Initial Study/Mitigated Negative Declaration
for the

UNIVERSITY OF CALIFORNIA, RIVERSIDE

STUDENT HEALTH & COUNSELING CENTER

PROJECT NO. 950578

Lead Agency

University of California, Riverside
Planning, Design & Construction
1223 University Avenue, Suite 240
Riverside, California 92507
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Prepared by

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Acronyms and Abbreviations

AB	Assembly Bill
ACUPCC	American College and University Presidents' Climate Commitment
AQMP	Air Quality Management Plan
ASCE	American Society of Civil Engineers
AVR	average vehicle ridership
BACT	best available control technology
BAU	business as usual
BMPs	best management practices
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Protection
CalGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDMG	California Division of Mines and Geology
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CGS	California Geological Survey
CHRIS	California Historical Resource Information System
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
COVID-19	Coronavirus 2019
CRHR	California Register of Historic Resources
CTMP	Campus Traffic Mitigation Program
cy	cubic yards
dBA	A-weighted decibels
DCFM	Designated Campus Fire Marshal
DOC	(California) Department of Conservation
DTSC	(California) Department of Toxic Substances Control

EH&S	Environmental Health & Safety
EIC	Eastern Information Center
EIR	Environmental Impact Report
EOP	Emergency Operations Plan
EV	electric vehicle
FAR	Floor Area Ratio
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTE	Full-Time Equivalent
GBCI	Green Business Certification, Inc.
GHG	greenhouse gas
gsf	gross square feet
HCP	Habitat Conservation Plan
HHRA	human health risk assessment
HVAC	heating, ventilation, and air conditioning
h:v	horizontal:vertical
I-215	Interstate 215
IS	Initial Study
IS/MND	Initial Study/Mitigated Negative Declaration
kBtu	kilo-British thermal unit
kv	kilovolts
kW	kilowatt
kWh/year	kilowatt hours per year
Lbs/day	pounds per day
LEED	Leadership in Energy and Environmental Design
Leq	equivalent noise level
LID	low impact development
Lmax	maximum sound level during a measurement period or a noise event
LRDP	Long Range Development Plan
LST	Localized Significance Thresholds
MBTA	Migratory Bird Treaty Act
MGD	million gallons per day
MMRP	Mitigation Monitoring and Reporting Program

MM	Mitigation Measures
MND	Mitigated Negative Declaration
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer System
MSHCP	Multiple Species Habitat Conservation Plan
$MTCO_2e$	metric tons carbon dioxide equivalent
MVA	mega volt amps
NAHC	Native American Heritage Commission
ND	Negative Declaration
NDD	North District Development
NHPA	National Historic Preservation Act
No.	number
NO_2	nitrogen dioxide
NOI	Notice of Intent
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
OPR	Office of Planning and Research
PCF	pounds per cubic foot
$PM_{2.5}$	particulate matter less than 2.5 micrometers in diameter
PM_{10}	particulate matter less than 10 micrometers in diameter
PP	Campus Programs and Practices
Ppb	parts per billion
Ppm	parts per million
PS	Planning Strategies
RCDWR	Riverside County Department of Waste Resources
RCNM	Roadway Construction Noise Model
RFD	City of Riverside Fire Department
ROG	reactive organic gases
RPD	Riverside Police Department
RPU	Riverside Public Utilities

RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RUSD	Riverside Unified School District
RWQCB	Regional Water Quality Control Board
RWQCP	Riverside Water Quality Control Plant
SAP	Sustainability Action Plan
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCH	State Clearinghouse
SCS	Sustainable Communities Strategy
SE	sand equivalent
SHCC	Student Health & Counseling Center
SIP	State Implementation Plan
SLF	Sacred Lands File
SO_2	sulfur dioxide
SO_x	sulfur oxides
SOM	School of Medicine
SR-60	State Route 60
SRA	source receptor area
SSPWC	Standard Specifications for Public Works Construction
Subbasin	Riverside-Arlington Subbasin
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
The Regents	Board of Regents
TDM	Transportation Demand Management
TNM	Traffic Noise Model
TPD	tons per day
UC	University of California
µg/m3	micrograms per cubic meter
UCPD	UC Police Department
UCR	University of California, Riverside

U.S. DOT	U.S Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	underground storage tanks
UWMP	Riverside Urban Water Management Plan
VdB	vibration decibels
VHFHSZ	Very High Fire Hazard Severity Zone
VOC	volatile organic compounds
VMT	vehicle miles traveled
WDR	waste discharge requirements

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STUDENT HEALTH & COUNSELING CENTER
UNIVERSITY OF CALIFORNIA, RIVERSIDE

Project No. 950578

Initial Study and Environmental Checklist Form

I. PROJECT INFORMATION

1. Project Title

Student Health & Counseling Center

2. Lead Agency Name and Address

The Regents of the University of California
1111 Franklin Street, 12th Floor
Oakland, California 94607

3. Contact Person and Phone Number

Stephanie Tang, Campus Environmental Planner
University of California, Riverside
Planning, Design & Construction
1223 University Avenue, Suite 240
Riverside, California 92507
(951) 827-1484

4. Project Location

University of California, Riverside
Riverside, California 92521

(Refer to Figure 1 – Regional and Location Vicinity Map and Figure 2 – UCR Campus Map)

5. Project Sponsor's Name and Address

University of California, Riverside
Planning, Design & Construction
1223 University Avenue, Suite 240
Riverside, California 92507

6. Custodian of the Administrative Record for this Project

Same as listed under No. 3 above.

7. Identification and Location of the Environmental Impact Report(s) Being Relied on for Tiering

University of California, Riverside 2005 Long Range Development Plan Environmental Impact Report (referred to hereinafter as the 2005 LRDP EIR) and the *University of California, Riverside 2005 Long Range Development Plan Amendment 2 Environmental Impact Report* (referred to hereinafter as the

2005 LRDP Amendment 2 EIR) (collectively referred to as the LRDP EIR). The documents are available for review at the University of California, Riverside (UCR) Planning, Design & Construction office, at the address listed above in Section I.3 and online at http://lrdp.ucr.edu/.

Introduction

The environmental analysis for the proposed Student Health & Counseling Center (SHCC) project (project or proposed project) tiers from the 2005 LRDP EIR (State Clearinghouse [SCH] No. 2005041164), certified by the University of California (UC) Board of Regents (The Regents) in November 2005, as augmented, revised, and supplemented by the 2005 LRDP Amendment 2 EIR (SCH No. 2010111034) certified by The Regents on November 28, 2011. The 2005 LRDP Amendment 2 EIR is a supplement to the 2005 LRDP EIR and provides an analysis of only those environmental effects identified in the 2005 LRDP EIR that changed as a result of the 2005 LRDP Amendment 2, which includes a revision to the land use map to allow for the location of a new School of Medicine (SOM) as well as other land use map changes; additional building space to accommodate the increased square footage requirements for the SOM; and the extension of the LRDP horizon year (described further below). The 2005 LRDP Amendment 2 EIR also includes an analysis of greenhouse gas (GHG) emissions resulting from development under the 2005 LRDP, as amended. The 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR are Program EIRs and were prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code, Sections 21000, et seq., specifically, Section 21094), the State CEQA Guidelines (Title 14, California Code of Regulations [CCR], Sections 15000 et seq.), and the University of California Procedures for the Implementation of CEQA.

Section 15152(a) of the State CEQA Guidelines states, "Tiering refers to using the analysis of general matters contained in a broader EIR (such as one prepared for a general plan or policy statement) with later EIRs and negative declarations on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on the issues specific to the later project." CEQA and the State CEQA Guidelines encourage the use of tiered environmental documents to eliminate repetitive discussions of the same issues. As stated in the 2005 LRDP Amendment 2 EIR, "As authorized by Section 15168(c) of the State CEQA Guidelines, projects implementing the 2005 LRDP as revised by Amendment 2 will be examined in light of the 2005 LRDP EIR and this supplemental EIR to determine whether the potential environmental effects of the individual project were adequately addressed in these EIRs, and whether any additional mitigation measures are required." Therefore, this Initial Study/Mitigated Negative Declaration (IS/MND) is hereby tiered from the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR. The documents are available for review at the UCR Planning, Design & Construction office, at the address listed above in Section I.3, and online at http://lrdp.ucr.edu/.

The 2005 LRDP EIR analyzes the direct, indirect, and cumulative impacts resulting from the projected need for development of approximately 7.1 million gross square feet (gsf) of new academic, housing, and support space to accommodate a total enrollment of 25,000 students[1] by the academic year 2015/2016, for a total of 11.8 million gsf on the UCR campus with the 2005 LRDP buildout. The 2005 LRDP Amendment 2 EIR analyzes the direct, indirect, and cumulative impacts resulting from revisions to the 2005 LRDP land use map and an increase in the maximum building

[1] Derived from 1 Full-Time Equivalent (FTE) = 1 Headcount. UCR uses a conversion rate of 1 FTE (0.95 rounded up) = 1 Headcount, and for the purposes of the 2005 LRDP and for the proposed Amendment 2, 1 FTE = 1 Headcount with the "student" taking full course loads every quarter with graduation in four years.

space on the campus from 11.8 million gsf to 14.9 million gsf to accommodate the SOM. The 2005 LRDP Amendment 2 does not change the projected enrollment level of 25,000 students but projects that this enrollment level will be attained in 2020/2021, five years later than projected in the 2005 LRDP. The 2005 LRDP Amendment 2 EIR addresses a total projected on-campus faculty, staff, and visitor population of 16,393 persons (an increase of 5,852 persons associated with the SOM) within the same modified planning horizon. Measures to mitigate the significant direct, indirect, and/or cumulative impacts identified for UCR's projected development are identified in both the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR.

Section 15152(f)(3) of the State CEQA Guidelines instructs that when tiering, a later EIR or Negative Declaration (ND) shall be prepared only when, on the basis of an Initial Study (IS), the later project may cause significant effects on the environment that were not adequately addressed in the prior EIR(s) or ND(s). Significant environmental effects are considered to have been "adequately addressed" if the lead agency determines that:

(A) they have been mitigated or avoided as a result of the prior environmental impact report and findings adopted in connection with that prior environmental report; or

(B) they have been examined at a sufficient level of detail in the prior environmental impact report to enable those effects to be mitigated or avoided by site specific revisions, the imposition of conditions, or by other means in connection with the approval of the later project.

Following review of the proposed project and the analysis presented in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR, it has been determined that the proposed project is a "project" under CEQA that was not fully addressed in the Program EIRs; therefore, additional environmental review is required. Accordingly, this tiered IS has been prepared on the basis that UCR has proposed to adopt an MND.

In conjunction with certification of the 2005 LRDP Amendment 2 EIR and approval of the 2005 LRDP Amendment 2, The Regents also adopted a Mitigation Monitoring and Reporting Program (MMRP). The MMRP ensures that the 2005 LRDP Planning Strategies (PSs), Campus Programs and Practices (PPs), and Mitigation Measures (MMs), as revised by the 2005 LRDP Amendment 2 EIR, that are the responsibility of the UC, are implemented in a timely manner. The MMs are monitored by the appropriate campus entity and are reported on an annual basis. As individual projects, such as the proposed project, are designed and constructed, the projects include features necessary to implement relevant PSs, PPs, and MMs. Therefore, in accordance with The Regents' November 2011 approval of the 2005 LRDP Amendment 2 and certification of the associated Final EIR, all relevant PSs, PPs, and MMs have been incorporated into the proposed project description and would be implemented as a part of the proposed project and monitored through the approved MMRP. Relevant UCR PSs, PPs, and/or MMs are listed in the introduction to the analysis for each topical issue in Section V, Evaluation of Environmental Impacts, which are included in the project MMRP. In addition to PSs, PPs, and MMs from the MMRP relevant to the proposed project, this IS/MND includes new project-specific mitigation measures identified to reduce project-specific environmental impacts to a less than significant level (specifically related to cultural resources and tribal cultural resources).

In summary, this IS/MND provides a project-specific environmental analysis to determine if the proposed project would result in any new significant impacts not examined in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR, and/or if additional MMs beyond those adopted in the MMRP for the 2005 LRDP Amendment 2 would be required to reduce

significant impacts. In accordance with the State CEQA Guidelines, an MND is the appropriate environmental document because, after incorporation of the identified MMRP and proposed project-specific MMs, the new potentially significant effects that would be caused by the proposed project would be mitigated to a less than significant level.

This IS, along with a Notice of Intent (NOI) to Adopt an MND, has been circulated by the SCH Office of Planning and Research (OPR) for review by State agencies and to any responsible agencies, trustee agencies, and interested parties, as required by CEQA, for a 30-day public review. Following receipt and evaluation of comments from agencies, organizations, and/or individuals, the UC will determine whether any substantial new environmental issues have been raised. It is anticipated that the proposed project will subsequently be submitted to the Chancellor for consideration in spring 2021.

II. PROJECT DESCRIPTION

The project site is currently developed as a surface parking lot (Parking Lot 21) (see Figure 3 – Project Site and Staging Areas Aerial Map). The proposed project would involve the removal of the existing asphalt, landscape, and parking spaces on the western portion of Parking Lot 21. Subsequent to demolition activities, the proposed project would include the construction of an approximately 50-foot high, 50,000-gsf Student Health & Counseling Center (SHCC) with an ambulatory loading area, service loading area, stationary equipment (e.g., heating, ventilation, and air conditioning [HVAC]), landscape, restriping a portion of Parking Lot 21, and other associated site improvements (see Figure 4 – Conceptual Site Plan).

More detailed information regarding the Project Description is provided below under *Proposed Project Components*.

1. Project Location

The UCR main campus is located within the City of Riverside, approximately two miles east of downtown Riverside and just west of Box Springs Mountains. The UCR campus is bisected by Interstate 215 (I-215)/State Route 60 (SR-60) freeways. The approximately 1.5-acre project site encompasses the western third of the existing Parking Lot 21 located at the northeastern area of the UCR campus, south of W. Linden Street and west of Pentland Way.

For purposes of this IS/MND, the project site includes the areas that would be subject to physical modifications to implement the proposed project, including, but not limited to, demolition of asphalt pavement, removal of ornamental landscape, grading and construction of the new SHCC building, vehicular and non-vehicular circulation, hardscape and landscape, and infrastructure relocation/improvements, as described in this section. Limits of disturbance would be contained to the existing Parking Lot 21, lawn area immediately south of the project site, and the off-site improvements for infrastructure connection southwest of the proposed site. Three locations for temporary construction staging have been identified—the lawn area south of the project site, adjacent to Pentland Hills Residence Halls; the center part of Parking Lot 21; and/or the vacant/undeveloped areas of North District Development (NDD), located northwest of the project site.

Figure 1 shows the regional location and local vicinity for the proposed project; Figure 2 provides a map of the UCR campus, including the location of the proposed project; and Figure 3 shows an aerial photograph of the project site.

2. Environmental Setting

The 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR include descriptions of the regulatory and environmental setting for the region, the County and City, and the UCR campus, though the 2005 LRDP Amendment 2 EIR largely focuses on the West Campus. The regulatory and environmental settings for many of the topics addressed in this IS/MND have not substantively changed since preparation of the 2005 LRDP EIR or the 2005 LRDP Amendment 2 EIR. Therefore, they are not wholly repeated in this document. Particularly relevant and site-specific details of the regulatory and environmental settings are summarized in this IS/MND. Additionally, updated regulations related to Air Quality, GHGs, Transportation, and Tribal Cultural Resources are incorporated in the environmental settings of that particular environmental topic. Following is a description of the environmental setting for the proposed project and surrounding areas.

As shown on Figure 3, the project site is currently developed with a surface parking lot with ornamental landscape throughout the site, a sidewalk along W. Linden Street, and pedestrian pathway along the southern edge. Parking Lot 21 currently contains approximately 408 parking spaces. With implementation of the proposed project, approximately 144 parking spaces would be removed. See Figure 5 for photographs of the project site. The existing sidewalk and palm trees along W. Linden Street would remain.

Surrounding land uses include the Pentland Hills Residence Halls (student housing) to the south/southeast; the Dundee Student Housing and Glasgow Dining Project (Dundee-Glasgow Project) to the west/southwest; W. Linden Street followed by Parking Lot 23, the UCR Facilities Services office, Corporation Yard, Fleet Services Department, Parking Services office, and the Environmental Health & Safety (EH&S) office to the north/northeast; the North District Development (NDD) Project to the northwest (Phase 1 of the NDD under construction with completion anticipated late 2021); and the eastern portion of Parking Lot 21 followed by Pentland Way, Parking Lot 20, the Glen Mor Field, Valencia Hill Drive, and single-family residences to the east.

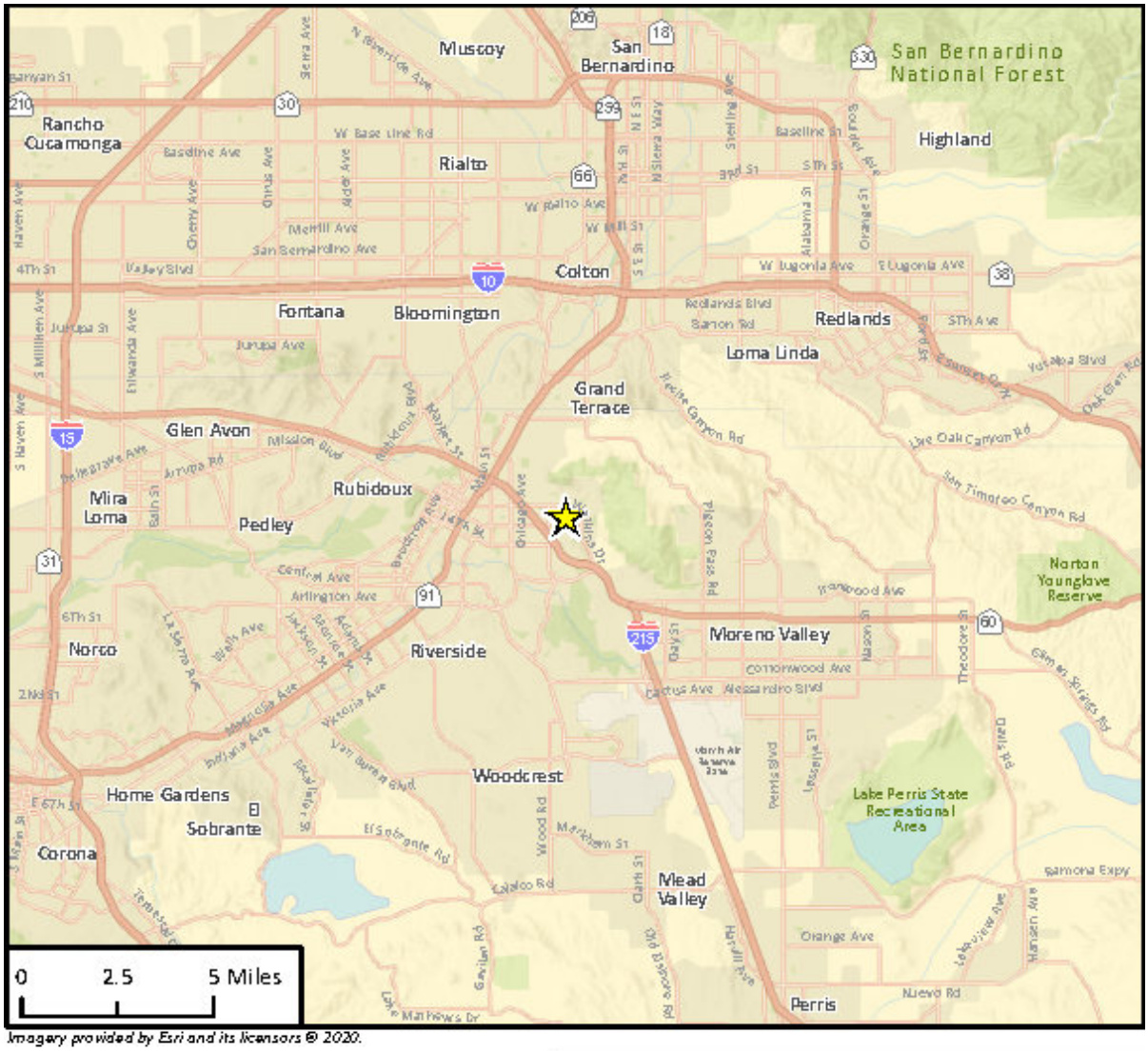
Vehicular access to the project site is currently provided from W. Linden Street and Pentland Way. Pedestrian pathways are located along the northern and southern side of W. Linden Street and on the southern side of Parking Lot 21. Bicyclists currently share the roadway with vehicles along W. Linden Street.

Regionally, as with all of southern California, the UCR campus lies within a seismically active area. There are no known active or potentially active faults within the project site or the immediate vicinity. The nearest active fault is the San Jacinto Fault Zone, located approximately 4.9 miles to the northeast.

3. Consistency with the 2005 LRDP Amendment 2 EIR

This proposed project is consistent with the 2005 LRDP Amendment 2 EIR's land use designation of Residence Hall and Related Support (UCR 2011b). Therefore, no amendment to the 2005 LRDP is required. The age and use of the existing Student Health Services building has exceeded the life expectancy of the building. UCR is moving its health and counseling services into a new SHCC facility that better meets staff and student needs and conforms to current State building standards. The new SHCC building is proposed at this location due to its proximity to existing and planned student residence halls thus better serving the campus student population. The proposed project is sized at the maximum envelope of 50,000 gsf to be able to continue to provide services to the campus student population, similar to existing operations, and to accommodate a minor increase in staff (approximately 10 new staff).

Figure 1 – Regional and Location Vicinity Map



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Project Location

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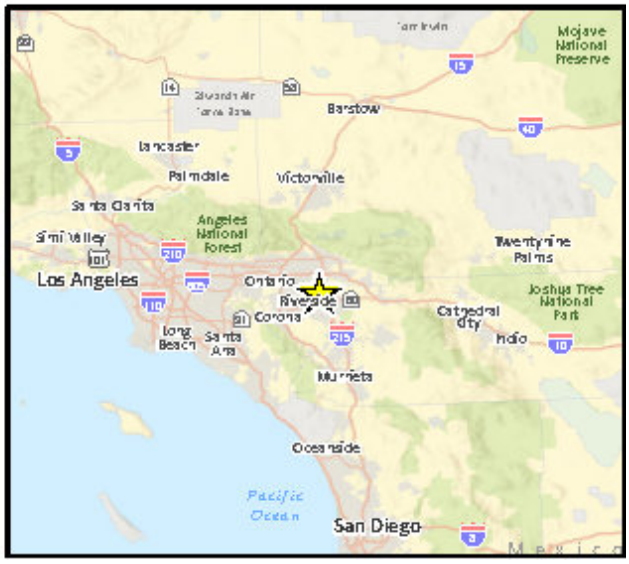

Figure 2 – UCR Campus Map

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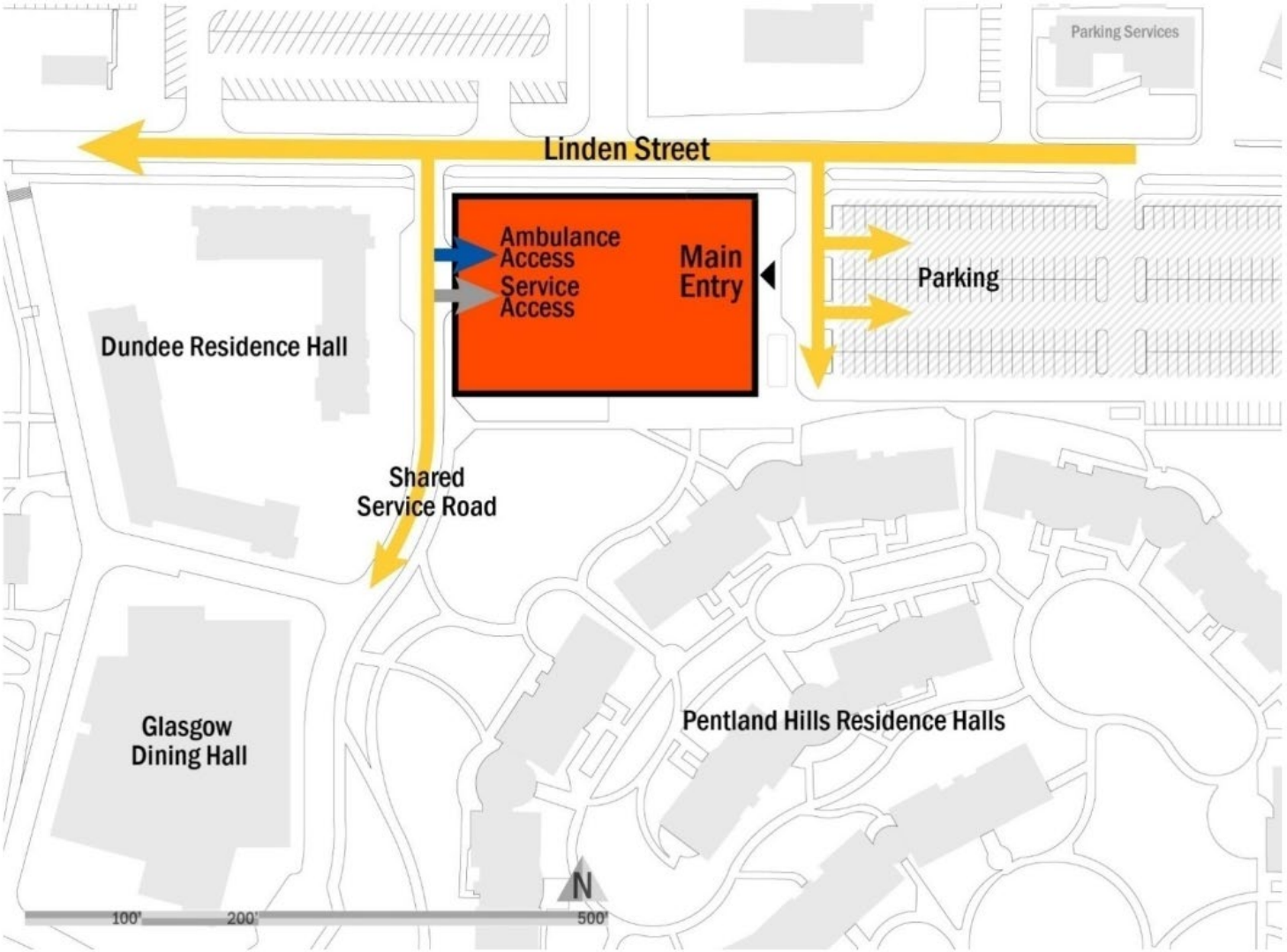
Fig 3 Project Site Campus

Figure 3 – Project Site and Staging Areas Aerial Map

Source: UCR 2020

Figure 4 – Conceptual Site Plan



Source: UCR 2020

Figure 5 – Site Photographs

Photograph 1. View west from site

Photograph 2. View north from site

Photograph 3. View south/southeast from site

Photograph 4. View east from site

Photograph 5. View west on W. Linden Street

Photograph 6. View north/northwest from site

Photo credit: UCR 2020

4. Code Compliance and Regulation

The University is the authority having jurisdiction for matters of code regulations on University projects. The University complies with the Title 24 of the California Building Code (CBC), Parts 1-12 and all amendments. Each facility acts as a "local jurisdiction" complete with its own Building Official and locally administered code compliance program (similar to building officials in city or county jurisdictions).

All facilities owned, leased, designed, constructed, altered, or renovated with intent, or future intent, to support the mission of the University are under the jurisdiction and responsibility of the University and local Facility administration. Each Facility has a code compliance program to design, approve, construct, alter, renovate, inspect, and maintain its facilities in accordance with all applicable codes and regulations, and University policies. Codes and regulations include the CBC as adopted by the University, as well as applicable federal, state, and local agency regulations and legislation. The code compliance program applies to all activities at the facilities that are subject to building codes and other related regulatory compliance, regardless of funding source, the party overseeing construction, or the ownership status of the improvements (UC 2018).

5. Proposed Project

Purpose of the Project

The purpose of this proposed project is to create an identifiable and easily accessible facility that welcomes members of UCR's diverse campus community and conveys a commitment to quality care, innovation in technical, medical and clinical services, student support and well-being. This facility aligns with the missions and values of the UCR campus, the Division of Student Affairs, Student Health Services, Counseling and Psychological Services, Student Affairs Case Management, and The Well. The facility would support student retention and success through optimization of emotional and physical health, through direct service, promotion, prevention, education, student engagement, and provision of resources and referrals. The proposed project goals include:

- Devising a realistic and responsive facility that meets current and future program requirements and incorporates the visions and strategic plans of Student Health Services, Counseling and Psychological Services, Student Affairs Case Management, and The Well.
- Planning a modern, efficient and flexible facility to support all departments in an ever-evolving healthcare environment, and that supports future growth of expanded services available to the student population.
- Planning a facility that will significantly increase capacity to address new and expanding needs, and will also combine healthcare and integrated wellness and student support services together. This collaborative model will improve the student experience; especially around access, inclusivity, and navigation of resources in support of student retention and success.
- Planning a facility that meets program needs in the context of the existing campus framework, future planned development, and incorporating the Healthy Campus values around sustainable Built Environment that accounts for the overall well-being for staff and students.
- Planning, designing, and constructing a facility that makes best use of limited financial resources, while exploring alternate financing options to support current and future needs of the program.

Proposed Project Components

UCR proposes construction of a new, approximately 50-foot high, 50,000 gsf SHCC building. The proposed project also includes vehicle and emergency ingress/egress, landscape and hardscape improvements, new pedestrian pathways, restriping a portion of the existing surface parking area, and other site amenities (e.g., bicycle racks, benches) on the existing campus surface parking lot (Parking Lot 21). SHCC would be similar in operations as the existing facility. Anticipated uses in the SHCC building would include exam rooms, radiology, radiography, pharmacy, laboratory, and a procedure room; a Counseling and Psychological Services area; potential pandemic related services; The Well (gathering space and office); administrative offices; conference rooms; lounge/break room; and outdoor gathering areas. An ambulatory loading area is proposed as well as stationary equipment (e.g., HVAC) and other site associated improvements. The existing staff would be relocated to this new facility, and there would be a minor increase in new staff. There are no current plans for the existing Student Health Services building after implementation of the proposed project, so any analysis related to future use would necessarily be speculative. Existing sidewalk and palm trees along W. Linden Street would remain. New pedestrian pathways are proposed to connect to the Dundee-Glasgow Project and the courtyard space to the west and southwest, the green space and Pentland Hills Residence Halls to the south and southeast, and to the sidewalk along W. Linden Street to the north. See additional discussion under *Pedestrian and Bicycle Circulation and Access* below.

No retaining walls are anticipated but stem walls (supporting walls that join the foundation of a building to the vertical walls of the structure constructed atop the foundation) may be implemented at the SHCC building corners to minimize exterior slopes.

Currently, there are approximately 408 parking spaces in Parking Lot 21. Approximately 144 parking spaces would be removed to make room for the proposed project, with approximately 264 spaces remaining. Restriping on a portion of the existing surface parking area of Parking Lot 21 may be required.

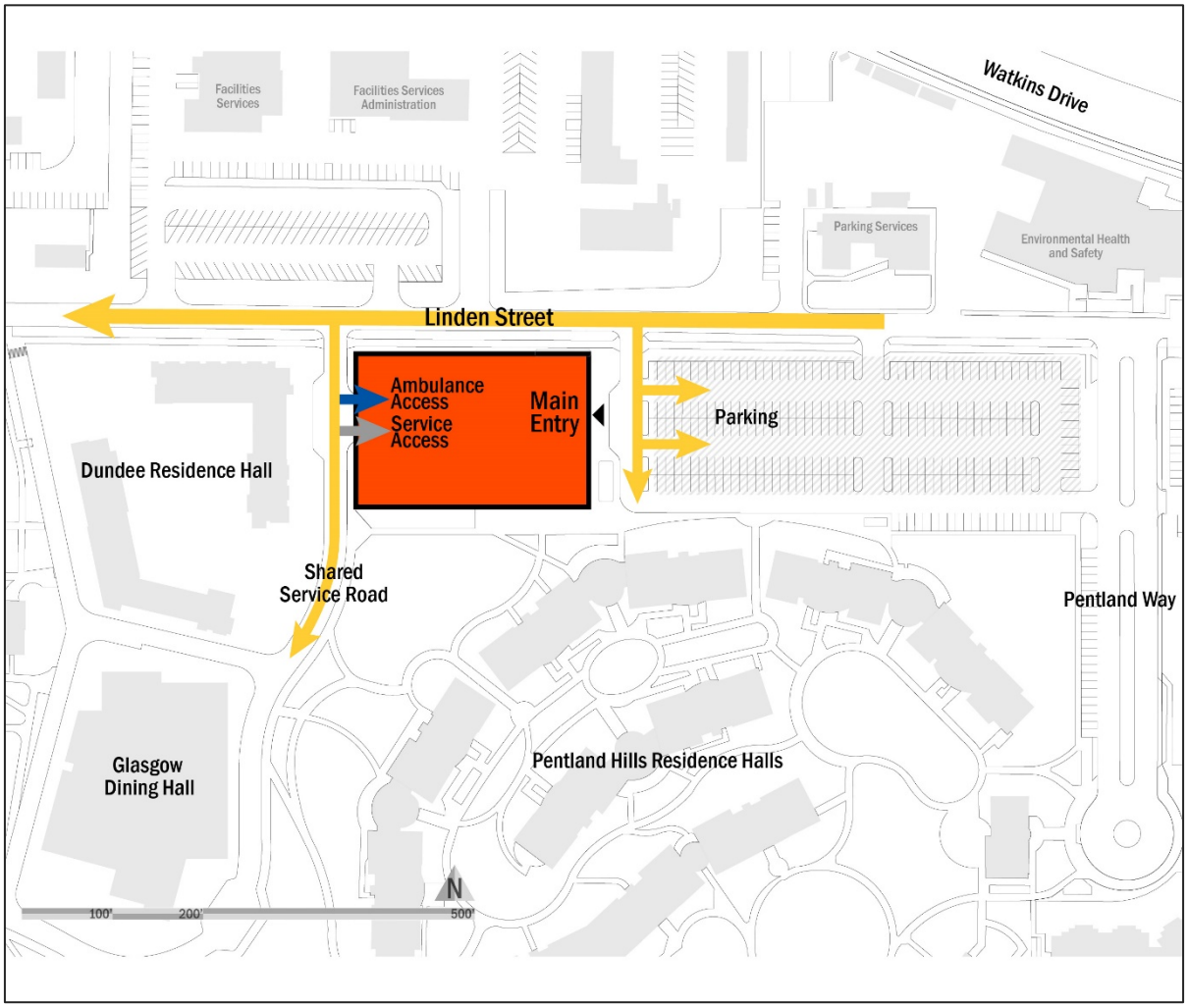
Vehicle Circulation, Access, and Parking

A new driveway would be developed from the Dundee-Glasgow Project access road (see Figure 6 – Vehicular Access). This new driveway from the Dundee-Glasgow Project would serve as a shared access road that would provide ambulance and service access and a loading dock for the proposed project. The ambulance access would most likely have a discrete entry from the shared service road, but other locations may be proposed by the selected design team. For purposes of the CEQA analysis, ambulance access would be considered either on the western or eastern side of the proposed SHCC facility.

The NDD Project includes an access road from Watkins Drive to W. Linden Street with a gate arm at the southern end of the access road. This access would be limited to service and emergency vehicles only. It is anticipated that service and emergency vehicles from the proposed project may also use this access road.

The existing driveway from W. Linden Street would remain. The eastern vehicle entrance from W. Linden Street would serve as the main entrance and provide access to Parking Lot 21. Accessible parking spaces would be located in Parking Lot 21 to accommodate van accessible and wheelchair parking spaces.

Figure 6 – Vehicular Access

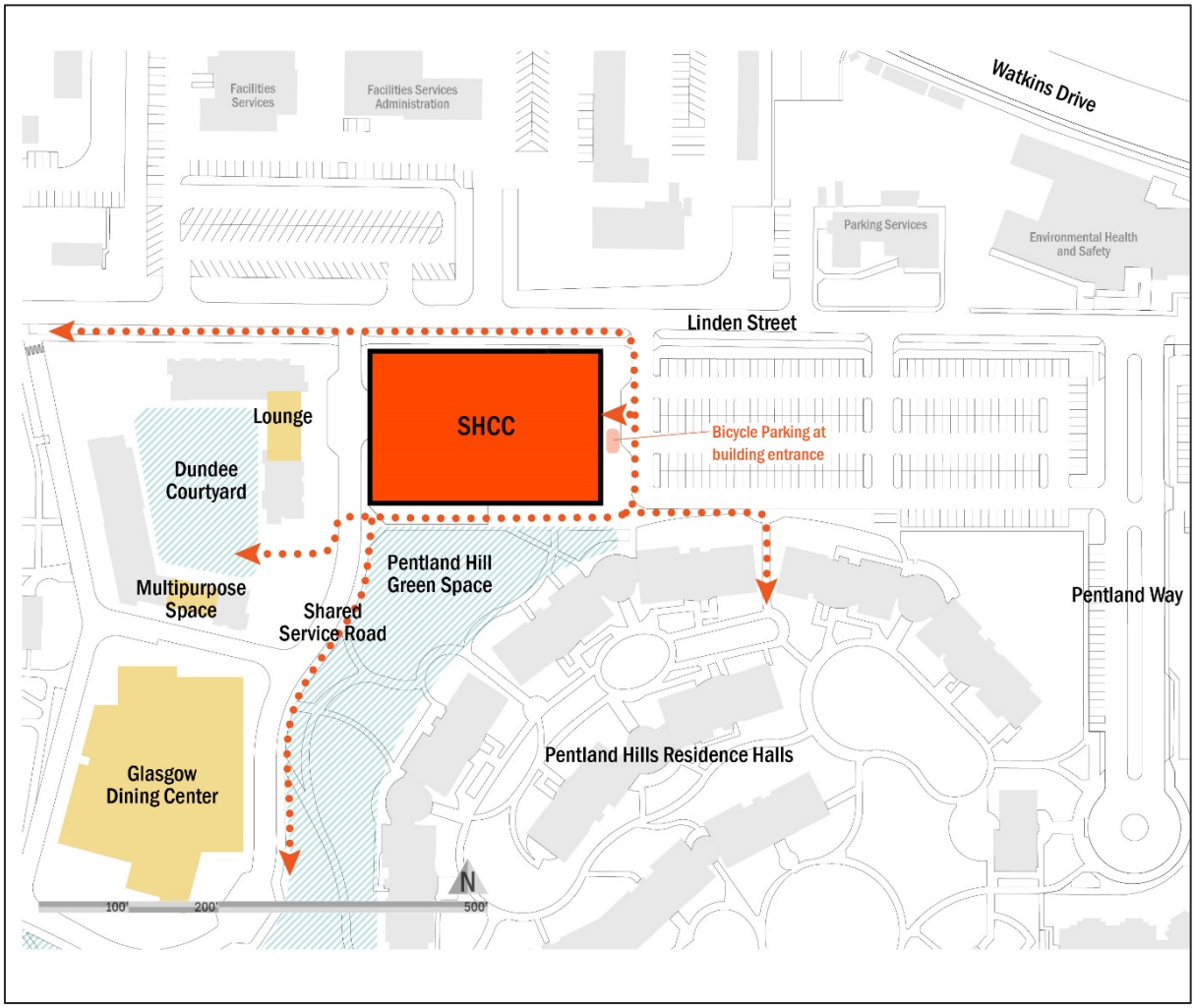


Aberdeen Drive, identified in Figure 3, is located west of the project site, and connects W. Linden Street with North Campus Drive. The 2005 LRDP Amendment 2 contemplated Aberdeen Drive as a future access-controlled route within the local campus access circulation system. However, to date, Aberdeen Drive still serves as part of the local campus circulation for pedestrian and vehicles. Aberdeen Drive is now envisioned as an unrestricted campus access route.

Pedestrian and Bicycle Circulation and Access

The main entrance of the SHCC building is anticipated to be located on the eastern side of the building facing Parking Lot 21 (see Figure 7 – Pedestrian Access). New pedestrian pathways would be developed to connect to the existing sidewalk along W. Linden Street and to the Dundee-Glasgow Project and Pentland Hills Residence Halls via the lawn area and the shared access road. Short-term bicycle parking would be located near the main entrance. Bicyclists would continue to share the road via W. Linden Street with implementation of the proposed project.

Figure 7 – Pedestrian Access



Lighting and Security

The SHCC building would be designed using the principles of Crime Prevention Through Environmental Design. Lighting installed on the project site would follow all campus standards. In addition to building interior lighting, there would be landscape/hardscape lighting around the SHCC building. Exterior building lighting would be down lighting. Lighting where required for parking would be provided at a level no less than one-foot candle throughout the parking area; additionally, such lighting would be reviewed by Planning, Design & Construction staff as to its coverage and intensity. The lighting design for the site and within the parking area would be carefully considered to prevent light spillage while providing a safe environment with minimal dark zones. In addition, the SHCC would be designed and outfitted as a secure facility with no public access to the rooftop areas. The building will be designed and constructed in compliance with all applicable codes that require the health and safety of all occupants, including suicide prevention.

Utilities and Services

Connections to irrigation water, domestic water, sewer, telecommunication, and electrical services would be established. It is anticipated that major upgrades in existing utilities would not be required but there may be minor re-routing.

Water and Sewer Connections

Domestic water and fire water laterals would be connected from the existing 8-inch UCR water main which runs north-south along the western limit of Parking Lot 21. Sanitary sewer would connect to the new Dundee-Glasgow Project's 8-inch sewer line at the southwest corner of the site. The storm drain would connect to the newly constructed 12-inch PVC Dundee-Glasgow Project storm drain at the southwest corner of Parking Lot 21. Existing fire hydrants along W. Linden Street and potentially new fire hydrants served by the existing campus water system would supply the project with emergency water.

Stormwater Management

All storm water runoff would be managed for both quality and quantity as required by current regulations (as further discussed in Section V.10, Hydrology and Water Quality, of this IS/MND). All stormwater runoff from the site and roof of the SHCC building would be treated and detained, infiltrated or reused as necessary to comply with UCR's Municipal Separate Storm Sewer System (MS4) permits, the National Pollutant Discharge Elimination System (NPDES), and the UCR Post Construction Stormwater Management Requirements. Additionally, conveyance facilities would be designed in compliance with the Riverside County Flood Control and Water Conservation District requirements.

Stormwater quality would be managed using treatment-based low impact development (LID) best management practices (BMPs). The project would follow the Riverside County Flood Control and Water Conservation District BMPs. Based on the project site acreage and proposed surface coverage, and the Riverside County LID BMP Design Handbook procedure for Bioretention Design, it is estimated that roughly 2,000 square feet of site area may need to be dedicated to bio retention basins to treat the runoff. Consideration would be given to reducing stormwater run-off through incorporation of bioswales, filter strips, or another LID method. Paving and landscape design would emphasize natural infiltration and evaporation where possible to reduce water run-off during storm events.

The storm drain infrastructure would include area drains, roof drain connections, and piped conveyance of stormwater to the water quality treatment basins/devices and connections to the existing storm drain system at the southwest corner of Parking Lot 21. It is anticipated that the project would utilize a system of biofiltration stormwater planters with underdrains. Stormwater would be treated by a coalescing silt/sand oil/water separator (clarifier). Opportunities for water harvesting and storage would be considered where feasible. Water quality treatment would consist of biofiltration basins, proprietary treatment devices, and/or underground storage vaults. Runoff from the project site would continue to discharge at the existing pervious areas on site and eventually to the storm drain system. There may be reconfiguration of storm drain inlets at entrances adjoining W. Linden Street.

Electricity and Communications Systems

The proposed SHCC building would exclusively use electric power with an Energy Use Intensity (energy use per square foot) of approximately 33 kilo-British thermal unit (KBtu), with no onsite combustion. Electrical service would be supplied from the 12-kilovolt (kV) campus normal power distribution system. The proposed SHCC building would be designed as "solar-ready" for future photovoltaic panels located on the roof for optimal sunrays.

Emergency Services and Infrastructure

The SHCC building would be required to connect to the existing UCR fire protection system as well as be connected to the UCR Police dispatch. Emergency responders would have clear access to any mechanical or electrical systems. The facility would feature emergency blue light phones, fire alarm and standpipe systems, and motion sensor lighting. Type 1A fire resistance construction would be required in compliance with the 2019 CBC. The project would include one 400-kilowatt (kW) diesel emergency generator that meet and/or exceed the U.S. Environmental Protection Agency (USEPA)'s Tier 4 emissions standards to provide power in the event of an outage.

Architecture Design and Sustainability Features

The architectural style of the proposed SHCC building would be contemporary to work within the context of UCR campus architecture and surrounding buildings and adhere to the 2007 Campus Design Guidelines. The exterior finish could include materials such as brick, stucco and metal panels with an earth tone color palette.

The proposed SHCC building is being designed as part of a design-build process. The design goals for the proposed project include:

- Design a building which is both functional and aesthetically pleasing and promotes a safe vehicular, pedestrian, and bicycle-friendly environment.
- Strengthen pedestrian access between the SHCC building and student residential spaces.
- Deliver the SHCC building with a Leadership in Energy and Environmental Design (LEED) Silver v4[2] designation by the U.S. Green Business Council.[2]

The proposed project would comply with the University of California Policy on Sustainable Practices (Sustainable Practices Policy). The project would meet or exceed LEED Silver certification. Project design would implement strategies required by the 2019 California Green Building Standards Code (CalGreen) and the Sustainable Practices Policy to exceed CBC Title 24 energy efficiency requirements by 20 percent or greater for new buildings.

Project sustainability design features may include but is not limited to:

- Low average solar heat gain coefficient window glazing
- 100 percent Energy Star or better equipment
- Demand control ventilation systems
- High efficiency HVAC system
- Solar (photovoltaic panel) ready

[2] The LEED v4 is a rating system that measures a building's sustainable features, focusing on a performance-based approach with measurable results throughout a building's life cycle. Metrics include health and human experience, water use, energy use, and materials and waste.

- Electric charging stations
- Water-saving fixtures
- Possible graywater system for non-potable irrigation
- Short term bicycle parking
- Water-efficient landscaping
- Native and climate adaptive planting

Landscape Design

The project would remove approximately 15 ornamental trees on the western edge of the project site and implement a new landscape design for the site. The landscape design for the proposed project would use drought tolerant and adapted plant material that are reflective of the region and would be consistent with UCR's Landscape-Irrigation Guidelines and Campus Standards Landscape design would support and blend into the surrounding natural landscape character of the campus. Existing palm trees along W. Linden Street would be protected.

Construction

For purposes of this CEQA analysis, construction activities are anticipated to begin summer 2021 and last for approximately 18 months. Construction activities would include:

- Demolition (approximately 20 days)
- Site Preparation (approximately five days)
- Grading (approximately 20 days)
- Building Construction (approximately 16 months)
- Architectural Coating (approximately 20 days)
- Paving (approximately 20 days)

Depending on the construction phase, implementation of the proposed project would require common equipment, such as a dozer, tractor/loader/backhoe, concrete/industrial saw, crane, forklift, paver, roller, compressor, cement and mortar mixers. As required by existing regulations, soil erosion from the project site during construction would be controlled with BMPs, including the use of sandbags as barriers. The construction site would be encircled by sandbags, and stabilized driveways would be provided at construction entrance and exit areas. Appropriate BMPs to minimize sediment entering the storm drain system would be provided.

The project would demolish existing ornamental trees, landscaping, concrete sidewalks, lighting, islands, utilities and asphalt from the existing surface area of Parking Lot 21. Three locations for temporary construction staging areas would include the lawn area south of the project site, adjacent to Pentland Hills Residence Halls; the center part of Parking Lot 21; and/or vacant/undeveloped areas of the NDD, located northwest of the project site; see Figure 3. Construction workers are anticipated to park in the NDD area at the northeast corner of W. Linden Street and Canyon Crest Drive or within the vacant/undeveloped areas of NDD.

Approximately 65,000 square feet (1.5 acres) of asphalt would be demolished during construction, resulting in approximately 1,400 cubic yards (cy), or 2,740 tons of demolition material. Approximately 65,000 square feet (1.5 acres) of the project site would be graded. Approximately 300 cy of soil would be excavated (cut) and 4,000 cy would be required for fill during grading activities. Approximately 11,000 square feet of the project site would be paved.

Vehicular and Pedestrian Access During Construction

The proposed project would not require lane closures or other access restrictions for extended periods of time. The proposed construction route would occur from I-215/SR-60 to Blaine Street to Canyon Crest Drive to W. Linden Street. The western portion of Parking Lot 21 would be closed during construction activities. The eastern portion of Parking Lot 21 would remain available, along with other parking areas on campus. Emergency access would be made available from W. Linden Street or Pentland Way.

During construction activities, access to the site would be limited to authorized campus staff, construction workers, and emergency providers, and no public access would be allowed.

6. Relationship to the 2005 Long Range Development Plan Amendment 2

Figure 13 of the 2005 LRDP Amendment 2 provides the current Land Use Plan for the UCR campus. The project site is in an area designated as "Residence Hall and Related Support," which includes student services. The 2005 LRDP Amendment 2 lists the Health Services Building and the Student Counseling Center under student services. The proposed SHCC building would house both Health Services and the Student Counseling Center.

Additionally, the 2005 LRDP Amendment 2 directs Student Services land uses to be located in or near housing areas or academic zones. The proposed project would locate the SHCC building near existing student housing and within a 10-minute walk of Carillon Tower, identified in the 2005 LRDP Amendment 2 as the center of the academic core of the East Campus. Therefore, the proposed project would be consistent with the 2005 LRDP Amendment 2 Land Use Plan.

The proposed project would also be consistent with the 2005 LRDP Amendment 2 EIR, which includes land use strategies to achieve a compact and contiguous academic core and desired development densities, including development of infill sites in the developed East Campus academic core.

7. Discretionary Approvals

The Regents, or its delegate, will consider the proposed project, the tiered IS/MND, and UCR's request for project approval. Delegates of The Regents include, but are not limited to, the UCR Chancellor. UCR and the responsible agencies identified below are expected to use the information contained in this tiered IS/MND for consideration of approvals related to and involved in the implementation of the proposed project. This tiered IS/MND has been prepared to inform all State, regional, and local government approvals needed for construction and/or operation of the proposed project, whether or not such actions are known or are explicitly listed. Anticipated approvals required from UCR and the responsible agencies to implement the proposed project include, but are not limited to, those listed below.

University of California Board of Regents, or its Designee

- Adoption of the Final Tiered IS/MND
- Approval of the Design of the SHCC Building
- Approval of the project Budget
- Approval of Financing

Other Public Agencies Whose Approval May Be Required

Other project approvals may include:

- Division of the State Architect (accessibility compliance)
- State of California Fire Marshal (fire/life safety)
- City of Riverside Fire Department (access)

8. Have California Native American Tribes Traditionally and Culturally Affiliated with the Project Area Requested Consultation Pursuant to Public Resources Code Section 21080.3.1?

To date, UCR has received six requests for project notification pursuant to Assembly Bill 52 (AB 52) (from the Agua Caliente Band of Cahuilla Indians, Cahuilla Band of Indians, Pechanga Band of Luiseño Indians, Rincon Band of Luiseño Indians, San Manuel Band of Mission Indians, and the Torres Martinez Desert Cahuilla Indians). In May 2020, UCR provided these tribes with notification of the proposed project. On June 2, 2020, the Agua Caliente Band of Cahuilla Indians responded noting that the project area is not located within the boundaries of the Agua Caliente Band of Cahuilla Indians Tribe's reservation, but within the Tribe's Traditional Use Area. The Agua Caliente Band of Cahuilla Indians requested the presence of an approved Agua Caliente Native American Cultural Resource Monitor during any ground disturbing activities. On May 19, 2020, the Cahuilla Band of Indians responded that the proposed project is within the tribe's traditional land use area and requested that tribal monitors from Cahuilla be present during all ground disturbing activities. On May 27, 2020, the Pechanga Band of Luiseño Indians requested government-to-government consultation and to review any proposed mitigation measures for tribal cultural resources. On June 12, 2020, the Rincon Band of Luiseño Indians requested government-to-government consultation and requested cultural monitoring during ground disturbing activities. On June 17, 2020, the San Manuel Band of Mission Indians responded noting that given the amount of existing disturbance within the East Campus, where the project site is located, the Tribe does not have any concerns with the project, and provided suggested mitigation language in the event cultural resources are discovered or human remains are encountered. No responses were received by the Torres Martinez Desert of Cahuilla Indians. See Section V.18, Tribal Cultural Resources, of this IS/MND for additional discussion.

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III. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

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

IV. DETERMINATION

Based on this initial evaluation:

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

■ I find that although the proposed project could have a significant effect on the environment, the project impacts were adequately addressed in an earlier document or there will not be a significant effect in this case because revisions to the project have been made or project-specific mitigation measures have been proposed that will avoid or reduce any potential significant effects to a less than significant level and recommend that a MITIGATED NEGATIVE DECLARATION be adopted.

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

Stephanie Tang	December 1, 2020
Signature	Date
Stephanie Tang	Campus Environmental Planner
Printed Name	Title

V. EVALUATION OF ENVIRONMENTAL IMPACTS

The University has defined the column headings in the IS checklist as follows:

A) "**Potentially Significant Impact**" is appropriate if there is substantial evidence that the project's effect may be significant even with the incorporation of Planning Strategies (PSs), Programs and Practices (PPs), and Mitigation Measures (MMs) identified in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR. If there are one or more "Potentially Significant Impacts" a Project EIR will be prepared.

B) "**Project Impact Adequately Addressed in LRDP EIR**" applies where the potential impacts of the proposed project were adequately addressed in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR, and the PSs, PPs, and MMs identified in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR will mitigate any impacts of the proposed project to the extent feasible. All applicable MMs identified in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR are incorporated into the project as proposed. The impact analysis in this document summarizes and cross references the relevant analysis in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR.

C) "**Less Than Significant With Project-level Mitigation Incorporated**" applies where the incorporation of project-specific mitigation measures will reduce an effect from "Potentially Significant Impact" to a "Less Than Significant Impact". All project-level mitigation measures must be described, including a brief explanation of how the measures reduce the effect to a less than significant level.

D) "**Less Than Significant Impact**" applies where the proposed project will not result in any significant effects. The effects may or may not have been discussed in the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR. The project impact is less than significant without the incorporation of 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR or project-level mitigation.

E) "**No Impact**" applies where the proposed project would not result in any impact in the category or the category does not apply. "No Impact" answers need to be adequately supported by the information sources cited, which show that the impact does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

Environmental Checklist

1. AESTHETICS

The analysis of Aesthetics is tiered from the 2005 LRDP EIR and was addressed in Section 4.1, Aesthetics, of that document. Relevant elements of the project related to aesthetics/visual change include the construction of an approximately 50-foot high building, reconfiguration of a portion of the existing surface parking area, improvements to driveways from W. Linden Street, new pedestrian pathways, landscaping, interior/exterior lighting fixtures, installation of associated utility and irrigation systems, hardscape, and associated on-site improvements.

During construction activities, about two-thirds of the existing surface parking area and a small portion of the lawn area immediately south of the project site would be closed to allow for construction access to the site, construction staging and equipment storage and/or construction of the proposed project. The undeveloped portion of the NDD site, northwest of the project site, may be used for construction worker parking and/or construction staging and laydown. Trees within the project area (Parking Lot 21) would be protected as much as possible; however, in order to construct the project, removal of ornamental trees in the surface parking lot would be required. The sidewalk and palm trees along W. Linden Street would remain. New landscaping including new trees, would be planted as part of the proposed project.

The following applicable PSs, PPs, and MMs were adopted as part of the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR and are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PS Development Strategy 1	Establish a design review process to provide regular review of building and landscape development on campus.
PS Conservation 2	Site buildings and plan site development to minimize site disturbance, reduce erosion and sedimentation, reduce stormwater runoff, and maintain existing landscapes, including healthy mature trees whenever possible.
PP 4.1-1	The Campus shall provide design professionals with the 2007 Campus Design Guidelines and instructions to implement the guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design. *(This is identical to Land Use PP 4.9-1[a].)*
PP 4.1-2(a)	The Campus shall continue to provide design professionals with the 2007 Campus Design Guidelines and instructions to develop project-specific landscape plans that are consistent with the Guidelines with respect to the selection of plants, retention of existing trees, and use of water conserving plants, where feasible. *(This is identical to Land Use PP 4.9-1[b].)*

PP 4.1-2(b)	The Campus shall continue to relocate, where feasible, mature "specimen" trees that would be removed as a result of construction activities on the campus. *(This is identical to Land Use PP 4.9-1[c].)*
MM 4.1-3(a)	Building materials shall be reviewed and approved as part of project-specific design and through approval of construction documents. Mirrored, reflective glass is prohibited on campus.
MM 4.1-3(b)	All outdoor lighting on campus resulting from new development shall be directed to the specific location intended for illumination (e.g., roads, walkways, or recreation fields) to prevent stray light spillover onto adjacent residential areas. In addition, all fixtures on elevated light standards in parking lots, parking structures, and athletic fields shall be shielded to reduce glare. Lighting plans shall be reviewed and approved prior to project-specific design and construction document approval.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project have a substantial adverse effect on a scenic vista?	☐	☒	☐	☐	☐

Discussion

UCR is part of the UC, a constitutionally created entity of the State of California. As a constitutional entity, the UC is not subject to municipal regulations, such as Riverside County and City of Riverside General Plans. This analysis considers the project's consistency with the LRDP EIR.

As discussed in Section 4.1 of the 2005 LRDP EIR, scenic vistas may generally be described in two ways: panoramic views (visual access to a large geographic area, for which the field of view can be wide and extend into the distance) and focal views (visual access to a particular object, scene, setting, or feature of interest). The 2005 LRDP EIR concluded that scenic vistas for the campus are limited to panoramic views of the Box Springs Mountains, Mount Rubidoux, and the San Bernardino Mountains from publicly accessible viewpoints, only when atmospheric conditions permit. Views of these mountains from many vantage points on the East Campus are partially blocked by buildings, mature trees, and landscaping. Notably, there are panoramic views of the Box Springs Mountains from Carillon Mall and the Athletic Fields (east of Canyon Crest Drive) within the East Campus; however, views in some portions of the Carillon Mall are obstructed by a large number of mature trees. While views of the adjacent mountains are generally available from locations on the West Campus, these locations are not publicly accessible with the exception of Parking Lot 30. There are no identified focal views for the UCR campus.

The analysis of Impact 4.1-1 in Section 4.1, Aesthetics, of the 2005 LRDP EIR concluded that with implementation of PS Open Space 5 (retaining Carillon Mall as a major campus Landmark Open Space) and PP 4.1-1 (development in conformance with the Campus Design Guidelines), development under the 2005 LRDP would result in a less than significant impact to scenic vistas.

Partial views of the Box Springs Mountains are minimally obstructed by existing campus structures and mature vegetation at the project site (Parking Lot 21); see Photographs 1 and 2 below. Partial views of the Sugarloaf Mountain (part of the range of the Box Springs Mountains) are available looking north (see Photograph 1) and the Box Springs Mountains looking east (see Photograph 2). There are no scenic vistas looking west or south from the project site. Partial views of the Box Springs Mountains from W. Linden Street would not be affected.

Development of the proposed SHCC building would fully or partially block views of the Box Springs Mountains from the project site and from a portion of the northern side of the Pentland Hills Residence Halls. The 2005 LRDP EIR does not consider parking lots a key vantage point given that they are not used as public gathering spaces, and private views from residences are not considered under CEQA.

The proposed project would be required to comply with PP 4.1-1 (development in conformance with the Campus Design Guidelines). Therefore, the proposed project would have a less than significant impact on a scenic vista with the incorporation of PP 4.1-1, consistent with the findings of the LRDP EIR.

Photograph 1. View looking north from project site

Photograph 2. View looking east from project site

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not impact scenic vistas. The proposed project impacts would be less than significant with the incorporation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☒	☐	☐	☐

Discussion

As identified in the IS for the 2005 LRDP EIR, the UCR campus is bisected by the I-215/SR-60 freeway and is generally bounded by University Avenue, Canyon Crest Drive, Blaine Street, Watkins Drive, Valencia Hill Drive, Le Conte Drive, and Chicago Avenue, none of which are officially designated or identified as eligible for designation as a State scenic highway (California Department of Transportation [Caltrans] 2019). Therefore, development under the 2005 LRDP was determined to have no impact related to State scenic highways.

While there are no scenic highways in the campus vicinity, the 2005 LRDP includes the provision to retain the southeast hills and associated rock outcroppings, considered a scenic resource, as an Open Space Reserve. The proposed project is not located in or in proximity to the southeast hills. Additionally, the temporary construction staging/equipment laydown area would not be located in proximity to the southeast hills. Therefore, there would be no impact from implementation of the proposed project on scenic resources, including within a State scenic highway, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not substantially damage scenic resources within a scenic highway. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.1-2 in the 2005 LRDP EIR concluded that, with implementation of PS Land Use 1 through 3, PS Open Space 1 through 7, PS Conservation 1 through 4, PS Campus & Community 1, PS Development Strategy 1 through 3, and PP 4.1-2(a) through PP 4.1-2(d), development under the 2005 LRDP would result in a less than significant impact to the visual character or quality of the campus and the immediately surrounding area. As discussed above, relevant PSs and PPs have been incorporated into the proposed project.

Surrounding land uses include the Pentland Hills Residence Halls (student housing) to the south/southeast (see Photograph 3); the Dundee-Glasgow Project to the west/southwest; W. Linden Street followed by Parking Lot 23, the UCR Facilities Services office, Corporation Yard, Fleet Services

Department, Parking Services office, and the Environmental Health & Safety (EH&S) office to the north/northeast; the NDD Project to the northwest (Phase 1 of the NDD under construction with completion anticipated late 2021); and the eastern portion of Parking Lot 21 followed by Pentland Way, Parking Lot 20, the Glen Mor Field, Valencia Hill Drive, and single-family residences to the east.

Photograph 3. Pentland Hills Residence Halls

Development of the proposed project would change views of the project site from that of a surface parking lot with landscape, hardscape areas, and parking lot lighting to that of an approximately 50-foot-high building with new landscape, hardscape areas, and associated lighting for security purposes. The palm trees and sidewalk along W. Linden Street would remain. See Figure 8 for an illustration of the building massing for the proposed SHCC and its relationship to other the massing of other nearby structures.

The height, massing, site design, materials, and other aspects of the visual character of the proposed project would be consistent with and complementary to the existing surrounding structures and uses and would not degrade the existing visual quality of the project site and surrounding consistent with the findings of the 2005 LRDP EIR.

The building materials and color palette to be used would adhere to the Campus Design Guidelines to be visually harmonious with the UCR campus as well as the immediately surrounding buildings (as required by PP 4.1-1) and would be reviewed as part of the project-specific design review process and through approval of construction documents (refer to PS Development Strategy 1 and MM 4.1-3(a)).

Existing landscaping in the surface parking area of the project site would be removed during demolition activities. Potential impacts to trees are discussed in detail in Section V.4, Biological Resources, of this IS/MND. The proposed project includes PP 4.1-2(a) and PS Conservation 2, which ensures that project-specific landscape plans are consistent with the Campus Design Guidelines with respect to, among other items, retention of existing trees and protection of mature trees, when feasible. In addition, the proposed project incorporates PP 4.1-2(b) and would preserve certain mature trees in place or plant replacement trees within the project site and/or a location as determined in coordination between the UCR Planning, Design & Construction staff and Landscape Services staff.

Temporary construction staging and equipment laydown could occur within a portion of Parking Lot 21, within the lawn area immediately south of the project site, or within the undeveloped portion of the NDD area (refer to Figure 3). Views of the construction equipment and staging laydown area would only be temporary during construction activities. The construction staging and laydown areas would be reverted back to its existing conditions upon construction completion.

With implementation of PS Conservation 2, PS Development Strategy 1, PP 4.1-1, PP 4.1-2(a), and PP 4.1-2(b), and MM 4.1-3(a), development of the proposed project would not substantially degrade the visual character or quality at this location, consistent with the findings of the LRDP EIR.

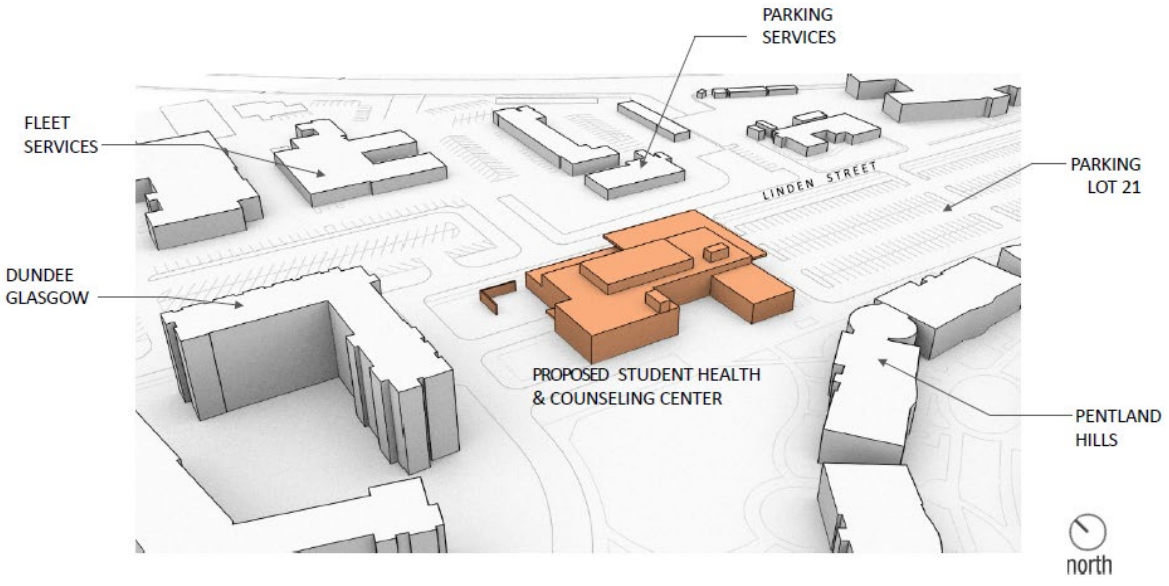
Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not substantially degrade the existing visual character or quality of the site and its surroundings. The proposed project impacts would be less than significant with the incorporation of the PSs, PPs, and MM noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Figure 8 – Building Massing



Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐	☐

Discussion

As previously discussed in Section V.1(a), the UC is not subject to municipal regulations. This analysis considers the project's consistency with the LRDP EIR. The 2005 LRDP EIR indicates that the primary sources of light and glare on the UCR campus include recreation facilities at night and surface parking lots. The project site is currently developed with a surface parking lot. Sources of glare on campus include reflective surfaces such as pavement, building exteriors, and glass. Glare into buildings form the reflected sunlight off of adjacent buildings is generally minimized on the UCR campus due to the generally low density of development, the relatively low average height of buildings (e.g., one to four stories), the extent of mature trees and landscaping, and the limited use of reflective glass surfaces in existing buildings. The analysis of Impact 4.1-3 in the 2005 LRDP EIR concluded that implementation of PS Land Use 3, PS Open Space 1 through 4, PS Conservation 1 and 2, PS Campus & Community 1, PS Development Strategy 1, PP 4.1-1, PP 4.1-2(a), PP 4.1-2(b), and MM 4.1-3(a) through MM 4.1-3(c) would reduce or avoid light and glare impacts on adjacent land uses resulting from development under the 2005 LRDP, and include features to reduce light and glare effects in building designs consistent with the Campus Design Guidelines and the Campus Landscape Master Plan.

The 2005 LRDP EIR identified mitigation to reduce lighting and glare impacts. MM 4.1-3(a) would require incorporation of design features that would minimize glare. Features would include non-reflective surfaces on building exteriors and prohibition of mirrored glass. In addition, MM 4.1-3(b) would require that lighting be directed to the intended illumination site to reduce spill onto adjacent areas. The 2005 LRDP EIR determined that with implementation of MM 4.1-3(a) through MM 4.1-3(c), the project would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

The design and installation of all lighting and lighting control systems shall comply with Title 24, Part 6 Energy Guidelines. As part of the proposed project, lighting control devices, including occupancy sensors and switches will be provided consistent with respective space requirements, such as, and not limited to, restrooms, offices, corridors, stairwells, etc. as well as dimming control systems. Outdoor lighting would include the lighting of walkways and areas for security purposes. Emergency/night lighting would be provided by switched, and unswitched, branch circuits fed from an emergency lighting panel. Exit signs would be provided throughout the building to illuminate egress corridors, stairwells, etc.

The amount of illumination used would be based on current industry standards, the Campus Design Guidelines, UCR Campus Construction Standards, and any applicable code requirements. Additionally, the project would replace a portion of existing surface parking lot that currently includes parking lot lighting, which the 2005 LRDP EIR identified as one of the major sources of glare on campus, with that of the proposed SHCC building.

With implementation of PS Development Strategy 1 (design review), PP 4.1-1 (design in compliance with the Campus Design Guidelines), MM 4.1-3(a) (use of non-reflective building materials), MM 4.1-3(b) (prevent stray light spillover onto adjacent residential areas), and lighting control system as part of the proposed project, impacts would be less than significant. The proposed project would not result in a substantial new source of light or glare, and there would be less than significant impacts related to new sources of daytime or nighttime light and glare, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

There would be a less than significant impact associated with the creation of a new source of substantial light or glare affecting day or nighttime views in the area with the incorporation of the PS, PP, and MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

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2. AGRICULTURE AND FORESTRY RESOURCES

The analysis of agriculture and forestry resources is tiered from the 2005 LRDP Amendment 2 EIR and was addressed in Section 4.2, Agricultural Resources, of that document. There are no relevant elements of the proposed project related to agriculture or forestry resources, and no PSs, PPs, or MMs are applicable. There are no agriculture or forestry resources on or adjacent to the project area.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐	☐
b) Would the project conflict with existing zoning for 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))?	☐	☒	☐	☐	☐
d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?	☐	☒	☐	☐	☐
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?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.2-1 in Section 4.2, Agricultural Resources, of the 2005 LRDP Amendment 2 EIR concluded that, even with implementation of PS Land Use 1, PS Land Use 2, and PS Land Use 3, development under the 2005 LRDP, as amended, would result in a significant and unavoidable impact due to conversion of Prime Farmland to non-agricultural uses associated with improvements on the West Campus. However, implementation of the 2005 LRDP would not result in the loss of Prime Farmland on the East Campus, where the proposed project is located.

The 2005 LRDP Amendment 2 EIR identified the distribution of Farmland, as designated by the California Department of Conservation (DOC) Farmland Mapping and Monitoring Program, on the UCR campus at that time. The UCR campus was mapped as having 481.7 acres of Prime Farmland

and Farmland of Statewide Importance (collectively, "Farmland") primarily located on the West Campus with an isolated area of Farmland of Statewide Importance located along the eastern boundary of the East Campus. Review of the 2016 Important Farmland Map indicates a similar distribution of Farmland, primarily on the West Campus with an isolated area near the eastern boundary of the East Campus (DOC 2017). The project area is designated as "Urban Built-Up Land" and, as such, implementation of the proposed project would not convert Farmland to non-agricultural resources (DOC 2017). Therefore, the proposed project would have no impact on agricultural resources.

