FINAL INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

ARROYO GRANDE HIGH SCHOOL AUXILIARY GYMNASIUM PROJECT

Prepared for:

LUCIA MAR UNIFIED SCHOOL DISTRICT

Lucia Mar Unified School District
602 Orchard Street
Arroyo Grande, CA 93420

Prepared by:

SWCA Environmental Consultants
3426 Empresa Drive, Suite 100
San Luis Obispo, CA 93401

July 2023

TABLE OF CONTENTS

Appendices

ENVIRONMENTAL DETERMINATION FORM

1. Project Title:

Arroyo Grande High School Auxiliary Gymnasium Project

2. Lead Agency Name and Address:

Lucia Mar Unified School District
602 Orchard Street
Arroyo Grande, CA 93420

3. Contact Person and Phone Number

Andy Stenson, Executive Director, Facilities
(805) 474-3000 x1031

4. Project Location:

The proposed Arroyo Grande High School Auxiliary Gymnasium Project (project) is located within the northern portion of the rear 8.9 acres of the 37-acre Arroyo Grande High School campus in the City of Arroyo Grande. The high school is located within the southeastern portion of the city at 495 Valley Road, Arroyo Grande, San Luis Obispo County, California (Figures 1 and 2).

5. Project Sponsor's Name and Address:

Lucia Mar Unified School District
602 Orchard Street
Arroyo Grande, CA 93420

6. General Plan Designation:

Community Facilities (Arroyo Grande General Plan designation)

7. Zoning:

Residential Hillside (RH) (Arroyo Grande Zoning category)

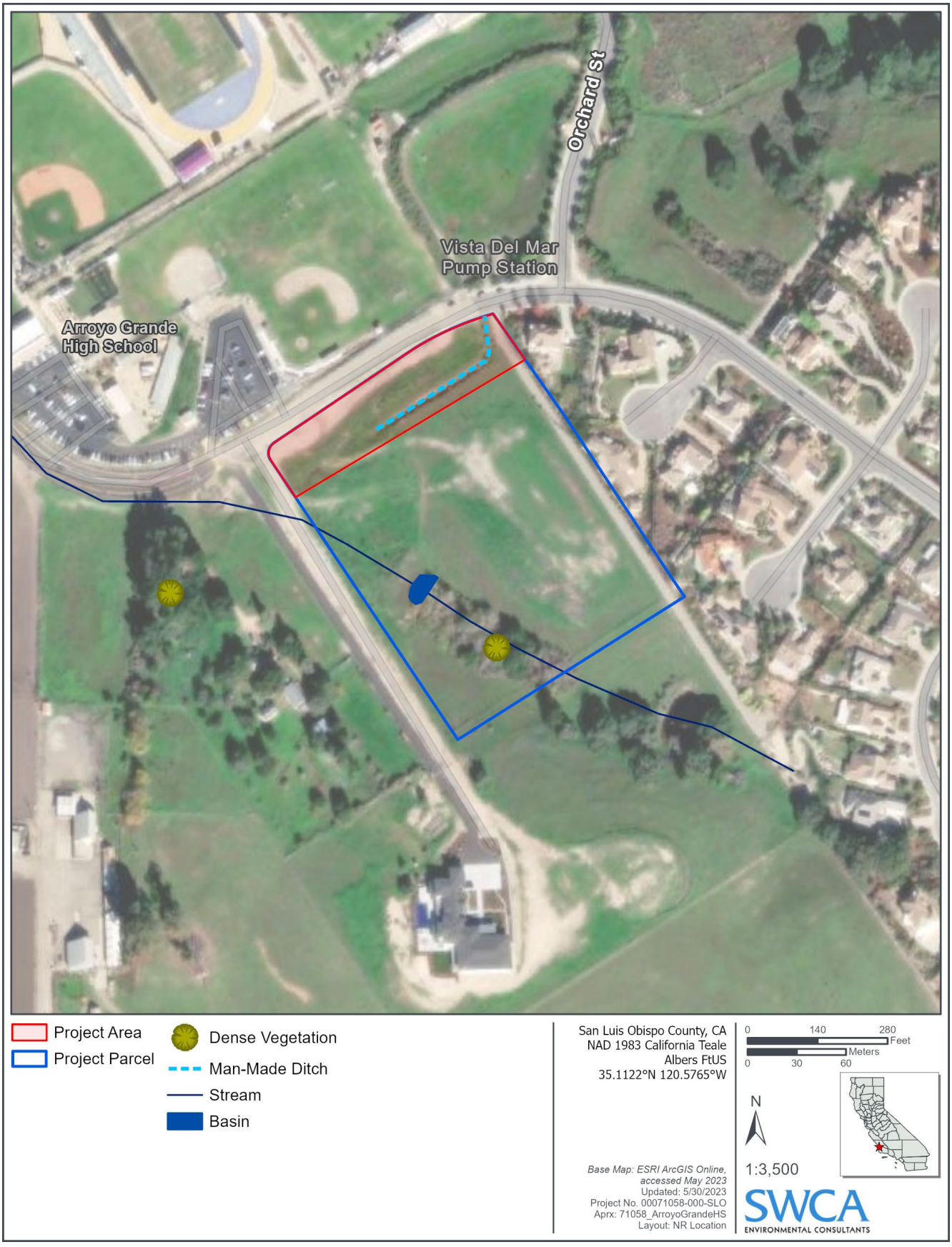
8. Description of Project:

Existing Conditions

Arroyo Grande High School (AGHS) is one of four high schools within the Lucia Mar Unified School District (LMUSD) and is located within the southeastern portion of the City of Arroyo Grande. AGHS serves approximately 1,900 students in grades 9 through 12 and has a faculty of approximately 175 members (AGHS 2022).

Figure 1. Project Vicinity Map

Figure 2. Project Location Map



The AGHS campus is approximately 37 acres in size and consists of various facilities, including, but not limited to, one performing arts center; one football, soccer, and track field; two baseball fields; two softball fields; one existing gymnasium; two tennis courts; one outdoor pool; one weight room; athletic locker rooms; choir and band facilities; various classroom facilities; one library; and student and staff parking lots.

The project site encompasses approximately 2.15± acres of land owned by the LMUSD located within the southern portion of the AGHS campus, directly south of Castillo del Mar Road. The project site is within the Community Facilities (CF) land use designation and is currently zoned for Residential Hillside (RH). The project site consists of previously disturbed and undeveloped land characterized by gently sloping topography. There is an existing unpaved roadway easement intersecting the project area.

Surrounding land uses include the AGHS campus to the north, undeveloped land to the south, and residential hillside development to the east and west. Surrounding land use designations include CF to the north and Single Family Residential (SFR) Low Density to the south, east, and west. Land to the north is zoned for Public Facilities (PF) use, land to the south and east is zoned for Residential Hillside (RH) use, and land to the west is zoned for RH, PF, and Agriculture (AG) uses.

Project Components

Multipurpose Gymnasium

The proposed project includes the construction of a new 13,000±-square-foot multipurpose gymnasium on a previously disturbed, undeveloped site. The project also includes the development of a small parking lot with ten (10)± American Disability Act (ADA) parking spaces. In addition, the project would require the extension of existing water, wastewater, and electrical infrastructure to the proposed gymnasium. The project would result in a total disturbance of approximately 1 acre, including approximately 4,200 cubic yards of cut and fill. The project is not anticipated to require the removal of any trees. Construction activities would require the use of standard earth-moving construction equipment, including lifts, backhoes, and excavators and is anticipated to occur over a span of 18 months.

Construction and operation of the new gymnasium would result in approximately 13,000± square feet of new impervious surface area on the 2.15-acre site. The proposed gymnasium would primarily be used for physical education (PE) classes, sports practices, and youth athletic events. The new gymnasium would have limited spectator capacity, including a five-row portable bleacher set and additional folding chairs. Spectator capacity is anticipated to be 150 persons. Two new bathrooms, with approximately eight toilets, sinks, and additional drinking fountains, would also be installed within the gymnasium. The proposed gymnasium would be equipped with a heating, ventilation, and air conditioning (HVAC) unit, limited to heating and air circulation. Low-intensity outdoor lighting would be installed to illuminate exterior pathways and the proposed parking lot. In addition, the project would include the installation of minimal drought-tolerant landscaping.

9. Surrounding Land Uses and Setting:

North: Community Facilities land use designation; Public Facilities zoning; AGHS campus	*East:* Single Family Residential Low Density land use designation; Residential Hillside zoning; low density single-family residential development
South: Single Family Residential Low Density land use designation; Residential Hillside zoning; undeveloped	*West:* Single Family Residential Low Density land use designation; Residential Hillside, Public Facilities, and Agriculture zoning; single-family residential dwelling

10. Other public agencies whose approval may be required (e.g., permits, financing approval, or participation agreement):

- City of Arroyo Grande
    - The Board of the LMUSD approved Resolution No. A-2223-18 formally recognizing that the LMUSD is exempt from local zoning ordinances, with the exception of required compliance with the City of Arroyo Grande Grading and Drainage, Fire, Life, and Safety requirements.
- California Division of the State Architect

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

The LMUSD, as the Lead Agency, initiated Native American consultation as required by Assembly Bill (AB) 52 on May 19, 2023. Responses were received from the Salinan Tribe, yak tityu tityu yak tiłhini Northern Chumash Tribe (YTT Tribe), and Tribal Elders' Council of the Santa Ynez Band of Chumash Indians. A request was received from Patti Dutton, Tribal Administrator of the Salinan Tribe, requesting a copy of the cultural resources report prepared for the project. After reviewing the cultural resources report, Patti Dutton suggested that ground-disturbing activities associated with the project be monitored by a cultural resource specialist from the Salinan Tribe. In addition, a request was received from Mona Tucker, Chair of the YTT Tribe, requesting a copy of the findings of the records search. After reviewing the records search, Mona Tucker suggested that construction personnel undergo cultural sensitivity training. A letter was received from Crystal Mendoza of the Tribal Elders' Council of the Santa Ynez Band of Chumash Indians requesting formal consultation. No other responses were received.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☒ Aesthetics	☐ Agriculture & Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Geology /Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality
☐ Land Use / Planning	☐ Mineral Resources	☒ Noise
☐ Population / Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☒ Tribal Cultural Resources	☐ Utilities / Service Systems
☒ Mandatory Findings of Significance		

Lead Agency Determination

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature	June 27, 2023 **Date**
Emily Creel, SWCA Environmental Consultants **Printed Name**	Andy Stenson, Executive Director, Facilities **For**

Evaluation of Environmental Impacts

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program Environmental Impact Report (EIR), or other California Environmental Quality Act (CEQA) process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a) Earlier Analysis Used. Identify and state where they are available for review.

    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

    a) the significance criteria or threshold, if any, used to evaluate each question; and

    b) the mitigation measure identified, if any, to reduce the impact to less than significance.

I. AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
(b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
(c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
(d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

Methodology

The findings of this section are based on field visits conducted on April 1 and 2, 2023. Field analysis included review of the project site as well as the surrounding area. Resource inventories were conducted both on foot and from a moving vehicle. Existing visual resources and site conditions were photographed and recorded. Planning documents and previous studies relevant to the surrounding area were referred to for gaining an understanding of community aesthetic values.

Locations of critical project elements such as the proposed building location, grading limits, parking areas, site features, and landscaping were identified based on site plan information provided by the project applicant (Figures 3–5). These critical project features were surveyed and staked in the field, and corresponding horizontal and vertical location data was developed. Reference poles and flags were then positioned at each critical point. These flags were used as a visual scale reference for confirming the project form, ensuring accuracy of photo simulations, and determining overall project visibility.

The project site was viewed from potential viewer group locations in the surrounding area. Representative viewpoints were identified for further analysis, based on dominance of the project site within the view, duration of views, and expected sensitivity of the viewer group. Of those representative views, critical viewpoints (VPs) were selected that best illustrate the visual changes that would occur as a result of the project.

Figure 3. Project Plans - Site Plan

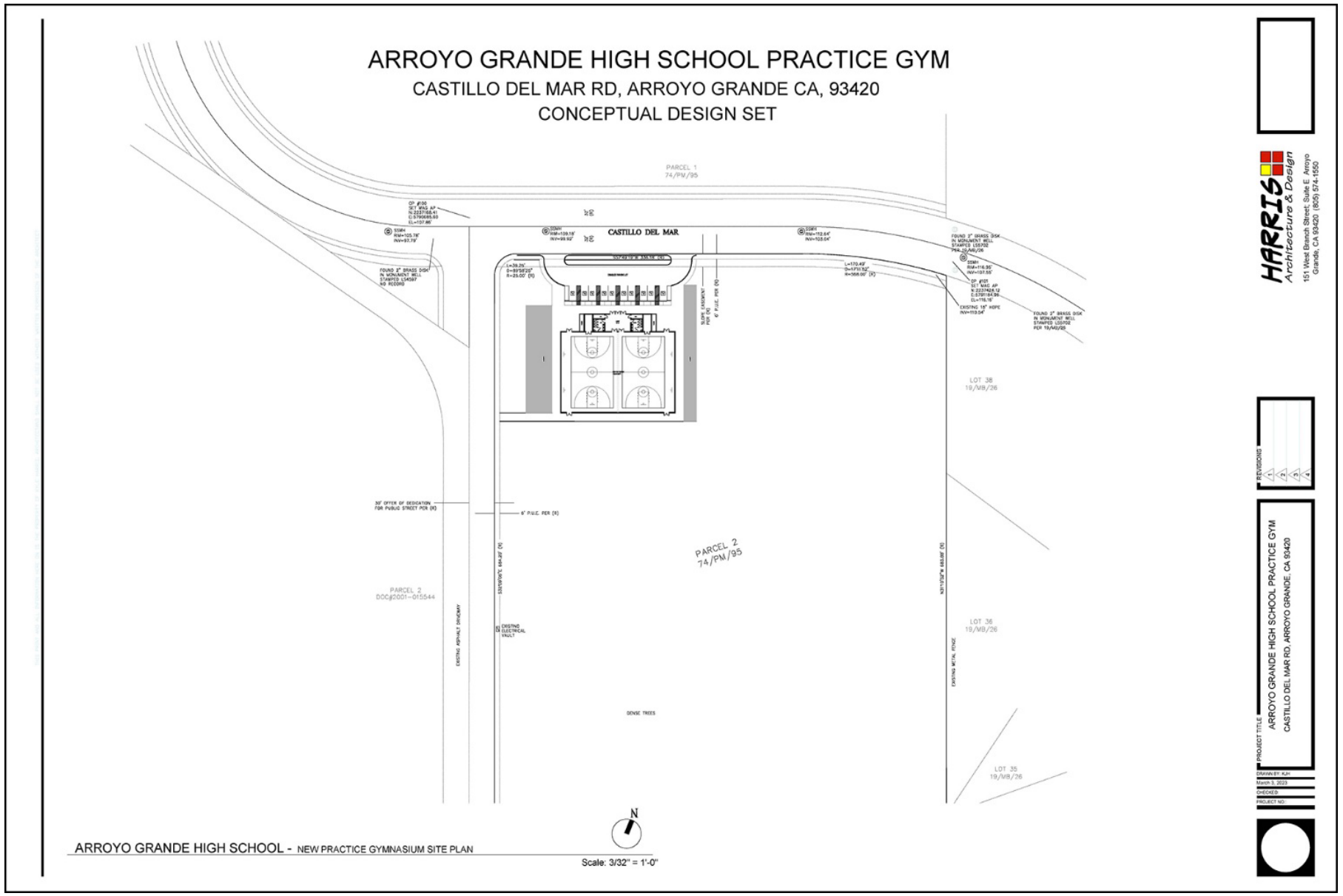


Figure 4. New Practice Gymnasium

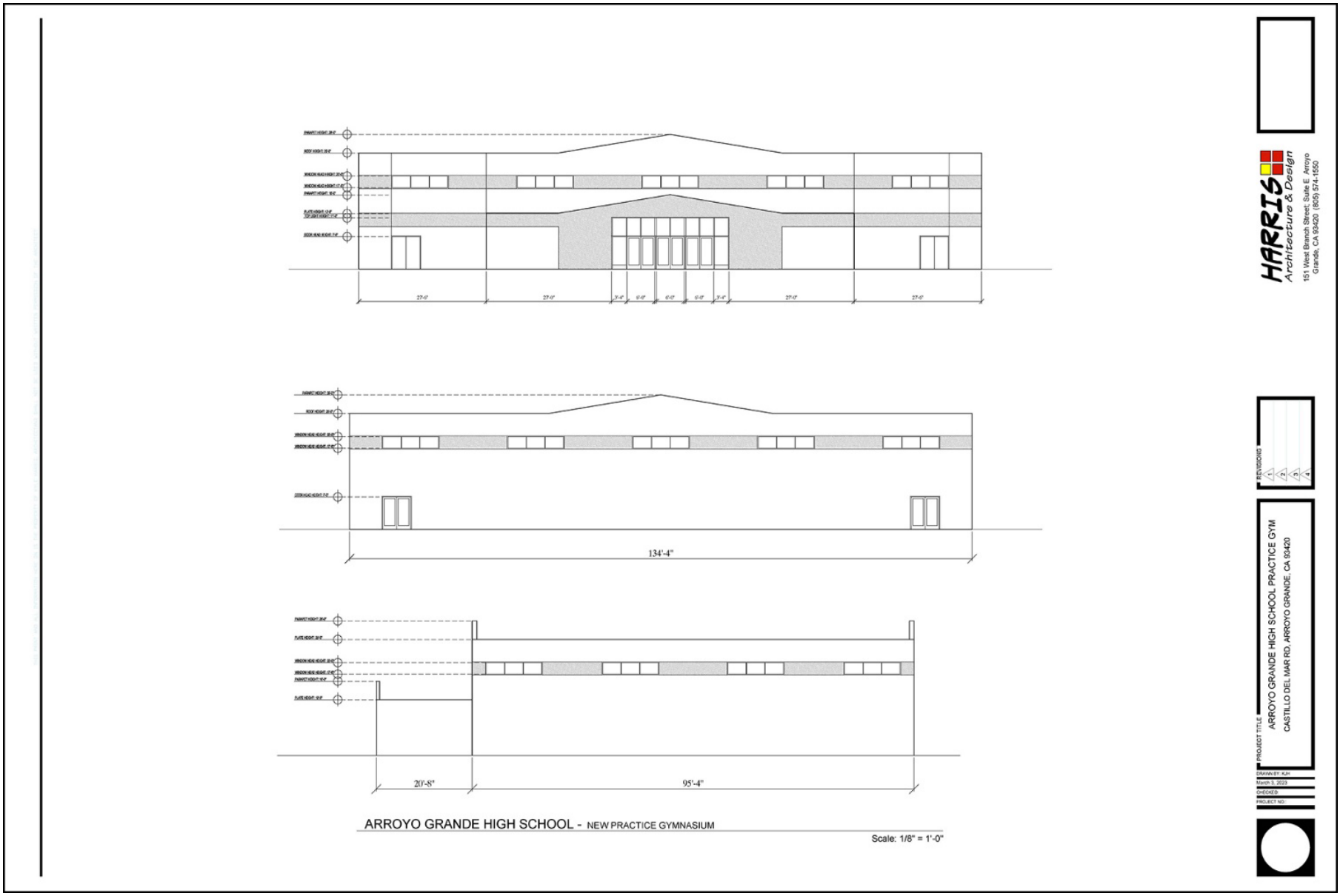
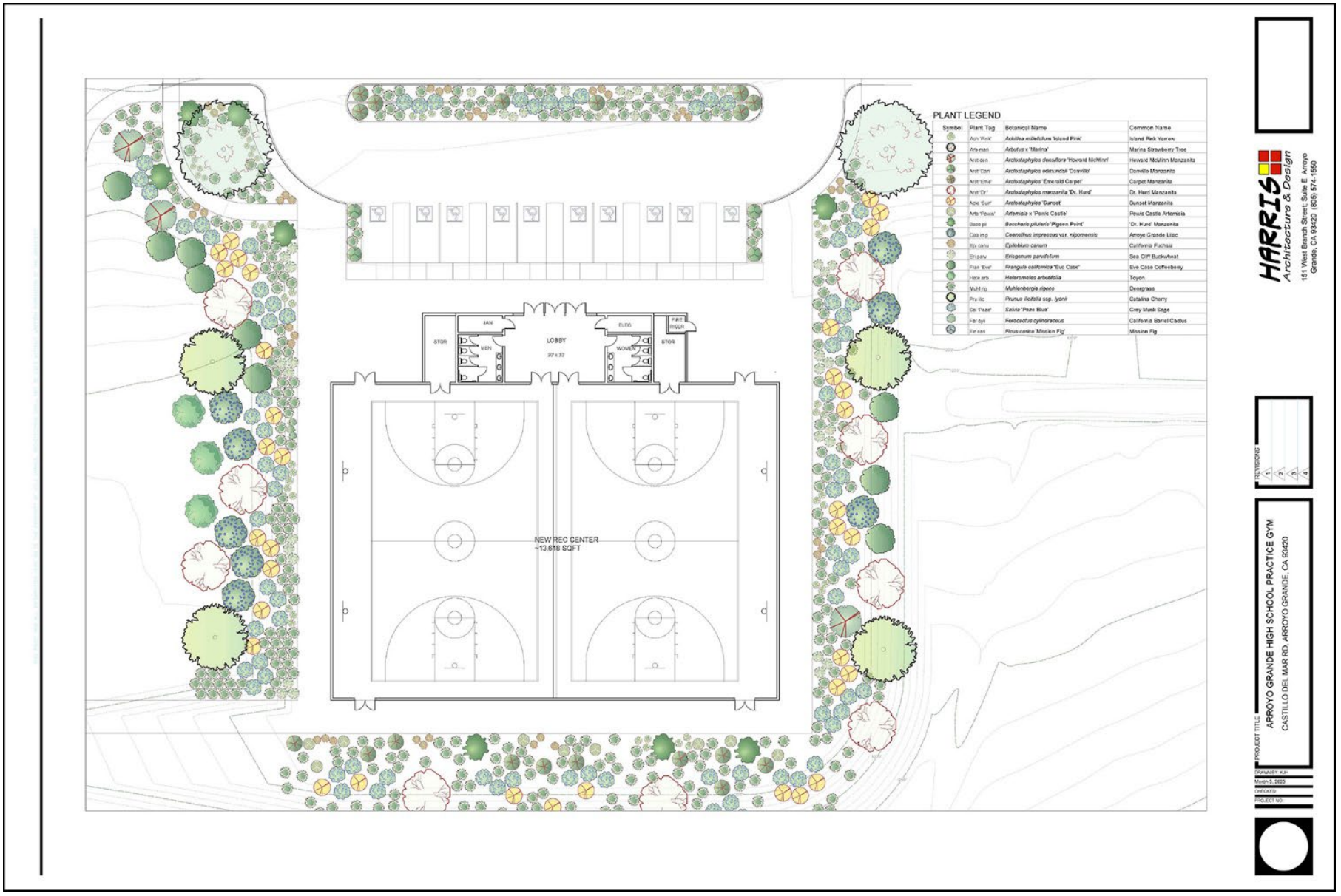


Figure 5. Landscape Plan



Project Visualizations

Two types of project visualizations are included in support of the visual analysis as follows:

Architectural Renderings

Architectural renderings are provided primarily to illustrate the specific architectural appearance of the gymnasium structure, most site features, and the landscaping (Figures 6–8). The renderings were developed by the project architect and the project sponsor. Accuracy and overall scale of project elements shown in the renderings were verified by the visual analyst through plan review and field studies. Landscaping included in the renderings is based on implementation of the Landscape Plan (see Figure 5) and shows vegetation at approximate maturity.

Massing Study Simulations

In addition to the architectural renderings, photographic massing studies are provided (Figures 10–19). The massing study simulations show the proposed gymnasium structure as a simple geometric form in order to focus the analysis on the project's massing, location, and general site configuration, and how those may affect visual resources such as scenic vistas and community character. The geometric forms shown in the massing study simulations are based on plan data provided by the project architect and placement of surveyed reference poles.

Regional Setting

The project site is situated in the southeastern portion of the City of Arroyo Grande, within the south county region of San Luis Obispo County. The regional context includes the Arroyo Grande Valley to the north and west, with undulating hills rising up from the valley to Picacho Peak (approximately 1,200 feet above sea level) and Newsome Ridge approximately 5 miles to the south and east. The nearby ridge and residential area just southeast of the project parcel reach approximately 250 feet above sea level. The Pacific Ocean is approximately 3 miles to the west and can be seen from numerous locations throughout the region.

The visual quality of the region is moderately high. Development can be seen throughout much of the region and is generally part of an overall visual context defined by surrounding rural or natural environment, varied topography, and agricultural uses. The regional visual character includes small- to moderately sized communities generally interspersed with rural and agriculture uses. Development within the central business districts and commercial areas seen throughout the area are generally less than three stories in height and is mostly visually compatible with the overall semi-rural character of the regional setting.

Figure 6. Architectural Renderings: Photo Locations

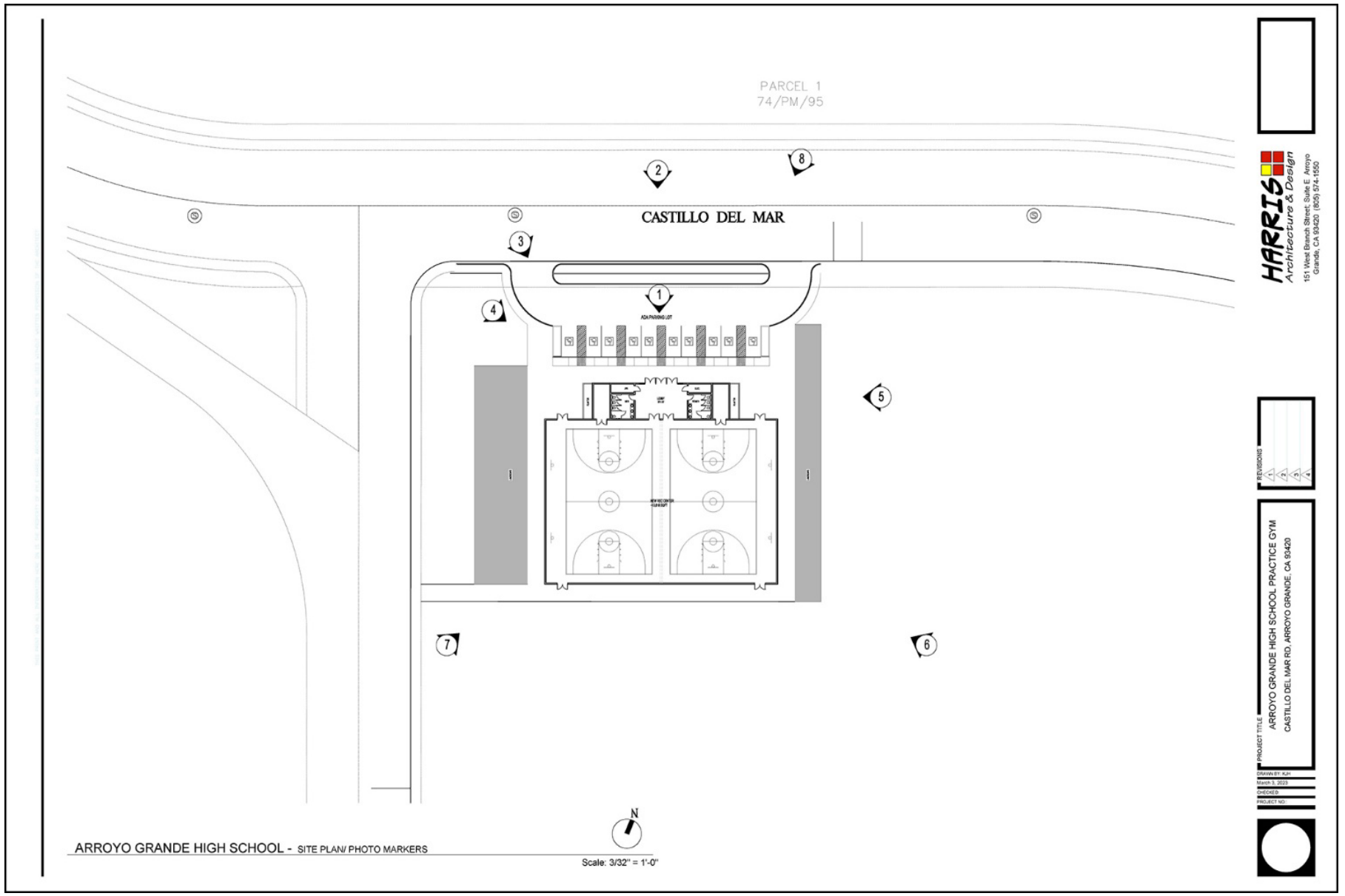


Figure 7. Architectural Renderings

Figure 8. Architectural Renderings

Figure 9. Massing Study Simulations: Viewpoint Location Map

Location and direction of Viewpoints (VP) and massing photo-simulations.

Figure 10. Massing Study Simulations: Viewpoint 1 - Existing View

Figure 11. Massing Study Simulations: Viewpoint 1 - Proposed Building Massing

Figure 12. Massing Study Simulations: Viewpoint 2 - Existing View

Figure 13. Massing Study Simulations: Viewpoint 2 - Proposed Building Massing

Figure 14. Massing Study Simulations: Viewpoint 3 - Existing View

Figure 15. Massing Study Simulations: Viewpoint 3 - Proposed Building Massing

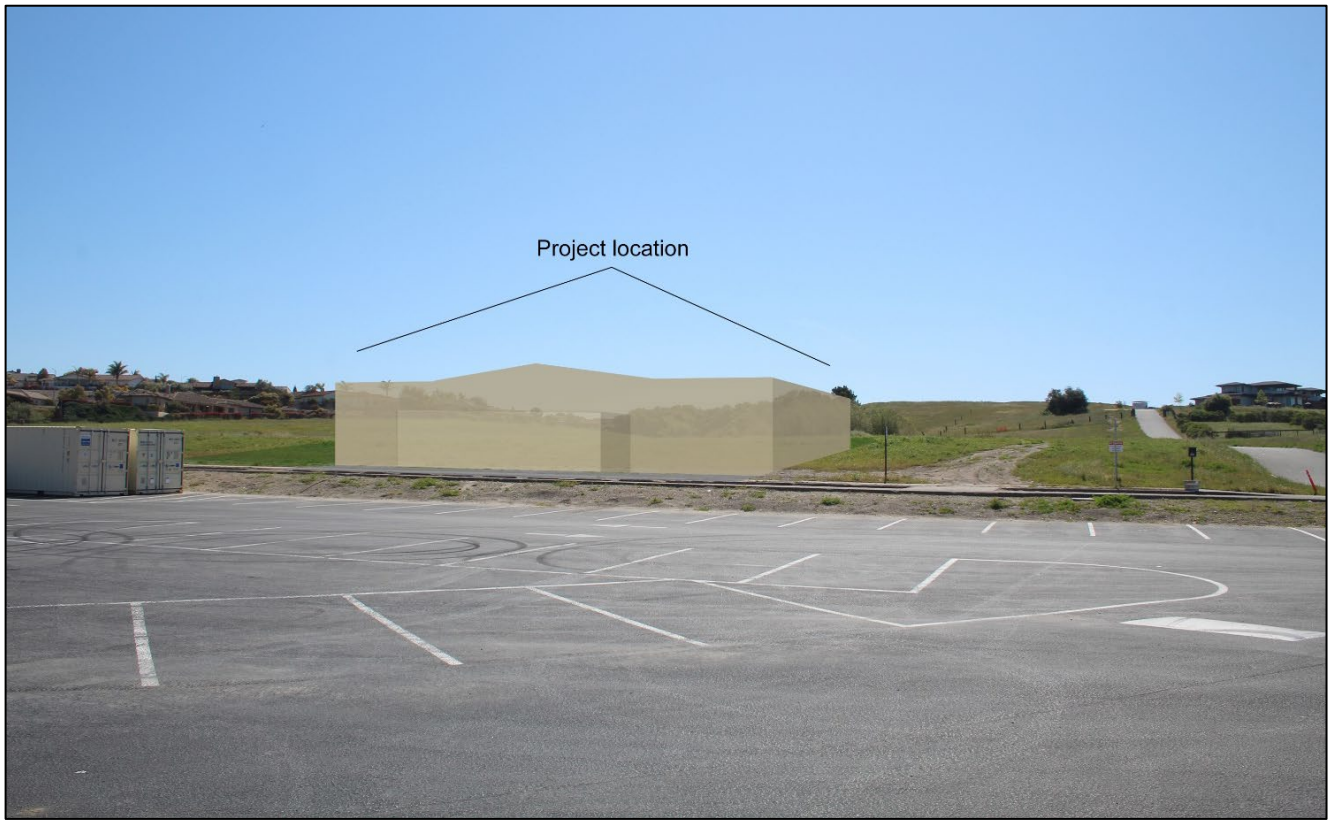


Figure 16. Massing Study Simulations: Viewpoint 4 - Existing View

Figure 17. Massing Study Simulations: Viewpoint 4 - Proposed Building Massing

Figure 18. Massing Study Simulations: Viewpoint 5 - Existing View

Figure 19. Massing Study Simulations: Viewpoint 5 - Proposed Building Massing

Project Site

The development is proposed on the northern portion of a larger, approximately 2.15-acre property located adjacent to Castillo del Mar, just south of the AGHS campus.

The topography of the parcel slopes upward north to south from approximately 100 feet to 150 feet above sea level. A drainage swale parallels Castillo del Mar along the northern portion of the project site (see Figure 2). Although visual evidence of previous minor disturbance and unpaved access roads can be seen, the project site is currently undeveloped and separates the high school from the residential development to the southeast. Vegetation on the project site primarily consists of ruderal grasses and forbs. A swath of riparian vegetation runs along the southeastern portion of the parcel.

Because of its sloping topography, lack of development, and proximity to the community, the project site currently contributes to the visual quality of the surrounding area.

Viewer Sensitivity

The project is proposed on a moderately sensitive site in terms of viewer response. The parcel occupies a hillside that is visible from several areas throughout the community. Although the project is surrounded on three sides by existing development, the hillside parcel itself contributes to an open character and visual backdrop for the area.

In determining levels of impact, this analysis also compares the proposed project to the specific goals of the affected community. As a result of the currently undeveloped nature of the project site , combined with an awareness of scenic quality as reflected in local planning policy, it is anticipated that community and viewer sensitivity to visual changes will be fairly high.

Discussion

(a) Have a substantial adverse effect on a scenic vista?

Scenic vistas are panoramic views that have high-quality compositional and picturesque value. If the project substantially degrades the scenic landscape as viewed from public roads or other public areas, this would be considered a potentially significant impact on the scenic vista.

Scenic resources are defined by the City of Arroyo Grande (City) as potentially including "agricultural land, open spaces, hillsides, ridgelines, canyons, valleys, landmark trees, woodlands, wetlands, streambeds and banks, as well as aspects of the built environment that are of a historic nature, or unique to the City, or contribute to the rural, small-town character of the City."

Scenic vistas in the project vicinity include views of the surrounding hills and ridgelines, natural vegetative patterns, open space, low-intensity agriculture, and the Pacific Ocean. The degree of potential impact on scenic vistas varies with factors such as viewing distance, duration, viewer sensitivity, and the visual context. Although the project would introduce new structures and development onto the project site, these changes would not substantially affect public access to the visual resources that comprise scenic vistas in the area. The proposed practice gymnasium would front Castillo del Mar Road at the lowest portion of the hillside parcel. Views from this section of the roadway, as well as from the southernmost parking lot of the high school, would be somewhat affected by the new structure. Existing views from these areas include the undeveloped hillside to the south; however, the primary ridgeline in that direction is occupied mostly by adjacent residential development. The proposed gymnasium would visually block portions of the vacant hillside as well as the existing development to the south and east. The

project proposes to grade a building pad into the hillside, which would keep the floor level of the building at a lower level on the project site, and in effect, reduce the perceived height of the development. The gymnasium structure is proposed to be a maximum of 29 feet in height; however, because the project site would be excavated into the hillside, the actual height of the southern side of the building would range from only approximately 14 feet to 20 feet above the surrounding landform. The gymnasium structure and associated landscaping would be adjacent to approximately 200 feet of the total approximately 600 feet of parcel frontage along Castillo del Mar. This would allow hillside views to remain as seen from vantage points both east and west of the project.

From these areas along Castillo del Mar closest to the project, long-distance views of Picacho Peak and Newsome Ridge to the east are already substantially limited due to distance, intervening topography, and development. As a result, the project would not further reduce views of those ridgelines and mountains.

Most viewpoints south and east of the project, including the residential neighborhoods, are at higher elevations than the development, allowing unaltered views over the top of the proposed gymnasium, landscaping, and other site features. As a result, the project would maintain existing views of identified visual resources such as distant mountains and the Pacific Ocean.

As seen from most mid-range and distant public vantage points to the north and west, including major transportation routes such as U.S. Route 101 and Fair Oaks Avenue, existing views of the lower portion of the project hillside parcel are greatly limited by intervening development. This visibility limitation would also apply to the project because of its proposed location at the base of the hill. These views from the north and west would continue to see the upper portion of the hillside parcel and potential scenic vistas beyond.

Due to the project's location at the lowest part of the hillside, combined with vantage point elevation, surrounding development, and/or viewing distance, the proposed gymnasium and associated site elements would have little to no effect on visual resources as seen from the surrounding community. As a result, the project would have a *less-than-significant* impact on scenic vistas as seen from surrounding public viewpoints.

(b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

This CEQA threshold does not apply because the project site is not within the view corridor of any Officially Designated State Scenic Highway; therefore, *no impact* would occur.

(c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The project setting is considered “non-urbanized” based on State CEQA Guidelines Section 15387, which defines an “urbanized area” as a central city or a group of contiguous cities with a population of 50,000 or more, together with adjacent densely populated areas having a population density of at least 1,000 persons per square mile.

Project actions would be considered to have a significant impact on the visual character of the project site if they altered the area in a way that substantially changed, detracted from, or degraded the visual quality of the project site or was inconsistent with community policies regarding visual character. The degree to which that change reflects documented community

values and meets viewers' aesthetic expectations is the basis for determining levels of significance. Visual contrast and compatibility may be used as a measure of the potential impact that the project may have on the visual quality of the project site. If a strong contrast occurred where project features or activities alter and dominate the landscape setting, this would be considered a potentially significant impact on visual character or quality of the project site. Project components that are not compatible with the visual context could result in a significant change in the character of the community. Consideration of potential significance includes analysis of visual character elements such as land use and intensity, visual integrity of the landscape type, and other factors.

Because of its close proximity to important transportation corridors, community gathering locations, and residential neighborhoods, the project site is moderately sensitive in terms of visual character and quality. The visual quality of the area is based on a combination of several elements, primarily varied topography, distant mountains and ridgelines, natural vegetative patterns, open space, and scattered agricultural land uses. In addition to the natural features, the visual quality of the project setting is also influenced by the built and cultural environment. Accordingly, this analysis considers both the natural setting and the existing development as part of the visual baseline.

Throughout most of the surrounding community, other than from portions of adjacent neighborhoods and from roadways in the vicinity, the project would not be easily seen from public viewpoints. Where seen from the more distant viewpoints, the project would be difficult to distinguish from the surrounding community development because of the project's location at the base of the parcel. Although the project site itself is undeveloped, the existing visual context as seen from most surrounding public viewpoints is a product of both built and natural elements. The visual quality and character of the project site is moderately high, due mostly to its undeveloped hillside value.

Development of the project parcel is envisioned in the *City of Arroyo Grande General Plan*. Future development in this area was determined to be consistent with the community development vision. Implementation of the project would extend the existing high school campus land use immediately to the south. The proposed architectural design, massing, and scale of the proposed gymnasium would be consistent with the existing visual character of the campus and would not appear as an unexpected use for the project site.

The project site serves as a visual interface between the institutional use of the high school and the surrounding residential land use. Although the scale and architecture of the gymnasium would appear visually consistent with the adjacent school facility, the grading of the project site and placement of the building "into" the hillside would reduce the project's perceived size and would provide an appropriate visual transition to the surrounding residential development. Proposed landscaping would lessen the project's somewhat institutional appearance and would reduce potential visual contrast between the built structure and the surrounding undeveloped hillside.

Implementation of the project would alter the visual character of the project site by developing a portion of the existing vacant parcel with a building for an institutional use. This proposed change, however, would not noticeably affect the existing agricultural, residential, or institutional character of the surrounding area. The resulting visual effect would be a *less-than-significant* visual impact to the character and quality of the project site and its surroundings.

(d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The project would result in a significant impact if it subjected viewers from public roads or residences to a substantial amount of new point-source lighting visibility at night, or if the collective illumination of the project resulted in a noticeable spill-over effect into the nighttime sky, increasing the ambient light over the region.

As proposed, low-intensity outdoor lighting would be installed to illuminate exterior pathways and the proposed parking lot. At the time of this report, no specific lighting plan has been provided; however, for the purpose of this analysis, it is assumed that exterior security, safety, and operational lighting may also be included as part of the project.

The project parcel is currently undeveloped, and no lighting is currently found on the project site. Residential street lighting is found in the adjacent neighborhoods and throughout the surrounding community. AGHS immediately north of the project site includes parking lot and pedestrian area lighting and external and internal lighting associated with buildings, signage, and other uses throughout the campus. Tall-mast sports field lighting is associated with the football stadium, approximately 500 feet north of the project.

The project would introduce new lighting onto the project site, inherent with the expansion of the high school facility. Mitigation Measure AES-1 has been identified to reduce adverse impacts related to the installation of new sources of lighting through adherence to performance standards. Review of the preliminary project lighting description and other potential lighting needs indicates that proposed lighting, implemented in compliance with Mitigation Measure AES-1, would not result in substantial light or glare nor adversely affect daytime or nighttime views in the area. Therefore, impacts would be *less than significant with mitigation*.

Conclusion

The project's location along the lower elevation of the parcel, combined with the gymnasium structure being built into the hillside, would effectively reduce its visual impact. Due to this physical siting, in addition to factors such as viewer's vantage point orientation and elevation, and intervening development and/or viewing distance, the proposed gymnasium and associated site elements would have little to no effect on defined visual resources as seen from the surrounding community.

The project would appear to the casual observer as a logical extension of the high school campus. Development of the project would change the visual character of the project site by converting a portion of the existing vacant parcel. This proposed change, however, would not noticeably affect the visual quality or the existing agricultural, residential, or institutional character of the surrounding area.

The project would introduce new lighting onto the project site. Based on the preliminary project lighting description, other potential lighting, and implementation of Mitigation Measure AES-1, the project would not result in substantial light or glare nor adversely affect daytime or nighttime views in the area.

With implementation of Mitigation Measure AES-1, the project as proposed would result in a less-than-significant impact to the visual environment.

Recommended Mitigation

AES-1 Proposed lighting shall be required to comply with the following design standards, which shall be shown on final development plans:

1. All outdoor lighting associated with nonresidential uses shall be shielded and directed away from surrounding residential uses. Such lighting shall not exceed 0.5 foot-candles of illumination beyond the property containing the nonresidential use, and shall not blink, flash, oscillate, or be of unusually high intensity of brightness.
2. All parking areas of five or more spaces shall have an average of one-half foot-candle illumination per square foot of parking area for visibility and security during hours of darkness. Wiring for the illumination shall be underground unless existing overhead lines can serve the need without any additional overhead lines. Each parking area of five or more spaces existing prior to the effective date of this section that is enlarged, constructed, altered, or changed from its previous configuration shall be subject to the above illumination requirements.
3. The following forms of outdoor lighting usage shall be prohibited between midnight and dawn:
    a. The operation of spotlights for advertising purposes;
    b. The illumination of outdoor public recreational facilities, unless a specific recreational activity requiring the lighting is already in progress. Security lighting may be provided; and
    c. Roof top lighting shall be base lighting, and overhead roof lighting shall be prohibited.

Sources

City of Arroyo Grande. 2007. *City of Arroyo Grande General Plan Agriculture, Conservation, and Open Space Element*. Available at: https://www.arroyogrande.org/DocumentCenter/View/471/Agriculture-Conservation-and-Open-Space-Element-2007. Accessed May 2023.

———. 2018. City of Arroyo Grande Zoning Map. Available at: https://www.arroyogrande.org/DocumentCenter/View/1350/Zoning-Map-PDF?bidId=. Accessed May 2023.

City of Arroyo Grande. 2023. *City of Arroyo Grande Development Code Title 16* Available at: https://library.municode.com/ca/arroyo_grande/codes/code_of_ordinances?nodeId=CD_ORD_TIT16DECO_CH16.04INPRDE. Accessed May 2023.

II. AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
(b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
(c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
(d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
(e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Setting

The *City of Arroyo Grande General Plan Agriculture, Conservation, and Open Space Element* (ACOSE) includes Objectives Ag1 through Ag6 and corresponding policies for the protection of agricultural resources, including, but not limited to, the conservation of prime agricultural land and soils, conservation of groundwater for agricultural operations and promotion of the coexistence of agricultural and urban land uses (City of Arroyo Grande 2007).

The project site consists of previously disturbed and undeveloped land within the southern portion of the AGHS campus. According to the California Department of Conservation (CDOC) Farmland Mitigation and Monitoring Program (FMMP), the project site is located within the grazing land and urban and built-up designations (CDOC 2016).

Based on the Natural Resources Conservation Service (NRCS) Web Soil Survey, the soil types and characteristics on the subject property include (NRCS 2023):

- **117. Chamise shaly sandy clay, 5 to 9 percent slopes.** The project site is mostly underlain by this soil type. This well-drained soil has a very high runoff class and a depth to restrictive feature of approximately 80 inches. This soil does not have a frequency of ponding or flooding. The typical soil profile includes channery sandy clay loam and very channery clay. This soil is not considered Prime Farmland.
- **191. Pismo-Tierra complex, 9 to 15 percent slopes.** This soil type is somewhat excessively drained and has a high runoff class. This shallow soil has a depth to restrictive feature of 8 to inches to paralithic bedrock. This soil does not have a frequency of flooding or ponding and has a very low available water supply. The typical soil profile consists of loamy sand and weathered bedrock. This soil is not considered Prime Farmland.
- **198. Salinas silty clay loam, 2 to 9 percent slopes, Major Land Resource Area (MLRA) 14.** This well-drained soil has a negligible runoff class and a depth to restrictive feature of more than 80 inches. The typical soil profile for this soil includes silty clay loam. This soil type is considered Prime Farmland if irrigated.

The Land Conservation Act of 1965, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agriculture or related open space use. In return, landowners receive property tax assessments that are much lower than normal because they are based on farming and open space uses as opposed to full market value. The project site does not include land within the Agriculture land use designation and is not subject to a Williamson Act contract.

According to PRC Section 12220(g), forest land is defined as land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. Timberland is defined as land, other than land owned by the federal government and land designated by the State Board of Forestry and Fire Protection as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. The project site does not support forest land or timberland.

Discussion

(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

According to the FMMP, the project site is designated as grazing land and urban and built-up land and does not support Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (CDOC 2016). Therefore, implementation of the project would not result in the conversion of designated Prime Farmland to non-agricultural use, and *no impacts* would occur.

