DOCKETED	
Docket Number:	26-OPT-02
Project Title:	Seahawk Battery Energy Storage System
TN #:	270267
Document Title:	Section 3-8 Appendices
Description:	N/A
Filer:	Erin Phillips
Organization:	Dudek
Submitter Role:	Applicant Consultant
Submission Date:	5/27/2026 10:44:25 AM
Docketed Date:	5/27/2026

Appendix 3.8A

Paleontological Resources Records Search Letter
(Confidential)

Appendix 3.8B
Paleontological Resources Memorandum

MEMORANDUM

To:	New Leaf Energy
From:	Shawna Johnson, MSc, Paleontologist, Dudek
Subject:	Seahawk Battery Energy Storage System (BESS) Project– Paleontological Resources Constraints Assessment
Date:	April 11, 2025 (Revised December 4, 2025)
cc:	Michael Williams, PhD and Adam Giacinto, MA, RPA, Dudek
Attachments:	A – Figures B – Confidential - Paleontological Records Search Correspondence C – Paleontological Survey Photos

Dudek has conducted an evaluation pursuant to the requirements of the California Environmental Quality Act (CEQA) and Society of Vertebrate Paleontology ([SVP] 2010) guidelines to determine the presence of and potential impacts related to paleontological resources associated with construction and operation of the Seahawk Battery Energy Storage System (BESS) Project (Project), located in Santa Cruz County, California (Figure 1 – Site Map). This technical memorandum provides the results of the paleontological resources investigation and was prepared by Shawna Johnson, MSc with editorial comments by Sarah Siren, MSc and Michael Williams, PhD. Dr. Williams and Ms. Siren are qualified paleontological principal investigators.

To determine the paleontological sensitivity of the Project site, Dudek conducted a paleontological resources inventory in compliance with the CEQA, the California Energy Commission, and SVP (2010) guidelines. The inventory consisted of a paleontological records search through the Natural History Museum of Los Angeles County (NHMLA) and the Santa Cruz Museum of Natural History (SCMNH), an unofficial records search through the University of California Museum of Paleontology (UCMP) online fossil locality database, a paleontological pedestrian survey of the Project site, and a review of geological mapping and geological and paleontological literature. The results of the paleontological records searches were negative for paleontological resources within the Project site and within a one-mile radius buffer from the Project site boundary. No paleontological resources were discovered during the pedestrian survey of the Project site.

1 Project Description and Location

The Project aims to support California's Renewable Portfolio Standard and energy storage objectives while making efficient use of vacant land. The Project proposes to install energy storage units, inverters, and equipment behind a perimeter fence. The Project site encompasses approximately 47 acres of undeveloped land, assessor parcel numbers 051-101-77 and 051-101-78, approximately 3/4 miles north of the City of Watsonville and east of the intersection of Minto Road and Green Valley Road in Santa Cruz County, California.

2 Analysis Methodology

The analysis presented herein considers the potential environmental impacts of the Project relative to existing conditions. Establishment of the Project site's existing paleontological conditions have been informed by a site-specific paleontological records search and review of published geological maps and published and unpublished reports to identify geological units located on the Project site and determine their paleontological sensitivity.

A paleontological records search request was sent to the NHMLA on March 21, 2024 and the SCMNH on September 25, 2025. The records search area included the Project site and a one-mile radius buffer. The purpose of the records searches was to determine whether there are any known fossil localities in or near the Project site to aid in determining whether a paleontological mitigation program is warranted to avoid or minimize potential adverse effects of construction on paleontological resources. Dudek paleontologist, Kolin Taylor conducted a pedestrian paleontological survey of the proposed Project site on November 26, 2025.

3 Paleontological Resources

Paleontological resources are the remains or traces of plants and animals that are preserved in the Earth's crust, and per SVP (2010) guidelines, are older than written history or older than approximately 5,000 years, which approximates the middle Holocene of Cohen et al. (2024). They are limited, nonrenewable resources of scientific and educational value and are afforded protection under state laws and regulations. This analysis complies with guidelines and significance criteria specified by CEQA and SVP (2010). Table 1, Paleontological Resource Sensitivity Criteria, provides definitions for high, undetermined, low, and no paleontological resource potential, or sensitivity, as set forth in and by the SVP (2010) Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources.