As discussed in the IS prepared for, and summarized in the 2005 LRDP Amendment 2 EIR, no portion of the UCR campus is zoned for forest land, timberland, or agricultural use. The campus does not contain any forest land or timberland and is not under a Williamson Act contract. The project site does not contain existing Farmland, forest land, agricultural land, or forest land uses. Therefore, implementation of the project would result in no impacts related to conflict with existing zoning for forest land or agriculture; no conflict with a Williamson Act Contract; and no loss or conversion of forest lands, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Implementation of the proposed project would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use. Therefore, the proposed project would result in no impacts related to indirect conversion of Farmland to non-agricultural use, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

There would be no impacts to Farmland, forest land, timberland, or Williamson Act Contracts. The proposed project impacts were adequately addressed in the LRDP EIR.

3. AIR QUALITY

The analysis of air quality is tiered from the 2005 LRDP Amendment 2 EIR and was addressed in Section 4.3, Air Quality, of that document. Relevant elements of the proposed project related to air quality include the demolition of existing landscaping and pavement; use of diesel-powered off-road construction equipment and on-road trucks used for material deliveries/debris hauling; construction of an approximately 50,000 gsf, 50-foot high building with ambulance and vendor loading areas; reconfiguration of existing surface parking area; improvements to driveways from W. Linden Street and the access road; connections to pedestrian pathways; and associated on-site improvements. It is anticipated that the proposed SHCC building is not a use that would generate additional trips beyond what was analyzed in the 2005 LRDP Amendment 2 EIR. Employment in the building would mainly be filled by existing staff. As such, the proposed SHCC building would accommodate the needs of the campus student population as contemplated in the 2005 LRDP Amendment 2 EIR. The hours of operation for the proposed project will be similar to the existing student health facility on campus.

The following applicable PSs, PPs, and MMs were adopted as part of the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR; they are incorporated as part of the proposed project and are assumed in the analysis presented in this section.

PS Campus and Community 4	Provide strong connections within the campus and its edges to promote walking, bicycling, and transit use, rather than vehicular traffic.
PS Transportation 3	Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off-campus bicycle routes.
PS Transportation 5	Provide bicycle parking at convenient locations.
PP 4.3-1	The Campus shall continue to implement a Transportation Demand Management (TDM) program that meets or exceeds all trip reduction and average vehicle ridership (AVR) requirements of the South Coast Air Quality Management District (SCAQMD). The TDM program may be subject to modification as new technologies are developed or alternate program elements are found to be more effective. *(This is identical to Transportation and Traffic PP 4.14-1.)*
PP 4.3-2(a)	Construction contract specifications shall include the following: i. Compliance with all SCAQMD rules and regulations. ii. Maintenance programs to assure vehicles remain in good operating condition. iii. Avoid unnecessary idling of construction vehicles and equipment. iv. Use of alternative fuel construction vehicles. v. Provision of electrical power to the site, to eliminate the need for on-site generators.
PP 4.3-2(b)	The Campus shall continue to implement dust control measures consistent with SCAQMD Rule 403 – Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able

to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Individual measures shall be specified in construction documents and require implementation by construction contractor:

i. Apply water and/or approved non-toxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days).

ii. Replace ground cover in disturbed areas as quickly as possible.

iii. Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content.

iv. Water active grading sites at least twice daily.

v. Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period.

vi. All trucks hauling dirt, sand, soil, or other loose materials shall be covered or maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code.

vii. Sweep streets at the end of the day if visible soil material is carried over to adjacent roads.

viii. Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.

ix. Apply water three times daily or chemical soil stabilizers according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces.

x. Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved roads.

(This is identical to Geology PP 4.6-2[a] and Hydrology PP 4.8-3[c].)

MM 4.3-1(a)

For each construction project on the campus, the project contractor will implement Programs and Practices 4.3-2(a) and 4.3-2(b). In addition, the following PM_{10} and $PM_{2.5}$ control measure shall be implemented for each construction project:

- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance

MM 4.3-1(b)

For each construction project on the campus, the University shall require that the project include a construction emissions control plan that includes a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used for an aggregate of 40 or more hours during any portion of the construction project. During construction

activity, the contractor shall utilize California Air Resources Board (CARB)-certified equipment or better for all on-site construction equipment according to the following schedule:

- Post January 1, 2015: All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with best available control technology (BACT) devices certified by California Air Resources Board (CARB). Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.
- A copy of each unit's certified specification, BACT documentation and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit or equipment.
- Encourage construction contractors to apply for AQMD "SOON" funds. Incentives could be provided for those construction contractors who apply for AQMD "SOON" funds. The "SOON" program provides funds to accelerate clean-up of off-road diesel vehicles, such as heavy duty construction equipment. More information on this program can be found at the following website: http://www.aqmd.gov/home/programs/business/business-detail?title=off-road-diesel-engines&parent=vehicle-engine-upgrades.

The contractor shall also implement the following measures during construction:

- Prohibit vehicle and engine idling in excess of 5 minutes and ensure that all off-road equipment is compliant with CARB's in-use off-road diesel vehicle regulation and SCAQMD Rule 2449.
- Configure construction parking to minimize traffic interference.
- Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow.
- Provide dedicated turn lanes for movement of construction trucks and equipment on- and off site.
- Schedule construction activities that affect traffic flow on the arterial system to off-peak hour to the extent practicable.
- Improve traffic flow by signal synchronization, and ensure that all vehicles and equipment will be properly tuned and maintained according to manufacturers' specifications.
- Use diesel-powered construction vehicles and equipment that operate on low-nitrogen oxides (NOx) fuel where possible.
- Reroute construction trucks away from congested street or sensitive receptor areas.
- Maintain and tune all vehicles and equipment according to manufacturers' specifications.

MM 4.3-1(c) To minimize volatile organic chemical (VOC) emissions from the painting/finishing phase, for each construction project on the campus, the project contractor will implement the following VOC control measures:

- Construct or build with materials that do not require painting, or use pre-painted construction materials.
- If appropriate materials are not available or are cost-prohibitive, use low VOC-content materials more stringent than required under SCAQMD Rule 1113.

MM 4.3-2(b) UCR shall continue to participate in greenhouse gas (GHG) reduction programs such as the American College and University Presidents' Climate Commitment (ACUPCC) and shall adhere to the *UC Policy on Sustainable Practices*. The measures adopted by UCR are presented in Tables 4.16-9 and 4.16-10 in Section 4.16, Greenhouse Gas Emissions, of the 2005 LRDP Amendment 2 EIR. While these measures are typically targeted at GHG emissions, many act to reduce energy consumption and vehicle use on campus and would consequently also reduce air pollutant emissions from both area and mobile sources. In accordance with the ACUPCC and the *UC Policy on Sustainable Practices* and through implementation of its Climate Action Plan, UCR shall commit to reducing GHG emissions to 1990 levels by 2020, which would require significant reductions (on the order of 70 percent) from these sources in terms of GHG and therefore reductions in other air pollutants as well.

Regulatory Framework

Section 4.3 of the 2005 LRDP Amendment 2 EIR includes a detailed discussion of the regulatory framework for the LRDP. In summary, both the federal and State governments have established ambient air quality standards for outdoor concentrations of specific pollutants, referred to as "criteria pollutants," in order to protect public health. The national and State ambient air quality standards have been set at concentration levels to protect the most sensitive persons from illness or discomfort; these levels are given with a margin of safety. The criteria pollutants for which federal standards have been promulgated and that are most relevant to this air quality impact analysis are ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), and particulate matter (PM_{10} and $PM_{2.5}$).[3] O_3 is a gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NOx) – both byproducts of internal combustion engine exhaust – undergo slow photochemical reactions in the presence of sunlight. Thus, VOCs and NOx are O_3 precursors.

The UCR campus is located in the South Coast Air Basin (SCAB), which includes Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The South Coast Air Quality Management District (SCAQMD) is responsible for ensuring the SCAB meets the national and State ambient air quality standards.

Subsequent to the preparation of the air quality study for the 2005 LRDP Amendment 2 EIR, there have been changes to the attainment status in the SCAB. These changes include federal designation of the SCAB as PM_{10} attainment area and federal designation of Los Angeles County as a

[3] Particulate matter less than 10 microns in size is referred to as PM_{10} and particulate matter less than 2.5 microns in size is referred to as $PM_{2.5}$.

nonattainment area for lead. The current federal and State attainment designations are shown in Table 1.

Table 1 Attainment Status of Criteria Pollutants

Pollutant	State	Federal
O_3 (one hour)	Nonattainment	No standard
O_3 (eight hour)	Nonattainment	Extreme Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment (for portion of SCAB located outside Los Angeles County)

Source: CARB 2018.

Notes: O_3 = ozone; PM_{10} = particulate matter 10 micrometers or less in diameter; $PM_{2.5}$ = particulate matter 2.5 micrometers or less in diameter; CO = carbon monoxide; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide.

Air Quality Management Plan

In December 2012, the SCAQMD adopted the 2012 Air Quality Management Plan (AQMP), which is a regional and multiagency effort (SCAQMD, California Air Resources Board [CARB], Southern California Association of Governments [SCAG], and the USEPA). The 2012 AQMP incorporated the latest scientific and technical information and planning assumptions, including SCAG's 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), updated emission inventory methods for various source categories, and SCAG's latest growth forecasts. The primary purposes of the 2012 AQMP are to demonstrate attainment of the federal 24-hour $PM_{2.5}$ standard by 2014 and to update the USEPA-approved 8-hour Ozone Control Plan. On December 20, 2012, the 2012 AQMP was submitted to CARB and the USEPA for concurrent review and approval for inclusion in the State Implementation Plan (SIP) (SCAQMD 2013). CARB approved the 2012 AQMP on January 25, 2013.

The SCAQMD updated its AQMP for the SCAB in 2016, which included a new approach focusing on available, proven, and cost-effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities, promoting reductions in GHGs and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. The most effective way to reduce air pollution impacts on the health of the nearly 17 million residents within the SCAB, including those in disproportionally impacted and environmental justice communities that are concentrated along transportation corridors and goods movement facilities, is to reduce emissions from mobile sources, the principal contributor to air quality challenges within the SCAB. For that reason, the SCAQMD has been and would continue to be closely engaged with CARB and the USEPA who have primary responsibility for these sources. The 2016 AQMP recognized the critical importance of working with other agencies to develop funding and other incentives that encourage the accelerated transition of vehicles, buildings, and industrial facilities to cleaner technologies in a

manner that benefits not only air quality, but also local businesses and the regional economy. These "win-win" scenarios are key to implementation of the 2016 AQMP with broad support from a wide range of stakeholders. The 2016 AQMP includes strategies and measures to meet the following National Ambient Air Quality Standards (SCAQMD 2017):

- 8-hour O_3 (75 parts per billion [ppb]) by 2031[4]
- Annual $PM_{2.5}$ (12 micrograms per cubic meter [µg/m3]) by 2025
- 8-hour O_3 (80 ppb) by 2023
- 1-hour O_3 (120 ppb) by 2022
- 24-hour $PM_{2.5}$ (35 µg/m3) by 2019

The SCAG assists by preparing the transportation portion of the AQMP. This includes the preparation of a Sustainable Communities Strategy (SCS) that responds to planning requirements of Senate Bill (SB) 375 and demonstrates the region's ability to attain GHG reduction targets set forth in State law. The SCS identifies regional and local efforts to promote new housing and employment in high-quality transit areas that would support development patterns that complement the evolving transportation network. The SCS was incorporated in the 2016 Regional Transportation Plan, adopted by SCAG on April 7, 2016. The AQMP for the SCAB establishes a program of rules and regulations directed at attainment of the State and national air quality standards. Ultimately, a project's operational cumulative impact is judged against its consistency with the applicable AQMP. Conformance with the AQMP for development projects is determined by demonstrating compliance with local land use plans.

Air Quality Sensitive Receptors

The SCAQMD defines typical sensitive receptors as residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The nearest sensitive receptors to the project site are the Dundee-Glasgow Project and Pentland Hills Residence Halls immediately west/southwest and south/southeast of the project site, respectively. Other sensitive receptors in the vicinity of the project site include the Aberdeen-Inverness Residence Hall approximately 255 feet west of the project site, Lothian Residence Hall approximately 800 feet south of the project site, and Glen Mor Student Housing building approximately 930 feet southeast of the project site. NDD Phase 1 approximately 274 feet northwest of the project site, and the Child Development Center approximately 874 feet north/northwest of the project site are also sensitive receptors; however, the emissions analyzed for the Dundee-Glasgow Project conservatively captures these sensitive receptors. Potential impacts to sensitive receptors from construction emissions are assessed under the analysis of Section V.3(c) below.

Methodology and Criteria Pollutant Emissions Thresholds

Criteria pollutant emissions for project construction and operation were calculated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant emissions

4 On October 1, 2015, the USEPA lowered the 8-hour O_3 standard to 0.070 parts per million (ppm) (70 ppb). The SIP (or AQMP) for the 70 ppb standard will be due four years after the attainment/nonattainment designations are issued by the USEPA, which is expected in 2017. Thus, meeting the 70 ppb standard will be addressed in the 2021 AQMP.

associated with both construction and operations from a variety of land use projects. The model was developed for the California Air Pollution Control Officers Association in collaboration with the California air districts. CalEEMod allows for the use of default data (e.g., emission factors, trip lengths, meteorology, source inventory) provided by the various California air districts to account for local requirements and conditions, and/or user-defined inputs. The input data and subsequent construction and operation emission estimates for the proposed project are discussed below. CalEEMod output files for the project are included in Appendix A to this report.

The SCAQMD recommends that projects be evaluated in terms of their quantitative thresholds, which have been established to assess both the regional and localized impacts of project-related air pollutant emissions. The significance thresholds are updated, as needed, to appropriately represent current ambient air quality standards and attainment status. As identified in Section 4.3.4, Impacts and Mitigation Measures, of the 2005 LRDP Amendment 2 EIR, UCR utilizes the SCAQMD recommended thresholds that are in place at the time development projects are proposed in order to assess the significance of quantifiable emissions. The SCAQMD recommends quantitative regional significance thresholds for temporary construction activities and long-term project operation in the SCAB. The current SCAQMD thresholds are identified in Table 2 and are applied to the proposed project.

Table 2 SCAQMD Regional Significance Thresholds

Pollutant	Mass Daily Thresholds Operation Thresholds (lbs/day)	Mass Daily Thresholds Construction Thresholds (lbs/day)
NO_X	55	100
ROG[1]	55	75
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_X	150	150
CO	550	550

Source: SCAQMD 2019.

Notes: CO = carbon monoxide; lbs/day = pounds per day; NO_x = nitrogen oxides; PM_{10} = particulate matter with a diameter of 10 micrometers or less; $PM_{2.5}$ = particular matter with a diameter of 2.5 micrometers or less; ROG = reactive organic gases; SO_x = sulfur oxides

[1] ROG—also referred to as Volatile Organic Compounds (VOC)—are formed during combustion and evaporation of organic solvents.

Localized Significance Thresholds

In addition to the above regional thresholds, the SCAQMD has developed Localized Significance Thresholds (LSTs) in response to the Governing Board's Environmental Justice Enhancement Initiative (1-4), which was prepared to update the *CEQA Air Quality Handbook* (1993). LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities and have been developed for NO_X, CO, PM_{10}, and $PM_{2.5}$. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or State ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area (SRA), distance to the sensitive receptor, and project size. LSTs have been developed for emissions from construction areas up to five acres in size. However, LSTs only apply to emissions fixed stationary locations and are not applicable to mobile sources, such as cars on a roadway (SCAQMD 2008). As such, LSTs are

typically applied only to construction emissions because the majority of operational emissions are associated with project-generated vehicle trips.

The SCAQMD provides LST lookup tables for project sites that measure one, two, or five acres. If a site is greater than five acres, SCAQMD recommends a dispersion analysis be performed. Project construction would disturb an area of approximately 1.5 acres; therefore, this analysis uses a regression calculator to determine an applicable LST based on the project site area and the LST lookup values for one- and two-acre construction sites. LSTs are provided for receptors at a distance of 82 to 1,640 feet from the project disturbance boundary to the sensitive receptors. Construction activity would occur adjacent to closest sensitive receptors, which are the Pentland Hills Residence Halls approximately 25 feet south of the project site. According to the SCAQMD's publication, *Final LST Methodology*, projects with boundaries located closer than 82 feet (25 meters) to the nearest receptor should use the LSTs for receptors located at 82 feet. Therefore, the analysis below uses the LST values for 82 feet. In addition, the project is located in SRA-23 (Metropolitan Riverside County). LSTs for construction in SRA-23 on a 1.5-acre site with a receptor 82 feet away are shown in Table 3.

Table 3 SCAQMD LSTs for Construction (SRA-23)

Pollutant	Allowable Emissions for a 1.5-acre Site in SRA-23 for a Receptor 82 Feet Away (lbs/day)[a]
Gradual conversion of NO_X to NO_2	144
CO	743
PM_{10}	6
$PM_{2.5}$	4

Source: SCAQMD 2009

Notes: CO = carbon monoxide; NO2 = nitrogen dioxide; NOx = nitrogen oxides; PM10 = particulate matter with a diameter of 10 micrometers or less; PM2.5 = particular matter with a diameter of 2.5 micrometers or less; LSTs = localized significance thresholds

[a] The LST analysis uses a regression calculator to determine an applicable LST based on the 1.5-acre project site disturbance area and the LST lookup values for one- and two-acre construction sites.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.3-6 in the 2005 LRDP Amendment 2 EIR concluded that, even with implementation of PS Land Use 4 and PS Land Use 5, PS Transportation 1 through 6, and MM 4.3-6 (which implements MM 4.3-1 and MM 4.3-2[b]), development under the 2005 LRDP would likely conflict with SCAQMD AQMPs for O_3 and particulate matter; and there would be a significant and unavoidable impact. This conclusion was based on the forecasted construction emissions that

exceed SCAQMD CEQA significance mass daily thresholds for VOC, NO_X, PM_{10}, and operational emissions that exceed the mass daily thresholds for VOC, NO_X, PM_{10}, and $PM_{2.5}$.

The two principal criteria for conformance to the AQMP are whether (1) the project would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay timely attainment of air quality standards and (2) whether the project would exceed the assumptions in the AQMP (SCAQMD 1993).

With respect to the first criterion, with incorporation of the identified PSs, PPs, and MMs, the forecasted project construction and operational emissions, as detailed in Threshold 2(b), would not exceed the SCAQMD CEQA significance mass daily thresholds, which demonstrates that the project would not result in a long-term increase in the frequency or severity of existing regional air quality violations; cause or contribute to new violations; or delay timely attainment of air quality standards. With respect to the second criterion, the increase in faculty and staff to accommodate a student population of 25,000 was anticipated in the 2005 LRDP. As stated in Section 4.9 of the 2005 LRDP Amendment 2 EIR, "The projected growth in campus population by 2020 is within the SCAG projections for the City of Riverside. Therefore, the 2005 LRDP population increase would be consistent with AQMP attainment forecasts."

The current 2016 AQMP included the projected growth associated with the 2005 LRDP, including the increase in population resulting from associated projects. This project would not create new employment opportunities or construct housing; therefore, it does not increase population and would not exceed the assumptions in the 2016 AQMP. Consequently, because the proposed project would have been accounted for in SCAG's RTP/SCS, the proposed project would not exceed the assumptions in the 2016 AQMP. Based on these criteria, it is concluded that the proposed project would not conflict with or obstruct the SCAQMD AQMP; there would be no impact, consistent with the findings in the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not conflict with or obstruct implementation of the applicable air quality plan; there would be no impact. The proposed project would have a less than significant impact related to violating the SCAQMD pollutant thresholds with incorporation of the PPs and MMs noted in Threshold 2(b) below. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) 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?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.3-7 in the 2005 LRDP Amendment 2 EIR concluded that, with implementation of MM 4.3-7 (implements MM 4.3-2[b]), which will reduce traffic associated with campus operations, development under the 2005 LRDP would result in a less than significant impact related to cumulatively considerable net increase of pollutants for which the project region is nonattainment.

Construction Emissions

Construction-related emissions are described as short-term (or temporary) in duration. Construction activities associated with the proposed project would result in emissions of criteria air pollutants (i.e., PM_{10}, $PM_{2.5}$, CO, and the O_3 precursors VOC and NO_X) from (1) construction equipment that performs demolition, excavation, grading, paving, and building construction; (2) material handling and transport (i.e., removal of demolished materials and trucking of building materials to the project site); and (3) other miscellaneous activities, including worker commuting vehicles and application of architectural coatings.

Total project construction period is anticipated to extend from June 2021 to end of December 2022, for a period of approximately 18 months. The construction schedule utilized for the analysis represents a "worst-case" scenario since if actual construction occurs after the dates assumed, emission factors for equipment and on-road vehicles decrease as the construction start date gets delayed.

Demolition would include removal of approximately 55,000 square feet of existing landscape and hardscape areas at the project site. Approximately 300 cy of soil would be exported, and 4,300 cy would be imported during grading operations for a net import of 4,000 cy. Truck capacity is assumed to be 16 cubic yards, resulting in approximately 250 truckloads of fill to be imported (including empty truck return trips) over a 20-day period, or approximately 12-13 truckloads per day. The CalEEMod default haul truck trip length of 20 miles was used. Additionally, demolition activities would result in the removal of approximately 1,400 cy (2,740 tons) of debris, or approximately 88 haul trips at a length of approximately 10 miles per trip. The architectural coatings would be applied using airless sprayers.

Construction emissions for the proposed project were calculated by using CalEEMod Version 2016.3.2. Compliance with SCAQMD rules is required and included as part of the proposed project (PP 4.3-2[a]). Additionally, the proposed project includes PPs and MMs that serve to reduce construction-related emissions and have been assumed in the analysis. Specifically, construction would be performed in accordance with SCAQMD's Rule 403, Fugitive Dust (PP 4.3-2[b]) and Rule

1113, Architectural Coatings (MM 4.3-1[c]). Additionally, Tier 4 construction equipment would be used, consistent with MM 4.3-1(b). Table 4, Modeled Construction Equipment, shows the proposed construction equipment anticipated to be used for the project.

Table 4 Modeled Construction Equipment

Construction Phase	Construction Equipment	Unit Amount	Hours of Operation
Demolition	Concrete/Industrial Saws	1	8
	Rubber Tired Dozers	1	8
	Tractors/Loaders/Backhoes	3	8
Site Preparation	Graders	1	8
	Rubber Tired Dozers	1	7
	Tractors/Loaders/Backhoes	1	8
Grading	Graders	1	6
	Rubber Tired Dozers	1	6
	Tractors/Loaders/Backhoes	1	7
Building Construction	Cranes	1	6
	Forklifts	1	6
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	1	6
	Welders	3	8
Paving	Cement and Mortar Mixers	1	6
	Pavers	1	6
	Paving Equipment	1	8
	Rollers	1	7
	Tractors/Loaders/Backhoes	1	8
Architectural Coating	Air Compressors	1	6

Source: CalEEMod (Appendix A).

Table 5 summarizes the estimated maximum daily regional emissions associated with construction of the proposed project. Construction-related regional air quality impacts were determined by comparing these modeling results with applicable SCAQMD significance thresholds, as shown.

Table 5 Maximum Daily Regional Construction Emissions for the Proposed Project (in pounds per day)

Construction Year	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
2021	2.2	23.2	15.7	<0.1	3.5	2.1
2022	25.2	14.7	15.6	<0.1	1.0	0.7
Maximum Emissions	***25.2***	***23.2***	***15.7***	***<0.1***	***3.5***	***2.1***
SCAQMD Regional Significance Thresholds	75	100	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod (Appendix A).

Notes: Calculations assume compliance with SCAQMD Rules 403 and 1113. Emissions were presented based on the highest emissions (mitigated) occurring for either winter or summer CalEEMod (mitigated) results. Some totals may not add up precisely due to rounding.

ROG = Reactive Organic Gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter with a diameter of 10 micrometers or less; $PM_{2.5}$ = particular matter with a diameter of 2.5 micrometers or less

Estimated regional construction emissions would be less than the SCAQMD CEQA significance thresholds. Nonetheless, the project contractor would incorporate PP 4.3-2(a), MM 4.3-1(a), MM 4.3-1(b), and MM 4.3-1(c) in the LRDP EIR as standard construction practice to further reduce air quality impacts to the extent feasible. Therefore, construction emissions from the proposed project are considered to be less than significant with incorporation of PP 4.3-2(a), PP 4.3-2(b), MM 4.3-1(a), MM 4.3-1(b), and MM 4.3-1(c), consistent with the findings of the LRDP EIR.

Operational Emissions

Long-term operation emissions are evaluated at build-out of the project. The proposed project's first full operational year is assumed to be 2023, following completion of project construction at the end of 2022. Operational emissions are composed of area source, energy source, and mobile source emissions. Area source emissions from the proposed project include stationary combustion emissions from landscape maintenance equipment, and those emissions associated with an average building square footage to be repainted each year. Energy emissions are typically associated with energy use for the building and outside lighting, and emissions from vehicles going to and from the site. Since the SHCC building would be electric and not use natural gas, it would not generate criteria pollutant emissions from energy use for the building and outside lighting.

Vehicle trips would include employee/student trips and ambulance and delivery services; however, vehicle trips would be similar as the existing student health building as there would be minimal increase in the number of employees that would work at the SHCC building, the proposed project would serve the campus student population, and ambulance and delivery services are anticipated to remain the same as needed for the existing student health center. UCR staff would assist in the maintenance and operation of the SHCC building, as needed. The proposed SHCC building is not a use that would result in campus population growth; rather, it would accommodate the needs of students who are already residing on campus or commuting to campus and accommodate the population that was contemplated in the 2005 LRDP Amendment 2 EIR. As discussed in Section V.17, *Transportation*, the SHCC building would generate a minimal number of new vehicle trips due to a slight projected increase in the number of employees. Therefore, the SHCC building would not result in new impacts from employee-related vehicle trips, including emissions since implementation of the proposed project will still be within the overall campus population as analyzed in the LRDP EIR.

It should be noted that UCR implements PS Campus and Community 4 (promote campus-wide non-vehicular transportation), PS Transportation 3 (campus-wide bicycle network to connect to off-campus bicycle routes), PS Transportation 5 (provide bicycle parking), and PP 4.3-1 (campus-wide implementation of a transportation demand management [TDM] program), which all serve to reduce vehicular trips.

The peak daily operational emissions associated with operation of the proposed project were calculated using CalEEMod and are shown in Table 6. The emissions generated by operation of the proposed project would not exceed SCAQMD CEQA significance thresholds. Furthermore, the proposed project would adhere to the *UC Policy on Sustainable Practices* (MM 4.3-2[b]) that would reduce air pollutant emissions from both area and mobile sources and comply with the campus' TDM Program (PP 4.3-1). Therefore, air quality impacts during project operations are considered to be less than significant with incorporation of PS Campus and Community 4, PS Transportation 3, PS Transportation 5, PP 4.3-1 and MM 4.3-2(b), consistent with the findings of the LRDP EIR.

Table 6 Peak Daily Operational Emissions for the Proposed Project (Maximum Daily Emissions (lbs/day)

Emission Source	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Area Sources	1.1	<0.1	<0.1	0.0	<0.1	<0.1
Energy Sources	0.0	0.0	0.0	0.0	0.0	0.0
Stationary Sources	0.1	0.3	0.3	<0.1	<0.1	<0.1
Peak Daily Operational Emissions	**1.2**	**0.3**	**0.4**	**<0.1**	**<0.1**	**<0.1**
SCAQMD Regional Thresholds	55	55	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod (Appendix A).

Note: Maximum of summer or winter operational emissions (mitigated) are identified. Mobile source emissions are not included because the project would generate a minimal number of new vehicle trips based on staff projections.

lbs/day = pounds per day; LST = localized significance threshold; NOx = nitrogen oxides; CO = carbon monoxide; PM_{10} = particulate matter less than 10 micrometers in diameter; $PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter.

Criteria pollutant emissions from construction and operation of this project would not exceed the SCAQMD regional daily thresholds for any criteria pollutant and would not be cumulatively considerable. The impact would be less than significant, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

Construction and operation of the proposed project would result in a less than significant cumulatively considerable net increase of criteria pollutants for which the proposed project region is in nonattainment under an applicable federal or State ambient air quality standard with the incorporation of the PSs, PPs, and MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐	☐

Discussion

The analysis of Impacts 4.3-3 and 4.3-4 in the 2005 LRDP EIR concluded that development under the 2005 LRDP would result in a less than significant impact related to exposure of sensitive receptors to substantial pollutant concentrations of CO and toxic air contaminants (TACs). Exposure to substantial concentration of construction emissions is a project-specific and site-specific analysis and was not evaluated in the 2005 LRDP Amendment 2 EIR.

Carbon Monoxide

Exposure of sensitive receptors to CO is of concern if the project contributes substantial traffic to severely-congested, high-volume, signalized intersections with an associated potential increase in local CO concentrations (i.e., CO hotspots). UCR staff would assist in the maintenance and operation of the SHCC building, as needed. The proposed SHCC building is not a use that would result in campus population growth that was not previously analyzed in the LRDP EIR; rather, it would accommodate the needs of campus students who are already residing on campus or commuting to campus. As discussed in Section V.17, *Transportation*, the SHCC building would generate a minimal number of new vehicle trips due to a slight projected increase in the number of employees. As such, it is not anticipated that the project would add new traffic to the study area. The peak-hour project-related trips from these employees are small and are not of sufficient magnitude to create a CO hotspot. This is consistent with the conclusion of the LRDP EIR that implementation of the proposed project would not result in exposure of sensitive receptors to substantial concentrations of CO, and there would be no impact.

Toxic Air Contaminants

TACs are airborne substances that are capable of causing chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health. A human health risk assessment (HHRA) was prepared as part of the 2005 LRDP Amendment 2 EIR to estimate the potential off-campus and on-campus health risks associated with TACs generated by current and projected campus-wide operations. The emissions sources analyzed in the HHRA included natural gas combustion sources, boilers and kitchen equipment, gasoline dispensing operations, emergency generators driven by internal combustion engines, painting operations, and laboratory fume hoods (chemical usage). The HHRA concluded that full development of the campus under the 2005 LRDP Amendment 2 would not generate toxic air emissions that would result in excess human cancer risk from stationary sources or that would result in a cumulative acute or chronic non-cancer Hazard Index that exceeds the established standards.

The proposed project would contain a diesel-powered emergency generator. Diesel particulate matter is typically composed of carbon particles (“soot,” also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances (CARB 2020).

During normal facility operation, these engines would not be operated other than for periodic testing and maintenance requirements. The generator would be a 400 kW (536 horsepower), diesel engine with a sound attenuated enclosure and diesel particulate filter. The diesel fuel tank would have the capacity to allow for eight hours runtime. The emergency generator would be placed on the side of the SHCC building. Air intakes for the SHCC building would be designed pursuant to UCR Campus Standards, which designate air intakes for the SHCC building would be located so that they do not introduce foul air (i.e., near cooling towers, exhausts, vehicle emissions, garbage dumpsters, generator exhausts, and exhaust discharge from other buildings) (UCR 2019a).

A SCAQMD "permit to construct" is required for combustion sources. Testing and maintenance hours for generators are limited up to 50 hours annually pursuant to SCAQMD Rule 1470 (SCAQMD 2020). The project would include periodic testing of the generator to make sure that it would be ready to come online in the event of a power failure. For purposes of estimating emissions and potential air quality impacts from the generator, it was assumed that it could be operated for 50 hours per year (maximum operation hours allowed by the State's Air Toxic Control Measure and SCAQMD for testing and maintenance). The average daily operational emissions associated with testing and maintenance of the emergency generator was calculated using CalEEMod and are shown in Table 7.

Table 7 Emergency Generator Engine Testing: Average Daily Emissions (Maximum Daily Emissions in lbs/day)

Emission Source	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Average Daily Emissions (lbs/day)	0.1	0.3	0.3	<0.1	<0.1	<0.1
SCAQMD Regional Thresholds	55	55	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod (Appendix A).

Notes: Assumes operation at the CalEEMod default 73 percent engine load for 50 hours/year. Maximum of summer or winter operational emissions are identified.

lbs/day = pounds per day; ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter less than 10 micrometers in diameter; $PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter; SCAQMD = South Coast Air Quality Management District

As shown Table 7, the emissions generated by the anticipated testing and maintenance of the emergency generator would not exceed the SCAQMD threshold for average daily emissions. Therefore, implementation of the proposed project would not result in exposure of the additional campus population to substantial concentrations of TACs. The impact would be less than significant, which is consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Construction-Source Emissions LST Analysis

The SCAQMD has developed thresholds and methodologies for analyzing the localized air quality effects on a project-specific level. The LST methodology is a conservative, simple screening methodology for determining impacts to off-site receptors from on-site emissions (SCAQMD 2009). According to the LST methodology, only on-site emissions need to be analyzed. Emissions associated with vendor and worker trips are mobile source emissions that occur off site. The emissions analyzed under the LST methodology are NO_2, CO, PM_{10}, and $PM_{2.5}$. The LST methodology provides "lookup" tables of emissions limits based on the location of the project site, the size of the project

area, and the distance to the off-site receptor. For the LST method, receptor locations include residential, commercial, and industrial land use areas and any other areas where persons can be situated for an hour at a time or longer.

The nearest sensitive receptors to the project site are the Pentland Hills Residence Halls immediately south/southeast of the project site. The distance to the receptors used for analysis is 25 meters (82 feet),[5] which is the minimum distance prescribed for the LST methodology for all source-to-receptor distances of 25 meters (82 feet) or less. SCAQMD provides LST lookup tables for project sites that measure one, two, or five acres. The overall project site is approximately 1.5 acres. Therefore, this analysis uses a regression calculator to determine an applicable LST based on the project site area and the LST lookup values for one- and two-acre construction sites. The project site is in SRA-23 (Metropolitan Riverside County).

Based on these parameters, LST emissions and thresholds for the proposed project are shown in Table 8.

Table 8 LST Results for Daily Construction Emissions

Pollutant	Maximum Daily On-Site Emissions[a] (lbs/day)	LST Thresholds[b] (lbs/day)	Exceed Threshold?
NOx	19.7	**144**	**No**
CO	21.5	**743**	**No**
PM_{10}	3.4	**6**	**No**
$PM_{2.5}$	2.0	**4**	**No**

Source: CalEEMod (Appendix A).

lbs/day = pounds per day; LST = localized significance threshold; NOx = nitrogen oxides; CO = carbon monoxide; PM_{10} = particulate matter less than 10 micrometers in diameter; $PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter.

[a] Maximum on-site emissions are emissions that occur on the project site, and exclude construction-related vehicle trips. Since CalEEMod calculates total emissions and off-site emissions only, on-site emissions were calculated by taking the highest daily total mitigated emissions in any single construction phase, less the lowest daily mitigated off-site emissions (emissions caused by vehicles going to and from the project site).

[b] The LST analysis uses a regression calculator to determine an applicable LST based on the 1.5-acre project site disturbance area and the LST lookup values for one- and two-acre construction sites.

As shown in Table 8, the proposed project's estimated construction emissions would not exceed the SCAQMD LST thresholds, and the impact from exposure to construction emissions at the nearest sensitive uses would be less than significant.

Localized Significance – Long-Term Operational Activities

According to the SCAQMD LST methodology, LSTs would apply to the operational phase of a project. As discussed previously, the proposed project would serve the campus student population who are already on campus or commuting to campus. Additionally, the project would cause a redistribution of trips from employees currently parking at Parking Lot 15 to other parking lots within proximity to the project site. LST emissions and thresholds for operation of the proposed project are shown in Table 9.

[5] The methodology for LST analysis uses the metric system for distance factors. LST thresholds for construction and operation are located at http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/localized-significance-thresholds.

Table 9 LST Results for Daily Operation Emissions

Pollutant	Maximum Daily Emissions[a] (lbs/day)	LST Thresholds[b] (lbs/day)	Exceed Threshold?
NOx	0.3	**144**	**No**
CO	0.3	**743**	**No**
PM_{10}	<0.1	**2**	**No**
$PM_{2.5}$	<0.1	**1**	**No**

Source: CalEEMod (Appendix A).

lbs/day = pounds per day; LST = localized significance threshold; NOx = nitrogen oxides; CO = carbon monoxide; PM_{10} = particulate matter less than 10 micrometers in diameter; $PM_{2.5}$ = particulate matter less than 2.5 micrometers in diameter.

[a] Maximum on-site operation emissions were calculated by adding mitigated area and stationary emissions.

[b] The LST analysis uses a regression calculator to determine an applicable LST based on the 1.5-acre project site disturbance area and the LST lookup values for one- and two-acre construction sites.

As shown in Table 9, the proposed project's estimated operation emissions would not exceed the SCAQMD LST thresholds, and the impact from exposure to operation emissions at the nearest sensitive uses would be less than significant.

Therefore, implementation of the proposed project would not result in significant levels of localized air pollutants. As discussed previously, CO hotspots are not anticipated to occur at local intersections. CO hotspots at parking areas are likewise not anticipated to occur due to the brevity of emissions within the parking area and the requirement of passenger cars to have pollutant control devices (catalytic converters). Therefore, no significant impacts associated with exceedance of the LST from the operational phase of the project would occur consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

Construction and operation of the proposed project would have a less than significant impact related to exposure of sensitive receptors to substantial pollutant concentrations. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.3-5 in the 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP would result in a less than significant impact related to objectionable odors.

Construction activities may result in other emissions (such as those leading to odors), such as diesel exhaust associated with operations of diesel-fueled construction vehicles/equipment, architectural coatings, and asphalt paving. These odors are typical of urbanized environments and would be subject to construction and air quality regulations, including proper maintenance of machinery to minimize engine emissions. These emissions would occur during daytime hours and would be isolated to the immediate vicinity of construction activities. The odors would be of a relatively small magnitude and short duration and would quickly disperse into the atmosphere. These odors are not pervasive enough to cause objectionable odors affecting a substantial number of people. The proposed project is also regulated from nuisance odors or other objectionable emissions by SCAQMD Rule 402. Rule 402 prohibits any the discharge from any source of air contaminants or other material which would cause injury, detriment, nuisance, or annoyance to people or the public. As such, the project would have a less than significant impact.

As identified in the 2005 LRDP Amendment 2 EIR, the campus does not contain any facilities that are considered by the SCAQMD to be odor-emitting, and no such facilities would be added. Additionally, the CARB has developed an Air Quality and Land Use Handbook that outlines major common sources of odor complains, including sewage treatment plants, landfills, recycling facilities, and petroleum refineries (CARB 2017a). However, the proposed project does not include any such uses. Therefore, long-term operation of the proposed project would not expose substantial numbers of persons to objectionable odors.

In summary, impacts from construction or operation of the proposed project related to odors would be less than significant, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would create a less than significant impact associated with other emissions affecting a substantial number of people. The proposed project impacts were adequately addressed in the LRDP EIR.

4. BIOLOGICAL RESOURCES

The analysis of biological resources is tiered from the 2005 LRDP EIR and was addressed in Section 4.4, Biological Resources, of that document. Relevant elements of the proposed project related to biological resources include the retention and/or removal of existing vegetation, including ornamental trees within the project site. New trees are also proposed as part of the project. The following applicable PS, PP, and MMs were adopted as part of the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR and are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PS Conservation 2 Site buildings and plan site development to minimize site disturbance, reduce erosion and sedimentation, reduce stormwater runoff, and maintain existing landscapes, including healthy mature trees whenever possible.

PP 4.4-2(b) In compliance with National Pollutant Discharge Elimination System (NPDES), the campus would continue to implement Best Management Practices, as identified in the UCR Stormwater Management Plan (UCR 2003):

i. Public education and outreach on stormwater impacts
ii. Public involvement/participation
iii. Illicit discharge detection and elimination
iv. Pollution prevention/good housekeeping for facilities
v. Construction site stormwater runoff control
vi. Post-construction stormwater management in new development and redevelopment

(This is identical to Geology and Soils PP 4.6-2(b) and Hydrology PP 4.8-3(d).)

MM 4.4-4(a) Prior to the onset of construction activities that would result in the removal of mature trees that would occur between March and mid-August, surveys for nesting special status avian species and raptors shall be conducted on the affected portion of the campus following USFWS and/or CDFW guidelines. If no active avian nests are identified on or within 250 feet of the construction site, no further mitigation is necessary.

MM 4.4-4(b) If active nests for avian species of concern or raptor nests are found within the construction footprint or a 250-foot buffer zone, exterior construction activities shall be delayed within the construction footprint and buffer zone until the young have fledged or appropriate mitigation measures responding to the specific situation have been developed and implemented in consultation with USFWS and CDFW.

Additionally, PPs 4.1-2(a) and 4.1-2(b) (included under the Aesthetics analysis, which is Section V.1 of this IS/MND) are included in the proposed project. PP 4.1-2(a) requires development of landscape plans that are consistent with the Campus Design Guidelines (including tree retention). PP 4.1-2(b)

requires that the campus continue to relocate, where feasible, mature "specimen" trees that would be removed as a result of construction activities on the campus.

The project site and surrounding areas are highly urbanized by institutional (education) and on-campus residential development integrated with heavily travelled roads. The project site is comprised of disturbed/developed land (approximately 1.5 acres) with minimal landscaped/ornamental vegetation. While some off-site improvements would occur in the lawn area south of the project site, impacts would be minimal. The project site is primarily underlain by Arlington fine sandy loam soils and shallow and eroded Monserate sandy loam soils (Natural Resources Conservation Service [NRCS] 2020).

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.4-1 in the 2005 LRDP EIR concluded that, with implementation of PS Open Space 1 through 4, PS Conservation 1 through 3, PP 4.4-1(a), PP 4.4-1(b), MM 4.4-1(a), and MM 4.4-1(b), development under the 2005 LRDP would result in less than significant impacts on candidate, sensitive, and special-status plant and wildlife species.

Based on the land use and open space designations defined in the 2005 LRDP, on-campus plant and wildlife resources can be generally described by four biological resource "associations" as follows:

- **Natural** areas are undeveloped open space and are composed of native and naturally occurring plant species. This association refers to the southeast hills on the East Campus, where the primary plant community is coastal sage scrub.
- **Naturalistic** areas are mostly undeveloped but have been subject to modification and/or the introduction of ornamental trees and shrubs. This association is limited to drainage channels or arroyos, Picnic Hill, and the Botanic Gardens.
- **Landscaped** areas are open spaces that have been developed with turf-covered lawn areas, mature trees, and shrubs or groundcover in planting beds, typically around the edges of these spaces. This association dominates the academic core and the residential areas of the East Campus.
- **Agricultural** areas are undeveloped land that is used for agricultural teaching and research and is dominated by row crops and orchards. This association is found on most of the West Campus.

As identified in the 2005 LRDP EIR, a literature search determined that special status plant and animal species have the potential to occur within Natural and Naturalistic areas of the campus; several sensitive wildlife species and one sensitive plant species were observed within the UCR Botanic Gardens (refer to Tables 4.4-1 and 4.4-2 of the 2005 LRDP EIR). The distribution of the campus' natural and naturalistic areas is shown on Figure 4.4-1, Existing Campus Biological Resources, of the 2005 LRDP EIR, and indicates, the project site is not located within any natural and naturalistic areas. As such, the project would not have the potential to result in direct adverse effects to the habitat of candidate, sensitive, or special status species or riparian habitat.

The project would remove approximately 15 ornamental trees on the western edge of the project site and implement a new landscape design for the site. The landscape design for the proposed project would use drought tolerant and adapted plants that are reflective of the region and would be consistent with UCR's *Landscape-Irrigation Guidelines and Campus Standards*. Landscape design would support and blend into the surrounding natural landscape character of the campus. The project would preserve the palm trees lining West Linden Street and would be adjacent to the lawn area north of Pentland Hills Residence Halls.

Common bird species have the potential to be located on or within the vicinity of the project site. Therefore, construction of the proposed project has the potential to directly (by destroying a nest) or indirectly (through construction noise, dust, and other human disturbances that may cause a nest to fail) impact protected nesting birds.

The project would incorporate PS Conservation 2, which would maintain existing landscape whenever possible; incorporate MM 4.4-4(a), which requires a pre-construction survey for nesting special status avian species and raptors; and incorporate MM 4.4-4(b), which requires that exterior construction activities be delayed within the construction footprint or a 250-foot buffer zone until the young have fledged or appropriate MMs responding to the specific situation have been developed and implemented in consultation with U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW). Because the proposed project would incorporate all relevant PS and MMs and would be required to comply with the Migratory Bird Treaty Act (MBTA), impacts on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulation by the CDFW or by the USFWS would be less than significant with incorporation of PS Conservation 2, MM 4.4-4(a) and MM 4.4-4(b), consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not 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 CDFW or USFWS. Impacts would be less significant with incorporation of the PS and MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.4-2 in the 2005 LRDP EIR concluded that there would be less than significant impacts to the on-campus portion of the USFWS-designated critical habitat area for coastal California gnatcatcher (*Polioptila californica californica*) and on the riparian habitat within the existing arroyos on campus with implementation of PS Open Space 1 through 3, PS Conservation 1, PP 4.4-1(a), PP 4.4-1(b), PP 4.4-2(a), PP 4.4.2-(b), MM 4.4-1(a), and MM 4.4-1(b).

The project site is currently developed with a paved surface parking lot with associated landscape and hardscape areas. As indicated in the 2005 LRDP EIR, the project site does not contain any natural or naturalistic open space. In addition, the project site does not contain any drainages, and is not located in the boundaries of potential habitat for botanical or wildlife communities and species. As such, the project would not have the potential to result in direct adverse effects to biological resources or riparian habitat.

Runoff from the project site can become contaminated from common pollutants such as fertilizers and pesticides, leaked motor oil from vehicles, and debris, and has the potential to indirectly cause adverse effects to riparian habitat. However, the proposed project would incorporate PS Conservation 2, siting the SHCC facility in a manner to minimize site disturbance, reduce erosion and stormwater runoff, and maintain existing landscape whenever possible. Additionally, the proposed project would comply with PP 4.4-2(b) to use BMPs as identified in the UCR Stormwater Management Plan, which would reduce stormwater runoff and control erosion in and around the project site.

The proposed project would have less than significant impacts with the incorporation of PS Conservation 2 and PP 4.4-2(b), consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS. Impacts would be less significant with the incorporation of the PS and PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project have a substantial adverse effect on 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?	☐	☒	☐	☐	☐

Discussion

As identified in Section 4.4, Biological Resources, of the 2005 LRDP EIR, development under the 2005 LRDP could involve minor development, such as extension of utility lines or pedestrian or bicycle paths, within Naturalistic open space areas, which can include arroyos that may contain jurisdictional seasonal wetlands or "waters of the U.S." The analysis of Impact 4.4-3 in the 2005 LRDP EIR concluded that, with implementation of PS Open Space 3, PS Conservation 1 and 2, PP 4.4-1(a), PP 4.4-1(b), PP 4.4-2(a), PP 4.4.2(b), MM 4.4-3(a), MM 4.4-3(b), and MM 4.4-3(c), there would be less than significant impacts to jurisdictional wetlands.

The project site is currently developed with a surface parking lot with associated landscape and hardscape areas. The project site does not contain any surface water bodies or potentially jurisdictional water features (USFWS 2020). The project would comply with PP 4.4-2(b) using applicable BMPs as identified in the UCR Stormwater Management Plan, which would reduce stormwater runoff and control erosion in and around the project site. While off-site improvements would be made to the lawn area south of the project site (and will be restored back to lawn area), this area does not contain wetlands or any other water features.

The proposed project would have less than significant impacts on adjacent water bodies or wetland habitat through direct removal, filling, hydrological interruption, or other means with incorporation of PP 4.4-2(b) noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not have a substantial adverse effect on state or federally protected wetlands. Impacts would be less significant with incorporation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐	☐

Discussion

As identified in Section 4.4, Biological Resources, of the 2005 LRDP EIR, the large undeveloped areas of the southeast hills, including the Botanical Gardens and nearby arroyos, provide opportunities for wildlife connections between the Box Springs Mountains and Sycamore Canyon Park. These undeveloped areas function as potential wildlife corridors as they connect two or more habitat patches that would otherwise be fragmented or isolated from one another. Additionally, the 2005 LRDP EIR identified that development on campus would result in the removal of mature trees, some of which could be used by migratory birds. Nesting birds and raptors are protected by the MBTA; raptors are also protected by the California Fish and Game Code. The loss of an occupied nest as a result of construction or demolition activities would constitute a substantial adverse effect (such as "take" or "destruction" under Section 3513 of the California Fish and Game Code) and, in the case of raptors, would constitute the "take" or "destruction" of the nest or egg (under Section 3503.5 of the California Fish and Game Code).

The analysis of Impact 4.4-4 in the 2005 LRDP EIR concluded there would be less than significant impacts related to wildlife movement with implementation of PS Open Space 1, 2, 3, and 5; PS Conservation 1 and 2; PP 4.4-1(a); PP 4.4-1(b); MM 4.4-4(a); and MM 4.4-4(b).The project site is in a currently developed portion of the East Campus (Parking Lot 21) surrounded by campus structures and would not involve development in the southeast hills described for wildlife connections. Therefore, implementation of the project would not interfere with wildlife movement through identified corridors. Impacts to wildlife movement would be less than significant, which is consistent with the conclusions of the 2005 LRDP EIR.

The proposed project includes PP 4.1-2(a), which ensures that project-specific landscape plans are consistent with the Campus Design Guidelines. Approximately 15 trees would need to be removed along the western edge of the site, none of which are mature specimen trees. Additionally, the proposed project would involve planting new trees around the SHCC building and reconfigured surface parking area. The palm trees lining the sidewalk south of W. Linden Street would be retained.

As analyzed in the 2005 LRDP EIR, it is anticipated that any migratory birds or raptors using mature trees as perching sites would leave the site upon the initiation of construction activities. However, implementation of the 2005 LRDP, including the proposed project, could still result in the removal of trees and other vegetation that may serve as perching or nesting sites of migratory birds or raptors. This would constitute substantial interference (take or destruction) with a raptor or migratory species of special concern. Therefore, the proposed project incorporates MM 4.4-4(a), which requires a pre-construction survey for nesting special status avian species and raptors, and MM 4.4-4(b), which requires that exterior construction activities be delayed within the construction

footprint or a 250-foot buffer zone until the young have fledged or appropriate MMs responding to the specific situation have been developed and implemented in consultation with USFWS and CDFW. Because the proposed project incorporates all relevant PPs and MMs, impacts on nesting birds and raptors would be less than significant with incorporation of PP 4.1-2(a), MM 4.4-4(a), and MM 4.4-4(b), consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not 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. Impacts would be less significant with incorporation of the PPs and MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐	☐

Discussion

UCR is a part of the UC, a constitutionally created unit of the State of California. As a State entity, UC is not subject to municipal plans, policies, or regulations, such as the County and City General Plans or local ordinances. However, because UCR values its relationship with the local communities, it voluntarily reviewed the policies in the *City of Riverside General Plan* for consistency. Relevant *City of Riverside General Plan* policies include preservation of sage scrub habitat, retention of natural ridgeline areas, and preservation of Rare and Endangered Species habitat. The *County of Riverside General Plan* does not apply to the UCR Campus as it includes only unincorporated areas of the County. The analysis of Impact 4.4-5 in the 2005 LRDP EIR concluded there would be less than significant impacts related to consistency with *City of Riverside General Plan* goals related to preservation of biological resources with implementation of PS Conservation 1 and PS Open Space 1 through 3.

As discussed under Sections V.4(a) through V.4(d) and Section V.4(f), the proposed project incorporates PS Conservation 2, PP 4.1-2(a), PP 4.1-2(b), MM 4.4-4(a), and MM 4.4-4(b) and would have less than significant impacts to sensitive biological resources.

Existing landscaping, primarily 15 ornamental trees, is proposed to be removed in order to construct the SHCC building and reconfigure a portion of the existing surface parking area. As previously mentioned, any removal of trees and associated potential for disturbance of protected birds and raptors would comply with the MBTA, MM 4.4-4(a), and MM 4.4-4(b).

The University currently does not have a tree preservation policy or ordinance in place; however, a Tree Preservation and Replacement Guidelines document is currently being drafted. The proposed project would comply with the Tree Preservation and Replacement Guidelines. The project would conserve palm trees along Linden Street, and also include new landscape planting. As such, impacts would be less than significant with incorporation of PS Conservation 2, PP 4.1-2(a), PP 4.1-2(b), MM 4.4-4(a), and MM 4.4-4(b), consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts related to conflict with LRDP policies protecting biological resources with incorporation of the PS, PPs, and MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐	☐

Discussion

A Multiple Species Habitat Conservation Plan (MSHCP) was approved and adopted by Riverside County in 2003 as a comprehensive, multijurisdictional Habitat Conservation Plan (HCP) focusing on conservation of both species and associated habitats to address biological and ecological diversity conservation needs in Western Riverside County. In addition to being an HCP pursuant to Section 10(a)(1)(B) of the Federal Endangered Species Act of 1973, this MSHCP also serves as a Natural Communities Conservation Plan under the Natural Communities Conservation Planning Act of 1991. UCR is not a Permittee to the Western Riverside MSHCP and therefore is not subject to the Conservation efforts established in the MSHCP. Nonetheless, the following analysis discusses how the proposed project complies with the MSHCP.

Sections of Criteria Cell 634 of the MSHCP include portions of the UCR campus; however, the project site is not within this Criteria Cell and therefore is not subject to any Conservation efforts. The project site is not located within a drainage feature, riparian, or riverine areas; thus, the proposed project does not conflict with Section 6.1.2 of the MSHCP. The project site does not occur within a predetermined Survey Area for the MSHCP criteria area species, mammals, amphibians, or narrow endemic plant species. As such, the proposed project does not conflict with Sections 6.1.3 and 6.3.2 of the MSHCP. The project site is not located adjacent to an existing or proposed MSHCP Conservation Area. Thus, the project is not subject to the MSHCP Urban/Wildlands Interface guidelines and does not conflict with Section 6.1.4 of the MSHCP.

The 2005 LRDP EIR concluded that development under the 2005 LRDP, of which the proposed project is a part, would not conflict with the MSHCP, and there would be no impact. Therefore, the proposed project would have no impact related to conflict with the MSHCP, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to conflict with the Western Riverside County MSHCP. The proposed project impacts were adequately addressed in the LRDP EIR.

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5. CULTURAL RESOURCES

The analysis of cultural resources is tiered from the 2005 LRDP EIR and was addressed in Section 4.5, Cultural Resources, of that document. Relevant elements of the project related to cultural resources include earthmoving activities for the construction of the SHCC building, the reconfiguration of existing surface parking area, improvements to driveways from W. Linden Street and the access road, connections to pedestrian pathways, installation of associated utility and irrigation systems, and associated site improvements.

Analysis in this section is supplemented by information resulting from a historical resource literature and records search completed for the UCR campus at the Eastern Information Center (EIC) of the California Historical Resource Information System (CHRIS), housed at UCR, in September 2020. The objective of the historical records search was to determine whether any of the buildings and structures in the immediate project vicinity had been previously documented as a historical resource. Sources consulted during the historic resource literature and records search include the DPR 523 recording forms and historic resource location maps, the National Register of Historic Places (NRHP), the California Register of Historic Resources (CRHR), the Office of Historic Preservation Directory of Properties in the Historic Property Data File, and the list of California Historical Landmarks and California Points of Historical Interest. Results are further discussed herein.

The following applicable PP are incorporated as part of the project and assumed in the analysis presented in this section.

PP 4.5-5 In the event of the discovery of a burial, human bone, or suspected human bone, all excavation or grading in the vicinity of the find shall halt immediately and the area of the find shall be protected and the University immediately shall notify the Riverside County Coroner of the find and comply with the provisions of P.R.C. Section 5097 with respect to Native American involvement, burial treatment, and re-burial, if necessary.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.5-1 in the 2005 LRDP EIR concluded that there would be less than significant impacts associated with modification of historic or potentially historic resources during construction activities with implementation of PS Conservation 4, MM 4.5-1(a), and MM 4.5-1(b). The analysis of Impact 4.5-2 concluded there would be significant and unavoidable impacts with demolition of historic or potentially historic resources even with implementation of PS Conservation 4, PS Land Use 3, PS Open Space 5, PP 4.5-2, MM 4.5-1(a), MM 4.5-1(b), and MM 4.5-2. A detailed

discussion of the regulatory setting and existing cultural resources is provided in Section 4.4, Cultural Resources, of the 2005 LRDP EIR. As identified, relevant regulatory programs include the National Historic Preservation Act (NHPA) of 1966, California SB 297, and the CRHR. The 2005 LRDP EIR identified a total of eight campus structures located on both the East Campus and West Campus that were considered by CRM Tech (2002) to be potentially eligible for listing in the NRHP and/or the CRHR. It also identified structures exceeding 45 years of age that were evaluated and determined not to be eligible for listing as a historic resource. In addition, the 2005 LRDP EIR included a compilation of structures that would be of age for evaluation as potentially historic by the end of the 2005 LRDP planning horizon (2015-2016). The planning horizon was extended to 2020-2021 as part of the 2005 LRDP Amendment 2 and, as such, would result in additional campus buildings that are potentially historic. None of these structures are located on the project site.

The project site and temporary construction staging, and laydown area, are currently a surface parking area, with trees and ornamental landscape, and hardscape areas. There are no structures on the project site or construction staging areas. Based on the review of the EIC records, aerial photographs, and given that no structures are on site, no impacts to historical resources are anticipated with development of the proposed project.

Although the LRDP planning area contains potentially significant resources, as discussed above, the project area does not contain any known historical resources. As such, no impacts to historical resource would occur, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to the potential to cause a substantial adverse change to a significant historical resource as defined in Section 15064.5 of the State CEQA Guidelines. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☒	☐	☐

Discussion

The analysis of Impact 4.5-3 in the 2005 LRDP EIR concluded there would be less than significant impacts related to archaeological resources during construction activities with implementation of PS Land Use 2, PS Land Use 3, PS Open Space 1 through 3 and 5, PS Conservation 1 through 3, and PP 4.5-3.

As discussed in the 2005 LRDP EIR, three archaeological sites have been recorded within the UCR campus: Site CA-RIV-495, a prehistoric site located on a slope in the southeast hills; the 2002 discovery of a previously undocumented prehistoric site located in the southeast hills in the vicinity

of Site CA-RIV-495; and Site CA-RIV-4768H, which represents the historic Gage Canal that traverses the West Campus. Cultural resources investigation in support of the 2005 LRDP EIR concluded that the following areas of the UCR campus exhibit moderate sensitivity for unknown archaeological resources: the rolling hills in the southeastern or southwestern portion of the campus and the agricultural fields on the West Campus. The project site is not in these areas and is not considered sensitive for archaeological resources.

According to the 2005 LRDP EIR and the associated geotechnical study, the majority of East Campus, has been developed for academic purposes. Most of these areas have been previously graded and were replaced with undocumented, artificial fill (UCR 2005b). The project site is an infill development within East Campus on a previously disturbed and developed site (Parking Lot 21) not located in the sites of archeological discovery. Substantial ground disturbance has, therefore, occurred in this area, and surface evidence of archaeological resources is not likely to be encountered with the development of the project site. Additionally, the project area is not located within the southeast hills (not within the Natural Open Space Reserve) or within the West Campus agricultural fields, where on-campus archaeological resources are most likely to be encountered.

Burials or cemeteries containing human remains can also be considered an archaeological resource, in addition to tribal cultural resources (as discussed in Section V.18 of this IS/MND). Although prehistoric occupation has been documented along the eastern side of the campus, there are no known burials or cemeteries within the area. Given the developed nature of the surrounding areas and past activities in the project area as described above, the potential to find intact buried deposits within the project area is considered low. Nevertheless, there is always a possibility of encountering unknown or undocumented burials containing human remains during earth moving activities. UCR's standard contract specifications address the protection and recovery of buried archaeological resources, including human remains, and the standard requirements are incorporated into the project as MM CUL-1 through MM CUL-4, presented below. This mitigation measure identifies steps to be taken in the event archaeological resources, including human remains, are discovered during construction activities.

Additional Project-Level Mitigation Measures

MM CUL-1 **Unanticipated Discovery of Archaeological Resources.** If a previously undiscovered archaeological resource is identified during construction, all ground disturbing activities within 100 feet of the resource shall halt, University of California, Riverside (UCR) Planning, Design & Construction (PDC) staff shall be notified, and the find shall be evaluated by a qualified non-University Archaeologist meeting the Secretary of the Interior standards and, if the discovery is Native American in origin, a tribal representative within 24 hours of discovery to determine whether it is a unique archaeological resource, as defined by the California Environmental Quality Act (CEQA). The archaeologist and the tribal representative shall make recommendations to UCR PDC staff on the measures that will be implemented to protect the newly discovered cultural resource(s), including but not limited to, avoidance in place, excavation, relocation, and further evaluation of the discoveries in accordance with CEQA. If the resource meets the criteria for a unique archaeological resource, work shall remain halted within 100 feet of the area of the find, and UCR PDC staff shall consult with the non-University Archaeologist and, if appropriate, consulting Tribes, regarding methods to ensure that no substantial adverse change would occur to the significance of the resource pursuant to CEQA

Guidelines Section 15064.5(b). Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts to archaeological resources and the University shall devote adequate time and funding to determine if it is feasible, through project design measures, to preserve the find intact. If it cannot be preserved, the non-University Archaeologist shall design and implement a treatment plan, prepare a report, and salvage the material, as appropriate. Any important artifacts recovered during monitoring shall be cleaned, catalogued, and analyzed, with the results presented in a report of findings that meets professional standards. Work on the site may commence upon completion of treatment.

MM CUL-2 **Native American Monitoring.** The University of California, Riverside (UCR) shall invite up to one qualified Native American Monitor to be on site during any project-related ground disturbing activities with the potential to encounter native soils. The Native American Monitor shall have ties to the region and be a member of one of the consulting Tribes for the proposed project. The on-site monitoring shall end when project-related ground disturbing activities are completed, or when the Native American Monitor has indicated that the project site has a low potential for tribal cultural resources.

Prior to the issuance of a building permit which includes grading activities, and before any project-related ground disturbing activities take place, UCR shall enter into a Tribal Monitoring & Cultural Resources Treatment Agreement (Agreement) with one Traditionally and Culturally Affiliated (TCA) tribe to retain the qualified Native American Monitor. The Agreement shall address the roles, authorities and responsibilities of the Native American Monitor and other participants; project scheduling; and insurance requirements.

MM CUL-3 **Cultural Sensitivity Training.** The Native American Monitor shall attend the pre-construction meeting to provide Cultural Sensitivity Training for all construction personnel, to inform construction personnel on the types of cultural resources that may be encountered, and to bring awareness to personnel of actions to be taken in the event of a discovery. UCR Planning, Design & Construction Project Manager/contractor shall complete training for all construction personnel and retain documentation showing when training of personnel was completed.

MM CUL-4 **Unanticipated Discovery of Tribal Cultural Resources or Human Remains.** If a previously undiscovered resource is discovered during construction, the Native American Monitor shall have the authority to temporarily halt or redirect ground disturbing activities away from the vicinity of the discovery to allow for preliminary evaluation of potential tribal cultural resources. The Native American Monitor shall assess and determine the significance of such resource(s) in consultation with University of California (UCR) Planning, Design & Construction (PDC) and the Traditionally and Culturally Affiliated (TCA) tribe(s) as appropriate. If human remains are discovered, work shall halt in that area and the procedures detailed in the California Health and Safety Code (Section 7050.5) and the California Public Resources Code (Section 5097.98) will be followed as described below.

If the discovery is determined to be a tribal cultural resource, UCR shall retain a qualified non-University Archaeologist and in consultation with the TCA tribe(s),

shall make recommendations to the UCR PDC staff on the measures that will be implemented to protect the tribal cultural resource(s), including but not limited to, avoidance, preservation in place, excavation, relocation, and further evaluation of the discoveries in accordance with CEQA. Additionally, UCR PDC staff, in consultation with the non-University Archaeologist and TCA tribe(s) shall design and implement a treatment plan, prepare a report, and salvage the material, as appropriate, as agreed upon by the consulting TCA tribe(s). If a determination is made that the tribal cultural resource(s) is considered potentially significant, the consulting TCA tribe(s) shall be notified and consulted in regards to the respectful and dignified treatment of those resources. Any tribal cultural resources recovered during monitoring shall be cleaned, catalogued in the presence of a Native American monitor, with the results presented in a report of findings that meets professional standards.

In the event of the discovery of a burial, human bone, or suspected human bone, all excavation or grading in the vicinity of the find shall halt immediately and the area of the find shall be protected. The University shall immediately notify the Riverside County Coroner of the find and comply with the provisions of *California Health and Safety Code* Section 7050.5. If such a discovery occurs, a temporary construction exclusion zone shall be established surrounding the area of the discovery so that the area would be protected, and consultation and treatment could occur as prescribed by law. By law, the Medical Examiner will determine within two working days of being notified if the remains are subject to his or her authority. If the Medical Examiner recognizes the remains to be Native American, and not under his or her jurisdiction, then he or she shall contact the Native American Heritage Commission (NAHC), by telephone, within 24 hours. The NAHC will make a determination as to the Most Likely Descendent, who shall be afforded 48 hours from the time access is granted to the discovery site to make recommendations regarding culturally appropriate treatment. If suspected Native American remains are discovered, the remains shall be kept in-situ until after the Medical Examiner makes its determination and notifications, and until after Most Likely Descendent is identified at which time the archaeological examination of the remains shall only occur on-site in the presence of the Most Likely Descendent. The specific locations of Native American burials and reburials will be proprietary and not disclosed to the general public. According to California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). In the event that the project proponent and the Most Likely Descendant are in disagreement regarding the disposition of the remains, State law will apply, and the mediation process will occur with the NAHC. In the event that mediation is not successful, the landowner shall rebury the remains at a location free from future disturbance. (see Public Resources Code Section 5097.98(e) and 5097.94(k)).

Level of Significance

The proposed project would have a less than significant impact related to substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the State CEQA Guidelines with incorporation of project-level mitigation measure MM CUL-1 through MM CUL-4.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.5-5 in the 2005 LRDP EIR concluded that there would be less than significant impacts related to the disturbance of human remains, including those interred outside of formal cemeteries, during construction activities with implementation of PS Land Use 3; PS Open Space 1, 2, and 5; PS Conservation 1 and 2; and PP 4.5-5. As discussed in the 2005 LRDP EIR, no formal cemeteries are known to have occupied the UCR campus, so any human remains encountered would likely come from archaeological or historical archaeological contexts. As such, given the presence of archaeological resources on the campus, ground-disturbing activities associated with development could affect unknown human remains, particularly in those areas of the campus that are in a relatively undisturbed condition.

The project site has been previously disturbed and is currently developed with a surface parking area with related landscape and hardscape. Despite previous development, there is always a possibility for encountering unknown human remains.

Human burials, in addition to being potential archaeological resources, have specific provisions for treatment in Section 5097 of the Public Resources Code. In accordance with these requirements, the project incorporates PP 4.5-5 and MM CUL-4, which requires implementation of these provisions if human remains are discovered on campus. Accordingly, the project would result in a less than significant impact related to the disturbance of human remains with incorporation of PP 4.5-5 and MM CUL-4, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

Refer to MM CUL-4 above in threshold V.5.b.

Level of Significance

The proposed project would have a less than significant impact related to the potential disturbance of human remains, including those interred outside of formal cemeteries with incorporation of the PP and MM noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

6. ENERGY

In January 2019, updates to the State CEQA Guidelines were adopted, which included the addition of an Energy section, as addressed in this section.

The following applicable PS and MM were adopted as part of the 2005 LRDP Amendment 2 EIR and are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PS Conservation 5 Continue to adhere to the conservation requirements of Title 24 of the California Code of Regulations and comply with any future conservation goals or programs enacted by the University of California.

MM 4.3-3 To reduce energy consumption and areawide emission of criteria pollutants, the campus shall annually inspect and enforce an emissions control strategy, which may include, where feasible, the following:

Design

- Use light-colored roof materials to reduce heat again
- Orient buildings to the north and include passive solar design features
- Increase building and attic insulation beyond Title 24 requirements
- Provide electric vehicle charging systems at convenient location in campus parking facilities
- Provide prominent website and/or kiosks displaying information about alternative transportation programs
- Install electrical outlets outside buildings for the use of electric landscape maintenance equipment

Operation

- Implement a subsidized vanpool program
- Implement staggered or compressed work schedules to reduce vehicular traffic
- Use alternative fuel shuttle buses to reduce intra-campus vehicle trips
- Provide shuttle service to major off-campus activity centers and Metrolink station(s)
- Aggressive expansion of the campus TDM program to achieve an AVR of 1.5
- Expand transit subsidies to encourage use of public transit
- Implement incentives for telecommuting
- Convert campus fleet to low emission, alternative fuel, and electric vehicles over time
- Implement solar or low-emission water heaters

- Implement an educational program for faculty and staff and distribute information to students and visitors about air pollution problems and solutions

In addition, the following PPs and MM are incorporated into the proposed project and would reduce energy impacts: PP 4.3-1 included under the Air Quality analysis (Section V.3 of this IS/MND) which addresses implementation of a TDM program; PP 4.3-2(a) included under the Air Quality analysis (Section V.3 of this IS/MND) which requires compliance with SCAQMD rules and regulations; and MM 4.3-1(b) included under the Air Quality analysis (Section V.3 of this IS/MND) which requires implementation of Construction Best Practices.

Energy consumption is regulated through federal, State, and local guidelines. On a federal level, the Energy Independence and Security Act of 2007 (*Public Law* 110–140) sets standards for Corporate Average Fuel Economy; Renewable Fuel; appliance energy efficiency; building energy efficiency; and accelerated research and development tasks on renewable energy sources (e.g., solar energy, geothermal energy, and marine and hydrokinetic renewable energy technologies), carbon capture, and sequestration. The State regulations primarily regulate utility companies and ensures the provision of safe, reliable utility service and infrastructure related to electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. Local regulations provide planning programs intended to incentivize efficient energy use for increased sustainability and affordability.

UCR has committed to sustainability throughout the campus through a number of programs designed to promote energy efficiency, alternative energy, smart procurement, and clean energy research.

Development of the proposed project would involve the consumption of gasoline and diesel fuel from off-road construction equipment and on-road vehicle sources such as vendor trucks, haul trucks, and worker trips. During operation, vehicles entering and exiting the project site would use transportation fuels. It is anticipated that the proposed SHCC building is not a use that would generate additional trips beyond what was analyzed in the 2005 LRDP Amendment 2 EIR. The SHCC building would generate a minimal number of new vehicle trips as a result of a minor increase in the number of employees, which was contemplated in the 2005 LRDP Amendment 2 EIR. In addition, electricity would be used for the SHCC building, for security lighting, for conveyance of water to the building, and for irrigation of landscaped areas. Diesel fuel would be used for testing and operation of the emergency generator. As mandated by State and local laws, the proposed project is required to assess energy consumption during construction and operations.