(b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

The project site is not within the AG zoning category and is not under a Williamson Act contract (City of Arroyo Grande 2018). Therefore, implementation of the project would not conflict with existing agricultural zoning or a Williamson Act contract, and *no impacts* would occur.

(c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

According to the City's zoning map, there is no designated forest land or timberland within the city (City of Arroyo Grande 2018). Therefore, implementation of the project would not conflict with zoning for forest land or timberland, and *no impacts* would occur.

(d) Result in the loss of forest land or conversion of forest land to non-forest use?

As previously identified, there is no designated forest land within the city. Therefore, any tree removal required for the project would not result in the loss of forest land or conversion of forest land to non-forest use, and *no impacts* would occur.

(e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

The project includes the development of a 13,000±-square-foot multipurpose gymnasium. The nearest agricultural land is located approximately 600 feet west of the project site and there is no designated forest land within the city. As evaluated above, development of the proposed gymnasium would not directly interfere with existing agricultural activities through loss of prime farmland or zoning inconsistencies. In addition, the project would not result in substantial long-term groundwater use that could deplete water supply for agricultural irrigation and would not result in a substantial amount of long-term dust or other emissions that could inadvertently damage crops within the vicinity of the project site. Therefore, the project would not indirectly result in the conversion of farmland to non-agricultural use or forest land to non-forest use, and *no impacts* would occur.

Conclusion

No significant impacts related to agricultural or forestry resources would occur, and mitigation measures are not required.

Sources

California Department of Conservation (CDOC). 2016. California Important Farmland Finder. Available at: https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed February 28, 2023.

City of Arroyo Grande. 2007. *City of Arroyo Grande General Plan Agriculture, Conservation, and Open Space Element*. Available at: https://www.arroyogrande.org/DocumentCenter/View/471/Agriculture-Conservation-and-Open-Space-Element-2007. Accessed February 28, 2022.

———. 2018. City of Arroyo Grande Zoning Map. Available at: https://www.arroyogrande.org/DocumentCenter/View/1350/Zoning-Map-PDF?bidId=. Accessed February 28, 2022.

Natural Resources Conservation Service (NRCS). 2023. Web Soil Survey. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed February 28, 2023.

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
(b)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
(c)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
(d)	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Setting

San Luis Obispo County is part of the South Central Coast Air Basin, (SCCAB), which also includes Santa Barbara and Ventura Counties. Air quality within the SCCAB is regulated by several jurisdictions, including the U.S. Environmental Protection Agency (USEPA), California Air Resources Board (CARB), and San Luis Obispo County Air Pollution Control District (SLOAPCD). Each of these jurisdictions develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation. The CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA) of 1988. The State Department of Public Health established California Ambient Air Quality Standards (CAAQS) in 1962 to define the maximum amount of a pollutant (averaged over a specified period of time) that can be present without any harmful effects on people or the environment. The CARB adopted the CAAQS developed by the Department of Public Health in 1969, which had established CAAQS for 10 criteria pollutants: particulate matter (under 10 microns [PM_{10}] and under 2.5 microns [$PM_{2.5}$]), ozone (O_3), nitrogen dioxide (NO_2), sulfate, carbon monoxide (CO), sulfur dioxide (SO_2), visibility-reducing particles, lead (Pb), hydrogen sulfide (H_2S), and vinyl chloride.

The Federal Clean Air Act (FCAA) later required the USEPA to establish National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment, and also set deadlines for their attainment. The USEPA has established the NAAQS for six criteria pollutants (all of which are also regulated by CAAQS): CO, Pb, NO_2, O_3, PM_{10} and $PM_{2.5}$, and SO_2. California law continues to mandate compliance with the CAAQS, which are often more stringent than national standards. However, California law does not require that the CAAQS be met by specified dates as is the case with the NAAQS. Rather, it requires incremental progress toward attainment. The SLOAPCD is the agency primarily responsible for ensuring that the NAAQS and CAAQS are not exceeded and that air quality conditions within the county are maintained.

San Luis Obispo County is currently designated as a nonattainment area with respect to the state O_3 and PM_{10} standards. In addition, the eastern portion of the county is designated nonattainment for the national O_3 standards. The county is designated attainment or unclassified for the remaining national and state standards.

Naturally Occurring Asbestos (NOA) is identified as a toxic air contaminant by the CARB. Serpentine and other ultramafic rocks are fairly common throughout the county and may contain NOA. If these areas are disturbed during construction, NOA-containing particles can be released into the air and have an adverse impact on local air quality and human health. According to the SLOAPCD's NOA map, the project site is not located in an area the SLOAPCD has identified as having the potential for NOA to be present (SLOAPCD 2022).

San Luis Obispo County Air Pollution Control District

The SLOAPCD's *San Luis Obispo County 2001 Clean Air Plan* (2001 Clean Air Plan) is a comprehensive planning document intended to evaluate long-term air pollutant emissions and cumulative effects and provide guidance to the SLOAPCD and other local agencies on how to attain and maintain the state standards for O_3 and PM_{10} (SLOAPCD 2001). The 2001 Clean Air Plan presents a detailed description of the sources and pollutants that impact the jurisdiction's attainment of state standards, future air quality impacts to be expected under current growth trends, and an appropriate control strategy for reducing O_3 precursor emissions, thereby improving air quality. In addition, the SLOAPCD prepares an Annual Air Quality Report detailing information on air quality monitoring and pollutant trends in the county.

The SLOAPCD has developed and updated their *CEQA Air Quality Handbook* (most recently updated with a November 2017 Clarification Memorandum) to help local agencies evaluate project-specific impacts and determine if air quality mitigation measures are needed, or if potentially significant impacts could result (SLOAPCD 2012, 2017). General screening criteria are used by the SLOAPCD to determine the type and scope of air quality assessment required for a particular project (Table 1-1 in the SLOAPCD's *CEQA Air Quality Handbook*). These criteria are based on project size in an urban setting and are designed to identify those projects with the potential to exceed the SLOAPCD's significance thresholds. A more refined analysis of air quality impacts specific to a given project is necessary for projects that exceed the screening criteria, identified in Table 1, or are within 10% of exceeding the screening criteria. The SLOAPCD has discretion to require mitigation for projects that would not exceed the mitigation thresholds if those projects would result in special impacts, such as the release of diesel particulate matter (DPM) emissions or asbestos near sensitive receptors.

Table 1. SLOAPCD Thresholds of Significance for Construction Operations

Pollutant	Threshold[1]		
	Daily	Quarterly Tier 1	Quarterly Tier 2
Reactive Organic Gases (ROG) + Nitrogen Oxides (NOx) (combined)	137 lbs	2.5 tons	6.3 tons
Diesel Particulate Matter (DPM)	7 lbs	0.13 tons	0.32 tons
Fugitive Particulate Matter (PM_{10}), Dust [2]	--	2.5 tons	--

Source: SLOAPCD (2012)

Notes: lbs = pounds

[1] Daily and quarterly emission thresholds are based on the California Health and Safety Code and the CARB Carl Moyer Guidelines.

[2] Any project with a grading area greater than 4 acres of worked area can exceed the 2.5-ton PM_{10} quarterly threshold.

Sensitive Receptors

Commonly identified sensitive population groups include children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses would include facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Residential dwellings, schools, parks, playgrounds, childcare centers, convalescent homes, and hospitals are examples of sensitive land uses. There are several residential homes located within

1,000 feet of the project site. The nearest residential sensitive receptor includes a private single-family residence, located approximately 50 feet east from the boundary of the project site. In addition, classrooms associated with the AGHS campus are located approximately 900 feet north of the project site.

Discussion

(a) Conflict with or obstruct implementation of the applicable air quality plan?

In order to be considered consistent with the 2001 Clean Air Plan, a project must be consistent with the land use planning and transportation control measures and strategies that are outlined in the Clean Air Plan (SLOAPCD 2012). The project does not include commercial, residential, or other development that would be applicable to land use planning measures, such as provision of mixed-use development, planning compact communities with higher densities, and balancing jobs and housing; however, the project would be subject to transportation control measures, such as encouraging use of alternative transportation options and vehicle miles traveled (VMT) reduction strategies. Vehicle trips to the gymnasium would consist of existing, redirected vehicle trips within the city. The proposed gymnasium would primarily be used by existing AGHS students and staff and is not anticipated to generate new vehicle trips to the campus in addition to existing trips to and from the school. The gymnasium includes limited spectator capacity, and it is anticipated that visiting teams would travel to the proposed gymnasium via busses, vans, or other carpooling methods, which would reduce the number of irregular vehicle trips to the gymnasium and would be consistent with existing conditions. In addition, AGHS provides pedestrian and bicycle facilities to encourage alternative modes of transportation as feasible. Land use planning measures included in the 2001 Clean Air Plan would not be applicable to the proposed project. Additionally, the project would not generate a substantial increase in VMT, which is consistent with the transportation control measures included in the 2001 Clean Air Plan. Therefore, the project would not conflict with the 2001 Clean Air Plan, and impacts would be *less than significant*.

(b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Construction of the proposed project would result in the generation of criteria air pollutants including ozone precursors (reactive organic gases and nitrogen oxides) and fugitive dust. San Luis Obispo County is currently designated as non-attainment for ozone and PM_{10} under state ambient air quality standards (CARB 2020). Fugitive dust emissions would result from grading operations and combustion emissions, such as NOx and ROG, would result from the use of large diesel-fueled equipment including scrapers, loaders, bulldozers, haul trucks, compressors, and generators.

The project would result in approximately 1 acre (43,560 square feet) of site disturbance, including a total of 4,200 cubic yards of cut and fill, for construction of the proposed project. Project air pollutant emissions were estimated using the most recent version of the California Emissions Estimator Model (CalEEMod; version 2020.4.0). Based on estimated construction phase length, grading volumes, and other factors, estimated construction-related emissions that would result from the project were calculated and compared to applicable SLOAPCD thresholds in Table 2. The CalEEMod results are included in Appendix A.

Table 2. Proposed Project Estimated Construction Emissions

Pollutant	Project Construction Emissions (Daily)	Project Construction Emissions (quarterly)	SLOAPCD Thresholds[1]		Does the Project Exceed SLOAPCD Thresholds?
			Daily	Quarterly Tier 1	
Reactive Organic Gases (ROG) + Nitrogen Oxides (NOx) (combined)	66.01 lbs/day	0.13 tons/quarter	137 lbs	2.5 tons	No
Diesel Particulate Matter (DPM)	0.42 lbs/day	0.004 tons/quarter	7 lbs	0.13 tons	No
Fugitive Particulate Matter (PM_{10}), Dust[2]	--	0.002 tons/quarter	--	2.5 tons	No

Source: SLOAPCD 2012; CalEEMod 2020.4.0

Notes: lbs = pounds

[1] Daily and quarterly emission thresholds are based on the California Health and Safety Code and the CARB Carl Moyer Guidelines.

[2] Any project with a grading area greater than 4.0 acres of worked area can exceed the 2.5-ton PM10 quarterly threshold.

As shown in Table 2, the project would not exceed daily or quarterly SLOAPCD thresholds for construction-related emissions. Therefore, the project would not result in a cumulatively considerable net increase in identified criteria pollutants, and construction-related impacts would be *less than significant.*

Implementation of the project would result in the operation of a new multipurpose gymnasium and does not include components that would increase long-term air pollutant emissions. The proposed gymnasium would primarily be used by existing AGHS students and staff and is not anticipated to generate new vehicle trips to the campus in addition to existing trips to and from the school. The gymnasium includes limited spectator capacity, and it is anticipated that visiting teams would travel to the proposed gymnasium via busses, vans, or other carpooling methods, which would reduce the number of irregular vehicle trips to the gymnasium and be consistent with existing conditions. Proposed access routes and the ADA parking lot would be paved to avoid long-term fugitive dust emissions. The project does not propose any components that would result in a substantial amount of pollutant emissions that would exceed existing SLOAPCD thresholds; therefore, operational impacts would be *less than significant*.

(c) Expose sensitive receptors to substantial pollutant concentrations?

According to the SLOAPCD *CEQA Air Quality Handbook*, projects that occur within 1,000 feet of sensitive receptors have the potential to result in adverse impacts involving construction emissions (SLOAPCD 2012). There are several residential dwellings located within 1,000 feet of the project site. In addition, classrooms associated with the AGHS campus are located approximately 900 feet north of the project site. Due to the proximity of surrounding sensitive receptor locations, Mitigation Measure AQ-1 has been included to reduce construction-related pollutant emissions near sensitive receptors. Therefore, construction activities would not expose sensitive receptors to substantial pollutant concentrations and impacts would be *less than significant with mitigation*.

(d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Typically, construction activities have the potential to emit odors from diesel equipment, paints, solvents, fugitive dust, and adhesives. Any odors generated by construction activities would be intermittent and temporary, and generally would not extend beyond the construction area. Operation of the project would not include any components or operational activities that would

generate substantial odor. Odors generated by the project would be short-term, intermittent, and undetectable; therefore, impacts related to adverse odors would be *less than significant*.

According to the Geotechnical Engineering and Geologic Hazards Report prepared for the project, the project site is not located in an area with potential for NOA to occur; therefore, proposed ground-disturbing activities would not result in disturbance or release of NOA (Earth Systems Pacific 2023). Therefore, the project is not anticipated to result in other emissions, such as NOA, and impacts would be *less than significant*.

Conclusion

Mitigation Measure AQ-1 has been included to reduce construction-related pollutant emissions near sensitive receptors and to avoid and/or minimize the potential to release NOA during ground disturbance activities. Upon implementation of these measures, impacts related to air quality would be reduced to less than significant.

Recommended Mitigation

The following measures shall be noted on construction plans and implemented prior to and during construction activities.

AQ-1 During all construction activities and use of diesel vehicles, the applicant shall implement the following idling control techniques:

1. Idling Restrictions Near Sensitive Receptors for Both On- and Off-Road Equipment.
    a. Staging and queuing areas shall not be located within 1,000 feet of sensitive receptors, if feasible;
    b. Diesel idling within 1,000 feet of sensitive receptors shall not be permitted;
    c. Use of alternative-fueled equipment shall be used whenever possible; and
    d. Signs that specify the no idling requirements shall be posted and enforced at the construction site.
2. California Diesel Idling Regulations. On-road diesel vehicles shall comply with 13 California Code of Regulations (CCR) 2485. This regulation limits idling from diesel-fueled commercial motor vehicles with gross vehicular weight ratings of more than 10,000 pounds and licensed for operation on highways. It applies to California and non-California based vehicles. In general, the regulation specifies that drivers of said vehicles:
    a. Shall not idle the vehicle's primary diesel engine for greater than 5 minutes at any location, except as noted in Subsection (d) of the regulation; and
    b. Shall not operate a diesel-fueled auxiliary power system (APS) to power a heater, an air conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a sleeper berth for greater than 5 minutes at any location when within 1,000 feet of a restricted area, except as noted in Subsection (d) of the regulation.

Signs must be posted in the designated queuing areas and job sites to remind drivers of the 5-minute idling limit. The specific requirements and exceptions in the regulation

can be reviewed at the following website: www.arb.ca.gov/msprog/truck-idling/2485.pdf.

Sources

California Air Resources Board (CARB). 2020. Maps of State and Federal Area Designations. Available at: https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations. Accessed March 2, 2022.

Earth Systems Pacific. 2023. *Geotechnical Engineering and Geologic Hazards Report Arroyo Grande High School Practice Gym 495 Valley Road Arroyo Grande, California*. June 9.

San Luis Obispo County Air Pollution Control District (SLOAPCD). 2001. *2001 Clean Air Plan*. Available at: https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/business/pdf/CAP.pdf. Accessed March 1, 2023.

———. 2012. *CEQA Air Quality Handbook*. Available at: https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/CEQA_Handbook_2012_v2%20%28Updated%20Map2019%29_LinkedwithMemo.pdf. Accessed March 1, 2023.

———. 2017. *Clarification Memorandum for the San Luis Obispo County Air Pollution Control District's 2012 CEQA Air Quality Handbook*. Available at: https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/FINAL_Clarification%20Memorandum%2020172.pdf. Accessed March 1, 2023.

———. 2022. Naturally Occurring Asbestos Map. Available at: https://www.google.com/maps/d/u/0/viewer?mid=1YAKjBzVkwi1bZ4rQ1p6b2OMyvIM&ll=35.364986805363756%2C-120.52563349999998&z=9. Accessed March 1, 2023.

IV. BIOLOGICAL RESOURCES

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
(b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☐	☒

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(c)	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
(d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
(e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
(f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Setting

The following setting information is based on observations made during a site visit conducted by SWCA Senior Biologist Rebecca Doubledee on February 10, 2023. The project site consists of previously disturbed and undeveloped land. The northern portion consists of a paved bike path and an existing unpaved roadway, and the southern half of the project site gently slopes upward before flattening at an excavated drainage ditch. Dominant vegetation in the southeastern portion of the project site consists of coyote brush (*Baccharis pilularis*) and non-native annual grasses (wild oats [*Avena* spp.], brome [*Bromus* spp.], and smooth barley [*Hordeum murinum*]). Coyote brush is the dominant shrub along the banks of the drainage ditch. The vegetation along the southwestern portion of the project site is also dominated by non-native annual grasses but lacked coyote brush and appeared to be more disturbed. Other species present on-site include castor bean (*Ricinus communis* L.), bur clover (*Medicago polymorpha*), cheeseweed mallow (*Malva parviflora*), white stemmed filaree (*Erodium moschatum*), fiddleneck (*Amsinckia* sp.), and shepherd's purse (*Capsella bursa-pastoris*).

There is an excavated drainage ditch that runs northeast across the eastern portion of the project site that conveys water north and eventually connects with Los Berros Creek to the south. The ditch appears to have been recently excavated prior to the wet season and the spoils were placed just southwest of the project site. There was water in the ditch at the time of the project site visit. Vegetation in the ditch appeared to be dominated by Italian rye-grass (*Lolium multiflorum*) intermixed with dock (*Rumex* sp.). Based on a review of historic Google Earth aerial imagery (Google Earth 2023), there appears to have been flooding issues and a partial sandbag barrier temporarily placed on the unpaved road. The excavation of the ditch and placement of the spoils may have been designed to minimize runoff onto the roadway to prevent flooding.

The southern border of the project site abuts undeveloped land. Based on a review of Google Earth aerial imagery, there are two detention basins with freshwater marsh habitat areas located outside of the footprint of the project site. The basins are approximately 0.17 mile south of the project site and consist of a shallow wetland adjacent to an arroyo willow (*Salix lasiolepis*) thicket and an excavated pond surrounded by a few oak trees. The arroyo willow thicket was visible from the project site, and the second pond was only visible from aerial imagery review.

Methods

SWCA performed a desktop review to assess which special-status species have known occurrences in the project vicinity. The review was initiated with a query of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) to identify special-status plant and wildlife species that have reported occurrences within 5 miles of the project site (CNDDB 2023). The U.S. Fish and Wildlife Service (USFWS) Information Planning and Consultation (IPaC) tool was accessed to acquire an informal list of federally listed species that the USFWS considers have potential to occur in the area (USFWS 2023a) (Appendix B). In addition to these database searches, a reconnaissance-level site visit was conducted by SWCA Senior Biologist Ms. Doubledee on February 10, 2023.

Discussion

(a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Special-Status Plant Species

Based on a review of the CNDDB, the following special-status plant species have documented occurrences within 5 miles of the proposed project:

- Hoover's bent grass (*Agrostis hooveri*)
- San Luis mariposa-lily (*Calochortus obispoensis*)
- Dwarf soaproot (*Chloraglum pomeridianum* var. *minus*)
- California saw-grass (*Caldium californicum*)
- Coastal goosefoot beach spectaclepod (*Dithyrea maritima*)
- black-flowered figwort (*Scrophularia* atrata)
- Blochman's leafy daisy (*Erigeron blochmaniae*)
- chaparral ragwort (*Senecio aphanactis*)
- coast woolly-heads (*Nemacaulis denudata* var. *denudate*)
- coastal goosefoot (*Chenopodium littoreum*)
- crisp monardella (*Monardella undulata* ssp. *crispa*)
- dune larkspur (*Delphinium parryi* ssp. *blochmaniae*)
- Gambel's water cress (*Nasturtium gambelii*)
- Kellogg's horkelia (*Horkelia cuneata* var. *sericea*)
- La Graciosa thistle (*Cirsium scariosum* var. *loncholepis*)
- marsh sandwort (*Arenaria paludicola*)
- mesa horkelia (*Horkelia cuneata* var. *puberula*)

- Nipomo Mesa ceanothus (*Ceanothus impressus* var. *nipomensis*)
- Nipomo Mesa lupine (*Lupinus nipomensis*)
- Pismo clarkia (*Clarkia speciosa* ssp. *immaculata*)
- San Bernardino aster (*Symphyotrichum defoliatum*)
- San Luis Obispo County lupine (*Lupinus ludovicianus*)
- San Luis Obispo monardella (*Monardella undulata* ssp. *undulata*)
- San Luis Obispo owl's-clover (*Castilleja densiflora* var. *obispoensis*)
- sand mesa manzanita (*Arctostaphylos rudis*)
- Santa Margarita manzanita (*Arctostaphylos pilosula*)
- slender bush-mallow (*Malacothamnus gracilis*)
- southern curly-leaved monardella (*Monardella sinuata* ssp. *sinuate*); and
- surf thistle (*Cirsium rhothophilum*).

The project site consists of disturbed undeveloped ground. Due to the existing site disturbance and dominance of weedy non-native species, the project site does not support suitable habitat for special-status plant species.

Special-Status Wildlife Species

Based on a review of the CNDDB, the following special-status wildlife species have documented occurrences within 5 miles of the proposed project:

- monarch butterfly (*Danaus plexippus*)
- obscure bumble bee (*Bombus caliginous*)
- steelhead – South-Central California Coast Distinct Population Segment (DPS) (*Oncorhynchus mykiss irideus* pop. 9)
- tidewater goby (*Eucyclogobius newberryi*)
- California red-legged frog (*Rana draytonii*)
- foothill yellow-legged frog – South Coast DPS (*Rana boylii* pop. 6)
- western pond turtle (*Emys marmorata*)
- northern California legless lizard (*Anniella pulchra*)
- coast horned lizard (*Phrynosoma blainvillii*)
- California black rail (*Laterallus jamaicensis coturniculus*)
- California least tern (*Sternula antillarum browni*)
- prairie falcon (*Falco mexicanus*)
- western snowy plover (*Charadrius nivosus nivosus*); and
- American badger (*Taxidea taxus*).

The project site consists of highly disturbed upland habitat, dominated by non-native plant species. Due to soil compaction and lack of a prey base, the project site does not contain suitable habitat for northern California legless lizard, coast horned lizard, or American badger, which typically occur in either sandy or friable soil conditions. There is no suitable habitat on the project site for obscure bumble bee, steelhead - south-central California coast DPS, tidewater goby, foothill yellow-legged frog, California black rail, California least tern, prairie falcon, or western snowy plover.

There is a basin on the project property, located approximately 0.17 mile south of the project site, that could provide suitable habitat for semi-aquatic species such as California red-legged frogs and western pond turtles during the west season (October–March). If present, these species may be present in the upland dispersal habitat of the project site during or immediately after rainfall events. These species are discussed in more detail below.

California Red-Legged Frog

The California red-legged frog is federally listed as threatened and listed as a Species of Special Concern (SSC) by the CDFW (CDFW 2023b). This species occupies both aquatic and terrestrial habitats during different stages of its life and during different seasons of the year. For example, adults can be found within streams or ponds over 1.8 miles from breeding habitat and within dense riparian vegetation more than 328 feet from water (USFWS 2001). However, most adults remain immediately adjacent to or within aquatic breeding habitat, only dispersing from these areas during significant rain events (USFWS 2001).

The California red-legged frog is known to occur in Arroyo Grande Creek (CNDDB Occurrence #1339), which is located approximately 0.5 mile northwest of the project site. A protocol survey for California red-legged frog was not conducted at the pond location; however, the ponds could provide potential habitat for California red-legged frog during the breeding season. Given the adjacency to Arroyo Grande Creek and potential for breeding habitat, California red-legged frog could occur in upland habitat of the project site during and immediately following rain events when they are known to disperse overland for foraging and breeding purposes. If present, project construction activities could result in injury and/or mortality of adults and juveniles. Individuals may also get entrapped in uncovered ditches. Mitigation is proposed below to require installation of wildlife exclusionary fencing around the perimeter of the project site prior to construction to prevent California red-legged frog from entering the project site. Therefore, potential impacts to California red-legged frog would be *less than significant with mitigation*.

Western Pond Turtle

Western pond turtle is listed as an SSC by the CDFW (CDFW 2023b). This species inhabits quiet waters of ponds, small lakes, streams, and marshes and requires basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks. Mating occurs during April and May, and three to 11 eggs are laid from March to August within nests constructed in sandy banks. Along the coast, western pond turtle tends to winter in uplands, leaving water for a good portion of the year between November and March (Bury et al. 2012; Thomson et al. 2016).

The pond immediately south of the project site contains suitable habitat for western pond turtle. Western pond turtle has been documented (CNDDB Occurrence #1165) within Arroyo Grande Creek, which is located approximately 0.5 mile northwest of the project site. A focused survey for western pond turtle was not conducted as part of this study. However, there is a potential that western pond turtle may utilize the ponds adjacent to the project site. Western pond turtle is not likely to hibernate or nest within surrounding upland habitat due to lack of suitable substrate (sandy soils) and vegetative cover. Regardless, if western pond turtle is utilizing the adjacent ponds, there is a potential the species may migrate from these locations in search of suitable upland habitat for nesting and hibernation purposes and could be impacted by construction activities. Mitigation has been included that would require installation of wildlife exclusionary fencing around the perimeter of the project site prior to construction to prevent western pond turtle from entering the project site. Therefore, potential impacts to western pond turtle would be *less than significant with mitigation*.

Nesting Birds and Raptors

The Migratory Bird Treaty Act (MBTA) protects all migratory birds, including their eggs, nests, and feathers. California Fish and Game Code (CFGC) Section 3503, *Protections of Bird's Nests*, includes provisions to protect the nests and eggs of birds. Even though the existing undeveloped site is highly disturbed, there may still be vegetation present immediately prior to construction that may provide nesting habitat for migratory bird species protected under the MBTA and CFGC Section 3503. In addition, there is a grove of trees that could provide suitable nesting habitat for raptors approximately 200 feet west of the project site on the adjacent property. Construction activities may result in direct impacts to nests if present within the project site or indirect impacts to nests in trees adjacent to construction that may result in nest failure or abandonment. Mitigation has been included to require preconstruction nesting bird surveys to prevent impacts to nesting birds and raptors. Therefore, potential impacts to nesting birds would be *less than significant with mitigation*.

(b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

There is no riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the CDFW or USFWS and *no impact* would occur.

(c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

There is an excavated drainage ditch that runs northeast across the eastern portion of the site that may be considered a jurisdictional feature and protected under CFGC Section 1600 and the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), which is governed by the Regional Water Quality Control Board (RWQCB).

The project would be required to comply with the Central Coast RWQCB general construction permit requirements, including preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) with best management practices (BMPs) to control erosion during construction activities. Further, the project would be subject to the RWQCB post-construction requirements (PCRs) to control long-term pollutant discharges through stormwater control measures. The project would be required to comply with Section 13.24.070 of the City's Municipal Code to avoid potential impacts to stream and riparian features. Mitigation measures have been included to require a minimum 50-foot setback from potentially jurisdictional features. If a minimum 50-foot setback is not feasible, mitigation has also been included to minimize potential impacts resulting from construction activities within 50 feet of potentially jurisdictional features and require coordination with appropriate agencies for any permits required for direct impacts to these features. Therefore, potential impacts to sensitive aquatic habitat regulated by the state would be less than significant with mitigation.

(d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The California Essential Habitat Connectivity Project was queried for Essential Habitat Connectivity, which is the best available data describing important areas for maintaining connectivity between large blocks of land for wildlife corridor purposes (CDFW 2023a). These important areas are referred to as Essential Connectivity Areas. Essential Connectivity Areas

are only intended to be a broad-scale representation of areas that provide essential connectivity. The project site is not located within an Essential Connectivity Area.

The larger property that the project site sits on is surrounded by residential development to the south and east, AGHS to the north, and agriculture to the west. There are two basins south of the project site on the larger property. If aquatic species, such as California red-legged frog and western pond turtle, are present in these features, the main connection from this site to other aquatic habitats (Los Berros and Arroyo Grande Creeks) is across the property and through the swale. The proposed location of the new gymnasium would only result in approximately 0.28 acre (13,000± square feet) of the 2.15±-acre site along the western side. Based on the proposed design, the project would not impede access to the swale or a potential wildlife corridor. Therefore, impacts would be *less than significant*.

(e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The proposed project would not require the removal of any native trees and would not conflict with any local policies protecting biological resources, and *no impact* would occur.

(f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The proposed project is not located within an area that is under a Habitat Conservation Plan or Natural Conservation Plan, and *no impact* would occur.

Conclusion

The project property supports habitat for special-status wildlife species and contains a potentially jurisdictional feature. The project site may provide marginal dispersal habitat for California red-legged frog and western pond turtle if these species are present in the adjacent ponds located outside of the project site. The vegetation on the property provides suitable habitat for nesting birds and the adjacent trees immediately west of the property may provide suitable habitat for nesting raptors. There is an excavated ditch running northeast across the eastern side of the property that may fall under the jurisdiction of the USACE, RWQCB, and CDFW, but the current set of project plans does not indicate a direct impact to this feature. Mitigation has been included to avoid potential impacts to sensitive biological resources. Therefore, impacts would be *less than significant with mitigation*.

Recommended Mitigation

BIO-1 **California Red-legged Frog and Western Pond Turtle:** To avoid potential impacts to dispersing California red-legged frog and western pond turtle, the project applicant or contractor shall install wildlife exclusion fencing around the perimeter of the project site prior to construction activities to exclude any potential California red-legged frogs and western pond turtles from migrating into the project site during construction. If it is not feasible or practical to install wildlife exclusion fencing around the perimeter of the project site, the project contractor will be responsible for ensuring that all work halts immediately in the event that California red-legged frog or western pond turtle is found within the project site during construction and the California Department of Fish and Wildlife is contacted immediately to determine appropriate actions to avoid potential impacts.

BIO-2 **Nesting Birds:** To avoid disturbance of nesting and raptor species protected by the Migratory Bird Treaty Act and California Fish and Game Code Section 3503, activities related to the project, including, but not limited to, vegetation removal, ground

disturbance, and construction, shall occur outside of the breeding season for migratory birds (generally February 1–August 31), if feasible.

If construction occurs during the breeding season, a preconstruction nesting bird survey shall be conducted no more than 7 days prior to initiation of ground disturbance and vegetation removal activities. The nesting bird preconstruction survey shall be conducted on foot inside the project footprint, within a 100-foot buffer (300-foot for raptors), and using binoculars to the extent practicable. The survey shall be conducted by a biologist familiar with the identification of avian species known to occur in California. If nests are found, an avoidance buffer (dependent on the species, the proposed work activity, and existing disturbances associated with land uses outside of the workspace) shall be determined and demarcated by the biologist with construction fencing, flagging, or other means to mark the boundary. Intrusion into the buffer may be conducted at the discretion of the biologist.

BIO-3 **Potentially Jurisdictional Features:** The project shall be designed to maintain a minimum 50-foot setback from the top of bank of any potentially jurisdictional features. This setback shall be identified on all construction plans and shall be marked on-site during site preparation activities to ensure the setback is maintained during construction activities. If a 50-foot setback is not feasible for the project design, the following measures shall be implemented:

1. Prior to construction, a qualified biologist shall be retained to conduct a wetland delineation to determine the jurisdiction of the swale adjacent to the proposed multipurpose gymnasium.
2. Prior to construction within 50 feet of any stream or other surface water resource, project design plans shall be prepared that include the location of all drainage features and outfall locations proposed for the project. If construction activities require any earthwork within the banks of the swale, the Lucia Mar Unified School District shall coordinate with the U.S. Army Corps of Engineers, California Department of Fish and Wildlife, and Regional Water Quality Control Board to obtain the appropriate permits for direct impacts to jurisdictional features. The Lucia Mar Unified School District shall implement all pre- and post-construction conditions identified in the permits issued.
3. Prior to project implementation, the project area shall be clearly flagged or fenced so the contractor is aware of the limits of allowable site access and disturbance. Areas within the designated project site that do not require regular access shall be clearly flagged as off-limit areas to avoid unnecessary damage to sensitive habitats or existing vegetation within the project area.

Sources

Bury, R.B., Hartwell H. Welsh Jr., David J. Germano, and Donald T. Ashton. 2012. *Western Pond Turtle: Biology, Sampling Techniques, Inventory And Monitoring, Conservation, and Management: Northwest Fauna No. 7*. The Society for Northwestern Vertebrate Biology. Forest and Rangeland Ecosystem Science Center. 128 p.

California Department of Fish and Wildlife (CDFW). 2023a. California Essential Habitat Connectivity Project. Available at: https://www.wildlife.ca.gov/conservation/planning/connectivity/CEHC. Accessed February 2023.

———. 2023b. Special Animals List. Last updated January. Available at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline. Accessed February 2023.

California Natural Diversity Database (CNDDB). 2022. RareFind Species List, California U.S. Geological Survey 7.5-Minute Quadrangle. Available at: https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed February 2023.

Google Earth. 2023. Online aerial imagery of Arroyo Grande High School. Available at: https://goo.gl/maps/454kmdGmgR4ZCoVK8. Accessed February 2023.

Stebbins, R.C. 2003. *A Field Guide to Western Reptiles and Amphibians*. Third edition. Boston, Massachusetts: Houghton Mifflin Co.

Thomson, Robert C., Amber N. Write, and H. Bradley Shaffer. 2016. *California Amphibian and Reptile Species of Special Concern*. California Department of Fish and Wildlife. Oakland, California: University of California Press.

U.S. Fish and Wildlife Service (USFWS). 2001. Endangered and Threatened Wildlife and Plants: Final Determinations of Critical Habitat for the California Red-legged Frog; Final Rule. *Federal Register* 66(49):14626–14758.

———. 2023a. IPaC Resource List (Not for Consultation). Available at: http://ecos.fws.gov/ipac/. Accessed February 2023.

———. 2023b. National Wetlands Inventory, Wetland Geodatabase. Available at: http://wetlandsfws.er.usgs.gov/NWI/index.html. Accessed February 2023.

U.S. Geological Survey (USGS). 2022. National Hydrography Dataset. Available at: https://www.usgs.gov/national-hydrography/national-hydrography-dataset. Accessed February 2023.

V. CULTURAL RESOURCES

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☐	☐	☐	☒
(b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☒	☐	☐
(c)	Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

Setting

As defined by CEQA, a historical resource includes:

1. A resource listed in or determined to be eligible for listing in the California Register of Historical Resources (CRHR).
2. Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant. The architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural records of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence.

Pursuant to CEQA, a resource included in a local register of historic resources or identified as significant in a historical resource survey shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

A Cultural Resources Survey Report (CRSR) was prepared for the proposed project to determine the presence and the likelihood of presence of cultural resources within the project area (SWCA Environmental Consultants [SWCA] 2022). The CRSR includes the results and findings of background review and a pedestrian survey of the project area. A records search was conducted at the Central Coast Information Center (CCIC), located at the Santa Barbara Museum of Natural History, to identify any previously recorded cultural resources within the project area. The records search was negative for previously recorded resources within the project area. A pedestrian field survey was conducted within the project area and no cultural resources or evidence of cultural resources were observed (SWCA 2022).

Discussion

(a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?

The project site is primarily undeveloped and does not consist of any existing buildings or other structures that could be eligible for listing as a historical resource. Additionally, the project does

not include the use of high-impact construction activities (i.e., pile driving) that could directly or indirectly damage or result in adverse changes to a historical building or structure. Since there are no historical resources within the project site, implementation of the project would not cause a substantial adverse change in the significance of a historical resource, and *no impact* would occur.

(b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

A records search of the site files from the from the CCIC was conducted in order to determine whether any cultural resources have been previously recorded on or near the project area. The records search did not identify any known previously recorded archaeological resources within the project site. A field survey of the project site was conducted, and no visible surface archaeological resources were found. Based on the results of the CRSR prepared for the project, there are no known cultural archaeological resources within the project area and the site has low potential for subsurface resources (SWCA 2022). Although not anticipated, there is potential for proposed grading and other ground-disturbing activities to uncover unknown cultural resources if present within the proposed area of disturbance. Mitigation Measure CR-1 has been included to avoid and/or minimize the potential impacts related to inadvertent discovery. In addition, Mitigation Measure CR-2 requires a preconstruction worker awareness training for all construction crew members to be made aware of cultural and tribal cultural resources located outside of the project footprint and the proper protocol in the event unknown resources are encountered. With implementation of Mitigation Measures CR-1 and CR-2, the project would not adversely affect cultural archaeological resources; therefore, impacts would be less than *significant with mitigation*.

(c) Disturb any human remains, including those interred outside of dedicated cemeteries?

The project would require ground disturbance and excavation activities, which could uncover or disturb unknown human remains if present within the project area. The project would be required to comply with California Health and Safety Code Section 7050.5, which identifies the proper protocol in the event of inadvertent discovery of human remains, including the cessation of work within the vicinity of the discovery, identification of human remains by a qualified coroner, and if the remains are identified to be of Native American descent, contact with the Native American Heritage Council (NAHC). Based on required compliance with California Health and Safety Code Section 7050.5, implementation of the proposed project is not anticipated to disturb human remains; therefore, impacts would be *less than significant*.

Conclusion

There are no known historical or archaeological cultural resources within the project area. Based on required compliance with California Health and Safety Code Section 7050.5, implementation of the proposed project is not anticipated to disturb unknown cultural resources. Therefore, potential impacts related to cultural resources would be less than significant, and no mitigation would be necessary.

Recommended Mitigation

CR-1 In the unlikely event that archaeological resources are exposed during project implementation, work should stop in the immediate vicinity, and an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards (National Park Service 1983) should be retained to evaluate the find and recommend relevant mitigation measures.

CR-2 A cultural resources Worker Training Program shall be provided to all construction crew members by a qualified archaeologist and Native American representative prior to project kickoff. The training shall include a brochure containing relevant information about the site and photographs of the types of resources present and types that can be expected to be encountered during project work. It should include detailed procedures for the identification and recovery of cultural resources. The archaeologist shall inform project personnel about the types of resources that could be encountered and procedures to follow in the event of an archaeological discovery, as well as the potential penalties for failing to adhere to applicable state regulations.

Sources

National Park Service (NPS). 1983. *Secretary of the Interior's Standards and Guidelines*. Available at: https://www.nps.gov/history/local-law/arch_stnds_0.htm. Accessed in January 2022.

SWCA Environmental Consultants (SWCA). 2022. *Cultural Resources Survey Report for the Arroyo Grande High School Gym Expansion Project, San Luis Obispo County, California*. March 2022.

VI. ENERGY

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
(b)	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Setting

The Pacific Gas and Electric Company (PG&E) has historically been the primary electricity provider for the City. On August 13, 2019, the City Council adopted a resolution joining Monterey Bay Community Power (MBCP) under a Joint Powers Agreement (JPA) implementing the community choice aggregation program authorized by Ordinance No. 700. Through that resolution, the City Council committed to joining Central Coast Community Energy (3CE; formerly MBCP) and, beginning in January 2020, 3CE became the City's primary electricity provider. 3CE is striving to provide 100% carbon-free energy mix to the City by 2030.

The City's ACOSE establishes objectives and policies to achieve energy conservation. These goals include development standards and design guidelines that consider refinement to minimize unnecessary energy use. The 2023 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) was adopted by the San Luis Obispo Council of Governments (SLOCOG) on June 7, 2023 (SLOCOG 2023) and identifies relevant goals related to energy efficiency, reductions in energy consumption, and energy conservation.

Discussion

(a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

During construction, energy would be used in the form of fossil fuels, diesel fuel, electricity, and natural gas for construction vehicles and equipment as well as worker transportation to the site. Proposed construction activities would be short-term and of similar size and scale as other construction projects within the city. Construction activities would be required to comply with diesel idling requirements identified by the CARB, including limiting idling to 5 minutes or less, which would reduce unnecessary, wasteful, and inefficient energy consumption during construction. Additionally, Mitigation Measure AQ-1 has been included in Section III, *Air Quality*, to ensure compliance with diesel idling restrictions, which would further reduce the potential for wasteful, inefficient, or unnecessary energy consumption to occur during construction. Therefore, proposed construction activities are not expected to result in the inefficient or wasteful use of energy and short-term impacts would be *less than significant*.

The project includes development of a new 13,000±-square-foot multipurpose gymnasium within the AGHS campus. Operational energy use would primarily occur in the form of indoor lighting, an HVAC unit, and low-intensity outdoor lighting. The new gymnasium would be required to comply with all 2022 California Building Code (CBC) Energy Efficiency Standards and the 2022 Green Building Code Standards to ensure new development is energy efficient. In addition, electricity demand for the project would be supplied by 3CE, which is fully compliant with state regulations and is striving to provide a 100% carbon-free energy mix to the City by 2030. Further, vehicle trips associated with the project would consist of existing, redirected trips and would not generate new vehicle trips within the city that could increase energy use in the form of fossil fuel. Based on required compliance with the CBC and Green Building Code Standards and the use of carbon-free energy sources, the project would not result in long-term wasteful, inefficient, or unnecessary energy consumption, and impacts would be *less than significant*.

(b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The proposed multipurpose gymnasium would be required to comply with the 2022 CBC Energy Efficiency Standards and 2022 Green Building Code Standards and the Division of the State Architect Standards to ensure the implementation of energy efficient building materials and other design features. Further, the project would be provided energy by 3CE, which is striving to provide a 100% carbon-free energy mix to the City by 2030. By utilizing 3CE for electricity, 100% of the project's electricity demand would be sourced from GHG-free energy sources. Compliance with energy efficient building design and the use of GHG-free energy would be consistent with applicable energy efficiency standards; therefore, impacts would be *less than significant*.

Conclusion

No significant impacts related to energy would occur, and mitigation measures are not required.

Sources

San Luis Obispo Council of Governments (SLOCOG). 2023. *2023 Regional Transportation Plan and Sustainable Communities Strategy*. Adopted June 7. Available at: https://www.dropbox.com/s/2zp8vhil9q4n9l5/00-%202023%20RTP%20Final%20Adopted.pdf?dl=0. Accessed July 28, 2023.

VII. GEOLOGY AND SOILS

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
	(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
	(ii) Strong seismic ground shaking?	☐	☐	☒	☐
	(iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
	(iv) Landslides?	☐	☐	☒	☐
(b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
(c)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
(d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☒	☐	☐
(e)	Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(f)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Setting

The following evaluation is based, in part, on the Geotechnical Engineering and Geologic Hazards Report prepared for the project (Earth Systems Pacific 2023) (Appendix C).

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) is a California state law that was developed to regulate development near active faults and mitigate the surface fault rupture potential and other hazards. The Alquist-Priolo Act identifies active earthquake fault zones and restricts the construction of habitable structures over known active or potentially active faults. The *County of San Luis Obispo General Plan Safety Element* identifies three active faults that traverse through the county and are currently zoned under the Alquist-Priolo Act: the San Andreas, the Hosgri-San Simeon, and the Los Osos (County of San Luis Obispo 1999); Arroyo Grande is not underlain by the San Andreas, Hosgri-San Simeon, or Los Osos Faults.

There are a number of active or potentially active fault systems throughout San Luis Obispo County and, given the past history of earthquakes in the area, experts agree that the probability of a damaging earthquake occurring is high. Mapped faults within the City of Arroyo Grande include the potentially active Wilmar Avenue Fault and the inactive Pismo Fault. The Wilmar Avenue Fault is exposed in the sea cliff near Pismo Beach and the buried trace of the fault is inferred to strike northwest–southeast parallel and adjacent to U.S. Route 101 beneath portions of Arroyo Grande. The potentially active fault presents a moderate potential fault rupture hazard to the city. The inactive Pismo Fault presents a very low potential fault rupture hazard. Further studies to evaluate the activity of the faults are warranted, prior to placing structures near the mapped fault traces (Mathe 2015). Based on the CDOC Fault Activity Map of California, the project site is located approximately 0.4 mile west of the Wilmar Avenue Fault line (CDOC 2015).

The portions of the city with high liquefaction potential are those areas underlain by younger alluvium (Qa), which includes most of the low-lying downtown areas south of Branch Street and along Grand Avenue. A majority of the existing development in Arroyo Grande is located on gently inclined alluvial valley sediments, which has low to very low potential for slope stability hazards; however, the residences located on the hilly terrain north of Branch Street have greater potential for landslide activity (City of Arroyo Grande 2001). According to the County of San Luis Obispo Safety Element Maps and the Geotechnical Engineering and Geologic Hazards Report prepared for the project, the project site is located in an area with low risk for liquefaction and landslide (County of San Luis Obispo 2013; Earth Systems Pacific 2023).

Shrink/swell potential is the extent to which the soil shrinks as it dries out or swells when it gets wet. Extent of shrinking and swelling is influenced by the amount and kind of clay in the soil. Shrinking and swelling of soils can cause damage to building foundations, roads, and other structures. A high shrink/swell potential indicates a hazard to maintenance of structures built in, on, or with material having this rating. Moderate and low ratings lessen the hazard accordingly. According to the Geotechnical Engineering and Geologic Hazards Report prepared for the project, the project site has moderate potential for soil expansion (Earth Systems Pacific 2023).

The City's ACOSE does not identify goals or policies related to the preservation of paleontological resources; however, the *County of San Luis Obispo General Plan Conservation and Open Space Element* (COSE) identifies a policy for the protection of paleontological resources from the effects of development by avoiding disturbance where feasible (County of San Luis Obispo 2010). Where substantial subsurface disturbance is proposed in paleontologically sensitive units, Implementation Strategy CR 4.5.1 (Paleontological Studies) of the County's COSE requires a paleontological resource assessment and mitigation plan be prepared to identify the extent and potential significance of resources that may exist within the proposed development and provide mitigation measures to reduce potential impacts to paleontological resources. The project site is underlain by older alluvium, which has the potential to contain paleontological resources (Earth Systems Pacific 2023; LSA Associates [LSA] 2014).

Discussion

(a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

(a-i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

(a-ii) Strong seismic ground shaking?

(a-iii) Seismic-related ground failure, including liquefaction?

(a-iv) Landslides?

The City of Arroyo Grande, including the project site, is not underlain by an Alquist-Priolo fault; therefore, rupture of a known Alquist-Priolo fault would not occur at the project site, and *no impact* would occur.

