University of California, Riverside
Undergraduate Teaching and Learning Facility
Project Number: 950587

Addendum No. 2 to the Program Environmental Impact Report for the University of California, Riverside 2021 Long Range Development Plan

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MARCH 2024

TABLE OF CONTENTS

LIST OF Figures

LIST OF TABLES

LIST OF APPENDICES

Acronyms and Abbreviations

Acronym/Abbreviation	Description
ACM	Asbestos-Containing Material
ADA	Americans with Disabilities Act
AES	Aesthetics
AFY	Acre feet per year
ALUCP	Airport Land Use Compatibility Plan
AQMP	Air Quality Management Plan
Asf	Assignable Square Feet
BIO	Biological Resources
BMP	Best Management Practice
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
CalGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CBP	Continuing Best Practice
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CHASS	College of Humanities, Arts, and Social Sciences
City	City of Riverside
CNEL	Community Noise Equivalent Level
CO	Carbon monoxide
CUL	Cultural Resources
CVARS	Coachella Valley Agricultural Research Station
dBA	A-Weighted Decibel
DOC	California Department of Conservation
DTSC	Department of Toxic Substances Control
EH&S	Environmental Health & Safety
EIR	Environmental Impact Report
FEMA	Federal Emergency Management Agency
GEO	Geology and Soils
GHG	Greenhouse Gas
Gsf	Gross Square Feet
HAZ	Hazards and Hazardous Materials
HRA	Health Risk Assessment
HVAC	Heating, Ventilation, and Air Conditioning
I-215	Interstate 215

Acronym/Abbreviation	Description
IESNA	Illuminating Engineering Society of North America
IS	Initial Study
kWh	Kilowatt-hour
LBP	Lead-based Paint
LEED	Leadership in Energy and Environmental Design
Leq	Equivalent Continuous Sound Level
LID	Low Impact Development
LRDP	Long Range Development Plan
LSTs	Localized Significance Thresholds
MBTA	Migratory Bird Treaty Act
MGD	Million Gallons Per Day
MM	Mitigation Measures
MOU	Memorandum of Understanding
MRB	Multidisciplinary Research Building
MRZ	Mineral Resource Zone
MS4	Municipal Separate Storm Sewer System Permits
MSHCP	Multiple Species Habitat Conservation Plan
$MTCO_2e$	metric tons of carbon dioxide equivalent
MWh	Megawatt-Hours
NAHC	Native American Heritage Commission
NO_x	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
PCB	Polychlorinated Biphenyls
PD&C	Planning, Design & Construction
PM_{10}	Particulate Matter 10 Micrometers in Diameter or Less
$PM_{2.5}$	Fine Particulate Matter 2.5 Micrometers in Diameter or Less
PRC	Public Resources Code
PSE	Participating Special Entity
PV	Photovoltaics
Qof	Quaternary Old Alluvial Fan Deposits
Qvof	Quaternary Very Old Alluvial Fan Deposits
RCHCA	Riverside County Habitat Conservation Agency
Regents	University of California Board of Regents
RFD	City of Riverside Fire Department
RPD	City of Riverside Police Department
RivTAM	Riverside Traffic Analysis Model
ROG	Reactive Organic Gases
RPU	Riverside Public Utilities
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy

Acronym/Abbreviation	Description
RWQCP	Riverside Water Quality Control Plant
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCG	Southern California Gas
SMP	Construction Site Management Plan
SO_2	Sulfur dioxide
SR 60	State Route 60
SR 91	State Route 91
SRC	Student Recreation Area
SVP	Society of Vertebrate Paleontology
SWMP	Storm Water Management Program
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	Toxic air contaminants
TAPS	Transportation and Parking Services
TCR	Tribal Cultural Resources
TDM	Transportation Demand Management
UC	University of California
UCPD	University of California Police Department
UCR	University of California, Riverside
UST	Underground Storage Tanks
UTLF	Undergraduate Teaching and Learning Facility
UWMP	Urban Water Management Plan
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	Vehicle Miles Traveled
WF	Wildfire
WRCOG	Western Riverside Council of Governments

1 INTRODUCTION

1.1 PROJECT SUMMARY

The University of California, Riverside (UCR) Undergraduate Teaching and Learning Facility Project (proposed project) is evaluated in this Addendum for consistency with the UCR 2021 Long Range Development Plan (2021 LRDP) and its associated Program Environmental Impact Report (EIR), certified November 18, 2021 (State Clearinghouse No. 2020070120).

Project name:	Undergraduate Teaching and Learning Facility (UTLF)
Project location:	University of California, Riverside
Lead agency's name and address:	The Regents of the University of California 1111 Franklin Street Oakland, California 94607
Contact person:	Stephanie Tang, Assistant Director of Campus Planning University of California, Riverside Planning, Design & Construction
Project sponsor's name and address:	University of California, Riverside Planning, Design & Construction 1223 University Avenue, Suite 240 Riverside, California 92507
Location of administrative record:	See Project Sponsor
Previously Certified 2021 LRDP Program EIR:	The 2021 LRDP is a comprehensive land use plan that guides physical development on UCR's campus to accommodate projected enrollment increases and new or expanded program initiatives. This Addendum documents that the proposed project is consistent with the 2021 LRDP and that none of the conditions described in California Environmental Quality Act (CEQA) Guidelines Section 15162 calling for the preparation of a subsequent EIR have occurred, and that the proposed project will not have additional significant effects that were not already evaluated in the 2021 LRDP EIR. The 2021 LRDP and its associated EIR are available at the following locations: ▪ University of California, Riverside Planning, Design & Construction Office located at 1223 University Avenue, Suite 240 Riverside, California 92507 ▪ Online at: https://pdc.ucr.edu/environmental-planning-ceqa

1.2 BACKGROUND, PURPOSE, AND PROJECT OVERVIEW

The UCR 2021 LRDP is a comprehensive long-range land use plan that guides physical development on the UCR campus consistent with UCR's mission, priorities, strategic goals, and campus population projections through the 2035-2036 academic year (UCR 2021a). On November 18, 2021, the University of California (UC) Board of Regents (Regents) certified the 2021 LRDP EIR, State Clearinghouse No. 2020070120, and approved the 2021 LRDP. The 2021 LRDP EIR provides a program-level analysis of environmental impacts associated with the overall proposed development and campus population projections in the 2021 LRDP, including up to 12,754,258 gross square feet (gsf) of total building space (approximately 5,549,006 gsf of net new building space) for academics and research, academic support, student life and support facilities, 14,000 total beds (approximately 7,489 new beds), and a total campus population of 42,545 students, faculty, and staff. The proposed Undergraduate Teaching and Learning Facility (herein referred to as UTLF or proposed project) entails the development of classrooms, studio, and instructional laboratory spaces up to five stories in height, totaling approximately 120,000 gsf.

Pursuant to Public Resources Code Section 21166 and CEQA Guidelines Section 15162, when an EIR has been certified for a project, no subsequent or supplemental EIR shall be prepared for that project unless the lead agency determines, based on substantial evidence in light of the whole record, one or more of the following:

- Substantial changes are proposed in the project which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified effects;
- Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete, shows any of the following:
    - The project will have one or more significant effects not discussed in the previous EIR;
    - Significant effects previously examined will be substantially more severe than shown in the previous EIR;
    - Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measures or alternatives; or
    - Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Where none of the conditions specified in CEQA Guidelines Section 15162[1] are present, the lead agency must determine whether to prepare an Addendum or whether no further CEQA documentation is required (CEQA Guidelines Section 15162[b]). An Addendum is appropriate where some minor technical changes or additions to the project or the previously certified EIR are necessary, but there are no new or

[1] See also Section 15163 of the State CEQA Guidelines, which applies the requirements of Section 15162 to supplemental EIRs.

substantially more severe significant impacts than those identified in the previously certified EIR (CEQA Guidelines Section 15164).

This Addendum uses a checklist format to document that project-specific activities are covered by the 2021 LRDP EIR pursuant to CEQA Guidelines Section 15168(c), which states that subsequent activities in a program, "must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared." This Addendum and attached supporting documents have been prepared to document that the proposed project is consistent with the 2021 LRDP and that its potential environmental impacts are within the scope of those addressed in the 2021 LRDP EIR, pursuant to CEQA Guidelines Section 15168. This Addendum also documents that none of the conditions described in Public Resources Code Section 21166 or CEQA Guidelines Sections 15162 or 15164 calling for preparation of a subsequent or supplemental EIR have occurred.

During construction and operation of the proposed project, all applicable mitigation measures (MMs) and continuing best practices (CBPs) from the 2021 LRDP EIR would be implemented and are incorporated by reference in this document (see Section 5, Applicable Mitigation Measures, of this Addendum).

1.3 CEQA DETERMINATION

UCR previously prepared the 2021 LRDP EIR, and on the basis of this evaluation and pursuant to the CEQA Guidelines:

☒ I find that the project WOULD NOT have new significant effects on the environment that have not already been addressed by the 2021 LRDP EIR, no substantial changes have occurred with respect to the circumstances under which the project will be undertaken, and no new information of substantial importance to the project has been identified. However, minor technical changes or additions are necessary, and in accordance with CEQA Guidelines Section 15164, an ADDENDUM has been prepared.

☐ I find that although the project WOULD have one or more new significant effects on the environment, there will not be a significant effect in this case because new project-specific mitigation measures have been identified that would reduce the effects to a less than significant level. In accordance with CEQA Guidelines Section 15162, a TIERED MITIGATED NEGATIVE DECLARATION has been prepared.

☐ I find that the project MAY have a new significant effect on the environment that was not adequately addressed in the previous 2021 LRDP EIR or a significant effect previously examined will be substantially more severe than shown in the previous EIR, and there may not be feasible mitigation which would reduce the new significant effect to a less than significant level. In accordance with CEQA Guidelines Section 15162, a TIERED ENVIRONMENTAL IMPACT REPORT is required.

DocuSigned by:
Stephanie Tang
C0F4B51694B0438...

Signature of Project Sponsor

2/28/2024 | 7:14 AM PST

Date

2 PROJECT DESCRIPTION

This section of the Addendum describes the regional location and setting, local setting, project setting, project background, major project features, discretionary actions needed for project approval, and proposed project schedule.

2.1 REGIONAL LOCATION AND SETTING

The UCR main campus (campus) is located within the City of Riverside (City) in Riverside County, California. It is approximately three miles east of downtown Riverside, two miles northwest of the City of Moreno Valley, and just west of the Box Springs Mountains. The campus is part of a larger geographic area known as Inland Southern California, which includes western Riverside and southwestern San Bernardino counties, as well as portions of the Pomona Valley in easternmost Los Angeles County (see Figure 2.2-1).

The City is bordered by the City of Jurupa Valley and the unincorporated community of Highgrove to the north, the City of Moreno Valley and Box Springs Mountain Reserve to the east, the unincorporated community of Woodcrest to the south, and the City of Norco and the unincorporated community of Home Gardens to the west. Regional access to the City is provided via Interstate 215 (I-215)/State Route 60 (SR 60) freeway, which traverse northwest-southeast through the City, and SR 91 freeway which traverses northeast-southwest through the City (see Figure 2.2-1)

2.2 LOCAL SETTING

The approximate 1,108-acre[2] UCR main campus, is generally bounded by University Avenue and Blaine Street to the north, Watkins Drive and Valencia Hill Drive to the east, Le Conte Drive to the south, and Chicago Avenue to the west. The campus is bisected diagonally by I-215/SR 60 freeway, resulting in two areas referred to as East Campus and West Campus (see Figure 2.2-2).

The East Campus is approximately 604 acres in size and contains most of the campus' built space. Nearly all the academic, research, and support facilities are in the Academic Center, which is circumscribed by Campus Drive and many original campus buildings. The northern half of East Campus is devoted to student housing and recreation. The UCR Botanic Gardens is in the southeastern area of East Campus. The terrain steepens to the south and east of East Campus surrounding the UCR Botanic Gardens; these areas are largely undeveloped.

The West Campus is approximately 504 acres in size and is largely used as agricultural research fields and teaching managed by the Agricultural Operations unit of the College of Natural and Agricultural Sciences. Several University facilities are also on West Campus: surface parking, solar farm, University Extension, and International Village – a housing complex intended for visiting international students. The University Substation, jointly owned by the City and UCR, is at the northern edge of Parking Lot 30. A California Department of Transportation (Caltrans) service yard is situated on a triangular parcel directly west of the I-215/SR 60 freeway, at the eastern terminus of Everton Place. The Gage Canal irrigation facility traverses the area north to south, with portions running underground.

[2] The UCR Palm Desert Center, UCR Natural Reserves, all other Regents-owned properties, and all off-campus leased spaces are excluded.

Figure 2.2-1 Regional Location

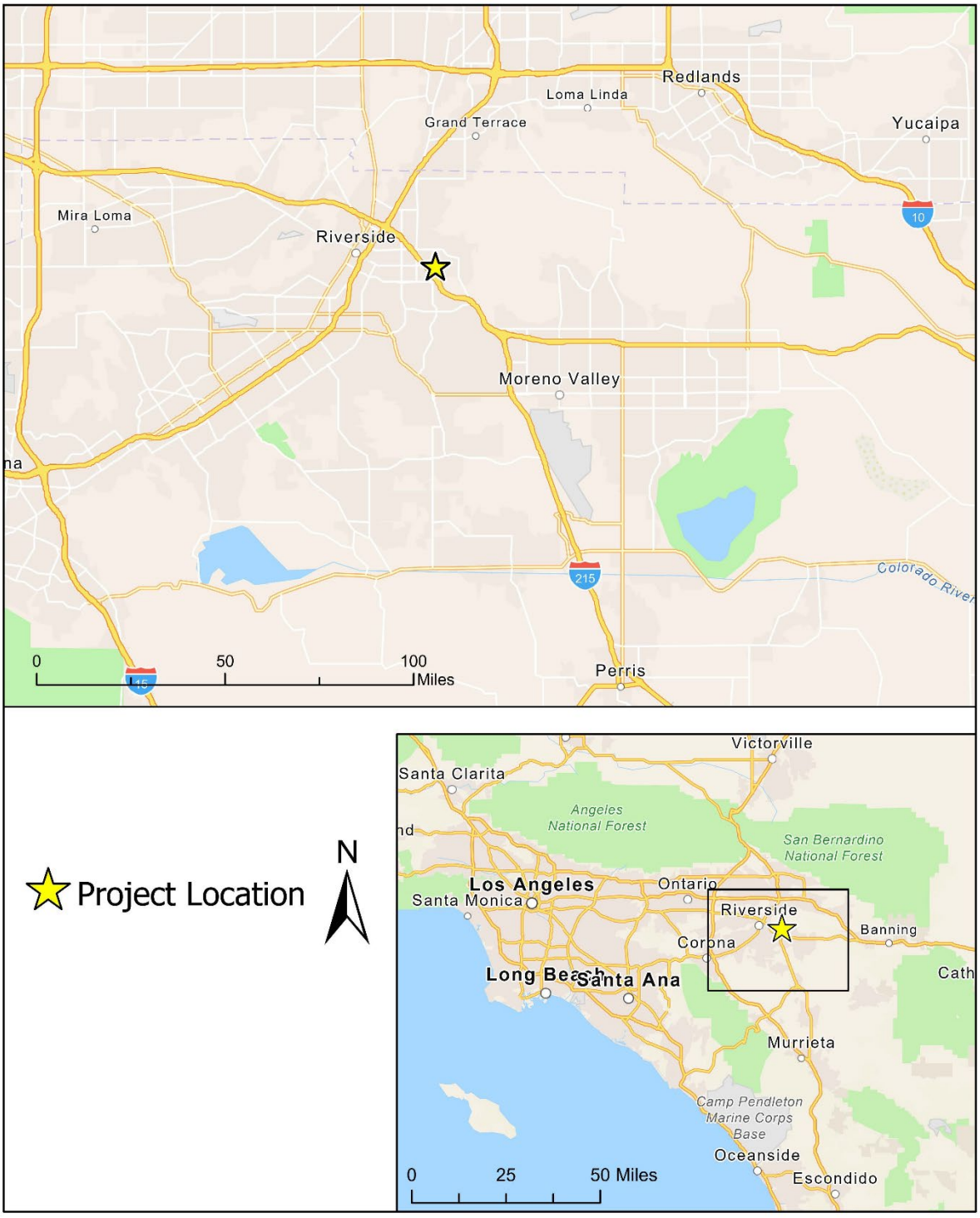
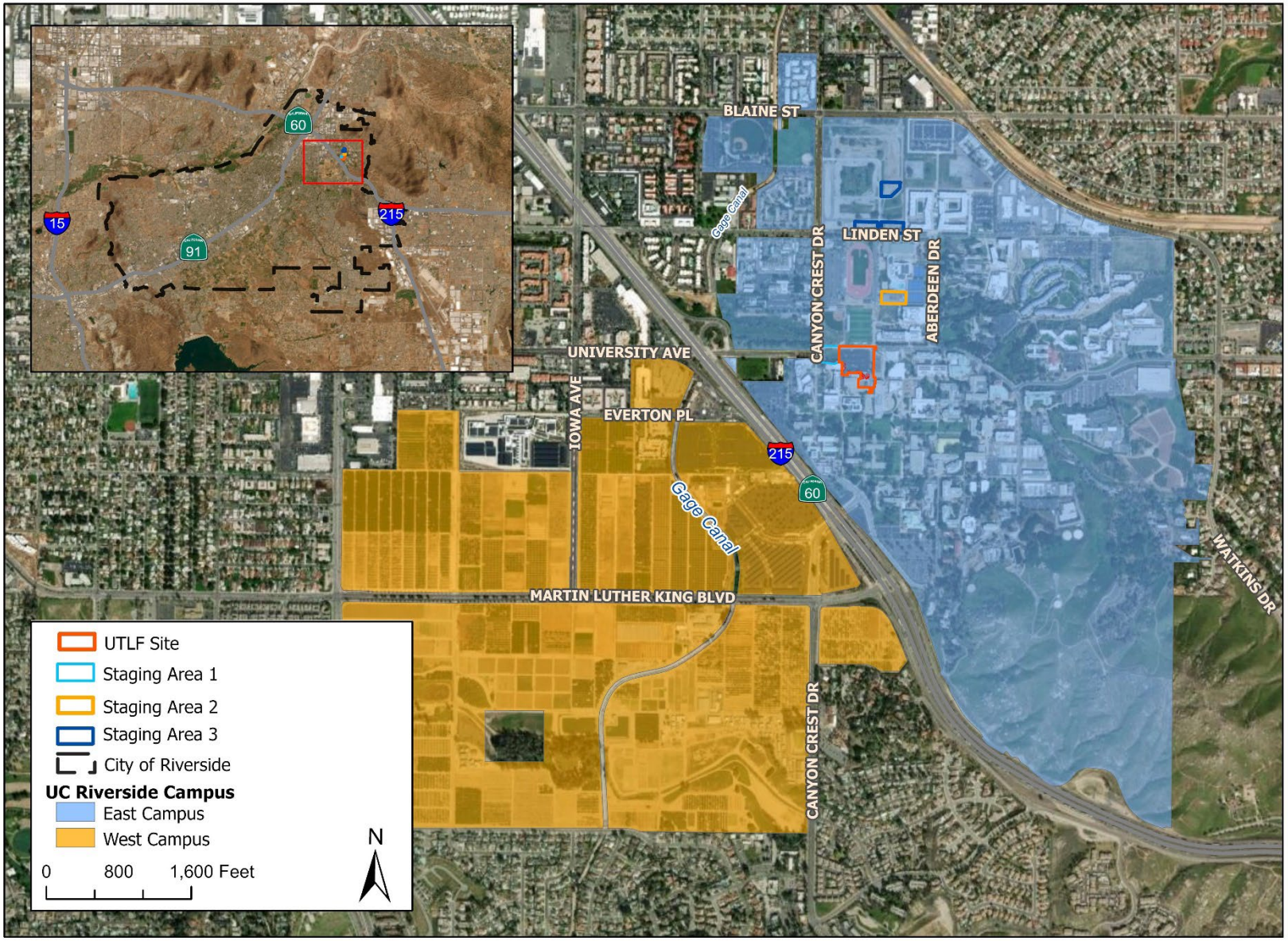


Figure 2.2-2 UCR Campus



2.3 PROJECT SETTING

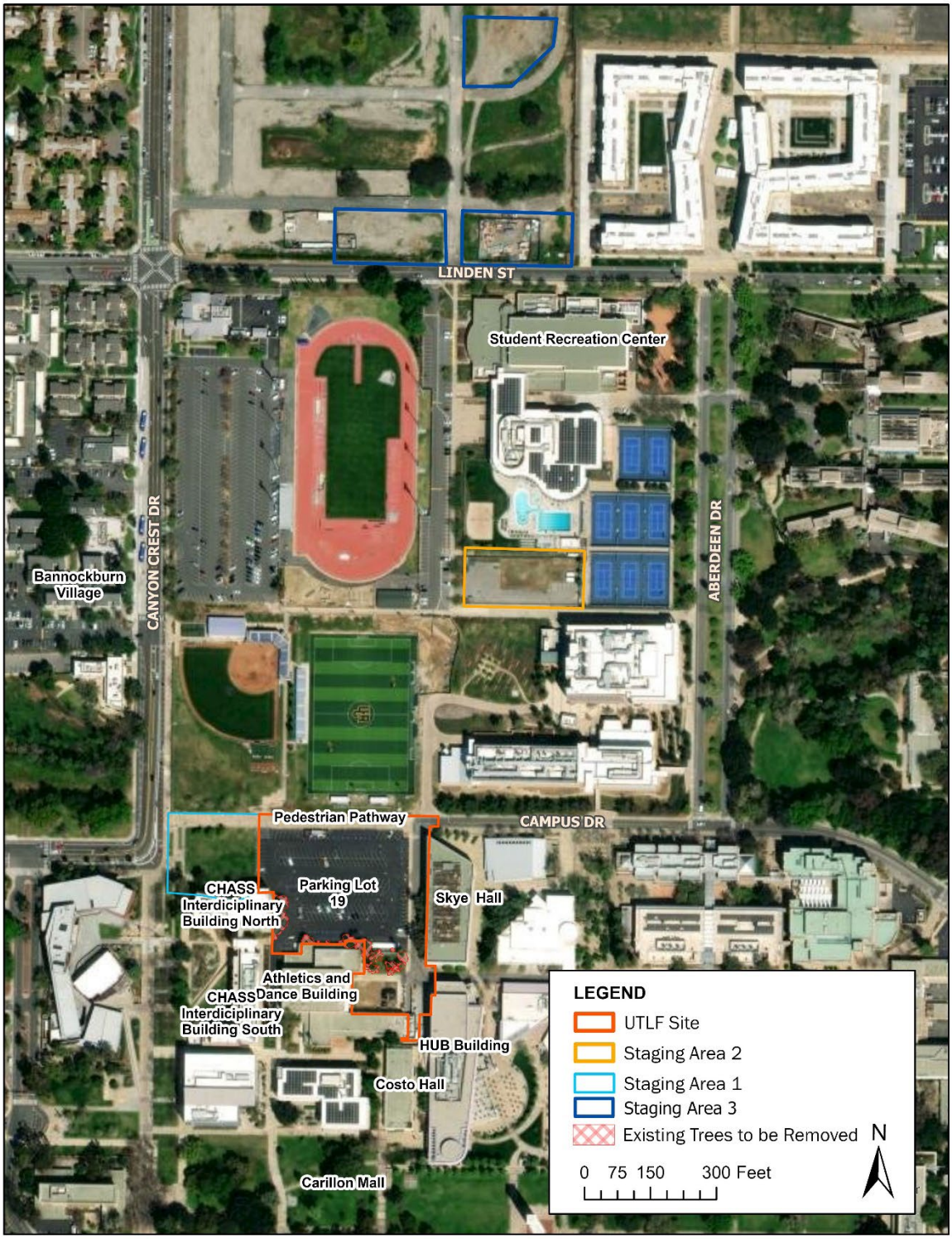
The UTLF site, approximately 3.3 acres, is located at the eastern terminus of the University Avenue and Canyon Crest Drive intersection, within the UCR East Campus. The land use designation for the site in the 2021 LRDP is University Avenue Gateway. The project site is currently developed with a surface parking lot (Parking Lot 19), paved pathway north of Parking Lot 19, paved access between Parking Lot 19 and Skye Hall, hardscape and landscape areas within the Athletics and Dance Building courtyard, and a paved loading dock area southeast of the project site, north of Costo Hall.

Existing uses surrounding the project site include the UCR Soccer Stadium and Amy S. Harrison Field to the north; the Athletics and Dance Building and Costo Hall to the south; Skye Hall to the east; and landscaped areas, the College of Humanities, Arts, and Social Sciences (CHASS) Interdisciplinary Building North and CHASS Interdisciplinary Building South to the west and southwest (see Figure 2.3-1).

Vehicular access to Parking Lot 19 is available through a card reader and gate arm off North Campus Drive and Aberdeen Drive. Parking Lot 19, currently accommodates 175 parking spaces (permit holders) of which 24 are Americans with Disabilities (ADA) accessible stalls, and nine campus cart spaces for Athletics and other departments. Pedestrian facilities within or near the project site includes the pedestrian pathway, north of Parking Lot 19, and the sidewalk adjacent to Parking Lot 19. Bike routes cross the project site from dedicated bike lanes along the streets ending at bike parking on the west side of the Athletics and Dance Building.

The project site contains various trees within the project site near the CHASS Interdisciplinary Building North, Athletics and Dance Building, and Skye Hall that include California Sycamores, Palo Verde, African Sumac, birds of paradise, Fern pines, and lemon-scented gum trees. Additionally, there are various palms (European fan palm, Mexican fan palm, Queen palm, and multitrunked Mediterranean fan palm) situated near the courtyard of the Athletics and Dance Building.

Figure 2.3-1 Project Site Location



2.4 PROJECT FEATURES

Site Plan Summary

The proposed project will primarily be constructed on Parking Lot 19. A portion of the proposed project will also be located on the previously filled-in pool within the Athletics and Dance Building courtyard to provide an outdoor gathering space. Pathway and accessibility improvements are proposed along the pathway north of Parking Lot 19 and at the southeast portion of the UTLF site (see Figure 2.3-1)

The central feature of the proposed project is a new UTLF building encompassing classrooms, class laboratories, learning studios, instructional support spaces, and study spaces. The proposed project also includes landscape, outdoor performance spaces, shaded walkways, and outdoor gathering/study areas. Additionally, the UTLF project will include surface parking and bicycle parking. The project involves the demolition of existing hardscape and landscape surfaces associated with Parking Lot 19, a portion of the previously filled-in pool, and at the southeast portion of the project site, followed by the construction of a new approximately 120,000 gsf UTLF building, and associated surface parking, walkways, loading area, utility connections, hardscape and landscape enhancements. The project site would remove approximately 21 existing mature trees located near the CHASS Interdisciplinary Building North building and the Athletics and Dance Building courtyard. The existing queen palm trees may be relocated on or offsite in a location agreed upon by University's Representative in coordination with Facilities Services.

The project evaluated herein also includes three construction staging areas; Staging Area 1 is an undeveloped/disturbed landscaped area to the west of the project site, north of the CHASS Interdisciplinary North; Staging Area 2 is a disturbed area between the Student Recreation Center (SRC) and the Multidisciplinary Research Building (MRB); and Staging Area 3 is a previously disturbed area that is currently vacant/undeveloped area, generally along W. Linden Street between the completed North District Phase 1 student housing building and the North District Phase 2 student housing building that is currently under construction[3] (see Figure 2.3-1). Temporary construction worker parking may occur within the construction staging areas described above.

Student and Staffing

The 2021 LRDP projected an approximately 46 percent increase in student population (approximately 11,000 students), with an approximately 59 percent increase in additional faculty and staff (approximately 2,800 new faculty and staff) by the 2035/2036 academic year. The proposed project would support increased access to modern teaching and learning spaces for current students and future enrollment growth anticipated in the 2021 LRDP EIR. It is anticipated that the proposed project could accommodate 1,812 students at full capacity, and that three staff would be hired for biology and chemistry courses as well as a building manager. The other faculty and staff working at the UTLF building have existing offices at other existing campus buildings. The UTLF was considered and evaluated as part of the 2021 LRDP development program to serve the 35,000 student and 7,545 faculty/staff campus population projected by the 2035/2036 academic year.

Hours of operation at the UTLF would be from 8:00 am to 10:00 pm daily, with occasional special events that would run until approximately 11:00 pm.

[3] Staging Area 3 is within a vacant/undeveloped area within the North District Development area that has been used for construction parking and laydown area. The environmental impacts of Staging Area 3 within the North District Development area has been previously analyzed in either the Revised Draft Environmental Impact Report (State Clearinghouse No. 2018061044) or Addendum No. 1 to the EIR for the North District Development Plan.

Building Characteristics

UCR proposes construction of a new, 5-story, approximately 120,000 gsf UTLF building. The proposed UTLF building would be taller than the existing buildings surrounding the project site but within the allowed number of stories identified in Figure F3.2 *Density Framework* of the 2021 LRDP. Building materials and colors for the UTLF building, would be required to comply with Campus Construction and Design Standards and Architectural Design Precedent.

Landscape/Hardscape Improvements

Various landscape/hardscape improvements including site flatwork, transitions at building entrances, pathways, ramps and sidewalks are proposed as part of the project. The planting design will be complementary to the existing landscape creating usable and functional outdoor spaces. The plant material will be native and/or adapted plant species that would be low water use and low maintenance. The existing mature trees and trees of value will be preserved and protected in place as much as possible or be required to comply with the Tree Preservation and Replacement Guidelines. It is anticipated that approximately 21 trees would be removed.

Circulation and Accessibility

Pedestrian circulation and accessibility to and from the UTLF building would be provided via existing sidewalks and pathways along Canyon Crest Drive, University Avenue, North Campus Drive, and South Recreation Mall. As part of the proposed project, some segments of the existing sidewalks and pathways would need to be improved to meet Americans with Disabilities Act (ADA) requirements. Also, as part of the project, the southeast portion of the project site, east of the Athletics and Dance Building, would include a connection from the project site to Carillion Mall with a pass through along Costo Hall.

During construction activities, the pedestrian pathway to the north of the project site would be closed and signage with detour would be provided. The Costo Hall service access area east of the project site would be maintained.

The campus is served by existing transit along University Avenue, Canyon Crest Drive, West Campus Drive, and North Campus Drive. These existing services will continue to serve the campus in addition to the proposed UTLF building.

Emergency Access and Accessibility

The project site is and would continue to be served by the City of Riverside's Fire Department (RFD) for emergency services. Emergency access to the UTLF building would be provided via ingress/egress routes along North Campus Drive for fire response and other emergency vehicle access. Emergency access and firetruck hose pull at the UTLF building would be compliant with the Fire Code and would be reviewed and approved by the Campus Fire Marshal. During project construction, North Campus Drive along with Canyon Crest Drive, University Avenue, W. Linden Street, and Aberdeen Drive would be maintained for emergency vehicle access and detours in accordance with the construction traffic control plan would be implemented should any potential roadway closures occur.

Parking

The proposed project would demolish the existing surface Parking Lot 19 and the 175 parking spaces, which includes 151 regular stalls and 24 ADA accessible stalls. A portion of these parking stalls would be reallocated to other campus parking lots and structures to absorb the loss of the spaces associated with Parking Lot 19. All of the removed ADA parking spaces from Parking Lot 19 would be provided on the

project site, and additional ADA parking spaces required by Code with implementation of the proposed project would be located on the project site and/or nearby existing parking lots. The UTLF site would also include approximately 10 campus cart spaces with associated electrified charging areas. Parking access to the proposed project would remain available through the card reader and gate arm at the intersection of North Campus Drive and Aberdeen Drive.

2.4.1 Utility and Service System Improvements

Water and Wastewater

The campus has a combined fire and domestic water system that is sufficient to serve the proposed project. Riverside Public Utilities (RPU) provides potable water to the campus, which is used both in buildings and for landscape irrigation. In addition, UCR has a private on-campus water system that conveys potable water throughout the campus, as needed. All potable water, fire water, and irrigation water supplies are distributed through the campus-wide system that would serve the project site as well. The proposed project would tie into the existing infrastructure.

The irrigation systems are required to meet or exceed the State of California Model Efficient Landscape Ordinance (CA AB 1881 requirements) and the UCR requirements for a water efficient landscape including, but not limited to a submeter and point of connection with a new back flow. A dedicated irrigation water line is proposed off the proposed 10-inch water main on the eastern portion of the project site. Additionally, a 12-inch water main is proposed on the north portion of the site. Potable water would be used for the irrigation system.

There is an existing 15-inch sewer main located under the pedestrian pathway just north of project site and an existing 8-inch sewer line located along the south edge of the project site. Both sewer lines travel west, eventually connecting to a 15-inch gravity sewer in University Avenue that is designed to pick up effluent from the nearby area. A 6-inch sewer main is proposed to connect to the existing sewer main at the pedestrian pathway.

Project impacts on water and wastewater are further discussed in Section 4.1.19 of this Addendum.

Stormwater Management

All UC campuses are regulated under the Phase II Municipal Separate Storm Sewer System (MS4) General permit, and the campus is additionally regulated under the UCR's Storm Water Management Program (SWMP). Stormwater management measures (e.g., flow-through planters, bio-swales, bio filtration stormwater planters) would be incorporated into the project design.

The existing site generally drains from southeast to northwest. Drainage within the project limits currently sheet flows in this general direction towards a catch basin located at the northwest corner of Parking Lot 19. Stormwater from this portion of the campus ultimately discharges to the Gage Detention Basin located more than 290 feet northwest of the project site, north of University Avenue. The project site is designed so storm water surface drains to a series of infiltration catch basins below ground. Project impacts on stormwater are further discussed in Section 4.1.10 of this Addendum.

Solid Waste

UCR's landfill-bound waste is picked up and hauled by UCR trucks to the CR&R Environmental Services facility in Perris, California (approximately 17 miles south from UCR). Materials for recycling are sorted out of the landfill waste stream and the remainder is used for waste-to-energy (the process of

generating and capturing energy in the form of electricity and/or heat from the primary treatment of waste). UCR's recyclable materials are hauled to the UCR transfer station, just north of Parking Lot 30 on the West Campus. Compost, food waste, and the commingled recycle streams are picked up from the UCR transfer station by the current contracted vendor to be recycled or composted. Green waste is currently blended back into the soil by UCR's Agricultural Operations Course. The proposed project would continue to utilize these solid waste programs and facilities. Project impacts on solid waste are further discussed in Section 4.1.19 of this Addendum.

Energy

UCR currently purchases electricity for campus operations from RPU and through a power purchase agreement for on-site generation from the campus solar infrastructure, which produces approximately 11.6 megawatt-hours (MWh) of electricity (UCR 2021a). The campus supply of natural gas is derived from Southern California Gas (SCG), which currently delivers natural gas to the campus through high pressure distribution lines. UCR privately distributes medium pressure natural gas throughout the East and West Campuses.

The project would continue to use RPU facilities. The proposed project would require the use of electricity for lighting, appliances, and laboratory equipment. The UTLF building is proposed to connect to the existing campus central thermal infrastructure for space and water heating. The connection to the existing campus central thermal infrastructure would serve to improve the efficiencies of the existing steam network for the entire campus, to save energy and reduce greenhouse gases (GHGs).[4]

To ensure there is no net increase in the natural gas as a result of the UTLF project, the campus will implement steam insulation projects Phases 2 and 3 (anticipated to be completed in 2025) to offset the UTLF natural gas usage. Phase 2 will save approximately 347 metric tons of carbon dioxide equivalent ($MTCO_2e$) per year and Phase 3 will save approximately 364 $MTCO_2e$ per year.[5] In addition, in Summer 2023, the campus completed the steam trap project with an estimated savings of approximately 290,000 therms per year, which is equivalent to approximately 1,700 $MTCO_2e$ per year. The proposed laboratories could use propane tanks or liquid nitrogen cylinders. It is anticipated that the proposed project would also be served by a renewable energy source such as a photovoltaic (PV) solar array (approximately 80 kilowatt) that is expected to generate approximately 120,000 Kilowatt-hour (kWh) per year. Project impacts on energy resources and use are further discussed in Section 4.1.6.

2.4.2 Project Construction Activities

The proposed project entails the following:

- Site preparation which includes the removal of the existing asphalt, hardscape, and landscape areas;
- Grading;

[4] The connection of the UTLF to the steam plant infrastructure is an exception to our standard practice with having all electric buildings due to the fact that campus must maintain the current steam plant infrastructure for the near term since it supports approximately 5.5 million gsf of campus space, and has historically not been well maintained. The campus has more recently focused its attention on improved maintenance of all utility infrastructure for the campus, including steam, and these efforts have led to efficiencies and reduction in consumption. When the Multidisciplinary Research Building was brought online (2018), a major issue in the steam line infrastructure was identified on the southwest side of the Multidisciplinary Research Building site and in the northeast portion of Parking Lot 19. Some interim measures were taken to stabilize the issues but it was determined at the time that a more extensive improvement was needed in that steam line infrastructure, to include possible connection back to the loop that exists at the Athletics and Dance Building facility. Given that UTLF is proposed on Parking Lot 19, it would allow for the campus to make significance efficiency improvements in the steam infrastructure.

[5] The steam insulation Phase 1 project occurred at the Central Utility Plant and equated to approximately 285 $MTCO_2e$ reduction per year.

- Construction of a new Undergraduate Teaching and Learning Facility (UTLF) building and new hardscape and landscape, sidewalks, bike parking and associated site improvements.
- Paving; and
- Architectural Coatings.

Site preparation is expected to take approximately 3 weeks. Approximately 20 one-way worker trips a day, and 2 one-way vendor trips are anticipated during site preparation activities. Soil stockpiles on the project site are not anticipated; however, if the proposed project site demolition/construction did result in any unforeseen stockpiles, they would be located within the campus' existing undeveloped/disturbed areas. No rock crushing, blasting or asphalt pulverizing is anticipated under construction of the proposed project.

Grading the project site would take approximately 1 week. Approximately 15 one-way worker trips a day, and 2 one-way vendor trips are anticipated during grading activities.

Building construction is anticipated to begin in the Spring 2024 and require approximately 24 months to complete. Anticipated construction staging and laydown area and construction worker parking would be within the project site, Staging Area 1, Staging Area 2, and Staging Area 3 (see Figure 2.3-1). Approximately 51 one-way worker trips a day, and 20 one-way vendor trips are anticipated during building construction activities.

Paving of the project site would take approximately 3 and a half weeks. Approximately 15 one-way worker trips a day, and 2 one-way vendor trips are anticipated during paving activities.

Architectural coating, or painting, would take approximately 8 weeks. Approximately 10 one-way worker trips a day anticipated during grading activities.

Access to the project site and the three staging areas:

- Via I-215/SR 60 freeway to Blaine Street to Canyon Crest Drive to W. Linden Street and enter through a surface parking lot between the SRC and the Track Stadium and travel south through the MRB and UCR Soccer Stadium to the project site.

Access to Staging Area 1, the undeveloped/disturbed landscaped area west of the project site and north of CHASS:

- Construction crew access would be provided via I-215/SR 60 freeway to Blaine Street to Canyon Crest Drive to W. Linden Street and enter through a surface parking lot between the SRC and the Track Stadium and travel south through the MRB and UCR Soccer to the project site southwest to Staging Area 1.

Access to Staging Area 2, the disturbed area between the SRC and MRB:

- Construction crew access would be provided via I-215/SR 60 freeway to Blaine Street to Canyon Crest Drive to W. Linden Street and enter through a surface parking lot between the SRC and the Track Stadium to Staging Area 2.

Access to Staging Area 3, the vacant/undeveloped area along W. Linden Street within the North District Development area:

- Construction crew access would be provided via I-215/SR 60 freeway to Blaine Street to Canyon Crest Drive to W. Linden Street to Staging Area 3.

No backup emergency generators would be required on site and emergency lighting during construction activities would be battery powered.

Depending on the construction phase, implementation of the proposed project would require common equipment, such as crushing and processing equipment, excavators, rubber tired loaders, graders, tractors/loaders/backhoes, crane, forklifts, generator set, welder, paver, paving equipment, rollers, and air compressor.

A Storm Water Pollution Prevention Plan (SWPPP) containing appropriate construction site erosion and sedimentation control best management practices (BMPs) would be prepared and implemented at the beginning of the project construction phase. The SWPPP would be adapted regularly during project construction to reflect current conditions in the field and the weather. The SWPPP would also outline BMPs to be actively implemented during construction of the project, including, but not limited to: good housekeeping; trash management; construction material and waste management; stockpile management; rinse or wash water management; spill prevention and response; vehicle and equipment storage and maintenance; non-storm water discharge management; tracking controls; run-on and runoff controls; erosion controls such as use of wattles, sediment controls; inlet protection; stabilization of construction entrances; coverage of materials storage areas; inspections; and use of concrete washout areas. The project contractor would be responsible for implementing the project's approved erosion control plan, as well as cleanup of all inadvertent BMP breaches into the adjacent vegetation (as applicable).

2.4.3 Sustainability Features

The UC Policy on Sustainable Practices, issued in 2004 and updated in 2023, covers the following sustainable practices: green building design, clean energy, climate action, sustainable transportation, sustainable building and laboratory operations, zero waste, sustainable procurement, sustainable foodservices, and sustainable water systems.

The proposed project would comply with the UC Policy on Sustainable Practices as well as include minimum Leadership in Energy and Environmental Design (LEED) Gold features in its project design. The proposed project would be 20 percent above the California State Building Energy Efficiency Standards (Title 24) requirements, which would ensure that the proposed UTLF meets sustainable design and construction practices. Renewable energy such as PV solar array is proposed to be installed to support the building's energy use. The proposed project will employ embodied carbon reduction strategies focusing on concrete, steel, aluminum, glass and insulation.

Indoor water use would be reduced through installation of low-flow fixtures. Outdoor water use would be reduced through the selection of native and/or adapted plant species. Interior and exterior materials would be carefully evaluated for their health, their durability, and their maintenance requirements and selected through a life-cycle decision-making process. Recycled materials and materials from regional sources would be utilized where possible.

2.5 PROJECT APPROVALS AND SCHEDULE

The proposed project is anticipated to be constructed and occupied by Fall 2026. The University of California is the Lead Agency with responsibility for approving the proposed project.

Anticipated actions required by the Regents or its designee to implement the proposed project include, but are not limited to those listed below.

- Consideration of Addendum No. 2 to the 2021 LRDP EIR
- Make a condition of approval implementation of the Mitigation Monitoring and Reporting Program adopted in connection with the 2021 LRDP EIR
- Adoption of the CEQA Findings
- Approval of the Project Design

The proposed project may require permits/approval from other responsible agencies, including but not limited to:

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

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3 CONSISTENCY WITH THE 2021 LRDP

To determine whether the proposed project is consistent with UCR's 2021 LRDP and 2021 LRDP EIR, the following questions must be answered:

- Are the objectives of the proposed project consistent with the objectives adopted for the 2021 LRDP?
- Are the changes to campus population associated with the proposed project included within the scope of the 2021 LRDP's population projections?
- Is the proposed location of the proposed project in an area designated for this type of use in the 2021 LRDP?
- Is the proposed project included in the amount of the development projected in the 2021 LRDP?
- Are the proposed project activities within the scope of the environmental analysis in the 2021 LRDP EIR?
- Have the conditions described in CEQA Guidelines Section 15162 calling for the preparation of a subsequent EIR occurred?

Sections 3.1 through 3.4 document the proposed project's consistency with the objectives, population projections, land use designations, and development projections contained in the 2021 LRDP.

Section 4 contains a detailed examination of environmental topics with the potential for significant impacts that had been addressed in the 2021 LRDP EIR, and includes analyses and discussions for whether the proposed project is consistent with, and within the scope of, the environmental impact analysis included in the 2021 LRDP EIR.

3.1 2021 LRDP OBJECTIVES

The 2021 LRDP identified key objectives to accommodate UCR's projected growth in both academic and non-academic programs. The key objectives of the 2021 LRDP, as outlined in the plan, include the following:

- Serve as good stewards of limited campus lands and natural resources as UCR continues to grow and accommodate enrollment projections of approximately 35,000 students.
- Develop approximately 5.5 million gsf of net new building space needed to accommodate student housing as well as academic and research facilities.
- Maintain existing land-based research operations on West Campus, while supporting facility modernization, research support facilities growth, and strategic partnerships and initiatives.
- Activate and enliven the East Campus through strategic mixed-use development, improved public spaces, expanded campus services, and additional on-campus housing to facilitate a living-learning campus environment.
- Accommodate approximately 40 percent of eligible students with on-campus housing, and replace aging low-density student housing units while considering demand, affordability, financial feasibility, and physical site constraints.
- Locate future growth generally adjacent to and outside of the campus loop road, thereby maintaining the character of the Mid-Century Modern Core.

- Incorporate efficient planning and design practices in support of minimizing the effects of climate change.

The proposed project would support the 2021 LRDP objectives listed above since it would be developing more classrooms, labs, studios, and other supporting uses within an existing developed site on East Campus outside of the campus loop road and Mid-Century Modern Core area. New pathways would connect the new structure to existing pathways and associated parking. Therefore, the proposed project would:

- Utilize limited campus lands and natural resources as UCR continues to grow and accommodate enrollment projections of approximately 35,000 students;
- Develop new building space on campus for academic and research facilities;
- Maintain existing land-based research operations on West Campus;
- Activate and enliven the East Campus through expanded campus services, improved public spaces, and facilitate a living-learning campus environment;
- Maintaining the character of the Mid-Century Modern Core; and,
- Minimize the effects of climate change through efficient planning and design practices.

3.2 2021 LRDP CAMPUS POPULATION

The 2021 LRDP anticipated that the existing total campus population would grow by approximately 11,000 students and 2,800 faculty and staff over the 2021 LRDP planning period, projecting a total student population of approximately 35,000 and a total faculty and staff population of approximately 7,545 by the planning horizon of 2035 (Table 3.2-1). As of Fall 2023, student enrollment was 26,426 and the faculty and staff population was 4,967, in line with 2021 LRDP projections.

The proposed UTLF would support increased access to modern teaching and learning spaces for current students and future enrollment growth anticipated in the 2021 LRDP. It is anticipated that the UTLF could accommodate approximately 1,812 new students and approximately three new faculty/staff at full capacity. Campus population growth served by the UTLF was considered and evaluated as part of the 2021 LRDP development program and the project would not cause the total 35,000 students and 7,545 faculty/staff projected under the 2021 LRDP in 2035 to be exceeded. Implementation of the proposed UTLF project would enable UCR to manage anticipated growth to accommodate additional students, and faculty/staff on campus as well as provide additional classrooms to help offset instruction seating shortage. Therefore, it can be determined that the proposed project is consistent with the campus population projections contained in the 2021 LRDP.

Table 3.2-1
Total Campus Population Growth Projections

Category	2018/2019 (Baseline)[1]	Fall 2023 (Actual)	Fall 2035 (Projected)[1]
Students	23,922	26,426	35,000
Faculty and Staff	4,739	4,967	7,545
Total Population	**28,661**	**31,393**	**42,545**

Source: UCR 2023a

3.3 2021 LRDP LAND USE

The land use plan for the 2021 LRDP described functional land use categories for the campus that reflect activities that would be predominant and/or secondary permissible uses in any given area of campus (see Figure 2-1 in the 2021 LRDP EIR). Predominant uses are the primary programs, facilities, and/or activities in a general geographic area. Secondary permissible uses are those that are more supporting uses that are allowable within the designated land use area. The project site is designated as University Avenue Gateway in the 2021 LRDP land use plan.

The approximately 1,108-acre UCR main campus has designated approximately 29.6 acres for University Avenue Gateway land uses on its East Campus. This land use designation is envisioned as the campus' primary entryway, connecting the campus to Downtown Riverside and the broader Riverside community. The area is intended to encourage activities that express a welcoming and identifiable approach to campus, create identity and that are active during the day, evening, and weekends with an emphasis on street-oriented interaction and engagement. The University Avenue Gateway is envisioned to include a dense and diverse mix of uses that provide opportunities for greater campus-community interaction and that collectively reinforce the importance of the area as the terminus of the University Avenue corridor, which connects campus with Downtown Riverside. The predominant University Avenue Gateway uses may include academic instruction and research facilities, outpatient medical facilities, hotel/conference center(s), large lecture halls or assembly and exhibition spaces, a visitor's center, food services and cafes, student services, multi-modal transportation support facilities, and other compatible non-UCR uses. Secondary permissible uses also include parking, open space, and other support uses.

The proposed project would allow UCR to provide additional classrooms, labs, studios, and supporting spaces to serve current and future undergraduate students. These are allowable uses under the University Avenue Gateway land use designation. Therefore, the proposed project would be consistent with the land use categories in the 2021 LRDP.

3.4 2021 LRDP DEVELOPMENT SPACE

The 2021 LRDP included general types of campus development and land uses to support the projected campus population growth and to enable expanded and new program initiatives related to academic, research, student life, and other support functions. It was envisioned that development under the 2021 LRDP would primarily be infill development or expansion of already developed areas on the East Campus and would occur primarily within previously disturbed areas and/or adjacent to previously developed and surface parking areas. In 2018, the campus had approximately 4.8 million assignable square feet (asf) or approximately 7.2 million gsf of academic buildings and support facilities (UCR 2021a). The 2021 LRDP proposed additional development of approximately 5.5 million gsf of new building space on the campus to accommodate the projected student enrollment and increase in faculty and staff by 2035. This would result in a total of approximately 12.7 million gsf (approximately 8.5 million asf) for academic programs and support space under the campus development program by 2035, as shown in Table 3.4-1.

Table 3.4-1
Total Campus Space Projections

Facility Type	Baseline Fall 2018[1] (ASF/GSF)[2]	Projected Fall 2035 (ASF/GSF)
Academics & Research	1,220,283/1,830,425	1,700,852/2,551,277
Academic Support	1,458,975/2,188,463	2,355,204/3,532,806
Student Life	1,875,963/2,813,945	4,198,504/6,297,756
Other Facilities	248,279/372,419	248,279/372,419
Total Space	**4,803,500/7,205,252**	**8,502,839/12,754,258**

Note:
ASF = Assignable Square Feet
GSF = Gross Square Feet

The construction of the UTLF has been anticipated under the 2021 LRDP EIR. The proposed UTLF would be categorized under the Academics & Research or Academic Support and would add approximately 120,000 gsf to these categories. The proposed project would be within the space projections for Academics & Research/Academic Support land uses in the 2021 LRDP EIR. Since the proposed project would be within the building space projections contemplated in the 2021 LRDP, the proposed project would be consistent with the 2021 LRDP.

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4 ENVIRONMENTAL ANALYSIS

This Addendum documents that the proposed project would not result in any new significant environmental impacts, an increase in the severity of significant impacts previously identified in the 2021 LRDP EIR, or require the adoption of any new or considerably different MMs or project alternatives. Accordingly, this Addendum is the appropriate form of environmental review for the proposed project. This Addendum has been prepared to satisfy the requirements of CEQA Guidelines Sections 15164(a), 15164(d), and 15164(e).

4.1 PROJECT ENVIRONMENTAL IMPACTS

Checklist Explanation

2021 LRDP EIR Significance Conclusion.: This column presents the significance conclusion identified in the 2021 LRDP EIR.

Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?: This column indicates whether or not the proposed project includes changes that require major revisions to the analysis or conclusions in the 2021 LRDP EIR.

Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?: This column indicates whether or not there are new circumstances (such as changes to the existing conditions at the project site or surrounding areas) that require major revisions to the analysis or conclusions in the 2021 LRDP EIR.

Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?: This column indicates whether or not there is new information that would result in a new or substantially more severe significant impact than what was analyzed in the 2021 LRDP EIR.

Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts. This column indicates whether or not the MMs in the 2021 LRDP EIR resolve the impacts associated with the proposed project. Where applicable, the CBPs from the 2021 LRDP EIR are also indicated in this column.

Environmental Topics Addressed

This Addendum includes an analysis of the environmental topics listed below. The following environmental analysis demonstrates that the proposed project would not require major revisions to the 2021 LRDP EIR due to new or more severe significant effects, or new information that was not known at the time the 20211 LRDP EIR was prepared.

As “None” is checked below, this project is consistent with and covered by the environmental analysis contained in the 2021 LRDP EIR.

☐ Aesthetics	☐ Agricultural 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 Significances

☒ None

4.1.1 Aesthetics

Section 4.1 of the 2021 LRDP EIR evaluates the aesthetic impacts of campus growth under the 2021 LRDP and concludes that implementation of future projects under the 2021 LRDP would result in significant and unavoidable impacts to scenic vistas of the Box Springs Mountains. However, impacts to the existing visual character or quality of the campus would be less than significant for projects implemented under the 2021 LRDP. Since the campus is not located within the viewshed of an identified State Scenic Highway as stated in the Initial Study (IS) prepared for the 2021 LRDP, the threshold related to this environmental topic was not further evaluated in the 2021 LRDP EIR.

MM AES-1 and MM AES-2 were identified in the 2021 LRDP EIR for future campus projects that would contribute to light and glare impacts, and implementation of the MMS would reduce impacts related to light and glare to a less than significant level. MM AES-2 applies to the placement of new parking areas and structures adjacent to residential uses, and requires the design of ingress and egress from new parking areas to direct headlights away from residential uses and utilize walls, landscaping, or other barriers where appropriate. The proposed project is not located adjacent to residential uses; therefore, MM AES-2 does not apply to the proposed project.

The above-mentioned applicable MM states the following:

MM AES-1: UCR shall incorporate site-specific consideration of the orientation of the building, use of landscaping materials, lighting design, and choice of primary façade materials to minimize potential off-site spillover of lighting and glare from new development. As part of this measure and prior to project approval, UCR shall require the incorporation of site- and project-specific design considerations (to be included in the lighting plans) to minimize light and glare, including, but not limited to, the following:

- New outdoor lighting adjacent to on-campus residences and adjacent off-campus sensitive uses shall utilize directional lighting methods with full cutoff type light fixtures (and shielding as applicable) to minimize glare and light spillover.
- All elevated light fixtures such as in parking lots, parking structures, and athletic fields shall be shielded to reduce glare.
- Provide landscaped buffers where on-campus student housing, uses identified as Open Space Reserve and UCR Botanic Gardens, and off-campus residential neighborhoods might experience noise or light from UCR activities.
- All lighting shall be consistent with the Illuminating Engineering Society of North America (IESNA) Lighting Handbook.
- The UCR Planning, Design, & Construction staff shall review all exterior lighting design for conformance with the Campus Design and Construction Standards.

Verification of inclusion in project design shall be provided at the time of design review and lighting plans shall be reviewed and approved prior to project-specific design and construction document approval.

AESTHETICS

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Have a substantial adverse effect on a scenic vista?	Significant and Unavoidable Impact	No	No	No	No mitigation required
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	No Impact	No	No	No	No mitigation required
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable regulations governing scenic quality?	Less than Significant Impact	No	No	No	No mitigation required
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Less than Significant with Mitigation Incorporated	No	No	No	MM AES-1

a) Views of the Box Springs Mountains located east of UCR were considered scenic vistas in the 2021 LRDP EIR. The 2021 LRDP EIR states that from nearby roadways looking towards the campus, including W. Linden Street, Blaine Street, Watkins Drive, Canyon Crest Drive, and University Avenue, the existing built environment is either distant enough from the scenic landscape not to be visible, or dense enough not to afford expansive views of that landscape. Existing development on campus also alters scenic vistas throughout the majority of campus and infill development would result in new impacts to scenic vistas. Therefore, the 2021 LRDP EIR concluded impacts on scenic vistas from these areas to be less than significant.

The 2021 LRDP EIR concluded that academic buildings constructed where the athletic and soccer fields occur east of Canyon Crest Drive and north of the CHASS Interdisciplinary Building (identified as Key Vantage Point 9 in the 2021 LRDP EIR) could impact scenic vistas as these buildings could potentially block views of the Box Springs Mountains from the roadway and pedestrian walkways and thus the 2021 LRDP EIR concluded scenic vistas from this area would be considered significant and unavoidable.

Although the project site is located south of the athletic and soccer fields noted above, the proposed project would be developed as an infill project on an existing parking lot and/or

previously disturbed areas. This is a development pattern for the campus that is anticipated pursuant to the 2021 LRDP and evaluated in the 2021 LRDP EIR. Proposed development of the UTLF, associated pedestrian and vehicular accessway improvements, utility connections, hardscape, and landscape improvements would occur within the footprint of existing developed/disturbed areas on the campus. Additionally, the proposed UTLF is surrounded by existing campus buildings to the northeast, east, south, and west. The northern pathway on the project site would be improved and remain with implementation of the proposed project; thus, partial views of the Box Springs Mountains would still be maintained. Therefore, the proposed project would not be worse than the impacts related to scenic views/vistas analysis in the 2021 LRDP EIR. Although the 2021 LRDP EIR determined this impact would be significant and unavoidable, the proposed project impacts to scenic vistas would be **less than significant**.

b) The IS prepared for the 2021 LRDP states that the campus is not located within the viewshed of an identified State scenic highway, and this threshold was not further evaluated in the 2021 LRDP EIR. Any future campus development would not degrade the visual character of the campus or affect scenic resources, and any construction impacts for future projects would be limited and temporary. Thus, future projects would not result in permanent visual degradation of the existing visual character of the campus. The IS prepared for the 2021 LRDP concluded no impacts are anticipated since the campus is not located near or along a State scenic highway.

The project site is not located near or along a State scenic highway and there are no scenic resources located on the project site. Implementation of the proposed project would not result in substantial damage to scenic resources within a State scenic highway due to existing development and lack of visibility from a State scenic highway. Therefore, the proposed project would be consistent with the scenic resources analysis and determination in the IS prepared for the 2021 LRDP; and proposed project impacts to scenic resources within a State scenic highway would remain to have **no impacts**.

c) The 2021 LRDP EIR states that physical changes to the campus under the 2021 LRDP would not degrade the visual character of the campus or surrounding areas. All new development on campus would be subject to the design review and approval processes described in the Physical Design Framework. Therefore, future development impacts to the UCR visual character and quality would be less than significant.

The project site is located within an urbanized area in the City and would result in infill development on the campus on an area that is currently utilized as a surface parking lot and previously disturbed areas. UCR is part of the UC system, which is a constitutionally created entity of the State of California, with “full powers of organization and government” under Article IX, Section 9 of the California Constitution. As a constitutionally created State entity, UCR is not subject to municipal regulations of surrounding local governments, such as the City or County of Riverside general plans or land use ordinances. The applicable land use plan for the project and actions taken on the project site is accounted for in the 2021 LRDP. The proposed project is also required to comply with UCR’s Campus Construction and Design Standards and undergo review for consistency with the Physical Design Framework. Therefore, the proposed project would be consistent with applicable land use designation, allowed uses, and other regulations and guidelines pertaining to scenic quality and compatible design as analyzed and determined in the 2021 LRDP EIR. Proposed project impacts related to regulations governing scenic quality would remain **less than significant**.

d) The 2021 LRDP EIR concludes that future campus development projects would result in increased levels of daytime glare and nighttime light with new exterior lighting fixtures and increased vehicle trips on campus. Therefore, project-specific light and glare impacts would be potentially significant, and MM AES-1 and MM AES-2 would be required to reduce project impacts under the 2021 LRDP to a less than significant level.

Current sources of light and glare on or surrounding the project site includes parking lot lighting, pathway lighting, roadway streetlights, headlights and taillights from vehicles traveling on University Avenue or North Campus Drive, vehicles entering and exiting the surface parking area, security lighting from campus buildings, and the adjacent recreational field lighting.

Temporary and intermittent glare during construction would be anticipated from sunlight reflecting from equipment or vehicle windshield or material staging areas; however, the amount of glare from such equipment is not anticipated to be substantial given the limited number of construction equipment on-site at any one time. Furthermore, the duration of construction equipment is temporary, and construction areas are routinely fenced (opaque screen mesh) from public view.

The proposed project would include the development of a 5-story UTLF building on Parking Lot 19 and associated utility connections, hardscape and landscape improvements on previously disturbed area. The proposed project would result in elimination of most of the parking lot lighting and reduction in vehicular headlights and taillights from the elimination of most of the surface parking area. Some parking lot lighting would remain and headlights and taillights from vehicles entering and exiting the project site would continue; the proposed UTLF building has the potential to increase the existing sources of daytime glare from building surfaces and nighttime lighting on the project site and vicinity with the incorporation of lighting such as building lighting, security lighting, additional walkway lighting, and accent lighting. The project site is located adjacent to and within existing developed/disturbed areas of the campus that generally includes light and glare, and the proposed project is required to conform to UCR's Campus Construction and Design Standards and California Building Code (CBC) standards and guidelines related to light and glare. Therefore, the proposed project would be consistent with the light and glare analyses and determination in the 2021 LRDP EIR; and proposed project impacts to light and glare would remain **less than significant** with incorporation of **MM AES-1**.

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4.1.2 Agricultural Resources

Section 4.2 of the 2021 LRDP EIR addresses impacts to agricultural resources under the 2021 LRDP and concludes that impacts to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) would be significant and unavoidable, with no adequate MM that would substantially reduce impacts. The IS prepared for the 2021 LRDP found no impact from future campus development on land under current Williamson Act contracts, forest lands, or timber production lands (criterion b through d, and a portion of criterion e). Therefore, these issue areas were not addressed in the 2021 LRDP EIR.

AGRICULTURAL RESOURCES

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	Significant and Unavoidable Impact	No	No	No	No mitigation required
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	No Impact	No	No	No	No mitigation required
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	No Impact	No	No	No	No mitigation required
d) Result in the loss of forest land or conversion of forest land to non-forest use?	No Impact	No	No	No	No mitigation required
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	Significant and Unavoidable Impact – Conversion of Farmland to non-agricultural use; No Impact – Conversion of Forest land to Non-Forest Use	No	No	No	No mitigation required

a, e) The 2021 LRDP EIR states that most of the land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) is located on West Campus in areas

designated in the 2021 LRDP as Agricultural/Campus Research or Land-based Research. The 2021 LRDP reinforces the commitment to the densification of the existing Academic Center and existing urban environment on East Campus, limiting sprawl into existing open space and agricultural and land-based research areas on West Campus. However, implementation of the 2021 LRDP would still reduce land available for agricultural research on Farmland in comparison to the 2021 LRDP EIR's baseline conditions. The 2021 LRDP would impact fewer acres of Farmland than previous UCR LRDPs. Consistent with the past UCR LRDP EIRs, the establishment of the Coachella Valley Agricultural Research Station (CVARS) as mitigation for impacts to Farmland does not fully offset the net reduction in farmland in the region as no new farmlands were being created in the vicinity of the campus. Therefore, impacts were considered to be significant and unavoidable even with the establishment of the CVARS as mitigation.

The 2021 LRDP EIR also establishes that while land on the East Campus is similarly categorized as Farmland of Statewide Importance (10.7 acres) and Unique Farmland (1.5 acres), the underlying land use designation for those area (which includes the USDA Salinity Laboratory) under the 2021 LRDP is Academics & Research. The USDA Salinity Laboratory has a 50-year lease agreement with UCR that expires March 2038, after the life of the 2021 LRDP, and therefore is not anticipated to be converted to non-agricultural use. Implementation of projects under the 2021 LRDP in areas within the Academics & Research designation allow for the expansion and development of new campus facilities in already developed/disturbed areas of the campus. The 2021 LRDP EIR concludes that UCR does not anticipate the areas in the East Campus to be converted to non-agricultural use through the 2035 planning horizon of the 2021 LRDP, and therefore there would be no impact.

The project site is classified as Urban and Built-Up Land (see Figure 4.2-1 in the 2021 LRDP EIR) and located within the 2021 LRDP land use designation of University Avenue Gateway on UCR's East Campus and entails infill development. The project site does not contain existing Farmland. The proposed UTLF would be constructed on an existing parking lot and associated utility, hardscape, and landscape improvements would be within previously disturbed areas. Therefore, although the 2021 LRDP found significant and unavoidable impacts related to conversion of some Farmland, the proposed project would be consistent with the farmland use and loss analysis and determination in the 2021 LRDP EIR, specific to East Campus; and proposed project impacts related to Farmland would have **no impacts**.

b – d) The 2021 LRDP EIR states that the campus does not contain land under current Williamson Act contracts, forest lands, or timber production lands. Therefore, the IS prepared for the 2021 LRDP determined that no impacts would occur to Williamson Act contracts, forest lands, or timber production lands for projects implemented under the 2021 LRDP; and these issue areas were not further evaluated in the 2021 LRDP EIR.

Similarly, the proposed project does not contain any forest land or timberland and is not under a Williamson Act contract. The proposed UTLF would be constructed on an existing parking lot and associated utility, hardscape, and landscape improvements would be within previously disturbed areas. Therefore, the proposed project would be consistent with the Williamson Act contracts, forest lands, and timber production lands analysis and determination in the IS prepared for the 2021 LRDP; and proposed project impacts related to Williamson Act contracts, forest lands, or timber production lands would remain to have **no impacts**.

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4.1.3 Air Quality

Section 4.3 of the 2021 LRDP EIR addresses the effects of the 2021 LRDP campus growth projections on air quality. The 2021 LRDP EIR concludes that the implementation of the 2021 LRDP would have less than significant impacts on population, housing, or employment growth exceeding forecasts in the 2016 Air Quality Management Plan (2016 AQMP); and would not expose sensitive receptors to substantial pollutant concentrations or toxic air contaminants (TACs). The IS prepared for the 2021 LRDP concludes that there would be a less than significant impact related to other emissions, such as odors, adversely affecting a substantial number of people and the topic was not discussed in the 2021 LRDP EIR.

However, construction and operation of the 2021 LRDP would generate emissions that exceed South Coast Air Quality Management District (SCAQMD) significance thresholds for criteria pollutant emissions, even with the implementation of portions of MM GHG-1, and impacts would be significant and unavoidable.

Per the air quality section of the 2021 LRDP EIR, the applicable portions of the above-mentioned MM state the following:

MM GHG-1 Implement On-Campus GHG Emissions Reduction Measures: UCR shall implement the following GHG emissions reduction measures by scope emissions category:

Scope 1 (Stationary Fuel Combustion, Refrigerant Use, Fleet Fossil Fuel Combustion)

- Measure [Energy] EN1: In order to meet 100 percent electrification of all new campus buildings and structures, UCR shall prioritize construction of all-electric building design for new campus buildings and structures and discourage the construction and connection of new fossil fuel combustion infrastructure on campus. In addition, UCR shall focus on energy optimization through the Central Plant control systems by automating manual processes and initiating an engineering study focused on transitioning away from natural gas use at the Central Plant.
- Measure [Fuel] FL1: In order to decarbonize the campus vehicle fleet, UCR shall reduce emissions from the campus vehicle fleet by 25 percent by 2025, by 50 percent by 2030, and by 75 percent by 2035 through replacement of fleet vehicles with electric vehicles or low-emission alternative vehicles.

Scope 3 (On-site Transportation, Water Consumption, Carbon Sequestration, and Construction)

- Measure [Transportation] TR2: UCR shall update the Transportation Demand Management (TDM) program for the campus to decrease single occupancy vehicle VMT 5 percent by 2025 and 20 percent by 2035. In addition, UCR shall evaluate trends of current programs to expand on existing programs and establish new initiatives that utilize proven successful strategies.
- Measure TR3: UCR shall develop and implement a Campus Active Transportation Plan to shift 2 percent of baseline (2018) passenger vehicle VMT to active transportation by 2025 and 8 percent by 2035. In addition, UCR shall update the Campus Bicycle and Pedestrian Network Map every five years, including routes from off campus to on campus.
- Measure TR4: UCR shall reduce GHG emissions associated with campus commuting 10 percent by 2025 and 25 percent by 2035.
- Measure [Construction] CR1: UCR shall reduce construction-related GHG emissions on campus 10 percent by 2025 and 25 percent by 2035 through emission reduction controls and/or electric equipment requirements in line with contract obligations related to minimizing off-road construction equipment emissions. Specifically, UCR shall require off-road diesel-powered construction equipment greater than 50 horsepower to meet the Tier 4 emission standards as well

as construction equipment to be outfitted with BACT devices certified by CARB and emissions control devices that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similar-sized engine. In addition, UCR shall develop zero waste procurement guidelines and process for campus construction projects and integrate into purchasing RFP language as part of campus procurement.

The UCR Office of Sustainability, Facilities Services, Environmental Health & Safety (EH&S), Transportation and Parking Services (TAPS), and/or Planning, Design & Construction (PD&C) shall annually monitor, track, and verify implementation of these GHG emissions reduction measures.

AIR QUALITY

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR Mitigation Measures to Address Project-Specific Impacts
a) Conflict with or obstruct implementation of the applicable air quality plan?	Less than Significant Impact	No	No	No	No mitigation required
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State ambient air quality standard?	Significant and Unavoidable Impact	No	No	No	MM GHG-1 Measures EN1, FL1, TR2, TR3, TR4, CR1
c) Expose sensitive receptors to substantial pollutant concentrations?	Less than Significant Impact	No	No	No	No mitigation required
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than Significant Impact	No	No	No	No mitigation required

a) The 2021 LRDP EIR states that implementation of the 2021 LRDP would not generate population, housing, or employment growth exceeding forecasts in the 2016 AQMP. The 2016 AQMP, the most recent AQMP adopted by the SCAQMD at the time of the 2021 LRDP was certified, incorporates local city general plans and the Southern California Association of Governments' (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS) socioeconomic forecast projections of regional population, housing, and employment growth. Population growth associated with the 2021 LRDP would not exceed these forecasts that inform the AQMP; therefore, impacts were considered to be less than significant.

The latest 2022 AQMP was adopted by SCAQMD on December 2, 2022, after the 2021 LRDP was adopted. The 2022 AQMP incorporates SCAGs 2020-2045 RTP/SCS, known as Connect SoCal. Both the 2016 and 2022 AQMP are based on similar land use assumptions for the project site and would not affect the socioeconomic growth forecast that was previously analyzed and included in the 2021 LRDP.

The 2021 LRDP assumes an approximately 46 percent increase in student population (approximately 11,000 students), with an approximately 59 percent increase in additional faculty and staff (approximately 2,800 new faculty and staff) by the 2035/2036 academic year. The proposed UTLF would accommodate approximately 1,812 new students at full capacity and approximately 3 faculty and staff; which would be within the growth assumptions used in the 2021 LRDP and 2021 LRDP EIR. Therefore, the proposed project would be consistent with the SCAG growth projections and SCAQMD's 2016 AQMP, and the analysis and determination in the

2021 LRDP and 2021 LRDP EIR. Because the 2022 AQMP was based on land use assumptions from the 2021 LRDP, the proposed project is also consistent with the 2022 AQMP and the proposed project impacts to population and employment growth would remain **less than significant**.

b) The 2021 LRDP EIR reports significant and unavoidable regional air quality impacts with respect to construction and operation of the full development of the 2021 LRDP. Construction emissions were anticipated to exceed SCAQMD regional emissions thresholds for reactive organic gases (ROG) and nitrogen oxide (NO_X). Emissions generated as a result of operations would exceed SCAQMD regional emissions thresholds for ROG, NO_X, and particulate matter 10 micrometers in diameter or less (PM_{10}). Measures contained within MM GHG-1 were anticipated to decrease pollutant emissions but would not reduce these emissions below the respective SCAQMD thresholds and impacts were considered significant and unavoidable.

The project-specific emissions for construction and operational emissions were modeled in the California Emissions Estimator Model (CalEEMod), version 2022.1 (model reports are included as Appendix A of this Addendum). The proposed demolition of the existing Parking Lot 19 and the partially unpaved area south of the parking lot in the Athletics and Dance Building courtyard and the construction of the new UTLF building were modeled for project-specific emissions. The proposed building would use natural gas; however, the campus will implement steam insulation projects Phases 2 and 3 (anticipated to be completed in 2025) that would offset emissions from UTLF natural gas usage. In addition, in Summer 2023, the campus completed the steam trap project with an estimated savings of approximately 290,000 therms per year.

As shown in Table 4.1.3-1, construction emissions would be below SCAQMD regional thresholds for all criteria pollutants. As shown in Table 4.1.3-2, operational emissions would also be well below regulatory thresholds. In addition, applicable portions of **MM GHG-1 (Measures EN1, FL1, and TR2 through TR4)** would continue to be implemented at the campus level and would reduce air pollutant emissions from the project and other campus development under the 2021 LRDP. Therefore, the proposed project would not exceed the emissions analysis and determination in the 2021 LRDP EIR; and proposed project impacts to air quality would be **less than significant**.

Table 4.1.3-1
Regional Construction Emissions

	Maximum Emissions (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Construction Year 2024	34.30	4.33	68.50	0.03	0.96	0.56
Construction Year 2025	0.74	4.21	20.40	0.03	0.95	0.32
Construction Year 2026	14.90	2.48	11.40	0.01	0.31	0.14
Maximum Daily Emissions	34.30	4.33	68.50	0.03	0.96	0.56
SCAQMD Regional Thresholds	75	100	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

	Maximum Emissions (lbs/day)					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$

Notes: See Appendix A for CalEEMod modeling results. Some numbers may not add up precisely due to rounding considerations.

ROG = reactive organic gases; NO_x = nitrogen oxide; CO = carbon monoxide; SO_2 = Sulfur dioxide; PM_{10} = Particulate matter 10 micrometers in diameter or less; $PM_{2.5}$ = Fine particulate matter 2.5 micrometers in diameter or less; LSTs = Localized Significance Thresholds

Table 4.1.3-2
Regional Operational Emissions

	Maximum Daily Emissions (lbs/day)					
Emission Source	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Area	3.60	0.04	5.22	0.00	0.01	0.01
Energy	0.05	0.84	0.71	0.01	0.06	0.06
Mobile	1.96	7.19	67.00	0.19	17.40	4.50
Project Emissions	5.61	8.07	72.93	0.20	17.47	4.57
SCAQMD Regional Thresholds	55	55	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: See Appendix A for CalEEMod modeling results. Some numbers may not add up precisely due to rounding considerations. Results show the higher of either summer or winter maximum daily emissions.

ROG = reactive organic gases; NO_x = nitrogen oxide; CO = carbon monoxide; SO_2 = Sulfur dioxide; PM_{10} = Particulate matter 10 micrometers in diameter or less; $PM_{2.5}$ = Fine particulate matter 2.5 micrometers in diameter or less; lbs/day = pounds per day

c) The 2021 LRDP EIR states that localized construction emissions generated from full development under the 2021 LRDP would be less than significant, as emissions would be below SCAQMD local significance thresholds (LSTs) and would result in TAC emissions in one location for only a short period of time. The 2021 LRDP EIR states operation under the 2021 LRDP would not expose sensitive receptors to substantial pollutant concentrations from CO hotspots of TACs.

The 2021 LRDP states that based on an 8-hour maximum CO concentration of 1.2 ppm (2021 LRDP for 2019 air emissions), campus CO emissions of approximately 513 pounds per day, and improving vehicle emissions standards for new cars in accordance with State and federal regulations, the proposed project would not create new CO hotspots or contribute substantially to existing hotspots, and impacts would be less than significant. As shown in Table 4.1.3-2 project CO emissions would be approximately 72.93 pounds per day. Due to the low background concentrations, minimal project emissions, and continually more efficient vehicle regulations, the proposed project would result in **less than significant** impacts to localized CO hotspots.