Construction

Fuel use for both diesel and gasoline are evaluated for the construction phase for off-road equipment, worker commutes, haul trips, and vendor trips. Fuel consumption was estimated based on anticipated construction duration, as well as equipment quantities and types. Construction energy consumption was estimated using a combination of CalEEMod and fuel economy for worker trip vehicles [6].

6 Derived from the U.S. Department of Transportation (U.S. DOT) National Transportation Statistics.

Operation

The operations phase of the proposed project would result in energy consumption for building operations and equipment, security lighting, elevator, HVAC, testing and maintenance of the emergency power generator. Operational phase energy consumption was estimated by modeling the SHCC building's Energy Use Intensity. A slight increase in vehicular trips from minimal increase in staff would occur during operations; however, the overall staff population was captured in the 2005 LRDP Amendment 2 EIR.

Electricity

The Riverside Public Utilities (RPU) currently provides electricity to the UCR campus. The energy is received through a 69-kV line at a substation west of the I-215/SR-60. From this point, the power is reduced to a usable voltage and then distributed to individual buildings and transformers. The existing UCR distribution system has been expanded and renovated in the last decade. The sub-station has been enlarged to accommodate two new transformers and associated outdoor switchgear to provide distribution of power to the campus at 12 kV. Campus 4.16 kV distribution lines and building transformers have been gradually replaced on a selected basis. The City-owned substation is a dual transformer system, with each transformer powered from a different 69 kV utility station. Normally, half of the campus load is served by each transformer through a 12-kV loop distribution system. Should either transformer experience a power failure, the entire campus 12 kV load could be transferred to the transformer remaining in service. For this reason, the capacity of the substation is 25 mega volt amps (MVA) versus the 50 MVA-installed rating of the two transformers.

Natural Gas

UCR currently utilizes natural gas for heating and some cooling needs for research and instructional lab purposes. A high-pressure gas distribution system owned and maintained by SoCalGas provides natural gas to the Central Utility Plant, as well as many individual buildings on campus.

As of June 2019, no new UC buildings or major renovations, except in special circumstances, will use on-site fossil fuel combustion, such as natural gas, for space and water heating. The proposed project would not consume natural gas.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	☒	☐

Discussion

Construction Energy Demand

Construction energy use could be considered wasteful, inefficient, or unnecessary if construction equipment is not well-maintained such that its energy efficiency is substantially lower than newer equipment; if equipment idles when not in use; if construction trips utilize longer routes than necessary; or if excess electricity and water[7] are used during construction activities. Pursuant to the CCR (specifically, Title 13, Section 2485), all diesel-fueled commercial motor vehicles must not idle for more than five consecutive minutes at any location. Mandatory compliance should reduce fuel use by construction vehicles. MM 4.3-1(b) requires construction equipment utilize equipment that complies with Tier 4 final engine standards. Tier 4 final engines are the newest, lowest emitting off-road engines. Fuel efficiency for these engines would not be considered inefficient. Fuel energy consumed during construction would also be temporary in nature, and there are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in other parts of the region or state. Short-term energy usage for construction of the proposed project would result in long-term energy savings from renovated and newly constructed buildings that are compliant with the current Title 24 CBC and goals/strategies adopted by UCR pursuant to PS Conservation 5.

The construction of the project would require the use of construction equipment for demolition, site preparation, grading, paving, and building activities. All off-road construction equipment is assumed to use diesel fuel. Transportation energy use depends on the type and number of trips, vehicle miles traveled, fuel efficiency of vehicles, and travel mode. During construction, transportation energy would be used for the transport and use of construction equipment, from delivery vehicles and haul trucks, and from construction employee vehicles that would use diesel fuel or gasoline. The use of these energy resources fluctuates according to the phase of construction and would be temporary, as construction activities are anticipated to occur over an approximately 18-month period. Table 10 quantifies anticipated energy use during construction activities.

7 Indirect energy use for the extraction, treatment, and conveyance of water.

Table 10 Estimated Fuel Consumption during Construction

Fuel Type	Gallons of Fuel	MMBtu[4]
Diesel Fuel (Construction Equipment)[1]	40,245	5,130
Diesel Fuel (Hauling & Vendor Trips)[2]	4,321	551
Other Petroleum Fuel (Worker Trips)[3]	4,979	392
Total	**49,545**	**6,073**

Source: Appendix A

Notes: Totals may not add up precisely due to rounding.

[1] Fuel demand rate for construction equipment is derived from the total hours of operation, the equipment's horse power, the equipment's load factor, and the equipment's fuel usage per horse power and hour of operation, which are provided in CalEEMod outputs (see Appendix A), and from compression-ignition engine brake-specific fuel consumptions factors (U.S. EPA 2018). Fuel consumed for construction equipment is assumed to be diesel.

[2] Fuel demand rate for hauling and vendor trips (cut material imports) is derived from hauling and vendor trip number, hauling and vendor trip length, and hauling and vendor vehicle class from "Trips and Vehicle Miles Travelled (VMT)" Table contained in Section 3.0, *Construction Detail*, of the CalEEMod results (see Appendix A). The fuel economy for hauling and vendor trip vehicles is derived from the U.S. Department of Transportation (U.S. DOT 2018). Fuel consumed for hauling trucks is assumed to be diesel.

[3] The fuel economy for worker trip vehicles is derived from the U.S. DOT National Transportation Statistics (24 mpg) (U.S. DOT 2018). Fuel consumed for worker trips is assumed to be gasoline.

[4] CaRFG CA-GREET 3.0 fuel specification of 109,772 Btu/gallon used to identify conversion rate for fuel energy consumption for worker trips specified above. Low-sulfur Diesel CA-GREET 3.0 fuel specification of 127,460 Btu/gallon used to identify conversion rate for fuel energy consumption for construction equipment and vendor/hauling trips specified above (CARB 2018).

The construction energy estimates represent a conservative estimate because the construction equipment used in each phase of construction was assumed to be operating every day of construction. According to the California Annual Retail Fuel Outlet Report Results (CEC-A15), retail diesel sales in Riverside County totaled approximately 132 million gallons while retail gasoline sales totaled approximately 1.05 billion gallons in 2018 [California Energy Commission (CEC) 2019]. Therefore, fuel consumption associated with project construction, as shown in Table 10, would account for less than 0.1 percent of annual retail diesel sales and less than 0.1 percent of annual retail gasoline sales in Riverside County.

Based on the above discussion, the proposed project would not involve the inefficient, wasteful, and unnecessary use of energy during construction, and the construction-phase impact related to energy consumption would be less than significant.

Operational Energy Demand

Long-term energy use would be considered inefficient if alternative energy sources are not used when they are feasible/available and if the new buildings are not compliant with building code requirements for energy efficiency. The regulations, plans, and policies adopted for the purpose of maximizing energy efficiency that are directly applicable to the proposed project include (1) California's Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings, and (2) the CalGreen Code. As mandated in the UC Sustainable Practices Policy, all UC projects are required to outperform California's Title 24, Part 6, currently in effect, by 20 percent. The proposed project would be developed in compliance with these regulations, plans, and policies.

Electrical service would be supplied from the campus normal power distribution system (12 kV) until the installation of photovoltaic panels. The SHCC building would be designed to be "solar-ready," where future photovoltaic panels could be located on the exterior for optimal sun rays. Operation of

the project would increase area energy demand from greater electricity consumption at a site currently used as a surface parking lot. Electricity would be used for the SHCC building operations, elevator system, security and outdoor lighting in and around the SHCC building, any potential relocation of pole lighting in the parking area, and electricity to power electric vehicles that would park on site. The project may provide EV-ready stalls and EV-ready stations in the parking area.

The SHCC building would be constructed to exceed the latest CBC Title 24 energy efficiency standards by 20 percent and would have an Energy Use Intensity (energy use per square foot per year) of approximately 33 KBtu with no onsite combustion. The SHCC building would be approximately 50,000 gsf; therefore, its annual energy use would be 1,650,000 KBtu, or approximately 483,567 kilowatt hours per year (kWh/yr) until solar panels are installed. After the installation of solar panels, the project would generate power to offset a portion, or potentially all, of its energy use. Energy use associated with the proposed project would not be considered inefficient, wasteful, or unnecessary.

The project would have daily operational energy demand associated with fossil fuels consumed for vehicle trips, operational activities, maintenance activities, and safety inspections. As the SHCC building would be substantially staffed and maintained by existing faculty and personnel, the project would not result in a material increase in gasoline or diesel fuel consumption during operation beyond existing conditions.

The *UC Policy on Sustainable Practices* includes three main criteria to reduce energy use and reliance on fossil fuels and increase reliance on renewable energy sources. Criterion 1 strives to reduce energy use by 20 percent over the 2016 Building Standards for new construction projects. Depending on when the building permit for this project is issued, the project would be subject to either the 2019 Building Standards or the reductions in energy usage guidance within the *UC Policy*. Regardless, the proposed project would be consistent with Criterion 1 and result in a decrease in the overall per capita energy consumption by implementing energy efficiency associated with the project.

Criterion 2 addresses decreasing reliance on fossil fuels such as coal, natural gas, and oil, and Criterion 3 addresses increasing reliance on renewable energy sources. Development of the proposed project is guided by the *UC Policy on Sustainable Practices,* and overall goals to achieve carbon neutrality, which include UCR transportation emission reduction strategies (increase access to alternative modes of transportation, such as accommodations for electric vehicles, incentives for carpools, educational materials, and bicycle and pedestrian facilities), solar carports, thermal energy storage, solar farm, and other non-fossil fuel sources of energy. Increases in energy efficiency for buildings and water and solid waste conservation efforts would result in reductions in energy consumption. Implementation of these measures to reduce energy consumption for transportation, building energy usage, water consumption, and solid waste generation would directly reduce reliance on fossil fuel usage, which is used to generate electricity and meet heating needs. This reduction in fossil fuel reliance is consistent with Criterion 2.

In summary, the proposed project is consistent with the 2005 LRDP. The project would also develop an energy efficient building that exceeds the requirements of the State of California's Title 24 energy efficiency standards, pursuant to PS Conservation 5. In addition, the LRDP has PPs as well as MM which include PP 4.3-1 (TDM program), PP 4.3-2(a) (Construction Best Practices), MM 4.3-3 (Energy Consumption) which promote energy efficiency. As such, the project would not result in significant impacts related to inefficient, wasteful, or unnecessary consumption of energy.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts related to wasteful or unnecessary energy consumption with the incorporation of the PS, PPs and MM noted above and would result in a less than significant impact with regards to energy consumption.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒	☐

Discussion

Consistency with Statewide, Regional, and Local Policies

As discussed above, strategies and measures have been implemented at the State level with the California's Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings and the CalGreen Code.

All newly constructed buildings would be developed in compliance with (and exceed) Title 24 Energy Efficiency Standards and the CalGreen Code, and UCR would incorporate other green building strategies as part of their Sustainable Practices Policy in new development including energy consumption reduction targets and water use reduction, pursuant to PS Conservation 5. The proposed project would achieve a minimum LEED Silver v4 rating designation by the Green Business Certification, Inc. (GBCI). The proposed project would not impede the policies described in CARB's Scoping Plan Update, or others, that will help achieve established goals.

Consistency with the UCR Sustainability Policies and Measures

As discussed previously, the proposed project is part of the UCR campus which has established numerous sustainability programs. These programs include, but not limited to, the Green Lab, Green Campus Action Plan, Sustainable Practices Policy, green procurement, carbon neutrality, and Sustainable Integrated Grid Initiative. Energy consumption related to the project would occur in the context of these programs and the LRDP. The LRDP stated that future development of the campus under the amended 2005 LRDP would comply with the University policy on sustainability, as well as any future conservation goals or programs enacted by the UC. For all of these reasons, implementation of the 2005 LRDP as amended would not encourage the wasteful or inefficient use of energy, and this impact would be less than significant. The proposed project would likewise be consistent with the energy conservation goals and programs established by the UC. The LRDP has PPs as well as MMs which include PP 4.3-1 (TDM program), PP 4.3-2(a) (Construction Best Practices), and MM 4.3-3 (Energy Consumption) which promote energy efficiency. Consequently, the project

would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. The impact would be less than significant.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency with incorporation of the PPs and MM noted above. Impacts would be less than significant.

7. GEOLOGY AND SOILS

The analysis of geology and soils is tiered from the 2005 LRDP EIR and was addressed in Section 4.6, Geology and Soils, of that document. Relevant elements of the proposed project related to geology and soils include earthmoving activities to accommodate the required removal and preparation of the underlying soils for the construction of the SHCC building, the reconfiguration of the surface parking, improvements to driveways from W. Linden Street and the access road, connections to pedestrian pathways, and the installation of associated utility and irrigation systems.

Information in this section is primarily based on the Geology and Soils Report prepared for the proposed project by Twining and is provided in Appendix B (Twining 2019).

The following applicable PPs are incorporated as part of the proposed project and are assumed in the analysis presented in this section.

PP 4.5-4 Construction specifications shall require that if a paleontological resource is uncovered during construction activities:

i. A qualified paleontologist shall determine the significance of the find.
ii. The Campus shall make an effort to preserve the find intact through feasible project design measures.
iii. If it cannot be preserved intact, then the University shall retain a qualified non-University paleontologist to design and implement a treatment plan to document and evaluate the data and/or preserve appropriate scientific samples.
iv. The paleontologist shall prepare a report of the results of the study, following accepted professional practice.
v. Copies of the report shall be submitted to the University and the Riverside County Museum.

PP 4.6-1(a) During project-specific building design, a site-specific geotechnical study shall be conducted under the direct supervision of a California Registered Engineering Geologist or licensed geotechnical engineer to assess seismic, geological, soil, and groundwater conditions at each construction site and develop recommendations to prevent or abate any identified hazards. The study shall follow applicable recommendations of California Division of Mines and Geology (CDMG) Special Publication 117 and shall include, but not necessarily be limited to:

- Determination of the locations of any suspected fault traces and anticipated ground acceleration at the building site.
- Potential for displacement cause by seismically inducted shaking, fault/ground surface rupture, liquefaction, differential soil settlement, expansive and compressible soils, landsliding, or other earth movements or soil constraints.
- Evaluation of depth to groundwater.

The structure engineer shall incorporate the recommendations made by the geotechnical report when designing building foundations.

PP 4.6-1(c) The Campus will continue to fully comply with the University of California's Policy for Seismic Safety, as amended. The intent of this policy is to ensure that

the design and construction of new buildings and other facilities shall, at a minimum, comply with seismic provisions of the California Code of Regulations, Title 24, California Administrative Code, the California State Building Code, or local seismic requirements, whichever requirements are most stringent.

PP 4.6-2(a) The Campus shall continue to implement dust control measures consistent with SCAQMD Rule 403 – Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Individual measures shall be specific in construction documents and require implementation by construction contractor.

i. Apply water and/or approved nontoxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days).

ii. Replace ground cover in disturbed areas as quickly as possible.

iii. Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content.

iv. Water active grading sites at least twice daily.

v. Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hours over a 30-minute period.

vi. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code.

vii. Sweep streets at the end of the day if visible soil material is carried over to adjacent roads.

viii. Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.

ix. Apply water three times daily or chemical soil stabilizers according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces.

x. Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved roads.

(This is identical to Air Quality PP 4.3-2[b] and Hydrology PP 4.8-3[c].)

PP 4.6-2(b) In compliance with NPDES, the campus would continue to implement Best Management Practices, as identified in the UCR Stormwater Management Plan (UCR 2003):

i. Public education and outreach on stormwater projects.

ii. Public involvement/participation.

iii. Illicit discharge detection and elimination.

iv. Pollution prevention/good housekeeping for facilities.

v. Post-construction stormwater management in new development and redevelopment.

(This is identical to Biological Resources PP 4.4-2[b] and Hydrology PP 4.8-3[d].)

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project 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?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.6-1 in the 2005 LRDP EIR determined that, with implementation of PS Open Space 1 and 2, PS Conservation 2, and PPs 4.6-1(a) through 4.6-1(c), there would be less than significant impacts related to fault rupture, strong seismic shaking, or seismic-related hazards.

In accordance with PP 4.6-1(a), and as identified previously, a site-specific study has been prepared for the proposed project, and the associated geotechnical recommendations would be incorporated into the building design.

A subsurface investigation was conducted on the project site which included the drilling, testing, sampling, and logging of eight borings and percolation testing in one of the borings. The borings were excavated to evaluate the general characteristics of the subsurface conditions on the site including classification of site soils, determination of depth to groundwater, and to obtain representative soil samples. Testing was performed to provide estimates of infiltration rate of the site soils for use in preliminary design of the proposed stormwater infiltration system for the project. The investigation determined that footings for the SHCC building can be directly supported

on competent native granular soils. On-site granular soils are considered suitable for use as engineered fill for foundations and all on-site soils are suitable for use as general fill (Twining 2019).

The earth materials on the site are primarily comprised of medium dense to very dense silty and clayey sand and poorly graded sand with silt except that approximately four to five feet of sandy lean clay was encountered in two borings. Some gravels were encountered in the alluvial fan deposits. No groundwater was encountered in the current subsurface investigation up to approximately 51 feet below ground surface. Based on a review of the Riverside County Liquefaction Map, the historically high groundwater level at the project site could be more than 100 feet below ground surface (Twining 2019).

Fault Rupture

The project site is not located within an Earthquake Fault Zone, as delineated on the California Department of Conservation Alquist-Priolo Earthquake Fault Zoning Map (DOC 2019). The project is located approximately 4.8 miles southwest of the San Bernardino section of the San Jacinto Fault Zone. Based on geologic reconnaissance and given that the project site is not located on an active fault, it was determined that the probability of damage from surface fault rupture is considered to be low.

Although the project site is not located within an active fault, the project site is located in a seismically active area, as is the majority of southern California. As concluded for the UCR campus in the 2005 LRDP EIR, the project area is within a seismically active area and moderate to strong seismic shaking caused by an earthquake on any of the active or potentially active nearby local and regional faults (refer to Figure 4.6-2, Regional Fault Map, of the 2005 LRDP EIR) can be expected during the lifetime of the project. Proper engineering design and construction in conformance with the CBC standards and project-specific geotechnical recommendations would ensure that seismic ground shaking would be reduced to less than significant levels. The project would incorporate PP 4.6-1(c) to comply with the UC's Policy for Seismic Safety, which requires compliance with CCR, Title 24, California Administrative Code, the CBC, or local seismic requirements. Design and construction of the proposed SHCC would also comply with American Society of Civil Engineers 7-10, *Minimum Design Loads for Buildings and Other Structures*, and American Concrete Institute 318-11, *Building Code Requirements for Structural Concrete*.

Therefore, implementation of the project would not expose people and/or structures to potentially substantial adverse effects resulting from ruptures of a known earthquake fault with incorporation of PP 4.6-1(c), as addressed in the 2005 LRDP EIR.

Strong Seismic Shaking

As previously mentioned, the project area is within a seismically active area and moderate to strong seismic shaking caused by an earthquake on any of the active or potentially active nearby local and regional faults (refer to Figure 4.6-2, Regional Fault Map, of the 2005 LRDP EIR) can be expected during the lifetime of the project.

According to the geotechnical report, the seismic soil parameters had a site class definition of D, stiff soil, based on the American Society of Civil Engineers (ASCE) and CBC classification system. The geotechnical report concluded that the proposed development would be feasible from a geotechnical standpoint, provided that the recommended seismic design parameters in the report were incorporated into design plans and implemented during construction. The parameters were developed in accordance with CBC and ASCE 2010 standards considering the site-specific soil

conditions (Twining 2019). The project would incorporate PP 4.6-1(c) to fully comply with the *University of California's Policy for Seismic Safety*, which directs compliance with CCR, Title 24, California Administrative Code, the California State Building Code, or local seismic requirements. Proper engineering design and construction in conformance with the CBC standards and project-specific geotechnical recommendations would ensure that seismic ground shaking would be reduced to less than significant levels. Therefore, implementation of the project would not expose people and/or structures to potentially substantial adverse effects resulting from strong seismic ground shaking with incorporation of PP 4.6-1(c), as addressed in the 2005 LRDP EIR.

Seismic Related Shaking

As indicated in the 2005 LRDP EIR, liquefaction is a phenomenon where loose, saturated, non-cohesive soils such as silts, sands, and gravels undergo a sudden loss of strength during earthquake shaking. These soils may acquire a high degree of mobility and lead to structurally damaging deformations. Liquefaction begins below the water table, but after liquefaction has developed, the groundwater table will rise and cause the overlying soil to mobilize. Liquefaction typically occurs in areas where groundwater is less than 50 feet from the surface and where the soils are composed of poorly consolidated fine- to medium-grained sand. In addition to the necessary soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to initiate liquefaction.

The analysis of Impact 4.6-1 in the 2005 LRDP EIR determined that, with implementation of PS Open Space 1 and 2, PS Conservation 2, and PPs 4.6-1(a) through 4.6-1(c), there would be less than significant impacts related to fault rupture, strong seismic shaking, or seismic-related hazards.

According to the geotechnical report for the project site, the site is located in an area mapped as having low susceptibility for liquefaction. No groundwater was encountered in the subsurface investigation up to approximately 51 feet below ground surface and is likely to be located a depth deeper than 100 feet below ground surface (Twining 2019). Therefore, implementation of the project would not expose people and/or structures to potentially substantial adverse effects resulting from seismic-related ground failure, including liquefaction, as addressed in the 2005 LRDP EIR.

Landslides

California Geological Survey (CGS) has produced numerous maps that show landslide features and delineate potential slope-stability problem areas. Based on the CGS Information Warehouse, the project site lies in an area with no landslide reports or maps (DOC 2015).

According to the geotechnical report prepared by Twining, the project site is relatively level, and the project would not create slopes. Therefore, implementation of the project would not expose people and/or structures to potentially substantial adverse effects resulting from landslides, as addressed in the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact with related to the risk of loss, injury, or death involving fault rupture, strong seismic shaking, or seismic-related hazards. Impacts

would be less than significant with compliance with the above-mentioned PP and compliance with the CBC. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.6-2 in the 2005 LRDP EIR concluded that there would be less than significant impacts related to soil erosion and loss of topsoil with implementation of PS Land Use 2 and 3, PS Open Space 1 through 5, PS Conservation 1 through 3, PP 4.6-2(a), and PP 4.6-2(b).

Soil erosion from water or wind can occur to exposed soils during site clearance, excavation/grading activities, and other earth-disturbing activities associated with construction, including vegetation and hardscape removal. Erosion hazards in most of the East Campus, including the project area, range from slight to moderate. Construction activities associated with the proposed project would comply with all provisions of the current CBC related to excavation activities, grading activities, erosion control, and construction of foundations to minimize or eliminate soil erosion or loss of topsoil.

The proposed project would also minimize or eliminate soil erosion during construction activities through implementation of dust-control measures consistent with SCAQMD Rule 403 (PP 4.6-2[a]) and implement BMPs, in compliance with the National Pollutant Discharge Elimination System (NPDES) permit (PP 4.6-2[b]) (refer to the discussion provided in Section V.10, Hydrology and Water Quality, of this IS/MND). When these dust-control measures and construction BMPs are applied, they significantly reduce the erosion potential of project construction to negligible amounts.

The project would also comply with PP 4.6-1(a) of the 2005 LRDP EIR, which states that a site-specific geotechnical study shall be conducted under the direct supervision of a California Registered Engineering Geologist or licensed geotechnical engineer to assess seismic, geological, soil, and groundwater conditions at each construction site and develop recommendations to prevent or abate any identified hazards. The geotechnical report prepared by Twining provides the following recommendations which would be implemented in conjunction with project design and development:

- Site soils should be further evaluated for collapse potential.
- Epoxy or asphalt coatings for metal in contact with site soils should be considered.
- Concrete in contact with the site soils will have a sulfate exposure class S0. As a minimum, Type I or II cement and a water-cement ratio of no greater than 0.50 should be used on the project.
- Site preparation should begin with the removal of utility lines, asphalt, concrete, vegetation, and other deleterious debris from areas to be graded. Tree stumps and roots should be removed to such a depth that organic material is not present. Clearing and grubbing should extend to the outside edges of the proposed excavation and fill areas. Unsuitable materials such as organic

matter or oversized material be removed and disposed offsite. The debris and unsuitable material generated during clearing and grubbing should be removed from areas to be graded and disposed at a legal dump site away from the project area.

- Where space is available, temporary, un-surcharged excavation sides over four feet in height should be sloped no steeper than an inclination of 1:1 horizontal/vertical (h:v). Where sloped excavations are created, the tops of the excavation sides should be barricaded so that vehicles and storage loads are away from the top edge of the excavated slopes with a distance at least equal to the height of the slopes. A greater setback may be necessary when considering heavy vehicles, such as concrete trucks and cranes. If the temporary construction slopes are to be maintained during the rainy season, berms are recommended to be graded along the tops of the slopes in order to prevent runoff water from entering the excavation and eroding the slope faces.
- Excavations shall not undermine existing adjacent footings. Excavations for the proposed improvements should not encroach within a 1h:1v plane projected from the top edge of any existing at-grade or below-grade existing facilities including foundations of existing structures, trenches, underground pipelines. Where space for sloped excavations is not available, slot-cut or temporary shoring implemented to maintain foundation support of the adjacent facilities.
- Undocumented fill, if encountered during construction, should be removed to its full depth. If there is a cut/fill transition across the building pad, the pad should be over-excavated and recompacted a minimum of three feet below the bottom of footings to create a blanket of similar fill under the pad.
- For minor structures and slabs-on-grade that are structurally separated from the building, the excavation should extend at least two feet below the finished grade or at least one foot below the bottom of the footing of the minor structures and slabs-on-grade, whichever is greater. Excavation for pavements and hardscape should be over-excavated at least one foot as measured from the bottom of the pavement or hardscape section.
- Laterally, excavation should extend beyond the foundation limits a minimum distance equal to two feet or the depth of excavation, whichever is greater. Excavation for other improvements (e.g., concrete walkways, flatwork, pavement) should extend laterally at least two feet beyond the limits of the improvements.
- The exposed excavation bottom should be evaluated by the geotechnical consultant and should then be scarified to a minimum depth of six inches and moisture conditioned to achieve generally consistent moisture contents approximately two percent above the optimum moisture content. The scarified bottom should be compacted to at least 90 percent relative compaction.
- Should excavations expose soft or soils considered as unsuitable for use as fill by the geotechnical consultant, additional removals may be recommended. For example, deeper removal may be required in areas where soft, saturated, or organic materials are encountered.
- All fill soils should be free of organics, debris, rocks or lumps over three inches in largest dimension, other deleterious material, and not more than 40 percent larger than ¾ inch. Larger chunks, if generated during excavation, may be broken into acceptably sized pieces or may be disposed offsite. Any imported fill material should consist of granular soil having a “very low” expansion potential (i.e., expansion index of 20 or less). Import material should also have low corrosion potential (chloride content less than 500 parts per million (ppm), soluble sulfate content of less than 0.1 percent, and pH of 5.5 or higher).
- Compacted fill should be placed in horizontal lifts of approximately eight to 10 inches in loose thickness, depending on the equipment used. Prior to compaction, each lift should be moisture

conditioned, mixed, and then compacted by mechanical methods. The moisture content should be approximately two percent above the optimum moisture content. Fill materials should be compacted to a minimum relative compaction of 95 percent within the upper one foot below new vehicle trafficked pavement sections, and 90 percent in all other areas.

- Utility trench excavations to receive backfill shall be free of trash, debris or other unsatisfactory materials at the time of backfill placement. At locations where the trench bottom is yielding or otherwise unstable, pipe support may be improved by placing 12 inches of ¾-inch crushed rock as defined in Section 200-1.2 of the "Greenbook" Standard Specifications for Public Works Construction (SSPWC). Remedial earthwork at the trench bottom should be performed where oversize materials (rocks or clods greater than three inches) are present. Removal of oversize materials to a depth of six inches below the bottom of the pipeline and replacement with fill compacted to at least 90 percent relative compaction is recommended. Alternatively, 0.75-inch crushed rock may be used.
- The trench should be bedded with clean sand extending to at least one foot over the top of pipe. Pipe bedding as specified in SSPWC can be used. Bedding material should consist of clean sand having a sand equivalent (SE) of 30 or greater. Alternative materials meeting the intent of the bedding specifications are also acceptable. Samples of materials proposed for use as bedding should be provided to the engineer for inspection and testing before the material is imported for use on the project. The onsite materials can only be used following the requirement of "Greenbook" bedding specification when the SE is not less than 30. The pipe bedding material should be placed over the full width of the trench. After placement of the pipe, the bedding should be brought up uniformly on both sides of the pipe to reduce the potential for unbalanced loads. No void or uncompacted areas should be left beneath the pipe haunches. Jetting or flooding of pipe bedding and backfill material is not recommended.
- Lateral loads may be resisted by footing base friction and by the passive resistance of the soils based on recommendations provided in Table 2 of the geotechnical report prepared for the project (Appendix B).
- Slabs should be supported on non-expansive engineered fill in accordance with the geotechnical report prepared for the project (Appendix B). The topmost eight inches below the slab subgrade should be maintained in a moisture condition of approximately zero to two percent above optimum moisture content. The slab subgrade should be tested for moisture and compaction immediately prior to placement of the gravel or sand base, if any. All underslab materials should be adequately compacted prior to the placement of concrete. Care should be taken during placement of the concrete to prevent displacement of the underslab materials. The underslab material should be dry or damp and should not be saturated prior to the placement of concrete. The concrete slab should be allowed to cure properly and should be tested for moisture transmission prior to placing vinyl or other moisture-sensitive floor covering.
- Retaining walls should be designed to have a factor of safety of 1.5 for static stability and 1.1 for stability due to transient loads from wind or seismic.
- Wall backfill should be adequately drained. Adequate backfill drainage is essential to provide a free-drained backfill condition and to limit hydrostatic buildup behind walls. Drainage behind walls may be provided by a geosynthetic drainage composite such as TerraDrain, MiraDrain, or equivalent, attached to the outside perimeter of the wall and installed in accordance with the manufacturer's recommendations. The drainage system should meet the minimum requirements of Sections 1805.4.2 and 1805.4.3 of 2016 CBC.

- Where wall backfill does not have adequate drainage, the full hydrostatic pressure should be added to the lateral earth pressures provided below in design. Walls that are free to move and rotate at the top (such as cantilevered walls) and have adequate drainage may be designed for the active earth pressure equivalent to a fluid weighting 40 pounds per cubic foot (pcf). Walls that are restricted to move horizontally at the top (such as by a floor deck) and have adequate drainage may be designed for the "at-rest" earth pressure equivalent to a fluid weighing 60 pcf.
- Vertical surcharge loads within a 1:1 plane projected from the bottom of the wall distributed over retained soils should be considered as additional uniform horizontal pressures acting on the wall. These additional pressures can be estimated as approximately 33 percent and 50 percent of the magnitude of the vertical surcharge pressures for the "active" and "at-rest" conditions, respectively.
- Walls retaining more than six feet high earth should be designed for seismic lateral earth pressure. The seismic pressure distribution may be considered a triangle with the maximum pressure at the bottom. The combination of static and incremental seismic pressures shown in the following diagram may be used for seismic design for both cantilever and restrained walls.
- Pavement section should be constructed on top of properly prepared subgrade in accordance with the geotechnical report prepared for the project (Appendix B) and aggregate base section compacted to 95 percent of the maximum dry density.
- Positive drainage should be provided away from all pavement areas to prevent seepage of surface and/or subsurface water into the pavement base and/or subgrade. Final design of rigid pavement should be performed by the project engineer based on anticipated traffic, geotechnical field observations, and additional R-value tests during construction.
- The proposed stormwater infiltration facility should have a minimum setback from property lines and foundations recommended in Table 7 of the geotechnical report prepared for the project (Appendix B). In addition, the bottom of the infiltration facility should be at least 10 feet above the seasonal high groundwater.
- Surface water should be controlled so that conditions of uniform moisture are maintained beneath the improvements, even during periods of heavy rainfall.
    - Ponding and areas of low flow gradients should be avoided.
    - If bare soil within five feet of the structure is not avoidable, then a gradient of five percent or more should be provided sloping away from the improvement. Corresponding paved surfaces should be provided with a gradient of at least one percent.
    - The remainder of the unpaved areas should be provided with a drainage gradient of at least two percent.
    - Positive drainage devices, such as graded swales, paved ditches, and/or catch basins should be employed to accumulate and to convey water to appropriate discharge points.
    - Concrete walks and flatwork should not obstruct the free flow of surface water.
    - Brick flatwork should be sealed by mortar or be placed over an impermeable membrane.
    - Area drains should be recessed below grade to allow free flow of water into the basin.
    - Enclosed raised planters should be sealed at the bottom and provided with an ample flow gradient to a drainage device. Recessed planters and landscaped areas should be provided with area inlet and subsurface drainpipes.

  - Planters should not be located adjacent to the structures wherever possible. If planters are to be located adjacent to the structures, the planters should be positively sealed, should incorporate a subdrain, and should be provided with free discharge capacity to a drainage device.
  - Planting areas at grade should be provided with positive drainage. Wherever possible, the grade of exposed soil areas should be established above adjacent paved grades. Drainage devices and curbing should be provided to prevent runoff from adjacent pavement or walks into planted areas.
  - Gutter and downspout systems should be provided to capture discharge from roof areas.
  - The accumulated roof water should be conveyed to off-site disposal areas by a pipe or concrete swale system.
- Construction observation and testing should also be performed by the geotechnical consultant during future grading, excavations, backfill of utility trenches, preparation of pavement subgrade and placement of aggregate base, foundation or retaining wall construction or when an unusual soil condition is encountered at the site. Grading plans, foundation plans, and final project drawings should be reviewed prior to construction.
- Preconstruction surveys be performed on the adjacent improvements prior to commencement of excavation activities for the project.

Based on the above discussion, the project would result in less than significant impacts related to soil erosion or loss of topsoil with incorporation of the above recommendations and PP 4.6-1(a), PP 4.6-2(a) and PP 4.6-2(b), consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts related to soil erosion and loss of topsoil with incorporation of the PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐	☐
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?	☐	☒	☐	☐	☐

Discussion

The analysis of Impacts 4.6-3 and 4.6-4 in the 2005 LRDP EIR determined that, with implementation of PS Open Space 1 and 2, PS Conservation 2, and PP 4.6-1(a), there would be less than significant impacts related to unstable geological materials, including expansive soils.

No groundwater was encountered in the subsurface investigation up to approximately 51 feet below ground surface and is likely to be located deeper than 100 feet below ground surface (Twining 2019). Due to the absence of groundwater in the upper 51 feet, the potential for liquefaction or lateral spreading on site are considered low (Twining 2019). Additionally, Twining concluded that the project site is relatively even and does not contain steep slopes, and the project would not create slopes.

As required by PP 4.6-1(a), the geotechnical recommendations outlined in the geotechnical investigation for the proposed project (i.e., general recommendations and recommendations related to expansive and corrosive soils, earthwork and site preparation, foundations, concrete slabs, subgrade preparation for concrete slabs, retaining walls, drainage control, flexible and rigid pavement design, and stormwater quality control measures) would be incorporated into the building design. Therefore, with the proposed project's incorporation of PP 4.6-1(a), there would be less than significant impacts related to unstable and expansive soils, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts associated with unstable and expansive soils with incorporation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐	☐

Discussion

Through the IS process for the 2005 LRDP EIR, implementation of the 2005 LRDP was determined to have no impact related to soils constraints for alternative wastewater disposal systems and was not carried forward for further discussion in the Draft EIR. As indicated in the 2005 LRDP EIR, the campus is served by the municipal sewer system and does not require the use of septic tanks or alternative wastewater disposal systems. Therefore, there would be no impact related to the use of septic tanks or alternative wastewater disposal systems resulting from implementation of the project, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to 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. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.5-4 in the 2005 LRDP EIR concluded that there would be less than significant impacts related to paleontological resources during construction activities with implementation of PS Land Use 3; PS Open Space 1, 2, and 5; and PP 4.5-4. As discussed in the 2005 LRDP EIR, the rock and sediment types that underlie the campus are unlikely to be fossil-bearing. However, while the likelihood of encountering paleontological resources is low, the potential for discovery of previously unknown paleontological resources cannot be eliminated. Therefore, there is a potential to encounter unknown paleontological resources because the proposed project

involves excavation activities. The proposed project incorporates PP 4.5-4, which outlines the necessary steps to take in the event paleontological resources are uncovered during construction activities. Accordingly, the project would result in a less than significant impact to paleontological resources with incorporation of PP 4.5-4, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts to paleontological resources or unique geologic features with implementation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

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8. GREENHOUSE GAS EMISSIONS

The analysis of GHG emissions is tiered from the 2005 LRDP Amendment 2 EIR and was addressed in Section 4.16, Greenhouse Gas Emissions, of that document. Relevant elements of the proposed project related GHG include the demolition of the existing landscape and hardscape areas, construction equipment and workers' vehicles during the construction phase of the project, construction and operation of the SHCC building, the reconfiguration of existing surface parking area, improvements to driveways from W. Linden Street and the access road, connections to pedestrian pathways, and associated on-site improvements. It is anticipated that existing UCR staff would assist in the maintenance and operation of the SHCC building, as needed. The proposed project would achieve a minimum LEED Silver v4 rating designation by the GBCI.

Section 4.16 of the 2005 LRDP Amendment 2 EIR discusses the background of GHG emissions and climate change; the types of GHGs; the State, United States, and global GHG contributions; and the regulatory framework related to GHG emissions and their assessment under CEQA. This information remains current and applicable to the analysis of GHG emissions related to the proposed project in this IS/MND. In addition, subsequent regulations have been adopted to reduce GHG emissions statewide since the adoption of the LRDP Amendment 2 in 2011. SB 32 was enacted in 2016 and codified a 2030 GHG emissions reduction goal in Executive Order B-30-15 to reduce emissions 40 percent below 1990 levels. In December 2017, CARB approved California's 2017 Climate Change Scoping Plan, which identifies how the State can reach the 2030 climate target and substantially advance toward the 2050 climate goal to reduce GHG emissions by 80 percent below 1990 levels identified in Executive Order S-3-05 (CARB 2017b). SB 350 was also enacted in 2015 increasing the Renewables Portfolio Standard to 50 percent by 2030 and will double the energy savings required in electricity and natural gas end uses.

The following applicable PSs and MMs were adopted as part of the 2005 LRDP Amendment 2 EIR and are incorporated as part of the project and assumed in the analysis presented in this section.

PS Campus and Community 4	Provide strong connections within the campus and its edges to promote walking, bicycling and transit use, rather than vehicular traffic.
PS Transportation 3	Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off campus bicycle routes.
PS Transportation 5	Provide bicycle parking at convenient locations.
MM 4.14-1(b)	**Travel Demand Management.** To reduce on- and off-campus vehicle trips and resulting impacts, the University will enhance its Transportation Demand Management (TDM) program. TDM strategies will include measures to increase transit and Shuttle use, encourage alternative transportation modes including bicycle transportation, implement parking policies that reduce demand, and other mechanisms that reduce vehicle trips to and from the campus. The University shall monitor the performance of campus TDM strategies through annual surveys.
MM 4.14-1(d)	**Sustainability and Monitoring.** The University shall review individual projects proposed under the amended 2005 LRDP for consistency with UC sustainable transportation policy and UCR TDM strategies to ensure

that bicycle and pedestrian improvements, alternative fuel infrastructure, transit stops, and other project features that promote alternative transportation are incorporated into each project to the extent feasible.

MM 4.16-1 All projects developed under the amended 2005 LRDP shall be evaluated for consistency with the GHG reduction policies of the *UC Policy on Sustainable Practices*, as may be updated from time to time by the University. GHG reduction measures, including, but not limited to, those found within the UC Policy identified in Tables 4.16-9 and 4.16-10 shall be incorporated in all campus projects so that at a minimum an 8 percent reduction in emissions from business as usual (BAU) is achieved. It is expected that the GHG reduction measures will be refined from time to time, especially in light of the evolving regulations and as more information becomes available regarding the effectiveness of specific GHG reduction measures. The Campus will also monitor its progress in reducing GHG emissions to ensure it will attain the established targets.

In addition, the following MM and PS are incorporated into the project and would reduce GHG emissions:

- MM 4.3-2(b) included under the Air Quality analysis (see Section V.3 of this IS/MND) which requires UCR to continue to participate in GHG reduction programs.
- PS Conservation 5 (see Section V.6 of this IS/MND) requiring adherence to Title 24 conservation goals and programs.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.16-1 in the 2005 LRDP Amendment 2 EIR concluded that, although development under the 2005 LRDP Amendment 2 would generate substantial direct and indirect GHG emissions, impacts would be less than significant with implementation of MM 4.16-1. UCR has committed to reduce GHG emissions by over 70 percent by 2020 from business as usual (BAU) projections.

The project would be served by RPU. Therefore, RPU's specific energy intensity factors (i.e., the amount of CO_2, CH_4, and N_2O per kilowatt-hour) are used in the calculations of GHG emissions. The energy intensity factors included in CalEEMod are based on 2007 data by default at which time RPU had only achieved a 20% procurement of renewable energy. Pursuant to SB 100, the statewide Renewable Portfolio Standard (RPS) Program requires electricity providers to increase procurement

from eligible renewable energy sources to 60 percent by 2030. To account for the continuing effects of the RPS, the energy intensity factors included in CalEEMod were reduced based on the percentage of renewables reported by RPU (RPU 2014).

Construction

GHG emissions from the proposed project were calculated using CalEEMod Version 2016.3.2. Construction GHG emissions are generated by vehicle engine exhaust from construction equipment, on-road hauling trucks, vendor trips, and worker commuting trips. Construction assumptions are described in Section V.3, Air Quality, and in Appendix A of this IS/MND. The results are output in metric tons carbon dioxide equivalent ($MTCO_2e$) for each year of construction. The estimated construction GHG emissions for the proposed project are shown in Table 11.

Table 11 Estimated Construction GHG Emissions

Construction Year	Annual Emissions ($MTCO_2e$)
2021	190
2022	281
Total	**471**
Amortized over 30 years	**16**

Notes: Emissions modeling was completed using CalEEMod. See Appendix A for modeling results. Some numbers may not add up precisely due to rounding. Emission data is pulled from "mitigated" results that include compliance with regulations and project design features that would be included in the project. Construction GHG emissions would be minimized in accordance with the LEED Clean Construction innovation credit requirements.

$MTCO_2E$ = metric tons carbon dioxide equivalent.

As shown in Table 11, construction activity for the project would generate an estimated 471 $MTCO_2e$. Since the draft SCAQMD GHG threshold Guidance document released in October 2008[8] recommends that construction emissions be amortized for a project lifetime of 30 years to ensure that GHG reduction measures address construction GHG emissions as part of the operational reduction strategies. Therefore, the total GHG emissions from project construction were amortized and are included in Table 12 below.

Operation

CalEEMod estimates the GHG emissions associated with the operation of the project including:

- Building electricity: electricity used in the SHCC building would be generated from RPU's energy sources until the installation of photovoltaic panels. This analysis is based on electricity use prior to the installation of photovoltaic panels since no timeframe has been specified.
- Security lighting for the building and lighting in the surface parking area would continue to use electricity from the campus grid. Electricity is also indirectly used in water supply, treatment, and distribution, for indoor use, and for irrigation. The default energy usage values used in CalEEMod are based on the CEC sponsored *California Commercial End Use Sur*vey and *Residential Appliance Saturation Survey* studies and reflect 2016 Title 24 improvements (Appendix B of CalEEMod User's Guide). Since the SHCC building would be designed to achieve a

[8] http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-6/ghg-meeting-6-guidance-document-discussion.pdf?sfvrsn=2

minimum 20 percent reduction in energy use over Title 24 requirements, the energy usage value was decreased by that amount in the CalEEMod analysis.

- CalEEMod estimates the annual GHG emissions from diesel fuel consumption for testing of the emergency generator.
- CalEEMod also calculates the GHG emissions associated with the disposal of solid waste into landfills based on default data contained within the model for waste disposal rates, composition, and the characteristics of landfills throughout the state. At least 50% of this waste would be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting, with adherence to UCR goals and policies (a detailed discussion of solid waste disposal is provided in Section V.19, Utilities and Service Systems, of this IS/MND). The default value was decreased in the CalEEMod analysis to reflect UCR goals and policies.

The proposed SHCC building is not a use that would result in campus population growth that wasn't already previously analyzed in the LRDP Amendment 2 EIR; rather, it would accommodate the needs of campus student population who are already residing on campus or commuting to campus. As discussed in Section V.17, *Transportation*, the SHCC building would generate a minimal number of new vehicle trips due to a slight projected increase in the number of employees, but the anticipated minimal increase in staff were assumed as part of the LRDP Amendment 2 EIR. As such, it is anticipated that the project would generate negligible new GHG emissions from vehicles.

The proposed project also incorporates PS Campus and Community 4, PS Conservation 5, PS Transportation 3 and 5, MM 4.3-2(b), MM 4.14-1(b), MM 4.14-1(d), and MM 4.16-1, which relate primarily to UCR implementation of GHG reduction policies and measures, travel demand management, and promoting alternative transportation.

Table 12 combines the construction and operational GHG emissions associated with development of the proposed project. As shown, annual emissions from the proposed project would be approximately 149 $MTCO_2e$.

Table 12 Combined Annual GHG Emissions

Emission Source	Annual Emissions ($MTCO_2e$)
Amortized Construction Emissions	16
Operational	
Area	<0.1
Energy	107
Solid Waste	14
Stationary	10
Water	2
Net Total	**149**

Notes: Emissions modeling was completed using CalEEMod. See Appendix A for modeling results. Some numbers may not add up precisely due to rounding. Emission data is pulled from "mitigated" results that include compliance with regulations and project design features that would be included in the project.

$MTCO_2e$ = metric tons of carbon dioxide equivalent per year.

As discussed in Section 4.16 of the 2005 LRDP Amendment 2 EIR, some air quality management and air pollution control districts in California, including CARB and the SCAQMD, have either proposed or adopted guidance documents for evaluating the significance of GHG emissions. Beginning in April

2008, the SCAQMD convened a Working Group to provide guidance to local lead agencies in determining significance for GHG emissions in their CEQA documents. In September 2010, the SCAQMD Working Group presented a revised tiered approach to determining GHG significance for residential and commercial projects (SCAQMD 2010). These proposals have not yet been considered by the SCAQMD Board. At Tier 1, GHG emissions impacts would be less than significant if the project qualifies under a categorical or statutory CEQA exemption. At Tier 2, for projects that do not meet the Tier 1 criteria, the GHG emissions impact would be less than significant if the project is consistent with a previously adopted GHG reduction plan that meets specific requirements.[9] At Tier 3, the Working Group proposes extending the 10,000 $MTCO_2e$/yr screening threshold currently applicable to industrial projects where the SCAQMD is the lead agency, described above, to other lead agency industrial projects. For residential and commercial projects, the Working Group proposes the following Tier 3 screening values: either (1) a single 3,000-$MTCO_2e$/yr threshold for all land use types or (2) separate thresholds of 3,500 $MTCO_2e$/yr for residential projects, 1,400 $MTCO_2e$/yr for commercial projects, and 3,000 $MTCO_2e$/yr for mixed-use projects. A project with emissions less than the applicable screening value would be considered to have less than significant GHG emissions.

As shown in Table 12, the estimated annual operational GHG emissions for the proposed project with GHG reduction features, including amortized construction emissions, is 149 $MTCO_2e$/yr. This value may be compared with the proposed SCAQMD Tier 3 screening threshold of 3,000 $MTCO_2e$/yr for all land use types. Therefore, the proposed project would generate a less than significant emission rate of GHG emissions based on the SCAQMD threshold. It is therefore concluded that the direct and indirect GHG emissions of the proposed project would not be cumulatively considerable and would result in a less than significant impact with the incorporation of PS Campus and Community 4, PS Conservation 5, PS Transportation 3 and 5, MM 4.3-2(b), MM-4.14-1(b), MM 4.14-1(d), and MM 4.16-1, consistent with the findings in the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to GHG emissions with incorporation of the PSs and MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

[9] The plan must (a) quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area; (b) establish a level, based on substantial evidence, below which the contribution GHG emissions from activities covered by the plan would not be cumulatively considerable; (c) identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area; (d) specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level; (e) establish a mechanism to monitor the plan's progress toward achieving the level and to require an amendment if the plan is not achieving specified levels; and (f) be adopted in a public process following environmental review (State CEQA Guidelines, Section 15183.5).

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.16-2 in the 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP, as amended, would result in a less than significant impact related to conflict with applicable plans, policies, or regulations concerning reductions in GHG emissions. The applicable plans, policies, or regulations pertinent to the project include the *UC Policy on Sustainable Practices Policy* (last issued in July 2019).

The Green Building Design section of the *UC Policy on Sustainable Practices* includes the following goals for new buildings that are applicable to the proposed project.

- All new building projects, other than acute care facilities, shall be designed, constructed, and commissioned to outperform the CBC energy-efficiency standards by at least 20 percent. The University will strive to design, construct, and commission buildings that outperform CBC energy efficiency standards by 30 percent or more, whenever possible within the constraints of program needs and standard budget parameters.[10]

There are multiple policies and regulatory requirements applicable to development on the UCR campus, including the *UC Policy on Sustainable Practices*; AB 32; American College and University Presidents Climate Commitment, to which UCR is a signatory; CEQA; and USEPA reporting requirements. The *UC Policy on Sustainable Practices* establishes the goal for the campus to reduce GHG emissions to 1990 levels by 2020. The project incorporates MM 4.3-2(b), which requires UCR to implement the GHG reduction measures described in the 2005 LRDP Amendment 2 EIR (Tables 4.16-9 and 4.16-10 in Section 4.16); MM 4.14-1(b), which requires UCR's continued implementation and enhancement of its TDM program; MM 4.14-1(d), which requires UCR's review of individual projects for consistency with UC transportation policy and TDM strategies; and MM 4.16-1, which requires UCR's review of individual projects for consistency with the GHG reduction policies of *the UC Policy on Sustainable Practices*. Additionally, implementation of the proposed project would adhere to the conservation requirements of Title 24 of the CCR and comply with any future conservation goals or programs enacted by the UC (PS Conservation 5).

Specifically, the design, construction, and operation of the proposed project would include a series of green building strategies under development, along with mandatory strategies required by the CalGreen Code, and the *UC Policy on Sustainable Practices* to exceed CBC energy efficiency requirements by 20 percent or greater (for new buildings). Additionally, the proposed project would comply with applicable *UC Policy on Sustainable Practices* goals for climate protection, recycling and waste management, and sustainable operations). Based on the above analysis, the proposed project would not conflict with the *UC Policy on Sustainable Practices*. Impacts would be less than significant

[10] The UC Policy also offers an alternative "energy performance target" method.

with incorporation of PS Conservation 5, MM 4.3-2(b), MM 4.14-1(b), MM 4.14-1(d), and MM 4.16-1, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Impacts were considered less than significant with incorporation of PS and MMs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

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9. HAZARDS AND HAZARDOUS MATERIALS

The analysis of hazards and hazardous materials is tiered from the 2005 LRDP EIR and was addressed in Section 4.7, Hazards and Hazardous Materials, of that document. Relevant elements of the proposed project related to hazards and hazardous materials include the removal of existing landscape and hardscape areas, construction of the SHCC building, reconfiguration of existing surface parking area, improvements to driveways from W. Linden Street and the access road, connections to pedestrian pathways, installation of associated utility and irrigation systems, and associated on-site improvements. Chemicals related to medical uses, biohazardous wastes, landscape maintenance chemicals, and cleaning products would continue to be used, consistent with existing campus operations. The design of the proposed project would ensure that emergency access to and around the project area is maintained.

Section 4.7 of the 2005 LRDP EIR provides a detailed description of the hazardous materials and wastes handled and/or generated at UCR and the policies, programs, and practices implemented to manage these materials in compliance with local, State, and federal regulations, as applicable. These include, but are not limited to, the following programs offered by UCR's Environmental Health & Safety (EH&S) Department: Biosafety; Emergency Management; Campus Emergency Response Plan; Environmental Health; Environmental Programs; Hazardous Materials Program; Spill Prevention, Control and Countermeasures Plan; Industrial Hygiene and Safety; Laboratory/Research Safety; and Radiation Safety.

The following applicable PPs were adopted as part of the 2005 LRDP EIR as supplemented and updated by the 2005 LRDP Amendment 2 EIR; they are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PP 4.7-1 The Campus shall continue to implement the current (or equivalent) health and safety plans, programs, and practices related to the use, storage, disposal, or transportation of hazardous materials, including, but not necessarily limited to, the Business Plan, the Broadscope Radioactive Materials License, and the following programs: Biosafety, Emergency Management, Environmental Health, Hazardous Materials, Industrial Hygiene and Safety, Laboratory/Research Safety, Radiation Safety, and Integrated Waste Management. These programs may be subject to modification as more stringent standards are developed or if the programs are replaced by other programs that incorporate similar health and safety protection measures.

PP 4.7-2 The Campus shall perform hazardous materials surveys on buildings and soils, if applicable, prior to demolition and construction. When remediation is deemed necessary, surveys shall identify all potential hazardous materials within the structure to be demolished, and identify hazardous materials within the structure to be demolished, and identify handling and disposal practices. The Campus shall follow the practices during building demolition to ensure construction worker and public safety.

PP 4.7-7(a) To the extent feasible, the Campus shall maintain at least one unobstructed lane in both directions on campus roadways. At any time only a single lane is available, the Campus shall provide a temporary traffic signal, signal carriers (i.e., flag persons), or other appropriate traffic controls to allow travel in both directions. If

construction activities require the complete closure of a roadway segment, the Campus shall provide appropriate signage indicating alternative routes. *(This is identical to Transportation and Traffic PP 4.14-5.)*

PP 4.7-7(b) To maintain adequate access for emergency vehicles when construction projects would result in roadway closures, Architects & Engineers (formerly the Office of Design and Construction) shall consult with the UCPD, EH&S, and the RFD to disclose roadway closures and identify alternative travel routes. *(This is identical to Transportation and Traffic PP 4.14-8.)*

PP 4.8-10 In the event of an emergency, including catastrophic failure of the California State Water Project pipeline, the campus would implement the Emergency Operations Plan.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐	☐
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?	☐	☒	☐	☐	☐

Discussion

The analysis of Impacts 4.7-1 through 4.7-4 in the 2005 LRDP EIR concluded that, with implementation of PP 4.7-1 through PP 4.7-4 and MM 4.7-4, development under the 2005 LRDP would have a less than significant impact during construction and long-term operations related to public exposure to hazards from (1) the routine transport, use, or disposal of hazardous materials and (2) a reasonably foreseeable upset and accident condition involving the release of hazardous materials.

As defined in the 2005 LRDP EIR, for purposes of this analysis, hazardous materials include inorganic and organic chemicals and products (chemical reagents and reactions) containing such substances as defined by California laws and regulations, radioactive materials, and biohazardous materials.

Construction-Related Hazards

There have been localized areas of soil contamination on campus in connection with leaking underground storage tanks (USTs) in the past; all of the sites on campus have been remediated and properly closed. Additionally, although there is no known contamination associated with the historic use of agricultural teaching and research fields in the West Campus, due to the long-term use of

common agricultural practices, including the application of pesticides, fertilizers, and other agricultural chemicals, the potential exists for residues of agricultural chemicals to be present in the soil in this area. Development of new facilities in the West Campus north of Martin Luther King Boulevard could result in exposure of these residues, if any, to construction workers during construction and campus occupants during operation of the buildings and other facilities. The proposed project is located in the East Campus and would not expose construction workers or building occupants to these potential hazards.

Additionally, construction activities could encounter abandoned pipes, discarded building materials, unknown USTs, or previously unidentified contaminated soil, which could result in the exposure of construction workers or campus occupants to hazardous materials.

The project incorporates PP 4.7-1, which requires compliance with federal, State, and local regulations as well as current (or equivalent) campus plans, programs, and practices related to the use, storage, disposal, and transport of hazardous materials and wastes. Therefore, the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials during construction; there would be a less than significant impact, consistent with the findings of the LRDP EIR.

Operational Hazards

As discussed in Section 4.7 of the 2005 LRDP EIR, implementation of the 2005 LRDP would include development of facilities that use hazardous materials in teaching and research activities; development of such facilities is not included under the proposed project. However, with an increase in on-campus facilities, expansion of maintenance and cleaning services would be required, which would increase the use, handling, storage, and disposal of products routinely used in building maintenance, some of which may contain hazardous materials (Impact 4.7-1). This, in turn, would result in an increase in the amount of hazardous materials that are used, stored, transported, and disposed of and could increase the potential for an accident or accidental release of hazardous materials or wastes (Impact 4.7-3).

As discussed in the 2005 LRDP EIR, transportation of hazardous materials and wastes along any City or State roadway or rail lines within or near the campus is subject to all relevant Caltrans, California Highway Patrol, and California Department of Health Services hazardous materials and wastes transportation regulations, as applicable. Regular inspections of licensed waste transporters are conducted by agencies to ensure compliance with requirements that range from the design of vehicles used to transport wastes to the procedures to be followed in case of spills or leaks during transit.

To minimize risks associated with routine hazardous material use on campus, the project incorporates PP 4.7-1, which requires compliance with federal, State, and local regulations as well as current (or equivalent) campus plans, programs, and practices related to the use, storage, disposal, and transport of hazardous materials and wastes. Modifications of these existing programs and services are made over time to make sure that they continue to keep the campus in compliance with the numerous hazardous materials laws and regulations at all levels of government. EH&S oversees proper transportation and disposal of waste materials on campus.

Project operation may involve wastes typical of medical centers. The SHCC building would store and dispose of chemical materials typically related to medical treatment (e.g. antineoplastic drugs, aerosolized medications) and cleaning, disinfecting, and sterilizing work surfaces and equipment

(e.g., phenolics, quaternary ammonium compounds, bleach, ethylene oxide, and glutaraldehyde) (Centers for Disease Control and Prevention 2017). The SHCC building would also dispose of medical waste, which can contain bodily fluids like blood or other contaminants. Medical waste is generated during testing, diagnosis, immunization, or treatment (e.g. bandages, gloves, discarded sharps like needles or scalpels, swabs, and tissue). Similar to that of existing operations, the SHCC staff will collect medical waste in labeled, red biohazardous bags and store these wastes in a rigid, leak-proof secondary container that is covered and secured on site in accordance with the California Medical Waste Management Act. The wastes will then be picked up by a third-party vendor and transported in accordance with applicable local, State, and federal regulations. UCR is regularly inspected by the Riverside County Environmental Health to ensure compliance with the California Medical Waste Management Act.

Other hazardous materials that may be used as part of the proposed project include landscape maintenance chemicals. Pesticides and herbicides are directly applied to affected areas using methods that follow State and County laws and/or guidelines.

Additionally, the design of the project ensures that emergency access to and around the project area would be maintained. A loading dock for ambulance drop off/pick up would be located on the east or west side of the SHCC building. Emergency vehicle ingress/egress would be provided from W. Linden Street and/or the access road west of the project site.

Operation of the proposed project would comply with applicable federal, State, and local laws and regulations and with the existing UCR programs, practices, and procedures required by PP 4.7-1, identified above. Therefore, the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials during construction and operation; there would be a less than significant impact with incorporation of PP 4.7-1, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to the potential to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials in the environment with incorporation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.7-5 in the 2005 LRDP EIR concluded that, with implementation of PP 4.7-1, development under the 2005 LRDP would have a less than significant impact related to hazardous emissions of handling hazardous materials within a one-quarter mile of a school. The UCR Child Development Center, located south of Watkins Drive, is approximately 0.16 mile north of the project site. There are no K-12 schools within 0.25 mile of the project site.

Project construction may require occasional transport of hazardous materials, including oils, lubricants, paints, or other construction equipment chemicals. Use of such materials would be typical of construction projects and any transport, use, and storage of hazardous materials would be conducted in accordance with all applicable State and federal laws. Project operation may involve wastes typical of medical centers (including medical waste) and occasional use of solvents, paints, oils/fuels, and pesticides/herbicides in small quantities associated with maintenance, cleaning, and upkeep of the SHCC building and pedestrian pathways, lighting, and landscaping areas; however, the use of these materials will be similar to that have the existing health services operations. As previously noted, the SHCC staff will collect medical waste in labeled, red biohazardous bags and store these wastes in a rigid, leak-proof secondary container that is covered and secured on site in accordance with the California Medical Waste Management Act. The wastes will then be picked up by a third-party vendor and transported in accordance with applicable local, State, and federal regulations. UCR is regularly inspected by the Riverside County Environmental Health to ensure compliance with the California Medical Waste Management Act.

Compliance with federal, State, and local regulations as well as current (or equivalent) campus plans, programs, and practices related to the use, storage, disposal, and transport of hazardous materials and wastes, as required by PP 4.7-1, would ensure that risks associated with hazardous emissions or materials would be eliminated or reduced through proper handling techniques, disposal practices, and/or cleanup procedures.

The project would have no impact related to handling hazardous materials within 0.25 mile of a school with incorporation of the PP 4.7-1, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to handling hazardous materials within one-quarter mile of a school with incorporation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.7-6 in the 2005 LRDP EIR concluded that development under the 2005 LRDP would have a less than significant impact related to construction on a site included on the Cortese List, which is compiled pursuant to Section 65962.5 of the California Government Code.

In compliance with PP 4.7-2, multiple databases were checked to determine if the project site is recorded as a contaminated site. The project site is not included in any database of sites compiled pursuant to Section 65962.5 of the California Government Code, referred to as the Cortese List, and collected by the California Environmental Protection Agency. Specifically, the project site is not identified on (1) the California Department of Toxic Substances Control's (DTSC's) Hazardous Waste and Substances Site List, also called EnviroStor; (2) the DTSC's list of hazardous waste facilities where the DTSC has taken or contracted for corrective action because a facility owner/operator has failed to comply with a date for taking corrective action or because DTSC determined that immediate corrective action was necessary to abate an imminent or substantial endangerment; (3) the State Water Resources Control Board's (SWRCB's) Leaking Underground Storage Tank sites, also called GeoTracker; (4) the SWRCB's list of Cease and Desist Orders and Cleanup and Abatement Orders; and (5) the SWRCB's list of solid waste disposal sites with waste constituents above hazardous waste levels outside the waste management unit (DTSC 2020).

The proposed project would incorporate PP 4.7-1, which requires compliance with federal, State, and local regulations as well as current (or equivalent) campus plans, programs, and practices related to the use, storage, disposal, and transport of hazardous materials and wastes, and PP 4.7-2, requiring remediation to remove any hazardous materials from the mainline in accordance with federal, State, and local regulations and in coordination with EH&S. As such, impacts are considered less than significant, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962 and would have less than significant impact with the incorporation of the PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☒	☐	☐	☐

Discussion

Based on the IS prepared for the 2005 LRDP EIR, development under the 2005 LRDP was determined to have no impact related to public use airports or private airstrips and was not carried forward for further discussion in the Draft EIR. Specifically, the UCR campus including the project site is not located within two miles of a public airport or public use airport; it has not been included in an airport land use plan; and it is not located within the vicinity of a private airstrip. Therefore, the proposed project would not result in any impacts from safety hazards associated with airports or airstrips, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impacts related to public use airports or private airstrips. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.7-7 in the 2005 LRDP EIR concluded that, with implementation of PS Land Use 3, PS Open Space 1, PS Open Space 4 through 7, PS Transportation 4, PP 4.7-7(a), PP 4.7-7(b), MM 4.7-7(a), and MM 4.7-7(b), development under the 2005 LRDP would have a less than significant impact related to impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan.

EH&S is responsible for the campus' Emergency Operations Plan (EOP), which is intended to safeguard people, property, research, and other resources from the consequences of natural and

man-made hazards through mitigation, preparedness, response, and recovery. The EOP was last updated in December 2011. Although the City of Riverside does not have a Master Emergency Response Plan prepared specifically for the campus, the campus coordinates with the City during development and update of its EOP to ensure awareness and proper coordination when emergency situations occur on the campus. In the event of an emergency, the proposed project would incorporate PP 4.8-10 by implementing the campus' EOP.

The project would also adhere to the regulations provided by the Office of the State Fire Marshal and the Designated Campus Fire Marshal's (DCFM's) "Fire and Life Safety Inspection Checklist." The SHCC building would be developed with Type 1A fire resistive construction in compliance with the 2019 CBC and would connect to the existing UCR Police dispatch and UCR fire protection with an addressable-point fire alarm system conforming to all State and local codes and remote reporting via auto dialer system. All new fire-related infrastructure, including lanes, hydrant spacing, hydrant types, and flow rates/pressures would be consistent with the provisions set forth by the DCFM.

Multiple emergency access or evacuation routes are provided on campus to ensure that, in the event one roadway or travel lane is temporarily blocked, another may be utilized. Construction of the proposed project may result in temporary lane or roadway closures to on-campus roads, the Dundee-Glasgow Project access road and W. Linden Street. However, construction and operation of the proposed project would be designed to ensure that the EOP is maintained and that emergency access on campus is not impeded, including existing fire lanes near the project area. W. Linden Street would continue to serve as the main emergency access road for the project site. Project design would include emergency access via the ingress/egress from W. Linden Street and/or the access road.

Also, the proposed project would incorporate PP 4.7-7(a), which requires the maintenance of at least one unobstructed lane in both directions on campus roadways, to the extent feasible, and PP 4.7-7(b), which requires consultation between UCR and the UC Police Department (UCPD), Riverside Fire Department, and EH&S to identify alternative travel routes for emergency vehicle access when construction projects result in roadway closures.

Therefore, the project would have a less than significant impact related to implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan with incorporation of PP 4.7-7(a), PP 4.7-7(b) and PP 4.8-10, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to implementation or physical interference with an adopted emergency response plan or emergency evacuation plan, with the implementation of relevant PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.7-8 in the 2005 LRDP EIR concluded that, with implementation of PS Open Space 1, MM 4.7-8(a), and MM 4.7-8(b), development under the 2005 LRDP would have a less than significant impact related to wildfires. The 2005 LRDP EIR identified the campus areas that may be subject to wildland fires, which include the following areas located adjacent to the southeast hills and the Botanic Gardens: the area south of South Campus Drive and areas currently occupied by Parking Lots 13 and 10, east of East Campus Drive. According to the Fire and Resource Assessment Program *Very High Fire Hazard Severity Zones in LRA As Recommended by CAL FIRE* map for the City of Riverside, the site is not located in a VHFHSZ and is located approximately 2,000 feet west of an identified VHFHSZ (CAL FIRE 2007).

The proposed project would be designed and constructed in compliance with applicable requirements of the California Fire Code. Specifically, fire sprinklers, fire alarm systems, fire water connections, emergency lighting, emergency response notification systems, illuminated signage, and panic hardware would be installed as required for the SHCC building. The proposed project would also be consistent with the UCR Physical Design Framework, which recommends the use of native or climate adapted plants or low water requiring plants to prevent wildfires from spreading (UCR 2009).

State and UCR regulations, inspections, and enforcement procedures would reduce risk of loss, injury, or death involving wildland fires, and impacts would be less than significant. Project impacts were adequately addressed in the LRDP EIR. For more discussion of potential impacts related to wildfire, please refer to Section V.20, Wildfire, of this IS/MND.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to exposure of people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. The proposed project impacts were adequately addressed in the LRDP EIR.

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10. HYDROLOGY AND WATER QUALITY

The analysis of hydrology and water quality is primarily tiered from the 2005 LRDP EIR; however, current regulatory information and selected portions of the impact analysis, as indicated, are tiered from the 2005 Amendment 2 EIR. Hydrology and water quality issues are addressed in Section 4.8 of both documents. The analysis of hydrology and water quality is applicable to the project which would involve a small decrease in impervious coverage in the project site. Relevant elements of the project related to hydrology and water quality include the construction of the SHCC with an ambulatory loading area, service loading area, landscape, the installation of associated utility and irrigation systems, and associated site improvements.

The following applicable PPs were adopted as part of the 2005 LRDP Amendment and/or 2005 LRDP Amendment 2 EIR; they are incorporated as part of the project and have been assumed in the analysis presented in this section.

PP 4.8-1 The Campus will continue to comply with all applicable water quality requirements established by the SARWQCB. *(This is identical to Utilities PP 4.15-5.)*

PP 4.8-2(a) To further reduce the campus' impact on domestic water resources, to the extent feasible, UCR will:

i. Install hot water recirculation devices (to reduce water waste).
ii. Continue to require all new construction to comply with applicable State laws requiring water-efficient plumbing fixtures, including but not limited to the Health and Safety Code and Title 24, California Code of Regulations, Part 5 (California Plumbing Code).
iii. Retrofit existing plumbing fixtures that do not meet current standards on a phased basis over time.
iv. Install recovery systems for losses attributable to existing and proposed steam and chilled-water systems.
v. Prohibit using water as a means of cleaning impervious surfaces.
vi. Install water-efficient irrigation equipment to maximize water savings for landscaping and retrofit existing systems over time.

(This is identical to Utilities PP 4.15-1[b].)

PP 4.8-2(b) The Campus shall promptly detect and repair leaks in water and irrigation pipes. *(This is identical to Utilities PP 4.15-1[c].)*

PP 4.8-3(c) The Campus shall continue to implement dust control measures consistent with SCAQMD Rule 403—Fugitive Dust during the construction phases of new project development. The following actions are currently recommended to implement Rule 403 and have been quantified by the SCAQMD as being able to reduce dust generation between 30 and 85 percent depending on the source of the dust generation. The Campus shall implement these measures as necessary to reduce fugitive dust. Individual measures shall be specified in construction documents and require implementation by construction contractor:

i. Apply water and/or approved nontoxic chemical soil stabilizers according to manufacturer's specification to all inactive construction areas (previously graded areas that have been inactive for 10 or more days).
ii. Replace ground cover in disturbed areas as quickly as possible.
iii. Enclose, cover, water twice daily, or apply approved chemical soil binders to exposed piles with 5 percent or greater silt content.
iv. Water active grading sites at least twice daily.
v. Suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour over a 30-minute period.
vi. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (i.e., minimum vertical distance between top of the load and the top of the trailer), in accordance with Section 23114 of the California Vehicle Code.
vii. Sweep streets at the end of the day if visible soil material is carried over to adjacent roads.
viii. Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.
ix. Apply water three times daily or chemical soil stabilizers according to manufacturers' specifications to all unpaved parking or staging areas or unpaved road surfaces.
x. Post and enforce traffic speed limits of 15 miles per hour or less on all unpaved roads.

(This is identical to Air Quality PP 4.3-2[b] and Geology PP 4.6-2[a].)

