Section 4.13 Hazards and Human Health

The text of Mitigation Measure 4.13-4(b) on page 4.13-16 is revised to read as follows:

(b) *Implementation of Mitigation Measures 4.13-~~2~~3(a) through (d).*

Section 4.15 Biological Resources

Impact statement 4.15-8 on page 4.15-43 is revised to read as follows:

4.15-8 Construction of the Proposed Project ~~could~~ would result in the loss of oak woodland/savannah, individual oak trees, and other protected trees.

TABLE 2-1

SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
4.2 Land Use and Planning			
4.2-1 The Proposed Project includes construction and operation of developed uses that could be incompatible with on-going agricultural uses in the Specific Plan area.	LS	4.2-1 None required.	NA
4.2-2 The Proposed Project includes construction and operation of developed uses that could be incompatible with the Lagoon Valley Regional Park.	LS	4.2-2 None required.	NA
4.2-3 The Proposed Project includes construction and operation of incompatible uses.	LS	4.2-3 None required.	NA
4.2-4 Development of the Proposed Project could result in an incompatibility with adjacent existing and planned uses.	LS	4.2-4 None required.	NA
4.2-5 Development of the Proposed Project could conflict with adopted applicable land use plans, policies, or regulations.	LS	4.2-5 None required.	NA
4.2-6 Development of the Proposed Project would convert Important Farmland to developed use.	S	4.2-6 None available.	SU
4.3 Parks and Recreation			
4.3-1 Development of the Proposed Project could conflict with City standards for the provision of parkland.	LS	4.3-1 None required.	NA
4.3-2 Proposed project would create additional demand necessitating the construction or expansion of existing recreational facilities, which might have an adverse physical effect on the environment.	PS	4.3-2 None available.	SU
4.3-3 Proposed project could increase use of existing park facilities such that substantial physical deterioration of the facility could occur or be accelerated.	PS	4.3-3 None available.	SU

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TABLE 2-1

SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
4.3-4 Construction activities associated with installation of utilities infrastructure could temporarily disrupt existing recreation facilities.	S	4.3-4 (a) The Applicant shall fund a public information and outreach program beginning two months prior to construction of utility corridors in Lagoon Valley Regional Park and continuing until construction is completed. The program shall either be developed by the City, or subject to City review and approval no later than three months prior to start of construction. (b) The Applicant shall implement measures to minimize the amount of time the trails are closed to public access including, but not limited to, development of an alternative/detour plan in coordination with the City Community Services Department. (c) The Applicant shall ensure that at no time during construction on the trail will City staff be hindered from accessing the reservoir site or water transmission pipelines for routine and emergency operational and maintenance activities, by providing alternative access, subject to City Public Works approval.	LS
4.4 Visual Resources			
4.4-1 Implementation of the Proposed Project would alter scenic vistas and the visual character of scenic resources.	S	4.4-1 None available.	SU
4.4-2 Implementation of the Proposed Project would alter the existing visual character of the Lower Lagoon Valley.	S	4.4-2 None available.	SU

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TABLE 2-1

SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
4.4-3 The Proposed Project would create new sources of light which could adversely affect nighttime views of the Specific Plan area.	PS	4.4-3 (a) The use of reflective materials shall be limited and when feasible, exterior-building surfaces in the business village shall include the installation of low-glare materials. (b) Any outdoor incandescent lighting fixture or more than 160 watts shall be constructed so that no more than 10 percent of the light rays from the fixture shall be emitted at angles above the horizontal plane. (c) Streetlights with any high-intensity discharge lamp, including, but not limited to, mercury, metal halide and high-pressure sodium lamps, are prohibited on private roads. (d) Streetlights shall use low-pressure sodium lamps, so that no light rays are emitted from the fixture at angles above the horizontal plan. Streetlights shall use "cut off" fixtures. (e) Outdoor metal halide and high-pressure sodium lighting shall be permitted only for the purpose of illuminating recreational facilities and all figures shall be fully shielded. (f) Outdoor lighting with any mercury vapor, quartz-halogen or fluorescent fixture is prohibited. Except as permitted by Mitigation Measure 4.4-3(e), outdoor lighting with any high-intensity discharge lamp, including but not limited to, mercury vapor, metal halide or high-pressure sodium lamp, is prohibited.	SU

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TABLE 2-1

SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
4.5 Transportation and Circulation			
4.5-1 Traffic generated by the Proposed Project would cause LOS to degrade to unacceptable levels at one intersection under Existing + Approved Projects + Project conditions.	S	4.5-1 (a) Convert the northbound approach at the intersection of I-80 eastbound ramps / Cherry Glen / Peña Adobe / Rivera Road to two left turn lanes and 1 shared-through-right turn lane, using a design approved by the City of Vacaville with review and approval of CALTRANS. (b) Redesign project access intersections to shift motorists from the commercial portion of the Proposed Project from the Peña Adobe Road / Cherry Glen Road interchange to the Lagoon Valley Road access to I-80. The redesign shall include installation of traffic controls and design of circulation patterns to discourage travel to Peña Adobe Road. The redesign shall encourage visitors to the commercial portion of the Proposed Project to use Lagoon Valley Road by appropriate placement of parking lot entrances, using a loop road and/or other features. Convert the northbound shared through-right lane at the intersection of Lagoon Valley Road/I-80 eastbound ramps into two separate lanes, one through lane and one right turn lane. Implement Mitigation Measure 4.5-4(a) to add an auxiliary freeway lane between Lagoon Valley Road and Peña Adobe/Cherry Glen.	LS
4.5-2 Traffic generated by the Proposed Project would cause intersection LOS to degrade to unacceptable levels in 2025.	S	4.5-2 (a) At the intersection of Lagoon Valley Road / I-80 eastbound ramps, signalize the intersection and add a northbound right-turn lane. (b.1) At the intersection of the I-80 eastbound ramps with Cherry Glen Road / Peña Adobe Road / Rivera Road, convert northbound approach to two left-turn lanes and one shared through-right-turn lane. (b.2) Implement Mitigation Measure 4.5-1(b). (c) Convert southbound right-turn lane to shared through-right-turn lane at the intersection of Alamo Drive / Marshall Road.	LS