Table 1. Paleontological Resource Sensitivity Criteria

Resource Sensitivity/Potential	Definition
High	Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcaniclastic formations (e. g., ashes or tephras), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e. g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.). Paleontological potential consists of both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and (b) the importance of recovered evidence for new

Table 1. Paleontological Resource Sensitivity Criteria

Resource Sensitivity/Potential	Definition
	and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data. Rock units which contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.
Undetermined	Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist (see "definitions" section in this document) to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.
Low	Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e. g. basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.
No Sensitivity	Some rock units have no potential to contain significant paleontological resources, for instance high grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection nor impact mitigation measures relative to paleontological resources.

Source: SVP (2010).

3.1 Regulatory Framework

The California Environmental Quality Act

This paleontological resources evaluation was completed to satisfy the requirements of the California Environmental Quality Act (CEQA). The CEQA Guidelines require that all private and public activities not specifically exempted be evaluated against the potential for environmental impacts, including effects to paleontological resources. Paleontological resources, which are limited, nonrenewable resources of scientific, cultural, and educational value, are recognized as part of the environment under these state guidelines. This study satisfies project requirements in accordance with CEQA (13 PRC [Public Resources Code], 15000 et seq.).

Paleontological resources are explicitly afforded protection by CEQA, specifically in Section VII(f) of CEQA Guidelines Appendix G, the "Environmental Checklist Form," which addresses the potential for adverse impacts to "unique paleontological resource[s] or site[s] or … unique geological feature[s]." This provision covers scientifically significant fossils, which include, but are not limited to, newly discovered species or genera, fossils exhibiting morphological features not previously recognized for a given animal group, fossils that increase the temporal range of a species, fossils discovered from geological units within which they were previously unknown, fossils that expand the biogeographic range of a species, and/or localities that yield fossils significant in their abundance, diversity, and preservation.

California Public Resources Code Section 5097.5

In addition to CEQA's requirements, Public Resources Code Section 5097.5 (Stats 1965, c 1136, p. 2792) regulates removal of paleontological resources from state lands, defines unauthorized removal of fossil resources as a misdemeanor, and requires mitigation of disturbed sites.

The Santa Cruz County General Plan

The Agriculture, Natural Resources, and Conservation Element of the Santa Cruz County General Plan discusses the importance of non-renewable paleontological resources and outlines policies to mitigate negative impacts (Santa Cruz County 2024). The goals and policies relevant to paleontological resources are outlined below:

GOAL ARC-5 VISUAL RESOURCES

Identify and protect the visual resource areas in the County that have regional public importance for their natural beauty or rural agricultural character.

Policy

ARC-5.1.1 (LCP) Designation of Visual Resources. Designate on the General Plan/LCP Resources and Constraints Maps (Appendix F) and define visual resources as areas having regional public importance for their natural beauty or rural agricultural character. Include the following areas when mapping visual resources: vistas from designated scenic roads, Coastal Special Scenic Areas, and unique hydrologic, geologic, and paleontologic features identified in Goal 6. Ocean views, agricultural fields, wooded forests, open meadows, ridgetops, and mountain hillside views are also public scenic assets that should be identified and considered during development review permit processes.

GOAL ARC-6 HYDROLOGICAL, GEOLOGICAL + PALEONTOLOGICAL RESOURCES

Protect hydrological, geological, and paleontological resources that stand out as rare or unique and representative in Santa Cruz County because of their scarcity, scientific or educational value, aesthetic quality, or cultural significance.

Policy

ARC-6.1.1 (LCP) Protection and Designation of Significant Resources: Protect significant geological features such as caves, large rock outcrops, inland cliffs and special formations of scenic or scientific value, hydrological features

such as karst topography, major waterfalls or springs, and paleontological features, through the environmental review process. Designate such sites on the General Plan/LCP Resources and Constraints Maps where identified.

