INITIAL STUDY/
NEGATIVE DECLARATION

3003 DWIGHT WAY PROJECT

BERKELEY, CALIFORNIA

LSA

August 2022

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NEGATIVE DECLARATION

3003 DWIGHT WAY PROJECT

BERKELEY, CALIFORNIA

Submitted to:

City of Berkeley
Planning and Development Department
Land Use Planning Division
1947 Center Street, 2nd Floor
Berkeley, California 94704

Prepared by:

LSA
157 Park Place
Pt. Richmond, California 94801
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Project No. CBE1906.07

LSA

August 2022

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TABLE OF CONTENTS

FIGURES AND TABLES

FIGURES

TABLES

LIST OF ABBREVIATIONS AND ACRONYMS

ACTC	Alameda County Transportation Commission
APN	Assessor's Parcel Number
ASCE	American Society of Civil Engineers
BAAQMD	Bay Area Air Quality Management District
Basin Plan	San Francisco Bay Basin Water Quality Control Plan
BMC	Berkeley Municipal Code
BMP	best management practice
California Register	California Register of Historical Resources
CAP	City of Berkeley Climate Action Plan
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CGS	California Geological Survey
CH_4	methane
City	City of Berkeley
Clean Air Plan	BAAQMD 2017 Clean Air Plan
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide

CO_2	carbon dioxide
CO_2e	carbon dioxide quivalents
COA	Condition of Approval
CWA	Clean Water Act
dB	decibel
dBA	A-weighted sound level
EBMUD	East Bay Municipal Utility District
Emissions Plan	Construction Emissions Minimization Plan
ES-R	Environmental Safety-Residential
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FTA	Federal Transit Administration
GHG	greenhouse gas
GWP	Global Warming Potential
H	Hillside Overlay
HFC	hydrofluorocarbon
IS/ND	Initial Study/Negative Declaration
LDR	Low Density Residential
L_{dn}	day-night average level
L_{eq}	equivalent continuous sound level
mgd	million gallons per day
MRP	Municipal Regional Permit
msl	mean sea level
MWWTP	Main Wastewater Treatment Plant

N_2O	nitrous oxide
NAHC	Native American Heritage Commission
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
OEHHA	Office of Environmental Health Hazard Assessment
O&M	operations and maintenance
OPR	State Office of Planning and Research
Orinda WTP	EBMUD Orinda Water Treatment Plan
Pb	lead
PFC	perfluorocarbons
$PM_{2.5}$	particulate matter
PM_{10}	particulate matter
POTW	publicly-owned treatment works
PPV	peak particle velocity
proposed Project	3003 Dwight Way Project
psf	pounds per square foot
PV	photovoltaic
R-2A	Restricted Multiple-Family Residential
rms	root mean square
ROG	reactive organic gases
SF_6	sulfur hexafluoride
SO_2	sulfur dioxide
TAC	toxic air contaminant
TMDL	total maximum daily load

VDECS	Verified Diesel Emission Control Strategies
WSMP	Water Supply Management Plan
ZAB	Zoning Adjustments Board
ZE	zero emission

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CITY OF BERKELEY
LAND USE PLANNING
INITIAL
STUDY

1.0 PROJECT INFORMATION

The following is an Initial Study/Negative Declaration (IS/ND) for the proposed Project located at 3003 Dwight Way (herein referred to as "proposed Project"). An overview of the Project location and existing site characteristics is followed by a description of the proposed Project and a summary of requested approvals and entitlements. Copies of all materials referenced in this report are available for review in the Project file during regular business hours at the City of Berkeley (City) Planning and Development Department, Land Use Planning Division. Project information can be viewed at the following website by accessing the Zoning tab, entering the permit number "ZP2021-0052" or "3003 Dwight Way," and clicking on Attachments under the Record Info drop down menu: https://aca.cityofberkeley.info/Community/.

1. **Project Title:**
   3003 Dwight Way Project

2. **Lead Agency Name and Address:**
   City of Berkeley (City)
   1947 Center Street, 2nd Floor
   Berkeley, California 94704

3. **Contact Person and Phone Number:**
   Allison Riemer, Associate Planner
   Planning and Development Department
   Land Use Planning Division
   Phone: (510) 981-7433
   Email: ARiemer@cityofberkeley.info

4. **Project Sponsor's Name and Address:**
   Jonathan Logan
   3003 Dwight Way
   Berkeley, CA 94704

5. **General Plan Designation:**
   Low Density Residential

6. Zoning:

Restricted Multiple-Family Residential, Hillside Overlay/Environmental Safety-Residential (R-2A(H)/ES-R)

7. Project Location

The approximately 1.58-acre Project site is made up of two parcels located at 3003 Dwight Way in the City of Berkeley, Alameda County (Assessor's Parcel Numbers [APNs] 055-1853-33-2 and 055-1855-023). The Project site is bounded by open space uses to the north and east, Dwight Way to the south, and residential uses to the west.

The Project site is accessed via a private driveway located on Dwight Way; the driveway also provides access to two adjacent residences. Figure 1-1 depicts the site's regional and local context and Figure 1-2 depicts an aerial view of the Project site.

8. Description of Project:

Existing site conditions and the proposed Project are described below.

Site Characteristics and Current Site Conditions. The irregularly-shaped Project site slopes downward from approximately 682 feet above mean sea level (msl) on the east to approximately 521 feet above msl on the west. The northwestern corner of the Project site is currently developed with an existing approximately 9,935-gross-square-foot single-family residence. As shown in Figure 1-2, the remainder of the Project site is undeveloped and contains sparse vegetation, including two Coast Live Oaks and other mature trees, shrubs, and grasses.

Proposed Project. As described in further detail below, the proposed Project would generally consist of the construction of a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site. The proposed Project would also include a merger of the two existing parcels within the Project site into one parcel. No modifications to the existing residential structure are proposed. Figure 2-3 shows the existing and merged lots and Figure 2-4 shows the conceptual site plan for the proposed Project. Conceptual floor plans for the pool house and greenhouse are shown in Figure 2-5, and Figure 2-6 shows conceptual sections for the pool house and pool.

Pool, Pool House, and Greenhouse. The proposed Project would include site improvements, grading, and excavation to allow for the construction of a pool, pool house, and greenhouse. As shown in Figure 2-5, an approximately 44,000-gallon pool with a hot tub would be constructed southeast of the existing residence. East of the pool would be an approximately 2,305-square-foot pool house that would be two stories and approximately 24 feet in height. The pool house would also include a below-grade level that would house all mechanical pool equipment. The pool house would include space for a sauna, sitting areas, a gym, and a physical therapy room. A patio with seating areas and an outdoor shower would also be constructed between the pool and pool house. Northeast of the pool house and pool would be an approximately 375-square-foot greenhouse that would be approximately 8 feet in height.

Retaining walls would also be installed around the proposed pool, along the southern boundary of the Project site, and near the proposed greenhouse. In addition to providing support and stability on the Project site, the retaining walls would also allow for pathways and stairs to be installed throughout that would provide access between the pool, pool house, and greenhouse.

Solar Array. As shown in Figure 2-4. The solar array would include both photovoltaic (PV) panels that would generate electricity, and thermal arrays that would be used to heat water. In addition to providing electricity to the existing residence and proposed pool and pool house, the PV solar panels would also connect to an electric battery storage system located adjacent to the proposed greenhouse building.

Landscaping. As shown in Figure 2-7, landscaping would be provided throughout the Project site. Landscaping would include trees, shrubs, perennials, vines, ornamental grasses, and succulents. None of the existing trees on the Project site would be removed. A total of 64 trees would be planted, including 35 fruit trees planted around the greenhouse near the center of the site and 15 trees around the solar array that would provide screening. All landscaping would be planted in compliance with the Model Water Efficient Landscape Ordinance.

Utilities and Infrastructure. The proposed Project is located in an urban area with existing utilities and infrastructure. The proposed Project would be required to install the following utility connections to the satisfaction of the applicable utility providers: water; wastewater; stormwater drainage; power; and telecommunications services. Connections to existing infrastructure would occur within the adjacent public rights-of-way.

Most of the existing approximately 1.58-acre Project site is covered by pervious surfaces. Development of the Project would result in an increase in impervious surfaces on the Project site from approximately 8,131 square feet to approximately 19,866 square feet. Runoff would be treated in accordance with the terms of the applicable Municipal Regional Permit (MRP) and C.3 requirements, before flowing to the City's storm drain.

Grading and Construction. The proposed Project would require a total of 1,970 cubic yards of soil to be cut from the Project site, 670 cubic yards of which would then be used as fill around the site. A total of 1,300 cubic yards of soils would be exported from the Project site. The maximum depth of excavation is expected to occur for installation of the proposed pool house and would be at a depth of 13 feet below the ground surface. Construction of the proposed Project is anticipated to begin in January 2023 and would occur over an approximately 21-month period. Mass excavation on the site for the building foundations and pool would last approximately one month.

Discretionary Actions. The proposed Project is subject to action by the City of Berkeley's Zoning Adjustments Board (ZAB). The Project would require the following discretionary entitlements from the City of Berkeley, per the City of Berkeley Municipal Code (BMC):

- Use Permit, per BMC Section 23D.24.030, to allow the construction of an accessory building larger than 100 square feet in size (pool house);

- Use Permit, per BMC Section 23D.24.030, to allow the construction of an accessory building larger than 100 square feet in size (green house);
- Use Permit, per BMC Section 23D.24.030, to allow the construction of a swimming pool and hot tub;
- Use Permit, per BMC Section 23D.24.030, to permit an accessory building (pool house) that deviates from the requirements of BMC Section 23D.08;
- Administrative Use Permit, per BMC Section 23D.24.030, for a fence that exceeds 4 feet in height.

Development of the proposed Project, if approved, would be subject to the City of Berkeley's standard Conditions of Approval (COA), pursuant to BMC 23B.32.040.D and consistent with the findings made by ZAB for approval of the Project and issuance of the requested Use Permits. Applicable COAs are identified in Chapter 3.0 of this Initial Study. Each COA is titled pursuant to the subject area it addresses.

9. Surrounding Land Uses and Setting:

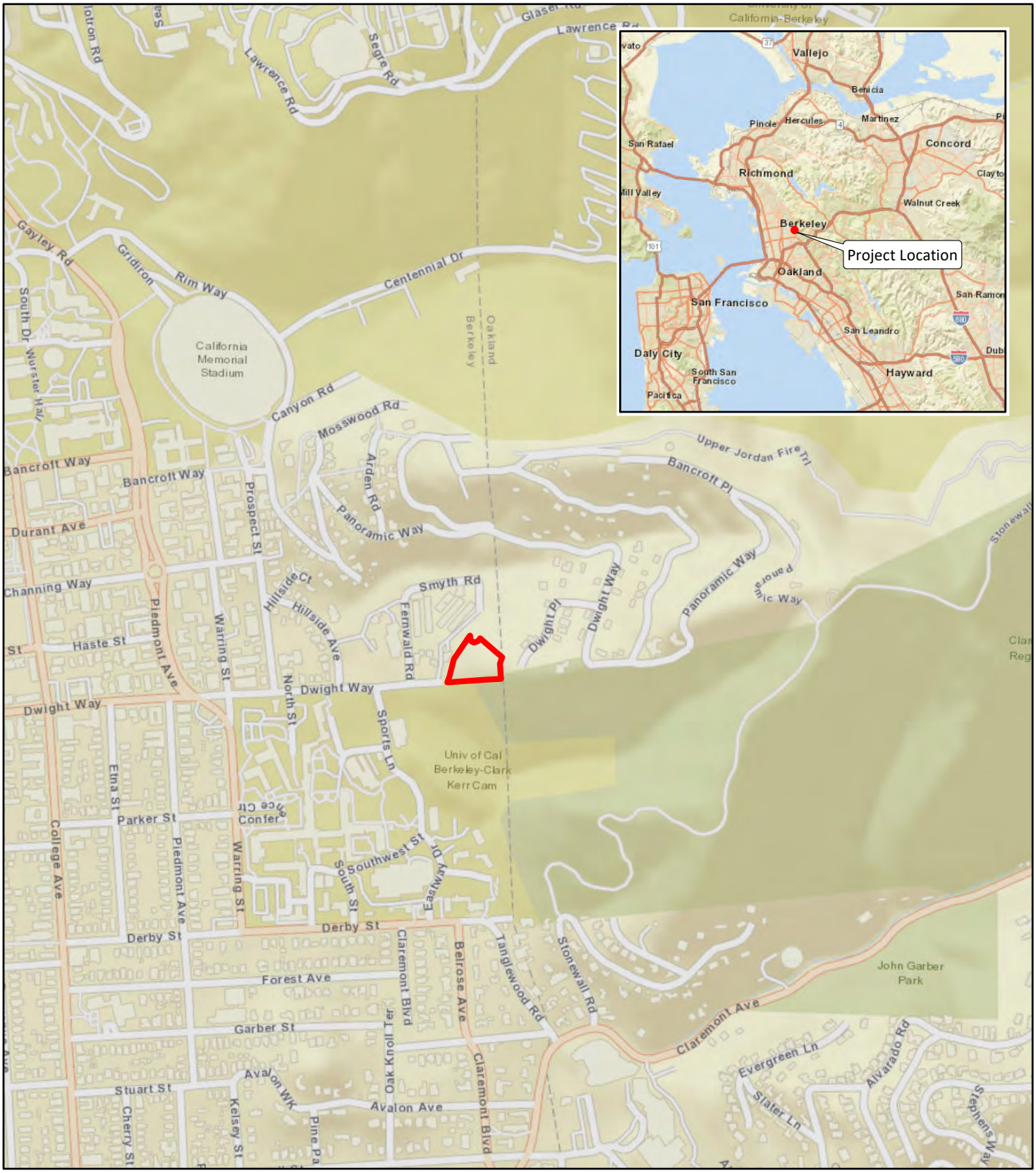
The Project site is located on Panoramic Hill in East Berkeley, which generally consists of low- and medium-density residential uses located north, east, and west of the Project site. Land uses within the vicinity of the Project site also include the University of California Clark Kerr Campus and open space and recreational uses to the south and east, as well as the Claremont Canyon Regional Preserve and California Memorial Stadium to the east and north, respectively.

10. Other Public Agencies Whose Approval is Required (e.g., permits, financial approval, or participation agreements):

East Bay Municipal Utility District (EBMUD)

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resource Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

A request form describing the Project and map depicting the Project site was sent to the Native American Heritage Commission (NAHC) in West Sacramento requesting a list of tribes eligible to consult with the City, pursuant to Public Resources Code section 21080.3.1. The City sent letters to these individuals on April 7, 2022 and April 29, 2022, notifying them of their opportunity to consult for this Project. No requests for consultation were received.



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LEGEND

Project Site

FIGURE 1-1

N

0 375 750

FEET

SOURCE: Esri World Street Map (2021)

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3003 Dwight Way Project IS/ND

Project Location & Regional Vicinity Map

FIGURE 1-2

3003 Dwight Way Project IS/ND

Aerial Photograph of the Project Site and Surrounding Land Uses

SOURCES: Google Earth, 8/6/2020; LSA, 2022

P:\CBE1906.07 3003 Dwight Way\PRODUCTS\Graphics\Fig 1-2_Aerial Photo+Surrounding LU.ai (6/21/2022)

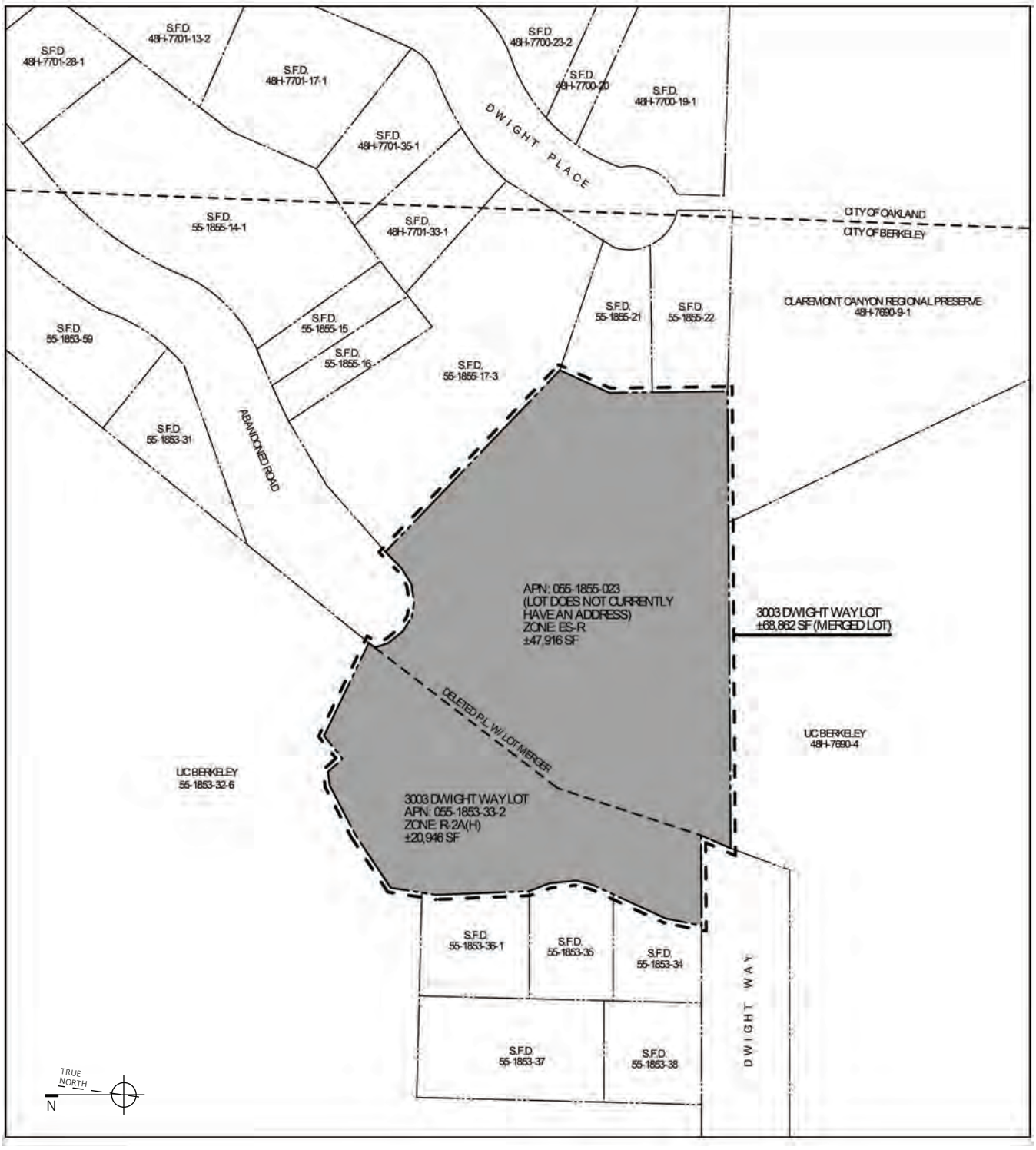

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FIGURE 1-3

NOT TO SCALE

SOURCE: Buttrick Projects Architecture & Design, March 2021

3003 Dwight Way Project IS/ND
Existing Lots and Proposed Lot Merger

P:\CBE1906.07 3003 Dwight Way\PRODUCTS\Graphics\Fig 1-3_Exist Lots&Proposed Lot Merger.ai (6/21/2022)

