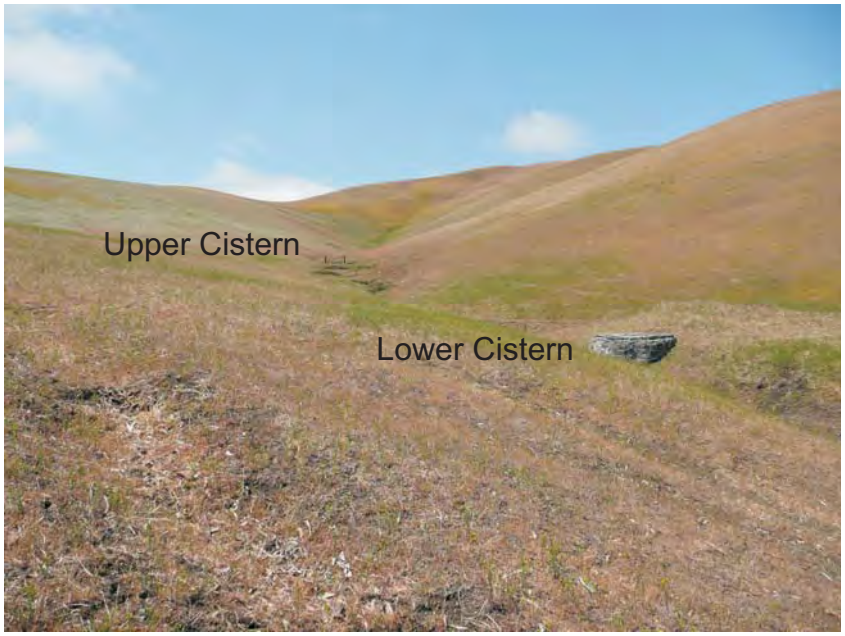


Image 6: Manganiferous chert spring

Image 7: Windblown sand spring

Image 8: Manganese open pit mine (in chert)

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San Luis Obispo, CA 93405

Log Number: 08-C7078
Order: P2638
Project: Los Osos Wastewater Project
Received: 05/21/08
Printed: 06/02/08

REPORT OF ANALYTICAL RESULTS

Sample Description	Sampled By	Sampled Date @ Time	Matrix
Tonini Well A	S. Harris	05/20/08@14:10	Drinking Water

Analyte	Result	DLR	Dilution Factor	Units	Method	Date Analyzed	Date Prepared	Batch
Total Alkalinity as CaCO3	200	2	1	mg/L	SM 2320B	06/02/08		8079
Chloride	100	10	10	mg/L	EPA 300.0	05/24/08		7868
Electrical Conductance	850	1	1	umhos/cm	SM 2510 B	05/21/08		7847
Nitrate as N	8.4	0.1	1	mg/L	EPA 300.0	05/21/08		7701
Nitrate as NO3	37	0.4	1	mg/L	EPA 300.0			
pH	7.5	0.1	1	pH units	SM 4500-H B	05/21/08		7847
Sulfate	39	0.5	1	mg/L	EPA 300.0	05/21/08		7701
Total Dissolved Solids	490	10	1	mg/L	SM 2540C	05/23/08		7907
Boron	0.21	0.05	1	mg/L	EPA 200.7	05/23/08		7879
Calcium	63	0.03	1	mg/L	EPA 200.7	05/23/08		7879
Hardness as CaCO3	310	1	NA	mg/L	EPA 200.7			
Sodium Adsorption Ratio (SAR)	2.5	0.1	1		EPA 200.7	05/27/08		7887
Copper	Not Detected	0.05	1	mg/L	EPA 200.7	05/23/08		7879
Iron	0.13	0.02	1	mg/L	EPA 200.7	05/23/08		7879
Potassium	0.6	0.1	1	mg/L	EPA 200.7	05/23/08		7879
Magnesium	37	0.03	1	mg/L	EPA 200.7	05/23/08		7879
Manganese	Not Detected	0.02	1	mg/L	EPA 200.7	05/23/08		7879
Sodium	99	0.05	1	mg/L	EPA 200.7	05/23/08		7879
Zinc	Not Detected	0.05	1	mg/L	EPA 200.7	05/23/08		7879

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

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Lab Director, Michael Ng

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Log Number: 08-C7079
Order: P2638
Project: Los Osos Wastewater Project
Received: 05/21/08
Printed: 06/02/08

REPORT OF ANALYTICAL RESULTS

Sample Description	Sampled By	Sampled Date @ Time	Matrix
Tonini Spring	S. Harris	05/20/08@14:34	Drinking Water

Analyte	Result	DLR	Dilution Factor	Units	Method	Date Analyzed	Date Prepared	Batch
Total Alkalinity as CaCO3	190	2	1	mg/L	SM 2320B	06/02/08		8079
Chloride	41	1	1	mg/L	EPA 300.0	05/21/08		7701
Electrical Conductance	560	1	1	umhos/cm	SM 2510 B	05/21/08		7847
Nitrate as N	3.5	0.1	1	mg/L	EPA 300.0	05/21/08		7701
Nitrate as NO3	15	0.4	1	mg/L	EPA 300.0			
pH	7.7	0.1	1	pH units	SM 4500-H B	05/21/08		7847
Sulfate	15	0.5	1	mg/L	EPA 300.0	05/21/08		7701
Total Dissolved Solids	320	10	1	mg/L	SM 2540C	05/23/08		7907
Boron	0.07	0.05	1	mg/L	EPA 200.7	05/23/08		7879
Calcium	43	0.03	1	mg/L	EPA 200.7	05/23/08		7879
Hardness as CaCO3	170	1	NA	mg/L	EPA 200.7			
Sodium Adsorption Ratio (SAR)	2.1	0.1	1		EPA 200.7	05/27/08		7887
Copper	Not Detected	0.05	1	mg/L	EPA 200.7	05/23/08		7879
Iron	0.02	0.02	1	mg/L	EPA 200.7	05/23/08		7879
Potassium	1.4	0.1	1	mg/L	EPA 200.7	05/23/08		7879
Magnesium	15	0.03	1	mg/L	EPA 200.7	05/23/08		7879
Manganese	0.48	0.02	1	mg/L	EPA 200.7	05/23/08		7879
Sodium	62	0.05	1	mg/L	EPA 200.7	05/23/08		7879
Zinc	Not Detected	0.05	1	mg/L	EPA 200.7	05/23/08		7879

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

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Lab Director, Michael Ng

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Log Number: 08-C7080
Order: P2638
Project: Los Osos Wastewater Project
Received: 05/21/08
Printed: 06/02/08

REPORT OF ANALYTICAL RESULTS

Sample Description	Sampled By	Sampled Date @ Time	Matrix
Tonini Well B	S. Harris	05/20/08@14:55	Drinking Water

Analyte	Result	DLR	Dilution Factor	Units	Method	Date Analyzed	Date Prepared	Batch
Total Alkalinity as CaCO3	140	2	1	mg/L	SM 2320B	06/02/08		8079
Chloride	230	10	10	mg/L	EPA 300.0	05/24/08		7868
Electrical Conductance	1,100	1	1	umhos/cm	SM 2510 B	05/21/08		7847
Nitrate as N	6.6	0.1	1	mg/L	EPA 300.0	05/21/08		7701
Nitrate as NO3	29	0.4	1	mg/L	EPA 300.0			
pH	7.0	0.1	1	pH units	SM 4500-H B	05/21/08		7847
Sulfate	24	0.5	1	mg/L	EPA 300.0	05/21/08		7701
Total Dissolved Solids	660	10	1	mg/L	SM 2540C	05/23/08		7907
Boron	0.20	0.05	1	mg/L	EPA 200.7	05/23/08		7879
Calcium	61	0.03	1	mg/L	EPA 200.7	05/23/08		7879
Hardness as CaCO3	300	1	NA	mg/L	EPA 200.7			
Sodium Adsorption Ratio (SAR)	2.4	0.1	1		EPA 200.7	05/27/08		7887
Copper	Not Detected	0.05	1	mg/L	EPA 200.7	05/23/08		7879
Iron	0.12	0.02	1	mg/L	EPA 200.7	05/23/08		7879
Potassium	0.6	0.1	1	mg/L	EPA 200.7	05/23/08		7879
Magnesium	35	0.03	1	mg/L	EPA 200.7	05/23/08		7879
Manganese	Not Detected	0.02	1	mg/L	EPA 200.7	05/23/08		7879
Sodium	94	0.05	1	mg/L	EPA 200.7	05/23/08		7879
Zinc	Not Detected	0.05	1	mg/L	EPA 200.7	05/23/08		7879

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

CREEK ENVIRONMENTAL LABORATORIES

Lab Director, Michael Ng

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Spencer Harris
Cleath & Associates
1390 Oceanaire Drive
San Luis Obispo, CA 93405

Log Number: 08-C7081
Order: P2638
Project: Los Osos Wastewater Project
Received: 05/21/08
Printed: 06/02/08

REPORT OF ANALYTICAL RESULTS

Sample Description	Sampled By	Sampled Date @ Time	Matrix
Tonini Well C	S. Harris	05/20/08@15:48	Drinking Water

Analyte	Result	DLR	Dilution Factor	Units	Method	Date Analyzed	Date Prepared	Batch
Total Alkalinity as CaCO3	130	2	1	mg/L	SM 2320B	06/02/08		8079
Chloride	230	10	10	mg/L	EPA 300.0	05/24/08		7868
Electrical Conductance	1,100	1	1	umhos/cm	SM 2510 B	05/21/08		7847
Nitrate as N	6.6	0.1	1	mg/L	EPA 300.0	05/21/08		7701
Nitrate as NO3	29	0.4	1	mg/L	EPA 300.0			
pH	7.0	0.1	1	pH units	SM 4500-H B	05/21/08		7847
Sulfate	24	0.5	1	mg/L	EPA 300.0	05/21/08		7701
Total Dissolved Solids	670	10	1	mg/L	SM 2540C	05/23/08		7907
Boron	0.20	0.05	1	mg/L	EPA 200.7	05/23/08		7879
Calcium	58	0.03	1	mg/L	EPA 200.7	05/23/08		7879
Hardness as CaCO3	280	1	NA	mg/L	EPA 200.7			
Sodium Adsorption Ratio (SAR)	2.5	0.1	1		EPA 200.7	05/27/08		7887
Copper	Not Detected	0.05	1	mg/L	EPA 200.7	05/23/08		7879
Iron	0.16	0.02	1	mg/L	EPA 200.7	05/23/08		7879
Potassium	1.8	0.1	1	mg/L	EPA 200.7	05/23/08		7879
Magnesium	34	0.03	1	mg/L	EPA 200.7	05/23/08		7879
Manganese	0.45	0.02	1	mg/L	EPA 200.7	05/23/08		7879
Sodium	96	0.05	1	mg/L	EPA 200.7	05/23/08		7879
Zinc	Not Detected	0.05	1	mg/L	EPA 200.7	05/23/08		7879

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

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APPENDIX C
GROUNDWATER MODEL
HYDROGEOLOGIC BUDGET RESULTS

Cleath & Associates
Engineering Geologists
Ground Water
1390 Oceanaire Drive
San Luis Obispo, CA 93405
805-543-1413
FAX: 805-543-1755

Memorandum

Date: August 7, 2008
From: Spencer Harris, Cleath & Associates
To: County staff and LOWWP consultants

Subject: **Basin hydrologic budget with simulated ground water elevation contour maps.**

This memorandum presents hydrologic budgets for the Los Osos Valley ground water basin under current conditions and under Los Osos Wastewater Project (LOWWP) viable project alternative (VPA) 2a and 2b. In addition, hydrologic budgets were prepared that isolate specific project components for use in environmental impacts analyses. The hydrologic budgets included in this memorandum and their description are shown in Table 1.

Table 1
Hydrologic Budget Scenario Descriptions

Scenario ID	Water Conservation (AFY)	Wastewater Disposal Method (AFY)		
		Spray Field	Broderson	Ag Reuse
Current Conditions	0	0	0	0
Spray Field	0	1157	0	0
Conservation	160	997	0	0
Broderson	0	709	448	0
Ag Reuse	0	677	0	480
VPA 2a	160	69	448	480
VPA 2b	160	549	448	0

Wastewater collection and disposal flows in the model are 1,157 AFY, which was the current condition estimated in 2003. Increasing wastewater flows to match plant design capacity increases spray field disposal in the above scenarios. Wastewater project scenarios were simulated based on current conditions well production to maintain consistency.

Ag reuse (combined with cemetery irrigation) was simulated at 480 AFY, which is slightly less than the sum assigned to wastewater project VPA 2a (460 AFY crop irrigation plus 50 AFY cemetery turf grass irrigation). The estimate for VPA2a was based on a nominal 230 acres of agricultural land at 2 feet of applied irrigation per year and 20 acres of cemetery turf at 2.5 feet of applied irrigation per year. Production assignments in the model are linked to individual fields and cropping patterns. The model production estimates were retained for the simulations, being more detailed and slightly conservative.

Attached to this memo are detailed hydrologic budgets, flow diagrams, and simulated ground water elevation contour maps for the seven scenarios, including a recharge zone map with pertinent accompanying tables from Yates (2003), Simulated Effects of a Proposed Sewer Project on Nitrate Concentrations in the Los Osos Valley Groundwater Basin.

Status of EFH steady state basin model

The equivalent freshwater head (EFH) steady-state basin model was used to generate the hydrologic budgets and the accompanying water level contours. Several updates have been made to the model since the 2005 sea water intrusion study. The changes include:

- Revising a portion of the Los Osos creek bed elevations to more closely match the topographic gradient of the stream channel
- Adding of Warden Creek as a drainage channel in the northeast creek valley
- Adding a general head boundary representing leakage from the Bayview Heights area into the upper aquifer.
- Merging the first two layers of the 2005 EFH model into one upper aquifer layer. The separation of the upper aquifer was a carry-over from 2003 solute transport modeling.
- Shifting a portion of purveyor production from the west side lower aquifer inland, and some production to the upper aquifer.

The current and prior model calibration statistics are shown in Table 1 below.

Table 1
Residuals Statistics

Parameter	Steady-State (2003)	Steady-State (2004 Update)	Steady-State (2005 EFH)	Steady-State (2008 EFH)
Residual Mean	2.44 feet	0.03 feet	0.57 feet	0.93 feet
Residual Standard Deviation	7.17 feet	5.61 feet	5.34 feet	4.66 feet
Absolute Residual Mean	5.59 feet	4.42 feet	4.24 feet	3.73 feet
Ratio of RSD to range	11.4%	8.9%	8.0%	7.0%
Range in head	63 feet	63 feet	67 feet	67 feet
Residual difference <10 feet	81%	92%	92%	95%
Residual difference <20 feet	100%	100%	100%	100%

A summary of the scenario hydrologic budgets are shown in Table 2. Attached to this memo are detailed hydrologic budgets, flow diagrams, and simulated upper (Zone C) and lower (Zone D) aquifer ground water elevation contour maps for the seven scenarios, including a recharge zone map with pertinent accompanying tables from Yates (2003), Simulated Effects of a Proposed Sewer Project on Nitrate Concentrations in the Los Osos Valley Groundwater Basin.

Table 2
Hydrologic Budget Summary
June 2008

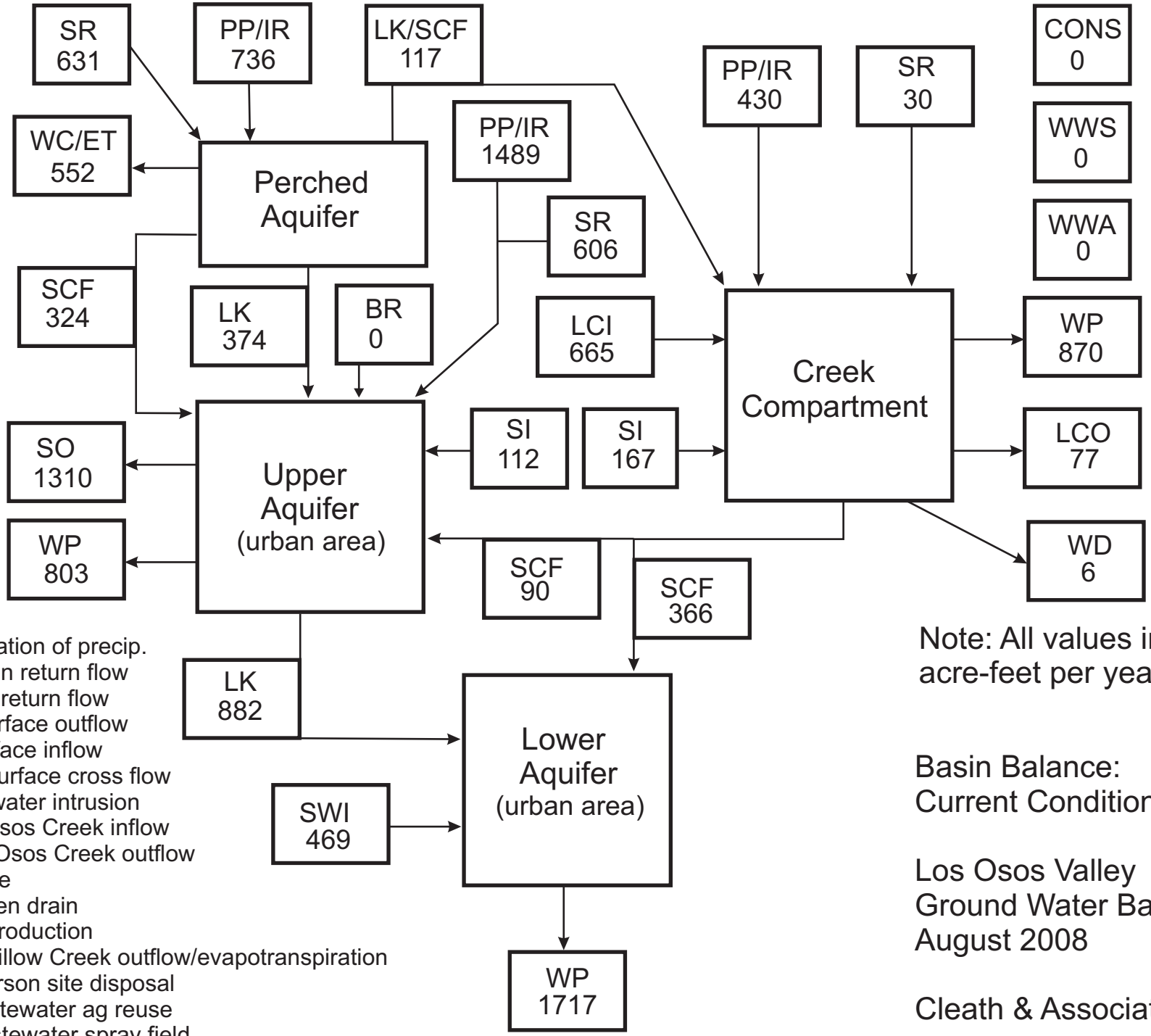
Aquifer	Budget Item (Basin IN/OUT)	Current Condition (AFY)	Component-Specific Scenarios (AFY)				Project Scenarios (AFY)	
			Spray Field	Conservation	Broderson	Ag Reuse	VPA 2a	VPA 2b
Perched Aquifer	Septic Return (IN)	631	36	36	36	36	36	36
	Percolation of precipitation/irrigation return (IN)	736	736	736	736	736	736	736
	Leakage/subsurface outflow to upper aquifer	698	634	634	634	634	634	634
	Leakage/subsurface outflow to creek compartment	117	103	103	103	103	103	103
	Willow Creek outflow/evapotranspiration (OUT)	552	35	35	35	35	35	35
Upper Aquifer	Septic Return (IN)	606	44	44	44	44	44	44
	Percolation of precipitation/irrigation return (IN)	1489	1489	1489	1489	1489	1489	1489
	Subsurface inflow from creek compartment	187	255	231	206	219	148	182
	Subsurface inflow from Bayview Heights (IN)	112	120	117	109	113	100	107
	Broderson recharge (IN)	0	0	0	448	0	448	448
	Subsurface outflow to bay/ocean (OUT)	1310	871	916	1121	910	1209	1169
	Well production (OUT)	803	803	803	803	803	803	803
	Leakage to lower aquifer	882	771	699	909	689	754	835
Creek Compartment	Septic Return (IN)	30	30	30	30	30	30	30
	Percolation of precipitation/irrigation return (IN)	430	430	430	430	430	430	430
	Los Osos Creek inflow (IN)	665	714	701	674	524	492	665
	Subsurface inflow from bedrock (IN)	167	170	169	167	141	137	166
	Los Osos Creek outflow (OUT)	77	32	38	52	126	168	60
	Warden drain (OUT)	6	2	4	6	76	88	9
	Well production (OUT)	870	870	870	870	390	390	870
	Subsurface flow to Urban Area upper aquifer	90	158	134	109	122	51	85
	Subsurface flow to Urban Area lower aquifer	366	385	387	367	514	495	370
Lower Aquifer	Sea water intrusion (IN)	469	561	471	441	514	308	352
	Well production (OUT)	1717	1717	1557	1717	1717	1557	1557

ATTACHMENTS

Hydrologic budget flow diagrams
Simulated ground water elevation contour maps
Hydrologic budget details for:
- Current Condition
- Spray Field
- Conservation
- Broderson
- Ag Reuse
- VPA 2a
- VPA 2b

Recharge Zone Map

Table 4 and Table 9 from Yates (2003)



Legend

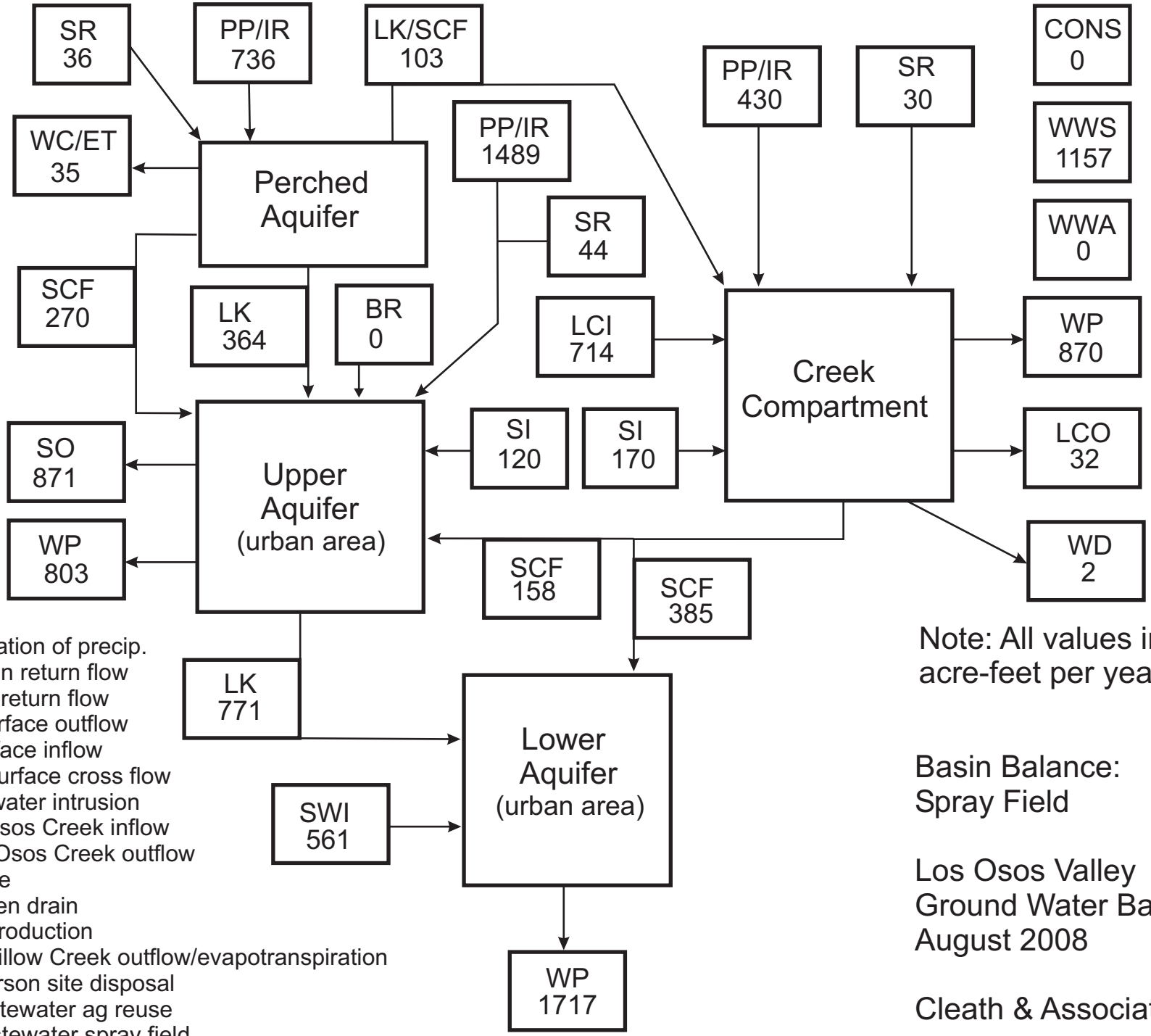
PP = percolation of precip.
IR = irrigation return flow
SR = septic return flow
SO = subsurface outflow
SI = subsurface inflow
SCF = subsurface cross flow
SWI = sea water intrusion
LCI = Los Osos Creek inflow
LCO = Los Osos Creek outflow
LK = leakage
WD = Warden drain
WP = well production
WC/ET = Willow Creek outflow/evapotranspiration
BR = Broderson site disposal
WWA = wastewater ag reuse
WWS = wastewater spray field
CONS = water conservation

Note: All values in acre-feet per year

Basin Balance: Current Conditions

Los Osos Valley Ground Water Basin
August 2008

Cleath & Associates



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Basin Balance: Spray Field

Los Osos Valley Ground Water Basin
August 2008

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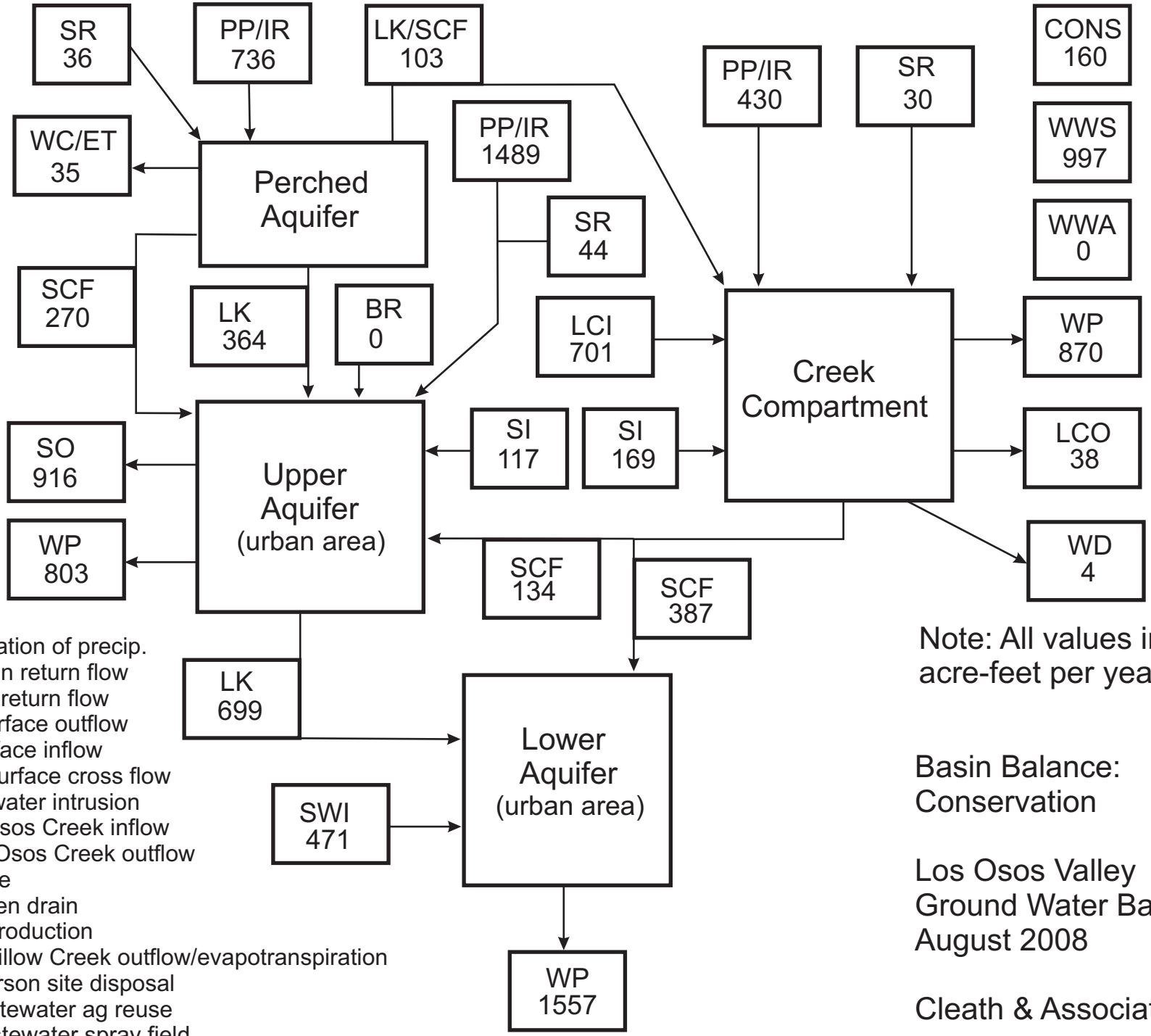

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Basin Balance: Conservation

Los Osos Valley Ground Water Basin
August 2008

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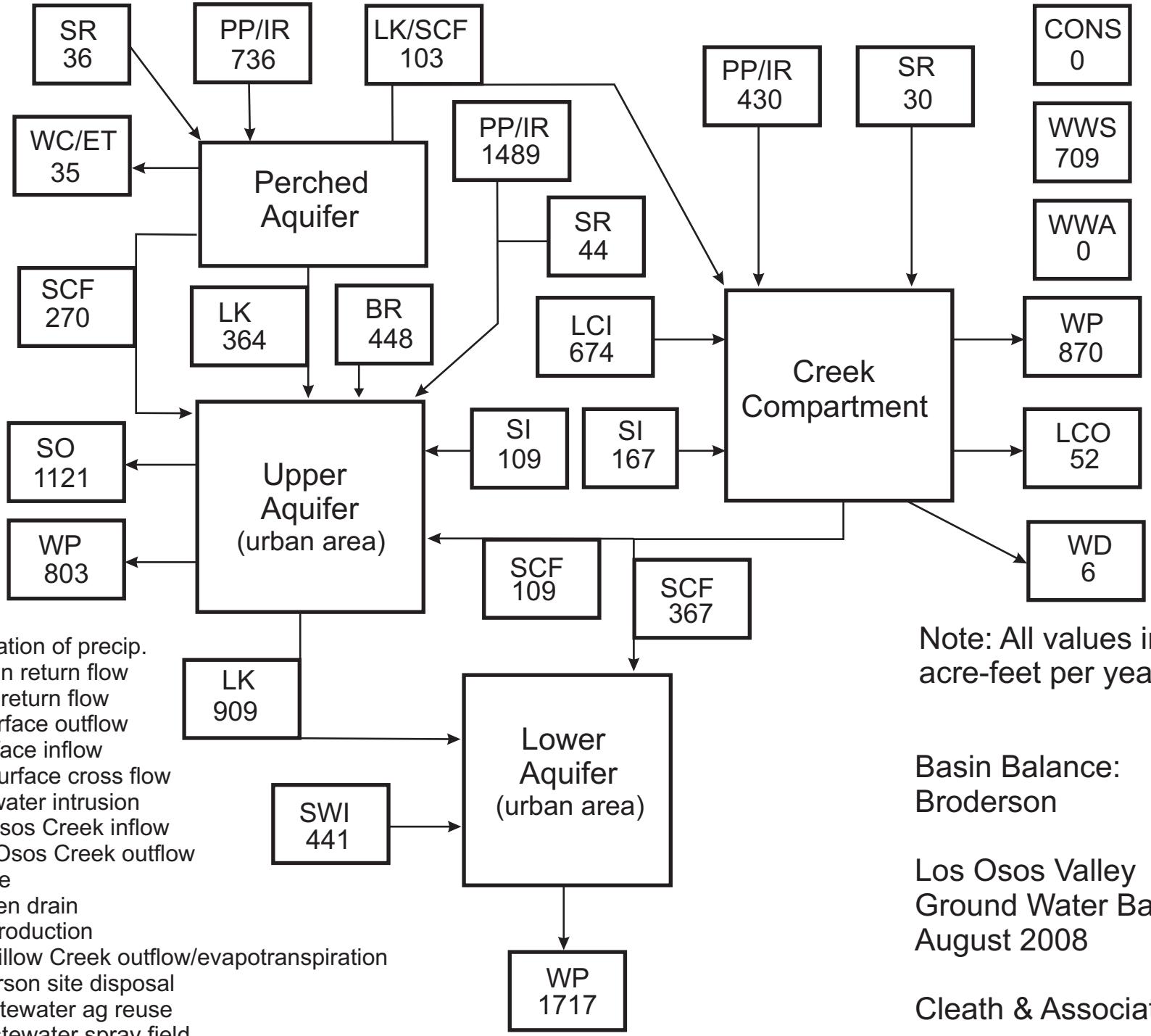

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Note: All values in acre-feet per year

Basin Balance: Broderson

Los Osos Valley Ground Water Basin
August 2008

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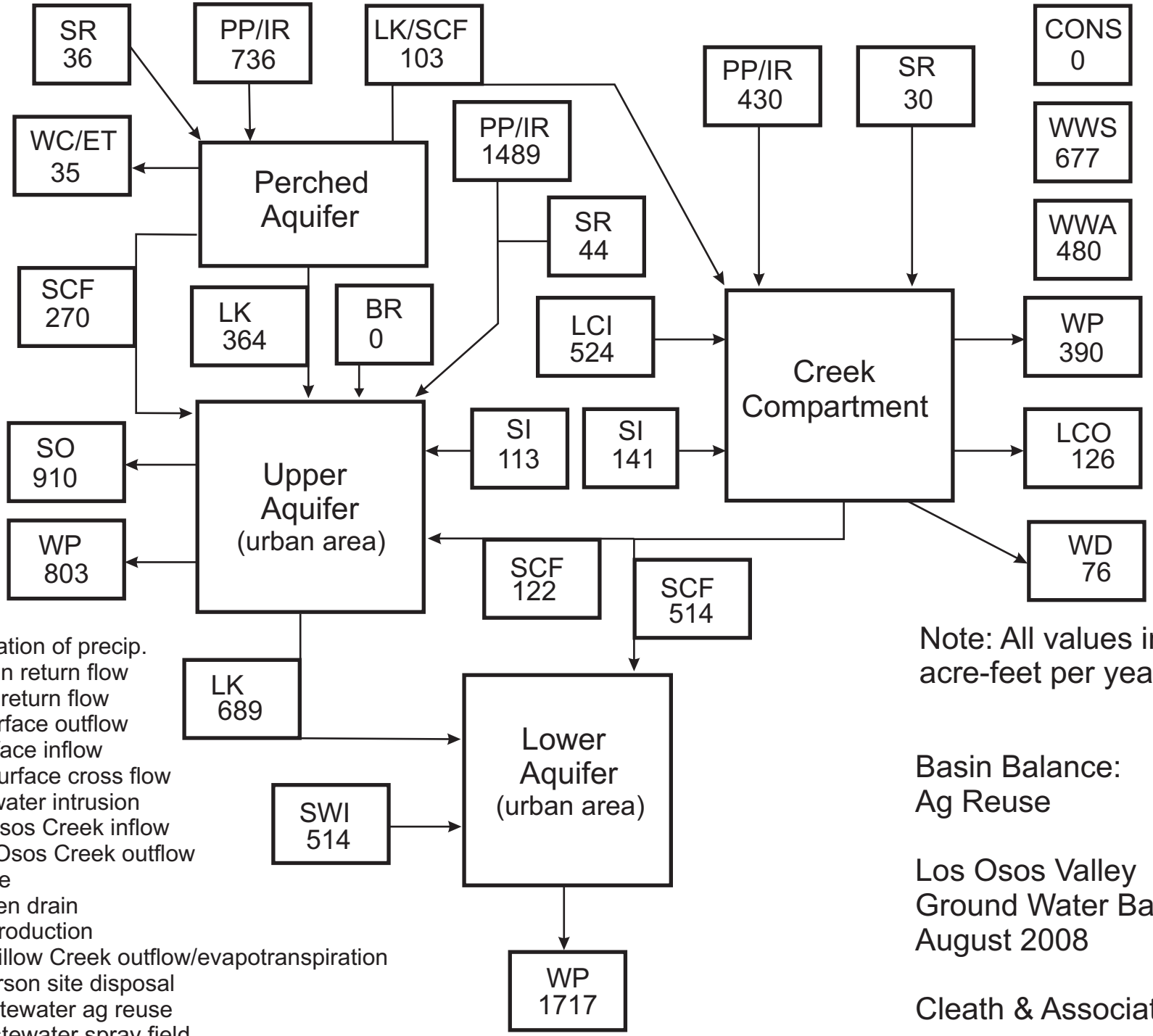

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Note: All values in acre-feet per year

Basin Balance:
Ag Reuse

Los Osos Valley
Ground Water Basin
August 2008

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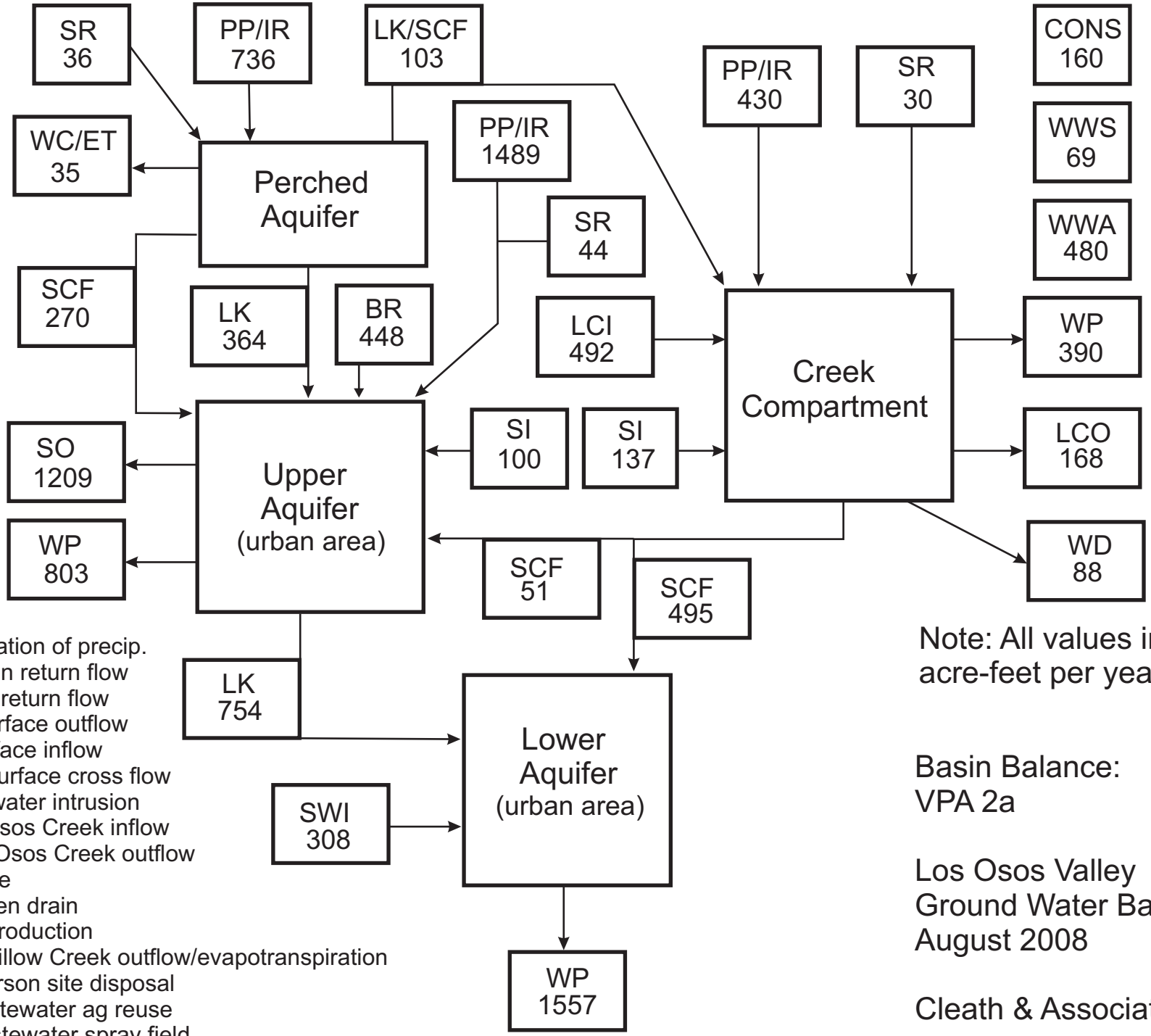

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Note: All values in acre-feet per year

Basin Balance:
VPA 2a

Los Osos Valley
Ground Water Basin
August 2008

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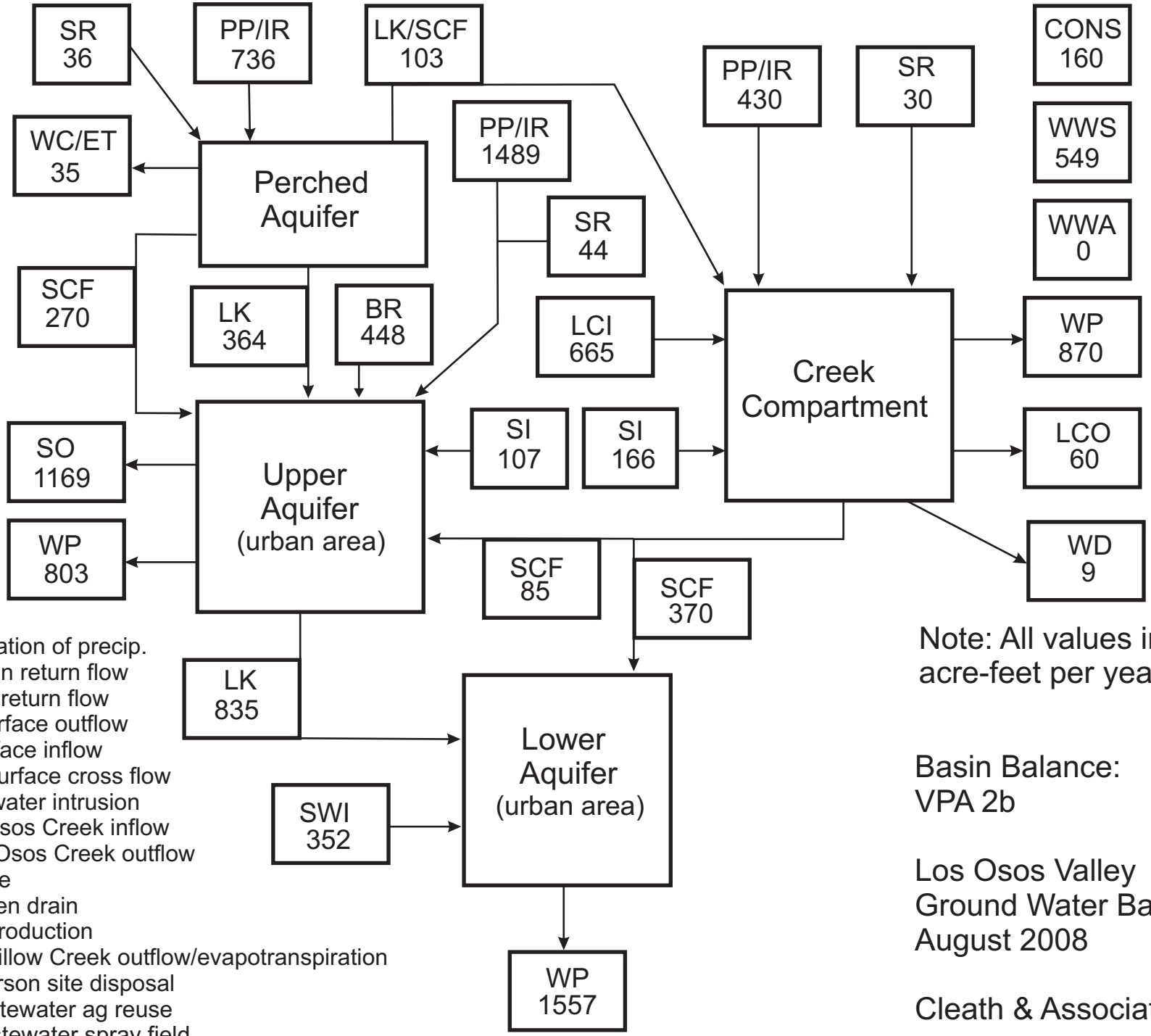

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CONS = water conservation

Note: All values in acre-feet per year

Basin Balance:
VPA 2b

Los Osos Valley
Ground Water Basin
August 2008

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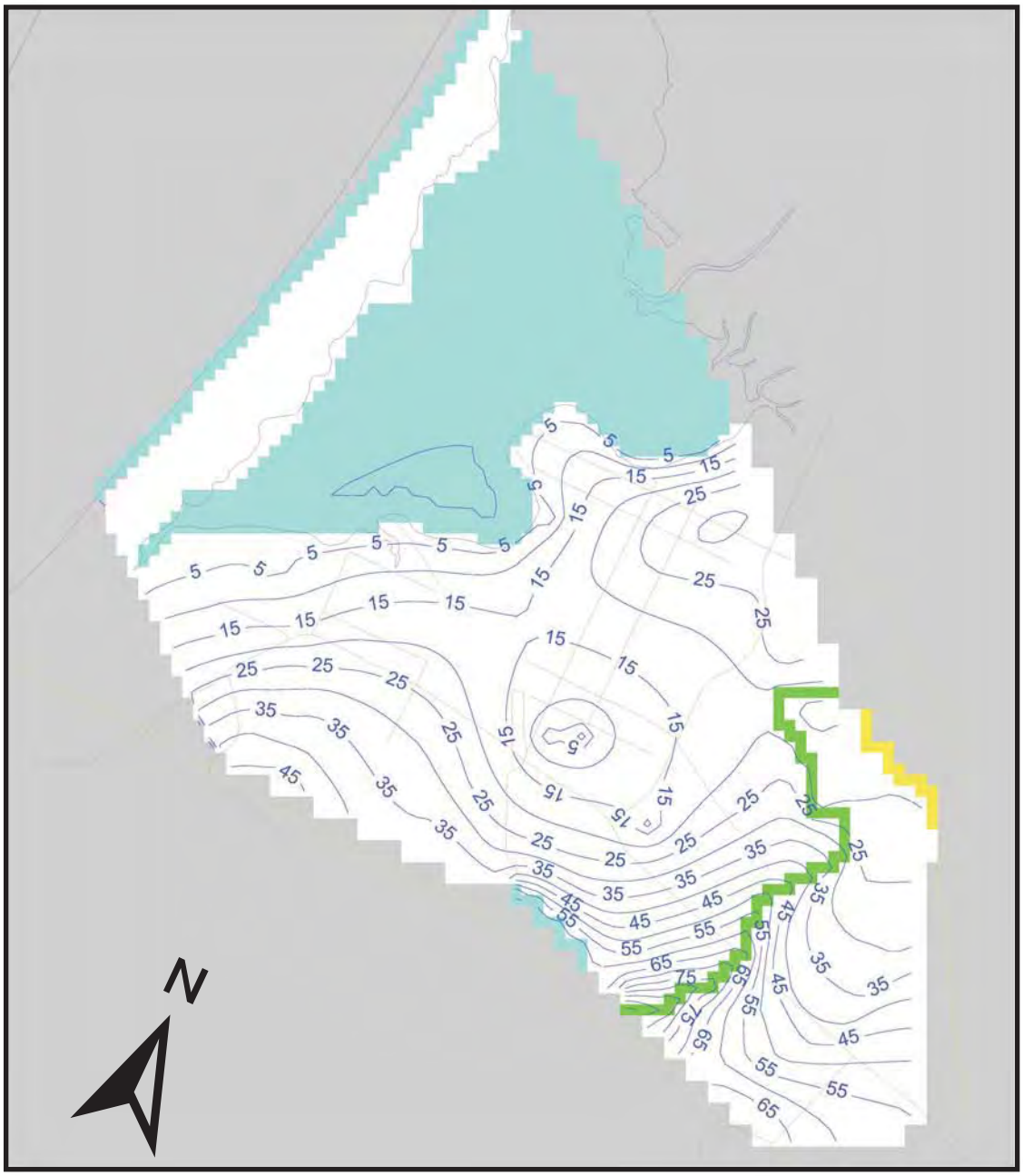

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Simulated Ground Water Elevations
Upper Aquifer
Current Conditions
June 2008 EFH Model
Los Osos Wastewater Project

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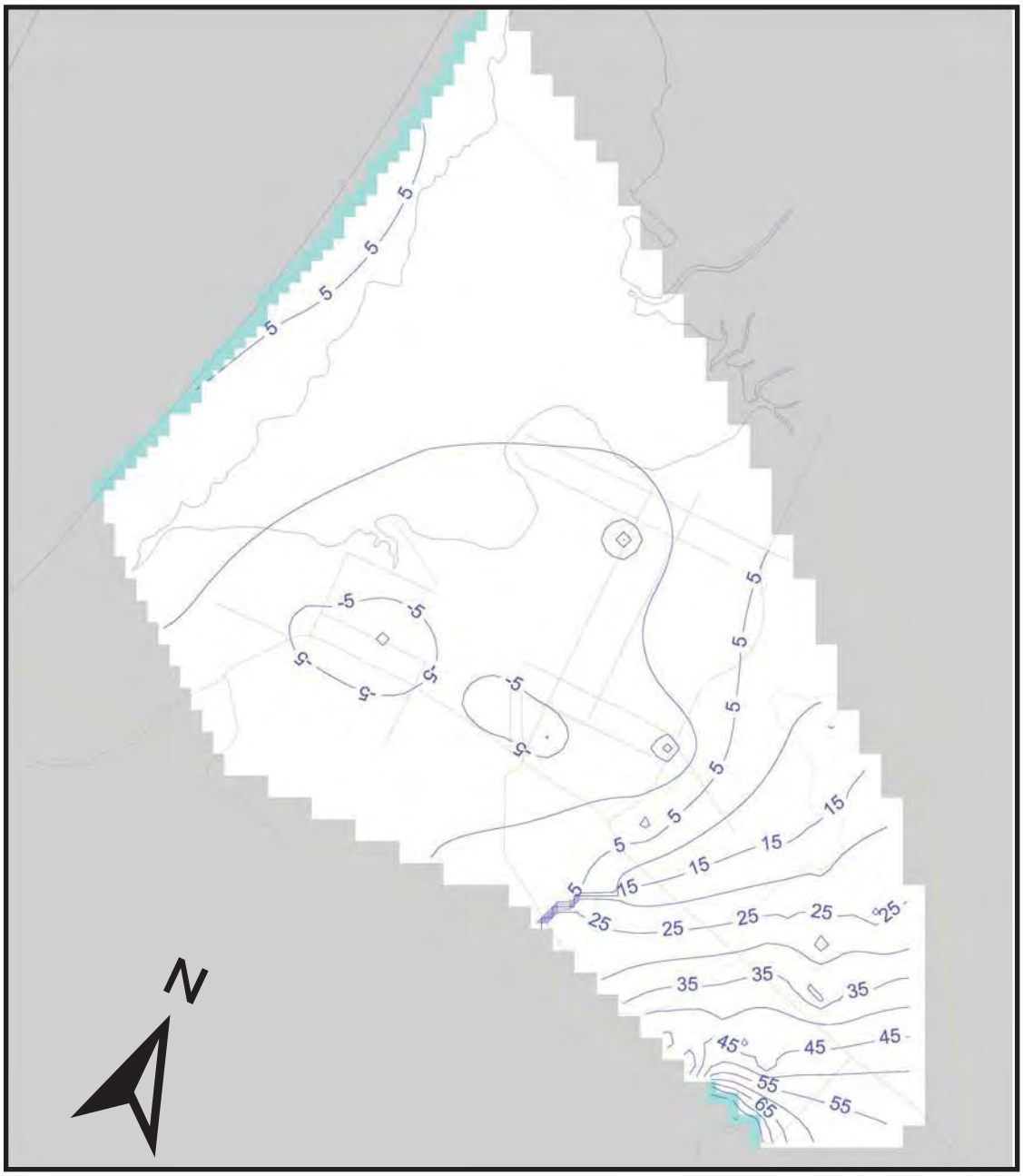

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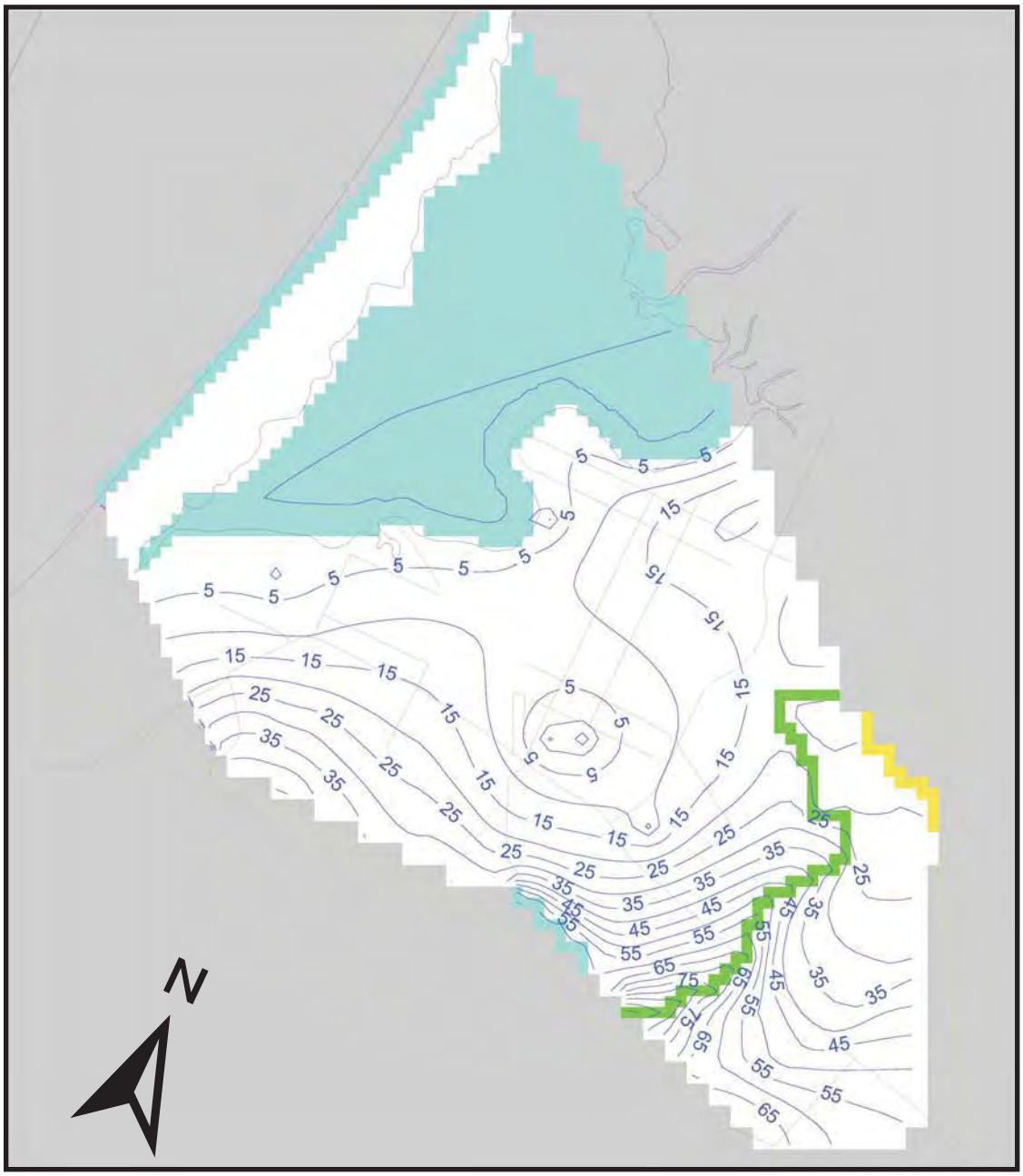
Simulated Ground Water Elevations
Lower Aquifer
Current Conditions
June 2008 EFH Model
Los Osos Wastewater Project

Cleath & Associates



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Simulated Ground Water Elevations
Upper Aquifer
Spray Field
June 2008 EFH Model
Los Osos Wastewater Project

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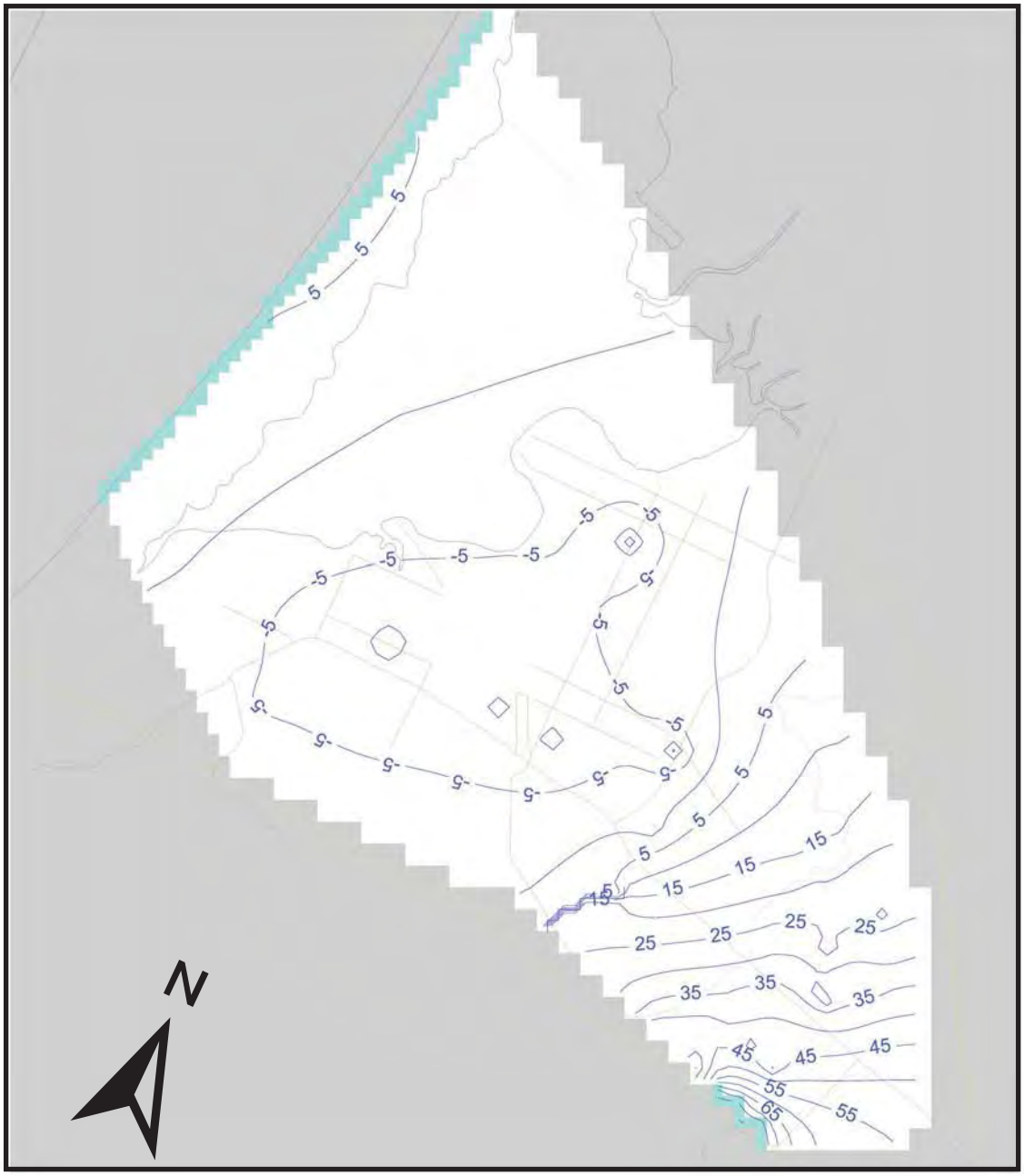

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Simulated Ground Water Elevations
Lower Aquifer
Spray Field
June 2008 EFH Model
Los Osos Wastewater Project

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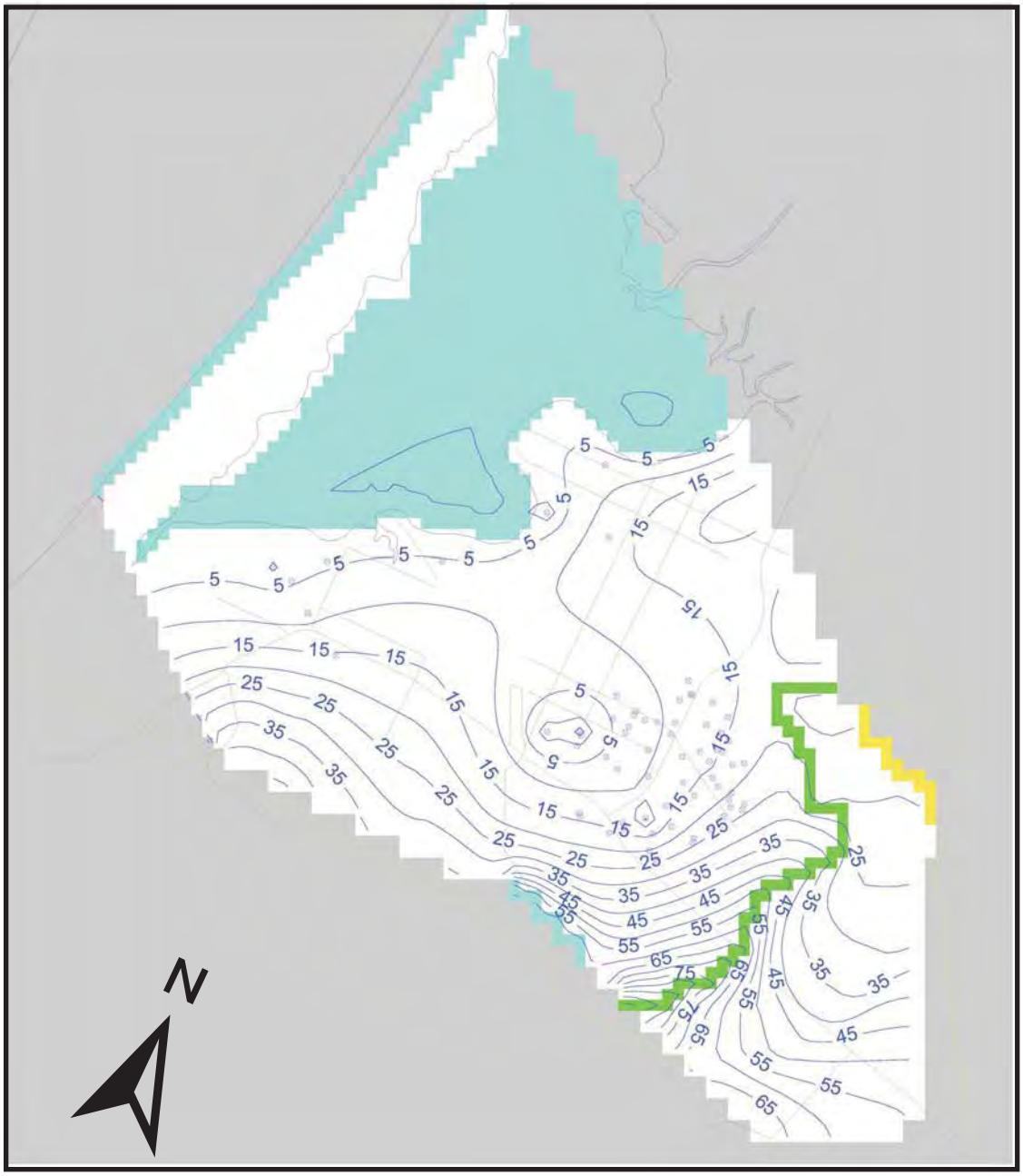

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Simulated Ground Water Elevations
Upper Aquifer
Conservation
June 2008 EFH Model
Los Osos Wastewater Project

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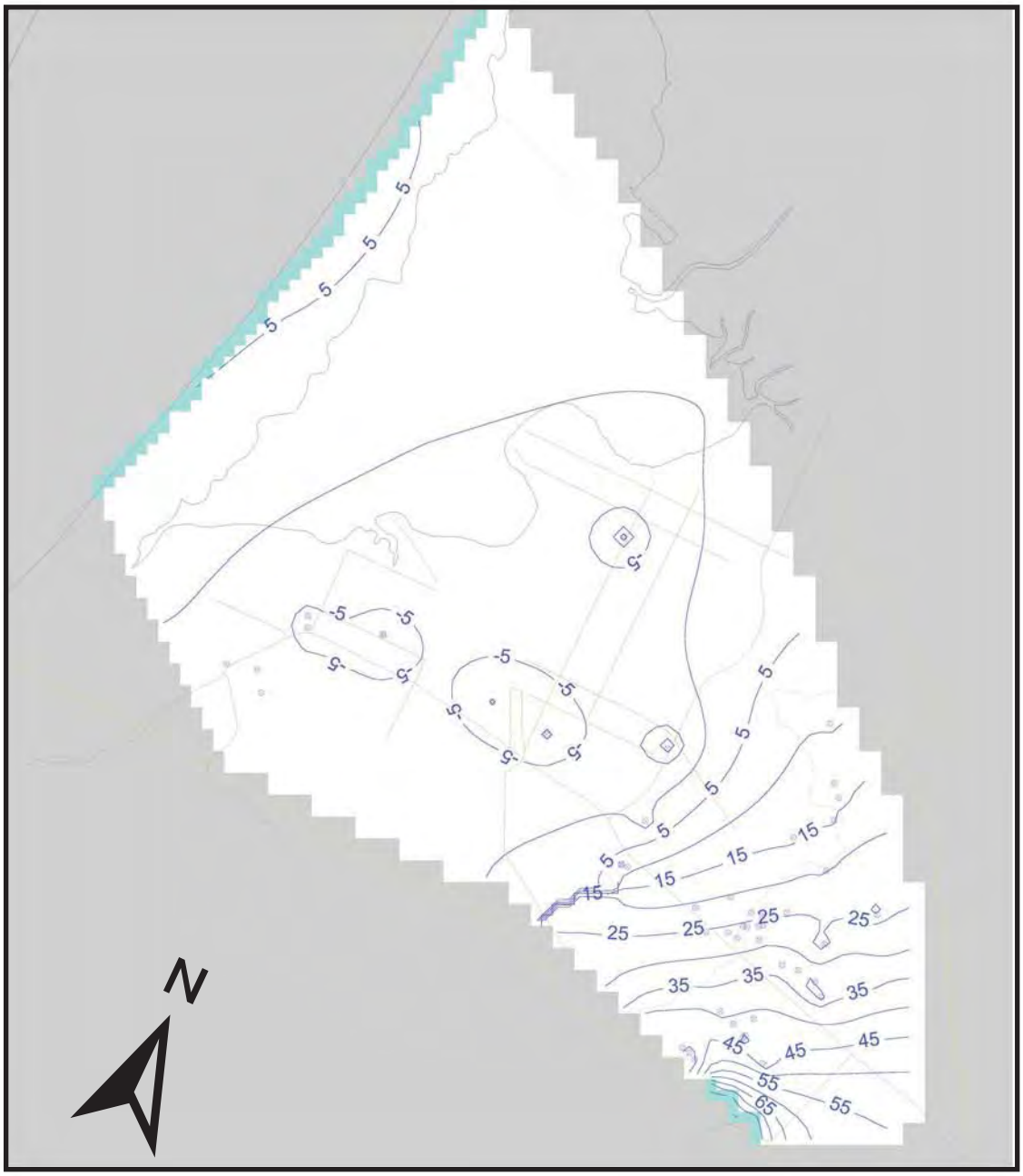

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Simulated Ground Water Elevations
Lower Aquifer
Conservation
June 2008 EFH Model
Los Osos Wastewater Project

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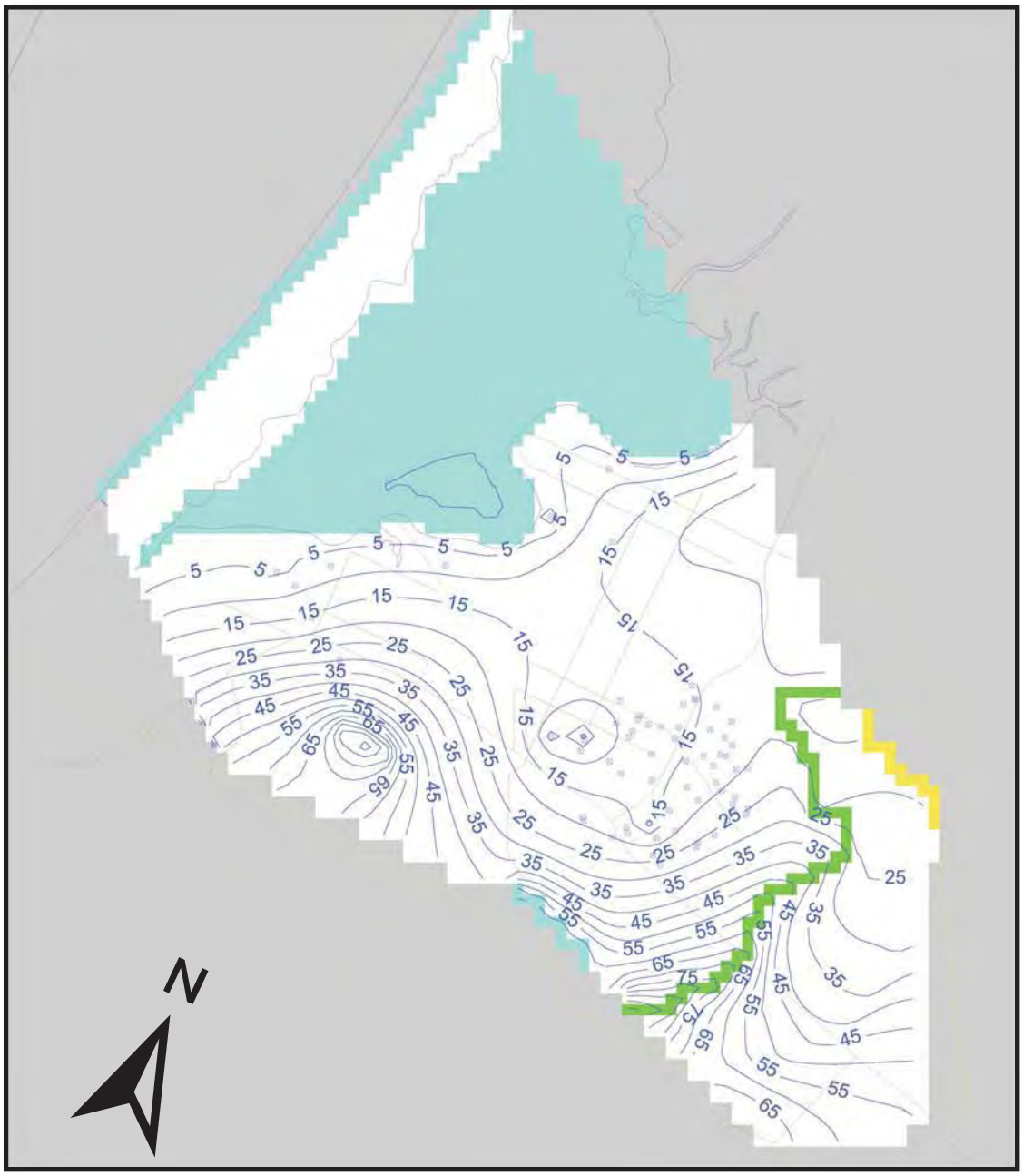

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Simulated Ground Water Elevations
Upper Aquifer
Broderson
June 2008 EFH Model
Los Osos Wastewater Project

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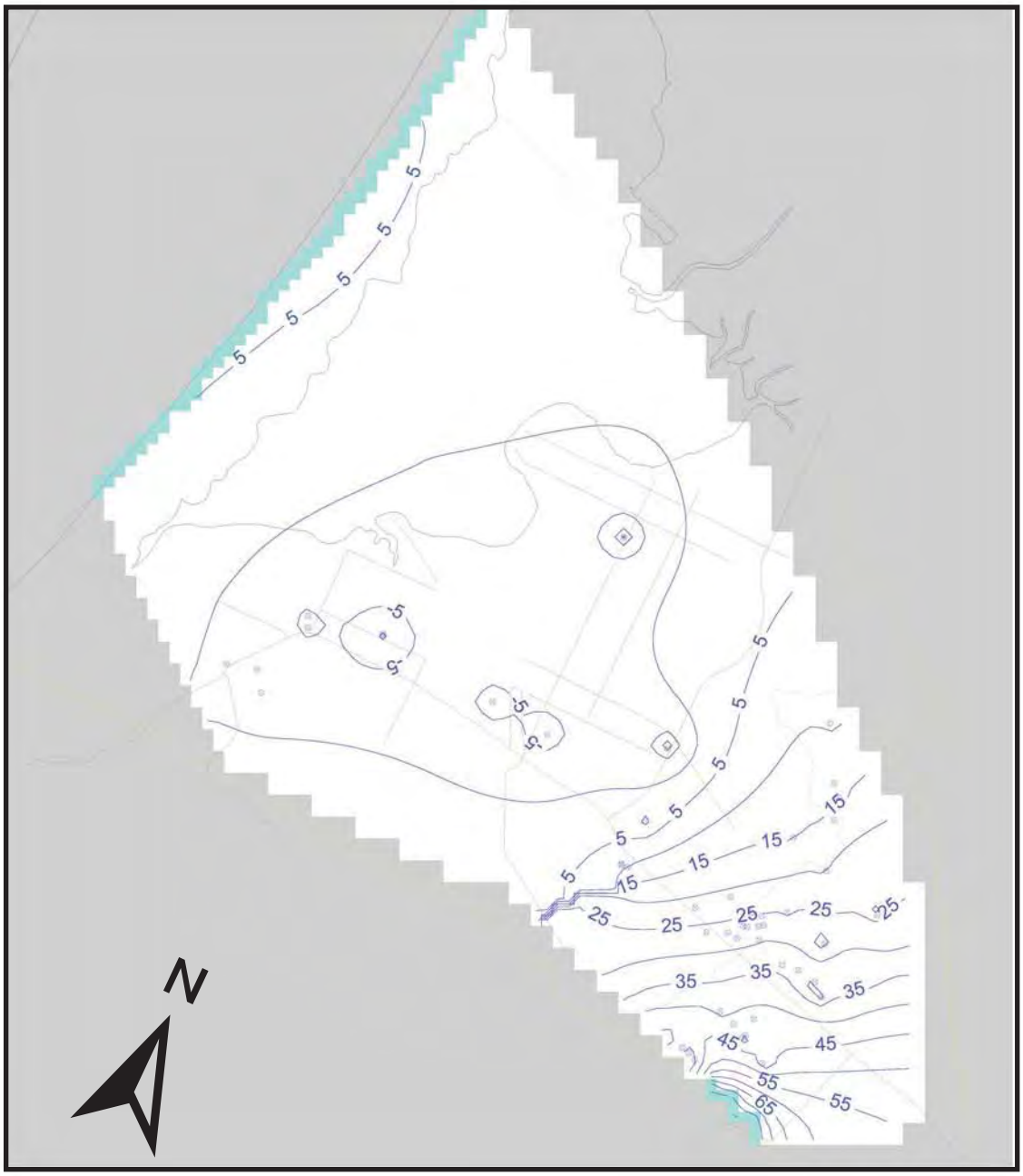

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Simulated Ground Water Elevations
Lower Aquifer
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June 2008 EFH Model
Los Osos Wastewater Project

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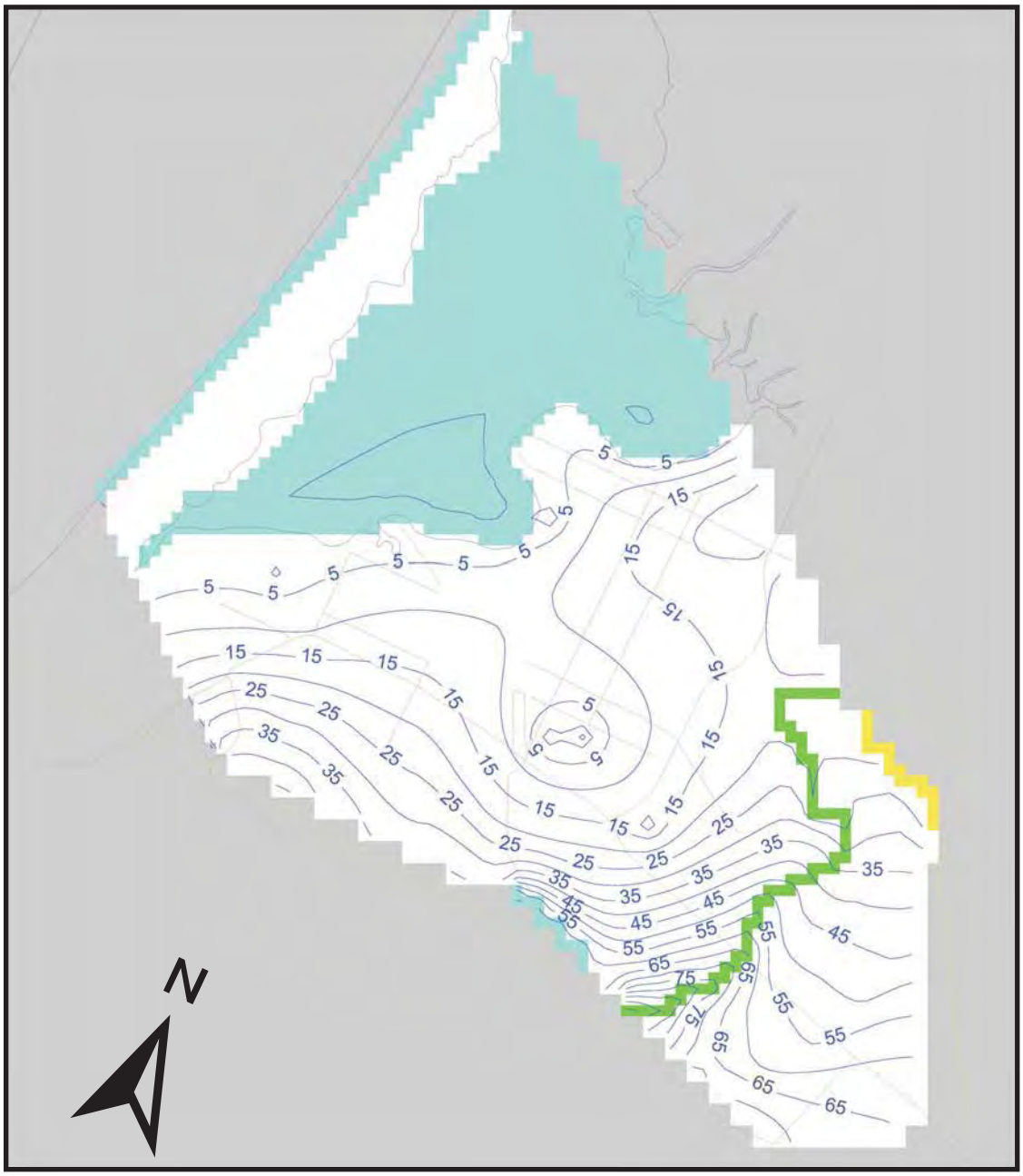

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Simulated Ground Water Elevations
Upper Aquifer
Ag Reuse
June 2008 EFH Model
Los Osos Wastewater Project

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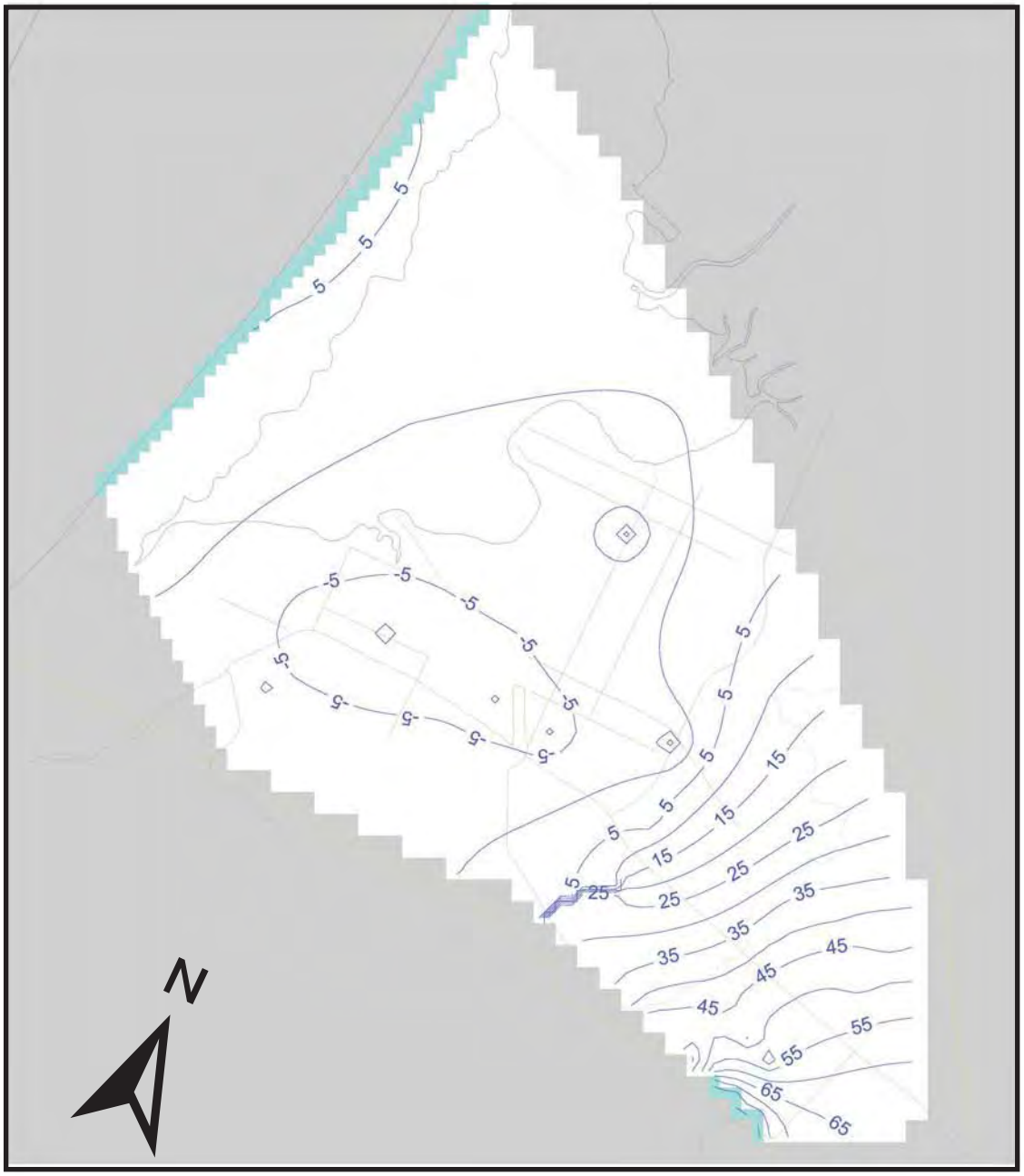

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Simulated Ground Water Elevations
Lower Aquifer
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June 2008 EFH Model
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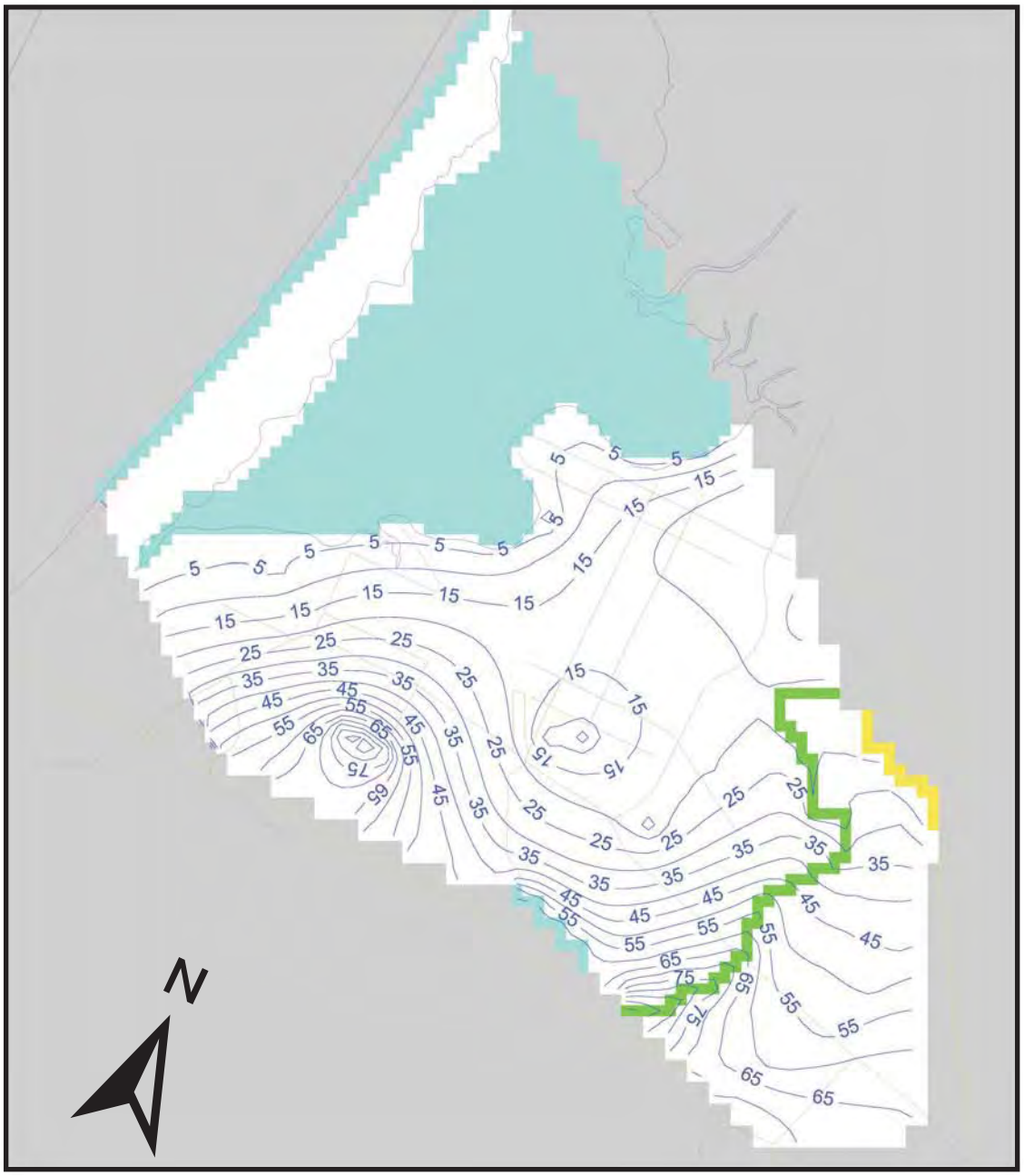

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Simulated Ground Water Elevations
Upper Aquifer
VPA2a
June 2008 EFH Model
Los Osos Wastewater Project

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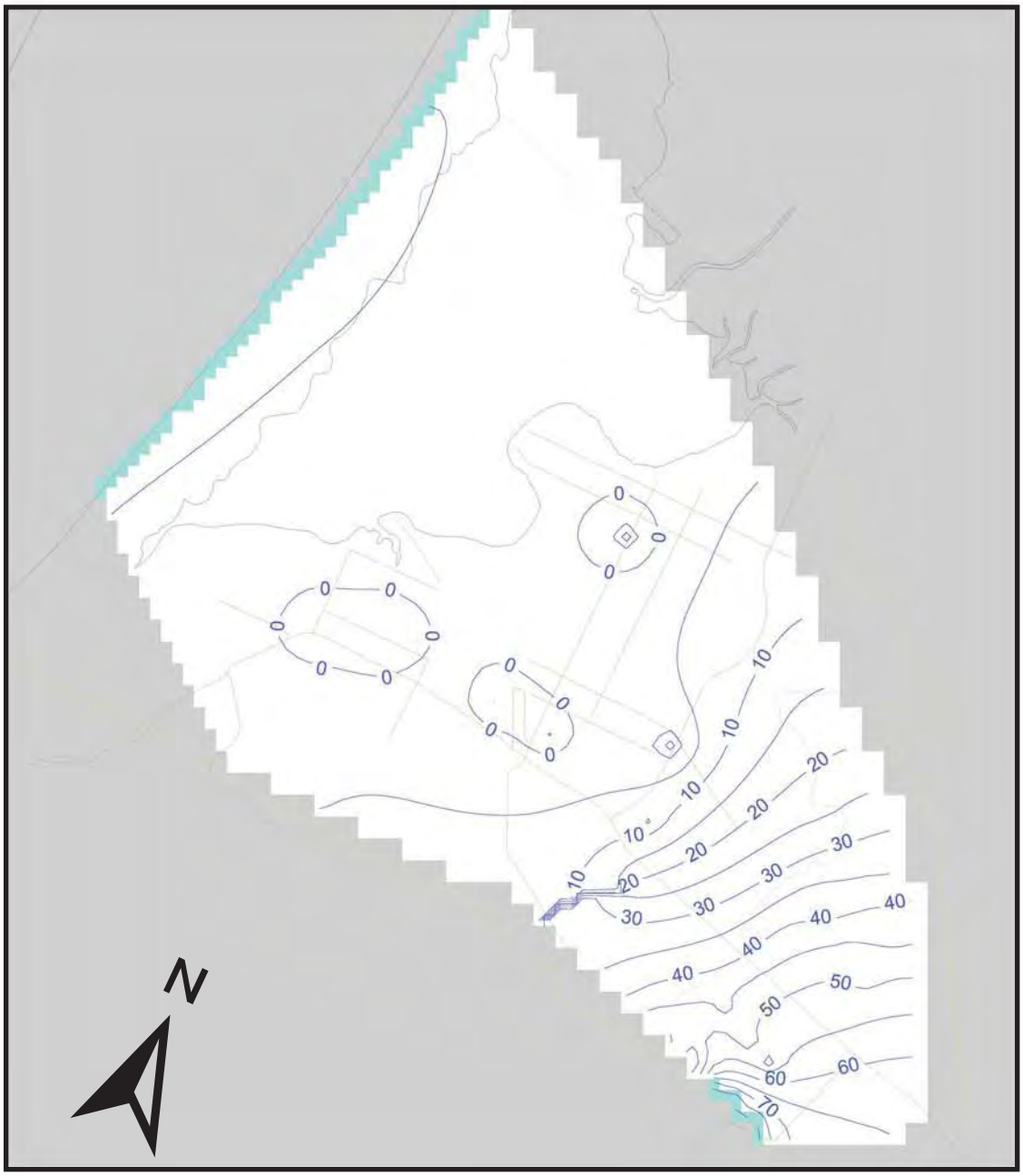

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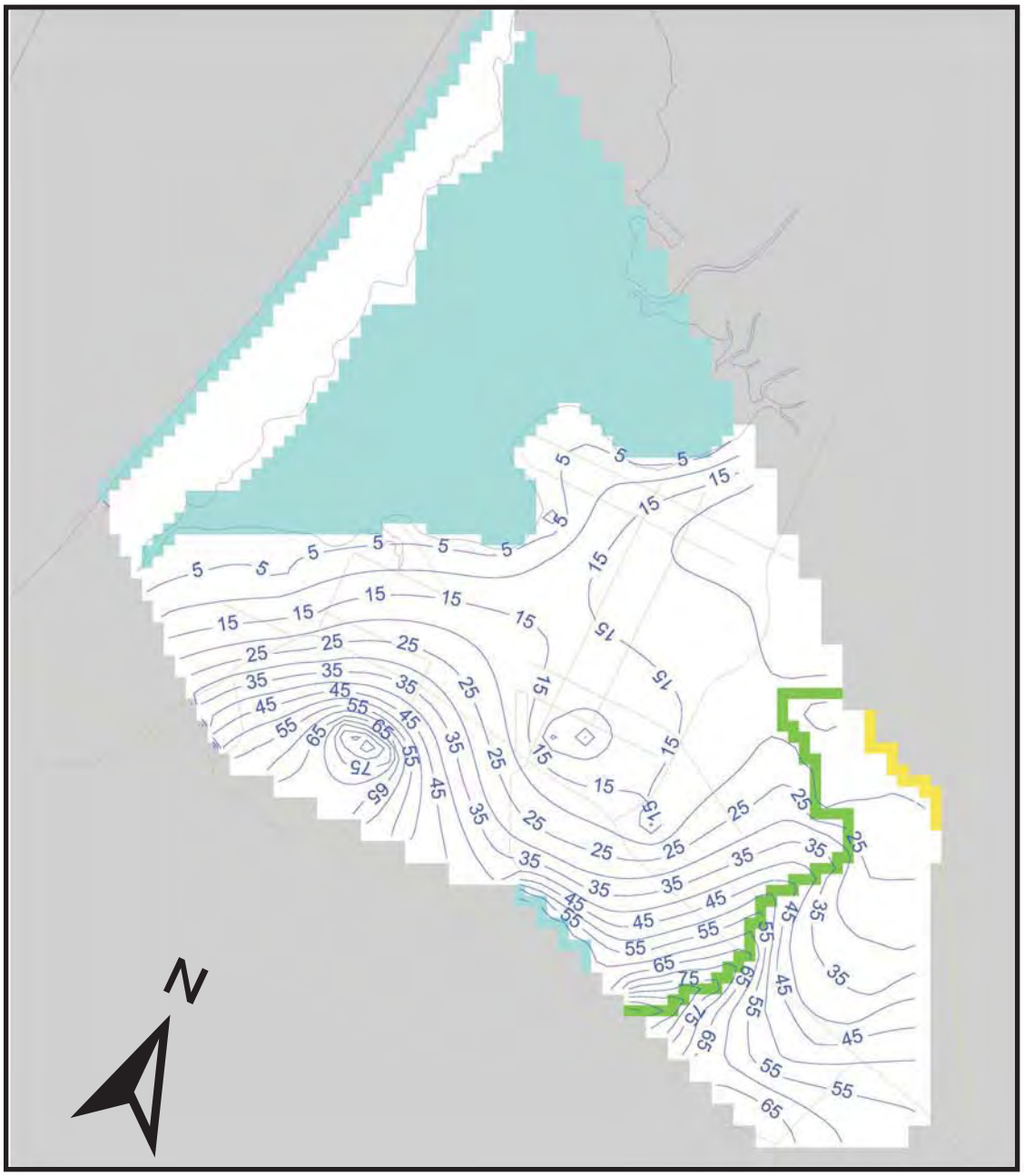

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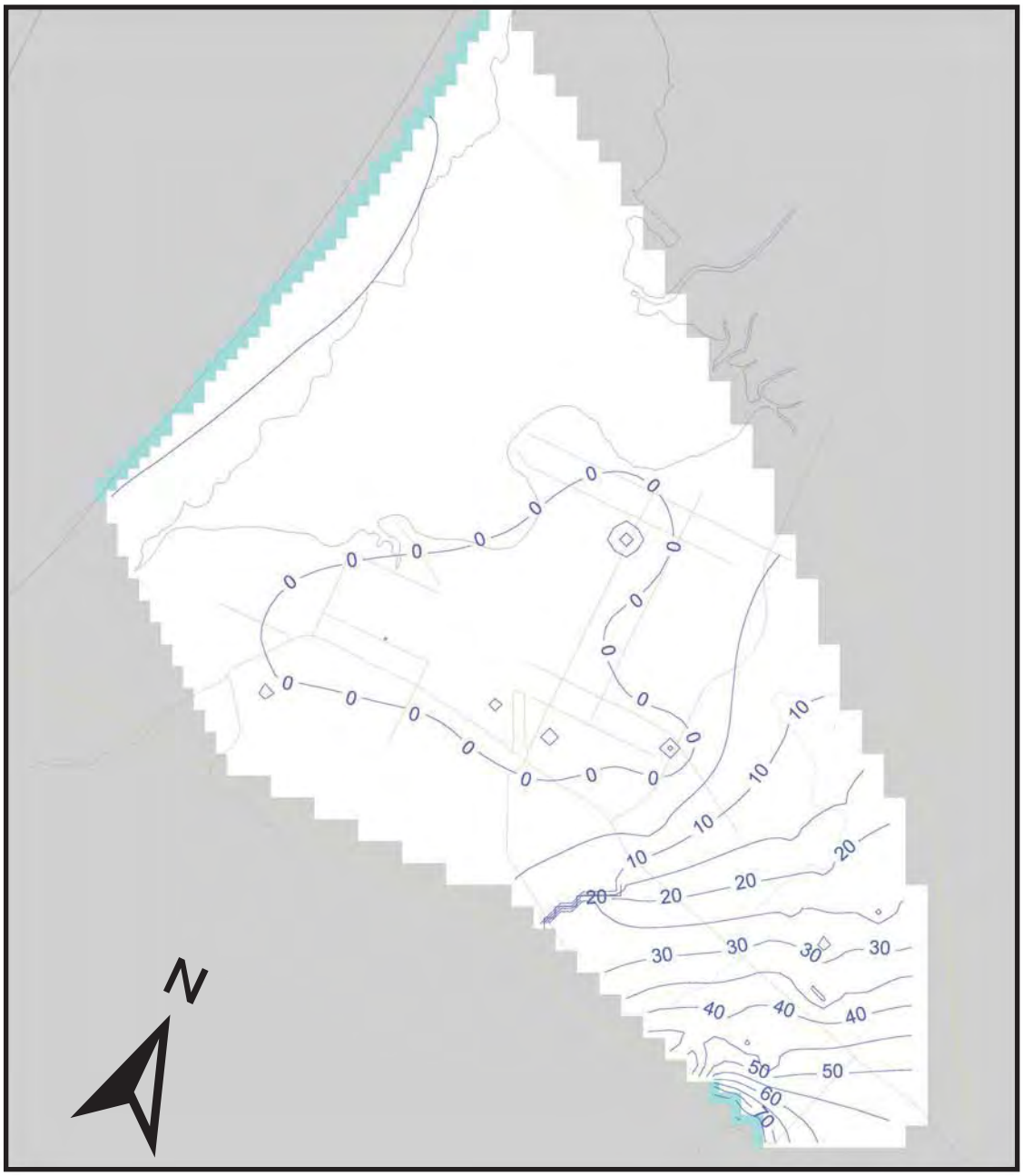

Simulated Ground Water Elevations
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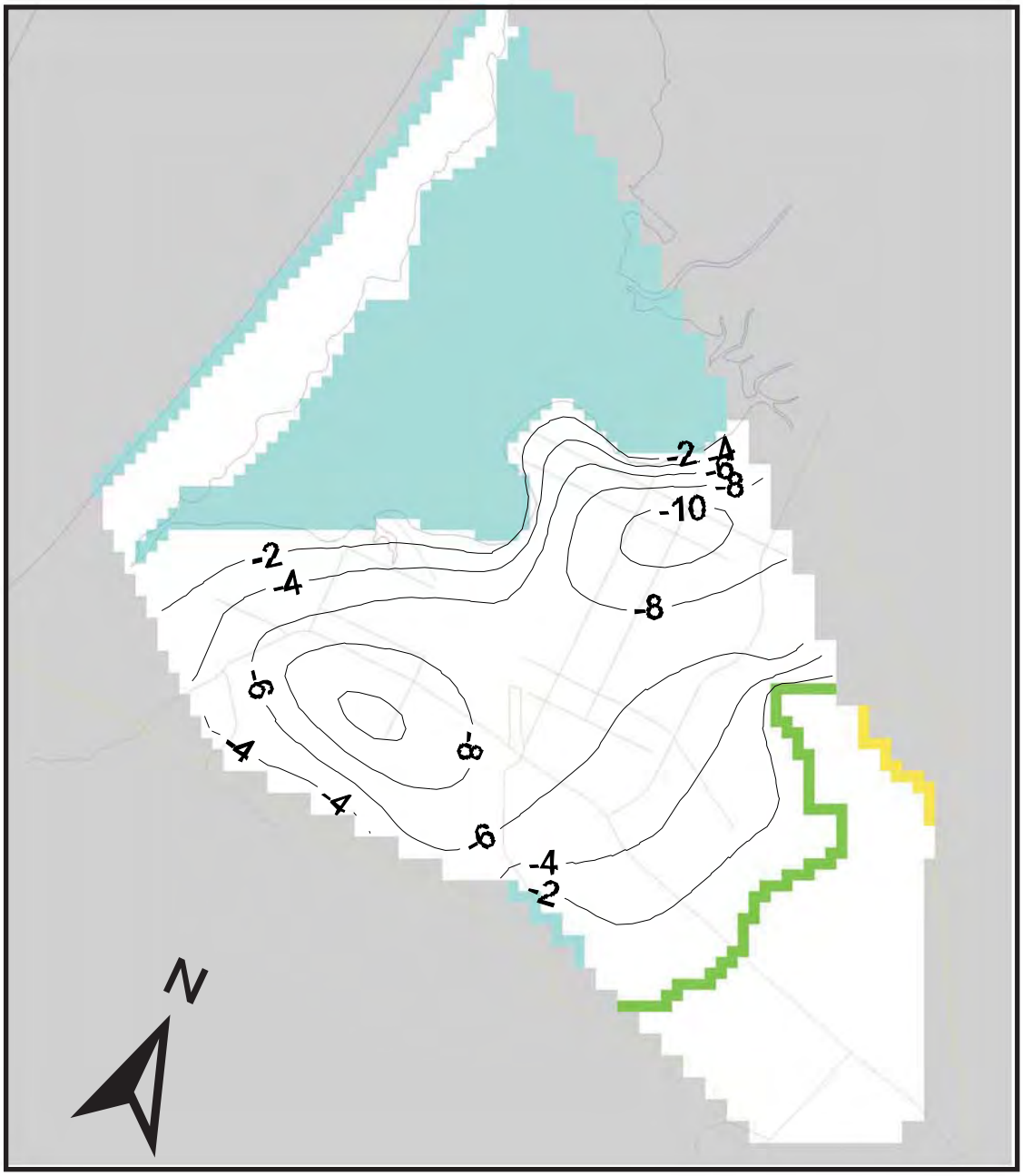
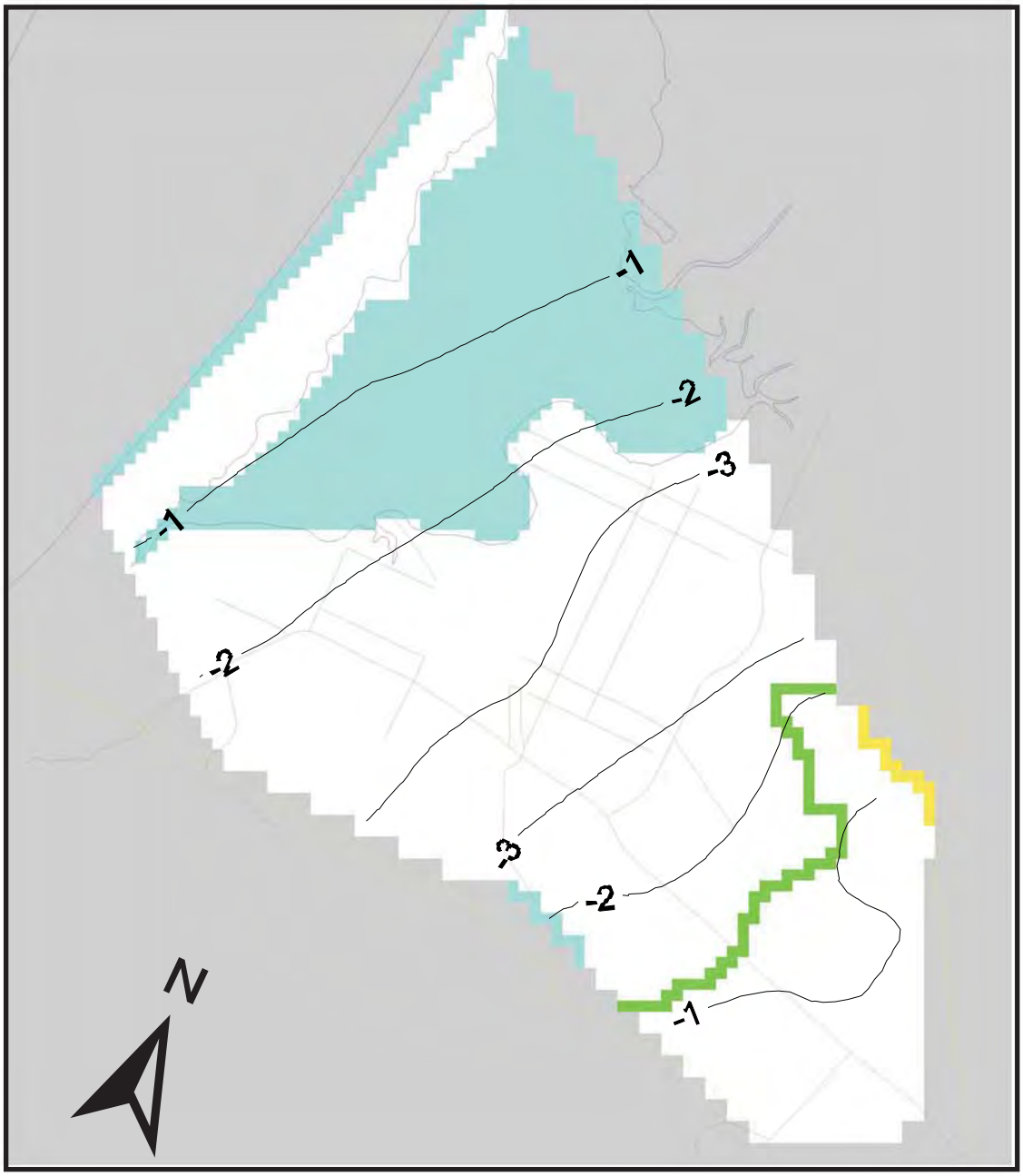


Scale 1" = 4000 feet

Simulated Change in Upper Aquifer
Ground Water Elevations
Spray Field Only
June 2008 EFH Model
Los Osos Wastewater Project

Cleath & Associates



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Simulated Change in Lower Aquifer
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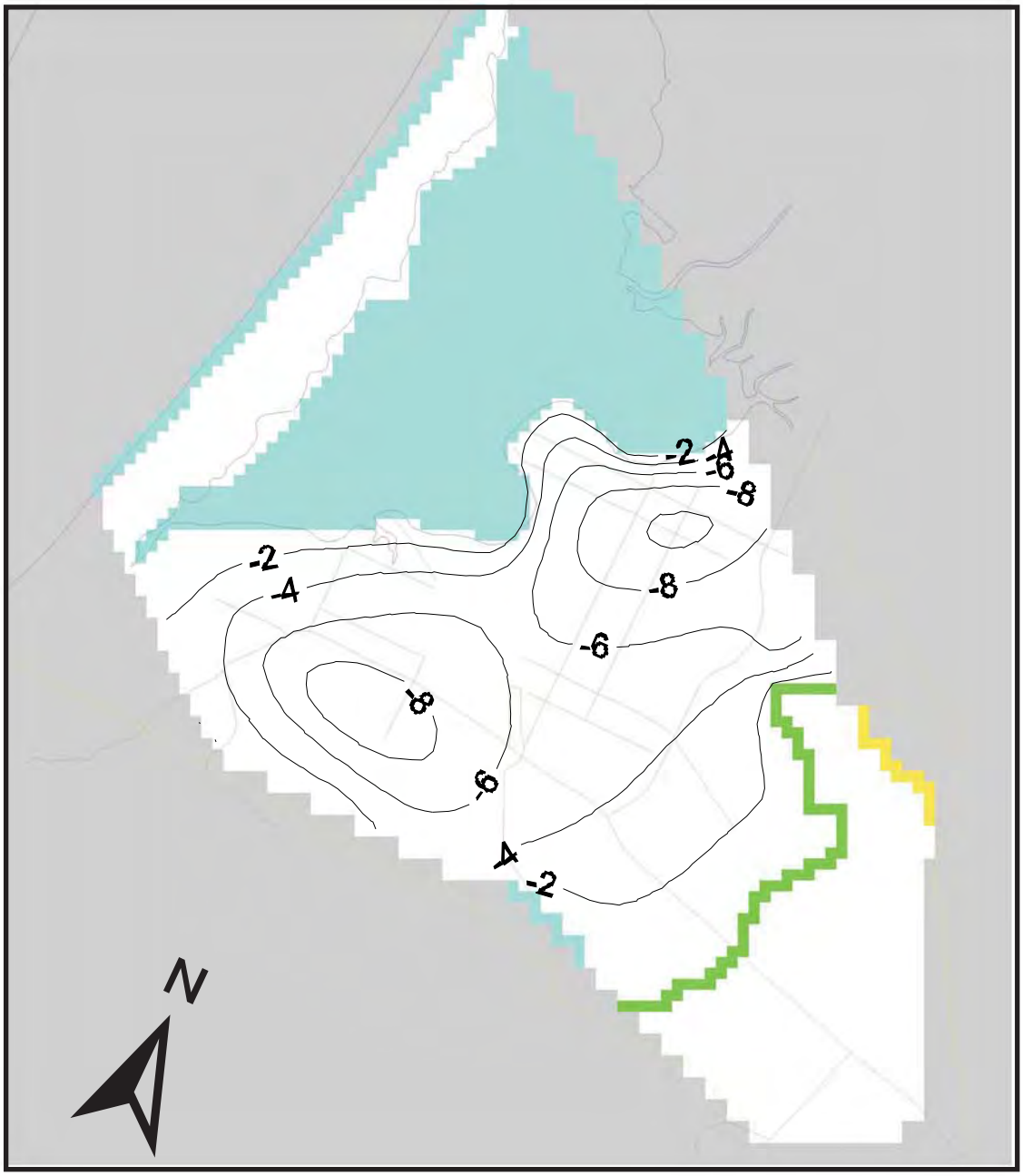
Los Osos Wastewater Project

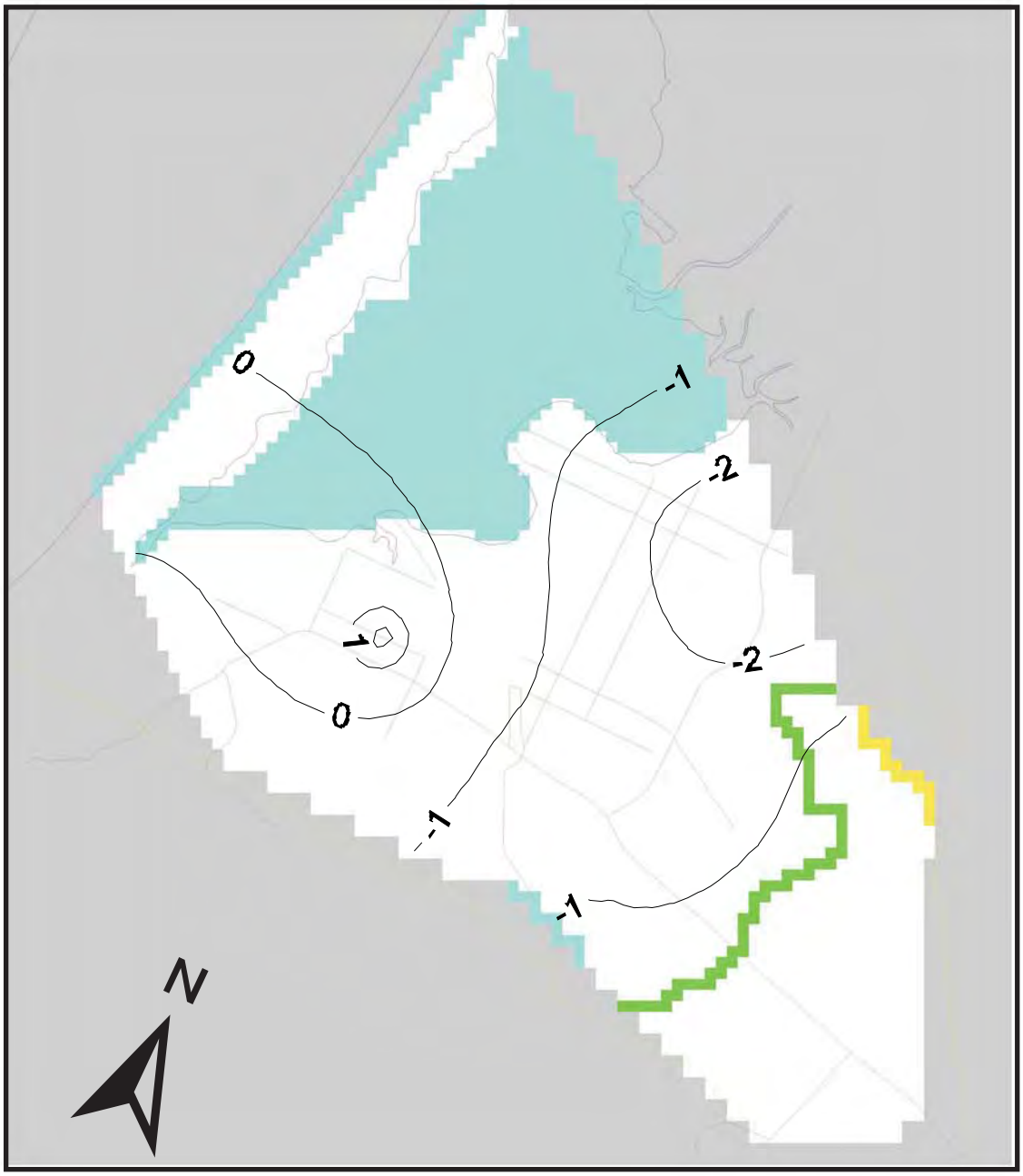
Cleath & Associates



Scale 1" = 4000 feet

Simulated Change in Upper Aquifer
Ground Water Elevations
Conservation Only
June 2008 EFH Model
Los Osos Wastewater Project

Cleath & Associates



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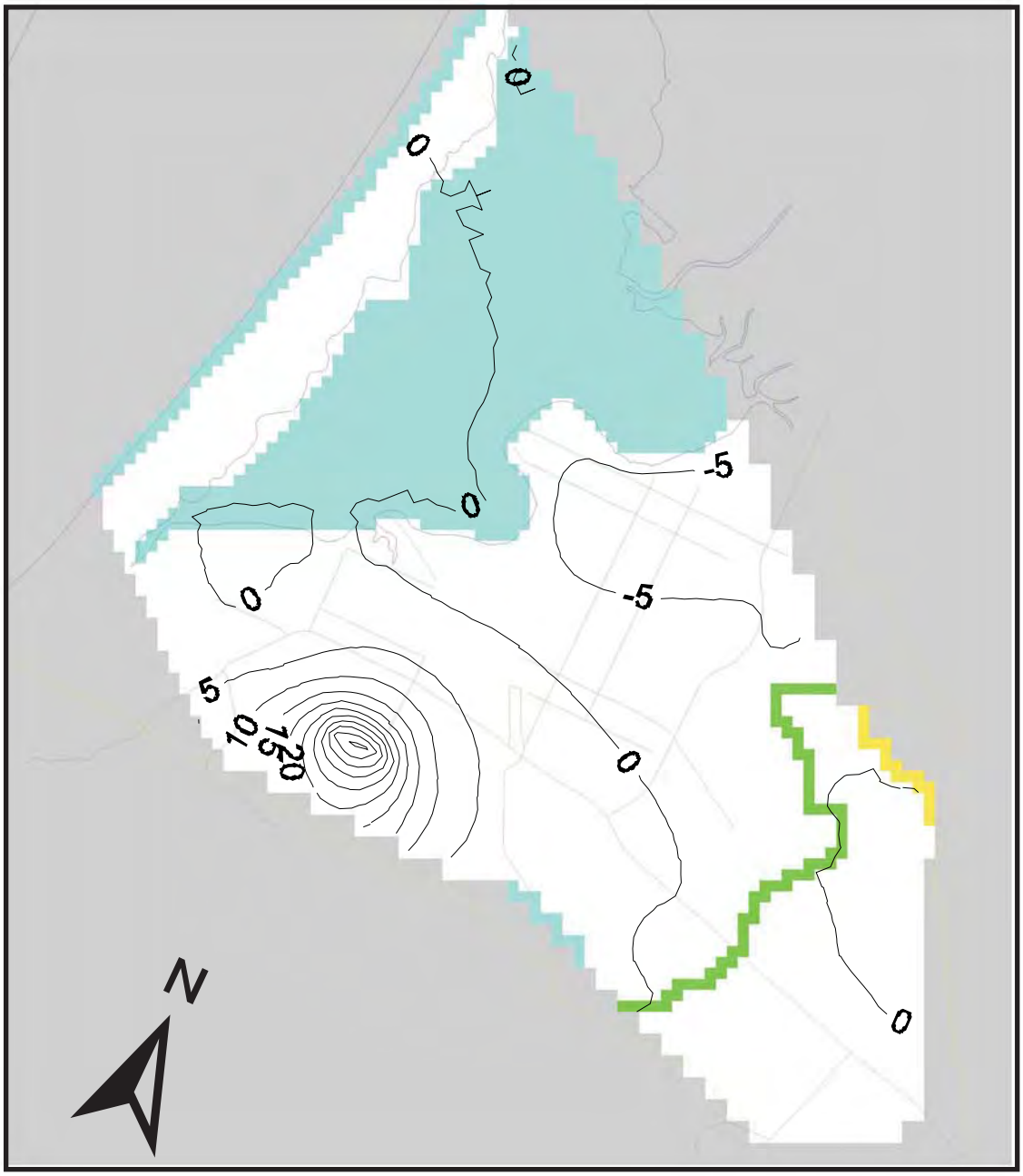
Simulated Change in Lower Aquifer
Ground Water Elevations
Conservation Only
June 2008 EFH Model
Los Osos Wastewater Project

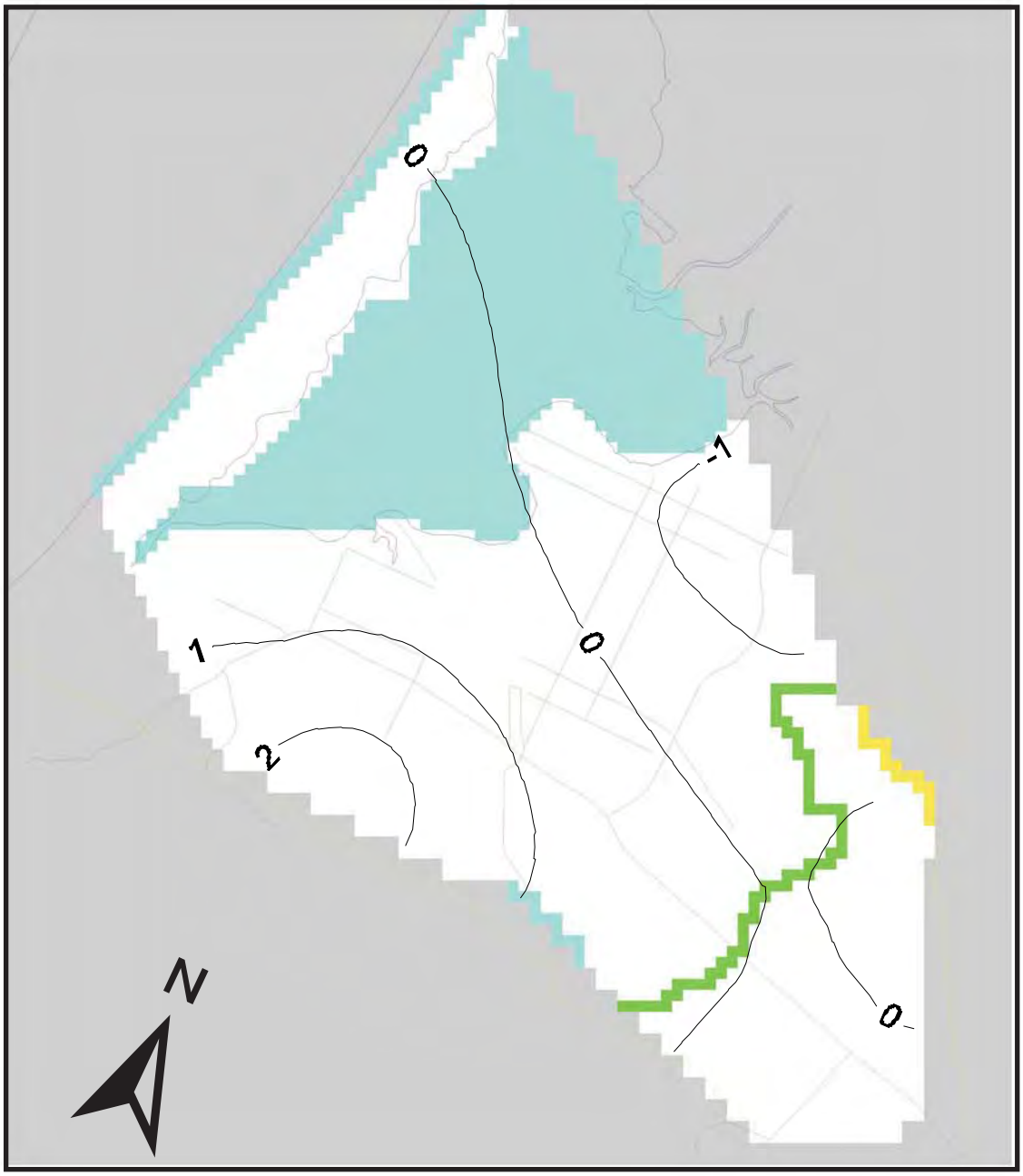
Cleath & Associates



Scale 1" = 4000 feet

Simulated Change in Upper Aquifer
Ground Water Elevations
Broderson Only
June 2008 EFH Model
Los Osos Wastewater Project

Cleath & Associates



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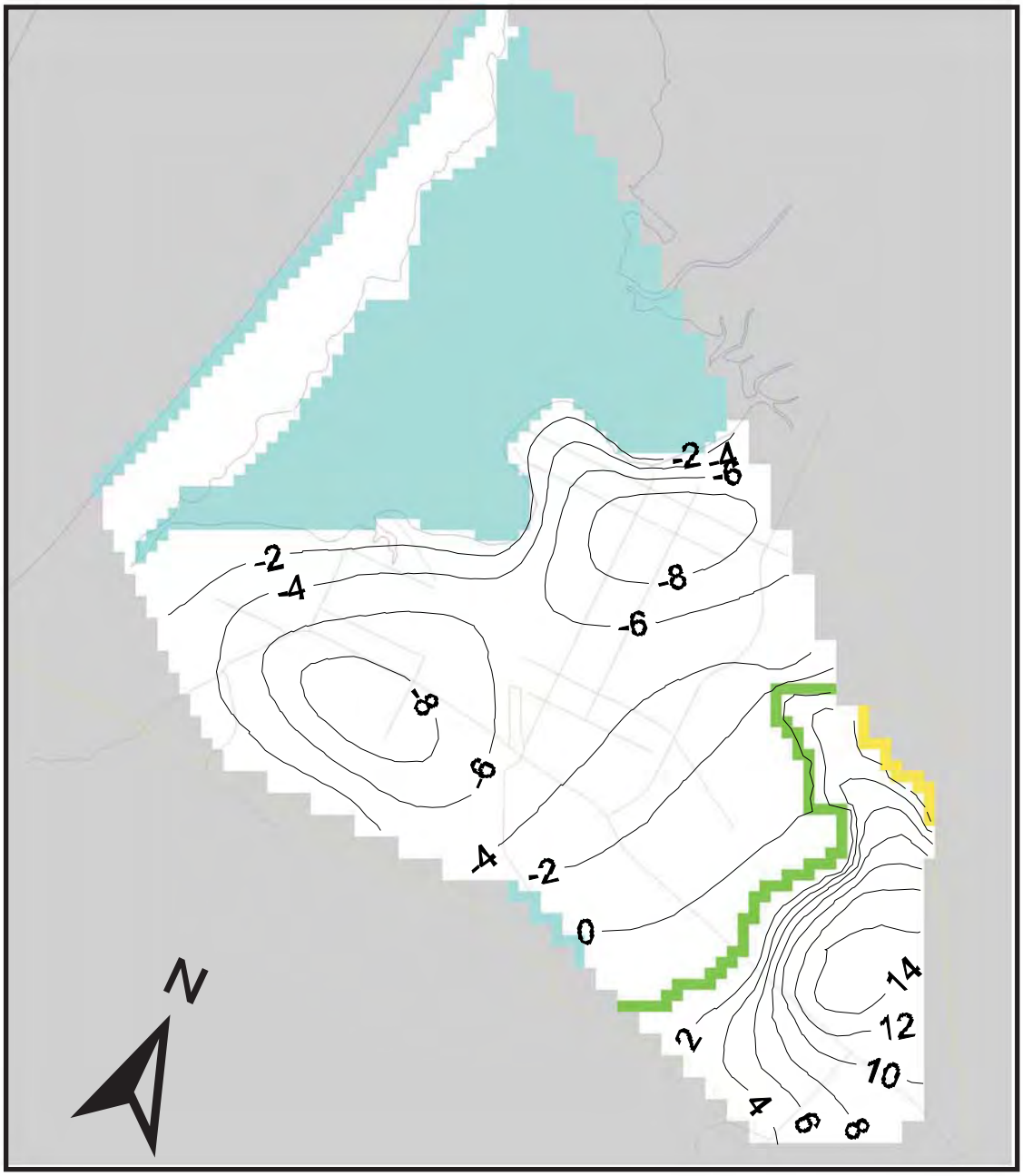
Simulated Change in Lower Aquifer
Ground Water Elevations
Broderson Only
June 2008 EFH Model
Los Osos Wastewater Project

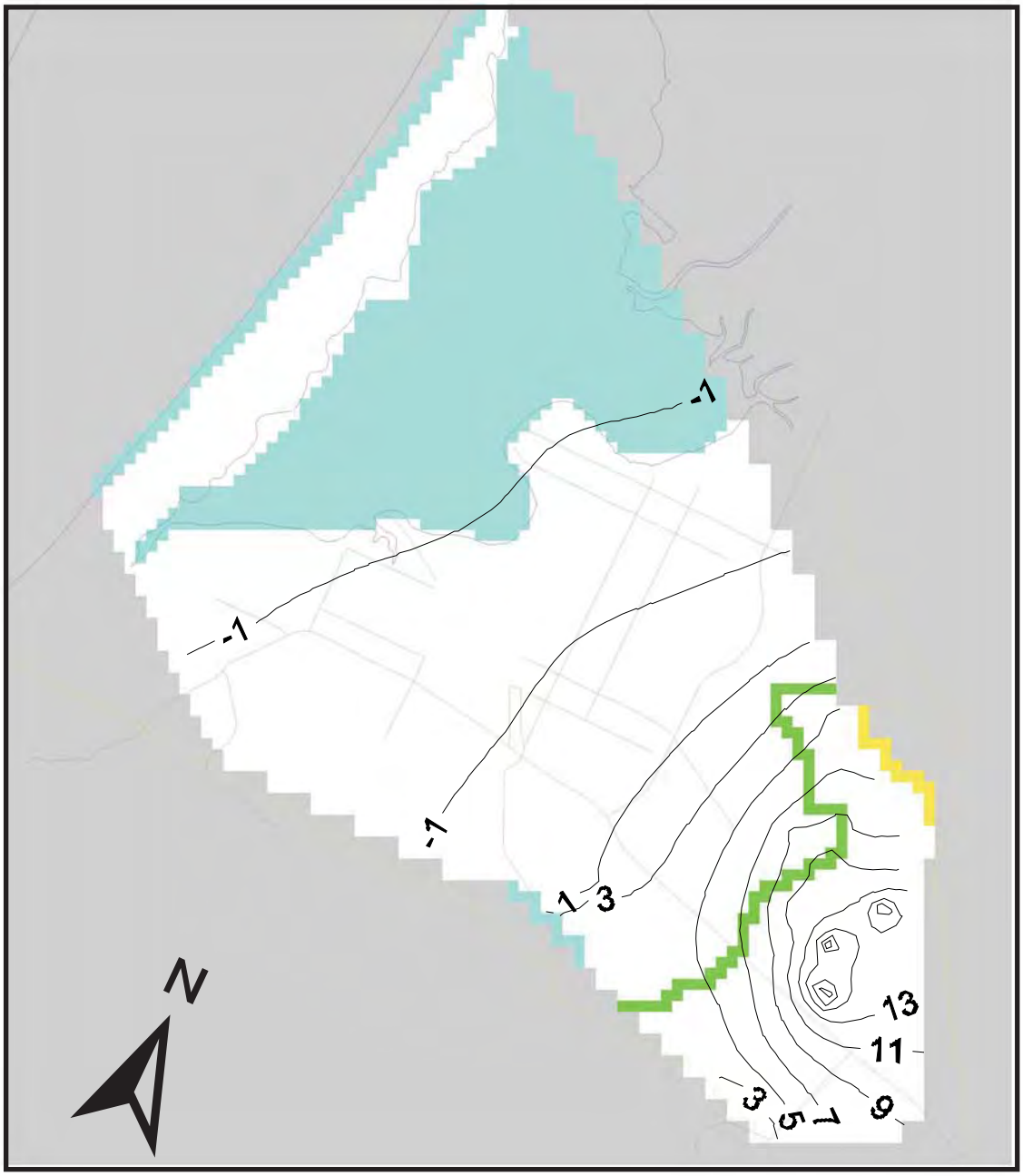
Cleath & Associates



Scale 1" = 4000 feet

Simulated Change in Upper Aquifer
Ground Water Elevations
Agricultural Reuse Only
June 2008 EFH Model
Los Osos Wastewater Project

Cleath & Associates



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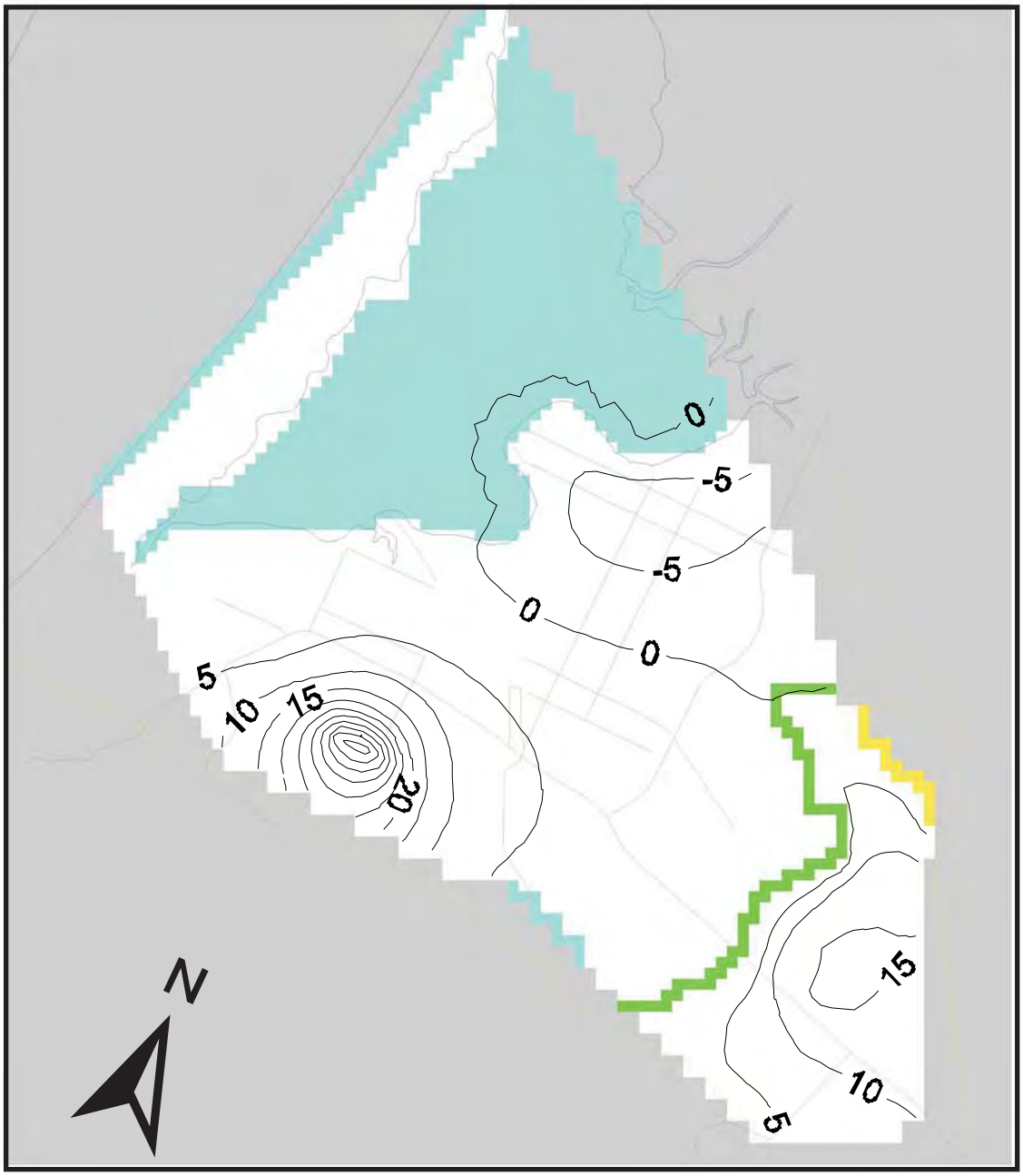
Simulated Change in Lower Aquifer
Ground Water Elevations
Agricultural Reuse Only
June 2008 EFH Model
Los Osos Wastewater Project

Cleath & Associates



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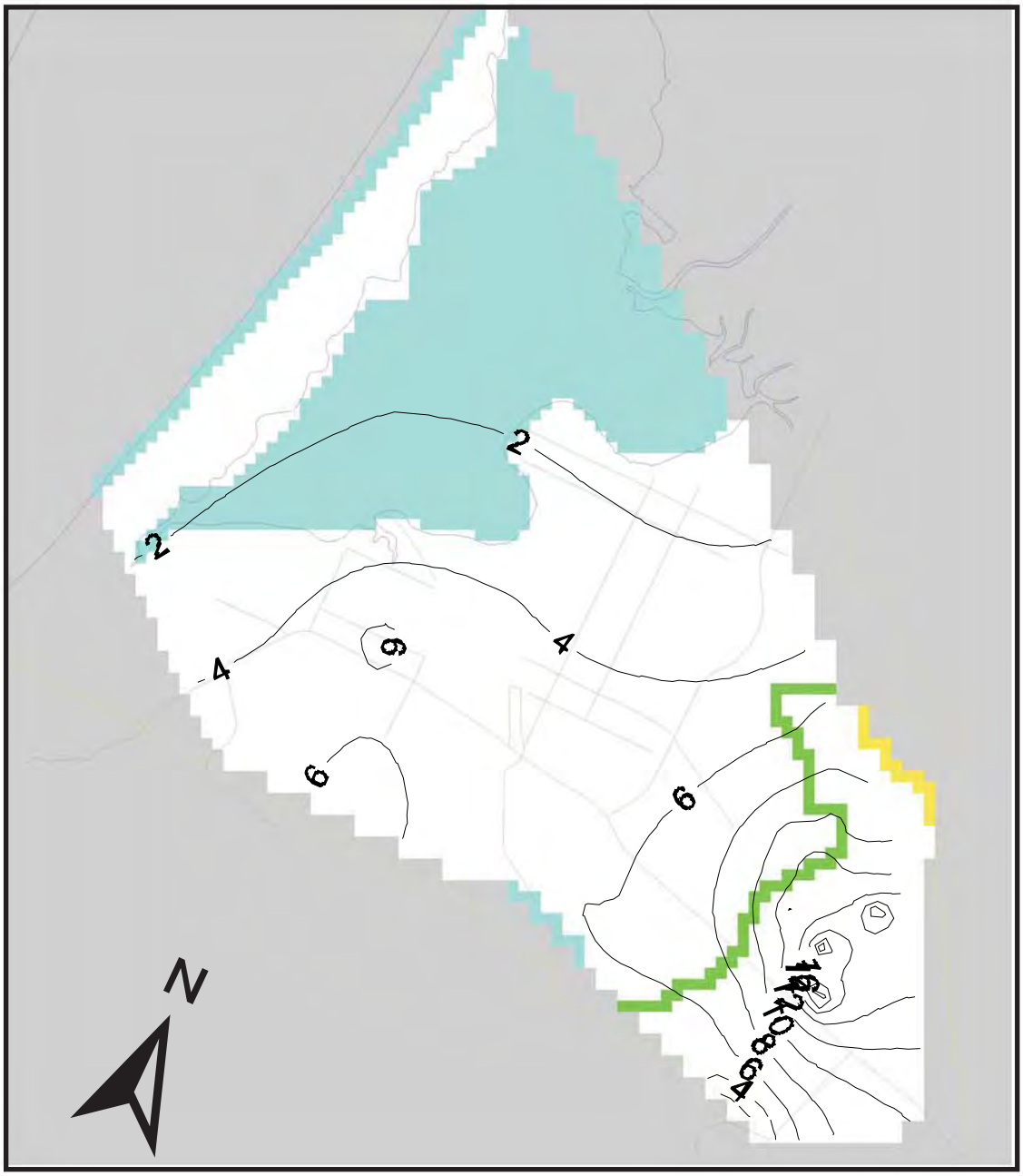
Simulated Change in Upper Aquifer
Ground Water Elevations
VPA 2A
June 2008 EFH Model
Los Osos Wastewater Project

Cleath & Associates



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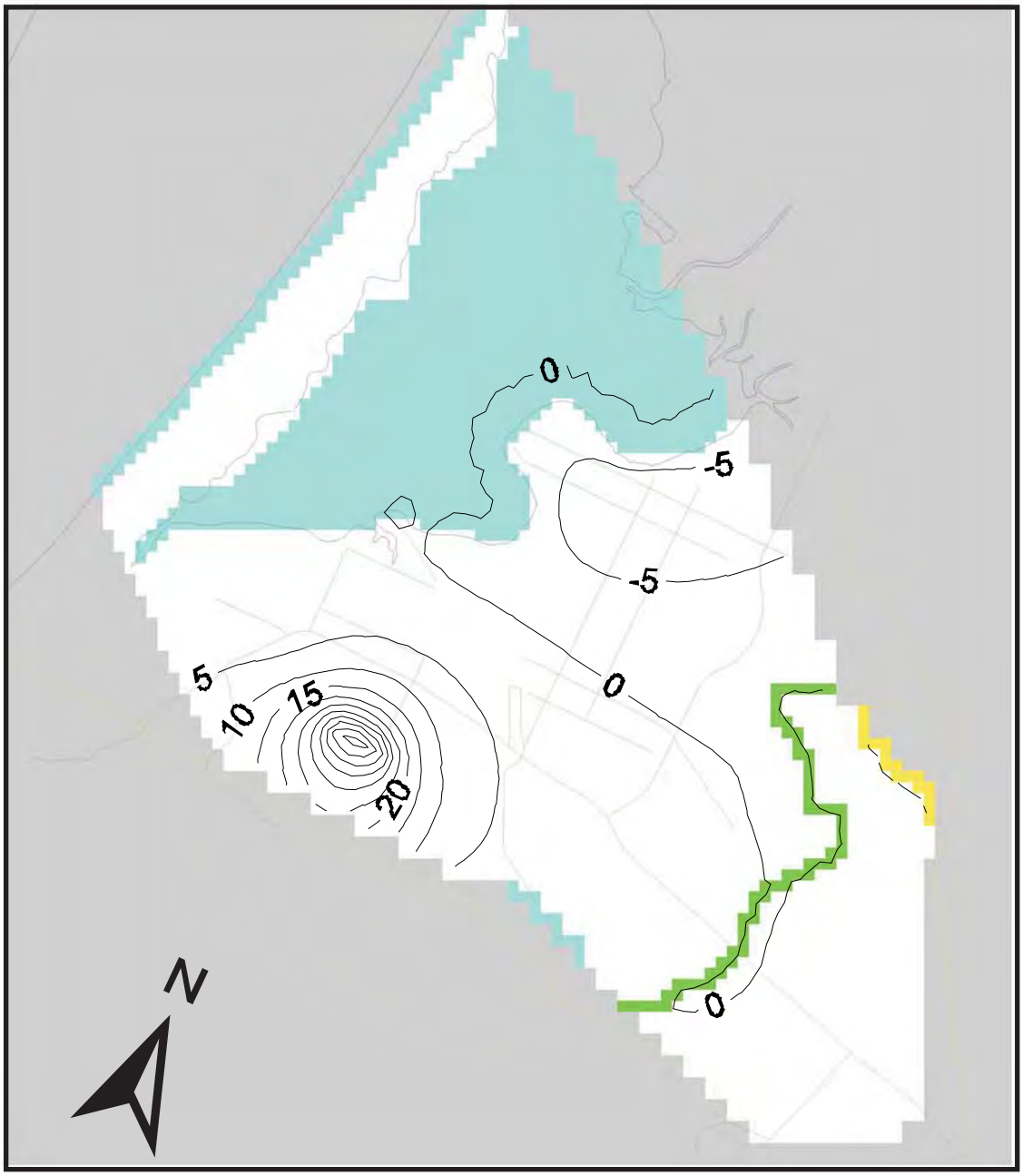
Simulated Change in Lower Aquifer
Ground Water Elevations
VPA 2A
June 2008 EFH Model
Los Osos Wastewater Project

Cleath & Associates



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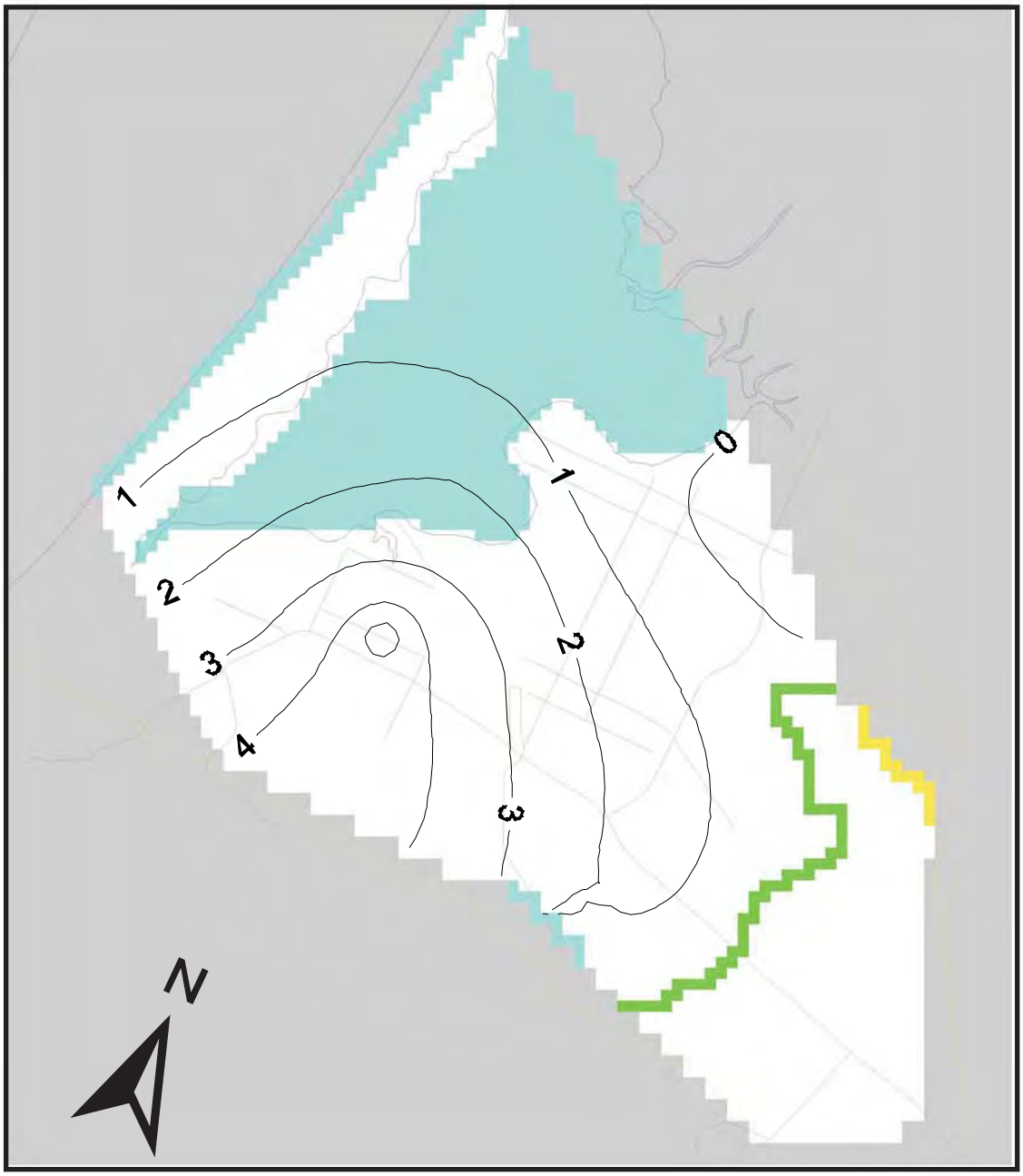
Simulated Change in Upper Aquifer
Ground Water Elevations
VPA 2B
June 2008 EFH Model
Los Osos Wastewater Project

Cleath & Associates



Scale 1" = 4000 feet

Simulated Change in Lower Aquifer
Ground Water Elevations
VPA 2B
June 2008 EFH Model
Los Osos Wastewater Project

Cleath & Associates

HYDROLOGIC BUDGET

CURRENT CONDITIONS

Flow Model (Upper Aquifer, Creek Compartment, Lower Aquifer)

Recharge (PP/IR/SR) = 3,370 AFY

Yates (2003) Table 4, column 11 minus 155 AFY due to a reduction in model area from revised interpretation of model southwest boundary in 2005 Sea Water Intrusion study.