ARC-6.1.2 (LCP) Protecting Significant Resources Through Easements and Land Dedications: Encourage and obtain where possible Open Space Easements or other forms of land dedication to conserve as open space those areas containing hydrological, geological, or paleontological features of significant scenic or scientific value.

Santa Cruz County Code Chapter 16.44, Paleontological Resource Protection

This chapter of the SCCC is intended to protect paleontological resources and provides methods and regulations for the identification and treatment of paleontological resources within the county. Section 16.44.040 requires preparation of a paleontological survey for specified developments in areas of known paleontological resources, and measures must be included to protect resources during ground-disturbing development activities. Specifically, this chapter requires that a paleontological report shall be required if the County Environmental Coordinator determines on the basis of the paleontological survey that further information is required to ensure protection of paleontological resources. Pursuant to section 16.44.060, in granting the required permit(s) for a project on the site of a significant paleontological resource, the Planning Director shall attach reasonable conditions to ensure compliance with the purposes of this chapter. Such conditions could include but are not limited to, having a qualified paleontologist approved by the County present to observe, to examine and to evaluate the site during ground disturbing development activities; and to convey fossil finds to an appropriate museum or research institute. Section 16.44.070 provides procedures to follow if a paleontological resource is discovered during construction.

3.2 Environmental Setting

Geological Literature, Map, and Geotechnical Report Review and Records Search and Pedestrian Paleontological Survey Results

The Project site lies within the Northern Coastline Subprovince, which superimposes coastal landforms such as steep cliffs, beaches, lagoons, etc., along the western length of the Coast Ranges Geomorphic Province. This Subprovince does not have the buffering effects of the broad continental shelf and so high energy wave action affects the shores. Beaches tend to be cobbly to gravelly with few scattered sandy beaches. The Coast Ranges Geomorphic Province is characterized by northwest trending mountains and valleys that are subparallel to the San Andreas Fault. The coastline is uplifted, terraced, and wave-cut. The strata within the Coast Ranges are thick units of Mesozoic and Cenozoic sediments (California Geological Survey [CGS] 2002).

According to geological mapping by Brabb (1989 and 1997) at a 1:62,500 scale, the Project site is underlain by middle to early Holocene (approximately 4,200 to 11,700 years ago; Cohen et al. [2024]) older flood-plain deposits (map unit Qof) and Pleistocene (11,700 years ago to 2.58 million years ago; [Cohen et al. 2024]) terrace deposits of Watsonville, fluvial facies (map unit Qwf) (Figure 2 – Paleontological Sensitivity). Lithologically, the older flood-plain deposits are characterized by loose, fine-grained sand, silt, and clay (Brabb 1997) (Figure 2 – Paleontological Sensitivity). These older flood-plain deposits have high paleontological resource sensitivity or potential. The terrace deposits of Watsonville, fluvial facies consist of moderately indurated, moderate to poorly sorted, silt, sand, silty clay, and gravel. The upper 5 to 15 feet is moderately lithified due to clay and iron oxide cementation. Gravel layers

can be 50 feet thick and are normally found 50 feet below the ground surface (Brabb 1997). These terrace deposits have high paleontological resource sensitivity or potential (Figure 2 – Paleontological Sensitivity).

Citing geological mapping of Brabb (1989) at a 1:62,500 scale and Graymer et al. (2006) at a 1:250,000 scale, the Project specific geotechnical report indicated the Project site is surficially mapped as terrace deposits of Watsonville, fluvial facies (Pleistocene) (map unit Qwf of Brabb [1989]) and terrace deposits of Watsonville, alluvial fan facies (map unit Qwa of Brabb [1989]) (Haley and Aldrich 2024). The geotechnical study concluded that "…subsurface conditions consist of alluvial deposits to a depth of at least 100 ft bgs." For the purposes of this analysis, the more recent geological mapping of Brabb (1997) will be used.