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TABLE 2-1

SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
4.5-3 Project-generated traffic would cause freeway segment LOS to degrade to unacceptable levels on Interstate 80 in 2025.	S	4.5-3 (a) Widen the I-80 freeway by 12 feet on the west side to add a fifth westbound lane to I-80 from the North Cherry Glen off-ramp to Cherry Glen/Peña Adobe, relocating the shoulder and using the existing shoulder area for the new lane. (b) Widen the I-80 freeway by 12 feet and construct a retaining wall on the west side to add a fifth (auxiliary) westbound lane between the Alamo Drive overcrossing and the North Cherry Glen off-ramp, and construct a retaining wall west of the relocated shoulder. (c) Widen the I-80 freeway by 12 feet on the west side to add a fifth westbound lane to I-80 from the Cherry Glen / Peña Adobe overcrossing to the Lagoon Valley Road overcrossing, relocating the shoulder and using the existing shoulder area for the new lane. (d) Widen the I-80 freeway by 12 feet on the west side to add a fifth westbound lane between Lagoon Valley Road and North Texas Street, relocating the shoulder and using the existing shoulder area for the new lane. Install a retaining wall along the edge of the widened freeway.	SU
4.5-4 Project-generated traffic would cause one freeway ramp to degrade from acceptable to unacceptable LOS in 2025.	S	4.5-4 (a) Widen the freeway by 12 feet on the east side to add a fifth eastbound lane on I-80 between Lagoon Valley Road and Cherry Glen Road / Peña Adobe Road, in coordination with Rivera Road reconstruction that is proposed as part of the project. (b) In the alternative, implement Mitigation Measure 4.5-1(b), to redesign project access intersections to shift traffic to the Lagoon Valley Road freeway interchange.	SU
4.5-5 Traffic generated by the Proposed Project would cause LOS at diverge locations near freeway off-ramps to degrade to unacceptable levels in 2025.	S	4.5-5 (a) Widen the freeway by 12 feet on the east side to add a new eastbound lane along I-80 from North Texas Street to Lagoon Valley Road. (b) Implement Mitigation Measure 4.5-3(a) to add a westbound lane to I-80 between North Cherry Glen off-ramp and Cherry	SU

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		Glen/Peña Adobe. (c) Implement Mitigation Measure 4.5-3(b) to add a westbound lane between Alamo Drive and the North Cherry Glen off-ramp and construct a retaining wall adjacent to the freeway shoulder.	
4.6 Air Quality			
4.6-1 Construction activities associated with the Proposed Project could generate substantial air pollutant emissions.	STS	(a) Prior to all phases of project construction, the applicant and City shall ensure that construction contracts include the following specifications:	SU

Table 1 Best Available Fugitive Dust Control Measures

Fugitive Dust Source Category	Control Actions
Earth-moving	1. Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method d-2216; two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations. For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Disturbed surface areas (except completed grading areas)	2a/b. Apply dust suppression in a sufficient quantity and frequency to maintain a stabilized surface; any areas which cannot be stabilized, as evidenced by wind driven dust, much have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed surface areas – completed grading areas	2c. Apply chemical stabilizers within 5 working days or grading completion; OR 2d. Take action 3a or 3c specified for inactive disturbed surface areas.

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)		Level of Significance After Mitigation
		Inactive disturbed surface areas	3a. Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible due to excessive slope or other safety conditions; OR 3b. Apply dust suppressants in sufficient quantity and frequency maintain a stabilized surface; OR 3c. Establish a vegetative ground cover within 21 days after active operations have ceased; ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR 3d. Utilize any combination of control actions 3a, 3b, and 3c such that, in total, they apply to all inactive disturbed surface areas.	
		Unpaved roads	5a. Apply chemical stabilizers; OR 5b. Apply water to at least 80 percent of the surface areas of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR 5c. Install a three-sided enclosure with walls with no more than 50 percent porosity that extend, at a minimum, to the top of the pile.	
		Track-out control	6a. Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and with of at least 20 feet; OR 6b. Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.	
		All categories	7. Any other control measures approved by the District where necessary.	

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		Table 2 Best Available Fugitive Dust Control Measures for High Wind Conditions*	

Fugitive Dust Source Category	Control Measures
Earth moving	1A. Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	0B. On the last day of active operations prior to a weekend, holiday or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR 1B. Apply chemical stabilizers prior to a wind event; OR 2B. Apply water to all unstabilized disturbed areas 3 times per day; if there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per days; OR 3B. Take the actions specified in Table 1, Item 3c; OR 4B. Utilize any combination of control actions specified in Table 2, Items 1B, 2B, and 3B, such that, in total, they apply to all disturbed surfaced areas.
Unpaved roads	1C. Apply chemical stabilizers prior to a wind event; OR 2C. Apply water twice per hour during active operation.
Open storage piles	1D. Apply water twice per hour; OR 2D. Install temporary coverings.
Paved road track-out	1E. Cover all haul vehicles; OR 2E. Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for operation on both public and private roads.
All categories	1F. Any other control measures approved by the District.

* High wind conditions means when gusts exceed 25 mph.
Source: SCAQMD Rule 403, Tables 1, 2, & 3.

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		• An enforcement plan shall be established to weekly evaluate project-related on-and-off- road heavy-duty vehicle engine emission opacities, using standards as defined in California Code of Regulations, Title 13, Sections 2180 - 2194. An Environmental Coordinator, CARB-certified to perform Visible Emissions Evaluations (VEE), shall routinely evaluate project related off-road and heavy-duty on-road equipment emissions for compliance with this requirement. Operators of vehicles and equipment found to exceed opacity limits will be notified and the equipment must be repaired within 72 hours. • Contractors shall provide a plan for approval by an Environmental Coordinator demonstrating that the heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, would achieve a project-wide fleet average 30 percent NO_x reduction and 45 percent particulate reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. • Minimize idling time to 5 minutes. • Use low sulfur fuel for stationary construction equipment, if feasible. • Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators. • Use low emission on-site stationary equipment. • Maintain heavy-duty earthmoving, stationary and mobile equipment in optimum running conditions. [to the maximum extent practicable.]	

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
4.6-2 Daily operation of the project could generate substantial air pollutant emissions.	S	4.6-2 Prior to building permit, the applicant shall implement these, or equally effective measures, in consultation with the YSAQMD. • Improve the thermal integrity of nonresidential buildings, and reduce the thermal load with automated time clocks or automated sensors. • Provide efficient heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces, and boiler units. • Electrical outlets shall be installed on the exterior walls of both the front and back of a residence or all commercial buildings to promote the use of electric landscape maintenance equipment. • Install a gas outlet in the backyard of residential buildings for use with outdoor cooking appliances, such as gas burning barbeques. • Install a gas outlet with ceramic logs in any proposed fireplaces, including outdoor recreational fireplaces or pits. • Install low nitrogen oxide (NO_x) hot water heaters. (Beyond YSAQMD Rule Requirements) • HVAC units shall be equipped with PremAir (or other manufacturer) catalyst system if available and economically feasible at the time building permits are issued. The PremAir catalyst can convert up to 70 percent of ground level ozone that passes over the condenser coils into oxygen. The PremAir system is considered feasible if the additional cost is less than 10 percent of the base HVAC unit cost. • Require all flat roofs in the nonresidential land use areas to have a white or silver cap sheet to reduce energy demand. • If feasible, purchase battery powered or electric landscape maintenance equipment for new residences.	SU

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		• In consultation with the City Public Works and Community Development Departments, configure parking to minimize traffic interference and delays. • Include wide parking spaces or vanpool only spaces to accommodate vanpool vehicles in employment areas (e.g., community commercial, business-professional, industrial) in accordance with a City approved TSM program. • Provide preferential parking for carpools and vanpools in employment areas (e.g., community commercial, business-professional, and industrial areas). • Equip all truck loading and unloading docks with one 110/208 volt power outlet for every two dock doors. Diesel trucks shall be prohibited from idling more than five minutes and shall be required to connect to the 110/208 volt power to run any auxiliary equipment. Signage addressing these requirements shall be provided at the loading docks. • Vehicle and bicycle all day parking lots near transit stops, and freeway access points. • Permit park & ride lots in business village area. • Provide ridesharing information in a homeowners association package. • Contribute to an area transit fund to help build, maintain, and enhance transit services/facilities/amenities. • Subsidized school bus service. • A subsidy for added transit services. • Class II and III on-street bikeway system. • Class I bikeway system that connects residential, commercial and park uses of the Specific Plan. • Design streets to maximize pedestrian access to transit stops. • Site design to maximize access to transit lines. • Site design to accommodate bus travel.	