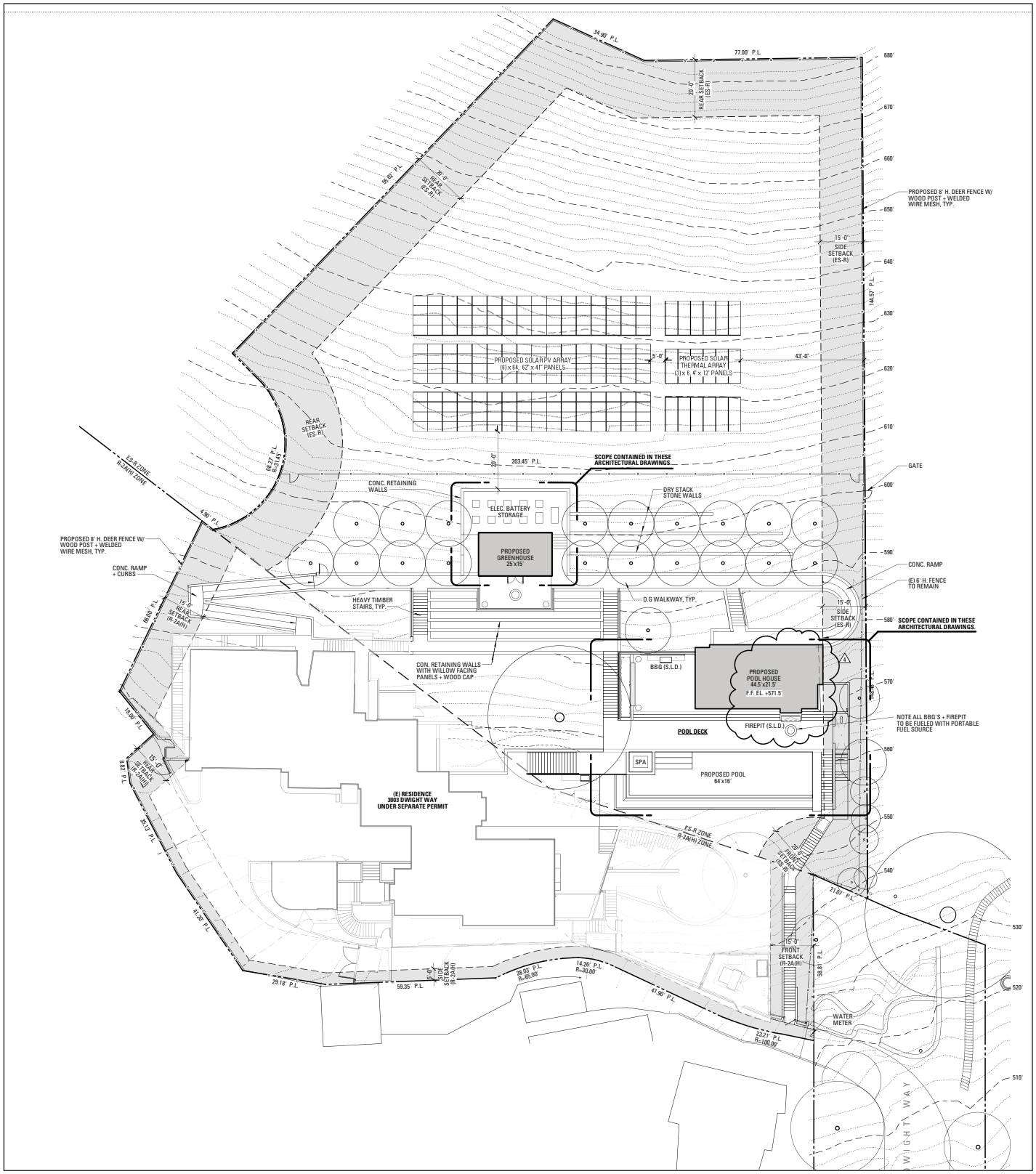

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FIGURE 1-4

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0 8 16

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SOURCE: Buttrick Projects Architecture & Design (5/13/22)

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3003 Dwight Way Project IS/ND

Proposed Conceptual Site Plan

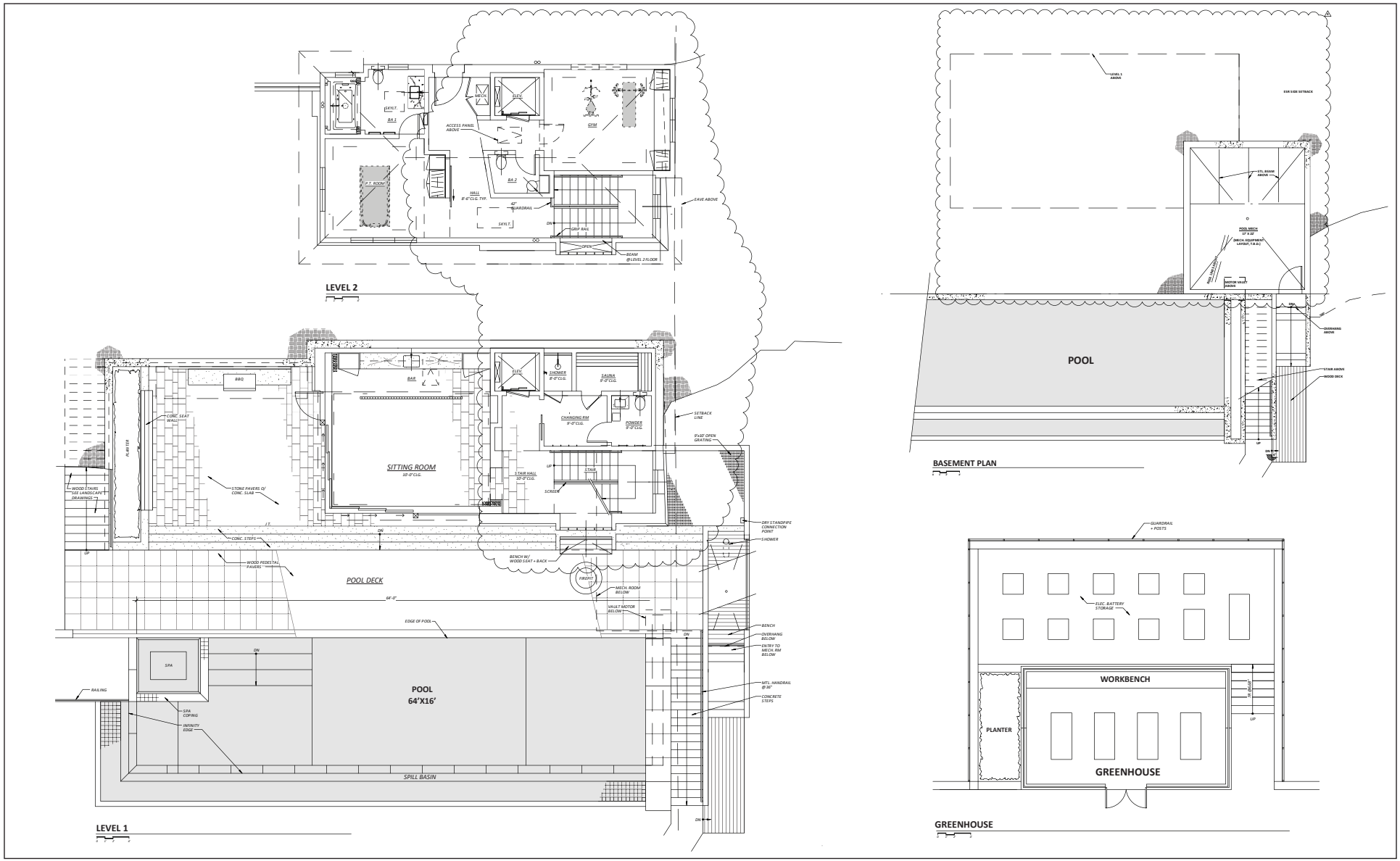

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FIGURE 1-5

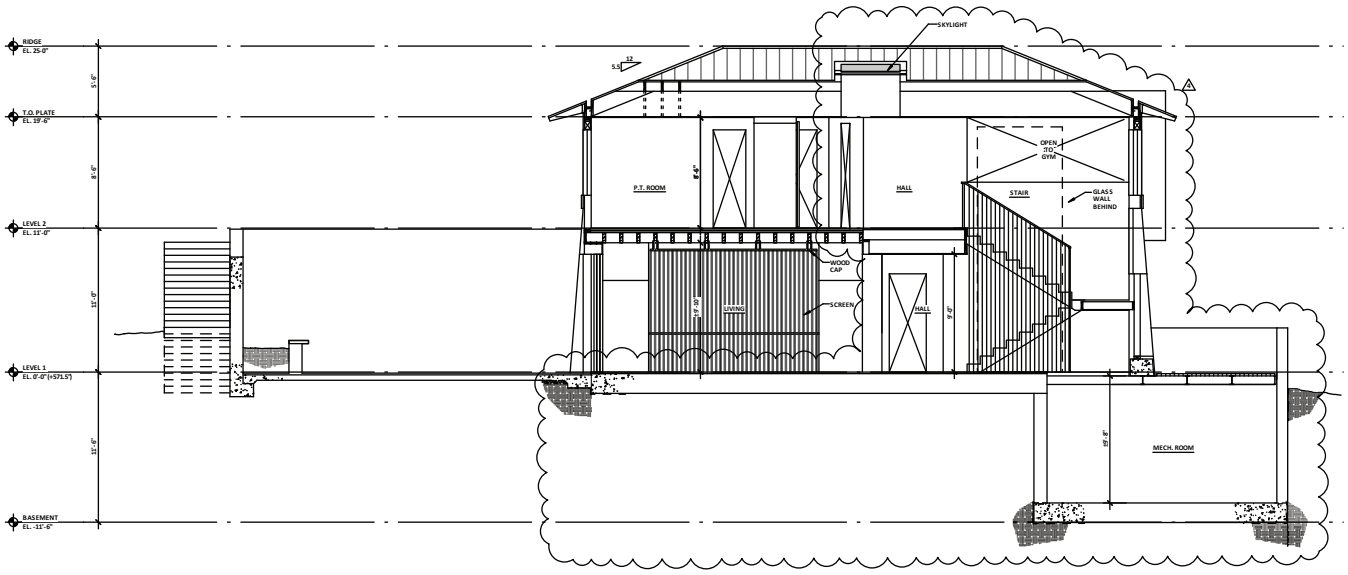
PROJECT TRUE

3003 Dwight Way Project IS/ND

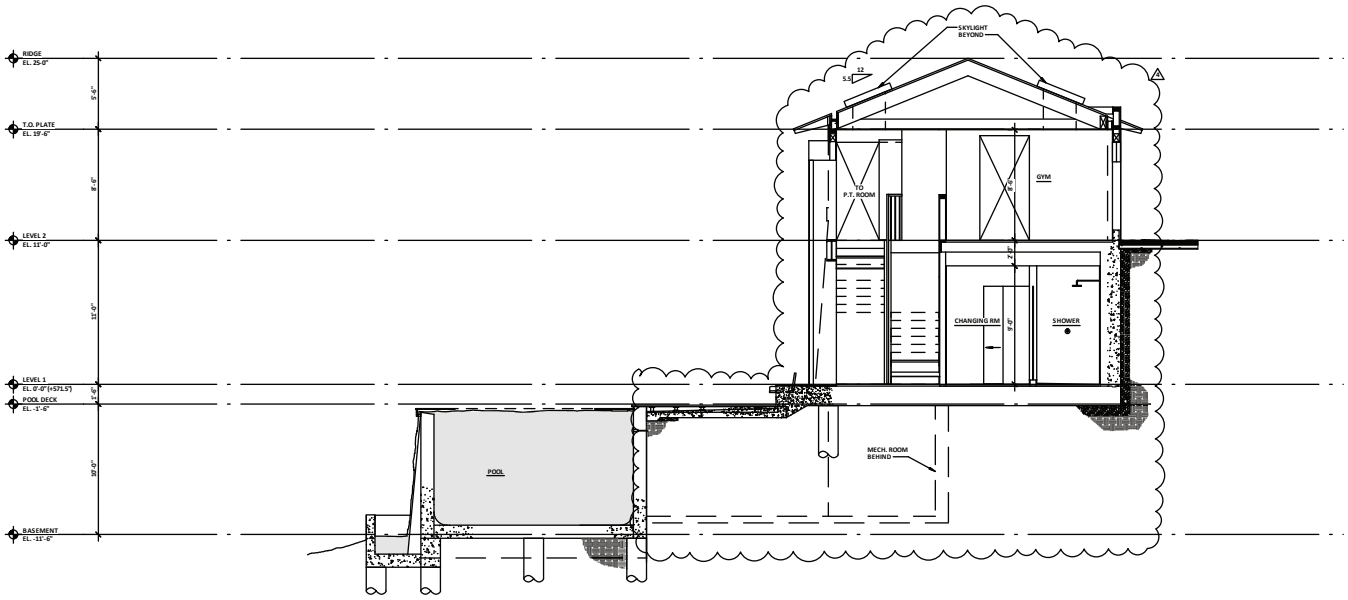
Proposed Conceptual Floor Plans - Pool House and Greenhouse

SOURCE: Buttrick Projects Architecture & Design (5/13/22)

I:\CBE1906.07-PTR\G\Fig 1-5_Prop Concept Flr Plans-Pool House+Greenhouse.ai (6/20/22)



1 SECTION



2 SECTION

LSA

FIGURE 1-6

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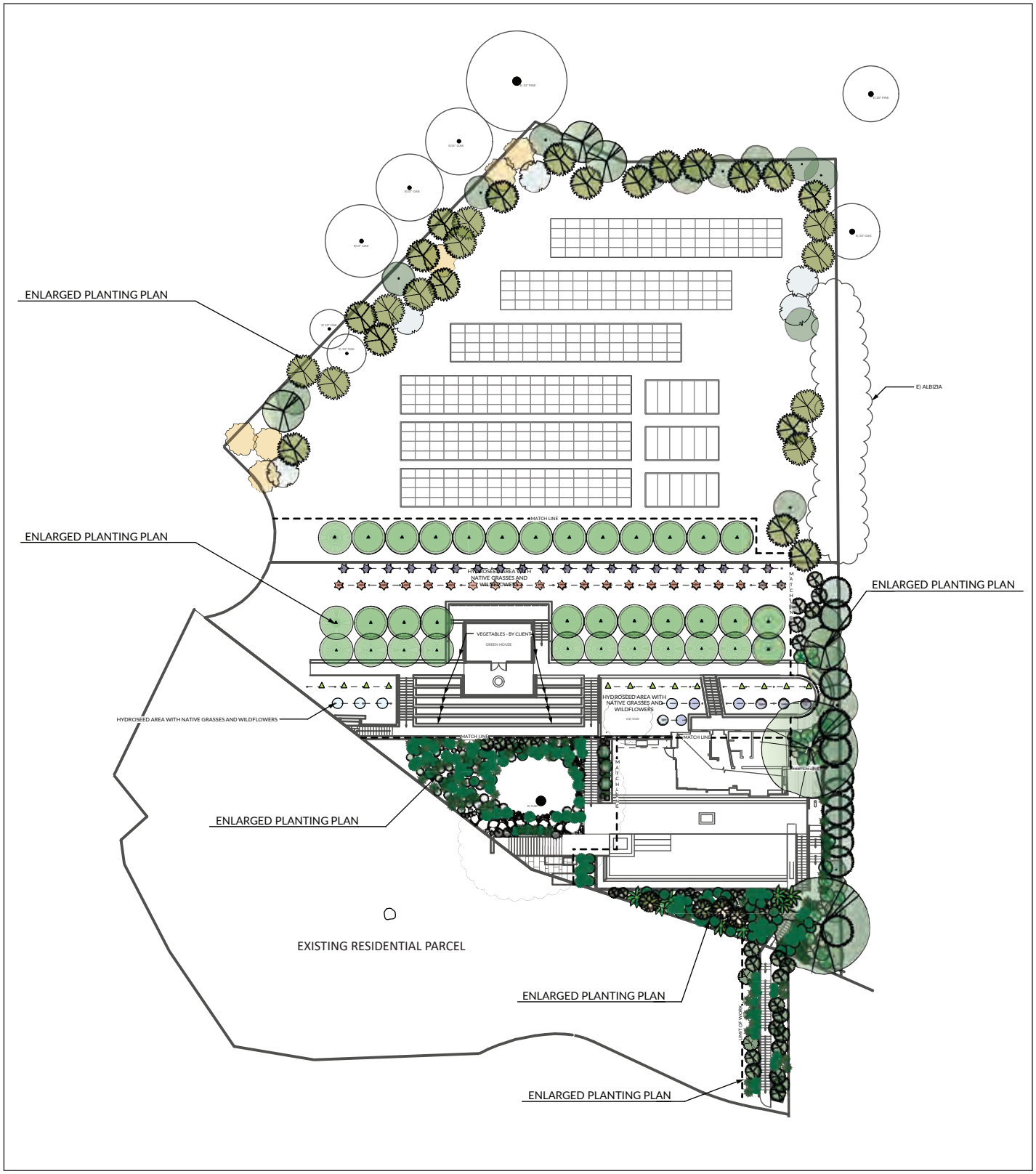
SOURCE: Buttrick Projects Architecture & Design (5/13/22)

3003 Dwight Way Project IS/ND
Proposed Conceptual Sections - Pool House and Pool

I:\CBE1906.07-PTR\G\Fig 1-6_Prop Concept Sections-Pool House+Pool.ai (6/21/22)



LSA

FIGURE 1-7

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SOURCE: ARTERRA, March 2021

3003 Dwight Way Project IS/ND
Proposed Landscape Plan

P:\CBE1906.07 3003 Dwight Way\PRODUCTS\Graphics\Fig 1-7_Prop Landscape Plan.ai (6/21/2022)

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2.0 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 in Chapter 3.0.