The 2021 LRDP states that construction TAC emissions would create unsafe or potentially hazardous conditions for sensitive receptors. Construction-related activities would result in temporary project-generated emissions of particulate matter (PM) exhaust emissions from off-road, heavy-duty diesel equipment for grading, building construction, and other construction activities. California Air Resources Board (CARB) defines sensitive receptors as residential uses, school playgrounds, childcare facilities, athletic facilities, hospitals, retirement homes, and convalescent homes (CARB 2005). The closest sensitive receptor to the project construction site

is the existing adjacent athletics field to the north of the project site. The closest receptor distance on the LST look-up tables is 25 meters. Therefore, a receptor distance of 25 meters (approximately 82 feet) was used. The construction LST analysis completed and summarized in Table 4.1.3-3 determined that the project is not exposing sensitive receptors to substantial pollutant concentrations because no pollutant emissions exceed the LST. The CARB recommends health risk assessments (HRAs) for stationary sources of air pollution near sensitive land uses. These stationary sources include highway traffic freeways and roads, distributions centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and large gas dispensing facilities (CARB 2005). Accordingly, an HRA would not be required since the UTLF project is not a stationary source. Therefore, the proposed project would be consistent with the localized pollutants analysis and determination in the 2021 LRDP EIR; and project air quality impacts to sensitive receptors would be **less than significant**.

The 2021 LRDP includes a programmatic HRA for the existing and future scenarios of UCR's campus operations. The HRA identified potential risk to both onsite and offsite receptors including residents, students, staff, and children at the UCR Child Development Center. The HRA found that incremental excess cancer risks attributable to the 2021 LRDP would not exceed the SCAQMD threshold of 10 in 1 million at the off- or on-campus receptors. Additionally, the HRA determined that chronic and acute hazard indices under the 2021 LRDP would not exceed the SCAQMD threshold of 1.0 at the on- or off-campus receptors. Therefore, the proposed project would be consistent with the HRA analysis and determination in the 2021 LRDP EIR; and proposed project impacts to sensitive receptors would be **less than significant**.

Table 4.1.3-3
Localized Construction Emissions

	Maximum Emissions (lbs/day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Site Preparation 2024	2.16	66.80	0.64	0.49
Grading 2024	1.80	14.60	0.21	0.07
Building Construction 2024	3.32	16.40	0.12	0.12
Building Construction 2025	3.28	16.40	0.12	0.11
Paving 2026	2.35	10.60	0.10	0.09
Maximum Emissions	3.32	66.80	0.64	0.49
SCAQMD Localized Significance Thresholds (LSTs)	*170*	*883*	*7*	*4*
Threshold Exceeded?	**No**	**No**	**No**	**No**

Notes: See Appendix A for modeling results. Some numbers may not add up precisely due to rounding considerations. Maximum on-site emissions are the highest emissions that would occur on the project site from on-site sources, such as heavy construction equipment and architectural coatings, and excludes off-site emissions from sources such as construction worker vehicle trips and haul truck trips.

NO_x = nitrogen oxide; CO = carbon monoxide; PM_{10} = Particulate matter 10 micrometers in diameter or less; $PM_{2.5}$ = Fine particulate matter 2.5 micrometers in diameter or less

d) The IS prepared for the 2021 LRDP states that there would be a less than significant impact related to other emissions, such as odors, adversely affecting a substantial number of people; therefore, this criterion was not further discussed in the 2021 LRDP EIR.

The land use and operational activities for the proposed project would be consistent with the land uses and operational activities identified in the 2021 LRDP and analyzed in the 2021 LRDP EIR. Odor sources generated by the proposed project and proposed uses are anticipated to be the same or less than the impacts identified in the IS prepared for the 2021 LRDP and 2021 LRDP EIR. Construction odor sources are associated with the equipment usage and vehicle trips and would be temporary. The proposed project, as well as development under the 2021 LRDP would be required to comply with SCAQMD rules on construction and operational nuisance odor emissions. Therefore, the proposed project would be consistent with the odor impacts identified and analyzed in the IS prepared for the 2021 LRDP; and proposed project impacts would remain **less than significant**.

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4.1.4 Biological Resources

Section 4.4 of the 2021 LRDP EIR addresses the effects of the 2021 LRDP on biological resources. The 2021 LRDP EIR states that the campus is not located within one of the designated Riverside County Habitat Conservation Agency (RCHCA) reserve areas, and that implementation of the 2021 LRDP would not locate substantial development near Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) conservation areas that may contain potential wildlife habitat, movement corridors, or native nursery sites.[6]

However, UCR is still subject to compliance with Sections 6.1.2 (Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools), Section 6.1.3 (Protection of Narrow Endemic Plant Species), Section 6.3.2 (Additional Survey Needs and Procedures), and Section 6.1.4 (Guidelines Pertaining to the Urban/Wildlands Interface) of the MSHCP when specific campus projects are proposed. In addition, UCR is not a permittee to the MSHCP, and therefore is not subject to the conservation efforts established in the plan. Therefore, the IS prepared for the 2021 LRDP concludes that impacts due to conflicts with local policies, ordinances, or adopted habitat conservation plans (criterion e and f) would be less than significant, and these issues were not further discussed in the 2021 LRDP EIR.

The 2021 LRDP EIR concludes that potential impacts to burrowing owl, sensitive species or vegetation communities, and State or federally protected wetlands or jurisdictional delineated waters could be potentially significant as a result of implementing the 2021 LRDP. Therefore, MM BIO-1A through MM BIO-9 were identified in the 2021 LRDP EIR for projects that would impact biological resources. Implementation of these measures would reduce potential direct and indirect project impacts and construction noise impacts to burrowing owls and birds, bats, special-status plants and wildlife species, sensitive wildlife and vegetation communities, and jurisdictional waters and wetlands to less than significant levels. The proposed project would avoid impacts to burrowing owls, special-status plants and wildlife, sensitive vegetation communities, Open Space Reserve areas, MSHCP Conservation Area, and jurisdictional delineation of waters and wetlands, as the project site is developed and does not contain such resources or suitable habitat. Therefore, MM BIO-1A, MM BIO-1B, MM BIO-5, MM BIO-6, MM BIO-7, MM BIO-8, and MM BIO-9 from the 2021 LRDP EIR would not be applicable to the proposed project. However, the project could impact nesting birds, flying birds (bird strikes), or roosting bats.

Therefore, the applicable MMs state the following:

MM BIO-2 Nesting Bird Avoidance: Prior to issuance of grading permits, the following measures shall be implemented:

- To avoid disturbance of nesting and special-status bird species protected by the MBTA [Migratory Bird Treaty Act] and California Fish and Game Code, activities related to the project, including but not limited to, vegetation removal, ground disturbance, and construction and demolition shall occur outside of the bird breeding season (February 15 through August 31). If construction must be initiated during the peak nesting season, vegetation removal and/or tree removal should be planned to occur outside the nesting season (September 1 to February 14), and a preconstruction nesting bird survey shall be conducted no more than 3 days prior to initiation of construction activities. The nesting bird preconstruction survey shall be conducted on foot inside the project site disturbance

[6] The MSHCP is a comprehensive, multi-jurisdictional plan that focuses on the conservation of species and their associated habitats in Western Riverside County. The MSHCP is used to allow the participating jurisdictions to authorize the "take" of plant and wildlife species identified within the Plan Area. UCR is in the MSHCP area and is given the option of utilizing the MSHCP as a Participating Special Entity (PSE). Furthermore, a PSE is any regional public facility provider (e.g., a utility company, a public district or agency) that operates and/or owns land within the MSHCP Plan Area and that applies for Take Authorization pursuant to Section 11.8 of the Implementing Agreement. (County of Riverside. 2003. Final MSHCP, Volume 1: The Plan. https://rctlma.org/Portals/0/mshcp/volume1/index.html.)

areas. If an active avian nest is discovered during the preconstruction clearance survey, construction activities shall stay outside of a 50- to 200-foot buffer for common nesting birds around the active nest, as determined by a biologist. For listed and raptor species, this buffer shall be expanded to 500 feet or as determined by a biologist.

- Inaccessible areas shall be surveyed from afar using binoculars to the extent practical. The survey shall be conducted by a qualified biologist familiar with the identification of avian species known to occur in western Riverside County. If nests are found, an appropriate avoidance buffer shall be determined by a qualified biologist and demarcated by a qualified biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary. Effective buffer distances are highly variable and based on specific project stage, bird species, stage of nesting cycle, work type, and the tolerance of a particular bird pair. The buffer may be up to 500 feet in diameter, depending on the species of nesting bird found and the biologist's observations.
- If nesting birds are located adjacent to the project site with the potential to be affected by construction activity noise above 60 A-weighted decibels (dBA) Equivalent Continuous Sound Level (Leq) (see Section 4.11, *Noise*, of the LRDP EIR for definitions and discussion of noise levels), a temporary noise barrier shall be erected consisting of large panels designed specifically to be deployed on construction sites for reducing noise levels at sensitive receptors. If 60 dBA Leq is exceeded, an acoustician would require the construction contractor to make operational and barrier changes to reduce noise levels to 60 dBA during the breeding season (February 15 through August 31). Noise monitoring shall occur during operational changes and installation of barriers to ensure their effectiveness. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No parking, storage of materials, or construction activities shall occur within this buffer until the avian biologist has confirmed that breeding/nesting is completed, and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist, if it is determined such encroachment will not adversely impact the nesting birds.

MM BIO-3 Bird Strike Avoidance: To reduce bird strike mortality and injury of special-status bird species from collisions with clear and reflective sheet glass and plastic, construction of glass-fronted buildings or other structures using exposed glass (e.g., glass-topped walls) shall incorporate measures to minimize the risk of bird strikes. This may include: (1) the use of opaque or uniformly textured/patterned/etched glass, (2) angling of glass downward so that the ground instead of the surrounding habitat or sky is reflected, (3) installation of one-way film that results in opaque or translucent covering when viewed from either side of the glass, (4) installation of a uniformly dense dot pattern created as ceramic frit on both sides of the glass, and/or (5) installation of a striped or grid pattern of clear ultraviolet-reflecting and ultraviolet-absorbing film applied to both sides of the glass. It should be noted that single decals (e.g., falcon silhouettes or large eye patterns) are ineffective and are not recommended unless the entire glass surface is uniformly covered with the objects or patterns.

MM BIO-4 Bat Preconstruction Survey: To avoid disturbance of special-status bat species during maternity season (approximately March through September), a preconstruction roosting bat survey shall be conducted by a qualified bat biologist on potential roost structures identified by the bat biologist and mature vegetation no more than 30 days prior to initiation of construction activities if construction activities must occur during the roosting season. If future projects would impact rocky outcrops, mature vegetation, existing buildings, or other structures that could be used for roosting, a passive acoustic survey shall identify the species using the area for day/night roosting. If special-status roosting bats are present and their roosts would be impacted, a qualified bat biologist should prepare a plan to identify the proper exclusionary methods. Removal of mature trees should be monitored by a

qualified bat biologist and occur by pushing down the entire tree (without trimming or limb removal) using heavy equipment and leaving the felled tree on the ground untrimmed and undisturbed for a period of at least 24 hours. To exclude bats from buildings/structures or rocky outcrops, exclusion measures should be installed on crevices by placing one-way exclusionary devices that allow bats to exit but not enter the crevice.

BIOLOGICAL RESOURCES

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service?	Less than Significant Impact with Mitigation Incorporated	No	No	No	MM BIO-2 through MM BIO-4
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service?	Less than Significant Impact with Mitigation Incorporated	No	No	No	No mitigation required
c) Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Less than Significant Impact with Mitigation Incorporated	No	No	No	No mitigation required
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Less than Significant Impact	No	No	No	No mitigation required
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Less than Significant Impact	No	No	No	No mitigation required
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?	Less than Significant Impact	No	No	No	No mitigation required

a) The 2021 LRDP EIR states that construction and operation of projects development under the 2021 LRP would have potentially substantial adverse effects on special-status species, but impacts would be reduced to less than significant levels with incorporation of MM BIO-1A through MM BIO-8, which require pre-construction surveys, avoidance of sensitive-species and their habitats, vegetation mitigation, and noise reduction adjacent to Conservation areas. Areas of potential habitat for special-status species primarily include the southeastern portion of East

Campus (mainly in land designated Open Space Reserve) and scattered areas of West Campus, as shown in Figure 4.4-3 of the 2021 LRDP EIR.

The project site is currently developed/disturbed (see Figure 2.3-1), and the 2021 LRDP EIR also recognizes the site as previously developed/landscaped areas (refer to Figure 4.4-2 in the 2021 LRDP EIR). The project site is not located within a special-status species or burrowing owl habitat areas (see Figure 4.4-2 and Figure 4.4-3 in the 2021 LRDP EIR). The MSHCP identified areas of the campus as being located within the designated survey area for burrowing owl, requiring a burrowing owl suitability assessment to be conducted prior to construction activities. No sensitive habitat is present on the project site and MM BIO-5 and MM BIO-7 would not apply to the project. In addition, the project site is not adjacent to Open Space Reserve lands and indirect impacts to sensitive communities in these areas would not occur; therefore, MM BIO-6A and MM BIO-6B do not apply to the project. The project site is not located near MSHCP Conservation areas; as such, and MM BIO-8 would not be required.

Areas of potential habitat for special-status species include the southeastern portion of East Campus (mainly in lands designated Open Space Reserve) and scattered areas of West Campus, as shown in Figure 4.4-3 of the 2021 LRDP EIR. The project site and adjacent areas are not located within the designated survey area for burrowing owls. Vegetation communities within and surrounding the campus, mainly in the form of mature ornamental trees, including those on the project site, have the potential to provide refuge cover from predators, perching sites, and favorable conditions for avian nesting that could be affected by the proposed project since there are trees on and around the project site. Furthermore, several bat species, may forage and roost in areas in and around the project site and throughout campus on existing buildings and mature trees. The proposed project includes removal of up to 21 mature trees. Therefore, the project could impact bird roosting and nesting habitat.

Albert A. Webb Associates prepared a biological resources letter to document biological resources within the project site, Staging Areas 1 and 2[7], and a 100-foot buffer area, collectively referred to as the Study Area (see Appendix B). A biological resources field assessment of the Study Area was conducted on April 5, 2023. The field assessment was conducted on-foot to systematically assess the Study Area for sensitive biota and their associated habitats, including other environmental attributes such as topography, soil type, water features, and vegetation communities. According to the biological resources assessment, although the project site is not within the areas of potential habitat for special-status species, the proposed project may result in potentially significant impacts to nesting birds and/or bats due to its proximity to the existing trees and campus buildings on and surrounding the project site. No species or specific habitat was identified on the site that could result in direct and significant impacts to listed or sensitive species. Birds flying in the area could be impacted by the installation of glass surfaces. However, given that there is a potential for some species to roost or nest in the trees or on the buildings on the UTLF site and potential bird strikes from exposed glass on the proposed UTLF building, **MM BIO-2 through MM BIO-4** will be applied to the proposed project. With incorporation of these measures, along with the determination of the bio assessment in Appendix B, the proposed project is consistent with the determination of the 2021 LRDP EIR.

[7] Staging Area 3 is within a vacant/undeveloped area within the North District Development area that has been used for construction parking and laydown area. The environmental impacts of Staging Area 3 within the North District Development area has been previously analyzed in either the Revised Draft Environmental Impact Report (State Clearinghouse No. 2018061044) or Addendum No. 1 to the EIR for the North District Development Plan.

b) The 2021 LRDP EIR states that construction and operation of projects developed under the 2021 LRDP would potentially have substantial adverse effects on riparian habitat or other sensitive natural communities on the campus. Direct impacts to these natural communities and indirect impacts associated with water quality and fugitive dust were anticipated to be avoided, while indirect impacts associated with invasive species, edge effects, and inadvertent encroachment were considered potentially significant. Impacts would be reduced to less than significant levels with incorporation of MM BIO-6A, MM BIO-6B, and MM BIO-7.

The project site is developed/disturbed with no aquatic, wetland, or riparian habitat and no open bodies of water. According to the project's biological resources assessment (Appendix B), the project site does not contain jurisdictional drainage features, wetlands, or riparian habitat nor any associated riparian species. None of the vegetation communities observed during the field assessment were considered a sensitive natural community (Appendix B).

According to Figure 4.4-4 of the 2021 LRDP EIR, the area nearest to the project site with potential jurisdictional waters is adjacent to Canyon Crest Drive, approximately 310 feet northwest across Canyon Crest Drive from the project site. Therefore, since this drainage feature is not located on or adjacent to the proposed project, there would not be significant impacts on aquatic habitats or sensitive natural communities. The proposed project would be consistent with the wetlands, aquatic resources, and sensitive habitats analyses and determination in the 2021 LRDP EIR; and proposed project impacts to wetlands and aquatic resources would remain less than significant, and proposed project impacts to sensitive vegetation communities would remain **less than significant.**

c) The 2021 LRDP EIR states that construction and operation of projects developed under the 2021 LRDP could result in significant adverse effects on State and federally protected wetlands; however, impacts would be reduced to less than significant levels with incorporation of MM BIO-9.

There are no recognized wetlands on or adjacent to the project site. According to Figure 4.4-4 of the 2021 LRDP EIR, the area nearest to the project site with potential jurisdictional waters is approximately 310 feet northwest, located outside the project site. Thus, this area with potential jurisdictional waters would be avoided and not impacted by the proposed project, and MM BIO-9 would not be required. Therefore, the proposed project would be consistent with the wetlands analysis and determination in the 2021 LRDP EIR; and proposed project impacts to wetland areas and habitats would remain **less than significant**.

d) The 2021 LRDP EIR states that the campus is located at the edge of urban development in the eastern portion of the City and is well developed itself. As a result, the campus contains no regional connection to other open space areas to the north or west. The southeast portion of the East Campus consists of undeveloped open space that would remain under the 2021 LRDP (Open Space Reserve and the UCR Botanic Gardens) and links the Box Springs Mountains to the northeast with Sycamore Canyon Wilderness Park to the southwest. Impacts in the 2021 LRDP were determined to be less than significant.

The project site is developed/disturbed, is not located adjacent to the southeast portion of campus that consists of undeveloped open space, and is surrounded by existing development. Development of the proposed project would not preclude wildlife movement or impact wildlife corridors or linkages since such connections of physical space and resources are not present on the campus. Therefore, the proposed project would be consistent with the wildlife movement or

native nursery analyses and determination in the 2021 LRDP EIR; and proposed project impacts to such wildlife movement areas would remain **less than significant**.

e) The IS prepared for the 2021 LRDP stated that there were no tree preservation policies or ordinances in place for campus projects, and that UCR's Tree Preservation and Replacement Guidelines was being drafted, which would include applicable tree replacement guidelines for the removal of specific trees. In addition, it was stated the campus is outside of RCHCA reserve areas and is not subject to the restrictions associated with these areas. The IS prepared for the 2021 LRDP concludes that the 2021 LRDP would have a less than significant impact to local policies or ordinances protecting biological resources.

Development under the proposed project would adhere to UCR's Tree Preservation and Replacement Guidelines. Therefore, the proposed project would be consistent with the local biological resources policies and ordinances analyses and determination in the IS prepared for the 2021 LRDP; and proposed project impacts to such resources would remain **less than significant**.

f) The IS prepared for the 2021 LRDP states that UCR is not a Permittee to the Western Riverside County MSHCP and therefore is not subject to the Conservation efforts established in the plan. However, UCR is subject to Sections 6.1.2 (Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools), 6.1.3 (Protection of Narrow Endemic Plant Species), 6.3.2 (Additional Survey Needs and Procedures), and 6.1.4 (Guidelines Pertaining to the Urban/Wildlands Interface) of the MSHCP. Specific projects would be required to comply with the applicable MSHCP sections and impacts were determined to be less than significant.

The project site is not located within a MSHCP Criteria Cell and therefore is not subject to any Conservation efforts. The project site is located within developed/disturbed areas and 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. Though the project site is not within areas of potential habitat for special-status species, the proposed project may result in potentially significant impacts to nesting birds, and/or bats due to the presence of existing habitat opportunities and would incorporate mitigation measures **MM BIO-2 through MM BIO-4**. The project site is not located within MSHCP survey areas and would not conflict with Sections 6.1.3 and 6.3.2 of the MSHCP. The project site is not located adjacent to any 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 IS prepared for the 2021 LRDP concludes that implementation of the 2021 LRDP would not conflict with the MSHCP and would have a less than significant impact. Therefore, the proposed project would be consistent with the analyses and determination of the applicability and consideration of the MSHCP to 2021 LRDP project; and proposed project impacts to the implementation of applicable adopted conservation plans would remain **less than significant** with the incorporation of **MM BIO-2 through MM BIO-4** specified in criterion 4.1.4 a) above.

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4.1.5 Cultural Resources

Section 4.5 of the 2021 LRDP EIR addresses the effects of campus growth on cultural resources under the 2021 LRDP. The 2021 LRDP EIR concludes impacts to the built environment historical resources would be significant and unavoidable even with the adoption of MM CUL-1, while impacts to archaeological resources would be less than significant with implementation of MM CUL-2 through MM CUL-4. The proposed project is located adjacent to an eligible historic structure (Athletics and Dance Building) and in accordance with MM CUL-1, a Historic Properties Project Review and Impacts Screening was prepared, which is discussed in criterion a, below. The 2021 LRDP EIR anticipates ground disturbance associated with development facilitated by the 2021 LRDP would have a low potential to disturb or damage known or unknown human remains and existing regulations would further ensure impacts to unknown human remains are less than significant.

The above-mentioned applicable MMs state the following:

MM CUL-1 Protection of Historical Resources: For purposes of MM CUL-1, "major exterior alterations" indicates a significant alteration/change to the exterior character-defining features or setting of a building or structure. Such projects might include, but not be limited to, additions, partial or complete demolition, relocation, window frame replacement different from existing, modifications to wall sheathing materials, changes to the roof shape, pitch, eaves, and other features, installment of wheelchair access ramps, and/or changes to the overall design configuration and composition of the building and the spatial relationships that define it. Major exterior alterations would require consultation to determine if these alterations noted above constitutes a major exterior alteration requiring further review from an architectural historian or whether the proposed alterations would qualify as a minor exterior alteration.

For purposes of MM CUL-1, "minor exterior alterations" indicates a minor alteration/change to the exterior of a building or structure and its setting that would not be likely to significantly alter its appearance. Such projects might include, but not be limited to, repainting, in-kind landscaping or hardscaping replacement, window pane replacement, reversible installation of HVAC [heating, ventilation, and air conditioning] units that does not obstruct or destroy character-defining features, installation of fencing, signage, or artwork that does not obstruct or destroy character-defining features. Minor exterior alterations are exempt from further review from an architectural historian.

During project-specific environmental review of development under the 2021 LRDP, UCR shall define the project's area of effect for historic buildings and structures as early as possible. UCR shall implement the following procedures:

- Conduct project-specific surveys for buildings or structures (e.g., proposed for demolition, major exterior alterations, additions) that are 50 years of age or older that have (1) not been subject to an evaluation within the past 5 years, or (2) were not previously evaluated in the UCR Historic Resources Survey Report.
    - UCR shall retain a qualified architectural historian to record the property at professional standards and assess its significance under CEQA Guidelines Section 15064.4. The evaluation process shall include the historic context framework included in the UCR Historic Resources Survey Report as well as the development of additional background research as needed in order to assess the significance of the building, structure, district, or cultural landscape in the history of the UC system, the campus, and the region. For historic buildings, structures or features that do not meet the CEQA criteria as a historical resource, no further mitigation is required, and the impact would be less than significant.

  - The assessment of the potential historical resource and its character-defining features shall be documented on the appropriate California Department of Parks and Recreation (DPR) 523 forms by a qualified architectural historian meeting the Secretary of the Interior's Professional Qualifications Standards (as codified in 36 CFR [Code of Federal Regulations] Part 61).

- For projects affecting any eligible historic buildings identified in the UCR Historic Resources Survey Report or determined to be eligible during the project-specific surveys, for a building or structure that qualifies for listing on the NRHP [National Register of Historic Places] and/or CRHR [California Register of Historical Resources], UCR shall implement the following procedures:
  - For major exterior repairs (different from that of existing), alterations, or building additions of buildings that are eligible historic resources, UCR shall retain a qualified architectural historian meeting the Secretary of the Interior's Professional Qualifications Standards (as codified in 36 CFR Part 61) to conduct Character-Defining Features and Impacts Screening in coordination with the design team to consider project design features and/or measures that would enable the project to avoid direct or indirect impacts to the building or structure. Conclusion of the screening consultation process shall be documented in a memorandum, including a statement of compliance with the Secretary's Standards. The purpose of the memorandum shall document avoidance/reduction of significant adverse impacts to historical resources, where feasible, through (1) identifying and documenting character-defining features, noncontributing elements/additions, and (2) providing historic preservation project review and preliminary impacts analysis screening to UCR as early as possible in the design process. The memorandum shall review preliminary and/or conceptual project objectives early in the design process and describe various project options capable of reducing and/or avoiding significant adverse direct or indirect impacts through compliance with the Secretary's Standards and/or application of the State Historic Building Code or any subsequent design guidelines prepared by UCR for the treatment of historic resources.

If major modifications, renovations, or relocation of a determined historic resource is proposed and the project is unable to comply with the Secretary's Standards or when a historic resource is to be demolished, then UCR shall ensure that documentation shall be carried out by a qualified architectural historian, as follows:

- UCR shall commission the preparation of HABS-like [Historic American Building Survey] documentation of the building, structure, district, feature, and its associated landscaping and setting prior to construction activities. The HABS-like package will document in photographs and descriptive and historic narrative the historical resources slated for modification/demolition. Documentation prepared for the package will draw upon primary- and secondary-source research and available studies previously prepared for the project.
- The specifications for the HABS-like package follow:
  - Photographs: Photographic documentation will focus on the historical resources/features slated for demolition, with overview and context photographs for the campus and adjacent setting. Photographs will be taken of the building using a professional-quality single lens reflex (SLR) digital camera with a minimum resolution of 10 megapixels. Photographs will include context views, elevations/exteriors, architectural details, overall interiors, and interior details (if warranted). Digital photographs will be provided in electronic format.
  - Descriptive and Historic Narrative: The architectural historian will prepare descriptive and historic narrative of the historical resources/features slated for demolition. Physical descriptions will detail each resource, elevation by elevation, with accompanying photographs, and

information on how the resource fits within the broader campus during its period of significance. The historic narrative will include available information on the campus design, history, architect/contractor/designer as appropriate, area history, and historic context. In addition, the narrative will include a methodology section specifying the name of researcher, date of research, and sources/archives visited, as well as a bibliography. Within the written history, statements shall be footnoted as to their sources, where appropriate.

    - Historic Documentation Package Submittal: The electronic package will be assembled by the architectural historian and submitted to UCR for review and comment.

- A copy of the HABS-like package shall be offered to the Special Collections and University Archives at the Tomás Rivera Library and the California Historical Resources Information System. The record shall be accompanied by a report containing site-specific history and appropriate contextual information. This information shall be gathered through site-specific and comparative archival research, and oral history collection as appropriate.
- If preservation and reuse at the site are not feasible, the historical building shall be documented as described above.

For new infill construction within the Mid-Century Modern Core Historic District that does not involve building demolition:

- Infill projects outside of the Mid-Century Modern Core Historic District would not need review by an architectural historian.
- Infill projects within the Mid-Century Modern Core Historic District will require review by an architectural historian for elements such as form, massing, and scale, to ensure visual compatibility with the historic district, and the review shall be conducted in compliance with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (Weeks and Grimmer 1995).

MM CUL-2 Tribal Cultural Resources/Archaeological Monitoring: Prior to commencement of ground disturbing activities into an area with a medium or high potential to encounter undisturbed native soils including Holocene alluvium soils, as determined by UCR, UCR shall hire a qualified archaeological monitor meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service [NPS] 1983) to identify archaeological resources and cultural resources of potential Native American origin. Where development occurs in the southeastern quadrant of campus, and in areas containing Val Verde Pluton geologic features considered highly sensitive to prehistoric archaeological resources, UCR shall hire a qualified archaeologist and a Native American monitor to reduce impacts to potential archaeological and/or tribal cultural resources. The monitor(s) shall be on-site during any construction activities that involve ground disturbance. The on-site monitoring shall end when project-related ground disturbing activities are completed, or, in consultation with the lead agency and tribes as appropriate and based on observed conditions, monitoring may be reduced or eliminated prior to completion of ground-disturbing activities, when the monitor(s) has indicated that the project site has a low potential to encounter tribal cultural resources (TCR)/archaeological resources. Consolidated monitoring efforts (e.g., archaeological monitoring/tribal cultural/paleontological monitoring) may occur if the individual monitor meets the applicable qualifications, except for development in the southeastern quadrant as detailed above.

MM CUL-3 Construction Worker Training: For projects requiring TCR/archaeological monitoring, the monitor shall provide preconstruction training for all earthmoving construction personnel prior to the start of any ground disturbing activities, regarding how to recognize the types of TCRs and/or

archaeological resources that may be encountered and to instruct personnel about actions to be taken in the event of a discovery. UCR Planning, Design & Construction Project Manager/contractor shall retain documentation showing when training of personnel was completed.

MM CUL-4 Unanticipated Discovery of Tribal Cultural Resources/Archaeological Resources: If previously undiscovered TCRs and/or archaeological resources are identified during construction, all ground disturbing activities within 100 feet of the resource shall halt, UCR Planning, Design & Construction staff shall be notified, and the find shall be evaluated by a qualified archaeologist meeting the Secretary of the Interior standards to determine whether it is a unique archaeological resource, as defined by CEQA. If the discovery appears to be Native American in origin, a tribal representative will be contacted within 24 hours of discovery to determine whether it is a TCR, as defined by CEQA. If the find is neither a unique archaeological resource nor a TCR, work may resume. If the find is determined to be a unique archaeological resource or TCR, the archaeologist and the tribal representative, as appropriate, shall make recommendations to UCR Planning, Design & Construction staff on the measures that will be implemented, including, but not limited to, preservation in place, excavation, relocation, and further evaluation of the discoveries pursuant to CEQA. Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts to TCRs/archaeological resources. If UCR determines that preservation in place is not feasible, the 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-site may commence upon completion of any fieldwork components of the treatment plan.

CULTURAL RESOURCES

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Cause a substantial adverse change in the significance of a historical resource as pursuant to Section 15064.5?	Significant and Unavoidable Impact	No	No	No	MM CUL-1
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	Less than Significant Impact with Mitigation Incorporated	No	No	No	MM CUL-2 through CUL-4
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	Less than Significant Impact	No	No	No	No mitigation required

a) The 2021 LRDP EIR and associated UCR Historic Resources Survey noted that implementation of the 2021 LRDP would adversely affect historical resources through the full and partial demolition of historical resources, renovation/rehabilitation of historical resources, and new construction adjacent to historical resources. Impacts were determined to be significant and unavoidable even with incorporation of MM CUL-1.

Based on the 2021 LRDP EIR and associated UCR Historic Resources Survey, Athletics and Dance Building is an eligible historical resource adjacent to the project site. The Athletics and Dance Building is identified as eligible for federal and State landmark listing, both individually and as a contributor to UCR's Mid-Century Modern Core Historic District. As required by **MM CUL-1**, in order to determine the proposed UTLF project's impacts to the character defining features of this eligible historic resource, SWCA prepared a Secretary of the Interior's Standards for the Treatment of Historic Properties Project Review and Impacts Screening Report (Screening Survey) and is included as Appendix C. The project site includes Parking Lot 19 and an area northeast of the Athletics and Dance Building that includes a brick wall that enclosed a former pool area. The brick wall would be partially demolished as part of the UTLF project. Also, as part of the project, the Athletics and Dance Building courtyard, would include a connection from the project site to Carillion Mall with a pass through along Costo Hall.

The Screening Survey found that implementation of the proposed project would not impact the historical significance of the Athletics and Dance Building with the incorporation of recommendations noted in Table 2 of Appendix C, pursuant to Secretary of the Interior's Standards. These recommendations include, but are not limited to, designing the project site compatible with but differentiated from the Historic District and pursuant to Secretary's

Standards, monitor the site during construction to proactively avoid and minimize anticipated damage to character-defining features. Implementation of the project would not be expected to result in significant adverse impacts to historical resources.

Therefore, even though the 2021 LRDP EIR found impacts to historic resources as significant and unavoidable, the proposed project would not have a significant and unavoidable impact on a historical resource. The proposed project impacts to historical buildings would be **less than significant** with incorporation of the recommendations from the Screening Survey as required by **MM CUL-1.**

b) The 2021 LRDP EIR states that new development under the 2021 LRDP would generally avoid disturbance in areas of recorded historic-age or prehistoric archaeological resources on campus. However, development under the 2021 LRDP has the potential to damage or destroy unrecorded historic-age or prehistoric archaeological resources, particularly in areas of undisturbed soils or when excavation depths exceed those attained for past development. The 2021 LRDP EIR states that the southeastern portion of the LRDP area is considered to have high sensitivity for encountering archaeological resources. The majority of the areas considered to have a high sensitivity are within the 2021 LRDP land use designation of Open Space Reserve or UCR Botanic Gardens. Areas within the northern portions of East Campus have low resource sensitivity (see Section 4.1.18 for additional information related to Tribal Cultural Resources). It determined that impacts would be less than significant with incorporation of MM CUL-2 through MM CUL-4.

The proposed UTLF would be constructed on an existing parking lot and associated utility, hardscape, and landscape improvements would be within previously disturbed areas. The proposed project is not located near the Open Space Reserve areas thus avoiding the southeast hills where on-campus archaeological resources are most likely to be encountered. However, based on the Geotechnical Data Report, native soils are present at the project site at depths of approximately 10 feet below grade (Appendix D). Native soils have the potential to contain cultural resources. Accordingly, monitoring would occur during project construction ground disturbing activities into native soil to monitor for unknown archaeological resources and tribal cultural resources pursuant to **MM CUL-2**. UCR's standard contract specifications address the protection and recovery of buried archaeological resources, including human remains, as noted in **MM CUL-3 and MM CUL-4**. These measures identify steps to be taken in the event archaeological resources, including human remains, are discovered during ground disturbing activities. Therefore, the proposed project would be consistent with the archaeological resources analyses and determination in the 2021 LRDP EIR; and proposed project impacts to archaeological resources would remain **less than significant** with incorporation of **MM CUL-2 through MM CUL-4.**

c) The 2021 LRDP EIR states that no formal cemeteries are known to have occurred on the campus; therefore, the likelihood of encountering human remains is considered low. However, ground-disturbing construction activities associated with development under the 2021 LRDP could uncover previously unknown human remains, which could be archaeologically or culturally significant. The 2021 LRDP anticipates new development and building improvements involving construction activities that may potentially disturb native terrain through activities such as excavation, grading, and soil removal. Compliance with applicable regulations would avoid or minimize the disturbance of human remains and the 2021 LRDP EIR concluded impacts would be less than significant.

California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Sections 7050.5 and 7052 and California PRC Section 5097. If human remains are discovered during any construction activities, potentially damaging ground-disturbing activities in the area of the remains and a 100-foot-buffer area shall be halted immediately, and UCR shall notify the Riverside County Coroner and the Native American Heritage Commission (NAHC) immediately in accordance with PRC Section 5097.98 and Section 7050.5 of California's Health and Safety Code. If the remains are determined by the NAHC to be Native American, the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Following the Coroner's findings, UCR and the NAHC-designated most likely descendant shall recommend the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in California PRC Section 5097.94. Compliance with California Health and Safety Code Sections 7050.5 and 7052 and California PRC Section 5097 would provide an opportunity to avoid or minimize the disturbance of human remains, and to appropriately treat any remains that are discovered. Therefore, the proposed project would be consistent with the human remains analyses and determination in the 2021 LRDP EIR; and proposed project impacts to previously unknown human remains would remain **less than significant** with adherence to existing California State laws and codes.

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4.1.6 Energy

Section 4.6 of the 2021 LRDP EIR addresses the impacts of the 2021 LRDP on wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation and conflicts or obstructions with applicable plans for renewable energy and energy efficiency. The 2021 LRDP EIR concludes projects under the 2021 LRDP would have less than significant impacts to applicable plans, policies, or regulations adopted for the purpose of avoiding or mitigating environmental effects related to energy. The 2021 LRDP EIR also states that impacts related to construction energy consumption would be less than significant. However, the 2021 LRDP EIR concludes that implementation of future projects would consume electricity and natural gas during operation that would exceed the UCR 2018 per capita energy use and annualized regional 2018 per capita energy use thresholds. MM GHG-1 (Measures EN3 and EN5) were identified in the 2021 LRDP EIR, to reduce operational stationary consumption of electricity and natural gas.

Per the energy section of the 2021 LRDP EIR, the applicable portions of the above-mentioned MM states the following:

MM GHG-1 Implement On-Campus GHG Emissions Reduction Measures: UCR shall implement the following GHG emissions reduction measures by scope emissions category:

Scope 2 (Electricity Consumption and Generation)

- Measure [Energy] EN3: UCR shall work to obtain 100 percent clean-sourced electricity through either Riverside Public Utilities (RPU) and/or through the installation of on-site clean-sourced electricity sources for all new buildings by 2025. In addition, UCR shall establish annual budgets that include funding to purchase 100 percent clean-sourced energy. Furthermore, all newly constructed building projects, other than wet lab research laboratories, shall be designed, constructed, and commissioned to outperform the California Building Code (CBC) (Title 24 portion of the California Code of Regulations [CCR]) energy efficiency standards by at least 20 percent. Finally, UCR shall incorporate solar photovoltaics (PV) as feasibly possible for newly constructed and majorly-renovated buildings with the maximum system size, highest solar panel efficiency, and greatest system performance.[8]
- Measure EN5 (Parts A, B, C): In order to prioritize energy efficiency and green building initiatives for building/facility upgrades and new construction as well as reduced energy use, UCR shall identify aging equipment throughout the campus such as equipment associated with the Central Plant, electrical distribution system, and building HVAC [heating, ventilation, and air conditioning] systems and develop a strategy and schedule to upgrade such equipment with high-energy efficiency systems and optimize HVAC systems through heat zoning, high-efficiency filters, and shut-down times expansion. The strategy shall include an evaluation and cost analysis related to upgrading/ retrofitting equipment versus retirement of equipment if no longer needed with future initiatives (i.e., Central Plant boiler retirement). The schedule and upgrade strategy must meet a 2 percent energy efficiency improvement annually through 2035. In addition, UCR shall require new buildings to incorporate occupancy sensors and controls such that lighting of shared spaces is on occupancy sensors, building temperature set points are widened and aligned with occupancy schedules, and ventilation systems are converted from constant volume to variable so ventilation rates are occupancy-based. Furthermore, UCR shall develop a plan to identify existing buildings and projects that could undergo upgrades to the control systems and establish a schedule for upgrade

[8] The EIR GHG modeling efforts assume that clean energy is in line with California- defined renewable sources.

incorporation. Finally, UCR shall develop a tracking program to monitor and share campus energy efficiency activities and progress towards increased energy efficiency.

Energy

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Less than Significant Impact with Mitigation Incorporated	No	No	No	MM GHG-1 Measures EN3 and EN5
b) Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?	Less than Significant Impact	No	No	No	No mitigation required

a) The 2021 LRDP EIR states that energy use in the form of fuels during construction would occur in accordance with applicable idling and equipment-efficiency regulations, and impacts would be less than significant. Development under the 2021 LRDP would consume electricity and natural gas during operation that would exceed the UCR 2018 per capita energy use and annualized regional 2018 per capita energy use threshold. However, implementation of MM GHG-1 would reduce energy during operation impacts to less than significant.

Project construction activities would result in a temporary increase in energy consumption primarily through the combustion of fuels in construction vehicles, worker commute vehicles, and construction equipment, and the use of electricity for temporary buildings, lighting, and other sources. As required by **MM GHG-1**, the project would utilize construction equipment with Tier 4 engines.

The proposed project would consume energy for building heating and cooling, refrigeration, lighting, electricity, and equipment when occupied and in use. New student, visitor, and faculty/staff vehicle trips and fleet vehicle trips associated with project operations would also be a source of energy consumption. However, the proposed project would be required to comply with the energy conservation strategies expressed in the UC Policy on Sustainable Practices and **MM GHG-1 (Measures EN3 and EN5)**. As stated in the Project Description, the proposed project would incorporate project design features that would minimize energy usage, including the achievement of minimum LEED Gold certification. Indoor water use would be reduced with low-flow fixtures. Outdoor water use would be reduced through the selection of native and/or adapted plant species that reduce irrigation requirements. Building self-shading would also provide reductions in solar heat gains during peak cooling months thereby improving thermal comfort and reducing energy demand. Recycled materials and materials from regional sources

would be used where possible. In addition, project-specific Vehicle Miles Traveled (VMT) would not exceed the Western Riverside Council of Governments (WRCOG) regional thresholds (further discussed in Section 4.1.17, *Transportation*, of this Addendum). The proposed project would not result in wasteful, inefficient, or unnecessary use of energy during construction or operation, and is consistent with the energy analysis evaluated in the 2021 LRDP EIR. Therefore, the proposed project would be consistent with the energy demand analysis and determination in the 2021 LRDP EIR; and proposed project impacts to energy use would remain **less than significant** with incorporation of **MM GHG-1 Measures EN3 and EN5**.

b) The 2021 LRDP EIR states that projects developed under the 2021 LRDP would be required to comply with applicable State and UC energy policies and regulation, CBC Title 24, Senate Bill 100 (SB 100), and the UC Policy on Sustainable Practices. Therefore, the 2021 LRDP EIR concludes impacts related to conflicts with energy plans, policies, and regulations would be less than significant.

Consistent with the conclusion of the 2021 LRDP EIR, the proposed project would be required to comply with all building design standards set in CBC Title 24, which mandates implementation of energy efficient building design to avoid the wasteful, inefficient, or unnecessary consumption of energy resources during operation. The proposed project would abide by SB 100 standards as the proposed project would be powered by an existing State electricity grid; and comply with UC Policy on Sustainable Practices and other UC requirements related to energy reduction and carbon-free energy use. Construction of the UTLF would also incorporate sustainability measures identified in Section 2.4.3 of this Addendum, and the proposed project would not conflict with nor obstruct a State or local plan for renewable energy or energy efficiency. Therefore, the proposed project would be consistent with applicable plans related to renewable energy and energy efficiency as determined in the 2021 LRDP EIR; and proposed project impacts on the implementation of energy plans and policies would remain **less than significant.**

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4.1.7 Geology and Soils

Section 4.7 of the 2021 LRDP EIR addresses the impacts of campus growth on the geology, soils, and paleontological resources for the campus and vicinity. The IS prepared for the 2021 LRDP concludes that there would be no impact or less than significant impacts for criterion b (soil erosion or topsoil loss), criterion d (expansive soils), and criterion e (soil adequacy to support alternative wastewater disposal systems); therefore, these thresholds were not further evaluated in the 2021 LRDP EIR.

The 2021 LRDP EIR concludes that implementation of future projects that comply with applicable regulations related to geologic and soils hazards would result in less than significant impacts to seismic hazards, and unstable geologic or soil conditions. The 2021 LRDP EIR also concludes that construction impacts to potential paleontological resources could be a potentially significant impact. To protect paleontological resources that could be discovered or disturbed during ground-disturbing activities from future campus development under the 2021 LRDP, the 2021 LRDP EIR identifies MM GEO-1 and MM GEO-2 to reduce potential impacts to paleontological resources to less than significant levels**.**

The above-mentioned applicable MMs state the following:

MM GEO-1 Inadvertent Discovery of Paleontological Resources: If any paleontological resources are encountered during ground-disturbing activities, the contractor shall ensure that activities in the immediate area of the find are halted and that UCR is informed. UCR shall retain a qualified paleontologist to evaluate the discovery and recommend appropriate treatment options pursuant to guidelines developed by the Society of Vertebrate Paleontology, including development and implementation of a paleontological resource impact mitigation program by a qualified paleontologist for treatment of the particular resource, if applicable. These measures may include, but not limited to, the following:

- Salvage of unearthed fossil remains and/or traces (e.g., tracks, trails, burrows)
- Washing of screen to recover small specimens
- Preparation of salvaged fossils to a point of being ready for curation (e.g., removal of enclosing matrix, stabilization and repair of specimens, and construction of reinforced support cradles)
- Identification, cataloging, curation, and provisions for repository storage of prepared fossil specimens

MM GEO-2 Paleontological Resources Monitoring: UCR shall implement the following measures if projects are proposing earth-moving activities exceeding 5 feet below previously undisturbed alluvial-fan soils within “high paleontological sensitivity” (i.e., Qof and Qvof):

- Retain a qualified professional paleontologist to prepare and implement a Paleontological Resources Impact Mitigation Plan for the project. A qualified paleontologist is an individual who meets the education and professional experience standards as established by the SVP [Society of Vertebrate Paleontology] (2010), which recommends the paleontologist shall have at least a master’s degree or equivalent work experience in paleontology, shall have knowledge of the local paleontology, and shall be familiar with paleontological procedures and techniques. The Paleontological Resources Impact Mitigation Plan shall describe mitigation recommendations in detail, including paleontological monitoring procedures; communication protocols to be followed in the event that an unanticipated fossil discovery is made during project development; and preparation, curation, and reporting requirements. Consolidated monitoring efforts (e.g., archaeological monitoring/tribal cultural/paleontological monitoring) may occur if the individual monitor has the applicable qualifications.

- Prior to the commencement of ground disturbing activities, the qualified paleontologist or their designee, shall conduct training for grading and excavation personnel regarding the appearance of fossils and the procedures for notifying paleontological staff if unanticipated fossils are discovered by construction staff. The Paleontological Worker Environmental Awareness Program shall be fulfilled at the time of a pre-construction meeting. In the event a fossil is discovered by construction personnel anywhere in the project area, all work in the immediate vicinity of the find shall cease and a qualified paleontologist shall be contacted to evaluate the find before re-starting work in the area. If it is determined that the fossil(s) is (are) scientifically significant, the qualified paleontologist shall complete the mitigation outlined below to mitigate impacts to significant fossil resources.
- If paleontological resources are encountered during ground-disturbing activities, MM GEO-1 shall apply.

GEOLOGY AND SOILS

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	Less than Significant Impact	No	No	No	No mitigation required
ii) Strong seismic ground shaking?	Less than Significant Impact	No	No	No	No mitigation required
iii) Seismic-related ground failure, including liquefaction?	Less than Significant Impact	No	No	No	No mitigation required
iv) Landslides?	Less than Significant Impact	No	No	No	No mitigation required
b) Result in substantial soil erosion or the loss of topsoil?	Less than Significant Impact	No	No	No	No mitigation required
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Less than Significant Impact	No	No	No	No mitigation required
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	Less than Significant Impact	No	No	No	No mitigation required
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	No Impact	No	No	No	No mitigation required
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Less than Significant Impact with Mitigation Incorporated	No	No	No	MM GEO-1 and MM GEO-2

a) According to the 2021 LRDP EIR, the campus is located approximately 5 miles southwest of the San Jacinto Fault Zone, 13.5 miles southwest of the San Andreas Fault Zone, 15 miles northeast of the Elsinore Fault Zone, and 20 miles southeast of the Cucamonga Fault Zone. The 2021 LRDP EIR concludes that at such distances, ground rupture events would unlikely occur on the campus and that no people or structures would be exposed to substantial adverse effect associated with fault rupture due to a seismic event. Therefore, future campus development under the 2021 LRDP, including the proposed project, would result in less than significant impacts related to seismic hazards.

The 2021 LRDP EIR also states that existing and proposed campus development have the potential to be subject to ground shaking generated from seismic events that originate from the above listed fault zones, and that these fault zones proximate to the campus have the potential to cause moderate to large earthquakes (DOC 2023). Ground shaking has the potential to dislodge objects from walls, ceilings, and shelves, and to damage and destroy buildings and other structures. People and property located within the LRDP area would be exposed to these potential hazards. The campus could minimize these seismic-induced risks through several requirements such as requiring future projects to conduct a site-specific geotechnical study and comply with all proposed projects related to engineering design recommendations.

A Geotechnical Data Report (Geotechnical Report) was prepared by Atlas Technical Consultants for the proposed UTLF (Appendix D) and provided to the Design Build Team. The Design Build Team's Geotechnical Engineer of Record has reviewed the Geotechnical Report and included geotechnical recommendations for the proposed project. The proposed project would incorporate all the geotechnical recommendations by the Design Build Team's Geotechnical Engineer of Record into the project design. 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.

Additionally, campus projects proposed under the 2021 LRDP would be required to comply with the UC Facilities Manual Seismic Program Guidelines, the UC Seismic Safety Policy Requirements, and CBC Title 24, Part 2. The UC Seismic Safety Policy addresses interior and exterior building elements that may fall or slide during an earthquake and requires anchorage for seismic resistance of nonstructural building elements such as furnishings, fixtures, material storage facilities, and utilities that could dislodge, fall, or rupture during an earthquake. The CBC Title 24, Part 2 provides building codes and standards for the design and construction of structures in California specially related to seismically resistant construction, and foundation. The CBC also establishes grading requirements that apply to excavation and fill activities and requires the implementation of erosion control measures. Therefore, future campus development projects under the 2021 LRDP, such as the proposed project, would have to comply with the UC Seismic Safety Policy and CBC which would reduce the potential operational impact related to seismic ground shaking. Therefore, all future projects under the 2021 LRDP, including the proposed project, would have **less than significant impacts**.

According to the 2021 LRDP EIR, most of the campus has a low potential for liquefaction, with portions of the East Campus adjacent to the I-215/SR 60 freeway between Blaine Street and University Avenue and from University Avenue east to the Box Springs Mountains, as well as areas on the southern portion of West Campus that are at moderate risk for liquefaction. However, the Geotechnical Report prepared for the proposed UTLF (Appendix D), indicated that the project site is mapped in an area with low liquefaction. Additionally, project compliance with the CBC, the UC Facilities Manual Seismic Program Guidelines, and the UC Seismic Safety Policy

would be required to reduce or eliminate seismic ground failure impacts, including liquefaction. Therefore, the proposed project would be consistent with the seismic hazards and ground failure analysis and determination in the 2021 LRDP EIR; and proposed project impacts from seismic hazards, ground failure, and liquefaction would remain **less than significant**.

According to the Geologic and Seismic Technical Background Report for the City's General Plan EIR, a few areas of the City could be prone to seismically induced landslides and rockfalls common during large earthquakes (City of Riverside 2007). Structures located in such hazard areas could be subject to severe damage. However, according to the Department of Conservation (DOC) Earthquake Zones of Required investigation, there are no areas within the campus that are prone to landslides (DOC 2023). The project site is not located adjacent to or in proximity to natural hillsides; additionally, the 2021 LRDP EIR states that geologic materials on, and underlying the entire campus have very low potential for deep-seated landslides, even on natural slopes. The proposed project would be designed and built in compliance with the latest CBC requirements and project-specific geotechnical recommendations which would reduce or eliminate potential risks associated with damage from landslides. Therefore, the proposed project would be consistent with the landslide hazard analysis and determination in the 2021 LRDP EIR; and proposed project impacts from landslide hazards would remain **less than significant**.

b) The IS for the 2021 LRDP states that projects constructed under the 2021 LRDP would be required to comply with the NPDES Construction Stormwater General Permit and adhere to UCR's Plan Review and Building Permit Program. The implementation of BMPs required of individual projects as a result of these permits would prevent substantial erosion during construction. Development activities under the 2021 LRDP were anticipated to cover topsoil and no long-term erosion was anticipated to occur. Given adherence to applicable rules under the UCR Plan Review and Building Permit Program would prevent erosion and topsoil loss, the IS prepared for the 2021 LRDP concluded impacts would be less than significant. Additionally, the 2021 LRDP EIR states that projects developed under the 2021 LRDP would comply with CBC building requirements and the UC Seismic Safety Policy to ensure seismic-related ground failure impacts are less than significant.

Like other development projects on campus, the proposed project would be required to comply with SCAQMD Rule 403 – Fugitive Dust during project construction, which would stabilize soils and prevent erosion by reducing dust generation (SCAQMD 2005). Project construction must comply with the UC Seismic Safety Policy and CBC which establishes grading requirements that apply to excavation and fill activities and requires the implementation of erosion control measures. Additionally, the proposed project would have to comply with the following: the campus' Statewide General Construction Activity Stormwater Permit that specifies the implementation of BMPs; the Campus Construction and Design Standards, which includes the incorporation of low impact development (LID) and erosion and sediment control BMPs; the UCR Stormwater Management Program and other regulatory requirements, as needed, to minimize erosion and topsoil loss; and relevant National Pollutant Discharge Elimination System (NPDES) permits. The NPDES permits include the General Permit for Storm Water Discharges Associated with Construction Activity (General Construction Permit) and the General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (Phase II Small MS4 Permit).

A Geotechnical Report was prepared for the proposed UTLF (Appendix D) and provided to the Design Build Team. The Design Build Team's Geotechnical Engineer of Record has reviewed the

Geotechnical Report and included geotechnical recommendations for the proposed project. The proposed project would incorporate all the geotechnical recommendations by the Design Build Team's Geotechnical Engineer of Record into the project design. Proper engineering design and construction in conformance with the CBC standards and project-specific geotechnical recommendations would ensure that soil erosion or loss of topsoil would be reduced to less than significant levels.

The proposed project would also be required to adhere to all applicable campus permits; reviews and approvals by UCR's Building and Safety Division, Fire Prevention, Facilities Services; and the UCR Plan Review and Building Permit Program would reduce and/or prevent erosion or loss of topsoil during and after project construction activities. Therefore, the proposed project would be consistent with the erosion and soil loss potential analysis and determination in the 2021 LRDP EIR; and proposed project impacts from erosion or soil loss would remain **less than significant**.

c) The 2021 LRDP EIR states that UCR is underlain by soils with primarily low potential for liquefaction and other soil-related hazards. Furthermore, the older alluvium and bedrock that underlies large portions of the campus are non-liquefiable regardless of groundwater depth. Projects developed under the 2021 LRDP, including the proposed project, would be required to comply with CBC requirements as well as the UC Seismic Safety Policy. Impacts were determined to be less than significant.

A Geotechnical Report was prepared for the proposed UTLF (Appendix D) and provided to the Design Build Team. The project site consists of medium dense to very dense subsurface soils, which would result in stable soils with low risks for liquefaction or lateral spreading. The Design Build Team's Geotechnical Engineer of Record has reviewed the Geotechnical Report and included geotechnical recommendations for the proposed project. The proposed project would incorporate all the geotechnical recommendations by the Design Build Team's Geotechnical Engineer of Record into the project design. Proper engineering design and construction in conformance with the CBC standards and project-specific geotechnical recommendations would ensure that potential for on- or off-site landslide, lateral spreading, subsidence, liquefaction, and collapse would be reduced to less than significant levels. All project construction activities would comply with regulations and measures in the CBC and the UC Seismic Safety Policy, in combination with preconstruction surveys and monitoring. Therefore, the proposed project would be consistent with the soil stability and risk analyses and determination in the 2021 LRDP EIR; and proposed project impacts related to landslides, lateral spreading, subsidence, liquefaction, or collapse would remain **less than significant impact**.

d) The IS prepared for the 2021 LRDP states that soils found at the southeastern portion of the campus, which has relatively steeper slopes than other parts of the campus, have low shrink-swell characteristics; and that most soils on campus are not expansive. Development under the 2021 LRDP was determined to not be located on expansive soils and the IS prepared for the 2021 LRDP determined that impacts were less than significant, and the issue was not further analyzed in the 2021 LRDP EIR.

Consistent with the findings of the IS prepared for the 2021 LRDP, the Geotechnical Report prepared for the proposed UTLF (Appendix D) concludes that project site soils have very low expansion potential. Therefore, the proposed project would be consistent with the expansive soils analysis and determination in the IS prepared for the 2021 LRDP; and proposed project impacts related to expansive soils would remain **less than significant**.

e) The IS prepared for the 2021 LRDP states that the campus is served by the existing municipal sewer system and projects under the 2021 LRDP would not require the construction or use of septic tanks or other alternative wastewater disposal systems; the IS prepared for the 2021 LRDP determined there would be no impacts, and the issue was not further analyzed in the 2021 LRDP EIR.

The proposed project would also be served by the existing municipal sewer system and the project does not include the construction or use of septic tanks or other alternative wastewater disposal systems. Therefore, the proposed project would be consistent with the analyses and determination regarding geologic impacts of sewer and wastewater systems in the IS prepared for the 2021 LRDP; and proposed project impacts would remain to have **no impact**.

f) The 2021 LRDP EIR states that development under the 2021 LRDP could cause substantial adverse impacts to known or unknown paleontological resources due to construction activities in previously undisturbed soils, particularly those with high paleontological sensitivity as identified in the 2021 LRDP EIR. Therefore, MM GEO-1 and MM GEO-2 would be required to reduce project impacts under the 2021 LRDP to less than significant.

Operation of the proposed project would have no impact on paleontological resources. Although the proposed project is an infill development primarily within and adjacent to previously developed/disturbed areas, the proposed project is located within an area with high paleontological sensitivity (Qof – quaternary old alluvial fan deposits) (Appendix D). Ground disturbing construction activities exceeding 5 feet below previously undisturbed alluvial-fan soils within high paleontological sensitivity (such as grading, excavation, etc.) have the potential to damage or destroy undiscovered, scientifically important paleontological resources. Consequently, construction monitoring in accordance with **MM GEO-2** would be required and compliance with **MM GEO-1** for inadvertent discovery of paleontological resources. Therefore, the proposed project would be consistent with the paleontological resources analyses and determination in the 2021 LRDP EIR; and project impacts to paleontological resources would remain **less than significant** with incorporation of **MM GEO-1 and MM GEO-2**.

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4.1.8 Greenhouse Gas Emissions

Section 4.8 of the 2021 LRDP EIR addresses the effects of the 2021 LRDP on climate change and concludes that the 2021 LRDP would generate GHG emissions during construction and operation that would exceed the State targets and UC-derived GHG emission thresholds. As a result, the 2021 LRDP EIR states that implementation of the 2021 LRDP would conflict with the goals of the California Air Resources Board (CARB) 2017 Scoping Plan, SB 32, EO B-55-18, and UC Policy on Sustainable Practices. However, impacts related to GHG emissions would be less than significant with the implementation of MM GHG-1 and MM GHG-2.

Update to the UC Sustainable Practices Policy: After certification of the 2021 LRDP EIR, the UC Office of the President updated its Sustainable Practices Policy. The 2023 UC Policy on Sustainable Practices revised the Clean Energy section to indicate that the UC Clean Power Program is already achieving the Clean Electricity goals and to update the goals and timelines around centrally purchased biomethane to reflect current plans. The 2023 UC Policy on Sustainable Practices also replaced the former goal of achieving carbon neutrality for scopes 1 and 2 emissions by 2025 with a goal that is aligned with State goals in the most recent 2022 CARB Scoping Plan (CARB 2022) of achieving carbon neutrality for all scopes of emissions by 2045. The 2023 UC Policy on Sustainable Practices reflects the UC's desire to prioritize direct, total emissions reductions to support achievement of the State's updated reduction targets established in AB 1279, signed into law in September 2022, that requires that statewide anthropogenic GHG emissions be reduced to at least 85 percent below 1990 levels. The 2023 UC Policy on Sustainable Practices sets a new long-term reduction target of 90 percent below 2019 levels by 2045 for all scopes, which is more aggressive than the reduction targets established in AB 1279.[9] After 2045, the 2023 UC Policy on Sustainable Practices requires that any residual emissions beyond the 90 percent reduction will be negated by carbon removal to achieve complete carbon neutrality in alignment with the State's goals and the 2022 CARB Scoping Plan. As part of the update to its UC Policy on Sustainable Practices, UCR is required to prepare a decarbonization study by January 1, 2025 that will be used to establish new interim GHG emissions reduction targets for 2030, 2035, and 2040. The decarbonization study will specifically address decarbonizing UCR's central plant. These planning efforts are underway.

Under the 2023 UC Policy on Sustainable Practices, UCR may purchase voluntary carbon offsets per MM GHG-2, provided the offsets represent real, additional, quantifiable, durable, and enforceable emissions reduction or carbon removal, and have undergone third-party verification. However, by implementing **MM GHG-1**, as described below, the proposed project includes PVs while supporting the 2023 UC Policy on Sustainable Practices' goal to prioritize direct, total emissions reductions without reliance entirely on voluntary offsets. The connection to the existing campus central thermal infrastructure would serve to improve the efficiencies of the existing steam network to save energy and reduce GHGs. To ensure there is no net increase in the natural gas as a result of the UTLF project, the campus will implement steam insulation projects Phases 2 and 3 (anticipated to be completed in 2025) to offset the UTLF natural gas usage. Phase 2 will save approximately 347 $MTCO_2e$ per year and Phase 3 will save approximately 364 $MTCO_2e$ per year.[10] In addition, in Summer 2023, the campus completed the steam trap project with an estimated savings of approximately 290,000 therms per year, which is equivalent to approximately 1,700 $MTCO_2e$ per year.

[9] The 2023 UC Sustainability Practices Policy reduction target is more aggressive than the reduction target established in AB 1279, as UC's target aims to achieve a 90% reduction relative to 2019 GHG emission levels, versus the goal of 85 percent reduction relative to 1990 GHG emission levels established by AB 1279. Additionally, the greater percentage reduction in the 2023 Policy is relative to 2019 GHG emissions levels that are higher at UCR, compared to 1990 emission levels, resulting in a greater total GHG emission reduction than would be achieved under a target based on 1990 emissions levels.

[10] The steam insulation Phase 1 project occurred at the Central Utility Plant and equated to approximately 285 $MTCO_2e$ reduction per year.

UCR's purchased electricity from RPU is covered by Renewable Energy Certificates (RECs) procured by UCOP E&S through an "Indirect Access Program" that must be "retired" on UCR's behalf starting in 2025 and annually thereafter in order to comply with the UC Policy on Sustainable Practices for 100 percent clean purchased electricity by 2025. In addition to, or in lieu of RECs procured through the Indirect Access Program, UCR may also undertake Power Purchase Agreements (PPAs) and/or RPU Green Power Mix to comply with this requirement in the future.

The above-mentioned applicable MM states the following:

MM GHG-1 Implement On-Campus GHG Emissions Reduction Measures: UCR shall implement the following GHG emissions reduction measures by scope emissions category:

Scope 1 (Stationary Fuel Combustion, Refrigerant Use, Fleet Fossil Fuel Combustion)

- Measure [Energy] EN1: In order to meet 100 percent electrification of all new campus buildings and structures, UCR shall prioritize construction of all-electric building design for new campus buildings and structures and discourage the construction and connection of new fossil fuel combustion infrastructure on campus. In addition, UCR shall focus on energy optimization through the Central Plant control systems by automating manual processes and initiating an engineering study focused on transitioning away from natural gas use at the Central Plant.
- Measure EN2: In order to address on-campus natural gas combustion, starting in 2025 and continuing through 2035, UCR shall purchase biogas for at least 40 percent of the total on-campus natural gas usage.
- Measure [Global Warming Potential] GWP1: In order to reduce emissions from refrigerants used on campus, UCR shall phase out of high global warming potential chemical refrigerants on campus to achieve 100 percent relative carbon neutrality by 2045. This may include the replacement of chemical refrigerants with lower global warming potential in the interim of full phase out while an alternative technology is determined. Furthermore, UCR shall prohibit the use of equipment in new buildings or construction projects that do not utilize low global warming potential or Significant New Alternatives Policy Program accepted refrigerants.
- Measure [Fuel] FL1: In order to decarbonize the campus vehicle fleet, UCR shall reduce emissions from the campus vehicle fleet by 25 percent by 2025, by 50 percent by 2030, and by 75 percent by 2035 through replacement of fleet vehicles with electric vehicles or low-emission alternative vehicles.

Scope 2 (Electricity Consumption and Generation)

- Measure EN3: UCR shall work to obtain 100 percent clean-sourced electricity through either RPU and/or through the installation of on-site clean-sourced electricity sources for all new buildings by 2025. In addition, UCR shall establish annual budgets that include funding to purchase 100 percent clean-sourced energy. Furthermore, all newly constructed building projects, other than wet lab research laboratories, shall be designed, constructed, and commissioned to outperform the California Building Code (Title 24 portion of the CCR) energy efficiency standards by at least 20 percent. Finally, UCR shall incorporate solar PV as feasibly possible for newly constructed and majorly-renovated buildings with the maximum system size, highest solar panel efficiency, and greatest system performance.
- Measure EN4: In order to obtain electricity from 100 percent renewable source(s) for all existing buildings by 2045, UCR shall renegotiate its contractual agreement with RPU to establish a schedule and specific goals for obtaining 100 percent renewable electricity for the campus. In

addition, UCR shall conduct an evaluation of existing buildings for structural suitability in terms of accommodating a solar photovoltaic system capacity with highest energy generation yield and for installing energy storage technology on campus and then installing such systems on identified buildings and facilities.

- Measure EN5 (Parts A, B, C): In order to prioritize energy efficiency and green building initiatives for building/facility upgrades and new construction as well as reduced energy use, UCR shall identify aging equipment throughout the campus such as equipment associated with the Central Plant, electrical distribution system, and building HVAC systems and develop a strategy and schedule to upgrade such equipment with high-energy efficiency systems and optimize HVAC systems through heat zoning, high-efficiency filters, and shut-down times expansion. The strategy shall include an evaluation and cost analysis related to upgrading/retrofitting equipment versus retirement of equipment if no longer needed with future initiatives (i.e., Central Plant boiler retirement). The schedule and upgrade strategy must meet a 2 percent energy efficiency improvement annually through 2035. In addition, UCR shall require new buildings to incorporate occupancy sensors and controls such that lighting of shared spaces is on occupancy sensors, building temperature set points are widened and aligned with occupancy schedules, and ventilation systems are converted from constant volume to variable so ventilation rates are occupancy-based. Furthermore, UCR shall develop a plan to identify existing buildings and projects that could undergo upgrades to the control systems and establish a schedule for upgrade incorporation. Finally, UCR shall develop a tracking program to monitor and share campus energy efficiency activities and progress towards increased energy efficiency.

Scope 3 (Waste Generation, Business Air Travel, On-site Transportation, Water Consumption, Carbon Sequestration, and Construction)

- Measure (Waste Generation) WG1: UCR shall implement and enforce SB 1383 organics and recycling requirements to specifically reduce landfilled organics waste emissions to 75 percent by 2025.
- Measure WG2: UCR shall reduce campus waste sent to landfills 90 percent by 2025 and 100 percent by 2035. In addition, UCR shall reduce waste generation at campus events 25 percent by 2025 and 50 percent by 2035, with goals of being zero waste and plastic free events. Furthermore, UCR shall establish purchasing and procurement policies and guidelines prioritizing vendors that limit packaging waste and purchase reusable and compostable goods.
- Measure [Transportation] TR1: In order to reduce GHG Emissions related to business air travel, UCR shall provide incentives to faculty for emission-reducing behaviors and utilizing travel options that are less carbon intensive, promote the use of virtual meetings, and encourage alternative forms of travel other than air travel.
- Measure TR2: UCR shall update the Transportation Demand Management (TDM) program for the campus to decrease single occupancy vehicle VMT 5 percent by 2025 and 20 percent by 2035. In addition, UCR shall evaluate trends of current programs to expand on existing programs and establish new initiatives that utilize proven successful strategies.
- Measure TR3: UCR shall develop and implement a Campus Active Transportation Plan to shift 2 percent of baseline (2018) passenger vehicle VMT to active transportation by 2025 and 8 percent by 2035. In addition, UCR shall update the Campus Bicycle and Pedestrian Network Map every five years, including routes from off campus to on campus.

- Measure TR4: UCR shall reduce GHG emissions associated with campus commuting 10 percent by 2025 and 25 percent by 2035.
- Measure [Water Consumption] WC1: UCR shall reduce per-capita water consumption 20 percent by 2025 and 35 percent by 2035 compared to academic year 2018/2019 per capita consumption.
- Measure [Carbon Sequestration] CS1: UCR shall increase carbon sequestration through increasing tree planting and green space 5 percent by 2025 and 15 percent by 2035.
- Measure [Construction] CR1: UCR shall reduce construction-related GHG emissions on campus 10 percent by 2025 and 25 percent by 2035 through emission reduction controls and/or electric equipment requirements in line with contract obligations. Specifically, UCR shall require off-road diesel-powered construction equipment greater than 50 horsepower to meet the Tier 4 emission standards as well as construction equipment to be outfitted with BACT devices certified by CARB and emissions control devices that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similar-sized engine. In addition, UCR shall develop zero waste procurement guidelines and processes for campus construction projects and integrate into purchasing RFP language as part of campus procurement.

The UCR Office of Sustainability, Facilities Services, EH&S, TAPS, and/or PD&C shall annually monitor, track, and verify implementation of these GHG emissions reduction measures.

GREENHOUSE GAS EMISSIONS

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less than Significant Impact with Mitigation Incorporated	No	No	No	MM GHG-1
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose or reducing the emissions of greenhouse gases?	Less than Significant Impact with Mitigation Incorporated	No	No	No	MM GHG-1

a) The 2021 LRDP EIR states that implementation of the 2021 LRDP would generate GHG emissions that would have a potentially significant impact on the environment. Construction emissions from implementing the 2021 LRDP between 2022 and 2035 would be approximately 1,618 metric tons of carbon dioxide equivalent ($MTCO_2e$) per year. Unmitigated campus-wide operational emissions were estimated to total 139,920 $MTCO_2e$ per year by 2025, including annualized construction emissions. Impacts from GHG emissions were determined to be less than significant with incorporation of MM GHG-1 and MM GHG-2, which require on-campus GHG reduction measures and the purchase of carbon offsets.

As shown in Table 4.1.8-1, construction emissions generated by the proposed project would result in a total of approximately 829.3 $MTCO_2e$ over the 24-month construction period, with average annual emissions of approximately 75.39 $MTCO_2e$ over the remaining LRDP development program period of 11 years. The proposed project's construction emissions would be less than approximately five percent of the annual construction emissions identified in the 2021 LRDP EIR (i.e., 1,618 $MTCO_2e$ per year). In combination with other projects proposed at UCR within the same period (School of Business, OASIS Park, and North District Phase 2), annualized construction emissions would total approximate 415.6 $MTCO_2e$ per year over the campus development program period and would still be less than the annual construction emissions anticipated in the 2021 LRDP EIR.

As shown in Table 4.1.8-1, annual operational emissions from the proposed project would be approximately 3,834.01 $MTCO_2e$ without incorporation of the 20 percent beyond Title 24 Energy Efficiency or PV solar systems, and approximately 3,746.01 $MTCO_2e$ with incorporation of the upgraded energy efficiency requirement that is part of the project design and incorporation of the PV solar systems. By the time the project is operational, **MM GHG-1 Measure EN3** requires UCR to purchase 100 percent clean-sourced energy; therefore, the emissions calculations apply the emissions factor for RPU's clean power mix to the project's electricity demand (RPU 2022). **MM GHG-1 Measure EN3** also requires the provision of PV solar systems on new buildings,

consistent with UC Policy on Sustainable Practices. An approximate 80 Kilowatt PV solar system expected to generate approximately 120,000 kWh per year was incorporated in the CalEEMod model.

As shown in Table 4.1.8-2, with incorporation of the applicable mitigation strategies from **MM-GHG-1**, project emissions would be reduced by approximately 902.91 $MTCO_2e$. These emissions are consistent with the emissions reduction requirements in the 2021 LRDP EIR. The connection to the existing campus central thermal infrastructure would serve to improve the efficiencies of the existing steam network to save energy and reduce GHGs. To ensure there is no net increase in the natural gas as a result of the UTLF project, the campus will implement steam insulation projects Phases 2 and 3 (anticipated to be completed in 2025) to offset the UTLF natural gas usage. Phase 2 will save approximately 347 $MTCO_2e$ per year and Phase 3 will save approximately 364 $MTCO_2e$ per year.[11] In addition, in Summer 2023, the campus completed the steam trap project with an estimated savings of approximately 290,000 therms per year, which is equivalent to approximately 1,700 $MTCO_2e$ per year. Consequently, this is intended to offset the approximately 167.00 $MTCO_2e$ of natural gas as a result of the proposed UTLF.

As the proposed project is part of UCR, its emissions would be counted towards annual campus-wide operational emissions and included in the emissions quantifications used to determine compliance with the UC Policy on Sustainable Practices and UCR's total emissions goals. Therefore, the proposed project would be consistent with the construction and operational GHG emissions analysis and determination in the 2021 LRDP EIR; and proposed project impacts to GHG emissions would have a **less than significant impact** with incorporation of **MM GHG-1**.

Table 4.1.8-1
Unmitigated Project Construction and Operational GHG Emissions

	Project Emissions Without Energy Efficiency Project Feature	Project Emissions With Energy Efficiency Project Feature
Construction	**Total CO_2E**	**Total CO_2E**
2024	344.00	
2025	466.00	–
2026	19.30	–
Total Project	**829.30**	–
Total Amortized (11 year) Project	**75.39**	**75.39**
Operational	**Total CO_2E**	**Total CO_2E**
Scope 1	199.52	169.52
Area	2.44	2.44
Natural Gas	197.00	167.00
Refrigerants	0.08	0.08
Scope 2	294.00	236.00
Electricity	294.00	236.00
Scope 3	3,265.10	3,265.10
Mobile	3,151.00	3,151.00
Solid Waste	103.00	103.00

[11] The steam insulation Phase 1 project occurred at the Central Utility Plant and equated to approximately 285 $MTCO_2e$ reduction per year.

Water	11.10	11.10
Total Project Operations	**3,758.62**	**3,670.62**
Total Project	**3,834.01**	**3,746.01**

Source: Calculations were made in CalEEMod, see Appendix A for full model output. Values have been rounded and therefore may not add up precisely.

Table 4.1.8-2
Mitigated Project Construction and Operational GHG Emissions

Emission Source	Project Emissions
Mitigation Reductions	
Scope 1	
Measure EN3:	197.00
Measure EN5:	39.40
Total Scope 1 Reductions:	236.40
Scope 2	
Measure EN3:	294.00
Total Scope 2 Reductions:	294.00
Scope 3	
Measures WG1 & WG2:	92.70
Measures TR1 through TR4	279.81
Total Scope 2 Reductions:	372.51
Total Reductions:	**902.91**
Operational	
Total Project:	3,834.01
Total Reductions:	902.91
Total Project	2,931.10

Source: Calculations were made in CalEEMod, see Appendix A for full model output. Values have been rounded.

b) The 2021 LRDP EIR concludes development under the 2021 LRDP would be consistent with applicable GHG reduction plans and impacts related to GHG reduction plans would be less than significant with incorporation of MM GHG-1 and MM GHG-2.

Through implementation of applicable GHG emissions reduction measures outlined in **MM GHG-1** (Scope 1 pertaining to energy and fuel; Scope 2 pertaining to energy efficiency and green building initiatives for upgrades and new construction; Scope 3 pertaining to waste generation, transportation, and construction), the project would contribute towards campus-wide GHG emission reductions. The proposed project would support the goals of the 2023 UC Policy on Sustainable Practices, as described above, by providing PVs as well as purchasing 100 percent clean-sourced energy by the time the project is operational.[12] Therefore, the proposed project would be consistent with applicable GHG emissions reduction plans and policies as analyzed and

[12] UCR's purchased electricity from RPU is covered by RECs procured by UCOP E&S through an "Indirect Access Program" that must be "retired" on UCR's behalf starting in 2025 and annually thereafter in order to comply with the UC Policy on Sustainable Practices for 100 percent clean purchased electricity by 2025. In addition to, or in lieu of RECs procured through the Indirect Access Program, UCR may also undertake Power Purchase Agreements (PPAs) and/or RPU Green Power Mix to comply with this requirement in future.

determined in the 2021 LRDP EIR; and proposed project impacts to implementing applicable GHG emissions reduction plans and policies would remain **less than significant** with incorporation of **MM GHG-1**.