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Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		• Site design to provide lighted shelters at transit access points. • Preparation of a Transportation System Management Plan for employers with 50 or more employees. • Provide secure bicycle storage at public parking facilities. • Only U.S. EPA Phase II certified woodburning devices shall be allowed in single-family residences. • Woodburning or Pellet appliances shall not be permitted in multi-family developments. Only natural gas or propane fired fireplace appliances are permitted.	
4.6-3 The Proposed Project would generate increased local traffic volumes that could expose sensitive receptors near roadway intersections to substantial pollutant concentrations.	LS	4.6-3 None required.	NA
4.6-4 Implementation of the Proposed Project would result in new sources of air emissions that could impair implementation of the Clean Air Plan.	LS	4.6-4 None required.	NA
4.6-5 Implementation of the Proposed Project could expose sensitive receptors on or off site to substantial pollutant concentrations due to project-generated toxic air contaminants.	LS	4.6-5 None required.	NA
4.6-6 Implementation of the Proposed Project could release objectionable odors at the proposed manholes along the sewer main downstream of the pump station.	PS	4.6-6 (a) The Applicant shall include odor and corrosion control features in the manhole design where turbulence is anticipated. These may include vortex tube manhole inserts; manhole seals and ventilation tubes vented at least 20 feet from pedestrian path with carbon filters; or some other system. All proposed odor control systems (including those listed herein) shall be demonstrated to be effective to the satisfaction of the City Utilities Division and Community Services Department through pilot testing or other means	SU

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		prior to design approval. (b) The Applicant shall include in the manhole design where turbulence is anticipated, corrosion protection features approved by the City Utilities Division. (c) Separate the trail and any vents from each other, to the maximum feasible distance needed to reduce odor detection by pedestrians, based on final analysis of specific facility.	
4.7 Noise			
4.7-1 Construction activities associated with the Proposed Project development could generate temporary or periodic noise levels that exceed City standards.	PS	4.7-1 (a) Construction activities shall be limited to the hours of 7:00 A.M. to 6:00 P.M. Monday through Saturday. (b) All construction equipment engines shall be properly tuned and muffled according to manufacturers' specifications. (c) Noise construction activities whose specific location on the site may be flexible (e.g., operation of compressors and generators, cement mixing, general truck idling) shall be conducted as far as possible from the nearest noise-sensitive land uses, and natural and/or manmade barriers (e.g., intervening construction trailers) shall be used to screen propagation of noise from such activities towards these land uses to the extent possible. (d) The use of those pieces of construction equipment or construction methods with the greatest peak noise generation potential shall be minimized. Examples include the use of drills, jackhammers, and pile drivers.	SU
4.7-2 Construction activities associated with the Proposed Project development could generate and expose persons to excessive groundborne vibration levels.	PS	4.7-2 (a) Equipment warm-up areas, water tanks, and equipment storage areas shall be located a minimum of 150 feet from occupied residences, where feasible. (b) Flexible sound control curtains shall be placed around drilling apparatus and drill rigs, if sensitive receptors are located nearby.	SU

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
4.7-3 Implementation of the Proposed Project development could expose existing and proposed residential or other sensitive land uses to noise in excess of City standards.	PS	4.7-3 (a) Prior to the issuance of building permits for residential uses located within 2,000 feet of I-80, the project developer(s) shall submit an acoustical analysis to the City of Vacaville Community Development Depart that demonstrates that the final project design incorporates measures that reduce traffic noise levels within the exterior living environments of the residential uses will not exceed 60 dBA L_{dn}. The analysis shall be based on the final grading plan for the project. (b) Prior to the construction of public utility facilities, an acoustical analysis shall be prepared to identify projected noise levels from equipment and to identify project design measures, if required, that reduce noise effects on adjacent residential or other sensitive uses to levels meeting City standards.	LS
4.7-4 The specific plan would generate increased local traffic volumes, which could result in a substantial permanent increase in off site ambient noise levels.	LS	4.7-4 None required.	NA
4.8 Public Utilities			
4.8-1 Improvements to existing wastewater collection system facilities would be needed to accommodate projected Proposed Project flow.	LS	4.8-1 None required.	NA
4.8-2 The Proposed Project would increase flow to the Easterly Wastewater Treatment Plant.	LS	4.8-2 None required.	NA
4.8-3 The Proposed Project would result in the construction of a collection system to expand the existing wastewater treatment facility service area.	S	4.8-3 (a) The Applicant shall include in the project improvements on-site and off-site wastewater collection system facilities within the project area designed in accordance with current City standards.	LS

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Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		b) The Applicant shall fully fund the design and construction of onsite and off-site wastewater collection system facilities necessary to convey flow to the existing wastewater collection system. The off-site facilities shall be as described for either Option 1 or Option 2, including special odor control, corrosion control, and other measures required by the City and outlined in Appendix G. (c) The City shall determine which off-site facility alternative (Option 1 or Option 2) is preferred, based on consideration of life-cycle costs and potential non-monetary impacts. (d) The City shall require permanent flow metering equipment with telemetry, either at the pump station (under Option 1), or on the proposed gravity sewer near the point of connection to the existing wastewater collection system (Option 2). (e) If a pump station is included in the off-site facilities, the Applicant shall establish a major maintenance reserve fund to fully fund future major pump station replacement and rehabilitation projects.	
4.8-4 Development of the Proposed Project would increase the demand for electricity and could result in the need for additional distribution infrastructure.	LS	4.8-4 None required.	NA
4.8-5 Development of the Proposed Project would increase the demand for natural gas, and could result in the need for additional distribution infrastructure.	LS	4.8-5 None required.	NA
4.8-6 Development of the Proposed Project would increase the demand for cable television and result in the need for additional distribution infrastructure.	LS	4.8-6 None required.	NA