PP 4.8-3(d) In compliance with NPDES, the campus would continue to implement Best Management Practices, as identified in the UCR Stormwater Management Plan (UCR 2003):

i. Public education and outreach on stormwater projects.
ii. Public involvement/participation.
iii. Illicit discharge detection and elimination.
iv. Pollution prevention/good housekeeping for facilities.
v. Post-construction stormwater management in new development and redevelopment.

(This is identical to Biological Resources PP 4.4-2[b] and PP 4.6-2[b].)

PP 4.8-3(e) Prior to the time of design approval, the Campus will evaluate each specific project to determine if the project runoff would exceed the capacity of the existing storm drain system. If it is found that the capacity would be exceeded, one or more of the following components of the storm drain

system would be implemented to minimize the occurrence of local flooding:

i. Multi-project stormwater detention basins.
ii. Single-project detention basins.
iii. Surface detention design.
iv. Expansion or modification of the existing storm drain system.
v. Installation of necessary outlet control facilities.

Additionally, PS Conservation 2 (included under the Biological Resources analysis, which is Section V.4 of this IS/MND) is included in the proposed project, which requires buildings to minimize site disturbance through reduction of stormwater runoff.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☒	☐	☐	☐
e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒	☐

Discussion

The analysis of Impacts 4.8-1 and 4.8-7 in the 2005 LRDP EIR concluded that, with implementation of PS Conservation 2 and PP 4.8-1, there would be a less than significant impact related to violation of existing water quality standards or waste discharge requirements (WDRs) and degradation of water quality. A detailed discussion of the regulatory setting for water quality is provided in Section 4.8, Hydrology and Water Quality, of the 2005 LRDP Amendment 2 EIR.

All UC facility design and construction projects must comply with all applicable state building code requirements and all applicable state and federal agency regulations. The project would involve construction activities on more than one acre; therefore, the project incorporates PP 4.8-1 and PP 4.8-3(d), which requires compliance with requirements and water quality standards set forth within the current NPDES permit regulations, as described in Section V.7, Geology and Soils, of this IS/MND. The Clean Water Act establishes a framework for regulating potential water quality impacts through the NPDES program.

Phase I of the NPDES Program requires NPDES permits for storm water discharge from a large number of priority sources, including MS4s serving populations of over 100,000; several categories of industrial activity; and construction activity that disturbs one acre or more.

Phase II of the NPDES Program regulates storm water discharges from Small MS4s (such as schools and universities). As part of Phase II, the SWRCB adopted a General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2003-0005-DWQ) to provide permit coverage for smaller municipalities, including non-traditional Small MS4s, which include public campuses. The Phase II Small MS4 General Permit covers Phase II Permittees statewide. On February 5, 2013, the Phase II Small MS4 General Permit was adopted and became effective on July 1, 2013 (WQ Order No. 2013-0001-DWQ). UCR was approved for coverage under the Phase II MS4 permit program, and is required to comply with the requirements of the MS4 permit including:

1. Education and outreach program;
2. Public involvement and participation program;
3. Illicit discharge detection and elimination;
4. Construction site storm water runoff control program;
5. Pollution prevention/good housekeeping for facilities;
6. Post-construction stormwater management program; and
7. Program effectiveness assessment and improvement.

The project site is currently developed with a surface parking lot. It is served by the UCR on-campus drainage system, which connects to local and regional drainage systems. Impermeable surfaces would not appreciably increase with construction of the proposed project.

Construction

Implementation of the proposed project could result in runoff exiting the project site during project construction. Storm water runoff during construction could contain pollutants such as soils and sediments released during grading and excavation activities as well as petroleum-related pollutants due to spills or leaks from heavy equipment and machinery. Other common pollutants that may result from construction activities include solid or liquid chemical spills; concrete and related cutting or curing residues; wastes from paints, stains, sealants, solvents, detergents, glues, acids, lime, plaster, and cleaning agents; and heavy metals from equipment.

The proposed project incorporates PP 4.8-1 and PP 4.8-3(d), which requires compliance with requirements and water quality standards set forth within the current NPDES permit regulations. The SWRCB is authorized by the USEPA to oversee the NPDES program through the Regional Water Quality Control Boards (RWQCBs). The proposed project would be subject to the requirements of the Statewide General NPDES Permits, including the requirement to obtain coverage under the Statewide General NPDES Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (NPDES No. CAS000002, California Water Resources Control Board Resolution No. 2001-046; Modification of Water Quality Order 99-08-DWQ, SWRCB, NPDES, General Permit for Storm Water Discharges Associated with Construction Activity). This permit was revised on September 2, 2009 (Construction General Permit Order 2009-0009-DWQ) and was subsequently amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ. Order No. 2012-0006-DWQ became effective on July 17, 2012. Specifically, the proposed project would require completion and filing of a Permit Registration Document with the SWRCB, which consists of a NOI, Risk Assessment, Site Map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and a signed certification statement. The primary objective of the SWPPP is to identify, construct, implement, and maintain BMPs to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the construction site during construction.

A SWPPP typically includes both source-control and treatment-control BMPs to reduce water quality impacts. The BMPs that are most often used during construction include watering exposed soils; covering stockpiles of soil; installing sandbags to minimize off-site runoff; creating temporary desilting basins; construction vehicle maintenance in staging areas to avoid leaks or spills of fuels, motor oil, coolant, and other hazardous materials; installation of silt fences and erosion control blankets; and timing grading to avoid the rainy season (November through April). In addition, coverage under the Construction Permit would also include implementation of post-construction standards to achieve the pre-project volume and rate of storm water runoff from the project area. The proposed project would meet these standards through installation of active and passive treatment units, as described below under "Operation." The project would also incorporate PP 4.8-3(c), which requires implementation of SCAQMD Rule 403 for management of fugitive dust during construction.

Finally, the proposed project would be required to comply with applicable provisions of the 2019 CBC and 2019 CalGreen Code, which require the reduction of erosion and sedimentation and would further reduce construction-related water quality impacts.

The proposed project is required to comply with all applicable water quality requirements established by the Santa Ana RWQCB and SWRCB. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, the proposed project would be consistent with the Santa Ana Basin Plan, which is the applicable Water Quality Control Plan.

Because the PPs discussed above are included in the proposed project, short-term construction-related water quality impacts would be less than significant, which is consistent with the findings of the UCR 2005 LRDP EIR.

Operation

As discussed under the analysis of Impact 4.8-1 in the 2005 LRDP EIR, the UCR campus is not considered a point source for regulatory purposes and is not subject to WDRs. In addition, no hazardous wastes generated on campus are discharged into the sewer or storm drainage systems. Therefore, the proposed project would not violate WDRs.

Project site design and the requirements of the applicable MS4 permit are intended to protect water quality and support attainment of water quality standards in downstream receiving water bodies. As previously discussed, UCR is a non-traditional permittee under the Phase II MS4 Small statewide general stormwater permit. As such, UCR is required to visually monitor open channels, detention basins and other drainage structures for debris at least once per year and identify/prioritize problem areas and inspect all operations and management BMPs quarterly. UCR must also implement a landscape design and maintenance program to reduce the amount of pesticides, herbicides and fertilizers used on new or decorative landscapes.

Implementation of the project would not increase the vehicle use intensity of Parking Lot 21, which would result in decreased pollutants typical of parking areas, a significant source of chemical contamination to receiving waters. These pollutants are derived from wear of automotive parts (e.g., tires and brake pads), spills and leaks of automotive fluids (e.g., motor oil and coolant), and materials deposited on parking lots from the air (e.g., atmospheric deposition and wind transported pollutants) (Greenstein, et al. 2001).

Impervious coverage in the project site would decrease because of the proposed project; therefore, stormwater runoff would decrease. The constituent pollutants entering the campus and City storm drain systems with proposed project implementation would not substantively change in character

compared to existing conditions on campus, as the proposed facilities are essentially the same as existing facilities on campus. In addition, as required by PP 4.8-1 and PP 4.8-3(d), the proposed project would comply with all applicable water quality requirements, including NPDES Phase I requirements (General Construction Permit), as described above, and Phase II Small MS4 General Permit requirements.

The project would include design features to minimize stormwater runoff and potential flooding. The project would contain features to reduce impacts from stormwater run-off:

- All design would follow UCR Post-Construction Stormwater Management Requirements and Checklist.
- Paving and landscape design would emphasize natural infiltration and evaporation where possible to reduce water run-off during storm events.

These BMPs would slow the velocity of water and allow sediment and debris to settle out of the water column, thereby minimizing the potential for downstream flooding, erosion/siltation, or exceedances of stormwater drainage system capacity.

The water quality treatment would consist of biofiltration basins, proprietary treatment devices, and/or underground storage vaults. The storm drain infrastructure would include area drains, roof drain connections, and piped conveyance of storm water to the water quality treatment basins/devices and connections to the existing storm drain system at the southwest corner of Parking Lot 21. Based on the stormwater treatment BMP used at the adjacent Dundee-Glasgow Project and based on the infiltration rate provided in the Geotechnical Report in Appendix B (Twining 2020), it is anticipated that the project would utilize a system of biofiltration stormwater planters with underdrains.

All storm water runoff from the site and roof of the proposed SHCC building would need to be treated, detained, and infiltrated or reused as necessary to comply with UCR's MS4 permit and the UCR Post-Construction Storm Water Management Requirements. Based on the project site acreage and proposed surface coverage, and the Riverside County LID BMP Design Handbook procedure for Bioretention Design, it is estimated that roughly 2,000 square feet of site area may need to be dedicated to bio retention basins to treat the runoff. Alternatively, proprietary treatment devices may be used.

Therefore, operation of the proposed project would not violate any water quality standards or otherwise substantially degrade water quality. There would be a less than significant impact related to surface water quality with incorporation of PP 4.8-1 and PP 4.8-3(d), consistent with the findings of the LRDP EIR.

Additionally, according to the 2005 LRDP EIR, the UCR campus is located near the southeastern edge of the Riverside-Arlington groundwater Subbasin (Subbasin) and is not designated as a groundwater recharge area. Further, the soils underlying the East Campus and the project site are designated as the least-permeable soil type. Therefore, with the treatment BMPs identified previously and the fact that the underlying soils have a low permeability factor, the project would not result in a significant impact related to a sustainable groundwater management plan. The construction of the proposed project would not substantially interfere with groundwater recharge, consistent with the findings of the LRDP EIR.

Therefore, with incorporation of PP 4.8-1 and PP 4.8-3(d), construction and operation of the project would not violate any water quality standards or waste discharge requirements, nor substantially degrade water quality. Impacts were adequately addressed in the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to violating water quality standards or WDRs, a less than significant impact related to substantially degrading surface or groundwater quality, and would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan with incorporation of the PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.8-2 in the 2005 LRDP EIR concluded that, with implementation of PS Conservation 5 and PP 4.8-2(a) through PP 4.8-2(c), there would be a less than significant impact related to substantial depletion of groundwater supplies or interference with groundwater recharge. The Riverside area is located within the Upper Santa Ana Valley Groundwater Basin, and the campus, including the project site, is located near the southeastern edge of the Subbasin. Groundwater in the Subbasin is replenished by infiltration from Santa Ana River flow; underflow past the Rialto-Colton Fault; intermittent underflow from the Chino Groundwater Subbasin; return irrigation flow; and deep percolation of precipitation.

As discussed in Section V.19, Utilities and Service Systems, of this IS/MND, the proposed project would involve the construction of an approximately 50,000 gsf building that would include sinks and bathrooms. Implementation of the proposed project would use water for landscape irrigation and cleaning of the outside of the building and courtyard. However, landscaping already exists on the project site, and there would not be a substantial increase in landscaping irrigation that would result from construction of the proposed project. It is estimated that building operation would use approximately 98,385 gallons annually and outdoor irrigation would use 284,600 gallons annually, for a combined total of 382,985 gallons of annual water use.

The project would not lead to a substantial increase in water use that would increase demand on groundwater supplies. Additionally, the proposed project would incorporate PP 4.8-2(a), which requires implementation of water conservation measures to reduce potable water consumption, and PP 4.8-2(b), which requires the campus to promptly detect and repair leaks in water and irrigation pipes.

As stated in the 2005 LRDP Amendment 2 EIR, the RPU has indicated that it does not anticipate any problems in providing adequate water supply to remaining and new development on the UCR campus. Therefore, the provision of additional water to the UCR campus, which could include

groundwater, would not require water supplies in excess of existing entitlements and resources or result in the need for new or expanded entitlements. As such, implementation of the project would not substantially deplete groundwater supplies, which is consistent with the findings of the LRDP EIR.

As identified in the 2005 LRDP EIR, the UCR campus is not a designated groundwater recharge area for the Subbasin, nor does the campus serve as a primary source of groundwater recharge within the Subbasin. The soils underlying the East Campus, including the project site, are designated as Class D, which is the least-permeable soil type. Therefore, an increase in the impervious surface area on the project site would not substantially interfere with groundwater recharge. Therefore, there would be a less than significant impact related to groundwater recharge with incorporation of PP 4.8-2(a) and PP 4.8-2(b), which is consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to substantial depletion of groundwater supplies or interference with groundwater recharge such that the project may impede sustainable groundwater management of the basin with incorporation of the PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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 offsite; or	☐	☒	☐	☐	☐
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.	☐	☒	☐	☐	☐

Discussion

The analysis of Impacts 4.8-3 through 4.8-5 in the 2005 LRDP EIR concluded that, with implementation of PS Land Use 2, PS Land Use 3, PS Open Space 1 through 5, PS Conservation 1

through 3, and PP 4.8-3(a) through 4.8(e), there would be a less than significant impact related to alteration of existing drainage patterns and storm drain system capacity.

As described in the 2005 LRDP EIR, the UCR campus is located within two sub-watersheds of the Upper Santa Ana River Watershed, generally divided by the I-215/SR-60 freeways. Most of the East Campus, including the project site, drains into the University Arroyo Watershed. Major storm drainages on campus, including natural drainages, are shown on Figure 4.8-3 of the 2005 LRDP EIR. As shown on Figure 4.8-3 of the 2005 LRDP EIR, there are no natural channels within the project site. The existing site generally drains from northeast to southwest. The existing natural grade directs runoff east, towards existing catch basin at the northwest and southwest corner of the lot. The proposed project improvements will mimic the existing topography. That figure shows an existing closed drainage system along W. Linden Street, from north of the Oban Apartments at its western terminus to north of the Dundee-Glasgow student residences at its eastern terminus.

Consistent with existing conditions, storm water runoff from the project site would discharge into the East Campus' existing storm drain system, which consists of culverts, pipelines, engineered channels of the University Arroyo, and the Gage and Glade Detention Basins, and then into the City of Riverside's storm drain system. Storm water flows from the project site would discharge to a storm drain that would connect to the newly constructed 12-inch PVC storm drain at the southwest corner of Parking Lot 21 and would not directly enter a natural channel or drainage. The proposed project would not alter the course of a stream or river.

In compliance with PP 4.8-3(d), UCR has evaluated the existing hydrologic conditions of the project site and future conditions with implementation of the proposed project to determine if the proposed project runoff would exceed the capacity of the existing storm drain system. The project site would be designed so stormwater surface drains into a series of catch basins connected by underground storm drainpipes. Storm drainpipes would connect to existing campus storm drains or drainage devices, or other locations approved by the University. Storm water surface flow would not obstruct pedestrian pathways. Catch basins would be located within planting areas, where possible. Existing drainage patterns would also be maintained.

The proposed project incorporates PP 4.8-1, which requires compliance with applicable water quality regulations to manage storm water runoff during construction and operation with appropriate BMPs and to ensure that drainage from the project site does not result in erosion or contribute pollutants to runoff. The project also incorporates PS Conservation 2 by designing the SHCC building within previously disturbed area, maintaining existing landscape to the extent feasible, and incorporating appropriate SWPPP and BMPs to prevent stormwater runoff. PP 4.8-3(e) requires that, prior to the time of design approval, the proposed project will be reviewed to ensure that project runoff would not exceed the capacity of the existing storm drain system. Therefore, the proposed project would result in less than significant impacts related to substantial alteration of existing drainage patterns and the potential to cause substantial erosion or flooding on or off site; increased volumes of runoff that could exceed the capacity of the existing UCR or City of Riverside storm drain systems; or substantial additional sources of polluted runoff with incorporation of PS Conservation 2, PP 4.8-1, PP 4.8-3(d), and PP 4.8-3(e). This determination is consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to altering the existing drainage pattern of the site or area in a manner which would result in substantial erosion or siltation on- or off-site; altering the existing drainage pattern or substantially increasing the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; creating or contributing runoff water which would exceed the capacity of existing or planned stormwater drainage systems or providing substantial additional sources of polluted runoff; or impeding or redirecting flood flows with incorporation of the PS and PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☒	☐	☐	☐

Discussion

The analysis of Impacts 4.8-8 through 4.8-11 in the 2005 LRDP EIR concluded that, with implementation of PS Open Space 1, PS Open Space 2, PP 4.8-3(e), PP 4.8-10, and MMs 4.8-9(a) and 4.8-9(b), there would be less than significant impacts related to placing structures within a 100-year flood hazard area; flooding as a result of failure of a levee or dam; or inundation by seiche, tsunami, or mudflow.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, and Figure 4.8-2, FEMA Map, of the 2005 LRDP EIR, the project site is not located in a 100-year flood area (FEMA 2010). As discussed in the 2005 LRDP EIR, the closest dam upstream from the campus is the Seven Oaks Dam, which is located approximately 24 miles upstream from the City of Riverside. Given the distance between the campus and the Santa Ana River (of more than three miles), the potential for flooding, and subsequent release of pollutants, to occur on the project site as the result of a catastrophic failure of the Seven Oaks Dam is remote. In addition, the potential for catastrophic failure of the Santa Ana Pipeline, which is operated by the California State Department of Water Resources and is located north and east of the campus along Watkins Drive at the base of the Box Springs Mountains, to affect campus lands is also considered remote. Therefore, implementation of the proposed project would not expose people or structures to a significant risk of release of pollutants due to inundation related to flood hazard, including flooding as a result of the failure of a levee or dam, and there would be less than significant impacts consistent with the findings of the LRDP EIR.

As discussed in the 2005 LRDP EIR, the potential for the campus to be affected by a seiche or tsunami is considered extremely remote given the inland location of the campus and the distance to any large water bodies. The potential for mudflows to affect campus development is limited to areas immediately adjacent to the southeast hills or within the existing on-campus arroyos. The project site is not located adjacent to the southeast hills and does not contain arroyos. The project site is relatively flat and would not be affected by hillside erosion.

The SHCC building would store, use, and dispose of hazardous materials typically associated with medical centers, as discussed in Section 4.9, Hazards and Hazardous Materials. To minimize risks associated with routine hazardous material use on campus, the project incorporates PP 4.7-1, which requires compliance with federal, State, and local regulations as well as current (or equivalent) campus plans, programs, and practices related to the use, storage, disposal, and transport of hazardous materials and wastes. EH&S oversees proper transportation and disposal of waste materials on campus; therefore, it is unlikely that pollutants would be released due to inundation should such an event occur.

As previously discussed, project design and compliance with UCR's MS4 permit and the UCR Post Construction Stormwater Management Requirements would substantially reduce the potential for potential adverse effects from stormwater runoff, which would include water from flooding events. Therefore, implementation of the proposed project would not result in potential inundation of subsequent release of pollutants by a seiche, tsunami, or mudflow, and there would be less than significant impacts, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts related to placement of housing or structures within a 100-year flood hazard area; exposure of people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; and release of pollutants due to inundation by flood, tsunami, or seiche. The proposed project impacts were adequately addressed in the LRDP EIR.

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11. LAND USE AND PLANNING

The analysis of land use and planning is tiered from the 2005 LRDP EIR and, as applicable, the 2005 Amendment 2 EIR and was addressed in Section 4.9, Land Use and Planning, of both documents. Relevant elements of the proposed project related to land use and planning include the construction of the proposed SHCC building with an ambulatory loading area, service loading area, stationary equipment, landscape, restriping a portion of Parking Lot 21, and other associated site improvements. The following applicable PSs, PPs, and MM were adopted as part of the 2005 LRDP Amendment 2 and/or 2005 LRDP Amendment 2 EIR and are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PS Land Use 1	Achieve academic core densities of 1.0 Floor Area Ratio (FAR) or higher on both the East and West Campuses in order to achieve a balance of academic land area versus other required uses.
PS Land Use 2	In order to achieve a compact and contiguous academic core and desired development densities, strategies will include infill sites in the developed East Campus academic core as well as expansion to the West Campus academic zone immediately adjacent to the I-215 and SR-60 freeway.
PS Conservation 2	Site buildings and plan site development to minimize site disturbance, reduce erosion and sedimentation, reduce stormwater runoff, and maintain existing landscapes, including healthy mature trees whenever possible.
PS Development Strategy 1	Establish a design review process to provide regular review of building and landscape development on campus.
PS Transportation 3	Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off campus bicycle routes.
PS Transportation 5	Provide bicycle parking at convenient locations.
PP 4.9-1(a)	The Campus shall provide design architects with the 2007 Campus Design Guidelines and instructions to implement the Guidelines, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design. *(This is identical to Aesthetics PP 4.1-1.)*
PP 4.9-1(b)	The Campus shall continue to provide design architects with the 2007 Campus Design Guidelines and instructions to develop project-specific landscape plans that are consistent with the Guidelines with respect to the selection of plants, retention of existing trees, and use of water conserving plants, where feasible. *(This is identical to Aesthetics PP 4.1-2[a].)*

MM 4.1-3(a) Building materials shall be reviewed and approved as part of project-specific design and through approval of construction documents. Mirrored, reflective glass is prohibited on campus.

Additionally, PP 4.1-1 (included under the Aesthetics analysis, which is Section V.1 of this IS/MND) is included in the proposed project, which requires compliance with Campus Design Guidelines.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project physically divide an established community?	☐	☒	☐	☐	☐

Discussion

Based on the IS prepared for the 2005 LRDP Amendment 2 EIR, it was concluded that development of the campus under the 2005 LRDP, as amended, would have no impact related to division of an established community. This issue was not carried forward for further analysis in the EIR. The 2005 LRDP, as amended, guides development within the campus boundaries, such as the proposed project, and does not therefore affect the established community outside the UCR campus. Consistent with the findings of the 2005 LRDP Amendment 2 EIR, no impact would occur.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impacts related to physically dividing an established community. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.9-2 in the 2005 LRDP Amendment 2 EIR concluded that development of the UCR campus under the 2005 LRDP, as amended, which incorporates relevant PSs, PPs, and MMs would not conflict with applicable local or regional land use plans, policies, or regulations.

Following is an evaluation of the proposed project's consistency with the 2005 LRDP, as amended, and applicable local and regional plans, policies, or regulations.

University of California, Riverside 2005 Long Range Development Plan, as Amended

Following is a discussion of the proposed project's consistency with the land use designation, square footage and population assumptions, and PSs of the 2005 LRDP, as amended.

LRDP LAND USE DESIGNATION

The Land Use Plan included in the 2005 LRDP, as amended (shown on Figure 3.0-6 of the 2005 LRDP Amendment 2 EIR and Figure 13 of the 2005 LRDP Amendment 2), identifies 12 general categories of land use for development within the UCR campus boundaries. Figure 13 of the 2005 LRDP Amendment 2 provides the current Land Use Plan for the UCR campus. The project site is in an area designated as "Residence Hall and Related Support," which includes student services. The 2005 LRDP Amendment 2 lists the Health Services Building and the Student Counseling Center under student services. The proposed SHCC building would house both Health Services and the Student Counseling Center.

Additionally, the 2005 LRDP Amendment 2 directs Student Services land uses to be located in or near housing areas or academic zones. The proposed project would locate the SHCC building near existing and future student housing and within a 10-minute walk of Carillon Tower, identified in the 2005 LRDP Amendment 2 as the center of the academic core of the East Campus. Therefore, the proposed project would be consistent with the 2005 LRDP Amendment 2 Land Use Plan.

LRDP SQUARE FOOTAGE

The 2005 LRDP, as amended, projected total building space on campus to be approximately 14.9 million gsf by 2020/2021, including approximately 3.1 million gsf allocated to the SOM. As identified in Table 3.0-5 of the 2005 LRDP Amendment 2 EIR, of this amount, there is a total of 500,000 gsf allocated to Student Services (which includes the proposed SHCC). The existing on-campus development is approximately 7.4 million gsf, and approximately 638,415 gsf of new development has been approved but construction has not been completed; therefore, there is approximately 6.9 million gsf of development allocation remaining on campus. The proposed project involves the construction of approximately 50,000 gsf of development, which is well within the remain building allocation.

LRDP POPULATION

The 2005 LRDP, as amended, projected a total enrollment of 25,000 students and 16,393 associated faculty, staff, and visitors for a total campus population of 41,393 by the academic year 2020/2021. Of this amount, 5,853 individuals (non-students) would be associated with the SOM; the projected population for the rest of the campus is 35,540 individuals. Excluding the category of "other individuals,"[11] there are projected to be 32,916 students, faculty, and academic staff and non-

[11] Includes campus visitors, patients, childcare students, student family members (living on campus), daytime extension students, Associated Students of UCR (ASUCR), KUCR radio station, and Highlander non-student staff, vendors, and construction workers.

academic staff. For comparison, the current student population on campus based on the fall 2019 enrollment is 25,548 students (including 22,055 undergraduate students and 3,493 graduate students) (UCR 2019b). Additionally, there are approximately 4,866 faculty, staff, and staff personnel, for a total population of 30,414 individuals (not including other individuals) (UCR 2019c). Therefore, the remaining projected growth on campus (not including SOM and other individuals) is 2,502 individuals.

As discussed previously, it is anticipated that existing and planned UCR employees would staff the SHCC building programs and would assist in the maintenance and operation of the facility, as needed. The proposed SHCC building is not a use that would result in campus population growth; rather, the proposed project would accommodate the needs of existing and planned students, contemplated in the 2005 LRDP Amendment 2 EIR. Additionally, the anticipated minor increase in staff would be well below the remaining 2,502 individuals that was previously contemplated in the 2005 LRDP Amendment 2 EIR overall campus population. Therefore, implementation of the proposed project would remain within projected growth on campus, as identified in the 2005 LRDP, as amended.

LRDP PLANNING STRATEGIES

The 2005 LRDP, as amended, includes PSs for the following issues to guide expansion and development of the UCR campus: land use, circulation and parking, open space and landscape, and campus and community. These planning strategies are required to be implemented with each development project on campus and have been specifically identified in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR, along with general development strategies. Key Planning Strategies that have been incorporated into the project are identified for each topical issue in this IS/MND. Most relevant to the proposed project are the following strategies that are incorporated into the proposed project:

- Achieve academic core densities of 1.0 FAR or higher on the East Campus to achieve a balance of academic land area versus other required uses within the existing land base.
- In order to achieve a compact and contiguous academic core and desired development densities, strategies will include infill sites in the developed East Campus academic core as well as expansion to the West Campus academic zone immediately adjacent to the I-215/SR-60 freeways.
- Site buildings and plan site development to minimize site disturbance, reduce erosion and sedimentation, reduce stormwater runoff, and maintain existing landscapes, including healthy mature trees whenever possible.

These strategies (PS Land Use 1, PS Land Use 2, and PS Conservation 2) are incorporated into the proposed project. The proposed project would be an infill development at the central location of the East Campus, in the area designated for Student Services. The proposed project would contribute to a 1.0 FAR or higher density on the East Campus. As required by existing regulations, soil erosion, sedimentation, and stormwater runoff from the project site during construction would be controlled through the use of several BMPs, including the use of sandbags as barriers. The construction site would be encircled by sandbags, and stabilized roadways would be provided at construction entrance and exit areas.

Circulation and Parking and Campus PSs relevant to the proposed project include the following:

- Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off campus bicycle routes.
- Provide bicycle parking at convenient locations.

New pathways would connect pedestrians from the SHCC building to W. Linden Street, the Dundee-Glasgow Project and Pentland Hills Residence Halls, and the campus academic center to the southwest. Bicyclists would continue to share the road via W. Linden Street with implementation of the proposed project.

University of California, Riverside Campus Design Guidelines

The UCR Campus Design Guidelines include Site and Architectural Guidelines to establish the basic premises and clear intent for creative design decisions that are made for projects on campus; the Campus Design Guidelines are not intended to be prescriptive. The Site Guidelines address planting, paving, site lighting, furnishings, grading and rainwater management, circulation systems, and campus-wide signage. The Architectural Guidelines address outdoor circulation; building orientation and entrances; relationship of interior to exterior at ground floor; building massing and articulation; building materials and color palette; and building response to climate. A description of the proposed project, which addresses each of these issues, is provided in Section II, Project Description, of this IS/MND.

The proposed project incorporates PP 4.9-1(a), which ensures that the Campus Design Guidelines and instructions to implement the Guidelines are taken into consideration, including those sections related to use of consistent scale and massing, compatible architectural style, complementary color palette, preservation of existing site features, and appropriate site and exterior lighting design. The building materials and color palette to be used would adhere to the Campus Design Guidelines to be visually harmonious with the UCR campus as well as the immediate surrounding buildings (as required by PP 4.1-1 and PP 4.9-1[a]) and would be reviewed as part of the project-specific design review process and through approval of construction documents (refer to PS Development Strategy 1 and MM 4.1-3[a]).

Additionally, the proposed project incorporates PP 4.9-1(b) which ensures that the design team has developed a project-specific landscape plan consistent with the Campus Design Guidelines with respect to the selection of plants, retention of existing mature trees, and use of water conserving plants, where feasible.

Incorporation of PPs 4.9-1(a) and 4.9-1(b) into the proposed project ensures that the intent of the Campus Design Guidelines related to site and architectural guidelines have been met and incorporation of PS Development Strategy 1 would ensure that the project plans are reviewed and approved in accordance with the Campus Design Guidelines.

Regional and Local Plans

The proposed project would involve construction of the SHCC building with an ambulatory loading area, service loading area, stationary equipment, landscape, restriping a portion of Parking Lot 21, and other associated site improvements. The proposed project would not be considered regionally significant by SCAG based on the established criteria in Section 15206 of the State CEQA Guidelines, which is applied by SCAG to determine regional significance. Therefore, an assessment of the proposed project's consistency with SCAG's regional plans is not required.

As addressed in Section V.10, Hydrology and Water Quality, of this IS/MND, the proposed project is required to comply with all applicable water quality requirements established by the Santa Ana RWQCB and SWRCB. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, the proposed project would be consistent with the Basin Plan. As discussed in Section V.3, Air Quality, of this IS/MND, the proposed project would also be consistent with the AQMP.

UCR is part of the UC, a constitutionally created entity of the State of California. As a constitutional entity, the UC is not subject to municipal regulations, such as Riverside County and City of Riverside General Plans. Nevertheless, UCR has considered local plans and policies for the communities surrounding the campus. UCR participated in the development of the current City of Riverside General Plan and the University Neighborhood Plan to coordinate planning efforts between the City of Riverside and the campus. The City of Riverside General Plan, which includes the campus, has identified UCR as a public facility/institutional land use (City of Riverside 2007). The proposed project is consistent with this land use designation, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

In summary, consistent with the findings under Impact 4.9-2 of the 2005 LRDP Amendment 2 EIR, there would be a less than significant impact related to conflicts with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed project adopted for the purpose of avoiding or mitigating an environmental effect with incorporation of PS Land Use 1, PS Land Use 2, PS Conservation 2, PS Development Strategy 1, PS Transportation 3, PS Transportation 5, PP 4.9-1(a), PP 4.9-1(b), PP 4.1-1, and MM 4.1-3(a), consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed project; therefore, no impact would result with incorporation of the PSs, PPs, and MM noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

12. MINERAL RESOURCES

Mineral resource issues were adequately addressed in the IS prepared for the 2005 LRDP EIR. There are no relevant elements of the proposed project related to Mineral Resources. Additionally, there are no relevant PSs, PPs, or MMs adopted as part of the 2005 LRDP EIR.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐	☐
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?	☐	☒	☐	☐	☐

Discussion

As identified in the IS for the 2005 LRDP EIR, there are no mineral resources of regional or Statewide importance known to exist on the UCR campus. Also, no mineral resource recovery activities occur on the UCR campus, and no mineral resource recovery sites are delineated in the General Plans for the County of Riverside and City of Riverside, or the University Community Plan, which covers the area around the campus. Therefore, consistent with the findings of the 2005 LRDP EIR, implementation of the proposed project would not 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, and no impact would occur, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impacts related to (1) the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or (2) the availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. The proposed project impacts were adequately addressed in the LRDP EIR.

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13. NOISE

The analysis of noise is tiered from the 2005 LRDP EIR (as it relates to development in the East Campus) as supplemented and updated by the 2005 LRDP Amendment 2 EIR (as it relates to increased noise from traffic generated by the 2005 LRDP Amendment 2); it was addressed in Section 4.10, Noise, of those documents. Relevant elements of the proposed project related to noise and vibration include the use of diesel-powered and other heavy equipment during construction. The proposed project would include construction activities at the project site, which would involve demolition, grading, and other construction-related activities. With respect to operations, noise would be typical of student service centers, including daytime noise from the HVAC system, elevators, landscaping maintenance, sirens from the ambulances (sirens are turned off once ambulances are on campus), and the occasional testing of the emergency generator. Additionally, operational noise from the surface parking lot immediately adjacent to the project site would continue, which may include vehicle movement and tire noise, car doors, car alarms, honking, and music from the car radios.

The following applicable PPs and MM were adopted as part of the 2005 LRDP Amendment and/or 2005 LRDP Amendment 2 EIR and are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PP 4.10-1(a) UCR will incorporate the following siting design measures to reduce long-term noise impacts:

i. Truck access, parking area design, and air conditioning/refrigeration units will be designed and evaluated when planning specific individual new facilities to minimize the potential for noise impacts to adjacent developments.

ii. Building setbacks, building design and orientation will be used to reduce intrusive noise at sensitive student residential and educational building locations near main campus access routes, such as Blaine Street, Canyon Crest Drive, University Avenue, and Martin Luther King Jr. Boulevard. Noise walls may be advisable to screen existing and proposed facilities located near the I-215/SR-60 freeway.

PP 4.10-2 The UCR Campus shall limit the hours of exterior construction activities from 7:00 AM to 9:00 PM Monday through Friday and 8:00 AM to 6:00 PM on Saturday when necessary. Construction traffic shall follow transportation routes prescribed for all construction traffic to minimize the impact of this traffic (including noise impacts) on the surrounding community.

PP 4.10-6 The Campus shall continue to shield all new stationary sources of noise that would be located in close proximity to noise-sensitive buildings and uses.

PP 4.10-7(a) To the extent feasible, construction activities shall be limited to 7:00 AM to 9:00 PM Monday through Friday, 8:00 AM to 6:00 PM on Saturday, and no construction on Sunday and national holidays, as appropriate, in order to minimize disruption to area residences surrounding the campus and to on campus uses that are sensitive to noise.

PP 4.10-7(b) The Campus shall continue to require by contract specifications that construction equipment be required to be muffled or otherwise shielded. Contracts shall specify that engine-driven equipment be fitted with appropriate noise mufflers.

PP 4.10-7(c) The Campus shall continue to require that stationary construction equipment material and vehicle staging be placed to direct noise away from sensitive receptors.

PP 4.10-7(d) The Campus shall continue to conduct regular meetings, as needed, with on campus constituents to provide advance notice of construction activities in order to coordinate these activities with the academic calendar, scheduled events, and other situations, as needed.

PP 4.14-2 The Campus will periodically assess construction schedules of major projects to determine the potential for overlapping construction activities to result in periods of heavy construction vehicle traffic on individual roadway segments, and adjust construction schedules, work hours, or assess routes to the extent feasible to reduce construction-related traffic congestion.

MM 4.10-2 The Campus shall notify all academic and residential facilities within 300 feet of approved construction sites of the planned schedule of vibration causing activities so that the occupants and/or researchers can take necessary precautionary measures to avoid negative effects to their activities and/or research.

As identified in Section V.3, Air Quality, of this IS/MND, the proposed project also incorporates PS Campus and Community 4 (promote campus-wide non-vehicular transportation), PS Transportation 3 (campus-wide bicycle network to connect to off-campus bicycle routes), PS Transportation 4 (provide bicycle parking), and PP 4.3-1 (campus-wide implementation of a TDM program), which all serve to reduce vehicular trips to and from campus and vehicular travel on roadways within campus boundaries.

Noise Sensitive Receptors

Noise-sensitive land uses include those uses where noise exposure could result in health-related risks to individuals and places where quiet is an essential element of the intended purpose. Residential dwellings are of primary concern; land uses such as parks, historic sites, cemeteries, and some recreation areas are considered sensitive to increases in exterior noise levels. Noise-sensitive land uses identified in the 2005 LRDP Amendment 2 EIR are residential areas and a motel. However, recreational uses are also identified for construction noise impact analysis.

The nearest noise sensitive receptors are Pentland Hills Residence Halls and Dundee Student Housing to the south/southeast and west/southwest of the project site, respectively. The property nearest off-campus receptor is a single-family residence, approximately 800 feet northeast from the center of the project site, beyond intervening buildings, Watkins Road and railroad right-of-way. The Glen Mor Student Housing is located further than the Pentland Hills Residence Halls/Dundee Student Housing; therefore, the noise discussion from Pentland Hills Residence Halls/Dundee Student Housing would be the worst-case noise analysis.

Existing Noise Levels

The dominant noise sources in the project area is motor vehicle operation in Parking Lot 21 and on the adjacent W. Linden Street. Motor vehicle noise is a concern because it is characterized by a high number of individual events that often create sustained noise levels. Ambient noise levels are highest during the daytime during peak activity hours on campus.

Noise measurements are often taken to characterize ambient noise levels, but are not critical to the evaluation of noise affects. At this time, social distancing measures are affecting normal campus operation[12]. For instance, there is currently a substantial reduction in the number of students living on campus due to the current pandemic and social distancing protocols as established by State and UC protocols, and in-person classes have mainly been held in a virtual platform with some in-person research at the start of Fall 2020. These changes have resulted in reduced vehicle traffic and associated noise. Thus, noise measurements would have little benefit in characterizing typical noise during campus operations and are not provided.

In October 2019, Rincon Consultants took noise measurements at Parking Lot 13, prior to the enactment of social distancing measures and therefore a more accurate representation of typical noise data for a parking lot on the UCR campus. Measurements were taken in four locations and ranged from 50.1 to 62.5 A-weighted decibels (dBA) (UCR 2020). Noise levels at Parking Lot 21 would be likely to have a similar range. In 2018, Impact Sciences measured the existing noise level at West Linden Street, west of Canyon Crest Drive, which measured at 60.6 dBA Community Noise Equivalent Level (CNEL) (UCR 2019d).

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐	☐

Discussion

UCR is a part of the UC, a constitutionally-created unit of the State of California. As a State entity, UC is not subject to municipal plans, policies, or regulations such as the County and City General Plans or local ordinances. As identified in the 2005 LRDP EIR, federal agencies that have developed noise standards include the Federal Highway Administration (FHWA), the Department of Housing and Urban Development, the Federal Interagency Committee on Urban Noise, and the Federal Aviation Administration. None of these federal noise standards are applicable to the UCR campus. Title 24 of the CCR codifies Sound Transmission Control requirements, which establishes uniform minimum

[12] On March 4, 2020, the Governor proclaimed a State of Emergency in California as a result of the threat of Coronavirus 2019 (COVID-19). On April 4, 2020, the Riverside County Public Health Officer issued a Shelter at Home Order for the County of Riverside. On June 17, 2020, UCR decided to offer remote instruction for the fall semester. At this time, more than 97% of UCR's classes are fully remote, and UCR's residence halls are at about 20% capacity.

noise insulation performance standards for new residences, hotels, motels, dormitories, and apartment houses. The proposed project consists of non-residential educational facilities and the above-noted State Title 24 regulations pertaining to those uses are not applicable to the proposed project. In addition, there are no University noise standards applicable to the proposed project. Therefore, there would be no impact based on exceedance of applicable standards, because there are no federal, State, or University noise regulations applicable to the proposed project. However, the following analysis related to construction and operational noise activities are discussed below for informational purposes.

Temporary Construction Noise Increases

Construction activity would result in temporary noise in the project area, exposing surrounding sensitive receptors to increased noise levels. Construction noise would typically be higher during the heavier periods of initial construction (i.e., site preparation and grading work) and would be lower during the later construction phases (i.e., architectural coating). Typical heavy construction equipment during project grading and site preparation would include diesel powered backhoes, graders, and dozers. Construction equipment would not all operate at the same time or location and would not be in constant use during the eight-hour operating day. Mobile equipment moves around the construction site with power applied in cyclic fashion, such as bulldozers, graders, and loaders (FTA 2018). Therefore, noise impacts from construction equipment are assessed from the center of the equipment activity area (i.e., construction site).

Construction noise was estimated using the FHWA Roadway Construction Noise Model (RCNM). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical propagation formulas (FHWA 2017). RCNM provides reference noise levels for standard construction equipment, with an attenuation of 6 dBA per doubling of distance for stationary equipment and 3 dBA per doubling of distance for mobile equipment. The model does not take into consideration topographic variation of the area; as such, it provides more conservative results.

Table 13 summarizes construction noise associated with each phase of construction, based on the equipment list provided by the CalEEMod output.

Table 13 Construction Noise Levels by Phase

Construction Phase	Construction Equipment	Pentland Hills Residence Halls (194 feet south/southeast) Maximum Noise Level (dBA Lmax)	Pentland Hills Residence Halls (194 feet south/southeast) Maximum Noise Level (dBA Lmax)	Dundee Student Housing (222 feet west/southwest) Maximum Noise Level (dBA Lmax)	Dundee Student Housing (222 feet west/southwest) Hourly Noise Level (dBA Leq)
Demolition	Concrete/Industrial Saw, Rubber Tired Dozer, Tractors/ Loaders/ Backhoes (3)	77.8	73.1	76.6	71.9
Site Preparation	Grader, Rubber Tired Dozer, Tractors/ Loaders/ Backhoe	73.2	71.4	72.1	70.2
Grading	Grader, Rubber Tired Dozer, Tractors/ Loaders/Backhoe	73.2	71.4	72.1	70.2
Building Construction	Crane, Generator Set, Forklift, Welders (3), Tractors/Loaders/ Backhoe	71.6	71.6	70.5	69.9
Paving	Cement and Mortar Mixer, Paver, Roller, Paving Equipment, Tractors/Loaders/ Backhoe	77.7	72.7	70.5	69.9
Architectural Coating	Air Compressor	65.9	61.9	64.7	60.7

Source: See Appendix C for RCNM results and Appendix A for CalEEMod results with construction equipment list.

Note: Mobile equipment moves around the construction site with power applied in cyclic fashion, such as bulldozers, graders, and loaders (FTA 2018). Therefore, noise impacts from construction equipment are assessed from the center of the equipment activity area (i.e., construction site).

dBA = A-weighted decibels; Lmax = maximum sound level during a measurement period or a noise event; Leq = equivalent noise level

As shown in Table 13, construction generated noise would temporarily impact the Pentland Hills Residence Halls and Dundee Student Housing complexes, which are the nearest sensitive receptors to the project site. Construction noise generated by the proposed project would range from 60.7 to 73.1 dBA Leq at these locations. The nearest off-campus residential neighborhood is located approximately 800 feet northeast of the project site and would be unlikely to be substantially impacted by project construction noise due to the distance, intervening building and roadway (Watkins Drive).

The 2005 LRDP contains policies to limit construction noise around sensitive receptors, including off-campus residences. PP 4.10-7(a) limits construction activities to 7:00 AM to 9:00 PM Monday through Friday, 8:00 AM to 6:00 PM on Saturday, and no construction on Sunday and national holidays in order to minimize disruption to area residences surrounding the campus and to on campus uses that are sensitive to noise. PP 4.10-7(b) requires construction equipment to be muffled or shielded, and PP 4.10-7(c) requires construction equipment and vehicle staging be placed to direct noise away from sensitive receptors. Additionally, to the extent feasible and without causing

schedule delays, demolition, grading and part of building construction are planned to occur during summer months, when fewer students are residing on campus.

Consistent with PP 4.10-7(a) through PP 4.10-7(c), construction hours, equipment, and staging have been considered to minimize potential noise impacts onto sensitive receptors. PP 4.10-7(d) would be incorporated to conduct regular meetings, as needed, with on campus constituents to provide advance notice of construction activities in order to coordinate these activities with the academic calendar, scheduled events, and other situations, as needed. PP 4.12-2 would be incorporated to periodically assess construction schedules of major projects to assess opportunities to reduce construction-related traffic congestion to the extent feasible. MM 4.10-2 from the 2005 LRDP Amendment 2 EIR would be incorporated into the project to require notification of affected persons about the planned construction. Therefore, there would be less than significant noise impacts with incorporation of PP 4.10-7(a) through PP 4.10-7(d), PP 4.12-2, and MM 4.10-2, consistent with the findings of the LRDP EIR.

Permanent Project Operational Noise Increases

The analysis of Impacts 4.10-5 and 4.10-6 in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP, as amended, would result in less than significant long-term operational impacts related to:

- On- or off-campus ambient roadway (traffic) noise levels; and
- On- or off-campus ambient stationary source noise levels.

The 2005 LRDP Amendment 2 EIR addressed potential traffic-related noise impacts associated with the remaining development under the 2005 LRDP, as amended, which includes the proposed project. The project itself would not generate new vehicle trips that were not already previously analyzed in the 2005 LRDP Amendment 2 EIR. Implementation of the proposed project would result in a redistribution of existing trips from those traveling to the existing Student Health Services building. The additional capacity of the SHCC would accommodate the student and faculty/staff growth expected to occur overtime from implementation of the UCR 2005 LRDP as analyzed in the 2005 LRDP Amendment 2 EIR (Fehr & Peers 2020).

ON-SITE NOISE

Neither the University nor the overall UC system have adopted policies or standards related to temporary or long-term noise control. The land use (student services) would be compatible with the existing noise environment because the project site currently operates as a parking lot. Noise generated by the proposed project would be limited to cars driving to site and parking or pickup and drop-off, occasional ambulance services, and some stationary noise associated with mechanical equipment such as HVAC and elevators.

ROADWAY NOISE

The existing noise at the project site is primarily from traffic along W. Linden Street. The percentage increase in traffic volumes on area roadways was calculated to determine the increase in traffic noise. Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dBA (Crocker 2007). Consequently, an increase in traffic volume less than doubling results in a less than 3 dBA increase in roadway noise. For example, a ten percent increase in traffic volumes would raise traffic noise by

approximately 0.4 dBA, a 20 percent increase would raise traffic noise by approximately 0.8 dBA, and a 30 percent increase would result in approximately 1.1 dBA increase in traffic noise.[13] The average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy) and a change of 5 dBA is readily perceptible (eight times the sound energy) (Crocker 2007). The proposed project would have a significant effect due to traffic noise if it would increase roadway noise levels by more than the 3 dBA threshold of perception, which would occur if traffic on area roadways doubled (i.e., 100 percent increase).

As discussed under V.17, Transportation, of this IS/MND, the project itself would generate a minimal number of new vehicle trips as a result of the minor increase in staff. Rather, vehicles that would travel to the project site reflect trips already traveling to the existing Student Health Services building. Therefore, the project would not result in an increase in roadway noise.

The proposed project would incorporate PS Campus and Community 4 (promote campus-wide non-vehicular transportation), PP 4.3-1 (campus-wide implementation of a TDM program), which all serve to reduce vehicular trips thereby minimizing traffic related noise.

Consistent with PP 4.10-1(a) and PP 4.10-6, the design and placement of the SHCC building, including access, parking, and on-site stationary equipment, have been considered to minimize potential noise impacts onto sensitive receptors during operation. There would not be a substantial increase in roadway noise due to implementation of the project. Therefore, there would be less than significant noise impacts with incorporation of PP 4.10-1(a) and PP 4.10-6, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would result in a less than significant temporary or permanent increase in ambient noise levels with the incorporation of the PS, PPs, and MM noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐	☐

Discussion

The 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR adopt the following thresholds for "excessive" vibrations: 65 vibration decibels (VdB) at buildings where vibration would interfere with interior operations (e.g., sensitive on-campus research buildings), 80 VdB at residences and buildings where

[13] Based on Rincon's in-house roadway noise screening tables developed using the Federal Highway Administration's (FHWA) Traffic Noise Model (TNM).

people normally sleep (e.g., student housing buildings and nearby residences), and 83 VdB at other institutional buildings.

Short-Term Construction Vibration

The analysis of Impact 4.10-3 in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR concluded that development on campus would result in less than significant short-term impacts to off-campus persons from vibration during construction, including vibration from heavy trucks. The analysis of Impact 4.10-2 in the 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP, as amended, could result in significant and unavoidable impacts to on-campus sensitive buildings located in close proximity to the construction sites from excessive groundborne vibration.

Construction activities would include landscape and hardscape demolition and removal, grading, construction of the SHCC building, paving, and associated on-site improvements. The proposed project would not include pile driving or blasting, which are construction activities that generate the highest vibration levels. Heavy trucks would transport materials to and from the project area. During the demolition and grading phases, the operation of heavy or large construction equipment such as bulldozers, excavators, and loaded trucks have the potential to generate perceptible vibration levels at nearby buildings.

As described under the analysis of Impact 4.10-2 in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR, where construction occurs more than 50 feet from campus classroom buildings, office buildings, and student housing buildings or where construction occurs more than 300 feet from research buildings with vibration-sensitive equipment, the impact would be less than significant. Based on the information presented in Table 4.10-8 of the LRDP EIRs, Vibration Levels for Construction Equipment, vibration levels from large bulldozers and loaded trucks could reach up to 86 to 87 VdB at buildings located within 25 feet of the equipment in use. This would exceed the 83 VdB threshold for institutional buildings. At a distance of 50 feet, vibration levels for this equipment would not exceed 81 VdB.

Removal of landscape and hardscape areas and grading for the proposed project may occur less than 50 feet from the nearest building (student housing). The proposed project would incorporate PP 4.10-2 and PP 4.10-7(a) limiting the hours of construction where necessary. PP 4.10-7(d) would be incorporated to conduct regular meetings, as needed, with on campus constituents to provide advance notice of construction activities in order to coordinate these activities with the academic calendar, scheduled events, and other situations, as needed. MM 4.10-2 would notify on-campus facilities within 300 feet of the project site of the planned schedule of vibration activities. Incorporation of PP 4.10-2, PP 4.10-7(a), PP 4.10-7(d), and MM 4.10-2 would reduce potential vibrational noise impacts to less than significant levels, consistent with the findings of the LRDP EIR. Operational Vibration.

As described in the 2005 LRDP EIR, the existing campus facilities are not a major source of vibration. The proposed project would include activities similar to that of existing non-academic facilities. As such, implementation of the project would not result in vibration levels that would expose persons on- or off-campus to excessive groundborne vibration or noise levels. This impact would be less than significant, consistent with the findings of the 2005 LRDP EIR, as amended.

The project would have a less than significant impact related to vibrational noise levels with incorporation of the PPs and MM noted above. The project impacts were adequately addressed in the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts related to groundborne vibration or groundborne noise levels with incorporation of the PPs and MM noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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 two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☒	☐	☐	☐

Discussion

As discussed in the IS for the 2005 LRDP Amendment 2 EIR, development under the 2005 LRDP was determined to have no impact related to noise from public or private airport/airstrip operations and was not carried forward for further discussion in the 2005 LRDP Amendment 2 EIR. The UCR campus is not located within the boundaries of any airport land use plan; is more than two miles from the nearest public airport; and is not located in the vicinity of a private airstrip. Consistent with the findings of the 2005 LRDP Amendment 2 EIR, implementation of the proposed project would not expose people in the project area to excessive noise levels related to public or private airport operations, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impacts related to the exposure of people to excessive noise levels associated with an airstrip or airport. The proposed project impacts were adequately addressed in the LRDP EIR.

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14. POPULATION AND HOUSING

The analysis of population and housing is tiered from the 2005 LRDP Amendment 2 EIR and was addressed in Section 4.11, Population and Housing, of that document. Relevant elements of the proposed project related to population and housing include minor increase in staff (approximately 10 new staff). There were no applicable PSs, PPs, or MMs adopted as part of the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR related to population and housing.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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)?	☐	☒	☐	☐	☐

Discussion

The analysis of Impacts 4.11-1 and 4.11-2 in the 2005 LRDP Amendment 2 EIR determined that although development under the 2005 LRDP Amendment 2 EIR and cumulative development would directly induce substantial population growth, because the projected housing supply in the area would be adequate to serve the additional population, there would be a less than significant impact with implementation of PS Land Use 4 (related to the provision of on-campus housing).

The proposed project would construct a new SHCC building to accommodate the campus student population as analyzed in the 2005 LRDP, as amended. No housing would be developed as part of the project. It is anticipated that existing UCR staff would be employed at the SHCC with a possible minor increase in staff (approximately 10 new staff). It is also anticipated that existing UCR staff would assist in the maintenance and operation of the SHCC building, as needed. As such, implementation of the proposed project would be within the remaining projected growth on campus, as identified in the 2005 LRDP, as amended.

Because the projected housing supply in both the City of Riverside and the region was determined adequate for the additional non-student population associated with implementation of the 2005 LRDP, as amended, it can be concluded that there would be adequate supply for the minor increase in staff (approximately 10 new staff) with implementation of the proposed project. However, it is not likely that all these positions would be new to the City or region.

Therefore, the proposed project would not result in substantial growth or growth beyond that anticipated with implementation of the 2005 LRDP, as amended. There would be no impact, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impacts related to inducing substantial unplanned population growth in an area, either directly or indirectly. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☒	☐	☐	☐

Discussion

The IS prepared for the 2005 LRDP Amendment 2 EIR concluded that there would be no impacts related to the displacement of existing housing or people since implementation of the 2005 LRDP, as amended, would not involve the demolition or removal of housing. The project site is currently a surface parking lot and does not contain housing. Therefore, the proposed project would not displace existing people or housing, nor necessitate the construction of replacement housing, consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impacts related to displacement of substantial numbers of existing housing or people that would necessitate the construction of replacement housing. The proposed project impacts were adequately addressed in the LRDP EIR.

15. PUBLIC SERVICES

The analysis of the provision of public services on campus is tiered from the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR and is addressed in Section 4.12, Public Services, of those documents. Relevant elements of the project related to public services include the operation of the SHCC.

The following applicable PPs were adopted as part of the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR; they have been incorporated as part of the proposed project and are assumed in the analysis presented in this section.

PP 4.12-1(a) As development occurs, the following measures will be incorporated:

i. New structures would be designed with adequate fire protection features in compliance with State law and the requirements of the State Fire Marshal. Building designs would be reviewed by appropriate campus staff and government agencies.

ii. Prior to implementation of individual projects, the adequacy of water supply and water pressure will be determined in order to ensure sufficient fire protection services.

iii. Adequate access will be provided to within 50 feet of the main entrance of occupied buildings to accommodate emergency ambulance service.

iv. Adequate access for fire apparatus will be provided within 50 feet of stand pipes and sprinkler outlets.

v. Service roads, plazas, and pedestrian walks that may be used for fire or emergency vehicles will be constructed to withstand loads of up to 80,000 pounds.

vi. As implementation of the LRDP occurs, campus fire prevention staffing needs would be assessed; increases in staffing would be determined through such needs assessments.

PP 4.12-1(b)

i. Accident prevention features shall be reviewed and incorporated into new structures to minimize the need for emergency response from the City of Riverside.

ii. Increased staffing levels for local fire agencies shall be encouraged to meet needs generated by LRDP project related on-campus population increases.

PP 4.12-2(a) As development under the LRDP occurs, the Campus will hire additional police officers and support staff as necessary to maintain an adequate level of service, staff, and equipment, and will expand the existing police facility when additional space is required.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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:					
a) Fire protection?	☐	☒	☐	☐	☐

Discussion

The analysis of Impacts 4.12-1 and 4.12-3 in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR concluded that, with implementation of PP 4.12-1(a), PP 4.12-1(b), and MM 4.12-1, there would be less than significant direct and cumulative impacts related to the need for new or physically altered fire protection facilities to accommodate the increased demand resulting from implementation of the 2005 LRDP, as amended, and to maintain acceptable service levels. As identified in the 2005 LRDP Amendment 2 EIR, the City of Riverside Fire Department (RFD) indicated that it would be desirable to add a fire station near the campus in order to meet national standards for fire and life safety services with the addition of planned development under the 2005 LRDP, as amended. The 2005 LRDP Amendment 2 EIR concluded that the environmental impact resulting from the potential for the RFD to construct new or expanded fire protection facilities would be less than significant.

Development of the proposed project consist of the construction of an approximately 50,000 gsf SHCC building, reconfiguration of a portion of the existing surface parking area, landscape, pedestrian pathways, and associated on-site improvements. It is anticipated that existing UCR staff would be employed at the SHCC with a possible minor increase in staff (approximately 10 new staff). It is also anticipated that existing UCR staff would assist in the maintenance and operation of the SHCC building, as needed. The proposed SHCC building is not a use that would result in campus population growth but rather be within the remaining projected growth on campus, as identified in the 2005 LRDP, as amended. Hours of operation will be similar to the existing Student Health Services.

The UCPD public safety dispatch provides communication from the campus to the RFD in the event of an emergency, in which UCR Campus Fire Marshal would be notified. Fire Station 4 is the closest fire station to the project site and serves the university, located approximately 1.1 miles west from the project site at 3510 Cranford Avenue Riverside, CA 92507. It employs one captain, one engineer, one firefighter, and one firefighter/paramedic, and has one engine and one water tender. Domestic water and fire water laterals will be tapped off the existing eight-inch water main which runs north-south along the western limit of Parking Lot 21. During the first quarter of 2019, turnout time for all 14 fire stations was 2:06. The goal is to reduce “turnout time” to under 2:00 minutes at all fire stations (City of Riverside 2019).

The RFD is responsible for fire suppression, and the UCR Campus Fire Marshal is responsible for inspection, fire protection engineering, and fire prevention. The campus has a Memorandum of Understanding (MOU) with the State Fire Marshal to provide additional support, and the Designated

Campus Fire Marshal (DCFM) is a designated Deputy State Fire Marshal. The proposed project would comply with all regulations of Sections 13000 et seq. of the California Health and Safety Code, which pertain to fire protection systems, including provision of smoke alarms, fire extinguishers, appropriate building access, and emergency response notification systems. The proposed project incorporates PP 4.12-1(a), which requires new structures to be designed with adequate fire protection features in compliance with State law. It also requires adequacy of water supply and water pressure to be determined prior to implementation of individual projects to ensure sufficient fire protection services for the campus. PP 4.12-1(b) requires accident prevention features to be included in new structures to minimize the demand for emergency response services from RFD. The proposed project would include fire protection features and fire water infrastructure (e.g., fire hydrants).

W. Linden Street would continue to serve as the main emergency access road for the project site. Emergency access would be provided via the ingress/egress from the driveway to Parking Lot 21 from W. Linden Street and/or the shared service road on the eastern side of the project site. Emergency access lanes would be finalized with project design and approved by the DCFM.

According to the DCFM, RFD can adequately provide fire protection and emergency medical response services without resulting in the need for additional staff or facilities from other departments; UCPD, the Campus Fire Marshal and EH&S would render assistance as necessary (Jackson 2020). As such, no new, expanded, or altered fire protection services or facilities would be required to serve the proposed project, and no physical environmental impacts related to the provision of fire protection services would result.

Because emergency access and fire flows would be adequate to serve the proposed project and no new, expanded, or altered fire protection services or facilities would be required beyond those included as part of the proposed project, impacts associated with the provision of fire protection services from implementation of the proposed project, which incorporates PP 4.12-1(a) and PP 4.12-1(b), are considered less than significant; this is consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact on fire protection services with incorporation of the PPs noted above; no new or altered fire protection services would be required. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Police protection?	☐	☒	☐	☐	☐

Discussion

The analysis of Impacts 4.12-2 and 4.12-3 in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR identified that the incremental increase in the campus population may result in increased response times by the UC Police Department (UCPD). The increased population on campus would require additional routine services to provide additional patrols of the campus and maintain police presence. Additional administrative staff may be necessary to support the additional patrol personnel. In order to maintain adequate levels of police protection to serve the anticipated increase in campus population, the UCPD may need to purchase additional equipment and hire additional personnel. However, with implementation of PP 4.12-2(a) and PP 4.12-2(b), there would be less than significant direct and cumulative impacts related to the need for new or physically altered police facilities to accommodate the increased demand resulting from implementation of the 2005 LRDP, as amended, and to maintain acceptable service levels.

The anticipated increase in staffing and equipment of the UCPD with the addition of planned development under the 2005 LRDP, as amended, could require provision of additional space, which could include renovation of the existing UCPD facility, expansion of the existing facility, or the acquisition of a satellite facility (similar to the storefront facility at University Village). The potential environmental effects associated with expanding the existing facility or providing a satellite facility were evaluated in the 2005 LRDP Amendment 2 EIR at a program level, and it was concluded that there would be a less than significant impact.

The UCPD is located on campus at 3500 Canyon Crest Drive Riverside, California 92507. The UCPD has an MOU with the City of Riverside, whereby the UCPD and the Riverside Police Department (RPD) provide reciprocal assistance to each other. UCPD personnel regularly meet with agents assigned to the Riverside Field Office of the Federal Bureau of Investigation to exchange information to prevent criminal activity on campus. UCPD and RPD is currently drafting a Memorandum of Understanding for continued partnership in responding to student issues surrounding campus.

As discussed above, the proposed SHCC building is not a use that would result in campus population growth but rather be within the remaining projected growth on campus, as identified in the 2005 LRDP, as amended. Hours of operation will be similar to the existing Student Health Services. The types and volume of service calls for police services for the proposed project would be similar to that of the existing Student Health Center. Additionally, the proposed SHCC building would incorporate crime prevention related design features, including, but not limited to, security cameras, electronic access/controls, and environmental design features to help prevent or deter criminal activity. PP 4.12-2(a), which ensures the hiring of additional officers as needed to maintain adequate service levels. UCPD has determined that the project can be adequately served without the need for additional staff or expanded police facilities (Freese 2020).

Therefore, consistent with the findings of the LRDP EIR, no new or expanded police facilities would be required, and no physical environmental impacts would result with incorporated of the PP 4.12-2(a). There would be less than significant impacts.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact to police services with incorporation of the PPs noted above; no new or altered police facilities would be required. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Schools?	☐	☒	☐	☐	☐

Discussion

As identified in the 2005 LRDP EIR and the IS for the 2005 LRDP Amendment 2 EIR, implementation of the proposed 2005 LRDP Amendment 2 would result in new students in the City of Riverside and surrounding areas, and funds would be available from private residential and commercial development to pay for new facilities. In addition, the Riverside Unified School District (RUSD) and neighboring school districts have options available to accommodate new students. Therefore, it was concluded that implementation of the 2005 LRDP, as amended, would not result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities.

As stated previously, the project proposes development of an approximately 50,000 gsf building, reconfiguration of a portion of the existing surface parking area, landscape, pedestrian pathways, and associated on-site improvements. The proposed SHCC building is not a use that would result in campus population growth but rather be within the remaining projected growth on campus, as identified in the 2005 LRDP, as amended. It is anticipated that existing UCR staff would assist in the maintenance and operation of the SHCC building. Thus, the proposed project would not result in a direct increase in new students within the RUSD service area. Therefore, substantial adverse impacts associated with new or physically altered school facilities would not result from implementation of the proposed project, and there would be a less than significant impact, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact to schools; no new or altered school facilities would be required. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Parks?	☐	☒	☐	☐	☐

Discussion

The analysis of the proposed project's impacts on parks and other recreation facilities is provided in Section V.16, Recreation, of this IS/MND.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not involve the development of new and expanded recreational facilities, and no new or altered park/recreation facilities would be required as a result of the proposed project. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Other public facilities?	☐	☒	☐	☐	☐

Discussion

As identified in the 2005 LRDP EIR and IS for the 2005 LRDP Amendment 2 EIR, implementation of the 2005 LRDP, as amended, would not result in substantial adverse physical impacts associated with the provision of new or physically altered libraries. In addition, UCR provides libraries that are open to the public and are used by its campus population, thus reducing demand on City resources. It was also identified that implementation of planned development under the 2005 LRDP, as amended, would increase the demand on each of the four existing libraries on campus and that satellite libraries may also be developed as part of professional school development. The potential environmental effects associated with the development of satellite libraries were evaluated in the 2005 LRDP EIR at a program level, and it was concluded that there would be a less than significant impact.

As discussed previously, it is anticipated that existing UCR staff would assist in the maintenance and operation of the SHCC, with a possible minimal increase in staff. The proposed SHCC building is not a use that would result in campus population growth but rather be within the remaining projected growth on campus, as identified in the 2005 LRDP, as amended. As such, the proposed project would not result in an increased demand for on- or off-campus library services or other public services not anticipated in the 2005 LRDP EIR or 2005 LRDP Amendment 2 EIR. Therefore, consistent with the findings of these EIRs, substantial adverse impacts associated with new or physically

altered libraries or other public services would not result from implementation of the proposed project.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impacts on library services or other public services. The proposed project impacts were adequately addressed in the LRDP EIR.

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16. RECREATION

The analysis of recreation is tiered from the 2005 LRDP EIR and was addressed in Section 4.13, Recreation, of that document. The proposed project does not include the development of any recreational facilities or propose a use that would result in a substantial increase in campus population above what was anticipated in the LRDP EIR. There are no applicable PSs, PPs, or MMs adopted as part of the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR related to recreation.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level 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?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.13-1 in the 2005 LRDP EIR concluded that the 2005 LRDP includes the implementation of recreational facilities that would be sufficient to serve the planned population growth on campus. Further, it was concluded that with implementation of PS Open Space 7, the increased demand for recreational facilities from additional persons in the City of Riverside would not increase the use of existing neighborhood and regional parks or other recreational facilities such that the substantial physical deterioration of the facility would occur or be accelerated. Therefore, the impact was determined to be less than significant.

As discussed previously in Section V.14, Population and Housing, of this IS/MND, the proposed project would not induce population growth as it would not create new housing or substantial employment or attract new population to the area. It is anticipated that existing UCR staff would assist in the maintenance and operation of the SHCC building, with possible minimal staff increase. The proposed SHCC building is not a use that would result in campus population growth but rather be within the remaining projected growth on campus, as identified in the 2005 LRDP, as amended. As such, the proposed project would not result in an increased demand for recreational facilities not already anticipated in the 2005 LRDP EIR. Therefore, consistent with the findings of the LRDP EIR, the proposed project would result in a less than significant impact related to substantial or accelerated physical deterioration of existing neighborhood or regional parks or other recreational facilities.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to an increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	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?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.13-2 in the 2005 LRDP EIR identified that the implementation of the 2005 LRDP would include the development of new recreational facilities that could result in adverse physical impacts on the environment during the construction period. The development of new recreational facilities is one component of the overall LRDP program and, as such, is part of the whole of the action that was analyzed in the 2005 LRDP EIR. The 2005 LRDP EIR concluded that there would be less than significant impacts related to the construction of recreational facilities with implementation of relevant construction-related PSs, PPs, and MMs, including but not limited to those related to air quality, noise, traffic, and agriculture.

While there are no recreational facilities included as part of the proposed project, as described in Section II, Project Description, of this IS/MND, the proposed project does include new landscape and hardscape improvements throughout the project site in addition to new pedestrian pathways to connect the SHCC building to the Dundee-Glasgow Project and Pentland Hills Residence Halls as well as to the sidewalk along W. Linden Street.

The IS provides project-specific environmental review of the construction and operation of the various project components identified above. Local and regional air quality impacts are addressed Under Section V.3, Air Quality; noise and vibration impacts are addressed under Section V.13, Noise; and transportation impacts are addressed under Section V.17, Transportation, of this IS/MND. No additional impacts associated with these improvements would occur beyond those addressed for the proposed project and evaluated in the 2005 LRDP EIR; the proposed project impacts would be less than significant.

The proposed project would not require the construction of new recreational facilities or expansion of existing recreational facilities on or off campus. Therefore, no additional physical impacts would occur with implementation of the proposed project, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impacts related to the construction or expansion of recreation facilities. The proposed project impacts were adequately addressed in the LRDP EIR.

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17.TRANSPORTATION

The analysis of transportation is tiered from the 2005 LRDP Amendment 2 EIR and was addressed in Section 4.14, Transportation and Traffic, of that document.

SB 743, signed into law in 2013, changed transportation impact analysis as part of CEQA compliance. SB 743 required OPR to identify new metrics for identifying and mitigating transportation impacts, and eliminated capacity and level of service as a consideration for determining significance under CEQA. In December 2018, the California Natural Resources Agency finalized updates to CEQA Guidelines to incorporate vehicle miles traveled (VMT)-based analysis methodology and thresholds for the purposes of evaluating transportation impacts. Statewide application of the new guidelines was required beginning July 1, 2020.

The analysis of transportation is also based on the VMT Overview Memorandum prepared by Fehr & Peers for the project in June 2020 and is included as Appendix D of this IS/MND. Relevant elements of the proposed project related to transportation and planning include the temporary construction activities that would involve heavy trucks on the identified construction routes and operation of the SHCC building, driveways from W. Linden Street and the access road west of the project site, and pedestrian pathways. As part of the project, 144 parking spaces from the existing 408 spaces in Parking Lot 21 would be removed, resulting in 264 parking spaces on site.

The project site is on the eastern side of the campus, just south of W. Linden Street, an east-west two-lane road which connects East Campus with the City of Riverside past Iowa Avenue. Currently, there are access driveways into Parking Lot 21 from W. Linden Street and one access driveway from Pentland Way.

W. Linden Street serves as the vehicular, bicycle, and pedestrian connection to Parking Lot 21 as well as the Physical Plant Office, Parking Services, Corporation Yard, EH&S Office, and Parking Lot 23 north of the project site, and the Aberdeen-Inverness and Dundee-Glasgow Project. Pedestrian pathways extend south from Parking Lot 21 to the Pentland Residence Halls.

The following applicable PSs, PPs, and MMs were adopted as part of the 2005 LRDP Amendment and/or 2005 LRDP Amendment 2 EIR and are incorporated as part of the project and assumed in the analysis presented in this section.

PS Campus and Community 4	Provide strong connections within the campus and its edges to promote walking, bicycling and transit use, rather than vehicular traffic.
PS Transportation 3	Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off campus bicycle routes.
PS Transportation 5	Provide bicycle parking at convenient locations.
PP 4.14-2	The Campus will periodically assess construction schedules of major projects to determine the potential for overlapping construction activities to result in periods of heavy construction vehicle traffic on individual roadway segments, and adjust construction schedules, work hours, or access routes to the extent feasible to reduce construction-related traffic congestion.