Paleontological Literature Review

A search of paleontological literature and online compilation databases revealed one locality (168016), approximately 3.6 miles southwest of the Project site, where a mammoth was salvaged while digging the Watsonville (Buena Vista) Landfill in 1973. This locality was located within an unlithified terrestrial siliciclastic unit (McClennen et al. 2017). In his compilation of early Holocene to Pleistocene vertebrates from California, Jefferson (1991) reported mammoths (*Mammuthus columbi*) from Aptos and Santa Cruz, California.

Paleontological Records Searches

A paleontological records search was requested from the NHMLA, and they responded on March 31, 2024 indicating from a preliminary review of their fossil specimen database, they had no relevant localities within that region, as they had not done work within the area (Confidential Attachment B). An additional paleontological records search was requested from the SCMNH. They also indicated via email that they did not have any relevant fossil localities in their database. Therefore, an unofficial records search was performed through the UCMP digital online database on April 2, 2024. The UCMP digital database had no localities within the proposed Project site or within the one-mile radius buffer; however, they did have one locality from Pleistocene sediments approximately 3.5 to 4 miles southeast of the proposed Project site along State Route 129. This locality (UCMP V2016006) yielded a foot bone from *Cervus* (elk) and an unidentified mammal bone (UCMP 2024).

Pedestrian Paleontological Survey

No fossils were observed during the pedestrian paleontological survey. The majority of the Project site was heavily vegetated with little exposed ground surface, precluding an intensive pedestrian survey of much of the site (Attachment C – Survey Photos). Exposed ground surfaces, including areas of bioturbation, were closely inspected for evidence of microfossils potentially brought to the surface (Attachment C – Survey Photos). Lithologically, observed sediments consisted of silty clays with minor amounts of sand that were weakly to moderately indurated. Exposed ground surfaces in areas mapped as terrace deposits of Watsonville, fluvial facies tended to be more sand rich and oxidized than the terrace deposits of Watsonville, alluvial fan facies (Attachment C – Survey Photos).

4 Impact Analysis and Conclusions

4.1 Thresholds of Significance

The thresholds of significance used to evaluate the impacts of the proposed Project related to paleontological resources are based on Appendix G of the CEQA Guidelines. A significant impact under CEQA would occur if the proposed Project would:

a) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

4.2 Impact Analysis

a) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No paleontological resources were identified from within the Project site as a result of the desktop geological and paleontological review; however, two fossil localities were reported within three to four miles of the Project site, from the same or similar sediments as those underlying the Project site,. The Project site is not anticipated to be underlain by a unique geological feature. The middle to early Holocene older flood-plain deposits and the Pleistocene terrace deposits of Watsonville, fluvial facies underlying the Project site have high paleontological resource sensitivity or potential. Based on the records search results and map and literature review, the Project site has high potential to produce paleontological resources during planned construction activities that occur below the level of fill or any previously disturbed sediments if present. In the event that intact paleontological resources are discovered within the Project site, ground-disturbing activities associated with construction of the Project, such as grading and large diameter (two-feet or greater) drilling during site preparation and trenching for utilities, have the potential to destroy a unique paleontological resource or site. The potential for Project activities to damage paleontological resources during construction would result in a potentially significant impact. However, compliance with the County's regulations, which include procedures to follow and measures to implement if a resource is found during construction, would avoid or minimize potential impacts to a **less-than-significant** level. However, the following measure is recommended.

> RECOMMENDATION: Paleontological Resources Protection. Prior to commencement of any ground disturbing activity on site, the Project applicant shall retain a qualified paleontologist per the Society of Vertebrate Paleontology (SVP) 2010 guidelines to attend a preconstruction meeting, conduct a worker environmental awareness training, and prepare and implement a Paleontological Resources Mitigation and Monitoring Program (PRMMP) for the Project. The PRMMP shall outline where paleontological monitoring is required within the Project site based on construction plans and/or geotechnical reports, procedures for adequate discoveries treatment, paleontological methods (including sediment sampling for microinvertebrate and microvertebrate fossils), reporting, and collections management.