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4.9 Public Services			
4.9-1 The Proposed Project would increase the demand for police protection services, and could exceed adopted service standards or response times.	PS	4.9-1 (a) The City shall require the integration of design features to maximize public safety service impacts for public safety features added to the Proposed Project (gates, lighting, etc.) The recommended features shall be developed in consultation with the Vacaville Police Department Crime Prevention Division. (b) Prior to approval of tentative maps or design reviews, the City shall ensure that adopted features are incorporated into final project designs.	LS
4.9-2 The Proposed Project would increase the demand for fire protection services that could exceed the capacity of existing or planned services and facilities.	LS	4.9-2 None required.	NA
4.9-3 The residential and non-residential land uses in the Proposed Project would increase the volume of solid waste accepted at the B&J Landfill.	LS	4.9-3 None required.	NA
4.10 Water Supply			
4.10-1 Development of the Proposed Project would increase the demand for water.	S	4.10-1 The City shall use actual demand and production data accompanied with periodic water distribution system modeling (through the City of Vacaville Infrastructure, Facilities and Services Status Report Update, Master Plan update, and as needed) to determine when planned water sources should be brought on-line.	LS
4.10-2 Development of the Proposed Project would require main zone water distribution system improvements.	S	4.10-2 The City shall complete the modeling necessary to confirm the size and length of the needed Alamo Drive Pipeline (DIF 10). The Zone 2 booster pump station must be in service before water can be provided to customers. Therefore, the City shall complete construction of the required main zone DIF 10 project concurrent with the booster pump station completion (see Figure 4.10-7).	LS

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
4.10-3 Development of the Proposed Project would require on-site potable water distribution system improvements.	S	4.10-3 (a) Creation of an upper zone (Zone 2) to serve the existing development and part of the Proposed Project (elevation range from approximately 210 to 310 feet). The water distribution system for this new upper pressure zone (Zone 2) will include a 2,690 gpm booster pump station and a 2.9 MG partially buried concrete storage reservoir. Prior to approval of the Final Master Map, project proponent must deposit with the City adequate funds for the City to predesign, design and construct the reservoir and booster pump station required for this upper zone (Zone 2). (b) Creation of a second upper zone (Zone 3) to serve the remainder of the Proposed Project (elevation approximately 310 to 350 feet). The water distribution system for this upper pressure zone (Zone 3) will include a 230 gpm booster pump station and a 0.25 MG partially buried concrete water storage tank. Project proponent must deposit with the City adequate funds for predesign, design, and construction of the needed facilities, no less than three years before they are needed. (c) Conduct a water service area master plan and pump station/reservoir siting study to determine the specific limits of the Zone 2 and Zone 3 service area boundaries as well as the optimum location for the booster pump stations and water storage reservoirs. (Service area master plan and water modeling simulations are City responsibility and must be initiated prior to the approval of the Final Master Map). (d) Project proponent shall dedicate adequate space within the development to the City for the construction of the Zone 3 booster pump station. It is assumed that the Zone 2 booster pump station can be properly located within open space near the existing Butcher Road Reservoirs. If not, additional adequate space shall be required. The parcel(s) could be in open space areas or a separate accessible location and shall be dedicated at the time of approval of the first Final Map, tentative map, or area map for the Proposed Project.	LS

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		(e) Project proponent shall dedicate the proposed reservoir sites and access roads as identified by the water service area master plan and siting study. The sites shall be dedicated to the City for construction of the upper zone(s) partially buried concrete water storage reservoirs. The property shall be dedicated with the Final Master Map, first tentative map, or area map for the Proposed Project.	
4.10-4 Development of the Proposed Project would require on-site non-potable water distribution system improvements.	S	4.10-4 The Proposed Project shall include local and on-site non-potable system improvements as depicted in Figure 4.10-9. • 8-inch non-potable water main loop through the proposed business park and around the existing Lagoon Valley Regional Park. • 12-inch non-potable water main connected to existing Hines Nursery Pipeline and extended through Village III and golf course club house. • 8-inch non-potable water main extended from the 12-inch non-potable water main through Village I and connected to the 8-inch non-potable water main loop described above. These improvements must be designed and constructed according to SID requirements. Provisions shall be included to ensure non-potable water service to the existing users is maintained throughout construction of the necessary improvements. Additional improvements to the existing non-potable water distribution system may be required after SID reviews the proposed improvements.	LS

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
4.11 Hydrology, Drainage, and Water Quality			
4.11-1 Development of the Proposed Project would produce increased peak runoff flows from the project area, which could exceed the capacity of downstream drainage facilities and increase the downstream flooding hazard.	PS	4.11-1 (a) A Storm Drain Master Plan (SDMP) shall be prepared by a registered civil engineer that identifies specific design improvements that would mitigate for the increased runoff resulting from development of the Proposed Project. The SDMP shall demonstrate that the proposed drainage facilities adequately convey the design runoff and that the increased runoff will be mitigated through implementation of the proposed drainage facilities (see Figure 4.11-4). The SDMP shall be completed prior to approval of the first Tentative Map, and shall include the following: • Maps showing the location of existing and proposed drainage facilities, the watershed boundaries, location of analysis points, and overland release paths; • Preliminary pipe sizes and/or typical channel geometry with hydraulic grade lines, invert, and proposed ground elevations at analysis points; • Design flows (10- and 100-year) at key analysis points; • Preliminary grading plan and layout of proposed detention basins; • Stage, storage, and discharge information for detention basins for selected design storms; • Description of storage requirements, operation, and maintenance of detention facilities; and • Description and analysis of any necessary water quality features.	LS

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		(b) The project applicant shall include drainage improvements and detention basins designed to accommodate 10- and 100-year flows. Detention facilities shall be adequate to limit discharges from the Lower Lagoon Valley watershed such that the 10- and 100-year peak flows are reduced to 90 percent of the estimated existing peak flows. The detention facilities shall be designed to the City's Design Standards and will include provisions to ensure draining during high flows in the main channels and to prevent increased flows downstream due to the occurrence of simultaneous peak flows from upstream. All necessary detention storage shall be accommodated within the project site. (c) The Proposed Project shall be designed such that the building pads are raised and overland flows can be safely conveyed through the project site to an existing receiving channel (such as the Bypass channel or Lagoon Valley Lake), to the proposed golf course, and/or to the proposed detention facilities.	
4.11-2 The northern portion of the proposed residential development and most of the proposed business village development is within the FEMA 100-year floodplain.	PS	4.11-2 (a) Prior to the first residential Final Map and commercial building permit, a detailed floodplain study for the proposed residential and commercial projects shall be conducted by a registered civil engineer to determine the boundaries of the 100-year floodplain within the Lower Lagoon Valley. (b) Prior to issuance of the first building permit, the floodplain study shall be submitted to and approved by FEMA in accordance with all FEMA requirements for the floodplain map revision process. (c) Until a revised floodplain map is adopted, prior to any development within the 100-year floodplain as currently designated by the City of Vacaville FIRM, the City shall require as a condition of building permit issuance that the Proposed Project complies with the City's Floodplain Management ordinance for residential and non-residential floodproofing. When the revised floodplain map is adopted,	LS