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4.1.9 Hazards and Hazardous Materials

Section 4.9 of the 2021 LRDP EIR addresses the impacts of campus growth on hazards and hazardous materials for the campus area. The IS prepared for the 2021 LRDP concludes that there would be less than significant impacts for criterion a (hazards from routine transport, use, or disposal of materials) during construction with adherence to regulatory standards; therefore, this threshold was not further evaluated in the 2021 LRDP EIR for construction impacts. It should be noted that criterion f (emergency response plan) and criterion g (wildland fire) were also not discussed further in Section 4.9 of the 2021 LRDP EIR, but rather addressed in depth in Section 4.15, *Transportation*, and Section 4.18, Wildfire, of the 2021 LRDP EIR, respectively.

The 2021 LRDP EIR concludes that future campus development would have a less than significant impact related to increased use, transport, or disposal of hazardous materials during facility operations given adherence to applicable federal, State and UCR policies. Similarly, compliance with such policies would minimize upset and accident conditions, and impacts related to hazardous materials releases would be less than significant during operation. The 2021 LRDP EIR states that facility construction and renovation under the 2021 LRDP could disturb or emit hazardous materials during reasonably foreseeable upset and accident conditions; however, these impacts would be less than significant with implementation of MM HAZ-1 through MM HAZ-4. Furthermore, impacts related to handling hazardous materials within 0.25 mile of a school and impacts related to the development of sites listed on hazardous material sites pursuant to California Government Code Section 65926.5 (Cortese List) would be less than significant with implementation of MM HAZ-1 through MM HAZ-4. Impacts related to airport-related safety hazards and excessive noise impacts to people residing or working on the campus would also be less than significant.

Per MM HAZ-1, based on coordination with EH&S and TAPS and their preparation of a limited environmental due diligence – ASTM E1528 Transaction Screen Process Questionnaire (Appendix E), Envirocheck Inc.'s pre-demolition asbestos sampling concluding no asbestos detected in the samples tested (Appendix E.1), and Envirocheck Inc.'s limited lead based paint (LBP) sampling concluding no lead was detected in amounts at or above regulatory thresholds (Appendix E.2). The proposed project is not located in areas with an abandoned in-place underground storage tanks (USTs) and is not located within the Department of Toxic Substances Control (DTSC) Certified Land Use Restriction; therefore MM HAZ-2 and MM HAZ-3 do not apply to the proposed project. There are no known impacted soils identified on the project site based on the due diligence and sampling noted above. However, MM HAZ-4 would be incorporated in the event impacted soils are unexpectedly encountered during construction activities. Operations of facilities and materials under the 2021 LRDP would be subject to applicable federal, State, County and UCR policies designed to minimize upset and accident conditions and minimize hazardous emissions and spills.

The above-mentioned applicable MMs state the following:

MM HAZ-1 Property Assessment – Phase I and II ESAs: During the pre-planning stage of campus projects on previously developed sites or on agricultural lands (current or historic), and in coordination with EH&S, UCR shall obtain documentation from EH&S or prepare a Phase I Environmental Site Assessment (ESA) assessing the land use history of the proposed project site and identify potential hazardous materials concerns, including, but not limited to, fuel tanks, chemical storage, presence of elemental mercury, elevator pistons and associated hydraulic oil reservoirs and piping, heating-oil USTs, or agricultural uses. If the Phase I ESAs, or similar documentation, identify recognized environmental conditions or potential concern areas, a Phase II ESA would be conducted in coordination with EH&S to determine whether the soil, groundwater, and/or soil vapor has been impacted at concentrations

exceeding regulatory screening levels for residential or commercial/industrial type land uses (as applicable). If the Phase II ESA concludes that the site is or may be impacted and could affect the planned development, assessment, remediation, or corrective action (e.g., removal of contaminated soil, in-situ treatment, capping, engineering controls) would be conducted prior to or during construction under the oversight of federal, State, and/or local agencies (e.g., USEPA [United States Environmental Protection Agency], DTSC, RWQCB [Regional Water Quality Control Board], RFD [City of Riverside Fire Department], RCDEH [Riverside County Department of Environmental Health]) and in full compliance with current and applicable federal and State laws and regulations, including but are not limited to the California Environmental Quality Act (CEQA). Assessment, remediation, or corrective action must be evaluated under CEQA prior to commencing the assessment, remediation, or correction action. Additionally, Voluntary Cleanup Agreements may be used for parcels where remediation or long-term monitoring is necessary.

MM HAZ-4 Construction Site Management Plan: If impacted soils are identified pursuant to activities conducted through MM HAZ-1, MM HAZ-2, or MM HAZ-3; or encountered during construction (soil disturbance), UCR shall prepare a Construction Site Management Plan (SMP) for the proposed redevelopment project area to address potential issues that may be encountered during redevelopment activities involving subsurface work. The Construction SMP objectives shall include:

- Communicating information to proposed project construction workers about environmental conditions
- Presenting measures to mitigate potential risks to the environment, construction workers, and other nearby receptors from potential exposure to hazardous substances that may be associated with unknown conditions or unexpected underground structures
- Presenting protocols for management of known contaminated soil or groundwater encountered during construction activities

The Construction SMP shall identify the proposed project contacts, responsibilities, and notification requirements and outline the procedures for health and safety, soil management, contingency measures for discovery of unexpected underground structures, erosion, dust, and odor management, groundwater management, waste management, stormwater management, and written records and reporting. The Construction SMP shall be reviewed and approved by UCR prior to issuance of grading permits.

HAZARDS AND HAZARDOUS MATERIALS

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Less than Significant Impact	No	No	No	No mitigation required
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	Less than Significant Impact with Mitigation Incorporated	No	No	No	MM HAZ-1 and MM HAZ-4
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	Less than Significant Impact with Mitigation Incorporated	No	No	No	MM HAZ-4
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Section 65962.5 and, as a result, create a significant hazard to the public or the environment?	Less than Significant Impact with Mitigation Incorporated	No	No	No	No mitigation required
e) Result in a safety hazard or excessive noise for people residing or working in the project area (or a project located within an airport land use plan or, where such a plan has not been adopted within 2 miles of a public airport or public use airport)?	Less than Significant Impact	No	No	No	No mitigation required
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Discussion pertaining to project impacts on emergency response plans are discussed under criterion d in Section 4.1.17, Transportation and criterion a Section 4.1.20, Wildfire, of this Addendum.				
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	Discussion pertaining to project impacts on wildland fire risks are discussed in Section 4.1.20, Wildfire, of this Addendum.				

a) The IS prepared for the 2021 LRDP concludes construction activities would have a less than significant impact related to transport, use, and disposal of hazardous materials based on the existing regulatory framework protecting the public and environment from such materials. The 2021 LRDP EIR states that uses under the 2021 LRDP could result in an increased use, transport,

or disposal of hazardous materials during facility operations; however, adherence to federal, State, and UCR policies would minimize risk of endangerment to the campus population, the public, and the environment. Impacts were determined to be less than significant.

The proposed project entails construction of the UTLF on an existing parking lot and associated utility, hardscape, and landscape improvements would be within previously disturbed areas. As anticipated in the IS prepared for the 2021 LRDP, project construction would require the use of hazardous materials such as fuel, paint products, lubricants, solvents, and cleaning products. The use and storage of these materials would occur in accordance with applicable regulations and construction would not result in substantial hazards to the public or environment during project construction.

UCR is currently a licensed generator of hazardous waste, which includes chemical, radioactive, and biohazardous (infectious) waste. The laboratory uses proposed by the project would involve the routine transport, use, and disposal of hazardous materials. Hazardous materials were anticipated to be required for future laboratory development under the 2021 LRDP; the use, storage, transport, and disposal of hazardous materials within UTLF would be guided by existing and future UCR, County, State, and federal regulations designed to maximize the safety of UCR personnel, students, the public, and the environment. Although the proposed project would slightly increase the routine transport, use, or disposal of hazardous materials, the operational uses in the UTLF laboratories would be similar to other laboratory operations on campus including compliance with EH&S policies and federal and State regulations pertaining to handling of any hazardous materials. Therefore, the proposed project would be consistent with the hazardous materials analysis and determination in the 2021 LRDP EIR; and proposed project impacts from hazardous materials would remain **less than significant**.

b) The 2021 LRDP EIR states that operations of facilities and use of hazardous materials would be subject to federal, State, County, and UCR policies designed to minimize upset and accident conditions. However, construction and renovation under the 2021 LRDP could disturb or emit hazardous material from impacted soil, soil vapor, or groundwater, which could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste during reasonably foreseeable upset and accident conditions. Impacts were determined to be less than significant with mandatory compliance with existing regulations pertaining to the identification, handling, and disposing of hazardous materials and incorporation of MM HAZ-1 through MM HAZ-4.

As described above, the proposed laboratory uses for the project would require the use of hazardous materials, which would be handled and stored in accordance with applicable regulations such that upset and accident conditions would not result in substantial hazards. In addition, the project would implement a SWPPP and would comply with the UCR MS4 permit requirements related to stormwater discharges; no hazardous discharges into stormwater are anticipated to occur.

Numerous buildings on the campus are assumed to contain some form of asbestos containing materials (ACM) and/or LBP due to their age, as well as fluorescent light ballasts containing polychlorinated biphenyls (PCBs). Building materials may also be contaminated by spills or aerosol releases of radioactive or chemical hazardous materials used in the building, and elemental mercury may be present in research laboratory sink traps, cupboard floor spaces, or in sewer pipes.

In accordance with **MM HAZ-1,** EH&S and TAPS prepared a limited environmental due diligence – ASTM E1528 Transaction Screen Process Questionnaire (Appendix E). The overall findings from the Transaction Screen Process do not indicate immediate environmental red flags that would hinder the proposed project. A pre-demolition asbestos survey and limited LBP survey by Envirocheck Inc. tested the pavement in Parking Lot 19 and concluded no asbestos were detected in the samples tested nor were there lead detected in amounts at or above regulatory thresholds (Appendix E.1, Appendix E.2). Although there are no known impacted soils identified on the project site based on the due diligence and sampling tested by Envirocheck Inc., **MM HAZ-4**, requiring a Construction SMP would be required in the event unexpected impacted soils are encountered during construction activities. The Construction SMP shall identify the proposed project contacts, responsibilities, and notification requirements and outline the procedures for health and safety, soil management, contingency measures for discovery of unexpected underground structures, erosion, dust, and odor management, groundwater management, waste management, stormwater management, and written records and reporting. EH&S would conduct a comprehensive assessment of the situation in coordination with the appropriate regulatory authority, such as the Riverside County Department of Environmental Health.

The proposed project would adhere to applicable UCR, County, State, and federal regulations for managing hazardous materials during project construction and operation. Therefore, the proposed project would be consistent with the hazardous materials analysis and determination in the 2021 LRDP EIR; and proposed project impacts from hazardous materials would remain **less than significant** with incorporation of **MM HAZ-1 and MM HAZ-4**.

c) The 2021 LRDP EIR states that implementation of the 2021 LRDP could disturb or emit hazardous materials or waste within 0.25 mile of an existing or proposed school; and concludes that impacts would be less than significant with compliance with existing regulations pertaining to hazardous wastes and materials and incorporation of MM HAZ-1 through MM HAZ-4.

The closest schools to the project site are the Islamic Academy of Riverside located approximately 0.25-mile northwest of the project site, the UCR Child Development Center located approximately 0.45-mile northeast of the project site, and Highland Elementary School located approximately 0.63-mile northeast 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 federal, State, and County regulations, and UCR policies. As described above, **MM HAZ-4** would be implemented during construction to ensure hazardous materials encountered during construction do not result in hazards to the public, including at school sites. Operation of the proposed laboratory uses requiring hazardous materials would occur in accordance with existing and future UCR, County, State, and federal regulations designed to maximize the safety of the public, including nearby schools. Compliance with applicable federal, State, and County regulations and UCR policies related to the use, storage, disposal, and transportation of hazardous materials and waste 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. Therefore, the proposed project would be consistent with the school hazards analysis and determination in the 2021 LRDP EIR; and proposed project impacts to nearby schools would be **less than significant** with incorporation of **MM HAZ-4**.

d) The 2021 LRDP EIR states that the campus includes several listed and closed UST release sites and is adjacent to a site with restricted land use covenants. However, it was found that impacts related to potential unknown hazards to the public or the environment through reasonably foreseeable upset and accident conditions during future facility construction and renovation would be less than significant with incorporation of MM HAZ-1 through MM HAZ-4.

According to the California State Water Resources Control Boards (SWRCB) GeoTracker database, there is a closed leaking underground storage tank cleanup site (Case number 91776) on University Avenue near the onramps to the I-215/SR 60 freeway approximately 1,280 feet west of the project site (CSWRCB 2023). According to the Department of Toxic Substances Controls (DTSC) EnviroStor database, a hazardous waste site (CAD073134777) that has been closed due to the annual ground water reports, is located approximately 0.24-mile northeast of the project site (DTSC 2023). There are no cleanup sites listed in the GeoTracker or EnviroStor database on the project site. Therefore, the proposed project would be consistent with the contaminated sites analysis and determination in the 2021 LRDP EIR; and proposed project impacts to contaminated sites would be **less than significant**.

e) The 2021 LRDP EIR states that the campus is in Area E of the March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan (ALUCP) influence area, and noise levels in Area E of the March Air Reserve Base/Inland Port ALUCP are low and beyond the 55-Community Noise Equivalent Level (CNEL) contour; safety risk level is also considered low. Area E has no limit on residential or other use population density or requirement for open space. Impacts were determined to be less than significant.

The project site is not within two miles of an airport. The closest airports to the project site is Flabob Airport, located approximately 4.5 miles to the northwest and March Air Reserve Base, located approximately 5.5 miles to the southeast. Furthermore, the 2021 LRDP EIR states that the campus is not located near principal airplane arrival or departure tracks. Therefore, the proposed project would not result in airport-related safety hazards and excessive noise impacts to construction workers, faculty/staff, students, and visitors. Therefore, the proposed project would be consistent with the airport and airfields hazards analysis and determination in the 2021 LRDP EIR; and proposed project impacts to airport and airfield hazards would remain **less than significant**.

f) The 2021 LRDP EIR discussed emergency response plans in Section 4.15, *Transportation*, and Section 4.18, *Wildfire* and not in Section 4.9 of the 2021 LRDP EIR. As such, discussion pertaining to project impacts on emergency response plans are discussed under criterion d in Section 4.1.17, *Transportation* and criterion d in Section 4.1.20, *Wildfire*, of this Addendum.

g) The 2021 LRDP EIR discussed wildland fire impacts in Section 4.18, *Wildfire*; wildland fire impacts are not discussed in Section 4.9 of the 2021 LRDP EIR. As such, discussion pertaining to project impacts on wildland fire risks are discussed in Section 4.1.20, *Wildfire*, of this Addendum.

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4.1.10 Hydrology and Water Quality

Section 4.10 of the 2021 LRDP EIR addresses hydrology and water quality impacts that would occur with development under the 2021 LRDP. The 2021 LRDP EIR concludes that development under the 2021 LRDP would have less than significant impacts in regard to violating any waste discharge requirements that would substantially degrade surface or groundwater, substantially decrease groundwater supplies, alter drainage in a manner which would result in a substantial erosion or increasing runoff resulting in flooding and conflicting with a water quality control plan or sustainable groundwater management plan. No mitigation measures were required. The 2021 LRDP EIR notes that the IS prepared for the 2021 LRDP concludes that the campus is not within a tsunami or seiche zone; therefore, the campus is not subject to inundation by either activity, and this issue area was not further analyzed in the 2021 LRDP EIR. Potential effects related to overall water supply or the potential need for construction of new or expanded water and wastewater infrastructure are discussed in Section 4.1.19, *Utilities and Service Systems*, of this Addendum.

HYDROLOGY AND WATER QUALITY

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality?	Less than Significant Impact	No	No	No	No mitigation required
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Less than Significant Impact	No	No	No	No mitigation required
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (i) Result in substantial erosion or siltation on- or off-site? (ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; (iii) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or	Less than Significant Impact	No	No	No	No mitigation required

	(iv) Impede or redirect flood flows?					
d)	Risk release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones?	Less than Significant Impact	No	No	No	No mitigation required
e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Less than Significant Impact	No	No	No	No mitigation required

a) The 2021 LRDP EIR states that all operation and construction would occur in compliance with applicable water quality standards and waste discharge requirements. All construction, including that for the proposed project, would be required to comply with the provisions of the NPDES Statewide General Construction Activity Stormwater Permit that specifies the implementation of BMPs through a SWPPP, which typically includes both source-control and treatment-control BMPs to reduce water quality impacts including but not limited to proper storage, use and disposal of construction materials; watering exposed soils; installing sandbags to minimize off-site runoff; creating temporary desilting basins; containing 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; timing grading to avoid the rainy season (November through April); stabilizing cleared or graded slopes; protecting or stabilizing stockpiled soils; continual inspection and maintenance of all specified BMPs through the duration of construction. Additionally, General Construction Stormwater Permit requirements also require inspection, monitoring, and reporting; and corrective action is required within 72 hours of identifying any issue of non-compliance during monitoring and inspections.

During operation of the proposed project, as anticipated in the 2021 LRDP EIR, BMPs and SWMP requirements (which include LID measures, runoff reduction measures, and site design), source control and treatment BMPs would be implemented and followed. With implementation of a SWPPP and SWMP to address and treat construction and post-construction runoff from the project site, the project would not result in violations of applicable water quality standards or waste discharge requirements such that surface or groundwater quality would be degraded. Therefore, the proposed project would be consistent with the water quality and waste discharge analyses and determination in the 2021 LRDP EIR; and proposed project impacts to water quality and waste discharge would remain **less than significant**.

b) The 2021 LRDP EIR states that the campus is presently characterized by large areas of impervious surfaces and there are existing stormwater drainage systems in place to convey surface flows across impermeable areas to permeable areas such as arroyos and vegetated swales, where the water is allowed to infiltrate to the subsurface. Development under the 2021 LRDP would be required to implement LID methods in compliance with NPDES and MS4 permit regulations. As such, development under the 2021 LRDP would not interfere substantially with groundwater recharge and impacts were determined to be less than significant. Groundwater supply availability impacts are discussed further in Section 4.1.19, *Utilities and Service Systems*, of this Addendum.

Consistent with the 2021 LRDP EIR, temporary water supply would be required during construction, primarily for dust suppression during grading and grubbing activities, but would not specifically require the use of groundwater supplies. Based on the limited nature of these

water supply demands and the availability of water supplies for campus operation, project construction would not substantially decrease groundwater supplies.

Pursuant to the requirements of the SCAQMD Rule 403, all surfaces disturbed within the campus during construction activities would be watered appropriately to reduce fugitive dust generation and the associated air quality impacts. In the event of drought conditions, SCAQMD's Drought Management and Water Conservation Plan limits potable water dust suppression by increasing reliance on non-toxic chemical dust suppressants to stabilize soils, paving unpaved roadways, and using vacuum sweepers instead of water to remove dust from paved areas and increasing use of physical/mechanical barriers to contain or limit transport of fugitive dust. Impacts were determined to be less than significant.

As was anticipated for the majority of development under the 2021 LRDP, the proposed project is an infill development and would be constructed within and adjacent to previously developed/disturbed areas. Construction of the proposed project would not substantially decrease groundwater supplies, impede sustainable groundwater management, or interfere substantially with groundwater recharge with compliance with the 1969 Western-San Bernardino Judgment ("Adjudication Judgement"), availability of supplemental water supplies, and implementation of standard construction BMPs applicable to dewatering practices. Site-specific drainage features are proposed to convey surface flows across and around impermeable areas to those areas where flows may infiltrate to the subsurface in accordance with the NPDES program and the Phase II MS4 Permit. This would be achieved through implementation of LID methods, including Control Design Criteria for compliance with the NPDES program and the Phase II MS4 Permit. Through compliance with MS4 Permit requirements, implementation of LID methods, and implementation of an SWMP during operation of the project, potential impacts of new impervious surfaces of groundwater recharge rates and patterns would be less than significant. In addition, the proposed project would not impede the creation or implementation of a groundwater sustainability plan and would comply with existing groundwater sustainability plans. Therefore, the proposed project would be consistent with the groundwater analyses and determination in the 2021 LRDP EIR; and proposed project impacts to groundwater would remain **less than significant**.

c) The 2021 LRDP EIR concludes that construction and operation of projects under the 2021 LRDP would not alter the course of any streams of rivers and would not alter regional stormwater drainage patterns. During construction of the proposed project, excavation, grading, and stockpiling of soils may accelerate erosion and siltation if disturbed soils are not secured. A project specific SWPPP would detail BMPs to avoid or minimize erosion, siltation, and flooding associated with drainage pattern alternations. Additionally, as discussed above for criterion b, localized drainage pattern alterations would be addressed through site-specific drainage and flood control features, in accordance with the NPDES General Stormwater Permit for Small MS4s requirements. Therefore, the proposed project would be consistent with the drainage, erosion, and runoff analyses and determination in the 2021 LRDP EIR; and proposed project impacts to drainage, erosion, and runoff would remain **less than significant**.

d) The IS prepared for the 2021 LRDP notes the campus is not located within a tsunami hazard area and is therefore not subject to inundation by tsunami. The UCR main campus is also not in proximity to a standing body of water that could experience a seiche, or large wave activity associated with a seismic event, and therefore is not subject to inundation by seiche. In addition, the campus is identified as an Area of Minimal Flood Hazard and is not anticipated to be inundated by dam failure. Impacts were determined to be less than significant.

The proposed project would not increase or otherwise alter the area's potential to be inundated by tsunami or seiche. Furthermore, the Federal Emergency Management Agency (FEMA) identifies the majority of the UCR main campus (and the City of Riverside as a whole) as Zone X, or an Area of Minimal Flood Hazard (FEMA 2023). The proposed project would not involve the storage or processing of pollutants such that they would be spilled or released due to inundation should a flood hazard occur and would comply with the MS4 Permit. Therefore, the proposed project would be consistent with the flood, tsunami, and seiche hazards analyses and determination in the IS prepared for the 2021 LRDP; and proposed project impacts to flood, tsunami, and seiche hazards would remain **less than significant**.

e) The campus is within the Santa Ana River Basin Water Quality Control Plan (Basin Plan) (RWQCB 2019). The Basin Plan, as developed and implemented by the Santa Ana RWQCB in accordance with the federal Clean Water Act, designates beneficial uses for surface waters in the Santa Ana Region and associated water quality objectives to fulfill such uses. The campus is located in the Upper Santa Ana Valley Groundwater Basin and is mostly underlain by the Riverside-Arlington Groundwater Subbasin where groundwater use and replenishment is regulated by the Adjudication Judgment. The 2021 LRDP EIR states that BMPs would be implemented for projects under the 2021 LRDP to avoid conflicting with a water quality control plan or sustainable groundwater management plan. Impacts were determined to be less than significant.

Since the UTLF site is also located within the Santa Ana Basin Plan, project construction and operation would be conducted in compliance with applicable regulatory requirements related to stormwater runoff to minimize the potential for pollutants to enter receiving waters. The proposed project would also comply with the provisions of the Statewide General Construction Activity Stormwater Permit that specifies the implementation of BMPs as well as the NPDES Stormwater General Permit for Small MS4s. A project specific SWPPP would be implemented during construction activities and a SWMP would be implemented during operation and maintenance of the proposed project. The proposed project would incorporate site design, source control, and treatment BMPs to prevent pollutants from reaching receiving waters. Storm drain infrastructure would also adhere to UCR requirements. Therefore, the proposed project would be consistent with the implementation of applicable water quality control plans as determined in the 2021 LRDP EIR; and proposed project impacts to water quality would remain **less than significant**.

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4.1.11 Land Use and Planning

Section 1.3 of the 2021 LRDP EIR states that impacts to land use and planning are not further analyzed in the 2021 LRDP EIR since analysis included in the IS prepared for the 2021 LRDP concludes that implementation of the 2021 LRDP would have less than significant impacts on land use and planning.

LAND USE AND PLANNING

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Physically divide an established community?	Less than Significant Impact	No	No	No	No mitigation required
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Less than Significant Impact	No	No	No	No mitigation required

a) The campus is adjacent to and surrounded by single- and multi-family residential neighborhoods, office/commercial retail development, government facilities, and open space areas; and the campus itself is developed with academic, research, agricultural, recreational, athletic, maintenance, housing, campus support facilities, and designated open space areas. The IS prepared for the 2021 LRDP states that implementation of the proposed 2021 LRDP would develop buildings and facilities within the existing campus framework and would not divide the on-campus or surrounding community. In addition, the 2021 LRDP encouraged installation of multimodal facilities that would provide increased connections throughout the campus and surrounding areas. Impacts were determined to be less than significant.

   The proposed UTLF would be constructed on an existing parking lot and associated utility, hardscape, and landscape improvements would be within previously disturbed areas. Since the proposed project would not involve any development outside of established campus properties or boundaries, and no incursion into or division of the surrounding residential communities would occur, the proposed project would not physically divide an established community. Therefore, the proposed project would be consistent with physical community analysis and determination in the IS prepared for the 2021 LRDP. Proposed project impacts to the campus and established adjacent communities would remain **less than significant**.

b) The City of Riverside General Plan, which includes the UCR main campus, identifies UCR as a public facility/institutional land use (City of Riverside 2019). UCR is part of the UC school system, a constitutionally created entity of the State of California; as such, the campus is not subject to municipal regulations, such as the general plans for the County and City of Riverside. The IS prepared for the 2021 LRDP states that implementation of the 2021 LRDP would primarily affect existing land areas and facilities within the campus, particularly in the East Campus area, and

development would be guided by the 2021 LRDP. The 2021 LRDP EIR determined that implementation of the LRDP would be consistent with the SCAG's 2016 RTP/SCS, the 2016 Water Quality Control Plan for the Santa Ana Regional Water Quality Control Board, and the 2016 AQMP. Discussion regarding the consistency of the 2021 LRDP and proposed project with these regional plans is similarly contained in the applicable environmental impact analysis in this Addendum. Impacts were determined to be less than significant.

As described in Section 3 of this Addendum, the proposed project is consistent with the land use designations, objectives, population forecasts, and building space projections in the 2021 LRDP, which is the applicable land use plan for the UCR main campus. As shown on Figure 2-1, Proposed 2021 LRDP Land Use Map, in the 2021 LRDP EIR, the project site is located in East Campus, in an area designated as University Avenue Gateway, which allows for the development of the proposed project. The 2020-2045 RTP/SCS and 2022 AQMP have replaced the 2016 RTP/SCS and 2016 AQMP, respectively, as the plans applicable to the project. However, given the proposed project is consistent with the campus population projections contained in the 2021 LRDP, which inform local and regional planning efforts, the project would be consistent with the updated versions of these plans. Therefore, the proposed project would be consistent with the applicable land use plans, policies, and regulations as analyzed in the IS prepared for the 2021 LRDP and 2021 LRDP EIR; and proposed project impacts to applicable land use plans, policies, and regulations would remain **less than significant**.

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4.1.12 Mineral Resources

Section 1.3 of the 2021 LRDP EIR states that impacts to mineral resources are not further analyzed in the 2021 LRDP EIR since analysis included in the IS prepared for the 2021 LRDP concludes that implementation of the 2021 LRDP would have no impact on mineral resources.

MINERAL RESOURCES

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the State?	No Impact	No	No	No	No mitigation required
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	No Impact	No	No	No	No mitigation required

a – b) The IS prepared for the 2021 LRDP states that the campus is located on lands classified as Mineral Resource Zone 3 (MRZ-3), which are areas of undetermined mineral resource significance. There are no known mineral resources on the campus and the 2021 LRDP would not allow for mining activities on the campus. It was determined that there would be no impact to mineral resources from future campus development under the 2021 LRDP.

The proposed project does not include mining activities or uses, and development of the project site would not result in the loss of available valuable or locally important mineral resources. Therefore, the proposed project would be consistent with the mineral resources analysis and determination in the IS prepared for the 2021 LRDP; and there would remain **no impact**.

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4.1.13 Noise

Section 4.11 of the 2021 LRDP EIR evaluates the noise effects of campus growth under the 2021 LRDP. The 2021 LRDP EIR concludes that future projects under the 2021 LRDP would result in significant and unavoidable impacts related to construction noise even with the incorporation of MM N-1 and less than significant impacts related to operational noise with incorporation of MM N-2 through MM N-4. The proposed project does not involve the relocation of the Corporation Yard; thus, MM N-4 would not be applicable to the proposed project. The 2021 LRDP EIR concludes that future projects under the 2021 LRDP would result in less than significant impacts related to groundborne vibration or groundborne noise levels with incorporation of MM N-5.

The 2021 LRDP EIR states that the nearest airports to the campus is the Flabob Airport, located approximately 4.7 miles west of the UCR main campus and March Air Reserve Base, located approximately 6 miles southeast of the UCR main campus. The 2021 LRDP EIR concludes that projects under the 2021 LRDP would not expose people residing or working on the campus to excessive noise levels from an airport or airport influence area, and such impacts would be less than significant.

The above-mentioned applicable MMs state the following:

MM N-1 Construction Noise Reduction Measures: To reduce construction noise levels to on-campus and off-campus noise sensitive receivers, UCR shall implement the following measures:

- Hours of exterior construction activities shall be limited to 7:00 a.m. to 9:00 p.m. Monday through Friday and 8:00 a.m. to 6:00 p.m. on Saturday, as feasible, except under circumstances where such time limits are infeasible (e.g., for time sensitive construction work such as concrete pouring, excessive heat warnings/temperatures during the summer, operational emergencies). No exterior construction activities shall occur on federal holidays.
- Construction traffic shall follow routes so as to minimize the noise impact of this traffic on the surrounding community, to the greatest extent feasible.
- Contract specifications shall require that construction equipment be muffled or otherwise shielded, in accordance with manufacturers' recommendations. Contracts shall specify that engine-driven equipment be fitted with appropriate noise mufflers.
- Where available and feasible, construction equipment with back-up alarms shall be equipped with either audible self-adjusting backup alarms or alarms that only sound when an object is detected. Self-adjusting backup alarms shall automatically adjust to 10 dBA over the surrounding background levels. All non-self-adjusting backup alarms shall be set to the lowest setting required to be audible above the surrounding noise levels.
- Stationary construction equipment material and vehicle staging shall be placed to direct noise away from sensitive receivers to the greatest extent feasible.
- Meetings shall be conducted, as needed, with on campus constituents to provide advance notice of construction activities to coordinate these activities with the academic calendar, scheduled events, and other situations, as appropriate.
- Communication would be provided, as needed, with constituents that are affected by campus construction to provide advance notice of construction activities and ensure that the mutual needs of the particular construction project and of those impacted by construction noise are met, to the extent feasible.
- A sign shall be provided at the construction site entrance, or other conspicuous location, that includes a 24-hour telephone number for project information, and to report complaints. An inquiry and corrective action will be taken if necessary, in a timely manner.

- Where feasible, installation of temporary sound barriers/blankets of sufficient height to break the line-of-sight between the construction equipment and within proximity to exterior use areas of noise-sensitive receivers shall be required. Temporary sound barriers shall consist of either sound blankets or other sound barriers/techniques such as acoustic padding or acoustic walls placed near adjacent noise-sensitive receivers that have been manufactured to reduce noise by at least 10 dBA at ground level or meets ASTM E90 & E413 standards/ASTM C423 (or similar standards with equivalent 10 dBA noise reduction).

MM N-2 HVAC Noise Reduction Measures: The campus shall reduce HVAC equipment noise levels located in close proximity to noise-sensitive buildings and uses through noise control measures such as, but not limited to:

- Mechanical equipment screening (e.g., parapet walls)
- Equipment setbacks
- Silencers
- Acoustical louvers
- And other sound attenuation devices as made available

If a method other than mechanical equipment screening (e.g., parapet walls) is chosen, a project-specific design plan demonstrating that the noise level from operation of HVAC units does not generate noise levels that exceed 5 dBA above ambient at noise sensitive receivers shall be completed.

MM N-3 Loading Dock Noise Reduction Measures: The campus shall reduce loading dock noise levels through measures such as, but not limited to:

- Noise levels from loading docks at noise-sensitive receivers shall not exceed 5 dBA over ambient noise levels, the effectiveness of which shall be determined on a project-level basis by an acoustical professional.
- As feasible, design and build sound barriers near loading docks and delivery areas that block the line of sight between truck activity areas and noise-sensitive receivers. Sound barriers may consist of a wall, earthen berm, or combination thereof.

MM N-5 Construction Vibration Reduction Measures: If construction equipment were to be operated within the specified distances listed in Table 4.11-13 of the 2021 LRDP EIR, the campus shall reduce construction vibration levels through the following noise control measures:

- All academic and residential facilities within the listed distances shall be notified if the listed equipment is to be used during construction activities so that the occupants and/or researchers can take necessary precautionary measures to avoid negative effects to their activities and/or research.
- In addition, one of the following measures shall be implemented:
  - Use of the equipment shall not occur within the specified distances in Table 4.11-13 in Section 4.11, Noise, of the 2021 LRDP EIR, or
  - A project-specific vibration impact analysis shall be conducted that shall consider the type of equipment used and potential vibration levels at structures within the specified distances. If, after consideration of the type of equipment used and other factors of the environment, vibration levels do not exceed the applicable criteria (listed in the second column of Table 4.11-13), construction may proceed without additional measures. If, after consideration of the type of equipment used and other factors of the environment, vibration levels exceed the applicable criteria, additional measures shall be implemented to reduce vibration levels below threshold, if

feasible. These measures may include, but not limited to, use of different equipment that results in an acceptable vibration level as listed in Table 4.11-13 (presented below) in Section 4.11, Noise, of the 2021 LRDP EIR.

Table 4.11-13 of the 2021 LRDP Draft EIR – Screening Distances for Vibration-Sensitive Receiver Type and Source

Receiver Type	Vibration Threshold (in./sec. PPV)	Distance from Vibration Source (feet)[1]	
		Vibratory Roller	Large Bulldozer[2]
Distinctly Perceptible Human Annoyance	0.24	25	15
Historic Sites	0.1	40	25
Residential Buildings	0.4	20	10
Laboratory[3]	0.032	90	50

[1] These distances are based upon typical vibration levels for a vibratory roller and large bulldozer of approximately 0.210 in./sec. PPV and 0.089 in./sec. PPV at 25 feet, respectively (FTA 2018).

[2] A large bulldozer conservatively represents all heavy-duty construction equipment, other than a vibratory roller.

[3] The FTA lists a "Residential Day" ISO use, which is vibration that is barely felt and adequate for low-power optical microscopes, as having a vibration criteria of 78 vibration decibels (equivalent to 0.032 in./sec. PPV). For the purposes of analysis, a "Residential Day" ISO use is considered representative of laboratory settings on campus.

In./sec – inches per second; PPV = peak particle velocity

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NOISE

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the LRDP in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Construction - Significant and Unavoidable Impact Operation – Less than Significant Impact with Mitigation Incorporated	No	No	No	MM N-1 through MM N-3
b) Generate excessive groundborne vibration or groundborne noise levels?	Less than Significant Impact with Mitigation Incorporated	No	No	No	MM N-5
c) Expose people residing or working in the project area to excessive noise levels where a project is located within the vicinity of a private airstrip or 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?	Less than Significant Impact	No	No	No	No mitigation required

A *Site Noise Measurement Report* prepared by Acoustic Engineering Services dated May 1, 2023, was prepared for the project and included as Appendix F. As part of the report, a site visit was conducted on April 18, 2023 to document the existing outdoor noise environment at the UTLF project site and to measure, and use as baseline information, the current background sound levels at selected UCR classrooms, with functions similar to the proposed UTLF.

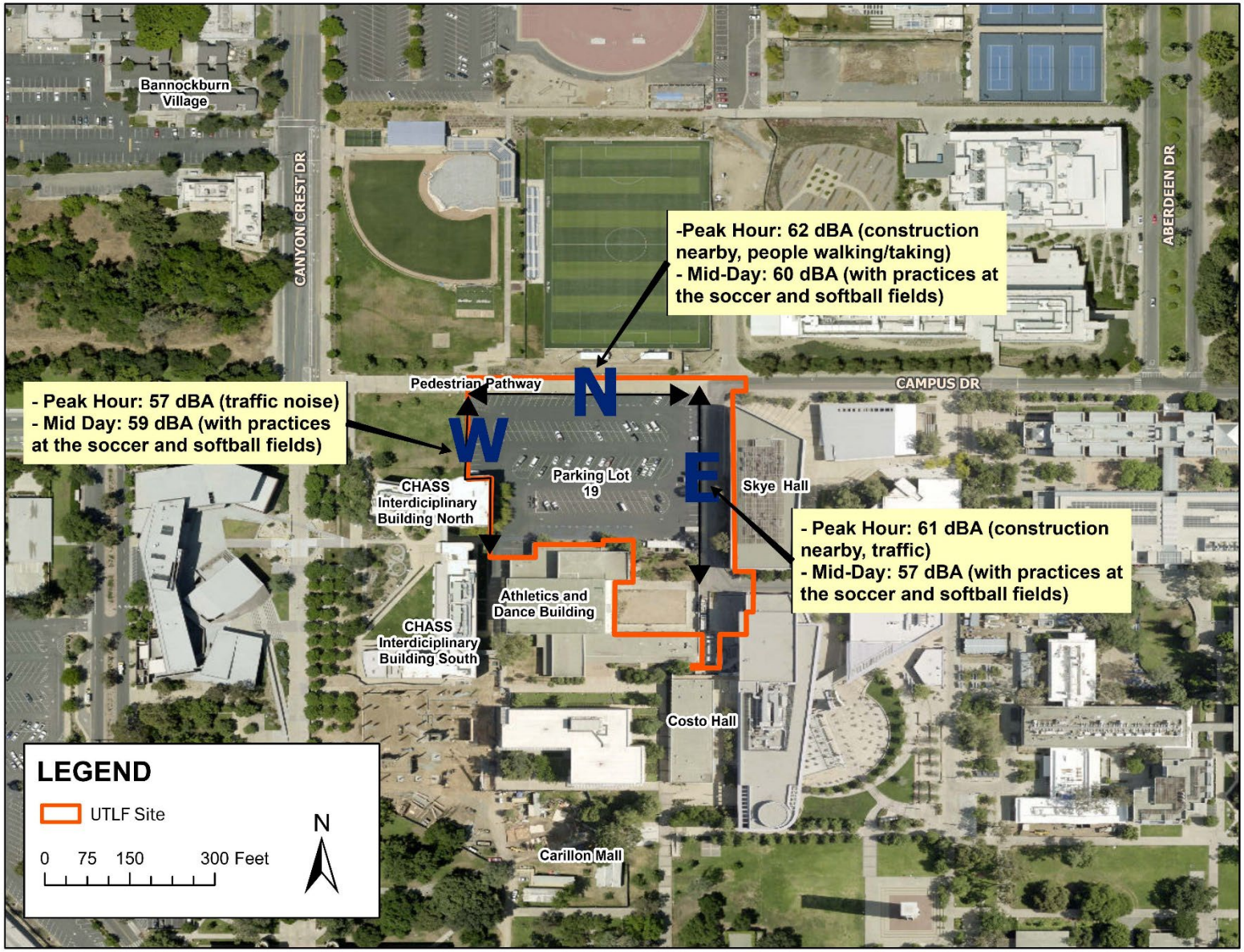
Outdoor noise levels (ambient noise levels) were taken at the project site assessed at three locations (west, north, and east boundaries), capturing peak-hour traffic and midday periods, which included noise from athletic practices at nearby soccer and softball fields. Noise measurement locations are shown in Figure 4.1.13-1and noise level measurements are summarized in Table 4.1.13-1. The project site's ambient sound levels during peak-hour traffic ranged from 57 dBA to 62 dBA.

Table 4.1.13-1
Project Site Vicinity Sound Level Monitoring Results

Location	Sample Times	Noise Source	(dBA)
Northern Project Site Boundary	Peak Hour	Construction nearby, people walking/talking	62
	Mid-Day	Practices at the soccer and softball fields	60
Eastern Project Site Boundary	Peak Hour	Construction nearby, traffic	61
	Mid-Day	Practices at the soccer and softball fields	57
Western Project Site Boundary	Peak Hour	Traffic Noise	57
	Mid-Day	Practices at the soccer and softball fields	59

dBA = A-weighted decibels;
Source: Acoustical Engineering Services (AES), field measurements conducted on April 18, 2023. See Appendix F.

Figure 4.1.13 -1 Noise Measurement Locations



a) The 2021 LRDP EIR concludes that construction equipment used during construction activities would result in noise level increases that would exceed applicable noise thresholds and with incorporation of MM N-1 would remain significant and unavoidable.

Per the 2021 LRDP EIR, construction noise levels that increase noise above 10 dBA from existing ambient noise levels at noise sensitive receptors, would result in significant impacts. According to the 2021 LRDP EIR, noise sensitive land uses include single and multi-family residences, churches, academic classrooms, laboratories, and other sensitive uses. The nearby noise-sensitive land uses to the project construction site include the CHASS Interdisciplinary Building North, Athletics and Dance, and Skye Hall building adjacent to the project site.

According to the 2021 LRDP EIR, at 75 feet and 100 feet, an excavator, loader, and dump truck together would emanate noise levels of 76.4 dBA L_{eq} and 73.9 dBA L_{eq}, respectively. As shown in Table 4.1.13-1, ambient noise levels range from 57 dBA to 62 dBA. Therefore, construction levels of up to 76.4 dBA would exceed the ambient noise levels by more than 10 dBA. To reduce noise impacts to the classrooms which are considered sensitive land uses, **MM N-1** would be implemented which would limit construction activities during certain hours and require noise mufflers to construction equipment. However, because the construction activity is adjacent to classrooms in other buildings which are considered noise sensitive receptors, noise levels would still exceed ambient noise levels by more than 10 dBA. It should be noted that construction equipment would typically be located at an average distance further than the closest sensitive receptor due to the nature of construction (i.e., each piece of construction equipment would work in different locations throughout the day). Therefore, with the implementation of **MM N-1**, the proposed project would be consistent with the construction noise analyses and determination in the 2021 LRDP EIR; and proposed project impacts from construction noise would remain **significant and unavoidable.**

The 2021 LRDP EIR concludes incorporation of MM N-2 through MM N-4 would reduce operational noise related to HVAC equipment, loading dock, and relocated Corporation Yard, respectively, to a level below significance. Because the proposed project does not involve the relocation of the Corporation Yard, MM N-4 would not be applicable to the proposed project.

The 2021 LRDP EIR concludes that operational noise from 2021 LRDP projects would result in noise level increases that would exceed applicable noise thresholds. Such operational noise impacts would be generated from stationary mechanical equipment (such as HVAC systems), loading docks, and the relocated Corporation Yard. The proposed UTLF would include HVAC systems and loading dock area that may exceed noise thresholds for sensitive noise receptors. Implementation of **MM N-2 and MM N-3** would ensure that project operation-related noise impacts related to mechanical equipment and loading docks would be less than significant. Therefore, the proposed project would be consistent with the operational noise analyses and determination in the 2021 LRDP EIR; and proposed project impacts from operational noise would remain **less than significant** with incorporation of **MM N-2 and MM N-3**.

b) The 2021 LRDP EIR states that groundborne vibration or groundborne noise levels from construction activities for projects under the 2021 LRDP may exceed thresholds for vibration-sensitive receptors from the use of vibratory rollers during paving activities and/or operation of large bulldozers and result in potentially significant impacts that would be reduced to less than significant levels with implementation of **MM N-5**. No sources of substantial vibration were anticipated to be associated with operation of the 2021 LRDP.

Due to the developed/disturbed nature of the UTLF site, the use of heavy equipment associated with pile driving, breaking and blasting, that would generate substantial vibration impacts is not anticipated to be required for project construction. It is assumed that a large bulldozer will be used during project construction and that the bulldozer would conservatively represent all other heavy-duty construction equipment (other than a vibratory roller). Project construction would require heavy equipment that would operate adjacent to the Athletics and Dance Building, which is considered an eligible historic structure. The 2021 LRDP EIR included Table 4.11-13 which outlined distances to which vibrational noise would be considered less than significant to historic resources. As such, construction equipment used for the proposed project would be closer than the screening distances identified in Table 4.11-13 of the 2021 LRDP EIR which range between 15 to 50 feet for large bulldozers and 25 to 90 feet for vibratory rollers. Accordingly, project construction would implement **MM N-5**, which requires the notification of use of bulldozers and vibratory rollers equipment to affected academic and residential facilities and the preparation of a project specific vibration impact analysis. Therefore, the proposed project would be consistent with the vibration impact analyses and determination in the 2021 LRDP EIR; and proposed project impacts from construction vibration would remain **less than significant with mitigation incorporated**.

c) The 2021 LRDP EIR concludes that projects under the 2021 LRDP would not expose people residing or working on the campus to excessive noise levels from an airport or airport influence area, and such impacts would be less than significant. The 2021 LRDP EIR states that are no airstrips within two miles of the campus and the campus is not within the 60 dBA CNEL contour of any airport. Impacts would be less than significant.

The nearest airports include the Flabob Airport (approximately 4.5 miles northwest of the project site) and March Air Reserve Base (approximately 5.5 miles southeast of the project site). The proposed project would not exacerbate flights patterns and their associated noise, due to the distance from the Flabob Airport and March Air Reserve Base. New development on campus, including the proposed project, would comply with CBC Title 24 pertaining to noise insulation. Therefore, the proposed project would be consistent with the airport and airfield noise impact analyses and determination in the 2021 LRDP EIR; and proposed project impacts on people residing near the project site and the UCR community occupying the UTLF from excessive noise levels from airport or airfield operations would remain **less than significant**.

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4.1.14 Population and Housing

Section 4.12 of the 2021 LRDP EIR addresses the population and housing impacts from implementing the 2021 LRDP and concludes that the campus development program under the 2021 LRDP would accommodate the anticipated regional population forecast. In addition, the 2021 LRDP would not result in indirect inducement of substantial population growth due to the extension of roads or other infrastructure. All development undertaken to implement the 2021 LRDP would occur within the existing footprint of the campus.

The 2021 LRDP EIR also states that campus projects under the 2021 LRDP would not displace substantial numbers of existing people or housing. Under the 2021 LRDP, additional student housing would be created to support the growing student population attending UCR. The 2021 LRDP EIR concludes impacts related to population and housing would be less than significant.

POPULATION AND HOUSING

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	Less than Significant Impact	No	No	No	No mitigation required
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	Less than Significant Impact	No	No	No	No mitigation required

a – b) The 2021 LRDP assumes an approximately 46 percent increase in student population (approximately 11,000 students), with an approximately 59 percent increase in additional faculty and staff (approximately 2,800 new faculty and staff) by the 2035/2036 academic year. This increase in population was anticipated in regional and City plans related to population growth. Further, approximately 85 percent of the UCR population resides within a one-hour commute radius, which is a trend anticipated to continue with increased campus population. Implementation of the 2021 LRDP entails a variety of projects throughout the campus that fit the needs and allowable uses to accommodate growth in the student, faculty, and staff population. The proposed project would directly support the campus' academic mission by providing modern classroom and class laboratory space to meet existing needs and facilitate future enrollment growth. Impacts would be less than significant.

The proposed UTLF would add approximately 120,000 gsf of new classrooms/lecture halls, science labs, art/dance studios, student support, instructional support, academic office and support spaces; shared building resources; and building support. The proposed project would serve the existing student population by providing additional instructional seats where currently

there's a shortage of about 4,800 instructional seats as well as accommodate approximately 1,812 students and approximately three faculty and staff. The number of the UTLF students, faculty, and staff was considered and evaluated as part of the 2021 LRDP development program and would not exceed the total 35,000 student and 7,545 faculty/staff projected under the 2021 LRDP. Housing needs due to the increased student, faculty, and staff capacity within the UTLF, were evaluated under the 2021 LRDP EIR. The 2021 LRDP concluded that the campus could accommodate this future growth through strategic infill and selective replacement of existing housing facilities in the northern half of East Campus. Furthermore, the campus, including the project site, is within a heavily urbanized area that contains existing infrastructure that includes roadways, electricity, sanitary sewer, potable water, telecommunications, and natural gas. The proposed project would be developed on the campus on a site that contains existing roadways and utility infrastructure, and therefore would not indirectly result in substantial population growth due to expanding roadways and infrastructure. Therefore, the proposed project would be consistent with the population growth analysis and determination in the 2021 LRDP EIR; and direct and indirect project impacts from anticipated student, faculty, and staff population growth would remain **less than significant**.

The 2021 LRDP EIR anticipated the removal of on-campus housing temporarily when infill housing is proposed under the 2021 LRDP. However, the timing of the removal of housing would be planned to occur when student populations are decreased (during summer) and the new construction would accommodate increased population. Increased campus populations requiring off-campus housing would be accommodated by the existing housing stock and would not result in the displacement of housing. Impacts would be less than significant.

The proposed UTLF would be constructed on an existing parking lot and associated utility, hardscape, and landscape improvements would be within previously disturbed areas. There are no housing units present on the UTLF site. Implementation of the proposed project would not displace people, and construction of replacement housing would not be necessary. Therefore, the proposed project would be consistent with the housing displacement analysis and determination in the 2021 LRDP EIR; and proposed project impacts remain to have **no impact**.

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4.1.15 Public Services

Section 4.13 of the 2021 LRDP EIR addresses the physical effects of providing public services to meet the needs of the campus growth under the 2021 LRDP. The 2021 LRDP EIR states that the campus growth under the 2021 LRDP would not increase demand to a level that would require new fire protection facilities or substantial alterations to existing facilities; and would not result in the need for or alteration of schools. Impacts were considered less than significant.

The IS prepared for the 2021 LRDP concludes that the need for police services and other public facilities (such as libraries) on the campus would increase with the implementation of the 2021 LRDP. However, new facility space to accommodate additional on-campus police protection services and public programs are expected to be a part of the approximately 896,229 asf (1,344,344 gsf) of new administrative and support facility space anticipated in the 2021 LRDP. A project that includes space specifically for on-campus police services or public program uses would undergo its own environmental review and the 2021 LRDP EIR states that no additional environmental impacts beyond those analyzed as part of the 2021 LRDP EIR are anticipated for such a project. Therefore, the impacts of the 2021 LRDP on police protection service and other public facilities were not further analyzed in the 2021 LRDP EIR since the IS prepared for the 2021 LRDP concludes implementation of the 2021 LRDP would have a less than significant impact.

Impacts to parks and recreational facilities are addressed in Section 4.14, *Recreation*, of the 2021 LRDP EIR and area addressed in Section 4.1.16, *Recreation*, of this Addendum.

PUBLIC SERVICES

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:					
i) Fire protection?	Less than Significant Impact	No	No	No	No mitigation required
ii) Police protection?	Less than Significant Impact	No	No	No	No mitigation required

iii) Schools?	Less than Significant Impact	No	No	No	No mitigation required
iv) Parks?	Discussion pertaining to project impacts on parks are discussed in Section 4.1.16, *Recreation*, of this Addendum.				
v) Other public facilities	Less than Significant Impact	No	No	No	No mitigation required

a-i) The 2021 LRDP EIR concludes that implementation of the 2021 LRDP, including construction activities, would not increase demand or response time to a level that would require new fire protection facilities or substantial alterations to existing facilities. Construction would occur in compliance with fire safety regulations and the 2021 LRDP would not substantially alter the amount of construction activity on campus compared to baseline conditions. Operation of projects under the 2021 LRDP would incrementally increase fire protection demands due to the anticipated campus population growth. However, development under the 2021 LRDP would primarily consist of infill development where fire protection services are already required and the increased population anticipated under the 2021 LRDP would not, on its own, require additional fire protection facilities. The 2021 LRDP EIR notes that emergency responders maintain response plans which include use of alternate routes, sirens, and other methods to bypass congestion and minimize response times. Furthermore, California law requires drivers to yield to the right-of-way to emergency vehicles and remain stopped until the emergency vehicle passes. Therefore, fire service response times are not expected to be notably affect by campus development under the 2021 LRDP. Impacts would be less than significant.

The RFD provides fire protection, fire inspection services, community education, and emergency preparedness and training for the City, including UCR. While UCR has a Fire Prevention Program for its campus, the campus also maintains a Memorandum of Understanding (MOU) with the State Fire Marshal to allow UC personnel to serve as local campus fire marshals, deputy fire marshals, and fire inspectors. The need for additional fire personnel may increase with the addition of new facilities on campus and was considered in the 2021 LRDP EIR. Implementation of the proposed project would incrementally increase the demand for fire protection services, but not to a level that would require new facilities beyond those that exist or are already planned under the 2021 LRDP. The project site is already developed and within RFD's service area. Additionally, the construction and operation of the proposed project would be required to comply with local and State fire safety regulations. The proposed project would include fire hydrants and fire department access would be provided within and around the project area in accordance with the Campus Fire Marshal and RFD standards and requirements. Other fire protection systems such as smoke detectors, fire sprinklers, fire extinguishers, appropriate building access, and emergency response notification systems are incorporated with the proposed project. Therefore, the proposed project would be consistent with the fire protection services analysis and determination in the 2021 LRDP EIR; and proposed project impacts to fire protection services would remain **less than significant**.

a-ii) As mentioned above, police protection services were not further discussed in the 2021 LRDP EIR based on the analysis completed in the IS prepared for the 2021 LRDP. The campus is served by

the University of California Police Department (UCPD), which has sufficient officers and staff to respond to all police related incidents on the campus. UCPD consistently evaluates the need for new officers necessary due to campus population increases. This would continue through the implementation of the 2021 LRDP to ensure that adequate levels of police services are provided. Additionally, UCPD is able to supplement its staff with officers from other agencies who have arrest authority under mutual aid agreements. Although the need for police services would incrementally increase in association with the increase in students, faculty, and staff under the 2021 LRDP, inclusive of the proposed project, the UCPD could meet these future needs with adequate facility space and collaboration with the Riverside Police Department (RPD) to provide police services on campus. The proposed project would accommodate approximately 1,812 students and approximately three faculty and staff to the campus population on a site that is currently developed and within UCPD's service area. Growth in the number of the UTLF students, faculty, and staff was considered and evaluated as part of the 2021. Therefore, the proposed project would be consistent with the police protection services analysis and determination in the IS prepared for the 2021 LRDP; and proposed project impacts to police protection services would remain **less than significant**.

a-iii) The 2021 LRDP EIR concludes that future expansions on the campus would result in less than significant impacts on school facilities. Any future campus construction projects would be temporary and not require the relocation of construction workers or need for school facilities for their family members. The 2021 LRDP EIR also estimates that the growth in UCR students and faculty/staff under the 2021 LRDP could incrementally result in approximately 2,575 total new school age children by 2035 that would attend schools in the Inland Southern California area. The 2021 LRDP EIR notes that it is likely that some of these students would already attend schools prior to their parent/guardian attending UCR as a student or employed as a member of faculty or staff or live in areas across the region and be distributed across school districts. Impacts were determined to be less than significant. Since these students, faculty, and staff either reside on campus or in the Inland Southern California area, their school-aged children are either already in school or would be distributed across school districts. The proposed project would accommodate 1,812 students and three faculty and staff. The number of the UTLF students, faculty, and staff was considered and evaluated as part of the 2021 LRDP. The number of school-aged population was also analyzed, and it was anticipated that the increase in the school-aged population would be minimal and anticipated to be accommodated by the school districts in the Inland Southern California area. Therefore, the proposed project would be consistent with the school services analysis and determination in the 2021 LRDP EIR; and proposed project impacts to public school services would remain **less than significant**.

a-iv) The 2021 LRDP impacts to parks and recreational facilities were discussed in Section 4.14, *Recreation*, of the 2021 LRDP EIR. Likewise, proposed project impacts on parks and recreational facilities are also analyzed in Section 4.1.16, *Recreation*, of this Addendum.

a-v) The IS prepared for the 2021 LRDP concludes that the increased population anticipated under the 2021 LRDP would not require new or altered library or other public facilities beyond those facilities already proposed as part of the 2021 LRDP. Therefore, the impact of the 2021 LRDP on other public facilities would be less than significant and was not further evaluated in the 2021 LRDP EIR. The proposed project would not increase the campus population because the UTLF population growth was considered and evaluated as part of the 2021 LRDP. All UCR students, faculty, and staff have access to the libraries on the campus (Tomás Rivera Library, the Orbach Science Library, and the Special Collections and University Archives) in addition to the City of

Riverside Main Library and its seven library branches, as well as the 39 libraries in the Riverside County Library System. Existing and future students, faculty, and staff would continue to have access to all on-campus and off-campus libraries with implementation of the proposed project. Therefore, the proposed project would be consistent with the public facilities analysis and determination in the 2021 LRDP EIR; and proposed project impacts to public facilities, such as libraries on- and off campus, would remain **less than significant**.

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4.1.16 Recreation

Section 4.14 of the 2021 LRDP EIR addresses the environmental effects associated with modifying recreational facilities to meet the needs of campus growth under the 2021 LRDP. The 2021 LRDP EIR concludes that despite the increase in the usage of on- and off-campus recreational facilities anticipated from campus growth, implementation of the 2021 LRDP would not increase the use of neighborhood and regional parks or other recreational facilities such that substantial deterioration of existing facilities would occur or be accelerated. Impacts were determined to be less than significant.

The 2021 LRDP includes approximately 28.7 acres of land within the campus that are specifically designated Recreation & Athletics use, which would be developed to include new on-campus recreational facilities over the LRDP planning horizon to meet the anticipated needs of a larger campus population. Impacts associated with development of such recreational facilities were analyzed throughout the 2021 LRDP EIR and impacts were considered less than significant.

RECREATION

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) 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?	Less than Significant Impact	No	No	No	No mitigation required
b) Require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	Less than Significant Impact with applicable mitigation from other resource sections	No	No	No	No mitigation required

a – b) Population increases that would occur under the 2021 LRDP would result in increased demand for park and recreational facilities. The 2021 LRDP includes a Recreation & Athletics land use category that permits construction or expansion of recreational facilities to accommodate intercollegiate athletics and campus recreation, such as large-scale indoor and outdoor athletic facilities, playfields, and courts. The proposed Student Neighborhood and Canyon Crest Gateway land use designations in the northern portions of East Campus could accommodate appropriately scaled recreation and athletic facilities. The 2021 LRDP includes the UCR Botanic Gardens land use category that maintains the existing use that contains a series of pedestrian pathways. Additionally, the 2021 LRDP includes extensions of key bicycle and pedestrian networks to serve the needs of the campus community. While increased use of recreational facilities would occur given the anticipated population growth, regular maintenance and new facility construction would be funded by campus fee programs and physical deterioration of campus recreational facilities was not anticipated to occur. The maintenance of off campus recreational facilities would be funded by taxes collected by city and county jurisdictions, and

the campus populations living off campus are not anticipated to grow such that substantial physical deterioration of recreational facilities would occur. The environmental effects of construction of new recreational facilities proposed under the 2021 LRDP were analyzed throughout the 2021 LRDP EIR and no additional mitigation measures were required to reduce impacts associated specifically with recreation facility construction. The 2021 LRDP EIR concludes impacts related to recreational facility deterioration and new construction would be less than significant.

The proposed UTLF would be constructed on an existing parking lot and associated utility, hardscape, and landscape improvements would be within previously disturbed areas. No recreational facilities would be removed from the campus as a result of the proposed project. The proposed project does not include recreational uses or facilities on the project site or on the campus. The proposed project would accommodate approximately 1,812 students and approximately three faculty and staff. The number of the UTLF students, faculty, and staff was considered and evaluated as part of the 2021 LRDP development program and would not exceed the total 35,000 student and 7,545 faculty/staff anticipated under the 2021 LRDP in 2035. The 2021 LRDP EIR states that future increases in UCR student, faculty, and staff population would be accommodated by neighborhood and regional parks in combination with the renovation and expansion of existing recreation facilities on the campus.

Project construction activities would increase the number of construction workers on the campus. However, these workers would likely be existing construction employees and residents in the local region, and they would not potentially relocate their households as a consequence of the proposed project. Therefore, project construction workers would not generate a corresponding demand for parks and recreational facilities in and around the campus, such that it would result in the accelerated physical deterioration of an existing park or recreation facility.

Implementation of the proposed project would not require the construction or expansion of recreational facilities since there are no residential uses included as part of the project, such that direct impacts to recreational facilities would occur from resident students, faculty, or staff. Therefore, the proposed project would be consistent with the recreational facilities analysis and determination in the 2021 LRDP EIR; and proposed project impacts to recreational facilities would remain **less than significant**.

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4.1.17 Transportation

Section 4.15 of the 2021 LRDP EIR evaluates transportation impacts of campus growth under the 2021 LRDP. The 2021 LRDP EIR concludes that implementation of future projects under the 2021 LRDP would result in less than significant impacts to conflicts with policies addressing roadway, transit, bicycle, and pedestrian facilities; less than significant impacts to conflicts with CEQA Guidelines Section 15064.3, subdivision (b); and less than significant impacts to adequate emergency access with inclusion of CBP WF-1 and CBP WF-2.

Implementation of the 2021 LRDP would result in significant and unavoidable impacts due to a substantial increase in hazards related to vehicle queueing at the I-215/SR 60 freeway southbound ramps at Martin Luther King Boulevard. The 2021 LRDP EIR states that an increase in campus population under AM Peak Hour Cumulative Plus Project conditions would result in an exceedance of freeway off-ramp queuing storage length. MM T-1 would be required to reduce the cumulative impacts of the 2021 LRDP development program to less than significant. However, UCR does not have jurisdiction over the identified intersection and freeway ramps, and any alteration would require an agreement from Caltrans. Therefore, physical improvements to the ramp queuing storage length could not be guaranteed at the time of 2021 LRDP EIR approval, and the potential cumulative impact was determined to remain significant and unavoidable under the 2021 LRDP EIR. Should Caltrans determine that this intersection queuing improvement is required, the University would coordinate with Caltrans.

The 2021 LRDP EIR also included CBPs that would be conditions of individual project approvals. For this section, CBP WF-1 requires construction traffic control measures, and CBP WF-2 requires construction alternative travel routes.

The following CBPs are relevant to the proposed project:

CBP WF-1 Construction – Traffic Control: 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 alternate routes and appropriate signage.

CBP WF-2 Construction – Alternative Travel Routes: Prior to campus construction activities and/or roadway closures, the Campus Fire Marshal, as delegated by the State Fire Marshal, and in cooperation with the City of Riverside Fire Department shall ensure that adequate access for emergency vehicles is provided or identify alternative travel routes.

TRANSPORTATION

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Conflict with an applicable program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Less than Significant Impact	No	No	No	No mitigation required
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)?	Less than Significant Impact	No	No	No	No mitigation required
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Significant and Unavoidable Impact	No	No	No	No mitigation required
d) Result in inadequate emergency access?	Less than Significant Impact	No	No	No	No mitigation required; CBP WF-1 and CBP WF-2 as conditions of approval

a) The 2021 LRDP EIR states that implementation of the 2021 LRDP would not conflict with any existing programs, plans, ordinances, or policies that address the circulation system. Therefore, impacts were determined to be less than significant.

The proposed project would increase bicycle and pedestrian travel with the additional student, faculty, and staff population, but the additional bicycle and pedestrian traffic would not physically disrupt existing pedestrian or bicycle facilities within and around the project site and the campus, nor interfere with the implementation of a planned pedestrian or bicycle facilities under the 2021 LRDP. Pedestrian circulation and access to and from the project site would be provided by existing sidewalks and pathways along University Avenue, Canyon Crest Drive, North Campus Drive, Arts Mall, South Recreation Mall, and the northern pathway/eastern pathway immediately adjacent to the UTLF site with improvements to meet ADA requirements and to facilitate safer movement for pedestrians. If required by the CBC, ADA accessible pathway improvements could include the following: from Parking Lot 24 to the project site; from the Arts Mall through CHASS to the project site; North Campus Drive; on and around the northern pathway/eastern pathway immediately adjacent to the project site; and other pathway improvements to provide pedestrian connectivity between the greater campus to the project site. Bicycle lanes that currently exist on both sides of University Avenue and Canyon Crest Drive would be maintained; the proposed project would include bicycle racks. The closest existing transit service is located on Canyon Crest Drive, West Campus Drive, and North Campus Drive; these transit service areas would continue to serve the campus and project site. Such project improvements that enhance and encourage alternative transportation facilities (for cyclists and pedestrians) within and in the vicinity of the project site would be aligned and consistent with the UCR Transportation Demand Management Program and select objectives and policies of the 2021 LRDP. Therefore, the proposed project would be consistent with the applicable programs, plans, ordinances, and policies that address the circulation system as analyzed and determined in the 2021 LRDP EIR; and proposed project impacts to transportation and circulation systems would remain **less than significant**.

b) In accordance with CEQA Guidelines Section 15064.3(b), the following thresholds of significance were used in the 2021 LRDP EIR to determine Vehicle Miles Traveled (VMT) impacts associated with the 2021 LRDP:

A project would result in a significant project generated VMT impact if either of the following conditions are satisfied:

- The Baseline Plus Project-generated VMT per Service Population exceeds 15 percent below the Western Riverside Council of Governments (WRCOG) baseline VMT per Service Population.
- The Cumulative Plus Project-generated VMT per Service Population exceeds 15 percent below the WRCOG baseline VMT per Service Population.

The proposed project's effect on VMT would be considered significant if it resulted in the following condition being satisfied:

- The cumulative link-level boundary WRCOG region VMT per Service Population increases under the Cumulative Plus Project condition compared to Cumulative (2035) conditions.

The VMT analysis completed for the 2021 LRDP EIR reflects the number of vehicle-trips generated by the campus and the expected distance that drivers will travel to/from UCR for their work/school trips as well as other trips generated by campus visitors and students living in on-campus housing.

The Riverside Traffic Analysis Model (RivTAM)[13] was used to develop VMT forecasts. UCR campus wide VMT was calculated for the following four scenarios:

- *Baseline (2018)* – A Fall 2018 baseline was selected for the transportation analysis. Campus population (student enrollment, on-campus residents, and faculty/staff employment) was incorporated in the Base Year RivTAM to establish the Baseline conditions for the transportation assessment.
- *Baseline Plus Project* – The net new increases in campus population associated with the 2021 LRDP were added to the Baseline conditions to develop Baseline Plus Project conditions.
- *Cumulative (2035) Without Project* – The Cumulative (2035) Without Project conditions were developed by including the 2018 Baseline campus conditions in combination with future cumulative growth outside of UCR using the Future Year RivTAM model.
- *Cumulative Plus Project* – The net new increases in campus development and population associated with the 2021 LRDP were added to the Future Year RivTAM to develop Cumulative Plus Project conditions.

The metric identified for the transportation analysis in the 2021 LRDP EIR is Total VMT per Service Population. This represents the daily VMT generated by UCR divided by the total number of employees, residential students, and commuter (nonresidential) students on the campus. The Baseline Plus Project and Cumulative Plus Project VMT per Service Population calculations were determined by measuring the UCR campus wide VMT with the inclusion of the 2021 LRDP population growth. These VMT measurements and associated calculations of VMT per Service Population were used to evaluate the VMT impact of the campus with the addition of the 2021 LRDP development program conditions. This calculation methodology is reflective of the VMT generation characteristics of the campus with the inclusion of more students, faculty, and staff such as with implementation of the proposed project.

Since the students, faculty, and staff generated by the proposed project were also included in the growth projections for the 2021 LRDP, the project specific VMT results are expected to be consistent with those reported in the 2021 LRDP EIR as follows:

- The Baseline 2021 LRDP-generated VMT per Service Population of 17.65 does not exceed the threshold of 15 percent below WRCOG VMT per Service Population of 24.35, resulting in a less than significant impact in the 2021 LRDP EIR; therefore, the proposed project VMT impact is also considered less than significant.
- The Cumulative 2021 LRDP-generated VMT per Service Population of 19.93 does not exceed the threshold of 15 percent below WRCOG VMT per Service Population of 24.35, resulting in a less than significant impact in the 2021 LRDP EIR; therefore, the proposed cumulative project VMT impact is also considered less than significant.
- The 2021 LRDP effect on VMT per Service Population of 18.05 does not cause total VMT for the WRCOG region to exceed the future forecast from the SCAG RTP/SCS of 18.10 VMT per Service Population, resulting in a less than significant impact in the 2021 LRDP EIR; therefore, the proposed project VMT impact is also considered less than significant.

Similar to the 2021 LRDP, operation of the project would result in additional vehicular travel associated with increased population on the campus, but VMT would continue to be below regional

[13] The RivTAM is consistent with the 2016 SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) as described in the 2021 LRDP EIR.

thresholds. Therefore, the proposed project would be consistent with the operational VMT analysis and determination in the 2021 LRDP EIR; and proposed project impacts to regional VMT would remain **less than significant**.

c) The 2021 LRDP EIR states that development and circulation improvements would be completed such that changes would remain consistent with surrounding geometric design features and any redesign or construction of on-campus circulation paths would be designed and constructed to meet the Campus Construction and Design Standards. Project-specific construction management plans would be prepared in accordance with the California Manual on Uniform Traffic Control Devices which includes information related to truck routes and construction site access. Impacts were determined to be less than significant.

It is anticipated that construction access would be provided by Blaine Street to Canyon Crest Drive to W. Linden Street and enter through a surface parking lot between the SRC and the Track Stadium and travel south through the MRB and UCR Soccer Stadium. Please refer to Section 2.4.2 for additional information as it pertains to access to the project site and the three staging areas. Therefore, the proposed project would be consistent with the construction roadway analysis and determination in the 2021 LRDP EIR; and proposed project impacts to construction site access management would remain **less than significant**.

The 2021 LRDP EIR states that existing farm equipment movement processes, procedures, and safety measures would remain the same as existing conditions as under the 2021 LRDP; and impacts to roadway compatibility between existing and anticipated uses under the 2021 LRDP would be less than significant. The proposed project would not result in incompatible roadway or circulation system use since anticipated modes of project-specific transportation (vehicular, pedestrian, and bicycle) are compatible with and supported by existing roadway and transportation facilities within the project site and campus. Therefore, the proposed project would be consistent with the incompatible uses analysis and determination in the 2021 LRDP EIR; and proposed project impacts to existing on- and off campus circulation systems would remain **less than significant**.

The proposed project would be constructed in such a way that roadway and accessway changes would remain consistent to the surrounding geometric design features and would be designed and constructed to meet the Campus Construction and Design Standards in a manner that is consistent with the intent of the 2021 LRDP. The 2021 LRDP EIR also considers transportation impacts resulting from freeway off-ramp queueing. Under *Baseline (2018)* conditions, the I-215/SR 60 freeway southbound ramp queueing with the 2021 LRDP was found not to exceed 85 percent of the storage length for any of the freeway off-ramps. Since the students, faculty, and staff generated by the project were also included in the 2021 LRDP analysis, proposed project impacts on the I-215/SR 60 freeway southbound ramp queueing would be consistent with the conclusions in the 2021 LRDP EIR and would also not exceed 85 percent of the storage length for any of the freeway off-ramps under *Baseline (2018)* conditions.

Under *Cumulative (2035)* conditions with the 2021 LRDP, freeway ramp queueing was found to exceed 85 percent of the storage length at the I-215/SR 60 freeway southbound ramps at Martin Luther King Boulevard. Since the proposed project would contribute to an increase in UCR campus-generated traffic under *Cumulative (2035)* conditions, the proposed project would also contribute to the impact related to AM peak hour queueing at the I-215/SR 60 freeway southbound ramps at Martin Luther King Boulevard.

However, growth associated with the project would be consistent with that anticipated and analyzed in the 2021 LRDP EIR and no substantial increase in the severity of the cumulative traffic impact would occur under the project. The 2021 LRDP EIR identifies MM T-1, which is intended to improve the intersection of the I-215/SR 60 freeway southbound ramps and reduce the severity of the queuing storage deficiency; however, as the 2021 LRDP EIR states, the implementation of MM T-1 remains uncertain since UCR does not have jurisdictional control over the I-215/SR 60 freeway southbound ramp intersection and any physical improvement would require an agreement with Caltrans. Consistent with the 2021 LRDP EIR, the project would not implement MM T-1 given UCR's lack of jurisdictional control at this intersection. Should Caltrans determine that this intersection queuing improvement is required, the University would coordinate with Caltrans.

The proposed project would be consistent with the geometric design features analysis and determination in the 2021 LRDP EIR; however, cumulative transportation impacts related to geometric design features would remain **significant and unavoidable** as identified in the 2021 LRDP EIR.

d) The 2021 LRDP EIR states that development under the 2021 LRDP would not include major changes to existing access points or on-campus circulation paths that would result in inadequate emergency access. Projects are required to adhere to Campus Construction and Design Standards and would undergo review and approval by the State Fire Marshal prior to implementation and use. There would be less than significant impacts. However, UCR proposed **CBP WF-1** that requires traffic control measures, and **CBP WF-2** that requires construction alternative routes, as conditions of individual project approvals.

Like the 2021 LRDP EIR analysis, the proposed project would not include major changes to existing access points or on-campus circulation paths that would result in inadequate emergency access and would adhere to Campus Construction and Design Standards. Emergency access to the UTLF site would be provided via ingress/egress routes along North Campus Drive. Proposed emergency access on the UTLF site as well as firetruck hose pull requirements at the UTLF site, as required by the Fire Code, would be reviewed, and approved by the Campus Fire Marshal. In accordance with **CBP WF-1**, during project construction, to the extent feasible, one unobstructed lane would remain open along North Campus Drive and any detours will be identified for closures to North Campus Drive, in accordance with the construction traffic control plan. The Campus Fire Marshal would disclose roadway closures to the City Fire Department and identify alternative travel routes, if necessary (**CBP WF-2**). Therefore, the proposed project would be consistent with the emergency access analysis and determination in the 2021 LRDP EIR; and proposed project impacts to emergency access roads would remain **less than significant**.

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4.1.18 Tribal Cultural Resources

Section 4.16 of the 2021 LRDP EIR evaluates tribal cultural resources (TCR) impacts with development facilitated by the 2021 LRDP. The 2021 LRDP EIR concludes that implementation of future projects under the 2021 LRDP would result in potential impacts to TCR but would be reduced to a level below significance with incorporation of MM CUL-2 through MM CUL-4.

The above-mentioned MMs state the following:

MM CUL-2 Tribal Cultural Resources/Archaeological Monitoring: Prior to commencement of ground disturbing activities into an area with a medium or high potential to encounter undisturbed native soils including Holocene alluvium soils, as determined by UCR, UCR shall hire a qualified archaeological monitor meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service [NPS] 1983) to identify archaeological resources and cultural resources of potential Native American origin. Where development occurs in the southeastern quadrant of campus, and in areas containing Val Verde Pluton geologic features considered highly sensitive to prehistoric archaeological resources, UCR shall hire a qualified archaeologist and a Native American monitor to reduce impacts to potential archaeological and/or tribal cultural resources. The monitor(s) shall be on-site during any construction activities that involve ground disturbance. The on-site monitoring shall end when project-related ground disturbing activities are completed, or, in consultation with the lead agency and tribes as appropriate and based on observed conditions, monitoring may be reduced or eliminated prior to completion of ground-disturbing activities, when the monitor(s) has indicated that the project site has a low potential to encounter tribal cultural resources (TCR)/archaeological resources. Consolidated monitoring efforts (e.g., archaeological monitoring/tribal cultural/paleontological monitoring) may occur if the individual monitor meets the applicable qualifications, except for development in the southeastern quadrant as detailed above.