Los Osos Creek inflow = 665 AFY

This value is calculated by model. Intermittent stream gage data shows average surface flows of 3,900 AFY and median flows of 2,200 AFY (1977-2000), indicating water is available.

Subsurface inflow from bedrock = 167 AFY

Calibration derived (discussed in 2005 Sea Water Intrusion study). Modified from fixed inflow to head-dependent.

Subsurface inflow to upper aquifer from uplifted basin area in Bayview Heights = 112 AFY

Subsurface inflow from ocean (general head boundary inflow) = 526 AFY

Includes 469 AFY net sea water intrusion and 57 AFY of recirculating water beneath the Morro Bay sandspit (model derived).

Total Inflow: 4,840 AFY

Basin well production (WP) = 3,390 AFY

2440 AFY purveyor w/sea pines golf (production records)
800 AFY creek valley irrigation (approx 400 acres of ag lands, mostly truck crops)
70 AFY creek valley domestic (approx 75 homes)
80 AFY urban area non-purveyor domestic (approx 100 homes)

Los Osos Creek outflow = 77 AFY

This value is calculated by model. Does not include surface water runoff from watershed.

Warden drain outflow = 6 AFY

Subsurface outflow to ocean (general head boundary outflow) = 1,367 AFY

Includes 1310 AFY net upper aquifer outflow and 57 AFY of recirculating water beneath the Morro Bay sandspit.

Total Outflow: 4,840 AFY

Perched Aquifer

Septic Return (SR) = 631 AFY
Yates Table 4, column 9, zones 105-128.

Perc of Precip/Irrigation Return (PP/IR) = 736 AFY
Yates Table 4, column 10, zones 105-128 (1,367 AFY), minus septic return.

Total leakage through perching clay (LK) = 391 AFY
Yates Table 4, column 11, zones 105-128 (389 AFY in table, 391 AFY in model). Out of the 391 AFY total leakage, 374 AFY enters upper aquifer and 17 AFY enters creek compartment (model derived).

Total Subsurface Cross Flow (SCF) = 424 AFY
Yates Table 4, column 11, zones 205-229 minus column 10, zones 205-229
Out of the 424 AFY total subsurface cross flow (spilling off edge of perching clay), 324 AFY enters upper aquifer and 100 AFY enters creek compartment (difference between column 11 and 10 for approximately 20% of zone 206 and zones 220, 221, and 229).

Willow Creek/Evapotranspiration (WC/ET) = 552 AFY
WC/ET = SR + PP/IR - LK - SCF

Creek Compartment

Recharge (from LK/SCF, PP/IR, and SR) = 577 AFY
Yates Table 4, column 11, zones 20-28, plus approx. 20% of zone 206, and zones 220, 221, and 229.

Septic Return (SR) = 30 AFY
Yates Table 4, column 9, zones 20, 24, 25, 220, and 229.

Perc of Precip/Irrigation Return (PP/IR) = 430 AFY
PP/IR = Total recharge - SR - LK/SCF from perched aquifer

Los Osos Creek Inflow (LCI) = 665 AFY
See model totals above

Los Osos Creek Outflow (LCO) = 77 AFY
Model derived. This is ground water rising into Los Osos Creek, not an estimate of total surface flows.

Warden Drain Outflow = 6 AFY Model derived.

Well Production (WP) = 870 AFY
800 AFY irrigation; 70 AFY domestic

Subsurface Cross Flow (SCF) = 456 AFY
SCF = PP/IR + SR + LCI + SI - WP - LOC. The amount of SCF moving into upper aquifer is 90 AFY and the amount moving into the lower aquifer is 366 AFY, which is calculated from the known budget items using the flow diagram

Upper Aquifer

Total recharge = 2,793 AFY
Total model recharge (3,370 AFY) minus creek compartment recharge (577 AFY)

Septic Return (SR) = 606 AFY
Yates Table 4, column 9 total minus perched aquifer and creek compartment septic return.

Perc of Precip/Irrigation Return (PP/IR) = 1,489 AFY
Upper aquifer recharge (2,793 AFY) minus perched aquifer LK/SCF (698 AFY) minus septic return (606 AFY).

Subsurface Inflow (SI) = 112 AFY
Model derived. Leakage from uplifted basin area in Bayview Heights.

Well Production (WP) = 803 AFY
Purveyor production records and domestic well estimates

Subsurface Outflow (SO) = 1,310 AFY
General head boundary (see model totals).

Leakage to lower aquifer (LK): 882 AFY
Model derived.

Lower Aquifer

Well Production (WP) = 1,717 AFY
Purveyor production records

Sea Water Intrusion (SWI) = 469 AFY
General head boundary (see model totals).

HYDROLOGIC BUDGET

SPRAY FIELD

Scenario Description

Septic flow collection: 1,157 AFY (estimated initial flows in model).
Water conservation: 0 AFY
Wastewater disposal at Broderson Site: 0 AFY
Wastewater disposal at spray field (out of basin): 1157 AFY

Flow Model (Upper Aquifer, Creek Compartment, Lower Aquifer)

Recharge (PP/IR/SR) = 2,730 AFY

Yates (2003) Table 9, column 12, zones 2-229 (2,885 AFY), minus 155 AFY due to a reduction in model area. Note that the middle school septic was not collected in 2003 analysis. Adjustment has been made to collect 13 AFY middle school wastewater from zone 209, which is where the leach field is. Zone 109 septic returns also identified as the school (8 AFY) are reassigned to several existing homes outside of prohibition zone in this area and are not collected. Another modification from the Yates 2003 tables is that zone 107 (east side low density) is not in the prohibition zone and septic flows would not be collected, adding 28 AFY of recharge.

Los Osos Creek inflow = 714 AFY

Calculated by model. Intermittent stream gage data shows average surface flows of 3,900 AFY and median flows of 2,200 AFY (1977-2000), indicating water is available.

Subsurface inflow to creek compartment from bedrock = 170 AFY

Calibration derived (discussed in 2005 Sea Water Intrusion study). Modified from fixed inflow to head-dependent.

Subsurface inflow to upper aquifer from uplifted basin area in Bayview Heights = 120 AFY

Subsurface inflow from ocean (general head boundary inflow) = 606 AFY

Includes 561 AFY net sea water intrusion and 45 AFY of recirculating water beneath the Morro Bay sandspit (model derived).

Total Inflow: 4,340 AFY

Basin well production (WP) = 3,390 AFY

2440 AFY purveyor w/sea pines golf (production records)
800 AFY creek valley irrigation (approx 150 acres of ag lands, mostly truck crops)
70 AFY creek valley domestic (approx 75 homes)
80 AFY urban area non-purveyor domestic (approx 100 homes)

Los Osos Creek outflow = 32 AFY

This value is calculated by model. Does not include surface water runoff from watershed.

Warden drain outflow = 2 AFY

Subsurface outflow to ocean (general head boundary outflow) = 916 AFY

Includes 871 AFY net upper aquifer outflow and 45 AFY of recirculating water beneath the Morro Bay sandspit.

Total Outflow: 4,340 AFY

Perched Aquifer

Septic Return (SR) = 36 AFY

Yates (2003) Table 9, column 9, zones 105-128, plus 28 AFY added for zone 107 which is not in prohibition zone.

Perc of Precip/Irrigation Return (PP/IR) = 736 AFY

Yates Table 4, column 10, zones 105-128 (1,367) minus pre-project Septic Return (631 AFY). Note that the PP/IR value using Table 9 column 11 (with 28 AFY adjustment for zone 107) would be 714 AFY (750 AFY - 36AFY), mainly because the area of zone 116 is reduced in Table 9 to allow for east side disposal zones 304, 305, and 306. To conform to the County VPA's, the 300-series zones have been reassigned back to their 100-series counterparts, except Broderson. Therefore, in the perched aquifer columns, Table 9 should be the same as Table 4.

Total leakage through clay (LK) = 381 AFY

Yates Table 9, column 12, zones 105-128, with the zone 107 adjusted from Table 4. Out of the 381 AFY total perched aquifer leakage, 364 AFY enters upper aquifer and 17 AFY enters creek compartment (model derived).

Total Subsurface Cross Flow (SCF) = 356 AFY

Yates Table 9, column 12, zones 205-229 minus column 11, zones 205-229 with adjustment for zone 209. Out of the 356 AFY total subsurface cross flow (spilling off edge of perching clay), 270 AFY enters upper aquifer and 86 AFY enters creek compartment (difference for 20% of zone 206 and zones 220, 221, and 229).

Willow Creek/Evapotranspiration (WC/ET) = 35 AFY

WC/ET = SR + PP/IR - LK - SCF. Note that this outflow from ground water system, and does not include surface water inflow/outflow.

Creek Compartment

Recharge (from LK/SCF, PP/IR, and SR) = 563 AFY

Yates Table 9, column 12, zones 20-28, plus approx. 20% of zone 206, and zones 220, 221, and 229 (558 AFY in tables, 563 AFY in model).

Septic Return (SR) = 30 AFY

Yates Table 9, column 9, zones 20, 24, 25, 220, and 229.

Perc of Precip/Irrigation Return (PP/IR) = 430 AFY

PP/IR = Total recharge (563 AFY) - SR (30 AFY) - LK/SCF (103 AFY)

Subsurface Inflow (SI) = 170 AFY from bedrock. Model calibration value.

Los Osos Creek Inflow (LCI) = 714 AFY

Model derived (see model totals above).

Los Osos Creek Outflow (LCO) = 32 AFY

Model derived. This does not include surface water runoff from watershed.

Warden Drain Outflow = 2 AFY

Model derived.

Well Production (WP) = 870 AFY

800 AFY irrigation; 70 AFY domestic

Subsurface Cross Flow (SCF) = 543 AFY

SCF = PP/IR + SR + LCI + SI - WP - LOC. The amount of SCF moving into upper aquifer is 158 AFY and the amount moving into the lower aquifer is 385 AFY, which is calculated from the known budget items using the flow diagram

Upper Aquifer

Total recharge = 2,167 AFY
Total model recharge (2,730 AFY) minus creek compartment recharge (563 AFY)

Septic Return (SR) = 44 AFY
Yates Table 9, column 9, zones 2-16.

Perc of Precip/Irrigation Return (PP/IR) = 1,489 AFY
Upper aquifer recharge (2,167 AFY) minus perched aquifer LK/SCF (634 AFY) minus septic return (44 AFY).

Subsurface Inflow (SI) = 120 AFY
Model derived. Leakage from uplifted basin area in Bayview Heights.

Well Production (WP) = 803 AFY
Purveyor production records and domestic well estimates

Subsurface Outflow (SO) = 871 AFY
General head boundary (see model totals).

Leakage to lower aquifer (LK): 771 AFY
Model derived.

Lower Aquifer

Well Production (WP) = 1,717 AFY
Purveyor production records

Sea Water Intrusion (SWI) = 561 AFY
General head boundary (see model totals).

HYDROLOGIC BUDGET

CONSERVATION

Scenario Description

Septic flow collection: 997 AFY (estimated initial flows after conservation).
Water conservation: 160 AFY
Wastewater disposal at Broderson Site: 0 AFY
Wastewater disposal at spray field (out of basin): 997 AFY

Model totals

Recharge (PP/IR/SR) = 2,730 AFY

Yates (2003) Table 9, column 12, zones 2-229 (2,885 AFY), minus 155 AFY due to a reduction in model area. Note that the middle school septic was not collected in 2003 analysis. Adjustment has been made to collect 13 AFY middle school wastewater from zone 209, which is where the leach field is. Zone 109 septic returns also identified as the school (8 AFY) are reassigned to several existing homes outside of prohibition zone in this area and are not collected. Another modification from the Yates 2003 tables is that zone 107 (east side low density) is not in the prohibition zone and septic flows would not be collected, adding 28 AFY of recharge.

Los Osos Creek inflow = 701 AFY

Calculated by model. Intermittent stream gage data shows average surface flows of 3,900 AFY and median flows of 2,200 AFY (1977-2000), indicating water is available.

Subsurface inflow from bedrock = 169 AFY

Calibration derived (discussed in 2005 Sea Water Intrusion study). Modified from fixed inflow to head-dependent.

Subsurface inflow to upper aquifer from uplifted basin area in Bayview Heights = 117 AFY

Subsurface inflow from ocean (general head boundary inflow) = 530 AFY

Includes 471 AFY net sea water intrusion and 59 AFY of recirculating water beneath the Morro Bay sandspit (model derived).

Total Inflow: 4,247 AFY

Basin well production (WP) = 3,230 AFY

2280 AFY purveyor w/sea pines golf (production records)
800 AFY creek valley irrigation (approx 400 acres of ag lands, mostly truck crops)
70 AFY creek valley domestic (approx 75 homes)
80 AFY urban area non-purveyor domestic (approx 100 homes)

Los Osos Creek outflow = 38 AFY

This value is calculated by model. Does not include surface water runoff from watershed.

Warden drain outflow = 4 AFY

Subsurface outflow to ocean (general head boundary outflow) = 975 AFY

Includes 916 AFY net upper aquifer outflow and 59 AFY of recirculating water beneath the Morro Bay sandspit.

Total Outflow: 4,247 AFY

Perched Aquifer

Septic Return (SR) = 36 AFY

Yates (2003) Table 9, column 9, zones 105-128, plus 28 AFY added for zone 107 which is not in prohibition zone.

Perc of Precip/Irrigation Return (PP/IR) = 736 AFY

Yates Table 4, column 10, zones 105-128 (1,367) minus pre-project Septic Return (631 AFY). Note that the PP/IR value using Table 9 column 11 (with 28 AFY adjustment for zone 107) would be 714 AFY (750 AFY - 36AFY), mainly because the area of zone 116 is reduced in Table 9 to allow for east side disposal zones 304, 305, and 306. To conform to the County VPA's, the 300-series zones have been reassigned back to their 100-series counterparts, except Broderson. Therefore, in the perched aquifer columns, Table 9 should be the same as Table 4.

Total leakage through clay (LK) = 381 AFY

Yates Table 9, column 12, zones 105-128, with the zone 107 adjusted from Table 4. Out of the 381 AFY total perched aquifer leakage, 364 AFY enters upper aquifer and 17 AFY enters creek compartment (model derived).

Total Subsurface Cross Flow (SCF) = 356 AFY

Yates Table 9, column 12, zones 205-229 minus column 11, zones 205-229 with adjustment for zone 209. Out of the 356 AFY total subsurface cross flow (spilling off edge of perching clay), 270 AFY enters upper aquifer and 86 AFY enters creek compartment (difference for 20% of zone 206 and zones 220, 221, and 229).

Willow Creek/Evapotranspiration (WC/ET) = 35 AFY

WC/ET = SR + PP/IR - LK - SCF. Note that this outflow from ground water system, and does not include surface water inflow/outflow.

Creek Compartment

Recharge (from LK/SCF, PP/IR, and SR) = 563 AFY

Yates Table 9, column 12, zones 20-28, plus approx. 20% of zone 206, and zones 220, 221, and 229 (558 AFY in tables, 563 AFY in model).

Septic Return (SR) = 30 AFY

Yates Table 9, column 9, zones 20, 24, 25, 220, and 229.

Perc of Precip/Irrigation Return (PP/IR) = 430 AFY

PP/IR = Total recharge (563 AFY) - SR (30 AFY) - LK/SCF (103 AFY)

Subsurface Inflow (SI) = 169 AFY from bedrock. Model calibration value.

Los Osos Creek Inflow (LCI) = 701 AFY

Model derived (see model totals above).

Los Osos Creek Outflow (LCO) = 38 AFY

Model derived. This does not include surface water runoff from watershed.

Warden Drain Outflow = 4 AFY

Model derived.

Well Production (WP) = 870 AFY

800 AFY irrigation; 70 AFY domestic

Subsurface Cross Flow (SCF) = 521 AFY

SCF = PP/IR + SR + LCI + SI - WP - LOC. The amount of SCF moving into upper aquifer is 134 AFY and the amount moving into the lower aquifer is 387 AFY, which is calculated from the known budget items using the flow diagram

Upper Aquifer

Total recharge = 2,167 AFY
Total model recharge (2,730 AFY) minus creek compartment recharge (563 AFY)

Septic Return (SR) = 44 AFY
Yates Table 9, column 9, zones 2-16.

Perc of Precip/Irrigation Return (PP/IR) = 1,489 AFY
Upper aquifer recharge (2,167 AFY) minus perched aquifer LK/SCF (634 AFY) minus septic return (44 AFY).

Subsurface Inflow (SI) = 117 AFY
Model derived. Leakage from uplifted basin area in Bayview Heights.

Well Production (WP) = 803 AFY
Purveyor production records and domestic well estimates

Subsurface Outflow (SO) = 916 AFY
General head boundary (see model totals).

Leakage to lower aquifer (LK): 699 AFY
Model derived.

Lower Aquifer

Well Production (WP) = 1,557 AFY
Purveyor production records with 160 AFY conservation applied.

Sea Water Intrusion (SWI) = 471 AFY
General head boundary (see model totals).

HYDROLOGIC BUDGET

BRODERSON

Scenario Description

Septic flow collection: 1,157 AFY (estimated initial flows in model).
Water conservation: 0 AFY
Wastewater disposal at Broderson Site: 448 AFY
Wastewater disposal at spray field (out of basin): 709 AFY

Model totals

Recharge (PP/IR/SR) = 3,178 AFY

Yates (2003) Table 9, column 12, zones 2-229 (2,885 AFY), plus 448 AFY Broderson disposal, minus 155 AFY due to a reduction in model area. Note that the middle school septic was not collected in 2003 analysis. Adjustment has been made to collect 13 AFY middle school wastewater from zone 209, which is where the leach field is. Zone 109 septic returns also identified as the school (8 AFY) are reassigned to several existing homes outside of prohibition zone in this area and are not collected. Another modification from the Yates 2003 tables is that zone 107 (east side low density) is not in the prohibition zone and septic flows would not be collected, adding 28 AFY of recharge.

Los Osos Creek inflow = 674 AFY

Calculated by model. Intermittent stream gage data shows average surface flows of 3,900 AFY and median flows of 2,200 AFY (1977-2000), indicating water is available.

Subsurface inflow from bedrock = 167 AFY

Calibration derived (discussed in 2005 Sea Water Intrusion study). Modified from fixed inflow to head-dependent.

Subsurface inflow to upper aquifer from uplifted basin area in Bayview Heights = 109 AFY

Subsurface inflow from ocean (general head boundary inflow) = 502 AFY

Includes 441 AFY net sea water intrusion and 61 AFY of recirculating water beneath the Morro Bay sandspit (model derived).

Total Inflow: 4,630 AFY

Basin well production (WP) = 3,390 AFY

2440 AFY purveyor w/sea pines golf (production records)
800 AFY creek valley irrigation (approx 650 acres of ag lands, mostly truck crops)
70 AFY creek valley domestic (approx 75 homes)
80 AFY urban area non-purveyor domestic (approx 100 homes)

Los Osos Creek outflow = 52 AFY

This value is calculated by model. Does not include surface water runoff from watershed.

Warden drain outflow = 6 AFY

Subsurface outflow to ocean (general head boundary outflow) = 1182 AFY

Includes 1121 AFY net upper aquifer outflow and 61 AFY of recirculating water beneath the Morro Bay sandspit.

Total Outflow: 4,630 AFY

Perched Aquifer

Septic Return (SR) = 36 AFY

Yates (2003) Table 9, column 9, zones 105-128, plus 28 AFY added for zone 107 which is not in prohibition zone.

Perc of Precip/Irrigation Return (PP/IR) = 736 AFY

Yates Table 4, column 10, zones 105-128 (1,367) minus pre-project Septic Return (631 AFY). Note that the PP/IR value using Table 9 column 11 (with 28 AFY adjustment for zone 107) would be 714 AFY (750 AFY - 36AFY), mainly because the area of zone 116 is reduced in Table 9 to allow for east side disposal zones 304, 305, and 306. To conform to the County VPA's, the 300-series zones have been reassigned back to their 100-series counterparts, except Broderson. Therefore, in the perched aquifer columns, Table 9 should be the same as Table 4.

Total leakage through clay (LK) = 381 AFY

Yates Table 9, column 12, zones 105-128, with the zone 107 adjusted from Table 4. Out of the 381 AFY total perched aquifer leakage, 364 AFY enters upper aquifer and 17 AFY enters creek compartment (model derived).

Total Subsurface Cross Flow (SCF) = 356 AFY

Yates Table 9, column 12, zones 205-229 minus column 11, zones 205-229 with adjustment for zone 209. Out of the 356 AFY total subsurface cross flow (spilling off edge of perching clay), 270 AFY enters upper aquifer and 86 AFY enters creek compartment (difference for 20% of zone 206 and zones 220, 221, and 229).

Willow Creek/Evapotranspiration (WC/ET) = 35 AFY

WC/ET = SR + PP/IR - LK - SCF. Note that this outflow from ground water system, and does not include surface water inflow/outflow.

Creek Compartment

Recharge (from LK/SCF, PP/IR, and SR) = 563 AFY

Yates Table 9, column 12, zones 20-28, plus approx. 20% of zone 206, and zones 220, 221, and 229 (558 AFY in tables, 563 AFY in model).

Septic Return (SR) = 30 AFY

Yates Table 9, column 9, zones 20, 24, 25, 220, and 229.

Perc of Precip/Irrigation Return (PP/IR) = 430 AFY

PP/IR = Total recharge (563 AFY) - SR (30 AFY) - LK/SCF (103 AFY)

Subsurface Inflow (SI) = 167 AFY from bedrock. Model calibration value.

Los Osos Creek Inflow (LCI) = 674 AFY

Model derived (see model totals above).

Los Osos Creek Outflow (LCO) = 52 AFY

Model derived. This does not include surface water runoff from watershed.

Warden Drain Outflow = 6 AFY

Model derived.

Well Production (WP) = 870 AFY

800 AFY irrigation; 70 AFY domestic

Subsurface Cross Flow (SCF) = 476 AFY

SCF = PP/IR + SR + LCI + SI - WP - LOC. The amount of SCF moving into upper aquifer is 109 AFY and the amount moving into the lower aquifer is 367 AFY, which is calculated from the known budget items using the flow diagram

Upper Aquifer

Total recharge = 2,615 AFY
Total model recharge (3,178 AFY) minus creek compartment recharge (563 AFY)

Septic Return (SR) = 44 AFY
Yates Table 9, column 9, zones 2-16.

Perc of Precip/Irrigation Return (PP/IR) = 1,489 AFY
Upper aquifer recharge (2,615 AFY) minus perched aquifer LK/SCF (634 AFY) minus septic return (44 AFY), minus Broderson site disposal (448 AFY).

Subsurface Inflow (SI) = 109 AFY
Model derived. Leakage from uplifted basin area in Bayview Heights.

Well Production (WP) = 803 AFY
Purveyor production records and domestic well estimates

Subsurface Outflow (SO) = 1121 AFY
General head boundary (see model totals).

Leakage to lower aquifer (LK): 909 AFY
Model derived.

Lower Aquifer

Well Production (WP) = 1,717 AFY
Purveyor production records

Sea Water Intrusion (SWI) = 441 AFY
General head boundary (see model totals).

HYDROLOGIC BUDGET

AG REUSE

Scenario Description

Septic flow collection: 1,157 AFY (estimated initial flows in model).
Water conservation: 0 AFY
Wastewater disposal at Broderson Site: 0 AFY
Ag Reuse: 480 AFY (Creek compartment irrigation north of Los Osos Valley Road)
Wastewater disposal at spray field (out of basin): 677 AFY

Model totals

Recharge (PP/IR/SR) = 2,730 AFY

Yates (2003) Table 9, column 12, zones 2-229 (2,885 AFY), minus 155 AFY due to a reduction in model area. Note that the middle school septic was not collected in 2003 analysis. Adjustment has been made to collect 13 AFY middle school wastewater from zone 209, which is where the leach field is. Zone 109 septic returns also identified as the school (8 AFY) are reassigned to several existing homes outside of prohibition zone in this area and are not collected. Another modification from the Yates 2003 tables is that zone 107 (east side low density) is not in the prohibition zone and septic flows would not be collected, adding 28 AFY of recharge.

Los Osos Creek inflow = 524 AFY

Calculated by model. Intermittent stream gage data shows average surface flows of 3,900 AFY and median flows of 2,200 AFY (1977-2000), indicating water is available.

Subsurface inflow from bedrock = 141 AFY

Calibration derived (discussed in 2005 Sea Water Intrusion study). Modified from fixed inflow to head-dependent.

Subsurface inflow to upper aquifer from uplifted basin area in Bayview Heights = 113 AFY

Subsurface inflow from ocean (general head boundary inflow) = 566 AFY

Includes 514 AFY net sea water intrusion and 52 AFY of recirculating water beneath the Morro Bay sandspit (model derived).

Total Inflow: 4,074 AFY

Basin well production (WP) = 2,910 AFY

2440 AFY purveyor w/sea pines golf (production records)
320 AFY creek valley irrigation (approx 150 acres of ag lands, mostly truck crops)
70 AFY creek valley domestic (approx 75 homes)
80 AFY urban area non-purveyor domestic (approx 100 homes)

Los Osos Creek outflow = 126 AFY

This value is calculated by model. Does not include surface water runoff from watershed.

Warden drain outflow = 76 AFY

Subsurface outflow to ocean (general head boundary outflow) = 962 AFY

Includes 910 AFY net upper aquifer outflow and 52 AFY of recirculating water beneath the Morro Bay sandspit.

Total Outflow: 4,074 AFY

Perched Aquifer

Septic Return (SR) = 36 AFY

Yates (2003) Table 9, column 9, zones 105-128, plus 28 AFY added for zone 107 which is not in prohibition zone.

Perc of Precip/Irrigation Return (PP/IR) = 736 AFY

Yates Table 4, column 10, zones 105-128 (1,367) minus pre-project Septic Return (631 AFY). Note that the PP/IR value using Table 9 column 11 (with 28 AFY adjustment for zone 107) would be 714 AFY (750 AFY - 36AFY), mainly because the area of zone 116 is reduced in Table 9 to allow for east side disposal zones 304, 305, and 306. To conform to the County VPA's, the 300-series zones have been reassigned back to their 100-series counterparts, except Broderson. Therefore, in the perched aquifer columns, Table 9 should be the same as Table 4.

Total leakage through clay (LK) = 381 AFY

Yates Table 9, column 12, zones 105-128, with the zone 107 adjusted from Table 4. Out of the 381 AFY total perched aquifer leakage, 364 AFY enters upper aquifer and 17 AFY enters creek compartment (model derived).

Total Subsurface Cross Flow (SCF) = 356 AFY

Yates Table 9, column 12, zones 205-229 minus column 11, zones 205-229 with adjustment for zone 209. Out of the 356 AFY total subsurface cross flow (spilling off edge of perching clay), 270 AFY enters upper aquifer and 86 AFY enters creek compartment (difference for 20% of zone 206 and zones 220, 221, and 229).

Willow Creek/Evapotranspiration (WC/ET) = 35 AFY

WC/ET = SR + PP/IR - LK - SCF. Note that this outflow from ground water system, and does not include surface water inflow/outflow.

Creek Compartment

Recharge (from LK/SCF, PP/IR, and SR) = 563 AFY

Yates Table 9, column 12, zones 20-28, plus approx. 20% of zone 206, and zones 220, 221, and 229 (558 AFY in tables, 563 AFY in model).

Septic Return (SR) = 30 AFY

Yates Table 9, column 9, zones 20, 24, 25, 220, and 229.

Perc of Precip/Irrigation Return (PP/IR) = 430 AFY

PP/IR = Total recharge (563 AFY) - SR (30 AFY) - LK/SCF (103 AFY)

Subsurface Inflow (SI) = 141 AFY from bedrock. Model calibration value.

Los Osos Creek Inflow (LCI) = 524 AFY

Model derived (see model totals above).

Los Osos Creek Outflow (LCO) = 126 AFY

Model derived. This does not include surface water runoff from watershed.

Warden Drain Outflow = 76 AFY

Model derived.

Well Production (WP) = 390 AFY

320 AFY irrigation; 70 AFY domestic

Subsurface Cross Flow (SCF) = 636 AFY

SCF = PP/IR + SR + LCI + SI - WP - LOC. The amount of SCF moving into upper aquifer is 122 AFY and the amount moving into the lower aquifer is 514 AFY, which is calculated from the known budget items using the flow diagram

Upper Aquifer

Total recharge = 2,167 AFY
Total model recharge (2,730 AFY) minus creek compartment recharge (563 AFY)

Septic Return (SR) = 44 AFY
Yates Table 9, column 9, zones 2-16.

Perc of Precip/Irrigation Return (PP/IR) = 1,489 AFY
Upper aquifer recharge (2,167 AFY) minus perched aquifer LK/SCF (634 AFY) minus septic return (44 AFY).

Subsurface inflow to upper aquifer from uplifted basin area in Bayview Heights = 113 AFY
Model derived

Well Production (WP) = 803 AFY
Purveyor production records and domestic well estimates

Subsurface Outflow (SO) = 910 AFY
General head boundary (see model totals).

Leakage to lower aquifer (LK): 689 AFY
Model derived.

Lower Aquifer

Well Production (WP) = 1,717 AFY
Purveyor production records

Sea Water Intrusion (SWI) = 514 AFY
General head boundary (see model totals).

HYDROLOGIC BUDGET

PROJECT VPA2a

Project Description

Septic flow collection: 997 AFY (initial prohibition zone flows after conservation).
Water conservation: 160 AFY (entered as reduction in west side lower aquifer production)
Wastewater disposal at Broderson Site: 448 AFY
Ag Reuse: 480 AFY (current level of irrigation in creek compartment north of Los Osos Valley Road)
Wastewater disposal at spray field (out of basin): 69 AFY

Model totals

Recharge (PP/IR/SR) = 3,178 AFY

Yates (2003) Table 9, column 12, zones 2-229 (2,885 AFY), plus 448 AFY Broderson disposal, minus 155 AFY due to a reduction in model area. Note that middle school septic was not collected in 2003 analysis. Adjustment has been made to collect 13 AFY middle school wastewater from zone 209, which is where the leach field is. Zone 109 septic returns also identified as the school (8 AFY) are reassigned to several existing homes outside of PZ in this area and are not collected. Another modification from the Yates 2003 tables is that zone 107 (east side low density) is not in the prohibition zone and septic flows would not be collected, adding 28 AFY of recharge.

Los Osos Creek inflow = 492 AFY

This value is calculated by model. Intermittent stream gage data shows average surface flows of 3,900 AFY and median flows of 2,200 AFY (1977-2000), indicating water is available.

Subsurface inflow from bedrock = 137 AFY

Calibration derived (discussed in 2005 Sea Water Intrusion study). Modified from fixed inflow to head-dependent.

Subsurface inflow to upper aquifer from uplifted basin area in Bayview Heights = 100 AFY

Subsurface inflow from ocean (general head boundary inflow) = 396 AFY

Includes 308 AFY net sea water intrusion and 88 AFY of recirculating water beneath the Morro Bay sandspit (model derived).

Total Inflow: 4,303 AFY

Basin well production (WP) = 2,750 AFY

2280 AFY purveyor w/sea pines golf (production records)
320 AFY creek valley irrigation (approx 150 acres of ag lands, mostly truck crops)
70 AFY creek valley domestic (approx 75 homes)
80 AFY urban area non-purveyor domestic (approx 100 homes)

Los Osos Creek outflow = 168 AFY

This value is calculated by model. Does not include surface water runoff from watershed..

Warden drain outflow = 88 AFY

Subsurface outflow to ocean (general head boundary outflow) = 1,297 AFY

Includes 1,209 AFY net upper aquifer outflow and 88 AFY of recirculating water beneath the Morro Bay sandspit.

Total Outflow: 4,303 AFY

Perched Aquifer

Septic Return (SR) = 36 AFY

Yates (2003) Table 9, column 9, zones 105-128, plus 28 AFY added for zone 107 which is not in prohibition zone.

Perc of Precip/Irrigation Return (PP/IR) = 736 AFY

Yates Table 4, column 10, zones 105-128 (1,367) minus pre-project Septic Return (631 AFY). Note that the PP/IR value using Table 9 (with 28 AFY adjustment for zone 107) would be 714 AFY (750 AFY - 36AFY), mainly because the area of zone 116 is reduced in Table 9 to allow for east side disposal zones 304, 305, and 306. To conform to the County VPA's, the 300-series zones have been reverted back to their 100-series counterparts, except Broderson. Therefore, in the perched aquifer columns, Yates Table 9 becomes the same as Table 4.

Total leakage through clay (LK) = 381 AFY

Yates Table 9, column 12, zones 105-128, with the zone 107 adjusted from Table 4. Out of the 381 AFY total perched aquifer leakage, 364 AFY enters upper aquifer and 17 AFY enters creek compartment (model derived).

Total Subsurface Cross Flow (SCF) = 356 AFY

Yates Table 9, column 12, zones 205-229 minus column 11, zones 205-229 with adjustment for zone 209. Out of the 356 AFY total subsurface cross flow (spilling off edge of perching clay), 270 AFY enters upper aquifer and 86 AFY enters creek compartment (difference for 20% of zone 206 and zones 220, 221, and 229).

Willow Creek/Evapotranspiration (WC/ET) = 35 AFY

WC/ET = SR + PP/IR - LK - SCF. Note that this outflow from ground water system, and does not include surface water inflow/outflow.

Creek Compartment

Recharge (from LK/SCF, PP/IR, and SR) = 563 AFY

Yates Table 9, column 12, zones 20-28, plus approx. 20% of zone 206, and zones 220, 221, and 229 (558 AFY in tables, 563 AFY in model).

Septic Return (SR) = 30 AFY

Yates Table 9, column 9, zones 20, 24, 25, 220, and 229.

Perc of Precip/Irrigation Return (PP/IR) = 430 AFY

PP/IR = Total recharge - SR - LK/SCF (from perched aquifer)

Subsurface Inflow (SI) = 137 AFY from bedrock. Model calibration value.

Los Osos Creek Inflow (LCI) = 492 AFY

Model derived (see model totals above).

Los Osos Creek Outflow (LCO) = 168 AFY

Model derived. This is ground water rising into Los Osos Creek, not an estimate of total surface flows.

Warden Drain Outflow = 88 AFY

Model derived.

Well Production (WP) = 390 AFY

320 AFY irrigation; 70 AFY domestic

Subsurface Cross Flow (SCF) = 546 AFY

SCF = PP/IR + SR + LCI + SI - WP - LOC. The amount of SCF moving into upper aquifer is 51 AFY and the amount moving into the lower aquifer is 495 AFY, which is calculated from the known budget items using the flow diagram.

Upper Aquifer

Total recharge = 2,615 AFY
Total model recharge (3,178 AFY) minus creek compartment recharge (563 AFY)

Septic Return (SR) = 44 AFY
Yates Table 9, column 9, zones 2-16.

Perc of Precip/Irrigation Return (PP/IR) = 1,489 AFY
Upper aquifer recharge (2,615 AFY) minus perched aquifer LK/SCF (634 AFY) minus septic return (44 AFY) minus Broderson site disposal (448 AFY).

Subsurface inflow to upper aquifer from uplifted basin area in Bayview Heights = 100 AFY
Model derived

Well Production (WP) = 803 AFY
Purveyor production records and domestic well estimates

Subsurface Outflow (SO) = 1,207 AFY
General head boundary (see model totals).

Leakage to lower aquifer (LK): 754 AFY
Model derived.

Lower Aquifer

Well Production (WP) = 1,557 AFY
Purveyor production records minus 160 AFY conservation (applied to west side)

Sea Water Intrusion (SWI) = 308 AFY
General head boundary (see model totals).

HYDROLOGIC BUDGET

PROJECT VPA2b

Project Description

Septic flow collection: 997 AFY (initial prohibition zone flows after conservation).
Water conservation: 160 AFY (entered as reduction in west side lower aquifer production)
Wastewater disposal at Broderson Site: 448 AFY
Wastewater disposal at spray field (out of basin): 549 AFY

Model totals

Recharge (PP/IR/SR) = 3,178 AFY

Yates (2003) Table 9, column 12, zones 2-229 (2,885 AFY), plus 448 AFY Broderson disposal, minus 155 AFY due to a reduction in model area. Note that middle school septic was not collected in 2003 analysis. Adjustment has been made to collect 13 AFY middle school wastewater from zone 209, which is where the leach field is. Zone 109 septic returns also identified as the school (8 AFY) are reassigned to several existing homes outside of PZ in this area and are not collected. Another modification from the Yates 2003 tables is that zone 107 (east side low density) is not in the prohibition zone and septic flows would not be collected, adding 28 AFY of recharge.

Los Osos Creek inflow = 665 AFY

This value is calculated by model. Intermittent stream gage data shows average surface flows of 3,900 AFY and median flows of 2,200 AFY (1977-2000), indicating water is available.

Subsurface inflow from bedrock = 166 AFY

Calibration derived (discussed in 2005 Sea Water Intrusion study). Modified from fixed inflow to head-dependent.

Subsurface inflow to upper aquifer from uplifted basin area in Bayview Heights = 107 AFY

Subsurface inflow from ocean (general head boundary inflow) = 430 AFY

Includes 352 AFY net sea water intrusion and 78 AFY of recirculating water beneath the Morro Bay sandspit (model derived).

Total Inflow: 4,546 AFY

Basin well production (WP) = 3,230 AFY

2280 AFY purveyor w/sea pines golf (production records)
800 AFY creek valley irrigation (approx 650 acres of ag lands, mostly truck crops)
70 AFY creek valley domestic (approx 75 homes)
80 AFY urban area non-purveyor domestic (approx 100 homes)

Los Osos Creek outflow = 60 AFY

This value is calculated by model. Does not include surface water runoff from watershed..

Warden drain outflow = 9 AFY

Subsurface outflow to ocean (general head boundary outflow) = 1,247 AFY

Includes 1,169 AFY net upper aquifer outflow and 78 AFY of recirculating water beneath the Morro Bay sandspit.

Total Outflow: 4,546 AFY

Perched Aquifer

Septic Return (SR) = 36 AFY

Yates (2003) Table 9, column 9, zones 105-128, plus 28 AFY added for zone 107 which is not in prohibition zone.

Perc of Precip/Irrigation Return (PP/IR) = 736 AFY

Yates Table 4, column 10, zones 105-128 (1,367) minus pre-project Septic Return (631 AFY). Note that the PP/IR value using Table 9 (with 28 AFY adjustment for zone 107) would be 714 AFY (750 AFY - 36AFY), mainly because the area of zone 116 is reduced in Table 9 to allow for east side disposal zones 304, 305, and 306. To conform to the County VPA's, the 300-series zones have been reverted back to their 100-series counterparts, except Broderson. Therefore, in the perched aquifer columns, Yates Table 9 becomes the same as Table 4.

Total leakage through clay (LK) = 381 AFY

Yates Table 9, column 12, zones 105-128, with the zone 107 adjusted from Table 4. Out of the 381 AFY total perched aquifer leakage, 364 AFY enters upper aquifer and 17 AFY enters creek compartment (model derived).

Total Subsurface Cross Flow (SCF) = 356 AFY

Yates Table 9, column 12, zones 205-229 minus column 11, zones 205-229 with adjustment for zone 209. Out of the 356 AFY total subsurface cross flow (spilling off edge of perching clay), 270 AFY enters upper aquifer and 86 AFY enters creek compartment (difference for 20% of zone 206 and zones 220, 221, and 229).

Willow Creek/Evapotranspiration (WC/ET) = 35 AFY

WC/ET = SR + PP/IR - LK - SCF. Note that this outflow from ground water system, and does not include surface water inflow/outflow.

Creek Compartment

Recharge (from LK/SCF, PP/IR, and SR) = 563 AFY

Yates Table 9, column 12, zones 20-28, plus approx. 20% of zone 206, and zones 220, 221, and 229 (558 AFY in tables, 563 AFY in model).

Septic Return (SR) = 30 AFY

Yates Table 9, column 9, zones 20, 24, 25, 220, and 229.

Perc of Precip/Irrigation Return (PP/IR) = 430 AFY

PP/IR = Total recharge - SR - LK/SCF (from perched aquifer)

Subsurface Inflow (SI) = 166 AFY from bedrock. Model calibration value.

Los Osos Creek Inflow (LCI) = 665 AFY

Model derived (see model totals above).

Los Osos Creek Outflow (LCO) = 60 AFY

Model derived. This is ground water rising into Los Osos Creek, not an estimate of total surface flows.

Warden Drain Outflow = 9 AFY

Model derived.

Well Production (WP) = 870 AFY

800 AFY irrigation; 70 AFY domestic

Subsurface Cross Flow (SCF) = 455 AFY

SCF = PP/IR + SR + LCI + SI - WP - LOC. The amount of SCF moving into upper aquifer is 85 AFY and the amount moving into the lower aquifer is 370 AFY, which is calculated from the known budget items using the flow diagram

Upper Aquifer

Total recharge = 2,615 AFY

Total model recharge (3,178 AFY) minus creek compartment recharge (563 AFY)

Septic Return (SR) = 44 AFY

Yates Table 9, column 9, zones 2-16.

Perc of Precip/Irrigation Return (PP/IR) = 1,489 AFY

Upper aquifer recharge (2,615 AFY) minus perched aquifer LK/SCF (634 AFY) minus septic return (44 AFY) minus Broderson site disposal (448 AFY).

Subsurface Inflow (SI) = 107 AFY

Model derived. Leakage from uplifted basin area in Bayview Heights.

Well Production (WP) = 803 AFY

Purveyor production records and domestic well estimates

Subsurface Outflow (SO) = 1,169 AFY

General head boundary (see model totals).

Leakage to lower aquifer (LK): 835 AFY

Model derived.

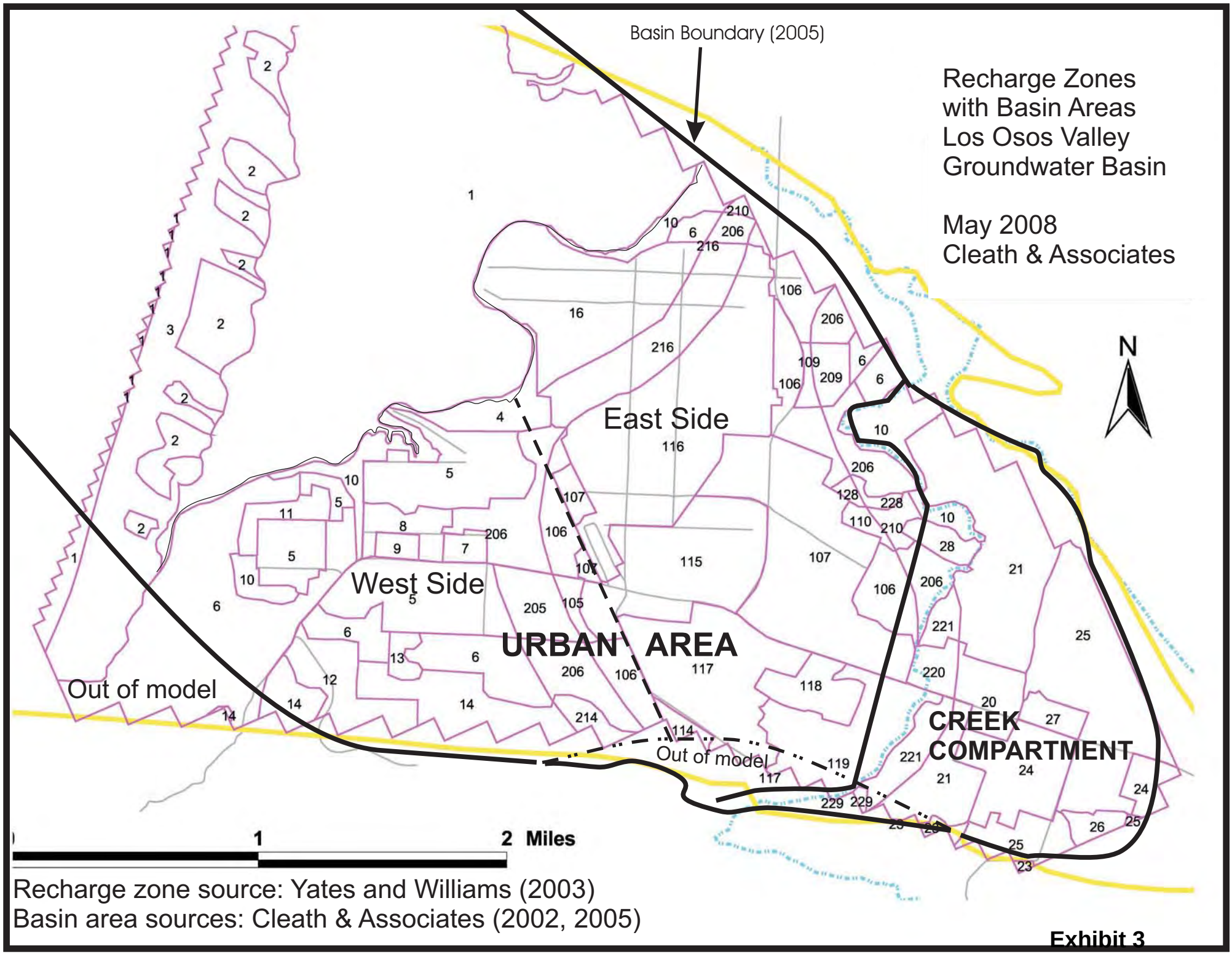
Lower Aquifer

Well Production (WP) = 1,557 AFY

Purveyor production records minus 160 AFY conservation (applied to west side)

Sea Water Intrusion (SWI) = 352 AFY

General head boundary (see model totals).



Recharge zone source: Yates and Williams (2003)
Basin area sources: Cleath & Associates (2002, 2005)

Table 4. Simulated Average Annual Recharge and Nitrogen Loads under Existing Conditions with 2000-2002 Hydrology

Zone Number	Land Use	Zone Area (acres)	Rainfall (ac-ft/yr)	Runoff (ac-ft/yr)	Evapo-transpir-ation (ET) (ac-ft/yr)	Irrigation (ac-ft/yr)	Residual Potential ET (ac-ft/yr)	Septic System Leachate (ac-ft/yr)	Groundwater Recharge: Before Perching Effects (ac-ft/yr)	Groundwater Recharge: After Perching Effects (ac-ft/yr)	Groundwater Recharge: After Perching Effects (in/yr)	Nitrogen Before Perching Effects: Load (lb/yr)	Nitrogen Before Perching Effects: Concentration (lb/ac-ft)	Nitrogen Before Perching Effects: Concentration (mg/l)	Nitrogen After Perching Effects: Load (lb/yr)	Nitrogen After Perching Effects: Concentration (lb/ac-ft)	Nitrogen After Perching Effects: Concentration (mg/l)
2	Sandspit Shrubs	202	274	22	165	0	0	0	64	64	3.8	1,008	15.9	5.8	1,007	15.9	5.8
3	Sandspit Bare	472	639	51	139	0	0	0	443	443	11.3	2,364	5.3	2.0	2,363	5.3	2.0
4	Shoreline Shrubs/Trees	47	66	6	41	0	61	0	13	13	3.3	228	17.5	6.4	229	17.5	6.4
5	Residential Med. Density	290	406	220	246	182	63	216	471	471	19.5	13,620	28.9	10.6	13,622	28.9	10.6
6	Undeveloped Grass/Shrub	452	633	53	342	0	0	0	198	198	5.2	5,160	26.1	9.6	5,159	26.1	9.6
7	Residential Low Density	14	19	5	11	4	3	2	11	11	9.4	708	65.8	24.2	706	65.8	24.2
8	Residential Low Density	34	47	13	30	9	51	2	20	20	7.0	816	41.8	15.4	815	41.8	15.4
9	Monarch Elementary	11	16	7	14	13	2	8	20	20	21.1	576	29.3	10.8	578	29.3	10.8
10	Undeveloped Trees	154	216	42	161	0	313	0	0	0	0.0	768	undefined	undefined	undefined	undefined	undefined
11	Sea Pines Golf Course	26	36	3	67	67	0	5	37	37	17.3	1,032	27.7	10.2	1,032	27.7	10.2
12	Cabrillo Estates	65	94	34	54	24	14	42	86	86	15.8	2,700	31.5	11.6	2,701	31.5	11.6
13	Horse Ranch	13	19	5	16	13	0	2	16	16	14.5	1,260	81.1	29.8	1,257	81.1	29.8
14	Undeveloped Shrubs	114	170	16	94	0	0	0	48	48	5.0	756	15.8	5.8	757	15.8	5.8
16	Residential Med. Density	209	292	158	174	131	45	187	404	404	23.2	11,592	28.7	10.5	11,592	28.7	10.5
20	Residential Med. Density	45	65	24	40	14	9	17	39	39	10.4	1,476	38.0	14.0	1,473	38.0	14.0
21	Irrigated Crops	259	375	76	277	191	0	0	200	200	9.3	7,020	35.1	12.9	7,024	35.1	12.9
24	Nonirrigated Crops	111	160	70	66	0	0	2	34	34	3.7	2,124	62.6	23.0	2,124	62.6	23.0
25	Nonirrigated Pasture	245	354	155	146	0	0	2	72	72	3.5	4,296	59.4	21.8	4,298	59.4	21.8
26	Irrigated Pasture	15	22	8	24	18	0	0	7	7	5.3	444	66.9	24.6	437	66.9	24.6
27	Cemetery	19	28	12	25	18	0	0	9	9	5.9	492	52.5	19.3	490	52.5	19.3
28	Irrigated Crops	20	28	2	31	29	0	0	24	24	14.5	600	24.8	9.1	599	24.8	9.1
105	Residential Med. Density	12	17	11	8	4	3	7	15	4	4.4	504	34.4	12.7	156	35.7	13.1
106	Undeveloped Grass/Shrub	192	268	98	150	0	0	0	6	6	0.4	2,184	undefined	undefined	1,944	331.4	121.9
107	Residential Low Density	274	389	193	212	73	61	28	133	94	4.1	7,332	55.2	20.3	5,885	62.9	23.1
109	High School	8	12	6	9	6	0	8	13	3	4.4	552	42.8	15.7	134	44.0	16.2
110	Uindeveloped Marsh/Trees	10	14	1	9	0	21	0	2	1	1.7	48	20.9	7.7	28	20.2	7.4
114	Undeveloped Shrubs	10	14	1	8	0	0	0	4	2	3.0	60	14.9	5.5	50	20.4	7.5
115	Commercial	176	250	159	90	65	0	208	317	64	4.4	11,268	35.6	13.1	2,351	36.6	13.5
116	Residential Med. Density	319	446	242	265	200	69	272	560	116	4.4	17,112	30.6	11.2	3,759	32.3	11.9
117	Bayview Heights	166	247	113	155	104	35	66	212	61	4.4	5,124	24.2	8.9	1,610	26.6	9.8
118	Mobile Homes	45	67	55	19	17	0	42	63	16	4.4	2,400	38.3	14.1	643	39.3	14.4
119	Undeveloped Trees	121	180	17	112	0	205	0	36	20	2.0	600	16.7	6.1	579	28.8	10.6
128	Irrigated Crops	5	7	1	8	7	0	0	6	2	4.3	144	23.6	8.7	51	28.4	10.4
205	Residential Med. Density	44	64	35	38	28	9	28	75	112	30.4	1,848	24.8	9.1	3,039	27.2	10.0
206	Undeveloped Grass/Shrub	210	314	29	163	0	0	0	103	280	16.0	2,400	23.2	8.5	8,098	28.9	10.6
209	High School	22	30	11	31	28	0	13	35	53	29.4	1,008	29.0	10.7	1,597	30.1	11.1
210	Uindeveloped Marsh/Trees	18	25	2	17	0	39	0	4	19	13.0	96	22.5	8.3	579	29.8	11.0
214	Undeveloped Shrubs	18	26	2	15	0	0	0	7	22	15.1	120	16.2	6.0	593	26.7	9.8
216	Residential Med. Density	110	154	84	91	69	24	98	198	290	31.6	6,108	30.9	11.4	9,091	31.3	11.5
220	Residential Low-Density	23	33	12	20	7	5	8	20	38	20.4	744	38.2	14.0	1,109	28.8	10.6
221	Irrigated Crops	53	79	17	56	39	0	0	43	88	19.8	1,440	33.6	12.4	3,082	35.2	12.9
228	Irrigated Crops	7	9	1	10	10	0	0	8	13	24.9	192	23.7	8.7	371	27.6	10.1
229	Horse Ranch	3	4	1	3	2	0	1	3	5	23.5	1,032	344.0	126.5	1,109	226.4	83.2
	Total	4,658	6,606	2,073	3,652	1,368	1,031	1,267	4,075	3,525	n.a.	121,356	n.a.	n.a.	104,122	n.a.	n.a.
	Average										9.1		29.8	10.9		29.5	10.9

Notes:
1) In zones where simulated recharge is zero, N concentration is undefined. 2) n.a. = not applicable

Table 9. Simulated Average Annual Recharge and Nitrogen Loads with Proposed Sewer Project and 2000-2002 Hydrology

Zone Number	Land Use	Zone Area (acres)	Rainfall (ac-ft/yr)	Runoff (ac-ft/yr)	Evapo-transpir-ation (ET) (ac-ft/yr)	Irrigation (ac-ft/yr)	Residual Potential ET (ac-ft/yr)	Septic System Leachate (ac-ft/yr)	WWTP Perco-lation (ac-ft/yr)	Groundwater Recharge: Before Perching Effects (ac-ft/yr)	Groundwater Recharge: After Perching Effects (ac-ft/yr)	Groundwater Recharge: After Perching Effects (in/yr)	Nitrogen Before Perching Effects: Load (lb/yr)	Nitrogen Before Perching Effects: Concentration (lb/ac-ft)	Nitrogen Before Perching Effects: Concentration (mg/l)	Nitrogen After Perching Effects: Load (lb/yr)	Nitrogen After Perching Effects: Concentration (lb/ac-ft)	Nitrogen After Perching Effects: Concentration (mg/l)
2	Sandspit Shrubs	202	274	22	165	0	0	0	0	64	64	3.8	1,008	15.9	5.8	1,007	15.9	5.8
3	Sandspit Bare	472	639	51	139	0	0	0	0	443	443	11.3	2,364	5.3	2.0	2,363	5.3	2.0
4	Shoreline Shrubs/Trees	47	66	6	41	0	61	0	0	13	13	3.3	228	17.5	6.4	229	17.5	6.4
5	Residential Med. Density	288	403	219	245	181	62	0	0	253	253	10.5	3,876	15.3	5.6	3,875	15.3	5.6
6	Undeveloped Grass/Shrub	441	617	52	334	0	0	0	0	193	193	5.2	5,028	26.1	9.6	5,027	26.1	9.6
7	Residential Low Density	12	17	5	10	3	2	0	0	8	8	7.5	600	75.9	27.9	585	75.9	27.9
8	Residential Low Density	34	47	13	30	9	51	0	0	17	17	6.2	732	42.1	15.5	732	42.1	15.5
9	Monarch Elementary	10	14	6	13	11	2	0	0	10	10	12.0	168	17.0	6.2	167	17.0	6.2
10	Undeveloped Trees	154	216	42	161	0	313	0	0	0	0	0.0	768	undefined	undefined	undefined	undefined	undefined
11	Sea Pines Golf Course	26	36	3	67	67	0	0	0	33	33	15.3	840	25.4	9.3	841	25.4	9.3
12	Cabrillo Estates	65	94	34	54	24	14	42	0	86	86	15.8	2,700	31.5	11.6	2,701	31.5	11.6
13	Horse Ranch	13	19	5	16	13	0	2	0	16	16	14.5	1,260	81.1	29.8	1,257	81.1	29.8
14	Undeveloped Shrubs	114	170	16	94	0	0	0	0	48	48	5.0	756	15.8	5.8	757	15.8	5.8
16	Residential Med. Density	209	292	158	174	131	45	0	0	218	218	12.5	3,192	14.7	5.4	3,191	14.7	5.4
20	Residential Med. Density	45	65	24	40	14	9	17	0	39	39	10.4	1,476	38.0	14.0	1,473	38.0	14.0
21	Irrigated Crops	259	375	76	277	191	0	0	0	200	200	9.3	7,020	35.1	12.9	7,024	35.1	12.9
24	Nonirrigated Crops	111	160	70	66	0	0	2	0	34	34	3.7	2,124	62.6	23.0	2,124	62.6	23.0
25	Nonirrigated Pasture	245	354	155	146	0	0	2	0	72	72	3.5	4,296	59.4	21.8	4,298	59.4	21.8
26	Irrigated Pasture	15	22	8	24	18	0	0	0	7	7	5.3	444	66.9	24.6	437	66.9	24.6
27	Cemetery	19	28	12	25	18	0	0	0	9	9	5.9	492	52.5	19.3	490	52.5	19.3
28	Irrigated Crops	20	28	2	31	29	0	0	0	24	24	14.5	600	24.8	9.1	599	24.8	9.1
105	Residential Med. Density	12	17	11	8	4	3	0	0	7	4	4.2	156	21.7	8.0	93	22.5	8.3
106	Undeveloped Grass/Shrub	190	266	98	149	0	0	0	0	6	6	0.4	2,172	undefined	undefined	1,933	331.4	121.9
107	Residential Low Density	274	389	193	212	73	61	0	0	105	79	3.4	6,096	57.8	21.3	4,983	63.4	23.3
109	High School	8	12	6	9	6	0	8	0	13	3	4.4	552	42.8	15.7	130	43.0	15.8
110	Uindeveloped Marsh/Trees	10	14	1	9	0	21	0	0	2	1	1.7	48	20.9	7.7	28	20.2	7.4
114	Undeveloped Shrubs	10	14	1	8	0	0	0	0	4	2	3.0	60	14.9	5.5	49	20.1	7.4
115	Commercial	176	250	159	90	65	0	0	0	109	61	4.2	1,920	17.6	6.5	1,379	22.5	8.3
116	Residential Med. Density	309	432	234	257	194	67	0	0	279	113	4.4	4,716	16.9	6.2	2,142	19.0	7.0
117	Bayview Heights	166	247	113	155	104	35	0	0	145	61	4.4	2,124	14.6	5.4	1,059	17.5	6.4
118	Mobile Homes	45	67	55	19	17	0	0	0	20	14	3.9	492	24.0	8.8	351	24.4	9.0
119	Undeveloped Trees	121	180	17	112	0	205	0	0	36	20	2.0	600	16.7	6.1	579	28.8	10.6
128	Irrigated Crops	5	7	1	8	7	0	0	0	6	2	4.3	144	23.6	8.7	51	28.4	10.4
205	Residential Med. Density	44	64	35	38	28	9	0	0	47	79	21.4	588	12.6	4.6	1,068	13.6	5.0
206	Undeveloped Grass/Shrub	209	312	29	162	0	0	0	0	103	254	14.6	2,376	23.1	8.5	5,096	20.0	7.4
209	High School	22	30	11	31	28	0	13	0	35	50	28.0	1,008	29.0	10.7	1,268	25.1	9.2
210	Uindeveloped Marsh/Trees	18	25	2	17	0	39	0	0	4	17	11.6	96	22.5	8.3	325	18.7	6.9
214	Undeveloped Shrubs	18	26	2	15	0	0	0	0	7	20	13.7	120	16.2	6.0	345	17.1	6.3
216	Residential Med. Density	110	154	84	91	69	24	0	0	99	179	19.5	1,680	16.9	6.2	2,607	14.5	5.3
220	Residential Low-Density	23	33	12	20	7	5	8	0	20	36	19.0	744	38.2	14.0	1,223	34.1	12.5
221	Irrigated Crops	53	79	17	56	39	0	0	0	43	81	18.4	1,440	33.6	12.4	2,131	26.2	9.6
228	Irrigated Crops	7	9	1	10	10	0	0	0	8	13	23.4	192	23.7	8.7	133	10.5	3.9
229	Horse Ranch	3	4	1	3	2	0	1	0	3	5	22.1	1,032	344.0	126.5	1,062	230.8	84.9
301	WW Perc. Broderson	12	16	1	9	0	0	0	908	913	913	952.7	17,388	19.0	7.0	17,380	19.0	7.0
302	WW Perc. Monarch Grove	1	2	1	2	2	0	0	78	80	80	684.9	1,512	18.9	6.9	1,517	19.0	7.0
303	WW Perc. LOVR-Pine	1	2	1	1	0	0	0	56	57	57	487.7	1,080	18.9	7.0	1,542	27.1	10.0
304	WW Perc. Pismo	6	8	4	5	4	1	0	179	184	2	4.4	3,492	18.9	7.0	40	18.9	7.0
305	WW Perc. Santa Maria	4	6	3	4	3	1	0	179	183	2	4.4	3,468	18.9	7.0	30	18.9	7.0
306	WW Perc. El Moro	1	2	0	1	0	0	0	56	57	58	495.1	1,080	19.0	7.0	1,100	19.0	7.0
307	WW Perc. South Bay	1	2	1	1	0	0	0	90	90	1	4.6	1,716	19.1	7.0	10	19.2	7.0
308	WW Perc. Vista de Oro	1	2	1	1	1	0	0	23	24	24	202.6	444	18.7	6.9	443	18.7	6.9
	Total	4,658	6,606	2,073	3,652	1,368	1,030	97	1,570	4,477	4,022	n.a.	98,508	n.a.	n.a.	89,275	n.a.	n.a.
	Average											10.4		22.0	8.1		22.2	8.2

Notes:
1) In zones where simulated recharge is zero, N concentration is undefined. 2) n.a. = not applicable

APPENDIX D
WATER QUALITY
MASS BALANCE SUMMARY

Table D1 - TDS Loading, Perched Aquifer (Current Conditions)

WATER SOURCE	TOTAL VOLUME (AFY)	CONCENTRATION (MG/L)	TOTAL LOAD (TONS)
PRECIPITATION	558 [2]	0	0.0
IRRIGATION	178 [2]	868 [4]	210
SEPTAGE	631 [1]	620 [3]	531.9
TOTAL ANNUAL LOAD TO SYSTEM (TONS)			742.0
TOTAL VOLUME OF DISCHARGE TO GROUNDWATER (AFY)			1,367
ESTIMATED CONCENTRATION OF DISCHARGE TO GROUNDWATER (MG/L)			399

[1] - CLEATH, 2008
[2] - CALCULATED BASED ON TABLE 4 (YATES AND WILLIAMS, 2003)
[3] - FROM FINE SCREENING REPORT
[4] - ESTIMATION BASED ON IRRIGATION WATER AT 330 MG/L TDS WITH 62 PERCENT ET AND 38 PERCENT PERCOLATION

Table D2 - TDS Loading, Perched Aquifer (Post Project Conditions)

WATER SOURCE	TOTAL VOLUME (AFY)	CONCENTRATION (MG/L)	TOTAL LOAD (TONS)
PRECIPITATION	558 [2]	0	0.0
IRRIGATION	178 [2]	868 [4]	210
SEPTAGE	36 [1]	620 [3]	30.3
TOTAL ANNUAL LOAD TO SYSTEM (TONS)			240.4
TOTAL VOLUME OF DISCHARGE TO GROUNDWATER (AFY)			772
ESTIMATED CONCENTRATION OF DISCHARGE TO GROUNDWATER (MG/L)			229

[1] - CLEATH, 2008
[2] - CALCULATED BASED ON TABLE 4 (YATES AND WILLIAMS, 2003)
[3] - FROM FINE SCREENING REPORT
[4] - ESTIMATION BASED ON IRRIGATION WATER AT 330 MG/L TDS WITH 62 PERCENT ET AND 38 PERCENT PERCOLATION

Table D3 - TDS Loading, Creek Compartment (Current Conditions)

WATER SOURCE	TOTAL VOLUME (AFY)	CONCENTRATION (MG/L)	TOTAL LOAD (TONS)
SEPTAGE	30 [1]	620 [3]	25
PRECIPITATION	326 [2]	0	0
IRRIGATION	104 [2]	1,368 [4]	193
LK/SCF [7] FROM PERCHED	117 [1]	399 [5]	63
LOS OSOS CREEK INFLOW	665 [1]	540 [6]	488
SUBSURFACE INFLOW	167 [1]	470 [6]	107
TOTAL ANNUAL LOAD TO SYSTEM (TONS)			877.2
TOTAL VOLUME OF DISCHARGE TO GROUNDWATER (AFY)			1,409
ESTIMATED CONCENTRATION OF DISCHARGE TO GROUNDWATER (MG/L)			458

[1] - CLEATH, 2008
[2] - CALCULATED BASED ON TABLE 4 (YATES AND WILLIAMS, 2003)
[3] - FINE SCREENING REPORT
[4] - ESTIMATION BASED ON IRRIGATION WATER AT 520 MG/L TDS WITH 62 PERCENT ET AND 38 PERCENT PERCOLATION
[5] - ESTIMATION FROM TABLE 1
[6] - CLEATH, 2005c
[7] - LEAKANCE/SUBSURFACE CROSS FLOW

Table D4 - TDS Loading, Creek Compartment (VPA2a)

WATER SOURCE	TOTAL VOLUME (AFY)	CONCENTRATION (MG/L)	TOTAL LOAD (TONS)
SEPTAGE	30 [1]	620 [3]	25
PRECIPITATION	326 [2]	0	0
IRRIGATION	104 [2]	1,632 [4]	231
LK/SCF [7] FROM PERCHED	103 [1]	229 [5]	32
LO CREEK INFLOW	492 [1]	540 [6]	361
SUBSURFACE INFLOW	137 [1]	470 [6]	88
TOTAL ANNUAL LOAD TO SYSTEM (TONS)			736.9
TOTAL VOLUME OF DISCHARGE TO GROUNDWATER (AFY)			1,192
ESTIMATED CONCENTRATION OF DISCHARGE TO GROUNDWATER (MG/L)			455

[1] - CLEATH, 2008
[2] - CALCULATED BASED ON TABLE 4 (YATES AND WILLIAMS, 2003)
[3] - FINE SCREENING REPORT
[4] - ESTIMATION BASED ON IRRIGATION WATER AT 620 MG/L TDS WITH 62 PERCENT ET AND 38 PERCENT PERCOLATION
[5] - ESTIMATION FROM TABLE 2
[6] - CLEATH, 2005c
[7] - LEAKANCE/SUBSURFACE CROSS FLOW

Table D5 - TDS Loading, Creek Compartment (VPA2b)

WATER SOURCE	TOTAL VOLUME (AFY)	CONCENTRATION (MG/L)	TOTAL LOAD (TONS)
SEPTAGE	30 [1]	620 [3]	25
PRECIPITATION	326 [2]	0	0
IRRIGATION	104 [2]	1,368 [4]	193
LK/SCF[7] FROM PERCHED	103 [1]	229 [5]	32
LOS OSOS CREEK INFLOW	665 [1]	540 [6]	488
SUBSURFACE INFLOW	166 [1]	470 [6]	106
TOTAL ANNUAL LOAD TO SYSTEM (TONS)			845.1
TOTAL VOLUME OF DISCHARGE TO GROUNDWATER (AFY)			1,394
ESTIMATED CONCENTRATION OF DISCHARGE TO GROUNDWATER (MG/L)			446

[1] - CLEATH, 2008
[2] - CALCULATED BASED ON TABLE 4 (YATES AND WILLIAMS, 2003)
[3] - FINE SCREENING REPORT
[4] - ESTIMATION BASED ON IRRIGATION WATER AT 520 MG/L TDS WITH 62 PERCENT ET AND 38 PERCENT PERCOLATION
[5] - ESTIMATION FROM TABLE 2
[6] - CLEATH, 2005c
[7] - LEAKANCE/SUBSURFACE CROSS FLOW

Table D6 - TDS Loading, UAS, Broderson (Current Conditions)

WATER SOURCE	TOTAL VOLUME (AFY)	CONCENTRATION (MG/L)	TOTAL LOAD (TONS)
SEPTAGE	606[1]	620[3]	511
PRECIPITATION	1,129[2]	0	0
IRRIGATION	360[2]	868[4]	425
LK/SCF[7] FROM PERCHED	698[1]	399[5]	379
LK/SCF[7] FROM CC[8]	90[1]	520[6]	64
TOTAL ANNUAL LOAD TO SYSTEM (TONS)			1,378.0
TOTAL VOLUME OF DISCHARGE TO GROUNDWATER (AFY)			2,883
ESTIMATED CONCENTRATION OF DISCHARGE TO GROUNDWATER (MG/L)			352

[1] - CLEATH, 2008
[2] - CALCULATED BASED ON TABLE 4 (YATES AND WILLIAMS, 2003)
[3] - FINE SCREENING REPORT
[4] - ESTIMATION BASED ON IRRIGATION WATER AT 330 MG/L TDS WITH 62 PERCENT ET AND 38 PERCENT PERCOLATION
[5] - ESTIMATION FROM TABLE 1
[6] - CLEATH, 2005c
[7] - LEAKANCE/SUBSURFACE CROSS FLOW
[8] - CREEK COMPARTMENT

Table D7 - TDS Loading, UAS, Broderson (VPA2a)

WATER SOURCE	TOTAL VOLUME (AFY)	CONCENTRATION (MG/L)	TOTAL LOAD (TONS)
SEPTAGE	44[1]	620[3]	37.1
PRECIPITATION	1,129[2]	0	0
IRRIGATION	360[2]	868[4]	424.9
LK/SCF[7] FROM PERCHED	634[1]	229[5]	197.4
LK/SCF[7] FROM CC[8]	51[1]	520[6]	36.1
BRODERSON	448[1]	620[3]	377.7
TOTAL ANNUAL LOAD TO SYSTEM (TONS)			1,073.1
TOTAL VOLUME OF DISCHARGE TO GROUNDWATER (AFY)			2,666
ESTIMATED CONCENTRATION OF DISCHARGE TO GROUNDWATER (MG/L)			296

[1] - CLEATH, 2008
[2] - CALCULATED BASED ON TABLE 4 (YATES AND WILLIAMS, 2003)
[3] - FINE SCREENING REPORT
[4] - ESTIMATION BASED ON IRRIGATION WATER AT 330 MG/L TDS WITH 62 PERCENT ET AND 38 PERCENT PERCOLATION
[5] - ESTIMATION FROM TABLE 2
[6] - CLEATH, 2005c
[7] - LEAKANCE/SUBSURFACE CROSS FLOW
[8] - CREEK COMPARTMENT

Table D8 - TDS Loading, UAS, Broderson (VPA2b)

WATER SOURCE	TOTAL VOLUME (AFY)	CONCENTRATION (MG/L)	TOTAL LOAD (TONS)
SEPTAGE	44 [1]	620 [3]	37.1
PRECIPITATION	1,129 [2]	0	0.0
IRRIGATION	360 [2]	868 [4]	424.9
LK/SCF [7] FROM PERCHED	634 [1]	229 [5]	197.4
LK/SCF [7] FROM CC [8]	85 [1]	520 [6]	60.1
BRODERSON	448 [1]	620 [3]	377.7
TOTAL ANNUAL LOAD TO SYSTEM (TONS)			1,097.1
TOTAL VOLUME OF DISCHARGE TO GROUNDWATER (AFY)			2,700
ESTIMATED CONCENTRATION OF DISCHARGE TO GROUNDWATER (MG/L)			299

[1] - CLEATH, 2008
[2] - CALCULATED BASED ON TABLE 4 (YATES AND WILLIAMS, 2003)
[3] - FINE SCREENING REPORT
[4] - ESTIMATION BASED ON IRRIGATION WATER AT 330 MG/L TDS WITH 62 PERCENT ET AND 38 PERCENT PERCOLATION
[5] - ESTIMATION FROM TABLE 2
[6] - CLEATH, 2005c
[7] - LEAKANCE/SUBSURFACE CROSS FLOW
[8] - CREEK COMPARTMENT

Table D9 - TDS Loading, UAS, Broderson (VPA2a)

WATER SOURCE	TOTAL VOLUME (AFY)	CONCENTRATION (MG/L)	TOTAL LOAD (TONS)
SEPTAGE	44 [1]	620 [3]	37.1
PRECIPITATION	1,129 [2]	0	0
IRRIGATION	360 [2]	868 [4]	424.9
LK/SCF [7] FROM PERCHED	634 [1]	229 [5]	197.4
LK/SCF [7] FROM CC [8]	51 [1]	520 [6]	36.1
BRODERSON	896 [9]	620 [3]	755.3
TOTAL ANNUAL LOAD TO SYSTEM (TONS)			1,450.8
TOTAL VOLUME OF DISCHARGE TO GROUNDWATER (AFY)			3,114
ESTIMATED CONCENTRATION OF DISCHARGE TO GROUNDWATER (MG/L)			343

[1] - CLEATH, 2008
[2] - CALCULATED BASED ON TABLE 4 (YATES AND WILLIAMS, 2003)
[3] - FINE SCREENING REPORT
[4] - ESTIMATION BASED ON IRRIGATION WATER AT 330 MG/L TDS WITH 62 PERCENT ET AND 38 PERCENT PERCOLATION
[5] - ESTIMATION FROM TABLE 2
[6] - CLEATH, 2005c
[7] - LEAKANCE/SUBSURFACE CROSS FLOW
[8] - CREEK COMPARTMENT
[9] - INITIAL PROPOSED DISPOSAL RATE, CLEATH, 2000

Table D10 - TDS Loading, UAS, Broderson (VPA2b)

WATER SOURCE	TOTAL VOLUME (AFY)	CONCENTRATION (MG/L)	TOTAL LOAD (TONS)
SEPTAGE	44 [1]	620 [3]	37.1
PRECIPITATION	1,129 [2]	0	0.0
IRRIGATION	360 [2]	868 [4]	424.9
LK/SCF [7] FROM PERCHED	634 [1]	229 [5]	197.4
LK/SCF [7] FROM CC [8]	85 [1]	520 [6]	60.1
BRODERSON	896 [9]	620 [3]	755.3
TOTAL ANNUAL LOAD TO SYSTEM (TONS)			1,474.8
TOTAL VOLUME OF DISCHARGE TO GROUNDWATER (AFY)			3,148
ESTIMATED CONCENTRATION OF DISCHARGE TO GROUNDWATER (MG/L)			345

[1] - CLEATH, 2008
[2] - CALCULATED BASED ON TABLE 4 (YATES AND WILLIAMS, 2003)
[3] - FINE SCREENING REPORT
[4] - ESTIMATION BASED ON IRRIGATION WATER AT 330 MG/L TDS WITH 62 PERCENT ET AND 38 PERCENT PERCOLATION
[5] - ESTIMATION FROM TABLE 2
[6] - CLEATH, 2005c
[7] - LEAKANCE/SUBSURFACE CROSS FLOW
[8] - CREEK COMPARTMENT
[9] - INITIAL PROPOSED DISPOSAL RATE, CLEATH, 2000

Table D11 - N03-N Loading Under Current Conditions

SOURCE	TOTAL VOLUME (AFY)	CONCENTRATION (MG/L)	TOTAL LOAD (TONS)
UPPER AQUIFER	3,525[1]	10.86[2]	52.1
TOTAL N03-N LOAD TO SYSTEM (POUNDS)			104,120[2]
ESTIMATED CONCENTRATION OF DISCHARGE TO GROUNDWATER (MG/L)			10.9[3]

[1] - TOTAL BASED ON TABLE 4, COLUMN 11 (YATES AND WILLIAMS, 2003)
[2] - TOTAL BASED ON TABLE 4, COLUMN 16 (YATES AND WILLIAMS, 2003)
[3] - CONCENTRATION CALCULATED FROM TOTAL VOLUME OF WATER AND TOTAL N03-N LOAD TO SYSTEM (POUNDS)

Table D12 - N03-N Loading With Broderson at 448 AFY

SOURCE	TOTAL VOLUME (AFY)	CONCENTRATION (MG/L)	TOTAL LOAD (TONS)
UPPER AQUIFER	3,337[1]	8.35[3]	37.9
TOTAL N03-N LOAD TO SYSTEM (POUNDS)			75,740[2]
ESTIMATED CONCENTRATION OF DISCHARGE TO GROUNDWATER (MG/L)			8.3[3]

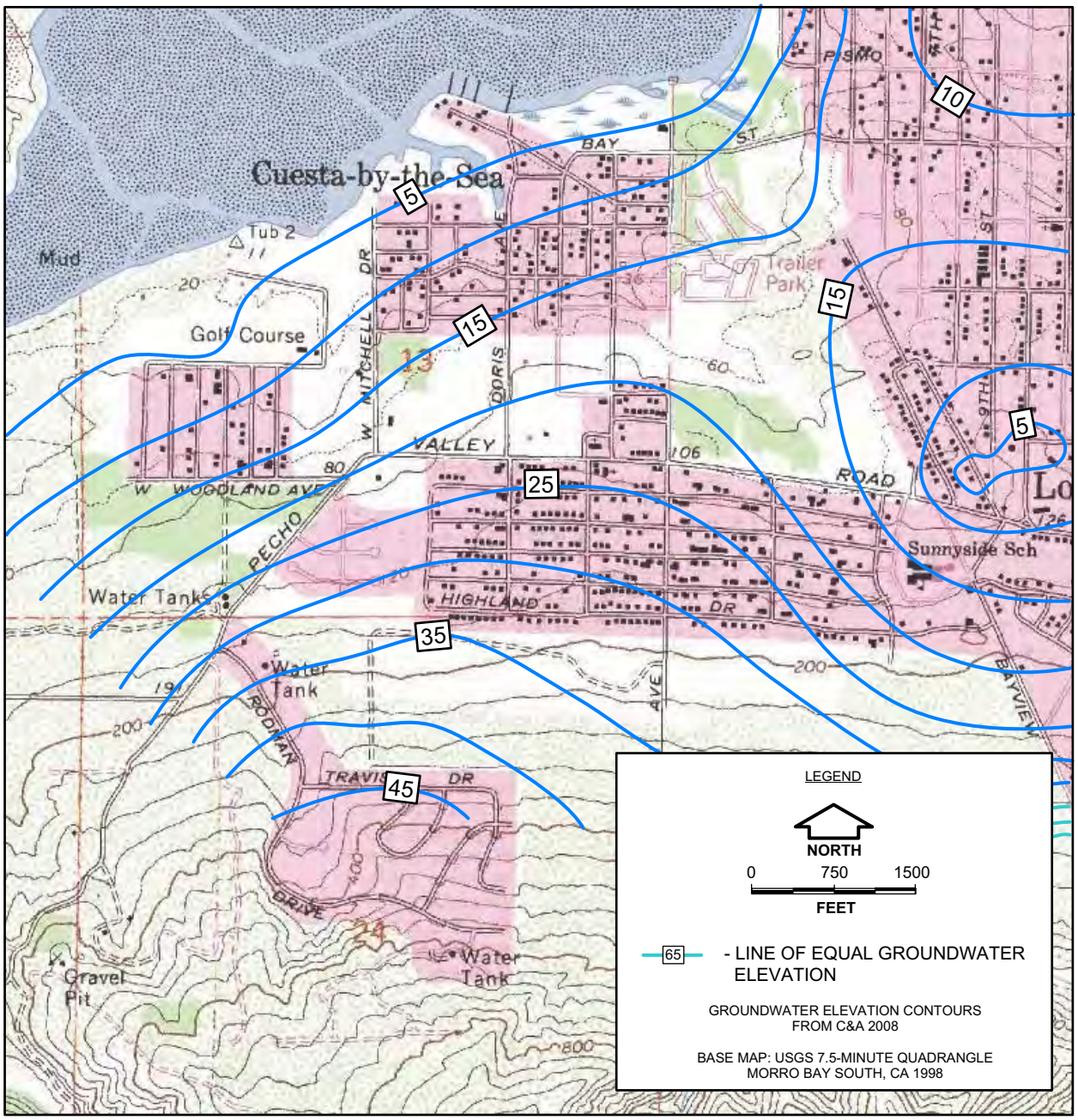
[1] - TOTAL BASED ON TABLE 9, COLUMN 13 (YATES AND WILLIAMS, 2003) WITH BRODERSON AS ONLY DISPOSAL SITE
[2] - TOTAL BASED ON TABLE 9, COLUMN 17 (YATES AND WILLIAMS, 2003)
[3] - CONCENTRATION CALCULATED FROM TOTAL VOLUME OF WATER AND TOTAL N03-N LOAD TO SYSTEM (POUNDS)

Table D13 - N03-N Loading With Broderson at 896 AFY

SOURCE	TOTAL VOLUME (AFY)	CONCENTRATION (MG/L)	TOTAL LOAD (TONS)
UPPER AQUIFER	3,785[1]	8.19[3]	42.1
TOTAL N03-N LOAD TO SYSTEM (POUNDS)			84,268[2]
ESTIMATED CONCENTRATION OF DISCHARGE TO GROUNDWATER (MG/L)			8.2[3]

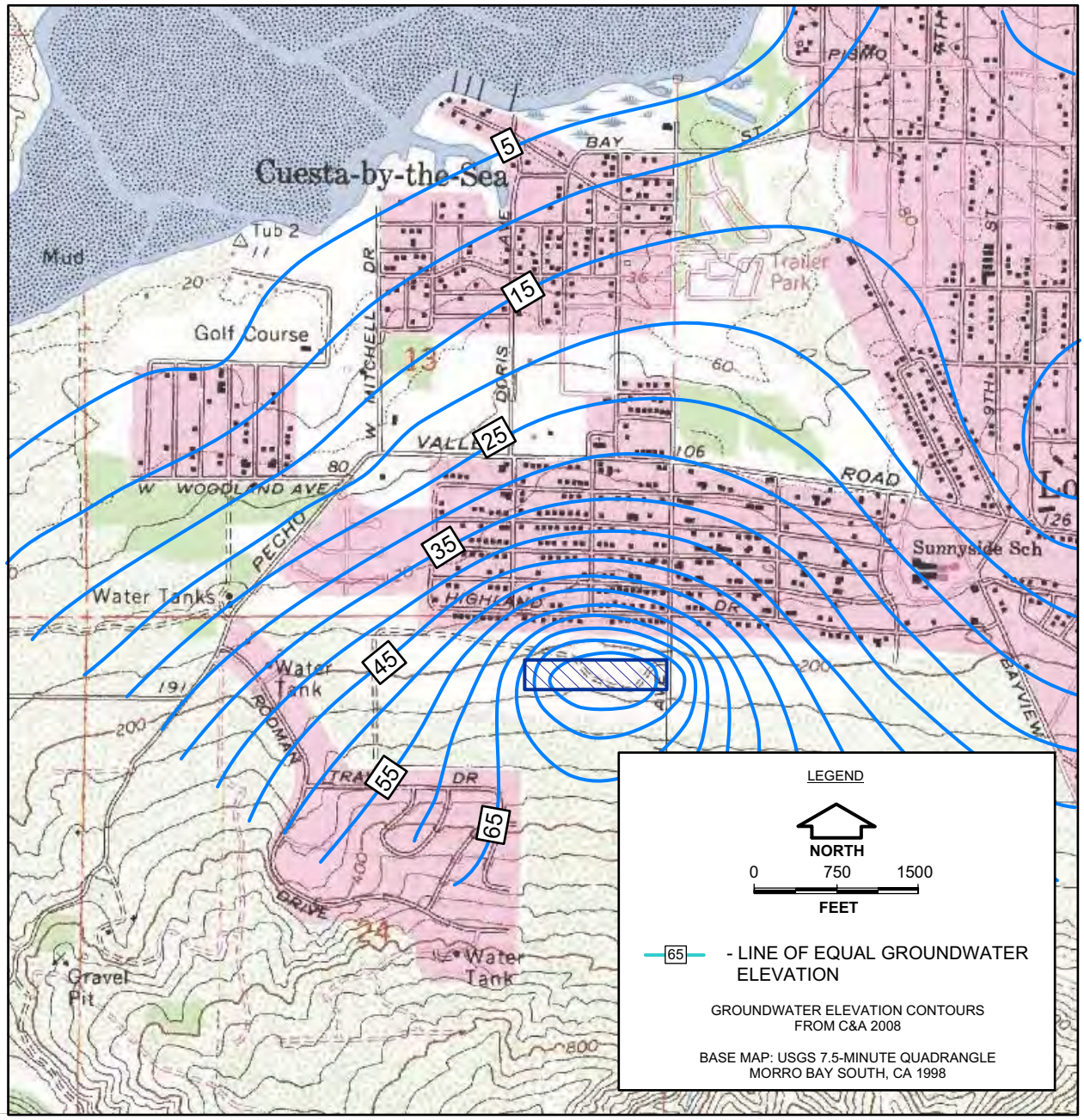
[1] - TOTAL BASED ON TABLE 9, COLUMN 13 (YATES AND WILLIAMS, 2003) WITH BRODERSON AS ONLY DISPOSAL SITE
[2] - TOTAL BASED ON TABLE 9, COLUMN 17 (YATES AND WILLIAMS, 2003)
[3] - CONCENTRATION CALCULATED FROM TOTAL VOLUME OF WATER AND TOTAL N03-N LOAD TO SYSTEM (POUNDS)

APPENDIX E
WATER LEVEL CONTOUR MAPS



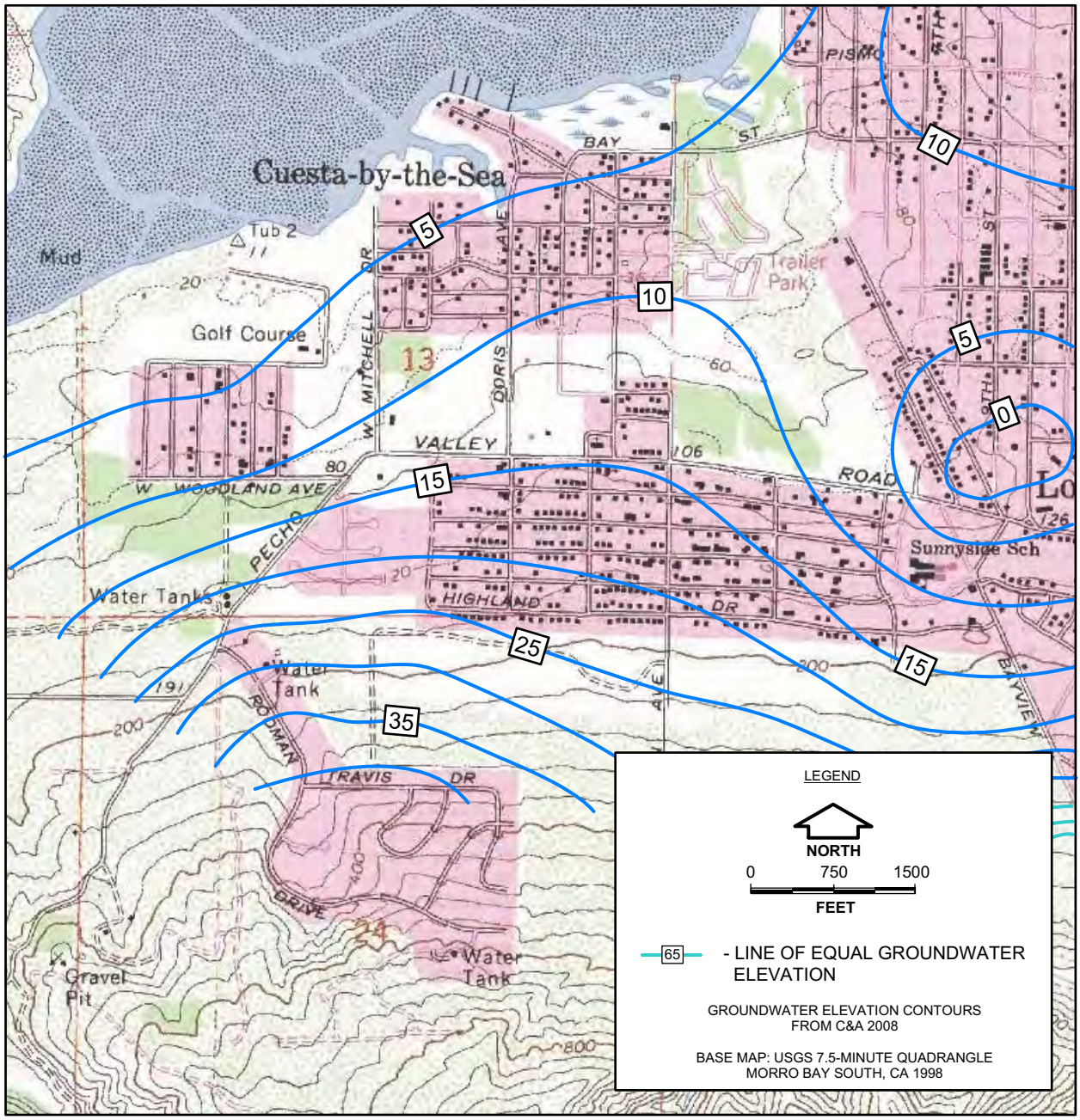
GROUNDWATER ELEVATION CONTOUR MAP
CURRENT CONDITIONS
Hydrogeological Impacts Analysis
LOWWP Draft EIR
San Luis Obispo County
Los Osos, California

PLATE E1



GROUNDWATER ELEVATION CONTOUR MAP
BRODERSON DISPOSAL SITE
Hydrogeological Impacts Analysis
LOWWP Draft EIR
San Luis Obispo County
Los Osos, California

PLATE E2



GROUNDWATER ELEVATION CONTOUR MAP
SPRAY FIELDS
Hydrogeological Impacts Analysis
LOWWP Draft EIR
San Luis Obispo County
Los Osos, California

PLATE E3

Figure 1 – Wetlands and Riparian Resources In Los Osos, 2003

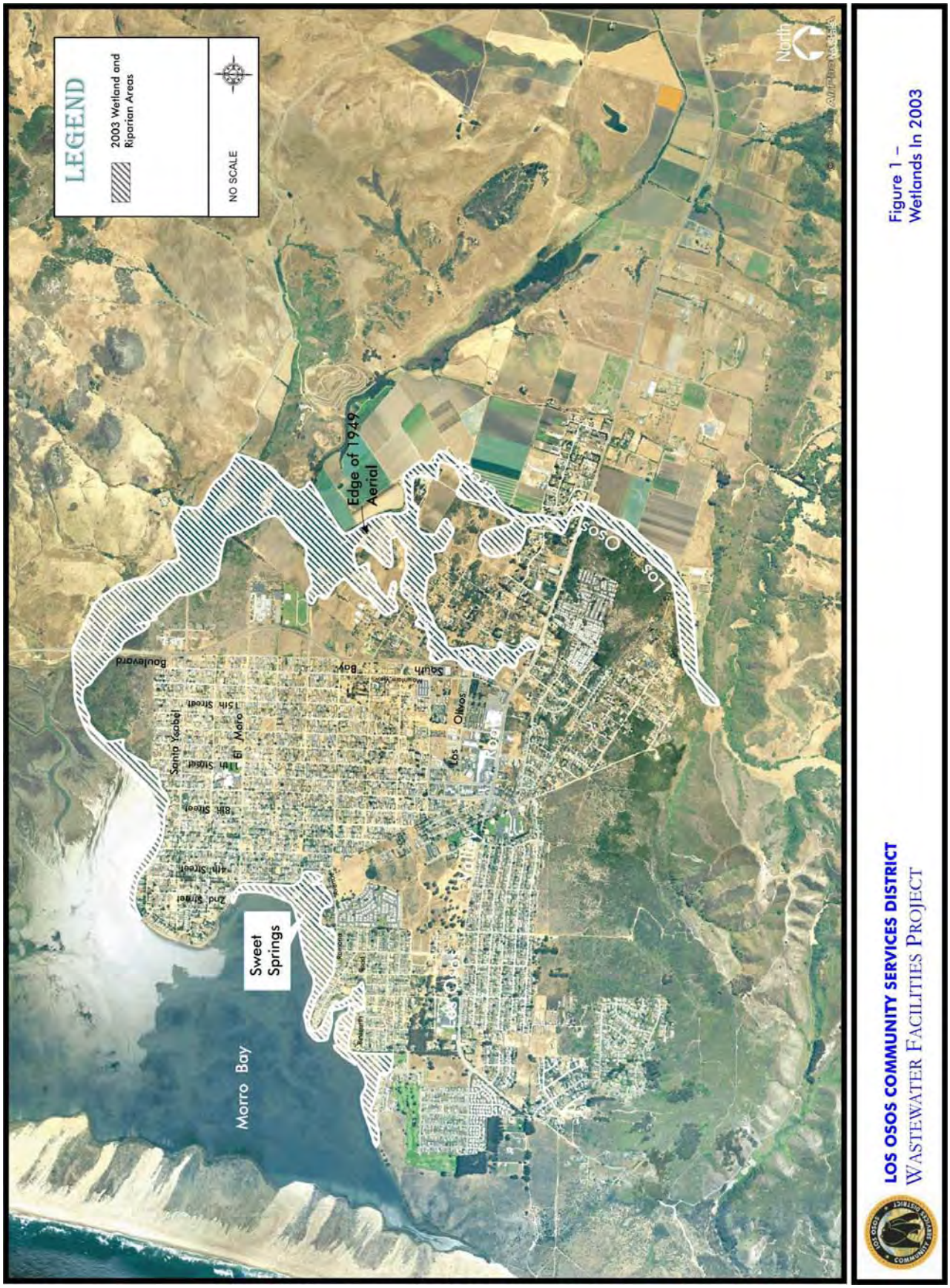


Figure 2 – Wetlands and Riparian Resources, 1949

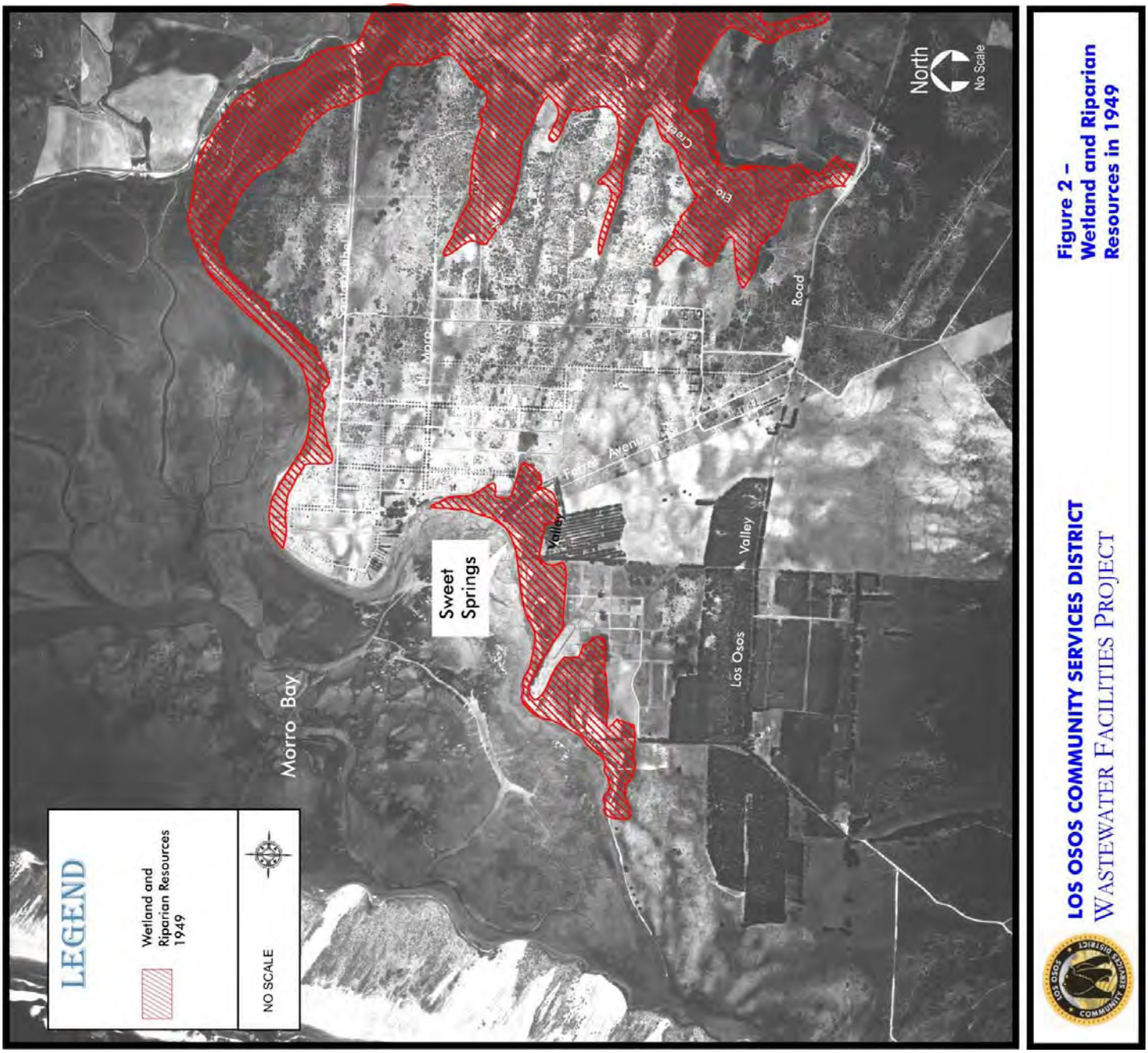


Figure 3 – Comparison of 1949 and 2003

February 26, 2010

Dan Carl
California Coastal Commission
725 Front Street Suite 300
Santa Cruz, CA 95060

Subject: Additional CDP Materials for the Los Osos Wastewater Project

Dear Mr. Carl:

Enclosed with this letter is a set of materials responding to the following items from your January 26, 2010 email requesting additional information on the Los Osos Wastewater Project. With these materials we believe we have responded to all seven of the issues raised by your email.

1. Willow Creek response with attachments:

   - EIR Appendix D
   - Historic Wetland Aerial Photos

2. Hydrogeologic response with attachments:

   - Topical Response 8: The Broderson Leachfield
   - EIR Appendix D (with Willow Creek Materials)

2. Septic Tank Decommissioning Response

Per your instructions a copy of this transmittal letter together with a copy of items 1, 2, and 3 above has also been sent to:

Mark Johnsson
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

We look forward to working with you on the identified issues in Los Osos. As always, we are anxious to move the process forward expeditiously as we work on numerous fronts to solve the long-standing water pollution issues in Los Osos. If you have any questions or need more information regarding these topics please feel free to contact me.

Sincerely,

MARK HUTCHINSON
Environmental Programs Manager

Attachments

c: Paavo Ogren, Director of Public Works
John Waddell, Project Manager

File: Los Osos Wastewater Project 300337.03

Staging Areas on ESHA

Coastal Commission Staff Comment:

Staging area on ESHA. The contention is that the County intends to use a staging area that is in ESHA, and that the County has already begun to clear and ready the site for the project without benefit of a CDP. Please package a set of materials specific to construction methodologies in relation to staging and materials storage areas. For all such areas, please provide details on their current state and any development associated with the project that has already occurred there.

Response

1. The site shown on the project overall site plan and authorized by the County CDP is the same site used for primary staging by the LOCSD in 2005
2. All of the vacant land in Los Osos is ESHA; therefore any staging area will be located in ESHA
3. The Conditions of Approval for the current proposed project are the same as those adopted by the Coastal Commission for CDP # A-3-SLO-03-113 in 2004.
4. The County has not taken any action whatsoever to clear and/or ready any site for construction.

Discussion

1. Use of previously identified construction staging areas

In the 2005 the Los Osos CSD initiated construction on the project. Construction staging areas were identified at:

- Walker (Gray) property at 18th and Paso Robles Avenue
- "Mountain View Site", a 1 acre well site at Nipomo Ave/South Bay Boulevard owned by the LOCSD
- Johnson Site" on Santa Ynez Avenue (now developed), and
- Tri-W site, slated for the treatment plant.

The Walker, Mountain View, and Johnson sites were all devoid of natural vegetation in the areas proposed for use. The Tri-W site was slated for mass grading. Sunnyside School, currently vacant, was identified as a site for construction offices. Other sites may be used, but must meet the criteria and restrictions established by the conditions of approval.

Because of its size and central location, the County identified the Walker site on its site plan as a construction staging area. The Walker site is located at APN's 038-721-030, 033 & 034.

A portion of the site is currently being used by the Northern Chumash Tribal Council to promote self sustainability by operating an organic farm. Apparently the organic farm constructed a greenhouse that has elicited some complaints. While there is no formal enforcement action at this time, the County Planning Department is working with the Chumash to address the issue. At the same time, Public Works hopes to work with the landowner and the Chumash to use other portions of the site for construction staging.

2. Designation of ESHA in Los Osos

The Coastal Commission's July 29, 2004 staff report for the LOCSD project contains a discussion of the elements of ESHA lands in Los Osos:

> 2. Analysis
>
> a. Impacts of Project Construction
>
> The stabilized sand dunes surrounding Morro Bay that comprise Los Osos are home to a variety of unique coastal habitats. The unique sandy soils are a defining feature of the native landscape, which includes distinct communities of Central dune scrub and maritime chaparral habitat. The California Department of Fish and Game (CDFG) has classified Central dune scrub as having "highest inventory priority", and designated the dune habitats of Los Osos as a "Significant Natural Area" [1].
>
> As detailed in the environmental reviews of the project, as well as in the current drafts of the HCP and the Estero Area Plan Update, the Tri-W site and the Broderson site, <u>as well as the remaining vacant parcels within the urban area,</u> meet the LCP definition of ESHA under both existing standards and the proposed updates. Although there have been past disagreement on how LCP ESHA maps apply to such determinations, the record of review for this project indicates agreement of the applicant, the County, and the Commission on a key principal expressed by the Commission regarding this issue - that the determination of ESHA must be based on actual conditions rather than on maps that do not accurately depict the true location and extent of ESHA. Support for this approach was reinforced by LCP Amendment 1-03 (Phase 1 Periodic Review Implementation), which took effect on July 15, 2004 and references the LCP's existing Rules of Interpretation as requiring ESHA determinations based on the presence and location of the biological resource of concern.

[1] The Significant Natural Areas Program was established to identify high-priority sites for the conservation of California's biological diversity and to inform resource decision-makers about the importance of these sites. The programs goals include: 1) identifying the most significant natural areas in California; 2) ensuring the recognition of these areas; and 3) seeking the long-term perpetuation of these areas.

Because all of the land within the Los Osos Urban reserve line (that is, all of the land west of Los Osos Creek) is comprised of the same sandy soils which define ESHA, our understanding is that any undeveloped land is ESHA. Therefore, it is not possible to stage construction materials without impacting ESHA. However, the Conditions of Approval for the both the LOCSD project and the LOWWP require construction staging areas to be devoid of native vegetation that supports sensitive species. The Walker property is consistent with this approach.

3. Conditions of Approval

The Conditions of Approval for CDP# A-3-SLO-03-113 relative to construction staging areas have been brought forward and included in the current LOWWP.

CDP# A-3-SLO-03-113 conditions 62 and 65 from 2004:

62. Construction Staging Area. For all aspects of the project, construction staging areas shall be located away from sensitive viewing areas to the extent feasible. Before construction activities begin, an area for construction equipment storage away from direct views of sensitive viewing corridors (e.g. residences and major roads in the project area) shall be designated.

65. Where construction will necessitate disturbance in undeveloped lots and other potentially sensitive areas, a pre-construction survey will be conducted to assess and minimize any potential impacts.

SLO County LOWWP Conditions from 2009:

County Description of Approved Development:

1. This approval authorizes construction and operation of a community-wide sewer system for the portion of Los Osos described in Resolution No. 83-13 issued by the Regional Water Quality Control Board (see Attachment 1) and as described by application materials, supplemental materials made a part of the record, and shown in the EIR, including:

    c. Construction staging areas;
    f. Primary staging areas at East Paso Robles Street including minor and temporary staging areas in the project area including the Giacomazzi site;

County CDP Condition 54 [Mitigation 5.12-C1]:
Construction staging areas shall conform to Estero Area Plan AES-1 and be located away from sensitive viewing areas to the extent feasible. Before construction activities begin, an area of construction equipment

storage away from direct views of sensitive viewing corridors (e.g. residences and major roads in the project area) shall be designated.

[Note that Estero Area Plan AES 1 refers to mitigation measures AES 1 from the LOCSD Final EIR. That mitigation measures reads: "Construction staging Area. For all aspects of the project, construction staging areas shall be located away from sensitive viewing areas to the extent feasible. Before construction activities begin, an area of construction equipment storage away from direct views of sensitive viewing corridors (e.g. residences and major roads in the project area) shall be designated."]

County CDP Condition 57:
Where construction will necessitate disturbance in undeveloped lots and other potentially sensitive areas, a pre-construction survey will be conducted to assess and minimize any potential impacts to sensitive resources in these areas.

4. Advance Work

With respect to the concern regarding advance work on the wastewater project, we are not aware of any such activity on the part of County forces or our consultants and contractors. We would note that construction materials previously abandoned on the LOCSD-owned portion of the Walker site were removed several months ago, presumably by the contractor who owned the materials.

Attachments:

- Walker Aerial photos from 2003
- Walker Aerial photos from 2007
- Site photos from 2010

Walker Site Aerial 2003

Walker Site Aerial 2007

Walker Site. View southwest from South Bay Boulevard.
Site corner at fence in foreground. 02/03/10

Walker Site. View north from Pismo Avenue.
South Bay Boulevard is on the right. 02/03/10

Walker Site. View northwest from Pismo Avenue. 02/03/10

Walker Site. View west from Pismo Avenue. 02/03/10

Implementation Timing/ Water Conservation Program

Coastal Commission Staff Comment:

Implementation specificity and timing. We will be reviewing the County conditions as well as other project components with an eye towards refining implementation specificity, including in relation to deadlines. We appreciate your offer regarding identifying your timeline for water conservation elements in this respect, but would ask that you broaden that scope in relation to other aspects of the project as well, including implementation of the agricultural reuse and conservation plan. To us, this issue was clearly one of a need to hone in on what the County was going to do, how and when, and making sure these commitments made sense in relation to timing feasibility and potential adaptive management over time. That applies to the water conservation components but also to other project components, like agricultural reuse, as well. Any information you can provide on expected project timing and implementation specificity would be helpful in this regard, whether you want to develop a new product that summarizes this information or want to point us to existing information (e.g., EIR, County findings, etc.) or both.

Response

1. The County's Conditions of Approval contain timing elements in each measure, or an overall timing measure that applies to a set of conditions or project component.

2. Although the project is not a water project, and the County is not a water purveyor in Los Osos, the County has and will continue to use its other authorities to accomplish water sustainability goals in Los Osos.

3. Even without direct water purveyor authority, the wastewater project's water conservation program will be effective in reducing seawater intrusion.

Discussion

1. Implementation Timing.

The enclosed table lists the Conditions of Approval and provides implementation timing and intent comments as necessary for each Condition. The table also provides a number reference to the Conditions of Approval of the LOCSD project (Coastal Development Permit A-3-SLO-03-113).

2. County Authority

It is important to be aware that the Los Osos Wastewater Project has as its primary goal the elimination of water pollution from septic tanks. The focus of the project is compliance with the Regional Water Quality Control Board's discharge prohibition. By accomplishing this goal, the Project will remove a significant threat to water sustainability in Los Osos, and will remove a significant and ongoing source of environmental degradation.

It must also be noted that without the wastewater project, and specifically the recovery and reuse of recycled water included in it, there is no possibility that Los Osos can solve its water supply issues, either now or in the future. Placing recycled water at the Broderson site, replacing groundwater pumping for irrigation with recycled water, and mandating interior plumbing retrofits are indispensible elements of Los Osos' water future that are provided by the wastewater project. In addition, technical studies completed by the wastewater project clearly show that imported water options are not financially feasible for the community; managing existing groundwater supplies is the only viable option.

The County of San Luis Obispo is not a water purveyor for the community. Water is supplied by Golden State Water Company, the Los Osos Community Services District, S&T Mutual Water Company, and individual on-site wells. Consequently, the County has no direct authority to control groundwater pumping, set water rates, or establish penalties for excessive water use. Never-the-less, the County has and will continue to use all of its other authorities to positively impact the issue of water availability in Los Osos. Examples of County efforts include:

- The County has voluntarily remained involved in the current groundwater litigation between the water purveyors in order to positively influence the outcome for the citizens of Los Osos,

- The County has used its land use authority to adopt water efficient landscape ordinances (attached),

- The County has used its land use authority to adopt a retro-fit upon remodel ordinance, requiring the entire structure to upgrade to water efficient technologies (attached),

- The County has used its land use authority to adopt a retro-fit upon sale ordinance, requiring the entire structure to upgrade to water efficient technologies (attached), and

- The County has used its land use authority to require new development to retrofit enough existing homes and businesses to save twice the amount of water the new development would use (attached).

These previous actions demonstrate that the County is committed to using its authority to accomplish the necessary changes in the water use and supply equation in Los Osos.

3. Water Conservation Program

The focus of the water conservation program is to reduce seawater intrusion in Los Osos. Therefore, the conditions of approval describe a Program that includes elements that reduce pumping by reducing overall water use through mandated retrofits, provide recycled water in place of water pumped from the lower aquifer, provide a means to monitor water use, and provide for ongoing coordination with water purveyors.

The Water Conservation Program will comply with existing State policy contained in Section IX(C) of *Policy for Implementing the Clean Water State Revolving Fund for Construction of Wastewater Treatment Facilities*, *SWRCB*. Key Water Conservation Program elements in this policy are:

1. Water Survey Programs For Single-Family Residential And Multi-Family Residential Customers
2. Residential Plumbing Retrofit
3. System Water Audits, Leak Detection And Repair
4. Metering With Commodity Rates For All New Connections And Retrofit Of Existing Connections
5. Large Landscape Conservation Programs And Incentives
6. High-Efficiency Clothes Washing Machine Financial Incentive Programs
7. Public Information Programs
8. School Education Programs
9. Conservation Programs For Commercial, Industrial, And Institutional Accounts
10. Wholesale Agency Assistance Programs
11. Retail Conservation Pricing
12. Conservation Coordinator
13. Water Waste Prohibition
14. Residential Ultra-Low Flush Toilet Replacement Programs

1k. This approval authorizes . . . a water conservation program allowing a maximum water usage of 50 gallons per day / person for indoor water usage.

Condition 1k establishes the Water Conservation Program as part of the proposed project, and establishes a basic standard of 50 gallons per day per person indoor use. The indoor use standard is identified because it provides a direct nexus to the wastewater project: water used indoors directly impacts the size and operation of the collection system, treatment plant, and recycled water components of the Project.

6. Tertiary Treatment. The treatment plant shall provide Disinfected Tertiary Recycled Water as defined at Section 60301.230 of Title 22 of the California Code of Regulations, which means a filtered and subsequently disinfected wastewater that meets the following criteria:

(a) The filtered wastewater has been disinfected by either:

(1) A chlorine disinfection process following filtration that provides a CT (the product of total chlorine residual and modal contact time measured at the same point) value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow; or

(2) A disinfection process that, when combined with the filtration process, has been demonstrated to inactivate and/or remove 99.999 percent of the plaque-forming units of F-specific bacteriophage MS2, or polio virus in the wastewater. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of the demonstration.

(b) The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.

Prior to providing tertiary treated water for agricultural uses the applicant shall develop a Recycled Water Management Plan for Agricultural Re-use. The use of tertiary treated water shall be consistent with resource protection strategies including but not limited to those designed to protect on and off site soils, and surface and groundwater resources through the use of appropriate site-specific management practices. The applicant shall consult with technical resource providers such as the University of California Cooperative Extension and USDA Natural Resources Conservation Service. The Plan shall be reviewed and approved by the Director of Planning and Building in consultation with the Agricultural Commissioner's Office prior to providing tertiary treated water for agricultural uses.

Condition 6 establishes that the project will provide tertiary recycled water. The specifications are from Section 60301.230 of Title 22 of the California Code of Regulations in order to clearly state that the recycled water is available for a variety of reuse options. Although the water code allows recycled water to be used on agricultural crops with no restrictions, we felt that a management plan is appropriate based on EPA guidelines to address any potential issues, such as:

- Salinity Management
- Trace Elements
- Chlorine Residual
- Nutrients
- System Reliability
- Site Use Control
- Monitoring Requirements
- Runoff Controls
- Marketing Incentives
- Irrigation Equipment

Depending on the rate of hookups after project completion, and the rate at which recycled water is placed at the Broderson site, water for agricultural use would be available from 0-3 years after project start-up. However, the Recycled Water Management Plan is an important part of the negotiations with farmers. Therefore, we expect to have the Management Plan completed prior to operation of the wastewater facility.

97. Disposal of treated effluent shall be reserved for the following sites/uses in the Los Osos Groundwater Basin:

a. Broderson (not to exceed 448 AFY on an average annual basis),

b. Urban re-use within the urban reserve line (as identified in the Effluent Re-Use and Disposal Tech Memo, July 2008),

c. Agricultural re-use overlying the Los Osos Groundwater Basin,

d. Environmental reservations (not less than 10% of the total volume of treated effluent), and

Total agricultural re-use shall not be less than 10% of the total treated effluent. Disposal shall be prioritized to reduce seawater intrusion and return/retain water to/in the Los Osos groundwater basin. Highest priority shall be given to replacing potable water uses with tertiary treated effluent consistent with Water Code Section 13550.

No amount of treated effluent may be used to satisfy or offset water needs that result from non-agricultural development outside the Urban Reserve Line of the community of Los Osos.

Condition 97 describes where the recycled water generated by the project will and will not be used:

- The amount needed to offset current septic flows to the upper and lower aquifer is placed at Broderson (448 acre feet).
- (See condition 101 for the 33 acre feet to be placed at Bayridge)
- Urban reuse at the Park, schools and golf course is specified (see attached section from the Effluent Re-Use and Disposal Tech Memo, July 2008)
- Agricultural reuse over the basin (see attached map of basin boundaries)
- A reservation of not less than 10% for environmental uses (so far only Bayridge would fall into this category). Also note that this is a lower limit; if additional water is needed as a result of the monitoring required in condition 87, it would be provided.

The next paragraph sets a lower limit for agricultural reuse at 10%, to ensure that we maintain a viable program. This paragraph also describes how we will prioritize recycled water use, focusing first on those elements that best reduce seawater intrusion.

The last paragraph will ensure that no recycled water is used outside of the URL for new development, responding to our concern that development outside the URL might otherwise use or leverage recycled water for growth outside the urban boundary.

99. Within one year of adoption of a due diligence resolution by the Board of Supervisors, electing to proceed with a wastewater project, a water conservation program shall be developed by the applicant in consultation with the local water purveyors within the prohibition zone for the community of Los Osos, that meets the goal of 50 gallons per day / per person for indoor use. The applicant shall provide 5 (five) million dollars of funding towards a water conservation program for indoor water conservation. Incentives shall be provided to homeowners and other property owners who install conservation measures within the first year.

Condition 99:

1) Specifies a time frame for the Water Conservation Program (that is, those elements and efforts of water conservation that are not project components to be implemented as part of the project description and/or other specific conditions of approval). The due diligence resolution, required by AB2701, commits the County of San Luis Obispo to implementing the Project. It also allows the County to start collecting assessments, thereby providing the funding foundation for the project. Within one year after the resolution is adopted and provides the necessary funding, the County will have the remaining details of the Water Conservation Program developed and can begin full implementation. We expect the basic elements of the Program will be those specified in the Conditions of Approval, plus those elements included by the SWRCB's SRF program (listed above), as well as any additional items that are appropriate for Los Osos. The condition requires that we work "in consultation with the local water purveyors within the prohibition zone" so the scope of the Program will depend to some degree on the role(s) the water purveyors choose.

2) Provides a conservation goal for indoor water use (50 gallons per day / per person, repeating the project description)

3) Provides a funding level to assist homeowners with the cost of indoor retrofits that are required in condition 103 below.

4) Requires the funding to be distributed through an incentive program that encourages retrofits within the first year after the conservation program goes into effect, which would be before the wastewater project goes on line.

101. The applicant shall utilize the existing Bayridge leach field (APN 074-491-033) to dispose of approximately 33 acre feet per year of treated effluent upon

decommissioning of the existing leach field and connection to the community sewer system. The applicant shall consult with the Los Osos Community Services District (LOCSD) prior to the design phase of the project regarding use of said facilities to ensure all their concerns are addressed.

Condition 101 adds the existing Bayridge leachfield to the list in condition 97 above in order to preserve existing groundwater flows in that part of the Willow Creek drainage.

103. Prior to individual property connections to the waste water system, each property owner shall provide verification to the satisfaction of the Planning Director that all toilets, showerheads and faucets have been replaced with high efficiency versions of the same.

Condition 103 provides the technology based foundation of the water conservation program. By retrofitting existing properties with the specified fixtures, which require no behavior changes on the part of building occupants, we expect to meet or fall below the 50 gpd/person standard. Consequently, other elements of the conservation program will focus on reducing water use further by including additional fixture changes (e.g., front loading washers, hot water circulators), public education, and outdoor water use reductions (grey water systems, water efficient landscaping, etc..).

108. Prior to individual property connections to the wastewater treatment project, each property owner shall provide verification to the satisfaction of the Public Works Department (in consultation with the Planning Director) that a water meter meeting American Water Works Association (AWWA) standards, and approved by the water company serving the individual property, has been installed or is existing on the connection site. A water meter shall be installed on each legally established residential / commercial unit prior to connection to the wastewater treatment project. Water usage information shall be made available to the sewer authority on a quarterly basis or on a schedule agreed to by the water purveyors and the County to verify the water savings derived from the water conservation program.

Condition 108 provides for two important components of the Water Conservation Program:

1) Existing residences connected to the S&T Mutual Water Company do not have water meters. This not only prevents the use of tiered water rates to encourage conservation, but would also prevent the wastewater authority from implementing tiered wastewater rates as well. (Note that wastewater flows are determined by monitoring wet season water use, when outdoor use is non-existent or at a minimum.) This condition would ensure that all connections to the wastewater project have proper water meters that can be used to set tiered wastewater and water rates to better encourage conservation.

2) This condition also requires that individual water use information be made available to the wastewater authority. As a condition of hook-up to the wastewater system, each property would be required to grant the wastewater authority access to their water use information.

This condition will allow the County to monitor the success/status of the water conservation program by collecting accurate water and wastewater use information. Based on this information, the County can implement conservation billing for wastewater services, focus conservation program elements, and keep the public and other agencies informed about the status of the project.