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

2.1 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 ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

Allison Riemer, Associate Planner

August 30, 2022
Date

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3.0 ENVIRONMENTAL CHECKLIST

3.1 AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the Project:				
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 a 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?	☐	☐	☒	☐

a. Would the Project have a substantial adverse effect on a scenic vista? ***(Less-Than-Significant Impact)***

No scenic vistas to or from the Project site are identified in the City's General Plan. The proposed pool, pool house, greenhouse, and solar array would be not be visible from surrounding public roadways due to the distance from public vantage points, existing topography and vegetation on and adjacent to the Project site. Additionally, the proposed improvements to the existing residential site would be visually consistent with surrounding residential land uses. Therefore, the proposed Project would not have a substantial effect on a scenic vista, and this impact would be less than significant.

b. Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway? ***(No Impact)***

The Project site is not located in the vicinity of any State scenic highways[1] and would not be visible from nearby roadways aside from the private driveway. Therefore, the proposed Project would not substantially damage scenic resources within view of a State scenic highway.

[1] California Department of Transportation. 2022. Scenic Highways. Website: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways (accessed April 2022).

c. In non-urbanized areas, would the Project substantially degrade the existing visual character of quality of public views of the site and its surroundings? (Public views are those that are experienced from a 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? ***(Less-Than-Significant Impact)***

As noted in Section 1.0, Project Information, the Project site is located within theR-2AH and ES-R zoning districts. The ES-R district has a maximum site coverage limit of 30 percent, a minimum usable open space requirement of 400 square feet, and a maximum height requirement of two stories (up to 35 feet) for new buildings. The R-2AH district has a minimum usable open space requirement of 300 square feet, and a maximum height requirement of three stories (up to 35 feet) for new buildings. The proposed Project would consist of the addition of an 2,305 square-foot, two-story pool house with a maximum height of approximately 24 feet; a 44,000-gallon pool with a hot tub; a patio; a 375-square-foot, 8-foot-tall greenhouse; and a 192-panel solar array on a 1.58-acre site with an existing 9,935-gross-square-foot single-family residence. The proposed pool, pool house, greenhouse, and solar array would change the visual appearance of the site, which is partially undeveloped and partially covered with sparse vegetation, grasses, and some mature trees. However, the proposed Project would not be visible from public roadways due to the distance from public vantage points, existing topography and vegetation on and adjacent to the Project site. Additionally, the proposed Project, which includes related improvements to an existing residential site, would be visually consistent with surrounding land uses and would not conflict with the development standards for the R-2AH and ES-R zoning districts. Therefore, this impact would be less than significant.

d. Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? ***(Less-Than-Significant Impact)***

Streetlights, vehicle headlights and taillights, and lighting associated with existing homes in the adjacent neighborhoods, as well as on the Project site, are the existing sources of light and glare in the Project area. The proposed Project would introduce new sources of light and glare to the Project site that don't currently exist. However, the site is currently developed with a single-family residence and, as noted above, the proposed Project would not be visible from public roadways. In addition, development projects that require a Use Permit are required to comply with the following COA that addresses potential light and glare impacts. With implementation of this COA, impacts related to light and glare would be less than significant.

> ***COA Exterior Lighting.*** All exterior lighting shall be energy efficient where feasible; and shielded and directed downward and away from property lines to prevent excessive glare beyond the subject property.

Therefore, the proposed Project would not adversely affect day or nighttime views in the area and this impact would be less than significant.

3.2 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 Department 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 the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☐	☒

a. Would the Project 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? ***(No Impact)***

The Project site and vicinity are located within an urban area of the City of Berkeley. There are no agricultural uses located on or near the Project site and the site is designated as Urban and Built-Up land by the Department of Conservation's Important Farmland Finder Map.[2] Therefore, development of the proposed Project would not convert agricultural lands to non-agricultural uses. Additionally, the proposed Project would have no impact on farmlands designated by the State of California as Unique or Prime Farmland, or Farmland of Statewide Importance.

[2] California Department of Conservation. 2016. California Important Farmland Finder (map). Website: maps.conservation.ca.gov/dlrp/ciff (April 1, 2022).

b. Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract? ***(No Impact)***

The Project site within the R-2AH and ES-R zoning districts on the City's Zoning Map and is therefore not eligible to enter into a Williamson Act contract.[3] The Land Use Element of the City's General Plan does not designate land for agricultural uses in the City of Berkeley and no adjacent properties are enrolled in Williamson Act contracts. Therefore, the proposed Project would not conflict with existing zoning for an agricultural use, or a Williamson Act contract.

c. Would the Project 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))? ***(No Impact)***

The Project site is within the R-2AH and ES-R zoning districts on the City's Zoning Map and is located in an urban, developed area. Therefore, the proposed Project would not result in the loss of forest land or conversion of forest land to non-forest uses.

d. Would the Project result in the loss of forest land or conversion of forestland to non-forest use? ***(No Impact)***

The Project site and vicinity are not located in an area that is designated as forest land. Therefore, the proposed Project would not result in the loss of forest land or conversion of forest land to non-forest uses.

e. Would the Project 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? ***(No Impact)***

The proposed Project would result in the construction of a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site and the merging of the two existing parcels at the Project site into one parcel. The Project site is surrounded by residential uses, the University of California Cark Kerr Campus, open space and recreational uses. The Environmental Management Element of the City's General Plan states that "Agriculture in Berkeley is limited to personal and community gardens." No existing or proposed community gardens are located within the vicinity of the site. Additionally, implementation of the proposed Project would not reduce the sunlight at any personal gardens as improvements to the existing residential site would not be of sufficient height to cast new shadows on adjacent properties. Therefore, the proposed Project would not result in the development of urban uses on a greenfield site, or other physical changes that would result in the conversion of farmland to non-agricultural uses.

[3] California Department of Conservation. 2019. Williamson Act Program. Website: https://www.conservation.ca.gov/dlrp/lca (accessed October 27, 2021).

3.3 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.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☒	☐

The Project site is located in the City of Berkeley, which is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), which regulates air quality in the San Francisco Bay Area. Air quality conditions in the San Francisco Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the number of days during which the region exceeds air quality standards have fallen substantially. In Berkeley, and the rest of the air basin, exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

Within the BAAQMD, ambient air quality standards for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10}, $PM_{2.5}$), and lead (Pb) have been set by both the State of California and the federal government. The State has also set standards for sulfate and visibility. The BAAQMD is under State non-attainment status for ozone and particulate matter (both PM_{10} and $PM_{2.5}$) standards. The BAAQMD is classified as non-attainment for the federal ozone 8-hour standard and non-attainment for the federal $PM_{2.5}$ 24-hour standard.

*a. Would the Project conflict with or obstruct implementation of the applicable air quality plan? **(Less-Than-Significant Impact)***

The applicable air quality plan is the BAAQMD 2017 Clean Air Plan (Clean Air Plan),[4] which was adopted on April 19, 2017. The Clean Air Plan is a comprehensive plan to improve Bay Area air quality and protect public health. The Clean Air Plan defines control strategies to reduce emissions and ambient concentrations of air pollutants; safeguard public health by reducing exposure to air pollutants that pose the greatest heath risk, with an emphasis on protecting the communities most heavily affected by air pollution; and reduce greenhouse gas emissions to protect the climate.

[4] Bay Area Air Quality Management District. 2017. *Clean Air Plan*. April 19.

Consistency with the Clean Air Plan can be determined if the Project: (1) supports the goals of the Clean Air Plan; (2) includes applicable control measures from the Clean Air Plan; and (3) would not disrupt or hinder implementation of any control measures from the Clean Air Plan. As discussed below, the proposed Project would not conflict with or obstruct implementation of the Clean Air Plan and this impact would be less than significant.

Clean Air Plan Goals. The primary goals of the Bay Area Clean Air Plan are to: attain air quality standards; reduce population exposure and protect public health in the Bay Area; and reduce greenhouse gas emissions and protect climate.

The BAAQMD has established significance thresholds for project construction and operational impacts at a level at which the cumulative impact of exceeding these thresholds would have an adverse impact on the region's attainment of air quality standards. The health and hazards thresholds were established to help protect public health. As discussed below in Section 3.3.b, implementation of the proposed Project would result in less-than-significant operation-period emissions and, with implementation of standard conditions that would implement BAAQMD-required diesel and particulate reduction measures during construction (COA: Public Works - Implement BAAQMD-Required Measures During Construction) and require equipment controls to reduce diesel particulate matter for off-road construction equipment (COA: Air Quality - Diesel Particulate Matter Controls During Construction), the proposed Project would result in less-than-significant construction-period emissions. Therefore, the proposed Project would not conflict with the Clean Air Plan goals.

Clean Air Plan Control Measures. The control strategies of the Clean Air Plan include measures in the following categories: Stationary Source Measures, Transportation Measures, Energy Measures, Building Measures, Agriculture Measures, Natural and Working Lands Measures, Waste Management Measures, Water Measures, and Super-Greenhouse Gas (GHG) Pollutants Measures. The proposed Project's compliance with each of these control measures is discussed below. As discussed, the proposed Project would not conflict with the Clean Air Plan control measures.

Stationary Source Control Measures. The Stationary Source Control Measures, which are designed to reduce emissions from stationary sources such as metal melting facilities, cement kilns, refineries, and glass furnaces, are incorporated into rules adopted by the BAAQMD and then enforced by the BAAQMD Permit and Inspection programs. Since the proposed Project would not include any of these stationary sources, the Stationary Source Control Measures of the Clean Air Plan are not applicable to the proposed Project.

Transportation Control Measures. The BAAQMD identifies Transportation Control Measures as part of the Clean Air Plan to decrease emissions of criteria pollutants, toxic air contaminants (TACs), and GHGs by reducing demand for motor vehicle travel, promoting efficient vehicles and transit service, decarbonizing transportation fuels, and electrifying motor vehicles and equipment. The Project site is currently developed with an existing approximately 9,935-gross-square-foot single-family residence. The proposed Project would result in the construction of a pool, pool house, greenhouse, and solar array to be associated with the existing residential use on the undeveloped half of the Project site and the merging of the two existing parcels at the Project site into one parcel. The proposed Project would not result in an increase in the

generation of vehicle trips or vehicle miles traveled. Therefore, the proposed Project would not conflict with the BAAQMD's initiatives to reduce vehicle trips and vehicle miles traveled.

Energy Control Measures. The Clean Air Plan also includes Energy Control Measures, which are designed to reduce emissions of criteria air pollutants, TACs, and GHGs by decreasing the amount of electricity consumed in the Bay Area, as well as decreasing the carbon intensity of the electricity used by switching to less GHG-intensive fuel sources for electricity generation. Since these measures apply to electrical utility providers and local government agencies (and not individual projects), the energy control measures of the Clean Air Plan are not applicable to the proposed Project.

Building Control Measures. The BAAQMD has authority to regulate emissions from certain sources in buildings such as boilers and water heaters, but has limited authority to regulate buildings themselves. Therefore, the strategies in the control measures for this sector focus on working with local governments that do have authority over local building codes, to facilitate adoption of best GHG control practices and policies. The proposed Project would be required to comply with the 2019 Title 24 standards and would include an approximately 192-panel solar array, which would include both PV panels that would generate electricity, and thermal arrays that would be used to heat water. Therefore, the proposed Project would not conflict with these measures.

Agriculture Control Measures. The Agriculture Control Measures are designed to primarily reduce emissions of methane. Since the proposed Project does not include any agricultural activities, the Agriculture Control Measures of the Clean Air Plan are not applicable to the proposed Project.

Natural and Working Lands Control Measures. The Natural and Working Lands Control Measures focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to adopt ordinances that promote urban-tree plantings. Since the proposed Project does not include the disturbance of any rangelands or wetlands, the Natural and Working Lands Control Measures of the Clean Air Plan are not applicable to the proposed Project.

Waste Management Control Measures. The Waste Management Control Measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and recycle. The proposed Project would comply with local requirements for waste management (e.g., recycling and composting services). Therefore, the proposed Project would be consistent with the Waste Management Control Measures of the Clean Air Plan.

Water Control Measures. The Water Control Measures focus on reducing emissions of criteria pollutants, TACs, and GHGs by encouraging water conservation, limiting GHG emissions from publicly owned treatment works (POTWs), and promoting the use of biogas recovery systems. Since these measures apply to POTWs and local government agencies (and not individual projects), the Water Control Measures are not applicable to the proposed Project.

Super GHG Control Measures. The Super-GHG Control Measures are designed to facilitate the adoption of best GHG control practices and policies through the BAAQMD and local government agencies. Since these measures do not apply to individual projects, the Super-GHG Control Measures are not applicable to the proposed Project.

Clean Air Plan Implementation. As discussed above, the proposed Project would generally implement the applicable measures outlined in the Clean Air Plan, including Transportation Control Measures. Therefore, the proposed Project would not disrupt or hinder implementation of a control measure from the Clean Air Plan and this impact would be less than significant.

b. Would the Project violate any air quality standard or contribute substantially to an existing or projected air quality violation? ***(Less-Than-Significant Impact)***

The BAAQMD is currently designated as a nonattainment area for State and national ozone standards and national particulate matter ambient air quality standards. The BAAQMD's nonattainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, the BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. The following analysis assesses the potential construction- and operation-related air quality impacts and CO impacts.

Construction Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, reactive organic gases (ROG), directly-emitted particulate matter ($PM_{2.5}$ and PM_{10}), and TACs such as diesel exhaust particulate matter.

Project construction activities would include the following tasks: site preparation, excavation, grading, building construction, paving, and architectural coatings. Construction-related effects on air quality from the proposed Project would be greatest during the site preparation phase due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the

amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. The BAAQMD has established standard measures for reducing fugitive dust emissions (PM_{10}). With the implementation of these Basic Construction Mitigation Measures, fugitive dust emissions from construction activities would not result in adverse air quality impacts.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_x, ROGs and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

The BAAQMD has developed screening criteria to provide lead agencies with a conservative indication of whether a proposed project would result in potentially significant air quality impacts. If all of the screening criteria are met by a proposed project, then the lead agency would not need to perform a detailed air quality assessment of the proposed project's emissions. These screening levels are generally representative without any form of mitigation measures taken into consideration. In addition, the screening criteria do not account for project design features, attributes, or local development requirements that could also result in lower emissions.

For single-family residential land uses, the BAAQMD screening size for construction criteria pollutants is 114 units. The proposed Project would result in the construction of accessory structures to an existing residential use, including a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site and the merging of the two existing parcels at the Project site into one parcel. Therefore, based on the BAAQMD's screening criteria, construction activities associated with the proposed Project are not anticipated to exceed established thresholds. Additionally, the City of Berkeley requires the implementation of the BAAQMD's Basic Construction Mitigation Measures, which are required by COA, Public Works - Implementation of BAAQMD-Recommended Measures During Construction, to reduce construction fugitive dust impacts to a less-than-significant level. Development projects that require a Use Permit are required to comply with the following COAs that addresses potential impacts during construction. With implementation of these COAs, construction impacts would be less than significant.

COA Public Works - Implement BAAQMD-Recommended Measures During Construction. For all proposed projects, BAAQMD recommends implementing all the Basic Construction Mitigation Measures, listed below to meet the best management practices threshold for fugitive dust:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

- All haul trucks transporting soil, sand, or other loose material off site shall be covered.

- All visible mud or dirt tracked-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

- All vehicle speeds on unpaved roads shall be limited to 15 mph.

- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

- A publicly-visible sign shall be posted with the telephone number and person to contact at the City of Berkeley regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

COA Air Quality - Diesel Particulate Matter Controls During Construction. All off-road construction equipment used for projects with construction lasting more than 2 months shall comply with one of the following measures:

a. The Project applicant shall prepare a health risk assessment that demonstrates the Project's onsite emissions of diesel particulate matter during construction will not exceed health risk screening criteria after a screening-level health risk assessment is conducted in accordance with current guidance from BAAQMD and Office of Environmental Health Hazard Assessment (OEHHA). The health risk assessment shall be submitted to the Land Use Planning Division for review and approval prior to the issuance of building permits; or

b. All construction equipment shall be equipped with Tier 2 or higher engines and the most effective Verified Diesel Emission Control Strategies (VDECS) available for the engine type (Tier 4 engines automatically meet this requirement) as certified by the California Air Resources Board (CARB). The equipment shall be properly maintained and tuned in accordance with manufacturer specifications.

   In addition, a Construction Emissions Minimization Plan (Emissions Plan) shall be prepared that includes the following:

- An equipment inventory summarizing the type of off-road equipment required for each phase of construction, including the equipment manufacturer, equipment identification number, engine model year, engine certification (tier rating), horsepower, and engine serial number. For all VDECS, the equipment inventory shall also include the technology type, serial number, make, model, manufacturer, CARB verification number level, and installation date.

- A Certification Statement that the Contractor agrees to comply fully with the Emissions Plan and acknowledges that a significant violation of the Emissions Plan shall constitute a material breach of contract. The Emissions Plan shall be submitted to the Public Works Department for review and approval prior to the issuance of building permits.

The proposed Project would be required to comply with the above City-required COAs. As such, construction of the proposed Project would not 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 standards and impacts would be less than significant.

Operational Emissions. Long-term air pollutant emission impacts are those associated with mobile sources (e.g., vehicle trips), energy sources (e.g., electricity and natural gas), and area sources (e.g., architectural coatings and the use of landscape maintenance equipment) related to the proposed Project.

PM_{10} emissions result from running exhaust, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways. Entrainment of PM_{10} occurs when vehicle tires pulverize small rocks and pavement and the vehicle wakes generate airborne dust. The contribution of tire and brake wear is small compared to the other PM emission processes. Gasoline-powered engines have small rates of particulate matter emissions compared with diesel-powered vehicles.