PP 4.14-5 To the extent feasible, the Campus shall maintain at least one unobstructed lane in both directions on campus roadways. At any time only a single lane is available, the Campus shall provide a temporary traffic signal, signal carriers (i.e., flagpersons), or other appropriate traffic controls to allow travel in both directions. If construction activities require the complete closure of a roadway segment, the Campus shall provide alternate routes and appropriate signage. *(This is identical to Hazards and Hazardous Materials PP 4.7-7[a].)*

PP 4.14-6 For any construction-related closure of pedestrian routes, the Campus shall provide alternate routes and appropriate signage and provide curb cuts and street crossings to assure alternate routes are accessible.

PP 4.14-8 To maintain adequate access for emergency vehicles when construction projects would result in roadway closures, the Office of Architects and Engineers shall consult with the UCPD, EH&S, and the RFD to disclose roadway closures and identify alternative travel routes*. (This is identical to Hazards and Hazardous Materials PP 4.7-7[b].)*

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☒	☐	☐	☐

Discussion

The analysis of Impacts 4.14-1 through 4.14-4 in the 2005 LRDP Amendment 2 EIR, which addresses intersection and roadway capacity, concluded that, with implementation of PS Land Use 4, PS Land Use 7, PS Transportation 1 through 6, PP 4.14-1, MM 4.14-1(a), and the Campus Traffic Mitigation Program (CTMP), composed of MM 4.14-1(b) through MM 4.14-1(f), development under the 2005 LRDP, as amended, would result in the following:

- Less than significant impacts to local roadways under existing plus project conditions and in 2020 and no mitigation is required (Impacts 4.14-3 and 4.14-4);
- Significant and unavoidable impacts to 13 of the 32 study area intersections under the existing plus project condition and 17 intersections under the year 2020 condition; these intersections are under the jurisdiction of the City of Riverside or the California Department of Transportation (Caltrans) (Impacts 4.14-1 and 4.14-2).

As discussed in the 2005 LRDP Amendment 2 EIR, all of the intersection improvements described in the CTMP would fall under the jurisdiction of the City and/or the Caltrans. However, because the

City and/or Caltrans have not programmed any improvements to these facilities at the time of preparation of the EIR, the construction of the improvements cannot be ensured, as it depends on actions by the City and/or Caltrans. Furthermore, improvements that would restore operations to acceptable levels are not feasible at some of the 17 total affected intersections under the jurisdiction of the City and/or Caltrans. For these reasons, the identified off-campus intersection impacts (Impacts 4.14-1 and 4.14-2) remain significant and unavoidable.

The analysis of Impact 4.14-5 concluded that, even with implementation of PP 4.14-2, development under the 2005 LRDP, as amended, would result in a significant and unavoidable impact to intersection and roadway capacity due to temporary construction traffic.

Short-Term Construction Traffic

Construction activities associated with the proposed project could result in temporary closure of on-campus traffic lanes or roadway segments in the project vicinity to permit the delivery of construction materials; to transport exported soil; or to provide adequate site access during construction of utility connections or other project-related features located adjacent to, or within, W. Linden Street. The project anticipates the import of approximately 4,000 cy of soil requiring heavy truck trips during grading activities. As previously discussed under V.2, Air Quality, of this IS/MND, truck capacity is assumed to be 16 cubic yards, resulting in approximately 250 truckloads of import (including empty truck return trips) over a 20-day period, or approximately 13 truckloads per day. Additionally, demolition activities would result in the removal of approximately 1,400 cy of debris, or approximately 88 haul trips. There is a chance that construction of the proposed project may overlap with construction of other on-campus projects that are either proposed or approved; however, it is not anticipated that they would have overlapping construction traffic routes. The proposed project would not require lane closures or other access restrictions for extended periods of time. The proposed construction route would occur from I-215/SR-60 to Blaine Street to Canyon Crest Drive to W. Linden Street.

The project contractor would coordinate with UCR staff to ensure that the delivery of construction materials, export of soils, and trips associated with construction workers avoids the peak time when students are attending classes on campus. The proposed project incorporates PP 4.14-2, which requires the campus to assess construction schedules of major projects periodically to determine the potential for overlapping construction activities and adjust construction schedules, work hours, or access routes to the extent feasible to reduce construction-related traffic congestion. Additionally, the proposed project incorporates PP 4.14-5, which requires one travel lane, to minimize construction traffic impacts to the extent feasible. Therefore, potential project-related traffic impacts associated with lane closures and access restrictions during construction would be less than significant. Although the 2005 LRDP Amendment 2 EIR concluded that construction traffic could be significant at some locations along the identified access routes, for the reasons discussed above, in the event there is an overlap of construction activities on campus, it is concluded that the project would result in a less than significant cumulative traffic construction impact with incorporation of PP 4.14-2 and PP 4.14-5 consistent with the findings of the LRDP EIR.

Long-Term Operational Traffic

Changes in the State CEQA Guidelines regarding transportation impacts have occurred since the adoption of the 2005 LRDP Amendment 2 EIR in 2011. Senate Bill 743 (SB 743) has eliminated auto delay, level of service, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts for projects in favor of the evaluation of VMT. A new State

CEQA Guidelines Section 15064.3(b), was established to address this topic. UCR is now utilizing the guidelines to assess project impacts as they provide the most current direction from the State and reflect the most defensible guidance available. Impacts associated with VMT and State CEQA Guidelines Section 15064.3(b) are addressed in the next section.

Bicycle and Pedestrian Facilities

The analysis of Impact 4.14-13 in the 2005 LRDP Amendment 2 EIR concluded that development under the 2005 LRDP, as amended, would result in less than significant impacts related to demand for public transit with implementation of PS Transportation 1 and PP 4.14-1.

The proposed project involves the construction of a the SHCC building, reconfiguration of a portion of existing surface parking area of Parking Lot 21 and associated on-site improvements and would not impact public transit, bicycle, or pedestrian facilities off campus. Existing pedestrian/bicycle circulations to Parking Lot 21 would remain. New pedestrian pathways would extend from the SHCC building north to W. Linden Street and south to the residence halls and campus academic core. New pedestrian pathways would be constructed to connect the SHCC building to the Dundee-Glasgow Project and Pentland Hills Residence Halls. The site would include a vehicle drop off area near the main entry.

With implementation of the proposed project, it is anticipated that existing UCR staff would be employed in the SHCC building, with a possible minimal increase in staff. The proposed SHCC building is not a use that would result in campus population growth but rather be within the remaining projected growth on campus, as identified in the 2005 LRDP, as amended. As such, implementation of the proposed project is not expected to result in direct or indirect population growth in the area that would create an additional demand for alternative transportation facilities not anticipated in the 2005 LRDP Amendment 2 EIR.

The proposed project would be consistent with the goal of the 2005 LRDP to emphasize strong connections and ease of access within campus and with the surrounding community. Specifically, the project would be consistent with the following:

- **PS Campus and Community 4.** Provide strong connections within the campus and its edges to promote walking, bicycling and transit use, rather than vehicular traffic.
- **PS Transportation 3.** Provide a continuous network of bicycle lanes and paths throughout the campus, connecting to off campus bicycle routes.
- **PS Transportation 5.** Provide bicycle parking at convenient locations.

Thus, consistent with the findings of the 2005 LRDP Amendment 2 EIR, the proposed project would not conflict with the adopted policies, plans, or programs that support alternative transportation with incorporation of PS Campus and Community 4, PS Transportation 3, and PS Transportation 5 and would result in a less than significant impact.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities with the incorporation of the PSs and PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)?	☐	☐	☐	☒	☐

Discussion

State CEQA Guidelines Section 15064.3(b) identifies criteria for evaluating transportation impacts. Generally, VMT is the most appropriate measure of transportation impacts. VMT refers to the amount and distance of automobile travel attributable to a project. Specifically, the guidelines state that VMT exceeding an applicable threshold of significance may indicate a significant impact. A VMT Memorandum (Appendix D) was prepared for the proposed project and is summarized below.

The proposed project would construct a new SHCC building that would accommodate the needs of existing and future campus growth from implementation of the 2005 LRDP Amendment 2. The 2005 LRDP and 2005 LRDP Amendment 2 identified the project site as a location for student residences and associated services.

Construction

During construction, the project would temporarily generate vehicle-trips for workers, truck hauling trips, and truck-trips for the delivery of supplies and construction equipment. Parking for students, faculty, and staff that is displaced in Parking Lot 21 during construction would be provided by existing parking lots and structures on campus. Construction workers would park on the eastern side of Parking Lot 21 and/or the vacant/undeveloped area of the NDD northwest of the project site. Construction workers/vendors trips would range from 12 to 150 per day depending on the construction stage and occur over approximately 18 months.

Construction access would be allowed through campus from west of Parking Lot 21 on W. Linden Street and would not be allowed from east of the campus through off-campus residential areas. The primary construction route would be I-215/SR-60 to Blaine Street to Canyon Crest Drive to W. Linden Street.

Any effects to the transportation network during construction would be temporary. Given the duration of construction and activity levels anticipated, the project would not have a significant impact related to VMT during construction.

Operation

The 2005 LRDP anticipated that development would occur on surface parking lots at UCR and would be replaced by structured parking facilities. The 2005 LRDP identified several future sites for new

parking facilities that are dispersed throughout the campus. Therefore, the redistribution of vehicles to other parking facilities on campus is not expected to result in an increase in VMT.

The minimal number of new vehicle trips traveling to the project site would be generated by the possible minor increase in staff (approximately 10 new staff), but the minor increase in staff was assumed in the overall campus population growth in the 2005 LRDP Amendment 2 EIR. For the project site, the increase in the number of trips is expected to be far below the 110 daily trip threshold in which the OPR states that VMT analysis is not required. Proximity to the residence halls, paired with the active transportation amenities being constructed as part of the project and other projects in the area, would also provide more direct access for students, resulting in more biking and walking trips by the primary users. Therefore, the project is presumed to have a less than significant operational impact.

Given that the project would generate a minimal number of new vehicle trips and that vehicle-trips generated during construction would be temporary, less than significant impacts to VMT under State CEQA Guidelines Section 15064.3(b) would occur with the project.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would not conflict or be inconsistent with State CEQA Guidelines Section 15064.3(b). Since State CEQA Guidelines Section 15064.3(b) was not in effect it was not previously evaluated in the 2005 LRDP EIR or 2005 Amendment 2 EIR. Based on the evaluation herein, less than significant impacts would occur.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐	☐

Discussion

The analysis of Impacts 4.14-8 through 4.14-10 in the 2005 LRDP Amendment 2 EIR, which addresses transportation hazards, concluded that, with implementation of PP 4.14-4, PP 4.14-5, and PP 4.14-6, development under the 2005 LRDP, as amended, would result in less than significant impacts related to (1) vehicular traffic hazards due to design or land use incompatibilities during long-term operation; (2) vehicular traffic hazards during construction due to closure of roadway segments; or (3) pedestrian hazards during construction due to closure of sidewalks or paths.

Vehicular Hazards During Construction

As discussed under Section V.17(a), construction activities associated with the proposed project could result in temporary closure of traffic lanes or roadway segments to permit the delivery of construction materials; to transport demolition materials; to provide adequate site access; or during construction of project-related features located adjacent to W. Linden Street. Disruption to roadways is expected to be minimal as most of construction activity would occur within the project site.

The temporary reduction of roadway capacity, the narrowing of traffic lanes, and the occasional interruption of traffic flow on streets associated with proposed project-related construction activities could pose hazards to vehicular traffic due to localized traffic congestion, decreased turning radii, or the condition of roadway surfaces. To minimize traffic disruption and congestion, the project incorporates PP 4.14-2, which requires coordination of major construction projects on campus, and PP 4.14-5, which requires one travel lane to minimize construction traffic impacts to the extent feasible. With implementation of these PPs, construction-related traffic disruptions would be less than significant.

Vehicular Hazards during Operation

The proposed project does not include permanent modifications to on-campus or City of Riverside roadways. Access to W. Linden Street or Pentland Way would not be permanently impacted.

W. Linden Street would continue to serve as the main emergency access road for the project site. Emergency access would be provided via the ingress/egress from the driveway to Parking Lot 21 from W. Linden Street and/or the shared service road on the eastern side of the project site. Emergency access lanes would be finalized with project design and reviewed and approved by the DCFM.

All elements of vehicle access and roadway improvements, including size, configuration, vertical and horizontal alignment, lane widths, striping, signage, lighting and traffic control measures (i.e., stop signs and speed bumps) are to be designed and constructed in accordance with the University's Technical specifications, Caltrans Standard Plans, and/or SSPWC.

Therefore, implementation of the proposed project would not increase hazards due to design features or incompatible uses. Consistent with the findings of the LRDP EIR, operation of the project would result in a less than significant impact related to vehicular hazards.

Pedestrian and Bicycle Hazards During Construction and Operation

Existing pedestrian routes in the vicinity of the project site include, but are not limited to, the sidewalk on W. Linden Street, and the pedestrian pathway adjacent to the Pentland Hills Residence Halls. During construction, these pedestrian movements would be maintained to the extent feasible with potential detours with any lane closures along W. Linden Street during construction activities. PP 4.14-6 is incorporated into the project; therefore, alternate pedestrian routes, which also accommodate bicyclists, would be identified to maintain the same travel movement and signage would be installed to facilitate wayfinding. PP 4.14-5, which requires use of flag persons to ensure traffic control during construction, would also ensure that there is safe movement through the construction access area. Additionally, the project would construct new pedestrian pathways that connect the core campus and the SHCC building. Therefore, implementation of the proposed project would not increase hazards due to design features or incompatible uses. As such, consistent with

the findings of the 2005 LRDP Amendment 2 EIR, there would be less than significant impacts related to pedestrian and bicycle hazards during construction or operation.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to a substantial increase in traffic hazards due to a design feature or incompatible uses. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project result in inadequate emergency access?	☐	☒	☐	☐	☐

Discussion

The analysis of Impacts 4.14-11 and 4.14-12 in the 2005 LRDP Amendment 2 EIR, which addressed emergency access, concluded that construction and operation of development under the 2005 LRDP, as amended, would result in less than significant impacts to emergency access with implementation of PS Transportation 4.

Emergency Access during Construction

Vehicular and emergency access to the project site is currently provided from W. Linden Street and Pentland Way. This access would remain accessible to emergency vehicles during construction activities. Construction activities associated with the proposed project could result in temporary closure of on-campus traffic lanes or roadway segments along W. Linden Street. The reduction of roadway capacity, the narrowing of traffic lanes, and the occasional interruption of traffic flow could temporarily impair emergency access. Construction activities would be planned so that the one lane along W. Linden Street would be maintained at all times. Police, medical, and rescue operations would be able to use this space. Furthermore, the project incorporates PP 4.14-8 and emergency service agencies would be consulted regarding street closures to ensure adequate access for emergency vehicles during construction. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, construction of the proposed project would result in less than significant impacts related to vehicular hazards during construction with incorporation of PP 4.14-8.

Emergency Access during Operation

Emergency vehicles access the campus via roadways such as the I-215/SR-60 freeways and University Avenue from each of the cardinal directions. Once emergency vehicles are on campus, the internal roadway network is adequate to allow these vehicles to reach their designated locations, including the project site. As discussed above, Emergency access would be provided via the ingress/egress from the driveway to Parking Lot 21 from W. Linden Street and/or the shared

service road on the eastern side of the project site. Emergency access lanes would be finalized with project design, which would be reviewed and approved by the DCFM. Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be less than significant impacts related to emergency access during operation of the project.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The project would have a less than significant impact related to emergency access with incorporation of the PP noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

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18. TRIBAL CULTURAL RESOURCES

In September 2014, Governor Brown signed AB 52 (Chapter 532, Statutes of 2014), which creates a new category of environmental resources that must be considered under CEQA: "tribal cultural resources." The legislation imposes new requirements for offering to consult with California Native American tribes regarding projects that may affect a tribal cultural resource, emphasizes a broad definition of what may be considered to be a tribal cultural resource, and includes a list of recommended MMs.

Recognizing that tribes may have expertise regarding their tribal history and practices, AB 52 which became effective on July 1, 2015, requires lead agencies to provide notice to tribes that are traditionally and culturally affiliated with the geographic area of a proposed project, if they have requested such notice in writing. The project notification is required prior to the lead agency's release of a Notice of Preparation of an EIR or NOI to adopt an MND or ND. Once Native American tribes receive a project notification, they have 30 days to respond as to whether they wish to initiate consultation regarding the project, including subjects such as mitigation for any potential project impacts. If a tribe request consultation and the lead agency and the tribe ultimately agree on mitigation to address any potentially significant impacts to tribal cultural resources, the MMs agreed upon during consultation must be recommended for inclusion in the environmental document. To date, UCR has received six requests for project notification pursuant to Assembly Bill 52 (AB 52) (from the Agua Caliente Band of Cahuilla Indians, Cahuilla Band of Indians, Pechanga Band of Luiseño Indians, Rincon Band of Luiseño Indians, San Manuel Band of Mission Indians, and the Torres Martinez Desert Cahuilla Indians).

In January 2019, updates to the State CEQA Guidelines were adopted, which included the addition of a Tribal Cultural Resources section, as addressed in this section.

There are no relevant elements of the proposed project related to tribal cultural resources, and no PSs, PPs, or MMs are applicable.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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:					
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.5-1 in the 2005 LRDP EIR concluded that there would be less than significant impacts associated with modification of historic or potentially historic resources during construction activities with implementation of PS Conservation 4, MM 4.5-1(a), and MM 4.5-1(b). The analysis of Impact 4.5-2 concluded there would be significant and unavoidable impacts with demolition of historic or potentially historic resources even with implementation of PS Conservation 4, PS Land Use 3, PS Open Space 5, PP 4.5-2, MM 4.5-1(a), MM 4.5-1(b), and MM 4.5-2. A detailed discussion of the regulatory setting and existing cultural resources is provided in Section 4.4, Cultural Resources, of the 2005 LRDP EIR. As identified, relevant regulatory programs include the NHPA of 1966, California Senate Bill 297, and the CRHR. The 2005 LRDP EIR identified a total of eight campus structures located on both the East Campus and West Campus that were considered by CRM Tech (2002) to be potentially eligible for listing in the NRHP and/or the CRHR. It also identified structures exceeding 45 years of age that were evaluated and determined not to be eligible for listing as a historic resource. In addition, the 2005 LRDP EIR included a compilation of structures that would be of age for evaluation as potentially historic by the end of the 2005 LRDP planning horizon (2015-2016). The planning horizon was extended to 2020-2021 as part of the 2005 LRDP Amendment 2 and, as such, would result in additional campus buildings that are potentially historic. None of these structures are located on the project site.

The project site is currently developed with a surface parking area, trees and ornamental landscape, and hardscape areas. The temporary construction staging, and laydown areas include surface parking on Lot 21, lawn area south of the project site, and the vacant and undeveloped NDD area. There are no structures on the project site. Based on the review of aerial photographs, site visit, and given that no structures are on site, no impacts to historical resources are anticipated with development of the proposed project.

Although the LRDP planning area contains potentially significant resources, as discussed above, the project area does not contain any known historical resources. As such, no impacts to historical resources would occur, consistent with the findings of the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have no impact related to the potential to cause a substantial adverse change to a significant historical resource as defined in Section 15064.5 of the State CEQA Guidelines. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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:					
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐	☐

Discussion

As previously addressed in the 2005 LRDP EIR and the 2019 Constraint Study in preparation for the campus' new LRDP, a cultural resources records search and literature review was completed at the EIC at UCR. No significant tribal cultural resources were identified within the project area. A Sacred Lands File (SLF) Check was performed in 2003 by the Native American Heritage Commission (NAHC) for the 2005 LRDP EIR and did not indicate the presence of sites of Native American cultural or religious value on the campus.

The 2019 Cultural Constraint Study requested an additional SLF Check for the entire UCR campus. The NAHC completed its SLF search on December 19, 2018. The results were positive for Tribal Cultural Resources and/or sacred sites for the campus' LRDP boundary. The NAHC recommended consulting with the Cahuilla Band of Indians for additional details regarding any resources considered sacred by the Tribe. UCR requested a SLF Check specifically for the project area in May 2020. The project area yielded negative for Tribal Cultural Resources and/or sacred sites on the project site. These results suggest that although UCR is known to have Tribal Cultural Resources and/or sacred sites, none have been identified within the project area. However, these results should be confirmed via Tribal Consultation.

To date, UCR has received six requests for project notification pursuant to Assembly Bill 52 (AB 52) (from the Agua Caliente Band of Cahuilla Indians, Cahuilla Band of Indians, Pechanga Band of Luiseño Indians, Rincon Band of Luiseño Indians, San Manuel Band of Mission Indians, and the Torres Martinez Desert Cahuilla Indians). In May 2020, UCR provided these tribes with notification of the proposed project. On June 26, 2020, the Agua Caliente Band of Cahuilla Indians responded noting that the project area is not located within the boundaries of the Agua Caliente Band of Cahuilla Indians Tribe's reservation, but within the Tribe's Traditional Use Area. The Agua Caliente Band of Cahuilla Indians requested the presence of an approved Agua Caliente Native American Cultural Resource Monitor during any ground disturbing activities. On October 5, 2020, a copy of the project's geotechnical report, NAHC SLF, and draft cultural/TCR MMs was emailed to the Agua

Caliente Band of Cahuilla Indians Tribe for review and feedback. On October 6, 2020, the Agua Caliente Band of Cahuilla Indians Tribe provided feedback on the draft MMs. A phone call between UCR staff and the Tribe took place on November 6, 2020 and updated MMs were provided via email to the Agua Caliente Band of Cahuilla Indians Tribe on November 9, 2020, in addition to a phone call. The email noted that if UCR did not receive additional feedback on the updated MMs, the University would assume that consultation has concluded for the proposed project. The University did not receive additional feedback from the Tribe and consultation has thus concluded. The University will be in discussions with the Agua Caliente Band of Cahuilla Indians Tribe regarding the tribal monitoring aspects for the proposed project.

On May 19, 2020, the Cahuilla Band of Indians responded that the proposed project is within the tribe's traditional land use area and requested that tribal monitors from Cahuilla be present during all ground disturbing activities. On October 5, 2020, a copy of the project's geotechnical report, NAHC SLF, and draft cultural/TCR MMs was emailed to the Cahuilla Band of Indians for review and feedback. On November 5, 2020, the Cahuilla Band of Indians responded, noting that the draft cultural/TCR MMs were acceptable, and requested to be part of the tribal monitoring aspects of the proposed project. On November 9, 2020, updated cultural/TCR MMs were provided to the Cahuilla Band of Indians based on feedback from other tribes during the AB 52 consultation process. The email noted that if UCR did not receive additional feedback on the updated MMs, the University would assume that consultation has concluded for the proposed project. The University did not receive additional feedback from the Tribe and consultation has thus concluded. Based on the Cahuilla Band of Indians request, the Tribe will be involved during the tribal monitoring aspects of the proposed project.

On May 27, 2020, the Pechanga Band of Luiseño Indians requested government-to-government consultation and to review any proposed mitigation measures for tribal cultural resources. Based on the request from the Tribe, on July 8, 2020, the AB 52 notice and geotechnical report was resent to the Pechanga Band of Luiseño Indians for review. On October 5, 2020, a copy of the project's geotechnical report, NAHC SLF, and draft cultural/TCR MMs was emailed to Pechanga Band of Luiseño Indians for review and feedback. On October 6, 2020, the Pechanga Band of Luiseño Indians noted that the Tribe will review the draft MMs. Follow up emails were sent on October 30, 2020 and November 9, 2020. The November 9, 2020 email provided the updated cultural/TCR MMs for the Tribe to review and noted that if UCR did not receive additional feedback on the updated MMs, the University would assume that consultation has concluded for the proposed project. The University did not receive additional feedback from the Tribe and consultation has thus concluded.

On June 12, 2020, the Rincon Band of Luiseño Indians requested government-to-government consultation and requested cultural monitoring during ground disturbing activities. On June 26, 2020, a video conference took place with the Tribe to go over the proposed project, and the Tribe's concerns. UCR staff noted that once the cultural/TCR MMs was drafted, they would be sent to the Rincon Band of Luiseño Indians for review. On October 5, 2020, a copy of the project's geotechnical report, NAHC SLF, and draft cultural/TCR MMs was emailed to the Rincon Band of Luiseño Indians for review and feedback. On October 27, 2020, the Rincon Band of Luiseño Indians provided feedback on the draft cultural/TCR MMs. Updated cultural/TCR MMs was provided to the Rincon Band of Luiseño Indians and a zoom call took place on November 13, 2020 to go over the MMs. The Rincon Band of Luiseño Indians were satisfied with the revisions made to the cultural/TCR MMs during the call but noted that the Tribe did not agree with the University in not having a project archaeologist on site. UCR staff noted that the University has on-call archaeologists that would be contacted in the event unanticipated resources are discovered, activities would halt, and necessary

protocols would occur in accordance with MM CUL-1 through MM CUL-4. Consultation with the Rincon Band of Luiseño Indians has concluded.

On June 17, 2020, the San Manuel Band of Mission Indians responded noting that given the amount of existing disturbance within the East Campus, where the project site is located, the Tribe does not have any concerns with the project, and provided suggested mitigation language in the event cultural resources are discovered or human remains are encountered. On October 5, 2020, a copy of the project's geotechnical report, NAHC SLF, and draft cultural/TCR MMs was emailed to the San Manuel Band of Mission Indians for review and feedback. On October 12, 2020, the San Manuel Band of Mission Indians provided feedback on the draft cultural/TCR MMs. On November 9, 2020, updated cultural/TCR MMs was provided to the San Manuel Band of Mission Indians and the Tribe were satisfied with the MMs, and thus, consultation was concluded.

Follow up emails and cultural/TCR MMs were provided to the Torres Martinez Desert of Cahuilla Indians on October 5, 2020 and November 9, 2020. To date, no responses were received from the Torres Martinez Desert of Cahuilla Indians. The November 9, 2020 email noted that if UCR did not receive additional feedback on the updated MMs, the University would assume that consultation has concluded for the proposed project. The University did not receive additional feedback from the Tribe and consultation has thus concluded.

Based on the AB 52 consultation efforts, incorporation of MM CUL-1 through MM CUL-4 would ensure and identify steps to be taken in the event archaeological resources, including Native American cultural resources, are discovered during construction activities.

Additional Project-Level Mitigation Measures

Refer to MM CUL-1 through MM CUL-4 in Section V.5, Cultural Resources.

Level of Significance

The proposed project would have a less than significant impact related to tribal cultural resources with implementation of MM CUL-1 through MM CUL-4.

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19. UTILITIES AND SERVICE SYSTEMS

The analysis of utilities and service systems (i.e., water supply, solid waste, wastewater) is tiered from the 2005 LRDP Amendment 2 EIR and was addressed in Section 4.15, Utilities, of that document. Relevant elements of the project related to utilities and service systems include the construction and operation of the SHCC building and the reconfiguration of surface parking in a portion of Parking Lot 21, and the installation of associated utility and irrigation systems. The proposed project would be designed to achieve, at a minimum, a LEED Silver rating.

The following applicable PPs were adopted as part of the 2005 LRDP Amendment 2 EIR and are incorporated as part of the proposed project and assumed in the analysis presented in this section.

PP 4.15-1(a) Improvements to the campus water distribution system, including necessary pump capacity, will be made as required to serve new projects. Project-specific CEQA analysis of environmental effects that would occur prior to project-specific approval will consider the continued adequacy of the domestic/fire water systems, and no new development would occur without a demonstration that appropriate domestic/fire water supplies continue to be available.

PP 4.15-1(b) To further reduce the campus' impact on domestic water resources, to the extent feasible, UCR will:

i. Install hot water recirculation devices (to reduce water waste).
ii. Continue to require all new construction to comply with applicable State laws requiring water-efficient plumbing fixtures, including but not limited to the Health and Safety Code and Title 24, California Code of Regulations, Part 5 (California Plumbing Code).
iii. Retrofit existing plumbing fixtures that do not meet current standards on a phased basis over time.
iv. Install recovery systems for losses attributable to existing and proposed steam and chilled-water systems.
v. Prohibit using water as a means of cleaning impervious surfaces.
vi. Install water-efficient irrigation equipment to local evaporation rates to maximize water savings for landscaping and retrofit existing systems over time.

(This is identical to Hydrology PP 4.8-2[a].)

PP 4.15-1(c) The Campus shall promptly detect and repair leaks in water and irrigation pipes. *(This is identical to Hydrology PP 4.8-2[b].)*

PP 4.15-5 The Campus will continue to comply with all applicable water quality requirements established by the SARWQCB. *(This is identical to Hydrology PP 4.8-1)*

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☒	☐	☐	☐

Discussion

Water/Wastewater Treatment

The analysis of Impact 4.15-2 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to construction of new or expanded water treatment facilities with implementation of PP 4.15-1(a) and PP 4.15-1(d). The analysis of Impact 4.15-4 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to construction of new or expanded wastewater conveyance systems with implementation of MM 4.15-4. In addition, the EIR indicated that campus development under the amended 2005 LRDP would also be required to follow water conservation policies listed in the UC Sustainable Practices Policy and adhere to goals listed in the water section of the Sustainability Action Plan (SAP).

As identified under the analysis of Impact 4.15-3 of the 2005 LRDP Amendment 2 EIR, the campus does not treat or discharge wastewater to any surface waters. Wastewater generated at the campus is collected and discharged into the City's sewer system from where it is conveyed to the Riverside Water Quality Control Plant (RWQCP) for treatment and disposal. Therefore, the campus is not considered a point-source of water pollution for regulatory purposes and is not subject currently to any Waste Discharge Requirements established by the Santa Ana RWQCB. Consequently, the proposed project would not exceed wastewater treatment requirements. No impact would occur, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Water Infrastructure

As identified in Table 4.15-4, Existing and Projected UCR Campus Water Demand, from the 2005 LRDP Amendment 2 EIR, the total water consumption on campus in 2009-2010 was 2.5 million gallons per day (mgd); the entire demand was generated on the East Campus. The projected campus-wide water demand in 2020 is estimated in the 2005 LRDP Amendment 2 EIR at 5.3 mgd, including 3.0 mgd on the East Campus. This represents an estimated increase in water demand associated with the East Campus of 0.5 mgd.

The proposed project would include construction of an approximately 50,000 gsf building, reconfiguration of a portion of the existing surface parking area, landscape, pedestrian pathways, and associated on-site improvements at the project site. There would be an increase in water use from existing conditions with building operations and landscaping. Domestic water and fire water laterals would be tapped off the existing eight-inch UCR water main which runs north-south along the western limit of Parking Lot 21.

All mitigation would be coordinated with EH&S, and all activities would be required to adhere to State and UCR safety requirements, as discussed in Section V.9, Hazards and Hazardous Materials, of this IS/MND. Implementation of the proposed project is anticipated to generate an annual water consumption of approximately 98,385 gallons for flush and flow fixtures, and 284,600 gallons for outdoor (irrigation) use, a total of 382,985 annual gallons, or 1,049 gallons per day (0.0011 mgd). The proposed water usage is well below the projected additional water demand associated with development on the East Campus of 3.0 mgd assumed in the 2005 LRDP, as amended. Therefore, the proposed project's water consumption would be well within the increase anticipated in the 2005 LRDP Amendment 2 EIR. Additionally, the proposed project would incorporate PP 4.15-1(b) to implement water consumption reduction measures and PP 4.15-1(c) to ensure that leaks in water and irrigation pipes are repaired.

The domestic water system at UCR consists of an underground distribution system, a pumping system, storage tanks, and connections to the City's municipal water distribution system. The 2005 LRDP Amendment 2 EIR concluded that because the City would be able to provide the necessary water using existing or planned water facilities, implementation of the 2005 LRDP, as amended, would not require the construction of new or expanded water facilities. As required by PP 4.15-1(a), the campus has reviewed the adequacy of the domestic/fire water systems that would serve the proposed project.

Domestic water connection would be provided for all sinks, lavatories, and showers in the proposed SHCC building. Domestic water and fire supply would be supplied from the existing infrastructure (eight-inch water main) along the western limit of Parking Lot 21. Existing flow rates are sufficient with existing main sizes and distribution pumps to allow for connection of the proposed project to the campus water lines. No new or expanded water lines would be necessary beyond those within the project limits to connect the proposed project to existing lines.

Emergency fire water laterals would be tapped off the existing eight-inch UCR water main which runs north-south along the western limit of Lot 21. Fire water would also be supplied from two existing hydrants southeast of the project site near the Pentland Hills residence hall and north of the project site on the sidewalk along W. Linden Street. A fire hydrant is proposed at the southwest corner of the project site. No new or expanded water lines would be necessary beyond those within the project limits to connect the fire water infrastructure to existing lines. The impact area for installation of these water lines would be within the construction impact limits of the project site. Physical impacts have been addressed in the analysis throughout this IS/MND. Continued implementation of PP 4.15-1(b) and PP 4.15-1(c), which emphasizes a variety of water conservation practices, would further reduce water use and the utilization of water infrastructure. Therefore, consistent with the findings of the LRDP EIR, this impact would be less than significant.

Wastewater Infrastructure

Wastewater on campus is collected in the sanitary sewer system on campus, which consists of a network of lines owned and maintained by UCR. Wastewater would connect to the new Dundee-Glasgow sewer line at the southwest corner of the project site. The proposed project would include drains that would discharge to an existing sewer line. Thus, no new or expanded sewer laterals or main lines would be necessary with proposed project implementation beyond the sewer lines within the project area to connect the proposed project to the existing sewer main. The project is anticipated to generate approximately 63,000 gallons of wastewater annually, or approximately 173 gallons per day (0.00017 mgd). The proposed water usage is well below the projected additional wastewater demand associated with development on the East Campus of 1.2 mgd assumed in the

2005 LRDP, as amended. Therefore, the proposed project's water consumption would be well within the increase anticipated in the 2005 LRDP Amendment 2 EIR. Additionally, a graywater system for non-potable irrigation will be evaluated by the design build team for cost and feasibility. If implemented, it would generate approximately 30,000 gallons of graywater from uses in the proposed SHCC building that could be used for non-potable irrigation. No capacity upgrades are anticipated with implementation of the proposed project.

The impact area for the installation of these sewer lines is within the construction impact limits of the project site, and the physical impacts have been addressed in the analysis throughout this IS/MND. Consistent with the findings of the LRDP EIR, there would be less than significant impacts related to wastewater infrastructure of wastewater treatment facility capacity. In addition, because wastewater generation is correlated to water usage, continued water conservation practices would reduce the volume of wastewater generated. Continued implementation of PP 4.15-1(b) and PP 4.15-1(c), which emphasizes a variety of water conservation practices, would further reduce wastewater generation and utilization of sewer line capacity. Therefore, consistent with the findings of the LRDP EIR, this impact would be less than significant.

Electrical Infrastructure/Natural Gas

The analysis of Impacts 4.15-8 through 4.15-10 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact to the need to construct new or expanded energy (electricity and gas) production or transmission facilities or to the inefficient use of energy.

As identified in the 2005 LRDP Amendment 2 EIR, the RPU provides electricity to the UCR campus. The energy is received through a 69 kilovolt (kV) line at a substation west of the I-215/SR-60 freeways. From this point, the power is reduced to a usable voltage and distributed to individual buildings and transformers. UCR is in the process of transitioning the East Campus to 12 kV distribution lines and transformers; portions of the East Campus are currently operating under a 5-kV system.

The 2005 LRDP Amendment 2 EIR concluded that the peak power demands on campus are 25.5 MVA, and the total campus development under the 2005 LRDP, as amended, would demand 49 MVA, which is an increase of 23.5 MVA over existing conditions at the time. The total capacity of the existing 12 kV substation is 54 MVA, so the 2005 LRDP Amendment 2 EIR concluded that the existing campus electrical distribution system would be able to accommodate the anticipated demand of development under the 2005 LRDP, as amended, of which the proposed project is a part. Additionally, it was concluded that the RPU would have adequate infrastructure to serve the remaining and new development on campus.

The proposed project is estimated to generate a total electric demand of 483,567 kWh/yr, or 483,567 kVA (0.483 MVA), which is not anticipated to require additional electricity substations or construction or relocation of electrical infrastructure which could cause significant environmental effects. It should be noted that campus development under the 2005 LRDP, as amended, would be required to follow energy conservation policies listed in the UC Sustainability Practices Policy, minimize energy use in order for the campus to attain the GHG reduction goals, and comply with any future conservation goals or programs enacted by the UC.

The proposed project would be equipped with infrastructure that would allow it to use solar power at a future time. Other project design features implemented to attain a LEED "Silver" designation would further decrease electricity demand. Therefore, the electric demand and required infrastructure of the proposed project has been determined taking these requirements into

consideration. Consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be a less than significant impact related to construction of new or expanded electrical infrastructure or the inefficient use of energy.

As identified in the 2005 LRDP Amendment 2 EIR, the campus uses natural gas for heating and some cooling needs for research and instructional lab purposes. Natural gas is provided to the East Campus by SoCalGas. The 2005 LRDP Amendment 2 EIR concluded that the total campus development under the 2005 LRDP, as amended, would demand 45,458 therms per day, which is an increase of 31,700 therms per day over existing conditions at the time. SoCalGas has indicated that it could provide gas service to the campus to accommodate future development under the 2005 LRDP, as amended. No natural gas consumption would occur as part of the proposed project. The proposed project would include one diesel emergency generator (400 kw tier 4 emissions). Therefore, consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be no impact related to construction of new or expanded natural gas infrastructure or the inefficient use of natural gas.

Telecommunications Infrastructure

The project would not involve any components requiring telecommunications infrastructure and would not involve the relocation of existing telecommunications facilities. Therefore, no impact related to telecommunications facilities would occur. Impacts associated with the proposed project were adequately addressed in the LRDP EIR.

Stormwater Drainage

Please refer to the analysis of drainage provided under Section V.10, Hydrology and Water Quality, of this IS/MND. In summary, the analysis concluded that operation of the proposed project would not exceed the capacity of the existing storm drain system, and there would be a less than significant impact, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

Water/Wastewater Treatment

The proposed project would not require construction of new wastewater treatment facilities beyond the installation of new lines to connect to the proposed project; the physical limits of utility construction are within the impact area addressed throughout this IS/MND. The proposed project would have a less than significant impact related to the capacity of existing wastewater systems. Impacts associated with the proposed project were adequately addressed in the LRDP EIR.

Water Infrastructure

There are adequate water distribution facilities available to serve the proposed project with incorporation of the PPs noted above, resulting in a less than significant impact. Impacts associated with the proposed project were adequately addressed in the LRDP EIR.

Wastewater Infrastructure

There are adequate wastewater collection facilities available to serve the proposed project with incorporation of the PPs noted above, resulting in a less than significant impact. Impacts associated with the proposed project were adequately addressed in the LRDP EIR.

Electrical Infrastructure/Natural Gas

The proposed project would have a less than significant impact related to provision of electricity to the project site or the inefficient use of energy. The proposed project would have no impact related to natural gas. Impacts associated with the proposed project were adequately addressed in the LRDP EIR.

Telecommunications Infrastructure

The proposed project would have no impact related to telecommunications facilities. Impacts associated with the proposed project were adequately addressed in the LRDP EIR.

Stormwater Drainage

There is a less than significant impact related to the need for new or expanded storm drainage facilities beyond the installation of new storm waste management facilities to serve the proposed project. The physical limits of construction are within the impact area addressed throughout this IS/MND. Impacts associated with the proposed project were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.15-1 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to water supply with implementation of PP 4.15-1(a) through PP 4.15-1(d). In addition, the EIR identified that campus development under the amended 2005 LRDP would also be required to follow water conservation policies listed in the UC Sustainable Practices Policy; adhere to goals listed in the water section of the SAP; and comply with any future conservation goals or programs enacted by the UC.

As described in the 2005 LRDP Amendment 2 EIR, RPU supplies domestic water to the campus. RPU's water supply consists primarily of groundwater, with additional sources, including recycled water and imported water. UCR also has rights to potable water in the Gage Canal. All existing and planned water supply entitlements, water rights, and/or water service contracts that may be used to serve development associated with the 2005 LRDP, as amended, are set forth in the current City of Riverside Urban Water Management Plan (UWMP). The 2015 UWMP identifies adequate potable water supplies to meet future demands (through 2040) within the RPU's water supply service area,

which includes the UCR campus, under normal weather conditions. Specifically, the 2015 UWMP projects surplus water supplies under all scenarios, including multiple dry years (City of Riverside 2016).

The 2005 LRDP Amendment 2 EIR concluded there would be adequate water supplies for implementation of the 2005 LRDP, as amended, with implementation of PP 4.15-1(a) through PP 4.15-1(d). The project would require an estimated annual water use of 98,385 gallons for interior use and 284,600 annual gallons for outdoor landscaping and irrigation. Implementation of the proposed project is anticipated to generate a water consumption of approximately 382,985 annual gallons or 1,049 gallons per day (0.0011 mgd). Additionally, a greywater system may be constructed for the proposed project. If implemented, it would generate approximately 30,000 gallons of graywater from uses in the proposed SHCC building that could be used for non-potable irrigation.

The proposed water usage is well below the projected additional water demand associated with development on the East Campus of 3.0 mgd assumed in the 2005 LRDP, as amended. Therefore, the proposed project's water consumption would be well within the increase anticipated in the 2005 LRDP Amendment 2 EIR. Additionally, the proposed project would incorporate PP 4.15-1(b) to implement water consumption reduction measures and PP 4.15-1(c) to ensure that leaks in water and irrigation pipes are repaired.

Continued implementation of PP 4.15-1(a), PP 4.15-1(b), and PP 4.15-1(c) ensures adequate water supplies are available to serve the proposed project. As such, consistent with the findings of the 2005 LRDP Amendment 2 EIR, there would be a less than significant impact related to water supply with incorporation of the PPs noted above.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years. Impacts would be less than significant with incorporation of the PPs noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.15-3 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to construction of new or expanded water treatment facilities with

implementation of PP 4.15-5 and MM 4.15-3. As identified in the 2005 LRDP Amendment 2 EIR, the Sewerage Systems Services Program and its Treatment Services unit, administered by the RPU, collects, treats, and disposes of all wastewater generated within the City of Riverside and is responsible for compliance with State and federal requirements governing the treatment and discharge of all domestic and industrial wastewater generated in its service area, including the UCR campus. The RWQCP provides treatment of all campus-generated wastewater, with UCR operating its own collection system that connects to the City's system. The RWQCP currently treats an average of 30 mgd and has a capacity of 40 mgd. The plant is currently being expanded and retrofitted and would have a capacity of 46 mgd. The City's Wastewater Integrated Master Plan addresses facility needs for projected wastewater influent flow through the year 2025 and identifies improvements that would increase the capacity of the RWQCP up to 52.2 mgd, although at this time, the City is increasing the treatment capacity of the RWQCP to 46 mgd (City of Riverside 2008).

The 2005 LRDP Amendment 2 EIR also determined that implementation of the 2005 LRDP, as amended, would not generate a volume of wastewater that would exceed the capacity of the City's RWQCP wastewater treatment system in combination with the provider's existing service commitments. The project is anticipated to generate approximately 63,000 gallons of wastewater annually, or approximately 173 gallons per day (0.00017 mgd).

The proposed water usage is well below the projected additional wastewater demand associated with development on the East Campus of 1.2 mgd assumed in the 2005 LRDP, as amended. Therefore, the project would not produce any wastewater that would exceed treatment requirements of the RWQCB or the capacity of any wastewater treatment provider or require or result in the construction of new wastewater treatment facilities or expansion of existing facilities. Additionally, a greywater system may be constructed for the proposed project. If implemented, it would generate approximately 30,000 gallons of graywater from uses in the proposed SHCC building that could be used for non-potable irrigation.

Furthermore, as required by PP 4.15-5, the proposed project would comply with all applicable water quality requirements established by the RWQCB. Consistent with the findings of the LRDP EIR, impacts would be less than significant.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would implement relevant PP noted above and would not generate wastewater that exceeds the capacity of the wastewater treatment facilities resulting in a less than significant impact. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐	☐
e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☒	☐	☐	☐

Discussion

The analysis of Impact 4.15-6 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to landfill capacity. The analysis of Impact 4.15-7 in the 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to compliance with applicable federal, State, and local solid waste-related statutes and regulations. During and after construction of the project, UCR would be required to comply with applicable elements of AB 1327, Chapter 18 (California Solid Waste Reuse and Recycling Access Act of 1991), and other applicable local, State, and federal solid waste disposal standards. Further reduction in solid waste generation would occur with implementation of the *UC Policy on Sustainable Practices*.

The City of Riverside Solid Waste Division is responsible for the collection and handling of residential refuse, recycling, and green waste (compostable organic waste) generated within the City of Riverside. The Robert A. Nelson Transfer Station, located at 1830 Agua Mansa Road, receives refuse from western Riverside County, including the UCR campus. The transfer station is owned by the Riverside County Department of Waste Resources (RCDWR) and operated by Burrtec Waste Industries. The transfer station is permitted to accept up to 4,000 tons of solid waste per day and is currently processing approximately 2,500 to 3,000 tons of solid waste per day (UCR 2019c). The operations division of the RCDWR receives, compacts, and buries refuse received at the various landfill sites at several locations in the County (UCR 2011b).

On the UCR campus, trash is collected and placed in containers located throughout the campus. The RCDWR is responsible for the landfilling of non-hazardous county waste. In this effort, RCDWR operates six landfills, has a contract agreement for waste disposal with an additional private landfill, and administers several transfer station leases (RCDWR 2019). These facilities are regulated at the federal, State, and local levels and monitored for compliance.

UCR implements a waste/source reduction and recycling program that includes sorting and separating wastes to simplify the removal of recyclable materials and the expansion of composting procedures associated with landscaping and agriculture to reduce the solid waste flow. The campus has constructed a transfer station on the West Campus north of Lot 30. UCR collects the recyclables and waste on campus and delivers these materials to the transfer station for hauling. Athens Services picks up the recyclable material for recycling. UCR delivers waste, in UCR haul trucks, to the Nelson Transfer Station from which Burrtec then transports 100 percent of the non-recyclable material to a waste-to-energy facility. UCR composts all green wastes on campus. In addition, UCR is

carrying out a shift in its procurement practices toward recyclable, second generation, or reusable products to the extent feasible. Based on the above discussion, the total amount of solid waste generated by construction and operation of the proposed project would be substantially reduced compared to the waste generation factors in the 2005 LRDP Amendment 2 EIR.

Solid waste would be generated during construction and operation of the proposed project. With respect to construction-related waste generation, approximately 2,740 tons during the approximately one-month construction demolition phase. With respect to project operations, approximately 27.65 tons of solid waste would be generated per year.

It is anticipated that solid waste would be disposed at the Badlands Landfill, in the City of Moreno Valley, which had estimated remaining capacity of approximately 15.7 million cy as of 2019. Based on the current permit, the landfill is expected to close in 2022. The Badlands Landfill is permitted for a maximum of 4,500 tons per day (tpd) for disposal plus 300 tpd for beneficial reuse (CalRecycle 2019). The approximately 27.65 tons of solid waste per year (0.08 tpd) from the proposed project would represent a negligible amount of the landfill's permitted daily capacity of 4,500 tpd. Therefore, the anticipated solid waste generation from the proposed project can be accommodated within the remaining permitted capacity of the Badlands Landfill, and there would be a less than significant impact related to solid waste disposal, consistent with the findings of the 2005 LRDP Amendment 2 EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to generation of solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, attainment of solid waste reduction goals, or compliance with federal, State, and local management and reduction statutes and regulations related to solid waste. The proposed project impacts were adequately addressed in the LRDP EIR.

20. WILDFIRE

In January 2019, updates to the State CEQA Guidelines were adopted, which included the addition of a Wildfire section, as addressed in this section. There are no relevant elements of the proposed project related to wildfire, and no PSs, PPs, or MMs are applicable.

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
a) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐	☐

Discussion

According to the Fire and Resource Assessment Program *Very High Fire Hazard Severity Zones in LRA As Recommended by CAL FIRE* map for the City of Riverside, the project site is not located in a VHFHSZ and is located approximately 2,000 feet west of an identified VHFHSZ (CAL FIRE 2007). As discussed in Section V.9, Hazards and Hazardous Materials, the project would not impair the ability of emergency services to respond to emergencies on the UCR campus. The 2005 LRDP EIR identified the campus areas that may be subject to wildland fires, which include the following areas located adjacent to the southeast hills and the Botanic Gardens: the area south of South Campus Drive and areas currently occupied by Parking Lots 13 and 10, east of East Campus Drive. The project does not propose new development adjacent to the hillsides in the southeastern area of East Campus or near the Botanic Gardens and therefore would not exacerbate wildfire risks due to development near steep and vegetated slopes.

Construction of the project would not obstruct emergency response or evacuation. The project would incorporate PP 4.7-7(a), which requires the maintenance of at least one unobstructed lane in both directions on campus roadways, to the extent feasible, and PP 4.7-7(b), which requires consultation between UCR and UCP, RFD, and EH&S to identify alternative travel routes for emergency vehicle access when construction projects result in roadway closures. Additionally, MM 4.7-7(b) requires the campus' EOP be reviewed on an annual basis and updated as appropriate to account for new on-campus development.

Operation of the project would not impede off-campus emergency response. The RFD has created emergency response maps for the open lands in the City of Riverside. The response maps were created through the collaborative efforts of Fire, Information Technology, and the Parks and Recreation Departments. According to the Box Canyon Reserve Incident Action Plan emergency response map, the closest Reception Center and Staging Area to the project site is at Islander Park on the corner of Big Springs Road and Mt. Vernon Avenue. Type I Engine fire access is available on certain trails at Islander Park, at the foothills of the Box Springs Mountains (City of Riverside 2018). The project would not permanently impede access on any roads, trails, reception centers, or staging areas.

Therefore, the project would have a less than significant impact related to implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan with incorporation of PP 4.7-7(a), PP 4.7-7(b), and MM 4.7-7(b), consistent with the findings of the 2005 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant impact related to impairment of an adopted emergency response plan or emergency evacuation plan with implementation of relevant PPs and MM noted above. The proposed project impacts were adequately addressed in the LRDP EIR.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, 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?	☐	☐	☐	☒	☐

Discussion

The analysis of Impact 4.7-8 in the 2005 LRDP EIR concluded that, with implementation of PS Open Space 1, MM 4.7-8(a), and MM 4.7-8(b), development under the 2005 LRDP would have a less than significant impact related to wildfires. The 2005 LRDP EIR identified the campus areas that may be subject to wildland fires, which include the following areas located adjacent to the southeast hills and the Botanic Gardens: the area south of South Campus Drive and areas currently occupied by Parking Lots 13 and 10, east of East Campus Drive.

According to the Fire and Resource Assessment Program *Very High Fire Hazard Severity Zones in LRA As Recommended by CAL FIRE* map for the City of Riverside, the site is not located in a VHFHSZ and is located approximately 2,000 feet west of an identified VHFHSZ (CAL FIRE 2009). The UCR campus is subject to Santa Ana winds, which are strong, extremely dry offshore winds that affect southern California in autumn and winter. They can range from hot to cold, depending on the prevailing temperatures in the source regions, the Great Basin and upper Mojave Desert. The winds are known for the hot dry weather (often the hottest of the year) that they bring in the fall and are infamous for fanning regional wildfires (UCR 2012). Santa Ana winds are a type of downslope windstorm that occur over southern California from the coastal mountains westward and from Ventura County southward to the Mexican border (Rolinski, et. al 2016).

Wildfire smoke produced from combustion of natural biomass contains thousands of individual compounds, including particulate matter, carbon dioxide, water vapor, carbon monoxide, hydrocarbons and other organic chemicals, nitrogen oxides, and trace minerals. Wildfires can move

into the wildland urban interface, burning homes and structures and thereby consuming man-made materials in addition to natural fuels. Wildfire behavior will vary depending on natural fuel type; fires in forest fuels can range from mild to severe and can spread very slowly or extremely rapidly depending on weather and fuel conditions. Wildfires in forests can last for weeks or months and are often the type that results in the most severe and longest duration air quality impacts. Smoke levels in populated areas can be difficult to predict (USEPA 2019).

The project does not propose new development adjacent to the hillsides in the southeastern area of East Campus or Botanic Gardens and therefore would not exacerbate wildfire risks due to development near steep and vegetated slopes. As discussed in Section V.7, *Geology and Soils*, the project site does not contain steep slopes, and none are anticipated by the project. Therefore, implementation of the project would not expose people and/or structures to pollutant concentrations from a wildfire due to steep slopes.

The UCR Fire Prevention and Life Safety Policy, requires that all construction, alterations, renovations, and interior space dividers are subject to fire code review and inspection by EH&S. This includes approval of plans and specifications to verify compliance with applicable codes, including the following:

- Title 24, CCR, Building Regulations
- Uniform Fire Code
- National Fire Codes of the National Fire Protection Association
- Title 19, CCR, Public Safety
- Title 8, CCR, Occupational Safety
- California Health and Safety Code

During the plan check review, the Campus Building Official and Campus Fire Marshal will review the project plans to ensure that the design of the SHCC building complies with all the required codes noted above. As such, the project would not exacerbate wildfire risks, and would not expose occupants to pollutant concentrations or the uncontrolled spread of wildfire. This impact would be less than significant.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts related to exposure of project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. These proposed project impacts were not previously evaluated in the LRDP EIR but would be less than significant.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, 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?	☐	☐	☐	☒	☐

Discussion

The 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to construction of new or expanded water treatment facilities with implementation of PP 4.15-1(a) and PP 4.15-1(d). The 2005 LRDP Amendment 2 EIR concluded there would be a less than significant impact related to the construction of new or expanded wastewater conveyance systems with implementation of MM 4.15-4. In addition, the 2005 LRDP Amendment 2 EIR identified that campus development under the amended 2005 LRDP would also be required to follow water conservation policies listed in the Sustainable Practices Policy and adhere to goals listed in the water section of the Sustainability Plan.

According to the Fire and Resource Assessment Program *Very High Fire Hazard Severity Zones in LRA As Recommended by CAL FIRE* map for the City of Riverside, the site is not located in a VHFHSZ and is located approximately 2,000 feet west of an identified VHFHSZ (CAL FIRE 2009). As discussed in Section V.19, Utilities and Service Systems, the proposed project would not result in significant environmental effects associated with the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, or other utilities. The proposed project would require installation or relocation of water and sewer laterals to serve the project. New or relocated utilities and systems associated with the project would comply with state and local fire codes to reduce the risk of fires, and none of these potential infrastructure improvements would exacerbate fire risk on-site. On the contrary, the proposed new fire hydrants, standpipes, and other infrastructure associated with the project would reduce fire risk by providing increased access to emergency services.

Continued implementation of PP 4.15-1(b) and PP 4.15-1(c), which emphasizes a variety of water conservation practices, would further reduce water use and the utilization of water infrastructure. These proposed project impacts were not previously evaluated in the LRDP EIR but would be less than significant.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant impacts related to 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, with implementation of relevant PPs. These proposed project impacts were not previously evaluated in the LRDP EIR but would be less than significant.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
d) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, 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?	☐	☐	☐	☒	☐

Discussion

As indicated in Section V.7, Geology and Soils, the proposed project would not expose people or structures to significant risks, including impacts from hazards associated with landslides or slope instability with implementation of PS Open Space 1, PS Open Space 2, PS Conservation 2, and PPs 4.6-1(a) through 4.6-1(c), consistent with the analysis of Impact 4.6-1 in the 2005 LRDP EIR.

According to the Fire and Resource Assessment Program *Very High Fire Hazard Severity Zones in LRA As Recommended by CAL FIRE* map for the City of Riverside, the site is not located in a VHFHSZ and is located approximately 2,000 feet west of an identified VHFHSZ (CAL FIRE 2009). Major post-wildfire hazards are unstable hill slopes and altered drainage patterns. As specified in Section V.10, Hydrology and Water Quality, the project site is relatively flat, and the project would not be constructed on steep slopes or create steep slopes. The proposed project would have a less than significant impact related to alteration of existing drainage patterns and storm drain system capacity with implementation of PS Land Use 2, PS Conservation 2, and PP 4.8-3(c) through 4.8-3(e), consistent with the analysis of Impacts 4.8-3 through 4.8-5 in the 2005 LRDP EIR.

Additionally, as discussed in Section V.10, Hydrology and Water Quality, the potential for impacts from release of pollutants from floods or flood hazards would be less than significant. Although the 2005 LRDP EIR Amendment 2 did not directly address the potential for risk of release of pollutants due to inundation, it did address the potential for future development to increase pollutant runoff and the potential for impacts to future development due to floods, tsunami, or seiche zones in Section V.10, Hydrology and Water Quality. The project impacts were adequately addressed in the LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project impacts would be less than significant related to the exposure of people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage change, with implementation of relevant PPs and PSs. These proposed project impacts were not previously evaluated in the LRDP EIR but would be less than significant.

21. MANDATORY FINDINGS OF SIGNIFICANCE

Project Impact Analysis

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
The lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where there is substantial evidence, in light of the whole record, that any of the following conditions may occur. Where prior to commencement of the environmental analysis a project proponent agrees to mitigation measures or project modifications that would avoid any significant effect on the environment or would mitigate the significant environmental effect, a lead agency need not prepare an EIR solely because without mitigation the environmental effects would have been significant (per Section 15065 of the State CEQA Guidelines):					
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?	☐	☐	☒	☐	☐

Discussion

As discussed in Section V.4, Biological Resources, of this IS/MND, the proposed project would not have a substantial impact to special status plant and wildlife species or sensitive habitats and wildlife corridors. The proposed project incorporates MM 4.4-4(a) (surveys for nesting bird and raptor species prior to construction) and MM 4.4-4(b) (protection of active nests during construction) from the 2005 LRDP Amendment 2 EIR, and, as a result, would have a less than significant impact on nesting species. The proposed project also includes tree retention and replacement to ensure a less than significant impact related to removal of trees. The proposed project would comply with PP 4.4-2(b) noted in the 2005 LRDP EIR and 2005 LRDP Amendment 2 EIR to use BMPs as identified in the UCR Stormwater Management Plan, which would reduce stormwater runoff and control erosion in and around the project site. Therefore, the potential for the proposed project to degrade the quality of the environment related to biological resources would result in a less than significant impact.

As discussion under Section V.5, Cultural Resources, of this IS/MND, there are no historic resources within or adjacent to the project area. Therefore, the proposed project would not have any impacts on historical resources. The project site is not located in an area on campus associated with known or previously documented historic or archeological resources. However, there remains the potential to encounter unanticipated archaeological resources during ground-disturbing activities associated with project construction. Incorporation of MM CUL-1 through MM CUL-4, as identified in

Section V.5, Cultural Resources, of this IS/MND, would reduce potential impacts to archaeological resources and reduce potential impacts related to the potential to eliminate important examples of the major periods of California history or prehistory to less than significant to a less-than-significant level. Additionally, the proposed project would comply with PP 4.5-5 in the inadvertent discovery of human remains during construction activities.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project has a less than significant impact related to 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 with incorporation of the PP and MMs noted above.

The proposed project would have a less than significant impact related to elimination of important examples of the major periods of California history or prehistory with incorporation of the PP and MMs noted above.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present and probable future projects)?	☐	☐	☒	☐	☐

Discussion

As identified through the analysis presented in this IS/MND, the proposed project would not result in significant environmental impacts during construction or operation with continued implementation of applicable PSs, PPs, and MMs (identified for each environmental topic analyzed above in Sections V.1 through V.20 of this IS/MND) and project-specific MMs. Potential cumulative construction impacts related to air quality and traffic have been addressed in Sections V.3 and V.17 of this IS/MND, respectively, and are determined to be less than significant.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have less than significant cumulatively considerable impacts with incorporation of the PSs, PPs, MMs, and project-specific MMs noted throughout the various sections of the IS/MND.

Threshold(s)	Potentially Significant Impact	Project Impact Adequately Addressed in LRDP EIR	Less Than Significant With Project-Level Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐	☐

Discussion

As indicated in the analysis presented in this IS/MND, implementation of the proposed project would not result in potentially significant impacts that could degrade the quality of the environment or cause substantial adverse effects on human beings, either directly or indirectly.

The proposed project would not result in new or more significant impacts than addressed and disclosed in the 2005 LRDP EIR and 2005 Amendment 2 LRDP EIR with continued implementation of applicable PSs, PPs, and MMs (identified for each environmental topic analyzed above in Sections V.1 through V.20 of this IS/MND) from the MMRP adopted as part of the 2005 LRDP EIR and 2005 Amendment 2 LRDP EIR.

Additional Project-Level Mitigation Measures

None required.

Level of Significance

The proposed project would have a less than significant related to the potential to have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly with incorporation of PSs, PPs, and MMs noted throughout the various sections of the IS/MND.

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VII. LIST OF PREPARERS

Rincon Consultants, Inc. prepared this IS-MND under contract to UCR. Persons involved in data gathering analysis, project management, and quality control are listed below.

RINCON CONSULTANTS, INC.

Deanna Hansen, Principal
Christine Donoghue, Supervising Environmental Planner, Project Manager
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UNIVERSITY OF CALIFORNIA, RIVERSIDE - PLANNING, DESIGN & CONSTRUCTION

Stephanie Tang, Campus Environmental Planner

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Appendix A

Air Quality, Energy, and Greenhouse Gas Analysis Worksheets

UCR_SHCC

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
University/College (4Yr)	108.00	Employee	1.50	50,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Client provided data.

Construction Phase - Based on client schedule.

Trips and VMT - Client provided max number of workers during construction.

Demolition - Client provided tonnage.

Grading - Client provided grading data.

Energy Use - No natural gas used for building, as provided by client information. Exceed Title 24 reduced by 20%.

Water And Wastewater - Indoor and outdoor water gallons from client info.

Solid Waste - Solid waste reduced by 68% from client provided info on waste diversion.

Construction Off-road Equipment Mitigation - SCAQMD requirement water 2x/day.

Area Mitigation -

Energy Mitigation - Client provided information.

Stationary Sources - Emergency Generators and Fire Pumps - A 400 kW, diesel emergency generator with sound attenuated enclosure and diesel particulate filter.