Attachments:

- Implementation and Timing of Conditions of Approval Table
- SRF Program Water Conservation Requirements
- Groundwater Basin Map
- Effluent Re-Use and Disposal Tech Memo, July 2008 (part)
- Coastal Zone Land Use Ordinance Section 23.04.184 (Water Efficient Landscape Ordinance)
- Los Osos Groundwater Basin Retrofit Ordinances:
    - Title 19
    - Title 8

SLO County Coastal Development Permit DRC2008-00103
Implementation and Timing of Conditions of Approval

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
Approved Development 1. This approval authorizes construction and operation of a community-wide sewer system for the portion of Los Osos described in Resolution No. 83-13 issued by the Regional Water Quality Control Board (see Attachment 1) and as described by application materials, supplemental materials made a part of the record, and shown in the EIR, including: a. A wastewater treatment facility, including all appurtenant structures, landscaping and site access to be located on the Giacomazzi site (APN 067-011-022); b. A wastewater collection system, including lateral lines from individual structures to the street, connection lines at each property, sewer mains, back-up power facilities and pump stations; c. Construction staging areas; d. Wastewater disposal facilities, distribution lines for urban and agricultural re-use, and monitoring wells; e. Wastewater sludge handling facilities at the wastewater treatment plant to enable the hauling of sludge to a disposal, recycling facility or co-generation facility; f. Primary staging areas at East Paso Robles Street including minor and temporary staging areas in the project area including the Giacomazzi site; g. Construction activities associated with the installation of approved facilities, including dewatering operations; h. A program for the mitigation of direct impacts to habitat for endangered species and agricultural resources; i. Construction of an underground pump station located at 3rd Street and the intersection of Paso Robles Avenue (unimproved), within 75' of a coastal wetland; j. Construction of harvesting wells and their associated piping and facilities are NOT authorized by this approval; and	The project description does not include any phasing of project elements. While some components of the project description are limited in time (construction staging), the remaining elements are intended to be developed as a single project effort.	**1**

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
k. A water conservation program allowing a maximum water usage of 50 gallons per day / person for indoor water usage.	(k) The water conservation program, because it includes a target water usage number, which in turn is an important element of the operation of the project, would continue for the life of the wastewater project.	
2. Except as otherwise required by the conditions of this permit, all development shall be substantially consistent with the site plan attached as Attachment 2, as well as with all final architectural elevations, color boards and landscape plans to be reviewed and approved by the Planning Director.	The County's practice in implementing conditions regarding building elevations, color boards, and landscape plans is that these conditions are operable for the life of the project.	**2**
3. All development shall be consistent with the conditions contained herein. **Prior to final design / layout of the East Paso Robles Avenue pump station and the Doris Avenue / Lupine Street pump station**, the applicant shall provide verification to the satisfaction of the Planning Director, that the required 75 foot wetland setback will be met with the redesign / layout of said pump stations.	Verification of wetland setbacks is required, *because no setback adjustment for these facilities was included.* It might be clearer if the condition required setback verification "Within six months prior to construction" to ensure that setbacks are met when sight disturbance is occurring.	**3**
4. The approved service area for the wastewater treatment facilities corresponds to the area shown on the Service Area Map attached (see Attachment 1). Future additions to the wastewater treatment service area shall require a separate coastal development permit, and must be preceded or submitted concurrently with a Local Coastal Plan (LCP) amendment that incorporates the proposed service area expansion within the Urban Service Line designated by the LCP.	The only currently anticipated future change in the Service Area is the inclusion of the already developed Monarch Grove subdivision. Because 1) the subdivision (even though already served with community water and sewer) is outside the USL, and 2) is not subject to the RWQCB discharge prohibition, the necessary LCP amendments will be pursued at a later date.	**83**
5. No Guarantees of Development Approvals. Approval of this permit, or any method of financing the project utilized by the County (e.g., the established assessment program), does not guarantee County approval of any new or intensified uses within the service area. All new development proposals must be reviewed for consistency with the San Luis Obispo County certified Local Coastal Program (and/or the California Coastal Act, as applicable); such review shall consider, among other issues, the environmental impacts of the new development, including the impacts associated with the installation of lateral connections necessary to tie into the approved collection system. Wastewater	The notices required by this condition were sent out by the LOCSD prior to starting work on the previous project. However, new notices will be prepared and sent prior to the start of construction on the LOWWP	**82**

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
treatment service shall only be provided to developments that have obtained the required coastal development approvals in a manner consistent with such approvals. **Prior to construction**, the County shall prepare a public notice to all property owners of record within the service area that includes a copy of this condition, and an explanation of its effect upon the ability to obtain wastewater treatment service for future development. **Prior to the commencement of construction**, said notice shall be mailed to all property owners within the service area, or noticed in three local newspapers and included in public information handouts provided by the County.		
6. Tertiary Treatment. The treatment plant shall provide Disinfected Tertiary Recycled Water as defined at Section 60301.230 of Title 22 of the California Code of Regulations, which means a filtered and subsequently disinfected wastewater that meets the following criteria: (a) The filtered wastewater has been disinfected by either: (1) A chlorine disinfection process following filtration that provides a CT (the product of total chlorine residual and modal contact time measured at the same point) value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow; or (2) A disinfection process that, when combined with the filtration process, has been demonstrated to inactivate and/or remove 99.999 percent of the plaque-forming units of F-specific bacteriophage MS2, or polio virus in the wastewater. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of the demonstration. (b) The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period. No sample shall	The description of the specific level of tertiary treatment required in parts (a) and (b) is directly from Section 60301.230 of Title 22 of the California Code of Regulations in order to clearly state that the recycled water is available for a variety of reuse options. Although the water code allows recycled water to be used on agricultural crops with no restrictions, we felt that a management plan is appropriate based on EPA guidelines to address any potential issues, such as: ▪ Salinity Management ▪ Trace Elements ▪ Chlorine Residual ▪ Nutrients ▪ System Reliability ▪ Site Use Control ▪ Monitoring Requirements ▪ Runoff Controls ▪ Marketing Incentives ▪ Irrigation Equipment Depending on the rate of hookups after project completion, and the rate at which recycled water is placed at the Broderson site, water for agricultural use would be available from 0-3 years after project start-up. However, the Recycled Water Management Plan is an important part of the negotiations with farmers. Therefore, we expect to have	**N/A**

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exceed an MPN of 240 total coliform bacteria per 100 milliliters. **Prior to providing tertiary treated water for agricultural uses** the applicant shall develop a Recycled Water Management Plan for Agricultural Re-use. The use of tertiary treated water shall be consistent with resource protection strategies including but not limited to those designed to protect on and off site soils, and surface and groundwater resources through the use of appropriate site-specific management practices. The applicant shall consult with technical resource providers such as the University of California Cooperative Extension and USDA Natural Resources Conservation Service. The Plan shall be reviewed and approved by the Director of Planning and Building in consultation with the Agricultural Commissioner's Office prior to providing tertiary treated water for agricultural uses.	the Management Plan completed prior operation of the wastewater facility. See also the separate discussion on water conservation.	
7. **Prior to construction**, an application for a Nationwide or Individual Permit shall be submitted by the County to the United States Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA). If required, the County shall obtain a Nationwide or Individual Permit from the USACE for any impacts, temporary and permanent, to any areas within the proposed project which are determined to qualify as jurisdictional waters and wetlands of the U.S. The County shall implement all required conditions and special considerations stipulated within the Nationwide or Individual Permit during all relevant phases of development / construction.	The only project element that may require a Corps Nationwide Permit is the crossing of Los Osos Creek. The pipelines will be placed in the existing bridge structure (and/or attached to the downstream side). If workers and equipment need to be in the creek to work under the bridge (condition 82 requires this to occur when the creek is dry) a Corps permit may be required.	**10**
8. **Prior to construction**, an application for a Water Quality Certification shall be submitted by the County to the Central Coast RWQCB pursuant to Section 401 of the Clean Water Act and the State Porter-Cologne Water Quality Act. If required, a Water Quality Certification shall be obtained from the Central Coast RWQCB for any impacts, temporary and permanent, to any areas within the proposed project which are determined to qualify as jurisdictional waters of the State. The County shall implement all required conditions and special considerations stipulated within the Water Quality Certification during all relevant phases of	A water quality certification would be required only if a Corps 404 permit is required. See condition 7 above.	**10**

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development / construction.		
9. **Prior to construction**, a Notification of Lake or Streambed Alteration shall be submitted by the County to the CDFG pursuant to CFG Code Section 1602. If required, a Streambed Alteration Agreement shall be obtained from the CDFG for any impacts, temporary and permanent, to any areas within the proposed project which are determined to qualify as jurisdictional streambed or riparian habitat. The County shall implement all required conditions and special considerations stipulated within the Streambed Alteration Agreement during all relevant phases of development / construction.	The only project element that may require a 1602 Agreement is the crossing of Los Osos Creek. See condition 7 above.	**10**
10. **Prior to construction**, an NPDES Construction Activity Storm Water Permit shall be obtained. Appropriate BMPs, as established in the project NPDES Construction Storm Water Permit, shall be employed during project construction, which may include, but are not limited to, temporary sand bagging; construction of berms; installation of geofabric, and revegetation of areas by hydroseeding and mulching; actions for control of potential fuel or drill tailing release; the use of trench stabilizing and de-watering and requirements for disposal (i.e., location, quality) of water from dewatering activities. The NPDES permit shall apply to all proposed facilities, and shall address 50 to 100-year precipitation events to the extent feasible. Any erosion and sedimentation control netting or other erosion and sedimentation control devises used for temporary or permanent erosion and sedimentation control, shall be limited to biodegradable mesh or other biodegradable products.	County standard construction contract specifications implement the requirements of the Statewide General Construction Stormwater Permit. Changes required by the issuance of the new the Statewide General Construction Stormwater Permit by the SWRCB are underway and will be in place by June 1, 2010. Note that the prohibition on the use of non-biodegradable mesh is a local requirement for all County Public Works projects.	**24**
11. **Prior to construction**, the applicant shall provide an approved Fire Safety Plan from CalFire (consistent with their letter dated February 5, 2009) and prior to operation of the waste water treatment facility shall implement the requirements of the plan.	The Fire Safety Plan covers both the construction and operation of the project. The County works with the contractor on the construction portion of the plan, and with the Engineer and Fire Dept on the operation portion.	**N/A**
12. **Prior to initiating grading activities**, if it is determined that portable engines and portable equipment would be utilized, the contractor shall contact the SLOAPCD and obtain a permit to operate portable engines or portable equipment, and such	County standard construction contract specifications implement APCD requirements. We anticipate that the contractor(s) will use such equipment and have worked with the APCD compliance officers in the past to ensure implementation of these requirements.	**N/A**

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engines or equipment shall be registered in the statewide portable equipment registration program. The SLOAPCD Compliance Division shall be contacted in order to determine the implementation requirements of this mitigation measure.		
13. **Prior to construction**, the applicant shall obtain an encroachment permit from the County Department of Public Works for all work to be done in the County rights-of-way.	The encroachment permit is the vehicle used to enforce traffic control and safety requirements in the right-of-way, and will be issued to the contractor.	**43**
14. The project shall comply with the requirements of the National Pollutant Discharge Elimination System General Discharge, the Industrial Stormwater Program, and the County's Stormwater Pollution Control and Discharge Ordinance 3143. All discharges and dewatering activities shall be authorized by the Regional Water Quality Control Board.	Permits for dewatering are required during construction; the RWQCB will issue WDR's in order for the project to operate (including the Sewer System Management Plan). The County's 2008 Stormwater Pollution Prevention and Discharge Control Ordinance are in place and controls discharges to storm drains.	**11**
15. Building heights for structures shall conform to the following, as measured in accordance with CZLUO 23.04.122: a. Treatment Plant. The buildings at the wastewater treatment facility will not exceed the following: i. Administrative Building: 28 feet ii. Maintenance Building: 35 feet iii. Bio-Air Building: 30 feet iv. Solids Building: 35 feet v. RAS WAS Station and Storage Tank: 31 feet vi. Secondary Clarifier (A): 25 feet vii. Secondary Clarifier (B): 23 feet viii. Electrical Building: 35 feet ix. Tertiary Treatment Building: 26 feet b. Standby Power Stations. Buildings shall not exceed 14 feet.	The Public Works Department works with the Planning and Building Department to ensure compliance with these codes.	**21**
16. All facilities shall be designed to provide adequate and safe parking for facility operations personnel.	The project has very minor parking requirements, primarily at the treatment plant with less than ten designated spaces.	**12/13**
17. Signs shall conform to LUO 23.04.300. Prior to completion, the County shall provide signage at the treatment plant site indicating the facility and public amenities. Signs shall be approved by the Planning Director.	***With the treatment plant out of town signage will be minimal, with no public amenities***	**15**

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18. Buildings shall be designed to conform to energy efficiency requirements outlined in Title 24 of the California Code. Additional measures to be shown on construction plans include: a. Provide an on-site lunch room with refrigeration and food preparation (i.e., microwave) appliances to reduce daily trips to and from the treatment facility; b. Use of double paned windows in office area where interior heating/air conditioning will occur; and c. Use of energy efficient interior lighting where applicable.	The only building designed for regular human occupancy is the administration building, which in addition to meeting title 24 requirements, includes passive heating, cooling, and lighting. This building includes a, b, & c. Other buildings will utilize high efficiency lighting, but should have no HVAC requirements other than odor control.	**55**
19. **Prior to commencement of grading activities for each facility**, erosion control measures shall be incorporated into the grading plans to minimize the potential for erosion or loss of top soil during grading to the satisfaction of the Planning Director. Any erosion and sedimentation control netting or other erosion and sedimentation control devises used for temporary or permanent erosion and sedimentation control, shall be limited to biodegradable mesh or other biodegradable products.	The requirements of condition 10 will satisfy this condition, except this condition also allows the Planning Director add requirements above and beyond NPDES.	**N/A**
20. **Prior to commencement of grading activities for each facility**, vegetation/landscaping shall be provided on the graded cut and fill slopes to reduce the long-term potential for soil erosion or loss of topsoil to the satisfaction of the Planning Director	Standard procedure for Public Works projects	**26**
21. **Prior to commencement of grading activities for each facility**, the plans shall provide for the control of surface water away from slopes to the satisfaction of the Planning Director in consultation with the Public Works Department.	Standard procedure for Public Works projects	**26**
22. All proposed facilities shall be designed and constructed in accordance with UBC Seismic Zone 4 regulations.	Standard procedure for Public Works projects	**30**
23. **Prior to the commencement of construction for buildings at each proposed facility**, the design of each facility shall be based on a facility-specific geotechnical report prepared by a California registered geotechnical engineer and professional geologist. The geotechnical report shall provide seismic data for use with at least the minimum requirements of the California Building Code (2007), as adopted by the County of San Luis Obispo.	Standard procedure for Public Works projects	**31, 32, 33**

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24. **Prior to completion of the improvement plans for the proposed project**, a geotechnical report that addresses liquefaction hazards shall be prepared and approved by the Planning Director. The geotechnical report shall state the recommended actions for the collection system, effluent disposal system, treatment plant site, and all appurtenant facilities so that potential impacts from seismically-induced liquefaction would be reduced to less than significant. These recommendations shall be incorporated into the design of all proposed facilities that are part of the collection system and at the treatment plant site.	Standard procedure for Public Works projects	**31, 32, 33**
25. **Prior to completion of improvement plans**, an Emergency Response Plan (ERP) shall be prepared as part of the operation and maintenance plan for the proposed collection system. The ERP shall recognize the potential for liquefaction, seismic hazards and ground lurching, to impact the pipeline or other proposed facilities, and specific high hazard areas shall be inspected for damage following an earthquake. "Soft Fixes" shall be incorporated in the ERP. Soft fixes typically consist of having a plan in-place to address the hazards, such as can be achieved by storing supplies and equipment for repair.	Typically required for any major Public Works facility involving water, wastewater, water storage (reservoirs) etc.	**32(d)**
26. **Prior to completion of the improvement plans** for the proposed facilities, a geotechnical report that addresses the potential for lateral spreading, ground subsidence, and ground lurching and provides measures to reduce potential impacts to less than significant shall be prepared and approved by the Planning Director. These recommendations shall be incorporated into the design of the improvement plans for the proposed facilities.	Standard procedure for Public Works projects	**31, 32, 33**
27. **Prior to completion of improvement and building plans** for the proposed project, a design-level geotechnical report shall be prepared that addresses and reduces potential expansive soil impacts to less than significant. The expansive soil data shall be used with the requirements of the California Building Code (2007), as adopted by the County of San Luis Obispo. These recommendations shall be incorporated into the design of all proposed facilities that are part of the collection system and at the	Standard procedure for Public Works projects	**31, 32, 33**

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
treatment plant site.		
28. Avoidance of cultural resources is the paramount mitigation measure to protect cultural resources potentially impacted during project development. Avoidance of all known and unknown cultural resources shall be the primary and preferred mitigation. If avoidance is infeasible, then work shall only continue when it has been determined to be consistent with the required Treatment Plan and testing requirements.	Extensive cultural resources work, including design to avoid archeological sites, has already been done for the project. It is also important to note that the out-of-town facilities (pipelines and treatment plant) will result in no added impacts to archeological resources.	**N/A**
29. A Treatment Plan shall be prepared that would detail the extensive scope of the proposed project, establish site types with corresponding levels of effort for mitigation, and detail data recovery and monitoring plans for the extent of the proposed project. The former Treatment Plan (Far Western 2001) prepared for the wastewater project shall be adapted and modified where appropriate for the current project.	The revised Treatment Plan is complete and has been submitted to the RWQCB for forwarding to the SHPO for consultation under section 106.	**37, 39**
30. If avoidance of recorded archaeological sites within any portion of the approved project design is not possible through project redesign, a phased program of site testing shall be undertaken to establish boundaries and evaluate the resources' potential eligibility to the California Register of Historical Resources under CEQA and the National Register of Historic Places under NEPA. If a site is determined ineligible, no further work is required. If a site is determined eligible, data recovery excavations shall be required to mitigate adverse effects incurred from project development.	This condition reflects the work already done on cultural resources in Los Osos from the perspective of section 106, which is the most stringent approach. Several areas of the collection system were redesigned for the LOCSD project before Coastal Permit A-3-SLO-03-113 was issued. Those changes are included in the current project; the approach that required those changes will be carried forward in the LOWWP.	**38**
31. **Preconstruction monitoring** shall occur in areas ranked as high in sensitivity for buried deposits. The area subject to this requirement is located along Los Osos Valley Road from Los Osos Creek east to the Cemetery Parcel. Mechanical backhoe trenching shall be conducted within the sensitive areas where any construction impacts will occur and shall be monitored by a qualified geo-archaeologist. Any identified intact deposits will be evaluated, and any deposits determined to be eligible to the California Register and/or National Register shall require project redesign to avoid impacts, or data recovery to mitigate	The pre-construction work required by this condition has already been accomplished and is reflected in the project's cultural reports. No sites eligible to the California Register and/or National Register will be impacted; the majority of resources will be avoided.	**N/A**

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unavoidable impacts.		
32. **Prior to construction**, a traffic management plan shall be prepared for review and approval by the County of San Luis Obispo Traffic Department in consultation with the Planning Director. The traffic management plan shall be based on the type of roadway, traffic conditions, duration of construction, physical constraints, nearness of the work zone to traffic and other facilities (bicycle, pedestrian, driveway access, etc.). The traffic management plan shall include: a) Advertisement. An advertisement campaign informing the public of the proposed construction activities should be developed. Advertisements should occur prior to beginning work and periodically during the course of project construction. The advertising shall include notification of changes to bus schedules and potential changes to bus stop locations, potential impacts during school drop-off and pick-up times, and major intersections that may be impacted during construction. b) Property Access. Access to parcels along the construction area shall be maintained to the greatest extent feasible. Affected property owners shall receive advance notice of work adjacent to their property access and when driveways would be potentially closed. c) Schools. Any construction adjacent to schools shall ensure that access is maintained for vehicles, pedestrians, and bicyclists, particularly at the beginning and end of the school day. d) Buses, Bicycles and Pedestrians. The work zone shall provide for passage by buses, bicyclists and pedestrians, particularly in the vicinity of schools. e) Intersections. Traffic control (i.e. use of flag men) shall be used at intersections that are determined to be unacceptably congested due to construction traffic.	Although standard procedure for Public Works projects, this condition expands upon conditions 41 and 42 from the previous CDP to provide additional details on the issues that the County, working in conjunction with contractors, will address in the Traffic Management Plan.	**41/42**
33. **Prior to commencement of grading activities**, the applicant shall submit driveway construction plans to Public Works Encroachment for review and approval in consultation with the	Because the driveway at the Giacomazzi site currently serves agricultural parcels, and is located adjacent to the Cemetery driveway, improvements meeting County road standards are needed.	**N/A**

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Planning Director. The plans shall show the reconstruction of the project driveway approach(es) at the Giacomazzi site in accordance with County Public Improvement Standard Drawing Numbers B-1e and A-5a (sight distance). The applicant shall secure an encroachment permit from Public Works prior to commencing any work within the public right-of-way.	This condition will apply whether or not the driveway is relocated per condition # 109.	
34. If environmental permits from the Army Corps of Engineers or the California Department of Fish and Game are required for any public improvements that are to be maintained by the County, the applicant or his engineer, prior to the approval of the plans by the Department of Public Works in consultation with the Planning Director shall: a) Submit a copy of all such permits to the Department of Public Works and Planning Department; OR b) Documentation that the regulatory agencies have determined that said permit is not required.	This standard condition ensures that ensures that private applicant follow other agency permit requirements for facilities that will ultimately be owned by the County. Although somewhat redundant here (because the County is building the improvements) it serves as a reminder to place regulatory permit compliance information in the appropriate road file.	**10**
35. **Prior to commencement of grading activities**, the applicant shall submit a Construction Activities Management Plan for the review and approval of the SLOAPCD. This plan shall include but not be limited to the following Best Available Control Technologies for construction equipment: a. Minimize the number of large pieces of construction equipment operating during any given period. b. Schedule construction related truck/equipment trips during non-peak hours to reduce peak-hour emissions and overall daily and quarterly emissions. c. Properly maintain and tune all construction equipment according to manufacturer's specifications. d. Fuel all off-road and portable diesel powered equipment including but not limited to: bulldozers, graders, cranes, loaders, scrapers, backhoes, generators, compressors, auxiliary power units, with ARB certified motor vehicle diesel fuel. e. All diesel construction equipment shall meet ARB's Tier 3 standard for off-road heavy duty diesel engines. f. All on-road heavy-duty trucks shall meet the ARB's 2007	This condition requires the County, working with the contractor(s) to work with APCD to reduce temporary air quality impacts to the degree feasible. In conjunction with condition # 37, the County has been able to reduce overall construction emissions from large projects such as the Lopez Dam retrofit and the Nacimiento Water Project.	**46**

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or newer certification standard for on-road heavy-duty diesel engines. g. All on and off-road diesel equipment shall not be allowed to idle for more than 5 minutes. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of the 5 minute idling limit. h. Electrify portable equipment where possible throughout the project area. i. All diesel powered portable equipment used shall have tier 2 or tier 3 engines and retrofitted with an ARB level 3 verified diesel emissions control strategy (VEDEC). j. Locate construction staging areas at least 1000 feet from sensitive receptors.		
36. The Construction Activity Management Plan (CAMP) should include but not be limited to the following elements: a. Schedule construction truck trips during non-peak hours to reduce peak hour emissions; b. Limit the length of the construction work-day period, if necessary; c. Phase construction activities to minimize overlapping emissions; and d. Construction Equipment composition and schedule including: 1. Equipment Type 2. Equipment Model 3. Equipment Year 4. Engine Type 5. Engine Model 6. Engine Year 7. Engine Horsepower 8. Schedule of use	Continuation of condition 35.	**46**
37. APCD and the County will establish an off-site mitigation program based on the ozone precursor, PM exceedence, and greenhouse gas emissions. The County may use the funding of this program to implement APCD approved emission reduction projects near the project site or may pay that funding level plus a 15 percent	This condition works with conditions 35 and 36 above. It was not an element of the previous project approvals, consequently, total emissions from the LOWWP should be lower than anticipated for the previous project.	**N/A**

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administration fee to the APCD for the APCD to implement emission reduction projects in close proximity to the project. The County will provide the funding at a time or schedule approved by the APCD to help facilitate emission offsets that are as timely.		
38. **Prior to commencement of grading activities**, an updated air quality emissions analysis consistent with the CAMP and mitigation measures above will be submitted to determine if additional measures (e.g. off-site mitigation) are required to reduce the air quality impact below the levels of significance.	Continuation of condition 35.	**46**
39. **Prior to any grading activities associated with the project**, the project proponent shall ensure that a geologic evaluation is conducted to determine if Naturally Occurring Asbestos (NOA) is present within the area that will be disturbed. If NOA is not present, an exemption request must be filed with the District. If NOA is found at the site, the applicant must comply with all requirements outlined in the Asbestos ATCM. This may include development of an Asbestos Dust Mitigation Plan and an Asbestos Health and Safety Program for approval by the APCD. Please refer to the APCD web page at http://www.slocleanair.org/business/asbestos.asp for more information or contact the APCD Enforcement Division at 781-5912.	County/APCD standard condition to mitigate Naturally Occurring Asbestos impacts. NOA would not be present in the Los Osos sands near residences, but may be a component of soil at the Giacomazz site and/or along Los Osos Valley Road east of Los Osos Creek.	**46(f)**
40. An Odor Control Plan shall be submitted for review and approval of the San Luis Obispo County Air Pollution Control District **prior to commencement of grading activities** which shall be incorporated as conditions of the permit issued by the County for the construction and operation of the Los Osos wastewater project. The Odor Control Plan shall contain a Complaint Response Plan to address at least the following: a. A public outreach plan, including operator training in the handling of complaints; a program for informing the public regarding the complaint process; periodic neighborhood surveys of performance and responsiveness to complaints; and, a complaint hotline phone number. This public outreach plan shall be in place upon startup;	Although the treatment plant has been re-located out of town, odor control requirement have been brought forward from the previous project to ensure the community that the design and operation of the project will not result in significant odor impacts. All elements of the project are designed to maintain an odor-free environment. Given the number and density of septic tanks in the community, overall odor impacts from waste disposal should be reduced from current levels	**47, 48**

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b. An odor point identification map, which will aid the wastewater system operators and the SLOAPCD by identifying potential odor sources, a description of the odor point. This identification map and related information shall be completed within the first 3 months of startup; c. A list of immediate responses or actions to be taken to complaints, including, but not limited to: 1. The upstream addition of ferrous chloride (or other) injection system adjustments; 2. On-site odor checks to identify odor sources or system malfunctions, neighborhood complaint patrol and actions to be taken; d. A Contingency Action Plan detailing the methods to which odor sources will be studied and a response action plan to control odors over the long term. This Plan shall be in place upon startup. Possible responses include, but are not limited to, the following: 1. Providing additional "negative air" containment or recovery system areas; 2. Additional treatment containment enclosure; 3. Additional or improved odor control, dispersal and/or air movement at pump stations, wet wells and the wastewater treatment plant; 4. Additional study of odor sources and possible solutions, which may include a dilution to threshold measurement for each potential odor source using the Bay Area Air Quality Management District's procedure outlined in their Regulation 7 "Odor Substances" 7-400 et sea and "Manual for Procedures", Volume IV, ST-l, ST-8, ST-il, 51-16 and ST-22 or SLOAPCD equivalent.		
41. The County shall require that the treatment plant be designed so that the mechanical aeration system is located a minimum of 250 feet away from the nearest residence.	More than sufficient space exists to at least double this requirement.	**51**
42. The County shall require that the treatment plant be designed so	More than sufficient space exists to at least double this requirement.	

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	that the backup diesel generator is enclosed in a structure and is located a minimum of 250 feet away from the nearest residence.		**51**
43.	Operation and maintenance plans for the treatment facility will ensure that all pumps and aerators are kept in proper working order.	This condition will be met through the SSMP and WDR's issued by the RWQCB	**52**
44.	The County shall require that the backup power facility structures for the in-town collection system be designed so that the noise created from the backup diesel generator that would be located inside the structure would not exceed 45 dBA Leq at the nearest property line. The noise from the backup diesel generator may be attenuated through the use of a "manufacturer enclosure" or through incorporation of noise attenuation design features into the backup power facility structure.	Back-up power buildings are of masonry design brought forward from the previous project and will comply with these noise limits.	**53**
45.	**Prior to any onsite construction activities** at the proposed treatment plant sites, soils shall be sampled and analyzed by a licensed engineer or geologist approved by the County of San Luis Obispo Health Department to determine the level of residue for pesticides, herbicides, chemicals, and associated metals. If residues are found to be within acceptable amounts in accordance with the San Luis Obispo County Health Department (SLOCHD) and Environmental Protection Agency/Department of Toxic Substance Control (DTSC) standards, then grading and construction may begin. If the residue is found to be greater than the SLOCHD and DTSC standards, all contaminated soils exceeding the acceptable limits shall be remediated and/or properly disposed of in accordance with SLOCHD and DTSC requirements. An appropriate verification closure letter from SLOCHD and DTSC shall be obtained and submitted to the County of San Luis Obispo Planning Department. Depending on the extent of contaminated soils, a verification closure letter from the California Regional Water Quality Control Board may also need to be submitted to the County of San Luis Obispo Planning Department. Site remediation can occur by the use of onsite transportable thermal treatment units or bio-remediation. The soil can also be excavated and shipped offsite to fixed incineration or	Standard condition for projects developed on lands previously used for agricultural production.	**N/A**

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bio-remediation facilities.		
46. **Prior to operation of the wastewater treatment system**, a Hazardous Materials Management Plan shall be developed and submitted to the County of San Luis Obispo Environmental Health Services Division for approval. The plan shall identify hazardous materials utilized at the proposed wastewater facilities and their characteristics, storage, handling, training procedures, and spill contingency procedures. Additionally, the Hazardous Materials Management Plan shall identify procedures in the event of accidents such as the release of raw wastewater or secondary treated water into watercourses such as Los Osos Creek. These procedures shall include immediate response personnel to limit public access to spill areas, potentially shutting down pump stations, creating berms, use of vacuum trucks, and use of water booms to contain spills within open water areas. Furthermore, the Plan shall address response and containment of fuel at pump station sites.	Standard requirements for commercial and industrial projects	**54**
47. To reduce the potential temporary loss of water for firefighting that may occur as a result of construction activities, the project shall compensate for the potential temporary loss of water through means determined by the County Fire Chief.	Provisions have already been met by providing an additional water tender.	**57**
48. All contractors shall comply with relevant provisions of CAL-OSHA CAC Title 8 regarding the provision of safety and rescue equipment, to the satisfaction of the County Department of Public Works in consultation with the Planning Director.	Standard procedure for Public Works projects	**58**
49. **At the time of construction**, walls, roofs, and other building components shall be constructed in colors and tones compatible with the surrounding environment. Landscaping that will either screen from in front or grow over from above any fencing shall be established prior to operation of the facility.	See also reviews required by condition 53 below.	**59, 61**
50. A final lighting plan shall be prepared for the treatment and disposal facilities in accordance with Estero Area Plan AES-5. The lighting plan shall meet County design standards. This shall include proper shielding, proper orientation, and applicable height	Lighting plans should be included with the design of each facility and **reviewed and approved by the permit authority prior to construction**. This plan should be implemented **prior to final inspection or occupancy**, whichever occurs first	**60**

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standards. All lighting fixtures shall be shielded so that neither the lamp nor the related reflector interior surface is visible from adjacent properties or public areas. Light hoods shall be dark-colored. Lighting associated with all project components shall be the minimum needed for plant/pump station operations which require lighting for operations and/or during emergency situations.		
51. Any buildings associated with collection facilities at the Broderson and Mid-Town parcels shall be designed in such a manner so they are architecturally compatible with other buildings in the vicinity.	Implementation timing is established by condition 53 below.	**59, 61**
52. Any building (equipment areas, pumping stations) associated with treatment and disposal facilities shall be designed to conform to an agricultural / rural landscape. Buildings shall be designed to appear as barns or other farm related structures.	New condition to respond to out-of-town treatment plant location. Implementation timing is established by condition 53 below.	**N/A**
53. **Prior to construction**, the applicant shall submit architectural elevations of all proposed structures to the Department of Planning for review and approval in consultation with the Environmental Coordinator. The elevations shall show exterior finish materials, colors, and height above the existing natural ground surface. Colors shall minimize the structure massing of new development by reducing the contrast between the proposed development and the surrounding environment. Colors shall be compatible with the natural colors of the surrounding environment, including vegetation, rock outcrops, sand dunes, etc. Darker or neutral, non-reflective, earth tone colors shall be selected for walls and buildings, and darker green, gray, slate blue, or brown colors for the roof structures.	Standard County condition approach brought forward from the previous project.	**59, 61**
54. Construction staging areas shall conform to Estero Area Plan AES-1 and be located away from sensitive viewing areas to the extent feasible. Before construction activities begin, an area of construction equipment storage away from direct views of sensitive viewing corridors (e.g. residences and major roads in the project area) shall be designated.	See separate discussion on staging areas.	**62**
55. A final landscaping plan shall be prepared for the entire project	Standard County condition approach brought forward from the	

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site and approved by the County **prior to commencement of construction activities**. Said landscaping plan shall emphasize native plant materials and shall include sufficient planting to screen views of the project from nearby roads, public areas, and residential developments. The landscaping plan shall be designed to visually integrate the project into the rural landscape, while preserving and enhancing existing views.	previous project.	**63, 64**
56. **Prior to the initiation of any vegetation clearing, soil disruption, grading, or any other construction related activities**, the County shall formalize a "no take agreement" with the CDFG for the Morro Bay kangaroo rat. The "no take agreement' shall outline a monitoring and contingency plan for the Broderson leach field, as on-going maintenance of the leach field may create suitable Morro Bay kangaroo rat habitat.	Although all project related surveys are negative for K-Rat and suitable habitat, revegetation and restoration at Broderson will create better K-Rat habitat. This agreement will establish protocols should K-Rat appear at Broderson at some later date.	**N/A**
57. Where construction will necessitate disturbance in undeveloped lots and other potentially sensitive areas, a **pre-construction survey** will be conducted to assess and minimize any potential impacts to sensitive resources in these areas.	See separate discussion on staging areas.	**65**
58. The proposed project shall avoid Monarch butterfly winter roost habitats where feasible. If the proposed project will impact potential winter roost habitat, a qualified biologist with expertise in positively identifying the Monarch butterfly and winter roosting behavior shall conduct **preconstruction surveys** within all suitable habitat that occurs within the proposed impact area during the months of October through February. All potential roost sites that have a potential to be impacted as a result of construction activities shall be fenced and avoided. No construction activities shall be permitted in the vicinity (within 500 feet) of potential roost sites during the winter roosting months.	No known Monarch roosts will be impacted based on all previous surveys, however, pre-construction surveys will ensure that any new roosts are not damaged	**66**
59. **Prior to construction activities** on the Broderson and Mid-town properties, a qualified biologist shall be retained to identify and demarcate all host silver dune lupine (*Lupinus chamissonis*) shrubs that occur within the impact area. The qualified biologist shall inspect each host lupine for the presence of any Morro blue	This condition establishes a more focused and detailed approach to dune lupine than the last project	**68d**

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butterfly eggs, larvae, or pupae. In an effort to avoid mortality of butterfly eggs, larvae, or pupae prior to the onset of adult emergence, any host lupine specimens determined to contain eggs, larvae, or pupae shall be considered for relocation outside of the impact area and within suitable coastal dune scrub habitat on either the Broderson or Mid-town properties. To avoid take of the Morro shoulderband snail (*Helminthoglypta walkeriana*) while conducting Morro blue butterfly survey activities, any person conducting such surveys shall be a qualified biologist knowledgeable in the general habitat requirements of the Morro shoulderband snail and familiar with the diagnostic features of all native and introduced snail species. Any planting and restoration efforts proposed as mitigation for the project shall include silver dune lupine within the plant palette to encourage the species to continue to use the area.		
60. **Prior to project construction**, land containing coastal dune scrub and maritime chaparral habitat shall be acquired on the Broderson property that is sufficient to compensate the loss of habitat for the Morro shoulderband snail and other sensitive species on the Broderson and Mid-town properties, and sensitive areas in the collection system. Seventy-three acres of the Broderson property not used for the proposed leachfields shall be preserved in perpetuity and granted to an appropriate agency or conservation organization with the responsibility of management and monitoring the preserve as determined during agreements with USFWS, CDFG, and the County. A long-term management and monitoring program shall be prepared for the area to be preserved. The County shall be responsible for the allocation of appropriate funding for the long-term management and monitoring of the mitigation land. Such funding expense may be recouped through fees imposed upon wastewater system users and others.	See separate discussion on ESHA mitigation See discussion under condition 61 regarding the long-term management plan.	**68**
61. **Immediately following construction** of the leachfields within the Broderson property, the disturbance area and all existing and unaffected coastal sage scrub (or coastal dune scrub) within the property shall be restored, enhanced, and maintained to promote the land's function and value as suitable habitat for sensitive	In addition to requiring restoration of the leach field are at Broderson, this condition also requires a Restoration Plan to be developed. Because restoration must begin immediately following construction, it follows that the Restoration Plan must be complete and approved **before construction is complete**.	**68**

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plants and wildlife that are local or endemic to the area. Restoration and enhancement efforts, including at minimum, seeding with native plant species and eradication of exotic non-native plant species, shall be repeated immediately following all long-term maintenance activities resulting in temporary disturbance of the leachfields. This shall be applied to the ripping and backfilling activities that will be required every 5 to 10 years to maintain the leachfield function. Restoration activities shall be conducted according to a Restoration Plan or similar plan specifically prepared for the effort and approved by USFWS, CDFG, and/or the CNPS. The Restoration Plan shall require at minimum, a description of the prescribed restoration and methodology, feasibility and likelihood for success, and a schedule and program for maintenance, monitoring and reporting the progress of the restoration effort. All restoration activities shall be conducted by qualified personnel with expertise in restoration ecology and knowledge of sensitive plant and wildlife species in the area. The restoration effort shall include the implementation of a seed collection program to gather seeds to be used during restoration from native sources. The seed collection program shall be prepared for approval by the County prior to project construction activities. The seed collection program shall include the use of native plants that will be removed as a result of the project, including but not limited to: mock heather (Ericameria ericoides), silver dune lupine (Lupinus chamissonis), California sagebrush (Artemisia californica), black sage (Salvia mellifera), bush monkey flower (Mimulus aurantiacus), and deerweed (Lotus scoparius). Collection shall take place by qualified personnel with expertise in botanical resources during the appropriate time of year for seed production and harvesting. Unless otherwise determined during consultation with the USFWS, the restoration effort shall be monitored against performance standards for a minimum of five years, or until the	This condition also requires a long-term Resource Management Plan (referred to as a long-term management plan in condition 60) is to be developed. As required in condition 60, a separate agency or conservation organization will have the responsibility of management and monitoring the preserve. The development of the long-term plan should include the long-term management agency or conservation organization. However, although the mitigation land needs to be acquired before construction begins, negotiations with conservation organization to manage the land typically takes 1-3 years. Consequently, it may be appropriate to prepare the Resource Management Plan prior to operation of the project, then, if needed, make revisions in concert with the conservation organization that will manage the site.	

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first ripping event for the restored areas within the leachfield area, after which the maintenance and monitoring of the restored areas shall be covered within specific management directives contained within a Resource Management Plan. The performance standards shall include, at minimum, at least 80 percent native plant species coverage and no greater than 1 percent coverage of invasive non-native plant species (e.g. pampass grass, veldt grass). At minimum, the restored areas must demonstrate a continued ability to support the functions and values necessary to sustain the Morro shoulderband snail. Quarterly monitoring shall be conducted for the first two years of the restoration effort, with annual monitoring efforts to follow for the remaining three years. All monitoring and maintenance of restoration areas shall be conducted by qualified personnel with expertise in botanical resources and knowledge of sensitive species that occur in the local area, including the Morro shoulderband snail, Morro Bay kangaroo rat, and Morro blue butterfly. The County shall provide annual reports to the USFWS documenting the results of all restoration and monitoring activities. Annual reports shall be provided to the USFWS for a minimum of five years or until it is determined by the USFWS that requisite performance criteria have been met. These reports should include any noted changes in the plant community structure or composition or surface hydrology down-slope of the Broderson leachfields, in addition to other requirements as determined through USFWS consultation and stipulated within permit conditions. All on-going and long-term restoration, enhancement, and maintenance of preserved lands on the Broderson property shall be implemented according to a Resource Management Plan or similar mitigation and monitoring plan that may be developed during consultation with the USFWS. The Resource Management Plan shall include management directives that are specific to the preserve and the resources present. The Resource Management Plan shall include measures for the removal and eradication of		

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invasive exotic plant species known to occur in the local area, including veldt grass and pampas grass. Activities that involve the removal of invasive species should not result in unnecessary trampling or removal of native species, and techniques for invasive removal shall be least damaging to native species.		
62. The proposed project may affect federally-listed species (including Morro shoulderband snail and California red-legged frog) and as such, the EPA shall initiate formal consultation with USFWS pursuant to Section 7(a)(2) of the federal ESA. All mandatory terms and conditions, and reasonable and prudent measures pertaining to incidental take prescribed within the Biological Opinion and Nationwide Permit for the project the shall be fulfilled and implemented.	The Lead Federal Agency for the project is now the USDA (not EPA). USDA has already initiated ESA consultation with the USFWS. The reference to a Nationwide Permit appears to be in error, as the requirements of the BO would be spelled out in any funding agreement with the USDA.	**N/A**
63. **Prior to construction**, a biologist authorized by the USWFS shall conduct intensive surveys to identify and relocate all Morro shoulderband snails within the proposed impact area on the Broderson and Mid-town properties, and all suitable habitat areas within the proposed collection system. Only USFWS authorized biologists shall survey for, monitor, handle, or relocate Morro shoulderband snails. A biologist authorized by the USFWS shall be retained to monitor all construction activities that will take place within suitable habitat for the Morro shoulderband snail. Monitoring activities shall be required daily until completion of initial disturbance at each construction area. The monitoring biologist shall be granted full authority to stop work at his or her discretion. The monitoring biologist shall be responsible for implementing avoidance and minimization measures during construction. The monitoring biologist shall stop work if project-related activities occur outside the demarcated boundaries of the construction footprint. The monitoring biologist shall stop work if any Morro shoulderband snails are detected within the proposed construction footprint, and shall implement measures to relocate them to suitable habitat out of harms way prior to construction activities resuming. If no suitable habitat opportunities are available in the immediate	This measure is adapted from the Biological Opinion issued for the previous project.	**N/A**

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vicinity of the construction footprint, salvaged and relocated specimens may also be transported to an offsite location approved by the USFWS. The County shall provide a written report to USFWS within 90 days following the completion of the proposed project. The report must document the number of Morro shoulderband snails removed and relocated from project areas, the locations of all Morro shoulderband snail relocations, and the number of Morro shoulderband snails known to be killed or injured. The report shall contain a brief discussion of any problems encountered in implementing minimization measures, results of biological surveys, observations, and any other pertinent information such as the acreages affected and restored, or undergoing restoration, of each habitat type.		
64. **Prior to project construction**, the County shall retain a qualified biologist to conduct pre-construction surveys for the California red-legged frog according to protocol approved by the USFWS. Surveys shall be conducted within all areas that at are determined to contain suitable habitat for this species and that occur within 100 feet of proposed construction, or at a distance determined through USFWS consultation. To avoid potential timing conflicts with the California red-legged frog breeding period, construction activities in the vicinity of California red-legged frog habitat shall be completed between April 1 and November 1. This measure shall apply to construction activities at the Los Osos Valley Road bridge and Los Osos Creek crossing, and all other areas determined during pre-construction surveys to contain suitable habitat for the species, including areas that occur within 100 feet of proposed construction, or at a distance determined through USFWS consultation. **Prior to construction**, the County shall retain a USFWS-approved biologist to permanently remove any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes from the project area, to the maximum extent possible. The	Typical measures included in Biological Opinions for Red-legged Frog.	**N/A**

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USFWS-approved biologist will be responsible for ensuring his or her activities are in compliance with the California Fish and Game Code. **Prior to construction**, the County shall retain a USFWS–approved biologist to conduct a training session for all construction personnel. At a minimum, the training shall include a description of the California red-legged frog and its habitat, the importance of the California red-legged frog and its habitat, the general measures that are being implemented to conserve the California red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. **Prior to construction**, the County shall retain a USFWS-approved biologist responsible for monitoring construction activities. Ground disturbance shall not be authorized to begin until written approval is received from the USFWS that the biologist is qualified to conduct the work. Only USFWS-approved biologists will participate in activities associated with the capture, handling, and monitoring of California red-legged frog. To ensure that diseases are not conveyed between work sites by the USFWS-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force shall be followed at all times. A USFWS-approved biologist shall be present at the active work sites until such time that the initial survey for California red-legged frogs, instruction of workers, and (upland) habitat disturbance have been completed. After this time, the contractor or County shall designate a qualified person to monitor on-site compliance with all minimization measures. The USFWS-approved biologist shall ensure that this individual receives appropriate training as to the identification of frogs, potential hazards to the species, inappropriate and allowable work activities, and appropriate contacts for immediate, professional biological support. **During work activities**, all trash that may attract predators shall be properly contained, removed from the work site and disposed		

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of regularly. Following construction, all trash and construction debris shall be removed from work areas. All fueling and maintenance of vehicles and other equipment and staging areas shall occur a minimum of 100 feet from all open water, stream, wetland, and riparian habitat. The County shall ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, the EPA shall ensure that the County has prepared a plan to allow a prompt and effective response to any accidental spills. A copy of this plan shall be provided to the Department of Planning and Building. Wet weather storage ponds shall be maintained as to not attract bullfrogs. This will include allowing the ponds to go dry during the summer to disrupt any breeding activity by bullfrogs. The County shall monitor wet weather storage ponds for bullfrog activity.		
65. **Prior to project construction** and within all areas on the Broderson property that contain suitable habitat for the Monterey spineflower, a qualified biologist shall be retained to conduct botanical surveys for Monterey spineflower presence. Surveys shall be conducted during the local blooming period for the species, which typically occurs between April and June, and according to recommendations and guidelines prepared by the USFWS, CDFG, and CNPS. If positively identified, all specimens shall be clearly demarcated with flagging, and avoided to the maximum extent feasible during construction. A qualified monitoring biologist shall be retained to monitor all construction activities in the immediate vicinity (within 25 feet) of any flagged specimens that will not be removed as a result of construction activities. If specimens are positively identified within the leachfield impact area, the seeds of those specimens shall be collected and sown within suitable habitat located outside of the leachfield impact area and within the Broderson property. The County shall provide a written report to USFWS **within 90 days following the completion of the project**. The report shall document the number of Monterey spineflower specimens	Initial surveys for Monterey spineflower have been negative.	**N/A**

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removed from project areas, the locations of areas seeded with Monterey spineflower seeds, and the number of Monterey spineflower specimens found to be dead or damaged as a result of construction activities. The report shall contain a brief discussion of any problems encountered in implementing minimization measures, results of biological surveys, observations, and any other pertinent information such as the acreages affected and restored, or undergoing restoration, of each habitat type.		
66. The proposed project shall minimize to the maximum extent feasible any potential impacts to non-listed plant and lichen species designated as sensitive by the CNPS, including Blochman leafy daisy, saint's daisy, San Luis Obispo wallflower, curly-leafed monardella, dune almond, spiraled old man's beard, Los Osos black and white lichen, long-fringed parmotrema, and splitting yarn lichen. The County shall retain a qualified biologist to conduct botanical surveys within suitable habitat on the Broderson and Mid-town properties to identify all sensitive plant and lichen species within and in the immediate vicinity of the impact areas. Surveys shall be conducted during the local blooming periods for each species, where applicable, and according to recommendations and guidelines prepared by the USFWS, CDFG, and CNPS. All specimens shall be clearly demarcated with flagging and avoided to the maximum extent feasible during construction.	Initial surveys have been conducted. To date, no sensitive species other than those identified in previous surveys have been located. Additional surveys will occur per the condition requirements.	**69**
67. **Prior to construction**, the County shall formalize a "no take agreement" with the CDFG for the Morro Bay kangaroo rat. The "no take agreement' shall outline a monitoring and contingency plan for the Broderson leachfield, as on-going maintenance of the leachfield may create suitable Morro Bay kangaroo rat habitat.	Same as condition #56 above Although all project related surveys are negative for K-Rat and suitable habitat, revegetation and restoration at Broderson will create better K-Rat habitat. This agreement will establish protocols should K-Rat appear at Broderson at some later date.	**N/A**
68. A worker education program and clearly defined operations procedures shall be prepared **prior to project construction**. The worker education program and operations procedures shall be **implemented by the County throughout the duration of construction**. A biologist approved by the USFWS shall be	Typical measures included in Biological Opinions.	**N/A**

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retained to provide construction personnel specific instruction on general detection and avoidance of sensitive resources during construction. The worker education program shall include: descriptions and pictures of listed species; the provisions of the Endangered Species Act; those specific measures being implemented to avoid and minimize take or impacts to listed or otherwise sensitive species (e.g._conserve listed and sensitive species as they relate to the project); and the project boundaries within which the work will occur.		
69. If any construction activities are proposed during the general bird breeding season (February 1 through August 31), a **pre-construction survey** shall be conducted by a qualified biologist within 10 calendar days prior to the onset of construction activities to identity any active non-raptor bird nests within 250 feet of the proposed impact area. If an active nest is identified during the pre-construction survey, a minimum no-disturbance buffer of 250 feet shall be delineated around active nests until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival. Fore sensitive species, including Allen's hummingbird, yellow warbler, and loggerhead shrike, the distance and placement of the construction avoidance shall be a minimum of 250 feet unless otherwise determine through consultation with the CDFG.		
70. If any construction activities are proposed during the general raptor breeding season (February 1 through August 31), a **pre-construction survey** shall be conducted by a qualified biologist within 10 calendar days prior to onset of construction to identify any active raptor nests within 500 feet of the proposed impact area. If an active raptor nest is identified during the pre-construction survey, a minimum no-disturbance buffer of 500 feet shall be delineated around active nests until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.	Pre-construction bird surveys are a standard CDFG requirement. Pre-construction surveys during the appropriate period would be conducted every year construction is ongoing.	**N/A**

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Pursuant to Section 2050 of the CFG Code, the CDFG will not permit any impacts to the California state fully protected white-tailed kite. If an active nest or breeding territory is detected during preconstruction surveys for nesting birds, no construction activities shall take place within 500 feet of the location of the active nest. The area shall be completely avoided and fenced to allow for an adequate buffer from construction activities. A qualified biologist shall be retained to monitor the activity of the nest during the breeding season until it is determined that the nest is no longer active (i.e., all young have fledged the nest and there are no individual kites that are dependent on the nest).		
71. A draft Memorandum of Agreement has been prepared for the treatment and disposition of human remains and associated burial items. This document lays out the procedures agreed upon by interested local Native Americans and stipulated under State law, including proper and respectful handling of remains, identification of reburial areas, acceptable analyses, and resolution of conflicts. It includes a list of Most Likely Descendents approved by the Native American Heritage Commission; these individuals are signatories on the Agreement.	This MOU remains a draft until it is acted upon by the native American Heritage Commission (NAHC) or until human remains are discovered, in which case the NAHC would have 48 hours to designate a Most Likely Descendent and state and federal laws would control the handling of the remains.	**N/A**
72. For sites with known human remains or which have a potential for human remains, **pre-construction excavations** shall take place within the direct impact areas to insure that no human remains are present.	For most sites identified in this condition, pre-construction excavations have already occurred (with the previous project).	**N/A**
73. If human remains are encountered within the project area, the County shall be responsible for complying with provisions of Public Resources Code Sections 5097.98 and 5097.99, and 7050.5 of the California Health and Safety Code, as amended by Assembly Bill 2641. Restrictions or procedures for excavation, treatment, or handling of human remains shall be established in consultation with the individuals designated by the Native American Heritage Commission as the Most Likely Descendents.	See condition 71 above. This condition would apply during construction.	**N/A**
74. Although unlikely, should any vertebrate fossils or potentially significant finds (e.g., numerous well-preserved invertebrate or plant fossils) be encountered by anyone working on the site, all	Encountering paleontological resources in Los Osos, given the geologic formations, is highly unlikely. However, this condition would apply during construction.	**N/A**

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activities in the immediate vicinity of the find are to cease until a qualified paleontologist evaluates the find for its scientific value. If deemed significant, the paleontological resource(s) shall be salvaged and deposited in an accredited and permanent scientific institution where they will be properly curated and preserved for the benefit of current and future generations.		
75. **Prior to initiating grading activities**, the proponent's contractor or engineer shall: a. Include the following specifications on all project plans: One catalyzed diesel particulate filter (CDPF) shall be used on the piece of equipment estimated to generate the greatest emissions. If a CDPF is unsuitable for the potential equipment to be controlled, five diesel oxidation catalysts (DOC) shall be used. b. Identify equipment to be operated during construction as early as possible in order to place the order for the appropriate filter and avoid any project delays. This is necessary so that contractors bidding on the project can include the purchase, proper installation, and maintenance costs in their bids. c. Contact the SLOAPCD Compliance Division to initiate implementation of this mitigation measure at least two months prior to start of construction.	Standard APCD conditions for construction projects.	**Replaces 44**
76. Project contract documents would include the following dust control measures: a. Reduce the amount of the disturbed area where possible, b. Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency will be required whenever wind speeds exceed 15 mph. Reclaimed (non-potable) water should be used whenever possible. c. All dirt stockpile areas will be sprayed daily as needed, d. Permanent dust control measures identified in the revegetation and landscape plans will be implemented as soon as possible following completion of any soil disturbing activities.	Standard APCD conditions for construction projects. Including these requirements in contract documents notifies the contractor and ensures compliance during construction.	**45**

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e. Exposed ground areas that are planned to be reworked at dates greater than one month after initial grading will be sown with a fast germinating native grass seed and watered until vegetation is established. f. All disturbed soil areas not subject to revegetation will be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the APCD. Any erosion and sedimentation control netting or other erosion and sedimentation control devises used for temporary or permanent erosion and sedimentation control, shall be limited to biodegradable mesh or other biodegradable products. g. All roadways, driveways, sidewalks, etc. to be paved will be completed as soon as possible. In addition, building pads will be laid as soon as possible after grading unless seeding or soil binders are used. h. Vehicle speed for all construction vehicles will not exceed 15 mph on any unpaved surface at the construction site. i. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or will maintain at least two feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with CVC Section 23114. j. Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site. k. Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible. l. If visible emissions of fugitive dust persist beyond a distance of 200 feet from the boundary of the construction site, all feasible measures shall be implemented to eliminate potential nuisance conditions at off-site receptors (e.g., increase frequency of watering or dust suppression, install temporary wind breaks where appropriate, suspend excavation and grading activity when winds exceed 25 mph).		

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m. The contractor will designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties will include holidays and weekend periods when work may not be in progress. The name and telephone number of such persons will be provided to the SLOAPCD prior to the start of construction.		
77. If the above mitigation measures do not bring the construction emissions below the thresholds, off-site mitigation funds can be used to secure emission reductions from projects located in close proximity to this construction site. In this instance, emissions in excess of construction phase thresholds are multiplied by the cost effectiveness value defined in the State's current Carl Moyer Incentive Program Guidelines to determine the off-site mitigation amount associated with the construction period. Examples of off-site emission reduction measures are contained in Section 5.9 of the 2003 CEQA Air Quality Handbook. The actual mix of mitigation measures that would be required to meet the reduction in NOX to less than a total of 185 lbs per day or 6.0 tons per quarter over the term of construction and would be finalized and mutually agreed to by the Applicant and appropriate staff of the SLOAPCD prior to commencement of construction of the project.	Standard APCD conditions for construction projects.	**N/A**
78. The project applicant shall require construction contractors to adhere to the following noise attenuation requirements: a. A construction noise control plan shall be developed for the project that identifies the nature and timing of operations designed to minimize noise exposure to noise sensitive receptors including natural resource areas. b. Generally, construction activities shall be limited to between the hours of 7 a.m. to 9 p.m. on any day except Saturday or Sunday or between the hours of 8 a.m. to 5 p.m. on Saturday or Sunday. c. Construction activities in the vicinity of schools should be scheduled for times when classes are not in session. d. All construction equipment shall use noise-reduction features (e.g., mufflers and engine shrouds) that are no	This condition applies during construction.	**49, 50**

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less effective than those originally installed by the manufacturer. e. The noise produced by construction activities shall be monitored to insure that the noise produced by construction equipment is compliant with the emission standards listed in the project EIR (Appendix L, page 5.10-4 and in source document, FHWA Construction Noise Model, page 3). f. Measures to minimize back-up alarm issues shall be established including such techniques as: 1) use of self-adjusting ambient sensitive back-up alarms, 2) manual adjustable alarms on lower settings, 3) use of observers, 4) scheduling of activities so that alarm noise is minimized, and 5) construction site access designed such that deliveries and trucks move through the site in a forward manner without the need to back up. g. Construction staging and heavy equipment maintenance activities shall be performed a minimum distance of 300 feet from the nearest residence, unless safety or technical factors take precedence. h. Stationary combustion equipment such as pumps or generators operating near any noise sensitive receptor shall, if necessary, be shielded with a noise protection barrier. Leq values at the property line of receiver locations shall not exceed 65 dB.		
79. The construction contractor shall notify all property owners and tenants adjacent to the proposed pile driving activities of the days and hours of operation. The construction contractor shall also require that a noise damper be utilized between the pile driver and the object that is being driven into the ground.	This condition applies during construction.	**N/A**
80. **Prior to initiation of construction of the collection system**, the contractor/designer shall identify all areas where pile driving, or other construction methods that would result in severe ground vibrations, could occur. Deep pile foundation designs shall favor techniques that can be constructed with minimal vibration effects. Prior to construction, using technology and standards	This condition applies before and during construction.	**N/A**

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recommended in the Caltrans Transportation and Construction Induced Vibration Manual, the contractor shall calculate the vibration effects of pile driving and other high vibration activities using the Peak Particle Velocity (PPV) metric, and shall ensure that the PPV does not exceed the following thresholds at any affected building: 0.5 at modern industrial/commercial or residential buildings; 0.3 for any building composed of masonry, unreinforced concrete, lath & plaster interiors or of similar construction; and 0.25 for any building identified as particularly sensitive to vibration impacts. Alternative design and/or construction methods shall be used to meet these limits. In addition, the construction contractor shall notify all property owners and tenants adjacent to the proposed pile driving or other vibration inducing activities of the days and hours of operation. Prior to construction activities associated with this type of work, the construction contractor shall inspect all structures within the area predicted to experience vibration in excess of 0.25 PPV to document existing characteristics of the structures. During construction, vibration shall be monitored and recorded and adjustments made to operation or to the radius of concern if the level of vibration differs from estimates. If a post construction survey indicates that damages to structures (e.g., residences, pools) occurred during the work, the property owner shall be fairly compensated for the cost of remediating damages.		
81. Control Introduction of Invasive Exotic Plants. To control introduction of invasive exotic plants on site, implement the following measures **during construction** and incorporate into the design guidelines of the proposed percolation fields, as appropriate. a. Use only clean fill material (free of weed seeds) within the construction zone of the proposed project. b. Thoroughly clean all construction equipment prior to being moved onto and used at the site. c. Prohibit planting or seeding of disturbed areas with nonnative plant species; d. Control the establishment of invasive exotic weeds in all disturbed areas. Remove existing stands of invasive	Condition brought forward from previous project.	**72**

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exotic plants, including but not limited to veldt grass, pampas grass and ice plants, in order to limit their spread.		
82. All construction activities across Los Osos Creek shall be restricted to **low-flow periods of June 15 through November 1**. If the channel is dry, construction can occur as early as June 1. Restricting construction activities to this work window will minimize impacts to migrating adult and smolt steelhead, if present. **Prior to construction**, the County shall retain a qualified biological monitor to be on site during all stream crossing activities associated with Los Osos Creek. The biological monitor will be authorized to halt construction if impacts to steelhead are evident. **Prior to construction**, a spill prevention plan for potentially hazardous materials shall be prepared and implemented. The plan shall include the proper handling and storage of all potentially hazardous materials, as well as the proper procedures for cleaning up and reporting of any spills. If necessary, containment berms shall be constructed to prevent spilled materials from reaching the creek channel. **Prior to construction**, silt fencing shall be installed in all areas where construction occurs within 100 feet of known or potential steelhead habitat. All silt fencing, erosion control and landscaping specifications shall only include natural-fiber, biodegradable products for meshes and coir rolls to minimize impacts to species and the environment during use. **During construction**, spoil sites shall be restricted to upland locations so they do not drain directly into Los Osos Creek. If a spoil site drains into a water body, catch basins shall be constructed to intercept sediment before it reaches the channels. If required, spoil sites shall be graded to reduce the potential for erosion.	Condition applies to Los Osos Creek to avoid flowing water.	**N/A**

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During construction, equipment and materials shall be stored at least 50 feet from Los Osos Creek. No debris such as trash and spoils shall be deposited within 100 feet of waterways. Staging and storage areas for equipment, materials, fuels, lubricants and solvents, shall be restricted to locations outside of the stream channel and banks. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream shall be positioned over drip pans at all times. Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be checked and maintained daily to prevent leaks of materials that if introduced to water could be deleterious to aquatic life. Vehicles shall be moved away from the stream prior to refueling and lubrication. **During construction**, proper and timely maintenance for all vehicles and equipment used shall be provided to reduce the potential for mechanical breakdowns leading to a spill of materials into or around the creek. Maintenance and fueling shall be restricted to safe areas away from Los Osos Creek that meet the criteria set forth in the spill prevention plan. **Immediately following construction**, all construction work areas shall be restored to pre-construction channel conditions, including streambed composition, compaction, and gradient. If required, channel banks shall be returned to original grade slope and appropriate bank stabilization techniques shall be implemented to reduce the potential for erosion and sedimentation. A plan describing pre-project conditions and restoration methods shall be prepared prior to construction. **Immediately following construction**, all appropriate construction work areas will be revegetated with an appropriate assemblage of native upland vegetation, and if necessary, riparian vegetation, suitable for the area. A plan describing pre-project conditions, restoration and monitoring success criteria shall be prepared prior to construction.		

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
83. Implementation of trenchless technologies shall be considered as a feasible option for the installation of conveyance pipelines within and adjacent to areas containing wetlands, streams, and riparian vegetation. Trenchless technologies that are feasible for all Proposed Projects include microtunneling and horizontal directional drilling (HDD) within all areas along the proposed conveyance routes, and pipe suspension at areas supporting existing bridge crossings along the proposed conveyance routes (at the Los Osos Creek crossing). Microtunneling and HDD entrance and exit locations shall be set back as far away from wetlands, streams, and riparian vegetation as feasible and consistent with the setback requirements of the CZLUO and Estero Area Plan. Implementation of microtunneling and HDD methodologies shall incorporate a frac-out contingency plan and all relevant Best Management Practices during construction. Maintenance activities associated with pipe suspension that may result in activity within the streambed of Los Osos Creek shall be restricted to periods when the streambed is dry and does not support any flowing water or pooling water in the proposed maintenance area.	General design considerations. It should, however, be noted that design changes made to the collection systems in the previous permit condition # 18 to avoid trenching adjacent to or drilling under wetlands remain as part of the project description.	**N/A**
84. **Prior to operation of the wastewater treatment system**, the applicant shall: a) Obtain final inspection approval of all required fire/life safety measures. b) Prior to operation of the wastewater treatment system, all Public Works Encroachment permit provisions shall be completed to the satisfaction of the Department.	Standard conditions	**23**
85. Rehabilitation of disposal percolation fields shall be rotated so that no more than one field is under re-construction at a time.	Condition brought forward from previous project.	**28**
86. Consistent with condition of approval # 34 is for Coastal Development Permit (CDP A-3-SLO-03-113 / D020283), to prevent the wastewater treatment system from inducing growth	Condition brought forward from previous project.	**34**

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
that cannot be safely sustained by available water supplies, the sewer authority is prohibited from providing service to existing undeveloped parcels within the service area, unless and until the Estero Area Plan is amended to incorporate a sustainable buildout target that indicates that there is water available to support such development without impacts to wetlands and habitats.		
87. **Concurrent with the operation of the facility**, the County shall implement the Groundwater Level Monitoring and Management Plan that details methods for measuring and responding to changes in groundwater levels that could affect wetland hydrology and habitat values. The Plan includes provisions for monitoring groundwater levels, surveys for wetland plant and animals, monitoring wetland hydrology and water quality, appropriate response procedures should impacts be identified, annual reporting, and an education program to encourage property owners to convert septic systems into areas capable of groundwater recharge.	Condition brought forward from previous project. The Groundwater Level Monitoring and Management Plan was prepared and approved by the previous project.	**20**
88. In order to maintain existing levels of groundwater recharge and protect coastal water quality, the County shall evaluate and, where appropriate, assist property owners in the implementation of opportunities to re-use existing septic tank effluent disposal systems (e.g., leach fields) to filter and percolate stormwater runoff. Prior to the connection of individual properties the County shall, at the consent of the landowner, evaluate whether existing on site wastewater disposal facilities have adequate capacity and depth to groundwater to accommodate and percolate stormwater runoff, and if so, provide site-specific recommendations on how to connect such a system.	Condition brought forward from previous project.	**36**
89. The Los Osos wastewater project (including collection, treatment and disposal) shall be operated in a manner that prevents the emission of nuisance odors that are perceptible at or beyond the property lines of the project site, consistent with the requirements of Health and Safety Code Section 41700. Nuisance odors, problems with the operation of the wastewater treatment plant or	Condition brought forward from previous project.	**47**

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
dust complaints shall be directed to the operators of the wastewater treatment plant. The San Luis Obispo County Air Pollution Control District (SLOAPCD) will also respond to complaints and communicate immediately with the operators of the wastewater treatment plant. All complaints, breakdowns, or parameter exceedence shall be reported to the SLOAPCD within four (4) hours of receipt or event.		
90. **Condition eliminated**	The eliminated condition provided requirements for land disposal of biosolids (same as condition #56 of A-3-SLO-03-113 of the LOCSD project). Land disposal of biosolids Is not proposed by this project.	**56**
91. Screen Planting - Trees and shrubs shall be planted along the perimeter of the wastewater treatment facility **prior to facility operation or at the earliest time feasible after completion grading activities**. To provide effective screening, the size and variety of evergreen trees shall be planted which will reach a minimum height of 25 feet within five years. Large shrubs shall be included to provide lower height screening. Italian Cypress and other distinctly-shaped non-native plants shall not be used. The screen planting shall be designed to appear as a naturally appearing swath of vegetation. Evidence shall be submitted to the Department of Planning and Building to show that 75% screening has been achieved within 5 years. Landscape must be maintained to provide the required or better screening in perpetuity.	Condition brought forward from previous project.	**64**
92. **Prior to providing wastewater treatment service to undeveloped parcels,** the County, in coordination with the California Department of Fish and Game (CDFG), the US Fish and Wildlife Service (USF&WS), San Luis Obispo County and the California Coastal Commission shall prepare and implement a Habitat Conservation Plan (HCP) for the long-term preservation of habitat remaining within the Los Osos Greenbelt, including habitat remaining on individual vacant lots. The HCP shall: a. identify the habitat resources and the quality of those resources on the remaining vacant properties within the South Bay Urban Area and Los Osos Greenbelt;	Condition brought forward from previous project. The County has assumed the lead agency role for the HCP, and has assigned responsibility to the Department of Planning and Building. Staff has been, assigned and completed FWS training on HCPs. To date, the County has been awarded three grants for work on the Los Osos Habitat Conservation Plan. The grants include a U.S. Fish and Wildlife Service Endangered Species Act Section 6 grant, a Department of the Interior Minerals Management Service Coastal Impact Assistance Program grant, and a Morro Bay National Estuary	**76**

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
b. specify measures to avoid and minimize impacts to ESHA from buildout of the Service area, and to mitigate unavoidable impacts through acquisition, protection, and/or restoration of equivalent habitat within the planning area; and c. implement such measures through an amendment to the Estero Area Plan that integrates the HCP, as approved by the US Fish and Wildlife Service and Department and Fish and Game, with LCP standards for development in the South Bay Urban Area. This LCP amendment must become fully effective, and all permits required by state and federal Endangered Species Acts shall be issued, before County makes any final commitment to provide wastewater treatment service to undeveloped properties. The range of potential conservation programs to be considered in the HCP shall include, but not be limited to the following: a. New development programs and standards that maximize preservation of sensitive biological resources in the Los Osos area, such as: i. Transfer of development credits ii. Clustering iii. Avoidance of sensitive resources in site design iv. Changes in density and land use v. Incorporation of open space into the design of new development b. Programs aimed at facilitating coordination among agencies and organizations involved in management and conservation/preservation of sensitive resources, including USF&WS, CDFG, California Coastal Commission, San Luis Obispo County, MBNEP, Land Conservancy of San Luis Obispo County, and others; c. The creation of a land bank program to facilitate the purchase of properties with high quality	Program Implementation grant. The County has released a request for proposals to hire a consultant to assist in the development of the Los Osos Habitat Conservation Plan, with proposals received on January 29th. Proposals are being reviewed with the wildlife agencies with final selection of the consultant anticipated by March 2010.	

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
habitat within the Greenbelt, to be repaid over time from fees on new building permits; and d. Programs for the acquisition of properties within the Greenbelt that contain significant habitat resources. The County may apply for amendment to this permit condition at, or prior to the time that the treatment plant is operational, to authorize the County to issue Will Serve letters to properties that would otherwise qualify.		
93. **Condition eliminated**	The eliminated condition required fencing to separate grazing from the spray field on the Tonini project. Neither element is part of the proposed project.	
94. Installation of lateral lines will conform to the mitigation procedures contained in the "Lateral Line Installation — Biological Resources & Mitigation" report dated 10-16-02.	Condition concept brought forward from previous project. Work to follow previously approved procedures.	**77**
95. **Prior to operation of the wastewater treatment system**, the County Department of Public Works shall provide evidence to the County Planning and Building Department that a farmland conservation easement, a farmland deed restriction, or other farmland conservation mechanism burdening an off-site agricultural mitigation parcel has been granted in perpetuity to the County or a qualifying entity approved by the County Agricultural Commissioner (or designee). The easement shall provide conservation acreage at a ratio of not less than 2:1 for the loss of agricultural land. Additionally, the project proponent shall provide appropriate funds (as determined by the County Planning Department) to compensate for reasonable administrative costs incurred by the easement holder. The area conserved shall be at least 32 acres (to offset direct impacts from the treatment plant facility), and shall be of a quality that is reasonably (as determined by the County Agricultural Commissioner or designee) similar to that of the farmland within the project limits. The area to be conserved shall be located within San Luis Obispo County within reasonable proximity to the project site.	Standard County condition implementing farmland conservation easements.	**N/A**
96. Site Management Plan. **Prior to operation of the facility**, the	This Site Management Plan condition was conceived to ensure that	

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
County, in consultation with resource agencies, will develop a Site Management Plan for the remainder of the new public lot to be created out of the Giacomazzi property. The Site Management Plan will provide for the continued operation of agricultural activities on those portions of the property not used for the project and/or associated mitigation consistent with the affirmative agricultural easement requirements described herein. Implementation of the Plan will ensure that uses or land stewardship practices do not impede adjacent agricultural uses and practices and may include, but not be limited to: (a) Maintenance of fences sufficient to clearly delineate property lines, contain livestock, prevent trespass, and manage non-native invasive species. (b) Prevention and management actions to avoid the proliferation of weeds and noxious plants that are incompatible with adjacent agricultural practices. (c) Management of all on-site water features, including springs, streams, and ponds in a manner that does not result in erosion or sedimentation impacts on downstream properties. The Site management will be reviewed and approved by the Director of Planning and Building in consultation with the Agricultural Commissioner prior to implementation.	the wastewater treatment facility operates as a "good neighbor" to adjacent agricultural uses. Its focus is on ensuring that adjacent agricultural uses are not impacted by the treatment plant. The condition also requires agricultural use of "left over" land purchased by the project, although there should be very little if any land in this category. The Site Management Plan needs to be complete before the facility begins operation.	**N/A**
97. Disposal of treated effluent shall be reserved for the following sites/uses in the Los Osos Groundwater Basin: a. Broderson (not to exceed 448 AFY on an average annual basis), b. Urban re-use within the urban reserve line (as identified in the Effluent Re-Use and Disposal Tech Memo, July 2008), c. Agricultural re-use overlying the Los Osos Groundwater Basin, d. Environmental reservations (not less than 10% of the total volume of treated effluent), and	New condition describing the use of recycled water generated by the project. The last paragraph will ensure that no recycled water is used outside of the URL for new development. See also the separate discussion on water conservation.	**N/A**

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
Total agricultural re-use shall not be less than 10% of the total treated effluent. Disposal shall be prioritized to reduce seawater intrusion and return/retain water to/in the Los Osos groundwater basin. Highest priority shall be given to replacing potable water uses with tertiary treated effluent consistent with Water Code Section 13550. No amount of treated effluent may be used to satisfy or offset water needs that result from non-agricultural development outside the Urban Reserve Line of the community of Los Osos.		
98. Where the collection system pipes will be located in areas of high groundwater, or areas subject to future 5 foot sea level rise, as shown on the June 29 and 30, 2009 PC Memo – page: 1-16 (see Attachment 3), and as identified in the field during construction; the applicant shall utilize fusion welded pipes or chemically sealed pipes. In areas of high groundwater, additional inspections to ensure proper installation shall be completed prior to backfilling the trenches. All laterals to individual residences shall utilize fusion welded pipes or chemically sealed pipes. Lateral connections at the property line shall utilize fusion welded pipes, chemically sealed pipes, or collars.	This measure adds an extra level of protection against infiltration of groundwater into the collection system, even though all pipeline specifications require sealed pipe systems.	**N/A**
99. **Within one year of adoption of a due diligence resolution by the Board of Supervisors**, electing to proceed with a wastewater project, a water conservation program shall be developed by the applicant in consultation with the local water purveyors within the prohibition zone for the community of Los Osos, that meets the goal of 50 gallons per day / per person for indoor use. The applicant shall provide 5 (five) million dollars of funding towards a water conservation program for indoor water conservation. Incentives shall be provided to homeowners and other property owners who install conservation measures within the first year.	See separate discussion on the water conservation program.	**N/A**
100. **Prior to operation of the wastewater treatment system**, the applicant shall provide a new on-site well for facility operations in accordance with California Well Standards and County	Provides authorization to drill a drinking water well at Giacomazzi, as the site is outside any water service area.	**N/A**

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
Ordinances and to the satisfaction of the Environmental Health Department.		
101. The applicant shall utilize the existing Bayridge leach field (APN 074-491-033) to dispose of approximately 33 acre feet per year of treated effluent upon decommissioning of the existing leach field and connection to the community sewer system. The applicant shall consult with the Los Osos Community Services District (LOCSD) prior to the design phase of the project regarding use of said facilities to ensure all their concerns are addressed.	Requires recycled water to be placed at the Bayridge leach field (APN 074-491-033) as part of the initial and ongoing operations of the project.	**N/A**
102. The applicant shall design the layout of the proposed sewer treatment facility to allow for structures to have roofs with "due south orientation" to maximize solar orientation for future solar photovoltaic and / or solar water panel installation, as feasible. No evergreen trees (with mature heights over 12 feet) shall be planted near structure that could potentially block the sun to these portions of the roofs unless necessary for visual screening. This shall be reflected in any landscape plans prepared / required. As a part of roof design / construction, these portions of the roofs shall be designed to be able to handle the "dead" loads associated with the weight of these panels. To further maximize solar efficiency, where possible, roof pitch of this portion of roof shall be as close to 20 degrees as practical. The applicant shall provide verification to the satisfaction of the County Planning and Building Department that the above measures have been incorporated into the project.	Provides for the opportunity to utilize solar panels on roofs.	**N/A**
103. **Prior to individual property connections to the waste water system**, each property owner shall provide verification to the satisfaction of the Planning Director that all toilets, showerheads and faucets have been replaced with high efficiency versions of the same.	See separate discussion on the water conservation program.	**N/A**
104. Agriculture irrigation lines and other wastewater effluent disposal lines shall be located within existing right-of-ways (including agricultural field access ways) and other areas known to not include, or that can be demonstrated to not include, cultural or biological resources. Use of the effluent shall be consistent with	Ensures that new pipelines (if required) for the agricultural reuse program will not impact cultural or biological sites, and ensures that agricultural reuse of water will meet all applicable regulations. See also the separate discussion on the water conservation program.	**N/A**

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
all other local, State, and Federal regulatory requirements including but not limited to the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands requirement of the Central Coast Regional Water Quality Control Board.		
105. Bio-solids shall be disposed of at the closest approved facility within the San Luis Obispo County region. The San Luis Obispo County region shall be limited to the northern San Luis Obispo county line and south to the Santa Maria area within Santa Barbara County. If an approved facility is not available within the San Luis Obispo County region at the time of project start-up, then the closest approved facility shall be utilized. If an approved facility becomes available for disposal of bio-solids within the San Luis Obispo County region, that facility shall be utilized for disposal of bio-solids.	Focuses dewatered biosolid disposal on the closest appropriate facility to reduce air quality and truck trip impacts. Currently, one landfill (Cold Canyon) and one recycled facility (Santa Maria) in the defined region accept biosolids with conditions.	**56**
106. If the County acquires more land area than is necessary to site the treatment facility and appurtenant facilities, then **prior to transferring title of the surplus area**, the County shall record an affirmative agricultural easement over such surplus land. This easement shall take into consideration biological, cultural, sedimentation and erosion constraints on the project site. Agricultural activities chosen to take place on the remainder of the wastewater treatment facility site shall be consistent with the long term protection of the identified resources.	Implements County agricultural policies for the protection of agricultural land. See also condition 96 above.	**N/A**
107. The applicant shall apply for and record a public lot **prior to commencement of construction** activities at the wastewater treatment site.	Provides for the establishment of a site for the treatment plant.	**N/A**
108. **Prior to individual property connections to the wastewater treatment project**, each property owner shall provide verification to the satisfaction of the Public Works Department (in consultation with the Planning Director) that a water meter meeting American Water Works Association (AWWA) standards, and approved by the water company serving the individual property, has been installed or is existing on the connection site. A water meter shall be installed on each legally established residential / commercial	See separate discussion on the water conservation program.	**N/A**

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
unit prior to connection to the wastewater treatment project. Water usage information shall be made available to the sewer authority on a quarterly basis or on a schedule agreed to by the water purveyors and the County to verify the water savings derived from the water conservation program.		
109. **Prior to commencing construction activities at the Giacomazzi site**, the applicant shall submit to the Department of Public Works for review and approval a Roadway Safety Analysis (RSA) for the intersection of the treatment plant access road with Los Osos Valley Road. The RSA shall be prepared by a registered civil engineer with expertise in transportation design and familiarity with the Los Osos Valley Road corridor, and shall include but not be limited to the following: a) Evaluate the proximity of the cemetery access road with the project access road and discuss corrective options including realignment, road mergers (sharing) and alternative project access road locations; b) Analyze the project access road sight distance with respect to Los Osos Valley Road and recommend improvements, if required; c) Analyze Los Osos Valley Road left turn lane warrants and traffic queuing at the project access road and recommend improvements, if required; d) Evaluate Los Osos Valley Road traffic safety a minimum of 1-mile either side of the treatment plant access road and provide recommendations for improvements, if required; e) Evaluate erosion control measures such as gravel pads, rumble strips and wheel washers to avoid the tracking of dirt and sediment onto adjacent private and public roadways during construction, and recommend best management practices to be implement; and	(See also condition #33) The condition requires the County to conduct detailed evaluations of the existing Giacomazzi driveway with a goal towards ensuring safe access. Moving the driveway away from the cemetery driveway is an option. All cultural and biological surveys indicate the realigned driveway would have no significant environmental effects.	**N/A**

County Conditions	Implementation Timing & Intent Comments	CCC 2004 Condition #
f) Evaluate onsite circulation with specific emphasis on truck maneuvering, access for emergency vehicles, onsite parking, and all-weather roadbed materials, provide recommendations and an implementation plan. All RSA recommendations shall be implemented prior to commencing construction activities.		
110. The aboveground facilities for the mid-town pump station shall be re-located to Palisades Avenue (south of the Library) on APN 074-229-017.	This condition will locate the above-ground facilities at Mid-Town (Tri-W) near existing buildings and reduce any visual effects.	**N/A**
111. Routine flushing of sewer system lines shall utilize recycled water. In the event of an emergency situation, potable water may be used to flush the sewer system if non-potable water is determined to be infeasible.	This measure is intended to reduce potable water use by the collection system.	**N/A**

STATE WATER RESOURCES CONTROL BOARD (SWRCB)
DIVISION OF FINANCIAL ASSISTANCE (DIVISION)
May 2008
WATER CONSERVATION REVIEW PROCEDURES

Section IX(C) of *Policy for Implementing the Clean Water State Revolving Fund for Construction of Wastewater Treatment Facilities* (Policy) requires applicants to have an approved Water Conservation Program (Program), or waiver, before the SWRCB issues a preliminary funding commitment. The Program must cover at least 75 percent of the water connections within the service area, must be consistent with local ordinances and authorities, and must be accepted by the Division. The applicant may become a signatory to the *Memorandum of Understanding Regarding Urban Water Conservation in California* (MOU) instead of adopting an independent Program. If the applicant is not the water purveyor for the service area, then the applicant must certify that the water purveyor(s) either has an approved water conservation program or is a signatory to the MOU.

The easiest and best way to implement the Water Conservation Program is to become a signatory to and follow the Best Management Practices (BMPs) listed in the MOU. If signing on the MOU is not feasible, applicants and water purveyors may adopt their own water conservation programs that are specific to their individual water needs. In this situation, a water conservation program must be submitted to the Division for review to determine compliance with the Division's water conservation criteria.

Programs submitted for review should include discussions of the following areas:

- Water Supply and Area Characteristics
- Current Water Conservation Program
- Evaluation of Alternative Measures
- Recommended Water Conservation Program
- Water Shortage Plan

WATER SUPPLY AND AREA CHARACTERISTICS

Water supply and area characteristics should include an estimate of past, current, and projected potable and reclaimed water use. Relate these estimates to demographic users (residential, industrial, irrigation, and landscape) with the estimated percentage of water consumption per user type. The current status of groundwater, surface water, reclaimed water, and purchased water with respect to over all supply, demand, and quality should also be considered. A quantified analysis of the cost per unit volume must be evaluated so that water consumption savings with respect to water conservation mechanisms versus cost savings with respect to production and distribution of potable water can be compared.

CURRENT WATER CONSERVATION PROGRAM

A comprehensive review of the current Water Conservation Program with a description of the various water conservation measures must be included. This review should consist of an explanation of the BMPs used by the applicant, an estimated overall amount of water conserved by the BMP, and an estimated implementation cost of each BMP.

EVALUATION OF ALTERNATIVE MEASURES

An evaluation of alternative measures should consider no less than all BMPs specified in the MOU. An analysis of the applicability, cost effectiveness, potential water savings, public acceptance, non-quantifiable benefits, and ability to implement should be performed on each BMP. Each BMP should be analyzed individually and should contain the most optimum level of implementation with respect to different types of water users (i.e. if it is not effective to provide low flush toilets to all water consumers, would it be effective to replace toilets of the top 10 percent of residential water users?)

If any of the BMPs are determined to not be applicable or implementable, a discussion and justification must be given so that these measures may be waived. An example of justification for waiving BMP #9 would be that commercial and industrial water users do not exist within the water purveyor's distribution area.

The 14 BMPs discussed in the MOU are listed below:

1. Water Survey Programs For Single-Family Residential And Multi-Family Residential Customers
2. Residential Plumbing Retrofit
3. System Water Audits, Leak Detection And Repair
4. Metering With Commodity Rates For All New Connections And Retrofit Of Existing Connections
5. Large Landscape Conservation Programs And Incentives
6. High-Efficiency Clothes Washing Machine Financial Incentive Programs
7. Public Information Programs
8. School Education Programs
9. Conservation Programs For Commercial, Industrial, And Institutional Accounts
10. Wholesale Agency Assistance Programs
11. Retail Conservation Pricing
12. Conservation Coordinator
13. Water Waste Prohibition
14. Residential Ultra-Low Flush Toilet Replacement Programs

A full description of the elements of the BMPs contained in the MOU is available at the California Urban Water Conservation Council: http://www.cuwcc.com.

RECOMMENDED WATER CONSERVATION PROGRAM

The Recommended Water Conservation Program should consist of all BMPs found to be effective after the evaluation process is done. The Program should clearly identify the resources and time required to implement each of the effective BMPs.

WATER SHORTAGE PLAN

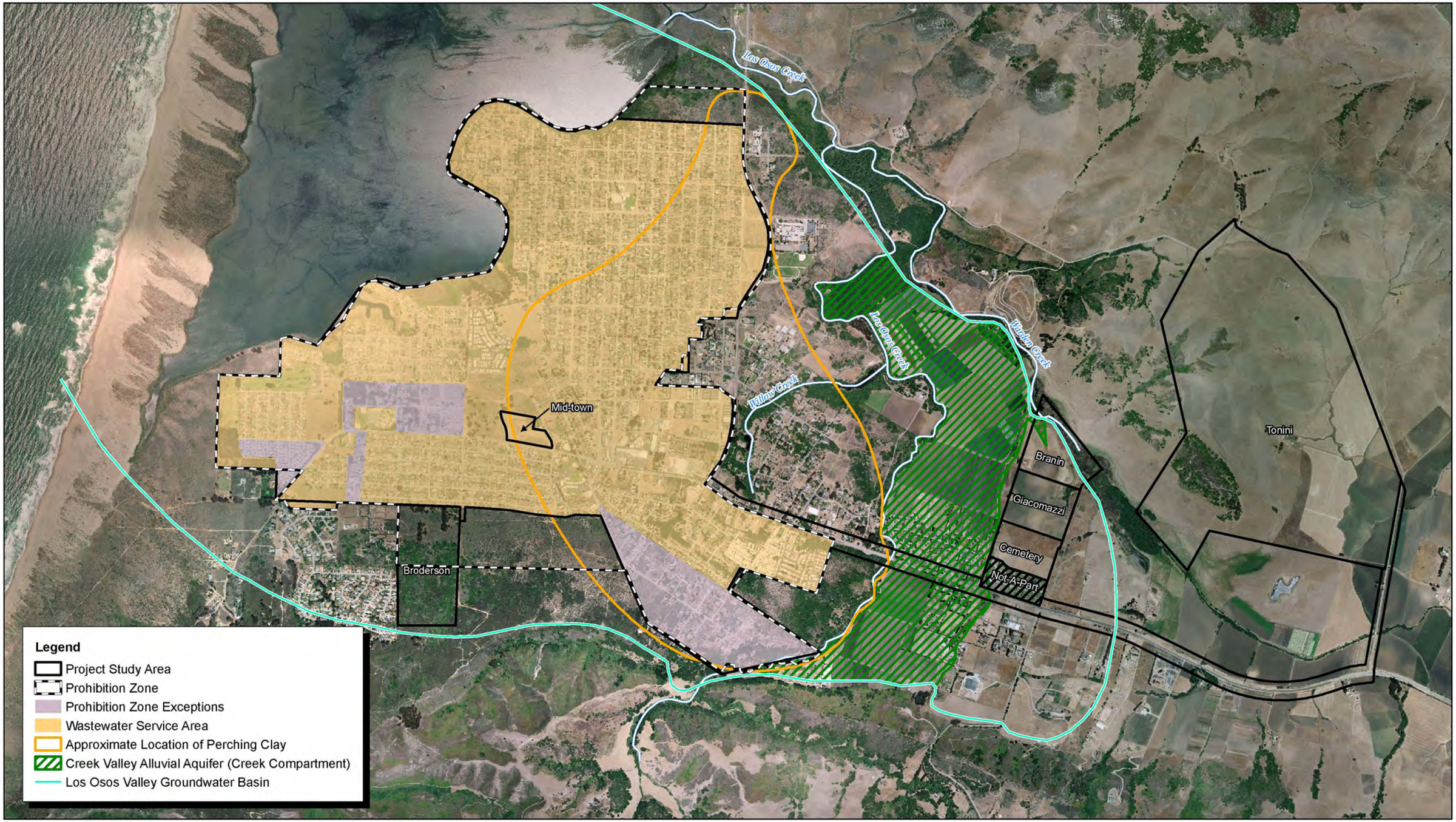
Provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

1. Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.
2. An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

3. Actions to be undertaken by the urban water supplier to prepare for, and implement during a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.
4. Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.
5. Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use reduction consistent with up to a 50 percent reduction in water supply.
6. Penalties or charges for excessive use, where applicable.
7. An analysis of the impacts of each of the actions and conditions described in (a) to (f) above, inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.
8. A draft water shortage contingency resolution or ordinance.
9. A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

OTHER STATE LAW

The Urban Water Management Planning Law, Water Code, Part 2.6, Section 10610 et.seq., requires every urban water supplier to prepare and adopt an Urban Water Management Plan that includes specific elements. Water urban suppliers, either publicly or privately owned, providing water for municipal purpose either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually are subject to this Law. Agencies may submit an Urban Water Management Plan instead of a Water Conservation Program in meeting the water conservation requirement (Section 10653 of the Water Code).



Source: AirPhoto USA, Hopkins Groundwater Consultants, San Luis Obispo County GIS Data, and MBA GIS Data.

NORTH

2,000 1,000 0 2,000 Feet

Michael Brandman Associates

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Exhibit 5.2-1
Los Osos Groundwater Basin

Table 2 Capacity and Area of Reuse/Disposal Sites[1]
Los Osos Wastewater Project Development
San Luis Obispo County

Reuse/Disposal Method and Site	Available Area (acres)	Estimated Capacity per Area AFY/Acre	Capacity (AFY)
Sprayfields (Tonini Ranch)			
With ET[2] and slow-rate percolation	190	4.8	910
ET only	80	3.0	240
Agricultural Reuse (Historical Cropping Patterns)			
West of Los Osos Creek	20	2.0	40
East of Los Osos Creek	210	2.0	420
Agricultural Reuse (Intensive Agriculture for Maximum Effluent Disposal)			
West of Los Osos Creek	20	3.0	60
East of Los Osos Creek	210	3.0	630
Urban Reuse Sites			
Cemetery	20	2.5	50
Wastewater Treatment Plant Site	8[3]	2.5	20
Los Osos Middle School	10	2.5	25
Baywood Elementary School	3	2.5	7
Sunnyside Elementary School	2	2.5	5
Monarch Grove Elementary School	2	2.5	5
South Bay Community Center	2	2.5	5
Sea Pines Golf Course (portion only)	7	2.5	16
Leachfields (Broderson Site)	7	64	448

Notes:
(1) Total 1,290 AFY to be disposed at buildout, including wet weather infiltration rates to a gravity collection system.
(2) ET = Evapotranspiration; some sites have percolation in addition to evapotranspiration.
(3) Estimated.

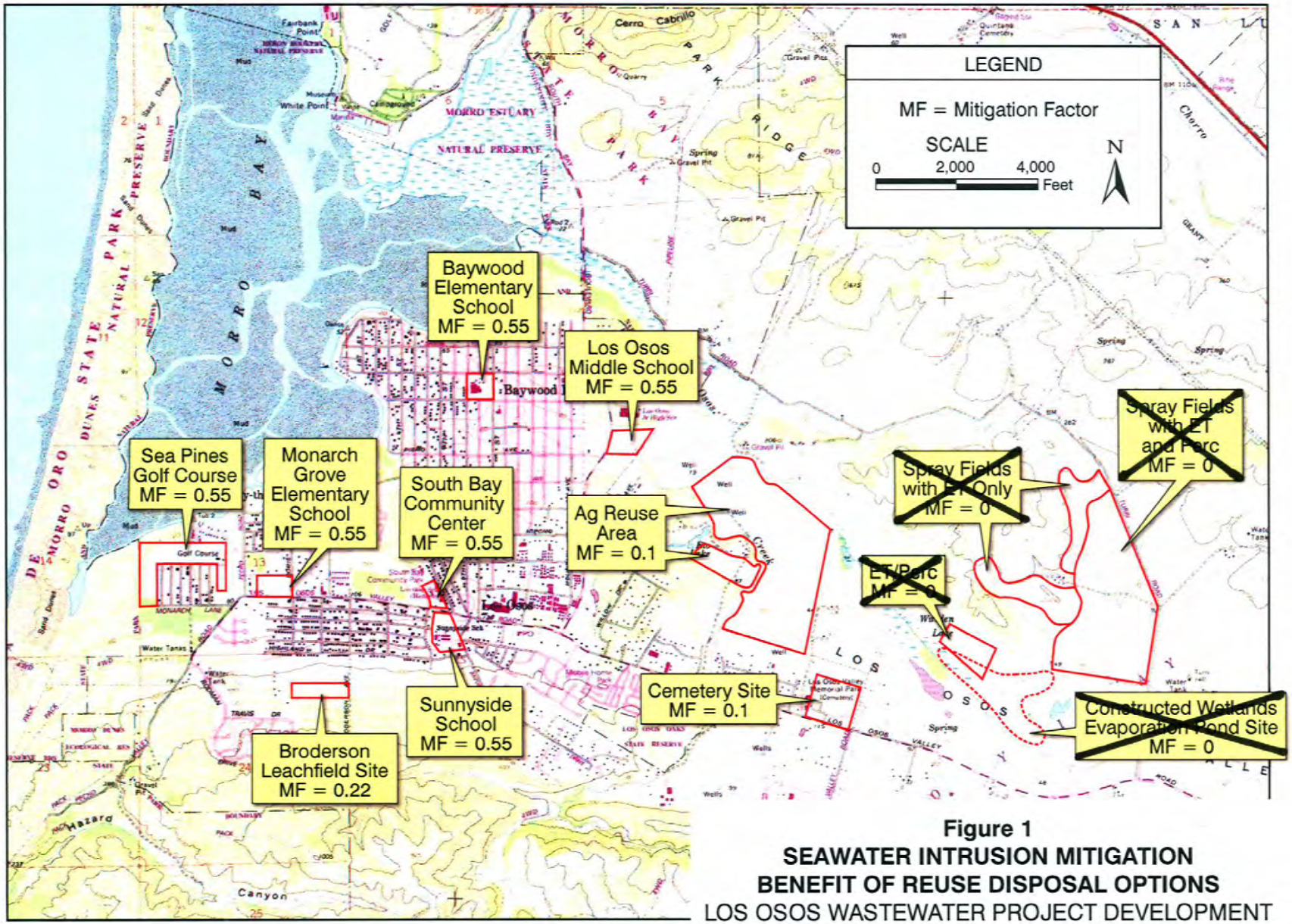

Figure 1
SEAWATER INTRUSION MITIGATION
BENEFIT OF REUSE DISPOSAL OPTIONS
LOS OSOS WASTEWATER PROJECT DEVELOPMENT
SAN LUIS OBISPO COUNTY

slo408f1-7630.ai

23.04.184 - Water Efficient Landscape - Methods. When landscape is required to be provided pursuant to Section 23.04.182, the applicant shall choose one of the following methods to determine and guarantee that the proposed planting will be water efficient.

METHODS	PLANT LIST All plant materials selected from the plant list[1]	PLANT LIST ADJUSTMENT 80%[2] of plant materials selected from plant list	MODIFICATION Plant materials not selected from plant list/Does not qualify for plant list adjustment[3]
LANDSCAPE PLAN (Section 23.04.186d)	Can be prepared by landscape professional[4] or other	Must be prepared by landscape professional[4]	Must be prepared by landscape professional[4]
LEVEL OF REVIEW	Staff review and approval of Landscape Plan	Staff review and approval of Landscape Plan	Minor Use Permit

Notes:

1. All plant materials shall be from the lists maintained by the Department of Planning and Building for the area of the county where the planting is proposed. The applicant shall provide, with the application submittal, a landscape plan that meets the requirements of Section 23.04.186 showing that all the proposed plant materials have been selected from the appropriate plant list(s). The landscape plan may be prepared by the applicant or a landscape professional as defined in Note 4 below. Addition of a specific plant to the plant list(s) may be approved by the Director of Planning and Building upon written request by the applicant.

2. In any case where 80% of the landscape area (as defined in Chapter 23.11 - landscape area) uses plant materials from the plant list, and the remaining 20% of the landscape area shall not include additional turf, an adjustment to the plant list may be granted pursuant to Section 23.01.044 (Adjustment).

3. If the applicant does not choose to use the plant list method or does not qualify for an adjustment as described in Note 2 above, a request for modification of the standard may be granted through Minor Use Permit approval. The applicant shall provide justification for the request through calculations from a landscape professional (see note 4) showing that water conservation techniques will create a water efficient landscape.

4. Licensed landscape architect, licensed architect, licensed landscape contractor, certified nurseryman practicing in San Luis Obispo County, or other qualified individual acceptable to the Director of Planning and Building.

[Amended 1993, Ord. 2649]

~~**23.04.186 - Landscape Plans:** The purpose of a landscape plan is to delineate the outdoor space including site development, earthworks, drainage, planting, irrigation and site details. By detailing the proposed plantings and method of irrigation, a landscape plan provides an effective means for evaluating whether chosen plant~~

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LOS OSOS GROUNDWATER BASIN RETROFIT ORDINANCES

On April 22, 2008, the Board of Supervisors approved two plumbing retrofit ordinances for the Los Osos area. The ordinances address sea water intrusion into the lower aquifer zone of the Los Osos Groundwater Basin. To manage this serious problem, the ordinances require both new and existing development to help address this problem by retrofitting older, non-conserving toilets and showerheads with those that are water efficient. The ordinances will go into effect ***May 22, 2008***.

Click on each link below to see additional information. The verification form and water conservation certificate are in draft form.

Title 19

All new development in Los Osos must retrofit enough existing homes and businesses to save twice the amount of water the new development would use. A retrofit credit table has been developed to calculate the savings of each retrofitted house or business. Water savings will be dependent on the volume of existing toilets. A 6.0 gpf toilet changed to a 1.28 gpf toilet will have more retrofit value than changing a 3.5 gpf toilet to a 1.28 gpf toilet. (5.2 credits versus 3.4 credits per retrofitted house).

- Retrofit Notice
- Retrofit Verification Form
- Retrofit Credit Table
- Title 19 Ordinance (full text)
- How to tell if your toilet is a High Efficiency Toilet (HET)

Before you purchase a replacement toilet, go to the toilet ratings on the California Urban Water Conservation Council's website cuwcc.org/MapTesting.lasso

The Maximum Performance Test (MaP test) contains ratings for hundreds of models of 1.6 gpf and 1.28 gpf toilets. The higher the rating (from 100 to 1,000), the better the toilet.

SAN LUIS OBISPO COUNTY

DEPARTMENT OF PLANNING AND BUILDING

VICTOR HOLANDA, AICP
DIRECTOR

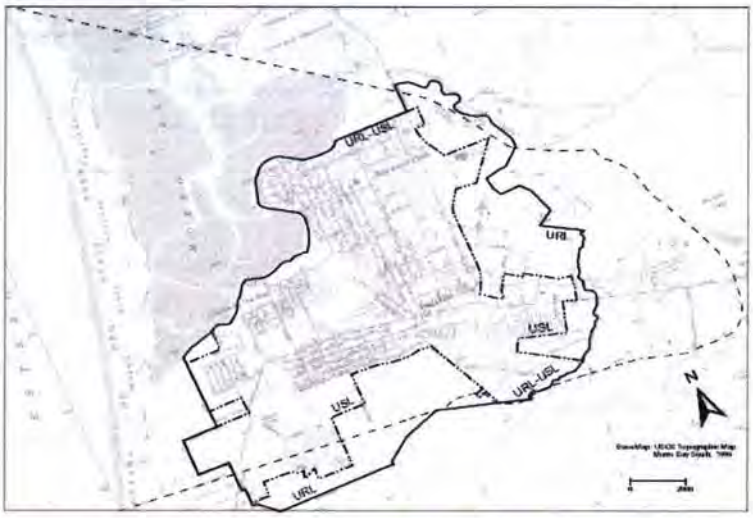
LOS OSOS RETROFIT PROGRAM

Building a house, an addition or a remodel in Los Osos? A plumbing (toilet and showerhead) retrofit program has been enacted in Los Osos effective **MAY 22, 2008**.

You must retrofit enough exiting homes and businesses to offset the amount of water to be used by the new development. A retrofit credit table has been developed so that every builder can see how many credits are available:

Remodels and additions require the structure to be retrofitted with new toilets and showerheads. High Efficiency Toilets (HET) rated at no more than 1.28 gpf and 2.5 gpm showerheads are required to be installed in retrofitted structures. A licensed plumber or contractor must complete and sign the Retrofit Verification Form. That completed form must be submitted to the Building Dept prior to issuance of a building permit for new structures.

Please see the Department website: www.sloplanning.org and go to What's New? There is information regarding this and the Title 8 Retrofit ordinance that requires properties to be retrofitted prior to sale.



Questions? Contact James Caruso (781-5702 or jcaruso@co.slo.ca.us) for more information.

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TITLE 19: RETROFIT VERIFICATION FORM

SAN LUIS OBISPO COUNTY DEPARTMENT OF PLANNING AND BUILDING
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1. Project Address / APN:_____
2. Installation performed by:_____
3. License / Certification #:_____

4. Applicant / Agent:_____
telephone:_____
5. Required Credits:_____
6. Total Credits:_____

Off-site Retrofit Locations:

Address / APN	Use of Structure	Toilet Removed	Showerhead Removed	Toilet Installed	Showerhead Installed	Description / Notes	Credits
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							

LOS OSOS RETROFIT CREDIT TABLE

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Los Osos Plumbing Retrofit Program

RESIDENTIAL

Existing Toilet	Replacement Toilet	Single-Family Residential Gallons Saved Per Day (Credits)	Multi-Family Residential [1] Credits	Mobile Home[2] Credits
6 gallons per flush	1.28 gpf	57	42	28
6 gpf	1.1 gpf	59	44	29
3.5 gpf	1.28 gpf	27	20	13
3.5 gpf	1.1 gpf	29	22	14

[1] Multi-Family Residential (MFR) is 75% of Single-Family Residential Water Use
[2] Mobile Home is 50% of Single-Family Residential Water Use

Existing Shower	Replacement Shower	Single-Family Residential Gallons Saved Per Day (Credits)	Multi-Family Residential [1] Credits	Mobile Home[2] Credits
5 gallons per minute	2.5 gpm	19	14	10
5 gpm	1.5 gpm	26	20	13
2.5 gpm	1.5 gpm	8	15	4

	Gallons Saved Per Day (Credits)
Installation of a Hot Water Recirculation System	17

Total retrofit credits needed for a new single family home is 900 gallons

1. All structures on a parcel must be retrofitted at the same time.
2. A third bathroom in a house does not have to be retrofitted.
3. Replacement toilets must be rated at no more than 1.28 gpf.
4. If two toilets are replaced in one household, the average gallons (credits) saved between the two will be used.

EXHIBIT LRP: 2007-0003:B

ORDINANCE NO._____

AN ORDINANCE AMENDING TITLE 19 OF THE SAN LUIS OBISPO COUNTY CODE, THE BUILDING AND CONSTRUCTION ORDINANCE, BY AMENDING SECTION 19.07.042 RELATING TO WATER CONSERVATION IN THE LOS OSOS GROUNDWATER BASIN AND ADOPT FINDINGS OF FACTS TO SUPPORT THE IMPOSITION OF REQUIREMENTS GREATER THAN ESTABLISHED BY OR PURSUANT TO THE CALIFORNIA BUILDING STANDARDS CODE

WHEREAS, California Health and Safety Code, Sections 18941.5 and 17958.5 authorizes the Board of Supervisors to make modifications or changes to the California Building Standards Code, including adopting more restrictive building standards, as it determines are reasonably necessary because of local climatic, geological, or topographical conditions;

WHEREAS, California Health and Safety Code Section 17958.7 requires the Board of Supervisors to make an express finding that such modifications or changes are reasonably necessary because of local climatic, geological, or topographical conditions;

WHEREAS, the Board of Supervisors finds that each of the changes or modifications to measures referred to herein are reasonably necessary because of local climatic, geological, or topographical conditions in the area encompassed by the boundaries of the County of San Luis Obispo, and the Board of Supervisors further finds that the following findings support the local necessity for the changes or modifications:

FINDING 1

Geological: The County of San Luis Obispo is in an area of high seismic risk. Four active faults are within the county, each capable of generating large, damaging earthquakes. These faults are: the San Andreas Fault, which trends northwest-southeast near the eastern boundary of San Luis Obispo County; the San Simeon Fault, which is part of the larger Hosgri Fault Zone and parallels the coastline in the northern part of San Luis Obispo County; the Los Osos Fault, which parallels the Los Osos Valley a few miles southwest of the city of San Luis Obispo; and the Oceanic Fault, which runs from the city of San Luis Obispo northwest toward the community of Cambria, and was the fault responsible for the Magnitude 6.5 San Simeon earthquake that affected the region in December 2003. In addition, there are several potentially active faults within the county, including the Rinconada Fault, the Huasna Fault, and the Nacimiento Fault Zone. These faults could also produce large earthquakes.

Earthquakes from these faults could produce primary effects such as strong ground shaking or ground rupture, and secondary effects such as liquefaction and landslides. These primary and secondary effects pose a significant hazard to the county's building stock and infrastructure, and to public health and safety. These hazards include strong shaking causing collapse of vulnerable buildings and bridges, ground rupture affecting roads and highways, and liquefaction damaging buildings, pipelines (water, gas, sewage), marine facilities (docks, jetties), railroads, and airports. Fire from broken gas lines and the lack of water from broken water lines could result in major damage. Landslides caused by strong shaking, possibly in combination with wet weather conditions, could block highways and railroads, thereby isolating parts of the county and affecting emergency response. Earthquake-induced landslides could also produce rockfalls that could strike and damage buildings and vehicles. Tsunamis could inundate the coastline. The protection of human life and the preservation of property in the event of such an occurrence support the imposition of fire protection requirements greater than set forth in Sections 903.2, 1505.1.5, and 1505.1.6 of the 2007 California Building Code and Section 230.70 of the 2007 California Electrical Code.

FINDING 2

Topographical: The County of San Luis Obispo has rural areas that are in very high fire hazard areas. Due to varied topography, access to structures in rural areas increases response time and delays fire suppression efforts. An extended response time will allow fires to grow beyond the control of initial attack fire suppression resources. Large structure fires in the hillside areas will have a greater likelihood of starting a wildland fire, which may expose additional structures to fire. The above described problems support the imposition of built-in fire protection requirements greater than those set forth in Sections 903.2, 1505.1.5, and 1505.1.6 of the 2007 California Building Code and Section 230.70 of the 2007 California Electrical Code.

FINDING 3

Climatic: The hot, dry weather in combination with Santa Ana winds frequently results in wildland fires in areas of the County of San Luis Obispo. These conditions create an environment where the entirety of local fire department personnel is required to control, monitor, fight and protect against such fire situations in an effort to protect life and preserve property. The same climatic conditions may result in the concurrent occurrence of one or more fires in the more populated areas of the County without adequate fire department personnel to protect against and control such a situation. Climatic conditions in this jurisdiction have led to groundwater basin overdraft conditions that must be addressed through installation of lower water using fixtures such as toilets. During such periods, limited fire-fighting resources support the imposition of greater fire-protection requirements than set forth in Sections 903.2, 1505.1.5, and 1505.1.6 of the 2007 California Building Code and Section 230.70 of the 2007 California Electrical Code.

WHEREAS, the Board of Supervisors determines that the provisions of the State Building Standards Code are hereby modified, changed and amended, as provided for in this ordinance, and as previously provided in ordinance number 3139 (Chapters 19.01, 19.04, 19.40, and 19.80 and Sections 19.20.002 through 19.20.090, 19.20.150 through 19.20.380, 19.20.126 and 19.90.010 of the San Luis Obispo County Code are hereby repealed and replaced by new Chapters 19.01, 19.02, 19.03, 19.04, 19.05, 19.06, 19.07, 19.40, 19.80, and 19.85 and new Sections 19.20.126 and 19.90.010) based upon the foregoing findings and that said Board takes said action because of the public interest in protecting life and preserving public safety and property.

The Board of Supervisors of the County of San Luis Obispo ordains as follows:

SECTION 1: Section 19.07.042 of the Construction Ordinance, Title 19 of the San Luis Obispo County Code, is hereby amended by revising subsection b as follows:

b. **Existing Structures**. In existing buildings, replacement water fixtures shall conform to the above requirements. In addition, all fixtures in an existing building shall be brought into conformance with these requirements when an alteration of that building meets either of the following criteria, <u>except in the Los Osos Groundwater Basin as described in Subsection e.</u>

(1) A bathroom is added;

(2) The floor areas is increased by twenty per cent (20%) or more

SECTION 2. Section 19.07.042 of the Construction Ordinance, Title 19 of the San Luis Obispo County Code, is hereby amended by adding new subsection e as follows:

d. **Nipomo Mesa Water Conservation Area**. In addition to the requirements in Section 19.07.042, all new installations in the Nipomo Mesa Water Conservation Area shown in Figure 20-1 shall include faucets in all bathrooms and kitchens equipped with automatic shut-off devices. In-lieu of faucets with automatic shut-off devices, a minimum of two high efficiency toilets (1.28 gallons maximum per flush) shall be installed.

<u>**e.**</u> <u>**Los Osos Groundwater Basin**: In addition to the requirements in sections a, b and c above, the requirements in paragraphs (1) through (9) below shall apply to all new development that uses water from the Los Osos Groundwater Basin shown in Figure 20-2.</u>

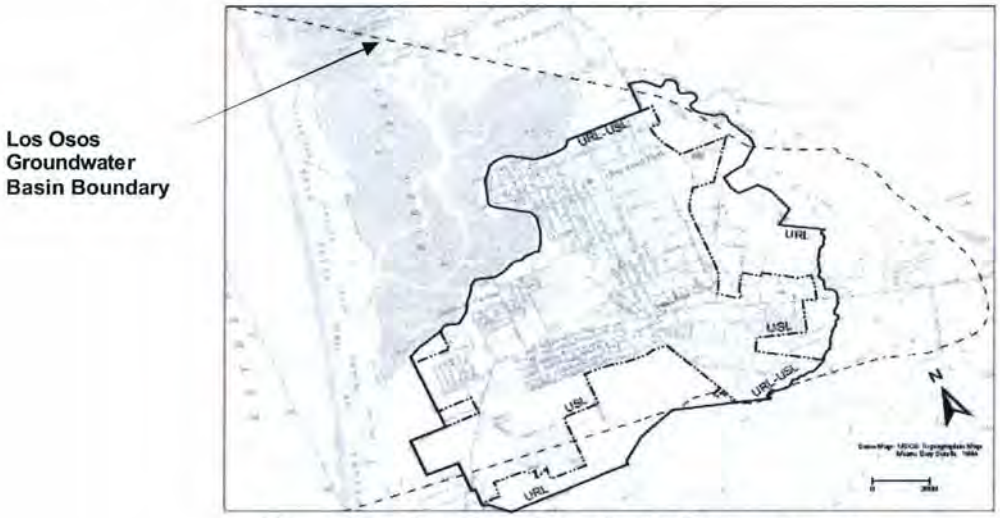

Figure 20-2: Los Osos Groundwater Basin: not to scale

(1) The developer of any new structure that uses water from the Los Osos Groundwater Basin shall install plumbing fixtures that meet the following requirements:

i. Toilets rated at no more than 1.28 gallons per flush (HET);
ii. Showerheads rated at no more than 2.5 gallons per minute;
iii Bathroom sink aerators with a volume of no more than 1.0 gallons per minute;
iv. Hot water circulation systems for master bathrooms and kitchens if the furthest plumbing fixture unit in these rooms is greater than twenty (20) pipe - feet from the hot water heater;
v. Commercial structures shall use waterless urinals;
vi. New residences shall be plumbed for grey-water systems pursuant to Chapter 16 of the Uniform Plumbing Code.

(2) Prior to issuance of a construction permit for a new structure with plumbing fixtures that uses water from the Los Osos Groundwater Basin, the developer of such new structure shall retrofit plumbing fixtures in existing structures within the Los Osos Groundwater Basin. The number and type of plumbing fixtures to be installed shall be as required in the equivalency table as adopted and codified in Appendix A. The equivalency table indicates the point values of existing fixtures which may be retrofitted and the corresponding point requirements for each newly constructed or remodeled structure. A package of proposed retrofits and water conservation requirements must add up to no less than the minimum requirements established in Appendix A.

(3) Any addition of 120 square feet or more to an existing structure that uses water from the Los Osos Groundwater Basin shall require the

replacement of plumbing fixtures in the entire structure with the following types of plumbing fixtures:

i. Toilets rated at no more than 1.28 gallons per flush (HET);
ii. Showerheads rated at no more than 2.5 gallons per minute;
iii Bathroom sink aerators with a volume of no more than 1.0 gallons per minute;
iv. All urinals in commercial structures shall be replaced with waterless urinals.

(4) Any remodel of an existing structure that uses water from the Los Osos Groundwater Basin that requires a construction permit pursuant to this Title, and that includes replacement of plumbing fixtures in the kitchen or any bathroom, shall require the replacement of plumbing fixtures in the entire structure with the following types of plumbing fixtures:

i. Toilets rated at no more than 1.28 gallons per flush (HET);
ii. Showerheads rated at no more than 2.5 gallons per minute;
iii Bathroom sink aerators with a volume of no more than 1.0 gallons per minute;
iv. All urinals in commercial structures shall be replaced with waterless urinals.

(5) The Planning Director (or designee) is authorized to make determinations for fixtures or projects not specifically designated in the equivalency table in Appendix A.

(6) The equivalency table in Appendix A may be amended by the Planning Director from time to time to reflect changes in water use and/or water savings.

(7) Owners of existing structures that are retrofitted under this program shall agree to allow their water purveyors to release water use figures to the Department of Planning and Building in order to gauge the effectiveness of the program to the extent allowed by California Law.

(8) Upon retrofitting of the required number of fixtures, the developer shall submit evidence of the completed retrofits to the Department of Planning and Building. This evidence shall consist of a Retrofit Verification Declaration completed and executed by a licensed plumber and/or contractor. The Retrofit Verification Declaration shall be used for development of a specific property or properties and shall not be transferred to another parcel.

(9) Upon submittal to the San Luis Obispo County Department of Planning and Building of a completed and executed Retrofit

Verification Declaration accompanied by the required fee, the developer shall be issued a Water Conservation Certificate from the Department of Planning and Building. Once the Water Conservation Certificate is issued, the new structure may receive final occupancy approval.

SECTION 3.. The project qualifies for a Categorical Exemption (Class 7) pursuant to CEQA Guidelines Section 15307 because the actions proposed will assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment.

SECTION 4. If any section, subsection, clause, phrase or portion of this ordinance is for any reason held to be invalid or unconstitutional by the decision of a court of competent jurisdiction, such decision shall not affect the validity or constitutionality of the remaining portion of this ordinance. The Board of Supervisors hereby declares that it would have passed this ordinance and each section, subsection, clause, phrase or portion thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, phrases or portions be declared invalid or unconstitutional.

SECTION 5. This ordinance shall take effect and be in full force on and after 30 days from the date of its passage hereof. Before the expiration of 15 days after the adoption of this ordinance, it shall be published once in a newspaper of general circulation published in the County of San Luis Obispo, State of California, together with the names of the members of the Board of Supervisors voting for and against the ordinance.

INTRODUCED at a regular meeting of the Board of Supervisors held on the ____ day of _____, 2008, and PASSED AND ADOPTED by the Board of Supervisors of the County of San Luis Obispo, State of California, on the_____ day of _____, 2008, by the following roll call vote, to wit:

AYES:

NOES:

ABSENT:

ABSTAINING:

_____
Chairman of the Board of Supervisors,

County of San Luis Obispo,
State of California

ATTEST:

_____
County Clerk and Ex-Officio Clerk
of the Board of Supervisors
County of San Luis Obispo, State of California

[SEAL]

ORDINANCE CODE PROVISIONS APPROVED
AS TO FORM AND CODIFICATION:

R. WYATT CASH
Acting County Counsel

By:_____
Deputy County Counsel

Dated: _____

LOS OSOS RETROFIT TOILET PROGRAM

SAN LUIS OBISPO COUNTY DEPARTMENT OF PLANNING AND BUILDING
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HOW CAN YOU TELL A TOILETS' *"GALLONS PER FLUSH"*?

It's fun and easy to check the type of toilets in your house or business. You can see immediately if you have a:

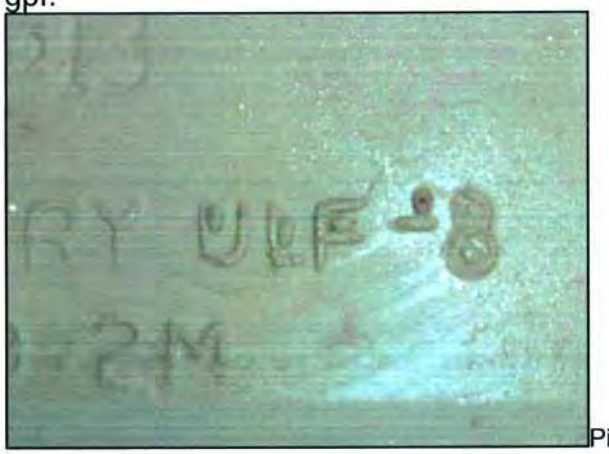
- 6.0 gpf
- 3.5 gpf
- 1.6 gpf

There are only two places to check:

Most 1.6 gallons per flush toilets are stamped on the top of the rim where it meets the tank like on (Picture A).

Picture A

Another way of checking is to take off the tank lid and look on the under side. You may see the letters – ULF – near the manufacture's name (picture B). This stands for - ultra low flow – or 1.6 gpf.



Picture B

What if the toilet doesn't say 1.6 gpf on the top side or the under side of the tank lid doesn't say ULF? In that case, a date (month, day and year) should be on the underside of the tank lid (Picture C):

Picture C

This toilet has a date of August 21, 1992. "Gallons per flush" ratings are based on the year stamped on the toilet lid:

Before January 1, 1980	**6.0 gpf**
Between January 1, 1980 – and January 1, 1994	**3.5 gpf**
After January 1, 1994 –	**1.6 gpf**

The toilet in the picture above is a 3.5 gpf toilet.

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LOS OSOS GROUNDWATER BASIN RETROFIT ORDINANCES

On April 22, 2008, the Board of Supervisors approved two plumbing retrofit ordinances for the Los Osos area. The ordinances address sea water intrusion into the lower aquifer zone of the Los Osos Groundwater Basin. To manage this serious problem, the ordinances require both new and existing development to help address this problem by retrofitting older, non-conserving toilets and showerheads with those that are water efficient. The ordinances will go into effect ***May 22, 2008***.

Click on each link below to see additional information. The verification form and water conservation certificate are in draft form.

Title 8

All properties sold in Los Osos must replace older, high water-using toilets and showerheads with 1.28 or less gallons per flush (gpf) High Efficiency Toilets (HETs) and 2.5 or less gallon per minute (gpm) showerheads. Existing toilets rated at 1.6 gpf are exempt and may remain in the structure. Licensed plumbers and contractors or certified home inspectors may certify that a structure has been retrofitted or has 1.6 gpf toilets and is exempt.

- Retrofit Notice
- Los Osos Retrofit Program
- Home Inspectors, Plumbers Memo
- Retrofit Verification Form
- Title 8 Water Conservation Certificate
- Title 8 Ordinance (full text)
- How to tell if your toilet is a High Efficiency Toilet (HET)

Before you purchase a replacement toilet, go to the toilet ratings on the California Urban Water Conservation Council's website cuwcc.org/MapTesting.lasso

The Maximum Performance Test (MaP test) contains ratings for hundreds of models of 1.6 gpf and 1.28 gpf toilets. The higher the rating (from 100 to 1,000), the better the flushing performance.

SAN LUIS OBISPO COUNTY

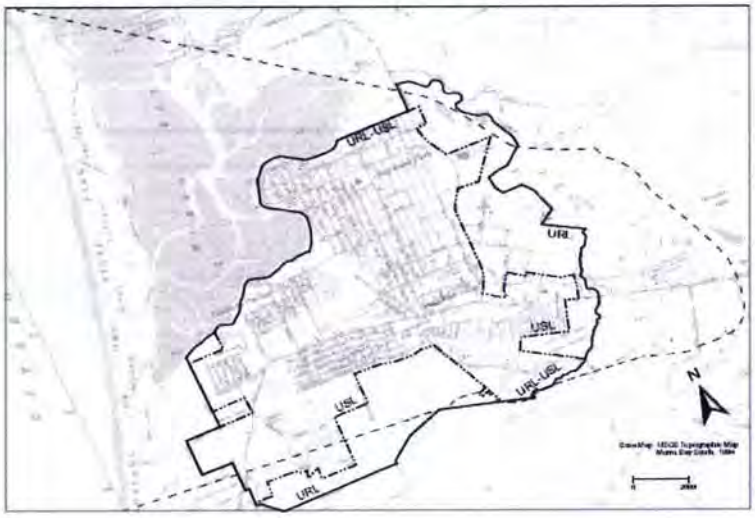
DEPARTMENT OF PLANNING AND BUILDING

VICTOR HOLANDA, AICP
DIRECTOR

LOS OSOS RETROFIT PROGRAM

Selling a house or business in Los Osos? A plumbing (toilet and showerhead) retrofit program is being enacted in Los Osos effective ***MAY 22, 2008***.

Title 8 - Plumbing Retrofits on Existing Homes for Sale
The property seller must remove older, high water-using toilets and showerheads in all of the property's structures and replace them with *1.28 or less gallons per flush toilets and 2.5 or less gallons per minute showerheads*. A licensed plumber, contractor or home inspector must complete a Retrofit Verification Form for submittal to the Planning and Building Department. A *Title 8 Water Conservation Certificate* shall be given to the seller to show compliance with this ordinance.



For additional information, please go to the Planning and Building website: www.sloplanning.org and click on "What's New."

Questions? Contact James Caruso (781-5702 or jcaruso@co.slo.ca.us)

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SAN LUIS OBISPO COUNTY

DEPARTMENT OF PLANNING AND BUILDING

VICTOR HOLANDA, AICP
DIRECTOR

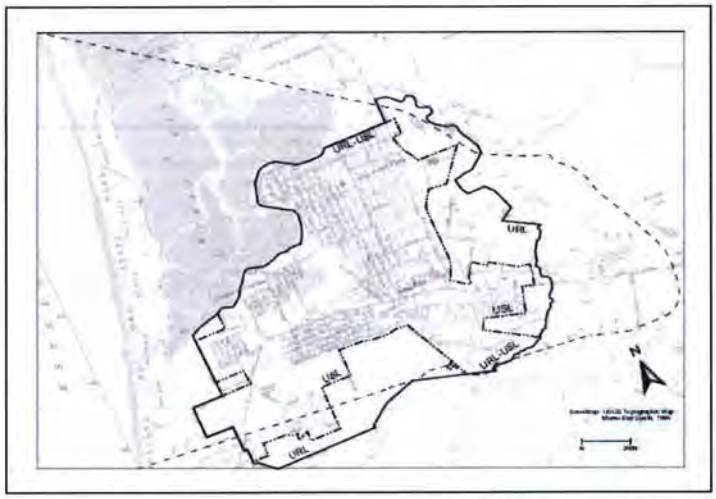
DATE: **MAY 9, 2008**

TO: **HOME INSPECTORS**

FROM: **DEPT OF PLANNING AND BUILDING**

SUBJECT: **LOS OSOS RETROFIT PROGRAM**

The County Board of Supervisors approved a ***retrofit ordinance*** for Los Osos that is effective ***May 22, 2008***. The retrofit ordinance requires replacement of toilets and showerheads in all structures on a lot prior to sale of residential or commercial property. Replacement toilets must be ***1.28 or less gallons per flush and showerheads must be 2.5 or less gallons per minute.*** Toilets that meet the state's existing1.6 gpf standard are exempt from this ordinance. The replacement toilets rated at 1.28 gpf or less are called High Efficiency Toilets or HET's. Dual flush toilets that have two buttons used to flush the toilet also meet this standard.



Home inspectors are authorized to check the type of toilet in structures and to report the results to the Dept on a ***Retrofit Verification Form***. In addition to certified home inspectors, licensed plumbers and building contractors may also signed verification forms.

Home inspectors (or licensed plumbers) must complete the Verification form and the seller can use it to obtain the required ***Title 8 Water Conservation Certificate*** from the Department. This Certificate must be made a part of the documents given to the buyer prior to close of escrow.

It's easy to determine what ***type of toilet*** is in use. Sellers and/or their agents can check the toilets in order to use the home inspectors time efficiently. The home inspector or plumber then just has to complete and sign the Verification form. They are not responsible for the installation.

Please contact James Caruso at jcaruso@co.slo.ca.us or 781-5702 for more information.

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SAN LUIS OBISPO COUNTY
DEPARTMENT OF PLANNING AND BUILDING
VICTOR HOLANDA, AICP
DIRECTOR

Title 8: Retrofit Verification Form

Date: _____

Address: _____ **APN:** _____

Seller: _____ **Agent:** _____

Inspector: _____ **Certification:** _____

Bathroom #1

Existing Toilet Low Flow?	**Yes/No** Circle one	**gpf** _____ (e.g 1.6)	**New Toilet:** _____**gpf**
Existing Showerhead Low Flow?	**Yes/No** Circle one	**gpm** _____ (e.g. 2.5; 5.0)	**New shrhead:**_____**gpm**
Faucet Aerators Present?	**Yes/No** Circle one		
New Aerator Installed?	**Yes/Not applicable** Circle one		

Bathroom #2

Existing Toilet Low Flow?	**Yes/No** Circle one	**gpf** _____ (e.g 1.6)	**New Toilet:**_____**gpf**
Existing Showerhead Low Flow?	**Yes/No** Circle one	**gpm** _____ (e.g. 2.5; 5.0)	**New shrhd:** _____**gpm**
Faucet Aerators Present?	**Yes/No** Circle one		
New Aerator Installed?	**Yes/Not applicable** Circle one		

If used for Title 19 – name of builder/owner and address/APN of site: _____

Certificate #: _____ Staff: _____

COUNTY GOVERNMENT CENTER • SAN LUIS OBISPO • CALIFORNIA 93408 • (805)781-5600
EMAIL: planning @co.slo.ca.us • FAX: (805) 781-1242• WEBSITE: http://www.sloplanning.org

Title 8: Retrofit Upon Sale Certificate

Address:

APN:

Seller: **Phone #:**

Agent: **Phone #:**

Certificate #:
Date:

EXHIBIT LRP2007-0007:B

ORDINANCE NO._____

AN ORDINANCE AMENDING TITLE 8
OF THE SAN LUIS OBISPO COUNTY CODE,
THE HEALTH AND SANITATION ORDINANCE,
BY ADDING CHAPTER 8.91 RELATING TO A
PLUMBING FIXTURE RETROFIT UPON SALE ORDINANCE IN
THE LOS OSOS GROUNDWATER BASIN

The Board of Supervisors of the County of San Luis Obispo, State of California, ordains as follows:

SECTION 1: Chapter 8.91 of the Health and Sanitation Ordinance, Title 8 of the County Code, Retrofit of Plumbing Fixtures Upon Sale in the Los Osos Groundwater Basin, is hereby added as follows:

8.91.010 Purpose.

The Board of Supervisors does hereby find, determine and declare that overall water use in the Los Osos Groundwater Basin has surpassed a sustainable capacity:

1. The consumption of water in the Los Osos Groundwater Basin has resulted in seawater intrusion into the Los Osos Groundwater Basin. In response to this threat to groundwater, the community's only fresh potable water source, the Board of Supervisors has certified a Level of Severity III for the Los Osos Groundwater Basin; this is the highest severity level in the County General Plan's Resource Management System.

2. The purpose of this chapter is to reduce the amount of water being used by residential, commercial and other uses located in the Los Osos Groundwater Basin. Reduction in water use shall be achieved through retrofitting existing plumbing fixtures with low water consumption plumbing fixtures in existing homes, businesses and institutional buildings upon the sale of any such structure that uses water from the Los Osos Groundwater Basin.

8.91.020 Definitions.

The following words and phrases shall, for the purposes of this chapter, be interpreted as follows:

(1) "Residential" means any private structure suited for or characterized by private residences or residential neighborhoods.

(2) "Commercial" means any structure used for the purpose of, or characterized by commercial business.

(3) "Low consumption plumbing fixtures for residential units" include:
   (a) Toilets that are rated at no more than 1.28 gallons per flush (HET);
   (b) Showerheads that do not exceed 2.5 gallons per minute;
   (c) Aerators on all lavatory sinks that do not exceed 1.0 gallons per minute.

(4) "Low consumption plumbing fixtures for commercial units" include:
   (a) Waterless urinals that use 0 gallons per flush;
   (b) Toilets that are rated at no more than 1.28 gallons per flush (HET);
   (c) Showerheads that do not exceed 2.5 gallons per minute;
   (d) Aerators on all lavatory sinks that do not exceed 1.0 gallons per minute.

(5) The Los Osos Groundwater Basin is shown in Figure A as the area within the "Los Osos Groundwater Basin Boundary."

Figure A: Los Osos Groundwater Basin Boundary, not to scale

(7) "Title 8 Water Conservation Certificate" is an acknowledgement from the County of San Luis Obispo Department of Planning and Building that all plumbing fixtures in a structure have been retrofitted in accordance with this Chapter.

(8) "Retrofit Verification Declaration" is provided to the Department of Planning and Building by a licensed plumber or building contractor, or a home inspector certified by the CREIA, ASHI, or ICC. The Declaration shall be in a form provided by the Department. The

completed form is subject to review and approval by the Department prior to issuance of a Title 8 Water Conservation Certificate.

8.91.030 Retrofit upon sale.

Retrofit Requirements Upon Change of Real Property Ownership.

(1) All existing residential, commercial, and other buildings that receive water from the Los Osos Groundwater Basin shall be retrofitted with low consumption plumbing fixtures at or prior to the time of sale. This ordinance shall apply to new escrows or sales agreements initiated after the effective date of this ordinance.

(2) Responsibility of the Seller. The seller shall be responsible for complying with the requirements of this chapter and for obtaining a "Title 8 Water Conservation Certificate" in compliance with Section 8.91.030 prior to the time of sale.

(3) Upon retrofitting of the structure, the seller shall submit evidence of the completed retrofit to the Department of Planning and Building. Such evidence shall consist of a County-provided Retrofit Verification Declaration completed and executed by a licensed plumber, licensed contractor or a home inspector certified by the CREIA, ASHI or ICC. The completed declaration shall be accompanied by any fee adopted by the Board of Supervisors.

(4) Upon submittal of a Retrofit Verification Declaration to the San Luis Obispo County Department of Planning and Building and County approval of the Declaration, the seller shall be issued a "Title 8 Water Conservation Certificate" by the Department of Planning and Building.

(5) The seller shall give written notice to the transferee of the requirements of this chapter prior to the change of ownership. A signed copy of the Title 8 Water Conservation Certificate and a written notice of retrofit requirements shall be included in the transfer documentation.

(6) The seller of a structure that has already been retrofitted with low consumption plumbing fixtures may verify compliance with the Department of Planning and Building and request issuance of a "Title 8 Water Conservation Certificate" by one of the following methods:

(a) Physical inspection of the fixtures by a licensed plumber, licensed building contractor, or a home inspector certified by the CREIA, ASHI or ICC, and submittal of a Retrofit

Verification Declaration to the Department of Planning and Building for review and approval; or

(b) Participation in a water purveyors' plumbing fixture rebate program in which documentation of an inspection demonstrates that the retrofit requirements of this chapter have been satisfied; or

(c) Submittal to the Department of a previously issued Title 8 Water Conservation Certificate for the parcel changing ownership.

(7) Disposing of toilets. All toilets that have been removed from structures must be recycled in a legally established recycling facility to complete compliance, or in the case of 1.6 gallons-per-flush toilets, installed in another residential, commercial or other building outside of the Los Osos Groundwater Basin.

8.91.040 Exemptions.

(1) All existing 1.6 gallon-per-flush toilets shall be exempt from the provisions of this chapter.

(2) The Planning Director may exempt historic facilities from the provisions of this chapter, and impose reasonable conditions in lieu of full compliance herewith. The Director may exempt facilities from the provisions of this chapter when low consumption plumbing fixtures are not available to match a historic architectural style. The Director shall require that sufficient evidence or proof be submitted to substantiate any exemption.

8.91.050 Penalties.

Any seller who violates any provision of this chapter shall be guilty of a misdemeanor pursuant to chapter 1.04.010.

SECTION 2: If any section, subsection, sentence, clause or phrase of this ordinance is for any reason held to be invalid or unconstitutional by the decision of a court of competent jurisdiction, such decision shall not affect the validity or the constitutionality of the remaining portions of this ordinance. The Board of Supervisors hereby declares it would have passed this ordinance and each section, sub-section, sentence, clause or phrase thereof irrespective of the fact that any one or more sections, sub-sections, sentences, clauses, or phrases be declared invalid or unconstitutional.

SECTION 3: This ordinance shall take effect and be in full force and effect thirty (30) days after its adoption. It shall be published with the names of the Board of Supervisors members voting for and against same, once in a newspaper of general circulation published in the County of San Luis Obispo, State of California.

SECTION 4: The project qualifies for a Categorical Exemption (Class 7) pursuant to CEQA Guidelines Section 15307 because the actions proposed will assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment.

Introduced at a regular meeting of the Board of Supervisors held on the _____ day of _____, 2008, and passed and adopted by the Board of Supervisors of the County of San Luis Obispo, State of California, on the ___ day of _____, 2008, by the following roll call vote, to-wit:

AYES:

NOES:

ABSENT:

_____
Chairman of the Board of Supervisors of the County of San Luis Obispo, State ofCalifornia

ATTEST:

_____
County Clerk and Ex-Officio Clerk of the Board of Supervisors, County of San Luis Obispo, State of California

BY: _____

(SEAL)

APPROVED AS TO FORM AND LEGAL EFFECT:

R. WYATT CASH
Acting County Counsel

By: _____
Deputy County Counsel

Dated: _____

LOS OSOS RETROFIT TOILET PROGRAM

SAN LUIS OBISPO COUNTY DEPARTMENT OF PLANNING AND BUILDING
976 OSOS STREET • ROOM 200 • SAN LUIS OBISPO • CALIFORNIA 93408 • (805) 781-5600

Promoting the Wise Use of Land • Helping to Build Great Communities

HOW CAN YOU TELL A TOILETS' *"GALLONS PER FLUSH"*?

It's fun and easy to check the type of toilets in your house or business. You can see immediately if you have a:

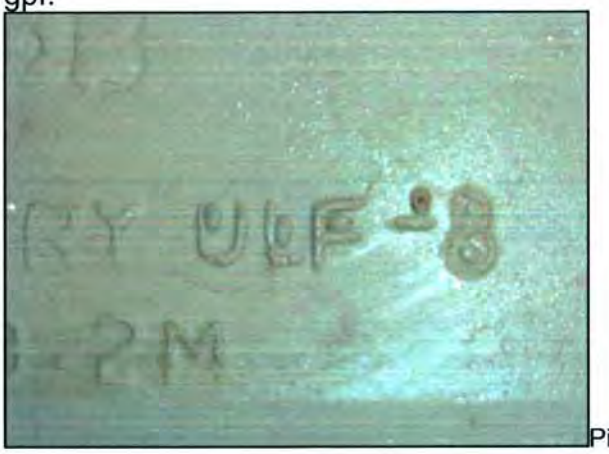
- 6.0 gpf
- 3.5 gpf
- 1.6 gpf

There are only two places to check:

Most 1.6 gallons per flush toilets are stamped on the top of the rim where it meets the tank like on (Picture A).

Picture A

Another way of checking is to take off the tank lid and look on the under side. You may see the letters – ULF – near the manufacture's name (picture B). This stands for - ultra low flow – or 1.6 gpf.



Picture B

What if the toilet doesn't say 1.6 gpf on the top side or the under side of the tank lid doesn't say ULF? In that case, a date (month, day and year) should be on the underside of the tank lid (Picture C):

Picture C

This toilet has a date of August 21, 1992. "Gallons per flush" ratings are based on the year stamped on the toilet lid:

Before January 1, 1980	**6.0 gpf**
Between January 1, 1980 – and January 1, 1994	**3.5 gpf**
After January 1, 1994 –	**1.6 gpf**

The toilet in the picture above is a 3.5 gpf toilet.

ESHA Mitigation

Coastal Commission Staff Comment:

Mitigation It is clear that we need to address the question of mitigation and the outcome for the balance of the Tri-W site (i.e., that portion of the Tri-W site not proposed to be used for pump station development) as part of this project. In particular, we need to be able to more clearly describe and account for the past habitat impacts at Tri-W, the proposed habitat impacts of the project, the proposed mitigation, and proposed restoration mitigation for any impacts at Tri-W not accounted for specifically by the project at the time of decision for the LOWWP. That could mean that this project include restoration/conservation of that area, or it could mean that County/CCC enforcement efforts conclude and account for restoration/conservation of that area, or some combination. The bottom line, though, is that such final outcome needs to be accounted for now. We would appreciate it if the County could initiate a working-conversation with the CSD, whether through the County's option for the Tri-W site or through the County's enforcement powers or otherwise, to address this issue, with the goal being to indicate the manner in which the outcome for the Tri-W site can be resolved now. From your email correspondence earlier today, it sounds like you have developed some options along these lines.

Response:

The attached table and maps illustrate the amount and location of ESHA impacts associated with the Los Osos Community Service's District's Wastewater Facilities Project (LOCSD project) compared to the County of San Luis Obispo's Los Osos Wastewater Project (LOWWP). The maps show that the impacts associated with the LOWWP occur on the same sites as those previously approved for the LOCSD project. However, because the LOWWP locates the treatment plant at an out of town location, the ESHA impacts are reduced by approxiamtely12 acres.

Condition of approval #68 of CDP # A-3-SLO-03-113 (January 19, 2005) required the project to set aside 40 acres of ESHA habitat, preferably the northern portion of the Broderson site. Conditions 74 and 75 of that permit required additional surveys for Morro Bay Kangaroo Rat and Morro Blue Butterfly to determine if additional habitat set asides were required for those species. Surveys/reports completed by the LOCSD in 2004 showed that no additional habitat was required. Therefore, the 2005 CDP required the project to mitigate the loss of ESHA lands at a 2.3:1 ratio (48.56 acres of impacts, 20.73 acres of ESHA mitigation).

As it happens, the project was able to acquire 80 acres of the Broderson site, and ultimately negotiated with the USFWS to set aside 72 acres of that parcel to mitigate for the loss of Morro Shoulderband Snail habitat.

The LOWWP has adopted all of the mitigation efforts of the LOCSD, reduced the impacts to ESHA, and included terrestrial habitat enhancement in the wetland setback area at the Giacomazzi site. These efforts result in the current proposal to mitigate project impacts to 8.75 acres of ESHA by setting aside and enhancing 86.56 acres of habitat, a 9.9:1 ratio. Given that all of the ESHA impacts proposed by the LOWWP fall within the footprint of the LOCSD project, and that the overall amount of ESHA mitigation is increased by 400% over the previous project, it is clear that the LOWWP is not "double-dipping" on mitigation. The LOWWP completes the mitigation proposed by the LOCSD project and adds additional mitigation land.

While the LOWWP clearly provides mitigation land that can be applied to the impacts that have already occurred at the Tri-W site, the balance of the site not needed for the LOWWP needs to be addressed. While portions of the site itself are slowly recovering with the emergence of native vegetation, substantial areas are covered with non-native invasive weeds, and other areas are eroding towards the adjacent Los Osos Valley Road. Therefore, some action to stabilize the site should be taken. At the same time, it is also important that any solutions to the Tri-W site maintain an appropriate nexus to the LOWWP so as not to jeopardize the project approval or endanger any project funding.

<u>Proposal</u>

1. The set-aside and enhancement of 86.56 acres of ESHA habitat at various locations in and around Los Osos is adequate mitigation for the proposed impacts of the LOWWP (8.75 acres, .25 acres at Tri-W) and the past impacts of the LOCSD project (12.23 aces all at Tri-W).

2. To address the public hazard of eroding soils and alleviate the ongoing effects of the proliferation of non-native invasive plant species the County, concurrent with the development of the LOWWP, will develop and implement a stabilization plan for the Tri-W site, for the review and approval of the Executive Director of the Coastal Commission. The stabilization plan will include grading to contours similar to the approved LOCSD project grading plans, and will include revegetation with native plant species. The County will maintain the site until, in the opinion of the Executive Director of the Coastal Commission, it is appropriately stabilized.

3. Any future uses or development proposals at the Tri-W site (APN 074-229-017) will be subject to the applicable requirements of the San Luis Obispo County LCP, including but not limited to the ESHA development

standards listed at 23.07.170 et sec. Findings supporting the requirement at 23.07.170(e)(1) that the development is the least environmentally damaging feasible alternative must be made irrespective of the fact that mitigation for direct impacts to ESHA on the Tri-W site shall be considered to have been mitigated by the implementation and successful completion of the off-site mitigation proposed by the LOWWP. This measure shall apply only so long as generally held professional opinions regarding the functions and values of ESHA lands within the Los Osos Urban Reserve Line remain consistent with those held at the time of approval of this project.

The application of measures 1-3 above would fully mitigate for the ESHA impacts created by the aborted LOCSD project, solve the physical issues at the Tri-W site, maintain an appropriate nexus with the current LOWWP proposal, and eliminate the need for the County or the Coastal Commission to initiate enforcement actions against the LOCSD. Measure #3 specifies that although ESHA at Tri-W has been accomplished essentially through a mitigation bank approach, any future development at Tri-W must still meet all standards for development within or adjacent to ESHA lands, including the finding that there is no feasible less damaging alternative. Acknowledging the mitigation status of the Tri-W site ensures that the community will not be required to mitigate twice for the same impacts on the site.

However, these measures would not be binding on any other regulatory agency, in particular the United States Fish and Wildlife Service. The County, through the section 7 ESA consultation process initiated by the USDA, will need to seek agreement that this approach is acceptable and can be incorporated in the formal consultation process.

Attachments:

- Los Osos ESHA Mitigation Requirements Table
- Los Osos Wastewater Project, San Luis Obispo County, ESHA Impacts and Mitigation Map
- Wastewater Facilities Project, Los Osos CSD, ESHA Impacts and Mitigation Map
- Current Tri-W Site photos

Los Osos ESHA Mitigation Requirements
2005 LOCSD Project Compared to 2110 LOWWP

Facility		Location	ESHA Impact & Mitigation Area (Acres)			
			LOCSD		LOWWP	
			Impact	Mitigation	Impact	Mitigation
1	Sunny Oaks Pump Station	LOVR @ Sunny Oaks	.10	.12	.10	.12
2	Mountain View Pump Station	Mtn View @ Santa Ynez	0	0	0	0
3	East Paso Pump Station	Paso Robles @ 18th	.11	.08	.11	.08
4	East Ysabel Pump Station	Santa Ysabel @ SBB	.12	.20	.12	.20
5	Solano Pump Station	Solano @ Butte	.10	.12	.10	.12
6	Lupine Pump Station	Lupine @ Donna	.05	.04	.05	.04
7	West Paso Pump Station	Paso Robles @ Third	.02	0	.02	0
8	Baywood Pump Station	Second @ El Moro	0	0	0	0
9	LOCSD Treatment Plant LOWWP Pump Station	LOVR @ Palisades/Ravenna	12.23	0	.25	0
10	Broderson Leach Field	Broderson Site	8	48	8	80
11	LOWWP Treatment Plant	Giacomazzi Site	0	0	0	6
TOTAL ESHA Impacts and Mitigation			**20.73**	**48.56**	**8.75**	**86.56**

Notes:

1. All ESHA mitigation comprised of enhancements to existing ESHA
2. Mid-Town/Tri-W mitigation is at the Broderson site

2005 LOCSD Project Compared to 2110 LOWWP

	Facility	Location	LOWWP Impact	LOWWP Mitigation
1	Sunny Oaks Pump Station	LOVR @ Sunny Oaks	0.10	0.12
2	Mountain View Pump Station	Mtn View @ Santa Ynez	0.00	0.00
3	East Paso Pump Station	Paso Robles @ 18th	0.11	0.08
4	East Ysabel Pump Station	Santa Ysabel @ SBB	0.12	0.20
5	Solano Pump Station	Solano @ Butte	0.10	0.12
6	Lupine Pump Station	Lupine @ Donna	0.05	0.04
7	West Paso Pump Station	Paso Robles @ Third	0.02	0.00
8	Baywood Pump Station	Second @ El Moro	0.00	0.00
9	LOCSD Treatment Plant LOWWP Pump Station	LOVR @ Palisades/Ravenna	0.25	0.00
10	Broderson Leach Field	Broderson Site	8.00	80.00
11	LOWWP Treatment Plant	Giacomazzi Site	0.00	6.00
	TOTAL ESHA Impacts and Mitigation		**8.75**	**86.56**

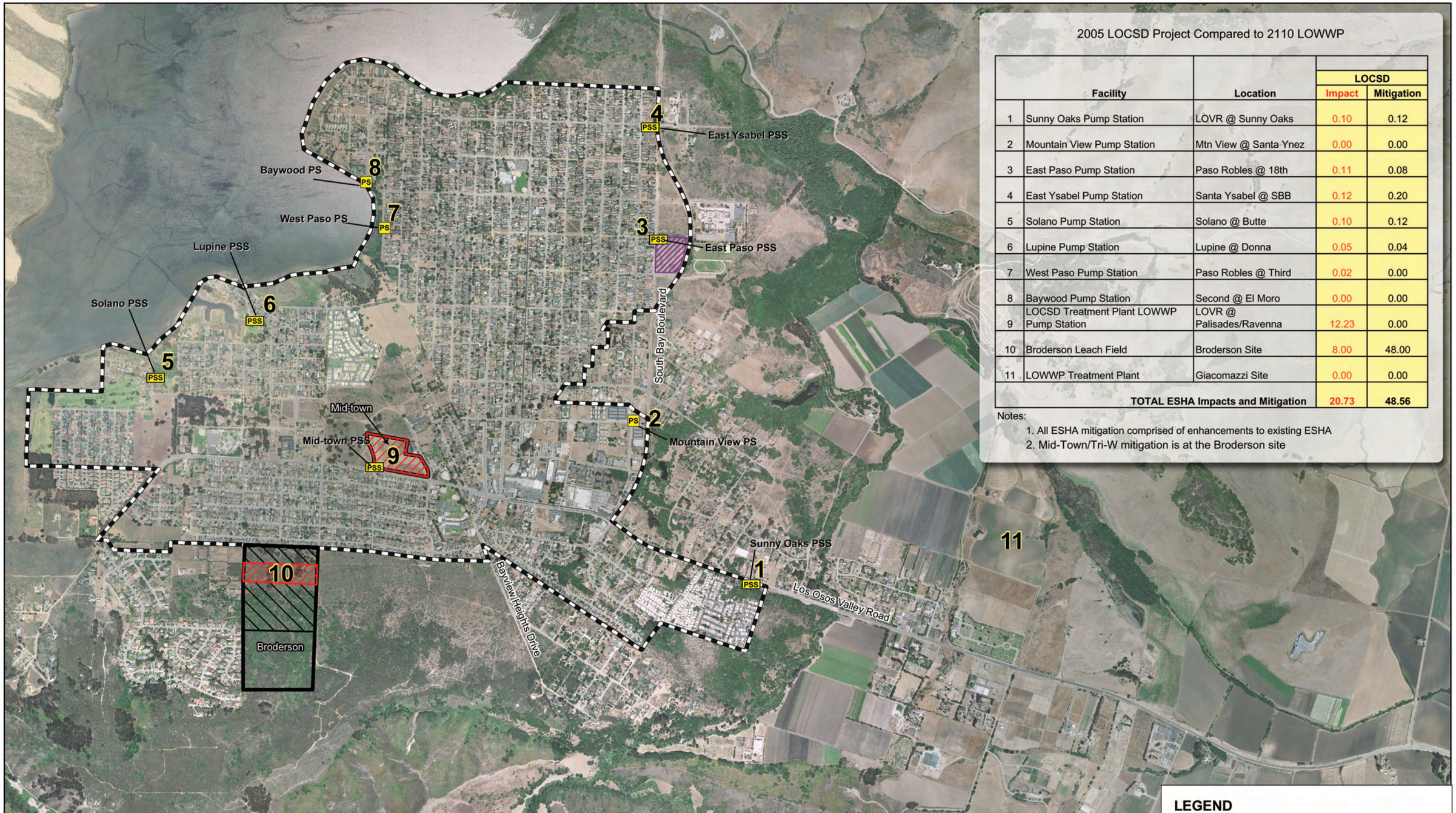
Notes:
1. All ESHA mitigation comprised of enhancements to existing ESHA
2. Mid-Town/Tri-W mitigation is at the Broderson site

Source: 2007 Digital Globe aerials, San Luis Obispo County GIS Data, Carollo Engineers, and MBA GIS Data.