The project site is located within a seismically active region; therefore, there is always potential for ground shaking to occur. The Wilmar Avenue Fault is located approximately 0.4 mile east of the project site and presents a moderate potential fault rupture hazard to the city (Mathe 2015). In addition, the project site is located in an area with low risk of liquefaction (County of San Luis Obispo 2013; Earth Systems Pacific 2023). The proposed 13,000±-square-foot gymnasium would be required to comply with seismic design standards included in Section 1613 of the 2022 CBC to adequately withstand earthquake loads and associated risk, including seismic ground shaking and liquefaction. There are sloping hillsides located to the east and west of the project site; however, the project site is located on relatively flat land in an area with low potential for landslide (County of San Luis Obispo 2013; Earth Systems Pacific 2023). The project would be required to comply with Section 18 of the CBC, which requires geotechnical investigations to be conducted by a qualified engineer prior to development to determine soil conditions at the site and provide design recommendations to be implemented in final construction plans. In addition, the gymnasium would be required to be designed and constructed in accordance with the most recent CBC standards and requirements to minimize risk associated with landslides and other ground-failure events. Based on required compliance with applicable CBC design standards and other requirements, the proposed project would be designed to withstand risk associated with potential seismic events; therefore, impacts would be *less than significant*.

(b) Result in substantial soil erosion or the loss of topsoil?

The project would result in 1 acre of ground disturbance, including 4,200 cubic yards of cut and fill, which has the potential to increase short-term erosion at the project site. Per California Government Code Section 53097, the project would be required to comply with Section 13.24.120 of the City's Municipal Code, which requires the preparation and implementation of an Erosion and Sedimentation Control Plan to reduce short- and long-term impacts associated with erosion. The project would also be required to comply with Section 13.24.060 of the City's Municipal Code, which establishes requirements for grading plans that are required as part of the application for grading permits. In addition, the project would be required to comply with the Central Coast RWQCB general construction permit requirements, including preparation and implementation of a SWPPP with BMPs to control erosion during construction activities. Further, the project would be subject to the RWQCB PCRs to control long-term pollutant discharges through stormwater control measures. Based on required compliance with the City's Municipal Code and RWQCB requirements related to implementation of short- and long-term erosion control measures, the project is not anticipated to result in substantial erosion or loss of topsoil, and impacts would be *less than significant*.

(c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

As previously identified, the project site is located within an area with low potential for landslide and liquefaction to occur (County of San Luis Obispo 2013; Earth Systems Pacific 2023). In addition, the project site is not located in an area of known subsidence (USGS 2022). The project would be constructed in accordance with the most recent CBC to adequately withstand and minimize risk associated with potential ground-failure events; therefore, potential impacts related to ground failure would be *less than significant*.

(d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Typically, soils that are comprised of clay or clay materials are considered expansive soils. The project site is underlain by three soil types, including Chamise shaly sandy clay, 5 to 9 percent slopes; Pismo-Tierra complex, 9 to 15 percent slopes; and Salinas silty clay loam, 2 to 9 percent slopes, MLRA 14 (NRCS 2023). According to the Geotechnical Engineering and Geologic Hazards Report prepared for the project, soils at the project site have moderate potential for expansion (Earth Systems Pacific 2023). The project would be required to comply with Section 18 of the CBC, which requires geotechnical investigations to be conducted by a qualified engineer prior to development to determine soil conditions at the site and provide design recommendations to be incorporated into the final building design. Mitigation Measure GEO-1 requires the project to implement all recommendations from the Geotechnical Engineering and Geologic Hazards Report prepared for the project to minimize risk associated with soil conditions at the project site (see Appendix C). In addition, development of the gymnasium would be required to be designed and constructed in accordance with the most recent CBC standards and requirements to minimize risk associated with development on expansive soils. Based on implementation of mitigation Measure GEO-1 and required compliance with applicable CBC design standards and other requirements, the proposed project would be designed to withstand risk associated with development on expansive soils; therefore, impacts would be *less than significant with mitigation*.

(e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

The project does not propose the use of septic systems or alternative wastewater disposal systems and would connect to the City's existing sewer system; therefore, *no impact* would occur.

(f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The project site is underlain by older alluvium, which has the potential to contain paleontological resources (Earth Systems Pacific 2023; LSA 2014). Based on the preliminary grading plan, the project would require limited cuts up to 12 feet from the existing topography (Earth Systems Pacific 2023). Therefore, the project is not anticipated to disturb any paleontological resources if present within deep soils at the site. Further, Mitigation Measure GEO-2 has been identified to address inadvertent discovery of paleontological resources if encountered during construction activities. Based on project design and implementation of Mitigation Measure GEO-2, the project is not anticipated to disturb any paleontological resources or unique geologic features; therefore, impacts would be *less than significant with mitigation*.

Conclusion

No significant impacts related to geology and soils would occur, and no mitigation measures are necessary.

Recommended Mitigation

GEO-1 All recommendations from the Geotechnical Engineering and Geologic Hazards Report prepared for the project shall be incorporated into the final project design and shown on final construction plans at the time of building permit issuance.

GEO-2 If buried paleontological resources are inadvertently discovered during ground-disturbing activities, work shall stop within 100 feet of the find until a qualified paleontologist can assess the significance of the find and, if necessary, develop responsible treatment measures in consultation with the Lucia Mar Unified School District, City of Arroyo Grande, and other appropriate agencies.

Sources

California Department of Conservation (DOC). 2015. Fault Activity Map of California. Available at: https://maps.conservation.ca.gov/cgs/fam/. Accessed March 1, 2022.

City of Arroyo Grande. 2001. *City of Arroyo Grande General Plan Safety Element*. Available at: https://www.arroyogrande.org/DocumentCenter/View/481/Safety-Element. Accessed March 1, 2022.

County of San Luis Obispo. 1999. *County of San Luis Obispo General Plan Safety Element*. Available at: https://www.slocounty.ca.gov/Departments/Planning-Building/Forms-Documents/Plans-and-Elements/Elements/Safety-Element.pdf. Accessed March 1, 2022.

———. 2010. *County of San Luis Obispo General Plan Conservation and Open Space Element*. Available at: https://www.slocounty.ca.gov/Departments/Planning-Building/Forms-Documents/Plans-and-Elements/Elements/Conservation-and-Open-Space-Element-(1)/Conservation-and-Open-Space-Element.pdf. Accessed March 1, 2022.

———. 2013. County of San Luis Obispo General Plan Safety Element Maps. Available at: https://www.slocounty.ca.gov/Departments/Planning-Building/Forms-Documents/Plans-and-Elements/Elements/Safety-Element-Maps.aspx. Accessed March 1, 2022.

Earth Systems Pacific. 2023. *Geotechnical Engineering and Geologic Hazards Report Arroyo Grande High School Practice Gym 495 Valley Road Arroyo Grande, California*. June 9.

LSA Associates (LSA). 2014. *Paleontological Resources Assessment for the Stratford Ranch Residential Detention Basin Project*. Available at: https://files.ceqanet.opr.ca.gov/49380-2/attachment/sk5qWx9fin1iK0KXQyNr7leiXy-bK-MqjTQTlAD7o1lLgJMtU8zRfO88Ia_NQrwYRKbz3dPcnIdqP87r0. Accessed March 1, 2022.

Mathe, David L. 2015. *Local Hazard Mitigation Plan for the Cities of Arroyo Grande, Grover Beach, the Lucia Mar Unified School District, and the South County Sanitation District*. Available at: https://www.arroyogrande.org/DocumentCenter/View/3857/Local-Hazard-Mitigation-Plan-PDF?bidId=. Accessed March 1, 2022.

Natural Resources Conservation Service (NRCS). 2023. Web Soil Survey. Available at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed February 28, 2023.

U.S. Geological Survey (USGS). 2013. National Geologic Map Database. Available at: https://ngmdb.usgs.gov/Prodesc/proddesc_98619.htm. Accessed March 1, 2022.

———. 2022. Areas of Land Subsidence in California. Available at: https://ca.water.usgs.gov/land_subsidence/california-subsidence-areas.html. Accessed March 1, 2022.

VIII. GREENHOUSE GAS EMISSIONS

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
(b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Setting

GHGs are any gases that absorb infrared radiation in the atmosphere, and are different from the criteria pollutants discussed in Section III, *Air Quality*. The primary GHGs that are emitted into the atmosphere

as a result of human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. These are most commonly emitted through the burning of fossil fuels (oil, natural gas, and coal), agricultural practices, decay of organic waste in landfills, and a variety of other chemical reactions and industrial processes (e.g., the manufacturing of cement). CO_2 is the most abundant GHG and is estimated to represent approximately 80% to 90% of the principal GHGs that are currently affecting the earth's climate. According to the CARB, transportation (vehicle exhaust) and electricity generation are the main sources of GHG in the state.

California Air Resources Board 2022 Scoping Plan

The CARB 2022 Scoping Plan Update, dated November 16, 2022, identifies a plan to reach carbon neutrality by 2045 or earlier. The 2022 Scoping Plan is the first plan that adds carbon neutrality as a science-based guide beyond established emission reduction targets. It identifies a feasible path to achieve carbon neutrality by 2045, or earlier, while also assessing the progress the state is making toward reducing its GHG emissions by at least 40% below 1990 levels by 2030, as called for in SB 32 and laid out in the 2017 Scoping Plan. Specifically, this plan:

- Identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40% below 1990 emissions by 2030.
- Identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 or earlier.
- Focuses on strategies for reducing California's dependency on petroleum to provide consumers with clean energy options that address climate change, improve air quality, and support economic growth and clean sector jobs.
- Integrates equity and protecting California's most impacted communities as a driving principle throughout the document.
- Incorporates the contribution of natural and working lands to the state's GHG emissions, as well as its role in achieving carbon neutrality.
- Relies on the most up to date science, including the need to deploy all viable tools to address the existential threat that climate change presents, including carbon capture and sequestration as well as direct air capture.

Evaluates multiple options for achieving our GHG and carbon neutrality targets, as well as the public health benefits and economic impacts associated with each.

San Luis Obispo County Regional Transportation Plan/Sustainable Communities Strategy

San Luis Obispo County's *2023 Regional Transportation Plan* (RTP) was adopted by the San Luis Obispo Council of Governments (SLOCOG) on June 7, 2023 (SLOCOG 2023). The 2023 RTP is the San Luis Obispo region's long-term blueprint for a transportation system that enhances quality of life and meets the mobility needs of the region's residents and visitors, now and in the future. This blueprint offers the region's communities a mix of mobility options for people and goods and makes a strong commitment to creating a more sustainable transportation system that maximizes choice, holistically addresses transportation issues, and is both visionary and attainable. Senate Bill 375 (2008) dramatically shifted the context and framework for RTP development, placing new emphasis on performance and outcomes and presenting significant opportunities to create healthier, more equitable communities and regions. The 2023 Regional Transportation Plan and Sustainable Communities

Strategy (RTP/SCS) is an integrated plan for transportation, land use, and housing that must meet feasible GHG reduction targets for cars and light trucks set by the California Air Resources Board.

Discussion

(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

GHG emissions generated during construction would be temporary in nature and would be typical of other similar construction activities in the city. Construction activities would be required to comply with diesel idling requirements identified by the CARB, including limiting idling to 5 minutes or less, which would further reduce GHG-emissions during equipment and vehicle use during construction. Additionally, implementation of Mitigation Measure AQ-1 included in Section III, *Air Quality*, would ensure project compliance with diesel idling restrictions, which would further reduce impacts related to GHG emissions during construction. The project would be required to comply with 2022 CBC Building Energy Efficiency Standards and 2022 Green Building Code Standards to ensure the implementation of energy efficient building materials and other design features to reduce operational GHG emissions. Further, the project would be provided energy by 3CE; therefore, the project's electricity demand would be sourced from GHG-free energy sources. Vehicle trips associated with the project would consist of existing, redirected trips and would not generate new vehicle trips that could increase GHG emissions within the city. Based on required compliance with CARB diesel idling restrictions, implementation of green building requirements, and the use of GHG-free energy sources, the project would not generate a substantial amount of GHG emissions during construction or operation, and impacts would be *less than significant*.

(b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The project would be constructed in compliance with 2022 CBC Building Energy Efficiency Standards and 2022 Green Building Code Standards for long-term energy efficiency. Further, the project would be provided energy by 3CE, which is sourced from GHG-free energy sources. The project is not anticipated to result in a substantial increase in VMT above existing conditions because vehicle trips would be redirected from other destinations within the city. There would be limited spectator capacity within the proposed gymnasium, and it is anticipated that visiting teams would travel to the proposed gymnasium via busses, vans, or other carpooling methods, which would reduce the number of irregular vehicle trips to the gymnasium and would be consistent with existing VMT conditions. In addition, the gymnasium would primarily be used by AGHS students and staff and would not generate new vehicle trips to the campus. Further, AGHS provides pedestrian and bicycle facilities to encourage alternative modes of transportation as feasible., which supports the goals of the state bicycle and pedestrian plan, *Toward an Active California* (2017); several of the SLOAPCD's land use goals and policies in the Clean Air Plan; and the SB 375 (Sustainable Communities and Climate Protection Act of 2008), SB 32 (California Air Resources Board 2022 Scoping Plan), and AB 1279 (The California Climate Crisis Act) emission reduction targets set by California legislation and the CARB. The project would also support the SLOCOG 2023 RTP/SCS, the California State Transportation Agency's Climate Action Plan for Transportation Infrastructure, and California's 2022 Scoping Plan; therefore, potential impacts would be *less than significant*.

Conclusion

The proposed project would not result in significant impacts related to greenhouse gas emissions, and no mitigation measures are required.

Sources

California Air Resources Board (CARB). 2022. *2022 Scoping Plan for Achieving Carbon Neutrality*. Available at: https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp_1.pdf. Accessed July 28, 2022.

California Department of Transportation (Caltrans). 2017. *Toward an Active California State Bicycle and Pedestrian*. Available at: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/f0020350-activeca-final-plan-2017-05-18-a11y.pdf. Accessed July 28, 2023.

California State Transportation Agency (CalSTA). 2021. *Climate Action Plan for Transportation Infrastructure*. Available at: https://calsta.ca.gov/-/media/calsta-media/documents/capti-july-2021-a11y.pdf. Accessed July 28, 2023.

San Luis Obispo Council of Governments (SLOCOG). 2023. *2023 Regional Transportation Plan and Sustainable Communities Strategy*. Adopted June 7. Available at: https://www.dropbox.com/s/2zp8vhil9q4n9l5/00-%202023%20RTP%20Final%20Adopted.pdf?dl=0. Accessed July 28, 2023.

San Luis Obispo County Air Pollution Control District (SLOAPCD). 2001. *2001 Clean Air Plan*. Available at: https://storage.googleapis.com/slocleanair-org/images/cms/upload/files/business/pdf/CAP.pdf. Accessed March 1, 2023.

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
(b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
(c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
(d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
(f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
(g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Setting

The purpose of the *City of Arroyo Grande General Plan Safety Element* is to be prepared for disaster and to manage development to reduce risk. Hazards identified in the City's Safety Element include flooding, dam inundation, dam failure, fire, geologic and seismic hazards, landslides, hazardous trees, and radiation hazards (City of Arroyo Grande 2001).

Based on a query of the California Department of Toxic Substance Control (DTSC) EnviroStor and State Water Resources Control Board (SWRCB) GeoTracker databases, there are no currently active hazardous materials sites located within or adjacent to the project site (DTSC 2022; SWRCB 2022). Given the developed condition of the majority of the city, it is highly likely that the surface soils along existing roadways are affected by deposition of contaminants, including aerial lead, oils, fuels, and other lubricants.

Discussion

(a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

The proposed project is anticipated to require limited quantities of hazardous substances, including gasoline, diesel fuel, hydraulic fluid, solvents, oils, paints, etc. during construction. Use of these materials has the potential to result in an accidental release. Construction contractors would be required to comply with applicable federal and state environmental and workplace safety laws for the handling, transport, and storage of hazardous materials, including California Code of Regulations (CCR) Title 22. Following completion of construction activities, the project would not require the routine transport, use, or disposal of hazardous substances. Therefore, potential impacts associated with routine transport, use, or disposal of hazardous materials would be *less than significant*.

(b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

The project does not include the handling or use of hazardous materials or volatile substances that would result in a significant risk of upset or accidental release conditions. As previously identified, construction of the proposed project is anticipated to require use of limited quantities of hazardous substances and construction contractors would be required to comply with CCR Title 22 to reduce the potential for accidental hazardous materials release during construction. Additionally, operation of the project would not require the routine transport, use, or disposal of hazardous substances. The project does not require soil disturbance within or adjacent to existing roadways that could release aerially deposited lead (ADL) if present within the soil. There is no potential for NOA to occur within the project site (Earth Systems Pacific 2023). The project does not require demolition of existing buildings or structures that could contain asbestos-containing material (ACM). Based on required compliance with CCR Title 22, the project would not create significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment; therefore, impacts would be *less than significant*.

(c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The project site is located within the southern portion of the AGHS campus; therefore, short-term construction activities would occur within 0.25 mile of an existing school. As previously evaluated, construction of the proposed project is anticipated to require use of limited quantities of hazardous substances in the form of gasoline, fuel, paints, solvents, etc. and construction contractors would be required to comply CCR Title 22 to avoid and or minimize the potential for accidental hazardous materials release during proposed construction activities. Additionally, operation of the project would not result in the long-term use of hazardous materials or substances. Based on required compliance with CCR Title 22, potential impacts related to hazardous materials use within 0.25 mile of an existing school would be *less than significant*.

(d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Based on a query of the DTSC EnviroStor and SWRCB GeoTracker databases, there are no currently active hazardous materials sites located within or adjacent to the project site (DTSC 2022; SWRCB 2022). The project would not be located on or adjacent to an active hazardous materials site; therefore, *no impacts* would occur.

(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

The nearest airport is Oceano County Airport, located approximately 2.7 miles west of the project site. The proposed project is not located within an airport land use plan or within 2 miles of an airport; therefore, *no impacts* would occur.

(f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The project site is located directly south of Castillo del Mar Road. Construction activities are not anticipated to require traffic controls along Castillo del Mar Road or other nearby roadways that could impede emergency response to the project site or surrounding land uses, slow the flow of vehicle traffic, or impede evacuation efforts within the city. The project would not generate new long-term vehicle trips that could otherwise impede long-term public ingress and egress or slow emergency response times throughout the city. Therefore, the project would not interfere with an emergency response or evacuation plan, and impacts would be *less than significant*.

(g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zone (FHSZ) viewer, the project site is located within a Local Responsibility Area (CAL FIRE 2022). According to the *Local Hazard Mitigation Plan for the Cities of Arroyo Grande, Grover Beach, the Lucia Mar Unified School District, and the South County Sanitation District* (Multi-Jurisdictional Local Hazard Mitigation Plan), the project site is located in an urban area with low potential for wildfire to occur (Mathe 2015). The project would be required to be constructed in accordance with applicable CBC and California Fire Code (CFC) requirements to avoid and/or minimize the risk of fire as a result of new development. Based on the low potential for wildfire at the project site and required compliance with CBC and CFC requirements, implementation of the proposed project is not anticipated to expose people or structures to risk of loss, injury, or death as a result of wildfire; therefore, impacts would be *less than significant*.

Conclusion

Impacts related to hazards and hazardous materials would be reduced to less than significant, and no further mitigation is necessary.

Recommended Mitigation

Mitigation is not necessary.

Sources

California Department of Forestry and Fire Protection (CAL FIRE). 2022. Fire Hazard Severity Zone Viewer. Available at: https://egis.fire.ca.gov/FHSZ/. Accessed March 1, 2022.

California Department of Toxic Substances Control (DTSC). 2022. EnviroStor. Available at: https://www.envirostor.dtsc.ca.gov/public/. Accessed on March 1, 2022.

City of Arroyo Grande. 2001. *City of Arroyo Grande General Plan Safety Element*. Available at: https://www.arroyogrande.org/DocumentCenter/View/481/Safety-Element. Accessed February 28, 2022.

Earth Systems Pacific. 2023. *Geotechnical Engineering and Geologic Hazards Report Arroyo Grande High School Practice Gym 495 Valley Road Arroyo Grande, California*. June 9.

Mathe, David L. 2015. *Local Hazard Mitigation Plan for the Cities of Arroyo Grande, Grover Beach, the Lucia Mar Unified School District, and the South County Sanitation District*. Available at: https://www.arroyogrande.org/DocumentCenter/View/3857/Local-Hazard-Mitigation-Plan-PDF?bidId=. Accessed February 28, 2022.

State Water Resources Control Board (SWRCB). 2022. GeoTracker. Available at: https://geotracker.waterboards.ca.gov/. Accessed on March 1, 2022.

X. HYDROLOGY AND WATER QUALITY

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
(b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
(c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a matter which would:				
	(i) Result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
	(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒	☐
	(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
	(iv) Impede or redirect flood flows?	☐	☐	☒	☐
(d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
(e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Setting

The project site is located in the Arroyo Grande Creek Watershed, a coastal basin located in southern San Luis Obispo County. The watershed includes Arroyo Grande Creek and its tributaries, including Tally Ho (Corbett), Tar Springs, and Los Berros Creeks. In addition, Meadow Creek is a remnant marsh drainage that enters Arroyo Grande Creek just before its confluence with the ocean (SLO Watershed Project 2020). The project site is located approximately 0.6 mile east of Arroyo Grande Creek and there are no surface water or drainage features located within or adjacent to the project site. The nearest surface water feature to the project site is an unnamed drainage feature located approximately 830 feet west of the project site (USFWS 2022).

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 06079C1602G (effective date 11/16/2012), the project site is located within Zone X, which is described as an area with minimal flood hazard (FEMA 2020).

The project site is located in the Santa Maria River Valley Groundwater Basin – Arroyo Grande Subbasin (No. 3-12.02). The Arroyo Grande Subbasin is approximately 7 miles long, oriented in a northeastern to southwestern direction. The Arroyo Grande Subbasin is not considered a high-priority basin and has ample water supply to meet the water demand of the city. However, a Groundwater Sustainability Plan (GSP) for the subbasin is being prepared to facilitate sustainable groundwater management and use (County of San Luis Obispo 2022).

Discussion

(a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

The nearest surface water feature to the project site is an unnamed drainage feature located approximately 830 feet west of the project site (USFWS 2022). The project would result in 1 acre of ground disturbance, including 4,200 cubic yards of cut and fill activity. Based on distance from the nearest surface water feature, the project is not anticipated to result in direct disturbance to the drainage feature through alteration or substantial erosive or otherwise polluted runoff. Additionally, the project would be required to comply with Section 13.24.120 of the City's Municipal Code, which requires the preparation and implementation of an Erosion and Sedimentation Control Plan to reduce short- and long-term impacts associated with erosion. The project would also be required to comply with Section 13.24.060 of the City's Municipal Code, which establishes requirements for grading plans that are required as part of the application for grading permits. In addition, the project would be required to comply with the Central Coast RWQCB general construction permit requirements, including preparation and implementation of a SWPPP with BMPs to control erosion and potential pollutant release during construction activities. Further, the project would be subject to RWQCB PCRs to control long-term pollutant discharges through stormwater control measures. Based on distance from the nearest surface water feature and required compliance with the City's Municipal Code and RWQCB requirements related to implementation of short- and long-term erosion and pollutant control measures, the project is not anticipated to violate any water quality standards or degrade water quality, and impacts would be *less than significant*.

(b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The project site is currently undeveloped, and implementation of the proposed project would result in approximately 13,000± square feet of new impervious surfaces at the project site. The remainder of the 2.15-acre project site would remain undeveloped to allow for long-term groundwater recharge within the project area. In addition, the project would be required to implement stormwater control measures in accordance with RWQCB PCRs, which would further facilitate long-term groundwater recharge at the site. The proposed project would be provided water from the City's water supply, which is comprised of a reliable, diverse mix of surface water, groundwater, imported water, and treated water (County of San Luis Obispo 2022). The project would result in the implementation of a new multipurpose gym, which would result in a slight increase in water demand. However, implementation of the project is not anticipated to constitute a substantial increase in water use above existing conditions because the project would primarily be used by existing AGHS students and staff and would not increase student or faculty capacity at the school in a manner that could increase overall water use. Based on the

diversity and reliability of the City's water supply and the limited increase in operational water use, the project would not deplete water supply or impede groundwater recharge at the site, and impacts would be *less than significant*.

(c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a matter which would:

(c-i) Result in substantial erosion or siltation on- or off-site;

As discussed previously, there is an excavated drainage ditch that runs northeast across the eastern portion of the project site that may be considered a jurisdictional feature and protected under CFGC Section 1600 and the Porter-Cologne Act, which is governed by the RWQCB. The project would result in a short-term increase in erosion during proposed ground disturbance activities and would be required to comply with Sections 13.24.120 and 13.24.060 of the City's Municipal Code, which require the preparation and implementation of an Erosion and Sedimentation Control Plan and a grading plan to reduce short- and long-term impacts associated with erosion. In addition, the project would be required to comply with the Central Coast RWQCB general construction permit requirements, including preparation and implementation of a SWPPP with BMPs to control erosion during short-term construction activities. Further, the project would be subject to RWQCB PCRs to control long-term pollutant discharges through stormwater control measures. Based on required compliance with the City's Municipal Code and RWQCB requirements related to implementation of short- and long-term erosion measures, the project is not anticipated to result in substantial erosion on- or off-site, and impacts would be *less than significant*.

(c-ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

The project would result in approximately 13,000± square feet of new impervious surface area on-site. The remaining portion of the 2.15-acre parcel would remain undeveloped, which would allow for infiltration and reduce the potential for flooding to occur on- or off-site. In addition, the project would be required to comply with the RWQCB general construction permit requirements, including preparation and implementation of a SWPPP with BMPs to control stormwater during construction activities and RWQCB PCRs to control long-term stormwater from the project site. Based on required compliance with RWQCB requirements related to implementation of short- and long-term stormwater control measures, impacts would be *less than significant*.

(c-iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

As previously evaluated, the project would result in approximately 13,000± square feet of new impervious surface area on-site. The remainder of the 2.15-acre parcel would remain undeveloped, which would reduce the potential for flooding to occur on- or off-site. In addition, the project would be required to comply with the RWQCB general construction permit requirements, including preparation and implementation of a SWPPP with BMPs to control stormwater during construction activities. Further, the project would be subject to the RWQCB PCRs to control long-term stormwater from the project site. Based on required compliance with RWQCB requirements related to implementation of short- and long-term stormwater control measures, impacts would be *less than significant*.

(d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

The project site is not located within a flood hazard zone, a tsunami inundation zone, or a seiche zone (FEMA 2020). Therefore, *no impacts* related to project inundation as a result of flood, tsunami, or seiche would occur.

(e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The Arroyo Grande Subbasin is not considered a high-priority basin; however, a GSP for the subbasin is being prepared to facilitate sustainable groundwater management and use (County of San Luis Obispo 2022). Implementation of the project would not conflict with sustainable groundwater management because the new gymnasium would primarily be used by existing AGHS students and staff and would not increase capacity of the school, which could result in a substantial increase in groundwater use. Additionally, the project would be subject to RWQCB general construction permit requirements and PCRs and Sections 13.24.120 and 13.24.060 of the City's Municipal Code to control erosion and pollutant runoff and would be consistent with applicable RWQCB water quality control plans. Therefore, the project would be consistent with applicable groundwater and water quality control plans, and impacts would be *less than significant*.

Conclusion

Based on required compliance with RWQCB general construction permit requirements and PCRs as well as the City's Municipal Code (Section 13.24.120) for implementation of erosion and pollutant control measures, impacts would be less than significant and mitigation measures would not be required.

Sources

County of San Luis Obispo. 2022. Arroyo Grande Groundwater Basin. Available at: https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-(SGMA)/Arroyo-Grande-Groundwater-Basin.aspx. Accessed March 1, 2022.

Federal Emergency Management Agency (FEMA). 2020. Flood Insurance Rate Maps (FIRM). Available at: https://msc.fema.gov/portal/home. Accessed March 1, 2022.

SLO Watershed Project. 2020. Arroyo Grande Creek Watershed. Available at: http://slowatershedproject.org/watersheds/arroyo-grande-creek/. Accessed March 1, 2022.

U.S. Fish and Wildlife Service (USFWS). 2022. National Wetlands Inventory Surface Waters and Wetlands Mapper. Available at: https://www.fws.gov/wetlands/Data/Mapper.html. Accessed March 1, 2022.

XI. LAND USE AND PLANNING

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Physically divide an established community?	☐	☐	☒	☐
(b)	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☒	☐	☐

Setting

The City's General Plan consists of nine elements, including the ACOSE and Land Use, Circulation, Housing, Safety, Noise, Economic Development, and Parks and Recreation Elements, which guide and facilitate planning and development in the city (City of Arroyo Grande 2001). The Land Use Element (LUE) identifies zoning and land use designations within the city and includes goals and policies intended to guide growth and development. The project site is within the Community Facilities (CF) land use designation and currently zoned for Residential Hillside (RH) use.

Discussion

(a) Physically divide an established community?

The proposed project is located within the existing AGHS campus and would not directly affect any portion of the surrounding community. The project would not result in the removal or blockage of existing public roadways or other circulation paths and would not include any features that would physically divide an established community; therefore, impacts would be *less than significant*.

(b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The board of the LMUSD has exempted its school sites from compliance with local zoning ordinances pursuant to California Government Code Section 53094, which states that a governing board of a school district may render a city or county zoning ordinance inapplicable to a proposed use of property by a vote of two-thirds of its members. However, California Government Code Section 53097 requires a school district to comply with drainage and road improvement ordinances. As such, the proposed project would not be required to comply with the City's Zoning Ordinance, with the exception of grading and drainage requirements.

The project would be subject to goals, policies, and implementation measures related to protection of natural and other resources included in the City's General Plan, SLOAPCD 2001 Clean Air Plan, and SLOCOG 2023 RTP/SCS, which represents a framework for analysis under CEQA. Applicable mitigation measures have been included in individual resource sections throughout this Initial Study/Mitigated Negative Declaration (IS/MND) to avoid and/or minimize potential project impacts associated with aesthetics, air quality, biological resources, cultural and tribal cultural resources, geology and soils, and noise, which would be consistent with the

requirements of the City's General Plan, SLOAPCD 2001 Clean Air Plan, and SLOCOG 2023 RTP/SCS. With implementation of the mitigation measures identified throughout this IS/MND, the project would be consistent with applicable plans intended to avoid or mitigate environmental effects; therefore, impacts would be *less than significant with mitigation*.

Conclusion

Upon implementation of the mitigation measures included in individual resource sections throughout this IS/MND, impacts related to land use and planning would be less than significant.

Recommended Mitigation

Implement Mitigation Measures AES-1, AQ-1, BIO-1 through BIO-3, CR-1 and CR-2, GEO-1 and GEO-2, and N-1.

Sources

City of Arroyo Grande. 2001. *City of Arroyo Grande General Plan*. Available at: https://www.arroyogrande.org/DocumentCenter/View/6974/General-Plan-Introduction. Accessed February 28, 2022.

San Luis Obispo Council of Governments (SLOCOG). 2023. *2023 Regional Transportation Plan and Sustainable Communities Strategy*. Adopted June 7. Available at: https://www.dropbox.com/s/2zp8vhil9q4n9l5/00-%202023%20RTP%20Final%20Adopted.pdf?dl=0. Accessed July 28, 2023.

XII. MINERAL RESOURCES

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
(b)	Result in the loss of availability of a locally- important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Setting

The California Surface Mining and Reclamation Act (SMARA) of 1975 requires that the State Geologist classify land into mineral resource zones (MRZ) according to the known or inferred mineral potential of the land (PRC Sections 2710–2796). The three MRZs used in the SMARA classification-designation process in the San Luis Obispo-Santa Barbara Production-Consumption Region are defined below (California Geological Survey [CGS] 2015):

- **MRZ-1:** Areas where available geologic information indicates that little likelihood exists for the presence of significant mineral resources.

- **MRZ-2:** Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists. This zone shall be applied to known mineral deposits or where well-developed lines of reasoning, based on economic–geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is high.
- **MRZ-3:** Areas containing known or inferred aggregate resources of undetermined significance.

The City's 1990 General Plan did not identify any MRZs within the city. According to the General Plan Integrated Program EIR, the 1990 General Plan does not identify any MRZs within the city limits (City of Arroyo Grande 2001).

Discussion

(a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

(b) Result in the loss of availability of a locally- important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

There are no identified MRZs within the city (City of Arroyo Grande 2001). Therefore, mineral resources of value are not anticipated to be located within the project area and implementation of the project would not result in loss of availability of important mineral resources of value to the region or delineated in a local plan; therefore, *no impacts* related to mineral resources would occur.

Conclusion

The proposed project would not result in significant impacts related to mineral resources, and no mitigation measures are required.

Sources

California Geologic Survey (CGS). 2015. Mineral Land Classification Maps. California Geologic Survey Information Warehouse. Available at: https://maps.conservation.ca.gov/cgs/informationwarehouse/mlc/. Accessed March 1, 2022.

City of Arroyo Grande. 2001. *Integrated Program EIR*. SCH #2000121027. May 21. Available at: http://www.arroyogrande.org/DocumentCenter/View/2080/General-Plan-Integrated-Program-EIR?bidId=. Accessed March 1, 2022.

XIII. NOISE

Would the project result in:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
(b)	Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
(c)	For a project within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Setting

The *City of Arroyo Grande General Plan Noise Element* provides policy framework for addressing potential noise impacts. The Noise Element establishes maximum allowable noise exposure levels for transportation and non-transportation noise sources. The standards applied to transportation noise sources are based on average-daily noise exposure levels (in A-weighted decibels [dBA] Community Noise Equivalent Level/day-night equivalent level [CNEL/L_{dn}]). For noise-sensitive land uses exposed to non-transportation noise, the maximum allowable noise exposure standards vary depending on the duration of exposure and time of day. The City's noise standards for determining the compatibility for new development near transportation noise sources are summarized in Table 3.

Table 3. General Plan Land Use Compatibility Guidelines Near Transportation Noise Sources

Land Use	Land Use Compatibility		
	Acceptable	Conditionally Acceptable	Unacceptable
Residential, Theaters, Auditoriums, Music Halls, Meeting Halls, Churches	<60	60–70	>70
Transient Lodging: Hotels and Motels	<60	60–75	>75
Schools, Libraries, Museums, Hospitals, Nursing Homes	<60	60–75	>75
Playgrounds and Parks	<70	70–75	>75
Office Buildings	<60	60–75	>75

Source: City of Arroyo Grande (2001)

Notes:

Acceptable: Specified land use is satisfactory. No noise mitigation measures are required.

Conditionally Acceptable: Use should be permitted only after careful study and inclusion of protective measures as needed to satisfy the policies of the Noise Element.

Unacceptable: Development is usually not feasible in accordance with the goals of the Noise Element.

In areas where the noise environment is acceptable, new development may be permitted without requiring noise mitigation. For areas where the noise environment is conditionally acceptable, new development should be allowed only after noise mitigation has been incorporated into the design of the project to reduce noise exposure. For areas where the noise environment is unacceptable, new development in compliance with Noise Element policies is usually not feasible. New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected future levels of noise from transportation noise sources that exceed 60 dB CNEL or L_{dn} (70 CNEL/L_{dn} for playgrounds and neighborhood parks) unless the project design includes mitigation measures to reduce noise to or below levels identified in Table 4 (City of Arroyo Grande 2001).

Table 4 identifies the maximum allowable noise exposure from stationary noise sources at noise sensitive land uses as established in the City's Noise Element.

Construction noise is commonly exempt from noise standards. Pursuant to Section 9.16.030 of the City's Municipal Code, noise sources associated with construction, provided such activities do not take place before 7:00 a.m. or after 10:00 p.m. on any day except Saturday or Sunday or before 8:00 a.m. or after 5:00 p.m. on Saturday or Sunday, constitute an exception to the City's noise standards.

Table 4. Maximum Allowable Noise Exposure (Stationary Noise Sources1)

Noise	Daytime (7:00 a.m.–10:00 p.m.)	Nighttime (10:00 p.m.–7:00 a.m.)
Hourly Leq, dB[3]	50	45
Maximum Level, dB[3]	70	65
Maximum Level, dB-Impulsive Noise[4]	65	60

Source: City of Arroyo Grande (2001)

Notes:

[1] As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers or other property line noise mitigation measures. Where the noise-sensitive land uses are parks or playgrounds, add 10 decibels to the noise level standards in this table.

[2] Applies only where the receiving land use operates or is occupied during nighttime hours.

[3] Sound level measurements shall be made with slow meter response.

[4] Sound level measurements shall be made with fast meter response.

Typical noise-sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. These are areas where the occupants are more susceptible to adverse environmental effects, such as noise (USEPA 2017). There are several residential homes located within 1,000 feet of the project site. The nearest residential sensitive receptor includes a private single-family residence, located approximately 50 feet east from the boundary of the project site. In addition, classrooms associated with the AGHS campus are located approximately 900 feet north of the project site.

Discussion

(a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

During project construction, noise from construction activities may intermittently dominate the noise environment in the immediate project area. The project would require the use of typical construction equipment (e.g., dozers, excavators, etc.) for land preparation and development of the new gymnasium. According to the Federal Highway Administration (FWHA), noise from standard construction equipment generally ranges from 80 dBA to 85 dBA at 50 feet from the source, as shown in Table 5 below.

Table 5. Construction Equipment Noise Emission Levels

Equipment Type	Typical Noise Level (dBA) 50 ft From Source
Concrete Mixer, Dozer, Excavator, Jackhammer, Man Lift, Paver, Scraper	85
Heavy Truck	84
Crane, Mobile	83
Concrete Pump	82
Backhoe, Compactor	80

Source: FHWA (2018)

Pursuant to California Government Code Section 53094, the project would be exempt from the noise standards established in the City's Municipal Code; therefore, proposed short-term construction activities would be exempt from the City's noise standards. However, the nearest noise-sensitive land use is a residential dwelling located approximately 50 feet east from the

eastern project boundary. Proposed construction activities would primarily occur on the western portion of the project site; however, due to the proximity of the nearest noise-sensitive land use there is potential for short-term construction noise to result in disturbance. Mitigation Measure N-1 has been included to ensure that project construction would occur during daytime hours and to reduce construction-related noise near noise-sensitive land uses. With implementation of Mitigation Measure N-1, impacts related to a short-term increase in noise would be *less than significant with mitigation*.

Operation of the project would include the use of an HVAC system that would have the potential to contribute additional noise to the existing noise environment. However, the project, including use of an HVAC system, would be consistent with the surrounding level of development; therefore, additional noise generated by the project's HVAC system or other features would not result in a noticeable increase in ambient noise levels. Generally, a doubling of traffic is needed to produce a noise increase that is audible to the human ear. Implementation of the project would not double vehicle trips along Castillo del Mar Road or other nearby roadways; therefore, the project would not noticeably increase long-term vehicle noise. Therefore, the project does not include components that would contribute to the long-term ambient noise environment in the vicinity of the project, and long-term impacts would be *less than significant*.

(b) Generation of excessive groundborne vibration or groundborne noise levels?

The project does not include pile-driving or other high-impact activities that would generate substantial groundborne noise or groundborne vibration during construction. Standard construction equipment would generate some groundborne noise and vibration during ground disturbance activities; however, these activities would be limited in duration and consistent with other standard construction activities. In addition, any groundborne noise or vibration generated by short-term construction activities would be limited to the immediate work area and is not anticipated to disturb nearby residential land uses or AGHS classrooms. Therefore, impacts related to exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels would be *less than significant*.

(c) For a project within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The nearest airport is Oceano County Airport located approximately 2.7 miles west of the project site. The project site is not located within the vicinity of an airport or a private airstrip; therefore, *no impact* would occur.

Conclusion

Mitigation Measure N-1 has been included to reduce construction-related noise impacts. Upon implementation of Mitigation Measure N-1, impacts related to noise would be reduced to less than significant, and no further mitigation is necessary.

Recommended Mitigation

N-1 Construction activities shall take place between the hours of 7:00 a.m. and 10:00 p.m. on weekdays and between the hours of 8:00 a.m. and 5:00 p.m. on Saturday or Sunday. Stationary construction equipment that generates noise that exceeds 60 A-weighted decibels at the project boundaries shall be shielded with the most modern noise control devices (i.e., mufflers, lagging, and/or motor enclosures). Impact tools (e.g., jack hammers, pavement breakers, rock drills) used for project construction shall be

hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used. All equipment shall be properly maintained to ensure that no additional noise, due to worn or improperly maintained parts, is generated. Every effort shall be made to create the greatest distance between noise sources and sensitive receptors during construction activities. Any combination of these measures shall be implemented to ensure noise does not exceed 60 A-weighted decibels. Additionally, construction plans shall note construction hours, truck routes, and all construction noise reduction measures. Signage shall be posted at the project site during all construction activities to identify a contact person to respond to any noise complaints associated with construction activities.

Sources

City of Arroyo Grande. 2001. *City of Arroyo Grande General Plan Noise Element*. Available at: https://www.arroyogrande.org/DocumentCenter/View/478/Noise-Element. Accessed March 1, 2022.

Federal Highway Administration (FWHA). 2018. *Construction Noise Handbook*. Available at: https://www.nrc.gov/docs/ML1805/ML18059A141.pdf. Accessed March 1, 2022.

U.S. Environmental Protection Agency (USEPA). 2017. What are Sensitive Receptors? Available at: https://www3.epa.gov/region1/eco/uep/sensitivereceptors.html. Accessed March 1, 2022.

XIV. POPULATION AND HOUSING

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
(b)	Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Setting

The project site is located within the incorporated City of Arroyo Grande. As of 2020, Arroyo Grande had a population of 18,441 persons. Between the years of 2015 and 2019, there were 7,026 households with an average rate of 2.53 persons per household. During the same time period, approximately 59.3% of the population was in the civilian labor force (U.S. Census Bureau 2022). AGHS serves approximately 1,900 students in grades 9 through 12 and has a faculty of approximately 175 members (AGHS 2022).

Discussion

(a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The project does not include the construction of new homes or businesses or the extension or establishment of roads, utilities, or other infrastructure that would induce direct or indirect population growth in the project area. Short-term construction activities may increase temporary construction-related employment opportunities; however, temporary employment opportunities generated by the project are anticipated to be filled by the local workforce and would not result in a substantial population increase within the city. The project includes development of a new multipurpose gymnasium within the existing AGHS campus. The proposed gymnasium would primarily be used by existing AGHS students and staff members and would not increase capacity within the school in manner that would facilitate population growth within the city. The proposed gymnasium has the potential to facilitate a limited number of permanent employment opportunities (e.g., coaching, maintenance, etc.); however, implementation of the project would not facilitate a substantial number of new employment opportunities. The project would not increase student capacity or generate a substantial number of new short-or long-term employment opportunities in a manner that could induce substantial unplanned population growth; therefore, impacts would be *less than significant*.

(b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The project would not displace existing housing or necessitate the construction of replacement housing elsewhere; therefore, *no impacts* would occur.

Conclusion

No significant impacts related to population and housing would occur, and no mitigation measures are necessary.

Sources

Arroyo Grande High School (AGHS). 2022. School Profile. Available at: https://www.aghseagles.org/apps/pages/index.jsp?uREC_ID=255972&type=d&pREC_ID=584630. Accessed February 28, 2022.

U.S. Census Bureau. 2022. Quick Facts. Available at: https://www.census.gov/quickfacts/arroyograndecitycalifornia. Accessed March 2, 2022.

XV. PUBLIC SERVICES

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
	Fire protection?	☐	☐	☒	☐
	Police protection?	☐	☐	☒	☐
	Schools?	☐	☐	☒	☐
	Parks?	☐	☐	☒	☐
	Other public facilities?	☐	☐	☒	☐

Setting

Fire Protection Services

The Five Cities Fire Authority (FCFA) is a JPA between the City of Arroyo Grande, City of Grover Beach, and Oceano Community Services District, serving a population of 37,000 in a 10-square-mile service area. The FCFA was created to increase service levels to citizens and visitors, ensure consistent and professional training standards, and increase operational efficiencies. The FCFA currently operates out of three stations with an average response time of 6 minutes (FCFA 2022). The nearest FCFA Station to the project site is Station 1 located at 140 Traffic Way, approximately 0.6 mile northeast.

Police Protection Services

The Arroyo Grande Police Department (AGPD) provides public safety services for the City of Arroyo Grande. The crime rate in the region is among the lowest in California. The AGPD consists of 29 full-time employees and has a response time for emergency calls of less than 2 minutes (AGPD 2022). The AGPD station is at 200 North Halcyon Road in Arroyo Grande, located approximately 0.9 mile northwest of the project site.

Schools

Arroyo Grande students in grades K through 12 are served by the LMUSD. The LMUSD covers 550 square miles and serves the adjoining communities of Arroyo Grande, Grover Beach, Nipomo, Oceano, Pismo Beach, and Shell Beach.

Parks

Arroyo Grande has 13 city parks, several sports facilities, and open space and wildlife preserve areas. The nearest park is Heritage Square Park, located approximately 0.7 mile northeast of the project site.

Libraries

The City does not provide library services to City residents. This service is provided by the San Luis Obispo City-County Library system, which presently maintains the Arroyo Grande Library at 800 West Branch Street, located approximately 1 mile northeast of the project site.

Discussion

(a) *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:*

Fire protection?

The project includes the development of a new multipurpose gymnasium within the AGHS campus and has the potential to marginally increase demand on existing fire protection services. The proposed gymnasium has the potential to facilitate a limited number of permanent employment opportunities; however, the project would not increase the school's capacity or generate a substantial number of new short- or long-term employment opportunities in a manner that could facilitate substantial population growth and increase demand on existing fire protection services. Based on the limited population increase, the project would not require or otherwise facilitate the need for additional or expanded fire protection services, and impacts would be *less than significant*.

Police protection?

As evaluated above, the project includes the development of a new multipurpose gymnasium within the AGHS campus and has the potential to marginally increase demand on existing police protection services. The project would not increase the school's capacity or generate a substantial number of new short- or long-term employment opportunities in a manner that could facilitate substantial population growth and substantially increase demand on existing police protection services. Therefore, the project would not require or otherwise facilitate the need for additional or expanded fire protection services, and impacts would be *less than significant*.

Schools?

AGHS is one of the four high schools within the LMUSD. The project would be limited to the development of a new multipurpose gymnasium within the existing AGHS campus and would not result in new classrooms or other features that would substantially increase the number of school-aged children at AGHS or within the city. Further, the project would not indirectly increase population or the number of school-aged children within the city that could otherwise increase demand on the LMUSD; therefore, the project would not require or otherwise facilitate the need for additional or expanded LMUSD facilities, and impacts would be *less than significant*.

Parks?

The proposed gymnasium has the potential to facilitate a limited number of permanent employment opportunities; however, the project would not increase the school's capacity or generate a substantial number of new short- or long-term employment opportunities in a manner that could facilitate substantial population growth and substantially increase demand on existing City parks. The proposed project would not require or otherwise facilitate the need for additional or expanded City parks; therefore, impacts would be *less than significant*.

Other public facilities?

As previously evaluated, the project would not result in an increase in population or otherwise result in an increased demand on other public facilities, including the Arroyo Grande Public Library. Therefore, the project would not facilitate the development of new or expansion of existing public facilities, and impacts would be *less than significant.*

Conclusion

No significant impacts to public services or utilities would occur, and no mitigation measures are necessary.