UCR_SHCC - South Coast AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	200.00	349.00
tblConstructionPhase	NumDays	4.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	5.00
tblEnergyUse	NT24NG	0.01	0.00
tblEnergyUse	T24E	1.97	1.58
tblEnergyUse	T24NG	13.82	0.00
tblLandUse	LandUseSquareFeet	76,224.49	50,000.00
tblLandUse	LotAcreage	1.75	1.50
tblSolidWaste	SolidWasteGenerationRate	86.40	27.65
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	536.41
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	0.14
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	500.00
tblWater	IndoorWaterUseRate	887,956.99	98,385.00
tblWater	OutdoorWaterUseRate	1,388,855.81	284,600.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1453	1.2739	1.0098	2.1700e-003	0.1174	0.0565	0.1739	0.0437	0.0538	0.0975	0.0000	188.7436	188.7436	0.0313	0.0000	189.5255
2022	0.4516	1.6778	1.7417	3.3300e-003	0.0356	0.0753	0.1109	9.5800e-003	0.0726	0.0822	0.0000	280.2325	280.2325	0.0439	0.0000	281.3299
Maximum	**0.4516**	**1.6778**	**1.7417**	**3.3300e-003**	**0.1174**	**0.0753**	**0.1739**	**0.0437**	**0.0726**	**0.0975**	**0.0000**	**280.2325**	**280.2325**	**0.0439**	**0.0000**	**281.3299**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1453	1.2739	1.0098	2.1700e-003	0.0663	0.0565	0.1228	0.0233	0.0538	0.0771	0.0000	188.7435	188.7435	0.0313	0.0000	189.5254
2022	0.4516	1.6778	1.7417	3.3300e-003	0.0356	0.0753	0.1109	9.5800e-003	0.0726	0.0822	0.0000	280.2322	280.2322	0.0439	0.0000	281.3296
Maximum	**0.4516**	**1.6778**	**1.7417**	**3.3300e-003**	**0.0663**	**0.0753**	**0.1228**	**0.0233**	**0.0726**	**0.0822**	**0.0000**	**280.2322**	**280.2322**	**0.0439**	**0.0000**	**281.3296**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**33.42**	**0.00**	**17.95**	**38.29**	**0.00**	**11.34**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
5	6-1-2021	8-31-2021	0.6921	0.6921
6	9-1-2021	11-30-2021	0.5326	0.5326
7	12-1-2021	2-28-2022	0.4985	0.4985
8	3-1-2022	5-31-2022	0.4940	0.4940
9	6-1-2022	8-31-2022	0.4939	0.4939
10	9-1-2022	9-30-2022	0.1611	0.1611
		Highest	0.6921	0.6921

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2040	1.0000e-005	1.3800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6800e-003	2.6800e-003	1.0000e-005	0.0000	2.8600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	225.1886	225.1886	4.9300e-003	1.0200e-003	225.6155
Mobile	0.1882	0.9119	2.4819	9.7900e-003	0.8439	6.9600e-003	0.8509	0.2261	6.4800e-003	0.2326	0.0000	905.8891	905.8891	0.0414	0.0000	906.9241
Stationary	0.0220	0.0615	0.0561	1.1000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003	0.0000	10.2054	10.2054	1.4300e-003	0.0000	10.2411
Waste						0.0000	0.0000		0.0000	0.0000	5.6127	0.0000	5.6127	0.3317	0.0000	13.9052
Water						0.0000	0.0000		0.0000	0.0000	0.0312	2.6716	2.7028	3.2600e-003	9.0000e-005	2.8106
Total	**0.4142**	**0.9734**	**2.5394**	**9.9000e-003**	**0.8439**	**0.0102**	**0.8541**	**0.2261**	**9.7100e-003**	**0.2358**	**5.6439**	**1,143.9573**	**1,149.6013**	**0.3827**	**1.1100e-003**	**1,159.4994**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2040	1.0000e-005	1.3800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6800e-003	2.6800e-003	1.0000e-005	0.0000	2.8600e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	215.6880	215.6880	4.7200e-003	9.8000e-004	216.0969
Mobile	0.1882	0.9119	2.4819	9.7900e-003	0.8439	6.9600e-003	0.8509	0.2261	6.4800e-003	0.2326	0.0000	905.8891	905.8891	0.0414	0.0000	906.9241
Stationary	0.0220	0.0615	0.0561	1.1000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003	0.0000	10.2054	10.2054	1.4300e-003	0.0000	10.2411
Waste						0.0000	0.0000		0.0000	0.0000	5.6127	0.0000	5.6127	0.3317	0.0000	13.9052
Water						0.0000	0.0000		0.0000	0.0000	0.0312	2.6716	2.7028	3.2600e-003	9.0000e-005	2.8106
Total	**0.4142**	**0.9734**	**2.5394**	**9.9000e-003**	**0.8439**	**0.0102**	**0.8541**	**0.2261**	**9.7100e-003**	**0.2358**	**5.6439**	**1,134.4567**	**1,140.1006**	**0.3825**	**1.0700e-003**	**1,149.9807**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.83**	**0.83**	**0.05**	**3.60**	**0.82**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2021	6/28/2021	5	20	
2	Site Preparation	Site Preparation	6/29/2021	7/5/2021	5	5	
3	Grading	Grading	7/6/2021	8/2/2021	5	20	
4	Building Construction	Building Construction	8/3/2021	12/2/2022	5	349	
5	Architectural Coating	Architectural Coating	11/20/2022	12/16/2022	5	20	
6	Paving	Paving	12/5/2022	12/30/2022	5	20	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 7.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 75,000; Non-Residential Outdoor: 25,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	271.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	21.00	8.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0293	0.0000	0.0293	4.4400e-003	0.0000	4.4400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0199	0.1970	0.1449	2.4000e-004		0.0104	0.0104		9.7100e-003	9.7100e-003	0.0000	21.0713	21.0713	5.3900e-003	0.0000	21.2060
Total	**0.0199**	**0.1970**	**0.1449**	**2.4000e-004**	**0.0293**	**0.0104**	**0.0397**	**4.4400e-003**	**9.7100e-003**	**0.0142**	**0.0000**	**21.0713**	**21.0713**	**5.3900e-003**	**0.0000**	**21.2060**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-003	0.0353	7.4900e-003	1.0000e-004	2.3300e-003	1.1000e-004	2.4400e-003	6.4000e-004	1.0000e-004	7.4000e-004	0.0000	10.1178	10.1178	6.9000e-004	0.0000	10.1351
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	4.0000e-004	4.5300e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2424	1.2424	3.0000e-005	0.0000	1.2432
Total	**1.5400e-003**	**0.0357**	**0.0120**	**1.1000e-004**	**3.7600e-003**	**1.2000e-004**	**3.8800e-003**	**1.0200e-003**	**1.1000e-004**	**1.1300e-003**	**0.0000**	**11.3601**	**11.3601**	**7.2000e-004**	**0.0000**	**11.3783**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0132	0.0000	0.0132	2.0000e-003	0.0000	2.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0199	0.1970	0.1449	2.4000e-004		0.0104	0.0104		9.7100e-003	9.7100e-003	0.0000	21.0713	21.0713	5.3900e-003	0.0000	21.2060
Total	**0.0199**	**0.1970**	**0.1449**	**2.4000e-004**	**0.0132**	**0.0104**	**0.0236**	**2.0000e-003**	**9.7100e-003**	**0.0117**	**0.0000**	**21.0713**	**21.0713**	**5.3900e-003**	**0.0000**	**21.2060**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-003	0.0353	7.4900e-003	1.0000e-004	2.3300e-003	1.1000e-004	2.4400e-003	6.4000e-004	1.0000e-004	7.4000e-004	0.0000	10.1178	10.1178	6.9000e-004	0.0000	10.1351
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	4.0000e-004	4.5300e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2424	1.2424	3.0000e-005	0.0000	1.2432
Total	**1.5400e-003**	**0.0357**	**0.0120**	**1.1000e-004**	**3.7600e-003**	**1.2000e-004**	**3.8800e-003**	**1.0200e-003**	**1.1000e-004**	**1.1300e-003**	**0.0000**	**11.3601**	**11.3601**	**7.2000e-004**	**0.0000**	**11.3783**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0145	0.0000	0.0145	7.3800e-003	0.0000	7.3800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8900e-003	0.0436	0.0189	4.0000e-005		1.9100e-003	1.9100e-003		1.7600e-003	1.7600e-003	0.0000	3.7796	3.7796	1.2200e-003	0.0000	3.8102
Total	**3.8900e-003**	**0.0436**	**0.0189**	**4.0000e-005**	**0.0145**	**1.9100e-003**	**0.0164**	**7.3800e-003**	**1.7600e-003**	**9.1400e-003**	**0.0000**	**3.7796**	**3.7796**	**1.2200e-003**	**0.0000**	**3.8102**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	7.0000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1911	0.1911	1.0000e-005	0.0000	0.1913
Total	**8.0000e-005**	**6.0000e-005**	**7.0000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1911**	**0.1911**	**1.0000e-005**	**0.0000**	**0.1913**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.5200e-003	0.0000	6.5200e-003	3.3200e-003	0.0000	3.3200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8900e-003	0.0436	0.0189	4.0000e-005		1.9100e-003	1.9100e-003		1.7600e-003	1.7600e-003	0.0000	3.7796	3.7796	1.2200e-003	0.0000	3.8102
Total	**3.8900e-003**	**0.0436**	**0.0189**	**4.0000e-005**	**6.5200e-003**	**1.9100e-003**	**8.4300e-003**	**3.3200e-003**	**1.7600e-003**	**5.0800e-003**	**0.0000**	**3.7796**	**3.7796**	**1.2200e-003**	**0.0000**	**3.8102**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	7.0000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1911	0.1911	1.0000e-005	0.0000	0.1913
Total	**8.0000e-005**	**6.0000e-005**	**7.0000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1911**	**0.1911**	**1.0000e-005**	**0.0000**	**0.1913**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0129	0.1433	0.0633	1.4000e-004		6.3800e-003	6.3800e-003		5.8700e-003	5.8700e-003	0.0000	12.3837	12.3837	4.0100e-003	0.0000	12.4838
Total	**0.0129**	**0.1433**	**0.0633**	**1.4000e-004**	**0.0491**	**6.3800e-003**	**0.0555**	**0.0253**	**5.8700e-003**	**0.0311**	**0.0000**	**12.3837**	**12.3837**	**4.0100e-003**	**0.0000**	**12.4838**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8400e-003	0.0652	0.0138	1.9000e-004	4.3000e-003	2.0000e-004	4.5000e-003	1.1800e-003	1.9000e-004	1.3700e-003	0.0000	18.6675	18.6675	1.2800e-003	0.0000	18.6994
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.5000e-004	2.7900e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7645	0.7645	2.0000e-005	0.0000	0.7650
Total	**2.1700e-003**	**0.0654**	**0.0166**	**2.0000e-004**	**5.1800e-003**	**2.1000e-004**	**5.3800e-003**	**1.4100e-003**	**2.0000e-004**	**1.6100e-003**	**0.0000**	**19.4320**	**19.4320**	**1.3000e-003**	**0.0000**	**19.4645**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0221	0.0000	0.0221	0.0114	0.0000	0.0114	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0129	0.1433	0.0633	1.4000e-004		6.3800e-003	6.3800e-003		5.8700e-003	5.8700e-003	0.0000	12.3836	12.3836	4.0100e-003	0.0000	12.4838
Total	**0.0129**	**0.1433**	**0.0633**	**1.4000e-004**	**0.0221**	**6.3800e-003**	**0.0285**	**0.0114**	**5.8700e-003**	**0.0172**	**0.0000**	**12.3836**	**12.3836**	**4.0100e-003**	**0.0000**	**12.4838**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8400e-003	0.0652	0.0138	1.9000e-004	4.3000e-003	2.0000e-004	4.5000e-003	1.1800e-003	1.9000e-004	1.3700e-003	0.0000	18.6675	18.6675	1.2800e-003	0.0000	18.6994
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.5000e-004	2.7900e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7645	0.7645	2.0000e-005	0.0000	0.7650
Total	**2.1700e-003**	**0.0654**	**0.0166**	**2.0000e-004**	**5.1800e-003**	**2.1000e-004**	**5.3800e-003**	**1.4100e-003**	**2.0000e-004**	**1.6100e-003**	**0.0000**	**19.4320**	**19.4320**	**1.3000e-003**	**0.0000**	**19.4645**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0988	0.7432	0.7030	1.2000e-003		0.0373	0.0373		0.0360	0.0360	0.0000	98.9435	98.9435	0.0177	0.0000	99.3851
Total	**0.0988**	**0.7432**	**0.7030**	**1.2000e-003**		**0.0373**	**0.0373**		**0.0360**	**0.0360**	**0.0000**	**98.9435**	**98.9435**	**0.0177**	**0.0000**	**99.3851**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2400e-003	0.0422	0.0105	1.1000e-004	2.7500e-003	8.0000e-005	2.8300e-003	7.9000e-004	8.0000e-005	8.7000e-004	0.0000	10.6448	10.6448	6.7000e-004	0.0000	10.6616
Worker	4.7700e-003	3.5300e-003	0.0399	1.2000e-004	0.0126	9.0000e-005	0.0127	3.3300e-003	9.0000e-005	3.4200e-003	0.0000	10.9375	10.9375	2.9000e-004	0.0000	10.9449
Total	**6.0100e-003**	**0.0457**	**0.0503**	**2.3000e-004**	**0.0153**	**1.7000e-004**	**0.0155**	**4.1200e-003**	**1.7000e-004**	**4.2900e-003**	**0.0000**	**21.5823**	**21.5823**	**9.6000e-004**	**0.0000**	**21.6065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0988	0.7432	0.7030	1.2000e-003		0.0373	0.0373		0.0360	0.0360	0.0000	98.9433	98.9433	0.0177	0.0000	99.3849
Total	**0.0988**	**0.7432**	**0.7030**	**1.2000e-003**		**0.0373**	**0.0373**		**0.0360**	**0.0360**	**0.0000**	**98.9433**	**98.9433**	**0.0177**	**0.0000**	**99.3849**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2400e-003	0.0422	0.0105	1.1000e-004	2.7500e-003	8.0000e-005	2.8300e-003	7.9000e-004	8.0000e-005	8.7000e-004	0.0000	10.6448	10.6448	6.7000e-004	0.0000	10.6616
Worker	4.7700e-003	3.5300e-003	0.0399	1.2000e-004	0.0126	9.0000e-005	0.0127	3.3300e-003	9.0000e-005	3.4200e-003	0.0000	10.9375	10.9375	2.9000e-004	0.0000	10.9449
Total	**6.0100e-003**	**0.0457**	**0.0503**	**2.3000e-004**	**0.0153**	**1.7000e-004**	**0.0155**	**4.1200e-003**	**1.7000e-004**	**4.2900e-003**	**0.0000**	**21.5823**	**21.5823**	**9.6000e-004**	**0.0000**	**21.6065**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1978	1.5004	1.5272	2.6500e-003		0.0707	0.0707		0.0683	0.0683	0.0000	217.8923	217.8923	0.0380	0.0000	218.8411
Total	**0.1978**	**1.5004**	**1.5272**	**2.6500e-003**		**0.0707**	**0.0707**		**0.0683**	**0.0683**	**0.0000**	**217.8923**	**217.8923**	**0.0380**	**0.0000**	**218.8411**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5600e-003	0.0881	0.0218	2.4000e-004	6.0500e-003	1.6000e-004	6.2100e-003	1.7500e-003	1.5000e-004	1.9000e-003	0.0000	23.2317	23.2317	1.4300e-003	0.0000	23.2674
Worker	9.8600e-003	7.0100e-003	0.0811	2.6000e-004	0.0277	2.0000e-004	0.0279	7.3400e-003	1.9000e-004	7.5300e-003	0.0000	23.2192	23.2192	5.8000e-004	0.0000	23.2338
Total	**0.0124**	**0.0951**	**0.1029**	**5.0000e-004**	**0.0337**	**3.6000e-004**	**0.0341**	**9.0900e-003**	**3.4000e-004**	**9.4300e-003**	**0.0000**	**46.4509**	**46.4509**	**2.0100e-003**	**0.0000**	**46.5012**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1978	1.5004	1.5272	2.6500e-003		0.0707	0.0707		0.0683	0.0683	0.0000	217.8920	217.8920	0.0380	0.0000	218.8408
Total	**0.1978**	**1.5004**	**1.5272**	**2.6500e-003**		**0.0707**	**0.0707**		**0.0683**	**0.0683**	**0.0000**	**217.8920**	**217.8920**	**0.0380**	**0.0000**	**218.8408**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5600e-003	0.0881	0.0218	2.4000e-004	6.0500e-003	1.6000e-004	6.2100e-003	1.7500e-003	1.5000e-004	1.9000e-003	0.0000	23.2317	23.2317	1.4300e-003	0.0000	23.2674
Worker	9.8600e-003	7.0100e-003	0.0811	2.6000e-004	0.0277	2.0000e-004	0.0279	7.3400e-003	1.9000e-004	7.5300e-003	0.0000	23.2192	23.2192	5.8000e-004	0.0000	23.2338
Total	**0.0124**	**0.0951**	**0.1029**	**5.0000e-004**	**0.0337**	**3.6000e-004**	**0.0341**	**9.0900e-003**	**3.4000e-004**	**9.4300e-003**	**0.0000**	**46.4509**	**46.4509**	**2.0100e-003**	**0.0000**	**46.5012**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.2338**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.2900e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3686	0.3686	1.0000e-005	0.0000	0.3688
Total	**1.6000e-004**	**1.1000e-004**	**1.2900e-003**	**0.0000**	**4.4000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3686**	**0.3686**	**1.0000e-005**	**0.0000**	**0.3688**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.2338**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.2900e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3686	0.3686	1.0000e-005	0.0000	0.3688
Total	**1.6000e-004**	**1.1000e-004**	**1.2900e-003**	**0.0000**	**4.4000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3686**	**0.3686**	**1.0000e-005**	**0.0000**	**0.3688**

3.7 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.8800e-003	0.0677	0.0881	1.4000e-004		3.4700e-003	3.4700e-003		3.2100e-003	3.2100e-003	0.0000	11.7696	11.7696	3.7300e-003	0.0000	11.8629
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8800e-003**	**0.0677**	**0.0881**	**1.4000e-004**		**3.4700e-003**	**3.4700e-003**		**3.2100e-003**	**3.2100e-003**	**0.0000**	**11.7696**	**11.7696**	**3.7300e-003**	**0.0000**	**11.8629**

3.7 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	3.6000e-004	4.1800e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1978	1.1978	3.0000e-005	0.0000	1.1986
Total	**5.1000e-004**	**3.6000e-004**	**4.1800e-003**	**1.0000e-005**	**1.4300e-003**	**1.0000e-005**	**1.4400e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1978**	**1.1978**	**3.0000e-005**	**0.0000**	**1.1986**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.8800e-003	0.0677	0.0881	1.4000e-004		3.4700e-003	3.4700e-003		3.2100e-003	3.2100e-003	0.0000	11.7696	11.7696	3.7300e-003	0.0000	11.8629
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8800e-003**	**0.0677**	**0.0881**	**1.4000e-004**		**3.4700e-003**	**3.4700e-003**		**3.2100e-003**	**3.2100e-003**	**0.0000**	**11.7696**	**11.7696**	**3.7300e-003**	**0.0000**	**11.8629**

3.7 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	3.6000e-004	4.1800e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1978	1.1978	3.0000e-005	0.0000	1.1986
Total	**5.1000e-004**	**3.6000e-004**	**4.1800e-003**	**1.0000e-005**	**1.4300e-003**	**1.0000e-005**	**1.4400e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1978**	**1.1978**	**3.0000e-005**	**0.0000**	**1.1986**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1882	0.9119	2.4819	9.7900e-003	0.8439	6.9600e-003	0.8509	0.2261	6.4800e-003	0.2326	0.0000	905.8891	905.8891	0.0414	0.0000	906.9241
Unmitigated	0.1882	0.9119	2.4819	9.7900e-003	0.8439	6.9600e-003	0.8509	0.2261	6.4800e-003	0.2326	0.0000	905.8891	905.8891	0.0414	0.0000	906.9241

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
University/College (4Yr)	967.68	336.96	0.00	2,220,886	2,220,886
Total	967.68	336.96	0.00	2,220,886	2,220,886

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
University/College (4Yr)	16.60	8.40	6.90	6.40	88.60	5.00	91	9	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
University/College (4Yr)	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	215.6880	215.6880	4.7200e-003	9.8000e-004	216.0969
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	225.1886	225.1886	4.9300e-003	1.0200e-003	225.6155
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
University/College (4Yr)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
University/College (4Yr)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
University/College (4Yr)	374500	225.1886	4.9300e-003	1.0200e-003	225.6155
Total		**225.1886**	**4.9300e-003**	**1.0200e-003**	**225.6155**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
University/College (4Yr)	358700	215.6880	4.7200e-003	9.8000e-004	216.0969
Total		**215.6880**	**4.7200e-003**	**9.8000e-004**	**216.0969**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2040	1.0000e-005	1.3800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6800e-003	2.6800e-003	1.0000e-005	0.0000	2.8600e-003
Unmitigated	0.2040	1.0000e-005	1.3800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6800e-003	2.6800e-003	1.0000e-005	0.0000	2.8600e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0232					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1807					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.3800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6800e-003	2.6800e-003	1.0000e-005	0.0000	2.8600e-003
Total	**0.2040**	**1.0000e-005**	**1.3800e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.6800e-003**	**2.6800e-003**	**1.0000e-005**	**0.0000**	**2.8600e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0232					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1807					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.3800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6800e-003	2.6800e-003	1.0000e-005	0.0000	2.8600e-003
Total	**0.2040**	**1.0000e-005**	**1.3800e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.6800e-003**	**2.6800e-003**	**1.0000e-005**	**0.0000**	**2.8600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.7028	3.2600e-003	9.0000e-005	2.8106
Unmitigated	2.7028	3.2600e-003	9.0000e-005	2.8106

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
University/College (4Yr)	0.098385 / 0.2846	2.7028	3.2600e-003	9.0000e-005	2.8106
Total		**2.7028**	**3.2600e-003**	**9.0000e-005**	**2.8106**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
University/College (4Yr)	0.098385 / 0.2846	2.7028	3.2600e-003	9.0000e-005	2.8106
Total		**2.7028**	**3.2600e-003**	**9.0000e-005**	**2.8106**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.6127	0.3317	0.0000	13.9052
Unmitigated	5.6127	0.3317	0.0000	13.9052

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
University/College (4Yr)	27.65	5.6127	0.3317	0.0000	13.9052
Total		**5.6127**	**0.3317**	**0.0000**	**13.9052**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
University/College (4Yr)	27.65	5.6127	0.3317	0.0000	13.9052
Total		**5.6127**	**0.3317**	**0.0000**	**13.9052**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0.14	50	536.409	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (300 - 600 HP)	0.0220	0.0615	0.0561	1.1000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003	0.0000	10.2054	10.2054	1.4300e-003	0.0000	10.2411
Total	**0.0220**	**0.0615**	**0.0561**	**1.1000e-004**		**3.2300e-003**	**3.2300e-003**		**3.2300e-003**	**3.2300e-003**	**0.0000**	**10.2054**	**10.2054**	**1.4300e-003**	**0.0000**	**10.2411**

11.0 Vegetation

UCR_SHCC

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
University/College (4Yr)	108.00	Employee	1.50	50,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Client provided data.

Construction Phase - Based on client schedule.

Trips and VMT - Client provided max number of workers during construction.

Demolition - Client provided tonnage.

Grading - Client provided grading data.

Energy Use - No natural gas used for building, as provided by client information. Exceed Title 24 reduced by 20%.

Water And Wastewater - Indoor and outdoor water gallons from client info.

Solid Waste - Solid waste reduced by 68% from client provided info on waste diversion.

Construction Off-road Equipment Mitigation - SCAQMD requirement water 2x/day.

Area Mitigation -

Energy Mitigation - Client provided information.

Stationary Sources - Emergency Generators and Fire Pumps - A 400 kW, diesel emergency generator with sound attenuated enclosure and diesel particulate filter.

UCR_SHCC - South Coast AQMD Air District, Summer

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	200.00	349.00
tblConstructionPhase	NumDays	4.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	5.00
tblEnergyUse	NT24NG	0.01	0.00
tblEnergyUse	T24E	1.97	1.58
tblEnergyUse	T24NG	13.82	0.00
tblLandUse	LandUseSquareFeet	76,224.49	50,000.00
tblLandUse	LotAcreage	1.75	1.50
tblSolidWaste	SolidWasteGenerationRate	86.40	27.65
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	536.41
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	0.14
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	500.00
tblWater	IndoorWaterUseRate	887,956.99	98,385.00
tblWater	OutdoorWaterUseRate	1,388,855.81	284,600.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.1462	23.1602	15.7079	0.0359	5.8890	1.0526	6.6550	2.9774	0.9826	3.6822	0.0000	3,590.7056	3,590.7056	0.6728	0.0000	3,607.5258
2022	25.1481	14.6976	15.5820	0.0297	0.3306	0.6739	1.0046	0.0889	0.6537	0.7425	0.0000	2,765.9692	2,765.9692	0.4342	0.0000	2,775.6280
Maximum	**25.1481**	**23.1602**	**15.7079**	**0.0359**	**5.8890**	**1.0526**	**6.6550**	**2.9774**	**0.9826**	**3.6822**	**0.0000**	**3,590.7056**	**3,590.7056**	**0.6728**	**0.0000**	**3,607.5258**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.1462	23.1602	15.7079	0.0359	2.7377	1.0526	3.4653	1.3529	0.9826	2.0576	0.0000	3,590.7056	3,590.7056	0.6728	0.0000	3,607.5258
2022	25.1481	14.6976	15.5820	0.0297	0.3306	0.6739	1.0046	0.0889	0.6537	0.7425	0.0000	2,765.9692	2,765.9692	0.4342	0.0000	2,775.6280
Maximum	**25.1481**	**23.1602**	**15.7079**	**0.0359**	**2.7377**	**1.0526**	**3.4653**	**1.3529**	**0.9826**	**2.0576**	**0.0000**	**3,590.7056**	**3,590.7056**	**0.6728**	**0.0000**	**3,607.5258**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**50.67**	**0.00**	**41.64**	**52.98**	**0.00**	**36.72**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1180	1.0000e-004	0.0110	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0236	0.0236	6.0000e-005		0.0252
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.4628	6.3397	18.7617	0.0733	6.1809	0.0500	6.2309	1.6537	0.0465	1.7002		7,470.7530	7,470.7530	0.3303		7,479.0115
Stationary	0.1232	0.3442	0.3140	5.9000e-004		0.0181	0.0181		0.0181	0.0181		62.9971	62.9971	8.8300e-003		63.2179
Total	**2.7039**	**6.6840**	**19.0867**	**0.0739**	**6.1809**	**0.0682**	**6.2491**	**1.6537**	**0.0647**	**1.7184**		**7,533.7738**	**7,533.7738**	**0.3392**	**0.0000**	**7,542.2547**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1180	1.0000e-004	0.0110	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0236	0.0236	6.0000e-005		0.0252
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.4628	6.3397	18.7617	0.0733	6.1809	0.0500	6.2309	1.6537	0.0465	1.7002		7,470.7530	7,470.7530	0.3303		7,479.0115
Stationary	0.1232	0.3442	0.3140	5.9000e-004		0.0181	0.0181		0.0181	0.0181		62.9971	62.9971	8.8300e-003		63.2179
Total	**2.7039**	**6.6840**	**19.0867**	**0.0739**	**6.1809**	**0.0682**	**6.2491**	**1.6537**	**0.0647**	**1.7184**		**7,533.7738**	**7,533.7738**	**0.3392**	**0.0000**	**7,542.2547**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2021	6/28/2021	5	20	
2	Site Preparation	Site Preparation	6/29/2021	7/5/2021	5	5	
3	Grading	Grading	7/6/2021	8/2/2021	5	20	
4	Building Construction	Building Construction	8/3/2021	12/2/2022	5	349	
5	Architectural Coating	Architectural Coating	11/20/2022	12/16/2022	5	20	
6	Paving	Paving	12/5/2022	12/30/2022	5	20	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 7.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 75,000; Non-Residential Outdoor: 25,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

UCR_SHCC - South Coast AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	271.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	21.00	8.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9317	0.0000	2.9317	0.4439	0.0000	0.4439			0.0000			0.0000
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715		2,322.7171	2,322.7171	0.5940		2,337.5658
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**	**2.9317**	**1.0409**	**3.9726**	**0.4439**	**0.9715**	**1.4154**		**2,322.7171**	**2,322.7171**	**0.5940**		**2,337.5658**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0983	3.4280	0.7256	0.0104	0.2368	0.0106	0.2474	0.0649	0.0102	0.0751		1,124.0261	1,124.0261	0.0750		1,125.9008
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0549	0.0356	0.4897	1.4400e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		143.9624	143.9624	3.8700e-003		144.0592
Total	**0.1532**	**3.4636**	**1.2154**	**0.0118**	**0.3821**	**0.0117**	**0.3938**	**0.1034**	**0.0112**	**0.1146**		**1,267.9885**	**1,267.9885**	**0.0789**		**1,269.9600**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.3193	0.0000	1.3193	0.1998	0.0000	0.1998			0.0000			0.0000
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715	0.0000	2,322.7171	2,322.7171	0.5940		2,337.5658
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**	**1.3193**	**1.0409**	**2.3602**	**0.1998**	**0.9715**	**1.1712**	**0.0000**	**2,322.7171**	**2,322.7171**	**0.5940**		**2,337.5658**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0983	3.4280	0.7256	0.0104	0.2368	0.0106	0.2474	0.0649	0.0102	0.0751		1,124.0261	1,124.0261	0.0750		1,125.9008
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0549	0.0356	0.4897	1.4400e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		143.9624	143.9624	3.8700e-003		144.0592
Total	**0.1532**	**3.4636**	**1.2154**	**0.0118**	**0.3821**	**0.0117**	**0.3938**	**0.1034**	**0.0112**	**0.1146**		**1,267.9885**	**1,267.9885**	**0.0789**		**1,269.9600**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.5558	17.4203	7.5605	0.0172		0.7654	0.7654		0.7041	0.7041		1,666.5174	1,666.5174	0.5390		1,679.9920
Total	**1.5558**	**17.4203**	**7.5605**	**0.0172**	**5.7996**	**0.7654**	**6.5650**	**2.9537**	**0.7041**	**3.6578**		**1,666.5174**	**1,666.5174**	**0.5390**		**1,679.9920**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0219	0.3014	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5923	88.5923	2.3800e-003		88.6518
Total	**0.0338**	**0.0219**	**0.3014**	**8.9000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**88.5923**	**88.5923**	**2.3800e-003**		**88.6518**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6098	0.0000	2.6098	1.3292	0.0000	1.3292			0.0000			0.0000
Off-Road	1.5558	17.4203	7.5605	0.0172		0.7654	0.7654		0.7041	0.7041	0.0000	1,666.5174	1,666.5174	0.5390		1,679.9920
Total	**1.5558**	**17.4203**	**7.5605**	**0.0172**	**2.6098**	**0.7654**	**3.3752**	**1.3292**	**0.7041**	**2.0333**	**0.0000**	**1,666.5174**	**1,666.5174**	**0.5390**		**1,679.9920**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0219	0.3014	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5923	88.5923	2.3800e-003		88.6518
Total	**0.0338**	**0.0219**	**0.3014**	**8.9000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**88.5923**	**88.5923**	**2.3800e-003**		**88.6518**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.2884	14.3307	6.3314	0.0141		0.6379	0.6379		0.5869	0.5869		1,365.0648	1,365.0648	0.4415		1,376.1020
Total	**1.2884**	**14.3307**	**6.3314**	**0.0141**	**4.9143**	**0.6379**	**5.5522**	**2.5256**	**0.5869**	**3.1125**		**1,365.0648**	**1,365.0648**	**0.4415**		**1,376.1020**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1814	6.3247	1.3388	0.0192	0.4369	0.0196	0.4565	0.1197	0.0188	0.1385		2,073.8489	2,073.8489	0.1384		2,077.3078
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0219	0.3014	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5923	88.5923	2.3800e-003		88.6518
Total	**0.2152**	**6.3466**	**1.6402**	**0.0201**	**0.5263**	**0.0203**	**0.5465**	**0.1434**	**0.0194**	**0.1628**		**2,162.4412**	**2,162.4412**	**0.1407**		**2,165.9596**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2114	0.0000	2.2114	1.1365	0.0000	1.1365			0.0000			0.0000
Off-Road	1.2884	14.3307	6.3314	0.0141		0.6379	0.6379		0.5869	0.5869	0.0000	1,365.0648	1,365.0648	0.4415		1,376.1020
Total	**1.2884**	**14.3307**	**6.3314**	**0.0141**	**2.2114**	**0.6379**	**2.8493**	**1.1365**	**0.5869**	**1.7234**	**0.0000**	**1,365.0648**	**1,365.0648**	**0.4415**		**1,376.1020**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1814	6.3247	1.3388		0.4369	0.0196	0.4565	0.1197	0.0188	0.1385		2,073.8489	2,073.8489	0.1384		2,077.3078
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0219	0.3014	8.9000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		88.5923	88.5923	2.3800e-003		88.6518
Total	**0.2152**	**6.3466**	**1.6402**	**0.0201**	**0.5263**	**0.0203**	**0.5465**	**0.1434**	**0.0194**	**0.1628**		**2,162.4412**	**2,162.4412**	**0.1407**		**2,165.9596**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**		**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0223	0.7630	0.1811	2.0400e-003	0.0512	1.5400e-003	0.0527	0.0147	1.4700e-003	0.0162		217.9508	217.9508	0.0132		218.2804
Worker	0.0887	0.0575	0.7911	2.3300e-003	0.2347	1.7300e-003	0.2365	0.0623	1.5900e-003	0.0638		232.5547	232.5547	6.2500e-003		232.7110
Total	**0.1109**	**0.8205**	**0.9722**	**4.3700e-003**	**0.2859**	**3.2700e-003**	**0.2892**	**0.0770**	**3.0600e-003**	**0.0801**		**450.5055**	**450.5055**	**0.0194**		**450.9914**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**	**0.0000**	**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0223	0.7630	0.1811	2.0400e-003	0.0512	1.5400e-003	0.0527	0.0147	1.4700e-003	0.0162		217.9508	217.9508	0.0132		218.2804
Worker	0.0887	0.0575	0.7911	2.3300e-003	0.2347	1.7300e-003	0.2365	0.0623	1.5900e-003	0.0638		232.5547	232.5547	6.2500e-003		232.7110
Total	**0.1109**	**0.8205**	**0.9722**	**4.3700e-003**	**0.2859**	**3.2700e-003**	**0.2892**	**0.0770**	**3.0600e-003**	**0.0801**		**450.5055**	**450.5055**	**0.0194**		**450.9914**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689		2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**		**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0209	0.7243	0.1711	2.0200e-003	0.0512	1.3300e-003	0.0525	0.0147	1.2700e-003	0.0160		216.0473	216.0473	0.0127		216.3646
Worker	0.0832	0.0519	0.7315	2.2500e-003	0.2347	1.6800e-003	0.2364	0.0623	1.5500e-003	0.0638		224.2220	224.2220	5.6500e-003		224.3633
Total	**0.1040**	**0.7762**	**0.9027**	**4.2700e-003**	**0.2859**	**3.0100e-003**	**0.2889**	**0.0770**	**2.8200e-003**	**0.0798**		**440.2693**	**440.2693**	**0.0183**		**440.7279**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689	0.0000	2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**	**0.0000**	**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0209	0.7243	0.1711	2.0200e-003	0.0512	1.3300e-003	0.0525	0.0147	1.2700e-003	0.0160		216.0473	216.0473	0.0127		216.3646
Worker	0.0832	0.0519	0.7315	2.2500e-003	0.2347	1.6800e-003	0.2364	0.0623	1.5500e-003	0.0638		224.2220	224.2220	5.6500e-003		224.3633
Total	**0.1040**	**0.7762**	**0.9027**	**4.2700e-003**	**0.2859**	**3.0100e-003**	**0.2889**	**0.0770**	**2.8200e-003**	**0.0798**		**440.2693**	**440.2693**	**0.0183**		**440.7279**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	23.1750					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**23.3795**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0158	9.8900e-003	0.1393	4.3000e-004	0.0447	3.2000e-004	0.0450	0.0119	2.9000e-004	0.0122		42.7090	42.7090	1.0800e-003		42.7359
Total	**0.0158**	**9.8900e-003**	**0.1393**	**4.3000e-004**	**0.0447**	**3.2000e-004**	**0.0450**	**0.0119**	**2.9000e-004**	**0.0122**		**42.7090**	**42.7090**	**1.0800e-003**		**42.7359**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	23.1750					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**23.3795**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0158	9.8900e-003	0.1393	4.3000e-004	0.0447	3.2000e-004	0.0450	0.0119	2.9000e-004	0.0122		42.7090	42.7090	1.0800e-003		42.7359
Total	**0.0158**	**9.8900e-003**	**0.1393**	**4.3000e-004**	**0.0447**	**3.2000e-004**	**0.0450**	**0.0119**	**2.9000e-004**	**0.0122**		**42.7090**	**42.7090**	**1.0800e-003**		**42.7359**

3.7 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6877	6.7738	8.8060	0.0135		0.3474	0.3474		0.3205	0.3205		1,297.3789	1,297.3789	0.4113		1,307.6608
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6877**	**6.7738**	**8.8060**	**0.0135**		**0.3474**	**0.3474**		**0.3205**	**0.3205**		**1,297.3789**	**1,297.3789**	**0.4113**		**1,307.6608**

3.7 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0515	0.0322	0.4529	1.3900e-003	0.1453	1.0400e-003	0.1464	0.0385	9.6000e-004	0.0395		138.8041	138.8041	3.5000e-003		138.8916
Total	**0.0515**	**0.0322**	**0.4529**	**1.3900e-003**	**0.1453**	**1.0400e-003**	**0.1464**	**0.0385**	**9.6000e-004**	**0.0395**		**138.8041**	**138.8041**	**3.5000e-003**		**138.8916**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6877	6.7738	8.8060	0.0135		0.3474	0.3474		0.3205	0.3205	0.0000	1,297.3789	1,297.3789	0.4113		1,307.6608
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6877**	**6.7738**	**8.8060**	**0.0135**		**0.3474**	**0.3474**		**0.3205**	**0.3205**	**0.0000**	**1,297.3789**	**1,297.3789**	**0.4113**		**1,307.6608**

3.7 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0515	0.0322	0.4529	1.3900e-003	0.1453	1.0400e-003	0.1464	0.0385	9.6000e-004	0.0395		138.8041	138.8041	3.5000e-003		138.8916
Total	**0.0515**	**0.0322**	**0.4529**	**1.3900e-003**	**0.1453**	**1.0400e-003**	**0.1464**	**0.0385**	**9.6000e-004**	**0.0395**		**138.8041**	**138.8041**	**3.5000e-003**		**138.8916**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4628	6.3397	18.7617	0.0733	6.1809	0.0500	6.2309	1.6537	0.0465	1.7002		7,470.7530	7,470.7530	0.3303		7,479.0115
Unmitigated	1.4628	6.3397	18.7617	0.0733	6.1809	0.0500	6.2309	1.6537	0.0465	1.7002		7,470.7530	7,470.7530	0.3303		7,479.0115

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
University/College (4Yr)	967.68	336.96	0.00	2,220,886	2,220,886
Total	967.68	336.96	0.00	2,220,886	2,220,886

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
University/College (4Yr)	16.60	8.40	6.90	6.40	88.60	5.00	91	9	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
University/College (4Yr)	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
University/College (4Yr)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
University/College (4Yr)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1180	1.0000e-004	0.0110	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0236	0.0236	6.0000e-005		0.0252
Unmitigated	1.1180	1.0000e-004	0.0110	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0236	0.0236	6.0000e-005		0.0252

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1270					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9900					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0200e-003	1.0000e-004	0.0110	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0236	0.0236	6.0000e-005		0.0252
Total	**1.1180**	**1.0000e-004**	**0.0110**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0236**	**0.0236**	**6.0000e-005**		**0.0252**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1270					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9900					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0200e-003	1.0000e-004	0.0110	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0236	0.0236	6.0000e-005		0.0252
Total	**1.1180**	**1.0000e-004**	**0.0110**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0236**	**0.0236**	**6.0000e-005**		**0.0252**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0.14	50	536.409	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (300 - 600 HP)	0.1232	0.3442	0.3140	5.9000e-004		0.0181	0.0181		0.0181	0.0181		62.9971	62.9971	8.8300e-003		63.2179
Total	**0.1232**	**0.3442**	**0.3140**	**5.9000e-004**		**0.0181**	**0.0181**		**0.0181**	**0.0181**		**62.9971**	**62.9971**	**8.8300e-003**		**63.2179**

11.0 Vegetation

UCR_SHCC

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
University/College (4Yr)	108.00	Employee	1.50	50,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2023
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Client provided data.

Construction Phase - Based on client schedule.

Trips and VMT - Client provided max number of workers during construction.

Demolition - Client provided tonnage.

Grading - Client provided grading data.

Energy Use - No natural gas used for building, as provided by client information. Exceed Title 24 reduced by 20%.

Water And Wastewater - Indoor and outdoor water gallons from client info.

Solid Waste - Solid waste reduced by 68% from client provided info on waste diversion.

Construction Off-road Equipment Mitigation - SCAQMD requirement water 2x/day.

Area Mitigation -

Energy Mitigation - Client provided information.

Stationary Sources - Emergency Generators and Fire Pumps - A 400 kW, diesel emergency generator with sound attenuated enclosure and diesel particulate filter.

UCR_SHCC - South Coast AQMD Air District, Winter

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	200.00	349.00
tblConstructionPhase	NumDays	4.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	5.00
tblEnergyUse	NT24NG	0.01	0.00
tblEnergyUse	T24E	1.97	1.58
tblEnergyUse	T24NG	13.82	0.00
tblLandUse	LandUseSquareFeet	76,224.49	50,000.00
tblLandUse	LotAcreage	1.75	1.50
tblSolidWaste	SolidWasteGenerationRate	86.40	27.65
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	536.41
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	0.14
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	500.00
tblWater	IndoorWaterUseRate	887,956.99	98,385.00
tblWater	OutdoorWaterUseRate	1,388,855.81	284,600.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.1541	23.2043	15.7116	0.0357	5.8890	1.0528	6.6550	2.9774	0.9828	3.6822	0.0000	3,560.5885	3,560.5885	0.6757	0.0000	3,577.4814
2022	25.1586	14.7006	15.5128	0.0295	0.3306	0.6740	1.0046	0.0889	0.6537	0.7426	0.0000	2,742.3804	2,742.3804	0.4339	0.0000	2,752.0509
Maximum	**25.1586**	**23.2043**	**15.7116**	**0.0357**	**5.8890**	**1.0528**	**6.6550**	**2.9774**	**0.9828**	**3.6822**	**0.0000**	**3,560.5885**	**3,560.5885**	**0.6757**	**0.0000**	**3,577.4814**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.1541	23.2043	15.7116	0.0357	2.7377	1.0528	3.4653	1.3529	0.9828	2.0576	0.0000	3,560.5885	3,560.5885	0.6757	0.0000	3,577.4814
2022	25.1586	14.7006	15.5128	0.0295	0.3306	0.6740	1.0046	0.0889	0.6537	0.7426	0.0000	2,742.3804	2,742.3804	0.4339	0.0000	2,752.0509
Maximum	**25.1586**	**23.2043**	**15.7116**	**0.0357**	**2.7377**	**1.0528**	**3.4653**	**1.3529**	**0.9828**	**2.0576**	**0.0000**	**3,560.5885**	**3,560.5885**	**0.6757**	**0.0000**	**3,577.4814**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**50.67**	**0.00**	**41.64**	**52.98**	**0.00**	**36.71**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1180	1.0000e-004	0.0110	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0236	0.0236	6.0000e-005		0.0252
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.3837	6.4505	17.5631	0.0694	6.1809	0.0503	6.2312	1.6537	0.0468	1.7005		7,075.4859	7,075.4859	0.3303		7,083.7439
Stationary	0.1232	0.3442	0.3140	5.9000e-004		0.0181	0.0181		0.0181	0.0181		62.9971	62.9971	8.8300e-003		63.2179
Total	**2.6249**	**6.7948**	**17.8881**	**0.0700**	**6.1809**	**0.0685**	**6.2494**	**1.6537**	**0.0649**	**1.7186**		**7,138.5067**	**7,138.5067**	**0.3392**	**0.0000**	**7,146.9871**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.1180	1.0000e-004	0.0110	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0236	0.0236	6.0000e-005		0.0252
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.3837	6.4505	17.5631	0.0694	6.1809	0.0503	6.2312	1.6537	0.0468	1.7005		7,075.4859	7,075.4859	0.3303		7,083.7439
Stationary	0.1232	0.3442	0.3140	5.9000e-004		0.0181	0.0181		0.0181	0.0181		62.9971	62.9971	8.8300e-003		63.2179
Total	**2.6249**	**6.7948**	**17.8881**	**0.0700**	**6.1809**	**0.0685**	**6.2494**	**1.6537**	**0.0649**	**1.7186**		**7,138.5067**	**7,138.5067**	**0.3392**	**0.0000**	**7,146.9871**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2021	6/28/2021	5	20	
2	Site Preparation	Site Preparation	6/29/2021	7/5/2021	5	5	
3	Grading	Grading	7/6/2021	8/2/2021	5	20	
4	Building Construction	Building Construction	8/3/2021	12/2/2022	5	349	
5	Architectural Coating	Architectural Coating	11/20/2022	12/16/2022	5	20	
6	Paving	Paving	12/5/2022	12/30/2022	5	20	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 7.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 75,000; Non-Residential Outdoor: 25,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	271.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	21.00	8.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.9317	0.0000	2.9317	0.4439	0.0000	0.4439			0.0000			0.0000
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715		2,322.7171	2,322.7171	0.5940		2,337.5658
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**	**2.9317**	**1.0409**	**3.9726**	**0.4439**	**0.9715**	**1.4154**		**2,322.7171**	**2,322.7171**	**0.5940**		**2,337.5658**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1011	3.4688	0.7790	0.0102	0.2368	0.0108	0.2476	0.0649	0.0103	0.0752		1,103.2347	1,103.2347	0.0782		1,105.1886
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0600	0.0390	0.4401	1.3500e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		134.6368	134.6368	3.6100e-003		134.7270
Total	**0.1611**	**3.5077**	**1.2191**	**0.0115**	**0.3821**	**0.0119**	**0.3939**	**0.1034**	**0.0113**	**0.1147**		**1,237.8715**	**1,237.8715**	**0.0818**		**1,239.9156**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.3193	0.0000	1.3193	0.1998	0.0000	0.1998			0.0000			0.0000
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715	0.0000	2,322.7171	2,322.7171	0.5940		2,337.5658
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**	**1.3193**	**1.0409**	**2.3602**	**0.1998**	**0.9715**	**1.1712**	**0.0000**	**2,322.7171**	**2,322.7171**	**0.5940**		**2,337.5658**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1011	3.4688	0.7790	0.0102	0.2368	0.0108	0.2476	0.0649	0.0103	0.0752		1,103.2347	1,103.2347	0.0782		1,105.1886
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0600	0.0390	0.4401	1.3500e-003	0.1453	1.0700e-003	0.1464	0.0385	9.9000e-004	0.0395		134.6368	134.6368	3.6100e-003		134.7270
Total	**0.1611**	**3.5077**	**1.2191**	**0.0115**	**0.3821**	**0.0119**	**0.3939**	**0.1034**	**0.0113**	**0.1147**		**1,237.8715**	**1,237.8715**	**0.0818**		**1,239.9156**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.5558	17.4203	7.5605	0.0172		0.7654	0.7654		0.7041	0.7041		1,666.5174	1,666.5174	0.5390		1,679.9920
Total	**1.5558**	**17.4203**	**7.5605**	**0.0172**	**5.7996**	**0.7654**	**6.5650**	**2.9537**	**0.7041**	**3.6578**		**1,666.5174**	**1,666.5174**	**0.5390**		**1,679.9920**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2708	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		82.8534	82.8534	2.2200e-003		82.9089
Total	**0.0369**	**0.0240**	**0.2708**	**8.3000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**82.8534**	**82.8534**	**2.2200e-003**		**82.9089**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6098	0.0000	2.6098	1.3292	0.0000	1.3292			0.0000			0.0000
Off-Road	1.5558	17.4203	7.5605	0.0172		0.7654	0.7654		0.7041	0.7041	0.0000	1,666.5174	1,666.5174	0.5390		1,679.9920
Total	**1.5558**	**17.4203**	**7.5605**	**0.0172**	**2.6098**	**0.7654**	**3.3752**	**1.3292**	**0.7041**	**2.0333**	**0.0000**	**1,666.5174**	**1,666.5174**	**0.5390**		**1,679.9920**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2708	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		82.8534	82.8534	2.2200e-003		82.9089
Total	**0.0369**	**0.0240**	**0.2708**	**8.3000e-004**	**0.0894**	**6.6000e-004**	**0.0901**	**0.0237**	**6.1000e-004**	**0.0243**		**82.8534**	**82.8534**	**2.2200e-003**		**82.9089**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.2884	14.3307	6.3314	0.0141		0.6379	0.6379		0.5869	0.5869		1,365.0648	1,365.0648	0.4415		1,376.1020
Total	**1.2884**	**14.3307**	**6.3314**	**0.0141**	**4.9143**	**0.6379**	**5.5522**	**2.5256**	**0.5869**	**3.1125**		**1,365.0648**	**1,365.0648**	**0.4415**		**1,376.1020**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1866	6.3999	1.4372	0.0188	0.4369	0.0199	0.4568	0.1197	0.0190	0.1388		2,035.4883	2,035.4883	0.1442		2,039.0933
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2708	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		82.8534	82.8534	2.2200e-003		82.9089
Total	**0.2235**	**6.4239**	**1.7081**	**0.0196**	**0.5263**	**0.0206**	**0.5468**	**0.1434**	**0.0197**	**0.1631**		**2,118.3417**	**2,118.3417**	**0.1464**		**2,122.0022**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2114	0.0000	2.2114	1.1365	0.0000	1.1365			0.0000			0.0000
Off-Road	1.2884	14.3307	6.3314	0.0141		0.6379	0.6379		0.5869	0.5869	0.0000	1,365.0648	1,365.0648	0.4415		1,376.1020
Total	**1.2884**	**14.3307**	**6.3314**	**0.0141**	**2.2114**	**0.6379**	**2.8493**	**1.1365**	**0.5869**	**1.7234**	**0.0000**	**1,365.0648**	**1,365.0648**	**0.4415**		**1,376.1020**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1866	6.3999	1.4372	0.0188	0.4369	0.0199	0.4568	0.1197	0.0190	0.1388		2,035.4883	2,035.4883	0.1442		2,039.0933
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0369	0.0240	0.2708	8.3000e-004	0.0894	6.6000e-004	0.0901	0.0237	6.1000e-004	0.0243		82.8534	82.8534	2.2200e-003		82.9089
Total	**0.2235**	**6.4239**	**1.7081**	**0.0196**	**0.5263**	**0.0206**	**0.5468**	**0.1434**	**0.0197**	**0.1631**		**2,118.3417**	**2,118.3417**	**0.1464**		**2,122.0022**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**		**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0234	0.7606	0.2026	1.9800e-003	0.0512	1.5900e-003	0.0528	0.0147	1.5200e-003	0.0163		211.6402	211.6402	0.0142		211.9942
Worker	0.0969	0.0629	0.7109	2.1800e-003	0.2347	1.7300e-003	0.2365	0.0623	1.5900e-003	0.0638		217.4903	217.4903	5.8300e-003		217.6360
Total	**0.1203**	**0.8235**	**0.9135**	**4.1600e-003**	**0.2859**	**3.3200e-003**	**0.2893**	**0.0770**	**3.1100e-003**	**0.0801**		**429.1304**	**429.1304**	**0.0200**		**429.6301**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**	**0.0000**	**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0234	0.7606	0.2026	1.9800e-003	0.0512	1.5900e-003	0.0528	0.0147	1.5200e-003	0.0163		211.6402	211.6402	0.0142		211.9942
Worker	0.0969	0.0629	0.7109	2.1800e-003	0.2347	1.7300e-003	0.2365	0.0623	1.5900e-003	0.0638		217.4903	217.4903	5.8300e-003		217.6360
Total	**0.1203**	**0.8235**	**0.9135**	**4.1600e-003**	**0.2859**	**3.3200e-003**	**0.2893**	**0.0770**	**3.1100e-003**	**0.0801**		**429.1304**	**429.1304**	**0.0200**		**429.6301**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689		2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**		**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0220	0.7214	0.1916	1.9600e-003	0.0512	1.3800e-003	0.0526	0.0147	1.3200e-003	0.0161		209.7554	209.7554	0.0136		210.0959
Worker	0.0911	0.0568	0.6562	2.1000e-003	0.2347	1.6800e-003	0.2364	0.0623	1.5500e-003	0.0638		209.6927	209.6927	5.2600e-003		209.8243
Total	**0.1131**	**0.7782**	**0.8478**	**4.0600e-003**	**0.2859**	**3.0600e-003**	**0.2890**	**0.0770**	**2.8700e-003**	**0.0799**		**419.4481**	**419.4481**	**0.0189**		**419.9202**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689	0.0000	2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**	**0.0000**	**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0220	0.7214	0.1916	1.9600e-003	0.0512	1.3800e-003	0.0526	0.0147	1.3200e-003	0.0161		209.7554	209.7554	0.0136		210.0959
Worker	0.0911	0.0568	0.6562	2.1000e-003	0.2347	1.6800e-003	0.2364	0.0623	1.5500e-003	0.0638		209.6927	209.6927	5.2600e-003		209.8243
Total	**0.1131**	**0.7782**	**0.8478**	**4.0600e-003**	**0.2859**	**3.0600e-003**	**0.2890**	**0.0770**	**2.8700e-003**	**0.0799**		**419.4481**	**419.4481**	**0.0189**		**419.9202**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	23.1750					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**23.3795**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0174	0.0108	0.1250	4.0000e-004	0.0447	3.2000e-004	0.0450	0.0119	2.9000e-004	0.0122		39.9415	39.9415	1.0000e-003		39.9665
Total	**0.0174**	**0.0108**	**0.1250**	**4.0000e-004**	**0.0447**	**3.2000e-004**	**0.0450**	**0.0119**	**2.9000e-004**	**0.0122**		**39.9415**	**39.9415**	**1.0000e-003**		**39.9665**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	23.1750					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**23.3795**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0174	0.0108	0.1250	4.0000e-004	0.0447	3.2000e-004	0.0450	0.0119	2.9000e-004	0.0122		39.9415	39.9415	1.0000e-003		39.9665
Total	**0.0174**	**0.0108**	**0.1250**	**4.0000e-004**	**0.0447**	**3.2000e-004**	**0.0450**	**0.0119**	**2.9000e-004**	**0.0122**		**39.9415**	**39.9415**	**1.0000e-003**		**39.9665**

3.7 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6877	6.7738	8.8060	0.0135		0.3474	0.3474		0.3205	0.3205		1,297.3789	1,297.3789	0.4113		1,307.6608
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6877**	**6.7738**	**8.8060**	**0.0135**		**0.3474**	**0.3474**		**0.3205**	**0.3205**		**1,297.3789**	**1,297.3789**	**0.4113**		**1,307.6608**

3.7 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0564	0.0352	0.4062	1.3000e-003	0.1453	1.0400e-003	0.1464	0.0385	9.6000e-004	0.0395		129.8098	129.8098	3.2600e-003		129.8912
Total	**0.0564**	**0.0352**	**0.4062**	**1.3000e-003**	**0.1453**	**1.0400e-003**	**0.1464**	**0.0385**	**9.6000e-004**	**0.0395**		**129.8098**	**129.8098**	**3.2600e-003**		**129.8912**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6877	6.7738	8.8060	0.0135		0.3474	0.3474		0.3205	0.3205	0.0000	1,297.3789	1,297.3789	0.4113		1,307.6608
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6877**	**6.7738**	**8.8060**	**0.0135**		**0.3474**	**0.3474**		**0.3205**	**0.3205**	**0.0000**	**1,297.3789**	**1,297.3789**	**0.4113**		**1,307.6608**

3.7 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0564	0.0352	0.4062	1.3000e-003	0.1453	1.0400e-003	0.1464	0.0385	9.6000e-004	0.0395		129.8098	129.8098	3.2600e-003		129.8912
Total	**0.0564**	**0.0352**	**0.4062**	**1.3000e-003**	**0.1453**	**1.0400e-003**	**0.1464**	**0.0385**	**9.6000e-004**	**0.0395**		**129.8098**	**129.8098**	**3.2600e-003**		**129.8912**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.3837	6.4505	17.5631	0.0694	6.1809	0.0503	6.2312	1.6537	0.0468	1.7005		7,075.4859	7,075.4859	0.3303		7,083.7439
Unmitigated	1.3837	6.4505	17.5631	0.0694	6.1809	0.0503	6.2312	1.6537	0.0468	1.7005		7,075.4859	7,075.4859	0.3303		7,083.7439

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
University/College (4Yr)	967.68	336.96	0.00	2,220,886	2,220,886
Total	967.68	336.96	0.00	2,220,886	2,220,886

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
University/College (4Yr)	16.60	8.40	6.90	6.40	88.60	5.00	91	9	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
University/College (4Yr)	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
University/College (4Yr)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
University/College (4Yr)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1180	1.0000e-004	0.0110	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0236	0.0236	6.0000e-005		0.0252
Unmitigated	1.1180	1.0000e-004	0.0110	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0236	0.0236	6.0000e-005		0.0252

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1270					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9900					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0200e-003	1.0000e-004	0.0110	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0236	0.0236	6.0000e-005		0.0252
Total	**1.1180**	**1.0000e-004**	**0.0110**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0236**	**0.0236**	**6.0000e-005**		**0.0252**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1270					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.9900					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0200e-003	1.0000e-004	0.0110	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0236	0.0236	6.0000e-005		0.0252
Total	**1.1180**	**1.0000e-004**	**0.0110**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0236**	**0.0236**	**6.0000e-005**		**0.0252**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0.14	50	536.409	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (300 - 600 HP)	0.1232	0.3442	0.3140	5.9000e-004		0.0181	0.0181		0.0181	0.0181		62.9971	62.9971	8.8300e-003		63.2179
Total	**0.1232**	**0.3442**	**0.3140**	**5.9000e-004**		**0.0181**	**0.0181**		**0.0181**	**0.0181**		**62.9971**	**62.9971**	**8.8300e-003**		**63.2179**

11.0 Vegetation

UCR_SHCC

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
University/College (4Yr)	108.00	Employee	1.50	50,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2030
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	662.83	**CH4 Intensity (lb/MWhr)**	0.015	**N2O Intensity (lb/MWhr)**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Intensity factors changed based on RPS updates.

Land Use - Client provided data.

Construction Phase - Based on client schedule.

Trips and VMT - Client provided max number of workers during construction.

Demolition - Client provided tonnage.

Grading - Client provided grading data.

Energy Use - No natural gas used for building, as provided by client information. Exceed Title 24 reduced by 20%.

Water And Wastewater - Indoor and outdoor water gallons from client info.

Solid Waste - Solid waste reduced by 68% from client provided info on waste diversion.

Construction Off-road Equipment Mitigation - SCAQMD requirement water 2x/day.

Area Mitigation -

Energy Mitigation - Client provided information.

Stationary Sources - Emergency Generators and Fire Pumps - A 400 kW, diesel emergency generator with sound attenuated enclosure and diesel particulate filter.

UCR_SHCC - South Coast AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	4.00	20.00
tblConstructionPhase	NumDays	200.00	349.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblEnergyUse	NT24NG	0.01	0.00
tblEnergyUse	T24E	1.97	1.58
tblEnergyUse	T24NG	13.82	0.00
tblLandUse	LandUseSquareFeet	76,224.49	50,000.00
tblLandUse	LotAcreage	1.75	1.50
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	1325.65	662.83
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblSolidWaste	SolidWasteGenerationRate	86.40	27.65
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	536.41
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	0.14
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	500.00
tblWater	IndoorWaterUseRate	887,956.99	98,385.00
tblWater	OutdoorWaterUseRate	1,388,855.81	284,600.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1453	1.2739	1.0098	2.1700e-003	0.1174	0.0565	0.1739	0.0437	0.0538	0.0975	0.0000	188.7436	188.7436	0.0313	0.0000	189.5255
2022	0.4516	1.6778	1.7417	3.3300e-003	0.0356	0.0753	0.1109	9.5800e-003	0.0726	0.0822	0.0000	280.2325	280.2325	0.0439	0.0000	281.3299
Maximum	**0.4516**	**1.6778**	**1.7417**	**3.3300e-003**	**0.1174**	**0.0753**	**0.1739**	**0.0437**	**0.0726**	**0.0975**	**0.0000**	**280.2325**	**280.2325**	**0.0439**	**0.0000**	**281.3299**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1453	1.2739	1.0098	2.1700e-003	0.0663	0.0565	0.1228	0.0233	0.0538	0.0771	0.0000	188.7435	188.7435	0.0313	0.0000	189.5254
2022	0.4516	1.6778	1.7417	3.3300e-003	0.0356	0.0753	0.1109	9.5800e-003	0.0726	0.0822	0.0000	280.2322	280.2322	0.0439	0.0000	281.3296
Maximum	**0.4516**	**1.6778**	**1.7417**	**3.3300e-003**	**0.0663**	**0.0753**	**0.1228**	**0.0233**	**0.0726**	**0.0822**	**0.0000**	**280.2322**	**280.2322**	**0.0439**	**0.0000**	**281.3296**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**33.42**	**0.00**	**17.95**	**38.29**	**0.00**	**11.34**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
5	6-1-2021	8-31-2021	0.6921	0.6921
6	9-1-2021	11-30-2021	0.5326	0.5326
7	12-1-2021	2-28-2022	0.4985	0.4985
8	3-1-2022	5-31-2022	0.4940	0.4940
9	6-1-2022	8-31-2022	0.4939	0.4939
10	9-1-2022	9-30-2022	0.1611	0.1611
		Highest	0.6921	0.6921

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2040	1.0000e-005	1.3700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6800e-003	2.6800e-003	1.0000e-005	0.0000	2.8500e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	112.5952	112.5952	2.5500e-003	5.1000e-004	112.8107
Mobile	0.1363	0.7793	1.7338	8.3200e-003	0.8436	5.0400e-003	0.8487	0.2260	4.6800e-003	0.2307	0.0000	773.7778	773.7778	0.0312	0.0000	774.5573
Stationary	0.0220	0.0615	0.0561	1.1000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003	0.0000	10.2054	10.2054	1.4300e-003	0.0000	10.2411
Waste						0.0000	0.0000		0.0000	0.0000	5.6127	0.0000	5.6127	0.3317	0.0000	13.9052
Water						0.0000	0.0000		0.0000	0.0000	0.0312	1.3358	1.3670	3.2400e-003	8.0000e-005	1.4723
Total	**0.3623**	**0.8408**	**1.7912**	**8.4300e-003**	**0.8436**	**8.2700e-003**	**0.8519**	**0.2260**	**7.9100e-003**	**0.2339**	**5.6439**	**897.9168**	**903.5607**	**0.3701**	**5.9000e-004**	**912.9895**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2040	1.0000e-005	1.3700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6800e-003	2.6800e-003	1.0000e-005	0.0000	2.8500e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	106.8948	106.8948	2.4200e-003	4.8000e-004	107.0994
Mobile	0.1363	0.7793	1.7338	8.3200e-003	0.8436	5.0400e-003	0.8487	0.2260	4.6800e-003	0.2307	0.0000	773.7778	773.7778	0.0312	0.0000	774.5573
Stationary	0.0220	0.0615	0.0561	1.1000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003	0.0000	10.2054	10.2054	1.4300e-003	0.0000	10.2411
Waste						0.0000	0.0000		0.0000	0.0000	5.6127	0.0000	5.6127	0.3317	0.0000	13.9052
Water						0.0000	0.0000		0.0000	0.0000	0.0312	1.3358	1.3670	3.2400e-003	8.0000e-005	1.4723
Total	**0.3623**	**0.8408**	**1.7912**	**8.4300e-003**	**0.8436**	**8.2700e-003**	**0.8519**	**0.2260**	**7.9100e-003**	**0.2339**	**5.6439**	**892.2163**	**897.8603**	**0.3700**	**5.6000e-004**	**907.2782**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.63**	**0.63**	**0.04**	**5.08**	**0.63**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2021	6/28/2021	5	20	
2	Site Preparation	Site Preparation	6/29/2021	7/5/2021	5	5	
3	Grading	Grading	7/6/2021	8/2/2021	5	20	
4	Building Construction	Building Construction	8/3/2021	12/2/2022	5	349	
5	Architectural Coating	Architectural Coating	11/20/2022	12/16/2022	5	20	
6	Paving	Paving	12/5/2022	12/30/2022	5	20	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 7.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 75,000; Non-Residential Outdoor: 25,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	271.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	21.00	8.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0293	0.0000	0.0293	4.4400e-003	0.0000	4.4400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0199	0.1970	0.1449	2.4000e-004		0.0104	0.0104		9.7100e-003	9.7100e-003	0.0000	21.0713	21.0713	5.3900e-003	0.0000	21.2060
Total	**0.0199**	**0.1970**	**0.1449**	**2.4000e-004**	**0.0293**	**0.0104**	**0.0397**	**4.4400e-003**	**9.7100e-003**	**0.0142**	**0.0000**	**21.0713**	**21.0713**	**5.3900e-003**	**0.0000**	**21.2060**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-003	0.0353	7.4900e-003	1.0000e-004	2.3300e-003	1.1000e-004	2.4400e-003	6.4000e-004	1.0000e-004	7.4000e-004	0.0000	10.1178	10.1178	6.9000e-004	0.0000	10.1351
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	4.0000e-004	4.5300e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2424	1.2424	3.0000e-005	0.0000	1.2432
Total	**1.5400e-003**	**0.0357**	**0.0120**	**1.1000e-004**	**3.7600e-003**	**1.2000e-004**	**3.8800e-003**	**1.0200e-003**	**1.1000e-004**	**1.1300e-003**	**0.0000**	**11.3601**	**11.3601**	**7.2000e-004**	**0.0000**	**11.3783**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0132	0.0000	0.0132	2.0000e-003	0.0000	2.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0199	0.1970	0.1449	2.4000e-004		0.0104	0.0104		9.7100e-003	9.7100e-003	0.0000	21.0713	21.0713	5.3900e-003	0.0000	21.2060
Total	**0.0199**	**0.1970**	**0.1449**	**2.4000e-004**	**0.0132**	**0.0104**	**0.0236**	**2.0000e-003**	**9.7100e-003**	**0.0117**	**0.0000**	**21.0713**	**21.0713**	**5.3900e-003**	**0.0000**	**21.2060**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-003	0.0353	7.4900e-003	1.0000e-004	2.3300e-003	1.1000e-004	2.4400e-003	6.4000e-004	1.0000e-004	7.4000e-004	0.0000	10.1178	10.1178	6.9000e-004	0.0000	10.1351
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	4.0000e-004	4.5300e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2424	1.2424	3.0000e-005	0.0000	1.2432
Total	**1.5400e-003**	**0.0357**	**0.0120**	**1.1000e-004**	**3.7600e-003**	**1.2000e-004**	**3.8800e-003**	**1.0200e-003**	**1.1000e-004**	**1.1300e-003**	**0.0000**	**11.3601**	**11.3601**	**7.2000e-004**	**0.0000**	**11.3783**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0145	0.0000	0.0145	7.3800e-003	0.0000	7.3800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8900e-003	0.0436	0.0189	4.0000e-005		1.9100e-003	1.9100e-003		1.7600e-003	1.7600e-003	0.0000	3.7796	3.7796	1.2200e-003	0.0000	3.8102
Total	**3.8900e-003**	**0.0436**	**0.0189**	**4.0000e-005**	**0.0145**	**1.9100e-003**	**0.0164**	**7.3800e-003**	**1.7600e-003**	**9.1400e-003**	**0.0000**	**3.7796**	**3.7796**	**1.2200e-003**	**0.0000**	**3.8102**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	7.0000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1911	0.1911	1.0000e-005	0.0000	0.1913
Total	**8.0000e-005**	**6.0000e-005**	**7.0000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1911**	**0.1911**	**1.0000e-005**	**0.0000**	**0.1913**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.5200e-003	0.0000	6.5200e-003	3.3200e-003	0.0000	3.3200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8900e-003	0.0436	0.0189	4.0000e-005		1.9100e-003	1.9100e-003		1.7600e-003	1.7600e-003	0.0000	3.7796	3.7796	1.2200e-003	0.0000	3.8102
Total	**3.8900e-003**	**0.0436**	**0.0189**	**4.0000e-005**	**6.5200e-003**	**1.9100e-003**	**8.4300e-003**	**3.3200e-003**	**1.7600e-003**	**5.0800e-003**	**0.0000**	**3.7796**	**3.7796**	**1.2200e-003**	**0.0000**	**3.8102**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	7.0000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1911	0.1911	1.0000e-005	0.0000	0.1913
Total	**8.0000e-005**	**6.0000e-005**	**7.0000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1911**	**0.1911**	**1.0000e-005**	**0.0000**	**0.1913**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0129	0.1433	0.0633	1.4000e-004		6.3800e-003	6.3800e-003		5.8700e-003	5.8700e-003	0.0000	12.3837	12.3837	4.0100e-003	0.0000	12.4838
Total	**0.0129**	**0.1433**	**0.0633**	**1.4000e-004**	**0.0491**	**6.3800e-003**	**0.0555**	**0.0253**	**5.8700e-003**	**0.0311**	**0.0000**	**12.3837**	**12.3837**	**4.0100e-003**	**0.0000**	**12.4838**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8400e-003	0.0652	0.0138	1.9000e-004	4.3000e-003	2.0000e-004	4.5000e-003	1.1800e-003	1.9000e-004	1.3700e-003	0.0000	18.6675	18.6675	1.2800e-003	0.0000	18.6994
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.5000e-004	2.7900e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7645	0.7645	2.0000e-005	0.0000	0.7650
Total	**2.1700e-003**	**0.0654**	**0.0166**	**2.0000e-004**	**5.1800e-003**	**2.1000e-004**	**5.3800e-003**	**1.4100e-003**	**2.0000e-004**	**1.6100e-003**	**0.0000**	**19.4320**	**19.4320**	**1.3000e-003**	**0.0000**	**19.4645**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0221	0.0000	0.0221	0.0114	0.0000	0.0114	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0129	0.1433	0.0633	1.4000e-004		6.3800e-003	6.3800e-003		5.8700e-003	5.8700e-003	0.0000	12.3836	12.3836	4.0100e-003	0.0000	12.4838
Total	**0.0129**	**0.1433**	**0.0633**	**1.4000e-004**	**0.0221**	**6.3800e-003**	**0.0285**	**0.0114**	**5.8700e-003**	**0.0172**	**0.0000**	**12.3836**	**12.3836**	**4.0100e-003**	**0.0000**	**12.4838**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8400e-003	0.0652	0.0138	1.9000e-004	4.3000e-003	2.0000e-004	4.5000e-003	1.1800e-003	1.9000e-004	1.3700e-003	0.0000	18.6675	18.6675	1.2800e-003	0.0000	18.6994
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.5000e-004	2.7900e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7645	0.7645	2.0000e-005	0.0000	0.7650
Total	**2.1700e-003**	**0.0654**	**0.0166**	**2.0000e-004**	**5.1800e-003**	**2.1000e-004**	**5.3800e-003**	**1.4100e-003**	**2.0000e-004**	**1.6100e-003**	**0.0000**	**19.4320**	**19.4320**	**1.3000e-003**	**0.0000**	**19.4645**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0988	0.7432	0.7030	1.2000e-003		0.0373	0.0373		0.0360	0.0360	0.0000	98.9435	98.9435	0.0177	0.0000	99.3851
Total	**0.0988**	**0.7432**	**0.7030**	**1.2000e-003**		**0.0373**	**0.0373**		**0.0360**	**0.0360**	**0.0000**	**98.9435**	**98.9435**	**0.0177**	**0.0000**	**99.3851**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2400e-003	0.0422	0.0105	1.1000e-004	2.7500e-003	8.0000e-005	2.8300e-003	7.9000e-004	8.0000e-005	8.7000e-004	0.0000	10.6448	10.6448	6.7000e-004	0.0000	10.6616
Worker	4.7700e-003	3.5300e-003	0.0399	1.2000e-004	0.0126	9.0000e-005	0.0127	3.3300e-003	9.0000e-005	3.4200e-003	0.0000	10.9375	10.9375	2.9000e-004	0.0000	10.9449
Total	**6.0100e-003**	**0.0457**	**0.0503**	**2.3000e-004**	**0.0153**	**1.7000e-004**	**0.0155**	**4.1200e-003**	**1.7000e-004**	**4.2900e-003**	**0.0000**	**21.5823**	**21.5823**	**9.6000e-004**	**0.0000**	**21.6065**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0988	0.7432	0.7030	1.2000e-003		0.0373	0.0373		0.0360	0.0360	0.0000	98.9433	98.9433	0.0177	0.0000	99.3849
Total	**0.0988**	**0.7432**	**0.7030**	**1.2000e-003**		**0.0373**	**0.0373**		**0.0360**	**0.0360**	**0.0000**	**98.9433**	**98.9433**	**0.0177**	**0.0000**	**99.3849**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2400e-003	0.0422	0.0105	1.1000e-004	2.7500e-003	8.0000e-005	2.8300e-003	7.9000e-004	8.0000e-005	8.7000e-004	0.0000	10.6448	10.6448	6.7000e-004	0.0000	10.6616
Worker	4.7700e-003	3.5300e-003	0.0399	1.2000e-004	0.0126	9.0000e-005	0.0127	3.3300e-003	9.0000e-005	3.4200e-003	0.0000	10.9375	10.9375	2.9000e-004	0.0000	10.9449
Total	**6.0100e-003**	**0.0457**	**0.0503**	**2.3000e-004**	**0.0153**	**1.7000e-004**	**0.0155**	**4.1200e-003**	**1.7000e-004**	**4.2900e-003**	**0.0000**	**21.5823**	**21.5823**	**9.6000e-004**	**0.0000**	**21.6065**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1978	1.5004	1.5272	2.6500e-003		0.0707	0.0707		0.0683	0.0683	0.0000	217.8923	217.8923	0.0380	0.0000	218.8411
Total	**0.1978**	**1.5004**	**1.5272**	**2.6500e-003**		**0.0707**	**0.0707**		**0.0683**	**0.0683**	**0.0000**	**217.8923**	**217.8923**	**0.0380**	**0.0000**	**218.8411**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5600e-003	0.0881	0.0218	2.4000e-004	6.0500e-003	1.6000e-004	6.2100e-003	1.7500e-003	1.5000e-004	1.9000e-003	0.0000	23.2317	23.2317	1.4300e-003	0.0000	23.2674
Worker	9.8600e-003	7.0100e-003	0.0811	2.6000e-004	0.0277	2.0000e-004	0.0279	7.3400e-003	1.9000e-004	7.5300e-003	0.0000	23.2192	23.2192	5.8000e-004	0.0000	23.2338
Total	**0.0124**	**0.0951**	**0.1029**	**5.0000e-004**	**0.0337**	**3.6000e-004**	**0.0341**	**9.0900e-003**	**3.4000e-004**	**9.4300e-003**	**0.0000**	**46.4509**	**46.4509**	**2.0100e-003**	**0.0000**	**46.5012**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1978	1.5004	1.5272	2.6500e-003		0.0707	0.0707		0.0683	0.0683	0.0000	217.8920	217.8920	0.0380	0.0000	218.8408
Total	**0.1978**	**1.5004**	**1.5272**	**2.6500e-003**		**0.0707**	**0.0707**		**0.0683**	**0.0683**	**0.0000**	**217.8920**	**217.8920**	**0.0380**	**0.0000**	**218.8408**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5600e-003	0.0881	0.0218	2.4000e-004	6.0500e-003	1.6000e-004	6.2100e-003	1.7500e-003	1.5000e-004	1.9000e-003	0.0000	23.2317	23.2317	1.4300e-003	0.0000	23.2674
Worker	9.8600e-003	7.0100e-003	0.0811	2.6000e-004	0.0277	2.0000e-004	0.0279	7.3400e-003	1.9000e-004	7.5300e-003	0.0000	23.2192	23.2192	5.8000e-004	0.0000	23.2338
Total	**0.0124**	**0.0951**	**0.1029**	**5.0000e-004**	**0.0337**	**3.6000e-004**	**0.0341**	**9.0900e-003**	**3.4000e-004**	**9.4300e-003**	**0.0000**	**46.4509**	**46.4509**	**2.0100e-003**	**0.0000**	**46.5012**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.2338**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.2900e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3686	0.3686	1.0000e-005	0.0000	0.3688
Total	**1.6000e-004**	**1.1000e-004**	**1.2900e-003**	**0.0000**	**4.4000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3686**	**0.3686**	**1.0000e-005**	**0.0000**	**0.3688**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2318					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.2338**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.2900e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3686	0.3686	1.0000e-005	0.0000	0.3688
Total	**1.6000e-004**	**1.1000e-004**	**1.2900e-003**	**0.0000**	**4.4000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.3686**	**0.3686**	**1.0000e-005**	**0.0000**	**0.3688**

3.7 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.8800e-003	0.0677	0.0881	1.4000e-004		3.4700e-003	3.4700e-003		3.2100e-003	3.2100e-003	0.0000	11.7696	11.7696	3.7300e-003	0.0000	11.8629
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8800e-003**	**0.0677**	**0.0881**	**1.4000e-004**		**3.4700e-003**	**3.4700e-003**		**3.2100e-003**	**3.2100e-003**	**0.0000**	**11.7696**	**11.7696**	**3.7300e-003**	**0.0000**	**11.8629**

3.7 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	3.6000e-004	4.1800e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1978	1.1978	3.0000e-005	0.0000	1.1986
Total	**5.1000e-004**	**3.6000e-004**	**4.1800e-003**	**1.0000e-005**	**1.4300e-003**	**1.0000e-005**	**1.4400e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1978**	**1.1978**	**3.0000e-005**	**0.0000**	**1.1986**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.8800e-003	0.0677	0.0881	1.4000e-004		3.4700e-003	3.4700e-003		3.2100e-003	3.2100e-003	0.0000	11.7696	11.7696	3.7300e-003	0.0000	11.8629
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8800e-003**	**0.0677**	**0.0881**	**1.4000e-004**		**3.4700e-003**	**3.4700e-003**		**3.2100e-003**	**3.2100e-003**	**0.0000**	**11.7696**	**11.7696**	**3.7300e-003**	**0.0000**	**11.8629**

3.7 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	3.6000e-004	4.1800e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.1978	1.1978	3.0000e-005	0.0000	1.1986
Total	**5.1000e-004**	**3.6000e-004**	**4.1800e-003**	**1.0000e-005**	**1.4300e-003**	**1.0000e-005**	**1.4400e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.1978**	**1.1978**	**3.0000e-005**	**0.0000**	**1.1986**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1363	0.7793	1.7338	8.3200e-003	0.8436	5.0400e-003	0.8487	0.2260	4.6800e-003	0.2307	0.0000	773.7778	773.7778	0.0312	0.0000	774.5573
Unmitigated	0.1363	0.7793	1.7338	8.3200e-003	0.8436	5.0400e-003	0.8487	0.2260	4.6800e-003	0.2307	0.0000	773.7778	773.7778	0.0312	0.0000	774.5573

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
University/College (4Yr)	967.68	336.96	0.00	2,220,886	2,220,886
Total	967.68	336.96	0.00	2,220,886	2,220,886

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
University/College (4Yr)	16.60	8.40	6.90	6.40	88.60	5.00	91	9	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
University/College (4Yr)	0.552035	0.041482	0.206421	0.111285	0.012766	0.005738	0.022315	0.037879	0.002185	0.001506	0.004914	0.000717	0.000757

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	106.8948	106.8948	2.4200e-003	4.8000e-004	107.0994
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	112.5952	112.5952	2.5500e-003	5.1000e-004	112.8107
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
University/College (4Yr)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
University/College (4Yr)	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
University/College (4Yr)	374500	112.5952	2.5500e-003	5.1000e-004	112.8107
Total		**112.5952**	**2.5500e-003**	**5.1000e-004**	**112.8107**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
University/College (4Yr)	355540	106.8948	2.4200e-003	4.8000e-004	107.0994
Total		**106.8948**	**2.4200e-003**	**4.8000e-004**	**107.0994**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2040	1.0000e-005	1.3700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6800e-003	2.6800e-003	1.0000e-005	0.0000	2.8500e-003
Unmitigated	0.2040	1.0000e-005	1.3700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6800e-003	2.6800e-003	1.0000e-005	0.0000	2.8500e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0232					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1807					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.3700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6800e-003	2.6800e-003	1.0000e-005	0.0000	2.8500e-003
Total	**0.2040**	**1.0000e-005**	**1.3700e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.6800e-003**	**2.6800e-003**	**1.0000e-005**	**0.0000**	**2.8500e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0232					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1807					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.3700e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.6800e-003	2.6800e-003	1.0000e-005	0.0000	2.8500e-003
Total	**0.2040**	**1.0000e-005**	**1.3700e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.6800e-003**	**2.6800e-003**	**1.0000e-005**	**0.0000**	**2.8500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.3670	3.2400e-003	8.0000e-005	1.4723
Unmitigated	1.3670	3.2400e-003	8.0000e-005	1.4723

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
University/College (4Yr)	0.098385 / 0.2846	1.3670	3.2400e-003	8.0000e-005	1.4723
Total		**1.3670**	**3.2400e-003**	**8.0000e-005**	**1.4723**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
University/College (4Yr)	0.098385 / 0.2846	1.3670	3.2400e-003	8.0000e-005	1.4723
Total		**1.3670**	**3.2400e-003**	**8.0000e-005**	**1.4723**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.6127	0.3317	0.0000	13.9052
Unmitigated	5.6127	0.3317	0.0000	13.9052

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
University/College (4Yr)	27.65	5.6127	0.3317	0.0000	13.9052
Total		**5.6127**	**0.3317**	**0.0000**	**13.9052**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
University/College (4Yr)	27.65	5.6127	0.3317	0.0000	13.9052
Total		**5.6127**	**0.3317**	**0.0000**	**13.9052**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0.14	50	536.409	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (300 - 600 HP)	0.0220	0.0615	0.0561	1.1000e-004		3.2300e-003	3.2300e-003		3.2300e-003	3.2300e-003	0.0000	10.2054	10.2054	1.4300e-003	0.0000	10.2411
Total	**0.0220**	**0.0615**	**0.0561**	**1.1000e-004**		**3.2300e-003**	**3.2300e-003**		**3.2300e-003**	**3.2300e-003**	**0.0000**	**10.2054**	**10.2054**	**1.4300e-003**	**0.0000**	**10.2411**

11.0 Vegetation

Construction Fuel Consumption Calculations

UCR Student Health & Counseling Center

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]**:

HP: 0 to 100	0.0588	HP: >100	0.0529

Equipment Fuel Consumption

PhaseName	OffRoadEquipmentType	Amount	Hours	HorsePower	LoadFactor	Fuel (gallons)
Demolition	Concrete/Industrial Saws	1	8	81	0.73	556.0
Demolition	Excavators	0	0	158	0.38	0.0
Demolition	Rubber Tired Dozers	1	8	247	0.4	835.6
Demolition	Tractors/Loaders/Backhoes	3	8	97	0.37	1012.3
Site Preparation	Rubber Tired Dozers	1	7	247	0.4	182.8
Site Preparation	Tractors/Loaders/Backhoes	1	8	97	0.37	84.4
Site Preparation	Graders	1	6	187	0.41	121.6
Grading	Graders	1	6	187	0.41	486.3
Grading	Rubber Tired Dozers	1	6	247	0.4	626.7
Grading	Tractors/Loaders/Backhoes	1	7	97	0.37	295.3
Building Construction	Aerial Lifts	0	0	110	0.31	0.0
Building Construction	Cranes	1	6	231	0.29	7414.9
Building Construction	Forklifts	1	6	89	0.2	2190.3
Building Construction	Generator Sets	1	8	84	0.74	10198.6
Building Construction	Off-Highway Trucks	0	0	402	0.38	0.0
Building Construction	Plate Compactors	0	8	8	0.43	0.0
Building Construction	Pumps	0	8	84	0.74	0.0
Building Construction	Tractors/Loaders/Backhoes	1	6	97	0.37	4416.3
Building Construction	Welders	3	8	46	0.45	10188.7
Architectural Coating	Air Compressors	1	6	78	0.48	264.0
Paving	Cement and Mortar Mixers	1	6	9	0.56	35.5
Paving	Off-Highway Trucks	0	0	402	0.38	0.0
Paving	Pavers	1	6	130	0.42	346.3
Paving	Paving Equipment	1	8	132	0.36	401.9
Paving	Rollers	1	7	80	0.38	250.1
Paving	Tractors/Loaders/Backhoes	1	8	97	0.37	337.4

Total Equipment Fuel Consumption 40245.1 gallons

Trip Fuel Consumption

PhaseName	Trip Type	Working Days	Trips/ day	Trip Length (mi)	MPG[2]	Fuel (gal)
Demolition	WorkerTripNumber	20	13	14.7	24	159.3
Demolition	VendorTripNumber	20	0	6.9	7.4	0.0
Demolition	HaulingTripNumber	20	13.55	10	7.4	366.2
Site Preparation	WorkerTripNumber	5	8	14.7	24	24.5
Site Preparation	VendorTripNumber	5	0	6.9	7.4	0.0
Site Preparation	HaulingTripNumber	5	0	20	7.4	0.0
Grading	WorkerTripNumber	20	8	14.7	24	98.0
Grading	VendorTripNumber	20	0	6.9	7.4	0.0
Grading	HaulingTripNumber	20	25	20	7.4	1351.4
Building Construction	WorkerTripNumber	349	21	14.7	24	4489.0
Building Construction	VendorTripNumber	349	8	6.9	7.4	2603.4
Building Construction	HaulingTripNumber	349	0	20	7.4	0.0
Architectural Coating	WorkerTripNumber	20	4	14.7	24	49.0
Architectural Coating	VendorTripNumber	20	0	6.9	7.4	0.0
Architectural Coating	HaulingTripNumber	20	0	20	7.4	0.0
Paving	WorkerTripNumber	20	13	14.7	24	159.3
Paving	VendorTripNumber	20	0	6.9	7.4	0.0
Paving	HaulingTripNumber	20	0	20	7.4	0.0
				Total Worker Trip Fuel Consumption (gallons)		**4979.0**
				Total Vendor/Haul Trip Fuel Consumption (gallons)		**4320.9**

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b* . July 2018. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2018. *National Transportation Statistics 2018* . Available at: https://www.bts.gov/sites/bts.dot.gov/files/docs/browse-statistical-products-and-data/national-transportation-statistics/223001/ntsentire2018q4.pdf.