N

2,000 1,000 0 2,000
Feet

Los Osos Wastewater Project, San Luis Obispo County
ESHA Impacts and Mitigation



2005 LOCSD Project Compared to 2110 LOWWP

	Facility	Location	LOCSD Impact	LOCSD Mitigation
1	Sunny Oaks Pump Station	LOVR @ Sunny Oaks	0.10	0.12
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4	East Ysabel Pump Station	Santa Ysabel @ SBB	0.12	0.20
5	Solano Pump Station	Solano @ Butte	0.10	0.12
6	Lupine Pump Station	Lupine @ Donna	0.05	0.04
7	West Paso Pump Station	Paso Robles @ Third	0.02	0.00
8	Baywood Pump Station	Second @ El Moro	0.00	0.00
9	LOCSD Treatment Plant LOWWP Pump Station	LOVR @ Palisades/Ravenna	12.23	0.00
10	Broderson Leach Field	Broderson Site	8.00	48.00
11	LOWWP Treatment Plant	Giacomazzi Site	0.00	0.00
	TOTAL ESHA Impacts and Mitigation		**20.73**	**48.56**

Notes:

1. All ESHA mitigation comprised of enhancements to existing ESHA
2. Mid-Town/Tri-W mitigation is at the Broderson site

Source: 2007 Digital Globe aerials, San Luis Obispo County GIS Data, Carollo Engineers, and MBA GIS Data.

Los Osos Wastewater Project, Los Osos Community Service District
ESHA Impacts and Mitigation

2,000 1,000 0 2,000
Feet

LEGEND

- PSS Pump Station with On-Site Standby Power Building
- PS Pump Station with Remote Standby Power Building
- Service Area
- Construction Staging Area
- ESHA Impact Area
- ESHA Mitigation Area

Tri-W (Mid Town). View west from Palisades Avenue. 02/03/10

Tri-W (Mid Town) View southwest across site. 02/03/10

Tri-W (Mid Town) View south across site. 02/03/10

Tri-W (Mid Town) View east at erosion approaching Los Osos Valley Road. 02/03/10

Tri-W (Mid Town). Terminus of drainage at northwest site corner.
Note no flow of water or sediment off the site. 02/03/10

Tri-W (Mid Town). View south of drainage on west side of site
bypassing water and sediment. 02/03/10

SAN LUIS OBISPO COUNTY
DEPARTMENT OF PUBLIC WORKS
Paavo Ogren, Director

County Government Center, Room 207 • San Luis Obispo, CA 93408 • (805) 781-5252
Fax (805) 781-1229 email address: pwd@co.slo.ca.us

January 27, 2010

Jonna Engel
California Coastal Commission
89 S. California Street, Suite 200
Ventura, CA 93001-2801

Subject: Wetland Delineation Materials for the Los Osos Wastewater Project

Dear Ms. Engel:

Pursuant to a request by Dan Carl of your Santa Cruz office, enclosed are the wetland delineation materials prepared for San Luis Obispo County's Los Osos Wastewater Project.

These materials consist of the following:

1. Overall Project Site Plan, Los Osos Wastewater Project 2010.
2. Treatment Plant Site Plan, Los Osos Wastewater Project 2010.
3. Delineation of Jurisdictional Waters and Wetlands for the Los Osos Wastewater Project, Attachment G of Appendix G of the Los Osos Wastewater Project Environmental Impact Report, Michal Brandman Associates November 14, 2008.
4. Los Osos Wastewater Disposal Project Lupine Street Pump Station Los Osos, California Wetland Delineation Report, Morro Group June 14, 2004.
5. Los Osos Wastewater Disposal Project Treatment Plant Area Los Osos, California Wetland Delineation Report, Morro Group September 8, 2004 (Includes Potential Wetlands Constraints mapping).
6. Los Osos Wastewater Disposal Project Treatment Plant Area Los Osos, California Wetland Delineation Report, Morro Group August 9, 2004.
7. Los Osos Wastewater Disposal Project 4th Street at Pismo Avenue Area Los Osos, California Wetland Delineation Report, Morro Group June 7, 2005.
8. 7th Through 13th Streets Pump Station Wetland Boundary Determination, Morro Group July 1, 2004.

Please note that these materials consist of wetland delineations prepared for the Los Osos Community Service's District's Wastewater Facilities Project in 2004/2005 along with

additional work prepared for the County's current Los Osos Wastewater Project. Work for the previous (2005) project was focused on areas within the urban reserve line of Los Osos. The County's current project efforts maintain the same collection system as the previous project, but evaluate out of town treatment plant sites.

Therefore, in order to produce the new EIR, the consultant's reviewed the 2004/2005 wetland work for current applicability, and performed new work for the new alternative sites. Our review of the 2004/2005 work found that conditions relative to wetland boundaries changed slightly at two locations: near the Lupine pump station at Donna/Lupine Streets, and near the East Paso pump station at Paso Robles/18th Street. While the project still meets the required setbacks (75 feet in the urban area per the LCP) we crafted condition 3 of the County issued CDP to ensure that the final project is modified if conditions change further before construction:

> 3. All development shall be consistent with the conditions contained herein. Prior to final design / layout of the East Paso Robles Avenue pump station and the Doris Avenue / Lupine Street pump station, the applicant shall provide verification to the satisfaction of the Planning Director, that the required 75 foot wetland setback will be met with the redesign / layout of said pump stations.

You will find extensive field work for the "Tonini" site east of Los Osos. Please be aware that the EIR performed a co-equal analysis of four project alternatives. However, in the final analysis, the proposed project has no facilities located on the Tonini site, or on the section of Turri Road leading to that site.

Also note that while the consultant's 2008 work produced delineation maps specific to the Corps of Engineers, Department of Fish and Game, and Regional Water Quality Control Board, for reasons that remain unclear they did not produce a coastal wetlands map. Consequently, our subsequent wetland setback map for the local CDP (Treatment Plant Site Plan) relied upon the field data sheets to properly locate coastal wetlands on the treatment plant site.

Thank you for you time and attention to this project. Please contact me a week or so ahead of any field visits to the Giacomazzi (treatment plant) site so that we may arrange access with the property owner. If you have any questions or need additional information from us, please feel free to contact me at (805) 781-5458.

Sincerely,

MARK HUTCHINSON
Environmental Programs Manager

c: Dan Carl, CA Coastal Commission (w/attachments)
Jonathan Bishop, CA Coastal Commission

File: LOWWP 300337.03 L:\Environmental\JAN10\Wetland info trans letter 01.27.10.doc.MH:mac

email

Date: January 26, 2010
From: Dan Carl, California Coastal Commission
To: Mark Hutchinson, San Luis Obispo County
Subject: Los Osos

We have discussed internally, and have identified a number of tasks on which we need County assistance in order to address our Commission's concerns in the *de novo* permit review of the LOWWP. In particular, we have identified at least seven specific issues discussed by our Commission at the end of the hearing (as opposed to the four you have listed). We also note that while our lists are similar, the emphasis/expectation for how to address them appears to be a little different. To us it is clear that some of these things are multi-faceted and will probably not lend themselves to a 'one-item' response. And there are almost certainly going to be other things that come up in the course of addressing these things and the project under *de novo* overall that we'll need to address as they are fleshed out. That means that some of this is by necessity going to have to be iterative. Toward that end, we very much appreciate the offer of assistance in developing materials and supplemental analyses to help us address the various issues. To get started down that path, here are requests for assistance and/or next steps on the items that we identified thus far.

1. **Wetland delineation.** Please package a complete set of materials that include all wetland delineation reports for the project and send them to Jonna Engel in our Ventura office (89 S. California Street, Suite 200, Ventura, CA, 93001-2801). Please don't direct her to website links, but rather please provide her with actual documents. Please send a copy of the package to us in Santa Cruz. Please also obtain permission for CCC staff to enter onto private property to assess potential wetland areas. We will coordinate on field work dates once Jonna has had a chance to get into the documentation.

2. **Mitigation.** It is clear that we need to address the question of mitigation and the outcome for the balance of the Tri-W site (i.e., that portion of the Tri-W site not proposed to be used for pump station development) as part of this project. In particular, we need to be able to more clearly describe and account for the past habitat impacts at Tri-W, the proposed habitat impacts of the project, the proposed mitigation, and proposed restoration mitigation for any impacts at Tri-W not accounted for specifically by the project at the time of decision for the LOWWP. That could mean that this project include restoration/conservation of that area, or it could mean that County/CCC enforcement efforts conclude and account for restoration/conservation of that area, or some combination. The bottom line, though, is that such final outcome needs to be accounted for now. We would appreciate it if the County could initiate a working-conversation with the CSD, whether through the County's option for the Tri-W site or through the County's enforcement powers or otherwise, to address this issue, with the goal being to indicate the manner in which the outcome for the Tri-W site can be resolved now. From your email correspondence earlier today, it sounds like you have developed some options along these lines.

3. **Implementation specificity and timing.** We will be reviewing the County conditions as well as other project components with an eye towards refining implementation specificity, including in relation to deadlines. We appreciate your offer regarding identifying your timeline for water conservation elements in this respect, but would ask that you broaden that scope in relation to other aspects of the project as well, including implementation of the agricultural reuse and conservation plan. To us, this issue was clearly one of a need to hone in on what the County was going to do, how and when, and making sure these commitments made sense in relation to timing feasibility and potential adaptive management over time. That applies to the water conservation components but also to other project components, like agricultural reuse, as well. Any information you can provide on expected project timing and implementation specificity would be helpful in this regard, whether you want to develop a new product that summarizes this information or want to point us to existing information (e.g., EIR, County findings, etc.) or both.

4. **Willow Creek.** The contention is that the project results in an unaddressed and unmitigated 400 afy reduction in flow to Willow Creek to the detriment of creek. We understand that the Bayridge leach field would be used to put back 33 afy as part of the project, and that the County apparently found that this 33 afy would be an equal offset to existing septic flows, but we would like a clearer explanation as to why the County found this to be the case, and how project flows will affect Willow Creek resources. Please provide an analysis with supporting documentation (again, new product and/or direction to information).

5. **Hydrogeologic impacts.** Similar to the Willow Creek issue (see above) but on a broader scale, the Commission was concerned that there was a lack of impact identification and mitigation associated with the manner in which the project is going to alter groundwater flows, including with respect to adaptive management, over time. Although we all realize that at a broad scale the project concept is to enhance marine and groundwater resources (and associated resources, like wetlands, streams, riparian areas, etc.), the concern is that there is not enough specificity with respect to the manner in which this is to occur, when it is to occur, how it is to occur, and what contingencies are in place should certain features not work as well as planned and/or should certain components lead to adverse impacts (e.g. monitoring of Broderson disposal). It could be that the County intends the Groundwater Plan (condition 87) and related measures (i.e., condition 97) to be the vehicle for addressing this issue, but it appears clear that the Commission is looking for greater specificity than that vehicle, including in terms of identifying specific impacts and specific response now as part of the approval of the project to the degree possible. Please package together an analysis of this issue that includes a clear identification of existing and proposed flows, impacts and mitigations associated with changed flows, and a ‘balance sheet’ documenting benefits as well as adverse impacts and responses. Please send a copy of the materials to Mark Johnsson in our San Francisco office (45 Fremont Street, Suite 2000, San Francisco, CA 94105-2219) and a copy to us in Santa Cruz. Ultimately, we should work on identifying a specific, enforceable plan that ensures resources are protected

as much as possible as the project modifies flows over time, and ideally the bulk of such plan could be packaged together now.

6. **Staging area on ESHA.** The contention is that the County intends to use a staging area that is in ESHA, and that the County has already begun to clear and ready the site for the project without benefit of a CDP. Please package a set of materials specific to construction methodologies in relation to staging and materials storage areas. For all such areas, please provide details on their current state and any development associated with the project that has already occurred there.

7. **Septic tank plan.** The Commission raised concerns that there was inadequate specificity with respect to the ultimate disposition of the approximately 5,000 septic tanks currently in operation in the project area. Clearly, the County commits to assisting private landowners to reuse such tanks to optimize groundwater recharge (condition 88), but it appears possible that this may not happen as part of the project at all. Please identify a plan that identifies specifically what will happen to existing septic tanks in this respect, how and when. If there are multiple possible outcomes based on site specific criteria, please identify all such criteria.

As indicated at the onset, this isn't necessarily an exhaustive list, but it should get us started down the path toward the finish line. On that please note two things. First, it is unclear when this project will again be scheduled for a hearing. It will obviously take some time to package, review, analyze, conclude, and develop a recommendation for these and related issues. We will do our best with our limited staff to move quickly, but it is clear that much of the timely success of this next stage will be dependent on timely materials assistance from the County, as indicated above. Even optimistically, it seems likely that we are looking at a hearing at least several months away, and potentially longer. Second, we are prepared to discuss ways we could help to communicate with potential funding entities in such a way as to help the County with preserving and pursuing funding opportunities (e.g., staff recommendation letter; closing the federal consistency loop on funding; etc.).

I hope that this helps to detail next steps. Please contact me if you'd like to spend some time fleshing this out or if you have questions otherwise. As you indicate, we could do a conference call with appropriate persons too if that makes sense. Thanks…

Dan

February 16, 2010

Dan Carl
California Coastal Commission
725 Front Street Suite 300
Santa Cruz, CA 95060

Subject: CDP Materials for the Los Osos Wastewater Project

Dear Mr. Carl,

Enclosed with this letter are two sets of materials responding to the following items from your January 26, 2010 email requesting additional information on the Los Osos Wastewater Project. Please note that we are continuing to work on providing information to items 5 (Willow Creek), 6 (Hydrogeologic Impacts, and 7 (septic tank plan).

1. January 26, 2010 email from Dan Cark to Mark Hutchinson identifying County assistance tasks

2. Copy of January 27, 2010 Wetlands Information transmittal letter, previously sent under separate cover

3. ESHA Mitigation response with attachments:

    - Los Osos ESHA Mitigation Requirements Table
    - Los Osos Wastewater Project, San Luis Obispo County, ESHA Impacts and Mitigation Map
    - Wastewater Facilities Project, Los Osos CSD, ESHA Impacts and Mitigation Map
    - Current Tri-W Site photos

4. Implementation Timing/ Water Conservation Program response with attachments:

    - Implementation and Timing of Conditions of Approval Table
    - SRF Program Water Conservation Requirements
    - Groundwater Basin Map
    - Effluent Re-Use and Disposal Tech Memo, July 2008 (part)
    - Coastal Zone Land Use Ordinance Section 23.04.184 (Water Efficient Landscape Ordinance)
    - Los Osos Groundwater Basin Retrofit Ordinances:
        - Title 19
        - Title 8

5. Staging Areas on ESHA response with attachments:

    - Walker Aerial photos from 2003
    - Walker Aerial photos from 2007
    - Site photos from 2010

If you have any questions or need more information regarding these topics please feel free to contact me.

Sincerely,

MARK HUTCHINSON
Environmental Programs Manager

C: Paavo Ogren, Director of Public Works
John Waddell, Project Manager

MORRO GROUP, INC.
Environmental Services

Transmittal Letter

July 1, 2004

Mr. Dave Moran
Crawford Multari Clark Associates
641 Higuera Street, Suite 302
San Luis Obispo, CA 93401

SUBJECT: *7th Through 13th Streets Pump Station Wetland Boundary Determination*

Dave,

A hard copy and a CD of the 7th through 13th Streets Pump Station Wetland Boundary Determination are attached for your use. We have added the new information to the previously collected wetland data, using the same format. Please call me if you have any questions.

Sincerely,

MORRO GROUP, INC.

Robert Sloan
Resource Specialist

1 CD/Disk **Submitted for** Your Use

Pick Up

1422 MONTEREY STREET, SUITE C200 •SAN LUIS OBISPO, CA 93401 • (805) 543-7095 • FAX 543-2367

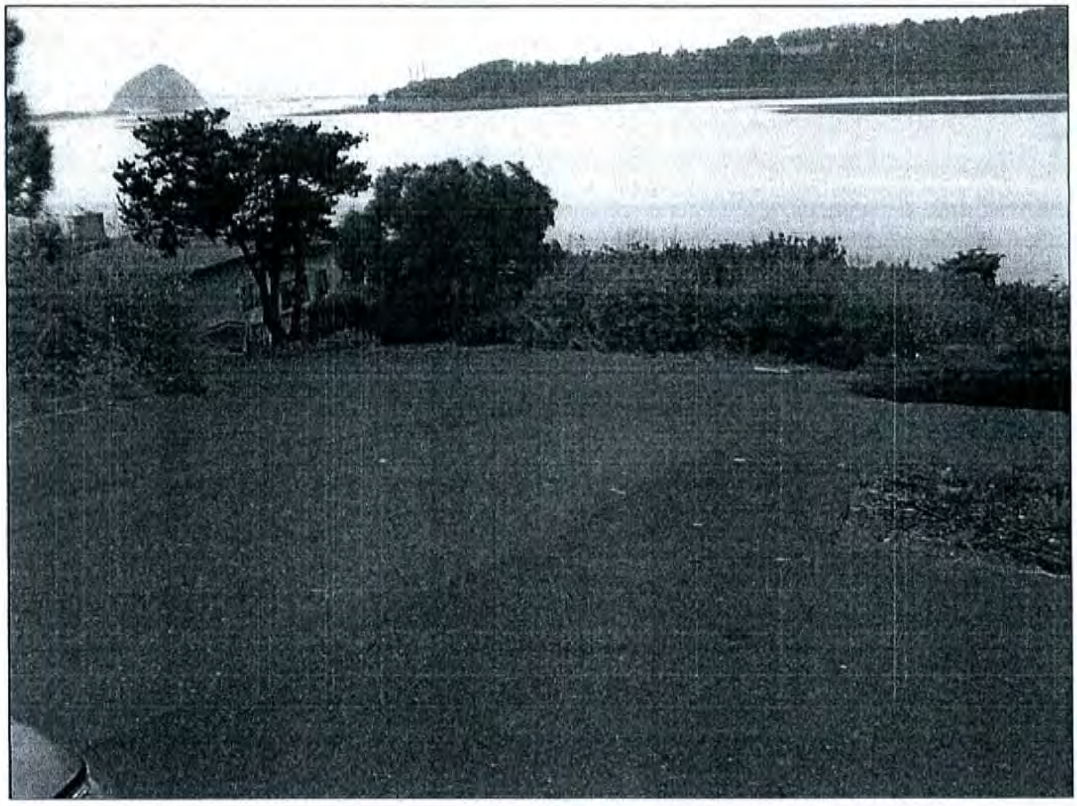


Photo M:

Viewing north toward the end of 7th Street. Pump station location is at end of pavement approximately 100 feet from willow canopy along edge of Bay.

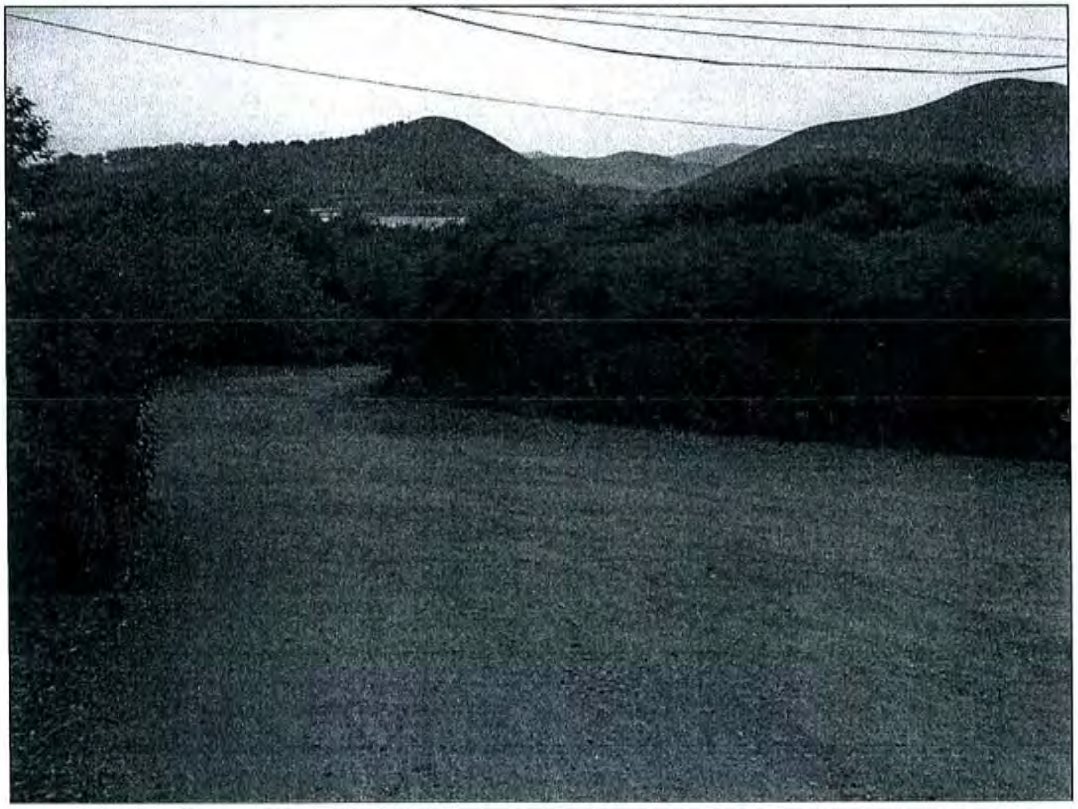


Photo N:

Viewing north toward the end of 8h Street. Pump station location is in oak area in foreground, approximately 65 feet from willow canopy along edge of Bay.

PHOTO DOCUMENTATION – SITE 7

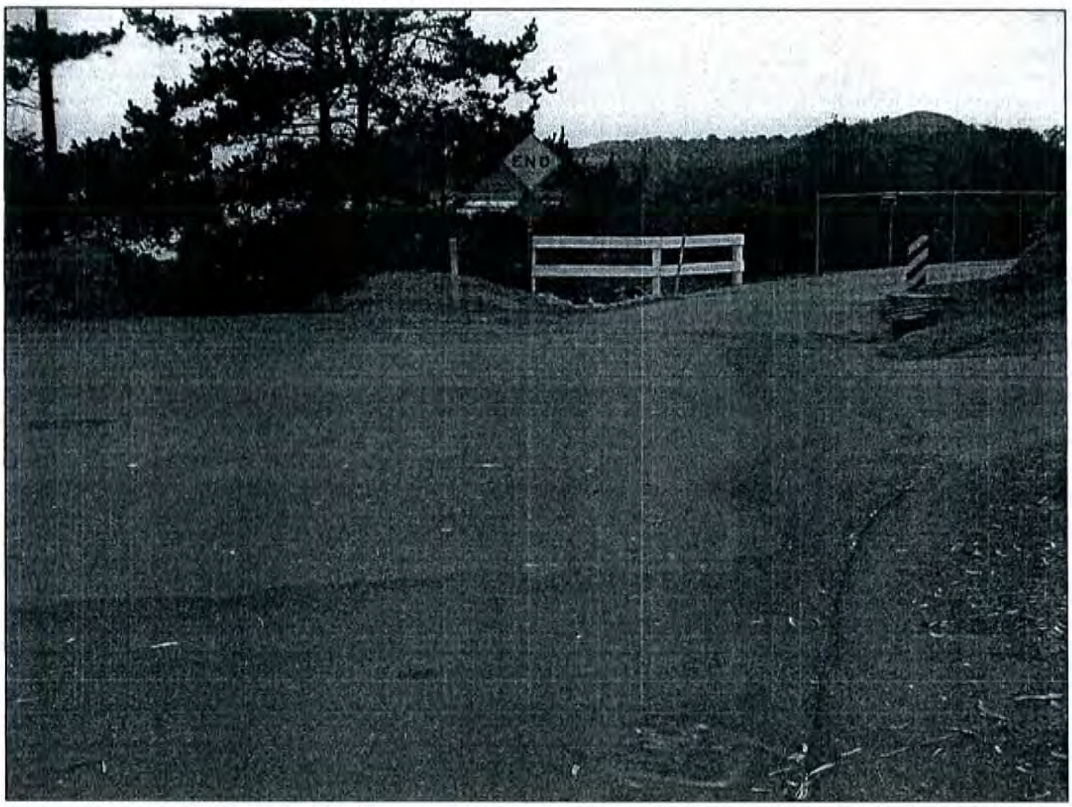


Photo O:

Viewing north toward end of 9th Street. Pump station to be located behind white fence, approximately 145 feet from emergent wetland areas associated with Morro Bay.

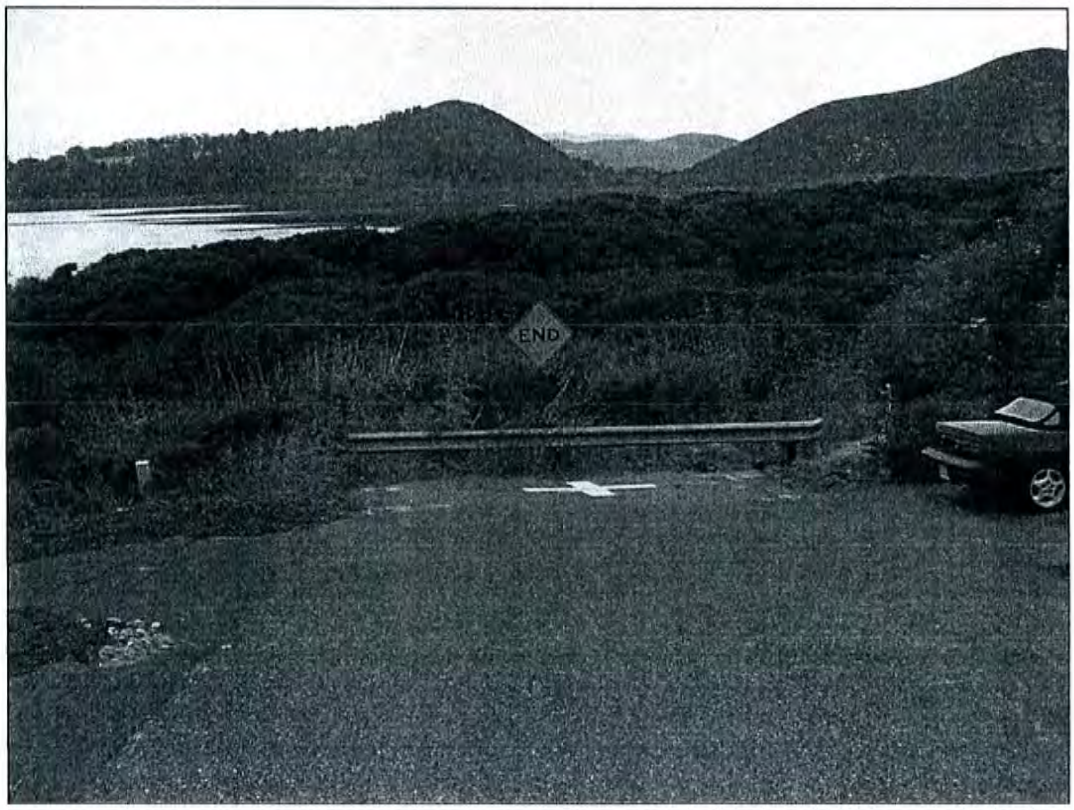


Photo P:

Viewing north toward end of 10th Street. Pump station to be located at street end, approximately 120 feet from willow canopy associated with Morro Bay.

PHOTO DOCUMENTATION – SITE 7

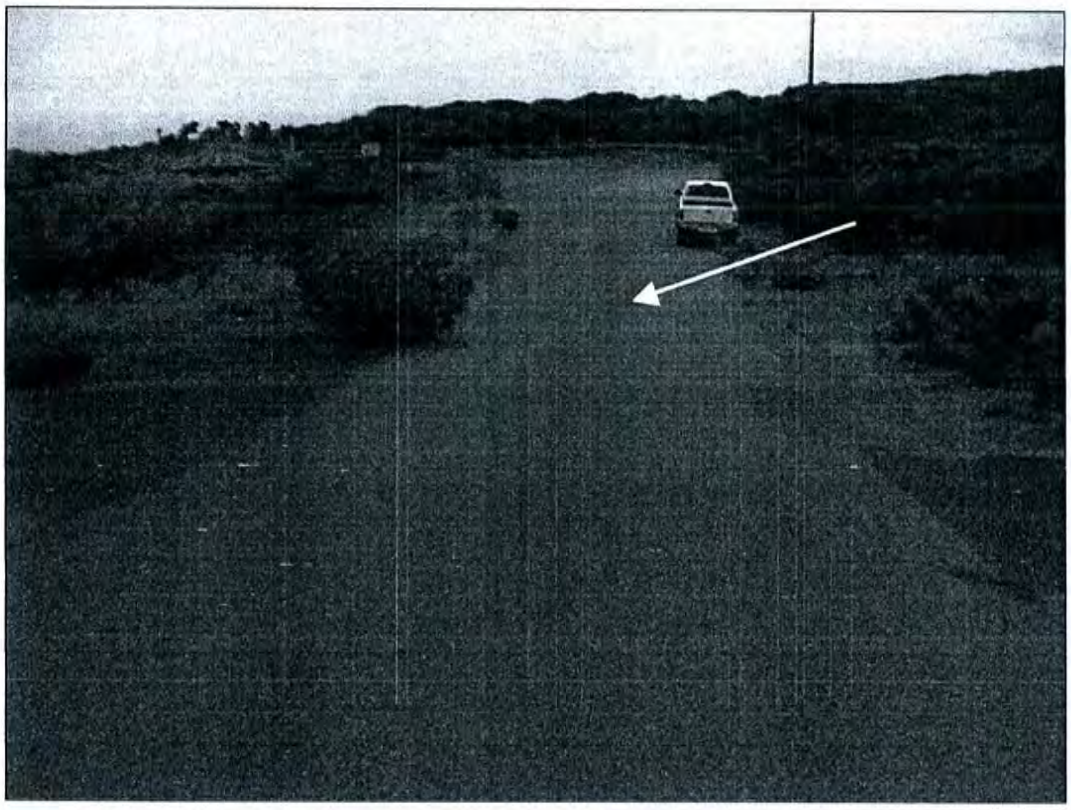


Photo Q:

Viewing north toward the end of 11th Street. Pump station location is in pavement at low point indicated by arrow. The site is over 365 feet from willow canopy along edge of the Bay.

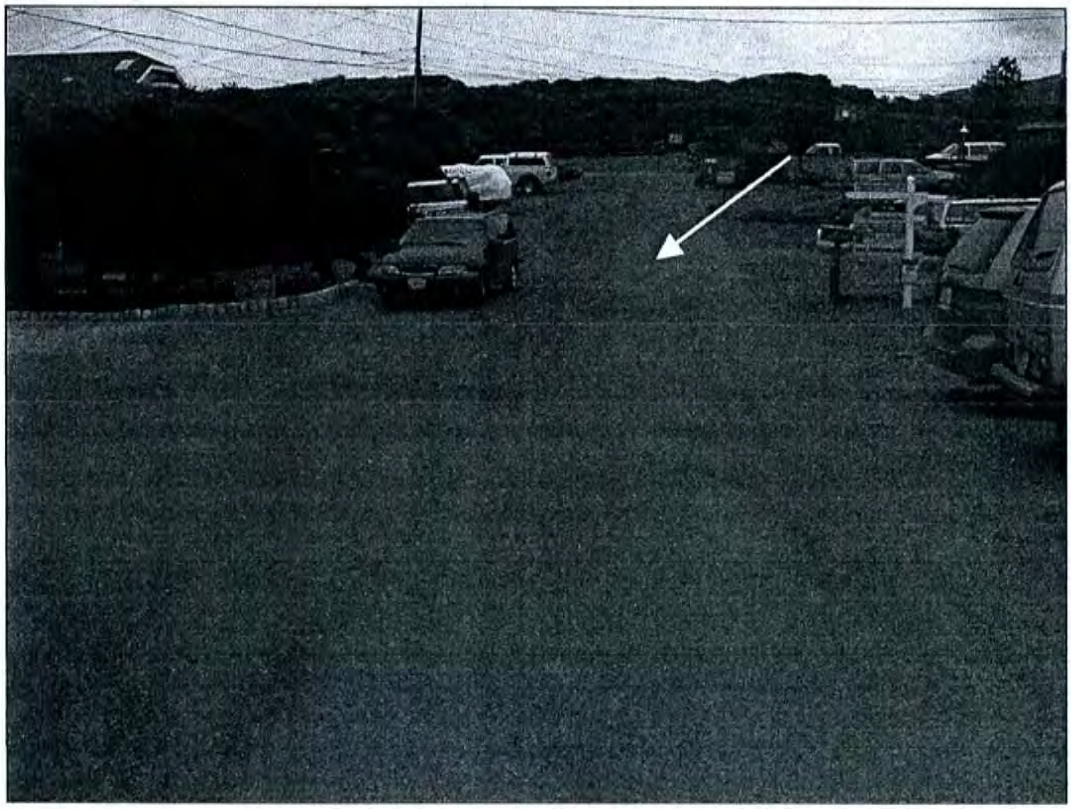


Photo R:

Viewing north toward the end of 12th Street. Pump station location is in pavement at low point indicated by arrow. The site is over 400 feet from willow canopy along edge of the Bay.

PHOTO DOCUMENTATION – SITE 7

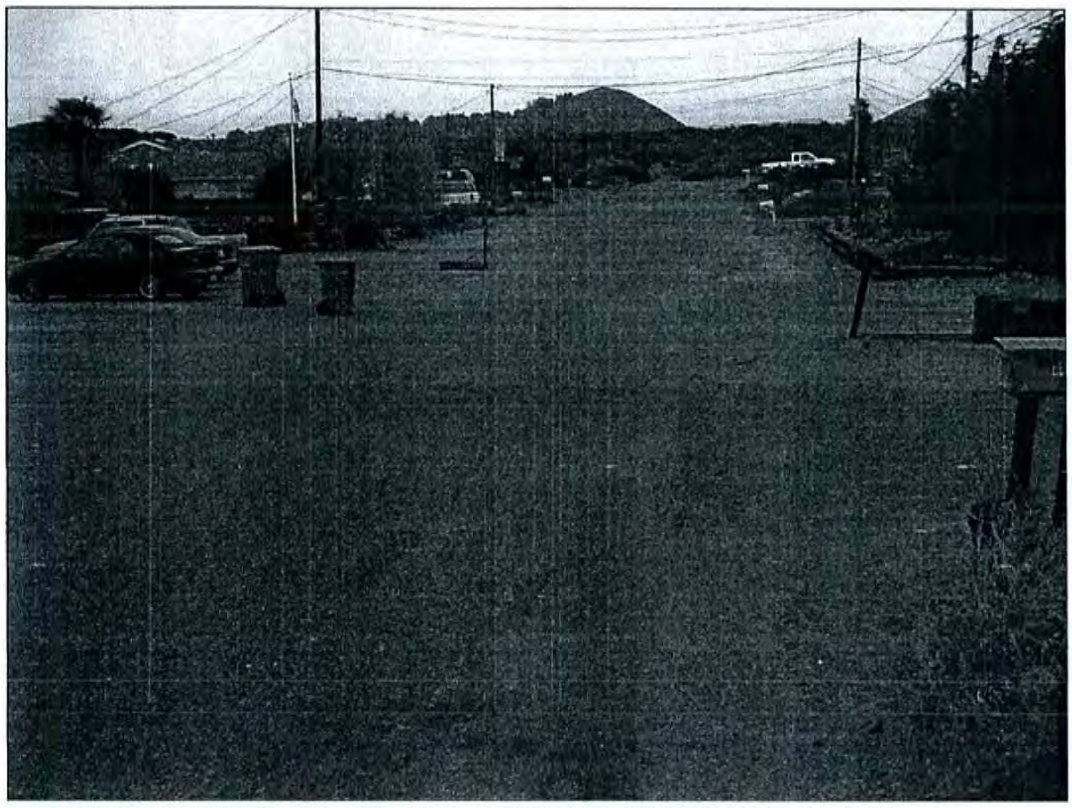
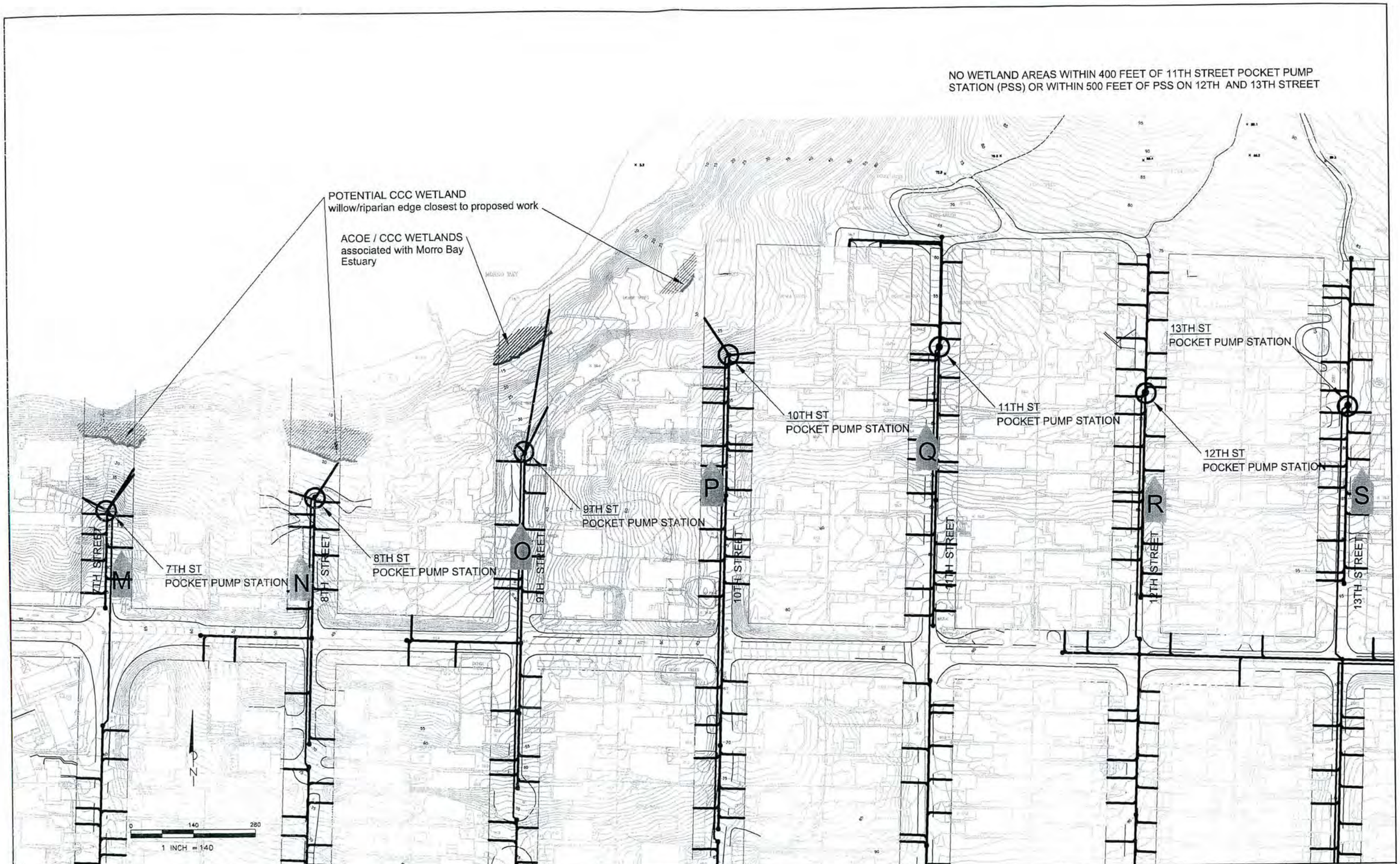


Photo S:

Viewing north toward the end of 13th Street. Pump station location is in pavement approximately 230 feet from the end of the road. The site is over 500 feet from willow canopy along edge of the Bay.

PHOTO DOCUMENTATION – SITE 7



SHEET: 2 OF 4 SCALE: 1" = 140'	MORRO GROUP, INC. Environmental Services	POTENTIAL WETLAND CONSTRAINTS LOCSD Wastewater Facilities Project - Los Osos, California	POTENTIAL WETLAND AREAS - SITE 7
CADD FILE: 03-205 LOCSD Wastewater\wetdel 6-23-04.dwg/site7			FIGURE 5
DATE: 06-30-04 BY: dh REV.			

Los Osos Wastewater Disposal Project
4th Street at Pismo Avenue Area
Los Osos, California

WETLAND DELINEATION REPORT

Prepared for:

Mr. Chris Clark
Crawford, Multari & Clark Associates
641 Higuera Street, Suite 302
San Luis Obispo, CA 93401

Prepared by:

MORRO GROUP, INC.
Environmental Services

June 7, 2005

1422 Monterey Street, Suite C200 • San Luis Obispo, CA 93401 • (805) 543-7095 • FAX 543-2367

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ATTACHMENTS

Attachment A. Field Data Sheets
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1.0 INTRODUCTION

1.1 SCOPE

This Wetland Delineation Report summarizes existing soil, hydrology and vegetative conditions found within and adjacent to the Pismo Avenue right-of-way between 3rd Street and 5th Street in Los Osos, San Luis Obispo County, California (refer to Figures 1 through 4). Morro Group, Inc. has prepared this report at the request of Crawford, Multari & Clark Associates, and it is intended for use by the Los Osos Community Services District (LOCSD), and regulatory agencies. This report examines potential waters of the United States, as defined by the U.S. Army Corps of Engineers (ACOE) and the California Coastal Commission (CCC) (1994), found within and adjacent to the roadway. Findings reported herein are based on information gathered in the field at the time of investigation and on Morro Group's understanding of the ACOE 1987 Wetlands Delineation Manual, and federal, state, and local guidelines for identification of wetland areas.

1.2 PROJECT BACKGROUND

The delineated area of Pismo Avenue is located in the western portion of the community of Los Osos, between 3rd Street and 5th Street (refer to Figures 1 and 2). Pismo Avenue begins at its intersection with 3rd Street, and runs east and uphill away from the Morro Bay Estuary. Construction of the Los Osos Wastewater Disposal Project will require trenching through pavement and underground boring through unpaved right-of-way in this area for sewer line installation. The areas examined for ACOE and CCC jurisdictional wetlands in this report are located on the south side of the paved portion of Pismo Avenue between 3rd Street and 4th Street, and within the unpaved, densely vegetated Pismo Avenue right-of-way between 4th Street and 5th Street. A Soil Conservation Service (SCS) soil survey map of the area (SCS, 1984) is included as Figure 3, and soil pit locations and the resulting delineation of jurisdictional areas are shown on Figure 4. The site is located in the Coastal Zone.

1.3 SITE DESCRIPTION

The Pismo Avenue right-of-way between 3rd Street and 4th Street consists of a well-traveled paved roadway bordered by residential development to the north, and by a vegetated roadside swale to the south. The vegetated swale contains a mixture of willows, emergent vegetation, and common weedy species along the length of the block, but has no direct connection (i.e. a culvert or channel) with willows and other wetland vegetation present in the unpaved portion of the road between 4th Street and 5th Street discussed below. The swale area between 3rd Street and 4th Street appears to be spring fed, and has a rock or riprap bottom 6 to 12 inches below the soil surface that limited soil examination efforts. The swale continues to the west of the Pismo Avenue/3rd Street intersection in a natural channel configuration, and ends at the edge of the Morro Bay Estuary. Swale areas near the intersection of Pismo Avenue and 3rd Street and extending to the west contain seasonally ponded water and dense emergent vegetation. Proposed pipeline installation in this area will occur within the paved roadways of 3rd Street and Pismo Avenue.

The Pismo Avenue right-of-way between 4th Street and 5th Street is an approximately 340-foot unpaved road section impassable by vehicles due to presence of dense vegetation and eroded

soils. Underground gas and water utility lines are present within the unpaved right-of-way. The western portion of the right-of-way beginning at 4th Street and extending approximately 55 feet to the east contains two mature arroyo willow trees with an understory of California blackberry and annual grasses. East of the willows and extending approximately 100 feet east, the tree canopy consists of coast live oak with an understory of blackberry and annual grasses and forbs. The remaining eastern portion of the right-of-way extending to 5th Street contains annual grasses and weeds, with several coast live oak trees present. A pedestrian/bike trail averaging 5-8 feet wide extends along the right-of-way between 4th and 5th Streets. The trail shows evidence of water erosion in the lower portion near 3rd Street. Proposed pipeline installation in this area will occur within the unpaved right-of-way of Pismo Avenue.

The northwest corner of the Pismo Avenue intersection at 4th Street contains a small, curved roadside drainage ditch that receives road runoff from uphill portions of 4th Street to the north. This small ditch is approximately 50 feet in length, and contains ornamental and weedy species, with occurrences of horsetail (a wetland indicator species), also present. This area is regularly disturbed by road maintenance activities, and does not meet ACOE wetland criteria for dominant hydric vegetation or hydrology. The presence of some hydric vegetation and seasonal inundation by road runoff indicates that the area has potential to be considered a CCC wetland.

2.0 METHODOLOGY

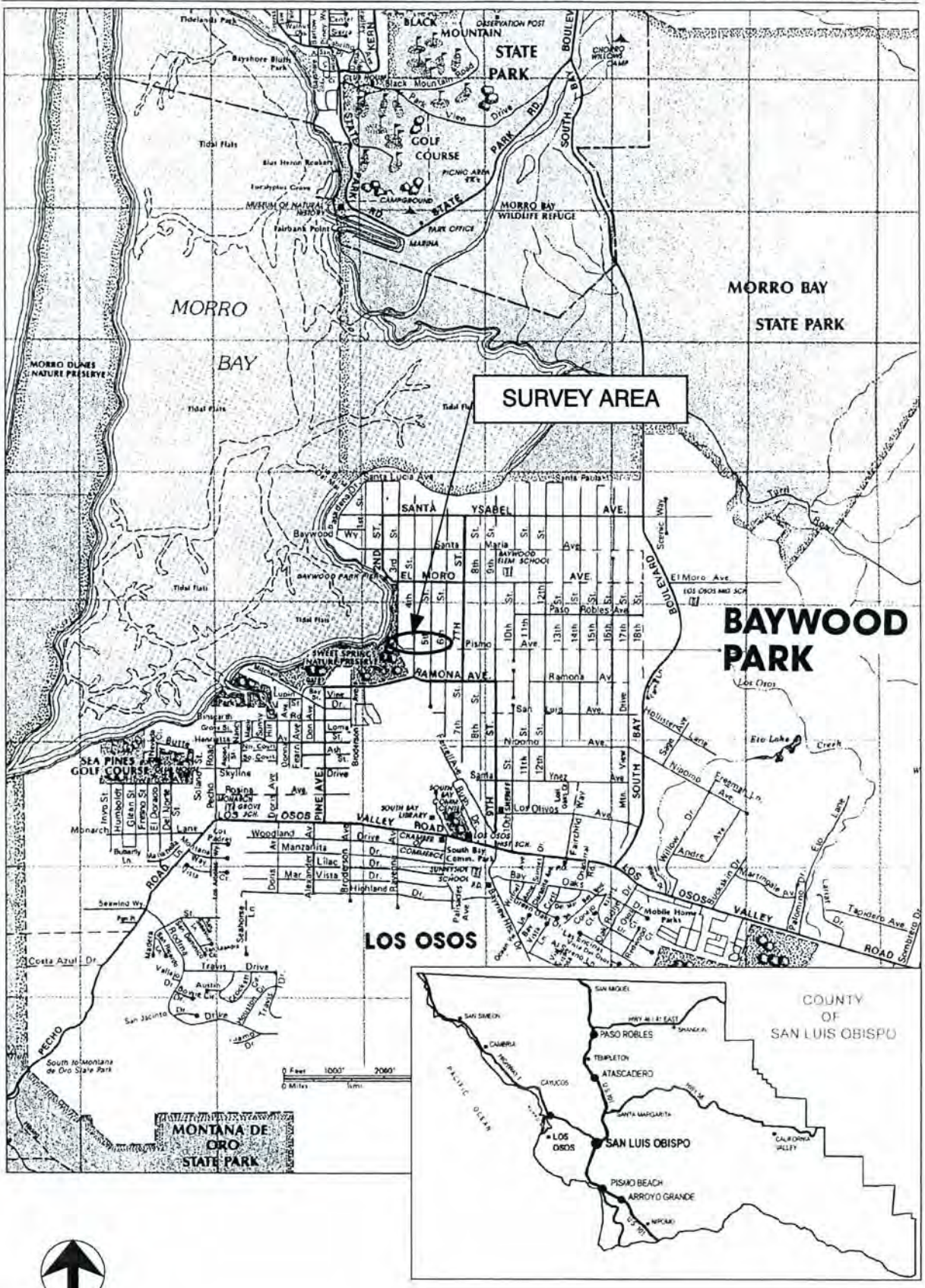
The primary literature reviewed and referenced as part of this wetland determination included SCS (1983, 1992), USGS (1979), Cowardin et al. (1979), Hickman (1993), Hoover (1970), Holland (1986), and Reed (1988, 1996). Specific references not listed above are cited in text.

2.1 DELINEATION PROCEDURE

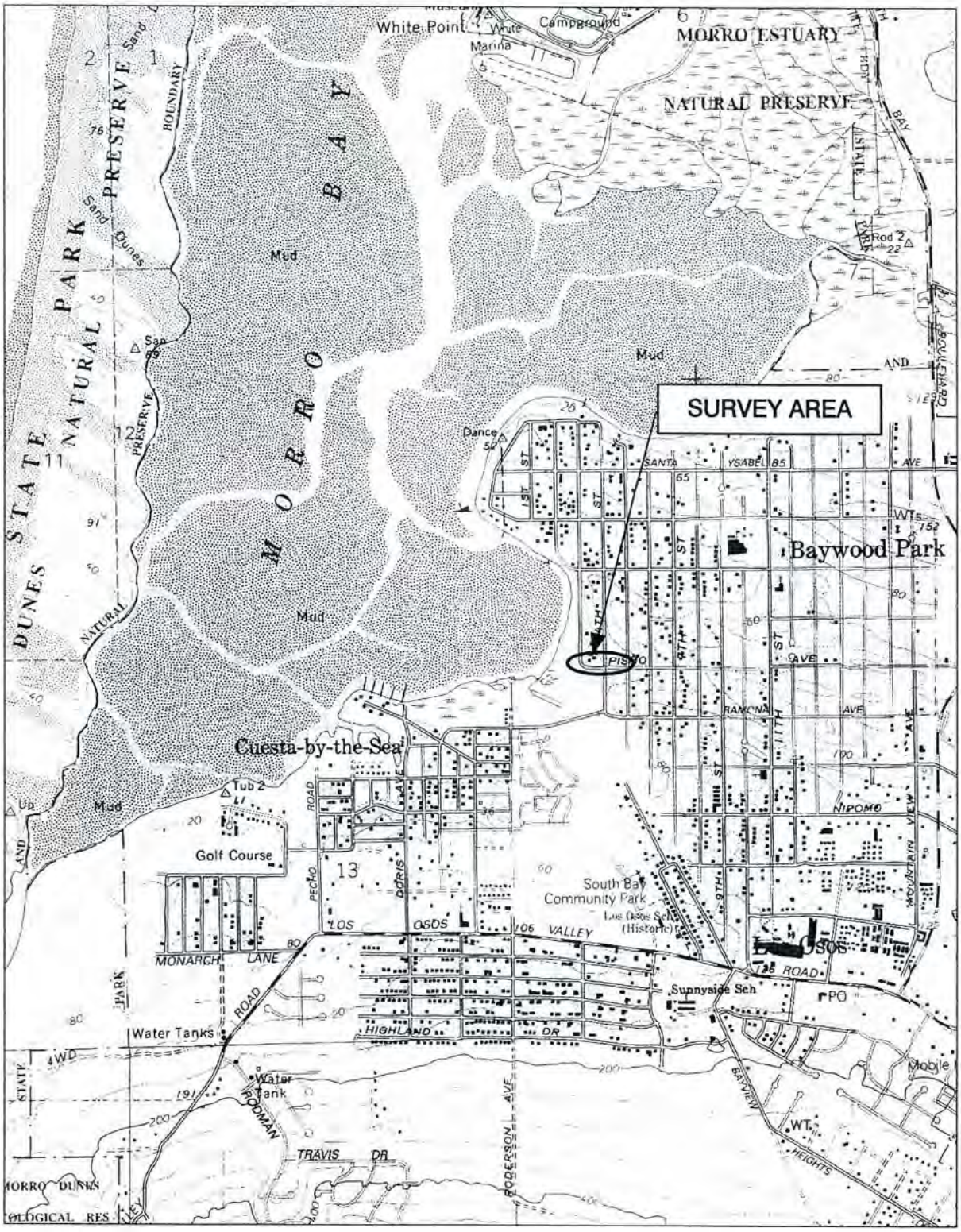
Examination of the 4th Street and Pismo Avenue area was based on review of pertinent literature and a thorough on-site investigation conducted on May 26, 2005 by Morro Group, Inc. biologists Bob Sloan and Geoff Hoetker. The routine wetland determination methodology, as described in the 1987 ACOE Wetlands Delineation Manual (Environmental Laboratory, 1987), was utilized throughout the delineation. Potential wetland areas were also evaluated using the CCC single parameter wetland definition in addition to the ACOE three-parameter methodology. Representative soil pits and surrounding vegetation were evaluated to investigate the presence of hydric soils, hydrophytic vegetation, and wetland hydrology. The jurisdictional boundaries identified during the delineation followed vegetative boundaries and observed topographic features, and were mapped using a Trimble Pathfinder GPS unit capable of positional accuracy to approximately 10 centimeters.

2.2 FUNCTION AND VALUE ASSESSMENT

The functions and values of the jurisdictional areas observed at the 4th Street and Pismo Avenue site were evaluated according to ACOE protocol (Adamus et al., 1987). Table 1 is a synthesis of methodologies used to evaluate the functions and values of wetland habitats. Rating criteria were derived from Adamus et al. (1987), Adamus and Stockwell (1983), and Reppert et al. (1979).



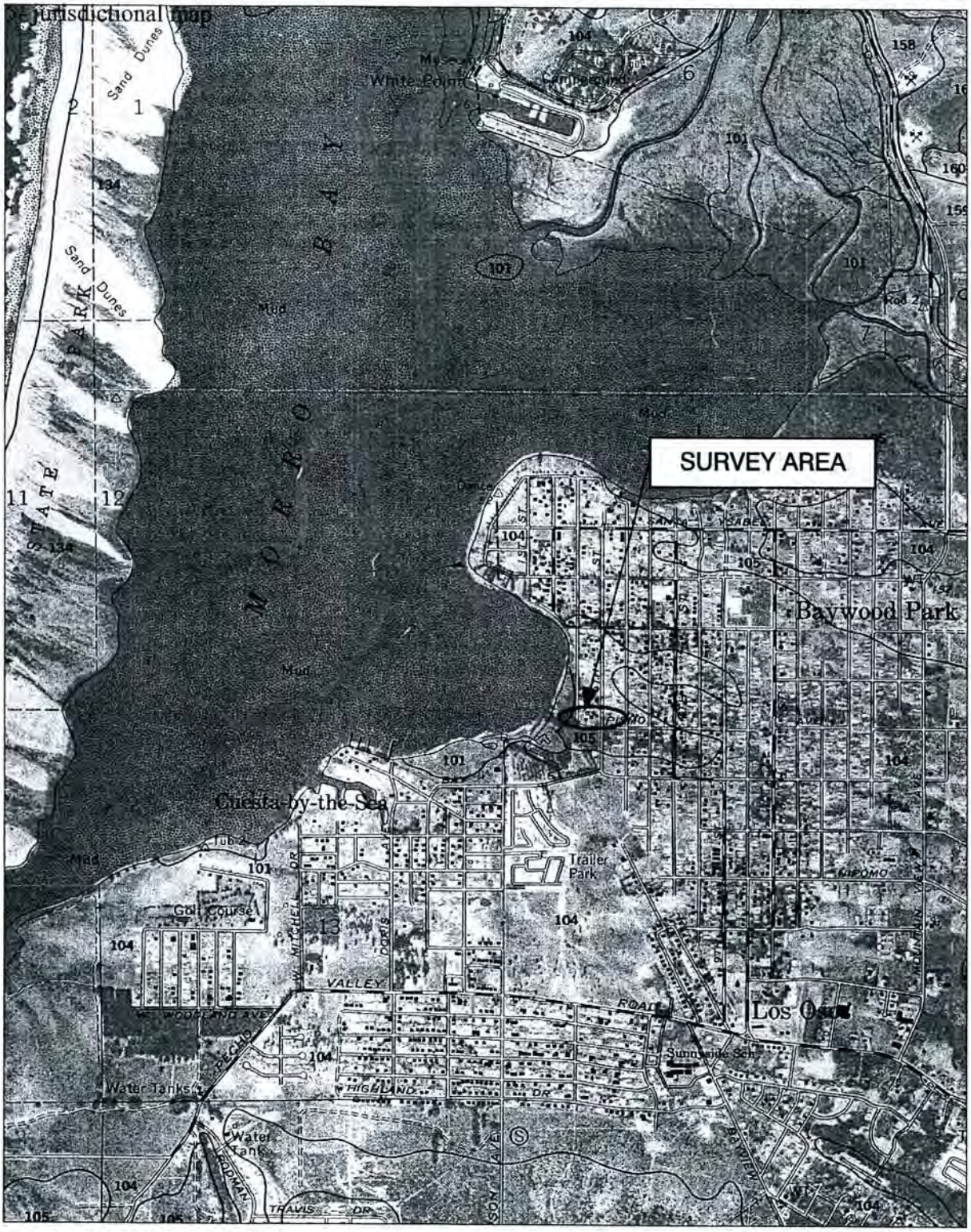
VICINITY MAP
FIGURE 1



Source: USGS Quadrangle – Morro Bay South

NORTH
Not to Scale

PROJECT LOCATION MAP
FIGURE 2



Source: Soil Survey of San Luis Obispo County, Coastal Part – Sheet 8

SOIL KEY

105 Baywood fine sand, 9-15% slopes

NORTH
Not to Scale

SOIL SURVEY MAP
FIGURE 3

TABLE 1
Wetland Function and Value Rating Criteria

Function / Value	Rating		
	Low	Moderate	High
Water Quality Improvement	<5 acres in size; <50% vegetation density; no proximity to pollutants.	5-10 acres in size; 50-80% vegetation density; adjacent to non-point pollutants.	>10 acres in size; >80% vegetation density; downstream from point discharges.
Storm- and Floodwater Storage	<5 acres in size; <10% woody cover; permanently flooded; unconstrained outlet.	5-10 acres in size; 10-30% woody cover.	>10 acres in size; urban and developable areas; >30% woody cover; seasonal hydroperiod; constrained outlet.
Groundwater Discharge	Isolated depression; temporarily saturated or inundated.	Open drainage system; seasonally flooded.	Open tidal systems; permanent saturation or inundation.
Groundwater Recharge	<5 acres in size; isolated depression; temporarily saturated or inundated; impermeable substrate.	5-10 acres in size; seasonally flooded.	>10 acres in size; permanent inundation; several feet deep; permeable substrate.
Natural Biological Support	Small size; low species diversity; one vegetation layer; no sensitive or water-dependent species.	Medium size; moderate species diversity; several vegetation layers; water-dependent species; no sensitive species.	Large size; high species diversity; water-dependent and sensitive species; many vegetation layers.

3.0 RESULTS

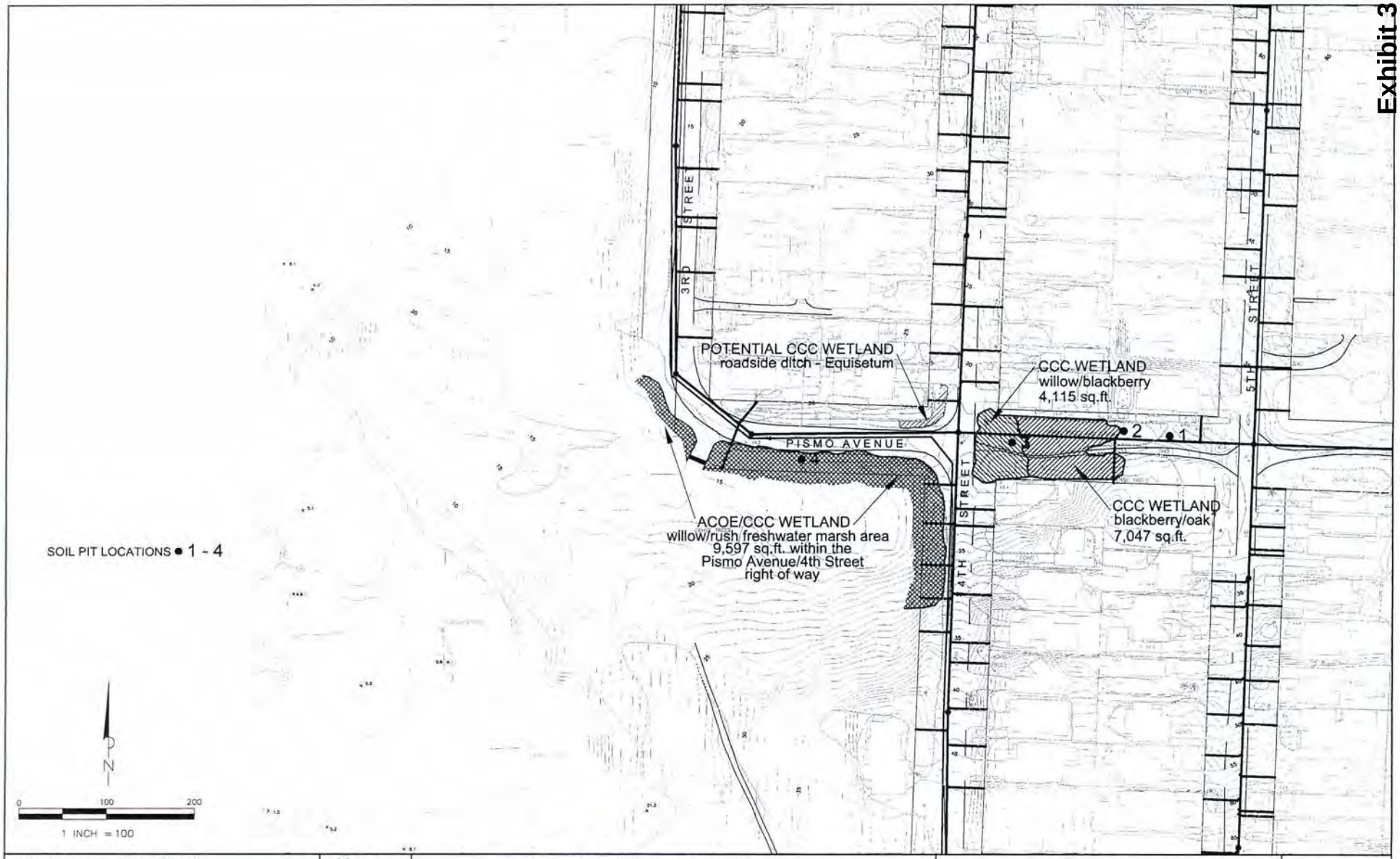
3.1 SOIL CONDITIONS

The Soil Conservation Service (1983) mapped one soil series within the project site: Baywood fine sand, 9 to 15 percent slopes (refer to Figure 3).

Baywood fine sand (moist) consists of a very dark grayish brown (10YR 2/2 moist) fine sand about 36 inches thick, above dark grayish brown (10YR 5/3) mottled (5YR 3/2) fine sand to a depth of 60 inches or more. Permeability of Baywood fine sand soil is rapid, and the available water capacity is low. Baywood fine sand is not listed as a hydric soil in the SCS Comprehensive Hydric Soils List for San Luis Obispo County (SCS, 1992).

3.1.1 Soil Test Pits

Four soil test pits were excavated during the delineation: three within the unpaved Pismo Avenue right-of-way between 4th Street and 5th Street, and one in the middle of the roadside swale along the west side of Pismo Avenue between 3rd Street and 4th Street (refer to Figure 4 for pit locations). The investigation found dry sand soils in test pits #1 and #2, slightly moist soil in test pit #3, and moist to saturated soil in test pit #4. The dry sand soil observed in test pits #1 and #2 exhibited dark brown (10YR 3/3 moist) colors to the bottom of each test pit (0-16 inches), and generally matched the Baywood fine sand description. The slightly moist soils observed in test pit #3 exhibited the same dark brown (10YR 3/3 moist) color throughout as observed in pits 1 and 2. No evidence of mottling or redoxomorphic features were observed within these three pits. Test pit #4 contained moist to saturated soils, with a surface layer of dark brown (10YR 3/3



SHEET: 1 OF 1 SCALE: 1" = 100' CADD FILE: 03-205 LOCSD Wastewater\4th-Pismo-wetdel.dwg/fig 4 DATE: 6-2-05 BY: pm REV.	MORRO GROUP, INC. Environmental Services	PISMO AVENUE WETLAND DELINEATION LOCSD Wastewater Facilities Project - Los Osos, California	JURISDICTIONAL WETLAND AREAS	FIGURE 4

Back of Figure 4.

moist) sand underlain by saturated black (10YR2/1) sand to a depth of 10 inches. Rock riprap present at about 10 inches prevented further excavation. After approximately 10 minutes pit #4 contained standing water at a level 6 inches below the ground surface.

3.2 HYDROLOGIC CONDITIONS

The intersection of Pismo Avenue and 4th Street is the focal point for road and residential runoff from surrounding higher elevation areas to the north, east, and south, and can experience flooding during substantial rain events. Runoff entering the intersection from the unpaved portion of Pismo Avenue to the north, and from paved areas of 4th Street to the north and south is directed into the roadside swale between 3rd Street and 4th Street.

The eastern, upper portion of the unpaved Pismo Avenue right-of-way between 4th Street and 5th Street contains a sloping, bare sand pathway that shows evidence of erosional activity during winter months, but has no connection with any seasonal or permanent surface water source other than rainfall runoff. The lower, level portion of the right-of-way swale adjacent to 4th Street appears to maintain moist soils due to high groundwater levels and concentrated runoff received from surrounding hills. No ponded or flowing water was present within this area during the delineation.

The roadside swale along the south side of Pismo Avenue between 3rd Street and 4th Street is lined with rock riprap, and contained saturated soils and standing water 1 to 4 inches deep during the investigation. This swale appears to receive perennial water from adjacent wetland seeps or springs located on private property to the south of Pismo Avenue, and flows to the northwest before reaching the Morro Bay estuary. A small culvert conducts the swale under a private driveway located at the intersection of 3rd Street and Pismo Avenue. The roadside portion of the swale is approximately 6 to 10 feet wide and approximately 1 to 1.5 feet lower than the adjacent pavement. No ordinary high water mark (OHWM) or defined channel banks are present in the roadside portion of the swale.

3.3 VEGETATIVE CONDITIONS

The eastern, upper portion of the unpaved Pismo Avenue right-of-way between 4th Street and 5th Street is dominated by non-native grasses and weedy forbs, with scattered coast live oak (*Quercus agrifolia*) trees also present. Dominant vegetation consisted of veldt grass (*Ehrharta calycina*), ripgut brome (*Bromus diandrus*), fennel (*Foeniculum vulgare*), and wild radish (*Raphanus sativus*). This area contained no wetland or riparian plant species.

The lower, level portion of the right-of-way swale adjacent to 4th Street is dominated by coast live oak, arroyo willow (*Salix lasiolepis*), and California blackberry (*Rubus ursinus*), with small occurrences of California brome (*Bromus carinatus*), wild oat (*Avena fatua*), and garden nasturtium (*Tropaeolum majus*) also present.

The roadside swale along the south side of Pismo Avenue between 3rd Street and 4th Street contains a mixture of emergent wetland plants and weedy species. Dominant wetland species included arroyo willow, small-headed bulrush (*Scirpus microcarpus*), water parsley (*Oenanthe sarmentosa*), bur-reed (*Sparganium eurycarpum*), and dock (*Rumex conglomeratus*).

These species are listed as hydrophytic plants (Reed, 1988; 1996). Other species present included pampas grass (*Cortaderia jubata*), bristly ox-tongue (*Picris echioides*), and common vetch (*Vicia* sp.). Areas on private property to the south of the roadside swale are densely vegetated with the emergent species listed above. The north side of Pismo Avenue contains mowed grass areas and ornamental species.

3.4 JURISDICTIONAL DETERMINATION

No areas that exhibited hydric soil or hydrologic indicators per ACOE guidelines were observed within the Pismo Avenue right-of-way between 4th Street and 5th Street during the assessment (refer to Figure 4). The lower portion of this area does meet CCC and ACOE vegetative criteria, and is mapped as CCC wetland on Figure 4. The small roadside drainage ditch at the northwest corner of the Pismo Avenue intersection at 4th Street contains does not meet ACOE wetland criteria for dominant hydric vegetation or hydrology, however, due to the presence of some hydric vegetation and seasonal inundation by road runoff the area was mapped as CCC wetland on Figure 4.

The roadside swale and adjacent private property areas along the south side of Pismo Avenue between 3rd Street and 4th Street meet all three ACOE wetland criteria, and are mapped as ACOE/CCC wetlands on Figure 4. Roadside swale boundaries identified during the delineation followed the edge of dominant wetland vegetation along the public right-of-way. Boundaries of adjacent wetland areas extending to the south on private property were not mapped. The swale area within the public right-of-way as mapped for this report covered a total of 9,597 square feet (0.22 acres) as shown on Figure 4. Table 2 summarizes the results of the wetland assessment by soil pit sample plot (refer to Figure 4 for soil pit locations).

Table 2

Jurisdictional Determination Summary

Soil Test Pit Area	Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology	Determination	
				Corps	CCC
1	No	No	No	Non-Wetland	Non-Wetland
2	No	No	No	Non-Wetland	**Wetland**
3	**Yes**	No	No	Non-Wetland	**Wetland**
4	**Yes**	**Yes**	**Yes**	**Wetland**	**Wetland**

3.5 FUNCTIONS AND VALUES OF IDENTIFIED JURISDICTIONAL AREAS

Using the rating criteria from Table 1 (refer to Section 2.2), the identified CCC wetland area on Pismo Avenue between 4th Street and 5th Street area ranks very low in function and value, being limited by lack of surface water or connection with a natural water source, limited vegetative diversity, and highly erodible soils (refer to following Table 3). The ACOE/CCC wetland area associated with the roadside swale along Pismo Avenue between 3rd Street and 4th Street ranks low in function and value due to its small size, but provides perennial saturated soil conditions and dense emergent vegetative cover for wildlife habitat, and is connected to a larger wetland habitat area.

Table 3

Function and Value Ratings of Mapped Areas

Resource	Size	Water Quality	Storage	Discharge	Recharge	Biological Support
CCC Wetland Areas	11,162 ft² 0.26 acres	None	None	None	None	Low
ACOE/CCC Wetland Area	9,597 ft² 0.22 acres	Low	Low	Low	Low	Moderate

4.0 DISCUSSION

The CCC wetland area identified within the Pismo Avenue right-of-way between 4th Street and 5th Street (refer to Figure 4) consists of willow and blackberry vegetation located at the bottom of a slope, with no connection to natural water sources. No hydric soil or hydrology indicators per ACOE guidelines were observed in this area, and no significant biological functions and values typically associated with wetland or riparian areas were identified. The observed conditions indicate that the area does not qualify as a wetland under ACOE guidelines. The small ditch at the northwest corner of 4th Street and Pismo Avenue contains some wetland vegetation, but does not meet the ACOE 50 percent criteria. This area is considered potential CCC wetland.

The ACOE/CCC wetland area identified along the south side of Pismo Avenue between 3rd Street and 4th Street (refer to Figure 4) contains freshwater marsh habitat conditions, is adjacent to larger freshwater marsh areas on adjacent private property to the south and west, and connects with tidal waters of Morro Bay. This area exhibits hydric soil, vegetation, and hydrology indicators per ACOE guidelines, and could provide significant biological functions and values typically associated with wetland or riparian areas.

Project activities have been designed to avoid encroachment into or impacts to all wetland areas identified in this report. Sewer line installation will be limited to trenching within paved road portions between 3rd Street and 4th Street along Pismo Avenue, and horizontal boring under unpaved portions of Pismo Avenue between 4th Street and 5th Street.

5.0 REGULATORY IMPLICATIONS

5.1 U.S. ARMY CORPS OF ENGINEERS

Section 404 of the Clean Water Act (CWA) regulates activities that result in the discharge of dredge or fill materials into Waters of the United States, including wetlands. The ACOE is charged with administering and regulating various sections of the CWA. Wetlands are defined in the ACOE Wetlands Delineation Manual (Environmental Laboratory, 1987) as:

> *"Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."*

The 0.22-acre wetland area identified along the south side of Pismo Avenue between 3rd Street and 4th Street (refer to Figure 4) falls under ACOE jurisdiction. No impacts are proposed to ACOE wetlands in this area.

5.2 CALIFORNIA DEPARTMENT OF FISH AND GAME

Sections 1600 through 1607 of the California Fish and Game (CDFG) Code regulate activities that would alter the flow, bed, channel, or bank of streams and lakes. CDFG jurisdiction typically extends to the top of the creek bank or the outside edge of riparian vegetation, whichever is more extensive. It is unlikely that the CCC wetland area between 4th and 5th Streets falls under CDFG jurisdiction, because it has no hydrologic connection to any streams or tributaries, and no bed or bank structure is present. The 0.22-acre ACOE/CCC wetland area between 3rd and 4th Streets falls under CDFG jurisdiction.

5.3 REGIONAL WATER QUALITY CONTROL BOARD

Section 401 of the Clean Water Act regulates activities that have the potential to cause water quality impacts to Waters of the United States, including wetlands, as defined by the ACOE. The 0.22-acre ACOE/CCC wetland area identified along the south side of Pismo Avenue between 3rd Street and 4th Street (refer to Figure 4) falls under Regional Water Quality Control Board jurisdiction.

5.4 CALIFORNIA COASTAL COMMISSION

The California Coastal Act was enacted in 1976 to provide long-term protection of California's coastal resources. The Act's coastal resources management policies are based on recommendations contained in the California Coastal Plan. One such policy includes:

> *"Protection, enhancement and restoration of environmentally sensitive habitats, including intertidal and nearshore waters, wetlands, bays and estuaries, riparian habitat, certain wood and grasslands, streams, lakes, and habitat for rare or endangered plants or animals."*

The California Coastal Commission regulates wetland areas within the coastal zone as defined under Coastal Act Section 30121. The Coastal Act defines a wetland as:

> *"Lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens."*

The 0.22-acre wetland areas identified on Pismo Avenue between 3rd Street and 4th Street, and the 0.26-acre wetland areas identified between 4th Street and 5th Street (refer to Figure 4) fall under CCC jurisdiction.

6.0 REFERENCES

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ATTACHMENT A

- Field Data Sheets

Routine Wetland Determination Form

Applicant: Crawford Multari Clark Assoc. **Project:** Los Osos Sewer **Date:** 5/26/05
State: CA **County:** SLO **Transect/Pit No.:** 1
Investigators: Sloan, Hoetker **Transect/Pit Area:** Pismo Avenue between 4th and 5th Streets
Cowardin Classification (Vegetation Community): Upland annual grassland

VEGETATION

Observed Plant Species	Habit	Indicator	Percent Cover	Observed Plant Species	Habit	Indicator	Percent Cover
Ehrhrarta calycina	grass	none	50				
Bromus diandrus	grass	none	30				
Hordeum jubatum	grass	none	10				
Foeniculum vulgare	forb	none	5				

Percent of Dominant Species that are OBL, FACW, or FAC: 0% **Taxonomic References:** Hickman/Reed
**** Dominant Species (20% or greater cover observed)***

SOIL

Map Unit: Baywood fine sand, 2-9 percent slopes
Profile Description: 0-16 dry sand, 10YR3/3

Hydric Soil List? ☐ Yes ☒ No
Mottles? ☐ Yes ☒ No
Gleyed? ☐ Yes ☒ No
NRCS Match? ☒ Yes ☐ No
Other Indicators: none

HYDROLOGY

Inundated? ☐ Yes ☒ No **Saturated Soil?** ☐ Yes ☒ No **Depth to:**
Sediment Deposits? ☐ Yes ☒ No **Drift Lines?** ☐ Yes ☒ No
Depth of Surface Water: none **Water Marks?** ☐ Yes ☒ No
Depth to Free Water in Pit: none **Oxidized Rhizospheres?** ☐ Yes ☒ No **Color:**
Other Indicators: none

WETLAND DETERMINATION

Vegetation Criterion Met? ☐ Yes ☒ No **Normal Circumstances?** ☒ Yes ☐ No
Hydric Soil Criterion Met? ☐ Yes ☒ No
Hydrology Criterion Met? ☐ Yes ☒ No **Is this Plot within a Wetland?** ☐ Yes ☒ No
Comments: Annual grassland along disturbed road right-of-way

Morro Group Determination by: _____
Signature

Rev: 1/27/05

Routine Wetland Determination Form

Applicant: Crawford Multari Clark Assoc. **Project:** Los Osos Sewer **Date:** 5/26/05
State: CA **County:** SLO **Transect/Pit No.:** 2
Investigators: Sloan, Hoetker **Transect/Pit Area:** Pismo Avenue between 4th and 5th Streets
Cowardin Classification (Vegetation Community): Upland oak woodland

VEGETATION

Observed Plant Species	Habit	Indicator	Percent Cover	Observed Plant Species	Habit	Indicator	Percent Cover
*Ehrhrarta calycina	grass	none	20				
Bromus diandrus	grass	none	15				
*Quercus agrifolia	tree	none	25				
*Rubus ursinus	forb	FACW	25				
Raphanus sativus	forb	none	5				

Percent of Dominant Species that are OBL, FACW, or FAC: 33% **Taxonomic References:** Hickman/Reed
**** Dominant Species (20% or greater cover observed)***

SOIL

Map Unit: Baywood fine sand, 2-9 percent slopes
Profile Description: 0-16 dry sand, 10YR3/3

Hydric Soil List? ☐ Yes ☒ No
Mottles? ☐ Yes ☒ No
Gleyed? ☐ Yes ☒ No
NRCS Match? ☒ Yes ☐ No
Other Indicators: none

HYDROLOGY

Inundated? ☐ Yes ☒ No **Saturated Soil?** ☐ Yes ☒ No **Depth to:**
Sediment Deposits? ☐ Yes ☒ No **Drift Lines?** ☐ Yes ☒ No
Depth of Surface Water: none **Water Marks?** ☐ Yes ☒ No
Depth to Free Water in Pit: none **Oxidized Rhizospheres?** ☐ Yes ☒ No **Color:**
Other Indicators: none

WETLAND DETERMINATION

Vegetation Criterion Met? ☐ Yes ☒ No **Normal Circumstances?** ☒ Yes ☐ No
Hydric Soil Criterion Met? ☐ Yes ☒ No
Hydrology Criterion Met? ☐ Yes ☒ No **Is this Plot within a Wetland?** ☐ Yes ☒ No

Comments: Oak woodland / grassland along disturbed road right-of-way may qualify as Coastal Commission wetland due to presence of blackberry as a dominant species.

Morro Group Determination by: _____
Signature

Rev: 1/27/05

Routine Wetland Determination Form

Applicant: Crawford Multari Clark Assoc. **Project:** Los Osos Sewer **Date:** 5/26/05
State: CA **County:** SLO **Transect/Pit No.:** 3
Investigators: Sloan, Hoetker **Transect/Pit Area:** Pismo Avenue near 4th Street
Cowardin Classification (Vegetation Community): Willow woodland

VEGETATION

Observed Plant Species	Habit	Indicator	Percent Cover	Observed Plant Species	Habit	Indicator	Percent Cover
*Salix lasiolepis	tree	FACW	80				
*Rubus ursinus	forb	FACW	60				
*Tropaeolum majus	forb	none	20				
Bromus carinatus	grass	none	5				
Oxalis pes-caprae	forb	none	5				

Percent of Dominant Species that are OBL, FACW, or FAC: 66% **Taxonomic References:** Hickman/Reed
** Dominant Species (20% or greater cover observed)*

SOIL

Map Unit: Baywood fine sand, 2-9 percent slopes
Profile Description: 0-16 moist sand, 10YR3/3

Hydric Soil List? ☐ Yes ☒ No
Mottles? ☐ Yes ☒ No
Gleyed? ☐ Yes ☒ No
NRCS Match? ☒ Yes ☒ No
Other Indicators: none

HYDROLOGY

Inundated? ☐ Yes ☒ No **Saturated Soil?** ☐ Yes ☒ No **Depth to:**
Sediment Deposits? ☐ Yes ☒ No **Drift Lines?** ☐ Yes ☒ No
Depth of Surface Water: none **Water Marks?** ☐ Yes ☒ No
Depth to Free Water in Pit: none **Oxidized Rhizospheres?** ☐ Yes ☒ No **Color:**
Other Indicators: some evidence of seasonal water erosion in pedestrian trail adjacent to pit, but no permanent channel/bank structure present

WETLAND DETERMINATION

Vegetation Criterion Met? ☒ Yes ☐ No **Normal Circumstances?** ☒ Yes ☐ No
Hydric Soil Criterion Met? ☐ Yes ☒ No
Hydrology Criterion Met? ☐ Yes ☒ No **Is this Plot within a Wetland?** ☐ Yes ☒ No
Comments: Willow woodland along disturbed road right-of-way, may qualify as Coastal Commission wetland due to presence of willow and blackberry as dominant species.

Morro Group Determination by: _____
Signature

Rev: 1/27/05

Routine Wetland Determination Form

Applicant: Crawford Multari Clark Assoc. **Project:** Los Osos Sewer **Date:** 5/26/05
State: CA **County:** SLO **Transect/Pit No.:** 4
Investigators: Sloan, Hoetker **Transect/Pit Area:** South side Pismo Ave. between 3rd & 4th Streets
Cowardin Classification (Vegetation Community): Freshwater marsh

VEGETATION

Observed Plant Species	Habit	Indicator	Percent Cover	Observed Plant Species	Habit	Indicator	Percent Cover
*Salix lasiolepis	tree	FACW	25	Picris echioides	forb	FAC	5
*Scirpus microcarpus	forb	OBL	50	Vicia sativa	forb	none	5
Sparganium eurycarpum	forb	OBL	10				
*Oenanthe sarmentosa	forb	OBL	20				
Cortaderia jubata	forb	none	10				

Percent of Dominant Species that are OBL, FACW, or FAC: 66% **Taxonomic References:** Hickman/Reed
**** Dominant Species (20% or greater cover observed)***

SOIL

Map Unit: Baywood fine sand, 2-9 percent slopes

Hydric Soil List? ☐ Yes ☒ No
Mottles? ☐ Yes ☒ No
Gleyed? ☐ Yes ☒ No
NRCS Match? ☐ Yes ☒ No
Other Indicators: low chroma, saturated soils

Profile Description:
0-2 moist sand, 10YR3/3
2-10 saturated sand 10YR 2/1
10-16 rock riprap/standing water

HYDROLOGY

Inundated? ☐ Yes ☒ No **Saturated Soil?** ☒ Yes ☐ No **Depth to:** 2 inches
Sediment Deposits? ☐ Yes ☒ No **Drift Lines?** ☐ Yes ☒ No
Depth of Surface Water: none **Water Marks?** ☐ Yes ☒ No
Depth to Free Water in Pit: 6 inches **Oxidized Rhizospheres?** ☐ Yes ☒ No **Color:**
Other Indicators: standing water present in western portion of swale near 3rd Street

WETLAND DETERMINATION

Vegetation Criterion Met? ☒ Yes ☐ No **Normal Circumstances?** ☒ Yes ☐ No
Hydric Soil Criterion Met? ☒ Yes ☐ No
Hydrology Criterion Met? ☒ Yes ☐ No **Is this Plot within a Wetland?** ☒ Yes ☐ No
Comments: Roadside riprap lined swale connected to larger marsh area to the south meets ACOE/CCC criteria.

Morro Group Determination by: _____
Signature

Rev: 1/27/05

ATTACHMENT B

- Photo Documentation

Photo 1:

View east along Pismo Avenue from 3rd Street. Note willows and dense vegetation in roadside swale along right side of picture, and willow canopy blocking the Pismo Avenue right-of-way at 4th Street in background. Picture taken on May 26, 2005.

Photo 2:

View of the Pismo Avenue right-of-way between 4th Street and 5th Street, looking west. Note veldt grass in foreground, and blackberry growing around oak trees. Arrows mark the locations of test pits 1 and 2. Picture taken on May 26, 2005.

PHOTO DOCUMENTATION

Photo 3:

View of test pit 3, located just east of 4th Street in the Pismo Avenue right-of-way. Note willow canopy and blackberry understory. Soils were slightly moist in this area. Picture taken on May 26, 2005.

Photo 4:

View of pit 4, located on the south side of Pismo Avenue between 3rd Street and 4th Street. Note willow canopy, emergent vegetation in swale, and large pampas grass clump. Picture taken on May 26, 2005.

PHOTO DOCUMENTATION

CALIFORNIA RED-LEGGED FROG SITE ASSESSMENT REPORT
For 4th Street and Pismo Avenue, Los Osos, California

MORRO GROUP, INC.
Environmental Services

June 13, 2005

INTRODUCTION

This site assessment report has been prepared by Morro Group, Inc. at the request of the Los Osos Communities Services District (LOCSD). The report is intended to fulfill United States Fish and Wildlife Service (USFWS) site assessment submittal requirements to determine the appropriateness of conducting protocol-level field surveys for the federally threatened California red-legged frog (*Rana aurora draytonii*). The objective of this report is to provide a California red-legged frog site assessment for a portion of the Los Osos Wastewater Disposal Project within and adjacent to the Pismo Avenue right-of-way between 3rd Street and 5th Street in Los Osos, San Luis Obispo County, California (refer to Figures 1 and 2). The data presented in this report are a compilation of information received from regulatory agencies, literature reviews, and an on-site investigation of the area by Morro Group biologists.

SITE ASSESSMENT METHODS

The USFWS California red-legged frog site assessment protocol (1997) consists of three elements to be considered in determining habitat suitability:

California Red-Legged Frog Protocol

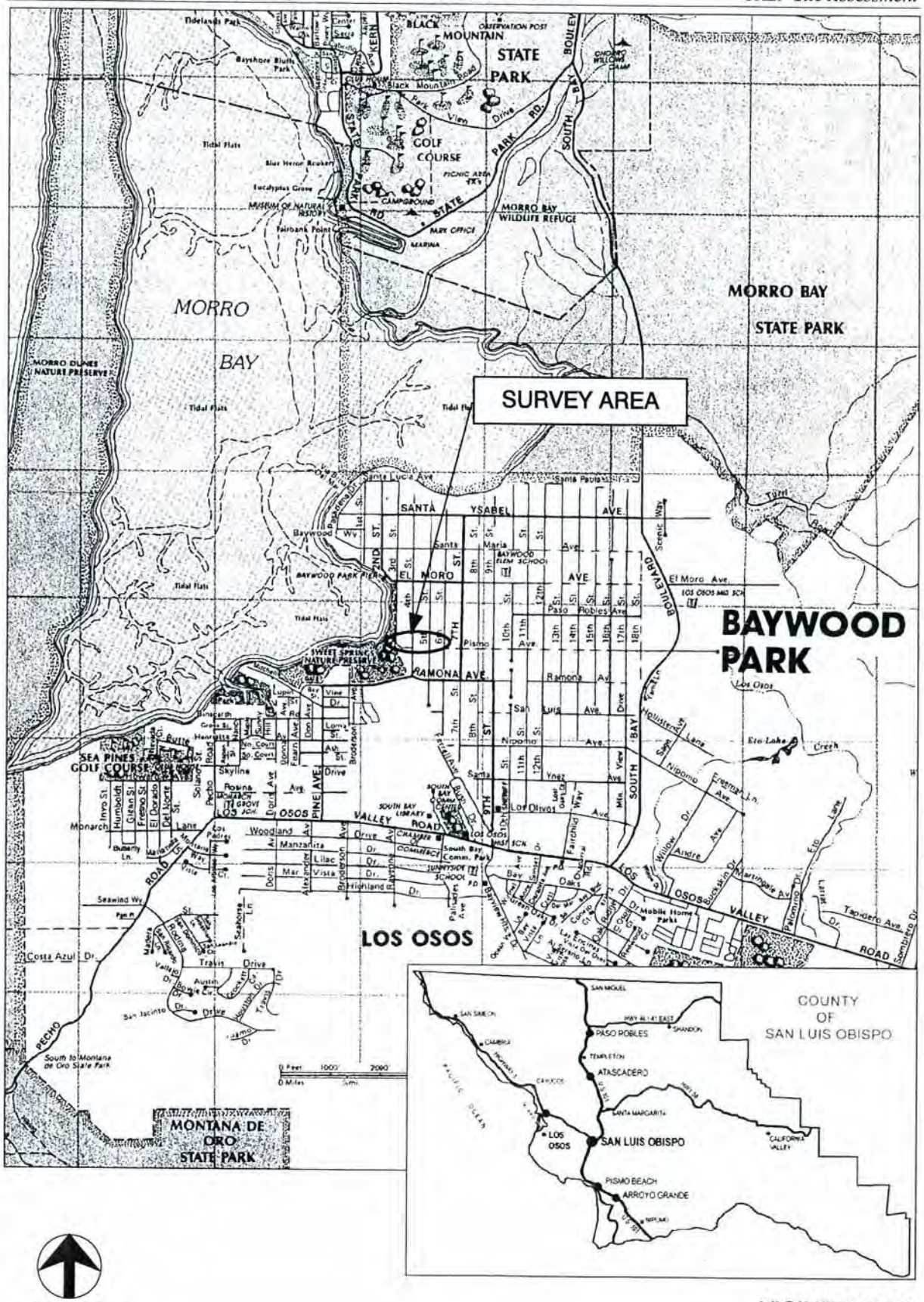
Element 1. Is the project site within the range of the California red-legged frog?

Element 2. What are the known localities of California red-legged frog within the project site and 8 km of the project boundaries?

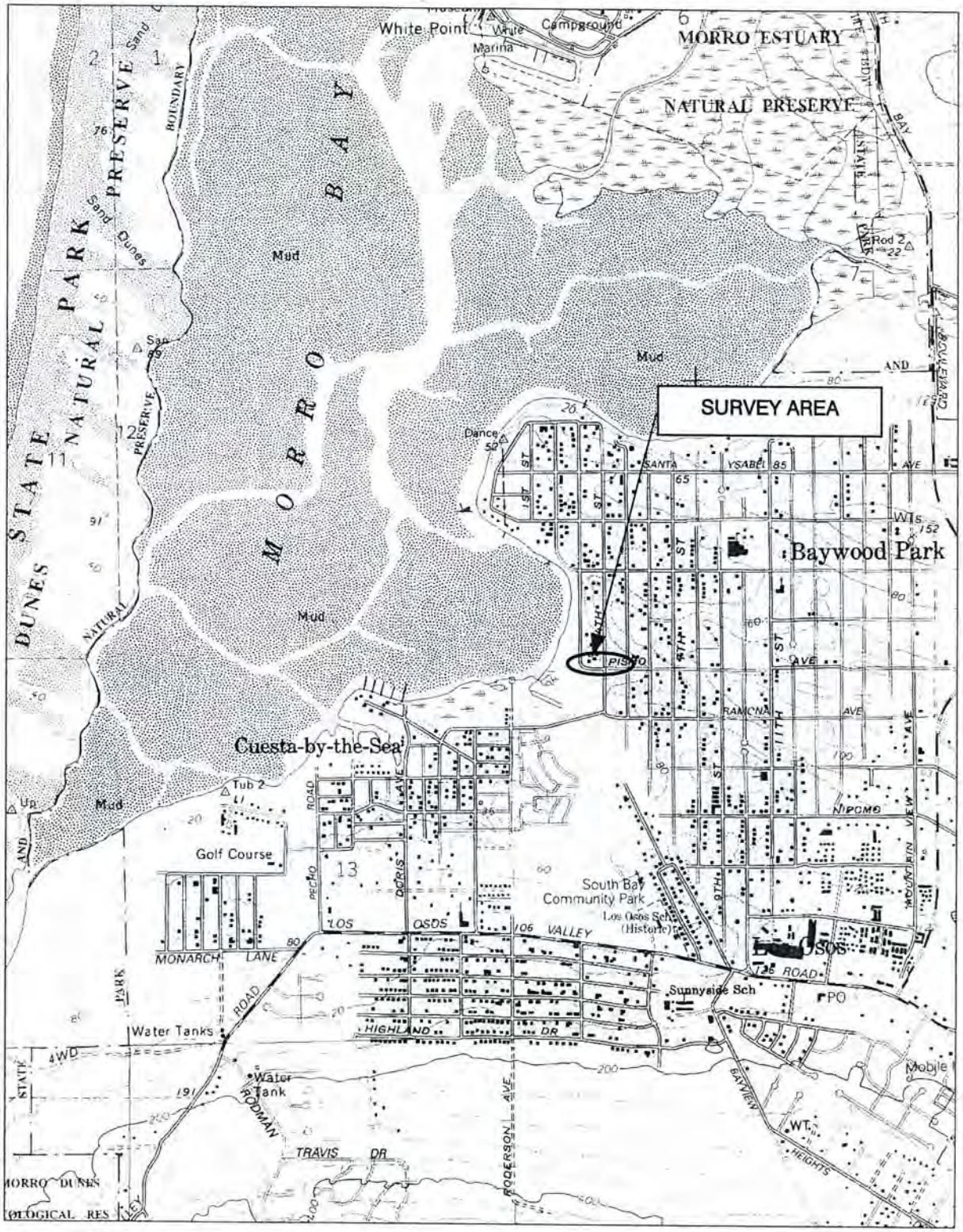
Element 3. What are the habitats within the project site and 1.6 km of the project boundaries?

The project site is within the known range of the California red-legged frog. The latest version of the California Natural Diversity Database (CNDDB) (2005) was reviewed in order to identify known California red-legged frog occurrences within 8 km (5 mi) of the project site.

Morro Group Biologist Geoff Hoetker conducted the site visit on May 26, 2005 from 2:00 PM to 4:00 PM. Mr. Hoetker is familiar with California red-legged frog habitat requirements and has conducted numerous site assessments and protocol-level surveys for California red-legged frog over the past four years. The site visit included a California red-legged frog habitat assessment via walking the project site and adjacent areas, and reconnaissance-level habitat mapping of the general project area.



VICINITY MAP
FIGURE 1



Source: USGS Quadrangle – Morro Bay South

NORTH
Not to Scale

PROJECT LOCATION MAP
FIGURE 2

LIFE HISTORY AND HABITAT DESCRIPTION

The USFWS listed California red-legged frog as a threatened species on May 23, 1996 (USFWS, 1996). A member of the true frog family Ranidae, California red-legged frogs occur mainly in coastal drainages and aquatic habitats from the vicinity of Point Reyes, California south to northwestern Baja California, Mexico. Monterey, San Luis Obispo, and Santa Barbara counties support the greatest amount of currently occupied habitat. California red-legged frogs require aquatic habitat for breeding but also use a variety of other habitat types including riparian and upland areas. Adults often utilize dense or shrubby vegetation with deep-water pools with fringes of emergent vegetation such as cattails (*Typha* spp.) and dense stands of overhanging vegetation such as willows (*Salix* spp.).

Adult frogs with access to permanent water will generally remain active throughout the summer. In cooler areas, they may hibernate in burrows or other refugia in the winter. California red-legged frog adults may move upstream and downstream of breeding habitat to forage and find refugia. Female California red-legged frogs usually lay egg masses of between 2,000 and 5,000 eggs attached to emergent vegetation during or shortly following large rainfall events from late December to early April. The eggs hatch in 6 to 14 days and, approximately 14 to 28 weeks later, the tadpoles metamorphose into frogs.

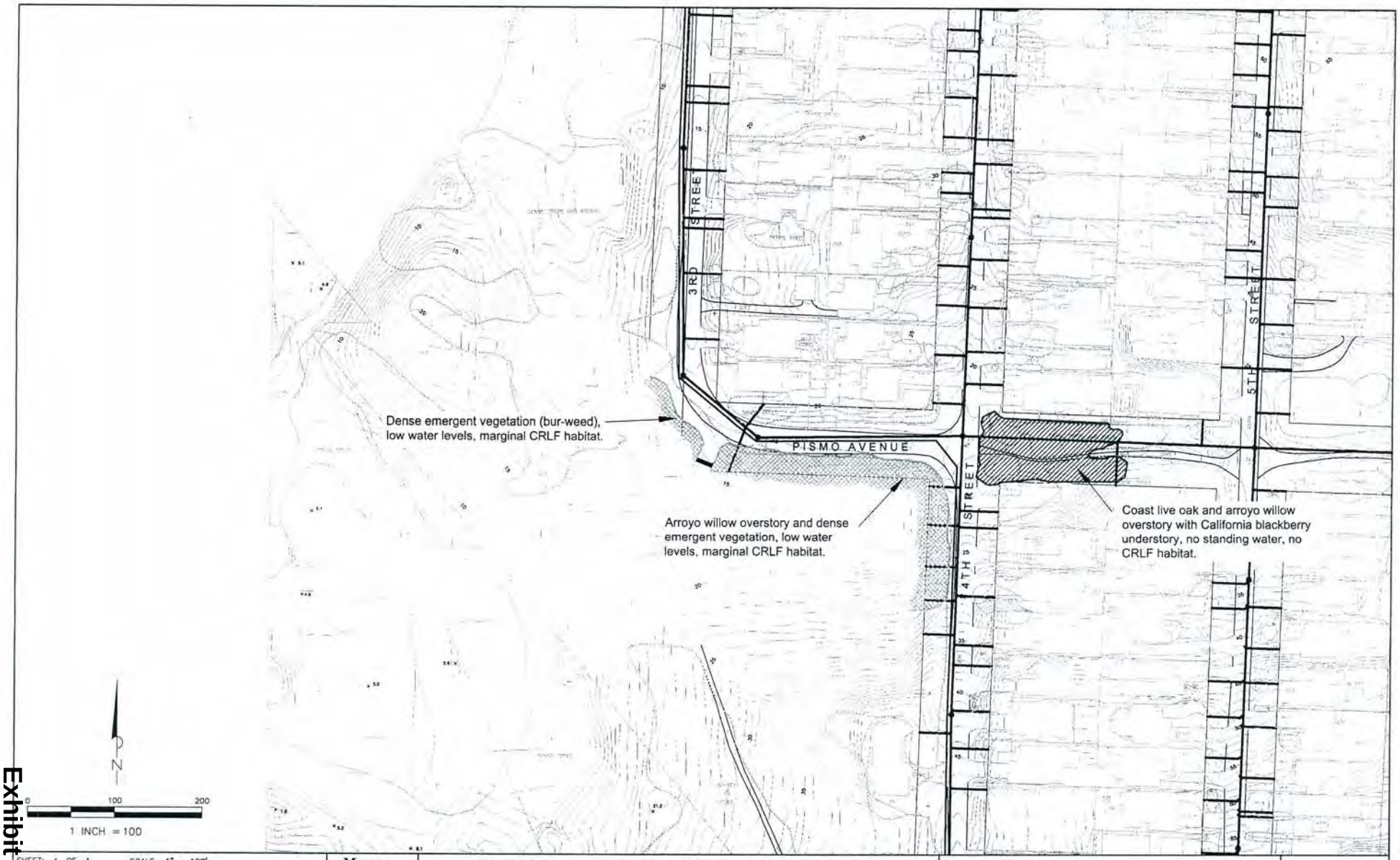
Critical habitat for California red-legged frog was originally designated by the USFWS on March 13, 2001 (USFWS, 2001), but this was later rescinded by court order. A new proposal for designation of California red-legged frog critical habitat was published on April 13, 2004 (USFWS, 2004). The project area occurs within proposed California red-legged frog critical habitat unit 21 (San Simeon/Morro Bay Unit), which consists of the coastal watersheds from Arroyo de la Cruz south to Los Osos Creek in San Luis Obispo County (USFWS, 2004).

PROJECT BACKGROUND

The project area is located in the western portion of the community of Los Osos, between 3rd Street and 5th Street (refer to Figures 1 and 2). Pismo Avenue begins at its intersection with 3rd Street, and runs east and uphill away from the Morro Bay Estuary. Construction of the Los Osos Wastewater Disposal Project will require trenching through pavement and underground boring through unpaved right-of-way in this area for sewer line installation. The areas examined in this report are located on the south side of the paved portion of Pismo Avenue between 3rd Street and 4th Street, and within the unpaved, densely vegetated Pismo Avenue right-of-way between 4th Street and 5th Street. Figure 3 maps habitats in the general vicinity of the project area.

EXISTING PROJECT SITE CONDITIONS

The Pismo Avenue right-of-way between 3rd Street and 4th Street consists of a well-traveled paved roadway bordered by residential development to the north, and by a vegetated roadside swale to the south (refer to Figure 3). The roadside swale along the south side of Pismo Avenue between 3rd Street and 4th Street is lined with rock riprap, and contained saturated soils and standing water 1 to 4 inches deep during the investigation. This swale appears to receive water from adjacent wetland seeps or springs located on private property to the south of Pismo Avenue,



SHEET: 1 OF 1 SCALE: 1" = 100'
CADD FILE: 03-205 LOCSD Wastewater\4th-Pismo-CRLF.dwg/fig 3
DATE: 6-10-05 BY: DH REV.

MORRO GROUP, INC.
Environmental Services

4th STREET & PISMO AVENUE CRLF SITE ASSESSMENT
LOCSD Wastewater Facilities Project - Los Osos, California

CRLF HABITAT MAP

FIGURE 3

and flows to the northwest before reaching the Morro Bay estuary. A small culvert conducts the swale under a private driveway located at the intersection of 3rd Street and Pismo Avenue. The roadside portion of the swale is approximately 6 to 10 feet wide and approximately 1 to 1.5 feet lower than the adjacent pavement. No ordinary high water mark (OHWM) or defined channel banks are present in the roadside portion of the swale.

The roadside swale along the south side of Pismo Avenue between 3rd Street and 4th Street contains a mixture of emergent wetland plants and weedy species. Dominant wetland species included arroyo willow, small-headed bulrush (*Scirpus microcarpus*), water parsley (*Oenanthe sarmentosa*), bur-reed (*Sparganium eurycarpum*), and dock (*Rumex conglomeratus*). Other species present included pampas grass (*Cortederia jubata*), bristly ox-tongue (*Picris echioides*), and common vetch (*Vicia* sp.). Areas on private property to the south of the roadside swale are densely vegetated with the emergent species listed above. The north side of Pismo Avenue contains mowed grass areas and ornamental species.

The Pismo Avenue right-of-way between 4th Street and 5th Street includes an approximately 340-foot unpaved road section impassable by vehicles due to presence of dense vegetation and eroded soils. Underground gas and water utility lines are present within the unpaved right-of-way. The western portion of the right-of-way beginning at 4th Street and extending approximately 55 feet to the east contains two mature arroyo willow trees (*Salix lasiolepis*) with an understory of California blackberry (*Rubus ursinus*) and annual grasses. East of the willows and extending approximately 100 feet east, the tree canopy consists of coast live oak (*Quercus agrifolia*) with an understory of blackberry and annual grasses and forbs. The remaining eastern portion of the right-of-way extending to 5th Street contains annual grasses and weeds, with several coast live oak trees present. A pedestrian/bike trail averaging 5-8 feet wide extends along the right-of-way between 4th and 5th Streets. The trail shows evidence of water erosion in the lower portion near 3rd Street. Proposed pipeline installation in this area will occur within the unpaved right-of-way of Pismo Avenue. No ponded or flowing water was present within this area during the site assessment.

RESULTS

Element 1. Is the project site within the range of the California red-legged frog?

The project site is within the known range of the California red-legged frog.

Element 2. What are the known localities of California red-legged frog within the project site and 8 km of the project boundaries?

Four California red-legged frog occurrences have been recorded within 8 km of the project site by the CNDDB (2005) (refer to Table 1 and Figure 4, CNDDB California Red-legged Frog Occurrences Map). The nearest documented California red-legged frog occurrence is approximately 3 km (1.8 mi) northeast of the project area, in an unnamed tributary that empties into Morro Bay at Morro Estuary Natural Preserve, Morro Bay (refer to Figure 4).

TABLE 1
CRLF CNDDB Occurrence Records
Within 8 km (5 mi) of Project Area

CNDDB EO Index # for CRLF	Habitat Conditions and Other Information	Distance and Direction from Project Area
#45161	Good habitat conditions; unnamed tributary that empties into Morro Bay at the Morro Estuary Natural Preserve; habitat consists of thick willow cover on a shaded creek; one adult observed.	3 km (1.8 mi) northeast
#46923	Good habitat conditions; San Bernardo Creek in the vicinity of Highway 1; one adult observed.	5.3 km (3.3 mi) northeast
#53685	Fair habitat conditions; upper Los Osos Creek, 5.6 km (3.5 mi) southeast of Los Osos; habitat consists of willow-dominated riparian, along with alders and sycamores; silt/gravel substrate; frogs found in pools containing associated willow root masses; six adults and five juveniles observed.	7.8 km (4.9 mi) southeast
#44177	Poor habitat conditions; found along Highway 1, 9.6 km (6 mi) northwest of San Luis Obispo; habitat consists mostly of grasslands, with patches of coastal scrub and oak woodlands; one adult found dead on the highway.	8 km (5 mi) southeast

Element 3. What are the habitats within the project site and 1.6 km of the project boundaries?

The majority of the area within the 1.6-km radius under consideration consists of residential development. Numerous small coastal drainages and tributaries in the vicinity of Los Osos drain toward Morro Bay, but these likely become too saline toward the bay and are not likely to contain suitable water conditions to support amphibian life. Other than these streams, there are several roadside drainage ditches throughout residential areas in Los Osos that convey stormwater runoff. These drainages are typically vegetated with ruderal weeds, and more infrequently, by hydrophytic emergent vegetation. These areas were observed to contain dry to moist conditions during the site assessment, with very little standing water, if any. There are no identifiable natural ponds or stock ponds within 1.6 km of the project area. There are also no CNDDB occurrence records for California red-legged frog within 1.6 km of the project area. Figure 3 maps the habitats within the general vicinity of the project area.

Source: 1998 SLO County aerial base

Legend

- Project site
- California Red-legged Frog
- 5 mile radius

NORTH
Not to Scale

KNOWN OCCURRENCES OF CALIFORNIA RED-LEGGED FROG
FIGURE 4

DISCUSSION

The conditions observed during the site visit provide marginal habitat value for California red-legged frog due to small size, lack of deep water, lack of connection to large pristine habitat areas, and the surrounding roads and residential development. Review of the most recent edition of the CNDDB indicates that there are four California red-legged frog occurrences within 8 km (5 mi) of the project site; however, no occurrences of California red-legged frog are known within 1.6 km (1 mi) of the project site (refer to Figure 4). At best, habitat conditions for California red-legged frog in the roadside swale on the south side of Pismo Avenue between 3rd Street and 4th Street would be considered marginal. California red-legged frogs would not be expected to occur in this area during the dryer months of the year when the construction work is proposed, because the potential for adequate amounts of standing water to be present during this time period is presumed to be low or absent. No habitat is present in the Pismo Avenue right-of-way between 4th Street and 5th Street.

Based on the marginal habitat conditions observed in adjacent areas, surrounding existing residential uses, small project size, location of the proposed sewer line in the existing right-of-way, and lack of California red-legged frog habitat within the project disturbance boundaries, the project is not expected to result in "take" of California red-legged frog, and will not impact suitable habitat for the species. Section 3(18) of the Endangered Species Act defines "take" to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Additional protocol California red-legged frog surveys are not recommended to be necessary for this area.

RECOMMENDATIONS

The potential for take of California red-legged frog is considered very low for this portion of the project, however, implementation of standard avoidance and minimization measures prior to and during project construction is recommended. Such measures typically include the following:

- Confine all construction-related activities to existing road right-of-way areas, avoiding encroachment and disturbance of natural habitats.

- A qualified biologist should survey the 4th Street at Pismo Avenue project site 48 hours before the onset of work activities. If any life stage of the California red-legged frog is found and these individuals are likely to be killed or injured by work activities, the qualified biologist should halt work, and notify USFWS.

- Before any activities begin on the 4th Street at Pismo Avenue portion of the project, a qualified biologist should conduct a training session for all construction personnel working at the site. At a minimum, the training shall include a description of the California red-legged frog and its habitat, any specific measures that are being implemented to avoid California red-legged frogs and habitat, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

- Work in the 4th Street at Pismo Avenue portion of the project should be monitored by a qualified biologist to ensure compliance with avoidance or minimization measures. The monitor should have the authority to stop work if California red-legged frogs or habitat would be affected by project activities. If work is stopped, the USFWS shall be notified as soon as is reasonably possible.

- Prior to and during construction, sedimentation control measures should be properly implemented between the work boundaries and the roadside swales along Pismo Avenue. Such control measures may include sediment fences, hay bale barricades, and/or straw waddles installed around the perimeter of each construction zone with the potential to drain to aquatic areas. Erosion control devices shall be checked on a daily basis by construction personnel and periodically by a monitor to ensure proper form and function.

REFERENCES

California Natural Diversity Data Base. 2005. Database search for 8 km (5 mi) radius of project area within Morro Bay South USGS 7.5-minute Quadrangle. California Department of Fish and Game. Sacramento, California.

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APPENDIX A

Photo Documentation

Photo 1:

West view of roadside drainage ditch along the south side of Pismo Avenue between 3rd Street and 4th Street. Note willow cover, dense grasses, and occasional hydrophytic cover.

Photo taken May 26, 2005

East view of proposed pipeline ROW between 4th Street and 5th Street. Note dense overhead cover from willows and oaks and lack of hydrology or emergent vegetation.

Photo taken May 26, 2005

PHOTO DOCUMENTATION

Photo 3:

East view of vegetated roadside swale on south side of Pismo Avenue. Standing water depth was approximately 1 to 4 inches at this location and appears to provide marginal CRLF habitat.

Photo taken May 26, 2005

Photo 4:

East view of dense emergent vegetation extending from Pismo Avenue, south of the proposed project area. Very little standing water was present at this location, which appears to be marginal CRLF habitat.

Photo taken May 26, 2005

PHOTO DOCUMENTATION

Los Osos Wastewater Disposal Project
Treatment Plant Area
Los Osos, California

WETLAND DELINEATION REPORT

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1.0 INTRODUCTION

1.1 SCOPE

This Wetland Delineation Report summarizes existing soil, hydrology and vegetative conditions found within and adjacent to a swale traversing the proposed Wastewater Treatment Plant (WWTP) site in Los Osos, San Luis Obispo County, California (refer to Figures 1 through 4). Morro Group, Inc. has prepared this report at the request of Crawford, Multari & Clark Associates, and it is intended for use by the Los Osos Community Services District (LOCSD), and regulatory agencies. This report examines potential waters of the United States, as defined by the U.S. Army Corps of Engineers (ACOE) and the California Coastal Commission (CCC) (1994), found in the swale at the proposed WWTP site. Findings reported herein are based on information gathered in the field at the time of investigation, an on-site meeting with ACOE staff, and on Morro Group's understanding of the ACOE 1987 Wetlands Delineation Manual, and federal, state, and local guidelines for identification of wetland areas.

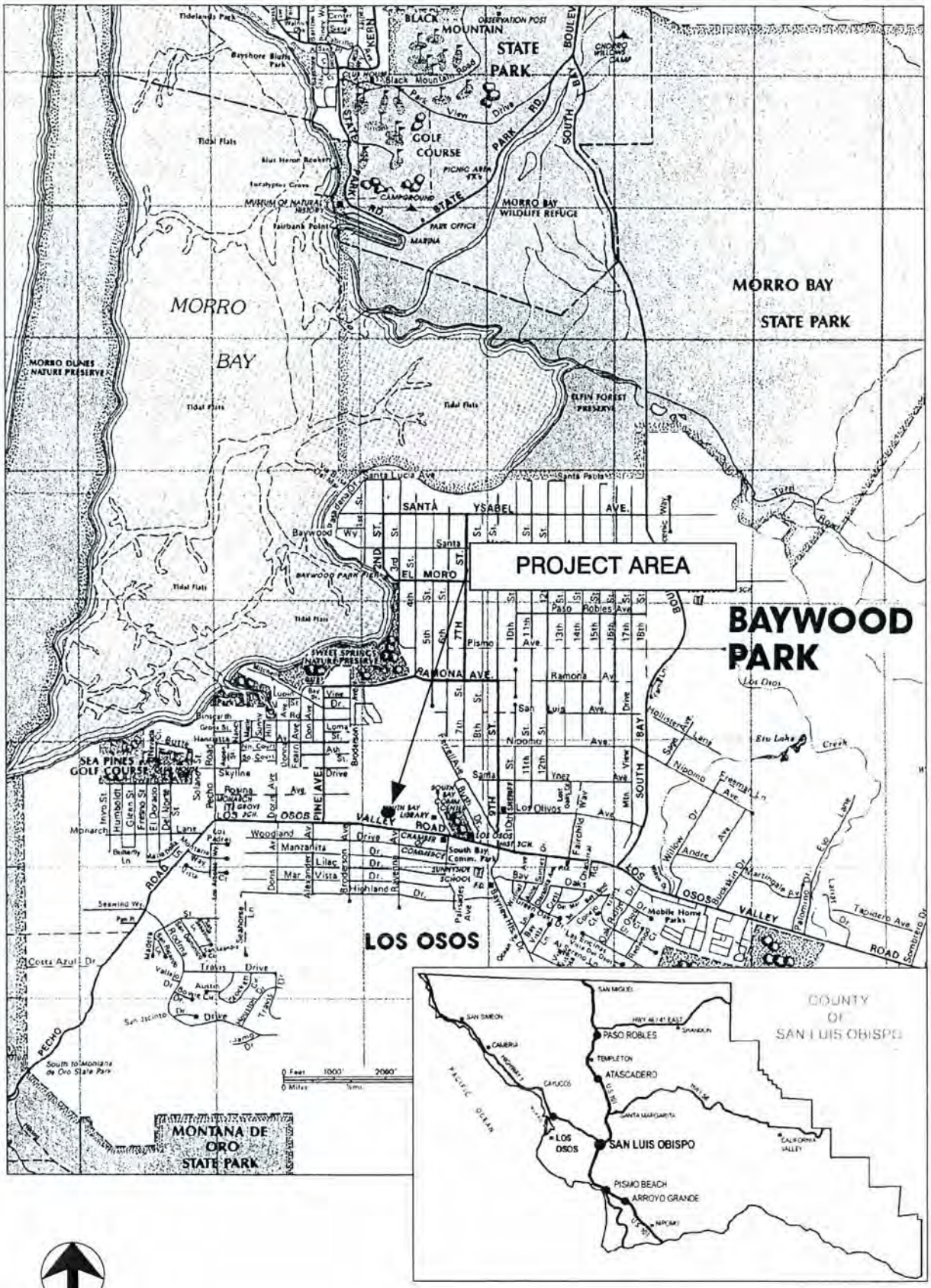
1.2 PROJECT BACKGROUND

The WWTP site is located in the central portion of the community of Los Osos, on the north side of Los Osos Valley Road (LOVR) between Palisades Avenue and a proposed extension of Ravenna Avenue (refer to Figures 1 and 2). The swale examined for ACOE jurisdictional wetlands in this report traverses the WWTP site. A Soil Conservation Service (SCS) soil survey map of the area (SCS, 1984) is included as Figure 3, and soil pit locations and the resulting delineation of jurisdictional areas are shown on Figure 4. Figure 5 provides an aerial view of the area. The proposed WWTP site is located in the Coastal Zone, and the CCC has requested additional information about the swale in an effort to determine whether setbacks from wetland areas will be required for the project.

The proposed WWTP is a major part of the Los Osos Wastewater Disposal Project. The plant will cover a small portion of the approximately 11-acre site between Ravenna Avenue and Palisades Avenue. Underground sewer lines following existing road rights of way will connect the plant to other components of the sewer project.

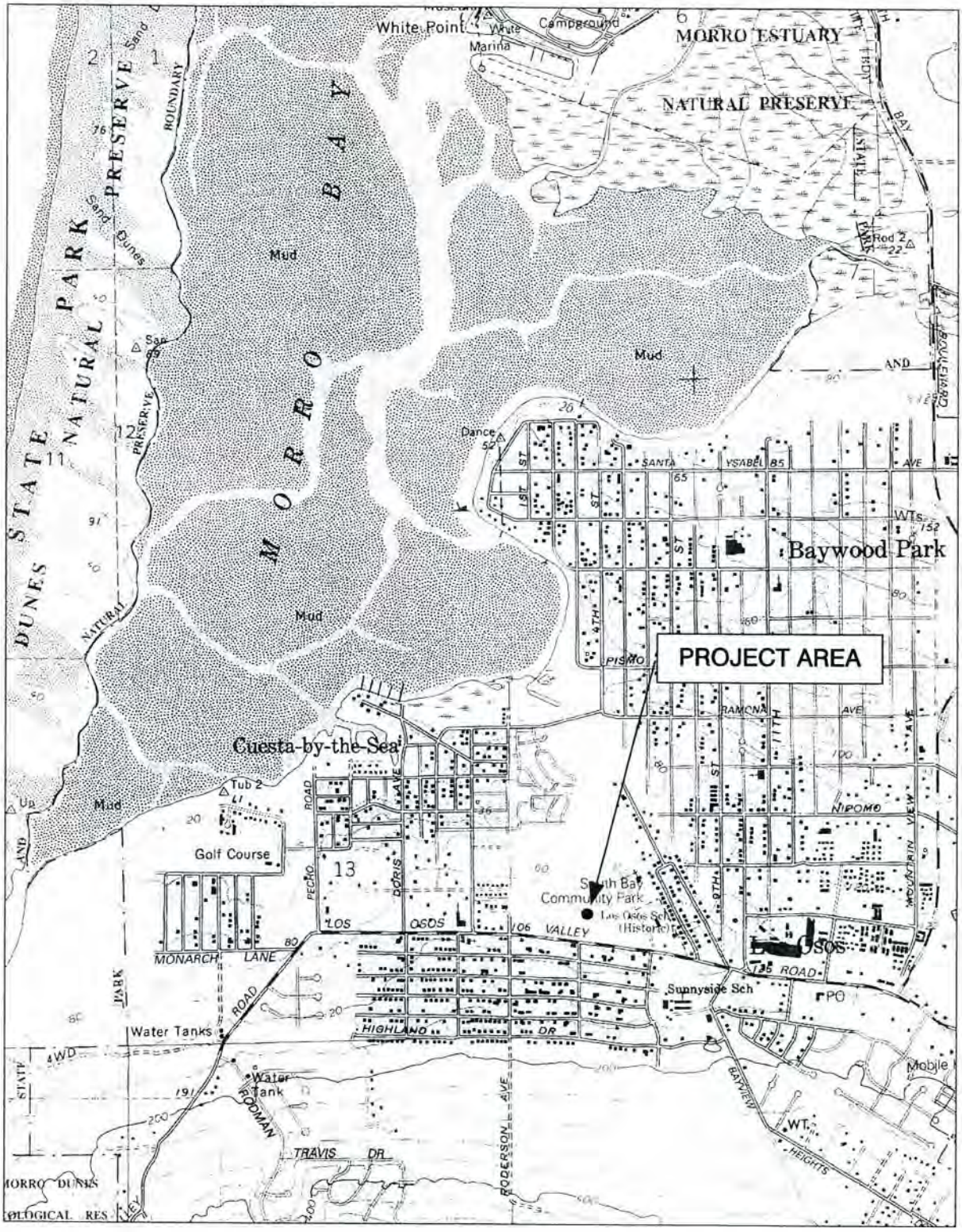
1.3 SITE DESCRIPTION

The WWTP site consists of gently sloping sandy soils dominated by non-native grasses, coastal scrub, and eucalyptus trees on the northern side of LOVR (refer to Figures 4 and 5). The swale examined in this report originates approximately 380 feet west Palisades Avenue, at a 40-inch corrugated metal culvert under LOVR. The swale is approximately 6 to 20 feet wide and approximately 1 to 2 feet deep in most sections. The bed and banks of the swale are vegetated with mostly exotic annual grasses and a few weedy forbs, with no hydrophytic plant species present. The swale travels in a northerly direction for a distance of approximately 110 feet, before it begins to trend roughly northwest for approximately 620 feet, until reaching its terminus in a relatively level, grassy area. No bed, bank, or channel is visible past the northern terminus of the swale, and adjacent areas contain coastal scrub vegetation, non-native grasses, and a stand of large eucalyptus trees.



NORTH
Not to Scale

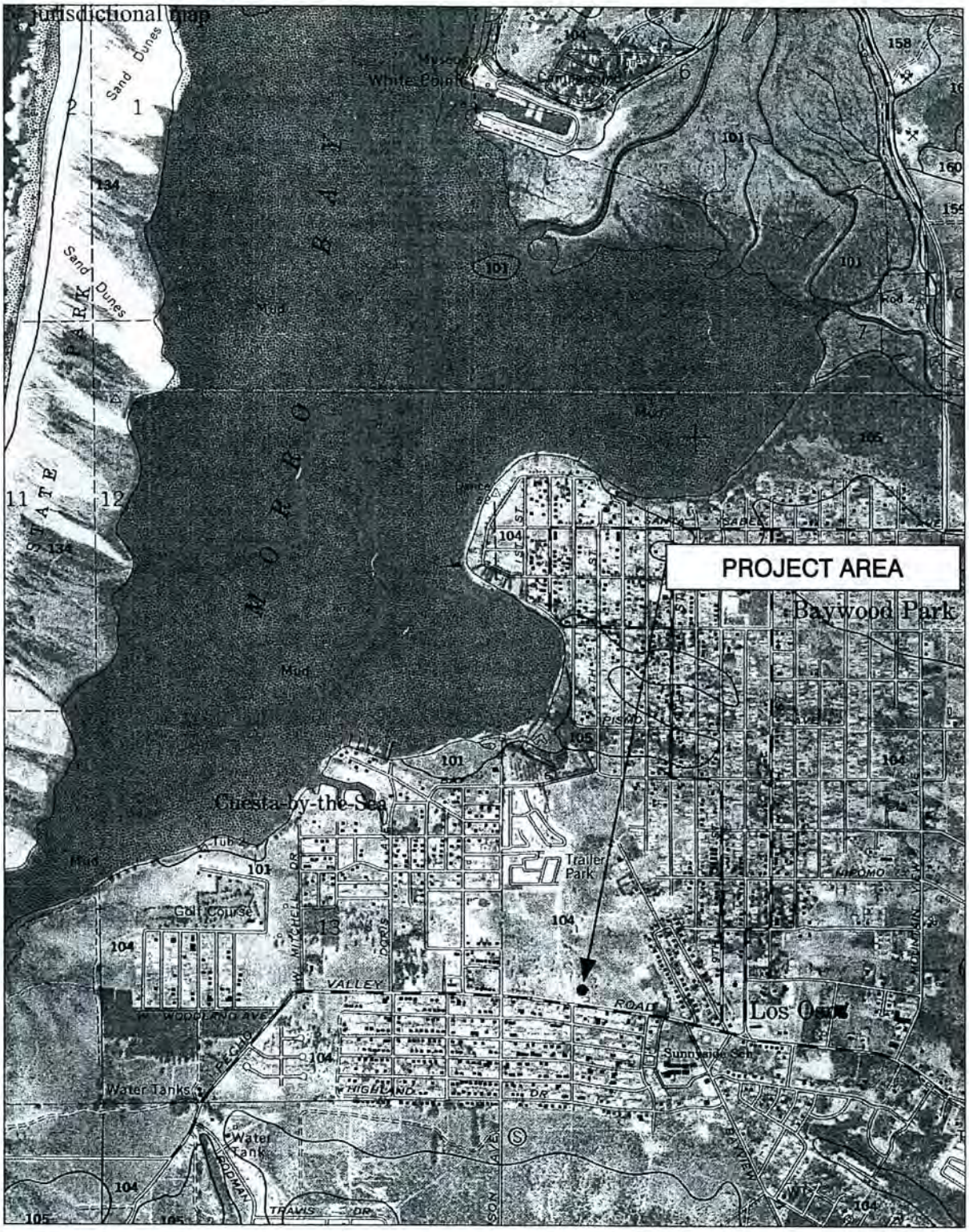
VICINITY MAP
FIGURE 1



Source: USGS Quadrangle – Morro Bay South

NORTH
Not to Scale

PROJECT LOCATION MAP
FIGURE 2



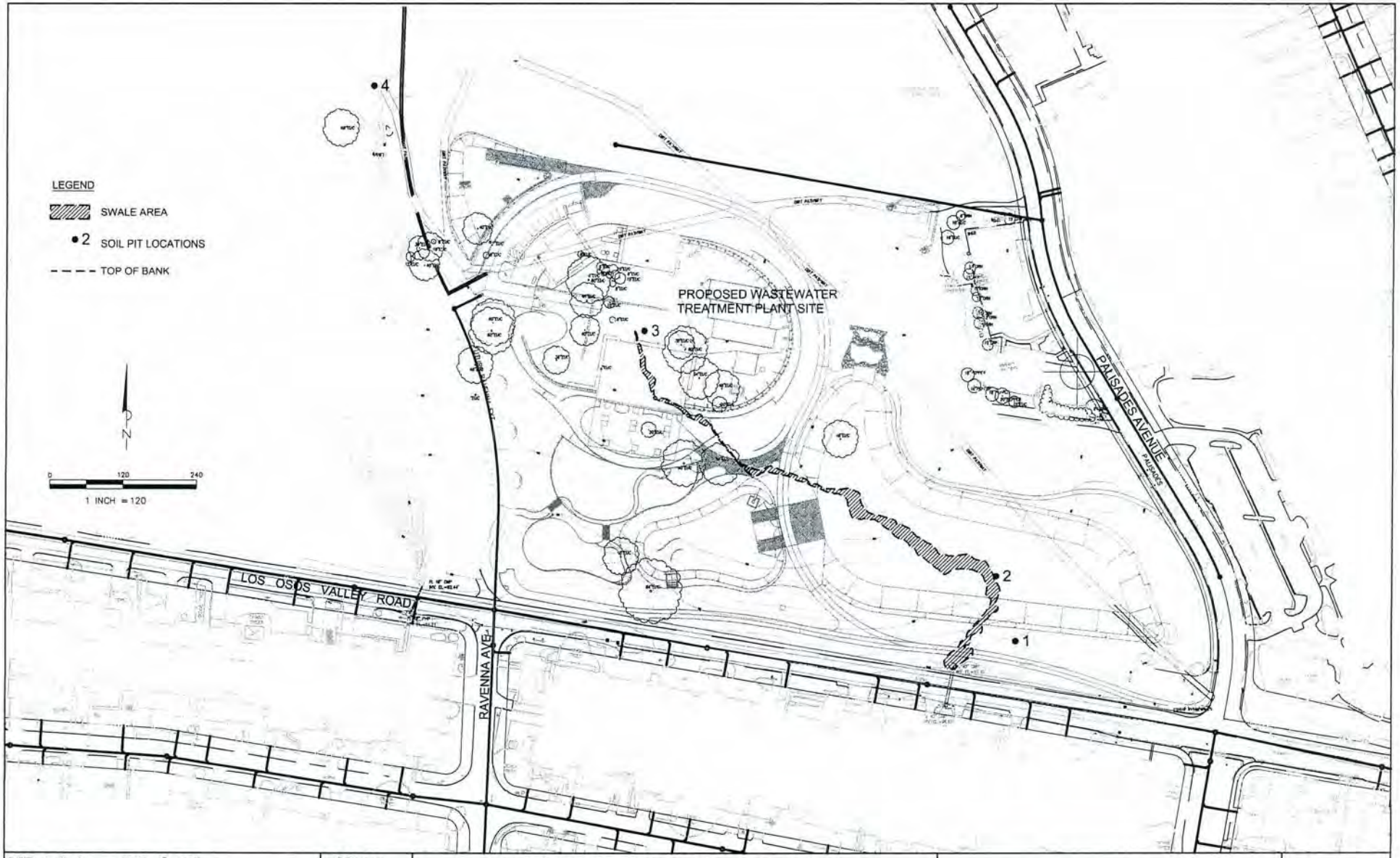
Source: Soil Survey of San Luis Obispo County, Coastal Part – Sheet 8

SOIL KEY

104 Baywood fine sand, 2-9% slopes

NORTH
Not to Scale

SOIL SURVEY MAP
FIGURE 3



SHEET: 1 OF 1 SCALE: 1" = 120'	MORRO GROUP, INC. Environmental Services	LOS OSOS WASTEWATER DISPOSAL PROJECT TREATMENT PLANT AREA	WETLAND DELINEATION MAP	FIGURE 4
CADD FILE: 03-205 LOCSD\ treatment plant\wetdel 9-1-04/impacts			
DATE: 09-07-04 BY: DH REV. 0			

Back of Figure 4.

Aerial Source: Tri-W project aerial

NORTH
Not to Scale

PROJECT LOCATION AERIAL
FIGURE 5

back of fig 5

2.0 METHODOLOGY

The primary literature reviewed and referenced as part of this wetland determination included SCS (1983, 1992), USGS (1979), Cowardin et al. (1979), Hickman (1993), Hoover (1970), Holland (1986), and Reed (1988, 1996). Specific references not listed above are cited in text.

2.1 DELINEATION PROCEDURE

Examination of the swale at the WWTP site was based on review of pertinent literature and a thorough on-site investigation conducted in August and September 2004 by Morro Group, Inc. Biologist and Wetland Training Institute certified wetland delineator Geoff Hoetker. The routine wetland determination methodology, as described in the 1987 ACOE Wetlands Delineation Manual (Environmental Laboratory, 1987), was utilized throughout the delineation. Potential wetland areas were also evaluated using the CCC single parameter wetland definition in addition to the ACOE three-parameter methodology. Representative soil pits and surrounding vegetation were evaluated to investigate the presence of hydric soils, hydrophytic vegetation, and wetland hydrology. The swale boundaries identified during the delineation followed the observed topographic relief, and were mapped using a Trimble Pathfinder GPS unit capable of accuracy to approximately 10 centimeters.

2.2 FUNCTION AND VALUE ASSESSMENT

The functions and values of the swale traversing the WWTP site were evaluated according to ACOE protocol (Adamus et al., 1987). Table 1 is a synthesis of methodologies used to evaluate the functions and values of wetland habitats. Rating criteria were derived from Adamus et al. (1987), Adamus and Stockwell (1983), and Reppert et al. (1979).

TABLE 1
Wetland Function and Value Rating Criteria

Function / Value	Rating		
	Low	Moderate	High
Water Quality Improvement	<5 acres in size; <50% vegetation density; no proximity to pollutants.	5-10 acres in size; 50-80% vegetation density; adjacent to non-point pollutants.	>10 acres in size; >80% vegetation density; downstream from point discharges.
Storm- and Floodwater Storage	<5 acres in size; <10% woody cover; permanently flooded; unconstrained outlet.	5-10 acres in size; 10-30% woody cover.	>10 acres in size; urban and developable areas; >30% woody cover; seasonal hydroperiod; constrained outlet.
Groundwater Discharge	Isolated depression; temporarily saturated or inundated.	Open drainage system; seasonally flooded.	Open tidal systems; permanent saturation or inundation.
Groundwater Recharge	<5 acres in size; isolated depression; temporarily saturated or inundated; impermeable substrate.	5-10 acres in size; seasonally flooded.	>10 acres in size; permanent inundation; several feet deep; permeable substrate.
Natural Biological Support	Small size; low species diversity; one vegetation layer; no sensitive or water-dependent species.	Medium size; moderate species diversity; several vegetation layers; water-dependent species; no sensitive species.	Large size; high species diversity; water-dependent and sensitive species; many vegetation layers.

3.0 RESULTS

3.1 SOIL CONDITIONS

The Soil Conservation Service (1983) mapped one soil series within the project site: Baywood fine sand, 2 to 9 percent slopes (refer to Figure 3).

Baywood fine sand (moist) consists of a very dark grayish brown (10YR 2/2 moist) fine sand about 36 inches thick, above dark grayish brown (10YR 5/3) mottled (5YR 3/2) fine sand to a depth of 60 inches or more. Permeability of Baywood fine sand soil is rapid, and the available water capacity is low. Baywood fine sand is not listed as a hydric soil in the SCS Comprehensive Hydric Soils List for San Luis Obispo County (SCS, 1992).

3.1.1 Soil Test Pits

Three soil test pits were excavated during the delineation: one on level soil east of the swale, one within the bottom of the swale just before it begins to trend to the northwest, and one at the center of the swale terminus (refer to Figure 4 for pit locations). The investigation found dry sand soils in all pits. The dry sand soil observed in test pits #1, #2, and #3 exhibited very dark grayish brown (10YR 2/2 moist) colors to the bottom of each test pit (0-16 inches), matching the Baywood fine sand description. No evidence of mottling or redoxomorphic features were observed within any of the pits.

3.2 HYDROLOGIC CONDITIONS

The swale originates at a 40-inch culvert under LOVR between Palisades Avenue and the proposed Ravenna Avenue extension. This swale is apparently man-made and receives stormwater flows from a drop inlet on the south side of LOVR. Runoff from residential areas along LOVR is conveyed through the culvert under LOVR into the swale, which has no connection to any natural water source. The swale continues to meander north and then northwest and gradually ends in a grassy field northwest of where it originates at the culvert under LOVR. In some areas, the swale has not eroded away to form an open channel, where flows evidently have cut under and around large chunks of sand, creating a "honeycomb" effect. This suggests that flows in the swale have been infrequent or of short duration. The bottom and sides of the swale are dominated by non-native grass species similar to conditions observed on the treatment plant site and surrounding areas, and did not contain any hydrophytic plant species. No flowing or ponded water was observed in the swale during the delineation.