Sources

Arroyo Grande Police Department (AGPD). 2022. About AGPD. Available at: https://www.arroyogrande.org/260/About-AGPD. Accessed March 1, 2022.

Five Cities Fire Authority (FCFA). 2022. Five Cities Fire – At a Glance. Available at: http://www.fivecitiesfireauthority.org/fivecitiesfireataglance. Accessed March 1, 2022.

XVI. RECREATION

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
(b)	Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Setting

The *City of Arroyo Grande General Plan Parks and Recreation Element* states that it is the overall goal of the City to adequately provide for the recreational needs of residents and visitors of Arroyo Grande. The Parks and Recreation Element acts as a guide for the development of additional park and recreation facilities. The City currently funds public recreational facilities through the Quimby Act, federal and state

grants, land dedications and easements, trail easements, development impact fees, user fees, general obligation bonds, revenue bonds, and cooperation with other agencies (City of Arroyo Grande 2001a).

The Civic Center Act, codified in Section 38134 of the California Education Code, authorizes a school district governing board to grant the use of school facilities or grounds as a civic center, for specified purposes, upon terms and conditions deemed proper by the governing board. Existing law authorizes a school district governing board to charge a fee, not to exceed the school district's direct costs, as defined, for use of the school facilities or grounds by entities that promote youth and school activities or that arrange for and supervise sports league activities for youths.

Arroyo Grande has a wide variety of parks, open space, and community recreational facilities. The City provides and maintains recreational facilities, including 12 parks, the Soto Sports Complex, fields and courts, and the James Way Oak Habitat open space and wildlife preserve (City of Arroyo Grande 2001b). The nearest public park to the project site is Heritage Square Park, located approximately 0.7 mile northeast.

Discussion

(a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The proposed project has the potential to facilitate a limited number of permanent employment opportunities as a result of expanded recreational facilities; however, the project would not facilitate an increase in student capacity within the school or generate a substantial number of new short- or long-term employment opportunities in a manner that could facilitate substantial population growth and concurrently increase demand on existing City recreational facilities. In addition, the project would be subject to standard development impact fees for maintenance of existing City parks and recreation facilities. Therefore, the project would not induce population growth in a manner that could substantially increase demand on existing public recreational facilities in a manner that would lead to substantial physical deterioration and impacts would be *less than significant*.

(b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The project includes the development of a new 13,000±-square-foot multipurpose gymnasium within the AGHS campus. Construction and operation of the proposed multipurpose gymnasium would have the potential to result in adverse physical effects on the environment associated with aesthetics, air quality, biological resources, cultural and tribal cultural resources, geology and soils, and noise, as described in the corresponding resource sections in this IS/MND. Mitigation measures have been identified throughout this IS/MND to reduce potential impacts associated with these resources to less than significant; therefore, impacts would be *less than significant with mitigation*.

Conclusion

Upon implementation of the mitigation measures included in individual resource sections throughout this IS/MND, impacts related to recreation would be less than significant.

Mitigation

Implement Mitigation Measures AES-1, AQ-1, BIO-1 through BIO-3, CR-1 and CR-2, GEO-1 and GEO-2, and N-1.

Sources

City of Arroyo Grande. 2001a. General Plan Parks and Recreation Element. Available at: https://www.arroyogrande.org/DocumentCenter/View/480/Parks-And-Recreation-Element. Accessed March 1, 2022.

_____. 2001b. *Integrated Program EIR Master Plan*. Available at: http://www.arroyogrande.org/DocumentCenter/View/2080/General-Plan-Integrated-Program-EIR?bidId=. Accessed March 1, 2022.

XVII. TRANSPORTATION/ TRAFFIC

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
(b)	Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
(c)	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
(d)	Result in inadequate emergency access?	☐	☐	☒	☐

Setting

The *City of Arroyo Grande General Plan Circulation Element* was recently adopted in 2021 and provides objectives and policy guidance for long-term planning and implementation of the transportation system needed to serve the City's projected development. The Circulation Element also defines a preferred transportation system that reflects the City's financial resources and broader goals, including providing safe and convenient access for all modes of travel while preserving the local character of the community (City of Arroyo Grande 2021).

San Luis Obispo County's 2023 RTP is the San Luis Obispo region's long-term blueprint for a transportation system that enhances quality of life and meets the mobility needs of the region's residents and visitors, now and in the future. This blueprint offers the region's communities a mix of mobility options for people and goods and makes a strong commitment to creating a more sustainable transportation system that maximizes choice, holistically addresses transportation issues, and is both visionary and attainable.

Discussion

(a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The Circulation Element and the SLOCOG 2023 RTP/SCS identifies goals, policies, and objectives related to transportation planning intended to reduce VMT, promote alternative modes of transportation, and create safe transportation within the city and region (City of Arroyo Grande 2021; SLOCOG 2023). Vehicle trips associated with the proposed project would consist of existing, redirected vehicle trips and would not constitute an increase in VMT above existing conditions. The proposed gymnasium would primarily be used by existing AGHS students and staff and is not anticipated to generate new vehicle trips to the campus in addition to existing trips to and from the school. In addition, the gymnasium includes limited spectator capacity, and it is anticipated that visiting teams would travel to the proposed gymnasium via busses, vans, or other carpooling methods, which would reduce the number of irregular vehicle trips to the gymnasium and would be consistent with existing VMT conditions. In addition, AGHS provides pedestrian and bicycle facilities to encourage alternative modes of transportation to and from the campus as feasible. The project would not increase the number of peak-hour vehicle trips within the city. Therefore, the project would not increase VMT in a manner that would be inconsistent with the Circulation Element or SLOCOG 2023 RTP/SCS, and impacts would be *less than significant*.

(b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

According to the *Technical Advisory on Evaluating Transportation Impacts in CEQA*, projects that do not indicate substantial evidence that a project would generate a potentially significant level of VMT, that are consistent with an SCS or general plan, or that would generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact (California Governor's Office of Planning and Research [OPR] 2018). As evaluated above, the proposed gymnasium would primarily be used by existing AGHS students and staff; therefore, vehicle trips associated with the proposed project would consist of existing, redirected vehicle trips and would not constitute an increase in VMT above existing conditions. Further, the gymnasium includes limited spectator capacity, and it is anticipated that visiting teams would travel to the proposed gymnasium via busses, vans, or other carpooling methods, which would be consistent with existing VMT conditions. Implementation of the project is not anticipated to generate more than 110 trips per day. Additionally, the project would be consistent with the Circulation Element and SLOCOG 2023 RTP/SCS intended to reduce VMT. The project is not anticipated to generate more than 110 trips per day and would be consistent with the Circulation Element and SLOCOG 2023 RTP/SCS; therefore, in accordance with evaluation criteria included in the *Technical Advisory on Evaluating Transportation Impacts in CEQA,* potential impacts would be *less than significant*.

(c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The project does not include the development of new roads that could increase hazards due to geometric design. New access routes and the proposed parking lot would be constructed in compliance with applicable PRC standards related to access and other design. Additionally, the project does not include the development of new land uses that could increase roadway hazards due to incompatible uses (e.g., farm equipment) or an increase of vehicle congestion on existing roadways. Therefore, impacts related to an increase of roadway hazards would be *less than significant*.

(d) Result in inadequate emergency access?

Construction of the project is not anticipated to result in any road closures or traffic controls that could impede or slow the flow of vehicle traffic or impede emergency access throughout the city. The project would not result in the development of any aboveground features that could block or impede emergency access to the project site or surrounding land uses. New access routes and the proposed parking lot would be constructed in compliance with applicable PRC standards for emergency access. The project would not result in inadequate emergency access and potential impacts would be *less than significant*.

Conclusion

No significant traffic-related impacts were identified, and no mitigation measures are necessary.

Sources

California Governor's Office of Planning and Research (OPR). 2018. *Technical Advisory on Evaluation Transportation Impacts in CEQA*. December. Available at: https://www.opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf. Accessed March 1, 2022.

City of Arroyo Grande. 2021. *City of Arroyo Grande General Plan Circulation Element*. Available at: https://www.arroyogrande.org/DocumentCenter/View/472/Circulation-Element. Accessed March 1, 2022.

San Luis Obispo Council of Governments (SLOCOG). 2023. *2023 Regional Transportation Plan and Sustainable Communities Strategy*. Adopted June 7. Available at: https://www.dropbox.com/s/2zp8vhil9q4n9l5/00-%202023%20RTP%20Final%20Adopted.pdf?dl=0. Accessed July 28, 2023.

XVIII. TRIBAL CULTURAL RESOURCES

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐
(b)	A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Setting

Approved in 2014, AB 52 added tribal cultural resources to the categories of resources that must be evaluated under CEQA. Tribal cultural resources are defined as either of the following:

1. Sites, features, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    a. Included or determined to be eligible for inclusion in the CRHR; or
    b. Included in a local register of historical resources as defined in PRC Section 5020.1(k).
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1.

Recognizing that tribes have expertise with regard to their tribal history and practices, AB 52 requires lead agencies to provide notice to tribes that are traditionally and culturally affiliated with the geographic area of a proposed project if they have requested notice of projects proposed within that area. If the tribe requests consultation within 30 days upon receipt of the notice, the lead agency must consult with the tribe regarding the potential for adverse impacts on tribal cultural resources as a result of a project. Consultation may include discussing the type of environmental review necessary, the presence and/or significance of tribal cultural resources, the level of significance of a project's impacts on the tribal cultural resources, and available project alternatives and mitigation measures recommended by the tribe to avoid or lessen potential impacts on tribal cultural resources.

As part of the CRSR, SWCA contacted the NAHC by email on February 16, 2022, requesting a review of the Sacred Lands File (SLF). The NAHC responded on March 27, 2022, indicating that the results of the search were positive and identified 11 tribal contacts. The LMUSD, as the Lead Agency, initiated Native American consultation as required by AB 52 on May 19, 2023.

Discussion

(a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

(b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Pursuant to AB 52, the LMUSD, as the Lead Agency, provided notice to local California native tribes with geographic and/or cultural ties to the project region. Referral letters were sent to tribal representatives on May 19, 2023. Responses were received from the Salinan Tribe, yak tityu tityu yak tiłhini Northern Chumash Tribe (YTT Tribe), and Tribal Elders' Council of the Santa Ynez Band of Chumash Indians. A request was received from Patti Dutton, Tribal Administrator of the Salinan Tribe, requesting a copy of the cultural resources report prepared for the project. After reviewing the cultural resources report, Patti Dutton suggested that ground-disturbing activities associated with the project be monitored by a cultural resource specialist from the Salinan Tribe. In addition, a request was received from Mona Tucker, Chair of the YTT Tribe, requesting a copy of the findings of the records search. After reviewing the records search, Mona Tucker suggested that construction personnel undergo cultural sensitivity training. A letter was received from Crystal Mendoza of the Tribal Elders' Council of the Santa Ynez Band of Chumash Indians requesting formal consultation. No other responses were received.

Although the NAHC identified the project area as being sensitive for the presence of archaeological resources, the records search and field survey did not identify the presence of previously undocumented or documented archaeological resources within the project area. Mitigation Measure CR-1 has been identified to avoid and/or minimize potential impacts related to inadvertent discovery. Mitigation Measure CR-2 requires a preconstruction worker awareness training for all construction crew members to be made aware of cultural and tribal cultural resources located outside of the project footprint and the proper protocol in the event unknown resources are encountered. In addition, the project would be required to comply with California Health and Safety Code Section 7050.5, which identifies the proper protocol in the event of inadvertent discovery of human remains, including the cessation of work within the vicinity of the discovery, identification of human remains by a qualified coroner, and if the remains are identified to be of Native American descent, contact with the NAHC. Based on implementation of Mitigation Measures CR-1 and CR-2 and required compliance with California Health and Safety Code Section 7050.5, the project is not anticipated to result in adverse impacts to known or unknown tribal cultural resources; therefore, impacts would be *less than significant with mitigation.*

Conclusion

Based on implementation of Mitigation Measures CR-1 and CR-2 and required compliance with California Health and Safety Code Section 7050.5, impacts related to tribal cultural resources would be considered less than significant, and no mitigation would be required.

Recommended Mitigation

Implement Mitigation Measures CR-1 and CR-2.

Sources

See Section V, Cultural Resources.

XIX. UTILITIES AND SERVICE SYSTEMS

Would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects?	☐	☒	☐	☐
(b)	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
(c)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
(d)	Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals ?	☐	☐	☒	☐
(e)	Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Setting

Utilities would be served by both the City and other regional entities. Water and wastewater services within the city are provided by the City Public Works Department. The City has a franchise agreement with South County Sanitary Services for collection, diversion, and disposal of solid waste and is served by the Cold Canyon Landfill, located approximately 2 miles north of the city in unincorporated San Luis Obispo County. The Cold Canyon Landfill currently has a daily capacity of 1,650 tons per day and an estimated remaining capacity of 13,000,000 cubic yards. Currently, the estimated closure date for this landfill is December 31, 2040 (California Department of Resources Recycling and Recovery [CalRecycle] 2019).

Discussion

(a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects?

The project would require the expansion of existing water, wastewater, and electrical infrastructure to serve the proposed gymnasium. Construction of these facilities would occur within the footprint of the proposed project. As evaluated throughout this IS/MND, construction of the project has the potential to result in impacts related to aesthetics, air quality, biological resources, cultural and tribal cultural resources, geology and soils, and noise. Mitigation Measures AES-1, AQ-1, BIO-1 through BIO-3, CR-1 and CR-2, GEO-1 and GEO-2, and N-1 have been included in individual resource sections throughout this IS/MND to mitigate potential impacts to less-than-significant levels. Therefore, impacts would be *less than significant with mitigation*.

(b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

The proposed project would be provided water from the City's water supply, which is comprised of a reliable, diverse mix of surface water, groundwater, imported water, and treated water (County of San Luis Obispo 2022). The project would result in the implementation of a new multipurpose gymnasium, including additional restrooms and drinking fountains, which has the potential to result in a slight increase in water demand. However, implementation of the project is not anticipated to result in a substantial increase in water use because the project would primarily be used by existing AGHS students and staff and would not increase student or faculty capacity within the school in a manner that could substantially increase overall water use. Based on the diversity and reliability of the City's water supply and the limited increase in operational water use, there would be adequate water supply to serve the project; therefore, impacts would be *less than significant*.

(c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

AGHS is currently served by the City's sewer system. The project includes installation of two new restrooms with a total of eight toilets and associated sinks. The project would not result in a substantial increase in demand of wastewater services because the project would primarily be used by existing AGHS students and staff and would not increase capacity of the school that could generate additional wastewater. Therefore, the City's sewer system would have adequate capacity to serve the minimal increase in wastewater generated by the project, and impacts would be *less than significant*.

(d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Solid waste services would be provided by South County Sanitary Services and would be disposed of at the Cold Canyon Landfill. The project includes development of a new 13,000±-square-foot multipurpose gymnasium and does not include development of new classrooms or other facilities that could increase student or faculty capacity within AGHS and generate additional solid waste. Therefore, implementation of the project would not constitute an increase in solid waste above existing conditions and existing solid waste facilities would

have adequate capacity to serve the project. Based on the limited increase in solid waste, impacts would be *less than significant*.

(e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

As evaluated above, construction and operation of the project would not result in a substantial increase in solid waste and existing solid waste services and facilities would have adequate capacity to serve the project. Based on the limited amount of solid waste generated by the proposed project, implementation of the project would not conflict with solid waste reduction goals. In addition, South County Sanitary Services and the Cold Canyon Landfill are fully compliant with state and local regulations related to solid waste reduction and disposal methods. Therefore, potential impacts would be *less than significant*.

Conclusion

Upon implementation of the mitigation measures included in individual resource sections throughout this IS/MND, impacts related to utilities and service systems would be less than significant.

Recommended Mitigation

Implement Mitigation Measures AES-1, AQ-1, BIO-1 through BIO-3, CR-1 and CR-2, GEO-1 and GEO-2, and N-1.

Sources

California Department of Resources Recycling and Recovery (CalRecycle) 2019. SWIS Facility/Site Activity Details Cold Canyon Landfill, In. (40-AA-0004). Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1509?siteID=3171. Accessed March 2, 2022.

County of San Luis Obispo. 2022. Arroyo Grande Groundwater Basin. Available at: https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-(SGMA)/Arroyo-Grande-Groundwater-Basin.aspx. Accessed March 1, 2022.

XX. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
(b)	Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(c)	Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
(d)	Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

Setting

The *City of Arroyo Grande General Plan Safety Element* includes specific policies related to pre-fire management; availability of facilities, equipment, and personnel; readiness and response; and loss prevention (City of Arroyo Grande 2001). The Multi-Jurisdictional Local Hazard Mitigation Plan evaluates the potential for natural disasters to occur and identifies specific strategies to minimize risk of hazards within each city covered by the plan. According to the Multi-Jurisdictional Local Hazard Mitigation Plan, Arroyo Grande is primarily comprised of urban land with a low risk for wildfire to occur. Areas within the city with a higher risk for wildfire to occur include steeper hillside areas in the eastern portion of the city (Mathe 2015).

According to the CAL FIRE FHSZ viewer, the City of Arroyo Grande is located within a Local Responsibility Area and not within a designated FHSZ (CAL FIRE 2022).

Discussion

(a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

The project site is located directly south of Castillo del Mar Road and is not located within a State Responsibility Area or within a very high FHSZ (CAL FIRE 2022). Construction activities are not anticipated to require traffic controls along Castillo del Mar Road or other nearby roadways that could impede emergency response to the project site or surrounding land uses, slow the flow of vehicle traffic, or impede evacuation efforts within the city. Further, implementation of the project would not generate new long-term vehicle trips that could otherwise impede long-term public ingress and egress or slow emergency response times throughout the city. Therefore, the project would not interfere with an emergency response or evacuation plan within a State Responsibility Area or very high FHSZ and impacts would be *less than significant*.

(b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

The project site is located on relatively flat land within a Local Responsibility Area with low risk of wildfire (CAL FIRE 2022; Mathe 2015). Based on the low risk of wildfire at the project site,

implementation of the project is not anticipated to expose project occupants to substantial pollutant concentrations or uncontrolled spread of wildfire. Additionally, the project would be required to comply with CBC and CFC standards to avoid and/or minimize the risk of fire as a result of new development. Therefore, the project would not expose project occupants to substantial pollutant concentrations or uncontrolled spread of wildfire, and impacts would be *less than significant*.

(c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

The project site is located within a Local Responsibility Area and has a low risk of wildfire (CAL FIRE 2022; Mathe 2015). The project would require expansion of existing water, wastewater, and electrical infrastructure and a small parking lot to serve the proposed gymnasium. Proposed utility infrastructure would be installed underground, which would reduce the risk of wildfire ignition. The project does not include the installation of fuel breaks, emergency water sources, or power lines that could otherwise exacerbate fire risk. Therefore, impacts related to wildfire risk associated with installation and/or maintenance of utility infrastructure would be *less than significant*.

(d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The project site is located within a Local Responsibility Area with a low risk of wildfire, landslide, and flooding to occur. The project would be constructed in accordance with CBC standards to minimize risk associated with potential ground-failure events. In addition, the project would be constructed in accordance with applicable CFC requirements to reduce the risk of fire as a result of new development. Therefore, implementation of the project would not expose project occupants or structures to post-fire risks, and impacts would be *less than significant*.

Conclusion

No significant impacts related to wildfire would occur, and no mitigation measures are necessary.

Sources

California Department of Forestry and Fire Protection (CAL FIRE). 2022. Fire Hazard Severity Zone Viewer. Available at: https://egis.fire.ca.gov/FHSZ/. Accessed March 1, 2022.

City of Arroyo Grande. 2001. *City of Arroyo Grande General Plan Safety Element*. Available at: https://www.arroyogrande.org/DocumentCenter/View/481/Safety-Element. Accessed February 28, 2022.

Mathe, David L. 2015. *Local Hazard Mitigation Plan for the Cities of Arroyo Grande, Grover Beach, the Lucia Mar Unified School District, and the South County Sanitation District*. Available at: https://www.arroyogrande.org/DocumentCenter/View/3857/Local-Hazard-Mitigation-Plan-PDF?bidId=. Accessed February 28, 2022.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
(b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
(c)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Discussion

(a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Based on the scope of the proposed project and the analysis provided in individual resource sections above, the project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or wildlife community, substantially reduce the number or restrict the range of a rare or endangered plant or wildlife, or eliminate important examples of the major periods of California history or prehistory. Mitigation Measures BIO-1 through BIO-3, CR-1 and CR-2, and GEO-2 have been identified and would reduce potential impacts to less than significant. Therefore, potential impacts would be less than significant with mitigation.

(b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Based on the nature of the proposed development and the analysis provided in the resource areas above, the project would have the potential to result in environmental impacts associated with aesthetics, air quality, biological resources, cultural and tribal cultural resources, geology and soils, and noise that would have a cumulative effect with other development projects in the city and surrounding areas. Mitigation Measures AES-1, AQ-1, BIO-1 through BIO-3, CR-1 and CR-2, GEO-1 and GEO-2, and N-1 have been identified to reduce potential environmental impacts to a less-than-significant level, which would result in the reduction of impacts to a less-than-cumulatively considerable level. Therefore, potential impacts would be *less than cumulatively considerable with mitigation*.

(c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Based on the nature of the proposed development and the analysis provided in the individual resource sections above, the project has the potential to have environmental effects that could result in substantial adverse effects on human beings. Potential impacts associated with aesthetics, air quality, biological resources, cultural and tribal cultural resources, geology and soils, and noise would be reduced to less-than-significant levels with the implementation of Mitigation Measures AES-1, AQ-1, BIO-1 through BIO-3, CR-1 and CR-2, GEO-1 and GEO-2, and N-1. Therefore, potential impacts associated with environmental effects that would cause substantial adverse effects on human beings would be *less than significant with mitigation*.

Conclusion

Potential impacts associated with mandatory findings of significance would be less than significant with mitigation.

APPENDIX A

CalEEMod Results

AGHS Gym Expansion Project - San Luis Obispo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

AGHS Gym Expansion Project

San Luis Obispo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Educational	1.00	User Defined Unit	0.28	12,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.2	**Precipitation Freq (Days)**	44
Climate Zone	4			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - The project would construct a new 12,000 sf multipurpose gymnasium.

Construction Phase -

Architectural Coating -

Table Name	Column Name	Default Value	New Value
tblLandUse	LandUseSquareFeet	0.00	12,000.00
tblLandUse	LotAcreage	0.00	0.28

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1750	0.3561	0.3939	6.6000e-004	9.0000e-003	0.0174	0.0264	3.5200e-003	0.0161	0.0196	0.0000	58.4762	58.4762	0.0176	2.8000e-004	58.9979
Maximum	**0.1750**	**0.3561**	**0.3939**	**6.6000e-004**	**9.0000e-003**	**0.0174**	**0.0264**	**3.5200e-003**	**0.0161**	**0.0196**	**0.0000**	**58.4762**	**58.4762**	**0.0176**	**2.8000e-004**	**58.9979**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1750	0.3561	0.3939	6.6000e-004	9.0000e-003	0.0174	0.0264	3.5200e-003	0.0161	0.0196	0.0000	58.4761	58.4761	0.0176	2.8000e-004	58.9978
Maximum	**0.1750**	**0.3561**	**0.3939**	**6.6000e-004**	**9.0000e-003**	**0.0174**	**0.0264**	**3.5200e-003**	**0.0161**	**0.0196**	**0.0000**	**58.4761**	**58.4761**	**0.0176**	**2.8000e-004**	**58.9978**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-1-2023	8-31-2023	0.2408	0.2408
2	9-1-2023	9-30-2023	0.0767	0.0767
		Highest	0.2408	0.2408

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0608	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0608**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0608	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0608**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2023	6/1/2023	5	1	
2	Grading	Grading	6/2/2023	6/5/2023	5	2	
3	Building Construction	Building Construction	6/6/2023	10/23/2023	5	100	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Paving	Paving	10/24/2023	10/30/2023	5	5	
5	Architectural Coating	Architectural Coating	10/31/2023	11/6/2023	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 18,000; Non-Residential Outdoor: 6,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Grading	Graders	1	6.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	3	8.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	5.00	2.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-004	3.0900e-003	1.9600e-003	0.0000		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.4275	0.4275	1.4000e-004	0.0000	0.4309
Total	**2.7000e-004**	**3.0900e-003**	**1.9600e-003**	**0.0000**	**2.7000e-004**	**1.1000e-004**	**3.8000e-004**	**3.0000e-005**	**1.0000e-004**	**1.3000e-004**	**0.0000**	**0.4275**	**0.4275**	**1.4000e-004**	**0.0000**	**0.4309**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0185	0.0185	0.0000	0.0000	0.0186
Total	**1.0000e-005**	**1.0000e-005**	**7.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0185**	**0.0185**	**0.0000**	**0.0000**	**0.0186**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-004	3.0900e-003	1.9600e-003	0.0000		1.1000e-004	1.1000e-004		1.0000e-004	1.0000e-004	0.0000	0.4275	0.4275	1.4000e-004	0.0000	0.4309
Total	**2.7000e-004**	**3.0900e-003**	**1.9600e-003**	**0.0000**	**2.7000e-004**	**1.1000e-004**	**3.8000e-004**	**3.0000e-005**	**1.0000e-004**	**1.3000e-004**	**0.0000**	**0.4275**	**0.4275**	**1.4000e-004**	**0.0000**	**0.4309**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0185	0.0185	0.0000	0.0000	0.0186
Total	**1.0000e-005**	**1.0000e-005**	**7.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0185**	**0.0185**	**0.0000**	**0.0000**	**0.0186**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3100e-003	0.0000	5.3100e-003	2.5700e-003	0.0000	2.5700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3000e-004	0.0102	5.5500e-003	1.0000e-005		4.2000e-004	4.2000e-004		3.9000e-004	3.9000e-004	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2481
Total	**9.3000e-004**	**0.0102**	**5.5500e-003**	**1.0000e-005**	**5.3100e-003**	**4.2000e-004**	**5.7300e-003**	**2.5700e-003**	**3.9000e-004**	**2.9600e-003**	**0.0000**	**1.2381**	**1.2381**	**4.0000e-004**	**0.0000**	**1.2481**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.1000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0591	0.0591	0.0000	0.0000	0.0597
Total	**3.0000e-005**	**2.0000e-005**	**2.1000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0591**	**0.0591**	**0.0000**	**0.0000**	**0.0597**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3100e-003	0.0000	5.3100e-003	2.5700e-003	0.0000	2.5700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3000e-004	0.0102	5.5500e-003	1.0000e-005		4.2000e-004	4.2000e-004		3.9000e-004	3.9000e-004	0.0000	1.2381	1.2381	4.0000e-004	0.0000	1.2481
Total	**9.3000e-004**	**0.0102**	**5.5500e-003**	**1.0000e-005**	**5.3100e-003**	**4.2000e-004**	**5.7300e-003**	**2.5700e-003**	**3.9000e-004**	**2.9600e-003**	**0.0000**	**1.2381**	**1.2381**	**4.0000e-004**	**0.0000**	**1.2481**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.1000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0591	0.0591	0.0000	0.0000	0.0597
Total	**3.0000e-005**	**2.0000e-005**	**2.1000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0591**	**0.0591**	**0.0000**	**0.0000**	**0.0597**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0316	0.3209	0.3549	5.7000e-004		0.0160	0.0160		0.0147	0.0147	0.0000	50.1042	50.1042	0.0162	0.0000	50.5093
Total	**0.0316**	**0.3209**	**0.3549**	**5.7000e-004**		**0.0160**	**0.0160**		**0.0147**	**0.0147**	**0.0000**	**50.1042**	**50.1042**	**0.0162**	**0.0000**	**50.5093**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2000e-004	4.1300e-003	1.3300e-003	1.0000e-005	4.5000e-004	2.0000e-005	4.8000e-004	1.3000e-004	2.0000e-005	1.5000e-004	0.0000	1.4427	1.4427	3.0000e-005	2.1000e-004	1.5067
Worker	8.0000e-004	5.8000e-004	6.6000e-003	2.0000e-005	2.4100e-003	1.0000e-005	2.4200e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.8470	1.8470	5.0000e-005	5.0000e-005	1.8641
Total	**9.2000e-004**	**4.7100e-003**	**7.9300e-003**	**3.0000e-005**	**2.8600e-003**	**3.0000e-005**	**2.9000e-003**	**7.7000e-004**	**3.0000e-005**	**8.0000e-004**	**0.0000**	**3.2898**	**3.2898**	**8.0000e-005**	**2.6000e-004**	**3.3708**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0316	0.3209	0.3549	5.7000e-004		0.0160	0.0160		0.0147	0.0147	0.0000	50.1042	50.1042	0.0162	0.0000	50.5093
Total	**0.0316**	**0.3209**	**0.3549**	**5.7000e-004**		**0.0160**	**0.0160**		**0.0147**	**0.0147**	**0.0000**	**50.1042**	**50.1042**	**0.0162**	**0.0000**	**50.5093**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2000e-004	4.1300e-003	1.3300e-003	1.0000e-005	4.5000e-004	2.0000e-005	4.8000e-004	1.3000e-004	2.0000e-005	1.5000e-004	0.0000	1.4427	1.4427	3.0000e-005	2.1000e-004	1.5067
Worker	8.0000e-004	5.8000e-004	6.6000e-003	2.0000e-005	2.4100e-003	1.0000e-005	2.4200e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.8470	1.8470	5.0000e-005	5.0000e-005	1.8641
Total	**9.2000e-004**	**4.7100e-003**	**7.9300e-003**	**3.0000e-005**	**2.8600e-003**	**3.0000e-005**	**2.9000e-003**	**7.7000e-004**	**3.0000e-005**	**8.0000e-004**	**0.0000**	**3.2898**	**3.2898**	**8.0000e-005**	**2.6000e-004**	**3.3708**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5300e-003	0.0138	0.0176	3.0000e-005		6.6000e-004	6.6000e-004		6.2000e-004	6.2000e-004	0.0000	2.3498	2.3498	6.8000e-004	0.0000	2.3669
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.5300e-003**	**0.0138**	**0.0176**	**3.0000e-005**		**6.6000e-004**	**6.6000e-004**		**6.2000e-004**	**6.2000e-004**	**0.0000**	**2.3498**	**2.3498**	**6.8000e-004**	**0.0000**	**2.3669**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.1900e-003	0.0000	4.3000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3325	0.3325	1.0000e-005	1.0000e-005	0.3355
Total	**1.4000e-004**	**1.0000e-004**	**1.1900e-003**	**0.0000**	**4.3000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3325**	**0.3325**	**1.0000e-005**	**1.0000e-005**	**0.3355**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5300e-003	0.0138	0.0176	3.0000e-005		6.6000e-004	6.6000e-004		6.2000e-004	6.2000e-004	0.0000	2.3498	2.3498	6.8000e-004	0.0000	2.3669
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.5300e-003**	**0.0138**	**0.0176**	**3.0000e-005**		**6.6000e-004**	**6.6000e-004**		**6.2000e-004**	**6.2000e-004**	**0.0000**	**2.3498**	**2.3498**	**6.8000e-004**	**0.0000**	**2.3669**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.1900e-003	0.0000	4.3000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3325	0.3325	1.0000e-005	1.0000e-005	0.3355
Total	**1.4000e-004**	**1.0000e-004**	**1.1900e-003**	**0.0000**	**4.3000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3325**	**0.3325**	**1.0000e-005**	**1.0000e-005**	**0.3355**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1391					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	3.2600e-003	4.5300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6393
Total	**0.1395**	**3.2600e-003**	**4.5300e-003**	**1.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6393**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0185	0.0185	0.0000	0.0000	0.0186
Total	**1.0000e-005**	**1.0000e-005**	**7.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0185**	**0.0185**	**0.0000**	**0.0000**	**0.0186**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1391					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	3.2600e-003	4.5300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6393
Total	**0.1395**	**3.2600e-003**	**4.5300e-003**	**1.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6393**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0185	0.0185	0.0000	0.0000	0.0186
Total	**1.0000e-005**	**1.0000e-005**	**7.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0185**	**0.0185**	**0.0000**	**0.0000**	**0.0186**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Educational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Educational	13.00	5.00	5.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Educational	0.492178	0.057147	0.202572	0.146456	0.036760	0.009141	0.008293	0.005994	0.000937	0.000362	0.032672	0.000959	0.006529

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Educational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Educational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Educational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Educational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

AGHS Gym Expansion Project - San Luis Obispo County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0608	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.0608	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0139					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0469					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0608**	**0.0000**	**2.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0139					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0469					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.0000e-005	3.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.0608**	**0.0000**	**2.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Educational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Educational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Educational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Educational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

AGHS Gym Expansion Project - San Luis Obispo County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

AGHS Gym Expansion Project

San Luis Obispo County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Educational	1.00	User Defined Unit	0.28	12,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.2	**Precipitation Freq (Days)**	44
Climate Zone	4			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - The project would construct a new 12,000 sf multipurpose gymnasium.

Construction Phase -

Architectural Coating -

Table Name	Column Name	Default Value	New Value
tblLandUse	LandUseSquareFeet	0.00	12,000.00
tblLandUse	LotAcreage	0.00	0.28

2.0 Emissions Summary

AGHS Gym Expansion Project - San Luis Obispo County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	55.8152	10.1978	7.4988	0.0147	5.3910	0.4205	5.8115	2.5895	0.3868	2.9764	0.0000	1,429.4572	1,429.4572	0.4433	5.8700e-003	1,441.1048
Maximum	**55.8152**	**10.1978**	**7.4988**	**0.0147**	**5.3910**	**0.4205**	**5.8115**	**2.5895**	**0.3868**	**2.9764**	**0.0000**	**1,429.4572**	**1,429.4572**	**0.4433**	**5.8700e-003**	**1,441.1048**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	55.8152	10.1978	7.4988	0.0147	5.3910	0.4205	5.8115	2.5895	0.3868	2.9764	0.0000	1,429.4572	1,429.4572	0.4433	5.8700e-003	1,441.1048
Maximum	**55.8152**	**10.1978**	**7.4988**	**0.0147**	**5.3910**	**0.4205**	**5.8115**	**2.5895**	**0.3868**	**2.9764**	**0.0000**	**1,429.4572**	**1,429.4572**	**0.4433**	**5.8700e-003**	**1,441.1048**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3330	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.3330**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3330	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.3330**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

AGHS Gym Expansion Project - San Luis Obispo County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2023	6/1/2023	5	1	
2	Grading	Grading	6/2/2023	6/5/2023	5	2	
3	Building Construction	Building Construction	6/6/2023	10/23/2023	5	100	
4	Paving	Paving	10/24/2023	10/30/2023	5	5	
5	Architectural Coating	Architectural Coating	10/31/2023	11/6/2023	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 18,000; Non-Residential Outdoor: 6,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Grading	Graders	1	6.00	187	0.41
Site Preparation	Graders	1	8.00	187	0.41

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	5.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	5.00	2.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	13.00	5.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084		942.4317	942.4317	0.3048		950.0517
Total	**0.5348**	**6.1887**	**3.9239**	**9.7300e-003**	**0.5303**	**0.2266**	**0.7568**	**0.0573**	**0.2084**	**0.2657**		**942.4317**	**942.4317**	**0.3048**		**950.0517**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0174	0.0119	0.1327	4.0000e-004	0.0494	2.4000e-004	0.0497	0.0131	2.2000e-004	0.0133		40.4286	40.4286	1.1700e-003	1.1900e-003	40.8116
Total	**0.0174**	**0.0119**	**0.1327**	**4.0000e-004**	**0.0494**	**2.4000e-004**	**0.0497**	**0.0131**	**2.2000e-004**	**0.0133**		**40.4286**	**40.4286**	**1.1700e-003**	**1.1900e-003**	**40.8116**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084	0.0000	942.4317	942.4317	0.3048		950.0517
Total	**0.5348**	**6.1887**	**3.9239**	**9.7300e-003**	**0.5303**	**0.2266**	**0.7568**	**0.0573**	**0.2084**	**0.2657**	**0.0000**	**942.4317**	**942.4317**	**0.3048**		**950.0517**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0174	0.0119	0.1327	4.0000e-004	0.0494	2.4000e-004	0.0497	0.0131	2.2000e-004	0.0133		40.4286	40.4286	1.1700e-003	1.1900e-003	40.8116
Total	**0.0174**	**0.0119**	**0.1327**	**4.0000e-004**	**0.0494**	**2.4000e-004**	**0.0497**	**0.0131**	**2.2000e-004**	**0.0133**		**40.4286**	**40.4286**	**1.1700e-003**	**1.1900e-003**	**40.8116**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3119	0.0000	5.3119	2.5686	0.0000	2.5686			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865		1,364.7713	1,364.7713	0.4414		1,375.8062
Total	**0.9335**	**10.1789**	**5.5516**	**0.0141**	**5.3119**	**0.4201**	**5.7320**	**2.5686**	**0.3865**	**2.9550**		**1,364.7713**	**1,364.7713**	**0.4414**		**1,375.8062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0279	0.0190	0.2124	6.4000e-004	0.0791	3.8000e-004	0.0795	0.0210	3.5000e-004	0.0213		64.6858	64.6858	1.8700e-003	1.9000e-003	65.2986
Total	**0.0279**	**0.0190**	**0.2124**	**6.4000e-004**	**0.0791**	**3.8000e-004**	**0.0795**	**0.0210**	**3.5000e-004**	**0.0213**		**64.6858**	**64.6858**	**1.8700e-003**	**1.9000e-003**	**65.2986**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3119	0.0000	5.3119	2.5686	0.0000	2.5686			0.0000			0.0000
Off-Road	0.9335	10.1789	5.5516	0.0141		0.4201	0.4201		0.3865	0.3865	0.0000	1,364.7713	1,364.7713	0.4414		1,375.8062
Total	**0.9335**	**10.1789**	**5.5516**	**0.0141**	**5.3119**	**0.4201**	**5.7320**	**2.5686**	**0.3865**	**2.9550**	**0.0000**	**1,364.7713**	**1,364.7713**	**0.4414**		**1,375.8062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0279	0.0190	0.2124	6.4000e-004	0.0791	3.8000e-004	0.0795	0.0210	3.5000e-004	0.0213		64.6858	64.6858	1.8700e-003	1.9000e-003	65.2986
Total	**0.0279**	**0.0190**	**0.2124**	**6.4000e-004**	**0.0791**	**3.8000e-004**	**0.0795**	**0.0210**	**3.5000e-004**	**0.0213**		**64.6858**	**64.6858**	**1.8700e-003**	**1.9000e-003**	**65.2986**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6322	6.4186	7.0970	0.0114		0.3203	0.3203		0.2946	0.2946		1,104.6089	1,104.6089	0.3573		1,113.5402
Total	**0.6322**	**6.4186**	**7.0970**	**0.0114**		**0.3203**	**0.3203**		**0.2946**	**0.2946**		**1,104.6089**	**1,104.6089**	**0.3573**		**1,113.5402**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3200e-003	0.0828	0.0270	3.0000e-004	9.2900e-003	4.7000e-004	9.7600e-003	2.6800e-003	4.5000e-004	3.1300e-003		31.8378	31.8378	7.0000e-004	4.6800e-003	33.2496
Worker	0.0174	0.0119	0.1327	4.0000e-004	0.0494	2.4000e-004	0.0497	0.0131	2.2000e-004	0.0133		40.4286	40.4286	1.1700e-003	1.1900e-003	40.8116
Total	**0.0198**	**0.0947**	**0.1597**	**7.0000e-004**	**0.0587**	**7.1000e-004**	**0.0594**	**0.0158**	**6.7000e-004**	**0.0165**		**72.2664**	**72.2664**	**1.8700e-003**	**5.8700e-003**	**74.0612**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6322	6.4186	7.0970	0.0114		0.3203	0.3203		0.2946	0.2946	0.0000	1,104.6089	1,104.6089	0.3573		1,113.5402
Total	**0.6322**	**6.4186**	**7.0970**	**0.0114**		**0.3203**	**0.3203**		**0.2946**	**0.2946**	**0.0000**	**1,104.6089**	**1,104.6089**	**0.3573**		**1,113.5402**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3200e-003	0.0828	0.0270	3.0000e-004	9.2900e-003	4.7000e-004	9.7600e-003	2.6800e-003	4.5000e-004	3.1300e-003		31.8378	31.8378	7.0000e-004	4.6800e-003	33.2496
Worker	0.0174	0.0119	0.1327	4.0000e-004	0.0494	2.4000e-004	0.0497	0.0131	2.2000e-004	0.0133		40.4286	40.4286	1.1700e-003	1.1900e-003	40.8116
Total	**0.0198**	**0.0947**	**0.1597**	**7.0000e-004**	**0.0587**	**7.1000e-004**	**0.0594**	**0.0158**	**6.7000e-004**	**0.0165**		**72.2664**	**72.2664**	**1.8700e-003**	**5.8700e-003**	**74.0612**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6112	5.5046	7.0209	0.0113		0.2643	0.2643		0.2466	0.2466		1,036.0878	1,036.0878	0.3018		1,043.6331
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6112**	**5.5046**	**7.0209**	**0.0113**		**0.2643**	**0.2643**		**0.2466**	**0.2466**		**1,036.0878**	**1,036.0878**	**0.3018**		**1,043.6331**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0627	0.0427	0.4778	1.4400e-003	0.1780	8.5000e-004	0.1788	0.0472	7.8000e-004	0.0480		145.5431	145.5431	4.2100e-003	4.2700e-003	146.9218
Total	**0.0627**	**0.0427**	**0.4778**	**1.4400e-003**	**0.1780**	**8.5000e-004**	**0.1788**	**0.0472**	**7.8000e-004**	**0.0480**		**145.5431**	**145.5431**	**4.2100e-003**	**4.2700e-003**	**146.9218**

AGHS Gym Expansion Project - San Luis Obispo County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6112	5.5046	7.0209	0.0113		0.2643	0.2643		0.2466	0.2466	0.0000	1,036.0878	1,036.0878	0.3018		1,043.6331
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6112**	**5.5046**	**7.0209**	**0.0113**		**0.2643**	**0.2643**		**0.2466**	**0.2466**	**0.0000**	**1,036.0878**	**1,036.0878**	**0.3018**		**1,043.6331**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0627	0.0427	0.4778	1.4400e-003	0.1780	8.5000e-004	0.1788	0.0472	7.8000e-004	0.0480		145.5431	145.5431	4.2100e-003	4.2700e-003	146.9218
Total	**0.0627**	**0.0427**	**0.4778**	**1.4400e-003**	**0.1780**	**8.5000e-004**	**0.1788**	**0.0472**	**7.8000e-004**	**0.0480**		**145.5431**	**145.5431**	**4.2100e-003**	**4.2700e-003**	**146.9218**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	55.6200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**55.8117**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4900e-003	2.3700e-003	0.0266	8.0000e-005	9.8900e-003	5.0000e-005	9.9300e-003	2.6200e-003	4.0000e-005	2.6700e-003		8.0857	8.0857	2.3000e-004	2.4000e-004	8.1623
Total	**3.4900e-003**	**2.3700e-003**	**0.0266**	**8.0000e-005**	**9.8900e-003**	**5.0000e-005**	**9.9300e-003**	**2.6200e-003**	**4.0000e-005**	**2.6700e-003**		**8.0857**	**8.0857**	**2.3000e-004**	**2.4000e-004**	**8.1623**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	55.6200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**55.8117**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4900e-003	2.3700e-003	0.0266	8.0000e-005	9.8900e-003	5.0000e-005	9.9300e-003	2.6200e-003	4.0000e-005	2.6700e-003		8.0857	8.0857	2.3000e-004	2.4000e-004	8.1623
Total	**3.4900e-003**	**2.3700e-003**	**0.0266**	**8.0000e-005**	**9.8900e-003**	**5.0000e-005**	**9.9300e-003**	**2.6200e-003**	**4.0000e-005**	**2.6700e-003**		**8.0857**	**8.0857**	**2.3000e-004**	**2.4000e-004**	**8.1623**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Educational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Educational	13.00	5.00	5.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Educational	0.492178	0.057147	0.202572	0.146456	0.036760	0.009141	0.008293	0.005994	0.000937	0.000362	0.032672	0.000959	0.006529

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Educational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Educational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3330	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.3330	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2568					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.3330**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2568					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.3330**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B

USFWS IPaC Species List

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

San Luis Obispo County, California

Local office

Ventura Fish And Wildlife Office

(805) 644-1766
(805) 644-3958
FW8VenturaSection7@FWS.Gov

2493 Portola Road, Suite B
Ventura, CA 93003-7726

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Giant Kangaroo Rat Dipodomys ingens Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6051	Endangered

Birds

NAME	STATUS
California Clapper Rail Rallus longirostris obsoletus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
California Condor Gymnogyps californianus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered
California Least Tern Sterna antillarum browni Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Least Bell's Vireo Vireo bellii pusillus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5945	Endangered
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened

Southwestern Willow Flycatcher Empidonax traillii extimus — Endangered
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/6749

Western Snowy Plover Charadrius nivosus nivosus — Threatened
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/8035

Yellow-billed Cuckoo Coccyzus americanus — Threatened
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/3911

Amphibians

NAME	STATUS

California Red-legged Frog Rana draytonii — Threatened
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/2891

California Tiger Salamander Ambystoma californiense — Threatened
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/2076

Foothill Yellow-legged Frog Rana boylii — Proposed Endangered
No critical habitat has been designated for this species.