PhaseName	Days
Demolition	20
Site Preparation	5
Grading	20
Building Construction	349
Architectural Coating	20
Paving	20

PhaseName	WorkerTripN	Vendo	Hauling	Worker	Vendor	Hauli	WorkerVe	VendorVe	HaulingVehicleClass
Demolition	13	0	271	14.7	6.9	10	LD_Mix	HDT_Mix	HHDT
Site Preparation	8	0	0	14.7	6.9	20	LD_Mix	HDT_Mix	HHDT
Grading	8	0	500	14.7	6.9	20	LD_Mix	HDT_Mix	HHDT
Building Construction	150	9	0	14.7	6.9	20	LD_Mix	HDT_Mix	HHDT
Architectural Coating	5	0	0	14.7	6.9	20	LD_Mix	HDT_Mix	HHDT
Paving	13	0	0	14.7	6.9	20	LD_Mix	HDT_Mix	HHDT

Appendix B

Geotechnical Investigation Report

TWINING

Engineering a Better Tomorrow

Geotechnical Investigation Report

Proposed New Student Health and Counseling Center
Project No. 950578
University of California, Riverside
West Linden Street and Pentland Way
Riverside, California

Prepared for:

University of California Riverside
1223 University Avenue
Riverside, California 92507

December 10, 2019
Project No.: 190638.3

TWINING

2883 East Spring Street
Suite 300
Long Beach CA 90806

Tel 562.426.3355
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December 10, 2019
Project No.: 190638.3

Mr. Gerald Caraig
Senior Project Manager
University of California Riverside
1223 University Avenue
Riverside, California 92507

Subject: **Geotechnical Investigation Report**
Proposed New Student Health and Counseling Center
Project No. 950578
University of California, Riverside
West Linden Street and Pentland Way
Riverside, California

Dear Mr. Caraig,

In accordance with your request and authorization, we are presenting the results of our geotechnical investigation for two candidate sites for the Proposed New Student Health and Counseling Center project located at West Linden Street and Pentland Way in Riverside, California. The purpose of our investigation has been to evaluate the subsurface conditions at the sites, to identify seismic and geologic hazards present on the sites, and to provide geotechnical engineering recommendations for the proposed improvements. This report was prepared in accordance with the requirements of the 2016 California Building Code (2016 CBC) and ASCE 7-10 (ASCE 2010).

Based on our findings, the proposed project is geotechnically feasible, provided that the recommendations in this report are incorporated into the design and are implemented during construction of the project. As this investigation is performed for general consideration of two candidate sites, the recommendations should be updated when final project site is determined and further geotechnical evaluation is performed.

We appreciate the opportunity to be of service on this project. Should you have any questions regarding this report or if we can be of further service, please do not hesitate to contact the undersigned.

Respectfully submitted,
TWINING, INC.

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1. INTRODUCTION

This report presents the results of the geotechnical investigation performed by Twining, Inc. (Twining) for the Proposed New Student Health and Counseling Center project at two candidate sites on the southwest corner of West Linden Street and Pentland Way on the campus of the University of California at Riverside (UCR) in Riverside, California. A description of the sites and the proposed improvements is provided in the following section. The objectives of this investigation have been to evaluate subsurface conditions at the sites, to identify seismic and geologic hazards present on the sites, and to provide geotechnical recommendations for design and construction of the proposed development.

This report was prepared in accordance with the requirements of the 2016 California Building Code (2016 CBC) and ASCE 7-10 (ASCE 2010).

2. SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The proposed project consists primarily of constructing a new 2-story building without a basement that will cover approximately 45,000 to 55,000 gross square feet. The project will also include a stormwater infiltration system. The two candidate sites are the western and eastern portions, respectively, of the current UCR Parking Lot 21 located at the southwest corner of West Linden Street and Pentland Way on the UCR campus in Riverside, California. The location of the sites is shown on Figure 1 – Site Location Map and Figure 2 – Site Plan and Exploration Location Map.

UCR Parking Lot 21 is a large paved parking lot bounded by West Linden Street on the north, Pentland Way on the east, UCR student residence halls on the south, and a building under construction on the west. The approximate coordinates for the sites are between latitudes 33.978688°N and 33.979175°N and between longitudes 117.323603°W and 117.321093°W. For the purpose of this investigation, this report used site coordinates of latitude 33.9789315°N and longitude 117.322348°W.

The sites are located on the Riverside East, California 7½-Minute Quadrangle, based on the United States Geological Survey (USGS) topographic map (USGS 2018). The sites are relatively flat with surface elevations between approximately 1,109 and 1,120 feet above mean sea level (msl).

At the time of this report, information is not available for our review on anticipated foundation loading conditions and the location and depth of the proposed infiltration system.

3. SCOPE OF WORK

Our scope of work included review of background information, pre-field activities and field exploration, laboratory testing, engineering analyses and report preparation. These tasks are described in the following subsections.

3.1. Literature Review

We reviewed readily available background data including, published geologic maps, topographic maps, site elevation contour and utility maps, aerial photographs, seismic hazard maps and literature, and flood hazard maps. Relevant information has been incorporated into this report.

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3.2. Pre-Field Activities and Field Exploration

Before starting our exploration program, we performed a geotechnical site reconnaissance to observe the general surficial conditions at the sites, to select field exploration locations, and to plan field logistics including traffic control and health and safety. After exploration locations were delineated, Underground Service Alert was notified of the planned locations a minimum of 72 hours prior to excavation.

The field exploration was conducted on November 7 and 8, 2019 and consisted of drilling, testing, sampling, and logging 8 exploratory hollow-stem-auger (HSA) borings (B-1 through B-8) and percolation testing in one of the borings (B-7). The borings were advanced to approximate depths of 16.5 to 51.5 feet below ground surface (bgs) using a CME-75 truck-mounted drill rig equipped with 8-inch-diameter HSAs. The approximate locations of the borings are shown on Figure 2 – Site Plan and Exploration Location Map.

Drive samples of the soils were obtained from the HSA borings using a Standard Penetration Test (SPT) sampler without room for liner and a modified California split spoon sampler. The samplers were driven using a 140-pound automatic hammer falling approximately 30 inches. The blow-counts to drive the samplers were recorded, and subsurface conditions encountered in the borings were logged by a Twining field engineer. Soil samples obtained from the borings were transported to Twining's geotechnical engineering laboratory for examination and testing.

Percolation tests were performed in boring B-7 according to the boring percolation test guidance provided in the Riverside County Design Handbook for Low Impact Development Best Management Practices. Testing was performed to provide estimates of infiltration rate of the site soils for use in preliminary design of the stormwater infiltration system.

Upon completion of drilling or percolation testing, the borings were backfilled by the drilling subcontractor using drilled soil cuttings and the surface was repaired with hot mix asphalt to match existing conditions.

Detailed descriptions of the field exploration, soils encountered during drilling, and the percolation tests are presented in Appendix A – Field Exploration.

3.3. Geotechnical Laboratory Testing

Laboratory tests were performed on selected samples obtained from the borings to aid in the soil classification and to evaluate the engineering properties of site soils. The following tests were performed in general accordance with ASTM standards:

- In-situ moisture and density;
- #200 Wash
- Atterberg Limits;
- Expansion Index;
- Consolidation;
- Maximum density and optimum moisture;
- Direct shear;
- R-Value; and
- Corrosivity.

Detailed laboratory test procedures and results are presented in Appendix B – Laboratory Testing.

3.4. Engineering Analyses and Report Preparation

We compiled and analyzed the data collected from our field exploration and laboratory testing. We performed engineering analyses based on our literature review and data from field exploration and laboratory testing programs. Our analyses included the following:

- Site geology, and subsurface conditions;
- Groundwater conditions;
- Geologic hazards and seismic design parameters;
- Liquefaction potential and seismic settlement;
- Soil corrosion potential;
- Soil collapse and expansion potential;
- Site preparation and earthwork;
- Project feasibility and suitability of on-site soils for foundation support;
- Foundation design parameters including bearing capacity, settlement, and lateral resistance;
- Lateral earth pressures for retaining wall design;
- Concrete slab-on-grade support;
- Modulus of subgrade reaction for concrete slab-on-grade design;
- Temporary excavations;
- Pavement section recommendations; and
- Stormwater infiltration rates.

We prepared this report to present our conclusions and recommendations from this investigation.

4. SITE GEOLOGY AND SUBSURFACE CONDITIONS

4.1. Site Geology

According to the Geologic Map of the Riverside East and South 1/2 San Bernardino South quadrangles by Dibbles and Minch (2003), the candidate sites are underlain by older surficial sediments (geologic map symbol: Qoa) that are Pleistocene in age and consist of weakly indurated alluvial fan deposits derived from local terrains of plutonic rocks. The alluvial fan deposits consist of sand and minor gravel and are tan to light reddish brown in color. A portion of the geologic map is reproduced as Figure 3 – Regional Geologic Map.

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4.2. Surface and Subsurface Conditions

The candidate sites were a paved parking lot at the time of our field exploration. The pavement section encountered in our borings generally consisted of approximately 2 to 4 inches of asphaltic concrete over approximately 4 inches of aggregate base except for boring B-8 which encountered approximately 12 inches of asphaltic concrete without a base layer.

Subsurface conditions encountered below the pavement section consisted primarily of medium dense to very dense silty and clayey sand and poorly grade sand with silt, except that approximately 4 to 5 feet of sandy lean clay was encountered in borings B-5 and B-8 immediately below the pavement section. Some gravels were encountered in the alluvial fan deposits. Fill materials were not identified in our borings.

4.3. Groundwater Conditions

During drilling, groundwater was not encountered in our borings. Based on the Riverside County Liquefaction Map, historically high groundwater level at the project sites is greater than 100 feet bgs.

Groundwater conditions may vary across either site due to stratigraphic and hydrologic conditions and may change over time as a consequence of seasonal and meteorological fluctuations, or of activities by humans at this and nearby sites.

5. GEOLOGIC HAZARDS AND SEISMIC DESIGN CONSIDERATIONS

The sites are located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project area is considered high during the design life of the proposed development. The hazards associated with seismic activity in the vicinity of the site area discussed in the following sections.

5.1. Surface Fault Rupture

Neither of the two candidate sites is located within or adjacent to an Alquist-Priolo Earthquake Fault Zone (EFZ) (CGS 2016). The boundary of the closest Alquist-Priolo EFZ is located approximately 4.8 miles (11.1 kilometers) northeast of the sites associated with the San Jacinto fault (San Bernardino Valley section). Figure 4 shows the locations of the recognized nearby faults with respect to the sites. Based on our review of geologic and seismologic literature and our site evaluation, it is our opinion that the likelihood of surface fault rupture and earthquake-induced landslides at either site during the life of the proposed improvements is low.

5.2. Liquefaction and Seismic Settlement Potential

Liquefaction is the phenomenon in which loosely deposited granular soils with silt and clay contents of less than approximately 35 percent, and non-plastic silts located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure and causes the soil to behave as a fluid for a short period of time.

Seismic settlement can occur when loose to medium dense granular materials densify during seismic shaking and liquefaction. Seismically-induced settlement may occur in dry, unsaturated, as well as saturated soils. Liquefaction is generally known to occur in loose, saturated, relatively clean, fine-grained cohesionless soils at depths shallower than approximately 50 feet. Factors to consider

in the evaluation of soil liquefaction potential include groundwater conditions, soil type, grain size distribution, relative density, degree of saturation, and both the intensity and duration of ground motion. Other phenomena associated with soil liquefaction include sand boils, ground oscillation, and loss of foundation bearing capacity.

The area of the project sites is not evaluated for liquefaction by CGS. Based on the Riverside County Liquefaction Map, the liquefaction susceptibility is low and historically high groundwater level is greater than 100 feet bgs at the project sites. It is our opinion that the potential for liquefaction at the sites is low.

Seismically-induced settlement may occur in dry and unsaturated soils. We estimated less than 1 inch of settlement due to seismic densification of dry and unsaturated silty and poorly graded sand.

5.3. Landslides

The area of the project sites is not evaluated for earthquake-induced landslides by CGS. Considering that both sites are relatively level and not close to significant slopes, the potential for earthquake-induced landslides to occur at the sites is considered very low.

5.4. Flooding

The Federal Emergency Management Agency (FEMA) has prepared flood insurance rate maps (FIRMs) for use in administering the National Flood Insurance Program. Based on our review of online FEMA flood mapping, the sites are not located within Zone X, which is described as “Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.”

5.5. Tsunamis and Seiches

Tsunamis are waves generated by massive landslides near or under sea water. The potential for the sites to be adversely impacted by earthquake-induced tsunamis is considered to be negligible because the sites are located miles inland from the ocean and at an elevation exceeding the maximum height of potential tsunami inundation.

Seiches are standing wave oscillations of an enclosed water body after the original driving force has dissipated. The potential for the sites to be adversely impacted by earthquake-induced seiches is considered to be negligible due to the lack of any significant enclosed bodies of water located in the vicinity of the sites.

5.6. Deaggregated Seismic Source Parameters

Using the USGS Seismic Hazard Interactive Reaggregation Tool based on the 2008 USGS seismic source model, a combination of modal moment earthquake magnitude and modal seismic source distance as 6.9 Mw and 5.50 miles (8.85 kilometers) or as 7.7 Mw and 5.45 miles (8.77 kilometers) were obtained for a peak acceleration of 0.84 g at the sites, which corresponds to a probability of exceedance of 2% in 50 years.

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5.7. Site Class for Seismic Design

Based on the results of our field investigation, the site soil profile consists stiff soil layers with average SPT blow-counts between 15 and 50 blows per foot. The sites should be classified as Site Class D according to Chapter 20 of ASCE 7-10.

5.8. CBC Seismic Design Parameters

Our recommendations for seismic design parameters have been developed in accordance with the 2016 CBC and ASCE 7-10 (ASCE 2010) standards based on seismic Site Class D. Table 1 presents the seismic design parameters for the sites based on coordinates of latitude 33.9789315°N and longitude 117.322348°W.

Table 1 – 2016 California Building Code Seismic Design Parameters

Design Parameters	Value
Site Class	D
Mapped Spectral Acceleration Parameter at Period of 0.2-Second, S_s (g)	1.5
Mapped Spectral Acceleration Parameter at Period 1-Second, S_1 (g)	0.634
Site Coefficient, F_a	1
Site Coefficient, F_v	1.5
Adjusted MCE_R[1] Spectral Response Acceleration Parameter, S_{MS} (g)	1.5
Adjusted MCE_R[1] Spectral Response Acceleration Parameter, S_{M1} (g)	0.951
Design Spectral Response Acceleration Parameter, S_{DS} (g)	1.0
Design Spectral Response Acceleration Parameter, S_{D1} (g)	0.634
Peak Ground Acceleration, PGA_M[2] (g)	0.583
Seismic Design Category[3]	D
Long-Period Transition Period, T_L (seconds)	8

Notes: [1] Risk-Targeted Maximum Considered Earthquake.
[2] Peak Ground Acceleration adjusted for site effects.
[3] For S_1 greater than or equal to 0.75g, the Seismic Design Category is E for risk category I, II, and III structures and F for risk category IV structures.

6. GEOTECHNICAL ENGINEERING RECOMMENDATIONS

Based on the results of our literature review and the field exploration, laboratory testing, and engineering analyses, it is our opinion that the proposed construction at the two candidate sites is feasible from a geotechnical standpoint, provided that the recommendations in this report are incorporated into the design plans and are implemented during construction. It should be noted that these recommendations are preliminary, which should be updated when final project site is selected, and a geotechnical evaluation is further performed.

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6.1. General Considerations

Geotechnical engineering recommendations presented in this report for the proposed project are based on our understanding of the proposed development, subsurface conditions encountered during our field exploration, the results of laboratory testing on soil samples taken from the sites, and our engineering analyses.

The following sections present our conclusions and recommendations pertaining to the engineering design for this project. If the design substantially changes, our geotechnical engineering recommendations would be subject to revision based on our evaluation of the changes.

6.2. Soil Expansion and Collapse Potential

Based on our field exploration and laboratory test results, site soils have a very low expansion potential which will not adversely affect the design and construction of the project. However, based on our laboratory test data, the site soils appear to have a moderate collapse potential, which should be further evaluated when the project site is finalized.

6.3. Corrosive Soil Evaluation

The potential for the near-surface on-site materials to corrode buried steel and concrete improvements was evaluated. Laboratory testing was performed on one selected near-surface soil to evaluate pH and electrical resistivity, as well as chloride and sulfate contents. The pH and electrical resistivity tests were performed in accordance with California Test 643, and the sulfate and chloride tests were performed in accordance with California Tests 417 and 422, respectively. These laboratory test results are presented in Appendix B.

In accordance with the County of Los Angeles (2014) criteria, corrosive soil is defined as the soil has minimum electrical resistivity less than 1,000 ohm-centimeters, or chloride concentration greater than 500 ppm, or sulfate concentration in soils greater than 2,000 ppm, or a pH less than 5.5.

6.3.1. Reinforced Concrete

Laboratory tests indicate that the soil has 198 ppm or 0.0198% of water soluble sulfate (SO_4) by weight. Based on ACI 318, concrete in contact with the site soils will have a sulfate exposure class S0. As a minimum, we recommend that Type I or II cement and a water-cement ratio of no greater than 0.50 be used on the project.

Test results indicate that the soil has 81 ppm of water soluble chlorides by weight and the potential for chloride attack of reinforcing steel in concrete structures and pipes in contact with soil is negligible. However, if needed, a corrosion specialist may be consulted for protection from chloride attack.

6.3.2. Buried Metal

A factor for evaluating corrosivity to buried metal is electrical resistivity. The electrical resistivity of a soil is a measure of resistance to electrical current. Corrosion of buried metal is directly proportional to the flow of electrical current from the metal into the soil. As resistivity of the soil decreases, the corrosivity generally increases. Test results indicate the site soils have minimum electrical resistivity value of 2,900 ohm-centimeters.

Correlations between resistivity and corrosion potential published by the National Association of Corrosion Engineers (NACE, 1984) indicate that the soils have mildly corrosive potential to buried metals. As such, corrosion protection for metal in contact with site soils should be considered. Corrosion protection may include the use of epoxy or asphalt coatings. A corrosion specialist should be consulted regarding appropriate protection for buried metals and suitable types of piping.

6.4. Site Preparation and Earth Work

In general, earthwork should be performed in accordance with the recommendations presented in this report. Twining should be contacted for questions regarding the recommendations or guidelines presented herein.

6.4.1. Site Preparation

Site preparation should begin with the removal of utility lines, asphalt, concrete, vegetation, and other deleterious debris from areas to be graded. Tree stumps and roots should be removed to such a depth that organic material is not present. Clearing and grubbing should extend to the outside edges of the proposed excavation and fill areas. We recommend that unsuitable materials such as organic matter or oversized material be removed and disposed offsite. The debris and unsuitable material generated during clearing and grubbing should be removed from areas to be graded and disposed at a legal dump site away from the project area.

6.4.2. Temporary Excavations

Temporary excavations for the project are expected. We anticipate that unsurcharged excavations with vertical side slopes less than 4 feet high will generally be stable; however, some sloughing of cohesionless sandy materials encountered at the sites should be expected.

Where space is available, temporary, un-surcharged excavation sides over 4 feet in height should be sloped no steeper than an inclination of 1H:1V (horizontal:vertical).

Where sloped excavations are created, the tops of the excavation sides should be barricaded so that vehicles and storage loads are away from the top edge of the excavated slopes with a distance at least equal to the height of the slopes. A greater setback may be necessary when considering heavy vehicles, such as concrete trucks and cranes. Twining should be advised of such heavy vehicle loadings so that specific setback requirements can be established. If the temporary construction slopes are to be maintained during the rainy season, berms are recommended to be graded along the tops of the slopes in order to prevent runoff water from entering the excavation and eroding the slope faces.

Excavations shall not undermine existing adjacent footings. We recommend that excavations for the proposed improvements do not encroach within a 1H:1V plane projected from the top edge of any existing at-grade or below-grade existing facilities including foundations of existing structures, trenches, underground pipelines. Where space for sloped excavations is not available, slot-cut or temporary shoring implemented to maintain foundation support of the adjacent facilities.

Personnel from Twining should observe the excavations so that any necessary modifications based on variations in the encountered soil conditions can be made. All applicable safety requirements and regulations, including CalOSHA requirements, should be met. Stability of temporary excavations is the responsibility of the contractor.

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6.4.3. Over-Excavation and Subgrade Preparation

Preliminary recommendations for over-excavation and subgrade preparation are provided in this section. These recommendations should be updated when final project site is selected, and a geotechnical evaluation is further performed.

If the proposed building is sited on the western portion of the parking lot where borings B-1 through B-4 were drilled, footings for the building can be directly supported on competent native granular soils. If the building is sited on the eastern portion of the parking lot where borings B-5 through B-8 were drilled, footings should be founded on at least 3 feet of compacted granular fill or directly on competent native granular soils.

Although not identified in our borings, undocumented fill if encountered during construction should be removed to its full depth. If there is a cut/fill transition across the building pad, the pad should be over-excavated and recompacted a minimum of 3 feet below the bottom of footings to create a blanket of similar fill under the pad.

For minor structures and slabs-on-grade that are structurally separated from the building, the excavation should extend at least 2 feet below the finished grade or at least 1 foot below the bottom of the footing of the minor structures and slabs-on-grade, whichever is greater. Excavation for pavements and hardscape should be over-excavated at least 1 foot as measured from the bottom of the pavement or hardscape section.

Laterally, excavation should extend beyond the foundation limits a minimum distance equal to two feet or the depth of excavation, whichever is greater. Excavation for other improvements (e.g., concrete walkways, flatwork, pavement) should extend laterally at least two feet beyond the limits of the improvements.

The exposed excavation bottom should be evaluated and approved by Twining. It should then be scarified to a minimum depth of 6 inches and moisture conditioned to achieve generally consistent moisture contents approximately 2 percent above the optimum moisture content. The scarified bottom should be compacted to at least 90 percent relative compaction in accordance with the latest version of ASTM Test Method D1557 and then evaluated and approved by Twining.

The extent and depths of all removal should be evaluated by Twining's representative in the field based on the materials exposed. Should excavations expose soft or soils considered as unsuitable for use as fill by a Twining representative, additional removals may be recommended. For example, deeper removal may be required in areas where soft, saturated, or organic materials are encountered.

Fill and backfill materials should be compacted fill in accordance with Sections 6.4.4 and 6.4.5 of this report. Prior to placement of any fill, the geotechnical engineer or their representative should review the bottom of the excavation for conformance with the recommendations of this report.

6.4.4. Materials for Fill

In general, on-site granular soils are considered suitable for use as engineered fill for foundations and all on-site soils are suitable for use as general fill. All fill soils should be free of organics, debris, rocks or lumps over three inches in largest dimension, other deleterious

material, and not more than 40 percent larger than ¾ inch. Larger chunks, if generated during excavation, may be broken into acceptably sized pieces or may be disposed offsite.

Any imported fill material should consist of granular soil having a “very low” expansion potential (i.e., expansion index of 20 or less). Import material should also have low corrosion potential (that is, chloride content less than 500 parts per million [ppm], soluble sulfate content of less than 0.1 percent, and pH of 5.5 or higher).

All fill soils should be evaluated and approved by a Twining representative prior to importing or filling.

6.4.5. Compacted Fill

Unless otherwise recommended, the exposed excavation bottom to receive fill should be prepared in accordance with Section 6.4.3 of this report. Prior to placement of compacted fill, the contractor should request Twining to evaluate the exposed excavation bottoms.

Compacted fill should be placed in horizontal lifts of approximately 8 to 10 inches in loose thickness, depending on the equipment used. Prior to compaction, each lift should be moisture conditioned, mixed, and then compacted by mechanical methods. The moisture content should be approximately 2 percent above the optimum moisture content. Fill materials should be compacted to a minimum relative compaction of 95 percent within the upper one foot below new vehicle trafficked pavement sections, and 90 percent in all other areas. The relative compaction should be determined by ASTM D1557. Successive lifts should be treated in the same manner until the desired finished grades are achieved.

6.4.6. Excavation Bottom Stability

In general, we anticipate that the bottoms of the excavations will be stable and should provide suitable support to the proposed improvements. Unstable bottom conditions may be mitigated by over-excavation of the bottom to suitable depths and replacement with a one-foot-thick gravel or lean concrete mud mat. Any loose, soft, or deleterious material should be removed prior to placement of gravel or lean concrete. Recommendations for stabilizing excavation bottoms should be based on evaluation in the field by the geotechnical consultant at the time of construction.

6.4.7. Backfill for Utility Trench

Utility trench excavations to receive backfill shall be free of trash, debris or other unsatisfactory materials at the time of backfill placement.

At locations where the trench bottom is yielding or otherwise unstable, pipe support may be improved by placing 12 inches of ¾-inch crushed rock as defined in Section 200-1.2 of the “Greenbook” Standard Specifications for Public Works Construction. Remedial earthwork at the trench bottom should be performed where oversize materials (rocks or clods greater than 3 inches) are present. Removal of oversize materials to a depth of 6 inches below the bottom of the pipeline and replacement with fill compacted to at least 90% relative compaction is recommended. Alternatively, ¾-inch crushed rock may be used.

The trench should be bedded with clean sand extending to at least one foot over the top of pipe. Pipe bedding as specified in SSPWC can be used. Bedding material should consist of clean sand having a sand equivalent (SE) of 30 or greater. Alternative materials meeting the intent of

the bedding specifications are also acceptable. Samples of materials proposed for use as bedding should be provided to the engineer for inspection and testing before the material is imported for use on the project. The onsite materials can only be used following the requirement of "Greenbook" bedding specification when the SE is not less than 30. The pipe bedding material should be placed over the full width of the trench. After placement of the pipe, the bedding should be brought up uniformly on both sides of the pipe to reduce the potential for unbalanced loads. No void or uncompacted areas should be left beneath the pipe haunches.

Above pipe bedding, trench backfill may be onsite soils and should not contain rocks or lumps over 3 inches in largest dimension. Larger chunks, if generated during excavation, may be broken into acceptably sized pieces or may be disposed offsite. The moisture content should be approximately 2 percent above the optimum moisture content.

Backfill may be placed and compacted by mechanical means and should be compacted to 90 percent of the laboratory maximum dry density as per ASTM Standard D1557. Where pavement is planned, the top 12 inches of subgrade soils and the overlying aggregate base should be compacted to 95 percent.

Jetting or flooding of pipe bedding and backfill material is not recommended.

6.4.8. Rippability

The earth materials underlying the sites should be generally excavatable with heavy-duty earthwork equipment in good working condition. Some gravels, cobbles and man-made debris should be anticipated.

6.4.9.Construction Dewatering

As discussed earlier, no groundwater was encountered during drilling and historically high groundwater at the sites is greater than 100 feet bgs. Construction of the project is anticipated to occur above the groundwater. The possibility to encounter groundwater is low during earthwork and foundation preparation for the proposed structures, and the need for dewatering is not anticipated for construction of foundations and utility trenches.

If needed, considerations for construction dewatering should include anticipated drawdown, volume of pumping, potential for settlement of nearby structures, and groundwater discharge. Disposal of groundwater should be performed in accordance with guidelines of the Regional Water Quality Control Board.

6.5. Foundation Recommendations

Based upon the excavation/over-excavation and backfill recommendations, the proposed structures may be supported on continuous strip footings or isolated footings designed in accordance with the geotechnical recommendations presented below. Structural design of foundations should be performed by the structural engineer and should conform to the 2016 California Building Code.

6.5.1. Bearing Capacity and Settlement

Proposed new footings for the building should be placed on the subgrade prepared in accordance the requirements for the building pad as described in Section 6.4. Geotechnical design parameters for these footings presented in Table 2 may be used. Twining should be

contacted for footing dimensions, allowable bearing pressures, and settlements that are outside the indicated applicable ranges.

6.5.2. Lateral Resistance

Lateral loads may be resisted by footing base friction and by the passive resistance of the soils based on recommendations provided in Table 2.

The total lateral resistance can be taken as the sum of the friction at the base of the footing and passive resistance. The upper one foot of soil should be neglected when calculating the passive resistance. The passive resistance value may be increased by one-third for transient loads from wind or earthquake.

Table 2 - Geotechnical Design Parameters for Shallow Foundations

Minimum Footing Dimensions	• Continuous footings: 18 inches in width. • Square footings: 24 inches in width. • Minimum embedment: 24 inches measured from the lowest adjacent grade to the bottom of the footing. • Minimum thickness: 6 inches
Allowable Bearing Pressure	• Footings should be supported on at least 2 feet of compacted granular fill or directly on competent native granular soils. • An allowable bearing pressure of 2,500 pounds per square foot (psf) may be used. The allowable may be increased by 250 psf for each additional foot of width and 400 psf for each additional foot of embedment, up to a maximum allowable capacity of 4,000 psf. • The allowable bearing values may be increased by one-third for transient loads from wind or earthquake.
Estimated Static Settlement	• Less than one inch of total settlement with differential settlement estimated to be on the order of ½ inches over 30 feet. • The static settlement of the foundation system is expected to complete on initial application of loading.
Allowable Coefficient of Friction Below Footings	0.35
Allowable Lateral Passive Resistance	200 pcf (equivalent fluid pressure)

6.6. Concrete Slabs

Slabs should be supported on non-expansive engineered fill in accordance with Section 6.4 of this report. For design of concrete slabs, a base modulus of subgrade reaction (*k*) of 150 pounds per cubic inch (pci) may be used provided it is modified by the formulas below based on slab dimensions.

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$$k_1 = 150\ pci$$

$$k(BxL) = \frac{k_1}{B}\left(\frac{2L+B}{3L}\right)$$

where: k_1=Modulus for 1x1 plate; B = width of foundation; and L = length of foundation.

Floor slabs should be designed and reinforced in accordance with the structural engineer's recommendations. However, for slabs not supporting heavy loads, we recommend that the concrete should have a thickness of at least 4 inches, a 28-day compressive strength of at least 3,000 pounds per square inch (psi), a water-cement ratio of 0.50 or less, and a slump of 4 inches or less. Slabs should be reinforced with at least No. 3 reinforcing bars placed longitudinally at 18 inches on center. The reinforcement should extend through the control joints to reduce the potential for differential movement. Control joints should be constructed in accordance with recommendations from the structural engineer or architect. For slabs supporting equipment, a minimum thickness of 5 inches is recommended. Additional thickness and reinforcement recommendations may be provided by the structural engineer.

The topmost 8 inches below the slab subgrade should be maintained in a moisture condition of approximately 0 to 2 percent above optimum moisture content. The slab subgrade should be tested for moisture and compaction immediately prior to placement of the gravel or sand base, if any. All underslab materials should be adequately compacted prior to the placement of concrete. Care should be taken during placement of the concrete to prevent displacement of the underslab materials. The underslab material should be dry or damp and should not be saturated prior to the placement of concrete. The concrete slab should be allowed to cure properly and should be tested for moisture transmission prior to placing vinyl or other moisture-sensitive floor covering. In moisture sensitive areas, the floor slabs should be dampproofed in accordance with Section 1805A.2 of 2016 CBC. Specific recommendations can be provided by a waterproofing consultant.

Table 3 provides general recommendations for various levels of protection against vapor transmission through concrete floor slabs placed over a properly prepared subgrade. Care should be taken not to puncture the plastic membrane during placement of the membrane itself and the overlying silty sand.

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Table 3 - Options for Subgrade Preparation below Concrete Floor Slabs

Primary Objective	Recommendation
Enhanced protection against vapor transmission	• Concrete floor slab-on-grade placed directly on a 15-mil-thick moisture vapor retarder that meets the requirements of ASTM E1745 Class C (Stego Wrap or similar) • The moisture vapor retarder membrane should be placed directly on the subgrade (ACI302.1R-67); if required for either leveling of the subgrade or for protection of the membrane from protruding gravel, then place about 2 inches of silty sand[1] under the membrane
Above-standard protection against vapor transmission	This option is available if the slab perimeter is bordered by continuous footings at least 24 inches deep, OR if the area adjacent and extending at least 10 feet from the slab is covered by hardscape without planters: • 2 inches of dry silty sand[1]; over • Waterproofing plastic membrane 10 mils in thickness; over • At least 4 inches of ¾-inch crushed rock[2] or clean gravel[3] to act as a capillary break
Standard protection against vapor transmission	• 2 inches of dry silty sand[1]; over • Waterproofing plastic membrane 10 mils in thickness • If required for either leveling of the subgrade or for protection of the membrane from protruding gravel, place at least 2 inches of silty sand[1] under the membrane.

Notes:

[1] The silty sand should have a gradation between approximately 15 and 40 percent passing the No. 200 sieve and a plasticity index of less than 4. The on-site sandy soils appear to meet these criteria.

[2] The ¾-inch crushed rock should conform to Section 200-1.2 of the latest edition of the "Greenbook" Standard Specifications for Public Works Construction (Public Works Standards, Inc., 2012).

[3] The gravel should contain less than 10 percent of material passing the No. 4 sieve and less than 3 percent passing the No. 200 sieve.

The above recommendations are intended to reduce the potential for cracking of slabs; however, even with the incorporation of the recommendations presented herein, slabs may still exhibit some cracking. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics.

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6.7. Retaining Wall Recommendations

For wall retaining soil, recommendations for wall lateral loads, backfill, and drainage are provided below. Lateral resistance may be based on Section 6.5.2 of this report. Retaining walls should be designed to have a factor of safety of 1.5 for static stability and 1.1 for stability due to transient loads from wind or seismic.

6.7.1. Backfill and Drainage of Walls

The backfill material behind walls should consist of granular non-expansive material and be approved by the project geotechnical engineer. Based on the soil materials encountered during our exploration, some on-site soils will meet this requirement.

Wall backfill should be adequately drained. Adequate backfill drainage is essential to provide a free-drained backfill condition and to limit hydrostatic buildup behind walls. Drainage behind walls may be provided by a geosynthetic drainage composite such as TerraDrain, MiraDrain, or equivalent, attached to the outside perimeter of the wall and installed in accordance with the manufacturer's recommendations. The drainage system should meet the minimum requirements of Sections 1805.4.2 and 1805.4.3 of 2016 CBC.

6.7.2. Lateral Earth Pressure

The values presented below assume that the supported grade is level and that surcharge loads are not applied. The recommended design lateral earth pressure is calculated assuming that a drainage system will be installed behind retaining walls in accordance with Sections 1805.4.2 and 1805.4.3 of 2016 CBC and that external hydrostatic pressure will not develop behind the walls. Where wall backfill does not have adequate drainage, the full hydrostatic pressure should be added to the lateral earth pressures provided below in design.

Walls that are free to move and rotate at the top (such as cantilevered walls) and have adequate drainage may be designed for the active earth pressure equivalent to a fluid weighting 40 pcf.

Walls that are restricted to move horizontally at the top (such as by a floor deck) and have adequate drainage may be designed for the "at-rest" earth pressure equivalent to a fluid weighing 60 pcf.

Vertical surcharge loads within a 1:1 plane projected from the bottom of the wall distributed over retained soils should be considered as additional uniform horizontal pressures acting on the wall. These additional pressures can be estimated as approximately 33% and 50% of the magnitude of the vertical surcharge pressures for the "active" and "at-rest" conditions, respectively.

6.7.3. Seismic Lateral Earth Pressure

Walls retaining more than 6 feet high earth should be designed for seismic lateral earth pressure. The seismic pressure distribution may be considered a triangle with the maximum pressure at the bottom. The combination of static and incremental seismic pressures shown in the following diagram may be used for seismic design for both cantilever and restrained walls.

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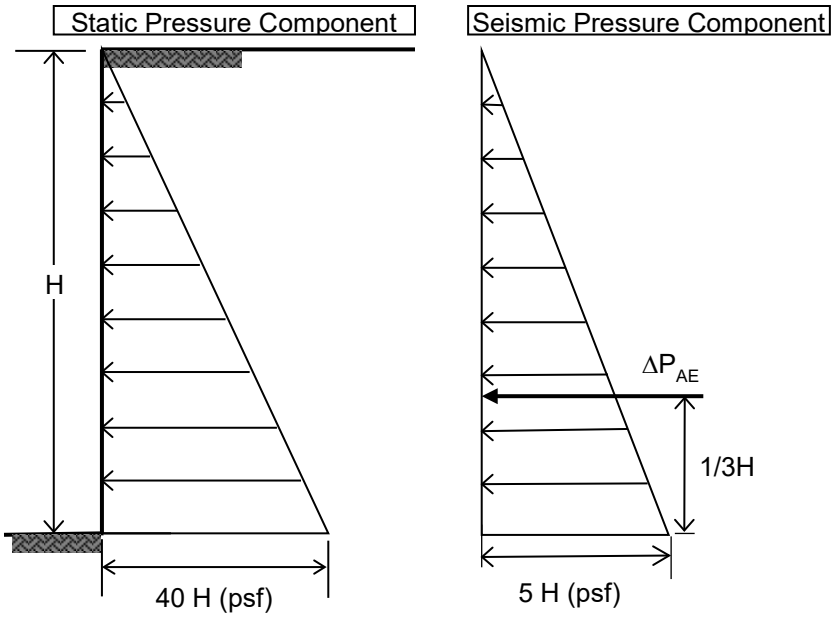

where H is in feet

Seismic Earth Pressure Distribution on Walls

6.8. Pavement Recommendations

Pavement section should be constructed on top of properly prepared subgrade in accordance with Section 6.4 of this report and aggregate base (AB) section compacted to 95 percent of the maximum dry density in accordance with ASTM D1557.

We performed laboratory R-value testing for preliminary pavement section design. The test indicates an R value of 10, and it was used in our pavement structural calculations.

6.8.1. Flexible Pavement Design

Our pavement structural design is in accordance with Chapter 630 of the Caltrans Highway Design Manual, which is based on a relationship between the gravel equivalent (GE) of the pavement structural materials, the traffic index (TI), and the R-value of the underlying subgrade soil. For preliminary design of flexible pavement section, Table 4 provides recommended minimum thicknesses for hot mix asphalt (HMA) and aggregate base sections for different traffic indices.

Table 4 – Recommended Minimum HMA and Base Section Thicknesses

Traffic Index	5.0	6.0	7.0
HMA Thickness (in)	4.0	4.0	5.0
Aggregate Base Thickness (in)	8.0	10.0	12.0

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Final design of flexible pavement should be performed by the project Civil Engineer based on field observations, additional R-value tests during construction, and anticipated traffic index.

6.8.2. Rigid Pavement Design

For preliminary design of rigid pavement section, Table 5 provides recommended minimum thicknesses for Jointed Plain Concrete Pavement (JPCP) section and Class 2 Aggregate Base (AB) section for different traffic indices. The recommended values are based on a minimum 28-day concrete compressive strength of 3,500 psi. Positive drainage should be provided away from all pavement areas to prevent seepage of surface and/or subsurface water into the pavement base and/or subgrade. Final design of rigid pavement should be performed by the project Civil Engineer based on anticipated traffic, geotechnical field observations, and additional R-value tests during construction.

Table 5 – Recommended Minimum Rigid Pavement Thicknesses

Traffic Index	5.0	6.0	7.0
JPCP Thickness (in)	4	5.5	6.5
Aggregate Base Thickness (in)	4	4	4
Maximum Joint Spacing (feet)	15.0	15.0	15.0

6.9. Stormwater Infiltration Facility

The design of stormwater infiltration facility should be based on percolation test results with an appropriate factor of safety.

Our percolation test results may be used in preliminary design. Details of the percolation tests are presented in Appendix A. Infiltration rates with a factor of safety of 3 from our percolation tests are summarized in Table 6. The proposed infiltration facility should have a minimum setback from property lines and foundations recommended in Table 7. In addition, the bottom of the infiltration facility should be at least 10 feet above the seasonal high groundwater.

We recommend that we review the proposed groundwater infiltration system prior to implementation or finalizing design.

Table 6 – Infiltration Rate with a Factor of Safety of 3

Test Location	Depth of Test Borehole (feet)	Infiltration Rate with a Factor of Safety of 3 (inch/hour)
B-7	15	0.17

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Table 7 – Recommended Minimum Infiltration Facility Setback

Setback from	Distance
Property lines	10 feet
Foundations	15 feet or outside of 1:1 plane drawn up from the bottom of foundation, whichever is greater.

6.10. Drainage Control

The control of surface water is essential to the satisfactory performance of the building and site improvements. Surface water should be controlled so that conditions of uniform moisture are maintained beneath the improvements, even during periods of heavy rainfall. The following recommendations are considered minimal:

- Ponding and areas of low flow gradients should be avoided.
- If bare soil within 5 feet of the structure is not avoidable, then a gradient of 5 percent or more should be provided sloping away from the improvement. Corresponding paved surfaces should be provided with a gradient of at least 1 percent.
- The remainder of the unpaved areas should be provided with a drainage gradient of at least 2 percent.
- Positive drainage devices, such as graded swales, paved ditches, and/or catch basins should be employed to accumulate and to convey water to appropriate discharge points.
- Concrete walks and flatwork should not obstruct the free flow of surface water.
- Brick flatwork should be sealed by mortar or be placed over an impermeable membrane.
- Area drains should be recessed below grade to allow free flow of water into the basin.
- Enclosed raised planters should be sealed at the bottom and provided with an ample flow gradient to a drainage device. Recessed planters and landscaped areas should be provided with area inlet and subsurface drain pipes.
- Planters should not be located adjacent to the structures wherever possible. If planters are to be located adjacent to the structures, the planters should be positively sealed, should incorporate a subdrain, and should be provided with free discharge capacity to a drainage device.
- Planting areas at grade should be provided with positive drainage. Wherever possible, the grade of exposed soil areas should be established above adjacent paved grades. Drainage devices and curbing should be provided to prevent runoff from adjacent pavement or walks into planted areas.
- Gutter and downspout systems should be provided to capture discharge from roof areas. The accumulated roof water should be conveyed to off-site disposal areas by a pipe or concrete swale system.

Landscape watering should be performed judiciously to preclude either soaking or desiccation of soils. The watering should be such that it just sustains plant growth without excessive watering. Sprinkler systems should be checked periodically to detect leakage and they should be turned off during the rainy season.

7. DESIGN REVIEW AND CONSTRUCTION MONITORING

Geotechnical review of plans and specifications is of paramount importance in engineering practice. The poor performance of many structures has been attributed to inadequate geotechnical review of construction documents. Additionally, observation and testing of the subgrade will be important to the performance of the proposed development. The following sections present our recommendations relative to the review of construction documents and the monitoring of construction activities.

7.1. Plans and Specifications

The design plans and specifications should be reviewed by Twining, Inc. prior to bidding and construction, as the geotechnical recommendations may need to be reevaluated in the light of the actual design configuration and loads. This review is necessary to evaluate whether the recommendations contained in this report and future reports have been properly incorporated into the project plans and specifications. Based on the work already performed, this office is best qualified to provide such review.

7.2. Preconstruction Surveys

We recommend that preconstruction surveys be performed on the adjacent improvements prior to commencement of excavation activities for the subject project. The surveys should include written and photographic (or videographic) documentation of the existing conditions, as well as performance of floor level surveys or establishment of elevation monuments. Documentation of other structures and sensitive instruments within approximately 50 feet of the excavation(s) should also be performed.

7.3. Construction Monitoring

Site preparation, removal of unsuitable soils, assessment of imported fill materials, fill placement, foundation installation, and other site grading operations should be observed and tested, as appropriate. The substrata exposed during the construction may differ from that encountered in the test excavations. Continuous observation by a representative of Twining, Inc. during construction allows for evaluation of the soil conditions as they are encountered and allows the opportunity to recommend appropriate revisions where necessary.

8. LIMITATIONS

The recommendations and opinions expressed in this report are based on Twining, Inc.'s review of available background documents, on information obtained from field explorations, and on laboratory testing. It should be noted that this study did not evaluate the possible presence of hazardous materials on any portion of the site. In the event that any of our recommendations conflict with recommendations provided by other design professionals, we should be contacted to aid in resolving the discrepancy.

Due to the limited nature of our field explorations, conditions not observed and described in this report may be present on the site. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation and laboratory testing can be

performed upon request. It should be understood that conditions different from those anticipated in this report may be encountered during grading operations, for example, the extent of removal of unsuitable soil, and that additional effort may be required to mitigate them.

Site conditions, including groundwater elevation, can change with time as a result of natural processes or the activities of man at the subject site or at nearby sites. Changes to the applicable laws, regulations, codes, and standards of practice may occur as a result of government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Twining, Inc. has no control.

Twining's recommendations for this site are, to a high degree, dependent upon appropriate quality control of subgrade preparation, fill placement, and foundation construction. Accordingly, the recommendations are made contingent upon the opportunity for Twining to observe grading operations and foundation excavations for the proposed construction. If parties other than Twining are engaged to provide such services, such parties must be notified that they will be required to assume complete responsibility as the geotechnical engineer of record for the geotechnical phase of the project by concurring with the recommendations in this report and/or by providing alternative recommendations.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Twining should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report has been prepared for the exclusive use by the client and its agents for specific application to the proposed project. Land use, site conditions, or other factors may change over time, and additional work may be required with the passage of time. Based on the intended use of this report and the nature of the new project, Twining may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the Client or anyone else will release Twining from any liability resulting from the use of this report by any unauthorized party.

Twining performed its evaluation using the degree of care and skill ordinarily exercised under similar circumstances by reputable geotechnical professionals with experience in this area in similar soil conditions. No other warranty, either express or implied, is made as to the conclusions and recommendations contained in this report.

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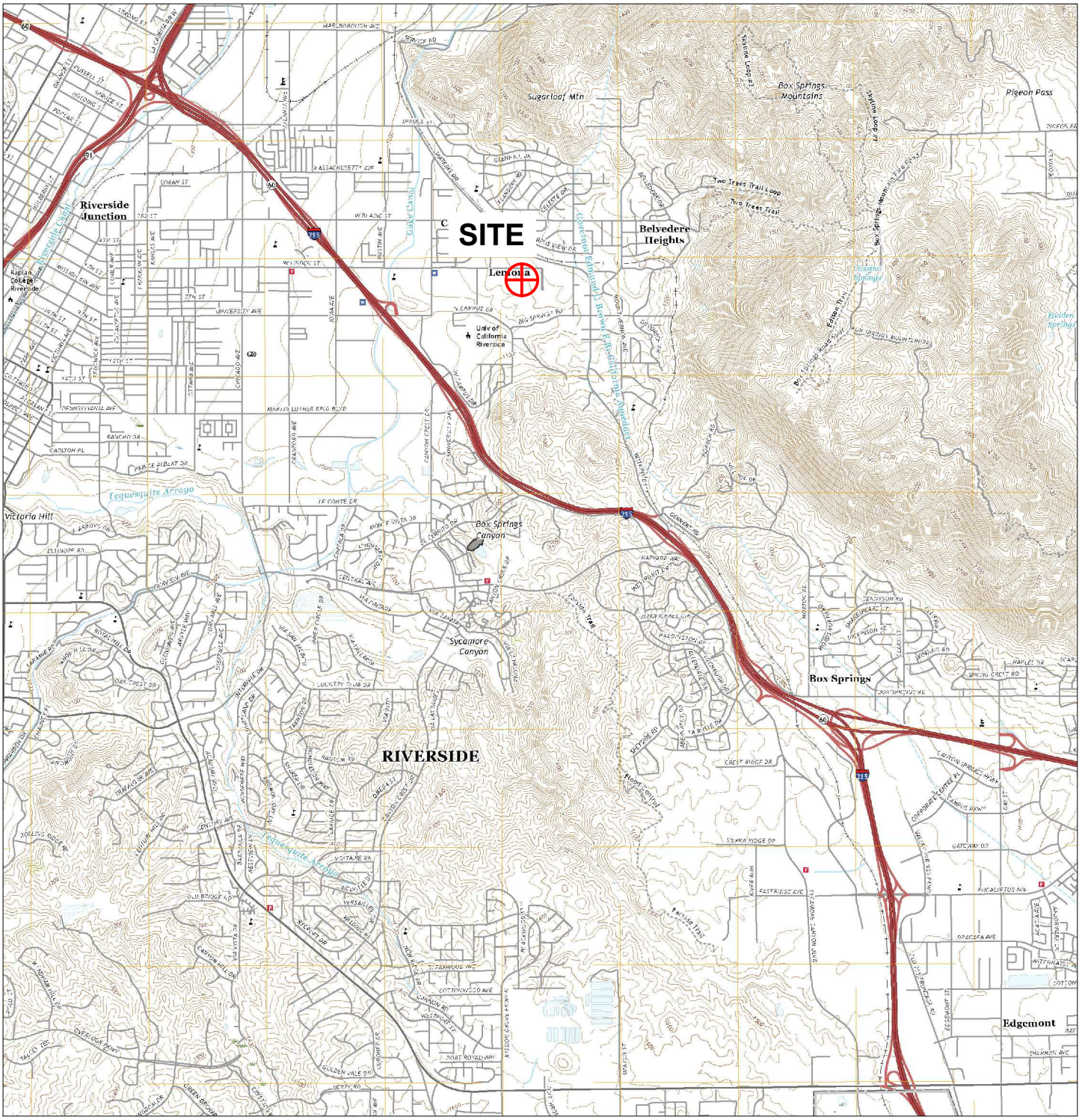
FIGURES



N

SCALE IN FEET

0 4000 8000

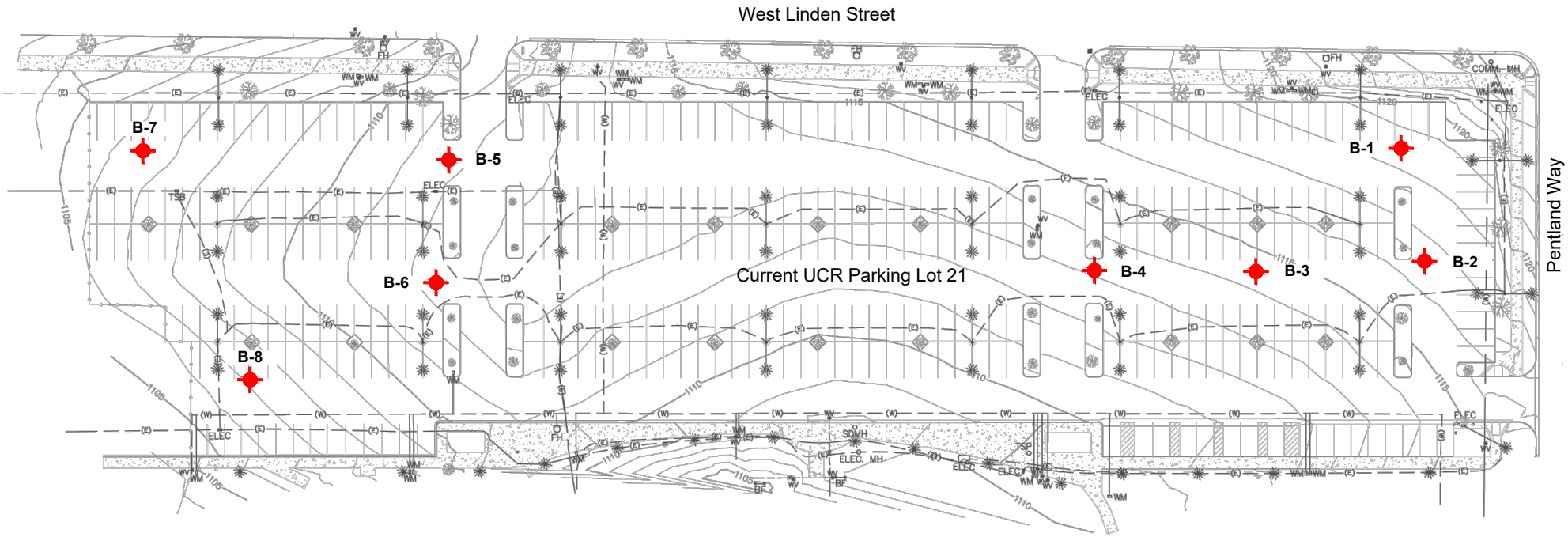
REFERENCE: USGS (2018)

TWINING

SITE LOCATION MAP

STUDENT HEALTH AND COUNSELING CENTER
UNIVERSITY OF CALIFORNIA, RIVERSIDE
RIVERSIDE, CALIFORNIA

PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	1



LEGEND

B-1 TD=51.5' — APPROXIMATE LOCATION OF BORING

P-1 TD=5' — APPROXIMATE LOCATION OF PERCOLATION TEST

APPROXIMATE BOUNDARY OF PROJECT

APPROXIMATE SCALE IN FEET

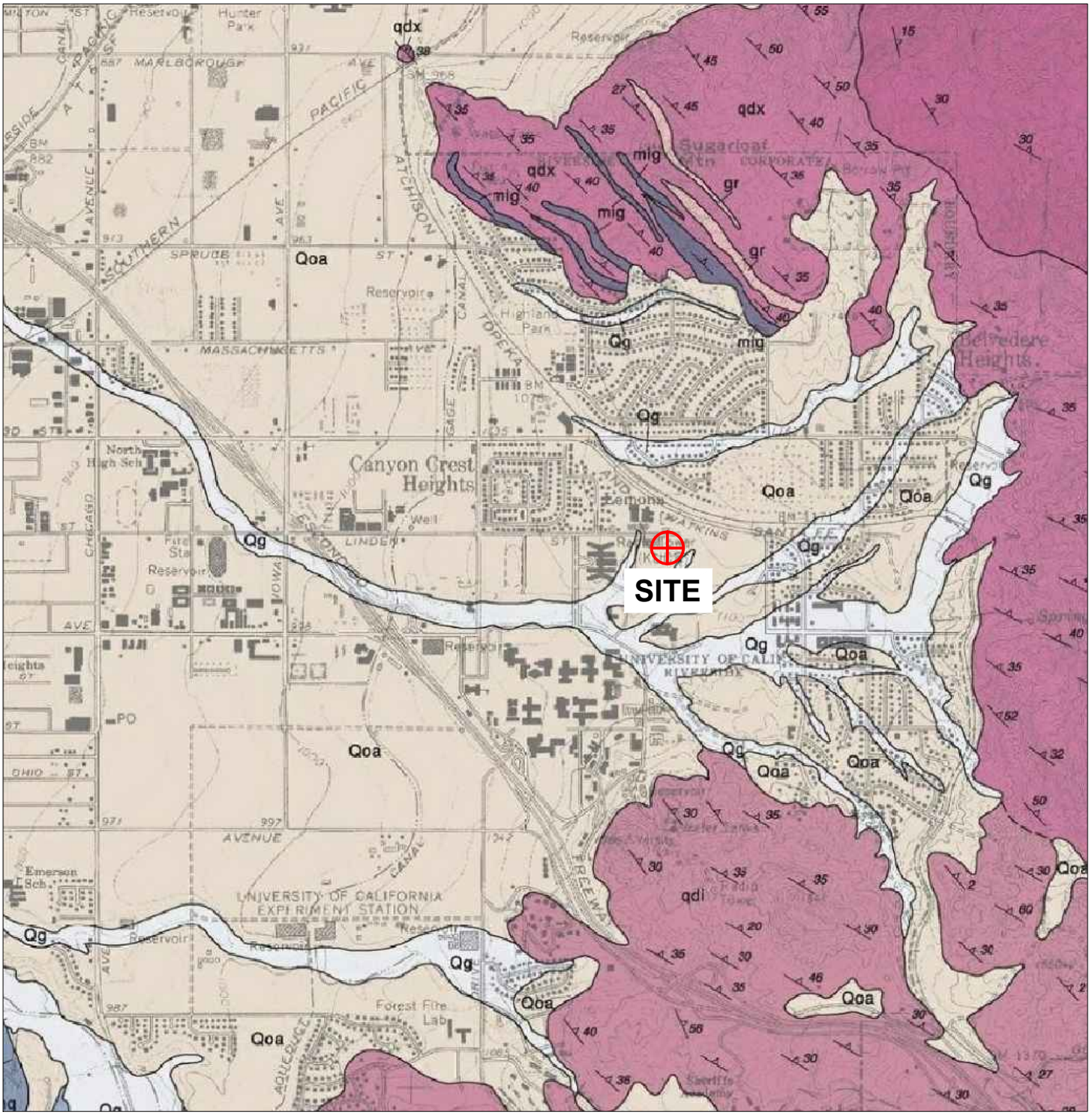
0 80 160

TWINING

SITE PLAN AND BORING LOCATION MAP

STUDENT HEALTH AND COUNSELING CENTER
UNIVERSITY OF CALIFORNIA, RIVERSIDE
RIVERSIDE, CA

PROJECT NO.	REPORT DATE	FIGURE
190638.3	October 2019	FIGURE 1



LEGEND

Qoa	Older Alluvial Fan Deposits
Qg	Alluvial gravel and sand of stream channels
qdx	Quartz diorite
mig	Migmatized mixture of biotite schist and tonalitic granitic rocks

SCALE IN FEET

0 2000 4000

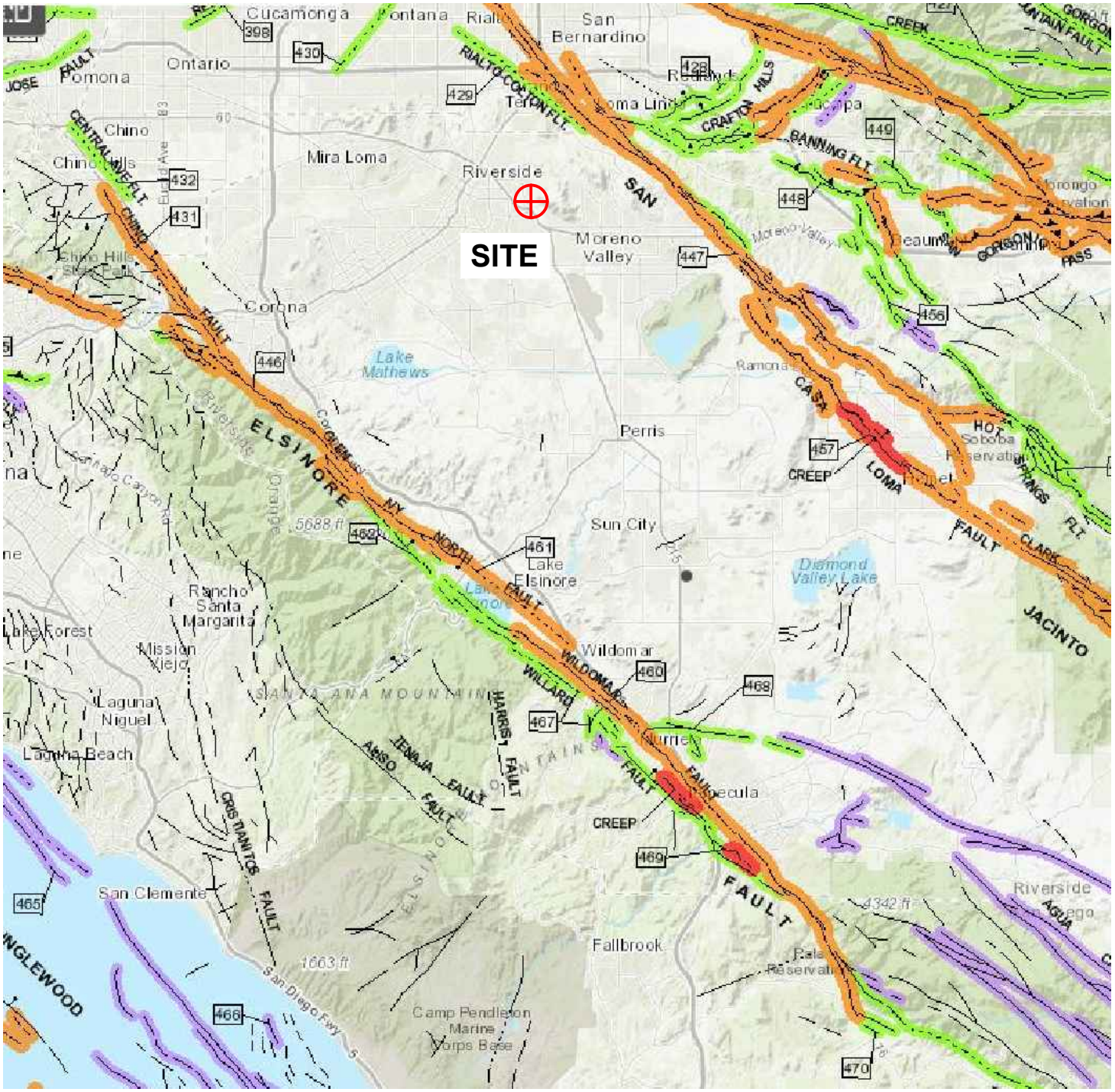
REFERENCE: DIBBLEE (2003)

TWINING

REGIONAL GEOLOGIC MAP

STUDENT HEALTH AND COUNSELING CENTER
UNIVERSITY OF CALIFORNIA, RIVERSIDE
RIVERSIDE, CALIFORNIA

PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	FIGURE 3



REFERENCE: JENNINGS AND BRYANT (2010)

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REGIONAL FAULT LOCATION MAP

STUDENT HEALTH AND COUNSELING CENTER
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RIVERSIDE, CALIFORNIA

PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	4

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APPENDIX A
FIELD EXPLORATION

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Appendix A
Field Exploration

General

The subsurface exploration program for the proposed project consisted of drilling, testing, sampling and logging 8 hollow-stem-auger (HSA) exploratory borings (B-1 through B-8) and percolation testing in boring B-7 at the sites on November 7 and 8, 2019.

The borings were advanced to depths of approximately 16½ to 51½ feet below ground surface (bgs). Drilling operation for the HSA borings was performed using a truck-mounted CME-75 hollow-stem-auger drill rig by Baja Exploration of Escondido, California.

The approximate locations of the borings are shown on Figure 2 – Site Plan and Exploration Location Map.

Drilling and Sampling

An explanation of the boring logs is presented as Figure A-1. The boring logs are presented as Figures A-2 through A-14. The boring logs describe the earth materials encountered, samples obtained, and show the field and laboratory tests performed. The logs also show the boring number, drilling date, and the name of the logger and drilling subcontractor. The borings were logged by an engineer using the Unified Soil Classification System under the supervision of a registered California Geotechnical Engineer. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual. Drive and bulk samples of representative earth materials were obtained from the borings.

Disturbed samples were obtained from select depths using a Standard Penetration Test (SPT) sampler. This sampler consists of a 2-inch O.D., 1.4-inch I.D. split barrel shaft without room for liner. Soil samples obtained by the SPT sampler were retained in plastic bags. A California modified sampler was also used to obtain drive samples of the soils from select depths. This sampler consists of a 3-inch outside diameter (O.D.), 2.4-inch inside diameter (I.D.) split barrel shaft. The samples were retained in brass rings for laboratory testing.

When the boring was drilled to a select depth, the sampler was lowered to the bottom of the boring and then driven a total of 18-inches into the soil using an automatic hammer weighing 140 pounds dropped from a height of 30 inches. The number of blows required to drive the samplers the final 12 inches is presented on the boring logs.

No groundwater was encountered in any of the borings. Upon completion of the borings, the boreholes were backfilled with drilled soil cuttings.

Percolation Testing

Percolation testing was performed on November 8, 2019 in boring B-7 in accordance with the procedures of the Riverside County Design Handbook for Low Impact Development Best Management Practices. After installing pipe and filter rock, the boreholes were filled with water to approximately 3 feet bgs and presoaked for two consecutive 25-minute sessions prior to testing. At the end of each presoak session, water level change in the borings was more than 6 inches.

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After presoaking, the boreholes were filled with water to depths below the pre-soaking water level, and measurements were recorded. The last reading was used to determine the percolation rate at each test location.

Our calculated design infiltration rates are presented in Table A-1 below with a factor safety of 3. Detailed test data is attached at the end of this appendix.