3.3 VEGETATIVE CONDITIONS

Upland areas of the WWTP site and the swale are dominated by non-native grasses and weedy forbs. Upland areas surrounding the swale are vegetated by mainly veldt grass (*Ehrharta calycina*), with coastal scrub species in some areas including coyote brush (*Baccharis pilularis*), dune bush lupine (*Lupinus chammissonis*), and mock heather (*Ericameria ericoides*). A stand of large blue gum (*Eucalyptus globulus*) is also present in the area. The man-made swale delineated in this report contained no wetland or riparian plant species. Vegetation within the swale is dominated by veldt grass, fennel (*Foeniculum vulgare*), and wild radish (*Raphanus sativus*). Sea fig (*Carporbrotus edulis*) is also growing near the outlet of the culvert passing under LOVR, which conveys runoff into the swale. None of the species observed in upland areas on the

WWTP site, or in the swale examined in this report, support hydrophytic vegetation (Reed, 1988; 1996).

3.4 JURISDICTIONAL DETERMINATION

No areas that exhibited hydric soil or vegetative indicators per ACOE guidelines were observed, and hydrologic criteria per ACOE guidelines was not present due to the lack of any connection between the swale and a natural water source or wetland area (refer to Figures 4 and 5). The swale appears to be man-made and does not appear to meet CCC jurisdictional wetland guidelines. Swale boundaries identified during the delineation followed the tops of banks on the site. The swale area as mapped for this report covered a total of 7,957 square feet (0.18 acres) as shown on Figure 4. Table 2 summarizes the results of the wetland assessment by soil pit sample plot (refer to Figure 4 for soil pit locations).

Table 2

Jurisdictional Determination Summary

Soil Pit/Sample Plot Area	Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology	Determination	
				Corps	CCC
1	No	No	No	Non-Wetland	Non-Wetland
2	No	No	No	Non-Wetland	Non-Wetland
3	No	No	No	Non-Wetland	Non-Wetland

3.5 FUNCTIONS AND VALUES OF IDENTIFIED JURISDICTIONAL AREAS

Using the rating criteria from Table 1 (refer to Section 2.2), the identified swale area ranks low in function and value, being limited primarily by lack of connection with a natural water source, limited vegetative diversity, and highly erodible soils (refer to following Table 3).

Table 3

Function and Value Ratings of Mapped Areas

Resource	Size	Water Quality	Storage	Discharge	Recharge	Biological Support
Swale	7,957 ft^2 0.18 acres	None	None	Low	None	Low

4.0 DISCUSSION

The swale identified in this report consists of a sandy wash that conveys stormwater runoff from residential areas adjacent to and south of LOVR, with no connection to natural water sources. The swale is dominated with non-native upland grasses and weedy forb species, and consists of highly erodible sandy soils. No areas that exhibited hydric soil, vegetation, or hydrology indicators per ACOE guidelines were observed. No significant biological functions and values typically associated with wetland or riparian areas were identified within the swale area. The

observed conditions indicate that the swale does not qualify as a wetland under ACOE or CCC definitions.

5.0 REGULATORY IMPLICATIONS

5.1 U.S. ARMY CORPS OF ENGINEERS

Section 404 of the Clean Water Act (CWA) regulates activities that result in the discharge of dredge or fill materials into Waters of the United States, including wetlands. The ACOE is charged with administering and regulating various sections of the CWA. Wetlands are defined in the ACOE Wetlands Delineation Manual (Environmental Laboratory, 1987) as:

> "*Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.*"

No areas were identified that fall under ACOE jurisdiction.

5.2 CALIFORNIA DEPARTMENT OF FISH AND GAME

Sections 1600 through 1607 of the California Fish and Game (CDFG) Code regulate activities that would alter the flow, bed, channel, or bank of streams and lakes. CDFG jurisdiction typically extends to the top of the creek bank or the outside edge of riparian vegetation. It is unlikely that the swale falls under CDFG jurisdiction, because 1) it is apparently a man-made drainage ditch with no hydrological connection to any other streams or tributaries; 2) there is no stream or wetland function or value; and 3) there is no riparian corridor associated with the swale.

5.3 REGIONAL WATER QUALITY CONTROL BOARD

Section 401 of the Clean Water Act regulates activities that have the potential to cause water quality impacts to Waters of the United States, including wetlands, as defined by the ACOE. No areas were identified that fall under Regional Water Quality Control Board jurisdiction.

5.4 CALIFORNIA COASTAL COMMISSION

The California Coastal Act was enacted in 1976 to provide long-term protection of California's coastal resources. The Act's coastal resources management policies are based on recommendations contained in the California Coastal Plan. One such policy includes "*Protection, enhancement and restoration of environmentally sensitive habitats, including intertidal and nearshore waters, wetlands, bays and estuaries, riparian habitat, certain wood and grasslands, streams, lakes, and habitat for rare or endangered plants or animals.*"

The California Coastal Commission regulates wetland areas within the coastal zone as defined under Coastal Act Section 30121. The Coastal Act defines a wetland as:

> *"Lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens."*

The swale contains no wetland vegetation and does not provide any biological functions and values typically associated with wetland areas.

6.0 REFERENCES

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United States Geological Service. 1994. 7.5 minute series quadrangle for Morro Bay South.

ATTACHMENT A

- Field Data Sheets

Routine Wetland Determination Form

Applicant: LOCSD **Project:** Los Osos WWTP **Date:** 8/24/04
State: CA **County:** SLO **Transect/Pit No.:** 1
Investigators: Hoetker **Transect/Pit Area:** East of swale on proposed WWTP site
Vegetation Community (Cowardin Classification):

VEGETATION

Dominant Plant Species	Habit	Indicator	Percent Cover	Dominant Plant Species	Habit	Indicator	Percent Cover
Ehrharta calycina	herb	FACW	75				

Percent of Dominant Species that are OBL, FACW, or FAC: 0% **Taxonomic Reference:** Hickman, Reed

SOIL

Map Unit: Baywood fine sand, 2-9% slopes

Profile Description:

0-16" very dark grayish brown dry sand (10YR 2/2 moist)

Hydric Soil List? ☐ Yes ☒ No
Mottles? ☐ Yes ☒ No
Gleyed? ☐ Yes ☒ No
NRCS Match? ☐ Yes ☒ No
Other Indicators: None.

HYDROLOGY

Inundated? ☐ Yes ☒ No **Saturated Soil?** ☐ Yes ☒ No **Depth:**
Sediment Deposits? ☐ Yes ☒ No **Drift Lines?** ☐ Yes ☒ No
Depth of Surface Water: none **Water Marks?** ☐ Yes ☒ No
Depth of Free Water in Pit: none **Oxidized Rhizospheres?** ☐ Yes ☒ No **Color:**
Other Indicators: None.

WETLAND DETERMINATION

Vegetation Criterion Met? ☐ Yes ☒ No **Normal Circumstances?** ☒ Yes ☐ No
Hydric Soil Criterion Met? ☐ Yes ☒ No
Hydrology Criterion Met? ☐ Yes ☒ No **Is this Plot within a Wetland?** ☐ Yes ☒ No
Comments: Upland area dominated by veldt grass.

Morro Group Determination by: _____
Signature

Rev: 12/1/00

Routine Wetland Determination Form

Applicant: LOCSD **Project:** Los Osos WWTP **Date:** 8/24/04
State: CA **County:** SLO **Transect/Pit No.:** 2
Investigators: Hoetker **Transect/Pit Area:** Bottom of swale on proposed WWTP site
Vegetation Community (Cowardin Classification):

VEGETATION

Dominant Plant Species	Habit	Indicator	Percent Cover	Dominant Plant Species	Habit	Indicator	Percent Cover
Ehrharta calycina	herb	UPL	30				
Raphanus sativus	herb	UPL	20				
Foeniculum vulgare	herb	FACU-	20				

Percent of Dominant Species that are OBL, FACW, or FAC: 0% **Taxonomic Reference:** Hickman, Reed

SOIL

Map Unit: Baywood fine sand, 2-9% slopes

Profile Description:

0-16" very dark grayish brown dry sand (10YR 2/2 moist)

Hydric Soil List? ☐ Yes ☒ No
Mottles? ☐ Yes ☒ No
Gleyed? ☐ Yes ☒ No
NRCS Match? ☐ Yes ☒ No
Other Indicators: None.

HYDROLOGY

Inundated? ☐ Yes ☒ No **Saturated Soil?** ☐ Yes ☒ No **Depth:**
Sediment Deposits? ☐ Yes ☒ No **Drift Lines?** ☐ Yes ☒ No
Depth of Surface Water: none **Water Marks?** ☐ Yes ☒ No
Depth of Free Water in Pit: none **Oxidized Rhizospheres?** ☐ Yes ☒ No **Color:**
Other Indicators: None.

WETLAND DETERMINATION

Vegetation Criterion Met? ☐ Yes ☒ No **Normal Circumstances?** ☒ Yes ☐ No
Hydric Soil Criterion Met? ☐ Yes ☒ No
Hydrology Criterion Met? ☐ Yes ☒ No **Is this Plot within a Wetland?** ☐ Yes ☒ No
Comments: Drainage swale.

Morro Group Determination by: _____
Signature

Rev: 12/1/00

Routine Wetland Determination Form

Applicant: LOCSD **Project:** Los Osos WWTP **Date:** 8/24/04
State: CA **County:** SLO **Transect/Pit No.:** 3
Investigators: Hoetker **Transect/Pit Area:** Terminus of swale on proposed WWTP site
Vegetation Community (Cowardin Classification):

VEGETATION

Dominant Plant Species	Habit	Indicator	Percent Cover	Dominant Plant Species	Habit	Indicator	Percent Cover
Ehrharta calycina	herb	UPL	100				

Percent of Dominant Species that are OBL, FACW, or FAC: 0% **Taxonomic Reference:** Hickman, Reed

SOIL

Map Unit: Baywood fine sand, 2-9% slopes

Profile Description:

0-16" very dark grayish brown dry sand (10YR 2/2 moist)

Hydric Soil List? ☐ Yes ☒ No
Mottles? ☐ Yes ☒ No
Gleyed? ☐ Yes ☒ No
NRCS Match? ☐ Yes ☒ No
Other Indicators: None.

HYDROLOGY

Inundated? ☐ Yes ☒ No **Saturated Soil?** ☐ Yes ☒ No **Depth:**
Sediment Deposits? ☐ Yes ☒ No **Drift Lines?** ☐ Yes ☒ No
Depth of Surface Water: none **Water Marks?** ☐ Yes ☒ No
Depth of Free Water in Pit: none **Oxidized Rhizospheres?** ☐ Yes ☒ No **Color:**
Other Indicators: None.

WETLAND DETERMINATION

Vegetation Criterion Met? ☐ Yes ☒ No **Normal Circumstances?** ☒ Yes ☐ No
Hydric Soil Criterion Met? ☐ Yes ☒ No
Hydrology Criterion Met? ☐ Yes ☒ No **Is this Plot within a Wetland?** ☐ Yes ☒ No
Comments: Terminus of swale in level area dominated by veldt grass with no defined bed or bank.

Morro Group Determination by: _____
Signature

Rev: 12/1/00

ATTACHMENT B

- Photo Documentation

Photo 1:

View of proposed Wastewater Disposal Project Treatment Plant site. The swale examined in the Wetland Delineation Report originates southeast of this location and traverses this area. General vicinity of swale is marked by white arrow. Photo taken September 3,

Photo 2:

View of culvert outlet to swale, running under LOVR, marked by white arrow. Note presence of sea-fig around culvert outlet and weedy vegetation such as fennel and wild radish. Photo taken September 3, 2004.

PHOTO DOCUMENTATION

Photo 3:

North-facing view of swale from culvert outlet under LOVR. Note presence of sea-fig and weedy vegetation such as fennel and wild radish. Photo taken September 3, 2004.

Photo 4:

East-facing view of location for soil test pit #1, marked by shovel and white arrow. Note presence of upland vegetation such as veldt grass and scattered mock heather shrubs. Photo taken September 3, 2004.

PHOTO DOCUMENTATION

Photo 5:

North-facing view of location for soil test pit #2 in swale, marked by shovel and white arrow. Note presence of veldt grass and fennel, with scattered areas of coastal scrub. Photo taken September 3, 2004.

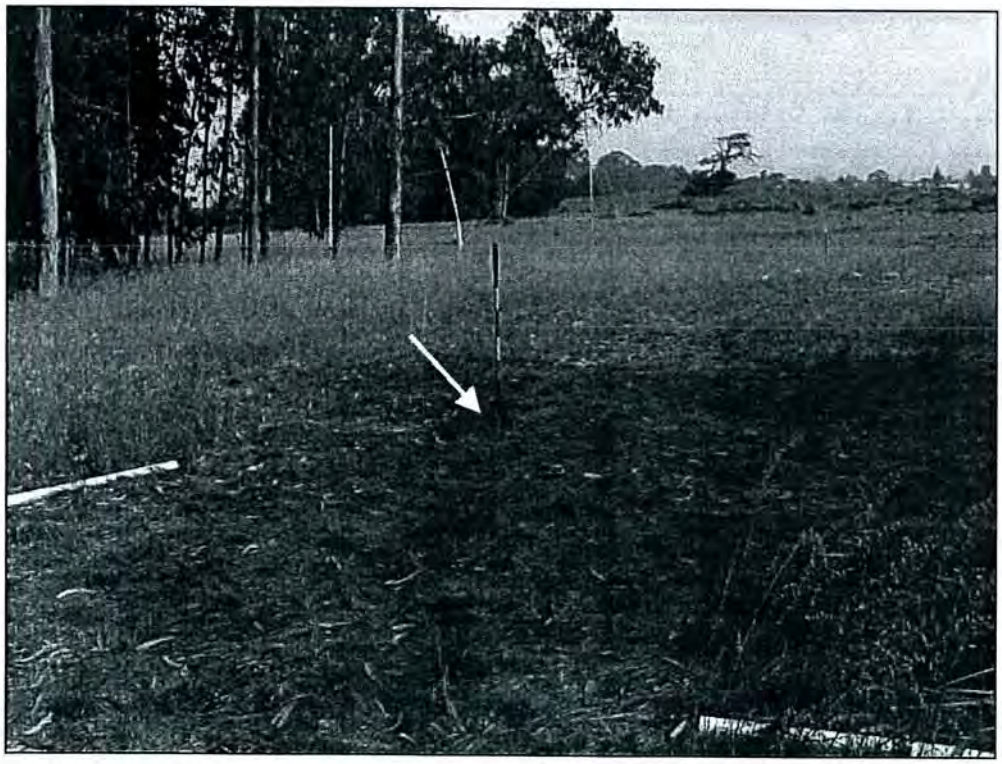


Photo 6:

North-facing view of location for soil test pit #3 at swale terminus, marked by shovel and white arrow. Note dominance of veldt grass. Photo taken September 3, 2004.

PHOTO DOCUMENTATION

ATTACHMENT A

- Field Data Sheets

Routine Wetland Determination Form

Applicant: Crawford Multari Clark Assoc. **Project:** Lupine St. Pump Station **Date:** 5/6/04
State: CA **County:** SLO **Transect/Pit No.:** 3
Investigators: Sloan **Transect/Pit Area:** Donna Ave. right-of-way
Vegetation Community (Cowardin Classification): Seasonal drainage channel

VEGETATION

Dominant Plant Species	Habit	Indicator	Percent Cover	Dominant Plant Species	Habit	Indicator	Percent Cover
Carex pansa	Forb	FACU	60				
Bromus carinatus	Grass	none	15				
Juncus acutus	Forb	FACW	10				
Eucalyptus globulus	Tree	none	80				
Cortedaria jubata	Grass	none	15				

Percent of Dominant Species that are OBL, FACW, or FAC: 20% **Taxonomic Reference:** Hickman/Reed

SOIL

Map Unit: Baywood fine sand, 2-9 percent slopes

Profile Description:
0-2 moist sandy clay, 10YR2/2
2-16 moist sand, 10YR3/1

Hydric Soil List? ☐ Yes ☒ No
Mottles? ☐ Yes ☒ No
Gleyed? ☐ Yes ☒ No
NRCS Match? ☒ Yes ☐ No
Other Indicators: none

HYDROLOGY

Inundated? ☐ Yes ☒ No **Saturated Soil?** ☐ Yes ☒ No **Depth:**
Sediment Deposits? ☐ Yes ☒ No **Drift Lines?** ☐ Yes ☒ No
Depth of Surface Water: none **Water Marks?** ☐ Yes ☒ No
Depth of Free Water in Pit: none **Oxidized Rhizospheres?** ☐ Yes ☒ No **Color:**
Other Indicators: Pit located within seasonal drainage that receives stormwater runoff and connects to Morro Bay estuary

WETLAND DETERMINATION

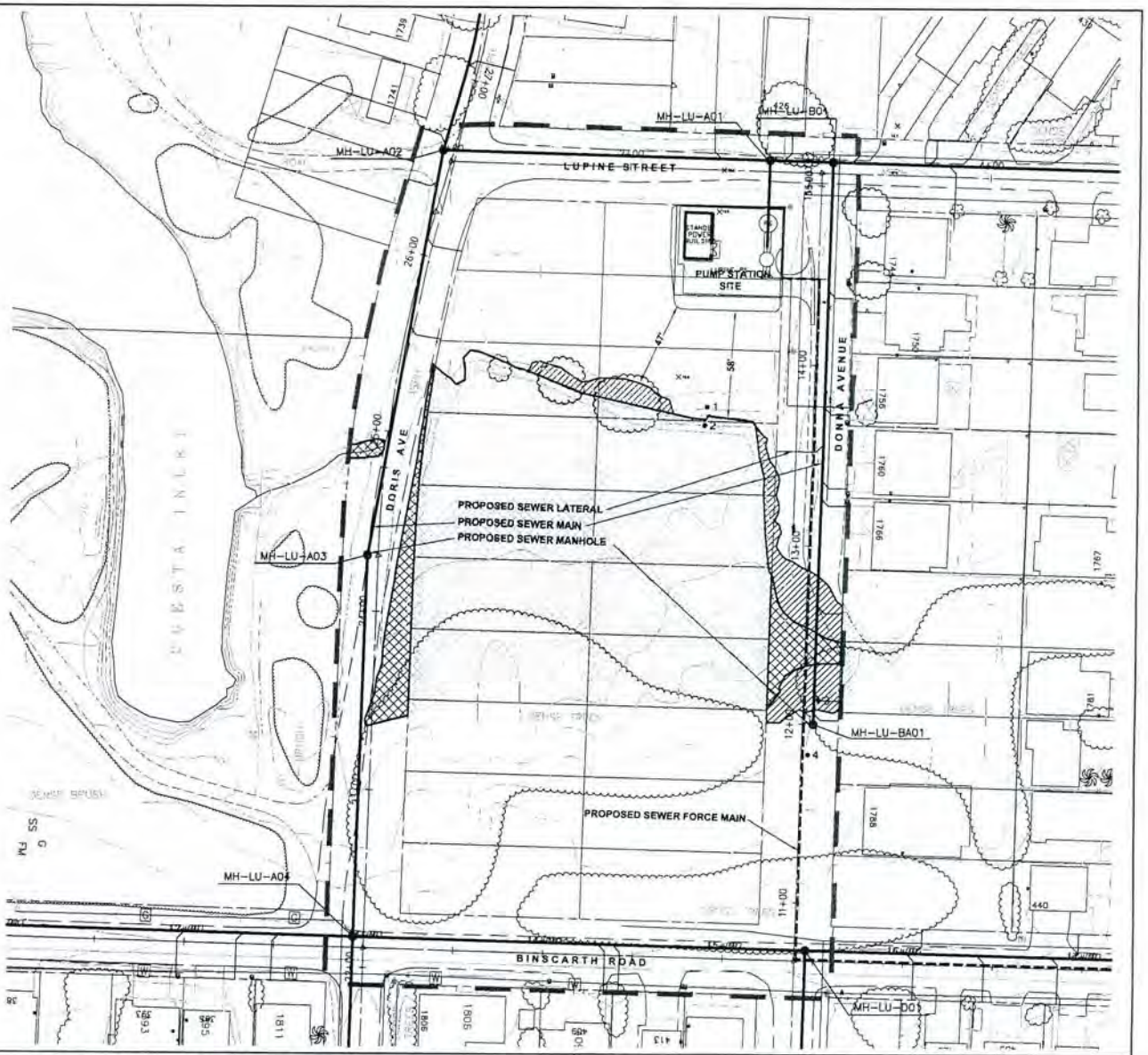
Vegetation Criterion Met? ☐ Yes ☒ No **Normal Circumstances?** ☒ Yes ☐ No
Hydric Soil Criterion Met? ☒ Yes ☐ No
Hydrology Criterion Met? ☒ Yes ☐ No **Is this Plot within a Wetland?** ☐ Yes ☒ No
Comments: ruderal extension of larger depressional wetland area-appears to meet ACOE Other Waters definition

Morro Group Determination by: _____
Signature

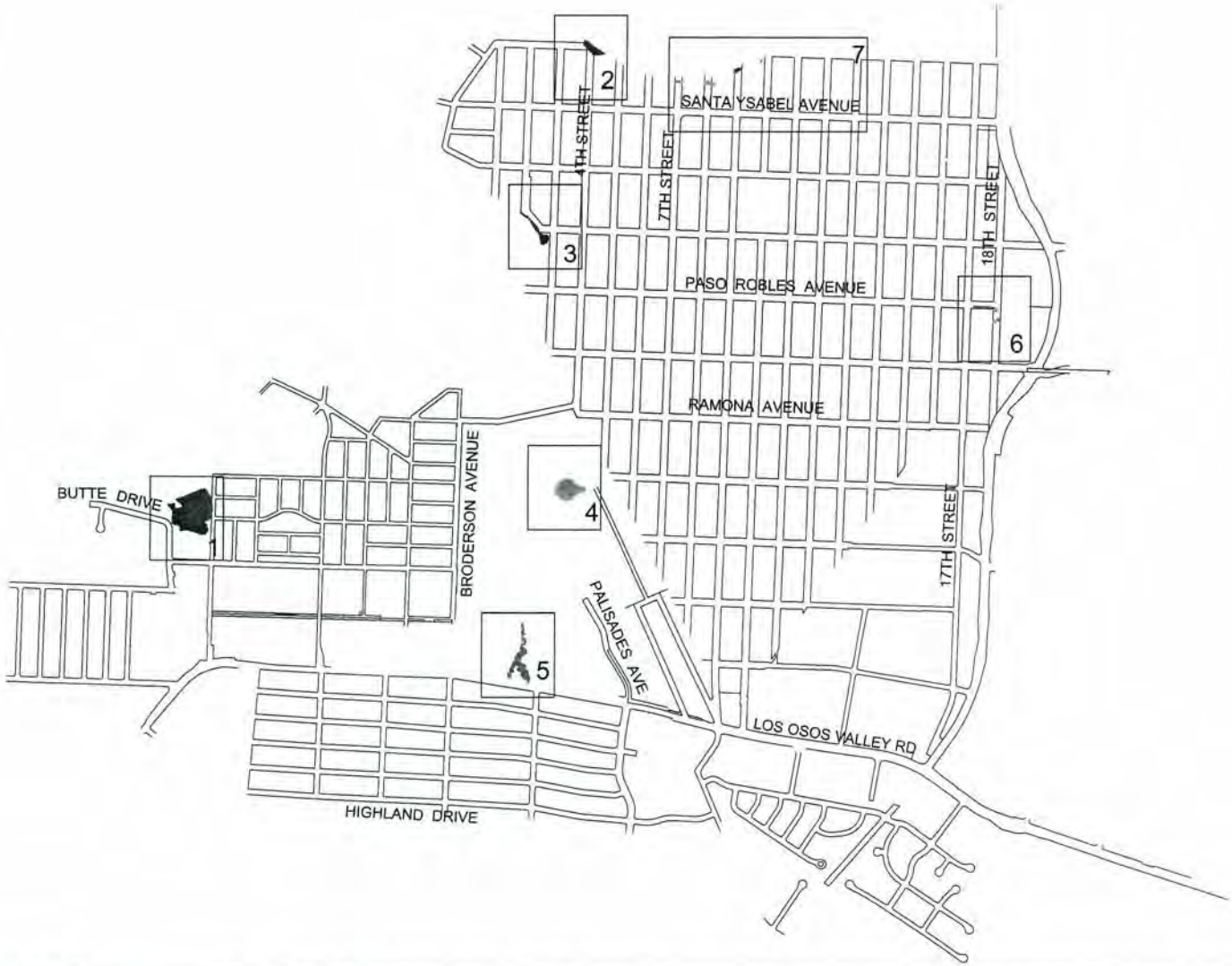
Rev: 12/1/00

ATTACHMENT B

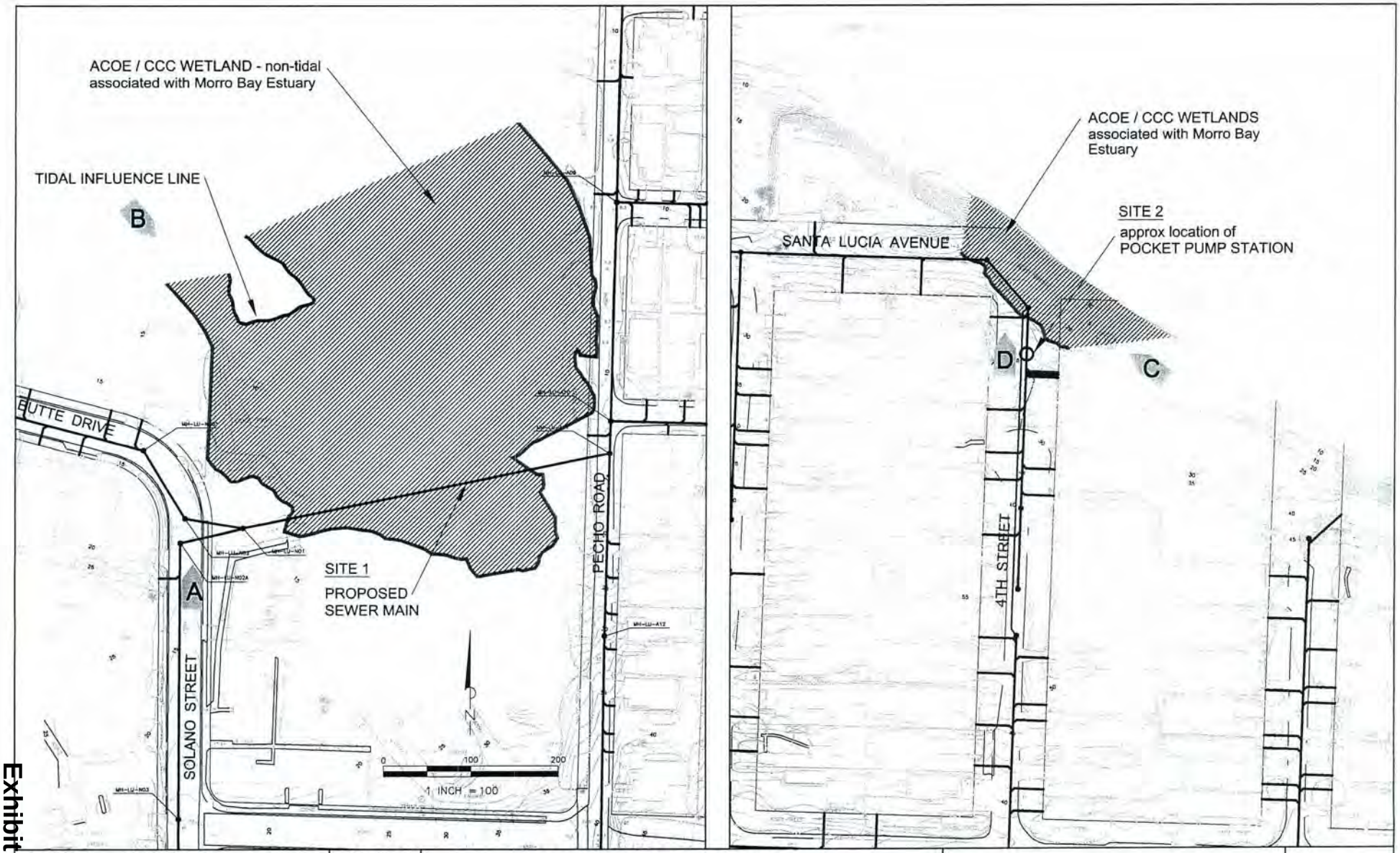
- Photo Documentation



SHEET: 1 OF 1 SCALE: 1" = 60' CADD FILE: 03-205 LOCSD\acad-lupine\GPS-wetdel.dwg DATE: 6-9-04 BY: dh REV. 0	MORRO GROUP, INC. Environmental Services	**WETLAND DELINEATION REPORT** **Lupine Street Pump Station - Los Osos, California**	**JURISDICTIONAL WETLAND AREAS**	**FIGURE 6**



SHEET: 1 OF 4 SCALE: 1" = 1200' CADD FILE: 03-205 LOCSD Waterwater\wetdel 6-23-04.dwg/key DATE: 06-30-04 BY: dh REV.	MORRO GROUP, INC. Environmental Services	POTENTIAL WETLAND CONSTRAINTS LOCSD Wastewater Facilities Project - Los Osos, California	KEY MAP	FIGURE 1



SHEET: 2 OF 4 SCALE: 1" = 100'
CADD FILE: 03-205 LOCSD Wastewater\wetdel 6-23-04.dwg/site1-2
DATE: 06-24-04; 07-15-04 dh REV. 1-site2PS

MORRO GROUP, INC.
Environmental Services

POTENTIAL WETLAND CONSTRAINTS
LOCSD Wastewater Facilities Project - Los Osos, California

POTENTIAL WETLAND AREAS - SITES 1 & 2

FIGURE 2

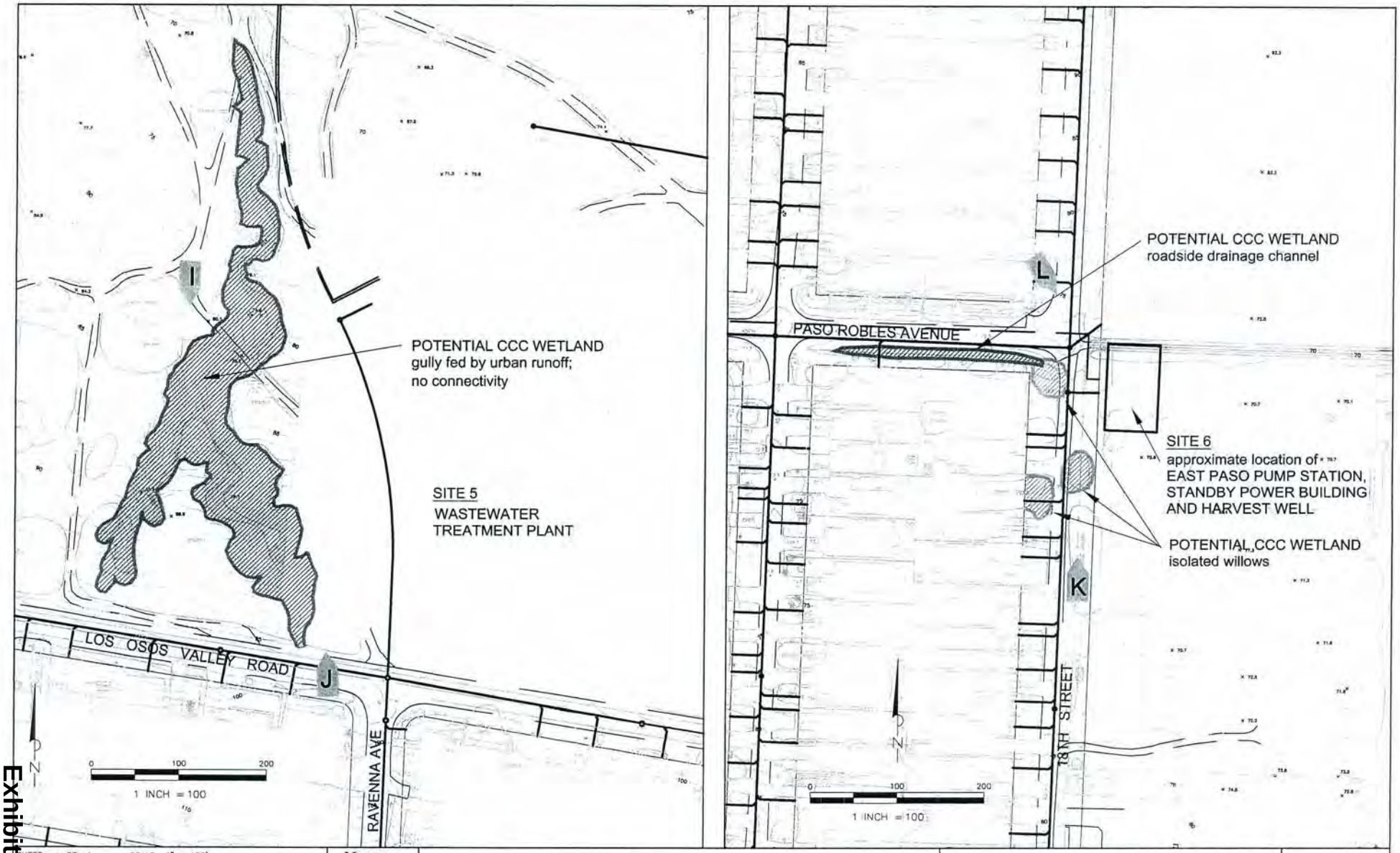
SHEET: 3 OF 4 SCALE: 1" = 100'
CADD FILE: 03-205 LOCSD Wastewater\wetdel 6-23-04.dwg/site 3-4
DATE: 06-24-04 BY: dh REV.

MORRO GROUP, INC.
Environmental Services

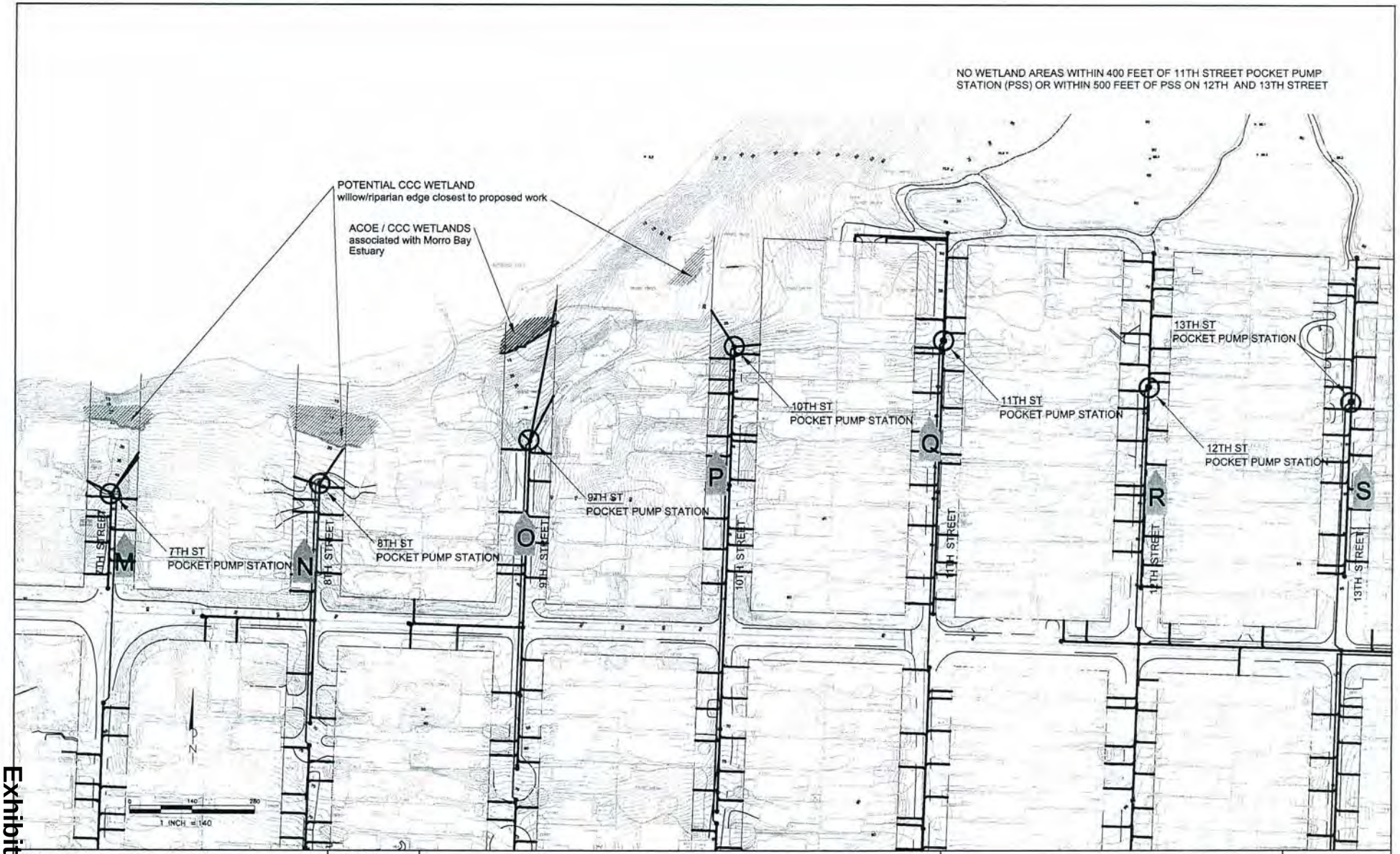
POTENTIAL WETLAND CONSTRAINTS
LOCSD Wastewater Facilities Project - Los Osos, California

POTENTIAL WETLAND AREAS - SITES 3 & 4

FIGURE 3



SHEET: 4 OF 4 SCALE: 1" = 100'	MORRO GROUP, INC. Environmental Services	POTENTIAL WETLAND CONSTRAINTS LOCSD Wastewater Facilities Project - Los Osos, California	POTENTIAL WETLAND AREAS - SITES 5 & 6
CADD FILE: 03-205 LOCSD Wastewater\wetdel 6-23-04.dwg/site5-6			FIGURE 4
DATE: 06-24-04 BY: dh REV.			



SHEET: 2 OF 4 SCALE: 1" = 140'
CADD FILE: 03-205 LOCSD Wastewater\wetdel 6-23-04.dwg/site7
DATE: 06-30-04 BY: dh REV.

MORRO GROUP, INC.
Environmental Services

POTENTIAL WETLAND CONSTRAINTS
LOCSD Wastewater Facilities Project - Los Osos, California

POTENTIAL WETLAND AREAS - SITE 7

FIGURE 5

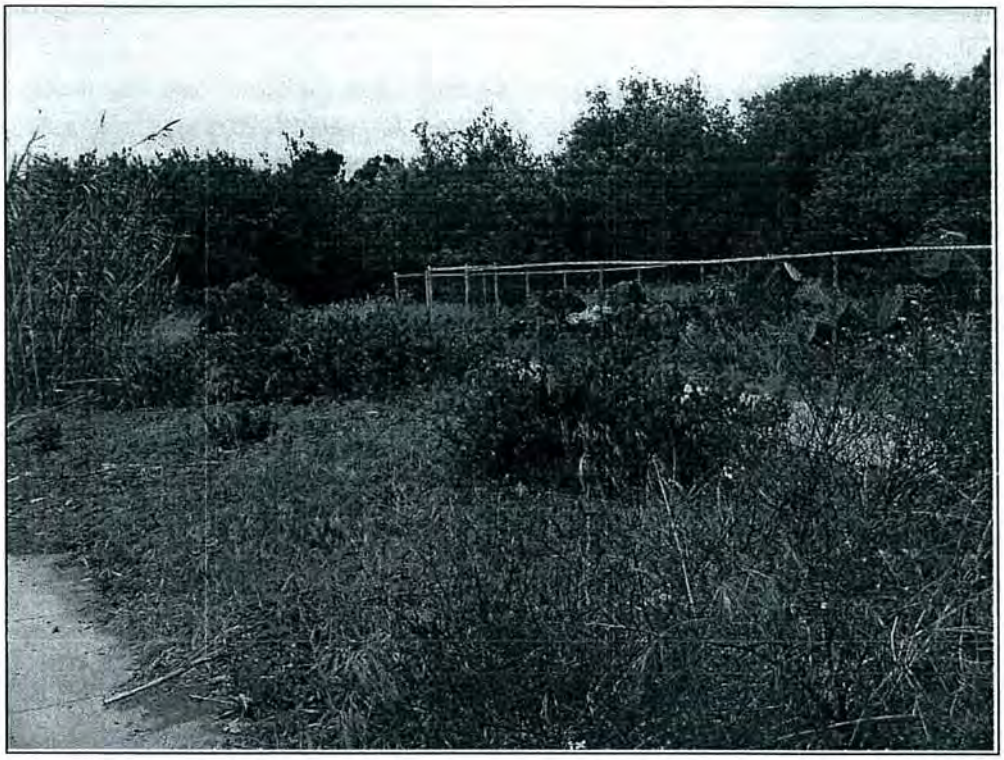


Photo A:

Looking north along Solano Street toward Butte Drive wetland area. Note dense willow canopy in depressional area adjacent to Sea Pines Golf Course fenceline. Proposed sewer pipeline would cross southern portion of the willow canopy in the general area shown in the picture.

Photo B:

Looking south from tidally influenced area of Morro Bay toward the Butte Drive willow canopy. Note tidal channel and adjacent salt marsh areas. No tidal influence was observed within the willow canopy area.

PHOTO DOCUMENTATION – SITE 1

Photo C:

Viewing west along edge of vegetation at end of 4th Street / Santa Lucia Avenue. Note poplar, blackberry, and willow along bank leading down to the Bay.

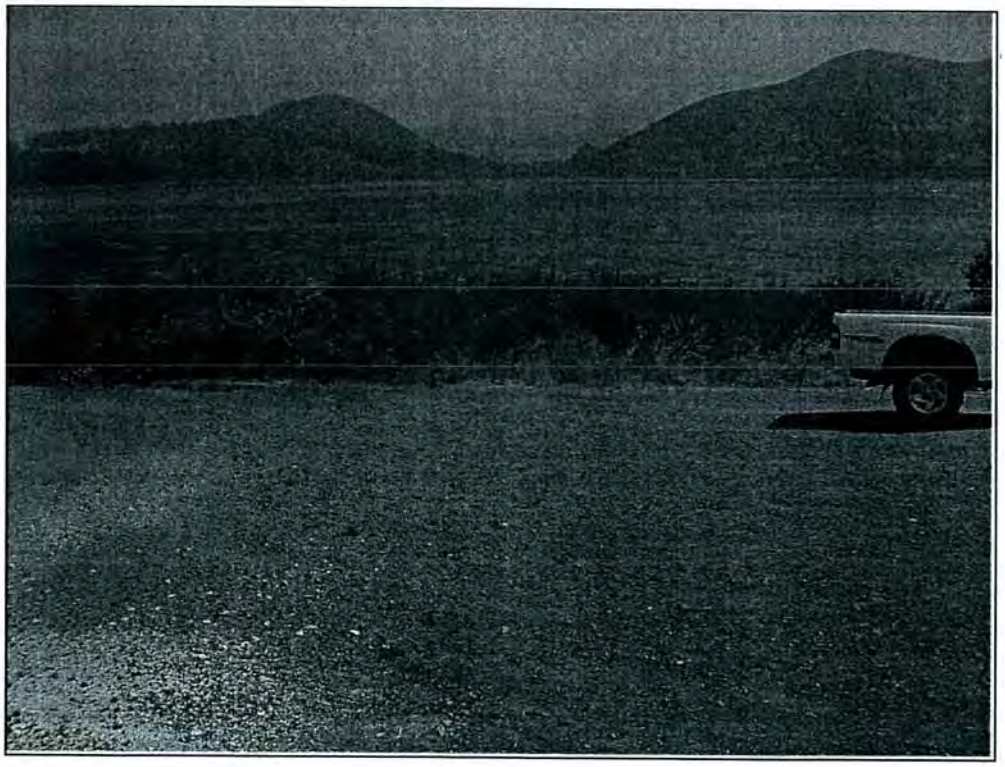


Photo D:

View north over the proposed pump station location at the end of 4th Street. Note willow fringe along edge of the Bay.

PHOTO DOCUMENTATION – SITE 2

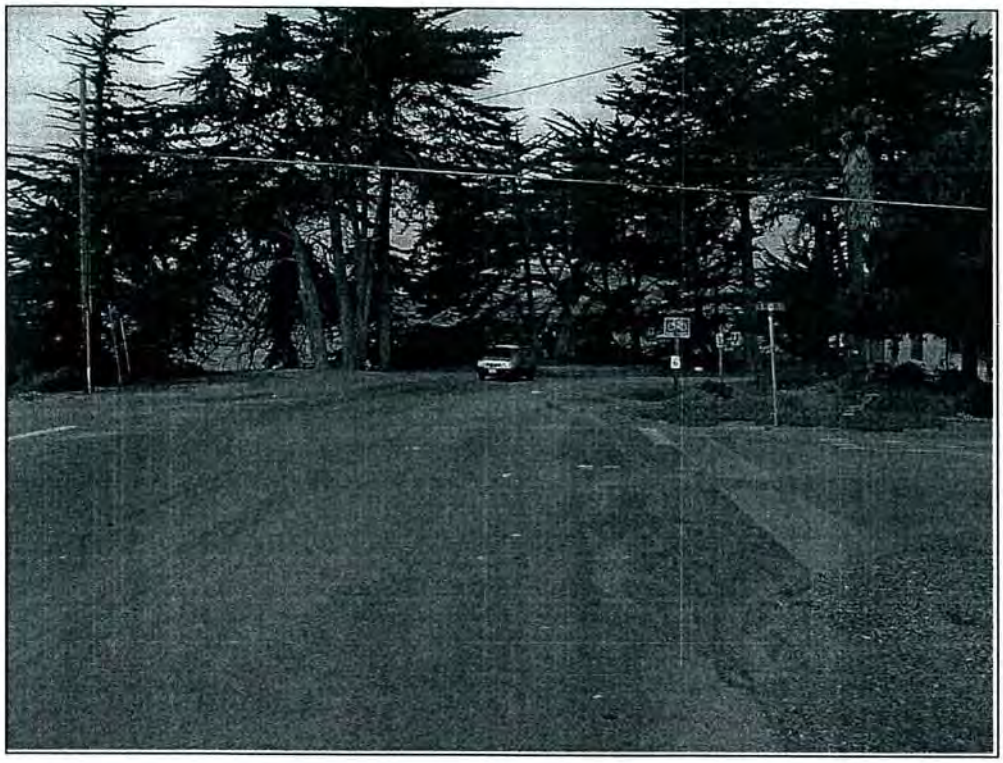


Photo E:

Viewing west along El Moro Avenue toward the 3rd Street intersection. Cypress trees mark the edge of the Bay.

Photo F:

Viewing west over the El Moro Avenue / 3rd Street intersection.

PHOTO DOCUMENTATION – SITE 3

Photo G:

View of the willow spring area looking north. Note coastal dune scrub in foreground, and oak trees at right side of picture.

Photo H:

Looking south toward the willow spring area. Note mowed area in foreground. Sweet Springs Trailer park is located to the right of the picture.

PHOTO DOCUMENTATION – SITE 4

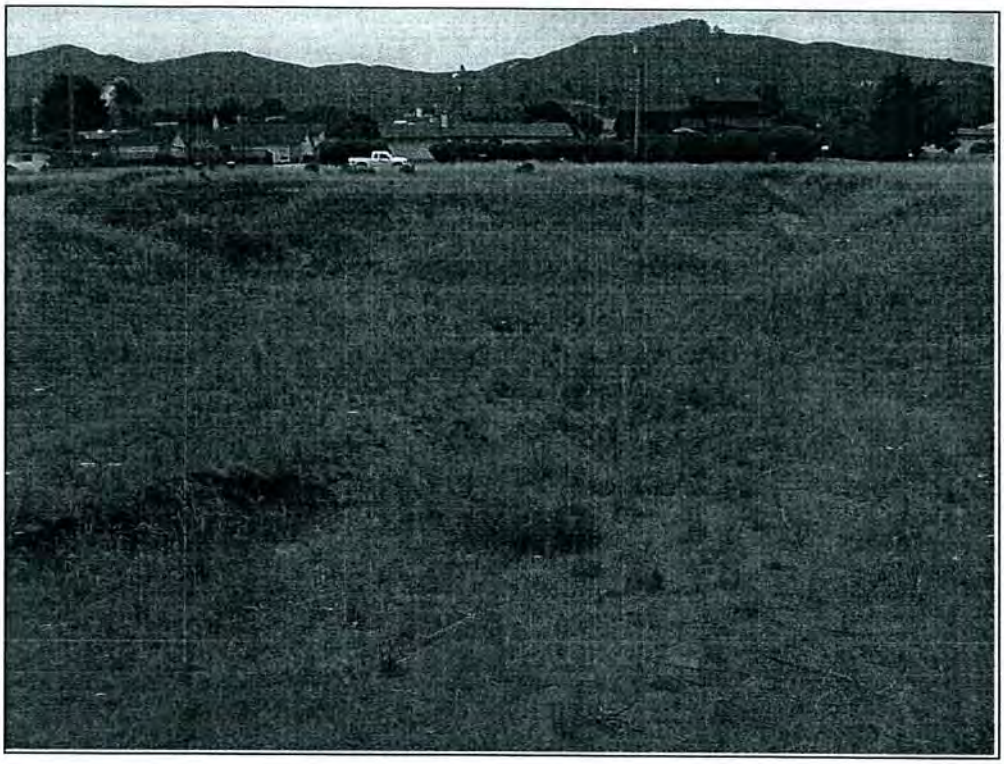


Photo I:

View of the erosional gully looking south toward Los Osos Valley Road. The gully channels stormwater runoff from Los Osos Valley Road, but does not connect with another stream channel or water body.

Photo J:

View of the erosional gully looking north from Los Osos Valley Road, at the culvert outlet location. No wetland vegetation is present in the gully.

PHOTO DOCUMENTATION – SITE 5

Photo K:

View along 18th Street looking north toward Paso Robles Avenue. Note willow canopy along both sides of the road.

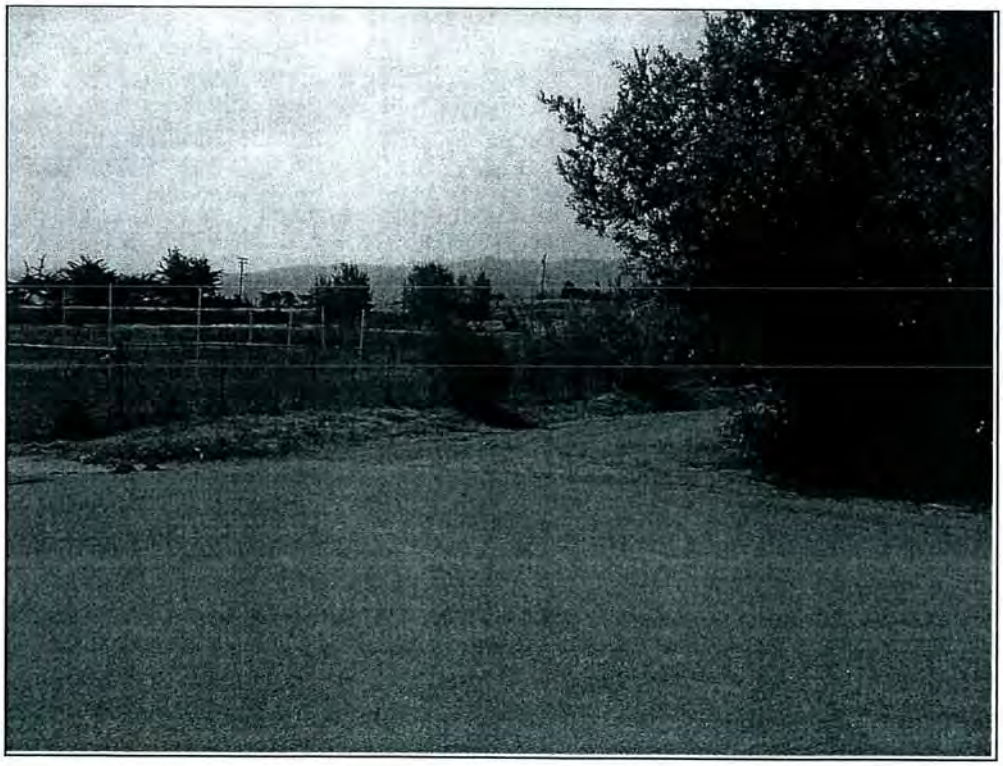


Photo L:

View of the intersection of 18th Street and Paso Robles Avenue, looking southeast. The proposed pump station would be located in the field at left of picture. Willows at right mark location of culvert that channels roadside runoff under 18th Street and into a concrete v-ditch.

PHOTO DOCUMENTATION – SITE 6

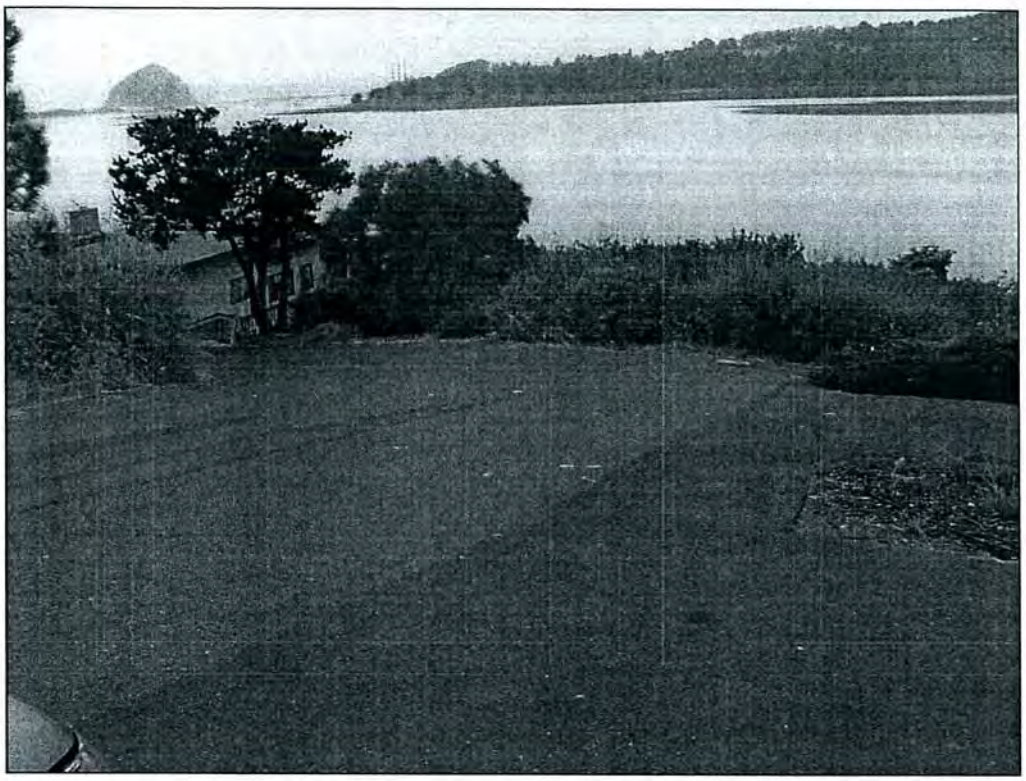


Photo M:

Viewing north toward the end of 7th Street. Pump station location is at end of pavement approximately 100 feet from willow canopy along edge of Bay.

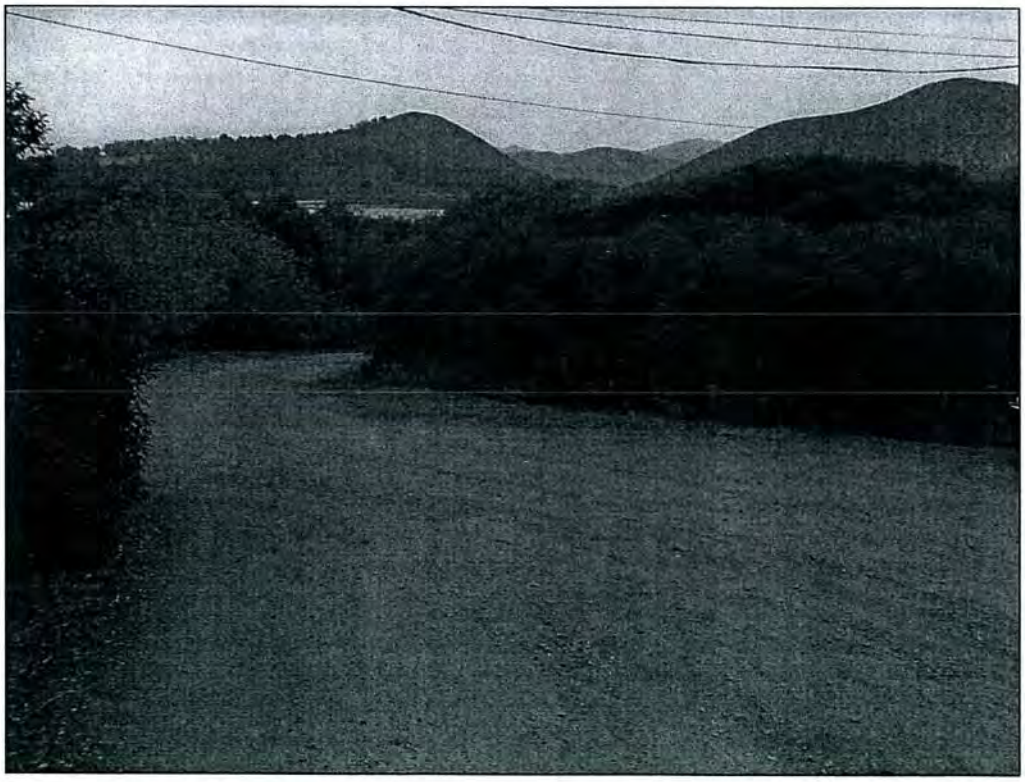


Photo N:

Viewing north toward the end of 8h Street. Pump station location is in oak area in foreground, approximately 65 feet from willow canopy along edge of Bay.

PHOTO DOCUMENTATION – SITE 7

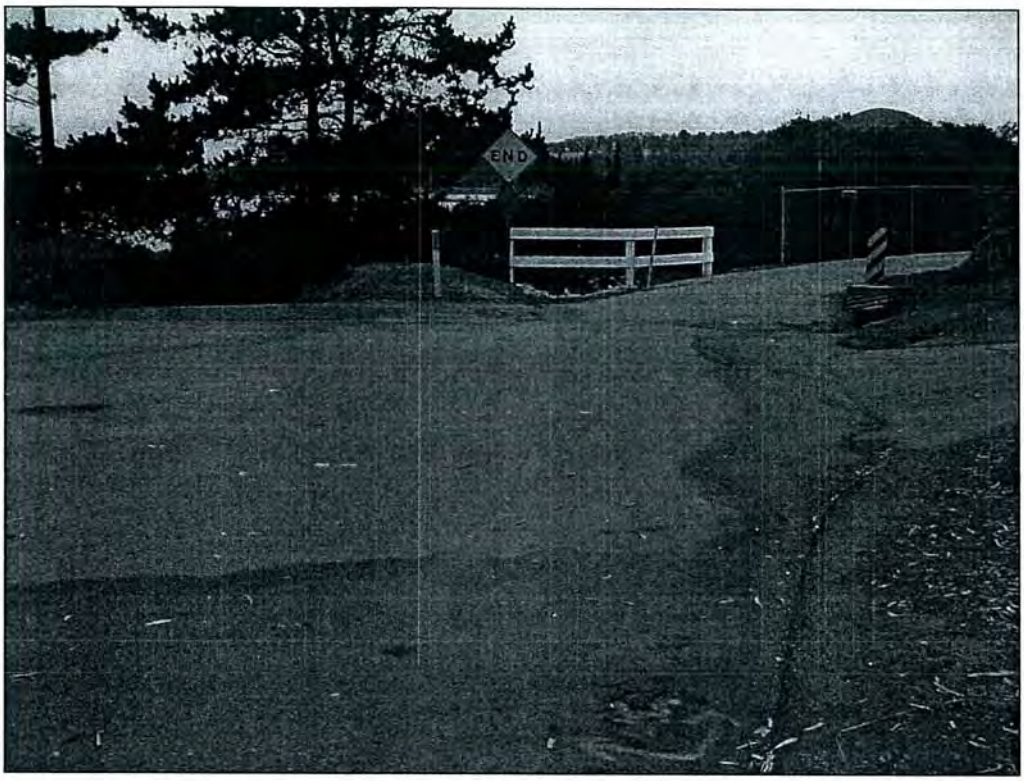


Photo O:

Viewing north toward end of 9th Street. Pump station to be located behind white fence, approximately 145 feet from emergent wetland areas associated with Morro Bay.

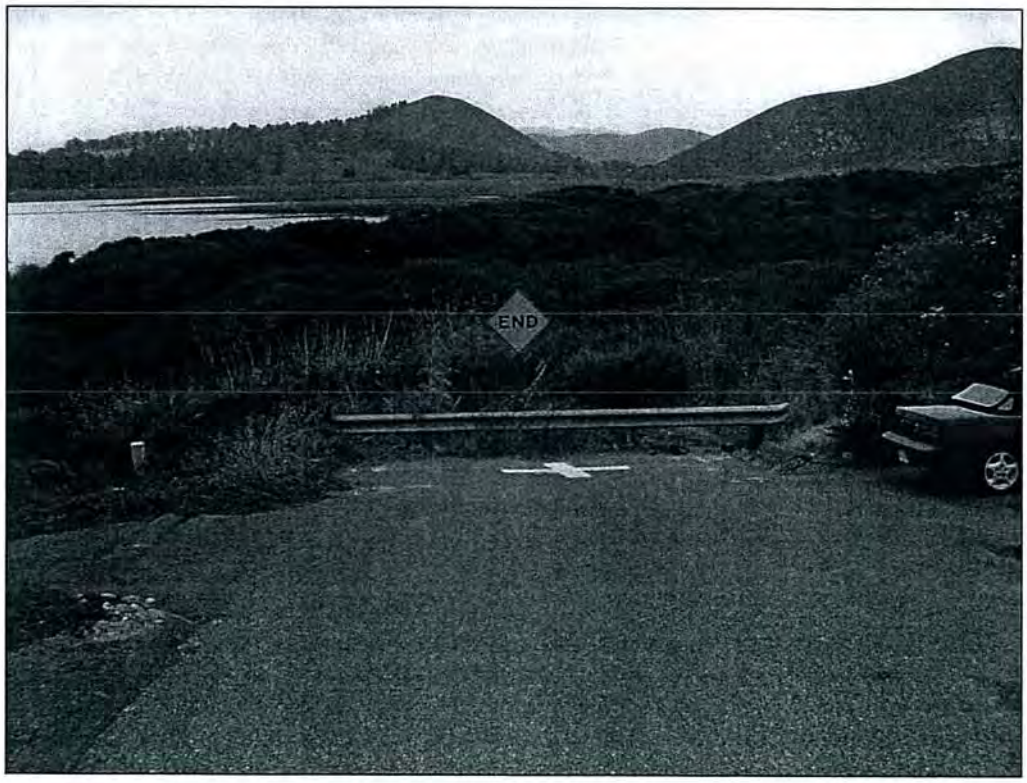


Photo P:

Viewing north toward end of 10th Street. Pump station to be located behind white fence, approximately 120 feet from willow canopy associated with Morro Bay.

PHOTO DOCUMENTATION – SITE 7

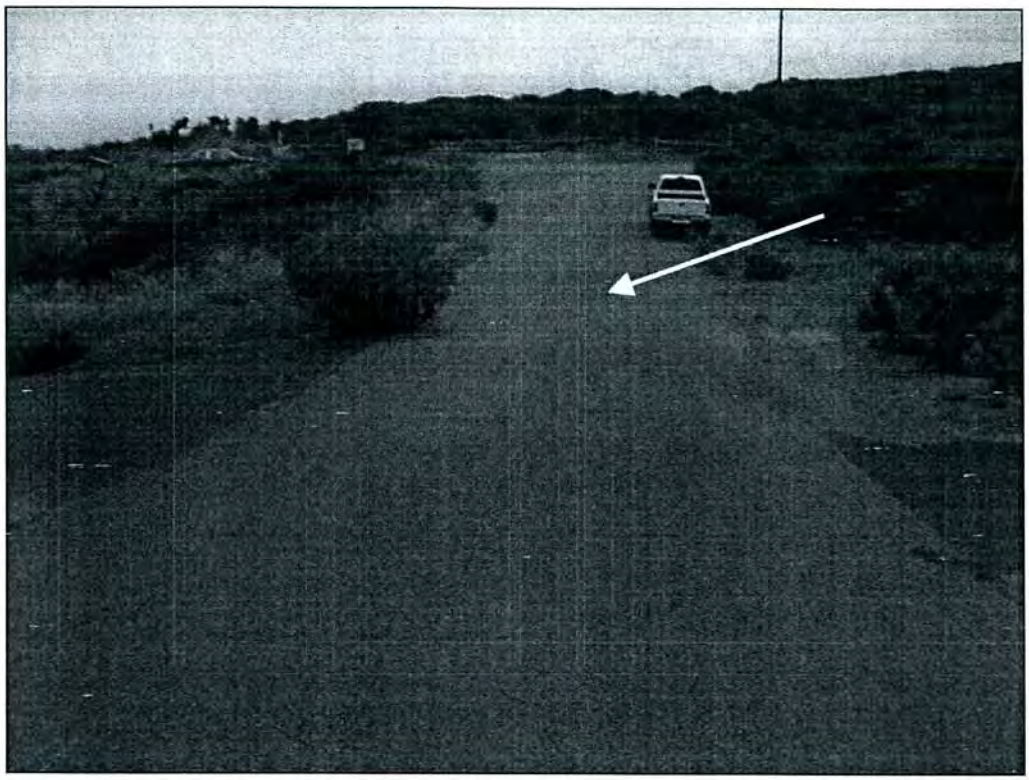


Photo Q:

Viewing north toward the end of 11th Street. Pump station location is in pavement at low point indicated by arrow. The site is over 365 feet from willow canopy along edge of the Bay.

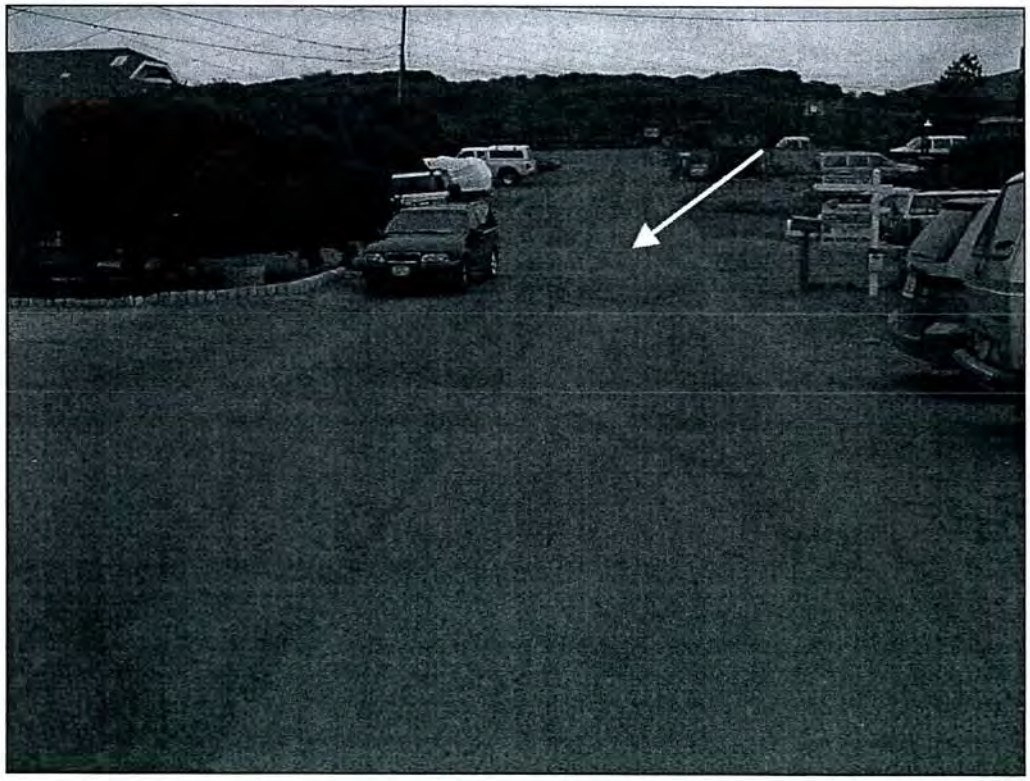


Photo R:

Viewing north toward the end of 12th Street. Pump station location is in pavement at low point indicated by arrow. The site is over 400 feet from willow canopy along edge of the Bay.

PHOTO DOCUMENTATION – SITE 7

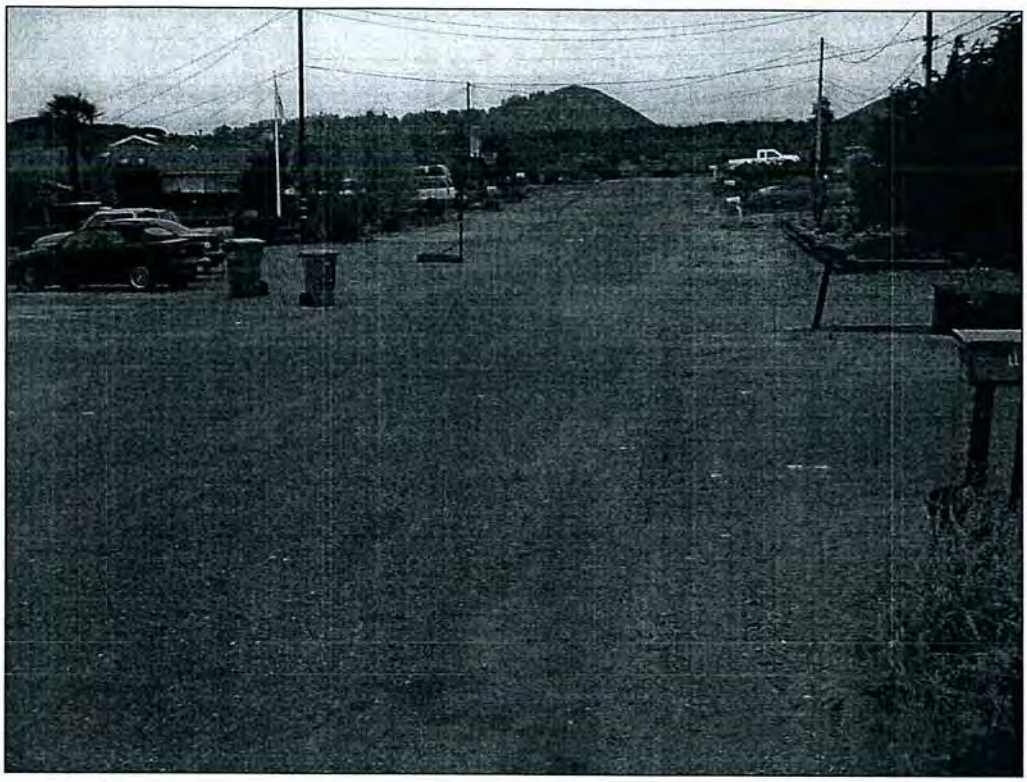


Photo S:

Viewing north toward the end of 13th Street. Pump station location is in pavement approximately 230 feet from the end of the road. The site is over 500 feet from willow canopy along edge of the Bay.

PHOTO DOCUMENTATION – SITE 7

Los Osos Wastewater Disposal Project
Treatment Plant Area
Los Osos, California

WETLAND DELINEATION REPORT

Prepared for:

Mr. Dave Moran
Crawford, Multari & Clark Associates
641 Higuera Street, Suite 302
San Luis Obispo, CA 93401

Prepared by:

MORRO GROUP, INC.
Environmental Services

August 9, 2004

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ATTACHMENTS

Attachment A. Field Data Sheets
Attachment B. Photo Documentation

1.0 INTRODUCTION

1.1 SCOPE

This Wetland Delineation Report summarizes existing soil, hydrology and vegetative conditions found within and adjacent to an erosional gully located to the west of the proposed Wastewater Treatment Plant (WWTP) site in Los Osos, San Luis Obispo County, California (refer to Figures 1 through 4). Morro Group, Inc. has prepared this report at the request of Crawford, Multari & Clark Associates, and it is intended for use by the Los Osos Community Services District (LOCSD), and regulatory agencies. This report examines potential waters of the United States, as defined by the U.S. Army Corps of Engineers (ACOE) and the California Coastal Commission (CCC), found in the gully near the proposed WWTP site. Findings reported herein are based on information gathered in the field at the time of investigation, an on-site meeting with ACOE staff, and on Morro Group's understanding of the ACOE 1987 Wetlands Delineation Manual, and federal, state, and local guidelines for identification of wetland areas.

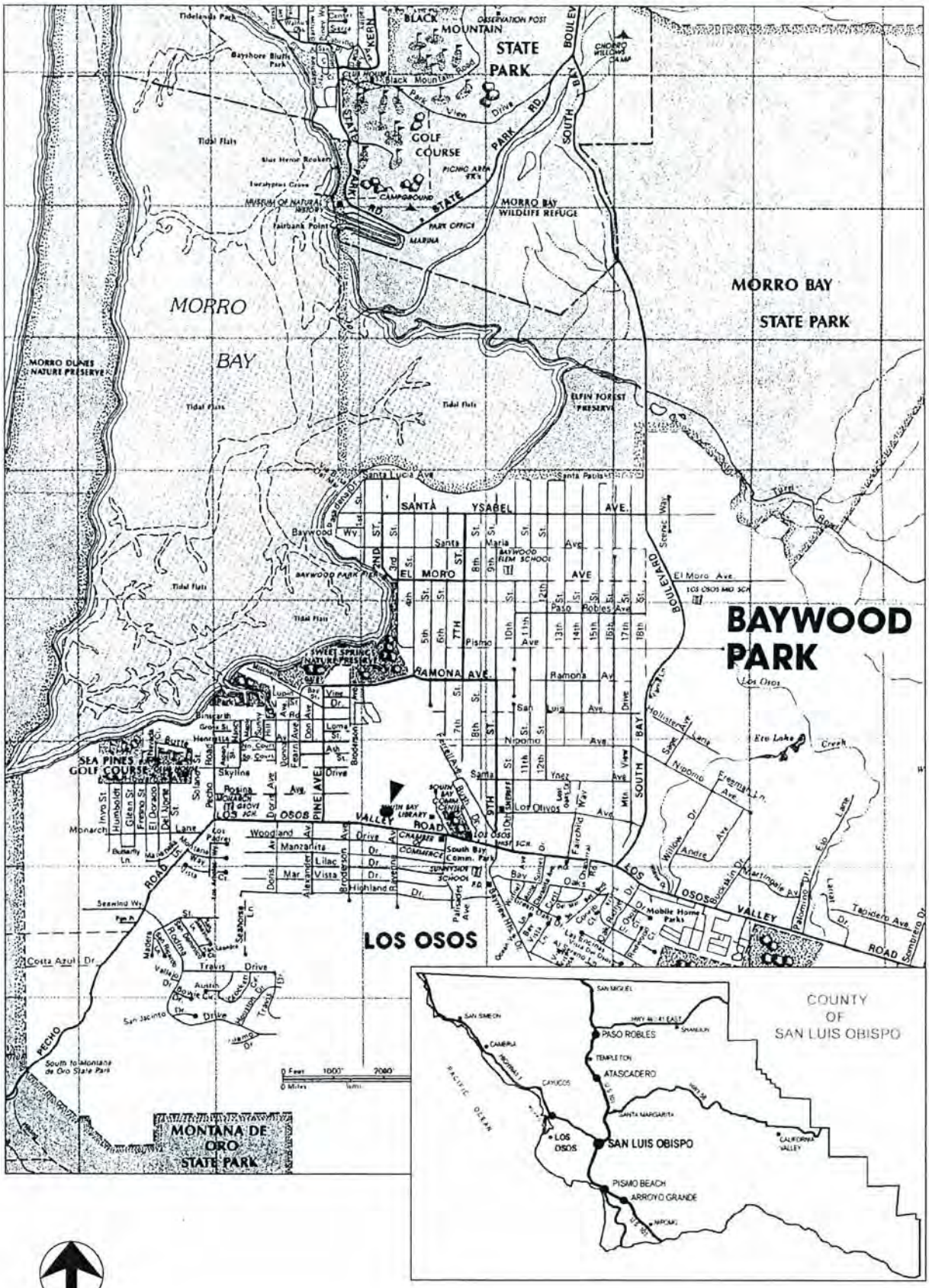
1.2 PROJECT BACKGROUND

The WWTP site is located in the central portion of the community of Los Osos, on the north side of Los Osos Valley Road (LOVR) between Palisades Avenue and a proposed extension of Ravenna Avenue (refer to Figures 1 and 2). The gully examined in this report is located west of the WWTP site. A Soil Conservation Service (SCS) soil survey map of the area is included as Figure 3, and soil pit locations and the resulting delineation of jurisdictional areas are shown on Figure 4. Figure 5 provides an aerial view of the area. The proposed WWTP site is located in the Coastal Zone, and the CCC has requested additional information about the gully in an effort to determine whether setbacks from wetland areas will be required for the project.

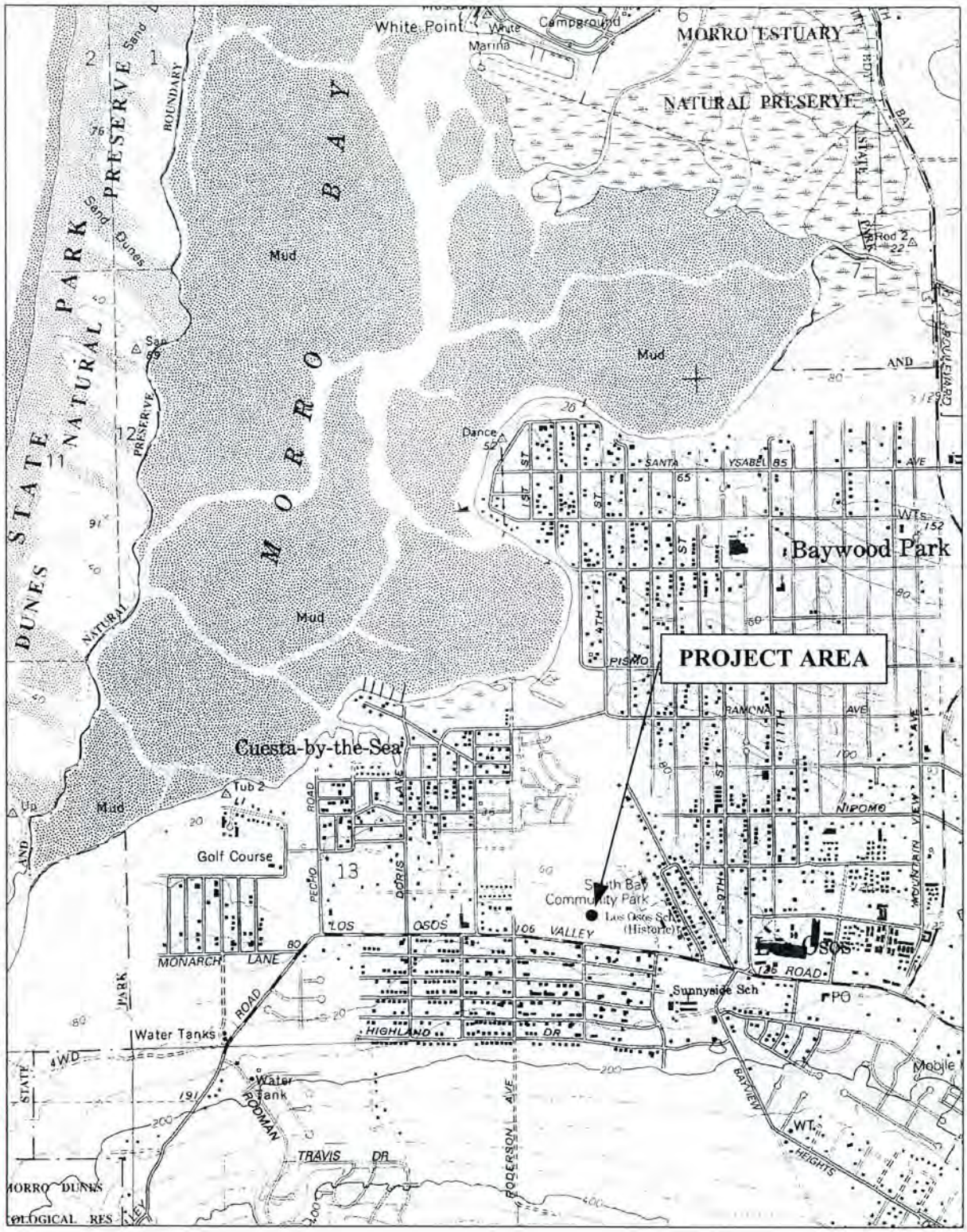
The proposed WWTP is a major part of the Los Osos Wastewater Disposal Project. The plant will cover a small portion of the approximately 11-acre site between Ravenna Avenue and Palisades Avenue. Underground sewer lines following existing road rights of way will connect the plant to other components of the sewer project.

1.3 SITE DESCRIPTION

The WWTP site consists of gently sloping sandy soils dominated by coastal scrub, non-native grasses, and eucalyptus trees on the northern side of LOVR (refer to Figures 4 and 5). The gully examined in this report originates approximately 100 feet west of the proposed extension of Ravenna Avenue, at a 20 inch corrugated metal culvert on the northern side of LOVR. A finger of the gully extends toward LOVR to the west, and joins with the main gully approximately 200 feet to the north. The gully is approximately 110 feet wide and 10 to 12 feet deep at its widest point near LOVR, and decreases in width and depth as it proceeds north. Scoured areas and water-washed trash and debris are present within the lower portion of the gully. Sides and bank of the gully are vegetated with annual grasses and forbs, with no hydrophytic plant species present. The gully travels in a northerly direction along the western boundary of the proposed Ravenna Avenue extension for a distance of approximately 720 feet before it ends in a sandy roadway disturbed by off-road vehicle travel. No bed, bank, or channel is visible past the northern terminus of the gully, and undisturbed adjacent areas contain coastal scrub vegetation, non-native grasses, and a stand of large eucalyptus trees.



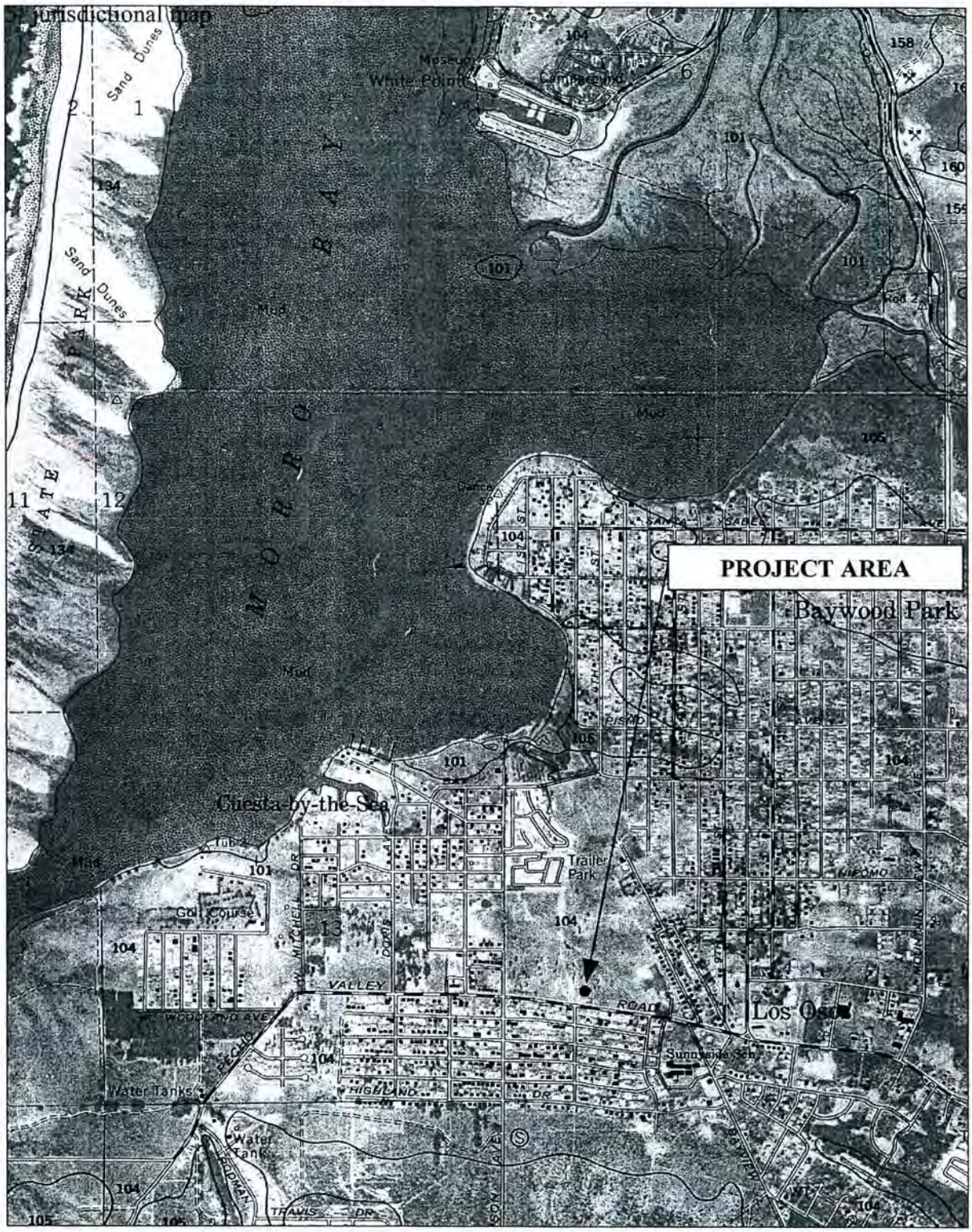
VICINITY MAP
FIGURE 1



Source: USGS Quadrangle – Morro Bay South

NORTH
Not to Scale

PROJECT LOCATION MAP
FIGURE 2



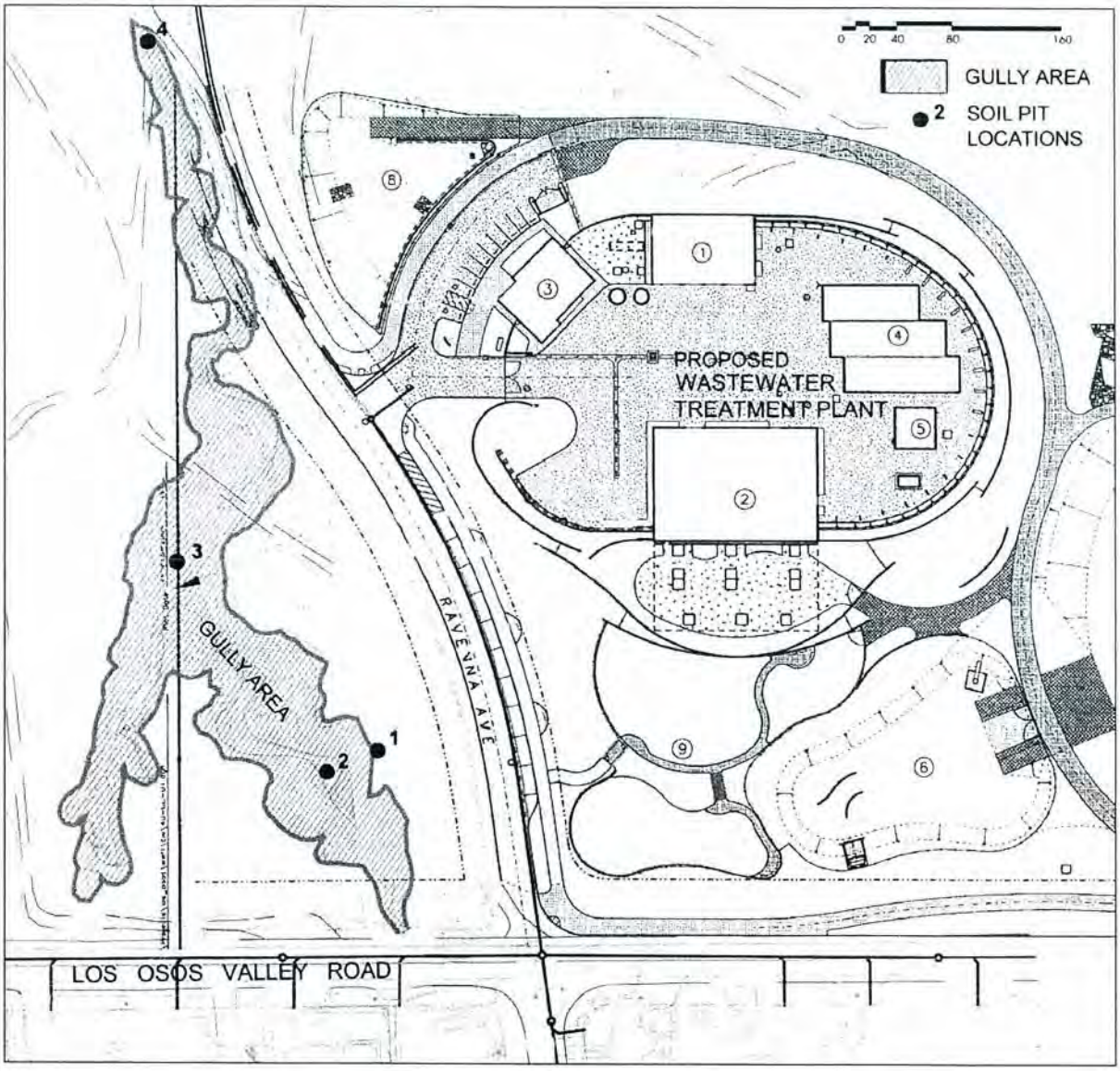
Source: *Soil Survey of San Luis Obispo County, Coastal Part – Sheet 8*

SOIL KEY

104 Baywood fine sand, 2-9% slopes

NORTH
Not to Scale

SOIL SURVEY MAP
FIGURE 3



NORTH
Not to Scale

POTENTIALLY JURISDICTIONAL AREAS MAP
FIGURE 4

2.0 METHODOLOGY

The primary literature reviewed and referenced as part of this wetland determination included SCS (1983, 1992), USGS (1979), Cowardin et al. (1979), Hickman (1993), Hoover (1970), Holland (1986), and Reed (1988, 1996). Specific references not listed above are cited in text.

2.1 DELINEATION PROCEDURE

Examination of the gully near the WWTP site was based on review of pertinent literature and a thorough on-site investigation conducted on August 6, 2004, by Bob Sloan of Morro Group, Inc. The routine wetland determination methodology, as described in the 1987 ACOE Wetlands Delineation Manual (Environmental Laboratory 1987), was utilized throughout the delineation. Potential wetland areas were also evaluated using the CCC single parameter wetland definition in addition to the ACOE three-parameter methodology. Representative soil pits and surrounding vegetation were evaluated to investigate the presence of hydric soils, hydrophytic vegetation, and wetland hydrology. The gully boundaries identified during the delineation followed the observed topographic relief, and were mapped using a Trimble Pathfinder GPS unit capable of accuracy to approximately 10 centimeters.

2.2 FUNCTION AND VALUE ASSESSMENT

The functions and values of the gully near the WWTP site were evaluated according to ACOE protocol (Adamus et al. 1987). Table 1 is a synthesis of methodologies used to evaluate the functions and values of wetland habitats. Rating criteria were derived from Adamus et al. (1987), Adamus and Stockwell (1983), and Reppert et al. (1979).

TABLE 1
Wetland Function and Value Rating Criteria

Function / Value	Rating		
	Low	Moderate	High
Water Quality Improvement	<5 acres in size; <50% vegetation density; no proximity to pollutants.	5-10 acres in size; 50-80% vegetation density; adjacent to non-point pollutants.	>10 acres in size; >80% vegetation density; downstream from point discharges.
Storm- and Floodwater Storage	<5 acres in size; <10% woody cover; permanently flooded; unconstrained outlet.	5-10 acres in size; 10-30% woody cover.	>10 acres in size; urban and developable areas; >30% woody cover; seasonal hydroperiod; constrained outlet.
Groundwater Discharge	Isolated depression; temporarily saturated or inundated.	Open drainage system; seasonally flooded.	Open tidal systems; permanent saturation or inundation.
Groundwater Recharge	<5 acres in size; isolated depression; temporarily saturated or inundated; impermeable substrate.	5-10 acres in size; seasonally flooded.	>10 acres in size; permanent inundation; several feet deep; permeable substrate.
Natural Biological Support	Small size; low species diversity; one vegetation layer; no sensitive or water-dependent species.	Medium size; moderate species diversity; several vegetation layers; water-dependent species; no sensitive species.	Large size; high species diversity; water-dependent and sensitive species; many vegetation layers.

fig 5 aerial

back of fig 5

3.0 RESULTS

3.1 SOIL CONDITIONS

The Soil Conservation Service (1983) mapped one soil series within the project site: Baywood fine sand, 2 to 9 percent slopes (refer to Figure 3).

Baywood fine sand (moist) consists of a very dark grayish brown (10YR 2/2 moist) fine sand about 36 inches thick, above dark grayish brown (10YR 5/3) mottled (5YR 3/2) fine sand to a depth of 60 inches or more. Permeability of Baywood fine sand soil is rapid, and the available water capacity is low. Baywood fine sand is not listed as a hydric soil in the SCS Comprehensive Hydric Soils List for San Luis Obispo County (SCS 1992).

3.1.1 Soil Test Pits

Four soil test pits were excavated during the delineation: one on level soil near the upper edge of the gully, and three within the bottom of the gully (refer to Figure 4 for pit locations). The investigation found dry sand soils in all pits. The dry sand soil observed in pits #1 and #4 exhibited dark brown (10YR3/3 moist) colors, and matched the Baywood fine sand description. The dry sand soils in pits #2 and #3 exhibited a very dark gray (10YR 3/1 moist) upper layer approximately 4 inches thick, underlain by dark brown (10YR3/3 moist) sand. No evidence of mottling or redoxomorphic features were observed within any of the pits.

3.2 HYDROLOGIC CONDITIONS

The WWTP site is an upland area with no hydrologic features present. The gully described in this report receives runoff from residential areas to the east, west, and south through a culvert under LOVR, and, during high rainfall periods, from flooded portions of LOVR. The gully has no connection to any natural water source. The bottom and sides of the gully are dominated by non-native grass species similar to conditions observed on the treatment plant site and surrounding areas, and did not contain any hydrophytic plant species. No flowing or ponded water was observed in the gully during the delineation, although areas of linear scour, and deposits of water-washed trash and debris were observed.

3.3 VEGETATIVE CONDITIONS

The WWTP site and the gully are dominated by non-native grasses and weeds, including veldt grass (*Ehrharta calycina*), ripgut brome (*Bromus diandrus*), wild radish (*Raphanus sativus*), sea fig (*Carpobrotus edulis*), and telegraph weed (*Heterotheca grandiflora*). A stand of large blue gum (*Eucalyptus globulus*) is also present in the area. Native plants present include California croton (*Croton californicus*), buckbrush (*Ceanothus cuneatus*), and mock heather (*Ericameria ericoides*).

The erosional gully area delineated in this report contained no wetland or riparian plant species. Vegetation within the gully consisted of the non-native grasses and forbs listed above, with scattered occurrences of sweet fennel (*Foeniculum vulgare*), soft chess brome (*Bromus mollis*), and coyote brush (*Baccharis pilularis*).

3.4 JURISDICTIONAL DETERMINATION

No areas that exhibited hydric soil or vegetative indicators per ACOE guidelines were observed, and hydrologic criteria per ACOE guidelines was not present due to the lack of any connection between the gully and a natural water source or wetland area (refer to Figures 4 and 5). The gully was created by flowing water, and exhibits evidence of scour and debris deposition, and therefore does contain one wetland parameter per CCC guidelines, although the gully contains no wetland vegetation and provides none of the biological functions and values typically associated with wetlands or riparian areas. Gully boundaries identified during the delineation followed topographic relief on the site. The gully area as mapped for this report covered a total of 45,634 square feet (1.05 acres) as shown on Figure 4. Table 2 summarizes the results of the wetland assessment by soil pit sample plot (refer to Figure 4 for soil pit locations).

Table 2

Jurisdictional Determination Summary

Soil Pit/Sample Plot Area	Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology	Determination	
				Corps	CCC
1	No	No	No	Non-Wetland	Non-Wetland
2	No	No	No	Non-Wetland	Non-Wetland
3	No	No	No	Non-Wetland	Non-Wetland
4	No	No	No	Non-Wetland	Non-Wetland

3.5 FUNCTIONS AND VALUES OF IDENTIFIED JURISDICTIONAL AREAS

Using the rating criteria from Table 1 (refer to Section 2.2), the identified gully area ranks low in function and value, being limited primarily by lack of connection with a natural water source, limited vegetative diversity, and highly erodible soils (refer to following Table 3).

Table 3

Function and Value Ratings of Identified Wetland Areas

Resource	Size	Water Quality	Storage	Discharge	Recharge	Biological Support
Erosional Gully	45,634 ft2 1.05 acres	None	None	Low	Low	None

4.0 DISCUSSION

The erosional gully identified in this report consists of a sandy wash fed by stormwater runoff from residential areas, with no connection to natural water sources. The gully is dominated with

non-native upland grass species, and consists of highly erodible sandy soils. No areas that exhibited hydric soil, vegetation, or hydrology indicators per ACOE guidelines were observed. No significant biological functions and values typically associated with wetland or riparian areas were identified within the gully area. The observed conditions indicate that the gully does not qualify as a wetland under ACOE or CCC definitions.

Prior to the examination, Lisa Mangione (ACOE), Nicole Carter (Crawford, Multari & Clark), and Bob Sloan (Morro Group) met at the site on August 4, 2004 to discuss potential ACOE jurisdiction. At that meeting, Ms. Mangione noted that the gully did not exhibit any change in vegetation type, and that based on a brief inspection the gully did not appear to meet ACOE wetland criteria.

5.0 REGULATORY IMPLICATIONS

5.1 U.S. ARMY CORPS OF ENGINEERS

Section 404 of the Clean Water Act (CWA) regulates activities that result in the discharge of dredge or fill materials into Waters of the United States, including wetlands. The ACOE is charged with administering and regulating various sections of the CWA. Wetlands are defined in the ACOE Wetlands Delineation Manual (Environmental Laboratory, 1987) as:

> *"Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."*

No areas were identified that fall under ACOE jurisdiction.

5.2 CALIFORNIA DEPARTMENT OF FISH AND GAME

Sections 1600 through 1607 of the California Fish and Game (CDFG) Code regulate activities that would alter the flow, bed, channel, or bank of streams and lakes. CDFG jurisdiction typically extends to the top of the creek bank or the outside edge of riparian vegetation. No areas were identified that fall under CDFG jurisdiction.

5.3 REGIONAL WATER QUALITY CONTROL BOARD

Section 401 of the Clean Water Act regulates activities that have the potential to cause water quality impacts to Waters of the United States, including wetlands, as defined by the ACOE. No areas were identified that fall under Regional Water Quality Control Board jurisdiction.

5.4 CALIFORNIA COASTAL COMMISSION

The California Coastal Act was enacted in 1976 to provide long-term protection of California's coastal resources. The Act's coastal resources management policies are based on recommendations contained in the California Coastal Plan. One such policy includes

> *"Protection, enhancement and restoration of environmentally sensitive habitats, including intertidal and nearshore waters, wetlands, bays and estuaries, riparian habitat, certain wood and grasslands, streams, lakes, and habitat for rare or endangered plants or animals."*

The California Coastal Commission regulates wetland areas within the coastal zone as defined under Coastal Act Section 30121. The Coastal Act defines a wetland as:

> *"Lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens."*

The erosional gully contains no wetland vegetation and does not provide any biological functions and values typically associated with wetland areas.

6.0 REFERENCES

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ATTACHMENT A

- Field Data Sheets

Routine Wetland Determination Form

Applicant: Crawford Multari Clark Assoc. **Project:** Los Osos Sewer **Date:** 8/6/04
State: CA **County:** SLO **Transect/Pit No.:** 2
Investigators: Sloan **Transect/Pit Area:** Bottom of gully at south (uphill) end
Vegetation Community (Cowardin Classification): Upland annual grassland

VEGETATION

Dominant Plant Species	Habit	Indicator	Percent Cover	Dominant Plant Species	Habit	Indicator	Percent Cover
Lolium multiflorum	Grass	none	5				
Bromus diandrus	Grass	none	5				
Ehrhrarta calycina	Grass	none	80				
Raphanus sativus	Forb	none	5				

Percent of Dominant Species that are OBL, FACW, or FAC: 0% **Taxonomic Reference:** Hickman/Reed

SOIL

Map Unit: Baywood fine sand, 2-9 percent slopes

Profile Description:
0-4 dry sand, 10YR3/1
4-16 dry sand, 10YR3/3

Hydric Soil List? ☐ Yes ☒ No
Mottles? ☐ Yes ☒ No
Gleyed? ☐ Yes ☒ No
NRCS Match? ☒ Yes ☐ No
Other Indicators: none

HYDROLOGY

Inundated? ☐ Yes ☒ No **Saturated Soil?** ☐ Yes ☒ No **Depth:**
Sediment Deposits? ☐ Yes ☒ No **Drift Lines?** ☐ Yes ☒ No
Depth of Surface Water: none **Water Marks?** ☐ Yes ☒ No
Depth of Free Water in Pit: none **Oxidized Rhizospheres?** ☐ Yes ☒ No **Color:**
Other Indicators: Gully created by residential stormwater runoff with no connection to a natural water source.

WETLAND DETERMINATION

Vegetation Criterion Met? ☐ Yes ☒ No **Normal Circumstances?** ☒ Yes ☐ No
Hydric Soil Criterion Met? ☐ Yes ☒ No
Hydrology Criterion Met? ☐ Yes ☒ No **Is this Plot within a Wetland?** ☐ Yes ☒ No
Comments: Gully contains no soil or vegetative wetland indicators, and no natural hydrology.

Morro Group Determination by: _____
Signature

Rev: 12/1/00

Routine Wetland Determination Form

Applicant: Crawford Multari Clark Assoc. **Project:** Los Osos Sewer **Date:** 8/6/04
State: CA **County:** SLO **Transect/Pit No.:** 3
Investigators: Sloan **Transect/Pit Area:** Bottom of gully at confluence (middle portion)
Vegetation Community (Cowardin Classification): Upland annual grassland

VEGETATION

Dominant Plant Species	Habit	Indicator	Percent Cover	Dominant Plant Species	Habit	Indicator	Percent Cover
Ehrhrarta calycina	Grass	none	15				
Heterotheca grandiflora	Forb	none	1				

Percent of Dominant Species that are OBL, FACW, or FAC: 0% **Taxonomic Reference:** Hickman/Reed

SOIL

Map Unit: Baywood fine sand, 2-9 percent slopes

Profile Description:
0-4 dry sand, 10YR3/1
4-16 dry sand, 10YR3/3

Hydric Soil List? ☐ Yes ☒ No
Mottles? ☐ Yes ☒ No
Gleyed? ☐ Yes ☒ No
NRCS Match? ☒ Yes ☐ No
Other Indicators: none

HYDROLOGY

Inundated? ☐ Yes ☒ No **Saturated Soil?** ☐ Yes ☒ No **Depth:**
Sediment Deposits? ☐ Yes ☒ No **Drift Lines?** ☐ Yes ☒ No
Depth of Surface Water: none **Water Marks?** ☐ Yes ☒ No
Depth of Free Water in Pit: none **Oxidized Rhizospheres?** ☐ Yes ☒ No **Color:**
Other Indicators: Scoured central channel visible in lowest portion of gully.

WETLAND DETERMINATION

Vegetation Criterion Met? ☐ Yes ☒ No **Normal Circumstances?** ☒ Yes ☐ No
Hydric Soil Criterion Met? ☐ Yes ☒ No
Hydrology Criterion Met? ☐ Yes ☒ No **Is this Plot within a Wetland?** ☐ Yes ☒ No
Comments: Gully contains no soil or vegetative wetland indicators, and no natural hydrology.

Morro Group Determination by: _____
Signature

Rev: 12/1/00

ATTACHMENT B

- Photo Documentation

Photo 1:

Viewing north over the upper end of the gully from Los Osos Valley Road. Note ice plant and grass cover on banks and in bottom of gully. Photo taken August 6, 2004.

Photo 2:

View of Soil Test Pit #1 located on the right side of the gully, looking north. Note eroded edge of gully at left of shovel, and dominant grassland vegetation. Photo taken August 6, 2004.

PHOTO DOCUMENTATION

Photo 3:

View of Soil Test Pit #2 located in bottom of gully, looking south toward Los Osos Valley Road. Note annual grasses in bottom of gully, and white car on Los Osos Valley Road at head of gully. Photo taken August 6, 2004.

Photo 4:

View of Soil Test Pit #3 looking north toward Los Osos Valley Road. Note scoured lower channel area below gully confluence. Larger gully arm at left leads to culvert under Los Osos Valley Road, while the smaller right hand arm receives stormwater from over the road flooding. Photo taken August 6, 2004.

PHOTO DOCUMENTATION

Photo 5:

View of Soil Test Pit #4, looking north at lower end of gully. Note deep sand and bare roadways created by off road vehicle use. No bed, bank, debris, or evidence of flowing water was observed past this point. Photo taken August 6, 2004.

Photo 6:

View of lower end of gully looking south toward Los Osos Valley Road. White arrow marks location of Pit #4. Note off-road vehicle trails and lack of bed or bank past Pit #4 location. Photo taken August 6, 2004.

PHOTO DOCUMENTATION

Routine Wetland Determination Form

Applicant: Crawford Multari Clark Assoc. **Project:** Los Osos Sewer **Date:** 8/6/04

State: CA **County:** SLO **Transect/Pit No.:** 4

Investigators: Sloan **Transect/Pit Area:** Bottom of gully at northern (lower) end

Vegetation Community (Cowardin Classification): Upland annual grassland

VEGETATION

Dominant Plant Species	Habit	Indicator	Percent Cover	Dominant Plant Species	Habit	Indicator	Percent Cover
Ehrhrarta calycina	Grass	none	15				

Percent of Dominant Species that are OBL, FACW, or FAC: 0% **Taxonomic Reference:** Hickman/Reed

SOIL

Map Unit: Baywood fine sand, 2-9 percent slopes

Profile Description:

0-4 dry sand, 10YR3/3
4-16 dry compacted sand, 10YR3/3

Hydric Soil List? ☐ Yes ☒ No
Mottles? ☐ Yes ☒ No
Gleyed? ☐ Yes ☒ No
NRCS Match? ☒ Yes ☐ No
Other Indicators: none

HYDROLOGY

Inundated? ☐ Yes ☒ No **Saturated Soil?** ☐ Yes ☒ No **Depth:**
Sediment Deposits? ☐ Yes ☒ No **Drift Lines?** ☐ Yes ☒ No
Depth of Surface Water: none **Water Marks?** ☐ Yes ☒ No
Depth of Free Water in Pit: none **Oxidized Rhizospheres?** ☐ Yes ☒ No **Color:**
Other Indicators: None. Gully ends in level bare sand area crossed by offroad vehicle trails surrounded by coastal scrub.

WETLAND DETERMINATION

Vegetation Criterion Met? ☐ Yes ☒ No **Normal Circumstances?** ☒ Yes ☐ No
Hydric Soil Criterion Met? ☐ Yes ☒ No
Hydrology Criterion Met? ☐ Yes ☒ No **Is this Plot within a Wetland?** ☐ Yes ☒ No
Comments: Gully contains no soil or vegetative wetland indicators, and no natural hydrology.

Morro Group Determination by: _____
Signature

Rev: 12/1/00

Aerial Source: Tri-W project aerial

NORTH
Not to Scale

PROJECT LOCATION AERIAL
FIGURE 5

Routine Wetland Determination Form

Applicant: Crawford Multari Clark Assoc. **Project:** Los Osos Sewer **Date:** 8/6/04
State: CA **County:** SLO **Transect/Pit No.:** 1
Investigators: Sloan **Transect/Pit Area:** Top of right bank above erosional gully
Vegetation Community (Cowardin Classification): Upland annual grassland

VEGETATION

Dominant Plant Species	Habit	Indicator	Percent Cover	Dominant Plant Species	Habit	Indicator	Percent Cover
Heterotheca grandiflora	Forb	none	5				
Bromus diandrus	Grass	none	5				
Ehrhrarta calycina	Grass	none	60				

Percent of Dominant Species that are OBL, FACW, or FAC: 0% **Taxonomic Reference:** Hickman/Reed

SOIL

Map Unit: Baywood fine sand, 2-9 percent slopes

Profile Description:
0-16 dry sand, 10YR3/3

Hydric Soil List? ☐ Yes ☒ No
Mottles? ☐ Yes ☒ No
Gleyed? ☐ Yes ☒ No
NRCS Match? ☒ Yes ☐ No
Other Indicators: none

HYDROLOGY

Inundated? ☐ Yes ☒ No **Saturated Soil?** ☐ Yes ☒ No **Depth:**
Sediment Deposits? ☐ Yes ☒ No **Drift Lines?** ☐ Yes ☒ No
Depth of Surface Water: none **Water Marks?** ☐ Yes ☒ No
Depth of Free Water in Pit: none **Oxidized Rhizospheres?** ☐ Yes ☒ No **Color:**
Other Indicators: none

WETLAND DETERMINATION

Vegetation Criterion Met? ☐ Yes ☒ No **Normal Circumstances?** ☒ Yes ☐ No
Hydric Soil Criterion Met? ☐ Yes ☒ No
Hydrology Criterion Met? ☐ Yes ☒ No **Is this Plot within a Wetland?** ☐ Yes ☒ No
Comments: Site consists of annual grassland on uplands adjacent to a large erosional gully

Morro Group Determination by: _____
Signature

Rev: 12/1/00

Los Osos Wastewater Disposal Project
Lupine Street Pump Station
Los Osos, California

WETLAND DELINEATION REPORT

Prepared for:

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Prepared by:

MORRO GROUP, INC.
Environmental Services

June 14, 2004

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ATTACHMENTS

Attachment A. Field Data Sheets
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1.0 INTRODUCTION

1.1 SCOPE

This Wetland Delineation Report summarizes existing soil, hydrology and vegetative conditions found within and adjacent to the Lupine Street Pump Station site in Los Osos, San Luis Obispo County, California (refer to Figures 1 through 4). Morro Group, Inc. has prepared this report at the request of Crawford Multari Clark Associates, and it is intended for use by the Los Osos Community Services District (LOCSD), and regulatory agencies. This report identifies potential waters of the United States, as defined by the U.S. Army Corps of Engineers (ACOE) and the California Coastal Commission (CCC), found adjacent to the proposed project area, and is intended to assist in the identification of related constraints that could affect project construction. Findings reported herein are based on information gathered in the field at the time of investigation, and on Morro Group's understanding of the ACOE 1987 Wetlands Delineation Manual, and federal, state, and local guidelines for identification of wetland areas. This report is subject to jurisdictional review by the ACOE, and should be submitted to the ACOE for confirmation if impacts to jurisdictional areas are proposed.

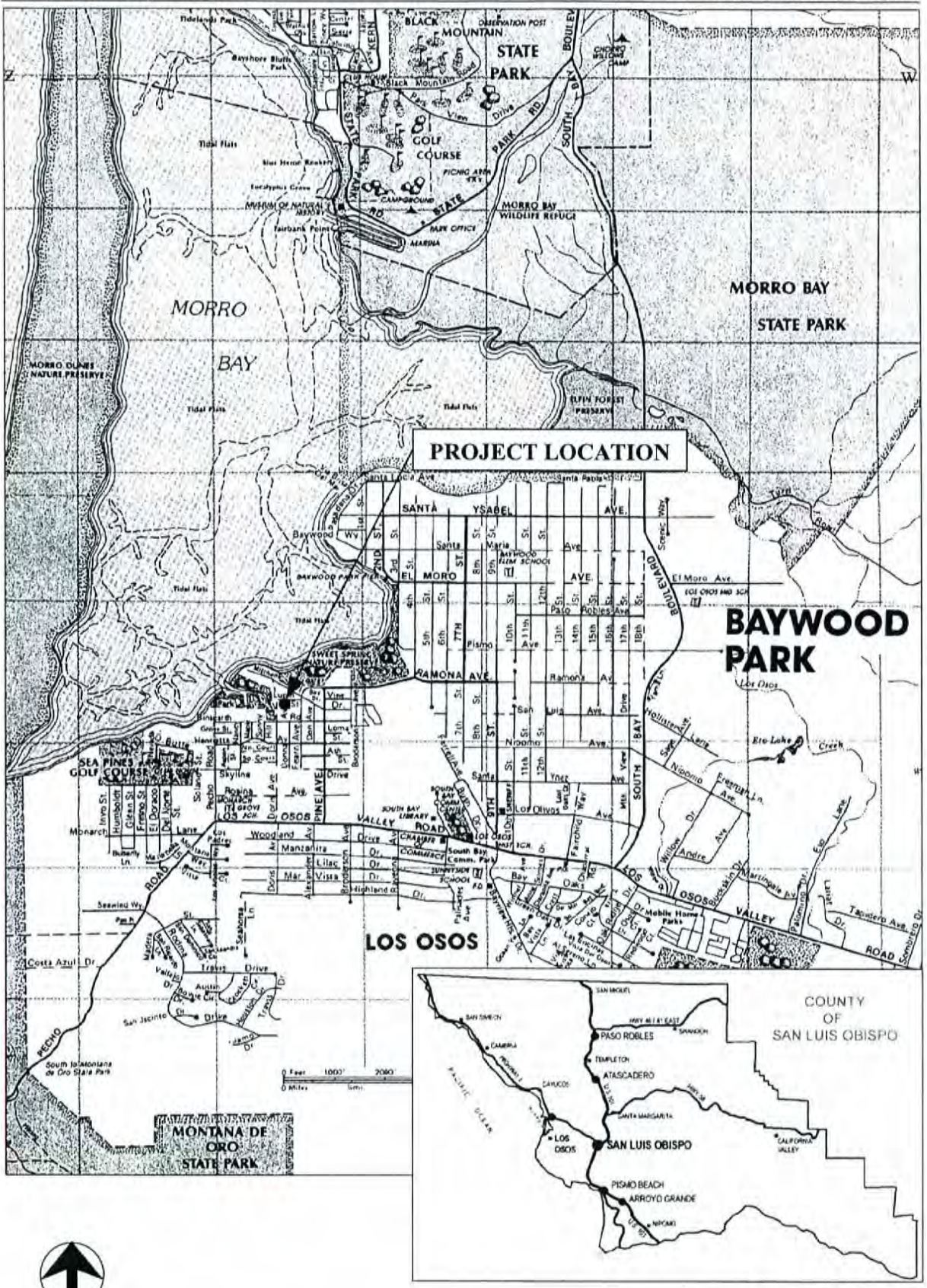
1.2 PROJECT BACKGROUND

The project site is located in the western portion of the community of Los Osos, at the corner of Lupine Street and Donna Avenue, near the eastern edge of the Morro Bay estuary (refer to Figures 1 through 4). A Soil Conservation Service (SCS) soil survey map of the site is included as Figure 5, and soil pit locations and the resulting delineation of jurisdictional areas are shown on Figure 6. The proposed site is located in the Coastal Zone, and is adjacent to ACOE and CCC jurisdictional areas associated with Morro Bay.

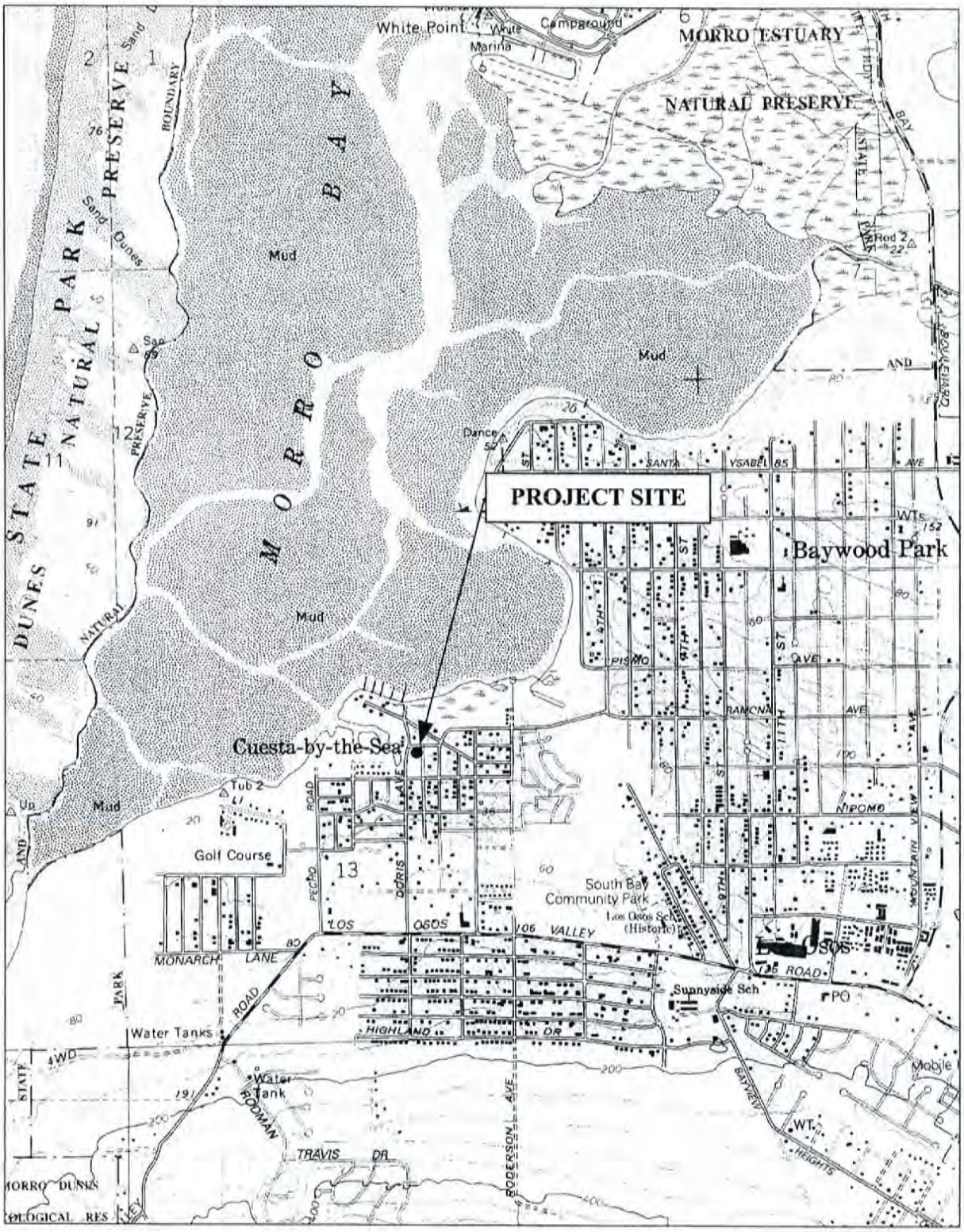
The proposed Lupine Street pump station is one of seven submersible pump stations that will be installed with standby power facilities as part of the Los Osos Wastewater Disposal Project. The area of disturbance for each pump station including the standby power facility will be approximately 750 square feet. Underground sewer lines following existing road rights of way along Lupine Street and Donna Avenue will connect the pump station to other components of the sewer project (refer to Figure 6).

1.3 SITE DESCRIPTION

The pump station site consists of a level residential lot dominated by non-native grasses and weeds at the corner of Lupine Street and Donna Avenue, with established residences present on the north, west, and east, and a depressional wetland area associated with Morro Bay to the south. Donna Avenue ends at the eastern portion of the depressional wetland area. The pump station site contains sandy soils, and no trees or shrubs are present within the proposed project area. To the south of the pump station site, the level terrain ends at an abrupt 2:1 slope that drops 4 to 5 feet into a depressional area dominated by hydrophytic plant species. This area receives runoff from residential areas to the east and south. Under high tide and or high stormwater runoff conditions water present in the depressional area travels through a 12-inch metal culvert under Doris Avenue and enters the Morro Bay estuary.

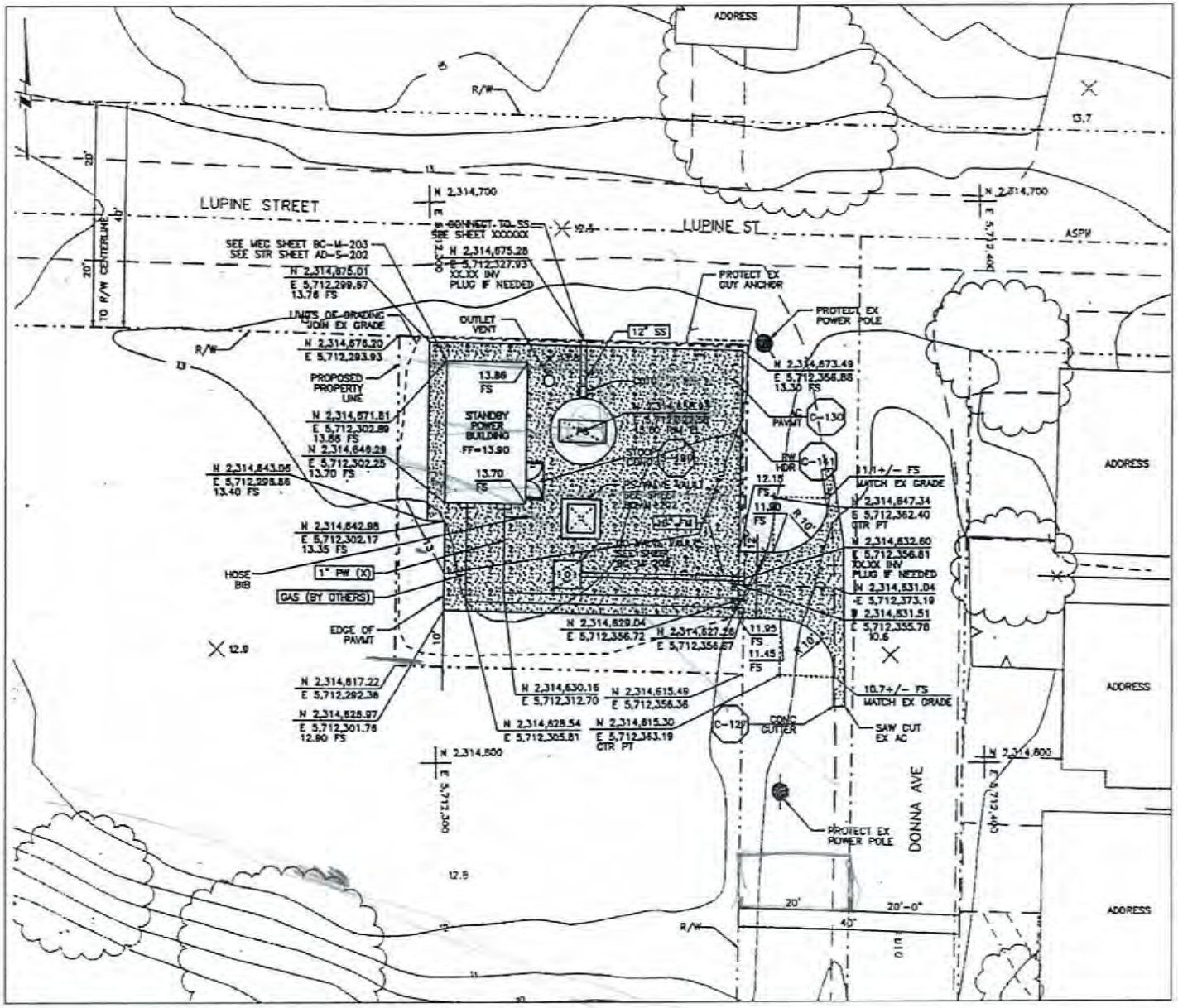


VICINITY MAP
FIGURE 1



NORTH
Not to Scale

PROJECT LOCATION MAP
FIGURE 2



NORTH
Not to Scale

LUPINE PUMP STATION SITE PLAN
FIGURE 3

WETLAND EDGE
LIMITS OF WETLAND SURVEY
ACOE & CCC JURISDICTION
CCC JURISDICTION ONLY
WETLANDS OUTSIDE PROJECT AREA
WETLANDS OUTSIDE PROJECT AREA

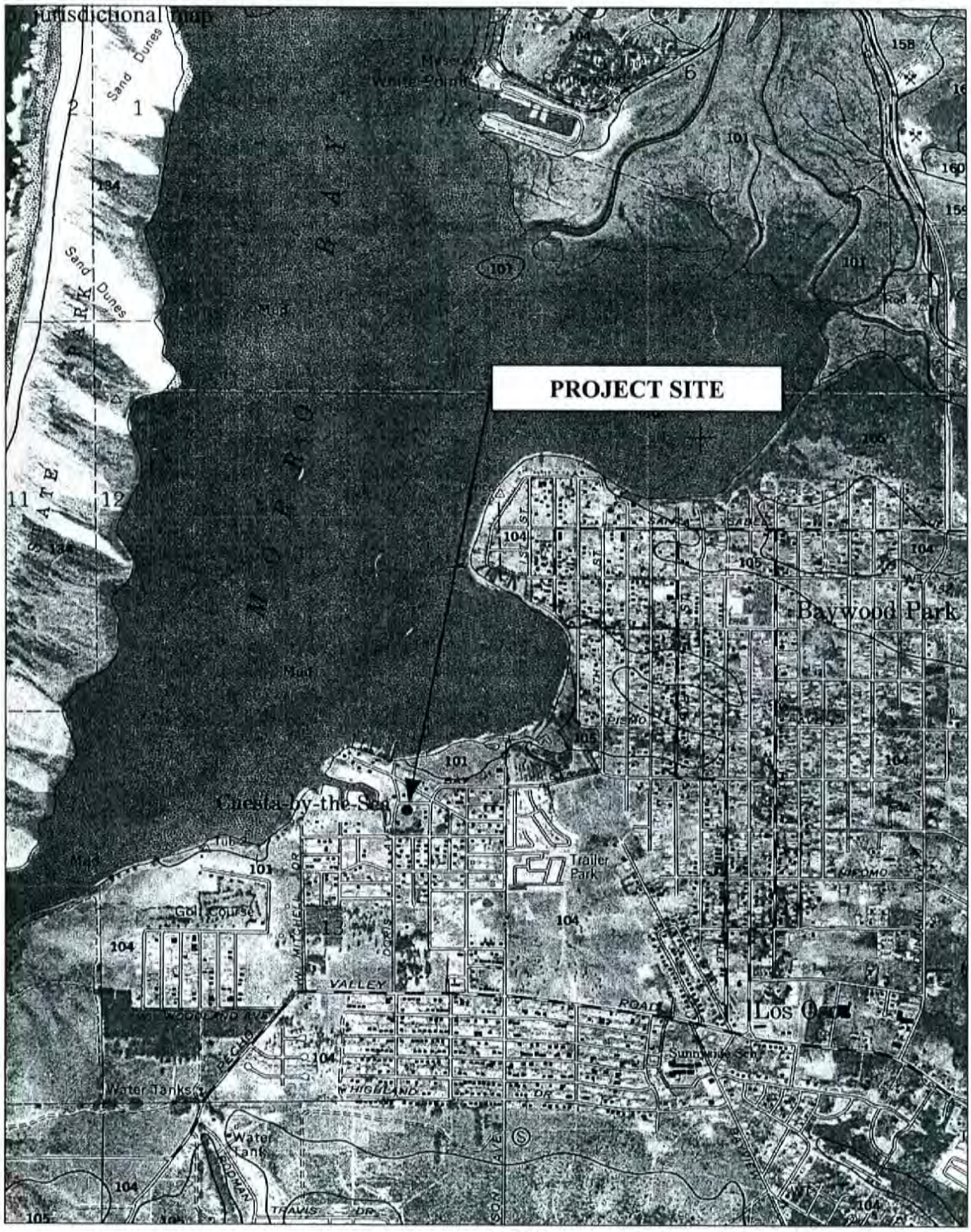
Source: aerial base - CMCA

see Figure 6 for wetland mapping

NORTH
Not to Scale

PROJECT LOCATION AERIAL
FIGURE 4

back of aerial



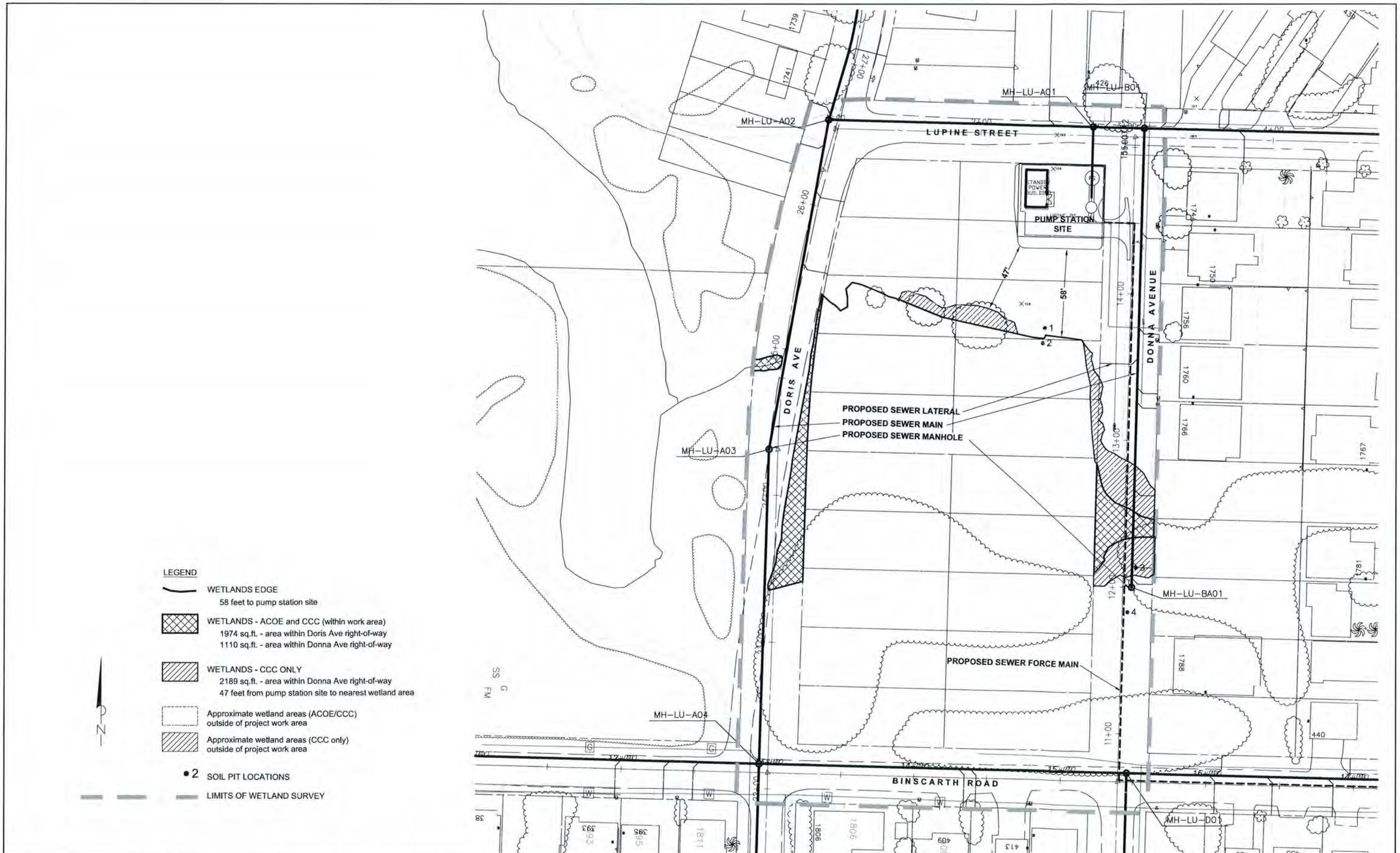
Source: Soil Survey of San Luis Obispo County, Coastal Part – Sheet 8

SOIL KEY

104 Baywood fine sand, 2-9% slopes

NORTH
Not to Scale

SOIL SURVEY MAP
FIGURE 5



SHEET: 1 OF 1 SCALE: 1" = 60'	MORRO GROUP, INC. Environmental Services	**WETLAND DELINEATION REPORT** **Lupine Street Pump Station - Los Osos, California**	**JURISDICTIONAL WETLAND AREAS**
CADD FILE: 03-205 LOCSD\acad-lupine\GPS-wetdel.dwg			**FIGURE 6**
DATE: 6-9-04 BY: dh REV. 0			

2.0 METHODOLOGY

The primary literature reviewed and referenced as part of this wetland determination included SCS (1983, 1992), USGS (1979), Cowardin et al. (1979), Hickman (1993), Hoover (1970), Holland (1986), and Reed (1988, 1996). Specific references not listed above are cited in text.

2.1 DELINEATION PROCEDURE

Determination and delineation of wetland areas near the Lupine Street Pump Station site were based on review of pertinent literature and a thorough on-site investigation conducted on May 6 and May 18, 2004, by Bob Sloan and Geoff Hoetker of Morro Group, Inc. The routine wetland determination methodology, as described in the 1987 ACOE Wetlands Delineation Manual (Environmental Laboratory 1987), was utilized throughout the delineation. Potential wetland areas were also evaluated using the CCC single parameter wetland definition in addition to the ACOE three-parameter methodology. Representative soil pits and surrounding vegetation were evaluated to investigate the presence of hydric soils, hydrophytic vegetation, and wetland hydrology. Jurisdictional boundaries identified during the delineation followed topographic relief and vegetative conditions, and were mapped using a Trimble Pathfinder GPS unit capable of accuracy to approximately 10 centimeters.

2.2 FUNCTION AND VALUE ASSESSMENT

The functions and values of the identified jurisdictional areas identified at the project site were evaluated according to ACOE protocol (Adamus et al. 1987). Table 1 is a synthesis of methodologies used to evaluate the functions and values of wetland habitats. Rating criteria were derived from Adamus et al. (1987), Adamus and Stockwell (1983), and Reppert et al. (1979).

TABLE 1
Wetland Function and Value Rating Criteria

Function / Value	Rating		
	Low	Moderate	High
Water Quality Improvement	<5 acres in size; <50% vegetation density; no proximity to pollutants.	5-10 acres in size; 50-80% vegetation density; adjacent to non-point pollutants.	>10 acres in size; >80% vegetation density; downstream from point discharges.
Storm- and Floodwater Storage	<5 acres in size; <10% woody cover; permanently flooded; unconstrained outlet.	5-10 acres in size; 10-30% woody cover.	>10 acres in size; urban and developable areas; >30% woody cover; seasonal hydroperiod; constrained outlet.
Groundwater Discharge	Isolated depression; temporarily saturated or inundated.	Open drainage system; seasonally flooded.	Open tidal systems; permanent saturation or inundation.
Groundwater Recharge	<5 acres in size; isolated depression; temporarily saturated or inundated; impermeable substrate.	5-10 acres in size; seasonally flooded.	>10 acres in size; permanent inundation; several feet deep; permeable substrate.
Natural Biological Support	Small size; low species diversity; one vegetation layer; no sensitive or water-dependent species.	Medium size; moderate species diversity; several vegetation layers; water-dependent species; no sensitive species.	Large size; high species diversity; water-dependent and sensitive species; many vegetation layers.

3.0 RESULTS

3.1 SOIL CONDITIONS

The Soil Conservation Service (1983) mapped one soil series within the project site: Baywood fine sand, 2 to 9 percent slopes (refer to Figure 5).

Baywood fine sand (moist) consists of a very dark grayish brown (10YR 2/2 moist) fine sand about 36 inches thick, above dark grayish brown (10YR 5/3) mottled (5YR 3/2) fine sand to a depth of 60 inches or more. Permeability of Baywood fine sand soil is rapid, and the available water capacity is low. Baywood fine sand is not listed as a hydric soil in the SCS Comprehensive Hydric Soils List for San Luis Obispo County (SCS 1992).

3.1.1 Soil Test Pits

Four soil test pits were excavated during the delineation: two within the upper bank and the bottom of the depressional area adjacent to the Lupine Street site, and two along the proposed sewer line route traversing the undeveloped right of way portion of Donna Avenue (refer to Figure 6 for pit locations). The investigation found dry sand and sandy clay soils in upland areas, and moist to saturated sand and sandy clay loam soils in the depressional area. The dry sand soil observed in pit #1 exhibited dark brown (10YR3/2 moist) colors, and matched the Baywood fine sand description. The dry to moist sand and sandy clay loam soils in pits 2-4 exhibited very dark brown and black (10YR 2/2, 2/1 moist) colors. Soil in pit #2 contained faint oxidized rhizospheres within the upper 12 inches of the profile.