MM CUL-3 Construction Worker Training: For projects requiring TCR/archaeological monitoring, the monitor shall provide preconstruction training for all earthmoving construction personnel prior to the start of any ground disturbing activities, regarding how to recognize the types of TCRs and/or archaeological resources that may be encountered and to instruct personnel about actions to be taken in the event of a discovery. UCR Planning, Design & Construction Project Manager/contractor shall retain documentation showing when training of personnel was completed.

MM CUL-4 Unanticipated Discovery of Tribal Cultural Resources/Archaeological Resources: If previously undiscovered TCRs and/or archaeological resources are identified during construction, all ground disturbing activities within 100 feet of the resource shall halt, UCR Planning, Design & Construction staff shall be notified, and the find shall be evaluated by a qualified archaeologist meeting the Secretary of the Interior standards to determine whether it is a unique archaeological resource, as defined by CEQA. If the discovery appears to be Native American in origin, a tribal representative will be contacted within 24 hours of discovery to determine whether it is a TCR, as defined by CEQA. If the find is neither a unique archaeological resource nor a TCR, work may resume. If the find is determined to be a unique archaeological resource or TCR, the archaeologist and the tribal representative, as appropriate, shall make recommendations to UCR Planning, Design & Construction staff on the measures that will be implemented, including, but not limited to, preservation in place, excavation, relocation, and further evaluation of the discoveries pursuant to CEQA. Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts to TCRs/archaeological resources. If UCR determines that preservation in place is not feasible, the 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-site may commence upon completion of any fieldwork components of the treatment plan.

TRIBAL CULTURAL RESOURCES

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:					
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	Discussion pertaining to project impacts on historical resources are discussed in criterion a in Section 4.1.5, *Cultural Resources*, of this Addendum.				
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	Less than Significant Impact with Mitigation Incorporated	No	No	No	MM CUL-2 through MM CUL-4

a-i) The 2021 LRDP EIR discussed historical resources in Section 4.5, *Cultural Resources*. Likewise, discussion pertaining to project impacts on historical resources are discussed under criterion a in Section 4.1.5, *Cultural Resources*, of this Addendum.

a-ii) The 2021 LRDP EIR states that the eastern portion of the LRDP area, especially the southeast, is considered to have high sensitivity for encountering TCR. The majority of the areas considered to have a high sensitivity for encountering cultural resources are within the 2021 LRDP land use designation of Open Space Reserve or UCR Botanic Gardens. Areas within the northern portions of East Campus, where a majority of infill development or expansion under the 2021 LRDP is anticipated, has low TCR sensitivity. The 2021 LRDP EIR determined that TCR impacts would be less than significant with incorporation of MM CUL-2 through MM CUL-4.

The UTLF site is not located adjacent to areas designated as Open Space Reserve or UCR Botanic Gardens under the 2021 LRDP, which contain areas with high cultural sensitivity. Rather, the UTLF site is an infill project located with the University Avenue Gateway LRDP land use designation, which was generally assessed as a low tribal cultural sensitivity area in the 2021 LRDP EIR. Native soils are present at the project site at depths of approximately 10 feet below grade according to the geotechnical report (Appendix D). Native soils have the potential to contain cultural resources. Because the project site contains native soils, monitoring would occur during project construction activities at depths of approximately 10 feet below grade, to monitor for unknown archaeological resources and tribal cultural resources. **MM CUL-2 through MM CUL-4** as identified in the 2021 LRDP EIR, and measures included in the Campus Construction and Design Standards pertaining to the treatment of any previously undiscovered TCR would apply to the proposed project in the event unanticipated TCRs are discovered, to ensure proper handling, notification, and documentation for any discovered TCR. Therefore, the proposed project would be consistent with the TCR analyses and determination in the 2021 LRDP EIR; and proposed project impacts to TCR would remain **less than significant** with incorporation of **MM CUL-2 through MM CUL-4**.

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4.1.19 Utilities and Service Systems

Section 4.17 of the 2021 LRDP EIR addresses the impacts of campus growth on water supplies; wastewater conveyance, treatment, and disposal; solid waste disposal; stormwater management; and telecommunications facilities. The 2021 LRDP EIR concludes that any future development under the 2021 LRDP would result in less than significant impacts to utilities, as construction-related impacts resulting from expanded facilities would be temporary and would be consistent with the impacts described throughout the 2021 LRDP EIR. Increased water demand that would result from campus growth are accounted for under the RPU 2015 Urban Water Management Plan (UWMP), and the Riverside Water Quality Control Plant (RWQCP) has adequate capacity to treat anticipated wastewater generation. Development under the 2021 LRDP would not generate solid waste in excess of State or local standards (RPU 2016). Potential effects related to water quality, groundwater, and drainage patterns are discussed in Section 4.1.10, *Hydrology and Water Quality*, of this Addendum. No mitigation measures were identified in the 2021 LRDP EIR related to Utilities and Service Systems.

UTILITIES AND SERVICE SYSTEMS

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) 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?	Less than Significant Impact	No	No	No	No mitigation required
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple-dry years?	Less than Significant Impact	No	No	No	No mitigation required
c) Result in a determination by the waste water 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 providers existing commitments?	Less than Significant Impact	No	No	No	No mitigation required
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Less than Significant Impact	No	No	No	No mitigation required
e) Comply with federal, State, and local management and reduction statutes and regulations related to solid waste?	Less than Significant Impact	No	No	No	No mitigation required

a) The 2021 LRDP EIR states that implementation of the 2021 LRDP may require the relocation or construction of new or expanded utilities infrastructures to support anticipated growth in the number of students, faculty, and staff as well as UCR programs. Impacts were determined to be less than significant.

Development of the proposed project would be adjacent to existing campus development and would connect to existing utility facilities, including for water supply, wastewater treatment, storm water drainage, electric power, natural gas, and telecommunications. The proposed laboratories could use propane tanks or liquid nitrogen cylinders. All utility connections would be implemented during project construction which would result in only temporary impacts, be located within developed/disturbed areas, and not substantially increase the disturbance area within the 2021 LRDP. All project construction activities would comply with BMPs which would minimize any environmental impacts. Wastewater generated from the proposed project would be treated at the RWQCP which has a treatment capacity of 46 million gallons per day (MGD). The City projected a wastewater flow of 39 MGD by the year 2037 which is beyond the anticipated 2035/2036 year for the 2021 LRDP, and project-generated wastewater would be adequately treated.

Water and Wastewater Facilities

The campus has a combined fire and domestic water system that is sufficient to serve the proposed project. RPU provides potable water to the campus, which is used both in buildings and for landscape irrigation. In addition, UCR has a private on-campus water system that conveys potable water throughout the campus, as needed. All potable water, fire water, and irrigation water supplies are distributed through the campus-wide system that would serve the project site. The proposed project would require installation of a new fire water line connecting to the new proposed 10-inch water main on the eastern portion of the site, and a new fire hydrant. Impacts associated with construction of these facilities are described throughout this Addendum.

The irrigation system will meet or exceed the State of California Model Efficient Landscape Ordinance (Assembly Bill 1881 requirements) and the UCR requirements for a water efficient landscape, but not limited to a submeter and point of connection with a new back flow. A dedicated irrigation water line is proposed off the proposed 10-inch water main on the eastern portion of the project site. Additionally a 12-inch water main is proposed on the north portion of the site.

There are two existing sewer connections near the project site; a 15-inch line located under the pedestrian pathway, north of the project site and an 8-inch sanitary sewer located at the south edge of the project site. Both sewer lines travel west, eventually connecting to a 15-inch gravity sewer in University Avenue that is designed to pick up effluent from the nearby area. A 6-inch sewer main is proposed to connect to the existing main at the pedestrian pathway. Impacts associated with construction of these facilities are described throughout this Addendum.

Stormwater Drainage Facilities

Please refer to the analysis of drainage provided under Section 4.1.10, *Hydrology and Water Quality*, of this Addendum. 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.

All UC campuses are regulated under the Phase II MS4 General permit, and the campus is additionally regulated under the UCR's SWMP. Stormwater management measures (e.g., flow-through planters, bio-swales, bio filtration stormwater planters) would be incorporated into the project design.

The existing site generally drains from southeast to northwest. Drainage within the project limits currently sheet flows in this general direction towards a catch basin located at the northwest corner of Parking Lot 19. Stormwater from this portion of the campus ultimately discharges to the Gage Detention Basin, north of University Avenue. The project site is designed so storm water surface drains to a series of infiltration catch basins below ground. Portions of the project site impacted by the new storm drain utility trenching shall be replaced and restored in kind. Storm water surface flow shall not obstruct pedestrian pathways. Catch basins should be located within planting areas, where possible, except for those planter areas which are intended to be used as event or gathering spaces. Existing drainage patterns shall be maintained. Impacts related to stormwater drainage facilities would be less than significant.

Electric Power and Natural Gas Facilities

The proposed project is estimated to generate a total electric demand of 1,143,884 kilowatt-hours per year (see Appendix A), which is not anticipated to require additional electricity substations or construction or relocation of electrical infrastructure that would cause significant environmental effects. The proposed project is required to follow energy conservation policies listed in the UC Policy on Sustainable Practices, 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's energy demands would be met through renewable energy sources. To ensure there is no net increase in the natural gas as a result of the UTLF project, the campus will implement steam insulation projects Phases 2 and 3 (anticipated to be completed in 2025) to offset the UTLF natural gas usage. Phase 2 will save approximately 347 $MTCO_2e$ per year and Phase 3 will save approximately 364 MTCO2e per year. In addition, in Summer 2023, the campus completed the steam trap project with an estimated savings of approximately 290,000 therms per year, which is equivalent to approximately 1,700 $MTCO_2e$ per year. The proposed laboratories could use propane tanks or liquid nitrogen cylinders. It is anticipated that the proposed project would also be served by a renewable energy source such as a PV solar array (approximately 80 kilowatt) that is expected to generate approximately 120,000 kWh per year. Other project design features implemented to attain a minimum LEED Gold 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. Therefore, there would be a less than significant impact related to construction of new or expanded electrical infrastructure or the inefficient use of energy.

Telecommunications Infrastructure

The proposed project would include telecommunications/signals from distribution lines to building services and would include minor telecommunications improvements such as undergrounding telephone lines in previously disturbed areas. Impacts associated with these

minor improvements have been analyzed throughout this Addendum and would be less than significant.

As described throughout this response, the proposed project would be consistent with the utilities services analyses and determination in the 2021 LRDP EIR; and project impacts to utilities services would remain **less than significant**.

b) The 2021 LRDP EIR states that implementation of the 2021 LRDP would result in a net increase in water demand on the campus, and that this increase is accounted for in the RPU's 2015 UWMP. At the time of the preparation of the 2021 LRDP EIR, RPU was updating its UWMP for 2020 but had not yet released the plan. While the 2015 UWMP estimated 95,221 acre feet per year (AFY), the actual demand in 2020 was 81,338 AFY (RPU 2021). The 2020 UWMP anticipates a supply average of at least 20,000 AFY greater than demand for normal, one dry year, and multiple dry years until the year 2045 (RPU 2021). The 2021 LRDP anticipates an 825 AFY increase in potable water consumption by year 2035/2036. Impacts were determined to be less than significant.

Implementation of the proposed project would increase potable water usage on the campus; however, not beyond levels anticipated in the 2021 LRDP EIR, and any increase in potable water usage from the proposed project is accounted for within the 2020 UWMP. Additionally, RPU provided a future water demand letter during the 2021 LRDP EIR efforts which noted that it anticipates RPU will have adequate water supplies to meet UCR's proposed 2021 LRDP increased demand (UCR 2021b). Furthermore, the proposed project would comply with the UC Policy on Sustainable Practices by including minimum LEED Gold features in project design. Therefore, the proposed project would be consistent with the water demand analysis and determination in the 2021 LRDP EIR; and proposed project impacts to water demand and use would remain **less than significant**.

c) The 2021 LRDP EIR states that wastewater generated by implementation of the 2021 LRDP would be treated at the RWQCP, which has adequate capacity to serve the 2021 LRDP's anticipated wastewater generation in addition to existing treatment commitments. Impacts were determined to be less than significant.

Project implementation would increase the amount of on-campus building space and wastewater generation. However, the proposed project would connect to existing sewer systems which would be treated by the RWQCP. The design capacity of the RWQCP is 46 MGD, which is well above the anticipated 39 MGD wastewater flow by the year 2037. The 2021 LRDP approximates a per-capita wastewater generation rate of approximately 20 gallons per person per day. As discussed in Section 4.1.14, *Population and Housing*, of this Addendum, the proposed project would accommodate approximately 1,812 students and three faculty and staff, resulting in an approximately 36,300 gallons per day of wastewater generation, or approximately 13,249,500 gallons per year. This amount is within the assumptions used by the 2021 LRDP EIR as well as anticipated in the treatment capacity at the RWQCP facility. Therefore, the proposed project would be consistent with the wastewater analysis and determination in the 2021 LRDP EIR; and proposed project impacts to wastewater treatment would remain **less than significant**.

d, e) The 2021 LRDP EIR states that implementation of the 2021 LRDP would not generate solid waste in excess of State or local standards, or in excess of the existing infrastructure capacity. Furthermore, the 2021 LRDP would not impair UCR's attainment of solid waste reduction goals, and projects under the 2021 LRDP would comply with federal, State, and applicable local

statutes and regulations pertaining to solid waste. Impacts were determined to be less than significant.

Project implementation would require demolition and grading activities that would produce excavated soils, green waste, asphalt/concrete, and other construction, and demolition waste. Project operations would contribute to additional non-recyclable/non-reusable waste that would be deposited at the CR&R Perris Transfer Station and Material Recovery Facility, which has a maximum permitted daily capacity of approximately 3,287 tons per day (CalRecycle 2019). Project grading is not expected to produce debris during grading since demolition debris would be reused at the project site. Additionally, the handling of all debris and waste generated during construction would be subject to latest California Green Building Standards Code (CalGreen) requirements and the California Integrated Waste Management Act of 1989.

Project operations would result in solid waste generation, but the proposed project's anticipated 1,812 students and three faculty and staff would generate approximately 4.22 tons per day (UCR 2021b). This value is well within the anticipated 9.7 tons per day of solid waste anticipated within the 2021 LRDP, and these values do not account for UCR's waste/source reduction and recycling program which includes sorting and separating wastes and the expansion of composting procedures. 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 Parking Lot 30, where UCR collects the recyclables and waste on campus, including from the project site, and delivers these materials to the transfer station for hauling. A third-party vendor picks up the recyclable material for recycling. UCR delivers waste in UCR haul trucks to the Nelson Transfer Station from which Burrtec Waste Industries then transports 100 percent of the non-recyclable material to waste-to-energy facility. UCR composts all green waste on campus.

The proposed project would implement features of the UC Policy on Sustainable Practices, which directs UCR to reduce total per capita municipal solid waste generation by 25 percent and 50 percent from 2015/2016 levels by 2025 and 2030, respectively. The proposed project would comply with all federal, State, and UC statutes and regulations related to solid waste. The proposed project would not generate solid waste in excess of State or local standards or negatively impact the provision of solid waste services or impair attainment of solid waste goals, and the proposed project would comply with all federal, State, and local management regulations related to solid waste. Therefore, the proposed project would be consistent with the solid waste management analysis and determination in the 2021 LRDP EIR; and proposed project impacts to solid waste management would remain **less than significant**.

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4.1.20 Wildfire

Section 4.18 of the 2021 LRDP EIR addresses impacts to wildfire and concludes that impacts to wildfire would be less than significant with implementation of CBP WF-1, CBP WF-2, and MM WF-1. Implementation of the CBPs and MM would reduce future impacts of development under the 2021 LRDP related to wildfire to less than significant levels. MM WF-1 applies to UCR's Emergency Operations and Response Plan and does not require action at the project level.

The above-mentioned applicable CBPs state the following and are relevant to the proposed project:

CBP WF-1 Construction – Traffic Control: 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 alternate routes and appropriate signage.

CBP WF-2 Construction – Alternative Travel Routes: Prior to campus construction activities and/or roadway closures, the Campus Fire Marshal, as delegated by the State Fire Marshal, and in cooperation with the City of Riverside Fire Department shall ensure that adequate access for emergency vehicles is provided or identify alternative travel routes.

WILDFIRE

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	Less than Significant Impact	No	No	No	No mitigation required; CBP WF-1 and CBP WF-2 as conditions of approval
b) Exacerbate wildfire risks due to slope, prevailing winds, and other factors and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Less than Significant Impact	No	No	No	No mitigation required
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Less than Significant Impact	No	No	No	No mitigation required
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Less than Significant Impact with Mitigation Incorporated	No	No	No	No mitigation required

a) The 2021 LRDP EIR states that implementation of the 2021 LRDP could result in temporary lane or roadway closures on the edges of and within the campus during construction activities. Operation of new facilities developed under the 2021 LRDP would not substantially impair an adopted emergency response or evacuation plan. Impacts were determined to be less than significant.

As shown on Figure 4.18-1, Area Fire Hazard Severity Zones, in the 2021 LRDP EIR, the UTLF site is not located within a Very High Fire Hazard Severity Zone (VHFHSZ) in a State or Local Responsibility Area (CAL FIRE 2009). The proposed project would be developed on a site that has access from North Campus Drive. As stated in the 2021 LRDP EIR, roadways within the campus are not designated evacuation routes in the City's General Plan Public Safety Element. Therefore, construction and operation of the proposed project would not substantially alter or otherwise interfere with evacuation routes or public rights of-way, although project construction could result in temporary road closures on- and off campus. Consistent with the 2021 LRDP EIR, the proposed project would be required to comply with the UCR Emergency Operations Plan/Emergency Action Plan (UCR 2023b) and to develop and maintain a

construction management plan that would include information related to truck route details, potential road closures/detours, and emergency access. The Campus Fire Marshal would review this plan along with all plans during the plan review process to ensure adequate ingress/egress of emergency vehicles on the project site during construction activities and adequate fire lanes and access as well as adequate fire protection (e.g., fire hydrants, sprinklers) with development of the proposed project. Impacts were determined to be less than significant.

Operation of the proposed project would not alter or interfere with public rights-of-way and would provide access for emergency response vehicles to the UTLF site. Development and construction of the UTLF would comply with CBC/California Fire Code and with all existing regulations for on-site vegetation and fuel management to maintain clearance around the proposed buildings and structures. Therefore, the proposed project would be consistent with the emergency response and evacuation plan analysis and determination in the 2021 LRDP EIR; and proposed project impacts would remain **less than significant**.

Though no MMs are required for the 2021 LRDP, UCR has included **CBP WF-1 and CBP WF-2** as conditions of approval for projects under the 2021 LRDP to ensure traffic controls and alternative travel routes are available during construction activities. These CBPs would apply to the proposed project. These impacts related to traffic control would be consistent with the 2021 LRDP EIR and would remain **less than significant**.

b) The 2021 LRDP EIR states that development proposed under the 2021 LRDP could result in exposure of project occupants to pollutants from a wildfire; however, the 2021 LRDP would not result in exacerbation of existing conditions that would result in the uncontrolled spread of wildfire. The majority of campus land within a VHFHSZ are designated for Open Space Reserve or UCR Botanic Gardens and development under the 2021 LRDP within a VHFHSZ would occur on flat or slightly hilly areas rather than steep slopes with greater fire risk. All development under the 2021 LRDP would be required to comply with all applicable fire prevention regulations, including the California Fire Code, CBC, and California Health and Safety Code. Impacts were determined to be less than significant.

As shown on Figure 4.18-1, Area Fire Hazard Severity Zones, in the 2021 LRDP EIR, the UTLF site is not located within a VHFHSZ in a State or Local Responsibility Area (CAL FIRE 2009). The construction and operation of the proposed project would be an infill development project on the campus and would be subject to UCR's wildfire prevention actions, such as fuel clearance and current Fire Codes, thus providing increased fire safety and reducing the potential for wildfire risk. The proposed UTLF would be constructed on an existing parking lot and associated utility, hardscape, and landscape improvements would be within previously disturbed areas. The plant material for the proposed project would generally consist of native and adaptive species that require low water use and low maintenance and any proposed plant list would be consistent with the Campus Design and Construction Standards. UCR Facilities Services – Landscape Services would review and approve all tree and plant palettes to ensure the selected species are acceptable tree and plant materials.

The Campus Fire Marshal would ensure that there is proper storage, handling, and use of any hazardous materials during construction activities. Additionally, construction activities would be required to follow fire safety protocols, including but not limited to, on-site fire extinguishing equipment and compliance with Fire Code Chapter 33, and all construction equipment would be subject to standard operating procedures that would limit sources of ignition that could generate a wildfire. The proposed project would also have to be designed and constructed in

adherence to Campus Construction and Design Standards and building codes, including the UCR Fire Prevention and Life Safety Policy and would be subject to Fire Code review and inspection by UCR's Building and Safety Division, Fire Prevention, EH&S, Office of Emergency Management, the Campus Fire Marshal, and/or other applicable UCR departments and staff. This includes approval of plans and specifications to verify compliance with applicable codes, including updated fire safety standards. The proposed project includes fire protection (e.g., fire hydrants, fire sprinklers) and fire access for emergency vehicles. The proposed project would not exacerbate wildfire risks over existing conditions related to exposing project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Therefore, the proposed project would be consistent with the wildfire risk analysis and determination in the 2021 LRDP EIR; and proposed project impacts would remain **less than significant**.

c) The 2021 LRDP EIR states that new or updated infrastructure would be concentrated on developed portions of the campus, and that the installation of underground utilities would decrease fire risks during implementation of the 2021 LRDP. Impacts were considered less than significant.

As shown on Figure 4.18-1, Area Fire Hazard Severity Zones, in the 2021 LRDP EIR, the UTLF site is not located within a VHFHSZ in a State or Local Responsibility Area (CAL FIRE 2009). The proposed UTLF would be constructed on an existing parking lot and associated utility, hardscape, and landscape improvements would be within previously disturbed areas. The proposed UTLF can be accessed from North Campus Drive.

Development of the proposed project would include new pedestrian pathways, accessible parking, fire and service access, underground utility connections, emergency water sources, fuel breaks, and other associated infrastructure. Future access connection to the project site would be at this existing roadway (North Campus Drive) and the roadway would remain with implementation of the proposed project. All utilities connections needed to serve the proposed project would be installed in accordance with the current building codes and safety standards to reduce the risk of fires. New electrical connections would be installed underground in accordance with UCR Campus Construction and Design Standards. The existing and proposed fire hydrants, standpipes, and fire sprinklers in buildings would reduce fire risk by providing increased access to emergency services and fire protection. All of these measures, in addition to **CBP WF-1 and CBP WF-2**, would minimize potential fire risks on the campus and the proposed project would have less than significant impacts related to infrastructure that exacerbates fire risk. Therefore, the proposed project would be consistent with the wildfire risk management analysis and determination in the 2021 LRDP EIR; and proposed project impacts to wildfire risk management would remain **less than significant**.

d) The 2021 LRDP EIR concludes that slope stability hazards are considered negligible on the majority of campus due to its very flat to moderately flat topography. Even areas of the East Campus, though adjacent to natural hillsides, have low landslide risks due to the alluvial soils and bedrock that underlie most of the campus. However, burned slopes have a greater risk of landslide and slope instability could occur on East Campus in the event of a wildfire; therefore, the 2021 LRDP EIR incorporated MM WF-1 to minimize landslide risks in the event of wildfire and impacts were reduced to a less than significant level.

As shown on Figure 4.18-1, Area Fire Hazard Severity Zones, in the 2021 LRDP EIR, the UTLF site is not located within a VHFHSZ in a State or Local Responsibility Area (CAL FIRE 2009). The proposed UTLF would be constructed on an existing parking lot and associated utility,

hardscape, and landscape improvements would be within previously disturbed areas. The UTLF site is not adjacent to any steep slopes and surrounded by existing campus development. All project construction activities would have to comply with NPDES requirements and prepare and implement a SWPPP for site stormwater discharges; which would further ensure that the proposed project would not destabilize soils such that there are significant risks from debris flow. Therefore, the proposed project would be consistent with the slope stability and post-fire management analyses and determination in the 2021 LRDP EIR; and proposed project impacts to slope stability and post-fire management would be **less than significant.**

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4.1.21 Mandatory Findings of Significance

Would the proposed project:	2021 LRDP EIR Significance Conclusion	Do Proposed Changes Require Major Revisions to the 2021 LRDP EIR?	Do New Circumstances Require Major Revisions to the 2021 LRDP EIR?	Is there Any New Information Resulting in New or Substantially More Severe Significant Impacts?	Applicable 2021 LRDP EIR MMs to Address Project-Specific Impacts
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	Biological Resources - Less than Significant with Mitigation Incorporated; California history or prehistory – Significant and Unavoidable Impact	No	No	No	MM BIO-2 through MM BIO-4; MM CUL-2 through CUL-4; and MM GEO-1 and MM GEO-2
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	Significant and Unavoidable Cumulative Impacts	No	No	No	MM GHG-1 and MM N-1
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	Significant and Unavoidable Cumulative Impacts	No	No	No	MM HAZ-1 and MM HAZ-4; MM N-1; CBP WF-1 and CBP WF-2

a) All applicable MMs identified in the 2021 LRDP EIR to avoid and reduce impacts will be integrated into the proposed project and with the integration of these measures, the proposed project would not substantially degrade the quality of the environment. As described in Section 4.1.4, *Biological Resources*, of this Addendum, the proposed project would not significantly affect fish or wildlife habitat or species. The project site is developed and/or has been previously disturbed and mostly devoid of sensitive biological resources, except potential nest trees and roost structures for birds and bats, which would be addressed by implementation of 2021 LRDP EIR **MM BIO-2 through MM BIO-4,** which requires nesting bird avoidance, bird strike avoidance, and a bat preconstruction survey. Therefore, impacts to biological resources would have **less than significant impacts with mitigation incorporated** and would be consistent with the biological resources analysis evaluated in the 2021 LRDP EIR.

As described in Section 4.1.5, *Cultural Resources,* of this Addendum, the project site is adjacent to the Athletics and Dance Building, which is an eligible historical resource. The Athletics and

Dance Building is identified as eligible for federal and State landmark listing, both individually and as a contributor to UCR's Mid-Century Modern Core Historic District. As the 2021 LRDP EIR states, impacts to historical resources are evaluated by determining the potential for development to impair material such that a historic resource eligible for listing in the California Register of Historical Resources would no longer be eligible for the National Register of Historic Places or local historical registers. The Secretary of the Interior's Standards for the Treatment of Historic Properties Project Review and Impacts Screening Report (Screening Survey) prepared for the project indicated that the Athletics and Dance Building would not lose character-defining features with compliance with the Secretary' Standards and incorporation of recommendations from Table 2 of the Screening Report. These recommendations include, but are not limited to, designing the project site compatible with but differentiated from the Historic District and pursuant to Secretary's Standards, monitor the site during construction to proactively avoid and minimize anticipated damage to character-defining features. For these reasons, the proposed project would have a **less than significant impact** on historical resources and would be consistent with the cultural resources analysis evaluated in the 2021 LRDP EIR. Because native soils are present at the project site at depths of approximately 10 feet below grade (Appendix D), native soils have the potential to contain cultural resources and monitoring would occur during ground disturbing construction activities, when ground disturbing activities are at approximately 10 feet below grade, to monitor for unknown archaeological resources, tribal cultural resources, and paleontological resources. UCR's standard contract specifications address the protection and recovery of buried archaeological resources, including human remains, and paleontological resources as noted in **MM CUL-2 through MM CUL-4, MM GEO-1, and MM GEO-2**. These measures identify steps to be taken in the event archaeological resources, tribal cultural resources, including human remains, and paleontological resources are discovered during ground disturbing activities. As such, the proposed project would have a **less than significant impact with mitigation incorporated** on archaeological resources, tribal cultural resources, and paleontological resources and would be consistent with these resource analysis evaluated in the 2021 LRDP EIR.

b) The 2021 LRDP EIR identifies cumulatively significant impacts to aesthetics (impacts to scenic vistas), agriculture (loss of Farmland), air quality (contribution of ROG and NO_x from construction emissions; contribution of ROG, NO_x and PM_{10} from operational emissions), cultural resources (impacts to historical resources), noise (construction noise), and transportation (intersection queuing). As part of implementing the 2021 LRDP, the proposed project would contribute to some of these **significant and unavoidable cumulative impacts**, such as air quality, noise, and transportation. However, the proposed project is within the scope of campus development and population evaluated in the 2021 LRDP EIR, as noted in Section 3 of this Addendum.

These impacts were also addressed in the Findings and Statement of Overriding Considerations adopted by the Regents with their certification of the 2021 LRDP EIR. No conditions have changed, and no new information has become available since certification of the 2021 LRDP EIR that would alter the previous analysis relative to the proposed project. The project would implement applicable mitigation measures from the 2021 LRDP EIR (**MM GHG-1 and MM N-1**), which would reduce the project's contribution to the cumulative air quality, GHG emissions, and noise impacts previously identified in the 2021 LRDP EIR. The proposed project would not result in new significant cumulative effects and no additional mitigation is required to reduce the project's contribution to these previously identified impacts.

c) As described above, the proposed project would incrementally contribute to cumulative air quality (ROG and NO_x from construction emissions and contribution of ROG, NO_x, and PM_{10} during operational emissions) and construction noise impacts, which were identified as significant and unavoidable as well as cumulatively significant in the 2021 LRDP EIR. The proposed project's construction and operation emissions are within the scope of impacts examined in the 2021 LRDP EIR and, as described further in Section 4.1.3, *Air Quality*, would not result in exposure of sensitive receptors to substantial pollutant concentrations. Significant and unavoidable impacts related to construction noise would occur temporarily and be reduced to the extent feasible with incorporation of **MM N-1**.

Although there are no known impacted soils identified on the project site based on the due diligence and sampling tested by Envirocheck Inc. (completed per **MM HAZ-1**), **MM HAZ-4**, requiring a Construction SMP would be required in the event unexpected impacted soils are encountered during construction activities. The project would incorporate **CBP WF-1 and CBP WF-2** to ensure circulation remains adequate in the event of an emergency. Other impacts related to geologic hazards, hazardous materials, and wildfire, which have the potential to affect human beings, would remain less than significant with applicable mitigation measures incorporated, as identified in the 2021 LRDP EIR and specified throughout this Addendum.

Project-generated air quality impacts and construction noise impacts would not result in substantial adverse effects on human beings beyond those analyzed in the 2021 LRDP EIR. No conditions have changed, and no new information has become available since certification of the 2021 LRDP EIR that would alter this analysis. These significant impacts were also addressed in the Findings and Statement of Overriding Considerations adopted by the Regents in connection with their approval of the 2021 LRDP EIR. The proposed project would incorporate the relevant 2021 LRDP EIR MMs noted in Section 5 of this Addendum. No additional mitigation is available to reduce the project's contribution to these impacts. Other impacts with the potential to affect human beings were determined to be less than significant with the incorporation of applicable MMs.

5 APPLICABLE MITIGATION MEASURES

The following MMs and CBPs from the certified 2021 LRDP EIR Mitigation Monitoring and Reporting Program would be applicable to the impacts associated with the proposed project. No new significant impacts or increased severity in impacts that were not analyzed in the 2021 LRDP EIR have been identified; therefore, no additional project-specific mitigation is required.

5.1 AESTHETICS

MM AES-1: UCR shall incorporate site-specific consideration of the orientation of the building, use of landscaping materials, lighting design, and choice of primary façade materials to minimize potential off-site spillover of lighting and glare from new development. As part of this measure and prior to project approval, UCR shall require the incorporation of site- and project-specific design considerations (to be included in the lighting plans) to minimize light and glare, including, but not limited to, the following:

- New outdoor lighting adjacent to on-campus residences and adjacent off-campus sensitive uses shall utilize directional lighting methods with full cutoff type light fixtures (and shielding as applicable) to minimize glare and light spillover.
- All elevated light fixtures such as in parking lots, parking structures, and athletic fields shall be shielded to reduce glare.
- Provide landscaped buffers where on-campus student housing, uses identified as Open Space Reserve and UCR Botanic Gardens, and off-campus residential neighborhoods might experience noise or light from UCR activities.
- All lighting shall be consistent with the Illuminating Engineering Society of North America (IESNA) Lighting Handbook.
- The UCR Planning, Design, & Construction staff shall review all exterior lighting design for conformance with the Campus Design and Construction Standards.

Verification of inclusion in project design shall be provided at the time of design review and lighting plans shall be reviewed and approved prior to project-specific design and construction document approval.

5.2 AGRICULTURE AND FORESTRY RESOURCES

No mitigation required.

5.3 AIR QUALITY

Please refer to **MM GHG-1** (Measures EN1, FL1, TR2 through TR4, and CR1) in Section 5.8, *Greenhouse Gases*, below.

5.4 BIOLOGICAL RESOURCES

MM BIO-2 Nesting Bird Avoidance: Prior to issuance of grading permits, the following measures shall be implemented:

- To avoid disturbance of nesting and special-status bird species protected by the MBTA and California Fish and Game Code, activities related to the project, including but not limited to, vegetation removal, ground disturbance, and construction and demolition shall occur outside of the bird breeding season (February 15 through August 31). If construction must be initiated during the peak nesting season, vegetation removal and/or tree removal should be planned to occur outside the nesting season (September 1 to February 14), and a preconstruction nesting bird survey shall be conducted no more than 3 days prior to initiation of construction activities. The nesting bird preconstruction survey shall be conducted on foot inside the project site disturbance areas. If an active avian nest is discovered during the preconstruction clearance survey, construction activities shall stay outside of a 50- to 200-foot buffer for common nesting birds around the active nest, as determined by a biologist. For listed and raptor species, this buffer shall be expanded to 500 feet or as determined by a biologist.
- Inaccessible areas shall be surveyed from afar using binoculars to the extent practical. The survey shall be conducted by a qualified biologist familiar with the identification of avian species known to occur in western Riverside County. If nests are found, an appropriate avoidance buffer shall be determined by a qualified biologist and demarcated by a qualified biologist with bright orange construction fencing, flagging, construction lathe, or other means to mark the boundary. Effective buffer distances are highly variable and based on specific project stage, bird species, stage of nesting cycle, work type, and the tolerance of a particular bird pair. The buffer may be up to 500 feet in diameter, depending on the species of nesting bird found and the biologist's observations.
- If nesting birds are located adjacent to the project site with the potential to be affected by construction activity noise above 60 dBA Leq (see Section 4.11, Noise, of the LRDP EIR for definitions and discussion of noise levels), a temporary noise barrier shall be erected consisting of large panels designed specifically to be deployed on construction sites for reducing noise levels at sensitive receptors. If 60 dBA Leq is exceeded, an acoustician would require the construction contractor to make operational and barrier changes to reduce noise levels to 60 dBA during the breeding season (February 15 through August 31). Noise monitoring shall occur during operational changes and installation of barriers to ensure their effectiveness. All construction personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No parking, storage of materials, or construction activities shall occur within this buffer until the avian biologist has confirmed that breeding/nesting is completed, and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist, if it is determined such encroachment will not adversely impact the nesting birds.

MM BIO-3 Bird Strike Avoidance: To reduce bird strike mortality and injury of special-status bird species from collisions with clear and reflective sheet glass and plastic, construction of glass-fronted buildings or other structures using exposed glass (e.g., glass-topped walls) shall incorporate measures to minimize the risk of bird strikes. This may include: (1) the use of opaque or uniformly textured/patterned/etched glass, (2) angling of glass downward so that the ground instead of the surrounding habitat or sky is reflected, (3) installation of one-way film that results in opaque or translucent covering when viewed from either side of the glass, (4) installation of a uniformly dense dot pattern created as ceramic frit on both sides of the glass, and/or (5) installation of a striped or grid pattern of clear ultraviolet-reflecting and ultraviolet-absorbing film applied to both sides of the glass. It should be noted that single decals (e.g., falcon silhouettes or large eye patterns) are ineffective and are not recommended unless the entire glass surface is uniformly covered with the objects or patterns.

MM BIO-4 Bat Preconstruction Survey: To avoid disturbance of special-status bat species during maternity season (approximately March through September), a preconstruction roosting bat survey

shall be conducted by a qualified bat biologist on potential roost structures identified by the bat biologist and mature vegetation no more than 30 days prior to initiation of construction activities if construction activities must occur during the roosting season. If future projects would impact rocky outcrops, mature vegetation, existing buildings, or other structures that could be used for roosting, a passive acoustic survey shall identify the species using the area for day/night roosting. If special-status roosting bats are present and their roosts would be impacted, a qualified bat biologist should prepare a plan to identify the proper exclusionary methods. Removal of mature trees should be monitored by a qualified bat biologist and occur by pushing down the entire tree (without trimming or limb removal) using heavy equipment and leaving the felled tree on the ground untrimmed and undisturbed for a period of at least 24 hours. To exclude bats from buildings/structures or rocky outcrops, exclusion measures should be installed on crevices by placing one-way exclusionary devices that allow bats to exit but not enter the crevice.

5.5 CULTURAL RESOURCES

MM CUL-1 Protection of Historical Resources: For purposes of MM CUL-1, "major exterior alterations" indicates a significant alteration/change to the exterior character-defining features or setting of a building or structure. Such projects might include, but not be limited to, additions, partial or complete demolition, relocation, window frame replacement different from existing, modifications to wall sheathing materials, changes to the roof shape, pitch, eaves, and other features, installment of wheelchair access ramps, and/or changes to the overall design configuration and composition of the building and the spatial relationships that define it. Major exterior alterations would require consultation to determine if these alterations noted above constitutes a major exterior alteration requiring further review from an architectural historian or whether the proposed alterations would qualify as a minor exterior alteration.

For purposes of MM CUL-1, "minor exterior alterations" indicates a minor alteration/change to the exterior of a building or structure and its setting that would not be likely to significantly alter its appearance. Such projects might include, but not be limited to, repainting, in-kind landscaping or hardscaping replacement, window pane replacement, reversible installation of HVAC [heating, ventilation, and air conditioning] units that does not obstruct or destroy character-defining features, installation of fencing, signage, or artwork that does not obstruct or destroy character-defining features. Minor exterior alterations are exempt from further review from an architectural historian.

During project-specific environmental review of development under the 2021 LRDP, UCR shall define the project's area of effect for historic buildings and structures as early as possible. UCR shall implement the following procedures:

- Conduct project-specific surveys for buildings or structures (e.g., proposed for demolition, major exterior alterations, additions) that are 50 years of age or older that have (1) not been subject to an evaluation within the past 5 years, or (2) were not previously evaluated in the UCR Historic Resources Survey Report.
    - UCR shall retain a qualified architectural historian to record the property at professional standards and assess its significance under CEQA Guidelines Section 15064.4. The evaluation process shall include the historic context framework included in the UCR Historic Resources Survey Report as well as the development of additional background research as needed in order to assess the significance of the building, structure, district, or cultural landscape in the history of the UC system, the campus, and the region. For historic buildings, structures or features that

do not meet the CEQA criteria as a historical resource, no further mitigation is required, and the impact would be less than significant.

- The assessment of the potential historical resource and its character-defining features shall be documented on the appropriate California Department of Parks and Recreation (DPR) 523 forms by a qualified architectural historian meeting the Secretary of the Interior's Professional Qualifications Standards (as codified in 36 CFR [Code of Federal Regulations] Part 61).

- For projects affecting any eligible historic buildings identified in the UCR Historic Resources Survey Report or determined to be eligible during the project-specific surveys, for a building or structure that qualifies for listing on the NRHP [National Register of Historic Places] and/or CRHR [California Register of Historical Resources], UCR shall implement the following procedures:
  - For major exterior repairs (different from that of existing), alterations, or building additions of buildings that are eligible historic resources, UCR shall retain a qualified architectural historian meeting the Secretary of the Interior's Professional Qualifications Standards (as codified in 36 CFR Part 61) to conduct Character-Defining Features and Impacts Screening in coordination with the design team to consider project design features and/or measures that would enable the project to avoid direct or indirect impacts to the building or structure. Conclusion of the screening consultation process shall be documented in a memorandum, including a statement of compliance with the Secretary's Standards. The purpose of the memorandum shall document avoidance/reduction of significant adverse impacts to historical resources, where feasible, through (1) identifying and documenting character-defining features, noncontributing elements/additions, and (2) providing historic preservation project review and preliminary impacts analysis screening to UCR as early as possible in the design process. The memorandum shall review preliminary and/or conceptual project objectives early in the design process and describe various project options capable of reducing and/or avoiding significant adverse direct or indirect impacts through compliance with the Secretary's Standards and/or application of the State Historic Building Code or any subsequent design guidelines prepared by UCR for the treatment of historic resources.

If major modifications, renovations, or relocation of a determined historic resource is proposed and the project is unable to comply with the Secretary's Standards or when a historic resource is to be demolished, then UCR shall ensure that documentation shall be carried out by a qualified architectural historian, as follows:

- UCR shall commission the preparation of HABS-like [Historic American Building Survey] documentation of the building, structure, district, feature, and its associated landscaping and setting prior to construction activities. The HABS-like package will document in photographs and descriptive and historic narrative the historical resources slated for modification/demolition. Documentation prepared for the package will draw upon primary- and secondary-source research and available studies previously prepared for the project.
- The specifications for the HABS-like package follow:
  - Photographs: Photographic documentation will focus on the historical resources/features slated for demolition, with overview and context photographs for the campus and adjacent setting. Photographs will be taken of the building using a professional-quality single lens reflex (SLR) digital camera with a minimum resolution of 10 megapixels. Photographs will include context views, elevations/exteriors, architectural details, overall interiors, and interior details (if warranted). Digital photographs will be provided in electronic format.

  - Descriptive and Historic Narrative: The architectural historian will prepare descriptive and historic narrative of the historical resources/features slated for demolition. Physical descriptions will detail each resource, elevation by elevation, with accompanying photographs, and information on how the resource fits within the broader campus during its period of significance. The historic narrative will include available information on the campus design, history, architect/contractor/designer as appropriate, area history, and historic context. In addition, the narrative will include a methodology section specifying the name of researcher, date of research, and sources/archives visited, as well as a bibliography. Within the written history, statements shall be footnoted as to their sources, where appropriate.
  - Historic Documentation Package Submittal: The electronic package will be assembled by the architectural historian and submitted to UCR for review and comment.

- A copy of the HABS-like package shall be offered to the Special Collections and University Archives at the Tomás Rivera Library and the California Historical Resources Information System. The record shall be accompanied by a report containing site-specific history and appropriate contextual information. This information shall be gathered through site-specific and comparative archival research, and oral history collection as appropriate.
- If preservation and reuse at the site are not feasible, the historical building shall be documented as described above.

For new infill construction within the Mid-Century Modern Core Historic District that does not involve building demolition:

- Infill projects outside of the Mid-Century Modern Core Historic District would not need review by an architectural historian.
- Infill projects within the Mid-Century Modern Core Historic District will require review by an architectural historian for elements such as form, massing, and scale, to ensure visual compatibility with the historic district, and the review shall be conducted in compliance with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (Weeks and Grimmer 1995).

MM CUL-2 Tribal Cultural Resources/Archaeological Monitoring: Prior to commencement of ground disturbing activities into an area with a medium or high potential to encounter undisturbed native soils including Holocene alluvium soils, as determined by UCR, UCR shall hire a qualified archaeological monitor meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (National Park Service [NPS] 1983) to identify archaeological resources and cultural resources of potential Native American origin. Where development occurs in the southeastern quadrant of campus, and in areas containing Val Verde Pluton geologic features considered highly sensitive to prehistoric archaeological resources, UCR shall hire a qualified archaeologist and a Native American monitor to reduce impacts to potential archaeological and/or tribal cultural resources. The monitor(s) shall be on-site during any construction activities that involve ground disturbance. The on-site monitoring shall end when project-related ground disturbing activities are completed, or, in consultation with the lead agency and tribes as appropriate and based on observed conditions, monitoring may be reduced or eliminated prior to completion of ground-disturbing activities, when the monitor(s) has indicated that the project site has a low potential to encounter tribal cultural resources (TCR)/archaeological resources. Consolidated monitoring efforts (e.g., archaeological monitoring/tribal cultural/paleontological monitoring) may occur if the individual monitor meets the applicable qualifications, except for development in the southeastern quadrant as detailed above.

MM CUL-3 Construction Worker Training: For projects requiring TCR/archaeological monitoring, the monitor shall provide preconstruction training for all earthmoving construction personnel prior to the start of any ground disturbing activities, regarding how to recognize the types of TCRs and/or archaeological resources that may be encountered and to instruct personnel about actions to be taken in the event of a discovery. UCR Planning, Design & Construction Project Manager/contractor shall retain documentation showing when training of personnel was completed.

MM CUL-4 Unanticipated Discovery of Tribal Cultural Resources/Archaeological Resources: If previously undiscovered TCRs and/or archaeological resources are identified during construction, all ground disturbing activities within 100 feet of the resource shall halt, UCR Planning, Design & Construction staff shall be notified, and the find shall be evaluated by a qualified archaeologist meeting the Secretary of the Interior standards to determine whether it is a unique archaeological resource, as defined by CEQA. If the discovery appears to be Native American in origin, a tribal representative will be contacted within 24 hours of discovery to determine whether it is a TCR, as defined by CEQA. If the find is neither a unique archaeological resource nor a TCR, work may resume. If the find is determined to be a unique archaeological resource or TCR, the archaeologist and the tribal representative, as appropriate, shall make recommendations to UCR Planning, Design & Construction staff on the measures that will be implemented, including, but not limited to, preservation in place, excavation, relocation, and further evaluation of the discoveries pursuant to CEQA. Preservation in place (i.e., avoidance) is the preferred method of mitigation for impacts to TCRs/archaeological resources. If UCR determines that preservation in place is not feasible, the 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-site may commence upon completion of any fieldwork components of the treatment plan.

5.6 ENERGY

Please refer to **MM GHG-1** (Measures EN3 and EN5) in Section 5.8, *Greenhouse Gases*, below.

5.7 GEOLOGY AND SOILS

MM GEO-1 Inadvertent Discovery of Paleontological Resources: If any paleontological resources are encountered during ground-disturbing activities, the contractor shall ensure that activities in the immediate area of the find are halted and that UCR is informed. UCR shall retain a qualified paleontologist to evaluate the discovery and recommend appropriate treatment options pursuant to guidelines developed by the Society of Vertebrate Paleontology, including development and implementation of a paleontological resource impact mitigation program by a qualified paleontologist for treatment of the particular resource, if applicable. These measures may include, but not limited to, the following:

- Salvage of unearthed fossil remains and/or traces (e.g., tracks, trails, burrows)
- Washing of screen to recover small specimens
- Preparation of salvaged fossils to a point of being ready for curation (e.g., removal of enclosing matrix, stabilization and repair of specimens, and construction of reinforced support cradles)
- Identification, cataloging, curation, and provisions for repository storage of prepared fossil specimens

MM GEO-2 Paleontological Resources Monitoring: UCR shall implement the following measures if projects are proposing earth-moving activities exceeding 5 feet below previously undisturbed alluvial-fan soils within "high paleontological sensitivity" (i.e., Qof and Qvof):

- Retain a qualified professional paleontologist to prepare and implement a Paleontological Resources Impact Mitigation Plan for the project. A qualified paleontologist is an individual who meets the education and professional experience standards as established by the SVP (2010), which recommends the paleontologist shall have at least a master's degree or equivalent work experience in paleontology, shall have knowledge of the local paleontology, and shall be familiar with paleontological procedures and techniques. The Paleontological Resources Impact Mitigation Plan shall describe mitigation recommendations in detail, including paleontological monitoring procedures; communication protocols to be followed in the event that an unanticipated fossil discovery is made during project development; and preparation, curation, and reporting requirements. Consolidated monitoring efforts (e.g., archaeological monitoring/tribal cultural/paleontological monitoring) may occur if the individual monitor has the applicable qualifications.
- Prior to the commencement of ground disturbing activities, the qualified paleontologist or their designee, shall conduct training for grading and excavation personnel regarding the appearance of fossils and the procedures for notifying paleontological staff if unanticipated fossils are discoered by construction staff. The Paleontological Worker Environmental Awareness Program shall be fulfilled at the time of a pre-construction meeting. In the event a fossil is discovered by construction personnel anywhere in the project area, all work in the immediate vicinity of the find shall cease and a qualified paleontologist shall be contacted to evaluate the find before re-starting work in the area. If it is determined that the fossil(s) is (are) scientifically significant, the qualified paleontologist shall complete the mitigation outlined below to mitigate impacts to significant fossil resources.
- If paleontological resources are encountered during ground-disturbing activities, MM GEO-1 shall apply.

5.8 GREENHOUSE GAS EMISSIONS

MM GHG-1 Implement On-Campus GHG Emissions Reduction Measures: UCR shall implement the following GHG emissions reduction measures by scope emissions category:

Scope 1 (Stationary Fuel Combustion, Refrigerant Use, Fleet Fossil Fuel Combustion)

- Measure [Energy] EN1: In order to meet 100 percent electrification of all new campus buildings and structures, UCR shall prioritize construction of all-electric building design for new campus buildings and structures and discourage the construction and connection of new fossil fuel combustion infrastructure on campus. In addition, UCR shall focus on energy optimization through the Central Steam Plant control systems by automating manual processes and initiating an engineering study focused on transitioning away from natural gas use at the Central Plant.
- Measure EN2: In order to address on-campus natural gas combustion, starting in 2025 and continuing through 2035, UCR shall purchase biogas for at least 40 percent of the total on-campus natural gas usage.
- Measure [Global Warming Potential] GWP1: In order to reduce emissions from refrigerants used on campus, UCR shall phase out of high global warming potential chemical refrigerants on campus to achieve 100 percent relative carbon neutrality by 2045. This may include the replacement of chemical refrigerants with lower global warming potential in the interim of full phase out while an

alternative technology is determined. Furthermore, UCR shall prohibit the use of equipment in new buildings or construction projects that do not utilize low global warming potential or Significant New Alternatives Policy Program accepted refrigerants.

- Measure [Fuel] FL1: In order to decarbonize the campus vehicle fleet, UCR shall reduce emissions from the campus vehicle fleet by 25 percent by 2025, by 50 percent by 2030, and by 75 percent by 2035 through replacement of fleet vehicles with electric vehicles or low-emission alternative vehicles.

Scope 2 (Electricity Consumption and Generation)

- Measure EN3: UCR shall work to obtain 100 percent clean-sourced electricity through either RPU and/or through the installation of on-site clean-sourced electricity sources for all new buildings by 2025. In addition, UCR shall establish annual budgets that include funding to purchase 100 percent clean-source energy. Furthermore, all newly constructed building projects, other than wet lab research laboratories, shall be designed, constructed, and commissioned to outperform the California Building Code (Title 24 portion of the CCR) energy efficiency standards by at least 20 percent. Finally, UCR shall incorporate solar PV as feasibly possible for newly constructed and majorly-renovated buildings with the maximum system size, highest solar panel efficiency, and greatest system performance.
- Measure EN4: In order to obtain electricity from 100 percent renewable source(s) for all existing buildings by 2045, UCR shall renegotiate its contractual agreement with RPU to establish a schedule and specific goals for obtaining 100 percent renewable electricity for the campus. In addition, UCR shall conduct an evaluation of existing buildings for structural suitability in terms of accommodating a solar photovoltaic system capacity with highest energy generation yield and for installing energy storage technology on campus and then installing such systems on identified buildings and facilities.
- Measure EN5 (Parts A, B, C): In order to prioritize energy efficiency and green building initiatives for building/facility upgrades and new construction as well as reduced energy use, UCR shall identify aging equipment throughout the campus such as equipment associated with the Central Plant, electrical distribution system, and building HVAC systems and develop a strategy and schedule to upgrade such equipment with high-energy efficiency systems and optimize HVAC systems through heat zoning, high-efficiency filters, and shut-down times expansion. The strategy shall include an evaluation and cost analysis related to upgrading/retrofitting equipment versus retirement of equipment if no longer needed with future initiatives (i.e., Central Plant boiler retirement). The schedule and upgrade strategy must meet a 2 percent energy efficiency improvement annually through 2035. In addition, UCR shall require new buildings to incorporate occupancy sensors and controls such that lighting of shared spaces is on occupancy sensors, building temperature set points are widened and aligned with occupancy schedules, and ventilation systems are converted from constant volume to variable so ventilation rates are occupancy-based. Furthermore, UCR shall develop a plan to identify existing buildings and projects that could undergo upgrades to the control systems and establish a schedule for upgrade incorporation. Finally, UCR shall develop a tracking program to monitor and share campus energy efficiency activities and progress towards increased energy efficiency.

Scope 3 (Waste Generation, Business Air Travel, On-site Transportation, Water Consumption, Carbon Sequestration, and Construction)

- Measure (Waste Generation) WG1: UCR shall implement and enforce SB 1383 organics and recycling requirements to specifically reduce landfilled organics waste to 75 percent by 2025.

- Measure WG2: UCR shall reduce campus waste sent to landfills 90 percent by 2025 and 100 percent by 2035. In addition, UCR shall reduce waste generation at campus events 25 percent by 2025 and 50 percent by 2035, with goals of being zero waste and plastic free events. Furthermore, UCR shall establish purchasing and procurement policies and guidelines prioritizing vendors that limit packaging waste and purchase reusable and compostable goods.
- Measure [Transportation] TR1: In order to reduce GHG Emissions related to business air travel, UCR shall provide incentives to faculty for emission-reducing behaviors and utilizing travel options that are less carbon intensive, promote the use of virtual meetings, and encourage alternative forms of travel other than air travel.
- Measure TR2: UCR shall update the Transportation Demand Management (TDM) program for the campus to decrease single occupancy vehicle VMT 5 percent by 2025 and 20 percent by 2035. In addition, UCR shall evaluate trends of current programs to expand on existing programs and establish new initiatives that utilize proven successful strategies.
- Measure TR3: UCR shall develop and implement a Campus Active Transportation Plan to shift 2 percent of baseline (2018) passenger vehicle VMT to active transportation by 2025 and 8 percent by 2035. In addition, UCR shall update the Campus Bicycle and Pedestrian Network Map every five years, including routes from off campus to on campus.
- Measure TR4: UCR shall reduce GHG emissions associated with campus commuting 10 percent by 2025 and 25 percent by 2035.
- Measure [Water Consumption] WC1: UCR shall reduce per-capita water consumption 20 percent by 2025 and 35 percent by 2035 compared to academic year 2018/2019 per capita consumption.
- Measure [Carbon Sequestration] CS1: UCR shall increase carbon sequestration through increasing tree planting and green space 5 percent by 2025 and 15 percent by 2035.
- Measure [Construction] CR1: UCR shall reduce construction-related GHG emissions on campus 10 percent by 2025 and 25 percent by 2035 through emission reduction controls and/or electric equipment requirements in line with contract obligations. Specifically, UCR shall require off-road diesel-powered construction equipment greater than 50 horsepower to meet the Tier 4 emission standards as well as construction equipment to be outfitted with BACT devices certified by CARB and emissions control devices that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similar-sized engine. In addition, UCR shall develop zero waste procurement guidelines and processes for campus construction projects and integrate into purchasing RFP language as part of campus procurement.

The UCR Office of Sustainability, Facilities Services, EH&S, TAPS, and/or PD&C shall annually monitor, track, and verify implementation of these GHG emissions reduction measures.

5.9 HAZARDS AND HAZARDOUS MATERIALS

MM HAZ-1 Property Assessment – Phase I and II ESAs: During the pre-planning stage of campus projects on previously developed sites or on agricultural lands (current or historic), and in coordination with EH&S, UCR shall obtain documentation from EH&S or prepare a Phase I Environmental Site Assessment (ESA) assessing the land use history of the proposed project site and identify potential hazardous materials concerns, including, but not limited to, fuel tanks, chemical storage, presence of elemental mercury, elevator pistons and associated hydraulic oil reservoirs and piping, heating-oil USTs, or agricultural uses. If the Phase I ESAs, or similar documentation, identify recognized environmental conditions or potential concern areas, a Phase II ESA would be conducted in coordination with EH&S to

determine whether the soil, groundwater, and/or soil vapor has been impacted at concentrations exceeding regulatory screening levels for residential or commercial/industrial type land uses (as applicable). If the Phase II ESA concludes that the site is or may be impacted and could affect the planned development, assessment, remediation, or corrective action (e.g., removal of contaminated soil, in-situ treatment, capping, engineering controls) would be conducted prior to or during construction under the oversight of federal, State, and/or local agencies (e.g., USEPA, DTSC, RWQCB, RFD, RCDEH) and in full compliance with current and applicable federal and State laws and regulations, including but are not limited to the California Environmental Quality Act (CEQA). Assessment, remediation, or corrective action must be evaluated under CEQA prior to commencing the assessment, remediation, or correction action. Additionally, Voluntary Cleanup Agreements may be used for parcels where remediation or long-term monitoring is necessary.

MM HAZ-4 Construction Site Management Plan: If impacted soils are identified pursuant to activities conducted through Mitigation Measures MM HAZ-1, MM HAZ-2, or MM HAZ-3; or encountered during construction (soil disturbance), UCR shall prepare a Construction Site Management Plan (SMP) for the proposed redevelopment project area to address potential issues that may be encountered during redevelopment activities involving subsurface work. The Construction SMP objectives shall include:

- Communicating information to proposed project construction workers about environmental conditions
- Presenting measures to mitigate potential risks to the environment, construction workers, and other nearby receptors from potential exposure to hazardous substances that may be associated with unknown conditions or unexpected underground structures
- Presenting protocols for management of known contaminated soil or groundwater encountered during construction activities

The Construction SMP shall identify the proposed project contacts, responsibilities, and notification requirements and outline the procedures for health and safety, soil management, contingency measures for discovery of unexpected underground structures, erosion, dust, and odor management, groundwater management, waste management, stormwater management, and written records and reporting. The Construction SMP shall be reviewed and approved by UCR prior to issuance of grading permits.

5.10 HYDROLOGY AND WATER QUALITY

No mitigation required.

5.11 LAND USE AND PLANNING

No mitigation required.

5.12 MINERAL RESOURCES

No mitigation required.

5.13 NOISE

MM N-1 Construction Noise Reduction Measures: To reduce construction noise levels to on-campus and off-campus noise sensitive receivers, UCR shall implement the following measures:

- Hours of exterior construction activities shall be limited to 7:00 a.m. to 9:00 p.m. Monday through Friday and 8:00 a.m. to 6:00 p.m. on Saturday, as feasible, except under circumstances where such time limits are infeasible (e.g., for time sensitive construction work such as concrete pouring, excessive heat warnings/temperatures during the summer, operational emergencies). No exterior construction activities shall occur on federal holidays.
- Construction traffic shall follow routes so as to minimize the noise impact of this traffic on the surrounding community, to the greatest extent feasible.
- Contract specifications shall require that construction equipment be muffled or otherwise shielded, in accordance with manufacturers' recommendations. Contracts shall specify that engine-driven equipment be fitted with appropriate noise mufflers.
- Where available and feasible, construction equipment with back-up alarms shall be equipped with either audible self-adjusting backup alarms or alarms that only sound when an object is detected. Self-adjusting backup alarms shall automatically adjust to 10 dBA over the surrounding background levels. All non-self-adjusting backup alarms shall be set to the lowest setting required to be audible above the surrounding noise levels.
- Stationary construction equipment material and vehicle staging shall be placed to direct noise away from sensitive receivers to the greatest extent feasible.
- Meetings shall be conducted, as needed, with on-campus constituents to provide advance notice of construction activities to coordinate these activities with the academic calendar, scheduled events, and other situations, as appropriate.
- Communication would be provided, as needed, with constituents that are affected by campus construction to provide advance notice of construction activities and ensure that the mutual needs of the particular construction project and of those impacted by construction noise are met, to the extent feasible.
- A sign shall be provided at the construction site entrance, or other conspicuous location, that includes a 24-hour telephone number for project information, and to report complaints. An inquiry and corrective action will be taken if necessary, in a timely manner.
- Where feasible, installation of temporary sound barriers/blankets of sufficient height to break the line-of-sight between the construction equipment and within proximity to exterior use areas of noise-sensitive receivers shall be required. Temporary sound barriers shall consist of either sound blankets or other sound barriers/techniques such as acoustic padding or acoustic walls placed near adjacent noise-sensitive receivers that have been manufactured to reduce noise by at least 10 dBA at ground level or meets ASTM E90 & E413 standards/ASTM C423 (or similar standards with equivalent 10 DBA noise reduction).

MM N-2 HVAC Noise Reduction Measures: The campus shall reduce HVAC equipment noise levels located in close proximity to noise-sensitive buildings and uses through noise control measures such as, but not limited to:

- Mechanical equipment screening (e.g., parapet walls)
- Equipment setbacks

- Silencers
- Acoustical louvers
- And other sound attenuation devices as made available

If a method other than mechanical equipment screening (e.g., parapet walls) is chosen, a project specific design plan demonstrating that the noise level from operation of HVAC units does not generate noise levels that exceed 5 dBA above ambient at noise sensitive receivers shall be completed.

MM N-3 Loading Dock Noise Reduction Measures: The campus shall reduce loading dock noise levels through measures such as, but not limited to:

- Noise levels from loading docks at noise-sensitive receivers shall not exceed 5 dBA over ambient noise levels, the effectiveness of which shall be determined on a project-level basis by an acoustical professional.
- As feasible, design and build sound barriers near loading docks and delivery areas that block the line of sight between truck activity areas and noise-sensitive receivers. Sound barriers may consist of a wall, earthen berm, or combination thereof.

MM N-5 Construction Vibration Reduction Measures: If construction equipment were to be operated within the specified distances listed in Table 4.11-13 of the 2021 LRDP EIR, the campus shall reduce construction vibration levels through the following noise control measures:

- All academic and residential facilities within the listed distances shall be notified if the listed equipment is to be used during construction activities so that the occupants and/or researchers can take necessary precautionary measures to avoid negative effects to their activities and/or research.
- In addition, one of the following measures shall be implemented:
  - Use of the equipment shall not occur within the specified distances in Table 4.11-13 in Section 4.11. Noise, of the 2021 LRDP EIR or
  - A project-specific vibration impact analysis shall be conducted that shall consider the type of equipment used and potential vibration levels at structures within the specified distances. If, after consideration of the type of equipment used and other factors of the environment, vibration levels do not exceed the applicable criteria (listed in the second column of Table 4.11-13), construction may proceed without additional measures. If, after consideration of the type of equipment used and other factors of the environment, vibration levels exceed the applicable criteria, additional measures shall be implemented to reduce vibration levels below threshold, if feasible. These measures may include, but not limited to, use of different equipment that results in an acceptable vibration level as listed in second column of Table 4.11-13 in Section 4.11, Noise of the 2021 LRDP EIR.

Table 4.11-13 of the 2021 LRDP Draft EIR – Screening Distances for Vibration-Sensitive Receiver Type and Source

Receiver Type	Vibration Threshold (in./sec. PPV)	Distance from Vibration Source (feet)[1]	
		Vibratory Roller	Large Bulldozer[2]
Distinctly Perceptible Human Annoyance	0.24	25	15
Historic Sites	0.1	40	25
Residential Buildings	0.4	20	10
Laboratory[3]	0.032	90	50

[1] These distances are based upon typical vibration levels for a vibratory roller and large bulldozer of approximately 0.210 in./sec. PPV and 0.089 in./sec. PPV at 25 feet, respectively (FTA 2018).

[2] A large bulldozer conservatively represents all heavy-duty construction equipment, other than a vibratory roller.

[3] The FTA lists a "Residential Day" ISO use, which is vibration that is barely felt and adequate for low-power optical microscopes, as having a vibration criteria of 78 vibration decibels (equivalent to 0.032 in./sec. PPV). For the purposes of analysis, a "Residential Day" ISO use is considered representative of laboratory settings on campus.

In./sec – inches per second; PPV = peak particle velocity

5.14 POPULATION AND HOUSING

No mitigation required.

5.15 PUBLIC SERVCIES

No mitigation required.

5.16 RECREATION

No mitigation required.

5.17 TRANSPORTATION

Refer to **CBP WF-1 and CBP WF-2** in Section 5.20, Wildfire, below.

5.18 TRIBAL CULTURAL RESOURCES

Refer to **MM CUL-2 through MM CUL-4** in Section 5.4, Cultural Resources, above.

5.19 UTILITIES AND SERVICE SYSTEMS

No mitigation required.

5.20 WILDFIRE

CBP WF-1 Construction – Traffic Control: 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.

CBP WF-2 Construction – Alternative Travel Routes: Prior to campus construction activities and/or roadway closures, the Campus Fire Marshal, as delegated by the State Fire Marshal, and in cooperation with the City of Riverside Fire Department shall ensure that adequate access for emergency vehicles is provided or identify alternative travel routes.

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Appendix A

CalEEMod Reports

UTLF - Undergraduate Teaching and Learning Facility
Assumptions

CalEEMod Inputs that are not modeling defaults:

Project Details and Description:

Project Location	County Riverside -South Coast
Climate Zone	11
Operational Year	2026
Construction Year	2024
Electric Utility	Riverside Public Utility

Site Area	3.26 Acres (AC)
Building Height	5 Stories
Building Square Feet	120,000
Building Footprint	24,000 (120,000/5 stories)
Import/Export	No import/export required. Grinding and reuse of parking lot onsite
Landscape Surface	15%
Paved Surface	UTLF Site-building footprint-landscape 100% asphalt
Students	1,812
Staff	3
Parking	19

Annual VMT	8,870,812.50
Service Population	1,815

Construction Schedule:

Construction Activity	Start Date	End Date	Total Working Days
Site Preparation	4/1/2024	4/20/2024	15 Days
Grading	4/21/2024	4/28/2024	5 Days
Building Construction	4/29/2024	12/31/2025	438 Days
Paving	1/1/2026	1/23/2026	17 Days
Painting	1/24/2026	3/20/2026	40 Days

UTLF - Undergraduate Teaching and Learning Facility
Assumptions

Equipment List:

Construction Activity	Off-Road Equipment[1]	Unit Amount	Engine Tier
Site Preparation	Rubber Tired Loader	3	T4 F
	Tractor/Loader/Backhoes	4	T4 F
	Crushing/Proc. Equipment	1	Avg
Grading	Excavators	1	Avg
	Graders	1	T4 F
	Rubber Tired Loader	1	T4 F
	Tractors/Loaders/Backhoes	3	T4 F
Building Construction	Crane	1	T4 F
	Forklifts	3	T4 F
	Generator Set	1	Avg
	Tractor/Loader/Backhoe	3	T4 F
	Welder	1	Avg
Paving	Paver	2	T4 F
	Paving Equipment	2	T4 F
	Rollers	2	Avg
Architectural Coating	Air Compressors	1	Avg
Per UCR; Tier 4 engines required for diesel-powered construction equipment greater than 50 horsepower [1] Assumed to operate 8 hours a day			

Assumed two (2) daily vendor trips for water trucks added to site preparation, grading, and paving, per Rule 403

Architectural Coating 50g/L Per Rule 1113

UTLF - Undergraduate Teaching and Learning Facility
Assumptions

GHG Assumptions:

Mitigation: E-1 Exceed T24 by 20% (Project Design) and E-10-B Onsite Solar System (Project Design)

	Project Emissions Without Energy Efficiency Project Feature	Project Emissions With Energy Efficiency Project Feature
Operational	**Total CO_2E**	**Total CO_2E**
Scope 1	199.52	169.52
Area	2.44	2.44
Natural Gas	197	167
Refrigerants	0.08	0.08
Scope 2	294	236
Electricity	294	236
Scope 3	3,265.1	3,265.1
Mobile	3,151	3,151
Solid Waste	103	103
Water	11.1	11.1
Total Project Operations	**3,758.62**	**3,670.62**
Total Project	**3,834.01**	**3,725.91**

Incorporation of MM GHG-1

Measures	Reductions
Scope 1	
EN1	-
EN3	100%
EN5	20%
Scope 2	
EN3	100%
Scope 3	
WG1 and WG2	90%
TR2- TR4[1]	8.88%

Note: 1, Total GHG emission reductions from LRDP measures TR2 through TR4 total approximately 8.88%.