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Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		any areas in the revised floodplain shall comply with the City's Floodplain Management Ordinance.	
4.11-3 Increased rates of surface runoff generated by the project development or dewatering for construction activities could result in sedimentation and increased levels of urban contaminants, which could affect receiving water quality.	PS	4.11-3 (a) A SWPPP shall be prepared to address water quality impacts associated with construction of project facilities and roadways prior to the start of construction. The project applicant shall incorporate into the construction contract specifications the requirement that all contractors comply with and implement the provisions of the SWPPP. The objectives of the SWPPP are to identify pollutant sources that could affect the quality of stormwater discharge, to implement control practices to reduce pollutants in stormwater discharges, and to protect receiving water quality. The City shall require preparation of a SWPPP Plan for construction activities, and shall comply with requirements adopted by the SWRCB that are shown to be necessary to mitigate project specific and cumulative water quality impacts of runoff. (b) Prior to adoption, the City shall ensure the Specific Plan includes policies directing that a comprehensive stormwater quality management plan for the proposed residential, golf course, and business village be prepared by a registered civil engineer or registered professional hydrologist for approval by the City prior to approval of local improvements plans. The management plan shall be designed to protect water resources from water quality impacts of runoff generated by the project to the maximum extent practicable, identifying construction and programmatic Best Management Practices (BMPs) as required to achieve this goal.	LS

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		(c) Project Conditions of Approval shall specify that appropriate BMPs be incorporated into project design to reduce urban pollutants in runoff, consistent with goals and standards established under federal and State non-point source discharge NPDES regulations and Basin Plan water quality objectives. To maximize effectiveness, the selected BMPs shall be based on finalized site-specific hydrologic conditions, with consideration for the types and locations of development. Mechanisms to maintain the BMPs shall be identified in the Conditions of Approval for individual projects. (d) Stormwater runoff BMPs selected from the CASQA (California Storm Water Best Management Practices Handbook, 2003), the Bay Area Stormwater Management Agencies Association Start at the Source-Design Guidance Manual, or similar documents shall be identified prior to final design approval. Typical BMPs that could be used shall include, but are not limited to, the following: dry extended detention basins, wet detention basins (permanent pools), grassy swales and vegetated channels, oil/grease separators, vortex type separators, catch basin inserts, or other equally effective measures. Other BMPs shall include, but would not be limited to, administrative controls such as signage at inlets to prevent illicit discharges into storm drains, street sweeping, public education, and household hazardous waste disposal programs. BMPs shall identify mechanisms for routine maintenance and repair of BMPs.	

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Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		(e) If the City's NPDES Phase II program is not approved prior to occupancy of the Proposed Project, a water quality testing program shall be developed by a qualified professional and implemented by the project applicant to sample and analyze for urban runoff pollutants at upstream and downstream locations from the Proposed Project to determine whether pollutants (if any) detected downstream originated from the plan area. If a statistically significant increase in urban pollutants is identified that are determined to have originated in the Proposed Project, additional controls shall be implemented and monitored to correct the problem. (f) If the City's NPDES Phase II program SWMP is approved prior to approval of improvement plans the BMPs identified in the program shall be implemented for Proposed Project. If BMPs are identified prior to the NPDES Phase II program that would provide an additional level of water quality protection, their use shall be continued.	
4.11-4 Runoff from the surrounding hillsides contains sediment that could plug drainage facilities, resulting in increased maintenance and increasing the potential for flooding within the Proposed Project.	PS	4.11-4 A comprehensive erosion control management plan shall be prepared by a registered civil engineer, registered geotechnical engineer, or registered geologist for approval by the City prior to submittal of local improvements plans. The management plan shall be designed to reduce sediment entering the Proposed Project, develop a maintenance plan for the proposed drainage facilities and/or erosion control measures, and protect the water quality of Lagoon Valley Lake.	LS
4.11-5 The Proposed Project could be subject to flooding from dam failure inundation.	PS	4.11-5 Prior to Tentative Map approval, the results of a dam failure inundation study shall be used to identify measures to protect locations that could be affected in the event of failure of the earthen dam at Lagoon Valley Lake. The finish floor elevations of buildings within the Specific Plan area shall be above the 100-year water surface elevation in Lagoon Valley Lake. Additional measures could include, but would not be limited to, periodic inspections, ensuring structures that could be affected are floodproofed, and an emergency notification/response plan.	LS

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Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
4.11-6 Occupied uses adjacent to Lagoon Valley Lake could be subject to seiche activity in the event of a large earthquake.	PS	4.11-6 Prior to Tentative Map approval, the results of a site-specific geotechnical study using an appropriate and industry-accepted model shall be used to identify the extent to which the project site could be affected by seiche hazard from Lagoon Valley Lake. If overtopping could occur, the study shall identify the extent of flooding and depth of flood water. The City shall ensure through the permit review process that recommendations for floodproofing potentially affected structures or increasing the freeboard and/or storage capacity of Lagoon Valley Lake are incorporated into project design prior to issuance of building permits for affected locations.	LS
4.11-7 Development of the Proposed Project could alter groundwater recharge conditions.	LS	4.11-7 None required.	NA
4.12 Geology and Soils			
4.12-1 Implementation of the Proposed Project could expose people or structures to potential risks caused by earthquake activity, including strong seismic groundshaking and seismic-related ground failures such as liquefaction and earthquake-induced landslides.	PS	4.12-1 (a) Prior to issuance of Grading or Building Permits, the applicant shall provide the City with site-specific geotechnical report(s) for the residential subdivision/golf course, business village, and utility areas as a condition of grading or building permit approval. The site-specific geotechnical report(s) shall include detailed design for foundations, structures, roadways, infrastructure, and related facilities that conform to: (1) current standards for development in Seismic Zone 4 in accordance with the CBC; (2) current standards for development in areas near mapped and/or likely landslide areas or unstable slopes in accordance with the CBC; and (3) recommendations in the preliminary geotechnical report prepared for the residential subdivision/golf course ("Preliminary Geotechnical Exploration, Lagoon Valley, Vacaville, California" dated July 2003) and business village ("Preliminary Geotechnical Exploration, Commercial Development, Lagoon Valley, Vacaville, California" dated August 2003). Project developers shall implement the recommendations of these reports and site-specific geotechnical reports.	LS

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Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		(b) Implement Mitigation Measure 4.12-3 (Mitigate Landslide Hazards) and 4.12-4 (Water Storage Tank Siting).	
4.12-2 Implementation of the Proposed Project could result in short-term soil erosion.	PS	4.12-2 (a) Implement Mitigation Measure 4.11-3. (b) Implement Mitigation Measures 4.12-1(a) and 4.12-3. (c) If the gravity sewer line option is selected, the project developer shall comply with Caltrans recommendations, prior to final Building Permit, to ensure that the location, design, and construction methods for the segment passing under I-80 and within Caltrans right-of-way conform to Caltrans specifications. (d) All soil areas remaining exposed after grading and excavation for building sites, utility corridors, or for obtaining fill material for the landscape berm and not developed with project features shall be immediately stabilized through hydroseeding, geotextiles, or other equally effective measures as identified in site-specific geotechnical reports. (e) Implement Mitigation Measure 4.6-1 (a).	LS
4.12-3 Development of residential and golf course uses along the eastern, southern, and western boundaries of the Specific Plan area would occur at or adjacent to locations where unstable soils and/or landslide hazards are known or may exist.	PS	4.12-3 (a) Implement Mitigation Measure 4.12-1(a). (b) Prior to Grading and Building Permits, when the locations of individual lots, building pads, roadways, and related facilities are more fully known, for each location that could be affected by landslide hazard, the results of a design-level geotechnical investigation shall be used to identify the specific landslide hazard reduction method(s) that shall be used to protect project features. Mitigation for landslides could include, but would not be limited to: complete removal of slide debris; reconstructing the slide area with drained, engineered fill; buttressing the slide areas; designing the Proposed Project in areas away from landslides; or equally effective measures. Landslide risk reduction methods shall be implemented during grading activities and prior to construction of improvements.	LS