Fishes

NAME	STATUS

Tidewater Goby Eucyclogobius newberryi — Endangered
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/57

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
California Jewelflower Caulanthus californicus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4599	Endangered
Gambel's Watercress Rorippa gambellii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4201	Endangered
La Graciosa Thistle Cirsium loncholepis Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6547	Endangered
Marsh Sandwort Arenaria paludicola Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2229	Endangered

Pismo Clarkia Clarkia speciosa ssp. immaculata — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5936

Salt Marsh Bird's-beak Cordylanthus maritimus ssp. maritimus — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6447

Spreading Navarretia Navarretia fossalis — Threatened
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/1334

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-

migratory-birds

- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole Icterus bullockii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25

California Gull Larus californicus — Breeds Mar 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

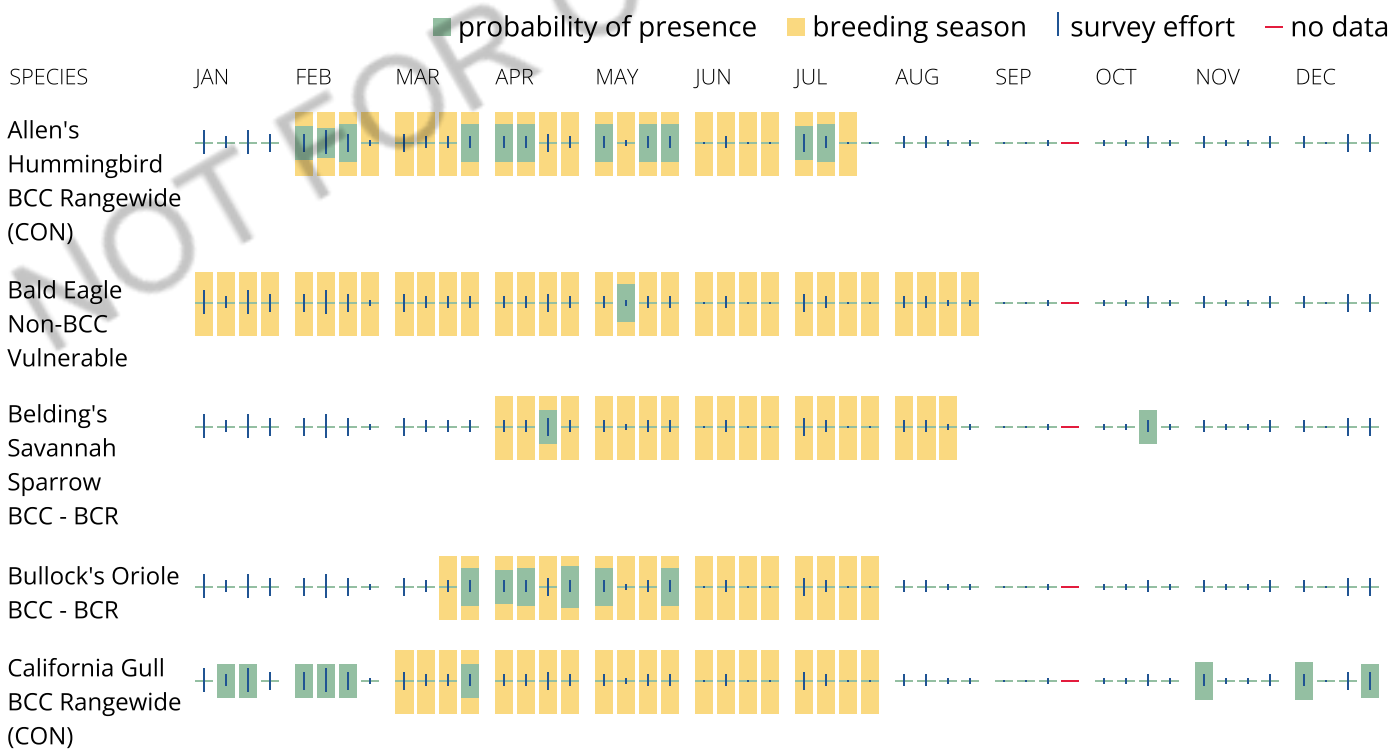
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

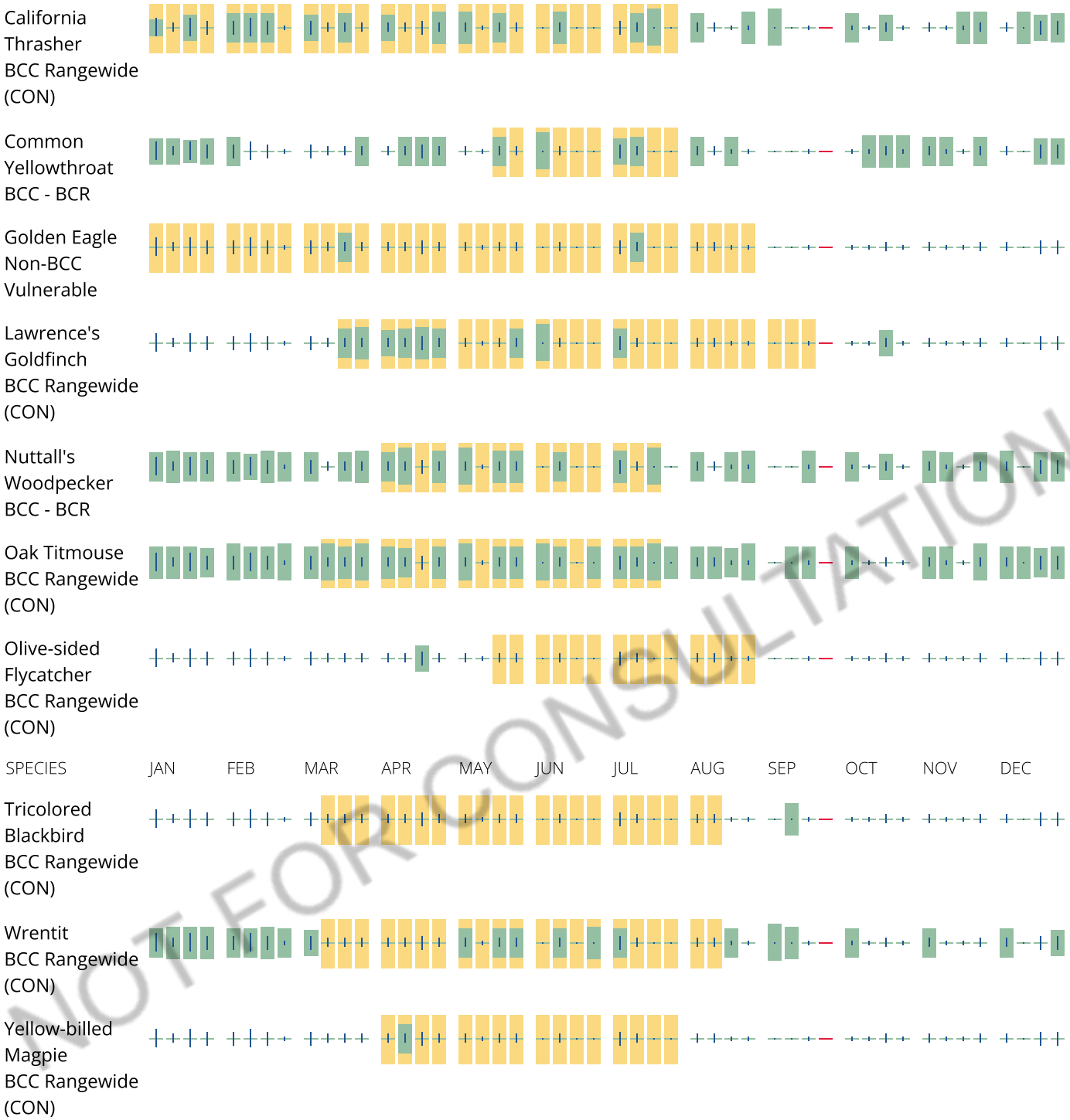
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

APPENDIX C

Geotechnical Engineering and Geologic Hazards Report

GEOTECHNICAL ENGINEERING
AND GEOLOGIC HAZARDS REPORT
ARROYO GRANDE HIGH SCHOOL
PRACTICE GYM
495 VALLEY ROAD
ARROYO GRANDE, CALIFORNIA

June 9, 2023

Prepared for

Mr. Andy Stenson
Lucia Mar Unified School District

Prepared by

Earth Systems Pacific
4378 Old Santa Fe Road
San Luis Obispo, CA 93401

EARTH SYSTEMS
4378 Santa Fe Road | San Luis Obispo, CA 93401 | (805) 544-3276 | www.earthsystems.com

June 9, 2023

FILE NO.: 301882-024

Mr. Andy Stenson
Lucia Mar Unified School District
222 Stanley Avenue
Arroyo Grande, CA 93420

PROJECT: ARROYO GRANDE HIGH SCHOOL
PRACTICE GYM
495 VALLEY ROAD
ARROYO GRANDE, CALIFORNIA

SUBJECT: Geotechnical Engineering and Geologic Hazards Report

CONTRACT REF: Purchase Order No. 231884 by Lucia Mar Unified School District (LMUSD), dated February 23, 2023, Referencing Earth Systems Pacific Proposal to Provide a Geotechnical Engineering and Geologic Hazards Report, Arroyo Grande High School, Practice Gym, 495 Valley Road, Arroyo Grande, California, Doc. No. SLO-2302-070.PRP, dated February 21, 2023

Dear Mr. Stenson:

In accordance with the request of Mr. Bryan Hagwood of LMUSD and the referenced Purchase Order, this geotechnical engineering and geologic hazards report has been prepared for use in the development of plans and specifications for the practice gymnasium planned at Arroyo Grande High School in Arroyo Grande, California. Geotechnical recommendations are presented herein for site preparation, grading, utility trenches, foundations, interior slabs-on-grade and exterior pedestrian flatwork, retaining walls, vehicle pavement, drainage and maintenance, and observation and testing. This report also describes the general geologic characteristics, identifies existing and potential geologic hazards, and discusses the impacts the geologic conditions may have upon the project. A geotechnical corrosivity study, which was subcontracted to HDR, Inc., is also included. An electronic copy of this report is furnished for your use; additional electronic copies can be supplied to others at your request.

We appreciate the opportunity to have provided services for this project and look forward to working with you again in the future. If there are any questions concerning this report, please do not hesitate to contact the undersigned.

Sincerely,
Earth Systems Pacific

Nick Zoetewey, GE
Senior Engineer

Darrin Hasham, CEG
Engineering Geologist

Tim Robison, EIT
Staff Engineer

Doc. No.: 2306-023.SGR/cr

Table of Contents

APPENDICES

1.0 INTRODUCTION

The proposed project will include the construction of a new practice gymnasium and associated sitework improvements for Arroyo Grande High School in Arroyo Grande, California. Based on information provided by Kyle Harris of Harris Architecture and Design (Harris 2022, 2023) the structure will have a footprint of approximately 13,600 square feet. We understand that the building will likely be of wood and/or steel-frame construction and supported by slabs-on-grade over conventional spread (pad) and continuous shallow foundations. Maximum wall and column loads on the order of 5 kips per linear foot and 40 kips, respectively, have been assumed. Additional improvements will consist of a hot-mix asphalt (HMA) surfaced parking lot and driveways, exterior pedestrian flatwork, underground utilities, low impact development/best management practices (LID/BMP) drainage features potentially consisting of underground storage chambers and detention basins, and retaining walls 6 feet or less in height. Based on a preliminary grading plan (CLAD 2023), cuts up to 12 feet from the existing topography are planned for the southwest, southeast, and northeast sides at the back of the site, with cut slopes at maximum gradients of 2:1 (horizontal to vertical). Cuts and fills less than 1 foot from existing grades are anticipated for the northwest side at the front of the site, to allow access from Castillo Del Mar Street.

It is our understanding that this project will be designed and constructed under the jurisdiction of the Division of the State Architect (DSA).

2.0 SCOPE OF SERVICES

The scope of work for this report included a field reconnaissance by a registered geotechnical engineer and a certified engineering geologist, subsurface exploration, laboratory testing (geotechnical and corrosivity) of samples obtained during the field investigation, geotechnical, geologic and corrosivity (subcontracted to HDR, Inc.) analyses of the data, and preparation of this report. The analysis and subsequent recommendations were based on the information provided by Harris Architecture and Design (Harris 2022, 2023).

This report and geotechnical recommendations are intended to comply with the considerations of Sections 1803A.1 through 1803A.7, J104.3 and J104.4, as applicable, of the 2022 California Building Code (CBC) (CBSC 2022); California Geological Survey (CGS) Note 48 (CGS 2022); Interpretation of Regulations (IR) Document A-4 (DSA 2021); and common geotechnical engineering and engineering geology practice in this area under similar conditions at this time.

The geotechnical test procedures were accomplished in general conformance with the standards noted, as modified by common geotechnical engineering practice in this area under similar conditions at this time.

Geotechnical recommendations for site preparation, grading, utility trenches, foundations, interior slabs-on-grade and exterior pedestrian flatwork, retaining walls, vehicle pavement, drainage and maintenance, and observation and testing are provided in this report. This report also describes the general geologic characteristics, identifies existing and potential geologic hazards, and discusses the impacts the geologic conditions may have upon the project. The results of corrosivity testing and analyses with mitigation recommendations, which were subcontracted to HDR, Inc., are also included. The items noted above are presented to guide the development of project plans and specifications. It is our intent that this geotechnical/geologic report be used exclusively by the client to form the geotechnical/geologic basis of the design, and in the preparation of plans and specifications. Application beyond this intent is strictly at the user's risk.

This report does not address dewatering and other issues in the domain of contractors such as, but not limited to, site safety, loss of volume due to stripping of the site, shrinkage of soils during compaction, excavatability, shoring, temporary slope angles, construction means and methods, etc. Analyses of the soil for mold potential, asbestos in man-made products, lead, radioisotopes, hydrocarbons, or chemical properties (other than geotechnical corrosivity) are beyond the scope of this report. Ancillary features such as temporary access roads, and non-structural fills are not within our scope and are also not addressed.

As there may be unresolved geotechnical issues with respect to this project, the geotechnical engineer should be retained to provide consultation as the design progresses, to review project plans as they near completion to assist in verifying that pertinent geotechnical and geologic issues have been addressed and to aid in conformance with the intent of this report. In the event that there are any changes in the nature, design, or location of improvements, or if any assumptions used in the preparation of this report prove to be incorrect, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report are verified or are modified in writing. The criteria presented in this report are considered preliminary until such time as any peer review or review by any jurisdiction has been completed, conditions are observed by the geotechnical engineer and/or engineering geologist in the field during construction, and the recommendations have been verified as appropriate or modified in writing.

3.0 SITE SETTING

The site is located on the south side of the Arroyo Grande High School Campus at 495 Valley Road in Arroyo Grande, California (see Figure 1 – Site Vicinity Map in Appendix A for location). The approximate coordinates and elevation at the center of the site (Google Earth 2023) are latitude 35.1124N , longitude 120.5773W, and 120 feet MSL (above mean sea level).

The site is bounded by Castillo Del Mar Street to the northwest, a residential development to the northeast, and vacant land and rural residential property to the southeast and southwest. The site is currently unimproved and covered with grass and weeds. The existing topography slopes to the northwest at an estimated gradient of 5 to 10 percent, with a total relief of approximately 15 feet across the site.

4.0 FIELD INVESTIGATION

Exploratory Borings

The subsurface exploration consisted of drilling three exploratory borings in the project area on April 19, 2023 to a maximum depth of 35.5 feet below the existing ground surface (bgs). Three additional borings were drilled in the planned LID/BMP drainage area for infiltration testing to depths of 4, 5, and 6 feet bgs. The borings were drilled with a Mobile Drill Model B-53 truck mounted drill rig, equipped with 6-inch outside diameter hollow stem auger and an automatic trip hammer for sampling. The approximate locations of the borings are shown on Figure 2 – Exploration Location Map in Appendix A. As the borings were drilled, soil samples were obtained at selected depths using a ring-lined barrel sampler (ASTM D 3550-17 with shoe similar to D 2937-17). Standard Penetration Test (SPT) samples were also obtained at selected depths (ASTM D 1586-11). Additionally, bulk samples were obtained from the auger cuttings. The borings were backfilled per the requirements of the governing jurisdiction.

Soils encountered in the borings were categorized and logged in general accordance with the Unified Soil Classification System and ASTM D 2488-17. Copies of the Boring Logs and a Boring Log Legend are also included in Appendix A. In reviewing the boring logs and legend, the reader should recognize that the legend is intended as a guideline only, and there are a number of conditions that may influence the soil characteristics as observed during drilling. These include, but are not limited to, the presence of cobbles or boulders, cementation, variations in soil moisture, presence of groundwater, and other factors. It should also be noted that the descriptions of bedrock must span a much wider range of density and strength characteristics than soil, and are relative to *bedrock* strata. For example, fractured and weathered bedrock may

be described as “soft,” yet it will be considerably harder than almost any type of soil. Conversely, a clay soil may be described as “hard,” however it will not be nearly as hard as even “soft” bedrock. Consequently, the logger must exercise judgement in interpreting the subsurface characteristics, possibly resulting in soil and bedrock descriptions that vary somewhat from the legend.

Infiltration Testing

After drilling was completed, a 4-inch diameter perforated pipe was installed in each of the three infiltration test borings, and the annular spaces around the pipes were filled with gravel. Infiltration testing was performed in general accordance with the referenced methods developed by this firm in cooperation with the Central Coast Low Impact Development Initiative (Earth Systems Pacific 2013).

Initially, testing consisted of introducing water into each of the test borings to just below the existing ground surface. This water level was then maintained at constant head for 30 minutes. After the 30-minute period, the water was shut off and the amount of water introduced into each of the test borings was recorded. Readings of the change in water level were then recorded at various time intervals over a period of approximately 4 hours. Following testing, the pipes were removed and the test borings were backfilled with on-site soil.

Constant head infiltration testing resulted in introducing between 1 to 2 gallons of water into each boring over a period of 30 minutes. Constant head was maintained at approximately 2 to 13 inches from the ground surface in all borings. Falling head testing resulted in the following measured infiltration rates: 3.8 to 30.0 inches per hour in Boring A; 3.5 to 18.0 inches per hour in Boring B; and 6.8 to 24 inches per hour in Boring C. The LID Infiltration test results are attached in Appendix B.

Test results only indicate the infiltration rate at the specific locations tested and under specific conditions. Sound engineering judgement should be exercised in extrapolating the test results for other conditions or locations. Technical design references vary in methods they present for using these types of test results. However, most references include reduction, safety, and/or correction factors for several parameters including, but not limited to size of the LID system relative to the test volume, number of tests conducted, variability in the soil profile, anticipated silt loading, anticipated biological buildup, anticipated long term maintenance, and other factors. Typically, in aggregate these factors range from about 2.5 to 50 depending on the method used.

The final determination of the means by which this data is used is left to the design engineer.

5.0 LABORATORY ANALYSIS

Selected ring samples obtained from the borings were tested for unit weight and moisture (ASTM D 2937-17, modified for ring liners and ASTM D 2216-19), fines content (ASTM D 1140-17), expansion index (ASTM D 4829-19), and R-value (ASTM D 2844-18). The geotechnical laboratory test results are presented in Appendix C.

Two soil samples were submitted to HDR, Inc. for geotechnical corrosivity testing. The Soil Corrosivity Study by HDR, Inc. is presented in Appendix D.

6.0 GENERAL SUBSURFACE AND GEOLOGIC PROFILE

All 3 borings encountered fill comprised of medium stiff to stiff lean clay with varying sand contents from the ground surface to depths of approximately 10.0 to 10.5 feet bgs. Borings 1 and 2 encountered Older Alluvium consisting of medium dense poorly graded sand with varying percentages of clay and gravel below the fill that transitioned to well graded sand with clay and gravel at 15.5 feet bgs, in a dense to very dense condition. The Older Alluvium in Boring 3 was a 6-inch layer of medium dense clayey sand with gravel, followed by very stiff lean clay to 15.0 feet bgs, and very dense well graded sand with clay and gravel. Very soft to hard, moderately to intensely weathered bedrock (metavolcanic rock) of the Franciscan Melange was found in Borings 1 and 3 at 25.0 feet bgs; the metavolcanic rock extended to the termination depths of 31.5 feet bgs in Boring 1 and 35.5 feet bgs in Boring 3. Boring 2 was terminated in the Older Alluvium at 21.5 feet bgs.

During drilling, soil and bedrock moisture contents were described as slightly moist to wet. Groundwater was encountered at 28.5 and 29.5 feet bgs while drilling in Borings 1 and 3, respectively. After drilling was completed and prior to backfill of the boring, groundwater was observed at 22.5 feet bgs in Boring 1 and 24 feet bgs in Boring 3. Groundwater was not encountered in Boring 2. Please refer to the boring logs for a more complete description of the subsurface conditions.

7.0 GEOLOGY

Geologic Setting

Regionally, the site is located within the Coast Ranges geomorphic province of California, which are northwest trending mountain ranges that reach a maximum elevation of about 6,000 feet

and are generally parallel to the San Andreas fault (CGS 2002). The ranges are formed by an asymmetrical uplifted block that forms a rugged coastline at the Pacific Ocean and dips eastward towards the Great Valley province. The Coast Ranges are geologically complex with rocks that span from middle Mesozoic to late Quaternary in age.

Locally, the site is located on the westernmost part of Newsom Ridge at the transition to Arroyo Grande Valley. Newsom Ridge is within the San Luis Ranges, which are bounded on the northeast by the Los Osos fault system and on the southwest by a complex system of northeast dipping reverse faults which includes the Wilmar Avenue, San Luis Bay, Olson, Pecho, and Oceano faults that comprise the San Luis Range fault system (Lettis et al 1994).

The western end of the Newsom Ridge has been mapped differently by several researchers; Hall (1973) maps the area as Paso Robles formation but notes that locally the sediments are less consolidated than the "type" Paso Robles formation found in the vicinity of the Salinas River and may have been deposited in a different basin. Dibblee (2006) also mapped the unit as Paso Robles formation and notes that some occurrences of the less consolidated material may be Older Alluvium. Holland (2013) mapped the area as Older Alluvium and slope wash derived from the Franciscan Mélange. We have classified the material as Older Alluvium because it lacks any cementation although it does resemble Paso Robles formation in that the clasts appear to be derived primarily from shale of the Monterey formation, a common characteristic of the Paso Robles formation. We have presented the regional geologic map of Hall (Figures 3a and 3b in Appendix D) as we concur with the interpretation that Older Alluvium occurs at the site. Figure 4a – Cross Section A-A' and Figure 4b – Engineering Geology Map, presented in Appendix E, are based on the conditions found in the exploratory borings and our interpretation of the regional geology.

Faulting

Faults are classified by the State of California based on the likelihood of generating ground motions and surface rupture. The classification system applies to known faults that have been compiled by numerous researchers through various methods of investigation. The State evaluates faults with documented ground rupture during the last 11,700 years and considers them for inclusion in Earthquake Fault Zones requiring investigation (A-P Zones) which encompass traces of *Holocene-active* faults, as defined by the State's Alquist-Priolo Earthquake Fault Zoning Act (State of California 1972). The State's guidance is intended to prohibit

developments and structures for human occupancy across the trace of active faults (CGS 2018). Other active faults capable of generating strong ground motion are present in the region but are not included in A-P Zones because they do not meet the criteria of "sufficiently active and well-defined."

Significant Faults

The site is within a seismically active region and the project will experience seismic shaking during its design life. Known faults and fault systems within the region that potentially could generate earthquakes affecting the site include the San Luis Range, Hosgri-San Simeon, Los Osos, and San Andreas faults. These are known faults within a 65-mile radius of the site, other unknown faults may exist in the region and movement on any of these faults could affect the proposed development during its design life.

There are no known Holocene-Active faults on the site. The closest Holocene-Active fault included in an A-P Zone is the Irish Hills segment of the Los Osos fault. Although the closest strand of the Los Osos fault is located approximately 4.7 miles north of the site and forms the northern boundary of Newsom Ridge, the Irish Hills segment is located approximately 12 miles northwest of the site (CDMG 1990, Treiman 1989). The zoned section of the Los Alamos fault is located approximately 32 miles southeast of the site (CDMG 1986d). The closest mapped fault to the site is the inferred trace of the Wilmar Avenue fault mapped approximately 3,000 feet north of the site (Holland 2013). The inferred trace of the Oceano fault is mapped approximately 2.5 miles southwest of the site. The Wilmar Avenue and Oceano faults are part of the San Luis Range fault system (Lettis and Hall 1994). Regional faults considered potentially capable of producing strong ground motion or surface rupture are discussed below and depicted with locations of historic earthquake events on Figure 5 – Historic Seismicity Map in Appendix E.

San Luis Range Fault System

The San Luis Range fault System consists of a series of west-northwest trending faults that include the Santa Maria River, Wilmar Avenue, Oceano, San Luis Bay, and San Miguelito faults. The Wilmar Avenue fault extends from northern Nipomo to Pismo Beach, where it is exposed in the ocean bluff at the end of Wilmar Avenue; at this location Pleistocene terrace deposits are displaced in the face of the bluff. The Wilmar Avenue fault is mapped approximately coincident with Highway 101 northeast of the site. The Oceano fault is a 12-mile long northwest-trending fault extending from the town of Nipomo to the offshore area of San Luis Bay. The Oceano Fault is mapped about 2.5 feet southwest of the site (Holland 2013). Because of thick dune sand and

alluvial deposits, the onshore trace of the fault is buried or obscured, and the fault's geometry is inferred from geophysical and well data (Lettis and Hall 1994). The San Luis Range fault system is modeled by the State 0.1-mile northeast of the site and considered capable of a magnitude 7.49 earthquake (BSSC 2014).

Los Osos Fault

The Los Osos fault consists of four distinct segments. From northwest to southeast these are the Estero Bay, Irish Hills, Lopez Reservoir, and Newsom Ridge segments. The Irish Hills segment starts in the vicinity of Los Osos and extends to just past San Luis Obispo creek. A two-mile long segment west of Laguna Lake is considered Holocene-active (Treiman 1989) and is in an A-P Zone (CDMG 1990). This Holocene-active segment is approximately 12 miles northwest of the site while the Newsom Ridge segment is approximately 4.7 miles north of the site (USGS 2023a). The Los Osos fault system is considered capable of a magnitude 7.15 earthquake (BSSC 2014).

Oceanic-West Huasna Fault

The Oceanic-West Huasna fault zone separates the Santa Lucia and San Rafael mountains from a series of distinct tectonic domains stretching from Cambria to the western Transverse Ranges (Lettis et al 2004). This fault system trends northwest-southeast for approximately 75 miles and is modeled about 6 miles northeast of the site. The Oceanic-West Huasna fault is considered capable of a magnitude 7.2 earthquake (BSSC 2014).

Hosgri-San Simeon Fault System

The Hosgri-San Simeon fault system lies offshore approximately 15 miles to the west of the site. A northwest-trending strike-slip fault, the San Simeon fault extends from offshore of Ragged Point to just offshore of San Simeon Point, where it joins the northern end of the Hosgri fault. The Hosgri-San Simeon fault between San Simeon Point and Arroyo de la Cruz is included in A-P Zone (CDMG 1986b, 1986c). This fault system ruptured in November 1927 producing the magnitude 7.1 Lompoc Earthquake, and in December 2003 producing the magnitude 6.6 San Simeon earthquake (EERI 2005). The Hosgri fault is considered capable of a magnitude 7.5 earthquake (BSSC 2014).

San Andreas Fault

The San Andreas fault is considered the potential source of the largest regional earthquake. The San Andreas fault has a total length of approximately 600 miles and is divided into segments based on geometry and known historic behavior, with some segments capable of earthquakes up to magnitude 7.5 (Cao et. al. 2003). Simultaneous rupture of more than one segment could

cause an earthquake of magnitude 8 or more (BSSC 2014). The Cholame-Carrizo segment is located approximately 40 miles east of the site, is approximately 125 miles long and included in an A-P Zone (CDMG 1986a). This segment was part of the multi-segment magnitude 7.9 Fort Tejon earthquake in 1857 (USGS 2019).

Groundwater

Groundwater was encountered during the current investigation in Boring 1 at 28.5 feet bgs and it rose within the borehole to 22.5 feet bgs; in Boring 3 groundwater was found at 29.5 feet bgs and it rose within the borehole to 24 feet bgs prior to backfilling. Groundwater was not encountered in Boring 2. Our research of public well records found one well west of the main High School campus with records spanning from 1971 to 1980; during that time the highest groundwater elevation reported was 68.93 feet (CDWR 2023). The groundwater at the site appears to be a perched condition as bedrock was typically encountered approximately 1 to 2.5-feet deeper than groundwater and drilling was conducted after an unusually wet winter. Groundwater is not anticipated to be a factor for construction at the site.

8.0 SEISMICITY

Earthquake History

The historic seismicity in the site's region was researched using a catalog of historical California earthquakes (ANSS 2023). We compiled the epicentral distance for earthquakes within the following search parameters: magnitudes greater than 5.0, within a 65-mile radius from the site, and from 1800 to December 2022. The epicentral distances should be considered estimates, particularly for earthquake data prior to 1932, when modern instruments were first used to record earthquake data. The site coordinates used in this search were latitude 35.1124N and longitude 120.5773W (Google Earth 2023). Figure 5– the Historical Seismicity Map presented in Appendix E graphically depicts historical earthquake epicenters, their corresponding magnitudes, and the faults within the general region of the project.

Results of the search indicated that within the search parameters, 29 earthquakes with magnitudes greater than or equal to 5.0 have been reported within 65 miles of the site (see Figure 5 – Historical Seismicity Map in Appendix E). The largest magnitude earthquake that occurred during the 222-year time period was the November 4, 1927 Lompoc earthquake, having a estimated magnitude of 7.1. The closest earthquake to the site occurred approximately 14.7 miles from the site on September 5, 1922 and had an estimated magnitude of 5.5. The historical earthquakes are presented in Table F-2, Historical Earthquakes in Vicinity of Project Site, M≥5.0, in Appendix F.

Historical earthquakes that resulted in damage within the region include the Lompoc earthquake of 1927. This event is believed to have occurred on the offshore Hosgri fault (Helmberger et. al. 1992). The event triggered a tsunami that was measured by tidal gauges at San Francisco and San Diego and liquefaction phenomenon, including sand boils, at several locations within and around Lompoc. Reportedly, structures were damaged in Arroyo Grande and Guadalupe (SCEDC 2020).

On December 22, 2003, a 6.6-magnitude earthquake occurred approximately 6 miles northeast of San Simeon, California and approximately 41 miles north of the site. Analysis by the USGS and the University of California indicates that the event had a thrust (reverse-faulting) displacement (EERI 2005). The earthquake occurred in the vicinity of the northern end of the Hosgri-San Simeon fault and resulted in significand damage in Paso Robles and Oceano.

Ground Motion Analyses

In accordance with the CGS Note 48 Checklist (CGS 2022), Item 15, ASCE (2017, 2018, 2021), and the 2022 CBC (CBSC 2022), an assessment was made to determine the need for employing "Site Specific Ground Motion Hazard Analysis" to calculate the ground motion parameters for the project. The Site Class was assessed through in-situ testing. In accordance with Chapter 20 of ASCE 7-16 (2017), the Site Class is C "Very Dense Soil and Soft Rock", as stipulated in Section 20.3.2 and Table 20.3-1. Although a site specific ground motion hazards analysis is not required for development on Seismic Site Class C sites, we performed a site specific ground motion hazards analysis to develop more favorable short period seismic design parameters.

A risk-targeted maximum considered earthquake (MCE_R) modeling procedure was performed in accordance with ASCE 7-16, including a Probabilistic Seismic Hazard Analysis (PSHA) and a Deterministic Seismic Hazard Analysis (DSHA). These analyses are based on knowledge of the regional tectonic setting, geology, and seismicity. A PSHA using ground motion data from the United States Geologic Survey (USGS 2023b) Unified Hazard Tool and a DSHA using the Third California Earthquake Rupture Forecast (UCERF3) fault model (USGS 2013) and NGA-West2 ground motion prediction equations (PEER 2015), as described in ASCE 7-16 Section 21.2.1.1 (Method 1) were completed to estimate the peak ground motion corresponding to the uniform hazards earthquake and MCE_R which has a 2 percent probability of being exceeded in 50 years.

Our DSHA analysis compared several earthquake scenarios and assessed that the San Luis Range fault with a potential magnitude of 7.49 at a distance of 0.1 miles produced the design ground motion. The San Luis Range fault is a reverse-oblique slip fault, and we specified a 45-degree dip

and footwall conditions for the attenuation relationships. The fault parameters that we considered in our analysis are shown on Table F-1 – Fault Parameters, presented in Appendix F, modified in accordance with the USGS Earthquake Scenario Map (USGS 2014). The primary seismic risks are from earthquakes generated by the local San Luis Range, Los Osos, Oceanic-West Huasna, Hosgri, and the more distant San Andreas fault. Although these listed faults are thought to potentially generate the most severe seismic shaking, any regional fault could produce seismic shaking at the site. The calculated deterministic spectra are presented in Table F-3, Deterministic Spectral Response Values, in Appendix F.

The 2022 CBC seismic design criteria are based on a Design Earthquake that produces ground motion ⅔ of the lesser of an earthquake with 2 percent probability of occurrence in 50 years, or maximum 84th percentile of the mean deterministic MCE.

Seismic Design Category

Section 1613A.2.5 of the 2022 CBC (CBSC 2022) states that "structures classified as Risk Category I, II, or III that are located where the mapped spectral response acceleration parameter at 1-second period, S_1, is greater than or equal to 0.75 shall be assigned to Seismic Design Category E…others shall be assigned to seismic design category D." The S_1 for the site is 0.388, which is less than 0.75; therefore, the site should be assigned to Seismic Design Category D. We have assumed that the site falls under Risk Category III, per Table 1604A.5 of the 2022 CBC.

Seismic Design Parameters

This site may be subject to strong ground shaking due to potential fault movements along regional faults including the San Luis Range fault, whose proximity was considered during our site-specific analysis. The minimum seismic design should comply with the 2022 CBC (CBSC 2022) and ASCE 7-16 (2017, 2018, 2021). The resulting seismic coefficients considering Site Class C are presented in the following Table 1:

Table 1: Design Response Acceleration Parameters (2022 CBC/ASCE 7-16)

Seismic Design Category	D
Site Class	C
Mapped and Code Based Ground Motion	
Short Period Spectral Response, S_s	1.062 g
1 second mapped Spectral Response, S_1	0.388 g
Design Earthquake Ground Motion	
Short Period Spectral Response, S_{DS}	0.772 g
1 second Spectral Response, S_{D1}	0.397 g
Peak Ground Acceleration (PGA_M)	0.528 g
MCE Spectral Response Acceleration	
Short Period Spectral Response, S_{MS}	1.158 g
1 Second Period Spectral Response, S_{M1}	0.596 g
Site Amplification Factors	
Short Period Site Coefficient, F_a	1.2
1 Second Period Site Coefficient, F_v	1.5
Vertical Site Coefficient, C_v	1.11
Risk Coefficient (Short Period), C_{Rs}	0.905
Risk Coefficient (1 Second Period), C_{R1}	0.908

Acceleration values provided are estimates only. Actual spectral acceleration values may be more or less than those provided and could exceed 1 g assuming a maximum considered earthquake event occurs on the nearby San Luis Range fault. Vertical accelerations are typically ⅓ to ⅔ of the horizontal accelerations but can equal or exceed the horizontal accelerations depending upon the fault type, local site effects and amplification. Tables providing detailed information regarding the ground motion analysis and spectra ordinates are provided in Appendix F.

9.0 GEOLOGIC HAZARDS

Surface Ground Rupture

Surface ground rupture generally occurs at sites that are traversed by, or lie very near to, an active fault. The site is not located in any State Earthquake Fault Zones (Hart and Bryant 2007) and there are no mapped faults crossing or trending towards the site. The closest mapped *Holocene-active* fault to the site is the Los Osos fault system, located approximately 4.7 miles northeast. The San Luis Range faults (San Luis Obispo Bay, Oceano, Wilmar Ave., Olson, and Santa

Maria River faults) are considered active but are not included in A-P Zones. The closest strand of the San Luis Range fault system to the site is the Wilmar Avenue fault, modeled by the USGS approximately 0.1 miles northeast of the site. The location of this fault is poorly constrained and may be a significant distance from the modeled location. Although the potential for ground rupture at the site is very low, the possibility cannot be ruled out entirely for any site in a seismically active area.

Liquefaction and Seismically Induced Settlement

Liquefaction refers to a phenomenon that tends to occur in saturated soils of low density that have grain sizes within a certain range, usually fine- to medium-grained poorly graded sands, silty sands, and silts. A sufficiently strong earthquake is also required to cause liquefaction. During liquefaction, the energy from the earthquake causes the water pressure within the pores of the soil to increase. The increase in water pressure decreases the friction between the soil grains, allowing the soil grains to move relative to one another. During this state, the soil will behave as a viscous liquid, temporarily losing its ability to support foundations and other improvements. The high-pressure water will flow through the soil along the path of least resistance. As the pressure is released, the soils typically settle in a process called “dynamic settlement.” Dynamic settlement can cause damage to structures and other surface and subsurface improvements.

The County of San Luis Obispo (SLOCO 2023) considers this site to have low potential for liquefaction. Following removal of the upper zones of undocumented fill at the planned finish grades, most of the remaining fill is recommended to be removed and replaced as engineered fill prior to construction. The Older Alluvium below the fill was found to be dense to very dense, and Franciscan Melange bedrock (metavolcanic rock) was found at 25.0 feet bgs (approximately 12 to 18 feet below planned finish grade) in two of the three borings drilled. Given these conditions, we concur with the County of San Luis Obispo designation of the site as having low potential for liquefaction and subsequent dynamic settlement.

Slope Stability

The site is located in an area mapped by the County as having low potential for landsliding (SLOCO 2023). The previously undeveloped site will be graded to achieve level building areas and incorporate cuts up to 12 feet in height at a 2:1 (horizontal to vertical) inclination. The cut slopes are not anticipated to present a slope stability hazard.

Flooding

According to the Flood Insurance Rate Map 06079C1602G (FEMA 2012), the site is located within Flood Zone X, an area of minimal flooding. FEMA indicates that the base flood elevation within an un-named channel north of the site would be anticipated to be less than 112.6 feet. The proposed finish floor elevation of the practice gym is 113.62 feet. A copy of the FEMA map is presented as Figure 6 – FEMA Flood Zone Map in Appendix E.

Downstream Dam Inundation

The site is not within a mapped downstream dam inundation zone. The County indicates that flooding resulting from catastrophic failure of the Lopez Dam at Lopez Lake will be limited to areas north of Castillo del Mar Street (SLOCO 2023). An excerpt from the County's dam inundation map is presented as Figure 7 – Dam Inundation Map in Appendix E.

Tsunami and Seiches

According to the State of California, tsunami hazards are limited to the coastal areas (CGS 2021). The site is located approximately 2.5 miles inland from the tsunami inundation zone mapped by ASCE (2022). ASCE indicates that the maximum anticipated runup elevation within the Arroyo Grande Creek drainage is approximately 31 feet (NAVD88); therefore, the potential for a tsunami to flood the site with an elevation of over 100 feet is nil.

A seiche is a single or oscillating water wave that can be generated in a reservoir, lake, or bay as the result of barometric pressure anomalies aided by wind, or seismic waves generated by earthquakes. The site is not in close proximity to any impounded body of water and the effects of a seiche overtopping Lopez Dam would likely produce lower flood elevations than produced by complete dam failure; therefore, the potential for a seiche to affect the project site is considered very low.

Naturally Occurring Asbestos

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. When rock containing asbestos is broken or crushed, asbestos fibers may be released and become airborne. Exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest and abdominal cavity), and asbestosis (a non-cancerous lung disease which causes scarring of the lungs) (CARB 2002).

Asbestos minerals are generally limited to only a few types of rocks known to be present on the central coast of California. These are ultra-mafic igneous rocks and their metamorphic equivalents which include serpentinite and some types of schist. The site is underlain by fill, older alluvial sediments and metavolcanic rock of the Franciscan Mélange. These units are not considered asbestos bearing. Although some rock types that comprise the Franciscan Mélange are known to contain NOA, the metavolcanic rock encountered at the site is not known to have asbestos minerals; in addition, the metavolcanic rock was found at 25 feet bgs, and grading at the site is not anticipated penetrate this stratum.

Radon

Radon is a naturally occurring, colorless, odorless gas formed from the decay of naturally occurring radioactive elements such as uranium and thorium. The occurrence of radon correlates with the presence of specific minerals, and its concentrations in soil or rock will vary depending on the mineralogy of the surrounding bedrock, temperature, barometric pressure, moisture and other factors. Prolonged exposure to elevated levels of radon is associated with an increased risk of lung cancer. The route of exposure is via inhalation. Outdoor radon disperses rapidly and is generally not considered a health hazard. Radon can become trapped indoors if it enters buildings through cracks and other holes in foundations creating potential for exposure.

Some shale of the Monterey formation has been associated with elevated radon levels. As the Older Alluvium encountered at the site appears to be predominantly derived from shale of the Monterey formation there is some potential for elevated radon levels at the site. According to the State of California, the site is in an area mapped as having a moderate radon potential (CGS 2023). The Indoor Radon Potential map is presented as Figure 8 in Appendix E.

10.0 CONCLUSIONS

In our opinion, the site is suitable, from a geotechnical engineering and engineering geology standpoint, for the construction of the proposed improvements as described in the “Introduction” Section of this report, provided the recommendations contained herein are implemented in the design and construction. The primary geotechnical engineering and engineering geology concerns are the potentials for strong ground shaking, the presence of undocumented fill, the soil’s expansion, corrosion, and erosion potential, and the potential for radon. Provided that the building area is prepared as recommended in the “Grading” Section of this report, continuous perimeter and interior spread (pad) foundations may be used to support the proposed structure.

Strong Ground Shaking

The site is in a region of high seismic activity, with the potential for large seismic events that could generate strong ground shaking. A seismic analysis was undertaken to provide seismic acceleration design parameters. Our methods and the results of the seismic analysis are presented in the "Ground Motion Analysis" Section of this report. Seismic acceleration parameters should be utilized in the design of the structures so that potential damage is reduced during a seismic event.

Undocumented Fill

Fill (medium stiff to stiff lean clay) was found in the upper 10 to 10.5 feet of all three borings drilled on the site. We are unaware of any documentation (i.e., reports of grading observation and results of compaction testing) regarding the placement of this fill, therefore it is considered to be undocumented. Undocumented fill has a greater chance for excessive total and differential settlement than fill that has been placed in a controlled earthwork program. Such settlement could lead to settlement and cracking of foundations, slabs-on-grade and other improvements, unless mitigating actions are taken. On this site, the planned excavations to finish grade (CLAD 2023) will remove the majority of the undocumented fill. Overexcavation and recompaction of the remaining fill material per the "Grading" Section of this report is recommended to provide appropriate bearing and settlement conditions for the planned structure.

The planned 2:1 (horizontal to vertical) cut slopes in the undocumented fill material are expected to be grossly stable, however this should be verified by the engineering geologist based on conditions exposed at the time of construction. If stable conditions are not exposed, it may be necessary to reconstruct the slope faces.

Expansive Soils

An expansion index test performed on a sample of the soils expected to be exposed at finish grade produced a result of 42. Per Section 1803.5.3 of the 2022 CBC (CBSC 2022), the site soils are considered "expansive." Using the terminology typically associated with the ASTM test method for expansion, the soils are considered to have "medium" expansion potential. Expansive soils tend to swell with seasonal increases in moisture and shrink during the dry season as subsurface moisture decreases. The volume changes that these materials undergo in this cyclical pattern can stress and damage slabs and foundations if precautionary measures are not incorporated into the design and construction procedures. The foundations for the gymnasium

should be deepened below typical minimum depths for single-story structures. A layer of imported nonexpansive soils should be placed below all structure slabs-on-grade and exterior pedestrian flatwork.

Corrosion Potential

As indicated in the Soil Corrosivity Study by HDR, Inc. (see Appendix D), electrical resistivities of the samples tested were in the mildly corrosive to corrosive categories with as received moisture contents; when saturated, the resistivities were in the moderately corrosive to corrosive categories. Soil pH values ranged from 5.4 to 6.6 which is considered strongly acidic to neutral. Soils with a pH less than 5.5 are considered to be aggressive to copper. The soluble salt contents of the soils were low. Nitrate was found in low concentrations, and ammonium was not detected. The soils were classified as corrosive to ferrous metals, aggressive to copper, and negligible (S0) for sulfate attack on concrete.

Soil Erosion

The soils are considered to be erodible. It is essential that all surface drainage be controlled and directed to appropriate discharge points, and that surface soils, particularly those disturbed during construction, are stabilized by vegetation or other means during and following construction. The architect/engineer should ensure appropriate nonerosive overland escape if storm water drainage systems fail or are overwhelmed during significant storm event(s), so that soils are not eroded.

Radon Potential

The architect/engineer should incorporate appropriate measures in the design and construction of the proposed improvements, as needed, to mitigate the moderate potential for radon activity.

11.0 GEOTECHNICAL RECOMMENDATIONS

The following recommendations are for improvements constructed as described in the "Introduction" Section of this report. If locations, elevations, structural loads, etc., change, the recommendations contained herein may require modification. In developing the following recommendations, it was assumed that irrigated landscaping or flatwork will be installed within a zone of at least five feet around the perimeter of all improvements; the intent is to keep the soils in a relatively uniform moisture condition year-round.

Unless otherwise noted, the following definitions are used in the recommendations presented below. Where terms are not defined, definitions commonly used in the construction industry are intended.

- **Building Area –** The building area is defined as the area within and extending a minimum of 5 feet beyond the perimeter of the foundations for the building. The building area includes any retaining walls, covered walkways or other improvements that are connected to the structure and that are intended to act in a manner similar to it.
- **Flatwork Areas –** The footprints of all areas to receive exterior pedestrian flatwork.
- **Sitework Retaining Wall Areas** – The areas within and extending a minimum of 3 feet beyond the foundation limits of all sitework retaining walls.
- **Vehicle Pavement Areas** – The areas within and extending a minimum of 2 feet beyond the limits of all areas to receive vehicle pavement.
- **Grading Area –** The entire area to be graded, including building, flatwork and sitework retaining wall areas.
- **Existing Grade –** Elevations of the site that existed as of the date of this report.
- **Finish Pad Grade –** The elevation in the building area where earthwork operations are typically considered to be complete. It does not include any sand or gravel that might be placed below slabs-on-grade in association with vapor protection for the slabs.
- **Subgrade –** The elevation of the surface upon which a sand cushion/nonexpansive imported material or aggregate base will be placed for flatwork or vehicle pavement.
- **Scarified –** Plowed or ripped in two orthogonal directions to a depth of not less than 8 inches.
- **Moisture Conditioned –** Adjusting the soil moisture to optimum moisture content, or just above, prior to application of compactive effort, unless stated otherwise.
- **Compacted/Recompacted –** Soils placed in level lifts not exceeding 8 inches in loose thickness and compacted to a minimum of 90 percent of maximum dry density (unless stated otherwise), based on maximum dry density by ASTM D 1557-12 and field density by ASTM D 6938-17, or other methods acceptable to the geotechnical engineer and jurisdiction.

Site Preparation

1. The ground surface in the grading areas should be prepared for construction by removing the existing vegetation, large roots, debris, organic topsoil, and other deleterious materials. Existing utility lines that will not remain in service should be either removed or abandoned. The appropriate method of abandonment will depend upon the type and depth of the utility. Recommendations for abandonment can be made as necessary.

2. Voids created by the removal of materials or utilities described above should be called to the attention of the geotechnical engineer. No fill should be placed unless the underlying soil has been observed by the geotechnical engineer.

Grading

1. Following site preparation, the existing fill and any underlying soils within the building and sitework retaining wall areas should be removed to a level plane at 1 foot below bottom of the deepest planned footing elevation. The resulting surfaces should be scarified, moisture conditioned and recompacted.

2. Following site preparation, the existing fill and any underlying soils within flatwork and vehicle pavement areas should be removed to subgrade elevation. The resulting surfaces should be scarified, moisture conditioned and recompacted.

3. Following site preparation and any excavations to grade or prior to placement of fill within the balance of the grading areas, the exposed surfaces should be scarified, moisture conditioned and recompacted.

4. Previously removed soils, as well as approved imported nonexpansive soil, may be replaced in thin, moisture conditioned and compacted lifts to 18 inches below bottom of slab elevation in the building area, to subgrade in flatwork and vehicle pavement areas, and to finish pad grade in all other grading areas. The final 18 inches of fill in the building area should consist exclusively of imported nonexpansive materials.