3.2 HYDROLOGIC CONDITIONS

The Lupine Street Pump Station site is a level parcel with no hydrologic features present (refer to Photo #1). The delineation identified a depressional area near the southern project boundary that receives runoff from surrounding residential areas. This depressional area is separated from the Morro Bay estuary by Doris Avenue. A 12-inch corrugated metal culvert under Doris Avenue connects the depressional area to a defined channel leading to Cuesta Inlet, and under high tide and or high stormwater runoff conditions, water present in the depressional area may flow under Doris Avenue and enter the estuary. No flowing or ponded water, or evidence of tidal influence was observed in the depressional area during the delineation, although areas of mud flats and moist soils were observed.

The narrow upper portion of the depressional area is bisected by the undeveloped section of Donna Avenue. This area contains a weakly defined channel that directs urban runoff into the depressional area, but shows no evidence of ponding.

3.3 VEGETATIVE CONDITIONS

The project site is dominated by non-native grasses and weeds, including veldt grass (*Ehrharta calycina*), ripgut brome (*Bromus diandrus*), Bermuda grass (*Cynodon dactylon*), wild radish (*Raphanus sativus*), sea fig (*Carpobrotus edulis*), telegraph weed (*Heterotheca grandiflora*), California croton (*Croton californicus*), and California poppy (*Eschscholzia californica*) (refer to Photo #1).

The adjacent depressional area delineated in this report contained a mixture of common wetland and riparian plant species. The upper or eastern portion of the depressional area was densely vegetated with freshwater marsh species, including silverweed (*Potentilla anserina*), three-square (*Scirpus americanus*), curly dock (*Rumex crispus*), cattail (*Typha latifolia*), and arroyo willow (*Salix lasiolepis*) (refer to Photo #2 and #4). Kikuyu grass (Pennisetum *clandestinum*), sand dune sedge (*Carex pansa*), goldenbush (*Isocoma menziesii*), gazania (*Gazania linearis*), blue gum (*Eucalyptus globulus*), Pampas grass (*Cortedaria jubata*), and sweet fennel (*Foeniculum vulgare*), were present along the eastern edge of the depressional area near Donna Avenue (refer to Photo #3).

The lower or western portion nearest Doris Avenue contained a small area of mud flats and some salt marsh plant species, including saltgrass (*Distichlis spicata*), fleshy jaumea (*Jaumea carnosa*), frankenia (*Frankenia grandiflora*), blackberry (*Rubus ursinus*), and arroyo willow.

3.4 JURISDICTIONAL DETERMINATION

Jurisdictional wetland habitat that met ACOE and CCC criteria were found to be associated with the depressional area adjacent to the proposed pump station site (refer to Figure 6). Jurisdictional boundaries identified during the delineation followed topographic relief and vegetative conditions on the site. The examination of the site resulted in the identification of a total of 3,084 square feet (0.07 acres) of jurisdictional ACOE/CCC wetlands and 2,236 square feet (0.05 acres) of CCC wetlands in or adjacent to road rights of way leading to the pump station site (refer to Figure 6). ACOE/CCC wetlands shown on Figure 6 are areas that met soil, vegetative, and hydrologic criteria per ACOE guidelines, while the CCC wetland areas shown contained hydric vegetation or evidence of hydrology. Table 2 summarizes the results of the wetland assessment by sample plot (refer to Figure 6 for soil pit locations).

Table 2

Jurisdictional Determination Summary

Sample Plot	Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology	Determination	
				Corps	CCC
1	No	No	No	Non-Wetland	Non-Wetland
2	**Yes**	**Yes**	**Yes**	**Wetland**	**Wetland**
3	**Yes**	**Yes**	**Yes**	**Wetland**	**Wetland**
4	No	No	No	Non-Wetland	Non-Wetland

3.5 FUNCTIONS AND VALUES OF IDENTIFIED JURISDICTIONAL AREAS

Using the rating criteria from Table 1 (refer to Section 2.2), the identified jurisdictional area ranks low to moderate in function and value, being limited primarily by its small size and lack of tidal influence (refer to following Table 3). The adjacent Morro Bay estuary is a highly diverse and valuable biological and hydrologic resource.

Table 3

Function and Value Ratings of Identified Wetland Areas

Resource	Size	Water Quality	Storage	Discharge	Recharge	Biological Support
ACOE/CCC Wetlands	3,084 ft2 0.07 acres	Moderate	Low	Moderate	Low	Moderate
CCC Wetlands	2, 236 ft^2 (0.05 acres)	Low	Low	Low	Low	Low

4.0 DISCUSSION

The wetland areas identified in this report consist of a small, depressional fresh/brackishwater marsh area separated from tidal portions of Morro Bay by an unpaved road. The wetland area is dominated by low-growing plant species, and is surrounded by residential development and vacant upland property. The central portions of the area meet ACOE wetland criteria, with some fringe areas that meet only the CCC wetland definition also present. The wetland receives rainfall and urban runoff, and may occasionally drain into or receive tidal flow from Morro Bay through a 12-inch culvert under extreme weather conditions. The closest identified wetland area is located 47 feet south of the proposed pump station fenceline, and would not be directly affected by pump station construction (refer to Figure 6). The proposed sewer line routes connecting to the pump station will cross the upper portion of the depressional area along the undeveloped section of Donna Avenue, and will skirt the edges of wetland areas along Doris Avenue (refer to Figure 6).

5.0 REGULATORY IMPLICATIONS

5.1 U.S. ARMY CORPS OF ENGINEERS

Section 404 of the Clean Water Act (CWA) regulates activities that result in the discharge of dredge or fill materials into Waters of the United States, including wetlands. The ACOE is charged with administering and regulating various sections of the CWA. Any activity within the jurisdictional areas mapped on Figure 6 would be subject to regulation by the ACOE, and would likely require the submittal of a permit application to the ACOE for: 1) verification of this wetland assessment, and 2) determination of permitting/mitigation requirements.

5.2 CALIFORNIA DEPARTMENT OF FISH AND GAME

Sections 1600 through 1607 of the California Fish and Game (CDFG) Code regulate activities that would alter the flow, bed, channel, or bank of streams and lakes. CDFG jurisdiction typically extends to the top of the creek bank or the outside edge of riparian vegetation. Any activity affecting the mapped jurisdictional areas as shown on Figure 6 will likely require coordination with and permit approval from the CDFG.

5.3 REGIONAL WATER QUALITY CONTROL BOARD

Section 401 of the Clean Water Act regulates activities that have the potential to cause water quality impacts to Waters of the United States, including wetlands, as defined by the ACOE. A Section 401 Water Quality Certification from the Regional Water Quality Control Board would be required for any development activity affecting the mapped jurisdictional areas as shown on Figure 6. This certification typically precedes ACOE permit issuance.

5.4 CALIFORNIA COASTAL COMMISSION

The California Coastal Act was enacted in 1976 to provide long-term protection of California's coastal resources. The Act's coastal resources management policies are based on recommendations contained in the California Coastal Plan. One such policy includes "*Protection, enhancement and restoration of environmentally sensitive habitats, including intertidal and nearshore waters, wetlands, bays and estuaries, riparian habitat, certain wood and grasslands, streams, lakes, and habitat for rare or endangered plants or animals.*"

The CDFG is the agency charged with verifying coastal wetlands. Coastal wetland protection requirements as established in the California Coastal Act and the County of San Luis Obispo Local Coastal Plan must be addressed in the proposed project design.

6.0 REFERENCES

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Reed, Porter B. Jr. 1988. National list of plant species that occur in wetlands: California (Region 0). National Ecology Research Center, U.S. Fish and Wildlife Service, St. Petersburg, Florida.

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Reppert, R.T., W. Sigleo, E. Stakhiv, L. Messman, and C. Myers. 1979. Wetland values: concepts and methods for wetlands evaluation. Research report 79-R1, U.S. Army Corps of Engineers, Institute for Water Resources, Fort Belvoir, Virginia.

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Soil Conservation Service (SCS). 1992. Comprehensive hydric soils list for San Luis Obispo County, California. United States Department of Agriculture, Washington, D.C.

United States Geological Service. 1994. 7.5 minute series quadrangle for Morro Bay South.

Routine Wetland Determination Form

Applicant: Crawford Multari Clark Assoc. **Project:** Lupine St. Pump Station **Date:** 5/6/04
State: CA **County:** SLO **Transect/Pit No.:** 1
Investigators: Sloan **Transect/Pit Area:** Top of bank above depressional area
Vegetation Community (Cowardin Classification): Upland annual grassland

VEGETATION

Dominant Plant Species	Habit	Indicator	Percent Cover	Dominant Plant Species	Habit	Indicator	Percent Cover
Cynodon dactylon	Grass	FAC	25				
Bromus diandrus	Grass	none	25				
Ehrhrarta calycina	Grass	none	20				
Raphanus sativus	Forb	none	5				
Carpobrotus edulis	Forb	none	20				

Percent of Dominant Species that are OBL, FACW, or FAC: 20% **Taxonomic Reference:** Hickman/Reed

SOIL

Map Unit: Baywood fine sand, 2-9 percent slopes

Profile Description:
0-16 dry sand, 10YR3/2

Hydric Soil List? ☐ Yes ☒ No
Mottles? ☐ Yes ☒ No
Gleyed? ☐ Yes ☒ No
NRCS Match? ☒ Yes ☐ No
Other Indicators: none

HYDROLOGY

Inundated? ☐ Yes ☒ No **Saturated Soil?** ☐ Yes ☒ No **Depth:**
Sediment Deposits? ☐ Yes ☒ No **Drift Lines?** ☐ Yes ☒ No
Depth of Surface Water: none **Water Marks?** ☐ Yes ☒ No
Depth of Free Water in Pit: none **Oxidized Rhizospheres?** ☐ Yes ☒ No **Color:**
Other Indicators: none

WETLAND DETERMINATION

Vegetation Criterion Met? ☐ Yes ☒ No **Normal Circumstances?** ☒ Yes ☐ No
Hydric Soil Criterion Met? ☐ Yes ☒ No
Hydrology Criterion Met? ☐ Yes ☒ No **Is this Plot within a Wetland?** ☐ Yes ☒ No
Comments: Site consists of annual grassland at higher elevation than adjacent marsh area

Morro Group Determination by: _____
Signature

Rev: 12/1/00

Routine Wetland Determination Form

Applicant: Crawford Multari Clark Assoc. **Project:** Lupine St. Pump Station **Date:** 5/6/04
State: CA **County:** SLO **Transect/Pit No.:** 2
Investigators: Sloan **Transect/Pit Area:** Bottom of depressional area
Vegetation Community (Cowardin Classification): Fresh/Brackishwater Marsh

VEGETATION

Dominant Plant Species	Habit	Indicator	Percent Cover	Dominant Plant Species	Habit	Indicator	Percent Cover
Potentilla anserina	Forb	OBL	25				
Bromus diandrus	Grass	none	5				
Scirpus americanus	Forb	OBL	40				
Rumex crispus	Forb	FACW	5				

Percent of Dominant Species that are OBL, FACW, or FAC: 75% **Taxonomic Reference:** Hickman/Reed

SOIL

Map Unit: Baywood fine sand, 2-9 percent slopes

Hydric Soil List? ☐ Yes ☒ No
Mottles? ☐ Yes ☒ No
Gleyed? ☐ Yes ☒ No
NRCS Match? ☒ Yes ☐ No
Other Indicators: none

Profile Description:

0-12 moist sandy clay loam, 10YR2/1, w/ faint oxidized rhizospheres 10YR4/4
12-16 saturated sandy clay loam, 10YR2/1

HYDROLOGY

Inundated? ☐ Yes ☒ No **Saturated Soil?** ☒ Yes ☐ No **Depth:** 12 inches
Sediment Deposits? ☐ Yes ☒ No **Drift Lines?** ☐ Yes ☒ No
Depth of Surface Water: none **Water Marks?** ☐ Yes ☒ No
Depth of Free Water in Pit: none **Oxidized Rhizospheres?** ☒ Yes ☐ No **Color:** 10YR4/4
Other Indicators: Pit located in depressional area that receives stormwater runoff

WETLAND DETERMINATION

Vegetation Criterion Met? ☒ Yes ☐ No **Normal Circumstances?** ☒ Yes ☐ No
Hydric Soil Criterion Met? ☒ Yes ☐ No
Hydrology Criterion Met? ☒ Yes ☐ No **Is this Plot within a Wetland?** ☒ Yes ☐ No
Comments: Fresh/brackish depressional wetland area in high groundwater area

Morro Group Determination by: _____
Signature

Rev: 12/1/00

Routine Wetland Determination Form

Applicant: Crawford Multari Clark Assoc. **Project:** Lupine St. Pump Station **Date:** 5/6/04
State: CA **County:** SLO **Transect/Pit No.:** 4
Investigators: Sloan **Transect/Pit Area:** Top of bank above depressional area
Vegetation Community (Cowardin Classification): Upland (ruderal)

VEGETATION

Dominant Plant Species	Habit	Indicator	Percent Cover	Dominant Plant Species	Habit	Indicator	Percent Cover
Pennisetum clandestinum	Grass	FACU+	75				
Cortaderia jubata	Grass	none	20				
Delairea odorata	Vine	none	10				
Gazania linearis	Forb	none	30				
Eucalyptus globulus	Tree	none	50				

Percent of Dominant Species that are OBL, FACW, or FAC: 0% **Taxonomic Reference:** Hickman/Reed

SOIL

Map Unit: Baywood fine sand, 2-9 percent slopes

Profile Description:
0-4 sandy clay, 10YR2/1
4-16 sand, 10YR2/2

Hydric Soil List?	☐ Yes	☒ No
Mottles?	☐ Yes	☒ No
Gleyed?	☐ Yes	☒ No
NRCS Match?	☒ Yes	☐ No

Other Indicators: none

HYDROLOGY

Inundated?	☐ Yes	☒ No	**Saturated Soil?**	☐ Yes	☒ No	**Depth:**
Sediment Deposits?	☐ Yes	☒ No	**Drift Lines?**	☐ Yes	☒ No	
Depth of Surface Water:	none		**Water Marks?**	☐ Yes	☒ No	
Depth of Free Water in Pit:	none		**Oxidized Rhizospheres?**	☐ Yes	☒ No	**Color:**

Other Indicators: none

WETLAND DETERMINATION

Vegetation Criterion Met?	☐ Yes	☒ No	**Normal Circumstances?**	☒ Yes	☐ No
Hydric Soil Criterion Met?	☒ Yes	☐ No			
Hydrology Criterion Met?	☐ Yes	☒ No	**Is this Plot within a Wetland?**	☐ Yes	☒ No

Comments: Site consists of ruderal/escaped ornamental plants at higher elevation than adjacent drainage area

Morro Group Determination by: _____
Signature

Rev: 12/1/00

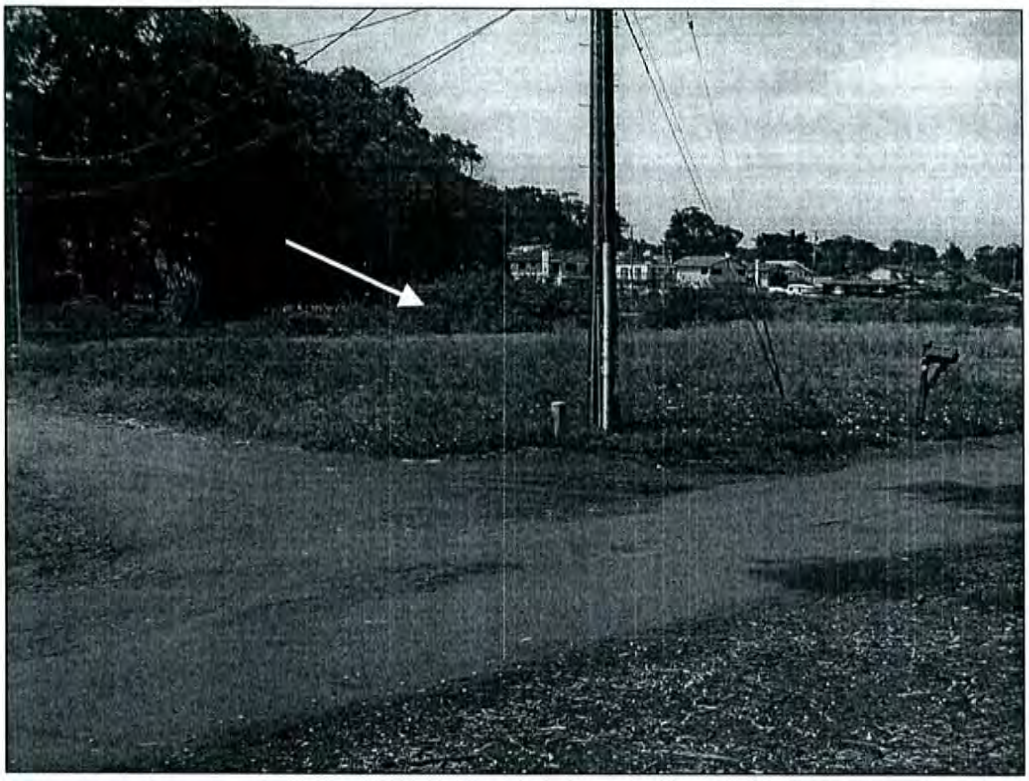

Photo 1:

View of proposed pump station site at the corner of Lupine street and Donna Avenue, looking southwest from Lupine Street. Note grass and iceplant cover in proposed project area. The arrow points to willows present along the bank of the identified wetland area.

Photo 2:

Viewing north from the depressional wetland area toward the project site. Note willows along bank at left of picture, and shovel marking the location of soil pit #2.

PHOTO DOCUMENTATION

Photo 3:

Viewing north along the Donna Avenue right of way proposed for sewer line installation. Shovel marks the location of Soil pit #3.

Photo 4:

Viewing west from the southern end of Donna Avenue over the depressional wetland area. Willows at right mark the northern wetland boundary nearest to the proposed pump station.

PHOTO DOCUMENTATION

LOS OSOS COMMUNITY SERVICES DISTRICT

To: Dave Morris

It is our pleasure to provide you with the attached information.

re Legal Side

Power Profiles

Select a property to build a profile report

Search New Property

Total of 5 Match Returned. Please select the property you are looking for.

A
APR 2 2 2004

Click Here to Get Profile	**Owner:**	STATE OF CALIFORNIA (935) DEPT OF GENERAL SERVICES
	Address:	1798 DORIS AVE
	City/State:	LOS OSOS CA 93402
	APN:	074-141-002
Click Here to Get Profile	**Owner:**	THE LOS OSOS COMMUNITY SERVICES DISTRICT, ,
	Address:	DONNA AVE
	City/State:	LOS OSOS CA 93402
	APN:	074-141-003
Click Here to Get Profile	**Owner:**	GOEDINGHAUS CLAIRE D (TRE)
	Address:	DORIS AVE
	City/State:	LOS OSOS CA 93402
	APN:	074-141-004
Click Here to Get Profile	**Owner:**	GOEDINGHAUS CLAIRE D (TRE)
	Address:	DORIS AVE
	City/State:	LOS OSOS CA 93402
	APN:	074-141-005
Click Here to Get Profile	**Owner:**	MURATET JOHN R
	Address:	DONNA AVE
	City/State:	LOS OSOS CA 93402
	APN:	074-141-006

The orig. APN was 074-141-001 prior to lot line adj.

Page: 1

Search New Property

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EDA

ENGINEERING
DEVELOPMENT
ASSOCIATES

August 30, 1995

Jeff Edwards
P.O. Box 6070
Los Osos, CA 93402

Re: Grading Plan for Carl Goedinghaus,
Doris Avenue in Los Osos

Dear Jeff:

In 1985, we prepared and processed a grading plan for Carl Goedinghaus so that he could establish future building pads on his parcels under County Permit Number 51365. This grading activity involved Lots 8 through 13, inclusive.

The pad elevation was established in order to provide for separation from ground water for anticipated septic systems. At that time, Mr. Goedinghaus was over-seeing the grading activities and working as an owner/contractor. To our knowledge, the project was finalized in March of 1987, with all grading being completed in substantial conformance with the approved plan.

If I can provide any other background information relative to this property, please do not hesitate to call.

Sincerely,

ENGINEERING DEVELOPMENT ASSOCIATES

Dan Lloyd

Daniel R. Lloyd

DRL\jh\1615EDWARDS.LTR

'95 AUG 31 PM 2 26

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Coastal Development Notice

San Luis Obispo County Planning Department

NOTICE AND ACKNOWLEDGEMENT OF
COASTAL DEVELOPMENT PERMIT REQUIREMENTS

I understand that my proposed development must be approved both under the San Luis Obispo County Land Use Element and Land Use Ordinance and as a project under the requirements of the California Coastal Act. I understand this means that if the county approves the project under the Land Use Element/Land Use Ordinance, I must still also obtain a Coastal Development Permit. If I do not obtain a Coastal Development Permit from the California Coastal Commission before the San Luis Obispo County Local Coastal Plan goes into effect, then I must obtain a Coastal Development Permit from the county of San Luis Obispo before any grading or construction or other development activity. I understand that the San Luis Obispo Local Coastal Plan (as required by state law) may impose additional requirements on my development that were not required by the Land Use Element/Land Use Ordinance, or could result in the disapproval of my development if it is not allowed by the Local Coastal Plan, even though it was previously approved by the county under the Land Use Element/Land Use Ordinance.

I hereby certify that I have read and understand this notice.

Signature _____ Date 12/24/86

5J

County Government Center, San Luis Obispo, CA 93408. Phone 549-5600

Owner–Builder Verification

San Luis Obispo County Planning Department

55600

Information Bulletin

Please complete and return to:

PLANNING DEPARTMENT
DIVISION OF BUILDING AND SAFETY
COUNTY GOVERNMENT CENTER
SAN LUIS OBISPO, CA 93408 ATT: Charlene

Attention Property Owner:

An 'owner-builder' building permit has been applied for in your name and bearing your signature.

Please complete and return this information in the envelope provided at your earliest opportunity to avoid unnecessary delay in processing and issuing your building permit. No building permit will be issued until this verification is received.

1. I personally plan to provide the major labor and materials for construction of the proposed property improvement (yes or no) YES. (FROM VARIOUS LICENSED EARTH MOVING CONTRACTORS)

2. I (have/have not) HAVE signed an application for a ~~building~~ GRADING permit for the proposed work.

3. I have contacted with the following person (firm) to provide the proposed construction:
   Name ED'S EXCAVATING - STROLA'S TRI-SERVICE, INC
   Address _____ City _____
   Phone _____ Contractor's License No. _____

4. I plan to provide portions of the work, but I have hired the following person to coordinate, supervise and provide the major work:
   SEE ABOVE
   Name _____
   Address _____ City _____
   Phone _____ Contractor's License No. _____

5. I will provide some of the work but I have contracted (hired) the following persons to provide the work indicated:

Name	Address	Phone	Type of Work
SEE ABOVE			

Signed:
Property owner: [signature]
Date: 12/30/86

1960n

GOEDNGHAUS, Carl A 51365

Last Name

Construction Permit

SEP 11 1985

Plans attached

San Luis Obispo County Planning Department

THIS PERMIT CONSTITUTES AUTHORIZATION BY THE COUNTY OF SAN LUIS OBISPO ALLOWING CONSTRUCTION OF THE PROJECT DESCRIBED HEREIN, SUBJECT TO ALL APPLICABLE PROVISIONS OF THE COUNTY CODE.

Project Address: Doris & Lupine — Locality: Los Osos — A P N: 74-141-0

Lot Number: 8-12 — Block — Tract / Other: CUESTA BY THE SEA

P A: CST — Comm.: LSOS — LUC: RSF — Comp Desig: LCP — In Coastal Zone: IN — Lot Size

Owner Name(s): GOEDNGHAUS, Carl A. 381 Mitchell Dr. Los Osos, CA 93402 — Mailing Address — Zip Code — Business Hour Phone: 528-0789

Contractor or Mover: Ed's Excaveting Los Osos — Mailing Address — Phone No — State License No

Architect, Engineer or Designer — Mailing Address — Phone No — State License No

LEGAL DECLARATIONS

LICENSED CONTRACTORS DECLARATION:
I am licensed under the provisions of Chapter 9 (commencing with section 7000) of Division 3 of the California Business and Professions Code, and my license is in full force and effect

License Class

License Number

Contractor — Date

OWNER BUILDER DECLARATION:
I am exempt from the contractor's License Law for the following reason

☐ I, as owner of the property, or my employees with wages as their sole compensation will do the work, and the structure is not intended or offered for sale

☒ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project

☐ I am exempt under Sec

this reason

Date — Applicant

Here is permit & Final

WORKERS COMPENSATION DECLARATI
I hereby affirm that I have a certificate of consent to self-insure, a certificate of Workers' Compensation Insurance, or a certified copy hereof

☐ Certified copy is hereby furnished
☐ Certified copy is filed with the County Planning Dep

Date — Applicant

CERTIFICATE OF EXEMPTION FROM WORKER
I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California

Date — Applicant

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must comply with such provisions or this permit shall be deemed revoked

CONSTRUCTION LENDING AGENCY
I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Calif. Civil Code)

Lender's Name

Lender's Address

NOTICE

The Uniform Building Code requires that this permit become null and void if work or construction authorized is not started within 180 days after the permit is issued, or if construction or work is suspended or abandoned for a period of 180 days any time after

PROJECT INFORMATION

Type of Project: GRADING

Proposed Use

Setbacks: Front — Side — Rear

Habitable Floor Area — Garage — Barn

Carport — Covered Porch — Deck — Storage

No Bedrooms — No Bathrooms — No Stories

Retaining Wall Information — Square Feet

Height — Length

Mobile, Modular Home Information — Manufacturer

Year — Serial No — D O H No

D M V License No — State — No Bedrooms

Moved Building Information — Locality

Present Location

Proposed Use — Tot Lin Ft of Fdtn

Grading Information — Tot. Cut: none — Cu Yds.

Tot Fill: 1500 — Cu Yds — Area of Disturbance: 18,160 sf

TYPE OF CONSTRUCTION

Foundation — Frame — Roof Pitch

Roof Material — Exterior Wall

Mechanical and Energy Information — Type Space Heating

Type Water Heating — Fireplace Type

Utility Information — Water Source

Sewage Disposal — Gas Type

Method of Energy Compliance

$

TOTAL VALUATION (for bldg permit use only) $

Plan Check	$ 100.00	Building	$
Energy Review	$	Grading	$ 205.00
Plot Plan	$ 16.00	Plumbing	$
Microform	$ 4.00	Electrical	$
Drainage	$ 25.00	SMIP Tax	$
Fire Plan	$	Encroachment	$
Tree Removal	$		$
Adjustment	$		$
Investigation	$		$
Violation Fee	$		$
	$	Subtotal	$ 205.0
Subtotal	$ 145.00	Total Fee	$ 350.0

REQUIREMENTS FOR FINAL INSPECTION

- Curb, gutter and sidewalk
- Road Tax
- Land Use Permit Conditions
- Landscaping Improvements
- Fire Safety Improvements
- Parking Lot Improvements
- Fencing Improvements

the California Business and Professions Code

License Class

License Number

Contractor Date

OWNER BUILDER DECLARATION

I am exempt from the contractor's License Law for the following reason

[ ] I, as owner of the property, or my employees with wages as their sole compensation will do the work, and the structure is not intended or offered for sale

[ ] I, as owner of the property, am exclusively contracting with licensed contractors to construct the project

I am exempt under B & P Code Sec.

this reason

Date Applicant

WORKERS COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self insure, or a certificate of Workers Compensation Insurance, or a certified copy thereof (Sec. 3800, Calif. Labor Code)

[ ] Certified copy is hereby furnished

[ ] Certified copy is filed with the County Planning Department

Date Applicant

CERTIFICATE OF EXEMPTION FROM WORKERS COMP. INSURANCE

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California

Date Applicant

NOTICE TO APPLICANT: If after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must comply with such provisions or this permit shall be deemed revoked

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Calif. Civil Code)

Lender's Name

Lender's Address

NOTICE

The Uniform Building Code requires that this permit become null and void if work or construction authorized is not started within 180 days after the permit is issued, or if construction or work is suspended or abandoned for a period of 180 days any time after work is commenced

I certify under penalty of perjury that I have read this application and state that the above information is correct. I agree to comply with all county ordinances and state laws relating to building construction, and hereby authorize representatives of this county to enter upon the above-mentioned property for inspection purposes

Failure to request a progress inspection in any 180-day period is evidence that work has been abandoned.

Signature of Contractor or Authorized Agent

Signature of Owner (If Owner Builder)

I.D. Verification Date

Setbacks Front Rear Side Side

Habitable Floor Area Garage Barn

Carport Covered Porch Deck Storage

No. Bedrooms No. Bathrooms No. Stories

Retaining Wall Information Square Feet

Height Length

Mobile Modular Home Information Manufacturer

Year Serial No. D.O.H. No.

U.M.V. License No. State No. Bedrooms

Moved Building Information Locality

Present Location

Proposed Use Est. Cost of Repairs

Grading Information Tot. Cut none Tot. Yds.

Tot. Fill 1600 Area of Disturbance 18,160 s.f.

TYPE OF CONSTRUCTION

Foundation Frame Roof Pitch

Roof Material Exterior Wall

Mechanical and Energy Information Type Space Heating

Type Water Heating Fireplace Type

Utility Information Water Source

Sewage Disposal Gas Type

Method of Energy Compliance

FEES

TOTAL VALUATION (for bldg. permit use only) = $

Plan Check	$ 100.00		Building	$	205.00
Energy Review	$		Grading	$	
Plot Plan	$ 16.00		Plumbing	$	
Microform	$ 4.00		Electrical	$	
Drainage	$ 25.00		SMIP Tax	$	
Fire Plan	$		Encroachment	$	
Tree Removal	$			$	
Adjustment	$			$	
Investigation	$			$	
Violation Fee	$			$	
	$		Subtotal	$	205.00
*Subtotal	$ 145.00		Total Fee	$	350.00

REQUIREMENTS FOR FINAL INSPECTION

Curb, gutter and sidewalk

Road Tax

Land Use Permit Conditions

Landscaping Improvements

Encroachment Type

Fire Safety Improvements

Parking Lot Improvements

Fencing Improvements

Other

Other

Septic Tank Requirements.

Gallon Septic Tank Sq. Ft. Leach Area

SPECIAL CONDITIONS:

See Comment

PERMIT NO. 51365

Date Received: Receipt No.

Date Issued 10/2/85 Issued By Charlie

MAILING ADDRESS: COUNTY GOVERNMENT CENTER, SAN LUIS OBISPO, CA 93408 (805) 549-5600

STRUCTURES/BUILDINGS

EXCAVATION AND SETBACK INSPECTIONS

To be Made Before Concrete is Poured
- Setbacks Excavations
- Footings Forms
- Block, Steel

SUB-FLOOR AND ROUGH PLUMBING INSPECTIONS

To be Made Before Sub-Floor Is Laid
- Foundations
- Joists and Sills
- Drain Plumbing (Water Test)
- Gas Lines (Air Test)

ROUGH INSPECTIONS

To be Made Before Insulation or Drywall is Applied
- Framing
- Wiring
- Top Plumbing
- Heating
- Roof Nailing
- Roof Covering
- Stucco Wire
- Fireplace and Chimney

Insulation Walls Ceiling
Drywall
Septic Sewer
Ordinance App
Fire Dist
Health Dept
Encroachment

Do not occupy building until these are signed
- Finish Grading 3/25/87 DWV.
- Mechanical
- Electrical
- Plumbing
- Building

This card when signed below constitutes a Certificate of Occupancy

Don Taylor

COMPLETED
DATE

MODULAR/MOBILEHOME

FOUNDATION
- Setbacks Excavation
- Forms
- Piers
- Clearances, Ventilation
- Access Panel
- Steel
- Tie Downs

FRAME
- Leveling of Floor
- Rim Floor Connector
- Stairs

ELECTRICAL
- Continuity, Grounding
- Feeder Assembly
- Disconnect Pedestal
- Crossover

PLUMBING
- Gas test
- Water Test
- Septic Tank
- Leach Field
- Sewer Hook up

MECHANICAL (additional)
- Installation
- Heating Ducts
- Power Hook-up

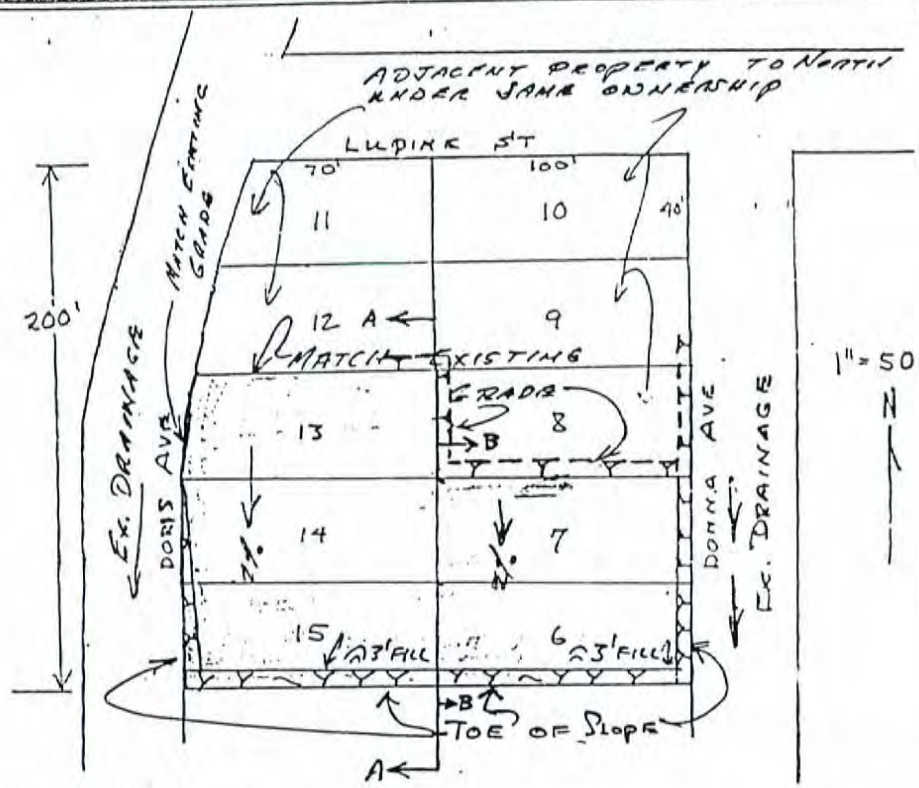
FINAL
- Road Encroachment
- Skirting
- Roof Cap
- Service Meter
- Well Approval
- Grading
- Driveway

COMMENTS AND CORRECTIONS

Stairs have been dirt a long time!
No call for Insp.
12/25/86

Property and Project Layout

San Luis Obispo County Planning Department (See instructions on bac

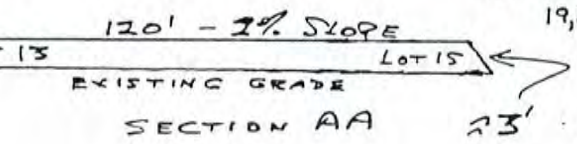


NO SCALE - LUPINE

DORIS AVE. SLOPES DOWNHILL TO BINSCARTH RD → BINSCARTH
LEVELS OFF & RISES NEAR BINSCARTH

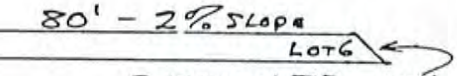
TOTAL SQ. FOOTAGE
19,800 ±.

NO SCALE



SECTION AA ≈3' FILL

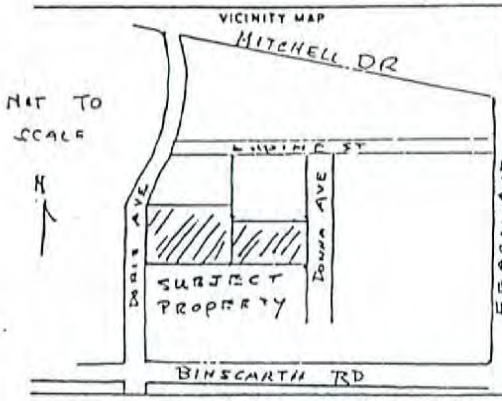
NO SCALE



SECTION BB ≈3' FILL

VICINITY MAP

NOT TO SCALE



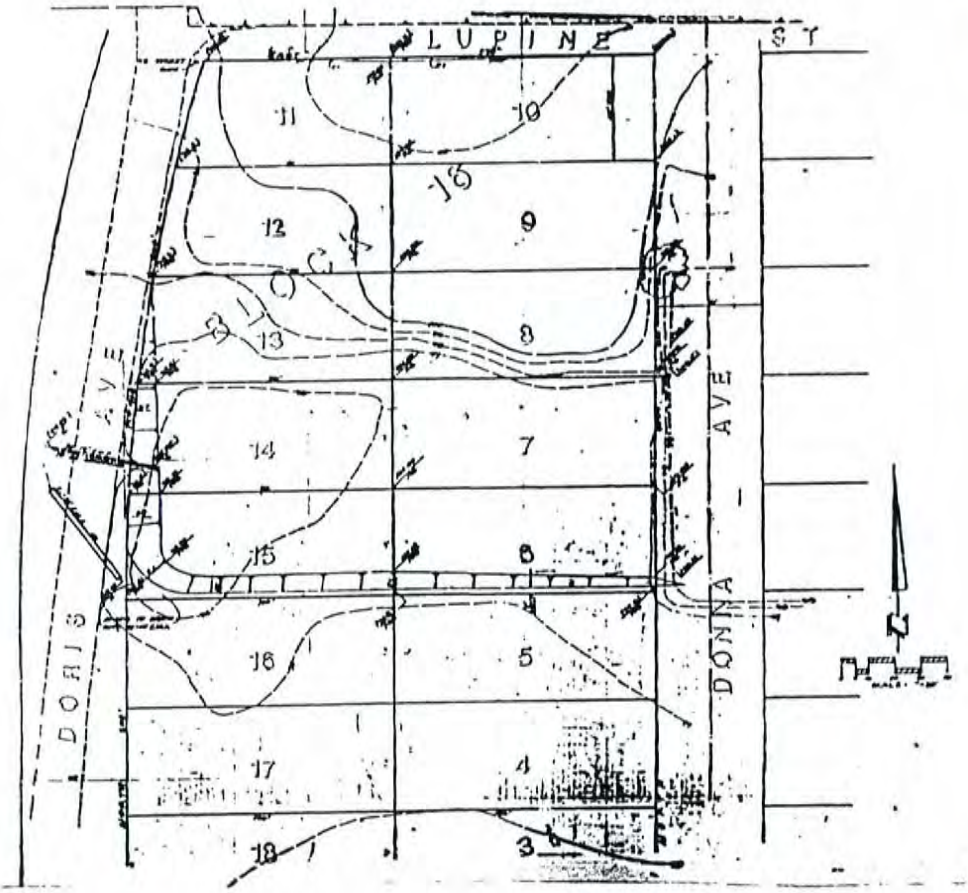
TO BE COMPLETED BY STAFF

REQUIREMENTS TO BE MET PRIOR TO PERMIT ISSUANCE:	INITIAL
☐ DEED VERIFICATION	
☐ FIRE SAFETY PLAN	
☒ LAND USE APPROVAL	Rev. Review
☐ LEGAL DECLARATIONS	
☐ GRADING APPROVAL	
☒ COUNTY ENGINEERING	DRAINAGE
☐ RECORD DOCUMENT	
☐ PERFORMANCE BOND	
☐ TREE REMOVAL	
☐ SPECIAL DISTRICT	
☐ INSPECTOR VERIFY	
☒ BALANCE OF FEES	215.00
☐ OTHER	
☐ OTHER	

County Government Center, San Luis Obispo, CA 93408. (805) 549-5600

Property and Project Layout

San Luis Obispo County Planning Department (See Instructions on back)



VICINITY MAP

TO BE COMPLETED BY STAFF

REQUIREMENTS TO BE MET PRIOR TO PERMIT ISSUANCE:		INITIAL/DATE
☐ DEED VERIFICATION		
☐ FIRE SAFETY PLAN		
☑ LAND USE APPROVAL	SITE PLAN? D860058	
☐ LEGAL DECLARATIONS		
☐ GRADING APPROVAL		
☑ COUNTY ENGINEERING	DRAINAGE	
☐ RECORD DOCUMENT		
☐ PERFORMANCE BOND		
☐ TREE REMOVAL		
☐ SPECIAL DISTRICT		
☐ INSPECTOR VERIFY		
☒ BALANCE OF FEES	126.50	
☐ OTHER		
☑ OTHER	ENV. deter.	

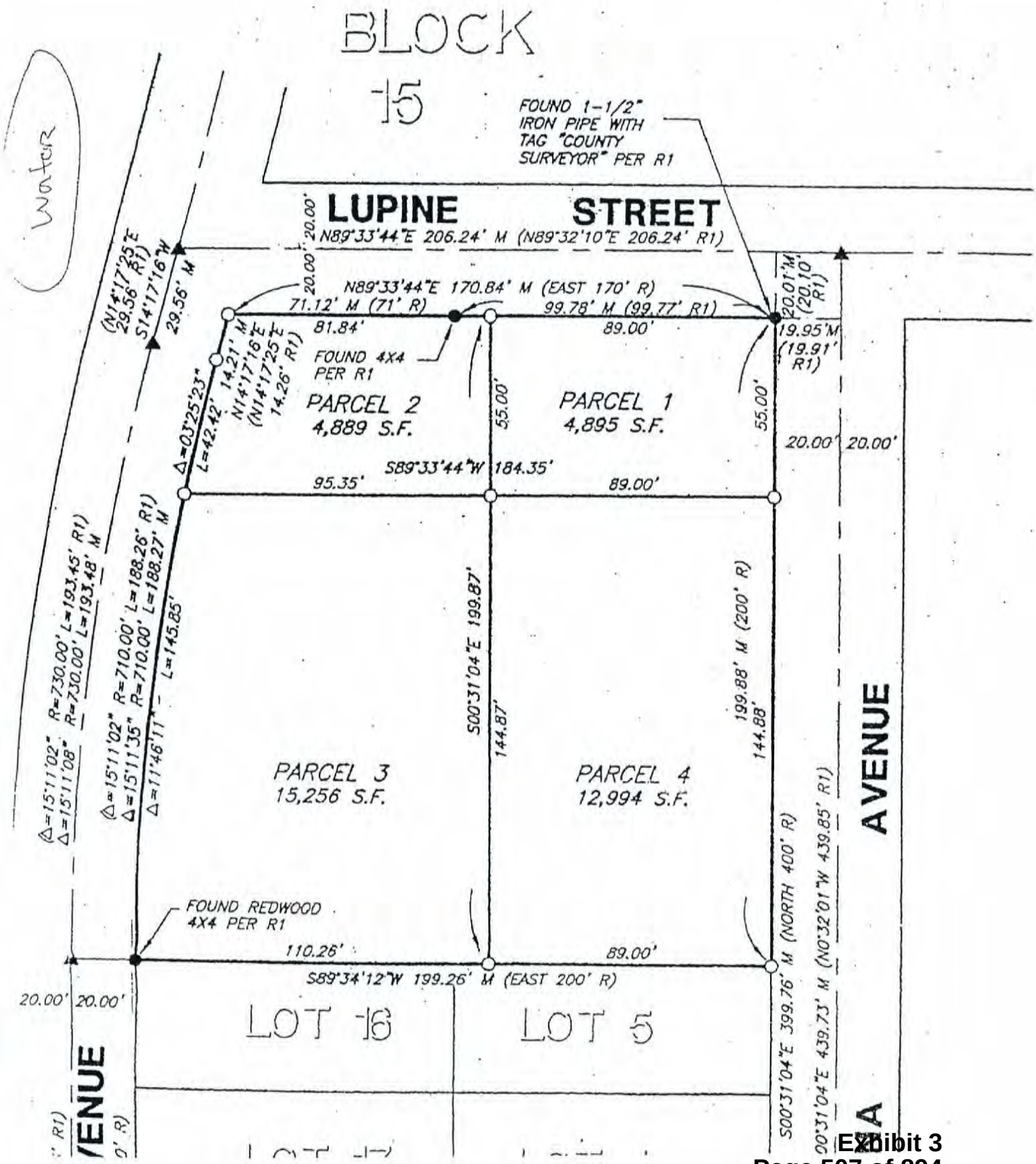
County Government Center, San Luis Obispo, CA 93408. (805) 549-5600

EXHIBIT B

Buyer's

CHUCK & DONNA SALL
(661) 949-6059
" 821-1937
mob " 609-9970

Buying Parcel 1 via easement on Parcel 2


BLOCK
15
Water
FOUND 1-1/2" IRON PIPE WITH TAG "COUNTY SURVEYOR" PER R1
LUPINE STREET
N89°33'44"E 206.24' M (N89°32'10"E 206.24' R1)
20.00'
N89°33'44"E 170.84' M (EAST 170' R)
71.12' M (71' R)
99.78' M (99.77' R1)
81.84'
89.00'
20.01'M (20.10' R1)
19.95'M (19.91' R1)
FOUND 4X4 PER R1
PARCEL 2
4,889 S.F.
PARCEL 1
4,895 S.F.
55.00'
20.00'
S89°33'44"W 184.35'
95.35'
89.00'
(N14°17'25"E 29.56' R1)
S14°17'16"W 29.56' M
Δ=03°25'23" L=42.42' 14.21' M N14°17'16"E (N14°17'25"E 14.26' R1)
Δ=15°11'02" R=730.00' L=193.45' R1)
Δ=15°11'08" R=730.00' L=193.48' M
Δ=15°11'02" R=710.00' L=188.26' R1)
Δ=15°11'35" R=710.00' L=188.27' M
Δ=11°46'11" L=145.85'
S00°31'04"E 199.87'
144.87'
199.88' M (200' R)
144.88'
PARCEL 3
15,256 S.F.
PARCEL 4
12,994 S.F.
AVENUE
FOUND REDWOOD 4X4 PER R1
110.26'
89.00'
S89°34'12"W 199.26' M (EAST 200' R)
S00°31'04"E 399.76' M (NORTH 400' R)
S00°31'04"E 439.73' M (N0°32'01"W 439.85' R1)
LOT 16
LOT 5
VENUE
MA

074-14

REVISIONS	
TECH	DATE
GM	09-10-98

50 0 100 200

GY 09-10-98 THIS MAP IS PREPARED FOR ASSESSMENT PURPOSES ONLY.

CUESTA BY THE SEA, R.M. Bk. 3 , Pg. 48

LOS OSOS
ASSESSOR'S MAP COUNTY OF SAN LUIS OBISPO, CA.
BOOK 074 PAGE 14

Department of Planning and Building
San Luis Obispo County

Alex Hinds, Director

Bryce Tingle, Assistant Director
Ellen Carroll, Environmental Coordinator

Barney McCoy, Chief Building Official
Norma Salisbury, Administrative Services Officer

Jeff Goedings
P.O. Box 6070
Los Osos, Ca 93412

Jan 20, 1995

Subject: COAL 4-097 - GOEDINGHAUS

Your application has been accepted for processing by the Planning Department. Your file has been forwarded to the Environmental Coordinator for an environmental determination. The Environmental Coordinator will determine if the project qualifies for an Exemption or Negative Declaration; or if the project requires the preparation of an Environmental Impact Report. The Environmental Coordinator will notify you by letter of the results of the environmental analysis.

Under state law, the county must act to approve or deny this application within 90-days after approval of an Exemption or Negative Declaration, or within 180 days after certification of an Environmental Impact Report. These time frames may be extended upon mutual consent by the applicant and county.

As the applicant for this project, you may request notice of any proposed changes in the County General Plan, specific plans, land use ordinance or building ordinances that may effect your project. To receive this service, you must submit the request in writing.

During the processing of the application by the Environmental Coordinator and following a more detailed staff evaluation additional information may be required. Based upon the current number of applications, we are unable to give you an approximate date when your application will be acted upon. You will be notified prior to any action taken. If you have any questions regarding the processing of your application, please contact me or the Environmental Coordinator at (805) 781-5600.

Sincerely,

Jay Johnson

Development Review Section

County Government Center • San Luis Obispo • California 93408 • (805) 781-5600 • Fax (805) 781-1242 or 5624

mitigate potential environmental impacts for [illegible] own actions and when permitting private projects. The Act also requires that an environmental imp[illegible]ort (EIR) be prepared for all actions that may significantly affect the quality of the environment. The p[illegible]se of this form is to obtain information concerning your project to help the Environmental Division of the County of San Luis Obispo Department of Planning and Building determine whether or not your project will significantly affect the quality of the environment.

Please answer all of the following questions as accurately and completely as possible. Where explanations of your answers are required, or where you believe an explanation would be helpful to government decision makers, include your explanation in the space provided or use additional pages if necessary. You should include references to any reports or studies of which you are aware and which are relevant to the answers you provide. Complete answers to these questions now will help all agencies involved with your proposal to undertake the required environmental review without unnecessary delay. Should the Environmental Division determine that the information is inaccurate or insufficient, you will be required to submit additional information upon request. Please note that land divisions and rezonings will eventually result in development of the property. Therefore, your responses should also take this into consideration.

As soon as possible, the Environmental Division will review your project. If a Negative Declaration (no EIR required) is issued, you will be notified by letter. If preparation of an EIR is recommended, you will be notified and your project will be scheduled before the San Luis Obispo County Board of Supervisors for an environmental determination.

I. General Information

1. Applicant: Claire D. Goedinghaus
   a. Contact Person: Jeff Edwards
   b. Address: P.O. Box 6070 Los Osos, CA 93412
   c. Telephone: (805) 528-1567
2. Describe the project in detail (discuss what you are going to do, such as subdivide and sell lots, build a shopping center...) Lot line adjustment resulting in the voluntary merger of ten lots into four
3. Project Location:
   a. Legal Description: Lots 6-15 inclusive in Block 16 of Cuesta-by-the-Sea
   b. Assessor's Parcel Number: 074-141-001
   c. Address: between Doris Ave. and Donna Ave. just south of Lupin St. in Los Osos
   d. City/Community (if rural, select closest to project site): Los Osos
   e. Include vicinity map showing nearest crossroads on site plan and exact location of site.
4. Size of Project:
   a. Total acreage of subject property: 0.87 acres
   b. Total acreage of owners' property immediately surrounding subject property: n/a
   c. If the project involves a land division, please answer the following:
      1) Check one: _____ Parcel Map _____ Tract Map
      2) How many lots will be created? _____
      3) What size will the lots be? _____
   d. If the project includes development of structures, please answer the following:
      1) What is total floor space area? _____ sq. ft.
      2) Indicate what percentage of the total site will be used for:
         a) building _____ c) landscaping _____
         b) paving _____ d) other (specify) _____

(x) Residential ( ) Industrial ( ) Commercial ( ) Agricultural ( ) Other _____

6. If your land is vacant or in agricultural production, are there any restrictions on the crop productivity of the land? That is, are there any reasons (i.e. poor soil, steep slopes) the land cannot support a profitable agricultural crop? Please explain in detail: _____

7. What is the existing use(s) on the property? vacant
   a. How many structures exist on the property? _____
   Please identify what each of these structures are. _____

8. What is the existing zoning? RSF

9. What is the land use of the surrounding area? (When applicable, please specify all agricultural uses)
   a. North: RSF
   b. South: RSF
   c. East: RSF
   d. West: RSF

10. Do you plan to request a rezone? no

11. Will development occur in phases? _____ Describe: _____

12. Do you have any plans for future additions, expansion or further activity related to or connected with this proposal? Yes _____ No x If yes, explain: _____

13. Do you know of any plans by others which may affect the property covered by your proposal? _____ If yes, explain: no

14. Have you considered alternative development schemes? _____ If so, list and briefly state why each was found to be unacceptable: _____

15. List all permits, licenses or government approvals that will be required for your project (federal, state & local): SLO CO approval of lot line adjusment

II. Water

NOT APPLICABLE

1. Please check all applicable items for type of water system:
   ( ) On-site ( ) Individual well ( ) Shared well
   ( ) Off-site ( ) Community ( ) Water Co.

3. What is the proposed use of the water? ( ) Residential

( ) Agricultural: explain _____

( ) Commercial: explain _____

( ) Industrial: explain _____

4. What is the expected daily water demand associated with the project? _____

5. Is there sufficient water available for the project? _____ If known, please specify quantity. _____

6. How many service connections will be required? _____

7. Population served? _____

8. Do operable water facilities exist on the site? _____ Describe: _____

9. Does water meet Health Department quality requirements?

Bacteriological: Yes _____ No _____

Chemical: Yes _____ No _____

Physical: Yes _____ No _____

Water analysis report submitted: Yes _____ No _____

10. Please check if any of the following have been completed on the subject property and/or submitted to Environmental Health.

( ) Well Driller's Letter ( ) Water Quality Analysis _____ OK _____ Problems

( ) Will Serve Letter ( ) Pump Test _____ hours _____ GPM

( ) Surrounding Well Logs ( ) Hydrologic Study

( ) Other _____

11. Please attach any letters or documents to verify that water is available for the proposed project.

III. Waste Disposal

NOT APPLICABLE

Please check all applicable items for type of system to be used:

( ) On-site ( ) Off-site ( ) Individual Septic ( ) Community ( ) Public

( ) Shared ( ) Evapo-transpiration ( ) Engineered System ( ) Other _____

If a community/public system will be used:

1. Is this project to be connected to an existing sewer line? _____ Yes _____ No

a. Distance to nearest sewer line: _____

2. What agency or company is responsible for sewage disposal? _____

3. What is the capacity of existing or new sewage treatment facilities? _____ g.p.d.

4. What is the amount of proposed flow? _____ g.p.d.

5. Does the existing collection treatment and disposal system have adequate additional capacity to accept the proposed flow? _____ Yes _____ No

6. Do you have letters or documents from the facility operator verifying all of the above?

_____ Yes _____ No If yes, please attach.

If an on-site (individual) subsurface sewage disposal system will be used:

7. Has an engineered percolation test been accomplished? _____ Yes _____ No

If yes, please attach copy and answer the following (a - g):

c. Has a conclusion been stated [illegible] the amount of required cubic feet of seepage pits per 100 gal. of septic tank capac. _____ Yes _____ No

d. Is the area (parcel, lot, etc.) of sufficient size to provide an area equal to 100% of original installation to provide for expansion? _____ Yes _____ No

e. What is the depth of the water table? _____

f. Please explain the quality of any shallow water table (in relation to existing ground elevations). _____

g. Is there a portion of the lot(s) that is unsuitable for individual installations due to soil or geologic conditions, slope, etc.? _____ Yes _____ No If yes, please explain: _____

8. What is the distance from proposed leach field to any neighboring water wells? _____ ft.

9. Will subsurface drainage result in the effluent reappearing on adjacent lands? ____ Yes ____ No

10. Will subsurface drainage result in the possibility of effluent reappearing in surface water? _____

11. What type of solid waste will be generated by the project? Domestic _____ Industrial _____ Agricultural _____ Other (explain) _____

12. What type of storage will be used for solid waste? Dumpster _____ Single containers _____ Other (explain) _____

13. Where is the waste disposal storage in relation to buildings? _____

14. Has a piezometer test been completed? _____

15. Will a Waste Discharge Permit (Regional Water Quality Control Board) be required? _____

IV. Physical Site Characteristics

1. Describe the topography of the site: level

Level to gently rolling, 0-10% slopes: 0.87 acres

Moderate slopes of 10-30%: _____ acres

Steep slopes over 30%: _____ acres

2. Are there any springs, streams, lakes or marshes on or near the site? yes If yes, describe: Please see botanical report

3. What types of vegetation exist on the site? Please see botanical report

4. Will the project necessitate tree removal? Yes _____ No x If yes, please specify number, size and type to be removed. _____

5. Describe any unique or significant features on or adjacent to the site: Cuesta inlet lies to the west of the site

6. Are you aware of any unique, rare or endangered species (vegetation or wildlife) associated with

7. Please describe the drainage pattern of th south and southwesterly

8. Has a drainage plan been prepared? ____ Yes __x__ No

9. Are there any flooding problems on the site or in the surrounding area? ____ Yes __x__ No
   If yes, describe: ____

10. Has there been any grading or earthwork on the project site? ____ Explain: ____

11. Will any grading or alteration of the existing topography be necessary? ____ Yes __x__ No
    a. If yes, describe purpose and extent: ____
    b. Total area of site disturbance (include grading and vegetation removal) ____ sq. ft.
    c. Has a grading plan been submitted? ____

12. Will there be any drainage swale or streambed alteration associated with the project? no
    Is yes, explain: ____

V. Community Services

NOT APPLICABLE

1. Number of school children in project: ____ School District: ____
2. Location of nearest police station: ____ Response time (in minutes): ____
3. Location of nearest fire station: ____ Response time (in minutes): ____

VI. Commercial/Industrial Projects

1. Hours of operation: ____
2. Days of operation: ____
3. Will this project produce any emissions (i.e. gases, smoke, odors, fumes, vapors)? ____
   Explain: ____
4. Will this project increase the noise level in the immediate vicinity? ____ Explain: ____
5. What type of industrial waste materials will result from the project? Explain in detail. ____
6. How many people will this project employ? ____

VIII. Miscellaneous

1. Are there any proposed or existing deed restrictions? ____ Yes ____ No
   If yes, describe: ____
2. Is a railroad or highway within 300 feet of your project site?

VERIFICATION OF PROJECT LOCATION
RELATIVE TO KNOWN HAZARDOUS WASTE AND SUBSTANCES SITES LIST
PURSUANT TO AB 3750

I acknowledge that I have reviewed the list of known Hazardous Waste and Substances Sites List and find the following:

X The site is not shown on the list of known Hazardous Waste and Substances Sites.

___ The site is shown on the Hazardous Waste and Substances Sites List dated August 1988, or any later list published by the State Office of Planning and Research.

5/31/94
Date

Applicant or Agent

ACKNOWLEDGEMENT OF RECEIPT OF REQUIREMENTS OF APPLICANT NOTICE
AS REQUIRED UNDER THE CALIFORNIA GOVERNMENT CODE

I have received the Project Deadline Requirements and Notice Requirement Information Bulletin provided by San Luis Obispo County Department of Planning and Building.

5/31/94
Date

Applicant or Agent

LOT LINE ADJUSTMENT
Project Type (OAL 94-097

PI-182
155k/2261k2
02/02/89

County Government Center, San Luis Obispo, CA 93408 - (805) 549-5602

Department of Planning and Building
San Luis Obispo County

Alex Hinds, Director

Bryce Tingle, Assistant Director
Ellen Carroll, Environmental Coordinator

Barney McCay, Chief Building Official
Norma Salisbury, Administrative Services Officer

ENVIRONMENTAL DIVISION

January 28, 1995

Mr. Jeff Edwards
P.O. Box 6070
Los Osos, CA 93412-6070

RE: Goedinghaus Lot Line Adjustment, ED95-022 (COAL94-097, S940025L)

Dear Mr. Edwards:

Your file has been received by the Environmental Division of the Department of Planning and Building for an environmental determination as required by the California Environmental Quality Act (CEQA) and will be processed as soon as possible.

Each project is reviewed in the order received for processing by this office. As this office reviews your project in more detail, additional information may be required from you in order to complete the environmental determination. If additional information is required, you will be notified of what is needed.

Recently enacted State law requires that the State Department of Fish and Game collect filing fees for projects that require consultation, review, or development of mitigation measures by Fish and Game. Applicants whose projects have involved the Department of Fish and Game will be notified of the need to pay the filing fees at the completion of the environmental review process.

An administrative fee for the processing of all environmental determinations filed with the County Clerk became effective July 1, 1991. Currently, this fee is in the amount of $25.00 and is due and payable to the County Clerk's Office within 2 days after the approval of the project.

Please fill out the enclosed environmental description form and send it to this office. We require the additional information in order to continue processing your application.

If a Negative Declaration (no EIR required) determination is made, you will be notified by letter and your file will be returned to the Planning Department to complete processing. If preparation of an Environmental Impact Report (EIR) is recommended, you will be notified and your project will be scheduled before the Board of Supervisors for an environmental determination.

County Government Center • San Luis Obispo • California 93408 • (805) 781-5600 • Fax (805) 781-1242 or 5624

As you may know, workload in the Environmental Division is heavy and there have been many requests to process projects within very short time frames. In response to these requests, the County has contracted with a consultant to expedite preparation of environmental determinations. The Environmental Coordinator has determined that the environmental determination for your project is eligible to be prepared by our consultant. The use of the consultant is at your option and expense. Choosing this option will reduce the processing time for environmental review of your project.

The consultant selected by the County is M.R. Enterprises, a local firm whose principals have prepared many environmental determinations for the County. Environmental determinations are expected to cost between $1,500 and $2,000. We expect that M.R. Enterprises will be able to complete most environmental determinations within 30 to 45 days.

If you choose to use our consultant, a deposit of $2,000 will be necessary. Any remaining balance will be refunded to you. If the costs of preparing the required documents will exceed the deposit, we will notify you to see if you wish to pay the additional costs and proceed with the consultant's services, or wait for County staff to complete the environmental determination.

If at any point during the consultant's analysis, potentially significant impacts are identified that will require preparation of a more comprehensive environmental document (e.g., an Expanded Initial Study or Environmental Impact Report), the consultant will immediately stop work and notify this office. We will then meet with you to discuss further processing of your project.

If you wish to use the services of our consultant, please sign and return the enclosed form along with your deposit check in the amount of $2,000 made payable to the "County of San Luis Obispo." We will then send you a receipt and authorize the consultant to begin work immediately.

If you do not wish to use the consultant, County staff will prepare your environmental determination. Projects are processed in the order received.

Thank you for your cooperation. If you have any questions, please feel free to call me.

Sincerely,

MARK HUTCHINSON
Environmental Specialist

Enclosures

cc: Claire D. Goedinghaus
381 Mitchell Dr.
Los Osos, CA 93402

92d y2

Department of Planning and Building
San Luis Obispo County

Alex Hinds, Director
Bryce Tingle, Assistant Director
Ellen Carroll, Environmental Coordinator

Barney McCoy, Chief Building Official
Norma Salisbury, Administrative Services Officer

ENVIRONMENTAL DIVISION

March 30, 1995

Jeff Edwards
P.O. Box 6070
Los Osos, CA 93412

SUBJECT: ENVIRONMENTAL DETERMINATION FOR GOEDINGHOUSE LOT LINE ADJUSTMENT; ED95-022 (COAL94-097)

Dear Mr. Edwards:

Your proposed project has been reviewed by the Environmental Coordinator. It can be seen with certainty that there is no possibility that this project may have a significant effect on the environment. Therefore, it has been determined that the project is exempt from the California Environmental Quality Act (CEQA) for the following reasons:

Exempt Status:

X Categorical Exemption {Sec.21084; 15305 Class 5}

__ General Rule Exemption {Sec. 21080; 15061(b)(3)}

Your project has been returned to the Planning Division and will be processed on the basis of this exemption. If you have any questions regarding the action taken by the Environmental Coordinator, please contact this office as soon as possible at (805) 781-5600.

Sincerely,

MARK HUTCHINSON
Environmental Specialist

County Government Center • San Luis Obispo • California 93408 • (805) 781-5600 • Fax (805) 781-1242 or 5624

Staff Report

San Luis Obispo County Department of Planning and Building

R-57

DATE: JULY 10, 1995

TO: SUBDIVISION REVIEW BOARD

FROM: JAY JOHNSON, ASSOCIATE PLANNER

SUBJECT: LOT LINE ADJUSTMENT AND COASTAL DEVELOPMENT PERMIT FOR CLAIRE GOEDINGHAUS/JEFF EDWARDS (COAL 94-097)

ATTACHMENTS
1. Findings
2. Conditions of Approval
3. Graphics

SUMMARY

The applicant is proposing an adjustment between ten lots resulting in four lots Los Osos. The existing lots are approximately 4,000 square feet each totaling 0.87 acres. The proposed lots would be 4,849 square feet, 4,857 square feet, 12,854 square feet, and 15,033 square feet each. Supervisorial District No.: 2

RECOMMENDATION

Approve the lot line adjustment as described in this report based on the findings found in Exhibit A, in accordance with Section 21.02.030 of the Real Property Division Ordinance.

PROJECT DESCRIPTION AND ENVIRONMENTAL SETTING

Location: The south side of Lupine Street between Doris Avenue and Donna Avenue in the community of Los Osos in the Estero planning area. Assessor Parcel Number: 074-141-001

General Plan: Residential Single Family/ Environmentally Sensitive Habitat/Non-open space

Planning Area Stds: None applicable

Existing Uses and Improvements: Vacant

Surrounding Land Uses (category):

North: Residences (Residential Single Family)
East: Residences (Residential Single Family)
South: Vacant (Residential Single Family)
West: Wetland (Recreation)

SRB\JUL\V9500191.SRT

A-5-2

Site Area:	0.87 acres
Topography:	Nearly level
Vegetation:	Wetland vegetation and grasses
Water and Sewer:	Community water and on-site septic
Fire Protection:	South Bay Fire Department

ENVIRONMENTAL DETERMINATION

Categorical Exemption

DISCUSSION

Legal Lot Determination - The existing parcels are Lots 6 to 15, Block 16, in Cuesta by the Sea.

Ordinance Compliance

The proposed lot line adjustment is consistent with the provisions of Section 21.02.030 of the Real Property Division Ordinance because it will not worsen the situation as applicable to parcel design and is consistent with the minimum site area and setbacks for the single family land use category.

This application improves the situation for biological reasons because six existing lots that are within a wetland area will be eliminated. A botanical assessment was prepared for the property and identified the edge of the wetland. The building pad areas shown on the adjustment map meet the wetland setback established by the Coastal Zone Land Use Ordinance.

A-5-3

EXHIBIT A

FINDINGS - COAL 94-097
CLAIRE GOEDINGHAUS/JEFF EDWARDS

A. As conditioned, the proposed parcels, with respect to parcel design and wetland setbacks and other zoning and building ordinances are acceptable.

EXHIBIT B

CONDITIONS OF APPROVAL - COAL 94-097
CLAIRE GOEDINGHAUS/JEFF EDWARDS

1. Prior to filing of a map or recordation of a certificate of compliance effectuating the adjustment, the map or certificate shall provide a minimum 30 foot setback between the adjusted property line and the existing structures on Parcel 1, or the structures shall be relocated to allow for the 30 foot side setback required by the county Land Use Ordinance.

2. If a map is filed, it shall show:
   a. All public utility easements.
   b. All approved street names.

3. Any private easements described in the title report must be shown on the map, with recording data.

4. When the map is submitted for checking, or when the certificate of compliance is filed for review, provide a preliminary title report to the County Engineer or the Planning Director for review.

5. All conditions of approval herein specified are to be complied with prior to the recordation of the map or certificates of compliance which effectuate the adjustment. Recordation of a map is at the option of the applicant. However, if a map is not filed, recordation of a certificate of compliance is mandatory.

6. The map or certificates of compliance shall be filed with the County Recorder prior to transfer of the adjusted portions of the property or the conveyance of the new parcels.

7. In order to consummate the adjustment of the lot lines to the new configuration when there is multiple ownerships involved, it is required that the parties involved quitclaim their interest in one another new parcels. Any deeds of trust involving the parcels must also be adjusted by recording new trust deeds concurrently with the map or certificates of compliance.

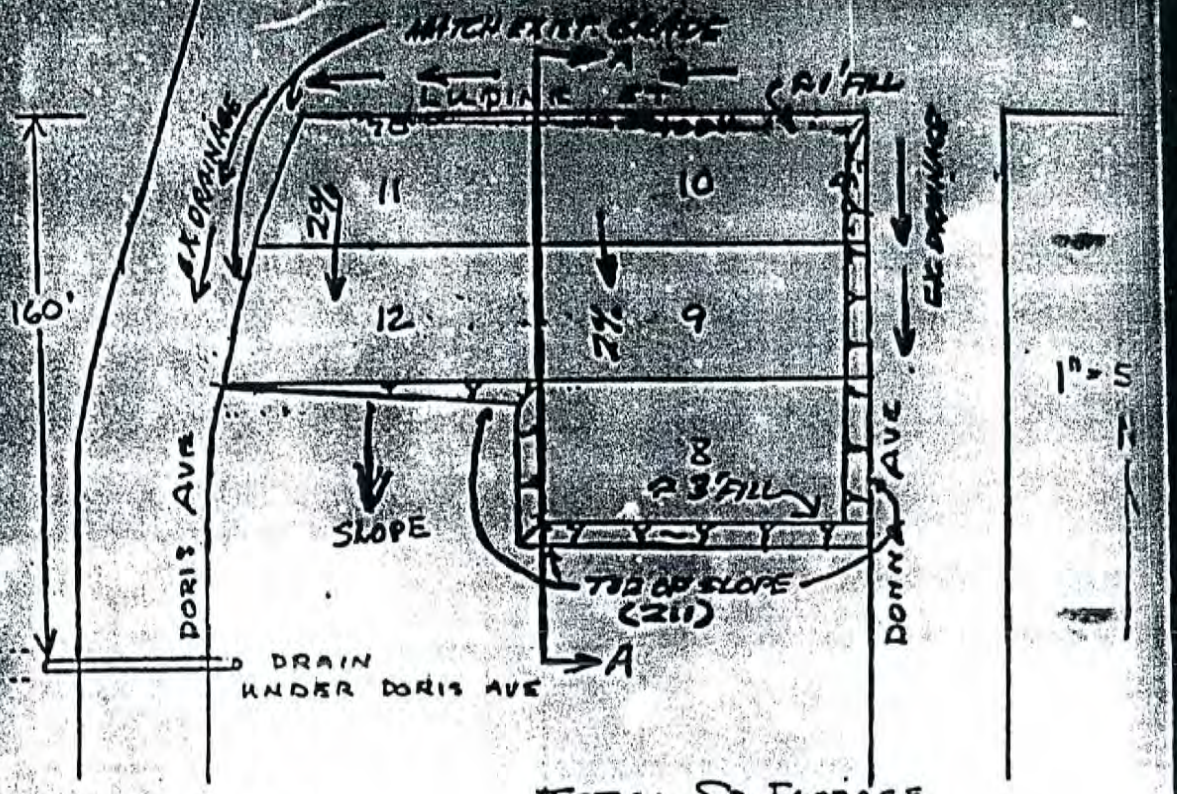
A-3-4

8. After approval by the Subdivision Review Board, compliance with the preceding conditions will bring the proposed adjustment into conformance with the Subdivision Map Act and Section 21.02.030 of the Real Property Division Ordinance.

9. The lot line adjustment will expire two years (24 months) from the date of the approval, unless the map or certificates of compliance effecting the adjustment is recorded first. Adjustments may be granted extensions of time. The applicant must submit a written request with appropriate fees to the Planning Department prior to the expiration date.

Staff report prepared by Jay Johnson,
Development Review Section and reviewed
by Michael Draze, Supervising Planner

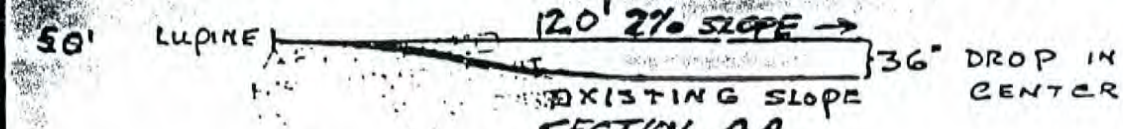
A-2-2



TOTAL SQ FOOTAGE
18,160 ±

ENT PROPERTY
SAME OWNERSHIP

LUPINE
AVE SLOPES DOWNHILL TO BINSCARTH RD → BINSCAR
LEVELS OFF & RISES NEAR BINSCART



SECTION AA

SP 10/7/85
5/3/85 10/7/85

Department of Planning and Building
San Luis Obispo County

Alex Hinds, Director
Bryce Tingle, Assistant Director
Barney McCoy, Chief Building Official
Norma Salisbury, Administrative Services Officer
Ellen Carroll, Environmental Coordinator

TO: SUBDIVISION REVIEW BOARD

FROM: JAY JOHNSON, DEVELOPMENT REVIEW SECTION

SUBJECT: COAL 94-097 (GOEDINGHAUS)

DATE: AUGUST 7, 1995

This item was continued from the July 10, 1995 Subdivision Review Board meeting for staff to provide information about previous grading, the lot consolidation portion of the Coastal Zone Land Use Ordinance and depth to groundwater as applicable to septic systems.

Grading - The applicant was issued a grading permit (no. 51365) on October 7, 1985 to place approximately 1,600 yards of fill over a 18,160 square foot area. The depth of the fill ranged from 1 foot to 3 feet. Please refer to the attached site map. The project was completed on March 25, 1987.

Lot Consolidation - Under the lot consolidation section of the Coastal Zone Land Use Ordinance each parcel must be 6,000 square feet in area with a minimum of fifty feet of frontage to be sold or transferred independently. Based on lot consolidation existing Lots 6 and 7 are combined, Lots 8, 9 and 10 are combined, Lots 11, 12 and 13 are combined, and Lots 14 and 15 are combined. The number of transferrable sites is four. With the proposed lot configuration, Lots 3 and 4 may be transferred independently, whereas, Lots 1 and 2 must be transferred with another lot.

Depth to Ground Water - The depth to ground water in the Cuesta-by-the-Sea area is approximately ten feet. The shallow depth often requires the use of mounded septic systems or other methods besides standard septic systems.

In addition condition number one was inadvertently carried over from another staff report and should be deleted.

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Department of Planning and Building
San Luis Obispo County

Alex Hinds, Director
Bryce Tingle, Assistant Director
Barney McCay, Chief Building Official
Norma Salisbury, Administrative Services Officer
Ellen Carroll, Environmental Coordinator

TO: SUBDIVISION REVIEW BOARD

FROM: JAY JOHNSON, DEVELOPMENT REVIEW SECTION

SUBJECT: COAL 94-097 (GOEDINGHAUS)

DATE: SEPTEMBER 11, 1995

This item was continued from the August 7 (and July 10), 1995 Subdivision Review Board meeting for staff to provide additional information about the previous grading. The applicant was issued a grading permit (no. 51365) on October 7, 1985 to place approximately 1,600 yards of fill over a 18,160 square foot area. The depth of the fill ranged from 1 foot to 3 feet. At the time of preparing the SRB agenda, staff had no additional information to report. Staff's findings will be sent under a separate cover or presented at the hearing. Please bring your materials for this item from the July 10 and August 7 meetings.

County Government Center • San Luis Obispo • California 93408 • (805) 781-5600 • Fax (805) 781-1242

EDA
ENGINEERING DEVELOPMENT ASSOCIATES

July 9, 1997

7/9/97
appl 9/10/95 → 7/10/97
OK-lj #153

EDA Job Number 201188

Planning Department
Attn: Development Review
County of San Luis Obispo
County Government Center
San Luis Obispo, CA 93408

Re: Time Extension for CoAl 94-097

Dear Sir or Madam:

Please consider this a notification of request for a first one (1) year time extension on approved CoAl 94-097 located at the corner of Doris and Lupine Street in the community of Los Osos.

Thank you for your consideration in scheduling this item on the Board agenda.

Sincerely,

ENGINEERING DEVELOPMENT ASSOCIATES

Terry Payne

Terry Payne
Administrative Coordinator

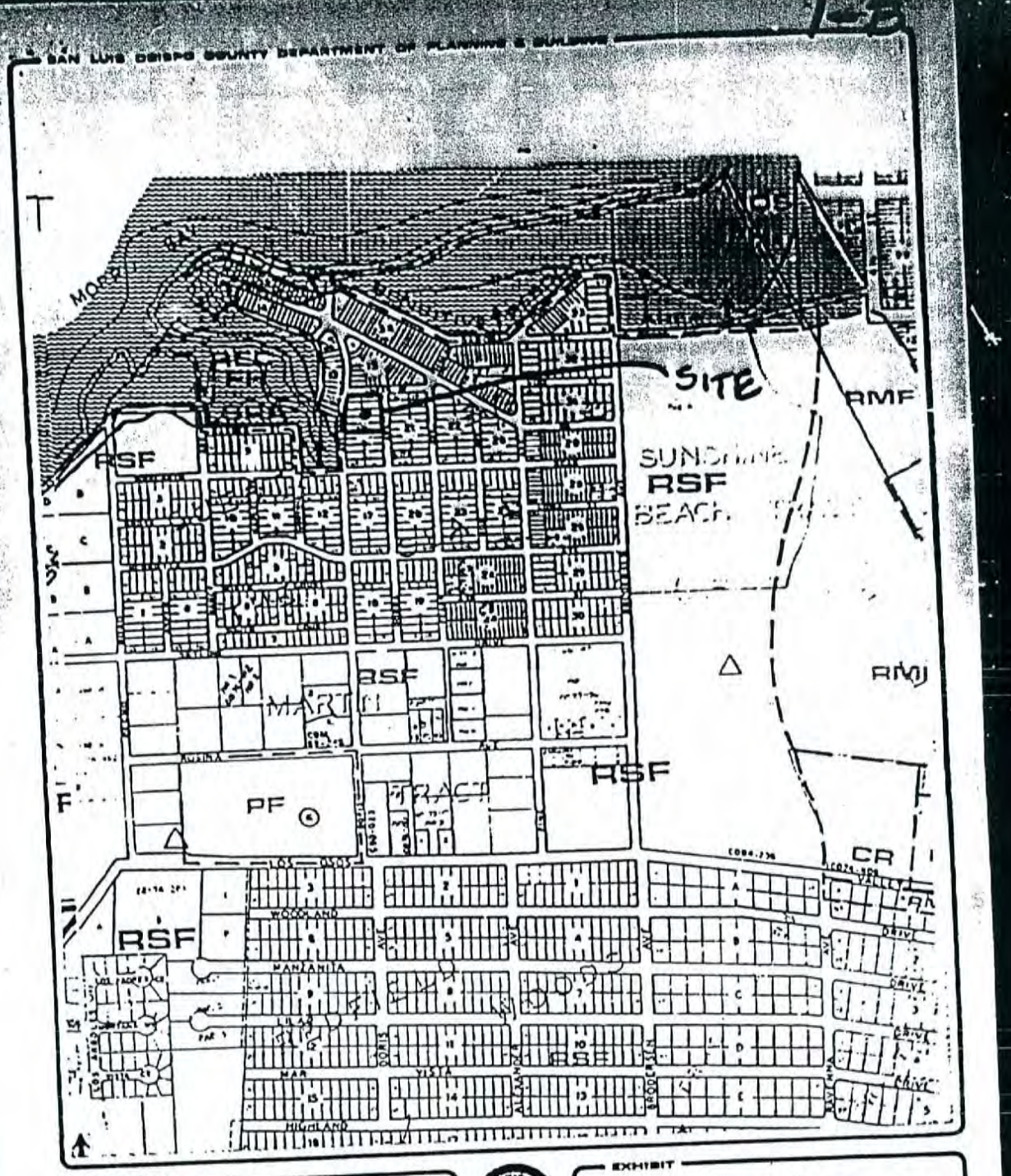
Enclosure: Check #4922 for $153.00

TP\lg\1188time.ext

RECEIVED
JUL 0 9 1997
S.L.O. COUNTY
PLANNING DEPT.

AC/91200-yn

PLANNING • CIVIL ENGINEERING • LAND SURVEYING
1320 NIPOMO ST. • SAN LUIS OBISPO, CA 93401 • 805-549-8658 • FAX 805-549-8704
744 OAK ST. • PASO ROBLES, CA 93446 • 805-237-1033 • FAX 805-237-3797


SAN LUIS OBISPO COUNTY DEPARTMENT OF PLANNING & BUILDING
SITE
RMF
SUNSHINE
RSF
BEACH
RSF
RMF
RSF
PF
TRACT
RSF
CR
WOODLAND
MANZANITA
MAR
VISTA
HIGHLAND
PROJECT
COAL 94-097
EXHIBIT
LAND USE CATEGORY

SAN LUIS OBISPO COUNTY
DEPARTMENT OF PLANNING AND BUILDING

ALEX HINDS
DIRECTOR

BRYCE TINGLE
ASSISTANT DIRECTOR

ELLEN CARROLL
ENVIRONMENTAL COORDINATOR

BARNEY KCCAY
CHIEF BUILDING OFFICIAL

NORMA SALISBURY
ADMINISTRATIVE SERVICES OFFICER

DATE: **SEPTEMBER 15, 1995**

Jeff Edwards
P. O. Box 6070
Los Osos, CA 93412

SUBJECT: **COAL 94-097 – CLAIRE GOEDINGHAUS/JEFF EDWARDS**

The county Subdivision Review Board approved your application on September 11, 1995, based on enclosed Findings and Conditions. If you are dissatisfied with any aspect of this approval, you have the right to appeal this decision to the Board of Supervisors up to 14 days after the date of approval, in writing on an appeal form, to the Planning and Building Department. The appeal fee is $456 and must accompany your appeal form. If this project is located in the coastal area of the county, and if the appeal is based on a coastal issue, there is no fee for the appeal to the county.

Exhaustion of coastal appeals at the county level is required prior to appealing the matter to the California Coastal Commission. If you wish to appeal the action of the Board of Supervisors of a coastal project, you have the right to appeal to the California Coastal Commission pursuant to Coastal Act Section 30603 and County Coastal Zone Land Use Ordinance 23.01.043. These regulations contain specific time limits, criteria, and procedures that must be followed to appeal this action. This appeal must be made directly to the California Coastal Commission Office at their Santa Cruz Office. Call (408) 427-4863 for further information on appeal procedures.

If you have any questions regarding this matter, please contact the Department of Planning and Building at 781-5600.

Sincerely,

Jean McKown

Jean McKown, Secretary
County Subdivision Review Board

c: County Engineering
Environmental Health

e:\wpdocs\srb\sept\v9501011.ltr

COUNTY GOVERNMENT CENTER • SAN LUIS OBISPO • CALIFORNIA 93408 • (805) 781-5600 • FAX (805) 781-1242 OR 5624

EXHIBIT A

FINDINGS - COAL 94-097
CLAIRE GOEDINGHAUS/JEFF EDWARDS

A. As conditioned, the proposed parcels, with respect to parcel design and wetland setbacks and other zoning and building ordinances are acceptable.

B. Approval of the proposed project will not significantly affect public access to the coast because the project site is not located between the first public road and the shoreline and because the project does not propose any development that would block, hinder, or deter any known physical access route to the shoreline.

EXHIBIT B

CONDITIONS OF APPROVAL - COAL 94-097
CLAIRE GOEDINGHAUS/JEFF EDWARDS

1. If a map is filed, it shall show:
   a. All public utility easements.
   b. All approved street names.

2. Any private easements described in the title report must be shown on the map, with recording data.

3. When the map is submitted for checking, or when the certificate of compliance is filed for review, provide a preliminary title report to the County Engineer or the Planning Director for review.

4. All conditions of approval herein specified are to be complied with prior to the recordation of the map or certificates of compliance which effectuate the adjustment. Recordation of a map is at the option of the applicant. However, if a map is not filed, recordation of a certificate of compliance is mandatory.

5. The map or certificates of compliance shall be filed with the County Recorder prior to transfer of the adjusted portions of the property or the conveyance of the new parcels.

6. In order to consummate the adjustment of the lot lines to the new configuration when there is multiple ownerships involved, it is required that the parties involved quitclaim their interest in one another new parcels. Any deeds of trust involving the parcels must also be adjusted by recording new trust deeds concurrently with the map or certificates of compliance.

7. After approval by the Subdivision Review Board, compliance with the preceding conditions will bring the proposed adjustment into conformance with the Subdivision Map Act and Section 21.02.030 of the Real Property Division Ordinance.

8. The lot line adjustment will expire two years (24 months) from the date of the approval, unless the map or certificates of compliance effecting the adjustment is recorded first. Adjustments may be granted extensions of time. The applicant must submit a written request with appropriate fees to the Planning Department prior to the expiration date.

Based on the revised map submitted January 4, 1995, it appears the proposed lot line adjustment will provide buildable areas that are consistent with the Coastal Zone Land Use Ordinance wetland setback requirements. As mentioned in previous letters, the adjusted lots must be consistent with Section 23.04.048(2) that requires a 6,000 square foot minimum lot size and a minimum lot width of 50 feet. Please provide a revised adjustment map consistent with this standard prior to this application being scheduled for hearing.

If you have any questions or would like to discuss the project, please call me at 781-4573 or 781-5600.

SAN LUIS OBISPO COUNTY
DEPARTMENT OF PLANNING AND BUILDING

ALEX HINDS
DIRECTOR

BRYCE TINGLE
ASSISTANT DIRECTOR

ELLEN CARROLL
ENVIRONMENTAL COORDINATOR

BARNEY MCCAY
CHIEF BUILDING OFFICIAL

NORMA SALISBURY
ADMINISTRATIVE SERVICES OFFICER

September 10, 1997

EDA
1320 Nipomo
San Luis Obispo, CA 93407

SUBJECT: LOT LINE ADJUSTMENT COAL 94-097 -- CLAIRE GOEDINGHAUS -- ONE YEAR TIME EXTENSION

The County Subdivision Review Board approved your application on September 8, 1997 which was a Consent item, and we are attaching Exhibit A, approved maps, for your records.

If you are dissatisfied with any aspect of this approval, you have the right to appeal this decision to the Board of Supervisors **up to 14 days after the date of approval**, in writing, to the Planning Department. The appeal fee is $474 and must accompany your appeal letter.

If you have any questions regarding this matter, please contact our department at 781-5600.

Sincerely,

Jean McKown

Jean McKown, Secretary
County Subdivision Review Board

c: County Engineering
Environmental Health

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SAN LUIS OBISPO COUNT

DEPARTMENT OF PLANNING AND BUILDIN

ALEX HIN
DIRECT

BRYCE TIN
ASSISTANT DIRECT

ELLEN CARR
ENVIRONMENTAL COORDINA

BARNEY MC
CHIEF BUILDING OFFI

NORMA SALISI
ADMINISTRATIVE SERVICES OFF

DATE: 1/14/98

TO: Jerry Payne / EDA

FROM: LINDA JONES, CURRENT DEVELOPMENT

SUBJECT: CDAP 94-097 / S940025 Goedinghaus

The following is status information pertaining to the above-mentioned project:

Initial approval:	7/10/95	Good until:	7/10/97
1st time		extension, good until:	7/10/98
		extension, good until:	
		extension, good until:	
		extension, good until:	
		extension, good until:	
		extension, good until:	
		extension, good until:	

As of this date, you have 0 more one-year time extensions available on this project. A time extension must be submitted in writing and be in the Planning & Building Department receipted by the expiration date of the project. Please call (805) 781-5183 for the current extension fee for your project before submitting.

status.ltr

Construction Permit Application

San Luis Obispo County Planning Department 54702

SITE INFORMATION

Project Address: DORIS/DONNA AVE & LUPINE (1766 DONNA AVE) Locality: LOS OSOS

Lot Number: 6-7 Block: 16 Tract: QUESTA BY THE SEA or: Sec ____ TSP ____ Range ____

Assessor Parcel Number(s): 74-141-9-~~6,7,13,14,15~~ 13,14,15 Lot Size: SEE DRAWING 37000 Date of App. ____

APPLICANT INFORMATION

("x" contact person)

(x) CARL H. GOEDINGHAUS - 381 MITCHELL DR. LOS OSOS 93402 527-0789
Owner Name(s) | Mailing Address | City, State, Zip Code | Business Hour Phone

( ) ED'S EXCAVATING LOS OSOS
Contractor | Mailing Address | City, State, Zip Code | Bus. Hr. Phone | License No.

( ) NONE
Architect, Engineer or Designer | Mailing Address | City, State, Zip Code | Bus. Hr. Phone | License No.

PROJECT DESCRIPTION

TYPE OF PROJECT: (X) All new ( ) Addition ( ) Alteration ( ) Repair ( ) Demolish ( ) Moved Building ( ) ____ (X) Grading ( ) Single-Family Dwelling ( ) Multi-Family Dwelling ( ) Mobile Home ( ) Barn ( ) Sign ( ) Commercial ( ) Industrial ( ) Other FILL

USE: Describe Specific Project: FILL FOR BUILDING SITE

AREA AND SIZES PROPOSED

Total Habitable Floor Area ____ Garage Area ____ Barn ____ Storage Area ____

Deck Area ____ Height Above Finish Grade ____ Carport Area ____ Covered Porch Area ____

No. of Bedrooms ____ No. of Bathrooms ____ No. of Stories ____ Retaining/Garden Wall Area ____ Height ____ Length ____

MOVED BUILDING(S)

Existing Location ____ Locality ____

MANUFACTURED HOUSING

Manufacturer ____ Serial Number ____ Dept. of Housing No. ____

Number of Bedrooms ____ Size ____ DMV License Number ____ Year ____ State ____

GRADING

Less than 10% slope.

Depth of Cuts (min. & max.) NONE Depth of Fills (min. & max.) @ 36" Cu. Yds. Cut: NONE Fill: @ 2000

Total Cu. Yds. of Material: @ 2000 Area of Site Disturbance: 19,800 ±

TYPE OF CONSTRUCTION

Foundation: ( ) Slab ( ) Perimeter & Piers ( ) Pole ( ) Other ____

Framework: ( ) Wood Stud ( ) Masonry ( ) Metal ( ) Timber

Exterior Siding: ( ) Stucco ( ) Plywood ( ) Board ( ) Stone Veneer ( ) Brick Veneer ( ) Concrete Tilt-up ( ) Metal ( ) Other ____

Roof Pitch ____ Material: ( ) Wood Shakes, Shingles ( ) Tile ( ) Built-up Comp. ( ) ____ ( ) Metal ( ) Other ____

MECHANICAL AND ENERGY INFORMATION

METHOD OF ENERGY COMPLIANCE ____

TYPE OF SPACE HEATING: LIST MFS., MODEL #, AND SIZE OF EACH APPLIANCE

( ) Gas ____ ( ) Fireplace ____

( ) Butane LPG, etc. ____ Other ____

( ) Active Solar ____ TYPE OF SPACE COOLING (A.C.) ____

( ) Passive Solar ____

( ) Electric Heatpump ____ TYPE OF WATER HEATING ____

UTILITIES

WATER: ( ) well ( ) public SEWAGE DISP: ( ) septic ( ) sewer ( ) GAS: ( ) natural ( ) LPG ( ) TEMP POWER

OFFICE USE ONLY

____ Sq. ft. at ____ = ____ TOTAL VALUATION (for bldg. permit use only) = $ ____

____ Sq. ft. at ____ = ____ Plan Check = $ 100.00 Building = $ ____

____ Sq. ft. at ____ = ____ Energy Review = $ ____ Grading = $ 215.00

____ Sq. ft. at ____ = ____ Plot Plan = $ ____ Plumbing = $ ____

Microform = $ 4.00 Electrical = $ ____

PROJECT: Grading Drainage = $ ____ EMIP Tax = $ ____

LUE CAT: PSF CON. DEST: 1.0P Fire Plan = $ ____ Encroachment = $ ____

PLAN AREA/DES. OR VIL. AREA: EST/CSO Tree Removal = $ ____ = $ ____

PARKING SPACES REQUIRED: ____ Adjustment = $ ____ = $ ____

COUNTY ROAD NO: ____ MAP NO. V-25 Investigation = $ ____ = $ ____

SETBACKS: Front ____ Sides ____ Rear ____ Violation Fee = $ ____ = $ ____

COASTAL ZONE: IN ( ) OUT ( ) Subtotal = $ 215.00

CURB, GUTTER, AND SIDEWALK: YES ( ) NO (✓) *Subtotal = $ 104.00 Total Fee = $ 319.00

LAND USE/DIVISIONS: ____ *Due now, balance upon issuance

LUE STANDARDS: ____ Requirements for final inspection

LDO STANDARDS: ____ ( ) Land Use Conditions ( ) Fire Safety Inspection

By: ____ Date: 9/5/6 ( ) Other ____

County Government Center, San Luis Obispo, CA 93408. (805) 549-5600

Last Name GOEDINGHAUS, Carl A. 54702

Construction Permit

San Luis Obispo County Planning Department

THIS PERMIT CONSTITUTES AUTHORIZATION BY THE COUNTY OF SAN LUIS OBISPO ALLOWING CONSTRUCTION OF THE PROJECT DESCRIBED HEREIN, SUBJECT TO ALL APPLICABLE PROVISIONS OF THE COUNTY CODE.

Project Address 1765 Donna Ave. Los Osos APN 74-141-01

Lot Number C-7 Block 10 Tract / Other CUESTA BY THE SEA

P.A. EST Comm LSOS LUC RSF Comb. Dist. LCP In Coastal Zone IN Lot Size 12,000 SF

X GOEDINGHAUS, Carl A. 381 Mitchell Dr. Los Osos, CA 93402 528-0789

Owner Name(s) / Mailing Address / Zip Code / Business Phone

ED'S Excavating Los Osos, CA 93402

Contractor or Owner / Mailing Address / Phone No. / State License No.

OWNER

Architect, Engineer or Designer / Mailing Address / Phone No. / State License No.

LEGAL DECLARATIONS

LICENSED CONTRACTORS DECLARATION

I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the California Business and Professions Code and my license is in full force and effect.

License Class EXPIRED 9-30-92 date

License Number

Contractor

OWNER BUILDER DECLARATION

I am exempt from the contractor's licensing law for the following reason:

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale.

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project.

☐ I am exempt under

this reason

Date Applicant

WORKERS COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, a certificate of Workers' Compensation Insurance, or a certified copy thereof (Sec. 3700 of the Labor Code).

☐ Certified copy is hereby furnished

☐ Certified copy is filed with the county Planning Department.

Date Applicant

CERTIFICATE OF EXEMPTION FROM WORKERS COMP. INSURANCE

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation laws of California.

Date Applicant

NOTICE TO APPLICANT If after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civil Code).

Lender's Name

Lender's Address

NOTICE

The Uniform Building Code requires that this permit become null and void if work or construction authorized is not started within 180 days from the permit issuance or if construction or work is suspended or abandoned for a period of 180 days any time after work is commenced.

I certify under penalty of perjury that I have read this application and state that the above information is correct. I agree to comply with all county ordinances and state laws relating to building construction, and hereby authorize representatives of this county to enter upon the above-mentioned property for inspection purposes.

Signature of Contractor or Authorized Agent

Signature of Owner (If Owner Builder)

I.D. Verification Date

PROJECT INFORMATION

Type of Project GRADING

Proposed Use FILL FOR BUILDING SITE

Setbacks: Front Sides Rear

Plot Plan

Height

Water Heating Type Gal. none

Total Area 2000 Cu. Yds. Area of Disturbance 19,800 sf

TYPE OF CONSTRUCTION SLOPE LESS 10%

Foundation Type Roof Slope

Exterior Covering Material

Mechanical Data

Fuel Type

Water Heating Type

Utility Information Water Source

Sewage Disposal Fuel Gas Type

Method of Energy Compliance

FEES

Plan Review	$ 100.00	Grading	$ 215.00
Energy Review	$	Plumbing	$
Plot Plan	$	Electrical	$
Mechanical	$ 4.00	Mechanical	$
Drainage	$	SMIP Tax	$
Fire Plan	$	Encroachment	$
Tree Removal	$		
Adjustment	$		
Investigation	$		$
Violation	$		$
	$	Subtotal	$ 215.00
Subtotal	$ 104.00	Total Fee	$ 319.00

REQUIREMENTS FOR FINAL INSPECTION BAL OF FEES 215.00

Curb, gutter and sidewalk — Fire Safety Improvements

Road Tax — Parking Lot Improvements

XXX Land Use Permit Conditions — Fencing Improvements

Landscaping Improvements — Other

Encroachment Type — Other

Private Sewage Disposal System Requirements

Gallon Septic Tank Leach Area

SPECIAL CONDITIONS

DO NOT FINAL OR APPROVE FOR CHANGES WITH OUT DEVELOPMENT REVIEW APPROVAL

PERMIT NO. 54702

Date Received: Receipt No.

Ready To Issue Date: By

Date Issued: Issued By

MAILING ADDRESS: COUNTY GOVERNMENT CENTER, SAN LUIS OBISPO, CA 93408 (805) 549-5602

Last Name GOEDINGHAUS, Carl A. 54702

Construction Permit

San Luis Obispo County Planning Department

THIS PERMIT CONSTITUTES AUTHORIZATION BY THE COUNTY OF SAN LUIS OBISPO ALLOWING CONSTRUCTION OF THE PROJECT DESCRIBED HEREIN, SUBJECT TO ALL APPLICABLE PROVISIONS OF THE COUNTY CODE

Project Address 1765 Donna Ave. Los Osos 74-141-01

Lot Number CELESTA BY THE SEA

Block LCP Tract Other

PA LSI LSCS SSF 37,500 sf

Owner Name(s) GOEDINGHAUS, Carl A. 351 Mitchell Dr. Los Osos, CA 93402 528-0763

Contractor or Mover EDI'S Excavating Los Osos, CA 93402

Architect, Engineer or Designer OWNER

LEGAL DECLARATIONS

LICENSED CONTRACTORS DECLARATION

OWNER BUILDER DECLARATION

WORKERS COMPENSATION DECLARATION

CERTIFICATE OF EXEMPTION FROM WORKERS COMP. INSURANCE

NOTICE TO APPLICANT

CONSTRUCTION LENDING AGENCY

NOTICE

Signature of Contractor or Authorized Agent

Signature of Owner or Owner Builder

PROJECT INFORMATION

GRADING

FILL FOR BUILDING SITE

none

2000 10,500 cf

TYPE OF CONSTRUCTION SLOPE LESS 10%

100.00 215.00

4.00

215.00

104.00 319.00

REQUIREMENTS FOR FINAL INSPECTION BAL OF FEES 215.00

Private Sewage Disposal System Requirements

SPECIAL CONDITIONS

DO NOT FINAL FOR OCCUPANCY UNTIL PERMITS FROM DUST CONTROL AND EROSION APPROVAL

PERMIT NO. 54702

Date Received

Ready to Issue Date:

Date Issued: Issued By

MAILING ADDRESS: COUNTY GOVERNMENT CENTER, SAN LUIS OBISPO, CA 93408 (805) 549-5602

San Luis Obispo County
Planning Department

County Government Center
San Luis Obispo
California 93408
(805) 549-5600

Paul C. Crawford, AICP
Planning Director

September 3, 1987

Mr. Carl Goedinghaus
381 Mitchell Drive
Los Osos, California 93402

Dear Mr. Goedinghaus:

SUBJECT: APPLICATION FOR PERMIT NO. 54702

This is to advise you that your application for building construction No. 54702 has been in our office for more than 180 days.

We would like to call your attention to the Uniform Administrative Code (UAC) provisions governing the expiration of plan review (Section 304(d)):

> "(d) Expiration of Plan Review. Applications for which no permit is issued within 180 days following the date of application shall expire by limitation, and plans and other data submitted for review may thereafter be returned to the applicant or destroyed by the building official. The building official may extend the time for action by the applicant for a period not exceeding 180 days upon request by the applicant showing that circumstances beyond the control of the applicant have prevented action from being taken. No application shall be extended more than once. In order to renew action on an application after expiration, the applicant shall resubmit plans and pay a new plan review fee."

Please be advised that your application which was filed on September 3, 1986, has expired by limitation and become void. Your plans are at our office where you may pick them up. If not picked up in 30 days, they will be discarded.

If you wish to discuss this matter with us in person, please phone (805) 549-5602 and we will arrange an appointment.

Sincerely,

Fred Norton

FRED NORTON
Chief Building Inspector
cc: Ed's Excavating

B-12

Construction Permit Application

San Luis Obispo County Planning Department

Add 12-31 Fee

23600

SITE INFORMATION: Project Address: DONNA AVE. Locality: Los Osos. Lot Number: 6-15 Block: 16 Tract: Cuesta By The Sea Sec ___ TSP ___ Range ___ Assessor Parcel Number(s): 74-141-001 Lot Size: 40x100 Date of App.: 12/24/86

APPLICANT INFORMATION ("x" contact person)

( ) Owner Name(s): GREENINGHAUS CARL. Mailing Address: ___ City, State, Zip Code: ___ Business Hour Phone: ___

( ) Contractor: ___ Mailing Address: ___ City, State, Zip Code: ___ Bus. Hr. Phone: ___ License No.: ___

( ) Architect, Engineer or Designer: EDA Mailing Address: 1320 Nipomo St City, State, Zip Code: Slo. Cal. 93401 Bus. Hr. Phone: 549-2658 License No.: ___

PROJECT DESCRIPTION

TYPE OF PROJECT: ( ) All new ( ) Addition ( ) Alteration ( ) Repair ( ) Demolish ( ) Moved Building ( ) ___ ( ) Single-Family Dwelling ( ) Multi-Family Dwelling ( ) Mobile Home ( ) Barn (X) Grading ( ) Sign ( ) Commercial ( ) Industrial ( ) Other ___

USE: Describe Specific Project: GRADING

AREA AND SIZES PROPOSED

Total Habitable Floor Area ___ Garage Area ___ Barn ___ Storage Area ___

Deck Area ___ Height Above Finish Grade ___ Carport Area ___ Covered Porch Area ___

No. of Bedrooms ___ No. of Bathrooms ___ No. of Stories ___ Retaining/Garden Wall Area ___ Height ___ Length ___

MOVED BUILDING(S)

Existing Location: ___ Locality: ___

MANUFACTURED HOUSING

Manufacturer: ___ Serial Number: ___ Dept. of Housing No.: ___

Number of Bedrooms: ___ Size: ___ DMV License Number: ___ Year: ___ State: ___

GRADING

Depth of Cuts (min. & max.): .5'-0' Depth of Fills (min. & max.): 3'-0' Cu. Yds. Cut: 26 Fill: 2150

Total Cu. Yds. of Material: 2176 Area of Site Disturbance: ___

TYPE OF CONSTRUCTION

Foundation: ( ) Slab ( ) Perimeter & Piers ( ) Pole ( ) Other ___

Framework: ( ) Wood Stud ( ) Masonry ( ) Metal ( ) Timber

Exterior Siding: ( ) Stucco ( ) Plywood ( ) Board ( ) Brick Veneer ( ) Other ___

( ) Brick Veneer ( ) Concrete Tilt-up ( ) Metal

Roof Pitch ___ Material: ( ) Wood Shakes, Shingles ( ) Tile ( ) Concrete Tilt-up ( ) Metal ( ) Other ___

Received: U.F.B. Department Mail. San Luis Obispo Co. Planning Department

MECHANICAL AND ENERGY INFORMATION

METHOD OF ENERGY COMPLIANCE: ___

TYPE OF SPACE HEATING: LIST MFG., MODEL #, AND SIZE OF EACH APPLIANCE

( ) Gas ___ ( ) Fireplace ___

( ) Butane LPG, etc. ___ Other ___

( ) Active Solar ___ TYPE OF SPACE COOLING (A.C.) ___

( ) Passive Solar ___

( ) Electric Heatpump ___ TYPE OF WATER HEATING: ___

UTILITIES

WATER: ( ) well ( ) public SEWAGE DISP: ( ) septic ( ) sewer ( ) GAS: ( ) natural ( ) LPG ( ) TEMP POWER ___

OFFICE USE ONLY

___ Sq. ft. at ___ = ___

___ Sq. ft. at ___ = ___

___ Sq. ft. at ___ = ___

___ Sq. ft. at ___ = ___

PROJECT: Grading

LUE CAT: RSF COM. DESIG. /CEP

PLAN AREA/URB. OR VIL. AREA: Est/LOS

PARKING SPACES REQUIRED: ___

COUNTY ROAD NO. ___ MAP NO. V-25

SETBACKS: Front ___ Sides ___ Rear ___

COASTAL ZONE: IN (X) OUT ( )

CURB, GUTTER, AND SIDEWALK: YES ( ) NO (X)

LAND USE/DIVISIONS: S

LUE/LUO STANDARDS: S

ENFORCEMENT CASE: YES ( ) NO (X)

By: ___ Date: 12/24/86

TOTAL VALUATION (for bldg. permit use only) = $ ___

Plan Check	= $ 100.00	Building	= $ ___
Energy Review	= $ ___	Grading	= $ 205.00
Plot Plan	= $ 15.00	Plumbing	= $ 78.50
Microform	= $ 4.00	Electrical	= $ 126.50
Drainage	= $ ___	SMIP Tax	= $ ___
Fire Plan	= $ ___	Encroachment	= $ ___
Tree Removal	= $ ___	___	= $ ___
Adjustment	= $ ___	___	= $ ___
Investigation	= $ ___	___	= $ ___
Violation Fee	= $ ___	___	= $ ___
___	$ ___	Subtotal	= $ 205.00
*Subtotal	$ 119.00	Total Fee	= $ 324.00

*Due now, balance upon issuance ok see gov 197.50

Requirements for final inspection DBC Use 126.50

( ) Land Use Conditions ( ) Fire Safety Inspection

( ) Other ___

County Government Center, San Luis Obispo, CA 93408. (805) 549-5600

Last Name GOEDINGHAUS, C. 55600

Expired 6-24-87 Fred Nordquist

Construction Permit

San Luis Obispo County Planning Department

THIS PERMIT CONSTITUTES AUTHORIZATION BY THE COUNTY OF SAN LUIS OBISPO ALLOWING CONSTRUCTION OF THE PROJECT DESCRIBED HEREIN, SUBJECT TO ALL APPLICABLE PROVISIONS OF THE COUNTY CODE.

Project Address: Donna Avenue

Lot Number: 6-12 Block: 15 Tract: Cuesta by the Sea Income: LOS OSOS APN: 74-141-01

P.A.: EST Comm: LSOS Ind: RSF Comb. Dist.: LCP In Coastal Zone: IN Lot Size: 40 x 100

Owner Name(s): GOEDINGHAUS, Carl Mailing Address: Zip Code:

Contractor or Mover: Mailing Address: Phone No: State License No:

Architect, Engineer or Designer: EDA 1220 Xipomo Street, SLO, CA, 93401 Mailing Address: 549-8658 Phone No: State License No:

LEGAL DECLARATIONS

LICENSED CONTRACTORS DECLARATION

I am licensed under the provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the California Business and Professions Code and my license is in full force and effect.

License Class:

License Number:

Contractor:

OWNER BUILDER DECLARATION

I am exempt from the contractor's license law for the following reason:

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale.

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project.

☐ I am exempt under Sec. B.P.C. for this reason:

Date: Applicant:

WORKERS COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self insure, a certificate of Workers' Compensation Insurance, or a certified copy thereof.

☐ Certified copy is hereby furnished.

☐ Certified copy is filed with the county Planning Department.

Date: Applicant:

CERTIFICATE OF EXEMPTION FROM WORKERS COMP. INSURANCE

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date: Applicant:

NOTICE TO APPLICANT: If after making this Certificate of Exemption you should become subject to the Worker's Compensation provisions of the Labor Code, you must comply with such provisions or this permit shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Calif. Civil Code).

Lender's Name:

Lender's Address:

NOTICE

The Uniform Building Code requires that this permit become null and void if work or construction authorized is not started within 180 days after the permit is issued, or if construction or work is suspended or abandoned for a period of 180 days any time after work is commenced.

I certify under penalty of perjury that I have read this application and state that the above information is correct. I agree to comply with all county ordinances and state laws relating to building construction, and hereby authorize representatives of this county to enter upon the above mentioned property for inspection purposes.

Signature of Contractor or Authorized Agent:

Signature of Owner or Owner Builder:

I.D. Verification: Date:

PROJECT INFORMATION

Type of Project: GRADING

Proposed Use:

Occupant: Tenant: Sales: Lease:

Multiple Dwelling Area: Total: Area:

Length: Covering Bldg.: Stories:

No. Residential Units: Sq. Footage:

Retaining Wall Information:

Height:

Mobile/Modular Home Information: Year:

Make: Serial No.:

Mobile License No.: Size: No. Bedrooms:

Mobile Building Information: Exists:

Present Location:

Proposed Use: Tot. Lot. Ft. of Area:

Existing Information: Tot. Col. 26 Co. Lot

Tot. Tot. 2150 Tot. Area

TYPE OF CONSTRUCTION

OCC. Group:

Foundation: Frame: Roof Slope:

Roof Covering Material: Exterior:

Mechanical and Electric Information: Type Heating:

Type Water Heating:

Utility Information: Water Source:

Sewage Disposal:

Method of Energy Conservation:

FEES

TOTAL VALUATION (for bldg. permit use only):

Plan Review	$ 100.00	Awning	$
Energy Review	$	Grading	$ 205.00
Plot Plan	$ 15.00	Plumbing	$
Microfilm	$ 4.00	Electrical	$
Drainage	$	Mechanical	$
Fire Plan	$	State Tax	$
Tree Removal	$	Encroachment	$
Development	$	drainage	25.00
Investigation	$		
Violation Fee	$		$
	$	Sub Total	$ 205.00
Subtotal	$ 119.00	Total Fee	$ 324.00

REQUIREMENTS FOR FINAL INSPECTION BAL DUE $126.50 + 25.00

- Curb, gutter and sidewalk
- Road Tax
- Land Use Permit Conditions
- Landscaping Improvements
- Encroachment Type
- Fire Safety Improvements
- Parking Improvements
- Fencing Improvements
- Other
- Other

Private Sewage Disposal System Requirements:

Gallon Septic Tank: Sq. Ft. Leach Area:

SPECIAL CONDITIONS:

PERMIT NO. 55600

Date Received: Received by:

Ready To Issue Date: By:

Date Issued: Issued By:

MAILING ADDRESS: COUNTY GOVERNMENT CENTER, SAN LUIS OBISPO, CA 93408 (805) 549-5602

BOTANICAL ASSESSMENT OF COAL 94-097 ON DORIS AVE. LOS OSOS, CALIFORNIA

Prepared for:

J.H. Edwards
P.O. Box 6070
Los Osos, CA 93412

Prepared by:

Susan Weis
Field Botanist

with

V.L. Holland
Plant Ecologist
1697 El Cerrito Ct.
San Luis Obispo, CA 93401

September 1994

INTRODUCTION

The site, designated COAL 94-097, is the northern end of the unimproved block delimited by Doris Ave. on the west, Lupine St. on the north, and Donna Ave. on the east. There are residences on the opposite sides of Lupine St. and Donna Ave. Donna Ave. ends at the eucalyptus grove which takes up the southern part of the block and is bounded by Binscarth Rd. to the south. A coastal salt marsh bordering Morro Bay is to the west of Doris Ave.

The property is divided physically into two relatively flat areas by a bank or slope. The elevation difference between the two areas is about three feet. The upper (northern) area, along Lupine St., is covered by **disturbed grassland** dominated by introduced, weedy grasses and forbs. The four lots resulting from the merger of existing lots will cover this upper area. **Coastal salt marsh** is the dominant vegetation type on the lower (southern) area which is connected to the Morro Bay salt marsh by a drainage system.

The purpose of this study is to evaluate the effects of a lot line adjustment and creation of four building envelopes on the upper area along Lupine St. in place of the ten existing lots (Fig. 1). The salt marsh would not be developed in the new arrangement.

BOTANICAL SURVEY

A vegetation survey of the site was carried out in late July and early August, 1994. The area was canvassed on foot and a list of plants in identifiable condition was made (Table 1). Since the survey was conducted during the summer, many plant species were not in identifiable conditions. Spring-blooming annuals were represented only by last year's remains. As a result, this is not a complete list of the plants present on the site. A thorough study through an entire year with normal rainfall would be necessary for a complete listing of the flora.

Disturbed Grassland

The northernmost section of the property is flat and covered with Bermuda grass (*Cynodon dactylon*) and veldt grass (*Ehrharta calycina*) with scattered California popples (*Eschscholzia californica*) and wild radish (*Raphanus sativa*). Weedy forbs like telegraph weed (*Heterotheca grandiflora*) and English plantain (*Plantago lanceolata*) occur along the street edges. Other species are listed in Table 1.

Coastal Salt Marsh

An arm of Morro Bay coastal salt marsh vegetation extends into the lowest area of the lot. Typical salt marsh plants, including saltgrass (*Distichlis spicata*), pickleweed (*Salicornia virginica*), Frankenia (*Frankenia salina*), and fleshy jaumea (*Jaumea carnosa*), occur near the drain on Doris Ave. Further east, rushes (*Juncus leseuri*), cinquefoil (*Potentilla anserina*) and goldenrod (*Solidago confinis*) dominate. Closest to Donna Ave., there is a stand of coyote brush (*Baccharis pilularis*) and taller marsh plants. Three patches of pampas grass (*Cortaderia jubata*) occur in or near the marshy area as well as some weedy thistles (*Picris echioides* and *Sonchus asper*). Ice plant (*Carpobratus* spp. and *Conicosia pugioniformis*) is encroaching along both side margins. Two willows (*Salix lasiolepis*) are growing on the bank of the salt marsh area near the middle of the site. For a complete list of plant species present, see Revegetation and Habitat Enhancement report.

CONCLUSION

Although no rare or endangered plant species were found in this survey, the proximity of the saltmarsh is of concern. Coastal wetlands are rapidly disappearing in California due to extensive development along the coast, so particular care should be exercised to avoid negative impacts.

The proposed building pad areas cover an anthropogenic community dominated mostly by lawn grass (*Cynodon dactylon*), so the main concern in developing these lots is disturbance of the adjacent saltmarsh. Care should be taken to avoid erosion, dissolved chemical flows or mechanical disturbance due to construction on the site, particularly on Lot 13 which gradually slopes toward the saltmarsh. Employ a weed control program that eliminates weedy plants along disturbed sites on a regular basis so that they do not penetrate the fringe of the saltmarsh. Homeowners should be made aware of the importance of protecting the saltmarsh and discouraged from planting anything that is not native and indigenous to the riparian or saltmarsh communities.

Table 1. Plant species of the lower (southern) salt marsh area.

SHRUBS and TREES	
Baccharis pilularis	Coyote brush
Cortaderia jubata	Pampas grass
Rubus ursinus	Blackberry
Salix lasiolepis	Arroyo willow
Salvia mellifera	Black sage
Toxicodendron diversilobum	Poison oak
HERBS	
Atriplex patula	Annual saltbush
Calamagrostis nutkaensis	Reed grass
Carex praegracilis	Sedge
Carpobrotus chilensis	Ice plant (sea fig)
Conicosia pugioniformis	Slender leaved iceplant
Cotula coronopifolia	Brass buttons
Distichlis spicata	Saltgrass
Foeniculum vulgare	Fennel
Frankenia salina	Frankenia
Jaumea carnosa	Fleshy jaumea
Juncus acutus	Rush
Juncus leseurii	Rush
Juncus patens	Rush
Lobularia maritimus	Sweet alyssum
Lythrum hyssopifolium	Lythrum
Picris echioides	Bristly ox tongue
Polypogon monspeliensis	Rabbitsfoot grass
Potentilla anserina	Cinquefoil
Rumex crispus	Curly dock
Salicornia virginica	Pickleweed
Solidago confinis	Southern goldenrod
Sonchus asper	Prickly sow thistle

Table 1. Plant species of upper (northern) disturbed grassland area.

SCIENTIFIC NAME	COMMON NAME
Achillea millefolium	Yarrow
Agrostis stolonifera	Bent grass
Arctotis sp.	African daisy
Avena barbata	Slender wild oats
Bromus madritensis	Red brome
Calamagrostis nutkaensis	Reed grass
Carpobrotus chilensis	Sea fig
Carpobrotus edulis	Iceplant
Cynodon dactylon	Bermuda grass
Ehrharta calycina	Veldt grass
Eschscholzia californica	California poppy
Foeniculum vulgare	Fennel
Heterotheca grandiflora	Telegraph weed
Hirschfeldia incana	Mustard
Plantago lanceolata	English plantain
Raphanus sativa	Wild radish
Rumex sp.	Dock
Sonchus asper	Prickly sow thistle
Toxicodendron diversilobum	Poison oak

REFERENCES

California Department of Fish and Game, The Resources Agency. 1982. Designated Endangered or Rare Plants (Alphabetical by Scientific Name). 4 pp.

California Department of Fish and Game. 1988. Natural Diversity Data Base. Special Plants. 58 pp.

Callaway, Ragan M. 1990. Effects of Soil Water Distribution on the Lateral Root Development of Three Species of California Oaks. Amer. J. Bot. 77(11): 1469-1475.

Hickman, J. C. (ed.) 1993. The Jepson Manual. Higher plants of California. Univ. of California Press, Berkeley, Los Angeles, and London.

Holland, Robert F. 1986. Preliminary Description of Terrestrial Natural Communities of California. State of California, The Resources Agency, Department of Fish an Game.

Holland, V. L. and D. J. Keil. 1990. California Vegetation. El Corral Publications. 318 pp.

Hoover, Robert F. 1970. The Vascular Plants of San Luis Obispo County, California. U. C. Press, Berkeley, CA.

Munz, P. A., and D. D. Keck. 1959. A California Flora. University of California Press, Berkeley.

———. 1968. Supplement to A California Flora. University of California Press, Berkeley.

Skinner, M.W. and B.M. Pavlik, eds. 1994. Inventory of Rare and Endangered Vascular Plants of California, Fifth Edition. California Native Plant Society, Sacramento, CA.

United States Department of the Interior, Fish and Wildlife Service. 1990. Endangered and Threatened Wildlife and Plants; Review of Plant Taxa for Listing as Endangered or Threatened Species; Federal Register 55 (35):6184-6229.

C.A. SINGER & ASSOCIATES INC.
Prehistoric Archaeology • Cultural Resources • Lithic Studies

INVOICE FOR SERVICES

INVOICE NO. 2721 **DATE** November 16, 2001

John Saurwein, III
Bay Osos Brokers
1236 Los Osos Valley Road
Suite I
Los Osos, CA 93402

PROJECT/REPORT TITLE

Archaeological report dated November 15, 2001

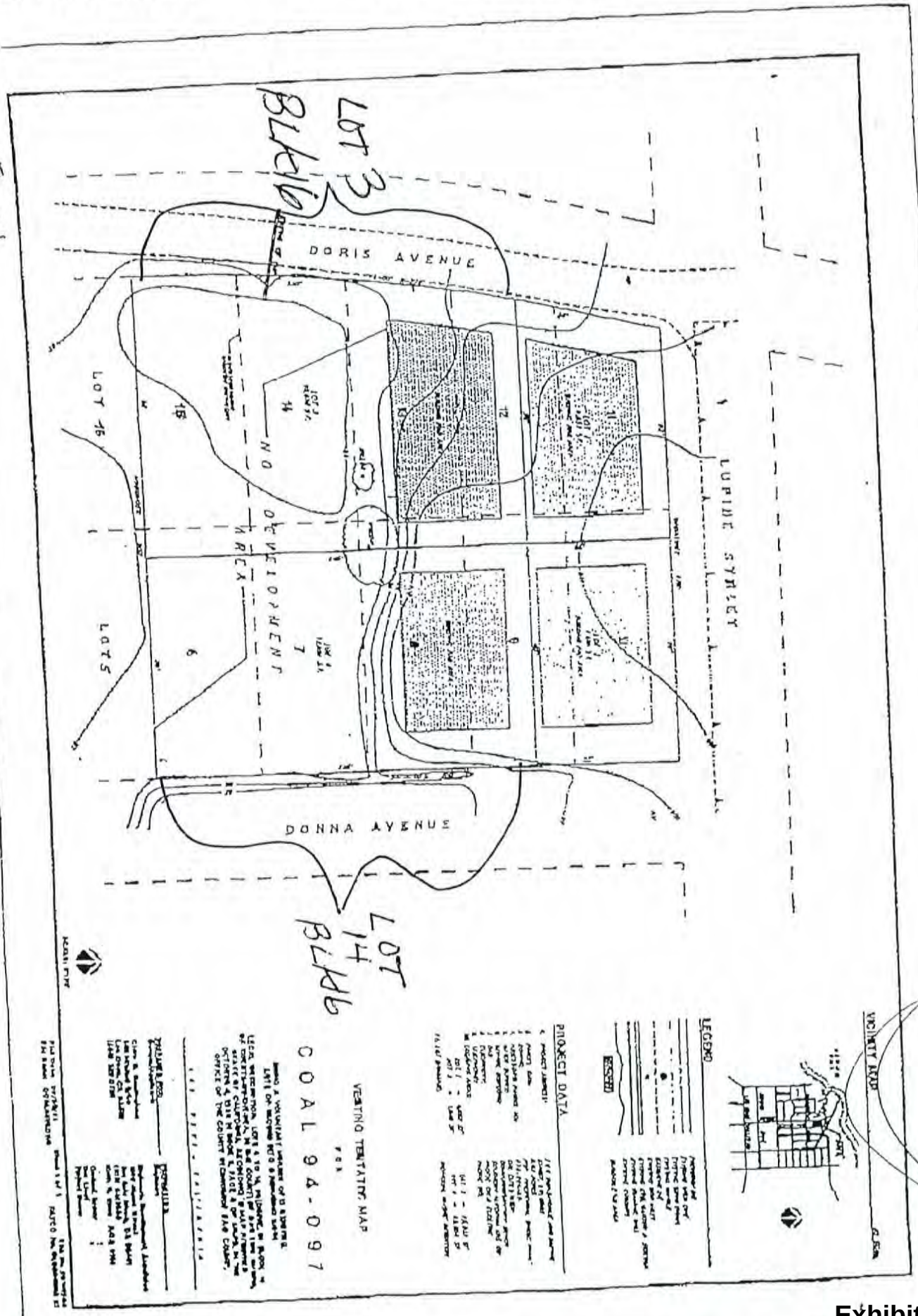
"Subject: Cultural resources survey and impact assessment for two adjacent parcels on Donna Street in Los Osos - Baywood Park, San Luis Obispo County, California [APN 074-141-003 and APN 074-141-006]"

AMOUNT DUE

$350.00

P.O. Box #99 · Cambria · California 93428-0099

Figure 1.



EDA ASSOC
S.C.D.

C.A. SINGER & ASSOCIATES, Inc.
Archaeology · Cultural Resources & Lithic Studies

November 15, 2001

Mr. John Saurwein, III
Bay Osos Brokers
1236 Los Osos Valley Road
Suite I
Los Osos, CA 93402

Subject: Cultural resources survey and impact assessment for two adjacent parcels on Donna Avenue in Los Osos - Baywood Park, San Luis Obispo County, California [APN 074-141-003 and APN 074-141-006].

Dear Mr. Saurwein;

Per your request, a cultural resource survey and impact assessment was conducted for two adjacent residential properties on Donna Avenue in Los Osos-Baywood Park. The subject properties, designated APN 074-141-003 and APN 074-141-006, are located on the west side of Donna Avenue in the neighborhood called Cuesta-By-The-Sea. The edge of Morro Bay is 50 meters west and the Pacific shoreline is 2 km west. Two maps are attached that show the location and dimensions of the surveyed property. Map 1 is a portion of the USGS Morro Bay South, Calif., 7.5' topographic quadrangle, and Map 2 is a small part of the County Assessor's Map.

A reconnaissance survey was conducted to determine if any type of cultural resources, such as prehistoric or historic archaeological materials, were present either on or next to the property. Since prehistoric archaeological sites are known to exist in the near vicinity, and because construction on the property could affect known or suspected resources, a cultural resources investigation was requested by the County of San Luis Obispo, Department of Planning and Building, Environmental Coordinator's Office. To comply with the County request an examination of the property was carried out on November 9, 2001. The surface examination produced no prehistoric or early historic archaeological materials of any kind. The topography and soils observed suggest that buried cultural resources are not likely to be present at this location.

In 1985, many properties along Los Osos Valley Road were partially inspected during a survey for the CSA 9 Wastewater Treatment System EIR (Singer 1985). At that time a comprehensive archaeological records search was prepared by the Archaeological Information Center at the University of California, Santa Barbara (UCSB). That document showed that no archaeological deposits had been recorded either on or next to the subject property, and that the nearest recorded site, CA-SLO-14, was about 0.5 km away. In 1996, site CA-SLO-819 was "reconfigured" (i.e. destroyed) during expansion of the Sea Pines Golf Course (Singer 1996). An updated records search completed on November 15, 2001, indicated that since 1985, two additional sites had been recorded nearby, CA-SLO-1236 and CA-SLO-1241/H; both are within 200 meters of the subject properties (cf. UCSB mss. E-4090 and E-3065).

The community of Los Osos falls within the region historically occupied by Obispeño (Northern) Chumash and neighboring Playano (Southern) Salinan Indians. People from both tribal groups still live in the region and maintain somewhat different cultural traditions. Although Native American occupation of the central coast extends back more than 9,000 years (Greenwood 1972), the oldest known site in the Los Osos vicinity may be only 6,000 years old (Singer 1985). Another nearby site, CA-SLO-819, was investigated as it was destroyed; the deposits yielded a small collection suggesting a Middle Period date, circa AD 1000-2500 BC (Singer 1996). Since 1948, about 40 prehistoric sites have been recorded in the Los Osos-Baywood Park area. However, during the past century all these sites have been damaged by construction activities and by relic collectors and some have been completely destroyed. Some sites have also been sampled by archaeologists, but few have been systematically studied and only one site has been reported in publication (Hoover and Sawyer 1977).

The area examined consists of two contiguous parcels at the southwest corner of Lupine Street and Donna Avenue; both are undeveloped (see Map 2). The northern parcel (Parcel 1) measures 55 x 89 feet; the southern parcel (Parcel 4) measures 89 x 145 feet. The surface is nearly flat, but the southern edge of Parcel 4 dips southward into a marshy area -- a truncated arm of a Morro Bay inlet. Surface elevation ranges from ca. 3 to 5 m above sea level. The two parcels are bounded on the east by Donna Avenue, an unpaved street, and on the north by Lupine Street, also unpaved. At the time of the survey a carpet of rhizome grass and ice plant obscured 100% of the surface of both properties. The southern end of Parcel 4 is also marked by a stand of willows and various wetland plants. Soils underneath the ice plant and grass were loose brown sand with small shale clasts. No archaeological materials were observed on next to the properties.

The sandy brown soils, the overall topographic conditions, and the total absence of prehistoric and early historic materials all suggest that archaeological resources are not present on or beneath the surface of these properties. Contemporary cultural resources, such as important stands of native plants, animal habitats, and lithic materials, are present but of limited extent and present evidence suggests that neither prehistoric nor early historic activities took place at this location. Planned construction on either property should have no direct or measurable indirect impact on cultural resources. Consequently, actions to mitigate adverse impacts are not needed and additional archaeological investigations are not recommended. In the unlikely event that subsurface archaeological materials are unearthed during construction, all work in the area of the discovery must be suspended and the County Office of Environmental Coordinator must be contacted immediately (telephone 781-5600). After the find has been examined and evaluated, and, if necessary, appropriate mitigation measures are agreed upon by the involved parties, work can usually be resumed.

Should you have any questions about the survey, or wish further information about the archaeology of Los Osos, please call our office at any time.

Most sincerely,

Clay A. Singer
Anthropologist

References Cited

Greenwood, Roberta S.
1972 "9000 Years of Prehistory at Diablo Canyon, San Luis Obispo County, California". *San Luis Obispo County Archaeological Society Occasional Papers* 7, San Luis Obispo.

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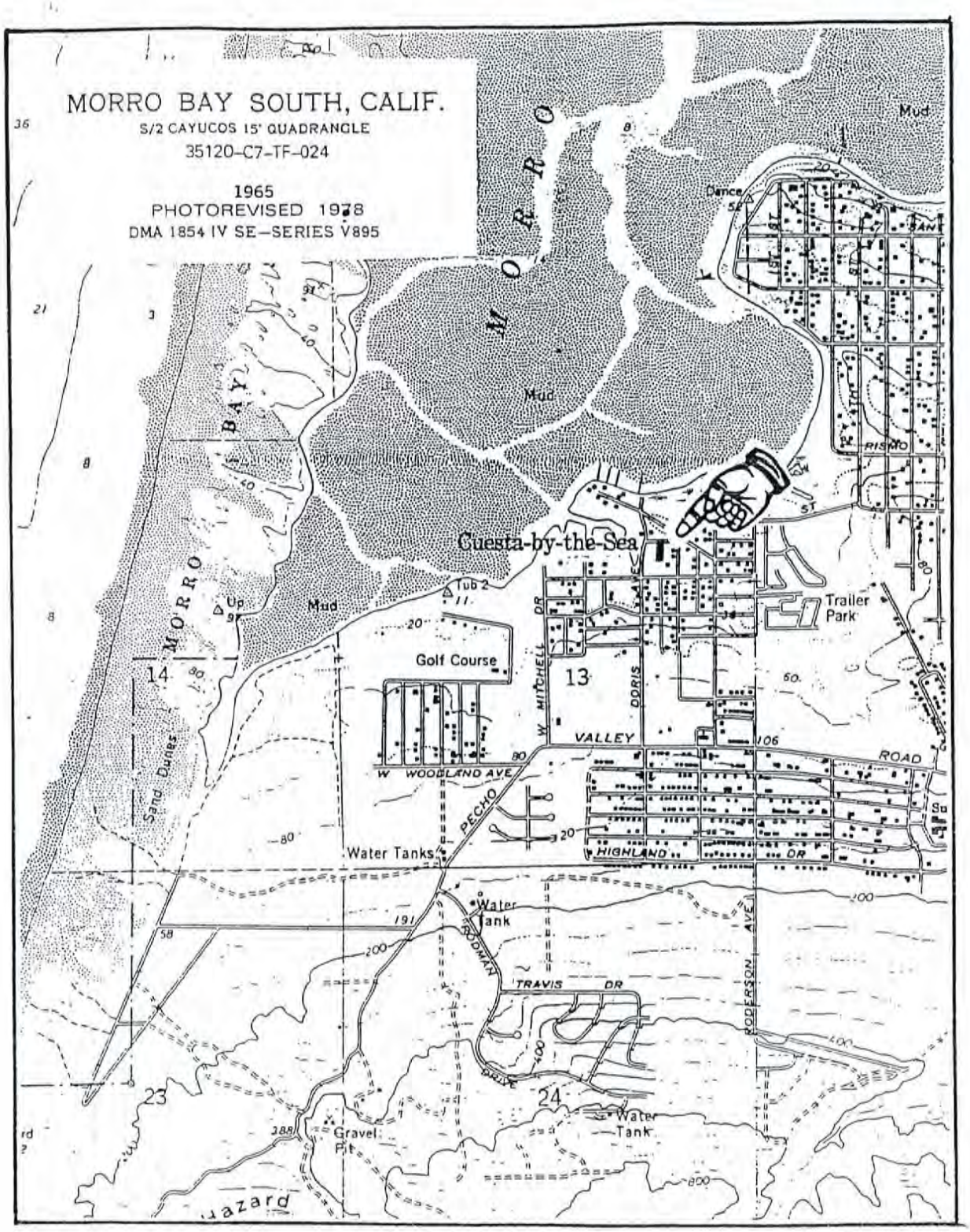
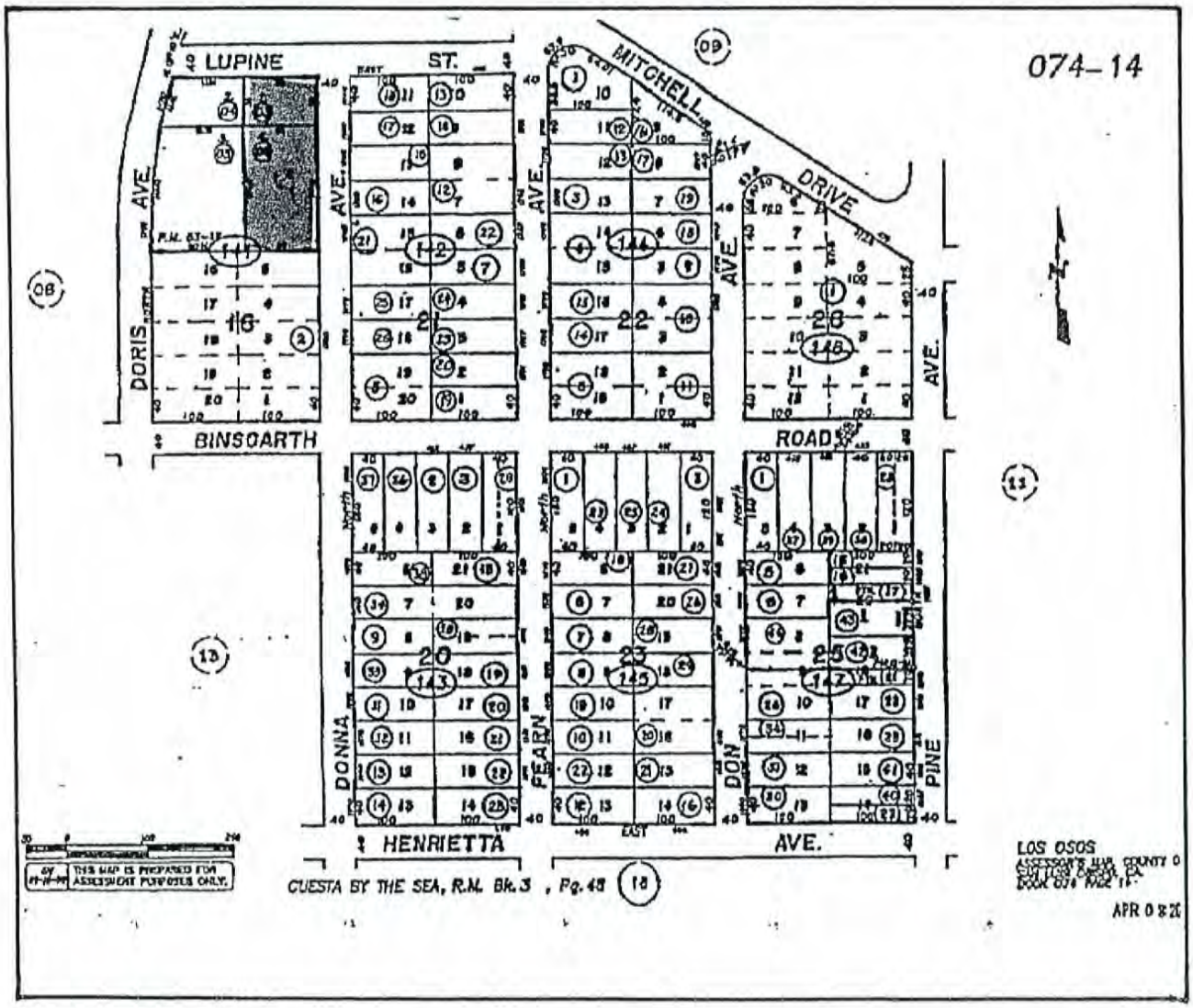
Attachments

Map 1. A portion of the USGS Morro Bay South, Calif., 7.5' topographic quadrangle showing the area surveyed for cultural resources, two adjacent parcels on Donna Avenue in Los Osos - Baywood Park, APN 074-141-003/006.

Map 2. Part of the County Assessor's Maps showing the surveyed properties on Donna Avenue in Los Osos - Baywood Park, APN 074-141-003/006 (shaded).



Map 1. A portion of the USGS Morro Bay South, Calif., 7.5' topographic quadrangle showing the area surveyed for cultural resources, two adjacent properties on Donna Street, APN 074-141-003 and APN 074-141-006.



Map 2. Part of the County Assessor's Map showing the surveyed properties in Los Osos - Baywood Park, APN 074-141-003 and APN 074-141-006 (shaded)

Peter Goedinghaus
902 Almond Dr.
Brea, Ca. 92821
714-671-3154

facsimile transmittal

$100 ATTY FEE!!

To: John S. Fax: 805-528-5620

From: Peter G. Date: 01/08/02

Re: Donna Ave-both lots Pages: 2

CC:

Urgent For Review Please Comment Please Reply Please Recycle

Notes:

John:

The letter about tree trimming is being sent in this fax. I will mail the original to you. Claire called the title company and the attorney about the property description we discussed. I believe this has all been strained out.

Thank-you,

Peter Goedinghaus

COPY TO MUNATEL 100

CONFIDENTIAL

PB40 SAN LUIS OBISPO COUNTY PROPERTY SYSTEM PDV007
04/20/04 GENERAL INQUIRY PDM106

TE ASSMT: 074,141,002 STATUS: A 05/22/1984 CREATED: 1983-R-C61061 12/08/1983
CURED TRA: 112-098 UNSECURED TRA: 112-098 KILLED:
DESC: 000.92AC VACANT ZONING:

ASSMT: 074,141,002 STATUS: A 05/22/1984 CREATED: 1983-R-C61061 12/08/1983
TRA: 112-098 TAX CODE: 3-00 BASE: KILLED:
DESC: 000.92AC VACANT
ASSESSEE REF: G0235
STATE OF CALIF - COASTAL CONSERVANCY (935)
%JOE BALANDA
1330 BROADWAY STE 1100
OAKLAND CA 94612-2530

FEE TRANSFER: N
611 FLAG: N
ROLL ASSE/COM: C
MULTIPLE SITUS: N
TAX SUBPRCL: 935
SENIOR POST:

SITUS: 1798 DORIS AV LSOS

OPTION: hvl NXT OWN USE HVL ASM KIL
SC2 LGL SIT HON H13

PRESS (PF8) FOR STANDARD FUNCTIONS PRESS (PF5) TO DISPLAY PREVIOUS RECORD

April 10, 2002

Mr. Bruce Buel
General Manager
Los Osos Community Services District
2122 9th Street
Los Osos, CA 93402

SUBJECT: *Due Diligence Survey Results*

Dear Mr. Buel:

This letter documents our findings during the brief due diligence biological site assessment conducted on the proposed sewer lift station site at the corner of Lupine Street and Donna Avenue in Los Osos, California. (refer to Figure 1). Per your request, Morro Group biologist Bob Sloan performed a brief survey of Lots 10 and 11 on Lupine Street between Doris Avenue and Donna Avenue on April 3, 2002, to identify any potentially significant biological resource constraints that could affect the proposed project.