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Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		(c) Prior to occupancy of residential units that could be affected by unstable slopes, a landslide hazard monitoring plan shall be developed by a registered engineer to be implemented during the life of the project. The plan shall, at a minimum: identify methods for routine investigation of slopes surrounding the Specific Plan area to inspect the effectiveness of controls installed; describe procedures for identifying new hazards and implementing appropriate controls and/or corrective actions; annual report to City staff and applicants and a documentation and reporting mechanism to City staff and applicants.	
4.12-4 Development of potable water storage tanks and associated infrastructure to serve the southern portion of the Proposed Project could occur at or adjacent to locations where unstable soils and/or landslide hazards are known or may exist.	PS	4.12-4 (a) Prior to final tank site selection, the results of a site-specific geotechnical study shall be used to identify specific tank site and infrastructure locations to serve Zones 2 and 3 that would be unlikely to be subject to unstable slopes. If alternative tank site(s) and/or pipeline routing to avoid known or potentially unstable slope areas cannot be identified, the recommendations for mitigating potential slope hazards identified in the geotechnical report prepared for the residential subdivision/golf course ("Preliminary Geotechnical Exploration, Lagoon Valley, Vacaville, California" dated July 2003) shall be implemented prior to construction of the tanks and the pipelines. Tanks and pipelines shall be designed and constructed in accordance with applicable professional standards, as determined by the City. (b) Implement Mitigation Measure 4.12-3(c).	LS
4.12-5 Implementation of the Proposed Project would result in the development of structures and roadways that could be affected by subsurface geologic and soils characteristics.	PS	4.12-5 Implement Mitigation Measure 4.12-1.	LS

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
4.12-6 Construction of a landscape berm adjacent to the golf course and residential development in the southwestern part of the Specific Plan area could result in exposure of people and property to unstable slopes.	PS	4.12-6 (a) Prior to construction of the berm, the results of a geotechnical design evaluation prepared by a registered professional engineer or engineering geologist shall be used to identify specific construction methods to be used to create the landscape berm, taking into account local climate, geologic, and seismic conditions. The design shall be submitted to the City Engineer for review and approval. Contract specifications shall incorporate the approved engineering design. (b) Prior to occupancy of the first residential unit, or golf course use, whichever comes first, the City shall develop a plan that identifies City inspection and maintenance procedures to evaluate berm stability. The plan shall also address procedures to correct deficiencies and identify funding mechanism(s) to ensure long-term maintenance. (c) Implement Mitigation Measure 4.12-2(d).	LS
4.13 Hazards and Human Health			
4.13-1 Construction and occupancy of the Proposed Project would result in the routine transport, use, or disposal of hazardous materials.	LS	4.13-1 None required.	NA
4.13-2 Implementation of the Proposed Project would result in the use, transportation, storage, and disposal of hazardous materials within ¼ mile from a proposed school site.	SU	4.13-2 None available.	NA
4.13-3 Construction and occupancy of the Proposed Project could create a health hazard to workers, the public and the environment due to previously unidentified contaminated soil and groundwater.	PS	4.13-3 (a) Prior to, or concomitantly with construction activities to implement the Specific Plan, the project Applicant shall implement all recommendations from the two ESAs completed by ENGEO Inc. on August 15, 2003. Specifically, the Proposed Project shall:	LS

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Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		• Conduct further evaluations of soil and groundwater impacts at the Hines Nursery facility through a Phase II ESA and remediate, as necessary, to all federal, State, and local standards; • Collect and dispose of identified stained soil according to federal, state, and local laws; • Collect and dispose of all abandoned tanks according to federal, state, and local laws; • Conduct a survey for lead-based paints and ABCM prior to demolition and remediate, as necessary, to all applicable federal, State, and local standards; • Collect and dispose of all abandoned pesticide containers according to federal, state, and local laws; • Demolish all observed equipment wash pads and collect and dispose of any stained soil according to federal, state, and local laws; • Collect and dispose of all abandoned farm equipment, debris and machinery according to federal, state, and local laws; and, • Abandon all agriculture and domestic water wells, and septic systems under permit by the SCDEM.	

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		(b) If, during site preparation and construction activities, evidence of hazardous materials contamination is observed or suspected through either obvious or implied measures (i.e., stained or odorous soil, or oily or discolored water), construction activities shall cease and an environmental professional shall assess the situation. If necessary, the environmental professional shall prepare a sampling plan to collect soil and/or groundwater samples to determine whether or not the site has been adversely affected by past activities. The samples shall be analyzed for the contaminants determined to be a potential health concern by the environmental professional. Depending on the nature of the contamination (if any), the SCDEM, or the current designated CUPA, shall be contacted for further direction, which could include further investigation or remediation to all applicable federal, State, and local levels. (c) If any required remediation has not yet been completed for contaminated soils or groundwater identified during construction, the project applicant shall perform a human health risk assessment, in accordance with the guidelines from USEPA and DTSC, to determine health risks to construction workers and future site occupants. The results of the human health risk assessment may indicate that added protection for construction workers and/or requirements for vapor barriers in structures would be required to prevent adverse effects on indoor air quality. The human health risk assessment shall be submitted to the SCDEM for review and approval, and engineering controls, if required to reduce health risks to acceptable levels for future site users, shall be incorporated into the project design.	

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		(d) If remediation of soil and/or groundwater has not been completed by the time site development occurs, the remediation systems shall be designed so that the systems can be effectively installed, operated, and removed without substantial conflict with planned land uses. The design of project improvements in the areas of the know soil and/or groundwater contamination locations shall be submitted to the SCDEM for concurrence prior to building permit issuance. And (e) Prior to any ground-disturbing activities on either Lagoon Valley Regional Park or the proposed utility corridor north of I-80, or any other off-site utility corridor, the Applicant shall conduct a Phase I ESA for each of these sites and follow the recommendation(s) within each Phase I ESA, as well as Mitigation Measures 4.13-3(b) through (d).	
4.13-4 Construction and occupancy of the proposed elementary school could create a health hazard to school children and school workers due to previously unidentified contaminated soils.	PS	4.13-4 (a) Prior to the construction of the proposed school site, the project applicant shall conduct a Preliminary Endangerment Assessment (PEA) of the proposed school site, pursuant to Title 22 of the CCR, Chapter 51.5, Section 69107(c), where the PEA shall include sampling to determine one or more of the following: • If a release of hazardous material has occurred and, if so, the extent of the release; • If there is the threat of a release of hazardous materials; and • If a naturally occurring hazardous material is present. (b) Implementation of Mitigation Measures 4.13-3(a) through (d).	LS
4.13-5 Implementation of the Proposed Project could expose people or structures to a significant risk of loss, injury, or death involving wildland fires.	LS	4.13-5 None required.	NA