5. Nonexpansive materials are defined as soils that fall in the GW, GM, GC, SP, SW, SC and SM categories per ASTM D 2487-17, and that have an expansion index of 10 or less (ASTM D 4829-17). The clean sand layer described in the “Interior Slabs-on-Grade and Exterior Pedestrian Flatwork” Section of this report (if utilized) is considered to be part of the minimum recommended thickness of nonexpansive material to be provided, not in addition to it.

6. To create conditions that are as uniform as possible, all earthwork operations should be completed throughout the individual building and retaining wall areas in a uniform manner at the same time, from the bottom of the overexcavation through fill placement to finish grade. Earthwork operations that complete only a portion of the area at one time (i.e., “flip-flopping”, “checkerboarding,” etc.) should not be allowed.

7. All fill soil (site derived or imported) should be placed in uniform lifts across the particular building or improvement area being constructed; these soils should not be mixed or placed in non-uniform layer thicknesses.

8. Imported soils used in the building areas should have strength qualities equal to or better than the site soils, and they should not exceed the geotechnical corrosivity potential of the site soils. Please refer to the Soil Corrosivity Study in Appendix D for the corrosivity parameters of the site soils. Proposed imported materials shall originate from a SMARA-approved quarry or be tested for environmental contaminants and should be reviewed by the geotechnical engineer before being brought to the site, and on an intermittent basis during placement.

9. All materials used as fill should be cleaned of any debris and rocks larger than 3 inches in diameter. When fill material includes rocks, the rocks should be placed in a sufficient soil matrix to ensure that voids caused by nesting of the rocks will not occur and that the fill can be properly compacted.

10. Imported soils to be used in landscape areas should be reviewed and approved by the landscape architect or others.

11. All cut slopes should be reviewed by the engineering geologist during earthwork operations to verify that stable conditions are exposed. If stable conditions are not exposed, it may be necessary to reconstruct some or all the slopes. The need for reconstruction of cut slopes should be determined by the engineering geologist at the time of construction.

12. If the soils are overly moist so that they become unstable, or if the minimum recommended compaction cannot be readily achieved, drying the soil so that it is nearer optimum moisture content may be necessary. Placement of gravel layers, geotextiles, or geogrids may also be necessary to help stabilize unstable soils. Additional over-excavation

may also be recommended to correct unstable conditions or if soft or loose conditions are encountered during grading. No fill should be placed in any grading area if the underlying soil is unstable. Recommendations for stabilization should be provided at the time of construction.

13. The recommended soil moisture contents should be maintained throughout construction, and during the lives of the structures and sitework improvements. Failure to maintain the soil moisture content can result in loosening of the soil and disturbance, which are an indication of degradation of the soil compaction. If soils near improvements such as foundations, flatwork, etc. are disturbed, damage to those improvements may result. Soils that have been disturbed should be removed, moisture conditioned, and recompacted.

14. The architect/engineer should designate any special measures for grading operations, as needed, to mitigate the moderate potential for radon.

Utility Trenches

1. Utility trenches adjacent to foundations should not be excavated within the zone of foundation influence, as shown in Typical Detail A in Appendix G.

2. Utilities that must pass beneath foundations should be placed with properly compacted utility trench backfill and the foundation should be designed to span the trench.

3. A select, noncorrosive, granular, easily compacted material should be used as bedding and shading immediately around utilities. The site soil or approved import soil may be used for trench backfill above the select material. In building, flatwork and vehicle pavement areas, the upper portion of the trench backfill should match the thickness of nonexpansive soil, AB or other select material used to support these improvements.

4. In general, trench backfill should be compacted to a minimum of 90 percent of maximum dry density. Trench backfill in the upper 12 inches of subgrade and all AB in vehicle pavement areas should be compacted to a minimum of 95 percent of maximum dry density.

5. Prior to applying compactive effort, trench backfill should be moisture conditioned. Trench backfill should be placed in level lifts not exceeding 6 inches in loose thickness and compacted to the minimums recommended above.

6. Compaction of trench backfill by jetting or flooding is not recommended at this site, as the site soils are expansive and erodible. However, to aid in *encasing* utility conduits, particularly corrugated drainpipes, and multiple, closely-spaced conduits in a single trench with the bedding and shading material, jetting or flooding may be useful. Flooding or jetting should only be attempted with extreme caution, and any flooding or jetting operation should be subject to review by the geotechnical engineer.

7. Long-term settlement of properly compacted imported sand should be assumed to be about 0.25 to 0.5 percent of the depth of the backfill. Long-term settlement of properly compacted site soils should be assumed to be approximately double that of imported sand. Improvements that are constructed over or near trenches should be designed to accommodate the potential for settlement.

8. The Soil Corrosivity Study by HDR, Inc. in Appendix D should be used by the architect/engineer in specifying appropriate corrosion protection measures for utility improvements.

9. The recommendations of this section are minimums only and may be superseded by the architect/engineer based upon soil corrosivity or the requirements of pipe manufacturers, utility companies or the governing jurisdiction.

10. The architect/engineer should incorporate appropriate measures in the design of the utility systems to mitigate the moderate potential for radon.

Foundations

1. The gymnasium building may be supported by continuous and spread footings bearing in firm, recompacted site soils, as recommended in the “Grading” Section of this report.

2. All footings should have a minimum embedment depth of 21 inches below the lowest adjacent grade within 7 feet laterally from the bottom of the footing, and a minimum width of 12 inches. Spread footings should be at least 24 inches square and should be interconnected on at least two sides by grade beams or continuous footings a minimum of 12 inches wide and 21 inches deep.

3. Continuous footings should be reinforced in accordance with the requirements of the architect/engineer; minimum continuous footing reinforcement should consist of two No. 4 rebar, one at the top and one at the bottom. Spread footing reinforcement should be determined by the architect/engineer.

4. Footings bearing in firm recompacted soil may be designed using maximum allowable bearing capacities of 2,500 psf for dead loads and 3,500 psf for dead plus live loads. Using these criteria, total maximum and differential static settlements are expected to be on the order of ¾-inch and ½-inch over a horizontal distance of 25 feet, respectively.

5. Allowable bearing capacities may be increased by one-third when transient loads such as wind or seismicity are included. Foundations may be designed as necessary using the values contained in Table 1: Design Response Acceleration Parameters in the "Seismicity" Section of this report.

6. To calculate resistance to lateral loads, ultimate values for passive equivalent fluid pressure of 350 psf and a coefficient of friction of 0.40 may be used for design. Lateral capacity is based on the assumption that any backfill adjacent to foundations has been properly compacted. Passive and friction components of resistance may be combined in the analysis without reduction to either value. An appropriate factor of safety should be applied to the values presented above.

7. Footing excavations should be observed by the geotechnical engineer prior to placement of reinforcing steel. Footing excavations should be moistened to optimum moisture content or above, and no desiccation cracks should be present prior to concrete placement.

8. The Soil Corrosivity Study by HDR, Inc. in Appendix D should be used by the architect/engineer in specifying appropriate corrosion protection measures for foundations.

9. The architect/engineer should incorporate appropriate measures in the design of the foundation systems to mitigate the moderate potential for radon.

Interior Slabs-on-Grade and Exterior Pedestrian Flatwork

Interior Slabs-on-Grade

1. Interior slabs-on-grade should have a minimum thickness of 4 inches and should be reinforced and doweled to foundations per the specifications of the architect/engineer. At a minimum, interior slabs should be reinforced with No. 3 rebar at 18 inches on center each way, placed as directed by the architect/engineer. All structural slabs should contain minimum rebar meeting the criteria of ACI 318, Section 7.6.1.1 (ACI 2019). At a minimum, foundation dowels should be lap spliced to the slab rebar. The size and spacing of the dowels should match the size and spacing of the slab rebar.

Exterior Pedestrian Flatwork

1. Exterior pedestrian flatwork should have a minimum thickness of 4 inches. Minimum reinforcement for exterior pedestrian flatwork should consist of No. 3 rebar placed at 18 inches on-center each way.

2. In conventional construction, it is common to use 4 to 6 inches of imported sand beneath flatwork. However, due to the high expansion potential of the site soils, there will be a risk of movement and damage to the flatwork if conventional measures are used. Heaving and cracking could occur. To reduce the potential for movement and damage, flatwork should be supported by up to 18 inches of imported nonexpansive imported soils. The more nonexpansive material provided, the better the protection from the expansive soils.

3. To further reduce the risk of movement of flatwork due to seasonal moisture variations or loss of soil from erosion, thickened edges or grade beams up to 21 inches deep can be provided around the perimeters of the flatwork. The deeper the perimeter thickened edges/grade beams provided, the better the protection from the expansive soils. At a minimum, any thickened edge or grade beam should be reinforced by two No. 4 rebar, one at the top and one at the bottom.

4. It is recognized that the measures recommended in the previous paragraphs for protecting flatwork from seasonal moisture variations are an added expense, possibly more expensive than simply replacing flatwork that has settled and/or cracked. Consequently, the above measures for protecting flatwork are only suggestions for consideration by the owner and/or architect/engineer. The degree to which flatwork is protected is left to the discretion of the owner and/or architect/engineer.

5. Flatwork should be constructed with frequent joints to allow articulation as the flatwork moves in response to seasonal soil temperature and moisture variations. The soil below flatwork should be moisture conditioned prior to casting the flatwork.

6. Flatwork at doorways, and at other areas where maintaining the elevation of the flatwork is desired, should be doweled to the perimeter foundations, at a minimum, by No. 3 dowels lapped to the flatwork rebar at 18 inches on center. In other areas, the flatwork may be doweled to the foundation or the flatwork may be allowed to "float free," at the discretion of the architect/engineer. Flatwork that is intended to float free should be separated from foundations by a felt joint or other means.

Moisture Vapor Transmission

1. Due to the current use of impermeable floor coverings, water-soluble flooring adhesives, and the speed at which buildings are now constructed, moisture vapor transmission through slabs is a much more common problem than in past years. Where moisture vapor transmitted from the underlying soil would be undesirable, slabs should be protected from subsurface moisture vapor. A number of options for vapor protection are discussed below; however, the means of vapor protection, including the type and thickness of the vapor retarder, if specified, are left to the discretion of the architect/engineer.

2. Where specified, vapor retarders should conform to ASTM Standard E 1745-17. This standard specifies properties for three performance classes; Class A, B and C. The appropriate class should be selected based on the potential for damage to the vapor retarder during placement of slab reinforcement and concrete. Unless it is determined that a permeance of 0.10 perms will not allow vapor to accumulate beneath moisture-sensitive flooring, adhesives, stored products and/or equipment, then a vapor retarder permeance of 0.010 perms is recommended, per ACI 302.1-15 (ACI 2015). Permeance of vapor retarders should remain below 0.010 perms after the conditioning tests of ASTM E 1745-17.

   Note: ASTM E 1745-17 has the same permeance threshold for Class A, B and C (0.1 perms). The class that is chosen will make a difference in how resistant the vapor retarder is to punctures and tears, but it will not ensure any better permeance values to protect floor coverings.

3. Several studies, including those of American Concrete Institute Committee 302 (ACI 2015), have concluded that excess water above the vapor retarder increases the potential for moisture damage to floor coverings and could increase the potential for mold growth or other microbial contamination. The studies also concluded that it is preferable to eliminate the typical sand layer beneath the slab and place the slab concrete in direct contact with a Class A vapor retarder, particularly during wet weather construction. However, placing the concrete directly on the vapor retarder requires special attention to using the proper vapor retarder, a very low water-cement ratio in the concrete mix, and special finishing and curing techniques.

4. Another option that may be a reasonable compromise between effectiveness and cost considerations is the use of a subslab vapor retarder protected by a sand layer. If a Class A vapor retarder is specified, the retarder can be placed directly on the subgrade. The retarder should be covered with a minimum 2 inches of clean sand. If a less durable vapor retarder is specified (Class B or C), a minimum of 4 inches of clean sand should be provided, and the retarder should be placed in the center of the clean sand layer. Clean sand is defined as a well or poorly graded sand (ASTM D 2487-17) of which less than 3 percent passes the No. 200 sieve. Clean sand is considered to be part of the minimum 18 inches of imported nonexpansive materials recommended in the “Grading” Section of this report to be placed below interior slabs-on-grade, not in addition to it.

5. Regardless of the underslab vapor retarder selected, proper installation of the retarder per ASTM E 1643-18a is critical for optimum performance. Where utilized, the vapor retarder should be placed a minimum of 1 inch above the flow line of the drainage path surrounding the structures, or 1 inch above the area drain grates if area drains are used to collect runoff around the structures. As required by ASTM E 1643-18a, all seams and utility penetrations should be properly sealed. At terminating edges of the vapor retarder, the vapor retarder should be effectively sealed with accessories specifically designed to seal the material to new or existing concrete; details for edge sealing of the vapor retarder should be provided by the architect/engineer.

6. If the sand is used between the vapor retarder and the slab, it should be moistened only as necessary to promote concrete curing; saturation of the sand should be avoided, as the excess moisture would be on top of the vapor retarder, potentially resulting in vapor transmission through the slab for months or years.

7. Positive drainage away from the structure should be maintained; see the "Drainage and Maintenance" Section of this report for additional discussion of this issue. If water is allowed to pond near the structure, it may seep into the ground and migrate laterally through cracks or utility penetrations in the foundation, ultimately gaining access above the vapor retarder.

Slabs-on-Grade - General

1. To reduce shrinkage cracks in all interior slabs-on-grade and exterior pedestrian flatwork, the concrete aggregates should be of appropriate size and proportion, the water/cement ratio should be low, the concrete should be properly placed and finished, contraction joints should be installed, and the concrete should be properly cured. This is particularly applicable to slabs that will be cast directly upon a vapor retarder and those that will be protected from transmission of vapor by use of admixtures or surface sealers. Concrete materials, placement, and curing specifications should be at the direction of the architect/engineer; AC 302.1R-15 (ACI 2015) is suggested as a resource for the architect/engineer in preparing such specification.

2. To provide stability for curbs adjacent to exterior pedestrian flatwork, they should be set back a minimum distance equal to one-third the height of any adjacent descending slope, but not less than 5 feet from the tops of slopes. Alternately, curbs may be deepened to provide stability. The geotechnical engineer should review, on an individual basis, any situation where curbs must be deepened to meet this recommendation.

3. The Soil Corrosivity Study by HDR, Inc. in Appendix D should be used by the architect/engineer in specifying appropriate corrosion protection measures for slabs-on-grade.

4. The architect/engineer should incorporate appropriate measures in the design of interior slabs-on-grade to mitigate the moderate potential for radon.

Retaining Walls

1. Retaining walls should be founded in firm soil that has been recompacted per the "Grading" Section of this report. Foundations for all retaining walls should have minimum overall depths (not including any keyway) of 21 inches below lowest grade within 7 feet laterally of any adjacent slope.

2. Retaining wall footings should be reinforced in accordance with the requirements of the architect/engineer; minimum retaining wall footing reinforcement should consist of two No. 4 rebar, one at the top and one at the bottom.

3. Retaining wall design may be based on the following parameters:

Table 2: Retaining Wall Design Parameters

Parameter	Backfill Type	Value
Active Equivalent Fluid Pressure	Onsite Soils	45 pcf
Active Equivalent Fluid Pressure	Imported Sand/Gravel	35 pcf
At-rest Equivalent Fluid Pressure	Onsite Soils	60 pcf
At-rest Equivalent Fluid Pressure	Imported Sand/Gravel	50 pcf
Passive Equivalent Fluid Pressure	Recompacted Onsite Soils	350 pcf
Maximum Toe Pressure	Onsite or Imported	3,500 psf
Coefficient of Sliding Friction	Onsite	0.40

4. No surcharges are taken into consideration in the values presented in the previous paragraph. The maximum toe pressure is an *allowable* value; no factors of safety, load factors or other factors have been applied to the remaining values. With the exception of the maximum toe pressure, these values will require application of appropriate factors of safety, load factors, and/or other factors as deemed appropriate by the architect/engineer. If the active or at-rest pressures for imported sand or gravel are utilized, the imported sand or gravel should be used exclusively above a 1:1 plane from the bottom of the footing to 1 foot below finish grade.

5. The upper foot of backfill behind all retaining walls should consist of native soil, except in areas where pavement or exterior pedestrian flatwork will abut the top of the wall. In such cases, the gravel should extend to the aggregate base or other material below the improved surface, as appropriate. If gravel backfill is utilized, the gravel should be encased in a permeable synthetic filter fabric conforming to standard specification section 96-1.02B – Class C (Caltrans 2022a).

6. The active and at-rest pressures presented in Table 2 are applicable to a horizontal retained surface behind the wall. Walls having a retained surface that slopes upward from the wall should be designed for an additional equivalent fluid pressure of 1 pcf for the active case and 1.5 pcf for the at-rest case, for every degree of slope inclination.

7. It is assumed that retaining wall heights will not exceed 6 feet; therefore, per Section 1803A.5.12.1 of the 2022 CBC, dynamic seismic lateral earth pressures are not required. If retaining walls are planned that will retain more than 6 feet of backfill, the geotechnical engineer should be notified to provide dynamic seismic lateral earth pressure increments, as needed.

8. Long-term settlement of properly compacted imported sand or gravel retaining wall backfill should be assumed to be about 0.25 to 0.5 percent of the depth of the backfill. Long-term settlement of properly compacted site soils should be assumed to be approximately double that of imported sand. Improvements that are constructed near the tops of retaining walls should be designed to accommodate long-term settlement.

9. All retaining walls should be drained with perforated pipe encased in a free-draining gravel blanket. The pipe should be placed with perforations facing downward and should discharge in a nonerosive manner away from foundations and other improvements. The gravel blanket should have a width of approximately 1 foot and should extend upward to approximately 1 foot from the top of the wall backfill. The upper foot should be backfilled with native soil, except in areas where pavement or exterior pedestrian flatwork will abut the top of the wall. In such cases, the gravel should extend to the imported nonexpansive material, sand, aggregate base, or other material below the improved surface, as appropriate. To reduce infiltration of the soil into the gravel, a permeable synthetic filter fabric conforming to Standard Specifications Section 96-1.02B – Class C (Caltrans 2022a), should be placed between the two materials. Manufactured synthetic drains, such as Miradrain or Enkadrain are acceptable alternatives to the use of gravel, provided that they are installed in accordance with the recommendations of the manufacturer.

10. Where weep hole drainage can be properly discharged, the perforated pipe may be omitted in lieu of weep holes on maximum 4-foot centers. A filter fabric as described above should be placed between the weep holes and the drain gravel.

11. Walls facing areas where moisture transmission through the wall would be undesirable should be thoroughly waterproofed in accordance with the specifications of the architect/engineer.

12. The architect/engineer should bear in mind that retaining walls by their nature are flexible structures, and that surface treatments on walls often crack. Where walls are to be plastered or otherwise have a finish applied, the flexibility should be considered in determining the suitability of the surfacing material, spacing of horizontal and vertical control joints, etc. The flexibility should also be considered where a retaining wall will abut or be connected to a rigid structure, and where the geometry of the wall is such that its flexibility will vary along its length.

13. The Soil Corrosivity Study by HDR, Inc. in Appendix D should be used by the architect/engineer in specifying appropriate corrosion protection measures for retaining walls.

14. The architect/engineer should incorporate appropriate measures in the design of retaining walls to mitigate the moderate potential for radon.

Vehicle Pavement

HMA Pavement

An R-value, or resistance to deformation under repeated loading, test was performed on a sample of the soil expected to be exposed at subgrade in the planned parking and driveway area; the test yielded a result of 19. The following HMA (flexible) pavement sections are based upon the tested R-value and assumed Traffic Indices (TIs) of 4.0 through 6.0. Determination of the appropriate TI for specific areas of the project is left to others. The HMA sections were calculated in accordance with the method presented in the “Highway Design Manual” (Caltrans 2022b). The calculated HMA and Class 2 AB thicknesses are for compacted material. Normal Caltrans construction tolerances should apply.

HMA Pavement Sections

Traffic Index	HMA* (in)	Class 2 AB** (in)
4.0	2.25	6.0
4.5	2.50	7.0
5.0	2.75	8.0
5.5	3.00	9.0
6.0	3.25	10.0

*Per Caltrans (2022b) Section 39
**Per Caltrans (2022b) Section 26

PCC Pavement

1. If unreinforced Portland cement concrete pavement is planned, the following minimum section is recommended:
    - 8 inches plain PCC (4,000 psi minimum compressive strength)
    - Joint spacing at 10 to 12 feet on-center each way
    - No. 4 smooth joint dowels at 12-inch centers
    - 12 inches Class 2 AB and subgrade compacted to a minimum of 95 percent of maximum dry density

2. If reinforced concrete pavement is planned, the following minimum section may be used:
    - 6 inches PCC (4,000 psi minimum compressive strength)
    - Joint spacing at 10 to 12 feet on-center each way
    - No. 4 rebar at 18-inch centers each way
    - No. 4 smooth joint dowels at 18-inch centers
    - 12 inches Class 2 AB and subgrade compacted to a minimum of 95 percent of maximum dry density

3. Alternately, the pavement may be designed by the architect/engineer for the appropriate loads. Provided that a minimum of 12 inches of AB compacted to a minimum of 95 percent of maximum dry density is provided, the design may be based on a subgrade modulus (K_{30}) of 200 pci (psi/in). Specification of concrete properties and reinforcing is left to the architect/engineer.

Pavement Sections - General

1. HMA and PCC pavement should be constrained by curbs, gutters, flatwork, walls, etc.; free edges to the pavement should be avoided.

2. HMA and PCC pavement should be set back a minimum of 7 feet from any descending slope. Alternately, deepened curbs may be used to constrain the pavement. Where curbs will be deepened in lieu of the recommended setback, the individual situation should be reviewed and specific recommendations prepared by the geotechnical engineer.

3. Deepened curbs and/or cut-off walls should be utilized where pavement will be located adjacent to any LID/BMP drainage systems, to reduce the potential for drainage-related damage to the pavement. Details for the design of such systems should be reviewed and appropriate recommendations should be provided by the geotechnical engineer based on the particular system design.

4. Subgrade and AB should be firm and unyielding when proof-rolled with heavy, rubber-tired grading equipment prior to continuing construction.

5. Finished pavement surfaces should be sloped to freely drain toward appropriate drainage facilities. Water should not be allowed to stand or pond on or adjacent to pavement, as it could cause premature pavement deterioration or improvement damage.

6. To reduce migration of surface drainage into the subgrade, maintenance of pavement areas is critical. Any cracks that develop in the pavement should be promptly sealed.

7. The Soil Corrosivity Study by HDR, Inc. in Appendix D should be used by the architect/engineer in specifying appropriate corrosion protection measures for pavement sections.

8. The architect/engineer should incorporate appropriate measures in the design of pavement sections to mitigate the moderate potential for radon.

9. The local jurisdiction may have additional requirements for pavement that could take precedence over the above recommendations.

Drainage and Maintenance

1. Per Section 1804A.4 of the 2022 CBC, unpaved ground surfaces should be *finish graded* to direct surface runoff away from foundations and other improvements at a minimum 5

percent grade for a minimum distance of 10 feet. The site should be similarly sloped to drain away from foundations, and other improvements during construction. Where this is not practicable due to other improvements, etc., swales with improved surfaces, area drains, or other drainage facilities, should be used to collect and discharge runoff.

2. All eaves of the building should be fitted with roof gutters. Runoff from flatwork, roof gutters, downspouts, planter drains, area drains, etc. should discharge in a non-erosive manner away from foundations and other improvements in accordance with the requirements of the governing agencies. Erosion protection should be placed at all discharge points unless the discharge is to a pavement surface.

3. To reduce the potential for planter drainage gaining access to subslab areas, any raised planter boxes adjacent to foundations should be installed with drains and sealed sides and bottoms. Drains should also be provided for areas adjacent to the structures and in landscape areas that would not otherwise freely drain.

4. If soils are disturbed during construction, stabilization of soils by vegetation or other means, *during* and *following* construction, is essential to reduce erosion damage. Care should be taken to establish and maintain vegetation. The landscaping should be planned and installed to maintain the surface drainage recommended above. Surface drainage should also be maintained during construction.

5. Maintenance of drainage and other improvements is critical to the long-term stability of the site and the integrity of the structures. Site improvements should be maintained on a regular basis.

6. Finished flatwork surfaces should be sloped to freely drain toward appropriate drainage facilities. Water should not be allowed to stand or pond on or adjacent to exterior pedestrian flatwork, or other improvements as it could infiltrate into the AB and/or subgrade, causing premature deterioration of flatwork or other improvements.

7. All exterior drains, retaining wall drains, and drain outlets should be maintained to be free-flowing. Care should be taken to establish and maintain vegetation. Vegetation and erosion matting (if utilized) should be maintained or augmented as needed. Irrigation systems should be maintained so that soils around structures are maintained at a relatively uniform year-round moisture content and are neither over-watered nor allowed to dry and desiccate.

8. To reduce the potential for disruption of drainage patterns and undermining of structures, fill areas, etc., all rodent activity should be aggressively controlled.

Observation and Testing

1. It must be recognized that the recommendations contained in this report are based on a limited number of borings and rely on continuity of the subsurface conditions encountered.

2. It is assumed that the geotechnical engineer will be retained to provide consultation during the design phase, to interpret this report during construction, and to provide construction monitoring in the form of testing and observation.

3. At a minimum, the geotechnical engineer and/or engineering geologist should be retained to provide:

    - Review of project plans and specifications, including details for LID/BMP systems adjacent to pavement
    - Professional observation during grading, trench and retaining wall backfill, foundation construction and pavement section installation
    - Oversight of special inspection and compaction testing during grading, trench and retaining wall backfill, foundation construction and pavement section construction

4. Special inspection of grading and backfill should be provided as per Section 1705A.6 and Table 1705A.6 of the 2022 CBC. The special inspector should be under the direction of the geotechnical engineer and/or the engineering geologist. At a minimum, the following items should be inspected and/or tested by the special inspector:

    - Stripping and clearing of all existing improvements, vegetation, and deleterious materials
    - Overexcavation to the recommended depths
    - Scarification, moisture conditioning and recompaction of excavated areas
    - Fill quality, placement, moisture conditioning and compaction
    - Cut slope conditions and the need for slope reconstruction
    - Utility trench backfill, moisture conditioning and compaction
    - Foundation excavations

- Retaining wall drains and backfill
- Pavement subgrade and AB compaction and proof rolling

5. A program of quality assurance should be developed prior to beginning construction. At a minimum, the program should include all geotechnical items shown on the testing and inspection schedule of the approved plans. It should also include any additional inspection items required by the engineer and/or the governing jurisdiction. These items should be discussed at a preconstruction site meeting among a representative of the owner, the geotechnical engineer, special inspector, the project inspector, the engineer, and contractors. The geotechnical engineer should be notified at least 48 hours prior to beginning grading operations.

6. Locations and frequency of compaction tests should be per the recommendation of the geotechnical engineer at the time of construction. The recommended test location and frequency may be subject to modification by the geotechnical engineer, based upon soil and moisture conditions encountered, size and type of equipment used by the contractor, the general trend of the results of compaction tests, or other factors.

12.0 CLOSURE

Our intent was to perform the investigation in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the locality of this project under similar conditions. No representation, warranty, or guarantee is either expressed or implied. This report is intended for the exclusive use by the client as discussed in the “Scope of Services” Section. Application beyond the stated intent is strictly at the user's risk.

This report is valid for conditions as they exist at this time for the type of project described herein. The conclusions and recommendations contained in this report could be rendered invalid, either in whole or in part, due to changes in building codes, regulations, standards of geotechnical or construction practice, changes in physical conditions, or the broadening of knowledge.

If changes with respect to the project become necessary, if items not addressed in this report are incorporated into plans, or if any of the assumptions used in the preparation of this report are not correct, this firm shall be notified for modifications to this report. Any items not specifically addressed in this report should comply with the CBC of other applicable standards, and the requirements of the governing jurisdiction.

The recommendations presented in this geotechnical report are based upon the geotechnical conditions encountered at the site and may be augmented by additional requirements of the client, or by additional recommendations provided by the geotechnical engineer based on peer or jurisdiction reviews, or conditions exposed at the time of construction. If Earth Systems Pacific is *not* retained to provide construction observation and testing services, it shall not be responsible for the interpretation of the information by others or any consequences arising therefrom.

Thank you for this opportunity to have been of service. If you have any questions, please feel free to contact this office at your convenience.

End of Text.

TECHNICAL REFERENCES

ACI (American Concrete Institute). 2015. *Guide for Concrete Floor and Slab Construction*. Documents 302.1R-15.

ACI (American Concrete Institute). 2019. *Building Code Requirements for Structural Concrete.* Document 318-19.

ANSS (Advanced National Seismic System). 2023. *Comprehensive Earthquake Catalog*. Accessed at https://earthquake.usgs.gov/earthquakes/search/

ASCE (American Society of Civil Engineers). 2017. *Minimum Design Loads for Buildings and other Structures (7-16), Standards ASCE/SEI 7-16*.

ASCE (American Society of Civil Engineers). 2018. *Minimum Design Loads for Buildings and other Structures Supplement 1,* effective December 12, 2018.

ASCE (American Society of Civil Engineers). 2021. *Minimum Design Loads for Buildings and other Structures, Supplement 3,* Effective November 5, 2021.

ASCE (American Society of Civil Engineers). 2022. *ASCE Tsunami Design Geodatabase, V.2022*. Accessed at: https://asce7tsunami.online/

BSSC (Building Seismic Safety Council). 2014. *NEHRP Recommended Seismic Provisions for New Buildings and Other Structures, Volume 1: Part 1 Provisions, Part 2 Commentary*, FEMA P-1050-1, Washington, D.C., 555 pp.

California, State of. 1972. *Alquist-Priolo Earthquake Fault Zoning Act*. Department of Conservation, California Public Resources Code, Division 2, Chapter 7.5.

Caltrans (California Department of Transportation). 2022a. *Standard Specifications*.

Caltrans (California Department of Transportation). 2022b. *Highway Design Manual*. Chapter 630, Flexible Pavement.

Cao, Tianqing; Bryant, William A.; Rowshandel, Badie; Branum, David; and Wills, Christopher J. June 2003. *The Revised 2002 California Probabilistic Seismic Hazard Maps.*

CARB (California Air Resources Board). July 29, 2002. *Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations*

CBSC (California Building Safety Council). 2022. *California Building Code.*

CDMG (California Division of Mines and Geology) 1990. *State of California Special Studies Zones, San Luis Obispo Quadrangle.* Official Map, Effective January 1, 1990, scale 1:24,000.

TECHNICAL REFERENCES (continued)

CDMG (California Division of Mines and Geology). 1986a. *State of California Special Studies Zones, Cholame Quadrangle.* Official Map, Effective July 1, 1986, scale 1:24,000.

CDMG (California Division of Mines and Geology). 1986b. *State of California Special Studies Zones, Piedras Blancas Quadrangle.* Official Map, Effective July 1, 1986, scale 1:24,000.

CDMG (California Division of Mines and Geology). 1986c. *State of California Special Studies Zones, San Simeon Quadrangle.* Official Map, Effective July 1, 1986, scale 1:24,000.

CDMG (California Division of Mines and Geology). 1986d. *State of California Special Studies Zones, Zaca Creek Quadrangle.* Official Map, Effective July 1, 1986, scale 1:24,000.

CDWR (California Department of Water Resources). 2023. *Water Data Library,* accessed at http://water.ca.gov/waterdatalibrary/

CGS (California Geologic Survey). 2018. *Earthquake Fault Zones - A Guide for Government Agencies, Property Owners/Developers, and Geoscience Practitioners for Assessing Fault Rupture Hazards in California*. Special Publication 42.

CGS (California Geologic Survey). 2022. *Checklist for Review of Engineering Geology and Seismology Reports for California Public Schools, Hospitals, and Essential Services Buildings*. Note 48.

CGS (California Geological Survey). 2002. *California Geomorphic Provinces*. Note 36.

CGS (California Geological Survey). 2023. Data Viewer and interactive web-based portal to State geologic hazards and map data. Accessed at https://maps.conservation.ca.gov/geologichazards/DataViewer/index.html

CGS (California Geological Survey). July 8, 2021. *Tsunami Hazard Area Map, County of San Luis Obispo*, produced by the California Geological Survey and the Governor's Office of Emergency Services, displayed at multiple scales.

Churchill, Ronald K. 2008. *Radon Potential in San Luis Obispo County.* California Geological Survey Special Report 208,

CLAD (Clad Consulting). 2023. *Preliminary Grading Plan, Arroyo Grande High School, Practice Gymnasium.*

Dibblee, Thomas W. Jr. 2006. *Geologic Map of the Oceano Quadrangle, San Luis Obispo California*. Dibblee Geology Center Map #DF-209, scale 1:24,000

DSA (Division of the State Architect). 2021. *IR A-4. Geohazard Report Requirements: 2019 California Building Code.*

TECHNICAL REFERENCES (continued)

EERI (Earthquake Engineering Research Institute). 2005. *The San Simeon, California, Earthquake, December 22, 2003*. Report #2005-01.

ESP (Earth Systems Pacific. December 2013. *Native Soil Assessment for Small Infiltration-Based Stormwater Control Measures*. Prepared for the Central Coast Low Impact Development Initiative. Accessed at: http://www.waterboards.ca.gov/rwqcb3/water_issues/programs/stormwater/docs/lid/hydromod_lid_docs/infiltration_methodologies_12_19_13.pdf

FEMA (Federal Emergency Management Association). November 16, 2012. *Flood Insurance Rate Map No. 06079C1602G.*

Google Earth. 2023. Google Earth [website]. Accessed at http://www.google.com/earth/index.html

Hall, Clarence A. Jr. 1973. *Geology of the Arroyo Grande 15' Quadrangle, San Luis Obispo County, California*. CDMG Map Sheet 24, scale 1:48,000.

Harris (Harris Architecture & Design). January 21, 2023. *Arroyo Grande Rec Center, Practice Gymnasium, Floor Plan.*

Harris (Harris Architecture & Design). October 21, 2022. *Arroyo Grande Rec Center, Practice Gymnasium, Site Plan.*

Hart, E. W. and W. A. Bryant. 2007 revised. *Fault-Rupture Hazard Zones in California.* California Division of Mines and Geology Special Publication 42.

Helmberger, D.V., P. G. Somerville and E. Garnero. 1992. *The Location and Source Parameters of the Lompoc, California Earthquake of 4 November 1927*. Bulletin of the Seismological Society of America, Vol. 82 No. 4, pp. 1678-1709, August 1992.

Holland, Peter J. 2013. *Preliminary Geologic Map of the Oceano 7.5' Quadrangle, San Luis Obispo County, California*. A Digital Database, scale 1:24,000

Lettis, W. R., and T. N. Hall. 1994. *The Los Osos Fault Zone, San Luis Obispo County, California*. Geological Society of America, Special Paper 292, Ina B. Alterman, Richard B. McMullen, Lloyd S. Cluff, and D. Burton Slemmons eds.

Lettis, W.R., Hanson, K.L., Unruh, J.R., McLaren, M., and Savage, W.U. 2004. *Quaternary Tectonic Setting of South-Central Coastal California*. in Keller, M.A. (editor), Evolution of Sedimentary Basins/Offshore Oil and Gas Investigations—Santa Maria Province, U.S. Geological Survey Bulletin 1995-AA, 24 pp.; http://pubs.usgs.gov/ bul/1995/aa/.

TECHNICAL REFERENCES (continued)

PEER (Pacific Earthquake Engineering Research Center). 2015. *Next Generation Attenuation (NGA)-West ground motion attenuation models and database*. Accessed at https://ngawest2.berkeley.edu/

SCEDC (Southern California Earthquake Data Center). 2020. *Significant Earthquakes and Faults*, Chronological Earthquake index. Accessed at: https://scedc.caltech.edu/significant/lompoc1927.html

SEAOC (Structural Engineers Association of California). 2023. *Seismic Design Map Tool*. Accessed at: https://seismicmaps.org/

SLOCO (San Luis Obispo, County of). 2023. *Land Use View*. Department of Planning and Building interactive web. Accessed at: https://www.slocounty.ca.gov/Departments/Planning-Building/Information-Systems/Services/Land-Use-View.aspx.

Treiman, J. A. 1989. *Fault Evaluation Report FER-200, Los Osos Fault Zone, San Luis Obispo County, California.* California Division of Mines and Geology, Fault Evaluation Report FER-200.

USGS (United States Geological Survey). 2013. *The Uniform California Earthquake Rupture Forecast, Version 3 (UCERF3) – The Time Dependent Model*. USGS Open File Report 2013-1165.

USGS (United States Geological Survey). 2014. *Earthquake Scenario Map - An interactive web-based application to access possible earthquake event scenarios.* Accessed at https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=14d2f75c7c4f4619936dac0d14e1e468

USGS (United States Geological Survey). 2023a. *The National Map, a web-based interactive tool to access public domain mapping products and data*. Accessed at: https://viewer.nationalmap.gov/advanced-viewer/

USGS (United States Geological Survey). 2023b. *Unified Hazard Tool*. United States Geological Survey. Accessed at: http://earthquake.usgs.gov/hazards/interactive/

USGS (United States Geological Survey). August 5, 2019. *Earthquake Hazards, M7.9 1857 Fort Tejon Earthquake, The Last "Big One" in Southern California*.

APPENDIX A

Figure 1 – Site Vicinity Map
Figure 2 - Exploration Location Map
Boring Log Legend
Boring Logs

BASE MAP PROVIDED BY: GOOGLE EARTH (2023)

N

NOT TO SCALE

Earth Systems Pacific
4378 Old Santa Fe Road, San Luis Obispo, CA 93401
www.earthsystems.com
(805) 544-3276 ● Fax (805) 544-1786

SITE VICINITY MAP

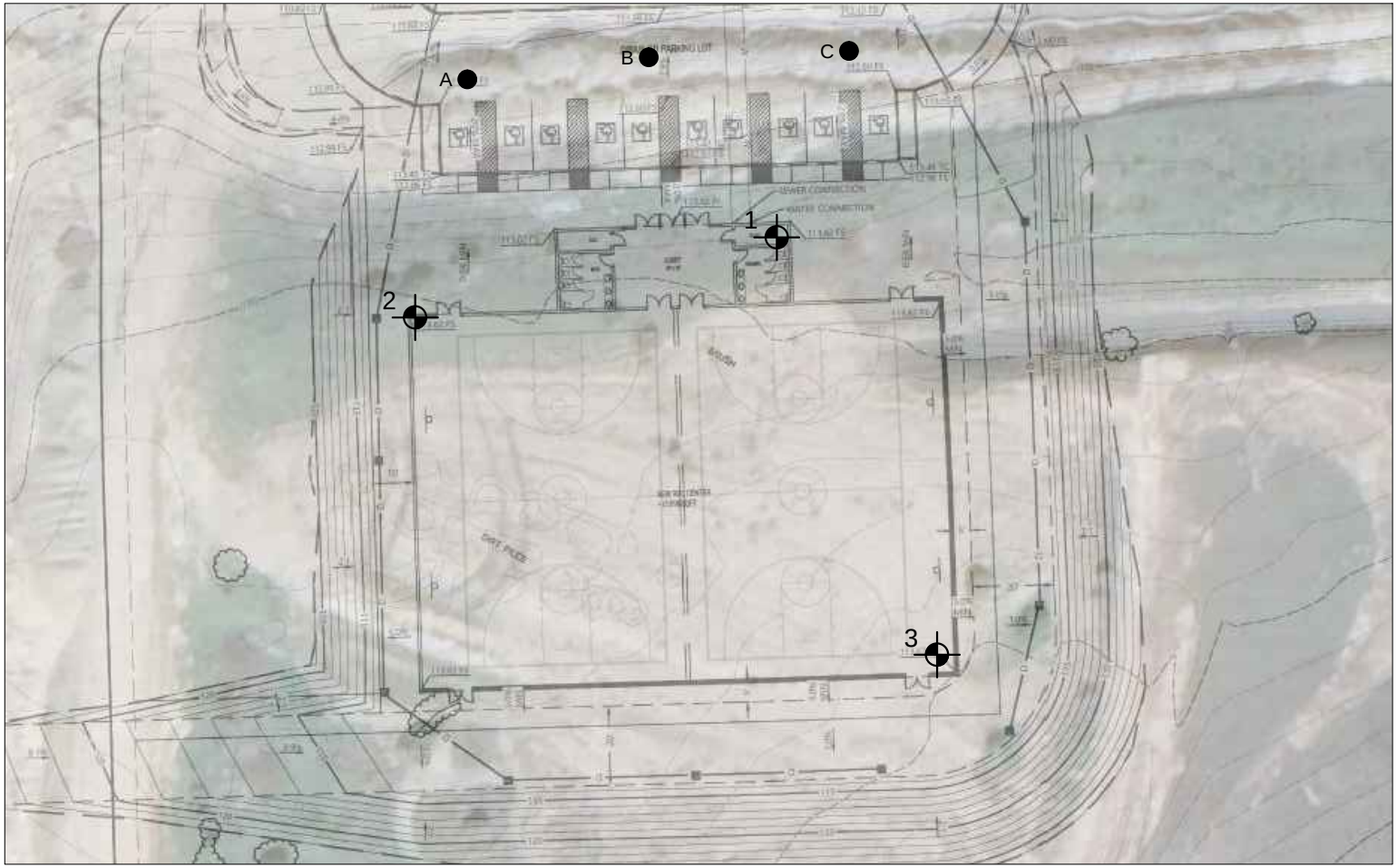
Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

Date
April 2023

Project No.
301882-024

Figure 1

Maps – 301882-024 AG HS Practice Gym.dwg



LEGEND

Boring Location (Approx.)

LID Test Location (Approx.)