Both lots were examined, however the survey concentrated on the 50 by 60 foot eastern portion of Lot 10 proposed for use by the Community Services District. The primary concern focused upon was the presence or absence of wetland areas on or adjacent to the site, however the potential for the presence of special-status plant and animal species, including the Morro shoulderband snail *(Helminthoglypta walkeriana)* was also considered. Please note that formal wetland delineation and Morro shoulderband snail surveys per U.S. Army Corps of Engineers and U.S. Fish & Wildlife Service protocols were not performed as part of this report. The following is a description of our findings:

Existing Conditions

The surveyed lots are located on the southern side of Lupine Street, and are bordered by Doris Avenue to the west, Donna Avenue to the east, and undeveloped property to the south. The lots are rectangular, level, and undeveloped, and are dominated by non-native plant species commonly found in disturbed areas of Los Osos. The two lots appear to have been graded during adjacent residential development, and may have been a receiving site for fill material from dredging operations conducted in Shark Inlet many years ago. Veldt grass (*Ehrharta calycina*), ripgut brome (*Bromus diandrus*), and Bermuda grass (*Cynodon dactylon*), are the dominant plants present, with freeway daisy (*Osteospermum fruticosum*), wild radish (*Raphanus sativus*), and California poppy (*Eschscholzia californica*), also present.

A patch of ice plant (*Carpobrotus edulis*) is present at the corner of Lupine Street and Donna Avenue. No shrubs or trees are present on the two lots.

Findings

No wetland areas or native coastal scrub habitat for the Morro shoulderband snail (MSS) are present on the two lots. The ice plant present at the corner of Lupine Street and Donna Avenue does constitute suitable non-native habitat for MSS. No live Morro shoulderband snails or empty shells were found during the survey of the two lots, and no special status plant species were observed. Several live common garden snails (*Helix aspersa*) and empty shells were observed during the survey.

The 50 by 60 foot area of Lot 10 at the corner of Lupine Street and Donna Avenue proposed for lift station construction contains approximately 600 square feet of ice plant that could provide suitable habitat for MSS. No other constraints are present within this area. The adjacent undeveloped properties to the south contain a depressional wetland area composed of arroyo willow (*Salix lasiolepis*), cattail (*Typha latifolia*), blackberry (*Rubus ursinus*), water parsley (*Oenanthe sarmentosa*), and other common wetland species. The wetland boundary is located approximately 60 feet south of the southern property line of Lot 10, based on the occurrence of wetland plant species. These wetland areas do not contain suitable habitat for MSS.

Conclusions

Based on the observed site conditions, construction of the proposed lift station at the corner of Lupine Street and Donna Avenue will not impact wetland areas. Construction does have potential to result in "take" of Morro shoulderband snail and approximately 600 square feet of suitable non-native habitat (ice plant). Section 3(18) of the Endangered Species Act defines "take" to mean "*to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.*"

As defined by the U.S. Fish and Wildlife Service (USFWS), "*harm*" includes significant habitat modification or degradation which actually kills or injures wildlife by significantly impairing essential behavioral patterns, which include, but are not limited to, breeding, feeding, or sheltering.

Recommendations

Prior to and during lift station construction, erosion and spill control best management practices should be implemented at the site. To reduce the potential for inadvertent release of sediment, construction materials, or fuel from construction areas to adjacent

wetland habitats, appropriate erosion control devices (i.e., hay bales, silt fences) should be installed around the southern perimeter of the construction zone, and around any gutters leading to the wetland area. Erosion control devices should be checked on a daily basis to ensure proper function. During construction, avoid all cleaning and refueling of equipment and vehicles within the vicinity of the identified wetland habitat.

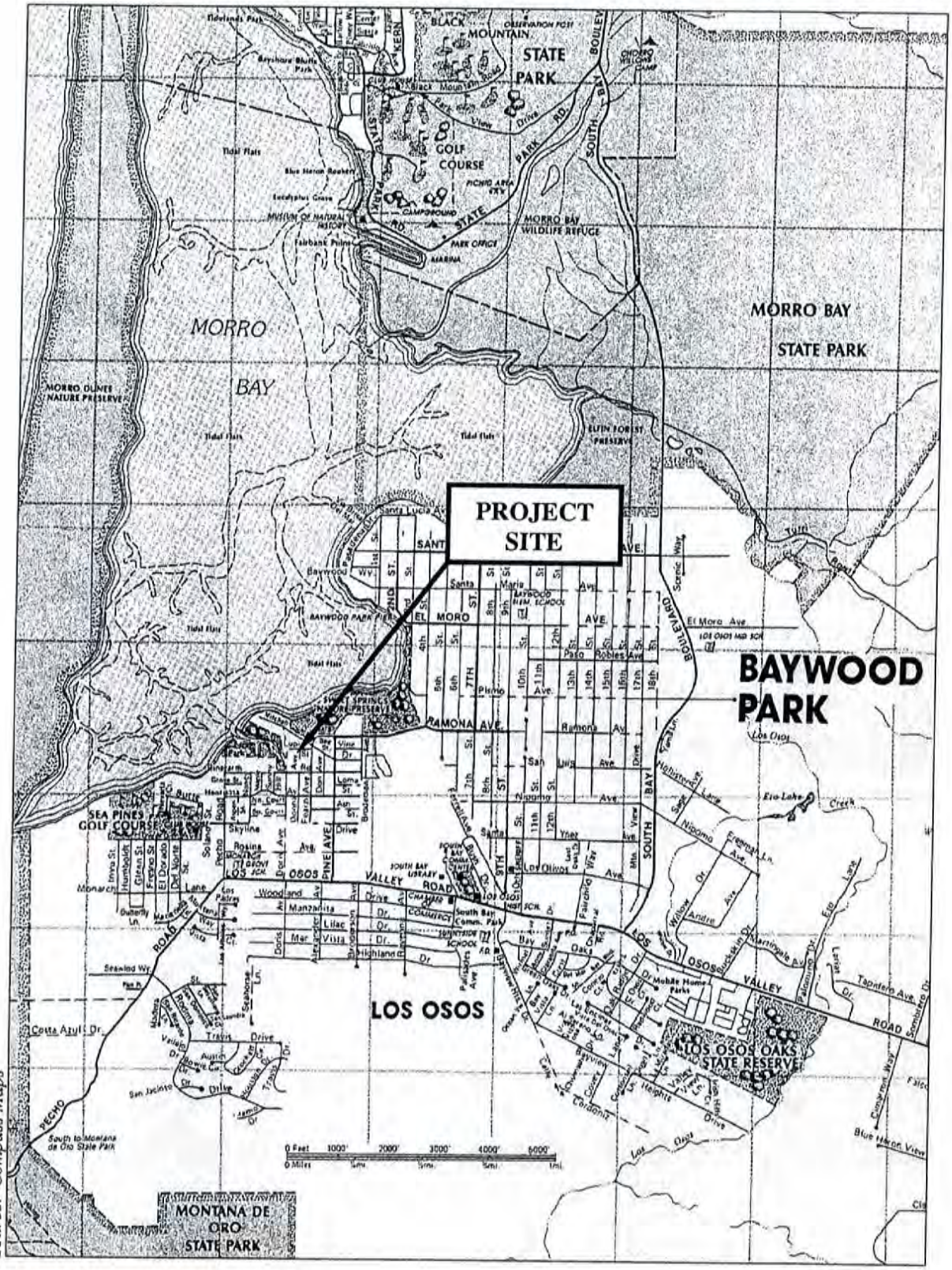
Following completion of construction activities, all disturbed previously vegetated areas should be revegetated with appropriate native plant species to reduce the risk of erosion and sedimentation into adjacent wetland areas.

If you have any questions or comments regarding these findings or recommendations, please do not hesitate to call me at (805) 543-7095.

Sincerely,

MORRO GROUP, INC.

Robert Sloan,
Resource Specialist



Source: Compass Maps

NORTH
Not to Scale

VICINITY MAP
FIGURE 1

Morro Group, Inc.

Attachment G: Delineation of Jurisdictional Waters and Wetlands for the Los Osos Wastewater Project

Delineation of Jurisdictional Waters and Wetlands
Los Osos Wastewater Project
Los Osos, San Luis Obispo County, California

Morro Bay South and San Luis Obispo, California,
USGS 7.5-minute Topographic Quadrangle Maps
Township 30 South, Range 11 East, Unsectioned

Prepared for:

San Luis Obispo County
Public Works Department
1050 Monterey Street
San Luis Obispo, CA 93408

Contact: Mark Hutchison, Project Manager

Prepared by:

Michael Brandman Associates
220 Commerce, Suite 200
Irvine, CA 92602
714.508.4100

Contact: Michael Brandman, President and CEO

Michael Brandman Associates

Survey Dates: April, May, 2008
Report Date: June 30, 2008

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SECTION 1: SUMMARY

Applicant Name:
County of San Luis Obispo
Public Works Department
SLOC Government Center
1050 Monterey Street
San Luis Obispo, CA 93408
Project Manager: Mark Hutchison

Agent Name:
Michael Brandman Associates (MBA)
220 Commerce, Suite 200
Irvine, CA 92602
Phone: 714.508.4100
Contact: Michael Brandman
Email: mbrandman@brandman.com

1.1 - Introduction

At the request of the County of San Luis Obispo Public Works Department, MBA conducted a jurisdictional delineation for a 1,004-acre series of sites (hereafter referred to as the "study area" or the "site") located in the community of Los Osos, San Luis Obispo County, California, on April 23, April 24, and May 20, 2008.

1.2 - Subject Features

The study area contains 13 drainages and two separate wetlands that are also associated with some of these drainages. Two of the drainages have names (Los Osos Creek and Warden Creek), as does one of the associated wetlands (Warden Creek wetland); the remaining 11 drainages are unnamed tributaries or sub-tributaries to Warden Creek. The unnamed associated wetland has been designated as the Los Osos Valley Road Seasonal Wetland. Nine of these drainages are relatively permanent waters (RPWs) which have an Ordinary High Water Mark (OHWM) and a defined bed and bank. These include the two principal drainages within the study area, Los Osos Creek and Warden Creek. These RPWs have hydrologic connectivity to downstream navigable waters (Morro Bay and the Pacific Ocean, both of which are Traditional Navigable Waters [TNWs]). The remaining four drainages are ephemeral, non-RPWs. All drainages and associated wetlands may be subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE), the Central Coast Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Game (CDFG).

USACE jurisdiction includes 0.72 acre (6,030 linear feet) of non-wetland waters of the U.S. and 15.73 acres (12,567 linear feet) of wetland waters within the project site.

RWQCB jurisdiction includes 16.45 acre (18,597 linear feet) of waters of the State within the project site.

CDFG jurisdiction includes 23.48 acres of jurisdictional streambed and associated riparian vegetation within the project site.

SECTION 2: JURISDICTIONAL METHODOLOGY

2.1 - Methodology Statement

This jurisdictional delineation was conducted in accordance with regulations set forth in 33 CFR part 328 and the USACE guidance documents referenced below:

- USACE Wetlands Research Program Technical Report Y-87-1 (on-line edition), Wetlands Delineation Manual, Environmental Laboratory, 1987 (Wetland Manual).
- USACE Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest, 2001 (Arid Southwest Guidelines).
- USACE Minimum Standards for Acceptance of Preliminary Wetlands Delineations, November 30, 2001 (Minimum Standards).
- USACE Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, December 2006 (Arid West Supplement).
- USACE Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region. April 2008.
- USACE Jurisdictional Determination Form Instructional Guidebook, May 30, 2007 (JD Form Guidebook).

2.2 - Pre-Survey Investigation

Prior to the field visit, a 200-scale (1 inch = 200 feet) aerial photograph of the site was procured and compared with the Morro Bay South, California, and the San Luis Obispo, California, United States Geological Survey (USGS) 7.5-minute topographic quadrangle maps to identify drainage features within the survey area as indicated from topographic changes or visible drainage patterns. The National Wetland Inventory was also reviewed to determine whether any wetland areas had been documented within the vicinity of the site. The United States Department of Agriculture (USDA) Soil Survey Map was reviewed to identify the soil series that occur on the site.

2.3 - Field Investigation

Field investigations were performed by MBA Regulatory Specialist Tom Mullen and MBA Biologist Karl Osmundson on April 23, April 24, and May 20, 2008. Data was collected using a Magellan Explorist 600 Global Positioning System (GPS) unit with an accuracy of ±7 feet, and the drainage features were mapped onto recent aerial photographs. Other materials utilized in the field included a 30-meter tape measure, shovel, digital camera, and a Munsell color chart to identify soil types.

The survey was conducted on foot. Potential jurisdictional features were systematically inspected to record existing conditions and to determine their jurisdictional limits. The site was carefully assessed to identify surface flow indicators (such as the presence of hydrophytic vegetation, staining, cracked soil, ponding, etc.). Flow regimes and corresponding hydrogeomorphic features were subsequently identified. The lateral extent of USACE jurisdiction was measured at the OHWM. Where appropriate, multiple measurements were recorded at various representative locations along the length of each feature.

CDFG jurisdiction was based on the presence of a bed and bank, and the presence of riparian vegetation and/or wildlife resources. The lateral extent of CDFG jurisdiction was measured from bank to bank at the top of the channel, or to the drip-line of the associated riparian vegetation where it extends beyond the bank of the channel.

Width and length measurements were entered into Geographical Information System (GIS) ArcView software to plot the location and dimensions of jurisdictional areas. The ArcView application was then used to compute federal and state jurisdictional areas in acres. Acreage computations were verified using a 200-scale aerial photograph and field data.

SECTION 3: ENVIRONMENTAL SETTING

3.1 - Location of the Property

The study area includes portions of the community of Los Osos, the Los Osos Valley Road, and properties located east of the community of Los Osos within unincorporated San Luis Obispo County. The site consists of a series of components which together provide a complete proposed wastewater treatment facility with a pipeline collection system for sewage, a treatment plant, an effluent disposal pipeline system, and effluent disposal sites.

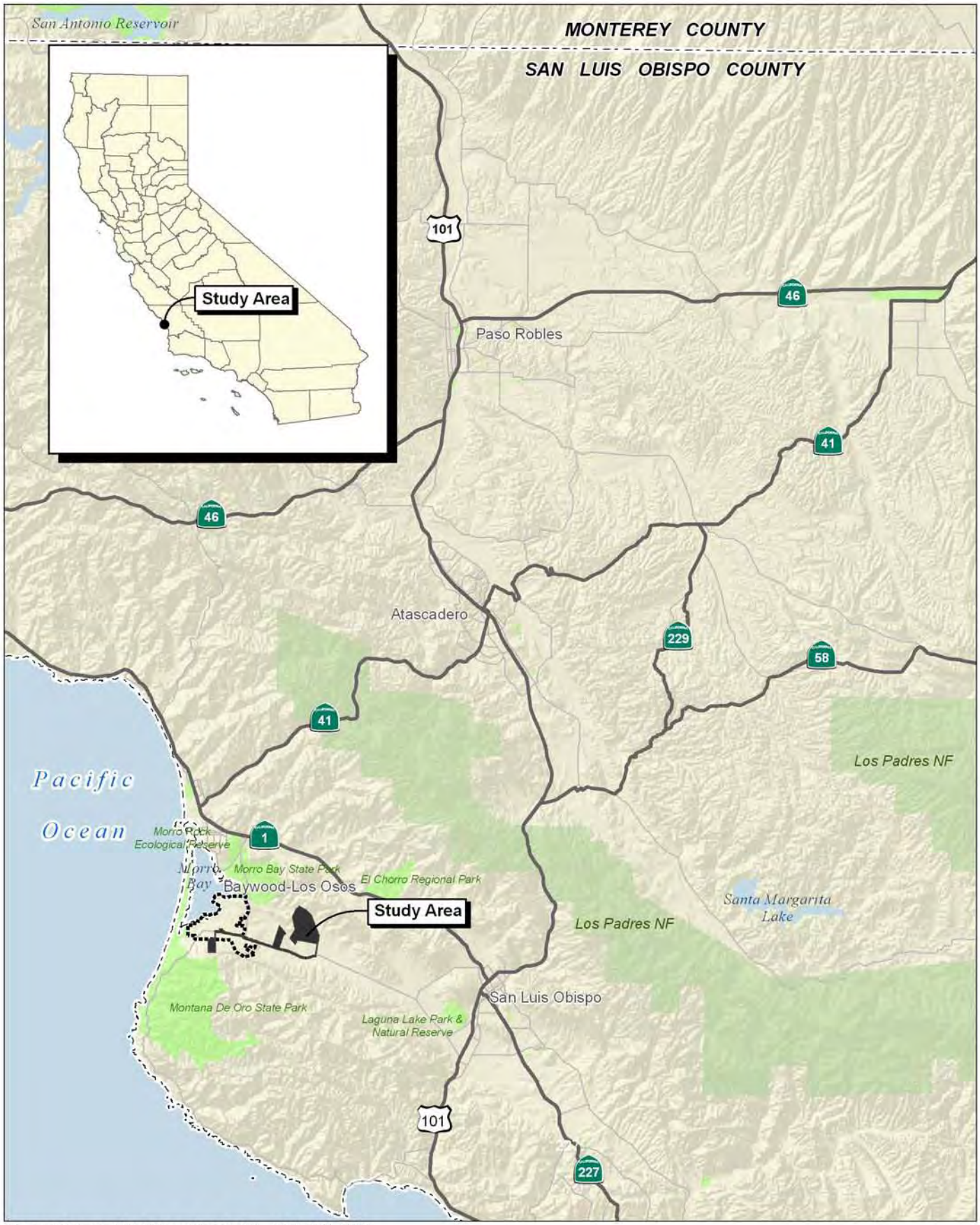
The Broderson site is located in the western portion of the community of Los Osos, and includes Broderson Avenue; the Mid-town site is located within the community; the adjacent Giacomazzi, Branin, and Cemetery properties are located east of the community of Los Osos and just north of Los Osos Valley Road; the Tonini property is located east of the community of Los Osos and west of Turri Road. The site also includes Los Osos Valley Road (between Broderson Avenue to the west and Turri Road to the east), and Turri Road (between Los Osos Valley Road to the south and the entrance to the Tonini property to the north) (Exhibit 1).

The site is depicted in unsectioned portions of Township 30 South, Range 11 East on the Morro Bay South, California, and the San Luis Obispo, California, USGS 7.5-minute topographic quadrangle maps (Exhibit 2 and Exhibit 3). The centers of the principal locations on the site are approximately identified by the following coordinates:

Cemetery, Giacomazzi, Branin ..... 35° 18’ 34” N; 120° 48’ 06” W
Tonini ..... 35° 18’ 44” N; 120° 46’ 44” W
Mid-Town Collection Point..... 35° 18’ 47” N; 120° 50’ 19” W
Broderson ..... 35° 18’ 23” N; 120° 50’ 44” W

3.1.1 - Directions to the Property

The different regions that comprise the entire site are generally located along, and adjacent to, Los Osos Valley Road, both within the developed region of the community of Los Osos as well as within the outskirts of the community. To drive to the Tonini site, take the Turri Road exit to the north of Los Osos Valley Road, and drive for 0.45 mile to the entrance to the Tonini property on the west side of the road. The Cemetery, Giacomazzi, and Branin properties are located north of Los Osos Valley Road and adjacent to and west of the Clark Valley Road (which is located 1.4 miles west of the intersection of Turri Road and Los Osos Valley Road). The Mid-town site is located north of Los Osos Valley Road between Palisades Avenue (to the east) and Ravenna Avenue (to the west). The Broderson leach field site is located south of Los Osos Valley Road and west of Broderson Avenue. From the intersection of the two roads, drive south along Broderson Avenue for 0.35 mile to arrive at the eastern site boundary.



Source: Census 2000 Data, The CaSIL, MBA GIS 2008.

NORTH

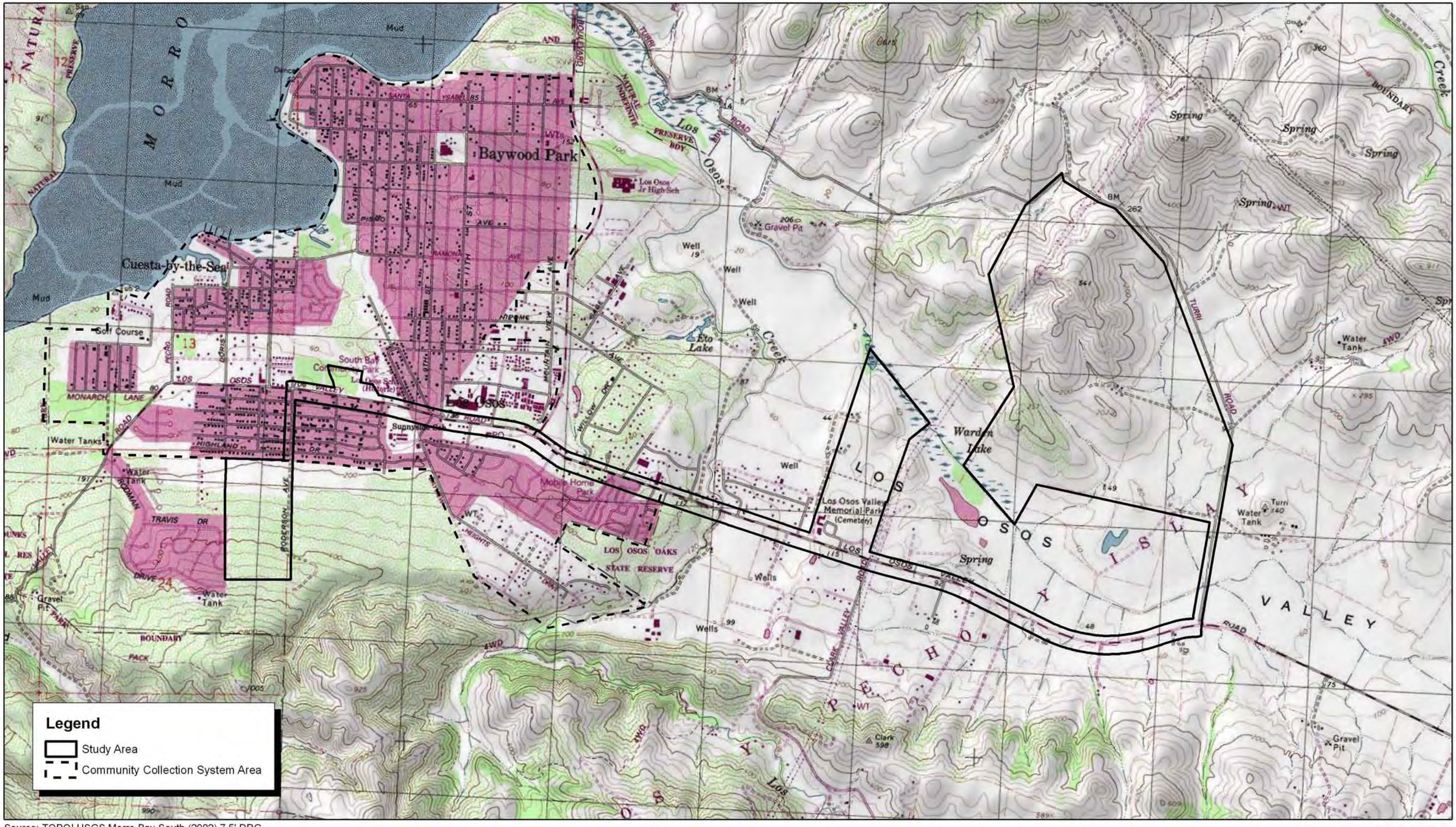
5 2.5 0 5 Miles

Michael Brandman Associates

02240002 • 07/2008 | 1_regional.mxd

Exhibit 1
Regional Location Map

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS



Source: TOPO! USGS Morro Bay South (2002) 7.5' DRG.

NORTH

2,000 1,000 0 2,000 Feet

Michael Brandman Associates

02240002 • 07/2008 | 2_local_topo.mxd

Exhibit 2
Local Vicinity Map
Topographic Base

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

Source: AirPhoto USA and San Luis Obispo County GIS.

NORTH

2,000 1,000 0 2,000 Feet

Michael Brandman Associates

02240002 • 07/2008 | 3_local_aerial.mxd

Exhibit 3
Local Vicinity Map
Aerial Base

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

3.2 - Land Uses

The Broderson site is a sloping, undeveloped site that includes native shrubs and groves of eucalyptus trees.

The proposed Mid-town collection site is undeveloped and contains grasses and shrubs. The land immediately to the north and west is undeveloped. Residential developments are located east and south of the site.

The Cemetery, Giacomazzi, and Branin sites include mixed uses. The Cemetery site includes open space with ruderal weeds, as well as the Los Osos Valley Memorial Park cemetery to the south. The Giacomazzi site includes a disked field that is fallow, and the Branin site includes a portion of the Warden Creek wetland, as well as what appear to be small agricultural plots. Agricultural fields are located west of the Giacomazzi and Branin properties, while open space and the Warden Creek wetland are located to their east. There are agricultural fields and low-density residences west of the Cemetery property, and a disked field with electrical transmission towers to the east of the site.

The Tonini site is predominantly used for agriculture. Crops include those used to produce a hay mix (barley, oat, and wheat) as well as peas on the southern portion of the site. The northwest portion is used for cattle grazing.

The corridor parallel to Los Osos Valley Road includes grassy swales, season wetlands within the existing County Road right-of-way, adjacent agricultural fields and residential developments that are bisected by jurisdictional drainages.

3.2.1 - Activities Relating to Interstate or Foreign Commerce

Surface waters within the study area are generally tributary to Los Osos Creek, which flows northwest into Morro Bay. Although Morro Bay harbor includes one of California's largest commercial fishing fleets, and sales of locally caught fish relates to interstate commerce, neither Los Osos Creek nor its tributaries are associated with the sale of fish or shellfish related to interstate or foreign commerce. However, the project site does include agricultural activities that may relate to interstate or foreign commerce. Therefore, a nexus to commerce may be evident within the project site.

3.3 - Topography

The highest elevations of the site are located within the northwest portion of the Tonini property (approximately 541-feet above mean sea level (AMSL), according to the USGS 7.5-minute quadrangle). The second highest elevation is located at the Broderson site (approximately 300-feet AMSL at the westernmost portion of the study area). Los Osos Valley Road slopes gradually uphill from east to west (with minor undulations) until it is adjacent to the Mid-town site (approximately 120 feet AMSL), at which point it begins to slope downhill toward the coastline.

The site is located just north of the Irish Hills and both southwest of, as well as within, the Santa Lucia Mountains. Two general topographical drainage patterns are associated with the site. Although regional flows emanate from the Santa Lucia Mountains (specifically, Park Ridge) and generally move northeast to southwest to Warden Creek, flows from these mountains within the project site move northwest to southeast within and adjacent to the Tonini property. The other major drainage pattern associated with the study area is from south to north from the Irish Hills. Both sets of flows join Warden Creek (or its tributaries), or Los Osos Creek.

3.3.1 - Pertinent Hydrogeomorphic Features

Field work performed for this study identified nine RPWs and four non-RPWs. The RPWs include Los Osos Creek, Warden Creek, and several tributary and sub-tributary drainages to Warden Creek (listed in Table 1). These features are classified as RPWs because they flow for more than three months of the year. Both Los Osos Creek and Warden Creek are de facto RPWs because they are listed on the Clean Water Act (CWA) Section 303(d) list of Water Quality Limited Segments as well as within the Central Coast RWQCB Water Quality Control Plan (Basin Plan).

The non-RPW features include four drainages. Drainage W-1 and Drainage W-2 flow within the Branin property and are tributary to Warden Creek. Drainage T-1.a and Drainage T-1.b are minor tributaries to Drainage T-1 (the principal drainage feature on the Tonini property). These features are classified as non-RPWs because they are ephemeral and do not maintain continuous flow for extended periods of time (three months or more). During the survey periods, Drainage W-1 was dry, Drainage W-2 included pockets of water, Drainage T-1.a was dry, and Drainage T-1.b included pockets of standing water.

Table 1: Jurisdictional Drainages Within the Project Site

Drainage	Project Location	Average Width (Feet) USACE / CDFG	RPW / Non-RPW	Downstream Reference Point	Distance to TNW - Morro Bay (River Miles	Distance to TNW - Morro Bay (Linear Miles)
Los Osos Creek	Los Osos Valley Road	26 / 100	RPW	Northern end of bridge crossing along Los Osos Valley Road	3.6	2.4
Warden Creek	Branin; Turri Road	400 / 400: 25 / 40	RPW	Intersection with Turri Road	4.6	3.8
Drainage W-1	Giacomazzi	2.5 / 17.5	Non-RPW	Confluence with Warden Creek wetland	3.1	2.6
Drainage W-2	Giacomazzi	2 / 14	Non-RPW	Confluence with Drainage W-1	3.2	2.6

Table 1 (Cont.): Jurisdictional Drainages Within the Project Site

Drainage	Project Location	Average Width (Feet) USACE / CDFG	RPW / Non-RPW	Downstream Reference Point	Distance to TNW - Morro Bay (River Miles	Distance to TNW - Morro Bay (Linear Miles)
Drainage W-3	Los Osos Valley Road	9 / 30	RPW	Confluence with Warden Creek	3.9	3.3
Drainage W-4	Los Osos Valley Road	22 / 22	RPW	Confluence with Warden Creek	4.1	3.5
Drainage W-5	Los Osos Valley Road	6 / 6	RPW	Confluence with Warden Creek	4.3	3.6
Drainage W-5.a	Los Osos Valley Road	6 / 15	RPW	North side of Los Osos Valley Road	4.5	3.7
Drainage W-5.b	Los Osos Valley Road	6 / 6	RPW	North side of Los Osos Valley Road	4.5	3.8
Drainage T-1	Tonini; Turri Road	15 / 20; 15 / 30	RPW	Confluence with Drainage T-2	4.9	3.5
Drainage T-1.a	Tonini	1.5 / 3	Non-RPW	Confluence with T-1	5.5	3.2
Drainage T-1.b	Tonini	3 / 3	Non-RPW	Confluence with T-1	5.3	3.4
Drainage T-2	Tonini	12 / 25	RPW	Confluence with Drainage T-1	4.9	3.5
Source: Michael Brandman Associates, 2008.						

3.3.2 - Watershed Description

The study area is located within the 11,400-square-mile Central California Coastal Watershed USGS accounting unit 18060006). Within this watershed, Los Osos Creek is located within the Estero Bay Sub-Hydrologic Unit number 310.23, which encompasses 17,937 acres (28.03 square miles).

Creeks within the region of the community of Los Osos generally flow either southwest from the Santa Lucia Mountains (including the hills that comprise Park Ridge, such as Hollister Peak), or northward from the Irish Hills. These flows enter Los Osos Creek directly, or through the Warden Creek tributary that is located east of Los Osos Creek within the Los Osos Valley. Warden Creek includes both Warden Lake and Warden Creek wetland (Warden Lake is located within Warden Creek wetland). Warden Creek runs from southeast to northwest until converging with Los Osos Creek at a point approximately 1.5 miles northwest of the northern border of the Branin property.

Both Los Osos Creek and Warden Creek are subject to flooding during, and following,100-year storm events.

3.3.3 - Connectivity to Downstream Resources

All creeks within the project site (including RPWs and non-RPWs) eventually flow into Los Osos Creek, which flows into Morro Bay (TNW), which is part of the Pacific Ocean (TNW). The distances from each tributary to Morro Bay is expressed in both linear and river miles in Table 1, above.

3.3.4 - Water Quality Issues

Waterbodies within, and downstream of, the project site are susceptible to impacts from specific pollutants. Both Los Osos Creek and Warden Creek are listed on the Clean Water Act Section 303(d) list of Water Quality Limited Segments. Impairments to both of these drainages are listed in Table 2.

Properties surrounding the relevant reaches of drainages within the project site have mixed uses that predominantly include agriculture, livestock grazing, open space, and residential use. The application (including potential past uses) of pesticides and fertilizers/nutrients in the agricultural regions adjacent to the drainages on the Tonini site, and adjacent to Warden Creek on the Giacomazzi and Branin properties, may result in impacts to the water quality of the drainage systems (although no data presently exists to specify such impacts).

Although the source of fecal coliform is listed as unknown, substantial livestock grazing takes place along the northwest portion of the Tonini site and contributes significant pathogens directly into Drainage T-1, which is tributary to the 303(d) listed Warden Creek.

Table 2: CWA Section 303(d) Water Quality Limited Segments Within Project Site

Water Body	Calwater Watershed Number	Pollutant / Stressor	Potential Sources
Los Osos Creek	31023012	Fecal Coliform	Source Unknown
		Low Dissolved Oxygen	Agriculture Natural Sources Pasture Grazing - Riparian and/or Upland Urban Runoff/Storm Sewers
		Nitrate	Source Unknown
		Nutrients	Agricultural Return Flows Agriculture Agriculture - storm runoff Irrigated Crop Production
		Sedimentation/Siltation	Agriculture Agricultural storm runoff

Table 2 (Cont.): CWA Section 303(d) Water Quality Limited Segments Within Project Site

Water Body	Calwater Watershed Number	Pollutant / Stressor	Potential Sources
		cont.	Channel Erosion Channelization Dredging Erosion/Siltation Habitat Modification Hydromodification Irrigated Crop Production Natural Sources Nonpoint Sources Range Grazing - Riparian and/or Upland Removal of Riparian Vegetation Streambank Modification/Destabilization
Warden Creek	31023010	Fecal Coliform	Source Unknown
		Low Dissolved Oxygen	Source Unknown
Source: California State Water Resources Control Board.			

3.4 - Field Conditions

3.4.1 - Seasonal Climate Variation

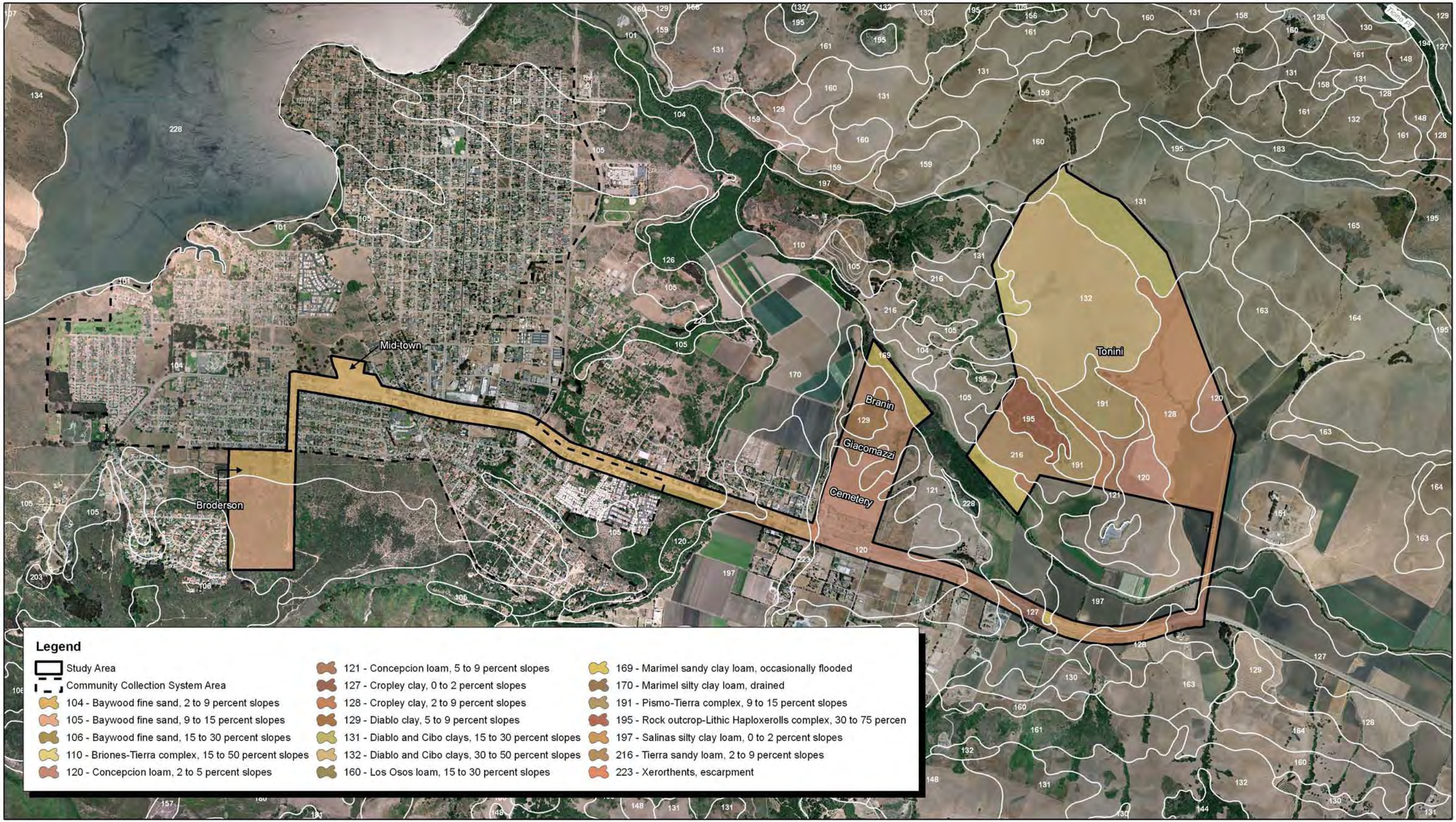
The region surrounding the community of Los Osos is subject to both seasonal and annual variations in temperature and precipitation. Annual average precipitation in the region (Morro Bay Fire Department, 1971-2000; source Natural Resources Conservation Service [NRCS]) is 17.62 inches, with highest average rainfall in February (3.69 inches), and lowest rainfall in July (0.03 inches). Rainfall increases further inland (the average annual precipitation at San Luis Obispo Polytech gauge, located approximately 7 miles to the southeast, is 23.3 inches).

3.4.2 - Conditions at time of Field Investigation

The delineation of jurisdictional waters and wetlands took place on April 23, April 24, and May 20, 2008. During the April survey, the temperature was 61 degrees Fahrenheit (F), winds were 0 to 2 miles per hour (mph) and the conditions were partly cloudy with minor, intermittent precipitation. During the May survey, the temperature was in the mid-70 degrees F range, winds were moderate (5 to 15 mph), and the conditions were clear and sunny.

3.5 - Soils

Exhibit 4 shows the different soil series within the study area. Percentage cover of soils and drainage characteristics are highlighted in Table 3, below.



Source: AirPhoto USA and San Luis Obispo County GIS.

NORTH

2,000 1,000 0 2,000 Feet

Michael Brandman Associates

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Exhibit 4
USDA Soils Map

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

A soil series is a group of soils with similar profiles. These profiles include major horizons with similar thickness, arrangement, and other important characteristics. These soil series were checked against the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) National Hydric Soils List.

Table 3: Summary of USDA / NRCS Soil Descriptions

Map Unit Symbol	Soil Series	Percentage Cover	NRCS Hydric	Drainage
104	Baywood fine sand, 2 to 9 percent slopes	14.9	No	Somewhat excessively drained
105	Baywood fine sand, 9 to 15 percent slopes	0.4	No	Somewhat excessively drained
110	Briones-Tierra Complex	0.4	No	Somewhat excessively drained
120	Concepcion loam, 2 to 5 percent slopes	10.9	No	Moderately well drained
121	Concepcion loam, 5 to 9 percent slopes	6.9	No	Moderately well drained
127	Cropley clay, 0 to 2 percent slopes	2.2	Yes	Moderately well drained
128	Cropley clay, 2 to 9 percent slopes	19.2	No	Moderately well drained
129	Diablo clay, 5 to 9 percent slopes	1.2	No	Well drained
131	Diablo and cibo clays, 15 to 30 percent slopes	7.4	No	Well drained
132	Diablo and cibo clays, 30 to 50 percent slopes	19.5	No	Well drained
160	Los Osos loam, 15 to 30 percent slopes	0.4	No	Well drained
169	Marimel sandy clay loam, occasionally flooded	3.0	Yes	Somewhat poorly drained
170	Marimel silty clay, loam, drained	0.6	Yes	Well drained
191	Pismo Tierra complex, 9 to 15 percent slopes	4.8	No	Somewhat excessively drained
195	Rock outcrop - Lithic Haploxerolls complex, 30 to 75 percent slopes	2.5	No	Excessively drained
197	Salinas silty clay loam, 0 to 2 percent slope	2.5	Yes	Well drained
216	Tierra sandy loam, 2 to 9 percent slopes	3.1	No	Moderately well drained
223	Xerothents, escarpment	0.1	No	
Source: Natural Resources Conservation Service.				

3.6 - Vegetation

Descriptions of plant communities are provided with each drainage description in Section 4.2 of this report. A more detailed description is provided in the Biological Resources Assessment technical report (MBA July 2008), published as an appendix to the County of San Luis Obispo Los Osos Wastewater Draft Environmental Impact Report (Draft EIR).

3.7 - Coastal Zone Evaluation

The study area is located within the coastal zone, as defined by the California Coastal Act. Therefore, a Coastal Zone Management Act consistency determination is required. Such a consistency determination with the Coastal Zone Land Use Ordinance (which forms part of the Elements of the San Luis Obispo County Plan) is included in the EIR for the County of San Luis Obispo Los Osos Wastewater Project that is being prepared by MBA.

3.8 - Critical Habitat

The study area is located within portions of United States Fish and Wildlife Service (USFWS) designated critical habitat for two species. The Broderson property is located entirely within critical habitat for the Morro shoulderband snail (*Helminthoglypta walkeriana*). All of Los Osos Creek within the Los Osos Hydrologic Subarea (#331023) is within critical habitat for South-Central California Coast steelhead (*Oncorhynchus mykiss irideus*).

3.9 - Biological Resources

3.9.1 - Biological Resources Surveys and Reports

Biological resources associated with the study area are described in the technical attachments of the Biological Resources Assessment (MBA July 2008), which is included in the County of San Luis Obispo Los Osos Wastewater Draft EIR.

The Biological Resources Assessment's technical attachments include:

- Attachment A Floral and Faunal Compendia
- Attachment B: Special Status Species Tables
- Attachment C: Site Photographs
- Attachment D: California Natural Diversity Database Search Results
- Attachment E: Regulatory Framework
- Attachment F: California Red-legged Frog Protocol Survey Report
- Attachment G: Delineation of Jurisdictional Waters and Wetlands

3.10 - Environmental Documentation

Proposed development within the study area is being analyzed as required by the California Environmental Quality Act (CEQA). MBA is preparing an EIR for the County of San Luis Obispo Los Osos Wastewater Project.

SECTION 4: JURISDICTIONAL DELINEATION RESULTS

The following section provides a detailed discussion of jurisdictional areas within the project site including findings related to vegetative communities, topography, soils, hydrology, and wetlands for each of the listed hydrogeomorphic features (Exhibit 5 and Exhibit 6).

4.1 - Summary of Jurisdictional Areas

4.1.1 - USACE Jurisdiction

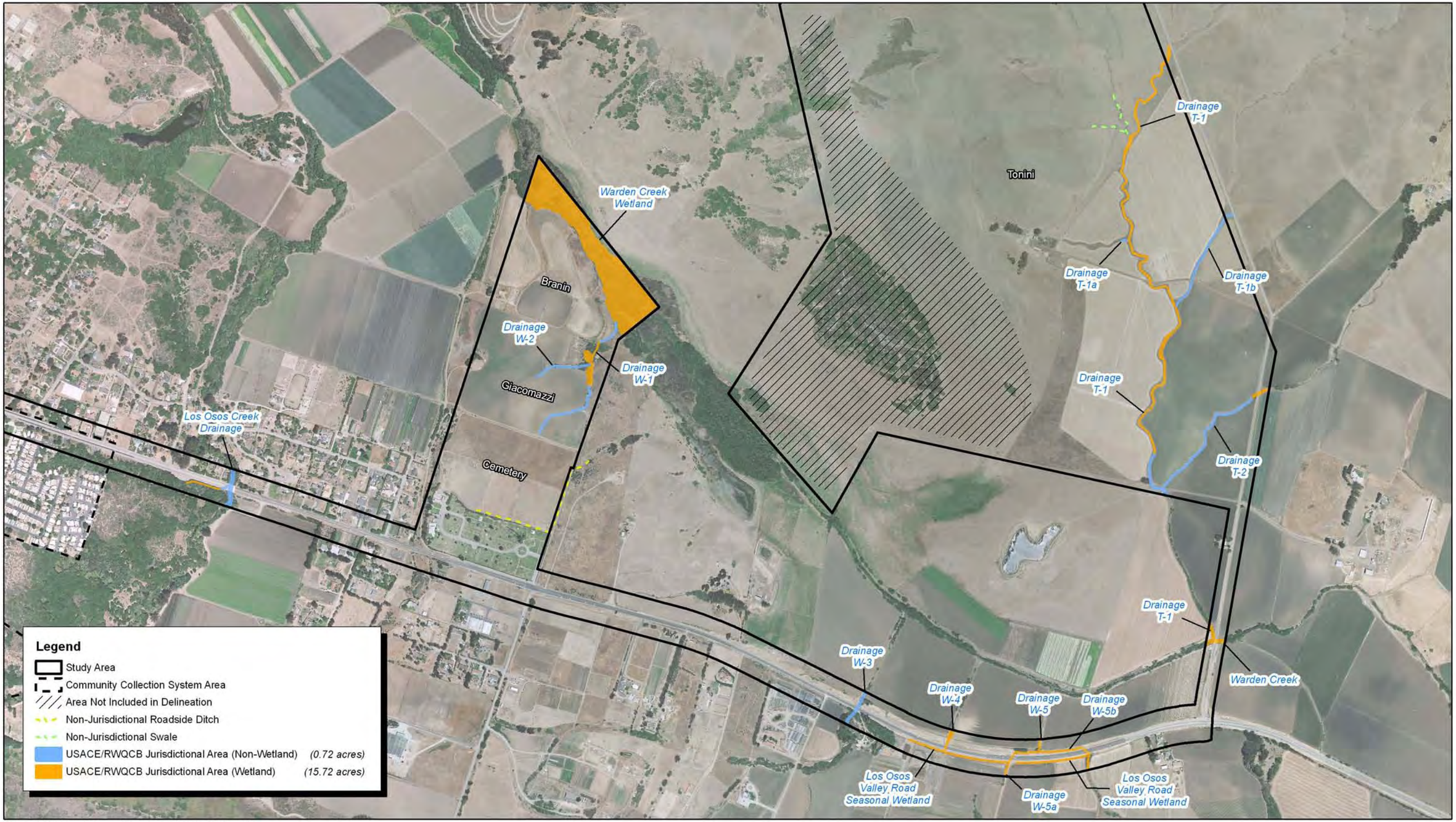
The study area includes nine RPWs and four non-RPWs and two separate wetlands that are associated with RPWs that were determined to be jurisdictional waters of the United States (Table 4).

Table 4: USACE Jurisdictional Evaluation

Hydrogeomorphic Feature	USACE JURISDICTION	
	Non-wetland Waters Acres (LF)	Wetland Waters Acres (LF)
Los Osos Creek	0.27 (931)	0.00 (0)
Warden Creek	0.00 (0)	0.12 (214)
Drainage W-1	0.09 (1,148)	0.42 (499)
Warden Creek Wetland	0.00 (0)	13.34 (1,965)
Drainage W-2	0.03 (612)	0.00 (0)
Drainage W-3	0.09 (410)	0.00 (0)
Drainage W-4	0.00 (0)	0.11 (256)
Drainage W-5	0.00 (0)	0.02 (137)
Drainage W-5.a	0.00 (0)	0.07 (524)
Drainage W-5.b	0.00 (0)	0.10 (748)
Los Osos Valley Road Seasonal Wetland	0.00 (0)	0.23 (1,893)
Drainage T-1	0.08 (566)	1.22 (5,733)
Drainage T-1.a	0.003 (80)	0.00 (0)
Drainage T-1.b	0.06 (1,198)	0.00 (0)
Drainage T-2	0.10 (1,480)	0.08 (212)
Total	**0.723 (6,425)**	**15.71 (12,181)**
Source: Michael Brandman Associates, 2008.		

4.1.2 - RWQCB Jurisdiction

The study area includes nine RPWs and four non-RPWs and two separate wetlands that are associated with RPWs that were determined to be jurisdictional waters of the United States. They are therefore also considered to be jurisdictional waters of the State (Table 5).



Source: AirPhoto USA and San Luis Obispo County GIS.

NORTH

1,000 500 0 1,000 Feet

Michael Brandman Associates

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Exhibit 5
USACE/RWQCB Jurisdictional Areas

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

Source: AirPhoto USA and San Luis Obispo County GIS.

NORTH

1,000 500 0 1,000 Feet

Michael Brandman Associates

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Exhibit 6
CDFG Jurisdictional Areas

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

Table 5: RWQCB Jurisdictional Evaluation

Hydrogeomorphic Feature	RWQCB Jurisdiction	
	Non-wetland Waters Acres (LF)	Wetland Waters Acres (LF)
Los Osos Creek	0.27 (931)	0.00 (0)
Warden Creek	0.00 (0)	0.12 (214)
Warden Creek Wetland	0.00 (0)	13.34 (1,965)
Drainage W-1	0.09 (1,148)	0.42 (499)
Drainage W-2	0.03 (612)	0.00 (0)
Drainage W-3	0.09 (410)	0.00 (0)
Drainage W-4	0.00 (0)	0.11 (256)
Drainage W-5	0.00 (0)	0.02 (137)
Drainage W-5.a	0.00 (0)	0.07 (524)
Drainage W-5.b	0.00 (0)	0.10 (748)
Los Osos Valley Road Seasonal Wetland	0.00 (0)	0.23 (1,893)
Drainage T-1	0.08 (566)	1.22 (5,733)
Drainage T-1.a	0.003 (80)	0.00 (0)
Drainage T-1.b	0.06 (1,198)	0.00 (0)
Drainage T-2	0.10 (1,480)	0.08 (212)
Total	**0.723 (6,425)**	**15.71 (12,181)**
Source: Michael Brandman Associates, 2008.		

4.1.3 - CDFG Jurisdiction

The CDFG asserts jurisdiction over streambeds and associated riparian communities/systems. Thirteen drainages and two separate but associated wetlands within the study area were determined to be subject to CDFG jurisdiction (Table 6).

Table 6: CDFG Jurisdictional Evaluation

Hydrogeomorphic Feature	CDFG Jurisdiction acres (Including Riparian Areas)
Los Osos Creek	1.55
Warden Creek	0.21
Warden Creek Wetland	13.34
Drainage W-1	1.44
Drainage W-2	0.42
Drainage W-3	0.79
Drainage W-4	0.11

Table 6 (Cont.): CDFG Jurisdictional Evaluation

Hydrogeomorphic Feature	CDFG Jurisdiction acres (Including Riparian Areas)
Drainage W-5	0.05
Drainage W-5.a	0.20
Drainage W-5.b	0.21
Los Osos Valley Road Seasonal Wetland	0.23
Drainage T-1	3.31
Drainage T-1.a	0.05
Drainage T-1.b	0.48
Drainage T-2	1.12
Total	**23.51**
Source: Michael Brandman Associates, 2008.	

4.2 - Rationale for Jurisdictional Determination

A detailed discussion of the rationale for supporting the jurisdictional determination for each type of hydrogeomorphic feature found on the site follows. This is based on the field evaluation that included an assessment of hydrological conditions, an analysis of vegetation types, and the excavation of soil pits to assess wetland characteristics (Exhibit 7 and Exhibit 8).

4.2.1 - Los Osos Creek

Los Osos Creek originates in the Clark Valley within the Irish Hills. It flows northwest out of the hills, then meanders northeast until it crosses Los Osos Valley Road. The creek then flows generally north before entering Morro Bay (TNW). Los Osos Creek is the principal drainage within the project site and is joined by the tributary Warden Creek, into which all other on-site drainages flow. After exiting below the southern edge of Los Osos Valley road, it flows 2.7 river miles to the confluence with Warden Creek. It then flows an additional 0.9 river miles west to enter Morro Bay. Within the relevant reach of the project, Los Osos Creek is a third order stream. Los Osos Creek is an intermittent RPW and maintains an average width (OHWM) of 22 feet in the reach between Los Osos Valley Road and the confluence with Warden Creek. The drainage is incised 25 feet deep in locations north of Los Osos Valley Road. The drainage base is comprised of varying percentages of sand, soil, and rock throughout the site. At the location where the creek passes below Los Osos Road, the channel has an OHWM that varies from 24 to 28 feet in width (26 feet average width). Note that the project boundaries adjacent to Los Osos Valley Road have been arbitrarily defined as being 200 feet on either side of the road centerline. The drainage has downstream connectivity to Morro Bay (TNW) and the Pacific Ocean (TNW).

Source: AirPhoto USA and San Luis Obispo County GIS.

Michael Brandman Associates

NORTH

1,000 500 0 1,000 Feet

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Exhibit 7
Data Point Locations

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

Source: AirPhoto USA and San Luis Obispo County GIS.

NORTH

1000 500 0 1000
SCALE IN FEET

Michael Brandman Associates

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Exhibit 8
Photo Location Map

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTERWATER PROJECT
DELINEATION OF JURISDICTIONAL WATERS AND WETLANDS

A wetland pit excavated within the drainage (designated as LOC, Pit 2; see Attachment D, Photograph 3) indicates that hydrophytic vegetation, wetland hydrology (indicated by the presence of a high water table, saturation, riverine water marks, sediment and drift deposits, and drainage patterns), and hydric soils (10YR4/1 loam redox) are present. According to the USACE three-parameter assessment, wetlands are therefore associated with this drainage.

The drainage includes Central Coast Live Oak Riparian Forest habitat. The stand that exists on the project site continues further upstream and to the south along Los Osos Creek, and integrates with Coast Live Oak Forest habitat occupying upland areas to the immediate southwest and west, and Central Coast Arroyo Willow Riparian Forest and Arroyo Willow - Black Cottonwood series riparian habitat further downstream. The habitat onsite contains a dense closed-canopy that is co-dominated by coast live oak trees (upland species, or UPL) and arroyo willow trees (*Salix lasiolepis*, facultative wet species, or FACW). Little understory growth exists within onsite areas that are characterized by this community, and especially within the bare active channel and adjacent channel margins of Los Osos Creek itself. Dominate understory species observed within limited areas include poison oak (*Toxico dendron* FACW), mugwort (*Artemisia douglasiana* FACW), Himalaya blackberry (*Rubious discolor* FACW), and horsetail (*Equisetum hyemale*, FACW).

USACE Jurisdiction

The onsite portion of Los Osos Creek includes 0.27 acre (931 linear feet) of non-wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 0.27 acre (931 linear feet) of waters of the State.

CDFG Jurisdiction

Los Osos Creek includes a discernible bed and bank, and is therefore considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 1.55 acre.

4.2.2 - Warden Creek

Warden Creek originates from several drainages that flow from the Irish Hills to the south and from the Santa Lucia Mountains located within and north of the project site. The drainage flows northwest through the Los Osos Valley until it joins Los Osos Creek, of which it is a tributary. With the exception of Los Osos Creek, all other on-site drainages flow either directly or indirectly into Warden Creek. Water was present within the creek during both the April and May site surveys and it is likely the creek maintains flows for at least three continuous months (see Section 3.4.1 regarding peak rainfall). This creek is therefore an RPW that intersects with the project site at two locations. The eastern location is along Turri Road (4.6 river miles and 3.8 linear miles southeast of Morro Bay). The western location is at the northern end of the Branin property (3.1 river miles and 2.6 linear miles southeast of Morro Bay). Warden Creek is contained within Warden Creek wetland at this western location. Within the relevant reach of the site, Warden Creek is a fourth order stream.

At the point where Warden Creek passes below Turri Road, the drainage has an OHWM of approximately 25 feet. At the location where Warden Creek wetland passes through Branin property, the wetland extends to the north outside of the project site.

A wetland pit excavated within Warden Creek wetland (designated WCW Pit 1) indicates that hydrophytic vegetation, wetland hydrology (indicated by the presence of surface water, saturation, drainage patterns, and saturation visible on aerial imagery), and hydric soils (10YR3/6 loam with redox) are present. According to the USACE three-parameter assessment, wetlands are therefore associated with this drainage.

The drainage includes Central Coast Arroyo Willow Riparian Forest habitat. This is located within the Warden Creek wetlands and at the Turri Road crossing. The dominant species observed onsite includes arroyo willow (*Salix lasiolepis*, FACW) within the tree stratum, mulefat (*Baccharis salicifolia*, FACW) and coyote bush (a facultative species, or FAC) within the shrub stratum, and poison hemlock (FACW), curly dock (FACW), and fennel (a facultative uplans species, or FACU) within the herbaceous stratum.

USACE Jurisdiction

The onsite portion of Warden Creek includes 0.12 acre (214 linear feet) of wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 0.12 acre (214 linear feet) of waters of the State.

CDFG Jurisdiction

Warden Creek includes a discernible bed and bank, and is therefore considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 0.21 acre.

4.2.3 - Warden Creek Wetland

The Warden Creek wetland forms part of Warden Creek, but is discussed separately from the drainage in this document because of its size. The wetland extends for more than 5,000 linear feet along its southeast to northwest trending axis, and is up to 700 feet in width. This wetlands is a part of Warden Creek (RPW) and is located along the northern periphery of the Branin property (3.1 river miles and 2.6 linear miles southeast of Morro Bay). Within the site, the wetland is approximately 13.34 acres in area, and approximately 1.956 feet in length.

A wetland pit excavated within this wetland is described under Section 4.2.2, above.

The wetland can be classified as a freshwater marsh, and is intermixed with elements of riparian forest within the northern portions of the Branin property. Dominate species present include broad-leaved cattail (*Typha latifolia*, (an obligate species, or OBL) and arroyo willow (FACW). Habitat

quality within the Freshwater Marsh onsite is considered high for a number of common and sensitive terrestrial and aquatic species.

USACE Jurisdiction

The onsite portion of Warden Creek wetland includes 13.34 acre (1,965 linear feet) of wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 13.34 acre (1,965 linear feet) of waters of the State.

CDFG Jurisdiction

Warden Creek wetland is considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 13.34 acre.

4.2.4 - Drainage W-1

Drainage W-1 is an ephemeral non-RPW that originates on the Cemetery property and flows northward through the Giacomazzi and Branin properties into Warden Creek wetland, at a location approximately 3.1 river miles (2.6 linear miles) to the east of Morro Bay (TNW). Within the relevant reach of the project, Drainage W-1 is a first and second order stream. The channel has an average OHWM of approximately 2.5 feet, while the bank-to-bank channel varies from 10 to 25 feet in width (17.5 feet average width).

Several wetland pits were excavated within and adjacent to this drainage. One pit (designated as W-1, Pit 4;see Attachment D, Photograph 7) includes hydrophytic vegetation, wetland hydrology (indicated by the presence of water marks, sediment and drift deposits, and water stained leaves), and hydric soils (10YR2/2 sandy loam). According to the USACE three-parameter assessment, wetlands are therefore associated with this drainage. The results found at a second pit (designated as W-1, Pit 6; see Attachment D, Photograph 9) confirmed this assessment.

This drainage contains Disturbed Habitat, which typically occurs within portions that are currently fallow or used as dirt access roads. Many of these areas exist at the margins of existing developed areas and areas historically and/or routinely disturbed as a result of agricultural activities. Common plant species observed within the Disturbed Habitat include non-native annual grasses such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), and wild oats (*Avena fatua*, UPL), and annual forbs such as filaree (*Erodium cicutarium*, UPL), pineapple weed (*Chamomilla suaveolens*, FACU), wild radish (*Raphanus sativus*, UPL), field mustard (*Brassica rapa*, UPL), bristly ox-tongue (*Picris echoides*, FAC), poison hemlock (*Conium maculatum*, FACW), and fennel (*Foeniculum vulgare*, FACU).

The drainage also includes Central Coast Arroyo Willow Riparian Forest habitat. The dominant species observed onsite include arroyo willow (*Salix lasiolepis*, FACW) within the tree stratum,

mulefat (*Baccharis salicifolia*, FACW) and coyote bush (FAC) within the shrub stratum, and poison hemlock (FACW), curly dock (FACW), and fennel (FACU) within the herbaceous stratum.

Because the drainage is a non-RPW, a significant nexus evaluation is included below to determine whether this feature should be considered jurisdictional by the USACE.

Significant Nexus Evaluation

Hydrological Factors

Los Osos/Baywood Park is located within the Central California Coastal Watershed (identified as United States Geological Survey (USGS) Region 18, Accounting Unit 180600, which has an area of approximately 11,400 square miles). Drainage W-1 is a tributary to Warden Creek (RPW), which is tributary to Morro Bay (TNW). The drainage conveys stormwater as precipitation and agricultural runoff.

The tributary area to the drainage is approximately 15-acres. The land is partially disced for agriculture, and contains other fields that are either remnants of past agricultural activities or were fallow at the time of the survey. The land is largely permeable. An rainfall map of the region shows that most of the project site is subject to an annual rainfall of approximately 19.0 inches. The Rational Method (Q = CIA, where Q is peak flow, C is coefficient of runoff, I is rainfall intensity, and A is area) is used to calculate approximate peak flow for the 50-year, 6-hour storm event (see Attachment H). The peak flow is approximately 5.15 cubic feet per second (cfs). The relative magnitude of this flow, combined with the presence of a discernible OHWM throughout a portion of the study area, and the proximity of the drainage to an RPW (Warden Creek), makes it reasonable to assume that flow from the study area will be conveyed downstream 3.1 river miles via Warden Creek to Morro Bay (TNW).

Ecological Factors

Drainage W-1 serves as an ephemeral conduit through which minerals and organic nutrients from fields and open lands within the Cemetery and Branin properties are flushed downstream toward Morro Bay (TNW) via Warden Creek (RPW). The drainage may also convey pollutants from surrounding land uses within the relevant reach (these land uses include agriculture). These potential pollutants may include nitrogen/nitrates/ammonia, total dissolved solids, pesticides, and fertilizers. Warden Creek (into which this tributary discharges) is a CWA Section 303(d) listed ‘water quality limited segment’ that is impaired for fecal coliform, and low dissolved oxygen. The contribution of any such pollutants by Drainage W-1 would have an immediate impact on Warden Creek. The fact that the creek is already impaired by these substances would reduce its capability to attenuate the addition of such pollutants before their discharge into Morro Bay, and increase the likelihood and degree of their impact on the quality of bay waters. The discharge of such pollutants into the bay would ultimately influence the ecology of that water body.

A summary of the hydrological and ecological characteristics that may result in discharge from the drainage having a more than speculative or insubstantial effect on the nearest downstream TNW (Morro Bay) are highlighted in Table 7.

Table 7: Significant Nexus Determination - Drainage W-1

Factors	More than Speculative or Insubstantial Effect
Hydrological Factors	
Volume, duration, and frequency of flow. This includes consideration of certain tributary characteristics, historic records of flow, flood predictions, gauge data, and personal observations (OHWM, shelving, water staining, sediment sorting, and scouring).	Yes
Proximity to the TNW. If a tributary is far from a TNW, the impact on the TNW is more likely to be speculative.	Yes
Contextual hydrological factors. These include (1) size of the watershed, (2) average annual rainfall, and (3) average annual snow pack.	No
Presence of tributary or wetland within the flood plain. A significant nexus determination cannot be based solely on the presence of a water body within or outside the flood plain.	Yes
Ecological Factors	
Ability of the tributary and its adjacent wetlands (if any) to carry pollutants and flood waters to a TNW.	Yes
Ability of the tributary and its adjacent wetlands (if any) to provide aquatic habitat that supports biota of a TNW.	Yes
Ability of adjacent wetlands to trap and filter pollutants or store flood water.	Yes
Ability to maintain water quality.	No
Source: Michael Brandman Associates, 2008.	

Based on the factors discussed above, it is reasonable to assume the flows within Drainage W-1 may be capable of at least partially flushing sediment, organic compounds, and / or nutrients downstream to Morro Bay (TNW). Though diluted and reduced in quantity from the project site where they originate, such substances could have a more than insubstantial or speculative effect on the chemical, physical, and biological integrity of a TNW. Therefore, a significant nexus can be established between Drainage W-1 and the nearest TNW, and therefore Drainage W-1 should be considered jurisdictional by the USACE.

The USACE and US Environmental Protection Agency (EPA), however, will make a final significant nexus determination.

USACE Jurisdiction

The onsite portion of Drainage W-1 includes 0.09 acre (1,148 linear feet) of non-wetland and 0.42-acre (449) of wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 0.42 acre (499 linear feet) of waters of the State.

CDFG Jurisdiction

Drainage W-1 is ephemeral and includes a discernible bed and bank, and is therefore considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 1.44 acre.

4.2.5 - Drainage W-2

Drainage W-2 is an ephemeral non-RPW that originates on the Giacomazzi property and that is tributary to Drainage W-1 within that same property. The confluence of this drainage with Drainage W-1 is at a location 3.2 river miles (2.6 linear miles) southeast of Morro Bay (TNW). Within the relevant reach of the project, Drainage W-2 is a first order stream. The channel has an average OHWM of approximately 2 feet, while the bank to bank channel varies from 3 to 25 feet in width (14 feet average width).

A wetland pit (designated as W-2, Pit 1; see Attachment D, Photograph 11) was excavated within the drainage. The pit showed no indicators of hydrophytic vegetation, wetland hydrology, or hydric soils (the dominant soil was a 10YR3/1 loam). Therefore, according to the USACE three parameter assessment, wetlands are not associated with the drainage.

This drainage contains Disturbed Habitat, which typically occurs within portions that are currently fallow or used as dirt access roads. Many of these areas exist at the margins of existing developed areas and areas historically and/or routinely disturbed as a result of agricultural activities. Common plant species observed within the Disturbed Habitat include non-native annual grasses such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), and wild oats (*Avena fatua*, UPL), and annual forbs such as filaree (*Erodium cicutarium*, UPL), pineapple weed (*Chamomilla suaveolens*, FACU), wild radish (*Raphanus sativus*, UPL), field mustard (*Brassica rapa*, UPL), bristly ox-tongue (*Picris echoides*, FAC), poison hemlock (*Conium maculatum*, FACW), and fennel (*Foeniculum vulgare*, FACU).

Because the drainage is a non-RPW, a significant nexus evaluation is included below to determine whether this feature should be considered jurisdictional by the USACE.

Significant Nexus Evaluation

Hydrological Factors

Los Osos/Baywood Park is located within the Central California Coastal Watershed (identified as USGS Region 18, Accounting Unit 180600, which has an area of approximately 11,400 square

miles). Drainage W-2 is a tributary to Warden Creek (RPW), which is tributary to Morro Bay (TNW). The drainage conveys stormwater that originates as precipitation and agricultural runoff.

The tributary area to the drainage is approximately 15 acres (approximately equal to the tributary area for Drainage W-1). The land is mostly disked for agriculture and is largely permeable. An isopluvial map of the region shows that most of the project site is subject to an annual rainfall of approximately 19.0 inches. The Rational Method (Q = CIA, where Q is peak flow, C is coefficient of runoff, I is rainfall intensity, and A is area) is used to calculate approximate peak flow for the 50-year, 6-hour storm event (see Attachment H). The peak flow is approximately 4.48 cubic feet per second (cfs). The relative magnitude of this flow, combined with the presence of an OHWM that is discernible throughout a portion of the drainage, and the proximity of the drainage to an RPW (Warden Creek is less than 0.14 river miles from the confluence of Drainage W-2 and Drainage W-1), makes it reasonable to assume that flow from the study area will be conveyed 3.5 river miles downstream via Warden Creek to Morro Bay (TNW).

Ecological Factors

Drainage W-2serves as an ephemeral conduit through which minerals and organic nutrients from agricultural fields within the Branin property are flushed downstream toward Morro Bay (TNW) via Drainage W-1 and Warden Creek (RPW). The drainage may also convey pollutants from surrounding land uses within the relevant reach (the land use is predominantly agricultural). These potential pollutants may include nitrogen/nitrates/ammonia, total dissolved solids, pesticides, and fertilizers. Warden Creek is a CWA Section 303(d) listed ‘limited water quality segment’ that is impaired for fecal coliform, and low dissolved oxygen. The contribution of any such pollutants by Drainage W-2 would have an immediate impact on Warden Creek. The fact that the creek is already impaired by these substances would reduce its capability to attenuate such pollutants before their discharge into Morro Bay, and increase the likelihood and degree of their impact on the quality of bay waters. The discharge of such pollutants into the bay would ultimately influence the ecology of that water body.

A summary of the hydrological and ecological characteristics that may result in discharge from the drainage having a more than speculative or insubstantial effect on the nearest downstream TNW (Morro Bay) are highlighted in Table 8.

Table 8: Significant Nexus Determination - Drainage W-2

Factors	More than Speculative or Insubstantial Effect
Hydrological Factors	
Volume, duration, and frequency of flow. This includes consideration of certain tributary characteristics, historic records of flow, flood predictions, gauge data, and personal observations (OHWM, shelving, water staining, sediment sorting, and scouring).	Yes
Proximity to the TNW. If a tributary is far from a TNW, the impact on the TNW is more likely to be speculative.	Yes
Contextual hydrological factors. These include (1) size of the watershed, (2) average annual rainfall, and (3) average annual snow pack.	No
Presence of tributary or wetland within the flood plain. A significant nexus determination cannot be based solely on the presence of a water body within or outside the flood plain.	Yes
Ecological Factors:	
Ability of the tributary and its adjacent wetlands (if any) to carry pollutants and flood waters to a TNW.	Yes
Ability of the tributary and its adjacent wetlands (if any) to provide aquatic habitat that supports biota of a TNW	Yes
Ability of adjacent wetlands to trap and filter pollutants or store flood water.	Yes
Ability to maintain water quality.	No
Source: Michael Brandman Associates, 2008.	

Based on the factors discussed above, it is reasonable to assume the flows within Drainage W-2 may be capable of at least partially flushing sediment, organic compounds, and / or nutrients downstream to Morro Bay (TNW). Though diluted and reduced in quantity from the project site where they originate, such substances could have a more than insubstantial or speculative effect on the chemical, physical, and biological integrity of a TNW. Therefore, a significant nexus can be established between Drainage W-2 and the nearest TNW, and therefore Drainage W-2 should be considered jurisdictional by the USACE.

The USACE and EPA, however, will make a final significant nexus determination.

USACE Jurisdiction

The onsite portion of Drainage W-2 includes 0.03 acre (612 linear feet) of non-wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 0.03 acre (612 linear feet) of waters of the State.

CDFG Jurisdiction

Drainage W-2 is ephemeral and includes a discernible bed and bank, and is therefore considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 0.42 acre.

4.2.6 - Drainage W-3

Drainage W-3 is an RPW that originates in the Irish Hills and flows north beneath Los Osos Valley Road to connect with Warden Creek (RPW) at a location slightly east of Jacaranda Lane located approximately 3.9 river miles (3.3 linear miles) east of Morro Bay (TNW). Within the relevant reach of the project, Drainage W-3 is a second order stream. The channel has an average OHWM of approximately 9 feet, while the bank to bank channel is approximately 30 feet in width.

A wetland pit (designated as W-3, Pit 1; see Attachment D, Photograph 13) was excavated within the drainage. Although the pit indicates that hydrophytic vegetation and wetland hydrology (indicated by the presence of non-riverine water marks, sediment deposits and drainage patters) are present, the drainage lacks hydric soils (the dominant soil is a 10YR3/2 coarse sandy alluvium). Therefore, according to the USACE three parameter assessment, wetlands are not associated with the drainage.

The drainage includes Central Coast Arroyo Willow Riparian Forest habitat. The dominant species observed onsite includes arroyo willow (*Salix lasiolepis*, FACW) within the tree stratum, mulefat (*Baccharis salicifolia*, FACW) and coyote bush (FAC) within the shrub stratum, and poison hemlock (FACW), curly dock (FACW), and fennel (FACU) within the herbaceous stratum.

USACE Jurisdiction

The onsite portion of Drainage W-3 includes 0.09 acre (410 linear feet) of non-wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 0.09 acre (410 linear feet) of waters of the State.

CDFG Jurisdiction

Drainage W-2 is ephemeral and includes a discernible bed and bank, and is therefore considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 0.79 acre.

4.2.7 - Drainage W-4

Drainage W-4 is an RPW that originates in the Irish Hills and flows north beneath Los Osos Valley Road to connect with Warden Creek (RPW) at a location that is approximately 4.1 river miles (3.5 linear miles) east of Morro Bay (TNW). Within the relevant reach of the project, Drainage W-4 is a first order stream. The channel has an average OHWM of approximately 22 feet, while the bank to bank channel is also approximately 22 feet in width.

The dominant plant species observed within the majority of the Vernal Marsh habitat that occurs on-site is the perennial rhizomatous herb, spikerush (*Eleocharis macrostachya*, OBL). Other plant species observed within this habitat onsite include species typical of wetland habitats such as perennial ryegrass (*Lolium multiflorum*, FAC), curly dock (*Rumex crispus*, FACW), yellow sweet clover (*Melilotus officinalis*, FAC), and blue-eyed grass (*Sisyrinchium bellum*, FAC), and species typical of upland habitats such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), wild oats (*Avena fatua*, UPL), and bristly ox-tongue (*Picris echoides*, FAC).

This drainage includes Disturbed Habitat, which typically occurs within portions that are currently fallow or used as dirt access roads. Many of these areas exist at the margins of existing developed areas and areas historically and/or routinely disturbed as a result of agricultural activities. Common plant species observed within the Disturbed Habitat include non-native annual grasses such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), and wild oats (*Avena fatua*, UPL), and annual forbs such as filaree (*Erodium cicutarium*, UPL), pineapple weed (*Chamomilla suaveolens*, FACU), wild radish (*Raphanus sativus*, UPL), field mustard (*Brassica rapa*, UPL), bristly ox-tongue (*Picris echoides*, FAC), poison hemlock (*Conium maculatum*, FACW), and fennel (*Foeniculum vulgare*, FACU).

The drainage also includes Central Coast Arroyo Willow Riparian Forest habitat. The dominant species observed onsite includes arroyo willow (*Salix lasiolepis*, FACW) within the tree stratum, mulefat (*Baccharis salicifolia*, FACW) and coyote bush (FAC) within the shrub stratum, and poison hemlock (FACW), curly dock (FACW), and fennel (FACU) within the herbaceous stratum.

USACE Jurisdiction

The onsite portion of Drainage W-4 includes 0.11 acre (256 linear feet) wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 0.11 acre (256 linear feet) of waters of the State.

CDFG Jurisdiction

Drainage W-2 is ephemeral and includes a discernible bed and bank, and is therefore considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 0.11 acre.

4.2.8 - Drainage W-5

Drainage W-5 is an RPW that originates north of Los Osos Valley Road at the confluence of two tributaries (W-5.a and W-5.b) and flows north to connect with Warden Creek (RPW) at a location that is approximately 4.3 river miles (3.6 linear miles) east of Morro Bay (TNW). Within the relevant reach of the project, Drainage W-5 is a second order stream. The channel has an average OHWM of approximately 6 feet, while the bank to bank channel is approximately 6 feet in width.

The dominant plant species observed within the majority of the Vernal Marsh habitat that occurs on-site is the perennial rhizomatous herb, spikerush (*Eleocharis macrostachya*, OBL). Other plant species observed within this habitat onsite include species typical of wetland habitats such as perennial ryegrass (*Lolium multiflorum*, FAC), curly dock (*Rumex crispus*, FACW), yellow sweet clover (*Melilotus officinalis*, FAC), and blue-eyed grass (*Sisyrinchium bellum*, FAC), and species typical of upland habitats such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), wild oats (*Avena fatua*, UPL), and bristly ox-tongue (*Picris echoides*, FAC).

This drainage includes Disturbed Habitat, which typically occurs within portions that are currently fallow or used as dirt access roads. Many of these areas exist at the margins of existing developed areas and areas historically and/or routinely disturbed as a result of agricultural activities. Common plant species observed within the Disturbed Habitat include non-native annual grasses such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), and wild oats (*Avena fatua*, UPL), and annual forbs such as filaree (*Erodium cicutarium*, UPL), pineapple weed (*Chamomilla suaveolens*, FACU), wild radish (*Raphanus sativus*, UPL), field mustard (*Brassica rapa*, UPL), bristly ox-tongue (*Picris echoides*, FAC), poison hemlock (*Conium maculatum*, FACW), and fennel (*Foeniculum vulgare*, FACU).

The drainage also includes Central Coast Arroyo Willow Riparian Forest habitat adjacent to Los Osos Valley Road. The dominant species observed onsite includes arroyo willow (*Salix lasiolepis*, FACW) within the tree stratum, mulefat (*Baccharis salicifolia*, FACW) and coyote bush (FAC) within the shrub stratum, and poison hemlock (FACW), curly dock (FACW), and fennel (FACU) within the herbaceous stratum.

USACE Jurisdiction

The onsite portion of Drainage W-2 includes 0.02 acre (137 linear feet) of wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 0.02 acre (137 linear feet) of waters of the State.

CDFG Jurisdiction

Drainage W-2 is ephemeral and includes a discernible bed and bank, and is therefore considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 0.05 acre.

4.2.9 - Drainage W-5.a

Drainage W-5.a is an RPW that originates in the Irish Hills and flows north beneath Los Osos Valley Road to connect with Warden Creek (RPW) at a location that is approximately 4.5 river miles (3.7 linear miles) east of Morro Bay (TNW). Within the relevant reach of the project, Drainage W-5.a is a second order stream. The channel has an average OHWM of approximately 6 feet. The drainage is

one of two short tributaries (the other tributary being Drainage W-5.b) that join to form Drainage W-5.

The dominant plant species observed within the majority of the Vernal Marsh habitat that occurs on-site is the perennial rhizomatous herb, spikerush (*Eleocharis macrostachya*, OBL). Other plant species observed within this habitat onsite include species typical of wetland habitats such as perennial ryegrass (*Lolium multiflorum*, FAC), curly dock (*Rumex crispus*, FACW), yellow sweet clover (*Melilotus officinalis*, FAC), and blue-eyed grass (*Sisyrinchium bellum*, FAC), and species typical of upland habitats such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), wild oats (*Avena fatua*, UPL), and bristly ox-tongue (*Picris echoides*, FAC).

This drainage includes Disturbed Habitat, which typically occurs within portions that are currently fallow or used as dirt access roads. Many of these areas exist at the margins of existing developed areas and areas historically and/or routinely disturbed as a result of agricultural activities. Common plant species observed within the Disturbed Habitat include non-native annual grasses such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), and wild oats (*Avena fatua*, UPL), and annual forbs such as filaree (*Erodium cicutarium*, UPL), pineapple weed (*Chamomilla suaveolens*, FACU), wild radish (*Raphanus sativus*, UPL), field mustard (*Brassica rapa*, UPL), bristly ox-tongue (*Picris echoides*, FAC), poison hemlock (*Conium maculatum*, FACW), and fennel (*Foeniculum vulgare*, FACU).

A wetland pit excavated within the drainage (designated as W-5.a, Pit 1; see Attachment D, Photograph 17 and 18 of the drainage) indicates that hydrophytic vegetation, wetland hydrology (indicated by the presence of water marks, sediment and drift deposits and water stained leaves), and hydric soils (10YR3/1 loam) are present. Therefore, according to the USACE three-parameter assessment, wetlands are associated with this drainage.

USACE Jurisdiction

The onsite portion of Drainage W-5.a includes 0.07 acre (524 linear feet) of wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 0.07 acre (524 linear feet) of waters of the State.

CDFG Jurisdiction

Drainage W-5.a is ephemeral and includes a discernible bed and bank, and is therefore considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 0.20 acre.

4.2.10 - Drainage W-5.b

Drainage W-5.b is an RPW that originates in the Irish Hills and flows north beneath Los Osos Valley Road to connect with Warden Creek (RPW) at a location that is approximately 4.5 river miles (3.8 linear miles) east of Morro Bay (TNW). Within the relevant reach of the project, Drainage W-5.b is a first order stream. The channel has an average OHWM of approximately 6 feet, while the bank to bank channel is also approximately 6 feet in width on average. The drainage is one of two short tributaries (the other tributary being Drainage W-5.a) that join to form Drainage W-5.

The dominant plant species observed within the majority of the Vernal Marsh habitat that occurs on-site is the perennial rhizomatous herb, spikerush (*Eleocharis macrostachya*, OBL). Other plant species observed within this habitat onsite include species typical of wetland habitats such as perennial ryegrass (*Lolium multiflorum*, FAC), curly dock (*Rumex crispus*, FACW), yellow sweet clover (*Melilotus officinalis*, FAC), and blue-eyed grass (*Sisyrinchium bellum*, FAC), and species typical of upland habitats such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), wild oats (*Avena fatua*, UPL), and bristly ox-tongue (*Picris echoides*, FAC).

This drainage includes Disturbed Habitat, which typically occurs within portions that are currently fallow or used as dirt access roads. Many of these areas exist at the margins of existing developed areas and areas historically and/or routinely disturbed as a result of agricultural activities. Common plant species observed within the Disturbed Habitat include non-native annual grasses such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), and wild oats (*Avena fatua*, UPL), and annual forbs such as filaree (*Erodium cicutarium*, UPL), pineapple weed (*Chamomilla suaveolens*, FACU), wild radish (*Raphanus sativus*, UPL), field mustard (*Brassica rapa*, UPL), bristly ox-tongue (*Picris echoides*, FAC), poison hemlock (*Conium maculatum*, FACW), and fennel (*Foeniculum vulgare*, FACU).

Although a wetland pit was not excavated within Drainage W-5.b, a field inspection, combined with results from excavating a pit within tributary Drainage W-5.a. (see discussion above), indicates that this drainage also includes wetland waters.

USACE Jurisdiction

The onsite portion of Drainage W-5.b includes 0.10 acre (748 linear feet) of wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 0.10 acre (748 linear feet) of waters of the State.

CDFG Jurisdiction

Drainage W-5.b is ephemeral and includes a discernible bed and bank, and is therefore considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 0.21 acre.

4.2.11 - Los Osos Valley Road Seasonal Wetland

This series of wetlands is located south of, and parallel to, Los Osos Valley Road from a point approximately 400 feet west of Drainage W-4 to the intersection with Drainage W-5.b in the east. This wetlands has an average width of approximately 6 feet, while the bank to bank channel is also approximately 6 feet in width on average.

A wetland pit excavated within this drainage (designated as LOVRSW Pit 2) indicates that hydrophytic vegetation, wetland hydrology (as indicated by the presence of water marks, sediment deposits, drainage patterns, surface water, presence of a water table and saturation), and hydric soils (including a 5YR4/6 redox loam) are present. Therefore, the USACE three parameter assessment confirms the presence of these wetlands.

The dominant plant species observed within the majority of the Vernal Marsh habitat that occurs within these wetlands is the perennial rhizomatous herb, spikerush (*Eleocharis macrostachya*, OBL). Other plant species observed within this habitat onsite include species typical of wetland habitats such as perennial ryegrass (*Lolium multiflorum*, FAC), curly dock (*Rumex crispus*, FACW), yellow sweet clover (*Melilotus officinalis*, FAC), and blue-eyed grass (*Sisyrinchium bellum*, FAC), and species typical of upland habitats such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), wild oats (*Avena fatua*, UPL), and bristly ox-tongue (*Picris echoides*, FAC).

USACE Jurisdiction

The onsite portion of Los Osos Valley Road Seasonal Wetland includes 0.23 acre (1,893 linear feet) of wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 0.23 acre (1,893 linear feet) of waters of the State.

CDFG Jurisdiction

The Los Osos Valley Road Seasonal Wetland is considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 0.23 acre.

4.2.12 - Drainage T-1

Drainage T-1 originates from precipitation that falls on peaks within the Santa Lucia Range and forms various minor ephemeral drainages, all of which travel generally south to converge within the Tonini property. The drainage is an RPW that flows off the Tonini property to the south to join Warden Creek (RPW) as a tributary approximately 4.9 river miles (3.5 linear miles) southeast of Morro Bay (TNW). Within the relevant reach of the project, Drainage T-1 is a second order stream. Cattle walk within, and graze adjacent to, this drainage in the northwestern portion of the Tonini property in a region separated from the rest of the property by a north-south running fence. The drainage has been highly disturbed by cattle grazing activities. The drainage encompasses wetlands throughout its length, with the exception of a few hundred feet located along its lower (southern) portion where it

exits the Tonini property. These wetlands are up to 25 feet in width. The drainage also includes several pools that are up to 70 feet in length and 30 feet in width. The channel has an average OHWM of approximately 15 feet. During the survey in April, many of these pools were filled with standing water. The groundwater table is generally high in this region.

The dominant plant species observed within the majority of the Vernal Marsh habitat that occurs on-site is the perennial rhizomatous herb, spikerush (*Eleocharis macrostachya*, OBL). Other plant species observed within this habitat onsite include species typical of wetland habitats such as perennial ryegrass (*Lolium multiflorum*, FAC), curly dock (*Rumex crispus*, FACW), yellow sweet clover (*Melilotus officinalis*, FAC), and blue-eyed grass (*Sisyrinchium bellum*, FAC), and species typical of upland habitats such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), wild oats (*Avena fatua*, UPL), and bristly ox-tongue (*Picris echoides*, FAC).

Several wetland pits were excavated within, and near, the drainage. One pit (designated as T-1, Pit 1; see Attachment D, Photograph 27) indicates that hydrophytic vegetation, wetland hydrology (indicated by the presence of a high water table and saturation), and hydric soils (10YR4/6 redox) are present. Therefore, according to the USACE three parameter assessment, wetlands are associated with this drainage. Two other pits (designated as T-1, Pit 3 and T-1, Pit 4; see Attachment D, Photograph 29 and 30) confirm this assessment.

USACE Jurisdiction

The onsite portion of Drainage T-1 includes 0.08 acre (566 linear feet) of non-wetland waters of the United States and 1.22 acre (5,733 linear feet) of wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 0.08 acre (566 linear feet) of non-wetland waters of the State and 1.22 acre (5,733 linear feet) of wetland waters of the United States.

CDFG Jurisdiction

Drainage T-1 includes a discernible bed and bank, and is therefore considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 3.31 acre.

4.2.13 - Drainage T-1.a

Drainage T-1.a is a non-RPW that originates near the existing farmhouse on the Tonini property and flows eastward for approximately 0.16 mile before joining Drainage T-1 (RPW). Flows originate from precipitation, nuisance flow from buildings at the Tonini farmhouse, and agricultural runoff. The drainage is incised with vertical banks one to four feet high. The drainage joins Drainage T-1 at a location approximately 5.5 river miles (3.2 vertical miles) from Morro Bay (TNW). Within the relevant reach of the project, Drainage T-1.a is a first order stream. The channel has an average OHWM of approximately 1.5 feet, while the bank to bank channel is approximately 3 feet in width on average.

A wetland pit excavated within the drainage (designated as T-1.a, Pit 1; see Attachment D, Photograph 32) indicates that hydrophytic vegetation, wetland hydrology, and hydric soils (the dominant soil being a 10YR2/2 loam with no redox) are not present. Therefore, according to the USACE three parameter assessment, no wetlands are associated with the drainage.

This drainage includes Disturbed Habitat, which typically occurs within portions that are currently fallow or used as dirt access roads. Many of these areas exist at the margins of existing developed areas and areas historically and/or routinely disturbed as a result of agricultural activities. Common plant species observed within the Disturbed Habitat include non-native annual grasses such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), and wild oats (*Avena fatua*, UPL), and annual forbs such as filaree (*Erodium cicutarium*, UPL), pineapple weed (*Chamomilla suaveolens*, FACU), wild radish (*Raphanus sativus*, UPL), field mustard (*Brassica rapa*, UPL), bristly ox-tongue (*Picris echoides*, FAC), poison hemlock (*Conium maculatum*, FACW), and fennel (*Foeniculum vulgare*, FACU).

Because the drainage is a non-RPW, a significant nexus evaluation is included below to determine whether this feature should be considered jurisdictional by the USACE.

Significant Nexus Evaluation

Hydrological Factors

Los Osos/Baywood Park is located within the Central California Coastal Watershed (identified as United States Geological Survey (USGS) Region 18, Accounting Unit 180600, which has an area of approximately 11,400 square miles). Drainage T-1.a is tributary, via Drainage T-1, to Warden Creek (RPW), which is tributary to Morro Bay (TNW). The drainage conveys stormwater that originates as precipitation and agricultural runoff.

The tributary area to the drainage is approximately 42 acres. The hilly land is used for agriculture or as open space and is largely permeable. An isopluvial map of the region shows that most of the project site is subject to an annual rainfall of approximately 19.0 inches. The Rational Method (Q = CIA, where Q is peak flow, C is coefficient of runoff, I is rainfall intensity, and A is area) is used to calculate approximate peak flow for the 50-year, 6-hour storm event (see Attachment H). The peak flow is approximately 16.60 cubic feet per second (cfs). The relative magnitude of this flow, combined with the presence of an OHWM that is discernible throughout a portion of the drainage, and the proximity of the drainage to an RPW (Warden Creek is less than 1.1 river miles from the confluence of Drainage T-1.a and Drainage T-1), makes it reasonable to assume that flows from the study area will be conveyed 4.8 river miles downstream via Warden Creek to Morro Bay (TNW).

Ecological Factors

Drainage T-1.a serves as an ephemeral conduit through which minerals and organic nutrients from agricultural fields and from farmhouses and barns within the Tonini properties are flushed downstream toward Morro Bay (TNW) via Drainage T-1 and Warden Creek (RPW). The drainage

may also convey pollutants from surrounding land uses within the relevant reach (the land use is predominantly agricultural). These potential pollutants may include pathogens, nitrogen/nitrates/ammonia, total dissolved solids, pesticides, and fertilizers. Warden Creek, into which the tributary discharges via Drainage T-1, is a CWA Section 303(d) listed 'limited water quality segment' that is impaired for fecal coliform and low dissolved oxygen. The contribution of any such pollutants by Drainage T-1.a would have a relatively rapid impact on Warden Creek. The fact that the creek is already impaired by these substances would reduce its capability to attenuate such pollutants before their discharge into Morro Bay, and increase the likelihood and degree of their impact on the quality of bay waters. The discharge of such pollutants into the bay would ultimately influence the ecology of that water body.

A summary of the hydrological and ecological characteristics that may result in discharge from the drainage having a more than speculative or insubstantial effect on the nearest downstream TNW (Morro Bay) are highlighted in Table 9.

Significant Nexus Determination

The factors for determining significant nexus for Drainage T-1.a are provided in the table below.

Table 9: Significant Nexus Determination - Drainage T-1.a

Factors	More than Speculative or Insubstantial Effect
Hydrological Factors	
Volume, duration, and frequency of flow. This includes consideration of certain tributary characteristics, historic records of flow, flood predictions, gauge data, and personal observations (OHWM, shelving, water staining, sediment sorting, and scouring).	Yes
Proximity to the TNW. If a tributary is far from a TNW, the impact on the TNW is more likely to be speculative.	Yes
Contextual hydrological factors. These include (1) size of the watershed, (2) average annual rainfall, and (3) average annual snow pack.	Yes
Presence of tributary or wetland within the flood plain. Note that a significant nexus determination cannot be based solely on the presence of a water body within or outside the flood plain.	Yes
Ecological Factors	
Ability of the tributary and its adjacent wetlands (if any) to carry pollutants and flood waters to a TNW.	Yes

Table 9 (Cont.): Significant Nexus Determination - Drainage T-1.a

Factors	More than Speculative or Insubstantial Effect
Ability of the tributary and its adjacent wetlands (if any) to provide aquatic habitat that supports biota of a TNW.	Yes
Ability of adjacent wetlands to trap and filter pollutants or store flood water.	Yes
Ability to maintain water quality.	No
Source: Michael Brandman Associates, 2008.	

Based on the factors discussed above, it is reasonable to assume the flows within Drainage T-1.a may be capable of at least partially flushing sediment, organic compounds, and / or nutrients downstream to Morro Bay (TNW). Though diluted and reduced in quantity from the project site where they originate, such substances could have a more than insubstantial or speculative effect on the chemical, physical, and biological integrity of a TNW. Therefore, a significant nexus can be established between Drainage T-1.a and the nearest TNW, and therefore Drainage T-1.a should be considered jurisdictional by the USACE.

The USACE and EPA, however, will make a final significant nexus determination.

USACE Jurisdiction

The onsite portion of Drainage T-1.a includes 0.003 acre (80 linear feet) of non-wetland and no wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 0.003 acre (80 linear feet) of waters of the State.

CDFG Jurisdiction

Drainage T-1.a includes a discernible bed and bank, and is therefore considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 0.05 acre.

4.2.14 - Drainage T-1.b

Drainage T-1.b is a non-RPW that originates in fields northeast of Turri Road and which, after crossing below Turri Road through a 5 foot diameter culvert, flows for approximately 0.22 miles to the southwest before joining Drainage T-1 (RPW). The drainage joins Drainage T-1 at a location approximately 5.3 river miles (3.4 vertical miles) from Morro Bay (TNW). Within the relevant reach of the project, drainage T-1.b is a first order stream. Flows originate from precipitation and agricultural runoff. The channel has an average OHWM of approximately 3 feet, while the bank to bank channel is also approximately 3 feet in width on average. No wetland waters are associated with this drainage. The drainage is indented with hoof marks and is polluted with pathogens from grazing cattle. The drainage has a rocky bottom and is incised 6 feet deep at locations.

This drainage includes Disturbed Habitat, which typically occurs within portions that are currently fallow or used as dirt access roads. Many of these areas exist at the margins of existing developed areas and areas historically and/or routinely disturbed as a result of agricultural activities. Common plant species observed within the Disturbed Habitat include non-native annual grasses such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), and wild oats (*Avena fatua*, UPL), and annual forbs such as filaree (*Erodium cicutarium*, UPL), pineapple weed (*Chamomilla suaveolens*, FACU), wild radish (*Raphanus sativus*, UPL), field mustard (*Brassica rapa*, UPL), bristly ox-tongue (*Picris echoides*, FAC), poison hemlock (*Conium maculatum*, FACW), and fennel (*Foeniculum vulgare*, FACU).

Because the drainage is a non-RPW, a significant nexus evaluation is included below to determine whether this feature should be considered jurisdictional by the USACE.

Significant Nexus Evaluation

Hydrological Factors

Los Osos/Baywood Park is located within the Central California Coastal Watershed (identified as United States Geological Survey (USGS) Region 18, Accounting Unit 180600, which has an area of approximately 11,400 square miles). Drainage T-1.b.a is tributary, via Drainage T-1, to Warden Creek (RPW), which is tributary to Morro Bay (TNW). The drainage conveys stormwater that originates as precipitation and agricultural runoff.

The tributary area to the drainage is approximately 37 acres. The hilly land is used for agriculture or is open space and is largely permeable. An isopluvial map of the region shows that most of the project site is subject to an annual rainfall of approximately 19.0 inches. The Rational Method (Q = CIA, where Q is peak flow, C is coefficient of runoff, I is rainfall intensity, and A is area) is used to calculate approximate peak flow for the 50-year, 6-hour storm event (see Attachment H). The peak flow is approximately 13.80 cubic feet per second (cfs). The relative magnitude of this flow, combined with the presence of an OHWM that is discernible throughout a portion of the drainage, and the proximity of the drainage to an RPW (Warden Creek is less than 0.9 river mile from the confluence of Drainage T-1.b and Drainage T-1), makes it reasonable to assume that flow from the study area will be conveyed 5.1 river miles downstream via Warden Creek to Morro Bay (TNW).

Ecological Factors

Drainage T-1.b serves as an ephemeral conduit through which minerals and organic nutrients from agricultural fields and from farmhouses and barns within the Tonini properties are flushed downstream toward Morro Bay (TNW) via Drainage T-1 and Warden Creek (RPW). The drainage may also convey pollutants/nutrients from surrounding land uses within the relevant reach (the land use is predominantly agricultural, but includes the use of tractors and vehicles that park at the farmhouse). These potential pollutants may include pathogens, nitrogen/nitrates/ammonia, total dissolved solids, pesticides, and fertilizers. Warden Creek, into which the tributary discharges via Drainage T-1, is a CWA Section 303(d) listed ‘limited water quality segment’ that is impaired for

fecal coliform and low dissolved oxygen. The contribution of any such pollutants by Drainage T-1.b would have an immediate impact on Warden Creek. The fact that the creek is already impaired by these substances would reduce its capability to attenuate such pollutants before their discharge into Morro Bay, and increase the likelihood and degree of their impact on the quality of bay waters. The discharge of such pollutants into the bay would ultimately influence the ecology of that water body.

A summary of the hydrological and ecological characteristics that may result in discharge from the drainage having a more than speculative or insubstantial effect on the nearest downstream TNW (Morro Bay) are highlighted in Table 10.

Table 10: Significant Nexus Determination - Drainage T-1.b

Factors	More than Speculative or Insubstantial Effect
Hydrological Factors	
Volume, duration, and frequency of flow. This includes consideration of certain tributary characteristics, historic records of flow, flood predictions, gauge data, and personal observations (OHWM, shelving, water staining, sediment sorting, and scouring).	Yes
Proximity to the TNW. If a tributary is far from a TNW, the impact on the TNW is more likely to be speculative.	No
Contextual hydrological factors. These include (1) size of the watershed, (2) average annual rainfall, and (3) average annual snow pack.	Yes
Presence of tributary or wetland within the flood plain. A significant nexus determination cannot be based solely on the presence of a water body within or outside the flood plain.	Yes
Ecological Factors	
Ability of the tributary and its adjacent wetlands (if any) to carry pollutants and flood waters to a TNW.	Yes
Ability of the tributary and its adjacent wetlands (if any) to provide aquatic habitat that supports biota of a TNW.	Yes
Ability of adjacent wetlands to trap and filter pollutants or store flood water.	Yes
Ability to maintain water quality.	No
Source: Michael Brandman Associates, 2008.	

Based on the factors discussed above, it is reasonable to assume the flows within Drainage T-1.b may be capable of at least partially flushing sediment, organic compounds, and / or nutrients downstream to Morro Bay (TNW). Though diluted and reduced in quantity from the project site where they originate, such substances could have a more than insubstantial or speculative effect on the chemical, physical, and biological integrity of a TNW. Therefore, a significant nexus can be established

between Drainage T-1.b and the nearest TNW, and therefore Drainage T-1.a should be considered jurisdictional by the USACE.

The USACE and EPA, however, will make a final significant nexus determination.

USACE Jurisdiction

The onsite portion of Drainage T-1.b includes 0.06 acre (1,198 linear feet) of non-wetland and no-wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 0.06 acre (1,198 linear feet) of waters of the State.

CDFG Jurisdiction

Drainage T-1.b includes a discernible bed and bank, and is therefore considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 0.48 acre.

4.2.15 - Drainage T-2

Drainage T-2 is a tributary drainage to Drainage T-1 within the Tonini property that includes one wetland (located at the upstream crossing with Turri Road). The drainage is an RPW that flows south of the Tonini property to join Warden Creek (RPW) as a tributary at a location approximately 4.9 river miles (3.5 linear miles) from Morro Bay (TNW). Within the relevant reach of the project, Drainage T-2 is a second order stream. The drainage flows through a gully approximately 25 feet deep in locations. The base is primarily lined with rocks and gravel. The channel has an average OHWM of approximately 12.5 feet,

The dominant plant species observed within the majority of the Vernal Marsh habitat that occurs on-site is the perennial rhizomatous herb, spikerush (*Eleocharis macrostachya*, OBL). Other plant species observed within this habitat onsite include species typical of wetland habitats such as perennial ryegrass (*Lolium multiflorum*, FAC), curly dock (*Rumex crispus*, FACW), yellow sweet clover (*Melilotus officinalis*, FAC), and blue-eyed grass (*Sisyrinchium bellum*, FAC), and species typical of upland habitats such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), wild oats (*Avena fatua*, UPL), and bristly ox-tongue (*Picris echoides*, FAC).

This drainage also includes Disturbed Habitat, which typically occurs within portions that are currently fallow or used as dirt access roads. Many of these areas exist at the margins of existing developed areas and areas historically and/or routinely disturbed as a result of agricultural activities. Common plant species observed within the Disturbed Habitat include non-native annual grasses such as ripgut brome (*Bromus diandrus*, UPL), soft chess (*Bromus hordeaceous*, UPL), and wild oats (*Avena fatua*, UPL), and annual forbs such as filaree (*Erodium cicutarium*, UPL), pineapple weed (*Chamomilla suaveolens*, FACU), wild radish (*Raphanus sativus*, UPL), field mustard (*Brassica*

rapa, UPL), bristly ox-tongue (*Picris echoides*, FAC), poison hemlock (*Conium maculatum*, FACW), and fennel (*Foeniculum vulgare*, FACU).

The drainage also includes Central Coast Arroyo Willow Riparian Forest habitat at isolated stands located near the Turri Road culvert. The dominant species observed onsite includes arroyo willow (*Salix lasiolepis*, FACW) within the tree stratum, mulefat (*Baccharis salicifolia*, FACW) and coyote bush (FAC) within the shrub stratum, and poison hemlock (FACW), curly dock (FACW), and fennel (FACU) within the herbaceous stratum.

A wetland pit excavated within this drainage (designated as T-2, Pit 1; see Attachment D, Photograph 33) indicates that hydrophytic vegetation, wetland hydrology (indicated by the presence of a high water table, saturation, drift deposits, and drainage patters), and hydric soils (10YR4/6 loam redox) are present at the northernmost extent of the drainage within the property site (adjacent to Turri Road). Therefore, according to the USACE three parameter assessment, wetlands are associated with this drainage.

USACE Jurisdiction

The onsite portion of Drainage T-2 includes 0.10 acre (1,480 linear feet) of non-wetland waters of the United States and 0.08 acre (212 linear feet) of wetland waters of the United States.

RWQCB Jurisdiction

RWQCB jurisdiction totals 0.10 acre (1,480 linear feet) of non-wetland waters of the State and 0.08 acre (212 linear feet) of wetland waters of the State.

CDFG Jurisdiction

Drainage W-2 includes a discernible bed and bank, and is therefore considered jurisdictional according to the CDFG. Total CDFG jurisdiction equals 1.12 acre.

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Attachment A: Regulatory Compliance

REGULATORY COMPLIANCE

Regulatory permitting for dredge and fill activities involves a compliance framework requiring interaction with federal, state and local agencies, often involving a diverse number of statutes and regulations.

Federal Statutes and Regulations - USACE

Clean Water Act Section 404

Pursuant to Section 404 of the Clean Water Act, the USACE regulates the discharge of dredged or fill material into waters of the U.S. Regulated activities include but are not limited to, grading, placing of riprap for erosion control, pouring concrete, laying sod, and stockpiling excavated material. In general, any activity, which proposes to carry out an activity, which will temporarily or permanently affect areas delineated as waters of the US, including wetlands, typically requires prior authorization from the USACE, pursuant to Section 404 of the Clean Water Act (CWA). Successful applications will put forth projects with a valid purpose, which generally comply with the avoidance, minimization and mitigation ("no net loss") goals of the USACE.

Nationwide Permits v. Individual Permits

Nationwide permits (NWPs) are a type of general permit issued by the Chief of Engineers and are designed to expedite the regulatory process for those types of projects/activities expected to have minimal impacts on jurisdictional areas.

The nationwide permitting program is reauthorized every five years. The current NWP program became effective on March 19, 2007 and includes 49 different nationwide permit categories including "*Linear Transportation Projects*" (NWP 14), "*Residential Developments*" (NWP 29), "*Commercial and Institutional Developments*" (NWP 39) and "*Stormwater Management Facilities*" (NWP 43) among others. Each NWP establishes thresholds, which trigger the need for submitting a pre-construction notification (PCN) to the Corps and which set upper limits to accepted impacts based on the total acreage and/or linear feet of impacts, which result from project. Exceeding these limits will require processing an Individual Permit (IP), which may involve a significantly longer processing time.

Federal Jurisdiction over Waters and Wetlands

The USACE will assert jurisdiction over waters that are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. The definition of "Waters of the U.S.," are set forth in the Code of Federal Regulations (CFR) 328.3. The term "waters of the United States" means:

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters including interstate wetlands;

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes;

(ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; and

(iii) Which are used or could be used for industrial purpose by industries in interstate commerce.

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;

(5) Tributaries of waters identified in paragraphs (a) (1)-(4) of this section;

(6) The territorial seas;

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1)-(6) of this section. (Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States), and

(8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA.

Subsequent to the U.S. Supreme Court decision in *Rapanos, et al v. United States* (2006) the Environmental Protection Agency (EPA) and the USACE (the agencies) issued a joint memorandum (*Clean Water Act Jurisdiction Following Rapanos v. United States*, (June 5, 2007)), which integrates the *Rapanos* standards with the process presented in 33 CFR 328.3(a).

Pursuant to the memorandum, federal jurisdiction will be asserted over the following categories of water bodies:

- (TNWs): TNW, including territorial seas;
- Wetlands adjacent to TNWs;
- (RPWS): Non- navigable tributaries of TNWs with relatively permanent water flow that are flow directly or indirectly to TNWs. "Relatively permanent" means water flowing for at least three months of the year. (Usually, perennial streams and some intermittent streams); and
- Wetlands directly abutting RPWs that flow directly or indirectly into TNWs.

In addition, the agencies will assert jurisdiction over the following categories of water bodies only if, based on fact-specific analysis, the water body is determined to have a significant nexus with a TNW:

- (Non-RPWs): Non-navigable tributaries that do not have relatively permanent water flow that flow directly or indirectly into TNWs (Usually ephemeral and some intermittent streams);
- Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs; and
- Wetlands adjacent to, but not directly abutting RPWs that flow directly or indirectly into TNWs.

"A significant nexus exists if the tributary, in combination with all of its adjacent wetlands has more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a TNW."

The agencies will not assert jurisdiction over the following geomorphic features:

- "Swales or erosional features (e.g., gullies small washes characterized by low volume, infrequent or short duration flows)," and
- "Ditches (including roadsides ditches) excavated wholly in and draining only uplands that do not carry relatively permanent water flows."

The agencies now require that all determinations for non-navigable waters, isolated-waters and/or wetlands be evaluated by the USACE and EPA before making a final jurisdictional determination.

In the absence of wetlands the lateral extent of federal jurisdiction over non-tidal waters of the U.S. is defined by the ordinary high water mark (OHWM). The OHWM is defined in 33 CFR 328.3, as "*that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas*."

In June 2001, the USACE South *Pacific* Division issued *Guidelines for Jurisdictional Delineations for Waters of the United States in the Arid Southwest*. The purpose of this document was to aid delineators in assessing the physical characteristics of dry land drainage systems in the Arid West. With respect to jurisdictional determinations, the factors for determining waters of the U.S include *evaluating* the flow regime geomorphic feature, and general indicators of flow. These methods are consistent with the criteria set forth in 328.3(a) and 328.3(e), but are also subject to guidance set forth in the *Rapanos* guidance, including "significant nexus determinations," as appropriate.

Subject to *Rapanos* limitations, Federal Jurisdiction will extend to "adjacent" wetlands. "Adjacent" means "bordering *contiguous* or neighboring." According to the USACE Wetlands Delineation Manual, Technical Report, (1987) three criteria must be satisfied to classify an area as a jurisdictional wetland:

1. A predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation);
2. Soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and
3. Permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology).

The USACE has established regional guidance to address specific regional variations in wetlands determinations. These regional guidance documents supplement the 1987 manual. The Interim Regional *Supplement* for the Arid West was published in December 2006. Similarly Draft guidance for Western Mountains, Valleys and Coast Regions" was published in April, 2007. In performing its delineations, MBA applies these supplemental guidance as appropriate.

Resulting from the 2001 US Supreme Court in *Solid Waste Agency of North Cook County v. USACE* (SWANCC) case, federal jurisdiction will not reach wholly intra-state wetlands, which are not "adjacent" to a *jurisdictional* stream course. Similarly, as previously established, the *Rapanos* decision may further limit jurisdiction, on a case-specific basis, where a significant nexus determination is required.

Primary General Conditions (GC) of 404 Permits

GC # 4: Compliance with the Migratory Bird Treaty Act

The MBTA protects all common wild birds found in the US except the house sparrow, starling, feral pigeon, and resident game birds such as pheasant, grouse, quail, and wild turkey. Resident game birds are managed separately by each state. The MBTA makes it unlawful for anyone to kill, capture, collect, possess, buy, sell, trade, ship, import, or export any migratory bird including feathers, parts, nests, or eggs.

The primary responsibility for complying with the Migratory Bird Treaty Act (MBTA) is that of the project proponent (permittee) and is independent of Department of the Army permitting processes (404). It should be noted, however, that the nationwide permitting program (General Condition 4) does require that breeding areas for migratory birds in waters of the United States must be avoided to the maximum extent practicable.

GC # 17: Compliance with Federal Endangered Species Act

In administering the Section 404 permitting program, the USACE is required to abide by Section 7(a)(2) of the Federal Endangered Species Act (ESA), which requires federal agencies to consult with the United States Fish and Wildlife Service (USFWS) "to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat." As a result, the presence of federally listed species must be determined prior to submittal of the Section 404 application. In the nationwide permitting program compliance with the ESA is set forth in general condition (GC 17)

The USFWS administers the Federal Endangered Species Act. The ESA provides a process for listing species as either threatened or endangered, and methods of protecting listed species. The ESA defines as "endangered" any plant or animal species that is in danger of extinction throughout all or a significant portion of its known geographic range. A "threatened" species is a species that is likely to become endangered. A "proposed" species is one that has been officially proposed by the USFWS for addition to the federal threatened and endangered species list.

Section 9 of the ESA prohibits "take" of threatened or endangered species. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. Take can include disturbance to habitats used by a threatened or endangered species during any portion of its life history. The presence of any federally threatened or endangered species in a project area generally imposes severe constraints on development, particularly if development would result in take of the species or its habitat. Under the regulations of the ESA, the USFWS may authorize take when it is incidental to, but not the purpose of, an otherwise lawful act.

GC # 18: Compliance with National Historic Preservation Act

In processing a Section 404 permit, the USACE is required to comply with section 106 of the National Historic Preservation Act (NHPA). Section 106 consultation is triggered when historic or archaeological sites are potentially affected by the proposed project. In the nationwide permitting program compliance with the NHPA is set forth in general condition (GC 18). The USACE will initiate section 106 consultation with the appropriate state agency (SHPO in California) with federal oversite (ACHP). The process usually requires one month from the date the USACE triggers consultation with the state agency.

GC # 21: Compliance with Section 401 of the Clean Water Act

In connection with notification to the USACE under Section 404 of the Clean Water Act (CWA), pursuant to 33 CFR Part 330, a written request for Section 401 water quality certification must be submitted to the RWQCB to ensure that no degradation of water quality will result from the proposed project. Subject to CWA section 401(a)(1), the Army Corps of Engineers cannot issue a section 404 dredge/fill permit until such time as a CWA section 401 Water Quality Certification (WQC) has been approved by the applicable RWQCB. In the nationwide permitting program compliance with the Section 401 is set forth in general condition (GC 21).

In order to meet the requirements of the RWQCB for issuance of a 401-water quality certification, the project proponent must provide assurances that the project will not adversely affect the water quality of receiving water bodies. A written request for 401 water quality certification must be prepared and submitted to the RWQCB for review. The request will include a detailed project description, a description of *proposed* impacts, identification and discussion of beneficial uses of affected receiving waters (as described within the appropriate Basin Plan), a water quality plan identifying project-specific Best Management practices (BMPs), discussion of other approvals and certifications being obtained, a conceptual restoration plan, and a completed notification form.

CEQA Compliance: Pursuant to Title 23, Section 3856(f) of the California Code of Regulations (CCR), the *Regional* Water Quality Control Board (RWQCB) may not issue a Clean Water Act (Section 401) Water Quality Certification (WQC) for a project before being provided with (and having had ample time to review) a copy of the final CEQA documentation prepared for the project. Upon formal request for certification, water quality certification should be forthcoming within 90-120 days of completion of the CEQA process.

Fee Structure: Subject to California Code of Regulations (CCR), Title 23, §3833, a section 401 application must be accompanied by an initial deposit of not less than $500.00. If the initial deposit does not cover the agency's application review costs, the RWQCB may require an additional (one-time) amount using the calculus set forth in section 2200(e), Title 23, of the California Code of Regulations.

GC # 22: Compliance with the Coastal Zone Management Act

In administering the Section 404 permitting program, the USACE is required to abide by Section 307(c)(1) of the Coastal Zone Management Act (CZMA). This requirement is set forth in General Condition No. 22 of *the* NWP (2007) program and detailed in 33 CFR 330.4(d). This condition requires the USACE to provide a consistency determination and receive state agreement prior to the authorization of activities affecting land, water, or natural resources within the coastal zone.

The California "Coastal zone" means that land and water area within the State extending seaward to the state's outer limit of jurisdiction, including all offshore islands, and extending inland generally 1,000 yards from the mean high tide line of the sea. In significant coastal estuarine, habitat, and

recreational areas it *extends* inland to the first major ridgeline paralleling the sea or five miles from the mean high tide line of the sea, whichever is less, and in developed urban areas the zone generally extends inland less than 1,000 yards. The coastal zone does not include the area of jurisdiction of the San Francisco Bay Conservation and Development Commission, established pursuant to Title 7.2 (commencing with Section 66600) of the Government Code, nor any area contiguous thereto, *including* any river, stream, tributary, creek, or flood control or drainage channel flowing into such area.

State Statues and Regulations - RWQCB

The State of California has concurrent jurisdiction with the Federal government over §401 Water Quality Certification over jurisdictional waters and wetlands of the United States. Where isolated waters and wetlands (not subject to federal jurisdiction) are involved, the State will exert independent jurisdiction via the Porter Cologne Water Quality Act.

Porter-Cologne Water Quality Act

Section 13260(a) of the California Water Code ("Water Code," or "Porter Cologne") requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, which could affect the quality of the waters of the State, file a report of waste discharge (ROWD). The discharge of dredged or fill material may constitute a discharge of waste that could affect the quality of waters of the State (Defined in Water Code §13050(e)).

Typically, the State of California relies upon its authority under section 401 of the Federal Clean Water Act (CWA (33 U.S.C. §1341) to regulate discharges of dredged or fill material to California waters that are also within the jurisdiction of the United States Army Corps of Engineers (USACE). Given the water quality certification (WQC) process employed under section 401, waste discharge requirements under Porter Cologne are typically waived for those projects requiring a water quality certification. In 2001 the U.S. Supreme decision in *Sold Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001) (*SWANCC*) invalidated the Army Corp's use of the "Migratory Bird Rule" to establish federal jurisdiction over isolated waters. Since 2001, the State of California has reasserted its authority under state law to assert jurisdiction over isolated waters for water quality purposes by requiring a ROWD.

Regulation of Isolated Waters

Dredging, filling, or excavation of "isolated" waters constitutes a discharge of waste to waters of the State, and prospective dischargers are required to submit a report of waste discharge to the RWQCB and comply with other requirements of the State Porter Cologne Water Quality Act (Water Code).

Scope of Regulation

With respect to isolated waters, discharges and/or dredging of wetlands, active channels or beds of waterbodies are regulated. Discharges to riparian or areas in proximity to a waterbody are regulated

when such activity will directly or indirectly result a change to water quality. Such changes may include discharge of stormwater pollutants and runoff; change in the nature of vegetation that could affect water quality (e.g., affecting pollutant removal, stream shading or bank stability); or change to the hydrological or geomorphic characteristics of the waterbody.

Application of Regulation

Whenever the USACE issues a jurisdictional disclaimer (concurs with a finding of no federal jurisdiction), the respective RWQCB is notified of the disclaimer. Typically, the RWQCB will issue a letter notifying the project proponent that a ROWD must be filed. A ROWD must be submitted in one of two forms, depending on the anticipated impacts.

(1) General Waste Discharge Requirement (GWDR): The GWDR program is substantively set forth in SWRCB Water Quality Order No. 2004-0004-DWQ. GWDRs are generally prescribed for a category of discharges (either temporary or permanent) involving earth, rock, or similar solid materials if the discharge will not be greater than 0.2 acres and 400 linear feet (for fill or excavation) or 50 cubic yards (for dredging). The type of projects that may be covered under these General WDRs include land development, detention basins, disposal of dredged material, bank stabilization, revetment, channelization, and other similar projects. GWDRs do not apply to discharges that adversely impact, either directly or through habitat modification, any plants or animals identified as candidate, sensitive, or special status species in local or regional plans, or by the CDFG (including NCCPs), or USFWS (including HCPs). Similarly, GWDRs do not apply to discharges impacting significant historical, archaeological or paleontological resources.

Requirements

The GWDR typically requires submittal of the following items: (1) A Notice of Intent (NOI), (2) Any CEQA documents that have been prepared for the project, (3) A fee pursuant to Title 23, section 2200 of the CCR, (4) A Mitigation Plan demonstrating that the discharger will sequentially avoid, minimize, and compensate for the adverse impacts to the affected water bodies, and beneficial uses (as set forth in the applicable Basin Plan), and (5) Any other relevant information requested by the SWRCB or RWQCB. A copy of the application must be submitted to both the applicable RWQCB and to the SWANC-ROWD, Water Quality Certification Unit in Sacramento.

Timing

Pursuant to the requirements of the California Permit Streamlining Act, RWQCB has 30 days to deem the application complete. Upon receipt of a complete submittal, the RWQCB has 45 days in which to issue a Notice of Applicability (NOA) (authorizing the activity) or a Notice of Exclusion (NOE) (denying authorization. The discharge activity is operationally authorized if no NOE is issued within the 45-day evaluation period, provided that the proposed activity is not a prohibited activity.

(2) Individual Waste Discharge Requirements (IWDR): Projects not qualifying for the GWDRs will need to satisfy individual waste discharge requirements, typically requiring submittal of 401 Water

Quality Certification forms and supporting documentation as set forth by the respective RWQCB. Such submittals are subject to fees as set forth in California Code of Regulations Title 23 Section 2200(a)(2). Pursuant to the Water Code the project proponent is required to file with the appropriate Regional Water Quality Control Board (RWQCB) a Report of Waste Discharge describing the proposed discharge at least 140 days before it occurs (Water Code §§13260, 13264).

State Statutes and Regulations - CDFG

Section 1600/1602 of the California Fish and Game Code

In the public interest of protection and conservation of fish and wildlife resources of the state (§1600), Fish and Game Code Section 1602 requires any person, state or local governmental agency, or public utility to notify the CDFG before beginning any activity that will do one or more of the following: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. CDFG's jurisdiction includes ephemeral, intermittent, and perennial watercourses, including dry washes, characterized by:

1 The presence of hydrophytic vegetation.
2. The location of definable bed and banks.
3. The presence of existing fish or wildlife resources.

Furthermore, CDFG jurisdiction is often extended to habitats adjacent to watercourses, such as oak woodlands in canyon bottoms or willow woodlands that function as part of the riparian system. Historic court cases have further extended CDFG jurisdiction to include watercourses that seemingly disappear, but re-emerge elsewhere. Under the CDFG definition, a watercourse need not exhibit evidence of an OHWM to be claimed as jurisdictional. However, CDFG does not regulate isolated wetlands; that is, those that are not associated with a river, stream, or lake.

CDFG Regulated Activities

The CDFG regulates activities that involve diversions, obstruction, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife resources. When a project requires such activities, a Section 1602 Streambed Alteration Notification will be prepared and submitted to the CDFG for review. The request will include a detailed project description, a description of proposed impacts, a conceptual mitigation plan, and completed notification forms. Typically, CDFG will be able to complete the agreement within 60-90 days of the completion of the CEQA process.

CEQA Compliance: It should be noted that CDFG must also comply with the California Environmental Quality Act (CEQA) (Pub. Resources Code, §21000, et seq.) before it may issue a final Lake or Streambed Alteration Agreement. Issuance of a final Lake or Streambed Alteration

Agreement occurs after the Department receives a draft Lake or Streambed Alteration Agreement from the applicant and the Department signs it. In many instances, the Department will receive a signed draft Lake or Streambed Alteration Agreement from an applicant before the lead agency has fully complied with CEQA. In those instances, the Department must wait for the lead agency to fully comply with CEQA before it may sign the draft Lake or Streambed Alteration Agreement, thereby making it final.

Fee Structure: Pursuant to California Code of Regulations (CCR), Title 14 §699.3, CDFG assesses a fee to cover the cost of reviewing §1602 applications. The fee calculus is based on the sum cost of the proposed activities within the streambed or riparian community.

Sensitive Plant and Wildlife Species

Sensitive species are native species that have been accorded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels.

California Endangered Species Act

The CDFG administers the California Endangered Species Act (CESA). The State of California considers an "endangered" species one whose prospects of survival and reproduction are in immediate jeopardy. A "threatened" species is one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management. A "rare" species is one present in such small numbers throughout its portion of its known geographic range that it may become endangered if its present environment worsens. The rare species designation applies to California native plants. State threatened and endangered species are fully protected against take, as defined above. The term "species of special concern" is an informal designation used by CDFG for some declining wildlife species that are not state candidates for listing. This designation does not provide legal protection under CESA, but signifies that these species are recognized as sensitive by CDFG.

California Native Plant Society

The CNPS is a California resource conservation organization that has developed and inventory of California's sensitive plant species (Tibor 2001). This inventory summarizes information on the distribution, rarity, and endangerment of California's vascular plants. The inventory is divided into four lists based on the rarity of the species. In addition, the CNPS provides an inventory of plant communities that are considered sensitive by the state and federal resource agencies, academic institutions, and various conservation groups. Determination of the level of sensitivity is based on the number and size of remaining occurrences as well as recognized threats.

Section 3503 and 3511 of the California Fish and Game Code

The CDFG administers the California Fish and Game Code. Code 3503 makes it illegal to destroy any birds' nest or any birds' eggs that are protected under the MBTA. Code 3503.5 further protects all birds in the orders *Falconiformes* and *Strigiformes* (birds of prey, such as hawks and owls) and their eggs and nests from any form of take. Section 3511 of the Code lists fully protected bird species, where the CDFG is unable to authorize the issuance of permits or licenses to take these species.

California Coastal Commission

The mission of the California Coastal Commission is to protect, conserve, restore, and enhance environmental and human-based resources of the California coast and ocean for environmentally sustainable and prudent use by current and future generations. The Commission, in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone. Development activities, broadly defined by the California Coastal Act of 1976 to include, among others, construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a coastal permit from either the Coastal Commission or the local government.

The community of Los Osos utilizes the San Luis Obispo County Local Coastal Program (LCP) as a planning tool to guide development in the coastal zone, in partnership with the California Coastal Commission. The LCP contains the ground rules for future development and the protection of coastal resources. The elements of the General Plan include the LCP, which applies to those areas within the Coastal Zone. For the purposes of preparing the LCP, the County is divided into four segments. Los Osos is located within the region covered by the Estero Area Plan.

A section that is particularly relevant to the implementation of this project is Section 30603 of the Act, which stipulates that the Coastal Commission retains appeal authority after certification of the Local Coastal Plan for any development by the county within 100 feet of any stream.

Another section that is particularly relevant to this project is in Chapter 8 (Public Works), that states in Section 30412 (c) that "Any development within the coastal zone…that constitutes a treatment work shall be reviewed by the Commission…"

Attachment B: Jurisdictional Wetlands and Significant Nexus Determination

CRITERIA FOR WETLAND DETERMINATIONS

USACE

As defined in 33 CFR part 328.3(a)(7) and as established by current case law, the USACE will currently assert jurisdiction over wetlands adjacent to waters of the U.S., except for those wetlands adjacent to other wetlands.

The term "wetlands" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence or vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR part 328.3(b)).

Typically, the term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are also adjacent (33 CFR part 328.3(c)). Similarly, the wetland must be adjacent to either a navigable in-fact water way or tributary thereof. Where "adjacency" cannot be established, the wetlands will be determined to be an "isolated" non-jurisdictional feature unless an independent nexus to interstate or foreign commerce can be established as per 33 CFR part 328.3(a)(3). (Also see SWANCC v. US, 2001).

Based on the standards established in *Rapanos v. U.S.*, the USACE will not assert jurisdiction over wetlands where: (1) the wetlands are adjacent to non-navigable tributaries that lack relatively permanent flows, or (2) wetlands are adjacent to but not abutting non-navigable tributaries with relatively permanent water, unless in both cases the relevant portion (reach) of the drainage, together with all of its wetlands, have a significant nexus to a TNW.

According to the USACE *Wetlands Delineation Manual, Technical Report* (1987), three criteria must be satisfied to classify an area as a jurisdictional wetland:

1. **Hydrophytic Vegetation:** A predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation);
2. **Hydric Soils:** Soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils), and
3. **Wetland Hydrology:** Permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology).

The USACE has established regional guidance to address specific regional variations in wetlands determinations. These regional guidance documents supplement the 1987 manual The Interim Regional Supplement for the Arid West, that was published in December 2006. Similarly, Draft

guidance for Western Mountains, Valleys and Coast Regions" was published in April 2007. In performing its delineations, MBA applies these supplemental guidance as appropriate.

As established in both the USACE 87 Manual and the "Arid West" regional guidance, the following criteria apply.

Hydrophytic Vegetation

Hydrophytic vegetation is defined as plant life growing in water, soil, or substrate that is at least periodically deficient in oxygen because of excessive water content. The USFWS has published the "National List of Vascular Plant Species That Occur in Wetlands," (1996 National Summary, hereafter NLVPS) and divided plants into 5 groups based on their "wetland indicator status:"

1. Obligate wetland plants (OBL) that occur almost always in wetlands under natural conditions;
2. Facultative wetland plants (FACW) that usually occur in wetlands but occasionally are found in upland areas;
3. Facultative plants (FAC) that are equally likely to occur in wetlands as well as upland;
4. Facultative upland plants (FACU) that usually occur in upland areas but occasionally are found in wetlands; and
5. Upland plants (UPL) that occur almost always in upland areas under natural conditions.

Plus (+) and minus (-) values, used in identifying indicator status in the NLVPS are not applied when evaluating plants in the arid west region. In the arid west, an area is deemed to have hydrophytic vegetation when either it: (1) passes the dominance test; (2) has a prevalence index ≤ 3; (3) morphological adaptations are present; or (4) the area is a "problem area." (See, "Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region," December 2006.)

Dominance Test

An area has hydrophytic vegetation when, under normal circumstances, more than 50 percent of the composition of dominant plant species (using the 50/20 rule) from all strata are obligate wetland (OBL), facultative wetland (FACW) and/or facultative species (FAC). If the plant community passes the dominance test, then the vegetation is hydrophytic and no further vegetation analysis is required. If the plant community fails the dominance test, and indicators of hydric soil and/or wetland are absent then hydrophytic vegetation is absent unless the site meets requirements for a problematic wetland situation.

Prevalence Test

In areas failing the dominance test yet having indicators of hydric soil and wetland hydrology, the vegetation must be re-evaluated using the "prevalence index" (PI). The prevalence index takes into account all plant species in the community, not just a few dominants. The index is a weighted-average wetland indicator status of all plant species in the sampling plot, where each indicator status category is a given a numeric code (OBL =1, FACW =2, FAC = 3, FACU = 4, and UPL = 5) and weighting is by abundance (percent cover). The sum of the weighted indicator values are then divided by the sum of the percent cover values for each indicator type. Where the PI value is ≤3, the area is considered positive for hydrophytic vegetation. Generally, the index is a more comprehensive analysis of the hydrophytic status of the community than one based on just a few dominant species. The index is particularly useful: (1) in communities only one or two dominants; (2) in highly diverse communities where many species may be present at roughly equal coverage; and (3) when strata differ greatly in total plant cover. The prevalence index is used on sites where indicators of hydric soil and wetland hydrology are present but the vegetation initially fails the dominance test.

Morphological Adaptations

In areas failing both the dominance test and prevalence test, yet having indicators of hydric soil and wetland hydrology, hydrophytic vegetation will still be deemed present when the morphological adaptations are present. In the arid west the most common morphological adaptations are adventitious roots and shallow root systems developed on or near the soil surface on FACU species. If more than 50 percent of the FACU species have morphological adaptations, then these species are classified as FAC species and the dominance test and/or prevalence index are recalculated. The vegetation is hydrophytic if either test is positive.

Hydric Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. "Long enough" generally means 1 week during the growing season and soils that are saturated for this period usually support hydrophytic vegetation. The criteria for establishing the presence of hydric soils vary among different types of soils and between normal circumstances, disturbed areas, and problem areas. Due to their wetness during the growing season, hydric soils usually develop certain morphological properties that can be readily observed in the field. Prolonged anaerobic soil conditions typically lower the soil redox potential, causing a chemical reduction of some soil components, mainly iron oxides and manganese oxides. This reduction is typically reflected by the presence of iron or manganese concretions, gleying or mottling. Other field indicators of hydric soils include the presence of sulfidic material, an aquic or peraquic moisture regime, or a spodic horizon. (All organic soils, with the exception of Folists, are classified as hydric soils.)

Wetland Hydrology

Wetland hydrology is permanent or periodic inundation, or soil saturation for a significant period during the growing season. Numerous factors influence the wetness of an area, including precipitation, stratigraphy, topography, soil permeability, and plant cover. At certain times of the year in most wetlands, and in certain types of wetlands at most times, wetland hydrology is quite evident, since surface water or saturated soils may be observed. Yet, in many instances, especially along the uppermost boundary of wetlands, hydrology is not readily apparent. Despite this limitation, hydrologic indicators can be useful for confirming that a site with hydrophytic vegetation and hydric soils still exhibits wetland hydrology. While hydrologic indicators are sometimes diagnostic of the presence of wetlands, they are generally either operationally impracticable (e.g. in the case of recorded data) or technically inaccurate (e.g., in the case of some field indicators) for delineating wetland boundaries.

The following hydrologic indicators, while not necessarily indicative of hydrologic events during the growing season or in wetlands alone, do provide evidence that inundation or soil saturation has occurred at some time: visual observation of inundation, visual observation of soil saturation, oxidized channels (rhizospheres) associated with living roots and rhizomes, water marks, drift lines, waterborne sediment deposits, water-stained leaves, surface scoured areas, morphological plant adaptations, and hydric soil characteristics.

Problem Areas and Atypical Situations

In the arid west some wetlands may periodically lack indicators of hydrophytic vegetation, hydric soils or wetland hydrology due to normal (natural) seasonal or annual variability. Similarly, indicators in some areas may be affected by atypical situations brought about by recent human activities or unusual natural events. The Arid West Regional Guidance sets forth a number of procedures to identify and analyze problems areas. Examples of problem areas and atypical situations may include:

Problematic Vegetation:

- *Temporal Shifts in Vegetation:* plant communities in playas, venal pools, seepas and springs change in response to seasonal climatic fluctuations. These changes may result from:
    - Seasonal shifts in plant communities between normal wet/dry season
    - *Drought Conditions* lasting more than one growing season.
- *Sparse and Patchy Vegetation:* A seasonal pond must have at least 5 percent plant cover to be considered vegetated. To be considered jurisdictional, unvegetated areas may be considered as other waters of the U.S. if they exhibit Ordinary High Water (OHW) indicators as set forth in 33 CFR 328.3
- *Riparian Areas:* Where there is high variability in wetland vegetation indicator status between the different strata. (Usually the tree strata has wetter indicator status than other strata.)

- *Areas Affected by Grazing:*
- *Managed Plant Communities:* horticulture, tilling/disking.
- *Areas Affected by Fires, Floods and Other Natural Disturbances:*
- *Vigor and Stress Response to Wetland Conditions:* horticulture is either robust or impeded by hydric soils, and/or wetland hydrology.

Problematic Hydric Soils:

- *Moderately to Very Strong Alkaline Soils:* Redox concentrations and depletions are not always evident in soils with pH of 7.9 or higher.
- *Volcanic Ash:* Soils of volcanic origin are high in silica content and low in redoximorphic minerals such as iron, manganese, and sulfur.
- *Vegetated Sand and Gravel Bars within Flood Plains:* Flood plains may lack hydric soil indicators because seasonal flooding deposits new layers of soil material or the deposited material may lack redoximorphic minerals.
- *Recently Developed Wetlands:* may include mitigation sites, wetland management areas, unintentionally produced wetlands (flood irrigation, leaking water pipes, etc).
- *Seasonally Ponded Soils:* depressional wetlands, usually with perched systems above a restrictive soil layer (hardpan or clay) where the saturation depth or saline conditions prohibit hydric soil indicators.
- *Soils with Relict or Induced hydric Soil Indicators:* in some areas redoximorphic features in hydric soils were formed in the recent or distant past when conditions were substantially wetter than at present. Hydric soil indicators may persist in low land areas which were historically flooded (such as in California's Central Valley) even though the area has been drained for agricultural purposes. Alternatively, hydric soils indicators in upland areas may have formed historically from flood irrigation or like agricultural activities which no longer persist.

Problematic Wetland Hydrology:

- *Site Visits During the Dry Season*: Hydrophytic vegetation may be absent or diminished during the dry-season (when evapo-transpiration exceeds precipitation). When possible the site should be visited (or re-visited) during the normal wet season.
- *Periods with Below Normal Rainfall*: Rainfall in the 3-month period prior to the site visit should be compared to historical averages from the National Water and Climate Center (NRCS). Rainfall should be between the high and low 30 percent probability values.
- *Drought Years*: Areas subject to drought conditions particularly lasting several years may affect wetland hydrology indicators. The Palmer Drought Severity Index (PDSI) (known

operationally as the Palmer Drought Index (PDI)) attempts to measure the duration and intensity of the long-term drought-inducing circulation patterns. Long-term drought is cumulative, so the intensity of drought during the current month is dependent on the current weather patterns plus the cumulative patterns of previous months. Since weather patterns can change almost literally overnight from a long-term drought pattern to a long-term wet pattern, the PDSI (PDI) can respond fairly rapidly. PDSI values range between -6 and +6 with negative values indicating dry periods and positive values indicating wet periods:

- (-4 to -6) - Extreme Drought;
- (-3) - Severe Drought;
- (-2) - Moderate Drought; and
- (-1) - Mild Drought.

- *Years with Unusually Low Winter Snowpack*: the hydrology of areas with water-sheds in adjacent mountain regions may be affected by annual variability in the liquid equivalent of the snow pack.
- *Reference Sites*: If indicators of hydric soil and hydrophytic vegetation are present on a site that lacks wetland hydrology indicators, the site may be considered to be a wetland if the landscape setting, topography, soils, and vegetation are substantially the same as those on nearby reference areas.
- *Hydrology Tools*: A collection of methods can be used to determine whether wetland hydrology is present on a potential wetland site that lacks indicators due to disturbances or other reasons (particularly in agricultural areas).
- *Long-term Hydrological Monitoring*: Areas may be monitored over long periods of time.

California Department of Fish & Game

The California Wildlife Protection Act as codified in the Fish & Game code defines “wetlands” as “lands which may be covered periodically or permanently with shallow water and which include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, fens, and vernal pools.” (Fish & Game Code §2785(g))

Significant NEXUS Determination

A significant nexus determination is required when the following water bodies are present:
(1) Non-navigable tributaries that do not have relatively permanent water flow that flow directly or indirectly into TNWs (usually ephemeral and some intermittent streams); (2) Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs; or (3) Wetlands adjacent to, but not directly abutting RPWs that flow directly or indirectly into TNWs.

The determination begins by first identifying the relative reach of the applicable tributary. With respect to "significant nexus determinations," the "relevant reach" will include all tributary waters of the same order. Typically this will include the tributary and all adjacent wetlands reaching down stream from the project site to the confluence with the next tributary, and upstream to any a similar confluence.

To have a significant nexus a tributary and its adjacent wetlands must have more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. A significant nexus determination requires evaluation of hydrological and ecological factors, which may contribute to the maintenance of water quality, aquatic life, commerce, navigation, recreation, and public health in the TNW.

- Hydrological Factors:
  - Volume, duration, and frequency of flow: including consideration of certain characteristics of the tributary, including historic records of flow, flood predictions, gauge data and personal observations (OHWM, Shelving, water staining, sediment sorting and scouring);
  - Proximity to the TNW: If a tributary is too far from the TNW it's remoteness is more likely to make the impact on the TNW speculative;
  - Contextual hydrological factors: including (1) size of the watershed, (2) average annual rainfall, and (3) average annual snow pack, and
  - The presence of tributary or wetland within the flood plain: It should be noted, however that a significant nexus determination cannot be based solely on presence of the water body within or outside the flood plain.

- Ecological Factors:
  - The ability of the tributary and its adjacent wetlands (if any) to carry pollutants and flood waters to TNW;
  - The Ability of the tributary and its adjacent wetlands (if any) to provide aquatic habitat that supports biota of a TNW;
  - The ability of adjacent wetlands to trap and filter pollutants or store flood water, and
  - The ability to maintain water quality.