In addition, a qualified paleontological monitor shall be on site during initial rough grading and other significant ground-disturbing activities (including large diameter [2 feet or greater] augering) in areas underlain by undisturbed older flood-plain and terrace deposits. No paleontological monitoring is necessary during ground disturbance within artificial fill or previously disturbed sediments, if determined to be present. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will allow grading to recommence in the area of the find. Any costs for laboratory work and curation fees in case of fossil recovery are the responsibility of the project applicant.

5 References

CGS (California Geological Survey). 2002. *California Geomorphic Provinces: Note 36*. 4 pp.

Cohen, K.M., S.C. Finney, P.L. Gibbard, and J.-X. Fan. 2024. "The ICS International Chronostratigraphic Chart." *Episodes* 36: 199-204. https://stratigraphy.org/ICSchart/ChronostratChart2023-09.pdf.

Brabb, E.E. 1989. "Geologic Map of Santa Cruz County, California". [map]. 1:62,500. U.S. Geological Survey Miscellaneous Investigations Series Map I-1905.

Brabb, E.E. 1997. "Geologic Map of Santa Cruz County, California: A Digital Database" [map]. 1:62,500. U.S. Geological Survey Open-File Report OF-97-489. Map and pamphlet. https://ngmdb.usgs.gov/Prodesc/proddesc_18796.htm.

Graymer, R.W., W. Bryant, C.A. McCabe, S. Hecker, and C.S. Prentice. 2006. "Geologic Map of the San Francisco Bay Region" [map and poster]. 1:250,000. U.S. Geological Survey Scientific Investigations Map 2918.

Jefferson, G.T. 1991. *A Catalog of Late Quaternary Vertebrates from California*. Natural History Museum of Los Angeles County Technical Reports, No. 7:1–174. Unpublished revision May 18, 2012.

McClennen M, J. Jenkins, M. Uhen. 2017. Paleobiology Database. Occurrence Dataset https://doi.org/10.15468/jfqhiu accessed via GBIF.org on 2024-04-03.

NHMLA (Natural History Museum of Los Angeles County). 2024. Records Search Correspondence from the Natural History Museum of Los Angeles County, Los Angeles, California. March 31, 2024. Alyssa Bell, PhD.

Santa Cruz County. 2022. Santa Cruz County General Plan/LCP, Chapter 5: Agriculture, Natural Resources, and Conservation Element. November 15, 2022.