BASE MAP PROVIDED BY: CLAD CONSULTING (2023) AND GOOGLE EARTH (2023)

NOT TO SCALE

Earth Systems Pacific
4378 Old Santa Fe Road, San Luis Obispo, CA 93401
www.earthsystems.com
(805) 544-3276 • Fax (805) 544-1786

EXPLORATION LOCATION MAP

Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

Date
April 2023

Project No.
301882-024

Figure 2

Maps – 301882-024 AG HS Practice Gym.dwg

Earth Systems Pacific

BORING LOG LEGEND

SAMPLE / SUBSURFACE WATER SYMBOLS	GRAPH. SYMBOL
CALIFORNIA MODIFIED	
STANDARD PENETRATION TEST (SPT)	
SHELBY TUBE	
BULK	
SUBSURFACE WATER DURING DRILLING	
SUBSURFACE WATER AFTER DRILLING	

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

MAJOR DIVISIONS	GROUP SYMBOL	TYPICAL DESCRIPTIONS	GRAPH. SYMBOL
COARSE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS LARGER THAN #200 SIEVE SIZE)	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
	GP	POORLY GRADED GRAVELS, OR GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, NON-PLASTIC FINES	
	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, PLASTIC FINES	
	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
	SP	POORLY GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES	
	SM	SILTY SANDS, SAND-SILT MIXTURES, NON-PLASTIC FINES	
	SC	CLAYEY SANDS, SAND-CLAY MIXTURES, PLASTIC FINES	
FINE GRAINED SOILS (HALF OR MORE OF MATERIAL IS SMALLER THAN #200 SIEVE SIZE)	ML	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
	PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	

OBSERVED MOISTURE CONDITION

DRY	SLIGHTLY MOIST	MOIST	VERY MOIST	WET (SATURATED)

CONSISTENCY

COARSE GRAINED SOILS			FINE GRAINED SOILS		
BLOWS/FOOT		DESCRIPTIVE TERM	BLOWS/FOOT		DESCRIPTIVE TERM
SPT	CA SAMPLER		SPT	CA SAMPLER	
0-10	0-16	LOOSE	0-2	0-3	VERY SOFT
11-30	17-50	MEDIUM DENSE	3-4	4-7	SOFT
31-50	51-83	DENSE	5-8	8-13	MEDIUM STIFF
OVER 50	OVER 83	VERY DENSE	9-15	14-25	STIFF
			16-30	26-50	VERY STIFF
			OVER 30	OVER 50	HARD

GRAIN SIZES

U.S. STANDARD SERIES SIEVE				CLEAR SQUARE SIEVE OPENING		
# 200	# 40	# 10	# 4	3/4"	3"	12"

SILT & CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

TYPICAL BEDROCK HARDNESS

MAJOR DIVISIONS	TYPICAL DESCRIPTIONS
EXTREMELY HARD	CORE, FRAGMENT, OR EXPOSURE CANNOT BE SCRATCHED WITH KNIFE OR SHARP PICK; CAN ONLY BE CHIPPED WITH REPEATED HEAVY HAMMER BLOWS
VERY HARD	CANNOT BE SCRATCHED WITH KNIFE OR SHARP PICK; CORE OR FRAGMENT BREAKS WITH REPEATED HEAVY HAMMER BLOWS
HARD	CAN BE SCRATCHED WITH KNIFE OR SHARP PICK WITH DIFFICULTY (HEAVY PRESSURE); HEAVY HAMMER BLOW REQUIRED TO BREAK SPECIMEN
MODERATELY HARD	CAN BE GROOVED 1/16 INCH DEEP BY KNIFE OR SHARP PICK WITH MODERATE OR HEAVY PRESSURE; CORE OR FRAGMENT BREAKS WITH LIGHT HAMMER BLOW OR HEAVY MANUAL PRESSURE
SOFT	CAN BE GROOVED OR GOUGED EASILY BY KNIFE OR SHARP PICK WITH LIGHT PRESSURE, CAN BE SCRATCHED WITH FINGERNAIL; BREAKS WITH LIGHT TO MODERATE MANUAL PRESSURE
VERY SOFT	CAN BE READILY INDENTED, GROOVED OR GOUGED WITH FINGERNAIL, OR CARVED WITH KNIFE; BREAKS WITH LIGHT MANUAL PRESSURE

TYPICAL BEDROCK WEATHERING

MAJOR DIVISIONS	TYPICAL DESCRIPTIONS
UNWEATHERED	NO DISCOLORATION, NOT OXIDIZED
SLIGHTLY WEATHERED	DISCOLORATION OR OXIDATION IS LIMITED TO SURFACE OF, OR SHORT DISTANCE FROM, FRACTURES: SOME FELDSPAR CRYSTALS ARE DULL
MODERATELY WEATHERED	DISCOLORATION OR OXIDATION EXTENDS FROM FRACTURES, USUALLY THROUGHOUT; Fe-Mg MINERALS ARE "RUSTY", FELDSPAR CRYSTALS ARE "CLOUDY"
HIGHLY WEATHERED	DISCOLORATION OR OXIDATION THROUGHOUT; FELDSPAR AND Fe-Mg MINERALS ARE ALTERED TO CLAY TO SOME EXTENT, OR CHEMICAL ALTERATION PRODUCES IN SITU DISAGGREGATION
DECOMPOSED	DISCOLORATION OR OXIDATION THROUGHOUT, BUT RESISTANT MINERALS SUCH AS QUARTZ MAY BE UNALTERED; FELDSPAR AND Fe-Mg MINERALS ARE COMPLETELY ALTERED TO CLAY

drafting/masters/Boring Log Legend 062719.dwg

Earth Systems Pacific

Boring No. 1

LOGGED BY: T. Robison
DRILL RIG: Mobile B-53 with Automatic Hammer
AUGER TYPE: 6" Hollow Stem

JOB NO.: 301882-024
DATE: 4/19/2023

Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	CL		LEAN CLAY: dark brown, medium stiff, slightly moist (Fill)					
5			trace gravel, very moist	5.0 - 6.5	■	80.3	33.3	3 4 4
6				6.5 - 10.0	○			
10	SP		POORLY GRADED SAND: brown, medium dense, slightly moist, trace gravel (Older Alluvium)	10.0 - 11.5	■	109.5	13.7	5 10 10
15				15.0 - 16.5	■	102.9	18.8	12 28 50/6"
16	SW-SC		WELL GRADED SAND WITH CLAY AND GRAVEL: brown with orange and white mottles, very dense, slightly moist					
20				20.0 - 21.5	●		17.6	12 22 36
22			▽					
25			METAVOLCANIC ROCK: black with olive mottles, moderately hard to hard, moderate to highly weathered, slightly moist (Franciscan Melange)	25.0 - 26.5	●		36.1	37 50/4"

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

Boring No. 1

LOGGED BY: T. Robison
DRILL RIG: Mobile B-53 with Automatic Hammer
AUGER TYPE: 6" Hollow Stem

JOB NO.: 301882-024
DATE: 4/19/2023

Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

SOIL DESCRIPTION

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
27 - 28 - 29 - 30 - 31 -			METAVOLCANIC ROCK: same as above wet	30.0 - 31.5	●			18 30 50/6"
32 - 33 - 34 - 35 - 36 - 37 - 38 - 39 - 40 - 41 - 42 - 43 - 44 - 45 - 46 - 47 - 48 - 49 - 50 - 51 - 52 - 53 -			End of Boring @ 31.5' Subsurface water encountered at 28.5' during drilling and at 22.5' after drilling					

LEGEND: ■ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

Boring No. 2

LOGGED BY: T. Robison
DRILL RIG: Mobile B-53 with Automatic Hammer
AUGER TYPE: 6" Hollow Stem

JOB NO.: 301882-024
DATE: 4/19/2023

Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	CL		SANDY LEAN CLAY: dark brown, stiff, moist (Fill)					
5				5.0 - 6.5	■	102.1	21.9	3, 6, 12
7				6.5 - 10.0	○			
10				10.0 - 11.5	■	85.8	34.9	5, 9, 12
11	SP-SC		POORLY GRADED SAND WITH CLAY AND GRAVEL, brown with orange mottles, medium dense, very moist (Older Alluvium)					
15				15.0 - 16.5	■	105.4	18.0	16, 27, 35
16	SW-SC		WELL GRADED SAND WITH CLAY AND GRAVEL: brown with orange and white mottles, dense, moist					
20				20.0 - 21.5	■	105.3	18.0	19, 38, 50/5"
22			End of Boring @ 21.5' No subsurface groundwater encountered					

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

Boring No. 3

LOGGED BY: T. Robison
DRILL RIG: Mobile B-53 with Automatic Hammer
AUGER TYPE: 6" Hollow Stem

JOB NO.: 301882-024
DATE: 4/19/2023

Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	CL		SANDY LEAN CLAY: dark brown, medium stiff, slightly moist (Fill)					
5				5.0 - 6.5	■	104.6	17.7	PUSH 4 9
10	SC CL		CLAYEY SAND WITH GRAVEL: brown with orange mottles, medium dense, slightly moist. (Older Alluvium)	10.0 - 11.5	■	95.5	27.6	8 15 25
12			LEAN CLAY: gray with orange mottles, very stiff, slightly moist	12.0 - 15.0	○			
15	SW-SC		WELL GRADED SAND WITH CLAY AND GRAVEL: brown with orange and white mottles, very dense, slightly moist	15.0 - 16.5	■	101.5	18	16 38 50/5"
20				20.0 - 21.5	●		14.7	10 16 20
24			▽					
25			METAVOLCANIC ROCK: dark brown with orange and white mottles, soft to very soft, intensely weathered, moist (Franciscan Melange)	25.0 - 26.5	●		34.6	7 5 8

LEGEND: ■ Ring Sample ○ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

Boring No. 3

LOGGED BY: T. Robison
DRILL RIG: Mobile B-53 with Automatic Hammer
AUGER TYPE: 6" Hollow Stem

JOB NO.: 301882-024
DATE: 4/19/2023

Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

SOIL DESCRIPTION

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
27			METAVOLCANIC ROCK: same as above					
28								
29			▼					
30			black with olive mottles, soft to moderately hard, moderately weathered	30.0 - 31.5	■	81.6	37.6	18 50/6"
31								
32								
33								
34								
35				35.0 - 35.5	●		31.3	50/6"
36			End of Boring @ 35.5' Subsurface water encountered at 29.5' during drilling and at 24' after drilling					
37								
38								
39								
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								
50								
51								
52								
53								

LEGEND: ■ Ring Sample ◯ Grab Sample ▭ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

APPENDIX B

LID Infiltration Test Results

PROJECT: Arroyo Grande High School Practice Gym **JOB NO.: 301882-024**

INFILTRATION TEST RESULTS

Infiltration Test: A - 4'

Date Drilled:	**4/19/2023**	**Test Hole Diameter (in):**	**6**
Date Tested:	**4/21/2023**	**Test Hole Depth (in):**	**48**
Technician:	**AF**	**Pipe Length (in):**	**60**
Duration:	**4 hours**	**Pipe Diameter (in):**	**4**
Datum (in):	**12**	**Gravel Depth (in):**	**48**
Constant Head Test Results		**Volume to Fill Boring (gal):**	**6**
Time (min):	**30**	**Input to Maintain Constant Head (gal):**	**1**
		Depth to Water from Datum (in):	**13**

TIME INTERVAL (Minutes)	WATER LEVEL READING (Inches)	INCREMENTAL FALL (Inch)	INFILTRAION RATE (Minutes / Inch)	INFILTRATION RATE (Inches / Hour)
BEGIN	13.00	---	---	---
5	15.25	2.25	2.2	27.0
5	17.75	2.50	2.0	30.0
5	20.00	2.25	2.2	27.0
5	21.75	1.75	2.9	21.0
5	24.25	2.50	2.0	30.0
5	26.00	1.75	2.9	21.0
10	29.75	3.75	2.7	22.5
10	33.00	3.25	3.1	19.5
10	36.00	3.00	3.3	18.0
10	38.25	2.25	4.4	13.5
10	40.00	1.75	5.7	10.5
10	42.00	2.00	5.0	12.0
10	43.25	1.25	8.0	7.5
20	46.25	3.00	6.7	9.0
20	48.75	2.50	8.0	7.5
20	50.75	2.00	10.0	6.0
30	53.25	2.50	12.0	5.0
30	55.75	2.50	12.0	5.0
20	57.00	1.25	16.0	3.8

PROJECT: Arroyo Grande High School Practice Gym **JOB NO.: 301882-024**

INFILTRATION TEST RESULTS

Infiltration Test: B - 5'

Date Drilled:	**4/19/2023**	**Test Hole Diameter (in):**	**6**
Date Tested:	**4/21/2023**	**Test Hole Depth (in):**	**57**
Technician:	**AF**	**Pipe Length (in):**	**60**
Duration:	**4 hours**	**Pipe Diameter (in):**	**4**
Datum (in):	**3**	**Gravel Depth (in):**	**57**
Constant Head Test Results		**Volume to Fill Boring (gal):**	**6.25**
Time (min):	**30**	**Input to Maintain Constant Head (gal):**	**2**
		Depth to Water from Datum (in):	**2**

TIME INTERVAL (Minutes)	WATER LEVEL READING (Inches)	INCREMENTAL FALL (Inch)	INFILTRAION RATE (Minutes / Inch)	INFILTRATION RATE (Inches / Hour)
BEGIN	2.00	---	---	---
5	3.50	1.50	3.3	18.0
5	4.00	0.50	10.0	6.0
5	4.75	0.75	6.7	9.0
5	5.25	0.50	10.0	6.0
5	6.00	0.75	6.7	9.0
5	6.50	0.50	10.0	6.0
10	8.00	1.50	6.7	9.0
10	9.00	1.00	10.0	6.0
10	10.25	1.25	8.0	7.5
10	11.75	1.50	6.7	9.0
10	12.75	1.00	10.0	6.0
10	14.00	1.25	8.0	7.5
10	15.00	1.00	10.0	6.0
20	17.25	2.25	8.9	6.8
20	19.25	2.00	10.0	6.0
20	21.25	2.00	10.0	6.0
30	24.00	2.75	10.9	5.5
30	27.00	3.00	10.0	6.0
30	28.75	1.75	17.1	3.5

PROJECT: Arroyo Grande High School Practice Gym **JOB NO.: 301882-024**

INFILTRATION TEST RESULTS

Infiltration Test: C - 6'

Date Drilled:	**4/19/2023**	**Test Hole Diameter (in):**	**6**
Date Tested:	**4/21/2023**	**Test Hole Depth (in):**	**73**
Technician:	**AF**	**Pipe Length (in):**	**85**
Duration:	**4 hours**	**Pipe Diameter (in):**	**4**
Datum (in):	**12**	**Gravel Depth (in):**	**73**
Constant Head Test Results		**Volume to Fill Boring (gal):**	**7.5**
Time (min):	**30**	**Input to Maintain Constant Head (gal):**	**1.25**
		Depth to Water from Datum (in):	**10**

TIME INTERVAL (Minutes)	WATER LEVEL READING (Inches)	INCREMENTAL FALL (Inch)	INFILTRAION RATE (Minutes / Inch)	INFILTRATION RATE (Inches / Hour)
BEGIN	10.00	---	---	---
5	12.00	2.00	2.5	24.0
5	13.50	1.50	3.3	18.0
5	15.00	1.50	3.3	18.0
5	16.75	1.75	2.9	21.0
5	18.00	1.25	4.0	15.0
5	19.25	1.25	4.0	15.0
10	22.00	2.75	3.6	16.5
10	24.50	2.50	4.0	15.0
10	27.00	2.50	4.0	15.0
10	29.75	2.75	3.6	16.5
10	32.00	2.25	4.4	13.5
10	34.25	2.25	4.4	13.5
10	36.50	2.25	4.4	13.5
20	40.75	4.25	4.7	12.8
20	44.75	4.00	5.0	12.0
20	48.50	3.75	5.3	11.3
30	53.75	5.25	5.7	10.5
30	58.00	4.25	7.1	8.5
20	60.25	2.25	8.9	6.8

APPENDIX C

Geotechnical Laboratory Test Results

Arroyo Grande High School
Practice Gym

301882-024

BULK DENSITY TEST RESULTS

ASTM D 2937-17 (modified for ring liners)

May 6, 2023

BORING NO.	DEPTH feet	MOISTURE CONTENT, %	WET DENSITY, pcf	DRY DENSITY, pcf
1	6.0 - 6.5	33.3	107.1	80.3
1	11.0 - 11.5	13.7	126.6	111.4
1	16.0 - 16.5	18.8	122.2	102.9
1	20.0 - 21.5	17.6	---	---
1	25.0 - 26.5	36.1	---	---
2	6.0 - 6.5	21.9	124.4	102.1
2	11.0 - 11.5	34.9	115.7	85.8
2	16.0 - 16.5	18.0	124.4	105.4
2	21.0 - 21.5	18.0	124.3	105.3
3	6.0 - 6.5	17.7	123.1	104.6
3	11.0 - 11.5	27.6	121.8	95.5
3	16.0 - 16.5	18.0	119.7	101.5
3	20.0 - 21.5	14.7	---	---
3	25.0 - 26.5	34.6	---	---
3	31.0 - 31.5	37.6	112.3	81.6
3	35.0 - 35.5	31.3	---	---

EXPANSION INDEX TEST RESULTS

ASTM D 4829-19

BORING NO.	DEPTH feet	EXPANSION INDEX
3	12.0 - 16.0	42

Arroyo Grande High School
Practice Gym

301882-024

RESISTANCE '*R* ' VALUE AND EXPANSION PRESSURE

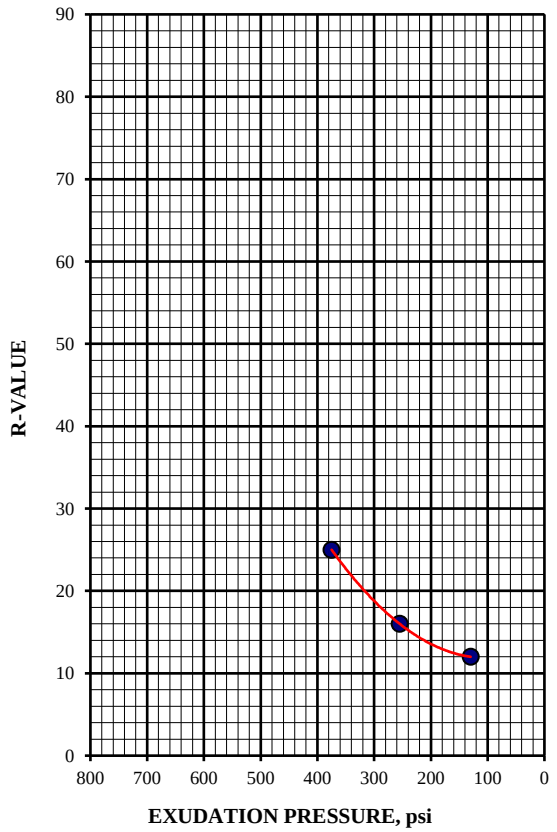
ASTM D 2844/D2844M-18

May 6, 2023

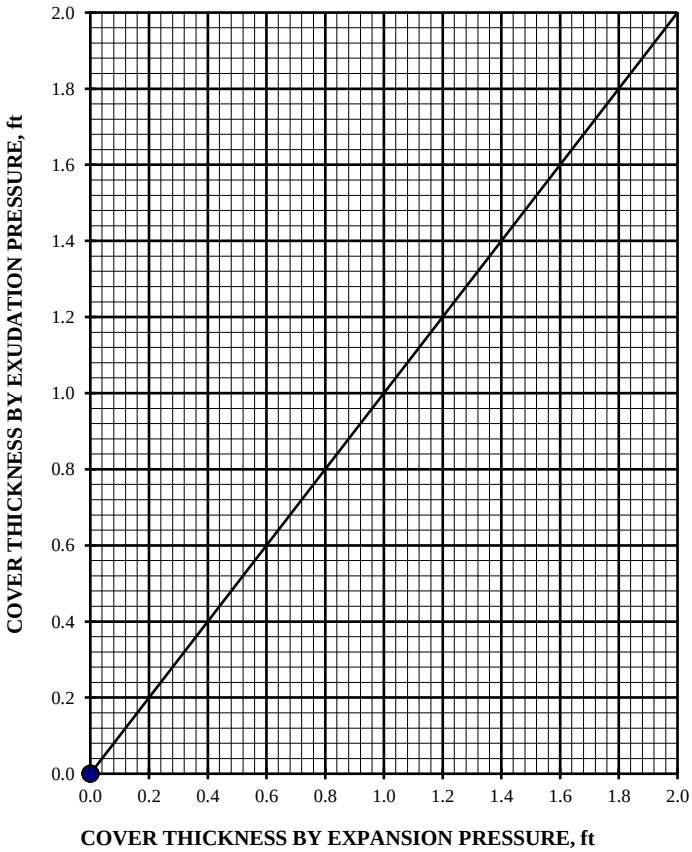
Compsite LID; ABC @ 0.0 - 5.0'
Brown Clayey Sand (SC)

Dry Density @ 300 psi Exudation Pressure: 121.1-pcf
%Moisture @ 300 psi Exudation Pressure: 14.3%
R-Value - Exudation Pressure: 19
R-Value - Expansion Pressure: N/A
R-Value @ Equilibrium: 19

EXUDATION PRESSURE CHART



EXPANSION PRESSURE CHART



Arroyo Grande High School
Practice Gym

301882-024

PARTICLE SIZE ANALYSIS

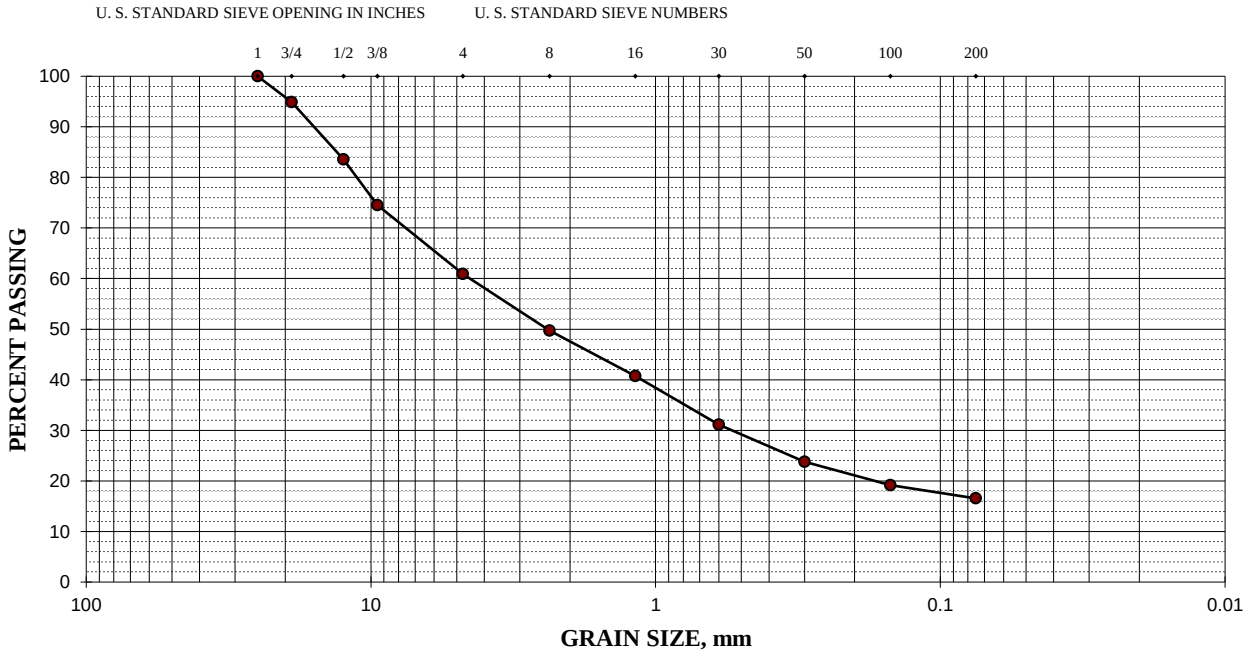
ASTM D 422-63/07; D 1140-017

Boring #1 @ 20.0 - 21.5'

April 27, 2023

Well-Graded Sand with Clay and Gravel (SW-SC)

Sieve size	% Retained	% Passing
1" (25-mm)	0	100
3/4" (19-mm)	5	95
1/2" (12.5-mm)	16	84
3/8" (9.5-mm)	25	75
#4 (4.75-mm)	39	61
#8 (2.36-mm)	50	50
#16 (1.18-mm)	59	41
#30 (600-µm)	69	31
#50 (300-µm)	76	24
#100 (150-µm)	81	19
#200 (75-µm)	83	17



Arroyo Grande High School
Practice Gym

301882-024

PARTICLE SIZE ANALYSIS

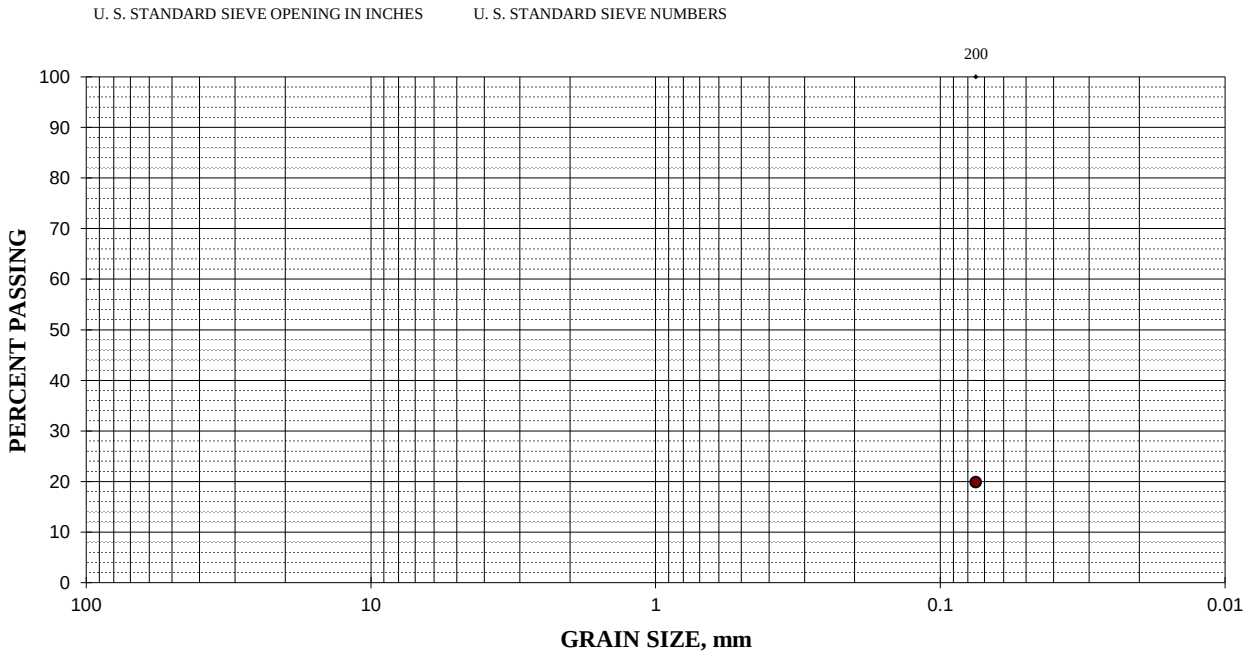
ASTM D 422-63/07; D 1140-017

Boring #2 @ 11.0 - 11.5'

May 6, 2023

Brown Poorly Graded Sand with Clay and Gravel (SP-SC)

Sieve size	% Retained	% Passing
#200 (75-µm)	80	20



APPENDIX D

Soil Corrosivity Study by HDR, Inc.

June 8, 2023 via email: nzoetewey@earthysystems.com

Earth Systems Pacific
4378 Old Santa Fe Road
San Luis Obispo, CA, 93401

Attention: Nick Zoetewey

Re: Soil Corrosivity Study
Arroyo Grande High School Practice Gym
Arroyo Grande, California
HDR #23-0378SCS, ESP #301882-024

Introduction

Laboratory tests have been completed on two soil samples provided to HDR for the Arroyo Grande High School Practice Gym project. The purpose of these tests was to determine whether the soils are likely to have deleterious effects on underground utility piping. HDR assumes that the provided samples are representative of the most corrosive soils at the site.

The proposed structure is a steel or wood framed gymnasium with one to two stories and no subterranean levels. The site is located at Arroyo Grande, California, and the water table is reportedly as shallow as 10 feet deep.

The scope of this study is limited to a determination of soil corrosivity and general corrosion control recommendations for materials likely to be used for construction. HDR's recommendations do not constitute, and are not meant as a substitute for, design documents for the purpose of construction. If the architects and/or engineers desire more specific information, designs, specifications, or review of design, HDR will be happy to work with them as a separate phase of this project.

Soil Corrosivity Testing

Laboratory Testing

The electrical resistivity of each sample was measured in a soil box per *ASTM International (ASTM)* G187 in its as-received condition and again after saturation with distilled water. Resistivities are at about their lowest value when the soil is saturated. The pH of the saturated samples was measured per ASTM G51. A 5:1 water:soil extract from each sample was chemically analyzed for the major soluble salts commonly found in soil per ASTM D4327, ASTM D6919, and *American Water Works Association (AWWA*) Standard Method 2320-B.

The laboratory analyses were performed under HDR laboratory number 23-0378SCS. The full set of test results are shown in the attached Table A1.

Discussion

A major factor in determining soil corrosivity is electrical resistivity. The electrical resistivity of a soil is a measure of its resistance to the flow of electrical current. Corrosion of buried metal is an electrochemical process in which the amount of metal loss due to corrosion is directly proportional to the flow of electrical current (DC) from the metal into the soil. Corrosion currents, following Ohm's Law, are inversely proportional to soil resistivity. Lower electrical resistivities result from higher moisture and soluble salt contents and indicate corrosive soil. A correlation between electrical resistivity and corrosivity toward ferrous metals is shown in Table 1.[1]

Table 1: Soil Corrosivity Categories

Soil Resistivity (ohm-cm)	Corrosivity Category
Greater than 10,000	Mildly Corrosive
2,001 to 10,000	Moderately Corrosive
1,001 to 2,000	Corrosive
0 to 1,000	Severely Corrosive

Other soil characteristics that may influence corrosivity towards metals are pH, soluble salt content, soil types, aeration, anaerobic conditions, and site drainage.

Electrical resistivities were in the mildly corrosive to corrosive categories with as-received moisture. When saturated, the resistivities were in the moderately to corrosive categories. One of the as-received resistivities were at or near their saturated value.

Soil pH values varied from 5.4 to 6.6. This range is strongly acidic to neutral.[2]

Total acidity was performed on sample Boring 3 @ 12-15. The result, not in excess of 250 mmol H^{1+}/kg, was not high enough to warrant concern of acid attack to concrete.

Soil with a pH less than 5.5 is considered aggressive to copper.

The soluble salt content of the samples was low.

Per ACI-318, the soil is classified as S0 with respect to sulfate concentration.[3]

Nitrate was detected in low concentrations. Ammonium was not detected.

Tests were not made for sulfide and oxidation-reduction (redox) potential because these samples did not exhibit characteristics typically associated with anaerobic conditions.

In conclusion, this soil is classified as corrosive to ferrous metals, aggressive to copper, and negligible (S0) for sulfate attack on concrete.

---

[1] Romanoff, Melvin. Underground Corrosion, NBS Circular 579. Reprinted by NACE. Houston, TX, 1989, pp. 166–167.
[2] Romanoff, Melvin. Underground Corrosion, NBS Circular 579. Reprinted by NACE. Houston, TX, 1989, p. 8.
[3] American Concrete Institute (ACI) 318-19 Table 19.3.1.1.

Corrosion Control Recommendations

The life of buried materials depends on thickness, strength, loads, construction details, soil moisture, etc., in addition to soil corrosivity, and is, therefore, difficult to predict. Of more practical value are corrosion control methods that will increase the life of materials that would be subject to significant corrosion. The following recommendations are based on the evaluation of soil corrosivity described above. Unless otherwise indicated, these recommendations apply to the entire site or alignment.

All Pipe

1. On all pipes, appurtenances, and fittings not protected by cathodic protection, coat bare metal such as valves, bolts, flange joints, joint harnesses, and flexible couplings with wax tape per AWWA C217 after assembly.

2. Where metallic pipelines penetrate concrete structures such as building floors, vault walls, and thrust blocks use plastic sleeves, rubber seals, or other dielectric material to prevent pipe contact with the concrete and reinforcing steel.

3. To prevent differential aeration corrosion cells, provide at least 2 inches of pipe bedding or backfill material all around metallic piping, including the bottom. Do not lay pipe directly on undisturbed soil.

Steel Pipe

1. Underground steel pipe with rubber gasketed, mechanical, grooved end, or other nonconductive type joints should be bonded for electrical continuity. Electrical continuity is necessary for corrosion monitoring and cathodic protection.

2. Install corrosion monitoring test stations to facilitate corrosion monitoring and the application of cathodic protection:

    a. At each end of the pipeline.

    b. At each end of all casings.

    c. Other locations as necessary so the interval between test stations does not exceed 1,200 feet.

3. To prevent dissimilar metal corrosion cells and to facilitate the application of cathodic protection, electrically isolate each buried steel pipeline per *NACE International (NACE)* SP0286 from:

    a. Dissimilar metals.

    b. Dissimilarly coated piping (cement-mortar vs. dielectric).

    c. Above ground steel pipe.

d. All existing piping.

4. Apply a suitable dielectric coating intended for underground use such as:

    i. Polyurethane per AWWA C222 *or*

    ii. Extruded polyethylene per AWWA C215 *or*

    iii. A tape coating system per AWWA C214 *or*

    iv. Hot applied coal tar enamel per AWWA C203 *or*

    v. Fusion bonded epoxy per AWWA C213.

5 Apply cathodic protection to steel piping as per NACE SP0169.

NOTE: Some steel piping systems, such as oil, gas, insulated, or high-pressure piping systems, have special corrosion and cathodic protection requirements that must be evaluated for each specific application.

Steel Casing Pipe

1. The casing should be designed per NACE SP0200.
2. It is assumed all casing pipe segments will be welded. In this case no further action is necessary to maintain electrical continuity of the casing.
3. Install test stations at each end of the casing to facilitate corrosion monitoring and the application of cathodic protection. Each wire should be independently welded or pin-brazed to the casing pipe.
4. Prevent contact between the casing pipe and concrete and/or reinforcing steel, with such items as plastic sleeves, rubber seals, or 20-mil plastic tape.
5. Provide electrical isolation between a metallic carrier pipe and the steel casing by using casing spacers. Skids are discouraged, but if used, ensure metallic bands do not electrically short the carrier pipe and the casing.
6. Buried steel and iron pipe, fittings, and valves in appurtenances, such as vent pipes, should be coated with wax tape per AWWA C217. If copper is used, electrically insulate it from the steel with an insulating joint or with a dielectric union.
7. Seal the casing ends with end seals to prevent the ingress of soil.
8. Choose one of the following corrosion control options:

    OPTION 1

    a. Apply a suitable dielectric coating intended for underground use such as:

vi. Polyurethane per AWWA C222 *or*

vii. Extruded polyethylene per AWWA C215 *or*

viii. A tape coating system per AWWA C214 *or*

ix. Hot applied coal tar enamel per AWWA C203 *or*

x. Fusion bonded epoxy per AWWA C213.

b. Apply cathodic protection to the steel casing as per NACE SP0169.

Ductile Iron Pipe

1. To prevent dissimilar metal corrosion cells and to facilitate the application of cathodic protection, electrically insulate underground iron pipe from dissimilar metals and from above ground iron pipe with insulating joints per NACE SP0286.

2. Bond all nonconductive type joints for electrical continuity. Electrical continuity is necessary for corrosion monitoring and cathodic protection.

3. Install corrosion monitoring test stations to facilitate corrosion monitoring and the application of cathodic protection:

    a. At each end of the pipeline.

    b. At each end of any casings.

    c. Other locations as necessary so the interval between test stations does not exceed 1,200 feet.

4. Choose one of the following corrosion control options:

    OPTION 1

    a. Apply a suitable coating intended for underground use such as:

        i. Polyethylene encasement per AWWA C105; *or*

        ii. Epoxy coating; *or*

        iii. Polyurethane; *or*

        iv. Wax tape.

        NOTE: The thin factory-applied asphaltic coating applied to ductile iron pipe for transportation and aesthetic purposes does not constitute a corrosion control coating.

    b. Apply cathodic protection to ductile iron piping as per NACE SP0169.

OPTION 2

a. As an alternative to the coating systems described in Option 1 and cathodic protection, encase all buried portions of metallic piping so that there is a minimum of 3 inches of concrete cover provided over and around surfaces of pipe, fittings, and valves using any type of ASTM C150 cement. Install joint bonds, test stations, and insulated joints to provide for corrosion monitoring and/or the future application of cathodic protection if needed.

NOTE: Some iron piping systems, such as for fire water piping, have special corrosion and cathodic protection requirements that must be evaluated for each specific application.

Cast Iron Soil Pipe

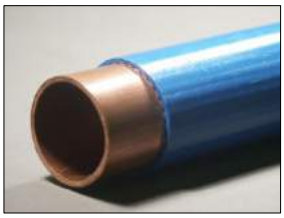
1. Protect cast iron soil pipe with either a double wrap 4-mil or single wrap 8-mil polyethylene encasement per AWWA C105.
2. It is not necessary to bond the pipe joints or apply cathodic protection.
3. Provide 6 inches of clean sand backfill all around the pipe. Use the following parameters for clean sand backfill:
    a. Minimum saturated resistivity of no less than 3,000 ohm-cm; *and*
    b. pH between 6.0 and 8.0.
    c. All backfill testing should be performed by a corrosion engineering laboratory.

Copper Tubing

1. Use Type K or Type L copper tubing as required by the applicable local plumbing code. Type M tubing should not be used for buried applications.[4]
2. Electrically insulate underground copper pipe from dissimilar metals and from above ground copper pipe with insulating devices per NACE SP0286.
3. Electrically insulate cold water piping from hot water piping systems.
4. Protect buried copper tubing by one of the following measures:
    a. Prevent soil contact. Soil contact may be prevented by placing the tubing above ground or encasing the tubing using PVC pipe with solvent-welded joints. Either seal the PVC pipe at both ends or terminate both ends above-grade in a manner that doesn't allow water to infiltrate; or

[4] *2022 California Plumbing Code (CPC), Section 604.3*

b. Install copper pipe with a factory-applied coating that is at least 25 mils in thickness. Use Kamco's Aqua Shield™, Mueller Streamline's Plumbshield™, or equal. The coating must be continuous with no cuts or defects.



c. Insulate the pipe by installing 12-mil polyethylene pipe wrapping tape with butyl rubber mastic over a suitable primer. Protect wrapped copper tubing by applying cathodic protection per NACE SP0169.

Plastic and Vitrified Clay Pipe

1. No special corrosion control measures are required for plastic and vitrified clay piping placed underground.

2. Protect all metallic fittings and valves with wax tape per AWWA C217, or with epoxy and appropriately designed cathodic protection system per NACE SP0169.

Concrete Structures and Pipe

1. From a corrosion standpoint, any type of ASTM C150 cement may be used for concrete structures and pipe because the sulfate concentration is negligible (S0), from 0 to 0.10 percent. Use a minimum strength of 2,500 psi per applicable codes.[5,6,7]

2. Standard concrete cover over reinforcing steel may be used for concrete structures and pipe in contact with these soils due to the low chloride concentrations found on site.[8] Limit the water-soluble chloride ion content in the concrete mix design to less than 0.06 percent by weight of cement.

3. Due to the high ground water table encountered at this site, cyclical or continual wetting may be an issue. Any contact between concrete structures and ground water should be prevented as follows:

    a. For structures that extend below the water table, contact can be prevented with an impermeable waterproofing system. Options include a membrane such as Grace PrePrufe® products, a liquid applied barrier coating, or a waterproofing admixture such as Xypex® Admix. Visqueen, similar rolled barriers, or bentonite-based membranes are not viable waterproofing systems for corrosion protection.

    b. For structures above the water table, contact can be prevented with a gravel capillary break under the concrete and a vapor retarding membrane. Note that per ASTM E1643, "vapor retarders are not intended to provide a waterproofing function."[9] Alternatively, an impermeable waterproofing system may be used.

---

[5] *2021 International Building Code (IBC) which refers to American Concrete Institute (ACI) 318-19 Table 19.3.2.1*
[6] *2021 International Residential Code (IRC) which refers to American Concrete Institute (ACI) 318-19 Table 19.3.2.1*
[7] *2022 California Building Code (CBC) which refers to American Concrete Institute (ACI) 318-19 Table 19.3.2.1*
[8] *Design Manual 303: Concrete Cylinder Pipe. Ameron. p.65*
[9] *ASTM E1643-18a: Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs. ASTM International, 2018.*

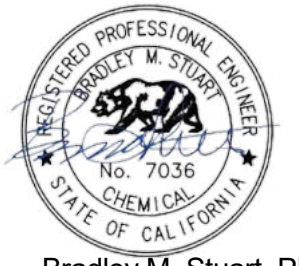
Closure

The analysis and recommendations presented in this report are based upon data obtained from the laboratory samples. This report does not reflect variations that may occur across the site or due to the modifying effects of construction. If variations appear, HDR should be notified immediately so that further evaluation and supplemental recommendations can be provided.

HDR's services have been performed with the usual thoroughness and competence of the engineering profession. No other warranty or representation, either expressed or implied, is included or intended.

Please call if you have any questions.

Respectfully Submitted,
HDR Engineering, Inc.



Carlos Jauregui
Water/Wastewater Coordinator

Bradley M. Stuart, PE
Corrosion Engineer

Enc: Table A1 – Laboratory Tests on Soil Samples

23-0378SCS SCS CJ-BS.docx

Table A1 - Laboratory Tests on Soil Samples

Earth Systems Pacific
Arroyo Grande High School Practice Gym
Your #301882-024, HDR Lab #23-0378SCS
7-Jun-23

Sample ID			ABC - Composite Bulk @ 0-5	Boring 3 @ 12-15
Resistivity		**Units**		
as-received		ohm-cm	22,800	1,240
saturated		ohm-cm	3,520	1,240
pH			6.6	5.4
Electrical Conductivity		mS/cm	0.13	0.13
Chemical Analyses				
Cations				
calcium	Ca^{2+}	mg/kg	41	15
magnesium	Mg^{2+}	mg/kg	16	11
sodium	Na^{1+}	mg/kg	69	129
potassium	K^{1+}	mg/kg	4.0	7.0
ammonium	NH_4^{1+}	mg/kg	ND	ND
Anions				
carbonate	CO_3^{2-}	mg/kg	ND	ND
bicarbonate	HCO_3^{1-}	mg/kg	128	113
fluoride	F^{1-}	mg/kg	2.0	4.0
chloride	Cl^{1-}	mg/kg	32	42
sulfate	SO_4^{2-}	mg/kg	55	57
nitrate	NO_3^{1-}	mg/kg	8.0	3.0
phosphate	PO_4^{3-}	mg/kg	2.0	31
Other Tests				
Total Acidity	H1+	mg H+/kg	na	43

Resistivity per ASTM G187, pH per ASTM G51, Cations per ASTM D6919, Anions per ASTM D4327, and Alkalinity per APHA 2320-B.

Electrical conductivity in millisiemens/cm and chemical analyses were made on a 1:5 soil-to-water extract.

mg/kg = milligrams per kilogram (parts per million) of dry soil.

Redox = oxidation-reduction potential in millivolts

ND = not detected

na = not analyzed

APPENDIX E

Figure 3a – Regional Geologic Map

Figure 3b – Geologic Map Legend

Figure 4a – Cross Section A-A’

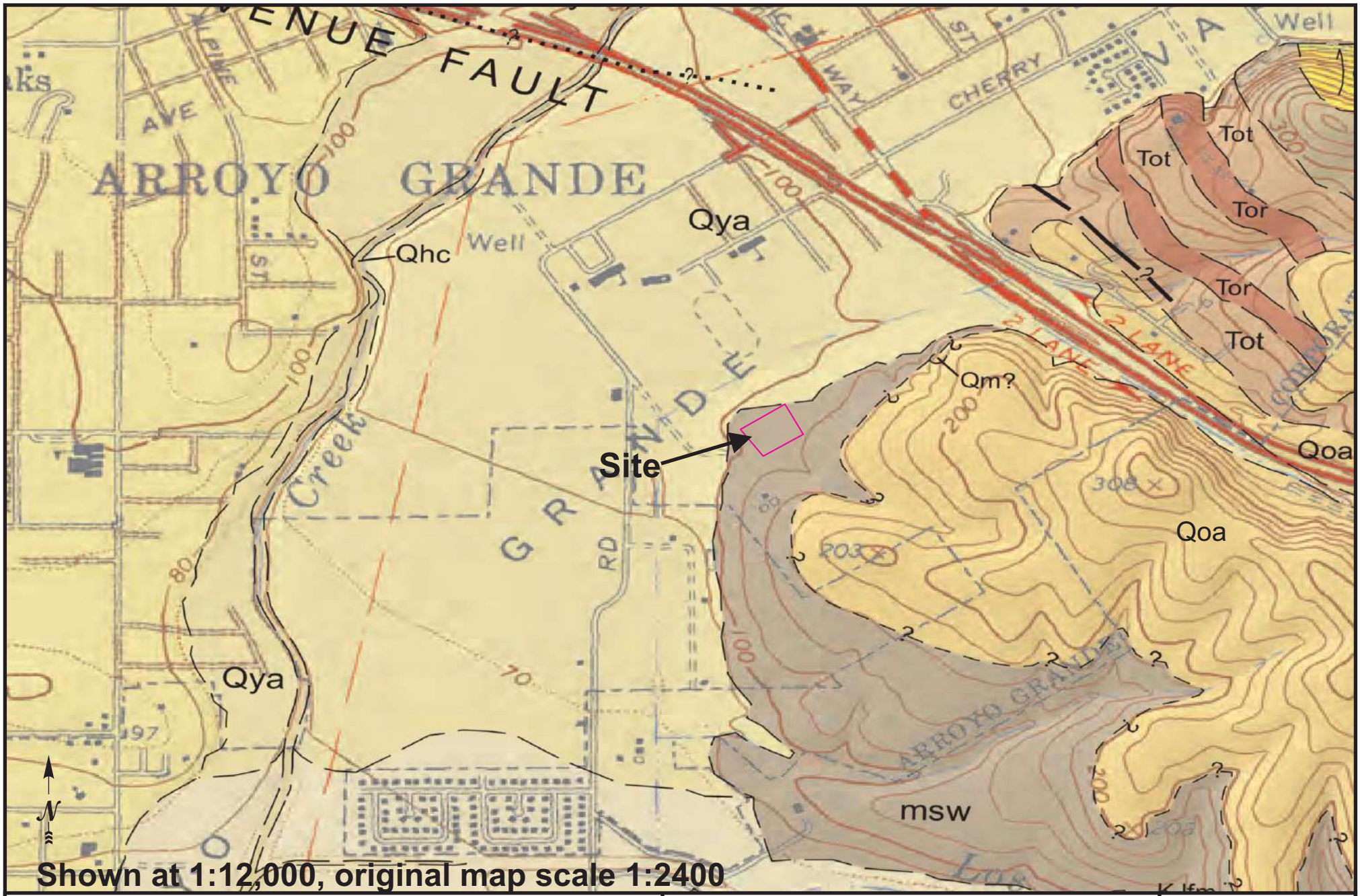
Figure 4b – Engineering Geology Map

Figure 5 – Historical Seismicity Map

Figure 6 – FEMA Flood Zone Map

Figure 7 – Dam Inundation Zone Map

Figure 8 – Indoor Radon Potential Map



EARTH SYSTEMS PACIFIC
4378 Old Santa Fe Road, San Luis Obispo, CA 93401
www.earthsystems.com - email: esp@earthsystems.com
(805) 544-3276

REGIONAL GEOLOGIC MAP
Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

FIGURE 3a
Date
June 2023
Project No.
301882-024

SURFICIAL DEPOSITS

Qhc **Stream channel deposits (late Holocene)** - Unconsolidated sand, gravel and cobbles in active channels.

Qa **Alluvial flood-plain deposits (late Holocene)** - Active and recently active flood-plain deposits. Consists of unconsolidated sandy, silty, and clay-bearing alluvium.

Qd **Dune sand (late Holocene)** – Unconsolidated, well-sorted white to brown windblown sand. Forms active dunes behind modern beaches.

Qls **Landslide deposits (Holocene to late Pleistocene)** – Highly fragmented to largely coherent landslide deposits.

Qye **Young eolian deposits (Holocene)** – Vegetated stationary sand dune deposits displaying dune morphology. Well-sorted white to brown windblown sand. Inception of dune sheet occurred at approximately 3.5 to 4.3 ka (Knott and Eley, 2006).

Qya **Young alluvial valley deposits, undivided (Holocene to late Pleistocene)** – Unconsolidated sand, silt, and clay-bearing alluvium deposited on flood-plains and along valley floors. Surfaces are slightly dissected and display weak soil development. Approximately 4.3 to 11 ka in the Santa Maria Valley (Knott and Eley, 2006).

Qoe **Old eolian deposits (late Pleistocene)** – well sorted red to brown wind blown sand with weak soil development in places. Surfaces are dissected and dune morphology is generally obscured.

Qoa **Older alluvium (late to middle Pleistocene)** – Unconsolidated boulders, cobbles, gravel, sand, silt and clay poorly to moderately sorted; some discontinuous horizontal bedding, weakly to strongly cemented horizons (duripans) present locally, clasts generally consist of Franciscan Complex, Obispo and Monterey Formation lithologies.

TERTIARY AND OLDER ROCKS

Tpsq **Pismo Formation, Squire member (lower Pliocene)** – Massive, white to light gray, fine- to medium-grained, quartzose to arkosic silty sandstone. Sand grains subrounded to subangular, 75-80% quartz, 15-20% feldspar, less than 15% mafic minerals (Hall, 1973).

Monterey Formation (upper to middle Miocene)

Tmc **Cherty shale** – Bedded, resistant chert, color varies from white and gray to brown and reddish-brown, weathering to chalky white. Brittle, conchoidal fracturing, commonly sheared, beds ½ to 6-inches thick, commonly laminated, locally interbedded with siltstone (Tms) and diatomite (Hall,1973).

Tms **Siltstone** – Brown to white siltstone with some claystone.

Tmb **Siltstone and dolomitic claystone** – Tan to yellowish-white siltstone and dolomitic claystone locally tuffaceous or interbedded with chert.

Tot **Obispo Formation (lower Miocene)** – Coarse-grained tuff with subangular clasts of pumice (5%-50%), perlite (5%-15%), white to dark-gray glass shards (20%) and feldspar (5%) in a vitric ashy matrix; locally zeolitized or silicified (Tor) and commonly altered to montmorillonite (Hall, 1973).

Tor **Zeolitized tuff** – Resistant, hard, fine-grained, zeolitized or silicied tuff. Forms resistant outcrops.

Tr **Rincon Shale (Oligocene to lower Miocene)** – Dark brown siltstone that is exposed in a road cut along Highway 101.

Franciscan Complex (Cretaceous to Jurassic)

msw **Mélange and slope wash** Areas surrounding resistant blocks interpreted to be mélange matrix largely covered by slope wash.

Source: Preliminary Geologic Map of the Oceano 7.5' Quadrangle, San Luis Obispo County, California: a Digital Database, Version 1.0, by Peter J. Holland, 2013, California Geological Survey
Original map scale 1:24,000, enlarged to 1:12,000

MAP SYMBOLS

Contact between map units - Solid where accurately located, dashed where approximately located, dotted where concealed.

Fault - Solid where accurately located, dashed where approximately located, dotted where concealed.
U = upthrown block; D = downthrown block.

Synclinal axis - Solid where accurately located, dashed where approximately located, dotted where concealed. Arrow shows plunge direction.

Anticlinal axis - Solid where accurately located, dashed where approximately located, dotted where concealed. Arrow shows plunge direction.