Energy source emissions result from activities in buildings for which electricity and natural gas are used. The quantity of emissions is the product of usage intensity (i.e., the amount of electricity or natural gas) and the emission factor of the fuel source. The proposed Project would generate a minimal amount of energy source emissions which would primarily be associated with lighting and heating within the pool house. As previously mentioned, the proposed Project would include a thermal solar panel array which would be used to heat the proposed pool.

Typically, area source emissions consist of direct sources of air emissions located at the Project site, including architectural coatings and the use of landscape maintenance equipment. Area source emissions associated with the Project would include emissions from the use of landscaping equipment.

As discussed above, the BAAQMD has developed screening criteria to determine whether a project requires an analysis of project-generated criteria air pollutants. If all the screening criteria are met by a proposed project, then the lead agency does not need to perform a detailed air quality assessment.

For single-family residential land uses, the BAAQMD screening size for operational criteria pollutants is 325 units. The proposed Project would result in the construction of accessory structures to an existing residential use, including a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site and the merging of the two existing parcels at the Project site into one parcel for use by one single-family residence. Therefore, based on the BAAQMD's screening criteria, the proposed Project is not anticipated to exceed established thresholds. Therefore, operation of the proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project is nonattainment under applicable federal or State ambient air quality standards. Impacts would be less than significant and no mitigation is required.

Localized CO Impacts. Emissions and ambient concentrations of CO have decreased dramatically in the Bay Area with the introduction of the catalytic converter in 1975. No exceedances of the State or federal CO standards have been recorded at Bay Area monitoring stations since 1991. The BAAQMD's 2017 CEQA Guidelines include recommended methodologies for quantifying concentrations of localized CO levels for proposed transportation projects. A screening level analysis using guidance from the BAAQMD CEQA Guidelines was performed to determine the impacts of the Project. The screening methodology provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to the BAAQMD's CEQA Guidelines, a proposed project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met:

- The Project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, and the regional transportation plan and local congestion management agency plans.

- Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.

- The Project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, or below-grade roadway).

Implementation of the proposed Project would not conflict with standards established by the Alameda County Transportation Commission (ACTC) for designated roads and highways, a regional transportation plan, or other agency plans. The proposed Project would involve improvements that would support the existing residential use and would not result in additional trip generation. Therefore, the proposed Project would not contribute to peak hour traffic volumes at intersections in the vicinity of the Project site, which are all well below 44,000 vehicles per hour. As such, the proposed Project would not result in localized CO concentrations that exceed State or federal standards and impacts would be less than significant.

c. Would the Project 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)? ***(Less-Than-Significant Impact)***

Sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Individuals particularly vulnerable to diesel particulate matter are children, whose lung tissue is still developing, and the elderly, who may have serious health problems that can be aggravated by exposure to diesel particulate matter. Exposure from diesel exhaust associated with construction activity contributes to both cancer and chronic non-cancer health risks. The closest sensitive receptors to the Project site include low- and medium-density residential uses located north, east, and west of the Project site, with the nearest receptor located 70 feet west of the Project site and 120 feet east of the Project site.

Construction of the proposed Project may expose these surrounding sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). As discussed above, with implementation of standard conditions that would implement BAAQMD-required diesel and particulate reduction measures during construction (COA: Public Works - Implement BAAQMD-Required Measures During Construction) and require equipment controls to reduce diesel particulate matter for off-road construction equipment (COA: Air Quality - Diesel Particulate Matter Controls During Construction), Project construction pollutant emissions would be below the BAAQMD significance thresholds. Once the Project is constructed, the Project would not be a source of substantial pollutant emissions. Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations during Project construction and operation, and potential impacts would be less than significant.

d. Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? ***(Less-Than-Significant Impact)***

During Project construction, some odors may be present due to diesel exhaust. However, these odors would be temporary and limited to the construction period. The proposed Project would not include any activities or operations that would generate objectionable odors and once operational, the proposed Project would not be a source of odors. Therefore, the proposed Project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. This impact would be less than significant.

3.4 BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 Wildlife 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 Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
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?	☐	☐	☐	☒

To establish existing conditions related to biological resources, the California Department of Fish and Wildlife (CDFW) California Natural Diversity Data Base (CNDDB)[5] and the California Native Plant Society's (CPNS) Inventory of Rare, Threatened, and Endangered Plants of California[6] were reviewed for lists of special-status species that have occurred or could occur on or near the site. An LSA biologist also conducted a reconnaissance-level site survey on March 25, 2022 to document the habitats and conditions in the area. Habitats for special-status species were assessed based on the presence of suitable habitat.

Much of the Project site is developed. The steep hillside where the solar panels would be installed is not developed. Many large eucalyptus stumps on the hillside indicate that it was formerly a grove of large mature eucalyptus. A review of aerial imagery shows that the eucalyptus were cut down in late

[5] California Department of Fish and Wildlife. 2022. California Natural Diversity Database, commercial version dated April 2022. Biogeographic Data Branch, Sacramento.

[6] California Native Plant Society. 2022. Inventory of Rare and Endangered Plants (online edition, v9-01 1.5).

2015 or early 2016. The hillside is now dominated by nonnative annual grasses. Intermixed with the grasses are a few large Pride of Madeira (*Echium* sp.), which is a non-native ornamental species.

A total of 27 special-status plant species and 33 special-status wildlife species have CNDDB occurrences within 5 miles of the Project site. The CNPS query returned 20 special-status plant species, 13 of which were also in the CNDDB query. The CNDDB has occurrences for three Sensitive Natural Communities (Northern Coastal Salt March, Northern Maritime Chaparral, and Serpentine Bunchgrass) within 5 miles of the site. None of these communities are present on or adjacent to the site.

a. Would the Project 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? ***(Less-Than-Significant Impact)***

The Project site has negligible value as habitat for any species listed as endangered or threatened by the federal Endangered Species Act or California Endangered Species Act. Due to the lack of suitable vegetation communities or soil substrates (e.g., salt marsh, open water, chaparral, alkaline substrates), and prior disturbance (e.g., landscaping, grading, construction) at the site, none of the special-status plant species are expected to occur on the site. Similarly, no suitable habitat (e.g., streams, marshes, or chaparral) for most of the special-status wildlife in the area occurs on the site. Therefore, 31 of the 33 special-status wildlife species are not expected to occur on the site.

There is some potential that two special-status species —the white-tailed kite (*Elanus leucurus*) and Cooper's hawk (*Accipiter cooperi*) —could nest in trees on or adjacent to the site. Each species has one CNDDB occurrence within 5 miles of the site. The white-tailed kite is not a listed species, but is a Fully Protected species under California Fish and Game Code. The Cooper's hawk is also not a listed species, but is tracked by the CNDDB because it is on the CDFW Watch list. Both species are locally common.

No active or inactive bird nests were seen on the site. Several other native but non special-status bird species likely nest in the trees and shrubs adjacent to the site. Because there has been ongoing construction activities on the site, and human activity in the residences and trails near the site, any birds that choose to nest adjacent to the site are likely adapted to human activity and would not abandon their nests due to the ongoing activity.

All native birds and their nests, regardless of their regulatory status, are protected by California Fish and Game Code. If conducted during the breeding season (February through August), vegetation removal and other demolition or construction activities could directly impact nesting birds by removing trees and/or vegetation, or structures that support active nests. Implementation of COA: Avoid Disturbance of Nesting Birds would ensure that potential impacts to special-status species would be less than significant.

> ***COA: Avoid Disturbance of Nesting Birds.*** Initial site disturbance activities, including vegetation and concrete removal, shall be prohibited during the general avian nesting season (February 1 to August 31), if feasible. If nesting season avoidance is not feasible, the applicant shall retain a qualified biologist to conduct a

preconstruction nesting bird survey to determine the presence/absence, location, and activity status of any active nests on or adjacent to the Project site. The extent of the survey buffer area surrounding the site shall be established by the qualified biologist to ensure that direct and indirect effects to nesting birds are avoided. To avoid the destruction of active nests and to protect the reproductive success of birds protected by the Migratory Bird Treaty Act and the California Fish and Game Code, nesting bird surveys shall be performed not more than 14 days prior to scheduled vegetation and concrete removal. In the event that active nests are discovered, a suitable buffer (typically a minimum buffer of 50 feet for passerines 250 feet for raptors) shall be established around such active nests and no construction shall be allowed inside the buffer areas until a qualified biologist has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest). No ground-disturbing activities shall occur within this buffer until the qualified biologist has confirmed that breeding/nesting is completed, and the young have fledged the nest. Nesting bird surveys are not required for construction activities occurring between August 31 and January 31.

b. Would the Project 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 U.S. Fish and Wildlife Service? ***(No Impact)***

The proposed Project would not adversely affect any riparian habitat, which is absent from the site. Northern Coastal Salt Marsh, Northern Maritime Chaparral, and Serpentine Bunchgrass are the only special-status natural community that the CNDDB lists within 5 miles of the site. None of these communities are present on or adjacent to the site and would not be affected by the proposed Project. Therefore, there would be no impact to riparian habitats or sensitive natural communities.

c. Would the Project have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? ***(No Impact)***

No potential State or federally protected wetlands were identified on the Project site. Therefore, the proposed Project would have no impact related to State or federally protected wetlands.

d. Would the Project 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? ***(Less-Than-Significant Impact)***

The Project site is not located within a migratory wildlife movement corridor. Furthermore, most of the species that likely use the site are “generalists” that are adept at moving through urban landscapes. However, trees, shrubs, other vegetation, and structures have the potential to support nests of many common native bird species. All native birds and their nests, regardless of their regulatory status, are protected by California Fish and Game Code. If conducted during the breeding season (February through August), vegetation removal and other demolition or construction activities could directly impact nesting birds by removing trees and/or vegetation, or structures that

support active nests. Implementation of COA: Avoid Disturbance of Nesting Birds would ensure that potential impacts to nesting birds would be less than significant.

e. Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ***(Less-Than-Significant Impact)***

BMC Section 12.44.020[7] protects certain trees, and the City's Coast Live Oak Tree Ordinance[8] restricts removal of certain coast live oaks within the City. Two trees within the site are considered protected trees under City ordinances. Both of these trees are coast live oaks and located near the center of the Project site, one measuring approximately 42.5 inches in diameter at breast height (dbh) and the other approximately 18.5 inches dbh. The proposed Project would not include the removal of any trees, but would include construction activities within the drip line of both of these trees. As described in the Arborist Report, the proposed Project would include a number of tree protection measures to ensure construction activities would not impact the coast live oak trees, which would be required as project-specific conditions of approval.[9] Therefore, the proposed Project would not conflict with any local policies or ordinances protecting biological resources, and this impact would be less than significant.

f. Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? ***(No Impact)***

The Project site is not subject to any adopted habitat conservation plan or natural community conservation plan. Therefore, the proposed Project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Plan, or other approved local, regional, or State habitat conservation plan and no impact would occur.

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7 BMC Section 12.44.020: It unlawful for any person to cut, trim, remove, mutilate, injure or in any way impair the growth of any tree, shrub or plant being or growing in or on any public property within the City, or to cause or permit the same to be done. Provided, however, that in the event that any person desires permission to cut, trim, remove or in any way impair the natural growth of any such tree, shrub or plant, application shall first be made to the Director of Recreation and Parks for a permit therefor. Upon receipt of such application, the Director of Recreation and Parks may cause an inspection to be made and may thereafter issue or refuse to issue a permit for such work. Provided, further, that whenever it is deemed necessary by the Director of Recreation and Parks, he may require the work specified in said application, or any part thereof, to be done under his supervision, and the cost of such supervision shall be borne by the applicant if so determined by the Director of Recreation and Parks.

8 Coast Live Oak Tree Ordinance (Ordinance No. 6,905 N-S): a) A moratorium is declared on the removal of any single stem coast live oak tree of a circumference of 18 inches or more or any multi-stemmed coast live oak with an aggregate circumference of 26 inches or more at a distance of four feet up from the ground; b) Any pruning of a coast live oak that is excessive and injurious (removal of more than one-fourth of the functioning leaf, stem, or root system in any 24 month period) to the tree is prohibited; and c) an exception may be made if the City Manager, or his designee, finds that the protected tree is a danger to life or limb due to the condition of the tree, or is in danger to property, and that the only mitigation would be removal of the tree.

9 James Goodrum Consulting Arborist. 2021. *Arborist Report and Tree Protection Plan*. 3003 Dwight Way. January 22.

3.5 CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☒	☐
b. Cause a substantial adverse change in the significance of an archeological resource pursuant to §15064.5?	☐	☐	☒	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

*a. Would the Project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? **(Less-Than-Significant Impact)***

The Project site does not contain any known historic, or potentially historic, resources as defined by CEQA Guidelines Section 15064.5. For a cultural resource to be considered a historical resource (i.e., eligible for listing in the California Register of Historical Resources [California Register]), it generally must be 50 years or older. Under CEQA, historical resources can include pre-contact (i.e., Native American) archeological deposits, historic-period archeological deposits, historic buildings, and historic districts. The proposed Project would not include the demolition of any existing structures and therefore would have no impact on historic buildings or historic districts. The proposed Project would require the excavation of approximately 1,970 cubic yards of soil to a depth of approximately 13 feet below the ground surface which could result in the unearthing of previously unidentified significant archaeological deposits. In that event, a substantial adverse change to archaeological deposits could occur from its demolition, destruction, relocation, or alteration such that the significance of the resource could be materially impaired pursuant to CEQA Guidelines Section 15064.5(b)(1). However, implementation of the City's COA related to archaeological resources and human remains, which are discussed in greater detail below, would ensure that this impact would be less than significant.

*b. Would the Project cause a substantial adverse change in the significance of an archeological resource pursuant to §15064.5? **(Less-Than-Significant Impact)***

No archaeological resources are currently known to exist on the Project site; however, the proposed Project would require excavation of approximately 1,970 cubic yards of soil to a depth of approximately 13 feet below the ground surface. Ground-disturbing activities could have a substantial adverse change on unrecorded buried archeological deposits that qualify as historical resources, as defined in CEQA Guidelines Section 15064.5, and could materially impair pre-contact archeological deposits. However, the proposed would be required to comply with the following COA that addresses this potential impact. Implementation of the City's COAs related to the accidental discovery of potential archeological resources would ensure that this impact would be less than significant.

COA: Archaeological Resources. *(Ongoing throughout demolition, grading, and/or construction).* Pursuant to CEQA Guidelines section 15064.5(f), "provisions for historical or unique archeological resources accidentally discovered during construction" should be instituted. Therefore:

A. In the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project applicant and/or lead agency shall consult with a qualified archaeologist, historian or paleontologist to assess the significance of the find.
B. If any find is determined to be significant, representatives of the project proponent and/or lead agency and the qualified professional would meet to determine the appropriate avoidance measures or other appropriate measure, with the ultimate determination to be made by the City of Berkeley. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and/or a report prepared by the qualified professional according to current professional standards.
C. In considering any suggested measure proposed by the qualified professional, the project applicant shall determine whether avoidance is necessary or feasible in light of factors such as the uniqueness of the find, project design, costs, and other considerations.
D. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the Project site while mitigation measures for cultural resources is carried out.
E. If significant materials are recovered, the qualified professional shall prepare a report on the findings for submittal to the Northwest Information Center.

c. Would the Project disturb any humans remains, including those interred outside of formal cemeteries? ***(Less-Than-Significant Impact)***

No human remains are currently known to exist on the Project site; however, the proposed Project would require excavation of approximately 1,970 cubic yards of soil to a depth of approximately 13 feet below the ground surface. Ground-disturbing activities could disturb and in turn have a substantial adverse change on unrecorded human remains. However, the proposed Project would be required to comply with the following COA that addresses this potential impact. Implementation of the City's COAs related to human remains would ensure that this impact would be less than significant.

> ***COA: Human Remains.*** (*Ongoing throughout demolition, grading, and/or construction*). In the event that human skeletal remains are uncovered at the Project site during ground-disturbing activities, all work shall immediately halt, and the Alameda County Coroner shall be contacted to evaluate the remains, and following the procedures and protocols pursuant to Section 15064.5 (e)(1) of the CEQA Guidelines. If the County Coroner determines that the remains are Native American, the City shall contact the California Native American Heritage Commission (NAHC), pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, and all excavation and site preparation activities shall cease within a 50-foot radius of the

find until appropriate arrangements are made. If the agencies determine that avoidance is not feasible, then an alternative plan shall be prepared with specific steps and timeframe required to resume construction activities. Monitoring, data recovery, determination of significance and avoidance measures (if applicable) shall be completed expeditiously.

3.6 ENERGY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☒	☐

*a. Would the Project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation? **(Less-Than-Significant Impact)***

The proposed Project would increase energy demand during construction and operation, as further discussed below.

Construction-Period Energy Use. The anticipated construction schedule assumes that the proposed Project would be built over a 21-month period. The proposed Project would require grading, site preparation, and building activities during construction.

Construction of the proposed Project would require energy for the manufacture and transportation of building materials, preparation of the site for grading activities, and building construction. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities. In order to increase energy efficiency on the site during Project construction, idling times would be restricted to 5 minutes or less and construction workers would be required to shut off idle equipment, as required by COA: Public Works – Implement BAAQMD-Recommended Measures During Construction. Energy usage on the Project site during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources.

Operational Energy Use. Typically, energy consumption is associated with fuel used for vehicle trips and electricity and natural gas use. The expected energy consumption during operation of the proposed Project would be consistent with typical usage rates for residential uses; however, energy consumption is largely a function of personal choice and the physical structure and layout of buildings. The proposed Project would be required to comply with applicable Title 24 standards and would include an approximately 192-panel solar array, which would include both PV panels that would generate electricity, and thermal arrays that would be used to heat the proposed pool, which would help to reduce energy and natural gas consumption. In addition, the proposed Project would not result in an increase in the generation of vehicle trips or vehicle miles traveled. Therefore, the proposed Project would not result in the wasteful, inefficient or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy efficiency measures into building design, equipment use, and transportation. Therefore, this impact would be less than significant.

b. Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency? ***(Less-Than-Significant Impact)***

In 2002, the Legislature passed Senate Bill 1389, which required the California Energy Commission (CEC) to develop an integrated energy plan every two years for electricity, natural gas, and transportation fuels, for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission (ZE) vehicles and their infrastructure needs, and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

The CEC approved the 2021 Integrated Energy Policy Report, which provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The 2021 Integrated Energy Policy Report covers a broad range of topics, including implementation of Senate Bill 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas (in response to Senate Bill 1383), updates on California electricity reliability, natural gas outlook, and climate adaptation and resiliency.