Table A-1 – Infiltration Rates with a Factor of Safety of 3

Test Location	Depth of Test Borehole (feet)	Design Infiltration Rate with a Factor of Safety of 3 (inch/hour)
B-7	15	0.17

UNIFIED SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

COARSE-GRAINED SOILS

Relative Density	SPT (blows/ft)	Relative Density (%)
Very Loose	<4	0 - 15
Loose	4 - 10	15 - 35
Medium Dense	10 - 30	35 - 65
Dense	30 - 50	65 - 85
Very Dense	>50	85 - 100

FINE-GRAINED SOILS

Consistency	SPT (blows/ft)
Very Soft	<2
Soft	2 - 4
Medium Stiff	4 - 8
Stiff	8 - 15
Very Stiff	15 - 30
Hard	>30

NOTE: SPT blow counts based on 140 lb. hammer falling 30 inches

Sample Symbol	Sample Type	Description
	SPT	1.4 in I.D., 2.0 in. O.D. driven sampler
	California Modified	2.4 in. I.D., 3.0 in. O.D. driven sampler
	Bulk	Retrieved from soil cuttings
	Thin-Walled Tube	Pitcher or Shelby Tube

LABORATORY TESTING ABBREVIATIONS

ATT	Atterberg Limits
C	Consolidation
CORR	Corrosivity Series
DS	Direct Shear
EI	Expansion Index
GS	Grain Size Distribution
K	Permeability
MAX	Moisture/Density (Modified Proctor)
O	Organic Content
RV	Resistance Value
SE	Sand Equivalent
SG	Specific Gravity
TX	Triaxial Compression
UC	Unconfined Compression

TWINING

EXPLANATION FOR LOG OF BORINGS

Student Health and Counseling Center
University of California, Riverside
Riverside, California

PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	A-1

STANDARD LOG EXPLANATION 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/2/19

DATE DRILLED	11/8/19	LOGGED BY	DHC	**BORING NO.**	**B-1**
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1118 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
							SM	2 inches of asphalt concrete over 4 inches of base Silty SAND; reddish brown; slightly moist
1113	5		44	3.0	115.5		SM	-- same; medium dense
1108	10		27				SM	-- same; medium dense; brown
1103	15		30	3.5	116.1		SM	-- same; medium dense
								Total Depth = 16.5 feet Backfilled on 11/8/2019 No groundwater encountered. Borehole filled with cuttings at completion. Surface patched with quick-set concrete.
1098	20							
1093	25							
1088	30							
1083	35							

TWINING

LOG OF BORING

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PROJECT NO.	REPORT DATE	
190638.3	December 2019	FIGURE A - 2

BORING LOG 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/4/19

DATE DRILLED	11/7/19	LOGGED BY	DHC	**BORING NO.**	**B-2**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E		
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1116 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
									3 inches of asphalt concrete over 4 inches of base
								SM	Silty SAND; reddish brown; slightly moist
1111	5		29					SM	-- same; medium dense
1106	10		34	2.8	107.2	DS		SM	-- same; medium dense
1101	15		19			#200, ATT		SP-SM	Poorly graded SAND with silt; medium dense; reddish brown; slightly moist
1096	20		44	2.2	105.7			SM	-- same; medium dense
1091	25		29					SM	-- same; medium dense; with approximately 3% gravel
1086	30								Total Depth = 26.5 feet Backfilled on 11/7/2019 No groundwater encountered. Borehole filled with cuttings at completion. Surface patched with quick-set concrete.
1081	35								

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PROJECT NO.	REPORT DATE	
190638.3	December 2019	FIGURE A - 3

BORING LOG 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/4/19

DATE DRILLED	11/7/19	LOGGED BY	DHC	**BORING NO.**	**B-3**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E		
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1114 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
						#200, ATT, CORR, DS, MAX		SC	4 inches of asphalt concrete over 4 inches of base Clayey SAND; reddish brown; slightly moist
								SM	Silty SAND; brown; slightly moist
1109	5		25					SM	-- same; medium dense
1104	10		37	3.9	111.7	C		SM	-- same; medium dense
1099	15		19					SM	-- same; medium dense; fine to coarse sand; with trace gravel
1094	20		30	3.6	115.6			SM	-- same; medium dense; increased fine gravel
1089	25		26					SM	-- same; medium dense; light brown; less gravel
1084	30		55	7.1	118.0	C		SM	-- same; dense; brown
1079	35								

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PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	A - 4

BORING LOG 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/4/19

DATE DRILLED	11/7/19	LOGGED BY	DHC	**BORING NO.**	**B-3**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E		
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1114 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
			51			#200, ATT		SM SM	Silty SAND; brown; slightly moist *(continued)* -- same; dense
1074	40		41/50 for 3"	6.3	123.9			SM	-- same; very dense
1069	45		48			#200, ATT		SM	-- same; dense -- increased difficulty drilling
1064	50		50 for 6"	4.4	111.6			SM	-- same; very dense
1059	55								Total Depth = 51.5 feet Backfilled on 11/7/2019 No groundwater encountered. Borehole filled with cuttings at completion. Surface patched with quick-set concrete.
1054	60								
1049	65								
1044	70								

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PROJECT NO.	REPORT DATE	
190638.3	December 2019	FIGURE A - 4

BORING LOG 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/4/19

DATE DRILLED	11/8/19	LOGGED BY	DHC	**BORING NO.**	**B-4**
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1113 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
							SM	2 inches of asphalt concrete over 4 inches of base Silty SAND; brown; slightly moist
1108	5		48				SM	-- same; dense
1103	10		23				SM	-- same; medium dense
1098	15		14				SM	-- same; medium dense
1093	20		14				SM	-- same; medium dense
1088	25		25				SM	-- same; medium dense; reddish brown
1083	30							Total Depth = 26.5 feet Backfilled on 11/8/2019 No groundwater encountered. Borehole filled with cuttings at completion. Surface patched with quick-set concrete.
1078	35							

BORING LOG 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/4/19

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PROJECT NO.	REPORT DATE	
190638.3	December 2019	FIGURE A - 5

DATE DRILLED	11/8/19	LOGGED BY	DHC	**BORING NO.**	**B-5**
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1112 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
									2 inches of asphalt concrete over 4 inches of base
								CL	Sandy lean CLAY; reddish brown; slightly moist
1107	5		20	2.1	111.8	DS		SM	Silty SAND; loose; reddish brown; slightly moist
1102	10		30					SM	-- same; medium dense; light brown
1097	15		43	7.4	117.8	C		SM	-- same; medium dense; brown
1092	20		23			#200, ATT		SM	-- same; medium dense
1087	25		50	7.1	115.2			SM	-- same; dense; reddish brown
1082	30								Total Depth = 26.5 feet Backfilled on 11/8/2019 No groundwater encountered. Borehole filled with cuttings at completion. Surface patched with quick-set concrete.
1077	35								

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PROJECT NO.	REPORT DATE	
190638.3	December 2019	FIGURE A - 6

BORING LOG 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/4/19

DATE DRILLED	11/7/19	LOGGED BY	DHC	**BORING NO.**	**B-6**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E		
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1112 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
						EI, RV		SC	3 inches of asphalt concrete over 4 inches base Clayey SAND; reddish brown; slightly moist
1107	5		12	6.0	105.3	C		SM	Silty SAND; loose; reddish brown; slightly moist
1102	10		63			#200, ATT		SM	--same; very dense
1097	15		44	5.7	123.3	DS		SM	-- same; medium dense; brown
1092	20		19					SM	-- same; medium dense
1087	25		31	7.4	104.4			SM	-- same; medium dense
1082	30		23			#200, ATT		SM	-- same; medium dense
1077	35								

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PROJECT NO.	REPORT DATE	
190638.3	December 2019	FIGURE A - 7

BORING LOG 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/4/19

DATE DRILLED	11/7/19	LOGGED BY	DHC	**BORING NO.**	**B-6**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E		
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1112 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
			62	5.5	120.8			SM	Silty SAND; loose; reddish brown; slightly moist *(continued)*
								SM	-- same; dense
1072	40		47			#200, ATT		SM	-- same; dense; light brown
1067	45		29/50 for 5"	6.4	115.9			SM	-- same; very dense
									-- increased difficulty drilling
1062	50		49					SM	-- same; dense
									Total Depth = 51.5 feet Backfilled on 11/7/2019 No groundwater encountered. Borehole filled with cuttings at completion. Surface patched with quick-set concrete.
1057	55								
1052	60								
1047	65								
1042	70								

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PROJECT NO.	REPORT DATE	
190638.3	December 2019	FIGURE A - 7

BORING LOG 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/4/19

DATE DRILLED	11/8/19	LOGGED BY	DHC	**BORING NO.**	**B-7**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E		
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1106 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
							SC	3 inches of asphalt concrete over 4 inches of base Clayey SAND; reddish brown; slightly moist
1101	5		50 for 6"				SC	-- same; very dense
1096	10		43	7.4	115.0		SM	Silty SAND; medium dense; reddish brown; slightly moist; with approximately 5% fine gravel
1091	15		23				SM	same; medium dense; brown; with approximately 3% fine gravel
1086	20							Total Depth = 16.5 feet Backfilled on 11/8/2019 No groundwater encountered. Borehole filled with cuttings at completion. Surface patched with quick-set concrete.
1081	25							
1076	30							
1071	35							

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PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	A - 8

BORING LOG 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/4/19

DATE DRILLED	11/8/19	LOGGED BY	DHC	**BORING NO.**	**B-8**
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	N/E
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1107 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
								12 inches of asphalt concrete with no base
							CL	Sandy lean CLAY; reddish brown; slightly moist
1102	5		50 for 5"				SC	Clayey SAND; reddish brown; very dense; slightly moist
1097	10		25/50 for 6"	5.9	126.6		SM	Silty SAND; dense; brown; slightly moist
1092	15		31				SM	-- same; dense
1087	20		40/50 for 5"	6.0	125.5		SM	-- same; very dense -- increased difficulty drilling
1082	25		37				SM	-- same; dense
1077	30							Total Depth = 26.5 feet Backfilled on 11/8/2019 No groundwater encountered. Borehole filled with cuttings at completion. Surface patched with quick-set concrete.
1072	35							

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PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	A - 9

BORING LOG 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/4/19

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APPENDIX B
LABORATORY TESTING

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Appendix B
Laboratory Testing

Laboratory Moisture Content and Density Tests

The moisture content and dry densities of selected driven samples obtained from the exploratory borings were evaluated in general accordance with the latest version of ASTM D 2937. The results are shown on the boring logs in Appendix A, and also summarized in Table B-1.

No. 200 Wash Sieve

The amount of fines passing the No. 200 sieve was evaluated in accordance with ASTM D 1140. The results are presented in Table B-2.

Atterberg Limits

Tests were performed on selected representative fine-grained soil samples to evaluate the liquid limit, plastic limit, and plasticity index in general accordance with ASTM D 4318. These test results were utilized to evaluate the soil classification in accordance with the Unified Soil Classification System. The test results are summarized in Table B-3.

Resistance Value (R-value)

R-value testing was performed on a select bulk sample of the near-surface soils encountered. The test was performed in general accordance with ASTM D 2844. The result is summarized in Table B-4.

Expansion Index

The expansion index of a select soil sample was evaluated in general accordance with ASTM D 4829. The specimen was molded under a specified compactive energy at approximately 50 percent saturation. The prepared 1-inch thick by 4-inch diameter specimen was loaded with a surcharge of 144 pounds per square foot and was inundated with tap water. Readings of volumetric swell were made for a period of 24 hours. The result of expansion index test is presented in Table B-5.

Maximum Density and Optimum Moisture

A Modified Proctor test was performed on near-surface soils to determine the maximum dry density and optimum water content for compaction. The test was performed in accordance with ASTM D 1557 Method A. The curve is attached to this appendix as Figure B-1.

Direct Shear

Direct shear tests were performed on a remolded sample and a select modified-California soil sample in general accordance with the latest version of ASTM D 3080 to evaluate the shear strength characteristics of the selected materials. The remolded sample was prepared to a relative compaction of 90% according to the maximum density as determined by ASTM D1557. The samples were inundated during shearing to represent adverse field conditions. Test results are presented on Figures B-2 through B-5.

Consolidation

Consolidation tests were performed on select modified-California soil samples in general accordance with the latest version of ASTM D2435. The samples were inundated during testing

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to represent adverse field conditions. The percent consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. The tests were performed by Twining's laboratory in Long Beach, California and the laboratory of Hushmand Associates, Inc. (HAI) of Irvine, California. The test results are presented in Figures B-6 through B-8 and HAI's laboratory test sheets and graphs attached to this appendix.

Corrosivity

Soil pH and resistivity tests were performed by Anaheim Test Lab, Inc. (ATLI) of Anaheim, California on a representative soil sample. The resistivity of the soil assumes saturated soil conditions. The chloride and sulfate contents of the selected samples were evaluated in general accordance with the latest versions of Caltrans test methods CT417, CT422, and CT 643. The test results are presented on Table B-6 and the ATLI report included in this appendix.

Table B-1
Moisture Content and Dry Density

Boring No.	Depth (feet)	Moisture Content (%)	Dry Density (pcf)
B-1	5	3.0	115.5
B-1	15	3.5	116.1
B-2	10	2.8	107.2
B-2	20	2.2	105.7
B-3	10	3.9	111.7
B-3	20	3.6	115.0
B-3	30	7.1	118.0
B-3	40	6.3	123.9
B-3	50	4.4	111.6
B-5	5	2.1	111.8
B-5	15	7.4	117.8
B-5	25	7.1	115.2
B-6	5	6.0	105.3
B-6	15	5.7	123.3
B-6	25	7.4	104.4
B-6	35	5.5	120.8
B-6	45	6.4	115.9
B-7	10	7.4	115.0
B-8	10	5.9	126.6
B-8	20	6.0	125.5

Table B-2
Number 200 Wash Results

Boring No.	Depth (feet)	Percent Passing #200
B-2	15	6.1
B-3	0-5	39.7
B-3	35	23.6
B-3	45	28
B-5	20	29.5
B-6	10	40.7
B-6	30	29.6
B-6	40	8.2

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Table B-3
Atterberg Limits Results

Boring No.	Depth (feet)	Liquid Limit	Plastic Limit	Plasticity Index	U.S.C.S. Classification
B-2	15	NP	NP	NP	ML
B-3	0-5	25	15	10	CL
B-3	35	NP	NP	NP	ML
B-3	45	NP	NP	NP	ML
B-5	20	NP	NP	NP	ML
B-6	10	NP	NP	NP	ML
B-6	30	NP	NP	NP	ML
B-6	40	NP	NP	NP	ML

Table B-4
Resistance Value (R-value)

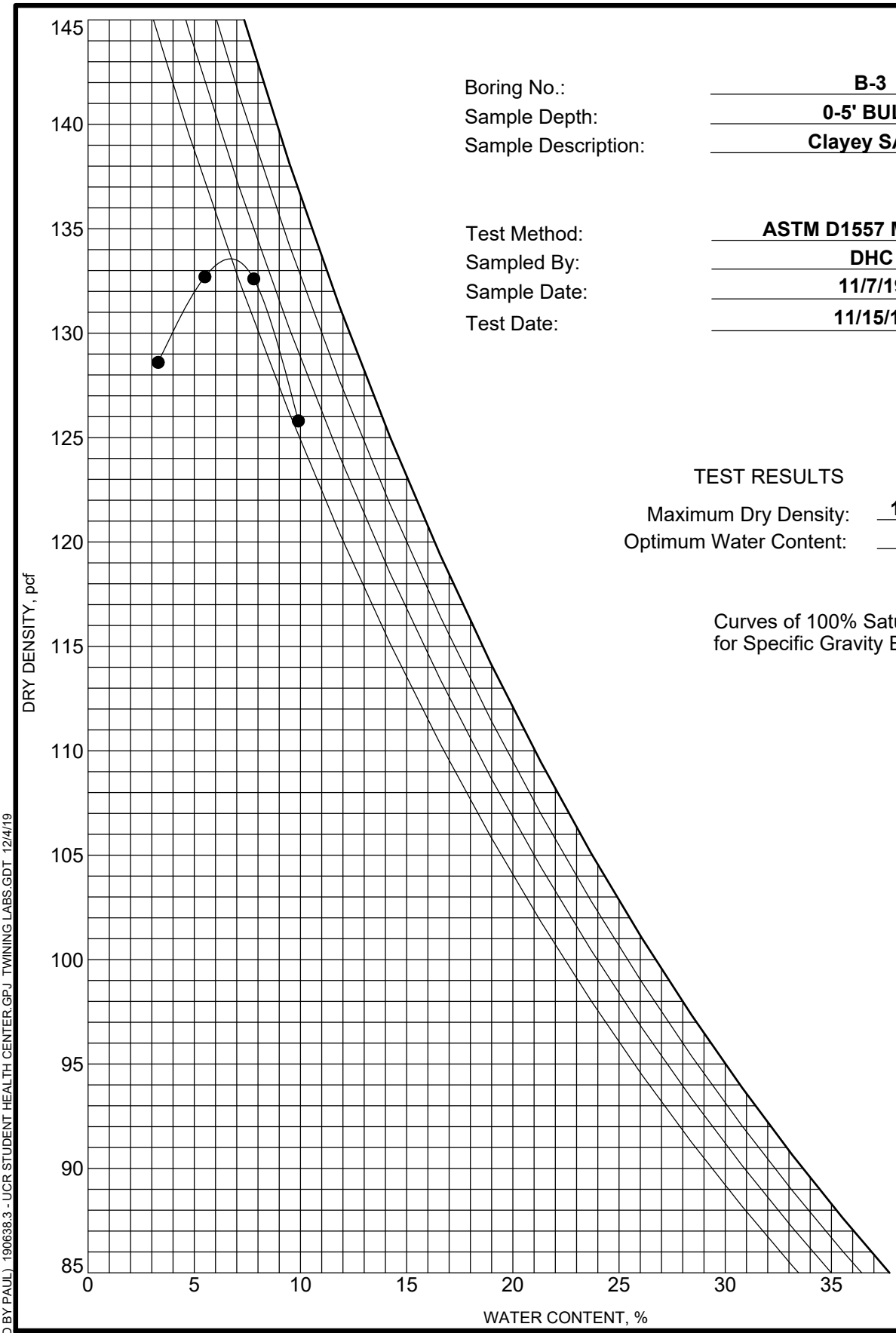
Boring No.	Depth (feet)	R-Value
B-6	0 – 5	15

Table B-5
Expansion Index

Boring No.	Depth (feet)	Expansion Index	Expansion Potential
B-6	0 – 5	4	Very low

Table B-6
Corrosivity Test Results

Boring No.	Depth (feet)	pH	Water Soluble Sulfate (ppm)	Water Soluble Chloride (ppm)	Minimum Resistivity (ohm-cm)
B-1	0-5	7.9	198	81	2,900



Boring No.:	**B-3**
Sample Depth:	**0-5' BULK**
Sample Description:	**Clayey SAND**
Test Method:	**ASTM D1557 Method A**
Sampled By:	**DHC**
Sample Date:	**11/7/19**
Test Date:	**11/15/19**

TEST RESULTS

Maximum Dry Density:	**133.5** pcf
Optimum Water Content:	**6.5** %

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

2.50

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MOISTURE-DENSITY RELATIONSHIP

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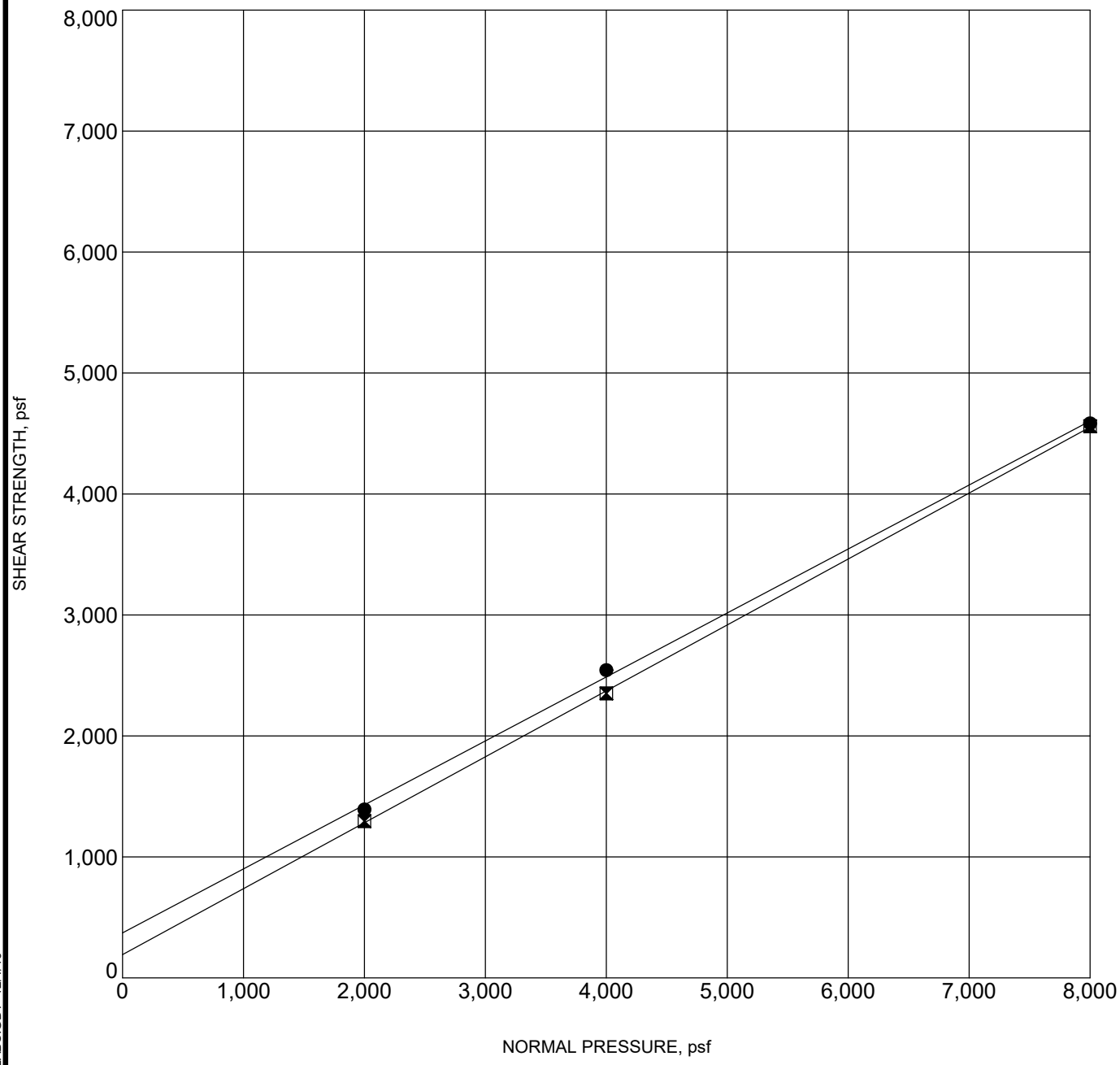
PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	FIGURE B-1

COMPACTION (MODIFIED BY PAUL) 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/4/19



Shear Strength Parameters

	Peak	Ultimate
Cohesion, C (psf):	372	192
Friction Angle, Ø (deg):	28	29

Boring No.: B-3
Sample Depth (ft): 0-5' BULK
Sample Description: Clayey SAND
Strain Rate (in./min): 0.005
Dry Density (pcf): 120.2

Initial Moisture (%): 6.5
Final Moisture (%): 9.8

Remolded Shear at 90% Relative Compaction

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DIRECT SHEAR TEST

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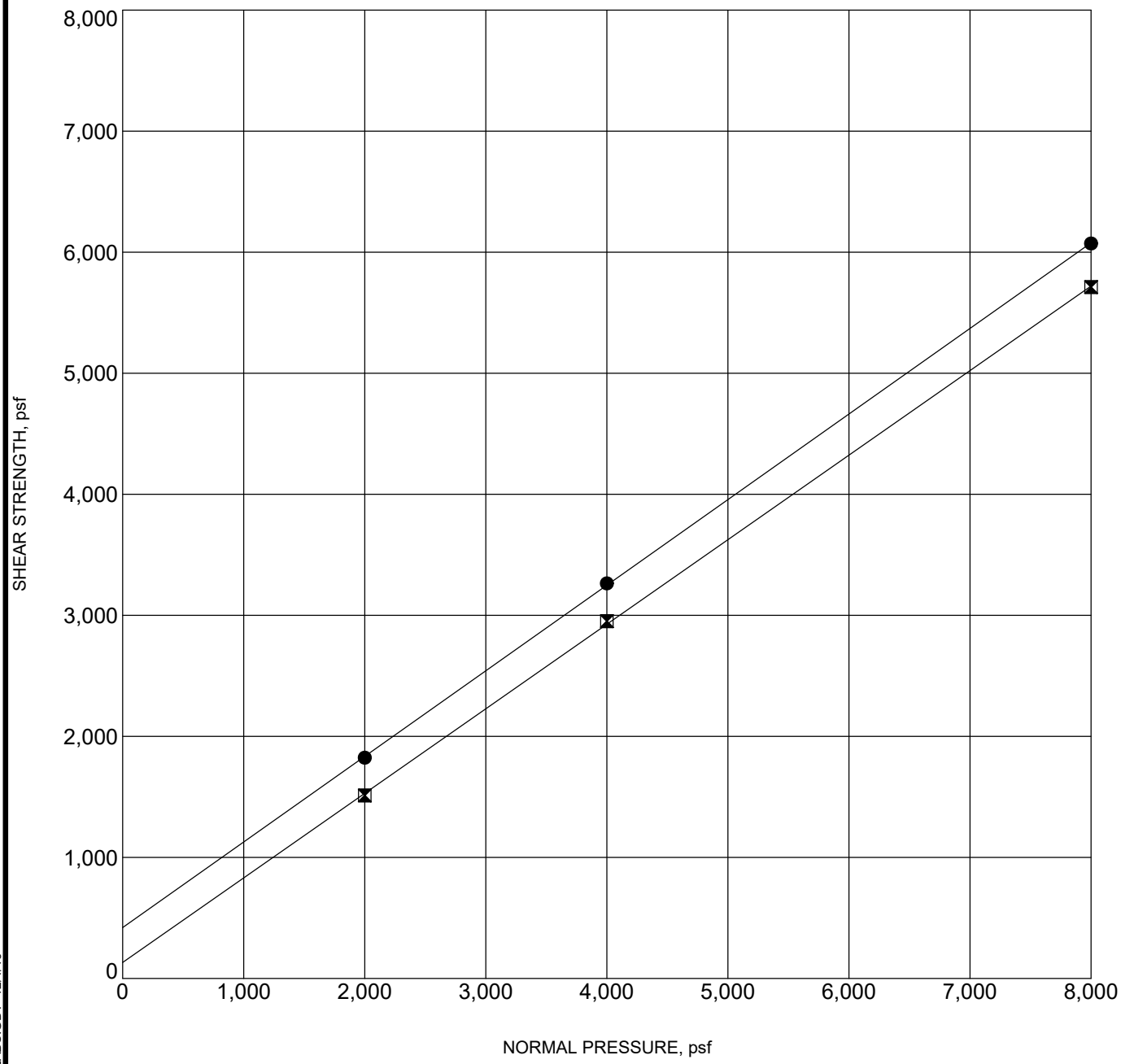
PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	FIGURE B-2



Shear Strength Parameters

	Peak	Ultimate
Cohesion, C (psf):	420	132
Friction Angle, Ø (deg):	35	35

Boring No.: B-2
Sample Depth (ft): 10
Sample Description: Silty SAND
Strain Rate (in./min): 0.005
Dry Density (pcf): 107.2

Initial Moisture (%): 2.8
Final Moisture (%): 13.5

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DIRECT SHEAR TEST

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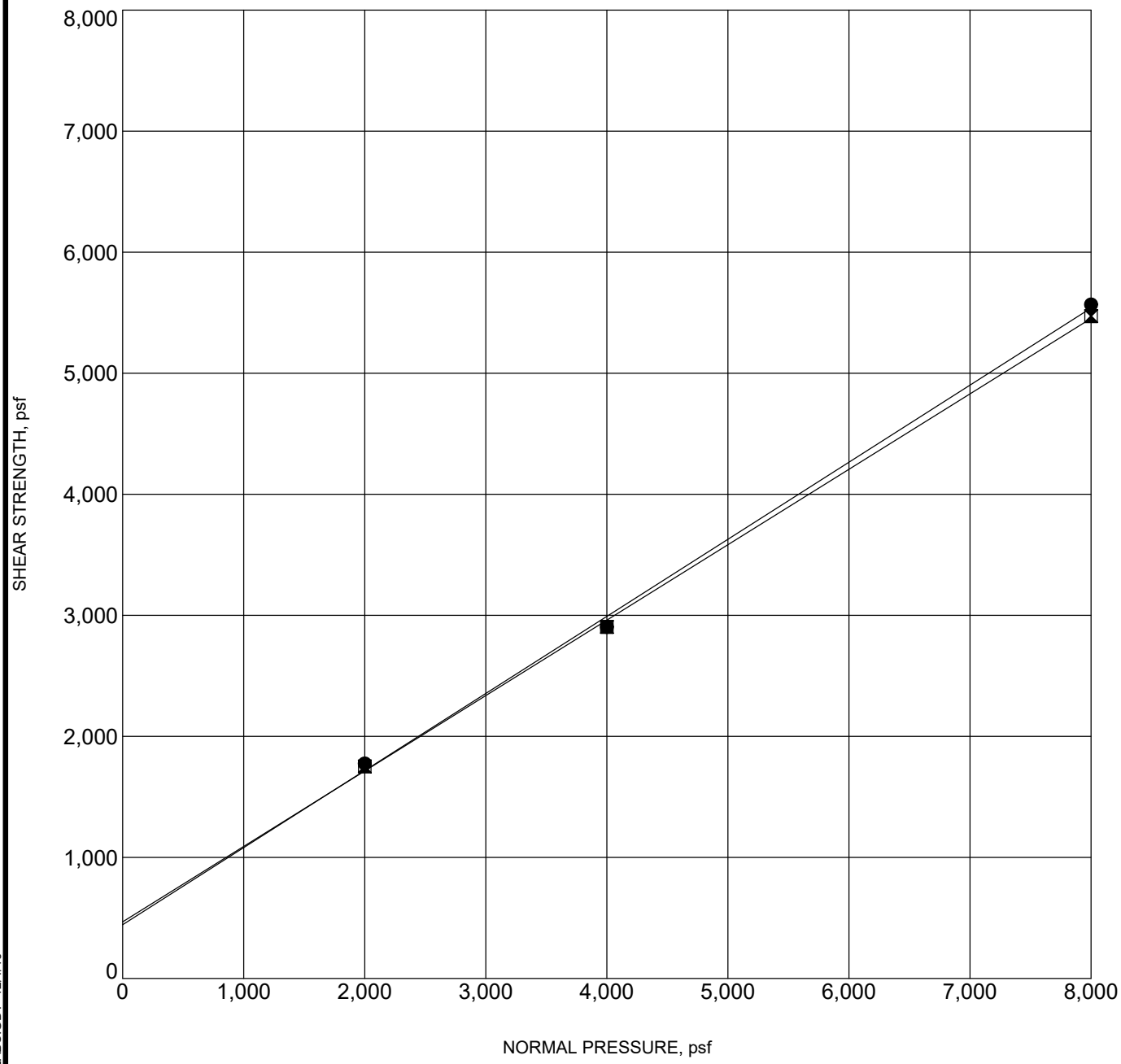
PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	FIGURE B-3



Boring No.: B-5
Sample Depth (ft): 5
Sample Description: Silty SAND
Strain Rate (in./min): 0.005
Dry Density (pcf): 111.8

Shear Strength Parameters

	Peak	Ultimate
Cohesion, C (psf):	444	444
Friction Angle, Ø (deg):	32	32

Initial Moisture (%): 2.1
Final Moisture (%): 14.9

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DIRECT SHEAR TEST

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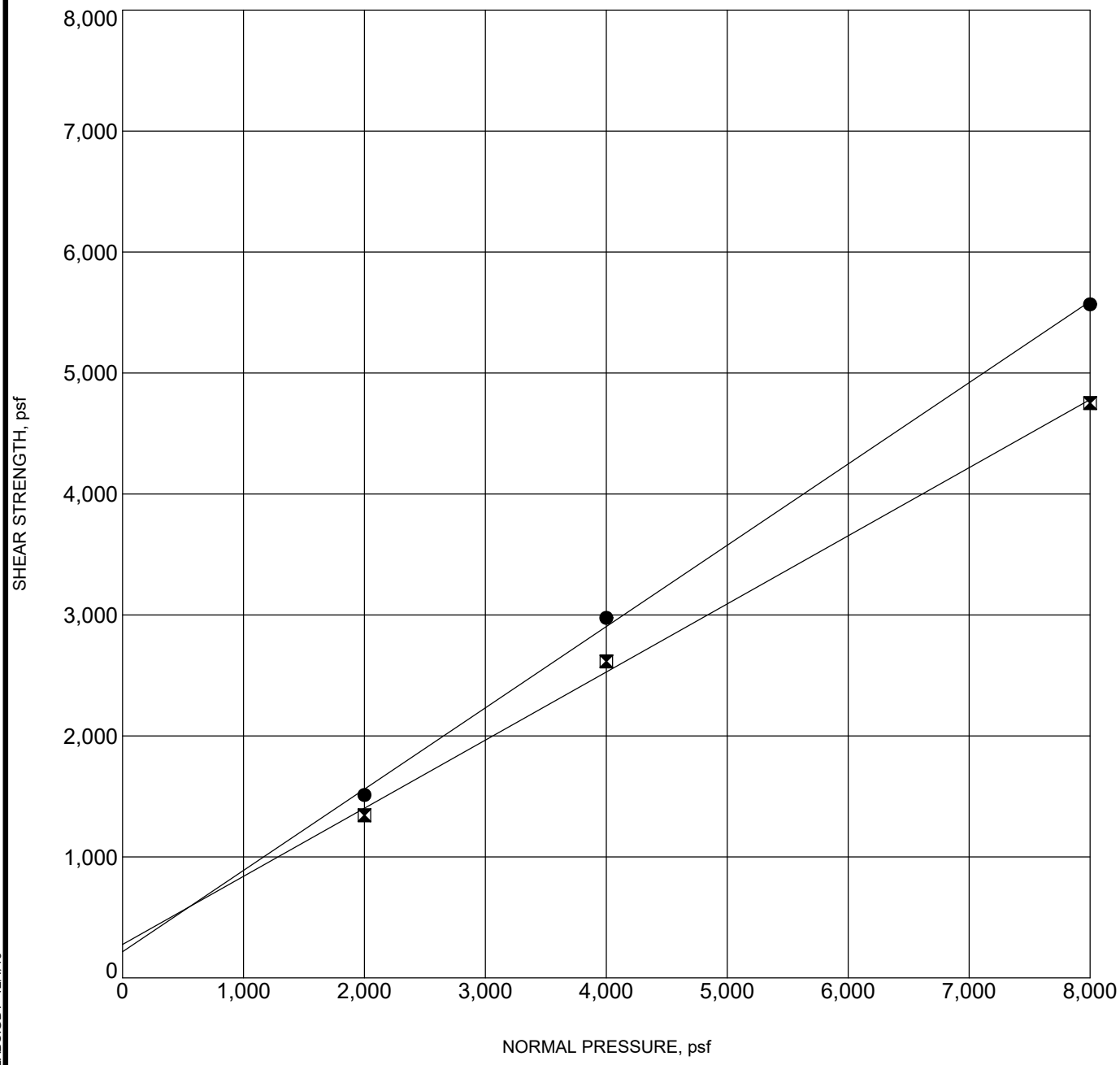
PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	FIGURE B-4



Shear Strength Parameters

	Peak	Ultimate
Cohesion, C (psf):	216	216
Friction Angle, Ø (deg):	34	29

Boring No.: B-6
Sample Depth (ft): 15
Sample Description: Silty SAND
Strain Rate (in./min): 0.005
Dry Density (pcf): 123.3

Initial Moisture (%): 5.7
Final Moisture (%): 12.1

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DIRECT SHEAR TEST

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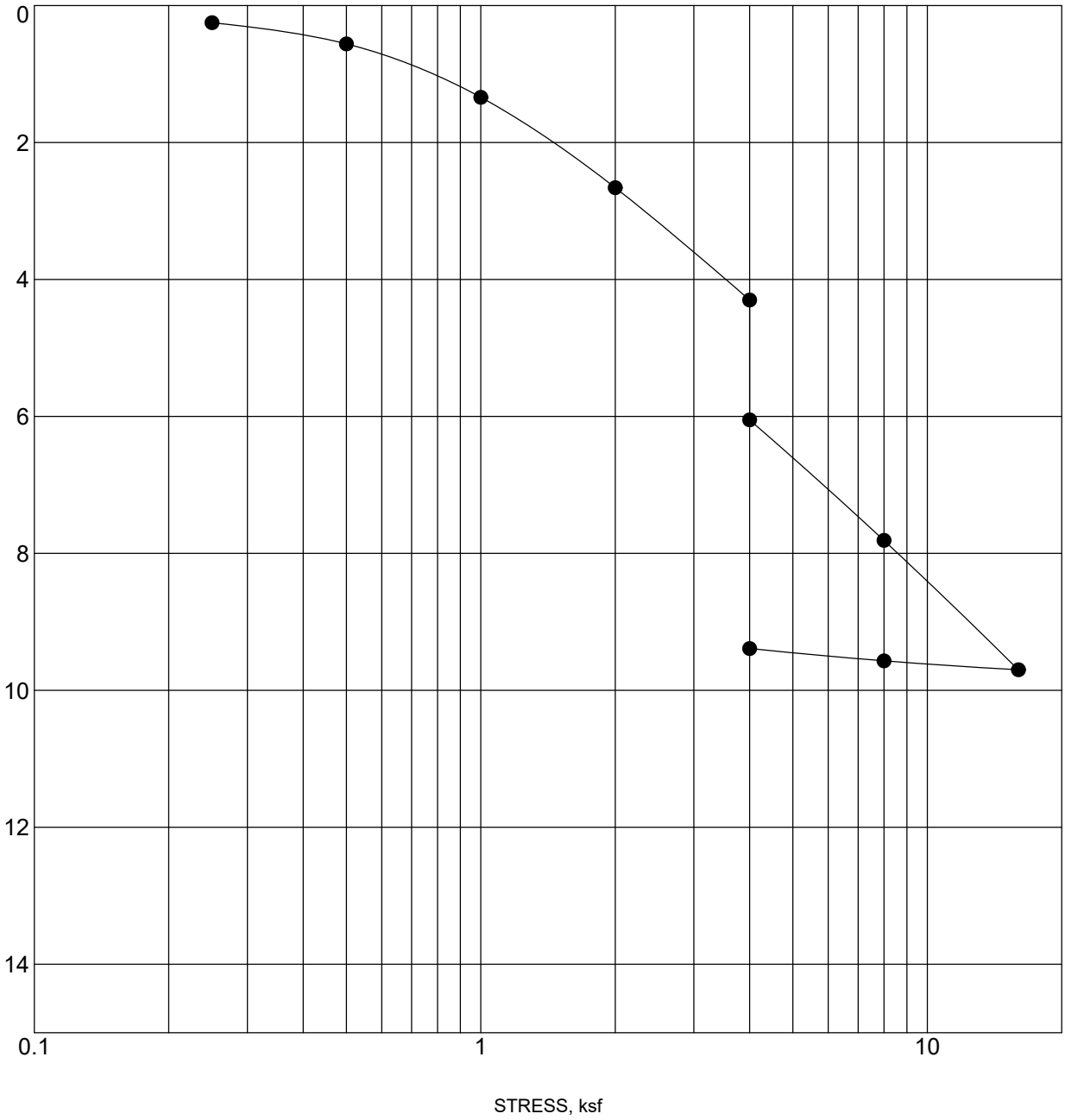
PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	FIGURE B-5

DIRECT SHEAR 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/4/19



Sample Location	Soil Description	Dry Density (pcf)	Moisture Content (%)
● B-3 at 10 ft	**Silty SAND**	**111.7**	**3.9**

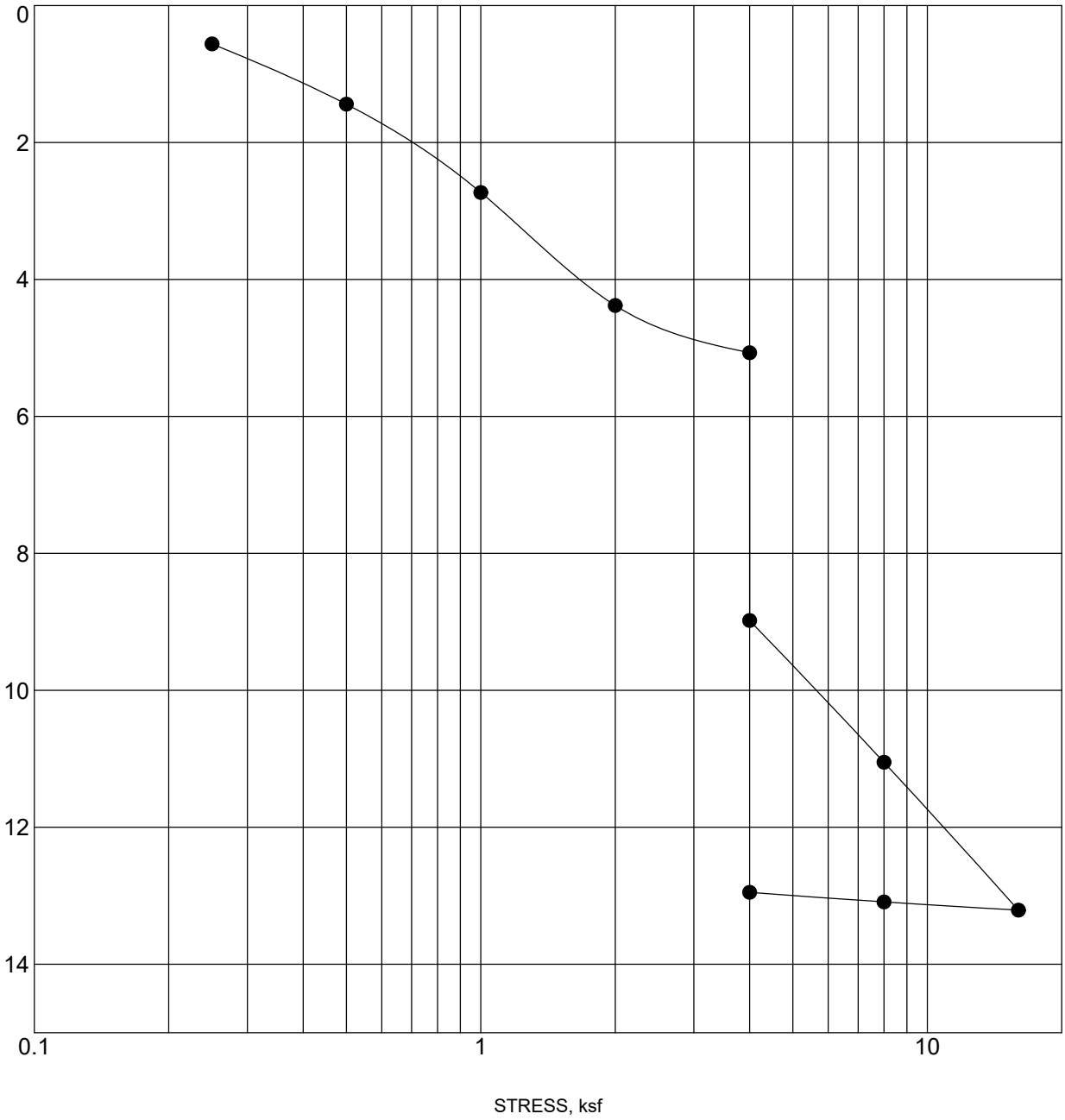
TWINING

CONSOLIDATION TEST

Student Health and Counseling Center
University of California, Riverside
Riverside, California

PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	B-6

CONSOL STRAIN 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/4/19



Sample Location	Soil Description	Dry Density (pcf)	Moisture Content (%)
● B-3 at 30 ft	**Silty SAND**	**118.0**	**7.1**

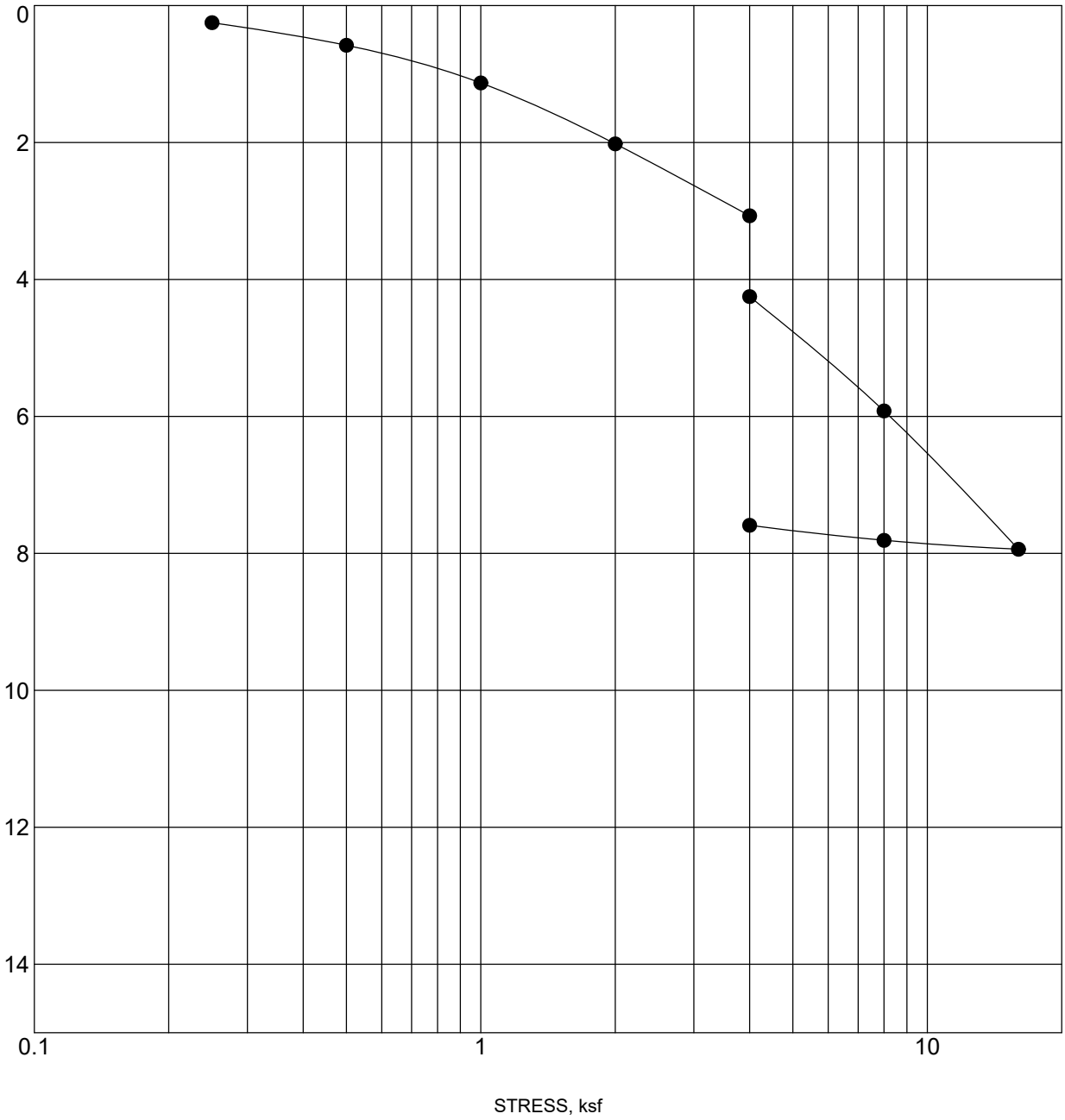
TWINING

CONSOLIDATION TEST

Student Health and Counseling Center
University of California, Riverside
Riverside, California

PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	B-7

CONSOL STRAIN 190638.3 - UCR STUDENT HEALTH CENTER.GPJ TWINING LABS.GDT 12/4/19



Sample Location	Soil Description	Dry Density (pcf)	Moisture Content (%)
● **B-5 at 15 ft**	**Silty SAND**	**117.8**	**7.4**

TWINING

CONSOLIDATION TEST

Student Health and Counseling Center
University of California, Riverside
Riverside, California

PROJECT NO.	REPORT DATE	FIGURE
190638.3	December 2019	FIGURE B-8

HUSHMAND ASSOCIATES, INC.
Geotechnical and Earthquake Engineers

Hushmand Associates, Inc.
250 Goddard, Irvine,
CA 92618

p. (949) 777-1274
w. haieng.com
e. hai@haieng.com

December 4, 2019

Twining Consulting
3310 Airport Way,
Long Beach, CA 90806

Attention: Mr. Steven Chang

SUBJECT: **Laboratory Test Result**
Project Name: **UCR SHC**
Project No.: **190638.3**
HAI Project No.: **TWI-19-011**

Dear Mr. Chang:

Enclosed is the result of the laboratory testing program conducted on samples from the above referenced project. The testing performed for this program was conducted in general accordance with the following test procedure:

Type of Test	Test Procedure
Moisture Content & Dry Density	ASTM D2216 & D2937
Consolidation	ASTM D2435

Attached are: one (1) Moisture Content & Dry Density test result; and one (1) Consolidation test result.

We appreciate the opportunity to provide our testing services to Twining Consulting. If you have any questions regarding the test results, please contact us.

Sincerely,

HUSHMAND ASSOCIATES, INC.

Kang C. Lin, BS, EIT
Laboratory Manager

Woongju (MJ) Mun, PhD
Senior Staff Engineer

MOISTURE CONTENT AND DRY DENSITY OF RING SAMPLES

ASTM D2216 & ASTM D2937

Client: Twining Consulting
Project Name: UCR SHC
Project No.: 190638.3

HAI Proj No.: TWI-19-011
Performed by: KL
Checked by: MJ
Date: 11/19/2019

No.	Boring No.	Sample No.	Depth	Wt of Ring + Soil	Height of Sample	Dia. of Sample	Volume of Sample	Wt of Rings	Wt of Soil	Wet Density	Wt of Cont. + Wet Soil	Wt of Cont. + Dry Soil	Wt of Container	**Moisture Content**	**Dry Density**
			ft	gr	in	in	cu.ft	gr	gr	pcf	gr	gr	gr	**%**	**pcf**
1	**B-6**	**R**	**5**	892.03	5.00	2.416	0.0133	220.15	671.88	111.7	131.7	124.51	5.3	**6.0**	**105.3**

CONSOLIDATION TEST

ASTM D2435

Client :	Twining Consulting	*HAI Project No.:*	TWI-19-011
Project Name:	UCR SHC	*Tested by:*	KL
Project Number:	190638.3	*Checked by:*	MJ
Boring No.:	B-6	*Date:*	11/19/19
Sample No.:	R		
Type of Sample:	Undisturbed Ring		
Depth (ft):	5		
Soil Description:	Brown, Silty Sand (SM)		

Initial Total Weight	Final Total Weight	Final Dry Weight
(g)	(g)	(g)
134.26	144.44	126.65

			Initial Conditions	Final Conditions
Height	H	(in)	1.003	0.935
Height of Solids	H_s	(in)	0.631	0.631
Height of Water	H_w	(in)	0.101	0.237
Height of Air	H_a	(in)	0.270	0.067
Dry Density		**(pcf)**	**104.9**	**120.3**
Water Content		**(%)**	**6.0**	**14.0**
Saturation		**(%)**	**27.3**	**78.0**

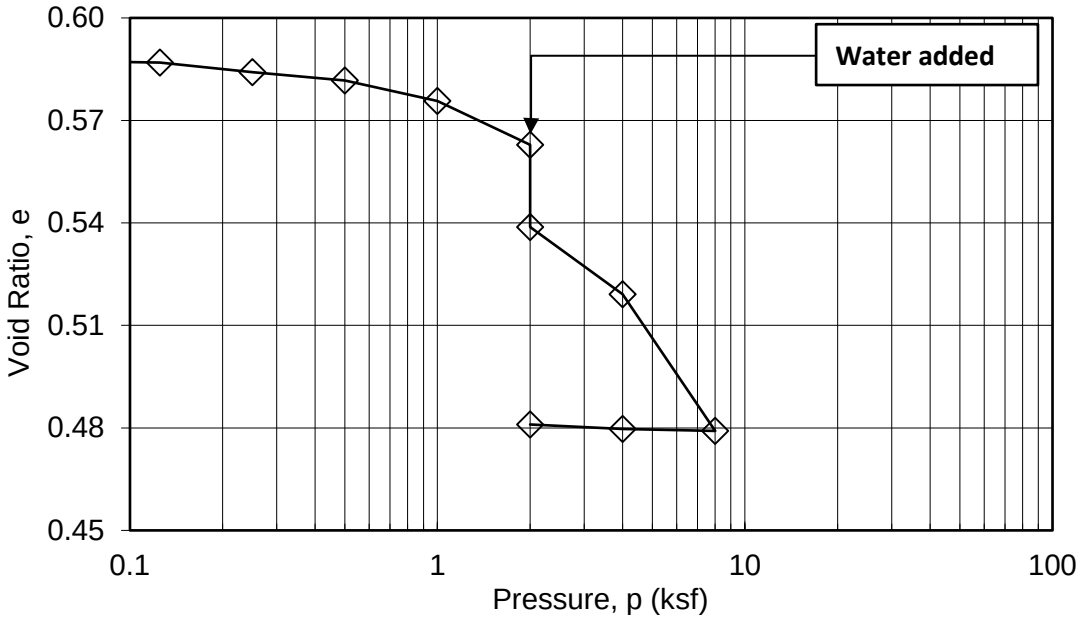
* Saturation is calcualted based on Gs= 2.67

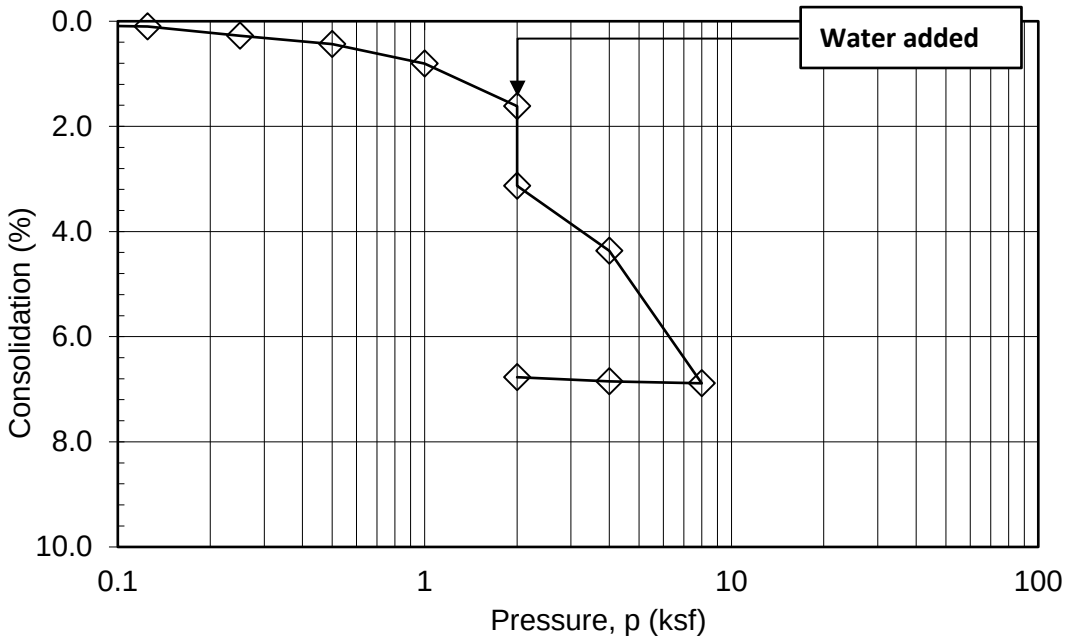
Load (ksf)	**δH (in)**	**H (in)**	**Voids (in)**	**e**	**Consol. (%)**	**a_v (ksf^{-1})**	**M_v (ksf^{-1})**	**Comment**
0.01	-------	1.0030	0.372	0.589	0			
0.125	0.0010	1.0020	0.371	0.587	0.1	1.4E-02	8.6E-03	
0.25	0.0027	1.0003	0.369	0.584	0.3	2.2E-02	1.4E-02	
0.5	0.0043	0.9987	0.367	0.582	0.4	1.0E-02	6.4E-03	
1	0.0081	0.9949	0.364	0.576	0.8	1.2E-02	7.5E-03	
2	0.0162	0.9868	0.355	0.563	1.6	1.3E-02	8.2E-03	
2	0.0314	0.9716	0.340	0.539	3.1	Water Added		
4	0.0438	0.9592	0.328	0.519	4.4	9.8E-03	6.5E-03	
8	0.0691	0.9339	0.303	0.479	6.9	1.0E-02	6.8E-03	
4	0.0687	0.9343	0.303	0.480	6.9	Unloaded		
2	0.0679	0.9351	0.304	0.481	6.8			

CONSOLIDATION TEST

ASTM D2435

Client :	Twining Consulting	*HAI Project No.:*	TWI-19-011
Project Name:	UCR SHC	*Tested by:*	KL
Project Number:	190638.3	*Checked by:*	MJ
Boring No.:	B-6	*Date:*	11/19/19
Sample No.:	R		
Type of Sample:	Undisturbed Ring		
Depth (ft):	5		
Soil Description:	Brown, Silty Sand (SM)		





ANAHEIM TEST LAB, INC

196 Technology Drive, Unit D
Irvine, CA 92618
Phone (949)336-6544

TWINING LABS
3310 AIRPORT WAY
LONG BEACH, CA 90806

DATE: 11/18/2019

P.O. NO: Soils 102319

LAB NO: C-3367

SPECIFICATION: CTM-417/422/643

MATERIAL: Soil

Project No.: 190638.3
Project: VCR SHL
Date sampled: 11/07/2019

ANALYTICAL REPORT

CORROSION SERIES
SUMMARY OF DATA

pH	SOLUBLE SULFATES per CT. 417 ppm	SOLUBLE CHLORIDES per CT. 422 ppm	MIN. RESISTIVITY per CT. 643 ohm-cm
7.9	198	81	2,900

RESPECTFULLY SUBMITTED

WES BRIDGER LAB MANAGER

Appendix C

Noise Analysis Worksheets

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/29/2020
Case Description: UCR_SHCC_Arch Coating

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Pentland Hills Residences	Residential	65.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	194.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Compressor (air)	65.9	61.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.9	61.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Dundee-Glasgow Residences	Residential	65.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	222.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Compressor (air)	64.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	64.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/29/2020
Case Description: UCR_SHCC_Building Construction

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Pentland Hills Residences	Residential	65.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	194.0	0.0
Generator	No	50		80.6	194.0	0.0
Gradall	No	40		83.4	194.0	0.0
Welder / Torch	No	40		74.0	194.0	0.0
Backhoe	No	40		77.6	194.0	0.0
Welder / Torch	No	40		74.0	194.0	0.0
Welder / Torch	No	40		74.0	194.0	0.0

Results

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Crane	68.8	60.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	68.9	65.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gradall	71.6	67.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	62.2	58.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Backhoe			65.8	61.8		N/A		N/A		N/A		N/A		N/A
N/A		N/A		N/A		N/A		N/A		N/A		N/A		
Welder / Torch			62.2	58.2		N/A		N/A		N/A		N/A		N/A
N/A		N/A		N/A		N/A		N/A		N/A		N/A		
Welder / Torch			62.2	58.2		N/A		N/A		N/A		N/A		N/A
N/A		N/A		N/A		N/A		N/A		N/A		N/A		
	Total		71.6	71.6		N/A		N/A		N/A		N/A		N/A
N/A		N/A		N/A		N/A		N/A		N/A		N/A		

**** Receptor #2 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Dundee-Glasgow Residences	Residential	65.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	222.0	0.0
Generator	No	50		80.6	222.0	0.0
Gradall	No	40		83.4	222.0	0.0
Welder / Torch	No	40		74.0	222.0	0.0
Backhoe	No	40		77.6	222.0	0.0
Welder / Torch	No	40		74.0	222.0	0.0
Welder / Torch	No	40		74.0	222.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

		Calculated (dBA)				Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Lmax	Leq	Lmax	Leq	Lmax	Leq						
Crane		67.6	59.6		N/A		N/A		N/A		N/A
N/A	N/A		N/A		N/A		N/A		N/A		
Generator		67.7	64.7		N/A		N/A		N/A		N/A
N/A	N/A		N/A		N/A		N/A		N/A		

Gradall			70.5	66.5		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch			61.1	57.1		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe			64.6	60.6		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch			61.1	57.1		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch			61.1	57.1		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Total	70.5	69.9		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/29/2020
Case Description: UCR_SHCC_Demolition_DG

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Dundee-Glasgow Residences	Residential	65.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	222.0	0.0
Dozer	No	40		81.7	222.0	0.0
Backhoe	No	40		77.6	222.0	0.0
Backhoe	No	40		77.6	222.0	0.0
Backhoe	No	40		77.6	222.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Concrete Saw	76.6	69.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	68.7	64.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	64.6	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	64.6	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	64.6	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Total	76.6	71.9	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/29/2020
Case Description: UCR_SHCC_Demolition

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Pentland Hills Residences	Residential	65.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	194.0	0.0
Dozer	No	40		81.7	194.0	0.0
Backhoe	No	40		77.6	194.0	0.0
Backhoe	No	40		77.6	194.0	0.0
Backhoe	No	40		77.6	194.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Concrete Saw	77.8	70.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	69.9	65.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	65.8	61.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	65.8	61.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	65.8	61.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Total	77.8	73.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/29/2020
Case Description: UCR_SHCC_Paving

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Pentland Hills Residences	Residential	65.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	194.0	0.0
Paver	No	50		77.2	194.0	0.0
Roller	No	20		80.0	194.0	0.0
Backhoe	No	40		77.6	194.0	0.0
Pavement Scarafier	No	20		89.5	194.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Concrete Mixer Truck	67.0	63.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	65.4	62.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	68.2	61.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	65.8	61.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	77.7	70.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Equipment	Calculated Lmax (dBA)	Calculated Leq (dBA)	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Exceedance Day Lmax	Exceedance Day Leq	Exceedance Evening Lmax	Exceedance Evening Leq	Exceedance Night Lmax	Exceedance Night Leq
Total	77.7	72.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Dundee-Glasgow Residences	Residential	65.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	222.0	0.0
Paver	No	50		77.2	222.0	0.0
Roller	No	20		80.0	222.0	0.0
Backhoe	No	40		77.6	222.0	0.0
Pavement Scarafier	No	20		89.5	222.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck	67.6	59.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	67.7	64.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	70.5	66.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	64.6	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	70.5	69.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/29/2020
Case Description: UCR_SHCC_Site Prep_DG

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Dundee-Glasgow Residences	Residential	65.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		222.0	0.0
Dozer	No	40		81.7	222.0	0.0
Backhoe	No	40		77.6	222.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Calculated (dBA)				Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	72.1	68.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	68.7	64.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	64.6	60.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	72.1	70.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/29/2020
Case Description: UCR_SHCC_Site Prep_PH

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Pentland Hills Residences	Residential	65.0	55.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		194.0	0.0
Dozer	No	40		81.7	194.0	0.0
Backhoe	No	40		77.6	194.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	73.2	69.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	69.9	65.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	65.8	61.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	73.2	71.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix D

VMT Memorandum

FEHR PEERS

Memorandum

Date: June 2, 2020

To: Christine Donoghue, Rincon

From: Kara Hall and Sarah Brandenberg

Subject: UC Riverside Student Health & Counseling Center - VMT Overview for MND

OC20-0727

Background

Senate Bill 743 (SB 743) directed the Office of Planning and Research (OPR) to develop revisions to the CEQA Guidelines to establish new criteria for determining the significance of transportation impacts. On September 27, 2013, California Governor Jerry Brown signed SB 743 into law and started a process that changes transportation impact analysis as part of CEQA compliance. These changes include elimination of auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts for projects in California.

In January 2016, OPR updated the CEQA Guidelines "Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA". In this update, the evaluation of vehicle miles traveled (VMT) was recognized as "generally the most appropriate measure of transportation impacts." In November 2017, OPR proposed a new section to the CEQA Guidelines, 15064.3, for use in determining the significance of transportation impacts. The purpose of this section is to describe specific elements for considering the transportation impacts of a project given the use of VMT as the primary measurement. This section was later updated in July 2018 and finalized in December 2018 with criteria for analyzing transportation impacts.

Per the guidance from OPR, a lead agency may elect to be governed by the provisions of the new CEQA Guidelines immediately; however, the new guidelines shall be applied statewide no later than July 1, 2020. UC Riverside (UCR) is now utilizing the updated CEQA guidelines to assess Project impacts as they provide the most current direction from the State and reflect the most defensible guidance available.

CEQA Guidelines

In accordance with Appendix G of the CEQA Guidelines, the Project would have a significant impact related to transportation if it would:

1. **Conflict with a program, plan, ordinance or policy** addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities.

2. **Conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b) per the following criteria:**

    a. ***Land Use Projects.*** *Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.*

    b. ***Transportation Projects.*** *Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in Section 15152.*

    c. ***Qualitative Analysis.*** *If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.*

    d. ***Methodology.*** *A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled, and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and*

any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.

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

4. **Result in inadequate emergency access.**

VMT Screening

OPR's *Technical Advisory*[1] recommends three screening criteria that can be used to assess what type of VMT analysis, if any, is needed. The three screening criteria, detailed below, can be applied to determine if the project has the potential to result in a VMT impact based on project size and location.

Screening Criteria 1: Project Size

Land use projects that generate less than 110 daily trips and local-serving retail projects, defined as commercial projects with local-serving retail uses less than 50 thousand square feet (ksf), are presumed to have less than significant VMT impacts absent substantial evidence to the contrary. Therefore, these projects are screened out from completing a VMT analysis based on project size.

Screening Criteria 2: Low VMT Area Screening

OPR guidance states that residential and office projects located within a low VMT generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. This determination can be made based on the project location and using a travel survey or travel demand model to identify areas that are below the local VMT threshold.

Screening Criteria 3: Transit Priority Areas (TPA) Screening

Projects located in a Transit Priority Area (TPA) or along a High-Quality Transit Corridor (HQTC) may also be screened out from conducting a VMT analysis because they are presumed to have a less than significant impact absent substantial evidence to the contrary. TPAs are defined in the OPR technical advisory as a ½ mile radius around an existing or planned major transit stop or an existing stop along a HQTC. A HQTC is defined as a corridor with fixed route bus service frequency of 15 minutes (or less) during peak commute hours.

[1] Governor's Office of Planning and Research, *Technical Advisory on Evaluating Transportation Impacts in CEQA*, 2018, 12-14.

VMT Evaluation

The Project would construct a 50,000 square-foot Student Health & Counseling Center (SHCC) on an existing surface parking lot, Parking Lot 21, on the UCR campus. Other Project features include vehicle and emergency ingress/egress, landscape and hardscape improvements, new pedestrian pathways, restriping a portion of the existing surface parking area, and other site amenities (e.g., bicycle racks, benches). As part of the Project, 135 parking spaces from the existing 382 spaces in Parking Lot 21 would be removed, resulting in 247 parking spaces on site.

As part of the Project, UCR would move the campus health and counseling services from the existing Student Health Services building to the new SHCC facility. The new location would provide more direct access to students due to its proximity to existing and planned student residence halls. This includes the existing Pentland Residence Hall directly to the south of the Project site and the Dundee-Glasgow and North District Development sites which both include student housing and are currently being constructed directly west and northwest of the Project site. The Project is also consistent with UCR's 2005 Long Range Development Plan (LRDP), which designated the site as a Residence Hall and Related Support.

The characteristics of the Project and the VMT screening criteria provided in OPR's *Technical Advisory* were used to evaluate the potential VMT impacts of the Project. Two of the three screening criteria are applicable to the Project and can be used to determine if the project has the potential to result in a VMT impact based on project size and proximity to transit.

Project Size Screening

The Project itself would generate a minimal number of new vehicle trips. Rather, vehicles that would travel to the Project site reflect trips already traveling to the existing Student Health Services building. The additional capacity of the SHCC would accommodate the student and faculty/staff growth expected to occur overtime from implementation of the UCR 2005 LRDP as analyzed in the 2005 LRDP Amendment 2 EIR. Proximity to the residence halls, paired with the active transportation amenities being constructed as part of the Project and other projects in the area, would also provide more direct access for students, resulting in more biking and walking trips by the primary users.

With a reduction in parking supply in Parking Lot 21, the Project would result in a decrease in vehicle trips to the site compared to existing conditions. These vehicles are still expected to travel to UCR; however, they would park elsewhere on campus. The 2005 LRDP anticipated that development would occur on surface parking lots at UCR and would be replaced by structured parking facilities. The 2005 LRDP identified several future sites for new parking facilities that are dispersed throughout the campus. Therefore, the redistribution of vehicles to other parking facilities on campus is not expected to result in an increase in VMT.

The minimal number of new vehicle trips traveling to the Project site would be generated by the minor increase in staff. The overall increase in staff at UCR to support student and faculty growth was analyzed in the 2005 LRDP Amendment 2 EIR. For the Project site, the increase in the number of trips is expected to be far below the 110 daily trip threshold in which OPR states that VMT analysis is not required. Therefore, the Project is presumed to have a less than significant transportation impact.

Transit Proximity Screening

As described in the section above, a project located within a TPA or along a HQTC may also be screened from completing additional VMT analysis and is presumed not to have a significant VMT impact. Today, transit service to UCR is provided by Riverside Transit Agency (RTA) and includes RapidLink, a fixed route service which operates every 15 minutes, as well as other local and commuter routes. Based on the transit service provided, OPR's guidance on screening projects for proximity to transit service is met, indicating that the Project is presumed to have a less than significant transportation impact.

Given that the Project would generate a minimal number of new vehicle trips and that the Project is served by high quality transit, no impacts to vehicle miles traveled (VMT) under CEQA Guidelines Section 15064.3, Subdivision (b) would occur with the Project.

Construction

During construction, the Project would temporarily generate vehicle-trips for workers, truck hauling trips, and truck-trips for the delivery of supplies and construction equipment. While construction activities would close the western portion of Parking Lot 21. The eastern portion of Parking Lot 21 would remain available for students, faculty, and staff, with additional demand being met by other campus parking areas. Construction workers would park in the North District Development area northwest of the Project site. Construction of the Project would occur over approximately 18 months.

Construction access to the Project would occur from W. Linden Street. The primary construction route would be from I-215 to Blaine Street to Canyon Crest Drive, to W. Linden Street. Any effects to the transportation network during construction would be temporary. Given the duration of construction and activity levels anticipated, the Project would not have an impact related to VMT during construction.