Undergraduate Teaching & Learning Facility (UTLF) Project Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Undergraduate Teaching & Learning Facility (UTLF) Project
Construction Start Date	4/1/2024
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	14.2
Location	33.97564587468041, -117.32989690921798
County	Riverside-South Coast
City	Riverside
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5481
EDFZ	11
Electric Utility	City of Riverside
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

University/College (4yr)	1,812	Student	0.55	120,000	21,301	0.00	—	—
Parking Lot	19.0	Space	0.17	0.00	—	—	—	—
Other Non-Asphalt Surfaces	2.54	Acre	2.54	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Energy	E-1	Buildings Exceed 2019 Title 24 Building Envelope Energy Efficiency Standards
Energy	E-10-B	Establish Onsite Renewable Energy Systems: Solar Power

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	34.5	34.3	4.26	68.5	0.03	0.64	0.83	0.96	0.50	0.20	0.56	—	3,966	3,966	0.15	0.14	4.60	4,016
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.87	14.9	4.33	19.8	0.03	0.13	0.83	0.96	0.13	0.20	0.33	—	3,908	3,908	0.15	0.14	0.12	3,953
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.84	1.79	3.02	14.0	0.02	0.09	0.59	0.68	0.09	0.14	0.23	—	2,781	2,781	0.11	0.10	1.33	2,815

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.34	0.33	0.55	2.56	< 0.005	0.02	0.11	0.12	0.02	0.03	0.04	—	460	460	0.02	0.02	0.22	466

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	34.5	34.3	4.26	68.5	0.03	0.64	0.83	0.96	0.50	0.20	0.56	—	3,966	3,966	0.15	0.14	4.60	4,016
2025	0.86	0.74	4.16	20.4	0.03	0.13	0.83	0.95	0.12	0.20	0.32	—	3,942	3,942	0.15	0.14	4.32	3,992
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.87	0.77	4.33	19.8	0.03	0.13	0.83	0.96	0.13	0.20	0.33	—	3,908	3,908	0.15	0.14	0.12	3,953
2025	0.82	0.72	4.21	19.5	0.03	0.13	0.83	0.95	0.12	0.20	0.32	—	3,886	3,886	0.15	0.14	0.11	3,930
2026	0.50	14.9	2.48	11.4	0.01	0.10	0.21	0.31	0.09	0.05	0.14	—	1,761	1,761	0.07	0.03	0.02	1,771
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.84	1.79	2.22	12.7	0.02	0.09	0.41	0.50	0.08	0.10	0.18	—	2,051	2,051	0.08	0.07	0.99	2,075
2025	0.59	0.52	3.02	14.0	0.02	0.09	0.59	0.68	0.09	0.14	0.23	—	2,781	2,781	0.11	0.10	1.33	2,815
2026	0.05	1.66	0.25	0.76	< 0.005	0.01	0.02	0.03	0.01	0.01	0.01	—	116	116	< 0.005	< 0.005	0.04	117
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.34	0.33	0.40	2.31	< 0.005	0.02	0.08	0.09	0.02	0.02	0.03	—	340	340	0.01	0.01	0.16	344
2025	0.11	0.09	0.55	2.56	< 0.005	0.02	0.11	0.12	0.02	0.03	0.04	—	460	460	0.02	0.02	0.22	466
2026	0.01	0.30	0.04	0.14	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	19.2	19.2	< 0.005	< 0.005	0.01	19.3

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	34.5	34.3	4.26	68.5	0.03	0.64	0.83	0.96	0.50	0.20	0.56	—	3,966	3,966	0.15	0.14	4.60	4,016
2025	0.86	0.74	4.16	20.4	0.03	0.13	0.83	0.95	0.12	0.20	0.32	—	3,942	3,942	0.15	0.14	4.32	3,992
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.87	0.77	4.33	19.8	0.03	0.13	0.83	0.96	0.13	0.20	0.33	—	3,908	3,908	0.15	0.14	0.12	3,953
2025	0.82	0.72	4.21	19.5	0.03	0.13	0.83	0.95	0.12	0.20	0.32	—	3,886	3,886	0.15	0.14	0.11	3,930
2026	0.50	14.9	2.48	11.4	0.01	0.10	0.21	0.31	0.09	0.05	0.14	—	1,761	1,761	0.07	0.03	0.02	1,771
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.84	1.79	2.22	12.7	0.02	0.09	0.41	0.50	0.08	0.10	0.18	—	2,051	2,051	0.08	0.07	0.99	2,075
2025	0.59	0.52	3.02	14.0	0.02	0.09	0.59	0.68	0.09	0.14	0.23	—	2,781	2,781	0.11	0.10	1.33	2,815
2026	0.05	1.66	0.25	0.76	< 0.005	0.01	0.02	0.03	0.01	0.01	0.01	—	116	116	< 0.005	< 0.005	0.04	117
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.34	0.33	0.40	2.31	< 0.005	0.02	0.08	0.09	0.02	0.02	0.03	—	340	340	0.01	0.01	0.16	344
2025	0.11	0.09	0.55	2.56	< 0.005	0.02	0.11	0.12	0.02	0.03	0.04	—	460	460	0.02	0.02	0.22	466
2026	0.01	0.30	0.04	0.14	< 0.005	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	—	19.2	19.2	< 0.005	< 0.005	0.01	19.3

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.66	5.61	7.72	73.1	0.20	0.22	17.2	17.4	0.21	4.37	4.58	186	22,821	23,007	19.3	0.77	70.7	23,789

Mit.	3.65	5.60	7.57	72.9	0.20	0.21	17.2	17.4	0.20	4.37	4.57	186	22,294	22,480	19.3	0.76	70.7	23,259
% Reduced	< 0.5%	< 0.5%	2%	< 0.5%	—	5%	—	< 0.5%	5%	—	< 0.5%	—	2%	2%	< 0.5%	< 0.5%	—	2%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.70	4.73	8.18	53.1	0.19	0.21	17.2	17.4	0.20	4.37	4.57	186	21,568	21,754	19.3	0.79	2.29	22,474
Mit.	2.68	4.72	8.03	53.0	0.19	0.20	17.2	17.4	0.19	4.37	4.56	186	21,041	21,226	19.2	0.79	2.29	21,945
% Reduced	1%	< 0.5%	2%	< 0.5%	—	5%	—	< 0.5%	6%	—	< 0.5%	—	2%	2%	< 0.5%	< 0.5%	—	2%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.35	5.32	8.39	59.0	0.19	0.22	17.1	17.3	0.21	4.33	4.54	186	21,761	21,947	19.3	0.80	30.8	22,698
Mit.	3.33	5.32	8.24	58.9	0.19	0.21	17.1	17.3	0.20	4.33	4.53	186	21,233	21,419	19.2	0.80	30.8	22,169
% Reduced	< 0.5%	< 0.5%	2%	< 0.5%	—	5%	—	< 0.5%	5%	—	< 0.5%	—	2%	2%	< 0.5%	< 0.5%	—	2%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.61	0.97	1.53	10.8	0.03	0.04	3.11	3.15	0.04	0.79	0.83	30.7	3,603	3,633	3.19	0.13	5.10	3,758
Mit.	0.61	0.97	1.50	10.7	0.03	0.04	3.11	3.15	0.04	0.79	0.83	30.7	3,515	3,546	3.19	0.13	5.10	3,670
% Reduced	< 0.5%	< 0.5%	2%	< 0.5%	< 0.5%	5%	—	< 0.5%	5%	—	< 0.5%	—	2%	2%	< 0.5%	< 0.5%	—	2%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.63	1.96	6.68	67.0	0.19	0.14	17.2	17.4	0.13	4.37	4.50	—	19,815	19,815	0.49	0.73	70.2	20,115

Area	0.93	3.60	0.04	5.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.5	21.5	< 0.005	< 0.005	—	21.5
Energy	0.11	0.05	0.99	0.83	0.01	0.08	—	0.08	0.08	—	0.08	—	2,950	2,950	0.23	0.02	—	2,961
Water	—	—	—	—	—	—	—	—	—	—	—	7.43	34.7	42.2	0.76	0.02	—	66.8
Waste	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	624
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Total	3.66	5.61	7.72	73.1	0.20	0.22	17.2	17.4	0.21	4.37	4.58	186	22,821	23,007	19.3	0.77	70.7	23,789
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.59	1.93	7.19	52.3	0.18	0.14	17.2	17.4	0.13	4.37	4.50	—	18,583	18,583	0.48	0.76	1.82	18,822
Area	—	2.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.11	0.05	0.99	0.83	0.01	0.08	—	0.08	0.08	—	0.08	—	2,950	2,950	0.23	0.02	—	2,961
Water	—	—	—	—	—	—	—	—	—	—	—	7.43	34.7	42.2	0.76	0.02	—	66.8
Waste	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	624
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Total	2.70	4.73	8.18	53.1	0.19	0.21	17.2	17.4	0.20	4.37	4.57	186	21,568	21,754	19.3	0.79	2.29	22,474
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.60	1.94	7.37	54.6	0.18	0.14	17.1	17.2	0.13	4.33	4.46	—	18,761	18,761	0.48	0.76	30.3	19,031
Area	0.64	3.33	0.03	3.57	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	14.7	14.7	< 0.005	< 0.005	—	14.8
Energy	0.11	0.05	0.99	0.83	0.01	0.08	—	0.08	0.08	—	0.08	—	2,950	2,950	0.23	0.02	—	2,961
Water	—	—	—	—	—	—	—	—	—	—	—	7.43	34.7	42.2	0.76	0.02	—	66.8
Waste	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	624
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Total	3.35	5.32	8.39	59.0	0.19	0.22	17.1	17.3	0.21	4.33	4.54	186	21,761	21,947	19.3	0.80	30.8	22,698
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.47	0.35	1.34	9.96	0.03	0.02	3.11	3.14	0.02	0.79	0.81	—	3,106	3,106	0.08	0.13	5.02	3,151
Area	0.12	0.61	0.01	0.65	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.43	2.43	< 0.005	< 0.005	—	2.44
Energy	0.02	0.01	0.18	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	488	488	0.04	< 0.005	—	490

Water	—	—	—	—	—	—	—	—	—	—	—	1.23	5.75	6.98	0.13	< 0.005	—	11.1
Waste	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	0.61	0.97	1.53	10.8	0.03	0.04	3.11	3.15	0.04	0.79	0.83	30.7	3,603	3,633	3.19	0.13	5.10	3,758

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.63	1.96	6.68	67.0	0.19	0.14	17.2	17.4	0.13	4.37	4.50	—	19,815	19,815	0.49	0.73	70.2	20,115
Area	0.93	3.60	0.04	5.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.5	21.5	< 0.005	< 0.005	—	21.5
Energy	0.09	0.05	0.84	0.71	0.01	0.06	—	0.06	0.06	—	0.06	—	2,423	2,423	0.19	0.01	—	2,432
Water	—	—	—	—	—	—	—	—	—	—	—	7.43	34.7	42.2	0.76	0.02	—	66.8
Waste	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	624
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Total	3.65	5.60	7.57	72.9	0.20	0.21	17.2	17.4	0.20	4.37	4.57	186	22,294	22,480	19.3	0.76	70.7	23,259
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.59	1.93	7.19	52.3	0.18	0.14	17.2	17.4	0.13	4.37	4.50	—	18,583	18,583	0.48	0.76	1.82	18,822
Area	—	2.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.09	0.05	0.84	0.71	0.01	0.06	—	0.06	0.06	—	0.06	—	2,423	2,423	0.19	0.01	—	2,432
Water	—	—	—	—	—	—	—	—	—	—	—	7.43	34.7	42.2	0.76	0.02	—	66.8
Waste	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	624
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Total	2.68	4.72	8.03	53.0	0.19	0.20	17.2	17.4	0.19	4.37	4.56	186	21,041	21,226	19.2	0.79	2.29	21,945

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	2.60	1.94	7.37	54.6	0.18	0.14	17.1	17.2	0.13	4.33	4.46	—	18,761	18,761	0.48	0.76	30.3	19,031
Area	0.64	3.33	0.03	3.57	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	14.7	14.7	< 0.005	< 0.005	—	14.8
Energy	0.09	0.05	0.84	0.71	0.01	0.06	—	0.06	0.06	—	0.06	—	2,423	2,423	0.19	0.01	—	2,432
Water	—	—	—	—	—	—	—	—	—	—	—	7.43	34.7	42.2	0.76	0.02	—	66.8
Waste	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	624
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Total	3.33	5.32	8.24	58.9	0.19	0.21	17.1	17.3	0.20	4.33	4.53	186	21,233	21,419	19.2	0.80	30.8	22,169
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.47	0.35	1.34	9.96	0.03	0.02	3.11	3.14	0.02	0.79	0.81	—	3,106	3,106	0.08	0.13	5.02	3,151
Area	0.12	0.61	0.01	0.65	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.43	2.43	< 0.005	< 0.005	—	2.44
Energy	0.02	0.01	0.15	0.13	< 0.005	0.01	—	0.01	0.01	—	0.01	—	401	401	0.03	< 0.005	—	403
Water	—	—	—	—	—	—	—	—	—	—	—	1.23	5.75	6.98	0.13	< 0.005	—	11.1
Waste	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	0.61	0.97	1.50	10.7	0.03	0.04	3.11	3.15	0.04	0.79	0.83	30.7	3,515	3,546	3.19	0.13	5.10	3,670

3. Construction Emissions Details

3.1. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	34.4	34.2	2.16	66.8	0.03	0.64	—	0.64	0.49	—	0.49	—	2,744	2,744	0.11	0.02	—	2,753

Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.41	1.40	0.09	2.75	< 0.005	0.03	—	0.03	0.02	—	0.02	—	113	113	< 0.005	< 0.005	—	113
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.26	0.02	0.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.7	18.7	< 0.005	< 0.005	—	18.7
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.10	1.67	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	288	288	0.01	0.01	1.14	292
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.1	62.1	< 0.005	0.01	0.17	65.1
Hauling	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.0	11.0	< 0.005	< 0.005	0.02	11.2
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.55	2.55	< 0.005	< 0.005	< 0.005	2.67
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.82	1.82	< 0.005	< 0.005	< 0.005	1.85
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	< 0.005	0.44
Hauling	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	0.00

3.2. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	34.4	34.2	2.16	66.8	0.03	0.64	—	0.64	0.49	—	0.49	—	2,744	2,744	0.11	0.02	—	2,753
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.41	1.40	0.09	2.75	< 0.005	0.03	—	0.03	0.02	—	0.02	—	113	113	< 0.005	< 0.005	—	113
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	0.26	0.02	0.50	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.7	18.7	< 0.005	< 0.005	—	18.7
Dust From Material Movement	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.10	1.67	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	288	288	0.01	0.01	1.14	292
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.1	62.1	< 0.005	0.01	0.17	65.1
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.0	11.0	< 0.005	< 0.005	0.02	11.2
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.55	2.55	< 0.005	< 0.005	< 0.005	2.67

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.82	1.82	< 0.005	< 0.005	< 0.005	1.85
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.42	0.42	< 0.005	< 0.005	< 0.005	0.44
Hauling	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	0.00

3.3. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.28	1.80	14.6	0.02	0.07	—	0.07	0.06	—	0.06	—	2,082	2,082	0.08	0.02	—	2,089
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.5	28.5	< 0.005	< 0.005	—	28.6
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.72	4.72	< 0.005	< 0.005	—	4.74
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.07	1.25	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	216	216	0.01	0.01	0.86	219
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.1	62.1	< 0.005	0.01	0.17	65.1
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.75	2.75	< 0.005	< 0.005	0.01	2.79
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.85	0.85	< 0.005	< 0.005	< 0.005	0.89
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.46
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.15
Hauling	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	0.00

3.4. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.28	1.80	14.6	0.02	0.07	—	0.07	0.06	—	0.06	—	2,082	2,082	0.08	0.02	—	2,089
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	28.5	28.5	< 0.005	< 0.005	—	28.6
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.72	4.72	< 0.005	< 0.005	—	4.74

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.07	1.25	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	216	216	0.01	0.01	0.86	219
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	62.1	62.1	< 0.005	0.01	0.17	65.1
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.75	2.75	< 0.005	< 0.005	0.01	2.79
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.85	0.85	< 0.005	< 0.005	< 0.005	0.89
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.46
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.14	0.14	< 0.005	< 0.005	< 0.005	0.15
Hauling	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	0.00

3.5. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.51	3.32	16.4	0.03	0.12	—	0.12	0.12	—	0.12	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.51	3.32	16.4	0.03	0.12	—	0.12	0.12	—	0.12	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.25	1.61	7.91	0.01	0.06	—	0.06	0.06	—	0.06	—	1,271	1,271	0.05	0.01	—	1,276
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	0.29	1.44	< 0.005	0.01	—	0.01	0.01	—	0.01	—	210	210	0.01	< 0.005	—	211
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28	0.26	0.24	4.21	0.00	0.00	0.66	0.66	0.00	0.15	0.15	—	725	725	0.03	0.03	2.88	737
Vendor	0.03	0.02	0.69	0.22	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	611	611	0.01	0.09	1.72	640
Hauling	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.27	0.24	0.29	3.18	0.00	0.00	0.66	0.66	0.00	0.15	0.15	—	667	667	0.03	0.03	0.07	675
Vendor	0.03	0.02	0.72	0.22	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	611	611	0.01	0.09	0.04	639
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.14	1.62	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	326	326	0.02	0.01	0.60	331
Vendor	0.01	0.01	0.35	0.11	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	—	295	295	0.01	0.04	0.36	309
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.03	0.30	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	54.0	54.0	< 0.005	< 0.005	0.10	54.8
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	48.9	48.9	< 0.005	0.01	0.06	51.1
Hauling	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	0.00

3.6. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	0.51	3.32	16.4	0.03	0.12	—	0.12	0.12	—	0.12	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.58	0.51	3.32	16.4	0.03	0.12	—	0.12	0.12	—	0.12	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28	0.25	1.61	7.91	0.01	0.06	—	0.06	0.06	—	0.06	—	1,271	1,271	0.05	0.01	—	1,276
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.05	0.29	1.44	< 0.005	0.01	—	0.01	0.01	—	0.01	—	210	210	0.01	< 0.005	—	211
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28	0.26	0.24	4.21	0.00	0.00	0.66	0.66	0.00	0.15	0.15	—	725	725	0.03	0.03	2.88	737
Vendor	0.03	0.02	0.69	0.22	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	611	611	0.01	0.09	1.72	640
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.27	0.24	0.29	3.18	0.00	0.00	0.66	0.66	0.00	0.15	0.15	—	667	667	0.03	0.03	0.07	675
Vendor	0.03	0.02	0.72	0.22	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	611	611	0.01	0.09	0.04	639
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.14	1.62	0.00	0.00	0.32	0.32	0.00	0.07	0.07	—	326	326	0.02	0.01	0.60	331
Vendor	0.01	0.01	0.35	0.11	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.03	—	295	295	0.01	0.04	0.36	309

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.03	0.30	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	54.0	54.0	< 0.005	< 0.005	0.10	54.8
Vendor	< 0.005	< 0.005	0.06	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	48.9	48.9	< 0.005	0.01	0.06	51.1
Hauling	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	0.00

3.7. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.50	3.28	16.4	0.03	0.12	—	0.12	0.11	—	0.11	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.50	3.28	16.4	0.03	0.12	—	0.12	0.11	—	0.11	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	0.36	2.34	11.7	0.02	0.08	—	0.08	0.08	—	0.08	—	1,879	1,879	0.08	0.02	—	1,885
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.07	0.07	0.43	2.13	< 0.005	0.02	—	0.02	0.01	—	0.01	—	311	311	0.01	< 0.005	—	312
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.27	0.23	0.22	3.89	0.00	0.00	0.66	0.66	0.00	0.15	0.15	—	710	710	0.03	0.03	2.61	721
Vendor	0.03	0.01	0.66	0.21	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	602	602	0.01	0.09	1.71	631
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24	0.21	0.24	2.94	0.00	0.00	0.66	0.66	0.00	0.15	0.15	—	653	653	0.03	0.03	0.07	661
Vendor	0.03	0.01	0.69	0.21	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	602	602	0.01	0.09	0.04	630
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.19	2.22	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	472	472	0.02	0.02	0.80	479
Vendor	0.02	0.01	0.49	0.15	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	430	430	0.01	0.07	0.53	450
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.41	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	78.2	78.2	< 0.005	< 0.005	0.13	79.3
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.2	71.2	< 0.005	0.01	0.09	74.5
Hauling	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	0.00

3.8. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.50	3.28	16.4	0.03	0.12	—	0.12	0.11	—	0.11	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.50	3.28	16.4	0.03	0.12	—	0.12	0.11	—	0.11	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	0.36	2.34	11.7	0.02	0.08	—	0.08	0.08	—	0.08	—	1,879	1,879	0.08	0.02	—	1,885
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.07	0.43	2.13	< 0.005	0.02	—	0.02	0.01	—	0.01	—	311	311	0.01	< 0.005	—	312
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.27	0.23	0.22	3.89	0.00	0.00	0.66	0.66	0.00	0.15	0.15	—	710	710	0.03	0.03	2.61	721
Vendor	0.03	0.01	0.66	0.21	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	602	602	0.01	0.09	1.71	631
Hauling	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24	0.21	0.24	2.94	0.00	0.00	0.66	0.66	0.00	0.15	0.15	—	653	653	0.03	0.03	0.07	661
Vendor	0.03	0.01	0.69	0.21	< 0.005	0.01	0.17	0.18	0.01	0.05	0.06	—	602	602	0.01	0.09	0.04	630
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17	0.15	0.19	2.22	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	472	472	0.02	0.02	0.80	479
Vendor	0.02	0.01	0.49	0.15	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	430	430	0.01	0.07	0.53	450
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.41	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	78.2	78.2	< 0.005	< 0.005	0.13	79.3
Vendor	< 0.005	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.2	71.2	< 0.005	0.01	0.09	74.5
Hauling	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	0.00

3.9. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.38	2.35	10.6	0.01	0.10	—	0.10	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.11	0.49	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	70.4	70.4	< 0.005	< 0.005	—	70.6
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.6	11.6	< 0.005	< 0.005	—	11.7
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.82	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	0.01	0.02	193
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	60.2	60.2	< 0.005	0.01	< 0.005	63.1
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.97	8.97	< 0.005	< 0.005	0.01	9.09
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.80	2.80	< 0.005	< 0.005	< 0.005	2.94
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.49	1.49	< 0.005	< 0.005	< 0.005	1.51

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.49
Hauling	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	0.00

3.10. Paving (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.38	2.35	10.6	0.01	0.10	—	0.10	0.09	—	0.09	—	1,511	1,511	0.06	0.01	—	1,516
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.11	0.49	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	70.4	70.4	< 0.005	< 0.005	—	70.6
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.6	11.6	< 0.005	< 0.005	—	11.7
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.07	0.82	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	190	190	< 0.005	0.01	0.02	193
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	60.2	60.2	< 0.005	0.01	< 0.005	63.1
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.97	8.97	< 0.005	< 0.005	0.01	9.09
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.80	2.80	< 0.005	< 0.005	< 0.005	2.94
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.49	1.49	< 0.005	< 0.005	< 0.005	1.51
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	0.49
Hauling	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	0.00

3.11. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.19	0.16	1.14	1.51	< 0.005	0.03	—	0.03	0.03	—	0.03	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	14.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.13	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.5	19.5	< 0.005	< 0.005	—	19.6
Architectural Coatings	—	1.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.23	3.23	< 0.005	< 0.005	—	3.24
Architectural Coatings	—	0.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.55	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	128	128	< 0.005	0.01	0.01	129
Vendor	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	0.00
Hauling	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	14.2	14.2	< 0.005	< 0.005	0.02	14.4
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.35	2.35	< 0.005	< 0.005	< 0.005	2.38
Vendor	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	0.00
Hauling	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	0.00

3.12. Architectural Coating (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.14	1.51	< 0.005	0.03	—	0.03	0.03	—	0.03	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	14.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.13	0.17	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.5	19.5	< 0.005	< 0.005	—	19.6

Architect Coatings	—	1.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.23	3.23	< 0.005	< 0.005	—	3.24
Architectural Coatings	—	0.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.55	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	128	128	< 0.005	0.01	0.01	129
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	14.2	14.2	< 0.005	< 0.005	0.02	14.4
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.35	2.35	< 0.005	< 0.005	< 0.005	2.38
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.1.2. Mitigated

Mobile source emissions results are presented in Sections 2.5. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	—	1,758	1,758	0.13	0.02	—	1,766
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	8.03	8.03	< 0.005	< 0.005	—	8.07
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,766	1,766	0.13	0.02	—	1,774
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	—	1,758	1,758	0.13	0.02	—	1,766

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	8.03	8.03	< 0.005	< 0.005	—	8.07
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,766	1,766	0.13	0.02	—	1,774
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	—	291	291	0.02	< 0.005	—	292
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	1.33	1.33	< 0.005	< 0.005	—	1.34
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	292	292	0.02	< 0.005	—	294

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	—	1,408	1,408	0.10	0.01	—	1,415
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	8.03	8.03	< 0.005	< 0.005	—	8.07
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,416	1,416	0.10	0.01	—	1,423

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	—	1,408	1,408	0.10	0.01	—	1,415
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	8.03	8.03	< 0.005	< 0.005	—	8.07
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,416	1,416	0.10	0.01	—	1,423
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	—	233	233	0.02	< 0.005	—	234
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	1.33	1.33	< 0.005	< 0.005	—	1.34
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	235	235	0.02	< 0.005	—	236

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.11	0.05	0.99	0.83	0.01	0.08	—	0.08	0.08	—	0.08	—	1,184	1,184	0.10	< 0.005	—	1,187

Parking Lot	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
Other Non-Asphalt Surfaces	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
Total	0.11	0.05	0.99	0.83	0.01	0.08	—	0.08	0.08	—	0.08	—	1,184	1,184	0.10	< 0.005	—	1,187
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.11	0.05	0.99	0.83	0.01	0.08	—	0.08	0.08	—	0.08	—	1,184	1,184	0.10	< 0.005	—	1,187
Parking Lot	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
Other Non-Asphalt Surfaces	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
Total	0.11	0.05	0.99	0.83	0.01	0.08	—	0.08	0.08	—	0.08	—	1,184	1,184	0.10	< 0.005	—	1,187
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.02	0.01	0.18	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	196	196	0.02	< 0.005	—	197
Parking Lot	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
Other Non-Asphalt Surfaces	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
Total	0.02	0.01	0.18	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	196	196	0.02	< 0.005	—	197

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.09	0.05	0.84	0.71	0.01	0.06	—	0.06	0.06	—	0.06	—	1,006	1,006	0.09	< 0.005	—	1,009
Parking Lot	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
Other Non-Asphalt Surfaces	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
Total	0.09	0.05	0.84	0.71	0.01	0.06	—	0.06	0.06	—	0.06	—	1,006	1,006	0.09	< 0.005	—	1,009
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.09	0.05	0.84	0.71	0.01	0.06	—	0.06	0.06	—	0.06	—	1,006	1,006	0.09	< 0.005	—	1,009
Parking Lot	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
Other Non-Asphalt Surfaces	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
Total	0.09	0.05	0.84	0.71	0.01	0.06	—	0.06	0.06	—	0.06	—	1,006	1,006	0.09	< 0.005	—	1,009
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	0.02	0.01	0.15	0.13	< 0.005	0.01	—	0.01	0.01	—	0.01	—	167	167	0.01	< 0.005	—	167
Parking Lot	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
Other Non-Asphalt Surfaces	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
Total	0.02	0.01	0.15	0.13	< 0.005	0.01	—	0.01	0.01	—	0.01	—	167	167	0.01	< 0.005	—	167

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	2.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.93	0.86	0.04	5.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.5	21.5	< 0.005	< 0.005	—	21.5
Total	0.93	3.60	0.04	5.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.5	21.5	< 0.005	< 0.005	—	21.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	2.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	2.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.12	0.11	0.01	0.65	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.43	2.43	< 0.005	< 0.005	—	2.44
Total	0.12	0.61	0.01	0.65	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.43	2.43	< 0.005	< 0.005	—	2.44

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	2.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.93	0.86	0.04	5.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.5	21.5	< 0.005	< 0.005	—	21.5
Total	0.93	3.60	0.04	5.22	< 0.005	0.01	—	0.01	0.01	—	0.01	—	21.5	21.5	< 0.005	< 0.005	—	21.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	2.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	2.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.12	0.11	0.01	0.65	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.43	2.43	< 0.005	< 0.005	—	2.44
Total	0.12	0.61	0.01	0.65	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.43	2.43	< 0.005	< 0.005	—	2.44

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	7.43	34.7	42.2	0.76	0.02	—	66.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.43	34.7	42.2	0.76	0.02	—	66.8

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	7.43	34.7	42.2	0.76	0.02	—	66.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.43	34.7	42.2	0.76	0.02	—	66.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	1.23	5.75	6.98	0.13	< 0.005	—	11.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.23	5.75	6.98	0.13	< 0.005	—	11.1

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	7.43	34.7	42.2	0.76	0.02	—	66.8

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.43	34.7	42.2	0.76	0.02	—	66.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	7.43	34.7	42.2	0.76	0.02	—	66.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	7.43	34.7	42.2	0.76	0.02	—	66.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	1.23	5.75	6.98	0.13	< 0.005	—	11.1
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1.23	5.75	6.98	0.13	< 0.005	—	11.1

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	624
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	624
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	624
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	624
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	624
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	624
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	624
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	178	0.00	178	17.8	0.00	—	624
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	29.5	0.00	29.5	2.95	0.00	—	103

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.46	0.46
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
University/College (4yr)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipme Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	4/1/2024	4/20/2024	5.00	15.0	—
Grading	Grading	4/21/2024	4/28/2024	5.00	5.00	—
Building Construction	Building Construction	4/29/2024	12/31/2025	5.00	438	—
Paving	Paving	1/1/2026	1/23/2026	5.00	17.0	—
Architectural Coating	Architectural Coating	1/24/2026	3/20/2026	5.00	40.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	4.00	8.00	84.0	0.37
Site Preparation	Rubber Tired Loaders	Diesel	Tier 4 Final	3.00	8.00	150	0.36
Site Preparation	Crushing/Proc. Equipment	Gasoline	Average	1.00	8.00	12.0	0.85
Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	8.00	150	0.36
Building Construction	Cranes	Diesel	Tier 4 Final	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Final	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Paving	Pavers	Diesel	Tier 4 Final	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Final	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	4.00	8.00	84.0	0.37
Site Preparation	Rubber Tired Loaders	Diesel	Tier 4 Final	3.00	8.00	150	0.36
Site Preparation	Crushing/Proc. Equipment	Gasoline	Average	1.00	8.00	12.0	0.85

Grading	Graders	Diesel	Tier 4 Final	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Grading	Rubber Tired Loaders	Diesel	Tier 4 Final	1.00	8.00	150	0.36
Building Construction	Cranes	Diesel	Tier 4 Final	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Final	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Paving	Pavers	Diesel	Tier 4 Final	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Final	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	20.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	2.00	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	2.00	10.2	HHDT,MHDT

Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	50.4	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	19.7	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	2.00	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	10.1	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	20.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	2.00	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2

Grading	Vendor	2.00	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	50.4	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	19.7	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	2.00	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	10.1	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	180,000	60,000	7,085

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	0.00	0.00	—
Grading	—	—	2.50	0.00	—
Paving	0.00	0.00	0.00	0.00	2.71

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
University/College (4yr)	0.00	0%
Parking Lot	0.17	100%
Other Non-Asphalt Surfaces	2.54	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	787	0.03	< 0.005
2025	0.00	600	0.03	< 0.005
2026	0.00	449	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	0.00	0.00	0.00	0.00	24,304	24,304	24,304	8,870,813

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	0.00	0.00	0.00	0.00	24,304	24,304	24,304	8,870,813

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	180,000	60,000	7,085

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
University/College (4yr)	1,427,604	449	0.0330	0.0040	3,694,906
Parking Lot	6,525	449	0.0330	0.0040	0.00
Other Non-Asphalt Surfaces	0.00	449	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
University/College (4yr)	1,143,884	449	0.0330	0.0040	3,139,391
Parking Lot	6,525	449	0.0330	0.0040	0.00
Other Non-Asphalt Surfaces	0.00	449	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
University/College (4yr)	3,879,673	337,742

Parking Lot	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
University/College (4yr)	3,879,673	337,742
Parking Lot	0.00	0.00
Other Non-Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
University/College (4yr)	331	—
Parking Lot	0.00	—
Other Non-Asphalt Surfaces	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
University/College (4yr)	331	—
Parking Lot	0.00	—
Other Non-Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
University/College (4yr)	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
University/College (4yr)	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
University/College (4yr)	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
University/College (4yr)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
University/College (4yr)	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
University/College (4yr)	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
University/College (4yr)	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
University/College (4yr)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	26.3	annual days of extreme heat
Extreme Precipitation	2.65	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	1.71	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A

Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	97.6
AQ-PM	79.4
AQ-DPM	88.9
Drinking Water	77.4
Lead Risk Housing	43.1
Pesticides	0.00
Toxic Releases	54.7
Traffic	85.6
Effect Indicators	—
CleanUp Sites	47.0
Groundwater	0.00
Haz Waste Facilities/Generators	76.0
Impaired Water Bodies	0.00
Solid Waste	52.9

Sensitive Population	—
Asthma	23.8
Cardio-vascular	16.9
Low Birth Weights	88.0
Socioeconomic Factor Indicators	—
Education	53.4
Housing	98.5
Linguistic	76.1
Poverty	96.7
Unemployment	99.0

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—

Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	99.7
Asthma ER Admissions	57.0
High Blood Pressure	99.4
Cancer (excluding skin)	99.8
Asthma	12.1
Coronary Heart Disease	99.7
Chronic Obstructive Pulmonary Disease	96.5
Diagnosed Diabetes	99.6
Life Expectancy at Birth	0.0
Cognitively Disabled	66.4
Physically Disabled	96.9
Heart Attack ER Admissions	76.0

Mental Health Not Good	18.5
Chronic Kidney Disease	99.6
Obesity	86.4
Pedestrian Injuries	0.0
Physical Health Not Good	82.3
Stroke	99.7
Health Risk Behaviors	—
Binge Drinking	63.5
Current Smoker	26.1
No Leisure Time for Physical Activity	36.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	87.9
Elderly	99.5
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	86.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	74.8
Traffic Density	0.0
Traffic Access	55.8
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	82.0
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Assumed per illustrative site plan. Total Project site is 3.26 acres; Building footprint assumed 24,000 (120,000 GSF/5 floors). Parking stalls approximately 19. Assumed landscaping 15% of total Project site (142K*15%=21,301SF) and non-asphalt surfaces is site less building footprint and parking (110K SF or 2.54 acres)
Construction: Construction Phases	Per UCR
Construction: Off-Road Equipment	Per UCR; Tier 4 emission for diesel-powered construction equipment greater than 50 horsepower
Construction: Architectural Coatings	Per Rule 1113
Operations: Architectural Coatings	Per Rule 1113
Operations: Energy Use	kBTU/year per UCR for a 101 gsf building, adjusted for a 120 gsf building

Appendix B

Biological Letter Report

December 1, 2023

Stephanie Tang
Assistant Director of Campus Planning
UCR Planning, Design, and Construction
1223 University Avenue, Suite 240
Riverside, CA 92507

RE: Biological Letter Report for the Undergraduate Teaching and Learning Facility Project, Riverside, California

Dear Ms. Tang:

Pursuant to our agreement dated January 11, 2023, this letter report has been prepared to provide the results of a biological analysis of the proposed construction of the Undergraduate Teaching and Learning Facility (UTLF) ("Project") for the University of California, Riverside (UCR). The Study Area for the Project includes the 3-acre Project footprint, two 1-acre staging areas, and 100-foot survey buffer around footprint and staging areas which totals 8.4-acres. The aim of this report is to provide an assessment of the biological resources present within the Study Area, quantification of impacts to resources, and recommendations to minimize impacts to resources that may be present.

Should you have any questions regarding this report or require additional information, please do not hesitate to contact me at (951) 686-1070.

Sincerely,

Stephanie Standerfer
Vice President

Undergraduate Teaching and Learning Facility – Biological Resources Review

1. Location

The study area is positioned within the UCR campus in Riverside, California, approximately 0.01-mile east of State Route-60 and just east of the intersection of University Ave and Canyon Crest Drive (Figure 1 – Regional Map and Figure 2 – Aerial Map). Specifically, it is situated on the U.S. Geological Service 7.5-minute Riverside East quadrangle map, within Section 29; Township 2 South; Range 4 West (Figure 3 – USGS Topo Map). Assessor Parcel Numbers (APNs) associated with the Project are 251-180-006 and 253-100-005.

2. Project Description

UCR is planning to develop a five-story 120,000 gross square foot (gSF) building for new instruction seating, class laboratories, and studios to accommodate the growing student population of the UCR campus as outlined by the Long Range Development Plan (LRDP) adopted for UCR in 2021. Construction of the proposed UTLF Project will be in an area currently occupied by UCR Parking Lot 19 (Figure 4 – Vegetation Map). The construction footprint is 3-acres in size and construction staging will be located in two 1-acre plots, as shown in Figure 4. A 100-foot-wide buffer biological survey area around the construction footprint and staging areas was analyzed for a total survey area of 8.4-acres ("Study Area"). UCR has indicated that construction may require the removal of approximately 21 trees within the Project footprint.

3. Methods

The following authoritative literature and databases were reviewed to evaluate the potential presence of special-status biological resources and environmental conditions of the Study Area: the U.S. Geological Survey Yucaipa 7.5-minute topographic quadrangle (USGS 2023), the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2023), the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP 2004), the California Natural Diversity Database (CNDDB) (CNDDB 2023), and the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants (CNPS 2023).

Following the literature and database review, Albert A. Webb Associates (WEBB) Senior Biologist Marshall Paymard conducted a biological resources field assessment of the Study Area on April 5th, 2023. The field assessment was conducted on-foot to systematically assess the Study Area for sensitive biota and their associated habitats, including other environmental attributes such as topography, soil type, water features, and vegetation communities. Table 1 below provides the date, time, and weather conditions for the extent of the field assessment.

Table 1. Field Assessment

Date/Time	Climatic Conditions
WEBB Surveyor: Marshall Paymard, April 5th 2023 / 1400-1500	Air Temperature: 73°F; Wind: 0-1 miles per hour (MPH); Cloud Cover: 0%

Vegetation Community and Land Cover Mapping

Vegetation communities and land cover types present in the Study Area were mapped directly in the field on a 200-foot scale, aerial satellite imagery-based field map. Following completion of the field assessment, all vegetation communities were digitized and quantified using ArcGIS Pro software. Vegetation community classifications used in this document follow the MSHCP, with modifications derived from Oberbauer (2008) and Keeler-Wolf-Evens (2009) used to specify the classifications of the observed communities to those included in these references.

Flora

Plant species observed during the biological field assessment were identified by morphology and recorded in a standard field notebook. Plant species that could not be identified immediately in the field were identified in the laboratory using taxonomic keys. Latin and common names for plant species included in this report follow The Jepson Manual: Vascular Plants of California (Baldwin et al. 2012).

Fauna

Wildlife species detected during field surveys by sight, calls, tracks, scat, or other signs were recorded in a standard field notebook. General information regarding wildlife species present in the region was obtained Center of North American Herpetology (2023) for amphibians and reptiles, the American Ornithologists' Union (1998 and supplemental) for birds, and Bradley et al. (2014) for mammals.

Potentially Jurisdictional Resources

Satellite aerial imagery and USGS topographic maps were reviewed prior to the field survey to detect any potential Waters of the United States, including wetlands, under the jurisdiction of the U.S. Army Corps of Engineers (USACE), pursuant to Section 404 of the federal Clean Water Act; Waters of the State under the jurisdiction of the California Regional Water Quality Control Board (RWQCB), pursuant to Section 401 of the federal Clean Water Act and the Porter–Cologne Act; Streambeds under the jurisdiction of California Department of Fish and Wildlife (CDFW), pursuant to Section 1602 of the California Fish and Game Code, and MSHCP section 6.1.2 Riparian/Riverine resources.

4. Existing Conditions

Vegetation and Land Cover Types

One land cover type was documented in the Study Area: Urban/Developed Lands (DEV) (Figure 4). Urban/developed land is described in detail below.

Urban/Developed Lands (DEV)

According to Oberbauer (2008), Urban/Developed land cover type is characterized as areas that have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported; or, land that is characterized by permanent or semi-permanent structures, pavement or hardscape, and landscaped areas that often require irrigation.

All of the Study Area is composed of Urban/Developed lands, comprising of an asphalted parking lot and concrete paved areas/walkways. The associated vegetation encompasses ornamental grasses, as well as a limited number of planted and irrigated species: California sycamore (*Plantanus racemosa*), four Palo Verde trees (*Parkinsonia spp*.) located east of the CHASS Building, African Sumac *(Searsia lancea),* bird of paradise *(Strelitzia reginae),* and lemon-scented gum trees (*Eucalyptus citriodora*). Within the Athletics Courtyard, there are also two clumps with three trunks each of European fan palms (*Chamaerops humilis*), three Mexican fan palms *(Washingtonia* robusta), eight queen palms (*Syagrus romanzoffiana*), and two multi-trunk Mediterranean fan palms (*Chamaerops humilis*). Located north of the Athletics & Dance Building are two fern pines (*Afrocarpus gracilior*) and two California fan palms (*Washingtonia filifera*).

Special-Status Plants

No special-status plant species were identified during the biological field assessment. No U.S. Fish and Wildlife Service (USFWS)-designated critical habitat for listed plant species occurs within the Study Area, and no CNDDB special-status plant species occurrences are documented within the Study Area or vicinity.

Special-Status Wildlife

No special-status wildlife species were identified during the biological field assessment. No USFWS designated critical habitat for listed wildlife species occurs within the Study Area and no habitat for special-status wildlife species is present in the study area.

Nesting Birds

The Study Area provides suitable habitat for nesting birds within mature ornamental trees. Direct impacts to nesting birds must be avoided in accordance with the Migratory Bird Treaty Act and Fish and Game Code Section 3503.

Roosting Bats

The Study Area provides suitable habitat for nesting bats in the untrimmed palm fronds of the various palm trees located within the Project footprint, as well as the limbs and crevices of mature

trees. Recommendations to avoid direct impacts to potentially nesting bats are included in this report in Section 6.

Wildlife Corridors and Linkages

The Study Area is not located in a wildlife corridor or linkages area. No further analysis is needed.

5. Regional Conservation Plan Consistency

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Consistency

Although UCR is neither a Permittee nor a Participating Special Entity to the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), the Project site was reviewed to determine consistency with the MSHCP. Shapefiles were downloaded from the Riverside County Mapping Portal (RCIT 2023) and added to a GIS to determine if the Project site is located within the Criteria Area, Public/Quasi Public Lands (PQP Lands), or overlaps with any required biota survey areas, and Sub Area Plan boundaries.

Reserve Assembly Analysis

The Study Area does not occur in the Criteria Area and therefore a Reserve Assembly analysis is not required.

Public Quasi-Public Lands in Reserve Assembly Analysis

The Study Area does not occur within, nor adjacent to, PQP Lands. No direct or indirect impacts will occur to PQP lands. No further analysis is required.

Species Associated with Riparian/Riverine Areas and Vernal Pools (MSHCP Section 6.1.2)

Riparian/ Riverine Areas

Riparian/riverine areas are lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to, or which depend upon soil moisture from a nearby fresh water source; or areas with freshwater flow during all or a portion of the year (MSHCP 2004).

No evidence of riparian/riverine areas were observed in the Study Area. No further analysis is required.

Vernal Pools

Vernal pools are seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are

normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season.

No evidence of vernal pools was observed in the Study Area. No further analysis is required.

Fairy Shrimp

Mapping of stock ponds, ephemeral pools and other features shall be undertaken for Riverside, vernal pool, and Santa Rosa fairy shrimp according to the MSHCP.

No suitable habitat for fairy shrimp was observed in the Study Area. No further analysis is required.

Riparian Birds

No habitat for riparian birds (i.e., least Bell's vireo, southwestern willow flycatcher, or western yellow-billed cuckoo) is present in the Study Area. No further action is required.

Narrow Endemic Plant Species (MSHCP Section 6.1.3)

The Study Area is not located in a MSHCP Section 6.1.3 Narrow Endemic Plant Species Survey Area. No further action is required.

Additional Survey Needs and Procedures (MSHCP Section 6.3.2)

Criteria Area Plant Species

The Study Area is not located in a MSHCP mapped survey area for Criteria Area plant species. No further action is required.

Amphibians

The Study Area is not located in a MSHCP mapped survey area for amphibian species. No further action is required.

Burrowing Owl

The Study Area is not located within a mapped MSHCP survey area for burrowing owl (*Athene cunicularia*) as shown in Figure 5 – Burrowing Owl Survey Areas. No further action is required.

Mammals

The Study Area is not located in a mapped survey area for mammals. No further action is required.

Information on Other Species

Delhi Sands Flower Loving Fly

The Study Area is not located within an area with mapped Delhi soils. No suitable habitat is present for this species, and no further action is required.

Coastal California Gnatcatcher

The Study Area does not contain suitable habitat for coastal California gnatcatcher. No further action is required.

Urban/Wildlands Interface (MSHCP Section 6.1.4)

The proposed Project is not located adjacent to existing conservation lands. No further action is required.

Species Not Adequately Covered (MSHCP Table 9-3)

None of the MSHCP Table 9-3 species (28 species) were observed in the Study Area and none are expected to occur.

Construction Guidelines (MSHCP Section 7.5.3)

The Study Area is not located within the Criteria Area or PQP Lands. No further action is required.

Stephens' Kangaroo Rat Habitat Conservation Plan

The Riverside County Habitat Conservation Agency (RCHCA) Stephens' Kangaroo Rat Habitat Conservation Plan (SKR HCP) was developed to meet the requirements of the program's federal Endangered Species Act Section 10(a) permit. The HCP for this species is managed by the RCHCA. The HCP establishes a Reserve System where activities in the core reserve areas are limited or restricted.

UCR is a constitutionally created State entity and is not subject to municipal regulations of surrounding local governments for uses on property owned or controlled by UCR that are in furtherance of the university's educational purposes. Therefore, the Project is not subject to any fees associated with the SKR HCP plan area.

6. Conclusions

The Study Area is located in an existing urban/developed landscape that exhibits a continued high degree of anthropogenic disturbances. No special-status plant or animal species were detected within the Study Area. No potentially jurisdictional aquatic resources or MSHCP riparian/riverine resources are present in the Study Area. Additionally, the Project will not conflict with any adopted habitat conservation plan.

The Project site does provide suitable nesting habitat for passerine and some raptor species within the mature trees in the Study Area. The following recommendations are provided to avoid impacts to nesting birds covered under the MBTA and the applicable DFG Code:

BIO-1- Nesting Birds

If construction occurs during the general nesting season for passerines (February 15 through August 31), or raptors (January 15 through July 31) and where any mature tree, shrub, or

structure capable of supporting bird nests within 300-feet (passerines), and 500-feet (raptors), of Project construction or staging, a qualified biologist shall perform a nesting bird survey to locate any active nests in the respective survey buffers. All surveys will be conducted within 72 hours prior to the start of construction or activity on the either staging area. Surveys shall be conducted on-foot in all areas containing suitable nesting habitat. If nesting birds are present or within 300-feet (passerines), or 500-feet (raptors), of the construction area, a qualified biologist shall flag and demarcate a no-work buffer at a distance deemed appropriate by the biologist. Construction-related parking, storage of materials, or construction activities shall not occur within the no-work buffer until the biologist has confirmed that breeding/nesting is completed, and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist, if it is determined such encroachment will not adversely impact the nesting birds. Inaccessible areas shall be surveyed remotely using binoculars to the extent practical.

BIO-2- Roosting Bats

Potentially suitable habitat for roosting bat species is present in the construction footprint (including the staging areas) in the untrimmed palm fronds of the various fan palm trees, as well as the limbs/crevices of mature trees. Therefore, a preconstruction roosting bat survey is recommended no more than 30 days prior to start of construction activities if such activities occur during the roosting season (approx. March through September). If the survey identifies bats present in the vegetation slated for removal by the Project, then a qualified biologist should prepare an exclusionary methods plan, which can include letting downed trees to lie for a sufficient amount of time determined and monitored by the biologist.

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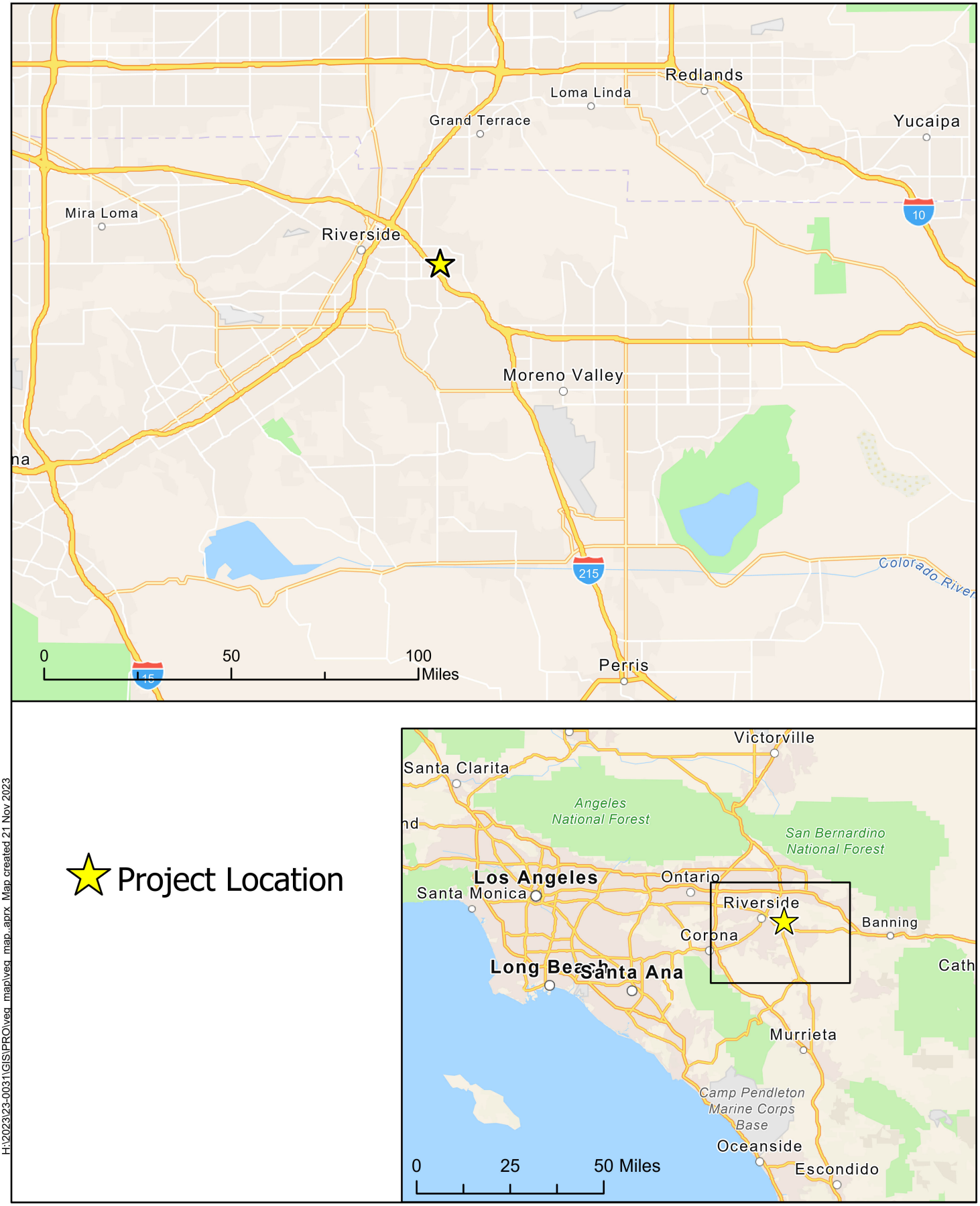
FIGURES



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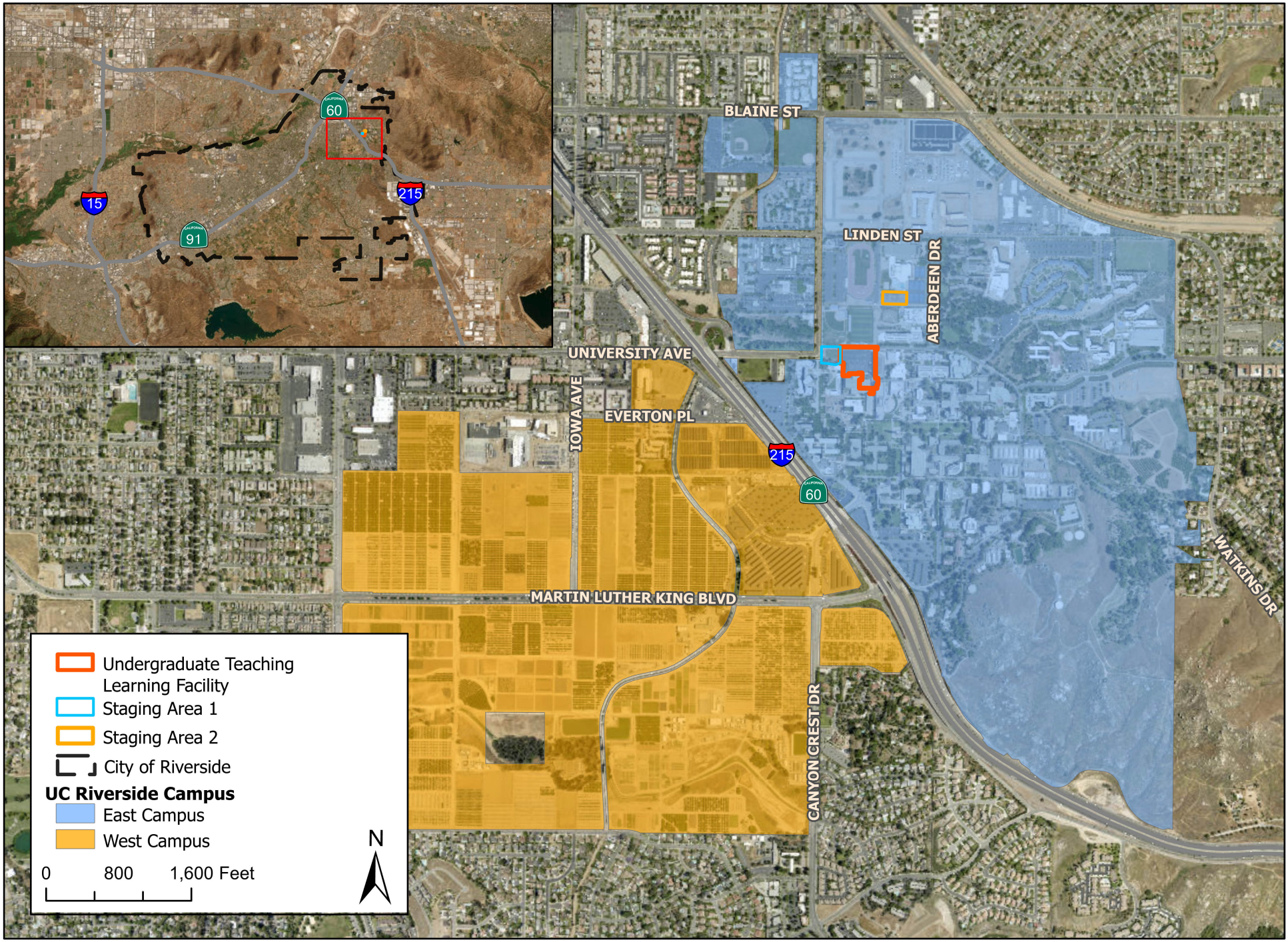
Source: Riverside Co. GIS

Figure 1 - Regional Map

UCR Undergraduate Teaching and Learning Facility

ALBERT A. WEBB ASSOCIATES



Source: Riverside Co. GIS

Figure 2 - Aerial Vicinity Map

UCR Undergraduate Teaching and Learning Facility

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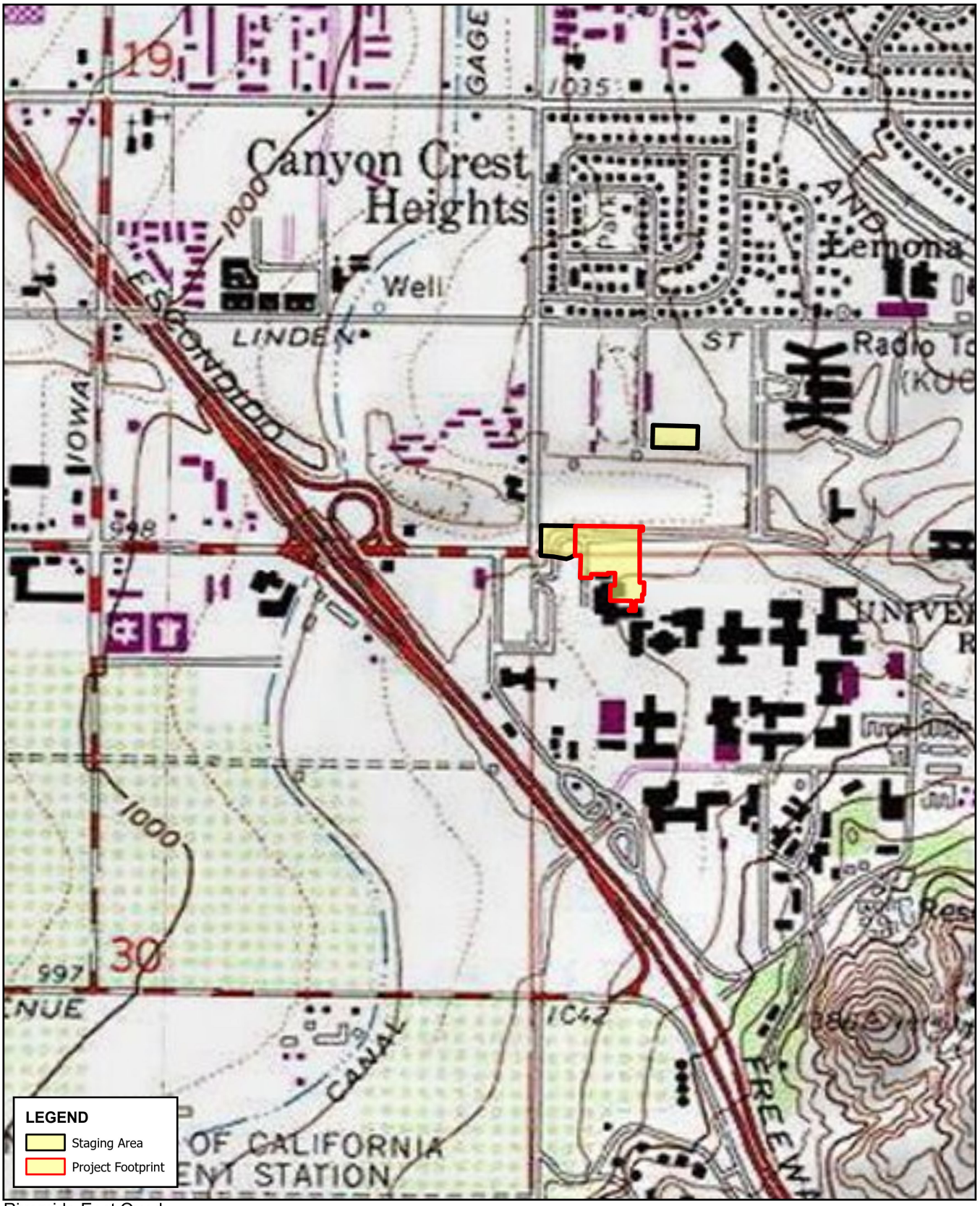

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Riverside East Quad
Section 29, Township 2 South, Range 4 West
Sources: USGS maps.

0 1,000 2,000 3,000 Feet

Figure 3 - USGS Topographic Map
UCR Undergraduate Teaching and Learning Facility

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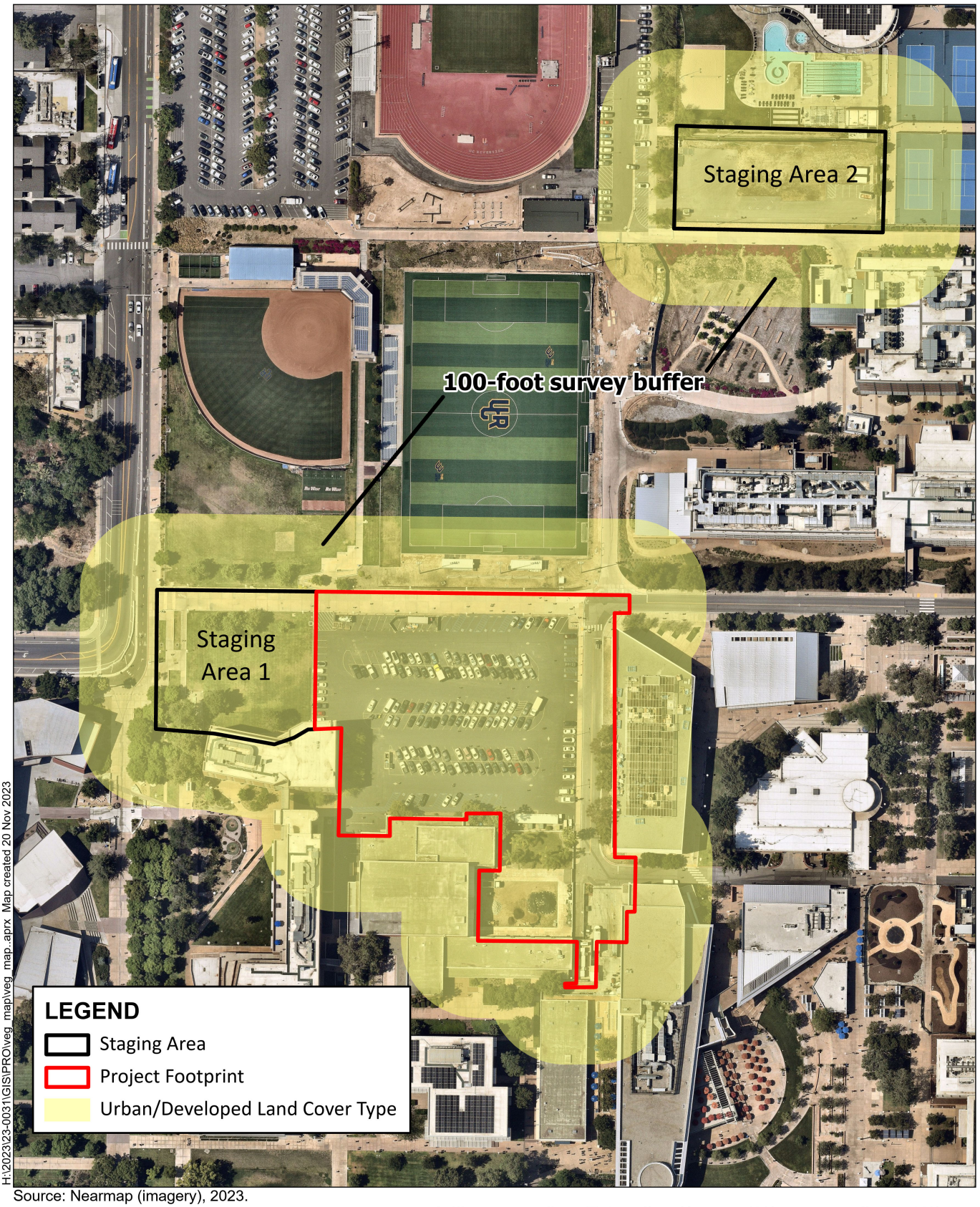

Source: Nearmap (imagery), 2023.

0 100 200 300 Feet

Figure 4 - Study Area Vegetation Map

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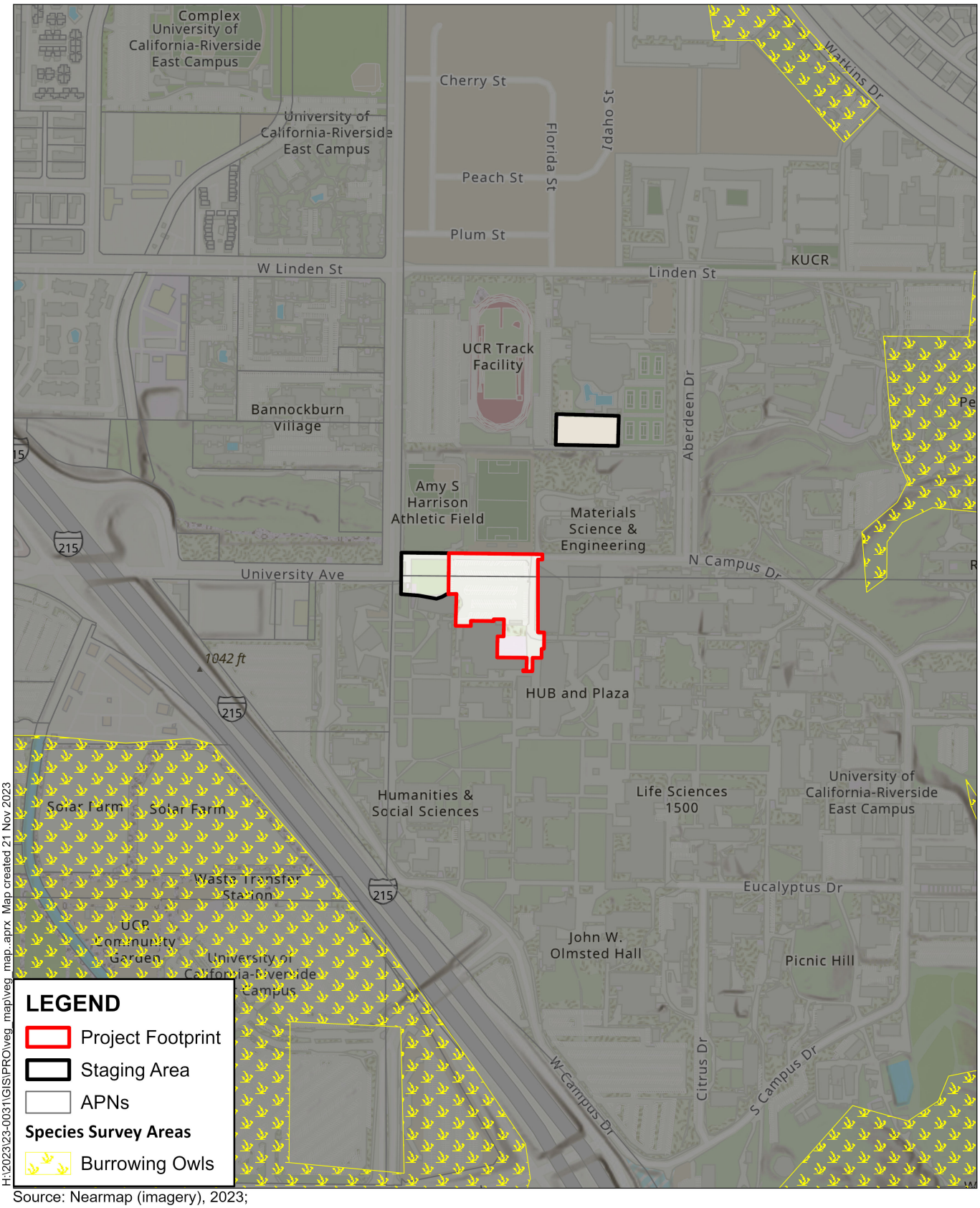

Source: Nearmap (imagery), 2023;
Western Riverside MSHCP, Dec., 20222.

0 500 1,000 1,500 Feet

Figure 5 - Burrowing Owl Survey Areas

UCR Undergraduate Teaching and Learning Facility

ALBERT A. WEBB ASSOCIATES

Appendix C

Historic Properties Project Review and Impacts Screening

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October 24, 2023

Stephanie Tang, Assistant Director of Campus Planning
University of California, Riverside, Planning, Design & Construction
1223 University Avenue, Suite 240
Riverside, California 92507
Submitted via email: stephanie.tang@ucr.edu

Re: ***Secretary of the Interior's Standards for the Treatment of Historic Properties*** **Project Review and Impacts Screening, Undergraduate Teaching and Learning Facility Project, University of California, Riverside**

Dear Ms. Tang:

This memorandum documents the results of the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (*Secretary's Standards*) project review and impacts screening for the Undergraduate Teaching and Learning Facility (UTLF) project at the University of California, Riverside (UCR). The project is located adjacent to (and involves minor changes affecting) the Athletics & Dance Building. Designed in 1953 by Los Angeles-based architect Arthur Froehlich, the Athletics & Dance Building was identified as eligible for federal and state landmark listing, both individually and as a contributor to UCR's Mid-Century Modern Core Historic District. This finding was documented in the 2021 "University of California, Riverside, 2021 Long-Range Development Plan Final Historic Resources Survey Report (Project No. 958098)." Because the subject property is eligible for landmark listing at the federal and state level, it qualifies as an eligible historical resource pursuant to the California Environmental Quality Act (CEQA).

The analysis was completed by SWCA Architectural Historian Susan Zamudio-Gurrola, MHP, and Senior Architectural Historian Debi Howell-Ardila, MHP. The objectives are twofold: 1) to implement Mitigation Measure MM CUL-1 of the Long Range Development Plan Environmental Impact Report, and 2) to provide historic preservation guidance to ensure project compliance with the *Secretary's Standards*, thereby avoiding any potential impacts on historical resources.

This memo includes the following sections: Executive Summary; Character-Defining Features Table (identifying primary, secondary, tertiary, and non-contributing features of the historical resource); *Secretary's Standards* Project Review Table (documenting compliance with the *Secretary's Standards* and recommendations for treatment approaches); and Historical Resources Impacts Screening Table (considering the likelihood of potential significant adverse impacts to historical resources through project implementation).

Should you have any questions about the contents of this memo, please do not hesitate to contact Ms. Debi Howell-Ardila at (626) 524-1917 or at debi.howell@swca.com. Thanks as always for the opportunity to assist UCR.

Sincerely,

Susan Zamudio-Gurrola, MHP
Architectural Historian

Debi Howell-Ardila, MHP
Senior Architectural Historian, Project Manager

EXECUTIVE SUMMARY

Historical Resource Overview

Building Name:	Athletics & Dance Building
Property Address:	900 University Avenue, Riverside, California 92521 Assessor's Parcel Number 253-100-005
Date(s) of Construction:	1953
CA Historical Resource Status Code:[1]	3B ("Appears eligible for NR both individually and as a contributor to a NR eligible district through a survey evaluation") and 3CB ("Appears eligible for CR both individually and as a contributor to a CR eligible district through a survey evaluation")
Significance Criteria:	NRHP/CRHR Criteria A/1; C/3
Period of Significance:	1953-1966
Source of Historic Resources Evaluation:	"University of California, Riverside, 2021 Long-Range Development Plan Final Historic Resources Survey Report"

Secretary's Standards Project Review, Overview of Findings

Applicable treatment approach:	Rehabilitation
Principal project components comply with *Secretary's Standards*?[2]	Yes; the principal project components would comply with the *Secretary's Standards for Rehabilitation*
Are project modifications or treatment recommendations needed to facilitate *Secretary's Standards* compliance?	Yes; recommendations provided in Section 2
Are impacts to historical resources likely due to project implementation?	No; none of the project components would be expected to result in significant direct or indirect adverse impacts

[1] California State Office of Historic Preservation, Department of Parks & Recreation. 2004. "Technical Assistance Bulletin #8: User's Guide to the California Historical Resource Status Codes & Historic Resources Inventory Directory." Sacramento, CA.

[2] Weeks, K.D., and A.E. Grimmer. 2001. *Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Washington, D.C.: U.S. Department of the Interior. Available at: http://www.nps.gov/tps/standards/rehabilitation/rehabilitation-guidelines.pdf. Per CEQA Guidelines Section 15331, a project shown to conform with the *Secretary's Standards* is generally considered a project that will not cause a significant adverse impact to historical resources.

1. CHARACTER-DEFINING FEATURES

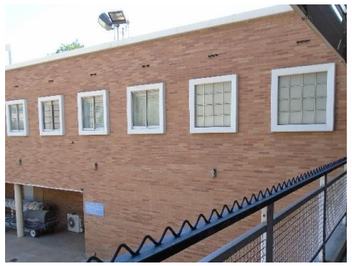
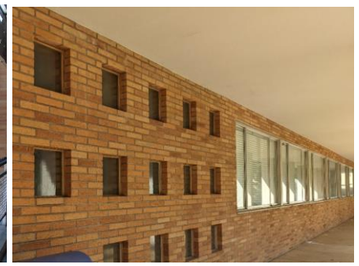
The starting point for effective preservation review is the identification of a historic property's "character-defining," or historically significant, features. Character-defining features refer to those physical materials and spaces that fall within the period of significance and convey the reasons for a resource's significance.

Under CEQA, significant adverse impacts to historical resources include the loss of character-defining features such that the resource loses its historic integrity and is no longer eligible. Therefore, identifying character-defining features is key to proactively avoiding impacts and planning sensitive modifications and upgrades to historic properties.

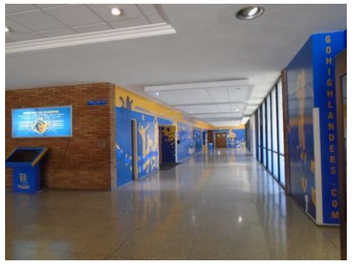
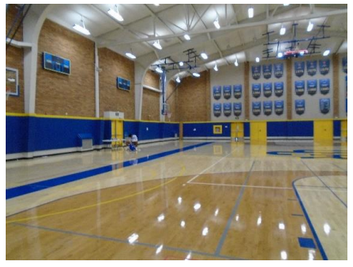
The following table illustrates and describes the character-defining (and non-contributing) features of the Athletics & Dance Building, with corresponding levels of significance (primary, secondary, and tertiary).

Table 1. Primary, Secondary, and Tertiary Character-Defining Features, Non-Contributing Features, Athletics & Dance Building

Photographic Overview	Type	Primary	Secondary	Tertiary	Non-Contributing
	Shape/Form	▪ One-story arcade with simple post supports, framed by landscaping, spanning façade ▪ Irregular, pinwheel-shaped building footprint ▪ Varying heights, including one-story wings and high, open-roofed gym, reflecting building use ▪ Asymmetrical, balanced design composition and volume differentiation ▪ Split-level building tailored to topography, with building access provided on ground and upper stories ▪ South façade, which contains primary entrance and faces the campus core, has primary character-defining importance	▪ Enclosed, open courtyard adjacent to entrance on north elevation ▪ North elevation, which is visible from the parking lot, has secondary character-defining importance ▪ East elevation, which contains secondary entrances and faces former pool area, has secondary character-defining importance	▪ Open space formerly occupied by pool east elevation (pool has been filled in) ▪ Brick wall with concrete coping enclosing pool area ▪ Side yard at southwest corner adjacent to Dance Studio Theater ▪ Landscaping and hardscaping surrounding pool ▪ West elevation, which has limited visibility, has tertiary character-defining importance ▪ Southeast elevation, which faces utility area, has tertiary character-defining importance	▪ Non-original laundry room beneath the "bridge" on west elevation ▪ Non-original elevator shaft on east elevation ▪ Enclosed area containing utility and appurtenant structures at southeast corner of the building ▪ Carport adjacent to the northern wall that encloses the pool area ▪ Concrete block screening wall and bicycle parking on west side of building ▪ Non-original paved courtyard, bench and pergola at southwest corner of building
	Roofs	▪ Stepped, uniform flat roofs, emphasizing the horizontal axis ▪ No roof eaves; roof line terminates in continuous bands of concrete coping ▪ Projecting concrete entrance canopies (some with concrete pillars)	▪ Metal awning sheltering the balcony on the east elevation	N/A	▪ Flat-roofed pergola in paved courtyard at southwest corner of building ▪ Flat roof covering elevator shaft on east elevation

Photographic Overview	Type	Primary	Secondary	Tertiary	Non-Contributing
     	Openings	▪ Symmetrical rhythm of window openings, which primarily consisted of grouped, multilight windows in a variety of configurations ▪ Small, square windows adjacent to primary entrance (façade; south elevation) ▪ Band of steel-framed sliding windows (façade; south elevation) ▪ Primary south-elevation entrance, located at juncture of projecting square wing and one-story arcade	▪ Grouped steel-framed awning windows (north elevation); steel-framed sliding windows and glass block windows with wide metal surrounds (north elevation) ▪ Square wall perforations in courtyard wall (north elevation) ▪ Secondary entrances on west and east elevations, and a secondary entrance on the south façade ▪ Steel-framed glazing and door system spanning portion of west elevation at Dance Studio Theater ▪ Square openings with glazing in masonry wall on east elevation facing the former pool area	▪ Metal double doors, some solid and some with glazing ▪ Band of metal louvered vents on east elevation above balcony ▪ Single steel-framed window with wide metal surround on east elevation ▪ Metal utility doors with louvered vents	▪ Replacement main entrance doors, framing, sidelights (south façade) ▪ Non-original, large, metal-framed windows at elevator shaft/balcony area on east elevation ▪ Grouped awning window and louvered vent at laundry room on west elevation
 	Projections	▪ Square projecting wing on façade, west of entrance ▪ Projecting one-story arcade spanning portion of façade	▪ Balcony on east elevation overlooking former pool area ▪ Exterior staircase and "bridge" projecting from west elevation, which provides a secondary entrance to gym from ground level	N/A	▪ Vented utility structures projecting from roof above balcony area ▪ Non-original elevator shaft on east elevation, which intersects balcony

Photographic Overview	Type	Primary	Secondary	Tertiary	Non-Contributing
   	Trim and Architectural Details and Features	▪ Minimal use of applied ornament ▪ Polychromatic brick wall sheathing ▪ Brick used as decorative feature (e.g., perforated wall enclosing courtyard at northeast) ▪ Concrete coping along roofline and top of walls ▪ Use of contrasting concrete and stucco-clad canopies and entrance features ▪ Prominent window surrounds, designed to contrast with polychromatic brick walls ▪ Decorative tile between windows (north elevation)	▪ Mounted lettering reading "Physical Education" (west elevation)	▪ Light standards in former pool area ▪ Metal window sills in some areas ▪ Metal railing with decorative zigzag at balcony (east elevation)	▪ Non-original metal gates ▪ Squares of pavement (deck) around former pool which do not appear to be original
   	Materials	▪ Polychromatic brick exterior walls ▪ Smooth concrete used for canopies and coping at roofline and at top of walls ▪ Steel framing for fenestration (and metal window sills in areas) ▪ Decorative tile between windows (north elevation)	N/A	▪ Metal railings along balconies and other areas	▪ Non-original tile on entrance steps at primary entrance on south façade ▪ Non-original steel-framed glazing and door system at primary public entrance on south façade ▪ Non-original metal-framed glazing and door system opening to balcony on east elevation ▪ Non-original hardscape and landscape between Athletics & Dance Building and campus buildings to the south ▪ Non-original pavement (deck) around former pool area

Photographic Overview	Type	Primary	Secondary	Tertiary	Non-Contributing
   	Setting	▪ Location, along northern edge of Mid-Century Modern Core Historic District ▪ Generous use of landscaping, planters, and transitional outdoor space ▪ Split-level configuration, accessed from ground level on north, west and east elevations, and accessed from upper level at the south elevation	▪ Pedestrian circulation area between the building's primary (south) façade, and other campus buildings to the south	▪ Access road along east side of the building ▪ Vehicular circulation and parking areas on west and north sides of building	▪ Non-original pavement and plantings in pedestrian circulation area south of the building ▪ Service/utility area located at end of access road between Athletics & Dance Building and Highlander Union Building ▪ Multi-story buildings to the east, west and south (Highlander Union Building, Skye Hall, CHASS Interdisciplinary Buildings, Student Services Building, and Costo Hall)
   	Interior	▪ Corridor ("Hall of Champions") from primary entrance through second story ▪ Interior planter with copper coping next to primary entrance ▪ Polychromatic brick sheathing on walls ▪ Original flooring including terrazzo, wood, polished concrete, and patterned tile ▪ Concrete staircases with wooden or curved metal railings; terrazzo staircase near primary entrance ▪ Vaulted ceilings and steel roof truss systems (e.g., in CHASS studio and gym) ▪ Original, steel-framed sliding doors that open west wall of Dance Studio Theater to outside	▪ Original, extant decorative wall tiles framing the gym entrance; tiles are presumed extant but presently covered with adhesive sheets ▪ Vaulted, plastered ceiling in Dance Studio Theater	▪ Built-in porcelain water fountains in studio space ▪ Mezzanine space (in CHASS studio)	▪ Non-original paneled, recessed ceiling surrounded by molding in "Hall of Champions" ▪ Non-original acoustical ceiling tile (e.g., in "Hall of Champions" and offices) ▪ Non-original light fixtures (e.g. fluorescent tube lighting) ▪ Non-original linoleum flooring in corridors to offices and in break room/kitchen; non-original carpet in offices and coaches' spaces ▪ Braveheart bear statue near primary entrance (installed in 2002) ▪ Reconfigured and remodeled offices ▪ Non-original doors, floor, light fixtures, basketball nets, and pads in gym; non-original lockers and cubbies in locker rooms

2. SECRETARY'S STANDARDS PROJECT REVIEW

This *Secretary's Standards* project review is based on the draft UTLF project description and Draft Test Fit Illustrative Site Plan, prepared by AC Martin in July 2023.

The *Secretary's Standards* offer recommendations for preserving, maintaining, repairing, and replacing historical materials and features, designing new additions, and for adjacent new construction. Among the four treatment approaches in the *Secretary's Standards*—reconstruction, preservation, restoration, and rehabilitation—rehabilitation is the treatment approach deemed appropriate for the UTLF project adjacent to the subject property. The 10 Standards for Rehabilitation are listed below.

Standard No. 1: A property shall be used for its historic purpose or placed in a new use that requires minimal change to defining characteristics of the building and its site/environment.

Standard No. 2: The property's historic character shall be retained and preserved. Removal of historic materials/alteration of features/spaces that characterize a property shall be avoided.