As indicated above, energy usage on the Project site during construction would be temporary in nature. In addition, energy usage associated with operation of the proposed Project would be relatively small in comparison to the State's available energy sources and energy impacts would be negligible at the regional level. Because California's energy conservation planning actions are conducted at a regional level, and because the proposed Project's total impact to regional energy supplies would be minor, the proposed Project would not conflict with California's energy conservation plans as described in the CEC's 2021 Integrated Energy Policy Report. Thus, as shown above, the Project would avoid or reduce the inefficient, wasteful, and unnecessary consumption of energy and not result in any irreversible or irretrievable commitments of energy. Therefore, the proposed Project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources during Project construction or operation and this impact would be less than significant.

3.7 GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 direct or indirect risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

The information presented in this section is based on data and findings provided in the Subsurface Investigation and Geotechnical-Design Recommendations (Geotechnical Investigation) and Reconnaissance-Level Fault- and Geologic-Hazard Evaluation (Geologic Hazard Evaluation) prepared for the proposed Project, unless otherwise noted.[10,11]

The California Geological Survey (CGS) has mapped Seismic Hazard Zones that delineate areas susceptible to geologic hazards that require additional investigation. According to the CGS, the Project site is located within an Alquist-Priolo Zone and Seismic Hazard Zone for landslides.[12] The Seismic Hazards Mapping Act requires that site-specific geotechnical investigations be conducted to identify the hazard and provide recommendations prior to permit approval for most developments designed for human occupancy within the Zones of Required Investigation. In addition, as specified under Policy S-14 in the Disaster Preparedness and Safety Element of the City of Berkeley General

10 Alan Kropp & Associates, Inc. 2020. *Subsurface Investigation & Geotechnical-Design Recommendations, Logan Residence Pool, Pool House, and Related Site Improvements*. December 9.

11 Alan Kropp & Associates, Inc. 2020. *Update Reconnaissance-Level Fault- and Geologic-Hazard Evaluation, Logan Residence Pool, Pool House and Related Site Improvements*. December 19.

12 California Department of Conservation. 2015. Earthquake Zones of Required Investigation. Website: https://maps.conservation.ca.gov/cgs/EQZApp/app/

Plan,[13] soil investigation and/or geotechnical reports in conjunction with development and/or redevelopment would be required on sites within designated hazard zones such as areas with high potential for soil erosion, landslide, fault rupture, liquefaction and other soil-related constraints.

Furthermore, the City of Berkeley has adopted the 2019 California Building Code (CBC), with local amendments, which provides for stringent construction requirements for projects in areas of high seismic risk. The design and construction of individual projects are required to conform with, or exceed, current best standards for earthquake resistant construction in accordance with the 2019 CBC (or more recent applicable code) and with the generally accepted standards of geotechnical practice for seismic design in Northern California.

a. Would the Project expose people or structures to 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? ***(Less-Than-Significant Impact)***

The California Supreme Court concluded in its *CBIA v. BAAQMD* decision that "CEQA generally does not require an analysis of how existing environmental conditions will affect a project's future users or residents." With this ruling, CEQA no longer considers the impact of the environment on a project (such as the impact of existing seismic hazards on new project occupants) to be an environmental impact, unless the project could exacerbate an existing environmental hazard. The proposed Project would not change existing seismic hazards and, therefore, would not exacerbate existing hazards related to surface fault rupture and seismic ground shaking. As such, the following discussions of seismic hazards are provided for informational purposes only.

Fault Rupture. Fault-rupture hazard is the hazard of ground breakage and displacement along fault traces during earthquakes. Fault rupture is generally expected to occur along known active fault traces. During large earthquakes, such as the 1906 San Francisco earthquake, ground displacements of more than 10 feet have occurred. Because the Hayward fault (active fault trace nearest the subject site) is a strike-slip fault, the most likely ground displacement would be a lateral movement of the ground, where the ground west of the fault moves northward with respect to the ground east of the fault. Such displacement could cause severe damage or collapse to structures placed across the fault trace.

As discussed above, the Project site is located within an Alquist-Priolo zone, indicating the potential for fault rupture to occur. All of the published geologic maps reviewed during the geologic assessment show that the Hayward fault is several hundred feet west of the site. None of these maps show an active fault within, or projecting toward, the Project site. The most likely location for the main trace of the Hayward fault is approximately 300 feet to the west of the Project site. Based on the results of the subsurface exploration, geologic reconnaissance, and review of available aerial photographs, published geologic maps, and consultant reports, the Geologic Hazard Evaluation concludes that it is unlikely that active traces of the Hayward fault are present within the site, and

[13] City of Berkeley. 2001. *City of Berkeley General Plan*.

the risk for a fault-rupture hazard to exist on the site is low. Therefore, this impact would be less than significant.

Ground Shaking. Seismic ground shaking generally refers to all aspects of motion of the earth's surface resulting from an earthquake and is normally the major cause of damage in seismic events. It is likely that the site would experience strong ground shaking during the lifetime of the proposed Project. The Association of Bay Area Governments has published maps predicting ground-shaking intensities for various earthquake scenarios in the Bay Area. Three different scenarios were modeled for the Hayward fault: a moment-magnitude-7.1 earthquake on the northern segment, a moment-magnitude-7.0 earthquake on the southern segment, and a moment-magnitude-7.3 earthquake on the entire length of the Hayward fault. Each of these models predicts extreme ground shaking in the vicinity of the site. The probability of a large earthquake on the Hayward fault is believed to be high during the life of the proposed Project. The risk of ground shaking impacts is reduced through adherence to the design and materials standards set forth in the 2019 CBC and recommendations in a site-specific geotechnical investigation and/or geotechnical report (which is required by the Seismic Hazards Mapping Act and City of Berkeley General Plan).

The 2019 CBC requires that a site-specific geotechnical investigation be conducted and a geohazard report be prepared by a licensed professional for all proposed construction to evaluate geologic and seismic hazards, except for one-story, wood-frame and light-steel-frame buildings that are located outside of the Earthquake Fault Zones or Seismic Hazard Zones as shown in the CGS maps with less than or equal to 4,000 square feet in floor area. The purpose of a site-specific geotechnical investigation is to identify seismic and geologic conditions that may need to be addressed to ensure safety and adequate performance of improvements, such as ground shaking, liquefaction, differential settlement, and expansive soils. Based on the conditions of the site, the building code requires specific design parameters to ensure construction of buildings that would resist collapse during an earthquake. These design parameters do not protect buildings from all earthquake shaking hazards but are designed to reduce hazards to a manageable level. Requirements for the geotechnical investigation are presented in Chapter 16 "Structural Design" and Chapter 18 "Soils and Foundation" of the 2019 CBC.

The Geotechnical Investigation prepared for the proposed Project is a final design-level geotechnical investigation, which is in accordance with the seismic design provisions presented in the 2019 CBC and in Chapter 21 of American Society of Civil Engineers (ASCE) Standard 7-16. Compliance with the 2019 CBC would ensure that the proposed Project would be designed and constructed in accordance with geotechnical recommendations to account for and withstand seismic and geologic hazards that could have adverse effects on the Project, thereby minimizing exposure of people and structures to substantial risk of loss, injury, or death during a large regional earthquake.

It is acknowledged that seismic hazards cannot be completely eliminated, even with site-specific geotechnical investigation/design and advanced building practices. However, the seismic design standards of the 2019 CBC are intended to prevent catastrophic building failure in the most severe earthquakes currently anticipated. Therefore, compliance with the existing building codes, described above, would ensure that potential impacts related to seismic ground shaking would be reduced to the extent feasible.

Seismic-Related Ground Failure and Liquefaction. Soil liquefaction is a phenomenon primarily associated with saturated soil layers located close to the ground surface. During ground shaking, these soils lose strength and acquire a "mobility" sufficient to permit both horizontal and vertical movements. Soils that are most susceptible to liquefaction are clean, loose, uniformly graded, saturated, fine-grained sands that lie relatively close to the ground surface. However, some soft, low-plasticity silts and clay soils can also be subject to liquefaction-type behavior. The site is underlain by generally stiff to very stiff silty and sandy clay soils that are underlain at shallow depth by weathered bedrock. Groundwater was not encountered in the exploratory borings at the time of drilling. Based on these conditions, liquefaction is not a significant site hazard, and this impact would be less than significant.

Landslides. Seismically induced landslides occur as the rapid movement of large masses of soil on unstable slopes during an earthquake. The published maps show that the site is in an area of shallow bedrock and not within a landslide area. Site reconnaissance and aerial-photo review found no indications of landslides or slope movement within the site. All of the site borings found that the site is underlain by bedrock at a shallow depth.

Based on the results of subsurface exploration, geologic reconnaissance, and review of available aerial photographs, published geologic maps, and consultant reports, the Geotechnical Investigation concludes that the risk of significant damage due to earthquake-induced landslides to the proposed pool and pool house (designed and constructed in accordance with the recommendations given in the Geotechnical Investigation, as discussed above) would be low during the life of the proposed Project, and this impact would be less than significant.

b. Would the Project result in substantial soil erosion or the loss of topsoil? ***(Less-Than-Significant Impact)***

Soil erosion, which is discussed in detail in Section 3.10, Hydrology and Water Quality, could occur during Project grading and construction. As described in Section 3.10, compliance with the COA: Stormwater Requirements would reduce impacts related to erosion and siltation to less than significant levels. Therefore, the potential impacts related to substantial erosion or loss of topsoil would be less than significant.

c. Would the Project 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? ***(Less-Than-Significant Impact)***

As discussed above, the surficial materials encountered in the exploratory borings drilled at the site consisted of approximately 1.5 to 4.5 feet of stiff to very stiff, silty and sandy clay overlying friable to weak, low to moderately hard, deeply weathered rhyolite and shale bedrock that extended to the maximum depth explored of 11.5 feet in the borings. Groundwater was not encountered in these exploratory borings, nor in previous borings drilled at the site in 2016 and 2003.

Subsidence or Collapse. Subsidence or collapse can result from the removal of subsurface water resulting in either catastrophic or gradual depression of the surface elevation of a project site. As discussed above, groundwater was not encountered in the exploratory borings; however, due to the

sloping nature of the terrain, the Geotechnical Investigation concluded it is possible that seepage could occur in excavations and behind retaining walls, particularly after prolonged rains during a relatively heavy rainy season. As a result, temporary dewatering from excavations could be necessary during construction. Dewatering of excavations would be temporary and of relatively low magnitude. Additionally, land subsidence generally does not occur in response to declines in shallow groundwater;[14] therefore, potential impacts related to subsidence or soil collapse would be less than significant.

Liquefaction or Lateral Spreading. As discussed above, the Geotechnical Investigation concluded that the Project site would not be susceptible to liquefaction because the site is underlain by generally stiff to very stiff silty and sandy clay soils that are underlain at shallow depth by weathered bedrock. Additionally, groundwater was not encountered in the exploratory borings at the time of drilling. Therefore, potential impacts related to liquefaction or lateral spreading would be less than significant.

Landslide. As discussed above, based on the results of subsurface exploration, geologic reconnaissance, and review of available aerial photographs, published geologic maps, and consultant reports, the geologic assessment concludes that the risk of significant damage due to landslides to the proposed pool and pool house (designed and constructed in accordance with the recommendations given in the Geotechnical Investigation, as discussed previously) would be low during the life of the proposed Project. Therefore, potential impacts related to landslides would be less than significant.

d. Would the Project 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? ***(Less-Than-Significant Impact)***

Expansive soils are characterized by the potential for shrinking and swelling as the moisture content of the soil decreases and increases, respectively. Shrink-swell potential is influenced by the amount and type of clay minerals present and can be measured by the percent change of the soil volume. Plasticity indexes greater than 15 usually indicate a swelling problem may exist, and the percent swell generally increase with the plasticity indexes.[15]

Soil testing performed as part of the Geotechnical Investigation determined that the Project site is underlain by a moderately expansive material, with a corresponding moderate potential for shrink/swell behavior with changes in moisture content. However, the proposed Project would be required to comply with the 2019 CBC, and recommendations for geotechnical parameters to be used in the structural design of the proposed Project would be implemented. Geotechnical-design recommendations to minimize the possible detrimental effects of expansive soils include designing the grade beams to resist an ultimate (non-factored) uplift pressure of 1,500 pounds per square foot (psf), design of grade beams or tie beams to resist the appropriate lateral earth pressures, and

14 East Bay Municipal Utility District GSA and City of Hayward GSA. 2021. East Bay Plan Subbasin, Groundwater Sustainability Plan, Public Review Draft, September 17.

15 Federal Highway Administration, 1977. An evaluation of expedient methodology for identification of potentially expansive soils. Report No. FHWA-RD-77-94, June.

keeping exposed soils in the swimming pool excavation moist to prevent drying and formation of shrinkage cracks. Therefore, upon implementation of these recommendations, as required by the CBC, this impact would be less than significant.

e. Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? ***(No Impact)***

The proposed Project would not involve the use of septic tanks or alternative wastewater disposal systems; therefore, no impact would occur.

f. Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? ***(Less-Than-Significant Impact)***

No paleontological resources are currently known to exist on the Project site; however, the proposed Project would require excavation of approximately 1,970 cubic yards of soil to a depth of approximately 13 feet below the ground surface. Ground-disturbing activities could adversely impact previously unidentified fossils. However, development projects that require a Use Permit are required to comply with the following COA that addresses this potential impact. Implementation of this COA related to paleontological resources would ensure that this impact would be less than significant:

> ***COA: Paleontological Resources.*** (Ongoing throughout demolition, grading, and/or construction). In the event of an unanticipated discovery of a paleontological resource during construction, excavations within 50 feet of the find shall be temporarily halted or diverted until the discovery is examined by a qualified paleontologist (per Society of Vertebrate Paleontology standards [SVP 1995,1996]). The qualified paleontologist shall document the discovery as needed, evaluate the potential resource, and assess the significance of the find. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the City determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important, and such plan shall be implemented. The plan shall be submitted to the City for review and approval.

3.8 GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☒	☐

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur Hexafluoride (SF_6).

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, believed to be causing global warming. While manmade GHGs include naturally occurring GHGs such as CO_2, methane, and N_2O, some gases, like HFCs, PFCs, and SF_6 are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of Global Warming Potential (GWP), a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e).

a. Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? ***(Less-Than-Significant Impact)***

This section describes the proposed Project's construction- and operational-related GHG emissions and contribution to global climate change. The BAAQMD CEQA Guidelines do not address emission thresholds for construction ; however, the BAAQMD encourages quantification and disclosure. Thus, construction emissions are discussed in this section.

Construction Activities. Construction activities associated with the proposed Project would produce combustion emissions from various sources. During construction, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O. Furthermore, CH_4 is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change. The BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. The proposed Project would include the construction of a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site and the merging of the two existing parcels at the Project site into one parcel. Based on the Project size, it is not expected that construction of the proposed Project would result in substantial GHG emissions. Implementation of COA: Public Works – Implement BAAQMD-Recommended Measures During Construction, as identified in Section 3.3.b, Air Quality, would reduce GHG emissions by reducing the amount of construction vehicle idling and by requiring the use of properly maintained equipment. Therefore, Project construction impacts associated with GHG emissions would be less than significant.

Operational Emissions. Long-term GHG emissions are typically generated from mobile sources (e.g., cars, trucks and buses), area sources (e.g., maintenance activities and landscaping), indirect emissions from sources associated with energy consumption, waste sources (land filling and waste disposal), and water sources (water supply and conveyance, treatment, and distribution). The Project is not anticipated to increase mobile-source GHG emissions, as the proposed Project would support the existing residence on the Project site and would not generate new vehicle trips. Area-source emissions would be associated with activities such as landscaping and maintenance on the Project site. Energy source emissions would be generated at off-site utility providers as a result of increased electricity demand generated by the Project. Waste source emissions generated by the proposed Project include energy generated by land filling and other methods of disposal related to transporting and managing Project generated waste. In addition, water source emissions associated with the proposed Project are generated by water supply and conveyance, water treatment, water distribution, and wastewater treatment.

For single-family residential land uses, the BAAQMD screening size for operational GHG pollutants is 56 units. The proposed Project would result in the construction of a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site to support the existing residence and the merging of the two existing parcels at the Project site into one parcel. Based on the BAAQMD's screening criteria, the proposed Project is not anticipated to exceed established thresholds. Therefore, operation of the proposed Project would not generate significant GHG emissions that would have a significant effect on the environment and this impact would be less than significant.

b. Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? ***(Less-Than-Significant Impact)***

The City of Berkeley Climate Action Plan (CAP), adopted in 2009, outlines actions to implement in order to achieve a greenhouse gas reduction target of 80 percent below 2000 emission levels by the year 2050, consistent with the State's direction to local governments. In 2018, then-Governor Brown committed California to carbon neutrality by 2045, the Berkeley City Council resolved to become a "Fossil Fuel Free City," and the Council declared a Climate Emergency. The CAP actions and associated goals and policies, as well as the more recent Berkeley climate actions, relate to sustainable transportation and land use, buildings energy use, waste reduction and recycling, community outreach and empowerment, including equity, and preparing for climate change.

As discussed above, the proposed Project would result in the construction of a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site to support an existing residence and the merging of the two existing parcels at the Project site into one parcel. The proposed Project would not result in an increase in the generation of vehicle trips or vehicle miles traveled, and therefore, the proposed Project would not conflict with sustainable transportation and land use measures identified in the CAP. In addition, the proposed Project would be required to comply with applicable Title 24 standards and would include an approximately 192-panel solar array, which would include both PV panels that would generate electricity, and thermal arrays that would be used to heat water. Further, all landscaping would be planted and irrigated compliant with the State's Water Efficiency Landscape Ordinance and Bay-friendly landscape requirements.

The proposed Project would be consistent with the CalRecycle Waste Diversion and Recycling Mandate which would reduce solid waste production by 75 percent and the Berkeley Green Code which also requires 100 percent of concrete, asphalt, and land clearing debris to be reused and recycled. Therefore, the proposed Project would not conflict with any of the building energy use or waste and recycling measures identified in the CAP. In addition, the following COAs would require implementation of a Construction Waste Management Plan, compliance with the Berkeley Green Code, and compliance with the City's prohibition of natural gas infrastructure.