Coastal Zone

Jurisdictional assessments in the California coastal zone must also evaluate potential wetland areas using the criteria established in the California Coastal Act and set forth in the California Code of Regulations.

The California "Coastal zone" means that land and water area within the State extending seaward to the state's outer limit of jurisdiction, including all offshore islands, and extending inland generally

1,000 yards from the mean high tide line of the sea. In significant coastal estuarine, habitat, and recreational areas it extends inland to the first major ridgeline paralleling the sea or five miles from the mean high tide line of the sea, whichever is less, and in developed urban areas the zone generally extends inland less than 1,000 yards. The coastal zone does not include the area of jurisdiction of the San Francisco Bay Conservation and Development Commission, established pursuant to Title 7.2 (commencing with Section 66600) of the Government Code, nor any area contiguous thereto, including any river, stream, tributary, creek, or flood control or drainage channel flowing into such area.

The California Coast Act section 30121 defines the term "wetland" as, "*Lands within the coastal zone which be covered periodically or permanently with shallow water and includes saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mud flats, and fens*."

The Coastal Act is administered in the State by the California Coastal Commission (CCC). Coastal Commission regulations (California Code of Regulations Title 14 (14CCR)) establish a "one parameter definition" that only requires evidence of a single parameter to establish wetland conditions:

> Wetland shall be defined as land where the water table is at near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentration of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some during each year and their location within, or adjacent to vegetated wetland or deepwater habitats. (14 CCR 13577)

The Commission's one parameter definition is similar to the USFWS wetlands classification system, which states that wetlands must have one or more of the following three attributes: (1) at least periodically the land supports predominantly hydrophytes; (2) the substrate is predominantly un drained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year.

Attachment C: Glossary of Terms

GLOSSARY OF TERMS

Term	Source	Page	Definition
Abutting	6	69	With respect to jurisdictional determinations, wetlands that are not separated from the tributary by an upland feature, such as a berm or dike, is "abutting."
Adjacent	7	N/A	The term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are "adjacent wetlands."
Aerial Miles	6	53	With respect to jurisdictional determinations, "aerial miles" is the straight line (linear) distance between the water bodies in question.
Best Management Practices (BMPs)	4	11196	Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.
Clean Water Act (CWA) of 1972	NA	NA	Also known as the Federal Water Pollution Control Act (FWPCA) 33U.S.C.A §§1251 to 1387 (alternatively cited as §§101 - 607). The primary goal as defined in §1251(a) is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Jurisdiction to regulate "waters of the United States," vested under this Act include: §303 (Water Quality Standards and implementation Plans), §311 (Spill Program and Oil Pollution Act), §401 (State Water Quality Certification), §402 (National Pollutant Discharge Elimination System - NPDES), §404 (Permits for dredge or fill material).
Clean Water Act (CWA) §303	NA	NA	Section 303 Water Quality Standards Program: Under this program, State and authorized Indian Tribes establish water quality standards for navigable waters to "*protect the public health or welfare*" and "*enhance the quality of water*," "*taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agriculture, industrial, and other purposes, and also taking into consideration their use and value for navigation*."
Clean Water Act (CWA) §311	NA	NA	Section 311 Spill Program and the Oil Production Act (OPA): Under this program, the CWA addresses pollution from both oil and hazardous substance releases. Together with the Oil Pollution Act, it provides EPA and the U.S. Coast Guard with the authority to establish a program for preventing, preparing for, and responding to, spills that occur in navigable waters of the United States.
Clean Water Act (CWA) §401	NA	NA	Section 401 State Water-Quality Certification: Provides that no Federal permit or license for activities that might result in a discharge to navigable waters may be issued unless a CWA Section 401 water quality certification is obtained from or waived by States or authorized Tribes.

Term	Source	Page	Definition
Clean Water Act (CWA) §402	NA	NA	Section 402 National Pollutant Discharge Elimination Program (NPDES): This program established a permitting system to regulate point source discharges of pollutants (other than dredged or fill material) into waters of the United States.
Clean Water Act (CWA) §404	NA	NA	Section 404 Dredged and Fill Material Permit Program: This program established a permitting system to regulate discharges of dredged or fill material into waters of the United States.
Compensatory Mitigation	4	11196	The restoration, establishment (creation), enhancement, or reservation of aquatic resources for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.
Currently Serviceable	4	11196	Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.
Discharge	4	11196	The term "discharge'' means any discharge of dredged or fill material and any activity that causes or results in such a discharge.
Enhancement	4	11196	The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.
Ephemeral Stream	4	11196	An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.
Establishment (Creation)	4	11196	The manipulation of the physical, chemical, or biological characteristics preseSan Luis Obispo County - Los Osos Wastewater Project Delineation of Jurisdictional Waters and Wetlandsnt to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.
Facultative Plants (FAC)	1	14	Plants with a similar likelihood (estimated probability of 33 percent to 67 percent) of occurring in both wetlands and non-wetlands.
Facultative Wetland Plants (FACW)	1	14	Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur (estimated probability 1 percent to 33 percent) in non-wetlands.
Facultative Upland Plants (FACU)	1	14	Plants that occur sometimes (estimated probability 1 percent to <33 percent) in wetlands, but occur more often (estimated probability >67 percent to 99 percent) in non-wetlands.

Term	Source	Page	Definition
High tide line	7	N/A	The term "high tide line" means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.
Historic Property	4	11196	Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization which meet the National Register criteria (36 CFR part 60).
Hydrological Units	8	1-3	As prescribed by the USGS, refers to the four levels of subdivisions, used for the collection and organization of hydrological data. The hierarchy of hydrological units include: (1) Regions (2) Subregions (3) Accounting Units, and (4) Cataloging Units. The identifying codes associated with these units are "hydrological unit codes."
Hydrological Units - "Regions"	8	3	The first level of USGS hydrological classification, which divides the Nation into 21 Major geographic areas. These geographic areas (hydrologic areas based on surface topography) contain either the drainage area of a major river, or the combined drainage areas of a series of rivers. Most of California is located within region "18". Notable exceptions include the Tahoe basin (Great Basin Region 16) and the Colorado River (Lower Colorado Region 15). All smaller hydrological units with the region begin with the region number (18).
Hydrological Units - "Subregions"	8	3	The second level of USGS hydrological classification, divides the 21 regions into 222 subregions (nationally). A subregion includes the area drained by a river system a reach of a river and its tributaries in that reach, a closed basin(s), or a group of streams forming a coastal drainage area. Within Region 18, the state of California includes 10 sub-regions.
Hydrological Units - "Accounting Units"	8	3	The third level of USGS hydrological classification, subdivides many of the subregions in accounting units. These 352 hydrologic accounting units nest within, or are equivalent to, the subregions. The accounting units are used by the Geological Survey for designing and managing the National Water Data Network. Within Region 18, the state of California includes 16 Accounting Units.

Term	Source	Page	Definition
Hydrological Units - "Cataloging Units"	8	3	The fourth level of USGS hydrological classification is the cataloging unit, the smallest element in the hierarchy of hydrologic units. A cataloging unit is a gelographic area representing part of all of a surface drainage basin, a combination of drainage basins, or a distinct hydrological feature. There are 2,150 cataloging units in the United States. Within Region 18, the state of California includes 135 cataloging units.
Independent utility	4	11196	A test to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.
Intermittent stream	4	11196	An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.
Loss of Waters of the United States	4	11196	Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a water body, or change the use of a water body. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an Nationwide Permit (NWP); it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.
Non-tidal wetland	4	11196	A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).
Obligate Wetland Plants (OBL)	1	14	Plants that occur almost always (estimated probability >99 percent) in wetlands under natural conditions, but which may also occur rarely (estimated probability <1 percent) in non-wetlands.

Term	Source	Page	Definition
Obligate Upland Plants (UPL)	1	14	Plants that occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in non-wetlands under natural conditions.
Open Water	4	11196	For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of ``open waters'' include rivers, streams, lakes, and ponds.
Ordinary High Water Mark	7	N/A	The term "ordinary high water mark" means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.
Ordinary High Water Mark	4	11196	An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).
Perennial Stream	4	11197	A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.
Practicable	4	11197	Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.
Pre-construction notification	4	11197	A request submitted by the project proponent to the USACE for confirmation that a particular activity is authorized by a NWP. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a NWP, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by a NWP.
Preservation	4	11197	The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Term	Source	Page	Definition
Re-establishment	4	11197	The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area.
Rehabilitation	4	11197	The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.
Relatively Permanent Water (RPW)	5,	5,69	In the context of CWA jurisdiction post-*Rapanos*, a water body is "relatively permanent" if it flows year round or its flow is continuous at least "seasonally," (e.g., typically 3 months). Wetlands adjacent to a "relatively permanent" tributary are also jurisdictional if those wetlands directly abut such a tributary.
Relevant Reach	6	40	With respect to "significant nexus determinations," the "relevant reach" will include all tributary waters of the same order. Typically this will include the tributary and all adjacent wetlands reaching down stream from the project site to the confluence with the next tributary or upstream to a similar confluence.
Restoration	4	11197	The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.
Riffle and pool complex	4	11197	Riffle and pool complexes are special aquatic sites under the CWA Section 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. Pools are characterized by a slower stream velocity, a streaming flow, a smooth surface, and a finer substrate.
Riparian area	4	11197	Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects water bodies with their adjacent uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 20, in the NWP.)
River Miles	6	53	The flowing distance between the water bodies in question. Typically not a straight line; rather, the measurement is based on how far the water will travel from water body A to water body B. For example, the water in a meandering tributary will flow further than water flowing in a channelized tributary provided the two water bodies are the same distance apart in the landscape.

Term	Source	Page	Definition
Shellfish seeding	4	11197	The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.
Significant Nexus	5	40	In the context of CWA jurisdiction post-*Rapanos*, a water body is considered to have a "significant nexus" with a traditional navigable water if its flow characteristics and functions in combination with the ecological and hydrological functions performed by all wetlands adjacent to such a tributary, affect the chemical, physical, and biological integrity of a downstream traditional navigable water.
Single and complete project	4	11197	The term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete project must have independent utility (see definition). For linear projects, a "single and complete project" is all crossings of a single water of the United States (i.e., a single water body) at a specific location. For linear projects crossing a single water body several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate water bodies, and crossings of such features cannot be considered separately.
Stormwater management	4	11197	Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.
Stormwater management facilities	4	11197	Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.
Stream bed	4	11197	The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the streambed, but outside of the ordinary high water marks, are not considered part of the streambed.
Stream channelization	4	11197	The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.
Stream Order	NA	NA	A method of numbering streams as part of a drainage basin network. The smallest unbranched mapped tributary is called first order, the stream receiving the tributary is called second order, and so on.

Term	Source	Page	Definition
Structure	4	11197	An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.
Tidal waters	7	N/A	The term "tidal waters" means those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects.
Tidal wetland	7	N/A	A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channel-ward of the high tide line, which is defined at 33 CFR 328.3(d).
Traditional Navigable Waters (TNW)	6	68	A "traditional navigable water" includes all the "navigable waters of the United States," defines in 33 CFR §329, and by numerous decisions of the Federal courts, plus all other waters that are navigable-in-fact. Per 33 CFR §329: Navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity. The USACE is currently drafting new regulations defining TNWs.
Tributary	6	69	A "tributary," as defined in the *Rapanos* guidance document, means a natural, man-altered, or man-made water body that carries directly or indirectly into a traditional navigable water. For the purposes of determining significant nexus with a traditional navigable water, a "tributary" is the entire reach of the stream that is of the same order (i.e., from the point of confluence, where two lower order streams meet to form the tributary, downstream to the point such tributary enters a higher order stream).
Upland Plants (UPL)	1	14	Plants that occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in non-wetlands under natural conditions.

Term	Source	Page	Definition
Vegetated shallows	4	11197	Vegetated shallows are special aquatic sites under the CWA Section 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as sea grasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.
Waterbody	4	11197	For purposes of the NWPs, a waterbody is a jurisdictional water of the United States that, during a year with normal patterns of precipitation, has water flowing or standing above ground to the extent that an ordinary high water mark (OHWM) or other indicators of jurisdiction can be determined, as well as any wetland area (see 33 CFR 328.3(b)). If a jurisdictional wetland is adjacent—meaning bordering, contiguous, or neighboring—to a jurisdictional waterbody displaying an OHWM or other indicators of jurisdiction, that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.
Waters of The United States	7	N/A	The term "waters of the United States" means: (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) All interstate waters including interstate wetlands; (3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce; (4) All impoundments of waters otherwise defined as waters of the United States under the definition; (5) Tributaries of waters identified in paragraphs (a)(1)-(4) of this section; (6) The territorial seas; (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1)-(6) of this section, (Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA [other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition] are not waters of the United States.) and (8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the EPA.

Term	Source	Page	Definition
Wetlands	1,2,7	N/A	The term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. The criteria for determining wetlands is set forth in the USACE Wetlands Delineation Manual (1987) and relevant Regional Supplements (Arid West, December 2006)

Sources:
1. USACE Wetlands Delineation Manual, January 1987
2. USACE Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest, June 2001
3. USACE Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, December 2006
4. FEDERAL REGISTER: Department of Defense; Department of the Army, Corps of Engineers, Re-issuance of Nationwide Permits; Notice, March 12, 2007
5. EPA/USACE Joint Memorandum: Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States and Carabell v. United States*, (June 5, 2007)
6. USACE Jurisdictional Delineation Form Instructional Guidebook, May 30, 2007
7. Code of Federal Regulations (CFR): 33 CFR 328.3 Definitions of Waters of the United States and/or 33 CPR 329 Definitions of Navigable Waters of the United States.
8. USGS Hydrologic Unit Maps, U.S. Geological Survey Water-Supply Paper 2294 (1994), by Paul R. Seaber, F. Paul Kapinos, and George L Knapp.

Attachment D: Site Photographs

Photograph 1: Los Osos Creek taken downstream of Los Osos Valley Road overcrossing, facing south. Note sandy alluvial substrate and dense riparian canopy.

Photograph 2: View of Los Osos Creek Pit 1, facing north and downstream toward the Los Osos Valley Road overcrossing.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 1 and 2

Photograph 3: View of Los Osos Creek Pit 2 adjacent to Los Osos Valley Road, facing north.

Photograph 4: View of Drainage W-1 Pit 1 at headwaters, facing north.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 3 and 4

Photograph 5: View of Drainage W-1 Pit 2 taken within thalweg and upstream edge of riparian canopy, facing northeast.

Photograph 6: View of Drainage W-1 Pit 3, and upland reference sample taken outside riparian canopy for W-1, facing northwest.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 5 and 6

Photograph 7: View of Drainage W-1 Pit 4, taken within thalweg of W-1 and beneath riparian canopy, facing south and upstream.

Photograph 8: View of Drainage W-1 Pit 5, and upland reference sample taken at the edge of the riparian canopy for W-1, facing northeast.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 7 and 8

Photograph 9: View of Drainage W-1 Pit 6, taken within adjacent wetland for W-1, facing southeast.

Photograph 10: View of Drainage W-1 Pit 7, upland reference sample taken at edge of wetland, facing southeast.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 9 and 10

Photograph 11: View of Drainage W-2 Pit 1, taken at headwaters, facing northeast and downstream.

Photograph 12: Typical view of Drainage W-3, facing north and downstream. Note sandy alluvial substrate and sparse riparian canopy.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 11 and 12

Photograph 13: View of Drainage W-3 Pit 1, taken immediately downstream of Los Osos Valley Road culvert, facing north and downstream.

Photograph 14: Overview of Drainage W-4 immediately downstream and north of Los Osos Valley Road culvert, looking northwest from adjacent uplands.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 13 and 14

Photograph 15: View of twin culverts within Drainage W-4, facing south across Los Osos Valley Road.

Photograph 16: View of W-5 taken immediately north of Los Osos Valley Road, facing north and downstream.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 15 and 16

Photograph 17: Drainage W-5.a, from culverts, facing west along north side of Los Osos Valley Road

Photograph 18: View of Drainage W-5.a, facing east along north side of Los Osos Valley Road.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 17 and 18

Photograph 19: View of Drainage W-5.a. Facing west along north side of Los Osos Valley Road.

Photograph 20: View of Drainage W-5.a Pit 1, facing southwest toward culvert exiting northern side of Los Osos Valley Road.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 19 and 20

Photograph 21: View of Drainage W-5.a Pit 2, an upland reference sample, facing west.

Photograph 22: Typical view of thalweg for Drainage W-5.b.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 21 and 22

Photograph 23: View of Drainage W-5.b, facing east along north side of Los Osos Valley Road.

Photograph 24: Drainage W-5.b Pit 1, facing west along northern side of Los Osos Valley Road.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 23 and 24

Photograph 25: Typical view of Warden Creek taken from Turri Road overcrossing, facing east and upstream.

Photograph 26: Overview of Warden Creek at Turri Road overcrossing, facing west and downstream. Note standing water and perennial stream flows.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 25 and 26

Photograph 27: Drainage T-1 Pit 1, facing southeast from near to northern property boundary.

Photograph 28: Drainage T-1 Pit 2, facing northeast toward Turri Road.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 27 and 28

Photograph 29: Drainage T-1 Pit 3, facing south.

Photograph 30: View of Drainage T-1 Pit 4, taken within downstream limit of T-1 wetlands, facing south.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 29 and 30

Photograph 31: View of Drainage T-1 Pit 5, sample taken within thalweg of drainage, facing south. Note sandy alluvial substrate and lack of riparian vegetation.

Photograph 32: Drainage T-1.a Pit 1, taken at confluence with T-1, facing northwest.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photographs 31 and 32

Photograph 33: View of Drainage T-2 Pit 1, sample within riparian canopy immediately west and downstream of Turri Road culvert, facing west and downstream.

Source: Michael Brandman Associates, 2008.

Michael Brandman Associates

Appendix D
Site Photograph 33

Attachment E: Jurisdictional Determination Form

Approved JD Form

Drainage T-1.a

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, California
Center coordinates of site (lat/long in degree decimal format): Lat. 35 **N**, Long. 120 ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   ☐ TNWs, including territorial seas
   ☐ Wetlands adjacent to TNWs
   ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   ☒ Non-RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   ☐ Impoundments of jurisdictional waters
   ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 80 linear feet: 1.5 feet width and/or 0.003 acres.
   Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 120 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: 42 **acres**
Average annual rainfall: 19 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **5-10** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **5-10** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: Drainage flows east to join Drainage T-1, which flows south to join Warden Creek. From confluence with Drainage T-1, water flows west for 5.9 river miles (3.4 linear miles) to enter Morro Bay (TNW), which is a bay of the Pacific Ocean.
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The drainage passes over land that is used for agriculture and has been disced and modified.

Tributary properties with respect to top of bank (estimate):
Average width: XXXX feet
Average depth: 1 to feet
Average side slopes: **3:1 .**

Primary tributary substrate composition (check all that apply):
☒ Silts ☒ Sands ☐ Concrete
☐ Cobbles ☒ Gravel ☐ Muck
☐ Bedrock ☒ Vegetation. Type/30% cover:
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): 4.5 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime:
Other information on duration and volume: Rational Method used to calculate flow as 16.60 cfs for 50-year, 6-hour storm event.

Surface flow is: **Confined**. Characteristics: .

Subsurface flow: **Yes**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank
☒ changes in the character of soil
☐ shelving
☒ vegetation matted down, bent, or absent
☒ leaf litter disturbed or washed away
☐ sediment deposition
☒ water staining
☐ other (list):
☒ the presence of litter and debris
☐ destruction of terrestrial vegetation
☒ the presence of wrack line
☐ sediment sorting
☐ scour
☐ multiple observed or predicted flow events
☐ abrupt change in plant community
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by:
☐ oil or scum line along shore objects
☐ fine shell or debris deposits (foreshore)
☐ physical markings/characteristics
☐ tidal gauges
☐ other (list):
☐ Mean High Water Mark indicated by:
☐ survey to available datum;
☐ physical markings;
☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings:
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings:. .
- ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**
Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
- ☐ Discrete wetland hydrologic connection. Explain: .
- ☐ Ecological connection. Explain: .
- ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/30 percent cover. Explain: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

Hydrological Factors

Los Osos/Baywood Park is located within the Central California Coastal Watershed (identified as United States Geological Survey (USGS) Region 18, Accounting Unit 180600, which has an area of approximately 11,400 square miles). Drainage T-1.a is tributary, via Drainage T-1, to Warden Creek (RPW), which is tributary to Morro Bay (TNW). The drainage conveys stormwater that originates as precipitation and agricultural runoff.

The tributary area to the drainage approximately 42 acres. The hilly land is used for agriculture or as open space and is largely permeable. An isopluvial map of the region shows that most of the project site is subject to an annual rainfall of approximately 19.0 inches. The Rational Method (Q = CIA, where Q is peak flow, C is coefficient of runoff, I is rainfall intensity, and A is area) is used to calculate approximate peak flow for the 50-year, 6-hour storm event (see Appendix H). The peak flow is approximately 16.60 cubic feet per second (cfs). The relative magnitude of this flow, combined with the presence of an OHWM that is discernible throughout a portion of the drainage, and the proximity of the drainage to an RPW (Warden Creek is less than 1.1 river miles from the confluence of Drainage T-1.a and Drainage T-1) makes it reasonable to assume that flows from the study area will be conveyed 4.8 river miles downstream via Warden Creek to Morro Bay (TNW).

Ecological Factors

Drainage T-1.a serves as an ephemeral conduit through which minerals and organic nutrients from agricultural fields and from farmhouses and barns within the Tonini properties are flushed downstream toward Morro Bay (TNW) via Drainage T-1 and Warden Creek (RPW). The drainage may also convey pollutants from surrounding land uses within the relevant reach (the land use is predominantly agricultural). These potential pollutants may include nitrogen/nitrates/ammonia, total dissolved solids, pesticides, and fertilizers. Warden Creek, into which the tributary discharges via Drainage T-1, is a CWA Section 303(d) listed 'limited water quality segment' that is impaired for fecal coliform, low dissolved oxygen, nitrate, nutrients, sedimentation/siltation, and pathogens. The contribution of any such pollutants by Drainage T-1.a would have a relatively rapid impact on Warden Creek. The fact that the creek is already impaired by these substances would reduce its capability

to attenuate such pollutants before their discharge into Morro Bay, and increase the likelihood and degree of their impact on the quality of bay waters. The discharge of such pollutants into the bay would ultimately influence the ecology of that water body.

Significant Nexus Determination

Table 1: Significant Nexus Determination – Drainage T-1.a

Factors	More than speculative or insubstantial effect
Hydrological Factors:	
Volume, duration, and frequency of flow This includes consideration of certain tributary characteristics, historic records of flow, flood predictions, gauge data, and personal observations (OHWM, shelving, water staining, sediment sorting, and scouring)	YES
Proximity to the TNW If a tributary is far from a TNW, the impact on the TNW is more likely to be speculative	YES
Contextual hydrological factors These include (1) size of the watershed, (2) average annual rainfall, and (3) average annual snow pack	YES
Presence of tributary or wetland within the flood plain Note that a significant nexus determination cannot be based solely on the presence of a water body within or outside the flood plain	YES
Ecological Factors:	
Ability of the tributary and its adjacent wetlands (if any) to carry pollutants and flood waters to a TNW	YES
Ability of the tributary and its adjacent wetlands (if any) to provide aquatic habitat that supports biota of a TNW	YES
Ability of adjacent wetlands to trap and filter pollutants or store flood water	YES
Ability to maintain water quality	NO

Based on factors discussed above, it is reasonable to assume the flows within Drainage T-1.a may be capable of at least partially flushing sediment, organic compounds, and / or nutrients downstream to Morro Bay (TNW). Though diluted and reduced in quantity from the project site where they originate, such substances could have a more than insubstantial or speculative effect on the chemical, physical, and biological integrity of a TNW. Therefore, a significant nexus can be established between Drainage T-1.a and the nearest TNW, and therefore Drainage T-1.a will be considered jurisdictional by the USACE.

The USACE and EPA, however, will make a final significant nexus determination.

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☐ Tributary waters: linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☒ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   ☒ Tributary waters: **80** linear feet **1.5 feet** width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: **.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

   ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

---

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: **.**
☐ Other: (explain, if not covered above):
The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. **.**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps:2008 online version.
☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008
or ☒ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Approved JD Form

Drainage T-1.b

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, California
Center coordinates of site (lat/long in degree decimal format): Lat. 35 **N**, Long. 120 ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
- ☐ Office (Desk) Determination. Date:
- ☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
- ☐ Waters subject to the ebb and flow of the tide.
- ☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☐ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☒ Non-RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 1,198 linear feet: 3 width and/or 0.06 acres.
   Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 98 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   - ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: 37 **acres**
Average annual rainfall: 19 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **5-10** river miles from TNW.
Project waters are **1-2** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1-2** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: Drainage flows southwest to join Drainage T-1, which flows south to join Warden Creek. From confluence with Drainage T-1, water flows west for 5.7 river miles (3.6 linear miles) to enter Morro Bay (TNW), which is a bay of the Pacific Ocean.
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The drainage passes over land that is used for agriculture and has been disced in the past and modified.

Tributary properties with respect to top of bank (estimate):
Average width: XXXX feet
Average depth: 1 to feet
Average side slopes: **3:1 .**

Primary tributary substrate composition (check all that apply):
☒ Silts ☒ Sands ☐ Concrete
☐ Cobbles ☒ Gravel ☐ Muck
☐ Bedrock ☒ Vegetation. Type/20% cover:
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 4.5 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime:
Other information on duration and volume: Rational Method used to calculate flow as 13.80 cfs for 50-year, 6-hour storm event.

Surface flow is: **Confined**. Characteristics: .

Subsurface flow: **Yes**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank
☒ changes in the character of soil
☐ shelving
☒ vegetation matted down, bent, or absent
☒ leaf litter disturbed or washed away
☐ sediment deposition
☒ water staining
☐ other (list):
☒ the presence of litter and debris
☐ destruction of terrestrial vegetation
☒ the presence of wrack line
☐ sediment sorting
☐ scour
☐ multiple observed or predicted flow events
☐ abrupt change in plant community
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by:
☐ oil or scum line along shore objects
☐ fine shell or debris deposits (foreshore)
☐ physical markings/characteristics
☐ tidal gauges
☐ other (list):
☐ Mean High Water Mark indicated by:
☐ survey to available datum;
☐ physical markings;
☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings:
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings:. .
- ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**
Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
- ☐ Discrete wetland hydrologic connection. Explain: .
- ☐ Ecological connection. Explain: .
- ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/30 percent cover. Explain: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

Hydrological Factors

Los Osos/Baywood Park is located within the Central California Coastal Watershed (identified as United States Geological Survey (USGS) Region 18, Accounting Unit 180600, which has an area of approximately 11,400 square miles). Drainage T-1.b.a is tributary, via Drainage T-1, to Warden Creek (RPW), which is tributary to Morro Bay (TNW). The drainage conveys stormwater that originates as precipitation and agricultural runoff.

The tributary area to the drainage is approximately 37 acres. The hilly land is used for agriculture or is open space and is largely permeable. An isopluvial map of the region shows that most of the project site is subject to an annual rainfall of approximately 19.0 inches. The Rational Method (Q = CIA, where Q is peak flow, C is coefficient of runoff, I is rainfall intensity, and A is area) is used to calculate approximate peak flow for the 50-year, 6-hour storm event (see Appendix H). The peak flow is approximately 13.80 cubic feet per second (cfs). The relative magnitude of this flow, combined with the presence of an OHWM that is discernible throughout a portion of the drainage, and the proximity of the drainage to an RPW (Warden Creek is less than 0.9 river mile from the confluence of Drainage T-1.b and Drainage T-1) makes it reasonable to assume that flow from the study area will be conveyed 5.1 river miles downstream via Warden Creek to Morro Bay (TNW).

Ecological Factors

Drainage T-1.b serves as an ephemeral conduit through which minerals and organic nutrients from agricultural fields and from farmhouses and barns within the Tonini properties are flushed downstream toward Morro Bay (TNW) via Drainage T-1 and Warden Creek (RPW). The drainage may also convey pollutants/nutrients from surrounding land uses within the relevant reach (the land use is predominantly agricultural, but includes the use of tractors and vehicles which park at the farmhouse). These potential pollutants may include nitrogen/nitrates/ammonia, total dissolved solids, pesticides, and fertilizers. Warden Creek, into which the tributary discharges via Drainage T-1, is a CWA Section 303(d) listed 'limited water quality segment' that is impaired for fecal coliform, low dissolved oxygen, nitrate, nutrients, and sedimentation/siltation. The contribution of any such pollutants by Drainage T-1.b will have an immediate impact on Warden

Creek. The fact that the creek is already impaired by these substances would reduce its capability to attenuate such pollutants before their discharge into Morro Bay, and increase the likelihood and degree of their impact on the quality of bay waters. The discharge of such pollutants into the bay would ultimately influence the ecology of that water body.

Significant Nexus Determination

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Table 1: Significant Nexus Determination – Drainage T-1.b

Factors	More than speculative or insubstantial effect
Hydrological Factors:	
Volume, duration, and frequency of flow This includes consideration of certain tributary characteristics, historic records of flow, flood predictions, gauge data, and personal observations (OHWM, shelving, water staining, sediment sorting, and scouring)	YES
Proximity to the TNW If a tributary is far from a TNW, the impact on the TNW is more likely to be speculative	NO
Contextual hydrological factors These include (1) size of the watershed, (2) average annual rainfall, and (3) average annual snow pack	YES
Presence of tributary or wetland within the flood plain Note that a significant nexus determination cannot be based solely on the presence of a water body within or outside the flood plain	YES
Ecological Factors:	
Ability of the tributary and its adjacent wetlands (if any) to carry pollutants and flood waters to a TNW	YES
Ability of the tributary and its adjacent wetlands (if any) to provide aquatic habitat that supports biota of a TNW	YES
Ability of adjacent wetlands to trap and filter pollutants or store flood water	YES
Ability to maintain water quality	NO

Based on factors discussed above, it is reasonable to assume the flows within Drainage T-1.b may be capable of at least partially flushing sediment, organic compounds, and / or nutrients downstream to Morro Bay (TNW). Though diluted and reduced in quantity from the project site where they originate, such substances could have a more than insubstantial or speculative effect on the chemical, physical, and biological integrity of a TNW. Therefore, a significant nexus can be established between Drainage T-1.b and the nearest TNW, and therefore Drainage T-1.a will be considered jurisdictional by the USACE.

The USACE and EPA, however, will make a final significant nexus determination.

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☐ Tributary waters: linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☒ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   ☒ Tributary waters: **1,198** linear feet **3 feet** width (ft) 0.10 acre.
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: **.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

   ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: **.**
☐ Other: (explain, if not covered above):
The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. **.**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps:2008 online version.
☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008
or ☒ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .

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[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ Applicable/supporting scientific literature: .
☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Approved JD Form

Drainage T-1

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, California
Center coordinates of site (lat/long in degree decimal format): Lat. 35 **N**, Long. 120 ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
- ☐ Office (Desk) Determination. Date:
- ☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
- ☐ Waters subject to the ebb and flow of the tide.
- ☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☐ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☐ Non-RPWs that flow directly or indirectly into TNWs
   - ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 566 linear feet: 15 feet width and/or 0.08 acres.
   Wetlands: 1.22 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 80 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   - ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: 420 **acres**
Average annual rainfall: 19 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: T-1 flows south to join Warden Creek. From confluence with Drainage T-1, water flows west for 4.8 river miles (3.4 linear miles) to enter Morro Bay (TNW), which is a bay of the Pacific Ocean.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The drainage passes over land that is used for agriculture and has been disced and modified.

Tributary properties with respect to top of bank (estimate):
Average width: 15 feet
Average depth: 1 to feet
Average side slopes: **3:1 .**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☒ Vegetation. Type/30% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): 1.5 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime:
Other information on duration and volume: Rational Method used to calculate flow as 157 cfs for 50-year, 6-hour storm event.

Surface flow is: **Confined**. Characteristics: .

Subsurface flow: **Yes**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☒ the presence of litter and debris
☒ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
  ☐ Federally Listed species. Explain findings:
  ☐ Fish/spawn areas. Explain findings: .
  ☐ Other environmentally-sensitive species. Explain findings:. .
  ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
  Wetland size: 1.22 acres
  Wetland type. Explain:.
  Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Ephemeral flow**. Explain: .

Surface flow is**: Discrete and confined**
  Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
  ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☒ Directly abutting
☐ Not directly abutting
  ☐ Discrete wetland hydrologic connection. Explain: .
  ☐ Ecological connection. Explain: .
  ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **2-5** river miles from TNW.
Project waters are **2-5** aerial (straight) miles from TNW.
Flow is from: **Wetland to navigable waters.**
Estimate approximate location of wetland as within the **50 - 100-year** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☒ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/30 percent cover. Explain: .
☒ Habitat for:
  ☒ Federally Listed species. Explain findings: .
  ☐ Fish/spawn areas. Explain findings: .
  ☐ Other environmentally-sensitive species. Explain findings: .
  ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☐ Tributary waters: **0.08** linear feet **15** width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**

[8]See Footnote # 3.

☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: **1.22** acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.[9]
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .
Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.

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[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .

☐ Other: (explain, if not covered above):

The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☐ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps:2008 online version.

☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)

☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008

or ☒ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Applicable/supporting case law: .

☐ Applicable/supporting scientific literature: .

☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Approved JD Form

Drainage T-2

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: California County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, California
Center coordinates of site (lat/long in degree decimal format): Lat. 35 **N**, Long. 120 ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   ☐ TNWs, including territorial seas
   ☐ Wetlands adjacent to TNWs
   ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   ☐ Non-RPWs that flow directly or indirectly into TNWs
   ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   ☐ Impoundments of jurisdictional waters
   ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 1,480 linear feet: 13 feet width and/or 0.10 acres.
   Wetlands: 0.08 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 80 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: 610 **acres**
Average annual rainfall: 19 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **5-10** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: Drainage flows west to join Drainage T-1, which flows south to join Warden Creek. From confluence with Drainage T-1, water flows west for 5.1 river miles (3.6 linear miles) to enter Morro Bay (TNW), which is a bay of the Pacific Ocean.
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The drainage passes over land that is used for agriculture and has been disced and modified.

Tributary properties with respect to top of bank (estimate):
Average width: 13 feet
Average depth: 1 to 8 feet
Average side slopes: **Vertical (1:1 or less).**

Primary tributary substrate composition (check all that apply):
☒ Silts ☒ Sands ☐ Concrete
☒ Cobbles ☒ Gravel ☐ Muck
☐ Bedrock ☒ Vegetation. Type/30% cover:
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): 1.5 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime:
Other information on duration and volume: Rational Method used to calculate flow as 227 cfs for 50-year, 6-hour storm event.

Surface flow is: **Discrete and confined**. Characteristics: .

Subsurface flow: **Yes**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank
☒ changes in the character of soil
☐ shelving
☒ vegetation matted down, bent, or absent
☒ leaf litter disturbed or washed away
☐ sediment deposition
☒ water staining
☐ other (list):
☒ the presence of litter and debris
☐ destruction of terrestrial vegetation
☒ the presence of wrack line
☐ sediment sorting
☐ scour
☐ multiple observed or predicted flow events
☐ abrupt change in plant community
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by:
☐ oil or scum line along shore objects
☐ fine shell or debris deposits (foreshore)
☐ physical markings/characteristics
☐ tidal gauges
☐ other (list):
☐ Mean High Water Mark indicated by:
☐ survey to available datum;
☐ physical markings;
☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

(iv) Biological Characteristics. Channel supports (check all that apply):
☒ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
☐ Federally Listed species. Explain findings:
☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings:. .
☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Ephemeral flow**. Explain: .

Surface flow is**: Discrete and confined**
Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☒ Directly abutting
☐ Not directly abutting
☐ Discrete wetland hydrologic connection. Explain: .
☐ Ecological connection. Explain: .
☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **5-10** river miles from TNW.
Project waters are **2-5** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **50 - 100-year** floodplain.

(ii) Chemical Characteristics:
Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):
☐ Riparian buffer. Characteristics (type, average width): .
☒ Vegetation type/30 percent cover. Explain: .
☐ Habitat for:
☐ Federally Listed species. Explain findings: .
☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings: .
☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)
All wetland(s) being considered in the cumulative analysis: **1**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☐ Tributary waters: **0.10**linear feet **13** width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   ☐ Tributary waters: linear feet **feet** width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: **.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

   ☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: **0.08** acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .
Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above):
The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps:2008 online version.
☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008
or ☒ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Approved JD Form

Drainage W-1

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, CA
Center coordinates of site (lat/long in degree decimal format): Lat. 35 **N**, Long. 120 ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   ☐ TNWs, including territorial seas
   ☐ Wetlands adjacent to TNWs
   ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   ☒ Non-RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   ☒ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   ☐ Impoundments of jurisdictional waters
   ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 1,148 linear feet: 2.5 feet width and/or 0.09 acres.
   Wetlands: 0.42 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 45 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: 15 **acres**
Average annual rainfall: 19.0 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Drainage flows north to join Warden Creek wetland (part of Warden Creek), which flows northwest for 3.3 river miles (2.5 linear miles) to enter Morro Bay (TNW), which is a bay of the Pacific Ocean.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The drainage passes over land that has been used for agriculture and has been disced and modified.

Tributary properties with respect to top of bank (estimate):
Average width: XXXX feet
Average depth: 2 to 5 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☒ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☒ Vegetation. Type/50% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): 2.5 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime:
Other information on duration and volume: Rational Method used to calculate flow as 5.15 cfs for 50-year, 6-hour storm event.

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Yes**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☒ the presence of litter and debris
☒ changes in the character of soil	☒ destruction of terrestrial vegetation
☒ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☒ sediment deposition	☒ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): .
☒ Wetland fringe. Characteristics: .
☐ Habitat for:
  ☐ Federally Listed species. Explain findings:
  ☐ Fish/spawn areas. Explain findings: .
  ☐ Other environmentally-sensitive species. Explain findings:. .
  ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Intermittent flow**. Explain: .

Surface flow is**: Overland sheetflow**
Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☒ Directly abutting
☐ Not directly abutting
  ☐ Discrete wetland hydrologic connection. Explain: .
  ☐ Ecological connection. Explain: .
  ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **2-5** river miles from TNW.
Project waters are **2-5** aerial (straight) miles from TNW.
Flow is from: **Wetland to navigable waters.**
Estimate approximate location of wetland as within the **100 - 500-year** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☒ Riparian buffer. Characteristics (type, average width): .
☒ Vegetation type/percent cover. Explain: .
☐ Habitat for:
  ☐ Federally Listed species. Explain findings: .
  ☐ Fish/spawn areas. Explain findings: .
  ☐ Other environmentally-sensitive species. Explain findings: .
  ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

Hydrological Factors

Los Osos/Baywood Park is located within the Central California Coastal Watershed (identified as United States Geological Survey (USGS) Region 18, Accounting Unit 180600, which has an area of approximately 11,400 square miles). Drainage W-1 is a tributary to Warden Creek (RPW), which is tributary to Morro Bay (TNW). The drainage conveys stormwater as precipitation and agricultural runoff.

The drainage tributary area is approximately 15-acres. The land is partially disced for agriculture, and contains other fields that are either remnants of past agricultural activities or were fallow at the time of the survey. The land is largely permeable. An isopluvial map of the region shows that most of the project site is subject to an annual rainfall of approximately 19.0 inches. The Rational Method (Q = CIA, where Q is peak flow, C is coefficient of runoff, I is rainfall intensity, and A is area) is used to calculate approximate peak flow for the 50-year, 6-hour storm event (see Appendix XXX). The peak flow is approximately 5.15 cubic feet per second (cfs). This flow, combined with the presence of a discernible OHWM throughout a portion of the study area, and the fact that drainage discharges directly into an RPW(Warden Creek), makes it reasonable to assume that flow from the study area will be conveyed downstream 3.3 river miles via Warden Creek to Morro Bay (TNW).

Ecological Factors

Drainage W-1 serves as an ephemeral conduit through which minerals and organic nutrients from fields and open lands within the Cemetery and Branin properties are flushed downstream toward Morro Bay (TNW) via Warden Creek (RPW). The drainage may also convey pollutants from surrounding land uses within the relevant reach (these land uses include agriculture). These potential pollutants may include nitrogen/nitrates/ammonia, total dissolved solids, pesticides, and fertilizers. Warden Creek (into which this tributary discharges) is a CWA Section 303(d) listed 'water quality limited segment' that is impaired for fecal coliform, low dissolved oxygen, nitrate, nutrients, and sedimentation/siltation. The contribution of any such pollutants by Drainage W-1 will have an immediate impact on Warden Creek. The fact that the creek is already impaired by these substances will reduce its capability to attenuate such pollutants before their discharge into Morro

Bay, and increase the likelihood and degree of their impact on the quality of bay waters. The discharge of such pollutants into the bay will ultimately influence the ecology of that water body.

Table 1: Significant Nexus Determination – Drainage W-1

FACTORS	More than speculative or insubstantial effect
Hydrological Factors:	
Volume, duration, and frequency of flow This includes consideration of certain tributary characteristics, historic records of flow, flood predictions, gauge data, and personal observations (OHWM, shelving, water staining, sediment sorting, and scouring).	YES
Proximity to the TNW If a tributary is far from a TNW, the impact on the TNW is more likely to be speculative	YES
Contextual hydrological factors These include (1) size of the watershed, (2) average annual rainfall, and (3) average annual snow pack	NO
Presence of tributary or wetland within the flood plain Note that a significant nexus determination cannot be based solely on the presence of a water body within or outside the flood plain	YES
Ecological Factors:	
Ability of the tributary and its adjacent wetlands (if any) to carry pollutants and flood waters to a TNW	YES
Ability of the tributary and its adjacent wetlands (if any) to provide aquatic habitat that supports biota of a TNW	YES
Ability of adjacent wetlands to trap and filter pollutants or store flood water	YES
Ability to maintain water quality	NO

Based on factors discussed above, it is reasonable to assume the flows within Drainage W-1 may be capable of at least partially flushing sediment, organic compounds, and / or nutrients downstream to Morro Bay (TNW). Though diluted and reduced in quantity from the project site where they originate, such substances could have a more than insubstantial or speculative effect on the chemical, physical, and biological integrity of a TNW. Therefore, a significant nexus can be established between Drainage W-1 and the nearest TNW, and therefore Drainage W-1 will be considered jurisdictional by the USACE.

The USACE and EPA, however, will make a final significant nexus determination.

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .

☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. Non-RPWs[8] that flow directly or indirectly into TNWs.
☒ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☒ Tributary waters: **1,148** linear feet **1.5** width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: Wetland is within the Drainage W-1. .

Provide acreage estimates for jurisdictional wetlands in the review area: **0.42** acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.
☒ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.[9]
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.

☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .

☐ Other: (explain, if not covered above):

The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☐ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps:2008 online version.

☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)

☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008

or ☒ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Applicable/supporting case law: .

☐ Applicable/supporting scientific literature: .

☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Approved JD Form

Drainage W-2

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, California
Center coordinates of site (lat/long in degree decimal format): Lat. 35 **N**, Long. 120 ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☐ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☒ Non-RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☒ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 612 linear feet: 2 feet width and/or 0.03 acres.
   Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 45 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: 15 **acres**
Average annual rainfall: 19.0 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: Drainage flows east to join Drainage W-1, which flows north to join Warden Creek wetland (part of Warden Creek), which flows northwest for 3.5 river miles (2.6 linear miles) to enter Morro Bay (TNW), which is a bay of the Pacific Ocean.
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The drainage passes over land that is used for agriculture and has been disced and modified.

Tributary properties with respect to top of bank (estimate):
Average width: XXXX feet
Average depth: 1 to 52feet
Average side slopes: **3:1 .**

Primary tributary substrate composition (check all that apply):
☒ Silts ☒ Sands ☐ Concrete
☒ Cobbles ☒ Gravel ☐ Muck
☐ Bedrock ☒ Vegetation. Type/50% cover:
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): 2.5 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime:
Other information on duration and volume: Rational Method used to calculate flow as 4.48 cfs for 50-year, 6-hour storm event.

Surface flow is: **Discrete and confined**. Characteristics: .

Subsurface flow: **Yes**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank
☒ changes in the character of soil
☒ shelving
☒ vegetation matted down, bent, or absent
☒ leaf litter disturbed or washed away
☐ sediment deposition
☐ water staining
☐ other (list):
☒ the presence of litter and debris
☐ destruction of terrestrial vegetation
☒ the presence of wrack line
☐ sediment sorting
☐ scour
☐ multiple observed or predicted flow events
☐ abrupt change in plant community
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by:
☐ oil or scum line along shore objects
☐ fine shell or debris deposits (foreshore)
☐ physical markings/characteristics
☐ tidal gauges
☐ other (list):
☐ Mean High Water Mark indicated by:
☐ survey to available datum;
☐ physical markings;
☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings:
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings:. .
- ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**
Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☒ Directly abutting
☐ Not directly abutting
- ☐ Discrete wetland hydrologic connection. Explain: .
- ☐ Ecological connection. Explain: .
- ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☒ Riparian buffer. Characteristics (type, average width): .
☒ Vegetation type/percent cover. Explain: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

Hydrological Factors

Los Osos/Baywood Park is located within the Central California Coastal Watershed (identified as United States Geological Survey (USGS) Region 18, Accounting Unit 180600, which has an area of approximately 11,400 square miles). Drainage W-2 is a tributary to Warden Creek (RPW), which is tributary to Morro Bay (TNW). The drainage conveys stormwater that originates as precipitation and agricultural runoff.

The tributary area to the drainage is approximately 15 acres (approximately equal to the tributary area for Drainage W-1). The land is mostly disced for agriculture and is largely permeable. An isopluvial map of the region shows that most of the project site is subject to an annual rainfall of approximately 19.0 inches. The Rational Method (Q = CIA, where Q is peak flow, C is coefficient of runoff, I is rainfall intensity, and A is area) is used to calculate approximate peak flow for the 50-year, 6-hour storm event (see Appendix H). The peak flow is approximately 4.48 cubic feet per second (cfs). The relative magnitude of this flow, combined with the presence of an OHWM that is discernible throughout a portion of the drainage, and the proximity of the drainage to an RPW (Warden Creek is less than 0.14 river miles from the confluence of Drainage W-2 and W-1) makes it reasonable to assume that flow from the study area will be conveyed 3.5 river miles downstream via Warden Creek to Morro Bay (TNW).

Ecological Factors

Drainage W-1 serves as an ephemeral conduit through which minerals and organic nutrients from agricultural fields within the Branin properties are flushed downstream toward Morro Bay (TNW) via Drainage W-1 and Warden Creek (RPW). The drainage may also convey pollutants from surrounding land uses within the relevant reach (the land use is predominantly agricultural). These potential pollutants may include nitrogen/nitrates/ammonia, total dissolved solids, pesticides, and fertilizers. Warden Creek is a CWA Section 303(d) listed 'limited water quality segment' that is impaired for fecal coliform, low dissolved oxygen, nitrate, nutrients, and sedimentation/siltation. The contribution of any such pollutants by Drainage W-2 would have an immediate impact on Warden Creek. The fact that the creek is already impaired by these substances would reduce its capability to attenuate such pollutants before their discharge into Morro Bay, and increase the

likelihood and degree of their impact on the quality of bay waters. The discharge of such pollutants into the bay would ultimately influence the ecology of that water body.

Table 1: Significant Nexus Determination – Drainage W-2

Factors	More than speculative or insubstantial effect
Hydrological Factors:	
Volume, duration, and frequency of flow This includes consideration of certain tributary characteristics, historic records of flow, flood predictions, gauge data, and personal observations (OHWM, shelving, water staining, sediment sorting, and scouring)	YES
Proximity to the TNW If a tributary is far from a TNW, the impact on the TNW is more likely to be speculative	YES
Contextual hydrological factors These include (1) size of the watershed, (2) average annual rainfall, and (3) average annual snow pack	NO
Presence of tributary or wetland within the flood plain Note that a significant nexus determination cannot be based solely on the presence of a water body within or outside the flood plain	YES
Ecological Factors:	
Ability of the tributary and its adjacent wetlands (if any) to carry pollutants and flood waters to a TNW	YES
Ability of the tributary and its adjacent wetlands (if any) to provide aquatic habitat that supports biota of a TNW	YES
Ability of adjacent wetlands to trap and filter pollutants or store flood water	YES
Ability to maintain water quality	NO

Based on factors discussed above, it is reasonable to assume the flows within Drainage W-2 may be capable of at least partially flushing sediment, organic compounds, and / or nutrients downstream to Morro Bay (TNW). Though diluted and reduced in quantity from the project site where they originate, such substances could have a more than insubstantial or speculative effect on the chemical, physical, and biological integrity of a TNW. Therefore, a significant nexus can be established between Drainage W-2 and the nearest TNW, and therefore Drainage W-2 will be considered jurisdictional by the USACE.

The USACE and EPA, however, will make a final significant nexus determination.

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**

☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .

☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**

☒ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

☒ Tributary waters: **612** linear feet **2 feet** width (ft). XXX to XXX ft

☐ Other non-wetland waters: acres.

Identify type(s) of waters: **.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: Wetland is within Drainage W-2.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

☒ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

☐ Demonstrate that impoundment was created from "waters of the U.S.," or

☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or

☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.

---

[8] See Footnote # 3.

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above):
The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps:2008 online version.
☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008
or ☒ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Approved JD Form

Drainage W-3

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, California
Center coordinates of site (lat/long in degree decimal format): Lat. 35 **N**, Long. 120 ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
- ☐ Office (Desk) Determination. Date:
- ☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
- ☐ Waters subject to the ebb and flow of the tide.
- ☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☐ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☐ Non-RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 410 linear feet: 9 feet width and/or 0.09 acres.
   Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 30 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   - ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: 220 **acres**
Average annual rainfall: 19 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Drainage flows northeast to join Warden Creek, which flows northwest for 4.2 river miles (3.4 linear miles) to enter Morro Bay (TNW), which is a bay of the Pacific Ocean (TNW).

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The drainage passes over land that is used for agriculture and has been disced and modified.

Tributary properties with respect to top of bank (estimate):
Average width: 9 feet
Average depth: 1 to 5 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☒ Vegetation. Type/30% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime:
Other information on duration and volume: Rational Method used to calculate flow as 68.9 cfs for 50-year, 6-hour storm event.

Surface flow is: **Discrete and confined**. Characteristics: .

Subsurface flow: **Yes**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☒ the presence of litter and debris
☒ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
  ☐ Federally Listed species. Explain findings:
  ☐ Fish/spawn areas. Explain findings: .
  ☐ Other environmentally-sensitive species. Explain findings:. .
  ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
  Wetland size: acres
  Wetland type. Explain: .
  Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**
  Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
  ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
  ☐ Discrete wetland hydrologic connection. Explain: .
  ☐ Ecological connection. Explain: .
  ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/30 percent cover. Explain: .
☐ Habitat for:
  ☐ Federally Listed species. Explain findings: .
  ☐ Fish/spawn areas. Explain findings: .
  ☐ Other environmentally-sensitive species. Explain findings: .
  ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☐ Tributary waters: **410** linear feet **9** width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**

[8]See Footnote # 3.

☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet **feet** width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.[9]
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .
Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.

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[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .

☐ Other: (explain, if not covered above):

The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☐ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps:2008 online version.

☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)

☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008

or ☒ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Applicable/supporting case law: .

☐ Applicable/supporting scientific literature: .

☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Approved JD Form

Drainage W-4

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: California County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, California
Center coordinates of site (lat/long in degree decimal format): Lat. 35 **N**, Long. 120 ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
- ☐ Office (Desk) Determination. Date:
- ☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
- ☐ Waters subject to the ebb and flow of the tide.
- ☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☐ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☐ Non-RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 256 linear feet: 22 feet width and/or 0.11 acres.
   Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 40 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   - ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: 75 **acres**
Average annual rainfall: 19 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Drainage flows north to join Warden Creek, which flows northwest for 4.4 river miles (3.8 linear miles) to enter Morro Bay (TNW), which is a bay of the Pacific Ocean.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The drainage passes over land that is used for agriculture and has been disced and modified.

Tributary properties with respect to top of bank (estimate):
Average width: 22 feet
Average depth: 1 to 5 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☒ Vegetation. Type/30% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1.5 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime:
Other information on duration and volume: Rational Method used to calculate flow as 23.5 cfs for 50-year, 6-hour storm event.

Surface flow is: **Confined**. Characteristics: .

Subsurface flow: **Yes**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☒ the presence of litter and debris
☒ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
  ☐ Federally Listed species. Explain findings:
  ☐ Fish/spawn areas. Explain findings: .
  ☐ Other environmentally-sensitive species. Explain findings:. .
  ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
  Wetland size: acres
  Wetland type. Explain: .
  Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**
  Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
  ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
  ☐ Discrete wetland hydrologic connection. Explain: .
  ☐ Ecological connection. Explain: .
  ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/30 percent cover. Explain: .
☐ Habitat for:
  ☐ Federally Listed species. Explain findings: .
  ☐ Fish/spawn areas. Explain findings: .
  ☐ Other environmentally-sensitive species. Explain findings: .
  ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☐ Tributary waters: linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**

[8]See Footnote # 3.

☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.[9]
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .
Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.

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[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .

☐ Other: (explain, if not covered above):

The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☐ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps:2008 online version.

☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)

☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008

or ☒ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Applicable/supporting case law: .

☐ Applicable/supporting scientific literature: .

☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Approved JD Form

Drainage W-5.a

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: California County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, California
Center coordinates of site (lat/long in degree decimal format): Lat. 35 **N**, Long. 120 ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   ☐ TNWs, including territorial seas
   ☐ Wetlands adjacent to TNWs
   ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   ☐ Non-RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   ☐ Impoundments of jurisdictional waters
   ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 524 linear feet: 6 feet width and/or 0.07 acres.
   Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 45 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: 18 **acres**
Average annual rainfall: 19 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: Drainage flows north and then east to join Drainage W-5.a, which flows north to join Warden Creek. From the confluence with Drainage W-5, the distance is 4.7 river miles (3.9 linear miles) to Morro Bay (TNW), which is a bay of the Pacific Ocean.
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The drainage passes over land that is used for agriculture and has been disced and modified and passes below Los Osos Valley Road through a culvert.

Tributary properties with respect to top of bank (estimate):
Average width: 6 feet
Average depth: 1 to 4 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☒ Vegetation. Type/30% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1.5 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime:
Other information on duration and volume: Rational Method used to calculate flow as 5.4 cfs for 50-year, 6-hour storm event.

Surface flow is: **Confined**. Characteristics: .

Subsurface flow: **Yes**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☒ the presence of litter and debris
☒ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings:
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings:. .
- ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**
Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
- ☐ Discrete wetland hydrologic connection. Explain: .
- ☐ Ecological connection. Explain: .
- ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/30 percent cover. Explain: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: 524 linear feet width 6 (ft), Or, 0.07acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☐ Tributary waters: linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   ☐ Tributary waters: linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: **.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

   ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .
Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above):
The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  ☐ Office concurs with data sheets/delineation report.
  ☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
  ☐ USGS NHD data.
  ☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps:2008 online version.
☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008
  or ☒ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Approved JD Form

Drainage W-5.b

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: California County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, California
Center coordinates of site (lat/long in degree decimal format): Lat. 35 **N**, Long. 120 ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☐ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☐ Non-RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 748 linear feet: 6 feet width and/or 0.10 acres.
   Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 55 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: 18 **acres**
Average annual rainfall: 19 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: Drainage flows north and then west to join Drainage W-5.a, which flows north to form Drainage W-5, which enters Warden Creek to the north. From the north side of Los Osos Valley Road, the distance is 4.7 river miles (3.9 linear miles) to Morro Bay (TNW), which is a bay of the Pacific Ocean (TNW).
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The drainage passes over land that is used for agriculture and has been disced and modified.

Tributary properties with respect to top of bank (estimate):
Average width: 6 feet
Average depth: 1 to 4 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☒ Vegetation. Type/30% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1.5 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime:
Other information on duration and volume: Rational Method used to calculate flow as 5.9 cfs for 50-year, 6-hour storm event.

Surface flow is: **Confined**. Characteristics: .

Subsurface flow: **Yes**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☒ the presence of litter and debris
☒ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings:
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings:. .
- ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**
Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
- ☐ Discrete wetland hydrologic connection. Explain: .
- ☐ Ecological connection. Explain: .
- ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/30 percent cover. Explain: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: 748 linear feet width 6 (ft), Or, 0.10 acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☐ Tributary waters: linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   ☐ Tributary waters: linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above):
The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  ☐ Office concurs with data sheets/delineation report.
  ☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
  ☐ USGS NHD data.
  ☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps:2008 online version.
☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008
  or ☒ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Approved JD Form

Drainage W-5

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: California County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, California
Center coordinates of site (lat/long in degree decimal format): Lat. 35 **N**, Long. 120 ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
- ☐ Office (Desk) Determination. Date:
- ☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
- ☐ Waters subject to the ebb and flow of the tide.
- ☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☐ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☐ Non-RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 137 linear feet: 6 feet width and/or 0.02 acres.
   Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 45 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   - ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: 35 **acres**
Average annual rainfall: 19 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: Drainage W-5 is formed north of Los Osos Valley Road from the confluence of Drainage W-5.b and Drainage W-5.a. Warden Creek flows a distance of 4.5 river miles (3.7 linear miles) to Morro Bay (TNW), which is a bay of the Pacific Ocean (TNW).
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The drainage passes over land that is used for agriculture and has been disced and modified.

Tributary properties with respect to top of bank (estimate):
Average width: 6 feet
Average depth: 1 to 4 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):
☒ Silts ☒ Sands ☐ Concrete
☐ Cobbles ☒ Gravel ☐ Muck
☐ Bedrock ☒ Vegetation. Type/30% cover:
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 0.3 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime:
Other information on duration and volume: Rational Method used to calculate flow as 11.0 cfs for 50-year, 6-hour storm event.

Surface flow is: **Confined**. Characteristics: .

Subsurface flow: **Yes**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank
☒ changes in the character of soil
☐ shelving
☒ vegetation matted down, bent, or absent
☒ leaf litter disturbed or washed away
☐ sediment deposition
☒ water staining
☐ other (list):
☒ the presence of litter and debris
☐ destruction of terrestrial vegetation
☒ the presence of wrack line
☐ sediment sorting
☐ scour
☐ multiple observed or predicted flow events
☐ abrupt change in plant community
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by:
☐ oil or scum line along shore objects
☐ fine shell or debris deposits (foreshore)
☐ physical markings/characteristics
☐ tidal gauges
☐ other (list):
☐ Mean High Water Mark indicated by:
☐ survey to available datum;
☐ physical markings;
☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings:
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings:. .
- ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**
Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
- ☐ Discrete wetland hydrologic connection. Explain: .
- ☐ Ecological connection. Explain: .
- ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/30 percent cover. Explain: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: 748 linear feet width 6 (ft), Or, 0.10 acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☐ Tributary waters: linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   ☐ Tributary waters: linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: **.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

   ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .
Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

---

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above):
The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  ☐ Office concurs with data sheets/delineation report.
  ☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
  ☐ USGS NHD data.
  ☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps:2008 online version.
☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008
  or ☒ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Approved JD Form

Los Osos Creek

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: California County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, California
Center coordinates of site (lat/long in degree decimal format): Lat. 35 18' 21.7 " **N**, Long. 120 48' 40.4" ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody: Warden Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
- ☐ Office (Desk) Determination. Date:
- ☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
- ☐ Waters subject to the ebb and flow of the tide.
- ☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☐ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☐ Non-RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: 931 linear feet: 22 feet width and/or 0.27 acres.
   Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 80 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   - ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: 2500 **acres**
Average annual rainfall: 19 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: Los Osos Creek is spanned by the Los Osos Valley Road bridge. From the northern edge of the bridge it flows approximately 3.7 river miles (2.4 linear miles) into Morro Bay (TNW), which is a bay of the Pacific Ocean (TNW).
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The drainage passes over land that is used for agriculture and has been disced and modified.

Tributary properties with respect to top of bank (estimate):
Average width: 22 feet
Average depth: 1 to 10 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☒ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☒ Vegetation. Type/85% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): 0.7 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime:
Other information on duration and volume: Rational Method used to calculate flow as 745 cfs for 50-year, 6-hour storm event.

Surface flow is: **Discrete**. Characteristics: Also includes overland sheet flow.

Subsurface flow: **Yes**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☒ the presence of litter and debris
☒ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: Land has been used for agriculture; specific pollutants may include pesticides and nutrients..

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings:
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings:. .
- ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**
Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
- ☐ Discrete wetland hydrologic connection. Explain: .
- ☐ Ecological connection. Explain: .
- ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/30 percent cover. Explain: .
☐ Habitat for:
- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   ☐ Tributary waters: **80** linear feet **1.5 feet** width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: **.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

   ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .
Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

---

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above):
The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  ☐ Office concurs with data sheets/delineation report.
  ☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
  ☐ USGS NHD data.
  ☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps:2008 online version.
☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008
  or ☒ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Approved JD Form

Los Osos Valley Road Seasonal Wetland

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: California County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, California
Center coordinates of site (lat/long in degree decimal format): Lat. 35 **N**, Long. 120 ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   ☐ TNWs, including territorial seas
   ☐ Wetlands adjacent to TNWs
   ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   ☐ Non-RPWs that flow directly or indirectly into TNWs
   ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   ☐ Impoundments of jurisdictional waters
   ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: linear feet: feet width and/or acres.
   Wetlands: 0.23 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 50 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: 35 **acres**
Average annual rainfall: 19 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **5-10** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: The wetland abuts Drainage W-5.b, which flows north below Los Osos Valley Road and then joins Drainage W-5, which flows approximately 4.7 river miles (3.9 linear miles) northwest to enter Morro Bay (TNW), which is a bay of the Pacific Ocean (TNW).
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: The drainage passes over land that is used for agriculture and has been disced and modified.

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: to feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):
☐ Silts ☐ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☐ Vegetation. Type/30% cover:
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime:
Other information on duration and volume: Flow was not calculated as this is a wetland associated with Drainage W-4 and Drainage W-5.a

Surface flow is: **Confined**. Characteristics: .

Subsurface flow: **Yes**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank
☐ changes in the character of soil
☐ shelving
☐ vegetation matted down, bent, or absent
☐ leaf litter disturbed or washed away
☐ sediment deposition
☐ water staining
☐ other (list):
☐ the presence of litter and debris
☐ destruction of terrestrial vegetation
☐ the presence of wrack line
☐ sediment sorting
☐ scour
☐ multiple observed or predicted flow events
☐ abrupt change in plant community
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by:
☐ oil or scum line along shore objects
☐ fine shell or debris deposits (foreshore)
☐ physical markings/characteristics
☐ tidal gauges
☐ other (list):
☐ Mean High Water Mark indicated by:
☐ survey to available datum;
☐ physical markings;
☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

(iv) Biological Characteristics. Channel supports (check all that apply):
☐ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
☐ Federally Listed species. Explain findings:
☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings:. .
☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Ephemeral flow**. Explain: .

Surface flow is**: Discrete**
Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☒ Directly abutting
☐ Not directly abutting
☐ Discrete wetland hydrologic connection. Explain: .
☐ Ecological connection. Explain: .
☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **2-5** river miles from TNW.
Project waters are **2-5** aerial (straight) miles from TNW.
Flow is from: **Wetland to navigable waters.**
Estimate approximate location of wetland as within the **50 - 100-year** floodplain.

(ii) Chemical Characteristics:
Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):
☒ Riparian buffer. Characteristics (type, average width): .
☒ Vegetation type/80 percent cover. Explain: .
☐ Habitat for:
☐ Federally Listed species. Explain findings: .
☐ Fish/spawn areas. Explain findings: .
☐ Other environmentally-sensitive species. Explain findings: .
☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)
All wetland(s) being considered in the cumulative analysis: **1**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☐ Tributary waters: linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   ☐ Tributary waters: linear feet **feet** width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: **.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

   ☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: **0.23** acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .
Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above):
The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  ☐ Office concurs with data sheets/delineation report.
  ☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
  ☐ USGS NHD data.
  ☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps:2008 online version.
☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008
  or ☒ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Approved JD Form

Warden Creek Wetland

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: California County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, California
Center coordinates of site (lat/long in degree decimal format): Lat. 35 **N**, Long. 120 ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   ☐ TNWs, including territorial seas
   ☐ Wetlands adjacent to TNWs
   ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   ☐ Non-RPWs that flow directly or indirectly into TNWs
   ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   ☐ Impoundments of jurisdictional waters
   ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: linear feet: feet width and/or acres.
   Wetlands: 13.34 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 25 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: **acres**
Average annual rainfall: 19 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **2-5** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Warden Creek wetland is part of Warden Creek. Flow leaves the wetland to the northwest and flows Drainage flows east to join Drainage T-1, which flows south to join Warden Creek. From confluence with

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Drainage T-1, water flows west for 2.7 river miles (2.1 linear miles) to enter Morro Bay (TNW), which is a bay of the Pacific Ocean.
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: The drainage passes over land that is used for agriculture and has been disced and modified.

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: to feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):
☐ Silts ☐ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☐ Vegetation. Type% cover:
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime:
Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank
☐ changes in the character of soil
☐ shelving
☐ vegetation matted down, bent, or absent
☐ leaf litter disturbed or washed away
☐ sediment deposition
☐ water staining
☐ other (list):
☐ the presence of litter and debris
☐ destruction of terrestrial vegetation
☐ the presence of wrack line
☐ sediment sorting
☐ scour
☐ multiple observed or predicted flow events
☐ abrupt change in plant community
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☒ High Tide Line indicated by:
☐ oil or scum line along shore objects
☐ fine shell or debris deposits (foreshore)
☐ physical markings/characteristics
☐ tidal gauges
☐ other (list):
☒ Mean High Water Mark indicated by:
☐ survey to available datum;
☐ physical markings;
☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known:.

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings:
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings:. .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size:13.34 acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Ephemeral flow**. Explain: .

Surface flow is**: Discrete**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **2-5** river miles from TNW.

Project waters are **2-5** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **50 - 100-year** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/30 percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **1**

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
Warden Creek Wetland (Y)	13.34 acres		

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☐ Tributary waters: linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   ☐ Tributary waters: linear feet width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   ☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .
Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above):
The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  ☐ Office concurs with data sheets/delineation report.
  ☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
  ☐ USGS NHD data.
  ☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps:2008 online version.
☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008
  or ☒ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Approved JD Form

Warden Creek

Los Osos Wastewater Treatment Plant
Community of Los Osos, San Luis Obispo County, California

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:
Los Angeles District

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: California County/parish/borough: Riverside City: Community of Los Osos, San Luis Obispo County, California
Center coordinates of site (lat/long in degree decimal format): Lat. 35 18' 08.6" **N**, Long. 120 46' 34.9" ° **W**.
Universal Transverse Mercator:
Name of nearest waterbody: Los Osos Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Morro Bay
Name of watershed or Hydrologic Unit Code (HUC): 31023010
- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
- ☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
- ☐ Office (Desk) Determination. Date:
- ☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
- ☐ Waters subject to the ebb and flow of the tide.
- ☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   - ☐ TNWs, including territorial seas
   - ☐ Wetlands adjacent to TNWs
   - ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   - ☐ Non-RPWs that flow directly or indirectly into TNWs
   - ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   - ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   - ☐ Impoundments of jurisdictional waters
   - ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: linear feet: feet width and/or acres.
   Wetlands: 0.12 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): 48 feet above mean sea level (AMSL).

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   - ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 11,400 **square miles**
Drainage area: 2100 **acres**
Average annual rainfall: 19 inches
Average annual snowfall: 0.0 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☒ Tributary flows through **2** tributaries before entering TNW.

Project waters are **1-2** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **1 (or less)** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Warden Creek flows west from Turri Road, then flows northtwest and flows toward Morro Bay (TNW), which is a bay of the Pacific Ocean (TNW).

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: The drainage passes over land that is used for agriculture and has been disced and modified.

Tributary properties with respect to top of bank (estimate):
Average width: 25 feet
Average depth: 1 to 6 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☒ Vegetation. Type/70% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): 0.01 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime:
Other information on duration and volume: Rational Method used to calculate flow as 626 cfs for 50-year, 6-hour storm event.

Surface flow is: **Confined**. Characteristics: Also includes overland sheet flow.

Subsurface flow: **Yes**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☒ the presence of litter and debris
☒ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☒ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: Land has been used for agriculture; specific pollutants may include pesticides and nutrients..

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): .
☐ Wetland fringe. Characteristics: .
☐ Habitat for:
  ☐ Federally Listed species. Explain findings:
  ☐ Fish/spawn areas. Explain findings: .
  ☐ Other environmentally-sensitive species. Explain findings:. .
  ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
  Wetland size: acres
  Wetland type. Explain: .
  Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**
  Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
  ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
  ☐ Discrete wetland hydrologic connection. Explain: .
  ☐ Ecological connection. Explain: .
  ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .
☐ Vegetation type/30 percent cover. Explain: .
☐ Habitat for:
  ☐ Federally Listed species. Explain findings: .
  ☐ Fish/spawn areas. Explain findings: .
  ☐ Other environmentally-sensitive species. Explain findings: .
  ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☐ TNWs: linear feet width (ft), Or, acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   ☒ Tributary waters: **214** linear feet **25** width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   ☐ Tributary waters: **80** linear feet **1.5 feet** width (ft).
   ☐ Other non-wetland waters: acres.
   Identify type(s) of waters: **.**

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **.**

   ☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .
Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: **.**
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above):
The drainage lacks continuous OHWM and lacks hydrologic connectivity to a downstream water of the United States. The drainage is an ephemeral roadside ditch draining wholly uplands. .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  ☐ Office concurs with data sheets/delineation report.
  ☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
  ☐ USGS NHD data.
  ☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name Morro Bay South 7.5 minute series quadrangle.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Online data base.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps:2008 online version.
☐ 100-year Floodplain Elevation is: 39 feet AMSL (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☒ Aerial (Name & Date): Google Earth 2008
  or ☒ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify): Calculations of Rational Method included with submittal of jurisdictional delineation.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Attachment F: Wetlands Data Sheets

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/24/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: LOC PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Marimel silty clay loam, drained NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'21.22"N, 120^48'42.12"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes ☐ No	**Is the Sample Area within a Wetland?**	☐ Yes ☒ No
Hydric Soil Present?	☐ Yes ☒ No		
Wetland Hydrology Present?	☒ Yes ☐ No		

Remarks Sample is a WET sample within Los Osos Creek, a tributary RPW to Pacific Ocean (TNW).

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1. Salix lasiolepis	60	YES	FACW
2.			
3.			
4.			
Total Cover:	**60**		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	40	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	60	x2=	120
FAC species		x3=	
FACU species		x4=	
UPL Species		x5=	
Column Totals:	**60** (A)		**120** (B)

Prevalence Index = B/A = **2.0**

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Remarks: Passes Dominance Test and Prevalence Index.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR4/2	100					sand, gravel	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☐ Yes ☒ No

REMARKS: No Hydric Indicator. Sammple is within coarse sand gravelly active channel of Los Osos Creek.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☒ Yes	☐ No	Depth (inches) 12

Wetland Hydrology Present? ☒ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Primary Hydrology Indicator A3. Secondary Hydrology Indicators B1, B2, B3 and B10.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/24/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: LOC PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/24/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: LOC PIT2

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Baywood fine sand, 2 to 9 percent slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'21.69"N, 120^48'44.28"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes ☐ No	**Is the Sample Area within a Wetland?**	☒ Yes ☐ No
Hydric Soil Present?	☒ Yes ☐ No		
Wetland Hydrology Present?	☒ Yes ☐ No		

Remarks Sample is a WET sample within small RPW tributary to Los Osos Creek along, a tributary RPW to Pacific Ocean (TNW).

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1. Salix goodingii	50	YES	FACW
2. Quercus agrifolia	25	NO	UPL
3.			
4.			
Total Cover:	**75**		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Toxicodendron diversilobum	15	YES	FAC
2. Equisetum hyemale	5	NO	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	**20**		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	5	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	55	x2=	110
FAC species	15	x3=	45
FACU species		x4=	
UPL Species	25	x5=	75
Column Totals:	**95** (A)		**230** (B)

Prevalence Index = B/A = **2.42**

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Remarks: Passes Dominance Test and Prevalence Index.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR2/1	100					loam	
6-18	10YR4/1	50	10YR5/6	50	RM	M	loam	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☒ Yes ☐ No

REMARKS: Hydric Indicator F3, low chroma within 100% of upper 6", and redox greater than 10" thick below 6". Sample is wetland within OHWM of small tributary.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)	
Water Table Present?	☒ Yes	☐ No	Depth (inches)	2
Saturation Present? (Includes Capillary Fringe)	☒ Yes	☐ No	Depth (inches)	0

Wetland Hydrology Present? ☒ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Primary Hydrology Indicators A2 and A3. Secondary Hydrology Indicators B1, B2, B3 and B10.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/24/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: LOC PIT2

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 05/50/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: LOVRSW PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Roadside Swale Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Cropley clay, 2 to 9 percent slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^17'56.16"N, 120^47'00.66"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes ☐ No	**Is the Sample Area within a Wetland?**	☒ Yes ☐ No
Hydric Soil Present?	☒ Yes ☐ No		
Wetland Hydrology Present?	☒ Yes ☐ No		

Remarks Sample is a WET sample at culvert outflow (adjacent to Los Osos Valley Road) within Drainage W-5.a.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Eleocharis macrostachya	70	YES	OBL
2. Rumex crispus	10	NO	FACW
3. Typha latifolia	5	NO	OBL
4.			
5.			
6.			
7.			
8.			
Total Cover:	85		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	15	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That are OBL, FACW, or FAC: (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	75	x1=	75
FACW species	10	x2=	20
FAC species		x3=	
FACU species		x4=	
UPL Species		x5=	
Column Totals:	**85** (A)		**95** (B)

Prevalence Index = B/A = **1.11**

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Remarks: Passes Dominance Test and Prevalence Index.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR3/1	95	10YR5/6	5	RM	M	loam	coarse aggr inc

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☒ Yes ☐ No

REMARKS: Hydric Indicator F3, low chroma within 95% of upper 6", and redox greater than 2" within upper 6". Sample is seasonal wetland.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☒ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☒ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☒ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Primary Hydrology Indicators B1 and B3. Secondary Hydrology Indicators B10. Sample is within a swale with no OHWM.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 05/20/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: LOVRSW PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 05/20/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: LOVRSW PIT2

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Roadside Swale Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Cropley clay, 2 to 9 percent slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^17'56.65"N, 120^47'08.25"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes ☐ No	**Is the Sample Area within a Wetland?**	☒ Yes ☐ No
Hydric Soil Present?	☒ Yes ☐ No		
Wetland Hydrology Present?	☒ Yes ☐ No		

Remarks Sample is an WET sample (adjacent to Los Osos Valley Road) within seasonal wetland adjacent to W-4, a trib RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Sisyrinchium bellum	50	YES	FAC
2. Rumex crispus	25	NO	FACW
3. Lolium multiflorum	10	NO	FAC
4. Melilotus officinalis	10	NO	FAC
5.			
6.			
7.			
8.			
Total Cover:	95		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	5	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	25	x2=	50
FAC species	70	x3=	210
FACU species		x4=	
UPL Species		x5=	
Column Totals:	**95** (A)		**260** (B)

Prevalence Index = B/A = **2.73**

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Remarks: Passes the Dominance Test and Prevalence Test.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR2/1	95	5YR4/6	5	RM	RC	loam	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☒ Yes ☐ No

REMARKS: Hydric Indicator F3 with low chroma of 95% at least 2" thick in upper 6".

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☒ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☒ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Primary Hydrology Indicators B1 and B2. Secondary Indicators B10. Sample is within a roadside swale and adjacent seasonal wetland.

WETLAND DETERMINATION DATA FORM - Arid West Region
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 05/20/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: LOVRSW PIT2

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: T-1.a PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Cropley clay, 2 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'50.81"N, 120^46'48.14"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes ☒ No	**Is the Sample Area within a Wetland?**	☐ Yes ☒ No
Hydric Soil Present?	☐ Yes ☒ No		
Wetland Hydrology Present?	☐ Yes ☒ No		

Remarks Sample is a WET sample within lower reach of T-1.a, a non-RPW tributary to the upper reach of Drainage T-1, a tributary RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Avena fatua	50	YES	UPL
2. Picris echoides	25	NO	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	75		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	25	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species	25	x3=	75
FACU species		x4=	
UPL Species	50	x5=	250
Column Totals:	**75** (A)		**325** (B)

Prevalence Index = B/A = **4.33**

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Remarks: Dominance of non-hydrophytes.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR3/1	100					loam	no redox

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☐ Yes ☒ No

REMARKS: No Hydric Indicators observed. Low chroma but no redox features or sign of hydric conditions.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☐ Yes ☒ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No Hydrology Indicators. Sample is within a erosion feature and tributary to T-1 that has limited upstream reach and hydrology regime.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: T-1.a PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: T-1 PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Cropley clay, 2 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^19'10.50"N, 120^46'43.30"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☒ Yes ☐ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes ☐ No	**Is the Sample Area within a Wetland?**	☒ Yes ☐ No
Hydric Soil Present?	☒ Yes ☐ No		
Wetland Hydrology Present?	☒ Yes ☐ No		

Remarks Sample is a WET sample within upper reach of Drainage T-1, a tributary RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Eleocharis macrostachya	70	YES	OBL
2.			
3.			
4. Bromus diandrus	15	NO	UPL
5. Bromus hordeaceus	15	NO	UPL
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:		% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	70	x1=	70
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL Species	30	x5=	150
Column Totals:	**100** (A)		**220** (B)

Prevalence Index = B/A = **2.2**

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Remarks: Passes Dominance Test and Prevalence Index.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR3/1	90	10YR4/6	10	RM	RC		

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☒ Yes ☐ No

REMARKS: Hydric Indicator F3 with 90% of chroma 1 in excess of 2" in the upper 6" and redox.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)	
Water Table Present?	☒ Yes	☐ No	Depth (inches)	2
Saturation Present? (Includes Capillary Fringe)	☒ Yes	☐ No	Depth (inches)	0

Wetland Hydrology Present? ☒ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Primary Hydrology Indicators A2 and A3. Sample is within a wetland within the OHWM for upper reach of T-1.

WETLAND DETERMINATION DATA FORM - Arid West Region
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: T-1 PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	Vegetation is disturbed as a result of active cattle grazing.
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: T-1 PIT2

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Cropley clay, 2 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^19'10.49"N, 120^46'43.60"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☒ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☒ Yes ☐ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes ☒ No	**Is the Sample Area within a Wetland?**	☐ Yes ☒ No
Hydric Soil Present?	☐ Yes ☒ No		
Wetland Hydrology Present?	☐ Yes ☒ No		

Remarks Sample is an UPL reference sample adjacent to upper reach of Drainage T-1, a tributary RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.			
2.			
3. Plantago erecta	20	NO	UPL
4. Bromus diandrus	40	YES	UPL
5. Bromus hordeaceus	40	YES	UPL
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:		% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL Species	100	x5=	500
Column Totals:	**100** (A)		**500** (B)

Prevalence Index = B/A = **5.00**

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Remarks: Dominance of non-hydrophytes.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR2/2	100					loam	dark clay parent
6+								shovel refusal

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☐ Yes ☒ No

REMARKS: No Hydric Indicators observed. Parent soils of Cropley clay dark with low chroma and value. No redox features or sign of hydric conditions.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☐ Yes ☒ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No Hydrology Indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: T-1 PIT2

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	Vegetation is disturbed as a result of active cattle grazing.
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: T-1 PIT4

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Cropley clay, 2 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'27.63"N, 120^46'44.08"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes ☐ No	**Is the Sample Area within a Wetland?**	☒ Yes ☐ No
Hydric Soil Present?	☒ Yes ☐ No		
Wetland Hydrology Present?	☒ Yes ☐ No		

Remarks Sample is a WET sample (downstream wetland limit) within lower reach of Drainage T-1, a tributary RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.			
2. Eleocharis macrostachya	10	YES	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	**10**		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	90	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x1=	10
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL Species		x5=	
Column Totals:	**10** (A)		**10** (B)

Prevalence Index = B/A = **1.00**

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Remarks: Passes Dominance Test and Prevalence Index.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	G1 6/10Y	50	10YR4/6	50	RM	M	loam	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☒ Yes ☐ No

REMARKS: Hydric Indicator F3, with redox features starting in upper 2". Sample is wetland within OHWM.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☒ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Secondary Hydrology Indicators B1, and B10.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: T-1 PIT4

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: T-1 PIT5

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Cropley clay, 2 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'24.94"N, 120^46'44.01"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes ☐ No	**Is the Sample Area within a Wetland?**	☐ Yes ☒ No
Hydric Soil Present?	☐ Yes ☒ No		
Wetland Hydrology Present?	☒ Yes ☐ No		

Remarks Sample is a WET sample within lower reach (at southern property boundary) of Drainage T-1, a tributary RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.			
2. Eleocharis macrostachya	10	YES	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	**10**		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	90	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x1=	10
FACW species		x2=	
FAC species		x3=	
FACU species		x4=	
UPL Species		x5=	
Column Totals:	**10** (A)		**10** (B)

Prevalence Index = B/A = **1.00**

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Remarks: Passes Dominance Test and Prevalence Index.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR3/3	100					crs sand pbls	moist at 20"

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☐ Yes ☒ No

REMARKS: No Hydric Indicators. Sample is high mineral sandy substrate within drainage channel.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☒ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Secondary Hydrology Indicators B1, B3, and B10.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: T-1 PIT5

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: T-2 PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Cropley clay, 2 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'34.41"N, 120^46'31.30"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes ☐ No	**Is the Sample Area within a Wetland?**	☒ Yes ☐ No
Hydric Soil Present?	☒ Yes ☐ No		
Wetland Hydrology Present?	☒ Yes ☐ No		

Remarks Sample is a WET sample within upper reach of Drainage T-2, a tributary RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1. Salix lasiolepis	60	YES	FACW
2.			
3.			
4.			
Total Cover:	**50**		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Rumex crispus	10	NO	FACW
2. Eleocharis macrostachya	30	YES	OBL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	**40**		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	10	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **50** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x1=	30
FACW species	70	x2=	140
FAC species		x3=	
FACU species		x4=	
UPL Species		x5=	
Column Totals:	**100** (A)		**170** (B)

Prevalence Index = B/A = **1.7**

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Remarks: Passes Dominance Test and Prevalence Index.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR5/2	60	10YR4/6	40	RM	M	loam	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☒ Yes ☐ No

REMARKS: Hydric Indicator F3, with redox features starting in upper 2". Low chroma throughout upper 6". Sample is wetland within OHWM.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)	
Water Table Present?	☒ Yes	☐ No	Depth (inches)	2
Saturation Present? (Includes Capillary Fringe)	☒ Yes	☐ No	Depth (inches)	0

Wetland Hydrology Present? ☒ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Primary Hydrology Indicators A2 and A3. Secondary Hydrology Indicators B3 and B10.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: T-2 PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT7

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Concepcion loam, 5 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'36.65"N, 120^47'56.84"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes ☒ No	**Is the Sample Area within a Wetland?**	☐ Yes ☒ No
Hydric Soil Present?	☐ Yes ☒ No		
Wetland Hydrology Present?	☐ Yes ☒ No		

Remarks Sample is an UPL reference sample adjacent to wetland associated with Drainage W-1, a tributary Non-RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. Baccharis pilularis	20	YES	UPL
2.			
3.			
4.			
5.			
Total Cover:	**20**		
Herb Stratum			
1. Distichlis spicata	3	NO	FACW
2. Potentilla gracilis	3	NO	FACW
3. Picris echoides	4	NO	FAC
4. Bromus diandrus	5	NO	UPL
5. Bromus hordeaceus	60	YES	UPL
6.			
7.			
8.			
Total Cover:	**75**		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	5	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	6	x2=	12
FAC species	4	x3=	12
FACU species		x4=	
UPL Species	85	x5=	425
Column Totals:	**95** (A)		**449** (B)

Prevalence Index = B/A = **4.72**

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Remarks: Dominance of non-hydrophytes.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR4/3	100					loam	
2-8	10YR4/3	100					loam	
8-22	10YR3/3	95	10YR4/6	5	RM	RC	loam	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☐ Yes ☒ No

REMARKS: Marginal Redox features observed at 5% in lower horizon however does not meet any Hydric Indicators.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☐ Yes ☒ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No Hydrology Indicators. Sample is within an upland area immedaitely adjacent and outside of wetland boundary.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT7

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Concepcion loam, 5 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'28.62"N, 120^48'02.35"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes ☒ No	**Is the Sample Area within a Wetland?**	☐ Yes ☒ No
Hydric Soil Present?	☐ Yes ☒ No		
Wetland Hydrology Present?	☐ Yes ☒ No		

Remarks Sample is an UPL sample within upper reach of Drainage W-1, a dry ephmeral wash and tributary Non-RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Raphanus sativus	10	NO	UPL
2. Brassica rapa	15	YES	UPL
3. Conium maculatum	15	YES	FACW
4. Bromus diandrus	20	YES	UPL
5. Chamomilla suaveolens	5	NO	FACU
6. Vicia sativa	10	NO	FACU
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	25	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **33** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	15	x2=	30
FAC species		x3=	
FACU species	15	x4=	60
UPL Species	45	x5=	235
Column Totals:	**75** (A)		**325** (B)

Prevalence Index = B/A = **4.3**

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Remarks: Dominance of non-hydrophytes.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR3/3	100					loam	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type: N/A

Depth (inches): N/A

Hydric Soils Present? ☐ Yes ☒ No

REMARKS: Predominance of non-hydric loam soil. Typical of non-wetland conditions and adjacent upland areas.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☐ Yes ☒ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The sample location is within the bed of a dry ephemeral wash with a discernable OHWM at 2' wide, and streambed and bank at 2' wide.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT2

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Concepcion loam, 5 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'33.70"N, 120^47'56.03"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes ☒ No	**Is the Sample Area within a Wetland?**	☐ Yes ☒ No
Hydric Soil Present?	☐ Yes ☒ No		
Wetland Hydrology Present?	☐ Yes ☒ No		

Remarks Sample is a WET sample within middle reach of Drainage W-1, a dry ephmeral wash and tributary Non-RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1. Salix lasiolepis	30	YES	FACW
2.			
3.			
4.			
Total Cover:	**30**		
Sapling/Shrub Stratum			
1. Baccharis pilularis	5	YES	UPL
2.			
3.			
4.			
5.			
Total Cover:	**5**		
Herb Stratum			
1. Plantago lanceolata	5	NO	FAC
2. Vicia sativa	5	NO	FACU
3. Bromus hordeaceus	20	YES	UPL
4. Avena fatua	5	NO	UPL
5.			
6.			
7.			
8.			
Total Cover:	**35**		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	30	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **33** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	30	x2=	60
FAC species	5	x3=	15
FACU species	5	x4=	20
UPL Species	30	x5=	150
Column Totals:	**70** (A)		**245** (B)

Prevalence Index = B/A = **3.5**

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Remarks: Dominance of non-hydrophytes.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR3/4	100					sandy loam	
6-10	10YR3/4	100					sandy loam	
10-20	10YR3/3	100					clay loam	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type: N/A

Depth (inches): N/A

Hydric Soils Present? ☐ Yes ☒ No

REMARKS: Predominance of non-hydric sandy loam soil. No redox features observed.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☒ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydrology Indicators B1, B2, and B3 observed. The sample location is within the bed of a dry ephemeral wash with a discernable OHWM at 3' wide, and streambed and bank/riparian at 25'+ wide.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT2

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT3

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Concepcion loam, 5 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'33.78"N, 120^47'55.85"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes ☒ No	**Is the Sample Area within a Wetland?**	☐ Yes ☒ No
Hydric Soil Present?	☐ Yes ☒ No		
Wetland Hydrology Present?	☐ Yes ☒ No		

Remarks Sample is a UPL reference sample adjacent to the middle reach of Drainage W-1, a dry ephmeral wash and tributary Non-RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Plantago lanceolata	10	NO	FAC
2. Vicia sativa	10	NO	FACU
3. Bromus diandrus	50	YES	UPL
4. Avena fatua	20	YES	UPL
5. Erodium cicutarium	10	NO	UPL
6.			
7.			
8.			
Total Cover:	**100**		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:		% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	
FAC species	10	x3=	30
FACU species	10	x4=	40
UPL Species	80	x5=	400
Column Totals:	**100** (A)		**470** (B)

Prevalence Index = B/A = **4.7**

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Remarks: Dominance of non-hydrophytes.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR5/4	100					sandy loam	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type: N/A

Depth (inches): N/A

Hydric Soils Present? ☐ Yes ☒ No

REMARKS: Predominance of non-hydric sandy loam soil typical of adjacent upland areas. No redox features observed.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☐ Yes ☒ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The sample location is an upland reference point at apex margin of eastern bank of middle reach of Drainage W-1. The sample is outside the OHWM and streambed and bank.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT3

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT4

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Concepcion loam, 5 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'34.15"N, 120^47'56.10"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes ☐ No	**Is the Sample Area within a Wetland?**	☒ Yes ☐ No
Hydric Soil Present?	☒ Yes ☐ No		
Wetland Hydrology Present?	☒ Yes ☐ No		

Remarks Sample is a WET sample within middle reach and riparian canopy of Drainage W-1, a tributary Non-RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1. Salix lasiolepis	75	YES	FACW
2. Quercus agrifolia	5	NO	UPL
3.			
4.			
Total Cover:	**80**		
Sapling/Shrub Stratum			
1. Heteromeles arbutifolia	5	YES	UPL
2.			
3.			
4.			
5.			
Total Cover:	**5**		
Herb Stratum			
1. Claytonia perfoliata	5	YES	FAC
2. Bromus diandrus	5	YES	UPL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	**10**		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	5	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **40** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	75	x2=	150
FAC species	5	x3=	15
FACU species		x4=	
UPL Species	15	x5=	75
Column Totals:	**95** (A)		**240** (B)

Prevalence Index = B/A = **2.5**

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Remarks: Passes the Prevalence Test.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR3/6	100					fine sand	
2-12	10YR2/2	65	10YR5/6	35	RM	RC	sandy loam	pbl/cobl incl
12+								shovel refusal

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type: coblble/clay conglomerate

Depth (inches): 12

Hydric Soils Present? ☒ Yes ☐ No

REMARKS: Hydric Indicator F3 demarcating wetland boundary.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☒ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Primary Hydrology Indicators B9, Secondary Hydrology Indicators B1, B2, B3. Wetland within OHWM of 6'. Streambed/riparian width at 25'+.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT4

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT5

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Concepcion loam, 5 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'34.35"N, 120^47'56.40"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☒ Soil, or ☐ Hydrology significantly disturbed? ☒ Yes ☐ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes ☐ No	**Is the Sample Area within a Wetland?**	☐ Yes ☒ No
Hydric Soil Present?	☐ Yes ☒ No		
Wetland Hydrology Present?	☐ Yes ☒ No		

Remarks Sample is an UPL reference sample adjacent to middle reach and riparian canopy of Drainage W-1, a tributary Non-RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1. Salix lasiolepis	50	YES	FACW
2.			
3.			
4.			
Total Cover:	**50**		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Anagallis arvensis	2	NO	FAC
2. Bromus diandrus	5	YES	UPL
3. Chamomilla suaveolens	3	NO	FACU
4.			
5.			
6.			
7.			
8.			
Total Cover:	**10**		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	40	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **50** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	50	x2=	100
FAC species	2	x3=	5
FACU species	3	x4=	12
UPL Species	5	x5=	25
Column Totals:	**60** (A)		**142** (B)

Prevalence Index = B/A = **2.36**

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Remarks: Passes the Dominance Test and Prevalence Test.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR3/2	100					loam	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☐ Yes ☒ No

REMARKS: No Redox or Hydric Indicators. Soil typical of upland areas adjacent to drainage feature.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☐ Yes ☒ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No Hydrology Indicators. Sample is outside of OHWM and riparian canopy of Drainge W-1.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT5

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	Soils disturbed as a result of recent disking.
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT6

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Concepcion loam, 5 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'36.57"N, 120^47'56.53"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes ☐ No	**Is the Sample Area within a Wetland?**	☒ Yes ☐ No
Hydric Soil Present?	☒ Yes ☐ No		
Wetland Hydrology Present?	☒ Yes ☐ No		

Remarks Sample is a WET sample adjacent and outside OHWM and riparian canopy of middle reach Drainage W-1, a tributary Non-RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Distichlis spicata	60	YES	FACW
2. Potentilla gracilis	40	NO	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:		% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **50** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	100	x2=	200
FAC species		x3=	
FACU species		x4=	
UPL Species		x5=	
Column Totals:	**100** (A)		**200** (B)

Prevalence Index = B/A = **2.00**

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Remarks:

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	G1 2.5/10	100					loam	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☒ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☒ Yes ☐ No

REMARKS: Hydric Indicator A4 and completely depleted gleyed matrix.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)	
Water Table Present?	☒ Yes	☐ No	Depth (inches)	2
Saturation Present? (Includes Capillary Fringe)	☒ Yes	☐ No	Depth (inches)	0

Wetland Hydrology Present? ☒ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Primary Hydrology Indicators A2 and A3. Sample is wetland adjacent and outside the OHWM and riparian canopy of an RPW.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT6

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-2 PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Concepcion loam, 5 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'34.45"N, 120^48'02.78"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes ☒ No	**Is the Sample Area within a Wetland?**	☐ Yes ☒ No
Hydric Soil Present?	☐ Yes ☒ No		
Wetland Hydrology Present?	☐ Yes ☒ No		

Remarks Sample is an UPL sample within upper reach of Drainage W-2, a dry ephmeral wash and tributary Non-RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Raphanus sativus	10	NO	UPL
2. Brassica rapa	15	YES	UPL
3. Conium maculatum	15	YES	FACW
4. Bromus diandrus	20	YES	UPL
5. Chamomilla suaveolens	5	NO	FACU
6. Vicia sativa	10	NO	FACU
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	25	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **33** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	15	x2=	30
FAC species		x3=	
FACU species	15	x4=	60
UPL Species	45	x5=	235
Column Totals:	**75** (A)		**325** (B)

Prevalence Index = B/A = **4.3**

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Remarks: Dominance of non-hydrophytes.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR3/1	100					loam	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type: N/A

Depth (inches): N/A

Hydric Soils Present? ☐ Yes ☒ No

REMARKS: Predominance of non-hydric loam soil. Typical of non-wetland conditions and adjacent upland areas.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☐ Yes ☒ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: The sample location is within the bed of a dry ephemeral wash with a discernable OHWM at 2' wide, and streambed and bank at 2' wide.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-2 PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 05/20/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-3 PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Cropley clay, 0 to 2 percent slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'00.73"N, 120^47'20.94"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes ☐ No	**Is the Sample Area within a Wetland?**	☐ Yes ☒ No
Hydric Soil Present?	☐ Yes ☒ No		
Wetland Hydrology Present?	☒ Yes ☐ No		

Remarks Sample is an WET sample (adjacent to Los Osos Valley Road) within culvert outfall and within Drainage W-3, a tributary RPW to Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1. Salix lasiolepis	10	YES	FACW
2.			
3.			
4.			
Total Cover:	**10**		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Feoniculum vulgare	5	NO	FACU
2. Conium maculatum	5	NO	FACW
3. Artemisia douglasiana	10	YES	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	**20**		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	70	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	25	x2=	50
FAC species		x3=	
FACU species	5	x4=	20
UPL Species		x5=	
Column Totals:	**30** (A)		**70** (B)

Prevalence Index = B/A = **2.3**

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Remarks: Passes the Dominance Test and Prevalence Test.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR3/2	100					coarse sand	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☐ Yes ☒ No

REMARKS: Coarse sandy alluvium. Sample within active channel of Drainage W-3.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☒ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☒ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Primary Hydrology Indicators B1. Secondary Indicators B2 and B10.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 05/20/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-3 PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 05/20/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-5.a PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Roadside Swale Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Cropley clay, 2 to 9 percent slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^17'56.16"N, 120^47'00.66"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes ☐ No	**Is the Sample Area within a Wetland?**	☒ Yes ☐ No
Hydric Soil Present?	☒ Yes ☐ No		
Wetland Hydrology Present?	☒ Yes ☐ No		

Remarks Sample is a WET sample at culvert outflow (adjacent to Los Osos Valley Road) within Drainage W-5.a.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1. Salix lasiolepis	25	YES	FACW
2. Populus fremontii	10	NO	FACW
3.			
4.			
Total Cover:	**35**		
Sapling/Shrub Stratum			
1. Baccharis pilularis	10	YES	UPL
2.			
3.			
4.			
5.			
Total Cover:	**10**		
Herb Stratum			
1. Artemisia douglasiana	20	YES	FACW
2. Rumex crispus	5	NO	FACW
3. Lolium multiflorum	10	NO	FAC
4. Foeniculum vulgare	5	NO	FACU
5.			
6.			
7.			
8.			
Total Cover:	**40**		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	15	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That are OBL, FACW, or FAC:	**66**	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	60	x2=	120
FAC species	10	x3=	30
FACU species	5	x4=	20
UPL Species	10	x5=	50
Column Totals:	**85** (A)		**220** (B)

Prevalence Index = B/A = **2.58**

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Remarks: Passes Dominance Test and Prevalence Index.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	none						very crs sand	no reading
4-10	10YR3/1	60	10YR5/6	40	D	M	loam	
10-18	10YR3/3	100					sandy loam	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☒ Yes ☐ No

REMARKS: Hydric Indicator F3, low chroma of 60% at least 6" within upper 10", with redox.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☒ Water Marks (B1) (**Nonriverine**)
- ☒ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☒ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Primary Hydrology Indicators B1 and B2. Secondary Hydrology Indicators B3 and B10. Sample is within OHWM of Drainage W-5.a.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 05/20/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-5.a PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 05/20/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-5.a PIT2

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Roadside Swale Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Cropley clay, 2 to 9 percent slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^17'55.99"N, 120^47'00.41"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes ☒ No	**Is the Sample Area within a Wetland?**	☐ Yes ☒ No
Hydric Soil Present?	☐ Yes ☒ No		
Wetland Hydrology Present?	☐ Yes ☒ No		

Remarks Sample is an UPL sample (adjacent to Los Osos Valley Road) outside of OHWM for Drainage W-5.a.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1.			
2. Populus fremontii	10	YES	FACW
3.			
4.			
Total Cover:	**10**		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Artemisia douglasiana	10	NO	FACW
2. Avena fatua	30	YES	UPL
3. Bromus hordaeceous	30	YES	UPL
4. Brassica rapa	10	NO	UPL
5. Equisetum hyemale	10	NO	FACW
6.			
7.			
8.			
Total Cover:	**90**		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:		% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **33** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	30	x2=	60
FAC species		x3=	
FACU species		x4=	
UPL Species	70	x5=	350
Column Totals:	**100** (A)		**410** (B)

Prevalence Index = B/A = **4.10**

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☐ Yes ☒ No

Remarks: Dominance of non-hydrophytes.

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR3/3	100					loamy sand	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☐ Yes ☒ No

REMARKS: Non-hydric upland soils.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☐ Yes ☒ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Sample is outside of OHWM and streambed and bank of Drainage W-5.a

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 05/20/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-5.a PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: WCW PIT1

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSec/T30S/R11E

Landform (hillside, terrace, fan, etc.): Drainage Feature Local relief (concave, convex, none): Concave Slope (%): <5

Soil Map Unit Name: Concepcion loam, 5 to 9 % slopes NWI Classification:

Subregion (LRR): LRR-C = Mediterranean California Lat/Long: 35^18'35.76"N, 120^47'49.85"W Datum: NAD83

Are climatic / hydrologic conditions on the site typical for this time of year? ☒ Yes ☐ No (If no, explain in Remarks.):

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology significantly disturbed? ☐ Yes ☒ No Are Normal Circumstances present? ☒ Yes ☐ No

Are ☐ Vegetation, ☐ Soil, or ☐ Hydrology naturally problematic? ☐ Yes ☒ No (If needed, explain any answers in remarks)

(1) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes ☐ No	**Is the Sample Area within a Wetland?**	☒ Yes ☐ No
Hydric Soil Present?	☒ Yes ☐ No		
Wetland Hydrology Present?	☒ Yes ☐ No		

Remarks Sample is an WET sample at wetland boundary for Warden Creek Wetlands, a large contiguous wetland with the RPW Warden Creek.

(2) VEGETATION

Tree Stratum (Use scientific names)	Absolute %Cover	Dominant Species	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Distichlis spicata	10	NO	FACW
2. Potentilla gracilis	60	YES	FACW
3. Picris echoides	25	NO	FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	**95**		
Woody Vine Stratum			
1.			
2.			
Total Cover:			
% Bare Ground in Herb Stratum:	5	% Cover of Biotic Crust:	

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: **100** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	70	x2=	140
FAC species	25	x3=	75
FACU species		x4=	
UPL Species		x5=	
Column Totals:	**95** (A)		**215** (B)

Prevalence Index = B/A = **2.26**

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptions[1] (Provide supporting data in remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

Types of Problematic Vegetation:

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Remarks:

(3) SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-24	10YR3/1	95	10YR3/6	5	RM	RC	loam	

[1]Type: **C** = Concentration, **D** = Depletion, **RM** = Reduced [2](**Loc**) Location: **PL** = Pore Lining, **RC** = Root Channel, **M** = Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depresssions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if Present):

Type:

Depth (inches):

Hydric Soils Present? ☒ Yes ☐ No

REMARKS: Marginal Hydric Indicator F8.

(4) HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (any one indicator sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (F8)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C2)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations

Surface Water Present?	☐ Yes	☒ No	Depth (inches)
Water Table Present?	☐ Yes	☒ No	Depth (inches)
Saturation Present? (Includes Capillary Fringe)	☐ Yes	☒ No	Depth (inches)

Wetland Hydrology Present? ☒ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Secondary Hydrology Indicators B10 and C9.

▫WETLAND DETERMINATION DATA FORM - Arid West Region▫
Addendum – Additional Remarks

Project/Site: Los Osos Wastewater Project City/County: Los Osos/SLO Co. Sampling Date: 04/23/08

Applicant Owner: County of San Luis Obispo State: CA Sampling Point: W-1 PIT7

Investigator(s): Thomas Mullen, Karl Osmundson Section/Township/Range: UnSect/T30S/R11E

SECTION	Additional Remarks
1	
2	
3	
4	
REFERENCE	**Additional Comments**
N-1	
N-2	
N-3	
N-4	
N-5	

Attachment G: Historical Aerial Photography

Los Osos - Tonini
Los Osos, San Luis Obispo County
Los Osos, CA 93405

Inquiry Number: 2245375.3
June 18, 2008

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

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Please contact EDR at 1-800-352-0050
with any questions or comments.

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Date EDR Searched Historical Sources:

Aerial Photography June 18, 2008

Target Property:

Los Osos, San Luis Obispo County

Los Osos, CA 93405

Year	***Scale***	***Details***	***Source***
1937	Aerial Photograph. Scale: 1"=555'	Flight Year: 1937	Army
1949	Aerial Photograph. Scale: 1"=555'	Flight Year: 1949	Aero
1956	Aerial Photograph. Scale: 1"=555'	Flight Year: 1956	Hycon
1969	Aerial Photograph. Scale: 1"=666'	Flight Year: 1969	Western
1978	Aerial Photograph. Scale: 1"=666'	Flight Year: 1978	Pacific Air
1989	Aerial Photograph. Scale: 1"=666'	Flight Year: 1989	USGS
1994	Aerial Photograph. Scale: 1"=666'	Flight Year: 1994	USGS
2002	Aerial Photograph. Scale: 1"=666'	Flight Year: 2002	USGS
2005	Aerial Photograph. Scale: 1"=484'	Flight Year: 2005	EDR

INQUIRY #: 2245375.3
YEAR: 1937
= 555'
N

INQUIRY #: 2245375.3
YEAR: 1949
= 555'
N

INQUIRY #: 2245375.3
YEAR: 1956
= 555'
N

INQUIRY #: 2245375.3
YEAR: 1969
= 666'
N

INQUIRY #: 2245375.3
YEAR: 1978
= 666'
N

INQUIRY #: 2245375.3
YEAR: 1989
= 666'
N

INQUIRY #: 2245375.3
YEAR: 1994
= 666'
N

INQUIRY #: 2245375.3
YEAR: 2002
= 666'
N

INQUIRY #: 2245375.3
YEAR: 2005
= 484'
N

Los Osos
Community of Los Osos
Los Osos, CA 93402

Inquiry Number: 2245375.1
June 17, 2008

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Date EDR Searched Historical Sources:

Aerial Photography June 17, 2008

Target Property:

Community of Los Osos

Los Osos, CA 93402

Year	***Scale***	***Details***	***Source***
1937	Aerial Photograph. Scale: 1"=555'	Flight Year: 1937	Army
1949	Aerial Photograph. Scale: 1"=555'	Flight Year: 1949	Aero
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2002	Aerial Photograph. Scale: 1"=666'	Flight Year: 2002	USGS
2005	Aerial Photograph. Scale: 1"=484'	Flight Year: 2005	EDR

INQUIRY #: 2245375.1
YEAR: 1937
= 555'
N

INQUIRY #: 2245375.1
YEAR: 1949
= 555'
N

INQUIRY #: 2245375.1
YEAR: 1956
= 555'
N

INQUIRY #: 2245375.1
YEAR: 1969
= 666'
N

INQUIRY #: 2245375.1
YEAR: 1978
= 666'
N

INQUIRY #: 2245375.1
YEAR: 1989
= 666'
N

INQUIRY #: 2245375.1
YEAR: 1994
= 666'
N

INQUIRY #: 2245375.1
YEAR: 2002
= 666'
N

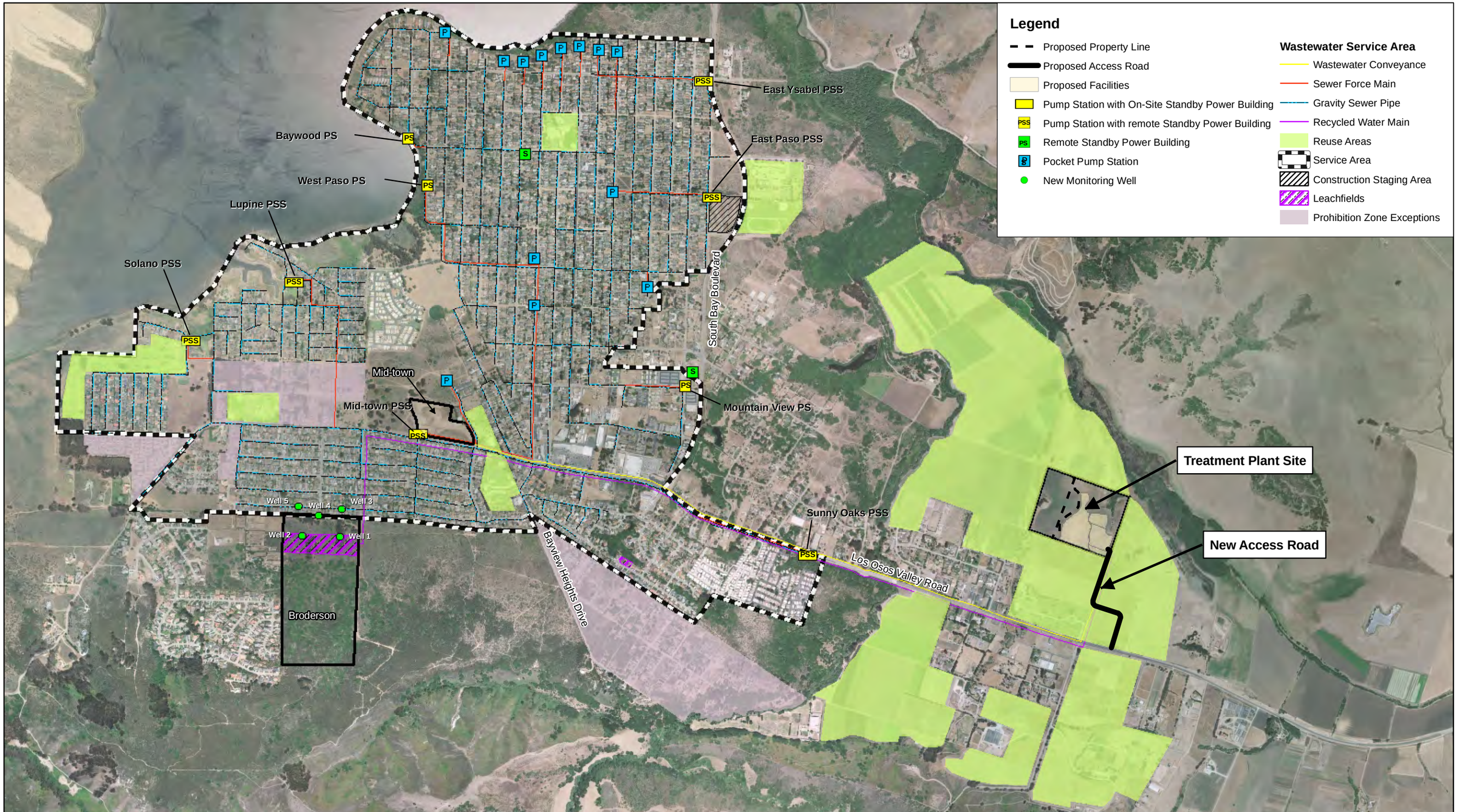
INQUIRY #: 2245375.1
YEAR: 2005
= 484'
N

Source: 2007 Digital Global aerials, San Luis Obispo County GIS Data, Carollo Engineers, and MBA GIS Data.

250 125 0 250
Feet

Exhibit 1-3
Treatment Plant Site Plan

LOS OSOS WASTEWATER PROJECT, 2010
Revised: 4/13/10



Source: 2007 Digital Globe aerials, San Luis Obispo County GIS Data, Carollo Engineers, and MBA GIS Data.

N

2,000 1,000 0 2,000
Feet

Exhibit 1-2
Overall Project Site Plan

LOS OSOS WASTEWATER PROJECT 2010
Revised: 4/13/10

April 16, 2010

Jonathan Bishop
California Coastal Commission
725 Front Street Suite 300
Santa Cruz, CA 95060

Subject: Revised Exhibits for the Los Osos Wastewater Project

Dear Mr. Bishop:

Enclosed with this letter are three exhibits illustrating the modifications to the Giacomazzi site setbacks, and the access road alternative across the Andre property. These exhibits respond to the results of our April 12, 2010 site visit where we identified upland chaparral that may qualify as a terrestrial ESHA, and noted the presence of wetlands in two swales crossing the Andre property. The exhibits illustrate a 100 foot setback from all possible ESHAs on the Giacomazzi property (cultural, terrestrial, and wetlands) and complete avoidance of wetlands on the Andre property. A copy of this letter and the enclosed exhibits has also been sent to:

Jonna Engel
California Coastal Commission
89 S. California Street, Suite 200
Ventura, CA, 93001-2801

Thank-you for your time and effort on this project. Please feel free to contact me if you have any questions or need more information from us.

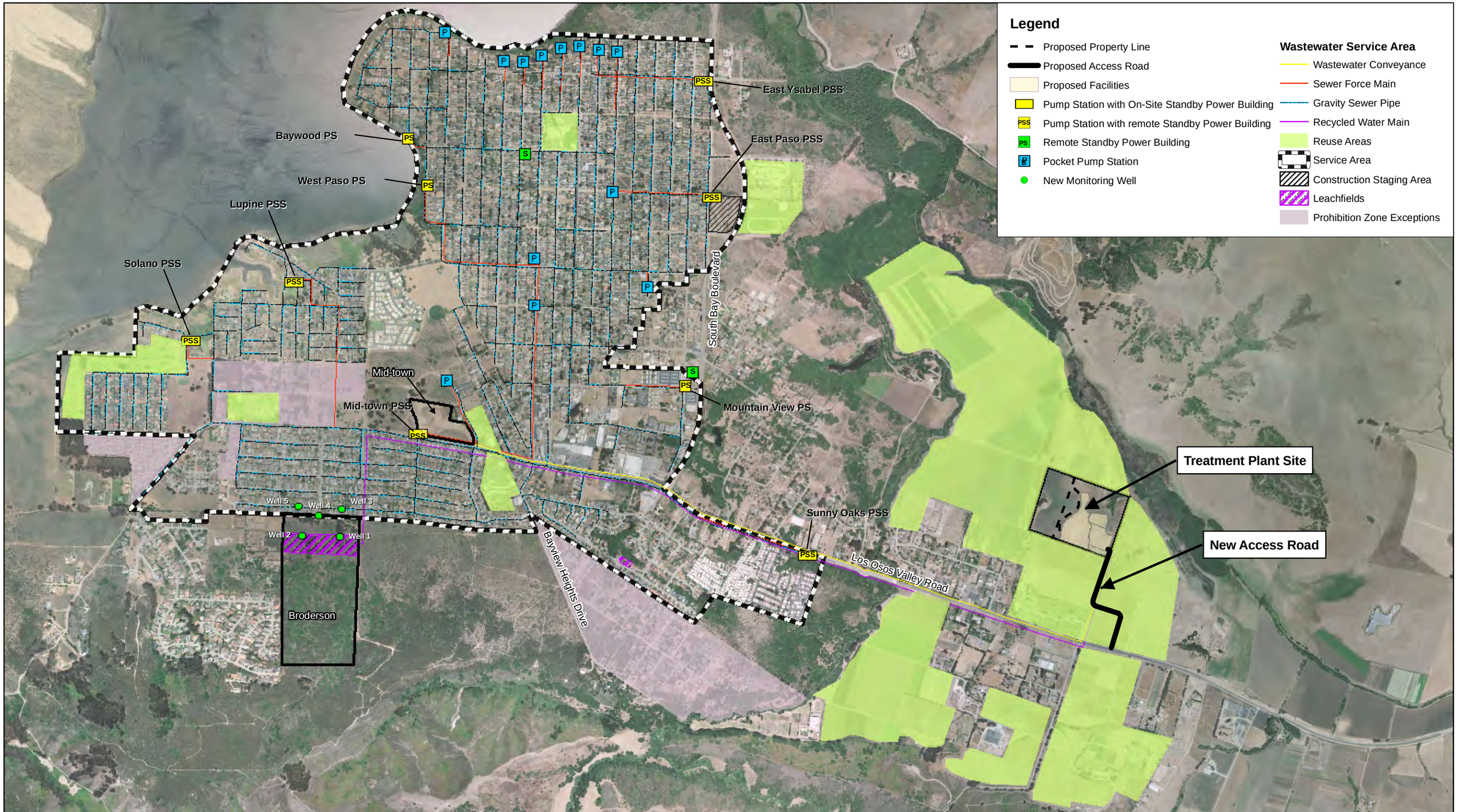
Sincerely,

MARK HUTCHINSON
Environmental Programs Manager

Enclosures (3)

c: Jonna Engel

File: Los Osos Wastewater Project 300337.03



Source: 2007 Digital Globe aerials, San Luis Obispo County GIS Data, Carollo Engineers, and MBA GIS Data.

2,000 1,000 0 2,000
Feet

Exhibit 1-2
Overall Project Site Plan

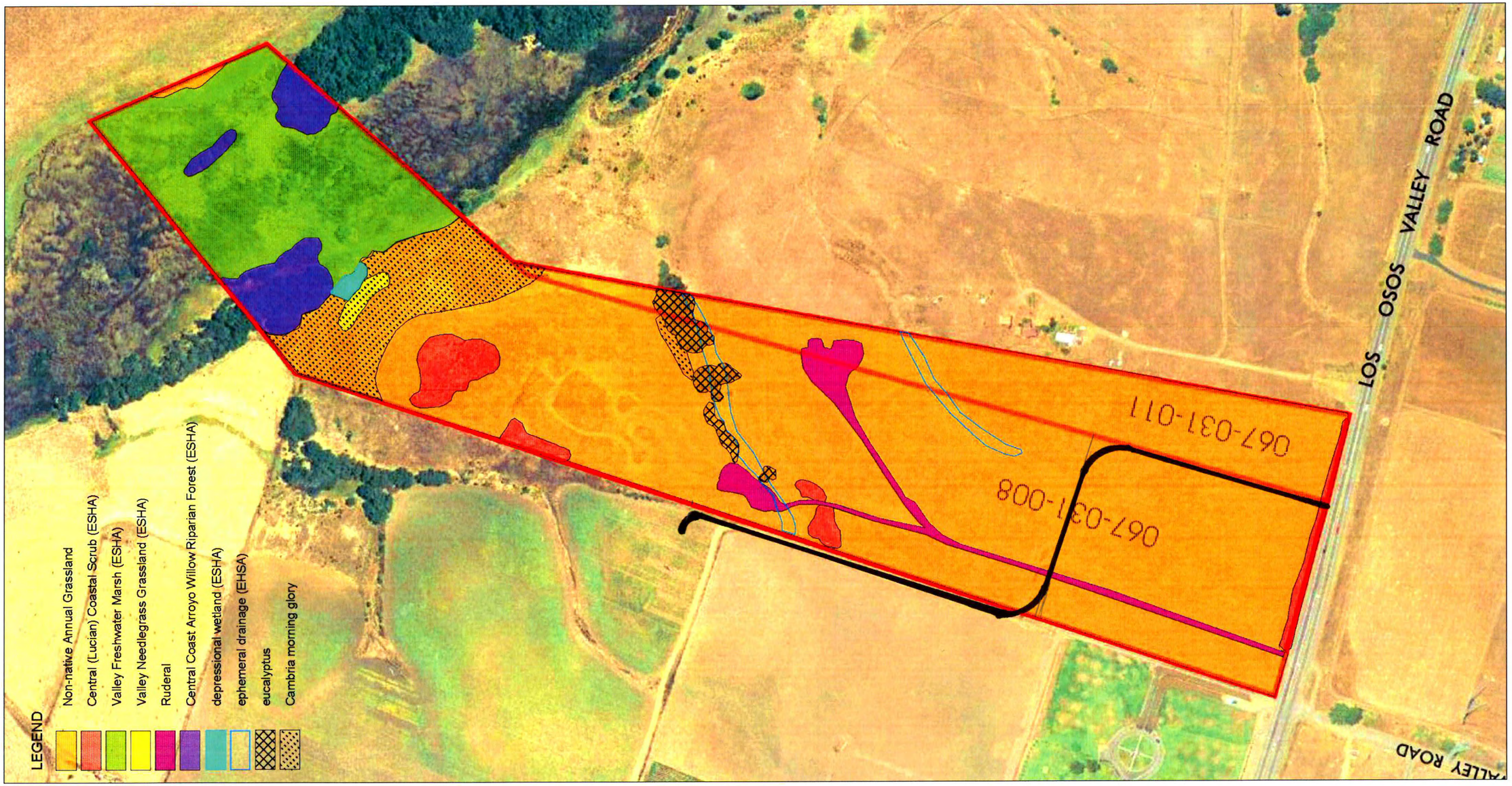
LOS OSOS WASTEWATER PROJECT 2010
Revised: 4/13/10

Source: 2007 Digital Global aerials, San Luis Obispo County GIS Data, Carollo Engineers, and MBA GIS Data.

250 125 0 250
Feet

Exhibit 1-3
Treatment Plant Site Plan

LOS OSOS WASTEWATER PROJECT, 2010
Revised: 4/13/10



Aerial Source: Crawford, Multari, Clark & Associates

067-031-008 - Andre Site
067-031-011 - adjacent parcel

NORTH
Not to Scale

BIOLOGICAL CONSTRAINTS MAP
FIGURE 4

SAN LUIS OBISPO COUNTY
DEPARTMENT OF PUBLIC WORKS
Paavo Ogren, Director

County Government Center, Room 207 • San Luis Obispo, CA 93408 • (805) 781-5252
Fax (805) 781-1229 email address: pwd@co.slo.ca.us

RECEIVED
MAY 03 2010
CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

April 26, 2010

SLO Green Build
P.O. Box 12043
San Luis Obispo, CA 93406

Subject: Water Conservation Planning for the Los Osos Wastewater Project

Thank-you for your recent thoughts on the water conservation component of the Los Osos Wastewater Project. We very much appreciate the suggestions in your March 7, 2010, letter to the Coastal Commission and hope that this letter can advance our mutual desire to implement an effective conservation program.

We appreciate your suggestion, and certainly intend to include, qualified non-profit organizations in the overall program. As we develop program details, we would like to collaborate with SLO Green Build and take advantage of your expertise in this emerging area. We have followed your work over the past several years and are impressed by the range of innovative technologies you have identified. While some technologies, such as gray water systems, may have limited applications in the built environment of Los Osos, the inclusion of these kinds of elements will usefully illustrate the variety of approaches that homeowners can take to reduce water flows to the wastewater system.

As noted in your letter, the overall objective in Los Osos is to implement a comprehensive basin wide conservation plan. However, it is important to separate the overall objective from what can reasonably and legally be accomplished with one project. Although the wastewater project is fundamental to addressing seawater intrusion in Los Osos, it cannot accomplish that overall objective in and of itself, given the limitations of nexus, our legal authority, and project funding restrictions. The project's water conservation strategy must be part of a basin wide approach, rather than requiring that the wastewater project shoulder full responsibility for a program that must include collaboration of numerous organizations and individuals. This is especially important given that the County has no direct legal authority over the water purveyors, other groundwater pumpers, or groundwater users.

We also need to be mindful that the wastewater project, as currently proposed, mitigates its seawater intrusion impact by a ratio of at least 3:1, in order to satisfy the California Environmental Quality Act, and the requirements of the Local Coastal Plan. Consequently, we must ensure that efforts to leverage the water conservation mandates placed on the wastewater project for greater benefits do not violate the numerous restrictions on the use of public funds. Maintaining a strong nexus to the project's documented impacts will be important as we move forward.

Along with SLO Green Build, we recognize that outdoor conservation measures are important to the overall water situation in Los Osos. At the same time, the County has no direct authority to regulate domestic water use, in as much as we are not a water purveyor in

Los Osos. In addition, there is little, if any nexus between outdoor water use and the wastewater project. However, we fully agree that water purveyors need to join our conservation efforts; in fact, they need to play a major part.

In recognition of this, the County is currently working through the ISJ process, under the authority of the Superior Court, to help craft a basin management plan that includes mandatory outdoor water conservation. We are hopeful that through partnerships with the water purveyors and organizations such as SLO Green Build, we can effectively reduce outdoor water use.

We noted that your letter included percentage water use reduction targets. You may recall that the County Planning Commission discussed percentage targets during their extensive deliberations on water conservation and concluded that percentage targets must be based on accurate baselines. Much of the key data needed is currently unobtainable; therefore we cannot establish a strong baseline. However, we know that 50 gpd is a reachable goal; therefore the Planning Commission chose to go with a solid number, rather then percentages of an unknowable amount. (Implementation of condition of approval #108 will ultimately rectify this situation).

We do certainly agree that investigating new technologies, monitoring water use, and encouraging conservation through wastewater service pricing are also important components of the water conservation plan. We would, however, suggest that the details and nuances of these elements would be best developed in response to a permit condition that establishes the overall goals but allows the details to be developed for review and approval by the permit authority. This will provide for a thorough examination of a host of approaches and ensure that no violation of the various statues and regulations governing these issues occurs.

We believe that the implementation of numerous conditions of approval (1k, 6, 97, 99, 101, 103, and 108, attached with our response to the Coastal Commission) describe a water conservation program that embodies all of the concepts included in your letter, while remaining consistent with use of public funds, the requirement for a clear project nexus, and limitations on the County's legal authority. At the same time, we believe that your work helps show how the list of project conditions can be crafted in a way that not only will result in a strong water conservation program, but will also establish a foundation upon which additional benefits can be built.

Again, thank you for your work on this project. Hopefully we will have an opportunity to work with SLO Green Build to both develop and implement the final conservation program.

Sincerely,

PAAVO OGREN
Director of Public Works

Attachment: Implementation Timing/ Water Conservation Program discussion

c: California Coastal Commission

File: Los Osos Wastewater Project

L:\LOS OSOS WWP\APR10\SLO GrnBld Letter ver 003.doc.PO:lc

RECEIVED
MAY 03 2010
CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

Implementation Timing/ Water Conservation Program

Coastal Commission Staff Comment:

Implementation specificity and timing. We will be reviewing the County conditions as well as other project components with an eye towards refining implementation specificity, including in relation to deadlines. We appreciate your offer regarding identifying your timeline for water conservation elements in this respect, but would ask that you broaden that scope in relation to other aspects of the project as well, including implementation of the agricultural reuse and conservation plan. To us, this issue was clearly one of a need to hone in on what the County was going to do, how and when, and making sure these commitments made sense in relation to timing feasibility and potential adaptive management over time. That applies to the water conservation components but also to other project components, like agricultural reuse, as well. Any information you can provide on expected project timing and implementation specificity would be helpful in this regard, whether you want to develop a new product that summarizes this information or want to point us to existing information (e.g., EIR, County findings, etc.) or both.

Response

1. The County's Conditions of Approval contain timing elements in each measure, or an overall timing measure that applies to a set of conditions or project component.

2. Although the project is not a water project, and the County is not a water purveyor in Los Osos, the County has and will continue to use its other authorities to accomplish water sustainability goals in Los Osos.

3. Even without direct water purveyor authority, the wastewater project's water conservation program will be effective in reducing seawater intrusion.

Discussion

1. Implementation Timing.

The enclosed table lists the Conditions of Approval and provides implementation timing and intent comments as necessary for each Condition. The table also provides a number reference to the Conditions of Approval of the LOCSD project (Coastal Development Permit A-3-SLO-03-113).

2. County Authority

It is important to be aware that the Los Osos Wastewater Project has as its primary goal the elimination of water pollution from septic tanks. The focus of the project is compliance with the Regional Water Quality Control Board's discharge prohibition. By accomplishing this goal, the Project will remove a significant threat to water sustainability in Los Osos, and will remove a significant and ongoing source of environmental degradation.

It must also be noted that without the wastewater project, and specifically the recovery and reuse of recycled water included in it, there is no possibility that Los Osos can solve its water supply issues, either now or in the future. Placing recycled water at the Broderson site, replacing groundwater pumping for irrigation with recycled water, and mandating interior plumbing retrofits are indispensible elements of Los Osos' water future that are provided by the wastewater project. In addition, technical studies completed by the wastewater project clearly show that imported water options are not financially feasible for the community; managing existing groundwater supplies is the only viable option.

The County of San Luis Obispo is not a water purveyor for the community. Water is supplied by Golden State Water Company, the Los Osos Community Services District, S&T Mutual Water Company, and individual on-site wells. Consequently, the County has no direct authority to control groundwater pumping, set water rates, or establish penalties for excessive water use. Never-the-less, the County has and will continue to use all of its other authorities to positively impact the issue of water availability in Los Osos. Examples of County efforts include:

- The County has voluntarily remained involved in the current groundwater litigation between the water purveyors in order to positively influence the outcome for the citizens of Los Osos,

- The County has used its land use authority to adopt water efficient landscape ordinances (attached),

- The County has used its land use authority to adopt a retro-fit upon remodel ordinance, requiring the entire structure to upgrade to water efficient technologies (attached),

- The County has used its land use authority to adopt a retro-fit upon sale ordinance, requiring the entire structure to upgrade to water efficient technologies (attached), and

- The County has used its land use authority to require new development to retrofit enough existing homes and businesses to save twice the amount of water the new development would use (attached).

These previous actions demonstrate that the County is committed to using its authority to accomplish the necessary changes in the water use and supply equation in Los Osos.

3. Water Conservation Program

The focus of the water conservation program is to reduce seawater intrusion in Los Osos. Therefore, the conditions of approval describe a Program that includes elements that reduce pumping by reducing overall water use through mandated retrofits, provide recycled water in place of water pumped from the lower aquifer, provide a means to monitor water use, and provide for ongoing coordination with water purveyors.

The Water Conservation Program will comply with existing State policy contained in Section IX(C) of *Policy for Implementing the Clean Water State Revolving Fund for Construction of Wastewater Treatment Facilities*, *SWRCB*. Key Water Conservation Program elements in this policy are:

1. Water Survey Programs For Single-Family Residential And Multi-Family Residential Customers
2. Residential Plumbing Retrofit
3. System Water Audits, Leak Detection And Repair
4. Metering With Commodity Rates For All New Connections And Retrofit Of Existing Connections
5. Large Landscape Conservation Programs And Incentives
6. High-Efficiency Clothes Washing Machine Financial Incentive Programs
7. Public Information Programs
8. School Education Programs
9. Conservation Programs For Commercial, Industrial, And Institutional Accounts
10. Wholesale Agency Assistance Programs
11. Retail Conservation Pricing
12. Conservation Coordinator
13. Water Waste Prohibition
14. Residential Ultra-Low Flush Toilet Replacement Programs

1k. This approval authorizes . . . a water conservation program allowing a maximum water usage of 50 gallons per day / person for indoor water usage.

Condition 1k establishes the Water Conservation Program as part of the proposed project, and establishes a basic standard of 50 gallons per day per person indoor use. The indoor use standard is identified because it provides a direct nexus to the wastewater project: water used indoors directly impacts the size and operation of the collection system, treatment plant, and recycled water components of the Project.

6. Tertiary Treatment. The treatment plant shall provide Disinfected Tertiary Recycled Water as defined at Section 60301.230 of Title 22 of the California Code of Regulations, which means a filtered and subsequently disinfected wastewater that meets the following criteria:

(a) The filtered wastewater has been disinfected by either:

(1) A chlorine disinfection process following filtration that provides a CT (the product of total chlorine residual and modal contact time measured at the same point) value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow; or

(2) A disinfection process that, when combined with the filtration process, has been demonstrated to inactivate and/or remove 99.999 percent of the plaque-forming units of F-specific bacteriophage MS2, or polio virus in the wastewater. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of the demonstration.

(b) The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.

Prior to providing tertiary treated water for agricultural uses the applicant shall develop a Recycled Water Management Plan for Agricultural Re-use. The use of tertiary treated water shall be consistent with resource protection strategies including but not limited to those designed to protect on and off site soils, and surface and groundwater resources through the use of appropriate site-specific management practices. The applicant shall consult with technical resource providers such as the University of California Cooperative Extension and USDA Natural Resources Conservation Service. The Plan shall be reviewed and approved by the Director of Planning and Building in consultation with the Agricultural Commissioner's Office prior to providing tertiary treated water for agricultural uses.

Condition 6 establishes that the project will provide tertiary recycled water. The specifications are from Section 60301.230 of Title 22 of the California Code of Regulations in order to clearly state that the recycled water is available for a variety of reuse options. Although the water code allows recycled water to be used on agricultural crops with no restrictions, we felt that a management plan is appropriate based on EPA guidelines to address any potential issues, such as:

- Salinity Management
- Trace Elements
- Chlorine Residual
- Nutrients
- System Reliability
- Site Use Control
- Monitoring Requirements
- Runoff Controls
- Marketing Incentives
- Irrigation Equipment

Depending on the rate of hookups after project completion, and the rate at which recycled water is placed at the Broderson site, water for agricultural use would be available from 0-3 years after project start-up. However, the Recycled Water Management Plan is an important part of the negotiations with farmers. Therefore, we expect to have the Management Plan completed prior to operation of the wastewater facility.

97. Disposal of treated effluent shall be reserved for the following sites/uses in the Los Osos Groundwater Basin:
a. Broderson (not to exceed 448 AFY on an average annual basis),
b. Urban re-use within the urban reserve line (as identified in the Effluent Re-Use and Disposal Tech Memo, July 2008),
c. Agricultural re-use overlying the Los Osos Groundwater Basin,
d. Environmental reservations (not less than 10% of the total volume of treated effluent), and
Total agricultural re-use shall not be less than 10% of the total treated effluent. Disposal shall be prioritized to reduce seawater intrusion and return/retain water to/in the Los Osos groundwater basin. Highest priority shall be given to replacing potable water uses with tertiary treated effluent consistent with Water Code Section 13550.
No amount of treated effluent may be used to satisfy or offset water needs that result from non-agricultural development outside the Urban Reserve Line of the community of Los Osos.

Condition 97 describes where the recycled water generated by the project will and will not be used:

- The amount needed to offset current septic flows to the upper and lower aquifer is placed at Broderson (448 acre feet).
- (See condition 101 for the 33 acre feet to be placed at Bayridge)
- Urban reuse at the Park, schools and golf course is specified (see attached section from the Effluent Re-Use and Disposal Tech Memo, July 2008)
- Agricultural reuse over the basin (see attached map of basin boundaries)
- A reservation of not less than 10% for environmental uses (so far only Bayridge would fall into this category). Also note that this is a lower limit; if additional water is needed as a result of the monitoring required in condition 87, it would be provided.

The next paragraph sets a lower limit for agricultural reuse at 10%, to ensure that we maintain a viable program. This paragraph also describes how we will prioritize recycled water use, focusing first on those elements that best reduce seawater intrusion.

The last paragraph will ensure that no recycled water is used outside of the URL for new development, responding to our concern that development outside the URL might otherwise use or leverage recycled water for growth outside the urban boundary.

99. Within one year of adoption of a due diligence resolution by the Board of Supervisors, electing to proceed with a wastewater project, a water conservation program shall be developed by the applicant in consultation with the local water purveyors within the prohibition zone for the community of Los Osos, that meets the goal of 50 gallons per day / per person for indoor use. The applicant shall provide 5 (five) million dollars of funding towards a water conservation program for indoor water conservation. Incentives shall be provided to homeowners and other property owners who install conservation measures within the first year.

Condition 99:

1) Specifies a time frame for the Water Conservation Program (that is, those elements and efforts of water conservation that are not project components to be implemented as part of the project description and/or other specific conditions of approval). The due diligence resolution, required by AB2701, commits the County of San Luis Obispo to implementing the Project. It also allows the County to start collecting assessments, thereby providing the funding foundation for the project. Within one year after the resolution is adopted and provides the necessary funding, the County will have the remaining details of the Water Conservation Program developed and can begin full implementation. We expect the basic elements of the Program will be those specified in the Conditions of Approval, plus those elements included by the SWRCB's SRF program (listed above), as well as any additional items that are appropriate for Los Osos. The condition requires that we work "in consultation with the local water purveyors within the prohibition zone" so the scope of the Program will depend to some degree on the role(s) the water purveyors choose.

2) Provides a conservation goal for indoor water use (50 gallons per day / per person, repeating the project description)

3) Provides a funding level to assist homeowners with the cost of indoor retrofits that are required in condition 103 below.

4) Requires the funding to be distributed through an incentive program that encourages retrofits within the first year after the conservation program goes into effect, which would be before the wastewater project goes on line.

101. The applicant shall utilize the existing Bayridge leach field (APN 074-491-033) to dispose of approximately 33 acre feet per year of treated effluent upon

decommissioning of the existing leach field and connection to the community sewer system. The applicant shall consult with the Los Osos Community Services District (LOCSD) prior to the design phase of the project regarding use of said facilities to ensure all their concerns are addressed.

Condition 101 adds the existing Bayridge leachfield to the list in condition 97 above in order to preserve existing groundwater flows in that part of the Willow Creek drainage.

103. Prior to individual property connections to the waste water system, each property owner shall provide verification to the satisfaction of the Planning Director that all toilets, showerheads and faucets have been replaced with high efficiency versions of the same.

Condition 103 provides the technology based foundation of the water conservation program. By retrofitting existing properties with the specified fixtures, which require no behavior changes on the part of building occupants, we expect to meet or fall below the 50 gpd/person standard. Consequently, other elements of the conservation program will focus on reducing water use further by including additional fixture changes (e.g., front loading washers, hot water circulators), public education, and outdoor water use reductions (grey water systems, water efficient landscaping, etc..).

108. Prior to individual property connections to the wastewater treatment project, each property owner shall provide verification to the satisfaction of the Public Works Department (in consultation with the Planning Director) that a water meter meeting American Water Works Association (AWWA) standards, and approved by the water company serving the individual property, has been installed or is existing on the connection site. A water meter shall be installed on each legally established residential / commercial unit prior to connection to the wastewater treatment project. Water usage information shall be made available to the sewer authority on a quarterly basis or on a schedule agreed to by the water purveyors and the County to verify the water savings derived from the water conservation program.

Condition 108 provides for two important components of the Water Conservation Program:

1) Existing residences connected to the S&T Mutual Water Company do not have water meters. This not only prevents the use of tiered water rates to encourage conservation, but would also prevent the wastewater authority from implementing tiered wastewater rates as well. (Note that wastewater flows are determined by monitoring wet season water use, when outdoor use is non-existent or at a minimum.) This condition would ensure that all connections to the wastewater project have proper water meters that can be used to set tiered wastewater and water rates to better encourage conservation.

2) This condition also requires that individual water use information be made available to the wastewater authority. As a condition of hook-up to the wastewater system, each property would be required to grant the wastewater authority access to their water use information.

This condition will allow the County to monitor the success/status of the water conservation program by collecting accurate water and wastewater use information. Based on this information, the County can implement conservation billing for wastewater services, focus conservation program elements, and keep the public and other agencies informed about the status of the project.

Attachments:

- Implementation and Timing of Conditions of Approval Table
- SRF Program Water Conservation Requirements
- Groundwater Basin Map
- Effluent Re-Use and Disposal Tech Memo, July 2008 (part)
- Coastal Zone Land Use Ordinance Section 23.04.184 (Water Efficient Landscape Ordinance)
- Los Osos Groundwater Basin Retrofit Ordinances:
    - Title 19
    - Title 8