Standard No. 3: Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

Standard No. 4: Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.

Standard No. 6: Deteriorated historic features shall be repaired rather than replaced. Where severity of deterioration requires replacement, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

Standard No. 7: Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures…shall be undertaken using the gentlest means possible.

Standard No. 8: Significant archeological resources affected by a project shall be protected and preserved. If resources must be disturbed, mitigation measures shall be undertaken.

Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

A preliminary analysis of the UTLF project and recommended treatment approaches to facilitate compliance with the *Secretary's Standards* are provided in the following section.

Table 2. *Secretary's Standards* Project Review, Overview of Conceptual Project Components, Character-Defining Features, and Recommended Treatment Approaches

	Location | Project Component	Affected and/or Adjacent Character-Defining Features	Retains character-defining features?	Complies with *Secretary's Standards*?	Recommended Treatment Approaches for Ongoing *Secretary's Standards* Compliance
	**North side of building** ▪ Construction of UTLF, a four- to five-story building north of the Athletics & Dance Building. The distance between the two buildings will be approximately 30 feet. ▪ Removal of concrete walkways and asphalt paving, and construction of new paving in order to (1) meet pedestrian accessibility requirements; (2) provide connection to Costo Hall/Carillon Mall from the project site and improve connections from the site to the immediate surrounding campus areas; and (3) improve access for bicycles, fire apparatus, and emergency vehicles. ▪ Removal of existing landscape, and installation of new landscaping, including trees, shrubs and groundcover. ▪ Removal and/or relocation of existing utilities, and installation of new utilities such as electrical, fiber, and irrigation lines. ▪ New covered cart parking area ▪ Bike storage area ▪ New accessible parking stalls **East side of building (former pool area)** ▪ The Courtyard Alternate includes removing existing light standards, trees, and paving; installing new lighting, paving, and landscaping; and possible relocation of existing palms. ▪ Possible removal of brick wall enclosing the former pool area for the construction of project components such as gathering area, pass through, bike storage area, path, and landscaping. **Southeast side of building** ▪ The Carillon Mall Connection Alternate includes constructing stairs along the southeast elevation to connect the UTLF to Carillon Mall; removal of concrete paths, asphalt and chain-link fencing; relocation of electrical services; adjustment or reconstruction of existing site drainage; and installing concrete sidewalks and lighting.	▪ Overall building site/setting ▪ North elevation – character-defining features most relevant for the project are the brick wall with coping enclosing pool area and overall asymmetrical design composition and massing of building, visible from north elevation ▪ Former pool area and southeast elevation – character-defining features include flat roof with concrete coping, brick exterior walls, and projecting concrete frame around the fenestration	Yes; overall, the project would retain key primary, secondary, and tertiary character-defining features, given that it proposes only minor alterations to secondary and tertiary elevations and new construction that is approximately 30 feet away from the historic building. The Courtyard Alternate would potentially result in removal of the brick wall enclosing former pool area (the brick wall is of tertiary character-defining significance). The Courtyard Alternate would maintain the spatial relationship and character of the building and the outdoor recreational area on its east side. The Carillon Mall Connection Alternate would include the addition of a staircase on the southeast elevation (of tertiary character-defining significance).	With recommended treatment approaches incorporated into project plans. See Rehabilitation Standards No. 2, 5, 9, and 10.	To facilitate compliance with the *Secretary's Standards*, the following recommendations apply to this project: ▪ The new UTLF (four- to five-story building, north of the Athletics & Dance Building) shall be designed to be compatible with but differentiated from the historic district, for example, in terms of palette of materials, style/window openings, massing/volume. ▪ The design of the new building shall be compatible but differentiated from that of the Athletics & Dance Building; the design should not mimic that of the historic building but rather using its character-defining features as a conceptual point-of-departure for overall compatibility (i.e., through the selection of materials, height and treatment of roof and roof lines, window openings/patterns, and overall style). ▪ For the Courtyard Alternate, the design team should consider incorporating a portion of the character-defining brick wall (ideally in the most publicly visible areas) into the project design. ▪ For the Carillon Mall Connection Alternate, the design of the staircase added to the southeast elevation (which has tertiary character-defining significance) should be compatible but differentiated from the character-defining features of the historic building; the design and construction activities should be proactively planned to avoid unforeseen damage to adjacent historic materials. ▪ To facilitate ongoing compliance with the *Secretary's Standards*, the architect and contractor will plan, implement, and monitor any demolition and construction activities adjacent to the Athletics & Dance Building to proactively avoid and minimize unanticipated damage to identified character-defining features.

3. PRELIMINARY IMPACTS SCREENING

This section provides a preliminary assessment of the project for its potential to cause a potential significant adverse impact and material impairment to historical resources, based on the provisions of State CEQA Guidelines Section 15064.5. Material impairment implies that a historical resource would no longer be eligible as such.

The assessment of significant adverse impacts starts with a consideration of the historic integrity of the resource. Historic integrity is defined in National Register Bulletin 15 as the "ability of a property to convey its significance."[3] In order to assess integrity, the National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity.

To retain integrity, a property must possess several, if not all, of these seven qualities, which are defined in the following manner in National Register Bulletin 15:

1. Location – the place where the historic property was constructed or the place where the historic event occurred;
2. Design – the combination of elements that create the form, plan, space, structure, and style of a property;
3. Setting – the physical environment of a historic property;
4. Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
5. Workmanship – the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;
6. Feeling – a property's expression of the aesthetic or historic sense of a particular period of time;
7. Association – the direct link between an important historic event or person and a historic property.

Each of the seven aspects of integrity are included in the table below, which considers the existing level of retention of integrity and the level of integrity following project completion.

[3] National Park Service (NPS). 1990. *National Register Bulletin 15, How to Apply the National Register Criteria for Evaluation,* p. 44. Washington, D.C.: U.S. Department of the Interior, National Park Service.

Table 3. Impacts Screening and Historic Integrity Assessment, Athletics & Dance Building

Integrity Aspect	Current Conditions	Following Project Implementation
Location	The current Athletics & Dance Building has not been moved and retains integrity of location.	The Athletics & Dance Building would be preserved in place. Therefore, the historical resource would retain integrity of location.
Design	The current building retains integrity of design.	The project would involve only minimal changes to the Athletics & Dance Building, none of which affect primary character-defining features or elements of the building's design. In terms of the new adjacent construction, efforts will be made to design the new UTLF (four- to five-story building, north of the Athletics & Dance Building) to be compatible with but differentiated from the historic district, for example, in terms of palette of materials, style/window openings, massing/volume. Similarly, the design of the new building will be compatible but differentiated from that of the Athletics & Dance Building itself. For the Courtyard Alternate, the design team will consider incorporating a portion of the brick wall in the rear elevation (a tertiary character-defining feature) into the project design. For the Carillon Mall Connection Alternate, efforts will be made to ensure that the design of the staircase added to the southeast elevation (which has tertiary character-defining significance) will be compatible but differentiated from the character-defining features of the historic building; the design and construction activities will be proactively planned to avoid unforeseen damage to adjacent historic materials. Therefore, the historical resource would retain integrity of design.
Setting	The current Athletics & Dance Building retains integrity of setting. Some changes have taken place to the setting since the building's construction in 1953 (for example, the sports courts that once located to the west have been removed). Overall, however, the building and the historic district to which it is a contributor retain integrity of setting.	Construction of the new UTLF would shift the character of the setting of the Athletics & Dance Building. However, due to its location at the rear elevation of the historic resource, and well removed (on the opposite side) from the Mid-Century Modern Core Historic District, construction of the new building would not be expected to compromise the setting of either the Athletics & Dance Building or the Mid-Century Modern Core Historic District to the point that it would no longer retain integrity of setting. In terms of the new adjacent construction, efforts will be made to design the new UTLF (four- to five-story building, north of the Athletics & Dance Building) to be compatible with but differentiated from the historic district, for example, in terms of palette of materials, style/window openings, massing/volume. Similarly, the design of the new building will be compatible but differentiated from that of the Athletics & Dance Building itself. For the Courtyard Alternate, the design team will consider incorporating a portion of the brick wall in the rear elevation (a tertiary character-defining feature) into the project design. Therefore, the historical resource would retain integrity of setting.
Materials	The current building retains integrity of materials.	The project would involve only minimal changes to the Athletics & Dance Building, none of which affect primary character-defining

Integrity Aspect	Current Conditions	Following Project Implementation
		features or key materials of the historic property. Therefore, the historical resource would retain integrity of materials. For the Courtyard Alternate, the design team will consider incorporating a portion of the brick wall in the rear elevation (a tertiary character-defining feature) into the project design. For the Carillon Mall Connection Alternate, efforts will be made to ensure that the design of the staircase added to the southeast elevation (which has tertiary character-defining significance) will be compatible but differentiated from the character-defining features of the historic building; the design and construction activities will be proactively planned to avoid unforeseen damage to adjacent historic materials. In addition, the architect and contractor will plan, implement, and monitor demolition and construction activities adjacent to the Athletics & Dance Building to proactively avoid and minimize unanticipated damage to identified character-defining features. Therefore, the historical resource would retain integrity of materials.
Workmanship	The current building retains integrity of workmanship.	The project would involve only minimal changes to the Athletics & Dance Building, none of which affect primary character-defining features or elements of the building's workmanship. Therefore, the historical resource would retain integrity of materials. In addition, the architect and contractor will plan, implement, and monitor demolition and construction activities adjacent to the Athletics & Dance Building to proactively avoid and minimize unanticipated damage to identified character-defining features. Therefore, the historical resource would retain integrity of workmanship.
Feeling	The current building retains integrity of feeling. It continues to express its original function and use as a 1950s, Mid-Century Modern facility on a college campus.	The feeling of the building would not change due to project implementation. In terms of the adjacent new construction, efforts will be made to design the new UTLF (four- to five-story building, north of the Athletics & Dance Building) to be compatible with but differentiated from the historic district, for example, in terms of palette of materials, style/window openings, massing/volume. Similarly, the design of the new building will be compatible but differentiated from that of the Athletics & Dance Building itself. Therefore, the property would retain integrity of feeling.
Association	The current building retains integrity of association. It possesses those physical features that convey its historic character and serves the same use it has since its 1953 construction.	The building would retain integrity of association following project implementation. It would retain the majority of the physical features that convey its historic association and would still serve the same use it has since its construction.

4. CONCLUSION

This memo presented the findings of a *Secretary's Standards* project review and impacts screening for the UTLF project proposed adjacent to the Athletics & Dance Building on the UCR campus. For the current project review, SWCA focused on the project components most likely to directly and/or indirectly affect character-defining features of the building.

This review sought to determine whether the project components comply with the *Secretary's Standards*. Per CEQA Guidelines Section 15331, a project in conformance with the *Secretary's Standards* is generally considered a project that will not cause a significant adverse impact to historical resources.

Based on this analysis, the project components are found to comply with the *Secretary's Standards*, with the incorporation of recommendations as noted in Table 2. Implementing these recommendations would facilitate ongoing compliance with the *Secretary's Standards*.

Therefore, as the project complies with the *Secretary's Standards*, implementation of the project would not be expected to result in significant adverse impacts to historical resources, and no further study is required.

It is recommended that UCR oversee and ensure the implementation of recommendations made in this memo, to facilitate ongoing compliance with the *Secretary's Standards* and avoidance of significant adverse impacts as the project moves forward through the design phases and into construction activities.

APPENDIX A:

Key Staff Resumes

DEBI HOWELL-ARDILA, MHP, SENIOR ARCHITECTURAL HISTORIAN

Ms. Howell-Ardila is an award-winning historic preservation professional with over 17 years of experience in environmental compliance and historic preservation. She has led site investigations and evaluations for thousands of properties throughout California, with a focus on Southern California and the San Francisco Bay Area. Her experience includes preparation of thematic historic context statements, citywide historic resource surveys, environmental compliance studies and documentation in support of CEQA, federal and local landmark nominations, Mills Act applications, and *Secretary of the Interior's Standards* project review. She exceeds the Secretary of the Interior's Professional Qualification Standards in Architectural History and History.

YEARS OF EXPERIENCE

17

EXPERTISE

Specialized practice in historic preservation planning and policy

Specialized expertise in program- and project-level CEQA analyses

Secretary of the Interior's Standards project review and compliance

EDUCATION

M.H.P., Historic Preservation; University of Southern California, School of Architecture; 2010

B.A., German and Architectural History; University of California, Berkley; 1997

REGISTRATIONS / CERTIFICATIONS

Meets and exceeds requirements in the Secretary of the Interior's Professional Qualification Standards in Architectural History and History

AWARDS

2019: California Preservation Foundation Award, *City of Riverside Latino Historic Context Statement*

2018: California Preservation Foundation Award, City of San Gabriel Historic Preservation and Cultural Resources Ordinance

2018: Los Angeles Conservancy Preservation Award, City of San Gabriel Historic Preservation and Cultural Resources Ordinance

2015: Los Angeles Conservancy Preservation Award, *LAUSD Historic Context Statement, 1870 to 1969*

2014: California Preservation Foundation Award, *LAUSD Historic Context Statement, 1870 to 1969*

SELECTED PROJECT EXPERIENCE (* denotes project experience prior to SWCA)

Benjamin Franklin Branch Library Renovations Project; Los Angeles, California. SWCA is preparing technical studies for LADPW BOE for the Benjamin Franklin Branch Library Renovations Project. The scope includes archaeological, paleontological, and historical resources technical reports for the 1976 Benjamin Franklin Branch Library. Tasks include evaluating the resource, identifying character-defining features, and providing preservation input and project plan review to the design team to facilitate compliance with the *Secretary's Standards*. *Role: Project Manager and Lead Historic Preservation Specialist.*

Gaffey Pool and Bathhouse Cultural Resources Services; Los Angeles, California. SWCA prepared cultural resources studies for LADPW BOE for the Gaffey Pool and Bathhouse Project. Work efforts included historic preservation review of design plans to ensure conformance with the *Secretary's Standards.* SWCA also provided preservation input to LADPW BOE for mothballing and safely removing graffiti from historic concrete in a manner that complied with the *Secretary's Standards*. *Role: Architectural Historian and Preservation Specialist.*

Los Angeles Unified School District (LAUSD) Design Guidelines and Treatment Approaches for Historic Schools; Los Angeles, California. SWCA prepared district-wide design guidelines for LAUSD, the second largest public school district in the United States. The LAUSD Design Guidelines provided detailed treatment approaches for a range of school types, architectural styles, and projects, using the *Secretary's Standards* as the point-of-departure. Project included training sessions for LAUSD architects, maintenance/operations, and CEQA staff *Role: Project Manager, Lead Historic Preservation Specialist, and principal author.*

City of Colton, Cultural Resources Element and Historic Preservation Ordinance Updates, Colton, California. SWCA is currently updating the City of Colton's Cultural Resources Element and providing recommendations for potential updates to its Historic Preservation Ordinance. Work efforts include development of clear, user-friendly Goals, Policies, and Action Items; planning and leading community workshops and hearings with commissions and City Council; and guiding the element through the reviews and approval process. *Role: Senior Architectural Historian and principal researcher/author.*

Los Angeles County Natural History Museum, La Brea Tar Pits Master Plan Historical Resources Technical Report, Los Angeles, California. In support of the La Brea Tar Pits Master Plan EIR, SWCA prepared a Historical Resources Technical Report, including an analysis of historical resources within the direct and indirect CEQA area of potential impacts, characterization of impacts to historic resources, and development of alternatives, project design features, and mitigation measures. Project design options and features were also examined for compliance with the *Secretary's Standards*, to lessen and avoid significant adverse impacts to historical resources. *Role: Senior Architectural Historian and principal researcher/author.*

1023 N. Soldano Avenue, Azusa, Historic Preservation Project Review; City of Azusa Planning Division, Azusa, California. Ms. Howell-Ardila recently completed historic preservation project review for the City of Azusa Planning Division for 1023 N. Soldano Avenue. Constructed in 1905, the property is a two-story, single-family residence included on City's list of Potential Historic Landmarks. Ms. Howell-Ardila provided a due-diligence Memorandum for the Record and *Secretary's Standards* project review as part of the entitlements process for modifications to the property. Ms. Howell-Ardila also completed a project impacts screening to offer guidance on the potential for direct or indirect significant adverse impacts to historical resources. *Role: Project Manager and Lead Author/Historic Preservation Specialist*

Historic Resources Technical Study, Existing Sites Technical Memorandum; Academy of Art University; San Francisco, California. SWCA prepared a multi-property historic resources technical study in support of an Existing Sites Technical Memorandum (ESTM) for the Academy of Art University. Key issues included updating historic resource evaluations for 26 properties, documenting exterior and interior character-defining features and alterations over time, and subjecting unpermitted alterations to Secretary of the Interior's Standards project review and analyzing potential impacts. Treatment approaches were also recommended to facilitate compliance with the Secretary of the Interior's Standards. SWCA's Architectural History team completed/updated historic resource evaluations for 26 properties on an accelerated schedule of five months. *Role: Lead Architectural Historian and Project Manager.*

LA Plaza Cultura Village Environmental Impact Report (EIR), Cultural Resources Technical Report; County of Los Angeles; Los Angeles County, California. Analysis of potential impacts to historic resources dealt primarily with indirect impacts to adjacent historic districts, an analysis based on study of the Secretary of the Interiors Standards for the Treatment of Historic Properties as well as community plan design guidelines. *Role: Senior Architectural Historian/principal author.*

City of San Gabriel Historic Preservation and Cultural Resources Ordinance Update; City of San Gabriel Department of Planning; California. SWCA updated the City of San Gabriel Historic Preservation and Cultural Resources Ordinance. In 2017/2018, San Gabriel's Historic Preservation and Cultural Resources Ordinance Update won preservation awards from the Los Angeles Conservancy and California Preservation Foundation. *Role: Project Manager and Lead Author/Historic Preservation Specialist.*

City of Manhattan Beach Historic Preservation Ordinance; City of Manhattan Beach Department of Community Development; Los Angeles County, California. SWCA drafted a new Historic Preservation Ordinance for the City of Manhattan Beach. Work efforts included training sessions and outreach to the City's Planning Commission and City Council, as well as public workshop hearings, stakeholder outreach, and developing educational materials. *Role: Project Manager and Lead Historic Preservation Specialist. Led efforts to provide historic preservation consulting services in support of a new historic preservation ordinance and Mills Act Tax Abatement program in the City of Manhattan Beach.*

***Riverside Latino Historic Context Statement; City of Riverside; Riverside County, California**. Preparation of the *City of Riverside Latino Historic Context Statement*, which explored over a century of history and culture of Riverside's Latino community. This effort was recognized with an award from the California Preservation Foundation in 2019. *Role: Principal Author/Investigator. Authored historic context statement.*

Historic District Survey for the Air Force Research Laboratory; Edwards Air Force Base, California. SWCA completed a comprehensive, context-driven historic resources survey and historic district update of the Edwards Air Force Base Air Force Research Laboratory. Using the multiple-property documentation historic context statement prepared by SWCA, architectural historians completed an intensive-level survey and evaluation of over 230 properties. Subsequent to these efforts, SWCA prepared a technical report, which documented the results and provided management recommendations. *Role: Architectural Historian.*

SUSAN ZAMUDIO-GURROLA, M.H.P., ARCHITECTURAL HISTORIAN

Susan Zamudio-Gurrola is an architectural historian with ten years of experience in cultural resource management. Her experience includes conducting evaluations for the NRHP, CRHR, and local designations; preparing cultural resources studies in compliance with NEPA, Section 106 of the NHPA, CEQA, and local ordinances; assessing integrity; reviewing projects for conformance with the SOI Standards; preparing historic context statements, Caltrans-format cultural resources reports, HABS/HAER documentation, and findings of effect. Ms. Zamudio-Gurrola has worked on projects in California, Arizona, Idaho, and Texas, and has performed extension-of-staff historic preservation services and design review for several municipalities throughout California. She also conducted oral history interviews for the Bracero History Archive, a joint project of the Smithsonian National Museum of American History and various organizations. Ms. Zamudio-Gurrola served for several years on the board of directors for the Rancho Camulos Museum, a National Historic Landmark. She meets and exceeds the Secretary of the Interior's Professional Qualifications Standards for History and Architectural History.

YEARS OF EXPERIENCE

10

EXPERTISE

CEQA

Section 106

Historic Resources Surveys

Historic Context Statements

National Register of Historic Places (NRHP)

EDUCATION

M.H.P., Historic Preservation; University of Southern California; 2009

B.A., History of Art and Architecture; University of California, Santa Barbara; 2004

TRAINING

CEQA Workshop, Association of Environmental Professionals, 2016

MEMBERSHIPS

California Preservation Foundation

National Alliance of Preservation Commissions

SELECTED PROJECT EXPERIENCE (∗ denotes project experience prior to SWCA)

***Historic Context Statement and Reconnaissance Survey for the Eastern Oxnard Plain; County of Ventura Planning Division; Ventura County, California.** The project consisted of the preparation of a historic context statement and a reconnaissance-level historic resources survey for unincorporated rural areas of Ventura County, California. Encompassing an area of approximately 36,120 acres, the survey area included 1,621 assessor parcels. Two community outreach meetings were held with interested members of the community which helped inform the historic context and survey. Twenty properties that were over 45 years old and associated with the context themes were recorded on California Department of Parks and Recreation (DPR) 523A forms, and DPR update forms were prepared for eight additional properties. The historic context statement, survey results and recommendations were provided in an illustrated report to which the DPR forms were appended. *Role: Architectural Historian.*

***Historic Resources Survey and Context for the Town of Saticoy; County of Ventura Planning Division; Ventura County, California.** In support of an update to the Saticoy Area Plan, a historic context statement and reconnaissance-level historic resources survey were completed for the unincorporated and largely Hispanic community of Saticoy. The survey area included 311 assessor parcels covering approximately 238 acres. A historic context statement was developed for the community, and property-specific research was conducted for 24 properties which were recorded on DPR 523 series forms. Research was augmented by outreach to Spanish-speaking community members. An illustrated historic context statement and survey report was prepared which included recommendations to the County of Ventura for adopting and refining review procedures for historical resources in Saticoy. *Role: Architectural Historian.*

***Camarillo Springs Golf Course Development Project; Cadence Environmental Consultants; Camarillo, California.** A cultural resources study was completed for the Camarillo Springs Golf Course Development Project which involved the development of 248 age-restricted single-family homes and recreation center on an existing golf course property, as well as the reconfiguration and renovation of the golf course. The study included a cultural resources records search, archaeological and built environment pedestrian surveys, Native American outreach, an Extended Phase I investigation, Phase II evaluation program, evaluation of the golf course for potential historic significance, and preparation of a report and DPR forms. *Role: Architectural Historian.*

***Emergency Communication Towers Categorical Exclusions; Ventura County Fire Protection District; Ventura County, California.** The project entailed assisting the Ventura County Fire Protection District (VCFPD) with the preparation of three Categorical Exclusions under NEPA, Categorical Exemptions under CEQA, and the associated cultural resources technical studies. The project proposed to construct towers and antennas at three VCFPD fire stations for broadcasting and receiving Federal Communications Commission (FCC)-licensed radio signal as part of a remote wildfire early detection network. As the project required licensing from the FCC and included funding from the Federal Emergency Management Agency, it required compliance with Section 106 of the NHPA. This included conducting a cultural resources study for each fire station which included delineating an Area of Potential Effects for each project site, conducting cultural resources records searches, extensive Native American and interested party consultation, public notice, archival research, field surveys, evaluations for the National and California Registers, effects/impacts assessments, use of the FCC Tower Construction Notification System and E-106 system, and completion of FCC 620 Forms. California State Historic Preservation Officer concurrence was obtained following completion of the studies. *Role: Task Manager.*

***Kenney Street Widening and Pedestrian Improvements Project Cultural Resources Study; County of Ventura Public Works; Ventura County, California.** The project consisted of street widening and improvements completed in the vicinity of Rio Real Elementary School in El Rio, an unincorporated area of Ventura County. New sidewalk, and curb and gutter were constructed, and shoulders were widened. The project had Caltrans oversight and was subject to compliance with Section 106 of the NHPA. A cultural resources assessment was conducted, which included delineation of an Area of Potential Effects (APE), a cultural resources records search, Native American and local interested party consultation, a field survey, archival research, evaluation of several properties adjacent to the APE for historical significance, and preparation of an Archaeological Survey Report, Historical Resources Evaluation Report, Historic Property Survey Report, and DPR 523 series forms. *Role: Architectural Historian.*

***2800 Barry Street Historic Resource Evaluation; City of Camarillo Department of Community Development; Camarillo, California.** Proposed by the City of Camarillo, the project consisted of demolishing buildings and structures on a vacant property that had previously housed a lumber and hardware supply business. As the buildings were over 50 years old, a historical resource evaluation was completed as part of the environmental analysis conducted in conformance with CEQA. The study included a cultural resources records search, archival research, intensive-level field survey, an evaluation for listing in the National Register, California Register and local designation, and preparation of a memorandum and DPR 523 series forms. *Role: Architectural Historian.*

***Cabrillo Boulevard Pedestrian and Bicycle Improvements and Replacement of the Union Pacific Railroad Bridge Project Historical Resources Evaluation Report; City of Santa Barbara and TY Lin International; Santa Barbara California.** The project entailed replacement of the Union Pacific Railroad bridge over East Cabrillo Boulevard, and development of a roundabout and roadway improvements at the intersection of the boulevard and Los Patos Way. The project was to receive funding from the Federal Highway Administration with Caltrans as the federal lead agency, and was subject to Section 106 of the NHPA. Two historic properties determined eligible for listing in the National Register by the State Historic Preservation Officer were located within the Area of Potential Effects. The historical resources assessment included consultation with local historical groups, a field survey, extensive archival research including research at the Olmsted archives, preparation of a Caltrans-format Historical Resources Evaluation Report, a DPR update for the East Cabrillo Boulevard Parkway Historic District, and evaluations or DPR updates for nine other properties within the APE. Alterations that had occurred within the district were documented, and extant character-defining features were identified. In addition, a Historic Structures/Sites Report was prepared to fulfill the City of Santa Barbara's environmental review and reporting requirements. A Finding of No Adverse Effect report found the project would not result in an adverse effect to historic properties and received State Historic Preservation Officer concurrence. *Role: Architectural Historian.*

***Inland Branch 2020 Fire Emergency Clean-Up Response Program; CalRecycle; Inland Branch, California.** The project entailed providing environmental and emergency permitting services to assist with CalRecycle's coordinated structural debris and hazard tree removal projects in areas damaged by the wildfires that devastated Lake, Mendocino, Napa, Solano, and Sonoma Counties in 2020. This included reassessment of previously documented historic period resources and preparation of resource record updates; archaeological and biological assessments; archaeological and biological monitoring; agency and tribal coordination; GIS support; emergency permitting services; and guidance and implementation of water-quality best management practices. *Role: Architectural Historian.*

Appendix D

Geotechnical Data Report

GEOTECHNICAL DATA REPORT

UNDERGRADUATE TEACHING AND LEARNING FACILITY
UNIVERSITY OF CALIFORNIA, RIVERSIDE

Riverside, California

PREPARED FOR:

University of California, Riverside
Planning, Design, and Construction
1223 University Avenue, Suite 240
Riverside, CA 92521

PREPARED BY:

Atlas Technical Consultants LLC
6280 Riverdale Street
San Diego, CA 92120

July 5, 2023

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July 5, 2023

Atlas No. 9113
Report No. 1R2

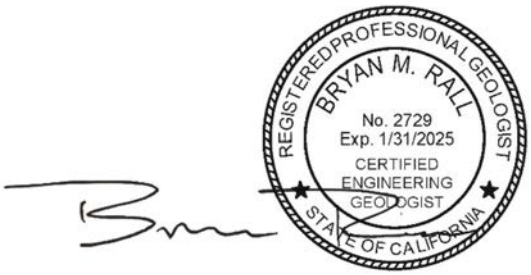
MS. MELISSA GARRETY
UNIVERSITY OF CALIFORNIA, RIVERSIDE
PLANNING, DESIGN, AND CONSTRUCTION
1223 UNIVERSITY AVENUE, SUITE 240
RIVERSIDE, CALIFORNIA 92521

Subject: **Geotechnical Data Report**
Undergraduate Teaching and Learning Facility
University of California, Riverside
900 University Avenue, Riverside, California

Dear Ms. Garrety:

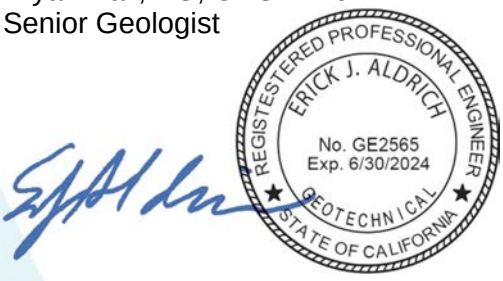
Atlas is pleased to present this report describing the geotechnical services performed for the subject project. We conducted our services in general conformance with the scope of work presented in our proposals dated January 9, 2022, and March 2, 2023. The results can be provided as part of the design-build bidding documents for the design of geotechnical elements and cost estimating purposes. We appreciate the opportunity to be of service on this project. Should you have any questions, please contact the undersigned at your convenience.

Respectfully submitted,
Atlas Technical Consultants LLC



Bryan Rall, PG, CEG 2729
Senior Geologist

Morteza Mirshekari, PhD, PE C92374
Senior Engineer



Erick Aldrich, PE, GE 2565
Principal Engineer

Distribution: Melissa.Garrety@UCR.edu

CONTENTS

TABLES

FIGURES

APPENDICES

EXECUTIVE SUMMARY

In accordance with your request and authorization, Atlas has completed a geotechnical investigation for the subject site located at 900 University Avenue in Riverside, California. We understand that the proposed building will be designed and constructed through a design-build contract and that conceptual plans have not been developed at this time. However, we understand the project will generally involve the demolition of the existing on-site parking lot and the design and construction of a four to five-story Undergraduate Teaching and Learning Facility (UTLF) building to be located on the University of California, Riverside east campus. Associated civil improvements may include new utilities, sidewalks, parking lots, fire lanes, driveways, shallow storm water best management practices (BMPs), and other auxiliary features. However, we understand the locations of new facilities are subject to change and may be influenced by the findings described in this report. The purpose of our work was to provide geotechnical subsurface information to be included as part of the design-build bidding documents assisting the competing teams in the design of geotechnical aspects of the project and their cost estimating efforts.

Our scope of work for this project consisted of performing a geotechnical investigation to characterize the subsurface conditions at the site. Our subsurface investigation was performed on April 22 and 23, 2023 and consisted of advancing one (1) cone penetrometer test (CPT) sounding, drilling five (5) exploratory geotechnical borings, and converting four (4) of the borings into borehole percolation test wells within the project site.

Five (5) borings (B-1 through B-5) were advanced to depths ranging from 16.5 to 61.5 feet below existing site grades using hand tools and a truck-mounted CME-95 drill rig equipped with hollow-stem augers that were approximately 8 inches in diameter. Additionally, four (4) shallow borings (B-1 through B-4) were converted to borehole percolation tests to evaluate infiltration feasibility of the on-site materials. An Atlas engineering geologist logged the borings and collected samples of the encountered materials for geotechnical laboratory testing. Groundwater was not encountered in any of the borings.

One (1) seismic CPT (sCPT) was advanced to a depth of approximately 70 feet below existing ground surface. Prior to advancing the sCPT, the location was cleared for near-surface utilities by excavating the upper 5 feet of materials using hand tools. The hole was then backfilled to provide lateral support for the CPT probe. The sCPT soundings were performed by Kehoe Testing & Engineering, Inc. using an integrated electronic cone system manufactured by Vertek. Subsurface data was collected by pushing the CPT cone system into the soil by means of a truck-mounted hydraulic ram. Measurements of cone resistance, dynamic pore water pressure, and sleeve friction were collected at approximately 1-inch intervals. Shear wave velocity measurements were also obtained at approximately 3-foot intervals.

As encountered in the borings and interpreted from the CPT data, the site is underlain by undocumented fill (Af) and old alluvial-fan deposits (Qof). The undocumented fill was encountered in each of the borings and extended to depths ranging from approximately 2 to 3.5 feet below the existing ground surface. The fill generally consisted of loose, fine to coarse grained, silty sand with trace amounts of fine sub angular gravel. Late to middle Pleistocene age old alluvial fan deposits underlie the fill and were encountered in the borings and the CPT sounding. These materials were encountered as shallow as 2 feet below the existing ground surface and extended to the entire depths explored. The old alluvial fan deposits generally consisted of moist, medium dense to very dense, well-graded sand, silty sand, clayey sand, and silty clayey sand. Moist, hard, sandy lean clay layers were encountered in Borings B-4 and B-5 at depths of approximately 10 feet below grade.

Borehole percolation testing was performed at four locations in general accordance with Riverside County percolation test procedure (Riverside County Flood Control, 2011). Infiltration rates between 0.12 and 8.05 inches per hour were measured at the test locations.

1. INTRODUCTION

This report presents the results of the geotechnical investigation Atlas performed for the proposed Undergraduate Teaching and Learning Facility (UTLF) located at 900 University Avenue in Riverside, California. The site coordinates are 33.975467, -117.329712. The project site is bounded to the north by the UC Riverside Soccer Stadium, to the west by an academic building, to the south by an Athletics and Dance Building, and to the east by the CHASS Interdisciplinary Building and a lawn area. The purpose of our work was to provide geotechnical subsurface information to be included as part of the design-build bidding documents assisting the competing teams in the design of geotechnical aspects of the project and their cost estimating efforts. Figure 1 presents the site vicinity.

2. SITE DESCRIPTION AND PROPOSED CONSTRUCTION

The project site is located at an existing asphalt concrete parking lot. Topographically, the site is relatively flat and gently descends towards the northeast. The topographic low at the site is approximately 1038 feet above Mean Sea Level (MSL) at the northwestern corner of the parking lot and a topographic high of 1,048 feet MSL at the southeastern corner of the parking lot. Maximum topographic relief across the project area is approximately 10 feet (Google Earth, 2023).

Historic aerial photography from the period 1948 to 2020 and topographic maps from the period 1903 to 2018 were reviewed as a part of this investigation to evaluate the land development history of the site (NETROnline, 2023; UCSB, 2023). Aerial photographs from 1948 show the site as being relatively flat and supporting a dirt road while the northern approximately one-quarter of the site appears to be utilized as an orchard. By 1959, the Athletics and Dance building had been constructed and grading operations for the existing parking lot appear to have been completed. Grading appears to have consisted of constructing a small fill slope along the south side of the existing drainage channel to create a relatively level parking lot. The eastern approximately one-quarter of the site remained undeveloped. The site was relatively unchanged until 2002 when aerial photographs show a new building had been constructed to the east of the site and the existing parking lot in its present-day configuration. By 2009, a new building had been constructed to the southwest of the parking lot. The site has remained relatively unchanged since 2009.

Based on our previous correspondence, we understand that the proposed building will be designed and constructed through a design-build contract and that conceptual plans have not been developed at this time. We understand that the project will initially include the demolition of the existing parking lot followed by the construction of the proposed building. The proposed building is anticipated to be 4 to 5 stories high with 100,000 gross square feet in area and a floor plate between 20,000 to 25,000 gross square feet. Foundation system and anticipated loads are unknown at this time. We understand the locations of new facilities are subject to change and may be influenced by the findings described in this report. Appurtenant improvements are

anticipated to include new utilities, sidewalks, parking lots, fire lanes, driveways, shallow stormwater infiltration facilities, and other auxiliary features.

3. SCOPE OF WORK

Atlas conducted our services in general conformance with the scope of work presented in our proposal dated January 9, 2022, and our supplemental proposal dated March 2, 2023. Our scope of work is described in the following sections.

3.1 Geotechnical Field Investigation

Atlas performed a geotechnical investigation to address potential geologic hazards and geotechnical conditions that could impact the proposed construction. We reviewed pertinent documents including published maps and geotechnical consultant reports from nearby buildings. Prior to drilling and infiltration testing, an Atlas representative visited the site to observe existing conditions and mark the proposed boring locations for underground utility clearance. Atlas notified Underground Service Alert (USA), as required by law, prior to the commencement of field activities. The boring locations were subsequently cleared using our in-house geophysical utility locators.

Our field investigation consisted of advancing a total of five (5) borings to depths ranging from approximately 16.5 to 61.5 feet below the existing ground surface using a truck-mounted CME-95 drill rig equipped with a hollow-stem auger and hand tools on April 22, 2023. Upon completion of drilling, four (4) of the borings were converted to percolation test wells. The percolation test wells ranged in depth from approximately 16.5 to 26.5 feet below existing grades. Falling head percolation testing was performed in general accordance with the County of Riverside testing procedures (Riverside County Flood Control, 2011) on April 22 and 23, 2023. Additionally, one (1) cone penetrometer test (CPT) was advanced to a depth of approximately 70 feet below the existing ground surface. An Atlas engineering geologist visually logged the borings and collected samples of the materials encountered for geotechnical laboratory testing. Soils were classified according to the Unified Soil Classification System (USCS). The boring logs and CPT results are presented in Appendix I and II, respectively. Figure 2 presents the approximate locations and depths of the borings and the CPT sounding.

3.2 Laboratory Testing

Laboratory testing was performed on select soil samples to evaluate classification and engineering properties of the materials encountered and develop pertinent geotechnical conclusions and recommendations. The laboratory tests consisted of the following:

- In-Situ Moisture and Density (ASTM D2937)
- Maximum Density – Modified Proctor Test (ASTM D1557)
- Consolidation (ASTM D2435)
- Expansion Index (ASTM D4829)

- Particle-Size Distribution (ASTM D6913)
- Atterberg Limits (ASTM D4318)
- Direct Shear (ASTM D3080)
- R-Value (ASTM D2844/CT 301)
- Corrosivity – Soluble Chlorides and Sulfates, pH, and Resistivity (CT 417, 422, 643)

The results of the in-situ moisture and density tests are presented on the boring logs in Appendix I. The remaining laboratory results and brief explanations of the testing procedures are presented in Appendix III.

3.3 Borehole Percolation Testing

We performed borehole percolation testing in general conformance with the Riverside County falling head borehole percolation testing procedure at four locations (B-1 through B-4) to help assess stormwater infiltration feasibility at the site. The results of the infiltration testing are presented in Appendix IV.

3.4 Analysis and Report Preparation

The results of the field and laboratory tests were evaluated to develop conclusions and recommendations regarding:

- Subsurface conditions beneath the site, including groundwater levels if encountered.
- Potential geologic and seismic hazards, including liquefaction and the extent of associated settlement.
- Seismic parameters and site class determination in accordance with ASCE 7-16 and the 2022 California Building Code (CBC).
- Expansive soils.
- Soil corrosivity.
- Infiltration characteristics for subsurface sediments.

4. GEOLOGY AND SUBSURFACE CONDITIONS

The project site is located within the Peninsular Ranges Geomorphic Province of California, which stretches from the Los Angeles basin to the tip of Baja California in Mexico. This province is characterized as a series of northwest trending mountain ranges separated by subparallel fault zones and a coastal plain of subdued landforms. The mountain ranges are underlain primarily by Mesozoic metamorphic rocks that were intruded by plutonic rocks of the southern California batholith. The site is located within the portion of the Peninsular Ranges Geomorphic Province known as the Perris Block. The Perris Block consists of an eroded surface composed of Cretaceous and older crystalline rocks that is mantled by relatively thin successions of volcanic and sedimentary units. The block is structurally bounded to the north by the San Gabriel Fault

(Cucamonga), to the east by the San Jacinto Fault, to the south by the Temecula Valley, and to the west by the Elsinore and Chino Faults (Woodford et al. 1971).

The project site is situated upon an old alluvial fan emanating from the Box Springs Mountains which are located east of the site. This alluvial fan is locally dissected by west trending washes. One such wash is located just north of the site. Figure 3 presents the regional geology in the vicinity of the site.

The project site is mantled by undocumented fill soils associated with previous developments of the site. The fill soils are underlain by old alluvial fan deposits, which are late to middle Pleistocene in age. Detailed descriptions of the materials encountered during our subsurface exploration are presented below and in our subsurface exploration logs, attached as Appendix I.

Undocumented Fill (Af): Fill was encountered in all borings and ranged from about 2 to 3.5 feet in depth below the existing ground surface. The fill materials generally consisted of brown fine to coarse grained, silty sand that was loose and moist. The existing fill soils are not considered suitable for support of the proposed improvements in their current condition. For CEQA purposes the undocumented fill soils are not considered to be “native soils.”

Old Alluvial Fan Deposits (Qof): Old alluvial fan deposits were encountered beneath the fill in all borings and the CPT sounding. The old alluvial fan deposits varied in color from brown to reddish brown and grayish brown. The old alluvial fan deposits consisted of moist, medium dense to very dense, well-graded sand, silty sand, clayey sand, and silty clayey sand. Moist, hard, sandy lean clay layers were encountered in Borings B-4 and B-5 at depths of approximately 10 feet below grade. For CEQA purposes the Old Alluvial Fan deposits are considered to be “native soils.”

Groundwater: Groundwater was not encountered in any of the borings or the CPT sounding. The California Department of Water Resources (CDWR) website and Geotracker were both reviewed to assist in determining historic high groundwater in the vicinity of the site. The nearest state monitoring well to the site was well number 02S05W25F001S located approximately 1.75 miles east of the site. A high groundwater elevation of approximately 775 feet MSL was recorded in April, 2012, corresponding to an approximate depth of 267 feet below site grades. Records obtained from Geotracker indicate that groundwater may be deeper than 100 feet beneath the site approximately 0.5 mile northeast of the site (County of Riverside, 1999). However, groundwater levels may fluctuate due to rainfall, irrigation, broken pipes, or changes in site drainage. Because groundwater rise or seepage are difficult to predict, such conditions are typically mitigated if and when they occur.

5. GEOLOGICAL AND GEOTECHNICAL CONSIDERATIONS

Specific geologic hazards and their relation to the area of the proposed development are discussed in the following sections.

5.1 Faulting and Seismicity

As defined by the State of California, surface fault rupture is the result of fault movement that breaks the ground surface (CGS, 2018). The State of California has classified fault zones into three categories. Holocene Active faults are those that have shown conclusive evidence of faulting during the Holocene Epoch (the most recent 11,700 years). Pre-Holocene faults are any fault whose recency of past movement is older than 11,700 years. Age-undetermined faults are faults that are unconstrained by dating methods and/or by limitations in stratigraphic resolution (CGS, 2018). Holocene active faults are regulated by the Alquist-Priolo Earthquake Fault Zoning Act.

The site is not located in an Alquist-Priolo Earthquake Fault Zone or a County of Riverside Fault Zone. Based on our review of the referenced documents and aerial photography, site observations, and our field investigation no active faults are known to underlie or project toward the site. The probability of fault rupture to affect the site is considered to be low.

The site is located in a seismically active part of southern California and strong ground shaking due to earthquakes near the site should be anticipated during the life of the proposed building and associated improvements. The closest known active fault is the San Jacinto Fault Zone which is located approximately 5.4 miles northeast of the project site. Other nearby faults capable of generating strong ground motion include the San Andreas Fault Zone, located approximately 13.2 miles northeast of the site and the Elsinore Fault Zone, located approximately 16.3 miles southwest of the site. Figure 4 presents the approximate site location overlain on a California fault activity map.

5.2 CBC Seismic Design Parameters

A geologic hazard likely to affect the project is ground shaking as a result of movement along an active fault zone in the vicinity of the subject site. An approximate $V_{s,30}$ (i.e., average shear wave velocity within the upper 30 meters) of 1,335 feet per second was calculated based on the measurements at the sCTP sounding and uniformly extrapolating the V_s profile after the refusal depth of 69 feet. Based on the shear wave velocity measurements and the subsurface conditions encountered during our investigation, the site can be classified as Site Class C. Mapped seismic parameters based on the 2022 CBC and ASCE 7-16 are presented below.

Table 1: 2022 California Building Code / ASCE 7-16 Mapped Parameters

Site Coordinates	
Latitude: 33.975467	Longitude: -117.329712

Site Coefficients and Spectral Response Acceleration Parameters	Value
Site Class	C
Site Amplification Factor at 0.2 Second, F_a	1.2
Site Amplification Factor at 1.0 Second, F_v	1.4
Mapped Spectral Response Acceleration at Short Period, S_S	1.5 g
Mapped Spectral Response Acceleration at 1-Second Period, S_1	0.6 g
Design Spectral Acceleration at Short Period, S_{DS}	1.2 g
Design Spectral Acceleration at 1-Second Period, S_{D1}	0.56 g
Site-Modified Peak Ground Acceleration, PGA_M	0.737 g

Note – Site Coefficients and adjusted earthquake spectral response accelerations were obtained from https://seismicmaps.org/ (SEAOC, 2023)

5.3 Liquefaction and Dynamic Settlement

Liquefaction occurs when loose, saturated sands and silts are subjected to strong ground shaking. The soils lose shear strength and become liquid, resulting in large total and differential ground surface settlements, and possible lateral spreading during an earthquake. The project site is mapped in an area with low liquefaction potential (Riverside County, 2023). The project site location on the County of Riverside Liquefaction Hazard Maps is presented as Figure 5. In addition, the site is underlain by medium dense to very dense old alluvial fan deposits and groundwater was not encountered in the upper 70 feet below existing site grades. Based on these factors, the potential for liquefaction and dynamic settlement to affect the proposed building is considered low.

5.4 Tsunamis, Seiches, and Flooding

The site is not located within an area affected by tsunami inundation (Cal EMA, 2009); therefore, damage due to tsunamis is considered negligible. Seiches are periodic oscillations in large bodies of water such as lakes, harbors, bays, or reservoirs. The project site is not located near a body of water and the potential for a seiche to affect the site is considered negligible. According to the Flood Insurance Rate Map (FIRM), the northern approximately one-third of the site is located within an area designated as LOMR and has a 1% chance of flooding annually (FEMA, 2012).

5.5 Landslides and Slope Stability

Topography at the site is relatively level and not susceptible to land sliding. The potential for land sliding to affect the proposed construction is considered negligible.

5.6 Subsidence

Review of the Riverside County – Map My County tool indicates that the site is located in an area considered susceptible to subsidence. Further review of USGS subsidence data indicates that the site is located approximately 4 miles to the south of an area of known subsidence. Subsidence is generally experienced over a large area and the potential for subsidence to impact the site is considered low.

5.7 Hydro-Consolidation

Hydro-consolidation can occur in recently deposited sediments (less than 10,000 years old) that were deposited in a semi-arid environment. Examples of such sediments are aeolian sands, alluvial fan deposits, and mudflow sediments deposited during flash floods. The pore spaces between the particle grains can re-adjust when inundated by groundwater causing the material to consolidate. Medium dense to very dense old alluvial fan deposits underlying the site are not considered susceptible to hydro-consolidation.

5.8 Expansive Soil

The on-site soils tested have an expansion index of 0 and 1, classified as very low expansion potential. As such, the on-site materials are not prone to demonstrate expansion characteristics.

5.9 Soil Corrosivity

Two representative samples of the on-site soils were tested to evaluate corrosion potential. The test results are presented in Appendix II. The project design engineer can use the sulfate results in conjunction with ACI 318 to specify the water/cement ratio, compressive strength, and cementitious material types for concrete exposed to soil. For structural elements, the California Department of Transportation considers a site to be corrosive if one or more of the following conditions exist for the representative soil and/or water samples taken at the site: Chloride concentration is 500 ppm or greater, sulfate concentration is 1,500 ppm or greater, or the pH is 5.5 or less. Based on these criteria old alluvial fan deposits are not considered corrosive to structural elements. A corrosion engineer should be contacted to provide specific corrosion control recommendations if necessary. Additional corrosivity testing should be performed once grading of the building pad is complete.

5.10 Infiltration Feasibility

We performed four borehole percolation tests (B-1 through B-4) at the approximate locations shown in Figure 2 to assess the feasibility of stormwater infiltration at the site. The testing was performed in general accordance with Riverside County Flood Control guidelines (Riverside County Flood Control, 2011). Upon completion of drilling, a 3-inch perforated pipe wrapped in filter fabric was placed in the boring. The testing areas were then backfilled with ¾-inch gravel, and the holes were presoaked.

B-1 through B-3 met the criteria for same day testing where more than 6 inches of water seeped away during the initial 25-minute presoak. The water level in the boreholes was measured over 10-minute intervals for an additional hour using a water sounder. B-4 did not meet the criteria for same day testing and was presoaked with clean water overnight prior to the start of the percolation testing. The water level in B-4 was measured at 30-minute intervals over an 8-hour period using a water sounder. In all borings the water level was raised to approximately the same level by adding clean water to the borehole before each testing interval. The measured percolation rates were subsequently converted to infiltration rates using the Porchet method (Riverside County Flood Control, 2011). Table 2 summarizes the percolation testing results as well as the materials encountered within each test depth. Appendix IV presents the field data and test results.

Table 2: Infiltration Rate Test Results

Test Location	Test Depth (feet)	Geologic Unit	Material Type[(1)]	Infiltration Rate (inch/hour)
B-1	20.0-26.5	Old Alluvial Fan	Silty Sand (SM)	2.59
B-2	14.5-21.5	Old Alluvial Fan	Well-Graded Sand (SW)	8.05
B-3	9.0-16.5	Old Alluvial Fan	Well-Graded Sand with Silty (SW-SM)	7.53
B-4	10.0-16.5	Old Alluvial Fan	Sandy lean Clay (CL) and Clayey Sand (SC)	0.12

[(1)] Per visual classification; not necessarily corroborated by gradation testing.

No factor-of-safety has been applied to the infiltration rates reported in the table above. The reported values should be reduced by an appropriate factor of safety as determined by the project civil engineer.

6. GEOTECHNICAL ENGINEERING DURING CONSTRUCTION

Observations and tests should be performed during construction. If the conditions encountered during construction differ from those anticipated based on the subsurface exploration program, the presence of the geotechnical engineer during construction will enable an evaluation of the exposed conditions and modifications of the recommendations in this report or development of additional recommendations in a timely manner.

7. CLOSURE

The findings in this report are valid as of the date of this report. Changes in the condition of the site can, however, occur with the passage of time, whether they are due to natural processes or work on this or adjacent areas. In addition, changes in the standards of practice and government regulations can occur. Thus, the findings in this report may be invalidated wholly or in part by changes beyond our control. This report should not be relied upon after a period of two years

without a review by us verifying the suitability of the conclusions and recommendations to site conditions at that time.

In the performance of our professional services, we comply with that level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions and in the same locality. The client recognizes that subsurface conditions may vary from those encountered at the boring locations and that our data, interpretations, and recommendations are based solely on the information obtained by us. We will be responsible for those data, interpretations, and recommendations, but shall not be responsible for interpretations by others of the information developed. Our services consist of professional consultation and observation only, and no warranty whatsoever, expressed, or implied, is made or intended in connection with the work performed or to be performed by us, or by our proposal for consulting or other services, or by our furnishing of oral or written reports or findings.

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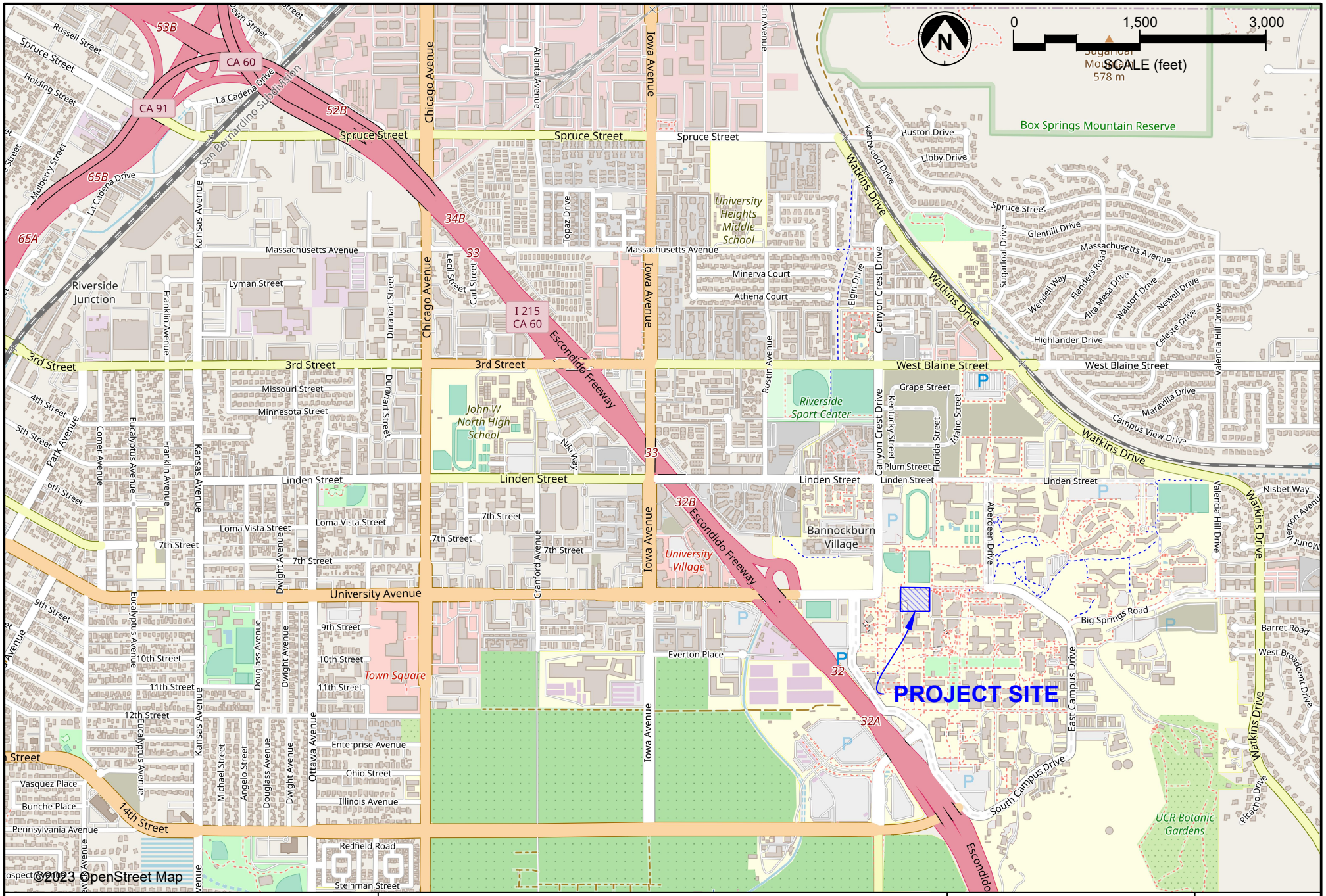


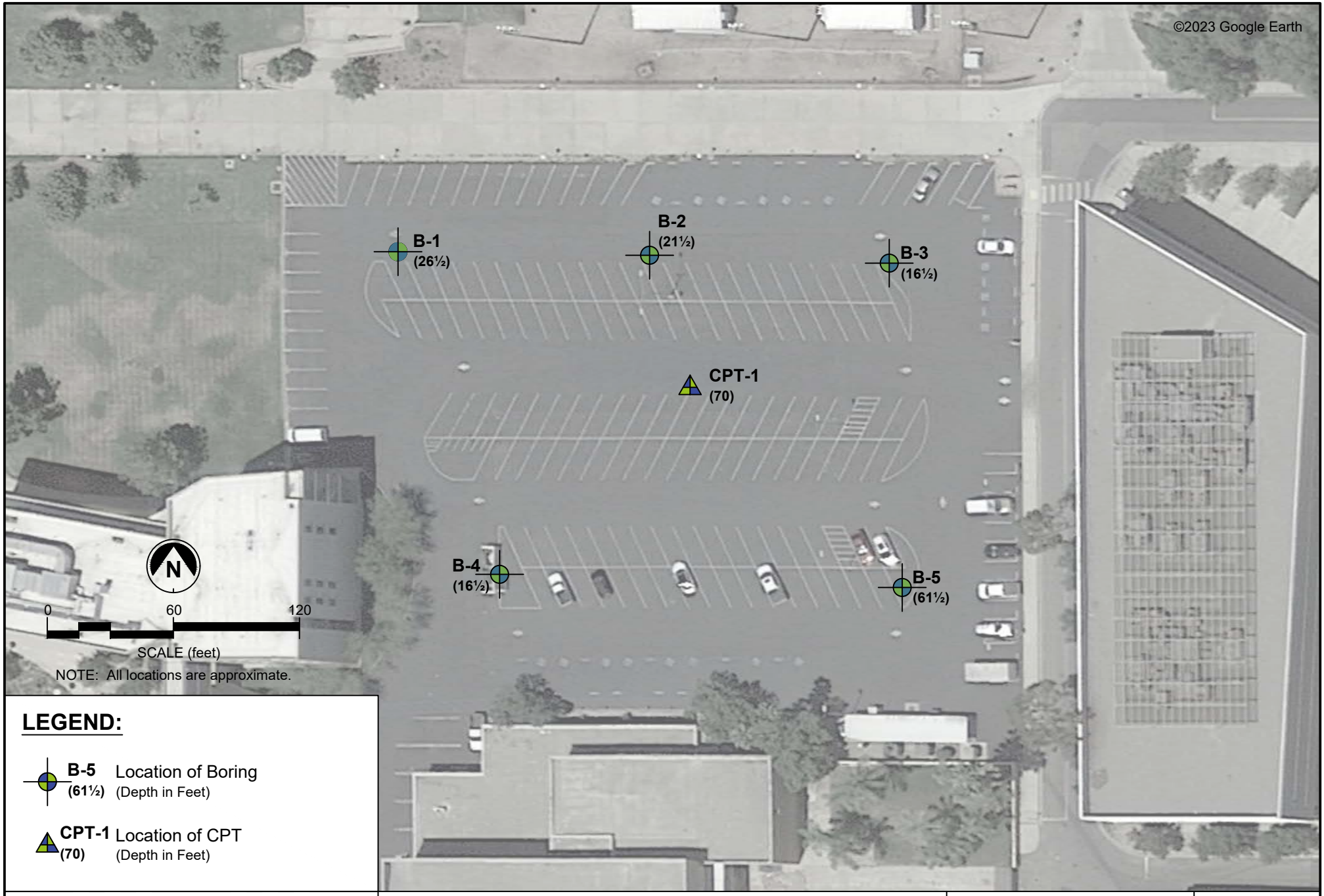
ATLAS

SITE VICINITY MAP

Undergraduate Teaching and Learning Facility
Riverside, California

Date: July, 2023
By: CGI
Job No.: 9113.000

Figure: 1



LEGEND:

- **B-5** (61½) Location of Boring (Depth in Feet)
- **CPT-1** (70) Location of CPT (Depth in Feet)

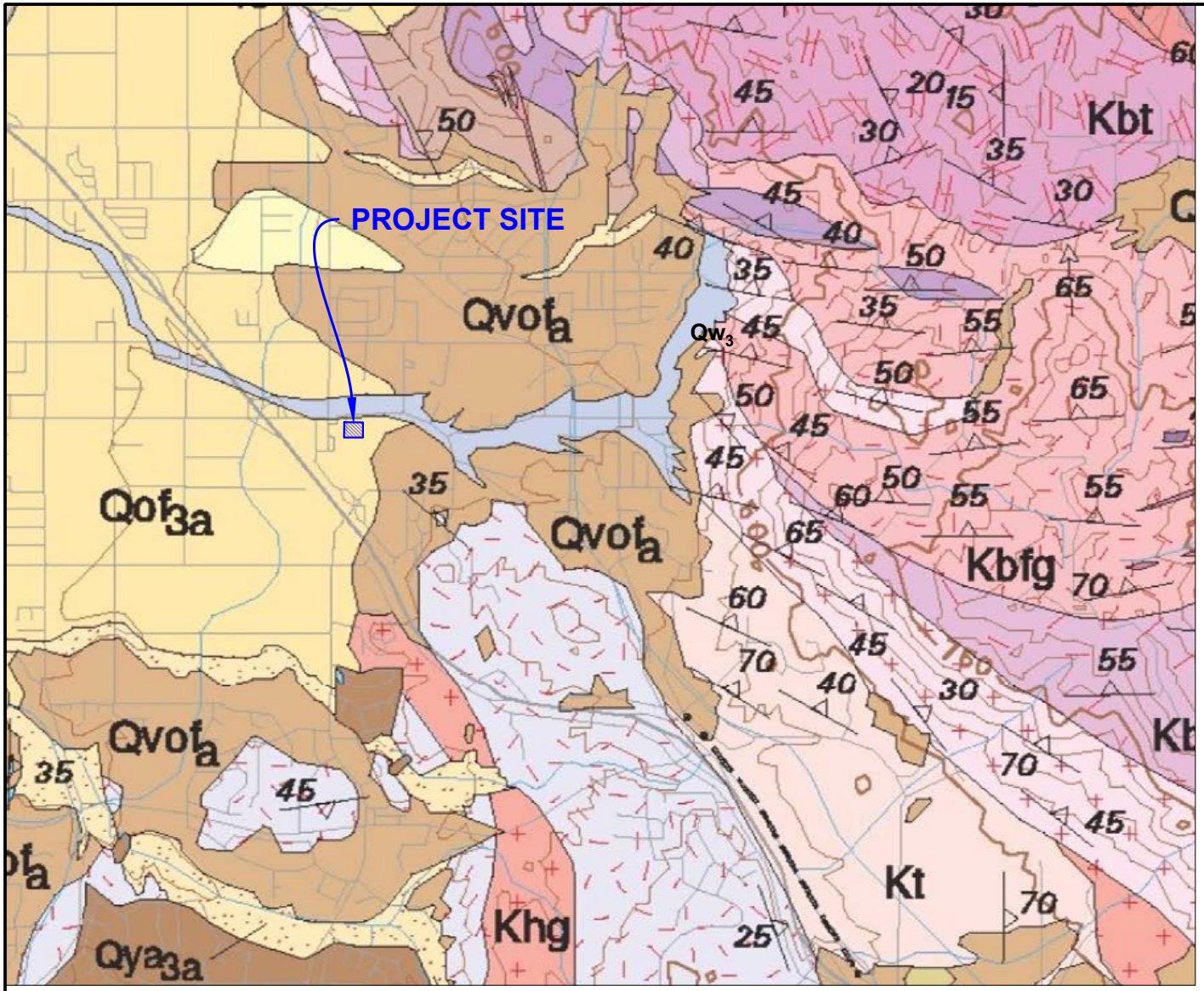
ATLAS

SUBSURFACE EXPLORATION MAP

Undergraduate Teaching and Learning Facility
Riverside, California

Date: July, 2023
By: CGI
Job No.: 9113.000

Figure:
2



EXPLANATION:

Qaf	Artificial fill (late Holocene)
Qw$_3$	Wash deposits, Unit 3 (late Holocene)
Qya$_a$	Young axial-channel deposits (Holocene and late Pleistocene)
Qof	Old alluvial fan deposits (late to middle Pleistocene)
Qvof	Very old alluvial fan deposits (middle to early Pleistocene)
Kbt	Biotite tonalite
Kbfg	Biotite granodiorite and tonalite
Kvt	Val Verde tonalite
Kt	Tonalite, undifferentiated (Cretaceous)
Khg	Heterogeneous granitic rocks (Cretaceous)

N

0 3,000 6,000

SCALE (feet)

NOTE: All locations are approximate.

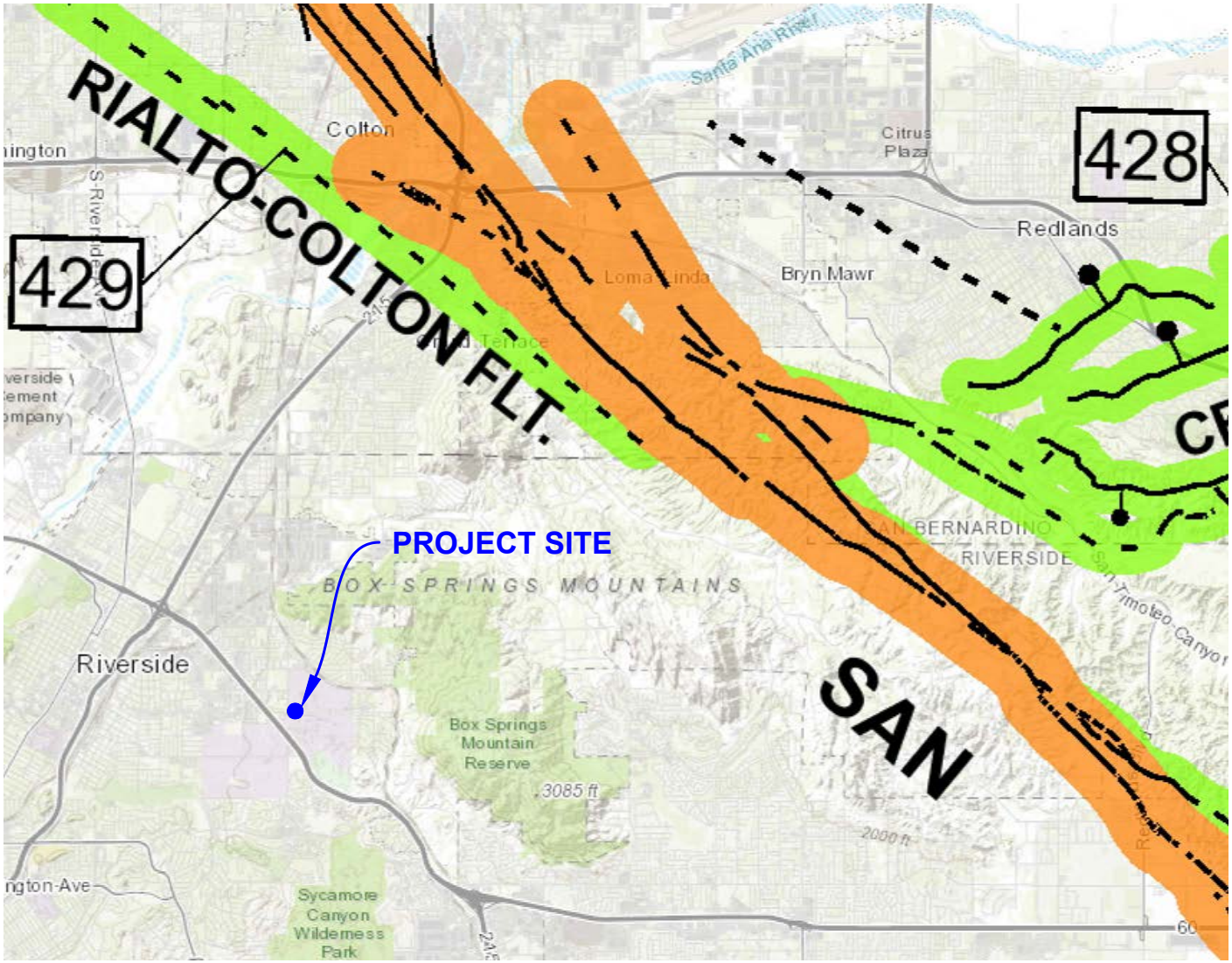
Reference:
Morton, D.M. and Miller, F.K. (2006), Geologic map of the San Bernardino and Santa Ana 30' x 60' quadrangles, California, U.S. Geological Survey, Scale 1:100,000.

ATLAS

REGIONAL GEOLOGY MAP
Undergraduate Teaching and Learning Facility
Riverside, California

Date: July, 2023
By: CGI
Job No.: 9113.000

Figure:
3



EXPLANATION:

Fault along which historic (last 200 years) displacement has occurred

Holocene fault displacement (during past 11,700 years) without historic record.

Late Quaternary fault displacement (during past 700,000 years).

Quaternary fault (age undifferentiated).

Pre-Quaternary fault (older than 1.6 million years) or fault without recognized Quaternary displacement.

Low angle fault (barbs on upper plate).

428 Redlands fault - Crafton Hills fault zone (Located)

429 Rialto-Colton fault- San Jacinto fault zone (concealed)

N

0 2 4

SCALE (miles)

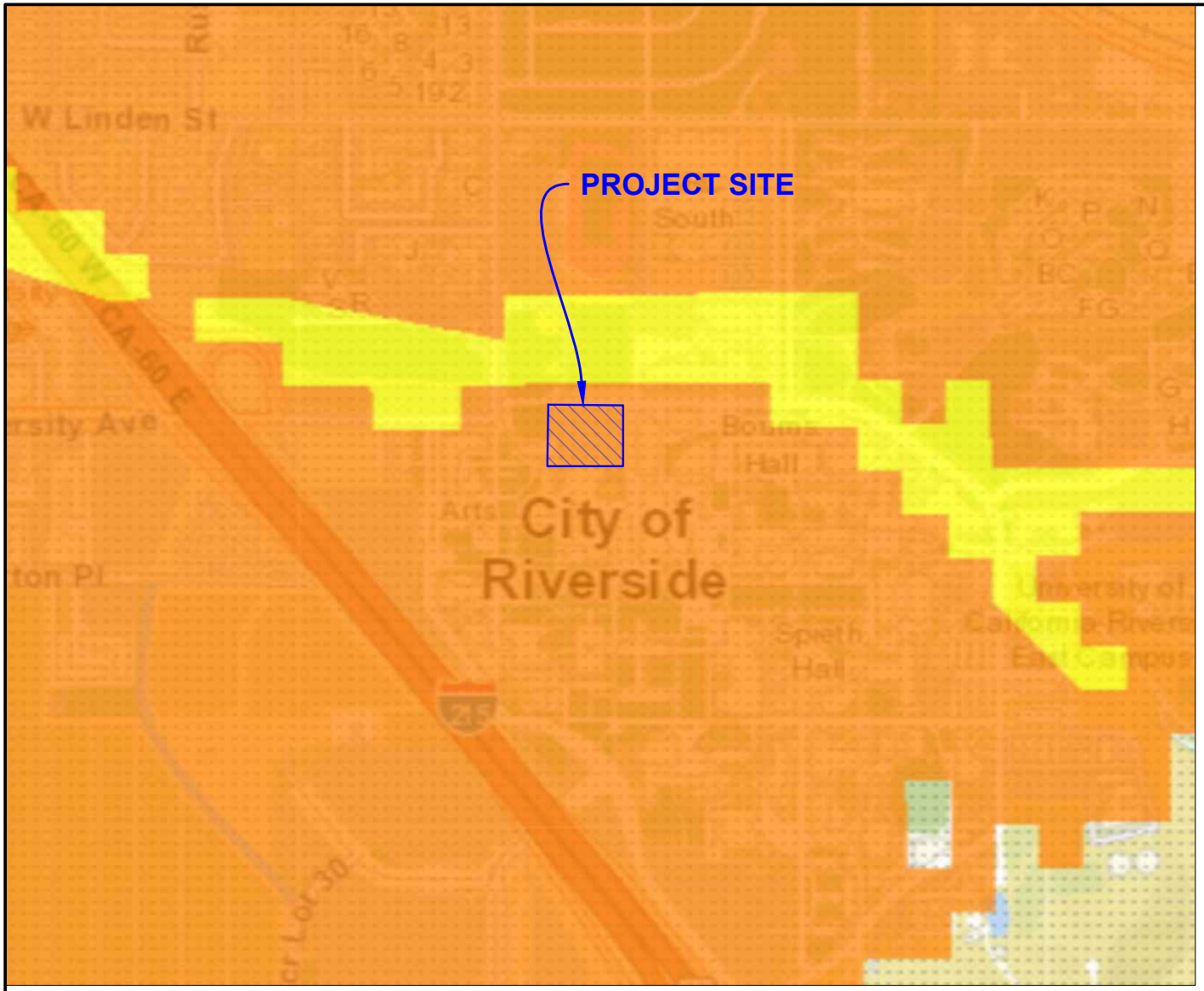
Reference:
Jennings, C.W., Bryant W.A., Fault Activity Map of California (2010), maps.conservation.ca.gov/cgs/fam; Accessed March, 2023

ATLAS

CALIFORNIA FAULT ACTIVITY MAP
Undergraduate Teaching and Learning Facility
Riverside, California

Date: July, 2023
By: CGI
Job No.: 9113.000

Figure: 4



EXPLANATION:

- Low Potential
- Moderate Potential

N

0 750 1,500

SCALE (feet)

NOTE: All locations are approximate.

Reference:
Riverside County, Map My County, Riverside County, Map My County v10 (countyofriverside.us), Accessed March 2023.

ATLAS

LIQUEFACTION HAZARD MAP

Undergraduate Teaching and Learning Facility
Riverside, California

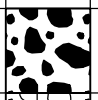
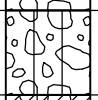
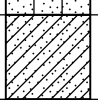
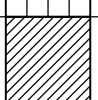
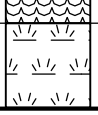
Date: July, 2023
By: CGI
Job No.: 9113.000

Figure:
5

APPENDIX I
BORING LOGS

Relatively undisturbed samples were obtained using a modified California (CAL) sampler, which is a ring-lined split tube sampler with a 3-inch outer diameter and 2½-inch inner diameter. Standard Penetration Tests (SPT) were performed using a 2-inch outer diameter and 1⅜-inch inner diameter split tube sampler. The CAL and SPT samplers were driven with a 140-pound weight dropping 30 inches. The number of blows needed to drive the samplers the final 12 inches of an 18-inch drive is noted on the boring logs as “Driving Resistance (blows/ft of drive).” SPT and CAL sampler refusal was encountered when 50 blows were applied during any one of the three 6-inch intervals, a total of 100 blows was applied, or there was no discernible sampler advancement during the application of 10 successive blows. The SPT penetration resistance was normalized to a safety hammer (cathead and rope) with a 60% energy transfer ratio in accordance with ASTM D6066. The normalized SPT penetration resistance is noted on the boring logs as “N_{60}.” Disturbed bulk samples were obtained from the SPT sampler and the drill cuttings.

The soils are classified in accordance with the Unified Soil Classification System. The boring logs are presented in the following pages.

MAJOR DIVISIONS					TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LESS THAN 15% FINES	GW		WELL-GRADED GRAVELS WITH OR WITHOUT SAND
			GP		POORLY GRADED GRAVELS WITH OR WITHOUT SAND
		GRAVELS WITH 15% OR MORE FINES	GM		SILTY GRAVELS WITH OR WITHOUT SAND
			GC		CLAYEY GRAVELS WITH OR WITHOUT SAND
	SANDS MORE THAN HALF COARSE FRACTION IS FINER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 15% FINES	SW		WELL-GRADED SANDS WITH OR WITHOUT GRAVEL
			SP		POORLY GRADED SANDS WITH OR WITHOUT GRAVEL
		SANDS WITH 15% OR MORE FINES	SM		SILTY SANDS WITH OR WITHOUT GRAVEL
			SC		CLAYEY SANDS WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML		INORGANIC SILTS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			OL		ORGANIC SILTS OR CLAYS OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH		INORGANIC SILTS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			CH		INORGANIC CLAYS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
			OH		ORGANIC SILTS OR CLAYS OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
HIGHLY ORGANIC SOILS			PT		PEAT AND OTHER HIGHLY ORGANIC SOILS

SAMPLE SYMBOLS

SAMPLE TYPES

- Bulk Sample
- CAL — Modified California Sampler
- SPT — Standard Penetration Test

CAI -CERCHAR ABRASIVITY
PLSI -POINT LOAD STRENGTH INDEX
STS -SPLITTING TENSILE STRENGTH

WHERE AN ASTERISK * EXISTS NEXT TO RQD VALUE- MEASURED INTACT PIECES DID NOT PASS FIELD SOUNDNESS TEST

LABORATORY SYMBOLS

AL - ATTERBERG LIMITS
CON - CONSOLIDATION
COR - CORROSIVITY TESTING
DS - DIRECT SHEAR
EI - EXPANSION INDEX
MAX - MAXIMUM DENSITY
RV - R-VALUE
PD - PARTICLE-SIZE DISTRIBUTION
UC - UNCONFINED COMPRESSIVE STRENGTH
WA - No. 200 WASH (% PASSING No. 200 SIEVE)

GROUNDWATER SYMBOLS

WATER LEVEL AT TIME OF EXCAVATION OR AS INDICATED

RELATIVE DENSITY OF COHESIONLESS SOILS		CONSISTENCY OF COHESIVE SOILS		
RELATIVE DENSITY	SPT N60 BLOWS/FOOT	CONSISTENCY	SPT N60 BLOWS/FOOT	POCKET PENETROMETER MEASUREMENT (TSF)
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 4	0.25 - 0.50
MEDIUM DENSE	10 - 30	MEDIUM STIFF	4 - 8	0.50 - 1.0
DENSE	30 - 50	STIFF	8 - 15	1.0 - 2.0
VERY DENSE	OVER 50	VERY STIFF	15 - 30	2.0 - 4.0
		HARD	OVER 30	OVER 4.0

NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE (ASTM-1586 STANDARD PENETRATION TEST).
IF THE SEATING INTERVAL (1st 6 INCH INTERVAL) IS NOT ACHEIVED, N IS REPORTED AS REF.