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Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
4.14 Cultural Resources			
4.14-1 Construction of sewer line option 1 or sewer line option 2 could affect prehistoric sites CA-SOL-324, CA-SOL-270, or CA-SOL-30/H or historic archaeological features associated with the Peña family adobes (sewer option 2 and northern portion of Business Village).	S	4.14-1 (a) If CA-SOL-270 or CA-SOL-324 cannot be avoided by altering the proposed sewer and other utility alignments, the trench for the selected alignment shall be pre-excavated with a backhoe under the direction of a qualified archaeologist to identify residential features, human graves, and other intact cultural deposits. Prior to any excavation, the qualified archaeologist shall prepare a research design conforming to the requirements of section 15126.4(b)(3)(C) of the CEQA Guidelines. (b) If human burials or cultural features are encountered during pre-excavation, trenching shall stop, and the burial or feature should be excavated in a controlled manner and thoroughly recorded consistent with current archaeological standards. Non-feature site deposits shall also be sampled through the hand excavation of columns retrieved from trench sidewalls and/or from control units placed in the trench bottom. All hand-excavated sediments and soils shall be processed through 1/8-in mesh screen, with a minimum of 10 cubic meters of site deposit sampled in this manner. Flotation samples excavated from trench sidewalls shall also be obtained to recover fine-grained faunal and floral remains. The location of the utility trenches and any features or burials encountered during excavation shall be mapped using GPS technology. Trench side walls shall be thoroughly examined and recorded by a qualified geoarchaeologist and a site map shall be prepared. All recovered materials shall be analyzed, including radiocarbon and obsidian hydration dating, and a thorough research report prepared documenting the results of the investigation. This report shall, at a minimum, follow guidelines set forth in Archaeological Resource Management Reports Recommended Content and Format (Office of Historic Preservation [OHP], 1990).	LS

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		(c) During construction, all ground-disturbing activities within sites CA-SOL-30/H, CA-SOL-270, CA-SOL-324 or other archaeologically sensitive zones (e.g., Peña family adobes) shall be monitored by a qualified archaeologist (listed on the Registry of Professional Archaeologists [ROPA]). (d) Should an intact deposit or feature be uncovered during monitoring at CA-SOL-30/H, CA-SOL-270, CA-SOL-324 or in archaeologically sensitive zones, work in the immediate vicinity shall stop and the find assessed as to its legal significance by a qualified archaeologist. Any significant historical features or other deposits shall be hand excavated and sampled using accepted archaeological standards. Any foundation remnants shall be mapped, photo documented, and recorded prior to removal. The location of all finds shall be recorded on project plans and documented using GPS technology.	
4.14-2 Construction along utility corridors east of Lagoon Valley Lake could encounter a potentially significant prehistoric deposit at CA-SOL-43.	PS	4.14-2 (a) Prior to construction, a qualified archaeologist shall implement a testing program to determine whether significant deposits associated with CA-SOL-43 lie within the proposed utilities alignment. Prior to any excavation, the archaeologist shall prepare a research design conforming to the requirements of Section 15126.4(b)(3)(C) of the CEQA Guidelines. The research design shall include procedures for finds that are determined not to be significant, as well as finds that are potentially significant. (b) A qualified archaeologist shall hand-excavate surface transect units between the recorded site boundary and the utility corridor to determine if intact cultural deposits associates with CA-SOL-43 are present. If such deposits exist in the proposed corridor, a 1-x-2-m control unit shall be excavated under the direction of a qualified archaeologist and the material evaluated to determine if the deposit represents a significant resource under CEQA.	LS

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		(c) If the site deposit does not appear significant, no further management is required. (d) If a significant deposit is encountered, the project applicant shall, in consultation with the lead agency, evaluate alternative alignments for the proposed utilities to avoid the deposits associated with CA-SOL-43. (e) If the utilities alignment cannot feasibly be moved, data recovery excavations shall be conducted under the direction of a qualified archaeologist immediately following conclusion of the test excavation. This work shall include the excavation of additional 1-x-2-m control units (up to 6 cubic meters) and collection of column samples for flotation processing to recover plant macrofossils and small faunal remains. The site shall be mapped, unit profiles described, and the location of all control units recorded using GPS technology. All materials recovered during the test and data recovery excavations shall be analyzed and a research report prepared following guidelines set forth in Archaeological Resource Management Reports: Recommended Content and Format (OHP 1990).	
4.14-3 Earth-disturbing activities associated with implementation of the Proposed Project could result in the disturbance of previously unidentified prehistoric or historic archaeological resources.	PS	4.14-3 (a) In the event that such historical resources are discovered during project construction, construction work in the vicinity of the find shall cease until the find has been evaluated by a qualified archaeologist and a course of action decided upon, as described in (b), below. A physical barrier (e.g., exclusionary fencing) shall be erected to prohibit potentially destructive activities from occurring and/or visitation and potential vandalism by unauthorized personnel. Project-related activities and access to the location shall be prohibited until the City of Vacaville is notified otherwise.	LS

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SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		(b) A qualified archaeologist shall be notified to make a preliminary assessment of the discovered resource. Following this assessment, the City of Vacaville and the applicant shall be provided written notice to alert them of the situation. In coordination with the City and the applicant, the archaeologist shall evaluate the potential significance of the find and recommend what treatment measures, if any, are appropriate. The qualified archaeologist shall conduct the evaluation of the discovered resource following these considerations: • CRHR criteria for evaluation should be applied to determine if the resource is significant. • The evaluation should be conducted in following a research design consistent with that found in Guidelines for Archaeological Research Designs (Office of Historic Preservation [OHP], 1991). • The City and the applicant (or at their request, the qualified archaeologist) shall consult with the appropriate Native American tribal groups during the evaluation and treatment phases. (c) To expedite the review process after fieldwork is completed, the qualified archaeologist shall prepare a brief management summary report for the City and the applicant that describes and assesses the significance of the discovered resource, including a discussion of the methods and criteria used to determine significance. If the resource is deemed eligible for inclusion in the CRHP, the report shall detail avoidance and/or treatment recommendations. (d) A comprehensive research report, detailing the results of any archaeological evaluation and/or data recovery treatment activities associated with the unanticipated discovery, shall be prepared by the qualified archaeologist, and submitted to	