30 Strike and dip of bedding plane.

Horizontal Bedding

Sand boil caused by 2003 M6.5 San Simeon earthquake

Lateral spread extensional features caused by 2003 M6.5 San Simeon earthquake

Lateral spread compressional features caused by 2003 M6.5 San Simeon earthquake

EARTH SYSTEMS PACIFIC
4378 Old Santa Fe Road, San Luis Obispo, CA 93401
www.earthsystems.com - email: esp@earthsystems.com
(805) 544-3276

REGIONAL GEOLOGIC MAP LEGEND

Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

FIGURE 3b

Date
June 2023

Project No.
301882-024

Current Ground Surface

Proposed Grade

Lithologic Contact

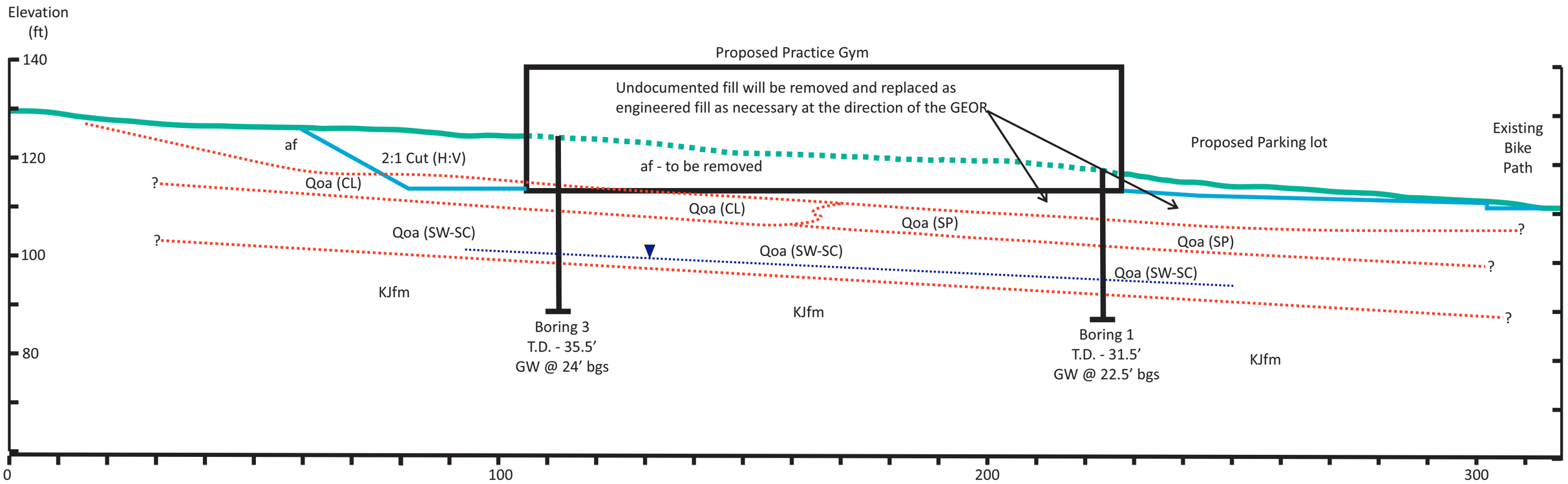
Undocumented Fill (af)

Older Alluvium (Qoa)

Metavolcanic rock of the Franciscan Melange (KJfm)

Perched water table

N 49 W



Scale: 1 inch = 2- feet (V=H)

Earth Systems Pacific
4378 Old Santa Fe Road, San Luis Obispo, CA 93401
(805) 544-3276 Fax - (805) 544-1786
www.earthsystems.com - email: esp@earthsystems.com

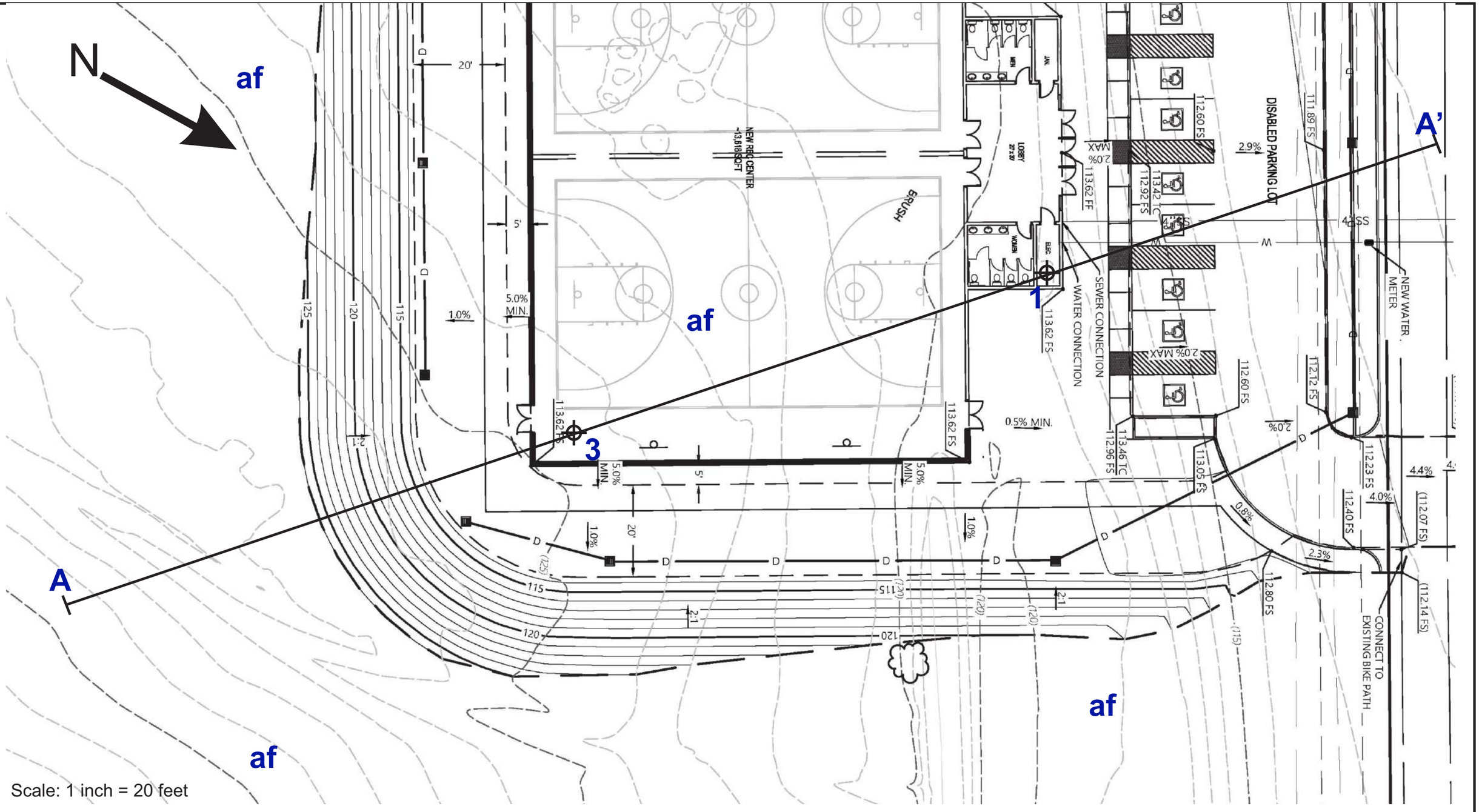
Cross Section A-A'

Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

Figure 4a

Date
June 2023

Project No.
301882-024



Scale: 1 inch = 20 feet

Earth Systems Pacific
4378 Old Santa Fe Road, San Luis Obispo, CA 93401
(805) 544-3276 Fax - (805) 544-1786
www.earthsystems.com - email: esp@earthsystems.com

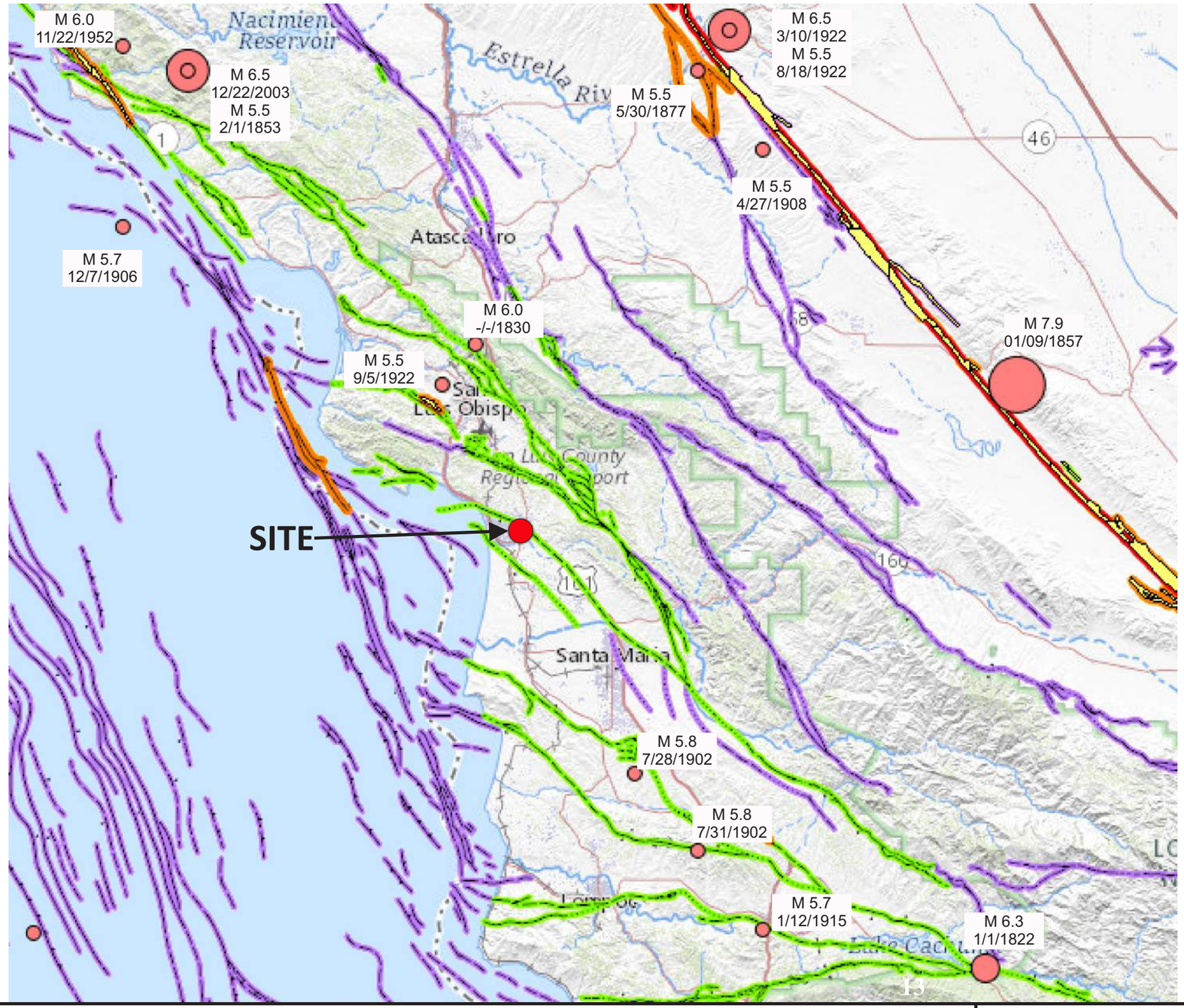
Engineering Geology Map

Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

Figure 4b

Date
June 2023

Project No.
301882-024



Fault Classification (Regional)

- Historic
- Holocene
- Late Quaternary
- Quaternary
- Alquist-Priolo Special Studies Zone

Historic Earthquakes, 1769 to 2015 California (Magnitude 5.0-plus)

- Richter magnitude <6.0
- Richter magnitude 6.0-6.4
- Richter magnitude 6.4-7.0
- Richter magnitude 7.0+

Source: California Geological Survey, Map Sheet 48

Site

N

Source: California Geological Survey, Fault Activity Map of California (2010)

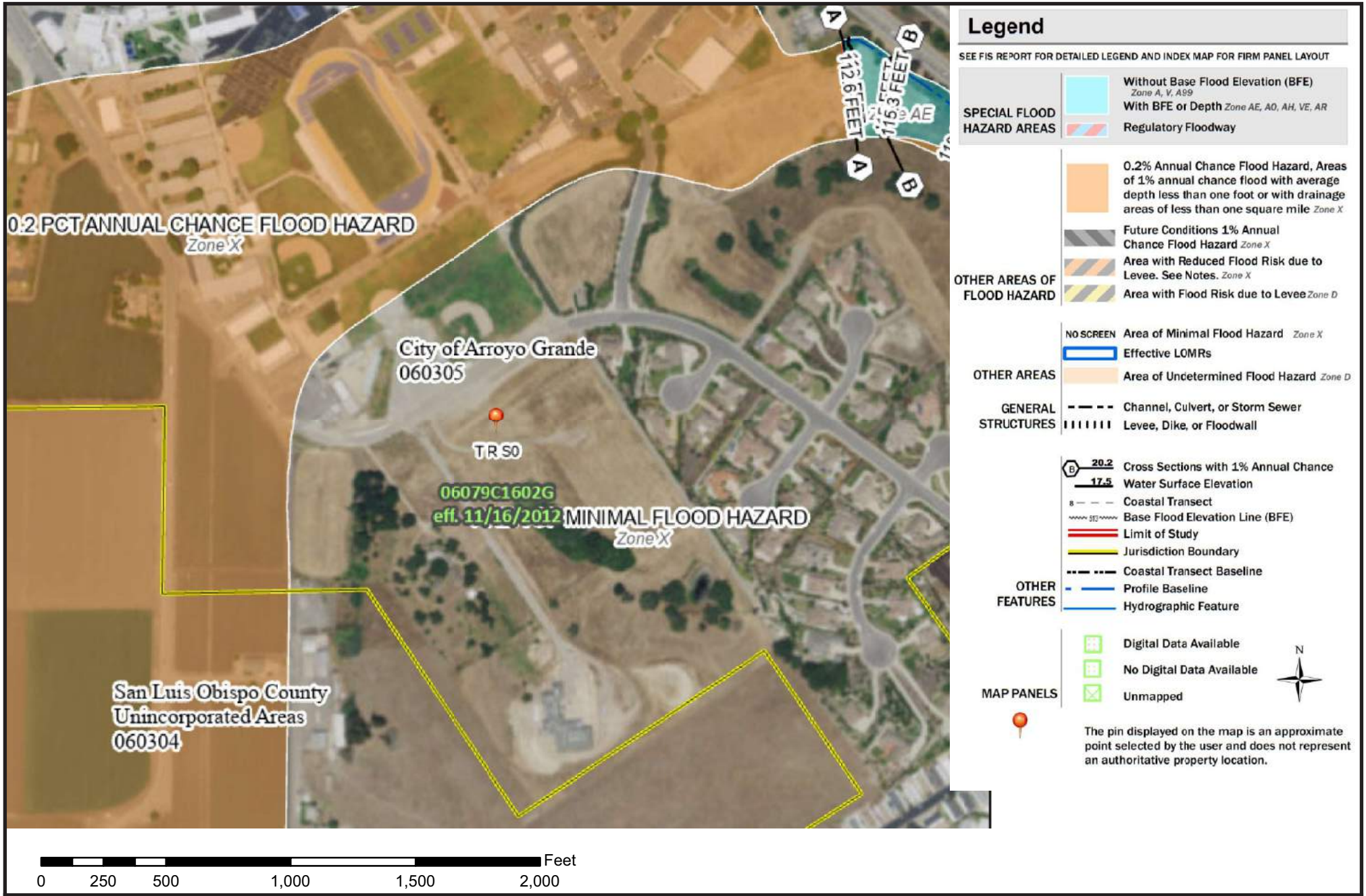
EARTH SYSTEMS PACIFIC
4378 Old Santa Fe Road, San Luis Obispo, CA 93401
www.earthsystems.com - email: esp@earthsystems.com
(805) 544-3276

HISTORICAL SEISMICITY MAP
Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

Figure 5

Date
June 2023

Project No.
301882-024



EARTH SYSTEMS PACIFIC
4378 Old Santa Fe Road, San Luis Obispo, CA 93401
www.earthsystems.com - email: esp@earthsystems.com
(805) 544-3276

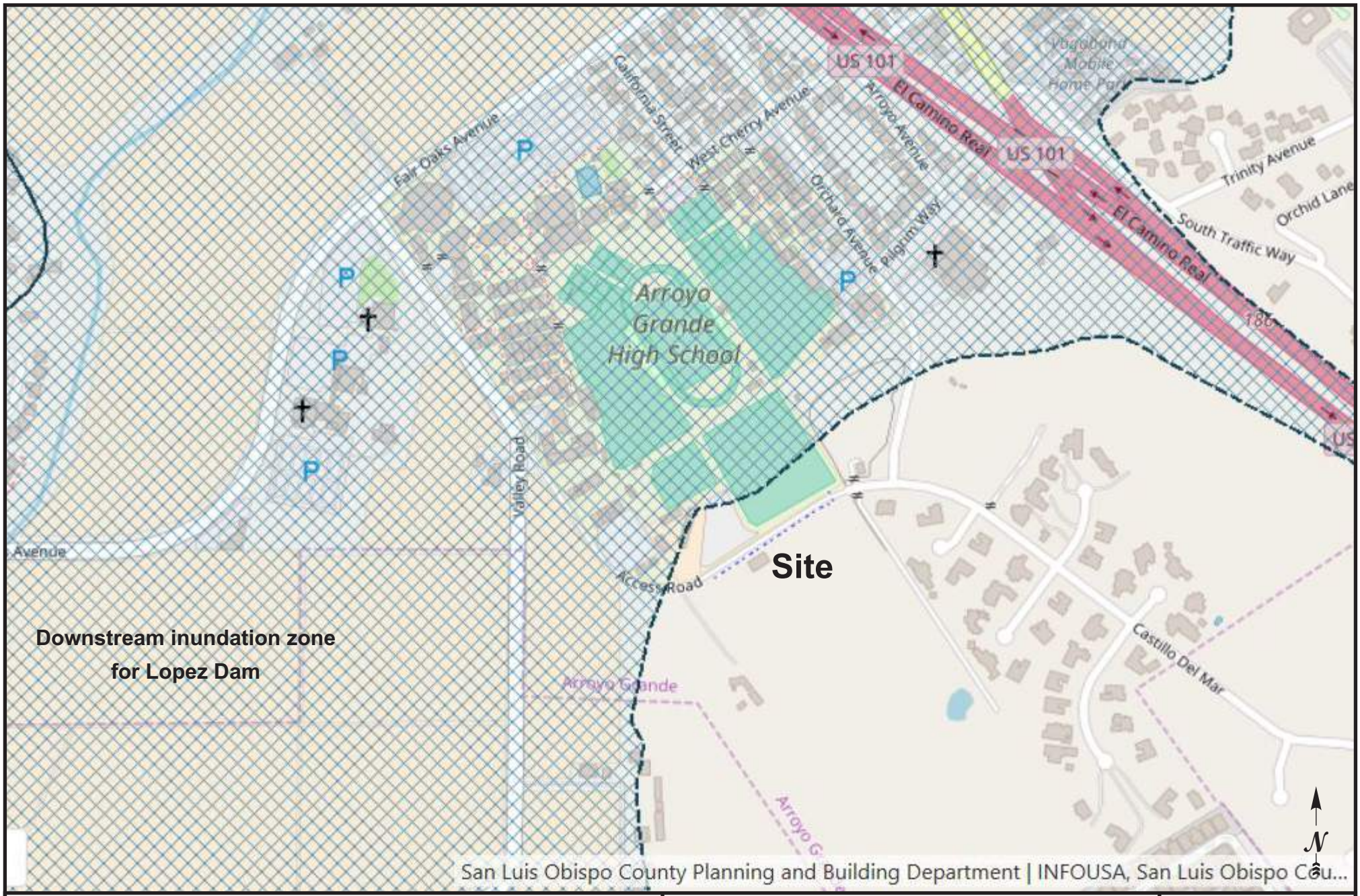
FEMA Flood Map

Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

FIGURE 6

Date
June 2023

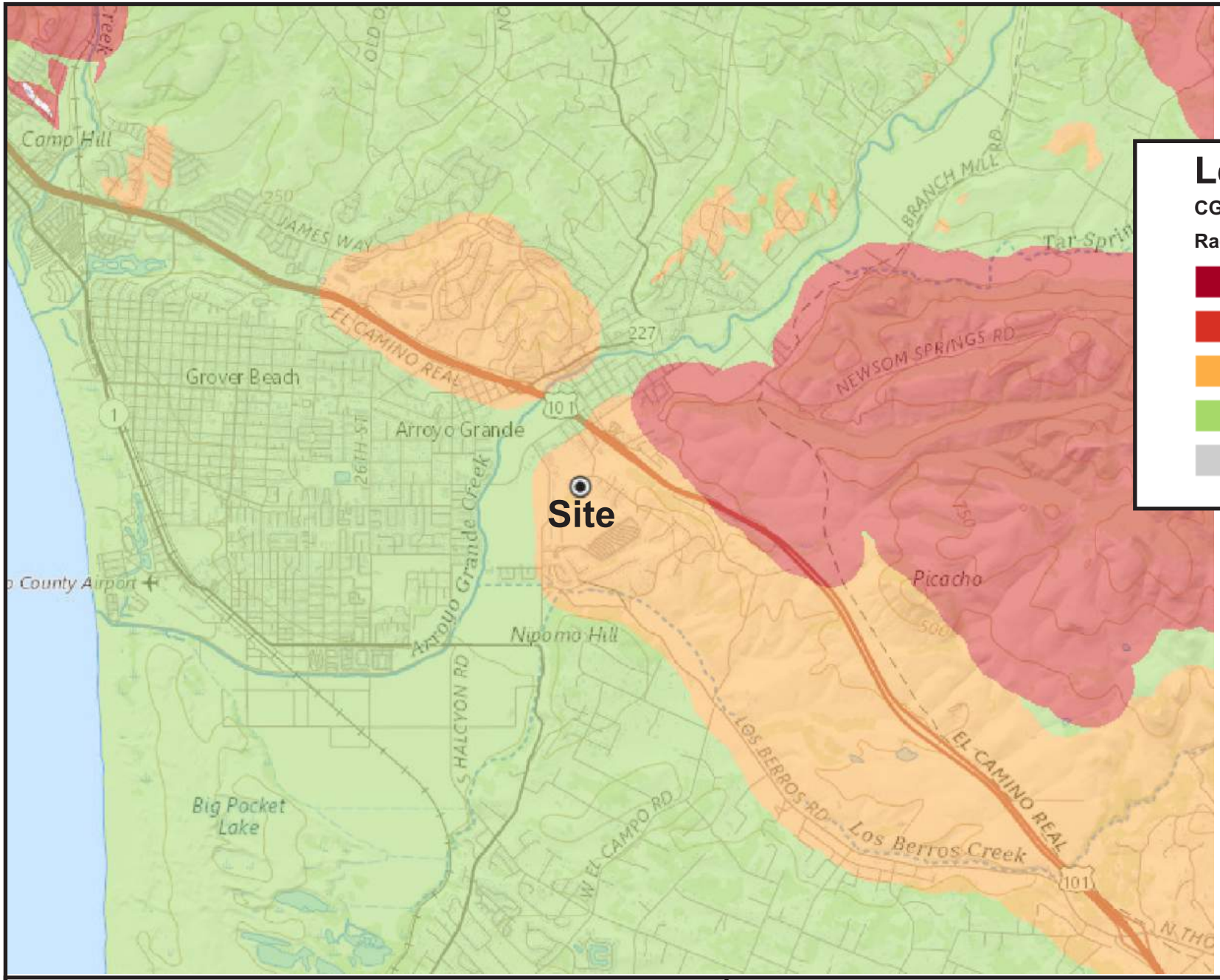
Project No.
301882-024



EARTH SYSTEMS PACIFIC
4378 Old Santa Fe Road, San Luis Obispo, CA 93401
www.earthsystems.com - email: esp@earthsystems.com
(805) 544-3276

SITE VICINITY MAP
Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

FIGURE 7
Date
June 2023
Project No.
301882-024



Legend

CGS Mineral Hazards: Indoor Radon Potential Zones

- Very High
- High
- Moderate
- Low
- Unknown

Source: California Geological Survey (2023) Data Viewer

After Churchill, 2008

N

EARTH SYSTEMS PACIFIC
4378 Old Santa Fe Road, San Luis Obispo, CA 93401
www.earthsystems.com - email: esp@earthsystems.com
(805) 544-3276

INDOOR RADON POTENTIAL MAP

Arroyo Grande High School
Practice Gym
495 Valley Road
Arroyo Grande, California

FIGURE 8

Date
June 2023

Project No.
301882-024

APPENDIX F

Site Specific Ground Motion Analysis – Tables F-1 through F-4

Table F-1
Fault Parameters

Fault Section Name	Distance (miles)	Distance (km)	Upper Seis. Depth (km)	Lower Seis. Depth (km)	Avg Dip Angle (deg.)	Avg Dip Direction (deg.)	Avg Rake (deg.)	Trace Length (km)	Fault Type	**Mean Mag**	Mean Return Interval (years)	Slip Rate (mm/yr)
San Luis Range (So Margin) FM3.2	0.1	0.2	0.0	12.0	45	37	90	115	B	**7.1**		0.2
San Luis Range 2011 CFM, FM3.1	0.2	0.4	0.0	12.0	52	na	na	79	B'	**7.2**		
San Luis Range - Oceano 2011 CFM, FM3.1	2.6	4.2	0.0	12.0	45	na	na	21	B'	**6.6**		
Los Osos 2011 CFM FM3.1, 3.2	4.7	7.5	0.0	12.0	45	208	90	58	B	**6.9**		0.5
Oceanic-West Huasna FM3.1, 3.2	6.2	9.9	0.0	7.0	58	49	na	122	B'	**7.1**		
San Luis Range - Pecho FM3.1, 3.2	8.1	13.0	0.0	12.0	90	na	na	26	B'	**6.6**		
San Luis Bay 2011 CFM FM3.2	8.7	14.0	0.0	10.0	90	na	na	16	B'	**6.3**		
Shoreline FM3.1, 3.2	9.4	15.1	0.0	12.0	90	na	na	23	B'	**6.5**		
Casmalia 2011 CFM	12.5	20.1	0.0	12.0	75	na	na	48	B'	**6.9**		
East Huasna 2011 CFM FM3.1, 3.2	13.8	22.2	0.0	15.0	90	na	na	74	B'	**7.2**		
Rinconada 2011 CFM FM3.1, 3.2	13.9	22.4	0.0	8.5	82	233	180	123	B	**7.5**		1
Hosgri FM3.1, 3.2	15.2	24.5	0.0	6.8	80	59	180	171	B	**7.3**		2.5
South Cuyama FM3.1, 3.2	16.0	25.8	0.0	13.9	33	210	na	83	B'	**7.5**		
Lions Head 2011 CFM FM3.1, 3.2	16.8	27.0	0.0	12.0	75	29	90	65	B	**6.7**		0.02
Hosgri (Extension) FM3.1, 3.2	20.2	32.5	0.0	7.5	80	79	na	29	B'	**6.4**		
La Panza FM3.1, 3.2	20.6	33.1	0.0	13.9	51	45	na	72	B'	**7.3**		
Los Alamos 2011 CFM FM3.1, 3.2	28.0	45.1	0.0	12.0	30	na	na	27	B'	**6.9**		
San Juan FM3.1, 3.2	28.8	46.3	0.0	13.0	90	243	180	82	B	**7.1**		1
Santa Ynez River FM3.1, 3.2	32.0	51.5	0.0	12.0	70	na	na	73	B'	**7.1**		
Morales (West) FM3.1, 3.2	37.3	60.0	0.0	8.6	32	49	na	28	B'	**6.8**		
San Andreas (Cholame) rev FM3.1, 3.2	40.1	64.5	0.0	12.0	90	51	180	63	A	**6.8**	89	3.5
Santa Ynez (West) FM3.1, 3.2	41.8	67.2	0.0	9.2	70	182	0	80	B	**6.9**		2
San Andreas (Carrizo) rev FM3.1, 3.2	42.5	68.4	0.0	15.1	90	224	180	59	A	**6.8**	89	3.5
Los Alamos extension FM3.1, 3.2	42.8	68.9	0.0	12.0	30	na	na	22	B'	**6.8**		
San Andreas (Parkfield) FM3.1, 3.2	46.8	75.4	0.0	10.2	90	50	180	36	A	**6.4**	13	20
Ozena FM3.1, 3.2	51.7	83.2	0.0	13.9	33	na	na	41	B'	**7.2**		
Morales (East) FM3.1, 3.2	51.9	83.5	0.0	8.6	32	14	na	18	B'	**6.6**		
Red Mountain FM3.1, 3.2	53.3	85.7	0.0	14.1	56	2	90	101	B	**7.4**		2
Lost Hills FM3.1, 3.2	58.3	93.8	4.2	12.0	29	233	na	33	B'	**6.8**		
Mission Ridge-Arroyo Parida-Santa Ana FM3.1, 3.	60.9	98.0	0.0	7.6	70	176	90	69	B	**6.8**		0.4
San Andreas (Creeping Section) FM3.1, 3.2	61.5	98.9	0.0	12.0	90	227	180	121	A	**6.8**	89	9
North Channel FM3.2	61.7	99.3	1.1	4.5	26	10	90	51	B	**6.7**		1
Big Pine (West) FM3.1, 3.2	62.0	99.8	0.0	11.0	50	2	na	18	B'	**6.5**		
Pitas Point (Upper) FM3.2	62.3	100.2	1.4	10.0	42	15	90	35	B	**6.8**		1
Pitas Point (Lower, West), FM 3.1	64.8	104.3	1.5	8.8	13	3	90	35	B	**7.2**		2.5
Oak Ridge (Offshore), west extension FM3.2	65.1	104.7	0.0	3.1	67	195	na	28	B'	**6.1**		
Channel Islands Western Deep Ramp FM3.1, 3.2	65.5	105.4	4.8	12.5	21	204	90	62	B'	**7.3**		
San Andreas (Big Bend) FM3.1, 3.2	67.4	108.5	0.0	15.1	90	198	180	50	A	**6.8**	89	3.5
Santa Ynez (East) FM3.1, 3.2	68.1	109.6	0.0	13.3	70	172	0	68	B	**7.2**		2
Pine Mtn FM3.1, 3.2	72.1	116.0	0.0	16.3	45	5	na	62	B'	**7.3**		

Reference: USGS OFR 2013-1165 (CGS SP 228)

Based on Site Coordinates of 35.1124 Latitude, -120.5773 Longitude

Mean Magnitude for Type A Faults based on 0.1 weight for unsegmented section, 0.9 weight for segmented model (weighted by probability of each scenario with section listed as given on Table 3 of Appendix G in OFR 2008-1437). Mean magnitude is average of Ellworths-B and Hanks & Bakun moment area relationship.

Site Coordinates: 35.112 N 120.577 W

Table F-2
Historical Earthquakes in Vicinity of Project Site, M >= 5.0

		Epicenter		*Distance*	
		Latitude	*Longitude*	*from*	*Magnitude*
Day	*Year*	*(Degrees)*		*Site (mi)*	M_W
9/5	1922	35.30	120.70	14.7	**5.5**
99/99	1830	35.35	120.65	16.9	**6.0**
7/28	1902	34.80	120.40	23.8	**5.8**
7/31	1902	34.70	120.30	32.5	**5.8**
4/27	1908	35.60	120.20	39.8	**5.5**
11/4	*1927	34.60	120.90	39.8	**7.1**
1/12	*1915	34.60	120.20	41.3	**5.7**
5/30	1877	35.70	120.30	43.5	**5.5**
12/7	1906	35.50	121.20	44.1	**5.7**
3/10	1922	35.75	120.25	47.7	**6.3**
8/18	1922	35.75	120.25	47.7	**5.7**
6/8	1934	35.79	120.29	49.5	**6.0**
2/1	1853	35.70	121.10	50.1	**5.5**
12/22	2003	35.70	121.10	50.1	**6.6**
9/28	2004	35.82	120.37	50.2	**6.0**
6/28	1966	35.81	120.27	51.2	**6.0**
1/1	1821	34.55	119.85	56.6	**6.3**
9/29	2004	35.95	120.50	58.0	**5.1**
11/16	1956	35.95	120.47	58.1	**5.0**
2/14	1987	35.96	120.70	58.9	**5.2**
11/22	1952	35.76	121.27	59.3	**6.2**
11/5	1969	34.65	121.50	61.2	**5.5**
9/13	1975	36.00	120.55	61.3	**5.1**
4/7	1885	35.00	119.50	61.4	**5.5**
3/3	1901	36.00	120.50	61.4	**6.4**
12/28	1939	35.97	120.92	62.3	**5.2**
11/2	1955	36.00	120.92	64.2	**5.2**
2/2	1881	36.05	120.55	64.8	**6.0**
5/6	1881	36.05	120.55	64.8	**5.5**

From full earthquake catalog in USGS OFR 2008-1437h as updated with current events through 2022 (ANSS 2022). For events with an asterisk, alternate solutions are given in the OFR. Ordered By Closest Event. Maximum 40 Closest Events

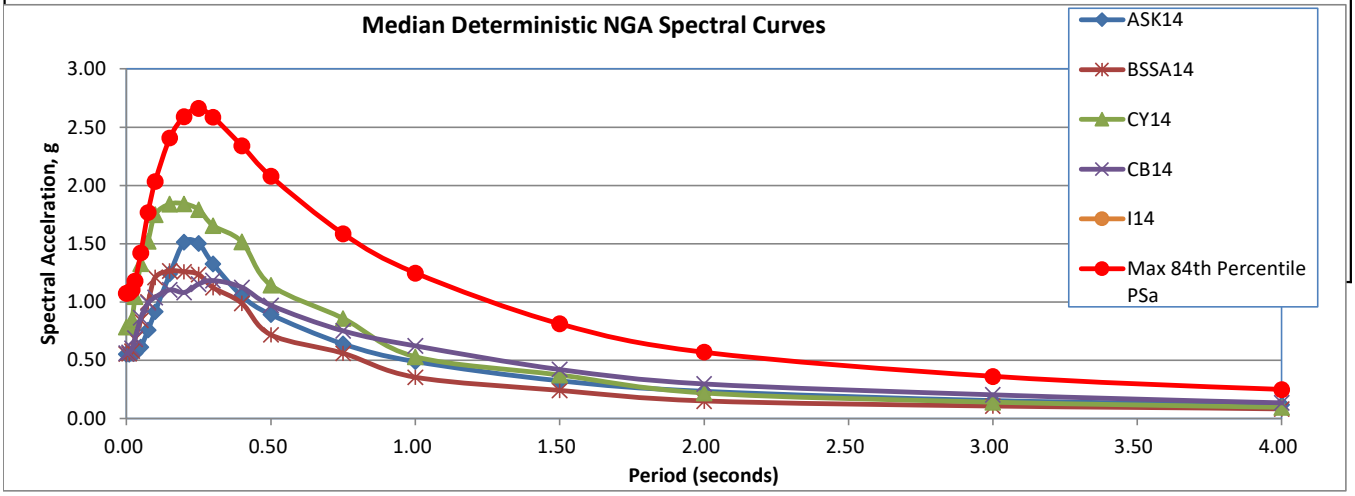
35.1124 -120.5773 Lat/Long

Table F-3 - Deterministic Spectral Response Values
Deterministic NGA Response Spectra for Largest Median Earthquake Ground Motion

Average of NGA: Abrahamson - Silva - Kamai (2014), Boore - Stewart - Seyhan - Atkinson (2013), Campbell-Bozorgnia (2013), Chiou - Youngs (2014), and Idriss (2013)

Mean Spectra Response from Attentuation Relationships

Input Variables	ASK14		BSSA14	CB14	CY14	I14	Average			
	Period (sec)	Median PSa (g)	Median PSa (g)	Median PSa (g)	Median PSa (g)	Median PSa (g)	Period (sec)	Mean PSa (g)	Max 84th Percentile PSa (g)	Max Rotated Determ. PSa
	Weight:	**0.25**	**0.25**	**0.25**	**0.25**	**0.00**				
M 7.49	**0.00**	0.55	0.55	0.56	0.78	-	**0.00**	0.611	1.073	**1.180**
	0.01	0.55	0.55	0.57	0.78	-	**0.01**	0.614	1.079	**1.187**
R_{RUP} 0.20	**0.02**	0.56	0.56	0.60	0.79	-	**0.02**	0.626	1.102	**1.213**
	0.03	0.56	0.58	0.69	0.85	-	**0.03**	0.669	1.180	**1.298**
R_{JB} 0.20	**0.05**	0.61	0.68	0.86	1.05	-	**0.05**	0.801	1.420	**1.562**
	0.075	0.76	0.84	0.99	1.33	-	**0.075**	0.979	1.766	**1.943**
$V_{S\,30}$ 537	**0.10**	0.92	1.00	1.04	1.52	-	**0.10**	1.119	2.033	**2.237**
	0.15	1.24	1.21	1.10	1.75	-	**0.15**	1.326	2.407	**2.648**
F_{RV} 1	**0.20**	1.51	1.27	1.08	1.84	-	**0.20**	1.425	2.590	**2.849**
	0.25	1.50	1.26	1.15	1.84	-	**0.25**	1.438	2.661	**3.052**
F_{NM} 0	**0.30**	1.33	1.24	1.18	1.79	-	**0.30**	1.384	2.584	**2.990**
	0.40	1.05	1.12	1.12	1.66	-	**0.40**	1.238	2.339	**2.755**
W 17.00	**0.50**	0.89	0.99	0.97	1.51	-	**0.50**	1.091	2.078	**2.489**
	0.75	0.64	0.72	0.75	1.14	-	**0.75**	0.813	1.585	**1.980**
Z_{TOR} 0.00	**1.00**	0.49	0.56	0.62	0.86	-	**1.00**	0.632	1.247	**1.621**
	1.50	0.32	0.35	0.42	0.53	-	**1.50**	0.406	0.812	**1.075**
Z_{BOT} 12.00	**2.00**	0.23	0.24	0.30	0.37	-	**2.00**	0.285	0.568	**0.767**
	3.00	0.15	0.15	0.20	0.22	-	**3.00**	0.180	0.361	**0.505**
dip 45	**4.00**	0.12	0.11	0.13	0.14	-	**4.00**	0.124	0.248	**0.360**
	5.00	0.09	0.08	0.10	0.09	-	**5.00**	0.091	0.182	**0.273**
	7.50	0.05	0.05	0.04	0.04	-	**7.50**	0.046	0.093	**0.140**
	10.00	0.03	0.03	0.03	0.03	-	**10.00**	0.029	0.056	**0.085**



35.1124 -120.5773 Lat/Long

Table F-4 - Site Specific Spectral Response Values
Probabilistic and Deterministic Response Spectra for MCE compared to Code Spectra
for 5% Viscous Damping Ratio

Natural Period T (seconds)	GeoMean Probab. 2% in 50 year MCE Spectrum (1) 2475-year (ASCE 21.2.1)	Max Rotated Probab. 2% in 50 year MCEr Spectrum (2) 2475-year (ASCE 21.2.1.1)	Max Rotated 84th Percentile Determ. MCE Spectrum (3) 1.5*Fa = 1.500 (ASCE 21.2.2)	Determ. Lower Limit MCE Spectrum (4) - (ASCE 21.2.2)	Determ. MCE Spectrum (5) - (ASCE 21.2.2)	Site Specific MCE, Ground Response (SaM) (6) Min (2),(5) (ASCE 21.2.3)	Site Specific MCE Spectrum Comparator (6b) Max (6),1.5*(8) (ASCE 21.2.3)	2019 CBC MCE Spectrum (7)	Site Specific Design Spectrum (Sa) (8) (ASCE 21.3)	2019 CBC Design Spectrum (9) 2/3*(7)
0.00	0.528	0.526	-	-	-	0.526	0.526	0.510	0.351	0.340
0.05	0.805	0.801	-	-	-	0.801	0.801	0.928	0.534	0.619
0.10	1.081	1.076	-	-	-	1.076	1.076	1.274	0.717	0.850
0.15	1.205	1.199	-	-	-	1.199	1.199	1.274	0.799	0.850
0.20	1.292	1.286	-	-	-	1.286	1.286	1.274	0.858	0.850
0.30	1.172	1.227	-	-	-	1.227	1.227	1.274	0.818	0.850
0.40	1.010	1.077	-	-	-	1.077	1.077	1.274	0.718	0.850
0.50	0.885	0.960	-	-	-	0.960	0.960	1.164	0.640	0.776
0.75	0.649	0.735	-	-	-	0.735	0.735	0.776	0.490	0.517
1.00	0.482	0.569	-	-	-	0.569	0.569	0.582	0.379	0.388
1.50	0.330	0.397	-	-	-	0.397	0.397	0.388	0.265	0.259
2.00	0.222	0.272	-	-	-	0.272	0.272	0.291	0.182	0.194
3.00	0.141	0.179	-	-	-	0.179	0.179	0.194	0.119	0.129
4.00	0.102	0.134	-	-	-	0.134	0.134	0.146	0.089	0.097
5.00	0.080	0.110	-	-	-	0.110	0.110	0.116	0.073	0.078
8.00	0.065	0.088	-	-	-	0.088	0.088	0.073	0.059	0.049
10.00	0.063	0.086	- #VALUE!	-	-	0.086	0.086	0.047	0.057	0.031

C_{RS}:	0.905	
C_{R1}:	0.908	
Site Specific To:	0.103	$= 0.2*S_{D1}/S_{DS}$
Site Specific Ts:	0.514	$= S_{D1}/S_{DS}$

Deterministic MCE not calculated due to Exception in 21.2.2 ASCE 7-16.

Site Coefficients	
F_{PGA}	1.20
F_a	1.20
F_v	1.50

Probabilistic spectrum from 2014 USGS Ground Motion Mapping Program adjusted for site conditions and scaled to represent maximum response in a horizontal plane, in accordance with ASCE 7-16 Section 21.2

Mapped MCE Acceleration Values		
PGA	0.467	g
S_S	1.062	g
S_1	0.388	g

Risk Coefficients have been applied to Column (2); If Method 1 was utilized the Risk Coefficients, CRS and CR1 are presented above, if Method 2 was utilized the Risk Coefficients were obtained from the USGS Risk Targeted Ground Motion Calculator (https://earthquake.usgs.gov/designmaps/rtgm).

Seismic Site Class	**C**
Risk Category	**III**

Reference: ASCE 7-16, Chapters 21.2, 21.3, 21.4, 21.5, 11.4, and 11.8

Calculation Utilized ASCE7-16, Section 21.2.1.1 - Method 1

Site-Specific Design Acceleration Values		
PGA_M	**0.528**	**g**
S_{DS}	**0.772**	**g**
S_{D1}	**0.397**	**g**

Short-Period Seismic Design Category:	1-Second Period Seismic Design Category:
D	D

Vertical Coefficient (C_V)
1.11

Deterministic Fault Parameters			
San Luis Range (So Margin) FN		R_{JB} (km)	0.2
Magnitude	7.49	R_{RUP} (km)	0.2
Distance (km)	0.2	Z_{TOR} (km)	0.0
Width (km)	17	Z_{BOT} (km)	12.0
Dip (Deg.)	45	V_{S30} (m/s)	537

Site-Specific MCE_R, 5% damped, Spectral Response Acceleration Parameter		
S_{MS}	**1.158**	**g**
S_{M1}	**0.596**	**g**

1 g = 980.6 cm/sec^2 =32.2 ft/sec^2

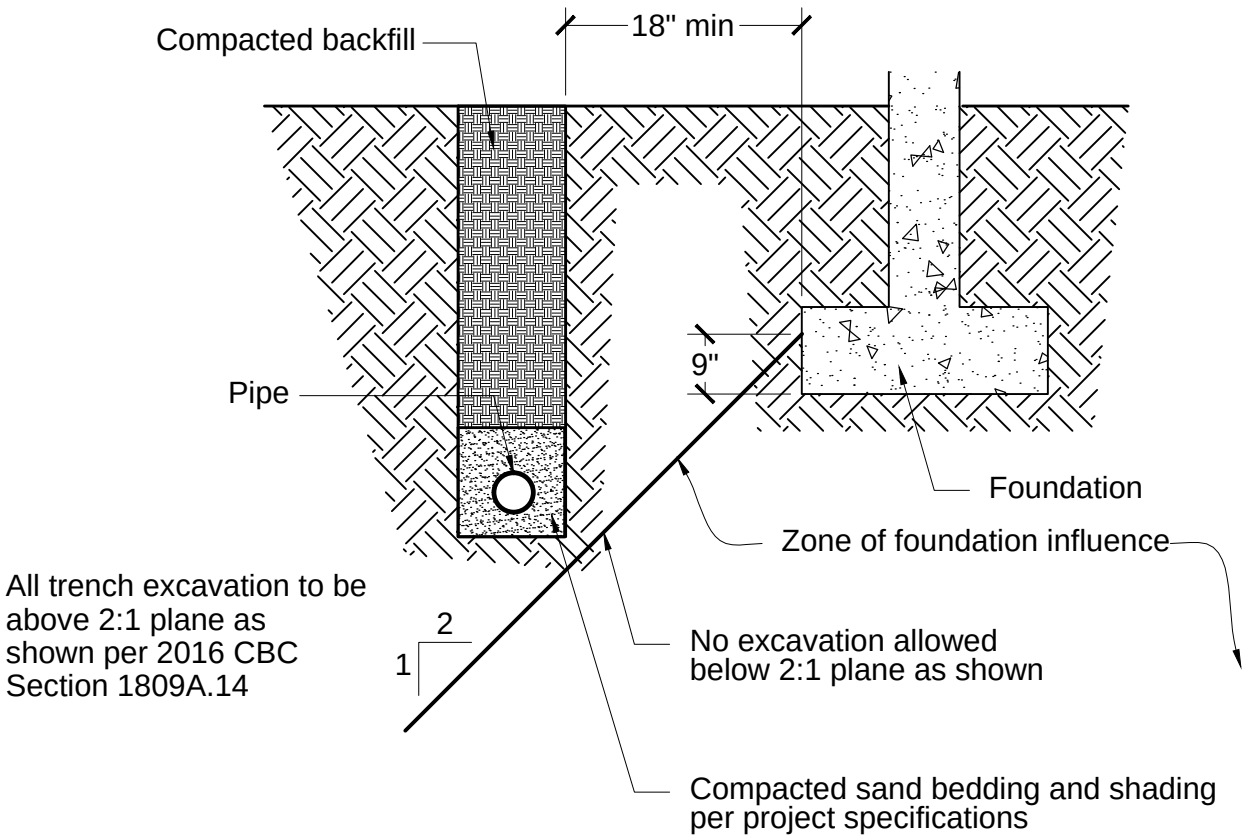
PSV (ft/sec) = $32.2(S_a)T/(2p)$

Key: Probab. = Probabilistic, Determ. = Deterministic, MCE = Maximum Considered Earthquake

APPENDIX G

Typical Detail A: Pipe Parallel to Foundations

TYPICAL DETAIL A
PIPE PLACED PARALLEL TO FOUNDATIONS•



SCHEMATIC ONLY
NOT TO SCALE

Earth Systems Pacific

4378 Old Santa Fe Road
San Luis Obispo, CA 93401-8116
(805) 544-3276 • FAX (805) 544-1786
E-mail: esp@earthsystems.com