> ***COA: Construction and Demolition Diversion.*** Applicant shall submit a Construction Waste Management Plan that meets the requirements of BMC Chapter 19.37 including 100 percent diversion of asphalt, concrete, excavated soil and land-clearing debris and a minimum of 65 percent diversion of other nonhazardous construction and demolition waste.
>
> ***COA: Low-Carbon Concrete.*** The Project shall verify compliance with the Berkeley Green Code (BMC Chapter 19.37) including use of concrete mix design with a cement reduction of at least 25 percent.
>
> ***COA: Prohibition of Natural Gas Infrastructure in New Buildings.*** The project shall comply with the City of Berkeley Prohibition of Natural Gas Infrastructure in New Buildings (BMC Chapter 12.80).

Given the above, the proposed Project would be consistent the City's CAP, commitment to carbon neutrality by 2045, and the Climate Emergency declaration and would implement measures designed to reduce GHG emissions. Therefore, the proposed Project would not conflict with plans, policies, or regulations adopted for the purpose of reducing GHG emissions. This impact would be less than significant.

3.9 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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?	☐	☐	☒	☐

*a. Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? **(Less-Than-Significant Impact)***

The proposed Project would result in the construction of a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site and the merging of the two existing parcels at the Project site into one parcel. Hazardous materials (e.g., oil, grease, fuels, paint) would be transported and used onsite for proposed construction activities. The operational phase of the proposed Project may also include storage and use of hazardous materials for maintenance of the pool (e.g., chlorine or bromine, oxidizers, cyanuric acid, pH adjuster, alkalinity adjusters). However, the proposed Project is for private residential use and would generally not involve transport, use, or disposal of significant quantities of hazardous materials; only small quantities of chemicals would be used for routine maintenance.

Construction of the proposed Project would involve the use and transport of hazardous materials. These materials could include fuels, oils, paints, and other chemicals used during construction activities. Handling and transportation of hazardous materials could result in accidental releases or spills and associated health risks to workers, the public, and environment.

Transport and use of hazardous materials would be subject to all applicable State and federal laws, such as Hazardous Materials Transportation Act, the Resource Conservation and Recovery Act, the California Hazardous Materials Management Act, California Health and Safety Code, and California Code of Regulations Title 8 and Title 22. Therefore, compliance with existing regulations would ensure that the proposed project would not create a significant hazards to the public or the environment associated with the routine transport, use, or disposal of hazardous materials by ensuring these materials are properly handled during construction of the proposed Project. Therefore, this impact would be less than significant.

b. Would the Project 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? ***(Less-Than-Significant Impact)***

The public and/or the environment could be affected by the release of hazardous materials from the proposed Project into the environment by exposing workers, the public, or the environment to potentially contaminated soil and groundwater during construction and/or operation of the Project. However, the portion of the Project site proposed for construction is vacant land that is surrounded by medium density residential use and open space. Therefore, it is unlikely the soil and groundwater is contaminated with significant toxic or hazardous materials that would be released during construction. Additionally, compliance with the regulations described previously in Section 3.9.a would ensure that the proposed Project would not create a significant hazard to the public or the environment through accident conditions involving the release of hazardous materials into the environment during transport, use, or disposal of hazardous materials by ensuring that these materials are properly handled during construction of the proposed Project. Therefore, this impact would be less than significant.

c. Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? ***(Less-Than-Significant Impact)***

The Project site is approximately 400 feet from the Clark Kerr Campus, which is a residence hall for the University of California, Berkeley that includes academic support and recreational services. However, compliance with federal, State, and local regulations for the management of hazardous materials as discussed in Section 3.9.a above, would ensure that potential impacts to nearby schools associated with hazardous materials emissions and use at the Project site would be less than significant.

d. Would the Project 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? ***(No Impact)***

The Project site is not included on any list of hazardous materials site compiled pursuant to Government Code Section 65962.5.[16]

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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? ***(No Impact)***

The Project site is approximately 8.5 miles north of the Oakland International Airport. The Project site is not located within an airport land use plan or within 2 miles of a public airport or public use airport. Therefore, the proposed Project would not result in a safety hazard to people working or residing in the area due to the proximity of an airport.

f. Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ***(No Impact)***

The proposed Project would not include any modifications to the existing roadways in the vicinity of the Project site, and therefore would not result in any impacts related to emergency access or an adopted emergency response plan.

g. Would the Project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? ***(Less-Than-Significant)***

As previously described, the Project site is adjacent to open space and recreational uses, and therefore is located in an area that could be subject to wildland fires. The proposed Project would include a variety of fire safety measures including the preservation and protection of fire-resistant California Coastal Oaks; removal of flammable underbrush on over 25,000 square feet of land; stabilization of over 25,000 square feet of unstable land; installation of a 44,000-gallon pool that would be made available to Berkeley Firefighters in case of fire and failure of water pressure in the area; installation of a dry standpipe from the driveway to the pool house that would help fight fires at the pool house and above; installation of a staircase providing fire fighters access up the 1:1 slope; use of fire-retardant materials in construction; and installation of fire sprinklers within structures. These fire safety measures would ensure the proposed Project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. This impact would be less than significant.

[16] California Environmental Protection Agency. 2020. Cortese List Data Resources. Website: calepa.ca.gov/sitecleanup/corteselist/ (accessed April 2022).

3.10 HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater 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 manner which would:	☐	☐	☒	☐
i. Result in substantial erosion or siltation on- or offsite;	☐	☐	☒	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
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?	☐	☐	☒	☐

*a. Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? **(Less-Than-Significant Impact)***

Existing Drainage Conditions. The Project site is located within the Potter Watershed which has a total Drainage Area of 2,693 acres, receives annual precipitation of 22 inches, and drains into the San Francisco Bay.[17] As discussed in the Geologic Hazard Evaluation, a major creek channel is present to the north and east of the Project site. The location of the creek channel has probably been modified to some extent during site-development activities.[18]

Stormwater runoff from the Project site consists of uncontrolled sheet flow to the west, down the hillside, to the driveway consisting of asphaltic concrete, and then to Dwight Way. An existing drain inlet, discharging to an undetermined location, is located in the driveway at the northwest corner of the site.[19]

[17] City of Berkeley. 2011. *Watershed Management Plan*. October 2011.

[18] Alan Kropp & Associates, Inc. 2020. Op. Cit.

[19] Lea & Braze Engineering, Inc. 2021. *Project Hydrology Study & Stormwater Control Plan. Logan Residence, 3003 Dwight Way, Berkeley, California*. January 4.

In Berkeley, stormwater run-off is collected and conveyed by roof gutters, downspouts, and street gutters into storm drain inlets and pipelines. The Public Works department installs, maintains, and repairs storm drainage infrastructure within the City right-of-way to convey run-off from private property, streets, and sidewalks. This drainage infrastructure (including storm drain inlets, catch basins, cross-drains, valley gutters, and 78 miles of storm drain pipelines) reduces flood hazards to public and private property. The creeks and creek culverts within the City also receive stormwater run-off. The storm drain pipes, creeks, and creek culverts ultimately discharge untreated stormwater to San Francisco Bay.[20]

Regulatory Framework. Water quality in the State of California is regulated by the State Water Board and the nine Regional Water Quality Control Boards. The City of Berkeley is located in the jurisdiction of San Francisco Bay Regional Water Board. Section 303(d) of the Federal Clean Water Act (CWA) requires that states identify water bodies including bays, rivers, streams, creeks, and coastal areas that do not meet water quality standards and the pollutants that are causing the impairment. Total Maximum Daily Loads (TMDLs) describe the maximum amount of a pollutant that a water body can receive while still meeting established water quality standards. A TMDL requires that all sources of pollution and all aspects of a watershed's drainage system be reviewed and set forth action plans that examine factors and sources adversely affecting water quality and identify specific plans to improve overall water quality and reduce pollutant discharges into impaired water bodies. Central San Francisco Bay is listed as an impaired water body for several pollutants including pesticides (chlordane, DDT, and dieldrin), dioxins, furans, invasive species, mercury, PCBs, selenium, and trash in water. TMDLs have been established for mercury, PCBs, and selenium and will ultimately be prepared for other pollutants affecting the Bay.[21]

The National Pollutant Discharge Elimination System (NPDES) was created under the CWA and is regulated by the State Water Board in California to prohibit the discharge of pollutants to receiving waters unless the discharge is in compliance with NPDES permit requirements. NPDES requirements that would apply to both the construction-phase and the operation phase of the Project are described below.

The San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)[22] establishes beneficial water uses for waterways, water bodies, and groundwater within the region and is a master policy document for managing water quality in the region. The Central San Francisco Bay is listed in the Basin Plan as providing the beneficial uses of industrial service supply, industrial process supply, commercial and sport fishing, shellfish harvesting, estuarine habitat, fish migration, preservation of rare and endangered species, fish spawning, wildlife habitat, water contact and

20 City of Berkeley. *Watershed Resources Home Page*. https://www.cityofberkeley.info/Public_Works/Sewers_-_Storm/Watershed_Resources.aspx (accessed April 4, 2022).

21 State Water Resources Control Board (State Water Board). 2018. Final 2018 California Integrated Report (Clean Water Act Section 303(d) List/305(b) Report). Available online at: www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html (Accessed April 4, 2022)

22 San Francisco Bay Regional Water Quality Control Board, 2017. *San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)*. Incorporating all amendments as of May 4.

noncontact recreation, and navigation. The Project site is not located within a mapped Division of Water Rights groundwater basin boundary.[23]

Construction and Operation. The proposed Project includes the construction of a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site. Construction activities would involve disturbance, grading, and excavation of soil which could result in temporary erosion and movement of sediments into the storm drain system, particularly during precipitation events. Project construction would require the excavation of approximately 1,970 cubic yards of soil, 670 cubic yards of which would be used as fill around the site. Approximately 1,300 cubic yards of soil would be exported from the Project site. Pollutants of concern during construction include sediments, paint, solvents, trash, petroleum products, lubricants, concrete waste (dry and wet), and other chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (e.g., paints, solvents, oils and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via storm water runoff into receiving waters (i.e., the San Francisco Bay).

The proposed Project would be subject to various COAs, as outlined below, including incorporation of construction BMPs to target and reduce pollutants of concern in stormwater runoff and sampling for non-visible pollutants in stormwater runoff, which would ensure that construction impacts related to violation of waste discharge requirements and water quality standards and degradation of water quality would be less than significant.

> ***COA: Stormwater Requirements.*** The applicant shall demonstrate compliance with the requirements of the City's National Pollution Discharge Elimination System (NPDES) permit as described in BMC Section 17.20. The following conditions apply:
>
> A. The Project plans shall identify and show site-specific Best Management Practices (BMPs) appropriate to activities conducted onsite to limit to the maximum extent practicable the discharge of pollutants to the City's storm drainage system, regardless of season or weather conditions.
>
> B. Trash enclosures and/or recycling area(s) shall be covered; no other area shall drain onto this area. Drains in any wash or process area shall not discharge to the storm drain system; these drains should connect to the sanitary sewer. Applicant shall contact the City of Berkeley and EBMUD for specific connection and discharge requirements. Discharges to the sanitary sewer are subject to the review, approval and conditions of the City of Berkeley and EBMUD.
>
> C. Landscaping shall be designed with efficient irrigation to reduce runoff, promote surface infiltration and minimize the use of fertilizers and pesticides that contribute to stormwater pollution. Where feasible, landscaping should be

[23] State of California Department of Water Resources, DWR Mapping Tool, https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&rz=true, Accessed April 5, 2022.

designed and operated to treat runoff. When and where possible, xeriscape and drought tolerant plants shall be incorporated into new development plans.

D. Design, location and maintenance requirements and schedules for any stormwater quality treatment structural controls shall be submitted to the Department of Public Works for review with respect to reasonable adequacy of the controls. The review does not relieve the property owner of the responsibility for complying with BMC Chapter 17.20 and future revisions to the City's overall stormwater quality ordinances. This review shall be [sic] conducted prior to the issuance of a Building Permit.

E. All paved outdoor storage areas must be designed to reduce/limit the potential for runoff to contact pollutants.

F. All onsite storm drain inlets/catch basins must be cleaned at least once a year immediately prior to the rainy season. The property owner shall be responsible for all costs associated with proper operation and maintenance of all storm drainage facilities (pipelines, inlets, catch basins, outlets, etc.) associated with the Project, unless the City accepts such facilities by Council action. Additional cleaning may be required by City of Berkeley Public Works Engineering Dept.

G. All private or public projects that create and/or replace 10,000 square feet or more of impervious surface must comply with Provision C.3 of the Alameda County NPDES permit and must incorporate stormwater controls to enhance water quality. Permit submittals shall include a Stormwater Requirement Checklist and detailed information showing how the proposed Project will meet Provision C.3 stormwater requirements, including a) Site design measures to reduce impervious surfaces, promote infiltration, and reduce water quality impacts; b) Source Control Measures to keep pollutants out of stormwater runoff; c) Stormwater treatment measures that are hydraulically sized to remove pollutants from stormwater; d) an O & M (Operations and Maintenance) agreement for all stormwater treatment devices and installations; and e) Engineering calculations for all stormwater devices (both mechanical and biological).

H. Most washing and/or steam cleaning must be done at an appropriately equipped facility that drains to the sanitary sewer. Any outdoor washing or pressure washing must be managed in such a way that there is no discharge or soaps or other pollutants to the storm drain. Sanitary connections are subject to the review, approval and conditions of the sanitary district with jurisdiction for receiving the discharge.

I. All loading areas must be designated to minimize “run-on” or runoff from the area. Accumulated wastewater that may contribute to the pollution of stormwater must be drained to the sanitary sewer or intercepted and pretreated prior to discharge to the storm drain system. The property owner

shall ensure that BMPs are implemented to prevent potential stormwater pollution. These BMPs shall include, but are not limited to, a regular program of sweeping, litter control and spill cleanup.

J. Sidewalks and parking lots shall be swept regularly to prevent the accumulation of litter and debris. If pressure washed, debris must be trapped and collected to prevent entry to the storm drain system. If any cleaning agent or degreaser is used, wash water shall not discharge to the storm drains; wash waters should be collected and discharged to the sanitary sewer. Discharges to the sanitary sewer are subject to the review, approval and conditions of the sanitary district with jurisdiction for receiving the discharge.

K. The applicant is responsible for ensuring that all contractors and sub-contractors are aware of and implement all stormwater quality control measures. Failure to comply with the approved construction BMPs shall result in the issuance of correction notices, citations, or a Project stop work order.

L. All piles of debris, soil, sand, or other loose materials shall be covered at night and during rainy weather with plastic at least one-eighth millimeter thick and secured to the ground.

M. The applicant shall ensure that all excavation takes into account surface and subsurface waters and underground streams so as not to adversely affect adjacent properties and rights-of-way.

N. The project applicant shall maintain sandbags or other devices around the site perimeter during the rainy season to prevent onsite soils from being washed off site and into the storm drain system. The project applicant shall comply with all City ordinances regarding construction and grading.

O. Prior to any excavation, grading, clearing, or other activities involving soil disturbance during the rainy season the applicant shall obtain approval of an erosion prevention plan by the Building and Safety Division and the Public Works Department. The applicant shall be responsible for following these and any other measures required by the Building and Safety Division and the Public Works Department.

COA: Public Works.Operation. A Stormwater Retention and Metering System, described in detail in the Project Hydrology Study and Stormwater Control Plan,[24] would be included in Project construction. This system would have the capacity to retain 353 cubic feet of runoff, resulting in a reduction of peak post-construction runoff to below the pre-construction rate. Drainage for the site would be collected in a series of area drains, trench drains, and catch basins located throughout the site. Captured runoff would be directed to a new below-grade stormwater retention

[24] Lea & Braze Engineering, Inc. 2021. *Op. cit.*

and metering system located in the landscape area near the southwest corner of the site. Captured runoff would then be metered to a bubbler outfall located in the driveway where it would discharge down the driveway in the historical manner. Therefore, the proposed Project would not substantially degrade water quality and this impact would be less than significant.

b. Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? ***(Less-Than-Significant Impact)***

Groundwater Basins. The Project site is not located within a mapped Division of Water Rights groundwater basin boundary.[25]

Construction. As discussed in Section 3.7, Geology and Soils, according to the Geotechnical Investigation prepared for the proposed Project, groundwater was not encountered during the investigation or during previous site assessments in 2016 and 2003. Therefore, dewatering from excavations is not anticipated to be required; however, it is possible that temporary dewatering from isolated areas of deeper excavation could be necessary during construction. Such dewatering would be localized and temporary and would not result in the lowering of surrounding groundwater levels.

Operation. Water supply to the proposed Project would be provided by the EBMUD water system, which is supplied from the Mokelumne River.[26] Because EBMUD does not use groundwater for municipal water supply, water use during operation of the proposed Project would not affect groundwater. Development of the Project would result in an increase in impervious surfaces on the Project site from approximately 8,131 square feet to approximately 19,866 square feet. However, more than 70 percent of the Project site would remain as pervious surface, and therefore the proposed Project would not result in a significant decrease in groundwater recharge that would result in a net deficit in aquifer volume or a lowering of the local groundwater table level. Therefore, the proposed Project would not interfere with groundwater recharge.

For the reasons listed above, impacts related to the decrease of groundwater supplies or interference with groundwater recharge would be less than significant.

[25] State of California Department of Water Resources, DWR Mapping Tool, https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&rz=true, Accessed April 5, 2022.

[26] East Bay Municipal Utility District. 2021. Water Supply. Website: www.ebmud.com/water/about-your-water/water-supply (accessed January 11, 2021)

c. Would the Project 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 manner 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? ***(Less-Than-Significant Impact)***

Erosion or Siltation. The proposed Project would not alter the course of a stream or a river. Project construction would require the excavation of approximately 1,970 cubic yards of soil, 670 cubic yards of which would be used as fill around the site. Approximately 1,300 cubic yards of soil would be exported from the Project site. Grading and excavation activities may slightly and temporarily alter onsite drainage; however, the existing drainage patterns would generally be maintained and would not be substantially altered or modified. During construction, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. Compliance with the COA: Stormwater Requirements would reduce impacts related to erosion and siltation to less than significant levels.

Flooding. Development of the Project would result in an increase in impervious surfaces on the Project site from approximately 8,131 square feet to approximately 19,866 square feet. However, more than 70 percent of the Project site would remain as pervious surface, and therefore the proposed Project would not result in a significant increase in the volume and rate of stormwater runoff discharged from the Project site that would result in flooding. Additionally, as described in Section 3.10.a, a Stormwater Retention and Metering System would be implemented and this system would result in a reduction of peak post-construction runoff to below the pre-construction rate. Therefore, impacts related to flooding would be less than significant.