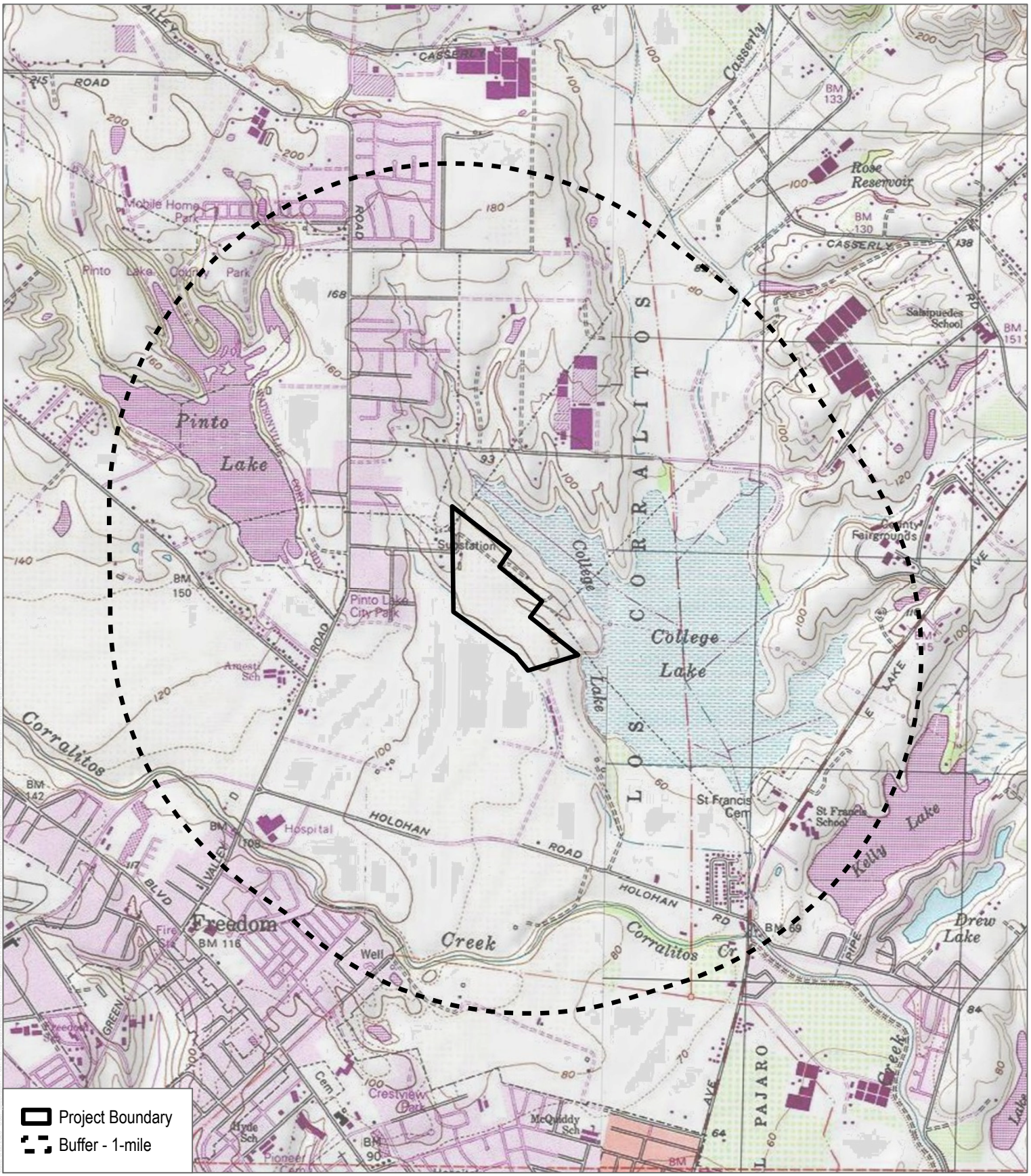
SCMNH (Santa Cruz Museum of Natural History). Records Search Correspondence from the Santa Cruz Museum of Natural History. October 30, 2025. Kathleen Aston.

SVP (Society of Vertebrate Paleontology). 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. 11 p. Available; https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines-1.pdf.

UCMP (University of California Museum of Paleontology). Online Database. 2024. https://ucmpdb.berkeley.edu/loc.html. Accessed April 2, 2024.

Attachment A

Figures



SOURCE: USGS 7.5-Minute Series Watsonville West Quadrangle
Township 11S; Range 2E; Section 28