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Impact	Level of Significance Prior to Mitigation	Mitigation Measure(s)	Level of Significance After Mitigation
		the City and the applicant no later than 360 days after the completion of any field studies associated with this effort. The comprehensive research report shall follow guidelines set forth in Archaeological Resource Management Reports: Recommended Content and Format (OHP, 1990).	
4.14-4 Trenching for sewer line option 2 in the vicinity of the Peña Adobe could subject the structure to vibration, which could affect the building structure or non-structural elements.	PS	4.14-4 (a) Prior to utility trenching adjacent to the Peña Adobe, an engineering analysis on the adobe shall be made by an engineer qualified in acoustic/vibration analysis to determine the level (if any) of vibrational effects that could occur during construction. If such effects could occur and could result in damage, appropriate equipment selection and construction methods shall be specified in construction contracts to avoid the potential for damage. (b) A monitoring program shall be developed and implemented during construction under the direction of a qualified professional to monitor vibration levels and to evaluate the effectiveness of controls. In the event of adverse effects, work shall stop immediately and corrective action taken.	LS
4.14-5 Earth-disturbing activities associated with implementation of the Proposed Project could result in the disturbance of previously unidentified human remains, including those interred outside of formal cemeteries.	PS	4.14-5 (a) In the event that human skeletal remains or material thought to be human remains are encountered during project construction, work shall be halted in the general vicinity of the finds and the City and the applicant immediately notified. If possible, all finds will be preserved in place and protective measures implemented to safeguard the remains from further disturbance or vandalism. Following protection of the finds, the following steps will be implemented: The City and the applicant shall immediately retain a qualified cultural resources specialist to assess the remains and determine whether they are human. If the find is determined to be non-human and nonarchaeological, then no further consideration is necessary and construction may resume. If the find is determined to be non-human, but archaeological, then the procedures described in Mitigation Measure 4.14-2 (a) through (e) shall be followed.	LS

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		(b) If the find is determined to be human, the Solano County Coroner and representatives of the City of Vacaville and the applicant shall be simultaneously notified. The cultural resources specialist or physical anthropologist shall work with the Coroner to determine whether the remains are prehistoric Native American or are of more recent origin. If the remains are found to be of recent origin, then the discovery becomes a police issue. If the remains are determined to be Native American, the following shall be implemented: i. The NAHC shall be notified by the Coroner within 24 hours of identification. Although it is the Coroner's responsibility to notify the NAHC, a representative of the City shall also contact the NAHC and verify that the notification was made. The NAHC shall immediately notify the person it believes to be the Most Likely Descendant (MLD) for purposes of consultation. ii. Following notification, City shall consult with the selected MLD and provide the opportunity within 24 hours for the MLD to visit the site of discovery, provided permission from the legal landowner can be obtained. The City shall work with the MLD to arrive at a satisfactory plan for treatment and final disposition of the remains. The preferred resolution shall be to preserve the remains in place and to avoid further project-related impacts. If preservation in-place is not a viable option, in consultation with the MLD, the City shall develop an appropriate plan for the recovery and documentation of the remains and any associated grave goods. This plan shall be implemented along with an Unanticipated Historic Properties evaluation to determine the CRHR significance of the discovery and any associated archaeological deposit.	

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		iii. It is the policy of the State of California that any Native American remains and/or grave goods not immediately reburied will be repatriated. Final disposition of the remains, however, may include re-interment or placement within a state approved curation facility if requested by the MLD. iv. If a satisfactory agreement for the final disposition of the remains cannot be reached, either of the parties may request mediation by the NAHC. In the event that mediation fails, with appropriate dignity, the landowner or their representative must re-inter the remains and any associated items on the property in a location not subject to further disturbance.	
4.14-6 Ground-disturbing activities associated with implementation of the Proposed Project could encounter previously unidentified paleontological resources.	PS	4.14-6 (a) The project applicant shall retain a qualified paleontologist to prepare a paleontological resources impact mitigation plan. The plan shall include, but not be limited to, the following elements and requirements: • Resource identification training procedures for construction personnel • Procedures for reporting discoveries and their geologic context (b) If subsurface paleontological resources are encountered, excavation shall halt in the vicinity of the resources and a qualified paleontologist shall evaluate the resource and its stratigraphic context. The monitor shall be empowered to temporarily halt or redirect construction activities to ensure avoidance of adverse impacts to paleontological resources.	LS

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		• During monitoring, if potentially significant paleontological resources are found, "standard" samples shall be collected and processed by a qualified paleontologist to recover micro vertebrate fossils • If significant fossils are found and collected during the Project, they shall be prepared to a reasonable point of identification. Excess sediment or matrix shall be removed from the specimens to reduce the bulk and cost of storage. Itemized catalogs of material collected and identified shall be provided to the museum repository with the specimens • Significant fossils collected during this work, along with the itemized inventory of these specimens, shall be deposited in a museum repository for permanent curation and storage • A report documenting the results of the monitoring and salvage activities, and the significance of the fossils, if any, shall be prepared. The report and inventory, when submitted to the lead agency, signifies the completion of the program to mitigate impacts to paleontological resources • As necessary, the qualified vertebrate paleontologist shall revise the paleontological resources impact mitigation program for the remaining excavation	
4.15 Biological Resources			
4.15-1 Construction of the Proposed Project could result in the loss of approximately 7.65-acres of wetlands or other waters of the United States.	S	4.15-1 (a) All wetlands and waters of the U.S. in the Specific Plan Area shall be avoided to the extent feasible. Avoidance shall be accomplished through the following steps:	LS

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		(i) Wetlands and drainages within the Specific Plan Area, including the off-site infrastructure improvements area, but outside the development area shall be identified prior to submittal of final project designs to the City. A jurisdictional wetland delineation shall be submitted to the Corps and verified prior to the commencement of construction (a wetland delineation has already been submitted to the Corps for the development area, but it has not yet been verified). (ii) The project applicant shall design the final project to retain the maximum amount of existing wetlands and establish minimum 25 to 50 foot buffers around all sides of these features. In addition, the final project design shall not cause significant changes to the pre-project hydrology, water quality or water quantity in any wetland that is to be retained on site. This shall be accomplished by avoiding or repairing any disturbance to the hydrologic conditions supporting these wetlands, as verified through wetland protection plans.	

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		(b) Where avoidance of existing wetlands and drainages is not feasible, then mitigation measures shall be implemented for the project related loss of any existing wetlands on site, such that there is no-net loss of wetland acreage or habitat value. Wetland habitat acreage can be greater than the acreage of wetlands that fall under the jurisdiction of the Corps. Wetland mitigation shall be developed as a part of the Section 404 CWA permitting process. Mitigation is to be provided prior to construction related impacts on the existing wetlands. The exact mitigation ratio is variable, based on the type and value of the wetlands affected by the project, but will be a minimum of 1:1 for preservation and 1:1 for construction of new wetlands. In addition, a wetland mitigation and monitoring plan shall be developed that includes the following: • Descriptions of the wetland types, and their expected functions and values; • Performance standards and monitoring protocol to ensure the success of the mitigation wetlands over a period of five to ten years; • Engineering plans showing the location, size and configuration of wetlands to be created or restored; • An implementation schedule showing that construction of mitigation areas will commence prior to or concurrently with the initiation of construction; and • A description of legal protection measures for the preserved wetlands (i.e., dedication of fee title, conservation easement, and/or an endowment held by an approved conservation organization, government agency or mitigation bank).	

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