Storm Drain Capacity. As described above, a Stormwater Retention and Metering System, described in detail in the Project Hydrology Study and Stormwater Control Plan,[27] would be included in site construction that would result in a reduction of peak post-construction runoff to below the pre-construction rate. Therefore, potential impacts related to exceeding the capacity of existing or planned stormwater drainage systems would be less than significant.

Additional Sources of Polluted Runoff. As described above under Section 3.10.a, the proposed Project would be required to comply with all applicable NPDES regulations and City COAs. Construction and operational BMPs would be implemented to reduce pollutants of concern in stormwater runoff from the Project site. Additionally, groundwater dewatering activities, if necessary, would be required to comply with applicable NPDES/EBMUD permit provisions and the City COAs to ensure that dewatering activities do not introduce pollutants into surface waters. Compliance with existing regulations would ensure that potential impacts related to additional sources of polluted runoff would be less than significant.

Flood Flows. The proposed Project would alter the existing drainage patterns on the Project site. However, as discussed above, the Stormwater Retention and Metering System, described in detail in

[27] Lea & Braze Engineering, Inc. 2021. *Op. cit.*

the Project Hydrology Study and Stormwater Control Plan,[28] would ensure that stormwater would be collected from the roofs and paved areas in a series of area drains, trench drains, and catch basins located throughout the site, and directed through a subdrain system to be drained down the driveway, similar to the existing pattern. Therefore, potential impacts related to flooding related to alterations to the site would be less than significant.

d. In flood hazard, tsunami, or seiche zones, would the Project risk release of pollutants due to project inundation? ***(Less-Than-Significant Impact)***

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No 06001C0080G,[29]the Project site is not located within a 100-year or 500-year flood hazard zone. The Project site is not located in an area mapped by the California Emergency Management Agency as being potentially inundated by a tsunami.[30] Seiches are waves that are created in an enclosed body of water such as a bay, lake, or harbor and go up and down or oscillate and do not progress forward like standard ocean waves. There are no enclosed bodies of water in the nearby vicinity of the Project site. Therefore, potential impacts related to the release of pollutants in the event of inundation from flooding would be less than significant.

e. Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? ***(Less-Than-Significant Impact)***

As discussed in Section 3.10.a, the Basin Plan is the master policy document that establishes the water quality objectives and strategies needed to protect designated beneficial water uses in the San Francisco Bay region. The State Water Board and the Regional Water Board enforce compliance with the water quality objectives of the Basin Plan through the issuance of NPDES permits. The Project's compliance with existing permit requirements and the City's COAs would ensure that the proposed Project would not have the potential to conflict with the Basin Plan and this impact would be less than significant.

The Project site is not located within a mapped Division of Water Rights groundwater basin boundary and not subject to a sustainable groundwater management plan. For these reasons, the proposed Project would not conflict with or obstruct the implementation of a sustainable groundwater management plan and this impact would be less than significant.

28 Lea & Braze Engineering, Inc. 2021. *Op. cit.*

29 Federal Emergency Management Agency. 2009. Flood Insurance Rate Map (FIRM) No. 06001C0080G, effective August 3. Available online at: https://msc.fema.gov/portal/search#searchresultsanchor (accessed April 5, 2022).

30 California Emergency Management Agency (CalEMA). 2009. Tsunami Inundation Map for Emergency Planning, Oakland West Quadrangle. July.

3.11 LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☐	☒

*a. Would the Project physically divide an established community? **(No Impact)***

The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and outlying areas. For instance, the construction of an interstate highway though an existing community may constrain travel from one side of the community to another; similarly, such construction may also impair travel to areas outside of the community.

The Project site is located on Panoramic Hill in East Berkeley, which generally consists of low- and medium-density residential uses located north, east, and west of the Project site. Land uses within the vicinity of the Project site also include the University of California Clark Kerr Campus and open space and recreational uses to the south and east, as well as the Claremont Canyon Regional Preserve and California Memorial Stadium to the east and north, respectively.

The proposed Project would result in the construction of a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site to serve the existing residential use and the merging of the two existing parcels at the Project site into one parcel. The proposed Project would be limited to existing parcel boundaries and would not include modifications to any of the existing roadways within the vicinity of the site. Therefore, the proposed Project would not physically divide an established community and this impact would be less than significant.

*b. Would the Project 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? **(No Impact)***

The Project site is located within the City of Berkeley and is subject to the land use designations and zoning classifications of the City of Berkeley General Plan (2011) and the zoning ordinance (Title 23, City of Berkeley Zoning Ordinance [effective October 12, 2021]).

The General Plan designates the site as LDR (Low Density Residential). Areas designated as Low Density Residential are intended for single-family homes, community services, schools, home occupations, recreational uses, and open space and institutional facilities. Allowable building intensity ranges from one to ten dwelling units per net acre, not including secondary units, and population density shall not exceed 22 persons per acre.

The Project site is within the R-2AH (Restricted Multiple-family Residential, Hillside Overlay Zone) and ES-R (Environmental Safety Residential) zoning districts. The proposed Project would be consistent with the LDR general plan designation and R-2AH and ES-R zoning designations, which allow for single-family dwellings and residential uses and associated ancillary improvements. Additionally, the proposed Project would be consistent with the ES-R and R-2AH development standards. Therefore, the proposed Project would have a less-than-significant impact related to land use and planning.

3.12 MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☐	☒

*a. Would the Project 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? **(No Impact)***

The Project site is located within an urban area and there are no known mineral resources within or in the vicinity of the Project site.[31] The proposed Project would not result in the loss of availability of a known mineral resource of value to the region or residents of the State, and no impact related to the loss of mineral resources would occur.

*b. Would the Project 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? **(No Impact)***

Please refer to Section 3.10.a. The proposed Project would not result in the loss of availability of any known locally important mineral recovery sites.

[31] Berkeley, City of. 2001. Environmental Management Element. https://www.cityofberkeley.info/Planning_and_Development/Home/General_Plan_-_Environmental_Management_Element(2).aspx (accessed April 1, 2022).

3.13 NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
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 located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 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?	☐	☐	☐	☒

Noise is usually defined as unwanted sound and consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Several noise measurement scales exist that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness; and similarly, each 10 dB decrease in sound level is perceived as half as loud. Sound intensity is normally measured through the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. The A-weighted sound level is the basis for 24-hour sound measurements that better represent human sensitivity to sound at night.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6 dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise sensitive receptor of concern.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq}, the community noise equivalent level (CNEL), and the day-night average level (L_{dn}) based on dBA. CNEL is the time varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale, but without the adjustment for events occurring during the evening relaxation hours. CNEL and L_{dn} are within one dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

A project would have a significant noise effect if it would substantially increase the ambient noise levels for adjoining areas or conflict with adopted environmental plans and goals of applicable regulatory agencies, including, as appropriate, the City of Berkeley.

Certain land uses are considered more sensitive to noise than others. Examples of these land uses include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The closest sensitive receptors are single-family residential uses located approximately 70 feet west of the Project site and 120 feet east of the Project site. Educational uses are located further away, approximately 310 feet to the southwest of the Project Site.

The City of Berkeley General Plan addresses excessive noise in the Environmental Management Element.[32] The General Plan provides policies and actions to protect the community from excessive noise levels. Policies and actions applicable to the proposed Project include the following:

- **Policy EM-43: Noise Reduction.** Reduce significant noise levels and minimize sources of noise.
- **Policy EM-44: Noise Prevention and Elimination.** Protect public health and welfare by eliminating existing noise problems where feasible and by preventing significant future degradation of the acoustic environment.
- **Policy EM-46: Noise Mitigation.** Require operational limitations and all feasible noise buffering for new uses that generate significant noise impacts near residential, institutional, or recreational uses.

BMC Title 13: Public Peace, Morals and Welfare, Chapter 13.40 (Community Noise) addresses noise impacts. The ordinance establishes exterior and interior noise standards at receiving land uses and construction activity noise regulations as included below.

The City's exterior and interior noise limits are shown in Table 3.A. The hourly noise level standards vary based on the receiving land use type and the time period. In order to assess intermittent or maximum noise levels, the time weighted noise level additions presented in BMC Section 13.40.050 and described in further detail below, should be applied.

The maximum noise levels vary based on the receiving land use type and the time period. The ordinance also limits noise generated by construction. The ordinance restricts construction activities to weekdays between the hours of 7:00 a.m. and 7:00 p.m. and on weekdays and holidays, between 9:00 a.m. and 8:00 p.m., except for emergency work.

[32] Berkeley, City of, 2003. City of Berkeley General Plan: A Guide for Public Decision-Making. April.

Table 3.A: Exterior and Interior Noise Limits, BMC Section 13.40.050

Zoning District	Time Period	Noise Level (dBA)
Exterior Noise Limits		
R-1, R-2, R-1A, R-2A, and ESR	7:00 a.m. – 10:00 p.m. 10:00 p.m. – 7:00 a.m.	55 45
R-3 and above	7:00 a.m. – 10:00 p.m. 10:00 p.m. – 7:00 a.m.	60 55
Commercial	7:00 a.m. – 10:00 p.m. 10:00 p.m. – 7:00 a.m.	65 60
Industry	Anytime	70
Interior Noise Limits		
All	7:00 a.m. – 10:00 p.m. 10:00 p.m. – 7:00 a.m.	45 40

Source: City of Berkeley Municipal Code Tables 13.40-1 and 13.40-2 (2014).
dBA = A-weighted decibels

The following noise standards are outlined in BMC Chapter 13.40.050:

A. Maximum permissible sound levels shall be determined by the zoning district of the property subject to the noise, not the property from which the noise originates.

1. The noise standards for the various categories of land use in Table 6 [of BMC Chapter 13.40.050 and shown in Table 3.A of the Initial Study Checklist] shall, unless otherwise specifically indicated in other codes, apply to all such property within a designated zone.

2. No person shall operate or cause to be operated any source of sound at any location within the incorporated City or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the sound level when measured on any other property to exceed:

a. The noise standard for that land use as specified in Table 6 [Table 3.A of the Initial Study] for a cumulative period of more than 30 minutes in any hour; or

b. The noise standard for that land use as specified in Table 6 [Table 3.A of the Initial Study] plus 5 dBA for a cumulative period of more than 15 minutes in any hour; or

c. The noise standard for that land use as specified in Table 6 [Table 3.A of the Initial Study] plus 10 dBA for a cumulative period of more than 5 minutes in any hour; or

d. The noise standard for that land use as specified in Table 6 [Table 3.A of the Initial Study] plus 15 dBA for a cumulative period of more than 1 minute in any hour; or

e. The noise standard for that land use as specified in Table 6 [Table 3.A of the Initial Study] plus 20 dBA for any period of time.

The following interior noise standards are outlined in BMC Section 13.40.060:

3. No person shall operate or cause to be operated within a multi-family dwelling unit any source of sound or allow the creation of any noise which causes the sound level when measured inside a neighboring dwelling unit to exceed:

   a. The noise standard as specified in Table 6 [Table 3.A of the Initial Study] for a cumulative period of more than 5 minutes in any hour; or

   b. The noise standard as specified in Table 6 [Table 3.A of the Initial Study] plus 5 dBA for a cumulative period of more than one minute in any hour; or

   c. The noise standard as specified in Table 6 [Table 3.A of the Initial Study] plus 10 dBA for any period of time.

Section 13.40.070 of the BMC restricts construction activities to weekdays between the hours of 7:00 a.m. and 7:00 p.m. and on weekends and holidays between 9:00 a.m. and 8:00 p.m., except for emergency work. Construction activities are divided into two categories: mobile equipment and stationary equipment. Mobile equipment, as defined by BMC Section 13.40.070, includes sound levels for nonscheduled, intermittent, short-term operation of less than 10 days of jackhammers, drills, saws, sander grinder, and similar tools. Stationary equipment, according to BMC Section 13.40.070, would be repetitively scheduled and relatively long-term operation for longer than 10 days. Equipment used during construction of the proposed Project would be considered stationary because construction would last longer than 10 days. Where technically and economically feasible, construction activities shall be conducted in such a manner that maximum sound levels at affected properties would not exceed those listed in Table 3.B below.

Table 3.B: Maximum Stationary Equipment Construction Noise Levels (dBA L_{eq}), BMC Section 13.40.070

Time of Day	R-1, R-2 Residential	R-3 and above Multi-Family Residential	Commercial/ Industrial
Weekdays 7:00 a.m. to 7:00 p.m.	60	65	70
Weekends 9:00 a.m. to 8:00 p.m. and legal holidays	50	55	60

Source: City of Berkeley Municipal Code Table 13.40-4 (2014).

a. Would the Project result in 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? ***(Less-Than-Significant Impact)***

The proposed Project would generate noise during both the construction and operation periods, as discussed below.

Construction Noise Impacts. Construction of the proposed Project would include construction activities that would result in substantial temporary increase in ambient noise levels in the Project site vicinity. Potential impacts are discussed in detail below.

The closest sensitive receptors include the single-family uses located 70 feet to the west and 120 feet to the east of the Project site. Further to the southwest are educational and residential uses located 310 feet from the Project site. Project construction would result in short-term noise impacts on these receptors. Maximum construction noise would be short-term, generally intermittent depending on the construction phase, and variable depending on receiver distance from the active construction zone. The duration of noise impacts generally would be from one day to several days depending on the phase of construction. The entire construction duration is expected to occur for approximately 21 months. The level and types of noise impacts that would occur during construction are described below.

Two types of short-term noise impacts could occur during construction of the proposed Project. The first type involves construction crew commutes and the transport of construction equipment and materials to the site for the proposed Project, which would incrementally increase noise levels on roads leading to the site. As shown in Table 3.C, there would be a relatively high single-event noise exposure potential at a maximum level of 84 dBA L_{max} with trucks passing at 50 feet.

Table 3.C: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Maximum Noise Level (L_{max}) at 50 Feet1
Compressor	40	80
Cranes	16	85
Dozers	40	85
Drill Rig	20	84
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Generator	50	82
Man-lift	20	85
Rollers	20	85
Water Truck	40	84
Welder	40	73

Source: Roadway Construction Noise Model (FHWA 2006).
Note: Noise levels reported in this table are rounded to the nearest whole number.
[1] Maximum noise levels were developed based on Spec 721.560 from the Central Artery/Tunnel (CA/T) program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.
L_{max} = maximum instantaneous sound level

The second type of short-term noise impact is related to noise generated during excavation, grading, and construction on the Project site. Construction is performed in discrete steps, or phases, each with its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

Table 3.C lists maximum noise levels recommended for noise impact assessments for typical construction equipment, based on a distance of 50 feet between the equipment and a noise receptor. Average maximum noise levels range up to 85 dBA L_{max} at 50 feet during the noisiest construction phases. The site preparation phase, including excavation and grading of the site, tends to generate the highest noise levels because earthmoving machinery is the noisiest construction equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve one or two minutes of full-power operation followed by three or four minutes at lower power settings.

As identified above, sensitive receptors are located approximately 70 feet west of the proposed Project. The closest off-site residences may be subject to short-term construction noise reaching 82 dBA L_{max} when construction is occurring at the Project site. Construction noise is permitted by the City when activities occur between the hours of 7:00 a.m. and 7:00 p.m. and on weekdays and holidays, between 9:00 a.m. and 8:00 p.m., except for emergency work.

Pursuant to BMC Section 13.40.070, noise from construction activities may exceed the established maximum allowable noise performance standards if the activities occur during the permissible hours for construction and all technically and economically feasible noise reduction measures are incorporated. Construction impacts at residential land uses, although permitted and exempted during the construction hours specified by the City, would exceed the suggested maximum noise levels for stationary sources as established by the City. Therefore, construction noise would result in a potentially adverse impact.

As discussed above, construction noise would result in a temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project. Implementation of the City's COA for Construction Noise Management - Public Notice Required, COA for Construction Noise Reduction Program, and COA for Extreme Construction Noise, would reduce construction noise impacts on the off-site nearby sensitive receptors and would require the applicant to implement all technically and economically feasible measures to reduce construction noise, consistent with the requirements of BMC Section 13.40.070.

Implementation of COAs for Construction Noise Management – Public Notice Required, Construction Noise Reduction Program, and Extreme Construction noise would reduce construction noise impacts to the extent feasible, as required by BMC Section 13.40.070. As a result, construction noise impacts would be less-than-significant.

Long-Term Noise Impacts. The proposed Project would generate long-term noise impacts from stationary noise sources, as discussed below. The proposed Project would not generate any traffic.

The proposed Project would generally consist of the construction of a pool, pool house, greenhouse, and solar array. The approximately 192-panel solar array would be installed on the eastern half of the Project site. The solar array would include both PV panels that would generate electricity, and thermal arrays that would be used to heat water. In addition to providing electricity to the existing residence and proposed structures, the PV solar panels would also connect to an electric battery storage system located adjacent to the proposed greenhouse building. An approximately 44,000-gallon pool with a hot tub would be constructed southeast of the existing residence. East of the pool would be an approximately 2,305-square-foot pool house that would be two stories and approximately 24 feet in height. The pool house would also include a below-grade level that would house all mechanical pool equipment.

Currently, the final specifications for the PV/battery system are not available. The proposed Project would require installation of an inverter, or similar equipment, to connect the PV/battery system to the main electrical system. It is assumed that the inverter would be located within the main house meter and switch near the southwest corner of the Project site.

As described above, the BMC establishes the acceptable daytime and nighttime maximum noise levels at receiving land uses. Daytime is considered to be between the hours of 7:00 a.m. and 10:00 p.m., and nighttime hours are between 10:00 p.m. and 7:00 a.m. Chapter 13.40 of the BMC establishes interior and exterior noise level standards (as measured at receiving sensitive land uses) not to be exceeded for more than 30 minutes any hour on commercial land uses as 60 dBA during nighttime hours and 65 dBA during daytime hours, and on residential land uses as 45 dBA during nighttime hours and 55 dBA during daytime hours.

Maximum noise levels from mechanical equipment, such as the proposed inverter, depends on the specific selection of equipment. While noise reduction features could reduce noise from the Project's equipment, a detailed acoustical study should be performed prior to or during the selection of mechanical equipment to show compliance with BMC Section 13.40 noise standards, and as required by the following COA. With implementation of the following COA, this impact would be less than significant.