DUDEK

1:24,000

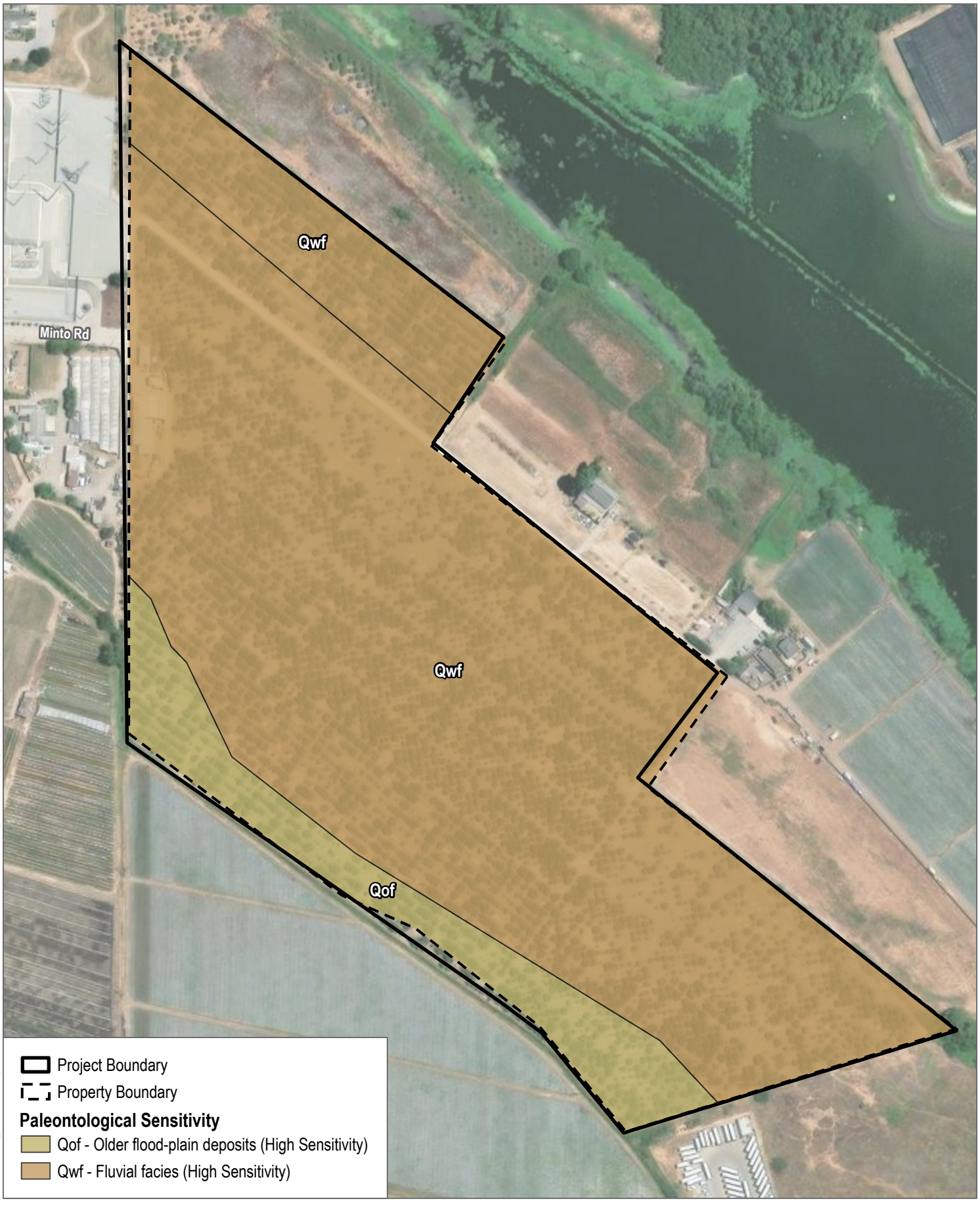
0 1,000 2,000 Feet

0 250 500 Meters

FIGURE 1

Figure 1 Records Search

Seahawk Battery Energy Storage System



SOURCE: Maxar 2024; OpenStreetMaps 2019; Santa Cruz County Accessed 2025; Brabb 1997

DUDEK

0 145 290 Feet

FIGURE 2

Paleontological Sensitivity

Seahawk Battery Energy Storage System

Confidential Attachment B

Paleontological Records Search Correspondence

Attachment C

Paleontological Survey Photos

Photograph 1: Overview of Project site showing limited ground surface visibility and previous land use. View to the east.

Photograph 2: Overview of Project site showing limited ground surface visibility and previous land use. View to the northeast.

Photograph 3: Bioturbation within mapped terrace deposits of Watsonville, fluvial facies. View north.

Photograph 4: Sandy soil in area mapped as terrace deposits of Watsonville, alluvial fan facies. View to the west.