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SUBSURFACE EXPLORATION LEGEND

LOG OF TEST BORING

ATLAS PROJECT NAME	ATLAS PROJECT NUMBER	B-1
Undergraduate Teaching and Learning Facility	9113.000	

SITE	START	END	SHEET NO.
900 University Avenue, Riverside, California	4/22/23	4/22/23	1

DRILLING COMPANY	DRILL METHOD	LOGGED BY	REVIEWED BY
Baja Exploration	Hollow Stem Auger (Auto-Trip)	BR	MM

DRILLING EQUIPMENT	BORING DIA. (in.)	TOTAL DEPTH (ft)	GROUND ELEV. (ft)	DEPTH/ELEV. GROUND WATER (ft)
CME-95	8	26.5	1039	▽ AT TIME OF DRILLING ---
				▼ AT END OF DRILLING ---
				▼ AT DRILLING ---

SAMPLING METHOD	NOTES
140- lb. Hammer, 30-in. Drop	Hammer Efficiency = 80% N_{60}~1.33N_{SPT}

ELEVATION (ft)	DEPTH (ft)	BULK SAMPLE	DRIVE SAMPLE	BLOWS PER FOOT	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION	LAB TESTS
									4 inches of Asphalt Concrete over 3 inches of Aggregate Base.	
									FILL (Af): SILTY SAND (SM); loose, brown to light brown, moist, fine to coarse, subangular, trace fine subangular GRAVEL.	
1035									**OLD ALLUVIAL FAN DEPOSITS (Qof):** Well-graded SAND (SW); medium dense, reddish brown to brown, moist, fine to coarse, subangular.	MAX
	5		SPT	20	27					
1030										
	10		CAL	57					Very dense, yellowish brown, trace fine subangular GRAVEL, micaceous.	COR
1025										
	15		SPT	43	57				SILTY SAND (SM); very dense, brown, moist, fine to medium.	
1020										
	20		CAL	91/10"		5.6	117.6		Fine to coarse, trace GRAVEL.	DS
1015										

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THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

Figure

I-1

LOG OF TEST BORING

ATLAS PROJECT NAME	ATLAS PROJECT NUMBER	B-1
Undergraduate Teaching and Learning Facility	9113.000	

SITE	START	END	SHEET NO.
900 University Avenue, Riverside, California	4/22/23	4/22/23	2

DRILLING COMPANY	DRILL METHOD	LOGGED BY	REVIEWED BY
Baja Exploration	Hollow Stem Auger (Auto-Trip)	BR	MM

DRILLING EQUIPMENT	BORING DIA. (in.)	TOTAL DEPTH (ft)	GROUND ELEV. (ft)	DEPTH/ELEV. GROUND WATER (ft)
CME-95	8	26.5	1039	▽ AT TIME OF DRILLING ---
				▼ AT END OF DRILLING ---
				▼ AFTER DRILLING ---

SAMPLING METHOD	NOTES
140- lb. Hammer, 30-in. Drop	Hammer Efficiency = 80% N_{60}~1.33N_{SPT}

ELEVATION (ft)	DEPTH (ft)	BULK SAMPLE	DRIVE SAMPLE	BLOWS PER FOOT	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION	LAB TESTS
			SPT	66	88				SILTY SAND (SM); very dense, brown, moist, fine to medium. *(continued)*	PD
1010	30								**TERMINATED AT 26 ½ FEET** NO GROUNDWATER OR SEEPAGE ENCOUNTERED	
1005	35									
1000	40									
995	45									
990										

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Figure
I-2

LOG OF TEST BORING

ATLAS PROJECT NAME	ATLAS PROJECT NUMBER	B-2
Undergraduate Teaching and Learning Facility	9113.000	

SITE	START	END	SHEET NO.
900 University Avenue, Riverside, California	4/22/23	4/22/23	3

DRILLING COMPANY	DRILL METHOD	LOGGED BY	REVIEWED BY
Baja Exploration	Hollow Stem Auger (Auto-Trip)	BR	MM

DRILLING EQUIPMENT	BORING DIA. (in.)	TOTAL DEPTH (ft)	GROUND ELEV. (ft)	DEPTH/ELEV. GROUND WATER (ft)
CME-95	8	21.5	1040	▽ AT TIME OF DRILLING ---
				▼ AT END OF DRILLING ---
				▼ AT DRILLING ---

SAMPLING METHOD	NOTES
140- lb. Hammer, 30-in. Drop	Hammer Efficiency = 80% N_{60}~1.33N_{SPT}

ELEVATION (ft)	DEPTH (ft)	BULK SAMPLE	DRIVE SAMPLE	BLOWS PER FOOT	N_{60}	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION	LAB TESTS
							4 inches of Asphalt Concrete over 3 inches of Aggregate Base.	
							FILL (Af): Well-graded SAND with SILT (SW-SM); loose, brown to dark brown, moist, fine to coarse, subangular.	
							OLD ALLUVIAL FAN DEPOSITS (Qof): Well-graded SAND (SW); dense, brown to grayish brown, moist, fine to coarse, subangular.	
1035	5		CAL	48				
1030	10		SPT	28	37		Well-graded SAND with SILT (SW-SM); dense, brown, moist, fine to coarse, subangular.	
1025	15		CAL	63			Well Graded SAND (SW); very dense, reddish brown, moist, fine to coarse, subangular to angular, contains trace angular fine GRAVEL.	CON
1020	20		SPT	40	53			

TERMINATED AT 21 ½ FEET
NO GROUNDWATER OR SEEPAGE ENCOUNTERED

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San Diego, California 92120
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Figure
I-3

LOG OF TEST BORING

ATLAS PROJECT NAME	ATLAS PROJECT NUMBER	B-3
Undergraduate Teaching and Learning Facility	9113.000	

SITE	START	END	SHEET NO.
900 University Avenue, Riverside, California	4/22/23	4/22/23	4

DRILLING COMPANY	DRILL METHOD	LOGGED BY	REVIEWED BY
Baja Exploration	Hollow Stem Auger (Auto-Trip)	BR	MM

DRILLING EQUIPMENT	BORING DIA. (in.)	TOTAL DEPTH (ft)	GROUND ELEV. (ft)	DEPTH/ELEV. GROUND WATER (ft)
CME-95	8	16.5	1040	▽ AT TIME OF DRILLING ---
				▼ AT END OF DRILLING ---
SAMPLING METHOD	NOTES			▼ AFTER DRILLING ---
140- lb. Hammer, 30-in. Drop	Hammer Efficiency = 80% N_{60}~1.33N_{SPT}			

ELEVATION (ft)	DEPTH (ft)	BULK SAMPLE	DRIVE SAMPLE	BLOWS PER FOOT	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION	LAB TESTS
									4 inches of Asphalt Concrete over 3 inches of Aggregate Base.	
									FILL (Af): Well-graded SAND with SILT (SW-SM); loose, reddish brown to brown, moist, fine to coarse, trace subangular fine GRAVEL.	RV
1035	5		SPT	18	24				**OLD ALLUVIAL FAN DEPOSITS (Qof):** Well-graded SAND (SW); medium dense, light reddish brown, moist, fine to coarse, subangular, trace sub angular fine GRAVEL.	
1030	10		CAL	59		6.3	113.4		Well-graded SAND with SILT (SW-SM); dense, reddish brown to brown, moist, fine to coarse, subangular, few fine subangular GRAVEL.	DS
1025	15		SPT	36	48					
									TERMINATED AT 16 ½ FEET NO GROUNDWATER OR SEEPAGE ENCOUNTERED	
1020	20									

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Figure
I-4

LOG OF TEST BORING

ATLAS PROJECT NAME	ATLAS PROJECT NUMBER	
Undergraduate Teaching and Learning Facility	9113.000	**B-4**

SITE	START	END	SHEET NO.
900 University Avenue, Riverside, California	4/22/23	4/22/23	5

DRILLING COMPANY	DRILL METHOD	LOGGED BY	REVIEWED BY
Baja Exploration	Hollow Stem Auger (Auto-Trip)	BR	MM

DRILLING EQUIPMENT	BORING DIA. (in.)	TOTAL DEPTH (ft)	GROUND ELEV. (ft)	DEPTH/ELEV. GROUND WATER (ft)
CME-95	8	16.5	1041	▽ AT TIME OF DRILLING ---
				▼ AT END OF DRILLING ---
				▼ AFTER DRILLING ---

SAMPLING METHOD	NOTES
140- lb. Hammer, 30-in. Drop	Hammer Efficiency = 80% N_{60}~1.33N_{SPT}

ELEVATION (ft)	DEPTH (ft)	BULK SAMPLE	DRIVE SAMPLE	BLOWS PER FOOT	N_{60}	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION	LAB TESTS
1040	0						**4 inches of Asphalt Concrete over 3 inches of Aggregate Base.**	
							FILL (Af): SILTY, CLAYEY SAND (SC-SM); loose, brown to dark brown, moist, fine to coarse, subangular.	
							OLD ALLUVIAL FAN DEPOSITS (Qof): SILTY, CLAYEY SAND (SC-SM); medium dense, brown, moist, fine to coarse, subangular.	AL, EI
1035	5		CAL	40				
1030	10		SPT	18	24		SANDY lean CLAY (CL) moderately bedded with thin interbeds of Well-graded SAND with SILT (SW-SM). SANDY lean CLAY (CL); hard, brown, moist, fine to coarse. Well-graded SAND with SILT (SW-SM); medium dense, reddish brown, moist, fine to coarse, subrounded.	COR
1025	15		CAL	52			CLAYEY SAND (SC); dense, reddish brown, moist, fine to coarse, subangular.	
1020	20						**TERMINATED AT 16 ½ FEET** NO GROUNDWATER OR SEEPAGE ENCOUNTERED	

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Figure
I-5

LOG OF TEST BORING

ATLAS PROJECT NAME	ATLAS PROJECT NUMBER	B-5
Undergraduate Teaching and Learning Facility	9113.000	

SITE	START	END	SHEET NO.
900 University Avenue, Riverside, California	4/22/23	4/22/23	6

DRILLING COMPANY	DRILL METHOD	LOGGED BY	REVIEWED BY
Baja Exploration	Hollow Stem Auger (Auto-Trip)	BR	MM

DRILLING EQUIPMENT	BORING DIA. (in.)	TOTAL DEPTH (ft)	GROUND ELEV. (ft)	DEPTH/ELEV. GROUND WATER (ft)
CME-95	8	61.5	1044	▽ AT TIME OF DRILLING ---
				▼ AT END OF DRILLING ---
				▼ AFTER DRILLING ---

SAMPLING METHOD	NOTES
140- lb. Hammer, 30-in. Drop	Hammer Efficiency = 80% N_{60}~1.33N_{SPT}

ELEVATION (ft)	DEPTH (ft)	BULK SAMPLE	DRIVE SAMPLE	BLOWS PER FOOT	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION	LAB TESTS
									4 inches of Asphalt Concrete over 3 inches of Aggregate Base.	
									FILL (Af): SILTY SAND (SM); loose, brown to dark brown, moist, fine to coarse.	
1040	5		SPT	17	23				**OLD ALLUVIAL FAN DEPOSITS (Qof):** Well-Graded SAND with SILT (SW-SM); medium dense, reddish brown to brown, moist, fine to coarse, micaceous, few GRAVEL.	PD
1035	10		CAL	40		9.2	127.4		SANDY lean CLAY (CL); hard, reddish brown to brown, moist, fine to coarse, subangular, trace fine subrounded GRAVEL.	CON
1030	15		SPT	63	84				SILTY SAND (SM); very dense, grayish brown, moist, fine to coarse, trace fine subrounded GRAVEL.	EI
1025	20		CAL	90/10"		11.3	118.0		Brown, fine to medium, trace coarse, little fine subrounded GRAVEL.	AL, DS
1020										

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Figure
I-6

LOG OF TEST BORING

ATLAS PROJECT NAME	ATLAS PROJECT NUMBER	B-5
Undergraduate Teaching and Learning Facility	9113.000	

SITE	START	END	SHEET NO.
900 University Avenue, Riverside, California	4/22/23	4/22/23	7

DRILLING COMPANY	DRILL METHOD	LOGGED BY	REVIEWED BY
Baja Exploration	Hollow Stem Auger (Auto-Trip)	BR	MM

DRILLING EQUIPMENT	BORING DIA. (in.)	TOTAL DEPTH (ft)	GROUND ELEV. (ft)	DEPTH/ELEV. GROUND WATER (ft)
CME-95	8	61.5	1044	▽ AT TIME OF DRILLING ---
				▼ AT END OF DRILLING ---
				▼ AFTER DRILLING ---

SAMPLING METHOD	NOTES
140- lb. Hammer, 30-in. Drop	Hammer Efficiency = 80% N_{60}~1.33N_{SPT}

ELEVATION (ft)	DEPTH (ft)	BULK SAMPLE	DRIVE SAMPLE	BLOWS PER FOOT	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION	LAB TESTS
			SPT	61	81				SILTY SAND (SM); very dense, grayish brown, moist, fine to coarse, trace fine subrounded GRAVEL. *(continued)* Reddish brown, sparse coarse, low plasticity clay.	AL, PD
1015	30		CAL	86/11"		12.3	117.4		Brown to reddish brown, subangular.	
1010	35		SPT	81	108					PD
1005	40		CAL	50/5		12.3	117.4		Well-Graded SAND with SILT (SW-SM); very dense, reddish brown, moist, fine to coarse, increasing silt.	PD
1000	45		SPT	68	91				Grayish brown, fine to medium, micaceous, little subangular fine GRAVEL.	
995										

Atlas Technical Consultants
6280 Riverdale Street
San Diego, California 92120
Telephone: (619) 280-4321

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

Figure

I-7

LOG OF TEST BORING

ATLAS PROJECT NAME	ATLAS PROJECT NUMBER	B-5
Undergraduate Teaching and Learning Facility	9113.000	

SITE	START	END	SHEET NO.
900 University Avenue, Riverside, California	4/22/23	4/22/23	8

DRILLING COMPANY	DRILL METHOD	LOGGED BY	REVIEWED BY
Baja Exploration	Hollow Stem Auger (Auto-Trip)	BR	MM

DRILLING EQUIPMENT	BORING DIA. (in.)	TOTAL DEPTH (ft)	GROUND ELEV. (ft)	DEPTH/ELEV. GROUND WATER (ft)
CME-95	8	61.5	1044	▽ AT TIME OF DRILLING ---
				▼ AT END OF DRILLING ---
				▼ AFTER DRILLING ---

SAMPLING METHOD	NOTES
140- lb. Hammer, 30-in. Drop	Hammer Efficiency = 80% N_{60}~1.33N_{SPT}

ELEVATION (ft)	DEPTH (ft)	BULK SAMPLE	DRIVE SAMPLE	BLOWS PER FOOT	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	DESCRIPTION AND CLASSIFICATION	LAB TESTS
			CAL	84/9"		9.5	129.2		Well-Graded SAND with SILT (SW-SM); very dense, reddish brown, moist, fine to coarse, increasing silt. *(continued)*	
990	55		SPT	90/10"	120/10"				Trace CLAY.	
985	60		CAL	50/3		5.4	112.0			
									TERMINATED AT 61 ½ FEET NO GROUNDWATER OR SEEPAGE ENCOUNTERED	
980	65									
975	70									
970										

ATLAS
Atlas Technical Consultants
6280 Riverdale Street
San Diego, California 92120
Telephone: (619) 280-4321

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Figure

I-8

APPENDIX II
CONE PENETROMETER TEST (CPT) RESULTS

SUMMARY

OF

CONE PENETRATION TEST DATA

Project:

UC Riverside
900 University Avenue
Riverside, CA
April 22, 2023

Prepared for:

M. Bryan Rall
ATLAS
6280 Riverdale Street
San Diego, CA 92120
Office (619) 280-4321 / Fax (619) 280-4717

Prepared by:

KEHOE TESTING & ENGINEERING
5415 Industrial Drive
Huntington Beach, CA 92649-1518
Office (714) 901-7270 / Fax (714) 901-7289
www.kehoetesting.com

TABLE OF CONTENTS

SUMMARY
OF
CONE PENETRATION TEST DATA

1. INTRODUCTION

This report presents the results of a Cone Penetration Test (CPT) program carried out for the UC Riverside project located at 900 University Avenue in Riverside, California. The work was performed by Kehoe Testing & Engineering (KTE) on April 22, 2023. The scope of work was performed as directed by ATLAS personnel.

2. SUMMARY OF FIELD WORK

The fieldwork consisted of performing CPT soundings at one location to determine the soil lithology. A summary is provided in **TABLE 2.1**.

LOCATION	DEPTH OF CPT (ft)	COMMENTS/NOTES:
CPT-1	70	

TABLE 2.1 - Summary of CPT Soundings

3. FIELD EQUIPMENT & PROCEDURES

The CPT soundings were carried out by **KTE** using an integrated electronic cone system manufactured by Vertek. The CPT soundings were performed in accordance with ASTM standards (D5778). The cone penetrometers were pushed using a 30-ton CPT rig. The cone used during the program was a 15 cm^2 cone with a cone net area ratio of 0.83. The following parameters were recorded at approximately 2.5 cm depth intervals:

- Cone Resistance (qc)
- Sleeve Friction (fs)
- Dynamic Pore Pressure (u)
- Inclination
- Penetration Speed

At location CPT-1, shear wave measurements were obtained at approximately 3-foot intervals. The shear wave is generated using an air-actuated hammer, which is located inside the front jack of the CPT rig. The cone has a triaxial geophone, which recorded the shear wave signal generated by the air hammer.

The above parameters were recorded and viewed in real time using a laptop computer. Data is stored at the KTE office for up to 2 years for future analysis and reference. A complete set of baseline readings was taken prior to each sounding to determine temperature shifts and any zero load offsets. Monitoring base line readings ensures that the cone electronics are operating properly.

4. CONE PENETRATION TEST DATA & INTERPRETATION

The Cone Penetration Test data is presented in graphical form in the attached Appendix. These plots were generated using the CPeT-IT program. Penetration depths are referenced to ground surface. The soil behavior type on the CPT plots is derived from the attached CPT SBT plot (Robertson, "Interpretation of Cone Penetration Test…", 2009) and presents major soil lithologic changes. The stratigraphic interpretation is based on relationships between cone resistance (qc), sleeve friction (fs), and penetration pore pressure (u). The friction ratio (Rf), which is sleeve friction divided by cone resistance, is a calculated parameter that is used along with cone resistance to infer soil behavior type. Generally, cohesive soils (clays) have high friction ratios, low cone resistance and generate excess pore water pressures. Cohesionless soils (sands) have lower friction ratios, high cone bearing and generate little (or negative) excess pore water pressures.

The CPT data files have also been provided. These files can be imported in CPeT-IT (software by GeoLogismiki) and other programs to calculate various geotechnical parameters.

It should be noted that it is not always possible to clearly identify a soil type based on qc, fs and u. In these situations, experience, judgement and an assessment of the pore pressure data should be used to infer the soil behavior type.

If you have any questions regarding this information, please do not hesitate to call our office at (714) 901-7270.

Sincerely,

KEHOE TESTING & ENGINEERING

Steven P. Kehoe
President

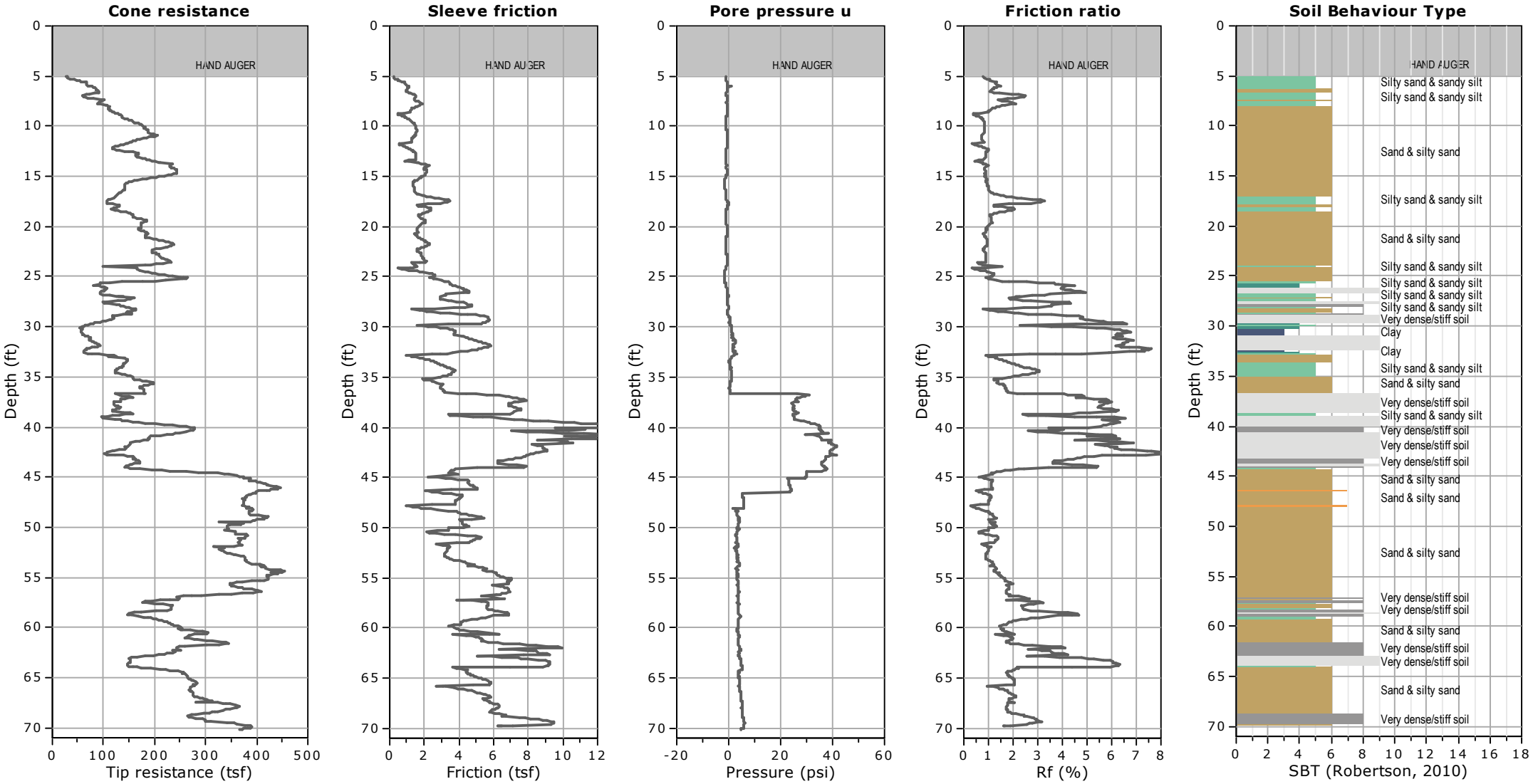
04/25/23-aga-5256

APPENDIX

Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: **ATLAS / UC Riverside**
Location: **900 University Ave, Riverside, CA**

CPT-1
Total depth: 70.21 ft, Date: 4/22/2023



Kehoe Testing and Engineering
714-901-7270
rich@kehoetesting.com
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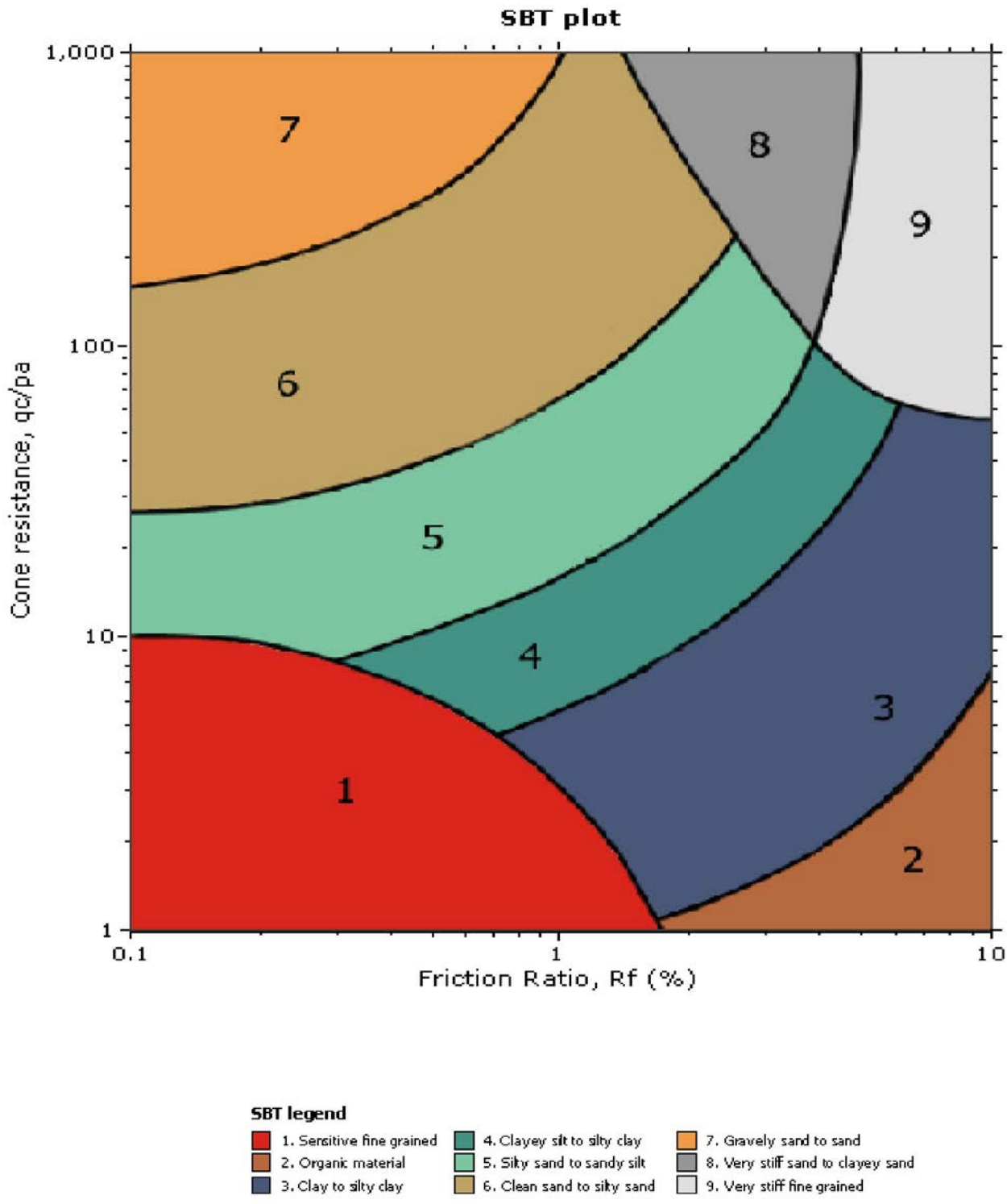

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UC Riverside
Riverside, CA

CPT Shear Wave Measurements

Location	Tip Depth (ft)	Geophone Depth (ft)	Travel Distance (ft)	S-Wave Arrival (msec)	S-Wave Velocity from Surface (ft/sec)	Interval S-Wave Velocity (ft/sec)
CPT-1	3.02	2.02	2.84	1.80	1579	
	6.00	5.00	5.39	6.20	869	578
	9.02	8.02	8.27	9.84	840	791
	12.01	11.01	11.19	12.48	897	1108
	14.99	13.99	14.13	15.60	906	943
	18.04	17.04	17.16	18.60	922	1008
	21.00	20.00	20.10	21.62	930	974
	24.02	23.02	23.11	24.60	939	1009
	27.00	26.00	26.08	27.40	952	1061
	30.02	29.02	29.09	30.10	966	1116
	33.01	32.01	32.07	31.90	1005	1658
	36.02	35.02	35.08	34.24	1024	1284
	39.04	38.04	38.09	35.62	1069	2185
	41.99	40.99	41.04	37.12	1106	1964
	45.01	44.01	44.06	38.44	1146	2285
	48.00	47.00	47.04	40.88	1151	1224
	51.05	50.05	50.09	43.28	1157	1270
	54.00	53.00	53.04	44.84	1183	1890
	57.05	56.05	56.09	46.68	1201	1656
	60.01	59.01	59.04	48.02	1230	2208
	63.02	62.02	62.05	49.68	1249	1812
	65.98	64.98	65.01	51.16	1271	1999
	69.03	68.03	68.06	52.98	1285	1675

Shear Wave Source Offset - 2 ft

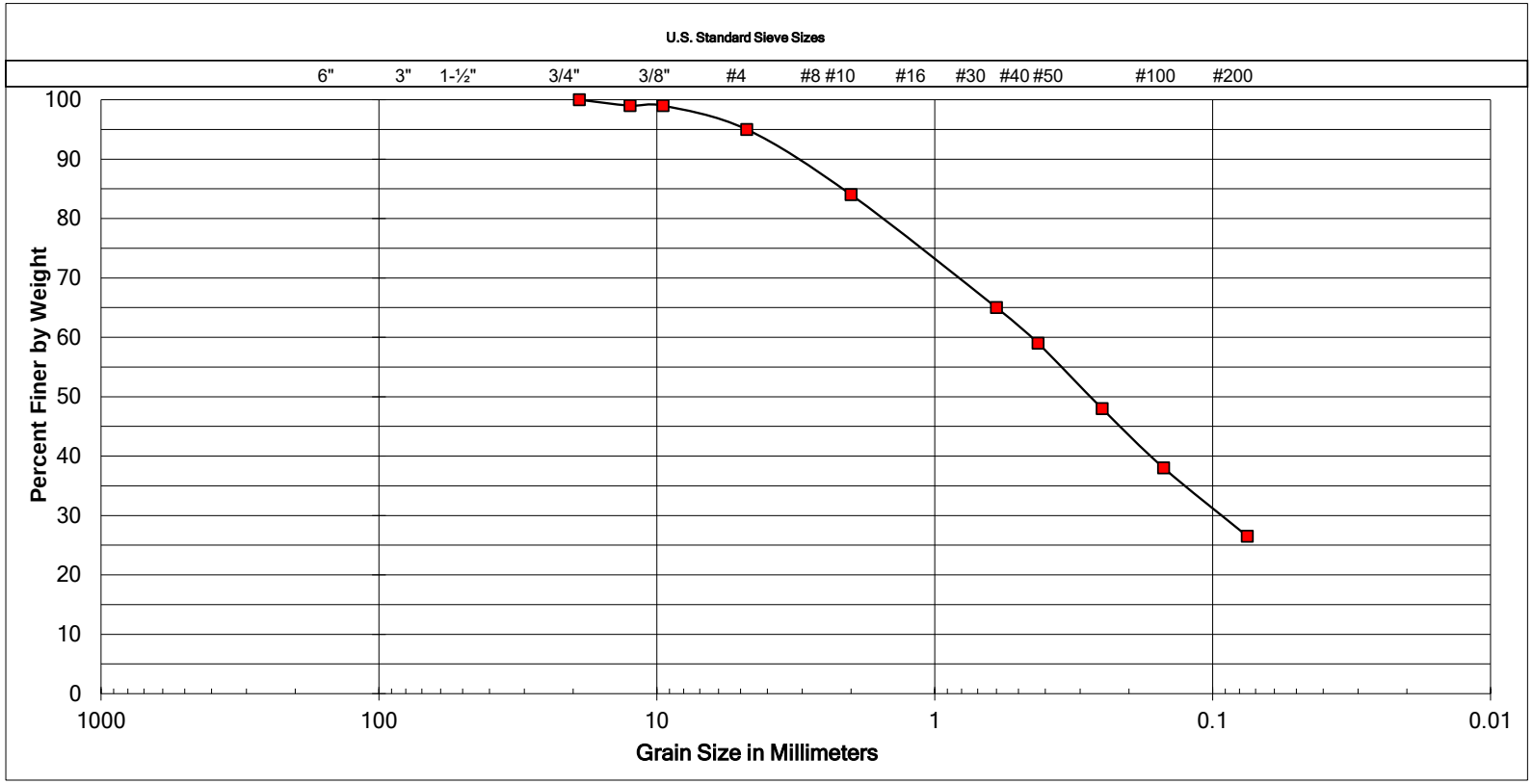
S-Wave Velocity from Surface = Travel Distance/S-Wave Arrival
Interval S-Wave Velocity = (Travel Dist2-Travel Dist1)/(Time2-Time1)

APPENDIX III
LABORATORY TESTING

Laboratory tests were performed to provide geotechnical parameters for engineering analyses. The following tests were performed:

- **CLASSIFICATION:** Field classifications were verified in the laboratory by visual examination. The final soil classifications are in accordance with the Unified Soil Classification System.
- **IN-SITU MOISTURE AND DENSITY:** The in-situ moisture content and dry unit weight were assessed on a sample collected from the borings. The test results are presented on the boring logs in Appendix I.
- **PARTICLE-SIZE DISTRIBUTION:** Particle-size distribution testing was performed on selected soil samples in accordance with ASTM D6913.
- **ATTERBERG LIMITS:** Atterberg limits testing was performed on selected soil samples in accordance with ASTM D4318.
- **R-VALUE:** R-Value testing was performed on a selected soil sample in accordance with Cal 301, ASTM D2844.
- **EXPANSION INDEX**: The expansion index was measured on selected samples in accordance with ASTM D4829.
- **MODIFIED PROCTOR DENSITY TESTING**: Modified Proctor maximum density testing was performed on a selected soil sample in general accordance with ASTM D1557.
- **CORROSIVITY**: Corrosivity testing was performed on selected soil samples. The pH and minimum resistivity testing were performed in accordance with California Test 643 and ASTM G51. The soluble chloride content testing was performed in accordance with California Test 422. The soluble sulfate content testing was performed in accordance with California Test 417.
- **CONSOLIDATION:** Consolidation tests were performed on selected relatively undisturbed samples in general accordance with ASTM D2435. The results of these tests are presented in this appendix.
- **DIRECT SHEAR:** Direct Shear testing was performed on selected soil samples in accordance with ASTM D3080.

Soil samples not tested are stored in our laboratory for future reference and analysis, if needed. Unless notified to the contrary, samples will be disposed of 30 days from the date of this report.



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-1 at 25 feet
SAMPLE NUMBER
--

UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	--
PLASTIC LIMIT	--
PLASTICITY INDEX	--

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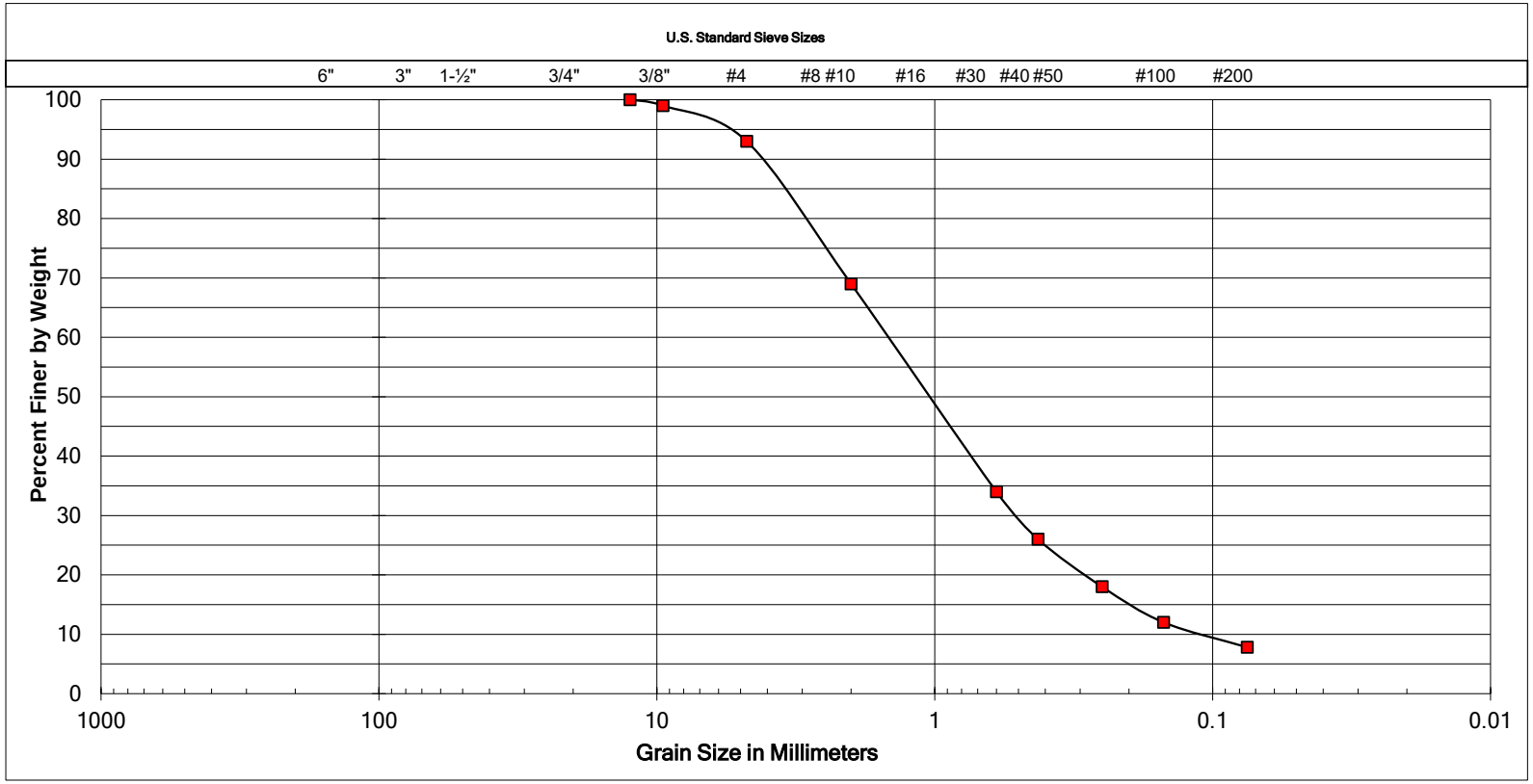
Undergraduate Teaching and Learning Facility
Riverside, California

By:	GT	Date:	July, 2023
Job Number:	9113.000	Figure:	II-1



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-5 at 5 feet
SAMPLE NUMBER
--

UNIFIED SOIL CLASSIFICATION:	SW-SM
DESCRIPTION	Well-Graded SAND with SILT

ATTERBERG LIMITS	
LIQUID LIMIT	--
PLASTIC LIMIT	--
PLASTICITY INDEX	--

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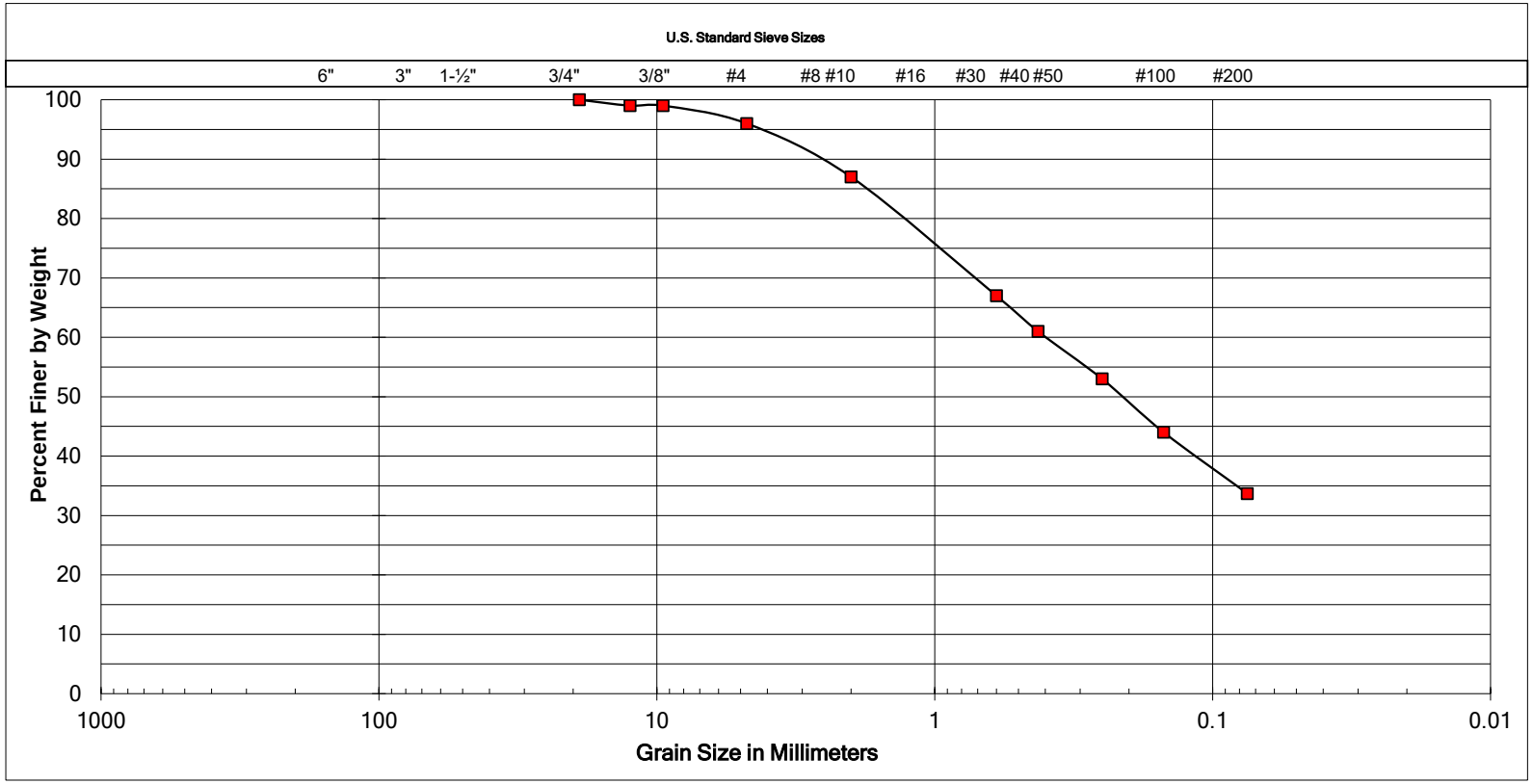
Riverside, California

By:	GT	Date:	July, 2023
Job Number:	9113.000	Figure:	II-2



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-5 at 25 feet
SAMPLE NUMBER
--

UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	NP
PLASTIC LIMIT	NP
PLASTICITY INDEX	NP

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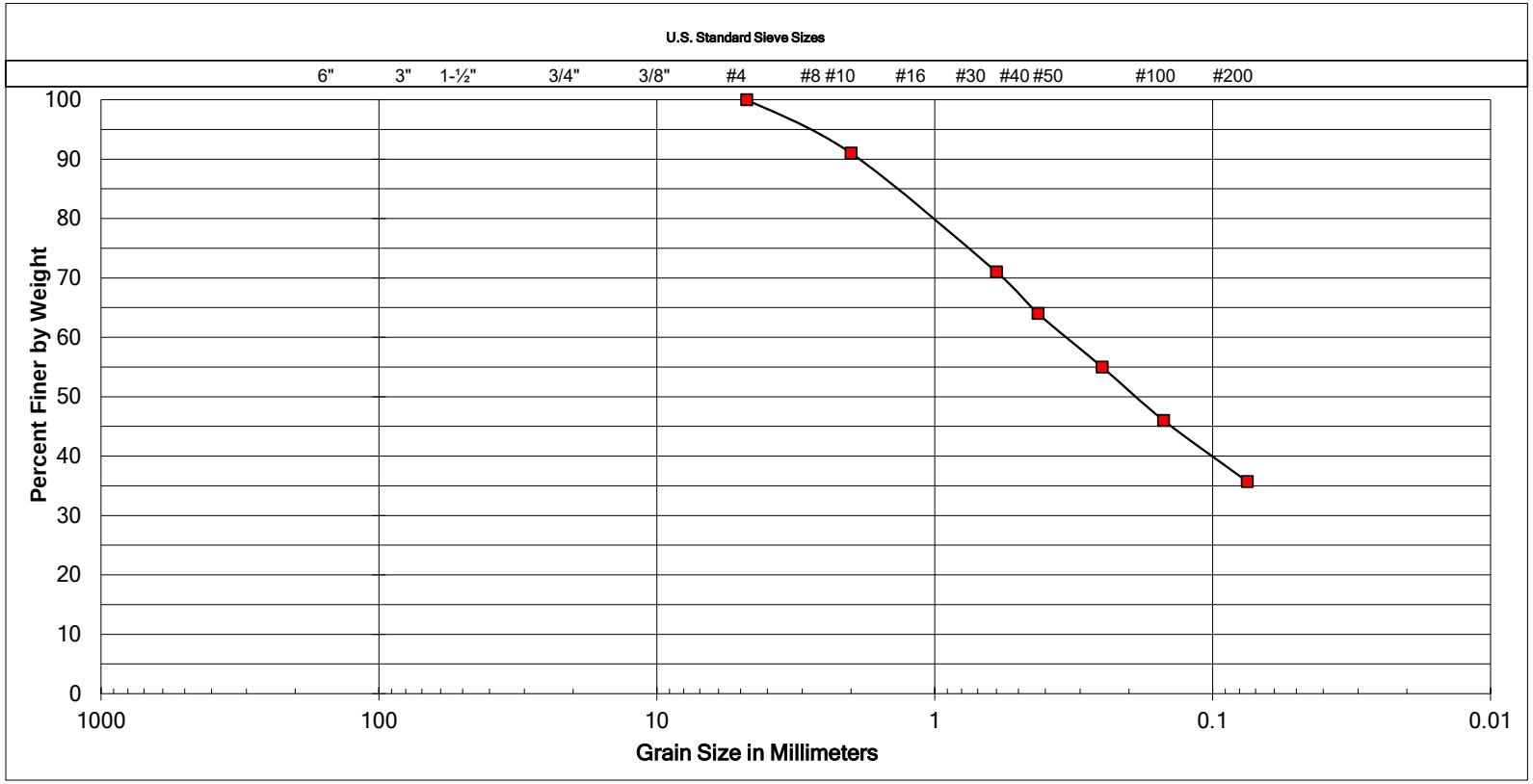
Undergraduate Teaching and Learning Facility
Riverside, California

By:	GT	Date:	July, 2023
Job Number:	9113.000	Figure:	II-3



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-5 at 30 feet
SAMPLE NUMBER
--

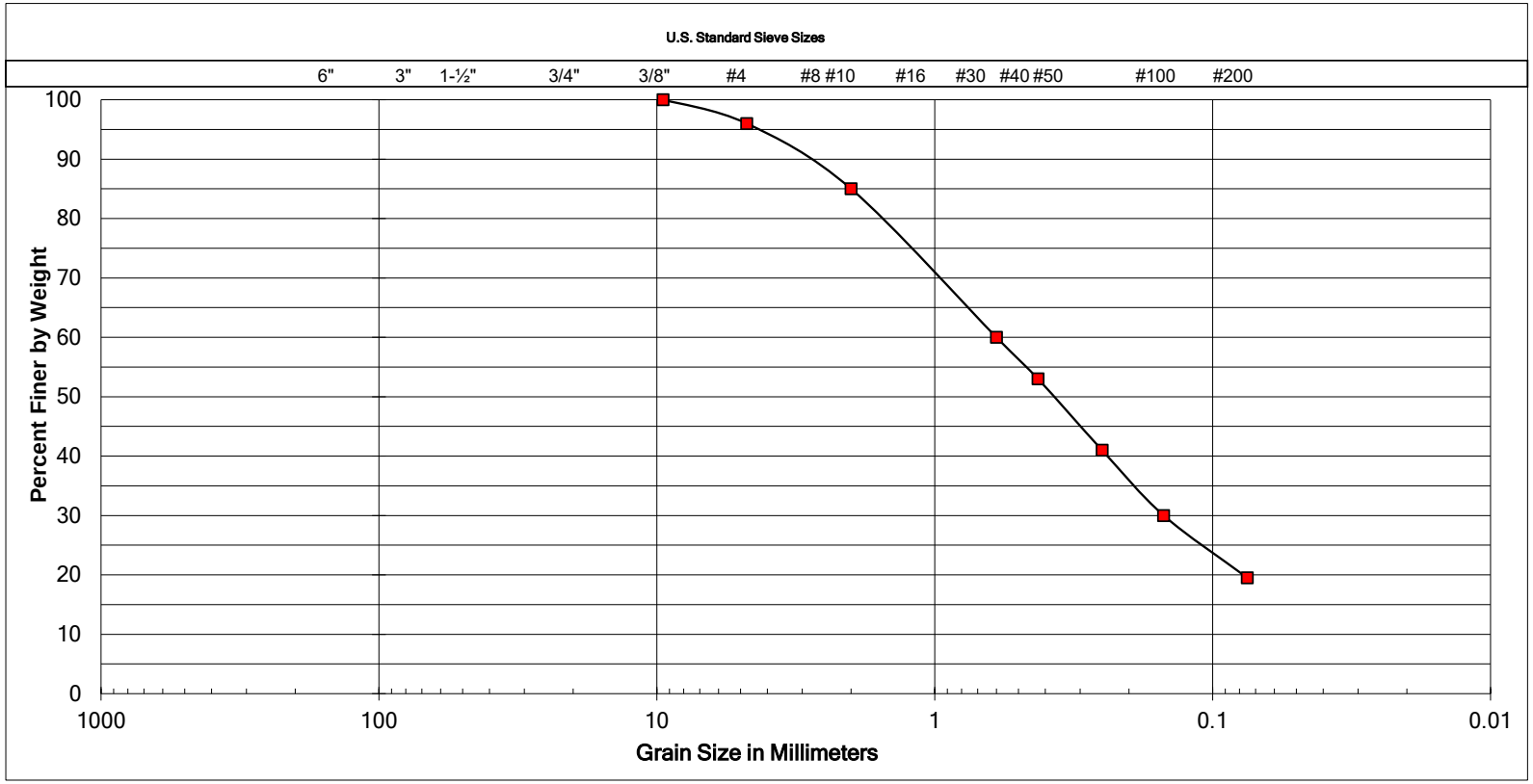
UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	--
PLASTIC LIMIT	--
PLASTICITY INDEX	--

ATLAS

Undergraduate Teaching and Learning Facility
Riverside, California

By:	GT	Date:	July, 2023
Job Number:	9113.000	Figure:	II-4



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-5 at 35 feet
SAMPLE NUMBER
--

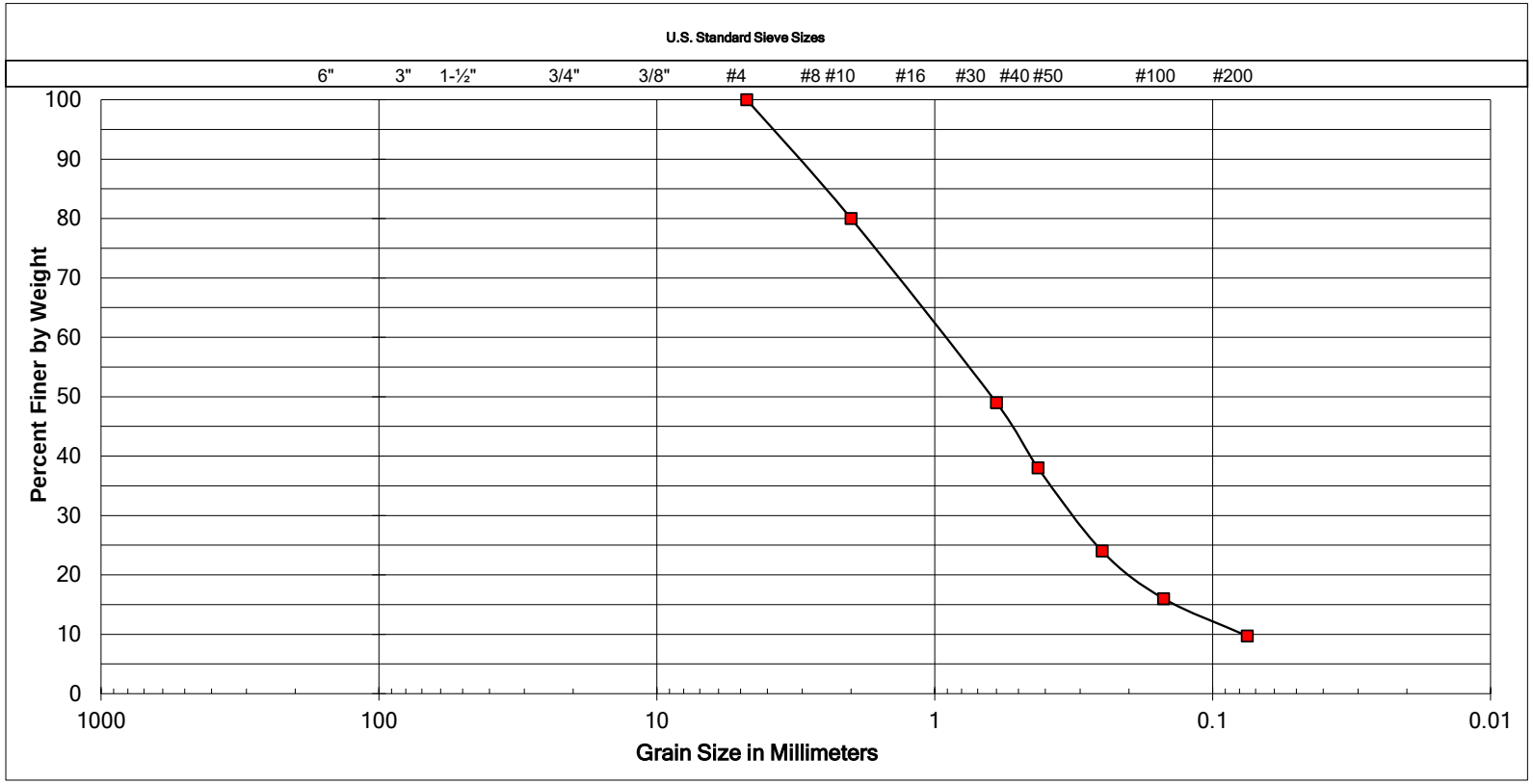
UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	--
PLASTIC LIMIT	--
PLASTICITY INDEX	--

ATLAS

Undergraduate Teaching and Learning Facility
Riverside, California

By:	GT	Date:	July, 2023
Job Number:	9133.000	Figure:	II-5



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-5 at 40 feet
SAMPLE NUMBER
--

UNIFIED SOIL CLASSIFICATION:	SW-SM
DESCRIPTION	Well-Graded SAND with SILT

ATTERBERG LIMITS	
LIQUID LIMIT	--
PLASTIC LIMIT	--
PLASTICITY INDEX	--

ATLAS

Undergraduate Teachng and Learning Facility
Riverside, California

By:	GT	Date:	July, 2023
Job Number:	9113.000	Figure:	II-6

RESISTIVITY, pH, SOLUBLE CHLORIDE and SOLUBLE SULFATE

pH & Resistivity (Cal 643, ASTM G51) , Soluble Chlorides (Cal 422) , Soluble Sulfate (Cal 417)

SAMPLE ID	pH	RESISTIVITY (Ω-CM)	CHLORIDE (%)	SULFATE (%)
B-1 at 10 feet	8.98	8830	0.003	0.001
B-4 at 10 feet	7.36	2830	0.002	0.001

EXPANSION INDEX

(ASTM D4829)

SAMPLE ID	EXPANSION INDEX	EXPANSION POTENTIAL	SOIL TYPE (USCS)
B-4 at 0 to 5 feet	0	Very Low	SILTY SAND (SM)
B-5 at 20 to 25 feet	1	Very Low	SILTY SAND (SM)

Expansion Index	Expansion Potential
1-20	Very Low
21-50	Low
51-90	Medium
91-130	High
Above 130	Very High

MAXIMUM DENSITY

(ASTM D698, D1557)

SAMPLE ID	DESCRIPTION	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)
B-1 at 1 to 3 Feet	SILTY SAND (SM)	132.3	6.7

ATTERBERG LIMITS

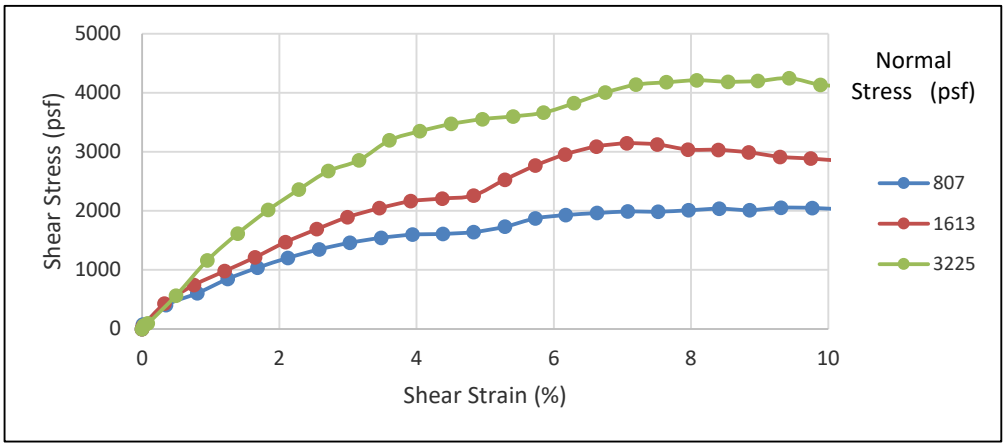
(ASTM D4318)

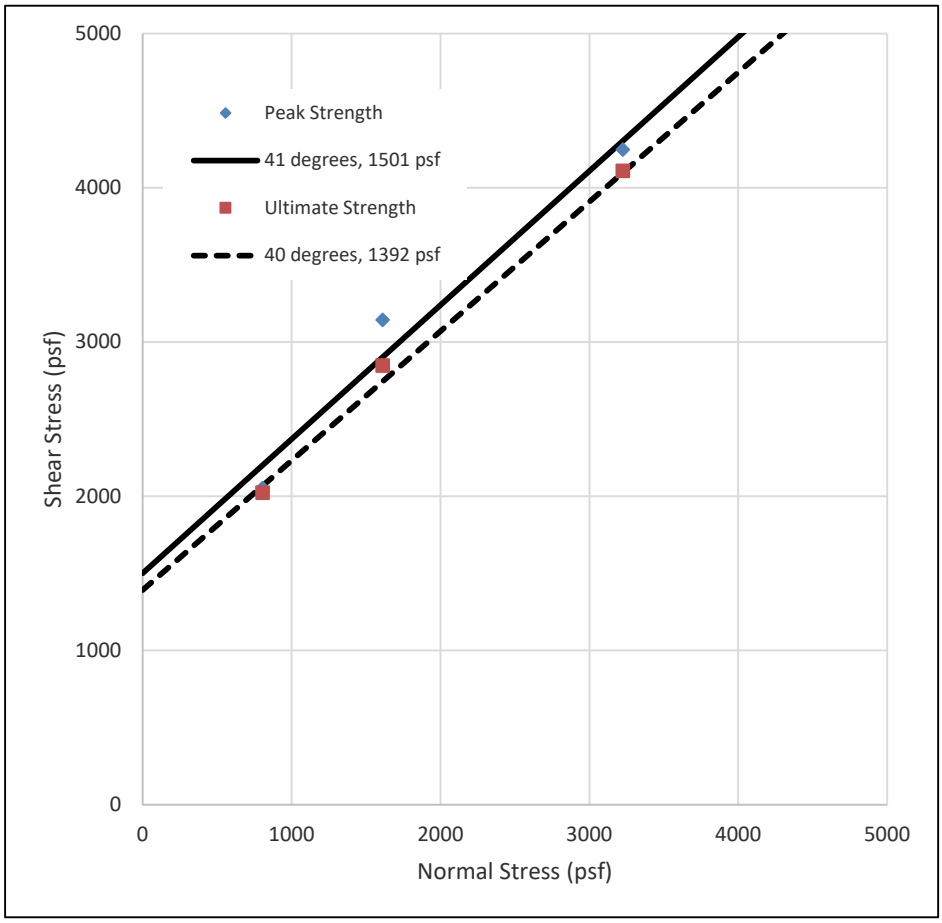
SAMPLE ID	LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX	SOIL TYPE (USCS)
B-4 at 0 to 5 feet	27	21	6	SILTY CLAY (CL-ML)
B-5 at 20 to 25 feet	Non-plastic			SILTY SAND (SM)
B-5 at 25 feet	Non-plastic			SILTY SAND (SM)

R-Value

(CTM 301)

SAMPLE ID	R-VALUE	SOIL TYPE (USCS)
B-3 at 0 to 5 feet	74	Well-graded SAND with SILT (SW-SM)





SAMPLE ID: B-1 at 20-21½ feet

SILTY SAND (SM)

NOTES: In-Situ
Strain Rate: 0.003 in/min
Sample was consolidated and drained

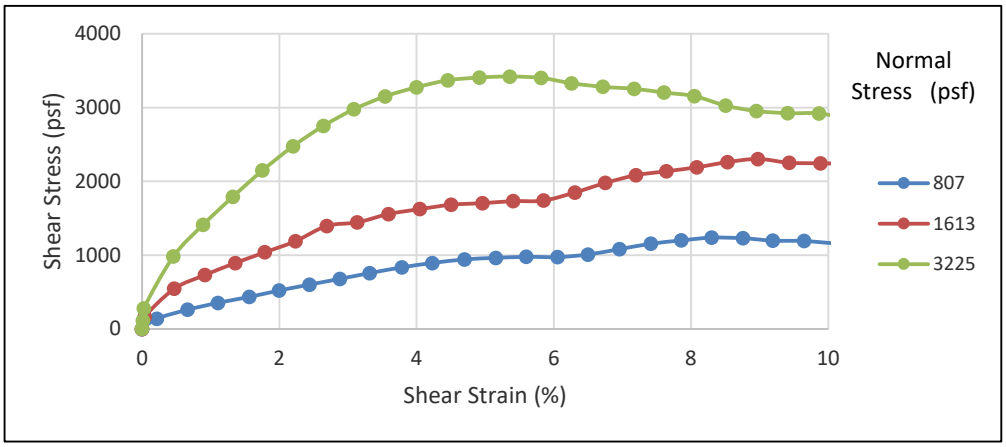
	Peak	Ultimate
Φ	41 °	40 °
c	1501 psf	1392 psf

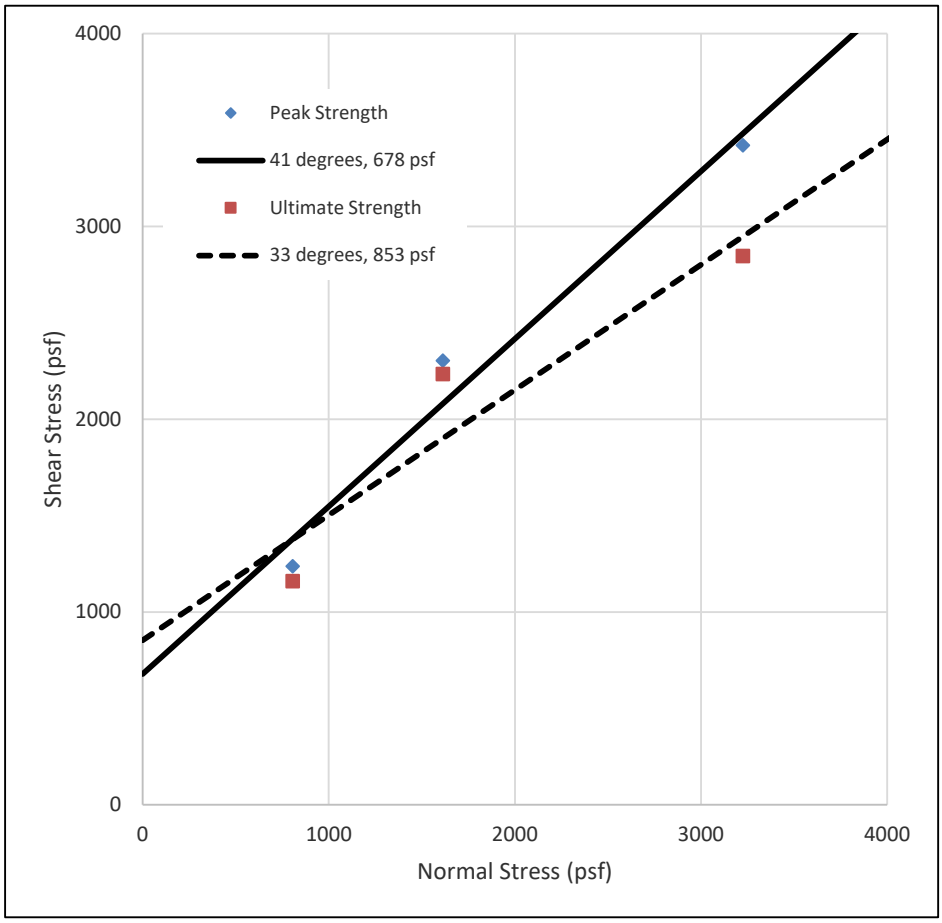
	Initial	Final
γ_d	117.6 pcf	117.6 pcf
w_c	5.6 %	13.3 %
Saturation	40 %	96 %

ATLAS

Undergraduate Teaching and Learning Facility
Riverside, California

By:	GT	Date:	July, 2023
Job Number:	9113.000	Figure:	II-8





SAMPLE ID: B-3 at 10 feet

Well-graded SAND with SILT (SW-SM)

NOTES: In-Situ
Strain Rate: 0.003 in/min
Sample was consolidated and drained

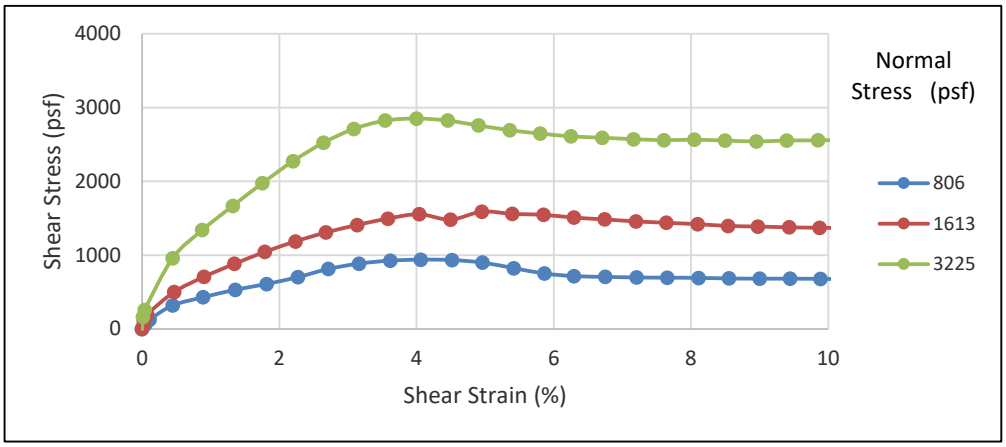
	Peak	Ultimate
Φ	41 °	33 °
c	678 psf	853 psf

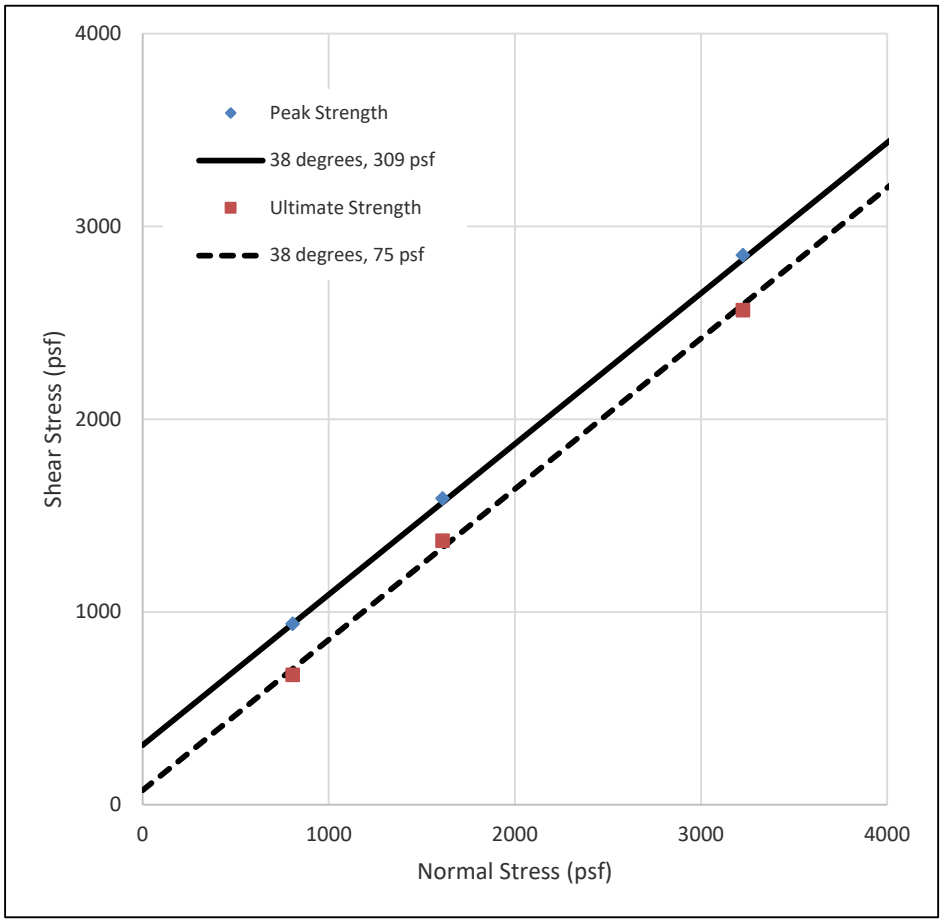
	Initial	Final
γ_d	113.4 pcf	113.4 pcf
w_c	6.3 %	14.8 %
Saturation	38 %	89 %

ATLAS

Undergraduate Teaching and Learning Facility
Riverside, California

By:	GT	Date:	July, 2023
Job Number:	9113.000	Figure:	II-9





SAMPLE ID: B-5 at 20 feet

SILTY SAND (SM)

NOTES: In-Situ
Strain Rate: 0.003 in/min
Sample was consolidated and drained

	Peak	Ultimate
Φ	38 °	38 °
c	309 psf	75 psf

	Initial	Final
γ_d	118.0 pcf	118.0 pcf
w_c	11.3 %	15.6 %
Saturation	73 %	100 %

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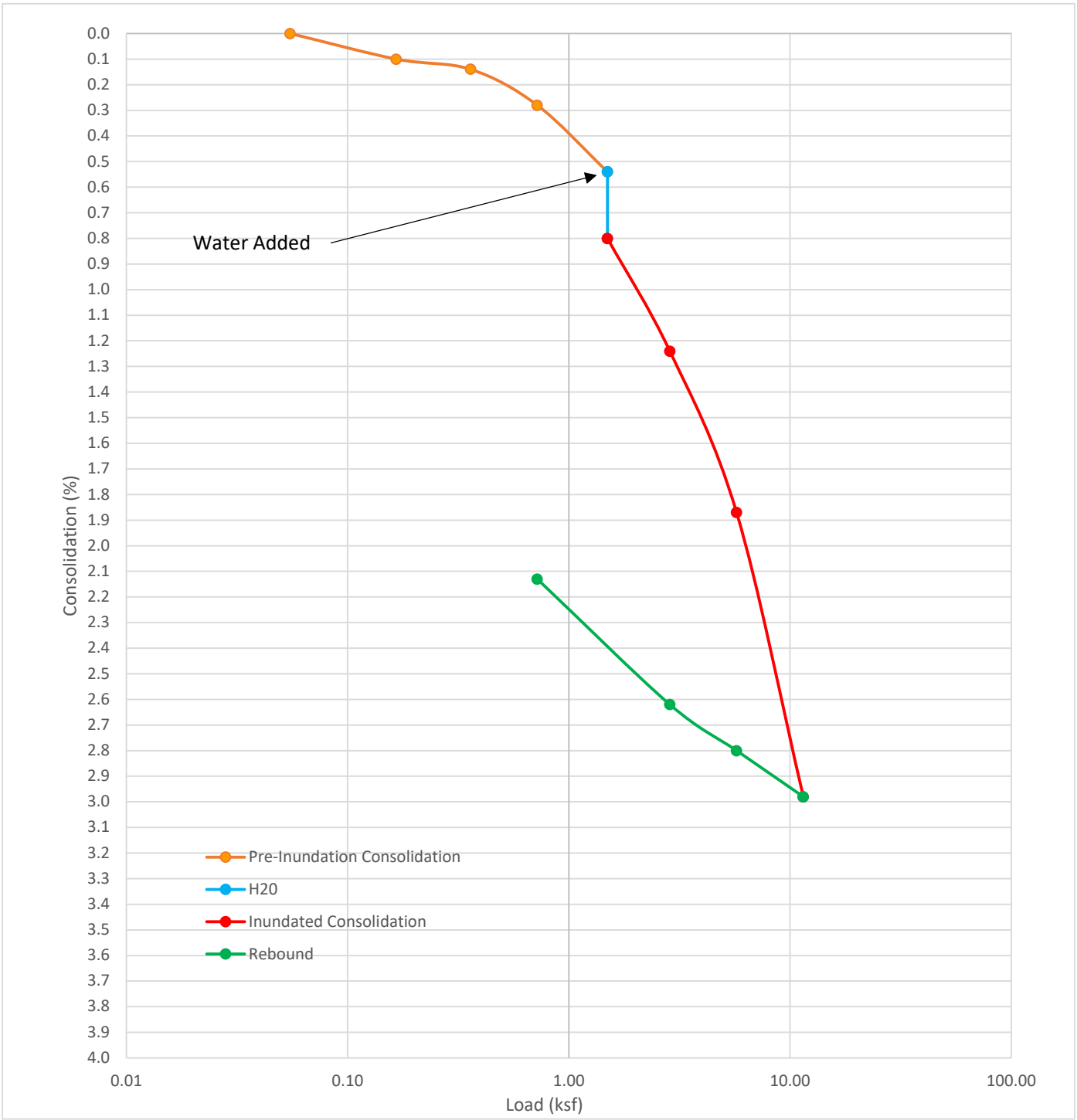
Undergraduated Teaching and Learning Facility
Riverside, California

By:	GT	Date:	July, 2023
Job Number:	9113.000	Figure:	II-10

Consolidation Test Results

ASTM D2435



Sample ID:	B-2 at 15 feet	γ_d	114.8 pcf
Sample Description:	Well-graded SAND	Pre-consolidation w_c	5.5 %
Metafield #:	82634	Post-consolidation w_c	13.6 %

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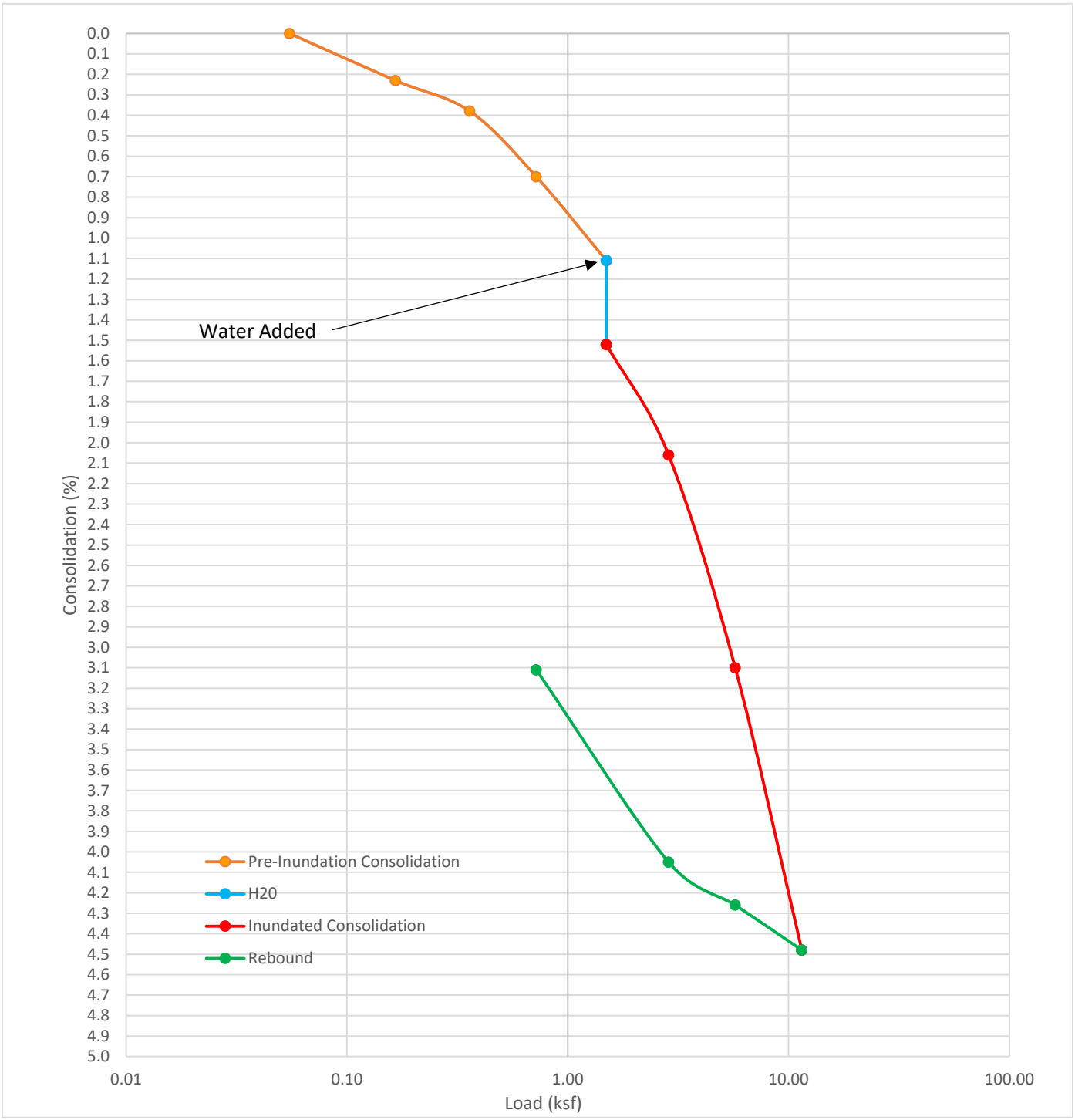
Undergraduate Teaching and Learning Facility
Riverside, California

By:	GT	Date:	July, 2023
Job No:	9113.000	Figure:	II-11

Consolidation Test Results

ASTM D2435



Sample ID:	B-5 at 10 feet	γ_d	125.6 pcf
Sample Description:	SANDY lean CLAY (CL)	Pre-consolidation w_c	9.7 %
Metafield #:	82638	Post-consolidation w_c	11.4 %

ATLAS

Undergraduate Teaching and Learning Facility
Riverside, California

By:	GT	Date:	July, 2023
Job No:	9113.000	Figure:	II-12

APPENDIX IV
INFILTRATION TEST RESULTS

Report of Borehole Infiltration Testing

Project Name:	Undergraduate Teaching and Learing Facility	Test Number:	B-1
Job Number:	9113.000	Tested By:	BR/HK
Date Drilled:	4/22/2023	Date Tested:	4/22/2023
Drilling Method:	CME-95 Rig	Presoak Time:	
Drilled Depth (ft):	26.5	Annulus Void Ratio, e:	0.4
Test Hole Diameter (in):	8		
Gravel Pack:	Y		
Pipe Diameter (in):	3		

Trial No.	Time	Time, Δt (min)	Initial Water Depth, D_o (ft)	Final Water Depth, D_f (ft)	Change in Water Depth, ΔD (in)	Volume of H20 (in^3)	Surface Area of Percolation (in^2)	Observed Percolation Rate (in/min)
1	11:10 AM 11:35 AM	0:25	20.00	23.30	39.60	964.15	1512.99	0.025
2	11:35 AM 11:45 AM	0:10	20.00	21.60	19.20	467.47	1769.34	0.026
3	11:45 AM 11:55 AM	0:10	20.00	21.30	15.60	379.82	1814.58	0.021
4	11:55 AM 12:05 PM	0:10	20.00	21.40	16.80	409.04	1799.50	0.023
5	12:05 PM 12:15 PM	0:10	20.00	21.40	16.80	409.04	1799.50	0.023
6	12:15 PM 12:25 PM	0:10	20.00	21.40	16.80	409.04	1799.50	0.023
7	12:25 PM 12:35 PM	0:10	20.00	21.40	16.80	409.04	1799.50	0.023
8	12:35 PM 12:45 PM	0:10	20.00	21.30	15.60	379.82	1814.58	0.021

Percolation Rate Conversion Utilizing Porchet Method	Infiltration Rate, I_t =	0.04 in/min 2.59 in/hr

$$I_t = \frac{\Delta H\ \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\ 60\ r}{\Delta t(r + 2H_{avg})}$$

Infiltration Rate Calculation		
Change in Hydraulic Head ΔD =	15.60	inches
Average Head Height =	70.2	inches
Time Interval Δt =	10	minutes

Note: All values shall be selected from the stabilized rate.