> **COA: Solar Array Mechanical Equipment**. Prior to issuance of a building permit, a specific noise analysis of the mechanical equipment at 3003 Dwight Way shall be completed to confirm that operations during both daytime and nighttime hours would comply with BMC Section 13.40 noise standards. Should expected noise impacts exceed the applicable criteria, noise reduction features would be required to ensure compliance.

b. Would the Project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? ***(Less-Than-Significant Impact)***

Vibrating objects in contact with the ground radiate vibration waves through various soil and rock strata to the foundations of nearby buildings. As the vibration propagates from the foundation

throughout the remainder of the building, the vibration of floors and walls may cause perceptible vibration from the rattling of windows or a rumbling noise. The rumbling sound caused by the vibration of room surfaces is called groundborne noise. When assessing annoyance from groundborne noise, vibration is typically expressed as root mean square (rms) velocity in units of decibels of 1 micro-inch per second. To distinguish vibration levels from noise levels, the unit is written as "VdB." Human perception to vibration in indoor environments starts at levels as low as 67 VdB and sometimes lower. Annoyance due to vibration in residential settings starts at 70 VdB. Groundborne vibration is almost never annoying to people who are outdoors. Although the motion of the ground may be perceived, without the effects associated with the shaking of the building, the motion does not provoke the same adverse human reaction.

In extreme cases, excessive groundborne vibration has the potential to cause structural damage to buildings. Common sources of groundborne vibration include trains and construction activities such as blasting, pile driving and operating heavy earthmoving equipment.

Construction and operation of the proposed Project could expose sensitive structures and residential receptors to excessive groundborne vibration, as discussed below.

Construction Vibration. The nearest sensitive receptors that may be subject to vibration impacts during construction include the residences located approximately 70 feet west of the Project site. Vibration levels calculated in RMS are best for characterizing human response to building vibration, while vibration levels in peak particle velocity (PPV) are best used to characterize potential for building damage. Therefore, this construction vibration impact analysis discusses the level of human annoyance using vibration levels in VdB and assesses the potential for building damages using vibration levels in PPV (in/sec). The Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual*[33] guidelines indicate that a vibration level up to 102 VdB (an equivalent to 0.5 in/sec in PPV) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. For a non-engineered timber and masonry building, the construction vibration damage criterion is 94 VdB (0.2 in/sec in PPV).

For typical construction activity, the equipment with the highest vibration generation potential is the large bulldozer, which would generate 87 VdB at 25 feet.[34] The closest residential structures are located 70 feet west of the Project construction boundary. Based on distance attenuation, the closest residences would experience vibration levels of up to 74 VdB (0.019 PPV [in/sec]). This vibration level at the closest residential structures from construction equipment would not exceed the FTA threshold of 94 VdB (0.2 in/sec PPV) for building damage. Therefore, this impact would be less than significant.

[33] Federal Transit Administration, 2018. FTA T*ransit Noise and Vibration Impact Assessment Manual*. FTA-0123. September.

[34] Ibid.

Operational Vibration. No permanent noise sources that would expose persons to excessive groundborne vibration or noise levels would be located within the Project site. In addition, long-term operational activities associated with the proposed Project would not involve the use of any equipment or processes that would result in potentially significant levels of ground vibration. Therefore, this impact would be less than significant.

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 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? ***(No Impact)***

The public airports nearest to the Project site are the Oakland International Airport (approximately 8.5 miles south of the site) and San Francisco International Airport (approximately 18 miles southwest of the site). The nearest private airport, Buchanan Field Airport, is located approximately 13.5 miles northeast of the site. Although aircraft-related noise is occasionally audible on the Project site, the site does not lie within an airport land use plan area or within the 60 dBA Ldn noise contours of any of these public airports or private airfields. Therefore, the proposed Project would not expose people residing or working in the Project area to excessive noise levels due to the proximity of a public airport. Therefore, there would be no impact.

3.14 POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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?	☐	☐	☐	☒

a. Would the Project induce substantial 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)? ***(No Impact)***

The proposed Project would result in the construction of a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site. There is an existing residence on the other half of the site and the proposed Project does not include the expansion or development of additional housing units or the extension of public roads or other infrastructure. Therefore, the proposed Project would not result in any new unplanned population growth and there would be no impact.

b. Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? ***(No Impact)***

The proposed Project does not include the demolition of any existing structures or the removal of any existing housing units. Therefore, the proposed Project would not displace any existing people or housing and there would be no impact.

3.15 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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:				
i. Fire protection?	☐	☐	☐	☒
ii. Police protection?	☐	☐	☐	☒
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

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: i. Fire protection? ii. Police protection? iii. Schools? iv. Parks? v. Other public facilities? ***(No Impact)***

The proposed Project would result in the construction of accessory improvements to an existing residential site, including a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site and the merging of the two existing parcels at the Project site into one parcel. There is an existing residential unit at the Project site and the site is already served by police and fire services. The proposed Project would not result in an increase in population that would require the provision of new fire or police facilities, schools, parks, or other public facilities, or result in the need for physically altered facilities. Therefore, the proposed Project would have no impact related to public services, parks, or other public facilities.

3.16 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?	☐	☐	☐	☒

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? ***(No Impact)***

The proposed Project would result in the construction of accessory improvements to an existing residential site, including a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site and the merging of the two existing parcels at the Project site into one parcel. The proposed Project would not result in an increase in population that would result in the increase in use of existing neighborhood or regional parks such that substantial physical deterioration would occur. Therefore, there would be no impact.

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? ***(No Impact)***

The proposed Project does not include the construction or expansion of recreational facilities which might have an adverse physical effect on the environment and there would be no impact.

3.17 TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 §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?	☐	☐	☒	☐

a. Would the Project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? ***(No Impact)***

As previously discussed, the proposed Project would result in the construction of accessory improvements to an existing residential site, including a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site and the merging of the two existing parcels at the Project site into one parcel. There are no proposed changes to existing public roadways, transportation-related infrastructure, or site access. Therefore, the proposed Project would have no impact on any program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

b. Would the Project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)? ***(Less-Than-Significant Impact)***

On September 27, 2013, California Governor Jerry Brown signed SB 743 into law and started a process that changed the way transportation impact analysis is conducted as part of CEQA compliance. These changes include elimination of automobile delay, LOS, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts under CEQA. According to SB 743, these changes are intended to "more appropriately balance the needs of congestion management with Statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions."

In December 2018, the State Office of Planning and Research (OPR) completed an update to the CEQA Guidelines to implement the requirements of SB 743. The Guidelines state that VMT must be the metric used to determine significant transportation impacts. The Guidelines require all lead agencies in California to use VMT-based thresholds of significance in CEQA documents published after July 1, 2020.

The OPR Guidelines recommend developing screening criteria for development projects that meet certain criteria that can readily lead to the conclusion that they would not cause a significant impact

on VMT. The concept of project screening is that some projects have characteristics that would readily lead to the conclusion that they would not cause a VMT impact, and therefore those projects could be screened out of doing a detailed VMT analysis. The screening criteria applicable to the proposed Project would be the Small Projects criteria. Under the Small Projects criteria, projects generating 836 daily VMT or less, which is the equivalent of approximately 20 residential units, would have a less than significant impact related to VMT.[35] As previously discussed, the proposed Project involves the development of accessory improvements associated with an existing residential use and would not result in any new residential units on the Project site. Therefore, the proposed Project would satisfy the Small Projects criterion and is therefore presumed to have a less-than-significant impact related to VMT.

c. Would the Project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? ***(No Impact)***

As previously discussed, there are no proposed changes to existing public roadways, transportation-related infrastructure, or site access. Therefore, the proposed would have no impact on hazards due to a design feature or incompatible uses.

d. Would the Project result in inadequate emergency access? ***(Less-Than-Significant Impact)***

As previously discussed, there are no proposed changes to existing public roadways, transportation-related infrastructure, or site access. In addition, as is standard City practice, the Berkeley Fire Department and Berkeley Police Department would review Project plans for access concerns. Therefore, the proposed would have no impact on emergency access.

[35] Berkeley, City of. 2020. *City of Berkeley VMT Criteria and Thresholds.* June 29.

3.18 TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project:				
a. 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:				
i. 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	☐	☐	☒	☐
ii. 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.	☐	☐	☒	☐

a. 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:

i. 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

ii. 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. ***(Less-Than-Significant Impact)***

As previously described in Section 1.0, Project Information, the City sent letters to tribes eligible to consult with the City, pursuant to Public Resources Code section 21080.3.1, on April 7, 2022 and April 29, 2022, notifying them of their opportunity to consult for this Project. No requests for consultation were received.

As described in Section 3.5, Cultural Resources, no archeological historical resources have been identified at the Project site. However, if significant archeological deposits were unearthed during Project construction, a substantial adverse change in the significance of a historical resource would occur from its demolition, destruction, relocation, or alteration such that the significance of the

resource would be materially impaired (CEQA Guidelines Section 15064.5(b)(1)). With implementation of the City's standard COAs identified in Section 3.5, Cultural Resources, impacts to archeological deposits and human remains that may qualify as Tribal Cultural Resources would be less than significant.

3.19 UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 or relocation 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?	☐	☐	☒	☐

*a. Would the Project 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 or relocation of which could cause significant environmental effects? **(Less-Than-Significant Impact)***

The EBMUD Orinda Water Treatment Plant (Orinda WTP) and the Main Wastewater Treatment Plant (MWWTP) serve the Project site and surrounding area.[36] The proposed Project would connect to existing water delivery and sanitary sewer systems within the vicinity of the site and it is anticipated that these pipelines would have sufficient capacity to support Project water and wastewater flows. However, as a condition of approval, the Project sponsor would be required to coordinate with EBMUD, the City's Fire Department, and the City's Public Works Department to assess water and wastewater flow and ensure the proposed Project would comply with the applicable requirements.

As described in Section 3.10, Hydrology and Water Quality, a Stormwater Retention and Metering System would be implemented and would result in a reduction of peak post-construction runoff to below the pre-construction rate. Therefore, potential impacts related to stormwater drainage systems would be less than significant.

The Project site and existing residence on-site is currently served by electrical, natural gas, and telecommunications facilities. Additionally, as previously described, the Project site is zoned for single-family residential use and therefore the proposed Project is not expected to result in an increase in demand for water, electrical power, or natural gas, or generate substantially more wastewater or solid waste beyond what was previously planned for. Therefore, the expansion of

[36] East Bay Municipal Utility District. 2021. *2020 Urban Water Management Plan*. June 22.

electrical, natural gas, or telecommunications facilities would not be required and this impact would be less than significant.

b. Would the Project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? ***(Less-Than-Significant Impact)***

The proposed Project would increase water demands at the Project site due to the construction of a 44,000 gallon pool, a greenhouse, and additional landscaping. However, all of these uses are permissible within sites zoned for residential use.

EBMUD completed development of a revised Water Supply Management Program (WSMP) 2040 in April of 2012, which is the District's plan for providing water to its customers for a span of 30 years.[37] According to the WSMP, EBMUD's water supplies are estimated to be sufficient during the planning period (2010-2040) in normal and single dry years. Therefore, EBMUD would have adequate water supply to provide water service to the proposed Project and the impact related to sufficient water supplies would be less than significant.

The WSMP 2040 emphasizes maximum conservation and recycling strategies, with a total of 50 mgd of future supply to be provided from those two component categories. However, looking toward 2040, EBMUD's current supply is insufficient to meet customer needs during multi-year droughts despite EBMUD's aggressive water conservation and recycled water programs.[38] According to the WSMP, the combination of rationing, conservation, and raw and recycled water would satisfy increased customer demand through 2040.[39] Supplemental supply would also be needed to keep rationing at a lower level and to meet the need for water in drought years. In extreme drought years, the Project applicant would likely be subject to and participate in conservation measures such as decreasing irrigation of the proposed greenhouse and additional landscaping and not draining and refilling the pool at this time. These conservation measures would likely reduce water consumption back to pre-Project conditions where water use would be limited to the existing residence. For these reasons, the impact related to sufficient water supplies during dry and multiple dry years would be less than significant.

c. Would the Project 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? ***(Less-Than-Significant Impact)***

The City's sewer system is connected to trunk lines that convey flows to the MWWTP. The MWWTP has a primary treatment capacity of 320 million gallons per day (mgd) and a secondary treatment capacity of 168 mgd.[40] Storage basins provide plant capacity for a short-term hydraulic peak of 415

37 East Bay Municipal Utility District. 2012. *Water Supply Management Program 2040 Plan*. April.
38 East Bay Municipal Utility District. 2020. *Water Shortage Contingency Plan 2020*. June 22.
39 East Bay Municipal Utility District. 2012, op. cit.
40 East Bay Municipal Utility District. 2016. Wastewater Treatment. Website: www.ebmud.com/wastewater/collection-treatment/wastewater-treatment (accessed April 2022)

mgd. The average annual daily flow into the MWWTP is approximately 63 mgd, representing approximately 37.5 percent of the plant's secondary treatment capacity.

The proposed Project would not result in a significant increase in wastewater developed at the Project site other than when the pool would be drained and refilled. This would likely occur only every three to five years and as previously discussed the addition of a pool is permissible and expected on sites with residential zoning. Therefore, EBMUD's MMTP would have adequate capacity so serve the proposed Project's demand in addition to the provider's existing commitments and this impact would be less than significant.

d. Would the Project 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? ***(Less-Than-Significant Impact)***

As previously discussed, the proposed Project would result in the construction of a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site and the merging of the two existing parcels at the Project site into one parcel. The proposed Project would not result in an increase in population to the site or a significant change in the amount of solid waste that is generated site. Therefore, the proposed Project would not 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 and this impact would be less than significant.

e. Would the Project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? ***(Less-Than-Significant Impact)***

The proposed Project would comply with all Federal, State, and Local solid waste statutes and/or regulations related to solid waste.

3.20 WILDFIRE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒

*a. Would the Project substantially impair an adopted emergency response plan or emergency evacuation plan? **(No Impact)***

As previously discussed, the proposed Project would result in the construction of a pool, pool house, greenhouse, and solar array on the undeveloped half of the Project site and the merging of the two existing parcels at the Project site into one parcel. There are no proposed changes to existing public roadways, transportation-related infrastructure, or site access. Therefore, the proposed Project would have no impact on an adopted emergency response plan or emergency evacuation plan.

*b. Would the Project, 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? **(Less-than-Significant)***

The proposed Project would not result in any significant changes to slope or prevailing wind as compared to existing site conditions. Additionally, of the proposed Project would include a variety of fire safety measures including the preservation and protection of fire-resistant California Coastal Oaks; removal of flammable underbrush on over 25,000 square feet of land; stabilization of over 25,000 square feet of unstable land; installation of a 44,000-gallon pool that would be made available to Berkeley Firefighters in case of fire and failure of water pressure in the area; installation of a dry standpipe from the driveway to the pool house that would help fight fires at the pool house and above; installation of a staircase providing fire fighters access up the 1:1 slope; use of fire-retardant materials in construction; and installation of fire sprinklers within structures. These fire safety measures would ensure the proposed Project would not exacerbate wildfire due to slope, prevailing winds, and other factors and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire and this impact would be less than significant.

c. Would the Project 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? ***(Less-than-Significant)***

The proposed Project would not require the installation of infrastructure such as roads, fuel breaks, emergency water sources, power lines or other utilities that may exacerbate fire risk or result in temporary or ongoing impacts to the environment. The proposed Project would be connected to existing utilities and infrastructure. As described above, the 44,000-gallon pool would be available to Berkeley Firefighters in case of fire and failure of water pressure in the area. Additionally, as previously discussed in Section 19.b, the proposed Project would include a variety of fire safety measures. Therefore, this impact would be less than significant.

d. Would the Project 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? ***(No Impact)***

As discussed in Section 3.10, Hydrology and Water Quality, the proposed Project would not result in significant changes to existing drainage patterns on-site. As Discussed in Section 3.7, Geology and Soils, the proposed Project is not at significant risk for flooding or landslides. Therefore, this impact would be less than significant.

3.21 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, substantially 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?	☐	☐	☐	☒

a. Does the Project have the potential to 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, substantially 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? ***(Less-Than-Significant with Mitigation Incorporated)***

As discussed in Section 3.4, Biological Resources, the proposed Project would not degrade the quality of the environmental, 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, or substantially reduce the number or restrict the range of a rare or endangered plant or animal, and this topic would be less than significant with implementation of the City's standard conditions of approval. As discussed in Section 3.5, Cultural Resources, the proposed Project would not eliminate important examples of the major periods of California history, and this topic would be less than significant with implementation of the City's standard conditions of approval.

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)? ***(Less-Than-Significant Impact)***

CEQA defines cumulative impacts as "two or more individual effects which, when considered together, are considerable, or which can compound to increase other environmental impacts." Section 15130 of the CEQA Guidelines requires evaluation of potential environmental impacts when

the project's incremental effect is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of "reasonably foreseeable probable future" projects, per CEQA Section 15355. Cumulative impacts can result from a combination of the proposed project together with other closely related projects that cause an adverse change in the environment. Cumulative impacts can result from individually minor but collectively significant projects taking place over time.

For all of the topics discussed in this Initial Study, the proposed Project's impacts would be individually limited and not cumulatively considerable, because the impacts are either temporary in nature (i.e., limited to the construction period) or limited to the Project site (i.e., accidental discovery). Additionally, for each of the topics analyzed in the Initial Study, the proposed Project would have no impacts or less-than-significant impacts, and therefore would not substantially contribute to any potential cumulative impacts.

When future development proposals are considered by the City, these proposals would undergo environmental review pursuant to CEQA, and when necessary, mitigation measures would be adopted as appropriate. In most cases, this environmental review and compliance with Project conditions of approval, relevant policies and mitigation measures, and the General Plan, and compliance with applicable regulations would ensure that significant impacts would be avoided or otherwise mitigated to less-than-significant levels.

Implementation of these measures would ensure that the impacts of the proposed Project and other projects within the vicinity would be below established thresholds of significance and that these impacts would not combine with the impacts of other cumulative projects to result in a cumulatively considerable impact on the environment as a result of Project development. Therefore, this impact would be less than significant.

c. Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? ***(No Impact)***

The proposed Project would not result in any environmental effects that would cause substantial direct or indirect adverse effects to human beings, beyond those topics discussed in Sections 3.1 through 3.21 of this Initial Study.

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