Notes:

Report of Borehole Infiltration Testing

Project Name:	Undergraduate Teaching and Learing Facility	Test Number:	B-2
Job Number:	9113.000	Tested By:	BR/HK
Date Drilled:	4/22/2023	Date Tested:	4/22/2023
Drilling Method:	CME-95 Rig	Presoak Time:	
Drilled Depth (ft):	21.5	Annulus Void Ratio, e:	0.4
Test Hole Diameter (in):	8		
Gravel Pack:	Y		
Pipe Diameter (in):	3		

Trial No.	Time	Time, Δt (min)	Initial Water Depth, D_o (ft)	Final Water Depth, D_f (ft)	Change in Water Depth, ΔD (in)	Volume of H20 (in^3)	Surface Area of Percolation (in^2)	Observed Percolation Rate (in/min)
1	9:30 AM 9:55 AM	0:25	15.00	20.00	60.00	1460.84	1256.64	0.047
2	10:00 AM 10:10 AM	0:10	14.50	19.00	54.00	1314.76	1482.83	0.089
3	10:10 AM 10:20 AM	0:10	14.50	18.40	46.80	1139.46	1573.31	0.072
4	10:20 AM 10:30 AM	0:10	14.50	18.20	44.40	1081.02	1603.47	0.067
5	10:30 AM 10:40 AM	0:10	14.50	18.20	44.40	1081.02	1603.47	0.067
6	10:40 AM 10:50 AM	0:10	14.50	18.20	44.40	1081.02	1603.47	0.067
7	10:50 AM 11:00 AM	0:10	14.50	18.10	43.20	1051.81	1618.55	0.065

Percolation Rate Conversion Utilizing Porchet Method

Infiltration Rate, I_t = 0.13 in/min, 8.05 in/hr

$$I_t = \frac{\Delta H\ \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\ 60\ r}{\Delta t(r + 2H_{avg})}$$

Infiltration Rate Calculation

Change in Hydraulic Head ΔD =	43.20 inches
Average Head Height =	62.4 inches
Time Interval Δt =	10 minutes

Note: All values shall be selected from the stabilized rate.

Notes:

Report of Borehole Infiltration Testing

Project Name:	Undergraduate Teaching and Learing Facility	Test Number:	B-3
Job Number:	9113.000	Tested By:	BR/HK
Date Drilled:	4/22/2023	Date Tested:	4/22/2023
Drilling Method:	CME-95 Rig	Presoak Time:	
Drilled Depth (ft):	16.5	Annulus Void Ratio, e:	0.4
Test Hole Diameter (in):	8		
Gravel Pack:	Y		
Pipe Diameter (in):	3		

Trial No.	Time	Time, Δt (min)	Initial Water Depth, D_o (ft)	Final Water Depth, D_f (ft)	Change in Water Depth, ΔD (in)	Volume of H20 (in^3)	Surface Area of Percolation (in^2)	Observed Percolation Rate (in/min)
1	9:00 AM 9:25 AM	0:25	9.00	15.00	72.00	1753.01	1407.43	0.050
2	9:25 AM 9:35 AM	0:10	9.00	14.30	63.60	1548.49	1512.99	0.102
3	9:35 AM 9:45 AM	0:10	9.00	14.10	61.20	1490.06	1543.15	0.097
4	9:45 AM 9:55 AM	0:10	9.00	13.80	57.60	1402.41	1588.39	0.088
5	9:55 AM 10:05 AM	0:10	9.00	13.20	50.40	1227.11	1678.87	0.073
6	10:05 AM 10:15 AM	0:10	9.00	13.10	49.20	1197.89	1693.95	0.071
7	10:15 AM 10:25 AM	0:10	8.50	12.40	46.80	1139.46	1874.90	0.061

Percolation Rate Conversion Utilizing Porchet Method

Infiltration Rate, I_t = 0.13 in/min, 7.53 in/hr

$$I_t = \frac{\Delta H\ \pi r^2\ 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\ 60\ r}{\Delta t(r + 2H_{avg})}$$

Infiltration Rate Calculation

Change in Hydraulic Head ΔD =	46.80	inches
Average Head Height =	72.6	inches
Time Interval Δt =	10	minutes

Note: All values shall be selected from the stabilized rate.

Notes:

Report of Borehole Infiltration Testing

Project Name:	Undergraduate Teaching and Learing Facility	Test Number:	B-4
Job Number:	9113.000	Tested By:	BR/HK
Date Drilled:	4/22/2023	Date Tested:	4/22/2023
Drilling Method:	CME-95 Rig	Presoak Time:	
Drilled Depth (ft):	16.5	Annulus Void Ratio, e:	0.4
Test Hole Diameter (in):	8		
Gravel Pack:	Y		
Pipe Diameter (in):	3		

Trial No.	Time	Time, Δt (min)	Initial Water Depth, D_o (ft)	Final Water Depth, D_f (ft)	Change in Water Depth, ΔD (in)	Volume of H20 (in^3)	Surface Area of Percolation (in^2)	Observed Percolation Rate (in/min)
1	7:24 AM 7:54 AM	0:30	10.00	10.20	2.40	58.43	1980.46	0.001
2	7:57 AM 8:27 AM	0:30	10.00	10.20	2.40	58.43	1980.46	0.001
3	8:29 AM 8:59 AM	0:30	10.00	10.20	2.40	58.43	1980.46	0.001
4	9:00 AM 9:30 AM	0:30	10.00	10.20	2.40	58.43	1980.46	0.001
5	9:32 AM 10:02 AM	0:30	10.00	10.20	2.40	58.43	1980.46	0.001
6	10:05 AM 10:35 AM	0:30	10.00	10.20	2.40	58.43	1980.46	0.001
7	10:38 AM 11:08 AM	0:30	10.00	10.20	2.40	58.43	1980.46	0.001
8	11:10 AM 11:39 AM	0:29	10.00	10.20	2.40	58.43	1980.46	0.001
9	11:42 AM 12:15 PM	0:33	10.00	10.20	2.40	58.43	1980.46	0.001
10	12:15 PM 12:45 PM	0:30	10.00	10.20	2.40	58.43	1980.46	0.001
11	12:46 PM 1:12 PM	0:26	10.00	10.20	2.40	58.43	1980.46	0.001
12	1:14 PM 1:44 PM	0:30	10.00	10.20	2.40	58.43	1980.46	0.001

Percolation Rate Conversion Utilizing Porchet Method

Infiltration Rate, I_t = 0.002 in/min, 0.12 in/hr

$$I_t = \frac{\Delta H\ \pi r^2 60}{\Delta t(\pi r^2 + 2\pi r H_{avg})} = \frac{\Delta H\ 60\ r}{\Delta t(r + 2H_{avg})}$$

Infiltration Rate Calculation

Change in Hydraulic Head ΔD =	2.40	inches
Average Head Height =	76.8	inches
Time Interval Δt =	30	minutes

Note: All values shall be selected from the stabilized rate.

Notes:

ATLAS

Undergraduate Teaching and Learning Facility
University of California, Riverside

By:	GT	Date:	July, 2023
Job No:	9115.000	Appendix:	IV-4

Appendix E

ASTM E1528 Transaction Screen Process Questionnaire

Subject Property: Lot 19 – selected site for proposed Undergraduate Teaching and Learning Facility (UTLF)

ASTM E1528 Transaction Screen Process[1] Questionnaire

The following questions should be asked of:

- Planning, Design & Construction staff with access to site history
- Any current or former occupant or operator of the property likely to be or have been using, treating, generating, storing or disposing of hazardous substances or petroleum products on or from the property

Lot 19 – selected site for proposed Undergraduate Teaching and Learning Facility (UTLF)

Subject Property: _____

Adjoining Properties:

North: Sidewalk adjacent to soccer field to north

East: Roadway adjacent to Skye Hall to east

South: Athletics and Dance building

West: Lawn and Chass Int N building

Preparer (Name, Title, Dept): Amanda Grey, Environmental Programs Manager, EH&S

Owner (UCR Staff) Responses Were Provided By (Name, Title, Dept): Melissa Garrety, Campus Planner, Office of Campus Architect

Occupant Responses Were Provided By (Name, Title, Dept): Andrew Stewart, Associate Director Field Operations, Transportation and Parking Services

	Question	Preparer (Documented or Observed During Site Visit)	Owner (UCR Staff Response)	Occupants/ Operators
Activities				
1.	Have you observed or are you aware of the *property* or any *adjoining property* currently or in the past being used for an industrial, commercial, agricultural, or research use?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☒ Unknown ☐
2.	Have you observed or are you aware of the *property* or any *adjoining property* currently or in the past being used as a gasoline station, motor repair facility, dry cleaners, commercial printing facility, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☒ Unknown ☐
Wastes and Disposal				

[1]Transaction screen process (transaction screen)—the process described in Practice E1528 whereby a person or entity seeks to determine if a particular parcel of real property (including improvements) is subject to potential environmental concerns.

Subject Property: Lot 19 – selected site for proposed Undergraduate Teaching and Learning Facility (UTLF)

	Question	Preparer (Documented or Observed During Site Visit)	Owner (UCR Staff Response)	Occupants/ Operators
3.	Have you observed or are you aware of any oil-water separators or other clarifiers on the *property?*	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
4.	Have you observed or are you aware of any *hazardous substances* or *petroleum products*, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials dumped above grade, buried and/or burned on the *property*?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
5.	Have you observed or are you aware of any *pits, ponds, or lagoons* currently or previously located on the *property* in connection with waste treatment or waste disposal?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
Storage Containers				
6.	Have you observed or are you aware of any chemicals of concern currently or previously stored or used at the *property* in any of the following: ▪ Individual containers of greater than 5 gal (19 L) in volume ▪ A total of 55 gal (208 L) or more ▪ Compressed gas cylinders (Chemicals of concern includes chemicals, pesticides/herbicides, hazardous materials, hazardous waste, petroleum products [e.g., gasoline, oils, diesel, etc.], lubricants, [e.g., hydraulic fluid, oils, etc. including inside equipment])	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
7.	Have you observed or are you aware of any industrial *drums* (typically 55 gal [208 L]) or sacks of chemicals currently or previously located on the *property*?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
8.	Have you observed or are you aware of any registered or unregistered storage tanks (above or underground) currently or previously located on the *property*?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
Property Features				

Subject Property: Lot 19 – selected site for proposed Undergraduate Teaching and Learning Facility (UTLF)

	Question	Preparer (Documented or Observed During Site Visit)	Owner (UCR Staff Response)	Occupants/ Operators
9.	Have you observed or are you aware of the current or previous presence of any stained soil on the *property*?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
10.	Have you observed or are you aware of any *fill dirt* brought onto the *property* that originated from a contaminated site or that is of an unknown origin?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
11.	Have you observed or are you aware of any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property* adjacent to any structure located on the *property* currently or in the past?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
12.	Have you observed or are you aware of any flooring, drains, or walls located on the *property* that are stained by substances other than water or emitting foul odors currently or in the past?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
13.	Have you observed or are you aware of any transformer, capacitor, or hydraulic equipment for which there are any records indicating the presence of PCB's on the *property* currently or in the past?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
14.	Have you observed or are you aware of *property* wastewater discharge, currently or in the past, on or adjacent to the *property* other than stormwater into a sanitary sewer system?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
15.	Have you observed or are you aware of *property* wastewater discharge, currently or in the past, on or adjacent to the *property* other than sanitary waste into a stormwater system?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
Water Supply System				
16.	If the *property* is served by a private well or non-public water system, are you aware of evidence that contaminants have been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	Yes ☐ No ☐ N/A ☒	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐

Subject Property: Lot 19 – selected site for proposed Undergraduate Teaching and Learning Facility (UTLF)

	Question	Preparer (Documented or Observed During Site Visit)	Owner (UCR Staff Response)	Occupants/ Operators
Regulatory Documents				
17.	Are you aware of any *permits* issued to store hazardous materials or hazardous waste on the *property* or at any facility located on the *property*?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
18.	Are you aware of any *environmental liens* or governmental notifications issued relating to the past or recurrent violations of environmental laws with respect to the *property* or any facility located on the *property*?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
Events				
19.	Are you aware of any environmental site assessment of the *property* that indicated the presence of *hazardous substances* or *petroleum products* on, or contamination of, the *property* or recommended further assessment of the *property*?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
20.	Have you been informed of the current or past existence of *hazardous substances* or petroleum *products* or environmental violations with respect to the *property* or any facility located on the *property*?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
21.	Are you aware of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property* by any owner or occupant of the *property*?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	Yes ☐ No ☒ Unknown ☐
Government Records/Historical Sources Inquiry				
22.	Do any of the following Federal government record systems list the property or any property within the circumference of areas noted below:			
	▪ National Priorities List – within 1.0 mile (1.6km)?	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	
	▪ RCRA Treatment, Storage, and Disposal Facilities (California Department of Toxic Substances Control EnviroStor data	Yes ☐ No ☒ Unknown ☐	Yes ☐ No ☐ Unknown ☐	

Subject Property: Lot 19 – selected site for proposed Undergraduate Teaching and Learning Facility (UTLF)

	Question	Preparer (Documented or Observed During Site Visit)	Owner (UCR Staff Response)	Occupants/ Operators
	management system) – within 1.0 mile (1.6km)?			
23.	Do any of the following state record systems list the property or any property within the circumference of areas noted below:			
	▪ California Department of Toxic Substances Control EnviroStor data management system – within approximately 1.0 mile (1.6km)?	Yes ☒ No ☐ Unknown ☐	Yes ☐ No ☐ Unknown ☐	

Appendix E.1

Pre-demolition Asbestos Survey

ENVIRO CHECK

2211 West Orangewood Avenue
Orange, CA 92868
Tel: (714) 937-0750
Fax: (714) 937-0755
www.envirocheck.com
(800) 665-7586

NVLAP Lab Code: 200548-0

Inspection Date: 1/17/2023 Report Date: 1/25/2023

Pre-Demolition Asbestos Survey

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

Job Location: UC Riverside – Parking Lot # 19
PO#: SC11174513
900 University Avenue
Riverside, CA 92521

1.0 Introduction/ Laboratory Summary:

This report presents the analytical results of the Pre-Demolition Asbestos Survey performed on the subject property listed above by Envirocheck, Inc. Efforts were made by the inspector to locate, identify and sample and/or presume all suspect materials during the inspection, if additional suspect asbestos materials are uncovered and/or discovered during the demolition activity, suspend all activities, secure, stabilize the area until the suspect materials are tested. Unless noted, this survey excludes sampling of the concrete slab/foundation, ceramic tile systems and masonry products.

Please read entire report prior to initiating any action.

The sampled materials that exceeded the EPA definition of Asbestos Containing Material (ACM) of >1% and/or the Cal-OSHA definition of Asbestos Containing Construction Material (ACCM) of >0.1% and/or found as Trace for asbestos content were:

- None

Positive Results:

#	Location	Material	Notes	Total % Asbestos	Types of Asbestos Present	Friable	Condition	Sq. Ft.*

No asbestos detected in the samples tested

Negative Results:

#	Location	Material	Notes
1	Trash Enclosure	Concrete Block	N/A
2	Trash Enclosure	Concrete Block	N/A
3	Trash Enclosure	Concrete Block	N/A
4	Curb/Gutter	Concrete	N/A
5	Curb/Gutter	Concrete	N/A
6	Curb/Gutter	Concrete	N/A
7	Parking Stop	Concrete	N/A
8	Parking Stop	Concrete	N/A
9	Lights - Support Black/Base	Concrete	N/A
10	Lights - Support Black/Base	Concrete	N/A

11	Lights - Support Black/Base	Concrete	N/A
12	Parking Lot Ground	Asphalt	N/A
13	Parking Lot Ground	Asphalt	N/A
14	Parking Lot Ground	Asphalt	N/A
15	Parking Lot Ground	Asphalt	N/A
16	Parking Lot Ground	Asphalt	N/A
17	Parking Lot Ground	Asphalt	N/A
18	Parking Lot Ground	Asphalt	N/A
19	Parking Lot Ground	Asphalt	N/A
20	Parking Lot Ground	Asphalt	N/A

2.0 Background, Sampling Protocol, and Test Methods

Testing by:	Larry Cornejo, CSST# 09-4480	Engaged by Representative:	Planning, Design & Constructiuon
Survey by:	Michael Powers, CAC# 11-4750		

Purpose of inspection:

Purpose of inspection was to test certain building materials that will be impacted due to planned demolition.

Structure:	College Parking Lot				
Exterior:	N/A	Roof:	N/A	Occupied?:	No
Exterior Condition:	N/A	Roof Condition:	N/A	Year Built:	1961
Exterior Debris Pile(s):	No			No. of Stories:	1
Debris Pile Location(s):	N/A			Approx. SQ FT:	10,000
Debris Pile Size:	N/A			Foundation:	Asphalt
Debris Pile Contents:	N/A			Air Handling:	N/A

- Envirocheck personnel identified all accessible and recognizable types of suspect ACM and PACM that were anticipated to be impacted by the renovation or demolition. Suspect materials which were not anticipated to be impacted were not sampled.
- The samples were submitted to Envirocheck's in-house laboratory, located at 2211 W. Orangewood Avenue, Orange, CA 92868
- The inspector performed an inspection for suspect asbestos containing materials listed above following the provisions of 40 CFR Part 763.86.
- The inspector is Cal/OSHA certified and conformed to procedures outlined in the EPA Building Inspector Course.
- Modified AHERA (Asbestos Hazard Emergency Response Act) sampling methods and protocols were used.
- Each asbestos sample collected was analyzed utilizing the methods specified in EPA – Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Method for the Determination of Asbestos in Bulk Building Materials", by a NVLAP-accredited laboratory.
- When Non-Friable Asbestos Containing Material (ACM) has suffered Damage and/or Disturbance, the Debris that is the result of the damage and/or disturbed ACM will be considered to be Friable ACM and shall be disposed of as Asbestos Containing Waste Material (ACWM).
- Asbestos testing and inspection was performed by Larry Cornejo, CSST# 09-4480, of Envirocheck, on 1/17/2023, under the direction of Michael Powers, CAC# 11-4750.

3.0 Applicable Actions:

- Periodic surveillance for materials found in Good Condition
- As applicable, materials found to be in Good Condition can be left and managed in place under a proper Operations and Maintenance (O & M) Plan
- Repair or removal for materials found in Damaged Condition
- Removal for materials found in Significant Damage
- Removal prior to renovation or demolition activities that may cause disturbance
- Prior to any renovation or planned disturbance of any ACM, the contractor should be furnished with a copy of this survey report

Notice 1: According to AHERA, 40 CFR, 763.87 (c)(1),(2) - (1) A homogeneous area is considered not to be Asbestos Containing Material (ACM) only when all required samples collected from a homogeneous area indicate levels below regulated limits and (2) a homogeneous area is considered ACM when at least one of the required samples collected indicates levels above regulated limits. According to AHERA, 40 CFR , 763.83 - A homogeneous area means an area of surfacing material, thermal system insulation material, or miscellaneous material that is uniform in color and texture.

Notice 2: Cal-OSHA (DOSH) defines asbestos containing construction materials (ACCM) as manufactured materials containing asbestos in amounts greater than 0.1% by weight. Cal-OSHA requires that contractors be registered with DOSH when disturbing ACCM. Note that if "any level" of asbestos is detected, Cal-OSHA still requires applicable worker protections, training, communication, notification and engineering controls in accordance with CCR Title 8 Section 1529, even if it is determined to be less than or equal to 0.1% asbestos by weight, however the contractor would not be required to be "registered" with DOSH if the level is at or below 0.1% asbestos by weight. The EPA defines asbestos containing materials (ACM) as materials containing asbestos in amounts greater than 1%. Polarized Light Microscopy (PLM) analysis has a limit of quantification of <1%. PLM samples determined to contain levels of less than or equal to 1% can be presumed to contain levels greater than 1% or can be submitted for 400 point count for a more accurate result (Limited to a qualified <1%). In order to determine if materials are less than or equal to 0.1%, the 1000 point count method and/or Transmission Electron Microscopy (TEM) method will be needed to determine levels with quantification limits of a minimum of 0.1% in accordance with EPA/600/R-93/116. The 400 point counting method assists in determining proper waste handling and appropriate jurisdiction of regulatory agencies (such as: EPA, NESHAP, APCD, AQMD) and cannot be used to determine DOSH registration requirements (where a combination of 1000 point counting and/or TEM analysis will be required as per EPA 600/93-R/116 Method). Request for additional types of analysis must be made by the client and additional analytical costs will apply.

Notice 3: Asbestos NESHAP Requirement to Perform Point Counting (May 8, 1991) – This applies to all regulated asbestos containing materials (RACM) as defined in 40 CFR Section 61.141.

- "First, a sample in which no asbestos is detected by polarized light microscopy (PLM) does not have to be pointed counted. However, a minimum of three slide mounts should be prepared and examined in their entirety by PLM to determine if asbestos is present. This process should be carefully documented by the laboratory."
- "Second, if the analyst detects asbestos in the sample and estimates the amount by visual estimation to be less than 10%, the owner or operator of the building may (1) elect to assume the amount be greater than 1% and treat the material as asbestos-containing material or (2) require verification of the amount by point counting." If no election is made, then the materials shall be presumed to be ACM.
- "Third, if a result obtained by point count is different from a result obtained by visual estimation, the point count result will be used."
- It is the responsibility of the building owner, operator, and/or owner representative to determine the desired course of action and communicate the information to the relevant parties and request the laboratory to perform additional point count analysis as applicable. Point count laboratory analysis is not part of the standard procedure of PLM analysis and is considered an additional service.

Note: Interpretations of the regulatory language regarding wall system (i.e., drywall, gypsum board, wallboard, plaster and stucco) multi-layer composite sampling vary; therefore, it is important to be familiar with the local NESHAP (South Coast AQMD) enforcement and local OSHA enforcement agencies' individual interpretations of the standards to avoid citation and fines.

4.0 Asbestos-Related Terms

AHERA – Asbestos Hazard Emergency Response Act (Regulates school facilities)

ASHARA – Asbestos School Hazard Reauthorization Act (Includes public and commercial buildings under AHERA regulation)

ACM – Asbestos Containing Materials (Materials containing greater than one (1) percent by weight)

ACCM – Asbestos Containing Construction Materials (CAL-OSHA's term for materials containing greater than one tenth of one (0.1) percent by weight)

PACM – Presumed Asbestos Containing Materials (Materials considered asbestos containing without laboratory analysis)

CAC – Certified Asbestos Consultant (State of California certified individual allowed to perform all aspects of asbestos related inspection, management, planning, and design work and to direct CSST(s) and review and execute asbestos reports under state law)

CSST – Certified Site Surveillance Technician (Allowed to perform all aspects of asbestos related inspection, management, and work under the direction of a CAC)

CAL-OSHA a.k.a. (**DOSH**) Division of Occupational Safety and Health (California governing body regulating worker protection)

OSHA – Occupational Health and Safety Administration

NIOSH – National Institute of Occupational Safety and Health

EPA – Environmental Protection Agency (Regulates environment and waste stream)

DOT – Department of Transportation

NESHAP – National Emissions Standards for Hazardous Air Pollutants

AQMD – Air Quality Management District (Local division of NESHAP)

NVLAP – National Voluntary Laboratory Accreditation Program

AIHA – American Industrial Hygiene Association

CFR – Code of Federal Regulations

CCR –California Code of Regulations

PLM – Polarized Light Microscopy (also known as "Bulk" sample)

PCM – Phase Contrast Microscopy

TEM – Transmission Electron Microscopy

APCD – Air Pollution Control District (Local division of NESHAP)

4.1 Laboratory Report Terms

ND – None Detected

A – Area Sample (Air monitoring)

AA – Area After (Clearance type sample)

P – Personal Sample (Employee monitoring type sample)

EX – Excursion (Employee monitoring type of sample during peak activities)

BK – Blank (Used for quality assurance)

Trace – Asbestos was detected in the PLM analysis, but not in the point count.

Negative – No asbestos detected, however it doesn't mean that there isn't any asbestos.

4.2 Laboratory Accreditation

NIST/NVLAP
National Institute of Standards and Technology
National Voluntary Laboratory Accreditation Program
NVLAP Lab Code: 200548-0

California Water Boards ELAP
Certificate 2723

For a detailed explanation of our accreditations and quality assurance program, contact Envirocheck.

5.0 Limitations

The findings set forth in this report are strictly limited to the time, date and scope of the investigation. The results presented in this report are based on the analytical testing performed by the certified laboratory. The results from the sampled locations are representative of the entire homogeneous material/areas and not just the locations sampled. According to AHERA, 40 CFR, 763.87 (c)(1),(2) - A homogeneous area is considered not to be Asbestos Containing Material (ACM) only when all required samples collected from a homogeneous area indicate levels below regulated limits and a homogeneous area is considered ACM when at least one of the required samples collected indicates levels above regulated limits. This report does not guarantee that all inaccessible, hidden, or indistinguishable materials will be identified or sampled. Samples were limited to the materials and locations listed on the chain of custody. Materials/areas that were not sampled shall be presumed to be asbestos containing until proven otherwise by appropriate sampling procedures. Square footages are estimates only and should not be used for bidding purposes.

6.0 Certified Asbestos Consultant Signature

Any individual performing services as an asbestos consultant or site surveillance technician as referenced and defined in section 1529(b) of Title 8 of the California Code of Regulations must be certified by the State of California, Division of Occupational Safety and Health (DOSH). Asbestos consultant shall maintain copies of AHERA training certificates for management planner, abatement project designer, abatement contractor and supervisor, and all subsequent annual refresher courses. The complete abatement project designer course certificate is only required for certifications provided after July 1, 1994. Site surveillance technician applicants shall maintain copies of AHERA training completion certificates for inspector, and abatement contractor and supervisor, and all subsequent annual refresher courses. Certificates for abatement worker and abatement project designer may be utilized in lieu of the abatement contractor and supervisor certificate. Specific qualifications are required pursuant to section 1529(o) of Title 8 of the California Code of Regulations for certification. The educational qualifications, (diploma, official transcript, or other proof), and qualifying work experience as specified in Business and Professions Code sections 7184 and 7185 have been met by the individual(s) performing asbestos related consulting activities or activities. Qualifying work experience includes technical work associated with asbestos consulting activities. Written site surveillance technician references attesting to the applicant's qualifying work experience which are certified under the penalty of perjury as required.

Michael Powers, CAC# 11-4750
mike@envirocheck.com

ENVIRO CHECK

2211 West Orangewood Avenue
Orange, CA 92868
Tel: (714) 937-0750
Fax: (714) 937-0755
www.envirocheck.com
(800) 665-7586

NVLAP Lab Code: 200548-0

Asbestos Laboratory Report, Page 1 of 2

California Water Boards ELAP Certificate 2723

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

Job Location: UC Riverside – Parking Lot # 19
PO#: SC11174513
900 University Avenue
Riverside, CA 92521

	1123011415	1123011416	1123011417	1123011418	1123011419	1123011420	1123011421	1123011422	1123011423	1123011424
Sample #	1	2	3	4	5	6	7	8	9	10
Asbestos	No	No	No	No	No	No	No	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type										
2° Type										
3° Type										
Location	Trash Enclosure	Trash Enclosure	Trash Enclosure	Curb/Gutter	Curb/Gutter	Curb/Gutter	Parking Stop	Parking Stop	Lights - Support Black/Base	Lights - Support Black/Base
Material	Concrete Block	Concrete Block	Concrete Block	Concrete	Concrete	Concrete	Concrete	Concrete	Concrete	Concrete
Notes										
Color	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray	Gray
Homogeneous	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Components:										
Non-fibrous Material	x	x	x		x	x	x	x	x	x
Paint	x	x	x	x	x	x	x	x	x	x
Tar										
Cellulose	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Fiberglass										
Synthetic Fibers										
Other 1						3% Wollastonite	1% Wollastonite			
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Received: 01/17/2023 Analyzed: 01/17/2023 Report Date: 01/18/2023

Analysts: Javier Osorio Vanc Thomas

Admin QC: VG

Lab QC: EE

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

**Various sample locations combined for composite purposes. ***Not covered by NVLAP accreditation. Standard Deviation is ± 45.5% of asbestos concentration (1 Standard Deviation).

ENVIRO CHECK

2211 West Orangewood Avenue
Orange, CA 92868
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www.envirocheck.com
(800) 665-7586

NVLAP Lab Code: 200548-0

Asbestos Laboratory Report, Page 2 of 2

California Water Boards ELAP Certificate 2723

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

Job Location: UC Riverside – Parking Lot # 19
PO#: SC11174513
900 University Avenue
Riverside, CA 92521

	1123011425	1123011426	1123011427	1123011428	1123011429	1123011430	1123011431	1123011432	1123011433	1123011434
Sample #	11	12	13	14	15	16	17	18	19	20
Asbestos	No	No	No	No	No	No	No	No	No	No
Total	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**	**N.D.**
1° Type										
2° Type										
3° Type										
Location	Lights - Support Black/Base	Parking Lot Ground	Parking Lot Ground	Parking Lot Ground	Parking Lot Ground	Parking Lot Ground	Parking Lot Ground	Parking Lot Ground	Parking Lot Ground	Parking Lot Ground
Material	Concrete	Asphalt	Asphalt	Asphalt	Asphalt	Asphalt	Asphalt	Asphalt	Asphalt	Asphalt
Notes										
Color	Light Gray	Gray	Gray	Black	Gray, Black	Gray, Black	Gray, Black	Gray, Black	Gray	Gray, Black
Homogeneous	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Components:										
Non-fibrous Material	x	x	x	x	x	x	x	x	x	x
Paint								x	x	
Tar		x	x	x	x	x	x	x	x	x
Cellulose	<1%	3%	1%	2%	3%	3%	1%	2%	1%	3%
Fiberglass										
Synthetic Fibers										
Other 1										
Other 2										
Comments/ Method Departures	None	None	None	None	None	None	None	None	None	None

Samples were analyzed in accordance with EPA - Appendix E to Subpart E of 40 CFR Part 763: "Interim Method of the Determination of Asbestos in Bulk Insulation Samples" and EPA/600/R-93/116: "Test Method for the Determination of Asbestos in Bulk Building Materials". The limit of detection for asbestos is <1%, and the limit of quantification is 1.0% or greater. The State of California defines an asbestos-containing construction material as having more than 0.1% asbestos. All samples are disposed of after 30 days unless the customer requests otherwise. This report shall not be reproduced except in full, without the written approval of the laboratory. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. Test results apply to the sample as received. Asbestos percentage obtained through calibrated visual estimate. Components of inhomogeneous samples not analyzed separately unless listed as a sub-sample.

**Various sample locations combined for composite purposes. ***Not covered by NVLAP accreditation. Standard Deviation is ± 45.5% of asbestos concentration (1 Standard Deviation).

ENVIRO CHECK
2211 West Orangewood Avenue
Orange, CA 92868
Tel: 800.655.7586 Fax: 714.937.0755 envirocheck.com

Chain of Custody - Asbestos & Lead

1 of 1

SF Job#: F101061

Client: UCR PLANNING, DESIGN, CONSTRUCTION	Date Sampled: 1-17-23
Contact Name: MELISSA GARRETY	Sampled By: LARRY
Address:	Claim/P.O. #:
City, State, Zip:	Project Name: UCR-PARKING LOT 19
Phone:	Contact: MELISSA GARRETY
Email:	Job Address: 900 UNIVERSITY AVE
	City, State, Zip: RIVERSIDE 92521
	Inspection: ☐ Residential ☒ Commercial
	Type of Loss: ☐ Fire ☐ Water ☒ Reno/Demo
	Possible PRO- 57 ☐ YES (Consult with CAC) ☒ NO

ID	Lab ID	Location	Material	Friable	Condition	Sq/FT
1	[illegible]1405	TRASH ENCLOSURE	CON BLOCK	YES (NO)	(G) D SD	300
2	1416			YES (NO)	(G) D SD	
3	~~1417~~ 1417			YES (NO)	(G) D SD	
4	1418	CURB / GUTTER	CON	YES (NO)	(G) D SD	2042
5	1419			YES (NO)	(G) D SD	
6	1420			YES (NO)	(G) D SD	
7	1421	PARKING STOP		YES (NO)	(G) D SD	
8	1422			YES (NO)	(G) D SD	
9	1423	LIGHTS - SUPPORT BLOCK / BASE	CON	YES (NO)	(G) D SD	26
10	1424			YES (NO)	(G) D SD	
11	1425			YES (NO)	(G) D SD	
12	1426	PARKING LOT GROUND	ASP	YES (NO)	(G) D SD	8212 HC 160
13	1427			YES (NO)	(G) D SD	
14	1428			YES (NO)	(G) D SD	
15	1429			YES (NO)	(G) D SD	
16	1430			YES (NO)	(G) D SD	
17	1431			YES (NO)	(G) D SD	
18	1432			YES (NO)	(G) D SD	
19	1433			YES (NO)	(G) D SD	
20	1434			YES (NO)	(G) D SD	

Turnaround Time (T.A.T.)

☐ Same Day ☒ Next Day
☐ 2 Days ☐ 3-5 Days
☐ 6-10 Days ☐ Other: _____

Procedure Requested

Asbestos Bulk
☒ NVLAP-accredited:
- EPA - Appendix E to Subpart E of 40 CFR Part 763: Interim Method of the Determination of Asbestos in Bulk Insulation Samples
- EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

☐ *NOT* NVLAP-accredited:
Not building materials, e.g. soil, debris, dust wipe, paint, etc.

☐ **Asbestos by PCM** NIOSH 7400

☐ **Asbestos by TEM** Method: _____

Lead
☐ Air ☐ Soil ☐ Paint Chip ☐ Dust Wipe
☐ Waste Profile (Circle applicable) TTLC / STLC / TCLP
Please provide 1/2 lb of sample for complete waste profile

☐ **Rotameter Calibration**

☐ **Other:** _____

Relinquish Definition Key
I = In Person
L = Laboratory Secured Drop Box
S = Ship

Samples Relinquished By				Relinquish Type (Circle)	Samples Received By			
Date	Time	(Print)	(Sign)		Date	Time	(Print)	(Sign)
1-17-23	14:45	LARRY GONZALEZ		(I) L S	1-17-23	1458	Elvira Espinal	
				I L S				
				I L S				

Field Datasheet

Client: UCR PLANNING DESIGN CONSTRUCT Job Site: UCR. PARKING LOT 19
MELISSA GARRETY 900 UNIVERSITY AVE
RIVERSIDE 92521

DATE: 1-17-23
TIME: 0900
Inspector: LARRY

Purpose of Inspec. *Fire Water* (Reno/Demo) *Clearance Contam. Assess* Other_____ **Occupied?** *Yes* (No)
Children: *Yes* (No) *Unknown*

Structure: *SFH Apt. Condo Commercial* (School) *Day Care Church* Other_____

Year Built: 1961 **Approx. SQ. FT.:** 10,000 **No. of Stories:** 1 **Foundation:** *Raised* (Slab)

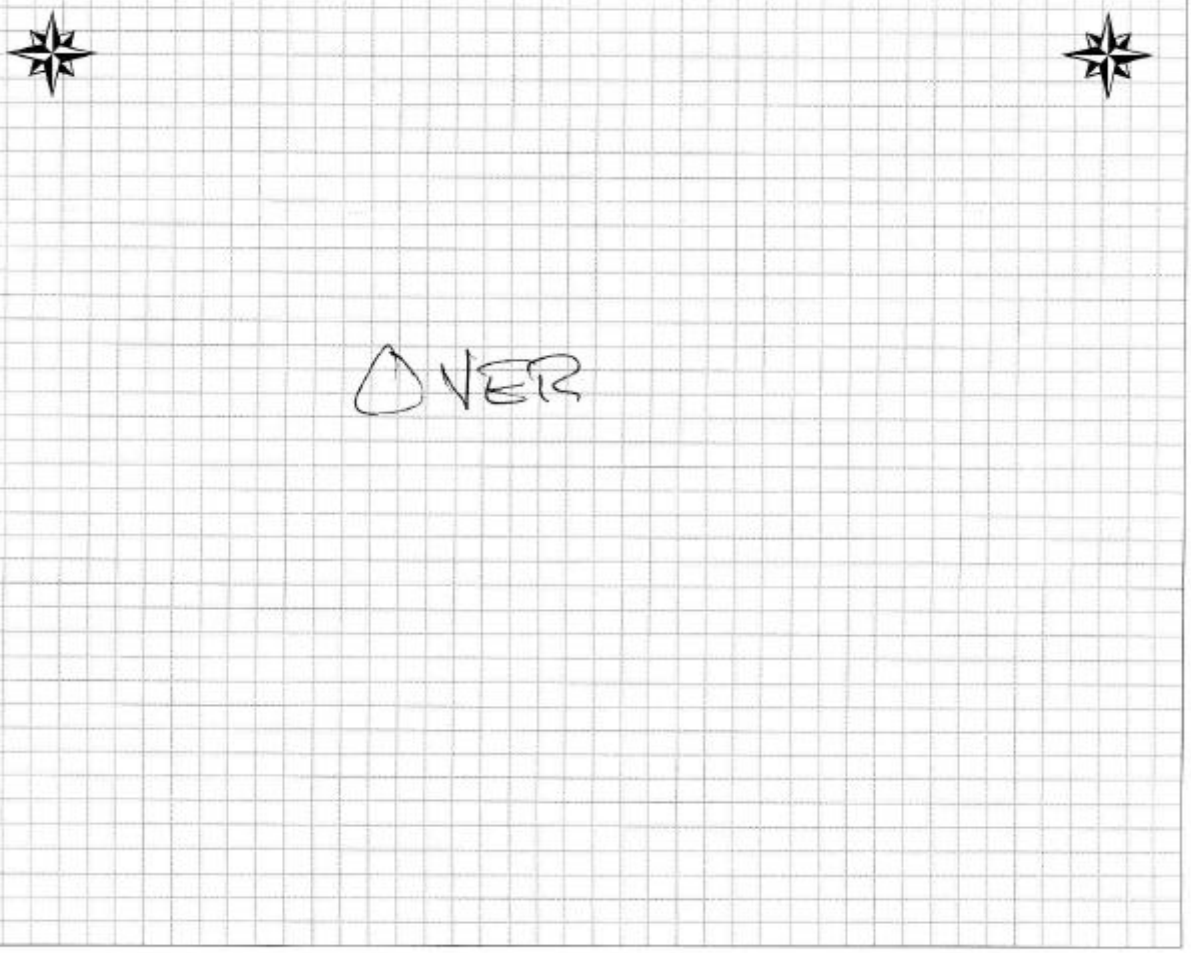
EXT: *G D SD* **Type:** *STC Metal Concrete Tilt-up Concrete Block Brick Siding Wood/Transite* Other: N/A

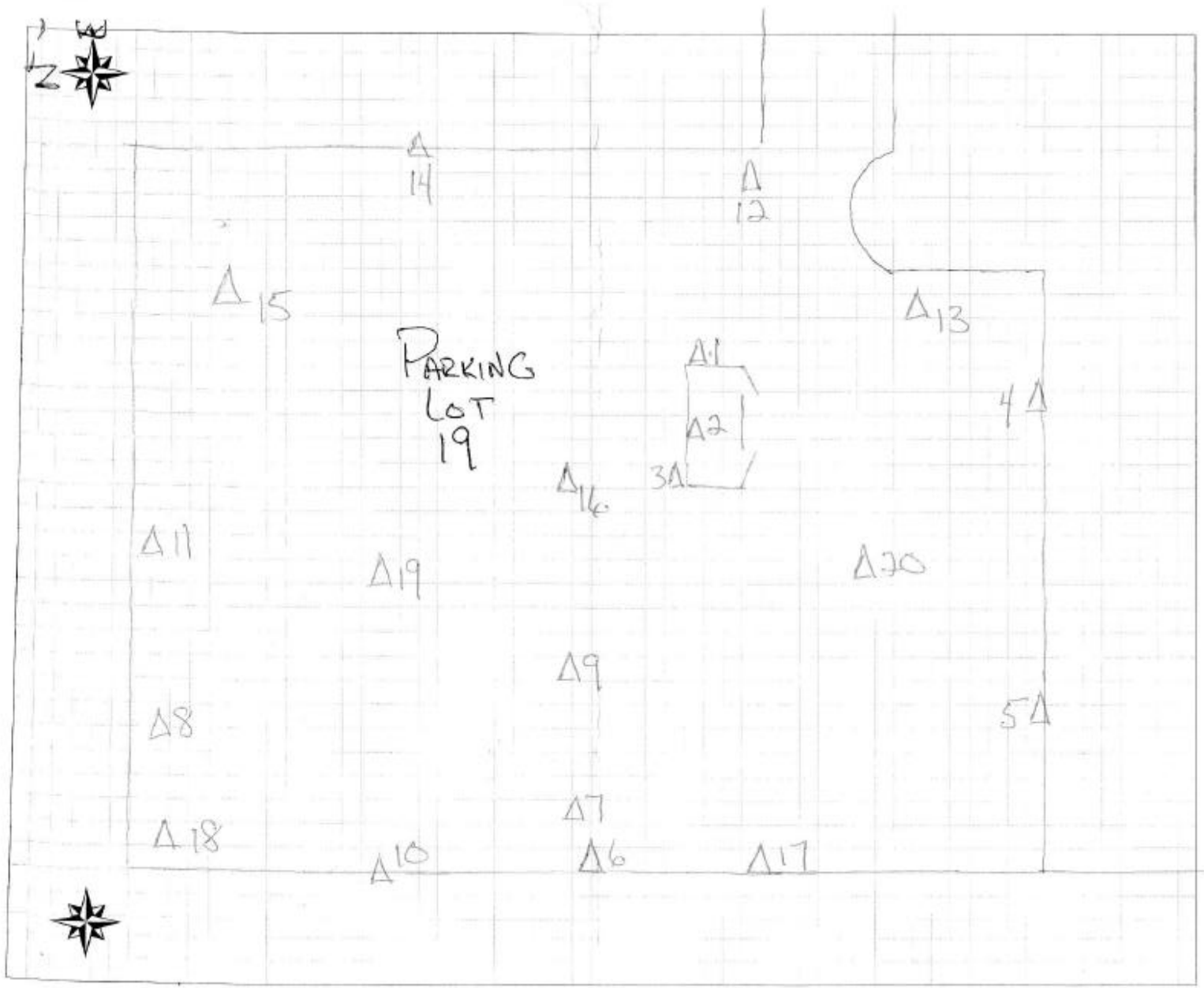
ROOF: *G D SD* **Type:** *Comp. Shingle Tile RRM Wood Shake Rock-Tar Transite Shingle* Other: N/A

Exterior Debris Pile(s): *Yes* (No *(If Yes or Damage Submit Notes)*) **Air Handling:** *HVAC Wall/Floor Frnce Wndw AC* Other: N/A

XRF: *Heuresis, Viken,* or *NITON* Cal Readings 1.0 1.0 1.0 End Cal Readings 98 1.1 .88 A/L 1.0

Diagram Legend : △ = Asbestos Bulk Samples ○ = Positive Lead Reading □ = Other_____




14
12
15
13
PARKING
LOT
19
1
2
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4
16
11
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17

STATE OF CALIFORNIA — Gavin Newsom, Governor

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety and Health-Asbestos Certification
1750 Howe Avenue, Suite 460
Sacramento, CA 95825
(916) 574-2993 Office http://www.dir.ca.gov/dosh/asbestos.html actu@dir.ca.gov

901144480T **332**

Envirocheck, Inc
Larry T Cornejo
2211 W Orangewood Avenue
Orange CA 92868

September 27, 2022

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address or email w any changes in your contact/mailing information within 15 days of the change.

Sincerely,

Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File

Renewal – Card Attached

STATE OF CALIFORNIA Gavin Newsom, Governor

DEPARTMENT OF INDUSTRIAL RELATIONS
Division of Occupational Safety and Health-Asbestos Certification
1750 Howe Avenue, Suite 460
Sacramento, CA 95825
(916) 574-2993 Office http://www.dir.ca.gov/dosh/asbestos.html actu@dir.ca.gov

104224750C **352**

Envirocheck, Inc
Michael P Powers
2211 W Orangewood Avenue
Orange CA 92868

June 13, 2022

Dear Certified Asbestos Consultant or Technician:

Enclosed is your certification card. **To maintain your certification, you must abide by the rules printed on the back of the certification card.**

Your certification is valid for a period of one year. If you wish to renew your certification, you must apply for renewal at least 60 days before the expiration date shown on your card. [8 CCR 341.15(h)(1)].

Please hold and do not send copies of your required AHERA refresher renewal certificates to our office until you apply for renewal of your certification.

Certificates must be kept current if you are actively working as a CAC or CSST. The grace period is only for those who are not actively working as an asbestos consultant or site surveillance technician.

Please contact our office at the above address or email w any changes in your contact/mailing information within 15 days of the change.

Sincerely,

Jeff Ferrell
Senior Safety Engineer

Attachment: Certification Card

cc: File

Renewal – Card Attached

Appendix E-2

Limited Lead-Based Paint Survey

ENVIRO CHECK

2211 West Orangewood Avenue
Orange, CA 92868
Tel: (714) 937-0750
Fax: (714) 937-0755
www.envirocheck.com
(800) 665-7586

LIMITED LEAD-BASED PAINT SURVEY

Inspection Date: 01/17/2023
Report Date: 01/26/2023

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

Location: UC Riverside – Parking Lot # 19
PO #: SC11174513
900 University Avenue
Riverside, CA 92521

1.0 Introduction

A limited lead-based paint (LBP) inspection was conducted by Envirocheck, Inc. at the subject property located listed above.
The purpose and objective of the inspection was a pre renovation survey on the selected surfaces and/or materials determined by the client as listed on the laboratory report. The scope of this limited lead-based paint (LBP) inspection included the collection of XRF readings of the selected accessible painted components on the above listed subject property as described above.

2.0 Sampling Methodology

Appropriate calibration readings were obtained during the course of the inspection pursuant to the Performance Characteristic Sheet (PCS) provided by the manufacturer of the XRF Spectrum Analyzer device. The inspection was conducted by Larry Cornejo, a State of California Department of Public Health Certified Inspector/Risk Assessor No. LRC-00002685. A Heuresis/Viken, Serial No. 1607 was utilized.

3.0 Overview of Historical Data

No historical data or surveys were supplied as of the time of this inspection.

4.0 Conclusions

- Lead was not detected in amounts at or above the EPA, HUD, and Department of Public Health (CDPH) level of 1.0 mg/cm2 (specifically defined as 'Lead-Based-Paint'); therefore the tested materials that resulted below said action level(s) are not regulated by HUD, CDPH, EPA, or EPA's RRP rule for contractors performing renovation. OSHA regulations relating to worker exposure may apply for all tasks governed by OSHA's Lead in Construction standard (29 CFR 1926.62) involving paints having any level of lead, employers must comply with the assessment measures and any applicable protections of that standard.

5.0 XRF Results

** See Appendix A

6.0 References

EPA 40 CFR Part 745 [EPA-HQ-OPPT-2005-0049; FRL-8355-7] RIN 2070-AC83 Lead; Renovation, Repair, and Painting Program “Title X” - “Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing,” U.S. Department of Housing and Urban Development, 1997 Revision Title 17, California Code of Regulations (CCR), Division 1, Chapter 8 "Accreditation, Certification and Work Practices in Lead-Related Construction,” Final Version: Filed January 8, 1999, Title 8, California Code of Regulations (CCR), Construction Safety Orders (Cal-OSHA) Section 1532.1, Lead in Construction Title 22, California Code of Regulations (CCR), Chapter 12, Standards Applicable to Generators of Hazardous Waste Federal Standards 29 (CFR) Code of Federal Regulations, Part 1926, Subpart D-1926.62, Lead Federal Standards 40 (CFR) Code of Federal Regulations, Part 745

7.0 Limitations

The findings set forth in this assessment are strictly limited to the time, date and scope of the evaluation and to the condition of the subject property as found at the time of the inspection. Future conditions may differ from those described herein and this report is not intended for use in future evaluations of the conditions of the subject structure being evaluated. Changes in the applicable standards may occur as a result of legislation or by other means, in which case the current evaluation may be rendered inadequate. The results and conclusions of this investigation are based on analytical testing, field observations, and in part but not limited to "Title X" -
"Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing," U.S. Department of Housing and Urban Development, 1997 Revision; Title 17, California Code of Regulations (CCR), Division 1, Chapter 8 "Accreditation, Certification and Work Practices in Lead-Related Construction," Final Version: Filed January 8, 1999; Title 8, California Code of Regulations (CCR), Construction Safety Orders (Cal-OSHA) Section 1532.1, Lead in Construction; Title 22, California Code of Regulations (CCR), Chapter 12, Standards Applicable to Generators of Hazardous Waste; Federal Standards 29 (CFR) Code of Federal Regulations, Part 1926, Subpart D-1926.62, Lead; Federal Standards 40 (CFR) Code of Federal Regulations, Part 745; and Federal Standards 24 (CFR) Code of Federal Regulations, Part 35, EPA 40 CFR Part 745 [EPA-HQ-OPPT-2005-0049; FRL-8355-7] RIN 2070-AC83 Lead; Renovation, Repair, and Painting Program and not on any procedures beyond the scope of the agreed upon work. Even so, local, county, or other, more stringent regulations may apply; the appropriate local and/or regional agencies should be consulted prior to initiating any action. Instructions including, but not limited to, procedures, conclusions, recommendations, and specifications, offered to the client, (person(s), or entity) who may utilize this report, are only opinions made in an effort to assist the client with their decision making process. Variations in the composition of materials that appear similar may occasionally occur; therefore analytical results arising from the same testing procedures may vary by sample site location. Envirocheck, Inc. cannot guarantee the assessment of materials and/or substrate that are hidden, inaccessible, and/or indistinguishable.
Certain information contained in this report may have been rightfully provided to Envirocheck, Inc., and its assigns, by the Client or other outside sources. Envirocheck, Inc., and its assigns, do not make any warranties or representations, whether expressed or implied, regarding the accuracy of such information, and shall not be held accountable or responsible in the event that any such inaccuracies are present.

Report prepared by:
Envirocheck, Inc.

Michael Powers
State of California, CDPH Certified
Inspector/Risk Assessor # LRC-00002583

Appendix A

NOTE: "Pos" or "Positive" means that the XRF result is at or above the action level.

NOTE: A "Neg" or "Negative" result does not indicate a zero level of lead present in the sample, a "Neg" result means that the XRF result is below the action level of EPA, HUD, and CDPH as it related to lead based paint.

NO	COMPONENT	SUBSTRATE	SIDE	CONDITION	ROOM TYPE	RESULTS	PbC
	Calibrate						1.00
	Calibrate						1.00
	Calibrate						1.00
1	Parking Stripes - White	Asphalt	C	Intact	Parking Lot 19	Negative	0.20
2	Parking Stripes - Blue	Asphalt	C	Intact	Parking Lot 19	Negative	0.30
3	Curb - Red	Concrete	C	Intact	Parking Lot 19	Negative	0.30
4	Curb - Red	Concrete	C	Intact	Parking Lot 19	Negative	0.60
	Calibrate						0.90
	Calibrate						1.10
	Calibrate						0.80

State of California—Health and Human Services Agency | California Department of Public Health

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation: 01/17/2023

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☐ Lead Inspection ☐ Risk Assessment ☐ Clearance Inspection ☑ Other (specify): Limited Lead Inspection

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
900 University Avenue	Riverside	Riverside	92521

Construction date (year) of structure	Type of structure	Children living in structure?
1961	☐ Multi-unit building ☐ School or daycare ☐ Single family dwelling ☑ Other: University	☐ Yes ☑ No ☐ Don't know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
University of California Riverside - Parking Lot #19	Melissa Garrety (951)827-7376

Address [number, street, apartment (if applicable)]	City	State
900 University Avenue	Riverside	CA

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☑ No lead-based paint detected ☐ Intact lead-based paint ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☐ Other:

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Michael Powers	(714) 937-0750

Address [number, street, apartment (if applicable)]	City	State	Zip Code
2211 W Orangewood Ave	Orange	CA	92868

CDPH certification number	Signature	Date
LRC-00002583		01/26/23

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Larry Cornejo (LRC-00002685)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specific locations of each lead hazard or presence of lead-based paint;

B. Each testing method, device, and sampling procedure used;

C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

Appendix B

Field Datasheet

Client: UCR PLANNING DESIGN CONSTRUCT Job Site: UCR - PARKING LOT 19
MELISSA GARRETY 900 UNIVERSITY AVE
RIVERSIDE 92521
DATE: 1-17-23
TIME: 0900
Inspector: LARRY

Purpose of Inspec. *Fire Water* (Reno/Demo) *Clearance Contam. Assess* Other_____ **Occupied?** *Yes* (No)
Children: *Yes* (No) *Unknown*

Structure: *SFH Apt. Condo Commercial* (School) *Day Care Church* Other_____

Year Built: 1961 **Approx. SQ. FT.:** 10,000 **No. of Stories:** 1 **Foundation:** *Raised* (Slab)

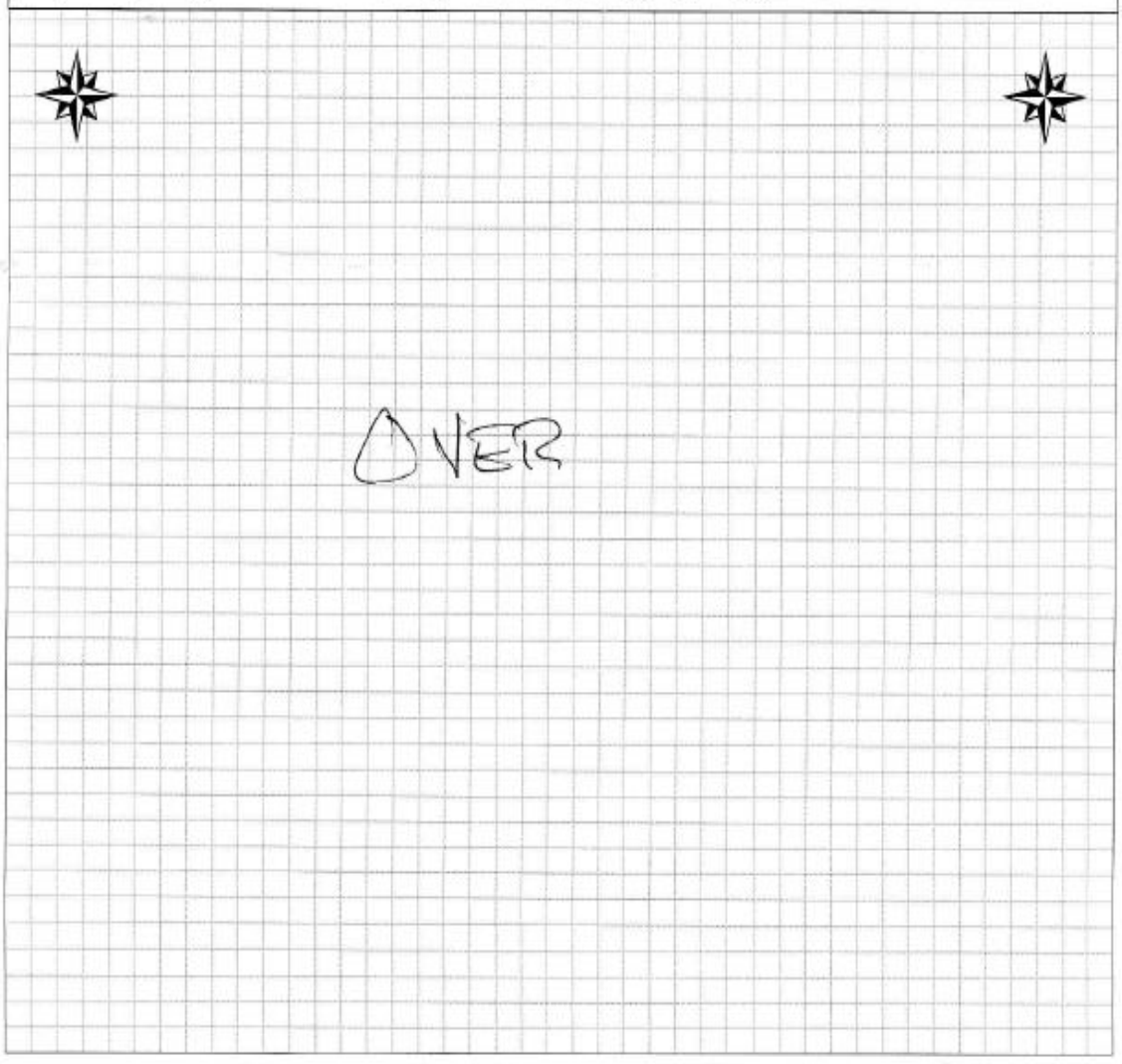
EXT: *G D SD* **Type:** *STC Metal Concrete Tilt-up Concrete Block Brick Siding Wood/Transite* Other: N/A

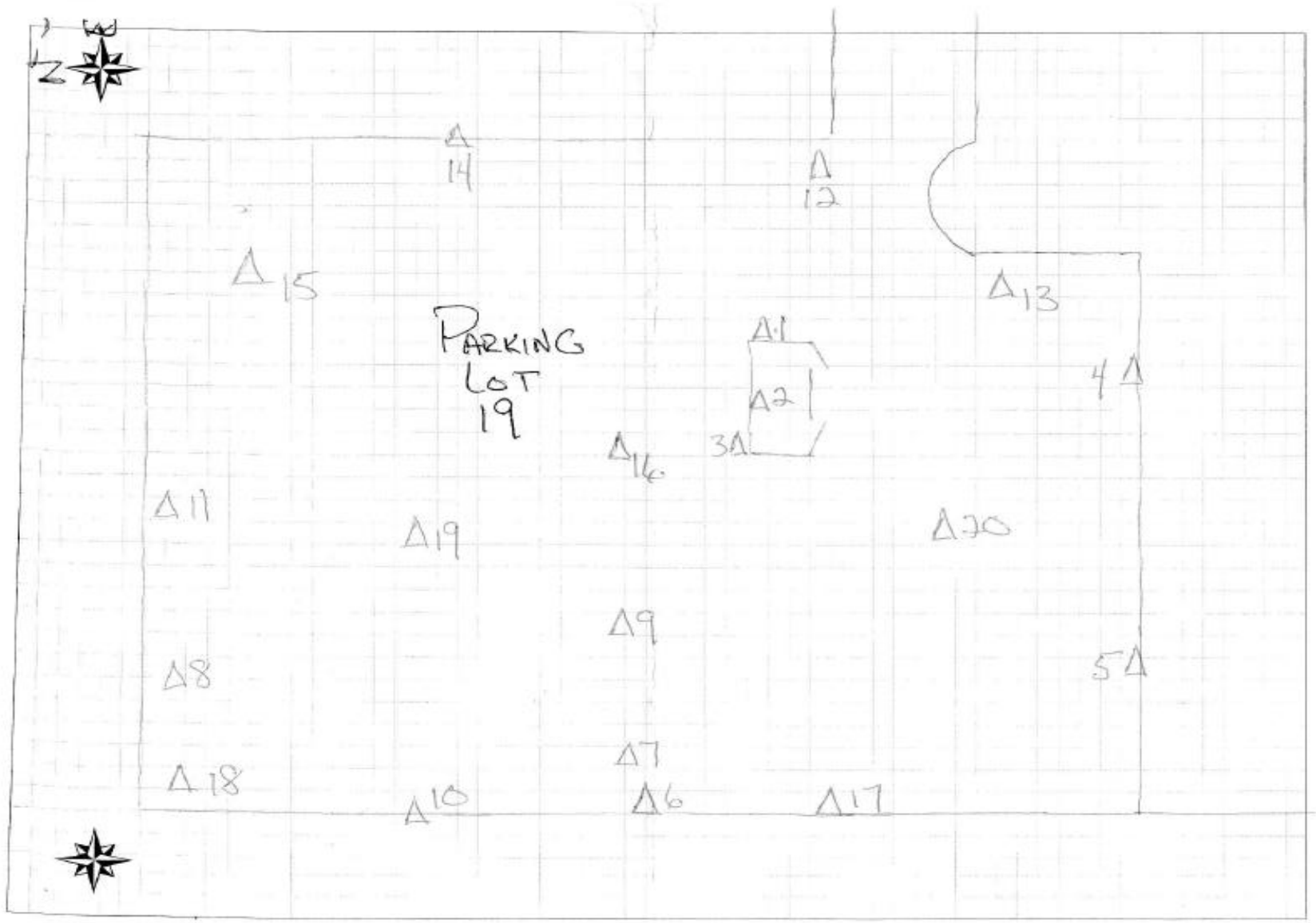
ROOF: *G D SD* **Type:** *Comp. Shingle Tile RRM Wood Shake Rock-Tar Transite Shingle* Other: N/A

Exterior Debris Pile(s): *Yes* (No *If Yes or Damage Submit Notes*) **Air Handling:** *HVAC Wall/Floor Frnce Wndw AC* Other: N/A

XRF: *Heuresis, Viken,* or *NITON* Cal Readings 1.0 1.0 1.0 End Cal Readings 98 1.1 .88 A/L 1.0

Diagram Legend : △ = Asbestos Bulk Samples ○ = Positive Lead Reading □ = Other_____

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Appendix F

Site Noise Measurement Report

To	Shawna Upp / AC Martin Shawna.upp@acmartin.com	Project number	2023123_UCR UTLF_050123
cc	Sean Bui / AES	File reference	
From	Amir Yazdanniyaz	Date	May 1, 2023
Subject	UCR UTLF – Site Noise Measurement Report – Results		

On 4/18/2023, AES visited the University of California, Riverside campus (UCR), to perform ambient (background) noise measurement at the site of the future Undergraduate Teaching & Learning Facility, UTLF (Project Site), as well as at the interior of a selected UCR Classrooms. The purpose of the noted site noise measurements is twofold:

I. Document existing outdoor noise environment at the UTLF project site, and

II. Measure, and use as baseline information, the current background sound levels at a selected UCR classrooms, with functions similar to the proposed UTLF.

Outdoor Noise Levels (existing ambient)

Outdoor ambient noise levels were measured at three (3) locations within the project site; west, north, and east boundary lines. Noise data was recorded during the peak-hour traffic, as well as during midday. Midday noise measurements include noise emissions from the athletic practices at the nearby soccer and softball fields north of the project site.

Interior Noise Levels

Existing HVAC system background noise levels were measured at Campbell Hall building Biology Lab (Rm. #101), the Science Labs building Chemistry Labs (Rms. #105 and #106), and at the Student Success Center building Lecture Hall (Rm. #235). In addition, room Reverberation Time (RT) was also measured at the Lecture Hall #235.

Measurements Results

Measured noise levels and measurement locations are depicted on the Project Site, attached with this memo.

In-brief:

The Project site's existing ambient sound levels range from 57dBA to 62dBA, recorded during peak hour traffic at the nearby roadways. The existing ambient noise levels do not seem to trigger significant sound insulations measures to be used for the new UTLF building shell structure. A standard building constructions system, including the building exterior windows and the doors, should suffice for the UTLF future programs.

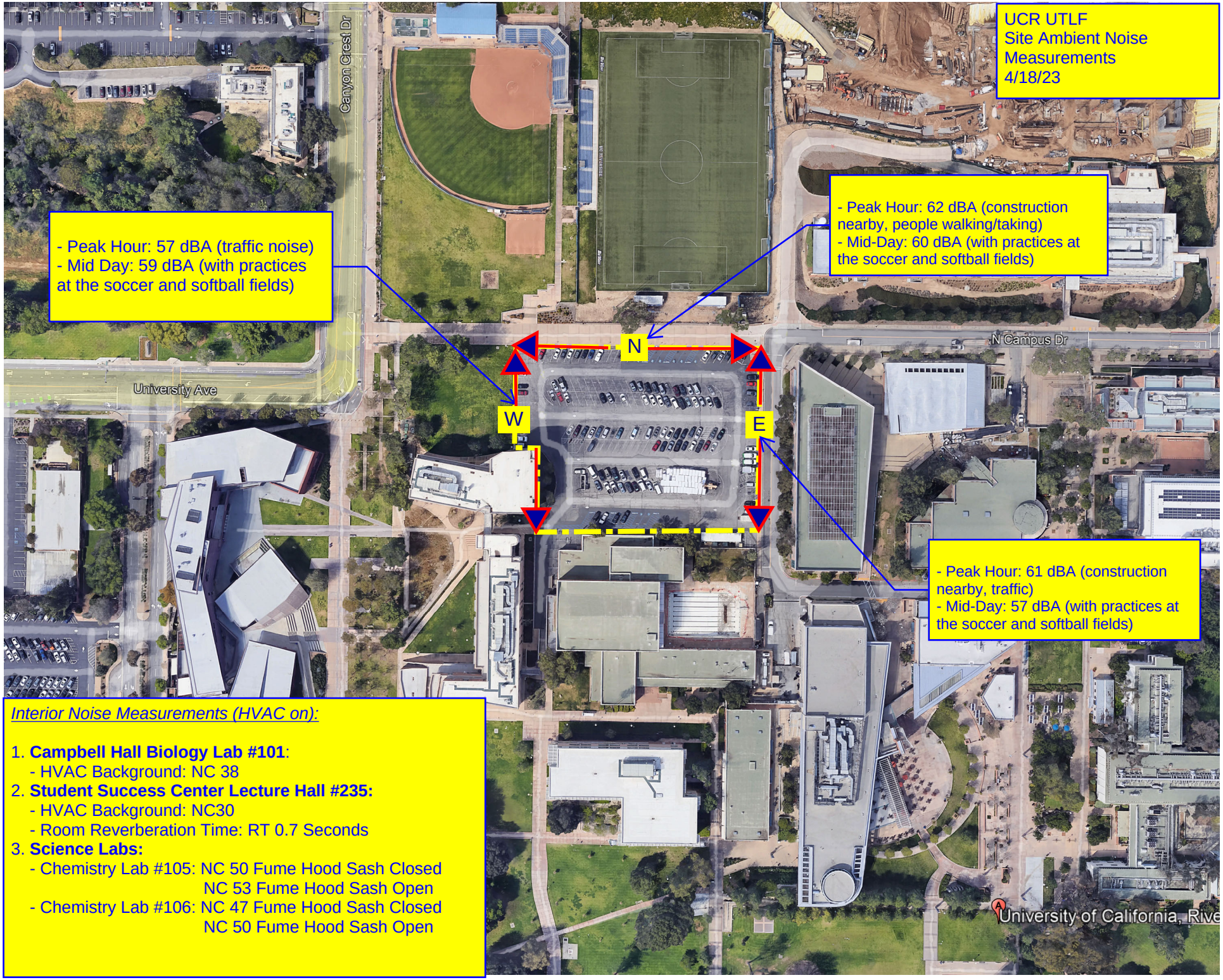
Background noise measurements taken at the existing Chemistry Labs range from NC50 (with Fume Hoods sash closed) to NC53 (with Fume Hoods sash open). At the Biology Lab, where there is only one Fume Hood (and the hood was not in operation during our site measurements), background noise level was recorded as NC38.

At the Student Success Center Lecture Hall, the exiting HVAC systems noise level was measured NC30, this is appropriate design criterion for the HVAC system for the future UTLF project.

Furthermore, to establish the Lecture Hall room acoustic performance quality, with respect to support of speech/ communication; the room existing reverberation time (RT) was measured. The Lecture Hall current RT was recorded as RT 0.7 second. Typically, RT is a reasonable measure of the room's acoustical performance, it defines the room finishes. High RT value would suggest the room has little sound absorption treatment. While, the low RT value, like the one was measured at the existing Lecture Hall, indicates the room has a significant volume of sound absorptive treatments.

Conclusions:

Measured acoustics data, as reported above will be utilized as a Basis of Design and will be included in the UTLF Project HVAC system design and the room finishes specifications.



Interior Noise Measurements (HVAC on):

1. **Campbell Hall Biology Lab #101**:
   - HVAC Background: NC 38
2. **Student Success Center Lecture Hall #235:**
   - HVAC Background: NC30
   - Room Reverberation Time: RT 0.7 Seconds
3. **Science Labs:**
   - Chemistry Lab #105: NC 50 Fume Hood Sash Closed
     NC 53 Fume Hood Sash Open
   - Chemistry Lab #106: NC 47 Fume Hood Sash Closed
     NC 50 Fume Hood Sash Open